

# Government Information (Public Access) Act 2009

## Explanatory Table

### Sydney Metro City & Southwest – SSJ Amendment Deed for the Sydenham Station and Junction Works Incentivised Target Cost Contract

#### Contract Number: 410

Capitalised terms in this table have the meaning given to them in the SSJ Amendment Deed, unless the context indicates otherwise.

In preparing this explanatory table (**Explanatory Table**), the Principal has:

- (a) identified the reason(s) under the *Government Information (Public Access) Act 2009* (NSW) (**GIPA Act**) for each redaction; and
- (b) weighed each redaction against the following key public interest considerations for disclosure:
  - (i) promoting open discussion of public affairs, enhancing Government accountability or contributing to positive and informed debate on issues of public importance;
  - (ii) creating public awareness and understanding on issues of public importance;
  - (iii) enhancing government transparency and accountability;
  - (iv) informing the public about the operations of the agency;
  - (v) ensuring effective oversight of the expenditure of public funds and the best use of public resources; and
  - (vi) ensuring fair commercial competition within the economy.



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
1.	Execution page of the general conditions to the SSJ Amendment Deed	The information redacted is the execution clauses.	<p><i>Section 32(1)(d), item 3(a) of the table in section 14</i></p> <p>The disclosure of this information would reveal an individual's personal information.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information would disclose personal information of individuals, including names and signatures.</p> <p>The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.</p>
2.	Schedule 1, Clause 1.1, Definition of 'At-Risk Amount'	The information redacted is the definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out detail in respect of the Principal's right to withhold payment of an amount in circumstances where the Target Cost Offer is not acceptable to the Principal;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the At-Risk Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
3.	Schedule 1, Clause 1.1, Definition of 'Compensable Contamination Work'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the type of work covered by a specific cost mechanic in the SSJ Contract;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
4.	Schedule 1, Clause 1.1, Definition of 'Design Fee (Delivery Phase) Element'	The information redacted is the definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines where the definition of the Design Fee (Delivery Phase) Element;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing commercial framework agreed between the Principal and the SSJ Contractor; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
5.	Schedule 1, Clause 1.1, Definition of 'Design Fee (Delivery Phase) Element Adjustment Event'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the events which entitle the SSJ Contractor to an adjustment to the Design Fee (Delivery Phase) Element;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
6.	Schedule 1, Clause 1.1, Definition of 'Design Fee (Signalling)'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines that the definition of Design Fee (Signalling);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
7.	Schedule 1, Clause 1.1, Definition of 'Design Fee (Signalling) Contract Upper Limiting Fee'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines that the definition of the Design Fee (Signalling) Upper Limiting Fee;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
8.	Schedule 1, Clause 1.1, Definition of 'Design Fee (Target Cost Development Phase)'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Design Fee (Target Cost Development Phase);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
9.	<p>Schedule 1, Clause 1.1, (g), (h), (q), (r), (s), (t), (u), (v), (w), (x), (y), (z), (aa), (bb), (cc) Definition of 'Extension Event'</p>	<p>The information redacted is paragraphs.</p>	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions.</p> <p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c)</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a number of project-specific grounds under which the SSJ Contract will be entitled to an extension of time for the Project Works;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to a number of key risks that may delay the Project Works, and therefore the level of risk that the SSJ Contractor was willing to price and accept. Exposing this information may provide insight into the SSJ Contractor's views on the likelihood of certain risks arising;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions; and</li> </ul>



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			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>d) the public interest has been served by disclosing market-standard delay events. In light of this disclosure there is an overriding public interest against the disclosure of the redacted delay events.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
10.	Schedule 1, Clause 1.1, Definition of 'Management Fee (Delivery Phase)'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c)</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Management Fee (Delivery Phase);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</li> </ul>

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			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
11.	Schedule 1, Clause 1.1, Definition of 'Management Fee (Delivery Phase) Adjustment Event'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c)</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the events which entitle the SSJ Contractor to an adjustment to the Management Fee (Delivery Phase);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</li> </ul> <p>Therefore the disclosure of the information could reduce the</p>

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			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
12.	Schedule 1, Clause 1.1, Definition of Management Fee (Target Cost Development Phase)'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c)</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Management Fee (Target Cost Development Phase);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</li> </ul>

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			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
13.	Schedule 1, Clause 1.1, Definition of 'Management Fee (Provisional Sums)'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c)</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines that cost structure in respect of Provisional Sums;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</li> </ul> <p>Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</p>

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			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
14.	Schedule 1, Clause 1.1, Definition of 'Maximum Amount'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Maximum Amount;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</li> </ul> <p>Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</p>

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			<p>14</p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
15.	Schedule 1, Clause 1.1, (a) and (b) Definition of 'Permitted Variation'	The information redacted are dollar amounts.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out value thresholders of subcontract that qualify as Permitted Variations; and</li> <li>b) the SSJ Contractor is still in the process of engaging subcontractors. If the redacted dollar amounts were disclosed, potential subcontractors may be able to use that information to their advantage in negotiations with the SSJ Contractor, thereby prejudicing the SSJ Contractor's negotiating position. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

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			<p>14</p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
16.	Schedule 1, Clause 1.1, Definition of 'Preliminaries Fee (Delivery Phase)'	The information redacted is a dollar amount in the deleted definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out detail in respect of the maximum amount which the Principal is willing to accept for a Target Cost Offer under the SSJ Contract;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
17.	Schedule 1, Clause 1.1, Definition of 'Preliminaries Fee (Delivery Phase)'	The information redacted is the entire new definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Preliminaries Fee (Delivery Phase);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
18.	<p>Schedule 1, Clause 1.1, Definition of 'Preliminaries Fee (Delivery Phase) Adjustment Event'</p>	<p>The information redacted is the entire definition.</p>	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the events which entitle the SSJ Contractor to an adjustment to the Preliminaries Fee (Delivery Phase);</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
19.	Schedule 1, Clause 1.1, Definition of Preliminaries Fee (Target Cost Development Phase)'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>d) the redacted information outlines the definition of Preliminaries Fee (Target Cost Development Phase);</li> <li>e) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>f) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
20.	Schedule 1, Clause 1.1, Definition of 'Provisional Sum Work'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines that categories of work which are included as Provisional Sums;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
21.	Schedule 1, Clause 1.1, Definition of 'Public Art Enabling Work'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the type of work covered by a specific cost mechanic in the SSJ Contract;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
22.	Schedule 1, Clause 1.1, Definition of 'Reimbursable Cost Element'	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out detail in respect of the maximum amount which the Principal is willing to accept for a Target Cost Offer under the SSJ Contract;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
23.	<p>Schedule 1, Clause 1.1, Definition of 'Reimbursable Cost Element Adjustment Event'</p>	<p>The information redacted is the entire definition.</p>	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the events which entitle the SSJ Contractor to an adjustment to the Reimbursable Cost Element;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
24.	Schedule 1, Clause 1.1, Definition of 'Self-Performed Margin'	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Self-Performed Margin;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
25.	Schedule 1, Clause 1.1, Definition of 'Target Cost'	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out detail in respect of the maximum amount which the Principal is willing to accept for a Target Cost Offer under the SSJ Contract;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
26.	<p>Schedule 1, Clause 1.1, Definition of 'Target Cost Development Phase Site Investigations Fee'</p>	<p>The information redacted is the entire definition.</p>	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the definition of Target Cost Development Phase Site Investigations Fee;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
27.	Schedule 1, Clause 1.1, Definition of 'Target Cost Offer Expert'	The information redacted is the individuals name and the associated entity.	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information is the names of individual persons and the entities from which they are employed.</p> <p>The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.</p>	<p><i>Section 32(1)(d), item 3(a) of the table in section 14</i></p> <p>The disclosure of this information would reveal an individual's personal information.</p> <p>There is an overriding public interest against disclosure.</p>
28.	Schedule 1, Clause 1.1,	The information redacted is the	<i>Section 32(1)(a), paragraphs (b) and (e) of the definition of</i>	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
	Definition of a commercially sensitive mechanism relating to the Target Cost Offer	entire definition.	<p><i>"commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the Target Cost Offer and the Principal's acceptance of a Target Cost Offer. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
29.	Schedule 1, Clause 1.1, Definition of a	The information redacted is the entire definition.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
	commercially sensitive mechanism relating to the Target Cost Offer		<p><i>provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</p> <p>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
30.	Clause 1.1, Definition of 'Unknown Utility	The information redacted is the entire definition.	<i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of</i>	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
	Services Works'		<p><i>Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>a) the redacted information outlines the type of work covered by a specific cost mechanic in the SSJ Contract;</p> <p>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
31.	Schedule 1, Clause 3.1(a)(ii)(A), General	The information redacted is a dollar amount.	<i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of</i>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <p>a) the redacted information sets out detail in respect of the</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p><i>Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>maximum amount which the Principal is willing to accept for a Target Cost Offer under the SSJ Contract;</p> <p>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
32.	Schedule 1, Clause 3.6, Third Party Agreements	The information redacted is the entire clause.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>(a) the information redacted set out the rights and obligations of</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>of the agency's functions.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>the parties in relation to the Third Party Agreements;</p> <p>(b) the Principal is still in the process of negotiating the Third Party Agreements. If the redacted information were disclosed, third parties may be able to use that information to their advantage in negotiations with the Principal, thereby prejudicing the Principal's negotiating position; and</p> <p>(c) in doing so, revealing the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
33.	Schedule 1, Clause 4.1, Target Cost Development Phase only	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <p>a) the redacted information sets out detail in respect of the maximum amount which the Principal is willing to accept for a Target Cost Offer under the SSJ Contract;</p> <p>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
34.	Schedule 1, Clauses 4.2(c), (d) and (e), Requirements for the Target Cost Offer	The information redacted is the entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c)</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible</li> </ul>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
35.	Schedule 1, Clause 4.3(e)(i), Target Cost Offer Process	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a threshold monetary difference between the Principal's Modified Target Cost Offer, and the SSJ Contractor's Target Cost Offer, which triggers the commencement of the Delivery Phase;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Principal's Modified Target Cost Offer in circumstances where it differs from the SSJ Contractors Target Cost Offer. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>14</p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
36.	Schedule 1, Clause 4.3(e)(ii), Target Cost Offer Process	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a threshold monetary difference between the Principal's Modified Target Cost Offer, and the SSJ Contractor's Target Cost Offer, which triggers the commencement of a Target Cost Offer Dispute;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was not willing to accept in relation to the work in light of the Principal's Modified Target Cost Offer in circumstances where it differs from the SSJ Contractors Target Cost Offer. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
37.	Schedule 1, Clause 4.3(g)(iii), Target Cost Offer Process	The information redacted is the exclusion of payment of the At-Risk Amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out detail in respect of the Principal's right to withhold payment of an amount in circumstances where the Target Cost Offer is not acceptable to the Principal and the SSJ Contract is terminated;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the At-Risk Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
38.	Schedule 1, Clauses 5.2(a), 5.2(b), 5.3(a), 5.3(b), 5.4(b), 5.5 and 5.6(a), Changes to Target Cost	The information redacted are the methods of determining adjustments to the fees included in the Target Cost.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines how adjustments to the SSJ Contractor's fees are determined in circumstances where the deed contemplates an adjustment to such fees;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
39.	Schedule 1, Clause 6.1(b), Unconditional Undertakings	The information redacted is a percentage and number.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the percentage of the Target Cost that the SSJ Contractor must provide to the Principal as an unconditional undertaking, as well as the number of unconditional undertakings;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor of default events, and therefore the level of risk that the SSJ Contractor was willing to price and accept in relation to those events. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of default events arising;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</p> <p>d) the public interest has been served by revealing the fact that an unconditional undertaking is required from the SSJ Contractor. In light of the disclosure of this information there is an overriding public interest against the disclosure of the precise amount of the undertaking.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
40.	Schedule 1, Clause 6.4(a)(i), Release of unconditional undertakings	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out the amount of the unconditional undertaking that the Principal can withhold after 20 Business Days after the Date of Completion of the last Portion to reach Completion;</p> <p>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the rectification of defects after the Date of Completion of the last Portion to reach Completion, and therefore the level of risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of ongoing defects arising;</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</p> <p>d) the public interest has been served by revealing the fact that an unconditional undertaking is required from the SSJ Contractor. In light of the disclosure of this information there is an overriding public interest against the disclosure of the precise percentages.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
41.	Schedule 1, Clauses 7.3(a)(ii)(B) and 7.3(a)(iii)(A)(bb) , Change in Codes and Standards	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments for complying with a Change in Codes and Standards;</p> <p>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
42.	Schedule 1, Clauses 7.4(a)(i) and 7.4(b)(i), Change in Law	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments for complying with a Change in Law;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</li> </ul> <p>Therefore the disclosure of the information could reduce the</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
43.	Schedule 1, Clause 7.5(a), Changes to Planning Approval	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments for complying with a Change in Planning Approval;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
44.	Schedule 1, Clause 7.6(b), Legal Challenge to Planning Approval	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of a Legal Challenge to Planning Approval;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
45.	Schedule 1, Clause 8.1(e)(ii), Access	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of a failure by the Principal to give access under clause 8.1 of the contract;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
46.	Schedule 1, Clauses 8.8(c)(iv) and 8.8(d), Latent Conditions	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of Latent Conditions;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors.</li> </ul> <p>Therefore the disclosure of the information could reduce the</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
47.	Schedule 1, Clause 8.10(f), Compensable Contamination Work	The information redacted is the entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information outlines the type of work covered by a specific cost mechanic in the SSJ Contract;</li> <li>b) the disclosure of the redacted information would provide insight on the SSJ Contractor's cost structure by revealing the types of costs and margins for which the SSJ Contractor is to be compensated; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
48.	Schedule 1, Clause 8.11(d)(i), Artefacts	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of compliance with requirements of Authorities and Law, or with directions of the Principal's Representative as a result of a discovery of an Artefact;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
49.	Schedule 1, Clauses 8.12(b), (c) and (d), Utility Services	The information redacted are entire paragraphs.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions.</p> <p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the responsibilities of the parties in relation to the discovery of certain Utility Services and the cost treatment of specific Utility Services;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to specific Utility Services, and therefore the level of risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of certain risks concerning utility works arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could prejudice the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
50.	Schedule 1, Clause 8.21(b), Indemnity for delays to rail services	The information redacted is the entire paragraph.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out limitations on the SSJ Contractor's liability in connection with a particular event;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the occurrence of that particular event. Exposing this information may provide insight into the SSJ Contractor's views on the likelihood of that key risk arising; and</li> </ul>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise of the Principal's functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
51.	Schedule 1, Clause 10.8 (n), Configuration Change Acceptance Notice	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of a Configuration Change Acceptance Notice not being issued in accordance with clause 10.8(m) of the SSJ Contract;</p> <p>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
52.	Schedule 1, Clause 10.15 – Design Life	The information redacted is the entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets the SSJ Contractor's liability in respect of the design lives of specific parts of the Project Works; and</p> <p>b) exposing the redacted information would also reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the design lives of specific parts of the Project Works, and therefore the level of risk that the SSJ Contractor was willing to price and accept;</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>c) the length of time that claims may be made with respect to design life was also a key part of the proposal for the SSJ Contractor. The time periods provide lucidity on the contractor's capabilities, and that information is expected to be used by the SSJ Contractor in the future; and</p> <p>d) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests;.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
53.	Schedule 1, Clause 11.1(c)(i), Changes	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments in anticipation of carrying out a proposed Change;</p> <p>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>key events arising; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
54.	Schedule 1, Clause 11.2(a), Change Orders	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments in anticipation of carrying out a proposed Change;</p> <p>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>key events arising; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
55.	Schedule 1, Clauses 11.5(c)(i)(E)(aa), 11.5(e) and 11.5(g), SSJ Contractor may propose Change	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments in anticipation of carrying out an SSJ Contractor proposed Change;</p> <p>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>Contractor's views on its potential capabilities and likelihood of key events arising; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
56.	Schedule 1, Clauses 12.2(ii), Subcontract Proposal	The information redacted are dollar amounts.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out the value of a subcontract that qualifies for the application of the subcontracting tender processes required by the Principal under the SSJ Contract; and</p> <p>b) the SSJ Contractor is still in the process of engaging subcontractors. If the redacted dollar amounts were disclosed, potential subcontractors may be able to use that information to their advantage in negotiations with the SSJ Contractor, thereby prejudicing the SSJ Contractor's negotiating position.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
57.	Schedule 1, Clause 12.7(h), Subcontracts	The information redacted is the entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the SSJ Contractor's entitlement to an adjustment to the Maximum Amount and the Design Fee (Signalling) Contract Upper Limiting Fee for specified variations under the Design Work (Signalling) Contract;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>provide insight on the SSJ Contractor's capabilities; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
58.	Schedule 1, Clause 12.14(j)(i)(A), Reimbursable Work by SSJ Contractor or Related Body Corporate	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out the value of a subcontract that qualifies for the application of the subcontracting tender processes required by the Principal under the SSJ Contract; and</p> <p>b) the SSJ Contractor is still in the process of engaging subcontractors. If the redacted dollar amounts were disclosed, potential subcontractors may be able to use that information to their advantage in negotiations with the SSJ Contractor, thereby prejudicing the SSJ Contractor's negotiating position.</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
59.	Schedule 1, Clauses 12.16(e), 12.6(f) and 12.6(g), Vertical Transportation	The information redacted are the entire clauses.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>(a) the information redacted set out the rights and obligations of the parties in relation to the DSI Contracts;</p> <p>(b) the Principal is still in the process of procuring a VT Contractor and finalising the terms of the DSI Contracts. If the redacted information were disclosed, third parties may be able to use that information to their advantage in negotiations with the Principal, thereby prejudicing the Principal's negotiating position; and</p> <p>(c) in doing so, revealing the information could prejudice the</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
60.	Schedule 1, Clauses 12.17(d) and 12.17(e), Provisional Sum Work	The information redacted is the SSJ Contractor's payment entitlements.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information itemises the SSJ Contractor's payment entitlements in respect of specific categories of Provisional Sum Work;</li> <li>b) the redacted information is commercial-in-confidence as its disclosure would provide visibility on the SSJ Contractor's profit margins in relation to the Provisional Sum Work; and</li> <li>c) disclosure of the redacted information may provide insight on how the SSJ Contractor priced and accepted the Provisional Sum Work for the project. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor may have to negotiate or bid against. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
61.	Schedule 1, Clause 12.21, Track Possession or Temporary Shutdown Staff	The information redacted is an entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
62.	Schedule 1, Clause 14.27(c), Independent Property Impact Assessment Panel	The information redacted is an entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the obligation to pay the costs of the Independent Property Impact Assessment Panel;</li> <li>b) the redacted information is commercial-in-confidence as its disclosure would provide visibility on the SSJ Contractor's profit margins in relation to the contract; and</li> <li>c) disclosure of the redacted information may provide insight on how the SSJ Contractor priced and accepted its costs for the project. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor may have to negotiate or bid against. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
63.	Schedule 1, Clauses 15.13(b)(i)(B), 15.13(b)(ii)(B) and 15.13(b)(ii)(C), Suspension	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of the Principal Representative's direction to suspend;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
64.	Schedule 1, Clauses 15.14(c) and 15.15(d), Compression	The information redacted is the SSJ Contractor's entitlement to fee adjustments.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's entitlement to fee adjustments as a result of compression;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key risks, and therefore the risk that the SSJ Contractor was willing to price and accept. Exposing this information may also provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of key events arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
65.	Schedule 1, Clause 15.14(h), Compression	The information redacted is an entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out sensitive information regarding the SSJ Contractor's obligation to compress the SSJ Contractor's Activities;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the occurrence of a particular event under the extension of time regime, and therefore the level of risk that the SSJ Contractor was willing to price and accept; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
66.	Schedule 1, Clause 16.1(a)(ii)(I) (deleted paragraph), Principal's payment obligation for design and construction	The information redacted is the term redacted under item 28 of this table.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
67.	Schedule 1, Clause 16.2(b)(i)(A)(ii) (deleted paragraph), Payment Claims	The information redacted is the term redacted under item 28 of this table.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
68.	Schedule 1, Clause 16.2(g)(ix) (deleted paragraph), Payment Claims	The information redacted is the term redacted under item 28 of this table.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
69.	Schedule 1, Clause 16.4(a) and (b) – Provision of documentation and other requirements	The information redacted is percentages.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information identifies the percentage of the amount set out in the payment schedule that the Principal is obliged to pay the SSJ Contractor if the SSJ Contractor has not complied with the conditions listed in clause 16.4(a) or 16.4(b);</li> <li>b) the purpose of the clause is to incentivise the SSJ Contractor to provide all documents and achieve the other requirements set out in clause 16.4(a) and (b). The redacted information reflects a negotiated amount which the SSJ Contractor has priced and accepted;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the existence of a reduced obligation on the Principal to pay the SSJ Contractor the amount set out in a payment schedule if the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>SSJ Contractor fails to satisfy its obligations set out under clause 16.4(a) or 18.4(b). In light of this disclosure there is an overriding public interest against the disclosure of the precise percentage.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
70.	Schedule 1, Clause 16.9, Interest	The information redacted is the percentage and interest rate.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out detail in respect of the SSJ Contractor's entitlement to payment of interest on amounts unpaid, damages and amounts to be paid after resolution of a Dispute;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to amounts unpaid, damages and amounts to be paid after resolution of a Dispute. It may also provide insight on the SSJ Contractor's capabilities;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
71.	Schedule 1, Clause 16.12(b), Outturn Cost Exceeds Target Cost	The information redacted is the term Management Fee.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out limitations on the SSJ Contractor's liability in connection with a particular event;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the occurrence of that particular event. Exposing this information may provide insight into the SSJ Contractor's views on the likelihood of that key risk arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise of the Principal's functions.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
72.	Schedule 1, Clause 16.13 (deleted), At-Risk Amount	The information redacted is the entire provision.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a commercial position agreed in respect of the SSJ Contractor's Target Cost Offer, which is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the At-Risk Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
73.	Schedule 1, Clause 16.13 (new), Payment to date	The information redacted is the entire provision.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the status of payments up to commencement of the Delivery Phase and is specific to the proposal submitted by the SSJ Contractor;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work during the Target Cost Development Phase. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>interests.</p> <p>There is an overriding public interest against disclosure.</p>	
74.	Schedule 1, Clause 17.6(d)(ii), Liquidated damages and indemnity for delay in achieving Construction Completion	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the daily limit on the indemnities provided by the SSJ Contractor in relation to Construction Completion;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key delay risks, in particular the risk that Construction Completion is not achieved by the relevant Date for Construction Completion. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of Construction Completion not being achieved by the relevant Date for Construction Completion;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the existence of the indemnities. In light of this disclosure there is an overriding public interest against the disclosure of the precise</li> </ul>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>dollar amount.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
75.	Schedule 1, Clause 18.2(b), Indemnity by the SSJ Contractor	The information redacted is the entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>d) the redacted information sets out limitations on the SSJ Contractor's liability in connection with a particular event;</li> <li>e) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the occurrence of that particular event. Exposing this information may provide insight into the SSJ Contractor's views on the likelihood of that key risk arising; and</li> <li>f) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise of the Principal's functions.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>interests.</p> <p>There is an overriding public interest against disclosure.</p>	
76.	<p>Schedule 1, Clause 18.7, Professional indemnity insurance</p> <p>Clause 18.8, Construction Plant insurance</p> <p>Clause 18.9, Motor vehicle insurance</p> <p>Clause 18.10, Periods of insurance</p> <p>Clause 18.11, Evidence of policies</p> <p>Clause 18.12, Provisions in policies</p> <p>Clause 18.13, General obligations</p> <p>Clause 18.14,</p>	<p>The information redacted are the entire clauses.</p>	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information concerns the insurance policies that the SSJ Contractor is required to effect and maintain, and includes the information on the scope and cover to be provided by the policies;</li> <li>b) exposing the redacted information would reveal the apportionment of insurance risk between the Principal and the SSJ Contractor in relation to its insurance obligations and insurance risk, and the level of insurance risk that the SSJ Contractor was willing to price and accept;</li> <li>c) the scope of the insurance that the Principal requires the SSJ Contractor to effect may be taken as an indication of the risk levels involved with the SSJ Contractor's obligations under the SSJ Contract. This may have signalling effects to the market and provide insight into the TSE Contractor's financial arrangements; and</li> <li>d) by revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
	<p>Premiums</p> <p>Clause 18.15, Undertaking to inform</p>		<p>interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>events and circumstances change.</p>
77.	<p>Schedule 1, Clause 19.4(c)-(d), Immediate Termination or Take-Out</p>	<p>The information redacted is a percentage of the Maximum Amount and the Target Cost.</p>	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out limitations on the SSJ Contractor's liability in connection with a particular event;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the occurrence of that particular event. Exposing this information may provide insight into the SSJ Contractor's views on the likelihood of that key risk arising; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise of the Principal's functions.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
78.	Schedule 1, Clause 21.1, Limitation of Liability	The information redacted is the entire clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out commercially sensitive information regarding the SSJ Contractor's total aggregate liability, including limits on the SSJ Contractor's aggregate liability;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to its liability under the SSJ Contract. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of the SSJ Contractor's being held liable for an event identified under clause 21.1;</li> <li>c) further, the redacted information sets out a unique arrangement to apportion and manage liability risk. Revealing this information may diminish the value of that information; and</li> <li>d) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			business and commercial interests.  There is an overriding public interest against disclosure.	<b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.
79.	Schedule 1, Clause 22.1(c), Notices generally	The information redacted are the names of individuals.	<i>Section 32(1)(d), item 3(a) of the table in section 14</i>  The disclosure of this information would reveal an individual's personal information.  There is an overriding public interest against disclosure.	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information would disclose personal information of individuals.  The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.
80.	Schedule 1, Clause 22.8(d), Indemnities to Survive	The information redacted is an entire clause.	<i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i>  The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.  <i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section</i>	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:  a) the redacted information sets out limits on the parties' liabilities under the SSJ Contract;  b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to the long term risks associated with the works, and therefore the level of risk that the SSJ Contractor was willing to price and accept. It would also provide insight on the SSJ Contractor's cost structure;  c) the length of time that claims may be made with respect to design life were a key part of the proposal for the SSJ Contractor. Those time periods provide lucidity on the contractor's capabilities, and that information is expected to

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>14</p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>be used by the SSJ Contractor in the future; and</p> <p>d) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
81.	Schedule 2, Schedule A1, Design Fee (Delivery Phase) Element	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out the value of the Design Fee (Delivery Phase) Element;</p> <p>b) exposing the redacted information would reveal the amount that the SSJ Contractor was willing to accept for the design work (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>14</p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
82.	Schedule 2, Schedule A1, Design Fee (Signalling) Contract Upper Limiting Fee	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section</i></p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the value of the Design Fee (Signalling) Contract Upper Limiting Fee;</li> <li>b) exposing the redacted information would reveal the amount that the SSJ Contractor was willing to accept for a specific element of the design work (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p><i>14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>parties' legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
83.	Schedule 2, Schedule A1, Environmental Representative	The information redacted is the name of the Environmental Representative.	<p><i>Section 32(1)(d), item 3(a) of the table in section 14</i></p> <p>The disclosure of this information would reveal an individual's personal information.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information is the names of individual persons.</p> <p>The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.</p>
84.	Schedule 2, Schedule A1, Executive Negotiators	The information redacted are the names of the Executive Negotiators.	<p><i>Section 32(1)(d), item 3(a) of the table in section 14</i></p> <p>The disclosure of this information would reveal an individual's personal information.</p> <p>There is an overriding public</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information is the names of individual persons.</p> <p>The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interest against disclosure.	disclosure as identified above.
85.	Schedule 2, Schedule A1, Percentage to be applied for Management Fee (Delivery Phase)	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a percentage relevant to the Management Fee (Delivery Phase);</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for a specific element of the Target Cost (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interest against disclosure.	
86.	Schedule 2, Schedule A1, Percentage to be applied for Management Fee (Provisional Sums)	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a percentage relevant to the Management Fee (Provisional Sum);</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for Provisional Sums (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interest against disclosure.	
87.	Schedule 2, Schedule A1, Maximum Amount	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the dollar amount in respect of the Maximum Amount;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the Maximum Amount. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
88.	Schedule 2, Schedule A1, Preliminaries Fee (Delivery Phase) Limit	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the dollar amount for the Preliminaries Fee (Delivery Phase) Limit;</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for a specific element of the Target Cost (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
89.	Schedule 2, Schedule A1, Principal's Representative	The information redacted is the name of the Principal's Representative.	<p><i>Section 32(1)(d), item 3(a) of the table in section 14</i></p> <p>The disclosure of this information would reveal an individual's personal information.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information is the names of individual persons.</p> <p>The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.</p>
90.	Schedule 2, Schedule A1, Self-Performed Margin	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a percentage relevant to the Self Perform Margin;</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for Self-Performed Work (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
91.	Schedule 2, Schedule A1, Share of Cost Overrun — percentage to be applied	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a percentage relevant to the Share of Cost Overruns;</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for the Target Cost (and all affiliated risks) under the SSJ Contract. Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
92.	Schedule 2, Schedule A1, Share of Savings - percentage to be applied	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a percentage relevant to the Share of Savings;</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for the Target Cost (and all affiliated risks) under the SSJ Contract. Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests..</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
93.	Schedule 2, Schedule A1, Target Cost	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the dollar amount for the Target Cost;</li> <li>b) exposing the redacted information would reveal the amount that the SSJ Contractor was willing to accept for the total Target Cost (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
94.	Schedule 2, Schedule A1, Target Cost Offer Submission Date	The information redacted is a date.	<p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the date by which the SSJ Contractor must submit its Target Cost Offer;</li> <li>b) exposing the redacted information would reveal the period that the SSJ Contractor and the Principal were willing to allow for pricing delivery of the SSJ Contract;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by disclosing the Target Cost Offer mechanism.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
95.	Schedule 2, Schedule A1, Trade packages and Subcontractors	The information redacted are the names of Subcontractors.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the names of the various Subcontractors; and</li> <li>b) the SSJ Contractor is still in the process of engaging subcontractors. If the redacted names and dollar amount was disclosed, potential subcontractors may be able to use that information to their advantage in negotiations with the SSJ Contractor, thereby prejudicing the SSJ Contractor's negotiating position. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
96.	Schedule 2, Schedule A1, Subcontractors required to execute deed in the form of Schedule A8	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a monetary threshold above which subcontractors are required to provide a deed in favour of the Principal;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to its engagement of subcontractors; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
97.	Schedule 2, Schedule A1, Losses	The information redacted is the definition of Losses in the context of the indemnity for delay.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the nature of the indemnities provided by the SSJ Contractor in relation to Construction Completion;</li> <li>b) exposing the redacted information would reveal the apportionment of risk between the Principal and the SSJ Contractor in relation to key delay risks, in particular the risk that Construction Completion is not achieved by the relevant Date for Construction Completion. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of Construction Completion not being achieved by the relevant Date for Construction Completion;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the existence of the indemnities.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
98.	Schedule 2, Schedule A1, Amount for termination for convenience	The information redacted is a percentage.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a percentage relevant to calculating the amount payable by the Principal for termination for convenience;</li> <li>b) the disclosure of the redacted information would provide insight on the amount that the SSJ Contractor was willing to accept if the Principal exercised its rights under clause 19.9. Exposing this information may provide insight into the SSJ Contractor's views on the likelihood of the Principal exercising this right;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the existence of an entitlement of the SSJ Contractor to a percentage of the specified amounts in clause 19.10(a). In light of this disclosure there is an overriding public interest against the disclosure of the precise percentage.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
99.	Schedule 3, Schedule A2, Table A2-1 Portions	The information redacted is Date for Construction Portion of each Portion and the Liquidated Damages rates.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out <ul style="list-style-type: none"> <li>a. the Date for Construction Completion of each Portion; and</li> <li>b. the rate of Liquidated Damages if Construction Completion does not occur by the Date for Construction Completion;</li> </ul> </li> <li>b) exposing the redacted information would reveal the risk that the SSJ Contractor priced and accepted in relation to Liquidated Damages regime and the relevant Dates for Construction Completion. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of there being a delay to the project;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the obligation of the SSJ Contractor to achieve Construction Completion of the relevant portions by the Date for Construction Completion for each Portion, otherwise liquidated damages will become payable. In light of this disclosure there is an overriding public</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
				<p>interest against the disclosure of the precise dates and dollar amounts.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
100.	Schedule 3, Schedule A2, Table A2-2 Milestones	The information redacted is the Maximum Early Completion Payment and the Original Milestone Date and Extended Milestone Date for each Milestone.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out:</p> <ul style="list-style-type: none"> <li>a. the Maximum Early Completion Payments; and</li> <li>b. the Original Milestone Dates;</li> </ul> <p>b) exposing the redacted information would reveal the risk that the SSJ Contractor priced and accepted in relation to achievement of Milestones and the relevant dates for achieving such Milestones. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities;</p> <p>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</p> <p>d) the public interest has been served by revealing the ability for the SSJ Contractor to achieve Milestones and be entitled to various Milestone payments. In light of this disclosure there is an overriding public interest against the disclosure of the</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>precise dates and dollar amounts.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
101.	Schedule 3, Schedule A2, 3, Milestones	The information redacted is the entire section.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the various percentages and principles for the calculation of the Maximum Early Completion Payment;</li> <li>b) exposing the redacted information would reveal the risk that the SSJ Contractor priced and accepted in relation to achievement of Milestones and the relevant amounts payable for achieving such Milestones. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the ability for the SSJ Contractor to achieve Milestones and be entitled to various Milestone payments. In light of this disclosure there is an overriding public interest against the disclosure of the precise dates and dollar amounts.</li> </ul>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
102.	Schedule 4, Schedule A3, Price	The information redacted is a description of the basis for calculation of the Reimbursable Cost Element.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the basis for the calculation of the Reimbursable Cost Element;</li> <li>b) exposing the redacted information would reveal the calculation of the Reimbursable Cost Element (and all affiliated risks) under the SSJ Contract. Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
103.	Schedule 5, Schedule A4, clause 1(r) Preliminaries Fee (Delivery Phase)	The information redacted is a description of the Preliminaries Fee (Delivery Phase).	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out further detail in respect of the definition of the Preliminaries Fee (Delivery Phase);</li> <li>b) exposing the redacted information would reveal the form of payment that the SSJ Contractor was willing to accept for the Preliminaries. Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
104.	Schedule 5, Schedule A4, Clause 4, Sydney Water Early Works Activities	The information redacted is the entire section of this clause.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out further detail in respect of a specific commercial offer put forward by the SSJ Contractor in relation to certain activities included in the payment structure for this contract;</li> <li>b) exposing the redacted information would reveal the form of payment that the SSJ Contractor was willing to accept for the performance of these works. Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
105.	Schedule 6, Schedule A7, SSJ Contractor's Personnel	The information redacted are names and availability.	<p><i>Section 32(1)(d), item 3(a) of the table in section 14</i></p> <p>The disclosure of this information would reveal an individual's personal information.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the names of individual persons and availability of each during the term of the SSJ Contract;</li> <li>b) exposing the redacted information would reveal the period that the SSJ Contractor was willing to offer key personnel for the performance of its obligations;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by disclosing the mechanism in respect of personnel.</li> </ul> <p>The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.</p> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
				events and circumstances change.
106.	Schedule 8, Schedule A10, Form of SSJ Contractor Deed Poll	The information redacted is a dollar amount.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the Date for Construction Completion of each Portion, and the rate of Liquidated Damages if Construction Completion does not occur by the Date for Construction Completion;</li> <li>b) exposing the redacted information would reveal the risk that the SSJ Contractor priced and accepted in relation to Liquidated Damages regime and the relevant Dates for Construction Completion. Exposing this information may provide insight into the SSJ Contractor's views on its potential capabilities and likelihood of there being a delay to the project;</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests; and</li> <li>d) the public interest has been served by revealing the obligation of the SSJ Contractor to achieve Construction Completion of the relevant portions by the Date for Construction Completion for each Portion, otherwise liquidated damages will become payable. In light of this disclosure there is an overriding public interest against the disclosure of the precise dates and dollar</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interest against disclosure.	amounts. <b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.
107.	Schedule 13, Schedule A19, SSJ Interface Contractor Cooperation and Integration Deed	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the form of the interface agreement that the SSJ Contractor is to enter into with the Interface Contractors;</li> <li>b) the disclosure of the redacted information would reveal the level of interface risk the SSJ Contractor was willing to price and accept in relation to the interface of the Project Works with the work of the Interface Contractors; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>interests.</p> <p>There is an overriding public interest against disclosure.</p>	
108.	Schedule 14, Schedule A20, SSJ Operator Cooperation and Integration Deed	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the form of the interface agreement that the SSJ Contractor is to enter into with the Operator;</li> <li>b) the disclosure of the redacted information would reveal the level of interface risk the SSJ Contractor was willing to price and accept in relation to interface of the Project Works with the OTS2 Project Works; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>interests.</p> <p>There is an overriding public interest against disclosure.</p>	
109.	Schedule 15, Schedule A21, Cost Breakdown	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out a breakdown of the Reimbursable Cost Element and other amounts and descriptions of work to be performed under the SSJ Contract relevant to such amounts which were bid as part of the SSJ Contractor's proposal, as at the date of the SSJ Contract;</li> <li>b) exposing the redacted information would reveal the amount that the SSJ Contractor was willing to accept for the work (and all affiliated risks) under the SSJ Contract . Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests..</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interests. There is an overriding public interest against disclosure.	
110.	Schedule 16, Schedule A23, Design Work (Signalling) Contract Deed of Novation, Execution page of the general conditions	The information redacted is the execution clauses.	<i>Section 32(1)(d), item 3(a) of the table in section 14</i> The disclosure of this information would reveal an individual's personal information. There is an overriding public interest against disclosure.	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information would disclose personal information of individuals, including names and signatures. The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.
111.	Schedule 16, Schedule A23, Design Work (Signalling) Contract Deed of Novation, Schedule 2, clause 14	The information redacted is the individuals name and contact details.	<i>Section 32(1)(d), item 3(a) of the table in section 14</i> The disclosure of this information would reveal an individual's personal information. There is an overriding public interest against disclosure.	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because the redacted information is the names of individual persons. The Principal considers that any public interest in favour of the disclosure is not significantly advanced by the disclosure of this information, and is outweighed by the public interest against the disclosure as identified above.
112.	Schedule 18, Schedule A28, Vertical Transportation - DSI Contract Terms Sheet	The information redacted is the entire schedule.	<i>Section 32(1)(d), item 1(f) of the table in section 14</i> The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions. <i>Section 32(1)(d), item 4(b), (c)</i>	The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons: (a) the information redacted set out the proposed terms of the DSI Contracts for the VT Contractor; (b) the Principal is still in the process of procuring a VT Contractor and finalising the terms of the DSI Contracts. If the redacted

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p><i>and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>information were disclosed, third parties may be able to use that information to their advantage in negotiations with the Principal, thereby prejudicing the Principal's negotiating position; and</p> <p>(c) in doing so, revealing the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
113.	Schedule 20, Schedule A30, Change Order 001	The information redacted is the entire schedule.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>(a) the information redacted sets out the details of a commercial agreement between the Principal and the SSJ Contractor to continue the extension of the Target Cost Development Phase;</p> <p>(b) if the redacted information were disclosed, third parties may be able to use that information to their advantage in negotiations with the Principal, thereby prejudicing the Principal's negotiating position; and</p> <p>(c) in doing so, revealing the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	events and circumstances change.
114.	Schedule 21, Schedule A31, Change Order 002	The information redacted is the entire schedule.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>(a) the information redacted sets out the details of a commercial agreement between the Principal and the SSJ Contractor to continue the extension of the Target Cost Development Phase;</p> <p>(b) if the redacted information were disclosed, third parties may be able to use that information to their advantage in negotiations with the Principal, thereby prejudicing the Principal's negotiating position; and</p> <p>(c) in doing so, revealing the information could prejudice the parties' legitimate business, commercial or financial interests, and also prejudice the effective exercise by the Principal of its functions.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
115.	Schedule 23, Schedule B8, Independent	The information redacted is the	N/A	The Principal notes that this schedule reflects deed titled "Sydney Metro City & Southwest – Independent Certification of the SSJ Works Independent Certifier Deed" and is expected to be executed

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
	Certifier Deed	entire schedule.		prior to December 2018 ( <b>SSJ Independent Certifier Deed</b> ). The SSJ Independent Certifier Deed will be a separate class 3 contract for the purposes of the GIPA Act, and will be disclosed separately at the appropriate time.
116.	Schedule 27, Schedule C1, Section 5.12, Interface Contractors Access Requirements	The information redacted is the entire clause	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at section 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information regulates the SSJ Contractors' relationship with Interface Contractors when accessing the site;</li> <li>b) the disclosure of the redacted information would reveal the level of interface risk the SSJ Contractor was willing to price and accept in relation to its interface obligations;</li> <li>c) the disclosure of the redacted information would reveal intellectual property the SSJ Contractor has an interest in; and</li> <li>d) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests. The Principal is in the process of negotiating the scope of works for the relevant interface contractors and disclosing the information would place the Principal as a substantial commercial disadvantage in these negotiations.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>interests.</p> <p>The disclosure of this information could disclose intellectual property that the SSJ Contractor has an interest in.</p> <p>There is an overriding public interest against disclosure.</p>	
117.	Schedule 27, Schedule C1, Appendix B01, Section 2.2, Design Loadings	The information redacted is the entire clause	<p><i>Section 32(1)(c)</i></p> <p>The disclosure of this information could reasonably be expected to affect public safety or security.</p> <p>The disclosure of this information could disclose intellectual property that the SSJ Contractor has an interest in.</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>a) the redacted information sets out the design and structural loadings of the project;</p> <p>b) the disclosure of this information could disclose intellectual property that the SSJ Contractor has an interest in; and</p> <p>the redacted information exposes security vulnerabilities in the project. Revealing the redacted information may risk exposing the project to the risk of attack.</p>
118.	Schedule 29, Schedule D1, Management Requirements, MR-PA Annexure D; MR-W Annexure B; MR-T Annexure B; MR-SY Annexure C Project Specific	The information redacted is the Project Specific Requirements	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at section 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <p>a) the redacted information sets out the Project Specific Requirements in relation to each Management Requirement;</p> <p>b) the disclosure of this information could disclose intellectual property that the SSJ Contractor has an interest in; and</p> <p>c) disclosure of the redacted information may provide insight on how the SSJ Contractor priced and accepted its obligations</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
	Requirements		<p>substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>The disclosure of this information could disclose intellectual property that the SSJ Contractor has an interest in.</p> <p>There is an overriding public interest against disclosure.</p>	<p>relating to the Management Requirements for the project. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor may have to negotiate or bid against. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
119.	Schedule 30, Schedule E1, Project Site and Related Drawings	The information redacted is the entire schedule.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>(a) the redacted information sets out:</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>of the agency's functions.</p> <p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public</p>	<p>(i) the Site Access Drawings; and</p> <p>(ii) the Access Periods,</p> <p>(as those terms are defined in Schedule E1 of the SSJ Contract);</p> <p>(b) the SSJ Contractor has obligations under the SSJ Contract with respect to accessing the Construction Site, including obligations relating to the prevention of delay and avoiding or minimising the consequences of such delay and disruption during construction. Revealing the redacted information would provide insight into the level of risk the SSJ Contractor was willing to price and accept. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor may have to negotiate or bid against. Therefore the disclosure of the information could prejudice the SSJ Contractor's legitimate business, commercial or financial interests; and</p> <p>(c) the public interest has been served by revealing the existence of the Site Access Schedule.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interest against disclosure.	
120.	Schedule 31, Schedule E2, Track Possessions and Temporary Shutdowns	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the track possession and temporary shutdown regime based on the proposal submitted by the SSJ Contractor; and</li> <li>b) the disclosure of the redacted information would provide insight on the apportionment of risk between the Principal and the SSJ Contractor in relation to the SSJ Contractor's Program and related risks, and therefore the risk that the SSJ Contractor was willing to price and accept. If this information were revealed, it could place the parties at a substantial commercial disadvantage when tendering or negotiating in future projects of a similar nature. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>



Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			interest against disclosure.	
121.	Schedule 34, Schedule E5, Third Party Agreements	The information redacted is the entire schedule.	<p><i>Section 32(1)(d), item 1(f) of the table in section 14</i></p> <p>The disclosure of this information could prejudice the effective exercise by an agency of the agency's functions.</p> <p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the Third Party Agreements between the Principal and third parties;</li> <li>b) the Principal is still in the process of negotiating the draft Third Party Agreements. The disclosure of the redacted information may prejudice the interests of the third parties and affect the status of the negotiations; and</li> <li>c) further, the disclosure of the redacted information would provide insight on the apportionment of risk between the Principal and the SSJ Contractor in relation to the draft Third Party Agreements, and therefore the risk that the SSJ Contractor was willing to price and accept. If this information were revealed, it could place the parties at a substantial commercial disadvantage when tendering or negotiating in future projects of a similar nature. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
122.	Schedule 35, Schedule E7, Existing Assets	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <p>(a) the information sets out the identify of Existing Assets and associated conditions of same; and</p> <p>(b) disclosure of the redacted information will provide insight on the scope of existing asset risk that the SSJ Contractor was willing to price and accept in relation to the Project Works. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage when tendering or negotiating future projects of a similar nature. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
123.	Schedule 36, Schedule F1, Payment Schedule	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <p>a) the redacted information itemises:</p> <ul style="list-style-type: none"> <li>(i) the components of the Target Cost Development Phase Fees and the Delivery Phase Fees; and</li> <li>(ii) payment constraints in respect of the Target Cost Development Phase Fees and the Delivery Phase Fees;</li> </ul> <p>b) the redacted information is commercial-in-confidence as its disclosure would provide visibility on the SSJ Contractor's profit margins in relation to the work;</p> <p>c) the itemisation of work may also reveal a program which the SSJ Contractor has invested a significant amount of time developing, and which the SSJ Contractor may want to use in future bids to gain a competitive advantage; and</p> <p>d) disclosure of the redacted information may provide insight on how the SSJ Contractor priced and accepted the work for the project. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>may have to negotiate or bid against. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
124.	<p>Schedule 37, Schedule F2, Schedule of Rates for Self-Performed Reimbursable Work, Preliminary Fee Adjustments and Design Fee Adjustments</p>	<p>The information redacted is the entire schedule.</p>	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information itemises all rates (including Professional Rates, Labour Rates, Salary Multipliers, Plant &amp; Equipment Rates, Specialist Services and Site Investigations) for Self-Performed Work, Preliminary Fee Adjustments and Design Fee Adjustments;</li> <li>b) the redacted information is commercial-in-confidence as its disclosure would provide visibility on the SSJ Contractor's profit margins in relation to the work;</li> <li>c) the itemisation of work may also reveal a program which the SSJ Contractor has invested a significant amount of time developing, and which the SSJ Contractor may want to use in future bids to gain a competitive advantage; and</li> <li>d) disclosure of the redacted information may provide insight on how the SSJ Contractor priced and accepted the work for the project. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor may have to negotiate or bid against. Therefore the disclosure</li> </ul>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	<p>of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</p> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>
125.	Schedule 38, Schedule F6, Performance Incentive Payment Schedule	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the SSJ Contractor's entitlement to earn performance incentive payments;</li> <li>b) exposing the redacted information may also reveal risk that the SSJ Contractor was willing to price and accept in relation to the work in light of the incentive payments. It may also provide insight on the SSJ Contractor's capabilities; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
126.	Schedule 39, Schedule F7, Cost Plan Requirements	The information redacted is a description of basis of calculation of contingency for the purpose of the Cost Plan, as well as the cost plan itself.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure for the following reasons:</p> <ul style="list-style-type: none"> <li>a) the redacted information sets out the detail in respect of the calculation of contingency for the purpose of the Cost Plan and a copy of the SSJ Contractor's initial Cost Plan;</li> <li>b) exposing the redacted information would reveal the percentage that the SSJ Contractor was willing to accept for a contingency (and all affiliated risks) under the SSJ Contract, and also the details of the SSJ Contractor's initial Cost Plan. Exposing this information may provide insight into the SSJ Contractor's profit margins; and</li> <li>c) revealing the information would place the parties at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to potential future clients, competitors and contractors. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the parties' legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	
127.	Schedule 40, Schedule F8, Track Possession or Temporary Shutdown Staff	The information redacted is the entire schedule.	<p><i>Section 32(1)(a), paragraphs (b) and (e) of the definition of "commercial-in-confidence provisions" at clause 1 of Schedule 4</i></p> <p>The disclosure of this information discloses the SSJ Contractor's cost structure or profit margins and would place the SSJ Contractor at a substantial commercial disadvantage in relation to potential contractors and provide visibility on the contractor's profit margins.</p> <p><i>Section 32(1)(d), item 4(b), (c) and (d) of the table in section 14</i></p> <p>The disclosure of this information could reveal commercial-in-confidence provisions of a government contract, diminish the</p>	<p>The Principal weighed the competing public interest considerations and determined that there was an overriding public interest against disclosure of this information because:</p> <ul style="list-style-type: none"> <li>a) the redacted information itemises amounts payable in respect of certain staff deployed by the SSJ Contractor;</li> <li>b) the redacted information is commercial-in-confidence as its disclosure would provide visibility on the SSJ Contractor's profit margins in relation to the work;</li> <li>c) disclosure of the redacted information may provide insight on how the SSJ Contractor priced and accepted the work for the project. If this information were revealed, it could place the SSJ Contractor at a substantial commercial disadvantage in future projects of a similar nature, as the information would be readily accessible to other contractors who the SSJ Contractor may have to negotiate or bid against. Therefore the disclosure of the information could reduce the information's competitive commercial value and prejudice the SSJ Contractor's legitimate business, commercial or financial interests.</li> </ul> <p><b>Review:</b> This information would be reviewed for disclosure as events and circumstances change.</p>

Item	Clause (and general description)	Information redacted	Reason(s) for redaction under GIPA Act	Public interest considerations
			<p>competitive commercial value of information to a person and prejudice a person's legitimate business and commercial interests.</p> <p>There is an overriding public interest against disclosure.</p>	



**Execution Version**

# SSJ Amendment Deed

**Transport for NSW**

ABN 18 804 239 602

**John Holland Pty Ltd**

ABN 11 004 282 268

**Laing O'Rourke Australia Construction Pty Ltd**

ABN 39 112 099 000

in relation to the Sydenham Station and Junction Works Incentivised  
Target Cost Contract (Contract No 410)

## CONTENTS

CLAUSE	PAGE
1. INTERPRETATION .....	1
1.1 Definitions .....	1
1.2 Terms defined in the Principal Document .....	2
1.3 Rules for interpreting this document .....	2
1.4 Joint and several liability .....	2
2. CONSIDERATION .....	2
3. AMENDMENT .....	2
3.1 Amendment to Principal Document .....	2
3.2 Effect of amendment .....	4
3.3 Acknowledgement by Parent Company Guarantors .....	4
4. REPRESENTATIONS AND WARRANTIES .....	4
4.1 Representations and warranties of SSJ Contractor .....	4
4.2 Reliance on representations and warranties .....	5
5. GENERAL .....	5
5.1 Governing law .....	5
5.2 Liability for expenses .....	5
5.3 Giving effect to this document .....	5
5.4 Operation of this document .....	5
5.5 Exclusion of contrary legislation .....	6
5.6 Amendment .....	6
5.7 Counterparts .....	6

### Schedule

1	Amendments to the General Conditions .....	7
2	Amendments to Schedule A1 .....	8
3	Amendments to Schedule A2 .....	9
4	Amendments to Schedule A3 .....	10
5	Amendments to Schedule A4 .....	11
6	Amendments to Schedule A7 .....	12
7	Amendments to Schedule A9 .....	13
8	Amendments to Schedule A10 .....	14
9	Amendments to Schedule A11 .....	15
10	Amendments to Schedule A12 .....	16
11	Amendments to Schedule A16 .....	17
12	Amendments to Schedule A17 .....	18
13	Amendments to Schedule A19 .....	19
14	Amendments to Schedule A20 .....	20
15	Amendments to Schedule A21 .....	21
16	Amendments to Schedule A23 .....	22
17	Amendments to Schedule A24 .....	23
18	Amendments to Schedule A28 .....	24
19	New Schedule A29 .....	25
20	New Schedule A30 .....	26
21	New Schedule A31 .....	27
22	Amendments to Schedule B4 .....	28
23	Amendments to Schedule B8 .....	29
24	Amendments to Schedule B9 .....	30
25	Amendments to Schedule B12 .....	31

26	Amendments to Schedule B14.....	32
27	Amendments to Schedule C1 .....	33
28	Amendments to Schedule C2 .....	35
29	Amendments to Schedule D1 .....	36
30	Amendments to Schedule E1 .....	37
31	Amendments to Schedule E2 .....	38
32	Amendments to Schedule E3 .....	39
33	Amendments to Schedule E4 .....	40
34	Amendments to Schedule E5 .....	41
35	Amendments to Schedule E7 .....	42
36	Amendments to Schedule F1.....	43
37	Amendments to Schedule F2.....	44
38	Amendments to Schedule F6.....	45
39	Amendments to Schedule F7.....	46
40	New Schedule F8.....	47

**THIS DEED** is made on 22 June

2018

**BETWEEN:**

- (1) **Transport for NSW** ABN 18 804 239 602, a NSW Government agency constituted by section 3C of the *Transport Administration Act 1988* (NSW) and located at Level 43, 680 George Street, Sydney New South Wales 2000 (**Principal**); and
- (2) **John Holland Pty Ltd** (ABN 11 004 282 268) of 70 Trenerry Crescent, Abbotsford VIC 3067; and  
**Laing O'Rourke Australia Construction Pty Ltd** (ABN 39 112 099 000) of Level 4, 100 Arthur Street, North Sydney NSW 2060,  
  
(together the **SSJ Contractor**).

**RECITALS:**

The parties wish to amend the Principal Document in the manner set out in this document.

**THE PARTIES AGREE AS FOLLOWS:**

1. **INTERPRETATION**

1.1 **Definitions**

The following definitions apply in this document.

**Authorisation** means:

- (a) an authorisation, consent, declaration, exemption, notarisation or waiver, however it is described; and
- (b) in relation to anything that could be prohibited or restricted by law if a Government Agency acts in any way within a specified period, the expiry of that period without that action being taken,

including any renewal or amendment.

**Corporations Act** means the *Corporations Act 2001* (Cth).

**Effective Date** means the date of this document.

**Government Agency** means:

- (a) a government or government department or other body;
- (b) a governmental, semi-governmental or judicial person including a statutory corporation; or
- (c) a person (whether autonomous or not) who is charged with the administration of a law.

**Principal Document** means the Sydney Metro City & Southwest Sydenham Station and Junction Works Incentivised Target Cost Contract (Contract No 410) between the Principal and the SSJ Contractor dated 20 September 2017.

## 1.2 **Terms defined in the Principal Document**

A term (other than a term defined in clause 1.1) that is defined in the Principal Document (as amended by this document) has the same meaning in this document.

## 1.3 **Rules for interpreting this document**

Clause 1.2 of the Principal Document will apply to the interpretation of this document as if set out in full herein.

## 1.4 **Joint and several liability**

- (a) The obligations of the SSJ Contractor, if more than one person, under this deed, are joint and several and each person constituting the SSJ Contractor acknowledges and agrees that it will be causally responsible for the acts and omissions (including breaches of this deed) of the other as if those acts or omissions were its own and the Principal may proceed against any one or all of them.
- (b) The rights of the SSJ Contractor, if more than one person, under this deed (including the right to payment) jointly benefit each person constituting the SSJ Contractor (and not severally or jointly and severally).
- (c) The SSJ Contractor may not exercise any right under this deed unless that right is exercised concurrently by all persons constituting the SSJ Contractor.

## 2. **CONSIDERATION**

Each party acknowledges that it has received valuable consideration for entering into this document.

## 3. **AMENDMENT**

### 3.1 **Amendment to Principal Document**

- (a) On and from the Effective Date, the Principal Document is amended as follows:
  - (i) the General Conditions are amended as set out in Schedule 1 of this document;
  - (ii) Schedule A1 is amended as set out in Schedule 2 of this document;
  - (iii) Schedule A2 is amended as set out in Schedule 3 of this document;
  - (iv) Schedule A3 is amended as set out in Schedule 4 of this document;
  - (v) Schedule A4 is amended as set out in Schedule 5 of this document;
  - (vi) Schedule A7 is amended as set out in Schedule 6 of this document;
  - (vii) Schedule A9 is amended as set out in Schedule 7 of this document;
  - (viii) Schedule A10 is amended as set out in Schedule 8 of this document;
  - (ix) Schedule A11 is amended as set out in Schedule 9 of this document;
  - (x) Schedule A12 is amended as set out in Schedule 10 of this document;
  - (xi) Schedule A16 is amended as set out in Schedule 11 of this document;

- (xii) Schedule A17 is amended as set out in Schedule 12 of this document;
- (xiii) Schedule A19 is amended as set out in Schedule 13 of this document;
- (xiv) Schedule A20 is amended as set out in Schedule 14 of this document;
- (xv) Schedule A21 is amended as set out in Schedule 15 of this document;
- (xvi) Schedule A23 is amended as set out in Schedule 16 of this document;
- (xvii) Schedule A24 is amended as set out in Schedule 17 of this document;
- (xviii) Schedule A28 is amended as set out in Schedule 18 of this document;
- (xix) incorporation of new Schedule A29 as set out in Schedule 19 of this document;
- (xx) incorporation of new Schedule A30 as set out in Schedule 20 of this document;
- (xxi) incorporation of new Schedule A31 as set out in Schedule 21 of this document;
- (xxii) Schedule B4 is amended as set out in Schedule 22 of this document;
- (xxiii) Schedule B8 is amended as set out in Schedule 23 of this document;
- (xxiv) Schedule B9 is amended as set out in Schedule 24 of this document;
- (xxv) Schedule B12 is amended as set out in Schedule 25 of this document;
- (xxvi) Schedule B14 is amended as set out in Schedule 26 of this document;
- (xxvii) Schedule C1 is amended as set out in Schedule 27 of this document;
- (xxviii) Schedule C2 is amended as set out in Schedule 28 of this document;
- (xxix) Schedule D1 is amended as set out in Schedule 29 of this document;
- (xxx) Schedule E1 is amended as set out in Schedule 30 of this document;
- (xxxii) Schedule E2 is amended as set out in Schedule 31 of this document;
- (xxxiii) Schedule E3 is amended as set out in Schedule 32 of this document;
- (xxxiv) Schedule E4 is amended as set out in Schedule 33 of this document;
- (xxxv) Schedule E5 is amended as set out in Schedule 34 of this document;
- (xxxvi) Schedule E7 is amended as set out in Schedule 35 of this document;
- (xxxvii) Schedule F1 is amended as set out in Schedule 36 of this document;
- (xxxviii) Schedule F2 is amended as set out in Schedule 37 of this document;
- (xxxviii) Schedule F6 is amended as set out in Schedule 38 of this document;
- (xxxix) Schedule F7 is amended as set out in Schedule 39 of this document;

- (xl) incorporation of new Schedule F8 as set out in Schedule 40 of this document; and
  - (xli) incorporation of new electronic files as set out in Schedule 41.
- (b) Paragraph (a) does not affect any right or obligation of either party that arises before the Effective Date.

### 3.2 **Effect of amendment**

Except as expressly amended by this document, no changes to the Principal Document are to be inferred or implied, and in all other respects the Principal Document is confirmed and remains in full force and effect.

### 3.3 **Acknowledgement by Parent Company Guarantors**

Within 10 Business Days of the date of this deed, the SSJ Contractor must procure a letter from each Parent Company Guarantor in a form acceptable to the Principal confirming that it:

- (a) has received a copy of this document executed by all the parties; and
- (b) acknowledges and accepts the amendments made to the Principal Document which form part of the obligations to which its Parent Company Guarantee applies.

## 4. **REPRESENTATIONS AND WARRANTIES**

### 4.1 **Representations and warranties of SSJ Contractor**

Each member of the SSJ Contractor represents and warrants for the benefit of the Principal that:

- (a) **(status)** it is a company limited by shares under the Corporations Act;
- (b) **(power)** it has full legal capacity and power to:
  - (i) own its property and to carry on its business; and
  - (ii) enter into this document and to carry out the transactions that it contemplates;
- (c) **(corporate authority)** it has taken all corporate action that is necessary or desirable to authorise its entry into this document and to carry out the transactions contemplated;
- (d) **(Authorisations)** it holds each Authorisation that is necessary or desirable to:
  - (i) enable it to properly execute this document and to carry out the transactions that it contemplates;
  - (ii) ensure that this document is legal, valid, binding and admissible in evidence; or
  - (iii) enable it to properly carry on its business as it is now being conducted,and it is complying with any conditions to which any of these Authorisations is subject;

- (e) **(document effective)** this document constitutes its legal, valid and binding obligations, enforceable against it in accordance with its terms (except to the extent limited by equitable principles and laws affecting creditors' rights generally), subject to any necessary stamping or registration;
- (f) **(no contravention)** neither its execution of this document, nor the carrying out by it of the transactions that this document contemplates, does or will:
  - (i) contravene any law to which it or any of its property is subject or any order of any Government Agency that is binding on it or any of its property;
  - (ii) contravene any Authorisation;
  - (iii) contravene any agreement binding on it or any of its property; or
  - (iv) contravene its constitution or the powers or duties of its directors;
- (g) **(commercial benefit)** the execution by it of this document, and the carrying out by it of the transactions that this document contemplates, is for its corporate benefit and in its commercial interests; and
- (h) **(solvency)** there are no reasonable grounds to suspect that it will not be able to pay its debts as and when they become due and payable.

#### 4.2 **Reliance on representations and warranties**

The SSJ Contractor acknowledges that the Principal has executed this document and agreed to take part in the transactions that it contemplates in reliance on the representations and warranties that are made or repeated in this clause 4.

### 5. **GENERAL**

#### 5.1 **Governing law**

- (a) This document is governed by and must be construed according to the law applying in New South Wales.
- (b) Each party submits to the exclusive jurisdiction of the courts of New South Wales and courts of appeal from them, in respect of any proceedings arising out of or in connection with this document.

#### 5.2 **Liability for expenses**

Each party must pay its own expenses incurred in negotiating, executing, stamping and registering this document.

#### 5.3 **Giving effect to this document**

Each party must do anything (including execute any document), and must ensure that its employees and agents do anything (including execute any document), that the other party may reasonably require to give full effect to this document.

#### 5.4 **Operation of this document**

- (a) Subject to paragraph (b), this document contains the entire agreement between the parties about its subject matter. Any previous understanding, agreement, representation or warranty relating to that subject matter is replaced by this document and has no further effect.



- (b) Any right that a person may have under this document is in addition to, and does not replace or limit, any other right that the person may have.
- (c) Any provision of this document which is unenforceable or partly unenforceable is, where possible, to be severed to the extent necessary to make this document enforceable, unless this would materially change the intended effect of this document.

#### 5.5 **Exclusion of contrary legislation**

Any legislation that adversely affects an obligation of a party, or the exercise by a party of a right or remedy, under or relating to this document is excluded to the full extent permitted by law.

#### 5.6 **Amendment**

This document can only be amended or replaced by another deed executed by or on behalf of both the Principal and the SSJ Contractor.

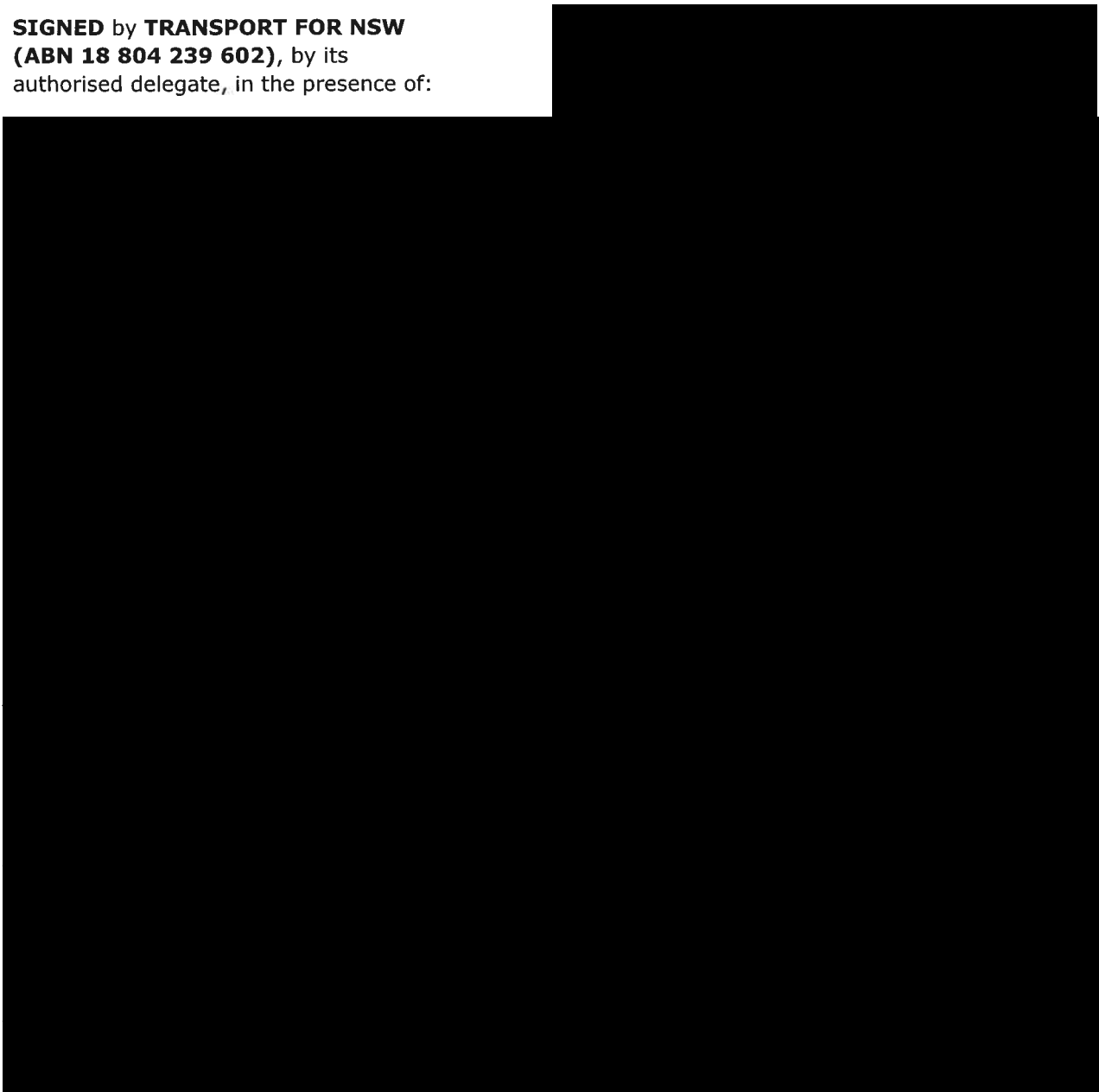
#### 5.7 **Counterparts**

This document may be executed in counterparts.

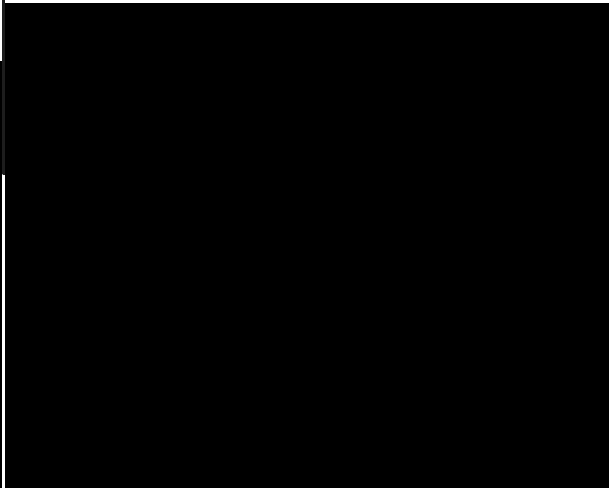
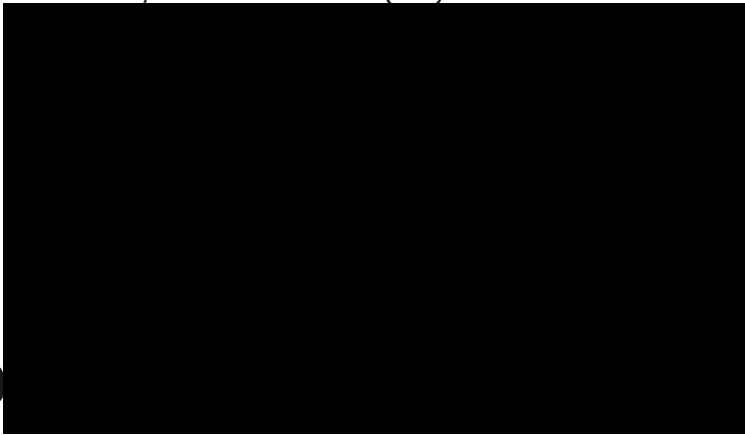
**EXECUTED** as a deed.

Each person who executes this document on behalf of a party under a power of attorney declares that he or she is not aware of any fact or circumstance that might affect his or her authority to do so under that power of attorney.

**SIGNED** by **TRANSPORT FOR NSW**  
**(ABN 18 804 239 602)**, by its  
authorised delegate, in the presence of:



**Executed by Laing O'Rourke Australia  
Construction Pty Ltd (ABN 39 112 099  
000)** in accordance with section 127 of the  
*Corporations Act 2011 (Cth)*:



**SCHEDULE 1**

**Amendments to the General Conditions**

The General Conditions are amended as set out in the attached mark-up.



Transport  
for NSW



# Sydney Metro City & Southwest Sydenham Station and Junction Works Incentivised Target Cost Contract

Contract No: 410

Transport for NSW

ABN 18 804 239 602

John Holland Pty Ltd

ABN 11 004 282 268

Laing O'Rourke Australia Construction Pty Ltd

ABN 39 112 099 000

## CONTENTS

CLAUSE	PAGE
1. INTERPRETATION.....	1
1.1 Definitions.....	1
1.2 Interpretation.....	51
1.3 Ambiguous terms.....	56
1.4 Order of Precedence.....	56
1.5 <del>Deed</del> <u>Deeds</u> Poll by SSJ Contractor.....	57
1.6 Authorities.....	57
1.7 Sydney Metro Northwest Augmentation.....	57
1.8 Electronic Files.....	58
2. OBJECTIVES AND PROJECT VALUES.....	58
2.1 Objectives for Sydney Metro City & Southwest.....	58
2.2 Objectives for the Project Works.....	58
2.3 Achievement of the Project Values.....	59
3. GENERAL OBLIGATIONS.....	59
3.1 General.....	59
3.2 Cooperation and coordination with Interface Contractors.....	<del>61</del> <u>60</u>
3.3 Co-operation with Other Contractors.....	<del>65</del> <u>64</u>
3.4 Cooperation and Integration Deeds.....	65
3.5 Incident Management Reporting.....	<del>66</del> <u>65</u>
3.6 Third Party Agreements.....	<del>68</del> <u>67</u>
3.7 Commissioning.....	<del>70</del> <u>69</u>
3.8 Existing Operations.....	<del>70</del> <u>69</u>
3.9 Management Plans.....	<del>72</del> <u>71</u>
3.10 Cleaning Up.....	<del>72</del> <u>71</u>
3.11 Construction Plant and Materials Removal.....	72
3.12 Principal Supplied Items.....	<del>73</del> <u>72</u>
3.13 SMCSW Master Interface Protocols Deed Poll.....	73
3.14 Collateral Warranty.....	<del>74</del> <u>73</u>
4. <del>TARGET COST DEVELOPMENT</del> .....	<del>74</del> <u>NOT USED</u> <span style="float: right;">73</span>
4.1 <del>Target Cost Development Phase only</del> .....	<del>74</del>
4.2 <del>Requirements for the Target Cost Offer</del> .....	<del>74</del>
4.3 <del>Target Cost Offer Process</del> .....	<del>75</del>
4.4 <del>SSJ Contractor's Program</del> .....	<del>78</del>
4.5 <del>Progressive submission</del> .....	<del>78</del>
5. CHANGES TO TARGET COST.....	<del>78</del> <u>73</u>
5.1 Changes.....	<del>78</del> <u>73</u>
5.2 Reimbursable Cost Element Adjustments.....	<del>79</del> <u>73</u>
5.3 Design Fee (Delivery Phase) Element Adjustments.....	<del>79</del> <u>74</u>
5.4 Preliminaries Fee (Delivery Phase) Adjustments.....	<del>79</del> <u>74</u>
5.5 Management Fee (Delivery Phase) Adjustment.....	<del>80</del> <u>75</u>
5.6 Principal's determinations.....	<del>80</del> <u>75</u>
6. SECURITY.....	<del>80</del> <u>75</u>
6.1 Unconditional Undertakings.....	<del>80</del> <u>75</u>
6.2 Requirements for unconditional undertakings.....	<del>80</del> <u>75</u>
6.3 Recourse to unconditional undertakings.....	<del>81</del> <u>76</u>
6.4 Release of unconditional undertakings.....	<del>81</del> <u>76</u>
6.5 No injunction.....	<del>81</del> <u>76</u>

6.6	No interest	8276
6.7	No trust	8277
6.8	Parent Company Guarantee	8277
7.	LAW AND APPROVALS	8277
7.1	Compliance with Law	8277
7.2	Approvals	8377
7.3	Change in Codes and Standards	8479
7.4	Change in Law	8579
7.5	Changes to Planning Approval	8580
7.6	Legal Challenge to Planning Approval	8681
7.7	Crown Building Work	8782
7.8	Long Service Leave Levy	8782
8.	THE CONSTRUCTION SITE, TRACK POSSESSIONS, TEMPORARY SHUTDOWNS AND LOCATION OF THE PROJECT WORKS	8782
8.1	Access	8782
8.2	Property Works	8984
8.3	Temporary Works	9186
8.4	Management and Control of the Construction Site	9186
8.5	Land in Addition to the Construction Site	9286
8.6	Temporary Areas	9287
8.7	Condition of the Construction Site	9287
8.8	Latent Conditions	9589
8.9	Contamination	9691
8.10	Disposal of Contamination and Waste	9792
8.11	Artefacts	9893
8.12	Utility Services	9994
8.13	Information Documents	10095
8.14	Principal's Right to Access and Inspect	10297
8.15	Condition Surveys	10398
8.16	Setting Out	10398
8.17	Works to be constructed within Project Site	10498
8.18	Survey	10498
8.19	Principal not in Control	10499
8.20	Track Possessions and Temporary Shutdowns	10599
	<u>8.21 Indemnity for delays to rail services</u>	<u>101</u>
9.	COMPLIANCE	106102
9.1	Quality of Work	106102
9.2	Management Requirements	106102
9.3	Environmental Management	106102
9.4	Health and Safety Management	107103
9.5	Safety	107103
9.6	Rail Safety	110106
9.7	Principal Contractor	112108
9.8	No Relief from Obligations	114110
9.9	Engineering Authorisation	115111
9.10	ASA Compliance	115111
9.11	Australian Government Requirements	116112
9.12	NSW Code of Practice	118114
9.13	TfNSW's Statement of Business Ethics	120116
9.14	Independent Advisers	120116
9.15	Asset Management Information	121117
10.	DESIGN, DESIGN DOCUMENTATION AND COST PLANNING	122118
10.1	Design Work (Signalling)	122118
10.2	Design obligations	123119



10.3	Warranties.....	<u>124</u> 119
10.4	Preparation and submission of Design Documentation.....	<u>125</u> 120
10.5	Third Party Works.....	<u>126</u> 121
10.6	Certification of Design Documentation.....	<u>126</u> 121
10.7	Explanation of Design Documentation.....	<u>126</u> 122
10.8	Review of Design Documentation.....	<u>127</u> 122
10.9	Interface Contractors.....	<u>131</u> 128
10.10	Design Documentation for construction.....	<u>131</u> 128
10.11	Amendments to Final Design Documentation.....	<u>132</u> 129
10.12	No duty to review.....	<u>133</u> 130
10.13	Ownership of documentation.....	<u>134</u> 130
10.14	Delivery up of Design Documentation.....	<u>137</u> 133
10.15	Design Life.....	<u>137</u> 134
10.16	Cost Planning.....	<u>138</u> 134
10.17	Cost Control.....	<u>138</u> 135
11.	CHANGES.....	<u>139</u> 135
11.1	Proposed Changes.....	<u>139</u> 135
11.2	Change Orders.....	<u>140</u> 136
11.3	Omissions.....	<u>140</u> 137
11.4	SSJ Contractor's entitlements.....	<u>141</u> 137
11.5	SSJ Contractor may propose Change.....	<u>141</u> 137
12.	REIMBURSABLE WORK AND PROVISIONAL SUM WORK.....	<u>143</u> 139
12.1	Restrictions on Reimbursable Work.....	<u>143</u> 139
12.2	Subcontract Proposal.....	<u>143</u> 140
12.3	Subcontract Tender Documentation.....	<u>144</u> 141
12.4	Tendering.....	<u>145</u> 141
12.5	Consideration of Tenders.....	<u>145</u> 142
12.6	Post Tender Negotiations.....	<u>146</u> 142
12.7	Subcontracts.....	<u>146</u> 142
12.8	Procedure on Disapproval.....	<u>148</u> 144
12.9	Subcontractor Warranties.....	<u>148</u> 144
12.10	Coordination of Subcontractors.....	<u>149</u> 145
12.11	Disputes with Subcontractors.....	<u>149</u> 146
12.12	Responsibility for Subcontractors.....	<u>150</u> 146
12.13	Subcontractor Insolvency.....	<u>150</u> 147
12.14	Reimbursable Work by SSJ Contractor or Related Body Corporate.....	<u>151</u> 147
12.15	Tendering Probity.....	<u>153</u> 149
12.16	<del>Vertical Transportation</del> ..... <u>154</u> Lifts and Escalators <u>150</u>	
12.17	Provisional Sum Work.....	<u>154</u> 151
12.18	Design Work.....	<u>155</u> 152
12.19	Design Work (Signalling) Contract Waiver.....	<u>155</u> 152
12.20	Recognised Aboriginal Business Subcontracts.....	<u>152</u>
12.21	Track Possession or Temporary Shutdown Staff.....	<u>153</u>
13.	DEFECTS, INSPECTION AND REPAIR.....	<u>156</u> 153
13.1	Defects.....	<u>156</u> 153
13.2	Principal's Representative's direction.....	<u>156</u> 154
13.3	Correction of Defect or Change.....	<u>158</u> 155
13.4	Acceptance of work or rectification by others.....	<u>159</u> 156
13.5	Changes under other contracts to overcome Defects.....	<u>159</u> 156
13.6	Works.....	<u>159</u> 157
13.7	Local Area Works.....	<u>159</u> 157
13.8	Utility Service Works.....	<u>161</u> 159
13.9	Property Works.....	<u>162</u> 160
13.10	Failure by the SSJ Contractor to comply with Direction.....	<u>163</u> 160
13.11	Rights not affected.....	<u>163</u> 161



13.12	Use of defective facilities.....	<u>163</u> <u>161</u>
13.13	Final inspections of Project Works (other than Third Party Works).....	<u>163</u> <u>161</u>
13.14	Final inspections of Third Party Works.....	<u>164</u> <u>161</u>
14.	ADMINISTRATION.....	<u>164</u> <u>162</u>
14.1	Principal's Representative.....	<u>164</u> <u>162</u>
14.2	Replacement of the Principal's Representative.....	<u>165</u> <u>162</u>
14.3	Delegation of Functions.....	<u>165</u> <u>163</u>
14.4	SSJ Contractor's Personnel.....	<u>165</u> <u>163</u>
14.5	Design development meetings.....	<u>167</u> <u>164</u>
14.6	Site Meetings.....	<u>167</u> <u>165</u>
14.7	Environmental Representative.....	<u>167</u> <u>165</u>
14.8	Acoustics Advisor.....	<u>168</u> <u>165</u>
14.9	Independent Certifier.....	<u>169</u> <u>166</u>
14.10	Industrial Relations.....	<u>169</u> <u>167</u>
14.11	Submission for review by the Principal's Representative.....	<u>171</u> <u>168</u>
14.12	Work Method.....	<u>173</u> <u>171</u>
14.13	Exchange of Information between Government Agencies.....	<u>174</u> <u>171</u>
14.14	Financial Assessment.....	<u>174</u> <u>171</u>
14.15	Employment of Aboriginal and Torres Strait Islander People.....	<u>174</u> <u>172</u>
14.16	Waste Reduction and Purchasing Policy.....	<u>174</u> <u>172</u>
14.17	Training Management.....	<u>175</u> <u>172</u>
14.18	National Greenhouse and Energy Reporting Act 2007 (Cth).....	<u>175</u> <u>173</u>
14.19	Early warning procedure and risk reporting.....	<u>176</u> <u>174</u>
14.20	Management Review Group.....	<u>177</u> <u>175</u>
14.21	Management Review Group functions.....	<u>177</u> <u>175</u>
14.22	Management Review Group meetings.....	<u>178</u> <u>176</u>
14.23	Completion Steering Committee.....	<u>179</u> <u>177</u>
14.24	Completion Working Group.....	<u>180</u> <u>177</u>
14.25	Legal effect of meetings.....	<u>181</u> <u>178</u>
14.26	Quarterly whole of project reviews.....	<u>181</u> <u>179</u>
14.27	Independent Property Impact Assessment Panel.....	<u>182</u> <u>179</u>
15.	TIME AND PROGRESS.....	<u>182</u> <u>180</u>
15.1	Rate of Progress.....	<u>183</u> <u>180</u>
15.2	SSJ Contractor's Programming Obligations.....	<u>184</u> <u>181</u>
15.3	SSJ Contractor not Relieved.....	<u>185</u> <u>182</u>
15.4	Importance of Completion on Time.....	<u>185</u> <u>183</u>
15.5	<del>Risk and</del> Notice of Delay.....	<u>185</u> <u>183</u>
15.6	Recovery Plan.....	<u>186</u> <u>183</u>
15.7	Entitlement to Claim Extension of Time.....	<u>187</u> <u>184</u>
15.8	Claim for Extension of Time.....	<u>187</u> <u>184</u>
15.9	Conditions Precedent to Extension of Time.....	<u>188</u> <u>185</u>
15.10	Extension of Time.....	<u>188</u> <u>186</u>
15.11	Reduction in Extension of Time.....	<u>189</u> <u>187</u>
15.12	Unilateral Extensions.....	<u>189</u> <u>187</u>
15.13	Suspension.....	<u>190</u> <u>188</u>
15.14	Compression.....	<u>191</u> <u>189</u>
15.15	Compression by SSJ Contractor.....	<u>192</u> <u>190</u>
15.16	Milestones.....	<u>192</u> <u>190</u>
16.	PAYMENT.....	<u>192</u> <u>190</u>
16.1	Principal's payment obligation for design and construction.....	<u>192</u> <u>190</u>
16.2	Payment Claims.....	<u>194</u> <u>191</u>
16.3	Effect of payment schedules and payments.....	<u>198</u> <u>196</u>
16.4	Provision of documentation and other requirements.....	<u>199</u> <u>196</u>
16.5	Payment of Subcontractors, workers compensation and payroll tax.....	<u>200</u> <u>198</u>
16.6	Unfixed Plant and Materials.....	<u>201</u> <u>198</u>

16.7	SOP Act.....	202	199	
16.8	Right of set-off.....	204	202	
16.9	Interest.....	205	202	
16.10	Title.....	205	203	
16.11	Incentive Payments.....	205	203	
16.12	Outturn Cost exceeds Target Cost.....	206	203	
16.13	At-Risk Amount.....	206	Payment to date	203
16.14	No claim by SSJ Contractor.....	206	203	
16.15	GST.....	206	204	
17.	CONSTRUCTION COMPLETION AND COMPLETION.....	208	205	
17.1	Progressive Inspection and Testing.....	208	205	
17.2	Construction Completion.....	209	206	
17.3	Unilateral Issue of Notice of Construction Completion.....	211	208	
17.4	Completion.....	211	208	
17.5	Part of the Project Works or a Portion.....	212	209	
17.6	Liquidated Damages and indemnity for delay in reaching Construction Completion.....	212	210	
17.7	Effect of Notice of Construction Completion or Notice of Completion.....	215	212	
17.8	Access following Construction Completion of a Portion.....	215	212	
18.	CARE OF THE PROJECT WORKS, RISKS AND INSURANCE.....	215	213	
18.1	Responsibility for care of the Project Works.....	215	213	
18.2	Indemnity by the SSJ Contractor.....	216	213	
18.3	Principal's insurance.....	217	215	
18.4	SSJ Contractor's insurance obligations.....	218	215	
18.5	Workers compensation insurance.....	218	215	
18.6	Asbestos liability insurance.....	219	216	
18.7	Professional indemnity insurance.....	219	216	
18.8	Construction Plant insurance.....	219	216	
18.9	Motor vehicle insurance.....	219	216	
18.10	Periods of insurance.....	219	217	
18.11	Evidence of policies.....	220	217	
18.12	Provisions in policies.....	220	218	
18.13	General Obligations.....	221	218	
18.14	Premiums.....	221	219	
18.15	Undertaking to inform.....	222	219	
18.16	Reinstatement.....	222	219	
18.17	Application of insurance proceeds.....	223	220	
18.18	Damage to property.....	223	220	
18.19	Risk of deductibles or excesses.....	223	221	
19.	DEFAULT OR INSOLVENCY.....	224	221	
19.1	SSJ Contractor's Default.....	224	221	
19.2	Contents of Notice.....	225	222	
19.3	Rights of the Principal Following Notice.....	225	222	
19.4	Immediate Termination or Take-Out.....	225	222	
19.5	Principal's Common Rights After Take-Out or Termination.....	226	223	
19.6	Principal's Entitlements after Take-Out.....	227	224	
19.7	Principal's Rights after Termination.....	228	225	
19.8	SSJ Contractor's Rights after Repudiation or Wrongful Termination.....	228	225	
19.9	Termination for Convenience.....	229	226	
19.10	Payment for Termination for Convenience.....	229	226	
19.11	Preservation of Rights.....	230	227	
19.12	Termination by Frustration.....	230	227	
19.13	Codification of SSJ Contractor's Entitlements.....	231	228	
20.	DISPUTE RESOLUTION.....	231	228	



20.1	Disputes generally	231	228
20.2	<del>Notice of Independent</del> Dispute <del>231</del> <u>Avoidance and Resolution Panel</u>		228
20.3	<del>Executive Negotiation</del> <u>231</u> <u>Consultation and executive negotiation</u>		229
20.4	<u>Recommendation</u>		230
20.5	Expert determination	232	231
<del>20.5</del> <u>20.6</u>			Notice of dissatisfaction
<del>20.6</del> <u>20.7</u>			Final and binding decision
20.7	<del>Failure to comply with Expert's decision</del>	233	
20.8	Amicable settlement	233	232
20.9	Litigation or arbitration	233	232
20.10	Arbitration rules	234	232
20.11	Exclusion from determination or award	235	233
20.12	Payments	235	234
20.13	SSJ Contractor to continue performing obligations	235	234
20.14	Urgent relief	235	234
20.15	Dispute under related contracts	235	234
20.16	<del>Target Cost Offer Dispute</del>	236	
<del>20.17</del>	Survive termination	236	234
21.	LIABILITY	236	234
21.1	Limitation of Liability	236	234
21.2	Exclusion of proportionate liability scheme	238	237
21.3	SSJ Contractor not to apply proportionate liability scheme	239	237
21.4	Subcontracts	239	237
21.5	Insurance requirements	239	238
21.6	Provisions Limiting or Excluding Liability	239	238
22.	GENERAL	239	238
22.1	Notices generally	240	238
22.2	Governing Law	243	241
22.3	No Waiver	243	241
22.4	Assignment <del>243</del> <u>and Change in Control</u>		242
22.5	Entire Agreement	244	245
22.6	Joint and Several Liability	244	245
22.7	Severability	244	245
22.8	Indemnities to Survive	244	245
22.9	Stamp Duty and Other Fees	245	246
22.10	Taxes	245	246
22.11	Confidentiality	245	246
22.12	Principal May Act	246	247
22.13	Process Agent	247	248
22.14	Variations	247	248
22.15	Prior Work	247	248
22.16	Counterparts	247	248
22.17	Personal Property Securities Act	247	248
22.18	Vienna Convention	248	249
22.19	No Merger	248	249
22.20	Transfer of Functions or NSW <del>Rail</del> <u>Public Transport</u> Assets	248	249
23.	NOTIFICATION OF CLAIMS	249	250
23.1	Notice of Change	249	250
23.2	Notice of Other Claims	249	250
23.3	Prescribed Notices	250	251
23.4	Register of potential claims	250	252
23.5	Submission of Claims	251	252
23.6	Continuing Events	251	252
23.7	Bar	251	252

23.8	Other Provisions Unaffected	251	252
24.	REPRESENTATIONS AND WARRANTIES	251	252
24.1	Principal representations and warranties	251	252
24.2	SSJ Contractor Representations and Warranties	252	253
24.3	Repetition of representation and warranties	252	254

**THIS DEED** is made on 20 September 2017

**BETWEEN:**

(1) **Transport for NSW** ABN 18 804 239 602 a New South Wales Government agency constituted by section 3C of the *Transport Administration Act 1988* (NSW) ~~and located at~~ of Level 43, 680 George Street, Sydney NSW 2000 (the **Principal**); and

(2) **John Holland Pty Ltd** (ABN 11 004 282 268) of 70 Trenerry Crescent, Abbotsford VIC 3067; and

**Laing O'Rourke Australia Construction Pty Ltd** (ABN 39 112 099 000) of Level 4, 100 Arthur Street, North Sydney NSW 2060,

(together the **SSJ Contractor**).

**RECITALS:**

- (A) The Principal is procuring Sydney Metro City & Southwest on behalf of the NSW government and the people of New South Wales.
- (B) The Project Works are a critical component of Sydney Metro City & Southwest. The successful completion of the Project Works will require a high level of co-operation and collaboration between the SSJ Contractor and other works being procured by the Principal.
- (C) Following the completion of a request for proposal process, the Principal selected the SSJ Contractor as the successful proponent for the delivery of the Project Works.
- (D) ~~The SSJ Contractor has agreed to undertake the SSJ Contractor's Activities for the Target-Cost Development Phase, and if the Delivery Phase proceeds, the SSJ Contractor's Activities for the Delivery Phase in accordance with this Contract.~~ Principal and the SSJ Contractor now wish to enter into this Contract to record the terms on which the Project Works will be designed, constructed, tested, commissioned and handed over by the SSJ Contractor to the Principal.

**THE PARTIES AGREE AS FOLLOWS:**

**1. INTERPRETATION**

**1.1 Definitions**

In this Contract, unless the context otherwise indicates:

**ABC Commissioner** means the commissioner of the Australian Building and Construction Commission referred to in subsection 15(1) of the BCIIP Act.

**ABCC** means the body referred to in subsection 29(2) of the BCIIP Act.

**Accepted Defect** means a Defect (other than a Minor Defect) in relation to which the Principal has issued a direction under clauses 13.2(a)(iii), 13.2(a)(iv) or 13.2(a)(v) prior to the Date of Construction Completion of any Portion.

**Access Period** has the meaning given to that term in the Site Access Schedule.

**Accreditation** means accreditation (including provisional accreditation, conditions or restrictions in respect of accreditation or any variation to the accreditation) under Part 3 of the Rail Safety National Law (or an exemption from ~~the same~~).

**Accredited Site Auditor** means a person who is accredited as a site auditor under the *Contaminated Land Management Act 1997* (NSW).

**Acoustics Advisor** means the person identified in Schedule A1 as the acoustics advisor appointed by the Principal, or any replacement notified to the SSJ Contractor by the Principal's Representative.

**Additional Third Party Agreement** has the meaning given in clause 3.6.

**Additional Track Possession or Power Isolation** has the meaning given in clause 8.20(e).

**Agreed Defect** means a Defect (other than a Minor Defect) that:

- (a) the Principal, ~~and~~ the SSJ Contractor ~~and the Independent Certifier~~ agree in writing; or
- (b) the Principal's Representative otherwise directs,

does not need to be rectified in order to achieve Construction Completion of a Portion.

**Approved Subcontract Agreement** means an agreement which is entered into by the SSJ Contractor with a Subcontractor on the terms which have been approved in writing by the Principal's Representative under clause 12.7(b) and the DSI Contract.

**ASA Authorisation** means an authorisation issued by the ASA to a legal entity which verifies that it has the relevant systems in place to carry out the class of Asset Lifecycle work specified in the authorisation, subject to any conditions of the authorisation.

**ASA Charter** means the document which identifies the ASA's objectives, functions, powers and governance and the duties of Rail Transport Agencies and AEOs in relation to the ASA (as amended from time to time), a copy of which can be found on [www.asa.transport.nsw.gov.au](http://www.asa.transport.nsw.gov.au).

**ASA Requirements** has the meaning assigned to it in the ASA Charter.

**Asset Lifecycle** has the meaning assigned to it in the ASA Charter.

**Asset Lifecycle Services** means the aspects of the SSJ Contractor's Activities which relate to the Asset Lifecycle of NSW Rail Assets.

**Asset Management Information** means the information required to be delivered by the SSJ Contractor as set out in MR-T.

**Asset Standards Authority** or **ASA** means the unit within Transport for NSW which functions include setting, controlling, maintaining, owning and publishing the network and asset standards for NSW Rail Assets as defined in the ASA Charter. Information about the ASA and the network and asset standards can be found on [www.asa.transport.nsw.gov.au](http://www.asa.transport.nsw.gov.au).

**Associates** means:

- (a) in respect of the Principal, the Principal's Representative and any of the respective employees, agents, contractors or officers of the Principal and the Principal's Representative, but excludes:
- (i) the Independent Certifier;
  - (ii) the Environmental Representative;
  - (iii) the SSJ Contractor and its Subcontractors;
  - (iv) any Interface Contractors and their respective subcontractors;
  - (v) the Operator and its subcontractors; and
  - (vi) employees, agents, consultants and officers of the persons listed in paragraphs (i) to (v) above; and
- (b) in respect of the SSJ Contractor, its Subcontractors, each entity that comprises the SSJ Contractor, the Parent Company Guarantors and any of the respective employees, agents, contractors or officers of the SSJ Contractor, its Subcontractors and the Parent Company Guarantors (excluding the Independent Certifier and its employees, agents, consultants and officers).

~~At Risk Amount~~ means [REDACTED]

**ATSB** means the Australian Transport Safety Bureau constituted under the *Transport Safety Investigation Act 2003* (Cth).

**Ausgrid** means the statutory state owned corporation of that name established under the *Energy Services Corporations Act 1995* (NSW).

**Authorised Engineering Organisation** or **AEO** means a legal entity to whom the ASA has issued an ASA Authorisation.

**Authority** includes any governmental or semi-governmental or local government authority, administrative or judicial body or tribunal, department, commission, public authority, agency, Minister, statutory corporation or instrumentality (and includes ASA) and any private electricity, telecommunications, gas or other utility company to the extent it is exercising statutory rights in relation to the Project Works or the SSJ Contractor's Activities.

**Authority Approval** means any licence, permit, consent, approval, determination, exemption, certificate, memorandum of understanding, notification or permission from any Authority or under any Law, or any requirement made under any Law, which must be obtained or satisfied (as the case may be):

- (a) to carry out the SSJ Contractor's Activities;
- (b) to conduct work in the Rail Corridor;
- (c) to deal with, transport or dispose of Contamination or Waste; or
- (d) in connection with the Construction Site and any Extra Land (but only to the extent required for the performance of the SSJ Contractor's Activities);
- (e) for the use and occupation of:



- (i) any Portion (both individually and in combination with any earlier completed Portions) after Construction Completion of the Portion; or
  - (ii) the Project Works after Construction Completion of every Portion;
- (f) otherwise to comply with Law,

and for the avoidance of doubt includes:

- (g) the Planning Approval; and
- (h) any EPL issued in relation to the SSJ Contractor's Activities,

but does not include:

- (i) any direction given by the Principal or the Principal's Representative pursuant to this Contract; or
- (j) the exercise by the Principal of its rights under this Contract.

**Bank Bill** means a bill of exchange (under the *Bills of Exchange Act 1909*) which has been accepted by any bank authorised under a Law of the Commonwealth or any State to carry on banking business.

**Bank Bill Rate** is, for the relevant period:

- (a) the rate, expressed as a yield percent per annum (rounded downwards to 2 decimal places) quoted as the average bid rate on the Reuters monitor system page BBSY or any page which replaces that page) at about 10.30am (Sydney time) on the first day of the relevant period, for Bank Bills having a tenor of approximately 90 days; or
- (b) if there is a manifest error in the calculation of the average bid rate under paragraph (a) or if no average bid rate is published for Bank Bills ~~of~~ that tenor in accordance with paragraph (a), the bid rate agreed in good faith by the SSJ Contractor and the Principal having regard to the rates otherwise bid for Bank Bills having a tenor as described above at or around that time.

**BCIP Act** means the *Building and Construction Industry (Improving Productivity) Act 2016* (Cth).

**Building Code** means the *Code for Tendering and Performance of Building Work 2016* (Cth), or any subsequent code of practice which takes effect and supersedes that Code.

**Building Work** has the meaning given to that term in subsection 3(4) of the Building Code.

**Business Day** means any day other than a Saturday, Sunday ~~or~~ public holiday in New South Wales or 27, 28, 29, 30 ~~and~~ 31 December.

**CCU** means Construction Compliance Unit, the unit established within NSW Industrial Relations to monitor compliance with and receive reports of alleged breaches of the NSW Guidelines.

**Certified Environmental Consultant** means an environmental consultant that holds current certification as:



- (a) a "Certified Practitioner: Site Assessment and Management" from Site Contamination Practitioners Australia; or
- (b) a "Certified Environmental Practitioner" in the "Contaminated Land Specialist" category from the Environment Institute of Australia and New Zealand.

**Chain of Responsibility Management Plan** means the Contract Management Plan which is required to be provided and implemented by the SSJ Contractor pursuant to, and in accordance with, the MRs and the Planning Approval.

**Chain of Responsibility Provisions** refers to any section of the Heavy Vehicle National Law under which the SSJ Contractor is "a party in the chain of responsibility" (within the meaning given to that term under the Heavy Vehicle National Law).

Chair means the chairperson of the IDAR Panel as appointed under the IDAR Panel Agreement from time to time.

**Change** means any change to the SSJ Contractor's Activities, the Project Works or the Temporary Works including:

- (a) any addition or increase to, or decrease, omission or deletion from, the SSJ Contractor's Activities, the Project Works or the Temporary Works;
- (b) any change to the character or quality, or demolition or removal, of any material or work; or
- (c) any change to the levels, lines, positions or dimensions of any part of the Project Works or the Temporary Works,

but it excludes any Provisional Sum Work.

**Change in Codes and Standards** means a change in the Codes and Standards taking effect after the submission of the Target Cost Offer, excluding a change in the Codes and Standards which, as at the date of this Contract:

- (a) was published or of which public notice had been given (even as a possible change in the Codes and Standards); or
- (b) a person experienced and competent in the delivery of works and services similar to the Project Works or the SSJ Contractor's Activities (as applicable) would have reasonably foreseen or anticipated.

Change in Control means, in respect of an entity, any event occurs such that a change occurs in the Control of that entity.

**Change in Planning Approval** means a change:

- (a) in a Planning Approval which has been obtained by the Principal which is in existence as at the date of this Contract;
- (b) which is not caused or contributed to by an act or omission of the SSJ Contractor; and
- (c) which occurs after the date of this Contract.

**Change in Law** means any of the following if it takes effect after the date of this Contract:

(a) the amendment, repeal or change in an existing Law (other than a change in an Authority Approval); or

(b) a new Law (other than a new Authority Approval),

compliance with which:

(c) has a direct effect on the SSJ Contractor carrying out the SSJ Contractor's Activities; and

(d) directly results in an increase or decrease in the SSJ Contractor's costs of carrying out the SSJ Contractor's Activities, or a delay to the SSJ Contractor achieving Construction Completion of a Portion by the relevant Date for Construction Completion in accordance with clause 15.7(a),

but excludes an amendment, repeal or change of an existing Law or a new Law:

(e) in respect of Tax;

(f) which was caused or contributed to by any act or omission of the SSJ Contractor;

(g) which, as at the date of this Contract:

(i) was published or of which public notice had been given (even as a possible amendment, repeal or change in an existing Law or a possible new Law); or

(ii) a person experienced and competent in the delivery of the works and services similar to the Project Works or the SSJ Contractor's Activities would have reasonably foreseen or anticipated.

**Change Order** has the meaning given in clause 11.2.

[Change Order 001 means the Change Order titled "Performance of additional scope during the Target Cost Development Phase" dated 22 December 2017, a copy of which is included in Schedule A30.](#)

[Change Order 002 means the Change Order titled "Performance of additional scope during the Target Cost Development Phase" dated 23 February 2018, a copy of which is included in Schedule A31.](#)

**Change Proposal Request** has the meaning given in clause 11.1.

**City Stations** means Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Central, Waterloo and Sydenham stations.

**Claim** includes any claim, demand, action, proceeding or suit of any kind whatsoever for an increase in any component of the Target Cost, for payment of money (including costs, expenses, losses or damages), for an extension of time to a Date for Construction Completion or for any other form of relief:

(a) under, arising out of, or in any way in connection with, this Contract, including any direction of the Principal's Representative;

- (b) arising out of, or in any way in connection with, the SSJ Contractor's Activities or the Project Works or either party's conduct prior to the date of this Contract; or
- (c) otherwise at Law or in equity including:
  - (i) under or for breach of statute;
  - (ii) in tort for negligence or otherwise, including negligent misrepresentation; or
  - (iii) for restitution, including restitution based on unjust enrichment, on a quantum meruit or in quasi-contract.

**Code for the Tendering and Performance of Building Work** means the building code issued under section 34 of the *Building and Construction Industry (Improving Productivity) Act 2016* (Cth).

**Codes and Standards** means:

- (a) the codes and standards specified in section 4.2 of the SWTC; and
- (b) the Code of Practice for Procurement (January 2005), NSW Government Policy on Aboriginal Participation in Construction (May 2015), NSW Code, NSW Guidelines, Environmental Management Systems Guidelines (3rd edition) (May 2014), WHS Guidelines, Training Management Guidelines (February 2009), Quality Management System Guidelines for Construction (August 2013), GREP and any other NSW Government guidelines and requirements specified or required by this Contract.

**Collateral Warranty Deed Poll** means the deed poll entitled "Collateral Warranty Deed Poll" to be executed by the SSJ Contractor in favour of the Operator in substantially the same form as Schedule A27.

**Commissioning** has the meaning given to that term in the MR-Prelude.

**Commonwealth** means the Commonwealth of Australia.

**Compensable Contamination** means Contamination:

- (a) other than General Solid Waste; and
- (b) the presence of which:
  - (i) is either not identified in or could not be reasonably inferred from the Reports; and
  - (ii) could not have been identified or could not have been reasonably anticipated by a competent and experienced contractor which has:
    - (A) done those things the SSJ Contractor is deemed to have done under clause 8.7(b) as at the date of this Contract; and
    - (B) done those things the SSJ Contractor is deemed to have done under clause 8.7(c) as at the date of submitting the Target Cost Offer.

[REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

**Completion** means the stage in the execution of the SSJ Contractor's Activities in respect of a Portion (other than Portion 1) when:

- (a) Construction Completion has been achieved in respect of the Portion;
- (b) the SSJ Contractor has given to the Principal's Representative (with a copy to the Operator if required by the Principal) all Asset Management Information (including as-built drawings) certified which has not been rejected by the ~~Independent Certifier~~ Principal's Representative under clause 9.15(c)(ii) relating to that Portion;
- (c) the SSJ Contractor has corrected all Minor Defects and Agreed Defects that are listed in the Independent Certifier's Notice of Construction Completion;
- (d) the SSJ Contractor has done everything else which is stated to be a condition precedent to Completion of the Portion or which the SSJ Contractor is otherwise expressly required by this Contract to do before Completion of the Portion; and
- (e) ~~(d)~~ in respect of the final Portion to reach Completion, the SSJ Contractor has executed and delivered the Collateral Warranty Deed Poll.

In respect of Portion 1, Completion will be deemed to occur on the Date of Construction Completion.

**Completion Steering Committee** means the group referred to in clause 14.23.

**Completion Working Group** means the group referred to in clause 14.24.

**Confidentiality Undertaking** means a confidentiality undertaking in the form set out in Schedule B7.

**Configuration Change Acceptance Notice** means a notice of that name issued by the Configuration Control Board in respect of Design Documentation.

**Configuration Control Board** means the board established by TfNSW to manage configuration changes for the Sydney Metro delivery office in accordance with the Configuration Management Framework.

**Configuration Management Framework** means the framework established by the ASA from time to time for configuration management.

**Consequential Loss** means any:

- (a) loss of income, loss of revenue, loss of profit, loss of financial opportunity, loss of business or loss of business opportunity, loss of contract, loss of goodwill, loss of use or loss of production (whether the loss is direct or indirect); or
- (b) direct or indirect financing costs,

whether present or future, fixed or unascertained, actual or contingent.

**Construction Completion** means the stage in the execution of the SSJ Contractor's Activities in respect of a Portion (other than Portion 1) when:

- (a) the Portion is complete in accordance with this Contract except for any:
  - (i) Minor Defects;
  - (ii) Accepted Defects; and
  - (iii) Agreed Defects;
- (b) the SSJ Contractor has rectified all Mandatory Defects;
- (c) the SSJ Contractor has:
  - (i) carried out and passed all tests that:
    - (A) are required under this Contract to be carried out and passed before the Portion reaches Construction Completion; or
    - (B) must necessarily be carried out and passed before the Portion can be used for its intended purpose and to verify that the Portion is in the condition this Contract requires it to be in at Construction Completion;
  - (ii) obtained all Authority Approvals that it is required under this Contract to obtain before Construction Completion of the Portion and provided such Authority Approvals to the Principal's Representative;
  - (iii) obtained from the Independent Certifier a certificate in the form of Schedule B9 for all Design Stage 3 Design Documentation for that Portion;
  - (iv) ~~(iii)~~ given to the Principal's Representative (with a copy to the Operator or any other party as required by the Principal) all documents and information in respect of the design, construction, testing, commissioning, completion, occupation, use and maintenance of the Portion which:
    - (A) are required by this Contract to be given to the Principal's Representative before Construction Completion of the Portion; or
    - (B) must necessarily be handed over before the Portion can be used for its intended purpose,  
  
including copies of all documentation in accordance with the requirements of MR-T, but not including Asset Management Information (including as-built drawings) as directed by the Principal's Representative;
  - (v) ~~(iv)~~ executed a certificate in the form of Schedule B4 for the Portion and provided it to the Principal's Representative and the Independent Certifier;
  - (vi) ~~(v)~~ provided the training required by the SWTC and MRs to the reasonable satisfaction of the Principal's Representative; and
  - (vii) ~~(vi)~~ removed all Construction Plant from the parts of the Construction Site that relate to the Portion, other than any Construction Plant necessary to facilitate the handover of the Portion ~~to~~ (or, if approved in writing by the Principal or's Representative, any other Portion) to the Principal or to which

- is required to be retained on the Construction Site in accordance with clause 3.10(c) (where approved by the Principal's Representative in accordance with clause 3.10(c));
- (d) the SSJ Contractor has, in respect of any Extra Land occupied or used in connection with the Portion, provided the Principal's Representative with:
- (i) unless not required by the Principal's Representative, a properly executed certificate in the form of Schedule B6 or properly executed releases on terms satisfactory to the Principal's Representative from all claims or demands from the owners or occupiers of the Extra Land and from other persons having interests in such land; or
- (ii) statements under clause 8.5(c)(iii); and
- (e) the SSJ Contractor has submitted all information required to be submitted by it under MR-T of sufficient quality to support the Gate 5 submission that permits the Principal to gain a TNAC acceptance notice; and
- (f) ~~(e)~~ the SSJ Contractor has done everything else which is stated to be a condition precedent to Construction Completion of the Portion or which the SSJ Contractor is otherwise expressly required by this Contract to do before Construction Completion of the Portion.

In respect of Portion 1, Construction Completion will be deemed to occur once the SSJ Contractor has prepared and submitted in accordance with the requirements of this Contract the Design Documentation for Design Stage 3 for the Brownfield Rail Works (SWTC section 2.3.2.1), Sydenham Junction Works (SWTC section 2.3.2.2) and the Utility Service Works, excluding the signalling interlocking data required for the computer based interlocking.

**Construction Environmental Management Plan** means the plan which forms part of the Contract Management Plan which is required to be provided and implemented by the SSJ Contractor pursuant to, and in accordance with, the MRs and the Planning Approval.

**Construction Plant** means equipment, appliances, machinery and things used in the execution of the SSJ Contractor's Activities but not forming part of the Project Works.

**Construction Site** means the Project Site and the Temporary Areas.

Consultation has the meaning given to that term in clause 20.3.

**Contamination** means the presence in, on or under land or water or any other aspect of the Environment of:

- (a) a substance (whether occurring naturally or otherwise) which is at a concentration above the concentration at which the substance (whether occurring naturally or otherwise) is normally present in, on or under land or water or any other aspect of the Environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the Environment; or
- (b) a Hazardous Chemical.

**Contestable Utility Service Work** means the work identified as Contestable Utility Service Work in Schedule A22.



**Contract** means this contract between the Principal and the SSJ Contractor in respect of the Project Works.

**Contract Documentation and Materials** has the meaning given in clause 10.13(b).

**Contract Management Plan** means the documents required to be provided and implemented by the SSJ Contractor pursuant to ~~the~~ MR-PA and as developed, amended or updated from time to time in accordance with the Contract.

**Contract Price** means, subject to this Contract, the sum of:

- (a) the Design Fee;
- (b) the Design Fee (Signalling);
- (c) the Management Fee;
- (d) the Preliminaries Fee;
- (e) the Reimbursable Costs;
- (f) the Target Cost Development Phase Site Investigations Fee; and
- (g) the amounts paid to the SSJ Contractor in respect of Provisional Sum Work.

~~**Cost Breakdown** means:~~

- ~~(a) the reimbursable cost estimates submitted by the SSJ Contractor in its Proposal; and~~
- ~~(b) the indicative value of the value engineering opportunities specified in Schedule A4, set out in Schedule A21.~~

**Control** has the meaning given to that term in the *Corporations Act 2001* (Cth).

**Cost Incentive** means the amounts (if any) to which the SSJ Contractor may become entitled to or which may become payable by the SSJ Contractor under clause 16.11(a).

**Cost Plan** means the cost plan ~~prepared in accordance with the requirements for the cost plan set out in Schedule F7 and accepted as part of the Target Cost Offer 7, as amended from time to time in accordance with the terms of this Contract.~~

**Crown Building Work** has the meaning given to that term in section 109R of the *Environmental Planning and Assessment Act 1979* (NSW).

**Date for Completion** means in respect of a Portion (other than Portion 1) the date that is 90 days after the Date of Construction Completion of the relevant Portion.

**Date for Construction Completion** means, in respect of a Portion:

- (a) at the date of this Contract, the applicable date specified for the Portion in Schedule A2; or

- (b) where, in respect of a Portion, an extension of time for Construction Completion is granted by the Principal's Representative or allowed in any Expert's determination or arbitration or litigation proceedings, the date resulting therefrom.

**Date of Completion** means:

- ~~(a) the date notified in a Notice of Completion as the date Completion was achieved, or~~  
~~(b) where another date is determined in any Expert's determination or arbitration or litigation proceedings as the date upon which Completion was achieved, that date.~~

~~**Date of Construction Completion** means:~~

- ~~(a) Date of Construction Completion means the date notified in a Notice of Construction Completion as the date Construction Completion was achieved, or~~  
~~(b) where another date is determined in any Expert's determination or arbitration or litigation proceedings as the date upon which Construction Completion was achieved, that date.~~

**Declaration of Compliance** means a declaration in substantially the same form as the model declaration of compliance applicable to contractors and subcontractors in relation to the Building Code.

**Deed of Disclaimer** means each deed of disclaimer signed by the SSJ Contractor in favour of the Principal, a copy of which appears in Schedule A14.

**Defect** means any:

- (a) defect, deficiency, fault, error or omission in the Project Works or Temporary Works; or
- (b) any:
- (i) cracking, shrinkage, movement or subsidence in the Project Works or Temporary Works; or
  - (ii) other aspect of the Project Works, Temporary Works or SSJ Contractor's Activities,

which is not in accordance with the requirements of this Contract,

but does not include:

- (c) any damage caused to the Project Works after the Date of Construction Completion to the extent that damage was not caused or contributed to by the SSJ Contractor or its Associates; or
- (d) any of the matters in paragraph (a) or (b) arising in respect of the Project Works after the Date of Construction Completion due to a failure to operate and maintain the Project Works in accordance with the operation and maintenance manuals forming part of the Asset Management Information.

**Defects Correction Period** means ~~at the~~ period referred to in ~~clauses~~clause 13.6, 13.7(a), 13.8(a) or 13.9 as the case may be.



**Delivery Phase** means the period commencing on the ~~date one of the circumstances in clause 4.1 has occurred~~ Delivery Phase Commencement Date, during which the SSJ Contractor must:

- (a) complete all remaining Design Work;
- (b) construct the Project Works; and
- (c) carry out all other SSJ Contractor's Activities not completed during the Target Cost Development Phase.

**Delivery Phase Commencement Date** means 22 June 2018.

**Design Agreement** means an agreement which is entered into by the SSJ Contractor with a Designer for the Target Cost Development Phase or otherwise on the terms which have been approved in writing by the Principal's Representative under clause 12.18(a)(i).

**Design Documentation** means all design documentation (including design standards, concrete mix designs, design reports, durability reports, construction descriptions, specifications, models, samples, prototypes, calculations, shop drawings, drawings, digital records, business rules, system processes, computer software and all other relevant data) in electronic, computer readable and written or physical forms, or stored by any other means required by this Contract or necessary to be produced by or on behalf of the SSJ Contractor to design and construct the Project Works and the Temporary Works and documentation (including certificates and check lists) to evidence that the design documentation complies with the requirements of this Contract.

**Design Fee** means Design Fee (Target Cost Development Phase) and Design Fee (Delivery Phase).

**Design Fee (Delivery Phase)** means the aggregate ~~of~~ in respect of:

- (a) Design Work other than Self-Performed Design Work, all amounts properly and actually incurred and payable by the SSJ Contractor to Designers (other than the Signalling Designer) for the performance of Design Work during the Delivery Phase in accordance with the Design Agreements; and
- (b) Self-Performed Design Work (if any):
  - (i) to the extent that the SSJ Contractor and the Principal's Representative have agreed that the Self-Performed Design Work will be subject to a fixed price, that agreed amount; and
  - (ii) otherwise, the sum ascertained by multiplying the number of hours the design resource is employed in the execution of the Self-Performed Design Work for any given period under the Contract by:
    - (A) the applicable rate in Schedule F2; or
    - (B) where there is no applicable agreed rate in in Schedule F2 or otherwise agreed between the parties in writing, a reasonable rate as determined by the Principal's Representative;

but excluding, in any event, all Excluded Costs (Design).

**Design Fee (Delivery Phase) Element** means [REDACTED]



■ [REDACTED]  
[REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

■ [REDACTED]  
[REDACTED]

**Design Fee (Signalling)** means [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Design Fee (Signalling) Contract Upper Limiting Fee** means [REDACTED]  
[REDACTED]

**Design Fee (Target Cost Development Phase)** means [REDACTED]  
[REDACTED]

**Design Management Plan** means the Contract Management Plan referred to as the Design Management Plan in the SWTC, as updated from time to time in accordance with clause 14.11.

[Design Notice has the meaning given in Schedule A28.](#)

**Design Stage** means each of Design Stage 1, Design Stage 2 and Design Stage 3.

**Design Stage 1** means stage 1 of the development of the Design Documentation as described in MR-T and MR-Prelude.

**Design Stage 2** means stage 2 of the development of the Design Documentation as described in MR-T and MR-Prelude.

**Design Stage 3** means stage 3 of the development of the Design Documentation as described in MR-T and MR-Prelude.

**Design Work** means the design work to be carried out by the SSJ Contractor in designing the Project Works and Temporary Works including technical support during construction and those tasks defined in Schedule C3, and the Design Work (Signalling).

**Design Work (Signalling)** means the design work to be carried out by the Signalling Designer under the Design Work (Signalling) Contract.

**Design Work (Signalling) Contract** means the contract between the Principal and the Signalling Designer dated 27 July 2017.

**Design Work (Signalling) Contract Deed of Novation** means ~~a~~the deed between the Principal, the SSJ Contractor and the Signalling Designer ~~substantially in the form of~~in Schedule A23.

**Designer** means all designers engaged by the SSJ Contractor in relation to performing the Design Work; ~~(including the Signalling Designer~~those identified in Schedule A1).

**Dispute** ~~has the meaning given to that term in clause 20.1.~~means any dispute, controversy or claim arising out of, relating to or in connection with this Contract or the Project Works, the Temporary Works, the SSJ Contractor's Activities, including any question regarding its validity, existence or termination, but excluding a failure by a party to comply with any final and binding decision of the Expert.

**Document** means any document which is required to be submitted for the review of the Principal's Representative under this Contract.

**Draft Third Party Agreement** has the meaning given in clause 3.6(a)(iii)(A).

**DSI Contract** means the contract to be entered into between the SSJ Contractor and the ~~VF I&E~~ Contractor in respect of the ~~Vertical Transportation~~lifts and Escalators Work.

**Early Completion Payment** means the amounts (if any~~amount)~~ to which the SSJ Contractor may become entitled to under Schedule A2 in respect of a Milestone.

**Environment** means components of the earth, including:

- (a) land, air and water;
- (b) any layer of the atmosphere;
- (c) any organic or inorganic matter and any living organism;
- (d) human-made or modified structures and areas; and
- (e) interacting natural ecosystems that include components referred to in paragraphs (a) to (c).

**Environmental Documents** means the documents listed as such in Schedule E3 and Appendix B8 of the SWTC.

**Environmental Representative** means the person identified in Schedule A1 as the environmental manager appointed by the Principal, or any replacement notified to the SSJ Contractor by the Principal's Representative.

**EP&A Act** means the *Environmental Planning and Assessment Act 1979* (NSW).

**EPA** means the Environment Protection Authority constituted by the *Protection of the Environment Administration Act 1991* (NSW).

**EPL** means an environment protection licence issued under the *Protection of the Environment Operations Act 1997* (NSW).

**Excepted Risk** means:

- (a) war (declared or undeclared), revolution, insurrection, civil commotion, military action, an act of public enemy or an act of sabotage, in each case occurring within Australia;
- (b) a terrorist act as defined in section 3 of the *Terrorism Insurance Act 2003* (Cth) occurring within Australia (other than a declared terrorist incident as defined in section 3 of the *Terrorism Insurance Act 2003* (Cth)); and
- (c) ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel,

in each case occurring within Australia and only to the extent not caused by the SSJ Contractor or its Associates.

**Excluded Claim** means any claim:

- (a) with respect to a Change in Law under clause 7.4;
- (b) for a Change directed in accordance with clause 11.2 or a direction by the Principal's Representative to which clause 23.1 applies;
- (c) for an extension of time under clause 15.8; or
- (d) for payment under clause 16.

**Excluded Costs** means any of the following amounts paid or payable by the SSJ Contractor or incurred by the SSJ Contractor:

- (a) amounts incurred in correcting Defects, including amounts paid or payable by the SSJ Contractor to any Subcontractors for correcting Defects;
- (b) amounts (including damages) paid or payable by the SSJ Contractor to any Subcontractors or third party by reason of any breach of contract or other wrongful act or omission by the SSJ Contractor including a breach by the SSJ Contractor of the Contract, except to the extent that such breach or wrongful act or omission was directly caused by any breach of contract or other wrongful act or omission of the Principal;
- (c) subject to clauses 18.1(d) and 18.1(e), amounts incurred in carrying out any replacement, making good or repair under clause 18.16 (including any excesses and deductibles under any insurances amounts which are recovered or but for the SSJ Contractor's failure to comply with the relevant insurance policy would have been reimbursed under insurance policies, and any amounts paid or payable by the SSJ Contractor to any Subcontractors);
- (d) any legal, expert or other consultants costs incurred by the SSJ Contractor arising out of or in connection with any Approved Subcontractor Agreement other than as provided in clause 12.11;
- (e) other amounts not properly incurred in respect of the execution of the Reimbursable Work or which the Contract provides are to be borne or paid by the SSJ Contractor or to be a debt due from the SSJ Contractor to the Principal or which are payable by the SSJ Contractor to the Principal under any indemnity;

- (f) costs which the SSJ Contractor cannot substantiate on an arm's length or Open Book Basis;
- (g) any costs attributable to the termination of a Subcontractor and the engagement of a replacement subcontractor;
- (h) amounts in respect of which the Management Fee, Design Fee and the Preliminaries Fee are paid or payable;
- (i) liquidated damages;
- (j) amounts paid or payable under any indemnity in this Contract;
- (k) amounts which are recovered or but for the SSJ Contractor's failure to comply with the relevant insurance policy would have been reimbursed under insurance policies;
- (l) amounts payable by the SSJ Contractor under ~~clause 1(e) of the expert determination rules in Schedule A17~~ the IDAR Panel Agreement;
- (m) in respect of Lifts and Escalators Work, any amounts payable to the L&E Contractor in connection with the use of any lift as a builder's lifts following practical completion under the DSI Contract; and
- (n) ~~(m)~~ other amounts stated in any other provision of this Contract:
  - (i) to not be "Reimbursable Costs";
  - (ii) for which the Principal is expressly stated to not be liable for; or
  - (iii) to be at the SSJ Contractor's cost.

**Excluded Costs (Design)** means any of the following amounts paid or payable by the SSJ Contractor or incurred by the SSJ Contractor during the Delivery Phase:

- (a) amounts incurred in correcting defective Design Work, including amounts paid or payable by the SSJ Contractor to any Designers for correcting defective Design Work;
- (b) amounts (including damages) paid or payable by the SSJ Contractor to any Designers by reason of any breach of contract or other wrongful act or omission by the SSJ Contractor including a breach by the SSJ Contractor of the Contract, except to the extent that such breach or wrongful act or omission was directly caused by any breach of contract or other wrongful act or omission of the Principal;
- (c) any legal, expert or other consultants costs incurred by the SSJ Contractor arising out of or in connection with any Design Agreement other than as provided in clause 12.11;
- (d) other amounts not properly incurred in respect of the execution of the Design Work or which the Contract provides are to be borne or paid by the SSJ Contractor or to be a debt due from the SSJ Contractor to the Principal or which are payable by the SSJ Contractor to the Principal under any indemnity;
- (e) costs which the SSJ Contractor cannot substantiate on an arm's length or Open Book Basis;

- (f) any costs attributable to the termination of a Designer and the engagement of a replacement designer;
- (g) amounts in respect of which the Management Fee, Reimbursable Costs and the Preliminaries Fee are paid or payable;
- (h) amounts paid or payable under any indemnity in this Contract;
- (i) amounts which are recovered or but for the SSJ Contractor's failure to comply with the relevant insurance policy would have been reimbursed under insurance policies; and
- (j) other amounts stated in any other provision of this Contract:
  - (i) for which the Principal is expressly stated to not be liable for; or
  - (ii) to be at the SSJ Contractor's cost.

**Exclusion Sanction** has the meaning given to that term in subsection 3(1) of the Building Code.

**Executive Negotiators** means the persons described in Schedule A1.

**Existing Asset** means the assets described in Schedule E7.

**Existing Operations** means:

- (a) all infrastructure (including existing infrastructure, infrastructure that is under construction and Utility Services) which is owned, operated or under the control of an Existing Operator; and
- (b) the businesses and operations undertaken by an Existing Operator, on or in the vicinity of the Construction Site.

**Existing Operator** means:

- (a) RailCorp;
- (b) Sydney Trains;
- (c) NSW Trains;
- (d) RMS;
- (e) Ausgrid;
- (f) Sydney Water;
- (g) Telstra;
- (h) Qenos;
- (i) Jemena; or
- (j) any other person who owns, operates or controls any infrastructure (including existing infrastructure, infrastructure that is under construction and the Utility

Services) or undertakes any business or operation on or in the vicinity of the Construction Site,

and any of their related bodies corporate (as that term is defined in section 9 of the Corporations Act 2001 (Cth)) and contractors.

**Expert** means ~~the~~ the person(s) appointed to determine a Dispute pursuant to clause ~~20.4~~20.5.

**Extended Milestone Date** means the date described as the extended milestone date in Table 3 of Schedule A2.

**Extension Event** means:

- (a) an act or omission of the Principal, the Principal's Associates or the Principal's Representative (including any breach of contract or Change directed by the Principal's Representative) but excluding any act or omission of the Principal or the Principal's Representative authorised or permitted by the Contract; ~~or~~
- (b) the cancellation by the relevant Rail Transport Agency of a Track Possession listed in Schedule E2:
  - (i) less than 12 weeks prior to the time at which it was planned to commence in accordance with Schedule E2; or
  - (ii) with more than 12 weeks' notice prior to the time at which it was planned to commence in accordance with Schedule E2, but without the provision of an alternative Track Possession at a time the SSJ Contractor is reasonably able to utilise in substitution for the cancelled Track Possession;
- (c) compliance with any Change in Codes and Standards as described in clause 7.3;
- (d) compliance with any Change in Law as described in clause 7.4;
- (e) a Change in Planning Approval, but only where the change has a direct effect on the SSJ Contractor carrying out the SSJ Contractor's Activities and necessitates a Change as described in clause 7.5;
- (f) a legal challenge to the assessment, determination or modification of a Planning Approval as described in clause 7.6(b);
- [REDACTED]**
- [REDACTED]**
- (i) a failure by the Principal to provide access to the Construction Site in accordance with clause 8.1, including failure to provide a Temporary Shutdown (but not including cancellation of a Track Possession);
- (j) compliance with:
  - (i) a direction given by the Principal's Representative in accordance with clause 8.11(b)(iv); or



- (ii) requirements of Authorities or Law in accordance with clause 8.11(b)(iii);
- (k) the Configuration Change Acceptance Notice has not been obtained as contemplated by clause 10.8(~~mn~~);
- (l) the TNAC acceptance notice for a Gate 5 design package is not issued within 10 Business Days after submission of the TNAC;
- (m) ~~(+)~~ any Change under clause 11;
- (n) ~~(+)~~ suspension of the Project Works by the Principal unless the direction to suspend is as a result of the SSJ Contractor's failure to perform its obligations in accordance with this Contract, as described in clause 15.13;
- (o) ~~(+)~~ a Force Majeure Event;
- (p) ~~(+)~~ a Native Title Claim;

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]



- (b) a declared terrorist incident as defined in section 3 of the *Terrorism Insurance Act 2003* (Cth) occurring within Australia;
- (c) an earthquake occurring within Australia;
- (d) a flood which might at the date of this Contract be expected to occur less frequently than once in every 100 years (based on the 1:100 year average recurrence interval flood event) occurring within Australia; or
- (e) a fire or explosion resulting from an event referred to in paragraphs (a) to (d) (inclusive) of this definition ~~above~~ occurring within Australia,

which:

- (f) is beyond the reasonable control of the SSJ Contractor and its Associates; and
- (g) prevents or delays the SSJ Contractor from performing an obligation under this Contract, where that event or the consequence of that event does not arise from any act or omission of the SSJ Contractor (including from any breach by the SSJ Contractor of a term of this Contract).

[Gate 5 means the configuration gate for asset acceptance as detailed in the TfNSW Configuration Management Plan.](#)

**General Conditions** means clauses 1 to 24 of this Contract.

**General Solid Waste** means Contamination which is general solid waste (non putrescible) as defined in the Department of Environment, Climate Change and Water NSW Waste Classification Guidelines dated December 2009.

**Global Safety Interface Agreement** means the Third Party Agreement of that name set out in Schedule E5.

**Good Industry Practice** means that degree of skill, care, prudence, foresight and practice which would reasonably be expected from time to time of a skilled and experienced person, engaged in the same or similar type of undertaking as that of the SSJ Contractor or its Associates in Australia, as the case may be, under the same or similar circumstances as the performance of the SSJ Contractor's Activities and which includes compliance with all Laws relating to the Environment and all guidelines made or approved by the EPA.

**Greenhouse Data** means all data, information, records and reports of the type that a registered corporation or any other person may be required or entitled to provide under the NGER Legislation, including as to:

- (a) greenhouse gas emissions, energy production or energy consumption; and
- (b) reduction of greenhouse gas emissions, removal of greenhouse gases or offsets of greenhouse gas emissions from any greenhouse gas project,

relating to any aspect of any of the SSJ Contractor's Activities or the activities of any of the SSJ Contractor's personnel in connection with the SSJ Contractor's Activities.

**GREP** means the NSW Government Resource Efficiency Policy (as amended from time to time).

**GST Legislation** has the meaning given in clause 16.15(i)(ii).

Hand Back occurs in respect of a Track Possession or Temporary Shutdown when the SSJ Contractor provides Sydney Trains (or Sydney Trains provides the SSJ Contractor) with the relevant documentation required by the Network Rules and procedures and Sydney Trains possession management processes.

**Hazardous Chemical** has the meaning given in WHS Legislation.

IDAR Panel means the Independent Dispute Avoidance and Resolution Panel constituted under the IDAR Panel Agreement, referred to in clause 20.

IDAR Panel Agreement means the agreement which appears in Schedule A29.

IDAR Panel Agreement Accession Deed Poll means an accession deed poll, substantially in the form of Schedule 1 of the IDAR Panel Agreement.

**IC Design Review Period** means:

- (a) in the case of Design Documents (as defined in the WAD) which include the installation, erection, alteration, operation or removal of traffic control lights on any road or road related area, the period specified in the WAD;
- (b) in the case of Design Documents (as defined in the WAD) which include the construction, erection, affixing, marking, repair, alteration or removal of a traffic control facility (as defined in Part 6 of the *Transport Administration Act 1988* (NSW)) or road work (as defined in the *Roads Act 1993* (NSW)), the period specified in the WAD; and
- (c) in any other case, 20 Business Days,

of the date on which the Independent Certifier is provided with any Design Documentation for any Design Stage ~~is submitted~~<sup>3</sup> in accordance with clause 10.4(b).

~~**IC Design Re-Review Period** means the number of Business Days taken by the SSJ Contractor to re-submit the Asset Management Information rejected under clause 9.15(c)(i), provided that: is 5 Business Days.~~

- ~~(a) if the SSJ Contractor has taken less than 5 Business Days to re-submit the Asset Management Information, the period is 5 Business Days; or~~
- ~~(b) if the SSJ Contractor has taken more than 15 Business Days to re-submit the Asset Management Information, the period is 15 Business Days.~~

**Incident** means any of the following incidents or events arising out of or in connection with the SSJ Contractor's Activities:

- (a) any work health and safety or environmental or security incident including:
  - (i) a fatality or injury to any person including any incident which must be reported to SafeWork NSW, ONRSR, or other work health and safety regulator;
  - (ii) an occurrence or set of circumstances as a consequence of which pollution (air, water, noise or land) or an adverse environmental impact has occurred or is likely to occur;
  - (iii) any fire or dangerous event on the Construction Site or Extra Land;

- (iv) a security breach;
  - (v) any unauthorised removal of trees;
  - (vi) any incident involving the community;
  - (vii) any accidents involving damage to persons or property occurring upon or in the vicinity of the Construction Site or any Extra Land or in the supply chain where the Chain of Responsibility Provisions apply;
  - (viii) a non-compliance with an Authority Approval;
  - (ix) any public complaint; or
  - (x) any incident defined in MR-S;
- (b) any unplanned and/or undesired event which results in or has the potential to result in injury, ill-health, damage to or loss of property or existing infrastructure, interruption to operations or environmental impairment,

and includes:

- (c) a near miss, breach of procedure, quality failure and/or injuries to contractors and members of the public; and
- (d) a "notifiable incident" under the WHS Legislation and a "notifiable occurrence" under the Rail Safety National Law.

**Independent Certifier** means the person(s) appointed from time to time by the Principal and the SSJ Contractor to perform the role ascribed to the Independent Certifier under the Independent Certifier Deed.

**Independent Certifier Deed** means the deed so titled ~~dated on or about the date of the commencement of the Delivery Phase~~ to be entered into between the Principal, the SSJ Contractor and the Independent Certifier substantially in the form set out in Schedule B8.

**Independent Certifier's Representative** has the meaning given to that term in the Independent Certifier Deed.

**Independent Estimator** means the independent estimator appointed in accordance with clause 9.14(b).

**Independent Property Impact Assessment Panel** means the independent property impact assessment panel established by the Principal for the purpose of the Project in accordance with the requirements of the Planning Approval.

**Independent Safety Advisor** means the independent safety advisor appointed in accordance with clause 9.14(a), subject to replacement or termination in accordance with clause 9.14(a).

**Independent Safety Assessment** means an independent safety assessment undertaken in accordance with the Major Project Guidelines.

**Information Documents** means:

- (a) the items specified in Schedule A15; and

- (b) all other documents, core and other samples, Schedules and materials in any format or medium including any electronic form provided to the SSJ Contractor unless expressly identified as forming part of this Contract,

including anything which is expressly stated by this Contract to form part of the Information Documents.

**Initial Contract Management Plans** means the initial Contract Management Plans set out in Schedule D2.

**Initial Reports** means the reports attached at Schedule A16 and **Initial Report** means any one of them as the context may require.

**Insolvency Event** means when:

- (a) one party informs the other party in writing, or its creditors generally, that the party is insolvent or is unable to proceed with its obligations under this Contract for financial reasons;
- (b) in relation to an individual, the individual (being a party) commits an act of bankruptcy, a bankruptcy petition is presented against the individual or the individual is made bankrupt;
- (c) execution is levied against a party by a creditor, debenture holders or trustees or under a floating charge; or
- (d) in relation to a corporation any one of the following:
  - (i) notice is given of a meeting of creditors with a view to the corporation entering into a deed of company arrangement or scheme of arrangement (other than a solvent scheme of arrangement);
  - (ii) the corporation enters a deed of company arrangement or composition with creditors;
  - (iii) an application is made for, a resolution is passed by the directors for the appointment of, or an order is made for, a controller, administrator, receiver, receiver and manager, provisional liquidator or liquidator to be appointed to the corporation;
  - (iv) a controller, administrator, receiver, receiver and manager, provisional liquidator or liquidator is appointed to the corporation;
  - (v) an application is made to a court for the sequestration or winding up of the corporation and not stayed, dismissed or discontinued within 21 days;
  - (vi) a sequestration order or winding up order is made in respect of the corporation;
  - (vii) the corporation resolves by special resolution that it be wound up voluntarily (other than for a members' voluntary winding-up), or a meeting of creditors of a party under administration or a deed of company arrangement resolves that the corporation be wound up;
  - (viii) a mortgagee of any property of the corporation takes possession of that property;

- (ix) the corporation ceases, suspends or threatens to cease or suspend the conduct of all or a substantial part of its business, or disposes or threatens to dispose of all or a substantial part of its assets; or
- (x) any act which is done or event which is analogous or similar effect to any of the events in paragraphs (a) to (d).

**Inspection** includes auditing, surveillance, monitoring, testing, review, examination and measuring.

**Institution** means any authorised deposit taking institution holding an authority to carry on banking business in Australia under the terms of the *Banking Act 1959* (Cth).

**Intellectual Property** means all rights in copyright, inventions (including patents and innovation patents), registered and unregistered trademarks or name, registered and registrable designs, confidential information, trade secrets, technical data and know how, circuit layout rights, and all other protected rights of intellectual property defined in Article 2 of the Convention Establishing the World Intellectual Property Organisation of July 1967.

**Interface Contractor** means an Other Contractor listed in Schedule A1 or otherwise identified by the Principal's Representative as an Interface Contractor that is carrying out, or that will carry out, Interface Work.

**Interface Management Plan** means the plan to be developed by the SSJ Contractor in accordance with MR PA.

**Interface Work** means the work to be executed by Interface Contractors, which will interface with or affect or be affected by the SSJ Contractor's Activities and the Project Works, including that described in the SWTC.

**Investigative Authority** means any Authority having a statutory right to investigate:

- (a) the SSJ Contractor's Activities, the Project Works or the Project; or
- (b) any activities of the Principal which are affected by the SSJ Contractor's Activities, the Project Works or the Project;

including ATSB, ONRSR and OTSI.

**Jemena** means Jemena Limited ABN 95 052 167 405.

**KPI Incentive** means the amounts (if any) to which the SSJ Contractor may become entitled to under Schedule F6.

**L&E Contractor** means the contractor to be engaged by the Principal under a framework agreement and appointed by the SSJ Contractor under the DSI Contract to perform the Lifts and Escalators Work.

**Latent Conditions** has the meaning given in clause 8.8.

**Law** means:

- (a) Commonwealth, New South Wales or local government legislation, including regulations, by-laws and other subordinate legislation;
- (b) principles of law or equity established by decisions of courts; and



- (c) Authority Approvals (including any condition or requirement under them).

**Legal Opinion** means a legal opinion:

- (a) from lawyers acceptable to the Principal, authorised to practice in the place of incorporation of the Parent Company Guarantor, stating that the Parent Company Guarantee provided under clause 6.8 is binding and enforceable against that Parent Company Guarantor;
- (b) in favour of the Principal; and
- (c) which is in a form reasonably satisfactory to the Principal.

**Liability** includes any liability of any kind whether for debt, cost (including legal costs, deductibles or increased premiums), expense, loss, damage, compensation or charge and whether:

- (a) liquidated or not;
- (b) arising from or in connection with any obligation (whether as a principal obligation, a surety or an indemnity);
- (c) legal or equitable, and whether arising under or for breach of contract, in tort (including negligence), restitution or at Law;
- (d) present, prospective or contingent; or
- (e) owed, incurred or imposed by or to or on account of or for the account of any person alone or severally or jointly with another or others.

~~**Line-Wide Contractor** means the contractor appointed by the Principal or the Operator to perform the track and tunnel services, high voltage power supply, overhead line and traction supply, tunnel ventilation system, platform screen doors, radio and trackside intruder detection systems works.~~ **Lifts and Escalators Work** means the work to be performed by the L&E Contractor under the DSI Contract as set out in Schedule A28.

**Local Areas** means all public spaces, parks, pedestrian ways, pedal cycle paths, local roads, state highways, regional roads and main roads, including their associated road reserves, which:

- (a) are adjacent to;
- (b) connect to;
- (c) intersect;
- (d) cross; or
- (e) are in any way affected by,

the Project Works or Temporary Works, including those sections of public spaces, parks, pedestrian ways, pedal cycle paths, local roads, state highways, regional roads and main roads, including any associated road reserves, that are made redundant or become service roads as part of the road network.

**Local Area Works** means:



(a) the modification, reinstatement and improvement of Local Areas which the SSJ Contractor must design and construct and hand over to the Principal or the relevant Authority in accordance with this Contract and the SWTC (including section 2.3.6 and Appendix D5.0 of the SWTC); and

(b) the WAD Road Works and the Sydney Trains Works,

and including, to the extent relevant to such works, Changes directed in accordance with this Contract.

**Loss** means:

(a) any cost, expense, fee, loss, damage, Liability or other amount; and

(b) without being limited by paragraph (a) and only to the extent not prohibited by Law, any fine or penalty,

whether direct, indirect, consequential, present, future, fixed, unascertained, actual or contingent and, for the avoidance of doubt, includes Consequential Loss.

LWC Contractor means a contractor appointed to perform LWC Works.

LWC Works means the:

(a) TRK TUS-OHW-TRS Works;

(b) HV Works;

(c) TVS Works;

(d) PSD Works;

(e) RAD Works;

(f) SIG Works;

(g) CCS Works; and

(h) COM Works.

each as defined in Schedule A1.

**Management Fee** means the Management Fee (Target Cost Development Phase) and Management Fee (Delivery Phase), which is on account of profit and costs and expenses related to off-site business functions of the SSJ Contractor in respect of the Project Works, including the following:

(a) safety and quality;

(b) financial, legal, human resources and commercial support;

(c) executive management;

(d) corporate infrastructure and support;

(e) parent company fees;

(f) corporate head office(s) running costs and payroll; and





**Management Fee (Target Cost Development Phase)** means the [REDACTED]

~~Management Fee (Provisional Sums)~~ means the [REDACTED]

**Management Requirements** or **MRs** means the documents which appear as Schedule D1 to this Contract.

**Management Review Group** means the group comprising the persons specified in clause 14.20 who must perform the functions specified in clause 14.21.

**Mandatory Defect** means a Defect which has been notified by the Principal's Representative under clause 13.2(a) at any time before the date that is 28 days prior to the Date of Construction Completion of any relevant Portion.

[REDACTED]

**Milestones** means the milestones as set out under Schedule A2 and **Milestone** means any one of them.

**Minor Defect** means a Defect which:

- (a) is capable of being corrected:
  - (i) after the relevant part of the Construction Site has been handed over to the Principal; and
  - (ii) without causing delay or disruption to the activities that are to be performed by:
    - (A) the Operator under its contract with the Principal; or
    - (B) any Interface Contractor under its contract with the Principal;within the relevant part of the Construction Site; and
- (b) the Independent Certifier determines the SSJ Contractor has reasonable grounds for not promptly correcting prior to handover of the relevant Portion to the Principal,

but does not include a Mandatory Defect, an Accepted Defect or an Agreed Defect.

**Minor Non-Compliance** means a minor error, minor omission or minor non-compliance:

- (a) which:
  - (i) does not:
    - (A) prevent the Project Works or the Temporary Works from being fit for their intended purpose; or
    - (B) prevent the achievement of the performance requirements specified in the SWTC;

- (C) (in the case of Third Party Agreement Design Documentation for the Sydney Trains Interface Works only) interfere with Sydney Trains operations or activities or the safe operation of Sydney Trains' Facilities; and
- (ii) the Independent Certifier determines the SSJ Contractor has reasonable grounds for not promptly correcting prior to the certification required to be obtained under this Contract; or
- (b) the parties agree is a Minor Non-Compliance.

**Mitigation Measure** means a measure, action, standard or precaution to mitigate the impact of the Project Works, as specified in:

- (a) the Sydney Metro City & South West Chatswood to Sydenham Preferred Infrastructure Report located on the NSW Department of Planning and Environment website <http://www.planning.nsw.gov.au>; and
- (b) Schedule E3.

~~**Modified Target Cost Offer** means the Target Cost Offer, amended to incorporate the modifications the Principal requires to the Target Cost Offer for it to be acceptable to the Principal.~~

**Monument** has the meaning given to that term in the *Surveying and Spatial Information Regulation 2006* (NSW).

**Native Title Claim** means any claim or application for a determination of native title under the Native Title Act 1993 (Cth) or any similar Law.

**Network Rules** means the rules, systems and procedures relating to railway operations established or adopted by Sydney Trains in its capacity as a rail infrastructure manager to ensure the safety of its railway operations for the purposes of section 52(3)(c) and 52(4)(c) (Duties of rail transport operators) of the Rail Safety National Law which are available at <https://railsafe.org.au/> or as otherwise advised by the Principal.

**NGER Legislation** means *National Greenhouse and Energy Reporting Act 2007* (Cth), related regulations and legislative instruments.

~~**Nominated Target Cost Offer Expert** means the Target Cost Offer Expert selected by the Principal.~~ **Member** has the meaning given to that term in clause 20.3.

**Non-Contestable Utility Service Work** means the work identified as Non-Contestable Utility Service Work in Schedule A22.

**Notice of Completion** means a notice in the form of Schedule B11 issued by the Independent Certifier pursuant to clause 17.4(b).

**Notice of Construction Completion** means a notice in the form of Schedule B10 issued by the Independent Certifier pursuant to clause 17.2(e)(i).

**Notice of Dispute** means a notice given under clause 20.4.

**Notice of Issue** means a notice given under clause 20.3.

**NRT** means NRT Pty Ltd (ACN 166 610 313).

**NSW Code** has the meaning given in clause 9.12.

**NSW Guidelines** has the meaning given in clause 9.12.

**NSW Rail Assets** has the meaning assigned to it in the ASA Charter.

**NSW Trains** means NSW Trains, a body corporate constituted by Part 2B of the *Transport Administration (General) Regulation 2005* (NSW).

**ONRSR** means the Office of the National Rail Safety Regulator constituted under the Rail Safety National Law.

**Original Milestone Date** means the date described as the original milestone date for each Milestone in Table 3 of Schedule A2.

**Operator** means an entity that is engaged by the Principal to operate and, if required by the Principal, maintain all or part of the Project.

**Open Book Basis** means the provision of pricing, costing and other information to enable an assessment of actual costs and profit margins in a clear, transparent and fully auditable manner.

**Other Contractor** means any contractor, consultant, artist, tradesperson or other person engaged by the Principal or others to do work on or about the Construction Site, other than the SSJ Contractor and its subcontractors of any tier involved in the SSJ Contractor's Activities.

**Other Contractor Work** means the works to be undertaken by an Other Contractor on a part of the Construction Site during any period in which the SSJ Contractor has been engaged as principal contractor in respect of that part of the Construction Site.

**OTS Project Deed** means the deed titled "North West Rail Link Operations, Trains and Systems Project Deed" between the Principal and NRT dated 15 September 2014.

**OTS Project Works** means all things, works and materials (including all systems and software incorporated in, or necessary to enable their operation) that NRT must, in accordance with the OTS Project Deed, design, construct, manufacture, install, test and commission for the purposes of completing Sydney Metro Northwest, including equipment, systems (including all information and communications systems), hardware and software, stations, rolling stock, trackwork and support structures and the stabling yard and maintenance depot and control centre.

**OTS2 Project Deed** means a deed between the Principal and the Operator for the provision of the OTS2 Project Works and the performance of various services, including in particular the operation and maintenance of Sydney Metro City & Southwest and Sydney Metro Northwest.

**OTS2 Project Works** means all things, works and materials (including all systems and software incorporated in, or necessary to enable their operation) that the Operator must, in accordance with the OTS2 Project Deed, design, construct, manufacture, install, test and commission for the purposes of completing Sydney Metro City & Southwest.

**OTSI** means the Office of Transport Safety Investigations constituted under the *Transport Administration Act 1988* (NSW).

**Outturn Cost** means the Contract Price less ~~amounts paid for:~~

- (a) the Design Fee (Target Cost Development Phase);
- (b) the Design Fee (Signalling);
- (c) the Management Fee (Target Cost Development Phase);
- (d) the Preliminaries Fee (Target Cost Development Phase);
- (e) the Target Cost Development Phase Site Investigations Fee; and
- (f) the amounts paid for Provisional Sum Work under clause 12.17.

**Parent Company Guarantee** means the ~~Deed~~deed which appears in Schedule F4.

**Parent Company Guarantor** means the entity identified in Schedule A1.

**Payment Claim** has the meaning given to it in clause 16.2(a) of this Contract.

**Payment Schedule** has the meaning given to it in section 14 of the SOP Act.

**PDCS** means the Principal's web based TeamBinder project data and collaboration system, or such other electronic project data and collaboration system notified by the Principal's Representative under clause 22.1(b).

**Peak Hours** means the hours between 0600 and 0900 and 1600 and 1800 respectively on Monday to Friday (excluding public holidays).

**Permitted Use** means the investigation, design, construction, testing, commissioning and completion of the Project Works and the Temporary Works, the carrying out of the SSJ Contractor's Activities and the performance by the SSJ Contractor of its other obligations under this Contract.

**Permitted Variation** means a variation to the Subcontract or the Subcontract works which:

- (a) will not cost, or result in an increase to the cost of the Subcontract works of, more than [REDACTED];
- (b) will not cost, or result in an increase to the cost of the Subcontract works of, more than [REDACTED] when aggregated with the costs of all variations to the Subcontract or Subcontract works made up to that time;
- (c) except in respect of a variation of the type contemplated by paragraph (d), will not result in an increase to the Design Fee (Signalling) Contract Upper Limiting Fee;
- (d) is a deemed variation under clause 16.6 of the Design Work (Signalling) Contract; or
- (e) will not extend the date for practical completion under the Subcontract by more than 5 Business Days for any single variation or more than 20 Business Days when aggregated with all variations made up to that time,

but which is not a variation to the Subcontract works:

- (f) as to quality (other than a variation to increase or better the quality);



- (g) which would or might adversely affect the suitability of the Project Works for their intended purpose; or
- (h) which is inconsistent with the requirements of, or would breach or cause the breach of, any SSJ Contract Document.

**Planning Approval** means each of:

- (a) the Project Planning Approval (Chatswood to Sydenham);
- (b) any other Authority Approvals issued from time to time by either the Principal or the Minister for Planning and Infrastructure (acting in their capacity as determining authority) under the EP&A Act in respect of the SSJ Contractor's Activities; and
- (c) any Mitigation Measures and statements of commitment that are required to be complied with or fulfilled in the documents referred to in paragraphs (a) and (b).

**Pollution** has the meaning given to "pollution" in the Dictionary to the Protection of the Environment Operations Act 1997 (NSW).

**Portion** means a part of the SSJ Contractor's Activities or Project Works, as described in Schedule A2 or as determined under clause 17.5(a) or directed under clause 17.5(d).

**PPS Act** means the *Personal Property Securities Act 2009* (Cth).

**PPS Law** means:

- (a) the PPS Act and any regulations made at any time under the PPS Act, as amended from time to time; and
- (b) any relevant amendment made at any time to any other legislation as a consequence of paragraph (a).

**Practical Completion (Sydney Trains Works)** has the meaning given to the term "Practical Completion" in respect of the Sydney Trains Works in the Sydney Trains Transition Agreement.

**Practical Completion (WAD Road Works)** has the meaning given to the term "Practical Completion" in the WAD.

**Preliminaries** means that part of the SSJ Contractor's Activities other than the Design Work or Reimbursable Work, including those tasks or matters specified in Schedule C2.

**Preliminaries Fee** means the Preliminaries Fee (Target Cost Development Phase) and Preliminaries Fee (Delivery Phase).

**Preliminaries Fee (Delivery Phase)** means the ~~amount specified as the Preliminaries Fee (Delivery Phase) in~~ [REDACTED]

- ~~(a) the Target Cost Offer the subject of a written notice by the Principal to the SSJ Contractor under clause 4.3(b)(i); or~~
- ~~(b) the negotiated Target Cost Offer the subject of a written notice provided by the Principal to the SSJ Contractor under clause 4.3(d)(i); or~~
- ~~(c) the Modified Target Cost Offer provided by the Principal to the SSJ Contractor under clause 4.3(d)(ii)(B) where the difference between the Modified Target Cost~~







- (z) agreement between the Principal and the SSJ Contractor in accordance with clause 12.21(d).

**Preliminaries Fee (Target Cost Development Phase)** means the [REDACTED]

**Principal** means TfNSW.

**Principal Insurance Policy** means a policy of insurance required under clause 18.3.

**Principal Supplied Items** means the items listed in Schedule A18.

**Principal's Design Re-Review Period** means the number of Business Days taken by the SSJ Contractor to re-submit the Design Documentation rejected under clause 10.8(c)(ii)(A) or the Asset Management Information rejected under clause 9.15(c)(i) (as applicable), provided that:

- (a) if the SSJ Contractor has taken less than 5 Business Days to re-submit the Design Documentation or Asset Management Information (as applicable), the period is 5 Business Days; or
- (b) if the SSJ Contractor has taken more than 10 Business Days to re-submit the Design Documentation or Asset Management Information (as applicable), the period is 10 Business Days.

**Principal's Representative** means:

- (a) the person nominated in Schedule A1; or
- (b) any other person appointed from time to time by the Principal under clause 14.2, and includes any appointee under clause 14.3.

**Prohibited Subcontractor** means:

- (a) any Subcontractor:
- (i) who has made an admission to the Independent Commission Against Corruption that it has engaged in; or
- (ii) in respect of whom the Independent Commission Against Corruption has made a finding that it has engaged in, corrupt conduct as defined in the *Independent Commission Against Corruption Act 1988* (NSW); or
- (b) any Subcontractor employing an employee in respect of whom paragraph (a)(i) or (a)(ii) apply.

**Project** means the Sydney Metro City & Southwest project which will, as part of the completion of Sydney Metro City & Southwest, include the integration of Sydney Metro Northwest to form a single end to end metro system from Cudgegong Road to Bankstown and the operation of the same.

**Project Bank Account** means the bank account established during the Target Cost Development Phase, ~~and~~ held in the SSJ Contractor's name, ~~to which the Principal is a signatory.~~

**Project Health and Safety Management Plan** means the plan which forms part of the Contract Management Plan which is required to be provided and implemented by the SSJ Contractor pursuant to the MRs and which must:

- (a) set out in adequate detail the procedures the SSJ Contractor will implement to manage the Project Works and the performance of the SSJ Contractor's Activities from a health and safety perspective; and
- (b) describe how the SSJ Contractor proposes to ensure the Project Works and the SSJ Contractor's Activities are performed consistently with Law in relation to WHS and rail safety.

**Project Planning Approval (Chatswood to Sydenham)** means:

- (a) the approval granted by the Minister for Planning and Infrastructure under section 115ZB of the *EP&A Act* dated 9 January 2017, a copy of which is located on the NSW Department of Planning and Environment website <http://www.planning.nsw.gov.au>; and
- (b) includes all:
  - (i) conditions to such approval; and
  - (ii) documents incorporated by reference,

as modified from time to time.

**Project Site** means the land described as the Project Site in section 2 of the Site Access Schedule.

**Project Values** means the values that will guide the delivery of the Project, being:

- (a) safety & wellbeing;
- (b) collaboration;
- (c) integrity;
- (d) innovation;
- (e) excellence; and
- (f) achievement.

**Project Works** means the physical works which the SSJ Contractor must design, construct, complete and hand over under this Contract (including, to the extent relevant to such works, Changes directed in accordance with this Contract), including the Works and Third Party Works, but excluding Temporary Works.

**Property Works** means all works required to existing buildings and infrastructure or to and within properties arising out of the SSJ Contractor's Activities as described or specified in the SWTC, including in section 2.3.5 of the SWTC (and including, to the extent relevant to such works, Changes directed in accordance with this Contract).

**Proposal** means the response provided by a Proponent to the RFP.



or would have recovered its liability or been indemnified or entitled to be indemnified for its liability (as applicable) for that loss but for:

- (iv) ~~(iii)~~ the operation of any deductible or excess that the SSJ Contractor is required to bear under this Contract; or
- (v) ~~(iv)~~ any act or omission of the SSJ Contractor or its Associates including any failure by the SSJ Contractor to:
  - (A) diligently pursue a claim under the relevant policy of insurance;
  - (B) comply with the terms of the relevant policy of insurance (including pre-contractual duties of disclosure); or
  - (C) comply with its insurance obligations under this Contract.

**Qenos** means Qenos Pty Ltd (ABN 62 054 196 771).

**RailCorp** means Rail Corporation New South Wales, a corporation constituted by section 4(1) of the *Transport Administration Act 1988* (NSW).

**Rail Corridor** means the area containing the Rail Tracks, rail junctions, level crossings, station buildings, platforms, signal boxes, tunnels, bridges and other associated structures. This area is often defined by railway boundary fencing and in the absence of such fencing, is defined by a physical boundary (i.e. tunnel, building or retaining walls) or everywhere within 15 metres of the outermost rails.

**Rail Infrastructure Manager** has the meaning given to that term in the Rail Safety National Law.

**Rail Safety National Law** means the *Rail Safety National Law 2012* (NSW) No 82a, as defined in the *Rail Safety (Adoption of National Law) Act 2012*, and any associated regulations.

**Rail Track** or **Track** means the rails fastened on sleepers or transoms and founded on ballast or bridge decking or concrete slab, associated signalling and overhead wiring components (in electrified areas).

~~**Rail Transport Agency** means Transport for NSW (and each of its divisions), RailCorp, Sydney Trains and NSW Trains.~~

**RailCorp** means Rail Corporation New South Wales a NSW Government agency constituted by section 4 of the *Transport Administration Act 1988* (NSW).

**Recognised Aboriginal Business** has the same meaning given to "Certified Aboriginal Business" in MR-Prelude.

**Recognised Aboriginal Business Subcontract** means an agreement which is entered into between the SSJ Contractor and a Recognised Aboriginal Business.

**Recommendation** has the meaning given to that term in clause 20.4.

**Recovery Plan** means a plan that complies with the requirements of clause 15.6(a).

**Reimbursable Cost Element** means ~~that part of the Target Cost referable to the estimate of Reimbursable Costs, as set out in:~~ set out in Part 2 of Schedule F1 and

included in the Target Cost. The Reimbursable Cost Element excludes amounts paid for Provisional Sum Work.

- ~~(a) the Target Cost Offer the subject of a written notice by the Principal to the SSJ Contractor under clause 4.3(b)(i); or~~
- ~~(b) the negotiated Target Cost Offer the subject of a written notice provided by the Principal to the SSJ Contractor under clause 4.3(d)(i); or~~
- ~~(c) the Modified Target Cost Offer provided by the Principal to the SSJ Contractor under clause 4.3(d)(ii)(B) where the difference between the Modified Target Cost Offer and the Target Cost Offer is less than or equal to \_\_\_\_\_ as adjusted by any expert determination under clause 4.3(e)(i)(G); or~~
- ~~(d) the adjusted Target Cost Offer provided by the Principal to the SSJ Contractor under clause 4.3(f)(i) after the resolution of a Target Cost Offer Dispute by the Executive Negotiators.~~

~~The Reimbursable Cost Element excludes Provisional Sums:~~

**Reimbursable Cost Element Adjustment** means an adjustment to the Reimbursable Cost Element in respect of a Reimbursable Cost Element Adjustment Event, as agreed by the parties or calculated in accordance with clause 5.2. A Reimbursable Cost Element Adjustment can be a positive or negative amount.

**Reimbursable Cost Element Adjustment Event** means:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]







**Remediation** has the meaning given in the *Contaminated Land Management Act 1997* (NSW).

**Reports** means:

- (a) the Initial Reports; and
- (b) the reports obtained by the SSJ Contractor as part of the Target Cost Development Phase Activities and directed by the Principal to be Reports,

and **Report** means any one of them as the context may require.

**Required Rating** means a credit rating of at least A by Standard and Poor's (Australia) Pty Limited or A2 by Moody's Investors Service, Inc. (or such other credit rating as the Principal may approve in writing from time to time) or, if no rating is provided by Standard and Poor's (Australia) Pty Limited or by Moody's Investors Service, Inc., an equivalent rating with another reputable rating agency.

**Resolution Institute** means the Resolution Institute, Australia.

**RFP** means the request for proposal issued by the Principal on 6 April 2017, as amended from time to time.

~~**RICS Dispute Resolution Service** means the dispute resolution service offered by the Royal Institution of Chartered Surveyors (RICS).~~

**Risk Register** means a register of risks which the parties have notified in accordance with clause 14.19.

**RMS** means the Roads and Maritime Services, a NSW Government agency constituted by section 46 of the *Transport Administration Act 1988* (NSW).

**Rolling Stock Operator** has the meaning given to that term in the Rail Safety National Law.

**Safety Management System** has the meaning given to that term in the Rail Safety National Law.

**Schedule of Rates** means the schedule of rates set out in Schedule F2.

**Security Interest** has the meaning given to that term in clause 22.17.

**Self-Performed Design Work** means the part of the Design Work (Delivery Phase) to be performed by the SSJ Contractor itself or a Related Body Corporate of the SSJ Contractor as described in Schedule F2.

**Self-Performed Margin** means [REDACTED]

**Self-Performed Reimbursable Work** means the part of the Reimbursable Work to be performed by the SSJ Contractor itself or a Related Body Corporate of the SSJ Contractor ~~as described in Schedule F2~~, including supervision of that work.

**Share of Cost Overrun** means the amount determined by applying the percentage stated in Schedule A1 to the amount (if any) by which the Outturn Cost is greater than the Target Cost.

**Share of Savings** means the amount determined by applying the percentage stated in Schedule A1 to the amount (if any) by which the Outturn Cost is less than the Target Cost.

**Signalling Designer** means the person referred to in Schedule A1 performing the Design Work (Signalling).

**Site Access Schedule** means Schedule E1.

**SMCSW Master Interface Protocols Deed Poll** means the deed poll substantially in the form of Schedule A26.

**SOP Act** means the *Building and Construction Industry Security of Payment Act 1999* (NSW).

**SSC Contractor** means the contractor appointed by the Principal to perform the south west stations and corridor works.

**SSJ Contract Documents** means:

- (a) this Contract;
- (b) the Independent Certifier Deed;
- (c) the SSJ Operator Cooperation and Integration Deed;
- (d) each SSJ Interface Contractor Cooperation and Integration Deed;
- (e) the Deeds of Disclaimer;
- (f) the Collateral Warranty Deed Poll; and
- (g) the SMCSW Master Interface Protocols Deed Poll.

**SSJ Contractor** means the person named as the SSJ Contractor in Schedule A1.

**SSJ Contractor Insurance Policy** means a policy of insurance required under clause 18.4.

**SSJ Contractor's Activities** means all things or tasks which the SSJ Contractor is, or may be, required to do to comply with its obligations under this Contract, including:

- (a) the Design Work, the Preliminaries, the Reimbursable Work, the Provisional Sum Work and the correction of Defects; ~~and~~
- (b) the activities covered by the Management Fee; and
- (c) without limiting paragraph (a):
  - (i) the design, construction, testing, Commissioning and hand-over of the Project Works;
  - (ii) the provision of Temporary Works and Construction Plant; and
  - (iii) anything incidental or ancillary to the obligations in paragraphs (i) to (ii).

**SSJ Contractor's Program** means the program prepared and provided by the SSJ Contractor in accordance with clause 15.2, as developed and updated in accordance with clause 15.2 from time to time.

**SSJ Contractor's Representative** means the person notified to the Principal's Representative in accordance with clause 14.4(a) as being the SSJ Contractor's Representative.

**SSJ Interface Contractor Cooperation and Integration Deed** means a deed to be entered into between the Principal, the SSJ Contractor and an Interface Contractor substantially in the form of Schedule A19.

**SSJ Operator Cooperation and Integration Deed** means the deed between the Principal, the SSJ Contractor and the Operator substantially in the form of Schedule A20.

**Stage 1 Design** means the first stage of design for the Stations and Line-wide Works undertaken by MTR Corporation (Sydney) SMCSW Pty Limited and Arcadis Australia Pacific Pty Ltd and Mott MacDonald Pty Ltd.

**Statement of Business Ethics** means TfNSW's Statement of Business Ethics, which may be obtained from TfNSW and is located at: [www.transport.nsw.gov.au](http://www.transport.nsw.gov.au).

**Stations and Line-wide Works** means the physical works to be designed and constructed for:

- (a) the stations, mechanical and electrical works component of the Project for the City Stations including excavation of remaining station shafts, station structure and station fitout; and
- (b) the line-wide components of the Project including lifts and escalators, tunnel ventilation, track including tunnel service, stabling, combined services cable brackets, high voltage power supply, overhead line and traction supply, radio communications and platform screen doors and mechanical gap fillers.

**Subcontract** includes an agreement for supply of goods or services (including professional services and plant hire) or both, and includes the Design Agreements.

**Subcontract Proposal** means a document issued by the SSJ Contractor under clause 12.2.

**Subcontract Tender Documentation** in relation to a Subcontract Proposal, means:

- (a) the Design Documentation, which the SSJ Contractor is entitled to use for tendering purposes under clause 14.11(k), relevant to the part of the Reimbursable Work to be subcontracted;
- (b) the conditions of the Subcontract which must, unless otherwise expressly directed in writing by the Principal's Representative, be on the terms approved by the Principal's Representative;
- (c) if the Principal's Representative so directs, a request for tender; and
- (d) any other documentation necessary for that part of the Reimbursable Work to be subcontracted.

**Subcontractor** means any person (including a supplier and a Designer) engaged by the SSJ Contractor to perform any part of the Project Works not being performed by the SSJ Contractor as Self-Performed Reimbursable Work.

**Survey Certificate** has the meaning given to that term in the *Surveying and Spatial Information Regulation 2012* (NSW).

**Survey Plan** has the meaning given to that term in the *Surveying and Spatial Information Act 2002* (NSW).

**SWTC** means the Scope of Works and Technical Criteria for the Project Works described in Schedule C1.

**Sydney Metro Northwest Augmentation** has the meaning given to that term in clause 1.7(a)(ii).

**Sydney Metro Northwest** means the railway line from Chatswood to Cudgegong Road, including the stabling yard and maintenance depot at Tallawong Road, the stations, tunnels, viaduct, bridges, earthworks, landscaping, equipment, systems, trackwork and support structures, rolling stock and ancillary infrastructure.

~~**Sydney Water** means Sydney Water Corporation (ABN 49 776 225 038).~~

~~**Sydney Water Stormwater Drainage Works** means the works described in section 2.3.4 of the SWTC.~~

**Sydney Trains** means Sydney Trains a body corporate constituted by Part 2A of the *Transport Administration (General) Regulation 2005* (NSW).

**Sydney Trains' Facilities** has the meaning given to that term in the Sydney Trains Transition Agreement.

**Sydney Trains Interface Works** means:

- (a) the Sydney Trains Works; and
- (b) the Sydney Trains Project Works.

**Sydney Trains Project Works** has the meaning given to the term "Sydney Metro Works" in the Sydney Trains Transition Agreement.

**Sydney Trains Transition Agreement** means the Draft Third Party Agreement titled "Sydney Metro City & Southwest – City and Southwest Transition Agreement" and the "Scope of Works and Access Schedule for the Sydenham Station and Junction Works" each between the Principal, RailCorp and Sydney Trains (as may be updated or replaced in accordance with clause 3.6).

**Sydney Trains Works** has the meaning given to the term "Sydney Trains Works" in the Sydney Trains Transition Agreement.

~~**Target Cost** means the amount specified as the Target Cost in:~~

- ~~(a) the Target Cost Offer the subject of a written notice by the Principal to the SSJ Contractor under clause 4.3(b)(i); or~~
- ~~(b) the negotiated Target Cost Offer the subject of a written notice provided by the Principal to the SSJ Contractor under clause 4.3(d)(i); or~~

- (c) ~~the Modified Target Cost Offer provided by the Principal to the SSJ Contractor under clause 4.3(d)(ii)(B) where the difference between the Modified Target Cost Offer and the Target Cost Offer is less than or equal to \_\_\_\_\_ as adjusted by any expert determination under clause 4.3(e)(i)(G), or~~
- (d) ~~the adjusted Target Cost Offer provided by the Principal to the SSJ Contractor under clause 4.3(f)(i) after the resolution of a Target Cost Offer Dispute by the Executive Negotiators;~~

Sydney Water means Sydney Water Corporation (ABN 49 776 225 038).

Sydney Water Stormwater Drainage Works means the works described in section 2.3.4 of the SWTC.

~~for all the SSJ Contractor's Activities;~~ Target Cost means the amount so described as set out in Schedule A1, which amount will only be adjusted for Reimbursable Cost Element Adjustments, Design Fee (Delivery Phase) Element Adjustments, Management Fee (Delivery Phase) Adjustments and Preliminaries Fee (Delivery Phase) Adjustments.

~~Target Cost Offer Design~~ means the design developed by the SSJ Contractor during the Target Cost Development Phase and submitted by the SSJ Contractor as part of the Target Cost Offer.

**Target Cost Development Phase** means the phase commencing on execution of this Contract during which the SSJ Contractor ~~will undertake the Target Cost Development Phase Activities;~~ carried out the:

- (a) Target Cost Development Phase Activities; and
- (b) the other SSJ Contractor's Activities as contemplated by Change Order 002.

**Target Cost Development Phase Activities** means the activities described in Schedule A4.

**Target Cost Development Phase Fees** means:

- (a) the Design Fee (Target Cost Development Phase);
- (b) the Management Fee (Target Cost Development Phase);
- (c) the Preliminaries Fee (Target Cost Development Phase); ~~and~~
- (d) the Target Cost Development Phase Site Investigations Fee; ~~and~~
- (e) those fees payable in accordance with Change Order 001.

**Target Cost Development Phase Site Investigations** means the site investigations described in Schedule A4.

**Target Cost Development Phase Site Investigations Fee** means [REDACTED]

**Target Cost Offer** means the target cost offer ~~to be~~ submitted by the SSJ Contractor ~~in accordance with the requirements set out in Schedule A3, dated 17 May 2018.~~

~~Target Cost Offer Dispute~~ has the meaning given to that term in clause 4.3(e)(ii)(A).



~~Target Cost Offer Expert~~ means:

- ~~(a) [REDACTED] of [REDACTED];~~
- ~~(b) [REDACTED] of [REDACTED] or~~
- ~~(c) the person appointed by an authorised officer of the RICS Dispute Resolution Service following a request for appointment by the Principal, which person must have more than 20 years brownfield rail experience.~~

~~Target Cost Offer Submission Date~~ means the date specified in Schedule A1 or as otherwise directed by the Principal.

**Taxes** means income, stamp, indirect or other taxes, levies, imposts, deductions, charges, duties (including import duty), compulsory loans and withholdings (including financial institutions duty, debits tax or other taxes whether incurred by, payable by return or passed on to another person) together with interest thereon or penalties, if any, and charges, fees or other amounts made on, or in respect thereof but does not include GST.

**Telstra** means Telstra Corporation Limited ABN 33 051 775 556.

**Temporary Areas** means the land described as the Temporary Areas in section 3 of the Site Access Schedule.

**Temporary Shutdown** means a temporary shutdown set out in Table 2 of Schedule E2.

**Temporary Works** means any temporary works required to be carried out or provided by the SSJ Contractor or a Subcontractor for the purpose of the execution of the SSJ Contractor's Activities but not forming part of the Project Works.

**Tendering Probity Plan** means the tendering probity plan prepared by the SSJ Contractor and finalised under clause 12.15, which must set out in adequate detail all procedures the SSJ Contractor will implement to ensure the probity and competitiveness of the tender process for Reimbursable Work is maintained including:

- (a) the matters specified in Schedule A1; and
- (b) any other matters required by the Principal's Representative.

**TfNSW** means Transport for NSW, an entity constituted as a body corporate by section 3C of the *Transport Administration Act 1988* (NSW) and all present and future iterations of that body corporate which continue in existence under the *Transport Administration Act 1988* (NSW) or any other legislation or another entity appointed to undertake some or all of the functions of that body.

~~TfNSW Configuration Management Plan~~ means the plan available at <https://www.transport.nsw.gov.au/operations/standards-and-accreditation/standards/find-a-standard/tfnsw-configuration-management>.

**Third Party** means a party to a Third Party Agreement other than the Principal.

**Third Party Agreement** means:

- (a) an agreement which appears in Schedule E5;
- (b) any Draft Third Party Agreement or Additional Third Party Agreement which the SSJ Contractor must comply with pursuant to clause 3.6; and
- (c) any other agreement that the Principal from time to time informs the SSJ Contractor constitutes a 'Third Party Agreement'.

**Third Party Agreement Design Documentation** means any Design Documentation that is required to be submitted under or in connection with any Third Party Agreement.

**Third Party Works** means the Local Area Works, Property Works and Utility Service Works.

[TNAC has the meaning given in the TfNSW Configuration Management Plan.](#)

**Track Possession** means a period during which the SSJ Contractor has access to Rail Track for the purpose of carrying out the SSJ Contractor's Activities including for the purpose of rectifying Defects, other than a Temporary Shutdown.

[Track Possession or Temporary Shutdown Staff means the personnel agreed by the Principal and the SSJ Contractor under clause 12.21 to be required for a relevant weekend Track Possession or Temporary Shutdown.](#)

**TSE Contractor** means the contractor appointed by the Principal to perform the tunnels and station excavation works.

**TSOM Contractor** means the contractor appointed by the Principal or the Operator to perform the signalling system, central control system and communication system works.

**Unowned Parcel** means a parcel of land and property of which the Principal is not the registered proprietor and in relation to which, or upon which, Property Works are to be undertaken.

**Urgent Defect** means a Defect, which:

- (a) poses an actual or potential risk:
  - (i) to the health or safety of any person; or
  - (ii) of loss of or damage to property; or
- (b) if not corrected, will delay or disrupt the construction activities to be performed by the Operator or any Interface Contractor.

**Utility Service** means any utility, service facility or item of public (State or Federal) or private infrastructure, including railway systems, above ground and below ground utility, service facility or item of public or private infrastructure in a rail corridor, pedestrian and vehicular corridors, water, electricity, gas, fuel, telephone, existing drainage, stormwater, sewerage, industrial waste disposal and electronic communications service.

**Utility Service Works** means the construction, modification, or relocation of Utility Services all of which are to be designed and constructed by the SSJ Contractor and



handed over to the Principal, an Authority or any other person in accordance with this Contract including any such works specified in section 2.3.3 of the SWTC (and including, to the extent relevant to such works, Changes directed in accordance with this Contract).

**Value for Money** means an approach that balances quality levels, performance standards, risk, price and whole of life costs, having regard to the requirements of this Contract.

~~**Vertical Transportation Work** means the work to be performed by the VT Contractor under the DSI Contract.~~

~~**VT Contractor** means the contractor to be engaged by the Principal under a framework agreement and appointed by the SSJ Contractor under the DSI Contract to perform the Vertical Transportation Work.~~

**WAD** means the Draft Third Party Agreement titled "Sydney Metro City & Southwest – Works Authorisation Deed" between the Principal and RMS (as may be updated or replaced in accordance with clause 3.6).

**WAD Project Works** has the meaning given to the term "Project Works" in the WAD.

**WAD Proof Engineer** has the meaning given to the term "Proof Engineer" in the WAD.

**WAD Road Works** has the meaning given to the term "Road Works" in the WAD.

**WAD Works** has the meaning given to the term "Works" in the WAD.

**Waste** has the meaning given in the *Protection of the Environment Operations Act 1997* (NSW).

**WHS** means work health and safety.

**WHS Accreditation Scheme** means the Australian Government Building and Construction WHS Accreditation Scheme established by the *Fair Work (Building Industry) Act 2012* (Cth), or any scheme replacing it.

**WHS Guidelines** means the NSW Government Work Health and Safety Management Systems and Auditing Guidelines (5th edition) (May 2014) or any document issued from time to time which amends or substitutes this document.

**WHS Legislation** means:

- (a) the *Work Health and Safety Act 2011* (NSW) and the *Work Health and Safety Regulation 2017* (NSW); and
- (b) any legislation in other States and Territories of Australia addressing work health and safety which applies to the Project Works.

**Workplace Relations Management Plan** has the meaning given in clause 14.10(a)(vi).

**Works** means the physical works which the SSJ Contractor must design, construct, complete and hand over to the Principal in accordance with this Contract (including, to the extent relevant to such works, Changes directed in accordance with this Contract) but excluding the Third Party Works.

## 1.2 Interpretation

In this Contract:

- (a) headings are for convenience only and do not affect the interpretation of this Contract,

and unless the context indicates a contrary intention:

- (b) "person" includes an individual, the estate of an individual, a body politic, a corporation, a statutory or other authority, an association or a joint venture (whether incorporated or unincorporated), a partnership and a trust;
- (c) a reference to a party includes that party's executors, administrators, successors and permitted substitutes and assigns, including persons taking by way of novation and, in the case of a trustee, includes a substituted or an additional trustee;
- (d) "includes" in any form is not a word of limitation;
- (e) a reference to any Authority, institute, association or body is:
  - (i) if that Authority, institute, association or body is reconstituted, renamed or replaced or if the powers or functions of that Authority, institute, association or body are transferred to another organisation, deemed to refer to the reconstituted, renamed or replaced organisation or the organisation to which the powers or functions are transferred, as the case may be; and
  - (ii) if that Authority, institute, association or body ceases to exist, deemed to refer to the organisation which serves substantially the same purposes or object as that Authority, institute, association or body;
- (f) a reference to a document (including this Contract and any other deed, agreement, instrument, guideline, code of practice or Code and Standard) is to that document as amended, varied, novated, ratified, supplemented or replaced from time to time;
- (g) a reference to a statute includes its delegated legislation and a reference to a statute or delegated legislation or any section or provision of either of these includes:
  - (i) all ordinances, by-laws, regulations of and other statutory instruments (however described) issued under the statute or delegated legislation; and
  - (ii) any consolidations, amendments, re-enactments and replacements;
- (h) a reference to a party, clause, schedule, exhibit, attachment or annexure is a reference to a party, clause, schedule, exhibit, attachment or annexure to or of this Contract;
- (i) a reference to:
  - (i) this Contract includes all schedules, exhibits (subject to clause 8.13(a)), attachments and annexures to it, including the SWTC; and
  - (ii) a reference to the SWTC includes all appendices to the SWTC;

- (j) a word importing the singular includes the plural (and vice versa) and a word indicating a gender includes every other gender;
- (k) if a word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (l) for the purposes of clauses 15.10, 15.11, and 15.12:
  - (i) any extension of time stated in days; or
  - (ii) any reference to "day",

will exclude days which are public holidays in Sydney and include only those days which are stated in the most recent Program submitted under clause 15.2 as working days;

- (m) for all purposes other than as set out in clause 1.2(l) or where otherwise designated as a Business Day, "day" means calendar day;
- (n) a reference to a court or tribunal is to an Australian court or tribunal;
- (o) a reference to a group of persons is a reference to all of them collectively, to any two or more of them collectively and to each of them individually;
- (p) a reference to a "month" is a reference to a calendar month;
- (q) a reference to "\$" or "dollar" is to Australian currency;
- (r) any reference to:
  - (i) the Project Works (including the Third Party Works);
  - (ii) the Temporary Works;
  - (iii) the Asset Management Information;
  - (iv) the SWTC;
  - (v) the Design Documentation; or
  - (vi) any other document or thing,
 or any part of any of them:
  - (vii) being fit for its purpose or for its intended purpose; or
  - (viii) as having an intended use,
 (or any similar reference) will be read as referring to the purpose, intended purpose or intended use having regard to:
  - (ix) the Principal's intention that the Project Works will be used as an integral part of an operating rail system intended to provide frequent high speed mass transit services between Bankstown and Chatswood and which may:
    - (A) be required to accommodate and utilise various rolling stock, railway track, rail systems and related equipment;

- (B) be subject to continuous operation;
  - (C) be operated by either the State of New South Wales or by private operator(s) on its behalf;
  - (D) involve further development of rail stations, including station structures and fitout to the extent referred to in this Contract;
  - (E) be upgraded, augmented, extended and expanded to the extent referred to in this Contract;
  - (F) be connected to and/or integrated with other transport infrastructure to the extent referred to in this Contract; and
  - (G) involve future construction and development of buildings and/or other infrastructure on, over or adjacent to railway stations to the extent referred to in this Contract; and
- (x) any purpose, intended purpose or intended use stated in, contemplated by or ascertainable from:
- (A) this Contract, including:
    - (aa) the objectives referred to in clause 2; and
    - (bb) the requirement that the Project Works, when completed, will be designed and constructed in compliance with all health and safety requirements of the WHS Legislation; or
  - (B) (to the extent relevant for determining the purpose, intended purpose or intended use in connection with a Change) any document provided by the Principal to the SSJ Contractor specifically in connection with the Change (excluding any Information Documents);
- (s) any reference to the Project Works or any part of any of them being capable of remaining at all relevant times fit for their purpose or for their intended purpose will be read as being subject to the Principal, the Operator and their respective Associates operating and maintaining the Project Works in accordance with the operation and maintenance manuals forming part of the Asset Management Information;
- (t) any reference to "information" will be read as including information, representations, statements, data, samples, bore logs, calculations, assumptions, deductions, determinations, drawings, design, specifications, models, plans and other documents in all forms including the electronic form in which it was generated;
- (u) any obligation of the SSJ Contractor under this Contract with respect to:
- (i) a Contract Management Plan, will be read as an obligation with respect to the Initial Contract Management Plan, or where a version has been submitted to the Principal's Representative, the version of the relevant Contract Management Plan last submitted by the SSJ Contractor to the Principal's Representative under MR-PA; or
  - (ii) the Asset Management Information will be read as an obligation with respect to the version of the relevant Asset Management Information last submitted

by the SSJ Contractor to the Principal's Representative under clause 9.15(a) which has not been rejected by the ~~Independent Certifier~~ Principal's Representative under clause 9.15(c)(i);

- (v) words and terms defined in the GST Law have the same meaning in clauses concerning GST;
- (w) on the basis that the Principal is notionally liable to pay GST under the GST Law, a reference in this Contract to a liability to pay GST or an entitlement to an input tax credit includes any notional GST liability or input tax credit entitlement;
- (x) if a person is a member of a GST group, references to GST which the person must pay and to input tax credits to which the person is entitled to claim include GST which the representative member of the GST group of which the party is a member must pay and input tax credits to which the representative member is entitled;
- (y) where under this Contract:
  - (i) a direction is required to be given or must be complied with;
  - (ii) payment of money must be made;
  - (iii) an unconditional undertaking must be released; or
  - (iv) a default must be remedied,within a period of 7 days or less from a specified event, then only Business Days will be counted in computing the number of days;
- (z) for the avoidance of doubt, a reference to an Other Contractor includes an Interface Contractor;
- (aa) a reference to "direction" in the definition of "Claim" in clause 1.1 or in any of clauses 3.1(~~ba~~)(vi), 14.1, 14.11(o), 20 and 23, will be read as also including certificate, decision, demand, determination, instruction, notice, order, rejection, request or requirement but will not include any failure to reject a Document;
- (bb) no rule of construction applies to the disadvantage of a party on the basis that the party put forward or drafted this Contract or any part;
- (cc) the word "subcontractor" will include subcontractors, suppliers, Designers and Subcontractors, and the word "subcontract" will include a contract with a subcontractor (including an Approved Subcontract Agreement);
- (dd) where, in this Contract, it is stated that the SSJ Contractor is not entitled to make any Claim against the Principal or words to this effect, then the SSJ Contractor releases absolutely the Principal from any Claim whatsoever and however arising (including in negligence) which the SSJ Contractor had or, but for this Contract, might have had in connection with the subject matter for which the Contract states that the SSJ Contractor has no entitlement to make a Claim;
- (ee) nothing in, or contemplated by, this Contract will be construed or interpreted as:
  - (i) constituting a relationship between the Principal, or the NSW Government and the SSJ Contractor and any of its related companies, of partners, joint venturers, fiduciaries, employer and employee or principal and agent; or

- (ii) imposing any general duty of good faith on the Principal to the SSJ Contractor in relation to or arising out of the Project, other than to comply with the obligations (if any) expressly stated to be assumed by the Principal under the Contract on a good faith basis;
- (ff) when the Principal 'may' exercise a right or remedy, the Principal has an absolute discretion whether or not to do so, and is not required to exercise the discretion in good faith or having regard to, or for the benefit of, the SSJ Contractor; and
- (gg) if the Principal is required to exercise best or reasonable endeavours, the SSJ Contractor acknowledges that:
  - (i) the Principal will only be obliged to bring about the relevant outcome to the extent that it is reasonably able to do so, having regard to its resources and other responsibilities;
  - (ii) the Principal cannot guarantee the relevant outcome; and
  - (iii) the Principal, by undertaking to exercise reasonable endeavours, does not agree to:
    - (A) interfere with or influence the exercise by any person of a statutory power or discretion;
    - (B) exercise a power or discretion or otherwise act in a manner that promotes the objectives and expected outcomes of the Contract if the Principal regards that exercise as not in the public interest;
    - (C) develop policy or legislate by reference only or predominantly to the interests of the Contract;
    - (D) procure legislation in the future in a manner that is only consistent with the objectives and expected outcomes of the Contract; or
    - (E) act in any other way that the Principal regards as not in the public interest; and
- (hh) the interpretations of:
  - (i) SSJ Contractor's Activities;
  - (ii) Project Works;
  - (iii) Temporary Works;
  - (iv) Works;
  - (v) Third Party Works;
  - (vi) Local Area Works;
  - (vii) Property Works;
  - (viii) Utility Service Works;
  - (ix) Construction Site;

- (x) Project Site;
- (xi) Temporary Areas;
- (xii) Construction Completion;
- (xiii) Date for Construction Completion;
- (xiv) Date of Construction Completion;
- (xv) Completion;
- (xvi) Date for Completion;
- (xvii) Date of Completion; and
- (xviii) Defects Correction Period,

and clauses 8.1 to 8.5, 10.3(a)(v), 3.5, 3.10, 12.18, 15, 16.2, 18.1, 18.4, 18.5, 18.16, Schedules F1 and F2, the SWTC and the MRs will apply separately to each Portion (including any Portion determined under clause 17.5) and references therein to any of the terms in clauses 1.2(hh)(i) to 1.2(hh)(xviii) (inclusive) will mean so much of the SSJ Contractor's Activities, Project Works, Temporary Works, Works, Third Party Works, Local Area Works, Property Works, Utility Service Works, Construction Site, Project Site, Temporary Areas, Construction Completion, Date for Construction Completion, Date of Construction Completion, Completion, Date for Completion, Date of Completion and Defects Correction Period as is comprised in, or associated with, the relevant Portion.

### 1.3 **Ambiguous terms**

- (a) If the Principal's Representative considers, or if the SSJ Contractor notifies the Principal's Representative in writing that it considers, that there is an ambiguity, inconsistency or discrepancy in the Contract (including in any Schedule), the Principal's Representative must, subject to clause 1.4, direct the interpretation of this Contract which the SSJ Contractor must follow.
- (b) The Principal's Representative, in giving a direction in accordance with clause 1.3(a), is not required to determine whether or not there is an ambiguity, inconsistency or discrepancy in this Contract.

### 1.4 **Order of Precedence**

- (a) In the event of any other inconsistency, ambiguity or discrepancy between the various documents comprising this Contract then:
  - (i) where the inconsistency, ambiguity or discrepancy is between two or more documents that together comprise the SWTC, then to the extent of any inconsistency, ambiguity or discrepancy, the higher, or more onerous, or more rigorous, requirement will apply; and
  - (ii) otherwise, to the extent of any inconsistency, ambiguity or discrepancy, the order of precedence in Schedule A1 applies.
- (b) The SWTC, the MRs and the Environmental Documents are to be regarded as mutually explanatory and anything contained in one but not in the other will be

equally binding as if contained in all, so as to ensure that the Project Works comply with this Contract and are fit for their intended purposes.

#### 1.5 ~~Deed~~Deeds Poll by SSJ Contractor

The SSJ Contractor must, within 10 days of the date of this Contract, provide to the Principal's Representative an executed deed poll:

- (a) in the form set out in Schedule A9 in favour of Sydney Trains; and
- (b) in the form set out in Schedule A10 in favour of Sydney Trains and RailCorp.

#### 1.6 Authorities

- (a) This Contract will not in any way unlawfully restrict or otherwise unlawfully affect the unfettered discretion of:
  - (i) the Principal or any other Rail Transport Agency to exercise any of their respective functions and powers pursuant to any legislation; or
  - (ii) the ASA to exercise any of its functions and powers pursuant to the ASA Charter.
- (b) Without limiting clause 1.6(a), anything the Principal, any other Rail Transport Agency or ASA do, or fail to do or purport to do, pursuant to their respective functions and powers either as an AEO or under any legislation or the ASA Charter, will be deemed not to be an act or omission by the Principal under this Contract.

#### 1.7 Sydney Metro Northwest Augmentation

- (a) The parties acknowledge that:
  - (i) the Principal and NRT are parties to the OTS Project Deed under which NRT must undertake the OTS Project Works and subsequently operate and maintain Sydney Metro Northwest;
  - (ii) the OTS Project Deed contains provisions pursuant to which the Principal and NRT may seek to negotiate and agree an augmentation which includes the design, construction, testing and commissioning of the OTS2 Project Works and the subsequent operation and maintenance of the combined Sydney Metro City & Southwest extension and Sydney Metro Northwest (**Sydney Metro Northwest Augmentation**); and
  - (iii) the Principal and NRT are currently negotiating a Sydney Metro Northwest Augmentation.
- (b) The Principal will notify the SSJ Contractor in writing of the outcome of any negotiations in relation to any Sydney Metro Northwest Augmentation.
- (c) If the Principal and NRT do not agree to a Sydney Metro Northwest Augmentation, the Principal may procure the delivery of the OTS2 Project Works by alternative means and engage an alternate Operator to operate the combined Sydney Metro City & Southwest extension and Sydney Metro Northwest. This Contract therefore contemplates that:
  - (i) the OTS2 Project Works may be carried out by NRT or an alternate Operator; and



- (ii) the operation and maintenance of the combined Sydney Metro City & Southwest extension and Sydney Metro Northwest may be carried out by NRT or an ~~Alternate~~alternate Operator.

## 1.8 **Electronic Files**

Where this Contract refers to an electronic file ~~on a separate disc~~ which forms part of this Contract, such electronic files are contained in the ~~disc or discs~~ or other electronic storage device included in Schedule G1.

## 2. **OBJECTIVES AND PROJECT VALUES**

### 2.1 **Objectives for Sydney Metro City & Southwest**

- (a) The Principal's overall objective for the Project is to deliver a world class, connected metro, which will provide more choice to customers and opportunities for our communities now and in the future.
- (b) The Project is also a unique opportunity to demonstrate an exemplary approach to station and precinct design and foster exemplary urban design, integrated transport and land use planning.
- (c) Quality architecture, good urban design and a user friendly and inter-connected transport system are critical to ensuring that the Project meets customer needs and expectations and maximises its city shaping potential and broader urban benefits.

### 2.2 **Objectives for the Project Works**

The Principal's objectives for the Project Works are to:

- (a) complete the Project Works and handover the completed Portions by the relevant Dates for Construction Completion;
- (b) deliver station and precinct infrastructure that provides an intuitive and easy to use environment for customers, including interchange between Sydney Trains and Sydney Metro services and access to and from metro station within the Sydenham station precinct;
- (c) minimise impacts to customers on the Existing Operators networks during construction by:
  - (i) ensuring no unplanned impacts to operations, and providing handover of reliable assets;
  - (ii) maintaining an acceptable level of customer amenity within the existing station precincts and interchanges;
  - (iii) maintaining connectivity with rail and other interchange transport services; and
  - (iv) providing public facing temporary works with a high level of quality and finish to ensure public safety and to maintain an acceptable level of customer experience throughout construction;
- (d) minimise impacts on the broader community both during construction and operation;

- (e) enable a high degree of collaboration and co-operation across the other delivery contractors for the Project and with key stakeholders, including collaboration with Interface Contractors, Existing Operators and other stakeholders;
- (f) optimise the capital cost and the scope delivered to achieve a Value for Money outcome; and
- (g) ensure that Sydney Metro expectations for safety, quality, stakeholder engagement and environmental management are delivered.

### 2.3 Achievement of the Project Values

The parties:

- (a) acknowledge that:
  - (i) the SSJ Contractor's Activities form part of the Project;
  - (ii) adhering to and upholding the Project Values is of fundamental importance to the Principal; and
- (b) agree to:
  - (i) adhere to and uphold the Project Values; and
  - (ii) work collaboratively in a spirit of mutual trust and cooperation in the performance of their obligations under this Contract.

## 3. GENERAL OBLIGATIONS

### 3.1 General

- (a) The SSJ Contractor:
    - ~~(i) must perform the Target Cost Development Phase Activities in accordance with the Contract; and~~
    - ~~(ii) acknowledges that if:-~~
      - ~~(A) the Principal accepts the Target Cost Offer and provides the SSJ Contractor with a written notice under clause 4.3(b)(i);~~
      - ~~(B) the parties agree a Target Cost Offer acceptable to the Principal and the Principal provides the SSJ Contractor with a notice under clause 4.3(d)(i);~~
      - ~~(A) the Principal provides the SSJ Contractor a Modified Target Cost Offer under clause 4.3(d)(ii)(B) and the difference between the Modified Target Cost Offer and the Target Cost Offer is less than or equal to [REDACTED] or~~
      - ~~(C) a Target Cost Offer Dispute is resolved by the Executive Negotiators and the Principal provides the SSJ Contractor an adjusted Target Cost Offer under clause 4.3(f)(i);~~
- ~~the Contract will include both the Target Cost Development Phase and the Delivery Phase.~~

(b) ~~In relation to the SSJ Contractor's Activities in the Target Cost Development Phase, and if the Delivery Phase proceeds, the SSJ Contractor:~~

- (i) must execute the SSJ Contractor's Activities, including design, construct, test, commission and hand-over the Project Works and each Portion, in accordance with this Contract;
- (ii) warrants that it will use its best endeavours to ensure that it achieves Completion of the Project Works in accordance with the Cost Plan and so that the Outturn Cost does not exceed the Target Cost;
- (iii) warrants that the Temporary Works will at all relevant times be fit for their intended purposes;
- (iv) warrants that the Project Works and each Portion will:
  - (A) upon Construction Completion be fit for their intended purposes; and
  - (B) thereafter be capable of remaining at all relevant times fit for their intended purposes;
- (v) warrants that it will exercise a duty of the utmost good faith to the Principal in performing the following obligations under the Contract:
  - (A) the preparation of the Subcontract Tender Documentation for the Reimbursable Work and in all post-tender communications (verbal or otherwise) with tenderers prior to the entry of an Approved Subcontract Agreement (where applicable);
  - (B) the administration of Approved Subcontract Agreements including all negotiations concerning Changes and extensions of time; and
  - (C) in making payment claims under clause 16.1(b);
- (vi) must ~~commence and~~ progress the SSJ Contractor's Activities expeditiously and, in accordance with any directions of the Principal, and ~~subject to proceeding to the Delivery Phase and clause 15.1,~~ achieve Construction Completion of each Portion by the relevant Date for Construction Completion, and Completion of each Portion by the relevant Date for Completion;
- (vii) must use all reasonable efforts to inform itself of the requirements of the Principal and regularly consult with the Principal during the performance of the SSJ Contractor's Activities; and
- (viii) must liaise, cooperate and confer with others as directed by the Principal.

(b) ~~(c)~~ Without limiting the generality of the SSJ Contractor's obligations, in relation to the SSJ Contractor's Activities ~~in the Target Cost Development Phase, and if the Delivery Phase proceeds,~~ the SSJ Contractor will be responsible for (and will control, coordinate, administer and direct) all activities necessary for the planning, design, commencement, construction, testing, Commissioning, completion and handover of the Project Works including:

- (i) the performance of the Design Work and the Preliminaries; and

- (ii) the engagement, supervision, control, coordination and direction of all Subcontractors and the execution of the Reimbursable Work.

### 3.2 **Cooperation and coordination with Interface Contractors**

- (a) Without limiting the SSJ Contractor's obligations under each SSJ Interface Contractor Cooperation and Integration Deed and the SSJ Operator Cooperation and Integration Deed, the SSJ Contractor:

- (i) acknowledges that:

- (A) the SSJ Contractor's Activities interface with the Interface Work; and
- (B) Interface Contractors will be executing work on parts of the Construction Site, or Extra Land, or adjacent to the Construction Site or Extra Land, at the same time as the SSJ Contractor is performing the SSJ Contractor's Activities;
- (C) it may require certain design and work methodology input from Interface Contractors to coordinate the design of the Project Works and Temporary Works with the Interface Work;
- (D) Interface Contractors may require the SSJ Contractor to provide design and work methodology information to them to coordinate the design of the Interface Work with the Project Works and Temporary Works, and this must be provided in a timely manner by the SSJ Contractor; and
- (E) any delay in the performance of the SSJ Contractor's Activities or in the SSJ Contractor providing information to, or cooperating and coordinating with any Interface Contractor, may adversely impact upon, delay or disrupt any one or more Interface Contractors or the SSJ Contractor's Activities in a way which may lead to the Principal suffering or incurring additional costs, Losses and damages; and

- (ii) must at all times:

- (A) permit Interface Contractors to execute the Interface Work on the applicable parts of the Construction Site or Extra Land, or on any adjacent property to the Construction Site or Extra Land:
  - (aa) at the same time as the SSJ Contractor is performing the SSJ Contractor's Activities; and
  - (bb) at the times agreed with the Interface Contractor, or failing agreement at the times determined by the Principal's Representative,

and for this purpose ensure they have safe, clean and clear access to those parts of the Construction Site or Extra Land, or property adjacent to the Construction Site or Extra Land, required by them for the purpose of carrying out their work;

- (B) protect the Project Works, Temporary Works and other improvements on the Construction Site or Extra Land from accidental damage by Interface Contractors and provide means of receiving, storing and protecting goods and equipment supplied by Interface Contractors;

- (C) cooperate with Interface Contractors, and do everything reasonably necessary to facilitate the execution of work by Interface Contractors, including providing Interface Contractors with such assistance as may be directed by the Principal's Representative;
- (D) carefully coordinate and interface the SSJ Contractor's Activities with the Interface Work and for this purpose:
  - (aa) make proper allowance in all programs for the Interface Work;
  - (bb) review all programs provided by Interface Contractors and confirm that they adequately allow for the SSJ Contractor's Activities and the interfaces of the Interface Work with the SSJ Contractor's Activities;
  - (cc) monitor the progress of the Interface Work;
  - (dd) notify the Principal's Representative of any interface or sequence of activities that may affect the commencement, progress or Construction Completion of any Portion; and
  - (ee) provide the Interface Contractors with sufficient information about the current and expected SSJ Contractor's Activities to assist them to coordinate their Interface Work with the SSJ Contractor's Activities;
- (E) it must cooperate, meet with, liaise and share information so that the SSJ Contractor and the relevant Interface Contractor each comply with the provisions of the relevant EPL (if applicable);
- (F) perform the SSJ Contractor's Activities so as to minimise any interference with or disruption or delay to the Interface Work;
- (G) be responsible for coordinating the SSJ Contractor's Activities, including work sequencing, construction methods, safety and industrial relations matters with those affecting, and influenced by, Interface Contractors' personnel and work, including providing to the Principal's Representative copies of working method statements for those parts of the Project Works or Temporary Works which are adjacent to or interface with any Interface Work, at least 15 Business Days prior to commencing the work described in the work method statement;
- (H) provide for the purposes of clause 3.2(a)(ii)(G) (unless otherwise directed by the Principal's Representative), the number and form of copies of the work method statements specified in Schedule A1;
- (I) work directly with Interface Contractors where required to complete the design of the Project Works and Temporary Works and provide all necessary information to Interface Contractors in respect of the Project Works and Temporary Works to permit the Interface Contractors to complete the design of the Interface Works so that they are acceptable to the Principal and otherwise comply with this Contract, including the SWTC and the MRs;
- (J) attend interface coordination meetings chaired by the Principal's Representative with Interface Contractors and others each 14 days,

or at other times to be advised by the Principal's Representative, to review current and future issues, including the exchange of information, status, problems, solutions, and newly identified interfaces;

- (K) when information is required from an Interface Contractor, provide reasonable written notice which must be at least 10 days (except in special circumstances) or any longer period of notice required under the SWTC to that Interface Contractor requesting such information and specifying the date by which such information is required, with a copy to the Principal's Representative;
  - (L) ensure that any written notice given under clause 3.2(a)(ii)(K) provides the Interface Contractor with the longest possible time for the provision of the information;
  - (M) when any information is requested by the Principal or the Interface Contractors, including confirming the compatibility or suitability of the design of, work methods to be used in, or any other aspect of, the Interface Work with the Project Works or the SSJ Contractor's Activities:
    - (aa) provide the information to the Principal's Representative or the Interface Contractor, with a copy to the Principal's Representative (as the case may be), within the time requested by the Principal or the Interface Contractor, provided that this time is reasonable;
    - (bb) ensure that such information is provided to Interface Contractors by the requested dates; and
    - (cc) ensure and warrant that the information provided is accurate; and
  - (N) use its best endeavours to resolve any problems, and work closely and iteratively, with Interface Contractors, including providing design options, iterations, and work methodologies, to achieve the best solution to such problems, related to:
    - (aa) the provision of information;
    - (bb) the obtaining of information;
    - (cc) the adequacy of information provided to, or received from, Interface Contractors;
    - (dd) the compatibility of the Project Works and Temporary Works with the Interface Work;
    - (ee) coordination in accordance with this clause 3.2(a); and
    - (ff) technical issues with the information provided to, or received from, Interface Contractors;
- (iii) must promptly advise the Principal's Representative of all matters arising out of the liaison with Interface Contractors that may involve a change to

design or construction work under this Contract or otherwise have an adverse effect upon the SSJ Contractor's Activities; and

- (iv) acknowledges that conditions similar to those in this clause 3.2(a) applying to the SSJ Contractor will apply to all Interface Contractors engaged by the Principal, whether working on the Construction Site or on any other site.
- (b) If, despite the SSJ Contractor having complied with all ~~of its~~ obligations ~~in~~ under clause 3.2(a), the SSJ Contractor and any Interface Contractor fail to resolve any interface issue or dispute between them, the SSJ Contractor must promptly give the Principal's Representative written notice of any interface issue or dispute with any Interface Contractor (with a copy to the relevant Interface Contractor).
- (c) Upon receipt of the SSJ Contractor's notice under clause 3.2(b), the Principal's Representative must:
  - (i) convene a meeting between the SSJ Contractor, the relevant Interface Contractor and any other relevant person (as reasonably determined by the Principal's Representative); and
  - (ii) work in good faith with the SSJ Contractor and the Interface Contractor to resolve the issues or dispute.
- (d) The SSJ Contractor:
  - (i) acknowledges and agrees:
    - (A) no act or omission by an Interface Contractor will, whether or not it causes any delay, disruption or interference to the SSJ Contractor's Activities, constitute an act or omission of the Principal or the Principal's Representative (including any breach of Contract or Change directed by the Principal's Representative);
    - (B) that except where the Principal's Representative directs a Change in circumstances where the SSJ Contractor has fully complied with clause 3.2(a), the Principal will not be liable upon any Claim by the SSJ Contractor arising out of or in any way in connection with:
      - (aa) the Interface Contractors carrying out their work; or
      - (bb) any act or omission of an Interface Contractor;
    - (C) that the Interface Contractors will require access to the Construction Site in order to perform their obligations under their respective contracts with the Principal; and
    - (D) that the SSJ Contractor's Program will accommodate requirements for design iterations as part of the Interface Work and incorporate the requirements specified in clauses 3.2(a) and (b) of the SSJ Interface Contractor Cooperation and Integration Deed; and
  - (ii) warrants that as at the date of this Contract, the Target Cost Development Phase Fees, and at the date of submission of the Target Cost Offer, each element of the Target Cost and the SSJ Contractor's Program contain sufficient allowances for the assumption by the SSJ Contractor of the obligations and risks under clauses 3.2(a) and 3.2(d)(i), including the cost of all the design iterations required to accommodate Interface Work.



### 3.3 Co-operation with Other Contractors

- (a) Without limiting or being limited by clauses 3.2 and 9.7, the SSJ Contractor must:
  - (i) permit Other Contractors to carry out their work;
  - (ii) fully co-operate with Other Contractors;
  - (iii) carefully coordinate and interface the SSJ Contractor's Activities with the work carried out or to be carried out by Other Contractors; and
  - (iv) carry out the SSJ Contractor's Activities so as to minimise any interfering with, disrupting or delaying the work of Other Contractors.
- (b) The Principal will procure that each of its Other Contractors that it engages to undertake work on part of the Construction Site during any period in which the SSJ Contractor has been engaged as principal contractor in respect of that part of the Construction Site executes a deed poll in favour of the SSJ Contractor, as principal contractor, and the Principal in the form set out in Schedule A11 and provide the SSJ Contractor with an executed copy of each such deed poll.

### 3.4 Cooperation and Integration Deeds

- (a) The SSJ Contractor must:
  - (i) within 5 Business Days of receipt of a request from the Principal, provide to the Principal:
    - (A) the SSJ Operator Cooperation and Integration Deed; or
    - (B) a SSJ Interface Contractor Cooperation and Integration Deed with any Interface Contractor nominated by the Principal,duly executed by the SSJ Contractor in the number of counterparts required by the Principal;
  - (ii) at all relevant times comply with:
    - (A) the terms of the SSJ Operator Cooperation and Integration Deed and each SSJ Interface Contractor Cooperation and Integration Deed; and
    - (B) the Interface Management Plan; and
  - (iii) update the Interface Management Plan as required to reflect the interface between the SSJ Contractor's Activities and the activities to be performed by each relevant Interface Contractor.
- (b) The Principal will ~~relevantly request~~ensure that the Operator and each applicable Interface Contractor execute the SSJ Operator Cooperation and Integration Deed and each SSJ Interface Contractor Cooperation and Integration Deed (as applicable) ~~but:~~
  - (i) ~~does not represent or warrant that the Operator or any Interface Contractor will execute; and~~



~~(ii) will not be liable upon any Claim (insofar as is permitted by Law) by the SSJ Contractor arising out of or in any way in connection with the Operator or any Interface Contractor not executing,~~

~~the SSJ Operator Cooperation and Integration Deed or an SSJ Interface Contractor Cooperation and Integration Deed (as applicable).~~

### 3.5 Incident Management Reporting

- (a) The SSJ Contractor must identify clear guidelines for responding to any Incident arising from the performance of the SSJ Contractor's Activities and establish procedures to ensure that the Principal's Representative is promptly notified of any Incident in accordance with the MRs.
- (b) Should an Incident occur which:
  - (i) is reportable under any relevant Law, the SSJ Contractor must immediately report the Incident to the relevant Authority and the Principal's Representative in accordance with the MRs; and
  - (ii) relates to rail safety, the SSJ Contractor must notify the Principal and any relevant Rail Transport Agency management centre or the nearest network control officer.
- (c) In relation to any environmental or safety Incident involving Contamination, Pollution or other waste that arises during the performance of the SSJ Contractor's Activities, the SSJ Contractor must, subject to clauses 8.9(c)(+) and 8.10(f):
  - (i) at its own cost promptly take all appropriate action to manage and dispose of all Contamination, Pollution or other waste arising from the Incident;
  - (ii) comply with all relevant Laws including any requirements to give notice to a relevant Authority; and
  - (iii) at its own cost manage the Incident in a manner which minimises damage to the reputation of the Principal including complying with any reasonable request of the Principal's Representative.
- (d) If the SSJ Contractor causes or contributes to the occurrence of an Incident and fails to ensure that the Principal is promptly notified, the Principal, may without prejudice to any other right it has under this Contract, immediately terminate the Contract by written notice to the SSJ Contractor.
- (e) Without prejudice to the Principal's other rights under this Contract, if the Principal forms the reasonable view, upon the occurrence (or imminent risk of the occurrence) of an Incident, that the SSJ Contractor is not taking adequate measures to manage the Incident or control or eliminate the adverse impact or the risk of such an Incident arising in the future, the Principal may (but has no obligation to) take such actions as it deems necessary to overcome and alleviate the cause and consequences of any Incident.
- (f) If the Principal takes any action under clause 3.5(e) it will be entitled to recover its reasonable costs and expenses from the SSJ Contractor as a debt due from the SSJ Contractor to the Principal.
- (g) Without prejudice to the Principal's other rights under this Contract, the Principal's Representative may issue a direction under clause 15.13 requiring the SSJ

Contractor to suspend the carrying out of the whole or any part of the SSJ Contractor's Activities in the event:

- (i) of any Incident involving:
    - (A) a significant spill of Contamination;
    - (B) any accident or release of Contamination which it believes may pose a danger to health, life or property; or
    - (C) any actual damage or harm to the Environment or a significant risk of harm to the Environment; or
  - (ii) any safety Incident occurs which leads to, or has the potential to lead to, a fatality or injury to person (including any incident which must be reported to SafeWork NSW, ONRSR or other work health and safety regulator) or damage to property.
- (h) Other than as specified in clause 15.13(b), the Principal will not be liable upon any Claim by the SSJ Contractor for any cost, expense, Loss, delay, disruption or penalty arising out of or in connection with:
- (i) any suspension due to a direction to suspend issued, or for the failure to issue a notice to suspend, in the circumstances set out in clause 3.5(g); and
  - (ii) complying with a direction issued under clause 3.5(i), including complying with the steps which the Principal's Representative directs that the SSJ Contractor must take before the Principal's Representative will issue a direction to recommence the SSJ Contractor's Activities.
- (i) If the Principal's Representative issues a notice to suspend in the circumstances set out in clause 3.5(g), the SSJ Contractor may not recommence the SSJ Contractor's Activities in respect of the part of the SSJ Contractor's Activities to which the notice relates until the Principal's Representative issues a direction to the SSJ Contractor permitting the SSJ Contractor to recommence the SSJ Contractor's Activities affected by the notice to suspend.
- (j) If the Principal's Representative issues a notice to suspend in the circumstances set out in clause 3.5(g), the Principal's Representative may also direct the SSJ Contractor as to the steps which the SSJ Contractor must take before the Principal's Representative will issue a direction pursuant to clause 15.13 permitting the SSJ Contractor to recommence the SSJ Contractor's Activities affected by the notice to suspend.
- (k) If clause 3.5(j) applies, the SSJ Contractor must, at its cost, comply with the direction of the Principal's Representative, and only once the Principal's Representative is satisfied that the SSJ Contractor has complied with the requirements of the direction issued under clause 3.5(i) will the Principal's Representative issue a direction to the SSJ Contractor permitting the SSJ Contractor to recommence the SSJ Contractor's Activities affected by the notice to suspend.
- (l) The Principal may recover its reasonable costs and expenses for any action the Principal's Representative deems necessary to avoid the issue of any notice to suspend in the circumstances set out in clause 3.5(g), as a debt due and payable from the SSJ Contractor to the Principal.



■ [REDACTED]

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[REDACTED]

**3.7 Commissioning**

The SSJ Contractor acknowledges that:

- (a) Commissioning is part of the SSJ Contractor's Activities; and
- (b) Commissioning must be completed as a condition precedent to Construction Completion of the Project Works.

**3.8 Existing Operations**

(a) The SSJ Contractor acknowledges that:

- (i) Existing Operators and any other persons must continue their Existing Operations during the course of the carrying out of the SSJ Contractor's Activities;
- (ii) the access ways to the Construction Site are used by Existing Operators and other persons and will not be available exclusively to the SSJ Contractor; and
- (iii) in using these access ways the SSJ Contractor must ensure the minimum disturbance and inconvenience to the Existing Operations.

(b) The SSJ Contractor must coordinate its access to the Construction Site with any other relevant party (including Existing Operators) that use the access ways to the Construction Site.

(c) Without limiting any other obligations of the SSJ Contractor, the SSJ Contractor must:

- (i) to the extent reasonably possible in performing the SSJ Contractor's Activities, not interfere with the free movement of traffic (vehicular, pedal cycle and pedestrian) into and out of, adjacent to, around, on or about the Construction Site or the Existing Operations or block or impair access to any premises, carparks, roadways, pedestrian ways, public spaces, parks, pedal cycle paths, or other facilities associated with the Existing Operations and comply with the Principal's reasonable directions in relation to them;
- (ii) comply with the Principal's reasonable directions in connection with:
  - (A) the Existing Operations (including access to and use of the Construction Site); and
  - (B) workplace health and safety issues to enable the Principal to comply with, and not place the Principal in breach of, its obligations under any WHS Legislation;

- (iii) comply with all policies, procedures and rules of the Principal applying from time to time (as notified by the Principal) in respect of the Existing Operations (including in relation to workplace health and safety and/or the Environment);
- (iv) keep itself informed as to the requirements to comply with and not do anything which may place the Principal in breach of Law applying to the Existing Operations on the Construction Site;
- (v) ensure that in carrying out and completing the SSJ Contractor's Activities, the Project Works properly interface and integrate with, and connect to, the physical infrastructure of the Existing Operations so as to enable the Project Works, when completed, to fully comply with the requirements of this Contract; and
- (vi) immediately:
  - (A) repair and make good any damage to the physical infrastructure of the Existing Operations to the extent arising out of or in any way in connection with the SSJ Contractor's Activities; and
  - (B) when directed by the Principal's Representative, take such action as is required to ensure that its obligations in this clause 3.8(c) are complied with.
- (d) Except to the extent expressly permitted by this Contract, the SSJ Contractor must:
  - (i) not disrupt, interrupt or interfere in any way with the Existing Operations;
  - (ii) not cause any nuisance or inconvenience to the Existing Operations except to the extent such nuisance or inconvenience was a direct and unavoidable result of carrying out and completing the SSJ Contractor's Activities in accordance with this Contract; and
  - (iii) program and coordinate the SSJ Contractor's Activities under this Contract using design and construct best practices and so as to minimise the effect that the carrying out of the SSJ Contractor's Activities under this Contract has on the Existing Operations.
- (e) The SSJ Contractor must ensure that its Subcontractors and any of the respective employees, agents, contractors or officers of the SSJ Contractor and its Subcontractors at all times comply with this clause 3.8.

### 3.9 Management Plans

The SSJ Contractor must:

- (a) develop the Contract Management Plans as required by the MRs;
- (b) ensure that the relevant Contract Management Plans are consistent with the Initial Contract Management Plans;
- (c) update the Contract Management Plans as required by the MRs or as directed by the Principal's Representative; and
- (d) comply with:

- (i) the Contract Management Plans; and
- (ii) to the extent the Contract Management Plans are not finalised, the Initial Contract Management Plans as if they were the Contract Management Plans.

### 3.10 **Cleaning Up**

In carrying out the SSJ Contractor's Activities, the SSJ Contractor must:

- (a) keep the Construction Site, Extra Land and the Project Works clean and tidy and free of refuse;
- (b) regularly remove rubbish, litter, graffiti and surplus material from the Construction Site and Extra Land; and
- (c) as a condition precedent to Construction Completion of a Portion, remove all rubbish, surplus materials, Construction Plant and Temporary Works from the Construction Site and Extra Land or the part of the Construction Site or Extra Land relevant to the Project Works or the Portion, except where the retention of any of these are required for the correction of Defects during the Defects Correction Period and this is approved in writing by the Principal's Representative.

### 3.11 **Construction Plant and Materials Removal**

Except for the purpose of achieving Construction Completion as contemplated by clause 3.10(c), the SSJ Contractor must not remove from the Construction Site or the SSJ Contractor's Activities any:

- (a) significant materials or major items of Construction Plant; or
- (b) materials or Construction Plant specified in any written notice issued by the Principal's Representative,

without the prior written approval of the Principal's Representative, which approval will not be unreasonably withheld.

### 3.12 **Principal Supplied Items**

- (a) The Principal will:
  - (i) make available the Principal Supplied Items to the SSJ Contractor:
    - (A) at its own cost;
    - (B) at the respective places referred to in Schedule A18; and
    - (C) by the respective ~~date~~dates referred to in Schedule A18; and
  - (ii) use its best endeavours to procure that the SSJ Contractor has the benefit of any warranty obtained by the Principal in respect of any Principal Supplied Item.
- (b) The SSJ Contractor:
  - (i) agrees that, in respect of Principal Supplied Items, the:
    - (A) SSJ Contractor:

- (aa) warrants that it has reviewed the SWTC and any relevant specification, and made whatever other enquiries and investigations it considers necessary relating to each of the Principal Supplied Items and is satisfied that they satisfy and will allow the SSJ Contractor to satisfy the requirements of this Contract;
  - (bb) will not be entitled to make, and the Principal will not be liable upon, any Claim arising out of or in any way in connection with any Principal Supplied Item except under clause 15 if a Principal Supplied Item is not made available by the relevant date set out in Schedule A18; and
  - (cc) is not relieved from and remains liable for complying with, all of its obligations under this Contract, despite the Principal making available the Principal Supplied Items; and
- (B) *Sale of Goods Act 1923* (NSW) does not apply to the Principal's obligations under clause 3.12(a) and the Principal makes no representation as to the quality, performance, merchantability or fitness of the Principal Supplied Items; and
- (ii) must:
    - (A) at its own risk, transport each Principal Supplied Item from the respective place referred to in Schedule A18 to the Construction Site or Extra Land (as applicable); and
    - (B) as part of the SSJ Contractor's Activities, incorporate each Principal Supplied Item into the Project Works.

### 3.13 **SMCSW Master Interface Protocols Deed Poll**

The SSJ Contractor must:

- (a) within 5 Business Days of receipt of a request from the Principal, provide to the Principal the SMCSW Master Interface Protocols Deed Poll, duly executed by the SSJ Contractor in the number of counterparts required by the Principal; and
- (b) at all relevant times until the date of expiry of the final Defects Correction Period, comply with the terms of the SMCSW Master Interface Protocols Deed Poll.

### 3.14 **Collateral Warranty**

The SSJ Contractor must, within 5 Business Days of receipt of a request from the Principal, provide to the Principal's Representative an executed Collateral Warranty Deed Poll.

## 4. ~~TARGET COST DEVELOPMENT~~ NOT USED

### 4.1 ~~Target Cost Development Phase only~~

~~The SSJ Contractor acknowledges that unless and until:-~~

- ~~(a) the Principal accepts the Target Cost Offer and provides the SSJ Contractor with a written notice under clause 4.3(b)(i);-~~



- (b) ~~the parties agree a Target Cost Offer acceptable to the Principal and the Principal provides the SSJ Contractor with a notice under clause 4.3(d)(i);~~
- (c) ~~the Principal provides the SSJ Contractor a Modified Target Cost Offer under clause 4.3(d)(ii)(B), and the difference between the Modified Target Cost Offer and the Target Cost Offer is less than or equal to [REDACTED]; or~~
- (d) ~~a Target Cost Offer Dispute is resolved by the Executive Negotiators and the Principal provides the SSJ Contractor an adjusted Target Cost Offer under clause 4.3(f)(i);~~

~~the Contract is for the performance of the Target Cost Development Phase only, and there is no guarantee that the Delivery Phase will proceed.~~

**4.2 Requirements for the Target Cost Offer**

- (a) ~~The SSJ Contractor must:~~
  - (i) ~~carry out the Target Cost Development Phase Activities; and~~
  - (ii) ~~submit a Target Cost Offer to the Principal by the Target Cost Offer Submission Date.~~
- (b) ~~The Target Cost Offer must:~~
  - (i) ~~comply with the requirements set out in Schedule A3;~~
  - (ii) ~~include a detailed reconciliation against the Cost Breakdown; and~~
  - (iii) ~~remain open for acceptance by the Principal until:~~
    - (A) ~~one of the circumstances in clause 4.1 has occurred; or~~
    - (B) ~~this Contract is terminated in accordance with clause 4.3(b)(ii)(A), 4.3(d)(ii)(A), or 4.3(f)(ii)(A).~~

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]
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**4.3 Target Cost Offer Process**

- (a) ~~The Principal may accept or reject the Target Cost Offer provided by the SSJ Contractor.~~
- (b) ~~If the Target Cost Offer is:~~
  - (i) ~~accepted by the Principal, the Principal must provide the SSJ Contractor written notice of its acceptance of the Target Cost Offer within a reasonable time after receipt of the Target Cost Offer, and:~~
    - (A) ~~the Target Cost Offer will become the Target Cost for the purposes of the Contract;~~
    - (B) ~~the SSJ Contractor will be bound to perform the balance of the SSJ Contractor's Activities on the basis of the Target Cost Offer; and~~
    - (C) ~~the Delivery Phase will be deemed to have commenced from the date of the Principal's notice under clause 4.3(b)(i); or~~
  - (ii) ~~rejected by the Principal, the Principal may either:~~
    - (A) ~~terminate this Contract by written notice to the SSJ Contractor and proceed with the Project, utilise the outputs of the Target Cost Development Phase and engage another contractor to complete the Project Works under the same or any alternative form of procurement; or~~
    - (B) ~~notify the SSJ Contractor in writing that the Principal will seek to agree with the SSJ Contractor a Target Cost Offer acceptable to the Principal.~~
- (c) ~~If the Principal provides the SSJ Contractor a notice under clause 4.3(b)(ii)(B), the SSJ Contractor must immediately engage in good faith negotiations with the Principal for the purpose of negotiating a Target Cost Offer.~~
- (d) ~~If the parties:~~
  - (i) ~~negotiate a Target Cost Offer acceptable to the Principal within 30 Business Days of the date of the Principal's notice under clause 4.3(b)(ii)(B) (or as otherwise agreed between the parties), the Principal will provide the SSJ Contractor written notice of the negotiated Target Cost Offer to the SSJ Contractor, and:~~
    - (A) ~~the negotiated Target Cost Offer will become the Target Cost for the purposes of the Contract;~~



- (B) ~~the SSJ Contractor will be bound to perform the balance of the SSJ Contractor's Activities on the basis of the negotiated Target Cost Offer; and~~
- (C) ~~the Delivery Phase will be deemed to have commenced from the date of the Principal's notice under clause 4.3(d)(i); or~~
- (ii) ~~are unable to negotiate a Target Cost Offer acceptable to the Principal within 30 Business Days of the date of the Principal's notice under clause 4.3(b)(ii)(B) (or as otherwise agreed between the parties), the Principal may either:~~
  - (A) ~~terminate this Contract by written notice to the SSJ Contractor and proceed with the Project, utilise the outputs of the Target Cost Development Phase and engage another contractor to complete the Project Works under the same or any alternative form of procurement; or~~
  - (B) ~~provide the SSJ Contractor with the Modified Target Cost Offer, detailing those items of the Target Cost Offer the Principal does not accept, together with detailed reasons for each item not accepted.~~
- (e) ~~If the Principal gives a notice in accordance with clause 4.3(d)(ii)(B), each party agrees and acknowledges that:~~
  - (i) ~~if the difference between the Modified Target Cost Offer and the Target Cost Offer is less than or equal to [REDACTED]:~~
    - (A) ~~the Modified Target Cost Offer will become the Target Cost for the purposes of this Contract;~~
    - (B) ~~the SSJ Contractor will be bound to perform the balance of the SSJ Contractor's Activities on the basis of the Modified Target Cost Offer;~~
    - (C) ~~the Delivery Phase will be deemed to have commenced from the date of the Principal's notice under clause 4.3(d)(ii)(B);~~
    - (D) ~~the Principal will notify the SSJ Contractor of the identity of the Nominated Target Cost Offer Expert;~~
    - (E) ~~the parties will immediately enter into an agreement with the Nominated Target Cost Offer Expert on the terms set out in Schedule A17; and~~
    - (F) ~~the Principal will refer those items of the Target Cost Offer the Principal does not accept as identified under clause 4.3(d)(ii)(B) to the Nominated Target Cost Offer Expert; and~~
    - (G) ~~the Nominated Target Cost Offer Expert will make a determination in respect of those items of the Target Cost Offer the Principal does not accept in accordance with the expert determination rules set out in Schedule A17, and the parties must make any adjustment necessary to the Target Cost arising from the Nominated Target Cost Expert's determination; or~~
  - (ii) ~~if the difference between the Modified Target Cost Offer and the Target Cost Offer is greater than [REDACTED]:~~

- (A) the Principal will refer those items of the Target Cost Offer the Principal does not accept as identified under clause 4.3(d)(ii)(B) to the Executive Negotiators (**Target Cost Offer Dispute**); and
- (B) the Executive Negotiators must, within 10 Business Days after the date of the referral, meet and negotiate with a view to resolving the Target Cost Offer Dispute.

(f) If the Executive Negotiators:

- (i) resolve the Target Cost Offer Dispute within 10 Business Days after the date on which the referral was given under clause 4.3(e)(ii), the Principal will provide the SSJ Contractor written notice of the adjusted Target Cost Offer to the SSJ Contractor, and:
  - (A) the adjusted Target Cost Offer will become the Target Cost for the purposes of the Contract;
  - (B) the SSJ Contractor will be bound to perform the balance of the SSJ Contractor's Activities on the basis of the adjusted Target Cost Offer; and
  - (C) the Delivery Phase will be deemed to have commenced from the date of the resolution of the Executive Negotiators; or
- (ii) do not resolve the Target Cost Offer Dispute within 10 Business Days after the date on which the referral was given under clause 4.3(e)(ii):
  - (A) either party may terminate this Contract by written notice to the other party; and
  - (B) the Principal may proceed with the Project, utilise the outputs of the Target Cost Development Phase and engage another contractor to complete the Project Works under the same or any alternative form of procurement.

(g) If:

- (i) the Principal terminates this Contract under clauses 4.3(b)(ii)(A) or 4.3(d)(ii)(A); or
- (ii) either party terminates this Contract under clause 4.3(f)(ii)(A);

the SSJ Contractor will:

- (iii) in respect of work carried out prior to the date of termination, be entitled to payment of the amount which would have been payable if this Contract had not been terminated and the SSJ Contractor submitted a Payment Claim under clause 16.2(a) for work carried out to the date of termination. [REDACTED]; and
- (iv) have no further Claim, entitlement or remedy, other than for payment of an amount in accordance with clause 4.3(g)(iii).

#### 4.4 **SSJ Contractor's Program**



- (a) ~~During the Target Cost Development Phase, the SSJ Contractor must provide the SSJ Contractor's Program to the Principal:~~
  - (i) ~~each month during the Target Cost Development Phase; and~~
  - (ii) ~~with the Target Cost Offer.~~
- (b) ~~The Principal's Representative may provide the SSJ Contractor with comments on the SSJ Contractor's Program throughout the Target Cost Development Phase and the SSJ Contractor must incorporate and amend each draft SSJ Contractor's Program to incorporate all such comments.~~

**4.5 Progressive submission**

- (a) ~~The SSJ Contractor must submit the Target Cost Offer progressively during the Target Cost Development Phase as follows:~~
  - (i) ~~50% complete 6 weeks prior to the Target Cost Offer Submission Date;~~
  - (ii) ~~75% complete 2 weeks prior to the Target Cost Offer Submission Date; and~~
  - (iii) ~~100% complete on or before the Target Cost Offer Submission Date.~~
- (b) ~~The Principal's Representative may provide the SSJ Contractor with comments on each interim submission of the Target Cost Offer and the SSJ Contractor must take such comments into account in the next submission of the Target Cost Offer.~~

**5. CHANGES TO TARGET COST**

**5.1 Changes**

The parties acknowledge and agree that the Target Cost will only change as a result of:

- (a) Reimbursable Cost Element Adjustments;
- (b) Design Fee (Delivery Phase) Element Adjustments;
- (c) Management Fee (Delivery Phase) Adjustments; and
- (d) Preliminaries Fee (Delivery Phase) Adjustments.

**5.2 Reimbursable Cost Element Adjustments**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

■

[REDACTED]

(b) ~~Nothing in this clause 5.2 limits the operation of clause 13.5.~~

**5.3 Design Fee (Delivery Phase) Element Adjustments**

(a) In respect of each Design Fee (Delivery Phase) Element Adjustment Event for which the SSJ Contractor has made a valid Claim and where the parties have not agreed a Design Fee (Delivery Phase) Element Adjustment, the Principal will determine a Design Fee (Delivery Phase) Element Adjustment as ~~a reasonable amount to reflect the increase or decrease in Design Work resulting from the Design Fee (Delivery Phase) Element Adjustment Event.~~ follows:

[REDACTED]

**5.4 Preliminaries Fee (Delivery Phase) Adjustments**

(a) In respect of each Preliminaries Fee (Delivery Phase) Adjustment Event for which the SSJ Contractor has made a valid Claim and where the parties have not agreed a Preliminaries Fee (Delivery Phase) Adjustment, the Principal will determine a Preliminaries Fee (Delivery Phase) Adjustment as a reasonable amount to reflect the increase or decrease in Preliminaries and the resources required to perform the Preliminaries resulting from the Preliminaries Fee (Delivery Phase) Adjustment Event, which a prudent, competent and experienced contractor could not have anticipated as at the date of this Contract.

█ [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

5.5 **Management Fee (Delivery Phase) Adjustment**

In respect of each Management Fee (Delivery Phase) Adjustment Event, the Principal will determine the Management Fee (Delivery Phase) Adjustment [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

█ [REDACTED]

█ [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

- (a) The parties agree that if the Management Review Group resolves the SSJ Contractor's claim in accordance with clauses 14.21(c) and 14.21(d), the Principal's Representative will determine the SSJ Contractor's claim in accordance with the Management Review Group's determination.

6. **SECURITY**

6.1 **Unconditional Undertakings**

- (a) The parties acknowledge and agree that the Principal has accepted the value of the unconditional undertakings to be provided by the SSJ Contractor on the basis of the specific nature of the SSJ Contractor's Activities and the Project Works to be delivered by the SSJ Contractor.
- (b) The SSJ Contractor must, within 5 Business Days ~~of the date of the commencement~~ of the Delivery Phase Commencement Date, give the Principal [REDACTED] unconditional undertakings each for [REDACTED] of the Target Cost as at the ~~date of commencement of the~~ Delivery Phase: Commencement Date.
- (c) Without limiting clauses 6.3 and 6.6, the unconditional undertakings to be provided under clause 6.1(b) are for the purpose of ensuring the due and proper performance by the SSJ Contractor of its obligations under this Contract and to provide for the SSJ Contractor to bear the risk of financial burden during the time of any unresolved dispute or difference.

6.2 **Requirements for unconditional undertakings**

Each unconditional undertaking provided under clauses 6.1 and 16.6(b)(ii) must be:

- (a) in the form of Schedule F3 (or such other form approved by the Principal);
- (b) in favour of the Principal;
- (c) issued by an Institution approved by the Principal that maintains the Required Rating; and

(d) where required by Law, duly stamped.

### 6.3 Recourse to unconditional undertakings

The Principal may have recourse to any unconditional undertaking provided under clause 6.1 or clause 16.6(b)(ii) at any time.

### 6.4 Release of unconditional undertakings

(a) Subject to clause 6.4(b) and to the Principal's rights to have recourse to the unconditional undertakings and to the cash proceeds if one or more of the unconditional undertakings are converted into cash, the Principal must:

(i) within 20 Business Days after the Date of Completion of the last Portion to reach Completion, release so much of the unconditional undertakings provided by the SSJ Contractor under clause 6.1(b) as may be then held by the Principal, so that it then holds unconditional undertakings to the value of █████ of the Target Cost as at ~~the date of commencement of~~ the Delivery Phase Commencement Date; and

(ii) within 20 Business Days after the date of expiry of the original Defects Correction Periods (excluding any extensions under clause 13.6(b), 13.7, 13.8 and 13.9), release so much of the unconditional undertakings provided by the SSJ Contractor under clause 6.1(b) as may be then held by the Principal, to such amount as the Principal's Representative determines to be reasonable, having regard to the work to which the Defects Correction Periods, as extended under clause 13.6(b), 13.7, 13.8 and 13.9, apply; and

(iii) within 50 Business Days after the expiry of the final Defects Correction Period, as ~~certified by the Independent Certifier (in a certificate executed by the Independent Certifier in the form of Schedule B12)~~ notified by the Principal's Representative, release the balance of the unconditional undertakings provided by the SSJ Contractor under clause 6.1(b) as may be then held by the Principal.

(b) Despite any other provision of this Contract to the contrary, where this Contract may otherwise require the Principal to release an unconditional undertaking or this Contract is terminated by the Principal either pursuant to clause 19 or by reason of the SSJ Contractor repudiating this Contract (or otherwise at law), the Principal may continue to hold the unconditional undertaking after the date for its release or the termination of this Contract to the extent of any claim which the Principal may have against the SSJ Contractor arising out of, or in any way in connection with, this Contract or the SSJ Contractor's Activities whether for damages or otherwise.

### 6.5 No injunction

The SSJ Contractor must not take any steps to injunct or otherwise restrain:

(a) any issuer of any unconditional undertaking provided under this Contract from paying the Principal pursuant to the unconditional undertaking;

(b) the Principal from taking any steps for the purposes of making a demand under any unconditional undertaking provided under this Contract or receiving payment under any such unconditional undertaking; or

(c) the Principal using the money received under any unconditional undertaking provided under this Contract.



**6.6 No interest**

The Principal is not obliged to pay the SSJ Contractor interest on:

- (a) any unconditional undertaking; or
- (b) the proceeds of any unconditional undertaking if it is converted into cash.

**6.7 No trust**

The Principal does not hold the proceeds of any unconditional undertaking on trust for the SSJ Contractor.

**6.8 Parent Company Guarantee**

The SSJ Contractor must within 5 Business Days of the date of this Contract:

- (a) give the Principal a guarantee duly executed by the person referred to in Schedule A1 in favour of the Principal in the form of the Parent Company Guarantee and which is, where required, duly stamped; and
- (b) if the Parent Company Guarantor is incorporated outside of Australia, give the Principal:
  - (i) a Legal Opinion supporting, and in respect of, the executed Parent Company Guarantee; and
  - (ii) any other assistance reasonably required by the Principal to enforce the Parent Company Guarantee in the jurisdiction in which the Parent Company Guarantor is domiciled.

**7. LAW AND APPROVALS**

**7.1 Compliance with Law**

Subject to clause 7.2(a), the SSJ Contractor must, in carrying out the SSJ Contractor's Activities:

- (a) comply with, and ensure that the Project Works and the Temporary Works comply with, all applicable Law;
- (b) give all notices and pay all fees, bonds and other amounts which it is required to pay in respect of the performance of its obligations under this Contract and give the Principal's Representative copies of all notices it gives to Authorities at the time or before it submits such notices to Authorities;
- (c) give the Principal's Representative copies of all documents (including Authority Approvals and other notices) that Authorities issue to it;
- (d) at all times conform and comply with, and ensure that the Project Works and the Temporary Works conform and comply with, all Codes and Standards; and
- (e) not engage in any fraud, bribery or corruption.

**7.2 Approvals**

The SSJ Contractor must:

- (a) obtain all Authority Approvals required for the execution of the SSJ Contractor's Activities and occupation and use of the completed Portions (and for that purpose prepare and submit all applications and associated documents to relevant Authorities), except for those Authority Approvals specified in Schedule E3 that either:
  - (i) were obtained by the Principal prior to the date of this Contract; or
  - (ii) will be obtained by the Principal after the date of this Contract where required;
- (b) comply with, satisfy, carry out and fulfil the conditions and requirements of all Authority Approvals (whether obtained by the SSJ Contractor or the Principal), including those conditions and requirements that the Principal is required, under the terms of the Authority Approvals, including the Planning Approval, to comply with, satisfy, carry out and fulfil, except for the conditions and requirements of Authority Approvals which are to be satisfied or fulfilled by the Principal as set out in Schedule E3;
- (c) in respect of any:
  - (i) Authority Approvals which are to be obtained by the Principal after the date of this Contract; or
  - (ii) conditions and requirements of Authority Approvals which are to be satisfied or fulfilled by the Principal as set out in Schedule E3,

provide the Principal with such assistance as may be reasonably required by the Principal to enable the Principal to obtain the Authority Approvals or satisfy or fulfil the conditions and requirements;
- (d) for the purpose of obtaining all Authority Approvals as required by clause 7.2(a), prepare all associated studies and reports required because of the design of the Project Works or Temporary Works proposed by the SSJ Contractor; and
- (e) as a condition precedent to Construction Completion of the Project Works or a Portion, ensure that it has:
  - (i) obtained all Authority Approvals it is required to obtain under this Contract;
  - (ii) complied with, carried out and fulfilled all conditions and requirements of all Authority Approvals it is required to comply with, carry out and fulfil under this Contract;
  - (iii) without limiting clauses 7.2(e)(i) and 7.2(e)(ii), complied with, carried out and fulfilled all conditions and requirements of the Planning Approval which it is required to comply with, carry out and fulfil (including obtaining the approval of any person for anything) under this Contract; and
  - (iv) unless it is included in Schedule E3 as an Authority Approval which the Principal will obtain, obtained and supplied to the Principal's Representative certification that the Project Works or the Portion, as designed and built, comply with the requirements of the Building Code of Australia to the extent applicable,

including for the avoidance of doubt any Authority Approvals, conditions or requirements which must be obtained, carried out or fulfilled to enable the

Principal, the Operator and any Rail Transport Agency to occupy and use the Project Works or Portion for its intended purpose.

### 7.3 Change in Codes and Standards

- (a) Where there is a Change in Codes and Standards:
- (i) the SSJ Contractor must give a written notice to the Principal's Representative promptly after becoming aware of a proposed or future Change in Codes or Standards;
  - (ii) notwithstanding clause 7.3(a)(i), the SSJ Contractor must give a written notice to the Principal's Representative within 20 Business Days of the SSJ Contractor first becoming aware (or when it ought reasonably to have first become aware) of the Change in Codes and Standards coming into effect containing:
    - (A) details of the Change in Codes and Standards or the proposed future Change in Codes and Standards, as the case may be; and  
an estimate of [REDACTED]  
[REDACTED]  
[REDACTED] for complying with the Change in Codes and Standards, including sufficient information to support the estimate; and
    - (iii) if a notice is given by the SSJ Contractor which complies with clause ~~7.1~~7.3(ba)(ii), then:
      - (A) within 10 Business Days of the notice being given, the Principal's Representative ~~may~~will either:
        - (aa) direct the SSJ Contractor to disregard the Change in Codes and Standards (to the extent that to do so would not place the SSJ Contractor in breach of Law); or
        - (bb) direct the SSJ Contractor to comply with the Change in Codes and Standards and notify the SSJ Contractor that clause 5 will apply in respect of [REDACTED]  
[REDACTED]  
[REDACTED] (to the extent the Principal does not agree with the SSJ Contractor's estimate under clause 7.3(a)(ii))~~7.1~~ and
      - (B) the SSJ Contractor may make a claim for an extension of time under clause 15.8 in respect of any delays the SSJ Contractor suffers in complying with the Change in Codes and Standards under clause 7.3(a)(iii)(A)(bb).
  - (b) If there is any change in the Codes and Standards which does not constitute a Change in Codes and Standards, the SSJ Contractor must comply with the change and will not be entitled to make any Claim (other than for payment under clause 16) against the Principal arising out of or in any way in connection with the change.

#### 7.4 Change in Law

Where there is a Change in Law:

- (a) if either party wishes this clause 7.4(a) to apply, then that party must, within 20 Business Days of the Change in Law, give a written notice to the other and the Principal's Representative stating that clause 7.4(a) applies and containing details of the Change in Law, including, where the notice is given by the SSJ Contractor:
  - (i) an estimate of [REDACTED] [REDACTED] [REDACTED] for complying with the Change in Law, including sufficient information to support the estimate; and
  - (ii) any effect it will have on the SSJ Contractor's Program;
- (b) if such a notice is given:
  - (i) clause 5 will apply in respect of [REDACTED] [REDACTED] [REDACTED] (to the extent the Principal does not agree with the SSJ Contractor's estimate under clause 7.4(a)(i)); and
  - (ii) the SSJ Contractor may make a claim for an extension of time under clause 15.8 in respect of any delays the SSJ Contractor suffers in complying with the Change in Law; and
- (c) the SSJ Contractor must comply with the Change in Law.

#### 7.5 Changes to Planning Approval

- (a) If a Change in Planning Approval occurs which has a direct effect on the SSJ Contractor carrying out the SSJ Contractor's Activities and necessitates a Change, the SSJ Contractor must, within 10 Business Days of the date on which the SSJ Contractor becomes aware or ought reasonably to have become aware of the Change in Planning Approval taking effect, notify the Principal's Representative in writing with detailed particulars of the reason why the Change in Planning Approval necessitates a Change, together with an estimate of [REDACTED] [REDACTED] [REDACTED] for complying with the Change in Planning Approval, including sufficient information to support the estimate.
- (b) If the SSJ Contractor gives a notice under clause 7.5(a) and the Change in Planning Approval does necessitate a Change, the Principal's Representative will direct a Change under clause 11.2(a) in respect of the Change in Planning Approval.
- (c) Other than as set out in clauses 7.5(a) and 7.5(b), the SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 16) arising out of or in any way in connection with:
  - (i) any Change in Planning Approval;

- (ii) ~~ana~~ Planning Approval obtained or issued or which otherwise takes effect after the date of this Contract;
- (iii) a change in a Planning Approval after the date of this Contract; or
- (iv) any:
  - (A) assumptions the SSJ Contractor makes; or
  - (B) failure by the SSJ Contractor to adequately satisfy itself,as to what work methodologies and Temporary Works might be permissible under all Planning Approvals.

#### 7.6 Legal Challenge to Planning Approval

- (a) If there is a legal challenge, proceedings or action in relation to the assessment or determination of an application for a Planning Approval or a modification of a Planning Approval under:
  - (i) the *Environmental Planning and Assessment Act 1979* (NSW);
  - (ii) the *Protection of the Environment Operations Act 1997* (NSW);
  - (iii) the *Environment Protection and Biodiversity Conservation Act 1999* (Cth); or
  - (iv) any other Law,

the SSJ Contractor must continue to perform its obligations under this Contract unless, as a result of that legal challenge, proceedings or action, it is otherwise:

- (v) ordered or directed by an Authority;
  - (vi) ordered by a court or tribunal; or
  - (vii) directed by the Principal or the Principal's Representative.
- (b) Subject to clause 7.6(c), the Principal will determine under clause 5 [REDACTED]  
[REDACTED]  
[REDACTED] as a direct result of:
    - (i) an Authority order referred to in clause 7.6(a)(v);
    - (ii) a court order referred to in clause 7.6(a)(vi); or
    - (iii) a direction by the Principal referred to in clause 7.6(a)(vii),to the extent that such Authority order, court order, or direction prevents the SSJ Contractor from achieving Construction Completion of a Portion by the relevant Date for Construction Completion.
  - (c) Clause 7.6(b) does not apply to the extent that a legal challenge, proceedings or action of the kind referred to in clause 7.6(a) is brought or upheld due to the SSJ Contractor's non-compliance with its obligations under this Contract or any Planning Approval.

- (d) The SSJ Contractor's entitlement under clause 7.6(b) will be its only right to payment arising out of or in any way in connection with an Authority order, court order or direction by the Principal in accordance with clause 7.6(a)(v), 7.6(a)(vi) or 7.6(a)(vii).

**7.7 Crown Building Work**

- (a) The SSJ Contractor must, in relation to any part of the Project Works that is a Crown Building Work, certify (on behalf of the Principal) as required by section 109R of the *Environmental Planning and Assessment Act 1979* (NSW).
- (b) Any certification under clause 7.7(a) will not lessen or otherwise affect:
  - (i) the SSJ Contractor's other liabilities or responsibilities under this Contract or otherwise according to law; or
  - (ii) the Principal's rights against the SSJ Contractor, whether under this Contract or otherwise according to law.

**7.8 Long Service Leave Levy**

The SSJ Contractor must before commencing any construction work under this Contract (including any construction of Temporary Works):

- (a) pay to the Long Service Corporation or that body's agent all amounts payable for the long service leave levy in respect of the SSJ Contractor's Activities under the *Building and Construction Industry Long Service Payments Act 1986* (NSW); and
- (b) produce to the Principal's Representative the documents evidencing payment of the amounts referred to in clause 7.8(a).

**8. THE CONSTRUCTION SITE, TRACK POSSESSIONS, TEMPORARY SHUTDOWNS AND LOCATION OF THE PROJECT WORKS**

**8.1 Access**

- (a) The SSJ Contractor acknowledges and agrees that access to the Construction Site will be provided progressively to the SSJ Contractor as set out in the Site Access Schedule.
- (b) Subject to clause 8.1(c) and any other provision of this Contract affecting access, the Principal must:
  - (i) give, or ensure the SSJ Contractor has, access to the Construction Site by the dates set out in the Site Access Schedule (and if a period is specified in relation to access to a part of the Construction Site, then by the last day of that period); and
  - (ii) once access to a part of the Construction Site is provided to the SSJ Contractor, thereafter continue to allow, or ensure that the SSJ Contractor is continued to be allowed reasonable access to that part of the Construction Site in accordance with the Site Access Schedule.
- (c) The SSJ Contractor acknowledges and agrees that:
  - (i) access to the Construction Site or any part thereof will only confer on the SSJ Contractor a right to such management and control as is necessary to

enable the SSJ Contractor to execute the SSJ Contractor's Activities in accordance with this Contract and to discharge its responsibilities under the WHS Legislation, including to discharge its responsibilities as principal contractor;

- (ii) the Principal is not obliged to give the SSJ Contractor access to any part of the Construction Site until the SSJ Contractor has:
  - (A) complied with clause 6.1(b) and 6.8 of this Contract;
  - (B) submitted the Project Health and Safety Management Plan, the Construction Environmental Management Plan and the Construction and Site Management Plan, as required by the MRs, to the Principal's Representative under clause 14.11 and the Principal's Representative has not rejected the proposed Construction Environmental Management Plan, Construction and Site Management Plan or Project Health and Safety Management Plan within 15 Business Days after such submission in accordance with clause 14.11(h);
  - (C) effected the insurance policies required under clauses 18.5, 18.6 (where required in accordance with clause 18.6), 18.7, 18.8, and 18.9; and
  - (D) complied with the preconditions set out in the Site Access Schedule;
- (iii) the Principal is not obliged to provide, and the SSJ Contractor may not be given, exclusive access to the Construction Site;
- (iv) the Principal is not obliged to carry out any work or provide any facilities to the SSJ Contractor which may be necessary to enable the SSJ Contractor to obtain access to the Construction Site or carry out the SSJ Contractor's Activities; and
- (v) the Principal and others will engage Other Contractors to work upon or in the vicinity of the Construction Site and Extra Land at the same time as the SSJ Contractor.

~~The Principal's obligations under clause 8.1(a) and 8.1(b) in respect of each part of the Construction Site will cease upon the issue of a Notice of Completion in respect of the last Portion occupying that part of the Construction Site, except to the extent required to allow the SSJ Contractor to comply with its obligations during the Defects Correction Periods.~~

- (d) The Principal's obligations under clause 8.1(a) and 8.1(b) in respect of each part of the Construction Site will cease:
  - (i) where the Site Access Schedule specifies that access to the Construction Site for the purposes of this clause 8.1 is provided for an Access Period, on the date specified in the Site Access Schedule as the day that the Access Period ends; and
  - (ii) in all other cases, upon the issue of a Notice of Construction Completion in respect of the last Portion occupying that part of the Construction Site,

except to the extent required to allow the SSJ Contractor to comply with its obligations during the Defects Correction Periods.

- (e) Failure by the Principal to give access as required by clause 8.1(a) will not be a breach of this Contract but will entitle the SSJ Contractor to:
  - (i) an extension of time to any relevant Date for Construction Completion under clause 15 if the requirements of that clause are satisfied; and
  - (ii) [REDACTED] in accordance with clause 5.
- (f) The SSJ Contractor's entitlement under clause 8.1(e)(ii) will be its only right to payment of money arising out of or in any way in connection with the Principal's failure to give access as required by clause 8.1(a).
- (g) The SSJ Contractor must:
  - (i) not use the Construction Site for any purpose other than the Permitted Use without the prior written consent of the Principal's Representative; and
  - (ii) comply with:
    - (A) any access conditions that apply to an area of the Construction Site as specified in the Site Access Schedule;
    - (B) the terms of any easement, restrictions on use, covenants, agreements or other similar arrangements burdening or benefitting the land contained in the Construction Site as recorded in the register maintained by Land and Property Information New South Wales under the *Real Property Act 1900* (NSW).

## 8.2 Property Works

- (a) The SSJ Contractor must:
  - (i) carry out the Property Works:
    - (A) in accordance with the SWTC; and
    - (B) so that they are fit for their intended purpose upon Construction Completion;
  - (ii) after completion of the Property Works with respect to an Unowned Parcel, including the work described in clause (g)(f), provide to the Principal's Representative:
    - (A) unless not required by the Principal's Representative, provide to the Principal's Representative a properly executed certificate in the form of Schedule B6 or a release on terms otherwise satisfactory to the Principal's Representative from all claims or demands (whether for damages or otherwise howsoever arising) from the owner or occupier of, and from other persons having an interest in, such Unowned Parcel;
    - (B) if the SSJ Contractor is unable to obtain such a release despite using its best endeavours to do so, a statement from the SSJ Contractor to the effect that such owner or occupier, or other person having an interest in the Unowned Parcel, has failed or refused to execute such



a release within 15 Business Days after it being provided by the SSJ Contractor to the owner, occupier or other person following completion of the work on the Unowned Parcel, including the work described in clause 8.2(f); and

- (iii) indemnify the Principal from and against any claims against the Principal, or Loss suffered or incurred by the Principal, arising out of or in any way in connection with a claim by the owner or owners of any part of an Unowned Parcel where:
  - (A) such owner or owners have not duly signed a certificate in the form of Schedule B6; and
  - (B) the claim or Loss arises out of or in any way in connection with the SSJ Contractor's Activities.
- (b) The acceptance of a certificate or statement provided by the SSJ Contractor under clause 8.2(a)(ii) by the Principal's Representative is not approval by the Principal or the Principal's Representative of the SSJ Contractor's performance of its obligations under this clause 8.1(g).
- (c) Where any Property Works are required to be carried out on an Unowned Parcel, the SSJ Contractor must give a written notice to the owner or owners of the property (with a copy to the Principal's Representative) which:
  - (i) describes the Property Works to be carried out;
  - (ii) requests access for the purpose of carrying out the Property Works; and
  - (iii) specifies the intended date for commencement of the Property Works,not less than 10 Business Days prior to the day which the SSJ Contractor intends to commence the Property Works.
- (d) If the owner or owners of a property do not provide the SSJ Contractor with sufficient access to carry out the Property Works from either:
  - (i) the date notified in the notice under clause 8.2(c); or
  - (ii) such other date as may be agreed between the SSJ Contractor and the owner or owners,the SSJ Contractor must:
  - (iii) give the Principal's Representative a notice stating this; and
  - (iv) not carry out the Property Works until the Principal's Representative gives the SSJ Contractor a notice specifying that the owner or owners of the property have agreed to give access, in which event clause 8.2(c) will reapply.
- (e) Upon being given access to any property for the purpose of carrying out any Property Works, the SSJ Contractor must promptly carry out those Property Works in a manner which minimises inconvenience and disruption to the owners, occupiers and users of the Unowned Parcel.
- (f) The SSJ Contractor must:

- (i) rehabilitate any part of an Unowned Parcel to the state agreed with the owner of such Unowned Parcel prior to commencing the work or, if no such agreement is reached, the state it was in immediately prior to the SSJ Contractor obtaining access; and
  - (ii) otherwise repair any damage or degradation to such a part arising out of or in any way in connection with the performance of its obligations under this clause 8.1(g).
- (g) The following are conditions precedent to Construction Completion of a Portion:
- (i) completion of all Property Works under this clause 8.1(g) that form part of the Portion, including all relevant work under clause 8.2(f); and
  - (ii) provision of all certificates or statements (as the case may be) to the Principal's Representative as required under clause 8.2(a)(ii) in respect of Property Works that form part of the Portion.

### 8.3 Temporary Works

The SSJ Contractor must carry out all Temporary Works required to execute the SSJ Contractor's Activities so that the Temporary Works will be fit for their intended purpose.

### 8.4 Management and Control of the Construction Site

At all times after being given access to the Construction Site or a part of the Construction Site under clause 8.1 and before the Date of Completion of the Project Works or the last Portion to reach Completion, the SSJ Contractor:

- (a) without limiting any right of the Principal or the Principal's Representative under this Contract, and subject to clause 3.7, will be responsible for the management and control of the Construction Site;
- (b) must control access to, and the security and maintenance of, the Construction Site or that part, except where the Principal's Representative advises otherwise;
- (c) must ensure public safety on and adjacent to the Construction Site or that part;
- (d) must provide for the continuous safe passage of the public, road and railway system users on existing roads, footpaths access ways, cycleways and Rail Tracks affected by the SSJ Contractor's Activities in accordance with this Contract;
- (e) must, subject to clauses 8.1 and 8.14 and the MRs, and any relevant Law, limit access to the Construction Site to its employees, Subcontractors and their employees and Subcontractors, and those with a legitimate interest in being on the Construction Site as part of the SSJ Contractor's Activities;
- (f) must not impede access or Utility Services to private property without the consent of the Principal's Representative and the relevant owner or occupier of that property; and
- (g) must ensure that existing buildings (including residences, whether occupied or unoccupied) on the Construction Site are preserved and protected from damage (including from theft and vandalism) until (where relevant) they are due for demolition by the SSJ Contractor if that forms part of the SSJ Contractor's Activities.

## 8.5 Land in Addition to the Construction Site

The SSJ Contractor must, at its cost:

- (a) procure for itself the occupation or use of or relevant rights over any land or buildings in addition to the Construction Site, including any land owned by a Rail Transport Agency, which is necessary or which it may require for the purposes of carrying out the SSJ Contractor's Activities (**Extra Land**);
- (b) carry out all activities and procure all Utility Services necessary to make the Extra Land suitable for use by the SSJ Contractor;
- (c) as a condition precedent to Construction Completion of any Portion:
  - (i) rehabilitate any Extra Land of the kind referred to in paragraph (a) in accordance with the requirements of all relevant Authorities and other relevant persons;
  - (ii) unless not required by the Principal's Representative, provide to the Principal's Representative a properly executed certificate in the form of Schedule B6 or a release on terms otherwise satisfactory to the Principal's Representative from all claims or demands (whether for damages or otherwise howsoever arising) from the owner or occupier of, and from other persons having an interest in, such Extra Land;
  - (iii) if the SSJ Contractor is unable to obtain such a release despite using its best endeavours to do so, a statement from the SSJ Contractor to the effect that such owner or occupier, or other person having an interest in the Extra Land, has failed or refused to execute such a release within 15 Business Days after it being provided by the SSJ Contractor to the owner, occupier or other person following completion of the work on the Extra Land; and
- (d) indemnify the Principal against any damage, expense, Loss, cost or liability suffered or incurred by the Principal arising out of or in any way in connection with a claim by the owner or occupier of, or any other person having any interest in any Extra Land, provided that the SSJ Contractor's liability to indemnify the Principal will be reduced proportionally to the extent that an act or omission of the Principal, its Associates, an Other Contractor or an agent of the Principal contributed to the damage, expense, Loss, cost or liability.

## 8.6 Temporary Areas

The SSJ Contractor must, as soon as reasonably practicable and in any event as a condition precedent to Completion of any Portion where the SSJ Contractor has occupied or made use of a Temporary Area in connection with that Portion, reinstate the Temporary Area to a condition at least equivalent to the condition existing before that occupation or use except for such parts of the Temporary Area which this Contract (including the SWTC) specifies need not be reinstated.

## 8.7 Condition of the Construction Site

- (a) Subject to clauses 8.8, 8.9, 8.11 and 8.12(b), the SSJ Contractor accepts:
  - (i) the Construction Site and any Extra Land; and
  - (ii) any structures or other thing on, above or adjacent to, or under the surface of, the Construction Site and any Extra Land;

in their present condition subject to all defects and Construction Site conditions and agrees that it is responsible for, and assumes the risk of:

(iii) all Loss (other than any claim for payment under clause 16), delay or disruption it suffers or incurs; and

(iv) any adverse effect on the Project Works or the Temporary Works,

arising out of, or in any way in connection with the Construction Site conditions or any other condition of the Construction Site encountered in performing the Contractors Activities.

(b) Subject to clause 8.7(a) and without limiting clause 8.13(c), the SSJ Contractor warrants and for all purposes it will be deemed to be the case that, prior to the date of this Contract, the SSJ Contractor:

(i) examined this Contract, the Construction Site and its surroundings and any other information that was made available in writing by the Principal, or any other person on the Principal's behalf, to the SSJ Contractor for the purpose of providing a Proposal;

(ii) satisfied itself as to the correctness and sufficiency of its Proposal and the scope of the Target Cost Development Phase Site Investigations and that it has made adequate allowance for the costs of complying with all of its obligations under this Contract and of all matters and things necessary for the due and proper performance and completion of the SSJ Contractor's Activities;

(iii) informed itself of:

(A) all matters relevant to the employment of labour at the Construction Site; and

(B) all industrial matters relevant to the Construction Site; and

(iv) was given the opportunity during the RFP period to itself undertake, and to request others to undertake, tests, enquiries and investigations:

(A) relating to the subject matter of Information Documents; and

(B) for design purposes and otherwise;

(v) had a sufficient opportunity to obtain and obtained all necessary legal, geotechnical and other technical advice in relation to the terms of this Contract, each Deed of Disclaimer, the Initial Reports, the Information Documents, the Construction Site conditions, as well as the risks, contingencies and other circumstances having an effect on its Proposal and the scope of the Target Cost Development Phase Site Investigations, the performance of its obligations and its potential liabilities under this Contract; and

(vi) undertook sufficient tests, enquiries and investigations, had sufficient information and obtained a sufficient understanding of the risks involved to enable it to make an informed decision about whether or not to enter into this Contract and assume the obligations and potential risks and liabilities which it imposes on the SSJ Contractor.

- (c) Subject to clause 8.7(a) and without limiting clause 8.13(c), the SSJ Contractor warrants and for all purposes it will be deemed to be the case that, as at the date of submitting the Target Cost Offer, the SSJ Contractor:
- (i) examined the Construction Site and its surroundings and any other information that was made available in writing by the Principal, or any other person on the Principal's behalf, to the SSJ Contractor for the purpose of providing the Target Cost Offer;
  - (ii) carried out the Target Cost Development Phase Site Investigations;
  - (iii) satisfied itself as to the correctness and sufficiency of the Target Cost Offer and that it has made adequate allowance for the costs of complying with all of its obligations under this Contract and of all matters and things necessary for the due and proper performance and completion of the SSJ Contractor's Activities;
  - (iv) informed itself of:
    - (A) all matters relevant to the employment of labour at the Construction Site; and
    - (B) all industrial matters relevant to the Construction Site; and
  - (v) was given the opportunity during the Target Cost Development Phase to itself undertake, and to request others to undertake, tests, enquiries and investigations:
    - (A) relating to the subject matter of Information Documents; and
    - (B) for design purposes and otherwise; and
  - (vi) had a sufficient opportunity to obtain and obtained all necessary legal, geotechnical and other technical advice in relation to the Initial Reports, the Information Documents, the Construction Site conditions, as well as the risks, contingencies and other circumstances having an effect on the Target Cost Offer, the performance of its obligations and its potential liabilities under this Contract.
- (d) Without limiting or otherwise affecting clauses 8.8 and 8.9, the Principal makes no representation and gives no warranty to the SSJ Contractor in respect of:
- (i) the Construction Site conditions likely to be encountered during the execution of the SSJ Contractor's Activities or otherwise in respect of the condition of:
    - (A) the Construction Site, Extra Land or their surroundings; or
    - (B) any structure or other thing on, under, above or adjacent to the Construction Site or Extra Land; or
  - (ii) the existence, location, condition or availability of any Utility Service on, under, above, adjacent to or related to the Construction Site or Extra Land.

## 8.8 Latent Conditions

- (a) Latent Conditions are:

- (i) adverse geotechnical conditions on the Construction Site or its surroundings; or
  - (ii) conditions of Existing Assets,
- which conditions:
- (iii) differ materially from the conditions identified in the Reports and could not be reasonably inferred from the Reports; and
  - (iv) could not have been identified or could not have been reasonably anticipated by a competent and experienced contractor which has:
    - (A) done those things the SSJ Contractor is deemed to have done under clause 8.7(b) as at the date of this Contract; and
    - (B) done those things the SSJ Contractor is deemed to have done under clause 8.7(c) as at the date of submitting the Target Cost Offer.
- (b) If during the execution of the SSJ Contractor's Activities, the SSJ Contractor becomes aware of a Latent Condition the SSJ Contractor must:
- (i) promptly; and
  - (ii) where possible before the physical conditions are disturbed,
- give written notice thereof to the Principal's Representative.
- (c) The SSJ Contractor must provide in that notice to the Principal's Representative a statement specifying:
- (i) the conditions encountered and in what respects the SSJ Contractor considers they constitute a Latent Condition;
  - (ii) the additional work and additional resources which the SSJ Contractor estimates to be necessary to deal with the Latent Condition;
  - (iii) the time the SSJ Contractor anticipates will be required to deal with the Latent Condition and the expected delay in achieving Construction Completion (if any) as a result of dealing with the Latent Condition;
  - (iv) the SSJ Contractor's estimate of [REDACTED] [REDACTED] required to reflect the cost of the measures necessary to deal with the Latent Condition, including sufficient information to support the estimate; and
  - (v) other details reasonably required by the Principal's Representative.
- (d) The SSJ Contractor acknowledges and agrees if a Latent Condition is encountered that:
- (i) has a direct effect on the SSJ Contractor carrying out the SSJ Contractor's Activities; and
  - (ii) directly results in an increase in the SSJ Contractor's costs of carrying out the SSJ Contractor's Activities,

which a competent and experienced contractor could not have avoided or mitigated, clause 5 will apply in respect of [REDACTED]  
[REDACTED] (to the extent the Principal does not agree with the SSJ Contractor's estimate under clause 8.8(c)(iv)).

- (e) In making a valuation pursuant to clause 8.8(d), regard will not be had to any SSJ Contractor's Activities or additional costs incurred more than 14 days before the date on which the SSJ Contractor gives the written notice required by clause 8.8(b).

## 8.9 Contamination

- (a) Subject to clauses 8.9(c) and 8.10(f), the SSJ Contractor bears the risk of all Contamination:
  - (i) on, in, over, under or about the Construction Site or any Extra Land which is disturbed by or interfered with in the carrying out of the SSJ Contractor's Activities;
  - (ii) which migrates:
    - (A) on to the Construction Site or any Extra Land as a result of the SSJ Contractor's Activities and which could have been reasonably anticipated by a competent and experienced contractor that had examined:
      - (aa) the Construction Site and its surroundings;
      - (bb) any Extra Land and its surroundings; and
      - (cc) all Information Documents and any other information that was made available in writing by the Principal, or any other person on the Principal's behalf, to the SSJ Contractor during the request for proposal period; or
    - (B) from the Construction Site or any Extra Land as a result of the SSJ Contractor's Activities; or
  - (iii) which otherwise arises out of or in connection with the SSJ Contractor's Activities.
- (b) To the extent clauses 8.9(a)(i), 8.9(a)(ii) or 8.9(a)(iii) applies, the SSJ Contractor must undertake Remediation of any such Contamination in accordance with Law and all guidelines made or approved by the EPA so that:
  - (i) the Construction Site and any Extra Land is suitable for the performance of the SSJ Contractor's Activities and the further construction, operation and maintenance of the Project; and
  - (ii) whole of life costs associated with the further construction, operation and maintenance of the Project at the relevant parts of the Construction Site where the Remediation is undertaken are minimised.
- (c) If:

- (i) Contamination on, in, over, under or about the Construction Site is caused by the Principal (or its Associates) after the date of this Contract and such Contamination is disturbed by or interfered with in the carrying out of the SSJ Contractor's Activities, clause 8.9(b) will apply; or
- (ii) the SSJ Contractor is otherwise required by Law, an Authority or this Contract to undertake Remediation of Contamination for which the SSJ Contractor is not responsible under clause 8.9(a), the SSJ Contractor must comply with its obligations at Law, under the Environmental Documents and all guidelines made or approved by the EPA in respect of any such requirement,

however:

- (iii) where such compliance causes the SSJ Contractor to incur greater cost than otherwise would have been incurred had the Contamination not been caused by the Principal (or its Associates) or the SSJ Contractor had not been required by Law, an Authority or this Contract to Remediate such Contamination (as applicable), the difference will be dealt with and valued as if it were a Change; and
  - (iv) the SSJ Contractor will be entitled to an extension of time under clause 15.8 if the requirements of that clause are satisfied.
- (d) Except to the extent prohibited by Law, the SSJ Contractor must indemnify the Principal from and against any claims against the Principal, or Loss suffered or incurred by the Principal, arising out of or in any way in connection with any failure by the SSJ Contractor to comply with any obligation under this Contract in connection with Contamination.

#### 8.10 Disposal of Contamination and Waste

- (a) The SSJ Contractor must:
  - (i) remove from the Construction Site and any Extra Land; and
  - (ii) dispose of,

any Contamination or Waste pursuant to its obligations under this Contract to a licensed waste facility in accordance with all relevant Law and Approvals.
- (b) The SSJ Contractor must:
  - (i) ensure that the entity that carries out the storage, treatment, transport and disposal of the Contamination or Waste from the Construction Site or Extra Land holds all relevant Approvals that are necessary or desirable; and
  - (ii) procure and provide evidence of such Approvals to the Principal's Representative upon request.
- (c) The SSJ Contractor must:
  - (i) sort all Contamination and Waste (including separating Compensable Contamination from clean material and any other type of Contamination or Waste);



- (ii) not contaminate clean material by intermixing any Contamination or Waste; and
  - (iii) not intermix Compensable Contamination with clean material or any other type of Contamination or Waste.
- (d) The SSJ Contractor must ensure, and must ensure that its Associates ensure, that their respective employees, agents and contractors, as applicable, are suitably trained in correct and safe methods of loading, unloading and handling any Contamination or other wastes and that they comply with all applicable Laws and Approvals.
- (e) The SSJ Contractor must:
- (i) keep complete, accurate and up to date records of all materials that are disposed of or otherwise removed from the Construction Site or any Extra Land (including all Contamination and other wastes) including classification certificates and tip docket for all loads; and
  - (ii) if requested, provide a copy of any such records to the Principal's Representative.
- [REDACTED]
- (g) The SSJ Contractor must indemnify the Principal from and against any claims against the Principal, or Loss suffered or incurred by the Principal, arising out of or in any way in connection with any failure by the SSJ Contractor to comply with any obligation under this clause, provided that the SSJ Contractor's liability to indemnify the Principal will be reduced proportionally to the extent that an act or omission of the Principal contributed to the claim or Loss.

#### 8.11 Artefacts

- (a) All valuable minerals, fossils, coins, articles or objects of value or antiquity, and other remains or things of geological, archaeological, anthropological or other special interest found on the Construction Site (all **Artefacts**) are, and will as between the SSJ Contractor and the Principal be and remain, the property of the Principal.
- (b) The SSJ Contractor must:
  - (i) immediately notify the Principal's Representative if it discovers an Artefact;
  - (ii) ensure the Artefact is protected and not lost, removed, disturbed or damaged;
  - (iii) comply with all requirements of Authorities and Law in relation to the Artefact (noting compliance with Law is a contractual requirement and does not constitute a direction of the Principal); and
  - (iv) comply with any directions of the Principal's Representative in relation to the Artefact.
- (c) The SSJ Contractor acknowledges and agrees that compliance with clause 8.11(b)(iii) does not constitute a direction of the Principal's Representative for the purposes of clause 8.11(d).

- (d) Despite the acknowledgements, warranties, releases and indemnities referred to in clauses 8.13(a) to 8.13(d):
- (i) the Principal will determine under clause 5 [REDACTED]  
[REDACTED]  
[REDACTED] as a result of the SSJ Contractor complying with:
    - (A) requirements of Authorities and Law in accordance with clause 8.11(b)(iii); or
    - (B) the Principal's Representative's directions under clause 8.11(b)(iv); and
  - (ii) the SSJ Contractor may make a claim for an extension of time under clause 15.8 in respect of any delays the SSJ Contractor suffers in complying with:
    - (A) requirements of Authorities and Law in accordance with clause 8.11(b)(iii); or
    - (B) the Principal's Representative's directions under clause 8.11(b)(iv).

#### 8.12 Utility Services

- (a) The SSJ Contractor must:
- (i) investigate, relocate, remove, modify, support, protect, reinstate and provide all Utility Services necessary for the SSJ Contractor to comply with its obligations under this Contract;
  - (ii) provide and maintain all signage, line marking, flagmen, barriers and other road traffic devices needed by the SSJ Contractor to comply with its obligations under this Contract, including any such devices reasonably required by the Principal's Representative;
  - (iii) despite any other provision in the Contract to the contrary, ensure that no Utility Services are:
    - (A) damaged or destroyed; or
    - (B) disconnected, disrupted, interfered with or interrupted during normal operating hours,by reason of the performance of the SSJ Contractor's Activities;
  - (iv) cooperate and coordinate with the owners of all Utility Services, and implement their requirements as part of the SSJ Contractor's Activities; and
  - (v) indemnify the Principal against any claim, damages, expense, costs, Loss, liability, fine or penalty the Principal suffers or incurs arising out of or in any way in connection with any disconnection, interference with, interruption or disruption to any Utility Service arising out of or in any way in connection with the SSJ Contractor's Activities, provided that the SSJ Contractor's liability to indemnify the Principal will be reduced proportionally to the extent that an act or omission of the Principal, an Other Contractor or an agent of the Principal contributed to the claim, damages, expense, costs, Loss, liability, fine or penalty.

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]

[REDACTED]

**8.13 Information Documents**

- (a) Whether or not any Information Documents or any part thereof form an Schedule to this Contract, the SSJ Contractor acknowledges that:
  - (i) the Information Documents or part thereof do not form part of this Contract and that clause 8.13(c) applies to the Information Documents or part thereof; and
  - (ii) where Information Documents or any part thereof form a Schedule to this Contract, they do so only for the purposes of identification of that document or part thereof.
  
- (b) Without limiting clause 8.13(c):
  - (i) the SSJ Contractor acknowledges that the Principal does not warrant, guarantee, assume any duty of care or other responsibility for or make any representation about the accuracy, adequacy, suitability or completeness of the Information Documents, and the Information Documents do not form part of this Contract; and

- (ii) subject to clause 8.13(e), the Principal will not be liable upon any Claim by the SSJ Contractor arising out of or in any way in connection with:
  - (A) the provision of, or the purported reliance upon, or use of the Information Documents to or by the SSJ Contractor or any other person to whom the Information Documents are disclosed; or
  - (B) a failure by the Principal to provide any other information, data or documents to the SSJ Contractor.
- (c) The SSJ Contractor:
  - (i) warrants that it did not in any way rely upon:
    - (A) any information, data, representation, statement or document made by, or provided to the SSJ Contractor, by the Principal or anyone on behalf of the Principal or any other information, data, representation, statement or document for which the Principal is responsible or may be responsible whether or not obtained from the Principal or anyone on behalf of the Principal; or
    - (B) the accuracy, adequacy, suitability or completeness of such information, data, representation, statement or document,  
  
for the purposes of entering into this Contract except to the extent that any such information, statement or document forms part of this Contract;
  - (ii) warrants that it:
    - (A) enters into this Contract based on its own investigations, interpretations, deductions, information and determinations;
    - (B) has examined and will continue to examine all other relevant information available on reasonable enquiry;
    - (C) has obtained and considered all necessary information relevant to the risks, contingencies and other circumstances having an effect on the SSJ Contractor's Activities;
    - (D) has satisfied itself as to the correctness and sufficiency of the Contract having regard to the risks referred to in clause 8.13(c)(ii)(C); and
    - (E) has taken such professional advice as is appropriate for projects of the type contemplated by this Contract; and
  - (iii) acknowledges that it is aware that the Principal has entered into this Contract relying upon the warranties, acknowledgements and agreements in clauses 8.13(c)(i) and 8.13(c)(ii).
- (d) Subject to clause 8.13(e), the SSJ Contractor irrevocably releases and indemnifies the Principal (and any of its officers, employees, consultants and agents) from and against:
  - (i) any claim against them by, or liability of them to, any person; or

- (ii) (without being limited by clause 8.13(d)(i)) any costs, expenses, Losses, liabilities or damages suffered or incurred by them,

arising out of or in any way in connection with:

- (iii) the provision of, or the purported reliance upon, or use of the Information Documents, as referred to in clauses 8.13(b) and 8.13(c)(i), to or by the SSJ Contractor or any other person to whom the Information Documents are disclosed or a failure by the Principal to provide any information, data or documents to the SSJ Contractor (other than any information, data or documents which the Principal is required to provide to the SSJ Contractor by the terms of this Contract);
  - (iv) any breach by the SSJ Contractor of this clause 8.13; or
  - (v) the Information Documents being relied upon or otherwise used in the preparation of any information or document, including any information or document which is "misleading or deceptive" or "false or misleading" (within the meaning of those terms in sections 18 and 29 of Schedule 2 of the *Competition and Consumer Act 2010* (Cth) or any equivalent provision of State or Territory legislation).
- (e) The releases and indemnities under clause 8.13(d) benefit the Principal and its officers, employees, consultants and agents. The Principal may enforce each release and indemnity in its own right and on behalf of its officers, employees, consultants and agents.
  - (f) The acknowledgements, warranties, releases and indemnities referred to in clauses 8.13(a) to 8.13(d) do not affect the SSJ Contractor's rights under clause 8.8(d).

#### 8.14 **Principal's Right to Access and Inspect**

Subject to clause 8.16, the SSJ Contractor must:

- (a) without limiting clauses 8.4 and 8.5, minimise disruption or inconvenience to:
  - (i) the Principal, occupiers (including railway system or rail passengers and other users), tenants and potential tenants of the Construction Site, Extra Land or any other land or buildings above or adjacent to the Construction Site or any Extra Land or a part thereof in their occupation or use of, or attendance upon, any part of the Construction Site or Extra Land, including any occupation or use of the Project Works, a Portion or a part thereof under clause 17.5; and
  - (ii) others having a right of access to the Construction Site, Extra Land or any other land or buildings on or adjacent to the Construction Site or any Extra Land; and
- (b) at all times:
  - (i) give the Principal's Representative, the Principal, the Interface Contractors, and any person authorised by either the Principal's Representative or the Principal access to:
    - (A) the Project Works;
    - (B) the Construction Site; or

- (C) any other areas where the SSJ Contractor's Activities are being carried out,

including unobstructed vehicular access through the Construction Site; and

- (ii) provide the Principal, the Principal's Representative, the Independent Certifier and any person authorised by either the Principal's Representative or the Principal with every reasonable facility necessary for the Inspection of the SSJ Contractor's Activities, including the SSJ Contractor's compliance with the Authority Approvals.

#### 8.15 **Condition Surveys**

The SSJ Contractor must:

- (a) identify and prepare a condition survey of all property that could be affected or damaged by the SSJ Contractor's Activities and as required by the Planning Approval and in accordance with MR PA;
- (b) prepare this condition survey a minimum of two weeks prior to commencing any work on the Construction Site, or on any other land which is necessary for performing the SSJ Contractor's Activities or undertaking the Project Works, where that work could damage property on or off the Construction Site;
- (c) in preparing this condition survey, use suitably skilled, qualified, and experienced personnel or Subcontractors; and
- (d) prior to Construction Completion, rectify any damage to property caused by the SSJ Contractor's Activities.

#### 8.16 **Setting Out**

- (a) The SSJ Contractor must:
  - (i) set out the Project Works in accordance with the requirements of this Contract, based on information and survey marks (including any survey peg, bench mark, reference mark, signal, alignment, level mark or any other mark for the purpose of setting out, checking or measuring work) identified by the SSJ Contractor that are suitable for their purposes;
  - (ii) carry out any survey (including providing all instruments and things) that may be necessary for this purpose; and
  - (iii) for this purpose keep all survey marks in their true positions.
- (b) If the SSJ Contractor discovers an error in the position, level, dimensions or alignment of any part of the Project Works, the SSJ Contractor must immediately notify the Principal's Representative and, unless the Principal's Representative otherwise directs, the SSJ Contractor must at its cost rectify the error.

#### 8.17 **Works to be constructed within Project Site**

The SSJ Contractor must ensure that the Works are constructed within the relevant boundaries of the Project Site.

#### 8.18 **Survey**

The SSJ Contractor must, as a condition precedent to Construction Completion of the Project Works or any Portion, and as otherwise required by the Principal's Representative, submit to the Principal's Representative:

- (a) for its review under clause 14.11 a Survey Plan for the Project Works or the relevant Portion that:
  - (i) has regard to the setback requirements in the Building Code of Australia;
  - (ii) has regard to any stratum lots whether above or below ground;
  - (iii) has regard to the survey control requirements of any relevant Rail Transport Agency;
  - (iv) shows the location of all Monuments, and their relation to horizontal and vertical boundaries;
  - (v) shows all internal title boundaries;
  - (vi) shows all easements; and
  - (vii) shows the location of the Project Works and all Utility Services; and
- (b) a Survey Certificate which complies with all Law addressed to the Principal and signed by a land surveyor registered under the *Surveying and Spatial Information Act 2002* (NSW) stating that:
  - (i) the whole of the Project Works or the Portion has been constructed within the relevant boundaries of the Project Site stipulated in this Contract, except only for parts of the Project Works or Portion specifically required by this Contract to be outside those boundaries;
  - (ii) the elements of the Project Works or the Portion are in the positions and within the tolerances required by Law and this Contract;
  - (iii) the survey information included in the configuration materials provided pursuant to the MRs complies with the requirements of this Contract; and
  - (iv) any other matter identified by the Principal's Representative, complies with the requirements of this Contract.

#### 8.19 **Principal not in Control**

The SSJ Contractor and Principal acknowledge that nothing in this Contract including the right to inspect pursuant to clause 8.14 or any audit by the Principal or the Principal's Representative at any time will be construed to mean or imply that:

- (a) the Principal has any management or control over the SSJ Contractor's Activities or the Construction Site or Extra Land; or
- (b) the Principal has any responsibility for any act or omission by the SSJ Contractor or its Subcontractors or agents including compliance or non-compliance with any relevant Laws, Authority Approvals or this Contract.

## 8.20 Track Possessions and Temporary Shutdowns

- (a) Schedule E2 identifies the available Track Possessions and Temporary Shutdowns (with power isolations).
- (b) The Principal will liaise with any relevant Rail Transport Agency to procure for the benefit of the SSJ Contractor the Track Possessions and Temporary Shutdowns as set out in Schedule E2.
- (c) The SSJ Contractor must:
  - (i) coordinate the SSJ Contractor's Activities with the calendar of available Track Possessions and Temporary Shutdowns and make proper allowances in all programs for the calendar of available Track Possessions and Temporary Shutdowns; and
  - (ii) set out in each version of the SSJ Contractor Program the Track Possessions and Temporary Shutdowns that it proposes to utilise in carrying out the Project Works.
- (d) The SSJ Contractor acknowledges that it will not have exclusive access to any Track the subject of a Track Possession and Temporary Shutdown and must:
  - (i) without limiting clauses 3.2 or 3.3 coordinate its activities with whoever else is sharing the relevant Track Possession or Temporary Shutdown; and
  - (ii) allow any relevant Rail Transport Agency and Other Contractors to pass through any track the subject of the relevant Track Possession or Temporary Shutdown.
- (e) If the SSJ Contractor requires a Track Possession or power isolation in addition to the Track Possessions identified in clause 8.20(a) for the performance of the SSJ Contractor's Activities (**Additional Track Possession or Power Isolation**) and requires the Principal to liaise with the relevant Rail Transport Agency in this regard, it must provide no less than:
  - (i) 52 weeks prior written notice in respect of each Additional Track Possession or Power Isolation that falls on a weekend; or
  - (ii) 26 weeks prior written notice in respect of each Additional Track Possession or Power Isolation that falls on a weeknight or which requires a power isolation only,and identify whether a power isolation is required during the requested Additional Track Possession or Power Isolation.
- (f) Following receipt of a request for an Additional Track Possession or Power Isolation under clause 8.20(d), the Principal may assist the SSJ Contractor to obtain the requested Additional Track Possession or Power Isolation, but is under no obligation to do so and in no way guarantees that the requested Additional Track Possession or Power Isolation will be granted by any relevant Rail Transport Agency.
- (g) If an Additional Track Possession or Power Isolation is granted by a Rail Transport Agency, the SSJ Contractor must: make the necessary arrangements for the Additional Track Possession or Power Isolation in accordance with the MRs.



- ~~(i) make the necessary arrangements for the Additional Track Possession or Power Isolation in accordance with the MRs; and~~
- ~~(ii) pay the Principal within 20 Business Days after the relevant Additional Track Possession or Power Isolation the relevant amount (in respect of each Additional Track Possession or Power Isolation) set out in the table in Part 3 of the Site Access Schedule.~~

- (h) The SSJ Contractor must effectively and efficiently utilise each Track Possession and Temporary Shutdown.
- (i) The SSJ Contractor acknowledges and agrees that:
  - (i) the Principal or any relevant Rail Transport Agency may alter or cancel any Track Possession, Temporary Shutdown, power isolation or Additional Track Possession or Power Isolation at any time; and
  - (ii) its only remedy for:
    - (A) any failure by the Principal to procure a Track Possession, Temporary Shutdown or power isolation referred to in clause 8.20(a); or
    - (B) cancellation of Additional Track Possession or Power Isolation once it has been obtained,

is set out in clauses 5 and ~~15.6~~15.7.

8.21 **Indemnity for delays to rail services**

- (a) The SSJ Contractor must:
  - (i) Hand Back the relevant part of the Rail Corridor by the scheduled end of any Track Possession or Temporary Shutdown;
  - (ii) not cause any delay to rail services;
  - (iii) in the event of an emergency, cease to occupy the relevant part of the Rail Corridor within a reasonable period of the emergency occurring; and
  - (iv) immediately notify Sydney Train's Representative (with a copy to the Principal) if the SSJ Contractor anticipates it may be late in vacating the Rail Corridor.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- (c) [Clause 8.21\(b\) sets out the Principal's sole and exclusive remedy for loss as a result of an event described in clause 8.21\(b\)\(i\) or 8.21\(b\)\(ii\).](#)
- (d) [The SSJ Contractor's liability to indemnify the Principal under clause 8.21\(b\) will be reduced proportionally to the extent that any act or omission of the Principal, its Associates, Sydney Trains or RailCorp contributed to the costs, expenses, losses or damages.](#)
- (e) [A delay to the commencement of a Track Possession or Temporary Shutdown will not:](#)
  - (i) [affect the SSJ Contractor's liability to indemnify the Principal under clause 8.21\(b\); or](#)
  - (ii) [constitute an act or omission of the Principal, its Associates, Sydney Trains or RailCorp for the purposes of clause 8.21\(d\).](#)

**9. COMPLIANCE**

**9.1 Quality of Work**

- (a) The SSJ Contractor must in carrying out the SSJ Contractor's Activities use the materials and standard of workmanship required by this Contract, and otherwise comply with this Contract in the execution of the SSJ Contractor's Activities.
- (b) In the absence of any other requirement, the SSJ Contractor must use suitable new materials and ensure that all workmanship and materials are fit for their intended purpose.

## 9.2 Management Requirements

The SSJ Contractor must comply with the requirements of the MRs.

## 9.3 Environmental Management

The SSJ Contractor must:

- (a) hold and maintain an environmental management system which complies with the requirements of the MRs for so long as any SSJ Contractor's Activities are carried out;
- (b) as part of the Contract Management Plan, document, implement and maintain a project-specific Construction Environmental Management Plan for the management of environmental matters in accordance with the MRs;
- (c) carry out the SSJ Contractor's Activities in accordance with the Construction Environmental Management Plan;
- (d) supervise Subcontractor's activities and ensure that they are complying with all relevant Law, Authority Approvals and MRs in relation to environmental management on the Construction Site and Extra Land; and
- (e) use, and be able to demonstrate the use of, ecologically sustainable development principles in the design and construction of the Project Works, Temporary Works and all other SSJ Contractor's Activities.

## 9.4 Health and Safety Management

The SSJ Contractor must:

- (a) hold and maintain a health and safety management system for so long as any SSJ Contractor's Activities are carried out that complies with the WHS Guidelines and the MRs;
- (b) as part of the Contract Management ~~Plan~~Plans, develop, document and implement a contract specific Project Health and Safety Management Plan (including safe work method statements) in accordance with the WHS Guidelines and MRs;
- (c) carry out the SSJ Contractor's Activities in accordance with the Project Health and Safety Management Plan and safe work method statements;
- (d) create a safe working environment for ensuring the safety of all authorised personnel on the Construction Site and Extra Land and that no unauthorised individual gains access to the Construction Site; and
- (e) supervise any Subcontractor's activities and ensure that they are complying with all relevant Law, Authority Approvals and the MRs in relation to the WHS management on the Construction Site and Extra Land.

## 9.5 Safety

- (a) The SSJ Contractor must ensure that the SSJ Contractor's Activities are carried out:
  - (i) safely and in a manner that does not put the health and safety of persons at risk; and

- (ii) in a manner that protects property.
- (b) If the Principal's Representative reasonably considers there is a risk to the health and safety of people or damage to property arising from the SSJ Contractor's Activities:
  - (i) the Principal's Representative may direct the SSJ Contractor to change its manner of working or to cease working; and
  - (ii) the SSJ Contractor must, at its cost, comply with any direction by the Principal's Representative under clause 9.5(~~ab~~)(i).
- (c) The SSJ Contractor must:
  - (i) ensure that in carrying out the SSJ Contractor's Activities:
    - (A) it complies with all Law, including the WHS Law, RSNL, HVNL and other requirements of this Contract for work health, safety, rail safety and rehabilitation management (including, but not limited to, those requirements set out in the WHS Guidelines);
    - (B) the SSJ Contractor, all Subcontractors, contractors or consultants engaged by the SSJ Contractor ~~must~~ comply with the requirements referred to in this clause 9.5 and their respective obligations under the WHS Legislation and RSNL; and
    - (C) it complies with its obligations under the WHS Legislation to consult, cooperate and coordinate activities with all other persons who have a health and safety duty in relation to the same matter;
  - (ii) notify the Principal's Representative immediately (and in the event within 12 hours of such matter arising) of all work health, safety, rail safety, chain of responsibility and rehabilitation matters arising out of, or in any way in connection with, the SSJ Contractor's Activities, unless otherwise directed by the Principal;
  - (iii) institute systems to obtain regular written assurances from all Subcontractors about their ongoing compliance with the WHS Legislation including the due diligence obligation contained therein;
  - (iv) provide the Principal's Representative with the written assurances obtained pursuant to clause 9.5(c)(i), together with written assurance(s) from the SSJ Contractor about the SSJ Contractor's ongoing compliance with the WHS Legislation;
  - (v) provide the Principal's Representative with a written report at each meeting in accordance with clause 14.5, on all work health, safety and rehabilitation matters (including matters concerning or arising out of, or in any way in connection with, this clause 9.5), or any other relevant matters as the Principal's Representative may require from time to time, including a summary of the SSJ Contractor's compliance with the WHS Legislation;
  - (vi) consult, cooperate and coordinate with all Other Contractors and the Principal to ensure that all parties are able to comply with their respective obligations under the WHS Legislation;

- (vii) exercise a duty of the utmost good faith to the Principal in carrying out the Project Works to enable the Principal to discharge the Principal's duties under the WHS Legislation;
  - (viii) ensure that it does not do anything or fail to do anything that would cause the Principal to be in breach of the WHS Legislation; and
  - (ix) ensure its Subcontracts include provisions equivalent to the obligations of this clause 9.5 .
- (d) Without limiting clause 22.12 the Principal may take any action necessary to protect or to prevent or minimise risks to, the Project Works, the Environment, other property or the health or safety of people.
- (e) If the action taken by the Principal under clause 9.5(d) is action which the SSJ Contractor was required to take under this Contract but did not take, the amount of any penalty, fine, damage, expense, cost (including any reasonable legal fees), Loss or liability that the Principal suffers or incurs arising out of or in any way in connection with:
- (i) taking the action contemplated in this clause 9.5(d); or
  - (ii) the SSJ Contractor's failure to take that action,
- will, except to the extent prohibited by Law, be a debt due from the SSJ Contractor to the Principal.
- (f) The SSJ Contractor:
- (i) warrants that it is accredited under the WHS Accreditation Scheme;
  - (ii) must comply with all the requirements of, and maintain accreditation under, the WHS Accreditation Scheme while "building work" (as defined in section 56 of the ~~Fair Work~~ Building and Construction Industry (Improving Productivity) Act 2012/2016 (Cth)) is carried out; and
  - (iii) must ensure that all Subcontracts with Subcontractors carrying out work or providing services on the Construction Site impose obligations on those Subcontractors that enable the SSJ Contractor to comply with its obligations under this clause 9.5(f).
- (g) Without limiting the SSJ Contractor's obligations under any other clause of this Contract, insofar as the SSJ Contractor, in carrying out the SSJ Contractor's Activities, is:
- (i) a person conducting a business or undertaking that designs plant, substances or structures to whom section 22 of the *Work Health and Safety Act 2011* (NSW) applies;
  - (ii) a person conducting a business or undertaking that manufactures plant, substances or structures to whom section 23 of the *Work Health and Safety Act 2011* (NSW) applies;
  - (iii) a person conducting a business or undertaking that imports plant, substances or structures to whom section 24 of the *Work Health and Safety Act 2011* (NSW) applies;

- (iv) a person conducting a business or undertaking that supplies plant, substances or structures to whom section 25 of the *Work Health and Safety Act 2011* (NSW) applies; or
- (v) a person conducting a business or undertaking that installs, constructs or commissions plant or structures to whom section 26 of the *Work Health and Safety Act 2011* (NSW) applies,

the SSJ Contractor must comply with the applicable obligations under the WHS Legislation.

- (h) Without limiting the SSJ Contractor's obligations under any other clause of this Contract, the SSJ Contractor must:
  - (i) ensure that, if any Law, including in the State or Territory in which the Project Works are situated or the Project Works are carried out (as the case may be), require that:
    - (A) a person:
      - (aa) be authorised or licensed (in accordance with the WHS Legislation) to carry out any work at that workplace, that person is so authorised or licensed, and complies with any conditions of such authorisation or licence; and/or
      - (bb) has prescribed qualifications or experience or, if not, is to be supervised by a person who has prescribed qualifications or experience (as defined in the WHS Legislation), that person has the required qualifications or experience or is so supervised; or
    - (B) a workplace, plant or substance (or design), or work (or class of work) be authorised or licensed, that workplace, plant or substance, or work is so authorised or licensed;
  - (ii) not direct or allow a person to carry out or use plant or substance at a workplace unless the requirements of subparagraph (i) are met (including any requirement to be authorised, licensed, qualified or supervised); and
  - (iii) if requested by the Principal's Representative or required by the WHS Legislation, produce evidence of any approvals, certificates, authorisations, licences, prescribed qualifications or experience, or any other information relevant to work health and safety (as the case may be) to the satisfaction of the Principal's Representative before the SSJ Contractor or Subcontractor (as the case may be) commences such work.

## 9.6 Rail Safety

- (a) Without limiting any other clause in the Contract, the SSJ Contractor must comply with the Rail Safety National Law.
- (b) The SSJ Contractor must ensure that it does not do anything or fail to do anything that would cause the Principal to be in breach of the Rail Safety National Law and Rail Safety Regulations.
- (c) The SSJ Contractor acknowledges that:



- (i) the SSJ Contractor's Activities and the Project Works are being undertaken for the purpose of constructing a railway;
  - (ii) the Principal holds Accreditation under the Rail Safety National Law as a Rail Infrastructure Manager; and
  - (iii) to the extent that the SSJ Contractor's Activities comprise Railway Operations, for the purposes of the Rail Safety National Law it carries out those SSJ Contractor's Activities for and on behalf of the Principal's Accreditation.
- (d) In carrying out any part of the SSJ Contractor's Activities which require Accreditation as a Rail Infrastructure Manager, the SSJ Contractor must:
- (i) comply with all conditions of the Principal's Accreditation as a Rail Infrastructure Manager and the Principal's Safety Management System;
  - (ii) not do anything or fail to do anything that may cause the Principal to breach its obligations under the Rail Safety National Law;
  - (iii) carry out the SSJ Contractor's Activities so as not to put the Principal in breach of its obligations as a Rail Infrastructure Manager under the Rail Safety National Law and Rail Safety Regulations;
  - (iv) not do anything (or fail to do anything) which jeopardises the Principal's Accreditation; and
  - (v) without limiting clause 9.6(d), ensure that the SSJ Contractor's Subcontractors engaged in or in connection with the SSJ Contractor's Activities, comply with clauses 9.6(d)(i) and 9.6(d)(ii).
- (e) In carrying out any part of the SSJ Contractor's Activities which require Accreditation as a rolling stock operator, the SSJ Contractor must:
- (i) ensure that the SSJ Contractor, or one of its Subcontractors, holds the necessary Accreditation for that part of the SSJ Contractor's Activities; and
  - (ii) comply with the conditions of that Accreditation.
- (f) Without limiting or otherwise affecting any other provision under this Contract, the SSJ Contractor must, and must ensure that its Subcontractors, comply with all obligations under the Rail Safety National Law including entering into interface agreements required by Part 3 of the Rail Safety National Law in respect of any part of the SSJ Contractor's Activities which require Accreditation as a rolling stock operator.
- (g) The SSJ Contractor must liaise and cooperate with the Principal and any other Rail Transport Operator and provide any reasonable assistance and documentation to the Principal, or any other Rail Transport Operator, as such party may require in relation to safety matters.
- (h) Without limiting clause 9.6(g), the SSJ Contractor must provide the Principal with copies of all notices, reports and other correspondence given or received by the SSJ Contractor under or in connection with the Rail Safety National Law and the Rail Safety Regulations:
- (i) relating to the SSJ Contractor's Activities or the Project Works; or

- (ii) which may adversely affect the ability of the SSJ Contractor to perform the SSJ Contractor's Activities,

promptly after such notices are given or received (but in any event no later than 5 Business Days after they are given or received by the SSJ Contractor).

- (i) Without limiting clause 9.6(f), the SSJ Contractor must ensure that all persons engaged by the SSJ Contractor in or in connection with the SSJ Contractor's Activities:
  - (i) are competent to carry out the work for which they are engaged for the purposes of section 52 of the Rail Safety National Law; and
  - (ii) comply with their obligations under the Rail Safety National Law (including under section 56 of the Rail Safety National Law).
- (j) The SSJ Contractor must and must ensure that its Subcontractors:
  - (i) promptly give all Investigative Authorities such access to premises and information as any Investigative Authority lawfully requests, within the time requested;
  - (ii) cooperate with and respond to any lawful requests made by any Investigative Authority, within the time requested;
  - (iii) do not hinder or delay any Investigative Authority in carrying out its duties.
- (k) Compliance by the SSJ Contractor with its obligations under this clause 9.6 does not discharge the SSJ Contractor from complying with its other obligations under the Contract and is not evidence of compliance by the SSJ Contractor with its other obligations under the Contract.
- (l) To the extent not prohibited by Law, the SSJ Contractor must indemnify the Principal against any damage, expense, Loss or liability suffered or incurred by the Principal arising out of or in any way in connection with the SSJ Contractor's failure to comply with this clause 9.6.

#### 9.7 **Principal Contractor**

- (a) In this clause 9.7 the terms 'construction project', 'construction work', 'notifiable incident', 'place of work', 'person conducting a business or undertaking' (**PCBU**), 'principal contractor' and 'workplace' have the same meanings assigned to those terms under the WHS Legislation.
- (b) For the purpose of the WHS Legislation and the Contract, the Project Works and any Other Contractor Work is taken to be part of the same construction project.
- (c) The Principal:
  - (i) engages Laing O'Rourke Australia Construction Pty Ltd as the principal contractor in respect of the SSJ Contractor's Activities and all Other Contractor Work carried out on the Construction Site; and
  - (ii) authorises Laing O'Rourke Australia Construction Pty Ltd to have management and control over the Construction Site and of each workplace at which the SSJ Contractor's Activities and the Other Contractor Work is to



be carried out and to discharge the duties of a principal contractor under the WHS Legislation.

- (d) Laing O'Rourke Australia Construction Pty Ltd:
  - (i) accepts the engagement as principal contractor and agrees to discharge all the duties imposed on a principal contractor by the WHS Legislation and the Contract;
  - (ii) must exercise and fulfil all of the functions and obligations of a principal contractor under the WHS Legislation so as to:
    - (A) ensure that the responsibilities imposed on a principal contractor by the WHS Legislation are discharged; and
    - (B) enable the Principal to satisfy its obligations under the WHS Legislation in connection with the Construction Site.
- (e) Laing O'Rourke Australia Construction Pty Ltd's engagement and authorisation as principal contractor continues until the termination of the Contract unless sooner revoked by the Principal.
- (f) To the extent not prohibited by law, the SSJ Contractor must indemnify the Principal from and against all claims against the Principal, or Loss (including reasonable legal fees) suffered or incurred by the Principal, arising out of or in any way in connection with any failure of:
  - (i) Laing O'Rourke Australia Construction Pty Ltd to exercise or fulfil the functions and responsibilities of a principal contractor under the WHS Legislation that Laing O'Rourke Australia Construction Pty Ltd is required to discharge in accordance with this clause 9.7; or
  - (ii) the SSJ Contractor to otherwise comply with the WHS Legislation, Rail Safety National Law, Rail Safety National Regulations, Heavy Vehicle National Law or other Law concerning work health and safety or clauses 9.4, 9.5 and 9.6.
- (g) ~~(b)~~ Where the Principal is not otherwise able to validly engage Laing O'Rourke Australia Construction Pty Ltd as principal contractor pursuant to clause 9.7(c), the SSJ Contractor must exercise and fulfil the functions and obligations of the principal contractor under the WHS Legislation as if the SSJ Contractor had been validly engaged as the principal contractor under the WHS Legislation so as to ensure that the responsibilities imposed on a principal contractor by the WHS Legislation are discharged. For this purpose, the Principal authorises the SSJ Contractor to exercise such authority of the Principal as is necessary to enable the SSJ Contractor to discharge the responsibilities imposed on a principal contractor under the WHS Legislation.
- (h) ~~(g)~~ Without limiting anything else in this clause 9.7, the SSJ Contractor must, in respect of any construction work carried out on all or part of the Extra Land, ensure that Laing O'Rourke Australia Construction Pty Ltd discharges the duties of a principal contractor under the WHS Legislation in respect of such construction work.
- (i) ~~(h)~~ Without limiting any other provision of this Contract, the SSJ Contractor:

- (i) must discharge all the obligations under the WHS Legislation and under any plan or any other laws relating to WHS;
  - (ii) accepts that it is the PCBU:
    - (A) carrying out the construction work; and
    - (B) in respect of the Project Works,
 for the purposes of the WHS Legislation;
  - (iii) is responsible for all costs associated with performing the role of principal contractor;
  - (iv) must comply with any direction on safety issued by a relevant Authority;
  - (v) must immediately notify the Principal of any notifiable incident in connection with the Project Works and/or the Construction Site;
  - (vi) must provide to the Principal all notices and correspondence concerning WHS issued in connection with the Project Works within 5 Business Days after the dispatch and/or receipt of any such notice or correspondence;
  - (vii) acknowledges that it has control and management of the area of the parts of the Construction Site on which it is carrying out the SSJ Contractor's Activities;
  - (viii) must itself comply, and ensure that all subcontractors engaged by the SSJ Contractor in connection with the Project Works comply with their respective obligations under the WHS Legislation;
  - (ix) must ensure that it carries out the Project Works in a manner which ensures that the Principal satisfies its obligations under the WHS Legislation; and
  - (x) must display signs that are clearly visible from outside the place of work identifying the SSJ Contractor as the principal contractor and stating the contact telephone numbers of the SSJ Contractor (including an after hours emergency telephone number) and the location of the SSJ Contractor's main site administration facilities for the construction project.
- (j) ~~(j)~~ The Principal may notify the SSJ Contractor that it has terminated Laing O'Rourke Australia Construction Pty Ltd's engagement as principal contractor and advise the SSJ Contractor of the new principal contractor for the Project Works.
  - (k) ~~(k)~~ If Laing O'Rourke Australia Construction Pty Ltd's appointment and engagement as principal contractor is terminated under clause 9.7~~(j)~~, then the SSJ Contractor must (and must ensure that its officers, employees, contractors, subcontractors, and agents also):
    - (i) comply with all requirements of the new principal contractor in executing the Project Works and its other obligations under this Contract so as to enable the new principal contractor to meet its obligations under the WHS Legislation; and
    - (ii) refrain from doing anything that may impede upon the new principal contractor from complying with its obligations under the WHS Legislation.

#### 9.8 **No Relief from Obligations**

The SSJ Contractor will not be relieved from any of its liabilities or responsibilities under this Contract (including under clause ~~12.18~~13 or otherwise according to law) nor will the rights of the Principal whether under this Contract or otherwise according to law be limited or otherwise affected, by:

- (a) the implementation of, and compliance with, any management system or plan by the SSJ Contractor;
- (b) compliance with the Contract Management Plan by the SSJ Contractor;
- (c) any release, authorisation, approval or agreement by the Principal's Representative, or any other person acting on behalf of the Principal or the Principal's Representative, particularly those concerning or relating to the SSJ Contractor proceeding past any hold point or witness point identified in the SWTC, the MRs or otherwise directed by the Principal's Representative;
- (d) any failure by the Principal, the Principal's Representative or any other person acting on behalf of the Principal or engaged by the Principal to detect any Defect, particularly whilst participating in any hold point or witness point procedure, including where such a failure is the result of a negligent act or omission; or
- (e) any inspections arranged by the Principal's Representative under the Contract or any related discussions between the SSJ Contractor's Representative and the Principal's Representative.

#### 9.9 **Engineering Authorisation**

The SSJ Contractor represents and warrants that the SSJ Contractor (or an entity that comprises the SSJ Contractor) is an AEO and has obtained ASA Authorisation to carry out the Asset Lifecycle Services.

#### 9.10 **ASA Compliance**

- (a) Without limiting or otherwise restricting clauses 9.10(b) and 9.10(c), the SSJ Contractor must:
  - (i) ensure that ASA Authorisation to carry out the Asset Lifecycle Services is held and maintained for so long as the SSJ Contractor's Activities are carried out; and
  - (ii) comply (and must ensure that its Subcontractors and all personnel for which the SSJ Contractor is responsible comply) with the conditions of the applicable ASA Authorisation.
- (b) The SSJ Contractor must (and must ensure that its Subcontractors and all personnel for which the SSJ Contractor is responsible):
  - (i) implement and comply with any ASA Requirements applicable to the Asset Lifecycle Services;
  - (ii) immediately notify the Principal's Representative in writing of any non-compliance with clauses 9.9 and 9.10;
  - (iii) cooperate fully with the ASA in the performance of the ASA's functions;

- (iv) provide access to premises and resources as reasonably required by the ASA, including so that the ASA can effectively carry out its review, surveillance and audit functions;
  - (v) comply with the directions, instructions and requirements issued by the ASA;
  - (vi) notify the ASA of any matter that could reasonably be expected to affect the exercise of the ASA's functions;
  - (vii) provide the ASA with any information relating to its activities or any documents or other things reasonably required by the ASA in the exercise of its functions; and
  - (viii) provide the Principal with such reasonable assistance as may be reasonably required by the Principal to enable the Principal to cooperate fully with the ASA and to implement and comply with ASA Requirements.
- (c) The SSJ Contractor acknowledges and agrees that it is not entitled to make (and neither the Principal nor the ASA will be liable upon) any Claim arising out of or in connection with the performance of any of its obligations under this clause 9.10.

#### 9.11 Australian Government Requirements

- (a) The SSJ Contractor:
- (i) declares as at the date of this Contract; and
  - (ii) must ensure during the term of this Contract,  
that, in relation to the Project Works, it and its Subcontractors, consultants and each related entity:
    - (iii) complies with, and acts consistently with, the Building Code;
    - (iv) meets the requirements of section 11 of the Building Code;
    - (v) is not subject to an Exclusion Sanction or a formal warning that any further failure to comply with the Building Code may result in the imposition of an Exclusion Sanction;
    - (vi) has not been the subject of an adverse decision, direction or order, or failed to comply with a decision, direction or order, made by a court or tribunal for a breach of the BCIIIP Act, a designated building law, work health and safety law, competition and consumer law or the *Migration Act 1958* (Cth) (other than a decision, direction or order that is stayed or has been revoked);
    - (vii) has not been required to pay any amount under an adjudication certificate or owed any unsatisfied judgement debts to a building contractor or building industry participant (as those terms are defined in the BCIIIP Act);
    - (viii) only uses products that comply with the relevant Australian standards published by, or on behalf of, Standards Australia;
    - (ix) unless approved by the ABC Commissioner, is not excluded from performing Building Work funded by a state or territory government; and

- (x) will comply with any Workplace Relations Management Plan approved by the ABCC in accordance with Part 6 of the Building Code.
- (b) The SSJ Contractor acknowledges and agrees that compliance with the Building Code does not relieve the SSJ Contractor from any responsibility or obligation under this Contract, or from liability for any Defect in the Project Works arising from compliance with the Building Code.
- (c) The SSJ Contractor must promptly:
  - (i) notify the ABCC of:
    - (A) any breach or suspected breach of the Building Code as soon as practicable, but no later than 2 Business Days after becoming aware of the breach or suspected breach, and advise the ABCC of the steps proposed to be taken by the SSJ Contractor to rectify the breach; and
    - (B) the steps taken to rectify any breach of the Building Code within 14 days of providing a notification under clause 9.11(c)(i)(A); and
  - (ii) give the Principal a copy of any notification given by the SSJ Contractor to the ABCC under clause 9.11(c)(i) and respond to any requests for information by the Principal concerning matters related to the Building Code so as to enable the Principal to comply with its obligations under section 28 of the Building Code.
- (d) The SSJ Contractor acknowledges the powers and functions of the ABC Commissioner and the ABCC under the BCIIP Act and the Building Code and must ensure that it (and must procure that its Subcontractors, consultants and each related entity) complies with any requests made by the ABCC and the ABC Commissioner within those powers and functions, including requests:
  - (i) for entry under section 72 of the BCIIP Act;
  - (ii) to interview any person under section 74 of the BCIIP Act;
  - (iii) to produce records or documents under sections 74 and 77 of the BCIIP Act; and
  - (iv) for information concerning matters relating to the Building Code under subsection 7(c) of the Building Code.
- (e) The SSJ Contractor must not enter into a Subcontract for any aspect of the Project Works unless:
  - (i) the Subcontractor has submitted a Declaration of Compliance, including the further information outlined in Attachment A to the Declaration of Compliance, which the SSJ Contractor agrees is substantially in the same form as the model declaration of compliance applicable to contractors and subcontractors in relation to the Building Code; and
  - (ii) the Subcontract with the Subcontractor includes an equivalent clause to this clause 9.11.
- (f) The SSJ Contractor must provide the Commonwealth with any Subcontractor's Declaration of Compliance referred to in clause 9.11(e) promptly upon request.

- (g) The SSJ Contractor must maintain adequate records of the compliance with the Building Code by:
- (i) the SSJ Contractor;
  - (ii) the Subcontractors;
  - (iii) the SSJ Contractor's consultants; and
  - (iv) any related entity of the SSJ Contractor.
- (h) For the purposes of this clause 9.11, "related entity" has the meaning given to that term in subsection 3(2) of the Building Code.

#### 9.12 **NSW Code of Practice**

- (a) NSW Code and NSW Guidelines
- (i) In addition to terms defined in this document, terms used in this clause 9.12 have the same meaning as is attributed to them in the New South Wales Government's Implementation Guidelines to the NSW Code of Practice for Procurement: Building and Construction (**NSW Guidelines**) (as published by the NSW Treasury in July 2013). The NSW Code and NSW Guidelines are available at [www.procurepoint.nsw.gov.au](http://www.procurepoint.nsw.gov.au).
- (b) Primary Obligation
- (i) The SSJ Contractor must at all times comply with, and meet any obligations imposed by, the NSW Government's Code of Practice for Procurement (**NSW Code**) and NSW Guidelines.
  - (ii) The SSJ Contractor must notify the CCU and the Principal of any possible non-compliance with the NSW Code and NSW Guidelines and of remedial action taken, within 24 hours of becoming aware of the possible non-compliance.
  - (iii) Where the SSJ Contractor engages a Subcontractor, the SSJ Contractor must ensure that the contract imposes on the Subcontractor equivalent obligations to those in this clause 9.12, including that the Subcontractor must at all times comply with, and meet any obligations imposed by, the NSW Code and the NSW Guidelines.
  - (iv) The SSJ Contractor must not appoint or engage another party in relation to the Project Works where that appointment or engagement would breach a sanction imposed on the other party in relation to the NSW Code or NSW Guidelines.
- (c) Access and information
- (i) The SSJ Contractor must maintain adequate records of compliance with the NSW Code and NSW Guidelines by it, its Subcontractors and related entities.
  - (ii) The SSJ Contractor must allow, and take reasonable steps to facilitate, authorised personnel (including personnel of the CCU) to:
    - (A) enter and have access to sites and premises controlled by the SSJ Contractor, including but not limited to the Construction Site;

- (B) inspect any work, material, machinery, appliance, article or facility;
- (C) access information and documents;
- (D) inspect and copy any record relevant to the Project Works;
- (E) have access to personnel; and
- (F) interview any person,

as is necessary for the authorised personnel to monitor and investigate compliance with the NSW Code and NSW Guidelines, by the SSJ Contractor, its Subcontractors and related entities.

- (iii) The SSJ Contractor, and its related entities, must agree to, and comply with, a request from authorised personnel (including personnel of the CCU) for the production of specified documents by a certain date, whether in person, by post or electronic means.

(d) Sanctions

- (i) The SSJ Contractor warrants that at the time of entering into this Contract, neither it, nor any of its related entities, are subject to a sanction in connection with the NSW Code or NSW Guidelines that would have precluded it from responding to a procurement process for work to which the NSW Code and NSW Guidelines apply.
- (ii) If the SSJ Contractor does not comply with, or fails to meet any obligation imposed by, the NSW Code or NSW Guidelines, a sanction may be imposed against it in connection with the NSW Code or NSW Guidelines.
- (iii) Where a sanction is imposed:
  - (A) it is without prejudice to any rights that would otherwise accrue to the parties; and
  - (B) the State of NSW (through its agencies, Ministers and the CCU) may:
    - (aa) record and disclose details of non-compliance with the NSW Code or NSW Guidelines and the sanction; and
    - (bb) take them into account in the evaluation of future procurement processes and responses that may be submitted by the SSJ Contractor, or its related entities, in respect of work to which the NSW Code and NSW Guidelines apply.

(e) Compliance

- (i) The SSJ Contractor:
  - (A) bears the cost of ensuring its compliance with the NSW Code and NSW Guidelines, including in respect of any positive steps it is obliged to take to meet its obligations under the NSW Guidelines; and
  - (B) is not entitled to make a claim for reimbursement or an extension of time from the Principal or the State of NSW for such costs.

- (ii) Compliance with the NSW Code and NSW Guidelines does not relieve the SSJ Contractor from responsibility to perform the SSJ Contractor's Activities and any other obligation under the Contract, or from liability for any Defect in the Project Works or from any other legal liability, whether or not arising from its compliance with the NSW Code and NSW Guidelines.
- (iii) Where a change in the Contract or the Project Works is proposed, and that change may, or may be likely to, affect compliance with the NSW Code and NSW Guidelines, the SSJ Contractor must immediately notify the Principal (or nominee) of the change, or likely change and specify:
  - (A) the circumstances of the proposed change;
  - (B) the extent to which compliance with the NSW Code and NSW Guidelines will be, or is likely to be, affected by the change; and
  - (C) what steps the SSJ Contractor proposes to take to mitigate any adverse impact of the change (including any amendments it proposes to a Workplace Relations Management Plan or Project Health and Safety Management Plan),

and the Principal will direct the SSJ Contractor as to the course it must adopt within 10 Business Days of receiving notice.

#### 9.13 TfNSW's Statement of Business Ethics

- (a) The SSJ Contractor must at all times comply with TfNSW's Statement of Business Ethics, a copy of which is available at [www.transport.nsw.gov.au](http://www.transport.nsw.gov.au).
- (b) Prior to the engagement of any Subcontractor by the SSJ Contractor, the SSJ Contractor must obtain a written acknowledgement from such Subcontractor that it has received, read, understood and will comply with TfNSW's Statement of Business Ethics.

#### 9.14 Independent Advisers

- (a) Independent Safety Advisor
  - (i) Until and including the date of expiry of the final Defects Correction Period, the Principal will engage an Independent Safety Advisor to perform Independent Safety Assessments.
  - (ii) The SSJ Contractor acknowledges that:
    - (A) the Independent Safety Advisor may take into account any reasonable comments made by the Principal in relation to the Independent Safety Assessment or any material prepared or produced in connection with an Independent Safety Assessment; and
    - (B) any material prepared or produced in connection with an Independent Safety Assessment will be provided to the Principal promptly after the relevant material is prepared or produced.
- (b) Independent Estimator
  - (i) Until and including the date of expiry of the final Defects Correction Period, the Principal will engage an Independent Estimator to provide advice, as and when



requested by the Principal, in respect of: any adjustments to the Target Cost in order to determine if such adjustments offer value for money.

- ~~(A) determining if the Target Cost Offer represents value for money; and~~
- ~~(B) any adjustments to the Target Cost in order to determine if such adjustments offer value for money.~~

(c) Financial Auditor

(i) The Principal will until the date of expiry of the final Defects Correction Period, engage a Financial Auditor to provide a quarterly report to the Principal's Representative in which the Financial Auditor provides the following:

- (A) undertake financial assessments of the SSJ Contractor;
- (B) certify that payments have been made to Subcontractors in accordance with requirements of the Contract;
- (C) reconcile the Project Bank Account statements; and
- (D) undertake sample audits, using a risk-based approach, of the costs claimed as reimbursable by the SSJ Contractor to confirm if were correctly incurred and are actual costs exclusive of margins, design and preliminaries related costs.

(ii) The report provided under clause 9.14(c)(i) will be provided to the Principal's Representative.

(d) The SSJ Contractor acknowledges that:

- (i) the Independent Estimator and the Financial Auditor will require full access to all accounts, subcontracts and financial information for the Contract;
- (ii) it will cooperate in facilitating any functions of the Independent Estimator and the Financial Auditor including by making available all necessary accounts, subcontracts and financial information to the Principal's Representative, the Independent Estimator and the Financial Auditor to enable an audit to be conducted; and
- (iii) the Principal is under no obligation to proceed on the basis of the advice and reports provided by the Independent Safety Advisor, the Independent Estimator or the Financial Auditor under this clause 9.14.

**9.15 Asset Management Information**

- (a) The SSJ Contractor must prepare and submit Asset Management Information for the relevant Portion in accordance with the requirements of Appendix B12 of the SWTC.
- (b)** All Asset Management Information must comply with the requirements of this Contract including the SWTC.
- (c) The Principal ~~and the SSJ Contractor acknowledge and agree that the Independent~~ Certifier's Representative must, within 15 Business Days of the submission of the Asset Management Information for a Portion, either:

- (i) reject the Asset Management Information for a failure to comply with the requirements of this Contract, which rejection must specify what development, updating and amendment of the Asset Management Information is required (together with reasons) and a time within which this must occur; or
- (ii) certify advise in writing that the Asset Management Information by: is not rejected.
  - ~~(A) including a notation on the Asset Management Information; and~~
  - ~~(B) providing to the Principal's Representative, the SSJ Contractor and, if required by the Principal's Representative or the Operator, a document signed by the Independent Certifier in the form in Schedule B15.~~
- (d) If the Asset Management Information for a Portion ~~are~~ is rejected by the ~~Independent Certifier~~ Principal's Representative, the SSJ Contractor must update and resubmit the Asset Management Information and clause 9.15(c) will re-apply except that the reference to "15 Business Days" will be deemed to be a reference to the ~~IC~~ Principal's Design Re-Review Period.
- ~~(e) The SSJ Contractor acknowledges and agrees that:~~
  - ~~(i) the Principal's Representative and the Independent Certifier may (but are not obliged to) make comments to the SSJ Contractor; and~~
  - ~~(ii) the Principal's Representative may (but is not obliged to) make comments (with a copy to the SSJ Contractor) to the Independent Certifier;~~
- (e) The SSJ Contractor acknowledges and agrees that the Principal's Representative may make comments to the SSJ Contractor in respect of any Asset Management Information submitted under clause 9.15(a) or clause 9.15(d).
- (f) The Principal's Representative may:
  - (i) provide copies of any Asset Management Information to; and
  - (ii) seek comments in respect of any Asset Management Information from, the Independent Certifier and any Interface Contractor.
- (g) The Principal's Representative owes no duty to the SSJ Contractor to review any Asset Management Information submitted by the SSJ Contractor for errors, omissions or compliance with this Contract.
- (h) No review of, comments upon, non-rejection or rejection of any Asset Management Information by the Principal's Representative ~~or the Independent Certifier~~, nor any other Direction by the Principal's Representative in respect of any Asset Management Information, will lessen or otherwise affect:
  - (i) the SSJ Contractor's liabilities or responsibilities under this Contract or otherwise according to Law; or
  - (ii) the Principal's rights against the SSJ Contractor, whether under this Contract or otherwise according to Law.

- ~~(i) It is a condition precedent to Completion of each Portion that the Independent Certifier has certified the Final Version of the Asset Management Information in accordance with clause 9.15(c)(ii) for the relevant Portion.~~

10. **DESIGN, DESIGN DOCUMENTATION AND COST PLANNING**

10.1 **Design Work (Signalling)**

- (a) The SSJ Contractor acknowledges and agrees that:
- (i) prior to the date of this Contract the Principal:
    - (A) entered into the Design Work (Signalling) Contract so that certain Design Work (Signalling) can commence prior to the date of this Contract and to assist the SSJ Contractor achieve Completion of each Portion by the Date for Construction Completion for each Portion; and
    - (B) may have directed the Signalling Designer to commence performance of all or part of the Design Work (Signalling);
  - (ii) the Design Work (Signalling) forms part of the SSJ Contractor's Activities; and
  - (iii) subject to the terms of the Design Work (Signalling) Contract Deed of Novation, the SSJ Contractor will bear the risk of and responsibility for the Design Work (Signalling) as if it had been party to the Design Work (Signalling) Contract from the date of its execution.
- ~~(b) Within 20 Business Days of the date of this Contract:~~
- ~~(i) the SSJ Contractor must enter into a deed of novation substantially in the form of Schedule A23 in respect of the Design Work (Signalling) Contract; and~~
  - (b) ~~(ii) the Principal will execute, and procure that the Signalling Designer executes, a deed of novation in the same form that is executed by the SSJ Contractor.~~ Not used.
- (c) Subject to the terms of the Design Work (Signalling) Contract Deed of Novation, the novation of the Design Work (Signalling) Contract will not in any way:
- (i) relieve the SSJ Contractor from its obligations and liabilities under this Contract;
  - (ii) limit or otherwise affect any warranty provided by the SSJ Contractor under this Contract;
  - (iii) limit or otherwise affect the Principal's rights against the SSJ Contractor (including those arising out of any warranties given under this Contract); or
  - (iv) entitle the SSJ Contractor to make any Claim,
- whether under this Contract or otherwise according to any Law.

## 10.2 Design obligations

The SSJ Contractor must design the Project Works and the Temporary Works in accordance with:

- (a) the SWTC;
- (b) any Change:
  - (i) directed by the Principal by a Change Order; or
  - (ii) otherwise approved by the Principal under the terms of this Contract; and
- (c) the other requirements of this Contract.

## 10.3 Warranties

- (a) The SSJ Contractor warrants to the Principal that:
  - (i) it has checked, examined, analysed and carefully considered the SWTC and Environmental Documents and that:
    - (A) it has satisfied itself as to the completeness, correctness, accuracy, appropriateness, suitability and adequacy of the SWTC;
    - (B) it has satisfied itself that there are no omissions, ambiguities, discrepancies or inconsistencies in or between the SWTC and Environmental Documents;
    - (C) the SWTC is proper, adequate and fit for its intended purpose including for the purpose of enabling the SSJ Contractor to carry out the SSJ Contractor's Activities in accordance with, and to ensure that the Project Works and the Temporary Works comply with, this Contract including the other warranties in this clause 10.3;
    - (D) it will be fully and exclusively responsible and liable for the design of the Project Works and the Temporary Works (including the Design Documentation), including any submitted or re-submitted to the Independent Certifier or the Principal's Representative (as applicable) in accordance with this Contract;
    - (E) it will be fully and exclusively responsible and liable for all risks howsoever they may arise as a result of the use by the SSJ Contractor of, or reliance upon, the SWTC; and
    - (F) the use of, or reliance upon, the SWTC does not affect any of its obligations under this Contract or entitle the SSJ Contractor to make any Claim against the Principal arising out of or in any way in connection with the SWTC;
  - (ii) the Design Documentation will:
    - (A) satisfy the requirements of the SWTC and the other requirements of this Contract;
    - (B) be and will remain at all relevant times fit for its intended purpose; and

- (C) be prepared, certified, verified, completed and used in accordance with the requirements of this Contract;
- (iii) construction will be carried out in accordance with the Design Documentation which the SSJ Contractor is entitled to use for construction purposes in accordance with clause 10.10(a);
- (iv) construction carried out in accordance with the Design Documentation which the SSJ Contractor is entitled to use in accordance with clause 10.10 will satisfy the requirements of this Contract; and
- (v) each Portion (both individually and in combination with any earlier completed Portions) and the Project Works as a whole, will:
  - (A) be completed in accordance with, and satisfy the requirements of, this Contract;
  - (B) upon Construction Completion, be fit for their intended purposes; and
  - (C) thereafter be capable of remaining at all relevant times fit for their intended purposes.
- (b) The SSJ Contractor agrees that its obligations under, and the warranties given in, clauses 10.2 and 10.3 will remain unaffected and that it will bear and continue to bear full liability and responsibility for the design (including the Design Documentation), construction, commissioning, testing and completion of the Project Works and the Temporary Works notwithstanding:
  - (i) any design work carried out by others prior to the date of this Contract and incorporated in this Contract;
  - (ii) any revisions to the SWTC that reflect changes made in accordance with this Contract during the Target Cost Development Phase;
  - (iii) any Change the subject of a direction by the Principal's Representative; or
  - (iv) the termination (for any reason) of this Contract.

#### 10.4 Preparation and submission of Design Documentation

- (a) The SSJ Contractor must:
  - (i) ~~(a)~~ prepare the Design Documentation in the following three Design Stages:
    - (A) ~~(i)~~ Design Stage 1;
    - (B) ~~(ii)~~ Design Stage 2; and
    - (C) ~~(iii)~~ Design Stage 3,
 or as otherwise contemplated by the Design Management Plan;
  - (ii) ~~(b)~~ submit all Design Documentation (not including Design Documentation to the extent that it relates solely to Temporary Works) to ~~the Independent Certifier and~~ the Principal's Representative:
    - (A) ~~(i)~~ in accordance with the Design Management Plan;



- (B) ~~(#)~~ in a manner and at a rate which, having regard to the quantum of Design Documentation submitted, will give the Principal's Representative and the Independent Certifier (in respect of Design Stage 3 Design Documentation) a reasonable opportunity to review the submitted Design Documentation; and
- (C) ~~(###)~~ in accordance with the requirements of the SWTC;
- (iii) ~~(e)~~ submit all Third Party Agreement Design Documentation to the required recipients under any relevant Third Party Agreement at the same time that the SSJ Contractor submits such Design Documentation to the Principal's Representative ~~and the Independent Certifier~~ under this Contract;
- (iv) ~~(d)~~ within 5 Business Days of a request by the Principal's Representative ~~or the Independent Certifier~~, provide the Principal's Representative ~~or the Independent Certifier~~ with any Design Documentation to the extent it relates solely to Temporary Works; and
- (v) ~~(e)~~ ensure the Design Stage 3 Design Documentation submitted is of a level of detail which is sufficient to permit the Independent Certifier and the Principal's Representative to determine whether:
  - (A) ~~(+)~~ the Design Documentation complies with this Contract; and
  - (B) ~~(#)~~ the Project Works and Temporary Works which will be constructed in accordance with the Design Documentation will comply with this Contract.
- (b) The Principal must, if it requires the Independent Certifier to review any Design Stage 3 Design Documentation, provide to the Independent Certifier (with a copy to the SSJ Contractor) the Design Stage 3 Design Documentation to be reviewed by the Independent Certifier within 1 Business Day of receiving such Design Stage 3 Design Documentation from the SSJ Contractor.

#### 10.5 Third Party Works

Design Documentation that:

- (a) must be provided under or in connection with any Third Party Agreement must comply with the requirements of the relevant Third Party Agreement; and
- (b) relates to the WAD Road Works must, where required by the WAD, be accompanied by a certificate from the WAD Proof Engineer in the form contained in Schedule 6 of the WAD.

#### 10.6 Certification of Design Documentation

- (a) All Design Documentation submitted pursuant to clause 10.4 for Design Stage 1 and Design Stage 2 must be accompanied by a certificate in the form of Schedule B1 from the SSJ Contractor certifying that the Design Documentation complies with all requirements of this Contract including the SWTC.
- (b) All Design Documentation submitted pursuant to clause 10.4 for Design Stage 3 must be accompanied by a certificate in the form of Schedule B2:
  - (i) from the SSJ Contractor certifying that the Design Documentation:

- (A) complies with all requirements of this Contract including the SWTC; and
- (B) is suitable for construction; and
- (ii) from each Designer that prepared the Design Documentation certifying that the Design Documentation complies with all requirements of this Contract including the SWTC.

#### 10.7 Explanation of Design Documentation

The SSJ Contractor must, whenever it submits Design Documentation for Design Stage 1, Design Stage 2 or Design Stage 3 pursuant to clause 10.4:

- (a) deliver a design presentation workshop within 5 Business Days of its submission; and
- (b) if required by the Principal's Representative ~~or~~ and, in respect of Design Stage 3 only, the Independent Certifier, make available the appropriate design personnel to:
  - (i) explain the Design Documentation; and
  - (ii) provide such information regarding the Design Documentation as the Principal's Representative or the Independent Certifier reasonably requests.

#### 10.8 Review of Design Documentation

- (a) **(Principal's Representative review – Design Stages 1 and 2):** The Principal's Representative ~~may (but is not obliged to)~~ must, within ~~1520~~ Business Days of the date on which any Design Documentation for ~~any~~ Design Stage 1 or Design Stage 2 is submitted to it in accordance with clause 10.4, ~~review the Design Documentation and notify the Independent Certifier in writing (with a copy to the SSJ Contractor) of any non-compliances or potential non-compliances in respect of the Design Documentation.~~
- (b) **(Independent Certifier review):** ~~The Independent Certifier must, within the IC Design Review Period:~~
  - (i) review the Design Documentation and, in so doing, ~~must~~ will consider any non-compliances or potential non-compliances raised by ~~the Principal's Representative under clause 10.8(a) or by~~ any Authorities (including Sydney Trains and RMS); ~~and~~
  - (ii) ~~in respect of Design Stage 1 or Design Stage 2,~~ notify the SSJ Contractor of any actual non-compliance with the requirements of this Contract (with detailed reasons). ~~The Independent Certifier may also notify the SSJ Contractor of any potential non-compliance with the requirements of this Contract (with detailed reasons) or any other observation or comment which the Independent Certifier has on the Design Documentation; and~~
- (b) **(Non-compliance of Design Stage 1 or Design Stage 2 Design Documentation):** If the Principal's Representative notifies the SSJ Contractor under clause 10.8(a)(ii) that any Design Stage 1 or Design Stage 2 Design Documentation contains an actual non-compliance with the requirements of this Contract:

- (i) the SSJ Contractor:
    - (A) must, at the same time or within 20 Business Days after receiving such notice, give the Principal's Representative a written response:
      - (aa) which explains how the SSJ Contractor will address the non-compliance in sufficient detail to satisfy the Principal's Representative that compliance will be achieved prior to submitting the Design Stage 3 Design Documentation; or
      - (bb) provide the Principal's Representative with a notice setting out any matters in relation to which it disagrees with the Principal's Representative's opinion, together with its reasons for doing so;
    - (B) must, prior to submitting Design Stage 3 Design Documentation that relates to a Design Stage 2 Design Documentation actual non-compliance, give the Principal's Representative a written statement which explains how the non-compliance has been addressed; and
    - (C) is not obliged to respond to any comments received from the Principal's Representative regarding any potential non-compliance with the requirements of this Contract or any other observation or comment which the Principal's Representative has on the Design Documentation which does not concern an actual non-compliance; or
  - (ii) following the receipt of a notice under clause 10.8(b)(i)(A)(bb), the parties will meet in good faith to seek to resolve the disagreement.
- (c) **(Principal's Representative review – Design Stage 3):** The Principal's Representative must, within 20 Business Days of the date on which any Design Stage 3 Design Documentation is submitted to it in accordance with clause 10.4:
- (i) review the Design Stage 3 Design Documentation and, in so doing, will consider any non-compliances or potential non-compliances raised by any Authorities (including Sydney Trains and RMS);
  - (ii) either:
    - (A) reject the Design Documentation (in writing, with detailed reasons, to the SSJ Contractor with a copy to the Independent Certifier) if it considers that the Design Documentation:
      - (aa) does not comply with the requirements of this Contract (Minor Non-Compliances excepted); or
      - (bb) is not sufficiently complete to enable the Principal's Representative to form a view on whether it is compliant; or
    - (B) notify the SSJ Contractor (with a copy to the Independent Certifier) that the Design Documentation is not rejected; together with a list of:
      - (aa) any non-compliances which the Principal's Representative considers to be Minor Non-Compliances; and



- (bb) proposed actions that the SSJ Contractor may take to address those Minor Non-Compliances.
- (d) (Independent Certifier review – Design Stage 3): The Independent Certifier must:
- (i) review any Design Stage 3 Design Documentation which is provided to the Independent Certifier in accordance with clause 10.4(b), addressing the comments received by it from the Principal's Representative under clause 10.8(c); and
- (ii) ~~(iii) in respect of~~ within the IC Design Stage 3, Review Period, determine whether or not the Design Documentation complies with the requirements of this Contract and either:
- (A) reject the Design Documentation (in writing, with detailed reasons to the SSJ Contractor with a copy to the Principal's Representative) if the Independent Certifier considers that the Design Documentation:
- (aa) does not comply with the requirements of this Contract (Minor Non-Compliances excepted); or
- (bb) is not sufficiently complete to enable the Independent Certifier to form a view on whether it is compliant; or
- (B) if the Independent Certifier considers that the Design Documentation complies with the requirements of this Contract, certify the Design Documentation by:
- (aa) including a notation on each document forming part of the Design Documentation;
- (bb) providing to the Principal's Representative ~~and~~ the SSJ Contractor and, if required by the Principal's Representative, the Operator, a certificate in the form of Schedule B9;
- (cc) where the Design Documentation relates to Sydney Trains Interface Works, providing to the Principal's Representative and the SSJ Contractor a certificate in the form of Schedule 5Z of the Sydney Trains Transition Agreement; and
- (dd) where the Design Documentation relates to WAD Works, providing to the Principal's Representative and the SSJ Contractor a certificate in the form of Schedule 3 of the WAD;
- (e) ~~(Principal's Direction): The Principal's Representative may at any time (including after the Independent Certifier has certified the Design Documentation pursuant to clause 10.8(b)(iii)(B) or 10.8(g)(ii)(A)) direct the SSJ Contractor to make amendments to the Design Documentation which the Principal considers to be required to ensure the Design Documentation complies with this Contract and, if it does so, clause 10.8(h)(iii) will apply.~~
- (d) ~~(Temporary Works): The Independent Certifier is not required to certify any Design Documentation for Temporary Works.~~
- (e) ~~(Non-compliance of Stage 1 or Stage 2 Design Documentation): If the Independent Certifier notifies the SSJ Contractor under clause 10.8(b)(ii) that any~~

~~Design Stage 1 or Design Stage 2 Documentation contains an actual non-compliance with the requirements of this Contract, the SSJ Contractor:~~

- ~~(i) must, at the same time or within 20 Business Days after receiving such notice, give the Independent Certifier (with a copy to the Principal's Representative) a written response which explains how the SSJ Contractor will address the non-compliance in sufficient detail to satisfy the Independent Certifier that compliance will be achieved in the Design Stage 3 Design Documentation;~~
- ~~(ii) must, prior to submitting Design Stage 3 Design Documentation that relates to a Design Stage 2 Documentation actual non-compliance, give the Independent Certifier (with a copy to the Principal's Representative) a written statement which explains how the non-compliance has been addressed; and~~
- ~~(iii) is not obliged to respond to any comments received from the Independent Certifier regarding any potential non-compliance with the requirements of this Contract or any other observation or comment which the Independent Certifier has on the Design Documentation which does not concern an actual non-compliance.~~

(e) ~~(f)~~ **(Rejection of Design Documentation):** If any Design Stage 3 Design Documentation is rejected by ~~the Independent Certifier under clause 10.8(b)(iii)(A), the SSJ Contractor must:~~

(i) the Principal's Representative under clause 10.8(c)(ii)(A):

(A) the SSJ Contractor must:

(aa) ~~(i)~~ promptly amend the relevant non-compliant element of the Design Documentation and re-submit it to the Principal in accordance with clause 10.4, in which case the process in this clause 10.8 will be reapplied to the amended element of the Design Documentation; except that the reference to the review periods will be deemed to be a reference to the Principal's Design Re-Review Period; or

(bb) ~~(ii)~~ provide the Principal's Representative with a notice requesting a Change of the requirements of this Contract with which the Independent Certifier has stated that the Design Documentation is non-compliant, setting out any applicable details required by clause 11.4 (and such notice will be deemed to be a notice given under clause 11.4) setting out any matters in relation to which it disagrees with the Principal's Representative's opinion, together with its reasons for doing so; or

(ii) the Independent Certifier under clause 10.8(d)(ii)(A), the SSJ Contractor must:

(A) amend the relevant non-compliant element of the Design Documentation and re-submit it to the Independent Certifier within 5 Business Days of receiving the notice under clause 10.8(d)(ii)(A), in which case the process in clause 10.8(d) will be reapplied to the amended element of the Design Stage 3 Design Documentation



except that reference to the IC Design Review Period will be deemed to be a reference to the IC Design Re-Review Period; or

- (B) ~~(iii)~~ provide ~~the Principal's Representative and~~ the Independent Certifier with a notice setting out any matters in relation to which it disagrees with the Independent Certifier's opinion, together with its reasons for doing so,

but the SSJ Contractor may commence or continue construction of those elements of the Design Documentation that the Independent Certifier has not identified as being non-compliant with this Contract.

- (f) ~~(g)~~ **(Response by Principal or Independent Certifier)**: If the SSJ Contractor gives a notice under:

- (i) clause 10.8(~~fe~~)(i)(A)(~~#bb~~), the Principal's Representative ~~may approve or reject the requested Change in accordance with clause 11.5(d)(i) must, promptly after receipt of the notice, determine and notify the parties as to whether or not the notice satisfactorily addresses its concerns, together with its reasons for forming that opinion~~ and:

- (A) if the Principal's Representative ~~approves the requested Change, the process in clause 10.8(b) will reapply as if the relevant non-compliant element of the Design Documentation had been resubmitted to the Independent Certifier~~ considers that the SSJ Contractor's notice satisfactorily addresses its concerns, it must provide the notice under clause 10.8(c)(ii)(B) as part of its notice; or

- (B) if the Principal's Representative ~~rejects the request, clause 10.8(h)(i) will apply; or does not consider that the SSJ Contractor's notice satisfactorily addresses its concerns, the parties will promptly meet in good faith to seek to resolve the disagreement (whether by a Change or otherwise) within 10 Business Days of the notice under clause 10.8(c)(ii)(A); and~~

- (ii) clause 10.8(~~fe~~)(~~#ii~~)(B), the Independent Certifier must, ~~within 10 Business Days promptly~~ after receipt of the notice, determine, and notify the parties as to, whether or not the notice satisfactorily addresses the Independent Certifier's concerns together with its reasons for forming that opinion and:

- (A) if the Independent Certifier considers that the SSJ Contractor's notice satisfactorily addresses ~~the Independent Certifier's~~ concerns, ~~the Independent Certifier~~ it must provide the certification under clause 10.8(~~bd~~)(~~#ii~~)(B) as part of its notice; or

- (B) if the Independent Certifier considers that the notice does not satisfactorily address its concerns, the Independent Certifier's concerns, clause 10.8(h)(ii) will apply, the SSJ Contractor and the Principal will meet in good faith to seek to resolve the disagreement (whether by a Change or otherwise) within 10 Business Days of receiving the notice under clause 10.8(d)(ii)(A).

- (g) ~~(h)~~ **(Resubmission of Design Documentation)**: If:

- (i) ~~the Principal's Representative rejects the SSJ Contractor's request under clause 10.8(f)(ii);~~

- (i) ~~(ii) the Independent Certifier notifies the~~ the relevant parties reach resolution under clause 10.8(f)(i)(B) or 10.8(gf)(ii)(B) that it does not consider that ~~and the SSJ Contractor's notice satisfactorily addresses the Independent Certifier's concerns~~ is required to resubmit any Design Documentation; or
- (ii) ~~(iii)~~ any Design Documentation is the subject of a direction by the Principal's Representative under clause 10.8(eh),

then:

- (iii) ~~(iv)~~ the SSJ Contractor must promptly amend the relevant non-compliant element of the Design Documentation and re-submit the relevant element ~~in accordance with clause 10.4 to the Principal's Representative and, in respect of Design Stage 3 Design Documentation, the Independent Certifier;~~ and
- (iv) ~~(v)~~ the process in ~~this~~ clause 10.8(c) or 10.8(d) will be reapplied to the amended element of the Design Documentation, ~~except that reference to the:~~
  - (A) review periods under clause 10.8(a) or 10.8(c) (as applicable) will be deemed to be a reference to the Principal's Design Re-Review Period; and
  - (B) IC Design Review Period will be deemed to be a reference to the IC Design Re-Review Period.
- (h) The Principal's Representative may at any time (including after the Independent Certifier has certified the Design Documentation pursuant to clause 10.8(d)(ii)(B) or 10.8(f)(ii)(A) direct the SSJ Contractor to make amendments to the Design Documentation which the Principal considers to be required to ensure the Design Documentation complies with this Contract and, if it does so, clause 10.8(a)(iv) will apply.
- (i) (Temporary Works): The Independent Certifier is not required to certify any Design Documentation for Temporary Works.
- (j) ~~(i)~~ **(Changes):** If the SSJ Contractor considers that any Design Documentation which is the subject of a direction by the Principal's Representative under clause 10.8(eh) constitutes or involves a Change, the SSJ Contractor must, if it wishes to make a Claim in relation to the matter, give a notice and submit a claim in accordance with, and otherwise comply with, clause 11.
- (k) (Independent Certifier response to Principal): If the Principal's Representative's notice under clause 10.8(c)(ii)(B) proposed any Minor Non-Compliances in the SSJ Contractor's Design Stage 3 Design Documentation, the Independent Certifier must, within 5 Business Days after certifying Design Stage 3 Design Documentation under clause 10.8(d)(ii)(B) or 10.8(f)(ii)(A), provide the Principal's Representative with detailed written reasons of why it did not include any of the Principal's Representative's proposed Minor Non-Compliances in the certification of the Design Stage 3 Design Documentation.
- (l) ~~(j)~~ **(Minor Non-Compliances):** If the certificate provided by the Independent Certifier pursuant to clause 10.8(bd)(~~iii~~)(B)(bb) lists any Minor Non-Compliances:



- (i) the Independent Certifier may, in the certificate, recommend the action that could be taken by the SSJ Contractor to address the Minor Non-Compliance; and
- (ii) the SSJ Contractor must complete the recommended action, or take any other action the SSJ Contractor deems reasonable in the circumstances to correct the Minor Non-Compliance to the extent required for the Design Documentation to comply with this Contract, within the timeframe (if any) specified by the Independent Certifier and, in any event, as a pre-condition to Construction Completion of each relevant Portion.

~~(k) **(Independent Certifier response to Principal):** The Independent Certifier must, within 5 Business Days after~~

(m) **(Configuration Control Board):** Where:

- ~~(i) providing a notice to the SSJ Contractor under clause 10.8(b)(ii) in respect of Design Stage 1 or Design Stage 2 Design Documentation, to the extent that the Independent Certifier did not include in its notice to the SSJ Contractor any comments received from the Principal's Representative under clause 10.8(a), provide the Principal's Representative with detailed written reasons of why it did not include such comments;~~
- ~~(ii) rejecting Design Stage 3 Design Documentation under clause 10.8(b)(iii)(A), to the extent that the Independent Certifier did not include in its notice to the SSJ Contractor any comments received from the Principal's Representative under clause 10.8(a) regarding non-compliances in the SSJ Contractor's Design Stage 3 Design Documentation, provide the Principal's Representative with detailed written reasons of why it did not include such comments; and~~
- ~~(iii) certifying Design Stage 3 Design Documentation under clause 10.8(b)(iii)(B), to the extent that the Independent Certifier received comments from the Principal's Representative under clause 10.8(a) regarding non-compliances in the SSJ Contractor's Design Stage 3 Design Documentation, provide the Principal's Representative with detailed written reasons of why it certified the Design Stage 3 Design Documentation despite the comments received from the Principal's Representative.~~
- (i) ~~(i) **(Configuration Control Board):** Where any Design Stage 3 Design Documentation:~~
  - (A) ~~(i) comprises a design package which the Contract requires the Principal~~SSJ Contractor to submit to the Configuration Control Board; ~~and~~
  - (B) ~~(ii) such Design Documentation has been submitted for the review of the Principal's Representative has given a notice to the Independent Certifier under clause 10.8(b); and~~c)(ii)(B) in relation to such Design Documentation.
  - ~~(iii) the Independent Certifier gives the SSJ Contractor the notice referred to in clause 10.8(b)(iii)(B) in respect of that Design Documentation;~~

the ~~Principal will use reasonable endeavours to~~SSJ Contractor must obtain a Configuration Change Acceptance Notice (where relevant) for the relevant design package from the Configuration Control Board; ~~and~~



## 10.10 Design Documentation for construction

- (a) Subject to clauses 10.8(~~de~~), and 10.10(c) ~~and 10.10(d)~~, unless otherwise approved in writing by the Principal's Representative, the SSJ Contractor must only use for construction purposes any Design Documentation ~~unless it that~~ has been:
- (i) submitted to the Principal's Representative and the Independent Certifier under clause 10.4;
  - (ii) certified in accordance with clause 10.6(b) ~~(which certifications must be provided in respect of any relevant categories of Temporary Works to the extent required by clause 10.6(b)); and~~;
  - (iii) the subject of a Configuration Change Acceptance Notice in accordance with clause 10.8(m); and
  - (iv) ~~(iii)~~ certified by the Independent Certifier under clauses 10.8(~~bd~~)(~~iii~~)(B) or 10.8(~~gf~~)(ii)(A).
- (b) The SSJ Contractor must give the Principal's Representative one electronic copy, of:
- (i) all Design Documentation which, pursuant to clause 10.10(a), the SSJ Contractor is entitled to use for construction purposes, in accordance with the requirements of the SWTC; and
  - (ii) surveys and work as executed Design Documentation in accordance with the requirements of the SWTC.
- (c) If:
- (i) the SSJ Contractor and the Independent Certifier have not resolved any disagreement within the period contemplated under clause 10.8(f)(ii)(B); or
  - (ii) ~~(e)~~ If the Independent Certifier does not, in respect of Design Stage 3 Design Documentation that has been the subject of a written notice from the Principal's Representative under clause 10.8(c)(ii)(B) but which is not Third Party Agreement Design Documentation, ~~either~~ certify or reject the Design Documentation within the IC Design Review Period ~~referred to in clause 10.8(b), the SSJ Contractor may use the Design Documentation for construction purposes at the SSJ Contractor's own risk.~~
- ~~(d) If the SSJ Contractor exercises its right under clause 10.10(c) and the Independent Certifier subsequently rejects the Design Documentation, then (unless otherwise approved in writing by the Principal):~~
- ~~(i) the SSJ Contractor must immediately cease any construction being carried out in accordance with the relevant non-compliant element of the Design Documentation, but the SSJ Contractor may commence or continue construction in accordance with any element of the Design Documentation that the Independent Certifier has not identified as being non-compliant with this Contract; and~~
  - ~~(ii) clauses 10.8(e) to 10.8(h) will apply in relation to the non-compliant element of the Design Documentation.~~



the SSJ Contractor may use the Design Documentation for construction purposes at the SSJ Contractor's own risk.

**10.11 Amendments to Final Design Documentation**

- (a) Subject to clause 11, if the SSJ Contractor wishes to amend Final Design Documentation prior to the Date of Construction Completion of a Portion to which the Final Design Documentation relates:
- (i) the SSJ Contractor must submit the amended Design Documentation to the Principal's Representative and the Independent Certifier together with:
    - (A) the certifications referred to in clause 10.6(b); and
    - (B) an explanation as to why it is seeking to amend the Final Design Documentation; and
  - (ii) clause 10.8 will apply as if the Design Documentation is Design Stage 3 Design Documentation.
- (b) The SSJ Contractor may, at its own risk, use the amended Final Design Documentation submitted in accordance with clause 10.11(a) for construction purposes prior to certification by the Independent Certifier under clause 10.8(~~bd~~)(~~iii~~)(B) if, and only if, the amendment to the Final Design Documentation:
- (i) is minor;
  - (ii) does not adversely impact the Project Works or the Temporary Works; and
  - (iii) is necessary to overcome an issue which:
    - (A) prevents or adversely affects the SSJ Contractor proceeding with construction; and
    - (B) has arisen or become evident since the Final Design Documentation was submitted to the Principal's Representative and the Independent Certifier.
- (c) If the SSJ Contractor exercises its right under clause 10.11(~~ab~~) and the Principal's Representative or the Independent Certifier subsequently rejects the amended Final Design Documentation in accordance with clause 10.8(~~bc~~)(~~iii~~)(B)ii(A) or 10.8(d)ii(A) respectively, then (unless otherwise approved in writing by the Principal's Representative):
- (i) the SSJ Contractor must immediately cease any construction being carried out in accordance with the relevant non-compliant element of the amended Final Design Documentation, but the SSJ Contractor may commence or continue construction in accordance with any element of the amended Final Design Documentation that the Principal's Representative or the Independent Certifier has not identified as being non-compliant with this Contract; and
  - (ii) clause 10.8(~~eb~~) to 10.8(~~hg~~) will reapply in relation to the non-compliant element of the amended Final Design Documentation.
- (d) The SSJ Contractor must submit any amended Final Design Documentation which is Third Party Agreement Design Documentation to the required recipients under any



relevant Third Party Agreement at the same time that the SSJ Contractor submits such amended Final Design Documentation to the Principal's Representative and the Independent Certifier under clause 10.11(a)(i).

#### 10.12 No duty to review

The Principal and the SSJ Contractor acknowledge and agree that:

- (a) neither the Principal nor the Principal's Representative assume a duty or owe any duty to the SSJ Contractor to review the Design Documentation for errors, omissions or compliance with the requirements of this Contract or to consult with the SSJ Contractor or make any comments regarding any Design Documentation; and
- (b) ~~neither:~~ none of:
  - (i) any review or rejection of, or consultation or comments by the Principal, the Principal's Representative or the Independent Certifier, nor any failure by the Principal, the Principal's Representative or the Independent Certifier regarding, any Design Documentation or any other Direction by the Principal's Representative in respect of any Design Documentation; ~~nor~~
  - (ii) the non-rejection of any Design Documentation by the Principal's Representative under clause 10.8(c)(ii)(B); or
  - (iii) ~~(iii)~~ the certification of any Design Documentation by the Independent Certifier under clause 10.8(~~bd~~)(~~iii~~)(B),  
will lessen or otherwise affect:
  - (iv) ~~(iii)~~ the SSJ Contractor's warranties under clause 10.3 or any other of its liabilities or responsibilities under this Contract or otherwise according to Law; or
  - (v) ~~(iv)~~ the Principal's rights against the SSJ Contractor, whether under this Contract or otherwise according to Law.

#### 10.13 Ownership of documentation

- (a) Documents (including Design Documentation) supplied by or on behalf of the SSJ Contractor will be the Principal's property.
- (b) The SSJ Contractor (irrevocably for all time and despite any termination of this Contract for any reason):
  - (i) to the fullest extent permitted by law, assigns to the Principal all of the SSJ Contractor's right, title and interest in the Intellectual Property Rights in or relating to:
    - (A) the Design Documentation; and
    - (B) the materials, documents, images, photographs and software relevant to the SSJ Contractor's Activities (other than processes and methods of working),

(collectively called the **Contract Documentation and Materials**) prepared or created by the SSJ Contractor for or in connection with the SSJ

Contractor's Activities or the Project Works, which assignment is effective immediately from the time it is prepared or created; and

- (ii) in respect of all other Intellectual Property Rights in or relating to:
  - (A) the Contract Documentation and Materials; and
  - (B) the Temporary Works and the processes and methods of working relevant to the SSJ Contractor's Activities (collectively called the **Contract Processes**),

grants to the Principal an irrevocable, royalty free, perpetual and fully assignable licence to use (and to sublicense others to use) the same for:

- (C) the purposes of completing the construction, commissioning and testing of, using, operating, duplicating, extending, maintaining, upgrading, altering or otherwise dealing with the whole or any part of the SSJ Contractor's Activities or the Project Works and the Temporary Works;
- (D) any purpose associated with further development of the Construction Site; and
- (E) any other purpose connected with transport projects in New South Wales,

which licence is effective immediately and will survive termination of this Contract on any basis.

- (c) The SSJ Contractor:
  - (i) warrants that the Principal's use of the Contract Documentation and Materials, or any other work provided by the SSJ Contractor under this Contract, will not infringe any author's moral rights under the *Copyright Act 1968* (Cth) or similar legislation in any jurisdiction; and
  - (ii) must indemnify the Principal against any claims against, or costs, expenses, losses or damages suffered or incurred by the Principal arising out of, or in any way in connection with, any actual or alleged infringement of any author's moral rights under the *Copyright Act 1968* (Cth) or similar legislation in any jurisdiction in connection with the Project Works, the Temporary Works, the SSJ Contractor's Activities or the Contract Documentation and Materials.
- (d) For the purposes of clause 10.13(c), the Principal's use of the Contract Documentation and Material includes the Principal's right to reproduce, publish, copy, adapt, communicate to the public, materially distort, destroy, mutilate or in any way change the Contract Documentation or Material or part of the Project Works or Temporary Works to which the Contract Documentation or Material or any other work provided by the SSJ Contractor under this Contract relates:
  - (i) with or without attribution of authorship;
  - (ii) in any medium; and
  - (iii) in any context and in any way it sees fit.

- (e) The SSJ Contractor agrees to, and agrees to procure the cooperation of any third parties to, execute such further documents and do such further things (including assisting in relation to any litigation commenced by or brought against the Principal or its licensees, assignees or successors and their licensees, or any other person authorised by it) as reasonably requested by the Principal to:
- (i) give full effect to the provisions of this Contract; and to:
    - (A) ~~(iii)~~ allow or assist the Principal (and its licensees, assignees and successors and their licensees, and any other person authorised by it) to obtain, perfect, assert, enforce or defend its (or their) interest in, rights and consents to the assigned or licensed Intellectual Property Rights (as the case may be) or any adaptation of it (or any part of the assigned or licensed Intellectual Property Rights (as the case may be) or of any such adaptation); or
    - (B) ~~(iii)~~ prevent or obtain other remedies from others infringing any of those rights, interests and consents anywhere in the world.
  - (f) The SSJ Contractor irrevocably appoints the Principal as its attorney to execute any document and do any act or thing which may be necessary to comply with the provisions of this clause 10.8 if the SSJ Contractor fails to execute the document or do the relevant act or thing within 5 Business Days of a written request by the Principal's Representative.
  - (g) The Principal grants to the SSJ Contractor a royalty free licence for the duration of this Contract to use, only for the purpose of executing the SSJ Contractor's Activities, the Principal's Intellectual Property Rights in respect of which the Principal has absolute title under clause 10.13(b)(i).
  - (h) The SSJ Contractor warrants that:
    - (i) the:
      - (A) assignment to the Principal and any use of the Intellectual Property Rights assigned under this clause 10.13; and
      - (B) use of the Intellectual Property Rights licensed under this clause 10.13 pursuant to the terms of this Contract,does not and will not infringe the Intellectual Property Rights of any party;
    - (ii) were it not for the assignments effected by this Contract, the SSJ Contractor would be the absolute and unencumbered legal and beneficial owner of the Intellectual Property Rights referred to in clause 10.13(b)(i); and
    - (iii) the SSJ Contractor is either:
      - (A) the absolute and unencumbered legal and beneficial owner of the Intellectual Property Rights referred to in clause 10.13(b)(i); or
      - (B) able to grant the licence granted in clause 10.13(b)(ii).
  - (i) Without limiting clause 10.13(h), where any action or claim for infringement or alleged infringement of any Intellectual Property Rights results in the use or enjoyment by the Principal or its licensees, assignees or successors or their licensees, or other person authorised by it, of the Contract Documentation and

Materials, the Contract Processes, the SSJ Contractor's Activities or the Project Works or any part of them, being disrupted, impaired or adversely affected, the SSJ Contractor must at its own expense and at the Principal's option:

- (i) procure for the benefit of the Principal and its licensees, assignees and successors and their licensees and any other person authorised by it the right to continue to use and exploit the Intellectual Property Rights assigned or licensed pursuant to this clause 10.13, in accordance with this Contract; or
  - (ii) modify or replace the Contract Documentation and Materials, the Contract Processes, the SSJ Contractor's Activities or the Project Works or relevant part of them, in respect of which Intellectual Property Rights are assigned or licensed pursuant to this clause 10.13, so that no further infringement will occur and so that the modified or replaced Contract Documentation and Materials, the Contract Processes, the SSJ Contractor's Activities or the Project Works or relevant part of them in respect of which Intellectual Property Rights are assigned or licensed pursuant to this clause 10.13 will:
    - (A) comply with the requirements of this Contract; and
    - (B) not limit or otherwise affect the Principal's rights, or the SSJ Contractor's ability to comply with its obligations, under this Contract or otherwise according to Law.
- (j) The SSJ Contractor indemnifies, and agrees to keep indemnified, the Principal from and against any claims against the Principal, or Loss suffered or incurred by the Principal, arising out of or in any way in connection with:
- (i) a breach by the SSJ Contractor of any warranty set out in this clause 10.13; or
  - (ii) any actual or alleged infringement of an Intellectual Property Right in connection with the Contract Documentation and Materials, the Contract Processes, the SSJ Contractor's Activities or the Project Works or any part of them.
- (k) The SSJ Contractor:
- (i) acknowledges that the Principal may provide the Operator or any Interface Contractor with copies of any documents (including Design Documentation) provided to the Principal or the Independent Certifier by or on behalf of the SSJ Contractor in any way in connection with this Contract, the Project Works, the Temporary Works or the SSJ Contractor's Activities; and
  - (ii) must, upon request by the Principal's Representative, provide to the Principal's Representative copies of any Contract Documentation or Materials that the Operator or any Interface Contractor may reasonably require.

#### 10.14 Delivery up of Design Documentation

If this Contract is terminated whether pursuant to clause 19 or otherwise at Law:

- (a) the SSJ Contractor must:
  - (i) subject to clause 10.14(b), immediately deliver the original and all sets and copies of all Design Documentation (whether complete or not and including

any Design Documentation stored electronically) then in existence to the Principal; and

- (ii) provide such details, memoranda, explanations, documentation and other assistance as the Principal reasonably requires in relation to the Design Documentation; and

- (b) the SSJ Contractor and each Subcontractor may retain a copy of all such Design Documentation.

10.15 **Design Life**

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

10.16 **Cost Planning**

The SSJ Contractor must:

- (a) plan the Project Works and SSJ Contractor's Activities in consultation with the Principal's Representative and provide estimates of and costings for the construction and Commissioning phase of the Project Works;
- (b) ~~prepare and submit a cost plan in the Target Cost Offer in accordance with the requirements of Schedule A3 and Schedule F7. Once this cost plan is approved by the Principal's Representative it will be referred to as the "Cost Plan";~~
- (b) ~~(c)~~ institute a system of cost control (including monthly reports to the Principal setting out the cost to date, forecast cost to complete, forecast cost at completion and any amounts received by the SSJ Contractor from the sale of material salvaged from the Construction Site in performing the SSJ Contractor's Activities) and, together with the Principal's Representative, review and, where approved by the Principal's Representative, amend the Cost Plan to take account of any item affecting or likely to affect any component of the Cost Plan, and advise the Principal's Representative as to the alternative steps available where:

- (i) the tenders for any part of the Reimbursable Work which are to be performed by a subcontractor exceed the amount included for that work in the Cost Plan; or
  - (ii) the costs incurred in respect of any Reimbursable Work (including under any Approved Subcontract Agreement) exceed the amount allowed for the particular Reimbursable Work in the cash-flow which forms part of the Cost Plan or the forecast final costs of that Reimbursable Work appear likely to exceed the total amount allowed for that work (including the contingency) in the Cost Plan; or
  - (iii) no tenders are received for any part of the Reimbursable Work; and
- (c) ~~(d)~~ if requested at any time by the Principal's Representative, the SSJ Contractor must provide to the Principal's Representative (or any person authorised by the Principal's Representative) all information necessary to corroborate the Cost Plan and must co-operate in respect of any audit of the information concerning the Cost Plan.

#### 10.17 Cost Control

The SSJ Contractor must:

- (a) use its best endeavours to ensure that it achieves Completion so that the Outturn Cost does not exceed the Target Cost;
- (b) without limiting paragraph (a), review the Cost Plan with the Principal's Representative as the preparation of the Design Documentation proceeds, to:
  - (i) ensure the cost of the design is in accordance with the Cost Plan;
  - (ii) ensure that the cost of construction of the design is in accordance with the Cost Plan; and
  - (iii) advise the Principal's Representative how the design should or can be modified to ensure that the cost of the design and construction is in accordance with the Cost Plan; and
- (c) without limiting paragraph (a), institute a system of cost control and, together with the Principal's Representative, review and, where approved by the Principal's Representative, amend the Cost Plan to take account of any item affecting or likely to affect any component of the Cost Plan, and advise the Principal's Representative as to the alternative steps available where:
  - (i) the design costs incurred under any Design Agreement during the Delivery Phase exceed (or appear likely to exceed) the amount allowed for that particular Design Agreement in the Cost Plan; or
  - (ii) the tenders for any part of the Reimbursable Work exceed the amount included for that work in the Cost Plan; or
  - (iii) the Reimbursable Costs incurred under any Approved Subcontract Agreement exceed (or appear likely to exceed) the amount allowed for that particular Approved Subcontract Agreement in the Cost Plan; or



- (iv) the Reimbursable Costs incurred in respect of Self-Performed Reimbursable Work exceed (or appear likely to exceed) the amount allowed for that particular Self-Performed Reimbursable Work in the Cost Plan.

11. **CHANGES**

11.1 **Proposed Changes**

- (a) At any time prior to the Date of Construction Completion of the Project Works or the last Portion to reach Construction Completion (but without limiting ~~clauses 12.18 and~~ clause 18.16), the Principal's Representative may issue a document titled "Change Proposal Request" (**Change Proposal Request**) to the SSJ Contractor, which will set out details of a proposed Change that the Principal is considering.
- (b) The SSJ Contractor must immediately take all action required under the relevant Subcontract in relation to each Subcontractor that would be involved in carrying out the proposed Change.
- (c) Within 10 Business Days of the receipt of a "Change Proposal Request", or at such other time as is approved by the Principal's Representative, the SSJ Contractor must provide the Principal's Representative with a written notice in which the SSJ Contractor sets out:
  - (i) any proposed [REDACTED] [REDACTED] to carry out the proposed Change; and
  - (ii) the effect (if any) that the carrying out of the proposed Change will have on the SSJ Contractor's Program, including the achievement of each Date for Construction Completion.
- (d) The Principal will not be obliged to proceed with any proposed Change that is the subject of a "Change Proposal Request".

11.2 **Change Orders**

- (a) Whether or not the Principal's Representative has issued a "Change Proposal Request" under clause 11.1, the Principal's Representative may at any time prior to the Date of Construction Completion of the Project Works or the last Portion to reach Construction Completion (but without limiting clauses 12.18 and 18.16) direct the SSJ Contractor to carry out a Change by issuing a written document titled "Change Order" (**Change Order**), in which the Principal's Representative will state one of the following:
  - (i) the proposed [REDACTED] [REDACTED] as set out in the SSJ Contractor's notice under clause 11.1 (if any) are agreed and will be made; or
  - (ii) the proposed [REDACTED] [REDACTED] as set out in the SSJ Contractor's notice under clause 7.5(a) (if any) are agreed and will be made; or

- (iii) any [REDACTED]  
[REDACTED] will be determined under clause 5.
- (b) There is no limitation on the power of the Principal's Representative to direct a Change, and no Change or direction to carry out a Change will invalidate this Contract.
- (c) The SSJ Contractor must comply with a "Change Order" irrespective of:
  - (i) the nature, extent or value of the work the subject of the Change;
  - (ii) the location or timing (including the impact on any Date for Construction Completion) of the work involved in the Change; or
  - (iii) any Dispute related to the Change.
- (d) The SSJ Contractor's entitlement (if any) to an extension of time arising out of or in connection with a Change will be dealt with under clause 15.

### 11.3 Omissions

If a Change the subject of a direction by the Principal's Representative requires the omission or deletion of any part of the Project Works:

- (a) the Principal may thereafter either perform this work itself or employ or engage any other person or persons to carry out and complete the omitted or deleted work;
- (b) the Principal will not be liable upon any Claim by the SSJ Contractor arising out of or in any way in connection with any work being omitted or deleted from the SSJ Contractor's Activities whether or not the Principal thereafter performs this work itself or employs or engages any other person or persons to carry out and complete the omitted or deleted work; and
- (c) the adjustment to the amounts payable to the SSJ Contractor under the Contract arising from the work that has been omitted or deleted will be valued in accordance with clause 5.

### 11.4 SSJ Contractor's entitlements

This clause 11 is an exhaustive code of the SSJ Contractor's rights in any way in connection with any Change. The SSJ Contractor waives all rights at Law to make any Claim against the Principal in any way in connection with any of the matters set out in this clause 11 otherwise than in accordance with the terms of this Contract.

### 11.5 SSJ Contractor may propose Change

- (a) The Principal and the SSJ Contractor acknowledge that:
  - (i) the project delivery method chosen is intended, among other things, to allow the SSJ Contractor to identify:
    - (A) Changes which may enhance the quality of the SSJ Contractor's Activities; and



- (B) Changes which may permit project cost savings while maintaining or enhancing the quality of the SSJ Contractor's Activities; and
  - (ii) it is their intention that any cost savings should benefit the Principal and the SSJ Contractor equally.
- (b) The SSJ Contractor may propose a Change by giving written notice to the Principal's Representative with details of the proposed Change.
- (c) On receiving a notice under clause 11.5(b), the Principal's Representative may give written notice to the SSJ Contractor requiring it to give the Principal's Representative:
- (i) details of:
    - (A) the proposed Change in addition to those provided in accordance with clause 11.5(b);
    - (B) the reason for the proposed Change;
    - (C) the effect of the proposed Change on the SSJ Contractor's Activities;
    - (D) the effect of the proposed Change on the Program and the Dates for Construction Completion of the Portions; and
    - (E) the cost effect of assessing and carrying out the proposed Change, including:
      - (aa) any proposed [REDACTED]  
[REDACTED]  
[REDACTED] to carry out the Proposed Change; and
      - (bb) the effect the proposed Change will have on operating and maintenance costs;
  - (ii) a written statement stating that the proposed Change:
    - (A) will not adversely affect the functional integrity of any of the elements of the SSJ Contractor's Activities and the performance standards required by this Contract;
    - (B) will not adversely affect the quality standards required under this Contract; and
    - (C) is consistent with and complies with the conditions and requirements of the Planning Approval;
  - (iii) any other information and supporting documentation the Principal's Representative reasonably requires.
- (d) The Principal's Representative:
- (i) (in its absolute discretion) may, by notice in writing, approve or reject any Change the SSJ Contractor proposes; and

- (ii) will be under no obligation to approve any such Change for the convenience of, or to assist, the SSJ Contractor.
- (e) Prior to giving any direction under clause 11.5(d), the Principal's Representative may seek to negotiate with the SSJ Contractor over the level of any proposed [REDACTED] [REDACTED] [REDACTED] to carry out the Proposed Change.
- (f) If the Principal's Representative gives a direction under clause 11.5(d) approving a Change proposed by the SSJ Contractor, the SSJ Contractor must perform its obligations under this Contract in accordance with the approved Change.
- (g) With respect to any Change approved by the Principal's Representative pursuant to a direction under clause 11.5(d), the Principal's Representative will notify the SSJ Contractor that [REDACTED] [REDACTED] (if any) will be:
  - (i) as set out in the SSJ Contractor's notice under clause 11.5(c) (if any); or
  - (ii) as agreed under clause 11.5(e); or
  - (iii) as determined under clause 5.
- (h) The SSJ Contractor will:
  - (i) bear all costs:
    - (A) associated with proposing a Change under clause 11.5(b);
    - (B) associated with providing details under clause 11.5(c);
    - (C) reasonably incurred by the Principal (or the Principal's Representative), any Interface Contractor or any Operator in assessing the proposed Change (such costs (including the costs of any Interface Contractor or any Operator) to be a debt due from the SSJ Contractor to the Principal); and
  - (ii) unless otherwise agreed and except as provided for in clause 11.5(g):
    - (A) where a proposed Change is approved by the Principal's Representative, bear all costs associated with assessing and carrying out the proposed Change; and
    - (B) not be entitled to make any Claim against the Principal arising out of or in connection with the Change.

**12. REIMBURSABLE WORK AND PROVISIONAL SUM WORK**

**12.1 Restrictions on Reimbursable Work**

- (a) Subject to clause 12.14, Reimbursable Work must, unless otherwise agreed by the Principal's Representative in writing, be performed by Subcontractors under Approved Subcontract Agreements which will be made between the SSJ Contractor and Subcontractors in accordance with the procedure in this clause 12.

- (b) The SSJ Contractor must not include any of the work which forms part of the Preliminaries in the scope of any part of the Reimbursable Work or in any Subcontract Proposal.
- (c) The SSJ Contractor must not enter into any Subcontract with a Prohibited Subcontractor.
- (d) The SSJ Contractor must ensure that all Subcontract Tender Documentation is prepared and all tender processes for Reimbursable Work are conducted:
  - (i) on terms which maximise Value for Money for the Principal; and
  - (ii) with the highest standards of probity, fairness and equal opportunity and in accordance with the Tendering Probity Plan.

## 12.2 Subcontract Proposal

- (a) The SSJ Contractor must:
  - (i) ~~(a)~~ advise the Principal and the Principal's Representative on (and obtain the consent of the Principal's Representative to) how the Reimbursable Work should be divided into packages for the purposes of facilitating the calling of tenders for Subcontractors;
  - (ii) ~~(b)~~ before inviting tenders for the performance of Reimbursable Work valued at or above:
    - (A) ~~(i)~~ [REDACTED] in relation to the supply of items by a Subcontractor; or
    - (B) ~~(ii)~~ [REDACTED] in relation to all other Reimbursable Work by a Subcontractor,

issue a document titled "Subcontract Proposal" to the Principal's Representative for approval which will set out particulars of:

    - (C) ~~(iii)~~ the part of the Reimbursable Work to be the subject of the tender;
    - (D) ~~(iv)~~ the amount included for this work in the Cost Plan;
    - (E) ~~(v)~~ how the SSJ Contractor will ascertain the tender list for the part of the Reimbursable Work to be the subject of the tender, including:
      - (aa) ~~(A)~~ if an expression of interest process is to be used - details of the criteria (with weightings) for the assessment of each expression of interest; or
      - (bb) ~~(B)~~ if an expression of interest process is not to be used - details of, and justification for the manner in which the tender list will be established;
    - (F) ~~(vi)~~ how the SSJ Contractor will select the preferred Tenderer including details of the evaluation criteria (with weightings) for the assessment of tenders;
    - (G) ~~(vii)~~ the method of delivery for the work;

- (H) ~~(viii)~~ the proposed conditions of Subcontract which the SSJ Contractor proposes to use to enter into the Subcontract; and
- (I) ~~(ix)~~ the proposed date for calling of tenders and for tender responses;
- (iii) ~~(e)~~ subject to paragraph ~~(d)(iv)~~, for the purposes of paragraph ~~(b)(ii)(vE)~~, if the tender list is to be ascertained by an expression of interest process, do all things necessary to carry out the expression of interest process including:
  - (A) ~~(i)~~ preparing and arranging advertising;
  - (B) ~~(ii)~~ preparing and distributing briefing documents;
  - (C) ~~(iii)~~ evaluating responses from prospective Tenderers; and
  - (D) ~~(iv)~~ making a recommendation to the Principal's Representative for the purposes of clause 12.4;
- (iv) ~~(d)~~ obtain the prior written approval of the Principal's Representative to all advertisements and briefing documents prior to requesting expressions of interest or invitations to tender; and
- (v) ~~(e)~~ pay for all advertising (local, State, Territory and national) in respect of all expressions of interest or invitations to tender. The SSJ Contractor will not be entitled to payment or reimbursement of any such costs by the Principal (whether as Reimbursable Costs or otherwise).

### 12.3 Subcontract Tender Documentation

After the Principal's Representative has approved the Subcontract Proposal, the SSJ Contractor must:

- (a) prepare the Subcontract Tender Documentation and submit a copy of it to the Principal's Representative for approval at least 21 days before tenders are to be invited; and
- (b) subsequently amend the Subcontract Tender Documentation as required by the Principal's Representative.

### 12.4 Tendering

The Regardless of whether or not a Subcontract Proposal is required under clause 12.2, the SSJ Contractor must:

- (a) subject to clause 12.4(c)(ii), recommend to the Principal's Representative at least three persons which in the SSJ Contractor's opinion are suitable for inclusion in the tender list for the part of the Reimbursable Work to be subcontracted;
- (b) subject to clause 12.4(c)(ii), subsequently finalise the tender list in consultation with the Principal's Representative who may (in the Principal's Representative's absolute discretion, without the necessity to give reasons) remove or add any person from or to the tender list subject to the SSJ Contractor not making a reasonable objection to any person which the Principal's Representative may remove from or add to the tender list;
- (c) call tenders from:

- (i) subject to clause 12.4(c)(ii), the persons in the tender list finalised with the Principal's Representative; or
- (ii) for the persons, activities or items listed as trade packages in Schedule A1 - the relevant persons, service providers or suppliers listed in Schedule A1 only,

in sufficient time to avoid delays or disruption to the progress of the Project Works;  
and

- (d) if so requested by the Principal's Representative, promptly provide a copy of each tender to the Principal's Representative.

## 12.5 Consideration of Tenders

The SSJ Contractor must:

- (a) examine and analyse all tenders received;
- (b) recommend to the Principal's Representative which Tenderer, if any, should be accepted by the SSJ Contractor (which recommendation will be deemed to include a warranty by the SSJ Contractor that the recommended Tenderer has the necessary suitability, reliability, expertise and financial standing to execute the work being subcontracted, that the SSJ Contractor knows of no reason why that Tenderer's tender should not be accepted and that the Tenderer's tender will provide Value for Money for the Principal); and
- (c) submit together with any such recommendation:
  - (i) an evaluation report detailing the SSJ Contractor's assessment of tenders against the evaluation criteria;
  - (ii) the work to be covered and executed under the proposed Subcontract contained in the Subcontract Tender Documentation approved by the Principal's Representative under clause 12.3;
  - (iii) the time for commencement and completion of that work and confirmation that these times are in accordance with the SSJ Contractor's Program;
  - (iv) the proposed subcontract price (including any amount allowed for contingency) and the amounts tendered by other Tenderers;
  - (v) any proposed amendments to the Subcontract contained in the Subcontract Tender Documentation approved by the Principal's Representative under clause 12.3;
  - (vi) the proposed Tenderer's contact details;
  - (vii) if any Law in the State or Territory in which the Project Works are situated requires that a person be registered or licensed to carry out that part of the work, evidence to the satisfaction of the Principal's Representative that the proposed Tenderer is so registered or licensed; and
  - (viii) any other details which may be required by the Principal's Representative.

## 12.6 Post Tender Negotiations

If required by the Principal's Representative, the SSJ Contractor must conduct post-tender negotiations with the Tenderers, which must, if the Principal's Representative so requires, be held in the presence of the Principal's Representative.

## 12.7 Subcontracts

- (a) The Principal's Representative will consider the recommended Tenderer and (in its absolute discretion) may approve or disapprove the SSJ Contractor's recommendation giving detailed reasons in writing.
- (b) If the Principal's Representative approves the SSJ Contractor's recommended Tenderer, the SSJ Contractor must promptly enter into an agreement with the approved Tenderer on the basis of:
  - (i) the Subcontract contained in the Subcontract Tender Documentation approved by the Principal's Representative under clause 12.3 with only such amendments as the Principal's Representative may have approved in writing; and
  - (ii) the subcontract price approved by the Principal's Representative.
- (c) The SSJ Contractor must:
  - (i) ensure that ~~any~~each agreement entered into by the SSJ Contractor pursuant to clause 12.7(b) ~~or clause 12.18(a)(iii)~~, each Design Agreement and the DSI Contract ~~does~~ not contain any provisions that may in any way hinder (or potentially hinder) the exercising of the Principal's rights under clauses 22.20 or 22.4(bd);
  - (ii) if required by the Principal's Representative, provide the Principal's Representative with a copy of the executed Subcontract, together with all documentation relevant to that agreement;
  - (iii) ensure that each Subcontractor executes a Confidentiality Undertaking in the form of Schedule B7 and provides this to the Principal's Representative within 7 days of the engagement of that Subcontractor;
  - (iv) where a Subcontractor is to carry out Design Work or other professional services, unless not required by the Principal's Representative, procure that Subcontractor to execute a deed in the form of Schedule A12 and provide this to the Principal's Representative within 7 days of the engagement of that Subcontractor; and
  - (v) procure that each Subcontractor:
    - (A) engaged under a Subcontract that has an initial subcontract price equal to or greater than the amount specified in Schedule A1; or
    - (B) in respect of the categories of work set out in Schedule A1 (regardless of subcontract price),  
  
executes a deed in the form of Schedule A8 and provides this to the Principal's Representative within 7 days of being engaged by the SSJ Contractor.

- (d) The SSJ Contractor must in respect of all Subcontracts in which it holds retention money from the Subcontractor, comply with all requirements under the *Building and Construction Industry Security of Payment Amendment (Retention Money Trust Account) Regulation 2015* (NSW).
- (e) Without limiting clause 12.7(b)(i), the SSJ Contractor must ensure that each Subcontract contains provisions which bind the Subcontractor to participate in any novation required by the Principal under clause 19.5(a)(iv)(A) at no cost to the Principal.
- (f) The SSJ Contractor must not cause, instruct, permit, request or consent to:
  - (i) a variation or amendment to the Subcontract or the work under the Subcontract other than a Permitted Variation;
  - (ii) any increase in the amount payable to the Subcontractor under, or for the performance of, the Subcontract works other than the cost of Permitted Variations or in response to a Subcontract Adjustment Event; or
  - (iii) the termination of any Subcontract without the prior written approval of the Principal's Representative, which approval will not be unreasonably withheld.
- (g) For the purpose of clause 12.7(f), a 'Subcontract Adjustment Event' means an adjustment event under a Subcontract which corresponds with:
  - (i) a Design Fee (Delivery Phase) Element Adjustment Event;
  - (ii) a Management Fee (Delivery Phase) Adjustment Event;
  - (iii) a Preliminaries Fee (Delivery Phase) Adjustment Event;
  - (iv) a Reimbursable Cost Element Adjustment Event; or
  - (v) any other adjustment event under an Approved Subcontract Agreement or Design Agreement or as otherwise approved by the Principal's Representative.

12.8 **Procedure on Disapproval**

If the Principal's Representative disapproves the SSJ Contractor's recommended Tenderer and the Principal's Representative directs the SSJ Contractor to accept the tender of another Tenderer, the SSJ Contractor must:

- (a) promptly enter into an agreement with the approved Tenderer on the basis of:
  - (i) the Subcontract contained in the Subcontract Tender Documentation approved by the Principal's Representative under clause 12.3 with only such amendments as the Principal's Representative may have approved in writing; and
  - (ii) the subcontract price approved by the Principal's Representative; and

- (b) if required by the Principal's Representative, provide the Principal's Representative with a copy of the executed Subcontract including the Design Documentation relevant to that agreement.

#### 12.9 Subcontractor Warranties

- (a) As a condition precedent to Construction Completion of a Portion, the SSJ Contractor must procure and provide the Principal with the warranties described in Schedule A5 or elsewhere in this Contract:
  - (i) from the relevant Subcontractor undertaking or supplying the work or item the subject of the warranty;
  - (ii) in favour of, and directly enforceable by, the Principal, the Operator and any other entity nominated by the Principal's Representative from time to time against the relevant Subcontractor; and
  - (iii) in the form set out in Schedule A6.
- (b) No warranty from a Subcontractor will be construed in any way to modify or limit any of the rights, powers or remedies of the Principal against the SSJ Contractor whether under the Contract or otherwise.
- (c) If the SSJ Contractor is unable to or fails for any reason to provide any warranty from a Subcontractor required by this Contract:
  - (i) the SSJ Contractor is deemed to have provided the Subcontractor warranty itself on like terms and to have satisfied clause 12.9(a);
  - (ii) the Principal will be entitled to elect to take an assignment of all the right, title and interest in the SSJ Contractor's rights against the Subcontractor in relation to the SSJ Contractor's Activities; and
  - (iii) for the purpose of paragraph 12.9(c)(ii), the SSJ Contractor irrevocably appoints the Principal as its lawful attorney to execute any instrument necessary to give effect to the assignment where the SSJ Contractor fails to execute the instrument within 5 Business Days of a written request by the Principal to do so.
- (d) No assignment under this clause will be construed in any way to modify or limit any of the rights, powers or remedies of the Principal against the SSJ Contractor whether under the Contract or otherwise.

#### 12.10 Coordination of Subcontractors

The SSJ Contractor must during the Delivery Phase:

- (a) administer, supervise, inspect, coordinate and control the work of all Subcontractors engaged by it;
- (b) provide and direct all necessary personnel to administer, supervise, inspect, coordinate and control each Approved Subcontract Agreement and Design Agreement and all Subcontractors engaged by it;
- (c) appoint a duly qualified person to exercise the functions of the SSJ Contractor's Representative under each Design Agreement and Approved Subcontract



Agreement and otherwise ensure each Design Agreement and Approved Subcontract Agreement isare administered in accordance with:

- (i) the terms of the Design Agreement or Approved Subcontract Agreement (as applicable); and
  - (ii) the directions of the Principal's Representative; and
- (d) at all times coordinate the SSJ Contractor's Activities and ensure execution and completion of the Approved Subcontract Agreements in a proper and workmanlike manner according to:
- (i) the Design Documentation which the SSJ Contractor is entitled to use for construction purposes under clause 14.11(k); and
  - (ii) the obligations of the respective Subcontractors.

#### 12.11 Disputes with Subcontractors

If the SSJ Contractor has a dispute with a Subcontractor in respect of any aspect of the SSJ Contractor's Activities and either the SSJ Contractor or the Subcontractor pursues any court action, arbitration or adjudication application under the SOP Act, then:

- (a) the SSJ Contractor will be responsible for carriage of the dispute, provided it must:
  - (i) keep the Principal's Representative fully informed of all aspects of the dispute; and
  - (ii) act in accordance with the reasonable instructions of the Principal's Representative (including in respect of lodging any appeals against any decisions made in respect of the dispute);
- (b) subject to the Principal's Representative prior written approval (which may be given or withheld at the Principal's Representative's absolute discretion), any external legal, expert or consultants costs incurred by the SSJ Contractor arising out of the defence of any court action, arbitration or adjudication will form part of the Reimbursable Costs; and
- (c) the SSJ Contractor's own internal costs of administering the court action, arbitration or adjudication application will not form part of the Reimbursable Costs.

#### 12.12 Responsibility for Subcontractors

- (a) The SSJ Contractor will:
  - (i) not be relieved from any of its liabilities or obligations under the Contract; and
  - (ii) remain responsible for all Subcontractors and for all work which is or may be subcontracted as if it was itself executing the work, whether or not any Subcontractors default or otherwise fail to observe or comply with the requirements of the relevant Subcontract,despite:
  - (iii) subcontracting any part of the Preliminaries, Design Work or the Reimbursable Work;

- (iv) any comments upon, consent to or review, approval or disapproval of:
  - (A) a Subcontract Proposal under clause 12.2; or
  - (B) a tenderer recommended by the SSJ Contractor under clause 12.5(b),
 by the Principal or the Principal's Representative;
- (v) the Principal listing the persons from whom tenders are to be obtained under clause 12.4(c)(ii) for the trade packages listed in Schedule A1;
- (vi) any direction by the Principal's Representative under clause 12.7 to accept the tender of a tenderer other than that recommended by the SSJ Contractor; or
- (vii) any other act or omission of the Principal or the Principal's Representative in connection with the subcontracting of any part of the Preliminaries, Design Work or the Reimbursable Work.

- (b) Subject to clause 12.13 but otherwise without limitation, if the SSJ Contractor terminates a Design Agreement during the Delivery Phase or an Approved Subcontract Agreement, the SSJ Contractor must:
  - (i) complete the work the subject of the terminated Design Agreement or Approved Subcontract Agreement; and
  - (ii) bear the extra costs incurred by the SSJ Contractor in completing this work, and such costs will not form part of the Design Fee or Reimbursable Costs (as applicable).

#### 12.13 Subcontractor Insolvency

Where an Insolvency Event occurs in relation to a Subcontractor, the SSJ Contractor must:

- (a) promptly notify the Principal's Representative of this fact; and
- (b) if the SSJ Contractor terminates the Approved Subcontract Agreement:
  - (i) promptly notify the Principal's Representative of this; and
  - (ii) engage another person as Subcontractor in accordance with this clause 12 to complete the work the subject of the terminated Approved Subcontract Agreement.

#### 12.14 Reimbursable Work by SSJ Contractor or Related Body Corporate

- (a) The SSJ Contractor must not commence any part of the Self-Performed Reimbursable Work until written approval is received from the Principal Representative.
- (b) Prior to receiving approval from the Principal Representative pursuant to clause 12.14(a) the SSJ Contractor must provide to the Principal's Representative the following particulars in writing:

- (i) a detailed scope of the proposed work to be undertaken as Self-Performed Reimbursable Work;
  - (ii) a detailed methodology addressing the following:
    - (A) a description of the resource methodology that will be used to undertake the proposed works;
    - (B) details of how the SSJ Contractor will ensure that the quality of the proposed works complies with the Contract and ensure compliance with ASA Requirements;
    - (C) a statement as to how the SSJ Contractor will ensure the proposed works are carried out in an efficient manner; and
    - (D) a description of the information and particulars the SSJ Contractor will provide to the Principal's Representative supporting any Payment Claim made by the SSJ Contractor for carrying out the proposed works;
  - (iii) the fixed price or (where rates are agreed to apply to the work) estimate (including contingency) for the proposed works broken down into sufficient detail and reconciled against the Cost Plan including details of the applicable rate or rates from the Schedule of Rates or if there are no applicable rate or rates, explaining why the rates in the Schedule of Rates do not apply and providing details of its proposed rate (which must be exclusive of any margin for overheads or profit);
  - (iv) the Self-Performed Margin for the proposed works;
  - (v) the cash flow for the proposed works;
  - (vi) the time for commencement and completion of the proposed works and confirmation that these times are in accordance with the then current SSJ Contractor's Program;
  - (vii) the proposed project team to undertake the proposed works including all construction workers, managerial supervision and technical personnel;
  - (viii) the number of resources (man power) and the anticipated total hours to carry out the proposed works onsite and offsite;
  - (ix) the cost of any materials and equipment the SSJ Contractor intends to purchase as part of the Self-Performed Reimbursable Work for use in the proposed works; and
  - (x) the type and number of Construction Plant and the anticipated total hours/days the Construction Plant will be used to carry out the proposed works.
- (c) If required by the Principal's Representative the SSJ Contractor must provide further particulars prior to the Principal's Representative giving approval for the proposed works to commence.
- (d) In carrying out the Self-Performed Reimbursable Work the SSJ Contractor must:
- (i) carry out the Self-Performed Reimbursable Work in an efficient manner;

- (ii) carry out the Self-Performed Reimbursable Work so as to avoid interfering with, disrupting or delaying the work of Subcontractors and Other Contractors;
- (iii) not vary the work which is the subject of the Self-Performed Reimbursable Work unless the Principal's Representative has directed a Change under clause 11 and that Change relates directly to the work the subject of the Self-Performed Reimbursable Work; and
- (iv) each day provide the Principal's Representative with details of all resources, labour and construction plant, used by the SSJ Contractor in the execution of the Self-Performed Reimbursable Work which identifies as a minimum:
  - (A) the part of the Self-Performed Reimbursable Work being performed by the SSJ Contractor ~~as described in Schedule F2~~;
  - (B) the name of each person performing the work for each part of the Self-Performed Reimbursable Work with details of their staff or labour category, the time when the person started and finished work, the number of hours being claimed for each person and whether those hours are at normal time, time and a half or double time; and
  - (C) details of the type of plant being used for each part of the Self-Performed Reimbursable Work and the number of hours being claimed.
- (e) The Principal's Representative may direct the manner in which the matters described in clause 12.14(d)(iv) are to be recorded.
- (f) The SSJ Contractor represents and warrants to the Principal that it holds and will continue to hold all relevant licences to legally execute the Self-Performed Reimbursable Work.
- (g) The Reimbursable Work (including Self-Performed Reimbursable Work) is to be undertaken on an "Open Book Basis" and may be subject to an independent third party audit as required by the Principal's Representative.
- (h) The SSJ Contractor must cooperate in facilitating any audit under clause 12.14(g) including by making available all necessary records and documents to the Principal's Representative and the auditor to enable an audit to be conducted of the amount properly incurred and payable pursuant to this clause 12.14.
- (i) The SSJ Contractor or a Related Body Corporate of the SSJ Contractor must not itself carry out any part of the Reimbursable Work other than the Self-Performed Reimbursable Work unless:
  - (i) the prior written approval of the Principal's Representative is obtained (which approval may be given or withheld in the Principal's Representative's absolute discretion and, if given, may be subject to conditions); and
  - (ii) the SSJ Contractor and the Principal's Representative agree upon a fixed price or rates, or a combination of a fixed price and rates, for the work prior to the SSJ Contractor or the Related Body Corporate of the SSJ Contractor commencing the work.
- (j) The Principal's Representative will not object to the SSJ Contractor performing the Reimbursable Work as Self-Performed Reimbursable Work provided that:

- (i) in the Principal's Representative's opinion doing so represents Value for Money to the Principal, including:
  - (A) the SSJ Contractor following the procurement process in clause 12.2(~~ba~~)(ii) for supply of items over [REDACTED]; and
  - (B) the SSJ Contractor's price being consistent with the Schedule of Rates; and
- (ii) the Principal is satisfied that the Self-Performed Reimbursable Work is to be undertaken on an "Open Book" ~~basis~~ Basis in accordance with clause 12.14(g).

#### 12.15 **Tendering Probity**

- (a) The SSJ Contractor must:
  - (i) prepare the Tendering Probity Plan in accordance with clause 14.11;
  - (ii) carry out the tender processes for Reimbursable Work:
    - (A) so as to ensure the probity and competitiveness of the tender process; and
    - (B) in accordance with the Tendering Probity Plan; and
  - (iii) comply with any direction by the Principal's Representative concerning the probity and competitiveness of the tender processes for Reimbursable Work.
- (b) The SSJ Contractor will not be relieved from compliance with any of its Contract obligations or from any of its liabilities whether under the Contract or otherwise according to law as a result of any direction of the Principal's Representative or the Principal's probity auditor concerning the probity and competitiveness of the tender process for Reimbursable Work.

#### 12.16 ~~Vertical Transportation~~ Lifts and Escalators

- (a) The SSJ Contractor must enter into a DSI Contract with the L&E Contractor for the performance of Lifts and Escalators Work required for the Works.
- (b) ~~(a)~~ The SSJ Contractor acknowledges and agrees that:
  - (i) the Principal will enter into a framework agreement with the ~~VT~~ L&E Contractor after the date of this Contract; and
  - (ii) under the framework agreement, the VT ~~L&E~~ Contractor will be required to make a standing offer to enter into contracts with other contractors of the Principal for the Project, including the SSJ Contractor ~~;~~.
- ~~(b) The SSJ Contractor must enter into a DSI Contract with the VT Contractor for the performance of Vertical Transportation Work required for the Works.~~
- (iii) in order to accept the L&E Contractor's offer, the SSJ Contractor must issue a valid Design Notice;
- (iv) the DSI Contract will be binding on the SSJ Contractor and the L&E Contractor on issue of a valid Design Notice; and

(v) the SSJ Contractor is not entitled to make any Claim against the Principal arising out of or in connection with any delay by the SSJ Contractor in issuing a valid Design Notice to the L&E Contractor.

(c) The SSJ Contractor acknowledges that:

- (i) Schedule A28 sets out the key terms proposed for the DSI Contract; and
- (ii) the terms of the DSI Contract have not been finalised.

(d) TfNSW will provide the SSJ Contractor with the DSI Contract following finalisation with the ~~VFL&E~~ Contractor.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

#### 12.17 Provisional Sum Work

(a) The SSJ Contractor will perform or procure the performance of Provisional Sum Work where such work is necessary in order to comply with its obligations under this Contract.

(b) The SSJ Contractor must:

- (i) act in good faith in determining whether Provisional Sum Work is required to be performed as set out under clause 12.17; and
- (ii) minimise the cost of undertaking Provisional Sum Work.

(c) The provisions of:

- (i) clauses 12.1 to 12.15 will apply to Provisional Sum Work (other than ~~Vertical Transportation Lifts and Escalators Works~~) as if it was Reimbursable Work); and
- (ii) clauses 12.1 ~~to 12.5~~, 12.7 ~~(ea) to~~, 12.7 ~~(f) and clauses 12.9 to b~~, 12.8, 12.14 and ~~12.16 will~~ 12.15 do not apply to ~~Vertical Transportation Work, Lifts and Escalators Works.~~

~~as if it was Reimbursable Work.~~

(d) The SSJ Contractor will be entitled to be paid:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(e) For the purpose only of clause 12.17(d)(i) to 12.17(d)(iii), Reimbursable Costs will [REDACTED]

(f) For each item of Provisional Sum Work, the Principal's Representative may at any time during the performance of the Provisional Sum Work request the SSJ Contractor to provide a reasonable estimate of the amount payable for the Provisional Sum Work, including sufficient information to support such estimate.

**12.18 Design Work**

- (a) Subject to clause 12.18(b), the SSJ Contractor must:
- (i) submit a copy of the terms on which it proposes to engage Designers to the Principal's Representative for approval;
  - (ii) subsequently amend the proposed terms as required by the Principal's Representative; and
  - (iii) promptly enter into an agreement with each Designer on the basis of the terms approved by the Principal's Representative under clause 12.18(a)(i).
- (b) The SSJ Contractor is not required to obtain the Principal's approval to the terms of an agreement with a Designer for Design Work to be carried out during the Target Cost Development Phase.

**12.19 Design Work (Signalling) Contract Waiver**

The Principal acknowledges and agrees that:

- (a) in respect of the Design Work (Signalling) Contract, the SSJ Contractor is not obliged to comply with:
- (i) clauses 9.6(d)(v), 9.6(j), 9.13(b), 12.7(c)(iii), 12.7(c)(v), 12.9(a), 21.4(b) and 22.11(c)(iii); and



- (ii) the obligation to procure the execution of a deed of novation substantially in the form of Schedule A13 in clause 19.5(a)(iv)(A), but only if the SSJ Contractor:
  - (A) uses reasonable endeavours to procure a deed of novation in that form; and
  - (B) if unable to do so, procures a deed of novation in a form reasonably requested by the Principal; and
- (b) where the SSJ Contractor's entitlement to an extension of time arises in connection with an entitlement of the Signalling Designer to an extension of time, the requirement to provide a notice under clause 15.5(b) is waived.

12.20 **Recognised Aboriginal Business Subcontracts**

The SSJ Contractor must:

- (a) submit a copy of the terms of any Recognised Aboriginal Business Subcontract to the Principal's Representative for approval;
- (b) subsequently amend the proposed terms as required by the Principal's Representative; and
- (c) promptly enter into the Recognised Aboriginal Business Subcontract on the basis of the terms approved by the Principal's Representative under clause 12.20(a).

12.21 **Track Possession or Temporary Shutdown Staff**

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**13. DEFECTS, INSPECTION AND REPAIR**

**13.1 Defects**

- (a) The SSJ Contractor must promptly give the Principal's Representative, ~~the Independent Certifier~~ and, if required by the Principal's Representative, the Operator, a detailed written report of:
  - (i) any Defect it detects; and
  - (ii) all action proposed to correct that Defect, including the estimated time required.
- (b) The SSJ Contractor must correct all Defects arising prior to the expiry of the Defects Correction Period whether or not the Principal's Representative, the Independent Certifier, or the Operator notifies the SSJ Contractor of them, including correcting any Defects in a Portion which existed at the time of issue of the Notice of Construction Completion (including any Minor Defects and Agreed Defects listed in the Notice of Construction Completion).
- (c) Without limiting any other obligation of the SSJ Contractor to correct Defects, the SSJ Contractor must:
  - (i) correct all Mandatory Defects as a pre-condition to the achievement of Construction Completion of the relevant Portion;
  - (ii) use its best endeavours to correct all Minor Defects and Agreed Defects identified in a Notice of Construction Completion within thirty (30) days after the Date of Construction Completion of the relevant Portion; and
  - (iii) correct all Minor Defects and Agreed Defects identified in a Notice of Construction Completion as a pre-condition to the achievement of Completion of the relevant Portion.

**13.2 Principal's Representative's direction**

- (a) If prior to or during the relevant Defects Correction Period the Principal's Representative discovers or believes there is a Defect or is given notice of a Defect under clause ~~13.2~~ 13.1(a), the Principal's Representative may, without prejudice to

any other rights which the Principal may have under this Contract or otherwise at Law, give the SSJ Contractor a direction specifying the Defect and doing one or more of the following:

- (i) requiring the SSJ Contractor to correct the Defect or a part of it and specifying the time within which this must occur;
- (ii) requiring the SSJ Contractor to carry out a Change to overcome the Defect or a part of it and specifying the time within which this must be carried out;
- (iii) advising the SSJ Contractor that the Principal will accept the work or a part of it despite the Defect;
- (iv) advising the SSJ Contractor that the Principal will direct an Interface Contractor or the Operator to carry out a change or variation under its contract with the Principal (as applicable) to overcome the Defect or a part of the Defect; or
- (v) in respect of any Defect:
  - (A) to which clause 13.3(b) applies; or
  - (B) subject to clause 13.2(c), discovered during a Defects Correction Period,

advising the SSJ Contractor that an Interface Contractor or other contractor will correct (or has corrected) the Defect, or any part of it.

- (b) In determining the times at which the SSJ Contractor is required to correct a Defect or carry out a Change for the purposes of this clause, the Principal's Representative is entitled to have regard to the need to minimise the interference and disruption to the activities which:

- (i) any Interface Contractor may be carrying out in discharge of its obligations under its contract with the Principal; ~~or~~
- (ii) the Operator may be carrying out in discharge of its obligations under its contract with the Principal; ~~or~~
- (iii) are being undertaken by the Existing Operator.

- (c) Unless the Principal's Representative considers that a Defect is an Urgent Defect (to which paragraph (a) of the definition of Urgent Defect applies) or the SSJ Contractor is in breach of clause 9.5, 9.6 or 9.7 ~~of this Contract~~, the Principal's Representative may not ~~give a direction~~ accept the work or part of the work under clause 13.2(a)(iii) or direct an Interface Contractor, the Operator or other contractor to rectify a Defect, or any part of a Defect, pursuant to clauses 13.2(a)(iv) or 13.2(a)(v)(B), unless the Principal's Representative has first given the SSJ Contractor a direction under clause 13.2(a)(i) and the SSJ Contractor has:

- (i) failed to comply with such direction; or
- (ii) otherwise failed to comply with its obligations under clause 13.3(a)(i).

- (d) Where the Principal's Representative considers that a Defect is an Urgent Defect (to which paragraph (a) of the definition of Urgent Defect applies) or the SSJ Contractor is in breach of clauses 9.5, 9.6 or 9.7 ~~of this Contract~~, the Principal's

Representative may accept the work or a part of the work under clause 13.2(a)(iii) or give the SSJ Contractor a direction under clause 13.2(a)(iv) or 13.2(a)(v)(B) whether or not a direction has first been given under clause 13.2(a)(i).

### 13.3 Correction of Defect or Change

- (a) If a direction is given under clause 13.2(a)(i) or 13.2(a)(ii) at any time prior to the expiration of the Defects Correction Period applicable to the relevant part of the Project Works (whether before or after Construction Completion or Completion), the SSJ Contractor:
- (i) must correct the Defect (or the part of it) or carry out the Change (as the case may be):
    - (A) within the time specified in the Principal's Representative's direction;
    - (B) at times notified by the Principal's Representative;
    - (C) in accordance with the requirements of any relevant Authority;
    - (D) so as to minimise the impact on the use of the relevant part of the Project Works;
    - (E) in a manner which causes as little inconvenience as possible to the activities:
      - (aa) which any Interface Contractor may be carrying out in discharge of its obligations under its contract with the Principal; or
      - (bb) that the Operator may be carrying out in discharge of its obligations under its contract with the Principal; and
      - (cc) of users of the Project Works, a Local Area, a Utility Service or any access and the adjacent community; and
    - (F) at the SSJ Contractor's risk in respect of any restrictions on access;
    - (G) if an Interface Contractor or the Operator, as applicable, has taken possession of the relevant part of the Construction Site for the purposes of designing and constructing any Interface Works or operating and maintaining the Project, as applicable, in accordance with the requirements of the relevant Interface Contractor or the Operator, as applicable, in relation to access and site safety; ~~and~~
    - (H) in accordance with its obligations under the:
      - (aa) relevant SSJ Interface Contractor Cooperation and Integration Deed; or
      - (bb) SSJ Operator Cooperation and Integration Deed,as applicable; and
    - (I) regardless of the existence of a Dispute as to whether the Principal's Representative's notice is valid or whether the subject matter of the notice is a Defect; and

- (b) If the SSJ Contractor does not comply with clause 13.3(a)(i), the Principal's Representative may, without prejudice to any other rights that the Principal may have against the SSJ Contractor with respect to the Defect under this Contract or otherwise at Law, give the SSJ Contractor a direction under clause 13.2(a)(v) and have the correction or Change work carried out at the SSJ Contractor's expense, and the cost of the correction or Change work incurred by the Principal will be a debt due from the SSJ Contractor to the Principal.

#### 13.4 Acceptance of work or rectification by others

If a direction is given under clause 13.2(a)(iii) or 13.2(a)(v)(B) prior to the expiration of the Defects Correction Period applicable to the relevant part of the Project Works, and the SSJ Contractor is responsible for the Defect (or the part of it), the amount which represents the reasonable cost of correcting the Defect (or the part of it) as stated by the Principal's Representative will become a debt due and payable by the SSJ Contractor to the Principal.

#### 13.5 Changes under other contracts to overcome Defects

If a direction is given by the Principal's Representative under clause 13.2(a)(iv):

- (a) the SSJ Contractor indemnifies the Principal from and against any Loss suffered or incurred by the Principal arising out of or in connection with the change or variation directed by the Principal under the relevant Interface Contract or contract with the Operator or other contract (as applicable) to the extent necessary to overcome the Defect (or the part of it); and
- (b) clause 13.4 will not apply with respect to the Defect the subject of that direction.

#### 13.6 Works

The Works within a Portion have:

- (a) a Defects Correction Period which ~~commences~~ begins on the Date of Construction Completion of the ~~relevant~~ Portion and expires 2 years after the Date of Completion of the last Portion to achieve Completion; and
- (b) in respect of any work the subject of a direction under clause 13.2(a)(i) or 13.2(a)(ii) during the Defects Correction Period, a further Defects Correction Period which begins on the date of the correction of the Defect (or the part of it) or completion of the Change and continues for 12 months.

#### 13.7 Local Area Works

- (a) Each discrete part of the Local Area Works has:
- (i) a Defects Correction Period of 12 months, which begins when the relevant works are complete (being the date notified under clause 13.7(d)(i)); and
- (ii) a further Defects Correction Period of 12 months in respect of any work the subject of a direction under clause 13.2(a)(i) or 13.2(a)(ii) (relating to the discrete part of the Local Area Works) during the Defects Correction Period, which begins on the date of the correction of the Defect (or the part of it) or completion of the Change,

provided that no Defects Correction Period for any discrete part of the Local Area Works will extend beyond the date that is 24 months after the date notified under

clause 13.7(d)(i) as the date on which the relevant part of the Local Area Works were completed.

- (b) The completion of the Local Area Works will be assessed on an area by area basis either:
  - (i) in accordance with clauses 13.7(c) and 13.7(d); or
  - (ii) in the case of the WAD Road Works, in accordance with the procedures in the WAD in relation to Practical Completion (WAD Road Works); and
  - (iii) in the case of the Sydney Trains Works, in accordance with the procedure in the Sydney Trains Transition Agreement in relation to Practical Completion (Sydney Trains Works).
- (c) When the SSJ Contractor considers that a discrete part of the Local Area Works is complete, it must notify the Principal's Representative and the Independent Certifier in writing and the Principal's Representative, the Independent Certifier, the SSJ Contractor's Representative and the representative of any relevant Authority must jointly inspect the relevant Local Area Works at a mutually convenient time.
- (d) Following the joint inspection under clause 13.7(c) and subject to clause 13.7(e), the Principal and the SSJ Contractor acknowledge that the Independent Certifier will determine whether the discrete part of the Local Area Works has been completed in accordance with this Contract and the requirements of any relevant Third Party Agreement (if applicable) and will notify the SSJ Contractor and the Principal in writing and within 5 Business Days after the date of the inspection (or such longer period permitted under any relevant Third Party Agreement):
  - (i) if the discrete part is complete, of the date on which the SSJ Contractor has completed the discrete part of the Local Area Works in accordance with this Contract, which subject to clause 13.7(f)(i), will be the relevant date for the purposes of clause 13.7(a)(i); or
  - (ii) if the discrete part is not complete, the items which remain to be completed (after which the procedure in clause 13.7(c) and this clause 13.7(d) will reapply).
- (e) Each discrete part of the Local Area Works will not be regarded as complete unless the Independent Certifier has:
  - (i) executed and provided to the Principal's Representative a certificate in the form of Schedule B13 with respect to the discrete part of the Local Area Works; and
  - (ii) additionally:
    - (A) in the case of the WAD Road Works, executed and provided to the Principal's Representative and RMS a certificate in the form of Schedule 4 to the WAD with respect to the discrete part of the Local Area Works; or
    - (B) in the case of any Sydney Trains Works, executed and provided to the Principal's Representative, Sydney Trains and RailCorp a certificate in the form of Schedule 68 to the Sydney Trains Transition

Agreement with respect to the discrete part of the Sydney Trains Works.

- (f) It is a condition precedent to:
- (i) the commencement of the Defects Correction Period for a discrete part of the Local Area Works that the SSJ Contractor provide the Principal's Representative with:
    - (A) a written notice from each Authority with jurisdiction over the discrete part stating that the Authority is satisfied that the discrete part is complete;
    - (B) if the SSJ Contractor is unable to obtain a notice required under clause 13.7(f)(i)(A) despite having used its best endeavours to do so, a statement from the SSJ Contractor to the effect that:
      - (aa) the discrete part of the Local Area Works is complete and the SSJ Contractor has notified the relevant Authority of this matter; and
      - (bb) the relevant Authority has failed or refused to provide the written notice required under clause 13.7(f)(i)(A) despite being given 15 Business Days to provide the notice requested by the SSJ Contractor;
    - (C) to the extent that the discrete part of the Local Area Works constitutes WAD Road Works, the Independent Certifier has executed and provided to the Principal's Representative and RMS a certificate in the form of Schedule 4 to the WAD with respect to the discrete part of the Local Area Works; and
    - (D) to the extent that the discrete part of the Local Area Works constitutes Sydney Trains Works, the Independent Certifier has executed and provided to the Principal's Representative, Sydney Trains and RailCorp a certificate in the form of Schedule 68 to the Sydney Trains Transition Agreement with respect to the discrete part of the Local Area Works; and
  - (ii) Construction Completion of a Portion that the written notices or statements required under clause 13.7(f)(i) have been provided to the Principal's Representative for all discrete parts of the Local Area Works that form part of that Portion.

### 13.8 Utility Service Works

- (a) Each discrete part of the Utility Service Works not handed over to the Principal has:
- (i) a Defects Correction Period of 12 months, which begins when:
    - (A) the relevant Utility Service Authority which has jurisdiction in respect of the Utility Service gives written notice that the work is complete; or
    - (B) if the SSJ Contractor is unable to obtain a notice required under clause 13.8(a)(i)(A) despite having used its best endeavours to do so, a written statement from the SSJ Contractor to the effect that:

- (aa) the discrete part of the Utility Service Works is complete and the SSJ Contractor has notified the relevant Utility Service Authority of this matter; and
- (bb) the relevant Utility Service Authority has failed or refused to provide the written notice required under 13.8(a)(i)(A) despite being given 15 Business Days to provide the notice requested by the SSJ Contractor,

and the Principal's Representative has been provided with a copy of the notice or statement; and

- (ii) a further Defects Correction Period of 12 months in respect of any work the subject of a direction under clause 13.2(a)(i) or 13.2(a)(ii) (relating to the discrete part of the Utility Service Works) during the Defects Correction Period, which begins:
  - (A) when the relevant Utility Service Authority gives written notice that the Defect (or the part of it) has been corrected or the Change completed and the Principal's Representative has been provided with a copy of the notice; or
  - (B) if the relevant Utility Service Authority fails or refuses to give the notice required under clause 13.8(a)(ii)(A), when the Principal's Representative determines that the Defect (or the part of it) has been corrected or the Change completed,

provided that no Defects Correction Period for any discrete part of the Utility Service Works will extend beyond the date that is 24 months after the date of the applicable notice or statement given under clause 13.8(a)(i).

- (b) It is a condition precedent to Construction Completion of a Portion, that:
  - (i) a written notice of the kind referred to in clause 13.8(a)(i) has been given for each discrete part of the Utility Service Works that form part of that Portion and the Principal's Representative has been provided with a copy of each such notice; or
  - (ii) the SSJ Contractor has:
    - (A) used best endeavours to obtain and provide the Principal's Representative with a written notice of the kind referred to in clause 13.8(a)(i)(A); and
    - (B) provided the Principal's Representative with a written statement of the kind referred to in clause 13.8(a)(i)(B).

### 13.9 Property Works

- (a) Subject to clause 13.9(b), each discrete part of the Property Works has:
  - (i) a Defects Correction Period of 12 months, which begins upon:
    - (A) the completion of the Property Works; or



- (B) submission by the SSJ Contractor of a certificate or signed statement (as the case may be) to the Principal's Representative under clause 8.2(a)(ii),

whichever is the later; and

- (ii) a further Defects Correction Period of 12 months in respect of any work the subject of a direction under clause 13.2(a)(i) or 13.2(a)(ii) (relating to the discrete part of the Property Works) during the Defects Correction Period, which begins on the date of correction of the Defect (or the part of it) or completion of the Change

- (b) No Defects Correction Period for any discrete part of the Property Works will extend beyond the date that is 24 months after the date of the applicable certificate or signed statement given under clause 8.2(a)(ii).

#### 13.10 Failure by the SSJ Contractor to comply with Direction

- (a) If the SSJ Contractor does not comply with a direction referred to in clause 13.2(a)(i) or 13.2(a)(ii), the Principal may employ others to carry out that direction.
- (b) The Loss suffered or incurred by the Principal arising out of or in connection with taking the action contemplated in clause 13.10(a) or as a result of the SSJ Contractor's failure to comply with clause 13.3(a)(i) will be a debt due from the SSJ Contractor to the Principal.

#### 13.11 Rights not affected

Neither the Principal's rights, nor the SSJ Contractor's liability, whether under this Contract or otherwise according to Law in respect of Defects, whether before or after the expiration of any relevant Defects Correction Period, will be in any way affected or limited by:

- (a) the rights conferred upon the Principal or the Principal's Representative by this clause 12.18 or any other provision of this Contract;
- (b) the exercise of, or the failure by the Principal or the Principal's Representative to exercise, any such rights; or
- (c) any direction of the Principal's Representative under clause 13.2.

#### 13.12 Use of defective facilities

The SSJ Contractor must not allow the use of any part of the Project Works or Temporary Works which the SSJ Contractor knows is defective or unsafe and which threatens the health or safety of people.

#### 13.13 Final inspections of Project Works (other than Third Party Works)

- (a) The SSJ Contractor, the Principal's Representative, ~~the Independent Certifier and the Operator~~ and any other person nominated by the Principal's Representative, will carry out a final inspection of the Project Works (other than the Third Party Works) ~~6 months~~ 1 month before the end of the original Defects Correction Period (**Final Inspection**).
- (b) Where the Operator is not involved in the Final Inspection:



- (i) ~~within 5 Business Days after the Final Inspection, the Principal's Representative may give the Independent Certifier written notice of any Defects which the Principal's Representative observed during the Final Inspection or of which they are otherwise aware;~~
  - (i) ~~(ii)~~ within 10 Business Days after the Final Inspection, the Independent Certifier ~~must give the Principal's Representative a list of Defects (taking into account any notice received from the Principal's Representative under clause 13.13(b)(i))~~ may give the SSJ Contractor and the Operator written notice of any Defects which the Principal's Representative observed during the Final Inspection or of which they are otherwise aware; and
  - (ii) ~~(iii) if the Independent Certifier notifies the parties of any Defects pursuant to clause 13.13(b)(ii),~~ the Principal may give a notice under clause 13.2 in respect of any such Defect.
- (c) Where the Operator is involved in the Final Inspection, clause 5 of the SSJ Operator Cooperation and Integration Deed will apply in relation to the Final Inspection.

#### 13.14 Final inspections of Third Party Works

- (a) The SSJ Contractor, the Principal's Representative, ~~the Independent Certifier~~ and applicable Authorities, will carry out a final inspection of the Third Party Works 3 months before the end of the original Defects Correction Period for the relevant Third Party Works (or at such other time specified by any relevant Third Party Agreement) (**Final Third Party Works Inspection**).
- (b) If the Principal's Representative, ~~Independent Certifier~~ or applicable Authority identifies any Defects during the Final Third Party Works Inspection, the Principal may give a notice under clause 13.2 in respect of such Defect.

### 14. ADMINISTRATION

#### 14.1 Principal's Representative

- (a) The Principal must ensure that at all times until the date of expiry of the final Defects Correction Period there is a Principal's Representative. The SSJ Contractor acknowledges and agrees that the Principal's Representative will give directions and carry out all its other functions under this Contract as the agent of the Principal (and not as an independent certifier, assessor or valuer) and is subject to the directions of the Principal.
- (b) A discretion (including an absolute or sole discretion), or power or decision of the Principal's Representative is validly and properly exercised or made for the purposes of this Contract if exercised or made (or if it is not exercised or made) by the Principal's Representative:
  - (i) independently;
  - (ii) after consultation with the Principal and its advisers; or
  - (iii) as directed by the Principal.
- (c) Any control or influence exercised by the Principal over the Principal's Representative does not:

- (i) affect the valid and proper exercise of any power or discretion (including an absolute or sole discretion) or the making of a decision by the Principal's Representative; or
  - (ii) entitle the SSJ Contractor to make any Claim against the Principal's Representative or the Principal, or to challenge the effect or validity of the discretion (including an absolute or sole discretion), power, or decision.
- (d) The SSJ Contractor must comply with any direction by the Principal's Representative given or purported to be given under a provision of this Contract.
  - (e) Except where this Contract otherwise provides, the Principal's Representative may give a direction orally but will as soon as practicable confirm it in writing.
  - (f) The Principal will not be liable upon any Claim by the SSJ Contractor arising out of or in connection with any such direction by the Principal's Representative in circumstances where it is incorrect, subsequently overturned pursuant to clause 20 or is unreasonable (other than in accordance with the corrected determination).
  - (g) The SSJ Contractor acknowledges and agrees that its sole means of redressing any errors contained in or associated with any such direction by the Principal's Representative is by giving a notice of dispute in accordance with clause ~~20.2~~20.3.

#### 14.2 Replacement of the Principal's Representative

- (a) The Principal may at any time replace the Principal's Representative, in which event the Principal must appoint another person as the Principal's Representative and notify the SSJ Contractor of that appointment.
- (b) Any substitute Principal's Representative appointed under this clause 14.2 will be bound by anything done by the former Principal's Representative to the same extent as the former Principal's Representative would have been bound.

#### 14.3 Delegation of Functions

- (a) The Principal's Representative may:
  - (i) by written notice to the SSJ Contractor appoint persons to exercise any of the Principal's Representative's functions under this Contract;
  - (ii) not appoint more than one person to exercise the same function under this Contract; and
  - (iii) revoke any appointment under clause 14.3(a)(i) by notice in writing to the SSJ Contractor.
- (b) The Principal's Representative may continue to exercise a function under this Contract despite appointing another person to exercise the function under clause 14.3(a)(i).
- (c) All references in this Contract to the Principal's Representative include a reference to an appointee appointed under clause 14.3(a)(i).

#### 14.4 SSJ Contractor's Personnel

- (a) The SSJ Contractor must notify the Principal's Representative in writing of the name of the SSJ Contractor's Representative (who at the date of this Contract is the relevant person listed in Schedule A7) and of any subsequent changes.
- (b) The SSJ Contractor must:
  - (i) employ the individuals nominated by the SSJ Contractor and listed in Schedule A7 in the positions specified in Schedule A7 or equivalent positions;
  - (ii) subject to clause 14.4(b)(iii), not replace the individuals referred to in clause 14.4(b)(i) without the Principal's Representative's prior written approval which will not be unreasonably withheld;
  - (iii) if any of the individuals referred to in clause 14.4(b)(i):
    - (A) dies;
    - (B) becomes unable to continue in their positions due to illness;
    - (C) resigns from the employment of the SSJ Contractor (other than to accept other employment with the SSJ Contractor or any "related body corporate" of the SSJ Contractor (as that term is defined in section 9 of the *Corporations Act 2001* (Cth))); or
    - (D) becomes the subject of a direction under clause 14.4(c),replace them with personnel of at least equivalent experience, ability, knowledge and expertise approved by the Principal's Representative; and
  - (iv) without limiting clauses 14.4(b)(i), 14.4(b)(ii) or 14.4(b)(iii), ensure that the:
    - (A) positions specified in Schedule A7 as full-time, dedicated positions are full-time, dedicated positions; and
    - (B) individuals who occupy the full-time, dedicated positions ~~specified in Schedule A7~~ in accordance with clause 14.4(b)(iv)(A) apply themselves fully to the position to the exclusion of all other work,until Completion of the last Portion to achieve Completion or such earlier time as may be approved by the Principal's Representative.
- (c) The Principal's Representative may, in its absolute discretion and without being obliged to give any reasons, by notice in writing direct the SSJ Contractor to remove any person (including a person referred to in clause 14.4(a) or clause 14.4(b)) from the Construction Site and the SSJ Contractor's Activities.
- (d) If the Principal's Representative issues a notice in accordance with clause 14.4(c), the SSJ Contractor must:
  - (i) then cease to engage that person in the SSJ Contractor's Activities and must appoint a replacement; and

- (ii) ensure that any person the subject of a direction under clause 14.4(c) is not again employed in the SSJ Contractor's Activities or on the Construction Site.
- (e) Any direction under clause 14.4(c) will be deemed to have been given to the SSJ Contractor if given to the SSJ Contractor's Representative. Matters within the knowledge of the SSJ Contractor's Representative will be deemed to be within the knowledge of the SSJ Contractor.

#### 14.5 Design development meetings

- (a) The SSJ Contractor must hold regular meetings of its design team including the Designers ~~and the Independent Certifier~~ (and in any event at Design Stage 1 and Design Stage 2 of each discrete design part or element in the SSJ Contractor's Activities).
- (b) The SSJ Contractor must give reasonable notice to the Principal's Representative of those meetings and of any other meetings at which design issues are to be discussed to enable the Principal's Representative, its delegate and any representatives of any Other Contractor to attend. The Principal may request the SSJ Contractor to ensure the presence at the meeting of any relevant persons from any of the SSJ Contractor's Subcontractors involved in the design of any part of the Project Works.
- (c) The SSJ Contractor must give the Principal's Representative:
  - (i) an agenda prepared in consultation with or as directed by the Principal's Representative for each design meeting no less than 48 hours prior to each meeting (which must include an accurate schedule of all design issues as at the date of issue of the agenda); and
  - (ii) minutes of each design meeting within 48 hours after each meeting.
- (d) Neither party may rely on such agenda or minutes of meeting as a document constituting or evidencing the giving or receipt of a notice required to be given under or in accordance with this Contract.

#### 14.6 Site Meetings

The SSJ Contractor must convene meetings on the Construction Site or such other place (or places) as the Principal's Representative may direct:

- (a) prior to the Date of Construction Completion of the Project Works or the last Portion to reach Construction Completion, weekly or at such longer intervals as may be directed in writing by the Principal's Representative; and
- (b) at monthly intervals after the Date of Construction Completion of the Project Works or the last Portion to reach Construction Completion until all Defects Correction Periods (including any extension under ~~clause~~ clauses 13.6(b) and 13.7(a)(iii)), have expired or at such other intervals as may otherwise be agreed between the parties.

#### 14.7 Environmental Representative

The SSJ Contractor acknowledges and agrees that:

- (a) the Principal has appointed the Environmental Representative as required by an Authority Approval;

- (b) the Environmental Representative:
  - (i) is independent of the parties;
  - (ii) will oversee the implementation of all environmental management plans and monitoring programs required under the Planning Approval, and will advise the Principal upon achievement of the outcomes contemplated in the Planning Approval;
  - (iii) will advise the Principal and the Principal's Representative on the SSJ Contractor's compliance with the Planning Approval; and
  - (iv) will have the authority and independence to:
    - (A) direct the SSJ Contractor as to; or
    - (B) advise the Principal's Representative to direct the SSJ Contractor as to,
      - reasonable steps the SSJ Contractor must take to avoid or minimise unintended or adverse environmental impacts;
- (c) it must comply with the directions of the Environmental Representative or the Principal's Representative as contemplated by clause 14.7(b)(iv) ; and
- (d) it bears the full risk of complying with any directions given by the Environmental Representative or the Principal's Representative as contemplated by clause 14.7(c) and none of the Principal, the Principal's Representative or the Environmental Representative will be liable upon any Claim arising out or in any way in connection with such directions.

#### 14.8 **Acoustics Advisor**

The SSJ Contractor acknowledges and agrees that:

- (a) the Principal has appointed the Acoustics Advisor as required by an Authority Approval;
- (b) the Acoustics Advisor:
  - (i) is independent of the parties;
  - (ii) will oversee the implementation of all noise and vibration management plans and monitoring programs required under the Planning Approval, and will advise the Principal upon achievement of the outcomes contemplated in the Planning Approval;
  - (iii) will advise the Principal and the Principal's Representative on the SSJ Contractor's compliance with the Planning Approval; and
  - (iv) will have the authority and independence to:
    - (A) direct the SSJ Contractor as to; or
    - (B) advise the Principal's Representative to direct the SSJ Contractor as to,

reasonable steps the SSJ Contractor must take to avoid or minimise unintended or adverse noise and vibration impacts;

- (c) it must comply with the directions of the Acoustics Advisor or the Principal's Representative as contemplated by clause 14.8(b)(iv); and
- (d) it bears the full risk of complying with any directions given by the Acoustics Advisor or the Principal's Representative as contemplated by clause 14.8(c) and none of the Principal, the Principal's Representative or the Acoustics Advisor will be liable upon any Claim arising out or in any way in connection with such directions.

#### 14.9 Independent Certifier

- (a) The Independent Certifier will be engaged on the terms of the Independent Certifier Deed.
- (b) In certifying [Design Stage 3](#) Design Documentation, the Independent Certifier is not required to act as an AEO.
- (c) The Independent Certifier is obliged to act independently of the Principal, the SSJ Contractor and the Subcontractors.
- (d) Both parties must provide the Independent Certifier with all information and documents and allow the Independent Certifier:
  - (i) to attend meetings; and
  - (ii) access to all premises,as may be necessary or reasonably required by the Independent Certifier to allow the Independent Certifier to perform its obligations under the Independent Certifier Deed.
- (e) All notices and documents provided by a party to the Independent Certifier must be copied to the other party. If a party is required to provide a notice or document to the Independent Certifier within a specified time period, that notice or document must be provided to the other party within the same time period.
- (f) The Principal's Representative may provide comments to the Independent Certifier in respect of the SSJ Contractor's Activities.

#### 14.10 Industrial Relations

- (a) The SSJ Contractor must in carrying out the SSJ Contractor's Activities:
  - (i) assume sole responsibility for and manage all aspects of industrial relations for the SSJ Contractor's Activities;
  - (ii) ensure all Subcontractors manage all aspects of the industrial relations with their employees appropriately;
  - (iii) ensure that the rates of pay and conditions of employment specified in all relevant industrial, enterprise and project based agreements and awards, and any relevant Law, for all employees engaged in any capacity by any person in connection with the SSJ Contractor's Activities, are always observed in full;

- (iv) keep the Principal's Representative fully and promptly informed of industrial relations problems or issues that affect or are likely to affect the carrying out of the SSJ Contractor's Activities and Other Contractors' activities;
- (v) without limiting clauses 8.12 and 9.12, comply with all the requirements of the NSW Code and the NSW Guidelines;
- (vi) conduct its industrial relations affairs in accordance with the Workplace Relations Management Plan developed and submitted by the SSJ Contractor as part of the Contract Management Plan, in accordance with the MRs and clause 14.11;
- (vii) prepare, document and implement a project Workplace Relations Management Plan which must be based on the draft outline Industrial Relations Management Plan (if any) submitted with the SSJ Contractor's Proposal;
- (viii) not commence any work on the Construction Site or Extra Land until the Workplace Relations Management Plan has been submitted to the Principal's Representative and the Principal's Representative has not rejected it under clause 14.11;
- (ix) submit to the Principal's Representative, before beginning work on the Construction Site or Extra Land, a statement detailing:
  - (A) the location of time and wage records and other documents that are required to be kept to verify ongoing compliance with all employment and legal obligations;
  - (B) the names of each award or enterprise agreement that is likely to cover the SSJ Contractor and Subcontractors involved in the SSJ Contractor's Activities; and
  - (C) the names of those responsible for coordinating industrial relations for the SSJ Contractor's Activities;
- (x) not do, or omit to do, anything that is, or is likely to be, prejudicial to the performance of the SSJ Contractor's Activities;
- (xi) before beginning work on the Construction Site or Extra Land, submit a statement on the SSJ Contractor's letterhead and signed by an authorised person, attesting to the SSJ Contractor's compliance, in the preceding twelve months, with all employment and legal obligations, including:
  - (A) payment of remuneration to employees;
  - (B) annual leave provisions;
  - (C) Long Service Leave Payment Scheme registration;
  - (D) obligations to register workers under the *Building and Construction Industry Long Service Payments Act 1986* (NSW);
  - (E) workers' compensation insurance, including self-insurance arrangements;
  - (F) superannuation fund membership and contributions; and



- (G) over-award payments such as redundancy fund contributions; and
- (xii) continue to provide during the SSJ Contractor's Activities appropriate information to verify compliance with the awards, enterprise and workplace agreements and all other legal obligations relating to the employment of people for the SSJ Contractor's Activities.
- (b) If the SSJ Contractor engages an independent industry or employer association or other specialist organisation to audit and verify compliance with employment and legal obligations, a statement or declaration from that organisation may be submitted instead of the statement by the SSJ Contractor under paragraph (a)(ix).
- (c) The industrial relations requirements contained in this Contract, the NSW Code and the NSW Guidelines:
  - (i) are in addition to, but are not in substitution for, any requirements of Law; and
  - (ii) do not limit the powers of the Principal or the liabilities and responsibilities of the SSJ Contractor.

**14.11 Submission for review by the Principal's Representative**

- (a) This clause 14.11 applies to all documents except Design Documentation and Asset Management Information to the extent addressed in clause ~~(iii)~~ 10 and clause 9.15.
- (b) ~~Without limiting clause 23.1, the~~ The SSJ Contractor must manage and transmit documents, including using an electronic medium (such as the PDCS) where required by the Principal's Representative, in accordance with the processes, procedures and systems in the SWTC and MR-PA or as otherwise required by the Principal's Representative.
- (c) Documents supplied to the SSJ Contractor:
  - (i) will remain the property of the Principal;
  - (ii) must be returned by the SSJ Contractor to the Principal on demand in writing; and
  - (iii) must not, without the prior written approval of the Principal, be used, copied or reproduced for any purpose other than the execution of the SSJ Contractor's Activities.
- (d) The SSJ Contractor must keep all the SSJ Contractor's records relating to the SSJ Contractor's Activities in a secure and fire proof storage.
- (e) The SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any Claim arising out of or in any way in connection with complying with its obligations under this clause 14.11.
- (f) The SSJ Contractor must ensure that any Information Documents that it provides to the Principal in computer readable form contains no virus or computer software code which is intended or designed to:
  - (i) permit access to or use of a computer system by a third person not authorised by the Principal; or



- (ii) disable, damage or erase, or disrupt or impair the normal operation of any other software or data on a computer system.
- (g) A Document will be deemed not to have been submitted unless and until:
  - (i) the Document covers, fully details and co-ordinates the whole of discrete areas of work so as to allow the area of work to be fully understood; and
  - (ii) the SSJ Contractor has otherwise complied with this clause 14.11, in addition to any other requirement of this Contract relating to the submission of that Document.
- (h) After the submission of a Document which satisfies the requirements of clause 14.11(a-g):
  - (i) the Principal's Representative may review the Document, or any resubmitted Document prepared and submitted by the SSJ Contractor; and
  - (ii) where submitted or resubmitted in accordance with a program which has not been rejected by the Principal's Representative, within 15 Business Days of submission by the SSJ Contractor of such Document or resubmitted Document:
    - (A) reject the Document if in its opinion the Document (or any part) does not comply with the requirements of this Contract, stating the nature of the non-compliance;
    - (B) make comments on the Document; or
    - (C) notify the SSJ Contractor that it has no (or has no further) comments to make.
- (i) If any Document is:
  - (i) rejected or deemed to be rejected, the SSJ Contractor must submit an amended Document to the Principal's Representative within 10 Business Days of the date of such rejection or deemed rejection and this clause 14.11 will re-apply; or
  - (ii) not rejected and the Principal's Representative responds to the submission with comments, the SSJ Contractor must respond to the comments within 10 Business Days or such other period as may be directed by the Principal's Representative.
- (j) If the SSJ Contractor fails to respond to the Principal's Representative's comments within the relevant period set out in clause 14.11(i) in a manner satisfactory to the Principal's Representative, the Document will be deemed to be rejected.
- (k) The SSJ Contractor must not:
  - (i) issue any Subcontract Tender Documentation to tenderers for; or
  - (ii) commence construction of,  
  
any part of the Project Works to which any Document (other than the SSJ Contractor's Program) submitted to the Principal's Representative applies unless the Principal's Representative has had the period referred to in clause 14.11(h)(ii)

to review the Document and has not rejected the Document or made any comments on the Document (except in the case where the SSJ Contractor has responded to the Principal's Representative's comments within the required time period and in a manner satisfactory to the Principal's Representative as referred to in clause 14.11(i)).

- (l) The SSJ Contractor must not amend for construction purposes any Document that has:
  - (i) been submitted to the Principal's Representative; and
  - (ii) not been rejected or not had comments made about it under clause 14.11(h)(ii),unless the SSJ Contractor submits the proposed amendments to the Principal's Representative, in which case this clause 14.11 will re-apply.
- (m) The Principal's Representative does not assume or owe any duty of care or other responsibility to the SSJ Contractor to review, or in reviewing, a Document submitted by the SSJ Contractor, including for errors, omissions or non-compliance with this Contract.
- (n) The SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any Claim arising out of or in any way in connection with the Principal's Representative not detecting and notifying the SSJ Contractor of any errors, omissions or non-compliance with the requirements of this Contract in any Document submitted.
- (o) No review of, comment upon or rejection of, or failure to review or comment upon or reject, a Document prepared by the SSJ Contractor, or any other direction by the Principal's Representative in connection with the Document, will:
  - (i) constitute a direction to carry out a Change pursuant to clause 11.2, unless it is in a written document titled "Change Order" and describes the nature of the Change in accordance with clause 11.2(a);
  - (ii) relieve the SSJ Contractor from or alter its liabilities or obligations, whether under this Contract or otherwise according to any Law; or
  - (iii) limit or otherwise affect the Principal's rights against the SSJ Contractor, whether under this Contract or otherwise according to any Law.
- (p) In considering any Document, the Principal's Representative may consult with and take into account any views or requirements of relevant persons, including any Authority.

#### 14.12 **Work Method**

Whether or not this Contract prescribes a particular work method or a work method is otherwise a part of this Contract or reviewed or approved (expressly or impliedly) by the Principal's Representative, the fact that any work method that the SSJ Contractor adopts or proposes to adopt is impractical or impossible or that the SSJ Contractor, with or without the approval of the Principal's Representative, uses another work method will:

- (a) not entitle the SSJ Contractor to make any Claim against the Principal arising out of or in any way in connection with the work method proving to be impractical or impossible or any change in the work method; and

- (b) not cause the Contract to be frustrated.

#### 14.13 Exchange of Information between Government Agencies

- (a) The SSJ Contractor authorises the Principal, its employees and agents to make information concerning the SSJ Contractor (including any information provided under clause 14.11) available to NSW Government departments or agencies. Such information may include any information provided by the SSJ Contractor to the Principal and any information relating to the SSJ Contractor's performance under this Contract.
- (b) The SSJ Contractor acknowledges that any information about the SSJ Contractor from any source, including substantiated reports of unsatisfactory performance, may be taken into account by the Principal and NSW Government departments and agencies in considering whether to offer the SSJ Contractor future opportunities for NSW Government work.
- (c) The SSJ Contractor also acknowledges that the Principal has in place processes for assessing the performance of its contractors, that these processes will apply to the SSJ Contractor's performance under this Contract and that it will participate in the Principal's "SSJ Contractor Performance Reporting" process.

#### 14.14 Financial Assessment

Without limiting or otherwise restricting clause 14.13, the SSJ Contractor acknowledges and agrees that:

- (a) the Principal may, during the term of the Contract, either itself, or through the engagement of private sector service providers, undertake ongoing financial assessments (**Financial Assessment**) of the SSJ Contractor and any Subcontractors;
- (b) a Financial Assessment may be undertaken at three monthly (or longer) intervals from the date of commencement of the Project Works; and
- (c) it must, if requested by the Principal's Representative, within 10 Business Days of receiving such request, provide any documents, information and evidence as is reasonably required by the Principal's Representative under, out of, or in connection with a Financial Assessment.

#### 14.15 Employment of Aboriginal and Torres Strait Islander People

The SSJ Contractor must:

- (a) provide employment opportunities to Aboriginal and Torres Strait Islander people in accordance with the NSW Government Policy on Aboriginal Participation in Construction (August 2016);
- (b) as part of the human resources input to and the documentation and implementation of the Contract Management Plan, address the employment of Aboriginal and Torres Strait Islander people and compliance with the NSW Government Policy on Aboriginal Participation in Construction (August 2016); and
- (c) provide reports to the Principal's Representative in such format and within such times as may be required by the Principal's Representative which record the performance of the SSJ Contractor in relation to Aboriginal and Torres Strait Islander participation.

#### 14.16 **Waste Reduction and Purchasing Policy**

The SSJ Contractor must:

- (a) use its best endeavours to reduce wastage and increase the use of recycled materials in accordance with the GREP;
- (b) address as part of the Construction Environment Management Plan the measures to be taken to reduce wastage and increase the use of recycled materials in the areas of paper products, office consumables, vegetation and landscaping materials, and construction and demolition materials; and
- (c) provide reports to the Principal's Representative in such format and within such times as may be required by the Principal's Representative for the use by the Principal in complying with its GREP obligations to report performance.

#### 14.17 **Training Management**

- (a) Subject to the express provisions of the Contract, the SSJ Contractor must comply with the NSW Government "Training Management Guidelines" (February 2009).
- (b) Training management requirements specified in the Contract and the NSW Government "Training Management Guidelines" may be in addition to, but are not in substitution for, any training obligations of the SSJ Contractor under statute, industrial award, enterprise or workplace agreement, or other workplace arrangements approved under Federal or NSW law.
- (c) At least 14 days before starting work on the Construction Site the SSJ Contractor must document and submit a 'Project Training Management Plan' which complies with the NSW Government "Training Management Guidelines" (February 2009).
- (d) The SSJ Contractor must systematically manage its training management processes in accordance with the systems, plans, standards and codes specified in the Contract.
- (e) The SSJ Contractor must demonstrate to the Principal, whenever requested, that it has met and is meeting at all times its obligations under this clause 14.17.

#### 14.18 **National Greenhouse and Energy Reporting Act 2007 (Cth)**

The SSJ Contractor acknowledges and agrees that:

- (a) if any of the SSJ Contractor's Activities, or the activities of any of the SSJ Contractor's personnel, in connection with the SSJ Contractor's Activities (the Relevant Matters) constitute a "facility" within the meaning of the NGER Legislation, then, for the purposes of the NGER Legislation, the SSJ Contractor has operational control of that facility and will comply with any obligations arising in respect of the Principal's activities under the NGER Legislation;
- (b) if, despite the operation of clause 14.18(a), the Principal incurs, or (but for this clause) would incur, a liability under or in connection with the NGER Legislation as a result of or in connection with any of the Relevant Matters, and the NGER Legislation provides that such liability can be transferred by the Principal or the NSW Government or any of its agencies to the SSJ Contractor, the SSJ Contractor must, on the written request of the Principal, do all things reasonably necessary to ensure the liability is transferred to the SSJ Contractor;

- (c) if the Principal requests it, the SSJ Contractor must provide Greenhouse Data to the Principal:
  - (i) to the extent that, in a manner and form that, and at times that, will enable the Principal to comply with the NGER Legislation irrespective of whether the Principal or the SSJ Contractor or any other person has an obligation to comply with the NGER Legislation in connection with any Relevant Matters; and
  - (ii) otherwise as requested by the Principal from time to time;
- (d) the SSJ Contractor must also provide to the Principal all Greenhouse Data and other information which the SSJ Contractor provides to any other person under the NGER Legislation in connection with any Relevant Matters, at the same time as the SSJ Contractor provides that Greenhouse Data or other information to that other person;
- (e) the SSJ Contractor must:
  - (i) collect and record all such Greenhouse Data as may be required to enable reporting under the NGER Legislation or enable the SSJ Contractor to discharge its obligations under this clause 14.18, and keep that Greenhouse Data for at least 7 years after the end of the year in which the Relevant Matters occur; and
  - (ii) permit any persons appointed or authorised by the Principal to examine, monitor, measure, copy, audit and/or verify the Greenhouse Data and co-operate with and provide all reasonable assistance to any such persons (including by doing such things as giving access to premises, plant and equipment, producing and giving access to documents and answering any relevant questions);
- (f) the Principal may provide or otherwise disclose the Greenhouse Data and any other information which the Principal obtains under this clause 14.18 to any other person, and may otherwise use the Greenhouse Data and other information for any purpose as the Principal sees fit; and
- (g) nothing in this clause 14.18 is to be taken as meaning that the Principal has agreed to perform any statutory obligation that the SSJ Contractor may have regarding the provision of Greenhouse Data to any Authority.

#### 14.19 Early warning procedure and risk reporting

- (a) The SSJ Contractor must give early warning of a risk by notifying the Principal's Representative as soon as it becomes aware of any fact, matter or thing which may give rise to a risk of:
  - (i) a delay to Construction Completion of any Portion;
  - (ii) a delay to the Completion of any Portion;
  - (iii) an adverse effect on the performance of the SSJ Contractor's Activities or the Project Works;
  - (iv) a Claim by the SSJ Contractor; or
  - (v) a party being in breach of any term of the Contract.

- (b) At the same time as it gives an early warning notification in accordance with clause 14.19(a), the SSJ Contractor will enter the risk the subject of the early warning notification on the Risk Register (which will include a description of the risk and the actions which are to be taken to avoid or mitigate the risk).
- (c) The SSJ Contractor must provide to the Principal's Representative with real time access to the Risk Register or as otherwise directed by the Principal's Representative.
- (d) The SSJ Contractor will attend risk management meetings with the Principal's Representative on a monthly basis or as otherwise directed by the Principal's Representative. At risk management meetings, the parties agree to:
  - (i) review the current Risk Register;
  - (ii) develop proposals and seek solutions for avoiding or mitigating the risks listed on the Risk Register, including what assistance the Principal may be able to provide to the SSJ Contractor. The SSJ Contractor must inform the Principal's Representative if it considers any such proposal or solution would give rise to a Change or otherwise give rise to a Claim by the SSJ Contractor;
  - (iii) decide upon any specific action to be taken by the parties in response to the risks listed on the Risk Register; and
  - (iv) remove from the Risk Register those risks which have been avoided or passed.
- (e) A notification, record or action under this clause 14.19 will not relieve the SSJ Contractor from or alter its liabilities or obligations under this Contract, including any and all notification obligations under this Contract.

#### 14.20 **Management Review Group**

- (a) The Management Review Group comprises no more than two representatives of each of the Principal and the SSJ Contractor. The representatives at the date of this Contract are those persons identified in Schedule A1 as being part of the Management Review Group.
- (b) The Principal's Representative may direct the attendance at Management Review Group meetings of:
  - (i) representatives of any of the SSJ Contractor's Subcontractors which the Principal's Representative reasonably requires; and
  - (ii) any other person the Principal's Representative reasonably requires from time to time.
- (c) Each party acknowledges and agrees that its representatives on the Management Review Group have the authority to make decisions that bind that party.

#### 14.21 **Management Review Group functions**

- (a) The role of the Management Review Group is to provide leadership, governance and oversight.
- (b) The functions of the Management Review Group include reviewing:

- (i) the progress of the SSJ Contractor's Activities in relation to the SSJ Contractor's Program and the performance of the SSJ Contractor prior to the expiry of the final Defects Correction Period;
  - (ii) issues arising out of community relations and community concerns;
  - (iii) issues arising out of the quality of the SSJ Contractor's Activities;
  - (iv) matters arising from the Design Documentation, including any proposed design changes;
  - (v) value engineering opportunities and potential cost savings consistent with maintaining quality and enhancing life cycle costing;
  - (vi) the potential impact of design and construction outcomes on operation and maintenance requirements;
  - (vii) all notices issued by the SSJ Contractor referred to in clauses 23.1(a) and 23.2(c);
  - (viii) all claims issued by the SSJ Contractor in respect of Excluded Claims;
  - (ix) other unresolved matters arising between the parties that are not yet a Dispute;
  - (x) environmental issues;
  - (xi) safety issues; and
  - (xii) any other matters or determined or directed by the Principal's Representative.
- (c) The Management Review Group will, in respect of potential Claims referred to in clause 14.21(b)(vii) and claims referred to in clause 14.21(b)(viii), seek to determine a resolution or process for resolution.
- (d) To be effective, a determination of the Management Review Group must be:
- (i) a unanimous decision of all representatives;
  - (ii) in writing; and
  - (iii) confirmed in writing by the Principal's Representative and the SSJ Contractor's Representative.
- (e) If the Management Review Group makes a determination in accordance with clause 14.21(d), then:
- (i) in respect of notices referred to in clause 14.21(b)(vii), clauses 23.1(b) and 23.2(ad) do not apply; and
  - (ii) in respect of a claim referred to in clause 14.21(b)(viii), the Principal's determination in respect of that claim in accordance with the Management Review Groups determination is not subject to Dispute.

#### 14.22 Management Review Group meetings

- (a) The Management Review Group must meet:
  - (i) regularly in the frequency identified in Schedule A1 until the expiry of the final Defects Correction Period or such other regular period as the Principal and the SSJ Contractor agree in writing;
  - (ii) in accordance with this clause ~~14.21(e)~~14.22; and
  - (iii) at other times which the Principal's Representative or the SSJ Contractor requires.
- (b) The SSJ Contractor must provide the Principal's Representative with an agenda prepared in consultation with the Principal's Representative for each meeting of the Management Review Group no less than 48 hours prior to each meeting.
- (c) The agenda must include:
  - (i) the minutes of the most recent risk management meeting, together with the current Risk Register;
  - (ii) any issues referred to the Management Review Group by the Completion Steering Committee;
  - (iii) full details of all Excluded Claims issued by the SSJ Contractor in the period since the last meeting of the Management Review Group; and
  - (iv) the register of potential claims described in clause 23.4.
- (d) The Principal's Representative will be the chairperson for meetings of the Management Review Group.
- (e) The Principal's Representative must give all members of the Management Review Group (and any other person nominated by the Principal's Representative) minutes of the meeting within 48 hours after the meeting.

#### 14.23 Completion Steering Committee

- (a) Within 3 months of the date of this Contract, the parties must establish a Completion Steering Committee.
- (b) The Completion Steering Committee will consist of:
  - (i) the Principal's Representative;
  - (ii) the SSJ Contractor's Representative; and
  - ~~(iii) the Independent Certifier's Representative; and~~
  - (iii) ~~(iv)~~ such other persons as the parties may agree from time to time.
- (c) The role of the Completion Steering Committee is to:
  - (i) provide leadership on matters relating to Completion and handover of the Project Works;



- (ii) approve processes and procedures prepared by the Completion Working Group;
  - (iii) consider issues referred to it by the Completion Working Group;
  - (iv) refer any significant issues to the Management Review Group for resolution; and
  - (v) such other roles and functions as may be agreed by the parties.
- (d) The Completion Steering Committee must meet:
- (i) at least once every 2 months; and
  - (ii) at such other times as the parties may agree,
- until the achievement of Completion of the last Portion.

#### 14.24 **Completion Working Group**

- (a) Within 3 months of the date of this Contract, the parties must establish a Completion Working Group.
- (b) The Completion Working Group will consist of:
  - (i) the Principal's Representative;
  - (ii) any nominees of the Principal's Representative;
  - (iii) the SSJ Contractor's Representative;
  - (iv) any nominees of the SSJ Contractor's Representative; and
  - (v) such other persons as the parties may agree from time to time.
- (c) The role of the Completion Working Group is to:
  - (i) provide a collaborative forum through which the parties can:
    - (A) plan and agree procedures for completion and handover of the Project Works;
    - (B) plan and agree the process for the progressive submission of records and documentation required for Construction Completion and Completion of each Portion;
    - (C) monitor the status of activities and tasks that must be completed in order to achieve Construction Completion and Completion of each Portion;
    - (D) identify issues which may adversely impact upon the achievement of Construction Completion or Completion of any Portion by the applicable Date for Construction Completion or Date for Completion (as applicable); and

- (E) consider the Recovery Plans submitted by the SSJ Contractor to the Principal's Representative in accordance with clause 15.5(b)(ii) and provide feedback;
- (ii) report to the Completion Steering Committee on matters relating to completion and handover of the Project Works; and
- (iii) such other roles and functions as may be agreed by the parties.
- (d) The Completion Working Group must meet:
  - (i) at least once each month; and
  - (ii) at such other times as the parties may agree,
 until the achievement of Completion of the last Portion.

#### 14.25 Legal effect of meetings

- (a) Subject to clause 14.25(b), the Management Review Group, the Completion Steering Committee and the Completion Working Group are consultative and advisory only and nothing which occurs during or as part of the process of a meeting, no resolution or communication at any meeting (nor minutes recording any resolution or communication) of any such group will:
  - (i) limit or otherwise affect the rights or obligations of either party under this Contract, any Approved Subcontract or otherwise according to Law;
  - (ii) entitle a party to make any Claim against the other;
  - (iii) relieve a party from, or alter or affect, a party's liabilities or responsibilities whether under this Contract or otherwise according to law;
  - (iv) prejudice a party's rights against the other whether under this Contract or otherwise according to law; or
  - (v) be construed as or amount to a direction by the Principal or the Principal's Representative unless and until a separate direction is given to the SSJ Contractor in writing by the Principal's Representative.
- (b) A determination of the Management Review Group made in accordance with clause 14.21(d) will be binding on the parties.

#### 14.26 Quarterly whole of project reviews

- (a) In each quarter in a calendar year at any time prior to the expiry of the final Defects Correction Period, the Principal may require that the SSJ Contractor attend and participate in one or more meetings with the Principal and its other contractors for Sydney Metro City & Southwest.
- (b) The purpose of the meetings in clause 14.26(a) is for the Principal, the SSJ Contractor and the Principal's other contractors to work together in good faith on a co-operative and collaborative basis to identify and consider:
  - (i) issues and potential issues that have, or which may have, an adverse impact upon the successful delivery of Sydney Metro City & Southwest or any part of Sydney Metro City & Southwest;

- (ii) solutions to such issues or potential issues which may mitigate, remedy or avoid any adverse impact upon the successful delivery of Sydney Metro City & Southwest or any part of Sydney Metro City & Southwest;
  - (iii) improvements that can be implemented to save time, reduce cost or improve the quality of Sydney Metro City & Southwest or any part of Sydney Metro City & Southwest;
  - (iv) the manner in which any such solutions and improvements can be implemented; and
  - (v) any other matters that the Principal may require.
- (c) If the Principal requires the SSJ Contractor to attend and participate in any meeting contemplated by clause 14.26(a), the Principal's Representative must provide the SSJ Contractor with at least 10 Business Days prior written notice of any such meeting.
- (d) If the Principal's Representative provides the SSJ Contractor with a notice under clause 14.26(b), the SSJ Contractor must ensure that the following personnel attend and participate in the meeting:
- (i) the SSJ Contractor's Representative;
  - (ii) representatives of any of the SSJ Contractor's Subcontractors which the Principal's Representative reasonably requires; and
- any other person the Principal's Representative reasonably requires.

#### 14.27 **Independent Property Impact Assessment Panel**

- (a) The SSJ Contractor acknowledges that the Principal has established an Independent Property Impact Assessment Panel for the Project in accordance with the requirements of the Planning Approval.
- (b) The SSJ Contractor must (at its cost):
  - (i) cooperate with the Independent Property Impact Assessment Panel and provide the Independent Property Impact Assessment Panel with any assistance, information or documentation that the Independent Property Impact Assessment Panel may reasonably require in order to carry out its functions;
  - (ii) permit the Independent Property Impact Assessment Panel to access the Construction Site and inspect the SSJ Contractor's Activities provided that the SSJ Contractor is given reasonable prior written notice and the members of the Independent Property Impact Assessment Panel comply with the SSJ Contractor's reasonable work health and safety procedures; and
  - (iii) attend any meeting of the Independent Property Impact Assessment Panel that it is requested to attend by the Principal's Representative or the chairperson of the Independent Property Impact Assessment Panel provided that the SSJ Contractor is given reasonable prior written notice of any such meeting.





15. **TIME AND PROGRESS**

15.1 **Rate of Progress**

- (a) The SSJ Contractor must:
  - (i) start to perform its obligations under this Contract from the date of this Contract;
  - (ii) regularly and diligently progress the SSJ Contractor's Activities in accordance with this Contract to ensure that:
    - (A) Construction Completion of each Portion is achieved by the relevant Date for Construction Completion for the Portion; and
    - (B) Completion of each Portion is achieved by the relevant Date for Completion for the Portion.
- (b) Without limiting its rights under the SOP Act, the SSJ Contractor must not suspend the progress of the whole or any part of the SSJ Contractor's Activities except where directed by a court or by the Principal's Representative under clauses 7.6(a)(vi) or 15.13.
- (c) Without limiting clauses 15.1(d), 15.1(k) or clause 15.15, the SSJ Contractor must give the Principal's Representative reasonable advance notice of any information, documents or directions required by the SSJ Contractor to carry out the SSJ Contractor's Activities in accordance with this Contract.
- (d) The Principal and the Principal's Representative will not be obliged to furnish information, documents or directions earlier than the Principal or the Principal's Representative, as the case may be, should reasonably have anticipated at the date of this Contract.
- (e) The Principal's Representative may, by written notice expressly stated to be pursuant to this clause 15.1, direct in what order and at what time the various stages or parts of the SSJ Contractor's Activities must be performed.
- (f) If, in relation to a direction under clause 15.1(e):
  - (i) the SSJ Contractor can reasonably comply with the direction, the SSJ Contractor must do so; or
  - (ii) the SSJ Contractor cannot reasonably comply with the direction, the SSJ Contractor must notify the Principal's Representative in writing, giving reasons.
- (g) For the avoidance of doubt, no direction by the Principal's Representative will constitute a direction under clause 15.1(e) unless the direction is in writing and expressly states that it is a direction under clause 15.1(e).
- (h) If the SSJ Contractor considers that compliance with a written direction expressly stated to be pursuant to this clause 15.1 will or is likely to require the SSJ Contractor to undertake more or less Reimbursable Work, Design Work or

Preliminaries than otherwise would have been incurred, the SSJ Contractor must, as a condition precedent ~~efo~~ any entitlement to make a Claim promptly, and within 5 Business Days after first receipt of such direction and in any event before following the written direction, notify the Principal's Representative of such.

- (i) The SSJ Contractor will have no Claim against the Principal in relation to a written direction under this clause 15.1 if it does not comply with clause 15.1(h).
- (j) If the SSJ Contractor has complied with the conditions in clause 15.1(h), the difference will be dealt with as if it was a Change except:
  - (i) the SSJ Contractor will have no entitlement to Claim an extension of time under clause 15.8 in respect of the direction; and
  - (ii) the SSJ Contractor will have no entitlement to a Change where the direction was necessary because of, or arose out of or in any way in connection with, a failure by the SSJ Contractor to comply with its obligations under this Contract.
- (k) The SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any other Claim, arising out of or in any way in connection with any direction pursuant to this clause 15.1.

#### 15.2 **SSJ Contractor's Programming Obligations**

The SSJ Contractor must:

- (a) prepare and provide a SSJ Contractor's Program that complies with and includes the details required by this Contract and any requirements of the Principal's Representative, which SSJ Contractor's Program will be reviewed under clause 14.11;
- (b) submit the SSJ Contractor's Program to the Principal's Representative for its review in accordance with clause 15.2(a) within the earlier of:
  - (i) 20 Business Days of the date of this Contract; or
  - (ii) any time required by the MRs;
- (c) when directed to do so by the Principal's Representative, prepare and submit to the Principal's Representative specific detailed programs and schedules for the SSJ Contractor's Activities within 5 Business Days of receipt of such a direction;
- (d) update, revise and submit to the Principal's Representative an updated SSJ Contractor's Program:
  - (i) to allow for delays to non-critical activities, extensions of time granted by the Principal's Representative to any Date for Construction Completion, the actual progress made by the SSJ Contractor, Changes and any other changes to the SSJ Contractor's Activities but excluding claims for extensions of time to any Date for Construction Completion which have been submitted by the SSJ Contractor to the extent that they have not been granted by the Principal's Representative;
  - (ii) to take account of any Recovery Plan submitted by the SSJ Contractor; and

- (iii) on a monthly basis or whenever directed to do so by the Principal's Representative;
- (e) prepare and provide for the Principal's Representative's information only, versions of all SSJ Contractor's Programs prepared in accordance with clause 15.2(d) that also allow for those claims for an extension of time to any Date for Construction Completion that have been made by the SSJ Contractor in accordance with clause 15.8 but to which the Principal's Representative has not yet responded in accordance with clause 15.10;
- (f) comply with the requirements of the Principal's Representative and its other obligations under this Contract in preparing and using programs, including the requirements in clause 14.11; and
- (g) not depart without reasonable cause from the current version of the SSJ Contractor's Program that has been submitted to the Principal's Representative for review under clause 15.2(a) and not been rejected by the Principal's Representative within 15 Business Days.

### 15.3 **SSJ Contractor not Relieved**

Without limiting clauses 14.11 and 15.2, no submission of, review of or comment upon, acceptance or rejection of, or any failure to review or comment upon or reject, a program (including the SSJ Contractor's Program) prepared by the SSJ Contractor, by the Principal's Representative in connection with the program, will:

- (a) relieve the SSJ Contractor from or alter its liabilities or obligations under this Contract, including the obligation under clause 15.1;
- (b) evidence or constitute notification of a delay or the claiming of or the granting of an extension of time to any Date for Construction Completion or a direction by the Principal's Representative to compress, disrupt, prolong or vary any, or all, of the SSJ Contractor's Activities; or
- (c) affect the time for the performance of the Principal's or the Principal's Representative's obligations under this Contract, including obliging the Principal or the Principal's Representative to do anything earlier than is necessary to enable the SSJ Contractor to achieve Construction Completion of a Portion by the Date for Construction Completion of the Portion or Completion of a Portion by the Date for Completion of the Portion.

### 15.4 **Importance of Completion on Time**

The SSJ Contractor acknowledges:

- (a) the importance of complying with its obligations under clause 15.1 to enable the Operator, or any other party elected by the Principal, to carry out the work required under its contract with the Principal in order that operations of Sydney Metro City & Southwest may commence, including so as to allow the Principal to pursue improved public transport in Sydney;
- (b) that a Date for Construction Completion of any Portion will only be extended in accordance with clause 15.10 or clause 15.12, or when so determined under clause 20; and
- (c) that a Date for Completion of any Portion will not be extended for any reason.

## 15.5 ~~Risk and~~ Notice of Delay

- (a) Except as expressly provided for in clause 15.10, the SSJ Contractor accepts the risk of all delays in, and disruption to, the carrying out of the SSJ Contractor's Activities and performance of its obligations under this Contract both before and after any Date for Construction Completion or any Date for Completion (as applicable).
- (b) The SSJ Contractor must:
  - (i) within 10 Business Days after the SSJ Contractor first becoming aware (or when it ought reasonably to have first become aware) of the commencement of ~~an occurrence causing any delay or which is likely to cause any~~ delay, give the Principal's Representative written notice of:
    - (A) any delay ~~or likely delay~~ to the carrying out of the SSJ Contractor's Activities;
    - (B) details of the cause;
    - (C) how any Date of Construction Completion or Date of Completion (as applicable) is likely to be affected (if at all); and
  - (ii) as soon as reasonably practicable, give the Principal's Representative the SSJ Contractor's Recovery Plan for recovery of the delay in accordance with clause 15.6.
- (c) If the Principal reasonably believes that the SSJ Contractor will be, or has been, delayed in achieving Construction Completion by the Date for Construction Completion or Completion by the Date for Completion, then the Principal may give notice to that effect to the SSJ Contractor, and the SSJ Contractor must as soon as reasonably practicable give the Principal the SSJ Contractor's Recovery Plan for recovery of the delay in accordance with clause 15.6.

## 15.6 Recovery Plan

- (a) Each Recovery Plan which the SSJ Contractor must provide pursuant to clause 15.5 must:
  - (i) describe the actions and measures which the SSJ Contractor will diligently pursue to remedy or mitigate all delay and to ensure the SSJ Contractor achieves Construction Completion by the Date for Construction Completion or Completion by the Date for Completion; or
  - (ii) contain a proposed updated SSJ Contractor's Program.
- (b) Each Recovery Plan will be reviewed by:
  - (i) the Principal's Representative under clause 14.11; and
  - (ii) the Completion Working Group under clause 14.24.
- (c) The SSJ Contractor must implement and comply with its Recovery Plan subject to any comments on that plan provided by the Completion Working Group under clause 14.24 and compliance with the review procedures under clause 14.11.

- (d) The SSJ Contractor will not be relieved of any liability or responsibility under this Contract or otherwise at law arising out of or in connection with:
  - (i) any comments given by the Completion Working Group or the Principal's Representative on review of the Recovery Plan; or
  - (ii) the implementation of any Recovery Plan in respect of which the Completion Working Group or the Principal's Representative has or has not given comments.
- (e) The SSJ Contractor may not make any Claim against the Principal arising out of or in connection with any comments by the Completion Working Group or the Principal's Representative on review of the Recovery Plan or any Loss suffered or incurred by the SSJ Contractor in preparing, or complying with, a Recovery Plan.

**15.7 Entitlement to Claim Extension of Time**

- (a) If the SSJ Contractor is, or will be, delayed on or prior to the Date for Construction Completion of a Portion, by reason of an Extension Event in a manner that will delay it from achieving Construction Completion of a Portion by the Date for Construction Completion of the Portion, the SSJ Contractor may claim an extension of time to the relevant Date for Construction Completion.
- (b) If the SSJ Contractor is, or will be, delayed after the Date for Construction Completion of a Portion, by reason of Extension Events (a), (b), (c), (i), (m) or (n) in a manner which will delay it in achieving Construction Completion of a Portion, the SSJ Contractor may claim an extension of time to the relevant Date for Construction Completion.

**15.8 Claim for Extension of Time**

- (a) To claim an extension of time the SSJ Contractor must:
  - (i) within 10 Business Days after first becoming aware (or when it ought reasonably to have first become aware ~~of~~ of the commencement of ~~the occurrence causing~~ the delay, submit a written notice of its intention to claim for an extension to the Date for Construction Completion of the Portion, which:
    - (A) gives details of the delay and the occurrence causing the delay; and
    - (B) states the number of days for which the extension of time is to be claimed;
  - (ii) within 10 Business Days after the SSJ Contractor's notice issued under clause 15.8(a)(i), submit a written claim to the Principal's Representative for an extension to the Date for Construction Completion of the Portion, which:
    - (A) gives detailed particulars of the delay and the occurrence causing the delay; and
    - (B) states the number of days for which the extension of time is claimed together with the basis of calculating that period, including evidence that:
      - (aa) the delay involves an activity which is critical to the maintenance of progress in the execution of the SSJ



Contractor's Activities and which will delay it in achieving Construction Completion of the Portion in the manner described in clause 15.9(a)(iii); and

- (bb) the conditions precedent to an extension of time in clause 15.9 have been met; and
- (iii) if the effects of the delay continue ~~for more than 20 Business Days from~~ after the date of the ~~SSJ Contractor's notice issued~~ claim under clause 15.8(a)(iii) and the SSJ Contractor wishes to claim an extension of time in respect of the further delay, submit a further written claim to the Principal's Representative:
  - (A) every 10 Business Days after the first written claim made under clause 15.8(a)(ii) (or such other period as notified by the Principal's Representative in writing), until 5 Business Days after the end of the effects of the delay; and
  - (B) containing the information required by paragraph 15.8(a)(ii) (except to the extent otherwise directed by the Principal's Representative).
- (b) ~~(h)~~ The Principal's Representative may, within 10 Business Days after receiving the SSJ Contractor's claim or further claim for an extension of time for Construction Completion, by written notice to the SSJ Contractor, request additional information in relation to the claim or further claim.
- (c) ~~(i)~~ The SSJ Contractor must, within 10 Business Days after receiving a notice under clause ~~15.7~~ 15.8(b), provide the Principal's Representative with the information requested.

#### 15.9 Conditions Precedent to Extension of Time

- (a) Subject to clause 15.14(h), it is a condition precedent to the SSJ Contractor's entitlement to an extension of time that:
  - (i) the SSJ Contractor gives the notices and claims required by clauses 15.5(b) and 15.8(a) as required by those clauses in relation to the Extension Event;
  - (ii) the cause of the delay is beyond the reasonable control of the SSJ Contractor; and
  - (iii) the SSJ Contractor is actually, or will be, delayed in achieving Construction Completion:
    - (A) on or prior to the Date for Construction Completion of a Portion, by reason of one or more Extension Events in the manner described in clause 15.7(a); or
    - (B) after the Date for Construction Completion of a Portion, by reason of an act or omission of the Principal and the Principal's Representative (including any breach of contract or Change directed by the Principal's Representative) but excluding any act or omission of the Principal or the Principal's Representative authorised or permitted by the Contract in the manner described in clause 15.7(b).
- (b) If the SSJ Contractor fails to comply with the conditions precedent in clause 15.9(a):

- (i) the Principal will not be liable upon any Claim by the SSJ Contractor; and
- (ii) the SSJ Contractor will be absolutely barred from making any Claim against the Principal,

arising out of or in any way in connection with the event giving rise to the delay and the delay involved.

#### 15.10 Extension of Time

- (a) Subject to clauses 15.11 and 15.14, if the conditions precedent in clause 15.9(a) have been satisfied, the Principal's Representative must extend the Date for Construction Completion of a Portion by a reasonable period, such period to be stated by the Principal's Representative, and notified to the Principal and the SSJ Contractor within 15 Business Days after:
  - (i) the latest of the:
    - (A) SSJ Contractor's written claim under clause 15.8(a)(ii) or the final notice under clause 15.8(a)(iii) (if relevant), whichever is the later; and
    - (B) provision by the SSJ Contractor of any additional information regarding the claim required under clause 15.8; and
    - (C) date of the meeting of the Management Review Group at which the SSJ Contractor's written claim was considered by the Management Review Group; or
  - (ii) where the Principal's Representative has given the SSJ Contractor a direction to compress under clause 15.14 and subsequently issues a notice under clause 15.14 withdrawing the direction to compress given under clause 15.14, the date of issue of the notice withdrawing the compression.
- (b) A failure of the Principal's Representative to grant a reasonable extension of time to the Date for Construction Completion or to grant an extension of time to the Date for Construction Completion within the relevant 15 Business Day period will not cause an affected Date for Construction Completion to be set at large, but nothing in this clause 15.10 will prejudice any right of the SSJ Contractor to damages.
- (c) The parties agree that if the Management Review Group determines the SSJ Contractor's claim in accordance with clauses 14.21(c) and (d), the Principal's Representative will extend the Date for Construction Completion of a Portion as determined by the Management Review Group.

#### 15.11 Reduction in Extension of Time

In respect of each claim for an extension of time under clause 15.8(a), the SSJ Contractor's entitlement to an extension of time will be reduced by the extent to which the SSJ Contractor:

- (a) could have lessened or avoided the delay if it had taken all reasonable steps both to preclude the cause of the delay and to avoid or minimise the consequences of the delay, including the expenditure of reasonable sums of money and taking reasonable steps to accommodate or re-schedule within the SSJ Contractor's

Program the cause of delay and the SSJ Contractor's Activities affected by the delay; or

- (b) contributed to the delay.

#### 15.12 Unilateral Extensions

- (a) The Principal's Representative may, in its absolute discretion, for any reason and at any time, from time to time by written notice to the SSJ Contractor and the Principal, unilaterally extend the Date for Construction Completion of a Portion by any period specified in a notice to the SSJ Contractor and the Principal. The power to extend the Date for Construction Completion of a Portion under clause 15.12:
  - (i) may be exercised whether or not the SSJ Contractor has made, or is entitled to make, a claim for an extension of time to any relevant Date for Construction Completion, or is entitled to be, or has been, granted an extension of time to any relevant Date for Construction Completion, under clause 15.8;
  - (ii) subject to clause 15.12(a)(iii), may only be exercised by the Principal's Representative and the Principal's Representative is not required to exercise its discretion under this clause 15.12(a) for the benefit of the SSJ Contractor;
  - (iii) without limiting clause 14.1(a), may be exercised or not exercised (as the case may be) by the Principal's Representative in accordance with the directions of the Principal; and
  - (iv) is not a direction which can be the subject of a Dispute pursuant to clause 20 or in any other way opened up or reviewed by any other person (including the Expert IDAR Panel or any arbitrator or court).
- (b) If the Principal's Representative gives the SSJ Contractor a direction to compress under clause 15.14 and the direction only applies to part of the delay, the SSJ Contractor's entitlement to any extension of time which it otherwise would have had if that direction had not been given will be reduced to the extent that the direction to compress requires the SSJ Contractor to compress to overcome the delay.

#### 15.13 Suspension

- (a) The Principal's Representative may direct the SSJ Contractor to suspend and, after a suspension has been directed, to re-commence, the carrying out of all or a part of the SSJ Contractor's Activities.
- (b) If the suspension under this clause 15.13 arises in the circumstance set out in clause 3.5(g) then clauses 3.5(g) and 3.5(i) will apply, otherwise where it arises as a result of:
  - (i) the SSJ Contractor's failure to carry out its obligations in accordance with this Contract (including under clauses 9.9 or 9.10 or where the SSJ Contractor otherwise fails to comply with its obligations in relation to engineering authorisation or ASA compliance in accordance with this Contract or where any process, procedure, test method, calculation, analysis or report required by this Contract has resulted in or will result in a non-conformance):

- (A) the Reimbursable Costs will not include the costs incurred as a result of the suspension;
  - (B) there will be no [REDACTED] as a result of the suspension; and
  - (C) the SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any Claim arising out of, or in any way in connection with, the suspension; or
- (ii) a cause other than the SSJ Contractor's failure to perform its obligations in accordance with this Contract:
- (A) a direction to suspend under this clause 15.13 will entitle the SSJ Contractor to an extension of time to any relevant Date for Construction Completion where it is otherwise so entitled under clause 15;
  - (B) to the extent a direction to suspend requires the SSJ Contractor to carry out more Reimbursable Work, Design Work or Preliminaries than the SSJ Contractor would otherwise have done as a result of complying with the direction to suspend, the SSJ Contractor may notify the Principal of its estimate of any [REDACTED] for complying with the direction, including sufficient information to support the estimate;
  - (C) if a notice is given under clause 15.13(b)(ii)(B), clause 5 will apply in respect of [REDACTED] (to the extent the Principal does not agree with the SSJ Contractor's estimate under clause 15.13(b)(ii)(B)); and
  - (D) the SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any Claim arising out of, or in any way in connection with, the suspension other than as allowed under this clause 15.13(b)(ii).

**15.14 Compression**

- (a) Subject to clause 15.14(d), if the SSJ Contractor makes a claim under clause 15.8, the Principal's Representative may direct the SSJ Contractor to compress the SSJ Contractor's Activities by taking those measures which are necessary to overcome or minimise the extent and effects of some or all of the delay, which may include taking the measures necessary in order to achieve Construction Completion of a Portion by its Date for Construction Completion.
- (b) The Principal's Representative will have the right to direct that the SSJ Contractor's Activities be compressed by means of overtime, additional crews, additional shifts, resequencing of the SSJ Contractor's Activities, or otherwise, whether or not the SSJ Contractor's Activities are progressing without delay or in accordance with the SSJ Contractor's Program.

- (c) Prior to carrying out any compression of the SSJ Contractor's Activities, the SSJ Contractor must provide a plan for such compression, including the methodology required for an effective and economical compression of the SSJ Contractor's Activities and, where the compression is pursuant to a direction under this clause 15.14 , an estimate of [REDACTED] [REDACTED] for complying with the direction, including sufficient information to support the estimate.
- (d) Clause 5 will apply in respect of [REDACTED] [REDACTED] (to the extent the Principal does not agree with the SSJ Contractor's estimate under clause 15.14(c)).
- (e) Despite clause 15.14(a), the Principal's Representative may give such a direction whether or not the cause of delay for which the SSJ Contractor has made its claim under clause 15.8 entitles the SSJ Contractor to an extension of time to any relevant Date for Construction Completion.
- (f) The Principal's Representative may at any time by notice in writing withdraw any direction given by it under clause 15.14, after which the SSJ Contractor will be entitled to any extension of time to which it may have otherwise been entitled in respect of the cause of delay in respect of which the SSJ Contractor made a claim under clause 15.8.
- (g) Any extension in accordance with clause 15.14(f) will be determined having regard to the effect which the acceleration of the SSJ Contractor's Activities taken by the SSJ Contractor prior to the withdrawal of the direction has had on mitigating the delay which is the subject of the claim for an extension of time made by the SSJ Contractor under clause 15.8.
- (h) [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]
- (i) The SSJ Contractor will not be entitled to make any Claim, and releases and waives any entitlement it may have to a Claim, against the Principal in respect of any compression of the SSJ Contractor's Activities, except as provided for under this clause 15.14.

**15.15 Compression by SSJ Contractor**

If the SSJ Contractor chooses to compress the SSJ Contractor's Activities or otherwise accelerate progress:

- (a) neither the Principal nor the Principal's Representative will be obliged to take any action to assist or enable the SSJ Contractor to achieve Construction Completion of a Portion before the Date for Construction Completion of the Portion or Completion of a Portion before the Date for Completion of the Portion;
- (b) the time for carrying out the obligations of the Principal or the Principal's Representative will not be affected; and
- (c) the SSJ Contractor does so at its own cost and risk.

15.16 **Milestones**

The SSJ Contractor must use its best endeavours to achieve each Milestone by the Original Milestone Date.

16. **PAYMENT**

16.1 **Principal's payment obligation for design and construction**

- (a) Subject to clause 16.3(b) and to any other right to set-off that the Principal may have, the Principal will pay the SSJ Contractor in progressive payments as follows:
- (i) monthly instalments of the Reimbursable Costs, relating to the Reimbursable Work which has been carried out in the relevant month, including the applicable Self-Performed Margin, ~~will be paid monthly~~, (distinguishing Reimbursable Costs relating to Provisional Sum Work); and
  - (ii) the:
    - (A) Design Fee (Delivery Phase) relating to the Design Work which has been carried out in the relevant month, will be paid monthly;
    - (B) Design Fee (Signalling) will be paid monthly;
    - (C) Design Fee (Target Cost Development Phase) will be paid in monthly instalments in accordance with the provisions of Schedule F1;
    - (D) Preliminaries Fee will be paid in monthly instalments in accordance with the provisions of Schedule F1;
    - (E) Management Fee will be paid in monthly instalments in accordance with the provisions of Schedule F1;
    - (F) Management Fee (Provisional Sums) will be paid monthly;
    - (G) Target Cost Development Phase Site Investigations Fee will be paid in monthly instalments in accordance with the provisions of Schedule F1;
    - ~~(H) At-Risk Amount (if any) will be paid on satisfaction of the conditions in clause 16.13(b);~~
    - ~~(I) [REDACTED] (if any) will be paid in accordance with clause 4.2(d);~~
    - (H) ~~(J)~~ KPI Incentive (if any) under Schedule F6 will be paid in monthly instalments in accordance with the provisions of Schedule F6;
    - (I) ~~(K)~~ Cost Incentive (if any) under clause 16.11(a) can only be claimed with the Payment Claim made under clause 16.11; and
    - (J) ~~(L)~~ Early Completion Payment (if any) under Schedule A2 can only be claimed with the Payment Claim made under clause 16.11.

- (b) Schedules F1 and F6 may set out (among other things):
  - (i) those parts of the SSJ Contractor's Activities which must be completed before the SSJ Contractor may claim a progressive payment with respect to that part;
  - (ii) the payment the SSJ Contractor may claim for each progressive payment;
  - (iii) any limitations or other constraints on the SSJ Contractor's ability to make claims for payment; and
  - (iv) the restrictions (if any) on the timing and sequencing of the SSJ Contractor's Activities with which the SSJ Contractor must comply.
- (c) Clause 16.2(k) sets out further payment constraints that are to apply.

## 16.2 Payment Claims

- (a) The SSJ Contractor must give the Principal's Representative a claim for payment on account of all amounts then payable by the Principal to the SSJ Contractor under the Contract (**Payment Claim**) on the following dates:
  - (i) on the twenty-fifth day of each month (or if this day is not a Business Day, the next Business Day after this day); and
  - (ii) 30 Business Days after:
    - (A) the issue of a Notice of Completion for the last Portion to reach Completion; and
    - (B) the expiry of the final Defects Correction Period.
- (b) For each claim made under clause 16.2(a) the SSJ Contractor must:
  - (i) give the Principal's Representative:
    - (A) a claim in a format required by the Principal's Representative (including electronic format) showing the amount the SSJ Contractor claims on account of:
      - (aa) the Reimbursable Costs (distinguishing Reimbursable Costs relating to Provisional Sum Work) payable to:
        - (a) Subcontractors; and
        - (b) the SSJ Contractor;
      - (bb) the Design Fee; payable to:
        - (a) Designers; and
        - (b) the SSJ Contractor;
      - (cc) the Design Fee (Signalling)
      - (dd) the Preliminaries Fee;



- (ee) the Management Fee;
- (ff) the Management Fee (Provisional Sums);
- (gg) the Target Cost Development Phase Site Investigations Fee;
- ~~(hh) the At Risk Amount (if any);~~
- ~~(ii) [REDACTED] (if any) will be paid in accordance with clause 4.2(d);~~
- (hh) ~~(jj)~~ the KPI Incentive (if any);
- (ii) ~~(kk)~~ the Cost Incentive (if any);
- (jj) ~~(ll)~~ the Early Completion Payment (if any); and
- (kk) ~~(mm)~~ other amounts payable under the Contract by the Principal to the SSJ Contractor; and

(B) where the Principal has given notice under clause 16.15(g)(iv), a valid tax invoice for any taxable supplies to which the payment relates; and

(ii) in the case of the payment claims issued after:

- (A) the issue of a Notice of Completion for the last Portion to reach Completion; and
  - (B) the expiration of the final Defects Correction Period,
- comply with clause 16.2(m).

(c) Each claim for payment must set out or attach (to a standard directed by the Principal from time to time) sufficient details, calculations, supporting documentation and any other information required by the Principal in respect of all amounts claimed by the SSJ Contractor:

- (i) to enable the Principal's Representative to fully and accurately determine (without needing to refer to any other documentation or information) the amounts then payable by the Principal to the SSJ Contractor under the Contract and by the SSJ Contractor to the Principal; and
- (ii) including any such documentation or information which the Principal's Representative may by written notice from time to time require the SSJ Contractor to set out or attach, whether in relation to a specific payment or not.

(d) The Principal's Representative must, on behalf of the Principal, within 10 Business Days of receipt of the SSJ Contractor's claim under clause 16.2(a), issue to the SSJ Contractor and the Principal, a payment schedule stating the amount (if any) which the Principal's Representative believes to be then payable by the Principal to the SSJ Contractor under this Contract and which the Principal proposes to pay to the SSJ Contractor or the amount which the Principal's Representative believes to be then payable by the SSJ Contractor to the Principal, including details of the calculation of the progress amount.



- (e) In issuing a payment schedule the Principal's Representative:
- (i) may deduct from the amount which would otherwise be payable to the SSJ Contractor any amount which the Principal is entitled to retain, deduct, withhold or set-off under this Contract, including any amount which the Principal is entitled to set-off or withhold under clause 16.8; and
  - (ii) must if the payment schedule shows an amount less than the amount claimed by the SSJ Contractor in the progress claim, set out in the payment schedule why the amount is less and if the reason for the difference is that the Principal has retained, deducted withheld or set-off payment for any reason, the reason for the retention, deduction, withholding or setting-off of payment.
- (f) If the SSJ Contractor does not give the Principal's Representative a progress claim at a time required by clause 16.2(a), the Principal's Representative may nevertheless (but is not obliged to) issue a payment schedule as if a progress claim was made at the time required.
- (g) A payment schedule issued under clause 16.2(d) or 16.2(f) will separately identify the sum of the amounts due on account of the:
- (i) the Reimbursable Costs (distinguishing Reimbursable Costs relating to Provisional Sum Work) payable to:
    - (A) Subcontractors; and
    - (B) the SSJ Contractor;
  - (ii) the Design Fee; payable to:
    - (A) Designers; and
    - (B) the SSJ Contractor;
  - (iii) the Design Fee (Signalling);
  - (iv) the Preliminaries Fee;
  - (v) the Management Fee;
  - (vi) the Management Fee (Provisional Sums);
  - (vii) the Target Cost Development Phase Site Investigations Fee;
  - ~~(viii) the At-Risk Amount (if any);~~
  - ~~(ix) [REDACTED] (if any) will be paid in accordance with clause 4.2(d);~~
  - ~~(viii) (x) the KPI Incentive (if any);~~
  - ~~(ix) (xi) the Cost Incentive (if any);~~
  - ~~(x) (xii) the Early Completion Payment (if any); and~~

- (xi) ~~(xiii)~~ other amounts payable under the Contract by the Principal to the SSJ Contractor.
- (h) Where the Principal has given notice under clause 16.15(g)(iv), if the amount set out in a payment schedule issued under clause 16.2(d) is different to the amount in the SSJ Contractor's progress claim or if the Principal's Representative issues a payment schedule under clause 16.2(f), the SSJ Contractor must, within 2 Business Days of receiving the payment schedule, issue a revised tax invoice or adjustment note (as the case may be) to the Principal to reflect the amount in the payment schedule.
- (i) Within 15 Business Days of the date of the SSJ Contractor's progress claim in accordance with clause 16.2(a) or within 5 Business Days of the issue of a payment schedule in accordance with clause 16.2(f):
  - (i) where the payment schedule provides that an amount is payable by the Principal to the SSJ Contractor, but subject to clauses 16.6, 16.7, 16.8 and 20.12 and Schedules F2 and F6, the Principal must pay the SSJ Contractor the progress payment due to the SSJ Contractor as certified in the payment schedule; and
  - (ii) where the payment schedule provides that an amount is payable by the SSJ Contractor to the Principal, the SSJ Contractor must pay the Principal the amount due to the Principal as certified in the payment schedule.
- (j) If the SSJ Contractor lodges a progress claim earlier than at the times specified under clause 16.2(a), the Principal's Representative will not be obliged to issue the payment schedule in respect of that progress claim earlier than it would have been obliged had the SSJ Contractor submitted the progress claim in accordance with this Contract.
- (k) Despite any other provisions of this Contract to the contrary, the amount of any progress claim to which the SSJ Contractor is entitled in relation to this Contract and the amount to be allowed by the Principal's Representative in any payment schedule issued under clause 16.2(d) as the amount payable to the SSJ Contractor arising out of or in any way in connection with this Contract will:
  - (i) not include the following amounts:
    - (A) any amount which this Contract provides cannot be claimed or is not payable because of the failure by the SSJ Contractor to take any action (including to give any notice to the Principal or the Principal's Representative);
    - (B) any amount which represents unliquidated damages claimed against the Principal (whether for breach of contract, in tort or otherwise);
    - (C) any amount which this Contract provides is not payable until certain events have occurred or conditions have been satisfied, to the extent those events have not occurred or those conditions have not been satisfied (including any events identified in the Schedules F2 and F6);
    - (D) any amount in respect of which the obligation of the Principal to make payment has been suspended under this Contract;
    - (E) any amount in respect of which the SSJ Contractor has failed to provide supporting information as required by this Contract; or

- (F) any amount for work which is not in accordance with this Contract;
  - (ii) deduct the following amounts:
    - (A) any amounts which have become due from the SSJ Contractor to the Principal under this Contract; and
    - (B) any amounts which the Principal is entitled under this Contract to retain, deduct, withhold or set-off against the progress claim, including under clauses 16.5, 16.6 or 16.9;
  - (iii) in determining amounts to be excluded or deducted under clauses 16.2(k)(i) and 16.2(k)(ii), have regard to matters or circumstances occurring at any time before the date that the determination is being made; and
  - (iv) be determined having regard to the amounts payable in accordance with Schedule F1.
- (l) Failure by the Principal's Representative to set out in a payment schedule an amount which the Principal is entitled to retain, deduct, withhold or set-off from the amount which would otherwise be payable to the SSJ Contractor by the Principal will not prejudice the Principal's right to subsequently exercise its right to retain, deduct, withhold or set-off any amount under this Contract.
- (m) The SSJ Contractor must include in the payment claim lodged by it after:
- (i) the issue of a Notice of Completion for the last Portion to reach Completion; and
  - (ii) the expiration of the final Defects Correction Period,
- all Claims (excluding third party claims for death, injury or property damage of which the SSJ Contractor is unaware (and ought not reasonably to have been aware)) that the SSJ Contractor wishes to make against the Principal in respect of any fact, matter or thing arising out of, or in any way in connection with, the SSJ Contractor's Activities, the Project Works or this Contract which occurred:
- (iii) in the case of the payment claim referred to in clause 16.2(m)(i), prior to the date of that payment claim; and
  - (iv) in the case of the payment claim referred to in clause 16.2(m)(ii), in the period between the date of the payment claim referred to in clause 16.2(m)(i) and the date of the payment claim.
- (n) The SSJ Contractor releases the Principal from any Claim in respect of any fact, matter or thing arising out of, or in any way in connection with, the SSJ Contractor's Activities, the Project Works or this Contract that occurred prior to the date of submission of the relevant payment claim referred to in clauses 16.2(m)(i) or 16.2(m)(ii), except for any claim which:
- (i) has been included in the relevant payment claim which is given to the Principal's Representative within the time required by, and in accordance with, clause 16.2(a); and
  - (ii) has not been barred under another provision of this Contract.

- (o) Where any part of a payment to be made by the Principal to the SSJ Contractor is in respect of work carried out by a Subcontractor, the Principal will pay that part of the payment into the Project Bank Account.
- (p) The SSJ Contractor may only make withdrawals from the Project Bank Account to pay the relevant Subcontractor for work carried out by that Subcontractor that forms part of the relevant Payment Claim.
- (q) Interest on amounts standing to the credit of the Project Bank Account will accrue for the benefit of the Principal.

### 16.3 Effect of payment schedules and payments

- (a) Neither the issue of a payment schedule under clause 16.2(d), nor the making of any payment pursuant to any such payment schedule, will:
  - (i) constitute the approval of any work or other matter or prejudice any Claim by the Principal or the Principal's Representative;
  - (ii) constitute evidence of the value of any work or an admission of liability or evidence that work has been executed or completed in accordance with this Contract; or
  - (iii) prejudice the right of either party to dispute under clause 20 whether any amount certified as payable in a payment schedule is the amount properly due and payable (and on determination, whether under clause 20 or as otherwise agreed, of the amount properly due and payable, the Principal or the SSJ Contractor, as the case may be, will be liable to pay the difference between the amount of such payment and the amount which is properly due and payable),

and any payments made pursuant to a payment schedule are payments on account only.
- (b) The Principal's Representative may at any time correct, modify or amend any payment schedule.

### 16.4 Provision of documentation and other requirements

- (a) The Principal is not obliged to pay the SSJ Contractor any more than ██████ of the amount that the Principal's Representative would otherwise have set out in any payment schedule unless the SSJ Contractor has:
  - (i) provided the deeds poll required by clause 1.5;
  - (ii) ~~from commencement of the Delivery Phase, provided certification by the Independent Certifier in the form of Schedule B14 that the parts of the SSJ Contractor's Activities in respect of which any payment is claimed comply with the requirements of this Contract;~~
  - (ii) ~~(iii)~~ provided the Principal with the unconditional undertakings and the Parent Company Guarantee (if any) required under clause 6;
  - (iii) ~~(iv)~~ provided the Principal's Representative with:
    - (A) a statutory declaration by the SSJ Contractor, or where the SSJ Contractor is a corporation, by a representative of the SSJ Contractor

who is in a position to know the facts attested to, in the form of Schedule B5, made out not earlier than the date of the payment claim;

- (B) where clause 16.7(q) applies, the statement and the evidence (if any) required to be provided by the SSJ Contractor pursuant to that clause;
  - (C) the Asset Management Information and evidence of compliance with the reporting requirements of section 5 of MR-W and the sustainability reporting requirements under section 9 of MR-SY; and
- (iv) ~~(v)~~ where the Principal has given notice under clause 16.15(g)(iv), provided the Principal's Representative with a tax invoice, revised tax invoice or adjustment note (as applicable) as required under clause 16.2(b)(i)(B) and clause 16.2(h);
  - (v) ~~(vi)~~ in relation to any unfixed plant and materials which the SSJ Contractor proposes to claim in a Payment Claim, provided the evidence and documents required by, and otherwise satisfied the requirements of, clause 16.6;
  - (vi) ~~(vii)~~ demonstrated to the Principal's Representative that it has effected and is maintaining, or has procured to be effected the insurances required to be effected by the SSJ Contractor under clause 18 and (if requested) provided supporting evidence of this to the Principal's Representative;
  - (vii) ~~(viii)~~ provided such evidence as the Principal's Representative may require that this Contract has been properly executed by or on behalf of the SSJ Contractor and that the SSJ Contractor is bound under this Contract;
  - (viii) ~~(ix)~~ subject to clauses 16.4(c), 16.4(d) and 16.4(e), in relation to each tenderer approved by the Principal's Representative pursuant to clause 12.7(a), evidence to the satisfaction of the Principal's Representative of the SSJ Contractor's compliance with clause 12.7 (including the provision of each of the agreements referred to in clause 12.7(a) having been duly stamped (if required by Law)); and
  - (ix) ~~(x)~~ done everything else that it is required to do under this Contract before being entitled to make a payment claim or receive payment.
- (b) The Principal is not obliged to pay the SSJ Contractor any more than ██████ of the amount that the Principal's Representative would otherwise have set out in any payment statement unless the SSJ Contractor has provided the updated SSJ Contractor's Program required by clause 15.2.
  - (c) In relation to the SSJ Contractor's first Payment Claim, to satisfy the evidentiary requirements of clause 16.4(a)~~(vii)~~, the SSJ Contractor must provide evidence of each tenderer engaged pursuant to clause 12.7(a) since the date of this Contract and the date of the first Payment Claim.
  - (d) In relation to the second Payment Claim, to satisfy the evidentiary requirements of clause 16.4(a)~~(ixviii)~~, the SSJ Contractor must provide evidence of each tenderer engaged pursuant to clause 12.7(a) since the date of the Payment Claim referred to in clause 16.4(c) and the date of this second Payment Claim.

- (e) In relation to each subsequent Payment Claim, to satisfy the evidentiary requirements of clause 16.4(a)(vii), the SSJ Contractor must provide evidence of each tenderer engaged pursuant to clause 12.7(a) since the date of the Payment Claim referred to in clause 16.4(d) and the date of that Payment Claim.

**16.5 Payment of Subcontractors, workers compensation and payroll tax**

- (a) If a worker or a Subcontractor obtains a court order in respect of the moneys payable to him, her or it in respect of his, her or its employment on, materials supplied for, or work performed with respect to, the SSJ Contractor's Activities, and produces to the Principal the court order and a statutory declaration that it remains unpaid, the Principal may (but is not obliged to) pay the GST exclusive amount of the order and costs included in the order to the worker or Subcontractor, and the amount paid will be a debt due from the SSJ Contractor to the Principal.
- (b) If the Principal receives notices of:
  - (i) the SSJ Contractor being placed under administration; or
  - (ii) the making of a winding up order in respect of the SSJ Contractor,the Principal will not make any payment to a worker or Subcontractor without the concurrence of the administrator, provisional liquidator or liquidator, as the case may be.
- (c) If any moneys are shown as unpaid in the SSJ Contractor's statutory declaration under clause 16.4(a)(viii)(A), the Principal may withhold the moneys so shown until the SSJ Contractor provides evidence to the satisfaction of the Principal's Representative that the moneys have been paid to the relevant persons.
- (d) Nothing in this clause 16.5 limits or otherwise affects the Principal's rights under section 175B(7) of the *Workers Compensation Act 1987 (NSW)*, section 18(6) of schedule 2 of the *Payroll Tax Act 2007 (NSW)* and section 127(5) of the *Industrial Relations Act 1996 (NSW)*.

**16.6 Unfixed Plant and Materials**

- (a) Subject to clause 16.6(b), the value of unfixed or off-site plant and materials must not be included in a Payment Claim.
- (b) The SSJ Contractor is only entitled to make a claim for payment for plant or materials intended for incorporation in the Project Works but not yet incorporated, and the Principal is only obliged to make payment for such plant or materials in accordance with clauses 16.4(a) and/or 16.4(c) if:
  - (i) the SSJ Contractor provides evidence of;
    - (A) ownership of the plant or materials;
    - (B) identification and labelling of the plant and materials as the property of the Principal; and
    - (C) adequate and secure storage and protection;
  - (ii) security acceptable to the Principal in the form of the unconditional undertaking in Schedule F3 issued by an Institution approved by the

Principal in an amount equal to the payment claimed for the unfixed plant and materials has been provided by the SSJ Contractor to the Principal;

- (iii) the plant and materials are on the Construction Site or are available for immediate delivery to the Construction Site;
  - (iv) the insurance held and the storage arrangements for the unfixed plant and materials are acceptable to the Principal's Representative;
  - (v) the condition of the unfixed plant and materials has been confirmed in an inspection by the Principal's Representative; and
  - (vi) if the PPS Law applies, the SSJ Contractor has registered a Security Interest in the unfixed plant and materials in favour of the Principal in accordance with clause 22.17.
- (c) The only such unfixed plant or materials to be allowed for in a Payment Schedule are those that have become or (on payment) will become the property of the Principal. Upon a payment against a Payment Schedule that includes amounts for unfixed plant and materials, title to the unfixed plant and materials included will vest in the Principal.
- (d) The security provided in accordance with clause 16.6(b)(ii) will be released once the applicable unfixed plant and materials are incorporated into the Project Works and are fit for their intended purpose.

#### 16.7 SOP Act

- (a) Expressions defined or used in the SOP Act have the same meaning for the purposes of this clause (unless the context otherwise requires).
- (b) The SSJ Contractor must ensure that a copy of any written communication it delivers or arranges to deliver to the Principal of whatever nature in relation to the SOP Act, including a payment claim under the SOP Act, is provided to the Principal's Representative at the same time.
- (c) In responding to the SSJ Contractor under the SOP Act, the Principal's Representative also acts as the agent of the Principal.
- (d) If, within the time allowed by the SOP Act for the service of a payment schedule by the Principal, the Principal does not:
  - (i) serve the payment schedule itself; or
  - (ii) notify the SSJ Contractor that the Principal's Representative does not have authority from the Principal to issue the payment schedule on its behalf,then a payment schedule issued by the Principal's Representative under this Contract which relates to the period relevant to the payment schedule will be taken to be the payment schedule for the purpose of the SOP Act (whether or not it is expressly stated to be a payment schedule).
- (e) Without limiting paragraph (c), the Principal authorises the Principal's Representative to issue payment schedules on its behalf (without affecting the Principal's right to issue a payment schedule itself).



- (f) For the purposes of this Contract, the amount of the progress payment to which the SSJ Contractor is entitled under this Contract will be the amount certified by the Principal's Representative in a payment schedule under clause 16.2 less any amount the Principal may elect to retain, deduct, withhold or set off in accordance with this Contract.
- ~~(g) The SSJ Contractor agrees that:~~
- (g) ~~(i) The SSJ Contractor agrees that~~ the date prescribed by clause 16.2(a) as the date on which the SSJ Contractor is entitled to make a progress claim is, for the purposes of the SOP Act (including section 8 of the SOP Act), the reference date ~~and~~.
- ~~(ii) a progress claim is not a document notifying an obligation on the Principal to make any payment and the Principal will have no liability to make a payment of any amount in respect of a progress claim unless the amount has been included in a payment schedule issued by the Principal's Representative in accordance with clause 16.2(d) or 16.2(f).~~
- (h) Nothing in this Contract will be construed to:
- (i) make any act or omission of the Principal in contravention of the SOP Act (including failure to pay an amount becoming due under the SOP Act), a breach of this Contract (unless the Principal would have been in breach of this Contract if the SOP Act had no application); or
- (ii) subject to paragraph (i), give to the SSJ Contractor rights under this Contract which extend or are in addition to rights given to the SSJ Contractor by the SOP Act in respect of any act or omission of the Principal in contravention of the SOP Act.
- (i) If the SSJ Contractor suspends the whole or part of the SSJ Contractor's Activities pursuant to the SOP Act, except to the extent (if any) expressly provided under the SOP Act and clause 16.7(h), the Principal will not be liable for and the SSJ Contractor is not entitled to Claim any Loss suffered or incurred by the SSJ Contractor as a result of the suspension.
- (j) The SSJ Contractor must indemnify and keep indemnified the Principal against all Loss suffered or incurred by the Principal arising out of:
- (i) a suspension by a Subcontractor of work which forms part of the SSJ Contractor's Activities pursuant to the SOP Act; or
- (ii) a failure by the SSJ Contractor to comply with its obligations under paragraph (b).
- (k) The SSJ Contractor agrees that for the purposes of section 17(3) of the SOP Act:
- (i) it has irrevocably chosen the Resolution Institute as the authorised nominating authority to which any adjudication application under the SOP Act in respect of the SSJ Contractor's Activities is to be made; and
- (ii) the SSJ Contractor must make any adjudication application under the SOP Act to that authorised nominating authority (unless the Principal in its absolute discretion consents to any alternative nominating authority).



- (l) When an adjudication occurs under the SOP Act, and the Principal has paid an adjudicated amount to the SSJ Contractor:
- (i) the amount will be taken into account by the Principal's Representative in issuing a payment schedule under clause 16.2(d);
  - (ii) if it is subsequently determined pursuant to this Contract that the SSJ Contractor was not entitled under this Contract to payment of some or all of the adjudicated amount that was paid by the Principal (**overpayment**), the overpayment will be a debt due and payable by the SSJ Contractor to the Principal which the SSJ Contractor must pay to the Principal upon demand and in respect of which the SSJ Contractor is not entitled to claim or exercise any set-off, counterclaim, deduction or similar right of defence;
  - (iii) if the adjudicator's determination is quashed, overturned or declared to be void, the adjudicated amount then becomes a debt due and payable by the SSJ Contractor to the Principal upon demand and in respect of which the SSJ Contractor is not entitled to claim or exercise any set-off, counterclaim, deduction or similar right of defence; and
  - (iv) the Principal's Representative:
    - (A) is not bound by the adjudication determination;
    - (B) may reassess the value of the work that was valued by the adjudicator; and
    - (C) may, if it disagrees with the adjudication determination, express its own valuation in any payment schedule.
- (m) Without limiting clause 16.8, the Principal may withhold any amount that is less than or equal to the amount claimed to be owed under a payment withholding request served on the Principal pursuant to Division 2A of the SOP Act.
- (n) If the Principal withholds from money otherwise due to the SSJ Contractor any amount that is less than or equal to the amount claimed to be owed under a payment withholding request served on the Principal pursuant to Division 2A of the SOP Act, then:
- (i) the Principal may plead and rely upon Division 2A of the SOP Act as a defence to any claim for the money by the SSJ Contractor from the Principal; and
  - (ii) the period during which the Principal retains money due to the SSJ Contractor pursuant to an obligation under Division 2A of the SOP Act will not be taken into account for the purpose of determining:
    - (A) any period for which money owed by the Principal to the SSJ Contractor has been unpaid; and
    - (B) the date by which payment of money owed by the Principal to the SSJ Contractor must be made.
- (o) The SSJ Contractor agrees not to commence proceedings to recover any amount withheld by the Principal pursuant to a payment withholding request served on the Principal pursuant to Division 2A of the SOP Act.

- (p) Any amount paid by the Principal pursuant to section 26C of the SOP Act will, to the extent not already withheld, deducted or set-off under clause 16.8, be a debt due from the SSJ Contractor to the Principal.
- (q) If the Principal withholds money pursuant to a payment withholding request served on the Principal pursuant to Division 2A of the SOP Act and the SSJ Contractor:
  - (i) pays the amount claimed to be due under the adjudication application to which the payment withholding claim relates; or
  - (ii) becomes aware that the adjudication application to which the payment withholding claim relates has been withdrawn,

then the SSJ Contractor must so notify the Principal within 5 Business Days of the occurrence of the event in clause 16.7(n)(i) or 16.7(n)(ii) above (as applicable) by providing to the Principal a statement in writing in the form of a statutory declaration together with such other evidence as the Principal may require evidencing that the amount has been paid or the adjudication application has been withdrawn (as the case may be).

#### 16.8 Right of set-off

- (a) The Principal's Representative may (on behalf of the Principal) in any payment schedule issued under clauses 16.2(d) or 16.2(f) withhold, set-off or deduct from the money which would otherwise be certified as payable to the SSJ Contractor or which would otherwise be due to the SSJ Contractor under this Contract:
  - (i) any debt or other moneys due from the SSJ Contractor to the Principal (including any debt due from the SSJ Contractor to the Principal pursuant to section 26C of the SOP Act or any amount due from the SSJ Contractor to the Principal as determined under ~~clauses 20.2(c), 20.3 or 20.4~~ clause 20);
  - (ii) any amount that is less than or equal to the amount claimed to be owed under a payment withholding request served on the Principal pursuant to Division 2A of the SOP Act;
  - (iii) any amount received by the SSJ Contractor from the sale of material salvaged from the Construction Site in performing the SSJ Contractor's Activities;
  - (iv) any amount that the Principal is entitled to withhold under clause 16.4;
  - (v) any amount that the Principal is entitled to withhold under clause 16.12(c);
  - ~~(vi) any amount that the Principal is entitled to withhold under clause 16.13(a);~~
  - (vi) ~~(vii)~~ any bona fide claim to money which the Principal may have against the SSJ Contractor whether for damages (including liquidated damages) or otherwise; or
  - (vii) ~~(viii)~~ any other amount the Principal is entitled to withhold, set-off or deduct under this Contract;

under or arising out of or in connection with this Contract or the SSJ Contractor's Activities and the Principal may make such withholding, set-off or deduction whether or not such amounts were included in a payment schedule issued by the Principal's Representative.

(b) This clause 16.8 will survive the termination of this Contract.

**16.9 Interest**

- (a) The Principal will pay simple interest at the rate of [REDACTED] above the [REDACTED] on any:
- (i) amount which has been set out as payable by the Principal's Representative in a payment schedule under clause 16.2(d), but which is not paid by the Principal within the time required by this Contract;
  - (ii) damages; and
  - (iii) amount which is found after the resolution of a Dispute to be payable to the SSJ Contractor, and which has not been paid by the Principal,
- from the date such amount was first due and payable until the date such amount is paid.
- (b) This will be the SSJ Contractor's sole entitlement to interest including damages for loss of use of, or the cost of borrowing, money.

**16.10 Title**

Title in all items forming part of the Project Works will pass progressively to the Principal on the earlier of payment for, or delivery of, such items to the Construction Site. Risk in all such items remains with the SSJ Contractor in accordance with clause 18.

**16.11 Incentive Payments**

The SSJ Contractor will be entitled to claim the following payments:

- (a) in respect of the Cost Incentive, if the Outturn Cost is less than the Target Cost, an amount which is equal to the Share of Savings, as part of the Payment Claim made under clause 16.2(a)(ii)(A);
- (b) in respect of the KPI Incentive, in accordance with Schedule F6; and
- (c) in respect of the Early Completion Payment, in accordance with Schedule A2.

**16.12 Outturn Cost exceeds Target Cost**

- (a) If the Outturn Cost is greater than the Target Cost, the Share of Cost Overrun will be a debt due and payable by the SSJ Contractor to the Principal.
- (b) The Share of Cost Overrun is limited to an amount equal to [REDACTED].
- (c) If the Principal reasonably determines during the carrying out of the SSJ Contractor's Activities that the Outturn Cost will exceed the Target Cost, the Principal may withhold payment of all or part of the Management Fee otherwise due to the SSJ Contractor to meet the Principal's determination of the SSJ Contractor's liability under clause 16.12(a).

[REDACTED]

[REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

**16.14 No claim by SSJ Contractor**

The Principal will not be liable upon any Claim by the SSJ Contractor arising out of or in connection with any act, omission or breach of contract by the Principal or the Principal's Representative, to the extent that this may have contributed to preventing the SSJ Contractor from maximising the amount it otherwise would have been entitled to under clause 16.11 other than as set out in clause 15.6.

**16.15 GST**

- (a) Unless otherwise stated, all amounts set out in this Contract are GST exclusive.
- (b) Subject to paragraphs (e) and (f), where any supply occurs under or in connection with the Contract or the Project Works for which GST is not otherwise provided, the party making the supply (**Supplier**) will be entitled to increase the amount payable for the supply by the amount of any applicable GST.
- (c) Reimbursable Costs payable by the SSJ Contractor to Subcontractors will not be reduced for any input tax credits and will be paid in full to the SSJ Contractor. In consideration of this, the SSJ Contractor is not entitled to any additional amount in respect of GST on those Reimbursable Costs.
- (d) Where an amount is payable to the Supplier for a supply under or in connection with the Contract or the Project Works (other than on account of Reimbursable Costs payable by the SSJ Contractor to Subcontractors) which is based on the actual or reasonable costs incurred by the Supplier, the amount payable for the supply will be reduced by the amount of any input tax credits available to the Supplier (or a representative member on the Supplier's behalf) in respect of such costs before being increased for any applicable GST under paragraph (b).

- (e) As a condition precedent to any amount on account of GST being due from the recipient to the Supplier in respect of a taxable supply, the Supplier must provide a tax invoice to the recipient in respect of that supply.
- (f) If the amount paid to the Supplier in respect of the GST (whether because of an adjustment or otherwise):
  - (i) is more than the GST on the supply, then the Supplier will refund the excess to the recipient; or
  - (ii) is less than the GST on the supply, then the recipient will pay the deficiency to the Supplier.
- (g) The parties agree that unless and until otherwise agreed in writing, the following will apply to all taxable supplies made by the SSJ Contractor to the Principal under or in connection with this Contract:
  - (i) the Principal will issue to the SSJ Contractor a recipient created tax invoice ("**RCTI**") for each taxable supply made by the SSJ Contractor to the Principal under this Contract;
  - (ii) the Principal will issue to the SSJ Contractor a recipient created adjustment note for any adjustment event;
  - (iii) the SSJ Contractor will not issue a tax invoice or adjustment note in respect of any taxable supply it makes to the Principal; and
  - (iv) the Principal may notify the SSJ Contractor that it will no longer issue a RCTI or recipient created adjustment note for each taxable supply made by the SSJ Contractor under this Contract, in which case, from that point in time, the Principal will not be required to issue RCTIs and recipient created adjustment notes in respect of such supplies and the SSJ Contractor will be required to issue tax invoices and adjustment notes to the Principal in respect of any such taxable supply.
- (h) Each party acknowledges and warrants that at the time of entering into this Contract it is registered for GST and will notify the other party if it ceases to be registered for GST or ceases to comply with any of the requirements of any taxation ruling issued by a taxation authority relating to the creation of RCTIs.
  - (i) In this clause and clause 16.12 :
    - (i) "**GST**" means the tax payable on taxable supplies under the GST Legislation;
    - (ii) "**GST Legislation**" means *A New Tax System (Goods and Services Tax) Act 1999* (Cth) and any related Act imposing such tax or legislation that is enacted to validate, recapture or recoup such tax; and
    - (iii) terms defined in GST Legislation have the meaning given to them in GST Legislation.

## 17. CONSTRUCTION COMPLETION AND COMPLETION

### 17.1 Progressive Inspection and Testing

- (a) At any time prior to Construction Completion of a Portion, the Principal's Representative may direct that any materials or work forming part of the SSJ

Contractor's Activities in respect of that Portion be tested. The SSJ Contractor must provide such assistance, documentation, records, personnel (including Subcontractors) and samples and make accessible such parts of the SSJ Contractor's Activities or Project Works as may be required. On completion of any test the SSJ Contractor must make good the SSJ Contractor's Activities or Project Works so that they fully comply with this Contract.

- (b) The Principal's Representative may direct that any part of the SSJ Contractor's Activities or the Project Works must not be covered up or made inaccessible without the Principal's Representative's prior approval.
- (c) The tests prescribed in this Contract must be conducted by the SSJ Contractor as and when provided for in this Contract, or may be conducted by the Principal's Representative or a person (that may include the SSJ Contractor or the Independent Certifier) nominated by the Principal's Representative.
- (d) Any testing required to be done by an independent authority must be carried out by an authority recognised by Joint Accreditation System of Australia and New Zealand (JAS-ANZ) ABN 49 614 982 550 (or their successors or assigns).
- (e) Unless otherwise stated in this Contract before conducting a test under this Contract the Principal's Representative or the SSJ Contractor must give not less than 2 Business Days' notice in writing to the other of the time, date and place of the test. If the other party does not then attend, the test may nevertheless proceed.
- (f) Without prejudice to any other rights or remedies under this Contract, if the SSJ Contractor or the Principal's Representative delays in conducting a test, the other, after giving reasonable notice in writing of intention to do so, may conduct the test.
- (g) Each party must promptly make the results of tests available to the other and to the Principal's Representative ~~or the Independent Certifier~~.
- (h) Where the Principal's Representative directs that materials or work be tested, the costs of and incidental to testing will be Reimbursable Costs unless:
  - (i) this Contract provides that the SSJ Contractor must bear the costs or the test is one which the SSJ Contractor was required to conduct other than pursuant to a direction under clause 17.1;
  - (ii) the test shows that the material or work is not in accordance with this Contract;
  - (iii) the test is in respect of a part of the SSJ Contractor's Activities or the Project Works covered up or made inaccessible without the Principal's Representative's prior approval where such was required; or
  - (iv) the test is consequent upon a failure of the SSJ Contractor to comply with a requirement of this Contract.
- (i) Where the extra costs are not to be borne by the Principal, they will be borne by the SSJ Contractor and will be a debt due from the SSJ Contractor to the Principal and paid by the SSJ Contractor to the Principal on demand.

## 17.2 Construction Completion

- (a) The SSJ Contractor must, in respect of each Portion, give the Principal's Representative:
- (i) 6 months;
  - (ii) 3 months;
  - (iii) 1 month; and
  - (iv) 1 week,
- written notice of the estimated Date of Construction Completion of the Portion.
- (b) Subject to clause 17.2(g), the Principal's Representative, the SSJ Contractor's Representative and the Independent Certifier must, within 5 Business Days after receipt of the notice referred to in clause 17.2(a)(ii) jointly inspect the SSJ Contractor's Activities at a mutually convenient time.
- (c) Within 2 Business Days after the joint inspection referred to in clause 17.2(b), the Independent Certifier must give the SSJ Contractor and the Principal a notice either:
- (i) containing a list of items which it believes must be completed before Construction Completion of the Portion is achieved; or
  - (ii) stating that it believes the SSJ Contractor is so far from achieving Construction Completion of the Portion that it is not practicable to issue a list as contemplated in clause 17.2(c)(i).
- (d) When the SSJ Contractor considers it has achieved Construction Completion of the Portion, the SSJ Contractor must notify the Principal's Representative and the Independent Certifier in writing and provide them with an executed certificate in the form of Schedule B4. Thereafter, and subject to clause 17.2(g), the Principal's Representative, the SSJ Contractor's Representative ~~and~~ the Independent Certifier and, in respect of the Sydney Trains Works only the representative of any relevant Authority, must jointly inspect the SSJ Contractor's Activities at a mutually convenient time.
- (e) Following the joint inspection under clause 17.2(d), the Independent Certifier must within 5 Business Days after receipt of a notice under clause 17.2(d), or of receipt of a notice under clause 17.2(f):
- (i) if Construction Completion of the Portion has been achieved:
    - (A) provide to the Principal's Representative and the SSJ Contractor a document signed by the Independent Certifier in the form in Schedule B10; and
    - (B) additionally:
      - (aa) if the relevant Portion includes WAD Project Works, provide to the Principal's Representative and RMS a certificate in the form of Schedule 8 to the WAD with respect to the WAD Project Works; or

- (bb) if the relevant Portion includes Sydney Trains Project Works, provide to the Principal's Representative, Sydney Trains and RailCorp a ~~certificate in the form of Schedule 6 to~~notice in accordance with clause 31 of the Sydney Trains Transition Agreement with respect to the Sydney Trains Project Works;
- (ii) if Construction Completion of the Portion has not been achieved, issue a notice to the SSJ Contractor and the Principal in which it states:
  - (A) the items which remain to be completed before Construction Completion of the Portion; or
  - (B) that the SSJ Contractor is so far from achieving Construction Completion of the Portion that it is not practicable to notify the SSJ Contractor of the items which remain to be completed as contemplated by clause 17.2(e)(ii)(A).
- (f) If the Independent Certifier issues a notice under clause 17.2(e)(ii) the SSJ Contractor must proceed with the SSJ Contractor's Activities and thereafter when it considers it has achieved Construction Completion of the Portion it must give the Principal's Representative and the Independent Certifier written notice to that effect after which clauses 17.2(d) and 17.2(e) will reapply.
- (g) The SSJ Contractor acknowledges and agrees that:
  - (i) the Principal's Representative may invite any other person to attend any joint inspection provided for by this clause 17.2, including representatives of the Operator; and
  - (ii) the Principal's Representative or the Operator may provide comments to the Independent Certifier (with a copy to the SSJ Contractor) in relation to any non-compliance of the SSJ Contractor's Activities with this Contract.
- (h) Without affecting the SSJ Contractor's obligation to achieve Construction Completion of each Portion by the relevant Date for Construction Completion of each Portion the parties acknowledge that:
  - (i) no separate Date for Construction Completion of the Project Works is specified in this Contract;
  - (ii) Construction Completion of the Project Works is achieved by achieving Construction Completion of all Portions;
  - (iii) Construction Completion of the Project Works will be taken to have occurred once Construction Completion of all Portions has occurred; and
  - (iv) the Date of Construction Completion of the Project Works will be taken to be the Date of Construction Completion of the last Portion to reach Construction Completion.

### 17.3 Unilateral Issue of Notice of Construction Completion

If at any time a notice required to be given by the SSJ Contractor to the Independent Certifier under either of clauses 17.2(c) or 17.2(e) is not given by the SSJ Contractor yet the Principal's Representative is of the opinion that Construction Completion of a Portion has been achieved, the Principal's Representative may direct the Independent Certifier to issue a Notice of Construction Completion under clause 17.2(e)(i)(A) for the Portion.



## 17.4 Completion

- (a) When the SSJ Contractor considers that it has achieved Completion of a Portion, the SSJ Contractor must notify the Principal's Representative and the Independent Certifier in writing and provide them with an executed certificate in the form of Schedule B3. Thereafter, and subject to clause 17.4(d), the Principal's Representative, the SSJ Contractor's Representative and the Independent Certifier must jointly inspect the SSJ Contractor's Activities at a mutually convenient time.
- (b) Following the joint inspection under clause 17.4(a), the Independent Certifier must, within 5 Business Days after receipt of a notice under clause 17.4(a) or a notice under clause 17.4(c):
  - (i) if Completion of the Portion has been achieved, provide to the Principal's Representative and the SSJ Contractor with a document signed by the Independent Certifier in the form in Schedule B11; or
  - (ii) if Completion of the Portion has not been achieved, issue a notice to the SSJ Contractor and the Principal in which it states:
    - (A) the items which remain to be completed before Completion of the Portion; or
    - (B) that the SSJ Contractor is so far from achieving Completion of the Portion that it is not practicable to notify the SSJ Contractor of the items which remain to be completed as contemplated by clause 17.4(b)(ii)(A).
- (c) If the Independent Certifier issues a notice under clause 17.4(b)(ii), the SSJ Contractor must proceed with the SSJ Contractor's Activities and thereafter, when it considers that it has achieved Completion of the Portion, it must give the Principal's Representative and the Independent Certifier written notice to that effect after which clauses 17.4(a) and 17.4(b) will reapply.
- (d) The SSJ Contractor acknowledges and agrees that:
  - (i) the Principal's Representative may invite any other person to attend any joint inspection provided for by this clause 17.3, including representatives of the Operator; and
  - (ii) the Principal's Representative or the Operator may provide comments to the Independent Certifier (with a copy to the SSJ Contractor) in relation to any non-compliance of the SSJ Contractor's Activities with this Contract.
- (e) Without affecting the SSJ Contractor's obligation to achieve Completion of each Portion by the relevant Date for Completion ~~of each Portion~~, the parties acknowledge that:
  - (i) no separate Date for Completion of the Project Works is specified in this Contract;
  - (ii) Completion of the Project Works is achieved by achieving Completion of all Portions;
  - (iii) Completion of the Project Works will be taken to have occurred once Completion of all Portions has occurred; and

(iv) the Date of Completion of the Project Works will be taken to be the Date of Completion of the last Portion to ~~reach~~achieve Completion.

(f) The requirements of this clause 17.4 do not apply to Portion 1.

#### 17.5 **Part of the Project Works or a Portion**

(a) If part of a Portion has reached a stage equivalent to Construction Completion but another part of the Portion has not reached Construction Completion and the parties cannot agree upon the creation of new Portions, the Principal's Representative may determine that the respective parts will be Portions.

(b) Without limiting clause 17.5(a), the Principal may, after the SSJ Contractor is given written notice by the Principal's Representative, occupy or use any part of a Portion although the whole of the Portion has not reached Construction Completion.

(c) If the Principal's Representative gives a notice under clause 17.5(b):

(i) the Principal must allow the SSJ Contractor reasonable access to the part of the Portion referred to in the notice and being occupied or used by the Principal, to enable the SSJ Contractor to bring the relevant Portion of which the area being occupied or used forms part to Construction Completion; and

(ii) this will not otherwise limit or affect the obligations of the parties under this Contract, including the obligation of the SSJ Contractor to achieve Construction Completion of the relevant Portion of which the area being occupied or used forms part, by the relevant Date for Construction Completion.

(d) Without limiting clause 17.5, further Portions may be created by the Principal's Representative by issuing a written direction to the SSJ Contractor which clearly identifies for each Portion,:

(i) the Project Works and Temporary Works;

(ii) the Date for Construction Completion; and

(iii) respective amounts of liquidated damages,

all as determined by the Principal's Representative (acting reasonably).

#### 17.6 **Liquidated Damages and indemnity for delay in reaching Construction Completion**

(a) The Principal and the SSJ Contractor agree and acknowledge that the Principal is pursuing a policy of building the Project and the Project Works for purposes that include achieving the objectives set out in clause 2.

(b) The SSJ Contractor and the Principal acknowledge and agree that the SSJ Contractor's Activities represent a most important element of the building of the Project, as a major new public transport link which, together with Sydney Metro Northwest (and their integration), will service the needs of Sydney, including the needs of its workforce and its economy, and will provide frequent rapid transit services to handle projected population increases, create employment both during and after the SSJ Contractor's Activities, improve the efficiency of the Sydney public transport network and improve the local environment.

- (c) The SSJ Contractor acknowledges and agrees that its failure to achieve Construction Completion of the Portions by the required Dates for Construction Completion will not only result in direct Losses to the Principal, but will also lead to the failure of the Principal to achieve its policy objectives to the immediate detriment of the Principal and of those on whose behalf the policy objectives are pursued. The Loss arising from this failure of the Principal to achieve its policy objectives is not capable of easy or precise calculation.
- (d) The SSJ Contractor agrees that if it does not achieve Construction Completion of a Portion by the Date for Construction Completion of the Portion, it must:
- (i) pay the Principal the applicable amount for that Portion set out in Schedule A2 (each of which is exclusive of GST) for every day after the Date for Construction Completion of the Portion up to and including:
    - (A) the Date of Construction Completion of the applicable Portion; or
    - (B) the date that this Contract is validly terminated,whichever first occurs; and
  - (ii) to the extent that Construction Completion of the final Portion has not occurred by the Date for Construction Completion of that Portion, indemnify the Principal from and against any Liability suffered or incurred by the Principal arising out of or in connection with the failure to achieve Construction Completion of the Portion by the Date for Construction Completion for that Portion to the extent that such Liability falls within a head of Loss specified in Schedule A1, up to an aggregate of [REDACTED] for every day after the Date for Construction Completion for the Portion, up to and including:
    - (A) the Date of Construction Completion of the final Portion; or
    - (B) the date that this Contract is validly terminated,whichever first occurs.
- (e) The parties agree that the liquidated damages provided for in clause 17.6(d)(i):
- (i) represent proper, fair and reasonable amounts recoverable by the Principal arising from the failure of the SSJ Contractor to achieve Construction Completion of the Portion by the Date for Construction Completion of the Portion and do not constitute, and are not intended to be, a penalty and have been freely agreed to by the SSJ Contractor; and
  - (ii) will be recoverable by the Principal from the SSJ Contractor as a debt due and payable.
- (f) The Principal and the SSJ Contractor acknowledge and agree that they are both parties contracting at arms' length, have equal bargaining power, possess extensive commercial experience and expertise and are being advised by their own legal, accounting, technical, financial, economic and other commercial professionals in relation to their rights and obligations pursuant to this Contract.
- (g) The SSJ Contractor agrees to pay the liquidated damages, and indemnify the Principal, under clause 17.6(d) without any duress, coercion, undue influence or

any other form of unconscionable conduct or impermissible or objectionable persuasion on the part of the Principal.

- (h) The SSJ Contractor entered into the obligation to pay the amounts specified in clause 17.6(d) with the intention that it is a legally binding, valid and enforceable contractual provision against the SSJ Contractor in accordance with its terms.
- (i) The SSJ Contractor agrees:
  - (i) to exclude and expressly waives the right of the benefit of, to the extent permissible, the application or operation of any legal rule or norm, including under statute, equity and common law, relating to the characterisation of liquidated amounts payable under a deed upon a breach occurring as penalties or the enforceability or recoverability of such liquidated amounts; and
  - (ii) that if this clause 17.6 (or any part of this clause 17.6) is found for any reason to be void, invalid or otherwise inoperative so as to disentitle the Principal from recovering liquidated damages, the Principal will be entitled to recover general damages (including loss of revenue and loss of profits from the loss of use of the Works) as a result of the SSJ Contractor failing to achieve Construction Completion of a relevant Portion by its Date for Construction Completion, but the SSJ Contractor's liability for such damages (whether per day or in aggregate) will not be any greater than the liability which it would have had if the clause had not been void, invalid or otherwise inoperative.
- (j) The Principal's Representative, when issuing a payment schedule pursuant to clauses 16.2(d) and 16.2(e) after the Date for Construction Completion of a relevant Portion, may include a provisional assessment of the amount then provisionally due by way of liquidated damages then accruing under clause 17.6(d)(i) or under the indemnity in clause 17.6(d)(ii) to the date of the payment schedule (despite Construction Completion of that Portion not having occurred).
- (k) The Principal and the SSJ Contractor agree that the aggregate of the amount payable under:
  - (i) clauses 17.6(d)(i), 17.6(d)(ii) and 17.6(i)(ii) is limited as set out in clause 21.1(b); and
  - (ii) clause 17.6(d)(ii) is limited as set out in clause 21.1(c); and
  - (iii) a limitation on the SSJ Contractor's liability to the Principal for a failure to achieve Construction Completion of any Portion by the relevant Date for Construction Completion,

and the Principal will not be entitled to make, nor will the SSJ Contractor be liable upon, any Claim in these circumstances other than for the amount for which the SSJ Contractor is liable under this clause 17.6 (including where applicable common law damages under clause 17.6(i)(ii)). Nothing in this clause 17.6(k) in any way limits the SSJ Contractor's liability where this Contract is terminated by the Principal under clause 19.3 or otherwise at Law.

#### 17.7 **Effect of Notice of Construction Completion or Notice of Completion**

- (a) A Notice of Construction Completion or Notice of Completion (as applicable) will not:

- (i) constitute approval by the Principal, the Independent Certifier or the Principal's Representative of the SSJ Contractor's performance of its obligations under this Contract;
  - (ii) be taken as an admission or evidence that the Portion complies with the requirements of this Contract; or
  - (iii) prejudice any rights or powers of the Principal, the Independent Certifier or the Principal's Representative.
- (b) Without limiting clause 17.7(a), the parties agree that, in the absence of manifest error on the face of the certification, the Independent Certifier's certification as set out in a Notice of Construction Completion or Notice of Completion is final and binding on the parties for the purposes only of establishing that Construction Completion or Completion of the relevant Portion has occurred.

**17.8 Access following Construction Completion of a Portion**

- (a) Where Construction Completion has been achieved in respect of a Portion but the SSJ Contractor still requires access to such Portion in order to continue the SSJ Contractor's Activities, the Principal must procure that the SSJ Contractor is provided with reasonable access to such Portion to enable the SSJ Contractor to continue the SSJ Contractor's Activities.
- (b) The occupation and use of such Portion by the Principal (and its nominees) will not limit or affect the responsibilities, obligations or liabilities of the SSJ Contractor including the obligation of the SSJ Contractor to achieve Construction Completion of any remaining Portion by the relevant Date for Construction Completion.

**18. CARE OF THE PROJECT WORKS, RISKS AND INSURANCE**

**18.1 Responsibility for care of the Project Works**

- (a) Subject to clause 18.1(d), the SSJ Contractor is, in respect of each Portion, responsible for the care of, and bears the risk of destruction, loss or damage to:
  - (i) the SSJ Contractor's Activities, the Project Works and the Temporary Works and any Extra Land, from the date of this Contract; and
  - (ii) the relevant parts of the Construction Site, from the date on which access is granted under clause 8.1(a),
 up to and including the Date of Construction Completion for the relevant Portion.
- (b) After the time after which the SSJ Contractor ceases to be responsible under clause 18.1(a) for the care of a part of the Project Works or any other thing referred to in clause 18.1(a), subject to clause 18.1(d), the SSJ Contractor will bear the risk of any destruction, loss of or damage to that part of the Project Works or other thing, arising from:
  - (i) any act or omission of the SSJ Contractor during the Defects Correction Period (including any extension under clause 13.7, 13.8(a)(ii) and 13.9) or any other SSJ Contractor's Activities; or
  - (ii) any event which occurred while the SSJ Contractor was responsible for the care of the relevant part of the Project Works or other thing under clause 18.1(a) in connection with the SSJ Contractor's Activities.

- (c) Subject to clause 18.1(d), the SSJ Contractor must:
  - (i) in accordance with clause 18.16, (at its own cost) promptly make good destruction, loss or damage to anything caused during the period the SSJ Contractor is responsible for its care; and
  - (ii) indemnify the Principal against such destruction, loss or damage.
- (d) This clause 18.1 does not apply to the extent that any destruction, loss or damage for which the SSJ Contractor would otherwise have been responsible or bears the risk of or is obliged to indemnify the Principal against under this clause results from an Excepted Risk.
- (e) Where any destruction, loss or damage arises to any extent from an Excepted Risk, the SSJ Contractor must where directed by the Principal's Representative to do so, make good or repair the destruction, loss or damage in which event such making good or repair will, to the extent the destruction, loss or damage arises from an Excepted Risk, be treated as if it were a Change the subject of a direction by the Principal's Representative and clause 11 applies.

**18.2 Indemnity by the SSJ Contractor**

- (a) The SSJ Contractor must indemnify the Principal from and against:
  - (i) the loss of, loss of use of or access to (whether total or partial), or any destruction or damage to, any of the Principal's real or personal property (other than property referred to in clause 18.1 while the SSJ Contractor is responsible for its care);
  - (ii) any claim against the Principal or Liability the Principal may have to third parties in respect of or arising out of or in connection with:
    - (A) any illness, personal injury to, or death of, any person; or
    - (B) the loss of, loss of use of or access to (whether total or partial) or destruction or damage to any real or personal property, caused by, arising out of, or in any way in connection with, the SSJ Contractor's Activities, the Project Works or the Temporary Works or any failure by the SSJ Contractor to comply with its obligations under this Contract; or
  - (iii) any:
    - (A) Liability to or claim by any other person; or
    - (B) Loss suffered or incurred by the Principal, arising out of, or in any way in connection with, the SSJ Contractor's breach of a term of this Contract.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

■ [REDACTED]  
[REDACTED]

- (c) Where the SSJ Contractor indemnifies the Principal under this Contract from and against any Liability, claim or Loss, the SSJ Contractor's liability to indemnify the Principal will be reduced to the extent that an act or omission of the Principal or its Associates contributed to the Liability, claim or Loss.
- (d) Clause 18.2(a) does not limit or otherwise affect the SSJ Contractor's other obligations under this Contract or otherwise according to Law.
- (e) The SSJ Contractor is not relieved of any obligation to indemnify the Principal under this clause 18.2 by reason of effecting insurance or being an insured party under an insurance policy effected by the Principal pursuant to clause 18.3.

**18.3 Principal's insurance**

- (a) The Principal must effect and maintain insurances on the terms of the policies set out in Schedule F5.
- (b) Such insurance is subject to the exclusions, conditions, deductibles and excesses noted on the policies and the SSJ Contractor must:
  - (i) satisfy itself of the nature and extent of the cover provided by these insurance policies;
  - (ii) acknowledge that the Principal's insurances do not cover every risk to which the SSJ Contractor might be exposed and are subject to deductibles and limits and the SSJ Contractor may, if it chooses to do so, at its cost effect insurance for any risk or liability which is not covered by the Principal's insurances; and
  - (iii) where the SSJ Contractor:
    - (A) bears the risk of the relevant destruction, loss or damage under clause 18.1, or is required to indemnify the Principal under clause 18.2, and makes a claim under any of these insurance policies in

respect of the destruction, loss or damage or the event giving rise to the indemnity; or

- (B) otherwise makes a claim under or in respect of any of these insurance policies,

bear the cost of any excesses or deductibles in the insurance policies in Schedule F5 or any insurance taken out by the SSJ Contractor under clause 18.4, that may apply in those circumstances.

#### 18.4 **SSJ Contractor's insurance obligations**

The SSJ Contractor must effect and maintain the following insurance:

- (a) workers compensation insurance referred to in clause 18.5;
- (b) asbestos liability insurance referred to in clause 18.6;
- (c) professional indemnity insurance referred to in clause 18.7;
- (d) Construction Plant insurance referred to in clause 18.8; and
- (e) motor vehicle insurance referred to in clause 18.9.

#### 18.5 **Workers compensation insurance**

- (a) The SSJ Contractor must effect and maintain workers compensation insurance which covers employees in accordance with any statute relating to workers or accident compensation:
  - (i) for the maximum amount required by Law; and
  - (ii) in the name of the SSJ Contractor and (if legally possible) extended to indemnify the Principal for its statutory liability to persons employed by the SSJ Contractor.
- (b) The SSJ Contractor must ensure that each of its Subcontractors effects and maintains workers compensation insurance which covers employees in accordance with any statute relating to workers or accident compensation:
  - (i) for the maximum amount required by Law; and
  - (ii) in the name of the Subcontractor and (if legally possible) extended to indemnify the Principal and the SSJ Contractor for their statutory liability to persons employed by the Subcontractor.

#### 18.6 **Asbestos liability insurance**

If the SSJ Contractor's Activities include any work involving asbestos or asbestos decontamination, including stripping, encapsulation or removal, the SSJ Contractor must effect and maintain (or cause to be effected and maintained) asbestos liability insurance which:

- (a) covers liability on an occurrence basis (and not a claims made basis) in respect of or in connection with the presence of asbestos and any work involving asbestos or asbestos decontamination that is caused by or arises out of or in connection with





■ [REDACTED]

■ [REDACTED]

[REDACTED]

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**18.16 Reinstatement**

If, prior to the time the SSJ Contractor ceases to be responsible under clause 18.1(a) for the care of a part of the Project Works or the Temporary Works or any other thing referred to in clause 18.1(a), any destruction, damage or loss occurs to the Project Works or the Temporary Works, the SSJ Contractor must:

- (a) make secure the Project Works and the Temporary Works and the parts of the Construction Site which are still under the control of the SSJ Contractor in accordance with clause 8.4;
- (b) notify:
  - (i) appropriate Authorities, emergency services and the like; and
  - (ii) the insurers for assessment,and comply with their instructions; and
- (c) promptly consult with the Principal to agree on steps to be taken to ensure:
  - (i) the prompt repair or replacement of the destruction, loss or damage so that:
    - (A) it complies with the SWTC; and
    - (B) there is minimal disruption to the Project Works or the Temporary Works; and
  - (ii) that, to the greatest extent possible, the SSJ Contractor continues to comply with its obligations under this Contract;
- (d) subject to clause 18.1(e), manage all repair and replacement activities so as to minimise the impact on the Project Works or the Temporary Works; and

- (e) keep the Principal's Representative fully informed of the progress of the repair and replacement activities.

#### 18.17 **Application of insurance proceeds**

Where, prior to the Date of Construction Completion of the last Portion to achieve Construction Completion, the Project Works or the Temporary Works are damaged or destroyed, all insurance proceeds in respect of that damage or destruction that are payable under any insurances maintained by the Principal in accordance with clause 18.3 will be:

- (a) paid to the Principal;
- (b) paid by the Principal to the SSJ Contractor by progress payments under clause 16.2 as and when the SSJ Contractor reinstates the Project Works and the Temporary Works; and
- (c) subject to clause 18.1(e), the limit of the SSJ Contractor's entitlement to payment for reinstatement of the destruction, loss or damage.

#### 18.18 **Damage to property**

- (a) Subject to clause 18.18(c), where any loss of or destruction or damage to real or personal property or the Environment (including any Utility Services but excluding the Project Works or the Temporary Works) occurs arising out of, or in any way in connection with, the carrying out by the SSJ Contractor of the SSJ Contractor's Activities or a failure by the SSJ Contractor to comply with its obligations under this Contract, the SSJ Contractor must, at its cost, promptly repair and make good any such loss, destruction or damage.
- (b) If the SSJ Contractor fails to carry out any repair work under clause 18.18(a), the Principal may carry out such work or engage others to carry out such work and any Loss suffered or incurred by the Principal will be a debt due and payable from the SSJ Contractor to the Principal.
- (c) This clause 18.18 does not apply where the owner of the real or personal property does not agree to the SSJ Contractor carrying out the work under clause 18.18(a).
- (d) Nothing in this clause 18.18 limits the operation of the indemnity in clause 18.2(a).

#### 18.19 **Risk of deductibles or excesses**

The SSJ Contractor must pay all insurance deductibles or excesses in respect of any event and claim made under a policy referred to in this clause 18 and any such amounts will not form part of the Reimbursable Costs.

### 19. **DEFAULT OR INSOLVENCY**

#### 19.1 **SSJ Contractor's Default**

- (a) If the SSJ Contractor commits a breach of this Contract referred to in clause 19.1(b), the Principal may give the SSJ Contractor a written notice.
- (b) The breaches by the SSJ Contractor to which this clause applies are:

- (i) not commencing or not progressing the SSJ Contractor's Activities regularly and diligently in accordance with the requirements of this Contract, in breach of clause 15.1;
- (ii) suspension of work in breach of clause 15.1;
- (iii) the SSJ Contractor fails to implement, comply with or otherwise diligently pursue a Recovery Plan in accordance with clause 15.6(c);
- (iv) failing to provide the unconditional undertakings and Parent Company Guarantees, in breach of clause 6;
- (v) failing to insure or provide evidence of insurance, in breach of clause 18;
- (vi) failing to use the materials or standards of workmanship required by this Contract, in breach of clause 9.1;
- ~~(vii) failing to submit a Target Cost Offer in accordance with clause 4.2(a)(ii);~~
- (vii) ~~(viii)~~ not complying with any direction of the Principal's Representative made in accordance with this Contract, in breach of clause 14.1(a);
- (viii) ~~(ix)~~ not complying with the requirements of this Contract regarding the Contract Management Plan in a material respect;
- (ix) ~~(x)~~ not complying with its obligations under the MR-PA with regard to the Contract Management Plan;
- (x) ~~(xi)~~ not complying with its environmental obligations under this Contract;
- (xi) ~~(xii)~~ not complying with its obligations under this Contract regarding work health and safety;
- (xii) ~~(xiii)~~ not complying with its obligations under clause 9.7;
- (xiii) ~~(xiv)~~ the failure to comply with all applicable Law, including the failure to comply with, carry out and fulfil the conditions and requirements of all Authority Approvals in breach of clause 7.2;
- (xiv) ~~(xv)~~ the failure to provide the deeds poll in accordance with clause 1.5;
- (xv) ~~(xvi)~~ breach of the subcontracting obligations set out in each of clauses 12.3, 12.7 or 12.8;
- (xvi) ~~(xvii)~~ failure to achieve Construction Completion of a Portion by the relevant Date for Construction Completion;
- (xvii) ~~(xviii)~~ lack or breach of Accreditation (where it is obliged to obtain Accreditation), AEO status or ASA Authorisation, or threatened or actual suspension or revocation of Accreditation;
- (xviii) ~~(xix)~~ fraud of the SSJ Contractor in relation to this Project or an adverse Independent Commission Against Corruption (**ICAC**) finding is made against the SSJ Contractor;
- (xix) ~~(xx)~~ the Parent Company Guarantee becoming void or voidable; or

(xx) ~~(xxi)~~ any other failure to comply with a material obligation under the Contract.

#### 19.2 Contents of Notice

A written notice under clause 19.1 must:

- (a) state that it is a notice under clause 19.1;
- (b) specify the alleged breach;
- (c) require the SSJ Contractor to remedy the breach or, in the case of a notice by the Principal where the breach is not capable of being remedied, make other arrangements satisfactory to the Principal; and
- (d) specify the time and date by which the SSJ Contractor must remedy the breach or make other arrangements satisfactory to the Principal (which time must not be less than 21 clear days after the notice is given).

#### 19.3 Rights of the Principal Following Notice

If, by the time specified in a notice under clause 19.1, the SSJ Contractor fails to remedy the breach or make arrangements satisfactory to the Principal, the Principal may, by notice in writing to the SSJ Contractor:

- (a) take out of the hands of the SSJ Contractor the whole or part of the work remaining to be completed; or
- (b) terminate this Contract.

#### 19.4 Immediate Termination or Take-Out

If:

- (a) an Insolvency Event occurs:
  - (i) to the SSJ Contractor;
  - (ii) where the SSJ Contractor comprises more than one person, any one of those persons; or
  - (iii) to a person specified in Schedule A1; or
- (b) the SSJ Contractor causes or contributes to the occurrence of an Incident and fails to ensure that the Principal is promptly notified as set out in clause 3.5(d);
- (c) the aggregate liability of the SSJ Contractor to the Principal under or in connection with the SSJ Contract Documents is equal to or exceeds ~~\_\_\_\_\_~~ or
  - ~~(i) during the Target Cost Development Phase, \_\_\_\_\_~~
  - ~~(ii) during the Delivery Phase, \_\_\_\_\_~~
- (d) the aggregate liability of the SSJ Contractor to the Principal under or in connection with:

- (i) any one or more of clauses 17.6(d)(i), 17.6(d)(ii) and 17.6(i)(ii) is equal to or exceeds [REDACTED]; or
- (ii) clause 17.6(d)(ii) is equal to or exceeds [REDACTED]; or
- (iii) clause 16.12(a) is equal to or exceeds [REDACTED];

then, whether or not the SSJ Contractor is then in breach of this Contract, the Principal may, without giving a notice under clause 19.1, exercise the right under clause 19.3(a) or 19.3(b).

**19.5 Principal's Common Rights After Take-Out or Termination**

(a) If:

- (i) the Principal:
  - (A) exercises its rights under clause 19.3(a); or
  - (B) terminates this Contract under clauses ~~4.3(b)(ii)(A), 4.3(d)(ii)(A),~~ 19.3(b), 19.4 or 19.9;
- (ii) the SSJ Contractor repudiates this Contract and the Principal otherwise terminates this Contract; or
- (iii) this Contract is frustrated under the Law,

then:

- (iv) the SSJ Contractor:
  - (A) must novate to the Principal or the Principal's nominee those Subcontracts between the SSJ Contractor and its Subcontractors that the Principal directs by executing a deed of novation substantially in the form of Schedule A13;
  - (B) irrevocably appoints (for valuable consideration) the Principal and any authorised representative of the Principal to be the SSJ Contractor's attorney to:
    - (aa) execute, sign, seal and deliver all notices, deeds and documents; and
    - (bb) undertake actions in the name of the SSJ Contractor, for the purposes referred to in clause 19.5(a)(iv)(A) where the SSJ Contractor has not complied with clause 19.5(a)(iv)(A) within 5 Business Days of a request by the Principal to do so; and
  - (C) must immediately handover to the Principal's Representative all copies of:
    - (aa) any documents provided by the Principal to the SSJ Contractor;
    - (bb) all Contract Documentation and Materials prepared by the SSJ Contractor to the date on which the Principal exercises its



rights under clauses 19.3(a) or 19.3(b) (whether complete or not); and

(cc) any other documents or information in existence that is to be provided to the Principal under the terms of this Contract; and

(v) the Principal:

(A) will be entitled to require the SSJ Contractor to remove from the Construction Site or any area affected by the Project Works, any Construction Plant and Temporary Works and all materials, equipment and other things intended for the Project Works;

(B) may complete that work;

(C) may take possession of such of the Construction Plant, Temporary Works and other things on or in the vicinity of the Construction Site or Extra Land as are owned by the SSJ Contractor and are reasonably required by the Principal to facilitate completion of the work; and

(D) must, if it takes possession of the items referred to in clause 19.5(a)(v)(C):

(aa) for the period during which it retains possession of the Construction Plant, Temporary Works or other things pay to the SSJ Contractor rent for the use of the Construction Plant, Temporary Works or other things at a market rate to be agreed by the parties or, failing agreement, to be determined pursuant to clause 20; and

(bb) maintain the Construction Plant, Temporary Works or other things and, subject to clause 19.6, on completion of the work return to the SSJ Contractor the Construction Plant, Temporary Works and any things taken under clause 19.5(a)(v)(C) which are surplus.

(b) This clause 19.5 will survive the termination or frustration of this Contract.

#### 19.6 **Principal's Entitlements after Take-Out**

(a) If the Principal exercises the right under clause 19.3(a), the SSJ Contractor will not be entitled to any further payment in respect of the work taken out of the hands of the SSJ Contractor unless a payment becomes due to the SSJ Contractor under this clause 19.6.

(b) When all of the work taken out of the hands of the SSJ Contractor under clause 19.3(a) is completed, the Principal's Representative will ascertain the cost incurred by the Principal in completing the work and will issue a certificate to the SSJ Contractor certifying the amount.

(c) If the cost incurred by the Principal is:

(i) greater than the amount that would have been paid to the SSJ Contractor if the SSJ Contractor had completed the work, the difference will be a debt due from the SSJ Contractor to the Principal; or

- (ii) less than the amount that would have been paid to the SSJ Contractor if the SSJ Contractor had completed the work, the difference will be a debt due to the SSJ Contractor from the Principal.
- (d) Without limiting clause 19.6(c), if the Principal exercises the right under clause 19.3(a), the Principal will be entitled to recover from the SSJ Contractor any costs, expenses, Losses or damages incurred or suffered by it as a result of, or arising out of, or in any way in connection with, the exercise of such right.
- (e) If the SSJ Contractor is indebted to the Principal, the SSJ Contractor grants to the Principal a lien over the Construction Plant, Temporary Works or other things taken under clause 19.5 such that the Principal may retain that property until the debt is met. If after reasonable notice, the SSJ Contractor fails to pay the debt, the Principal may sell the Construction Plant, Temporary Works or other things and apply the proceeds to satisfaction of the debt and the costs of sale. Any excess will be paid to the SSJ Contractor.

**19.7 Principal's Rights after Termination**

- (a) Subject to clause 19.11, if the Principal terminates this Contract under clauses 19.3 or 19.4, or if the SSJ Contractor repudiates this Contract and the Principal otherwise terminates this Contract the Principal will:
  - (i) not be obliged to make any further payments to the SSJ Contractor, including any money that is the subject of a Payment Claim under clause 16.1(b) or a Payment Schedule under clause 16.3;
  - (ii) be absolutely entitled to call upon, convert and have recourse to and retain without limiting clause 6 the proceeds of any unconditional undertaking held under clause 6; and
  - (iii) be entitled to recover from the SSJ Contractor any costs, expenses, Losses or damages incurred or suffered by it as a result of, or arising out of, or in any way in connection with, such termination.
- (b) This clause 19.7 survives the termination of this Contract.

**19.8 SSJ Contractor's Rights after Repudiation or Wrongful Termination**

- (a) If the Principal:
  - (i) repudiates this Contract and the SSJ Contractor terminates this Contract; or
  - (ii) wrongfully:
    - (A) exercises or attempts to exercise any right or power conferred on it by clauses 19.3, 19.4 or 19.9; or
    - (B) determines or purports to determine this Contract at common law,
- then the:
  - (iii) Principal's actions will be deemed to have been a lawful termination in accordance with clause 19.9 and the SSJ Contractor's sole rights in such circumstances will be those set out in clause 19.10; and
  - (iv) SSJ Contractor:

- (A) will not be entitled to the payment of damages;
- (B) will not be entitled to any payment on a quantum meruit basis; and
- (C) waives all other rights it has to make a Claim in such circumstances.

(b) This clause 19.8 will survive the termination of this Contract.

#### 19.9 Termination for Convenience

Without prejudice to any of the Principal's other rights or entitlements or powers under this Contract, the Principal may:

- (a) at any time for its sole convenience, and for any reason, by written notice to the SSJ Contractor terminate this Contract effective from the time stated in the notice or if no such time is stated, at the time the notice is given to the SSJ Contractor; and
- (b) thereafter, at the Principal's absolute discretion complete the uncompleted part of the SSJ Contractor's Activities or the Project Works either itself or by engaging other contractors.

#### 19.10 Payment for Termination for Convenience

- (a) If the Principal terminates this Contract under clause 19.9, the SSJ Contractor:
  - (i) will be entitled to payment of the following amounts as determined by the Principal's Representative (excluding all Excluded Costs):
    - (A) for work carried out prior to the date of termination, the amount which would have been payable if this Contract had not been terminated and the SSJ Contractor submitted a Payment Claim under clause ~~16.1(b)~~16.2 for work carried out to the date of termination;
    - (B) the cost of plant and materials reasonably ordered by the SSJ Contractor for the Project Works and for which it is legally bound to pay provided that:
      - (aa) the value of the plant or materials have not been previously paid or included in the amount payable under sub-paragraph (i)(A); and
      - (bb) title in the plant and materials vests in the Principal upon payment;
    - (C) the costs reasonably incurred by the SSJ Contractor in the expectation of completing the whole of the SSJ Contractor's Activities and the reasonable cost of removing from the Project Site and the Temporary Areas all labour, Construction Plant, Temporary Works (where required by the Principal) and other things used in the SSJ Contractor's Activities that are not part of, or to be part of, the Project Works; and
    - (D) the amount calculated by multiplying the percentage specified in Schedule A1 by the costs determined under sub-paragraphs (i)(B) and (i)(C), for all overheads and profit associated with, and to the

extent not included in, the work and costs determined under sub-paragraphs (i)(B), and (i)(C); and

- (ii) must take all steps possible to mitigate the costs referred to in sub-paragraphs (i)(B), (i)(C) and (i)(D).
- (b) To the extent it has not had recourse to them, the Principal will return all unconditional undertakings then held by it under clause 6 when the SSJ Contractor has complied with all its obligations under this clause.
- (c) The amount to which the SSJ Contractor is entitled under this clause 19.10 will be a limitation upon the Principal's liability to the SSJ Contractor arising out of, or in any way in connection with, the termination of this Contract and the Principal will not be liable to the SSJ Contractor upon any Claim arising out of, or in any way in connection with, the termination of this Contract other than for the amount payable under this clause 19.10.
- (d) This clause 19.10 will survive the termination of this Contract by the Principal under clause 19.9.

#### 19.11 Preservation of Rights

Subject to clauses 19.8, nothing in this clause 19 or that the Principal does or fails to do pursuant to this clause 19 will prejudice the right of the Principal to exercise any right or remedy (including recovering damages or exercising a right of set-off under clause 22.2) which it may have where the SSJ Contractor breaches (including repudiates) this Contract.

#### 19.12 Termination by Frustration

- (a) If under the law this Contract is frustrated the Principal will:
  - (i) pay the SSJ Contractor the following amounts as determined by the Principal's Representative:
    - (A) an amount calculated in accordance with clause 19.10(a)(i)(A) for work carried out prior to the date of frustration;
    - (B) the costs calculated in accordance with the terms of, and subject to the conditions in, clauses 19.10(a)(i)(B); and
    - (C) the costs calculated in accordance with the terms of clause 19.10(a)(i)(C); and
  - (ii) to the extent it has not had recourse to them, return all unconditional undertakings then held by it under clause 6 when the SSJ Contractor has complied with its obligations under this clause.
- (b) The amount to which the SSJ Contractor is entitled under this clause 19.12 will be a limitation upon the Principal's liability to the SSJ Contractor arising out of, or in any way in connection with, the frustration of this Contract and the Principal will not be liable to the SSJ Contractor upon any Claim arising out of, or in any way in connection with, the frustration of this Contract other than for the amount payable under this clause 19.12.
- (c) Without limiting any other provision of this Contract, this clause 19.12 will survive the frustration of this Contract.

### 19.13 Codification of SSJ Contractor's Entitlements

This clause 19 is an exhaustive code of the SSJ Contractor's rights arising out of or in any way in connection with any termination and the SSJ Contractor:

- (a) cannot otherwise terminate, rescind or treat this Contract as repudiated; and
- (b) waives all rights at Law to terminate, rescind or treat this Contract as repudiated, otherwise than in accordance with this clause 19.

## 20. DISPUTE RESOLUTION

### 20.1 Disputes generally

~~Subject to clause 20.15, any dispute, difference, controversy or Claim (**Dispute**) directly or indirectly based upon, arising out of, relating to or in connection with this Contract (including any questions relating to the existence, validity or termination of this Contract), the Project Works, the Temporary Works, the SSJ Contractor's Activities, or either party's conduct before the date of this Contract,~~

Any Dispute must be resolved in accordance with this clause 20.

### 20.2 ~~Notice of~~Independent Dispute Avoidance and Resolution Panel

- (a) The IDAR Panel will be constituted under the IDAR Panel Agreement.
- (b) Prior to the formation of the IDAR Panel, the Principal will notify the SSJ Contractor of the proposed members that will constitute the IDAR Panel (**Proposed Members**).
- (c) Within 5 Business Days of receiving the notice contemplated under clause 20.2(b), the SSJ Contractor may notify the Principal of any circumstance that might reasonably be considered to affect the Proposed Member's capacity to act independently, impartially and without bias (**Conflict of Interest Notice**).
- (d) If the SSJ Contractor is able to demonstrate that a circumstance exists that might reasonably be considered to affect the Proposed Member's capacity to act independently, impartially and without bias, the Principal will propose an alternative member to be appointed to the IDAR Panel and clauses 20.2(b) and 20.2(c) will reapply.
- (e) The SSJ Contractor must, within 5 Business Days of receipt of a request from the Principal, execute the IDAR Panel Agreement Accession Deed Poll provided that the Principal may not issue such request before the expiry of the 5 Business Day period contemplated under clause 20.2(c) where no Conflict of Interest Notice has been issued.
- (f) The provisions of clauses 20.2(b) to 20.2(e) will reapply where an appointed member of the IDAR Panel declines to act or is unable to act as a result of death, disability, resignation or termination of appointment and the Principal is seeking to replace the relevant member.
- (g) Each Party must:



- (i) following execution of the IDAR Panel Agreement Accession Deed Poll (if applicable), at all times comply with the terms of the IDAR Panel Agreement;
- (ii) attend meetings with the IDAR Panel as required pursuant to the IDAR Panel Agreement or this Contract; and
- (iii) provide all reasonable assistance to the IDAR Panel in fulfilling its function(s) in respect of the SSJ Contractor's Activities, including providing all information it reasonably requests.

20.3 **Consultation and executive negotiation**

- (a) Where a Dispute arises ~~either party may give the other party~~, the Dispute must be notified to the IDAR Panel by written notice of the issues in Dispute (**Notice of Dispute**Issue) from the dissatisfied party (**Party A**) to the IDAR Panel and the other party (**Party B**). The Notice of ~~Dispute~~Issue must provide brief particulars of the issues in Dispute.
  - ~~(a) specify the Dispute;~~
  - (b) provide particulars of the party's reasons for being dissatisfied; and Within 5 Business Days of the Notice of Issue, the parties must agree upon a member of the IDAR Panel (**Nominated Member**) to review the Dispute. If:
    - (i) the parties fail to reach such agreement within 2 Business Days; or
    - (ii) the Nominated Member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment.

the Chair must nominate a replacement Nominated Member within a further 2 Business Days.
  - (c) ~~set out the position which the party believes is correct.~~If a replacement Nominated Member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, the Chair must nominate a further replacement Nominated Member within a further 2 Business Days. The Chair cannot nominate itself as the Nominated Member.

20.3 **Executive Negotiation**

- (d) If a further replacement Nominated Member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, the process in clause 20.3(c) will be reapplied until there are no IDAR Panel members to accept the appointment, in which case the Chair must request the Resolution Institute to appoint a replacement member. This appointment will be final and conclusive.
- (e) Within 3 Business Days of the appointment of the Nominated Member, the Nominated Member must convene at least one meeting (**Consultation**) to facilitate genuine and good faith negotiations with a view to:
  - (i) resolving the Dispute; and
  - (ii) clarifying and narrowing the issues in Dispute, in the event that the Dispute is not resolved.
- (f) Each Consultation will be attended by:

- (i) the Nominated Member;
  - (ii) the SSJ Representative;
  - (iii) the CSM Contractor's Representative; and
  - (iv) other persons as agreed between the Principal's Representative and the SSJ Contractor's Representative.
- (g) The Nominated Member will advise the parties in writing once the Consultation process has concluded.
- (h) ~~(a) Where a Notice of Dispute is given under clause 20.2, the Dispute must be referred to the Executive Negotiators and the Executive Negotiators must, within 5 Business Days after the date on which the Notice of Dispute was given under clause 20.2~~ not resolved following the Consultation process, the Dispute will be referred to executive negotiators nominated by each of the parties (which persons must be more senior than the persons that attended the Consultation and who are not involved in the day to day running of this Contract and who have authority to resolve the Dispute). The executive negotiators must, within 10 Business Days following the conclusion of the Consultation process, meet and negotiate with a view to resolving the Dispute.

#### 20.4 Recommendation

- (a) Within 5 Business Days of the conclusion of Consultation, the Nominated Member must notify the parties in writing of its non-binding recommendation as to:
- (i) the formulation of the issues in Dispute;
  - (ii) the most appropriate Expert(s) to be appointed to determine the Dispute pursuant to clause 20.5; and
  - (iii) whether the Dispute is not suitable for expert determination and should be determined in accordance with clause 20.9.

#### (Recommendation).

- (b) Subject to clause ~~20.3~~20.4(d), if the ~~Executive Negotiators have~~Dispute is not resolved ~~the Dispute~~ within the later of:
- (i) 20 Business Days of the Recommendation; and
  - (ii) ~~20 Business Days after the date on which the Notice of Dispute was given under clause 20.2 (or such longer period of time as the Executive Negotiators or the parties may have agreed in writing) then, whether or not the Executive Negotiators have met and undertaken negotiations with a view to resolving the Dispute, either party may by giving notice to the other party in accordance with clause 20.3(c) require that those parts of the Dispute that remain unresolved be referred to expert determination.~~ Recommendation should have been issued.

Party A must refer those parts of the Dispute that remain unresolved to expert determination by notice to Party B (with a copy to the IDAR Panel) (Notice of Dispute).

- (c) ~~A notice under clause 20.3(b) must:~~The Notice of Dispute must:



- (i) ~~be given within 20 Business Days after the expiry of the 20 Business Day period referred to in clause 20.3(b);~~ in writing;
- (ii) state that it is a ~~notice~~ Notice of Dispute under ~~this clause 20.3(b)~~ 20.4(c); ~~and~~
- (iii) include or be accompanied by reasonable particulars of those parts of the Dispute ~~that remain unresolved;~~ including:
  - (A) references to any:
    - (aa) provisions of this Contract;
    - (bb) acts or omissions of any person,  
relevant to the Dispute;
  - (B) the relief sought and the basis for claiming the relief sought; and
  - (C) include copies of, or relevant extracts from, any documents in support of the claim.
- (d) ~~Where a Notice of Dispute is given under clause 20.2 after the Date of Completion, this clause 20.3 will still apply, but if the Dispute is not resolved within 20 Business Days after the date on which the Notice of Dispute was given under clause 20.2;~~ If the Nominated Member makes a Recommendation:
  - (i) ~~the Dispute will not be referred to expert determination;~~ under clause 20.4(a)(ii), the parties may accept the recommendation or clause 20.5(a) will apply; or
  - (ii) ~~clauses 20.4 to 20.8 will not apply; and~~
  - (iii) ~~whether or not the Executive Negotiators have met and undertaken negotiations with a view to resolving the dispute;~~ under clause 20.4(a)(iii) that the Dispute is not suitable for expert determination, the parties may agree to have the Dispute ~~will be~~ determined in accordance with clause 20.9, however if the parties have not so agreed within 5 Business Days of the Recommendation, clause 20.5 will apply.

## 20.5 ~~20.4~~ Expert determination

- (a) Any Dispute which is referred to expert determination by a ~~notice under clause 20.3(b)~~ Notice of Dispute will be conducted in accordance with the Resolution Institute's Expert Determination Rules, as modified by Schedule A24 to this Contract.
- (b) Both parties must promptly make available to the Expert all such additional information, access to the Construction Site and appropriate facilities, as the Expert may require for the purposes of making a determination on the Dispute.
- (c) The parties agree that, to the extent permitted by law:
  - (i) the powers conferred and restrictions imposed on a court by Part 4 of the *Civil Liability Act 2002* NSW are not conferred on the Expert; and



- (ii) the Expert has no power to make a binding or non-binding determination or any award in respect of a Dispute by applying or considering the provisions of Part 4 of the *Civil Liability Act 2002 NSW* (and any equivalent statutory provisions in any other state or territory) which might, in the absence of this provision, have applied to any Dispute referred to expert determination.
- (d) Within ~~30~~50 Business Days after the Expert has been appointed, or within such other period as may be proposed by the Expert and approved by both parties, the Expert must give its determination in writing, which must be reasoned and must state that it is given under this clause ~~20.4~~20.5. The determination will be immediately binding on both parties, who must give effect to it unless and until it is revised, overturned or otherwise changed in an amicable settlement or a court judgment or an arbitral award made in court proceedings or an arbitration pursuant to this clause 20.

20.6 ~~20.5~~ **Notice of dissatisfaction**

- (a) If:
  - (i) either party is dissatisfied with a determination made by an Expert under clause ~~20.4~~20.5, then either party may, within 10 Business Days after receiving the determination, give notice to the other party of its dissatisfaction; or
  - (ii) an Expert fails to give its determination within a period of ~~30~~50 Business Days after the Expert has been appointed by the parties (or within such other period as may be proposed by the Expert and approved by both parties); then either party may, within 10 Business Days after this period has expired, give a notice of dissatisfaction to the other party,

**(Notice of Dissatisfaction).**

- (b) A Notice of Dissatisfaction issued under this clause ~~20.5~~20.6 must:
  - (i) state that it is given under this clause ~~20.5~~20.6; and
  - (ii) set out the matter in Dispute and the reason(s) for dissatisfaction.
- (c) Except as stated in clause ~~20.3(d)~~20.4, neither party will be entitled to commence court proceedings or arbitration in respect of the Dispute unless a Notice of Dissatisfaction has been given in accordance with this clause ~~20.5~~20.6.

20.7 ~~20.6~~ **Final and binding decision**

- (a) If an Expert has made a determination as to a Dispute, and no Notice of Dissatisfaction has been given by either party under clause ~~20.5~~20.6, within 10 Business Days after it received the Expert's determination, then the determination will become final and binding upon both parties.
- (b) Once a determination of an Expert has become final and binding under clause ~~20.6~~20.7(a), neither party will be entitled to challenge the determination on any basis.

~~20.7~~ **Failure to comply with Expert's decision**

~~If a party fails to comply with any final and binding decision of the Expert, then the other party may, without prejudice to any other rights it may have, give a notice to the other~~

~~party requiring the failure itself to be determined as a Dispute in accordance with clause 20.8. In these circumstances clauses 20.2 to 20.4 will not apply to this Dispute.~~

#### 20.8 Amicable settlement

Where a Notice of Dissatisfaction has been given under clause ~~20.5, or where a notice has been given under clause 20.7~~20.6, both parties must attempt to settle the Dispute amicably before the commencement of any further proceedings. However, unless both parties agree otherwise, if no amicable settlement has been reached within 15 Business Days after the day on which the Notice of Dissatisfaction ~~or the notice under clause 20.7~~ was given, the Dispute will be determined in accordance with clause 20.9 whether or not the parties have met and attempted to settle the dispute amicably.

#### 20.9 Litigation or arbitration

Where this clause applies, the Principal in its absolute discretion, may within ~~105~~15 Business Days ~~after the expiry of:~~

- (a) after the expiry of the 15 Business Day period referred to in clause 20.8; or
- ~~(b) the 20 Business Day period referred to in clause 20.3(d),~~
- (b) following agreement under clause 20.4(d)(ii), (as applicable) issue a notice to the SSJ Contractor stating that the Dispute is to be determined by litigation pursuant to court proceedings. If the Principal does not issue such a notice within the ~~105~~15 Business Day period, the Dispute will be referred to arbitration.

#### 20.10 Arbitration rules

- (a) Any arbitration conducted in relation to a Dispute will be conducted in accordance with the arbitration rules of the Australian Centre for International Commercial Arbitration known as the ACICA Arbitration Rules.
- (b) The seat of the arbitration will be Sydney, Australia.
- (c) The language of the arbitration will be English.
- (d) The parties ~~further agree to the following general principles relating to the procedure of the arbitration~~agree:
  - (i) that they have chosen arbitration for the purposes of achieving a just, quick and cost-effective resolution of any Dispute;
  - (ii) that any arbitration conducted pursuant to this clause will not necessarily mimic court proceedings and the practices of those courts will not regulate the conduct of the proceedings before the arbitral tribunal; and
  - (iii) that in conducting the arbitration, the arbitral tribunal must take into account the matters set out above, particularly in deciding issues such as:
    - (A) the number of written submissions that will be permitted;
    - (B) where appropriate, the length of written submissions;
    - (C) the extent of document discovery permitted, if any;
    - (D) the consolidation of proceedings, when requested;

- (E) the joinder of parties, when requested;
  - (F) the length of any hearing, if any; and
  - (G) the number of experts, if any, each party is permitted to appoint.
- (e) The parties agree that:
- (i) subject to clause 20.11, the arbitral tribunal will have the power to grant all legal, equitable and statutory remedies, except punitive damages; and
  - (ii) section 24 of the *International Arbitration Act 1974* (Cth) will apply in an international arbitration context.
- (f) The arbitral tribunal has the power, on the application of any party to this arbitration agreement, to allow a third party who the arbitral tribunal considers has a sufficient interest in the outcome of the arbitration to be joined in the arbitration as a party. Each party hereby consents to such joinder. In the event of such joinder of parties in the arbitration, the arbitral tribunal has the power to make a single final award, or separate awards, in respect of all parties so joined in the arbitration.
- (g) Any award of the arbitral tribunal will be final and binding upon the parties.
- (h) This arbitration agreement will be governed by and must be construed according to the laws applying in New South Wales.

**20.11 Exclusion from determination or award**

- (a) The powers conferred and restrictions imposed on a court by Part 4 of the *Civil Liability Act 2002* (NSW) are not conferred on an arbitral tribunal appointed in accordance with this clause 20.
- (b) The arbitral tribunal has no power to make a binding or non-binding determination or any award in respect of a claim by applying or considering the provisions of Part 4 of the *Civil Liability Act 2002* (NSW) (and any equivalent statutory provisions in any other state or territory) which might, in the absence of this provision, have applied to any Dispute referred to the arbitral tribunal.

**20.12 Payments**

The Principal may withhold payment of that part of any amount which is the subject of a Dispute.

**20.13 SSJ Contractor to continue performing obligations**

Despite the existence of any Dispute the SSJ Contractor must:

- (a) continue to perform the SSJ Contractor's Activities; and
- (b) perform its other obligations under this Contract.

**20.14 Urgent relief**

Nothing in this clause 20 will prejudice the right of a party to seek urgent injunctive or declaratory relief from a court.

20.15 **Dispute under related contracts**

The parties acknowledge and agree that:

- (a) the provisions of this clause 20 will not apply to any dispute, difference, controversy or claim between one or both of the parties and the Independent Certifier which is to be resolved under the provisions of the Independent Certifier Deed;
- (b) the parties will be bound by the outcome of any dispute, difference, controversy or claim between the parties which is resolved pursuant to the Independent Certifier Deed;
- (c) the provisions of this clause 20 will not apply to any dispute, difference, controversy or claim between the parties which is to be resolved under the SSJ Operator Cooperation and Integration Deed;
- (d) the parties will be bound by the outcome of any dispute, difference, controversy or claim between the parties which is resolved pursuant to the SSJ Operator Cooperation and Integration Deed; and
- (e) where the Dispute is a Common Dispute, as that term is defined in clause 7 of Schedule E4, then this clause 20 will apply subject to the provisions of clause 7 of Schedule E4.

~~20.16 **Target Cost Offer Dispute**~~

~~The parties acknowledge and agree that a Target Cost Offer Dispute will be dealt with in accordance with clause 4.~~

20.16 ~~20.17~~ **Survive termination**

This clause 20 will survive termination of this Contract.

21. **LIABILITY**

21.1 **Limitation of Liability**

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

[REDACTED]

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[REDACTED]

■ [REDACTED]

■ [REDACTED]



(to the extent permitted by Law) excludes the application of Part 4 of the *Civil Liability Act 2002 (NSW)* in relation to all and any rights, obligations or liabilities of either party under or in any way in connection with each further agreement whether such rights, obligations or liabilities are sought to be enforced by a claim in contract, tort or otherwise.

#### 21.5 Insurance requirements

The SSJ Contractor must ensure that all policies of insurance covering third party liability which it is required by this Contract to effect or maintain (including the policies set out in clauses 18.6, 18.7 and 18.9):

- (a) cover the SSJ Contractor for potential liability to the Principal assumed by reason of the exclusion of Part 4 the *Civil Liability Act 2002 (NSW)*; and
- (b) do not exclude any potential liability the SSJ Contractor may have to the Principal under or by reason of this Contract.

#### 21.6 Provisions Limiting or Excluding Liability

Any provision of this Contract which seeks to limit or exclude a liability of the Principal or the SSJ Contractor is to be construed as doing so only to the extent permitted by Law.

### 22. GENERAL

#### 22.1 Notices generally

- (a) Wherever referred to in this clause, **Notice** means each communication (including each notice, consent, approval, request and demand) under or in connection with this Contract.
- (b) At any time and from time to time, the Principal's Representative may notify the SSJ Contractor that a PDCS will be used for giving Notices under or in connection with this Contract. The Principal's Representative's notice will set out:
  - (i) the name of the relevant PDCS;
  - (ii) the commencement date for use of the PDCS;
  - (iii) any password, login details or similar information required for the SSJ Contractor to use the PDCS;
  - (iv) any requirements for specific notices (eg notices of Claims);
  - (v) the name and contact details of any additional person which the Principal's Representative nominates for receipt of Notices under this Contract; and
  - (vi) any other information reasonably necessary for the use and service of Notices via the PDCS.
- (ba) At any time and from time to time, the Principal's Representative may notify the SSJ Contractor that a PDCS will not be used for giving certain Notices under or in connection with this Contract. The Principal's Representative's notice will state that such Notices will be given in accordance with clause 22.1(c)(i).
- (c) Each Notice must:



- (i) before the date referred to in clause 22.1(b)(ii) or where clause 22.1(ba) applies:
- (A) be in writing;
  - (B) be addressed:
    - (aa) in the case of a Notice from the SSJ Contractor, to the Principal's Representative and any additional person notified by the Principal in writing; or
    - (bb) in the case of a Notice from the Principal, to the SSJ Contractor's Representative; or
  - (C) comply with any requirements for specific notices (eg notices of Claims) specified by the Principal in writing;
  - (D) be signed by the party making it or (on that party's behalf) by the solicitor for, or any attorney, director, secretary or authorised agent of, that party; and
  - (E) be delivered or posted to the relevant address or sent to the email address shown below (or to any new address or email address notified by the intended recipient):

(aa) to the Principal:

Address: Level 43, 680 George Street  
Sydney NSW 2000

Email: [REDACTED]

Attention : [REDACTED]

Any Notice in relation to a Claim or a Dispute must also be addressed to the Deputy General Counsel – Sydney Metro and sent to [REDACTED]

(bb) to the Principal's Representative:

Address: Level 43, 680 George Street  
Sydney NSW 2000

Email: [REDACTED]

Attention : [REDACTED]

Any Notice in relation to a Claim or a Dispute must also be addressed to the Deputy General Counsel – Sydney Metro and sent to [REDACTED]

(cc) to the SSJ Contractor:

Address: Level 4, 100 Arthur Street, North Sydney  
NSW 2060

Email:

Attention: [REDACTED] the SSJ  
Contractor's Representative

- (ii) on and from the commencement date for use of the PDCS referred to in clause 22.1(b)(ii) and other than where clause 22.1(ba) applies:
  - (A) be sent through the PDCS in accordance with the requirements set out in clause 22.1(e) and:
    - (aa) in the case of a Notice from the SSJ Contractor, be addressed to the Principal's Representative and any additional person notified in accordance with clause 22.1(b)(v) and comply with any requirements notified in accordance with clause 22.1(b)(iv); or
    - (bb) in the case of a Notice from the Principal, be addressed to the SSJ Contractor's Representative; or
  - (B) in circumstances where the PDCS is temporarily disabled or not operating, be issued in accordance with clause 22.1(c)(i).
- (d) A communication is taken to be received by the addressee:
  - (i) (in the case of a Notice sent through the PDCS) at the time recorded on the PDCS as being the time at which the Notice was sent;
  - (ii) (in the case of prepaid post sent to an address in the same country) 2 Business Days after the date of posting;
  - (iii) (in the case of international post) 7 Business Days after the date of posting;
  - (iv) (in the case of delivery by hand) on delivery; and
  - (v) (in the case of email):
    - (A) if it is transmitted by 5.00 pm (Sydney time) on a Business Day – on that Business Day; or
    - (B) if it is transmitted after 5.00 pm (Sydney time) on a Business Day, or on a day that is not a Business Day – on the next Business Day;
    - (C) provided that if the communication is received on a day which is not a Business Day or after 5.00pm on a Business Day, it is deemed to be received at 9.00am on the next Business Day.
- (e) With respect to Notices sent through the PDCS:
  - (i) all Notices must be submitted by the party making it or (on that party's behalf) by the solicitor for, or any attorney, director, secretary or authorised agent of, that party;

- (ii) only the text in any Notice, or subject to paragraph 22.1(e)(iii), any attachments to such Notice which are referred to in the Notice, will form part of the Notice. Any text in the subject line will not form part of the Notice; and
- (iii) an attachment to a Notice will only form part of a Notice if it is uploaded to the PDCS in:
  - (A) .pdf format;
  - (B) a format compatible with Microsoft Office; or
  - (C) such other format as may be agreed between the parties in writing from time to time.
- (f) The SSJ Contractor must:
  - (i) ensure that it has internet access which is sufficient to facilitate use of the full functionality of the PDCS;
  - (ii) ensure that relevant personnel log on and use the PDCS and check whether Notices have been received on each Business Day;
  - (iii) ensure all relevant personnel attend all necessary training required by the Principal's Representative;
  - (iv) advise the Principal's Representative of which personnel require access to the PDCS;
  - (v) at all times, ensure that it has access to personnel trained in the use of the PDCS so as to be able to view, receive and submit communications (including Notices) using the PDCS; and
  - (vi) as soon as practicable, at the first available opportunity following any period of time during which the PDCS is temporarily disabled or not operating, send all communications which have been issued pursuant to clause 22.1(c)(ii)(B) to the Principal's Representative through the PDCS.

The Principal has no liability for any losses the SSJ Contractor may suffer or incur arising out of or in connection with its access to or use of the PDCS or any failure of the PDCS, and the SSJ Contractor will not be entitled to make, and the Principal will not be liable upon, any Claim against the Principal arising out of or in connection with the SSJ Contractor's access to or use of the PDCS or any failure of the PDCS.

## 22.2 **Governing Law**

This Contract is governed by and will be construed according to the Laws of New South Wales.

## 22.3 **No Waiver**

- (a) Failure to exercise or enforce or a delay in exercising or enforcing or the partial exercise or enforcement of any right, power or remedy provided by Law or under this Contract by the Principal will not in any way preclude, or operate as a waiver of, any exercise or enforcement, or further exercise or enforcement of that or any other right, power or remedy provided by Law or under this Contract.

- (b) Any waiver or consent given by the Principal under this Contract will only be effective and binding on the Principal if it is given or confirmed in writing by the Principal.
- (c) No waiver by the Principal of:
  - (i) a breach of any term of this Contract; or
  - (ii) any other failure by the SSJ Contractor to comply with a requirement of this Contract, including any requirement to give any notice which it is required to give in order to preserve its entitlement to make any Claim against the Principal,

will operate as a waiver of another breach of that term or failure to comply with that requirement or of a breach of any other term of this Contract or failure to comply with any other requirement of this Contract.

#### 22.4 **Assignment and Change in Control**

##### (a) **Change in control of an entity that comprises the SSJ Contractor**

- (i) Subject to the terms of this clause 22.4(a), the SSJ Contractor must ensure that there is no Change in Control of any entity that comprises the SSJ Contractor without the prior written consent of the Principal (which must not be unreasonably withheld).
- (ii) The SSJ Contractor must notify the Principal in writing of any Change in Control of any entity that comprises the SSJ Contractor, and provide:
  - (A) full details of the Change in Control, including the acquisition of voting power, the change in equity interests or any other event which will cause or constitute the Change in Control; and
  - (B) all other information necessary for the Principal to determine whether to exercise its rights under clause 22.4(a)(iv), in relation to the Change in Control of the relevant entity that comprises the SSJ Contractor.
- (iii) The Principal's approval is not required for a Change in Control arising from:
  - (A) a transfer of any share or unit or other interest in the nature of equity which is listed on a recognised stock exchange; or
  - (B) any transfer of a share or unit or other interest in the nature of equity by a person to a Related Body Corporate of that person, provided the SSJ Contractor gives the Principal prior written notice of the transfer.
- (iv) The Principal will be deemed to be acting reasonably if it withholds its approval to a Change in Control of an entity that comprises the SSJ Contractor where the Principal is of the reasonable opinion that:
  - (A) the person or entity which will exercise Control of the SSJ Contractor or the relevant entity that comprises the SSJ Contractor:
    - (aa) is not solvent and reputable;



- (bb) has an interest or duty which conflicts in a material way with the interests of the Principal; or
- (cc) is involved in a business or activity which is incompatible, or inappropriate, in relation to Sydney Metro City & Southwest; or
- (B) as a result of the Change in Control, the SSJ Contractor will no longer:
  - (aa) have sufficient expertise and ability; or
  - (bb) be of sufficiently high financial and commercial standing, to properly carry out the obligations of the SSJ Contractor under this Contract.
- (v) If a Change in Control of any entity that comprises the SSJ Contractor occurs without the permission of the Principal (other than a Change in Control permitted under clause 22.4(a)(iii)), the SSJ Contractor acknowledges that the Principal may terminate this Contract by notice in writing to the SSJ Contractor.
- (vi) The Principal's approval of a Change in Control of any entity that comprises the SSJ Contractor will not relieve the SSJ Contractor of any of its obligations under this Contract.

**(b) Change in control of a Parent Company Guarantor**

- (i) Subject to the terms of this clause 22.4(b), the SSJ Contractor must ensure that there is no Change in Control of a Parent Company Guarantor without the prior written consent of the Principal (which must not be unreasonably withheld).
- (ii) The SSJ Contractor must notify the Principal in writing of any Change in Control of a Parent Company Guarantor, and provide:
  - (A) full details of the Change in Control, including the acquisition of voting power, the change in equity interests or any other event which will cause or constitute the Change in Control; and
  - (B) all other information necessary for the Principal to determine whether to exercise its rights under clause 22.4(b)(iv), in relation to the Change in Control of that Parent Company Guarantor.
- (iii) The Principal's approval is not required for a Change in Control arising from:
  - (A) a transfer of any share or unit or other interest in the nature of equity which is listed on a recognised stock exchange; or
  - (B) any transfer of a share or unit or other interest in the nature of equity by a person to a Related Body Corporate of that person, provided the SSJ Contractor gives the Principal prior written notice of the transfer.
- (iv) The Principal will be deemed to be acting reasonably if it withholds its approval to a Change in Control of a Parent Company Guarantor where the Principal is of the reasonable opinion that:

- (A) the person or entity which will exercise Control of the relevant Parent Company Guarantor:
  - (aa) is not solvent and reputable;
  - (bb) has an interest or duty which conflicts in a material way with the interests of the Principal; or
  - (cc) is involved in a business or activity which is incompatible, or inappropriate, in relation to Sydney Metro City & Southwest; or
- (B) as a result of the Change in Control, the relevant Parent Company Guarantor will no longer:
  - (aa) have sufficient expertise and ability; or
  - (bb) be of sufficiently high financial and commercial standing.

to properly carry out the obligations of the Parent Company Guarantor under the relevant Parent Company Guarantee.
- (v) If a Change in Control of a Parent Company Guarantor occurs without the permission of the Principal (other than a Change in Control permitted under clause 22.4(b)(iii)), the SSJ Contractor acknowledges that the Principal may terminate this Contract by notice in writing to the SSJ Contractor.
- (vi) The Principal's approval of a Change in Control of a Parent Company Guarantor will not relieve the CSM Contractor of any of its obligations under this Contract.

**(c) ~~(a)~~ Assignment by the SSJ Contractor**

The SSJ Contractor cannot assign, transfer or novate any of its rights or liabilities under this Contract without the prior written consent of the Principal and except on such terms as are determined in writing by the Principal.

**(d) ~~(b)~~ Assignment and Novation by the Principal**

- (i) Without limiting clause 22.20, the Principal may assign, novate or otherwise transfer this Contract, its interest in the subject matter of this Contract or any right under this Contract.
- (ii) The SSJ Contractor agrees to such assignment, novation or transfer such that no further consent is required.
- (iii) In the case of a novation by the Principal under this clause:
  - (A) the Principal will be released from its obligations under this Contract and the respective rights of the Principal and the SSJ Contractor against one another under this Contract will cease;
  - (B) the novated agreement will be on the same terms as this Contract, such that the incoming party and the SSJ Contractor will assume the same obligations to one another and acquire the identical rights against one another as the rights and obligations discharged under



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**22.9 Stamp Duty and Other Fees**

The SSJ Contractor must pay all stamp duties and other fees payable in respect of the execution of this Contract and the performance of its obligations in respect of this Contract.

**22.10 Taxes**

Without limiting clause 7 but subject to clause 16.12, the SSJ Contractor must pay all Taxes that may be payable in respect of the SSJ Contractor's Activities, including any customs duty or tariff, and primage applicable to imported materials, plant and equipment required for the SSJ Contractor's Activities.

**22.11 Confidentiality**

- (a) Subject to clause 22.11(b), the SSJ Contractor must:
  - (i) keep confidential this Contract, all Information Documents and any information relating to the SSJ Contractor's Activities and any discussions concerning this Contract or any Information Documents;
  - (ii) not use the information referred to in sub paragraph (a)(i) except as necessary for the performance of the SSJ Contractor's Activities; and
  - (iii) ensure that each of its officers, employees and Subcontractors complies with the terms of sub-paragraphs (a)(i) and (a)(ii).
- (b) The SSJ Contractor is not obliged to keep confidential any information:
  - (i) which is in the public domain through no default of the SSJ Contractor; or
  - (ii) the disclosure of which is:
    - (A) required by Law;
    - (B) consented to in writing by the Principal; or
    - (C) given to a court in the course of proceedings to which the SSJ Contractor is a party.



- (c) The SSJ Contractor must:
  - (i) execute and submit to the Principal within 14 days of the date of this Contract a Confidentiality Undertaking in the form of Schedule B7;
  - (ii) ensure that all employees of the SSJ Contractor that have access to the information described in the Confidentiality Undertaking are aware of their obligations under the terms of the Confidentiality Undertaking; and
  - (iii) ensure that each Subcontractor to the SSJ Contractor execute and submit a Confidentiality Undertaking to the Principal.
- (d) The SSJ Contractor acknowledges that the Principal may disclose this Contract (and information concerning the terms of this Contract) under or in accordance with any one or more of the following:
  - (i) the *Government Information (Public Access) Act 2009* (NSW);
  - (ii) to satisfy the disclosure requirements of the New South Wales Auditor General or to satisfy the requirements of Parliamentary accountability; and
  - (iii) any other Law.
- (e) The SSJ Contractor must provide to the Principal any other information which the Principal reasonably requires to comply with its obligations under the items referred to in clause 22.11(d).

#### 22.12 **Principal May Act**

- (a) The Principal may, either itself or by a third party, perform an obligation under this Contract that the SSJ Contractor was obliged to perform but which it failed to perform.
- (b) The costs, Losses, liabilities, expenses and damages suffered or incurred by the Principal in so performing such an obligation will be a debt due from the SSJ Contractor to the Principal.
- (c) Where the Principal or the Principal's Representative is entitled under this Contract to exercise any right or power to:
  - (i) direct or instruct the SSJ Contractor to; or
  - (ii) itself step-in to,
 take any action or omit to take any action, it is not obliged to exercise that right or power, and may do so in their absolute discretion.
- (d) Where the Principal or the Principal's Representative does exercise any such right or power, the SSJ Contractor remains responsible for, controls and assumes the risk of all environmental, health and safety issues relating to the Project Works.

#### 22.13 **Process Agent**

If the SSJ Contractor is a foreign company (as defined in the *Corporations Act 2001* (Cth)), the SSJ Contractor must:

- (a) appoint a local process agent acceptable to the Principal as its agent to accept service of process under or in any way in connection with this Contract. The appointment must be in a form acceptable to the Principal and may not be revoked without the Principal's consent; and
- (b) obtain the process agent's consent to the appointment.

#### 22.14 **Variations**

This Contract may only be varied by a document signed by or on behalf of both the Principal and the SSJ Contractor.

#### 22.15 **Prior Work**

The SSJ Contractor agrees that the work in connection with the SSJ Contractor's Activities carried out by the SSJ Contractor prior to the date of this Contract will be deemed to be governed by the provisions of this Contract and will be deemed to be part of the SSJ Contractor's Activities and any payments made to the SSJ Contractor by the Principal prior to the date of this Contract in respect of the SSJ Contractor's Activities will be treated as part payments of the amount required to be paid by the Principal under this Contract.

#### 22.16 **Counterparts**

This Contract may be executed in any number of counterparts. All counterparts together will be taken to constitute one instrument.

#### 22.17 **Personal Property Securities Act**

- (a) By signing this Contract, the SSJ Contractor acknowledges and agrees that if this Contract and the transactions contemplated by it, operate as, or give rise to, a security interest for the purposes of the PPS Law (**Security Interest**), the SSJ Contractor must do anything (including amending this Contract or any other document, executing any new terms or any other document, obtaining consents, getting documents completed and signed and supplying information) that the Principal considers necessary under or as a result of the PPS Law for the purposes of:
  - (i) ensuring that the Security Interest is enforceable, perfected or otherwise effective and has the highest priority possible under PPS Law;
  - (ii) enabling the Principal to apply for any registration, or give any notification, in connection with the Security Interest, including the registration of a financing statement or financing change statement; or
  - (iii) enabling the Principal to exercise rights in connection with the Security Interest and this Contract.
- (b) If Chapter 4 of the PPS Act applies to the enforcement of the Security Interest, the SSJ Contractor agrees that sections 95, 120, 121(4), 125, 130, 132(3)(d), 132(4), 135, 142 and 143 of the PPS Act will not apply to the enforcement of the Security Interest.
- (c) The SSJ Contractor:
  - (i) acknowledges that the Security Interests created under or pursuant to this Contract relate to collateral and all proceeds in respect of that collateral (until the Principal is paid in full for the collateral);

- (ii) acknowledges that to the maximum extent permitted by law, it waives any right to receive a verification statement under the PPS Law in respect of the Security Interest; and
  - (iii) undertakes it will not register a financing change statement without the prior written consent of the Principal.
- (d) The parties agree that neither of them will disclose information of the kind referred to in section 275(1) of the PPS Act and that this clause constitutes a confidentiality agreement within the meaning of the PPS Law.
- (e) The SSJ Contractor agrees to waive any right it may have, or but for this clause may have had, under section 275(7)(c) of the PPS Act to authorise the disclosure of the above information.

#### 22.18 Vienna Convention

The United Nations Convention on Contracts for the International Sale of Goods does not apply to this Contract.

#### 22.19 No Merger

Terms contained in this Contract which are capable of taking effect, or capable of continuing after Completion, will remain in full force and effect and will not merge on Completion.

#### 22.20 Transfer of Functions or NSW ~~Rail~~Public Transport Assets

- (a) The parties acknowledge that:
- (i) a ~~Rail~~Public Transport Agency may be reconstituted, renamed, dissolved, replaced or restructured and that some or all of the powers, functions, assets, rights, liabilities or responsibilities of a ~~Rail~~Public Transport Agency may be transferred to or vested in another entity;
  - (ii) if a ~~Rail~~Public Transport Agency is reconstituted, renamed, dissolved, replaced or restructured or if some or all of a ~~Rail~~Public Transport Agency's powers, functions, rights or responsibilities are transferred to or vested in another entity, then ~~other than as~~unless notified by the ~~Rail~~Public Transport Agency, references in this Contract to that party (as the case may be) must, subject to any facilitative legislation, be deemed to refer, as applicable, to ~~that the~~ reconstituted, renamed, restructured or new entity or entity replacing that Public Transport Agency to the extent that the entity has assumed or has had transferred to it or vested in it those powers, functions, rights or responsibilities; and
  - (iii) a ~~Rail~~Public Transport Agency may ~~, or may~~ be required to or may, at its absolute discretion, elect to (including as a result of changes to New South Wales Government policy or directions) acquire, or dispose of, any property or assets ~~forming part of a Rail Transport Agency's assets at its absolute discretion.~~
- (b) The SSJ Contractor acknowledges and agrees that it must, to the extent required by a ~~Rail~~Public Transport Agency and without limiting any facilitative legislation, negotiate in good faith any variations required to this Contract, or any replacement agreement or agreements for this Contract to give effect to a ~~Rail~~Public Transport Agency being reconstituted, renamed, dissolved, replaced or restructured.

- (c) The SSJ Contractor will be taken for all purposes to have consented to, and will not have, and no **RailPublic** Transport Agency will be liable for, any claim as a result of any action, matter or circumstance referred to in, or contemplated by clause 22.20.
- (d) For the purposes of this clause 'another entity' means a government or semi-government entity including any agency, statutory corporation, statutory authority, department or state owned corporation.

**23. NOTIFICATION OF CLAIMS**

**23.1 Notice of Change**

If a direction by the Principal's Representative, other than a "Change Order" under clause 11.2, constitutes or involves a Change, the SSJ Contractor must, if it wishes to make a Claim against the Principal arising out of, or in any way in connection with, the direction:

- (a) within the time specified in Schedule A1 of receiving the direction and before commencing work on the subject matter of the direction, give notice to the Principal's Representative, as required under clause 23.3(a), that it considers the direction constitutes or involves a Change;
- (b) within the time specified in Schedule A1, submit a written Claim to the Principal's Representative, which includes the details required by clause 23.3(b); and
- (c) continue to carry out the SSJ Contractor's Activities in accordance with this Contract and all directions of the Principal's Representative, including any direction in respect of which notice has been given under this clause 23.1.

**23.2 Notice of Other Claims**

If the SSJ Contractor wishes to make any Claim (other than an Excluded Claim) against the Principal in respect of any direction of the Principal's Representative or any other event, circumstance, act, omission, fact, matter or thing (including a breach of this Contract by the Principal) under, arising out of, or in any way in connection with, this Contract, the SSJ Contractor's Activities or the Project Works, including anything in respect of which:

- (a) it is otherwise given an express entitlement under this Contract; or
- (b) this Contract expressly provides that:
  - (i) specified costs are to be added to any component of the Contract Price; or
  - (ii) any component of the Contract Price will be otherwise increased or adjusted, as determined by the Principal's Representative,

the SSJ Contractor must give the Principal's Representative:

- (c) the notice required by clause 23.3(a); and
- (d) a Claim in accordance with clause 23.3(c).

**23.3 Prescribed Notices**

- (a) Any written notice referred to in clauses 23.1(a) and 23.2(c) must:

- (i) be provided not later than the time specified in Schedule A1 after the SSJ Contractor:
  - (A) receives the direction (in respect of a notice under clause 23.1(a)); or
  - (B) ~~(i) be provided not later than the time specified in Schedule A1 after the SSJ Contractor~~ first becoming aware (or when it ought reasonably to have first become aware) of the ~~direction,~~ event, circumstance, act, omission, fact, matter or thing which gave rise to the alleged entitlement (in respect of a notice under clause 23.2(c)); and
- (ii) expressly specify:
  - (A) that the SSJ Contractor proposes to make a Claim; and
  - (B) the direction event, circumstance, act, omission, fact, matter, or thing, which gave rise to the alleged entitlement in the Claim.
- (b) Any written Claim referred to in clause 23.1(b) must include:
  - (i) detailed particulars, including the date or dates, of the direction, including any related event, circumstance, act, omission, fact, matter or thing upon which the Claim is based;
  - (ii) the provisions of this Contract or other legal basis upon which the Claim is based; and
  - (iii) details of the amount claimed and how it has been calculated.
- (c) Any written Claim referred to in clause 23.2(d) must:
  - (i) be provided not later than the time specified in Schedule A1 ~~of giving the written notice under clause 23.3(a);~~ and
  - (ii) include:
    - (A) detailed particulars, including the date or dates, of the direction, event, circumstance, act, omission, fact, matter or thing upon which the Claim is based;
    - (B) the legal basis for the Claim, whether based on a term of this Contract or otherwise, and if based on a term of this Contract, clearly identifying the specific term;
    - (C) the facts relied upon in support of the Claim in sufficient detail to permit verification; and
    - (D) details of the amount claimed and how it has been calculated.
- (d) Clauses 23.1(b) and 23.2(d) are subject to the provisions of clause 14.21(e).

#### 23.4 Register of potential claims

The SSJ Contractor must maintain and keep an updated register of potential Claims that have been the subject of a notice issued by the ~~Principal~~ SSJ Contractor under clauses 23.1(a) and 23.3(a) and provide a copy of this register to the Principal's Representative at least 3 Business Days in advance of each meeting of the Management Review Group. This

register must be in a form acceptable to the Principal and must include, for each potential Claim, the claim number, a brief description, the date of the potential Claim, any agreed next steps and the status of such next steps.

#### 23.5 **Submission of Claims**

- (a) Claims submitted by the SSJ Contractor under clauses 23.1(b) and 23.2(d) will be considered in the first instance by the Principal's Representative who may accept or reject the Claim in part or in full.
- (b) If within 20 Business Days after first receipt of a Claim the Principal's Representative has not made a decision on the Claim, the Claim will be deemed to have been rejected on that 20th Business Day.

#### 23.6 **Continuing Events**

If the direction, event, circumstance, act, omission, fact, matter or thing upon which a Claim is based, or their consequences are continuing, the SSJ Contractor must continue to give the information required by clause 23.3(b) or 23.3(c) every 20 Business Days after the written Claim under clause 23.1(b) or 23.2(d) (as the case may be) was submitted or given to the Principal's Representative, until after the direction, event, circumstance, act, omission, fact, matter or thing or the consequences thereof have ceased.

#### 23.7 **Bar**

If the SSJ Contractor fails to comply with clauses 7.1, 7.2, 7.3, 7.4, 7.5, 15.8, 23.1, 23.2, 23.3 or 23.6:

- (a) the Principal will not be liable upon any Claim by the SSJ Contractor; and
- (b) the SSJ Contractor will be absolutely barred from making any Claim against the Principal,

arising out of or in any way in connection with the relevant direction, event, circumstance, act, omission, fact, matter or thing (as the case may be) to which those clauses apply.

#### 23.8 **Other Provisions Unaffected**

Nothing in clauses 23.1 to 23.7 will limit the operation or effect of any other provision of this Contract that requires the SSJ Contractor to give notice to the Principal's Representative in order to preserve an entitlement to make a Claim against the Principal.

### 24. **REPRESENTATIONS AND WARRANTIES**

#### 24.1 **Principal representations and warranties**

The Principal represents and warrants for the benefit of the SSJ Contractor that:

- (a) it is a statutory body validly constituted and existing under the Transport Administration Act 1988 (NSW);
- (b) it has or will have in full force and effect all authorisations necessary under its constituent legislation to enter into and perform its obligations under this Contract (or will have them in full force and effect at the time the obligation is to be performed);

- (c) the Contract constitutes a valid and legally binding obligation on it in accordance with its terms; and
- (d) the execution, delivery and performance of the Contract does not violate any law, or any document or agreement to which it is a party or which is binding on it or its assets.

#### 24.2 **SSJ Contractor Representations and Warranties**

The SSJ Contractor represents and warrants for the benefit of the Principal that:

- (a) is duly registered and remains in existence;
- (b) the execution, delivery and performance of the Contract does not violate any law, or any document or agreement to which it is a party or which is binding on it or any of its assets;
- (c) it has taken all action required to enter into the Contract and to authorise the execution and delivery of the Contract and the satisfaction of its obligations under it;
- (d) the Contract constitutes a valid and legally binding obligation of it in accordance with its terms;
- (e) it subsists and is properly constituted;
- (f) it is not the trustee or responsible entity of any trust, nor does it hold any property subject to or impressed by any trust;
- (g) it does not have immunity from the jurisdiction of a court or from legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution, execution or otherwise);
- (h) there has been no material change in the financial condition of the SSJ Contractor (since the date of its last audited accounts) which would prejudice the ability of the SSJ Contractor to perform its obligations under the Contract;
- (i) the most recently published financial statements of the SSJ Contractor has been prepared on a basis consistently applied and using accounting principles which are generally accepted and give a true and fair view of the financial condition of the SSJ Contractor;
- (j) the SSJ Contractor is not aware of any material facts or circumstances that have not been disclosed to the Principal and which might, if disclosed, materially adversely affect the decision of a prudent person considering whether or not to enter into this contract with the SSJ Contractor; and
- (k) no litigation, arbitration, mediation, conciliation, criminal or administrative procedures are current, pending or to its knowledge, threatened, which, if adversely determined, would or could have a material adverse effect upon it or its ability to perform its financial or other obligations under the Contract.

#### 24.3 **Repetition of representation and warranties**

The representations and warranties contained in clauses 24.2(h), 24.2(i), 24.2(j) and 24.2(k) are made on the date of this Contract. Each other representation and warranty contained in this clause 24:

- (a) is made on the date of this Contract; and
- (b) will be deemed to be repeated on each anniversary of the date of this Contract, with reference to the facts and circumstances then subsisting.



**EXECUTED** as a Deed.

**EXECUTED** by **TRANSPORT FOR NSW**  
**(ABN 18 804 239 602)** by its authorised  
delegate, in the presence of:

\_\_\_\_\_  
Signature of authorised delegate

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Name

\_\_\_\_\_  
Name

**Signed, sealed and delivered** for and on  
behalf of **John Holland Pty Ltd (ABN 11 004**  
**282 268)** under power of attorney in the  
presence of):

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Signature of attorney

\_\_\_\_\_  
Full name of witness

\_\_\_\_\_  
Date of power of attorney

\_\_\_\_\_  
Address of witness

**Executed by Laing O'Rourke Australia  
Construction Pty Ltd (ABN 39 112 099  
000)** in accordance with section 127 of the  
*Corporations Act 2011* (Cth):

\_\_\_\_\_  
Signature of Director

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Name of Secretary/other Director in full

## **SCHEDULE 2**

### **Amendments to Schedule A1**

Schedule A1 is amended as set out in the attached mark-up.

**SCHEDULE A1. – CONTRACT PARTICULARS**

<p><b>Acoustics Advisor:</b> (Definition of 'Acoustics Advisor' and clause 14.8)</p>	<p><del>Wilkinson Murray</del> <u>To be confirmed by the Principal.</u></p>
<p><b>Design Fee (Delivery Phase) Element</b> (Definition of 'Design Fee (Delivery Phase) Element')</p>	<p>██████████</p>
<p><b>Design Fee (Signalling) Contract Upper Limiting Fee Designer</b> (Definition of 'Design Fee (Signalling) Contract Upper Limiting Fee Designer', clause 4.21.1)</p>	<p>(a) <del>██████████</del> <u>urecon Australasia Pty Ltd and GHD Pty Ltd;</u> (b) <u>Hassell Ltd and Weston Williamson Pty Ltd; and</u> (c) <u>Siemens Ltd.</u></p>
<p><b>Environmental Representative:</b> (Definition of 'Environmental Representative' and clause 14.7)</p>	<p>██████████ of Healthy Buildings International Pty Limited (ABN 39 003 270 693)</p>
<p><b>Executive Negotiators:</b> (Definition of 'Executive Negotiators' and Clause 20.4)</p>	<p>Principal: (a) Sydney Metro City &amp; Southwest Project Director SSJ Contractor: (a) Laing O'Rourke Australia Construction Pty Ltd: ██████████ (b) John Holland Pty Ltd: ██████████</p>
<p><b>Interface Contractors:</b> (Definition of 'Interface Contractors')</p>	<p>(a) the Operator; (b) the TSE Contractor; (c) the SSC Contractor; (d) the <del>Line-Wide</del> <u>WC</u> Contractor; (e) the TSOM Contractor; and (f) Sydney Trains.</p>
<p><b>Percentage to be applied for Management Fee (Delivery Phase):</b> (Definition of 'Management Fee (Delivery Phase)', clause 5.5)</p>	<p>██████████</p>
<p><b>Percentage to be applied for Management Fee (Provisional Sums):</b> (Definition of 'Management Fee (Provisional Sums)')</p>	<p>██████████</p>

**Maximum Amount**

[REDACTED]

*(Definition of 'Maximum Amount', clauses 4.2, 19.4(c)(i) and 21.1(a)(v))*

**Parent Company Guarantor:**

John Holland Group Pty Ltd ABN 37 050 242 147  
Laing O'Rourke Australia Pty Ltd ABN 71 111 023 431

*(Definition of 'Parent Company Guarantor, Clause 6.8)*

**Preliminaries Fee (Delivery Phase) Limit**

[REDACTED]

*(Definition of 'Preliminaries Fee (Delivery Phase) Limit')*

**Principal's Representative:**

[REDACTED]

*(Definition of 'Principal's Representative')*

**Self-Performed Margin**

[REDACTED]

*(Definition of 'Self-Performed Margin', clause 1.1)*

**Share of Cost Overrun – percentage to be applied:**

[REDACTED]

*(Definition of 'Share of Cost Overrun', clauses 1.1 and 16.12)*

**Share of Savings - percentage to be applied:**

[REDACTED]

*(Definition of 'Share of Savings', clauses 1.1 and 16.12)*

**Signalling Designer:**

Siemens Ltd (ABN 98 004 347 880) of 885 Mountain View Highway, Bayswater, Victoria 3153.

*(Definition of 'Signalling Designer')*

**SSJ Contractor:**

The unincorporated joint venture comprised of John Holland Pty Ltd (ABN 11 004 282 268) of 70 Trenerry Crescent, Abbotsford VIC 3067 and Laing O'Rourke Australia Construction Pty Ltd (ABN 39 112 099 000) of Level 4, 100 Arthur Street, North Sydney NSW 2060.

*(Definition of 'SSJ Contractor')*

**Target Cost-Offer Submission Date**

[REDACTED]

*(Definition of 'Target Cost-Offer Submission Date')*

**Tendering Probity Plan:**  
(Definition of 'Tendering Probity Plan')

The appointment of the SSJ Contractor's probity auditor.

Procedures to ensure that:

- (a) none of the Tenderers for any of the Reimbursable Work has any arrangement or arrives at any understanding with any of the other Tenderers or with any employee of an association of which any of the Tenderers is a member about the work the subject of tender; and
- (b) without limitation, no Tenderer engages in:
  - (i) any discussion or correspondence with any such persons concerning the sum of money it is going to tender as its tender sum; or
  - (ii) any collusive tendering with any of the other Tenderers or any conduct or any arrangement or arrives at any understanding with any of the other Tenderers which in any way could have the effect of reducing the competitiveness of the tender process for the work and increasing the price.

**Order of Precedence:**  
(Clause 1.4)

- (a) The Contract excluding the Schedules; then
- (b) the MRs; then
- (c) the SWTC; then
- (d) the remainder of the Schedules.

**Number and form of copies of the work method statements:**  
(Clause 3.2(a)(ii)(H))

Three hard copies, one electronic copy in PDF and one electronic copy in native format.

**Third Party Agreements:**  
(Clause 3.6(a)(iii)(A))

**Draft Third Party Agreements**

Roads and Maritime Works Authorisation Deed

Sydney Trains Transition Agreement

~~Sydney Water Interface Agreement~~

[SW3 & SW4 Construction Licence \(as defined in Schedule E4\)](#)

**Third Party Agreements**

Global Safety Interface Agreement

TransGrid Interface Agreement

[Svdney Water Interface Agreement](#)

[SW1 & SW2 Construction Licence \(as defined in Schedule E4\)](#)

**Trade packages and Subcontractors:**  
(Clauses 12.4(c)(ii), and 12.12(a)(v))

**Trade Package**  
Design, supply, installation, testing and commissioning of the public address system works (PA, LLPA) forming part of the Brownfield Works.

**Subcontractor**

████████████████████  
████████████████████

Design, supply, installation, testing and commissioning of the digital voice announcement works forming part of the Brownfield Works  
The supply of precise clocks and associated cable termination in the equipment room works forming part of the Brownfield Works  
Cable terminations in the equipment room, testing, and commissioning of the intruder alarm works forming part of the Brownfield Works, including integration into the existing Sydenham Station systems.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Subcontractors required to execute deed in the form of Schedule A8:**  
*(Clause 12.7(c)(v)(A))*

Subcontracts with an initial price of [REDACTED] or greater.

*(Clause 12.7(c)(v)(B))*

All Subcontractor engagements which include any element of Design Work.

**Warranties required from Subcontractors:**  
*(Clause 12.9(a))*

Refer to Schedule A5

**Management Review Group representatives:**  
*(Clause 14.20(a))*

The Management Review Group comprises:

- (a) the Principal's Representative;
- (b) any nominees of the Principal's Representative;
- (c) the SSJ Contractor's Representative;
- (d) ~~any nominees~~ a senior representative of the SSJ Contractor's Representative involved in the day to day SSJ Contractor's Activities;
- (e) representatives of any of the SSJ Contractor's Subcontractors which the Principal's Representative reasonably requires; and
- (f) any other person the Principal's Representative reasonably requires from time to time.

**Management Review Group meeting times:**  
*(Clause 14.22(a)(i))*

Monthly (unless otherwise directed by the Principal's Representative from time to time)

**Losses:** [REDACTED]  
*(Clause 17.6(d)(ii))*

[REDACTED]  
[REDACTED]

**Person in Insolvency Event:**  
*(Clause 19.4(a)(iii))*

John Holland Group Pty Ltd ABN 37 050 242 147  
Laing O'Rourke Australia Pty Ltd ABN 71 111 023 431

**Amount for termination for convenience:**

[REDACTED]

*(Clause 19.10(a)(i)(D))*

**Time for giving notices:** 10 Business Days  
*(Clauses 23.1(a) and 23.3(a))*

**Time for written Claims:** 10 Business Days after the meeting of the Management Review Group at which the notice under clause 23.1(a) or 23.2(c) was considered.  
*(Clauses 23.1(b), 23.3(b) and 23.3(c))*



**SCHEDULE 3**

**Amendments to Schedule A2**

Schedule A2 is amended as set out in the attached mark-up.

**SCHEDULE A2. – PORTIONS AND MILESTONES**

(Clauses 1.1, 15.7, 15.8, 15.9, 15.11, 15.12, 15.16, 16.1(a)(ii)(J), 16.11(c) and 17.6(d))

**1. PORTIONS**

**Table A2-1 Portions**

Portion	Description	Date for Construction Completion	Liquidated damages (clause 17.6(d)(i)) \$/day
<b>Portion 1</b>	Preparation and submission in accordance with the requirements of this Contract of the Design Documentation for Design Stage 3 for the Brownfield Rail Works (SWTC section 2.3.2.1), Sydenham Junction Works (SWTC section 2.3.2.2) and the Utility Service Works, excluding the signalling interlocking data required for the computer based interlocking.	[REDACTED]	[REDACTED]
<b>Portion 2</b>	Handover of Station Services Building as detailed in SWTC section 2.3.1.1(b)(vii); the related cable containment system for the Operator as detailed in SWTC section 2.3.1.2(b)(i) and 2.3.1.2(b)(ii) in accordance with SWTC Appendix E1.	[REDACTED]	[REDACTED]
<b>Portion 3</b>	Commissioning of the replacement computer based interlocking (CBI) for the Sydenham Junction Works, such that the existing route relay interlocking is fully replaced as detailed in SWTC section 2.3.2.2(c)(i).	[REDACTED]	[REDACTED]
<b>Portion 4</b>	Transfer of existing Bankstown Line train services (Sydney Trains) from Platform 1&2 to Platform 3&4.	[REDACTED]	[REDACTED]
<b>Portion 5</b>	Handover of the northern shunt-neck, eastern bypass road, and up & down metro track formations to north-east side of the scissor crossover,	[REDACTED]	[REDACTED]

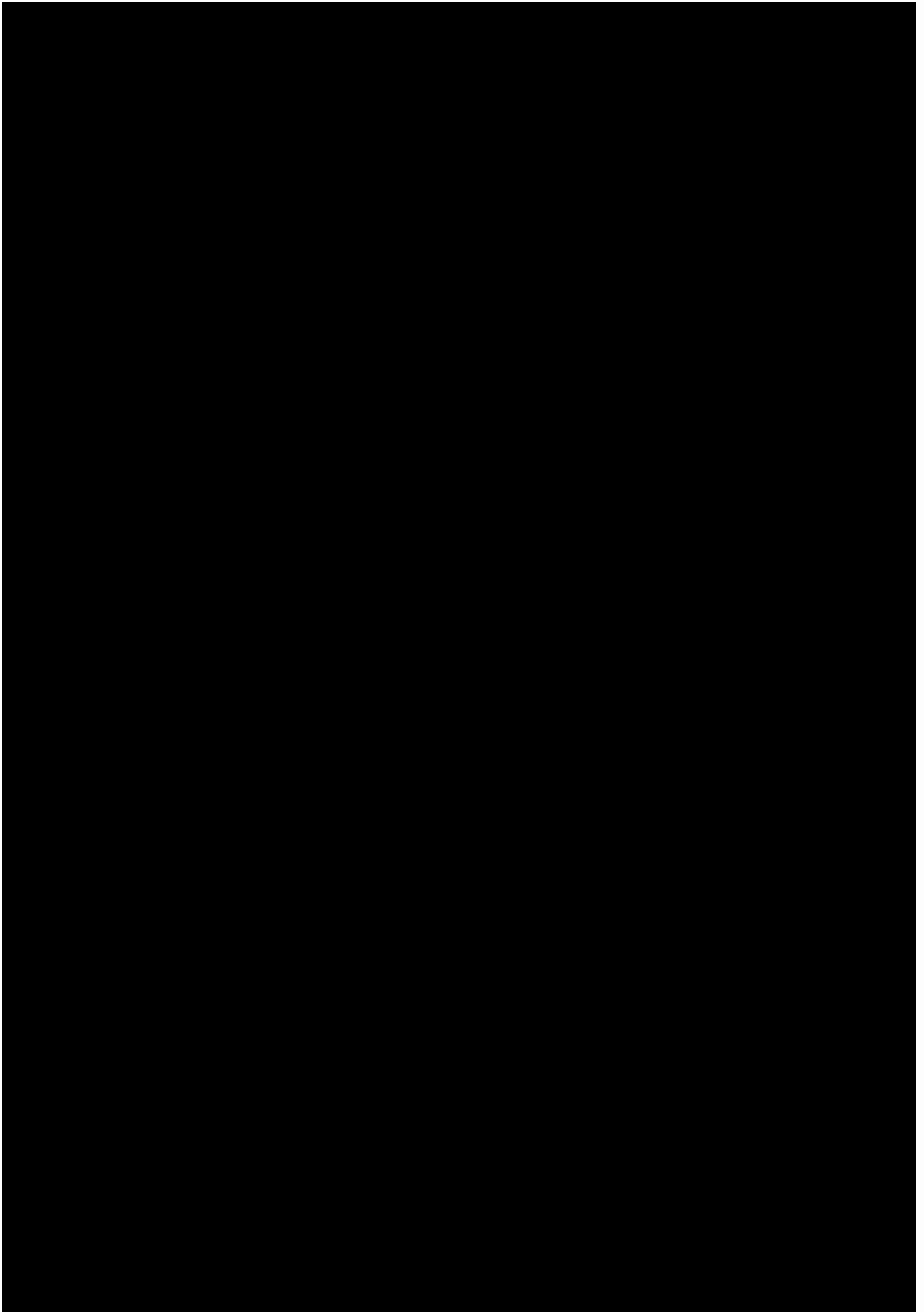
Portion	Description	Date for Construction Completion	Liquidated damages (clause 17.6(d)(i)) \$/day
	including all earthworks, structures, formation and drainage as detailed in SWTC section 2.3.1.2(b)(v)(A).		
<b>Portion 6</b>	Construction Completion and handover of all remaining Project Works to the Operator, except the works required for Portion 9.	[REDACTED]	[REDACTED]
<b>Portion 7</b>	Handover of all works as detailed in item 4 and 5 of SWTC Appendix E03 (TSE Interface Schedule) to enable the Interface Contractor to construct the Transgrid suspended slab and tunnel dive structures.	[REDACTED]	[REDACTED]
<b>Portion 8</b>	Handover of the Sydney Water Stormwater Drainage Works as detailed in SWTC section 2.3.4.	[REDACTED]	[REDACTED]
<b>Portion 9</b>	<p>Testing and commissioning using interim primary power supply provided from an electrical distribution Authority or a local distribution network service provider of:</p> <ul style="list-style-type: none"> <li>(a) the new low-voltage power provided under SWTC clause 2.3.1.1(ix);</li> <li>(b) lifts for the Metro Concourse;</li> <li>(c) earthing bonding and electrolysis system for the Sydney Metro Works;</li> <li>(d) ticketing systems for the Metro Station; and</li> <li>(e) building management system for the Metro Station.</li> </ul>	[REDACTED]	[REDACTED]

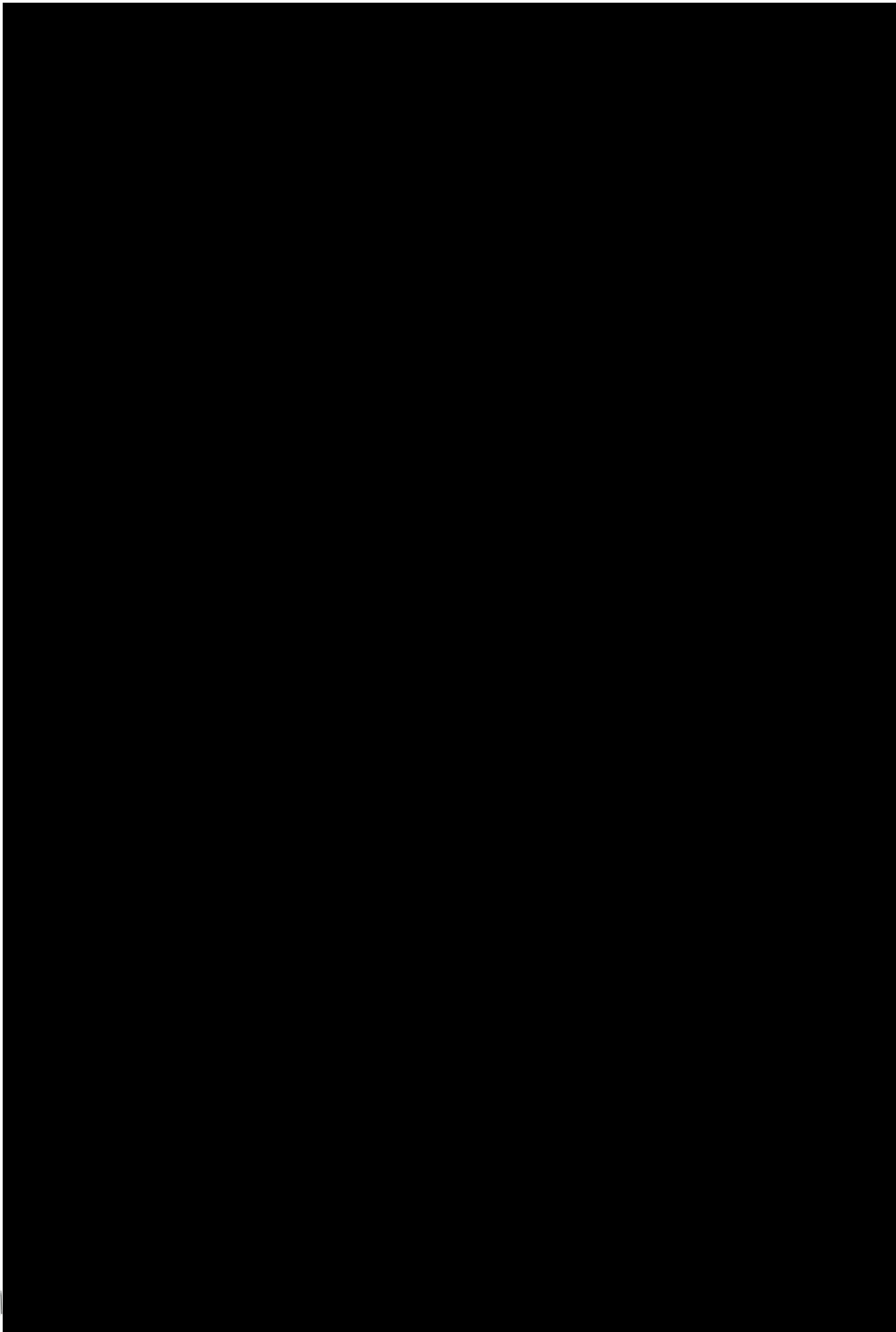
Where at any time the SSJ Contractor is liable for liquidated damages in respect of more than one Portion (each a "relevant Portion"), the SSJ Contractor's maximum aggregate liability to the Principal under clause 17.6(d)(i) in respect of any one day will be limited to the highest daily rate of liquidated damages which are at that time applicable to any relevant Portion.

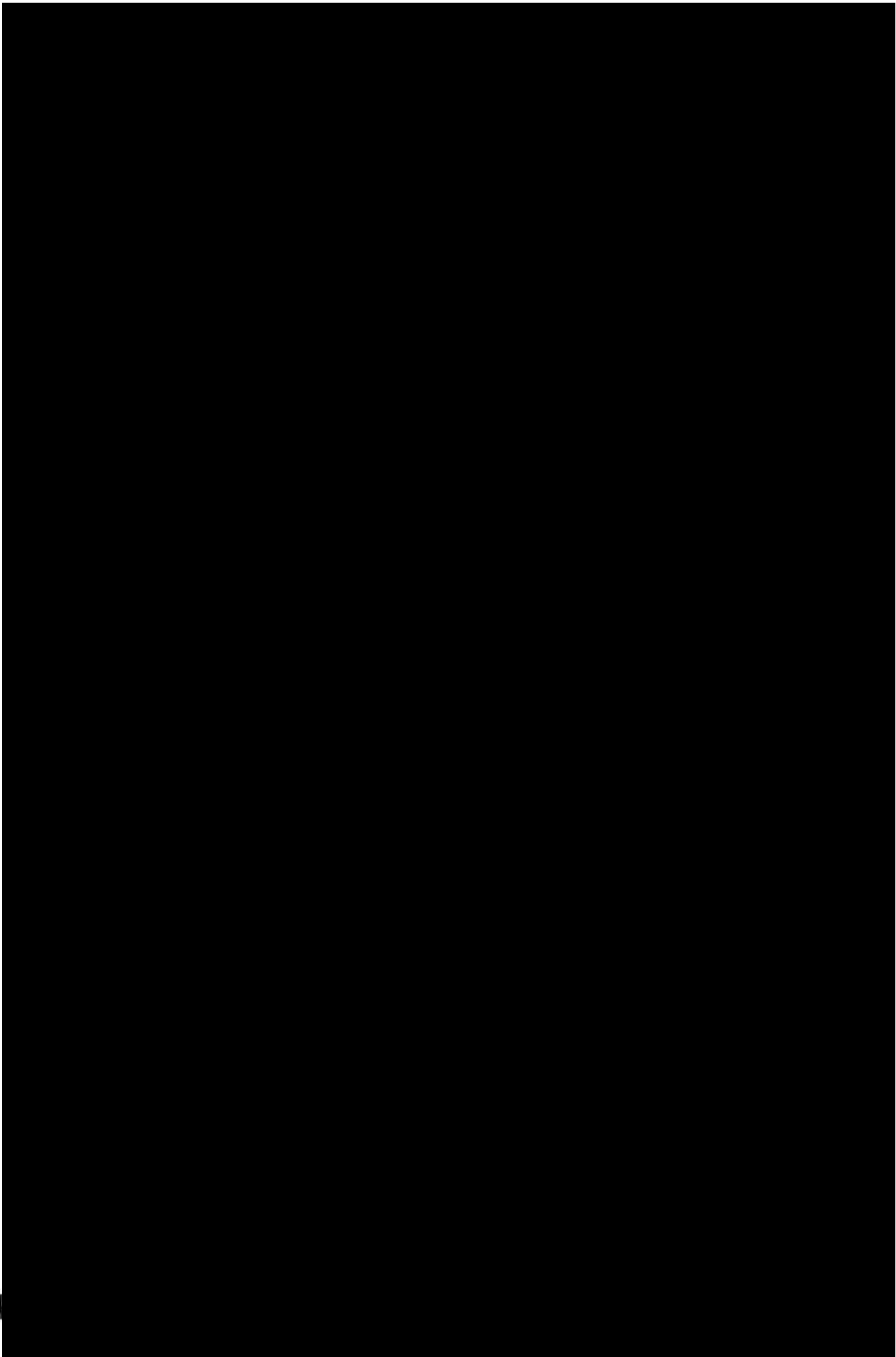
**2. MILESTONE**

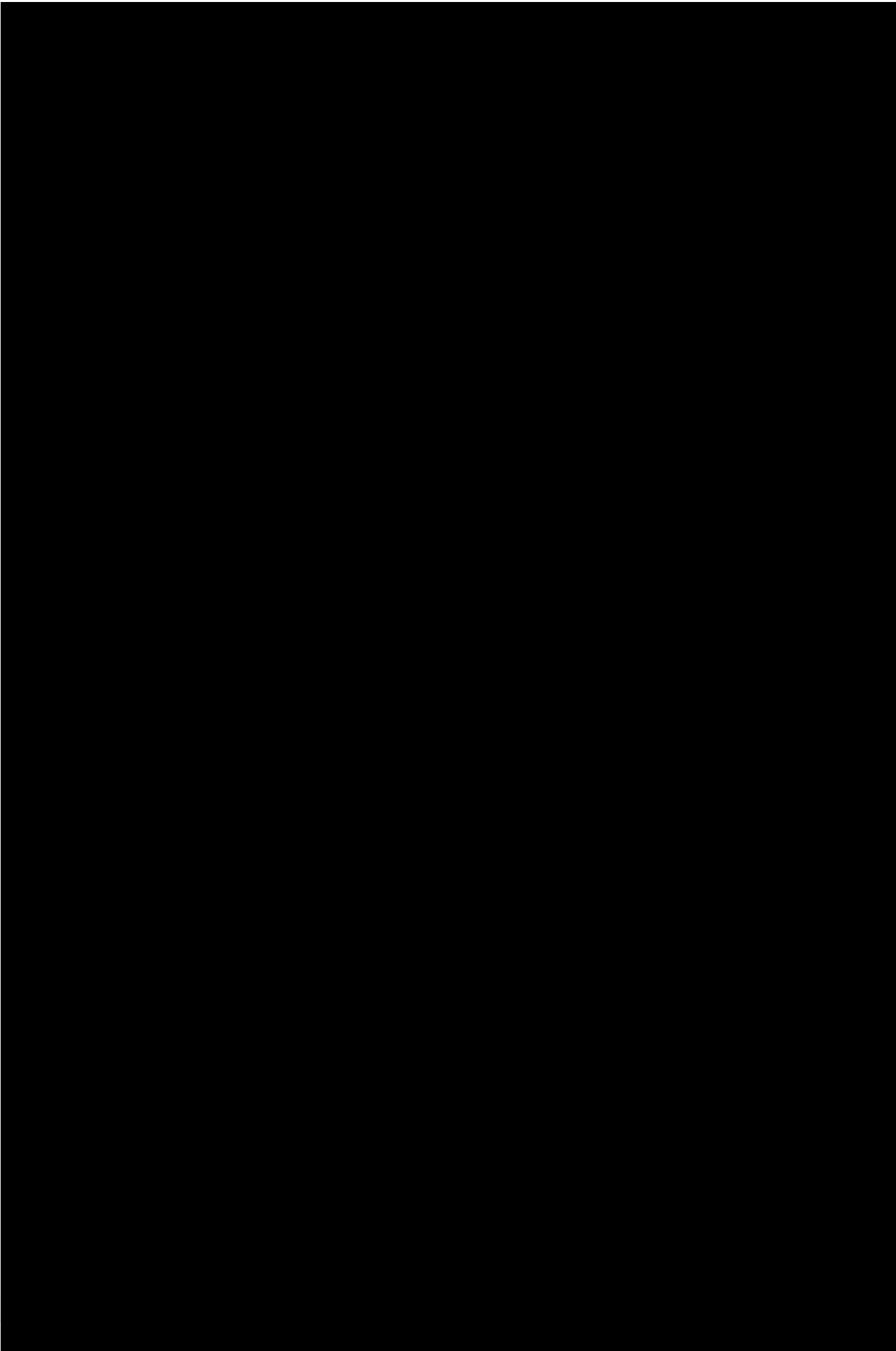
**Table A2-2 Milestones**

<b>Milestone 1</b>	<b>Portion 1</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Milestone 2</b>	<b>Portion 2</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Milestone 3</b>	<b>Portion 3</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Milestone 4</b>	<b>Portion 4</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Milestone 5</b>	<b>Portion 5</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Milestone 6</b>	<b>Portion 6</b>	[REDACTED]	[REDACTED]	[REDACTED]







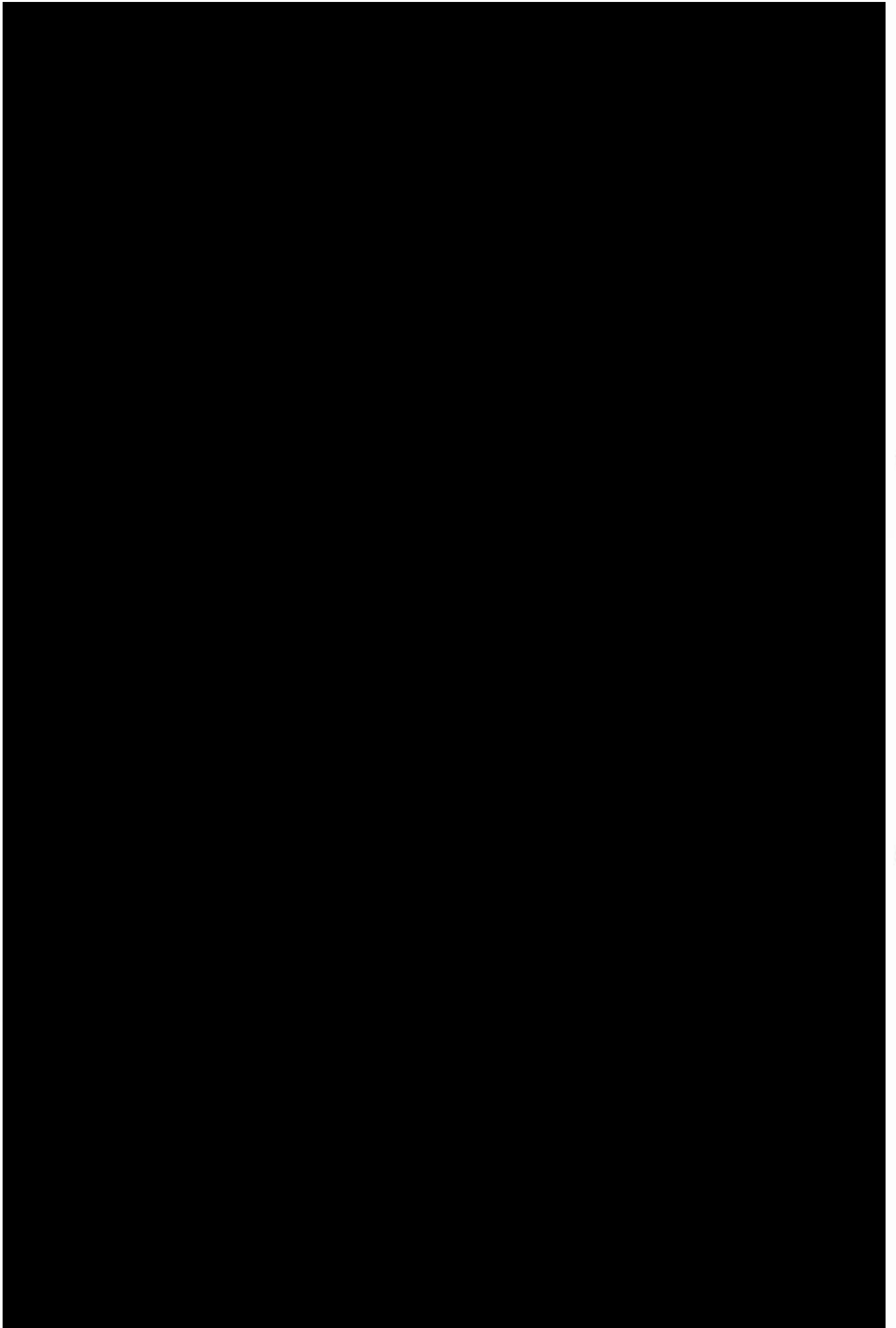


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**SCHEDULE 4**

**Amendments to Schedule A3**

Schedule A3 is amended as set out in the attached mark-up.

**SCHEDULE A3 – REQUIREMENTS FOR TARGET COST OFFER NOT USED**

(Clauses 1.1 and 4.2(b)(i))

The Target Cost Offer to be submitted by the SSJ Contractor during the Target Cost Development Phase must include:

**Table A3-1 – Requirements for the Target Cost Offer**

<b>Element</b>	<b>Item</b>	<b>Description</b>
<b>Team—Organisational Structure, Designers, Key Personnel and Resource</b>	TC001	<b>Contract Management Plan</b> for the Delivery Phase.
	TC002	<b>Project Organisation Structure:</b> An update to the project organisation structure for the Delivery Phase with all of the positions of the SSJ Contractor's management team and Designers' team (including the Key Personnel).
<b>Delivery Methodology and Risks</b>	TC003	<b>Subcontract Proposal:</b> The SSJ Contractor's draft Subcontract Proposal in accordance with clause 12.2 (including identifying all proposed Self-Performed Reimbursable Work);
	TC004	<b>Procurement Plan</b> as specified in MR-PA;
	TC005	<b>Interface Management Plan</b> as specified in MR-PA;
<b>Program</b>	TC006	<b>Staging Plans:</b> the SSJ Contractor's staging plans for the works, including constructability assessments;
	TC007	<b>SSJ Contractor's Program:</b> the updated SSJ Contractor's Program for the Project Works in accordance with the requirements of the Contract.
<b>Design</b>	TC008	the <b>Target Cost Offer Design</b> incorporating value engineering opportunities;
	TC009	Sydenham Junction <b>signalling architecture, delivery strategy, and testing &amp; commissioning strategy.</b>
	TC010	<b>SWTC and Management Requirements:</b> a marked-up SWTC and Management Requirements that reflect any changes made in accordance with this Contract during the Target Cost Development Phase, including the value engineering process set out in section 1(p) of Schedule A4;
	TC011	<b>Reports:</b> the Reports that the Target Cost Offer relies upon, including those generated as a result of the Target Cost Development Phase Site Investigations;
	TC012	<b>Risk Management Plan</b> and <b>risk register</b> in accordance with the requirements of the Contract;
	TC013	<b>Other:</b> all other information required by the Contract-





Table A3-2—Cost Centres

Cost Centre	Title	Description
<b>M.01</b>	<b>Management Fee (Delivery Phase)</b>	The Management Fee (Delivery Phase):
<b>P.01</b>	<b>Preliminaries Fee (Delivery Phase)</b>	The Preliminaries Fee (Delivery Phase):
<b>D.01</b>	<b>Design Fee (Delivery Phase) Element</b>	The Design Fee (Delivery Phase) Element, including: <ul style="list-style-type: none"> <li>1. all documents required to meet the Principal's design assurance process;</li> <li>2. design support for construction activities; and</li> <li>3. signalling design.</li> </ul>
<b>G.01</b>	<b>Utility Services Works</b>	Utility Services Works including Utility Services adjustment & relocation, and site investigations:
<b>G.02</b>	<b>Sydenham Sydney Metro Service Building and Cable Routes</b>	Construction of the Sydney Metro Service Building and all cable routes to the adjacent contractors interface points.
<b>G.03</b>	<b>Combined Services Route Relocation (Sydney Trains)</b>	Construction of replacement Combined Services Route for Sydney Trains (outside the Sydney Metro Corridor) and relocation of all relevant services.
<b>G.04</b>	<b>Sydney Water Stormwater Drainage Works</b>	Construction of the Sydney Water drainage works including: <ul style="list-style-type: none"> <li>1. adjustment and relocation of the Sydney Water channels;</li> <li>2. aqueduct at Sydenham Drainage basin;</li> <li>3. replacement pumping station;</li> <li>4. replacement access to Sydenham Basin; and</li> <li>5. related heritage works.</li> </ul>
<b>G.05</b>	<b>Sydenham Junction Signalling Interlocking and Train Control System Commissioning</b>	Construction, testing and commissioning of the Sydenham Junction signalling interlocking and train control system commissioning, including: <ul style="list-style-type: none"> <li>1. signalling interlocking works (computer based interlocking);</li> <li>2. signalling trackside (field) works; and</li> <li>3. train control system modifications.</li> </ul>
<b>G.06</b>	<b>Sydenham Junction remodelling</b>	Construction of the Sydenham Junction remodelling including track, OHW and signalling modification (post commissioning of the computer based interlocking).
<b>G.07</b>	<b>Sydenham Station Northern Concourse</b>	Construction of the Sydenham Station Northern Concourse, including all relevant lifts and station systems to allow access by passengers.

<b>Cost Centre</b>	<b>Title</b>	<b>Description</b>
<b>C.08</b>	<b>Sydenham Station platform, canopy, station systems and precinct works</b>	Construction of the Sydenham Station platforms, canopies, station systems and precinct works to allow access by passengers.
<b>C.09</b>	<b>Sydney Metro rail corridor works</b>	Construction of the Sydney Metro corridor works, including: <ul style="list-style-type: none"> <li>1. bridge upgrades;</li> <li>2. Sydney Metro formation, ballast and track works;</li> <li>3. Sydney Metro OHW; and</li> <li>4. any other works to be provided by the SSJ Contractor under the interface requirements specifications.</li> </ul>
<b>C.10</b>	<b>Site wide works</b>	Site wide works including: <ul style="list-style-type: none"> <li>1. traffic management; and</li> <li>2. environmental controls.</li> </ul>

The Principal will assess the Target Cost Offer to determine whether it represents value for money for the Principal. The criteria for assessing value for money in the Target Cost Offer are as follows:

**Table A3-3 — Criteria for determining value for money for the Target Cost Offer**

<b>Criteria No.</b>	<b>Criteria</b>
1.	Team — Organisational Structure, Designers, Key Personnel and Resource
2.	Delivery Methodology and Risks
3.	Program
4.	Design — whole of life
5.	Working relationship / collaborative approach
6.	Risk Transfer — Legal and Commercial
7.	Price

**SCHEDULE 5**

**Amendments to Schedule A4**

Schedule A4 is amended as set out in the attached mark-up.

## **SCHEDULE A4 – TARGET COST DEVELOPMENT PHASE ACTIVITIES**

(Clause 1.1)

### **1. TARGET COST DEVELOPMENT PHASE ACTIVITIES (EXCLUDING TARGET COST DEVELOPMENT PHASE SITE INVESTIGATIONS)**

The following activities are to be completed by the SSJ Contractor during the Target Cost Development Phase:

- (a) all activities as specified in Schedule C2 (Preliminaries: Target Cost Development Phase);
- (b) provision of a suitable office facility in Sydney CBD with adequate capacity to co-locate all SSJ Contractor's personnel, the Designers, and the Principal's project team for this Contract (approximately 5 personnel);
- (c) collaboration and coordination with the Principal and key stakeholders;
- (d) manage the program of activities required to obtain inputs and decisions from the Principal during the Target Cost Development Phase, including workshops, information required and provision of inputs to briefings by the Principal;
- (e) attend workshops with the Principal, including technical, commercial and value management;
- (f) assume responsibility for the Configuration Control Board process;
- (g) assume responsibility for the community consultation process;
- (h) manage the undertaking of Design Work (Signalling);
- (i) develop all Contract Management Plans and strategies as specified in the timeframes required in the MRs and the SWTC;
- (j) assume responsibility for risk management of the works, including maintaining a current risk register in accordance with the requirements for MR-PA;
- (k) draft Subcontract packaging proposal for the Principal's review, and tendering of packages of work using the Subcontract Tender Documentation approved by the Principal in accordance with this Contract;
- (l) assume control of the Track Possession and Temporary Shutdown planning process including attendance at Sydney Trains meetings;
- (m) prepare and submit the Target Cost Offer in accordance with the requirements of Schedule A3 by the Target Cost Offer Submission Date. Associated activities must include:
  - (i) preparation of the Target Cost Offer Design, including:
    - (A) developing relevant options and undertaking appraisal of the options;
    - (B) carrying out of safety in design reviews to ensure that the design is safe to deliver and key risks are mitigated; and
    - (C) preparing detailed drawings and design reports for all relevant disciplines (including architecture, civil, mechanical, electrical, rail systems) to define the Target Cost Offer;



- (n) prepare estimates for producing a Target Cost, including all costs required to complete the Project Works which will be subject to review by the Independent Estimator and alignment with the Cost Breakdown;
- (o) develop the SSJ Contractor's Program, including delivery schedule and methodology;
- (p) undertake a value engineering process and incorporate the outcomes into the Target Cost Offer, including:
  - (i) involvement of all relevant personnel of the SSJ Contractor (including as a minimum the SSJ Contractor's design manager, construction manager and a project engineer) and the Designers in a value engineering process, including participating in a series of workshops. This will include pursuing the value engineering opportunities identified in section 3 of this Schedule A4;
  - (ii) identification and elimination of any unnecessary costs and optimisation of whole of life costs of the Project Works, while ensuring that all other requirements for the Project Works are satisfied; and
  - (iii) ensuring that the delivery approach for the Project Works is the most efficient possible;
- (q) develop and submit completed additional deliverables for early works packages to be delivered within six months of the date of this Contract (unless otherwise stated, all additional deliverables are required to be submitted within 18 weeks of the date of this Contract):
  - (i) draft Construction Environmental Management Plan including sub-plans, in accordance with the requirements of MR-E, and approved by the Principal;
  - (ii) all relevant possession planning documentation;
  - (iii) Subcontract Proposals (including recommended Tenderers under clause 12.7(a)) and draft contract packages for early works packages and long-lead items including CSR and signalling equipment supply; and
  - (iv) Contract Management Plans required to be in place to undertake the early works packages;
- (r) determining the Preliminaries Fee (Delivery Phase), which will be built up from first principles during the Target Cost Development Phase [REDACTED] but not to exceed the Preliminaries Fee (Delivery Phase) Limit; and
- (s) determining the Management Fee (Delivery Phase).

**2. TARGET COST DEVELOPMENT PHASE SITE INVESTIGATIONS**

The following Target Cost Development Phase Site Investigations must be completed during the Target Cost Development Phase:

- (a) Utility Service investigations, including in respect of the Utility Services described in the table below, and the provision to the Principal's Representative of a Utility Service report in a form acceptable to the Principal;

<b>Transgrid 330KV Cable 42</b>	Fraser Park	Bankstown line Embankment realignment	Review of as-built information Site inspection to confirm horizontal alignment is correctly represented. Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>Transgrid 330KV Cable 42</b>	Burrows Avenue	Noise wall foundation	Review of as-built information Site inspection to confirm horizontal alignment is correctly represented. Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>Transgrid 330KV Cable 42</b>	Bolton Street/Hogan Avenue	Southern plaza	Review of as-built information Site inspection to confirm horizontal alignment is correctly represented.
<b>Transgrid 330KV Cable 42</b>	Bolton Street	Bolton Street drainage	Review of as-built information Site inspection to confirm horizontal alignment is correctly represented. Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>Transgrid 330KV Cable 42</b>	Rail Crossing	corridor retaining wall foundation	Review of as-built information Cable tracing across width of the rail corridor to validate horizontal alignment. Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>Ausgrid 132KV</b>	Sydenham Rd/Railway Pde	Culvert realignment/ Northern plaza	Review of as-built information Pot hole to validate vertical and horizontal

<b>Ausgrid 132KV</b>	Hogan Avenue	Southern plaza	alignment Review of as-built information Pot hole to validate vertical and horizontal alignment
<b>Ausgrid 33KV</b>	Sydenham Road	Culvert realignment/ Northern plaza	Review of as-built information Pot hole to validate vertical and horizontal alignment
<b>Ausgrid 33KV</b>	Hogan Avenue	Southern plaza	Review of as-built information Pot hole to validate vertical and horizontal alignment
<b>Jemena 110mm gas</b>	Sydenham Rd/ Hogan Rd	Culvert realignment/ Northern plaza/Southern plaza	Review of as-built information Pot hole to validate vertical and horizontal alignment
<b>559mm Sydney Water Distribution Main</b>	Sydenham Road/Railway Parade/Hogan Avenue	Culvert realignment/Northern plaza/Southern plaza	Review of as-built information Pot hole to validate vertical and horizontal alignment Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>HV, water main, telecommunication conduits</b>	Railway Parade/Sydenham Road to DS0001	Utility services to Sydenham Pit and Pump Station DS0001	Review of as-built information Pot holes to validate vertical and horizontal alignment Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>525mm sewer main</b>	Railway Pde/Garden St	Culvert realignment	Review of as-built information Site inspection to confirm access and depth of invert. Discuss with Utility Service Authority on opportunities for further investigations and solutions
<b>Qenos Pipeline</b>	Fraser Park	Bankstown line embankment realignment/CSR realignment	Review of as-built information Site inspection to confirm horizontal alignment is correctly represented. Discuss with Utility Service owner on opportunities for further investigations and solutions
<b>Qenos Pipeline</b>	Railway Rd/Burrows Ave	Noise wall foundations	Review of as-built information

Site inspection to confirm horizontal alignment is correctly represented.  
Discuss with Utility Service Authority on opportunities for further investigations and solutions

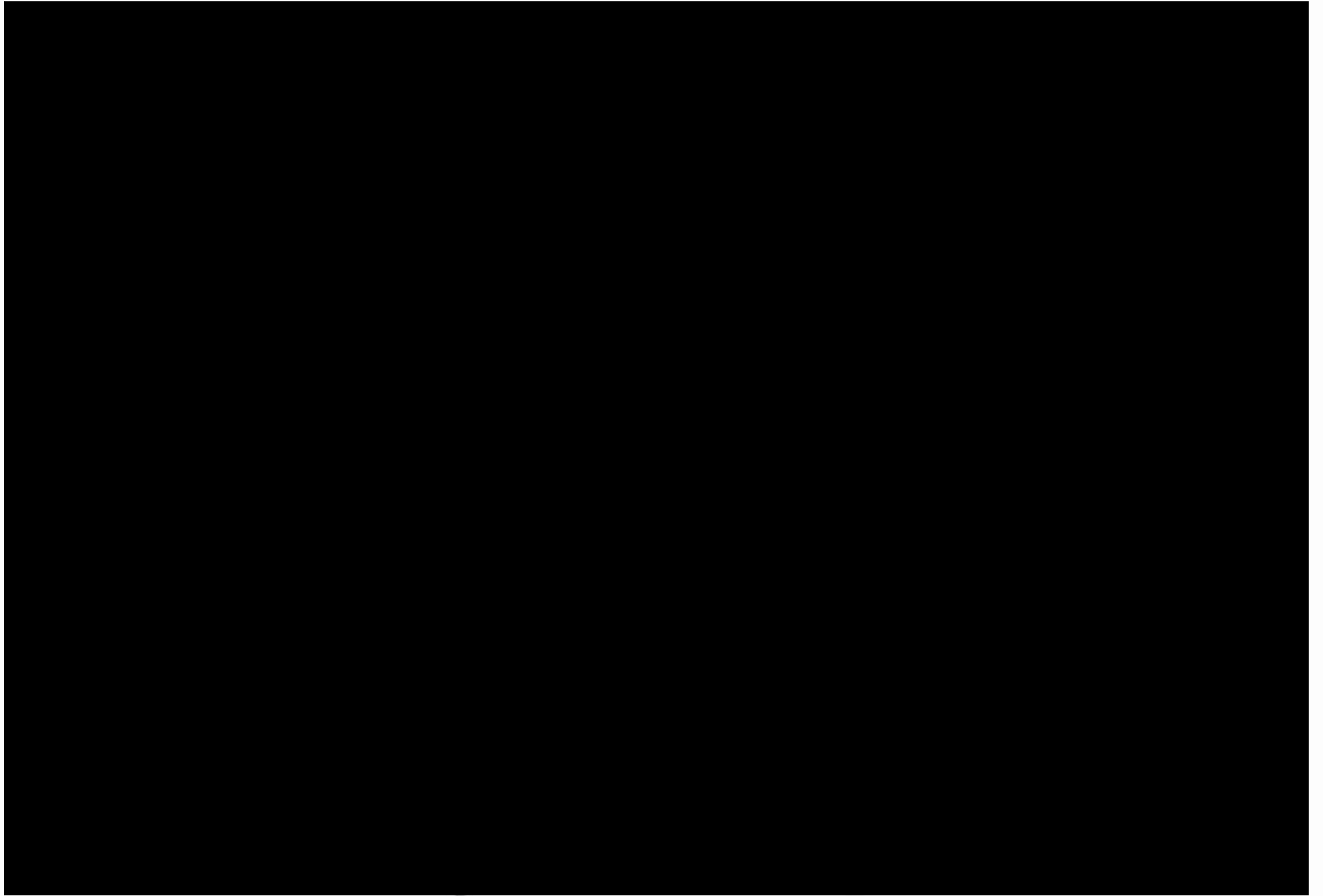
- (b) Site surveying to confirm positions and clearances for specific structures, including station, utilities, detention basin, culvert, Bankstown line embankment;
- (c) Geotechnical and contamination investigations, including seven boreholes at specific locations on the Project Site and the provision to the Principal's Representative of a Contamination report in a form acceptable to the Principal; and
- (d) Asset condition site inspections, including in respect of all existing bridges, station structure, and any other structures to be affected by the Project Works and Temporary Works.

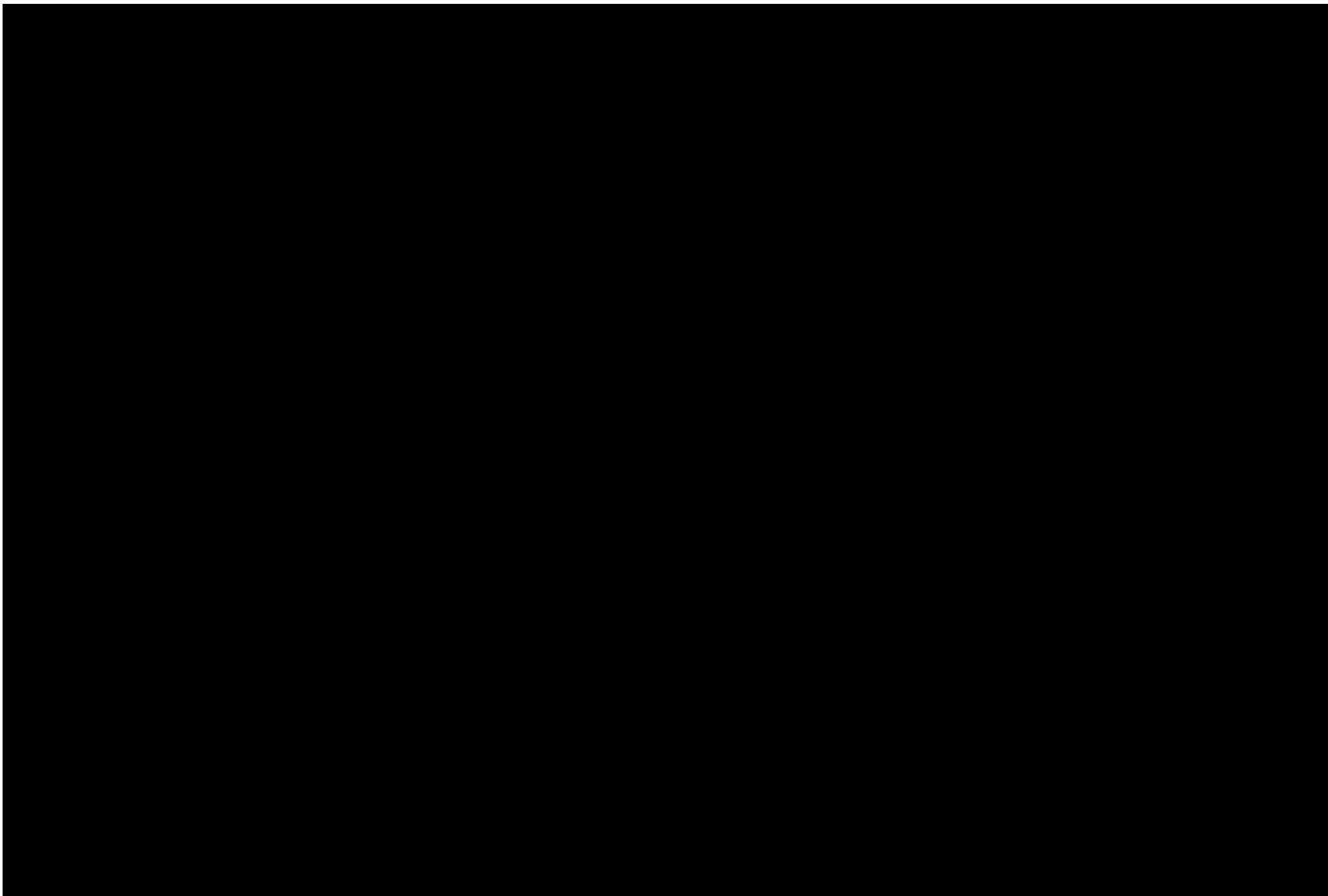


### 3. VALUE ENGINEERING OPPORTUNITIES

The value engineering opportunities to be pursued in the Target Cost Development Phase include:

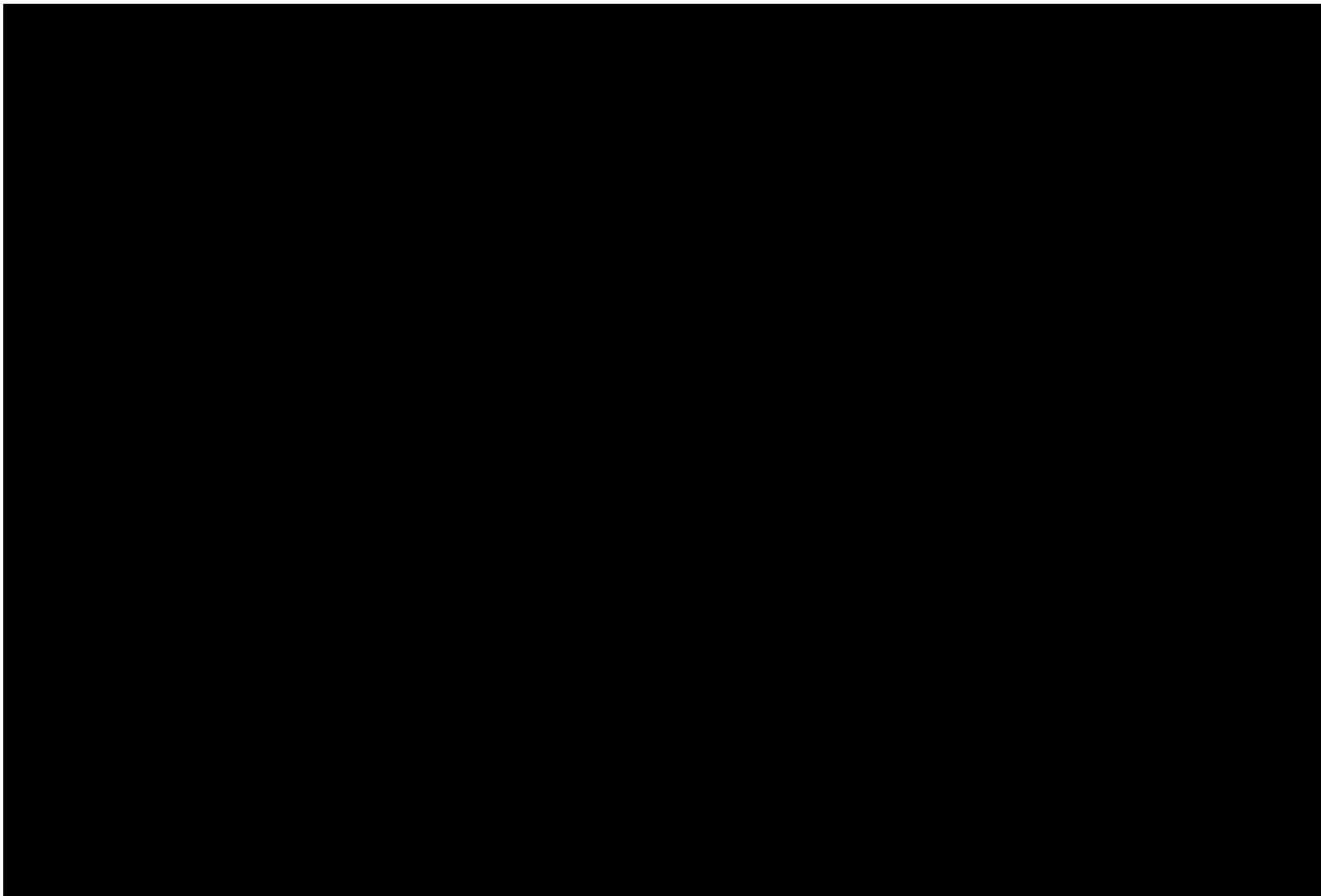
- (a) reuse and upgrade of existing pumping station;
- (b) canopy modifications including the length and type of finishes;
- (c) platform finishes to match existing;
- (d) rationalisation of scope and finishes in the public domain and precinct areas;
- (e) reduction of Metro station service buildings and support facilities;
- (f) bridge waterproofing and upgrades;
- (g) challenge of standards for CSR and cable joint pits;
- (h) challenge of the Management Requirements;
- (i) removal of interface design requirements;
- (j) storm water channel and aqueduct modifications including realignment options; and
- (k) obtaining from applicable Subcontractors a deed in a form other than that prescribed in Schedule A6.



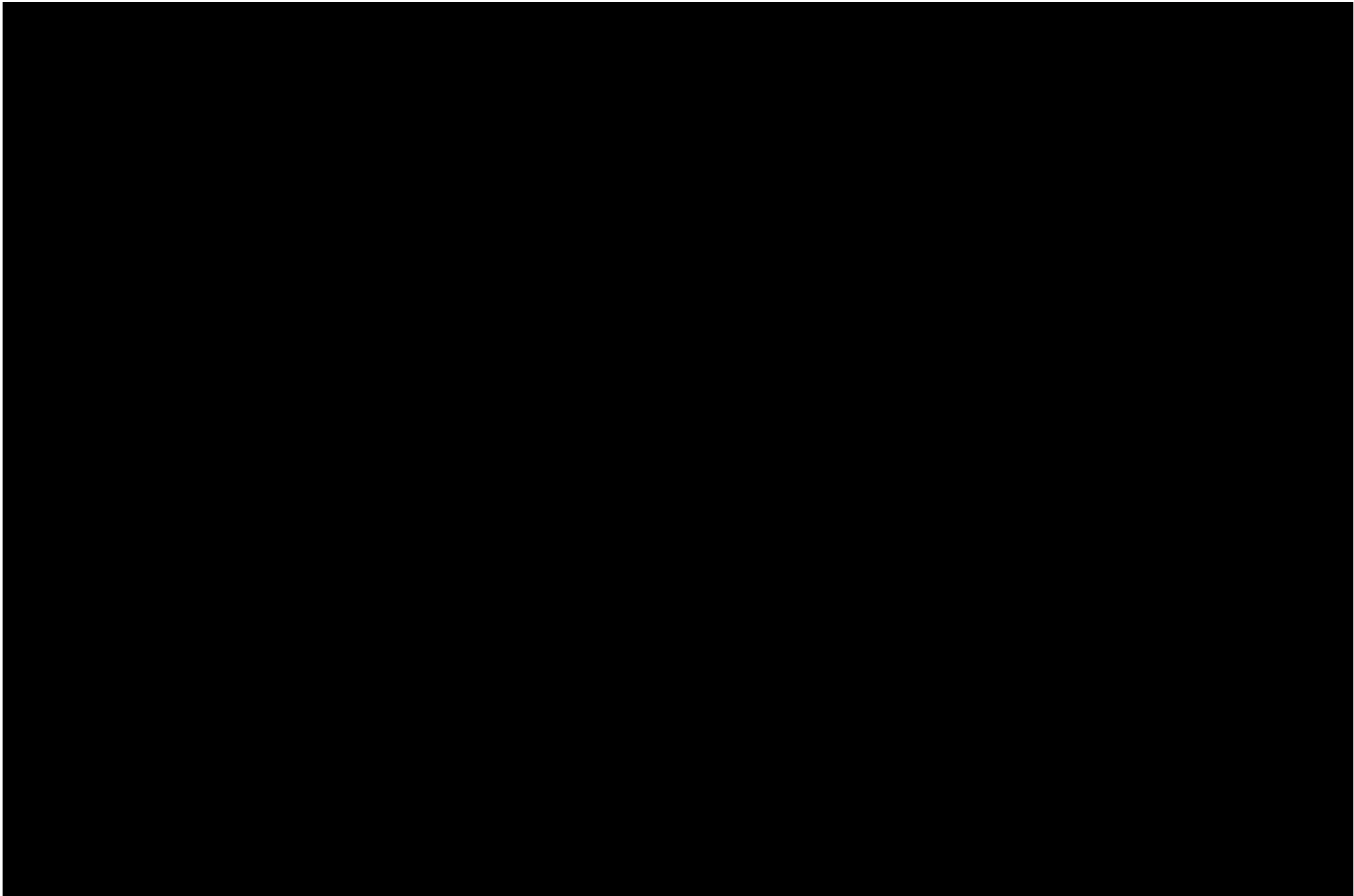


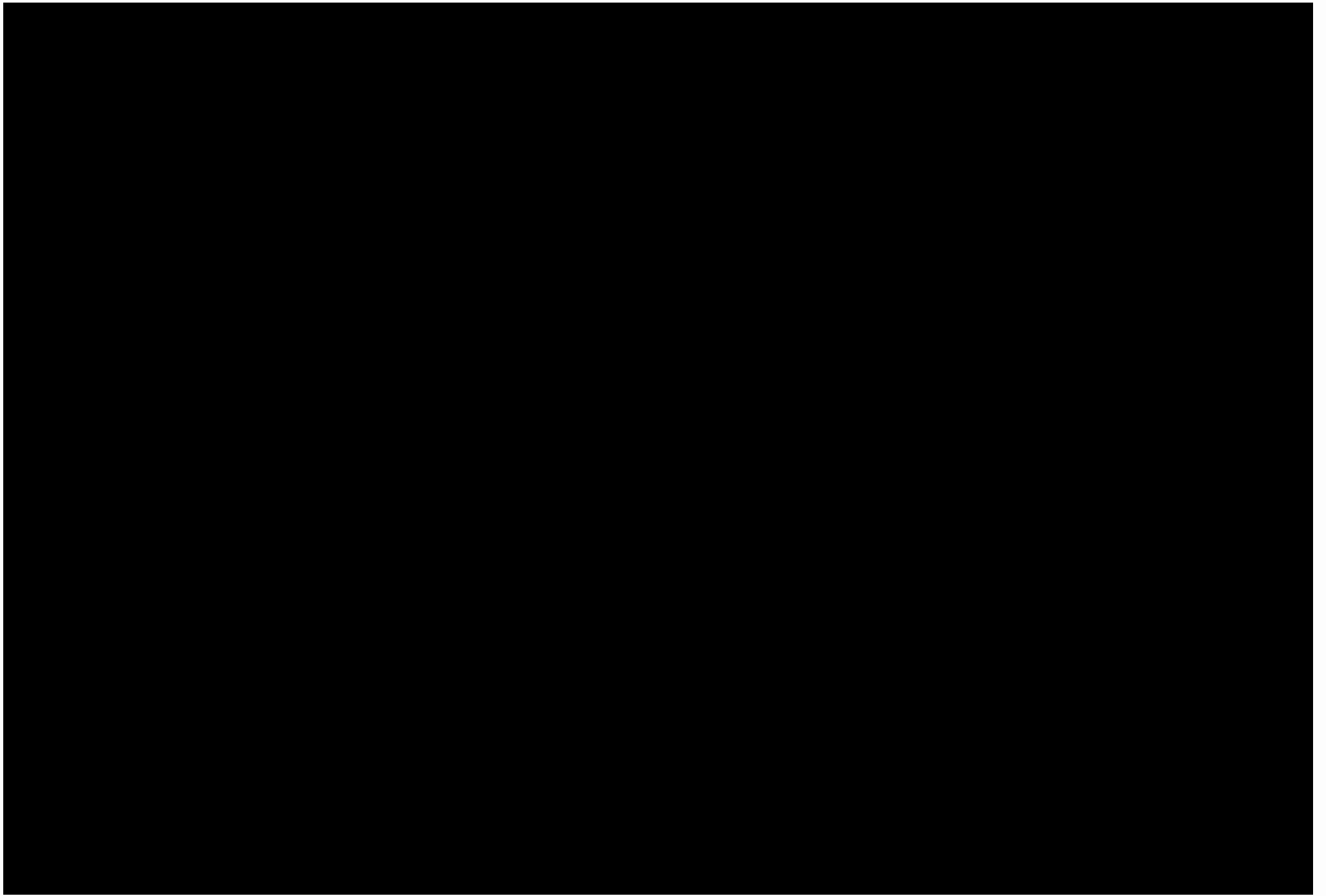


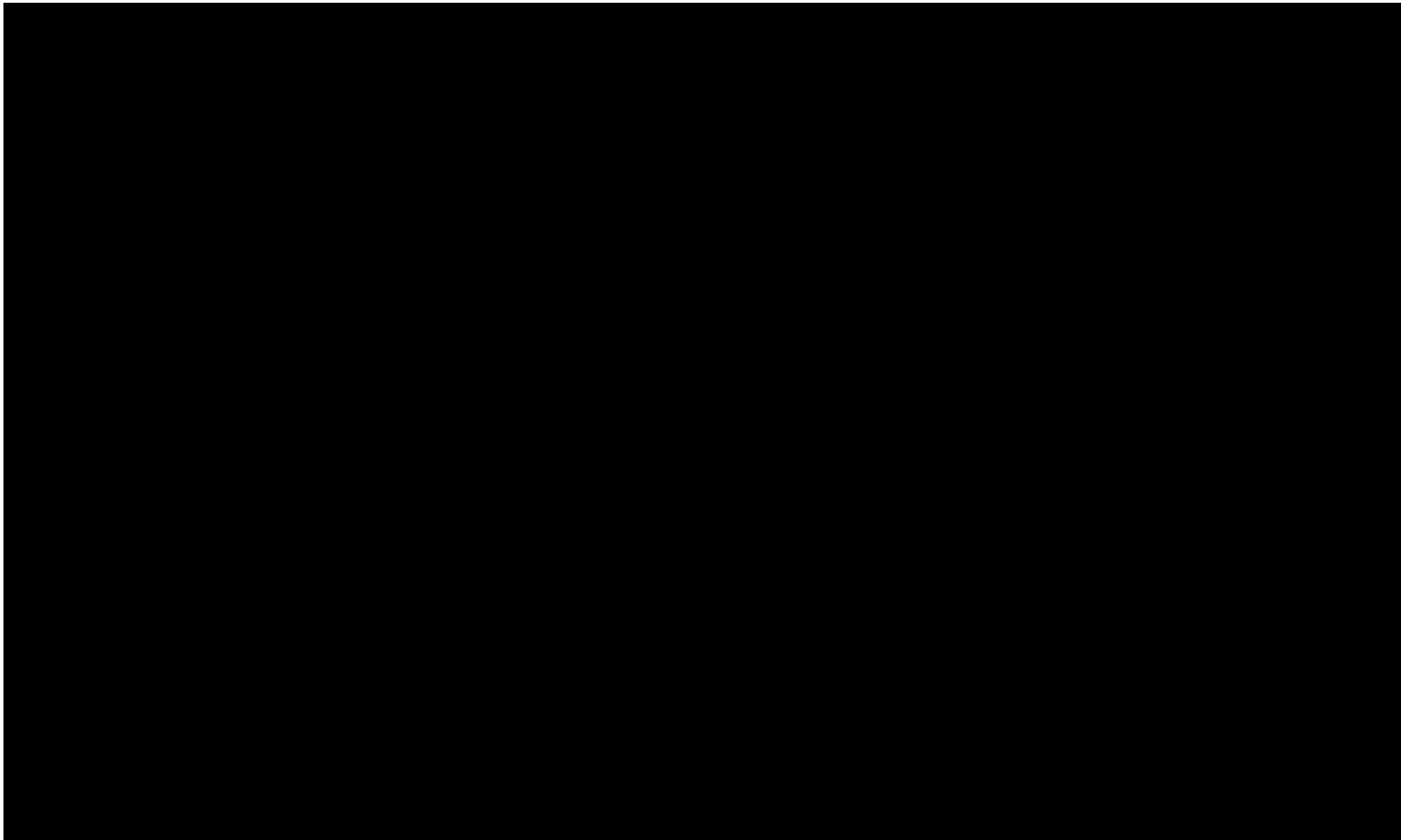












**SCHEDULE 6**

**Amendments to Schedule A7**

Schedule A7 is amended as set out in the attached mark-up.

**SCHEDULE A7. – SSJ CONTRACTOR'S PERSONNEL**

(Clauses 14.4(a), 14.4(b)(i) and 14.4(b)(iv))

The SSJ Contractor's personnel must be available as stated in this Schedule A7.

Note: A reference to "Full-time" in this Schedule A7 means the equivalent of a full-time person of at least 1840 hours per year or pro-rata part thereof.

Role Ref	Position	Nominated SSJ Contractor's Personnel	Organisation	Availability	Commence	Available Until
01	Project Director		SSJ Contractor		Date of the Contract.	
02	Project/Area Manager(s)		SSJ Contractor		Date of the Contract.	
03	Civil Construction Manager(s)		SSJ Contractor		May 2018.	
04	Engineering/Design Manager		SSJ Contractor		Date of the Contract.	
05	Rail Systems Construction Manager		SSJ Contractor		Commencement of Delivery Phase.	
06	Utility Services Manager		SSJ Contractor		Date of the Contract.	
07	Signalling Manager		SSJ Contractor		Date of the Contract.	
08	Commissioning and Operational Readiness Manager		SSJ Contractor		Date of the Contract.	
09	Design Team Manager		SSJ Contractor		Date of the Contract.	



Role Ref	Position	Nominated SSJ Contractor's Personnel	Organisation	Availability	Commence	Available Until
10	Architect's Lead		HASELL		Commencement of Delivery Phase.	
11	Structural Designer's Lead		<del>Robert Bird</del> GHD Aurecon JV		Commencement of Delivery Phase.	
12	Rail System Designer's Lead		GHD Aurecon JV		Commencement of Delivery Phase.	
13	Heritage Consultant's Lead		Purcell		Date of the Contract.	
14	Commercial Manager		SSJ Contractor		Date of the Contract.	
15	Environmental Manager		SSJ Contractor		Date of the Contract.	
16	Sustainability Manager		SSJ Contractor			
17	WHS Manager		SSJ Contractor		Commencement of Delivery Phase.	
18	Rail Safety Manager		SSJ Contractor		Commencement of Delivery Phase.	
19	Safety Assurance Manager		SSJ Contractor		Commencement of Delivery Phase.	
20	Certified Occupational Hygienist		Hibbs & Associates SI Contractor		Date of the Contract.	
21	Station Operations		SSJ		Date of the	

Role Ref	Position	Nominated SSJ Contractor's Personnel	Organisation	Availability	Commence	Available Until
	Interface Manager		Contractor		Contract.	
22	Interface Contractors Manager		SSJ Contractor		Date of the Contract.	
23	Quality Assurance Manager		SSJ Contractor		Apr-18-18.	
24	Workforce Development and Industry Participation Manager		SSJ Contractor		Date of the Contract.	
25	Aboriginal Participation Manager		SSJ Contractor		Date of the Contract.	
26	Stakeholder and Community Relations Manager		SSJ Contractor		Date of the Contract.	
27	Site Supervisors					
27.1	Site Supervisor - Civil		SSJ Contractor		May -2018.	
27.2	Site Supervisor - Utilities		SSJ Contractor		May -2018.	
28	Superintendents					
28.1	Superintendent - Construction		SSJ Contractor		Oct -2018.	
28.2	Superintendent - Rail		SSJ Contractor			

**SCHEDULE 7**

**Amendments to Schedule A9**

Schedule A9 is amended as set out in the attached mark-up.

**SCHEDULE A9. – FORM OF INTERFACE AGREEMENT DEED POLL IN FAVOUR OF RAIL  
TRANSPORT AGENCY AND TRANSPORT FOR NEW SOUTH WALES**

(Clauses 1.5(a))

**THIS DEED POLL is made the                      day of                      20**

**To:** Transport for NSW (ABN 18 804 239 602) of Level 43, 680 George Street, Sydney NSW 2000 (**TfNSW**)

**and**

Sydney Trains (ABN 38 284 779 682) of 477 Pitt Street Sydney NSW 2000 (**Rail Transport Agency**),

**By:** *[insert]* (**SSJ Contractor**).

**RECITALS**

- (A) Rail Transport Agency operates the commuter rail system in Sydney in the surrounds where the Works (Project) is to be undertaken by the SSJ Contractor and others.
- (B) TfNSW is responsible for developing certain major railway systems and other major transport projects.
- (C) TfNSW is responsible for procuring the execution and completion of the Project, and has entered into a safety interface agreement dated 28 June 2013 (**Global Safety Interface Agreement**) with Rail Transport Agency to cover the Project.
- (D) Rail Transport Agency is relying on TfNSW to procure the SSJ Contractor (with others) to execute and complete the Project in accordance with the Contract to ensure that Rail Transport Agency will satisfy, among other things, its obligation to provide an operating commuter rail system.
- (E) Rail Transport Agency will suffer loss if TfNSW does not procure the SSJ Contractor to execute and complete the Works in accordance with the ~~Contract~~ Sydney Metro City & Southwest – Sydenham Station and Junction Works Incentivised Target Cost Contract between TfNSW and the SSJ Contractor (**Contract**) and the Global Safety Interface Agreement.

**OPERATIVE**

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1. The SSJ Contractor will comply with its obligations under the Global Safety Interface Agreement as specified in the Contract.
2. During and upon Completion of the Project, the SSJ Contractor's Activities will satisfy the requirements of the Global Safety Interface Agreement.
3. Rail Transport Agency and TfNSW may assign or charge the benefits and rights accrued under this Deed Poll.
4. This Deed Poll is governed by the laws of the State of New South Wales.
5. This Deed Poll may not be revoked or otherwise modified without the prior written consent of Rail Transport Agency and TfNSW.
6. Where terms used in this Deed Poll are defined in the Contract or the Global Safety Interface Agreement, those terms have the meaning given to them in the Contract or the Global Safety Interface Agreement.

7. The aggregate of the SSJ Contractor's liability to the Rail Transport Agency and TfNSW under this Deed Poll and the SSJ Contractor's liability to TfNSW under the Contract;

(a) will not exceed the liability which the SSJ Contractor would have had under the Contract if the Contract had named, as Principal, the Rail Transport Agency and TfNSW jointly and severally; and

(b) is subject to the same limitations of liability, and qualifications on such limitations of liability, as are specified in the Contract.

**Executed** as a deed poll.

**Executed** by *[Insert] (ABN [Insert])* by or in the presence of:

\_\_\_\_\_  
Signature of Director

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Name of Secretary/other Director in full

**SCHEDULE 8**

**Amendments to Schedule A10**

Schedule A10 is amended as set out in the attached mark-up.

**SCHEDULE A10. – FORM OF SSJ CONTRACTOR DEED POLL**

(Clauses 1.5(b), 21.1(a)(iv), 21.1(e) and 21.1(h)(ii))

**This deed poll ("Deed Poll")** is made the                      day of                      20

**By:**                      *[insert name of SSJ Contractor] (ABN [insert SSJ Contractor's ABN]) of [insert SSJ Contractor's address] (TfNSW Contractor),*

**in favour of:** *[insert name of Beneficiary of Deed Poll – Sydney Trains and Rail Corporation New South Wales] (ABN [insert Beneficiary's ABN]) of [insert Beneficiary's address] (Owner),*

**RECITALS**

- A. TfNSW is responsible for delivering the Sydney Metro Program (**Program**).
- B. As part of the Program, TfNSW has entered into the Main Contract.
- C. ~~The Owner is relying on TfNSW to procure works to be carried out by~~ the TfNSW Contractor ~~to execute and complete under the Main Contract include~~ the Sydney Trains Works ~~in accordance with the Main Contract~~ on behalf of the Owner and the New South Wales Government.
- D. The Owner is relying on TfNSW to procure the TfNSW Contractor to execute and complete the Sydney Trains Works in accordance with the Main Contract.
- E. The Owner will suffer loss if TfNSW does not procure the TfNSW Contractor to execute and complete the Sydney Trains Works in accordance with the Main Contract.
- F. It is a condition of the Main Contract that the TfNSW Contractor executes this Deed Poll.

**THIS DEED POLL WITNESSES THAT THE TfNSW TfNSW CONTRACTOR HEREBY COVENANTS, WARRANTS AND AGREES** with and for the benefit of the Owner as follows:

- 1. It will comply with its obligations under the Main Contract, to the extent that those obligations arise under the SMCSW Transition Agreement, including with respect to achieving Practical Completion and Final Completion of the Sydney Trains Works.
- 2. Upon the issue of a certificate in accordance with clause 33.3(d) of the SMCSW Transition Agreement in respect of the Sydney Trains Works, the Sydney Trains Works will satisfy the requirements of the SMCSW Transition Agreement.
- 3. ~~This clause 3 only applies where the Owner is Sydney Trains. In consideration of the Owner making available to the TfNSW Contractor Track Possessions and Temporary Shutdowns the TfNSW Contractor agrees that it must indemnify the Owner against all costs, expenses, losses or damages suffered or incurred by the Owner in respect of any delay to rail services or late return of Track Possessions or Temporary Shutdowns arising out of or in connection with the TfNSW Contractor's Activities.~~

~~The maximum liability which the TfNSW Contractor will have to the Owner pursuant to this clause for each event resulting in delay to rail services or for late return of a Track Possession or Temporary Shutdown will be determined on the basis of the maximum period by which any train was delayed by the event or late return of a Track Possession or Temporary Shutdown, calculated by applying the following rates:~~

<del>Period in which delay occurs</del>	<del>Rate per hour or part thereof</del>
<del>During peak hours</del>	<del>[REDACTED]</del>



<del>(trains having to arrive and depart Sydenham Station between Monday to Friday (excluding public holidays) during the hours of 0600 and 0900 and 1600 and 1800 respectively)</del>	
During all other times	

4. The aggregate of the TfNSW Contractor's liability to the Owner under this Deed Poll and the TfNSW Contractor's liability to TfNSW under the Main Contract:
  - (a) will not exceed the liability which the TfNSW Contractor would have had under the Main Contract if the Main Contract had named, as Principal, the Owner and TfNSW jointly and severally; and
  - (b) is subject to the same limitations of liability, and qualifications on such limitations of liability, as are specified in the Main Contract.
5. Any provision of this Deed Poll which seeks to limit or exclude a liability of the TfNSW Contractor is to be construed as doing so only to the extent permitted by law.
6. The Owner may assign or charge the benefits and rights accrued under this Deed Poll.
7. This Deed Poll is governed by the laws of the State of New South Wales.
8. This Deed Poll may not be revoked or otherwise modified without the prior written consent of the Owner.
9. In this Deed Poll, terms have the same meaning as in the SMCSW Transition Agreement:

**Deed Poll** means this deed poll.

**Main Contract** means the deed entitled "Sydney Metro City & Southwest – Sydenham Station and Junction Works Incentivised Target Cost Contract" between TfNSW and the TfNSW Contractor.

**SMCSW Transition Agreement** means the agreement entitled "Sydney Metro City & Southwest Transition Agreement (000-TPA-ST\_RC-02)" between TfNSW, Sydney Trains and RailCorp.

**Sydney Trains Works** has the same meaning as in the SMCSW Transition Agreement.

**TfNSW** means Transport for NSW, a NSW Government agency constituted under the *Transport Administration Act 1988* (NSW).



**Executed** as a deed poll.

**Executed** by *[insert SSJ Contractor's name]* ABN *[insert SSJ Contractor's ABN]*  
by or in the presence of:

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Signature of Director

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Signature of Secretary/other Director

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Name of Director in full

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Name of Secretary/other Director in full

**SCHEDULE 9**

**Amendments to Schedule A11**

Schedule A11 is amended as set out in the attached mark-up.

**SCHEDULE A11. – FORM OF OTHER CONTRACTOR DEED POLL**

(Clause 3.3(b))

**THIS DEED POLL is made the                      day of                      20**

**To:**                      [Insert name] (ABN [Insert]) of [Insert address] (**SSJ Contractor**) and  
 Transport for NSW (ABN 18 804 239 602) of Level 43, 680 George Street,  
 Sydney NSW 2000 (**Principal**)

**By:**                      [Insert name] (ABN [Insert]) of [Insert address] (**Other Contractor**)

**RECITALS**

- (A) By a contract dated [insert date] between the Principal and the SSJ Contractor (**Contract**), the SSJ Contractor agreed to design and construct certain works (**Works**), on the land more particularly described in the Contract (the Construction Site).
- (B) The Other Contractor has been appointed under a contract (**Other Contract**) to undertake certain works on the Construction Site (**Other Contractor Works**).
- (C) For the purposes of the *Work Health and Safety Act 2011* (NSW) and the *Work Health and Safety Regulation 2011* (NSW) (together, the **WHS Legislation**), the Works and the Other Contractor Works are a 'construction project' within the meaning of the WHS Legislation.
- (D) Under the Contract, the Principal engaged the SSJ Contractor as principal contractor and authorised the SSJ Contractor to have management and control of the workplace for the purpose of discharging the duties imposed on a principal contractor for the construction project.
- (E) Under the provisions of the Contract, the Principal is required to procure the provision of this Deed Poll from each Other Contractor that undertakes Other Contractor Works (as that term is defined in the Contract).

**OPERATIVE**

1. In consideration of the SSJ Contractor accepting this Deed Poll, the Other Contractor agrees that:
- (a) the Other Contractor, its subcontractors and their respective personnel while they are on the Construction Site, will comply with Construction Site safety regulations, any Construction Site rules or regulations and with all directions of the SSJ Contractor with respect to work health and safety;
- (b) the Other Contractor, its subcontractors and their respective personnel will comply in a timely manner with directions of the SSJ Contractor so that the SSJ Contractor discharges its obligations as principal contractor;
- (c) the Other Contractor, its subcontractors and their respective personnel will consult, cooperate and coordinate activities with the SSJ Contractor, the Principal and all other persons who have a work health and safety duty in relation to the same matter;
- (d) the Other Contractor, its subcontractors and their respective personnel will comply with the work health and safety plan(s) prepared by the SSJ Contractor while on Construction Site;

- (e) the SSJ Contractor may exclude the Other Contractor, any of its subcontractors and their respective personnel from the Construction Site for work health and safety reasons;
  - (f) the SSJ Contractor may direct the Other Contractor, any of its subcontractors and their respective personnel to perform or not perform certain acts for work health and safety reasons;
  - (g) where high risk construction work is to be carried out in the performance of the Other Contractor Works, the Other Contractor must:
    - (i) prepare a safe work method statement that complies with all requirements of the WHS Legislation;
    - (ii) provide a copy of the safe work method statement to the Principal and the SSJ Contractor prior to the commencement of high risk construction work;
    - (iii) review and revise the safe work method statement in accordance with the WHS Legislation;
    - (iv) ensure that the high risk construction work is carried out in compliance with the safe work method statement; and
    - (v) where so directed by the SSJ Contractor, suspend the performance of any high risk construction work;
    - (vi) ~~(#)~~ the Other Contractor must, in carrying out the work under the Other Contract, comply with, and ensure that all subcontractors and personnel comply with the WHS Legislation; and
    - (vii) ~~(#)~~ in its contracts with subcontractors, the Other Contractor will ensure that the subcontractor is obliged to give the same obligations and rights as required of the Other Contractor under this Deed Poll.
2. The Other Contractor indemnifies the SSJ Contractor against any delay, damage, expense, loss, penalty or liability suffered or incurred by the SSJ Contractor as a result of:
- (a) any failure by the Other Contractor to comply with any direction given by the SSJ Contractor in accordance with this Deed Poll; or
  - (b) any breach by the Other Contractor, any of its subcontractors or their respective personnel of:
    - (i) their respective contractual or legislative work health and safety obligations; or
    - (ii) the provisions of this Deed Poll.
3. This Deed Poll will be governed by and construed in accordance with the law for the time being of New South Wales.

**EXECUTED** as a deed poll.

**Executed** by *[Insert]* (ABN *[Insert]*) by or  
in the presence of:

\_\_\_\_\_  
Signature of Director

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Name of Secretary/other Director in full

**SCHEDULE 10**

**Amendments to Schedule A12**

Schedule A12 is amended as set out in the attached mark-up.



- A. where the SSJ Contractor's instructions in relation to design are not consistent with the Subcontract or may result in the works under the Subcontract not being fit for their intended purpose; or
  - B. where the SSJ Contractor's instructions require the Designer to issue a certificate where the conditions for the issue of that certificate under the Subcontract have not been satisfied.
- (b) The Designer must carry out the Professional Services so as to minimise any interference with, disruption or delay to the services and work carried out by other contractors engaged by the Principal.

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## 2. Notices

- (a) Any notices contemplated by, or arising out of or in any way in connection with, this deed poll must be in writing and delivered to the relevant address or sent to the facsimile number shown below (or to a party's new address or ~~facsimile number~~ email address which that party notifies to the others):
- (i) to the Principal: Level 43, 680 George Street, Sydney NSW 2000  
~~Fax~~ Email: **[Note: to be completed prior to execution of this deed poll]**
  - (ii) to the Designer: **[Note: to be completed prior to execution of this deed poll]**  
~~Fax~~ Email: **[Note: to be completed prior to execution of this deed poll]**
- (b) A notice sent by post will be taken to have been received at the time when, in due course of the post, it would have been delivered at the address to which it is sent.
- (c) A notice sent by ~~facsimile~~ email will be taken to have been received ~~on the next day after the day shown on the transmission slip showing the facsimile number of the party to whom it is addressed in accordance with clause 2(a), which is not a Saturday, Sunday or public holiday in New South Wales.~~
- (i) if it is transmitted before 5.00pm (Sydney time) on a Business Day, on that Business Day; or
  - (ii) if it is transmitted after 5.00pm (Sydney time) on a Business Day, or a day that is not a Business Day, on the next Business Day.
- (d) If the Designer is a foreign company (as defined in the *Corporations Act*), the Designer must within 14 days of the date of this deed poll:
- (i) appoint a local process agent acceptable to the Principal as its agent to accept service of process under or in any way in connection with this deed poll; and
  - (ii) obtain the process agent's consent to the appointment.

The appointment must be in a form acceptable to the Principal and may not be revoked without the Principal's consent.

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## 3. Miscellaneous

- (a) This deed poll will be construed in accordance with the law of the State of New South Wales and the Designer irrevocably submits to the jurisdiction of the Courts of that State.



- (b) This deed poll may not be revoked or otherwise modified without the prior written consent of the Principal.

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**4. Limit of liability**

The aggregate of the Designer's liability to the Principal under this deed poll and the Designer's liability to the SSJ Contractor under the Subcontract will not exceed the liability that the Designer would have had under the Subcontract if the Subcontract had named, as parties having the benefit of the performance of the obligations of the Designer:

- (a) the Principal; and
- (b) the SSJ Contractor.

**Schedule**

*[insert description of Professional Services]* as more particularly described in the Subcontract.

**Executed** as a deed poll.

**Executed by *[insert Designer's name]* ABN *[insert Designer's ABN]* by or in the presence of:**

---

Signature of Director

---

Name of Director in full

---

Signature of Secretary/other Director

---

Name of Secretary/other Director in full

**SCHEDULE 11**

**Amendments to Schedule A16**

Schedule A16 is amended as set out in the attached mark-up.

**SCHEDULE A16. – INITIAL REPORTS**

(Clauses 1.1, 8.7(b)(v) and 8.7(c)(vi))

This Schedule A16 is comprised of the documents identified in the table below. The documents (with the exception of Doc No. 6, 7, 8 and 9 which are available on the PDCS) are included as electronic files on a separate disc titled:

*Sydney Metro City & Southwest - Sydenham Station & Junction Works - Electronic Files*

Doc No.	Description	Filename	Date/ Rev	Format
1	City and Southwest Sydney Metro Asset Condition Assessment, Sub-portion 3: Sydenham Station and Junction – Preliminary Contamination Assessment	SSJ Preliminary Contamination Assessment Report (Final).pdf <a href="#">SMCSWSSJ-SMD-WSS-PM-REP-000295</a>	14 August 2017 Rev 1	PDF
2	Sydney Metro City & Southwest Sydenham to Bankstown Upgrade Technical Paper – Contamination Assessment Report	SM C&SW - Technical Paper - Contamination Assessment Report <a href="#">SMCSWSSJ-SMD-WSS-PM-REP-000294</a>	4 April 2017 Draft	PDF
3	Sydney Metro City & Southwest Asset Condition Assessment Asset Condition Report – Final Tranche 4	SM C&SW - Asset Condition Report – Final Tranche 4 <a href="#">SMCSWSSJ-SMD-WSS-PM-REP-000293</a>	20 September 2016 Final	PDF
4	City & Southwest Metro Asset Condition Assessment Hazardous Materials Assessment	C&SW - Hazardous Materials Assessment <a href="#">SMCSWSSJ-SMD-WSS-PM-REP-000292</a>	8 September 2016	PDF
5	SSJ Sydenham Station Potholing Report	SSJ Sydenham Station Potholing Report <a href="#">SMCSWSSJ-SMD-WSS-PM-REP-000296</a>	17 August 2017 Rev 4	PDF
<u>6</u>	<u>SM C&amp;SW Platform Contamination Assessment Report</u>	<u>SM C&amp;SW Platform Contamination Assessment Report</u> <a href="#">SMCSWSSJ-SMD-WSS-EN-REP-000173</a>	<u>25 October 17 Rev 1</u>	<u>PDF</u>
<u>7</u>	<u>INTERIM GEOTECHNICAL INTERPRETIVE REPORT STAGE 2</u>	<a href="#">SMCSWSSJ-JHL-WSS-GE-REP-015064.pdf</a> <a href="#">SMCSWSSJ-JHL-WSS-GE-REP-015064</a>	<u>27 April 2018</u> Rev A	<u>PDF</u>
<u>8</u>	<u>Site Investigation during Target Cost Development Phase</u>	<a href="#">SMCSWSSJ-JHL-WSS-SR-REP-000003.pdf</a>	<u>15 June 2018</u>	<u>PDF &amp; DWG</u>

Doc No.	Description	Filename	Date/Rev	Format
	<a href="#">(including Sydenham Station and Street Topo Drawing Rev B)</a>	<a href="#">&amp; SSJ-DJV-WSS-SU-MO D-Sydenham Station and Streets - Topo RevB.dwg</a> <a href="#">SMCSWSSJ-JHL-WSS- SR-REP-000950</a>	<a href="#">Rev 00</a>	
<a href="#">9</a>	<a href="#">Negotiated Target Cost Offer Submission 17.05.18 - Appendix D - Sydney Water Revetment Wall Scope</a>	<a href="#">Appendix D - Sydney Water Revetment Wall Scope (002).pdf</a> <a href="#">SMCSWSSJ-JHL-WSS- CT-REC-000859</a>	<a href="#">17 May 2018</a>  <a href="#">Rev A</a>	<a href="#">PDF</a>

**SCHEDULE 12**

**Amendments to Schedule A17**

Schedule A17 is amended as set out in the attached mark-up.

**SCHEDULE A ~~17.~~ TARGET COST OFFER DISPUTE RESOLUTION ~~17~~ – NOT USED**

(Clause 4.3(e)(i))

**~~1. EXPERT DETERMINATION RULES~~**

- ~~(a) Any expert determination under clause 4.3(e)(i) of the Contract is to be conducted by the Nominated Target Cost Offer Expert.~~
- ~~(b) An expert determination conducted under clause 4.3(e)(i) of the Contract is not an arbitration and the expert is not an arbitrator. The expert may reach a decision from his or her own knowledge and expertise.~~
- ~~(c) The expert determination must be made in accordance with this deed and the rules for the expert determination process in Attachment A (Expert Determination Agreement) or such other rules as the expert may in his or her absolute discretion require.~~
- ~~(d) The expert must:
  - ~~(i) disclose to the parties any interest he or she has in the outcome of the determination; and~~
  - ~~(ii) not communicate with one party to the determination without the knowledge of the other.~~~~
- ~~(e) Each party must:
  - ~~(i) bear its own costs in respect of any expert determination; and~~
  - ~~(ii) pay one half of the expert's costs.~~~~
- ~~(f) The expert will not be liable to the parties arising out of, or in any way in connection with, the expert determination process, except in the case of fraud.~~
- ~~(g) The parties must enter into an agreement with the Nominated Target Cost Offer Expert on the terms prescribed in Attachment A or such other terms as the parties and the Nominated Target Cost Offer Expert agree.~~



**ATTACHMENT A**

**EXPERT DETERMINATION AGREEMENT**

To:

By a deed titled "Sydney Metro City and Southwest Sydenham Station and Junction Works (Incentivised Target Cost Contract) " dated ..... (**SSJ ITC Contract**) between:

**Transport for NSW** ABN: 18 804 239 602 (**TfNSW**); and

..... (**SSJ Contractor**);

The SSJ Contractor and TfNSW agreed to submit Target Cost Offer Disputes to an expert for determination through an expert determination process, as established by the SSJ ITC Contract, and the Rules for expert determination and the Code of Conduct for an expert that are attached to this letter or any other rules which you may in your absolute discretion decide.

A dispute has arisen between the parties. A short summary of the dispute is attached to this letter. The parties agree to appoint you,

.....

..... of .....

as the sole expert to determine the Dispute or difference in accordance with the below procedures. The parties agree to pay you \$.....

The determination of the dispute or difference must be completed within [#] days (or such other period as may be agreed between you, TfNSW and the SSJ Contractor) of the date of your acceptance of this appointment.

The parties agree that you are not liable for any thing you do which is bona fide and in the exercise or purported exercise of your functions as the expert.

Dated: .....

.....  
For TfNSW

.....  
For the SSJ Contractor

.....  
For the expert

**CODE OF CONDUCT FOR AN EXPERT**

1. ~~The function of the expert is to make a determination on the dispute or difference in accordance with the rules in Attachment B (*Rules for expert determination*) and the Resolution Institute Expert Determination Rules (to the extent not inconsistent with the rules in Attachment B (*Rules for expert determination*)), this code of conduct and the letter of appointment of the expert.~~
2. ~~The expert must receive the written submissions and responses of the parties in accordance with the procedures specified in Attachment B (*Rules for expert determination*) and may require any further information or documentation from the parties which is reasonably necessary to determine the dispute or difference.~~
3. ~~The expert must decide whether a conference is necessary to receive further information. The expert must inform the parties of the subject matter of any conference and may hear representations only on those matters.~~
4. ~~The expert is not bound by the rules of evidence, may receive information in any manner the expert thinks fit (including as an inquisitor) and, subject to rules 5 and 6 of this Code of Conduct, must meet the requirements of procedural fairness.~~
5. ~~The expert must disclose to both parties all information and documents received. If a party fails to make a written submission or appear at any conference after having received the appropriate notice, the expert may continue with the process. Subject to this, discussions with the expert must only take place in the presence of both parties.~~
6. ~~The expert must reach a determination on the basis of the information received from the parties and on the basis of the expert's own expertise. The decision must be reached as an expert and not as an arbitrator. The expert's determination must be made as soon as possible and in any event within the period set out in the letter of appointment of the expert. The determination, signed by the expert, must be notified immediately to the parties in writing.~~
7. ~~The expert must keep all information received confidential and must not disclose that information without the prior written consent of the parties.~~
8. ~~The expert must inform the parties immediately of any circumstances that might adversely affect the expert's capacity to act independently or impartially. The expert, in those circumstances, must terminate the proceedings, unless the parties agree otherwise.~~



**ATTACHMENT B****RULES FOR EXPERT DETERMINATION****1. COMMENCEMENT**

The expert determination process begins when the Principal notifies the expert of a Target Cost Offer Dispute and the expert accepts an appointment to determine the Target Cost Offer Dispute in accordance with these rules and the code of conduct for experts forming part of this expert determination agreement.

**2. WRITTEN SUBMISSIONS**

- (a) Within 7 days after the date this process begins, the SSJ Contractor must give TfNSW and the expert a written submission setting out details of the dispute or difference, any agreed statement of facts and a written submission on the dispute or difference in support of the SSJ Contractor's contentions.
- (b) Within 7 days after receipt of a copy of the submission referred to in clause 2(a), TfNSW must give the SSJ Contractor and the expert a written response to the SSJ Contractor's submission.
- (c) Within 7 days after receipt of the response, the SSJ Contractor may reply to the response but must not raise new matters.
- (d) Within 7 days after receipt of that reply, TfNSW may make comments upon the reply but not raise new matters.
- (e) For the purpose of counting days in these rules, Saturdays, Sundays, public holidays and the period from 24 December to 15 January inclusive will not be counted. All submissions, responses and comments must be in writing. Unless the expert and the parties otherwise agree, the expert must ignore any submission, response or comment made later than the time prescribed. A party providing anything to the expert must at the same time provide a copy to the other party.
- (f) If the expert considers it appropriate, the SSJ Contractor may reply in writing to TfNSW's comments submitted in accordance with clause 2(d) within the time allowed by the expert.
- (g) If the expert decides further information or documentation is required for the determination of the dispute or difference, the expert:
  - (i) may require a further written submission or documents from one or both parties, giving each party a reasonable opportunity to make a written response to the other's submission;
  - (ii) must not communicate with one party without the knowledge of the other; and
  - (iii) may request a conference in accordance with clause 3 (Conference) below.

**3. CONFERENCE**

- (a) The expert may notify the parties that a conference between the parties is considered necessary and set out in such a notice the matters that the expert wants to discuss at the conference.

- ~~(b) Provided that the parties agree, at the request of the expert and on such terms as the parties may agree, the expert may arrange a conference.~~
- ~~(c) At least 7 days before the conference, the expert must inform the parties of the conference agenda.~~
- ~~(d) The parties must appear at the conference and make oral submissions on the subject matter of the conference.~~
- ~~(e) The expert is not bound by the rules of evidence in conducting the conference.~~
- ~~(f) Neither party may have legal representation at a conference.~~
- ~~(g) The conference must be held in private.~~
- ~~(h) If required by either party, minutes of the conference proceedings must be taken and made available to the expert and the parties.~~
- ~~(i) All proceedings and submissions relating to the expert determination process must be kept confidential except:
 
  - ~~(i) with the prior written consent of the parties;~~
  - ~~(ii) as may be required by law; or~~
  - ~~(iii) in order to enforce the determination of the expert.~~~~

#### 4. **THE DETERMINATION**

- ~~(a) As soon as possible after receipt of the submissions or after any conference and, in any event not later than the period of time after the expert's acceptance of appointment agreed by the parties and the expert, the expert must:
 
  - ~~(i) determine the Target Cost Offer Dispute by at least providing a written opinion and a statement of reasons for making the determination; and~~
  - ~~(ii) notify the parties of that determination in writing.~~~~
- ~~(b) The expert must make the determination on the basis of the submissions of the parties, including documents, and the expert's own knowledge and expertise.~~
- ~~(c) The expert's determination of the Target Cost Offer Dispute will be final and binding on the parties.~~
- ~~(d) Unless the parties agree to extend the time for making a determination, as agreed by the parties under clause 4(a), the expert cannot deliver a determination after that time.~~
- ~~(e) If the determination contains clerical or mathematical errors or accidental slips or omissions, the expert may correct them after the expiry of the time for making the determination.~~

#### 5. **COSTS**

- ~~(a) Each party must bear its own costs of the expert determination and must share equally the costs of the expert.~~
- ~~(b) Security for costs must be deposited by both parties at the commencement of the expert determination process in accordance with any direction of the expert.~~

6. **MODIFICATION**

~~These rules may be modified only by agreement of the parties and the expert.~~

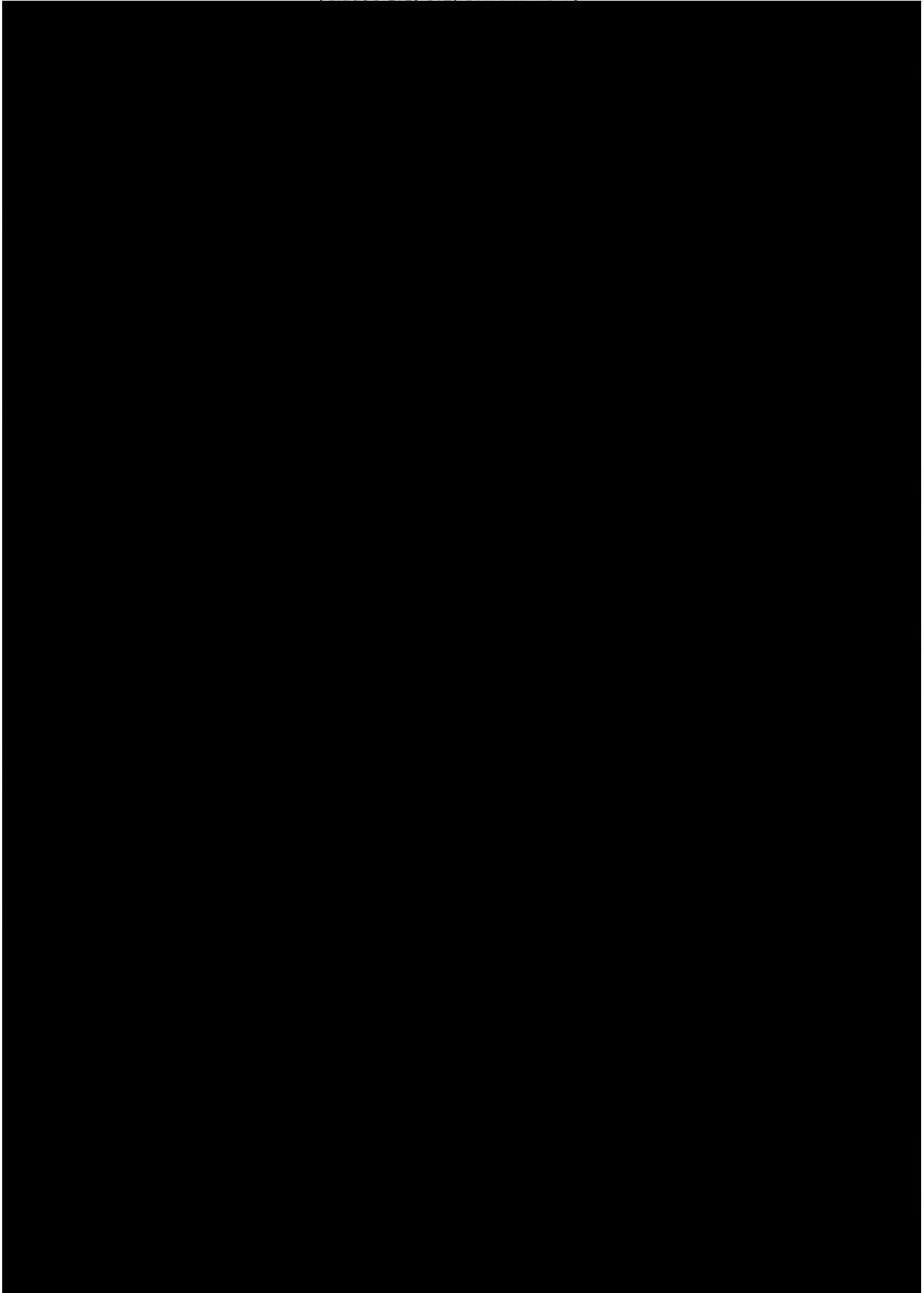
**SCHEDULE 13**

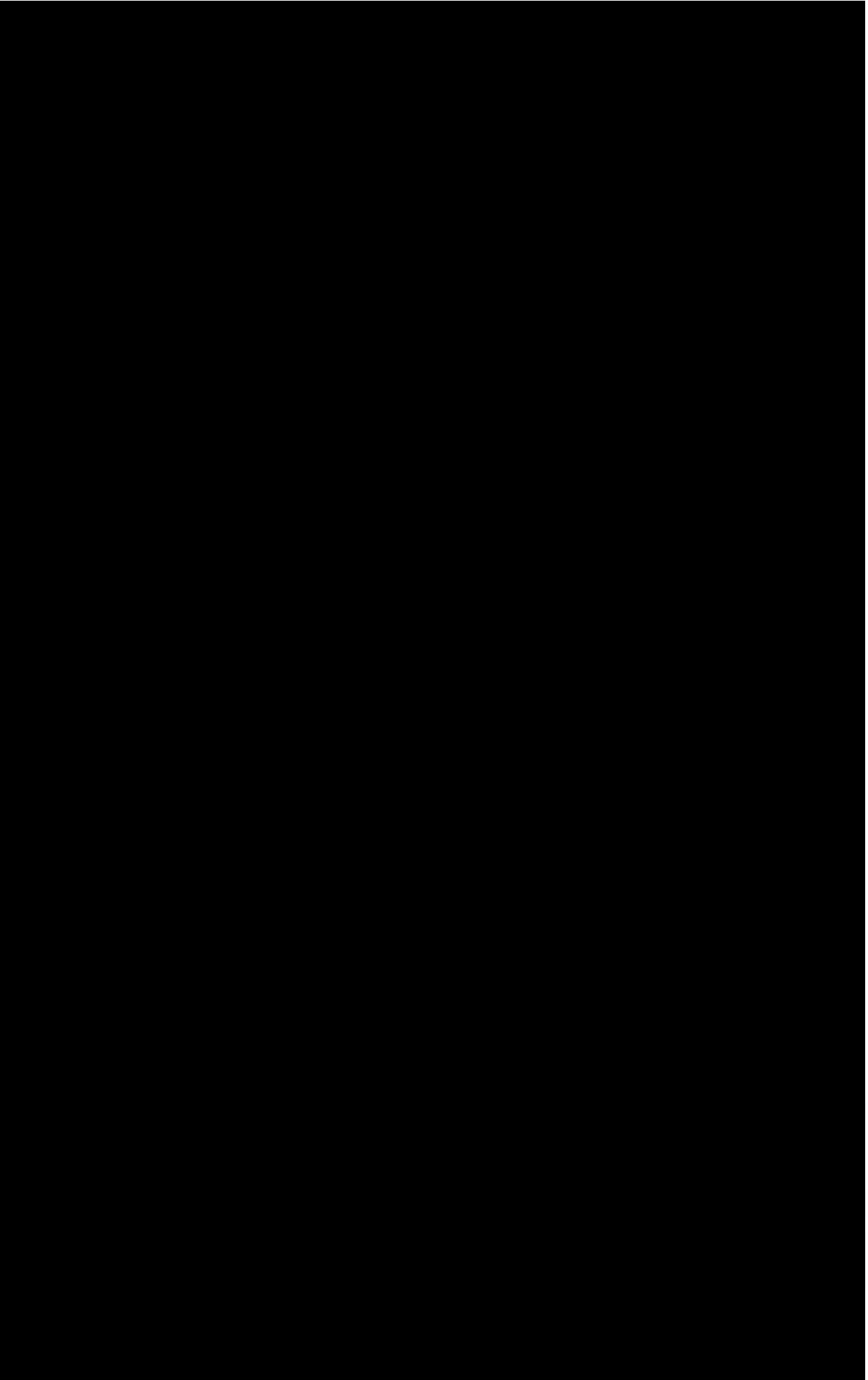
**Amendments to Schedule A19**

Schedule A19 is amended as set out in the attached mark-up.

**SCHEDULE A19. – SSJ INTERFACE CONTRACTOR COOPERATION AND INTEGRATION  
DEED**

(Clause 1.1, 3.2, 3.4 and 13.3)

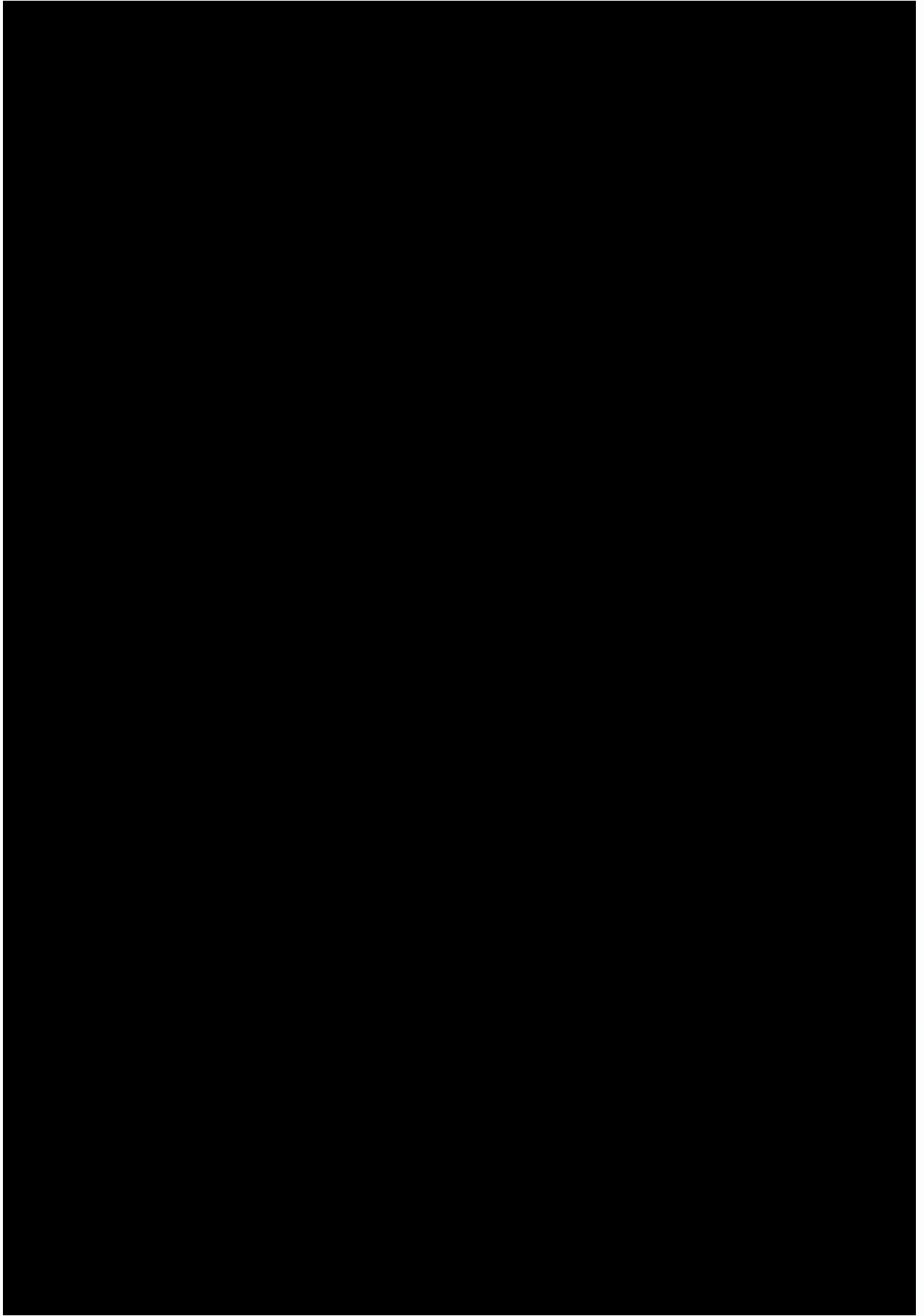


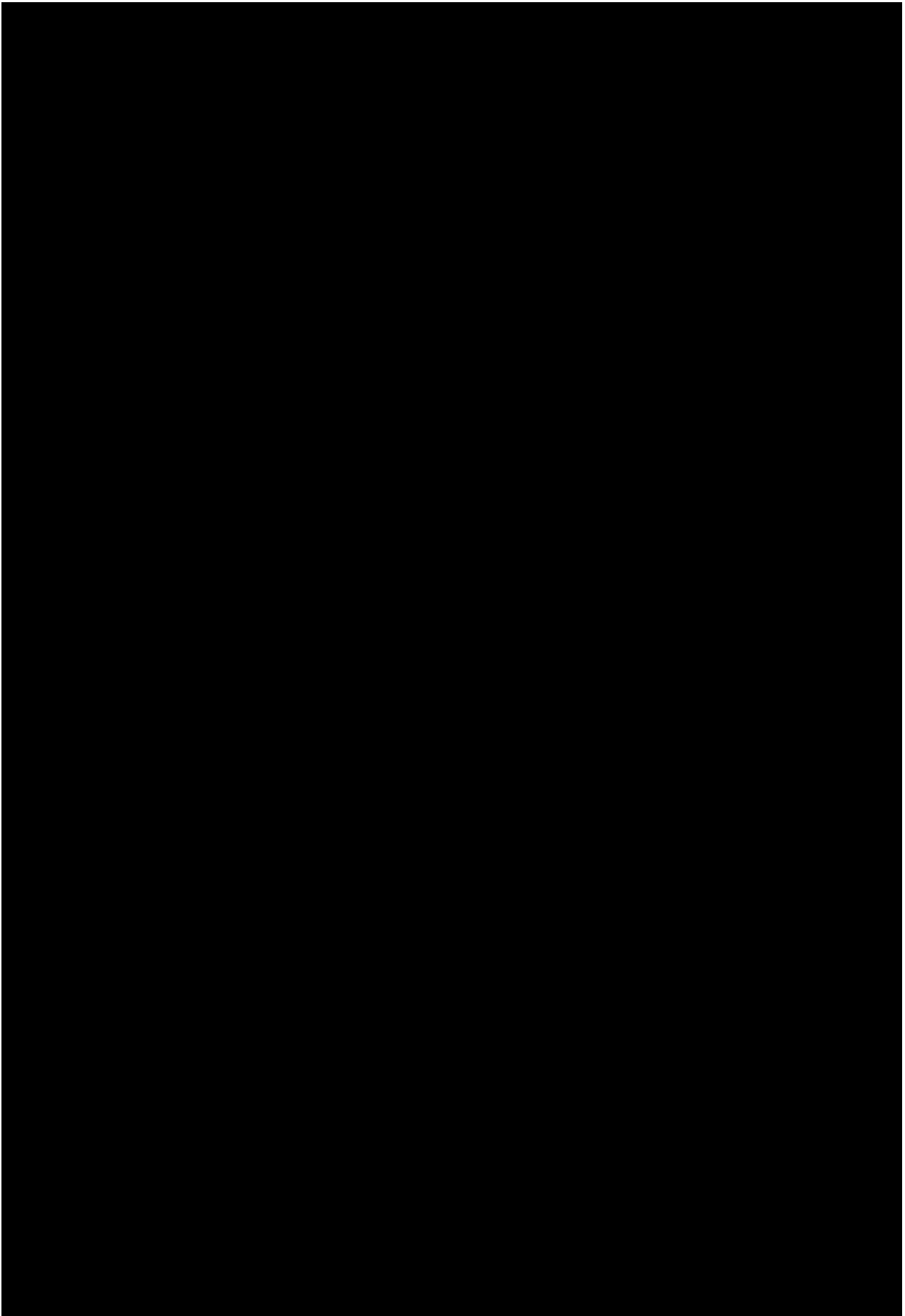


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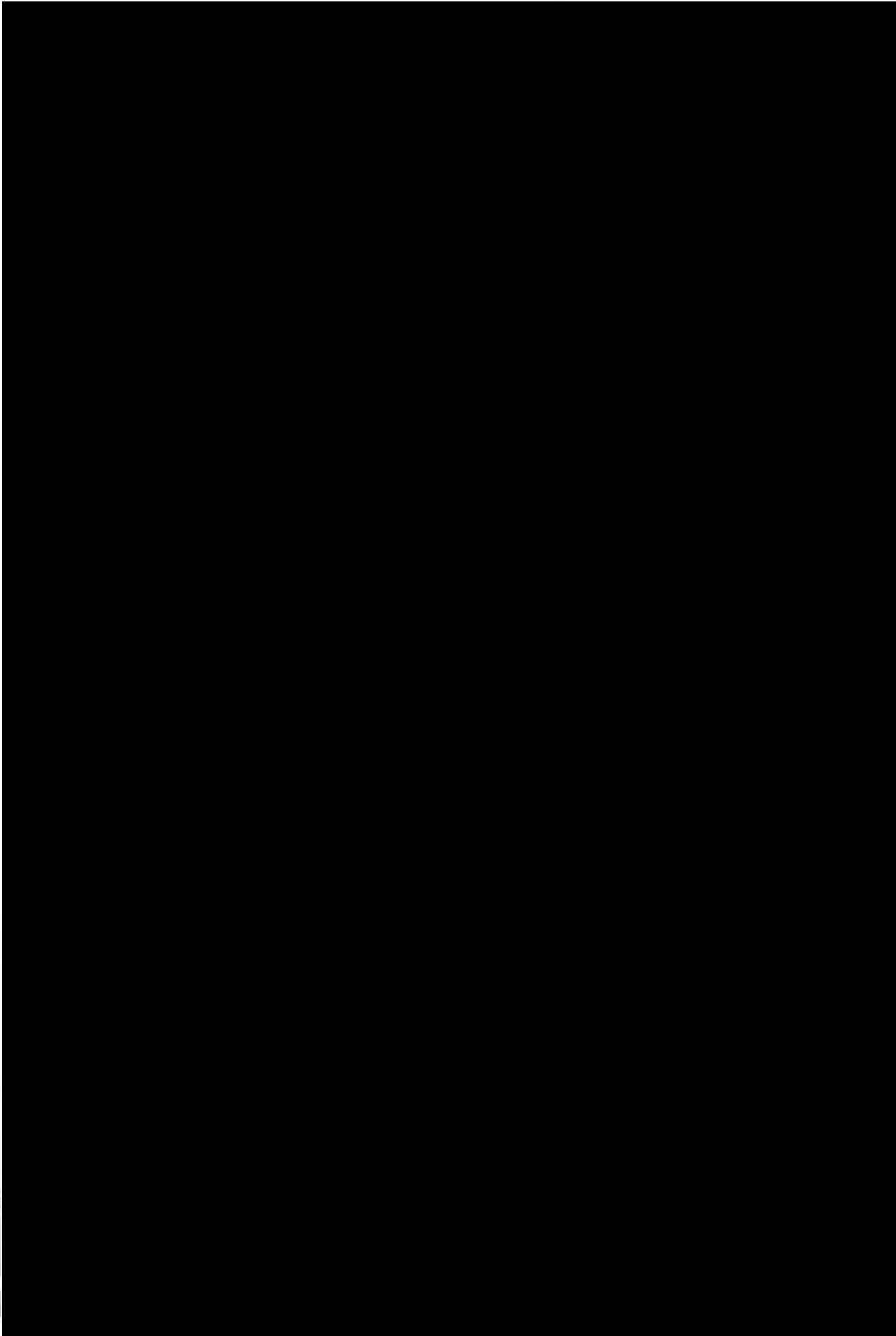
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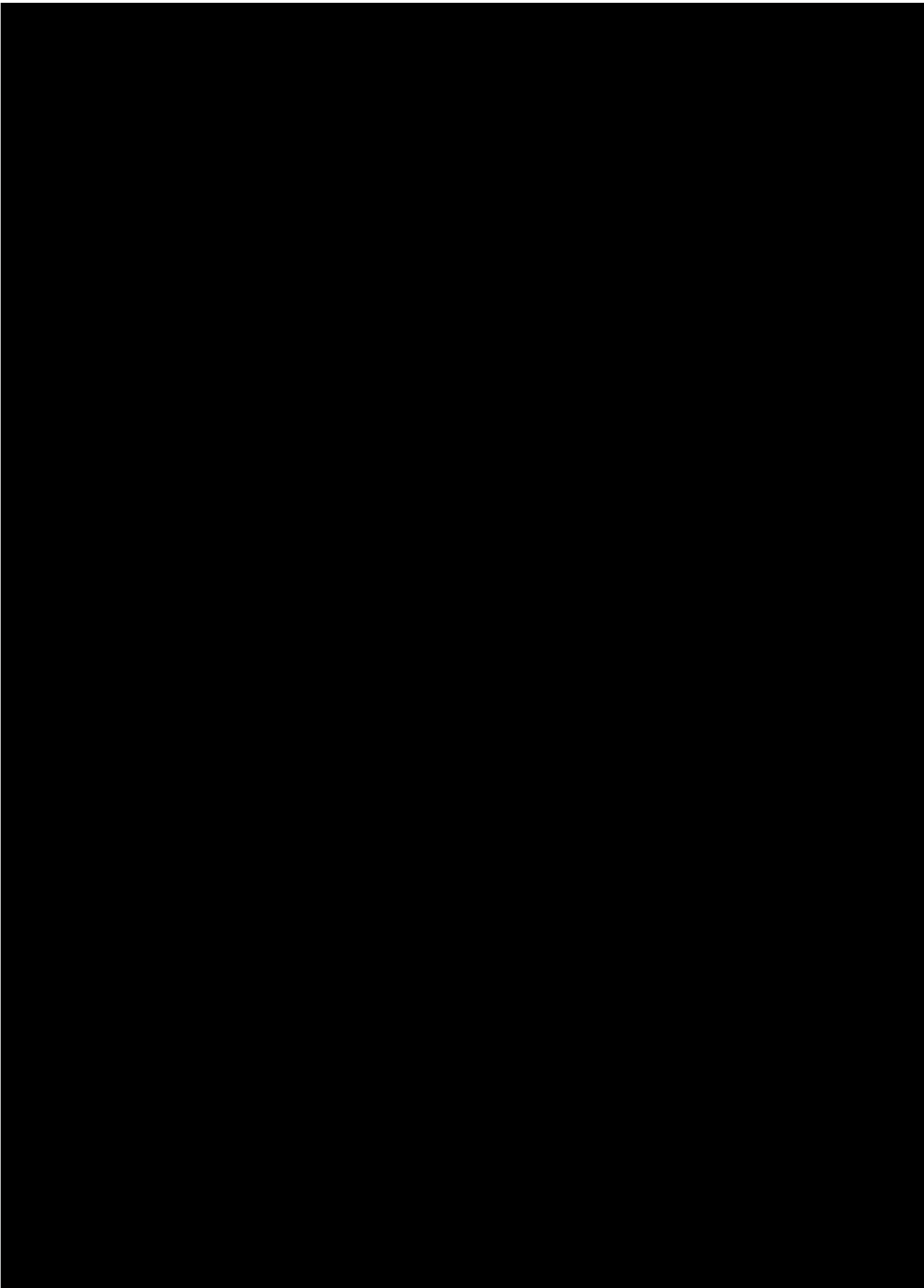


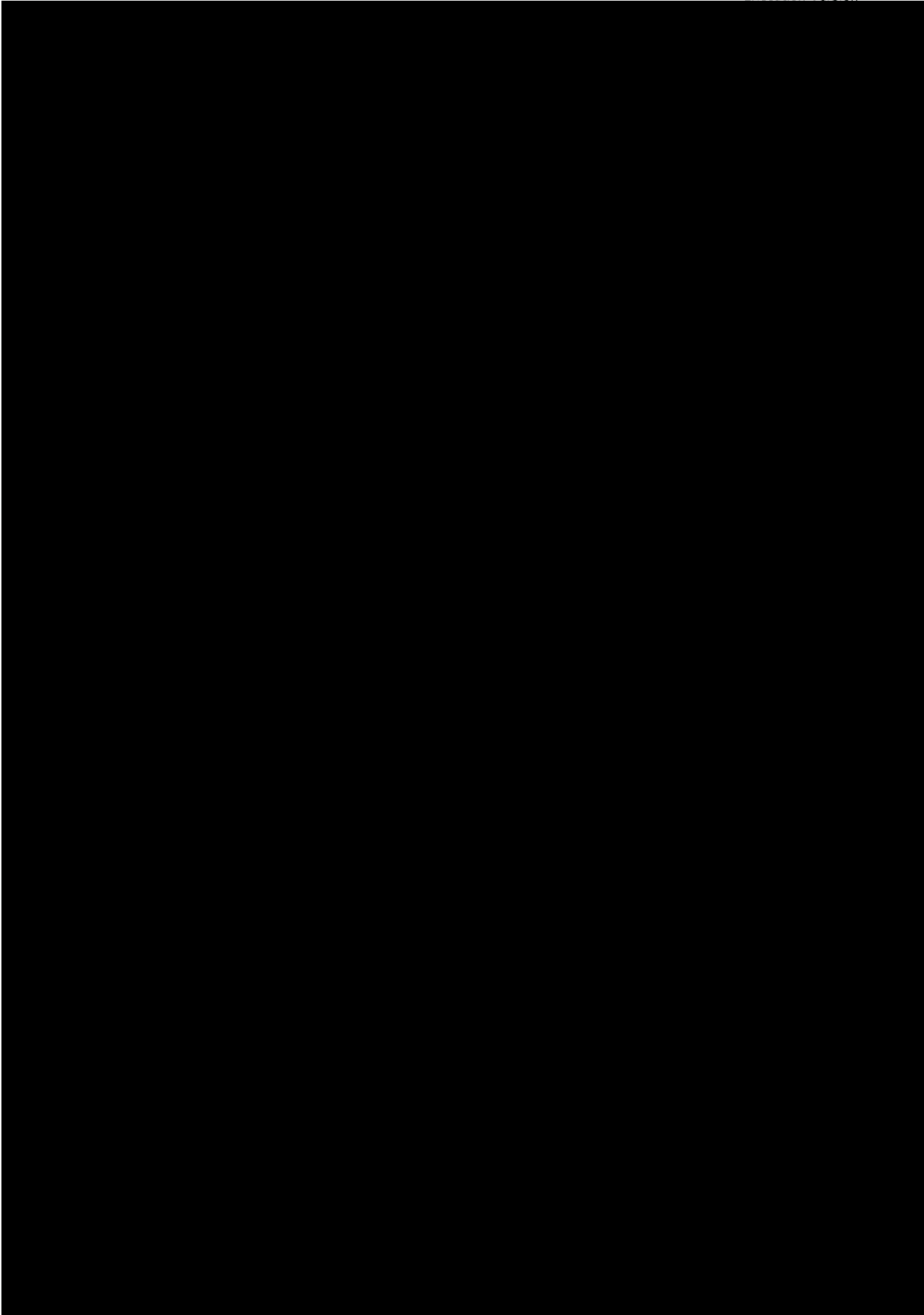


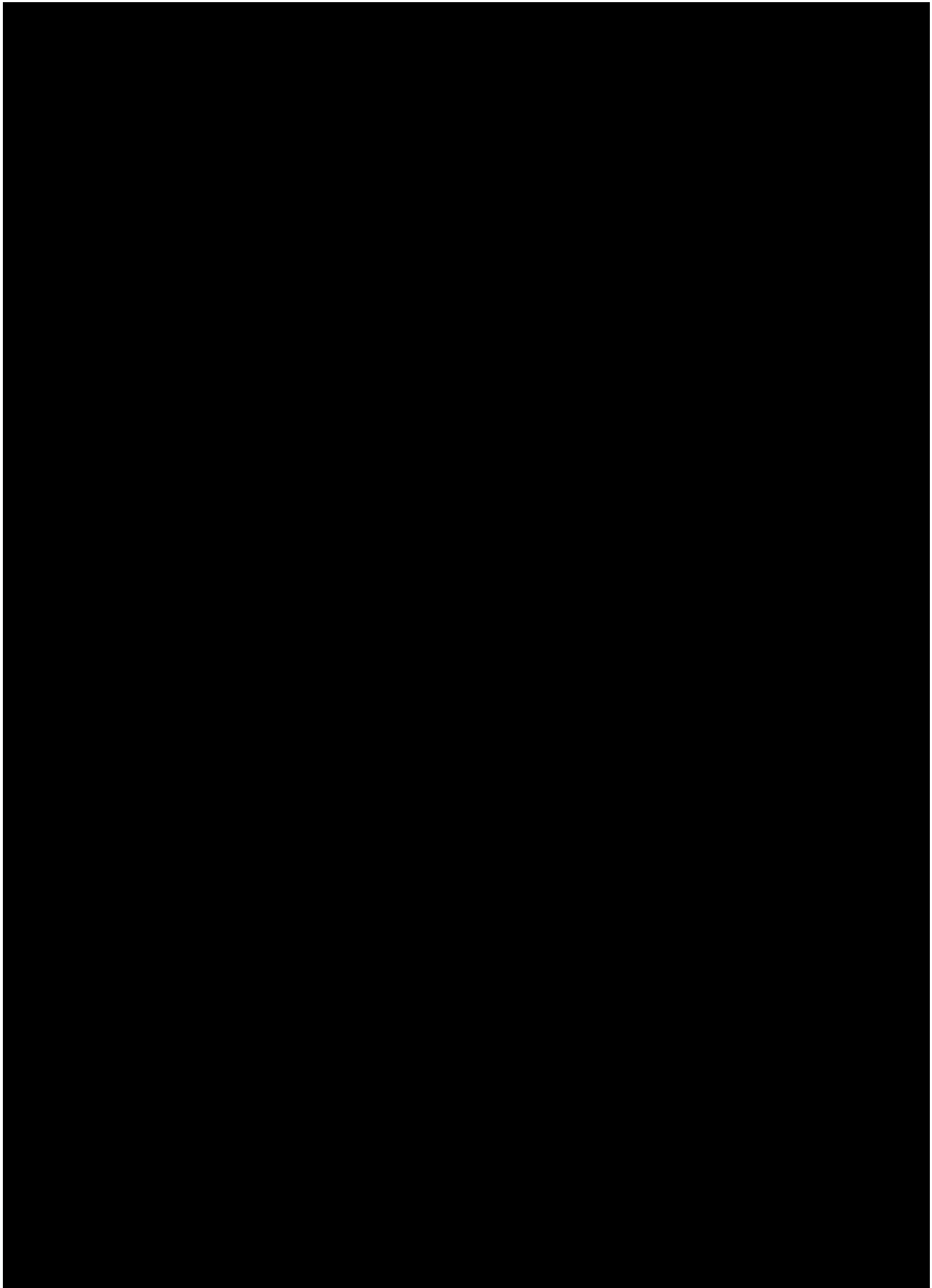
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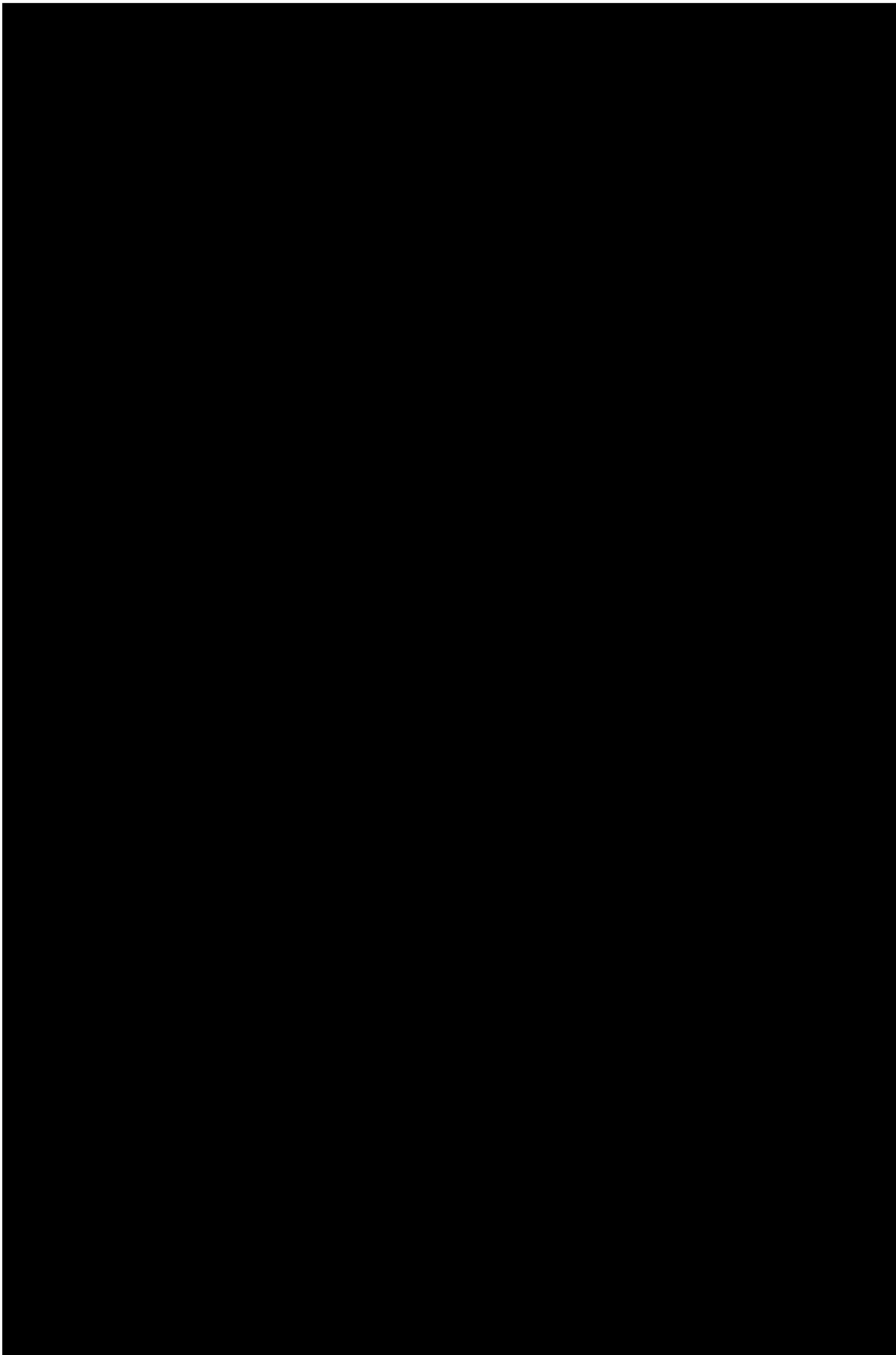
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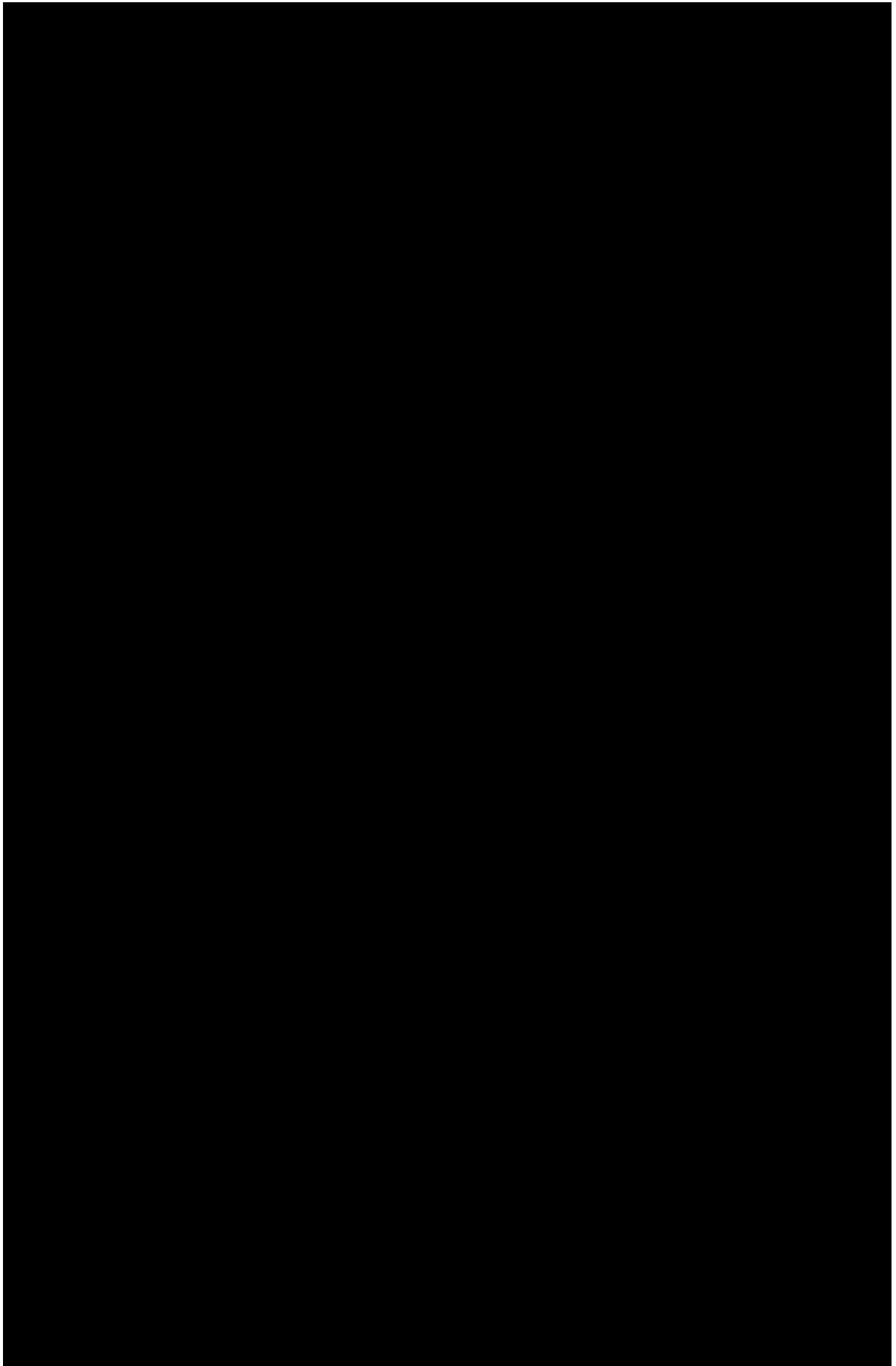
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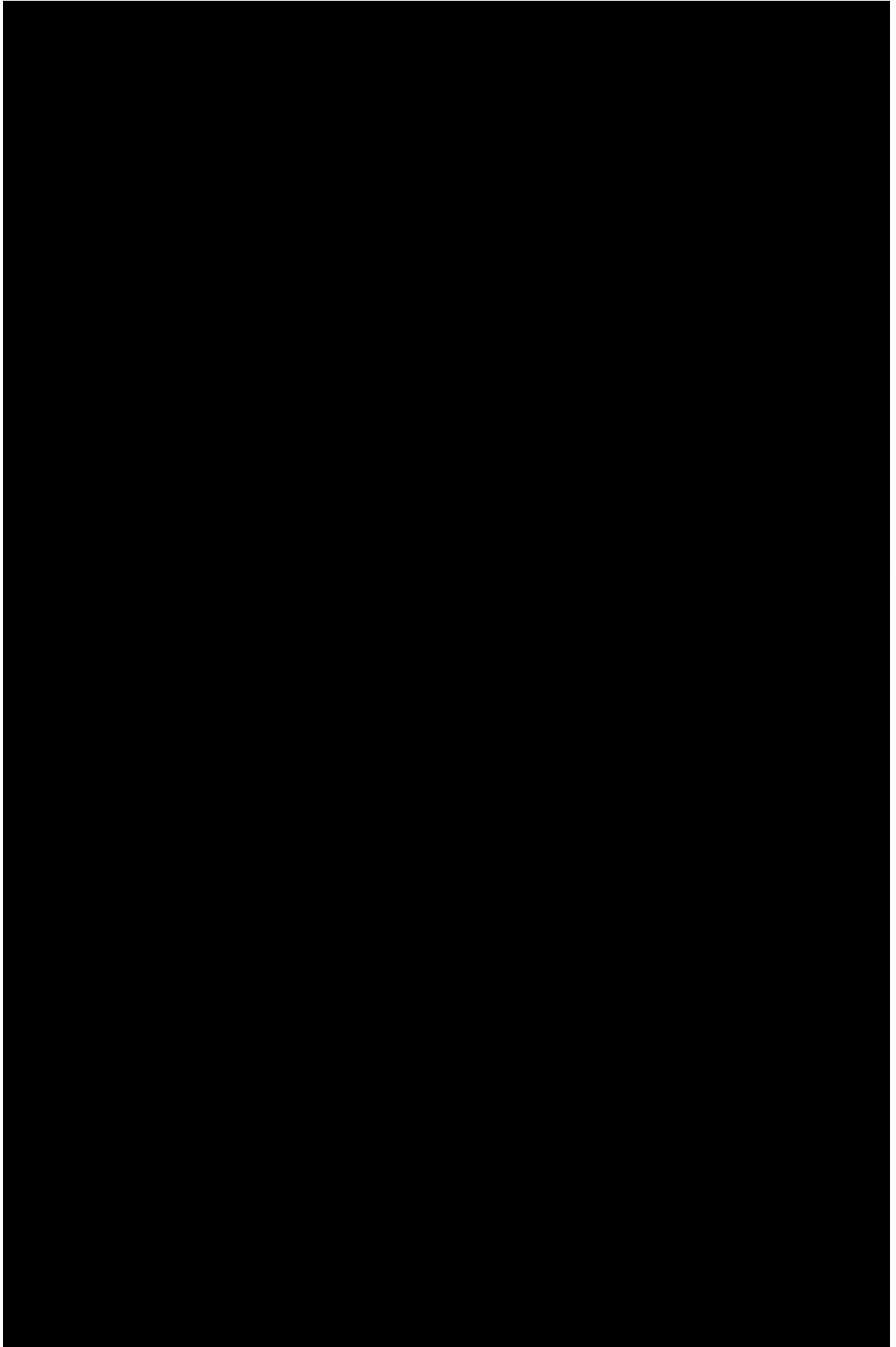


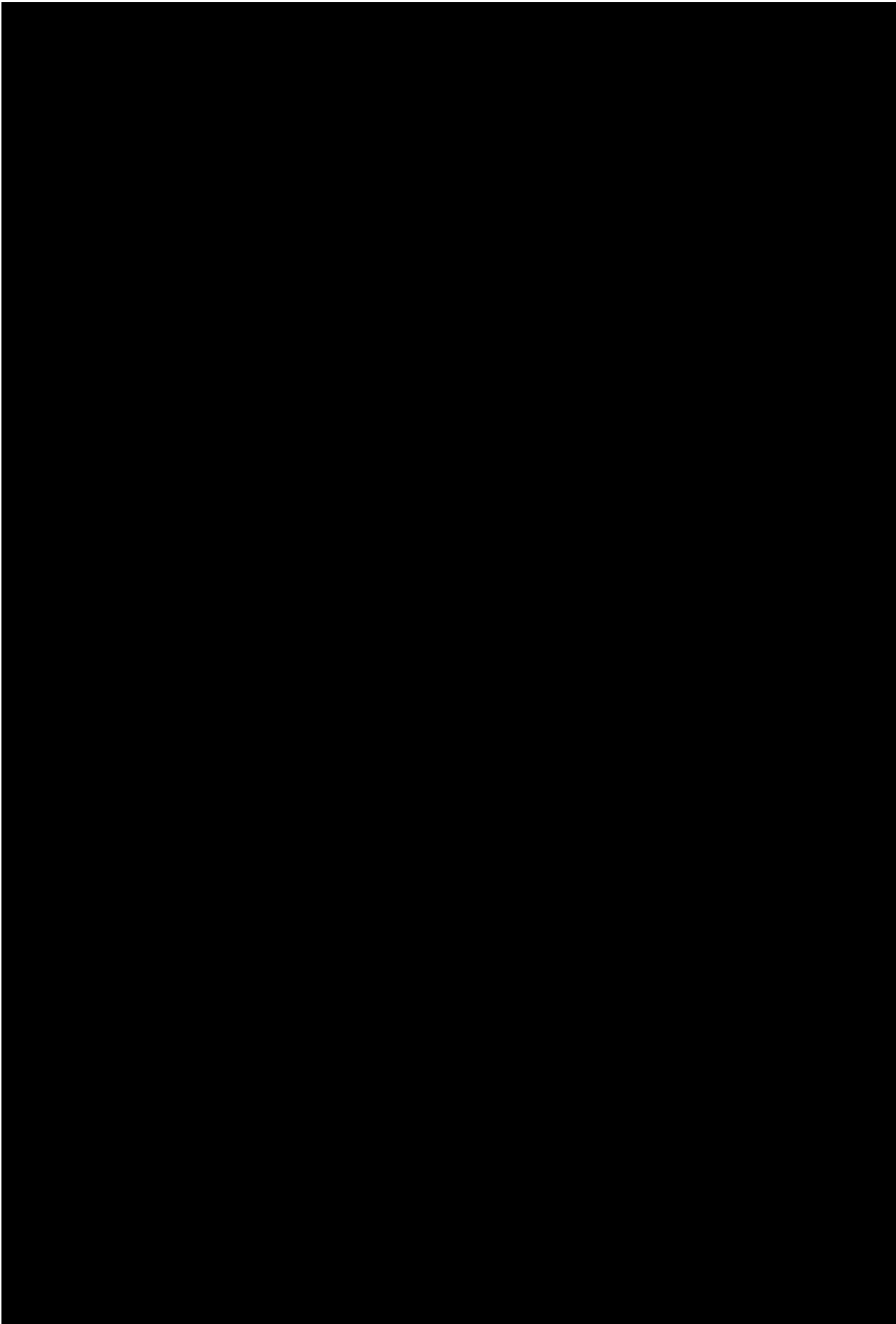




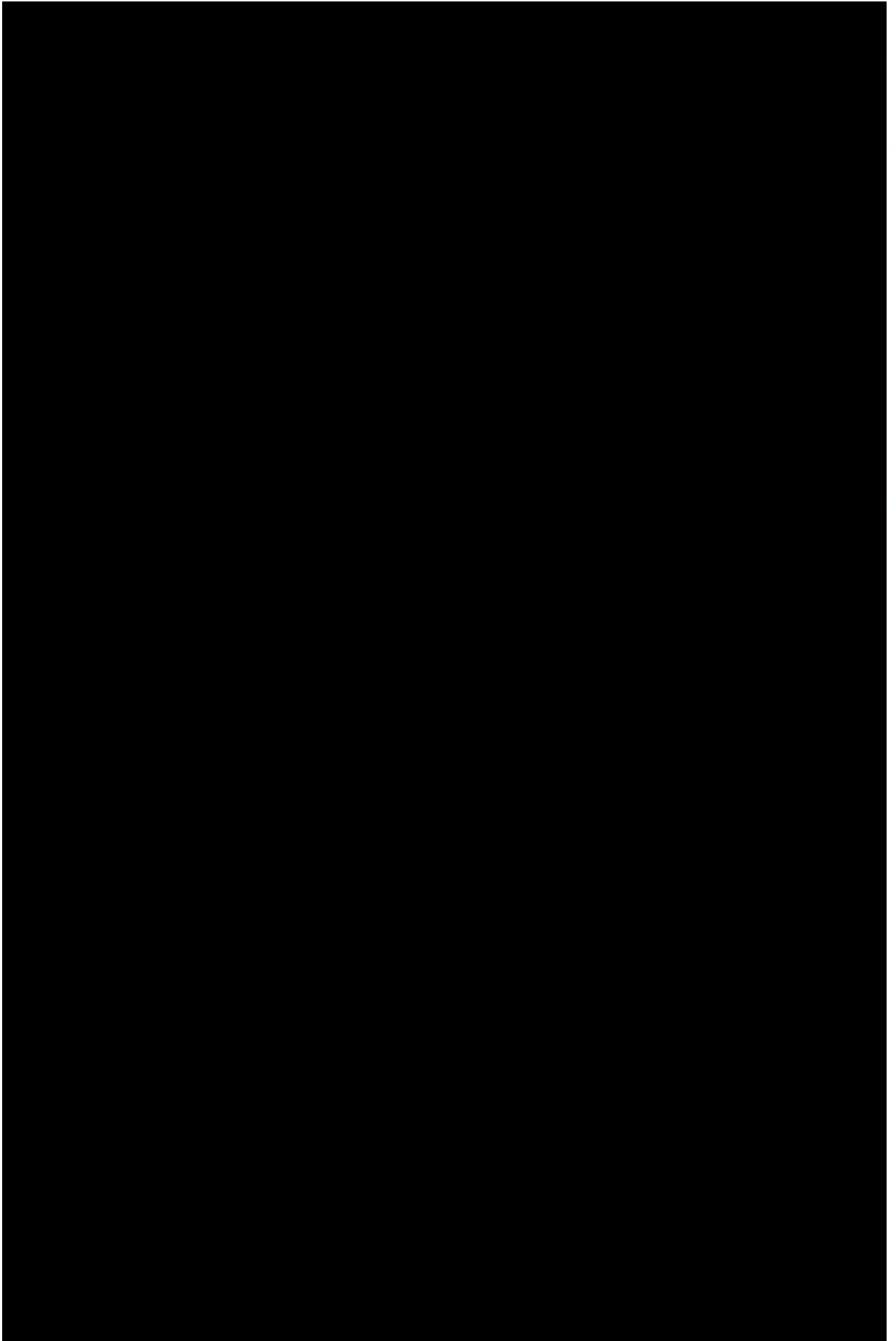


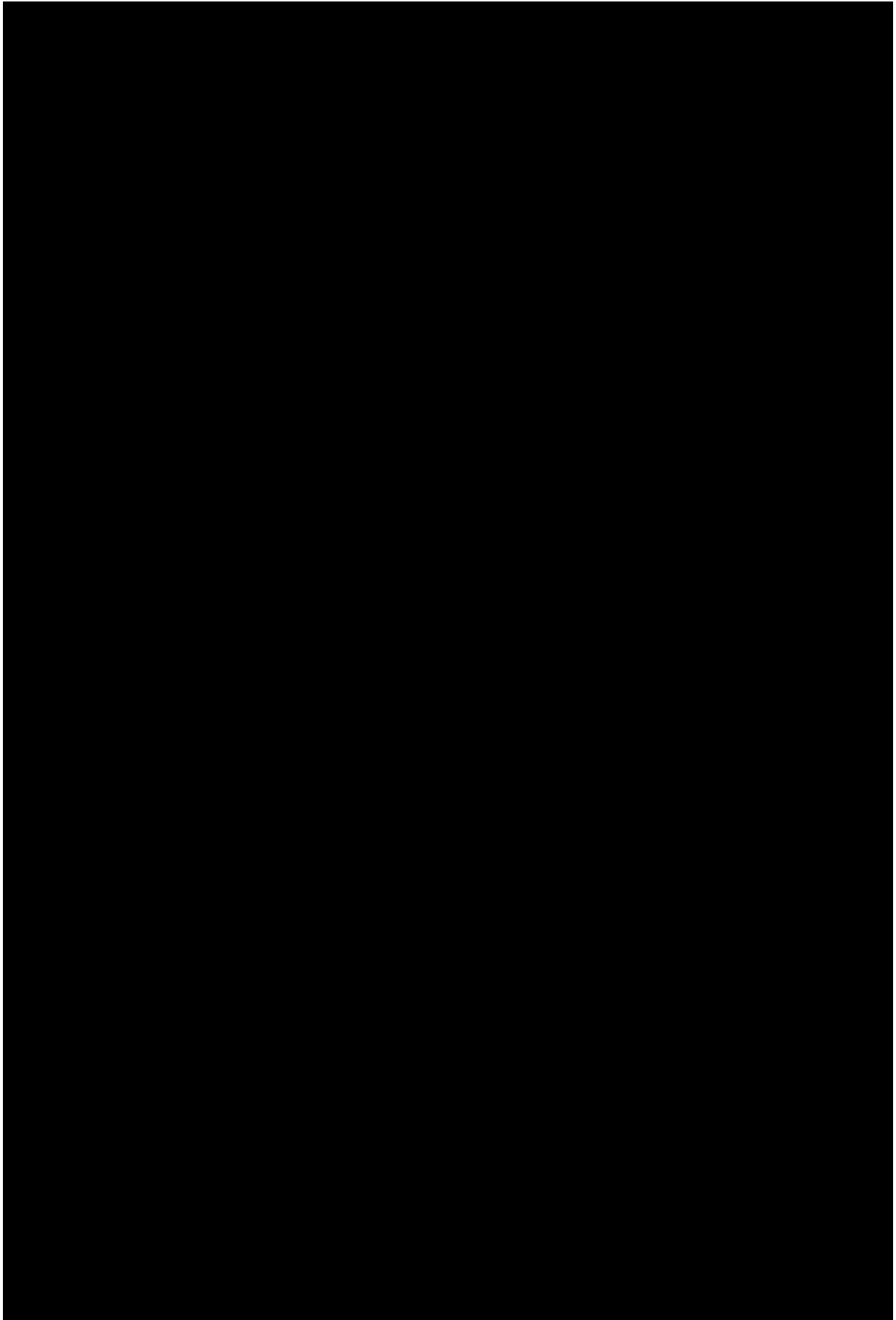


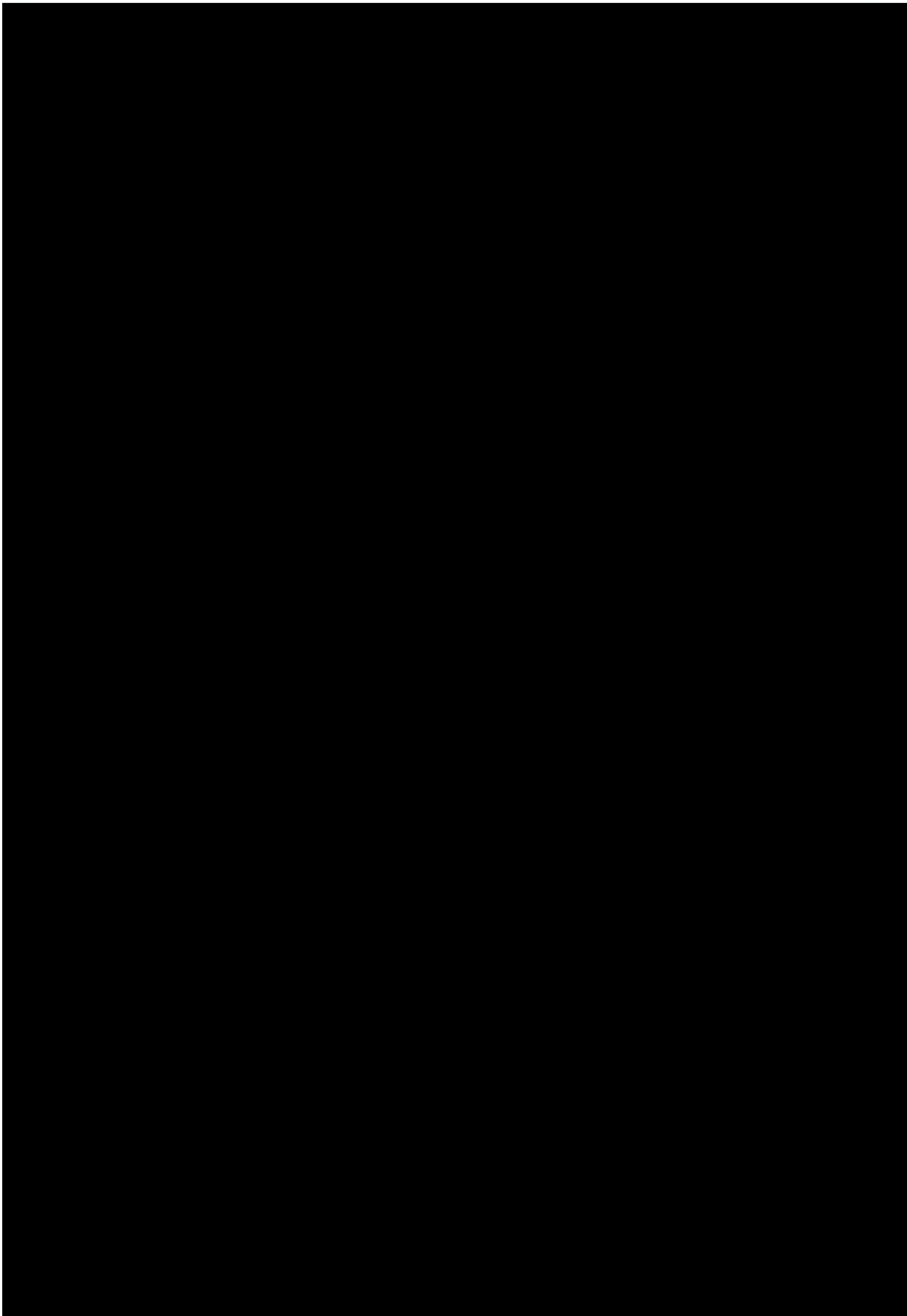


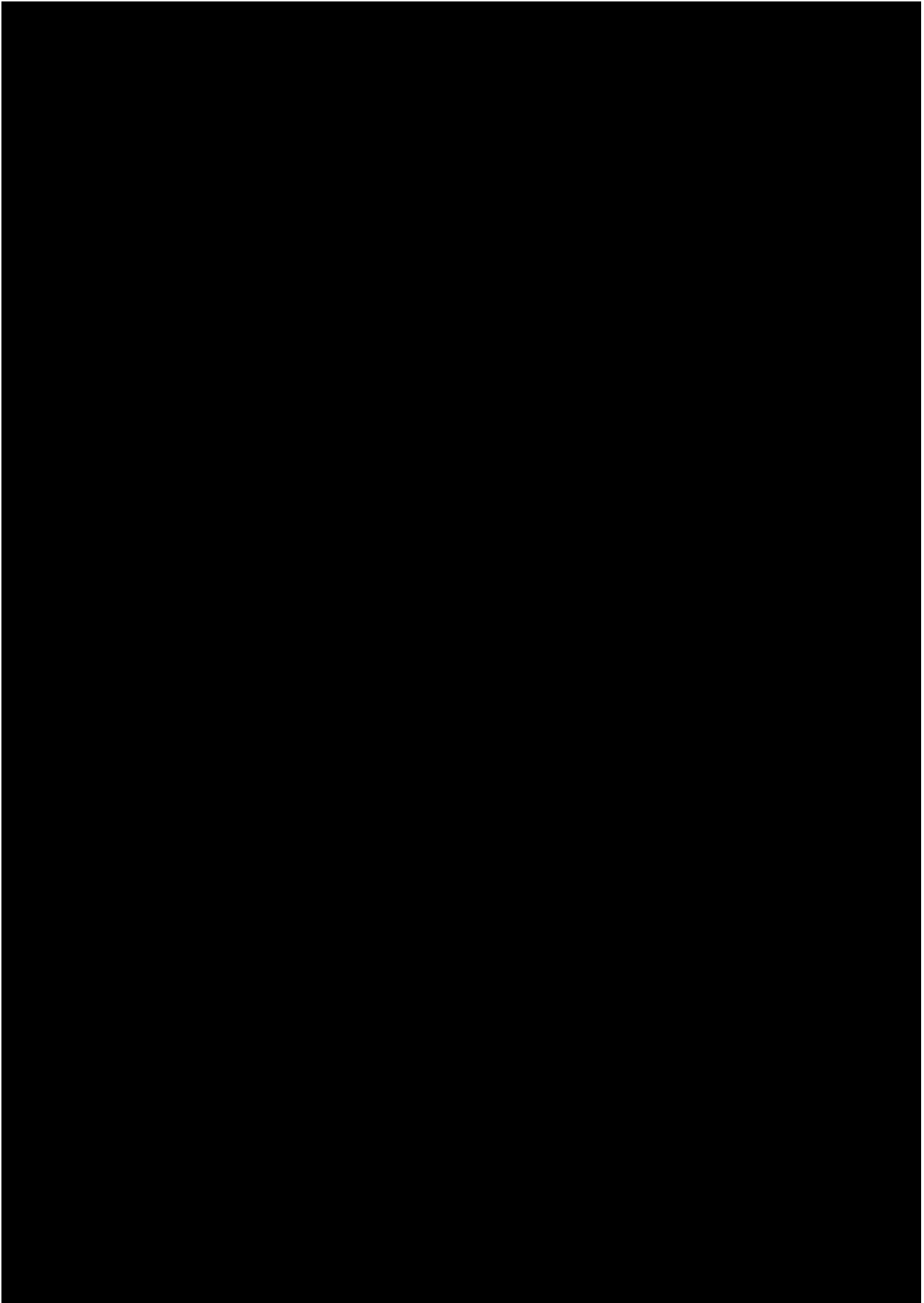


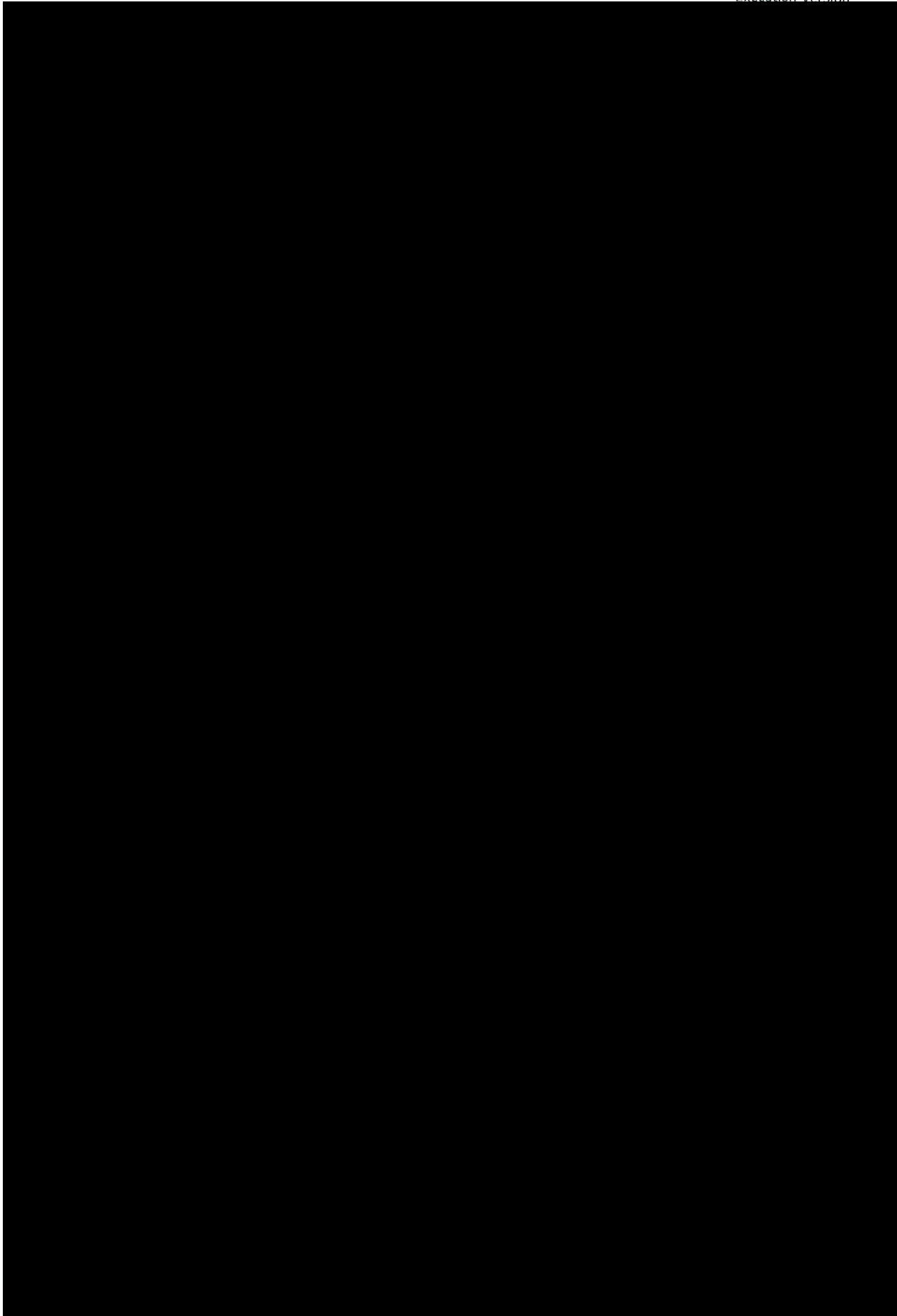


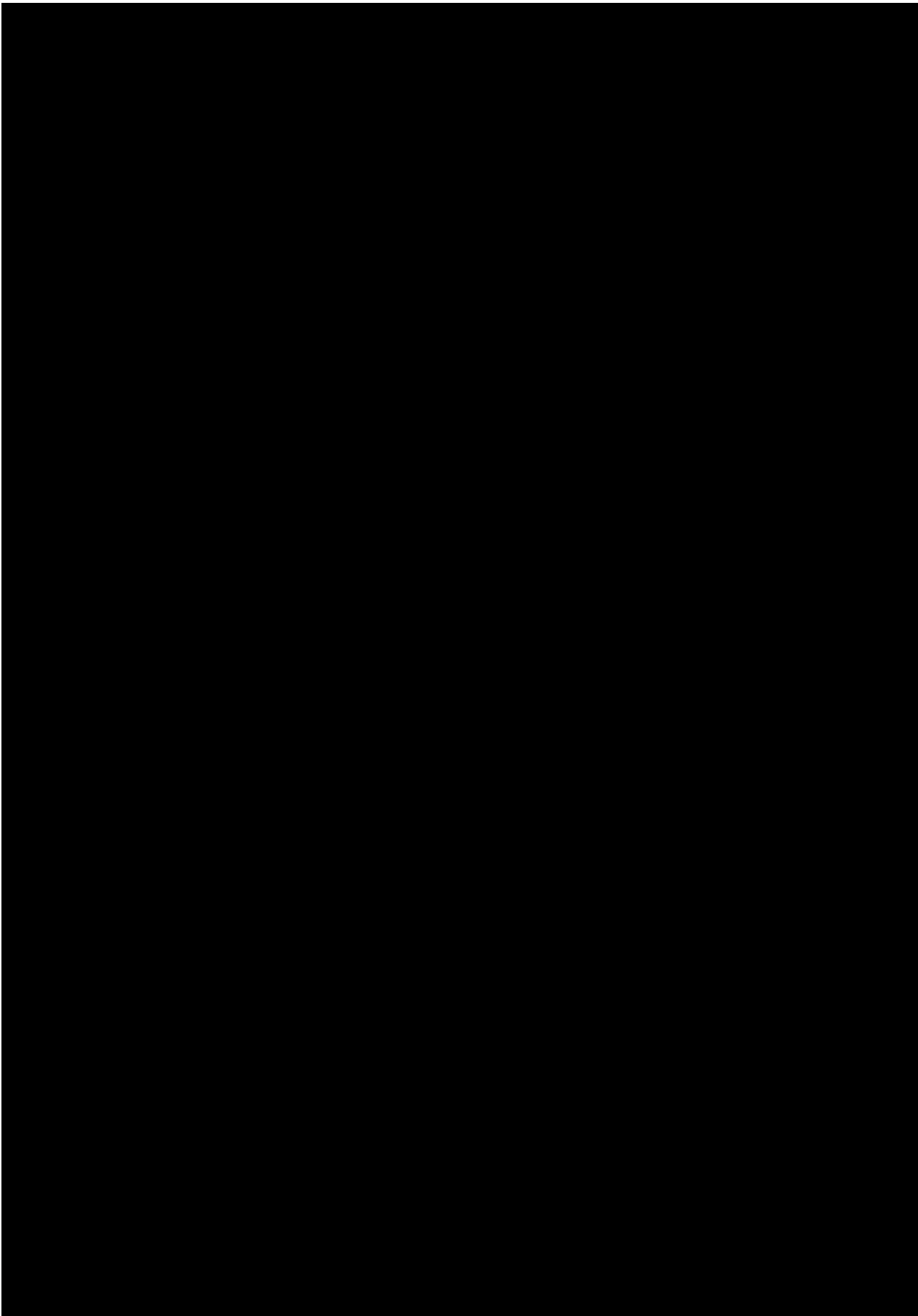


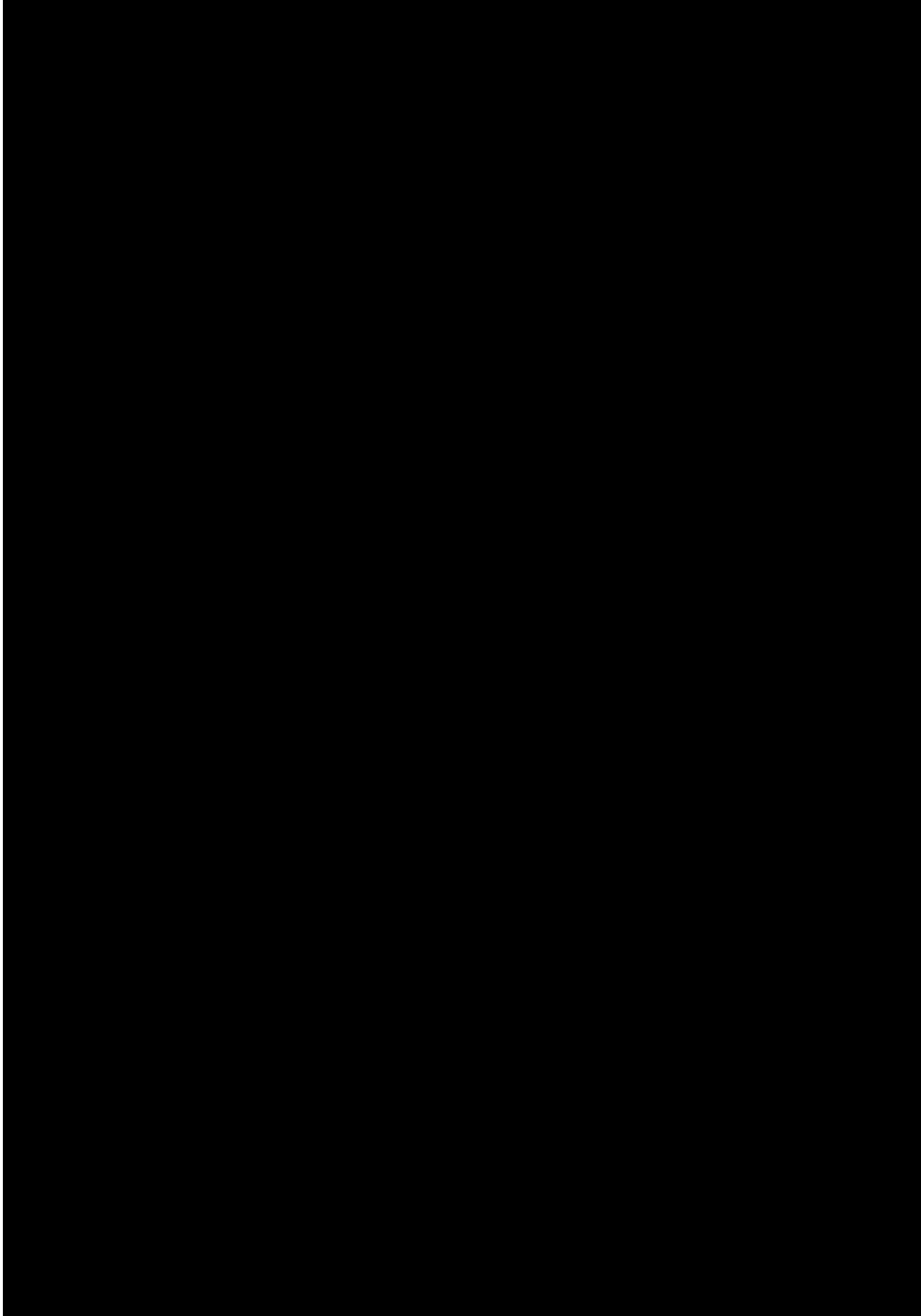


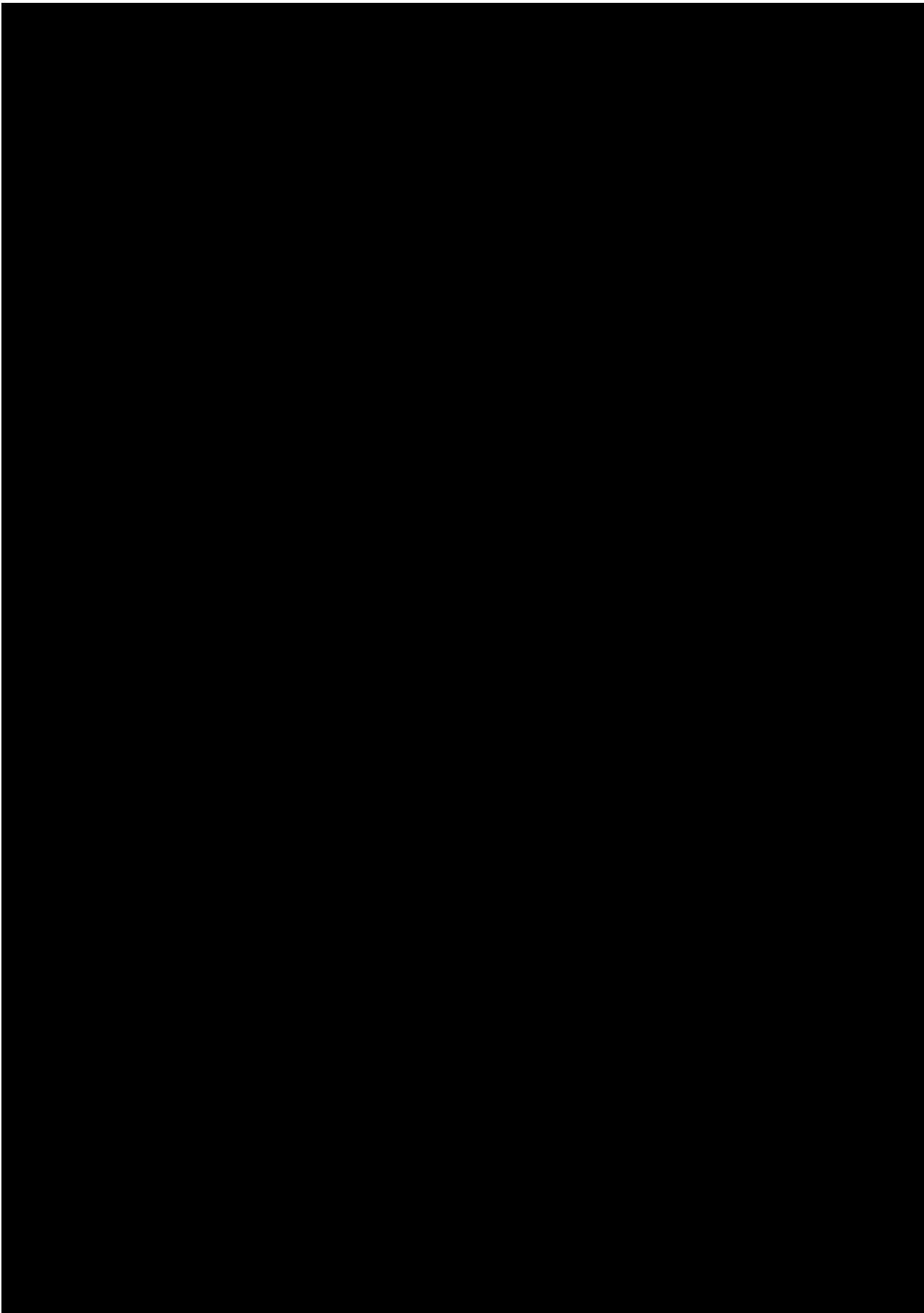




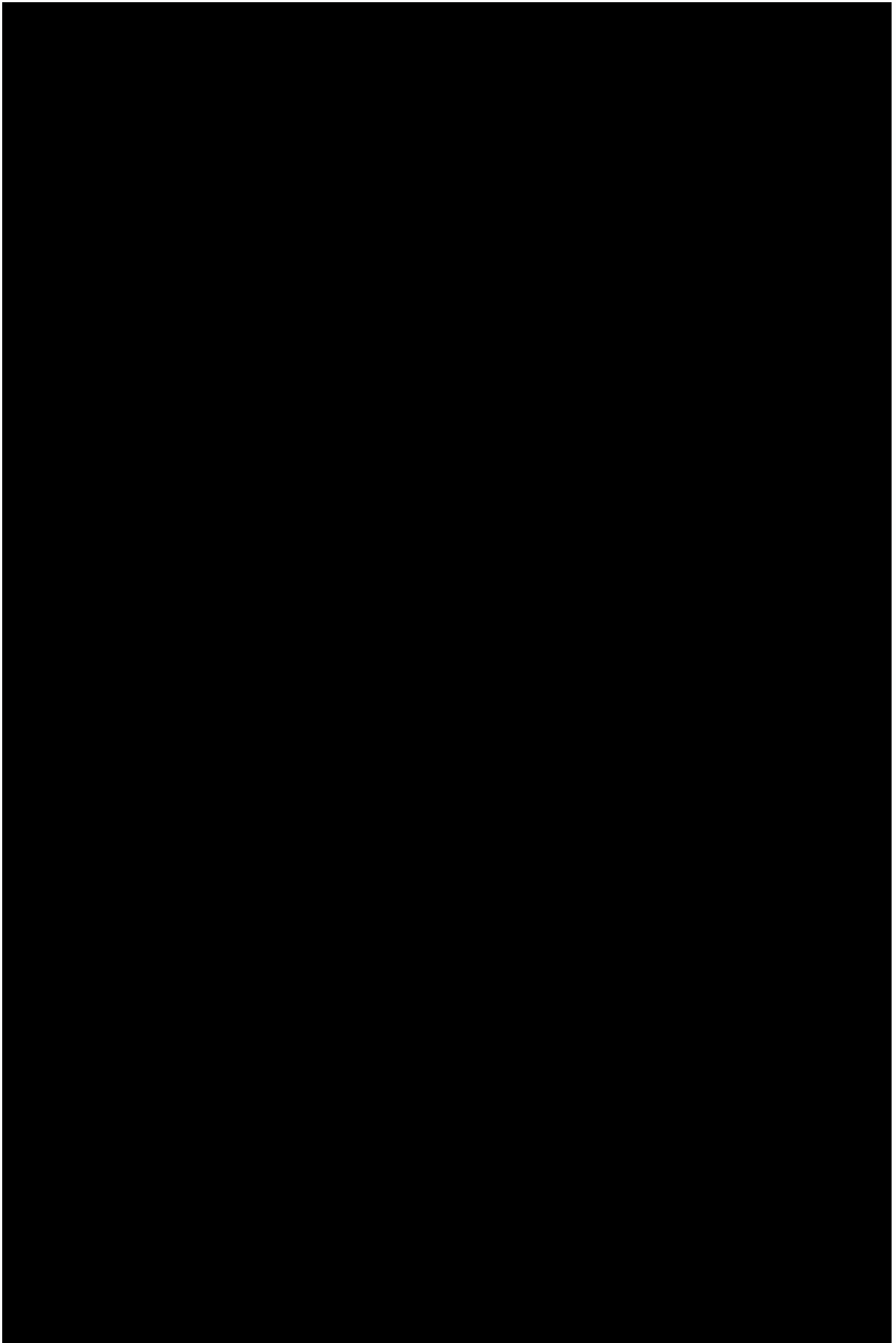


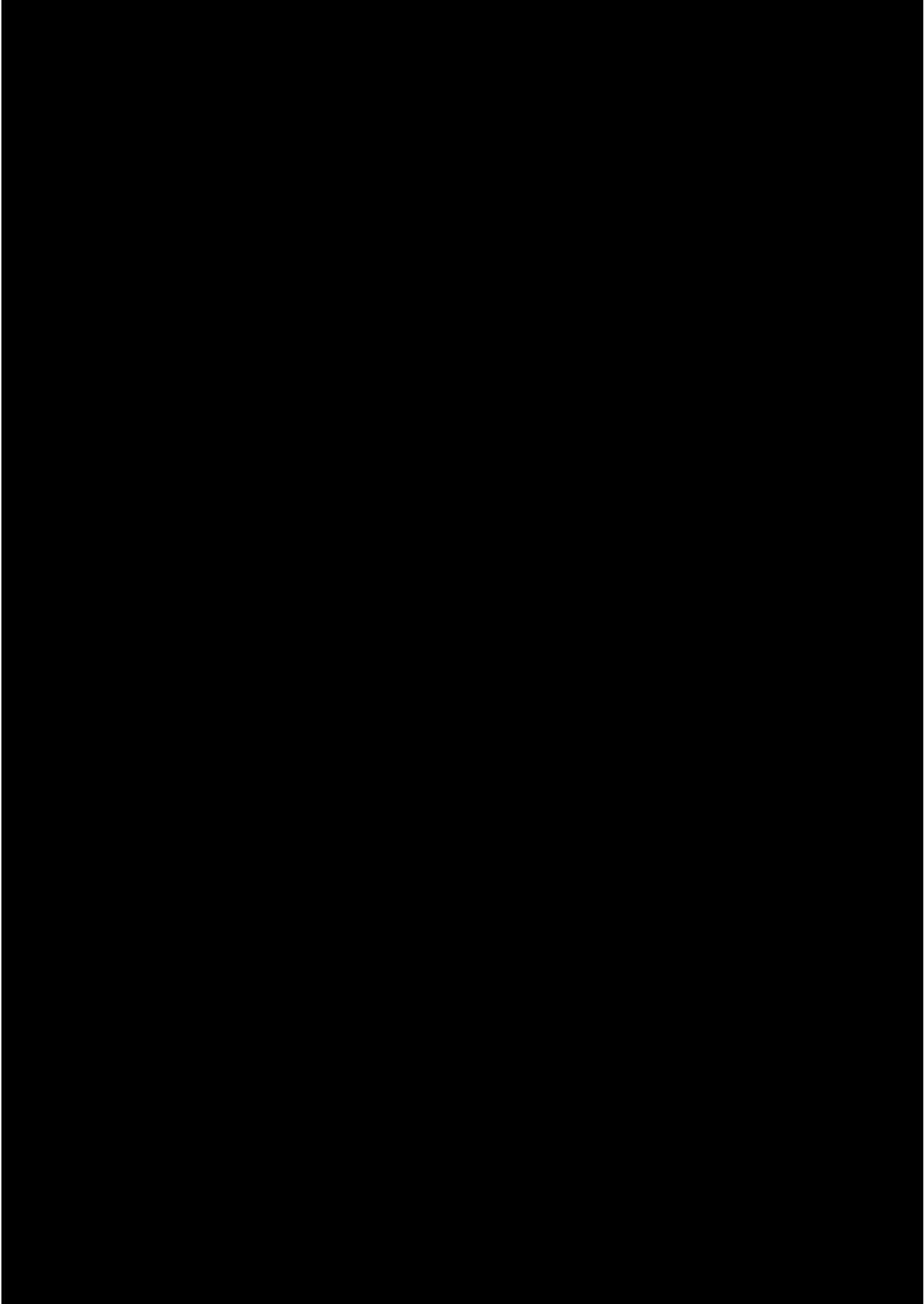


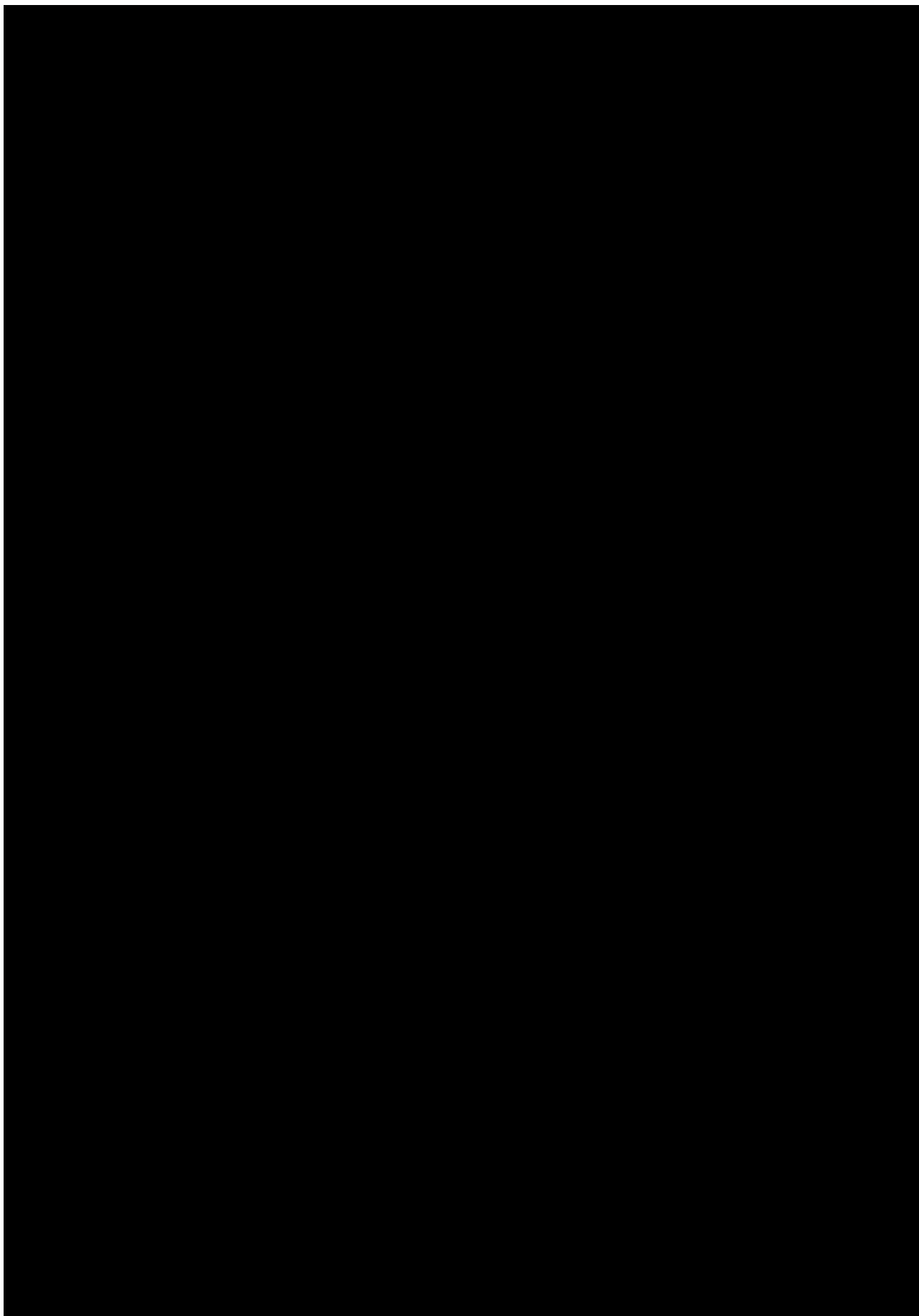


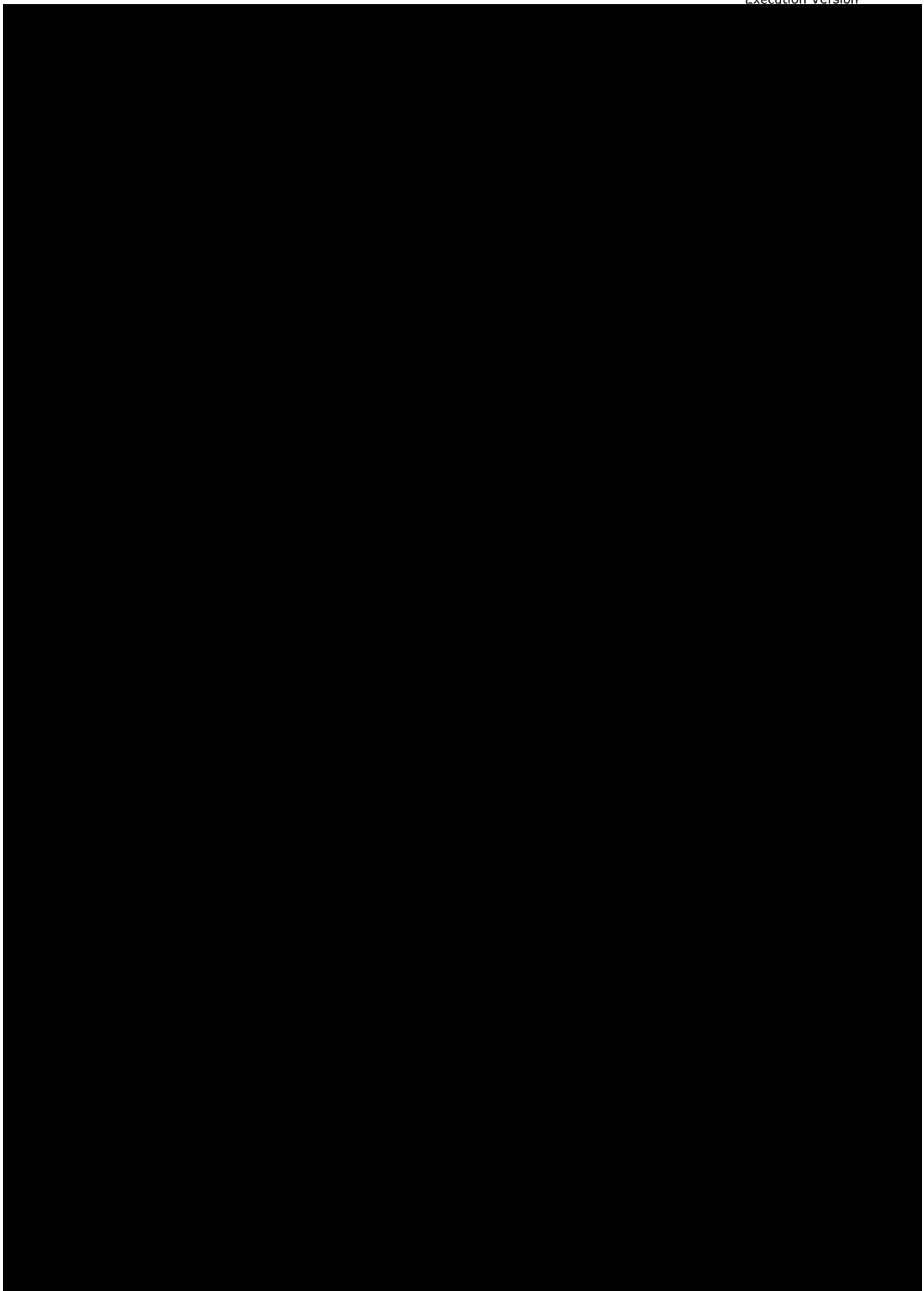


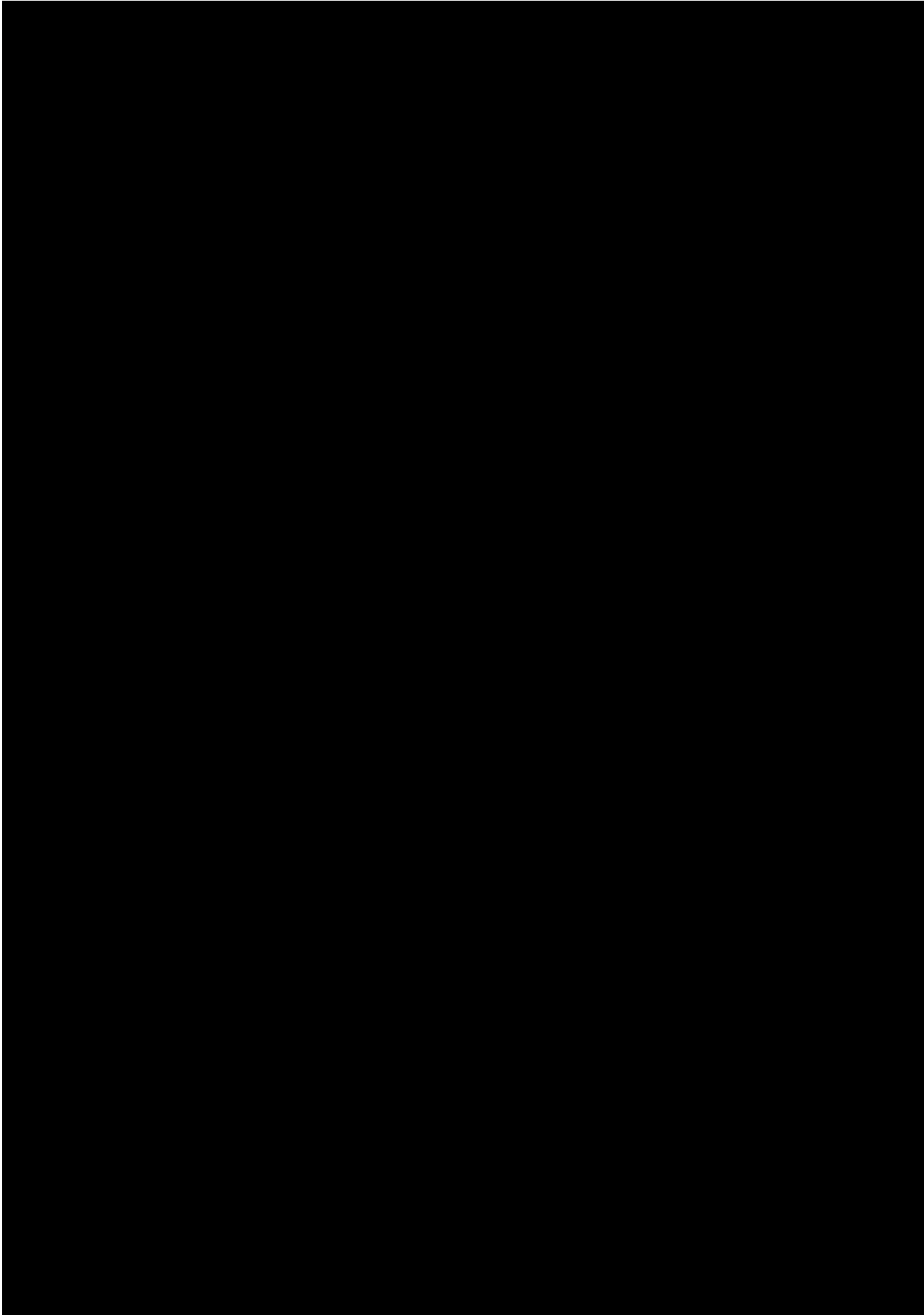


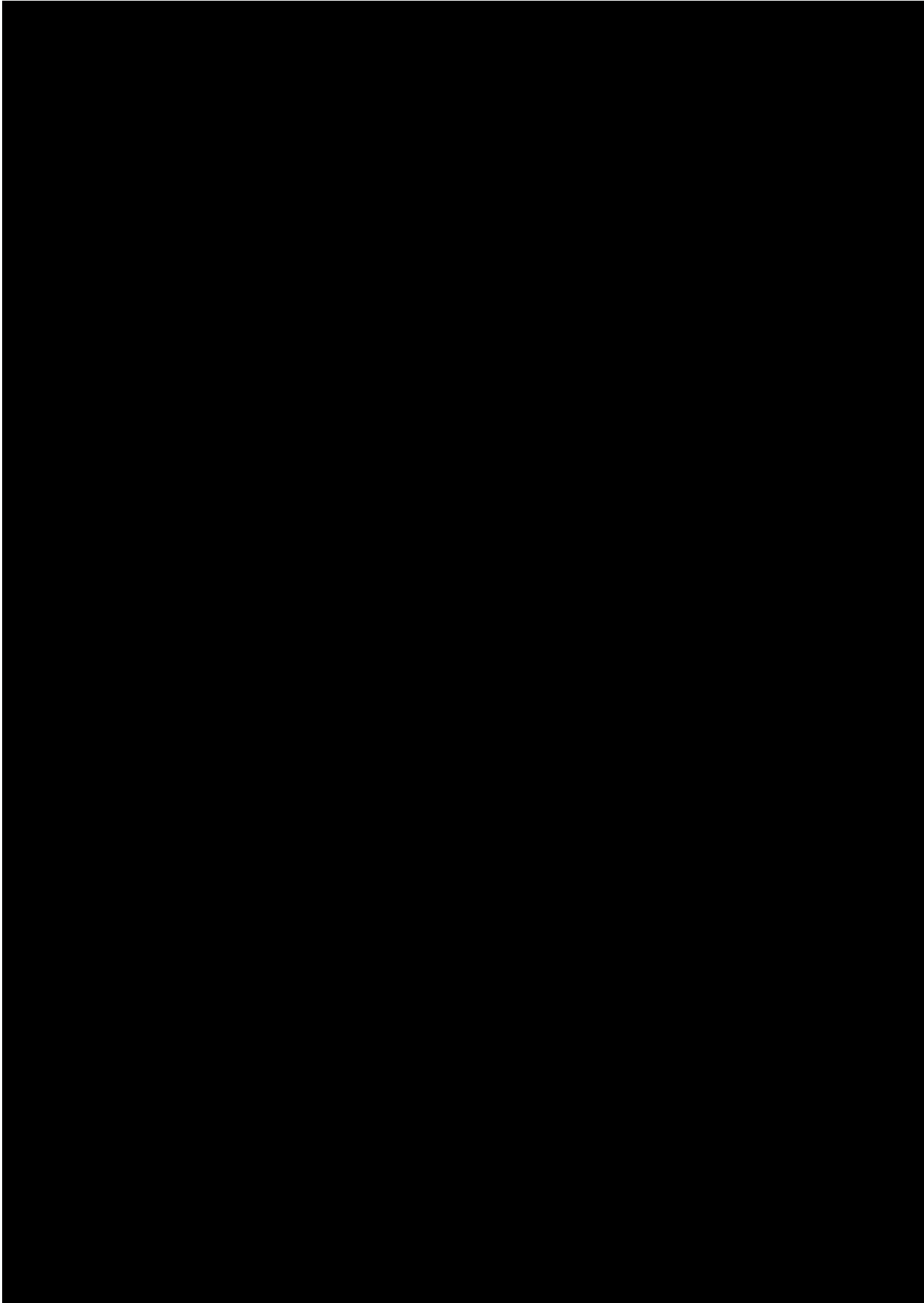


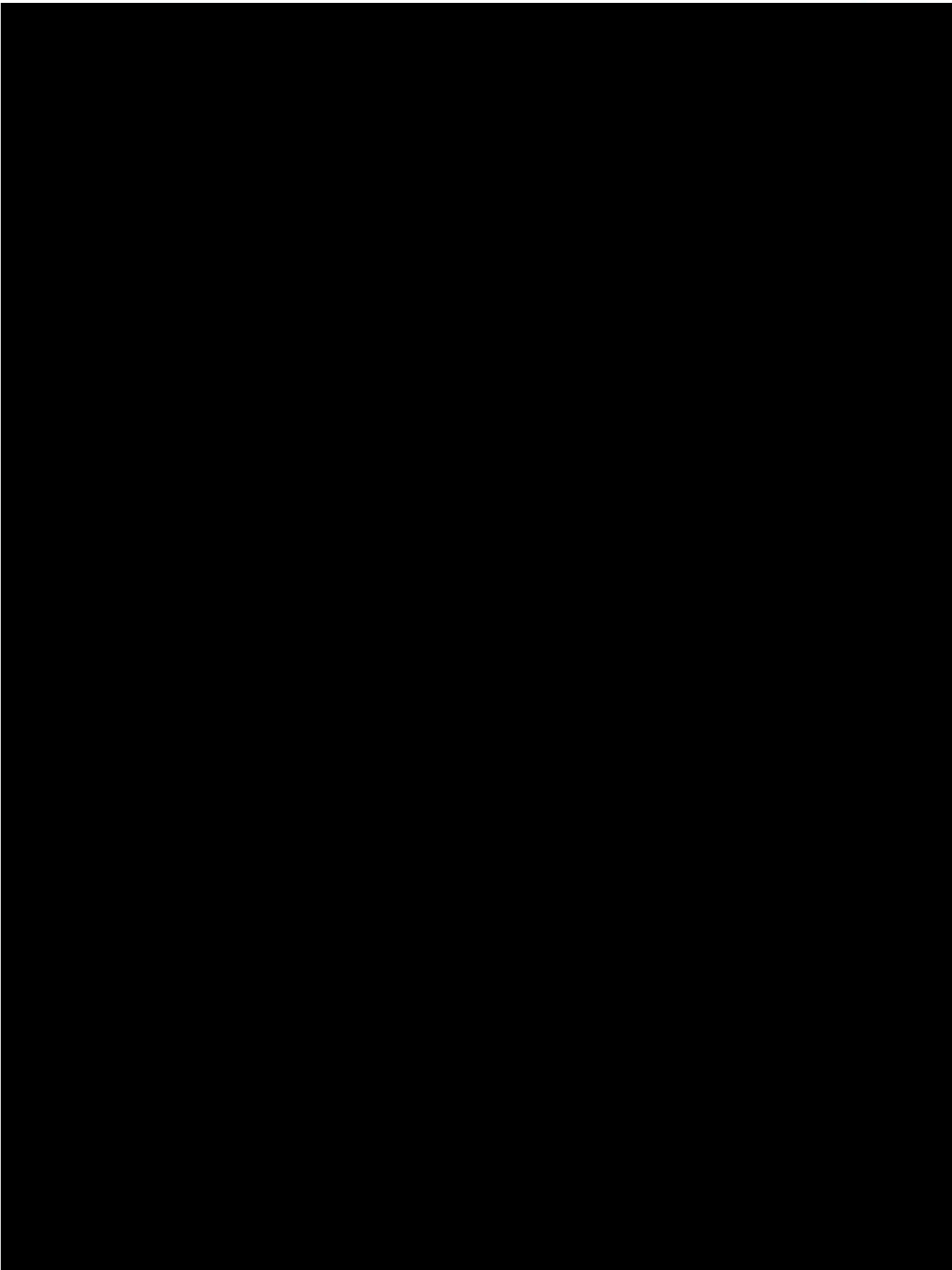


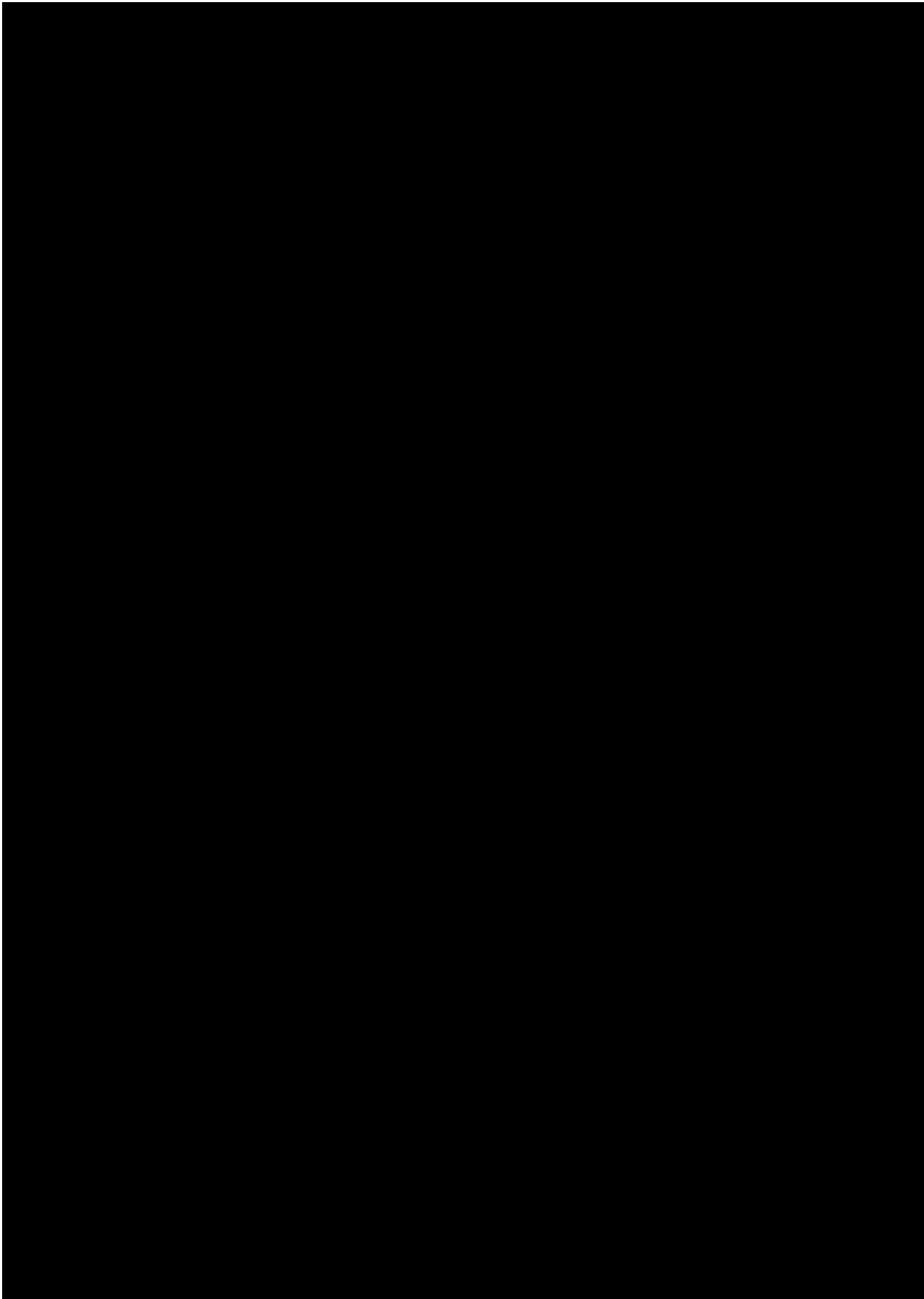










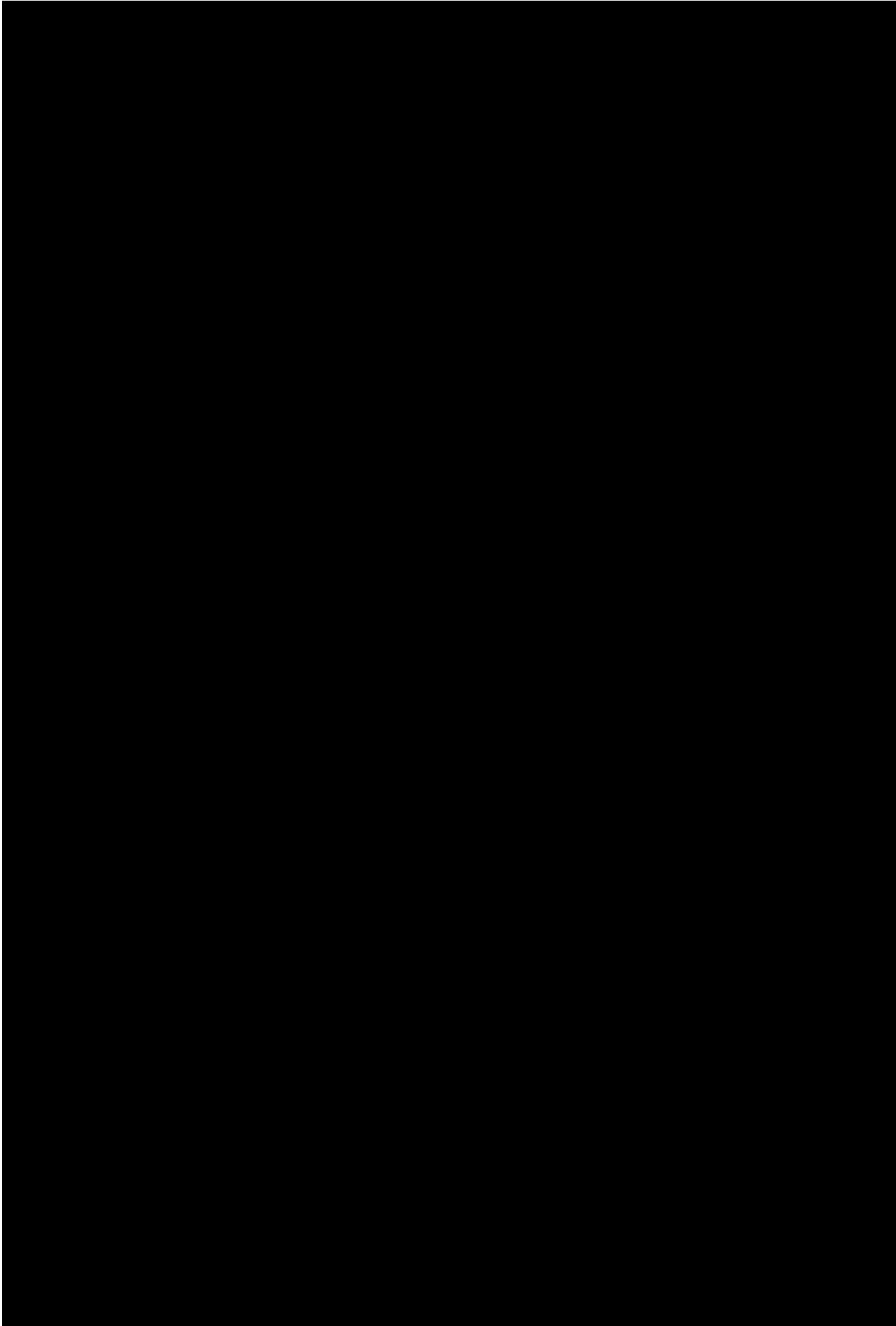




**SCHEDULE 14**

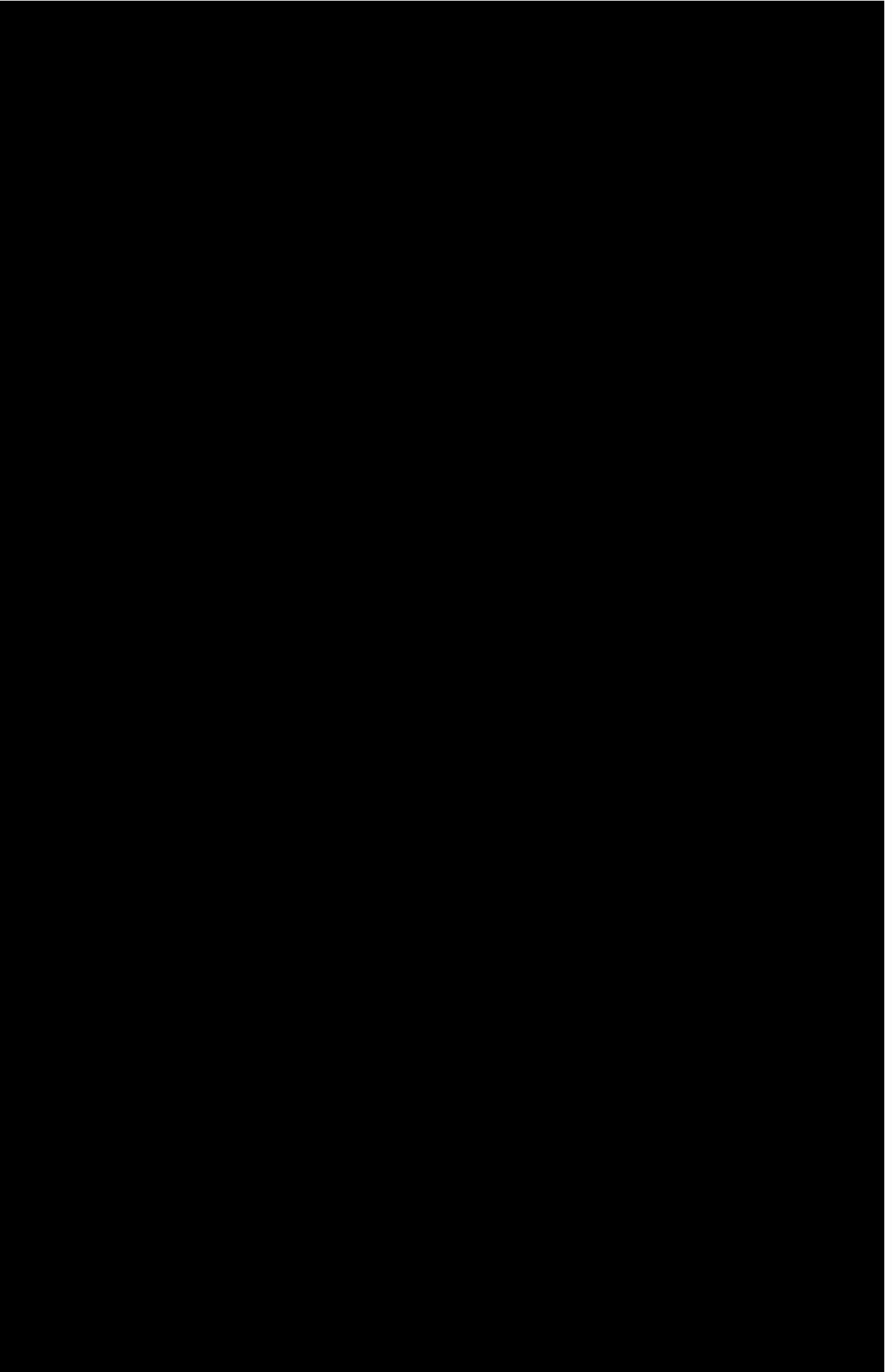
**Amendments to Schedule A20**

Schedule A20 is amended as set out in the attached mark-up.



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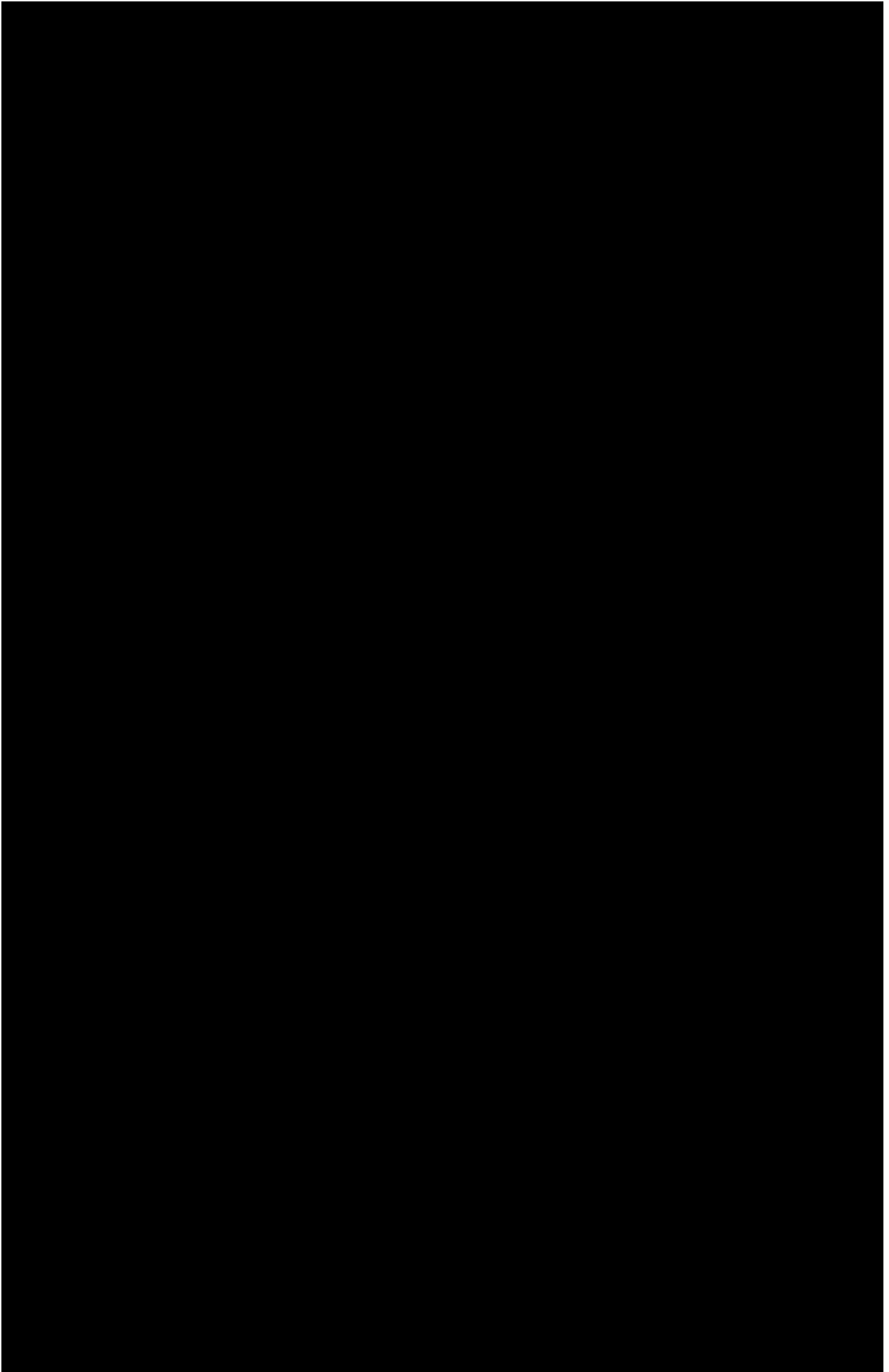
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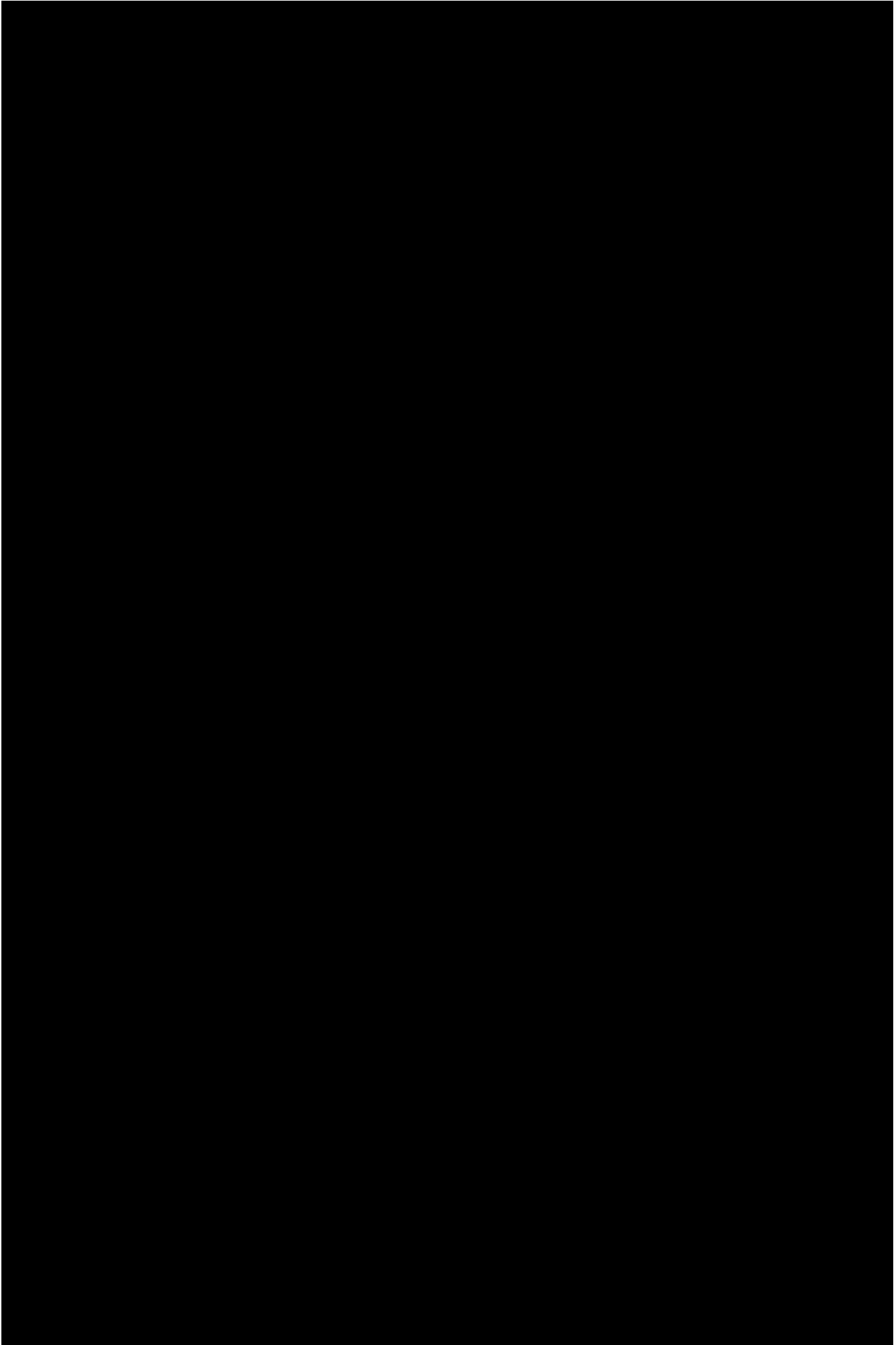
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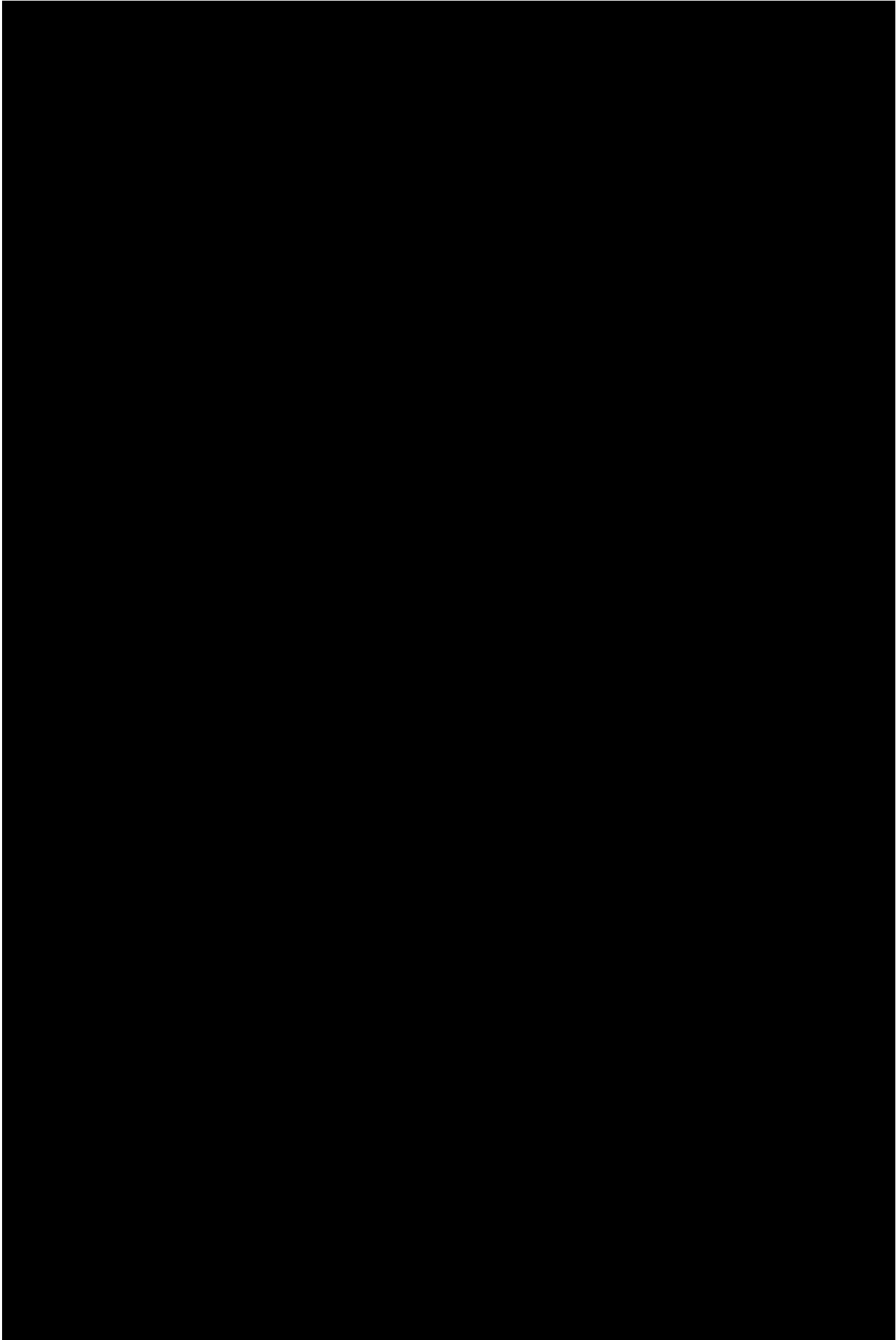
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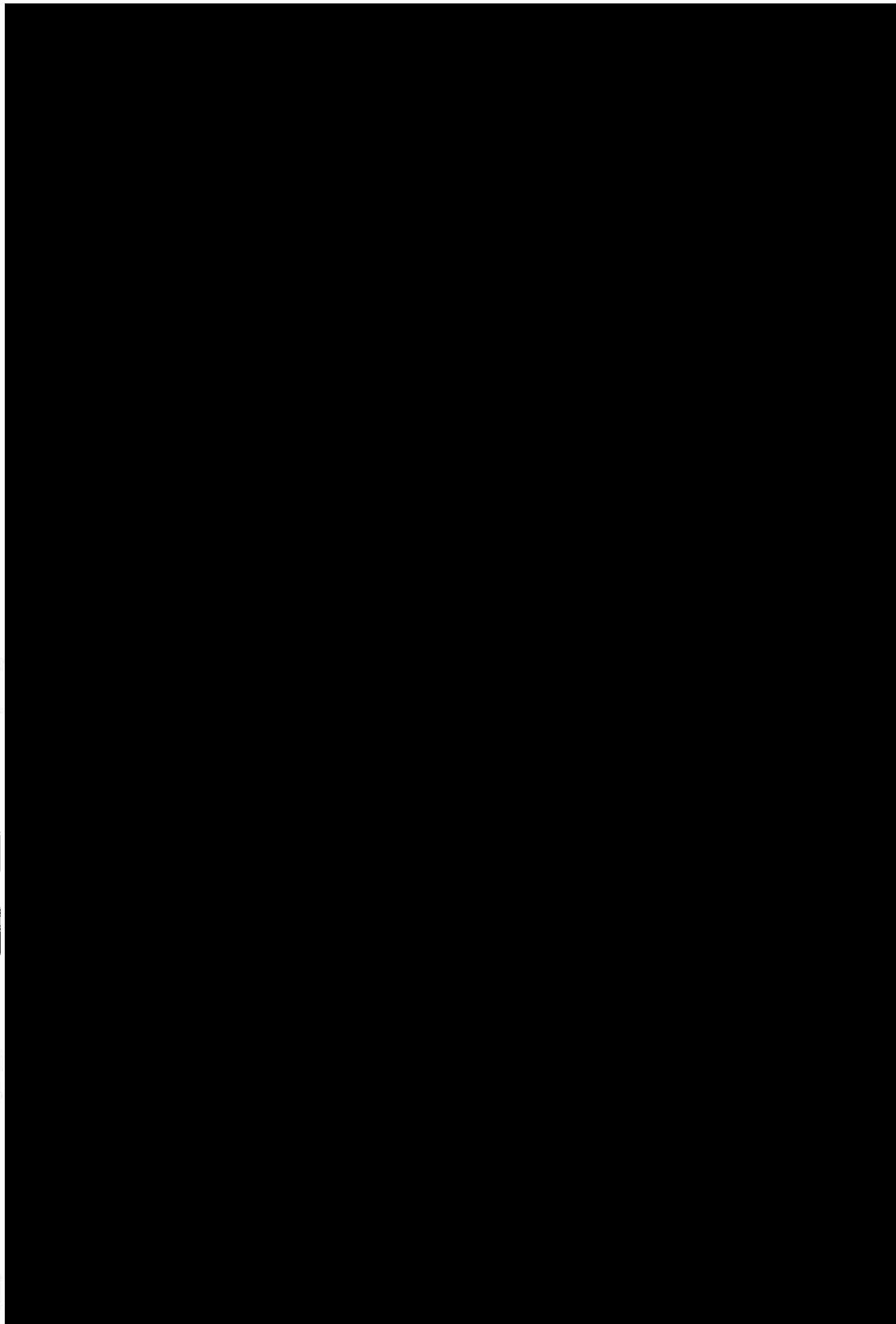
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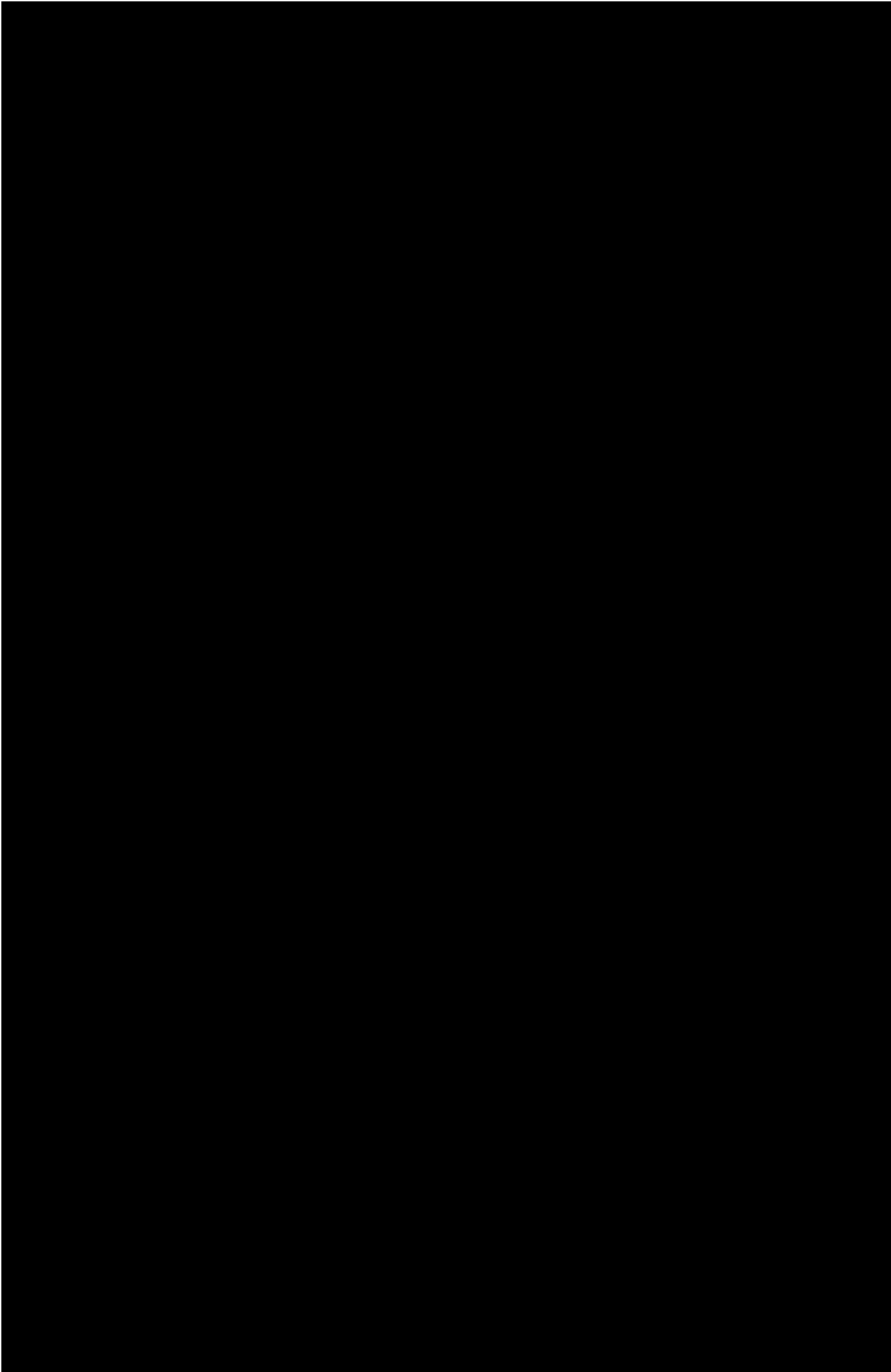
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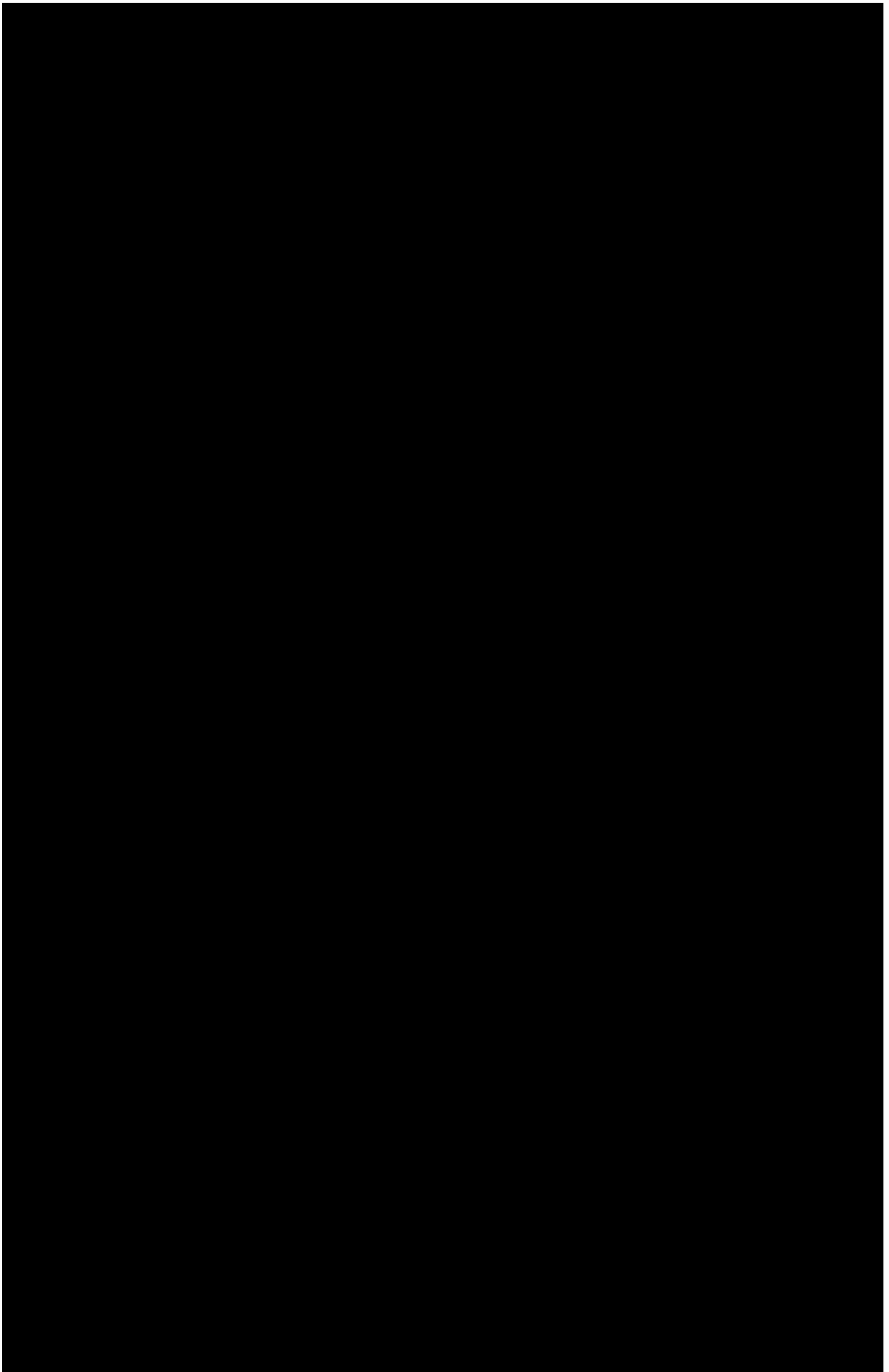
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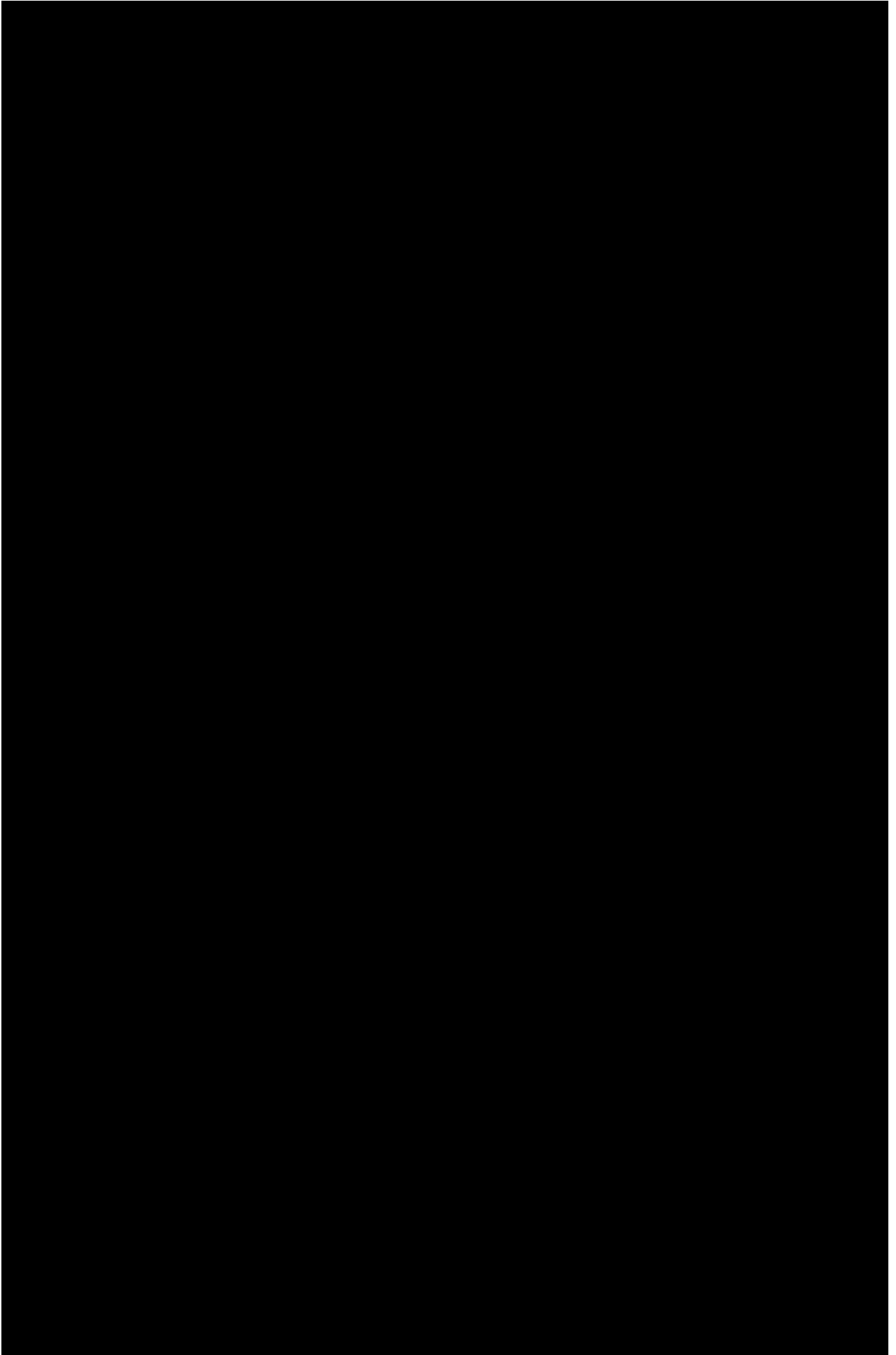
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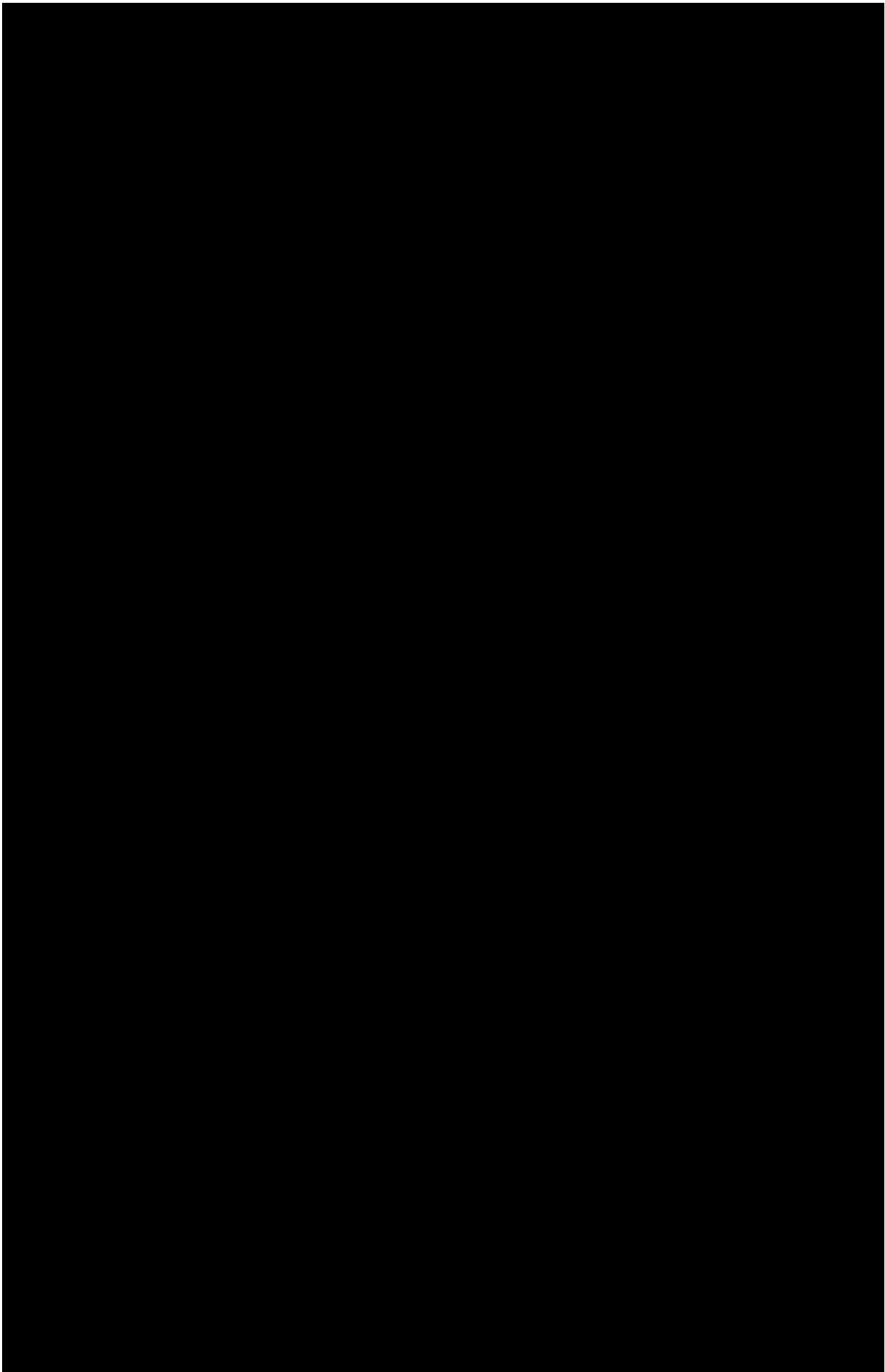
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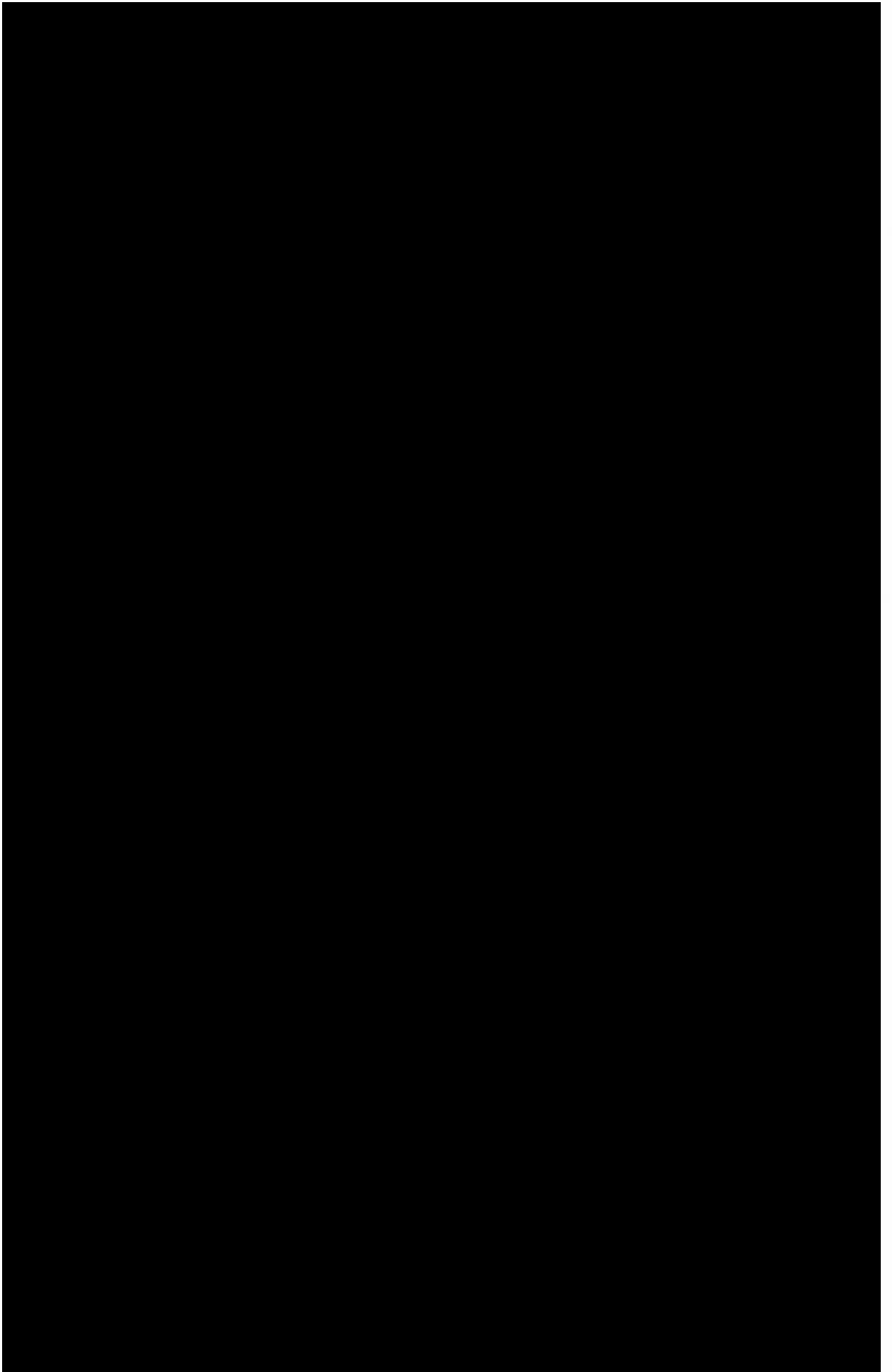
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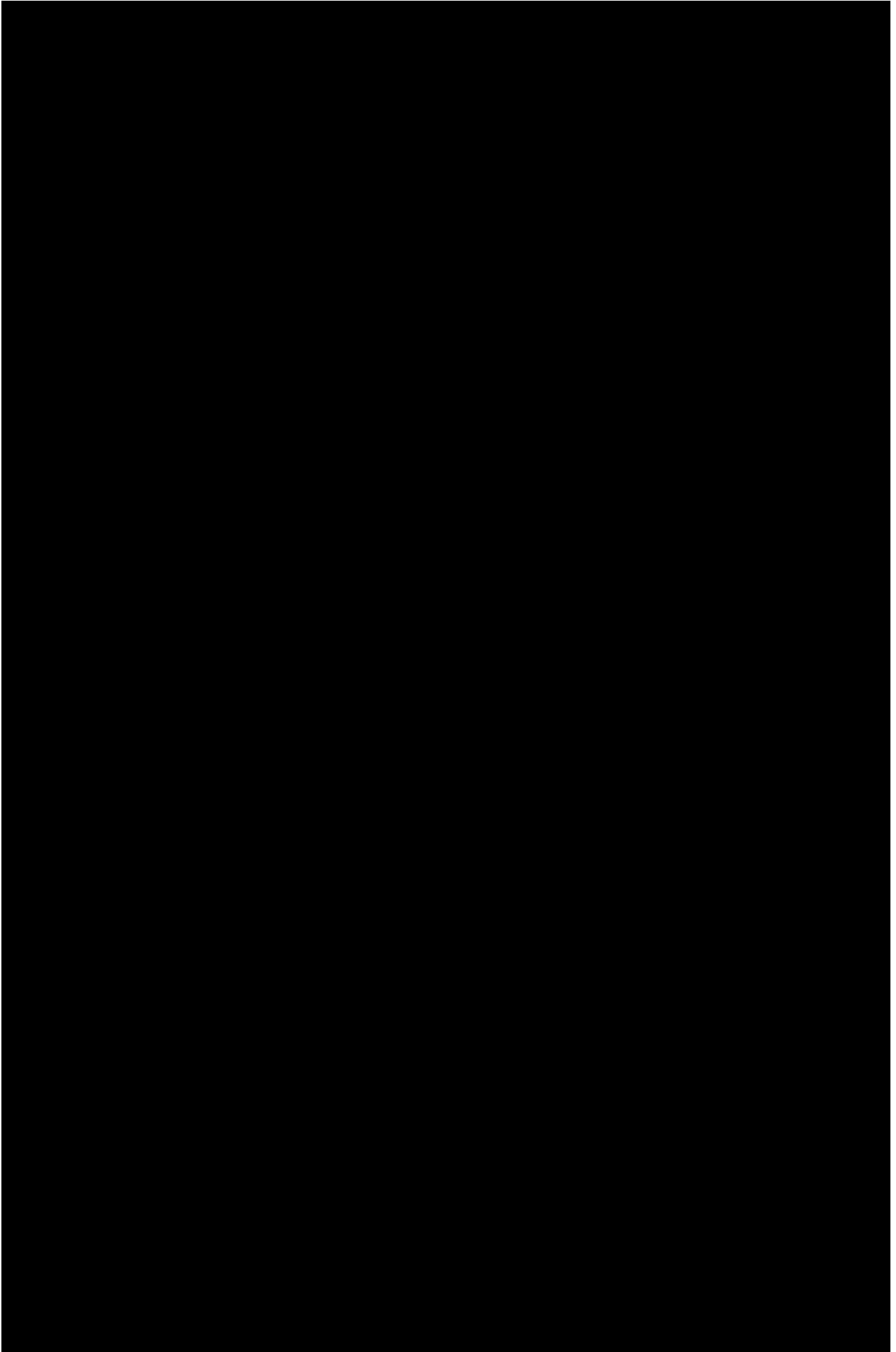
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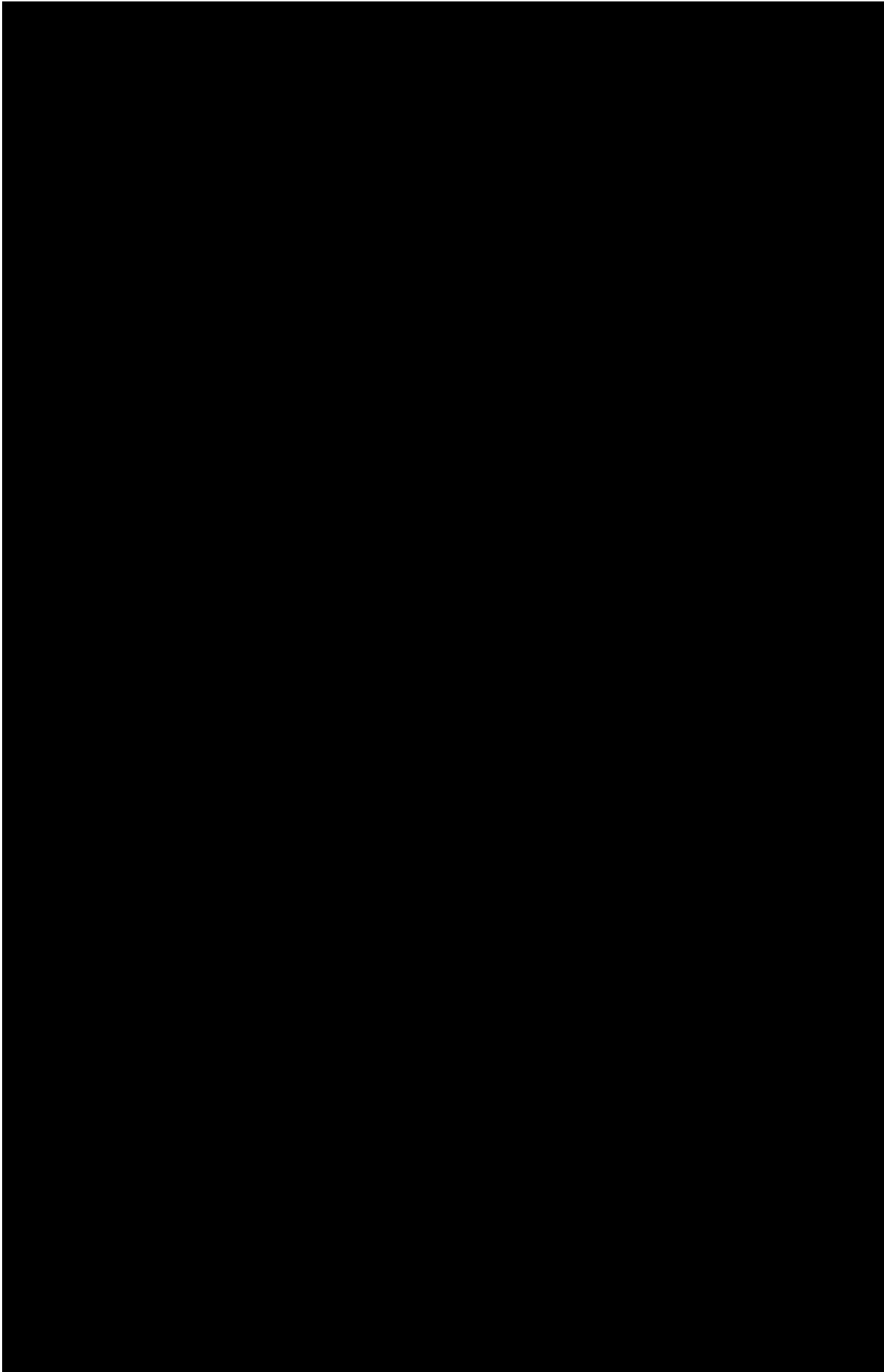






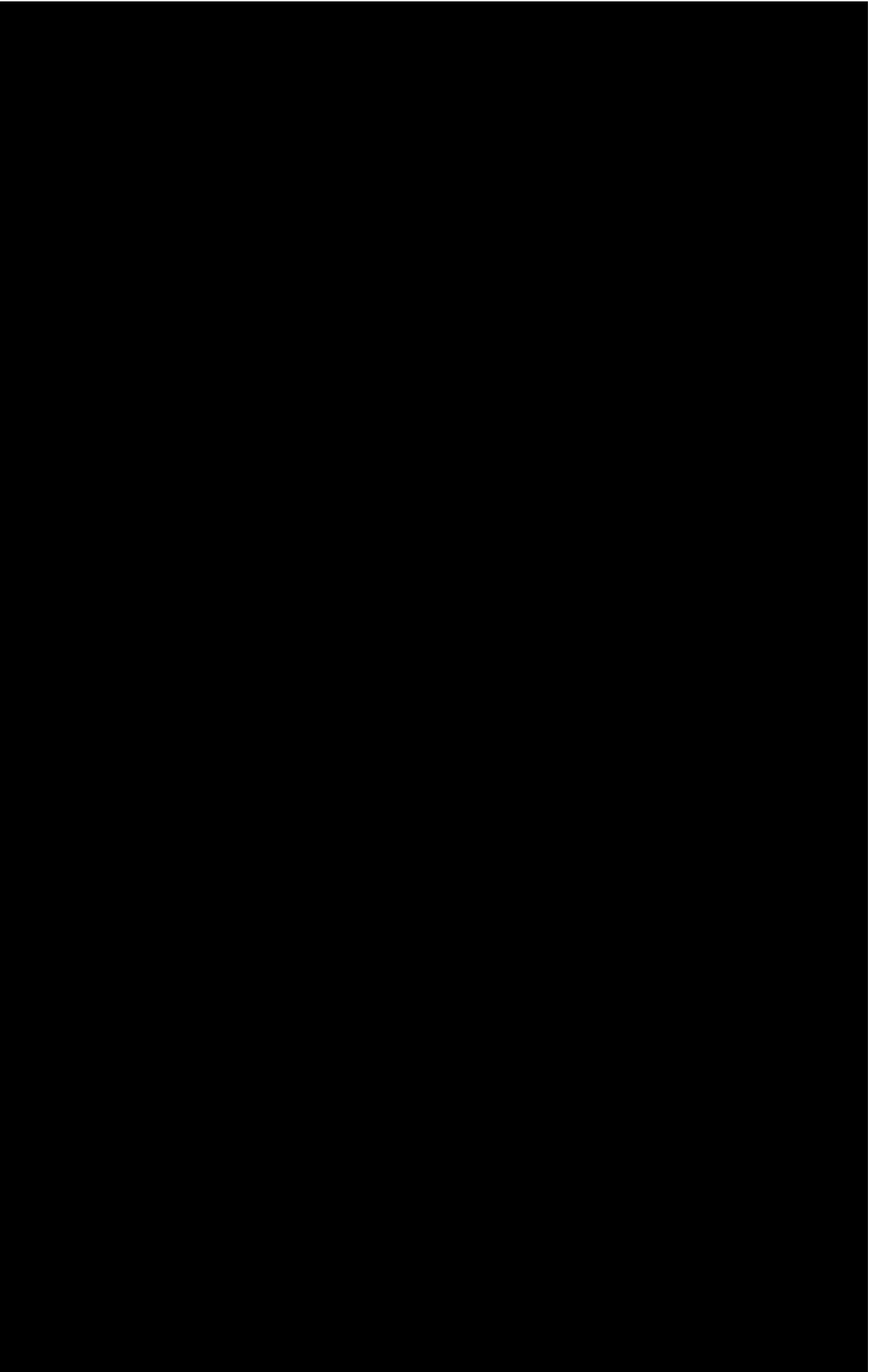


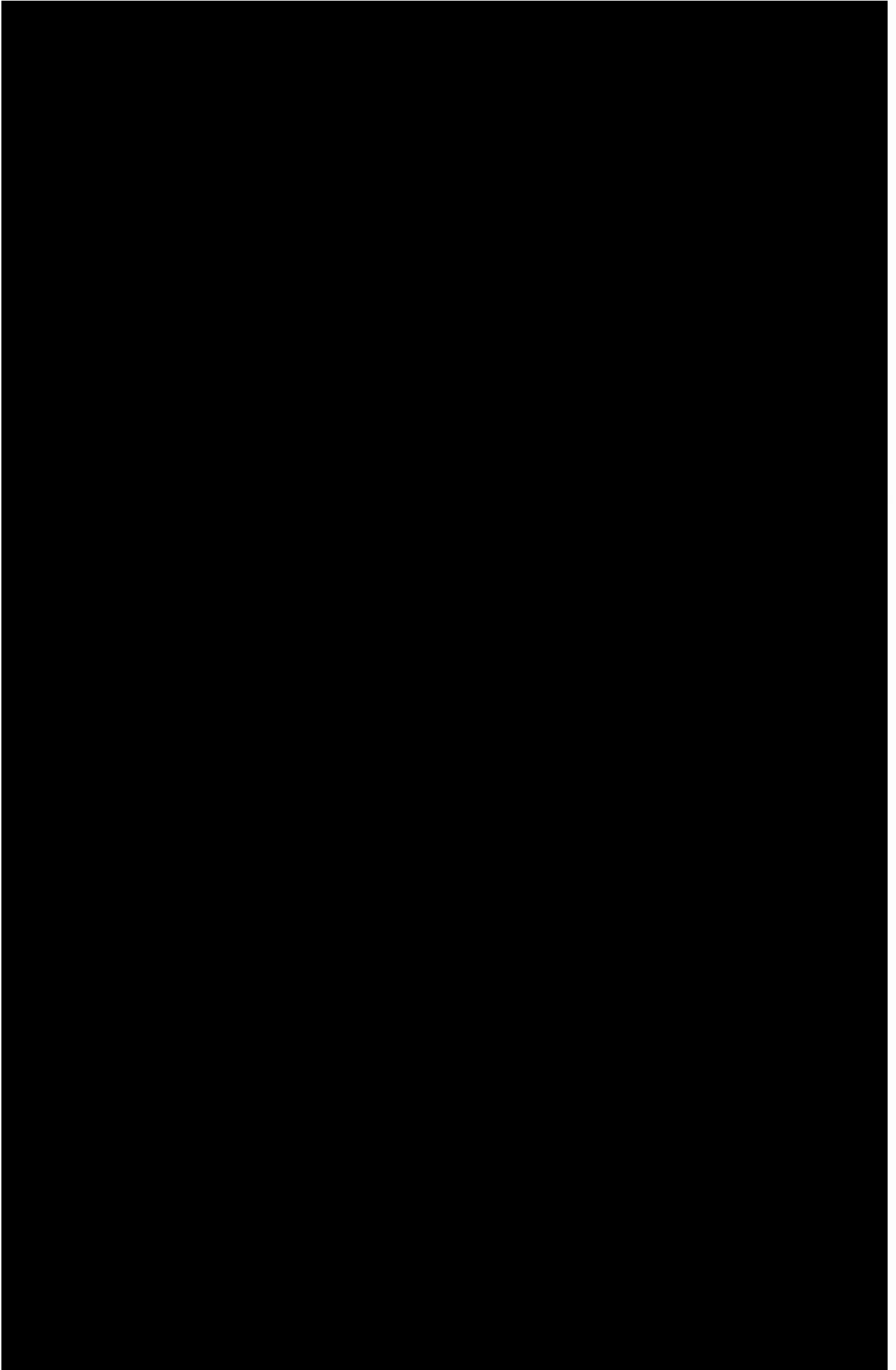




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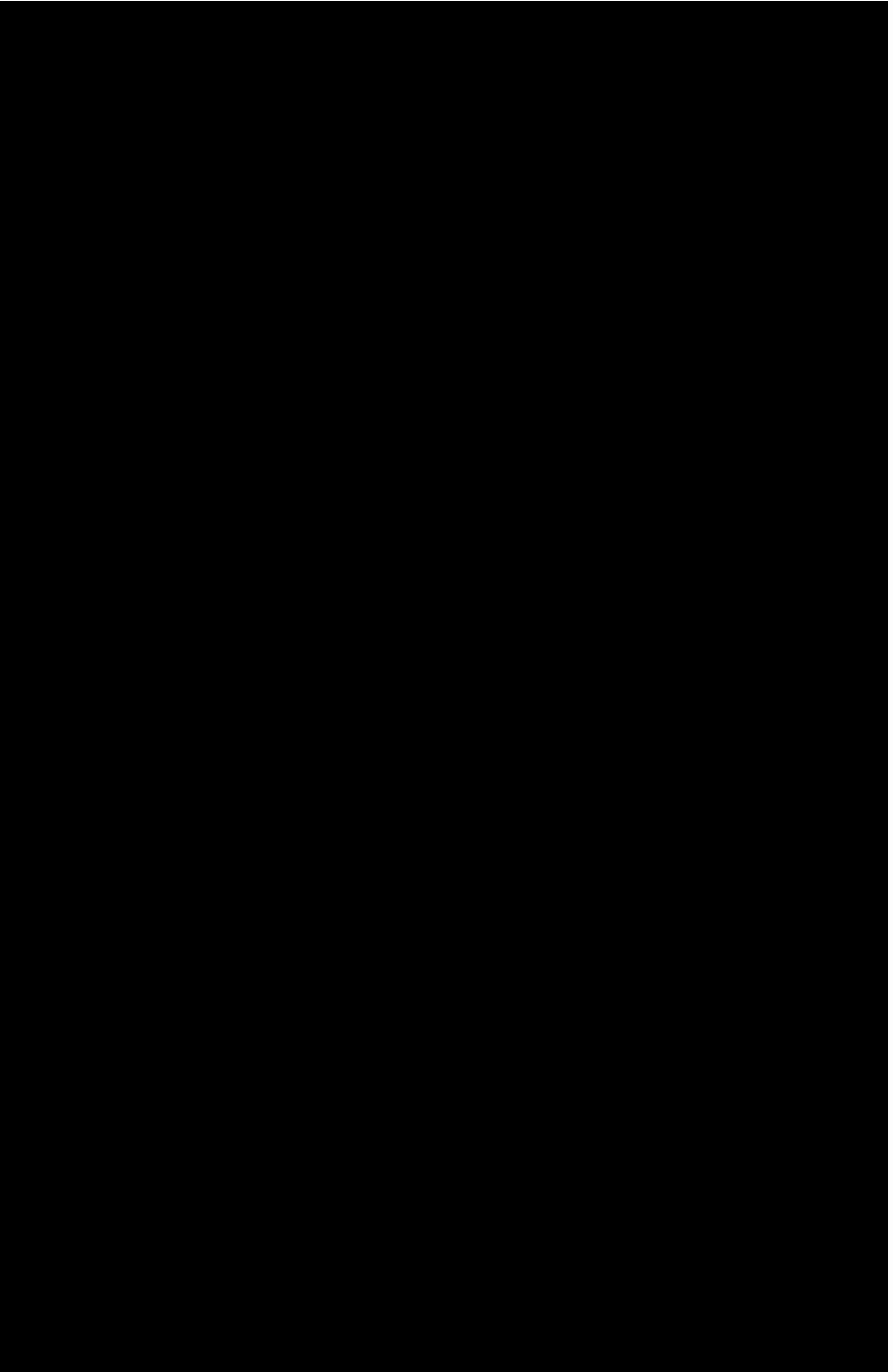
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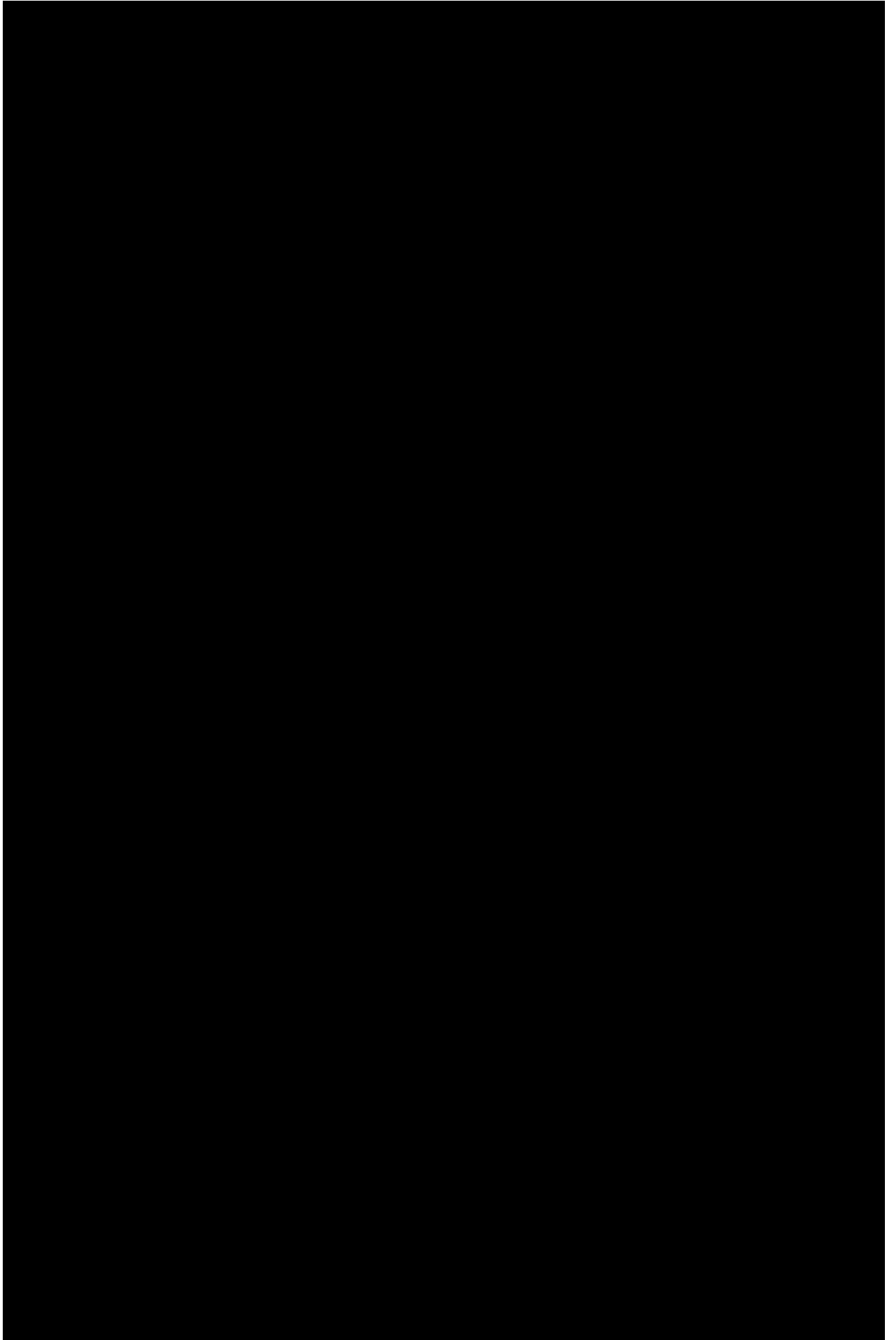
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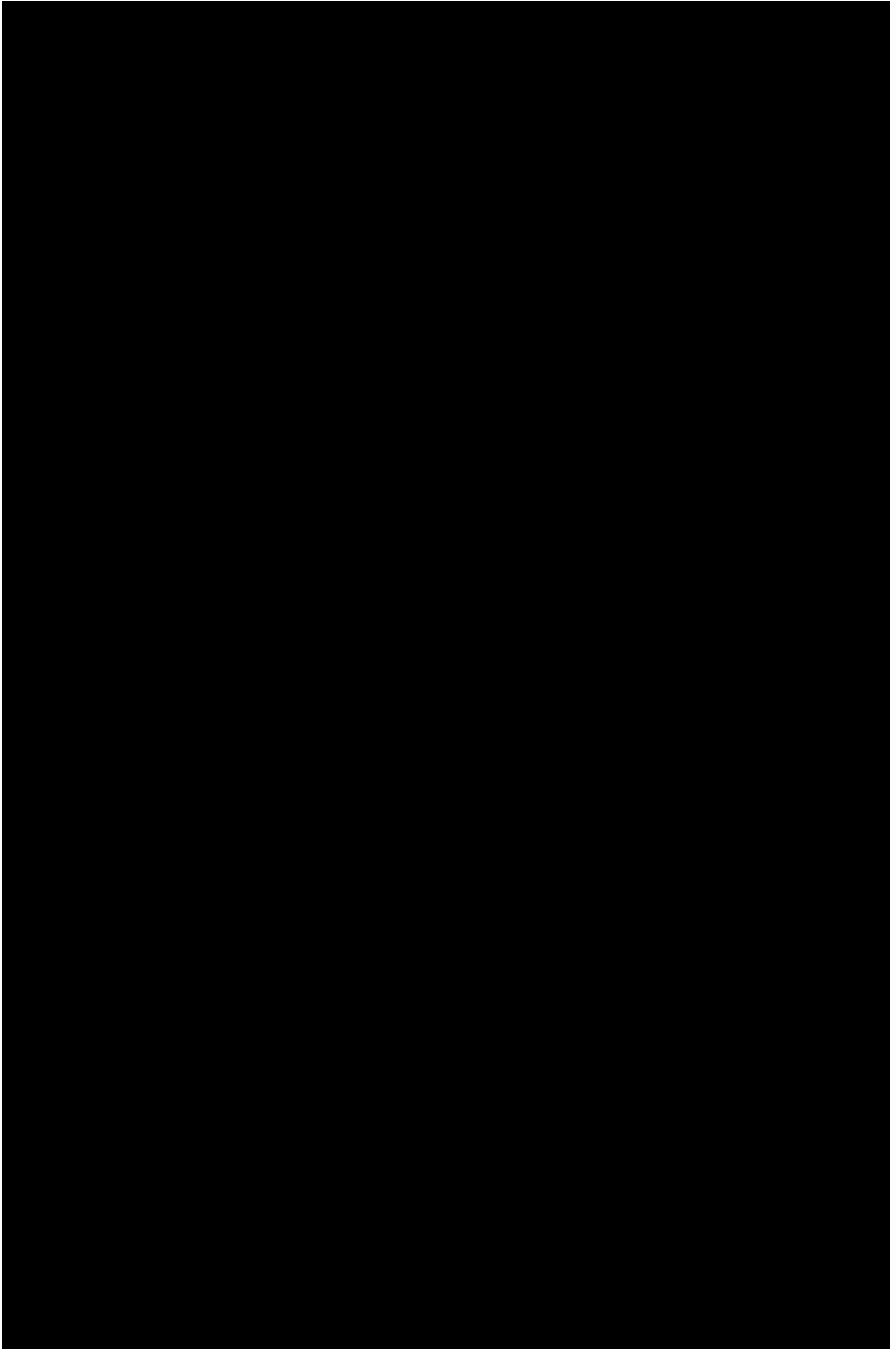
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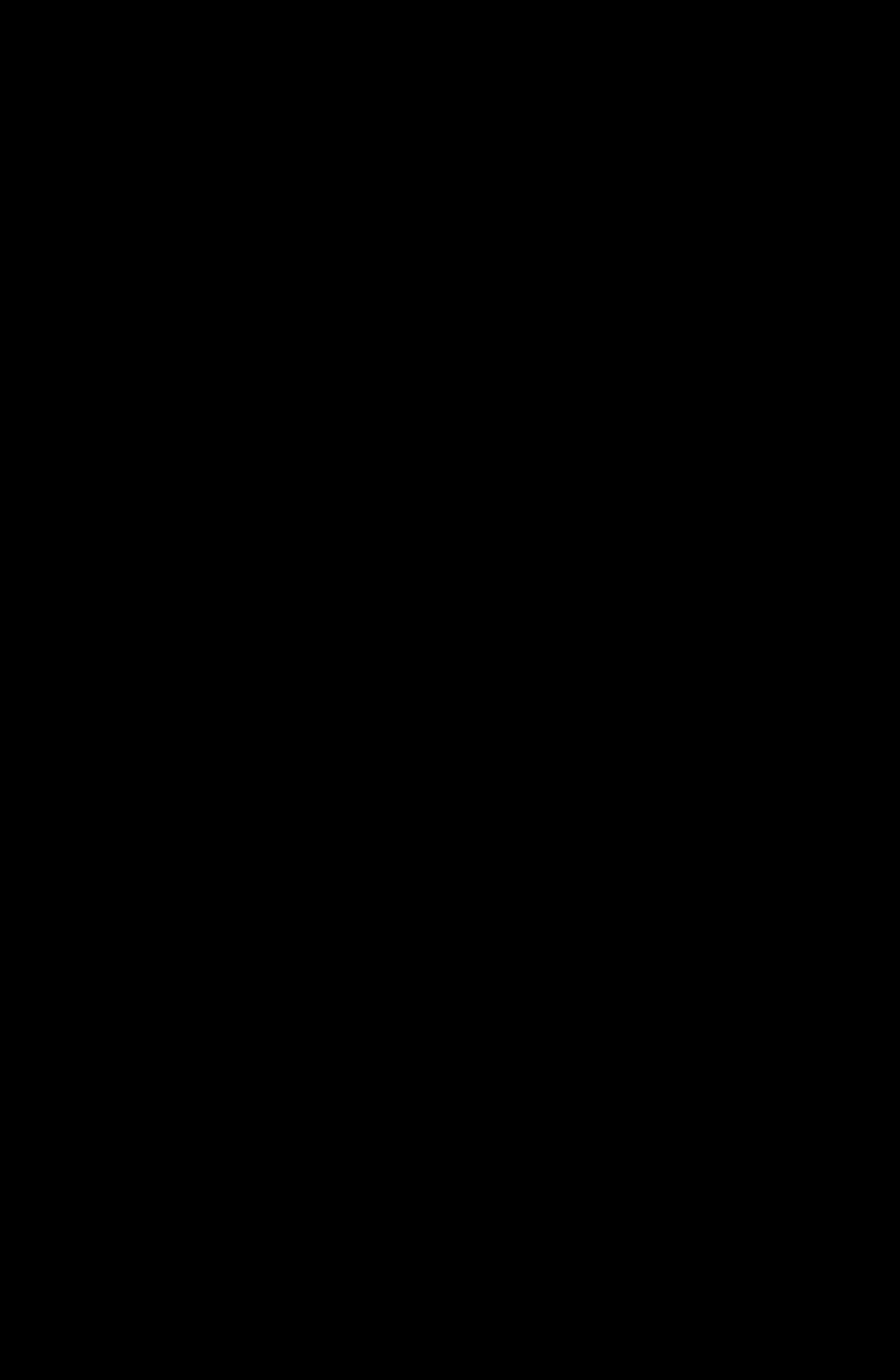
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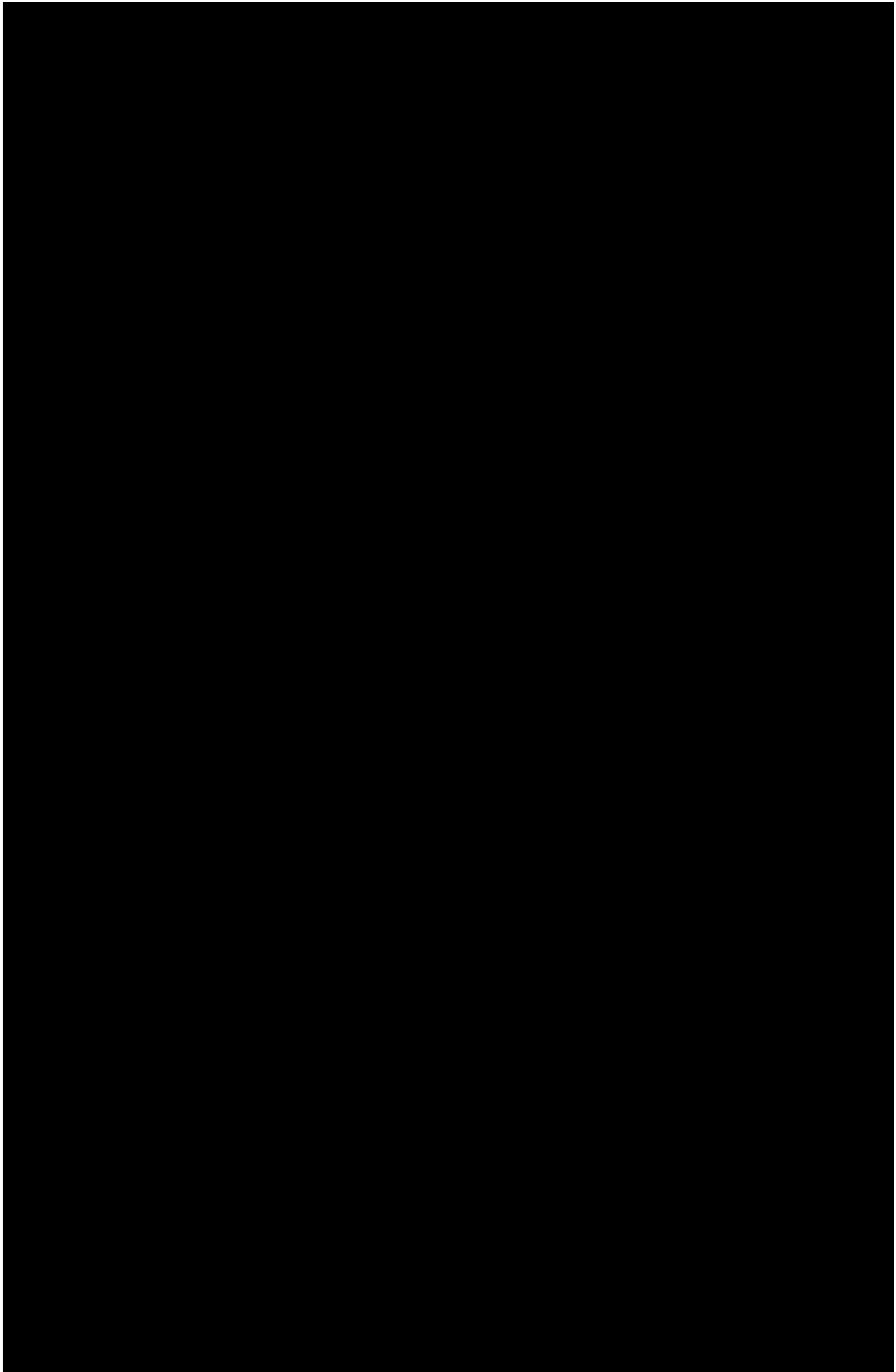
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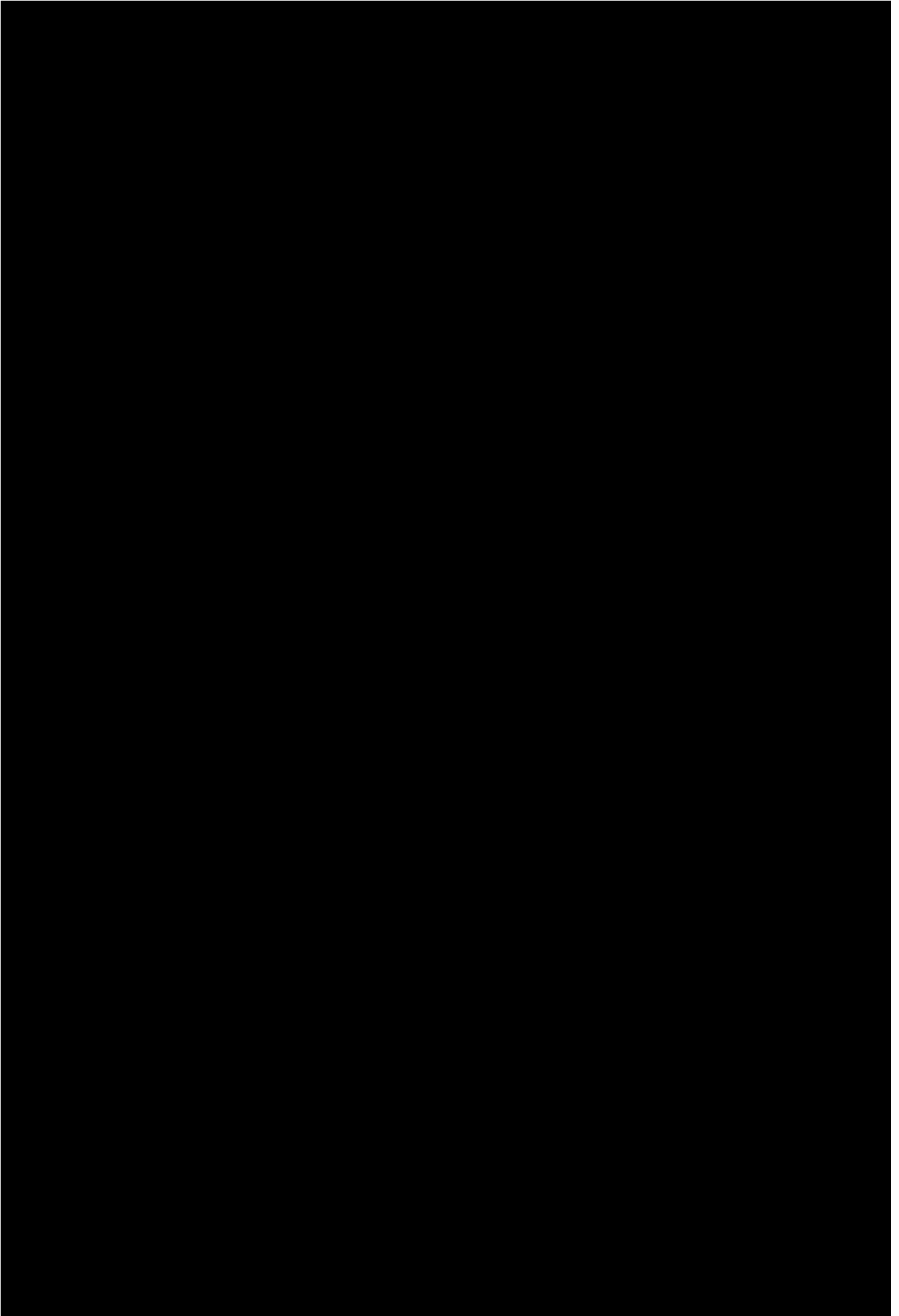
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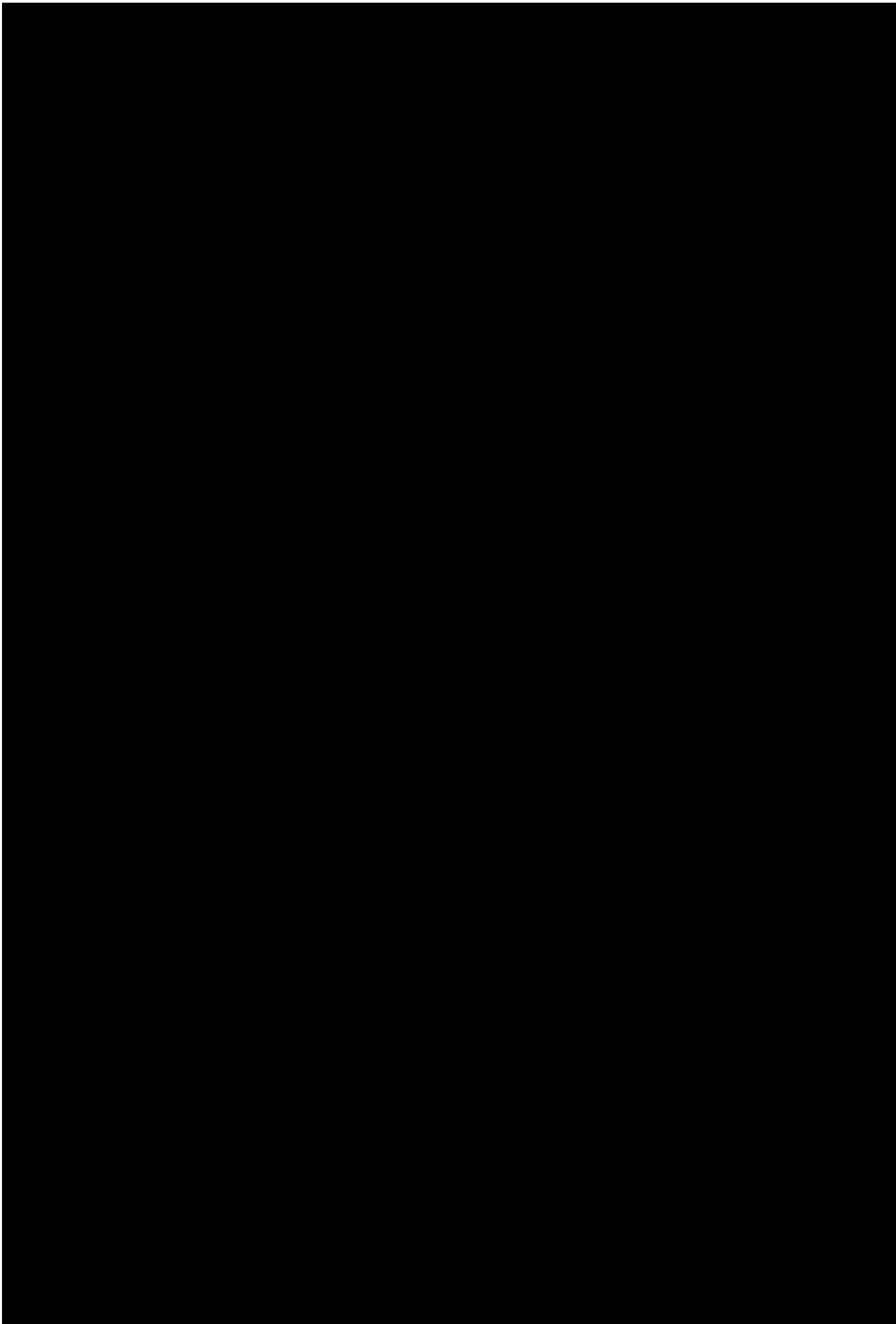
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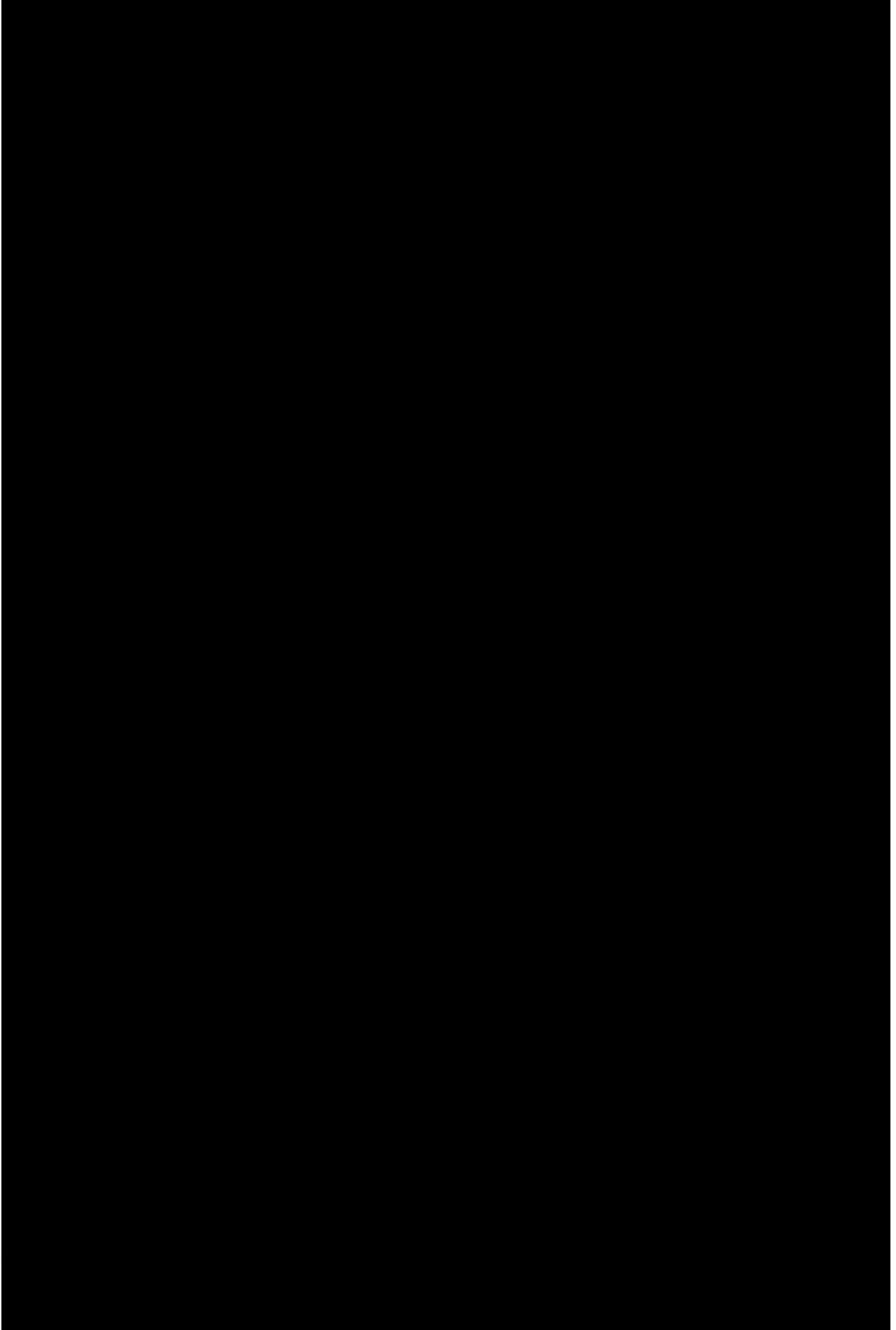


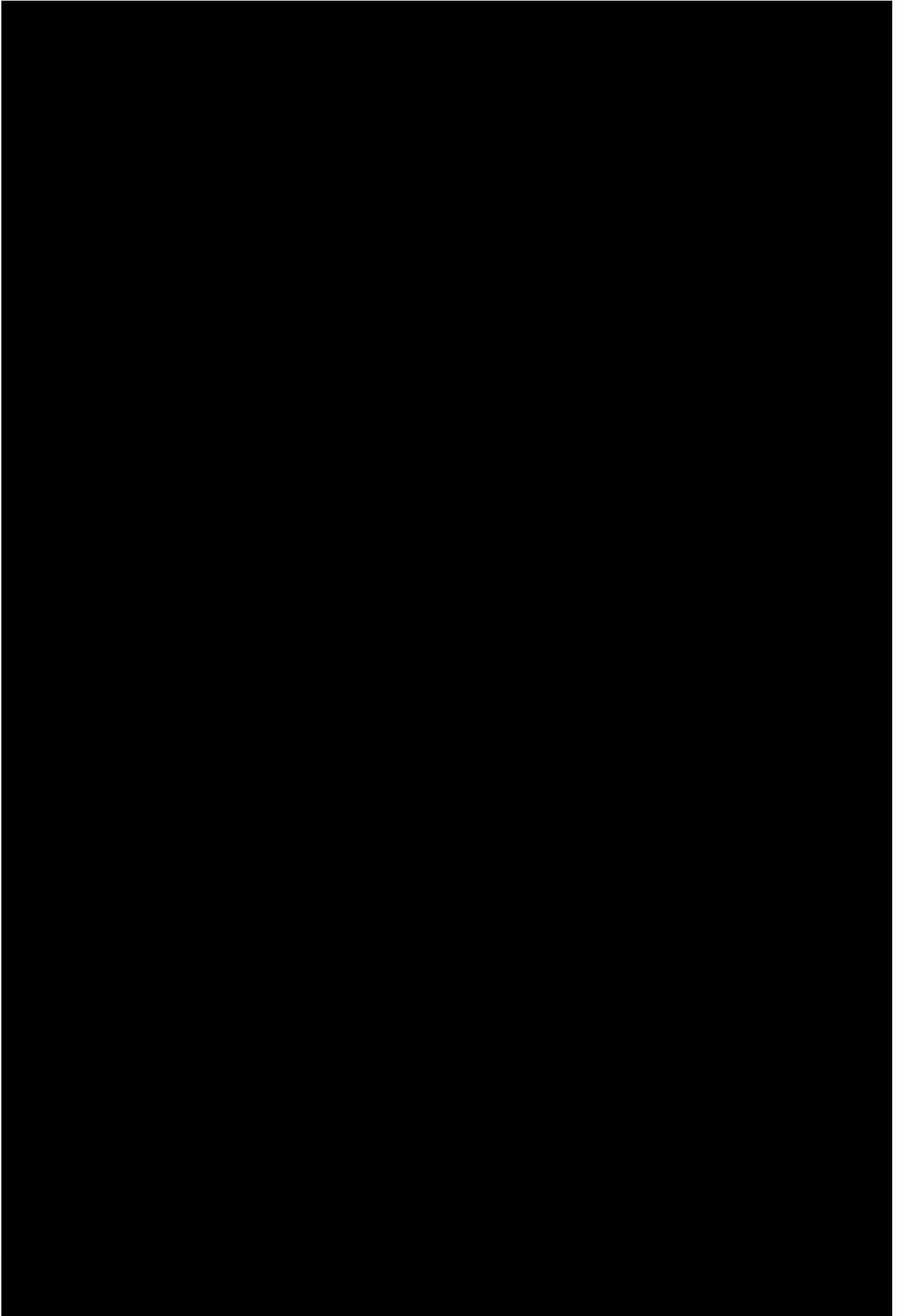


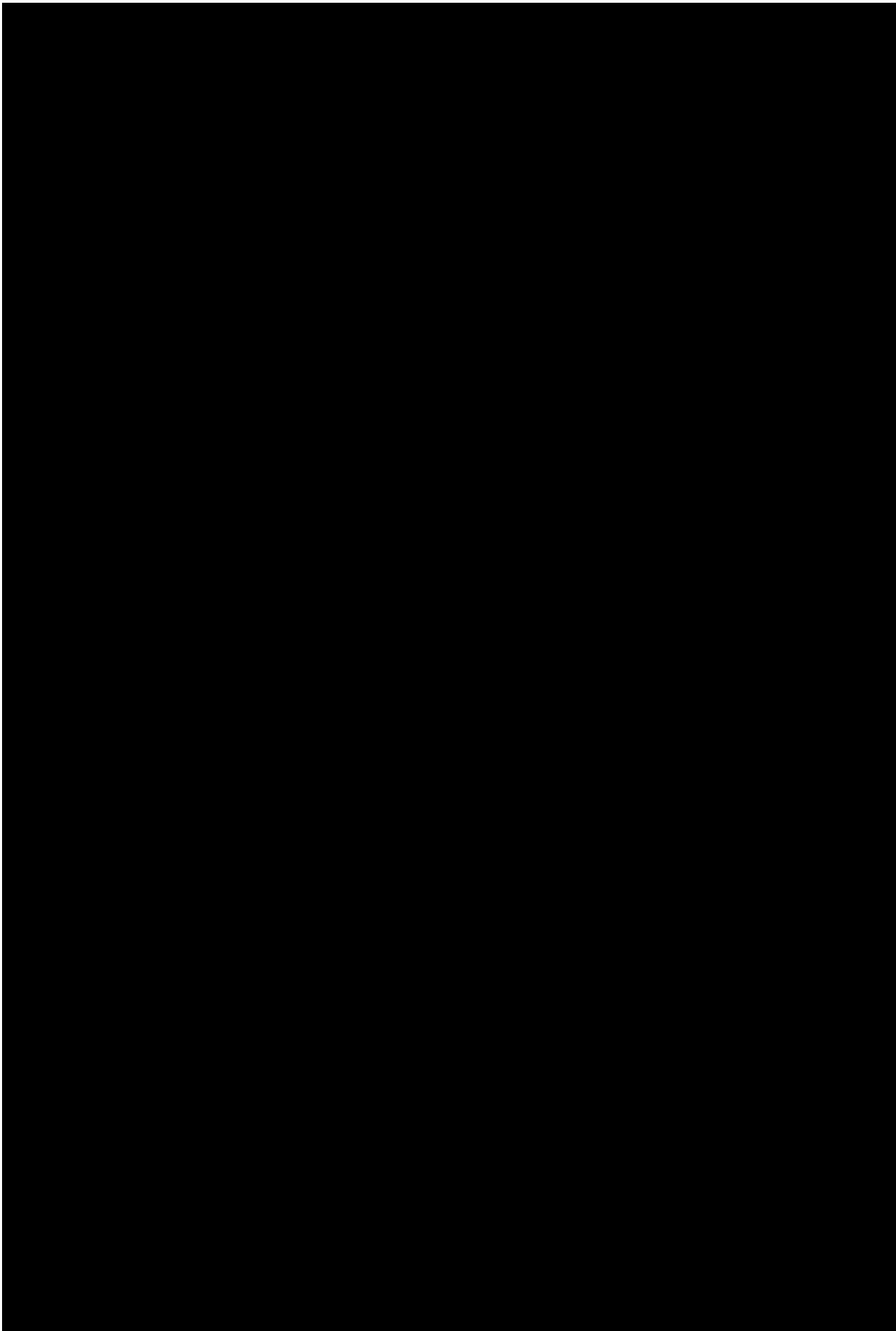


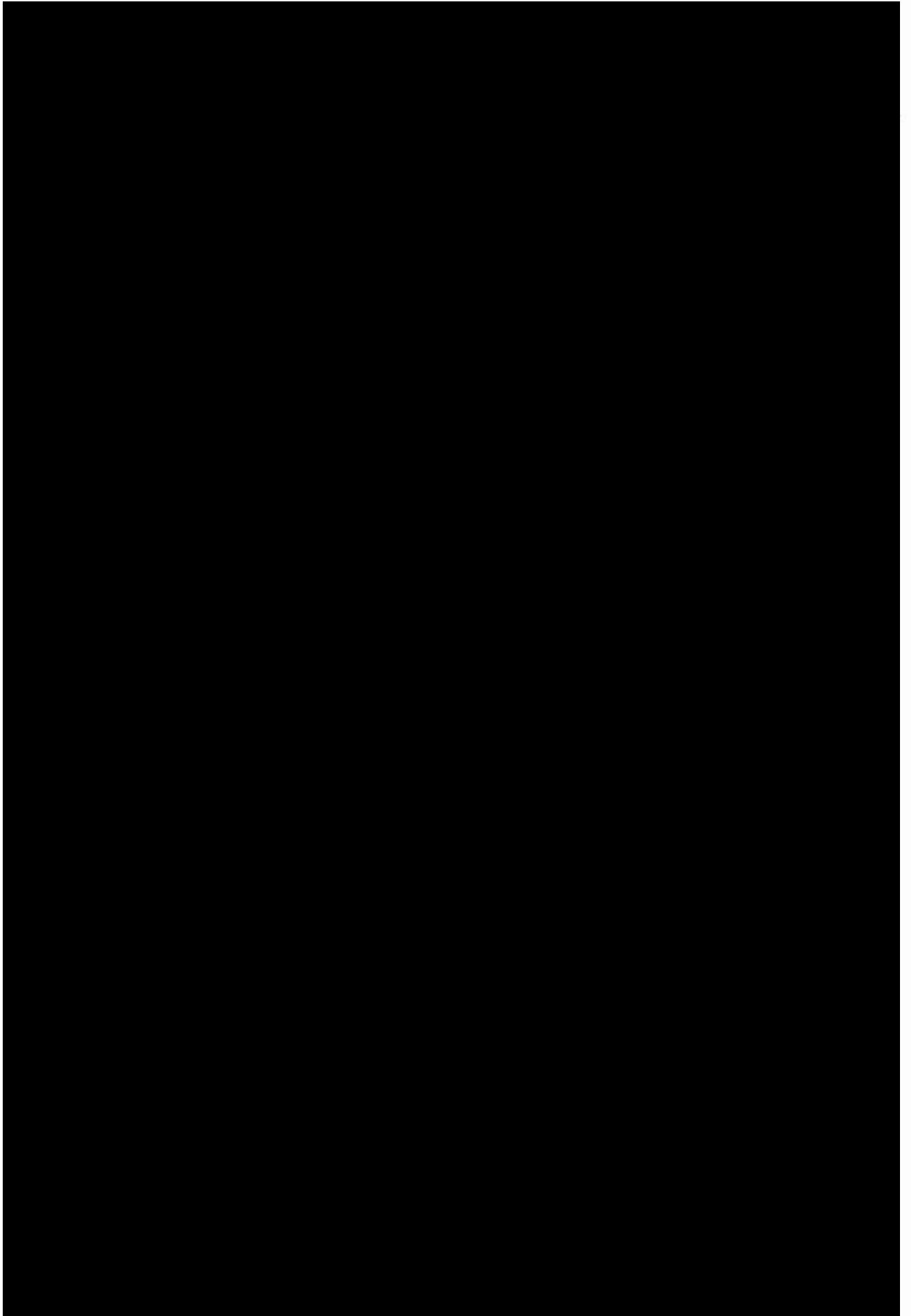


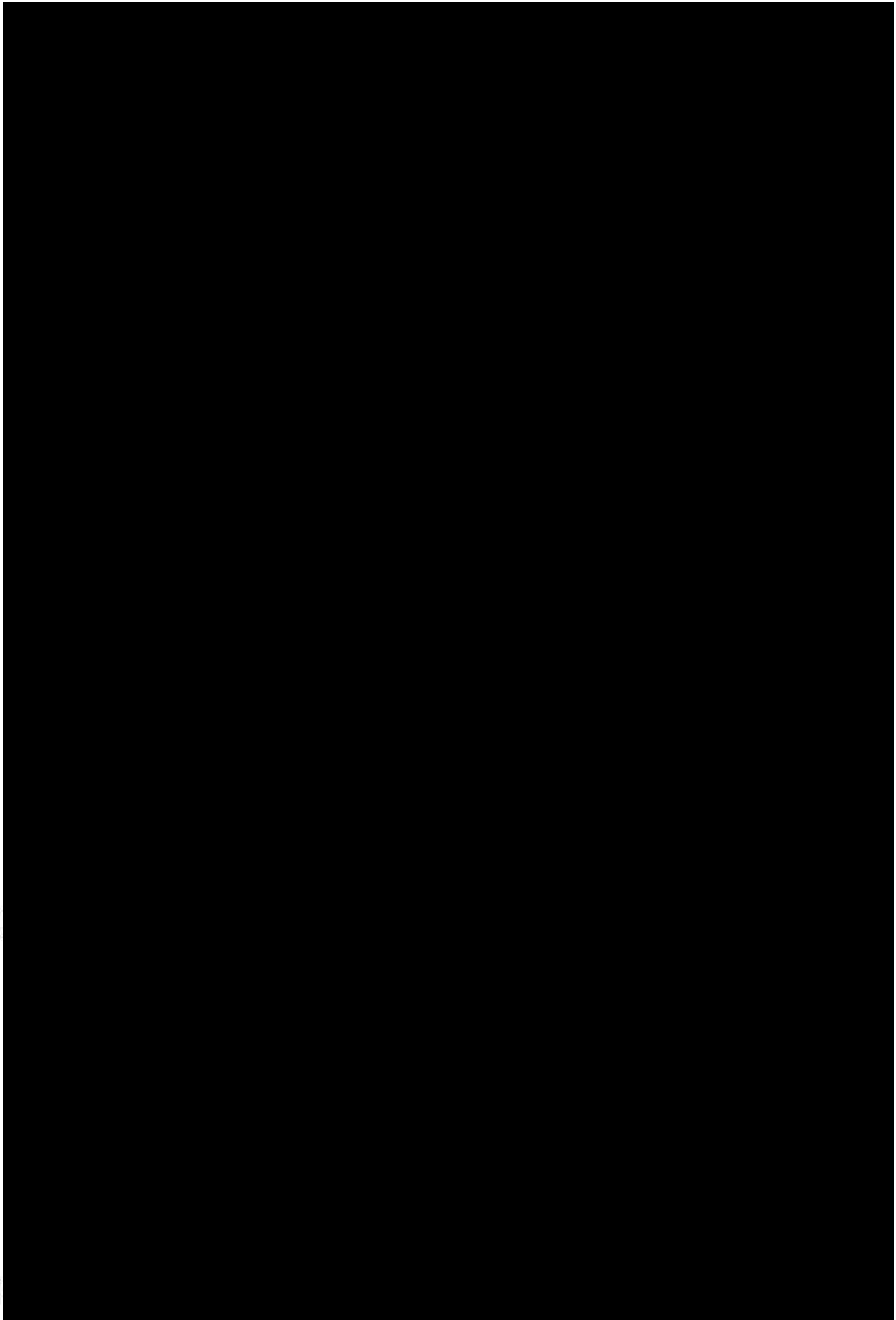


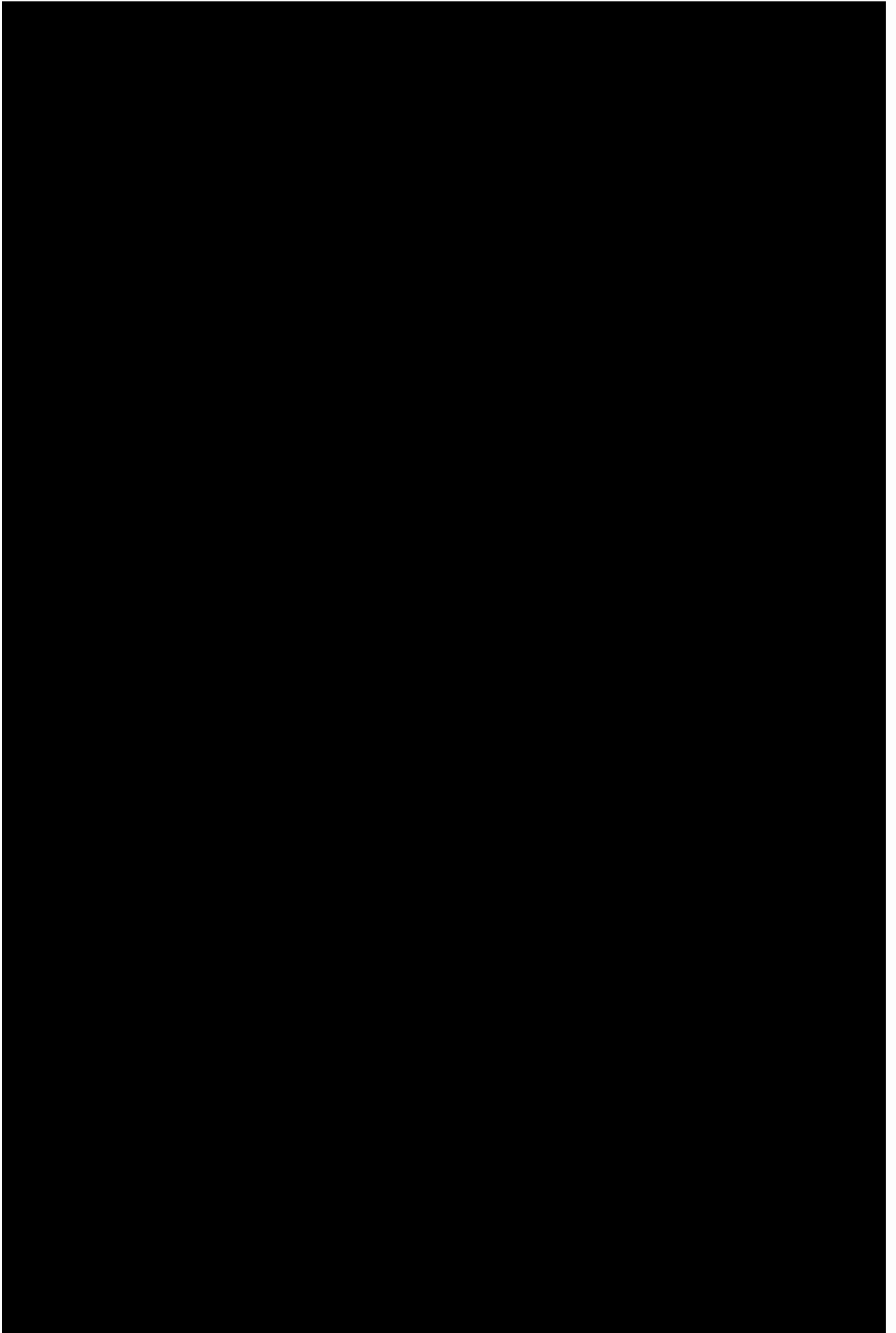












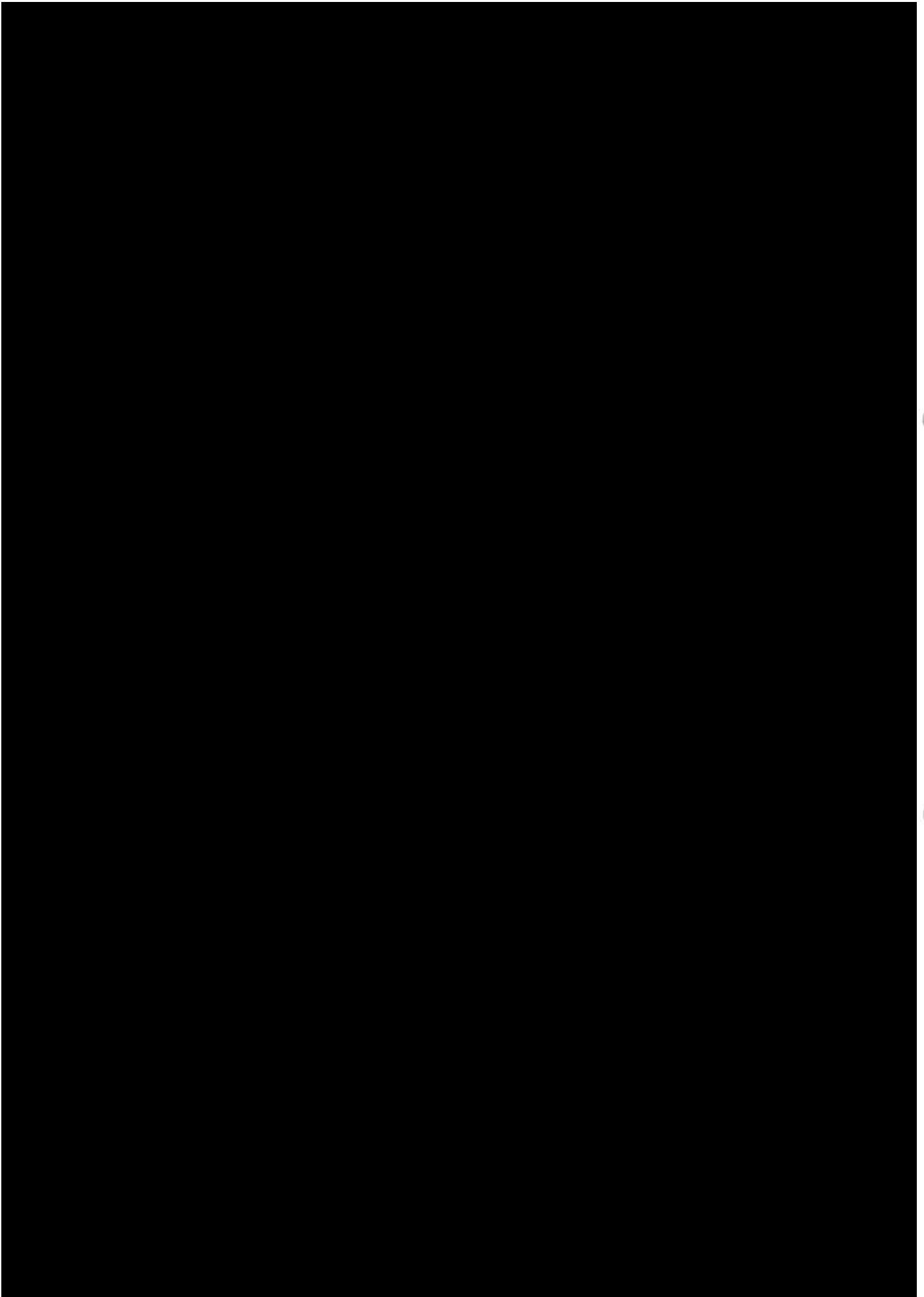
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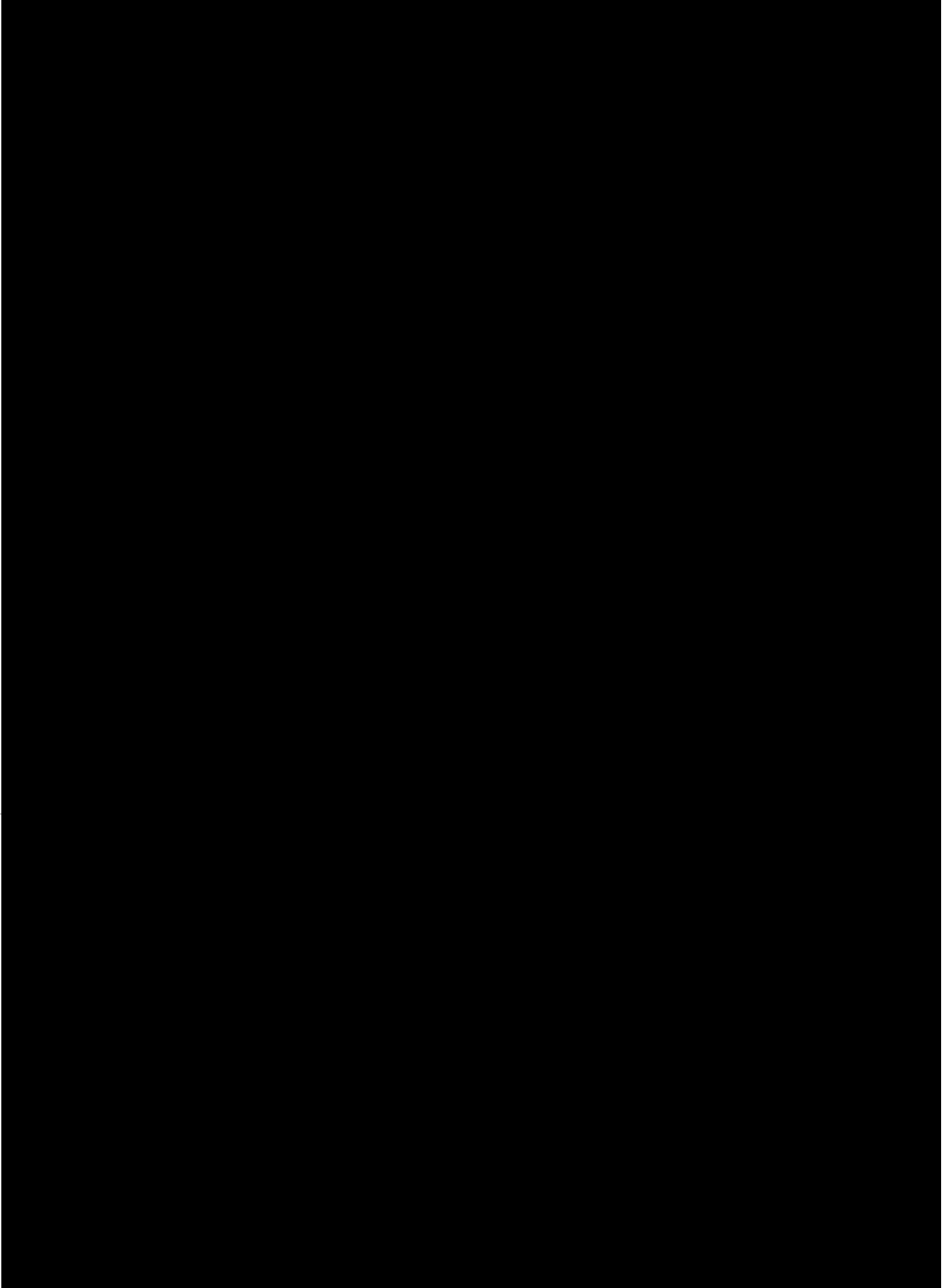
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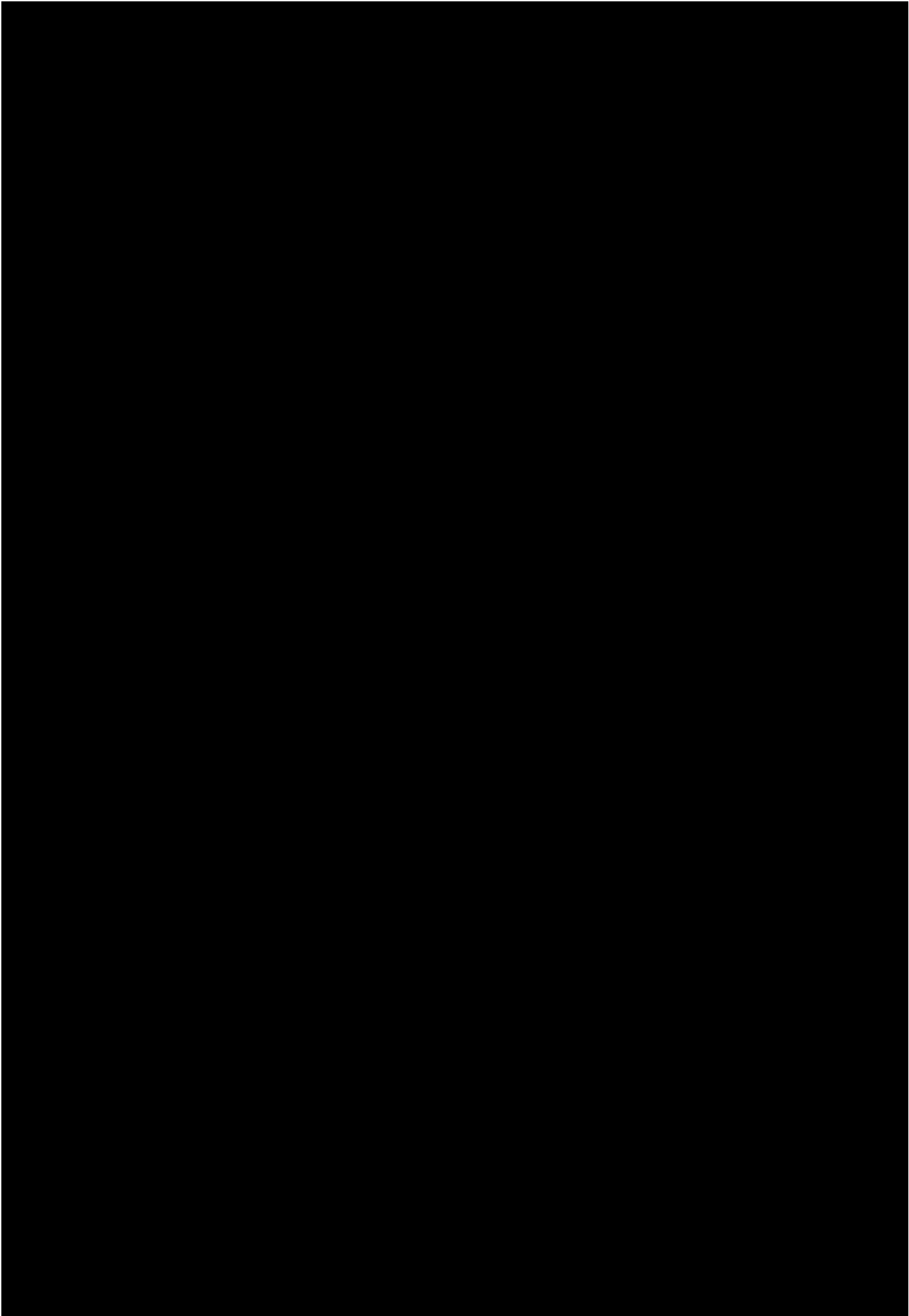
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**SCHEDULE 15**

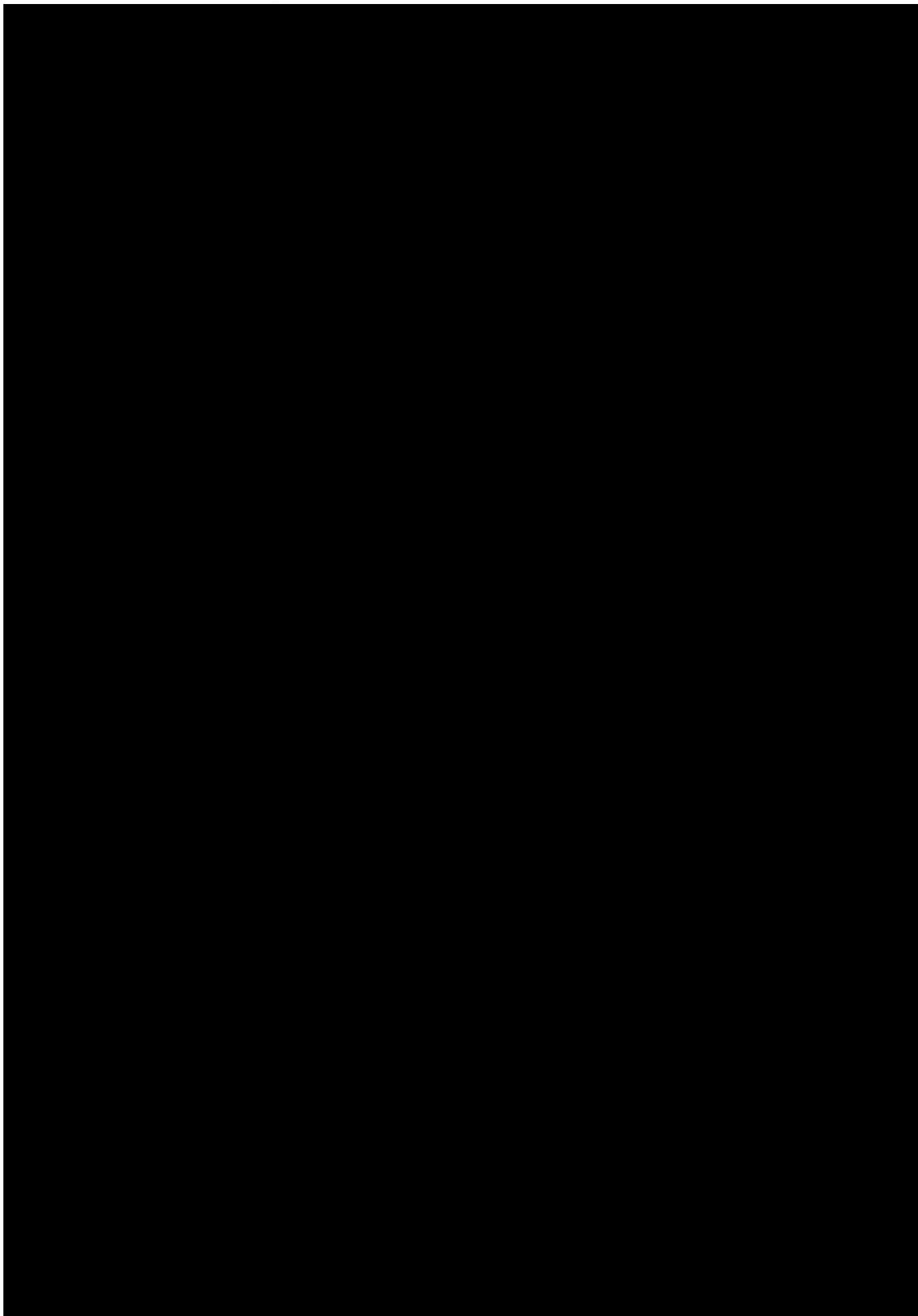
**Amendments to Schedule A21**

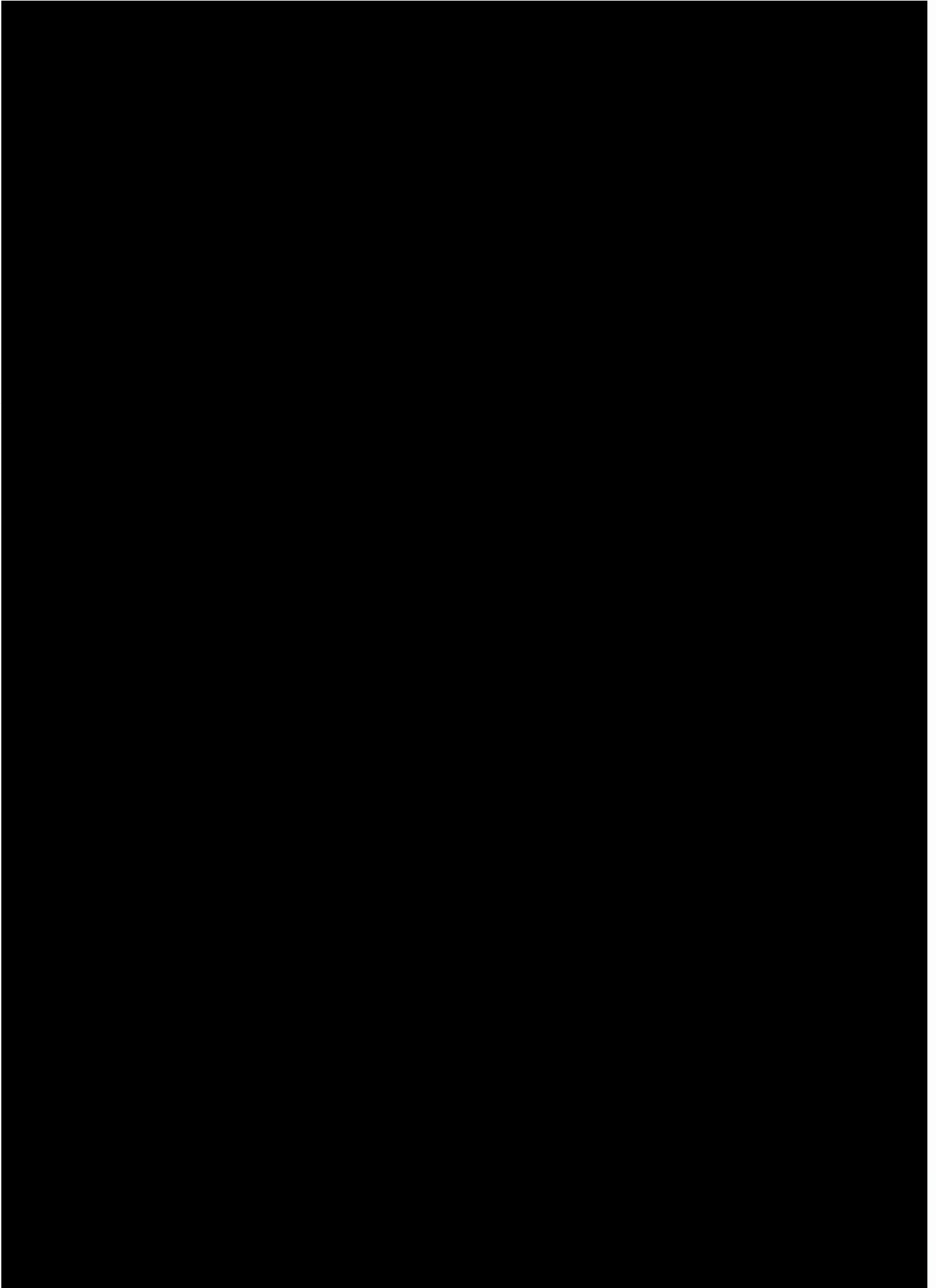
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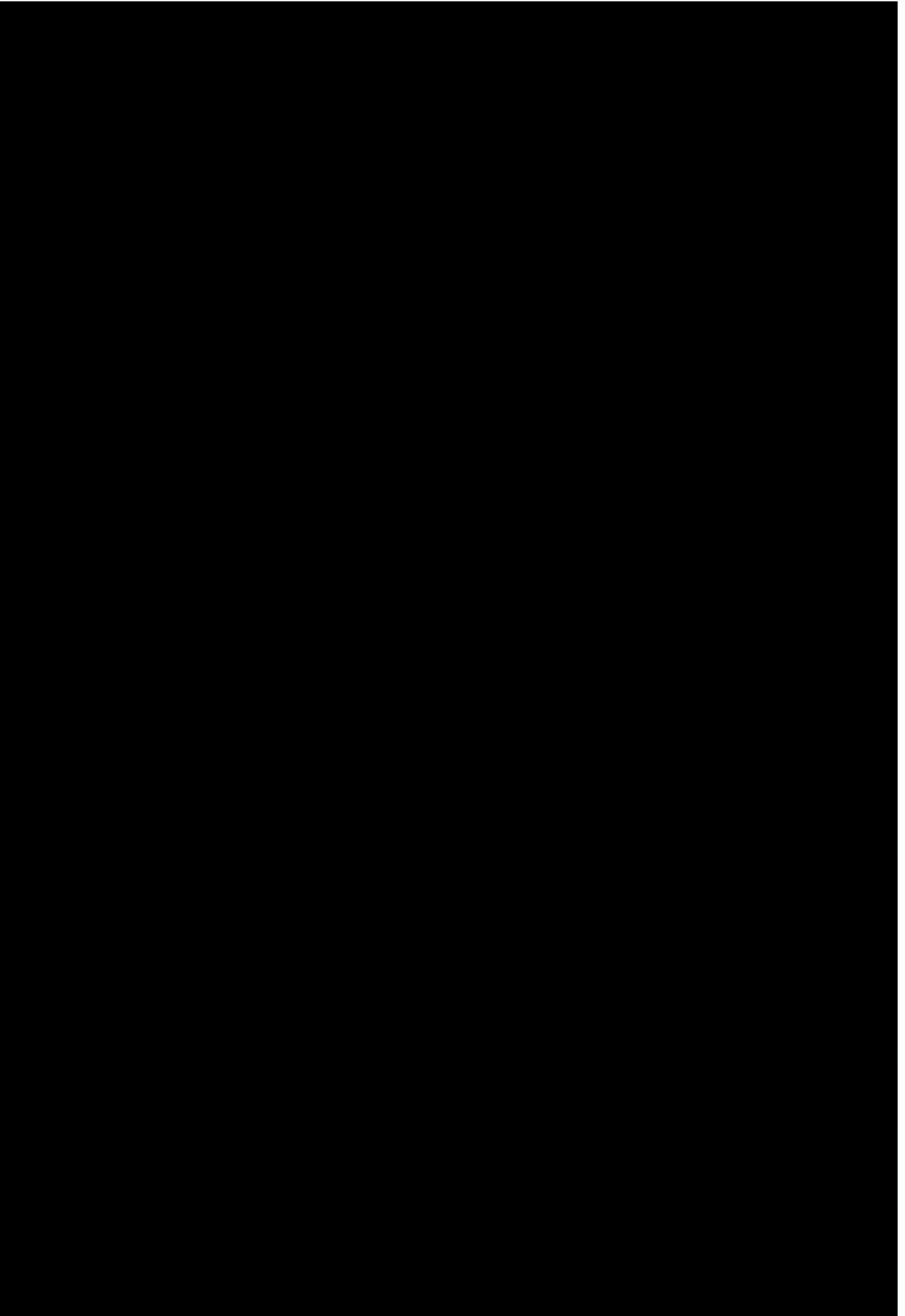


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**SCHEDULE 16**

**Amendments to Schedule A23**

Schedule A23 is replaced by the attached version.

**SCHEDULE A23 – DESIGN WORK (SIGNALLING) CONTRACT DEED OF NOVATION**

~~(Clauses 1.1 and 10.1(b))~~Clause 1.1

**Deed of Novation**

[ ]

ABN [ ]

[ ]

ABN [ ]

[ ]

ABN [ ]



~~Deed of Novation made at \_\_\_\_\_ on \_\_\_\_\_~~

**Parties**                    ~~[insert name] ABN [insert ] of [insert] (Retiring Party)~~  
                                  ~~[Insert name] ABN [insert ] of [insert] (Continuing Party)~~  
                                  ~~[Insert name] ABN [insert] of [insert] (Substitute Party)~~

**Recitals**

- A     ~~The Retiring Party and the Continuing Party are parties to the Contract.~~
- B     ~~The Retiring Party and the Substitute Party have asked the Continuing Party to agree to the novation of the Contract on the terms and conditions of this deed.~~
- C     ~~The Continuing Party has agreed to the novation of the Contract on the terms and conditions of this deed.~~

This deed provides

**1. DEFINITIONS AND INTERPRETATION**

**1.1 Definitions**

~~Defined terms in the Contract have the same meanings in this deed, unless the contrary intention appears.~~

~~In this deed:~~

~~"Claim" means any claim, notice, demand, action, proceeding, litigation, investigation or judgment whether based in contract, tort, statute or otherwise.~~

~~"Contract" means the agreement between the Retiring Party and the Continuing Party described in the Schedule.~~

~~"Effective Date" means [insert date].~~

~~"GST" means the Goods and Services Tax as defined in the A New Tax System (Goods and Services) Act 1999 (Cth).~~

~~"Liability" means all liabilities, losses, Claims, damages, outgoings, costs and expenses of whatever description.~~

~~"Related Entity" has the meaning ascribed to that term in section 9 of the Corporations Act 2001 (Cth).~~

**1.2 Interpretation**

~~In this deed:~~

~~(a) headings are for convenience only and do not affect interpretation;~~

~~and unless the context indicates a contrary intention:~~

~~(b) an obligation or a liability assumed by, or a right conferred on, 2 or more persons binds or benefits them jointly and severally;~~

~~(c) **person** includes an individual, the estate of an individual, a corporation, an authority, an association or a joint venture (whether incorporated or unincorporated), a partnership and a trust;~~

- (d) ~~a reference to a party includes that party's executors, administrators, successors and permitted assigns, including persons taking by way of novation and, in the case of a trustee, includes a substituted or an additional trustee;~~
- (e) ~~a reference to a document (including this deed) is to that document as varied, novated, ratified or replaced from time to time;~~
- (f) ~~a reference to a statute includes its delegated legislation and a reference to a statute or delegated legislation or a provision of either includes consolidations, amendments, re-enactments and replacements;~~
- (g) ~~a word importing the singular includes the plural (and vice versa), and a word indicating a gender includes every other gender;~~
- (h) ~~a reference to a party, clause, schedule, exhibit, attachment or annexure is a reference to a party, clause, schedule, exhibit, attachment or annexure to or of this deed, and a reference to this deed includes all schedules, exhibits, attachments and annexures to it;~~
- (i) ~~if a word or phrase is given a defined meaning, any other part of speech or grammatical form of that word or phrase has a corresponding meaning;~~
- (j) **includes** in any form is not a word of limitation; and
- (k) a reference to **\$** or **dollar** is to Australian currency.

2. **CONDITION PRECEDENT TO NOVATION**

Clause 3 of this deed will have no force and effect until the Effective Date.

3. **NOVATION**

3.1 **Novation**

- (a) ~~The parties novate the Contract so that the Substitute Party and the Continuing Party are parties to a new agreement on the same terms as the Contract.~~
- (b) ~~Any reference in the Contract to the Retiring Party will be read as a reference to the Substitute Party.~~

3.2 **Assumptions of rights and obligations**

- (a) The Substitute Party:
  - (i) ~~will be bound by and must comply with the terms of the Contract and will enjoy the rights and benefits conferred on the Retiring Party under the Contract; and~~
  - (ii) ~~will assume the obligations and Liability of the Retiring Party under the Contract;~~

~~in all respects as if the Substitute Party had originally been named in the Contract as a party instead of the Retiring Party.~~
- (b) ~~The Continuing Party will comply with the terms of the Contract on the basis that the Substitute Party has replaced the Retiring Party under the Contract in accordance with this deed.~~



**3.3 Release by Continuing Party**

- (a) The Continuing Party releases the Retiring Party from:
  - (i) any obligation or Liability under or in respect of the Contract; and
  - (ii) any action, claim and demand it has against the Retiring Party under or in respect of the Contract.
- (b) This release does not affect any rights the Continuing Party may have against the Substitute Party as a result of the assumption by the Substitute Party under the terms of this deed of the obligations and Liability of the Retiring Party under the Contract.

**3.4 Insurance**

As from the Effective Date:-

- (a) the Substitute Party must replace any insurances effected and maintained by the Retiring Party under the terms of the Contract; and
- (b) the Continuing Party will take the necessary steps to ensure that, for all insurances required to be effected by the Continuing Party under of the terms of the Contract, the Substitute Party is named in place of the Retiring Party as required by the Contract.

**3A: Amendments**

**3A.1 Amendments to the Contract**

The Contract is amended on and from the Effective Date so as to make the additions, changes and deletions set out in Schedule 2 to this deed.

**3A.2 Rights and obligations**

Clause 3A.1 does not affect any right or obligation that arises before the date of this deed.

**4. ONGOING RIGHTS OF RETIRING PARTY**

**4.1 Direct Enquiries**

In addition to any other rights which the Retiring Party may have, the Continuing Party and the Substitute Party each agree that the Retiring Party may make enquiries directly of the Continuing Party for the purpose of establishing whether the Continuing Party is complying with its obligations under the Contract.

**4.2 Not used**

**4.3 Report by Continuing Party**

The Continuing Party undertakes to the Retiring Party that it will exercise all reasonable skill, care and diligence to ensure that the design intent of the Works as contained in the Design Documentation in existence at the date of execution of this deed, is reflected in the completion of the Design Documentation and in the execution of the Works.

Without limiting the above, the Continuing Party must conduct such inspections of the Works at such times and in such detail as may reasonably be expected of a consultant engaged in a project of the size and complexity of the Works.

The Continuing Party must act in good faith and in the best interests of the Retiring Party and promptly advise the Retiring Party about any matter in which the Continuing Party has been instructed by the Substitute Party to provide the Services in a manner which is, or may result in an outcome which is, not in accordance with the requirements of the Contract, including:

- (a) any instruction or direction which it receives, or any work or services it becomes aware of, which in the reasonable opinion of the Continuing Party, is not in accordance with any provision of the Contract including where the Substitute Party's instructions:
  - (i) in relation to design are not consistent with the Contract or may result in the Works to be constructed not being fit for their intended purpose; or
  - (ii) require the Continuing Party to issue a certificate under the Contract where the conditions for the issue of that certificate under the Contract have not been satisfied; and
- (b) any non conformity of any Design Documentation produced pursuant to the Contract, or to the Design Documentation in existence at the date of this deed, upon becoming aware of the non conformity.

**5. ~~OVERRIDING EFFECT~~**

~~The parties agree that the execution and operation of this deed will for all purposes be regarded as due and complete compliance with the terms of the Contract relating to any requirement for consent to assignment of the Contract so far as any such provisions would apply with respect to the novation of the Contract to the Substitute Party.~~

**6. ~~REPRESENTATIONS AND WARRANTIES~~**

**6.1 ~~Authority~~**

~~Each party represents and warrants to each other party that it has full power and authority to enter into and perform its obligations under this deed.~~

**6.2 ~~Authorisations~~**

~~Each party represents and warrants to each other party that it has taken all necessary action to authorise the execution, delivery and performance of this deed in accordance with its terms.~~

**6.3 ~~Binding obligations~~**

~~Each party represents and warrants to each other party that this deed constitutes its legal, valid and binding obligations and is enforceable in accordance with its terms.~~

**7. ~~DUTIES, COSTS AND EXPENSES~~**

**7.1 ~~Stamp duty~~**

~~The Substitute Party must pay all stamp duty, duties or other taxes of a similar nature (including but not limited to any fines, penalties and interest) in connection with this deed or any transaction contemplated by this deed (except to the extent the terms of the Contract provide otherwise).~~



**7.2 Costs**

~~Each Party must pay its own legal costs and expenses in negotiating, preparing and executing this deed.~~

**7.3 GST**

The parties agree that:

- ~~(a) with any payment of amounts payable under or in connection with this deed including without limitation, by way of indemnity, reimbursement or otherwise, the party paying the amount must also pay any GST in respect of the taxable supply to which the amount relates;~~
- ~~(b) the party receiving the payment will provide a tax invoice; and~~
- ~~(c) the payment of any amount referred to in paragraph (a) which is a reimbursement or indemnification of a cost, expense, loss or liability will exclude any part of the amount for which the other party can claim an input tax credit.~~

**8. GENERAL****8.1 Governing law**

~~This deed is governed by and must be construed according to the laws of the State or Territory stated in Schedule 1.~~

**8.2 Jurisdiction**

Each party irrevocably:

- ~~(a) submits to the non-exclusive jurisdiction of the courts of the State or Territory stated in Schedule 1, and the courts competent to determine appeals from those courts, with respect to any proceedings which may be brought at any time relating to this deed; and~~
- ~~(b) waives any objection it may now or in the future have to the venue of any proceedings, and any claim it may now or in the future have that any proceedings have been brought in an inconvenient forum, if that venue falls within clause 8.2(a).~~

**8.3 Amendments**

~~This deed may only be varied by a document signed by or on behalf of each party.~~

**8.4 Waiver**

- ~~(a) Failure to exercise or enforce, or a delay in exercising or enforcing, or the partial exercise or enforcement of, a right, power or remedy provided by law or under this deed by a party does not preclude, or operate as a waiver of, the exercise or enforcement, or further exercise or enforcement, of that or any other right, power or remedy provided by law or under this deed.~~
- ~~(b) A waiver or consent given by a party under this deed is only effective and binding on that party if it is given or confirmed in writing by that party.~~
- ~~(c) No waiver of a breach of a term of this deed operates as a waiver of any other breach of that term or of a breach of any other term of this deed.~~

**8.5 Counterparts**

~~This deed may be executed in any number of counterparts and by the parties on separate counterparts. Each counterpart constitutes the deed of each party who has executed and delivered that counterpart.~~

**8.6 Severance**

~~If at any time a provision of this deed is or becomes illegal, invalid or unenforceable in any respect under the law of any jurisdiction, that will not affect or impair:~~

- ~~(a) the legality, validity or enforceability in that jurisdiction of any other provision of this deed; or~~
- ~~(b) the legality, validity or enforceability under the law of any other jurisdiction of that or any other provision of this deed.~~

**8.7 Further acts and documents**

~~Each party must promptly do all further acts and execute and deliver all further documents (in form and content reasonably satisfactory to that party) required by law or reasonably requested by another party to give effect to this deed.~~

**8.8 Assignment**

~~A party cannot assign, novate or otherwise transfer any of its rights or obligations under this deed without the prior consent of each other party.~~

**Schedule 1**

<b>Contract</b> (Clause 1.1)	..... .....
<b>Governing Law and Jurisdiction</b> (Clause 1.1 and 8.1)	..... .....

**Schedule 2**

1. Insert a new definition of "Novation Deed" in clause 1.1 as follows:

~~"Novation Deed" means the deed entitled Deed of Novation between TfNSW, the Principal and the Service Provider.~~

2. The definition of "SSJ Contract" in clause 1.1 is amended as follows:

~~"SSJ Contract" means the contract between the Principal TfNSW and the SSJ Contractor Principal for the carrying out of the SSJ Works.~~

3. The definition of "SSJ Contractor" in clause 1.1 is deleted.

4. Clause 1.3 is deleted.

5. Clause 3.1 is amended to insert after paragraph (h) a new paragraph (i) as follows and to renumber the following paragraphs as (j) and (k) respectively:

- (i) ensure that the Services will be fit for the intended purposes disclosed in or reasonably able to be inferred from the SWTC in Schedule C1 of the SSJ Contract (to the extent relevant to the Services).

6. Clause 3.9 is deleted and replaced as follows:

**3.9 Certification under the SSJ Contract**

- (a) ~~The Service Provider acknowledges that the Principal is required to provide TfNSW:~~

(i) ~~a Designer Deed of Covenant in the form of Schedule A12 of the SSJ Contract from the Service Provider; and~~

(ii) ~~a certificate in the form of Schedule B2 of the SSJ Contract from the Service Provider;~~

~~in accordance with the requirements of the SSJ Contract.~~

- (b) ~~The Service Provider must:~~

(i) ~~in respect of the Designer Deed of Covenant referred to in clause 3.9(a)(i), within 7 days of receipt of a request from the Principal, provide an executed Designer Deed of Covenant in the form of Schedule A12 of the SSJ Contract to the Principal; and~~

(ii) ~~in respect of the certificate in clause 3.9(a)(ii), within 7 days of receipt of a request from the Principal, provide an executed certificate in the form of Schedule B2 of the SSJ Contract to the Principal.~~

- (c) ~~The Principal will provide to the Service Provider copies of all documentation required for the Service Provider to comply with its obligations under clause 3.9(b).~~

7. Insert a new clause 3.11 as follows:

**3.11 Existing Operations**



- (a) For the purposes of this clause:
- (i) **"Construction Site"** means any site of the Project on which the Service Provider provides the Services;
- (ii) **"Existing Operator"** means:
- (a) RailCorp;
  - (b) Sydney Trains;
  - (c) NSW Trains;
  - (d) RMS;
  - (e) Ausgrid;
  - (f) Sydney Water;
  - (g) Telstra;
  - (h) Qenos;
  - (i) Jemena; or
  - (j) any other person who owns, operates or controls any infrastructure (including existing infrastructure, infrastructure that is under construction and the Utility Services) or undertakes any business or operation on or in the vicinity of the Construction Site, and any of their related bodies corporate (as that term is defined in section 9 of the Corporations Act 2001 (Cth)) and contractors; and
- (iii) **"Existing Operations"** means:
- (a) all infrastructure (including existing infrastructure, infrastructure that is under construction and Utility Services) which is owned, operated or under the control of an Existing Operator; and
  - (b) the businesses and operations undertaken by an Existing Operator, on or in the vicinity of the Construction Site.
- (b) The Service Provider acknowledges that, in the carrying out of the Services, it must not disrupt, interrupt or interfere with and ensure the minimum nuisance, disturbance and inconvenience to the Existing Operations and to the extent reasonably possible, not interfere with the free movement of traffic or block or impair access to any premises, carparks, roadways, pedestrian ways, public spaces, parks, pedal cycle paths, or other facilities associated with the Existing Operations.
- (c) The Services Provider must comply with all policies, procedures, rules and directions of the Principal and TfNSW applying from time to time (as notified by the Principal) in respect of the Existing Operations (including in relation to workplace health and safety and/or the Environment).
- (d) Except to the extent that to do so would expand the scope of the Services, and subject to being provided with accurate records (which reflect the correlation of information by the Principal that has been reasonably requested by the Service

Provider relating to the physical infrastructure of the Existing Operations), the Service Provider must ensure that in carrying out and completing the Services, the Relevant Assets properly interface and integrate with, and connect to, the physical infrastructure of the Existing Operations and immediately repair and make good any damage to the physical infrastructure of the Existing Operations to the extent caused by the Services Provider.

8. ~~Clause 6 is amended as follows:~~

## ~~6 CONTRACTOR PERFORMANCE REPORTING~~

~~The Service Provider acknowledges that the Principal has in place processes for assessing the performance of its Service Providers and that these processes will apply to this Agreement. The Service Provider agrees to participate in the Principal's Contractor Performance Reporting process.~~

### ~~6.1 Exchange of Information between Government Departments and Agencies~~

~~The Service Provider authorises the Principal, its employees and agents to make information concerning the Service Provider available to TfNSW and NSW government departments or agencies. Such information may include, but need not be limited to, any information provided by the Service Provider to the Principal and any information relating to the Service Provider's performance under this Agreement.~~

~~The Service Provider acknowledges that:~~

- ~~(a) any information about the Service Provider from any source, including but not limited to substantiated reports of unsatisfactory performance, may be taken into account by the Principal TfNSW and NSW government departments and agencies in considering whether to offer the Service Provider future opportunities for NSW government work; and~~
- ~~(d) Not Used, the Principal may be required to publish information concerning this Agreement in accordance with sections 27 to 35 of the *Government Information (Public Access) Act 2009* (NSW). If the Service Provider reasonably believes that any part of this Agreement contains information which is commercial in confidence or could reasonably be expected to affect public safety or security, the Service Provider must immediately advise the Principal in writing, identifying the provisions and providing reasons so that the Principal may consider exempting those provisions from publication.~~

9. ~~Clause 8 is deleted.~~

10. ~~Insert a new clause 16.6 as follows:~~

### ~~16.6 Variation due to compliance with clause 3.1(i)~~

- ~~(a) Subject to clause 16.6(b), if compliance with clause 3.1(i) of this Agreement imposes greater or different obligations on the Service Provider than it would otherwise have had in complying with the terms of this Agreement other than clause 3.1(i), then the extent to which the obligations are greater or different will be deemed to be a variation and will be valued pursuant to clause 16.3.~~
- ~~(b) In order for clause 16.6(a) to apply, the Service Provider must notify the Principal in writing of the greater or different obligations by no later than 5pm on 4 October 2017.~~



- (c) ~~If the Service Provider does not provide notice in accordance with clause 16.6(b), no variation will be deemed under clause 16.6(a) and any claim for a deemed variation will be barred.~~

11. ~~Clause 17.3 is amended as follows:~~

**17.3 Payments**

~~The Principal must within 15 30 Business Days following receipt of a payment claim, pay the amount stated in the payment schedule or the amount claimed by the Service Provider in its payment claim (as the case may be).~~

~~The making of a payment by the Principal under this clause 17.3 is not evidence of the value of the Services performed, does not constitute an admission by the Principal that any Services provided by the Service Provider conform with the requirements of this Agreement and is a payment on account only.~~

12. ~~Clause 18.4 is amended as follows:~~

**18.4 Claim for Extension of Time**

~~To claim an extension of time, the Service Provider must submit a written claim to the Principal's Representative within 108 Business Days of the first occurrence of the event or circumstance causing the delay. This claim should include:~~

- ~~(e) details of the delay and the event or circumstance causing the delay;~~
- ~~(f) details of the activities that are critical to the maintenance of progress in the execution of the Services; and~~
- ~~(g) a statement of the number of days extension of time claimed together with the basis of calculating that period; and~~
- ~~(h) any other information reasonably requested by the Principal's Representative.~~

~~If the effects of the delay continue beyond the period of 10 Business Days after the first occurrence of the event or circumstance causing the delay and the Service Provider wishes to claim extensions of time in respect of the further delays, the Service Provider must submit further written claims to the Principal's Representative at intervals not greater than 10 Business Days.~~

~~The Principal's Representative may, within 1014 Business Days of receiving the Service Provider's claim or further claim for an extension of time to the relevant Date for Completion, by written notice to the Service Provider, request additional information in relation to the claim or further claim. The Service Provider must, within 108 Business Days of receiving such request, provide the Principal's Representative with the information requested.~~

~~Notwithstanding that the Service Provider is not entitled to an extension of time or has not made a claim for an extension of time the Principal's Representative may at any time by notice in writing to the Service Provider extend the time for Completion for any reason.~~

~~The Principal's Representative is not required to exercise its discretion under the previous paragraph for the benefit of the Service Provider.~~

13. ~~Insert a new clause 36 as follows:~~

**36—Australian Government Requirements**

~~(a) The Service Provider:~~

~~(i) declares as at the date of this Agreement; and~~

~~(ii) must ensure during the term of this Agreement,~~

~~that, in relation to or to the extent relevant to the Services, it and its subcontractors, consultants and each related entity:~~

~~(iii) complies with, and acts consistently with, the Building Code;~~

~~(iv) meets the requirements of section 11 of the Building Code;~~

~~(v) is not subject to an Exclusion Sanction or a formal warning that any further failure to comply with the Building Code may result in the imposition of an Exclusion Sanction;~~

~~(vi) has not been the subject of an adverse decision, direction or order, or failed to comply with a decision, direction or order, made by a court or tribunal for a breach of the BCIP Act, a designated building law, work health and safety law, competition and consumer law or the Migration Act 1958 (Cth) (other than a decision, direction or order that is stayed or has been revoked);~~

~~(vii) has not been required to pay any amount under an adjudication certificate or owed any unsatisfied judgement debts to a building contractor or building industry participant (as those terms are defined in the BCIP Act);~~

~~(viii) only uses products that comply with the relevant Australian standards published by, or on behalf of, Standards Australia;~~

~~(ix) unless approved by the ABC Commissioner, is not excluded from performing Building Work funded by a state or territory government; and~~

~~(x) complies with the Workplace Relations Management Plan approved by the ABCC in accordance with Part 6 of the Building Code.~~

~~(b) The Service Provider acknowledges and agrees that compliance with the Building Code does not relieve the Service Provider from any responsibility or obligation under this Agreement, or from liability for any Defect arising from compliance with the Building Code.~~

~~(c) The Service Provider must promptly:~~

~~(i) notify the ABCC of:~~

~~(A) any breach or suspected breach of the Building Code as soon as practicable, but no later than 2 Business Days after becoming aware of the breach or suspected breach, and advise the ABCC of the steps proposed to be taken by the Service Provider to rectify the breach; and~~

~~(B) the steps taken to rectify any breach of the Building Code within 14 days of providing a notification under clause 36(c)(i)(A); and~~



- (ii) ~~give the Principal a copy of any notification given by the Service Provider to the ABCC under clause 36(c)(i) and respond to any requests for information by the Principal concerning matters related to the Building Code so as to enable the Principal or TfNSW to comply with its obligations under section 28 of the Building Code.~~
- (d) ~~The Service Provider acknowledges the powers and functions of the ABC Commissioner and the ABCC under the BCIIP Act and the Building Code and must ensure that it (and each related entity of it) complies with any requests made by the ABCC and the ABC Commissioner within those powers and functions, including requests:~~
  - (i) ~~for entry under section 72 of the BCIIP Act;~~
  - (ii) ~~to interview any person under section 74 of the BCIIP Act;~~
  - (iii) ~~to produce records or documents under sections 74 and 77 of the BCIIP Act; and~~
  - (iv) ~~for information concerning matters relating to the Building Code under subsection 7(e) of the Building Code.~~
- (e) ~~The Service Provider must not enter into a subcontract for any aspect of the Services unless:~~
  - (i) ~~the subcontractor has submitted a Declaration of Compliance, including the further information outlined in Attachment A to the Declaration of Compliance (as defined in the SSJ Contract), which the Service Provider agrees is substantially in the same form as the model declaration of compliance applicable to contractors and subcontractors in relation to the Building Code; and~~
  - (ii) ~~the subcontract includes an equivalent clause to this clause 36.~~
- (f) ~~The Service Provider must provide the Commonwealth with any Subcontractor's Declaration of Compliance referred to in clause 36(e) promptly upon request.~~
- (g) ~~The Service Provider must maintain adequate records of the compliance with the Building Code by:~~
  - (i) ~~the Service Provider; and~~
  - (ii) ~~its subcontractors, consultants and related entities.~~
- (h) ~~For the purposes of this clause 36, "related entity" has the meaning given to that term in subsection 3(2) of the Building Code.~~

14. Schedule 1 Contract Particulars are amended as follows:

(a) **Principal:**

Transport for NSW [*insert details*]

ABN 18 804 239 602

Address: Level 43, 666 George Street  
Sydney NSW 2000

Tel: 02 8265 6666

Fax: 02 8265 9501

(b) **Principal's Representative** [*insert details*]

(clause 11.3)

Tel:- 02-8265-6000

Fax: 02-8265-9501

15. ~~Insert a new dot point after the final dot point in section 3.3.1 of the Services Brief in Schedule 6 as follows:~~

~~Provision of signalling design, testing and assurance input into the Principal's design reports in accordance with section 3.8.1 of Management Requirements — Technical, limited to complying with ASA standards and AEO requirements.~~

**EXECUTED** by ~~[RETIRED PARTY AND ABN]~~ by or in the presence of:

\_\_\_\_\_  
Signature of director

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Name of Secretary/other Director in full

**EXECUTED** by ~~[CONTINUING PARTY AND ABN]~~ by or in the presence of:

\_\_\_\_\_  
Signature of director

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Name of Secretary/other Director in full

**EXECUTED** by ~~[SUBSTITUTE PARTY AND ABN]~~ by or in the presence of:

\_\_\_\_\_  
Signature of director

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Name of Secretary/other Director in full





Transport  
for NSW



Execution Version

## Design Work (Signalling) Contract Deed of Novation

**Transport for NSW**

ABN 18 804 239 602

**John Holland Pty Ltd**

ABN 11 004 282 268

**Laing O'Rourke Australia Construction Pty Ltd**

ABN 39 112 099 000

**Siemens Ltd**

ABN 98 004 347 880



## Deed of Novation made at Sydney on 20 September 2017

### Parties

- (1) **Transport for NSW** (ABN 18 804 239 602) a New South Wales Government agency constituted by section 3C of the Transport Administration Act 1988 (NSW) and located at Level 43, 680 George Street, Sydney NSW 2000 (Retiring Party);
- (2) **Siemens Ltd** (ABN 98 004 347 880) of 885 Mountain View Highway, Bayswater VIC 3153 (**Continuing Party**); and
- (3) **John Holland Pty Ltd** (ABN 11 004 282 268) of 70 Trenerry Crescent, Abbotsford VIC 3067; and

**Laing O'Rourke Australia Construction Pty Ltd** (ABN 39 112 099 000) of Level 4, 100 Arthur Street, North Sydney NSW 2060,

(together the **Substitute Party**).

### Recitals

- A The Retiring Party and the Continuing Party are parties to the Contract.
- B The Retiring Party and the Substitute Party have asked the Continuing Party to agree to the novation of the Contract on the terms and conditions of this deed.
- C The Continuing Party has agreed to the novation of the Contract on the terms and conditions of this deed.

### This deed provides

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#### 1. DEFINITIONS AND INTERPRETATION

##### 1.1 Definitions

Defined terms in the Contract have the same meanings in this deed, unless the contrary intention appears.

In this deed:

"**Claim**" means any claim, notice, demand, action, proceeding, litigation, investigation or judgment whether based in contract, tort, statute or otherwise.

"**Contract**" means the agreement between the Retiring Party and the Continuing Party described in the Schedule.

"**Effective Date**" means 20 September 2017.

"**GST**" means the Goods and Services Tax as defined in the A New Tax System (Goods and Services) Act 1999 (Cth.).

"**Liability**" means all liabilities, losses, Claims, damages, outgoings, costs and expenses of whatever description.

"**Related Entity**" has the meaning ascribed to that term in section 9 of the Corporations Act 2001 (Cth).

## 1.2 Interpretation

In this deed:

- (a) headings are for convenience only and do not affect interpretation;
- and unless the context indicates a contrary intention:
- (b) an obligation or a liability assumed by, or a right conferred on, 2 or more persons binds or benefits them jointly and severally;
  - (c) **person** includes an individual, the estate of an individual, a corporation, an authority, an association or a joint venture (whether incorporated or unincorporated), a partnership and a trust;
  - (d) a reference to a party includes that party's executors, administrators, successors and permitted assigns, including persons taking by way of novation and, in the case of a trustee, includes a substituted or an additional trustee;
  - (e) a reference to a document (including this deed) is to that document as varied, novated, ratified or replaced from time to time;
  - (f) a reference to a statute includes its delegated legislation and a reference to a statute or delegated legislation or a provision of either includes consolidations, amendments, re-enactments and replacements;
  - (g) a word importing the singular includes the plural (and vice versa), and a word indicating a gender includes every other gender;
  - (h) a reference to a party, clause, schedule, exhibit, attachment or annexure is a reference to a party, clause, schedule, exhibit, attachment or annexure to or of this deed, and a reference to this deed includes all schedules, exhibits, attachments and annexures to it;
  - (i) if a word or phrase is given a defined meaning, any other part of speech or grammatical form of that word or phrase has a corresponding meaning;
  - (j) **includes** in any form is not a word of limitation; and
  - (k) a reference to **\$** or **dollar** is to Australian currency.

## 2. CONDITION PRECEDENT TO NOVATION

Clause 3 of this deed will have no force and effect until the Effective Date.

## 3. NOVATION

### 3.1 Novation

- (a) The parties novate the Contract so that the Substitute Party and the Continuing Party are parties to a new agreement on the same terms as the Contract.
- (b) Any reference in the Contract to the Retiring Party will be read as a reference to the Substitute Party.

### 3.2 Assumptions of rights and obligations

- (a) The Substitute Party:

- (i) will be bound by and must comply with the terms of the Contract and will enjoy the rights and benefits conferred on the Retiring Party under the Contract; and
- (ii) will assume the obligations and Liability of the Retiring Party under the Contract,

in all respects as if the Substitute Party had originally been named in the Contract as a party instead of the Retiring Party.

- (b) The Continuing Party will comply with the terms of the Contract on the basis that the Substitute Party has replaced the Retiring Party under the Contract in accordance with this deed.

### 3.3 **Release by Continuing Party**

- (a) The Continuing Party releases the Retiring Party from:
  - (i) any obligation or Liability under or in respect of the Contract; and
  - (ii) any action, claim and demand it has against the Retiring Party under or in respect of the Contract.
- (b) This release does not affect any rights the Continuing Party may have against the Substitute Party as a result of the assumption by the Substitute Party under the terms of this deed of the obligations and Liability of the Retiring Party under the Contract.

### 3.4 **Insurance**

As from the Effective Date:

- (a) the Substitute Party must replace any insurances effected and maintained by the Retiring Party under the terms of the Contract; and
- (b) the Continuing Party will take the necessary steps to ensure that, for all insurances required to be effected by the Continuing Party under of the terms of the Contract, the Substitute Party is named in place of the Retiring Party as required by the Contract.

## 3A. **Amendments**

### 3A.1 **Amendments to the Contract**

The Contract is amended on and from the Effective Date so as to make the additions, changes and deletions set out in Schedule 2 to this deed.

### 3A.2 **Rights and obligations**

Clause 3A.1 does not affect any right or obligation that arises before the date of this deed.

## 4. **ONGOING RIGHTS OF RETIRING PARTY**

### 4.1 **Direct Enquiries**

In addition to any other rights which the Retiring Party may have, the Continuing Party and the Substitute Party each agree that the Retiring Party may make enquiries directly of the Continuing Party for the purpose of establishing whether the Continuing Party is complying with its obligations under the Contract.

4.2 **Not used**

4.3 **Report by Continuing Party**

The Continuing Party undertakes to the Retiring Party that it will exercise all reasonable skill, care and diligence to ensure that the design intent of the Works as contained in the Design Documentation in existence at the date of execution of this deed, is reflected in the completion of the Design Documentation and in the execution of the Works.

Without limiting the above, the Continuing Party must conduct such inspections of the Works at such times and in such detail as may reasonably be expected of a consultant engaged in a project of the size and complexity of the Works.

The Continuing Party must act in good faith and in the best interests of the Retiring Party and promptly advise the Retiring Party about any matter in which the Continuing Party has been instructed by the Substitute Party to provide the Services in a manner which is, or may result in an outcome which is, not in accordance with the requirements of the Contract, including:

- (a) any instruction or direction which it receives, or any work or services it becomes aware of, which in the reasonable opinion of the Continuing Party, is not in accordance with any provision of the Contract including where the Substitute Party's instructions:
  - (i) in relation to design are not consistent with the Contract or may result in the Works to be constructed not being fit for their intended purpose; or
  - (ii) require the Continuing Party to issue a certificate under the Contract where the conditions for the issue of that certificate under the Contract have not been satisfied; and
- (b) any non-conformity of any Design Documentation produced pursuant to the Contract, or to the Design Documentation in existence at the date of this deed, upon becoming aware of the non-conformity.

5. **OVERRIDING EFFECT**

The parties agree that the execution and operation of this deed will for all purposes be regarded as due and complete compliance with the terms of the Contract relating to any requirement for consent to assignment of the Contract so far as any such provisions would apply with respect to the novation of the Contract to the Substitute Party.

6. **REPRESENTATIONS AND WARRANTIES**

6.1 **Authority**

Each party represents and warrants to each other party that it has full power and authority to enter into and perform its obligations under this deed.

6.2 **Authorisations**

Each party represents and warrants to each other party that it has taken all necessary action to authorise the execution, delivery and performance of this deed in accordance with its terms.

6.3 **Binding obligations**

Each party represents and warrants to each other party that this deed constitutes its legal, valid and binding obligations and is enforceable in accordance with its terms.

## **7. DUTIES, COSTS AND EXPENSES**

### **7.1 Stamp duty**

The Substitute Party must pay all stamp duty, duties or other taxes of a similar nature (including but not limited to any fines, penalties and interest) in connection with this deed or any transaction contemplated by this deed (except to the extent the terms of the Contract provide otherwise).

### **7.2 Costs**

Each Party must pay its own legal costs and expenses in negotiating, preparing and executing this deed.

### **7.3 GST**

The parties agree that:

- (a) with any payment of amounts payable under or in connection with this deed including without limitation, by way of indemnity, reimbursement or otherwise, the party paying the amount must also pay any GST in respect of the taxable supply to which the amount relates;
- (b) the party receiving the payment will provide a tax invoice; and
- (c) the payment of any amount referred to in paragraph (a) which is a reimbursement or indemnification of a cost, expense, loss or liability will exclude any part of the amount for which the other party can claim an input tax credit.

## **8. GENERAL**

### **8.1 Governing law**

This deed is governed by and must be construed according to the laws of the State or Territory stated in Schedule 1.

### **8.2 Jurisdiction**

Each party irrevocably:

- (a) submits to the non-exclusive jurisdiction of the courts of the State or Territory stated in Schedule 1, and the courts competent to determine appeals from those courts, with respect to any proceedings which may be brought at any time relating to this deed; and
- (b) waives any objection it may now or in the future have to the venue of any proceedings, and any claim it may now or in the future have that any proceedings have been brought in an inconvenient forum, if that venue falls within clause 8.2(a).

### **8.3 Amendments**

This deed may only be varied by a document signed by or on behalf of each party.

### **8.4 Waiver**

- (a) Failure to exercise or enforce, or a delay in exercising or enforcing, or the partial exercise or enforcement of, a right, power or remedy provided by law or under this deed by a party does not preclude, or operate as a waiver of, the exercise or

enforcement, or further exercise or enforcement, of that or any other right, power or remedy provided by law or under this deed.

- (b) A waiver or consent given by a party under this deed is only effective and binding on that party if it is given or confirmed in writing by that party.
- (c) No waiver of a breach of a term of this deed operates as a waiver of any other breach of that term or of a breach of any other term of this deed.

#### **8.5 Counterparts**

This deed may be executed in any number of counterparts and by the parties on separate counterparts. Each counterpart constitutes the deed of each party who has executed and delivered that counterpart.

#### **8.6 Severance**

If at any time a provision of this deed is or becomes illegal, invalid or unenforceable in any respect under the law of any jurisdiction, that will not affect or impair:

- (a) the legality, validity or enforceability in that jurisdiction of any other provision of this deed; or
- (b) the legality, validity or enforceability under the law of any other jurisdiction of that or any other provision of this deed.

#### **8.7 Further acts and documents**

Each party must promptly do all further acts and execute and deliver all further documents (in form and content reasonably satisfactory to that party) required by law or reasonably requested by another party to give effect to this deed.

#### **8.8 Assignment**

A party cannot assign, novate or otherwise transfer any of its rights or obligations under this deed without the prior consent of each other party.

**Schedule 1**

<b>Contract</b> (Clause 1.1)	Professional Services Contract No. 00013/10961 "Sydenham Station & Junction – Detailed Signalling Designer Services City & Southwest" dated 27 July 2017
<b>Governing Law and Jurisdiction</b> (Clause 1.1 and 8.1)	New South Wales, Australia

## Schedule 2

1. Insert a new definition of "Novation Deed" in clause 1.1 as follows:

**"Novation Deed"** means the deed entitled Deed of Novation between TfNSW, the Principal and the Service Provider.

2. The definition of "SSJ Contract" in clause 1.1 is amended as follows:

**"SSJ Contract"** means the contract between ~~the Principal TfNSW~~ and the ~~SSJ Contractor Principal~~ for the carrying out of the SSJ Works.

3. The definition of "SSJ Contractor" in clause 1.1 is deleted.

4. Clause 1.3 is deleted.

5. Clause 3.1 is amended to insert after paragraph (h) a new paragraph (i) as follows and to renumber the following paragraphs as (j) and (k) respectively:

- (i) ensure that the Services will be fit for the intended purposes disclosed in or reasonably able to be inferred from the SWTC in Schedule C1 of the SSJ Contract (to the extent relevant to the Services).

6. Clause 3.9 is deleted and replaced as follows:

### **3.9 Certification under the SSJ Contract**

- (a) The Service Provider acknowledges that the Principal is required to provide TfNSW:

- (i) a Designer Deed of Covenant in the form of Schedule A12 of the SSJ Contract from the Service Provider; and
- (ii) a certificate in the form of Schedule B2 of the SSJ Contract from the Service Provider,

in accordance with the requirements of the SSJ Contract.

- (b) The Service Provider must:

- (i) in respect of the Designer Deed of Covenant referred to in clause 3.9(a)(i), within 7 days of receipt of a request from the Principal, provide an executed Designer Deed of Covenant in the form of Schedule A12 of the SSJ Contract to the Principal; and
- (ii) in respect of the certificate in clause 3.9(a)(ii), within 7 days of receipt of a request from the Principal, provide an executed certificate in the form of Schedule B2 of the SSJ Contract to the Principal.

- (c) The Principal will provide to the Service Provider copies of all documentation required for the Service Provider to comply with its obligations under clause 3.9(b).

7. Insert a new clause 3.11 as follows:

### **3.11 Existing Operations**

- (a) For the purposes of this clause:



(i) **"Construction Site"** means any site of the Project on which the Service Provider provides the Services;

(ii) **"Existing Operator"** means:

(a) RailCorp;

(b) Sydney Trains;

(c) NSW Trains;

(d) RMS;

(e) Ausgrid;

(f) Sydney Water;

(g) Telstra;

(h) Qenos;

(i) Jemena; or

(j) any other person who owns, operates or controls any infrastructure (including existing infrastructure, infrastructure that is under construction and the Utility Services) or undertakes any business or operation on or in the vicinity of the Construction Site,

and any of their related bodies corporate (as that term is defined in section 9 of the Corporations Act 2001 (Cth)) and contractors. and

(iii) **"Existing Operations"** means:

(a) all infrastructure (including existing infrastructure, infrastructure that is under construction and Utility Services) which is owned, operated or under the control of an Existing Operator; and

(b) the businesses and operations undertaken by an Existing Operator, on or in the vicinity of the Construction Site.

(b) The Service Provider acknowledges that, in the carrying out of the Services, it must not disrupt, interrupt or interfere with and ensure the minimum nuisance, disturbance and inconvenience to the Existing Operations and to the extent reasonably possible, not interfere with the free movement of traffic or block or impair access to any premises, carparks, roadways, pedestrian ways, public spaces, parks, pedal cycle paths, or other facilities associated with the Existing Operations.

(c) The Services Provider must comply with all policies, procedures, rules and directions of the Principal and TfNSW applying from time to time (as notified by the Principal) in respect of the Existing Operations (including in relation to workplace health and safety and/or the Environment).

(d) Except to the extent that to do so would expand the scope of the Services, and subject to being provided with accurate records (which reflect the correlation of information by the Principal that has been reasonably requested by the Service Provider relating to the physical infrastructure of the Existing Operations), the Service Provider must ensure that in carrying out and completing the Services,

the Relevant Assets properly interface and integrate with, and connect to, the physical infrastructure of the Existing Operations and immediately repair and make good any damage to the physical infrastructure of the Existing Operations to the extent caused by the Services Provider.

8. Clause 6 is amended as follows:

## **6 CONTRACTOR PERFORMANCE REPORTING**

~~The Service Provider acknowledges that the Principal has in place processes for assessing the performance of its Service Providers and that these processes will apply to this Agreement. The Service Provider agrees to participate in the Principal's Contractor Performance Reporting process.~~

### **6.1 Exchange of Information between Government Departments and Agencies**

The Service Provider authorises the Principal, its employees and agents to make information concerning the Service Provider available to TfNSW and NSW government departments or agencies. Such information may include, but need not be limited to, any information provided by the Service Provider to the Principal and any information relating to the Service Provider's performance under this Agreement.

The Service Provider acknowledges that:

- (a) any information about the Service Provider from any source, including but not limited to substantiated reports of unsatisfactory performance, may be taken into account by ~~the Principal~~ TfNSW and NSW government departments and agencies in considering whether to offer the Service Provider future opportunities for NSW government work; and
- (d) ~~Not Used. the Principal may be required to publish information concerning this Agreement in accordance with sections 27 to 35 of the Government Information (Public Access) Act 2009 (NSW). If the Service Provider reasonably believes that any part of this Agreement contains information which is commercial in confidence or could reasonably be expected to affect public safety or security, the Service Provider must immediately advise the Principal in writing, identifying the provisions and providing reasons so that the Principal may consider exempting those provisions from publication.~~

9. Clause 8 is deleted.

10. Insert a new clause 16.6 as follows:

### **16.6 Variation due to compliance with clause 3.1(i)**

- (a) Subject to clause 16.6(b), if compliance with clause 3.1(i) of this Agreement imposes greater or different obligations on the Service Provider than it would otherwise have had in complying with the terms of this Agreement other than clause 3.1(i), then the extent to which the obligations are greater or different will be deemed to be a variation and will be valued pursuant to clause 16.3.
- (b) In order for clause 16.6(a) to apply, the Service Provider must notify the Principal in writing of the greater or different obligations by no later than 5pm on 4 October 2017.

- (c) If the Service Provider does not provide notice in accordance with clause 16.6(b), no variation will be deemed under clause 16.6(a) and any claim for a deemed variation will be barred.

11. Clause 17.3 is amended as follows:

**17.3 Payments**

The Principal must within ~~15~~30 Business Days following receipt of a payment claim, pay the amount stated in the payment schedule or the amount claimed by the Service Provider in its payment claim (as the case may be).

The making of a payment by the Principal under this clause 17.3 is not evidence of the value of the Services performed, does not constitute an admission by the Principal that any Services provided by the Service Provider conform with the requirements of this Agreement and is a payment on account only.

12. Clause 18.4 is amended as follows:

**18.4 Claim for Extension of Time**

To claim an extension of time, the Service Provider must submit a written claim to the Principal's Representative within ~~108~~ Business Days of the first occurrence of the event or circumstance causing the delay. This claim should include:

- (e) details of the delay and the event or circumstance causing the delay;
- (f) details of the activities that are critical to the maintenance of progress in the execution of the Services; I
- (g) a statement of the number of days extension of time claimed together with the basis of calculating that period; and
- (h) any other information reasonably requested by the Principal's Representative.

If the effects of the delay continue beyond the period of 10 Business Days after the first occurrence of the event or circumstance causing the delay and the Service Provider wishes to claim extensions of time in respect of the further delays, the Service Provider must submit further written claims to the Principal's Representative at intervals not greater than 10 Business Days.

The Principal's Representative may, within ~~10~~14 Business Days of receiving the Service Provider's claim or further claim for an extension of time to the relevant Date for Completion, by written notice to the Service Provider, request additional information in relation to the claim or further claim. The Service Provider must, within ~~108~~ Business Days of receiving such request, provide the Principal's Representative with the information requested.

Notwithstanding that the Service Provider is not entitled to an extension of time or has not made a claim for an extension of time the Principal's Representative may at any time by notice in writing to the Service Provider extend the time for Completion for any reason.

The Principal's Representative is not required to exercise its discretion under the previous paragraph for the benefit of the Service Provider.

13. Insert a new clause 36 as follows:

### 36 Australian Government Requirements

- (a) The Service Provider:
- (i) declares as at the date of this Agreement; and
  - (ii) must ensure during the term of this Agreement,  
that, in relation to or to the extent relevant to the Services, it and its subcontractors, consultants and each related entity:
    - (iii) complies with, and acts consistently with, the Building Code;
    - (iv) meets the requirements of section 11 of the Building Code;
    - (v) is not subject to an Exclusion Sanction or a formal warning that any further failure to comply with the Building Code may result in the imposition of an Exclusion Sanction;
    - (vi) has not been the subject of an adverse decision, direction or order, or failed to comply with a decision, direction or order, made by a court or tribunal for a breach of the BCIIIP Act, a designated building law, work health and safety law, competition and consumer law or the Migration Act 1958 (Cth) (other than a decision, direction or order that is stayed or has been revoked);
    - (vii) has not been required to pay any amount under an adjudication certificate or owed any unsatisfied judgement debts to a building contractor or building industry participant (as those terms are defined in the BCIIIP Act);
    - (viii) only uses products that comply with the relevant Australian standards published by, or on behalf of, Standards Australia;
    - (ix) unless approved by the ABC Commissioner, is not excluded from performing Building Work funded by a state or territory government; and
    - (x) complies with the Workplace Relations Management Plan approved by the ABCC in accordance with Part 6 of the Building Code.
- (b) The Service Provider acknowledges and agrees that compliance with the Building Code does not relieve the Service Provider from any responsibility or obligation under this Agreement, or from liability for any Defect arising from compliance with the Building Code.
- (c) The Service Provider must promptly:
- (i) notify the ABCC of:
    - (A) any breach or suspected breach of the Building Code as soon as practicable, but no later than 2 Business Days after becoming aware of the breach or suspected breach, and advise the ABCC of the steps proposed to be taken by the Service Provider to rectify the breach; and
    - (B) the steps taken to rectify any breach of the Building Code within 14 days of providing a notification under clause 36(c)(i)(A); and
  - (ii) give the Principal a copy of any notification given by the Service Provider to the ABCC under clause 36(c)(i) and respond to any requests for

information by the Principal concerning matters related to the Building Code so as to enable the Principal or TfNSW to comply with its obligations under section 28 of the Building Code.

- (d) The Service Provider acknowledges the powers and functions of the ABC Commissioner and the ABCC under the BCIIP Act and the Building Code and must ensure that it (and each related entity of it) complies with any requests made by the ABCC and the ABC Commissioner within those powers and functions, including requests:
    - (i) for entry under section 72 of the BCIIP Act;
    - (ii) to interview any person under section 74 of the BCIIP Act;
    - (iii) to produce records or documents under sections 74 and 77 of the BCIIP Act; and
    - (iv) for information concerning matters relating to the Building Code under subsection 7(c) of the Building Code.
  - (e) The Service Provider must not enter into a subcontract for any aspect of the Services unless:
    - (i) the subcontractor has submitted a Declaration of Compliance, including the further information outlined in Attachment A to the Declaration of Compliance (as defined in the SSJ Contract), which the Service Provider agrees is substantially in the same form as the model declaration of compliance applicable to contractors and subcontractors in relation to the Building Code; and
    - (ii) the subcontract includes an equivalent clause to this clause 36.
  - (f) The Service Provider must provide the Commonwealth with any Subcontractor's Declaration of Compliance referred to in clause 36(e) promptly upon request.
  - (g) The Service Provider must maintain adequate records of the compliance with the Building Code by:
    - (i) the Service Provider; and
    - (ii) its subcontractors, consultants and relate entities.
  - (h) For the purposes of this clause 36, "related entity" has the meaning given to that term in subsection 3(2) of the Building Code.
14. Schedule 1 Contract Particulars are amended as follows:

(a) **Principal:**

~~Transport for NSW~~

~~ABN 18 804 239 602~~

~~Address: Level 43, 680 George Street~~

~~Sydney NSW 2000~~

~~Tel: 02 8265 6000~~

~~Fax: 02 8265 9501~~

The unincorporated joint venture comprised of John Holland Pty Ltd (ABN 11 004 282 268) of 70 Trenerry Crescent, Abbotsford VIC 3067 and Laing O'Rourke Australia Construction Pty Ltd (ABN 39 112 099 000) of Level 4, 100 Arthur Street, North Sydney NSW 2060.

Address: Level 4, 100 Arthur Street, North Sydney NSW 2060

[REDACTED]

**(b) Principal's Representative**

(clause 11.3)

[REDACTED] — [REDACTED]

[REDACTED] — [REDACTED]

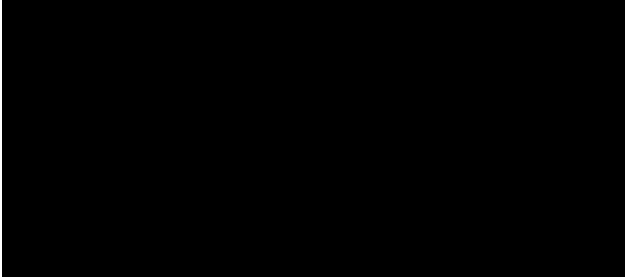
[REDACTED]

15. Insert a new dot point after the final dot point in section 3.3.1 of the Services Brief in Schedule 6 as follows:

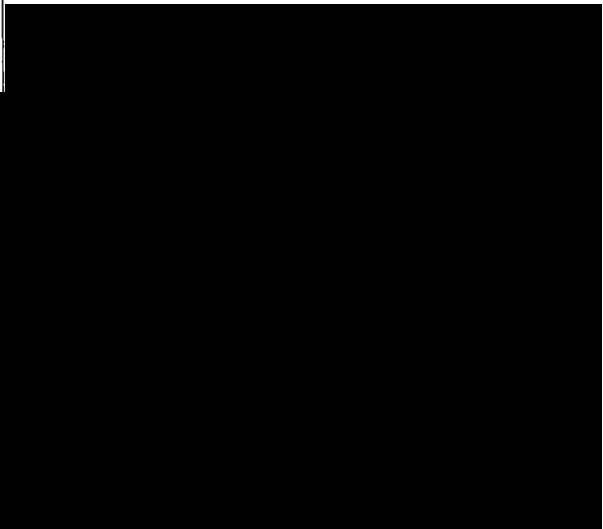
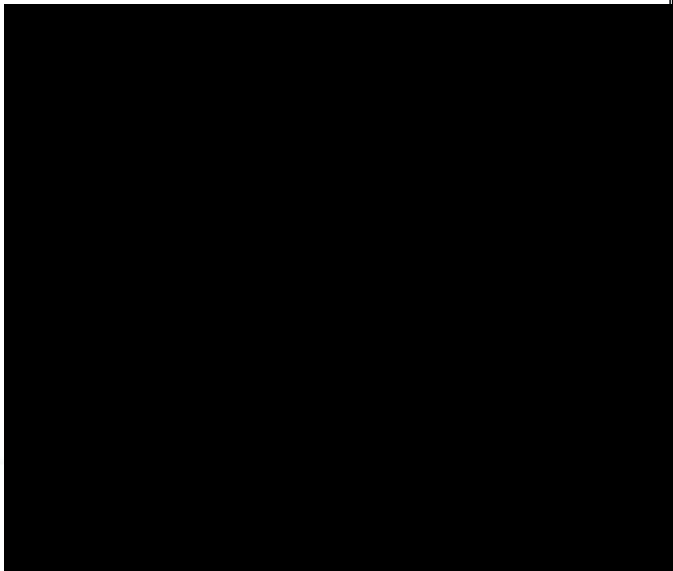
Provision of signalling design, testing and assurance input into the Principal's design reports in accordance with section 3.8.1 of Management Requirements – Technical, limited to complying with ASA standards and AEO requirements.

**EXECUTED** as a deed.

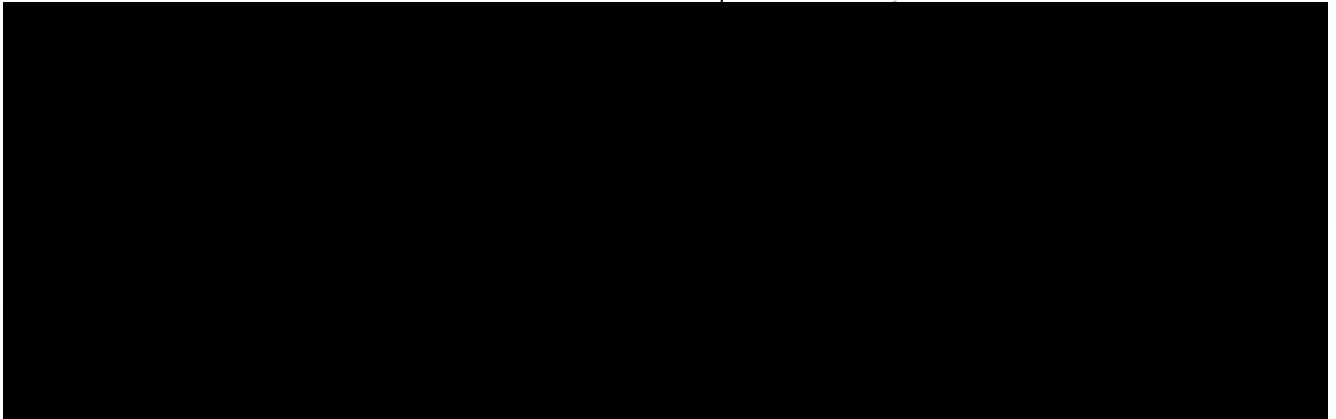
**EXECUTED** by **TRANSPORT FOR NSW (ABN 18 804 239 602)** by its authorised delegate, in the presence of:



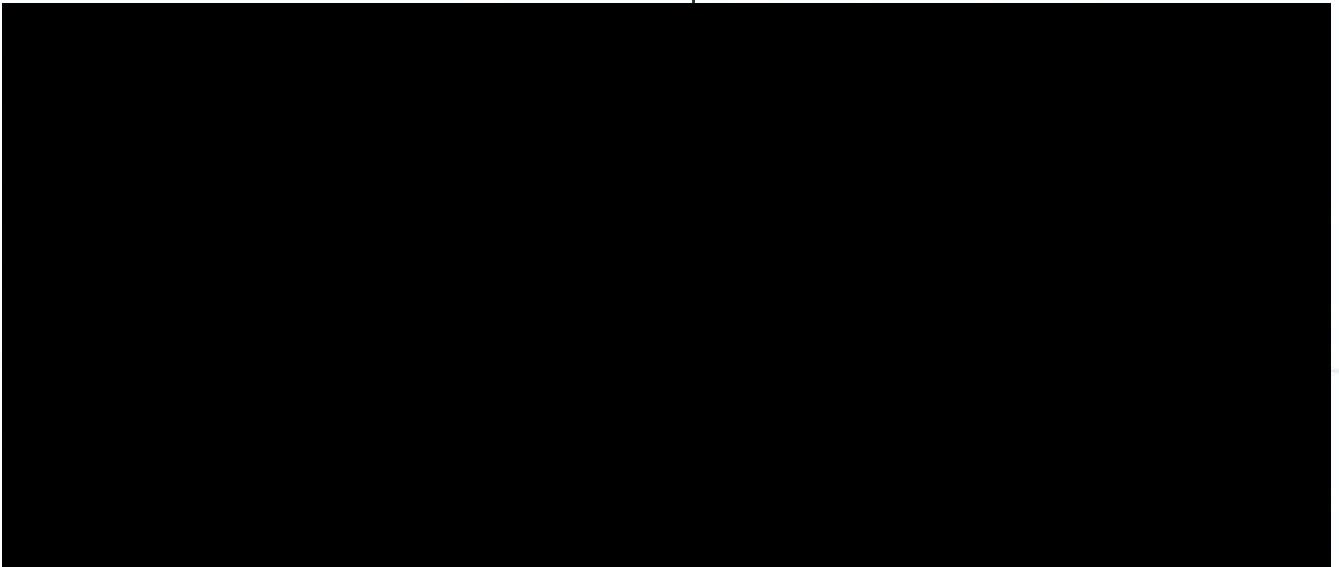
**Signed, sealed and delivered** for and on behalf of **John Holland Pty Ltd (ABN 11 004 282 268)** under power of attorney in the presence of):



**Executed by Laing O'Rourke Australia Construction Pty Ltd (ABN 39 112 099 000)** in accordance with section 127 of the *Corporations Act 2011* (Cth):



**Signed, sealed and delivered** for and on behalf of **Siemens Ltd (ABN 98 004 347 880)** under power of attorney in the presence of):





**SCHEDULE 17**

**Amendments to Schedule A24**

Schedule A24 is amended as set out in the attached mark-up.

**SCHEDULE A24 – MODIFICATION TO THE EXPERT DETERMINATION RULES**

(Clauses 20.5(a))

Pursuant to Rule 4(2)(b) of the Resolution Institute Expert Determination Rules (Rules), the parties agree to modify the application of the Rules as follows:

Modifications are underlined.

**1. RULE 1 DEFINITIONS**

"Business Days" means any day in New South Wales other than a Saturday, Sunday or public holiday or 27, 28, 29, 30 or 31 December.

"SSJ Contract" means the contract entitled Sydney Metro City & Southwest Sydenham Station and Junction Works Incentivised Target Cost Contract between the parties.

"IDAR Panel Agreement" means the agreement entitled "Independent Dispute Avoidance and Resolution Panel Agreement" between TfNSW, the SSJ Contractor and any Other Contractor that accedes to the agreement from time to time.

"Relevant Proportionate Liability Legislation" means:

- (a) Part IV of the Civil Liability Act 2002 (NSW);
- (b) Part IVAA of the Wrongs Act 1958 (Vic);
- (c) Chapter 2, Part 2 of the Civil Liability Act 2003 (Qld);
- (d) Part 1F of the Civil Liability Act 2002 (WA);
- (e) the Proportionate Liability Act 2005 (NT);
- (f) Chapter 7A of the Civil Law (Wrongs) Act 2002 (ACT);
- (g) Part 3 of the Law Reform (Contributory Negligence and Apportionment of Liability) Act 2001 (SA);
- (h) Part 9A of the Civil Liability Act 2002 (Tas); and
- (i) any Regulations enacted pursuant to the Acts listed in (a)-(h) above.

"Relevant Security of Payment Legislation" means:

- (a) ~~(j)~~ the Building and Construction Industry Security of Payment Act 1999 (NSW);
- (b) ~~(k)~~ the Building and Construction Industry Security of Payment Act 2002 (Vic);
- (c) ~~(l)~~ the Building and Construction Industry Payments Act 2004 (QLD);
- (d) ~~(m)~~ the Construction Contracts Act 2004 (WA);
- (e) ~~(n)~~ the Construction Contracts (Security of Payment) Act 2004 (NT);
- (f) ~~(o)~~ the Building and Construction Industry (Security of Payment) Act 2009 (ACT);
- (g) ~~(p)~~ the Building and Construction Industry Security of Payment Act 2009 (SA);
- (h) ~~(q)~~ the Building and Construction Industry Security of Payment Act 2009 (Tas); and

(i) ~~(+)~~ any Regulations enacted pursuant to the Acts listed in (a)-(h) above.

**2. RULE 2 APPOINTMENT OF THE EXPERT**

1. Unless otherwise agreed in writing by the parties, the Process shall be conducted:

- (i) by a person agreed between the parties;
- (ii) if the parties are unable to agree on the identity of the person to be appointed within 53 Business Days, by a person nominated by the chairperson of the dispute avoidance board established by the parties in accordance with the SSJ Contract; or Resolution Institute who accepts appointment as Expert.

~~(iii) if no person has been appointed as Expert within 10 Business Days of the Dispute being referred to expert determination (or such longer period as the parties may agree), by a person nominated by the Institute,~~

~~who accepts appointment as Expert.~~

2. ~~[no modification]~~ Rule 2.2 is deleted in its entirety.

3. [no modification]

4. [no modification]

5. [no modification]

**3. RULE 3 AGREEMENT TO BE BOUND**

1. [no modification]

2. Rule 3.2 is deleted in its entirety.

**4. RULE 5 ROLE OF THE EXPERT**

1. The Expert shall determine the Dispute as an expert in accordance with these Rules, the SSJ Contract, the requirements of procedural fairness and according to law.

2. [no modification]

3. [no modification]

4. a. The Expert shall be independent of, and act fairly and impartially as between the parties, giving each a reasonable opportunity of putting its case and dealing with that of any opposing party, and a reasonable opportunity to make submissions on the conduct of the Process.

b. The Expert must take all reasonable steps to avoid any conflict of interest, potential conflict of interest or other circumstances that might reasonably be considered to adversely affect the Expert's independence or capacity to act fairly and impartially in relation to the Dispute.

c. If at any time during the Process, the Expert becomes aware of any circumstances that might reasonably be considered to adversely affect the Expert's independence or capacity to act fairly or impartially in relation to the Dispute, the Expert must inform the parties immediately.

d. The Expert's mandate will be terminated 7 days after the notice is provided by the Expert under Rule 5.4(c), unless the parties agree otherwise.

5. [no modification]

**5. RULE 9 CONDUCT OF THE PROCESS**

1. [no modification]

2. [no modification]

3. ~~[no modification]~~ If the parties agree in writing (in the Agreement or otherwise), that the procedure in Schedule B will apply.

4. The rules of evidence do not apply to the Process.

**6. RULE 10 THE EXPERT'S DETERMINATION**

1. The Expert shall determine the Dispute between the parties and notify such determination in writing to the parties within the time period specified in the SSJ Contract.

2. [no modification]

3. Unless otherwise agreed by the parties, the Expert's determination:

a. may include for the payment of interest on any monetary sum determined, in such amount as the Expert considers reasonable;

b. must allow for any amount already paid to a party under or for the purposes of any Relevant Security of Payment Legislation;

c. may make such orders as he or she considers appropriate for the restitution of any amount so paid, and such other orders as he or she considers appropriate; and

d. to the extent permitted by law, will not apply or have regard to the provisions of any Relevant Proportionate Liability Legislation.

4. [no modification]

**7. RULE 12 WAIVER OF RIGHT TO OBJECT**

Rule 12 is deleted in its entirety.

**8. RULE 14 EXTENSION OF LIMITATION PERIOD**

Rule 14 is deleted in its entirety.

**9. SCHEDULE B**

1. The reference to "twenty one (21) days" is replaced by "~~five~~ten Business Days".

2. The reference to "twenty one (21) days" is replaced by "~~five~~twenty Business Days".

3. The reference to "twenty one (21) days" is replaced by "five Business Days".

4. [no modification]

5. [no modification]

6. [no modification]

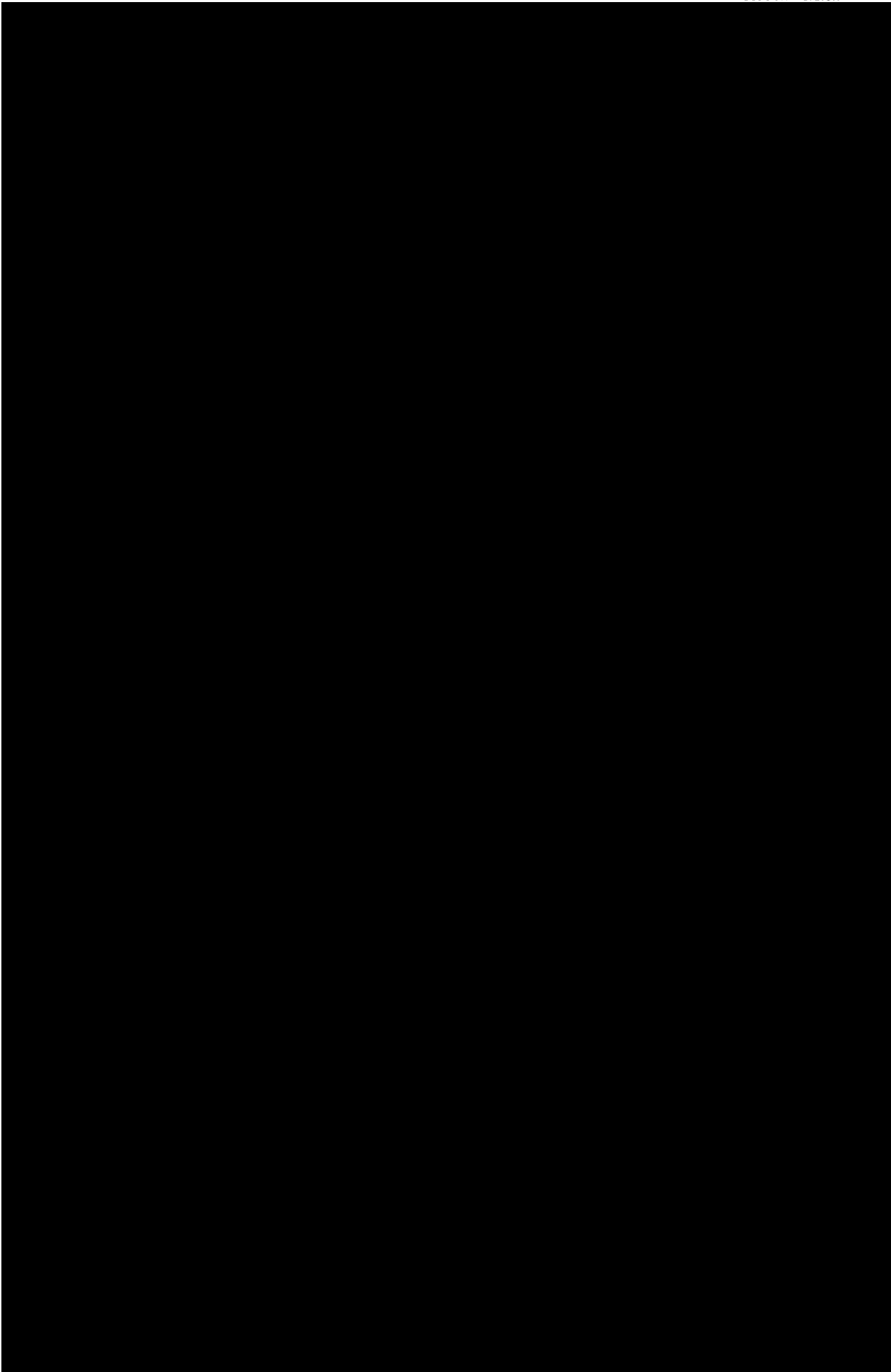
7. ~~{no modification}~~

8. ~~{no modification}~~

**SCHEDULE 18**

**Amendments to Schedule A28**

Schedule A28 is amended as set out in the attached mark-up.



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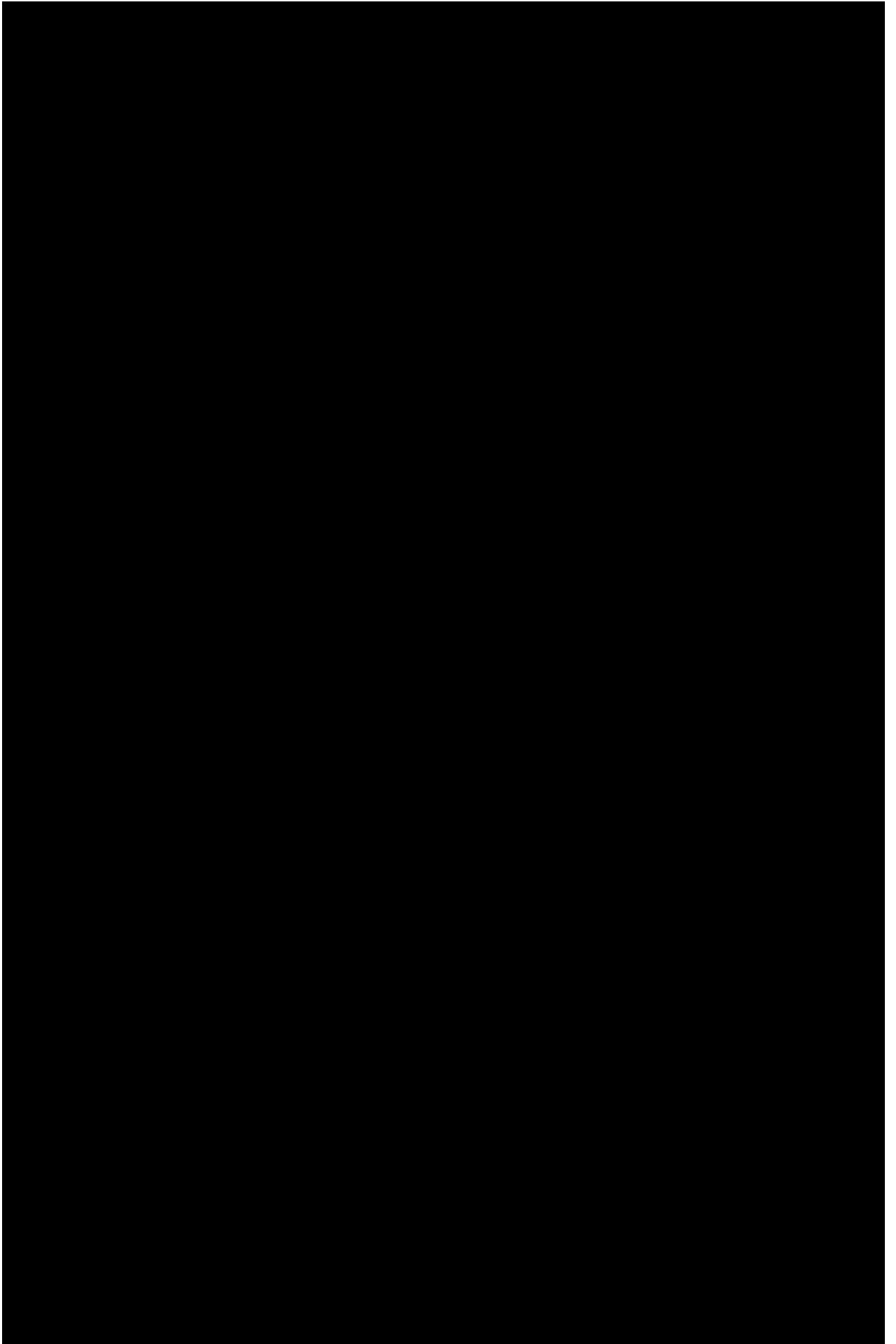
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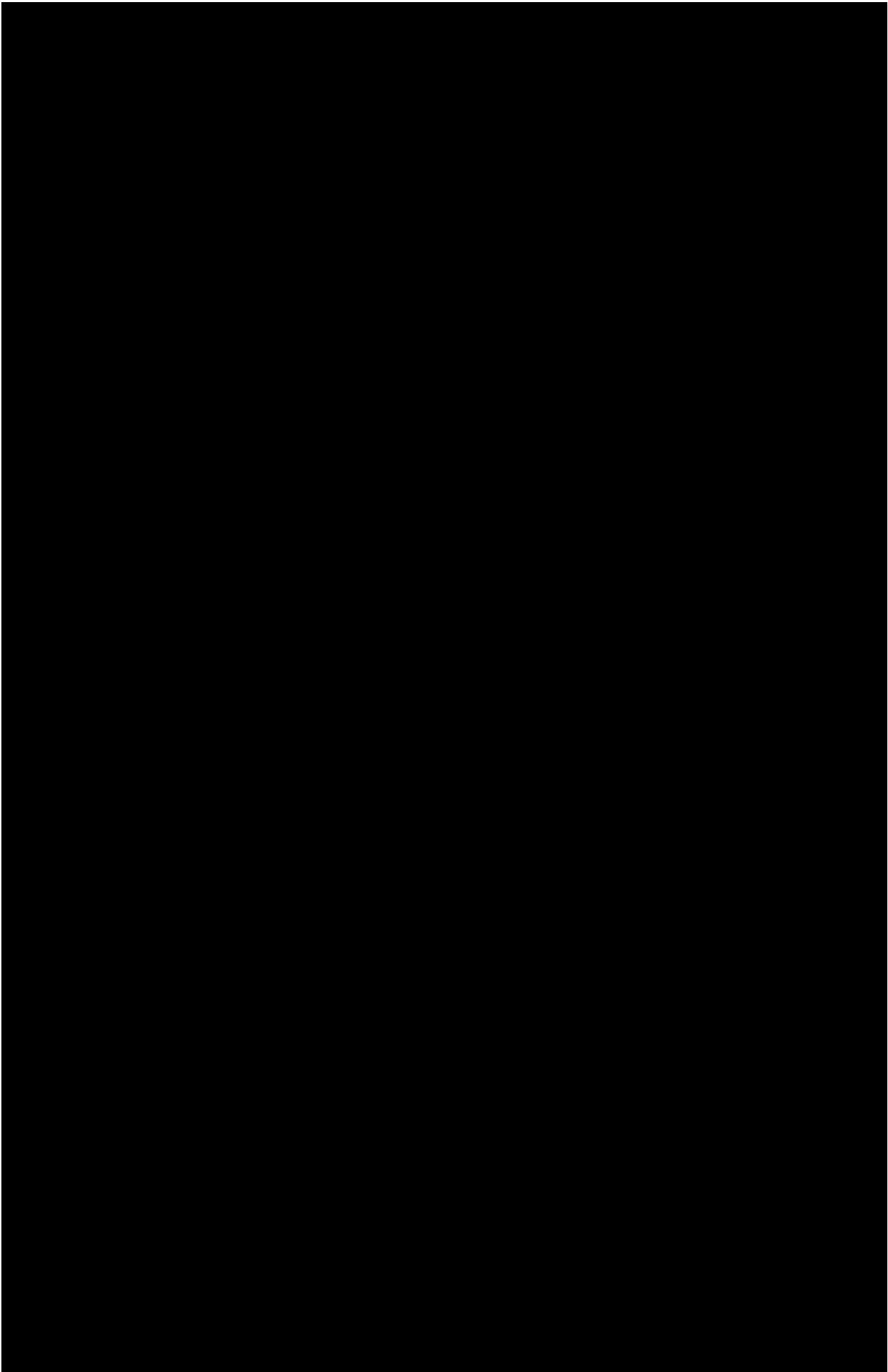
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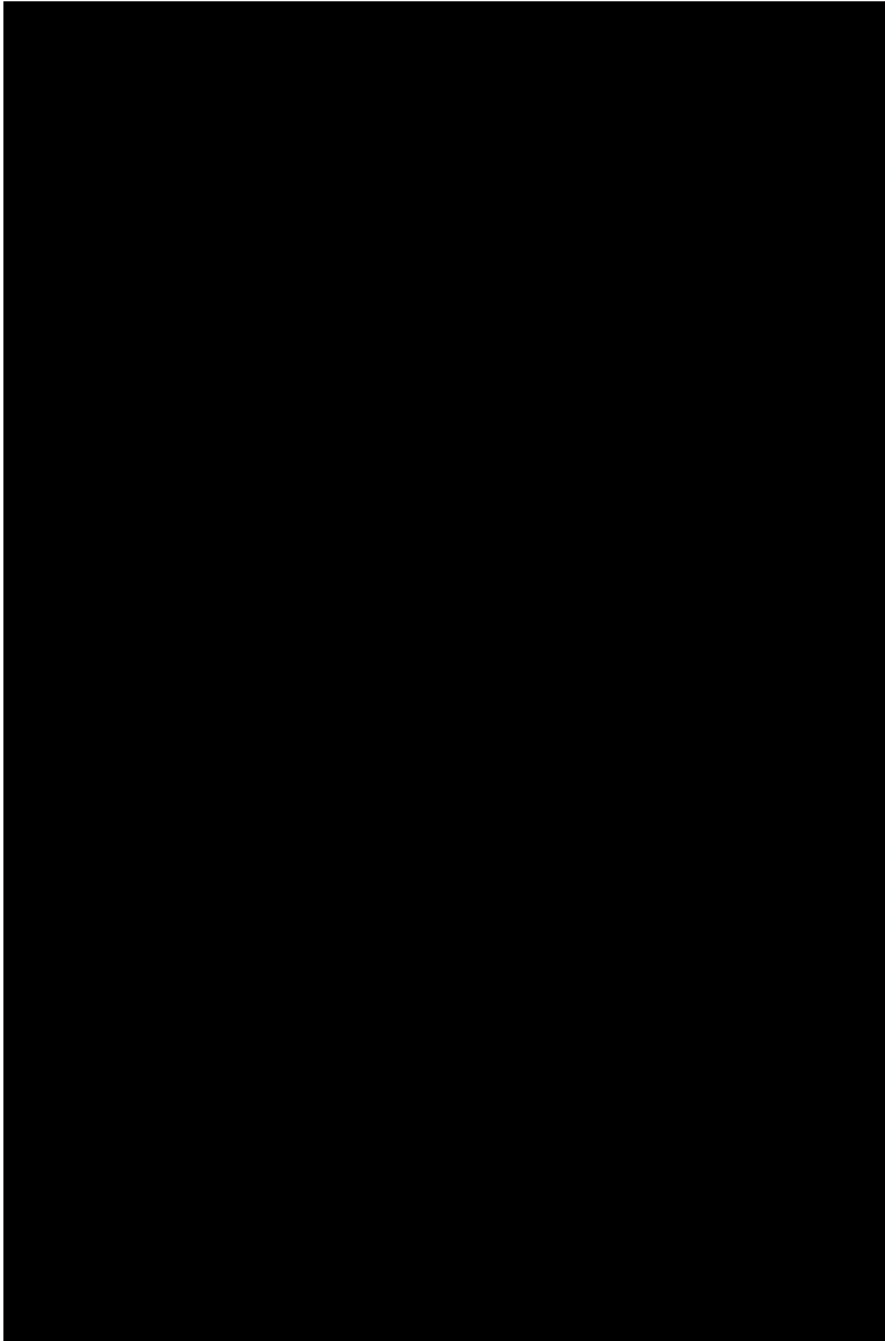
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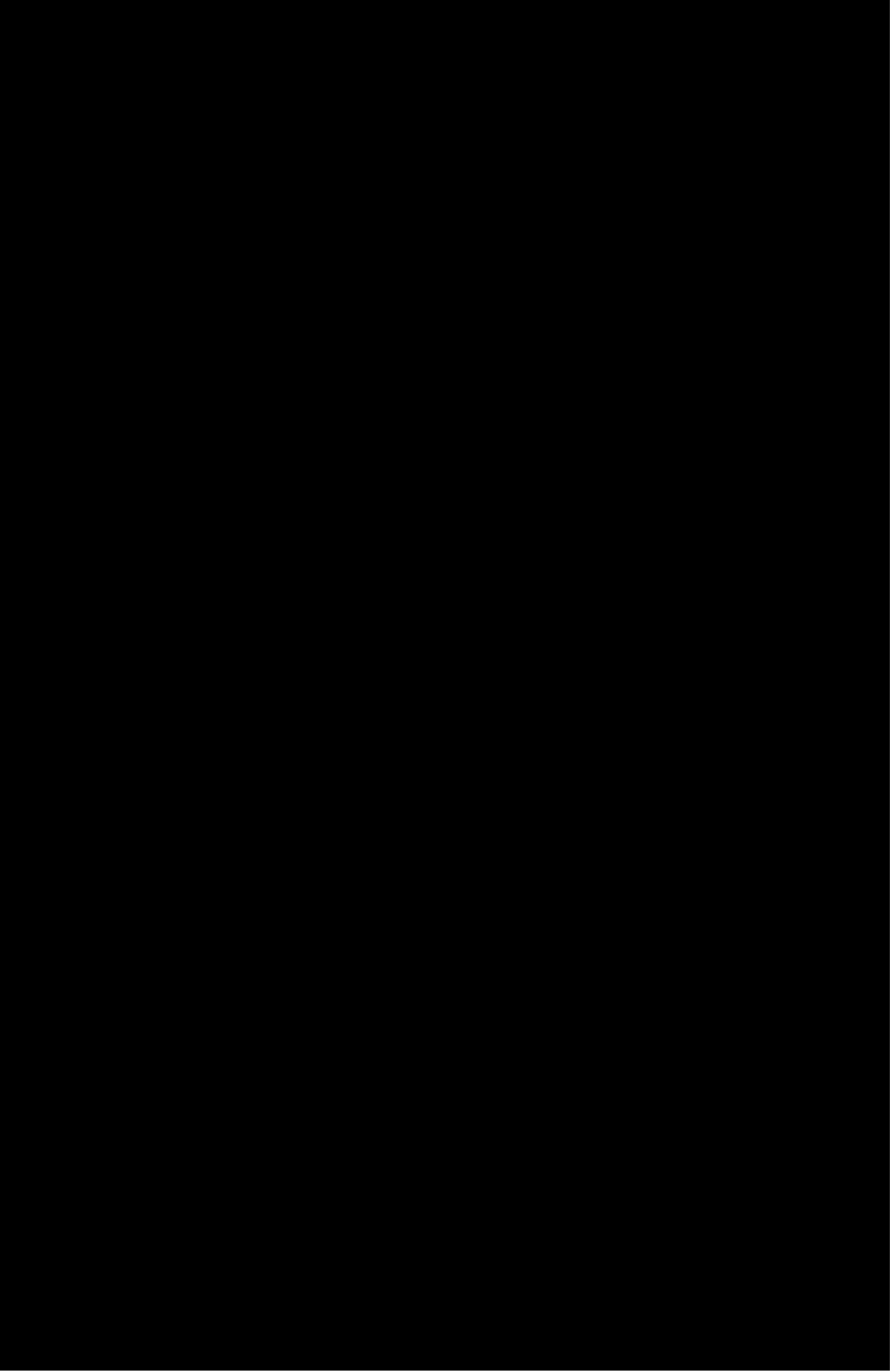
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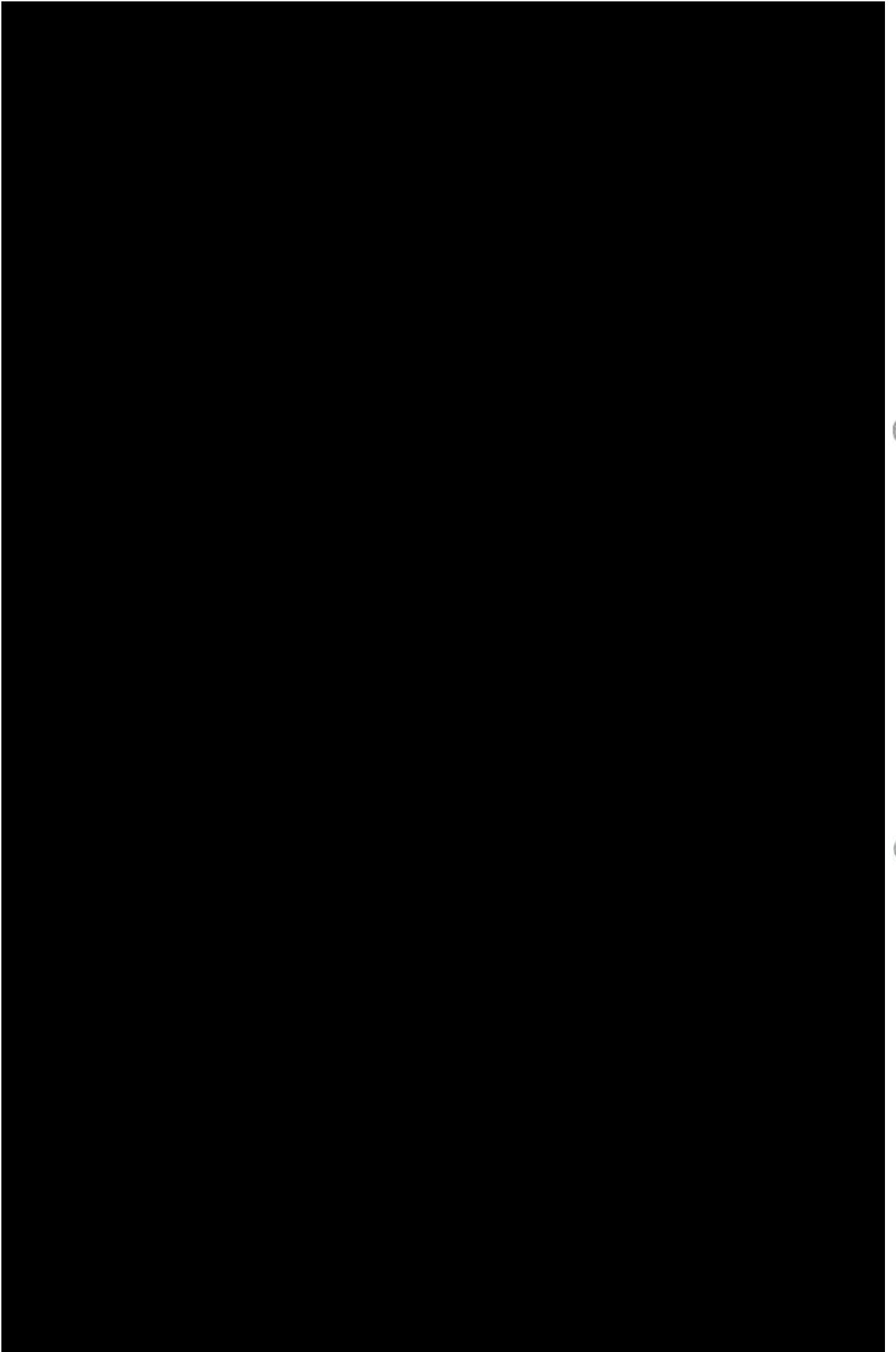


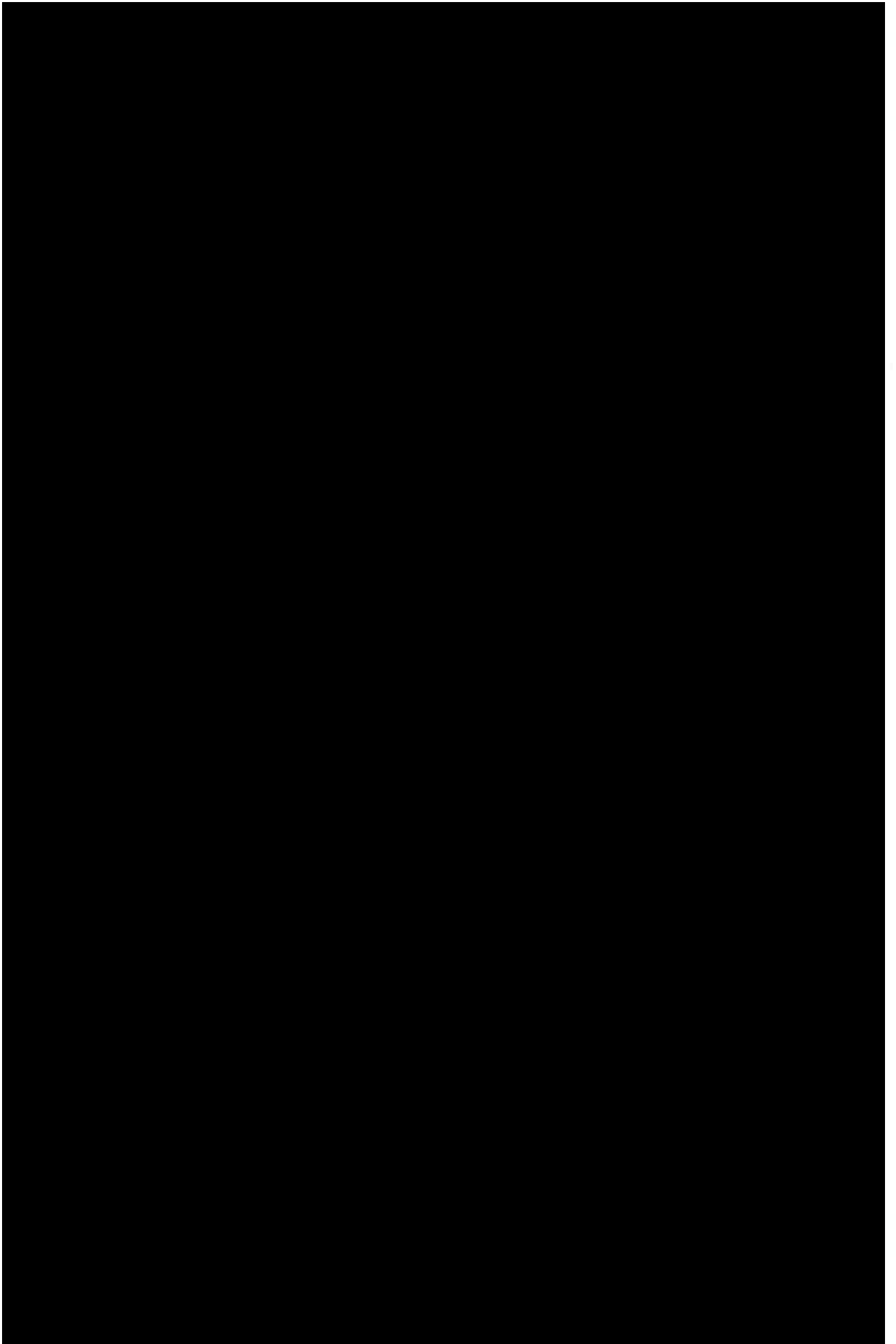






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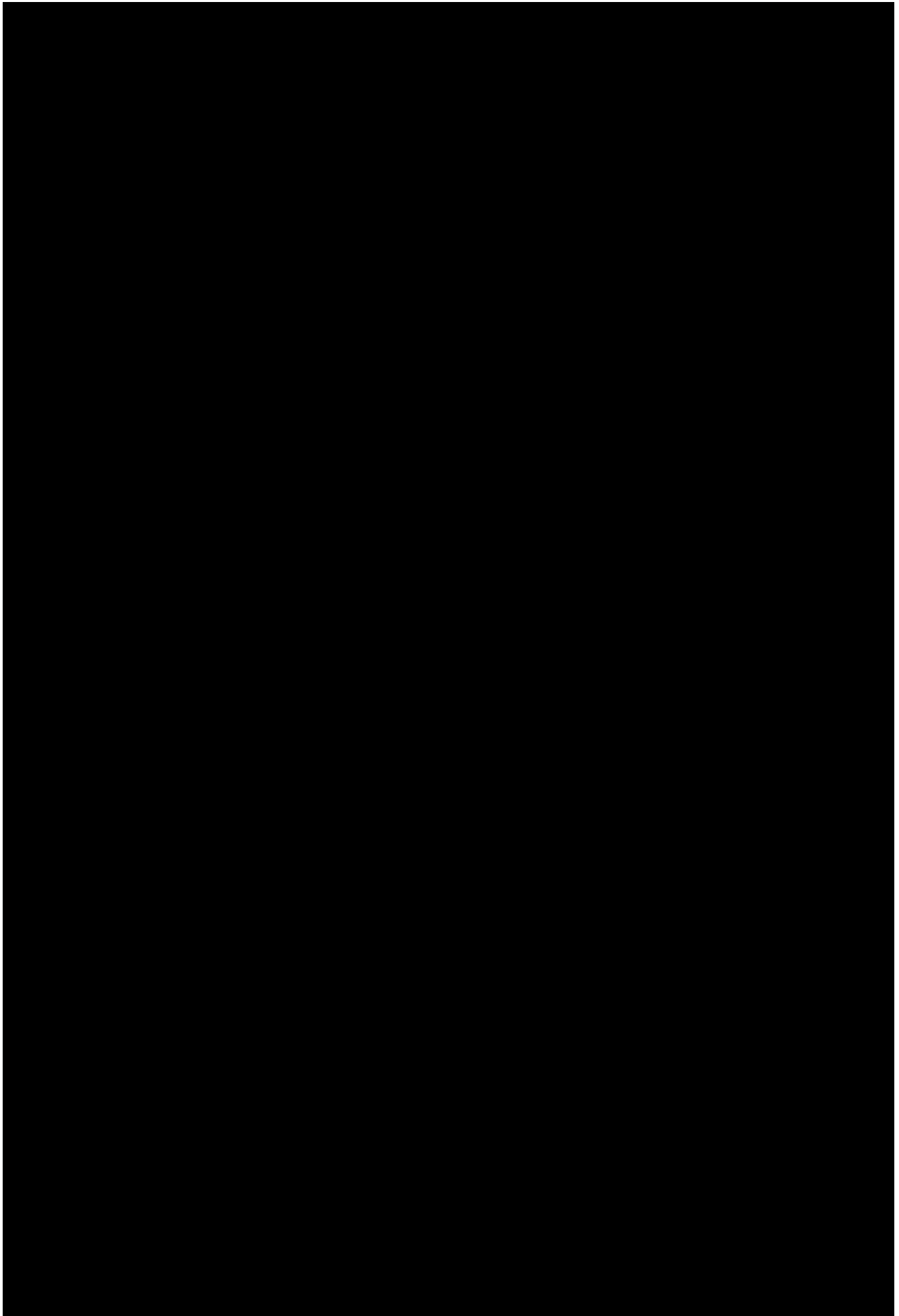


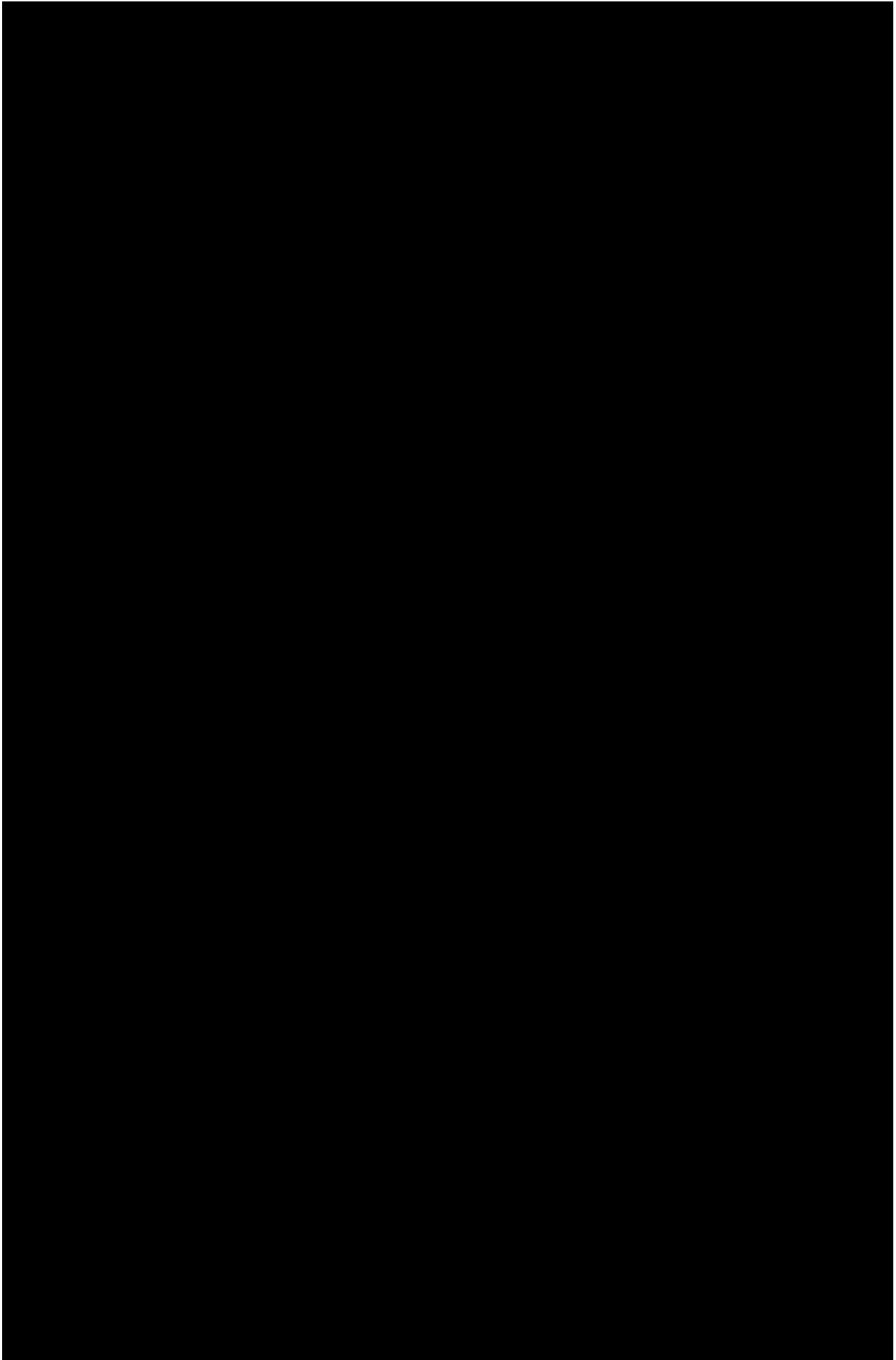


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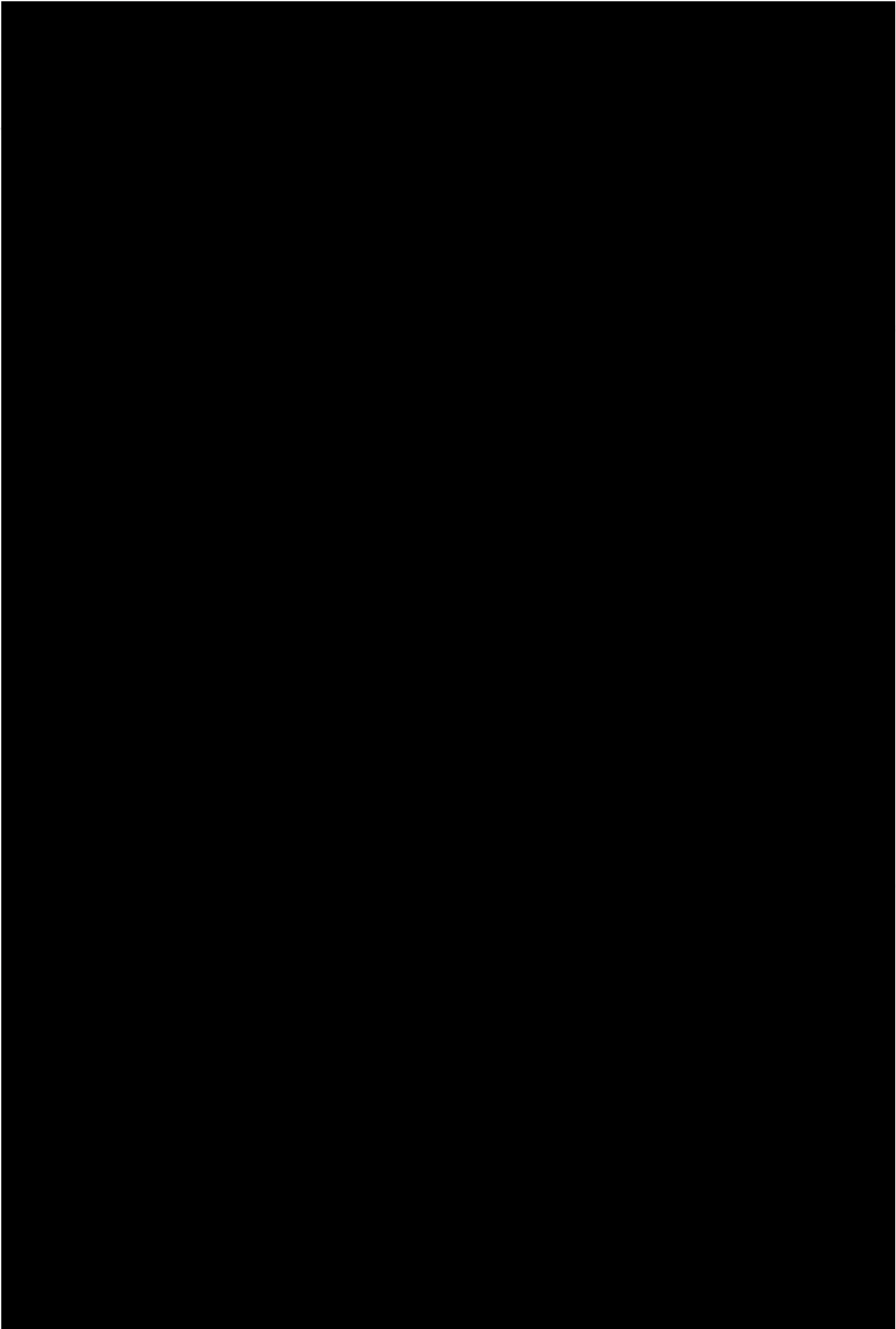


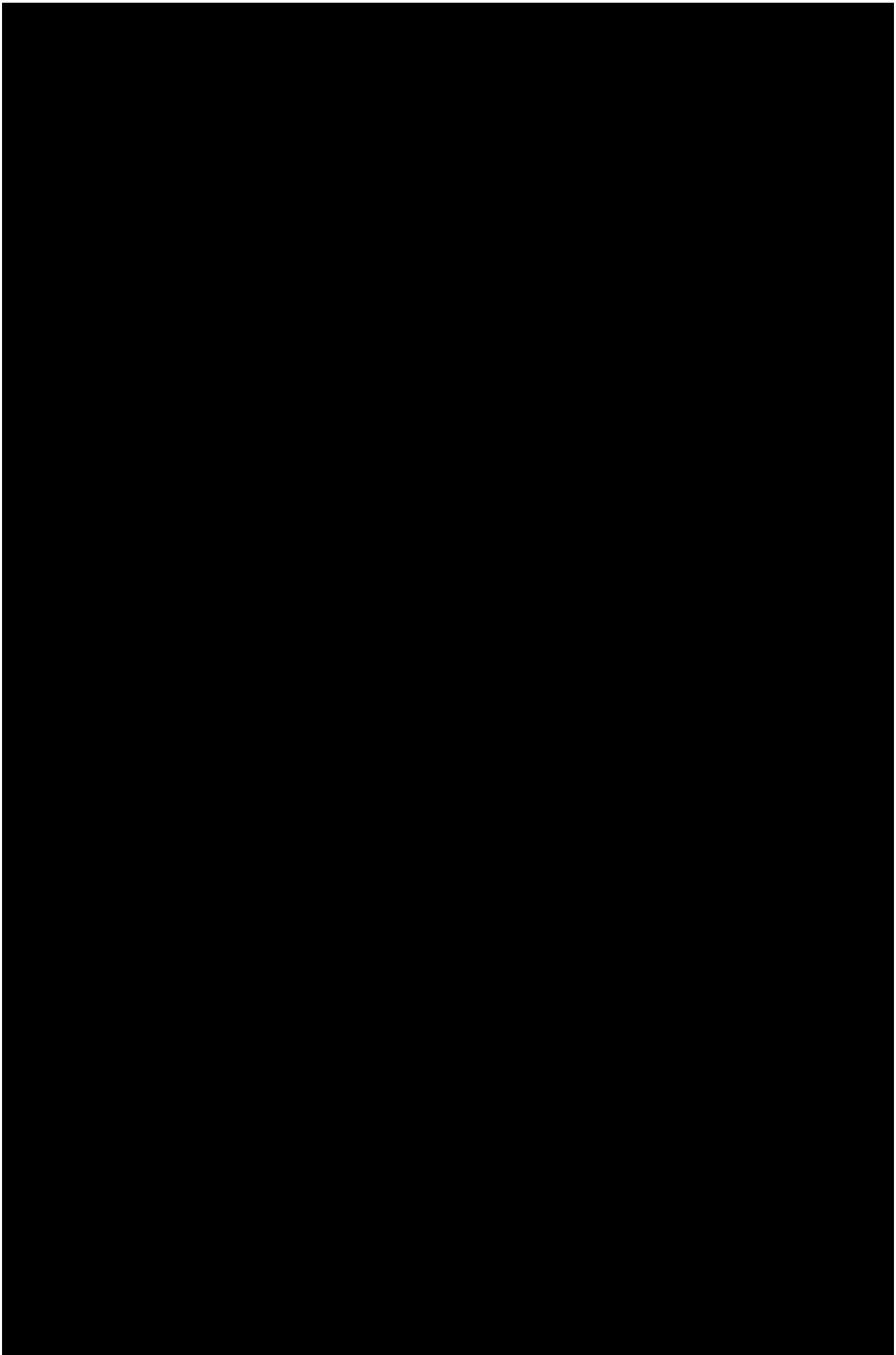


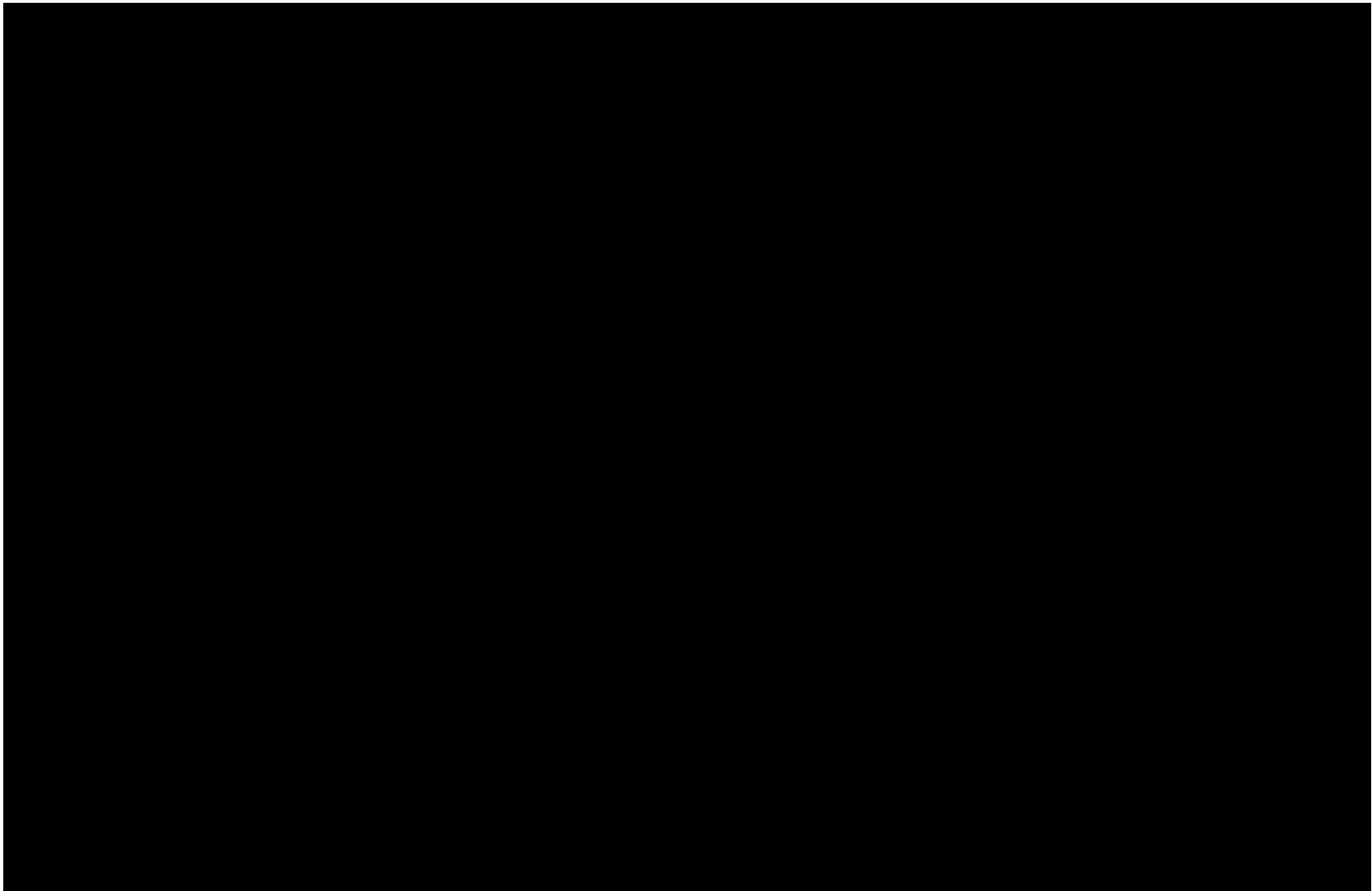
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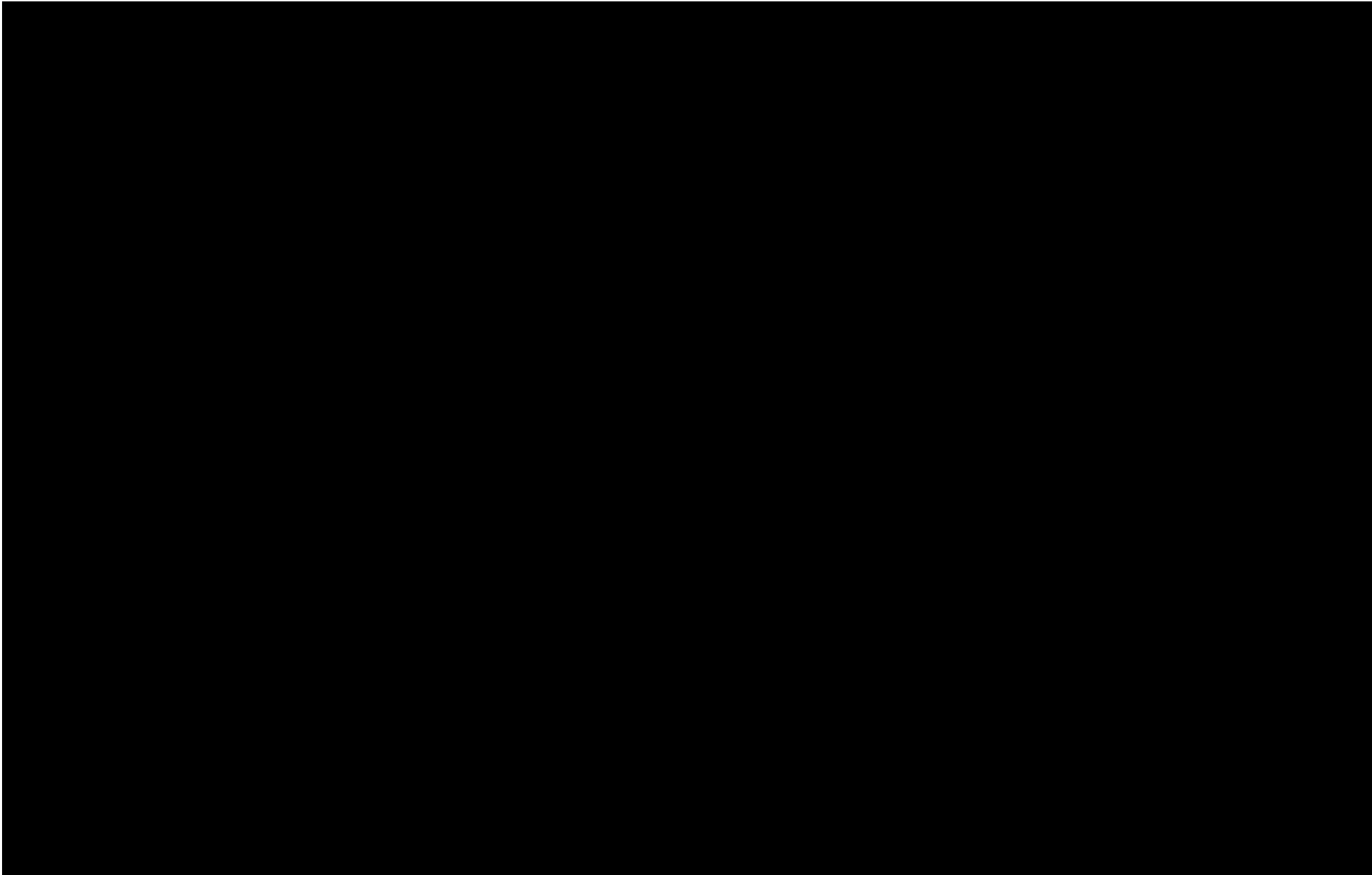


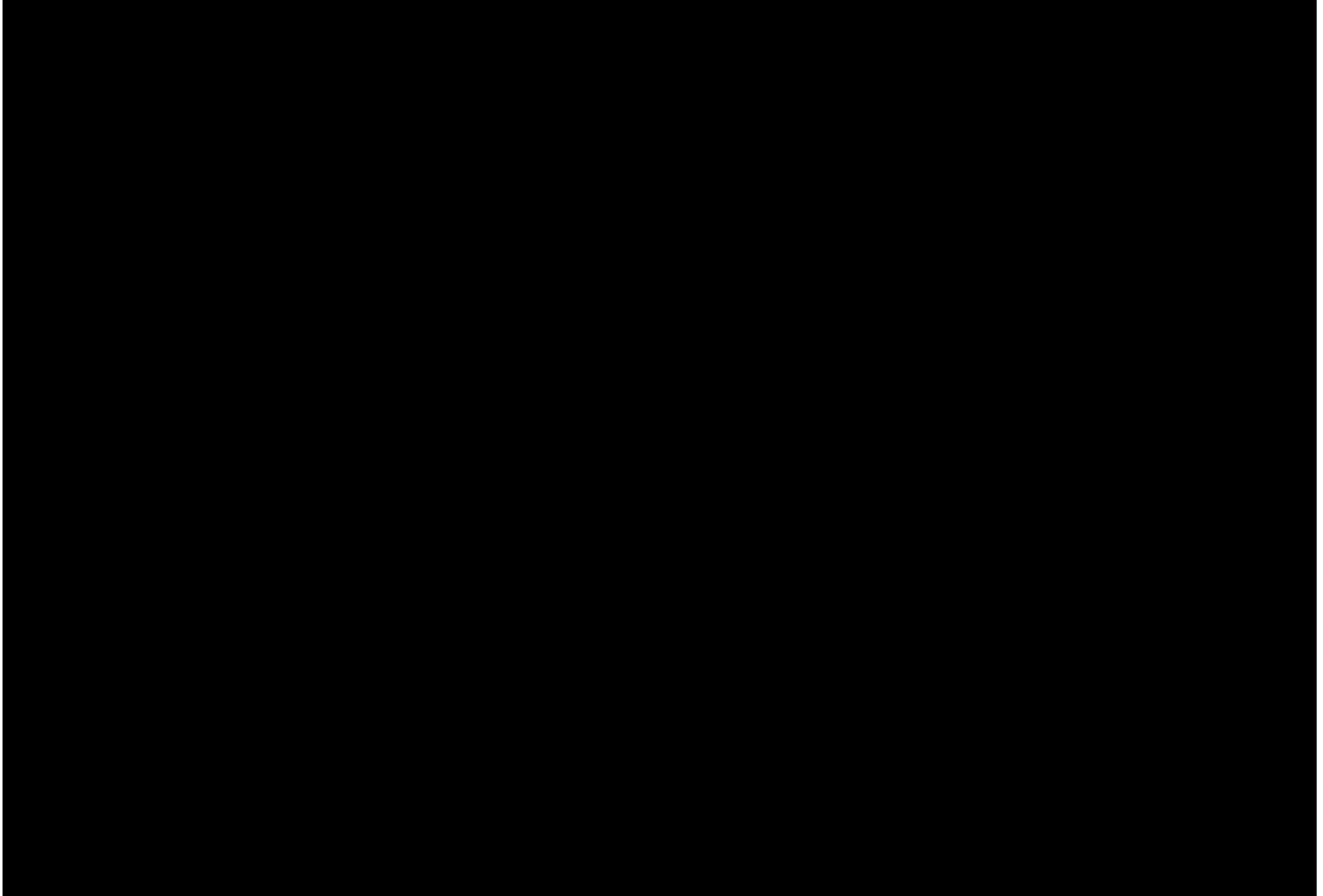












**SCHEDULE 19**

**New Schedule A29**

New Schedule A29 is incorporated in the Principal Document as set out in the attached.

## SCHEDULE A29. – IDAR PANEL AGREEMENT

(Clauses 1.1 and 20.2)

### IDAR Panel Agreement

**This Agreement** is made at \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_ 20[ ]  
between the following parties:

1. **Transport for NSW** (ABN 18 804 239 602) a New South Wales Government agency of Level 43, 680 George Street, Sydney NSW 2000 (**TfNSW**)  
  
and
2. **Members of the IDAR Panel** (collectively **Members**), namely:  
  
[insert name] of [insert address]  
  
[insert name] of [insert address]  
  
[insert name] of [insert address]  
  
and
3. (From each Accession Date) each person who accedes to this agreement under clause 4, being the person identified as the Acceding Party in an Accession Deed (**TfNSW Contractor**).

### RECITALS:

- A. TfNSW is responsible for delivering the Sydney Metro City & Southwest project. The Sydney Metro City & Southwest project involves multiple packages of works to be undertaken by contractors engaged by TfNSW (**TfNSW Contractors**) under separate contracts (**Project Contracts**).
- B. TfNSW will progressively engage TfNSW Contractors. As each TfNSW Contractor is engaged, the TfNSW Contractor will execute an Accession Deed Poll substantially in the form set out Schedule 1 and will thereby accede to the terms of this agreement.
- C. The Project Contracts provide for a dispute resolution process through the establishment and the operation of an IDAR Panel to assist in avoiding and resolving Disputes under the Project Contracts.
- D. The role of the IDAR Panel is to, among other things, encourage TfNSW and the relevant TfNSW Contractor to proactively resolve Disputes by providing a non-binding forum for the parties to establish their positions and narrow the issues in Dispute.
- E. The parties acknowledge the benefits of a Project-wide IDAR Panel include an improvement in the quality of assessments and determinations as a result of the IDAR Panel's familiarity with complex interfaces across multiple integrated works packages.
- F. This agreement sets out the rights, obligations and duties of the Members, TfNSW and (from each Accession Date) the TfNSW Contractors in relation to the IDAR Panel and the Disputes (the **Agreement**).

## THIS AGREEMENT PROVIDES

### 1. DEFINITIONS AND INTERPRETATION

#### 1.1 Definitions

In this Agreement:

**Accession Date** has the same meaning as given to the term "Effective Date" in the Accession Deed Poll, being the date from which each TfNSW Contractor accedes to this Agreement.

**Accession Deed Poll** means the deed poll in substantially the same form as Schedule 1 (with relevant details duly completed) which is to be executed by each TfNSW Contractor in accordance with clause 4.

**Continuing Parties** has the same meaning as given to the term "Continuing Parties " in the Accession Deed Poll, being those parties to the Agreement at the Accession Date, excluding TfNSW.

**Joint Project Committee** means the committee established under the SMCSW Master Interface Protocols Deed Poll.

**Members** means the four individuals appointed to the IDAR Panel in accordance with this Agreement.

**Project Briefing** has the meaning given to that term in clause 6.

**Project Contract** has the meaning given to that term in Recital A.

#### 1.2 Terms defined in the Project Contracts

Terms used in this Agreement which are not otherwise defined will have the meaning given to them in the Project Contracts.

#### 1.3 Interpretation

In this Agreement unless the context otherwise requires:

- (a) references to a person include an individual, a body politic, the estate of an individual, a firm, a corporation, an authority, an association or joint venture (whether incorporated or unincorporated), or a partnership;
- (b) the words "including", "includes" and "include" will be read as if followed by the words without limitation;
- (c) a reference to any party to this Agreement includes that party's executors, administrators, successors, and permitted substitutes and assigns, including any person taking part by way of novation;
- (d) a reference to any Authority, institute, association or body is:
  - (i) if that Authority, institute, association or body is reconstituted, renamed or replaced or if the powers or functions of that Authority, institute, association or body are transferred to another organisation, deemed to refer to the reconstituted, renamed or replaced organisation or the organisation to which the powers or functions are transferred, as the case may be; and



- (ii) if that Authority, institute, association or body ceases to exist, deemed to refer to the organisation which serves substantially the same purposes or objects as that Authority, institute, association or body;
- (e) a reference to this Agreement or to any other deed, agreement, document or instrument is deemed to include a reference to this Agreement or such other deed, agreement, document or instrument as amended, novated, supplemented, varied or replaced from time to time;
- (f) a reference to any legislation or to any section or provision of it includes:
  - (i) any statutory modification or re-enactment of, or any statutory provision substituted for, that legislation, section or provision; and
  - (ii) ordinances, by-laws, regulations of and other statutory instruments issued under that legislation, section or provision;
- (g) words in the singular include the plural (and vice versa) and words denoting any gender include all genders;
- (h) headings are for convenience only and do not affect the interpretation of this Agreement;
- (i) a reference to:
  - (i) a party or clause is a reference to a party or clause of or to this Agreement; and
  - (ii) a paragraph or a sub-paragraph is a reference to a paragraph or sub-paragraph in the clause in which the reference appears;
- (j) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (k) for all purposes (other than where designated as a Business Day), day means calendar day;
- (l) a reference to "\$" is to Australian currency;
- (m) no rule of construction applies to the disadvantage of a party on the basis that the party put forward or drafted this Agreement or any part; and
- (n) any reference to "information" will be read as including information, representations, statements, data, samples, calculations, assumptions, deductions, determinations, drawings, design, specifications, models, plans and other documents in all forms including the electronic form in which it was generated.

## **2. AGREEMENT TO PREVAIL**

- (a) The parties agree that if there is any inconsistency between the terms of this Agreement and a Project Contract the terms of the Agreement will prevail to the extent of the inconsistency.
- (b) This Agreement is effective as of the date TfNSW and the Members sign this document and will continue, unless terminated earlier, until it terminates in accordance with clause 16.

### 3. **FORMATION OF THE IDAR PANEL**

- (a) The Parties acknowledge that the IDAR Panel:
  - (i) has been formed;
  - (ii) is constituted by the Members;
  - (iii) will be chaired by that Member designated as Chair in Schedule 4 or such other Member as TfNSW nominates, by written notice to the Members and TfNSW Contractors, from time to time; and
  - (iv) must perform its obligations and functions under the Project Contracts and this Agreement.

### 4. **ACCESSION BY TfNSW CONTRACTORS**

- (a) TfNSW will ensure that each TfNSW Contractor engaged under a Project Contract that contemplates the involvement of the IDAR Panel in the relevant dispute resolution process accedes to this Agreement.
- (b) The TfNSW Contractors may accede to this Agreement by execution of an Accession Deed Poll without the Continuing Parties' prior approval.
- (c) Upon accession of any TfNSW Contractor to this Agreement as referred to in clause 4(a), the rights and liabilities of the parties to this Agreement will be as set out in this Agreement as amended in accordance with the requirements of the Accession Deed Poll.
- (d) TfNSW will provide the Members with a copy of the Accession Deed Poll duly executed by the TfNSW Contractor.

### 5. **ROLE OF THE IDAR PANEL**

The Parties acknowledge and agree that the role of the IDAR Panel is to:

- (a) provide specialised expertise in technical and administration aspects of the Contract in order to assist the parties to the Contract in firstly, attempting to prevent, and if unable to prevent, in determining Disputes under each Project Contract in a timely manner;
- (b) function as an objective, impartial and independent body at all times; and
- (c) utilise knowledge gained from Disputes across each Project Contract in its recommendations and determinations.

### 6. **PROJECT BRIEFINGS**

- (a) TfNSW will:
  - (i) hold meetings with the Members for the purpose of TfNSW providing a Sydney Metro City & Southwest project briefing and update (**Project Briefing**); and
  - (ii) provide the Members at least 10 Business Days' notice to convene a Project Briefing.
- (b) The Members must attend the Project Briefings.

- (c) During the first Project Briefing, the IDAR Panel will establish procedures for the conduct of its routine site visits and other matters (excluding the rules governing the dispute resolution process as it relates to the IDAR Panel in each Project Contract) in accordance with the procedures included in Schedule 2 to this Agreement (unless otherwise agreed by the parties).

**7. JOINT PROJECT COMMITTEE**

- (a) The Chair must attend Joint Project Committee meetings.
- (b) TfNSW will provide the Chair at least 10 Business Days' notice of each meeting of the Joint Project Committee.

**8. MEMBER'S OBLIGATIONS**

**8.1 Impartiality**

Each Member agrees to consider fairly and impartially the Disputes and other matters referred to the IDAR Panel.

**8.2 Independence**

Each Member agrees to act honestly and independently in the performance of its obligations under this Agreement (including the consideration of facts and conditions relating to a Dispute) and in accordance with clause 8 of this Agreement.

**8.3 General Duties**

Each Member agrees to carry out his or her obligations as a Member of the IDAR Panel:

- (a) with due care and diligence;
- (b) in compliance with the Project Contracts and this Agreement; and
- (c) in compliance with all applicable Laws.

**9. SELECTION OF NOMINATED MEMBER**

- (a) Where a Dispute has been notified to the IDAR Panel by Notice of Issue under the relevant provisions of the Project Contract, and:
  - (i) the parties to the Dispute are unable to agree on a Nominated Member; or
  - (ii) a Member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

the Chair must nominate a Nominated Member within a further 2 Business Days.

- (b) If a Member nominated under clause 9(a) declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, the Chair must nominate a further Nominated Member within a further 2 Business Days.
- (c) The Chair may not nominate itself as the Nominated Member.
- (d) If a replacement member appointed under clause 9(b) declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, the process in clause 9(b) will be reapplied until there are no Members to accept the appointment, in which case the Chair must request the Resolution Institute to appoint a replacement member. This appointment will be final and conclusive.

## 10. **SELECTION OF EXPERT**

- (a) The parties acknowledge and agree that those persons listed in Schedule 3:
  - (i) have been appointed by TfNSW to a panel of subject-matter experts; and
  - (ii) may be recommended to determine a Dispute referred to expert determination by a Notice of Dispute under the relevant provisions of the Project Contract.
- (b) Where a Dispute has been referred to expert determination under the relevant provisions of the Project Contract, and the parties are unable to agree on the identity of the person to be appointed within 3 Business Days, the Resolution Institute Expert Determination Rules apply.

## 11. **COSTS AND FEES**

### 11.1 **Monthly retainer**

TfNSW is liable for the payment of the Members' monthly retainer set out in Schedule 4.

### 11.2 **Agreed rates for work and services**

With respect to each Dispute between TfNSW and a TfNSW Contractor:

- (a) TfNSW and the relevant TfNSW Contractor are jointly and severally liable for the payment of the Members' fees and disbursements, calculated in accordance with the Schedule of Fees and Disbursements set out in Schedule 4;
- (b) TfNSW and the relevant TfNSW Contractor agree as between themselves that:
  - (i) they will each pay one half of:
    - (A) the Members' fees and disbursements, calculated in accordance with the Schedule of Fees and Disbursements set out in Appendix 3;
    - (B) any third party costs incurred in holding the Consultation and the preparation of the Recommendation, including any booking fee, room hire and transcript costs; and
  - (ii) they will each bear their own costs of and incidental to the preparation of this Agreement and their participation in any decision process of the IDAR Panel.

## 12. **THE PARTIES' COMMITMENTS AND RESPONSIBILITIES**

TfNSW and each TfNSW Contractor acknowledges and agrees that it must:

- (a) act in good faith towards each Member and the IDAR Panel;
- (b) comply with the reasonable requests and directions of the IDAR Panel; and
- (c) except for its participation in the IDAR Panel's activities as provided in the Project Contracts and this Agreement, not solicit advice or consultation from the IDAR Panel or the Members on matters dealing with the resolution of Disputes which may compromise the IDAR Panel's integrity or compliance with this Agreement.

**13. CONFIDENTIALITY**

In relation to all confidential information disclosed to the IDAR Panel at any time each Member agrees:

- (a) to keep that information confidential;
- (b) not to disclose that information except if compelled by Law to do so;
- (c) not to use that information for a purpose other than the resolution of the Dispute in relation to which the confidential information was disclosed; and
- (d) to be bound by this obligation of confidentiality whether or not such confidential information is or later becomes in the public domain.

**14. CONFLICT OF INTEREST**

- (a) If a Member, during the term of appointment as a Member, becomes aware of any circumstance that might reasonably be considered to affect the Member's capacity to act independently, impartially and without bias, the Member must inform the Principal and each TfNSW Contractor and the other Members.
- (b) The other Members will within 5 Business Days of notification under clause 14(a) confer and inform the parties and the Member, whether they believe the circumstances notified are such that the Member should be replaced. In the event that one or both of the other Members believe that the Member should be replaced, the Member will immediately resign from the IDAR Panel and a reappointment will occur pursuant to clause 17.3.

**15. LIABILITY AND INDEMNITY**

**15.1 Liability**

Each Member is not liable to either TfNSW or a TfNSW Contractor for any act or omission done in good faith and with due care and diligence.

**15.2 Indemnity**

TfNSW and each TfNSW Contractor each indemnify each Member against all claims from a person not a party to this Agreement for any act or omission done in good faith and with due care and diligence.

**15.3 Due Care and Diligence**

For the purpose of clauses 15.1 and 15.2, the parties agree that the Member's act will have been done in good faith and with due care and diligence unless no reasonable person in the position of the Member would have so acted or made such an omission.

**16. TERMINATION OF AGREEMENT**

- (a) TfNSW may terminate this Agreement may by written notice to the Members and each TfNSW Contractor.
- (b) Each TfNSW Contractor's rights and obligations under this Agreement will terminate automatically upon termination of the TfNSW Contractor's Project Contract, and the terms of this Agreement will be of no further force and effect.

17. **MEMBERS' TERMINATION**

17.1 **Resignation**

A Member may resign from the IDAR Panel by providing 30 Business Days' written notice to the other Members, TfNSW and each Contractor.

17.2 **Termination**

A Member's appointment may be terminated at any time by TfNSW.

17.3 **Re-Appointment**

The parties acknowledge and agree that if:

- (a) a Member resigns under clause 14(b) or 17.1; or
- (b) the appointment of a Member is terminated by TfNSW under clause 17.2;

then:

- (c) a replacement Member will be appointed by TfNSW; and
- (d) the parties, the Members and any new Member must enter into a replacement agreement substantially similar to this Agreement as a condition of a valid re-appointment under the terms of the Contract.

18. **GOVERNING LAW**

- (a) This Agreement will be governed by and construed in accordance with the Laws of the State of New South Wales.
- (b) Each party submits to the non-exclusive jurisdiction of the courts of New South Wales and any courts that may hear appeals from any of those courts, for any proceedings in connection with this Agreement, and waives any right it might have to claim that those courts are an inconvenient forum.

19. **RELATIONSHIP OF THE PARTIES**

Nothing in this Agreement will be construed or interpreted as constituting the relationship between the Principal, the SSJ Contractor and the Members as that of partners, joint venturers or any other fiduciary relationship.

20. **NOTICES**

- (a) Any notices contemplated by this Agreement must be in writing and delivered to the relevant address, sent by email in the form of a .pdf file as set out below (or to any new address or email address that a party notifies to the others).
  - (i) to TfNSW: ***[to be completed]***
  - (ii) to the Members: ***[to be completed]***
  - (iii) to a TfNSW Contractor: To the address or email address set out in the relevant Accession Deed Poll.
- (b) A notice sent by post will be taken to have been received at the time when, in due course of the post, it would have been delivered at the address to which it is sent.
- (c) A notice sent by email will be taken to have been received:

- (i) if it is transmitted by 5.00 pm (Sydney time) on a Business Day - on that Business Day; or
- (ii) if it is transmitted after 5.00 pm (Sydney time) on a Business Day, or on a day that is not a Business Day - on the next Business Day.

**21. GIVING EFFECT TO THIS AGREEMENT**

Each party must do anything (including execute any document), and must ensure that its employees and agents do anything (including execute any document), that the other party may reasonably require to give full effect to this Agreement.

**22. SURVIVAL OF TERMS**

The parties agree that clauses 11 and 15 and this clause 22 (and any other terms of this Agreement necessary for or incidental to the operation of the preceding terms) will survive the termination or expiry of this Agreement.

**23. WAIVER OF RIGHTS**

A right may only be waived in writing, signed by the party giving the waiver, and:

- (a) no other conduct of a party (including a failure to exercise, or delay in exercising, the right) operates as a waiver of the right or otherwise prevents the exercise of the right;
- (b) a waiver of a right on one or more occasions does not operate as a waiver of that right if it arises again; and
- (c) the exercise of a right does not prevent any further exercise of that right or of any other right.

**24. OPERATION OF THIS AGREEMENT**

- (a) Except as otherwise expressly specified in this Agreement, this Agreement contains the entire agreement between the parties about its subject matter, and any previous understanding, agreement, representation or warranty relating to that subject matter is replaced by this Agreement and has no further effect.
- (b) Any right that a person may have under this Agreement is in addition to, and does not replace or limit, any other right that the person may have.
- (c) Any provision of this Agreement which is unenforceable or partly unenforceable is, where possible, to be severed to the extent necessary to make this Agreement enforceable, unless this would materially change the intended effect of this Agreement.

**25. AMENDMENT**

- (a) Subject to clause 25(b), this Agreement can only be amended, supplemented, replaced or novated by another document signed by the parties.
- (b) TfNSW may amend Schedule 3 by written notice without the Continuing Parties' prior approval.

**26. COUNTERPARTS**

- (a) This Agreement may be executed in counterparts, which taken together constitute one instrument.

(b) A party may execute this Agreement by executing any counterpart.

**27. ATTORNEYS**

Each person who executes this Agreement on behalf of a party under a power of attorney declares that he or she is not aware of any fact or circumstance that might affect his or her authority to do so under that power of attorney.



**EXECUTED** as an agreement.

**Executed by Transport for NSW (ABN 18 804 239 602)** by its authorised delegate in the presence of:

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Full name of witness

\_\_\_\_\_  
Signature of [insert position]

\_\_\_\_\_  
Name of [insert position]

**Signed by [Member]** in the presence of:

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Name of Witness in full

\_\_\_\_\_  
Signature

**Signed by [Member]** in the presence of:

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Name of Witness in full

\_\_\_\_\_  
Signature

**Signed by [Member]** in the presence of:

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Name of Witness in full

\_\_\_\_\_  
Signature

**Signed** by [**Member**] in the presence of:

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Name of Witness in full

\_\_\_\_\_  
Signature

**Executed** by [**insert name of Contractor**]  
(**ABN [ ]**) in accordance with section 127 of the  
*Corporations Act* by or in the presence of:

\_\_\_\_\_  
Signature of Director

\_\_\_\_\_  
Name of Director in full

\_\_\_\_\_  
Signature of Secretary/other Director

\_\_\_\_\_  
Name of Secretary/other Director in full

## SCHEDULE 1

### Form of Accession Deed Poll

**THIS DEED POLL** is made on [2018/2019]

**BY:** [Insert name] ABN [number] whose registered office is at [address] (**Acceding Party**)

**IN FAVOUR OF:** (1) **Transport for NSW** (ABN 18 804 239 602) a New South Wales Government agency of Level 43, 680 George Street, Sydney NSW 2000 (**TfNSW**)

and

(2) **Members of the IDAR Panel** (collectively **Members**), namely:

[insert name] of [insert address]

[insert name] of [insert address]

[insert name] of [insert address]

and

(3) each person who has acceded to the IDAR Panel Agreement, (together (2) and (3) being the **Continuing Parties**).

#### RECITALS:

- (A) This deed poll is supplemental to the deed titled "IDAR Panel Agreement" between TfNSW and the Continuing Parties dated [insert] as amended or acceded to from time to time (**IDAR Panel Agreement**).
- (B) TfNSW and the Continuing Parties are each party to the IDAR Panel Agreement.
- (C) TfNSW has entered into the [insert name of relevant Project Contract] with the Acceding Party.
- (D) Each of the Continuing Parties has acknowledged and agreed that the Acceding Party will accede to the IDAR Panel Agreement.
- (E) By this deed poll, the Acceding Party accedes to the IDAR Panel Agreement and the IDAR Panel Agreement is amended on the terms set out in this deed poll.

#### THE ACCEDING PARTY COVENANTS AS FOLLOWS:

##### 1. INTERPRETATION

Capitalised terms used in this deed poll and not otherwise defined have the same meanings as those given in the IDAR Panel Agreement. The following definitions apply in this deed poll:

**Effective Date** means the date of execution of this deed poll.

**[Insert name of relevant Contract]** means the contract entered into between TfNSW and the Acceding Party entitled [insert title] and dated [insert date].

**2. PRIMARY COVENANTS**

- (a) The Acceding Party:
  - (i) confirms that it has been supplied with a copy of the IDAR Panel Agreement;  
and
  - (ii) covenants with each of TfNW and the Continuing Parties, with effect from the Effective Date, to be bound by the provisions of, and to perform all of its obligations under the IDAR Panel Agreement.

- (b) For the purposes of the IDAR Panel Agreement, the Acceding Party's representative is as set out below:

[Insert details of Acceding Party's representative]

- (c) For the purposes of clause 20 of the IDAR Panel Agreement, the Acceding Party's notice address details are as set out below:

Address:  
Email:  
For the attention of:

- (d) Clause 18 of the IDAR Panel Agreement applies to this deed poll.

**EXECUTED** as a deed poll.

***[Note: Appropriate execution block to be inserted by the Acceding Party prior to execution.]***

## SCHEDULE 2

### IDAR Panel General Operating Procedures

#### 1. General

- 1.1 Each TfNSW Contractor will furnish to each of the Members all documents necessary for the IDAR Panel to perform its functions, including copies of all Project Contract documents plus periodic reports, such as progress reports, minutes of weekly or other project control meetings, site meetings or similar meetings and any other documents that would be helpful in informing the Members of Disputes and other matters.
- 1.2 The Members must make prompt disclosure from time to time of any new or previously undisclosed circumstance, relationship or dealing, which comes to their attention and which might give rise to a conflict of interest or apprehension of bias.
- 1.3 Communications between the parties and the IDAR Panel for the purpose of attempting to prevent or resolve Disputes are without prejudice communications and may not be adduced as evidence in any dispute resolution process under the relevant Project Contract.

#### 2. Frequency of regular meetings and site visits

- 2.1 The frequency and scheduling of meetings and site visits necessary to keep the IDAR Panel properly informed of the project circumstances will generally be agreed between the IDAR Panel and the parties to each Project Contract.
- 2.2 In the case of a failure to agree between the IDAR Panel and the parties to a Project Contract, TfNSW will schedule the meetings and visits as it sees fit.

#### 3. Agenda for regular meetings

- 3.1 IDAR Panel meetings held for the purposes of briefing and updating the Members on performance and progress of the work under each Project Contract and issues or potential issues between the relevant parties will be held on an in-confidence and without prejudice basis to encourage full and frank disclosure and discussions.
- 3.2 At the conclusion of the meeting, the IDAR Panel will generally inspect the Project Works and the Construction Site in the company of representatives of both parties to the relevant Project Contract. Any areas of the Project Works or Construction Site that are or may be the subject of any potential Dispute will be pointed out by the parties to the relevant Project Contract.

#### 4. Minutes of meetings

- 4.1 The Chair will prepare minutes of the regular meetings of the IDAR Panel and these draft minutes will be circulated to the parties of the relevant Project Contract and the Members for comments, additions and corrections.
- 4.2 In accordance with clause 3.1 above, the minutes of IDAR Panel meetings held will be marked "in-confidence, without prejudice".
- 4.3 Minutes as amended will be adopted by the relevant parties and the Members at the next meeting.

#### 5. Communications

- 5.1 All communications by the parties to the IDAR Panel outside the IDAR Panel meetings should be directed in writing to the Chair and copied to the other Members and to the

other party of the relevant Project Contract. All communications by the Members to the parties should be addressed to TfNSW's Representative and the relevant Contractor's Representative.

**6. Representation**

- 6.1 The parties must each ensure they are represented at IDAR Panel meetings by at least one senior project personnel and at least one senior off-site person to whom the on-site personnel reports. The parties must inform the Chair of the names and project roles of each of their respective representatives and, if applicable, the names and roles of any alternatives.

**SCHEDULE 3**

**Appointed panel of Experts**

Item	Name	Subject-matter area
1.		
2.		



**SCHEDULE 4**

**Schedule of Fees and Disbursements**

**[Note to SSJ Contractor: Schedule of Fees and Disbursements to be provided prior to execution.]**

**SCHEDULE 20**

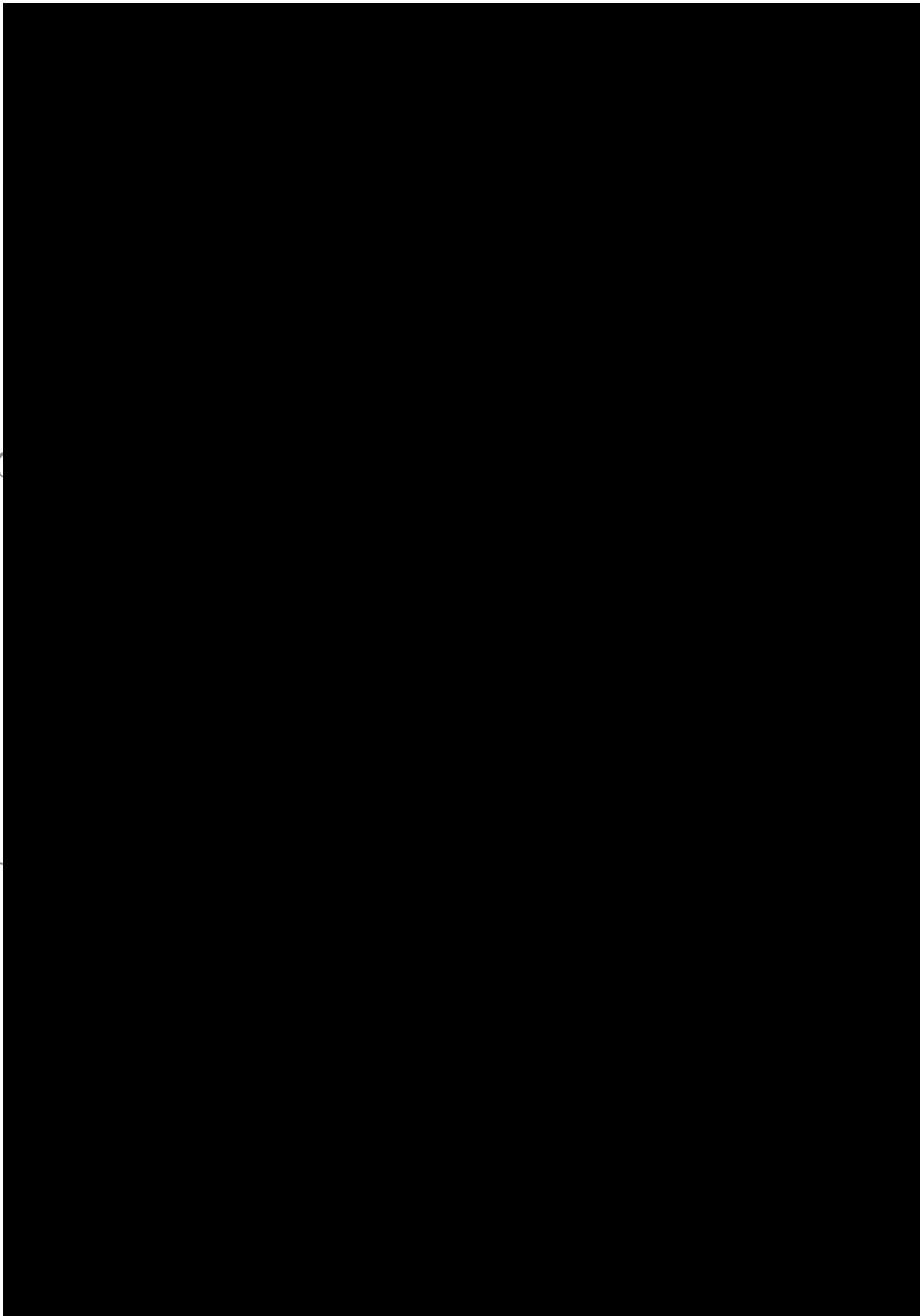
**New Schedule A30**

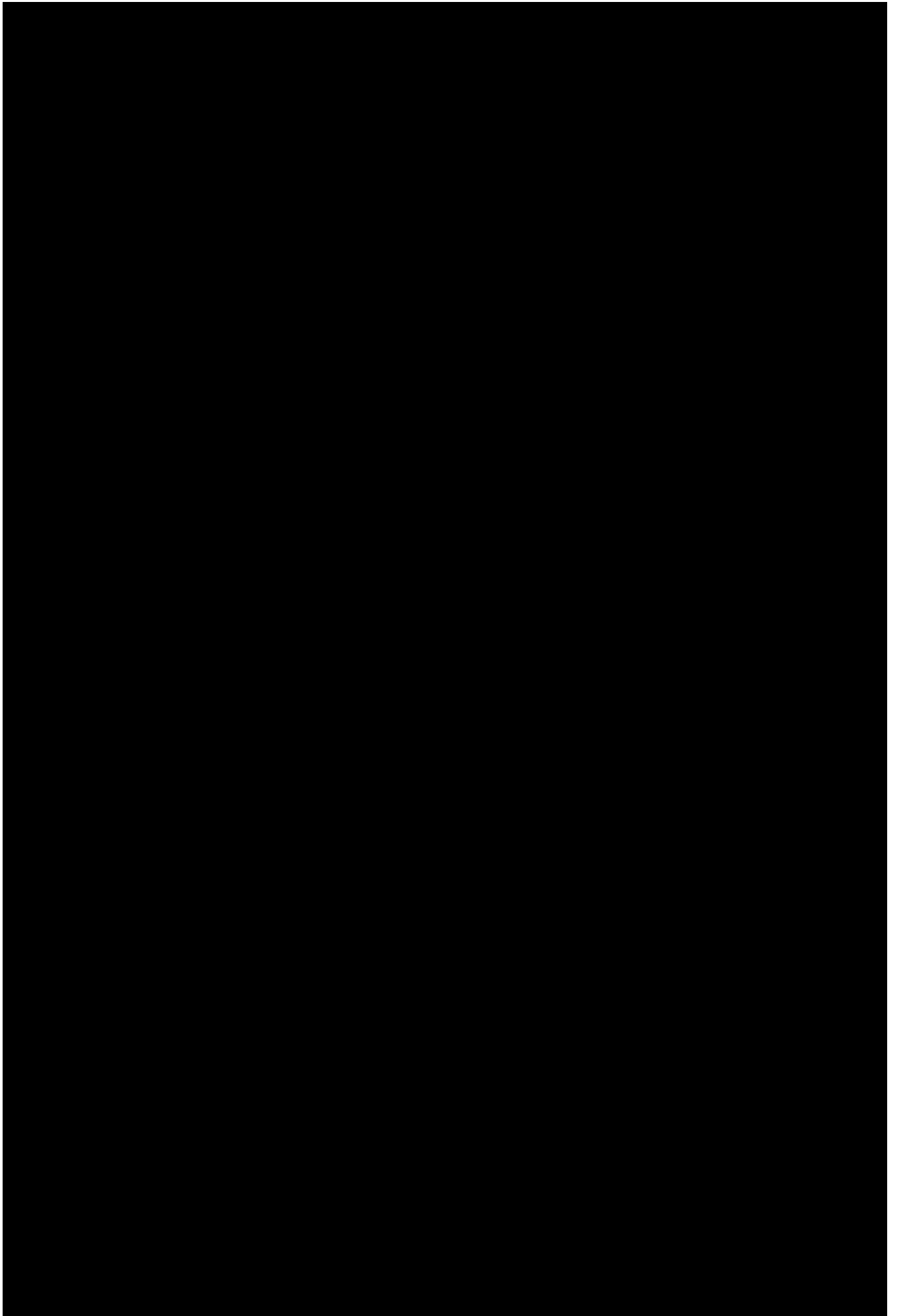
New Schedule A30 is incorporated in the Principal Document as set out in the attached.

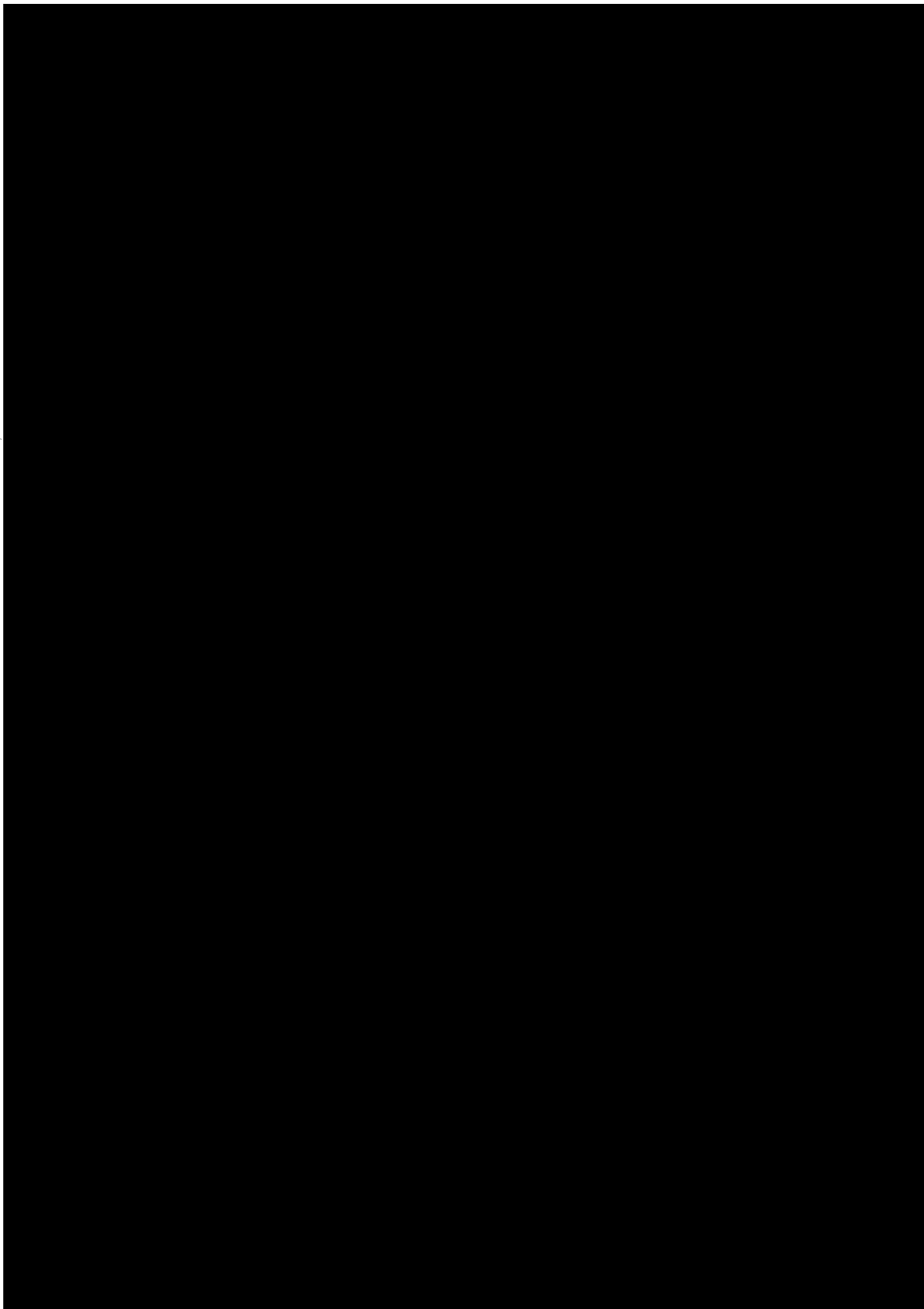
**SCHEDULE A30. – CHANGE ORDER 001**

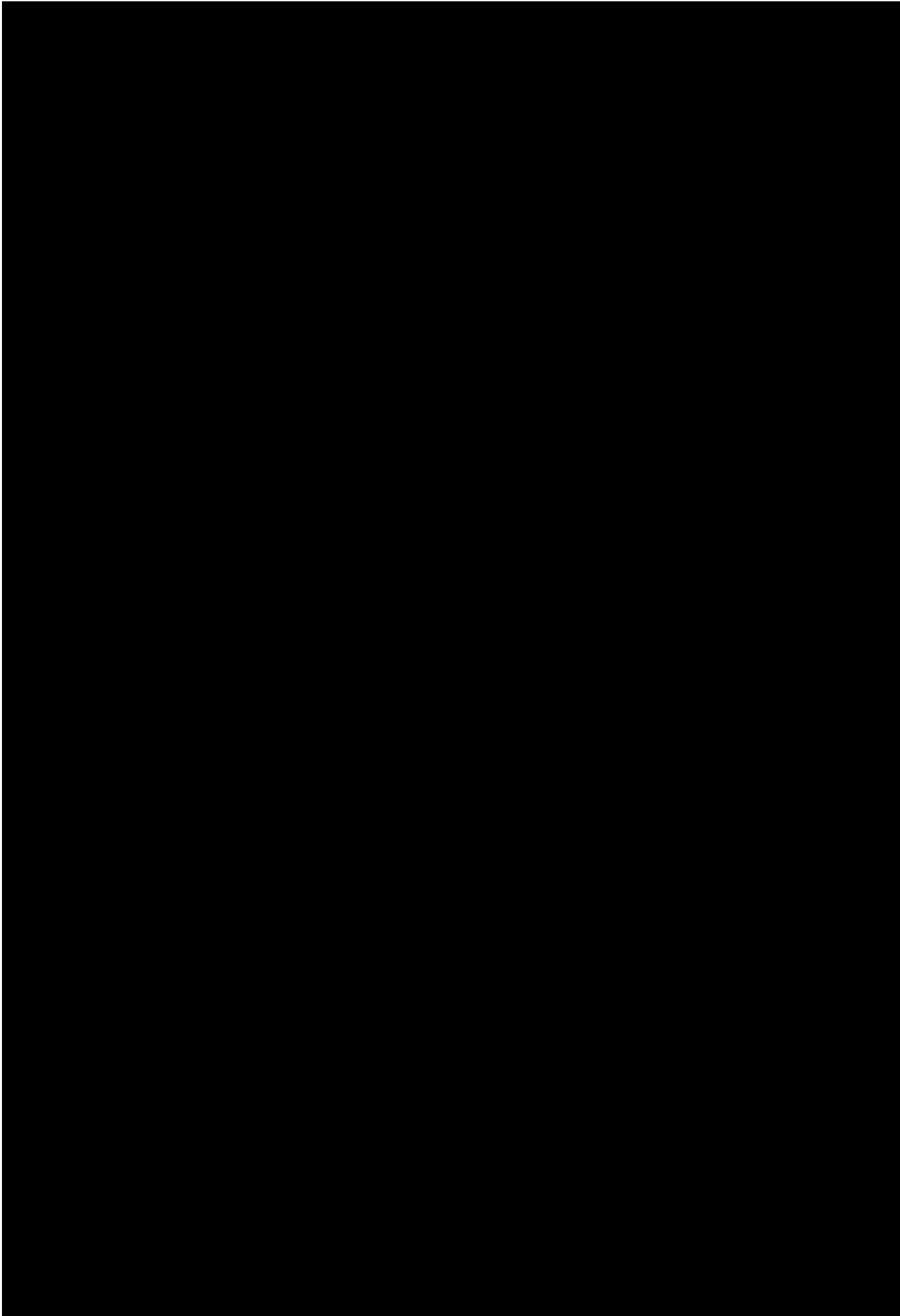
(Clause 1.1)



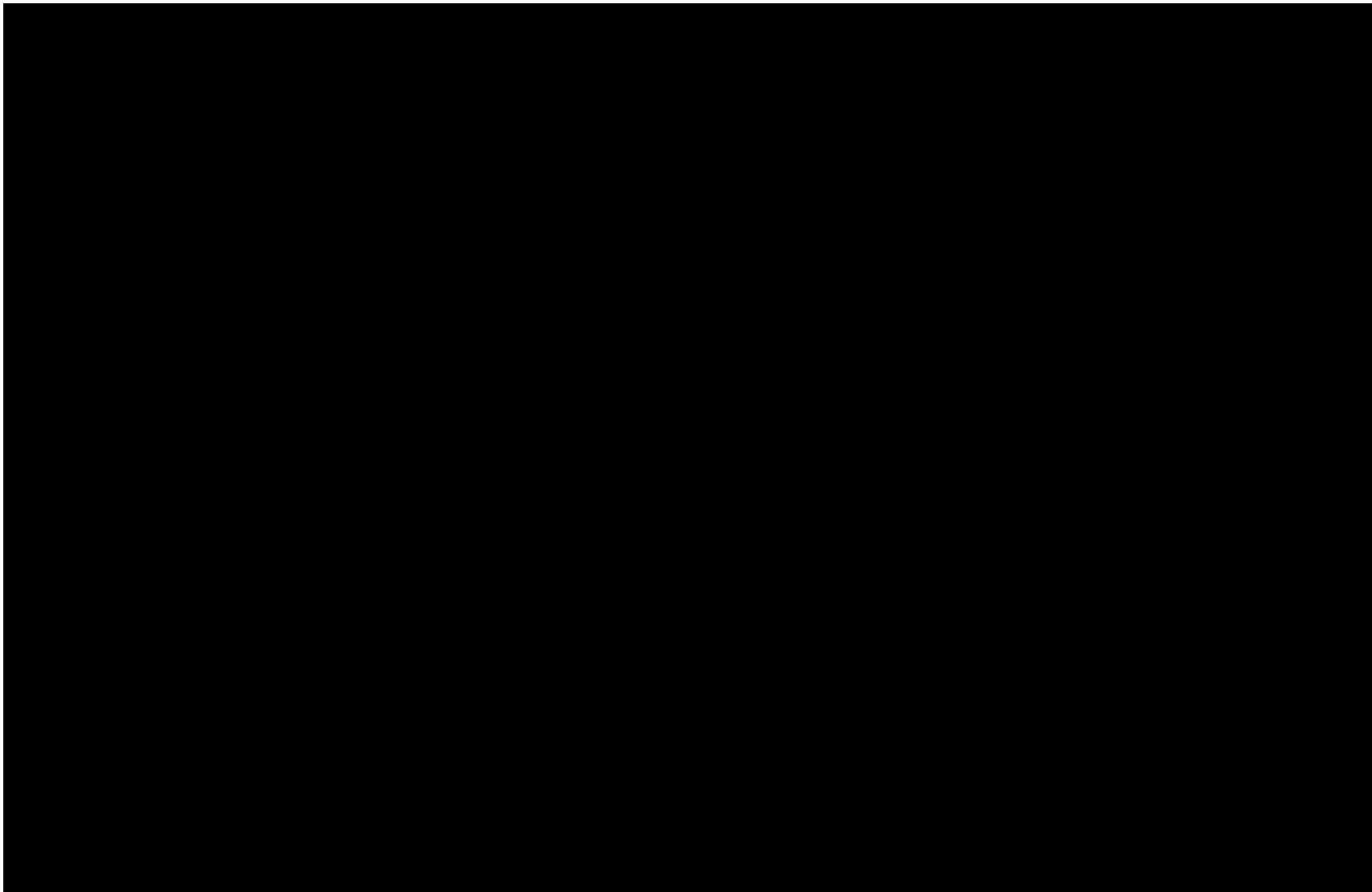




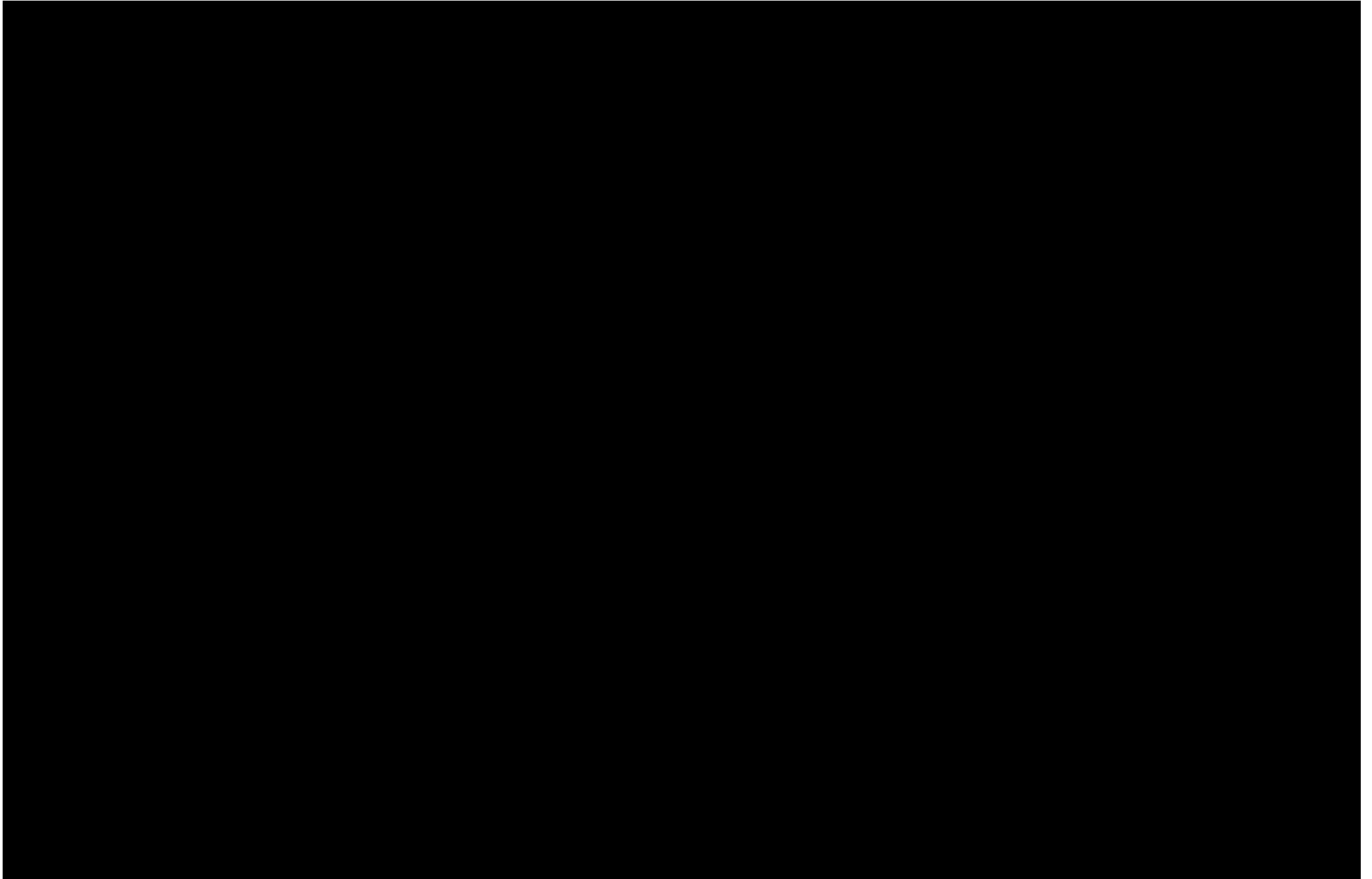


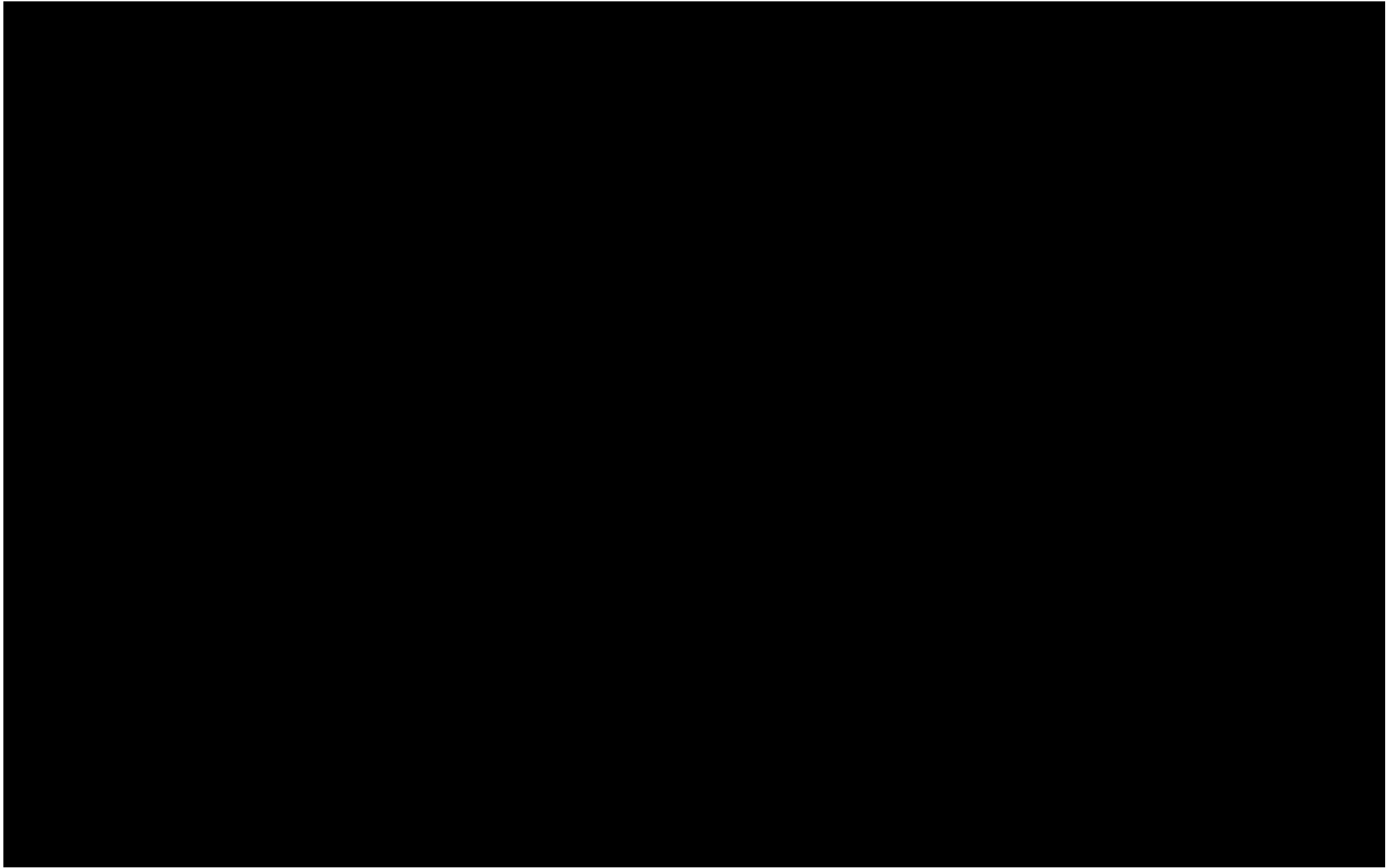


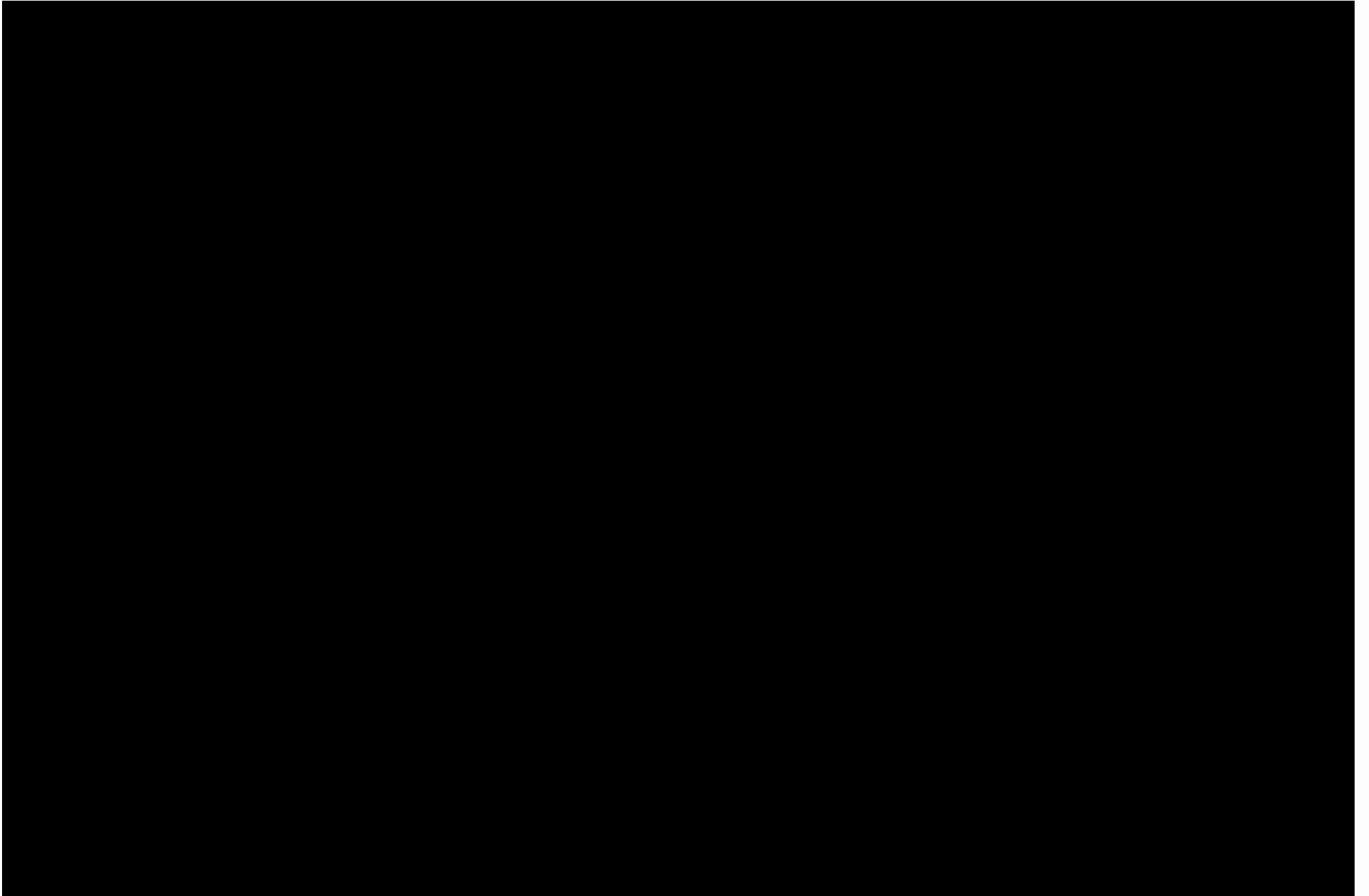


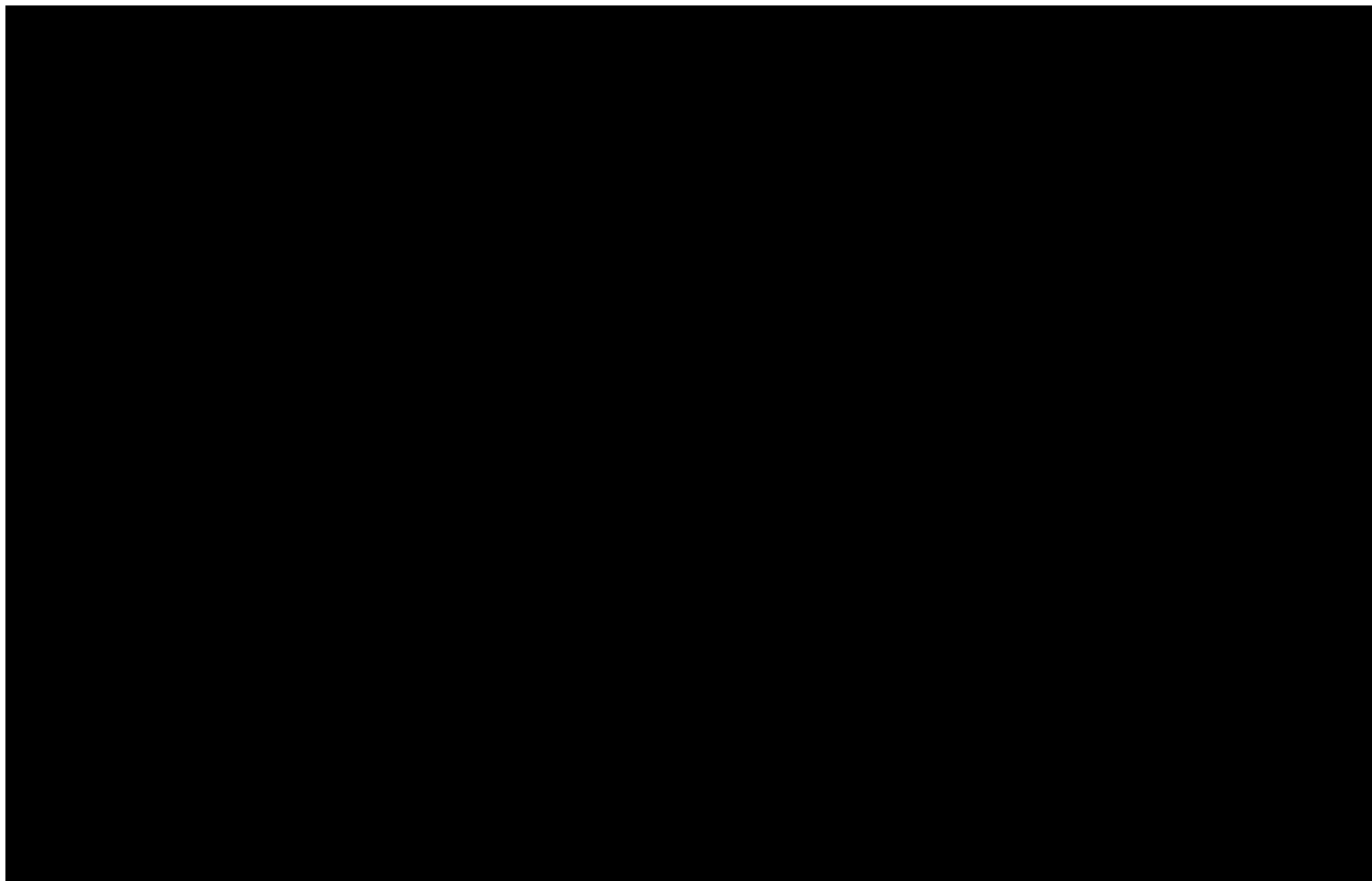


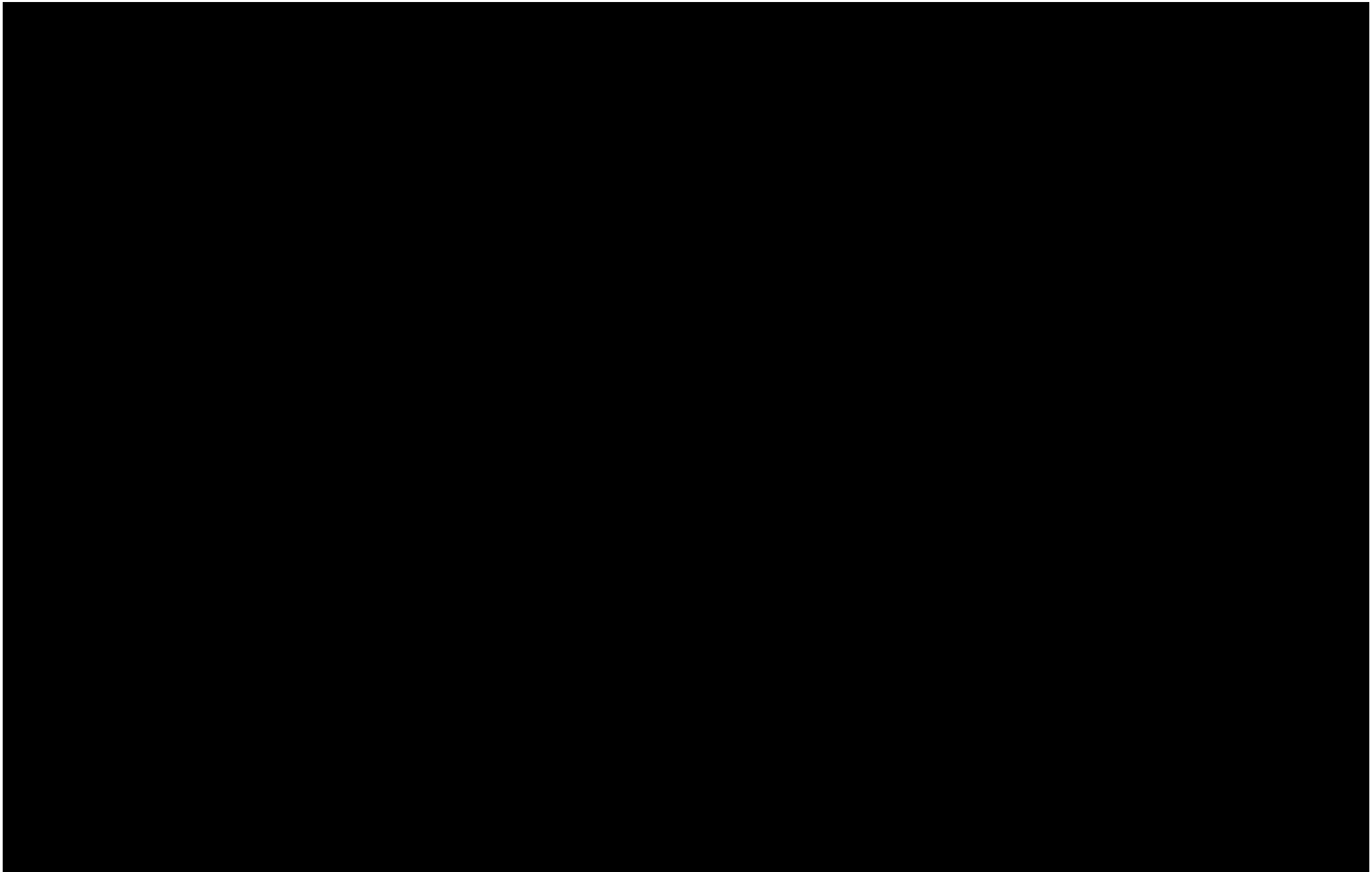


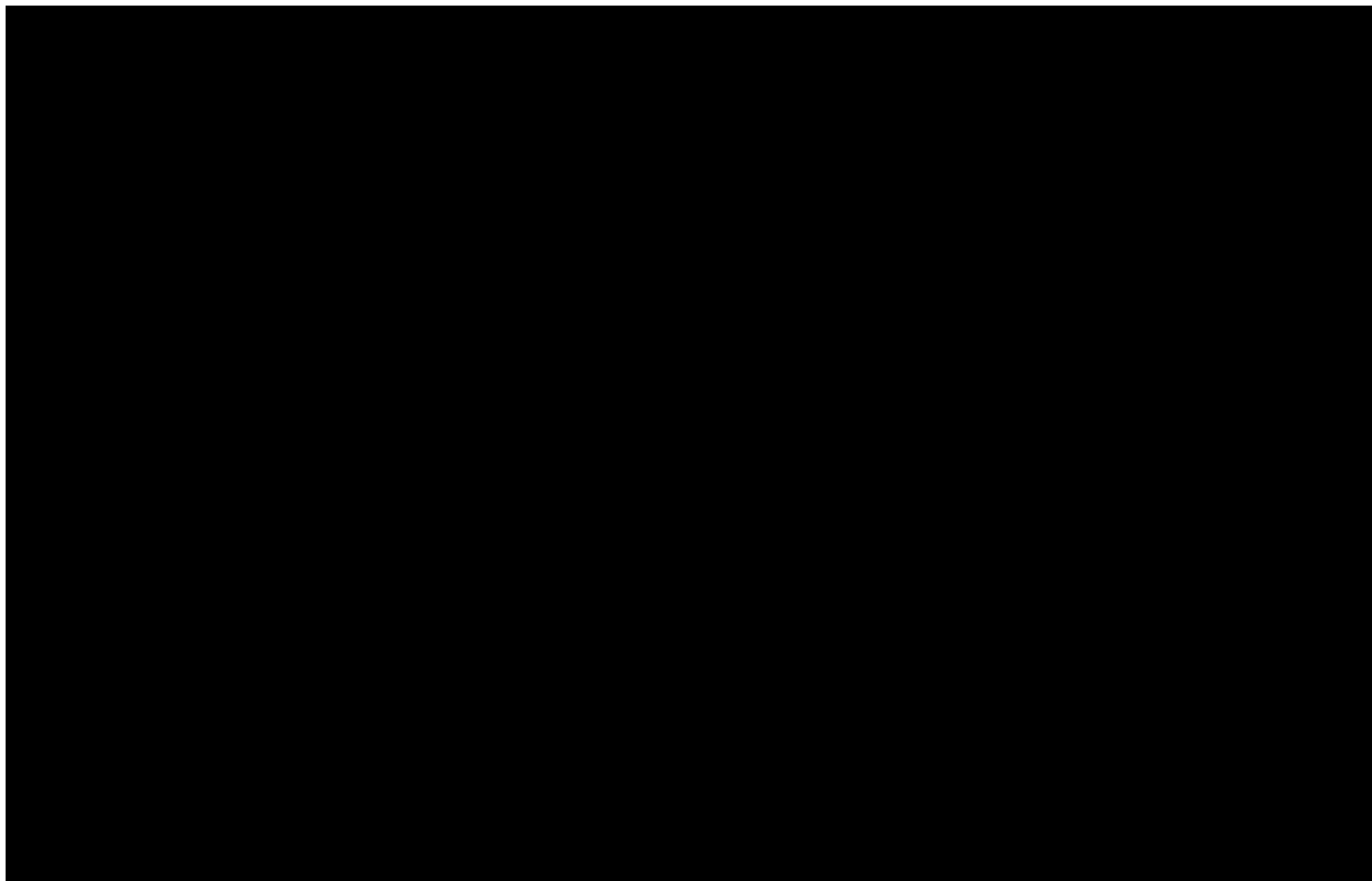




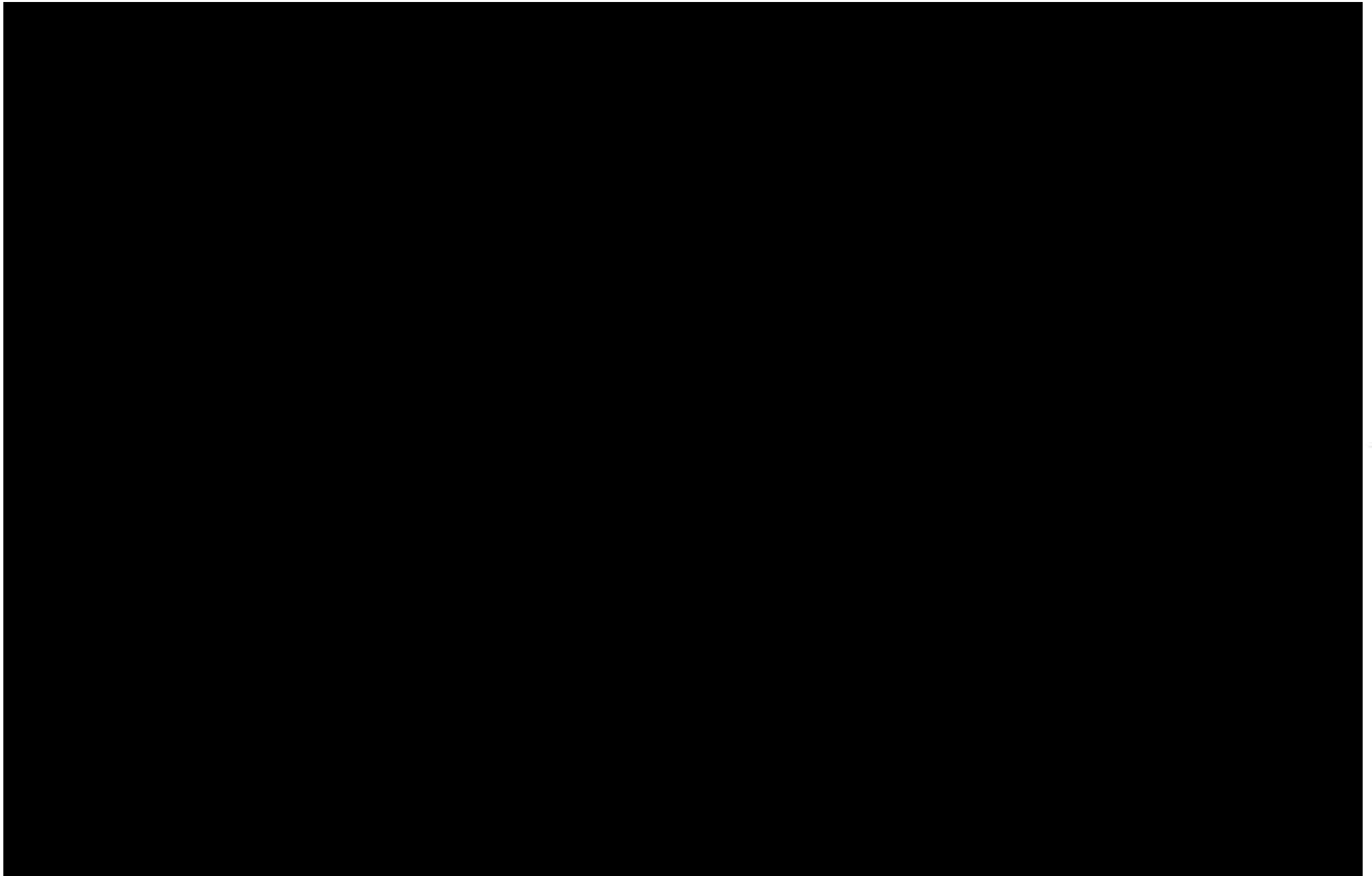


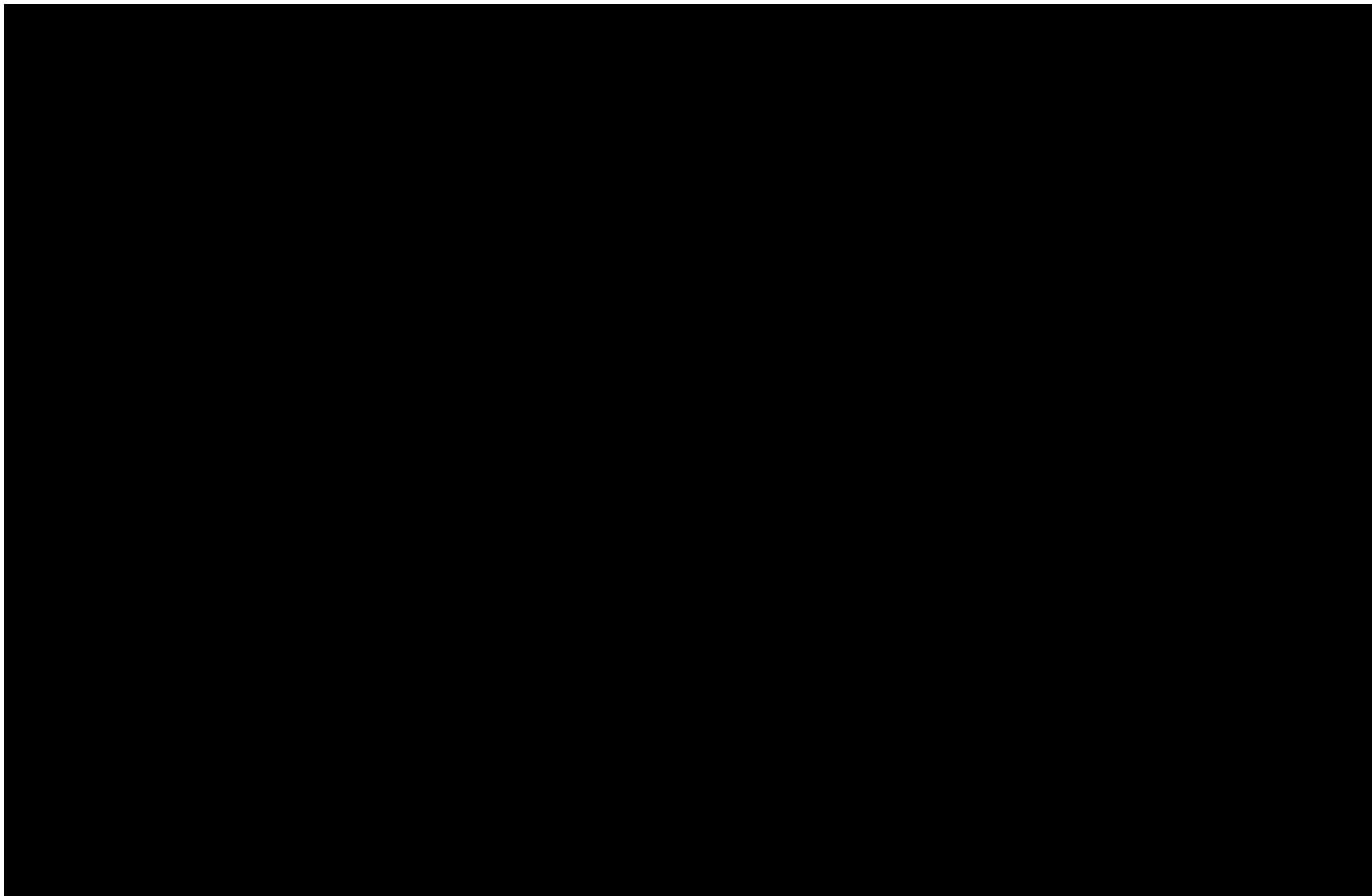


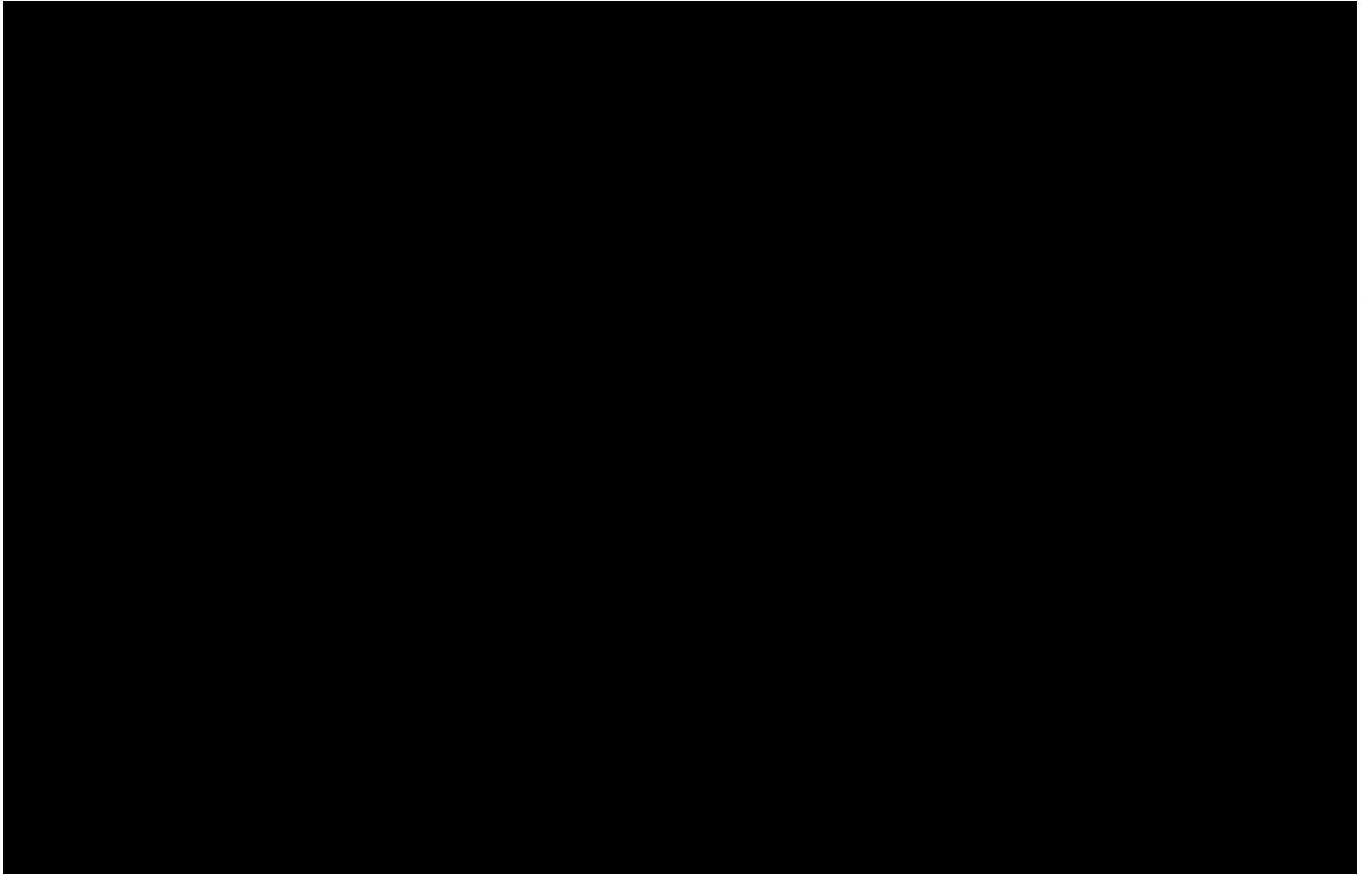


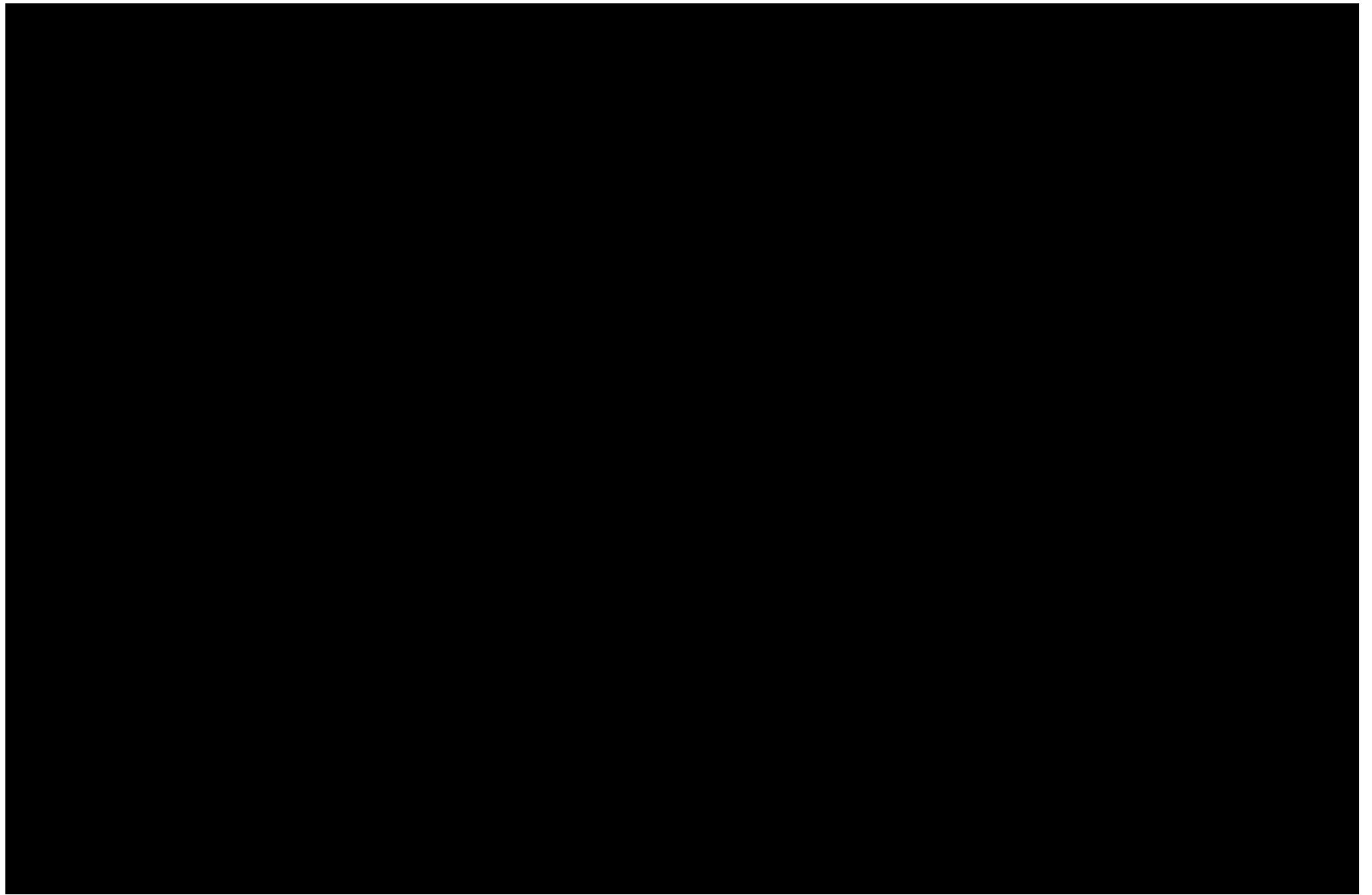


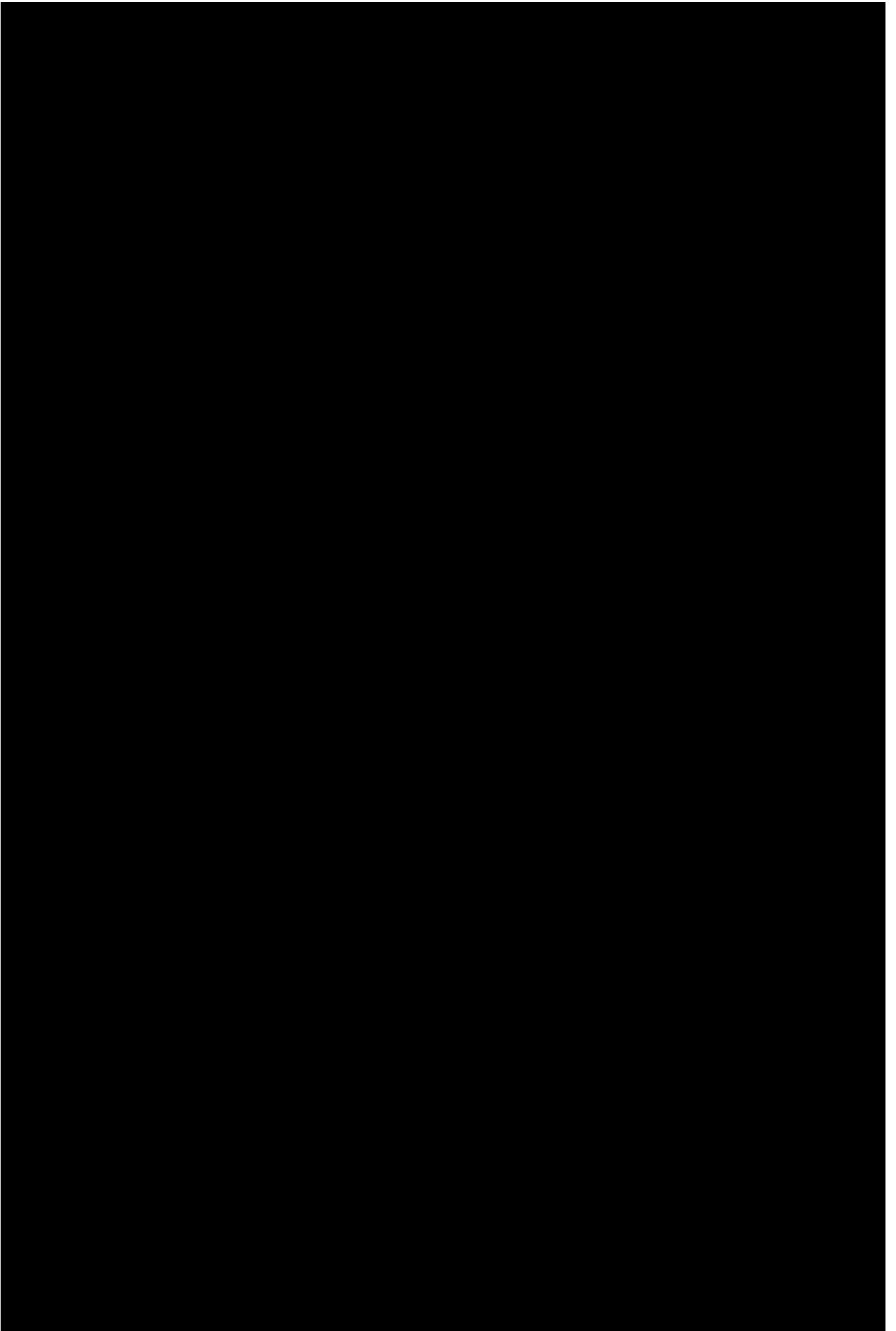


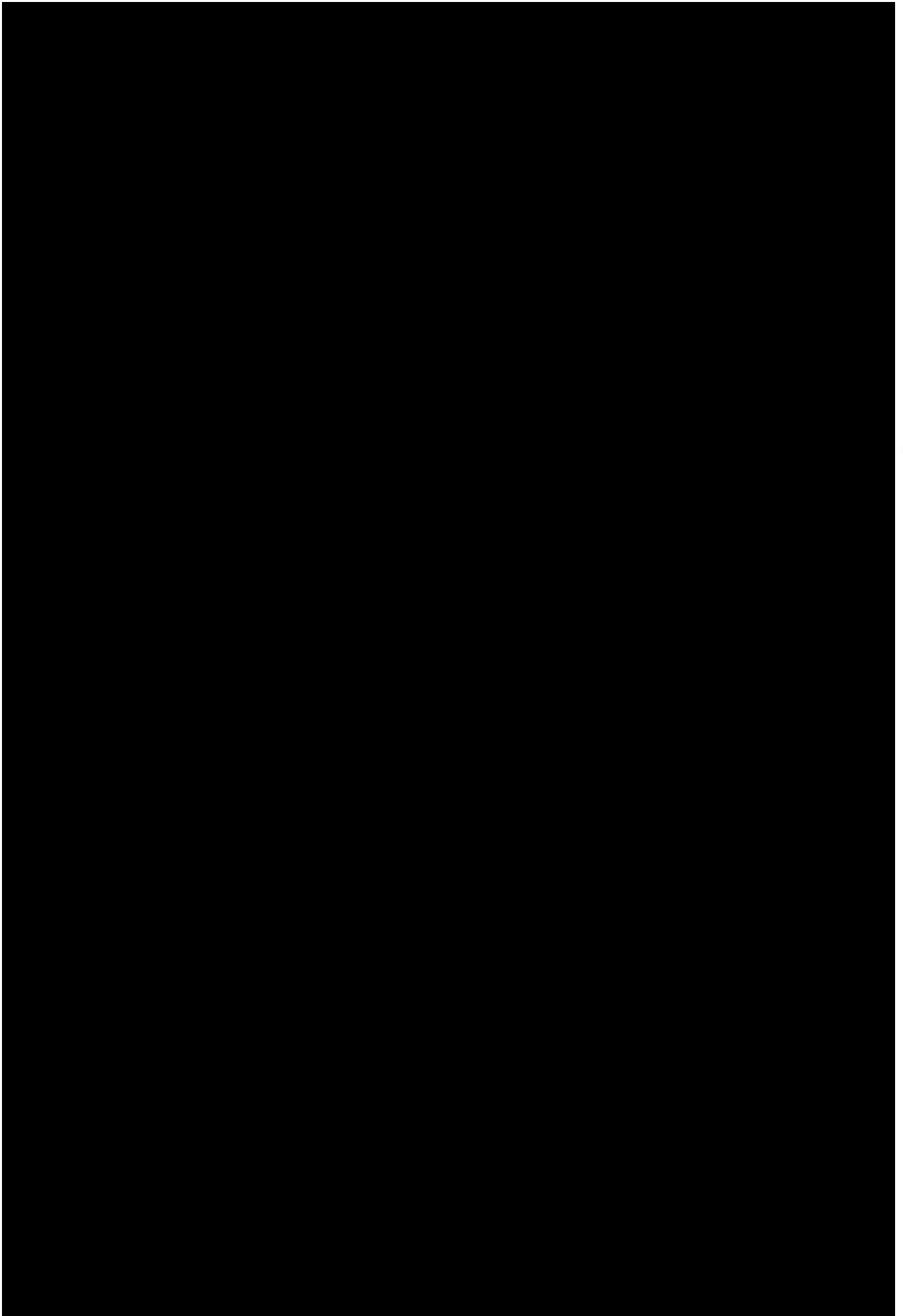


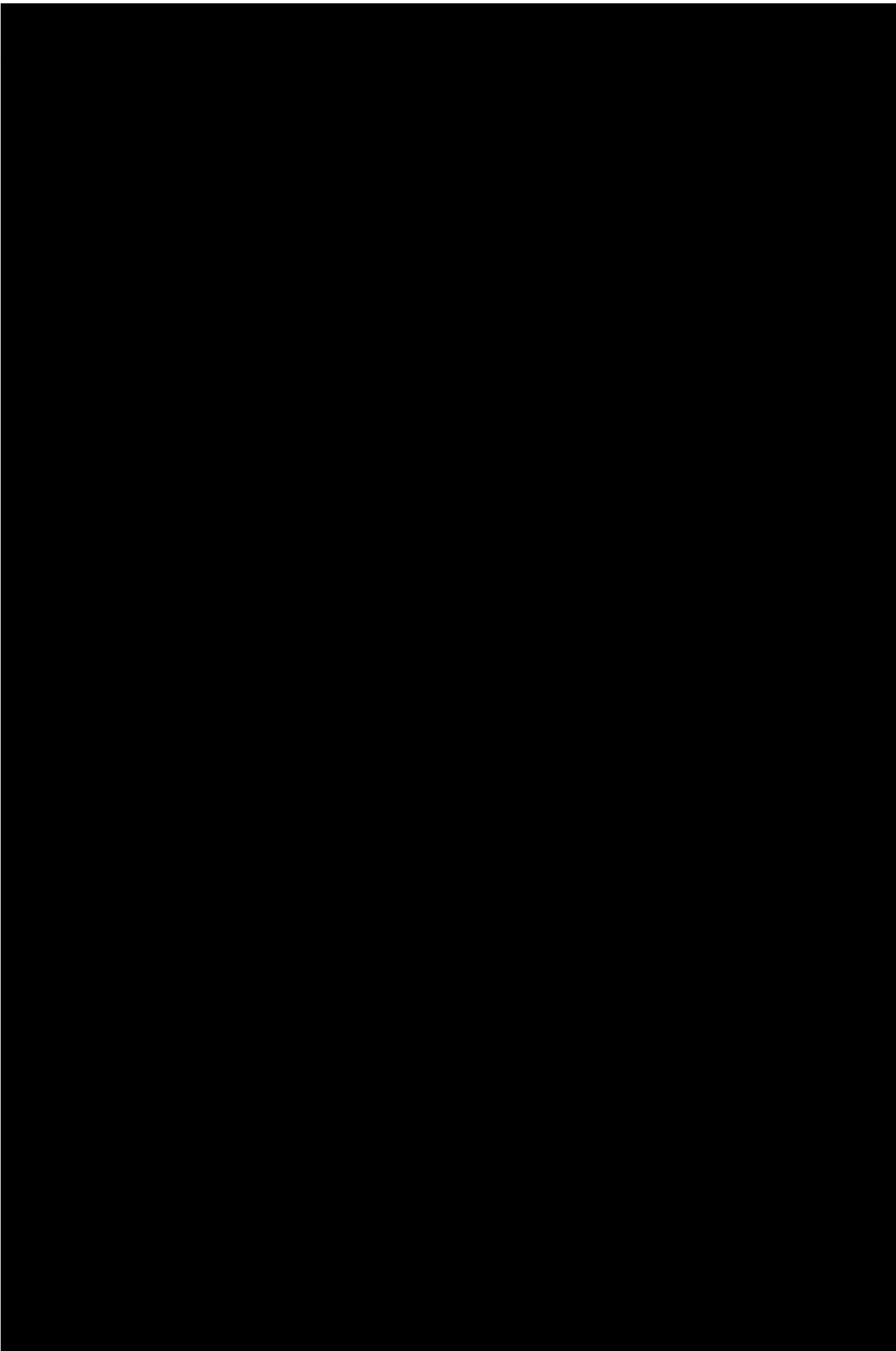


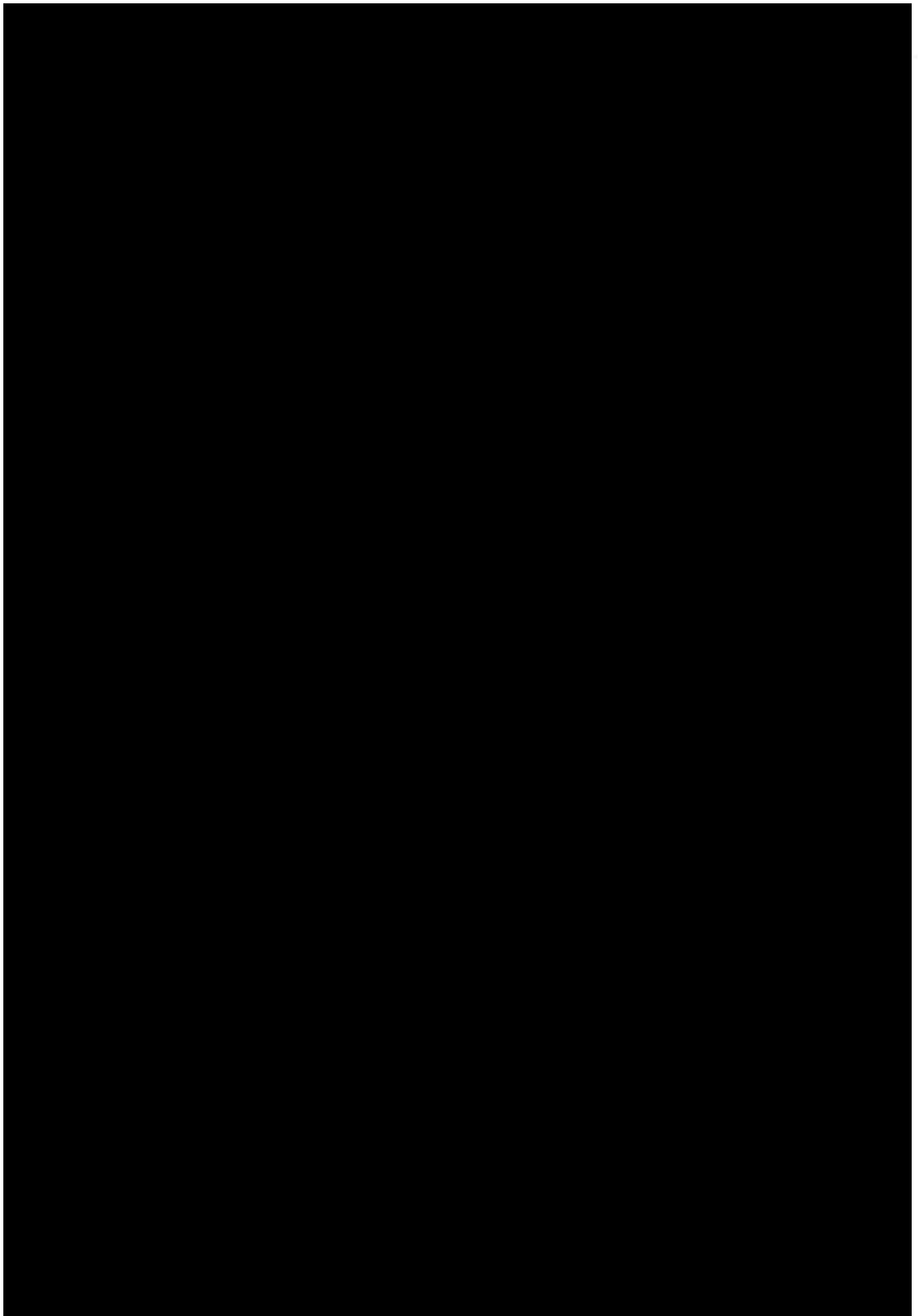




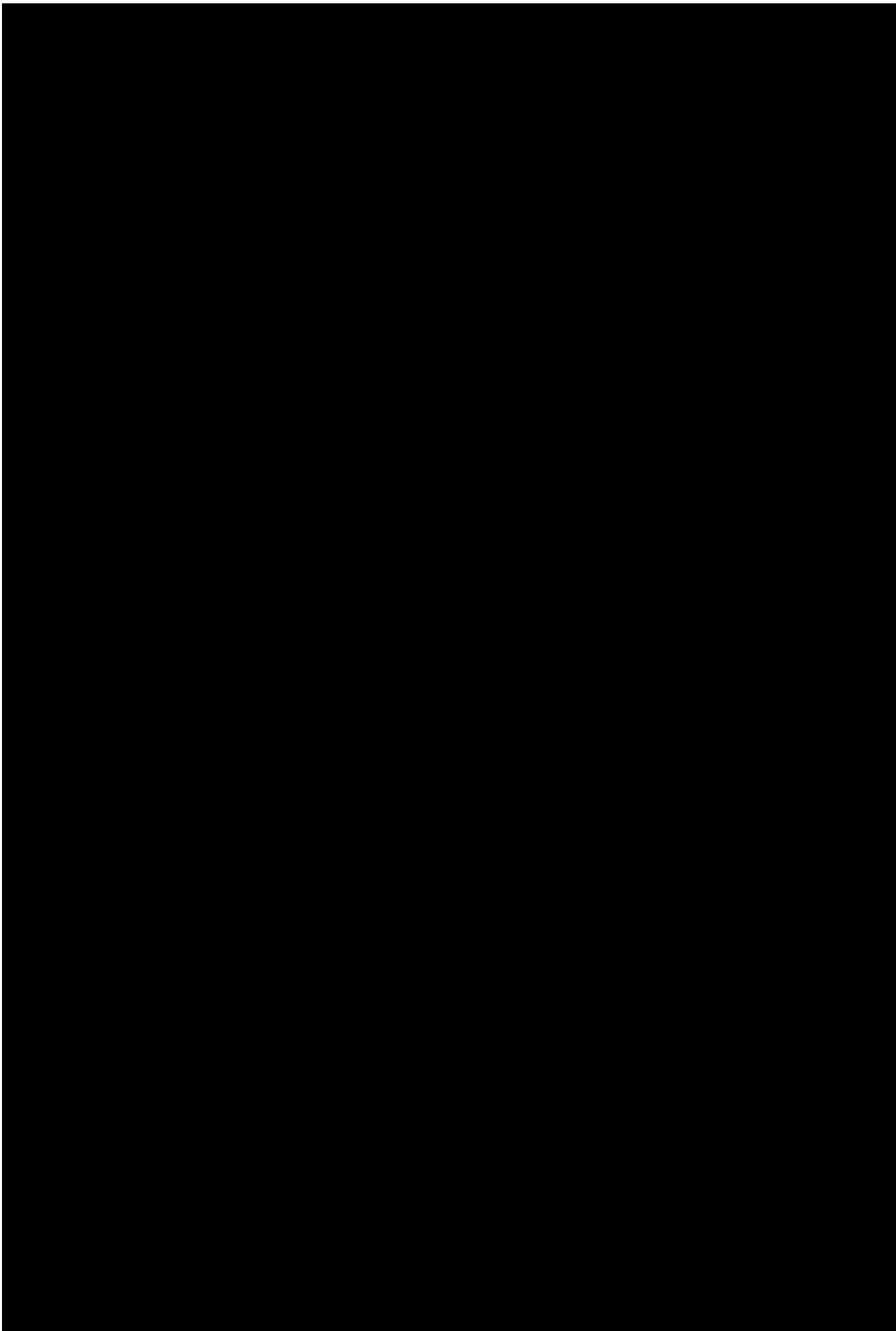






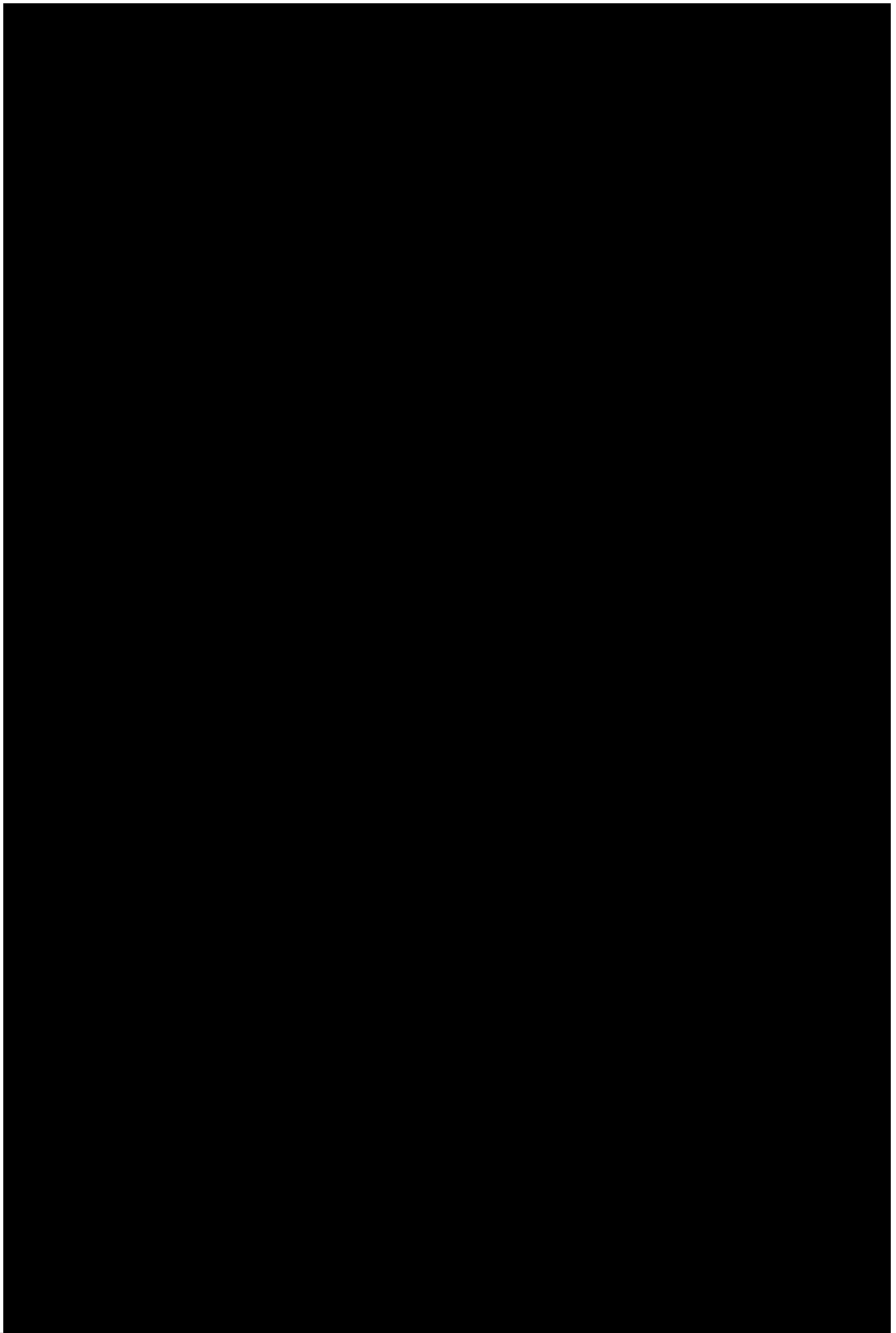


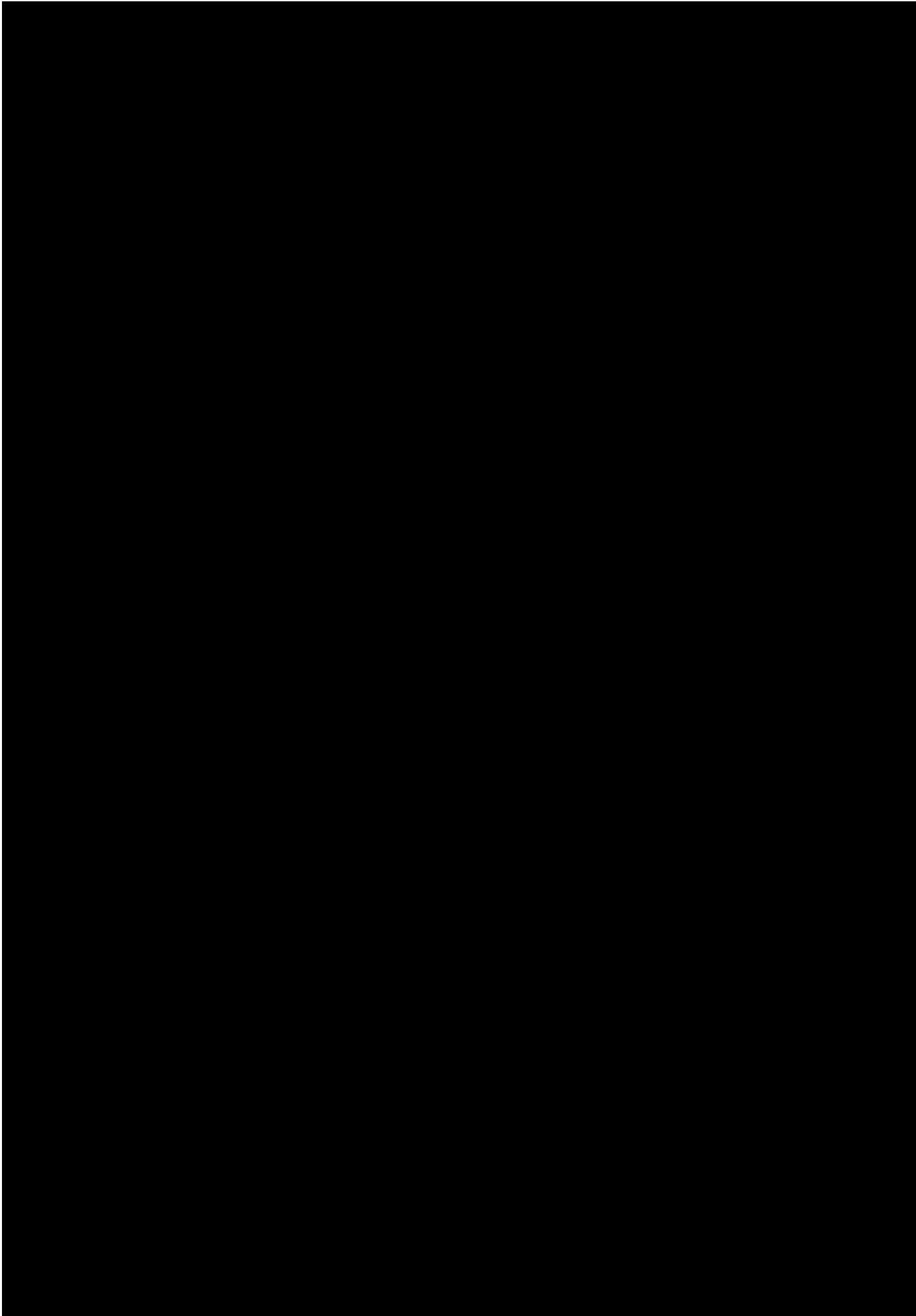


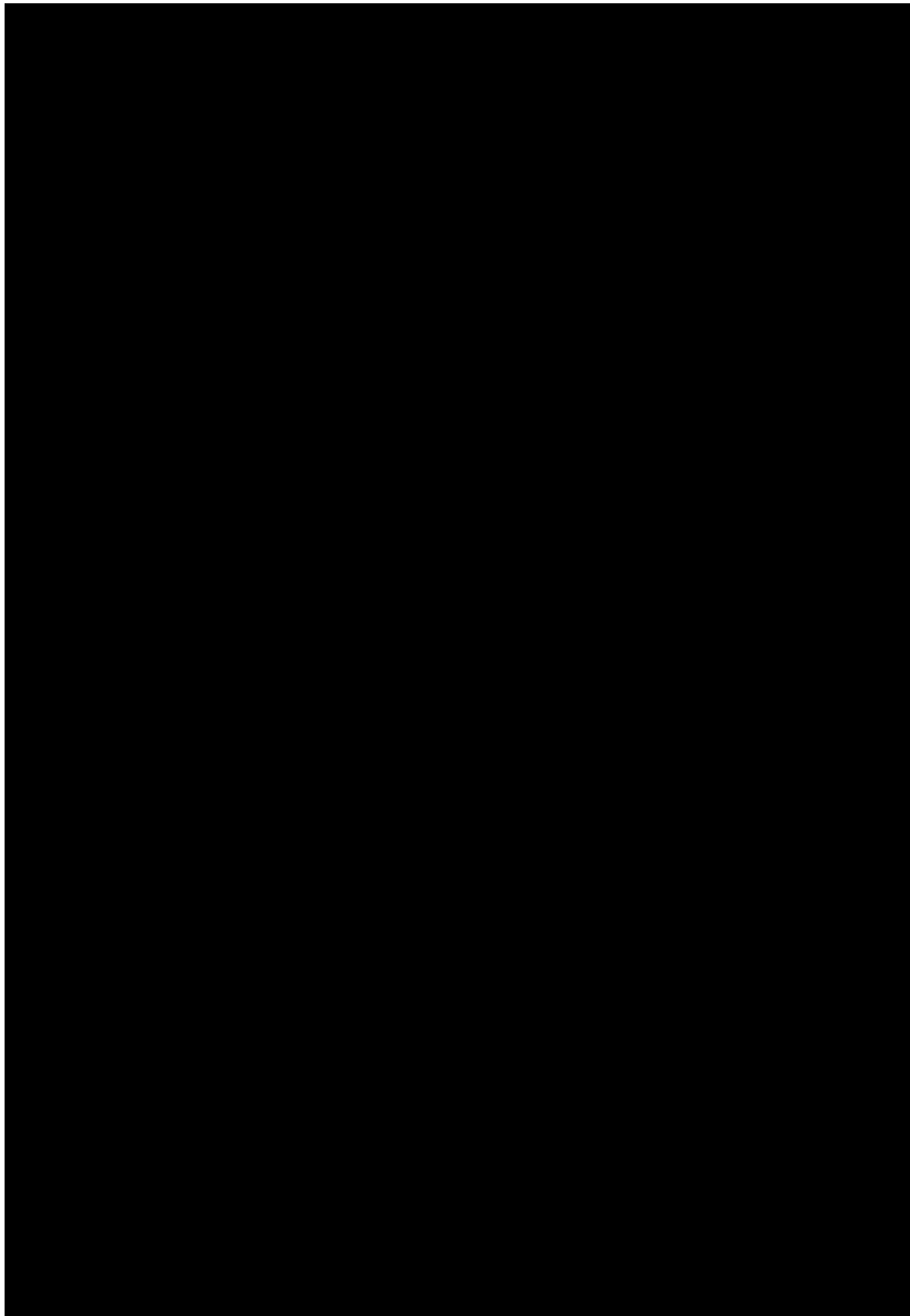


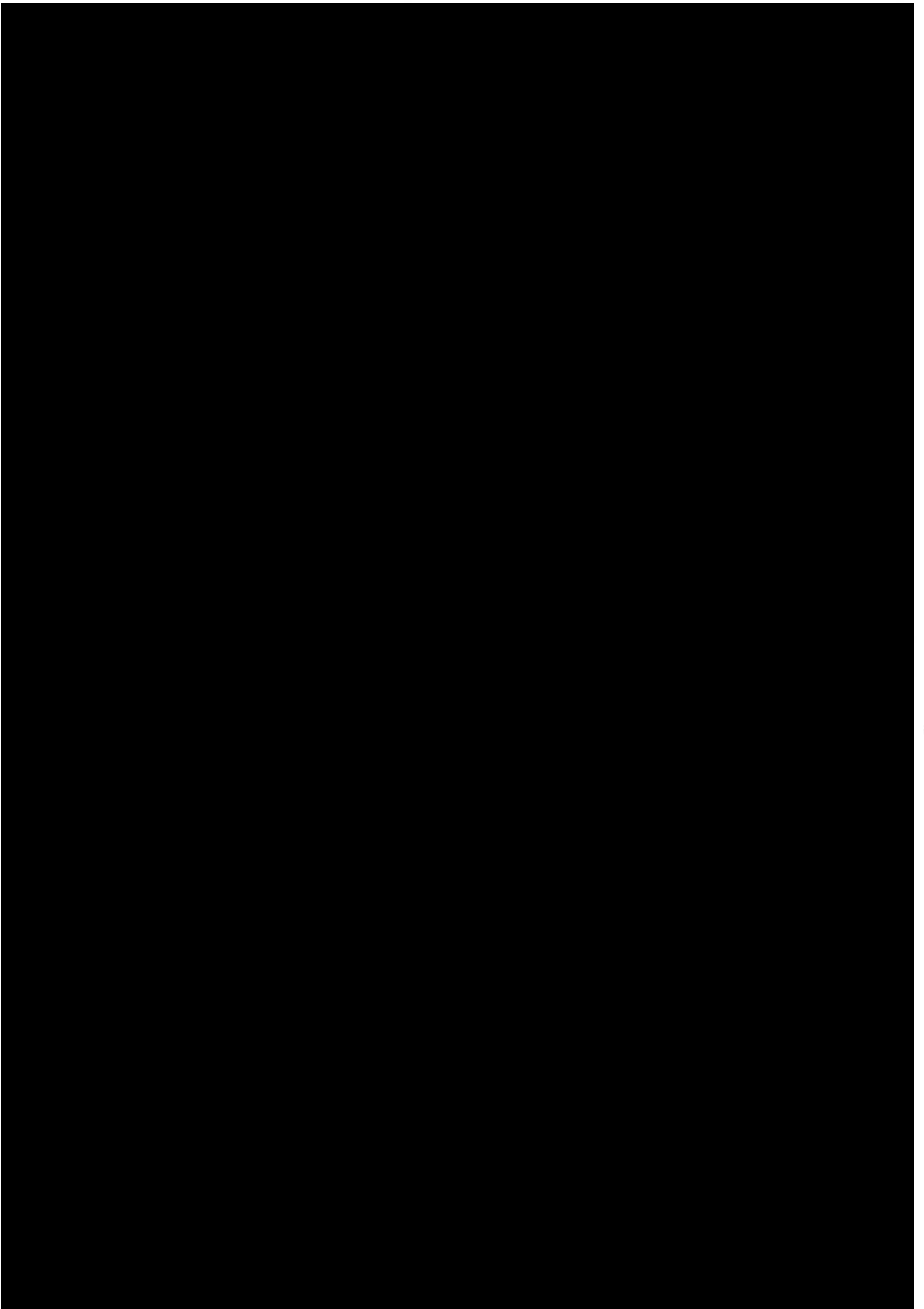
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**SCHEDULE 21**

**New Schedule A31**

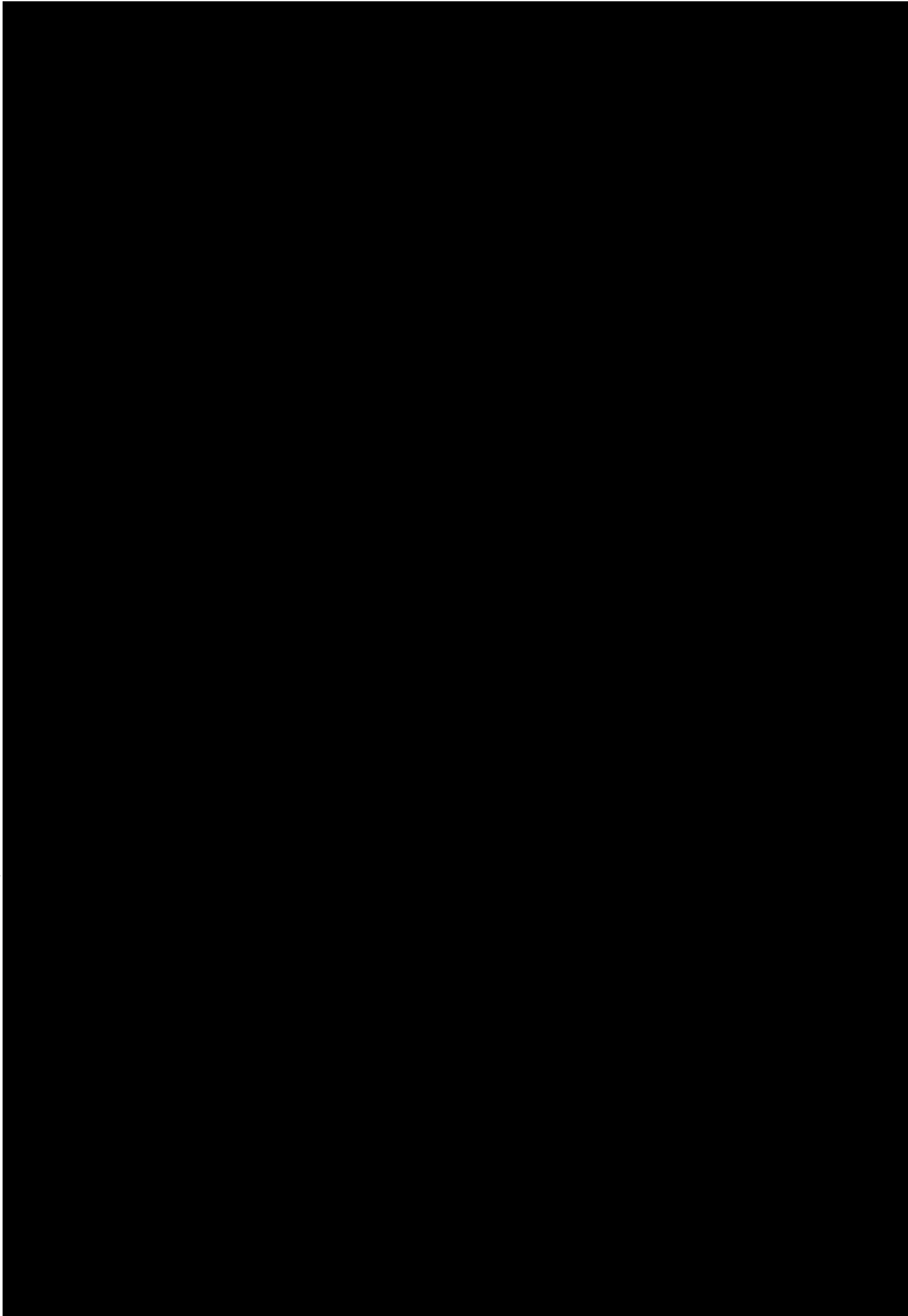
New Schedule A31 is incorporated in the Principal Document as set out in the attached.

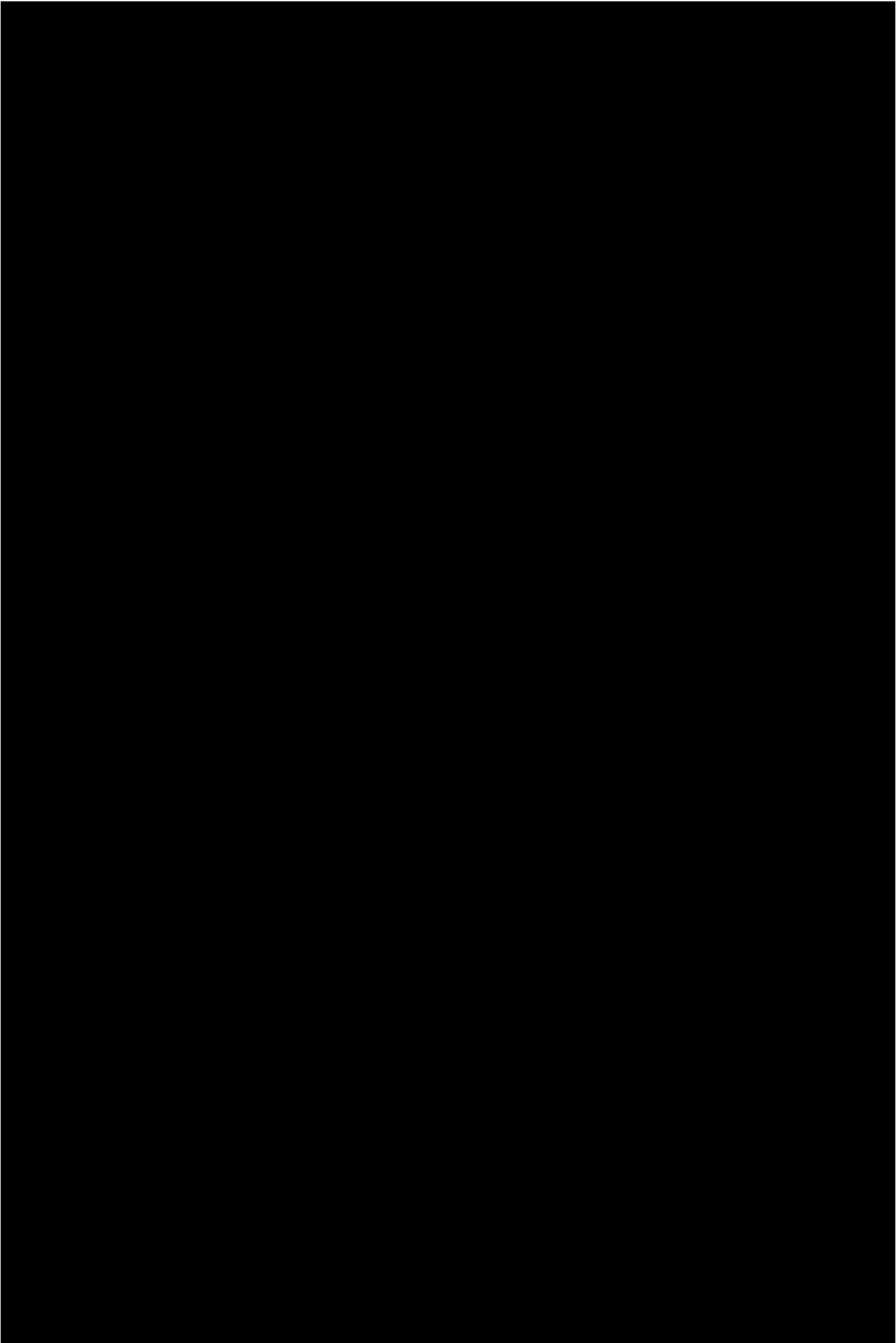
**SCHEDULE A31. – CHANGE ORDER 002**

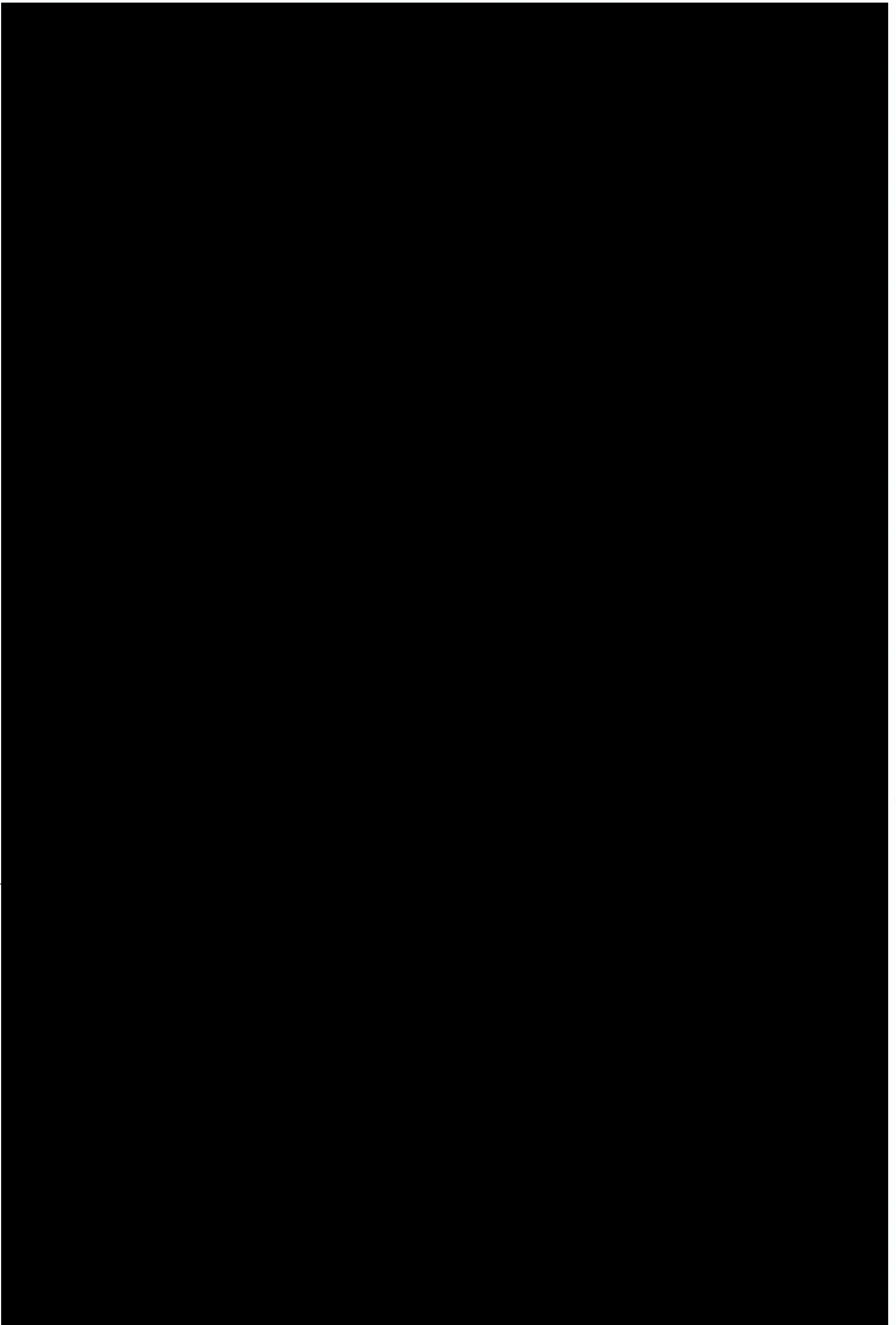
(Clause 1.1)

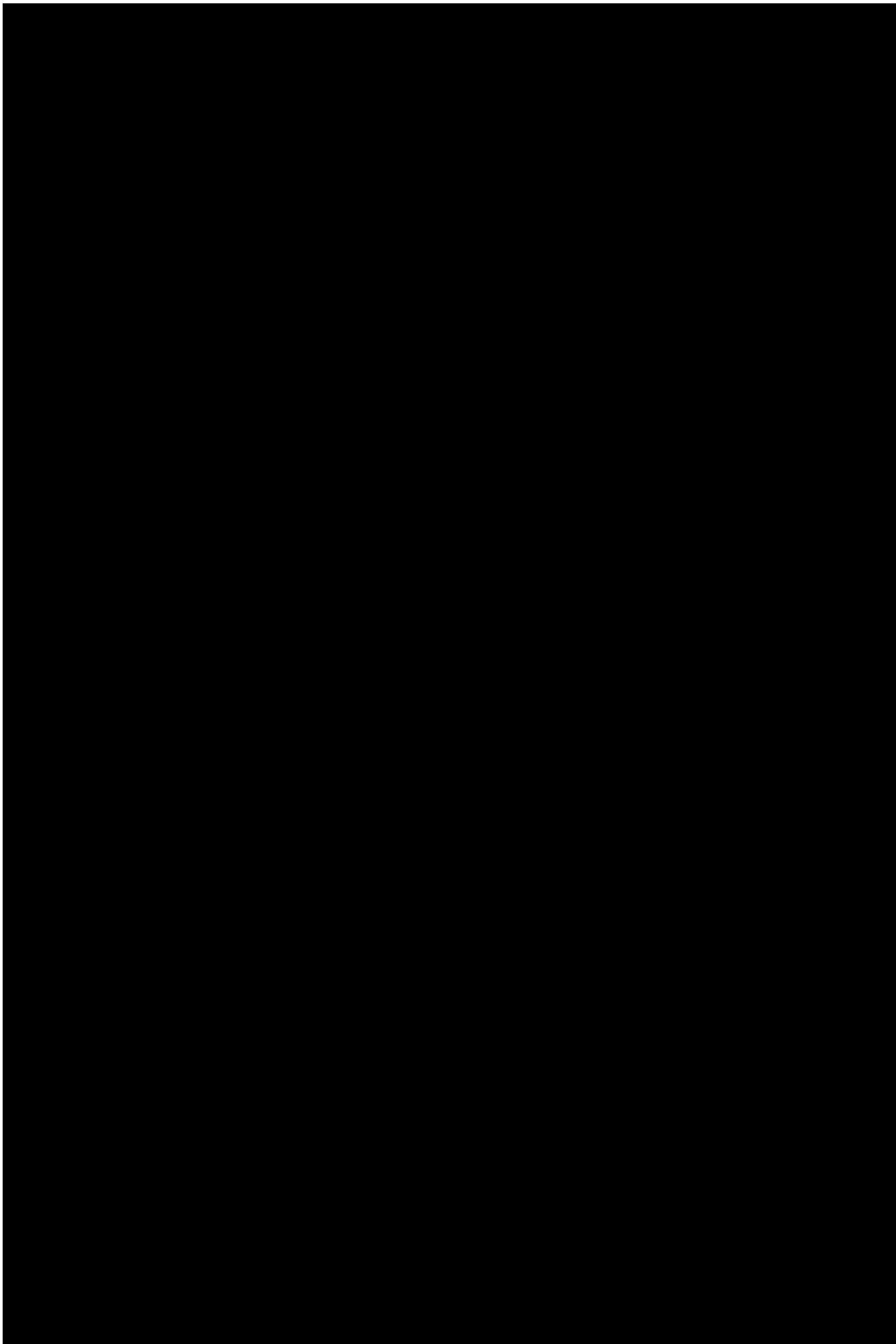


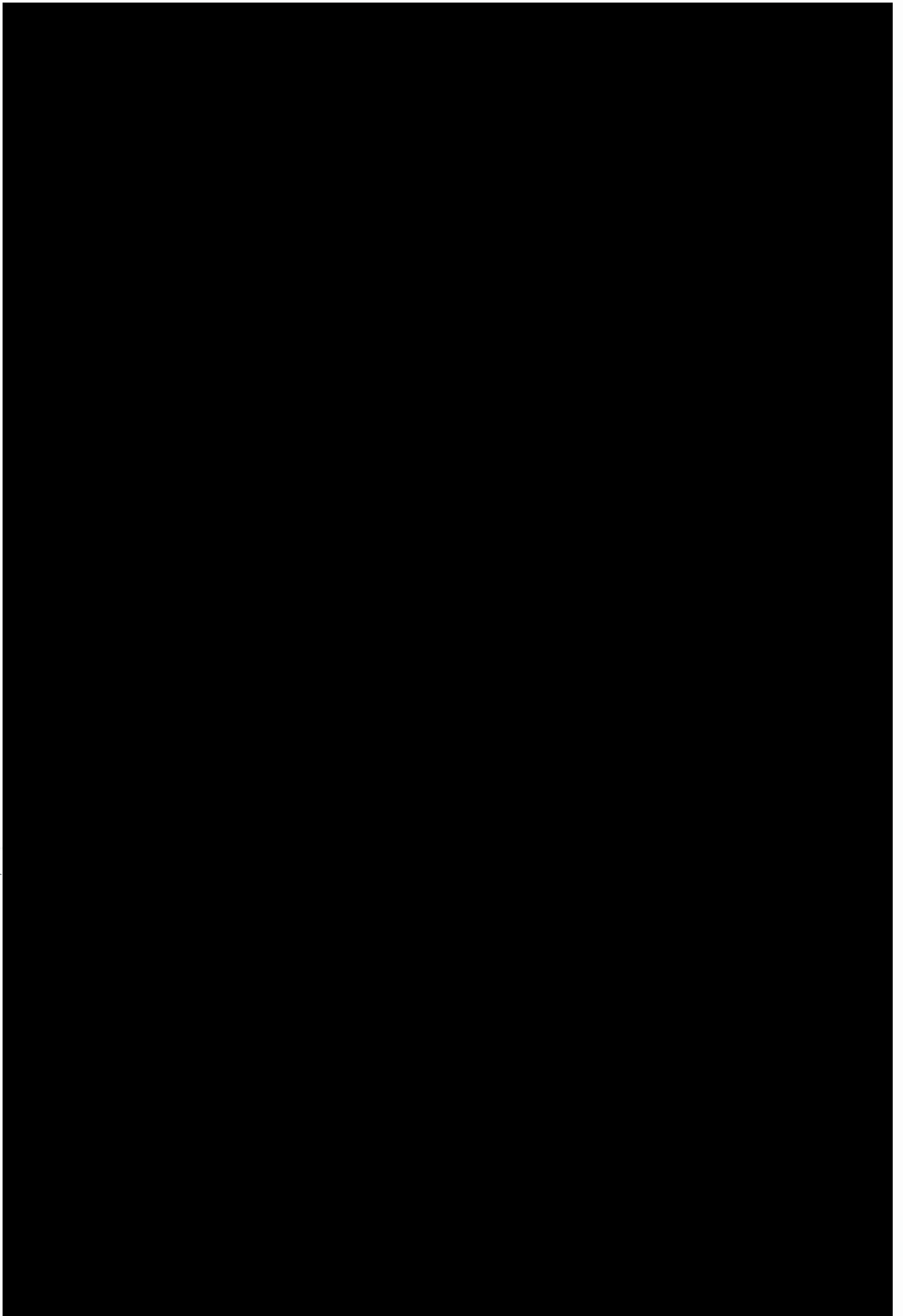


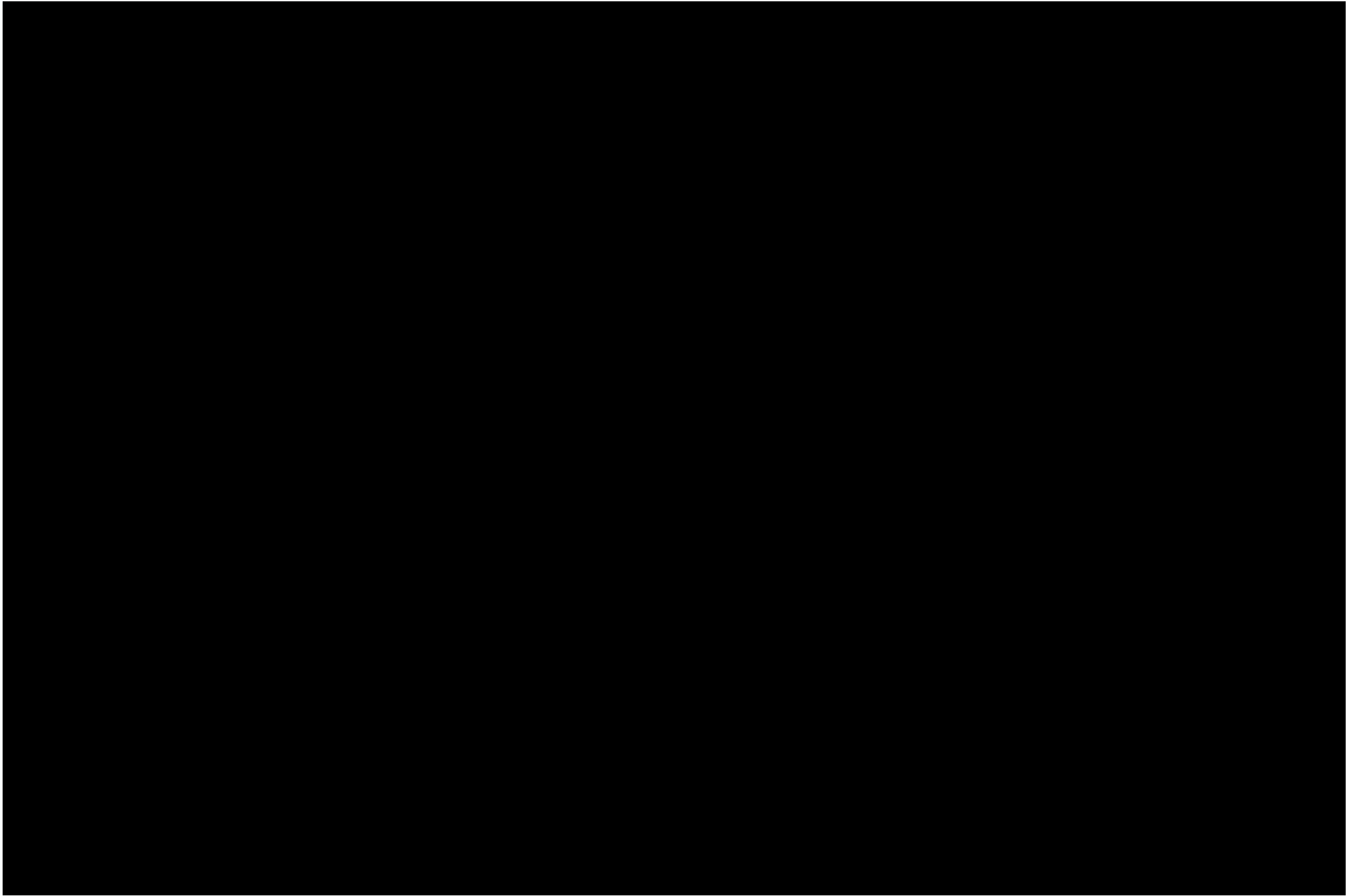


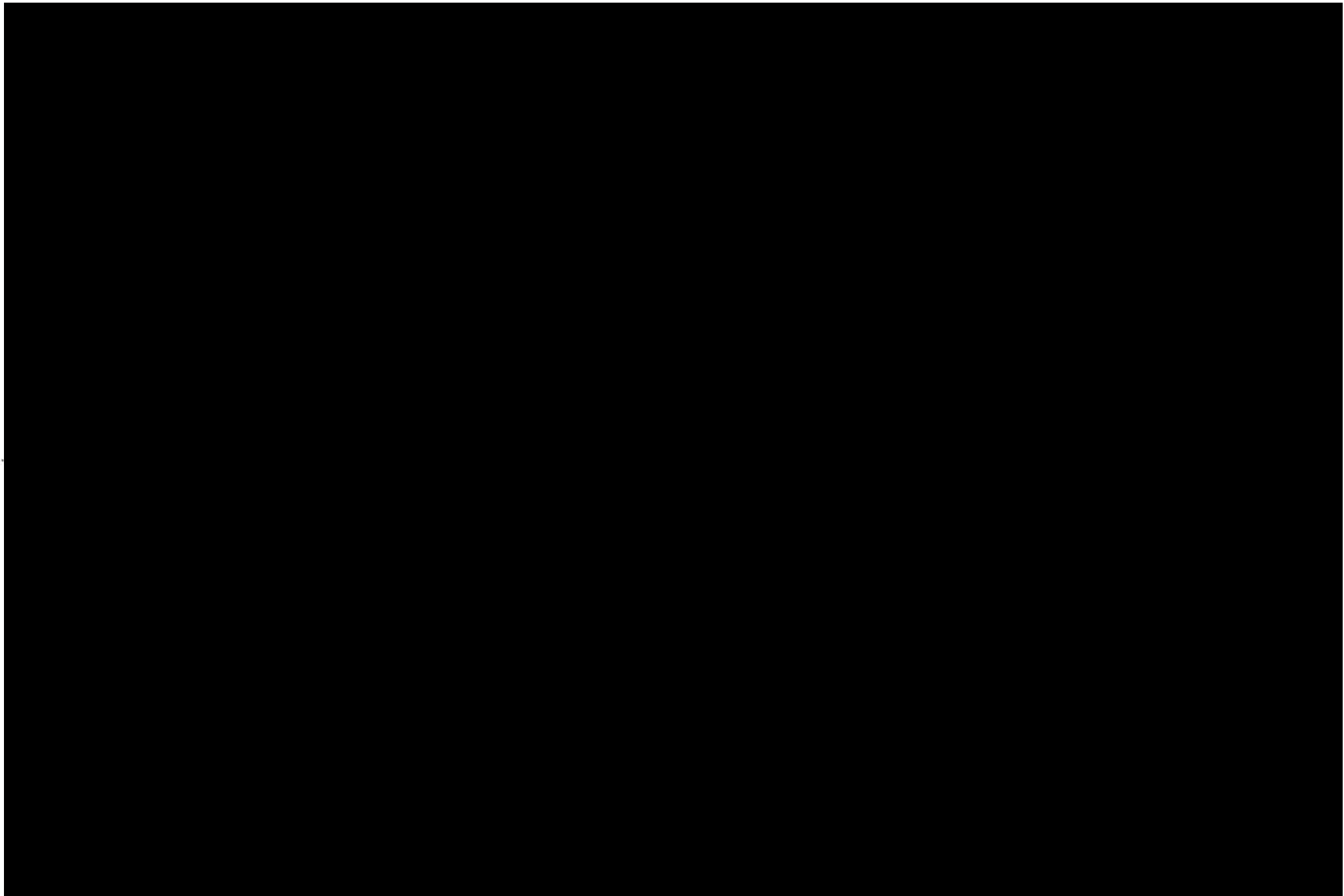


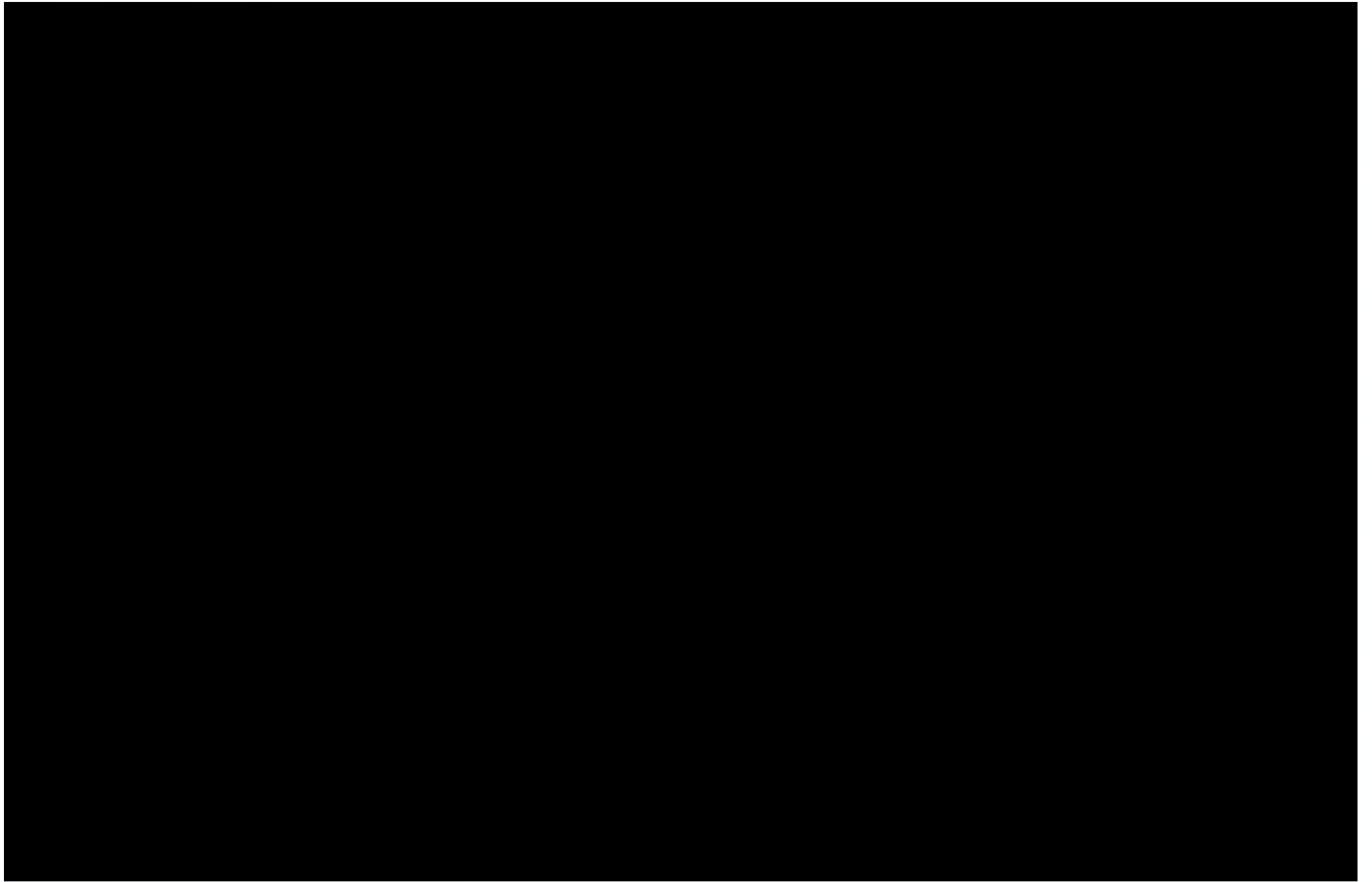




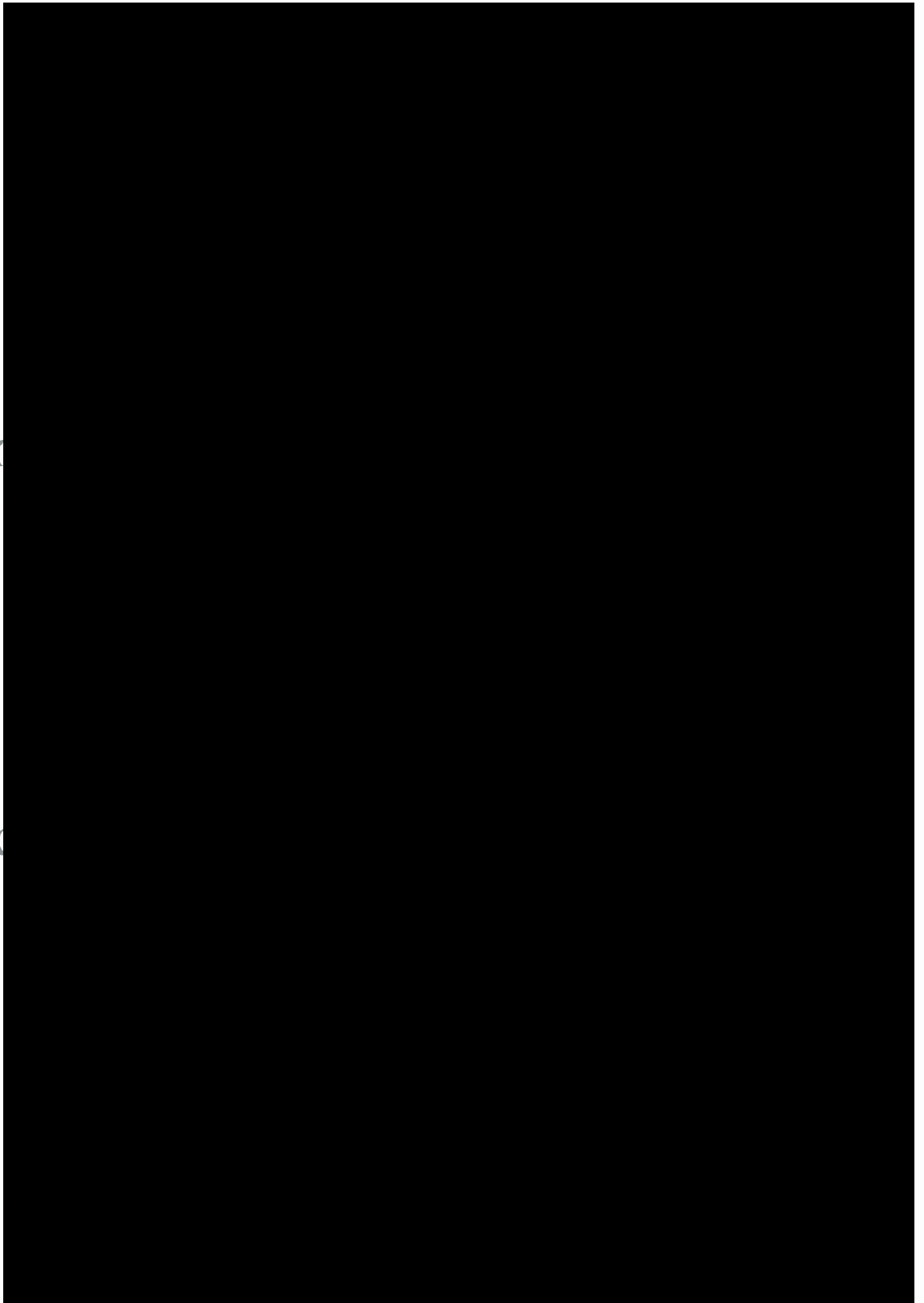












**SCHEDULE 22**

**Amendments to Schedule B4**

Schedule B4 is amended as set out in the attached mark-up.

**SCHEDULE B4. – SSJ CONTRACTOR'S CERTIFICATE - CONSTRUCTION COMPLETION**

(Clauses 1.1 and 17.2(~~de~~))

To: [The Principal's Representative / The Independent Certifier]

From: [ ] (ABN [ ]) (**SSJ Contractor**)

This certificate is given in accordance with the "Sydney Metro City & Southwest Sydenham Station and Junction Works (Incentivised Target Cost Contract)" (Contract No:[#]) dated [ ] (**SSJ Contract**). Words defined in the SSJ Contract have the same meaning in this certificate.

In accordance with the terms of clauses 1.1 and 17.2(~~de~~) of the SSJ Contract, we hereby certify that Construction Completion of Portion [ ] has been achieved by the SSJ Contractor on [ ] in accordance with the terms of the SSJ Contract.

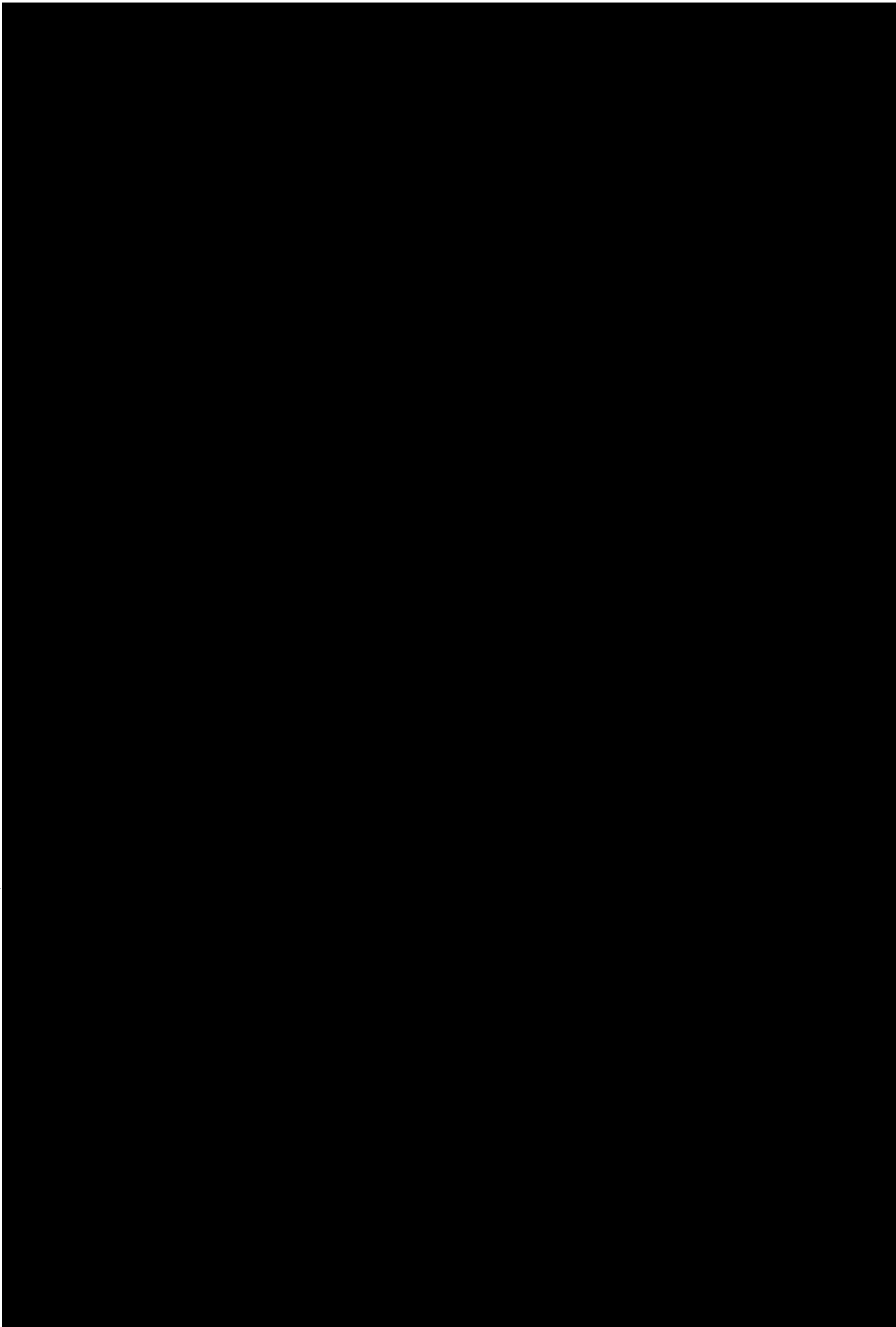
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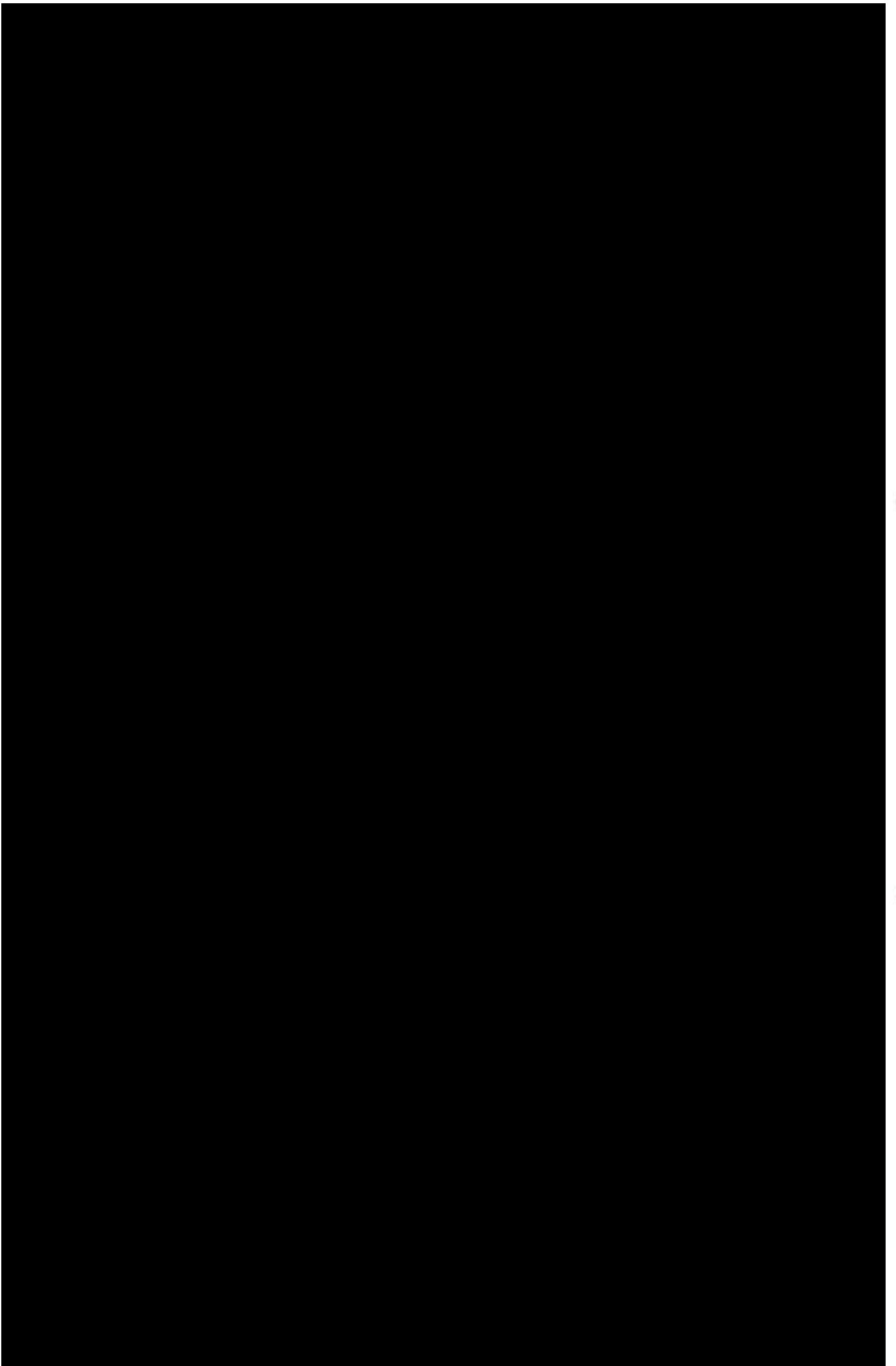
Signed for and on behalf of  
[insert name of the SSJ Contractor]

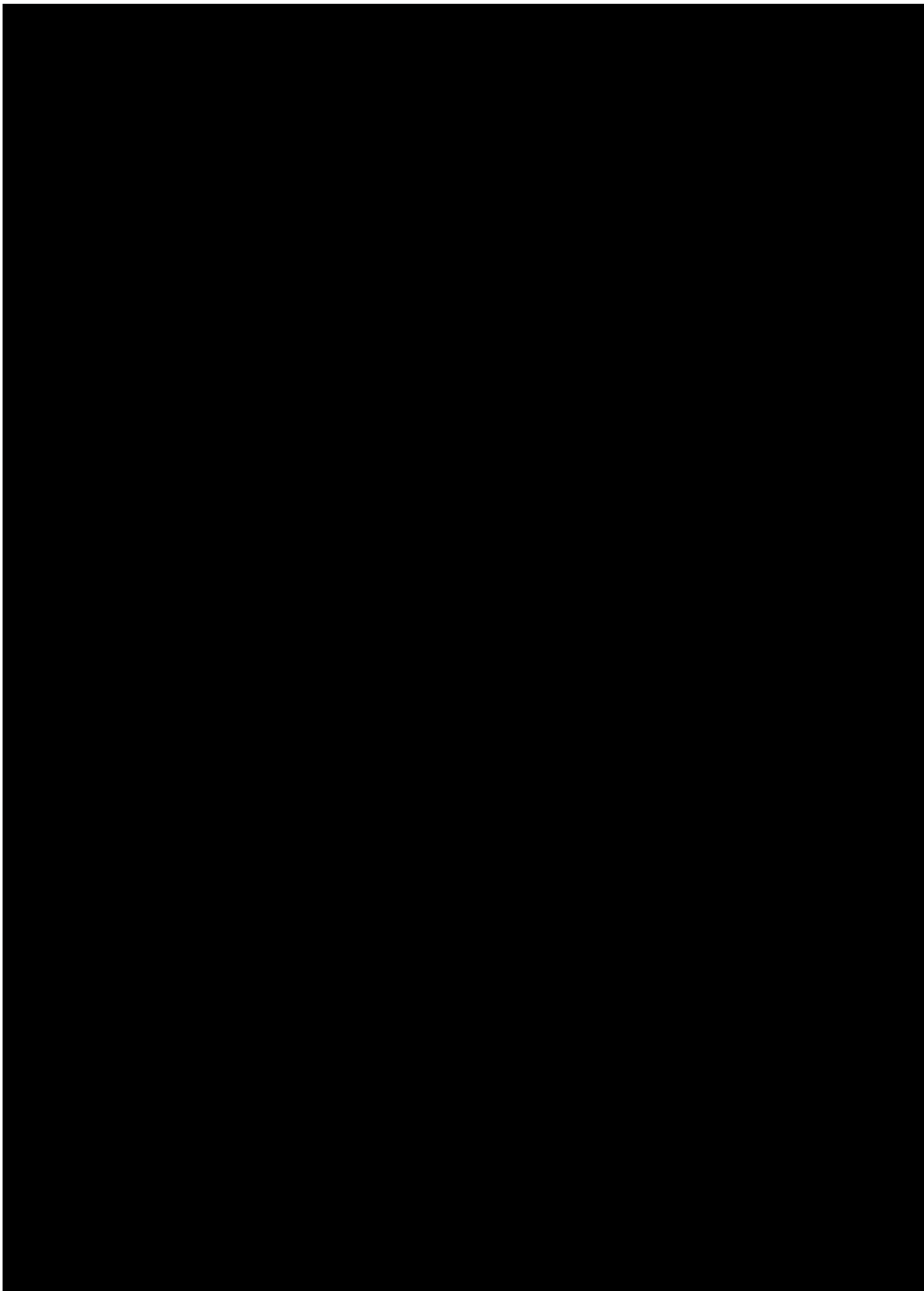
**SCHEDULE 23**

**Amendments to Schedule B8**

Schedule B8 is amended as set out in the attached mark-up.

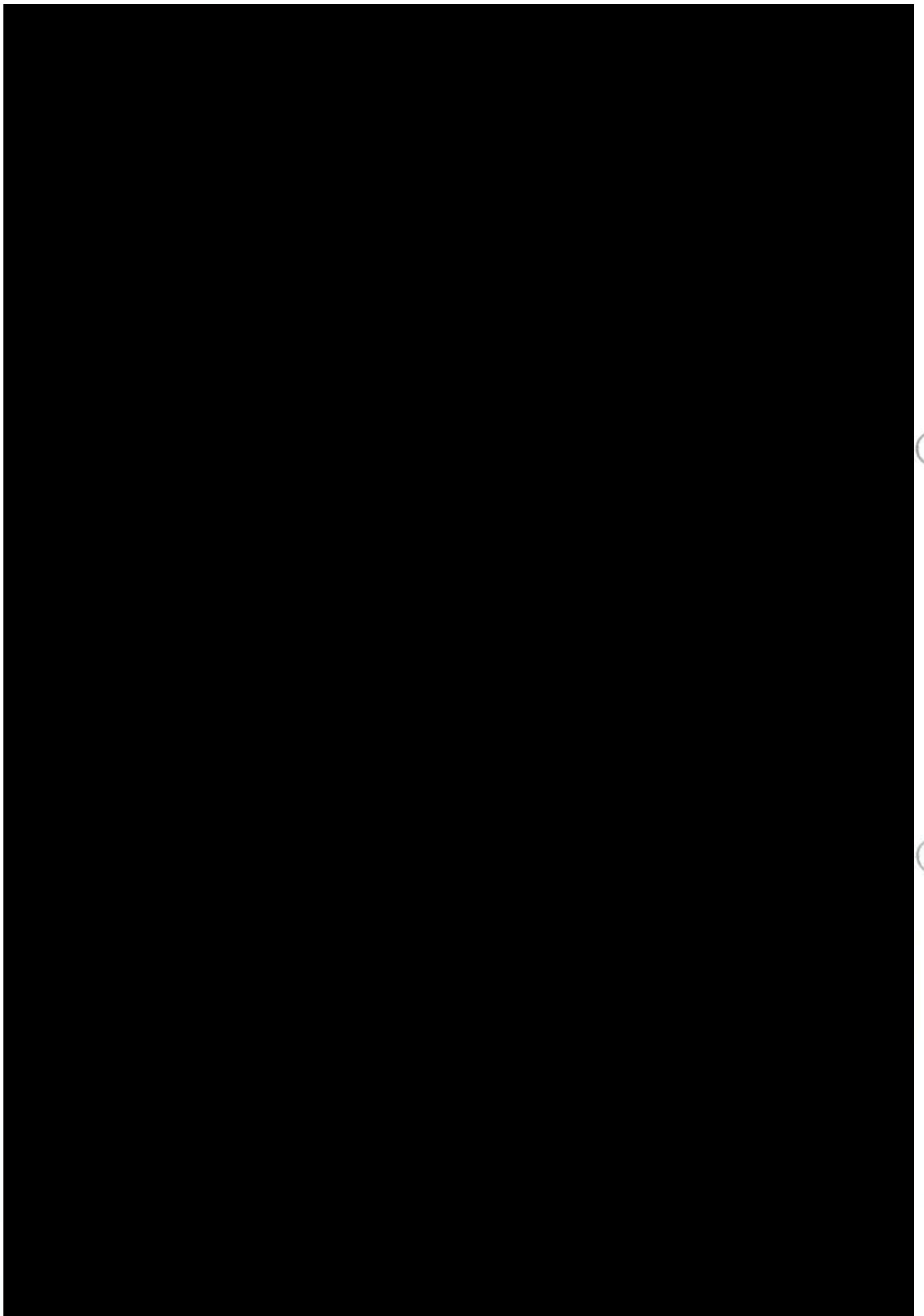




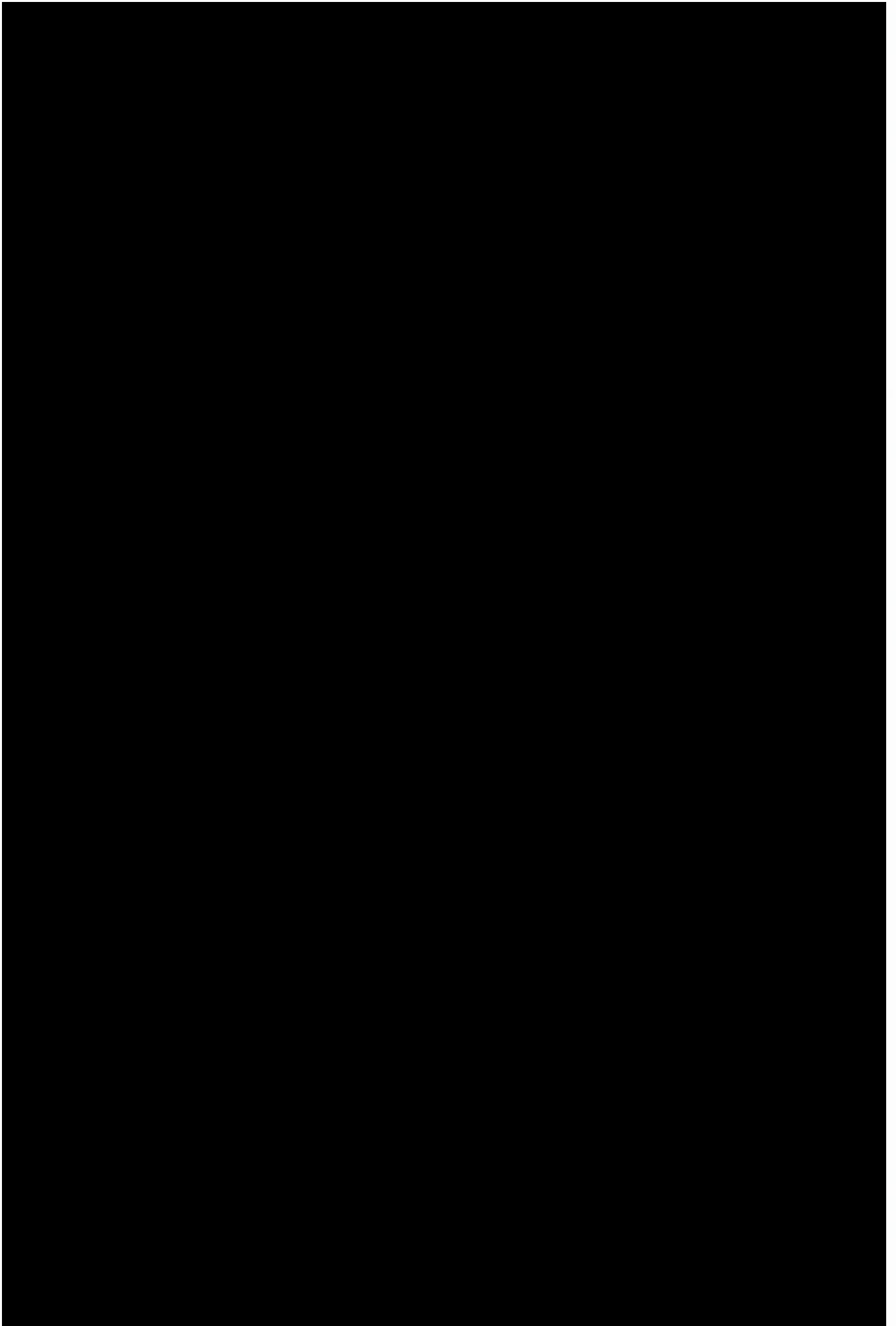


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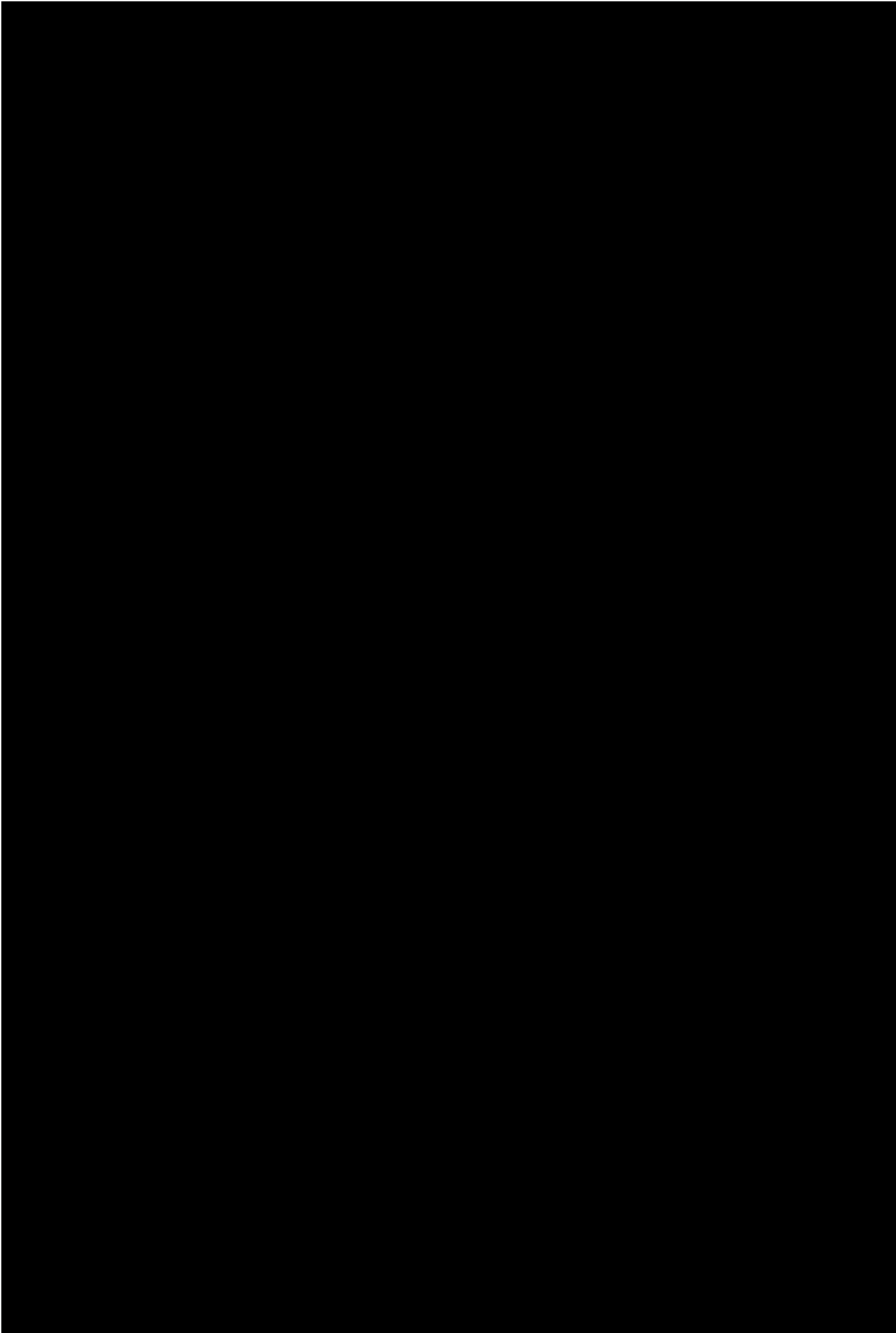






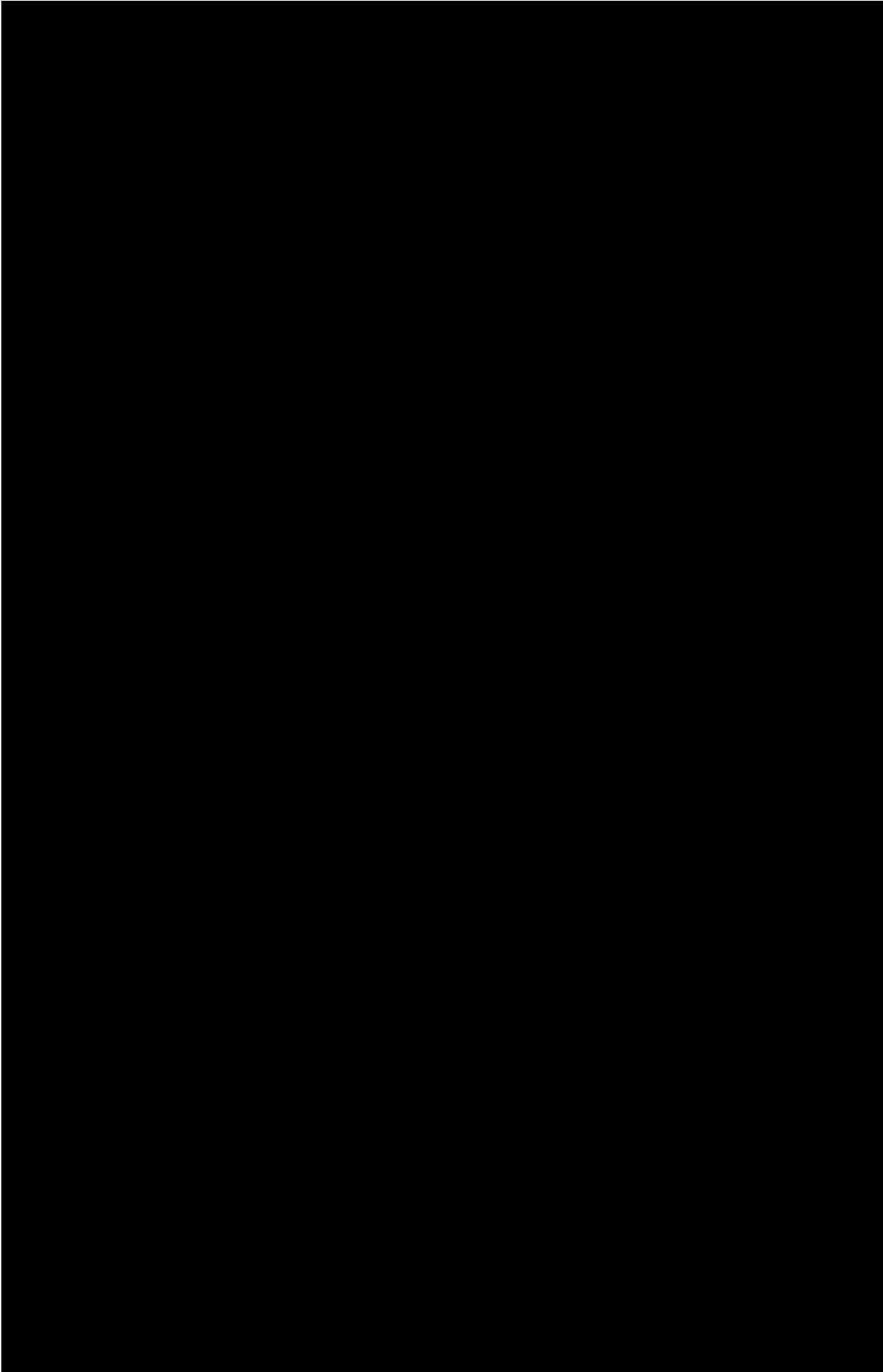
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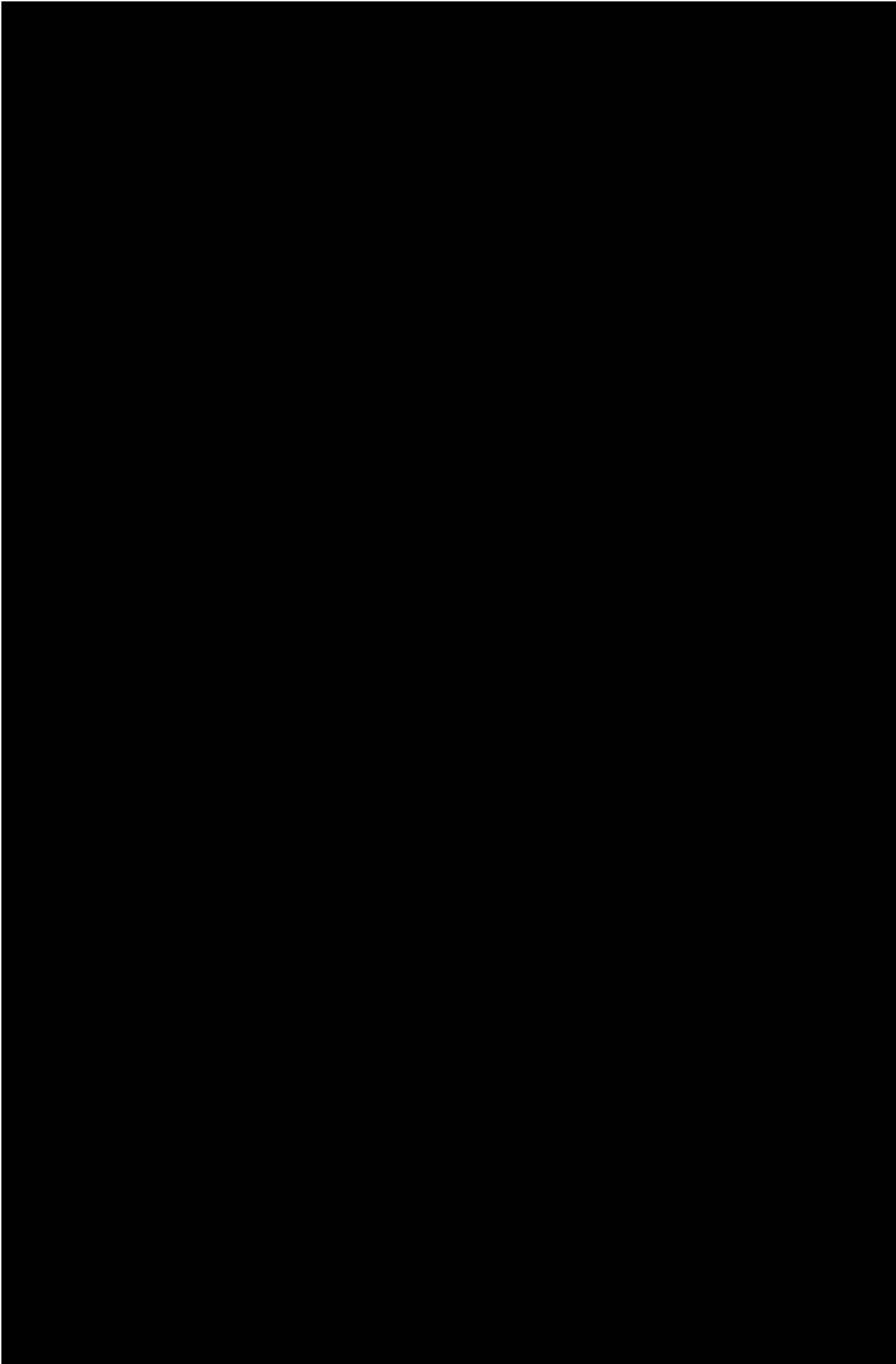
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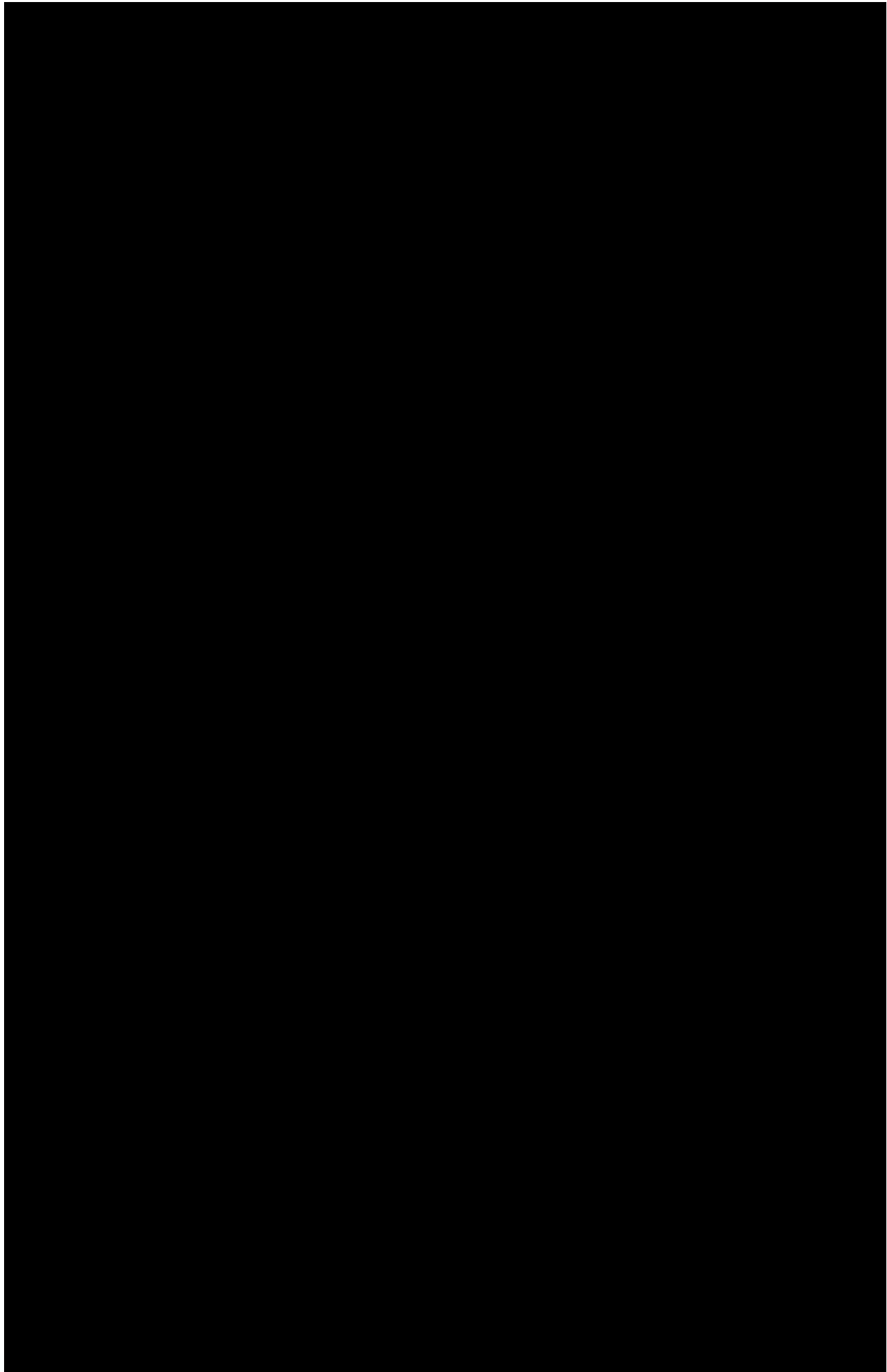
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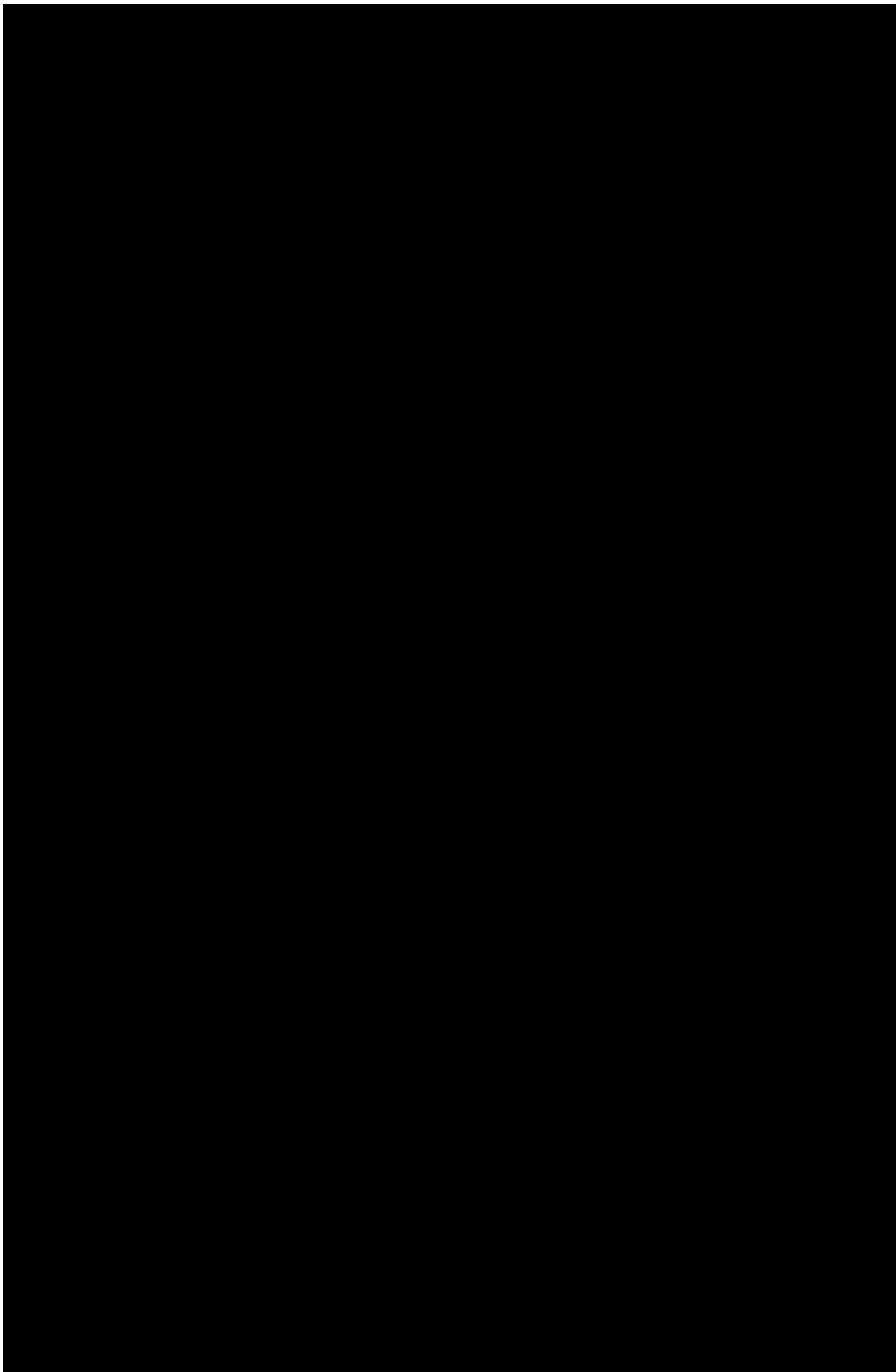




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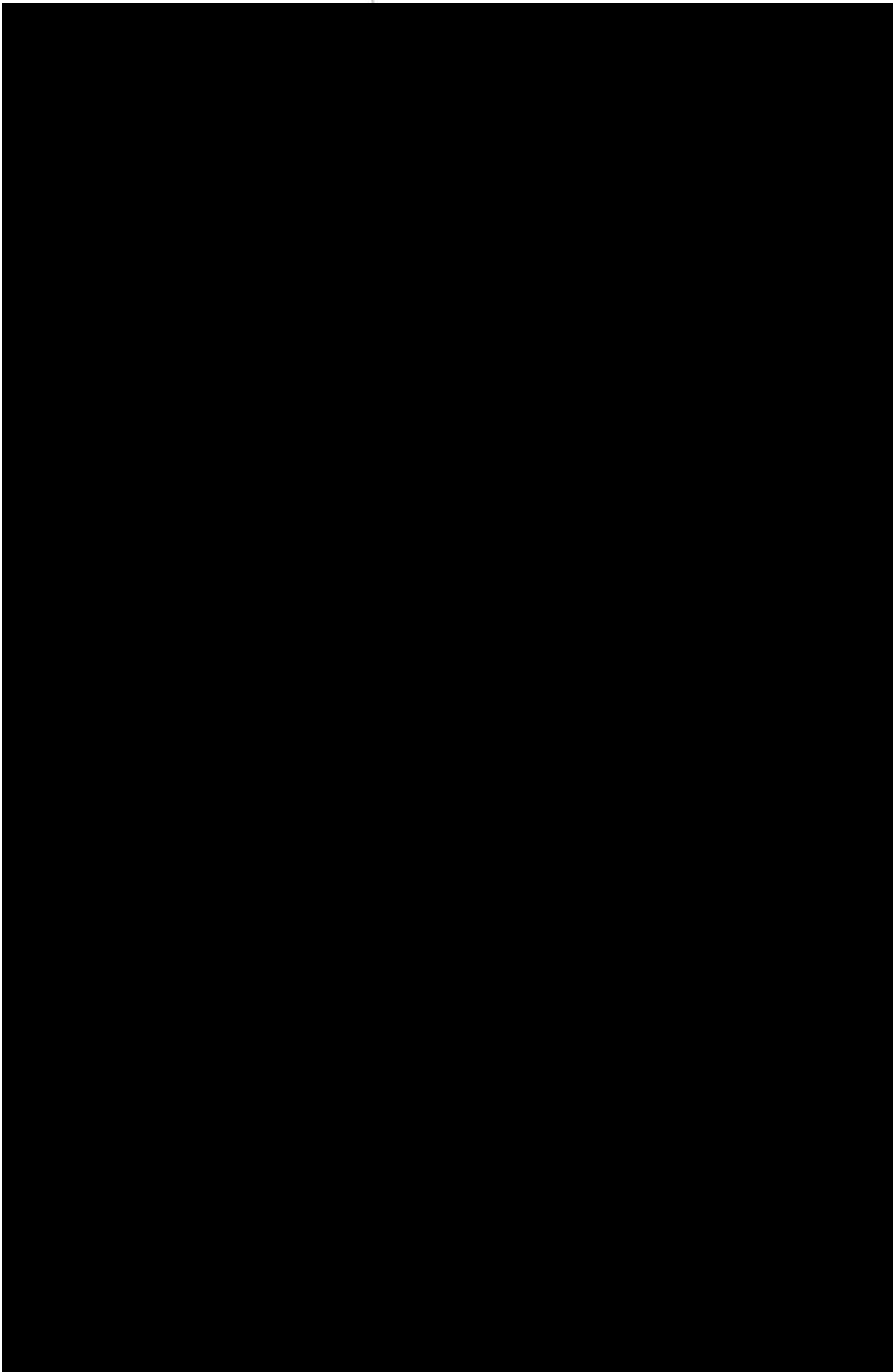
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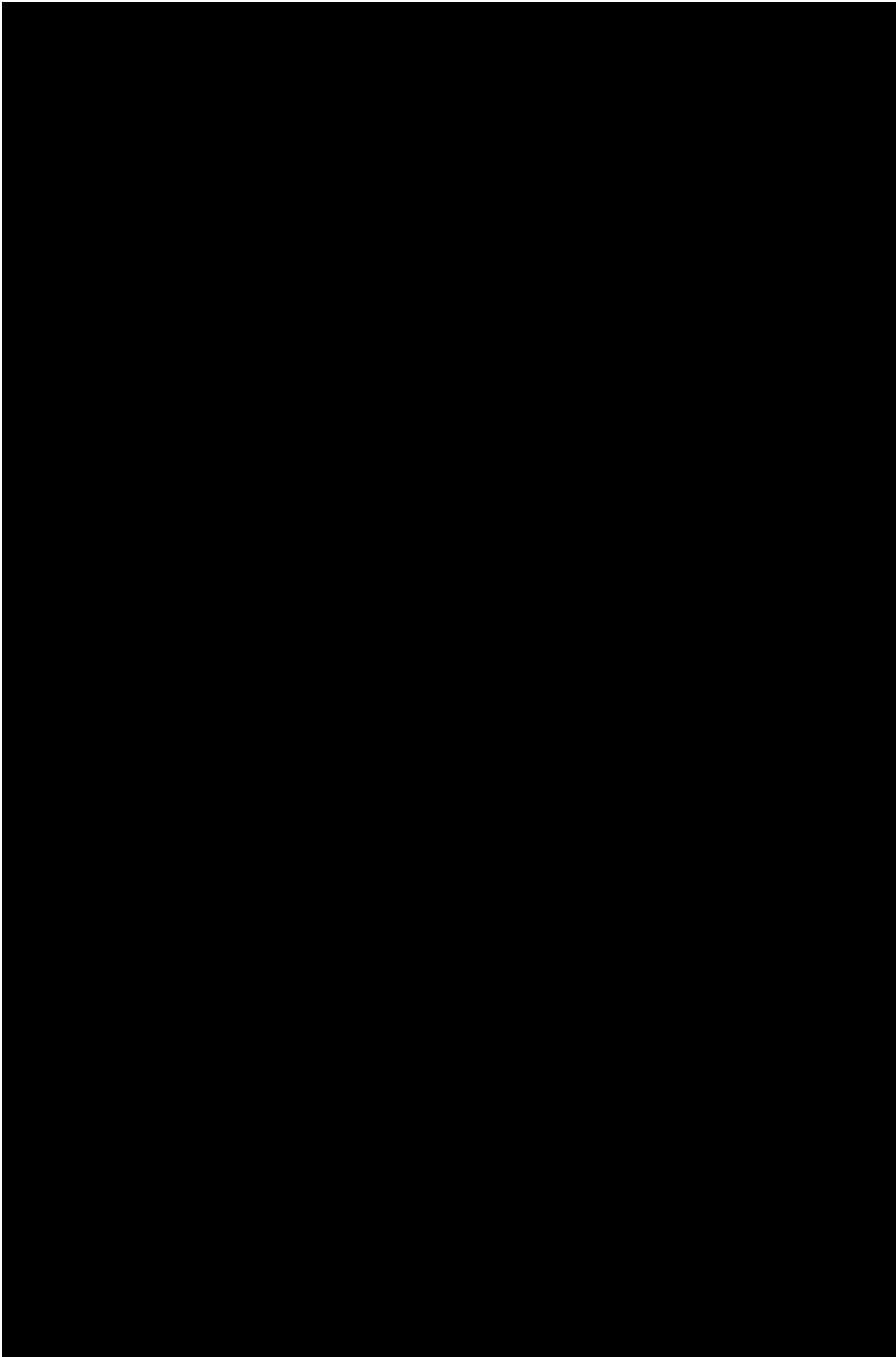
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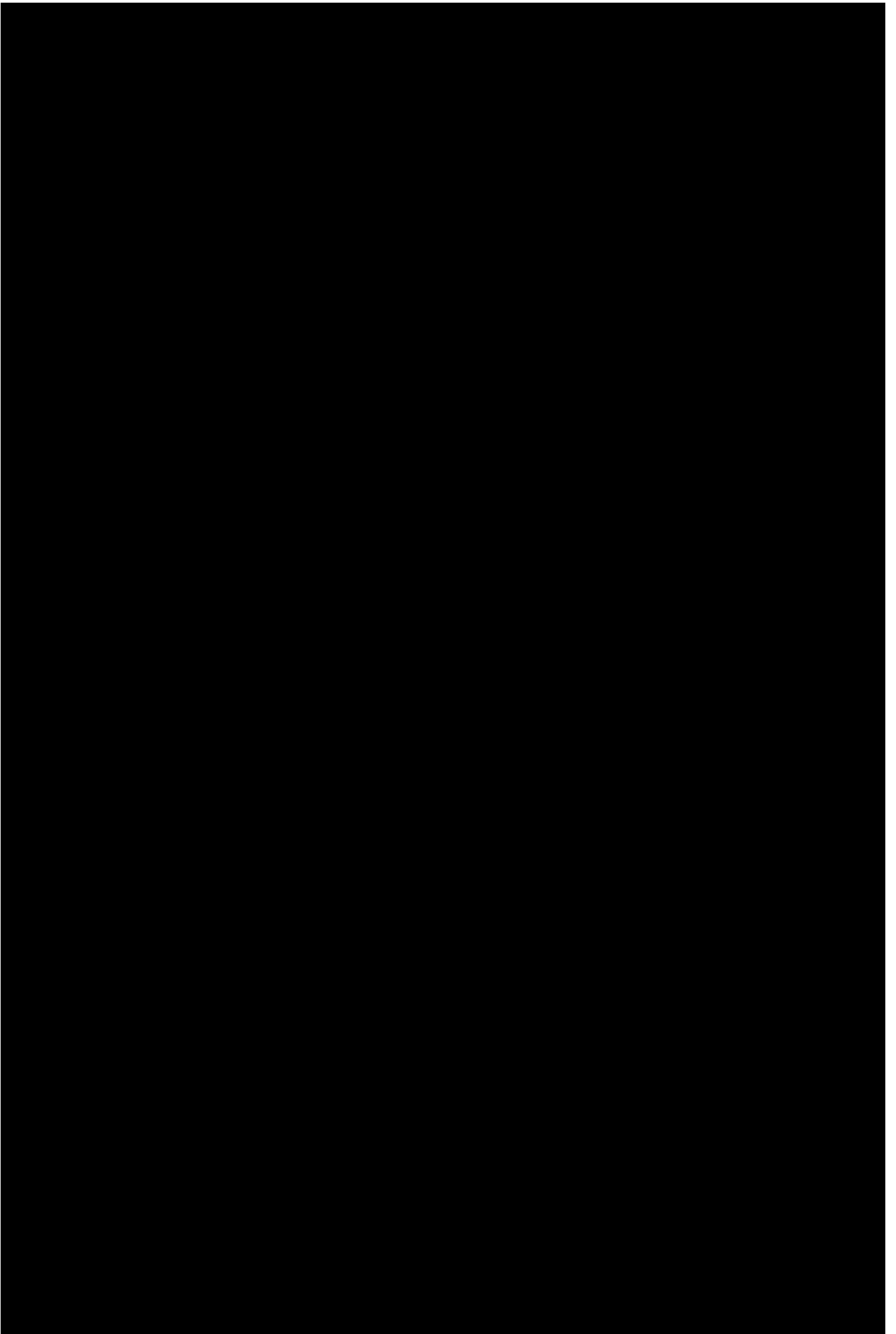
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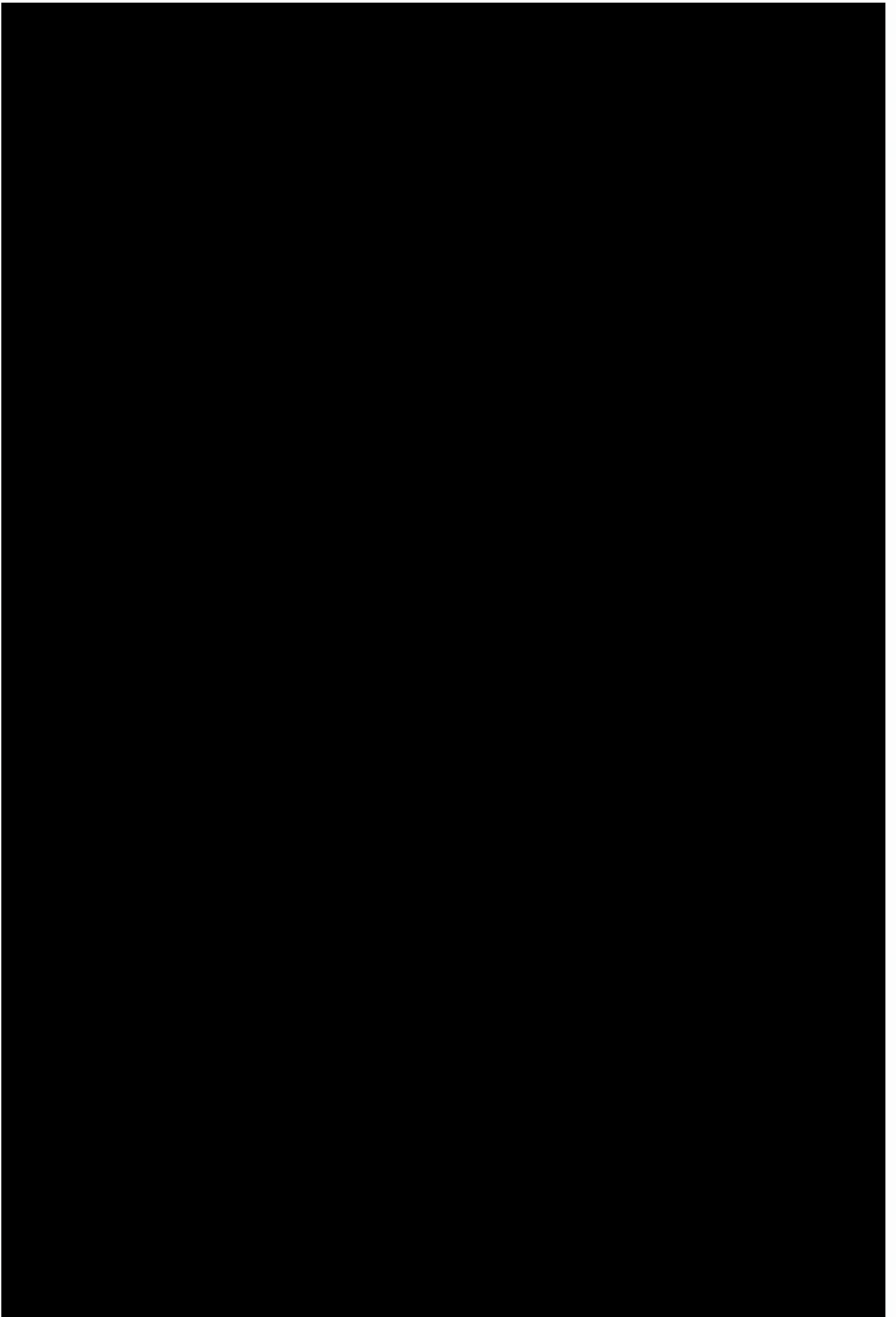
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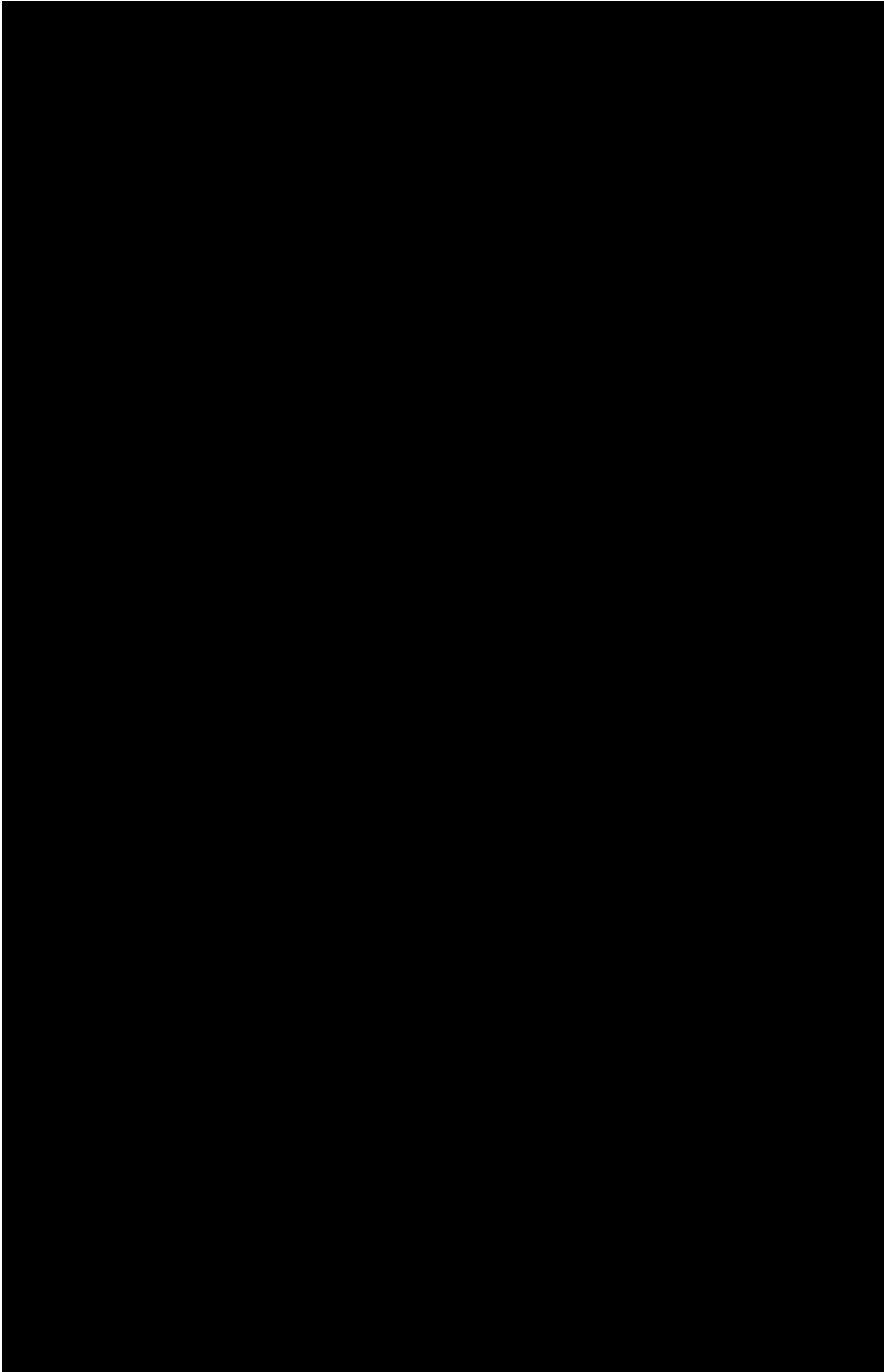
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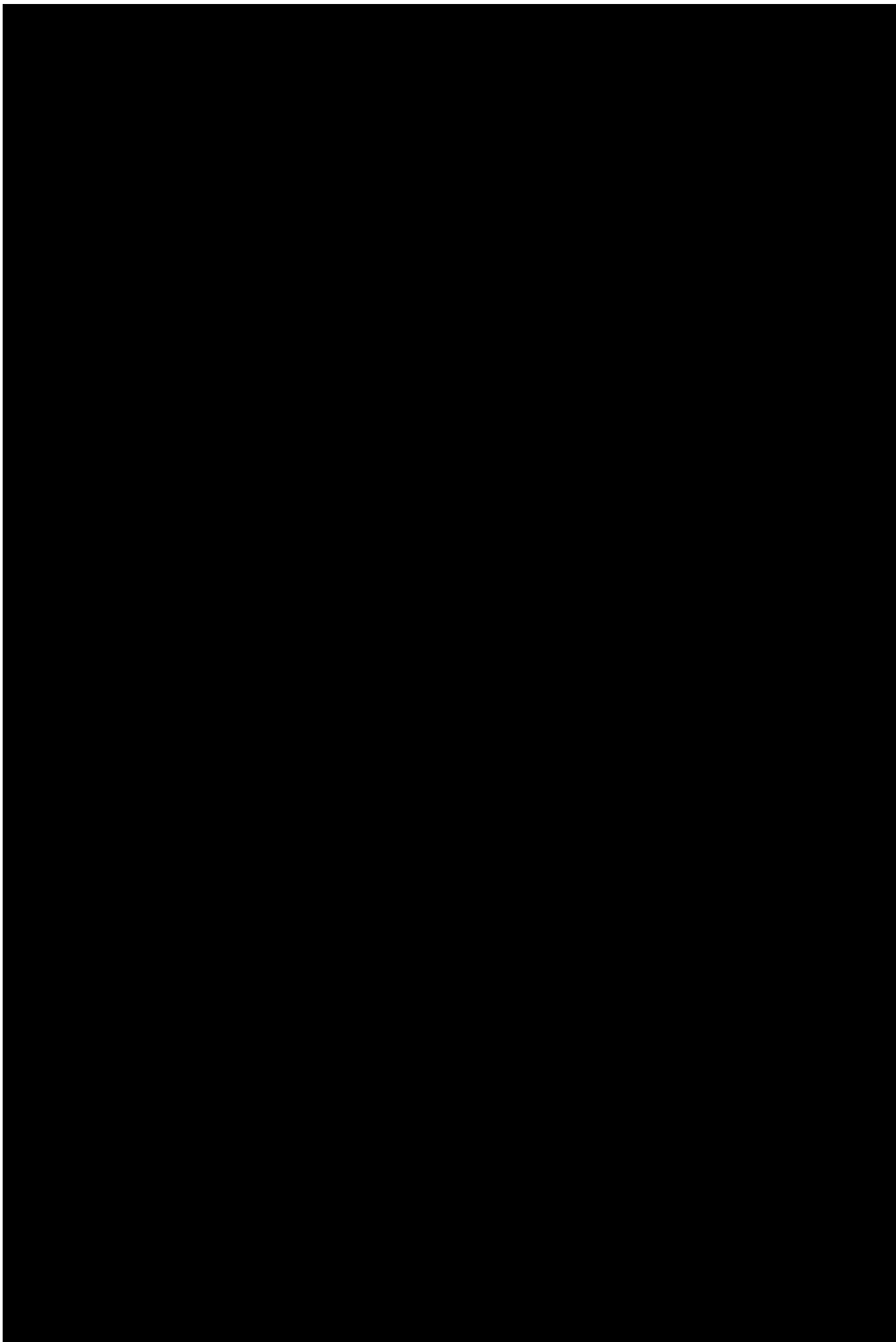


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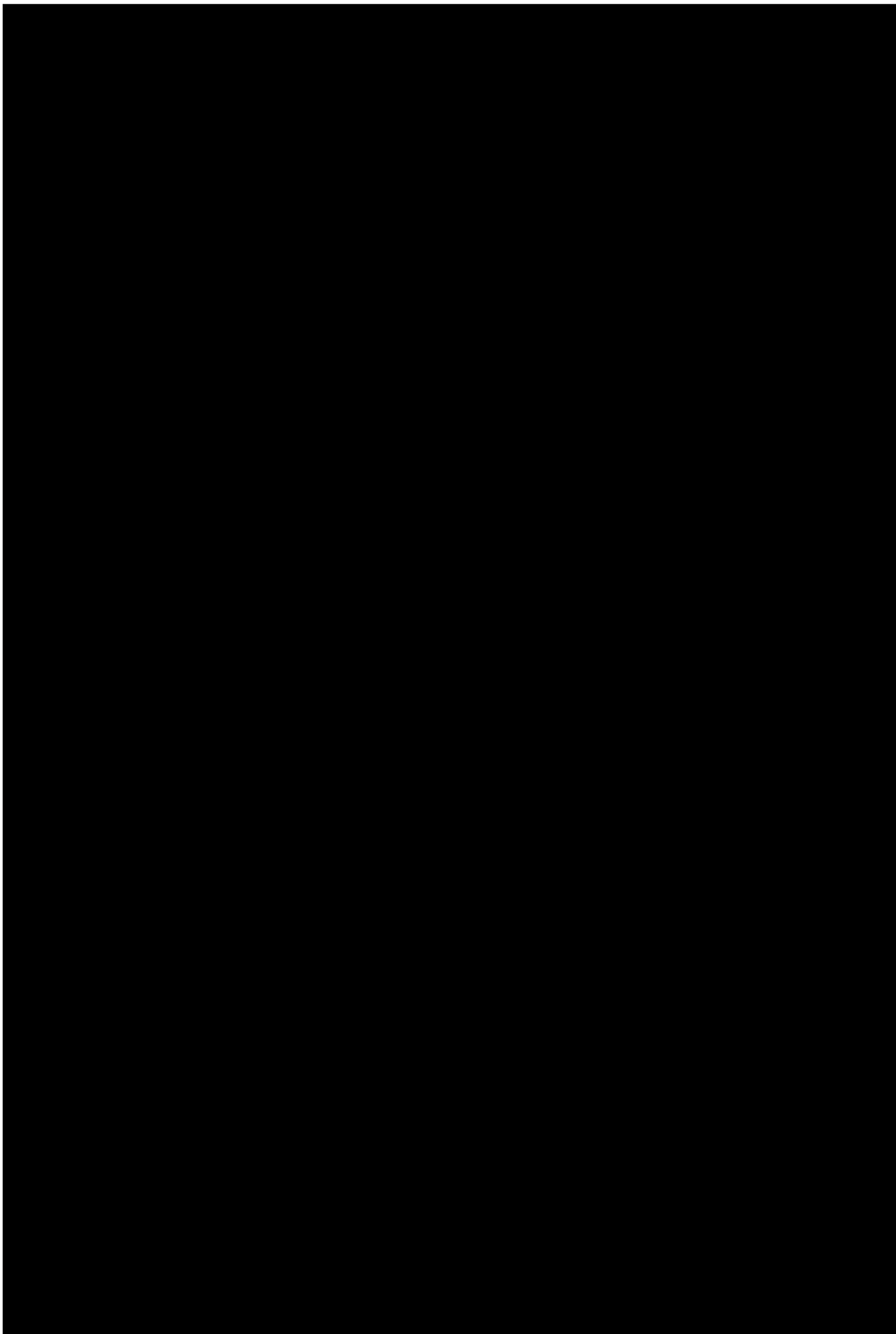
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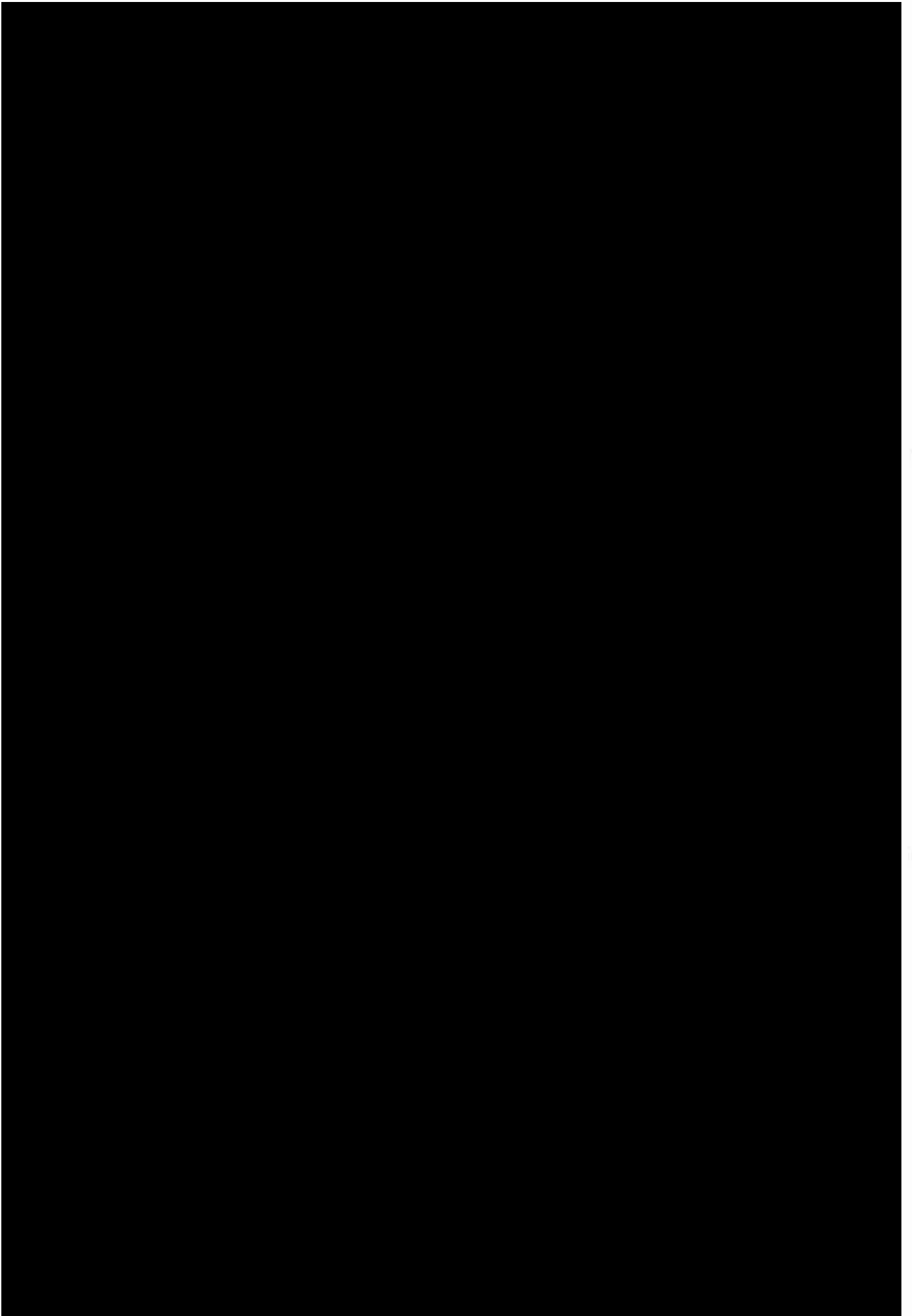


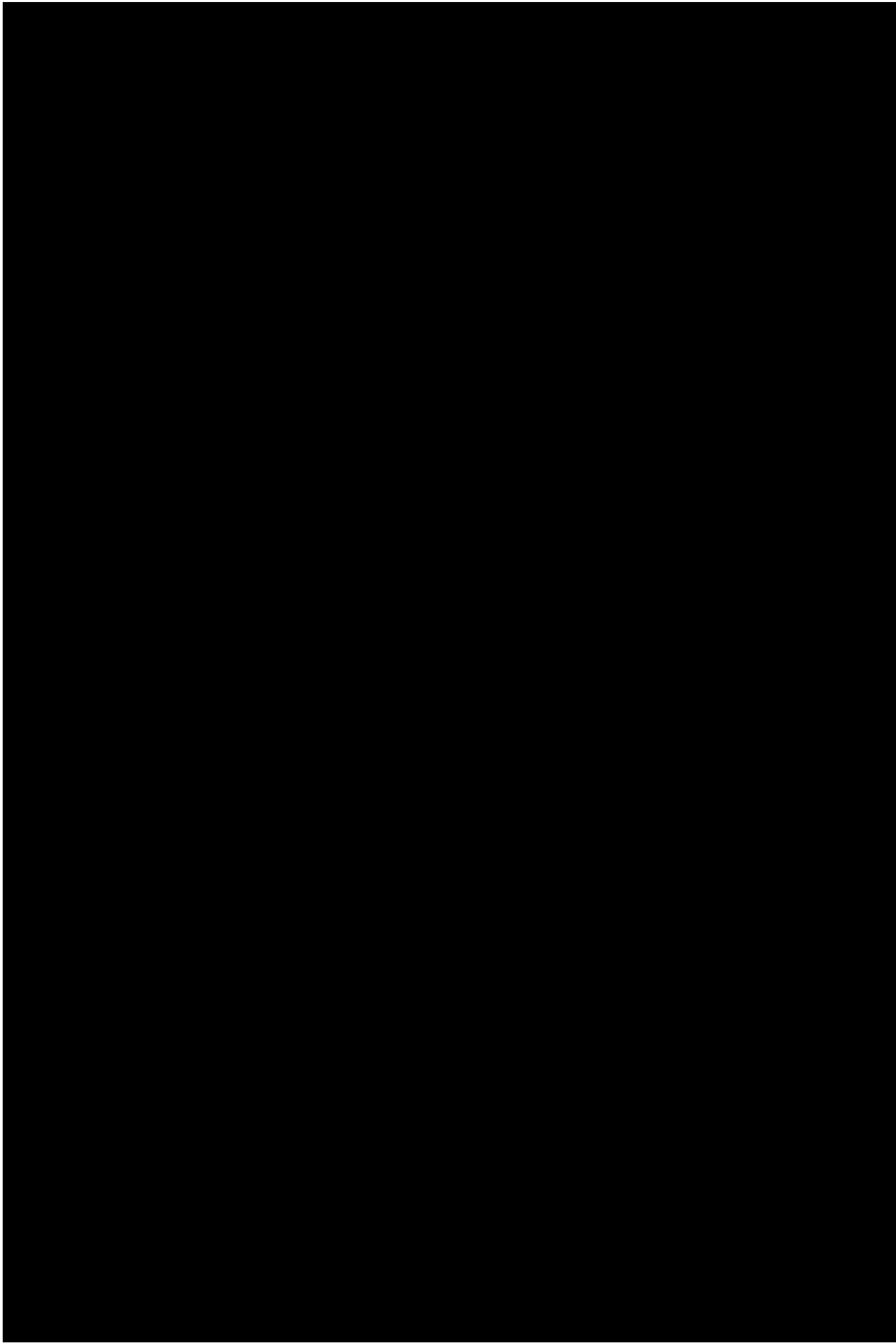




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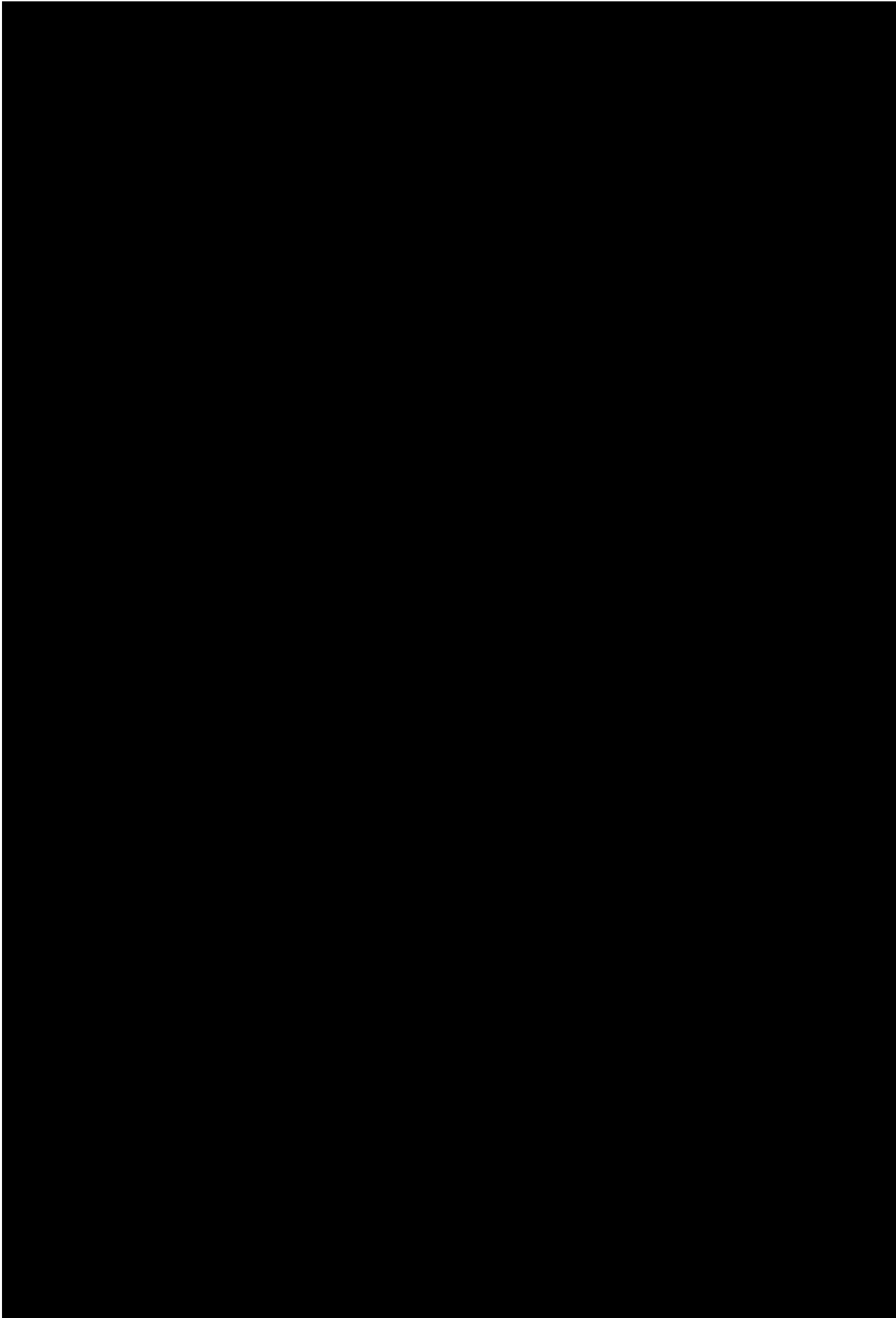
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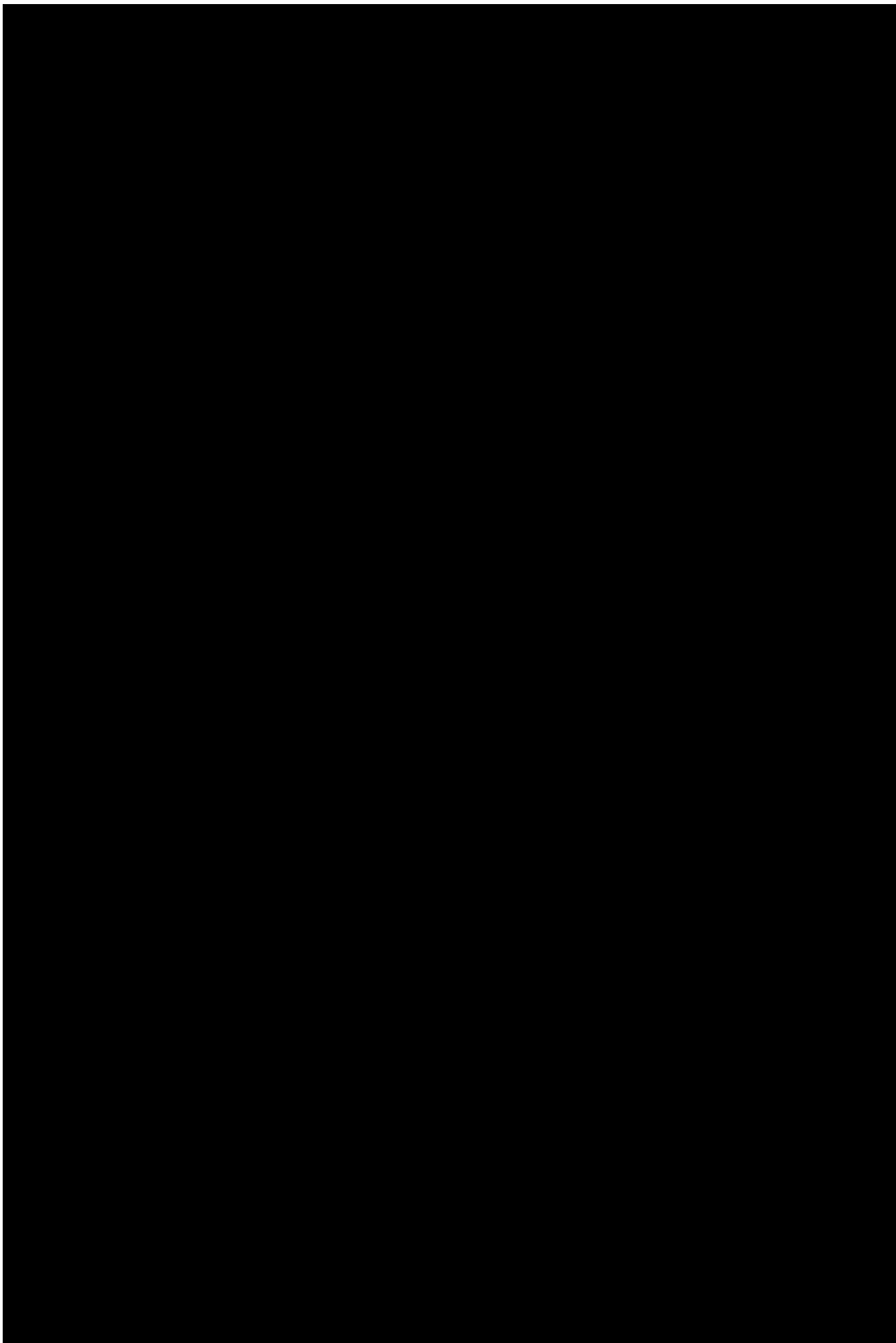
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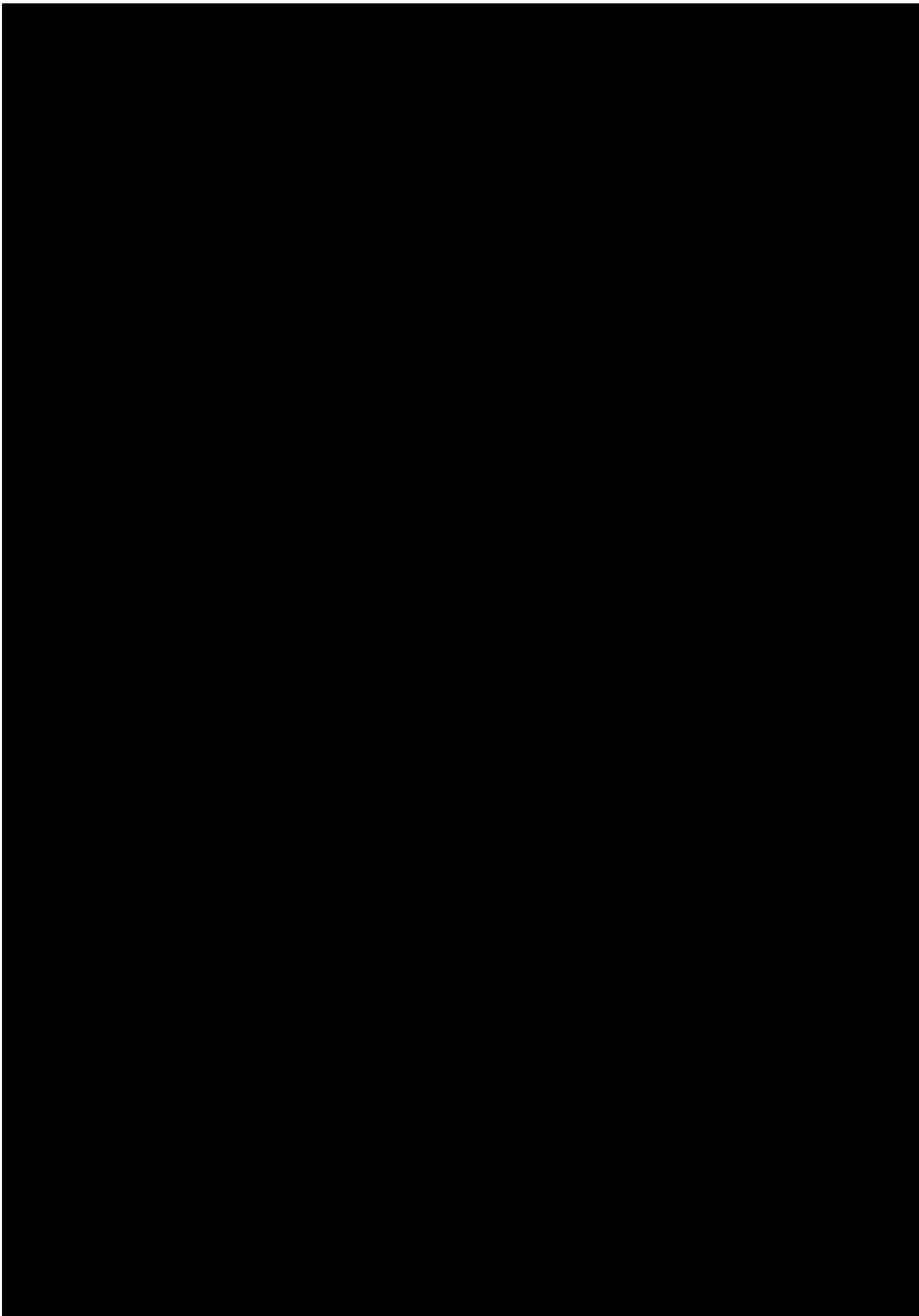
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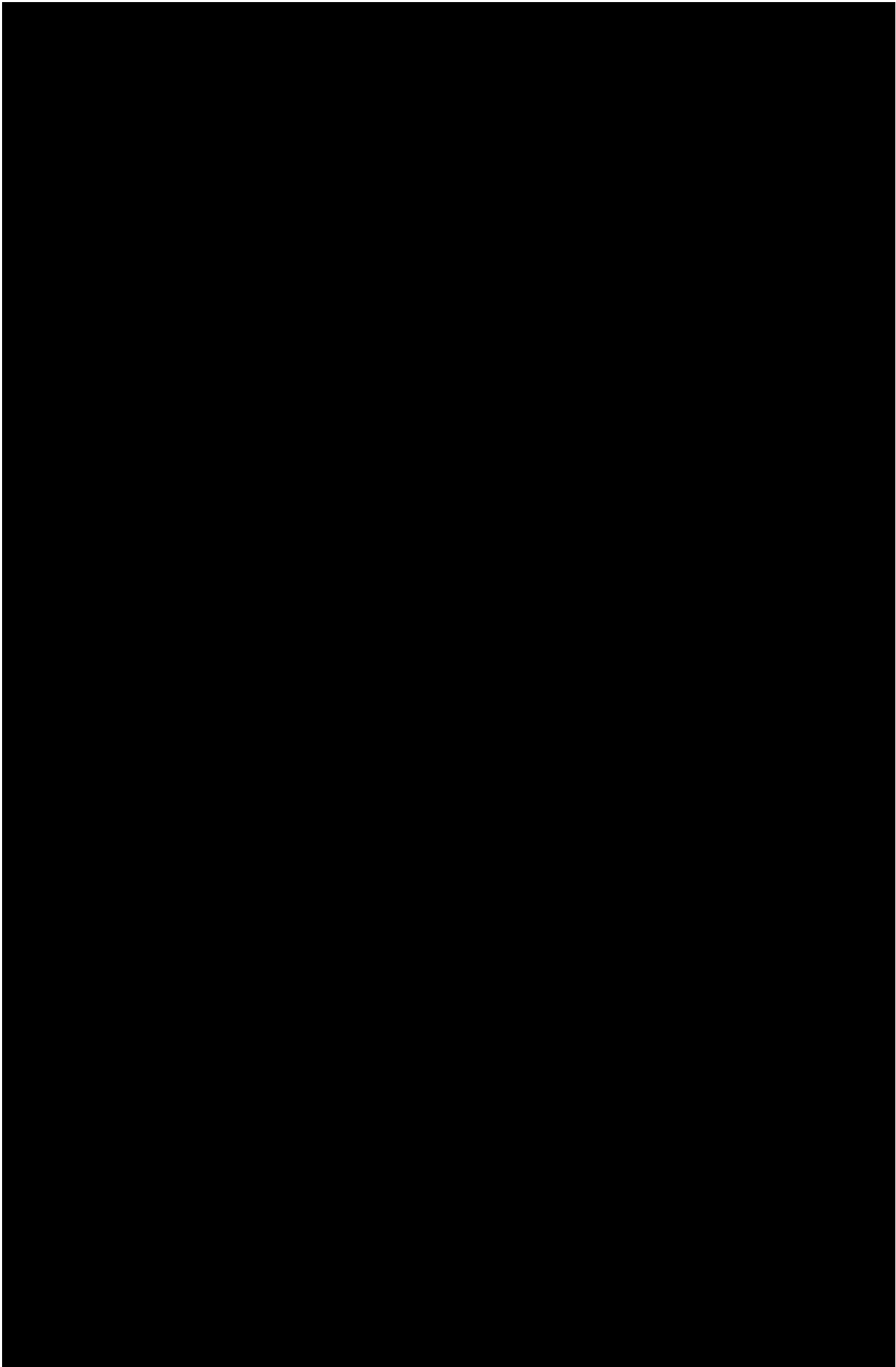
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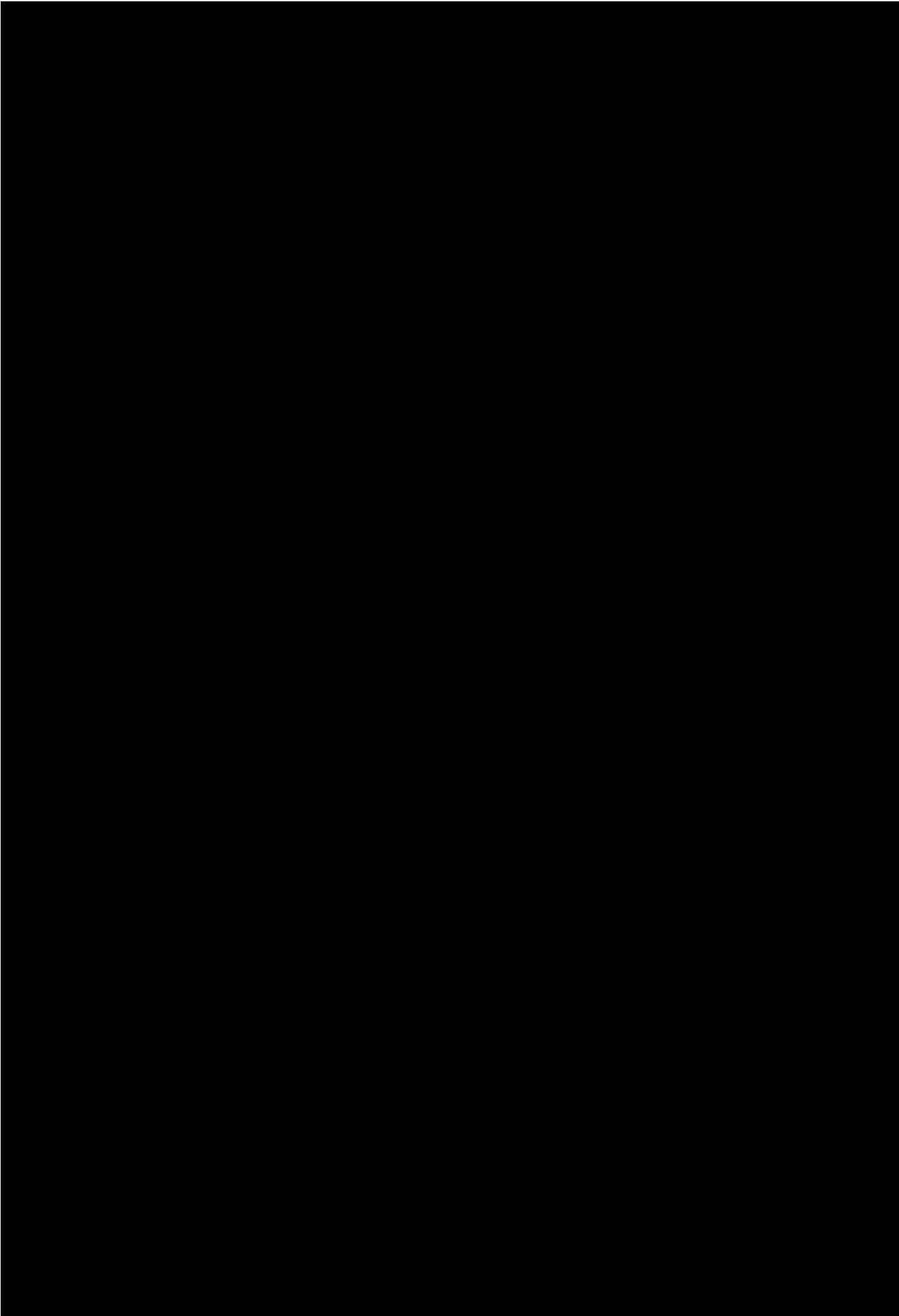


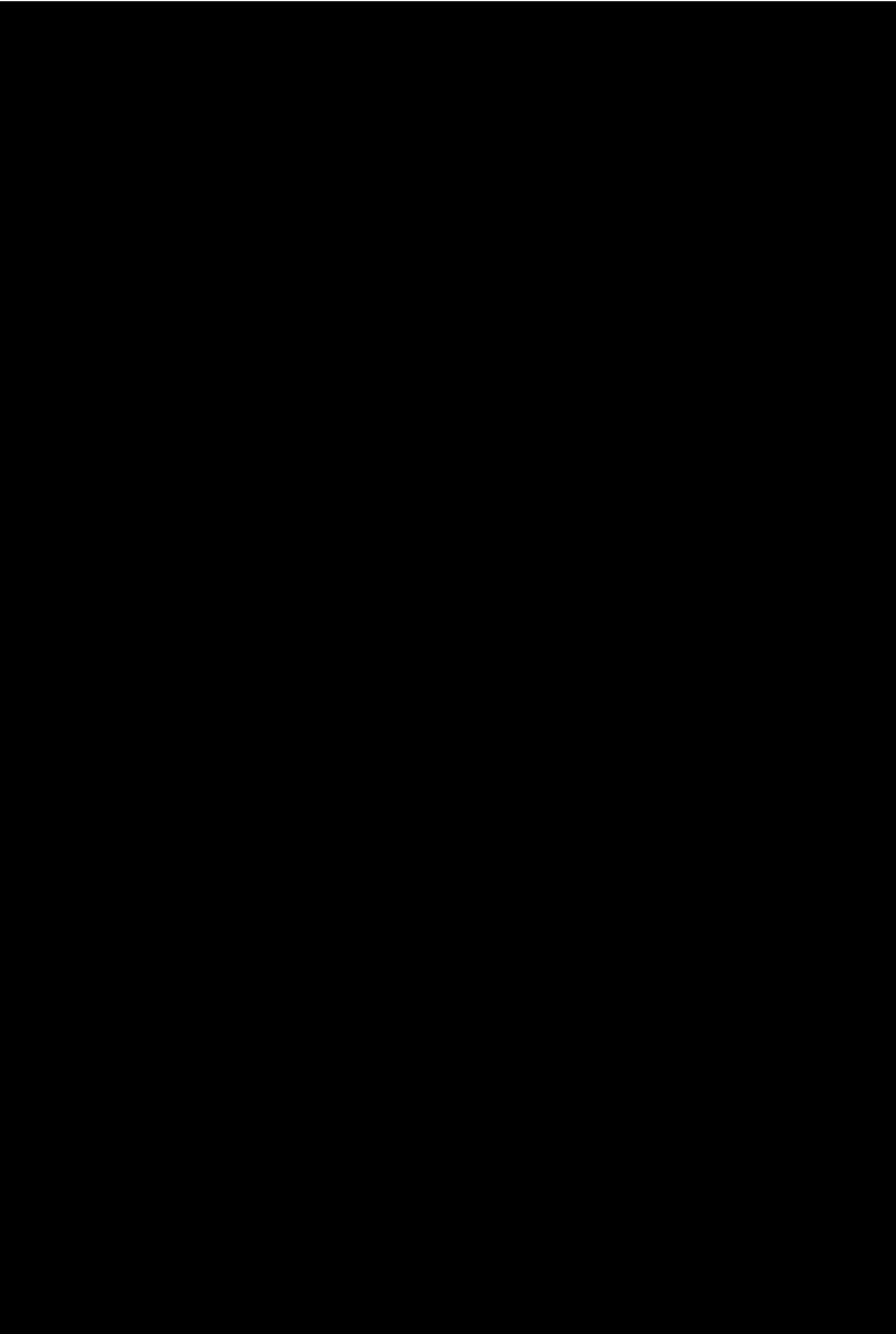
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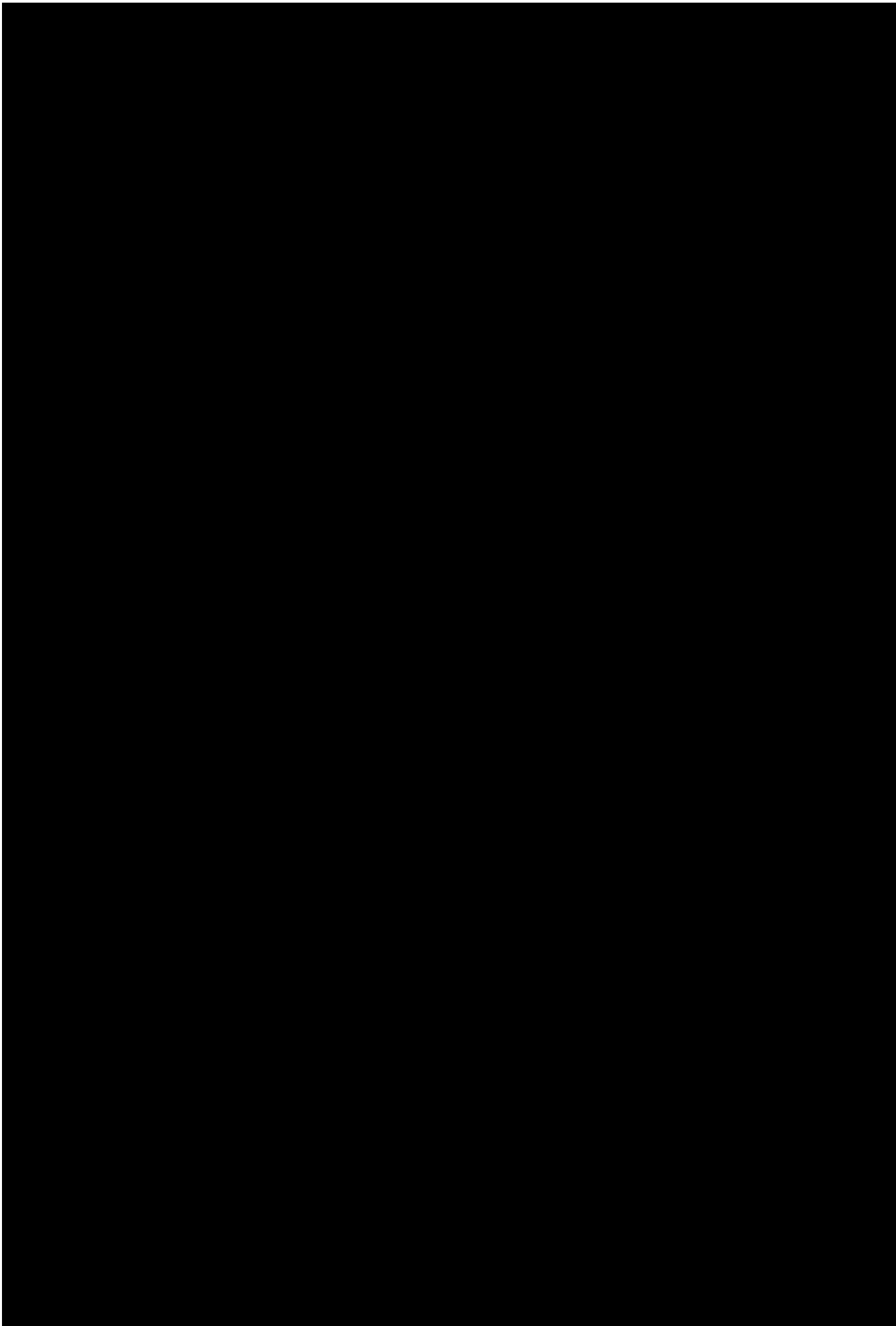


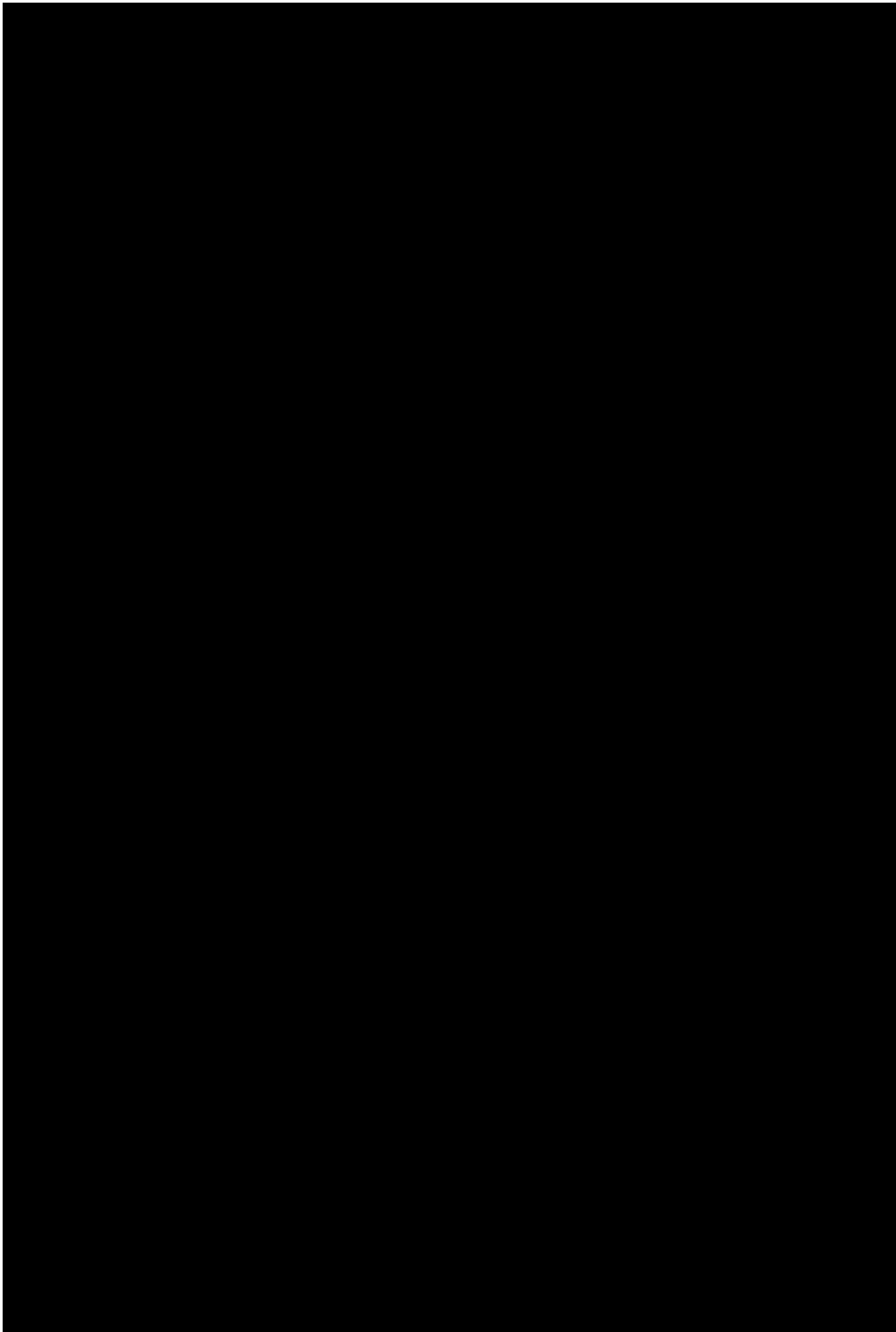




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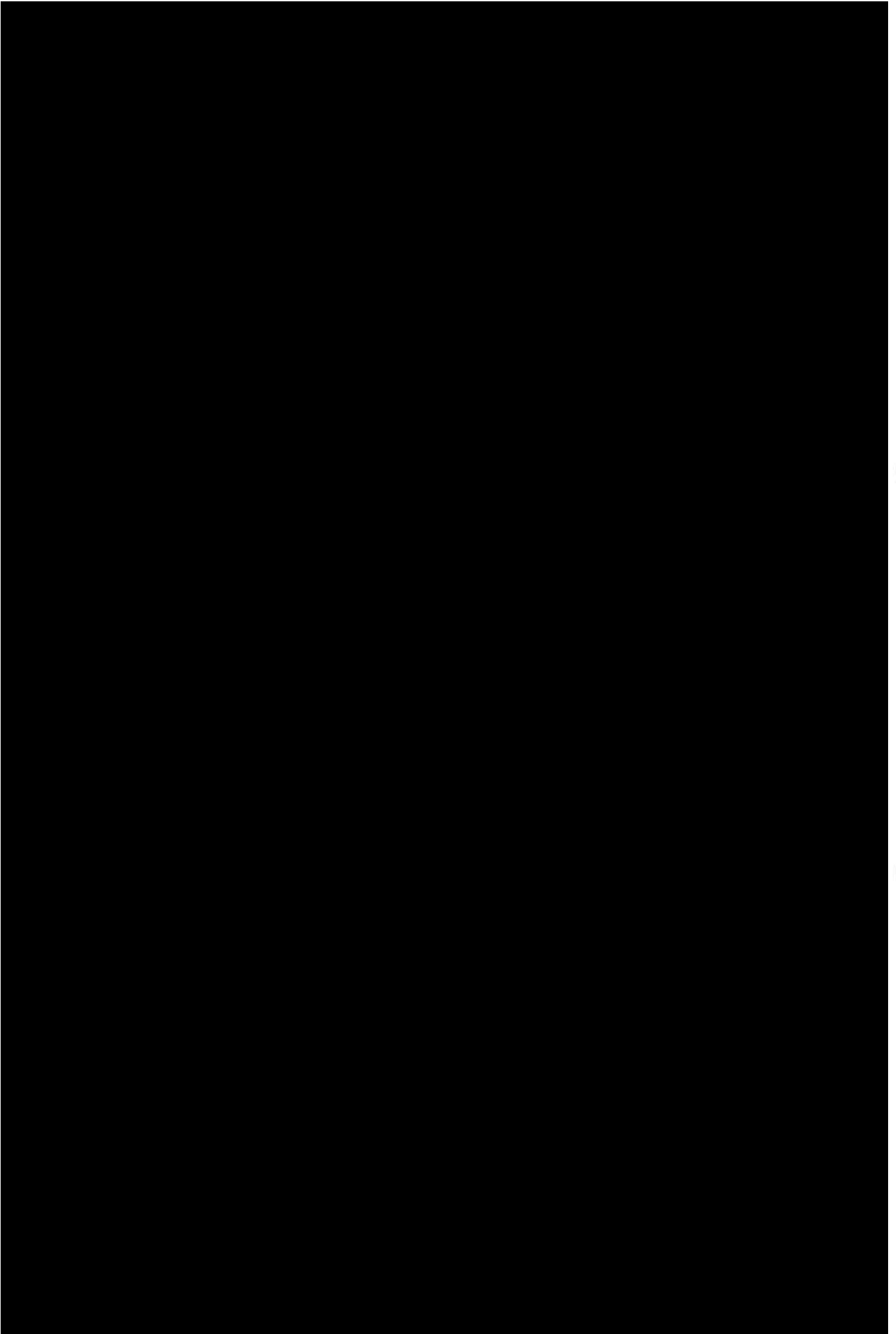
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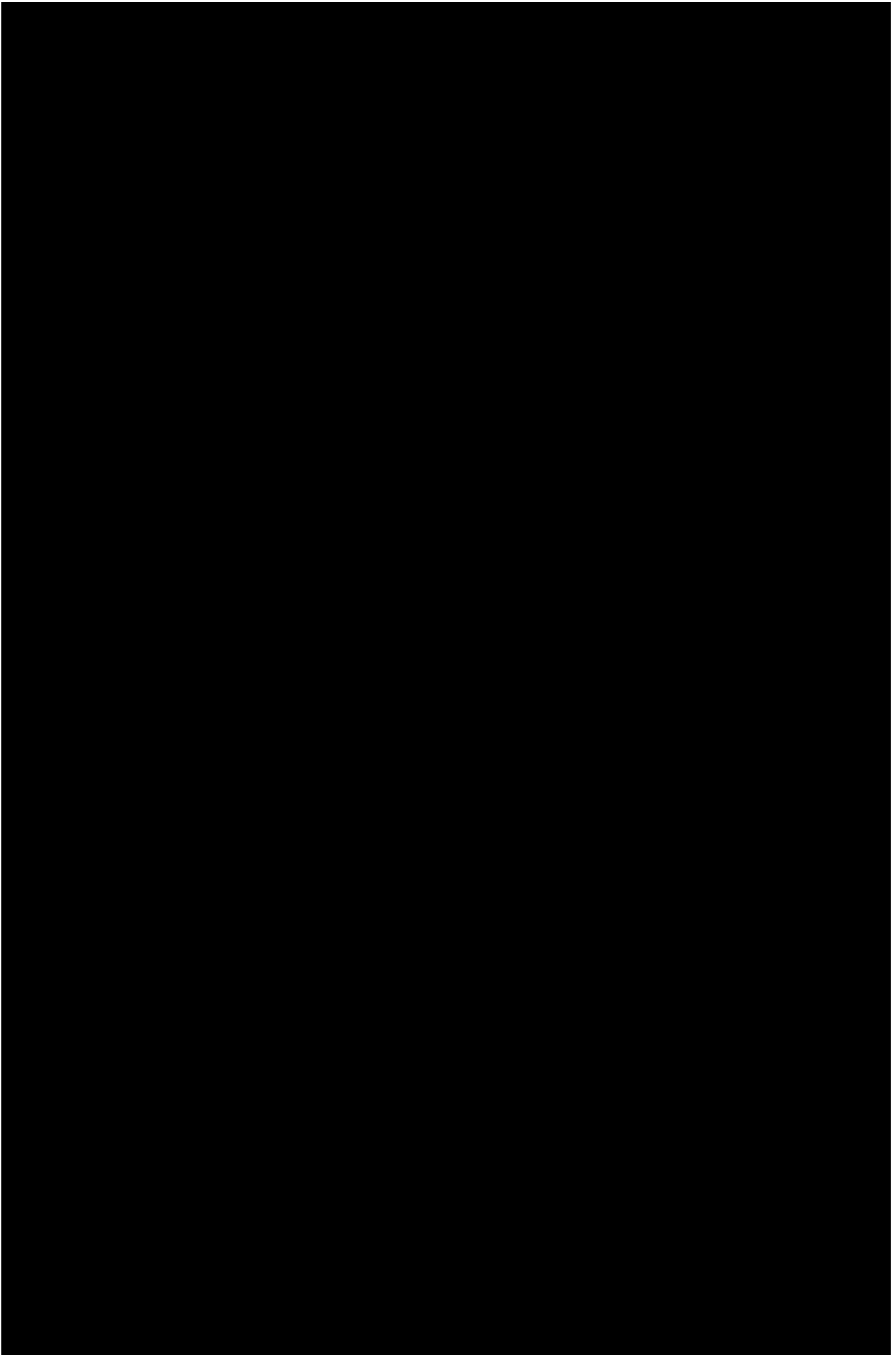
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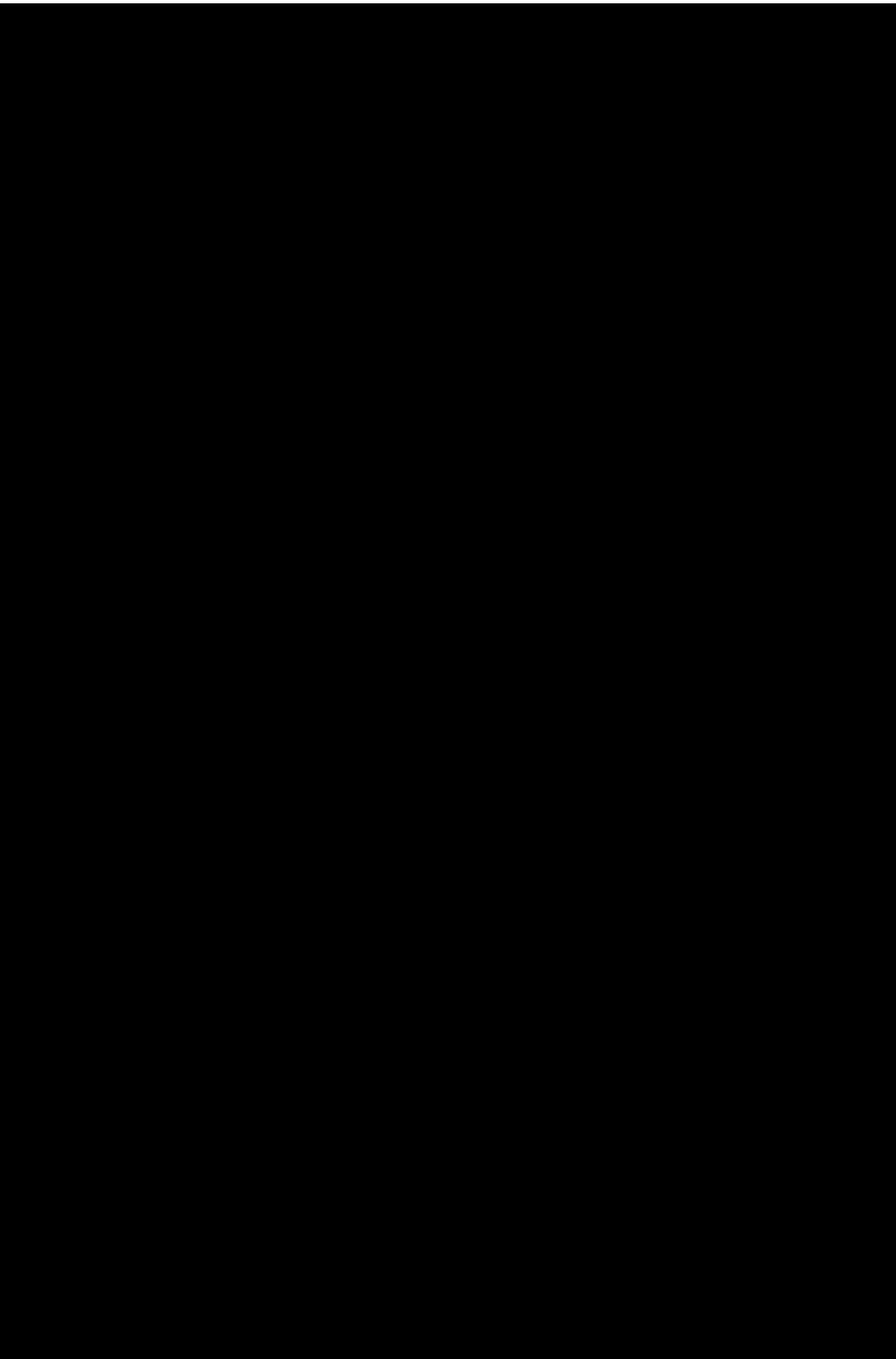


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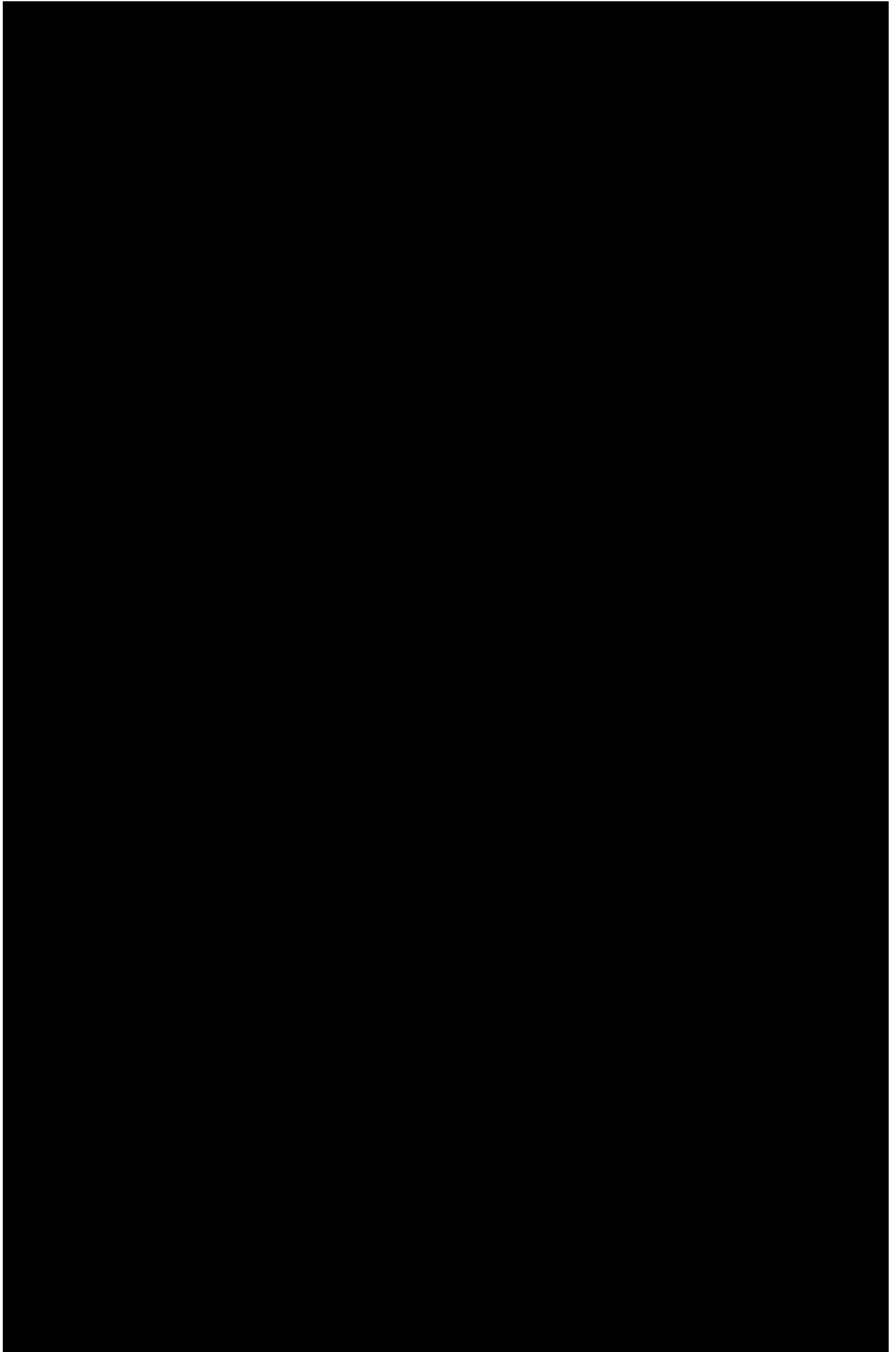


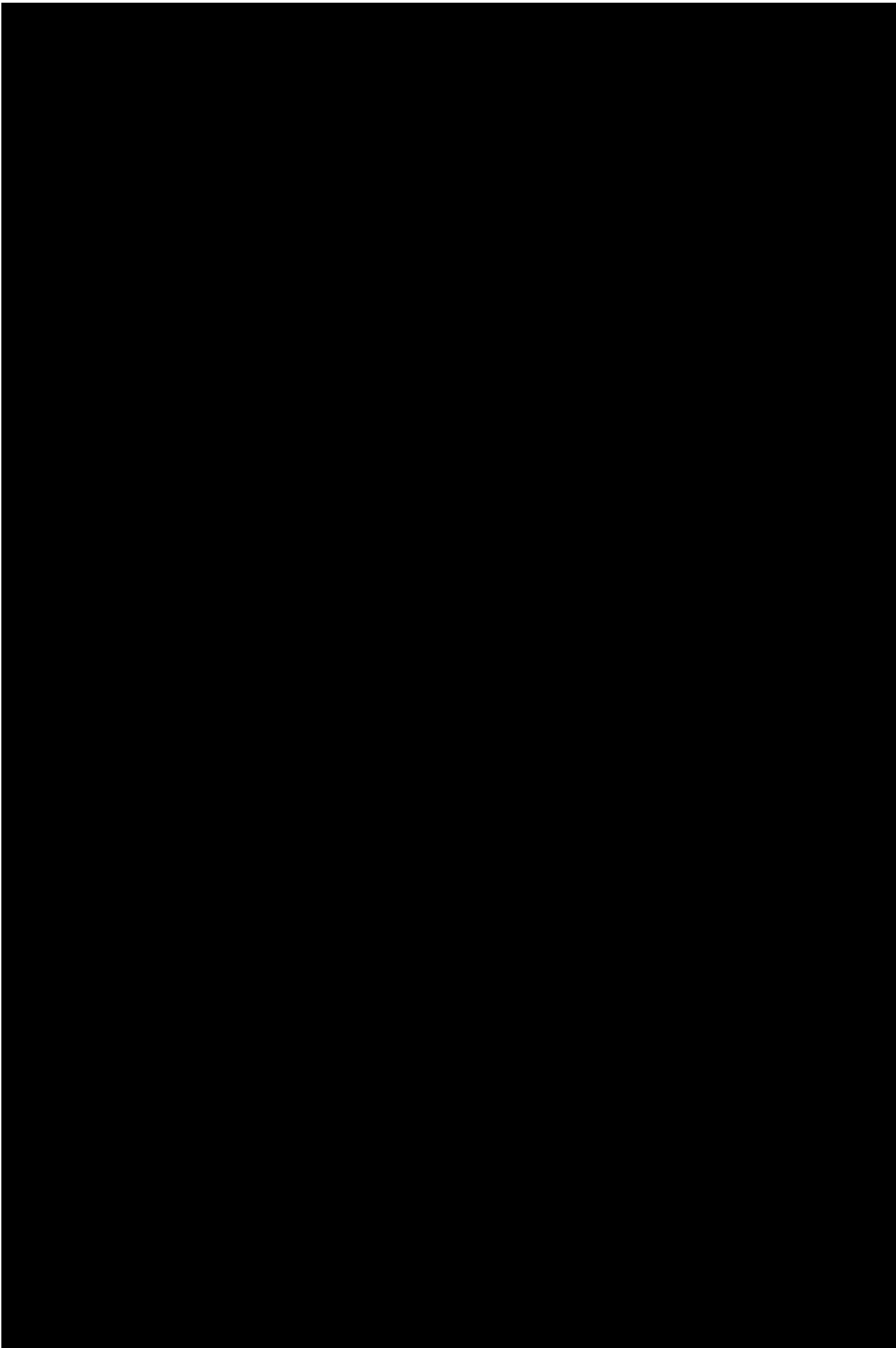




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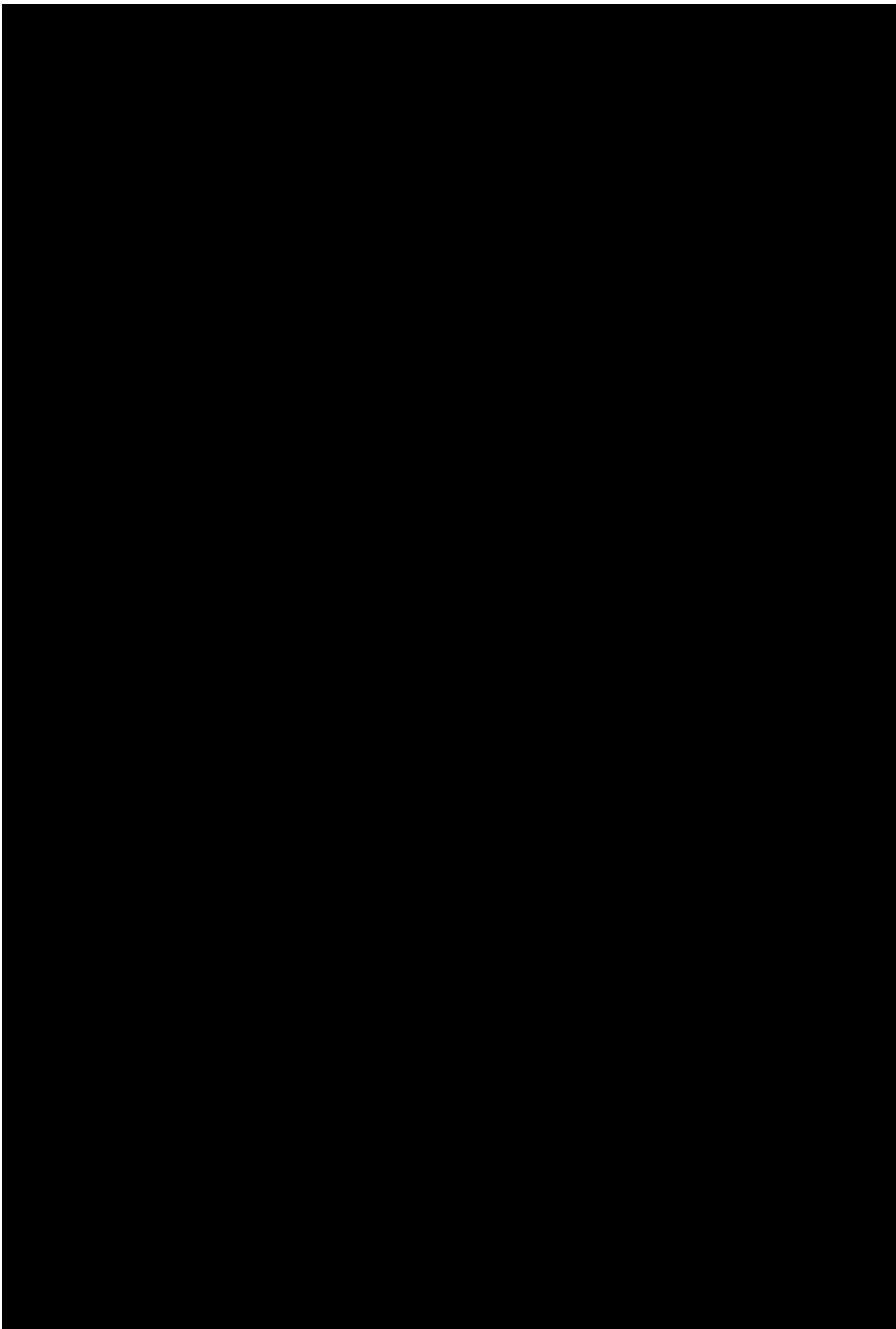
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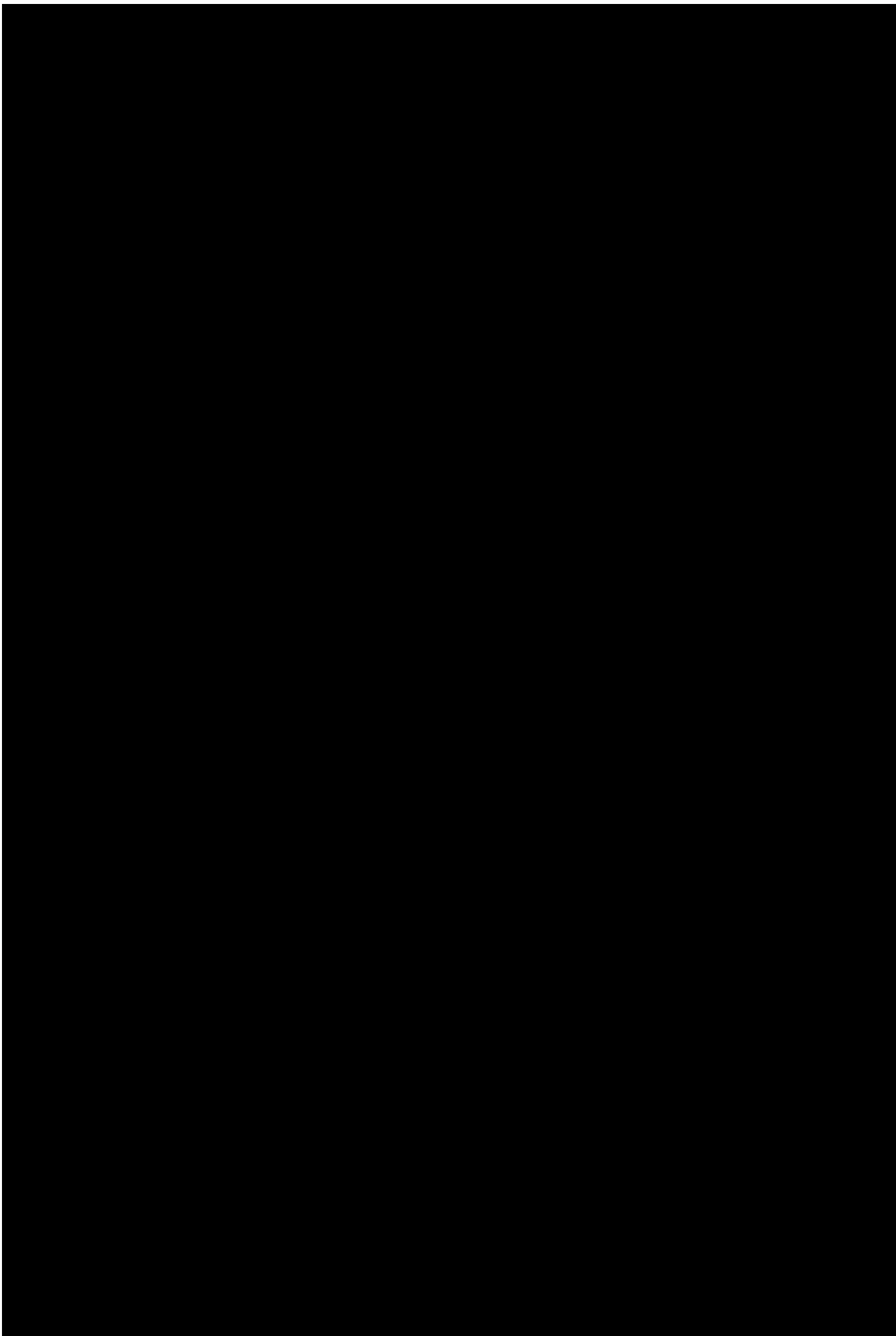




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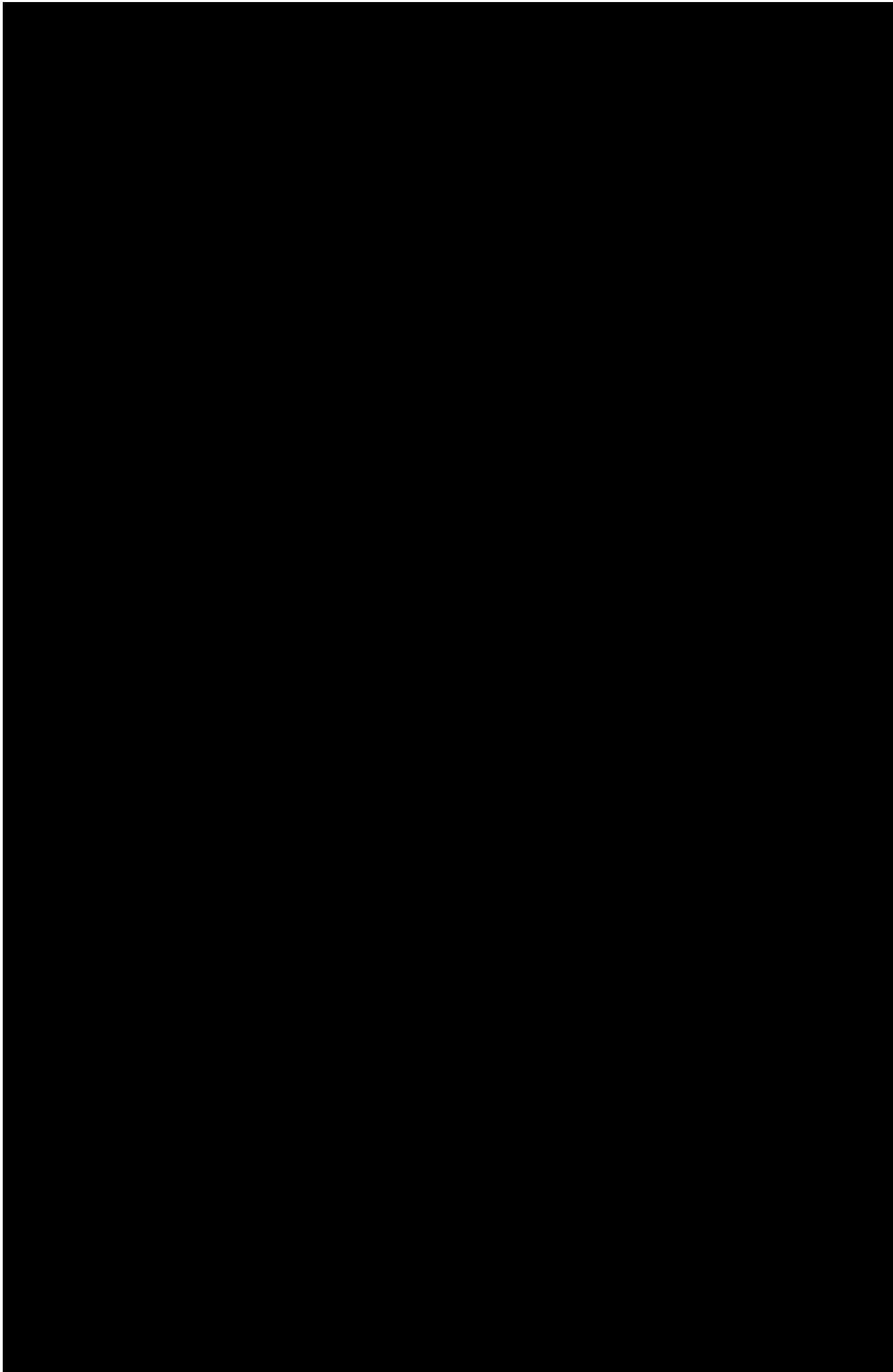
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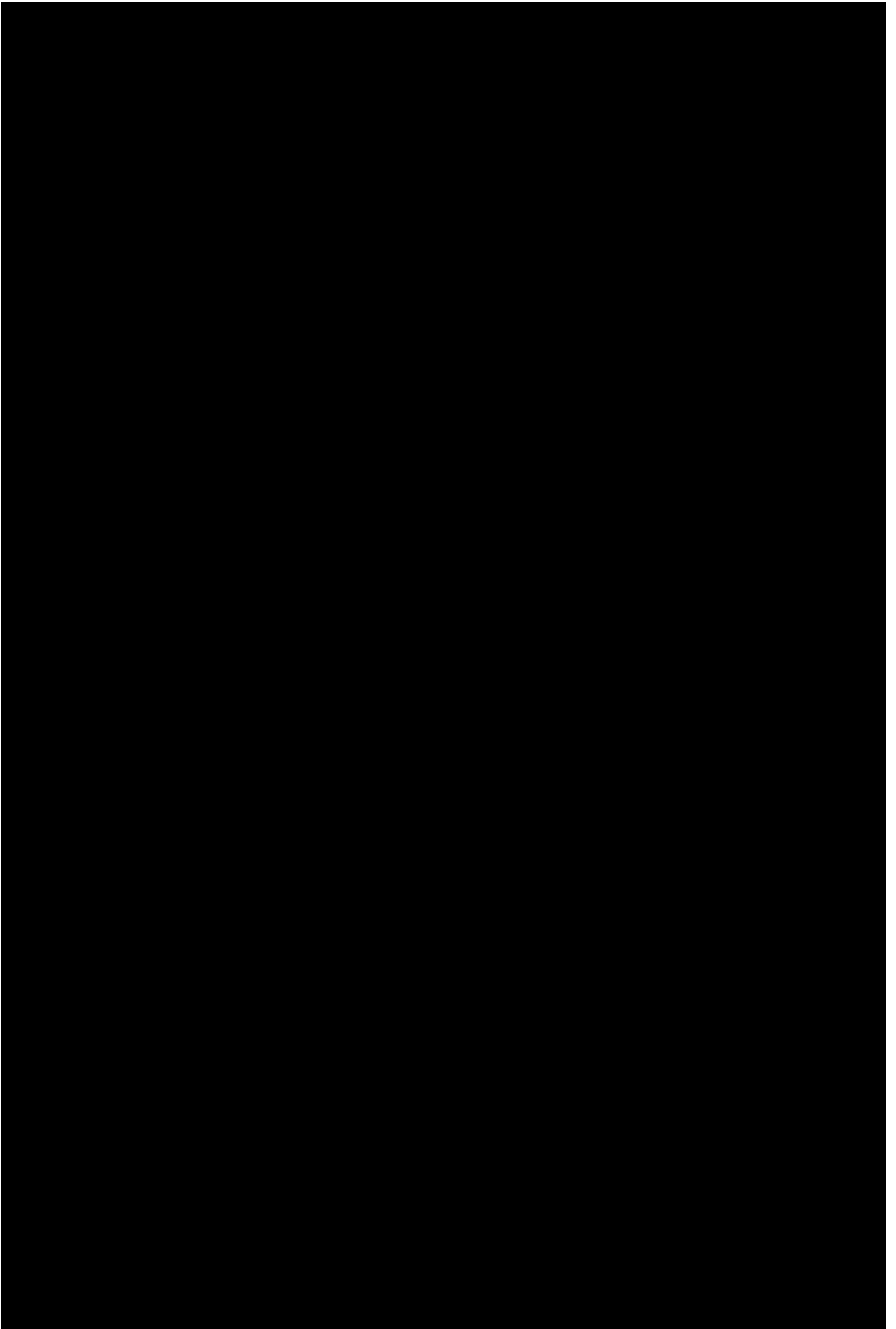


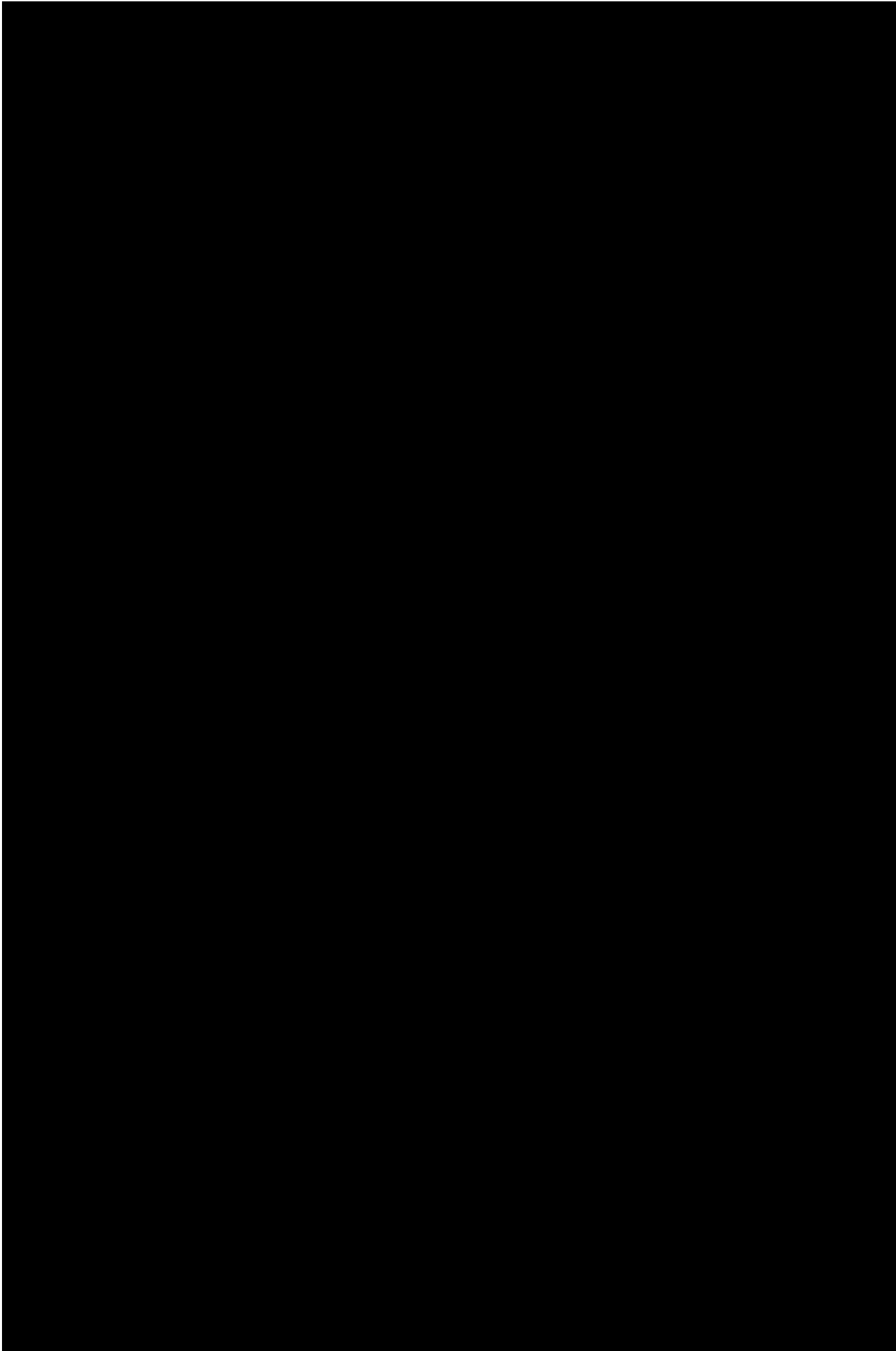


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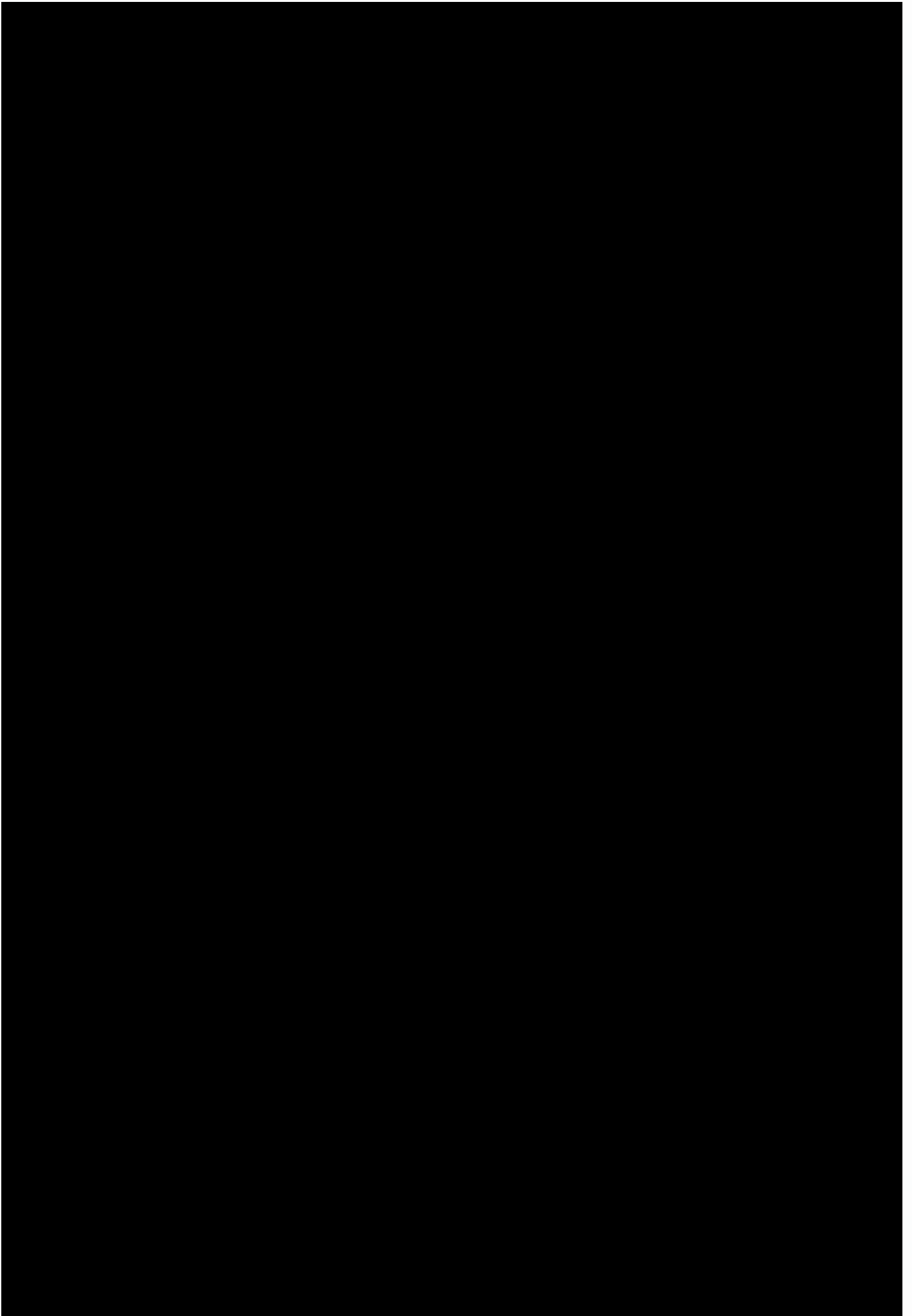
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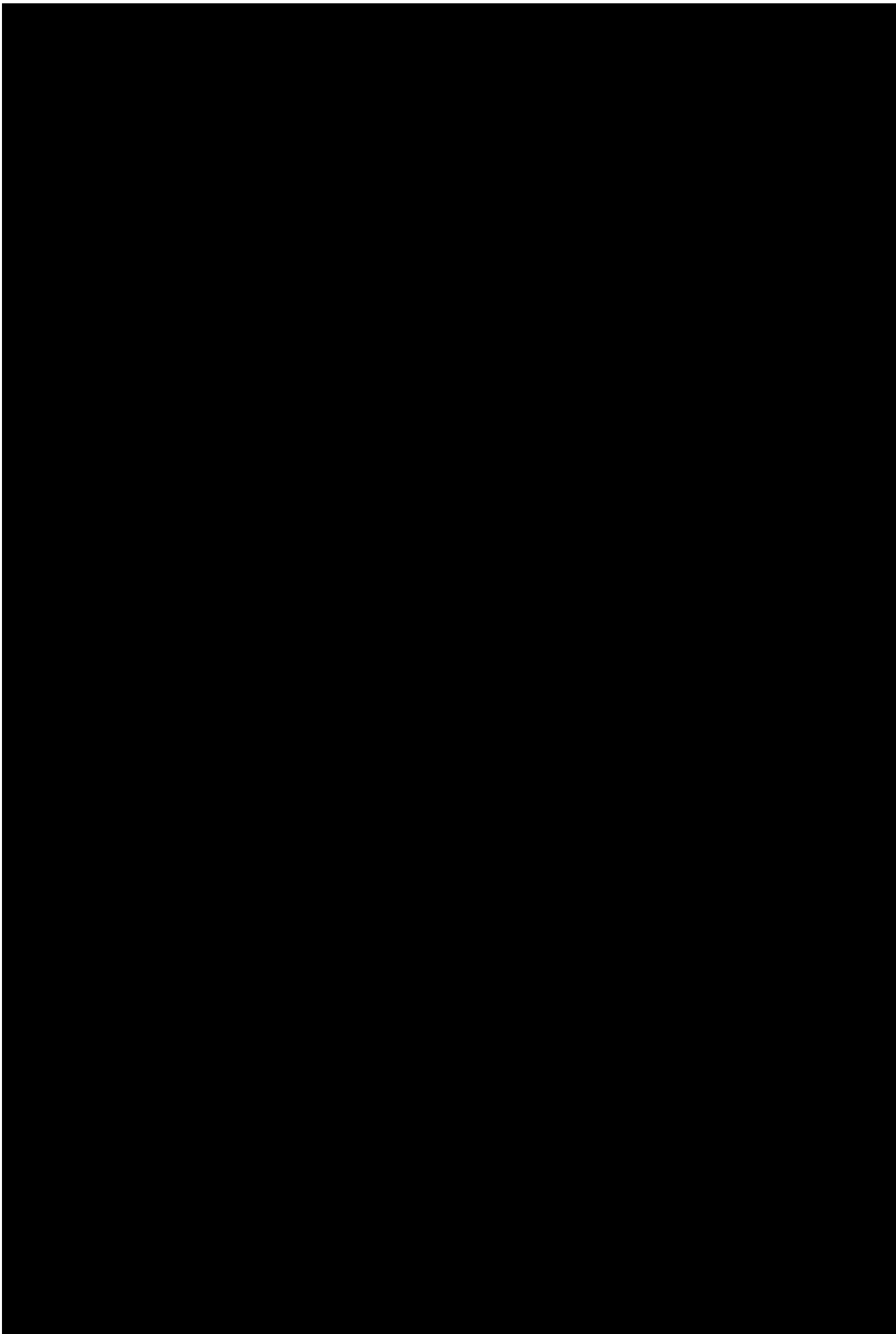


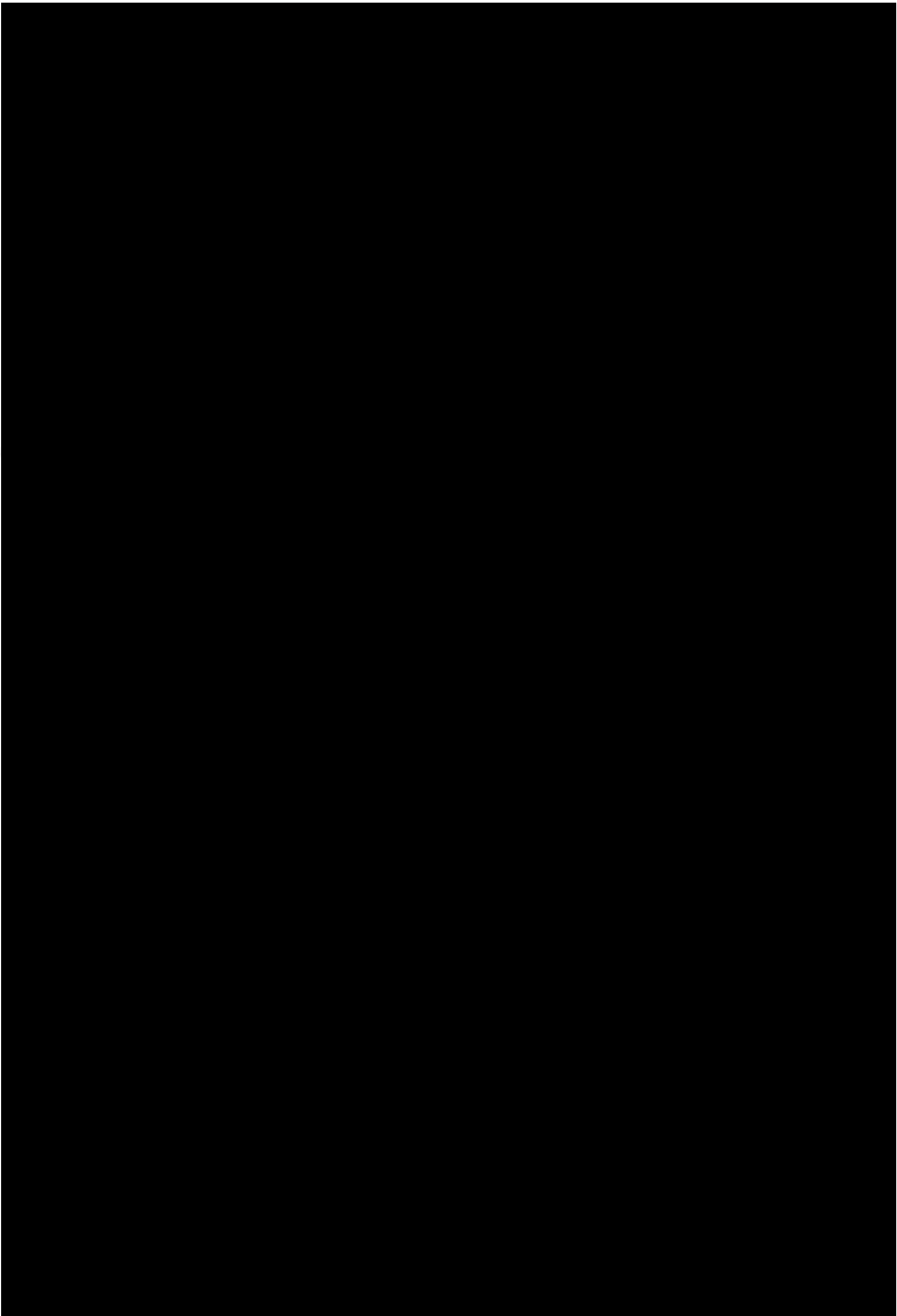






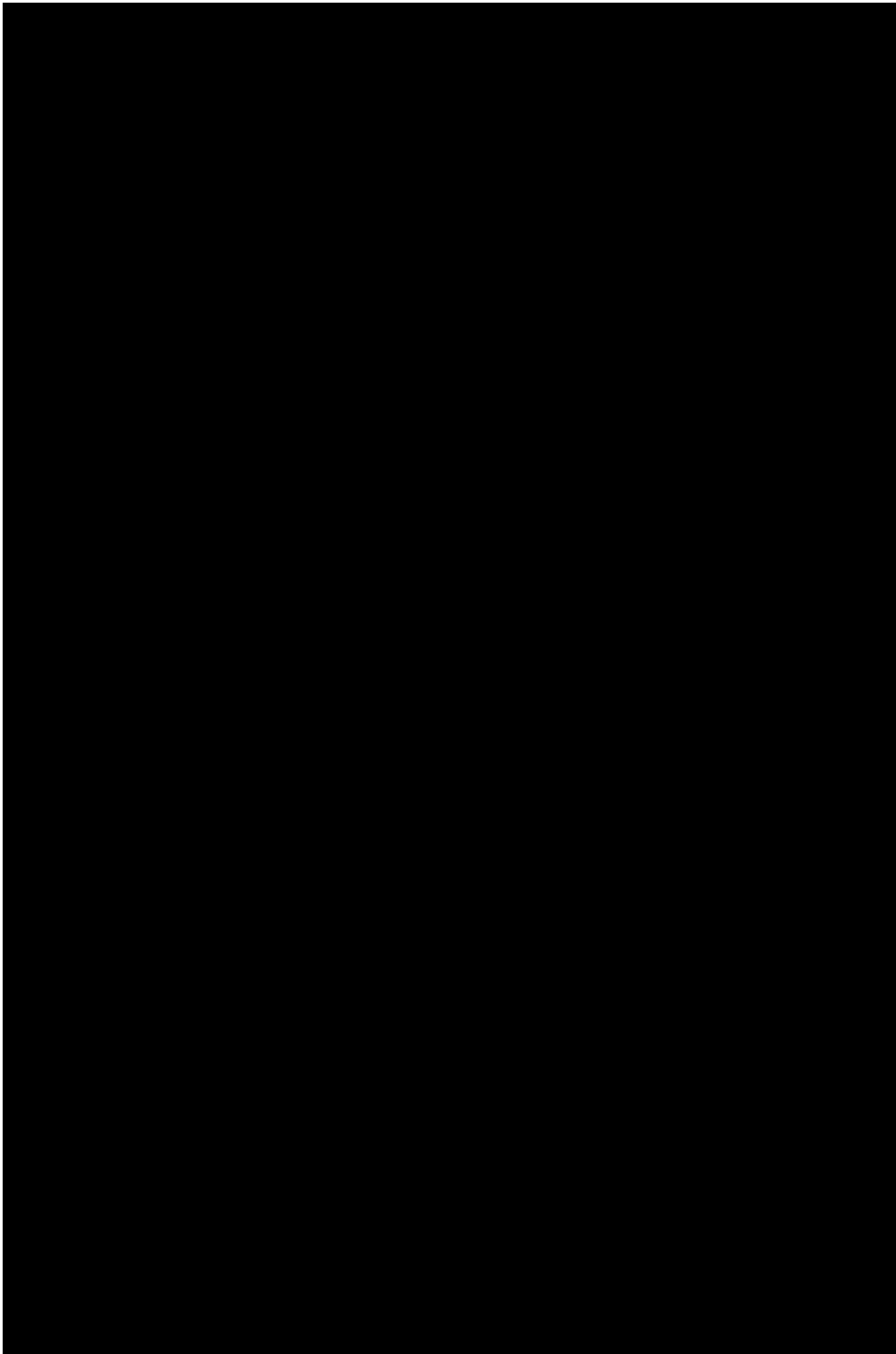


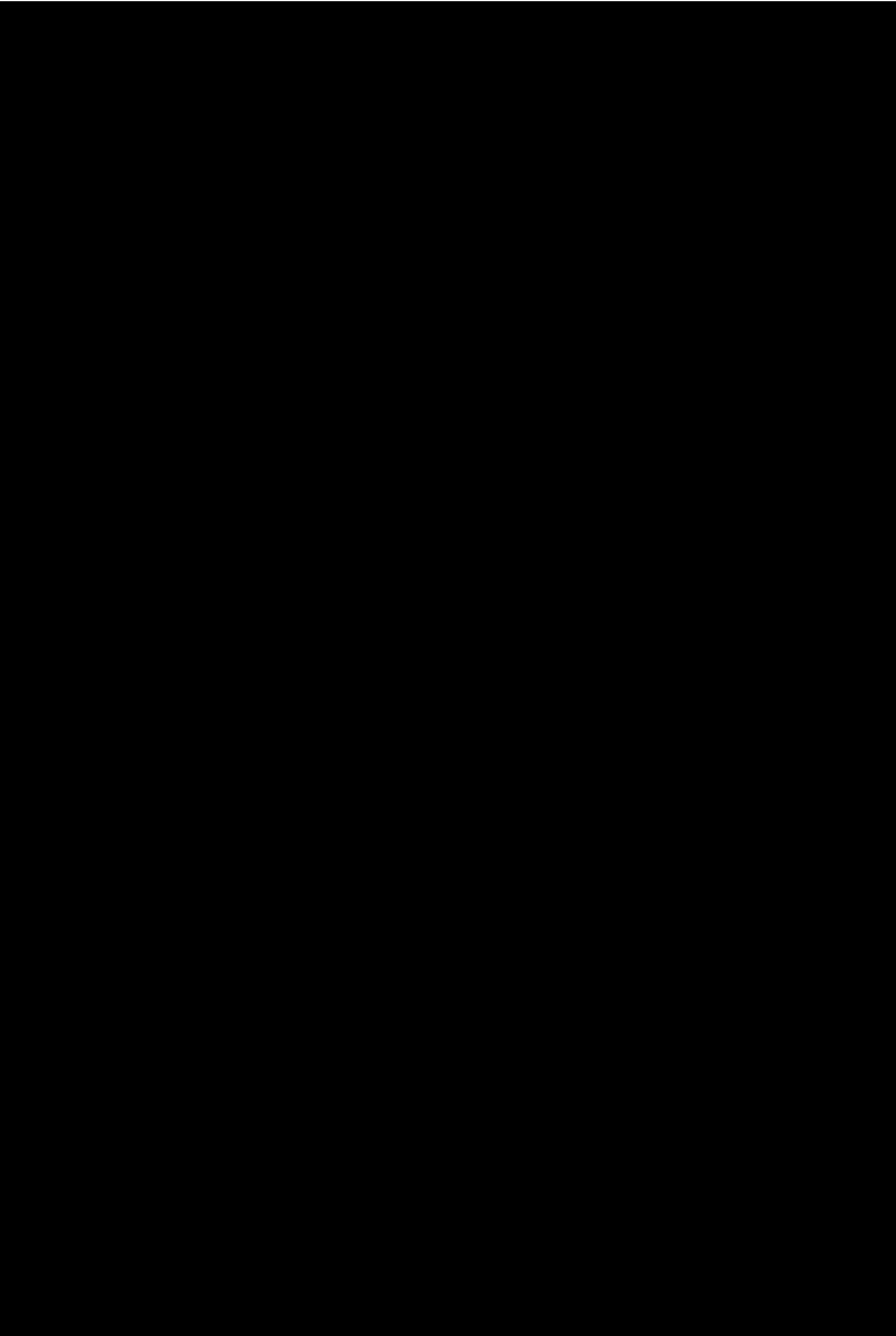




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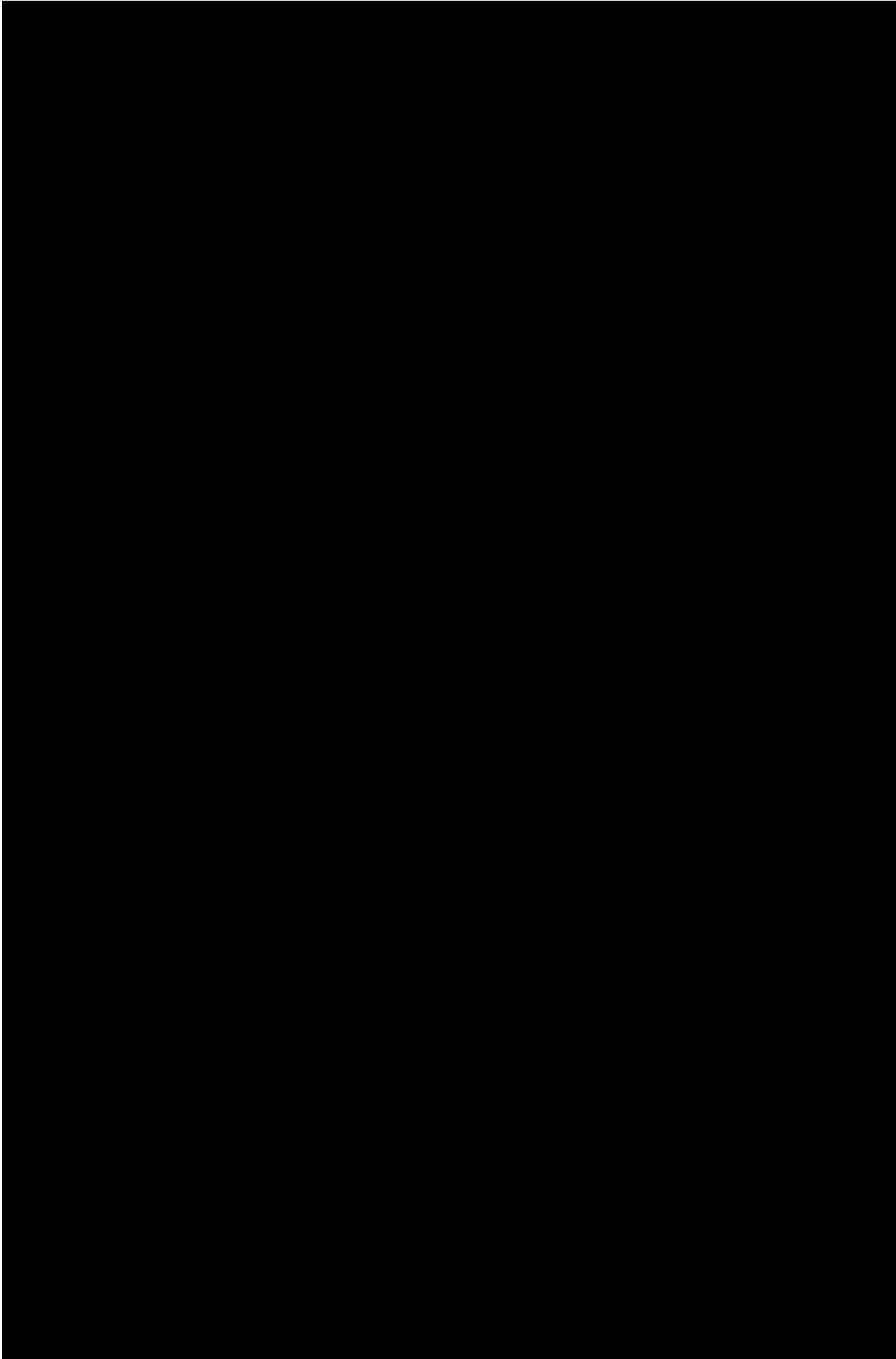
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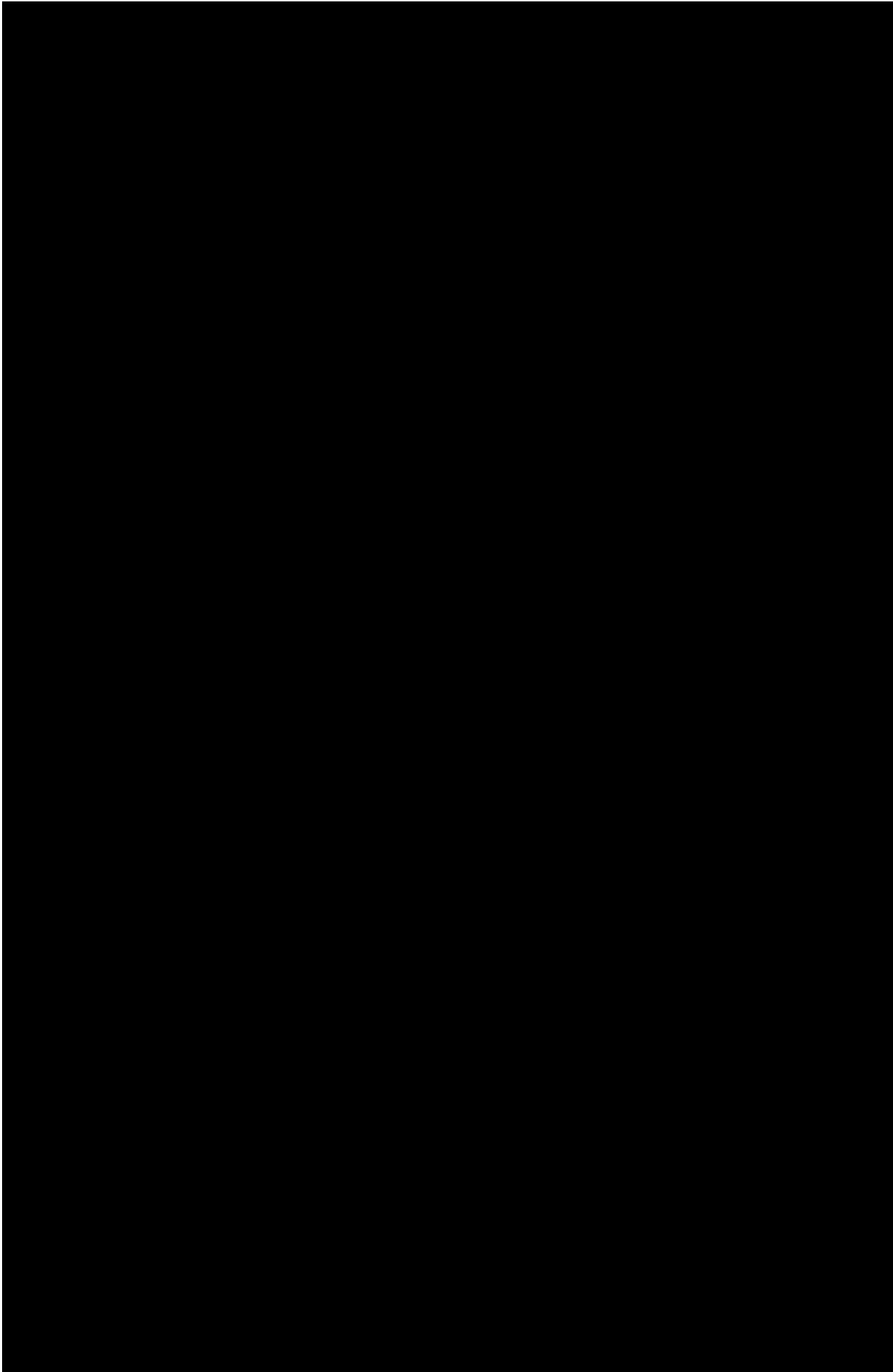




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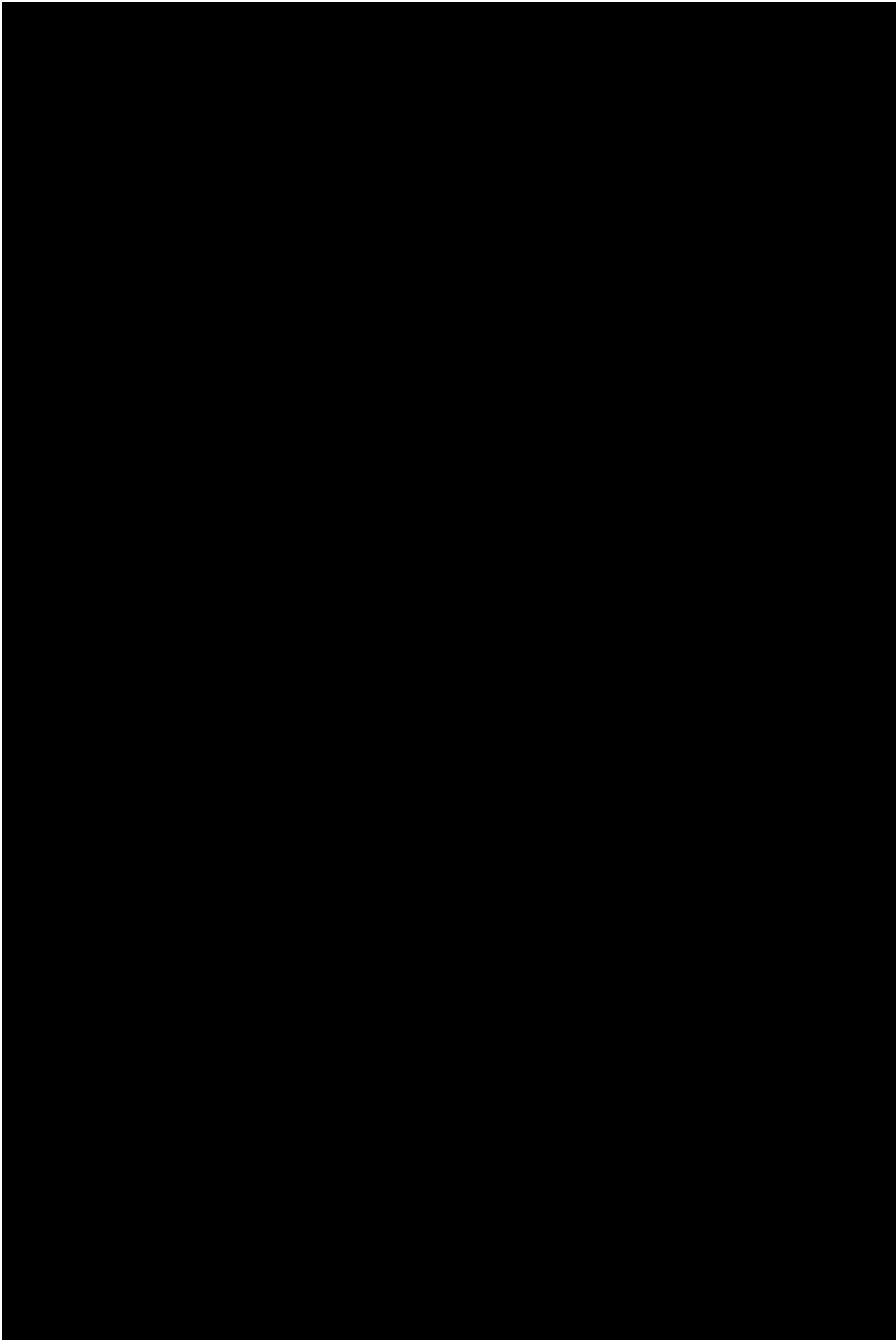
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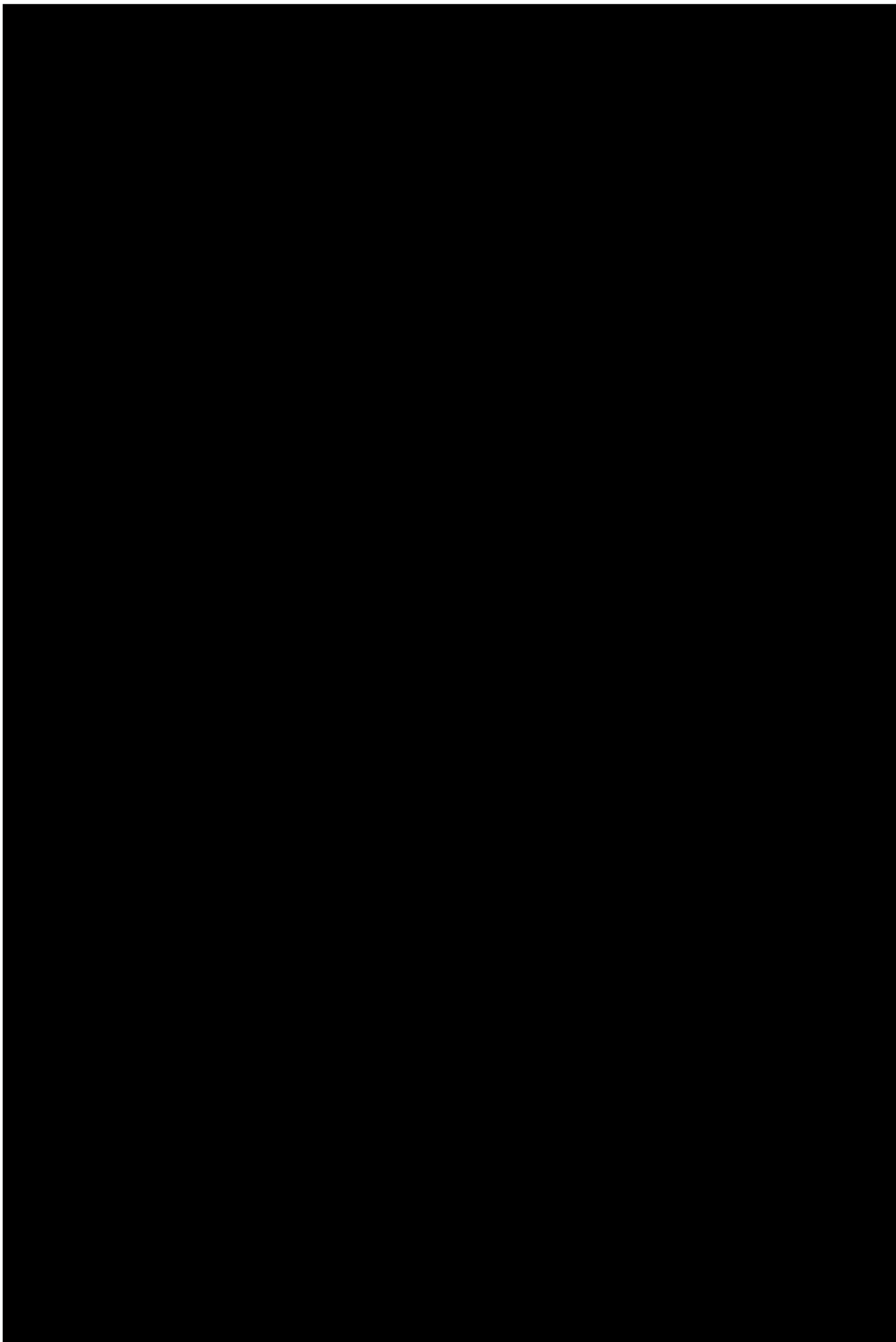


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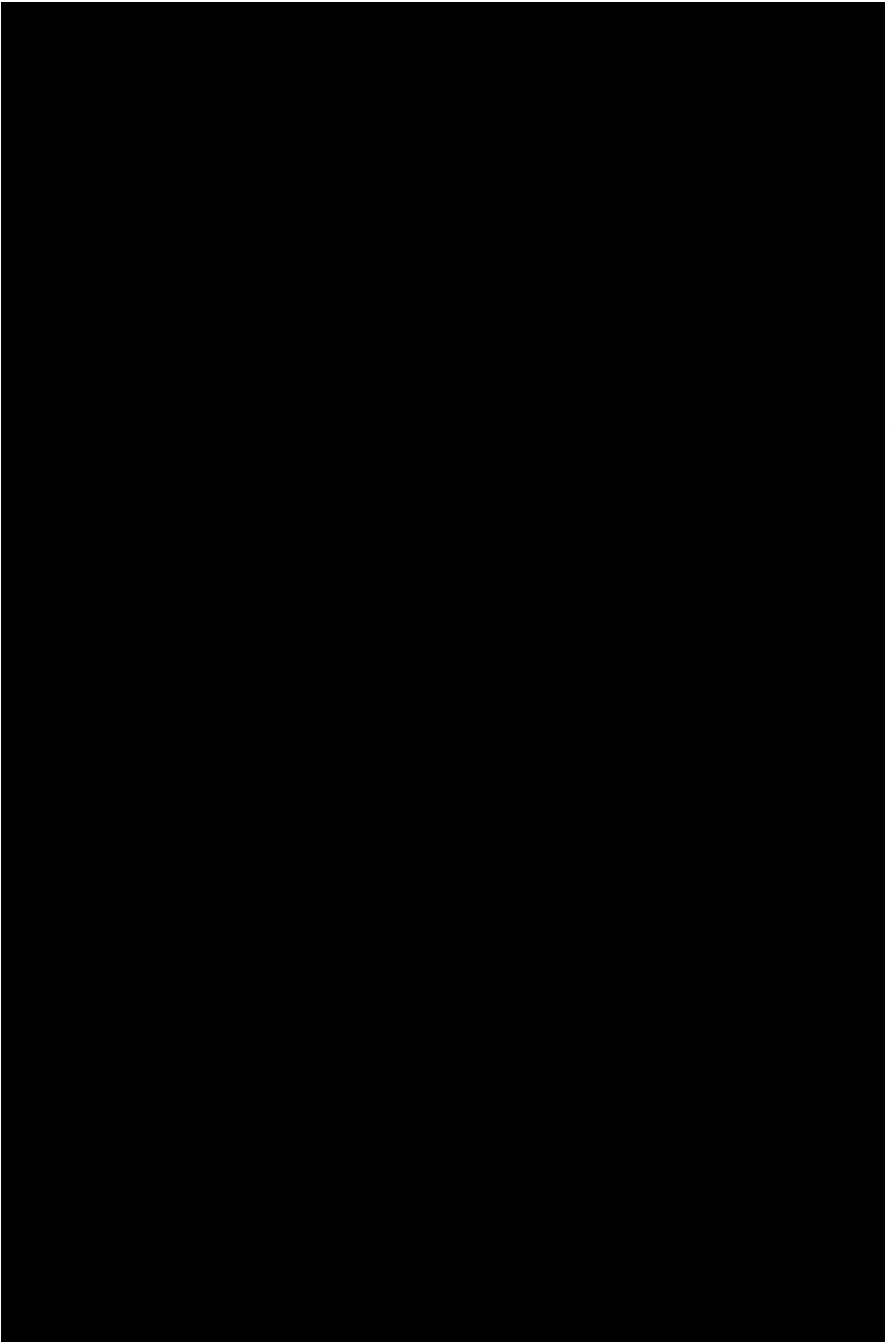


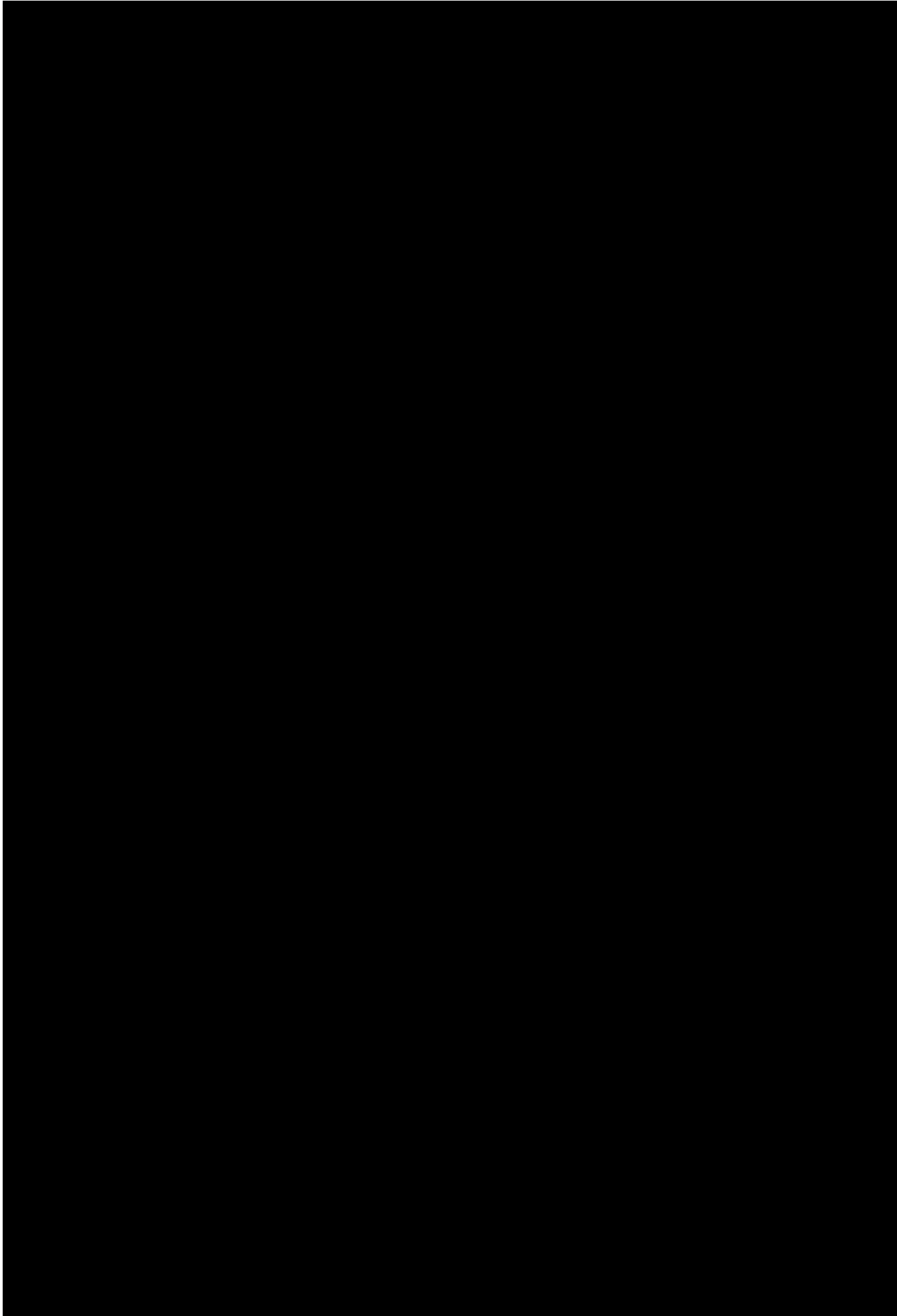




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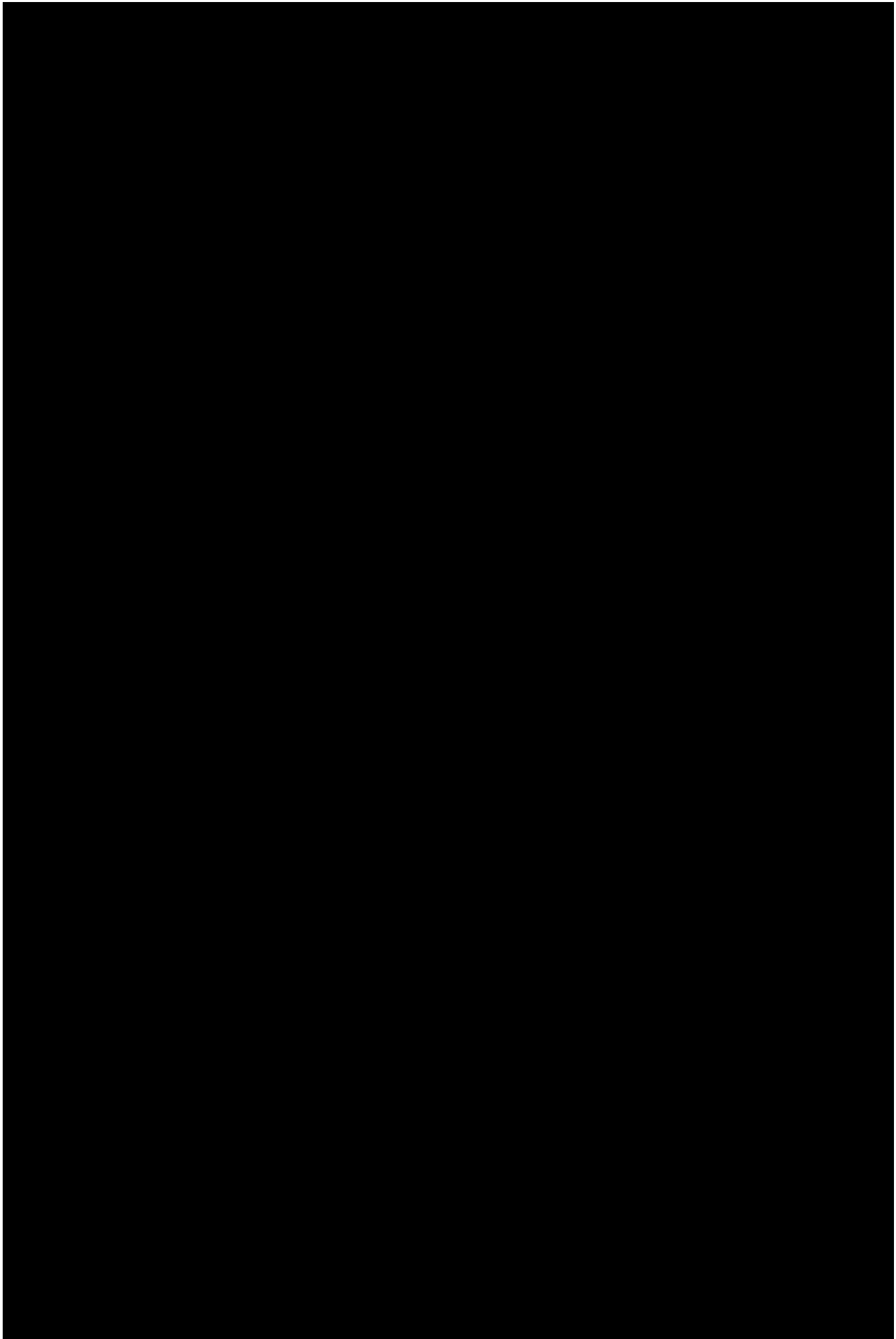
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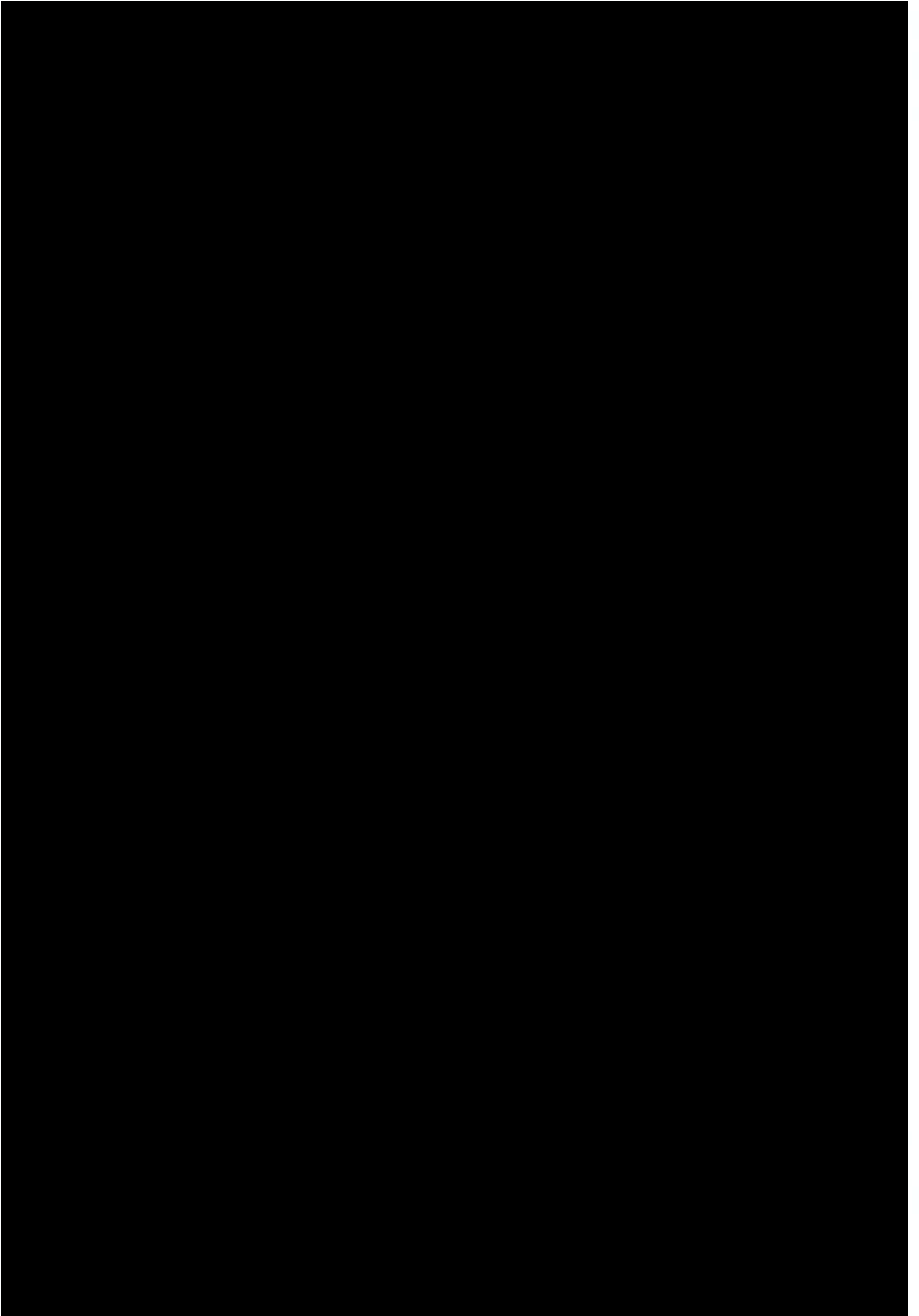




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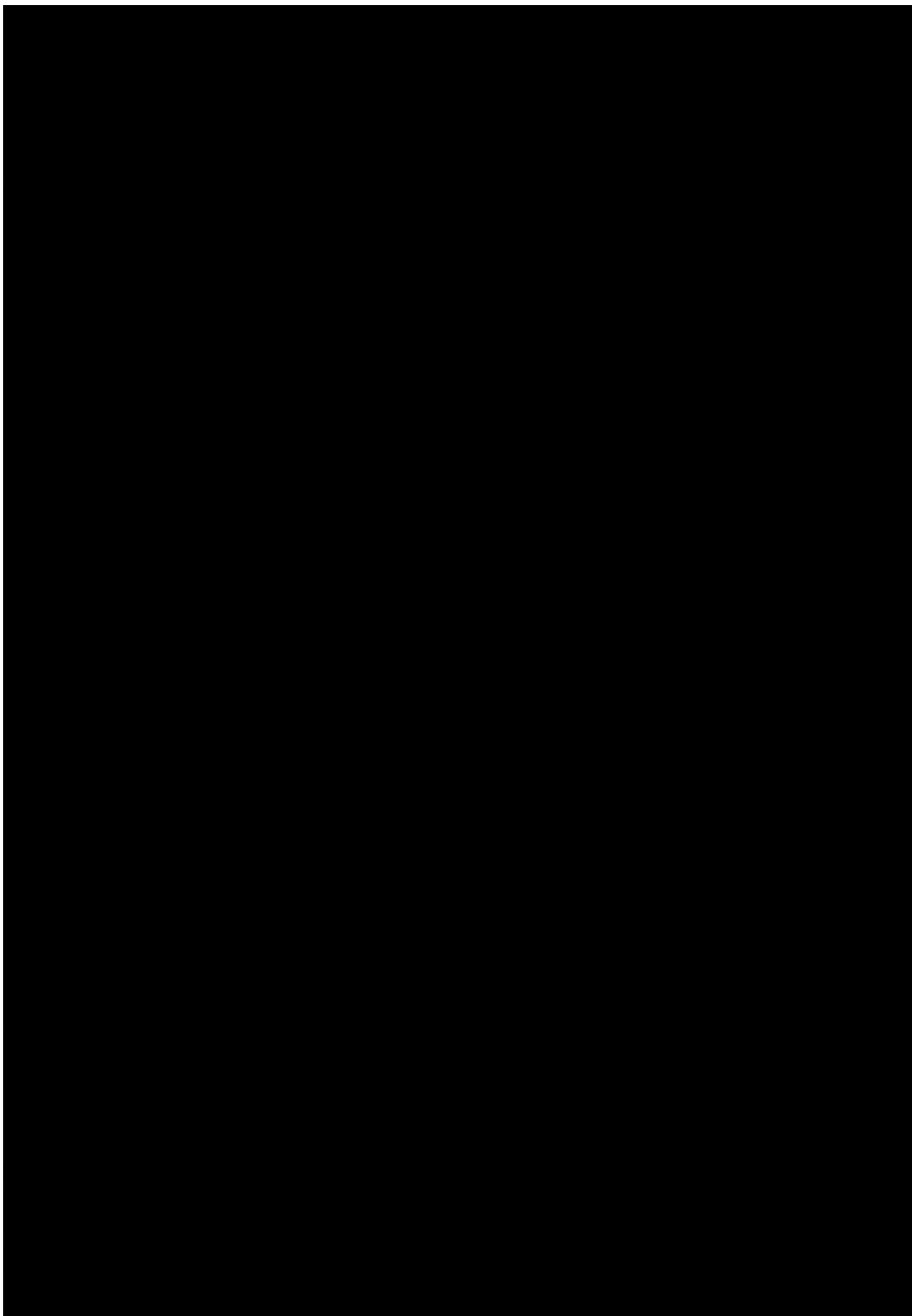
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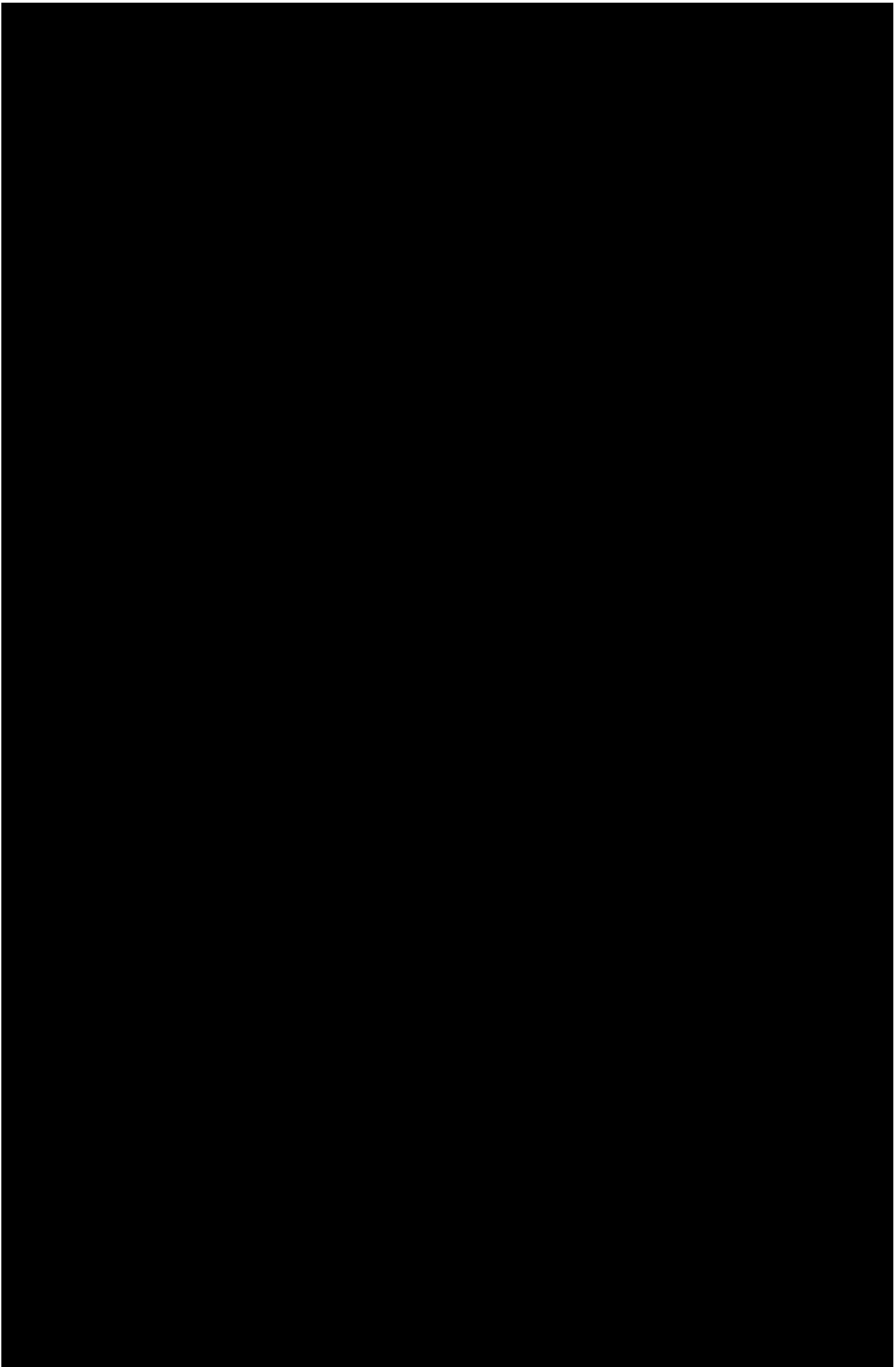
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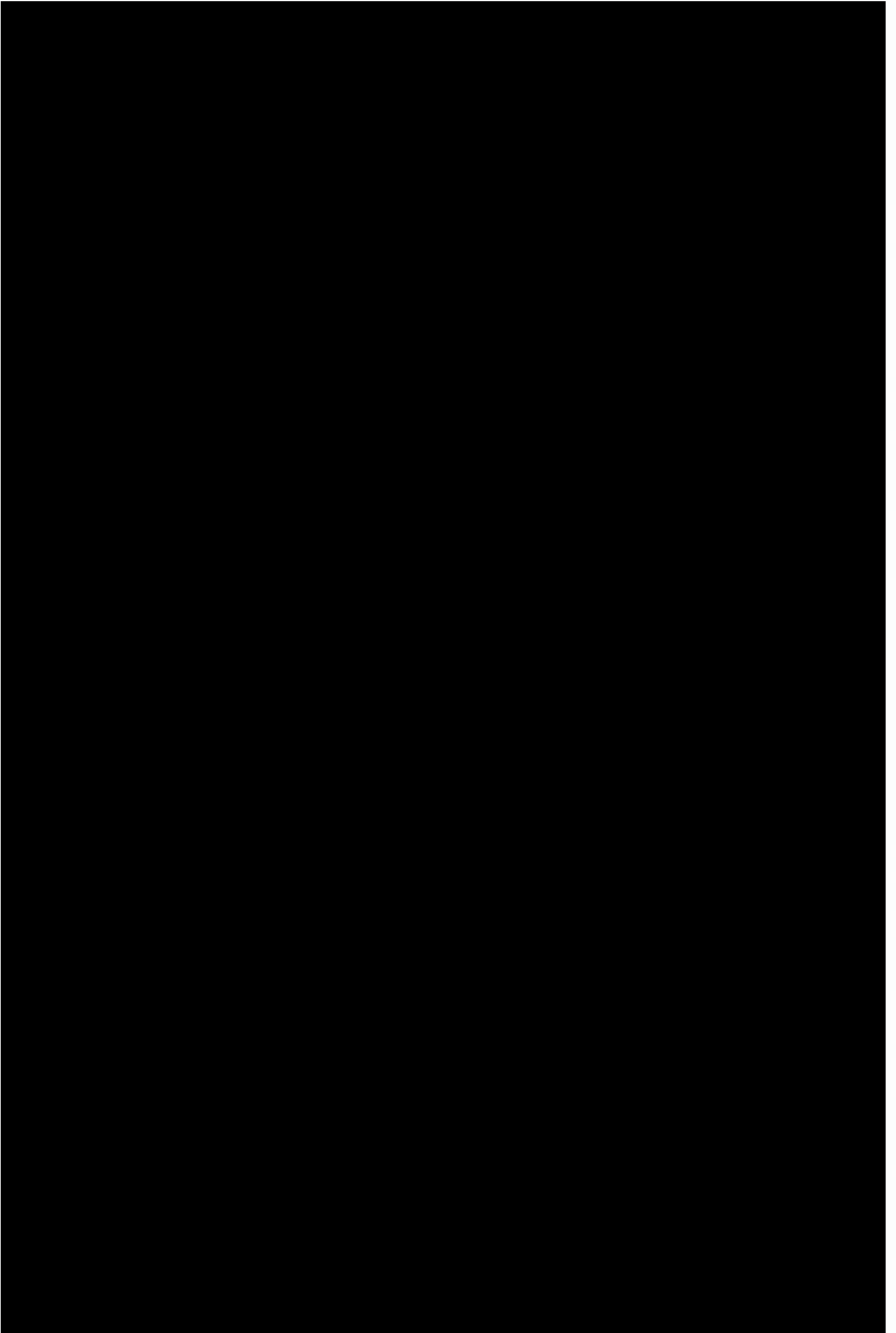


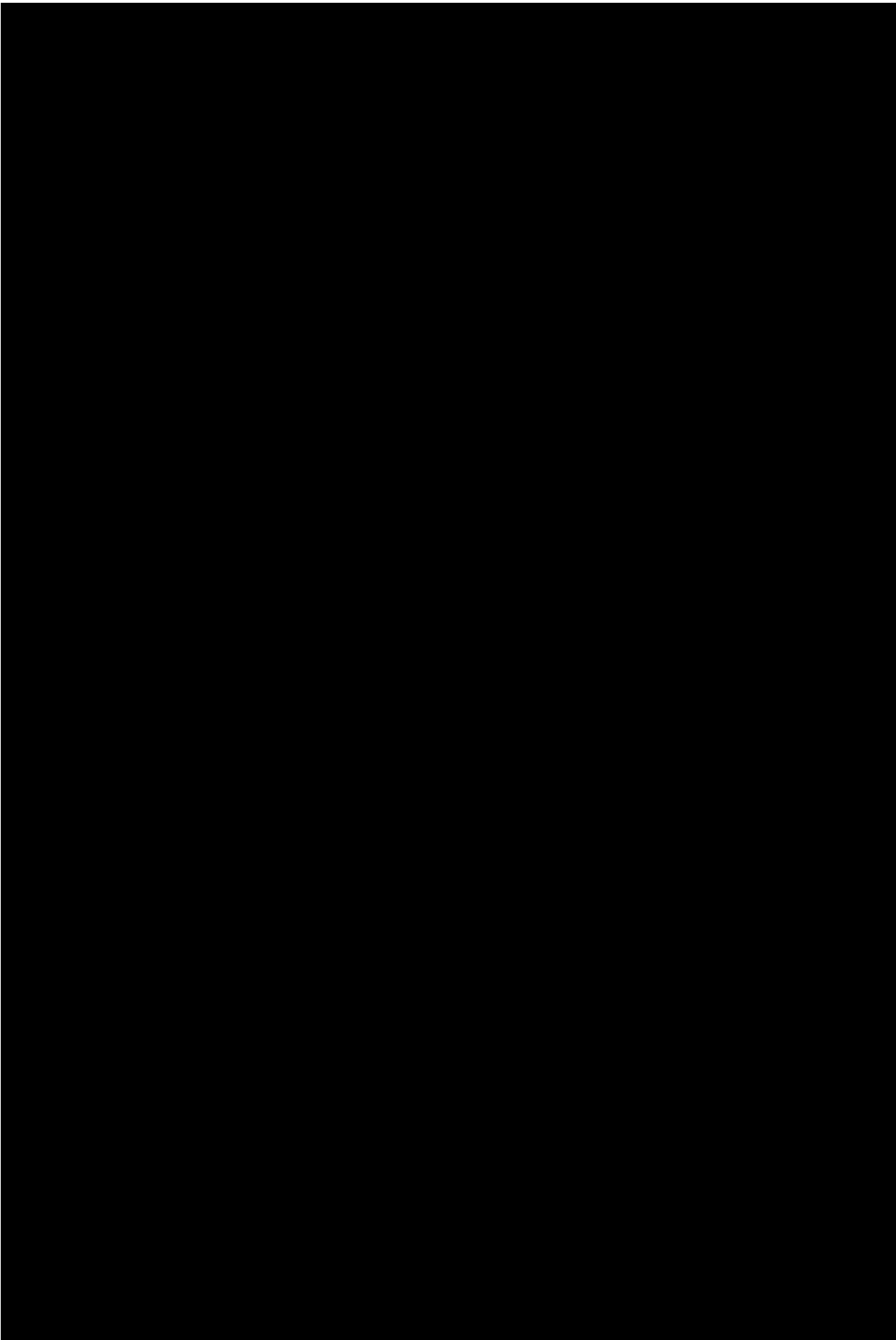
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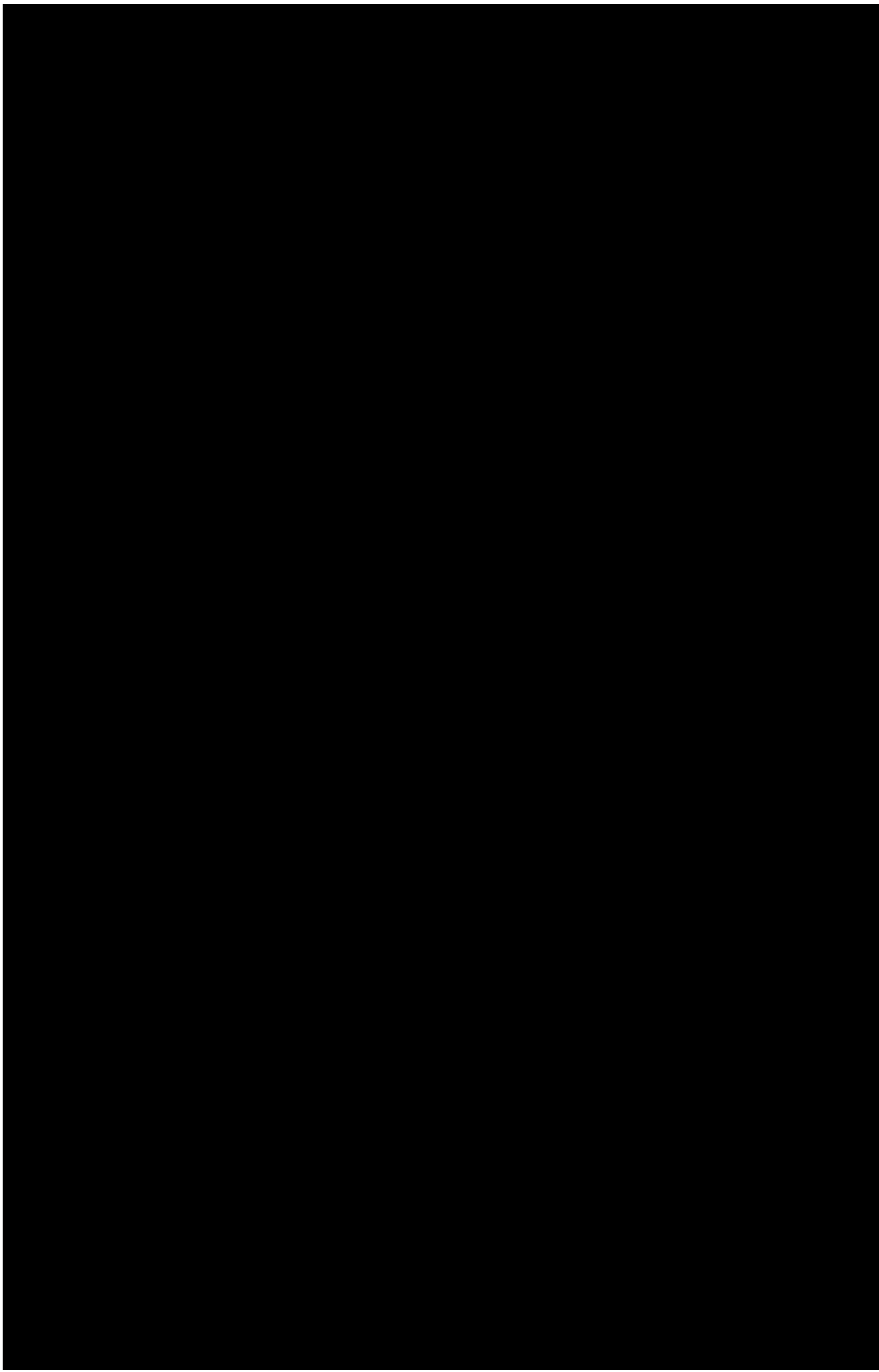


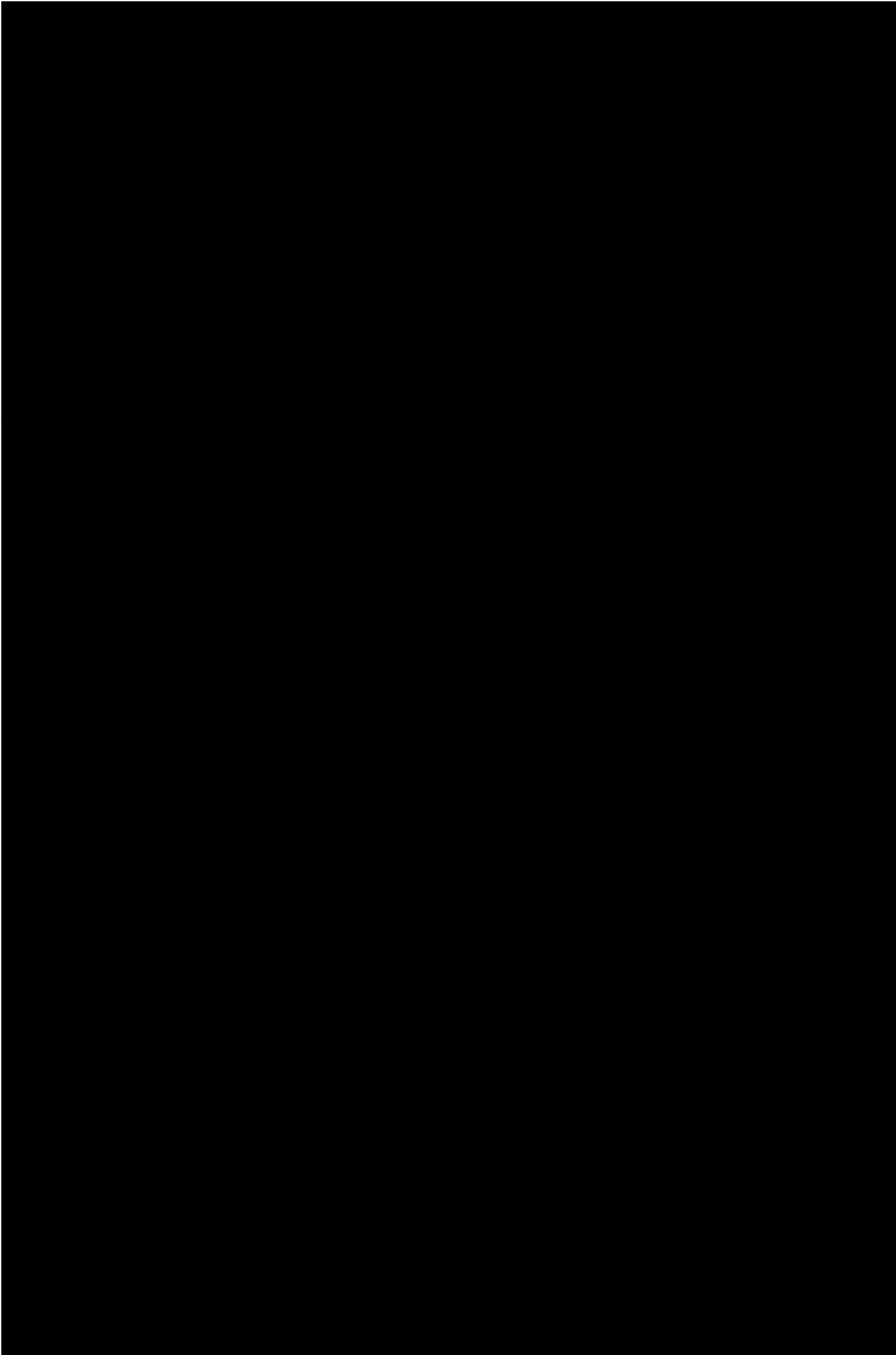




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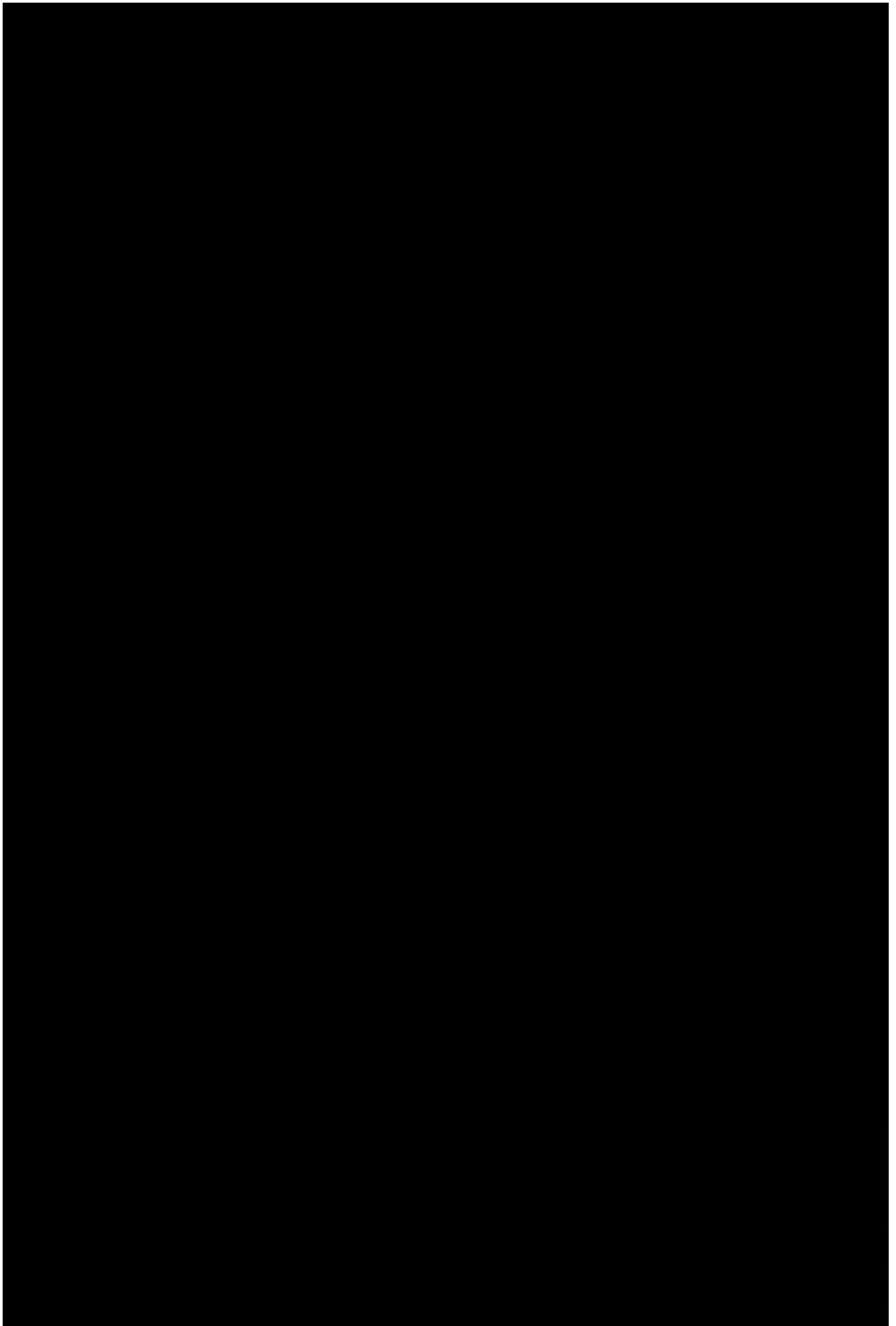
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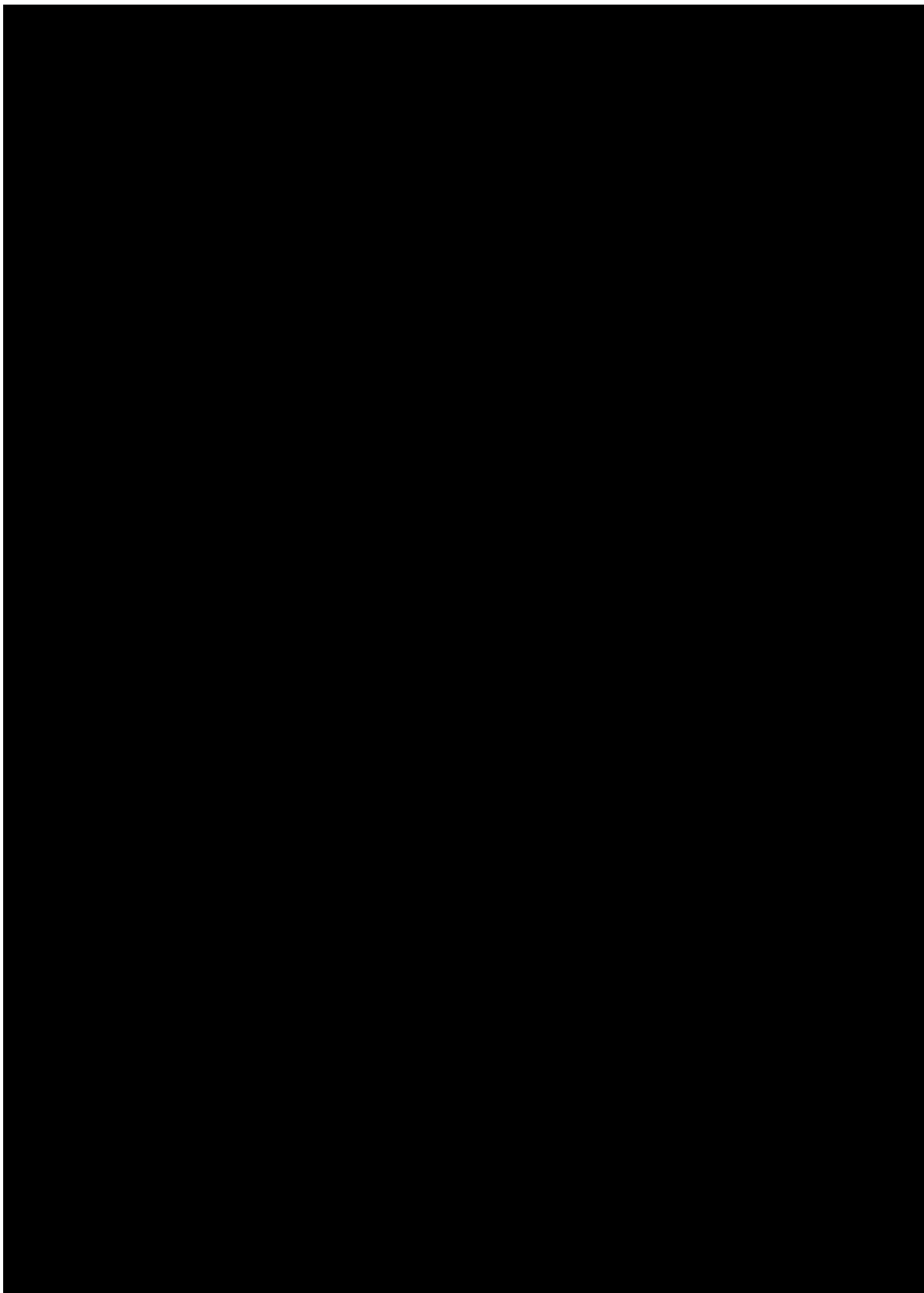


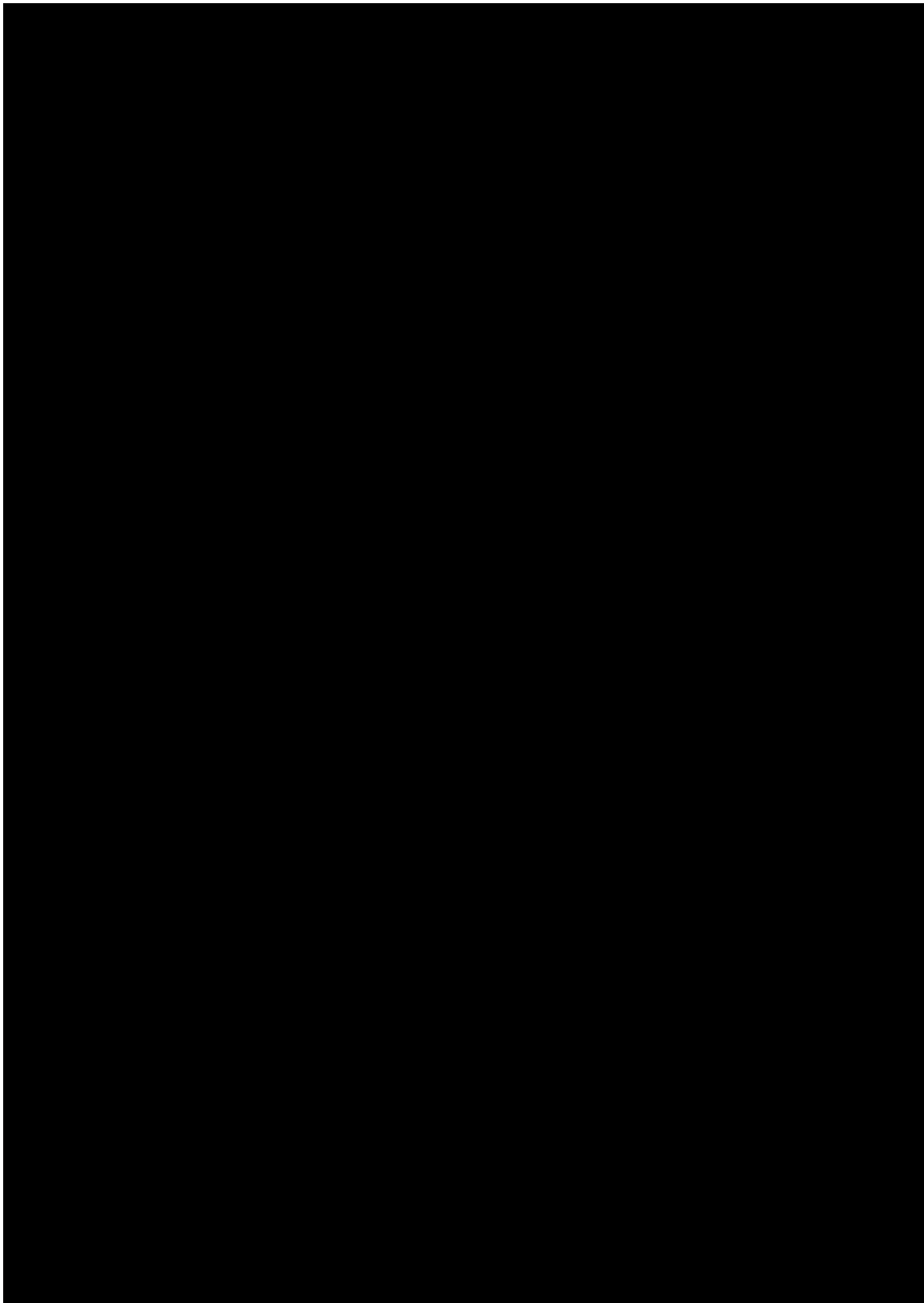


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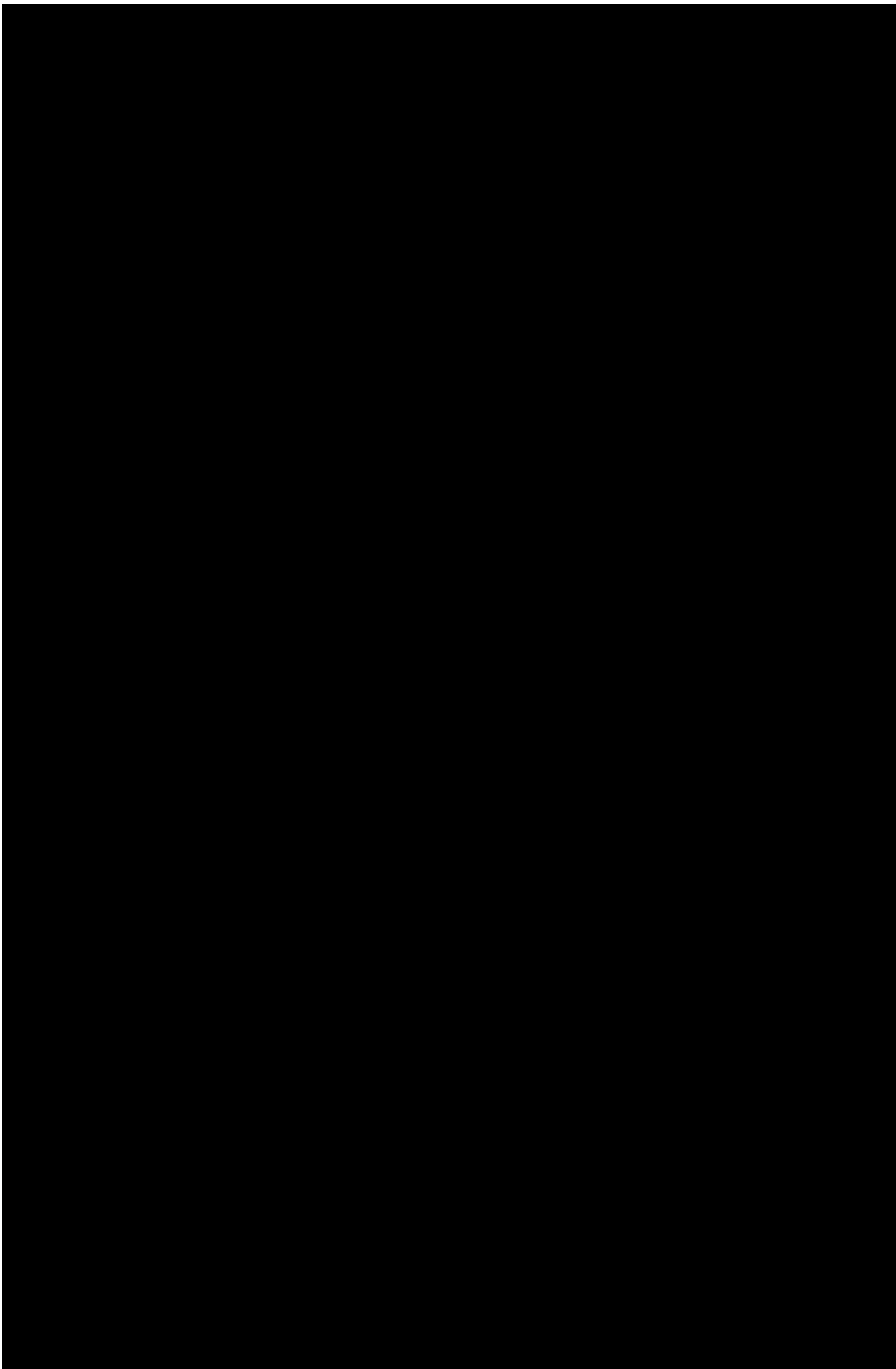


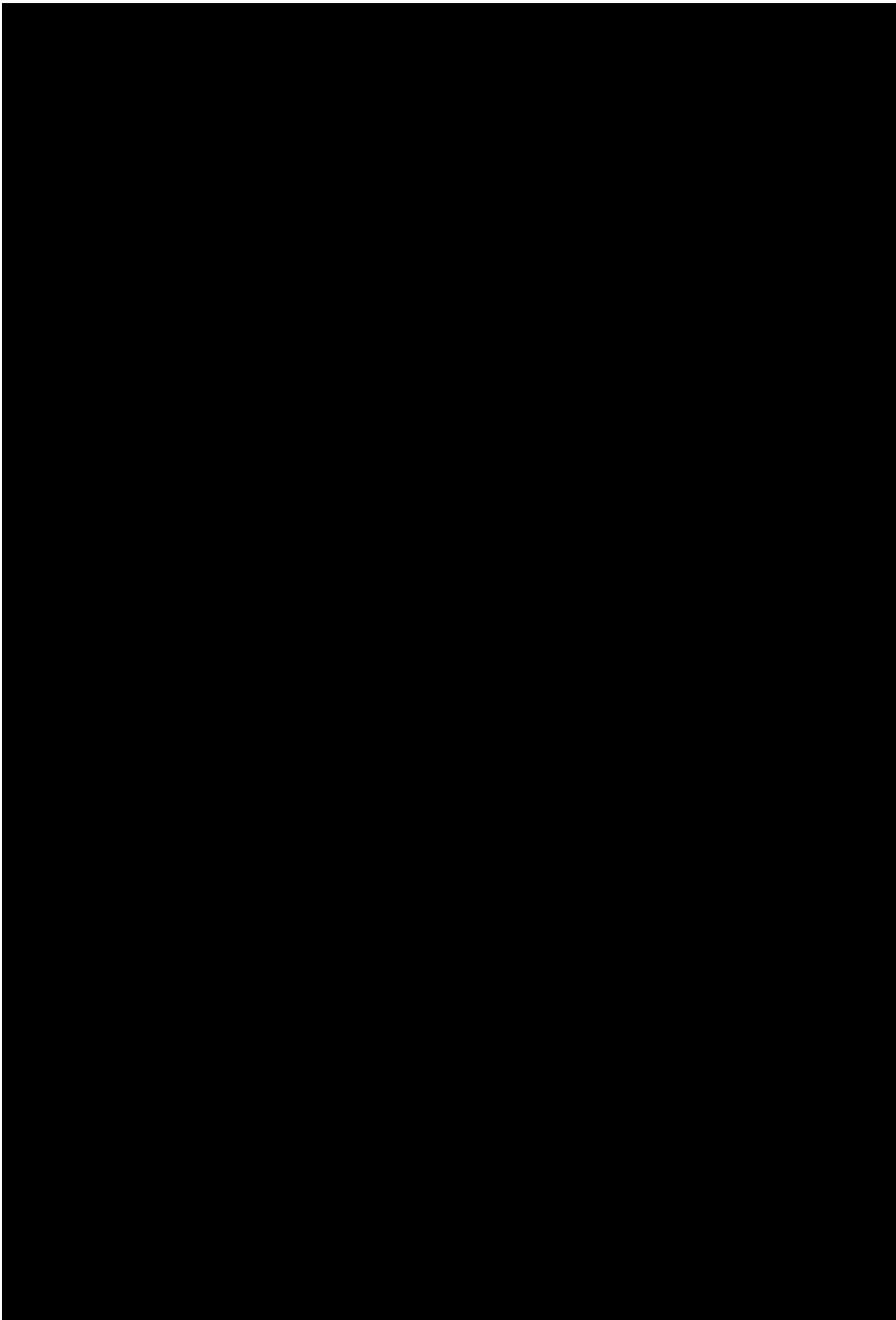




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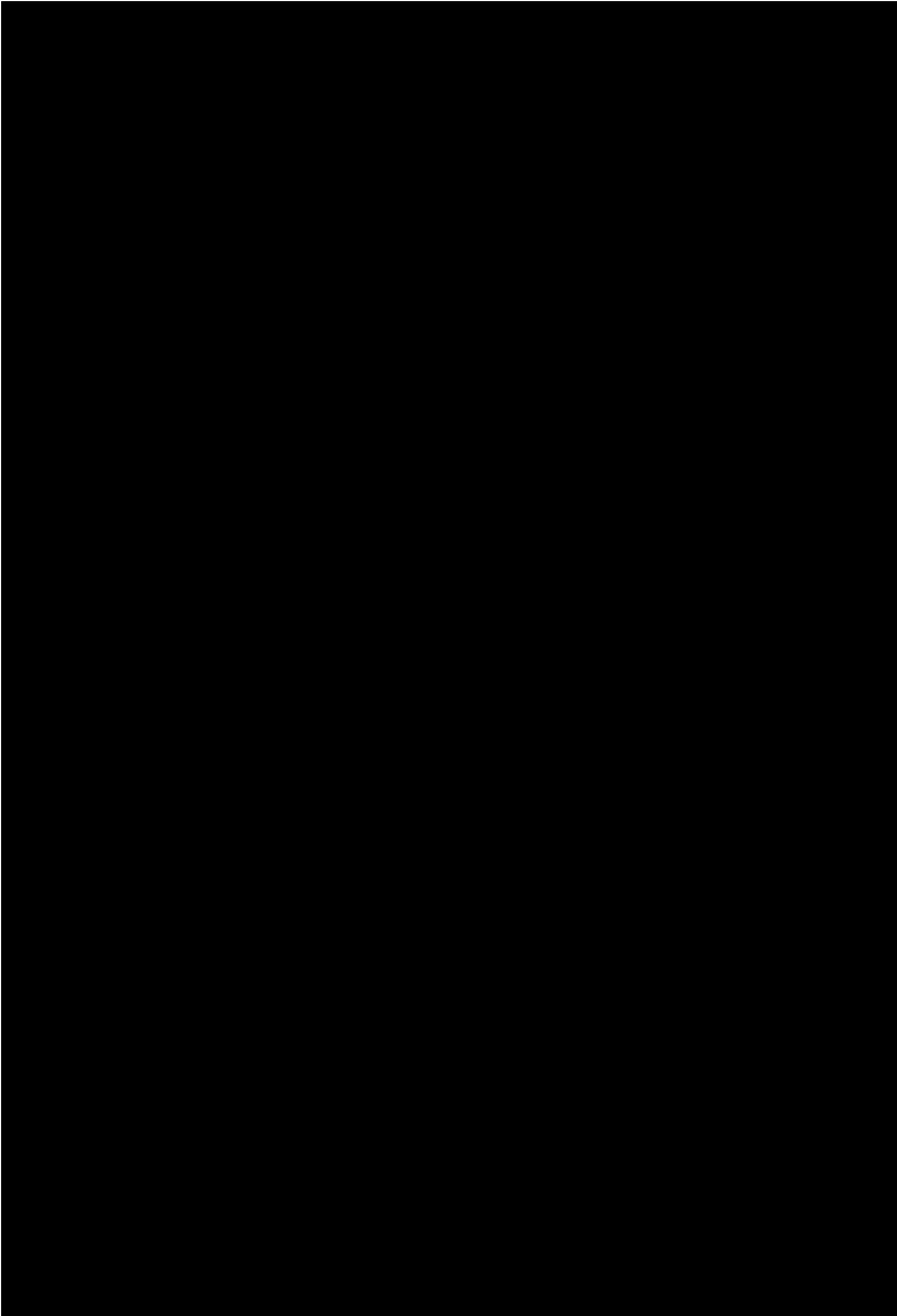
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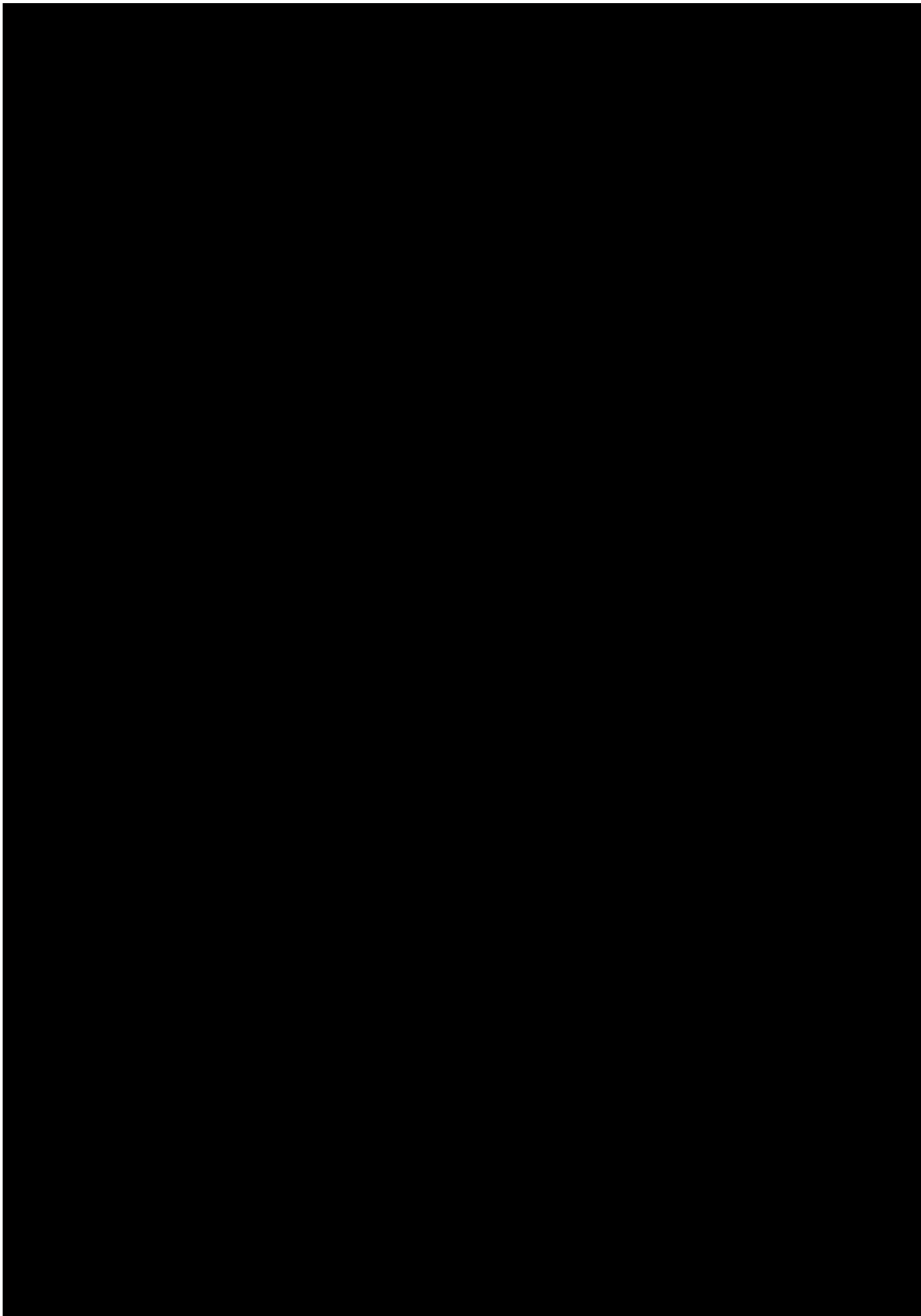


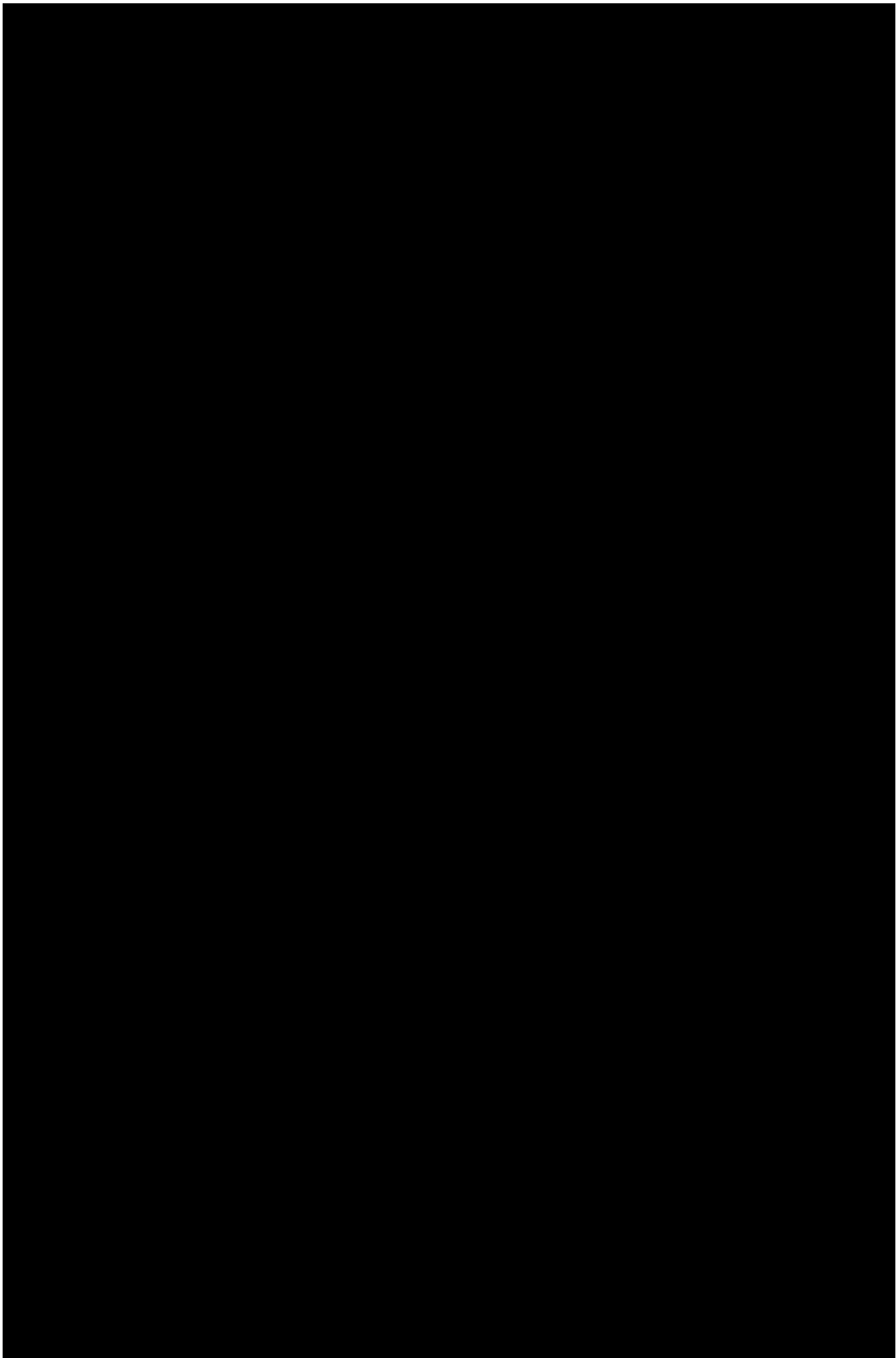


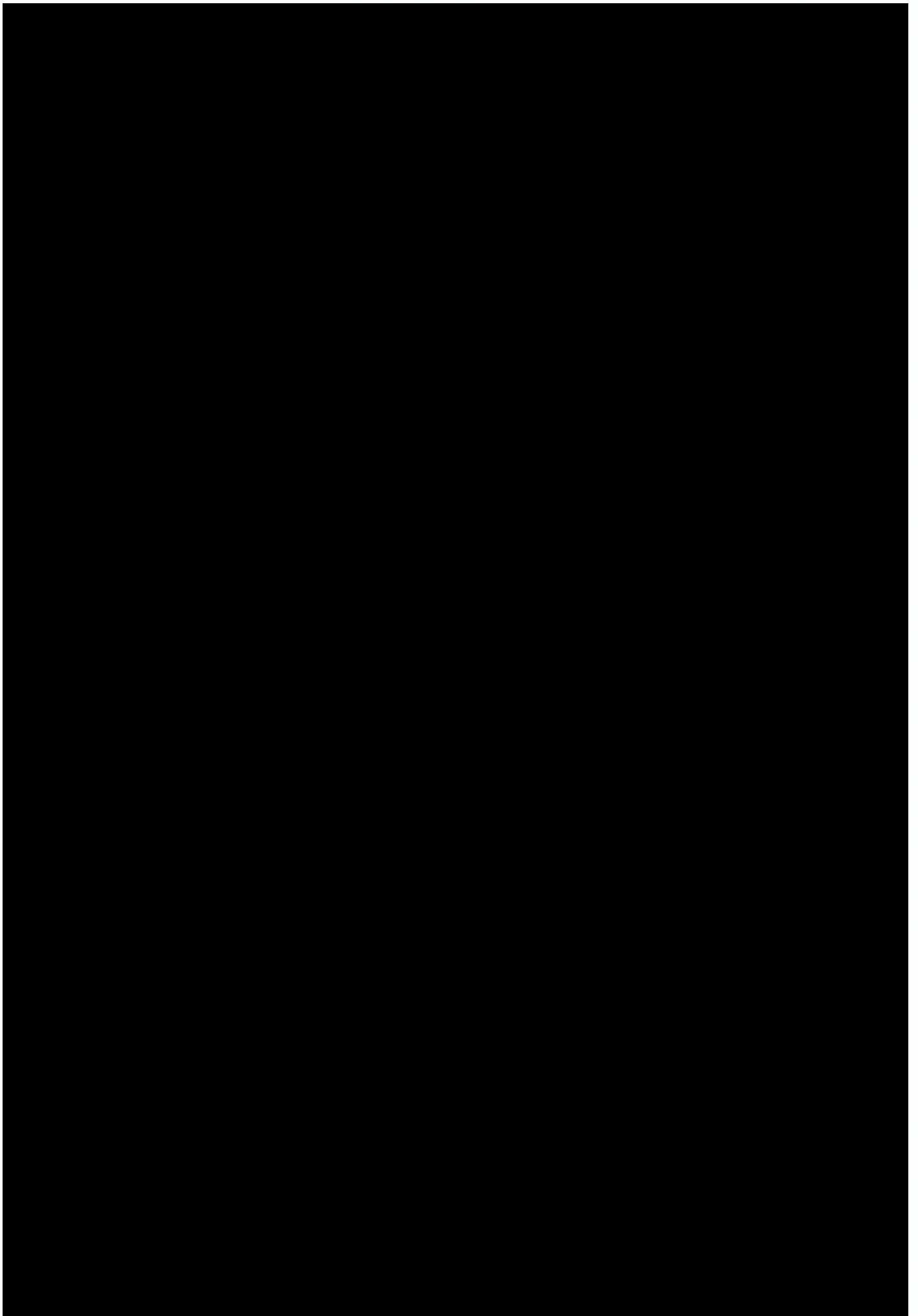
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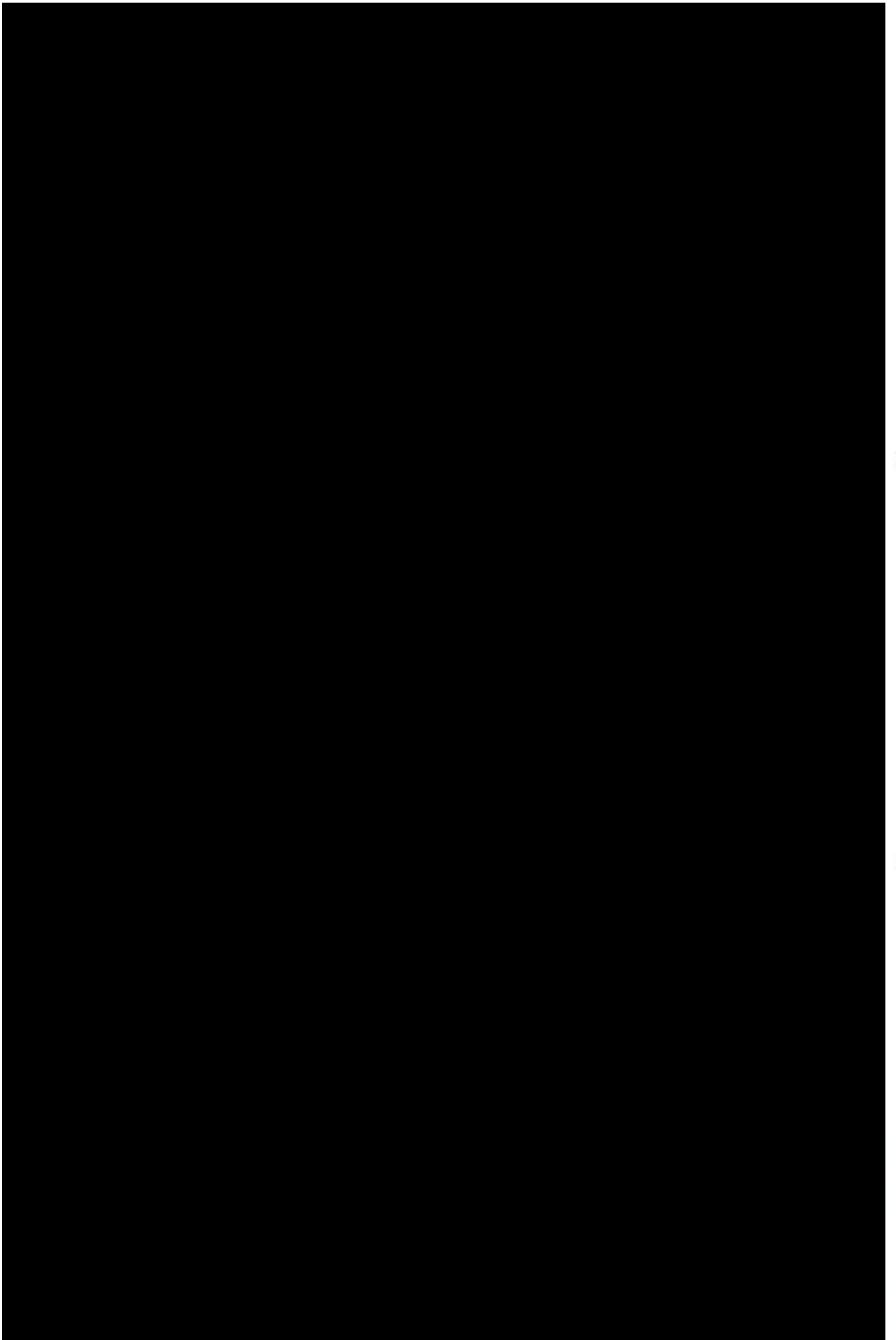
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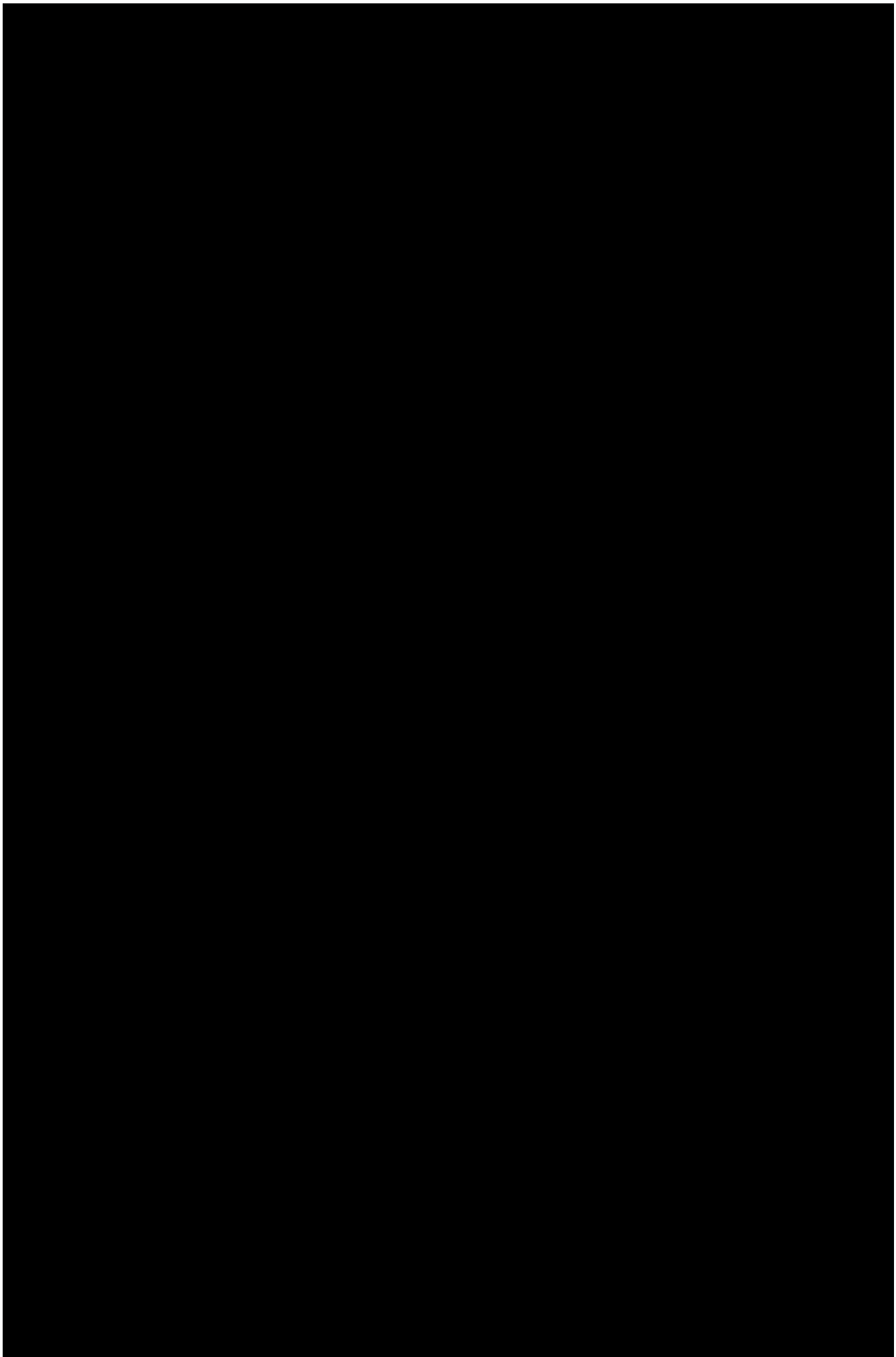






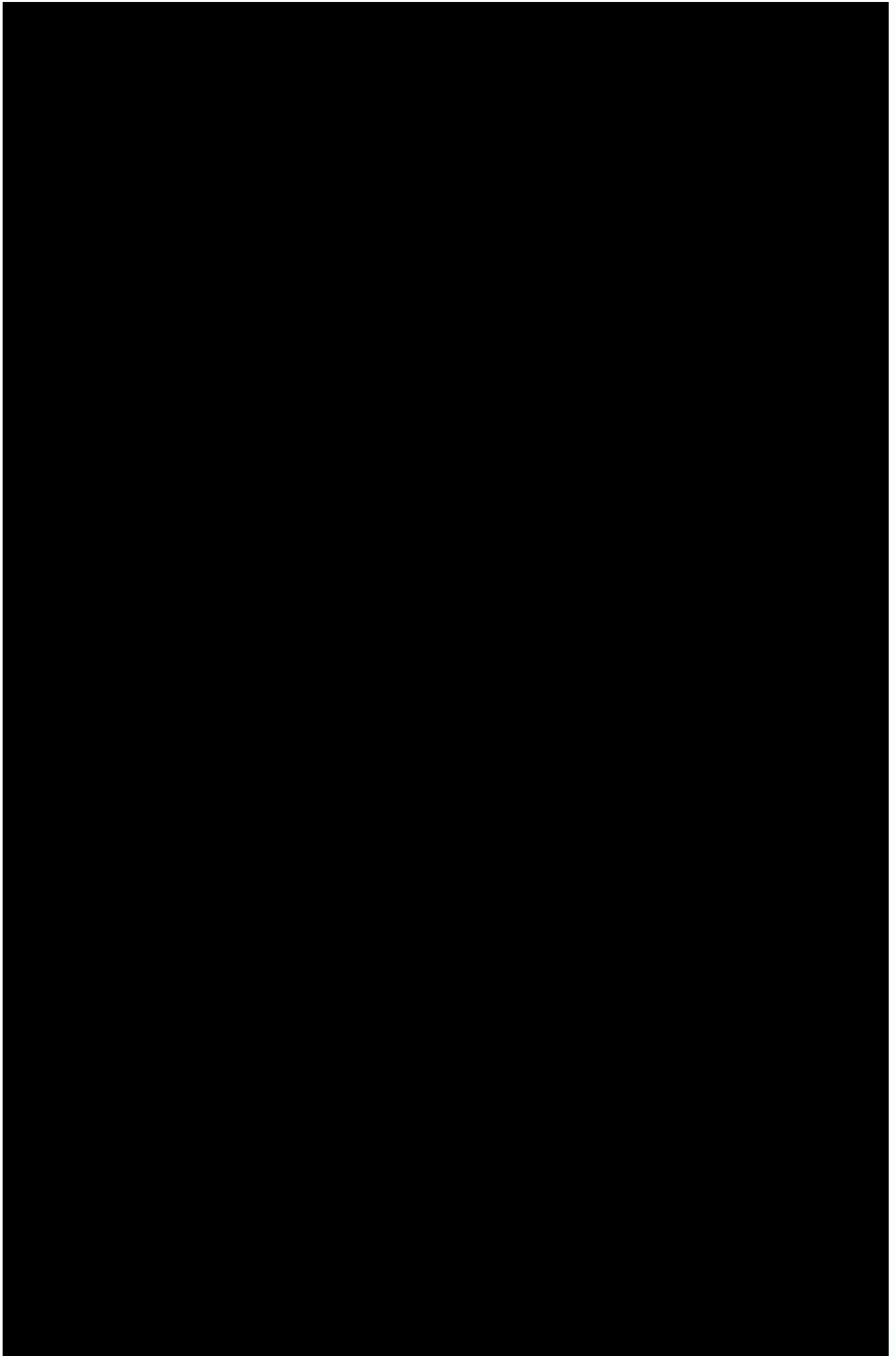


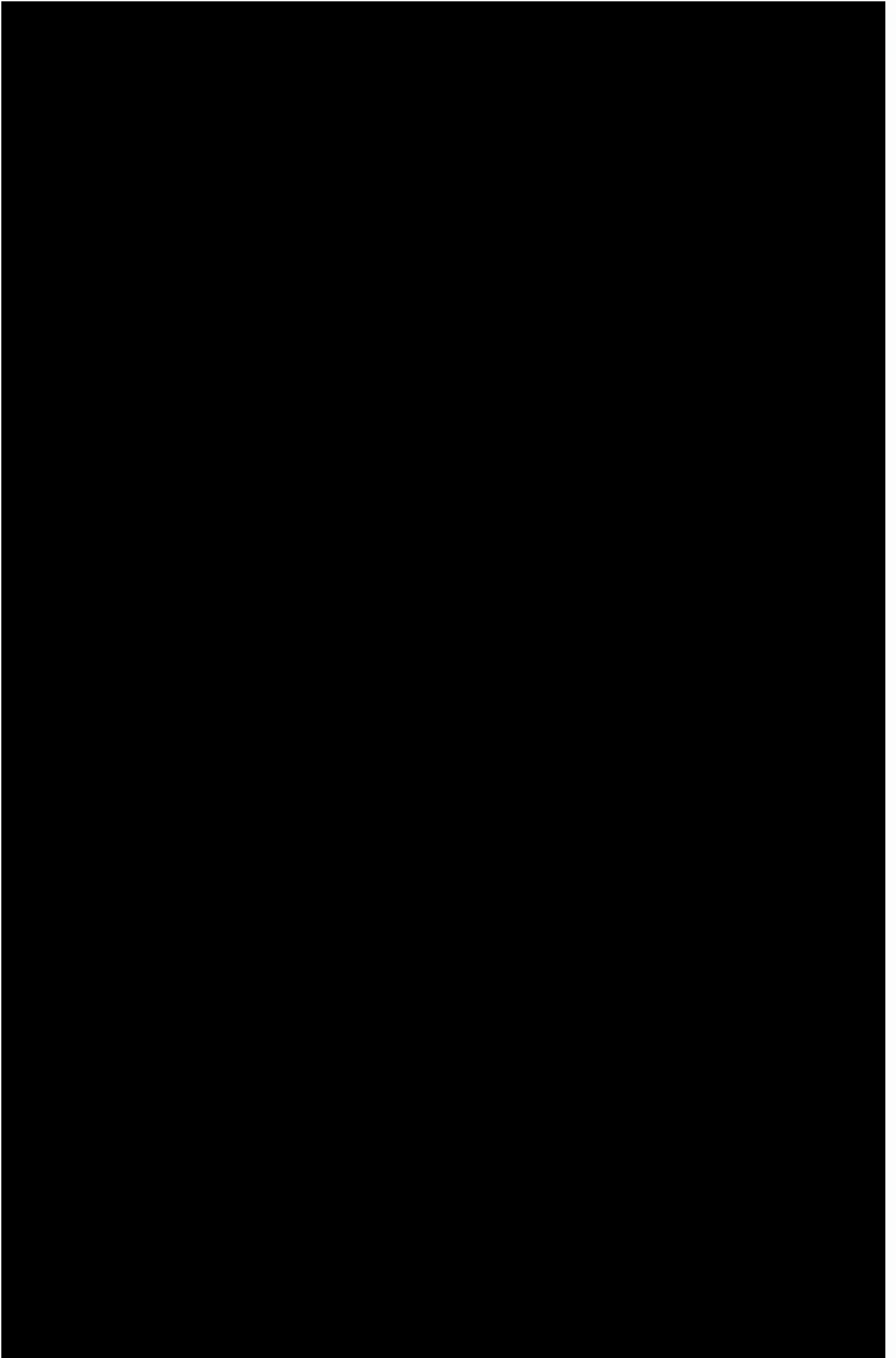


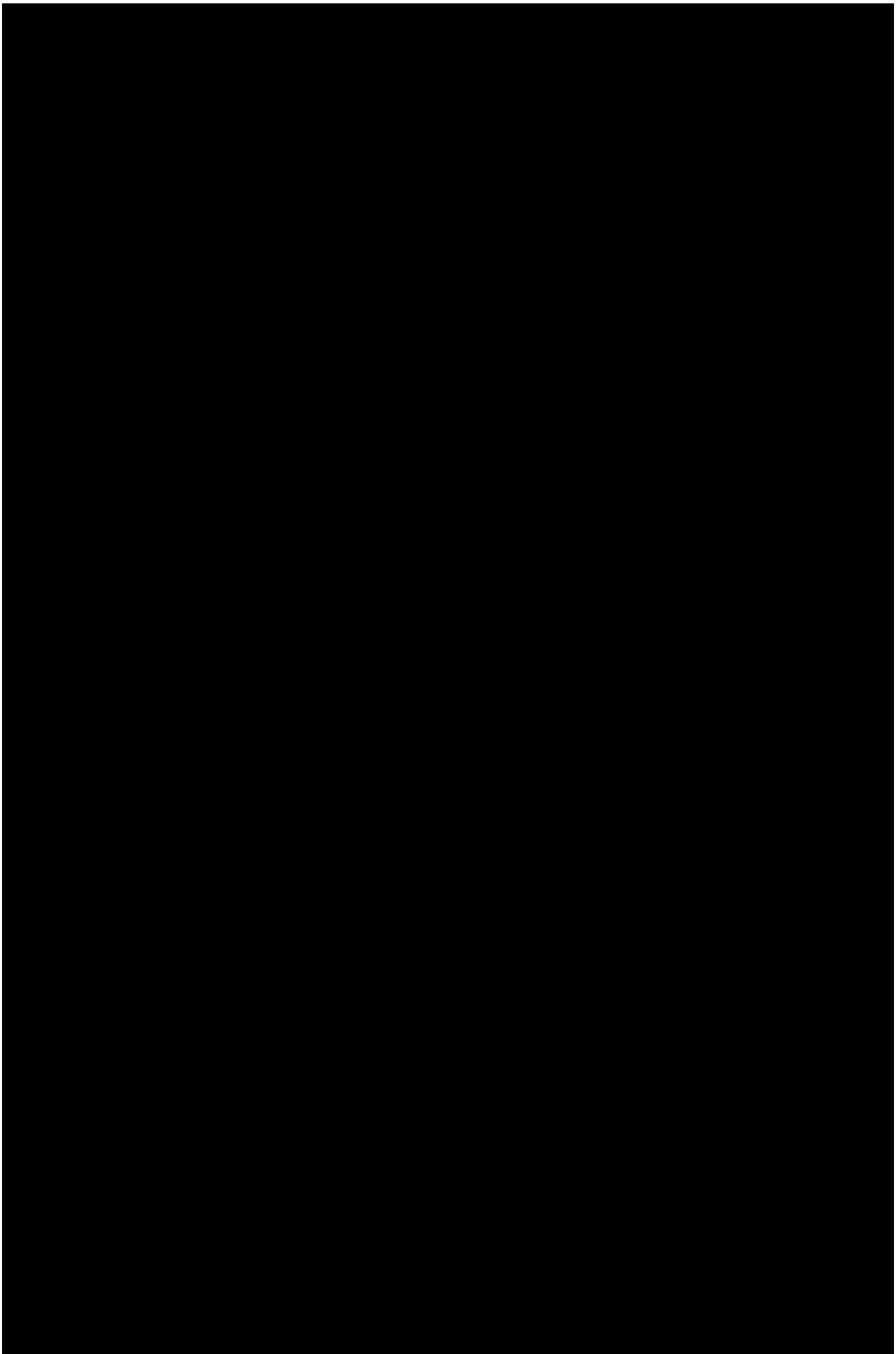


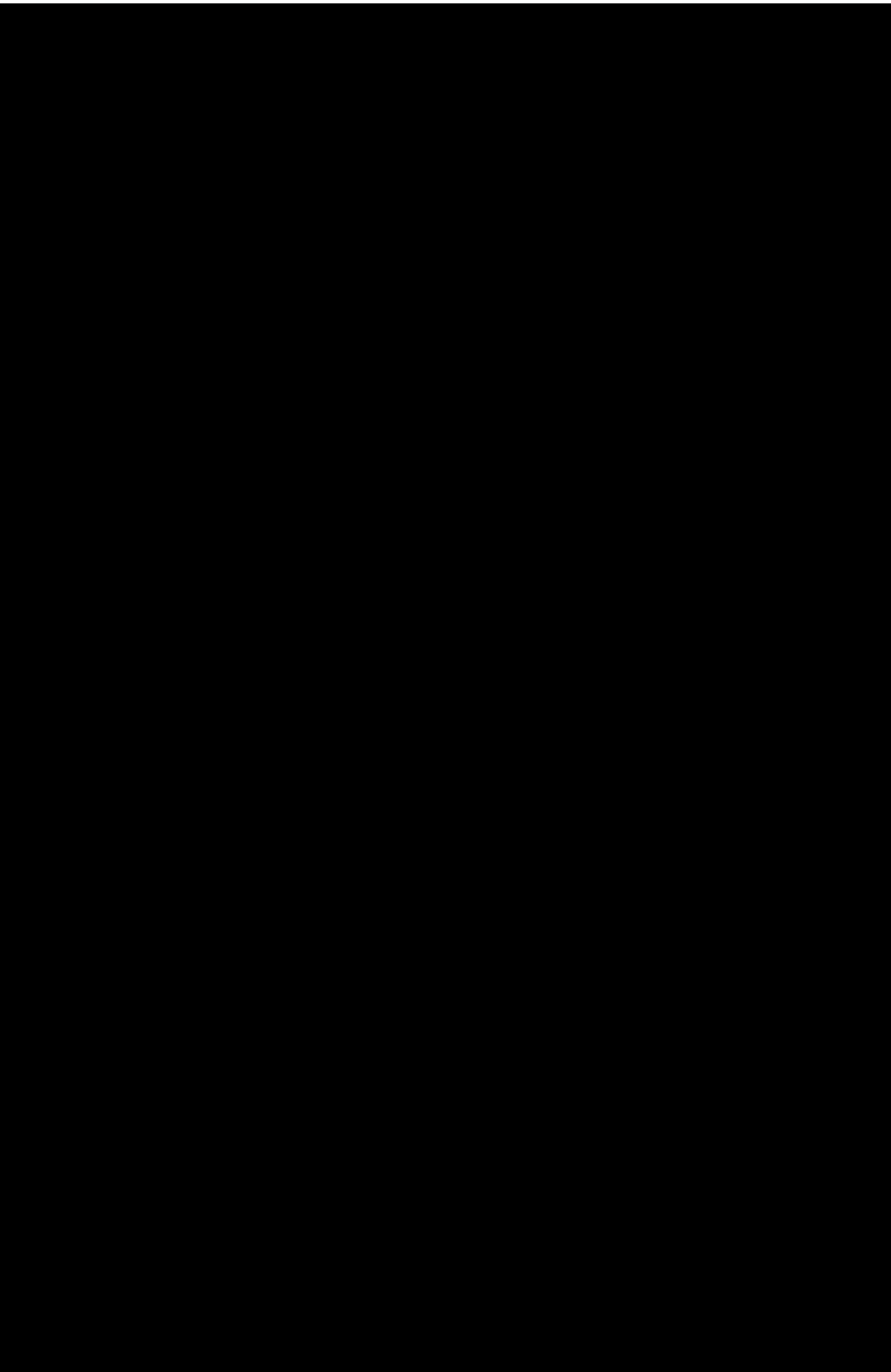
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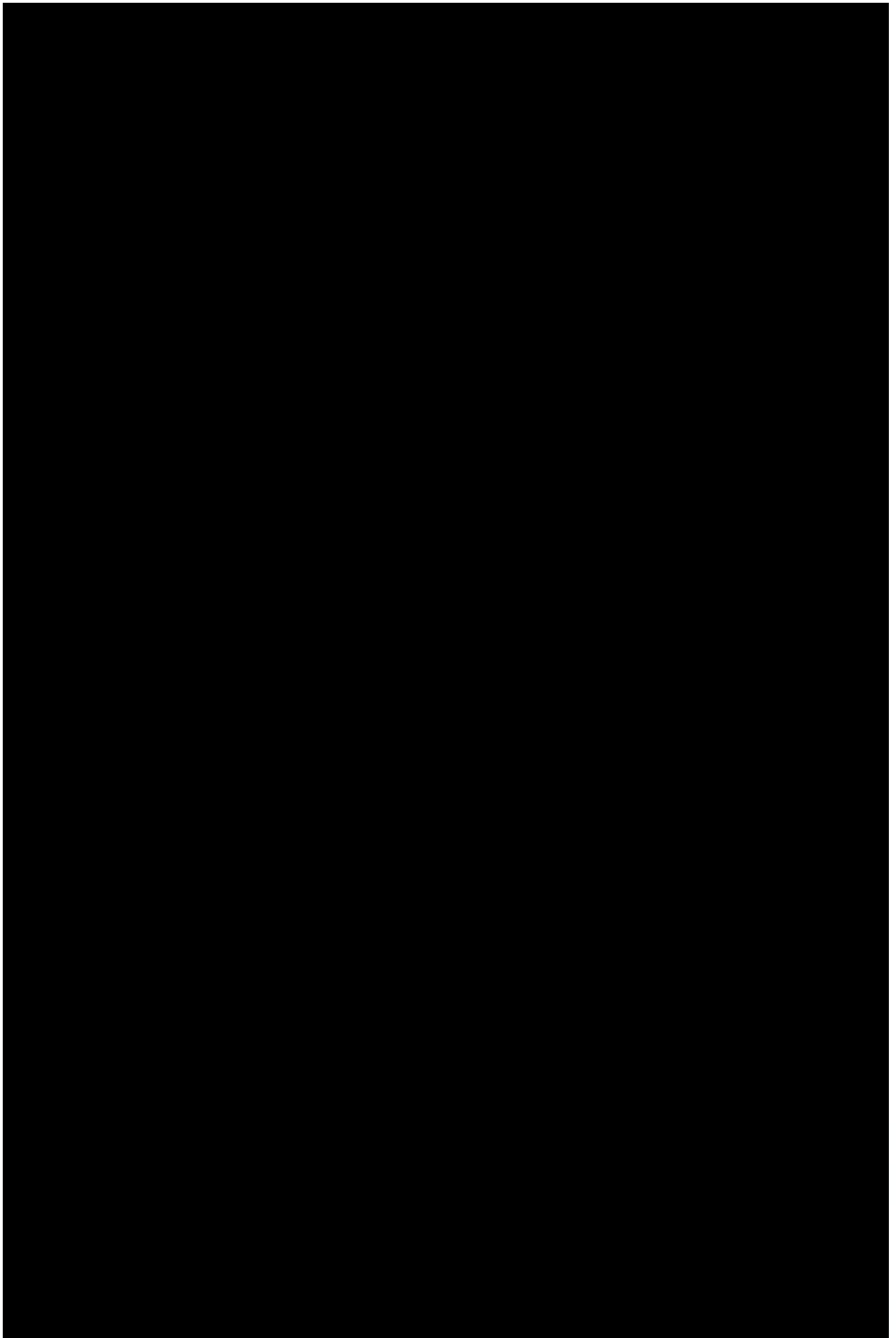


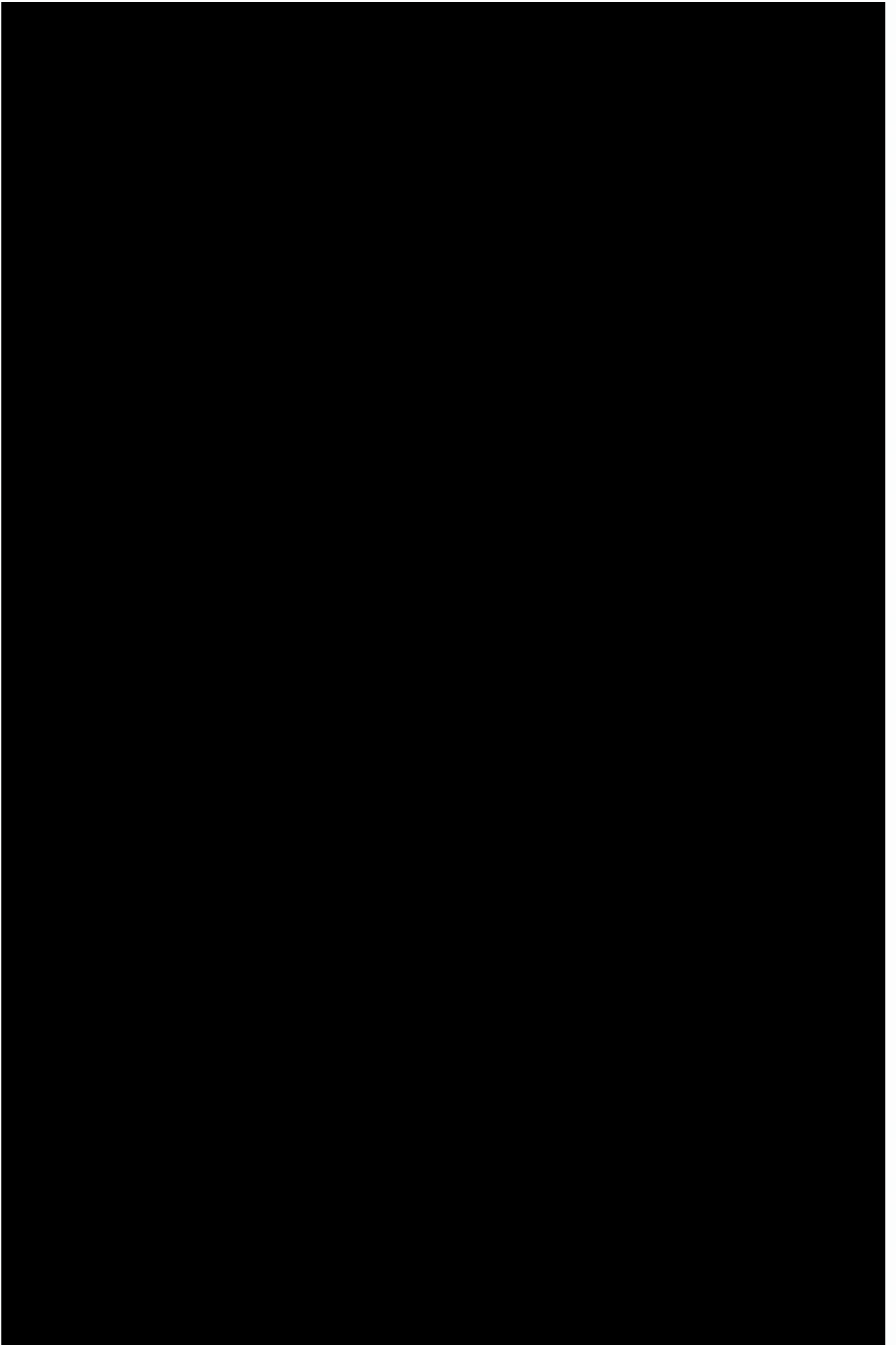




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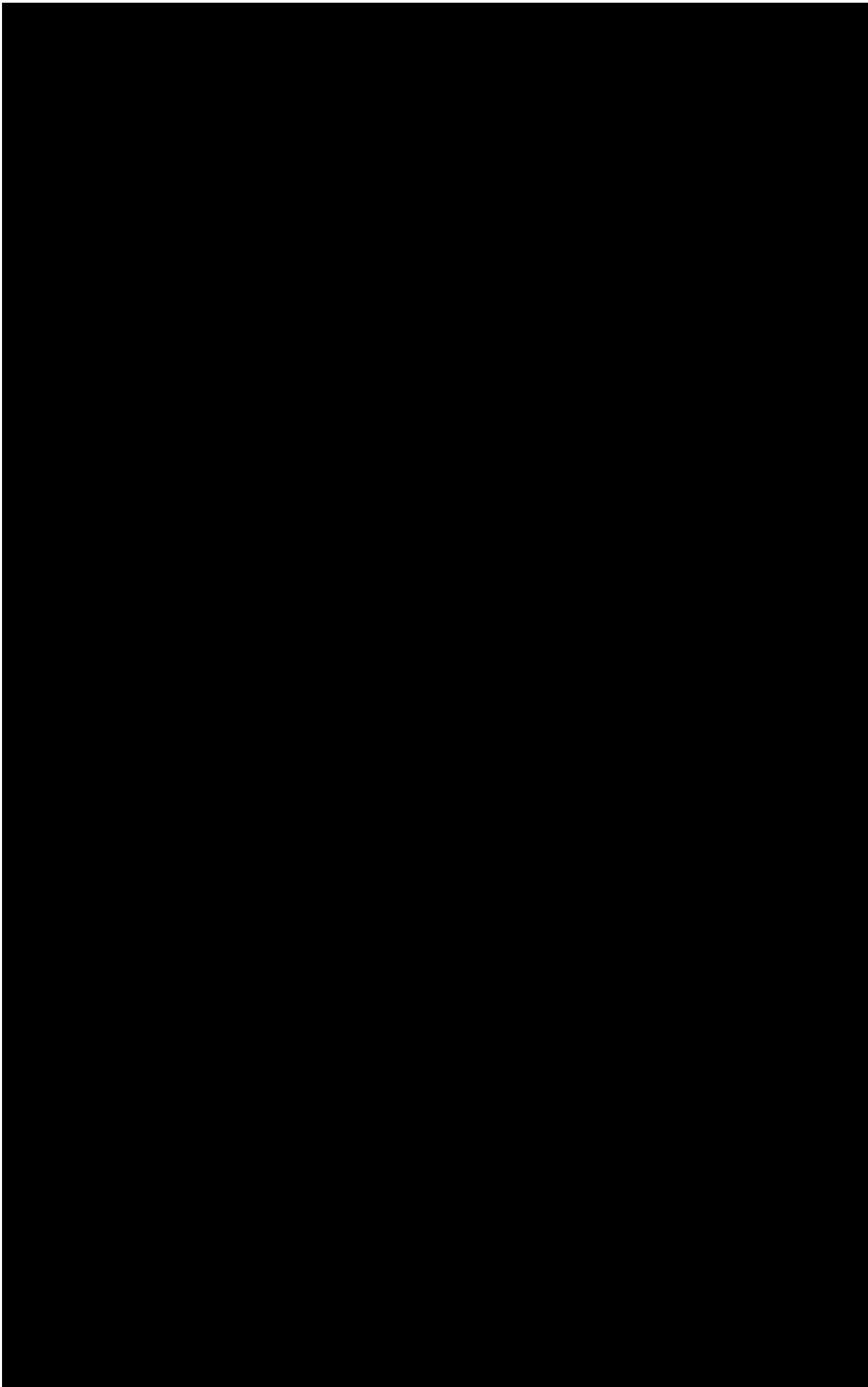
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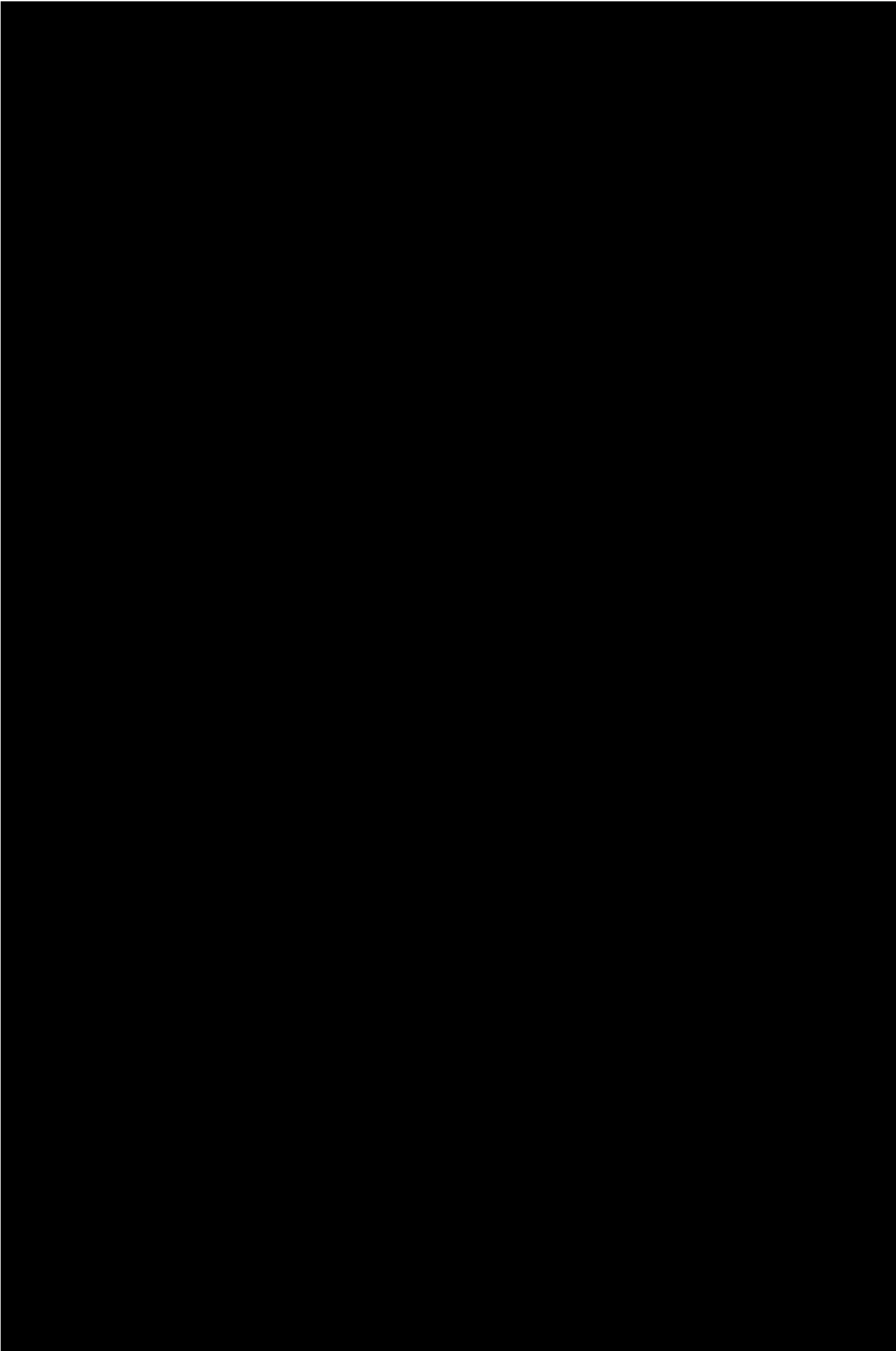


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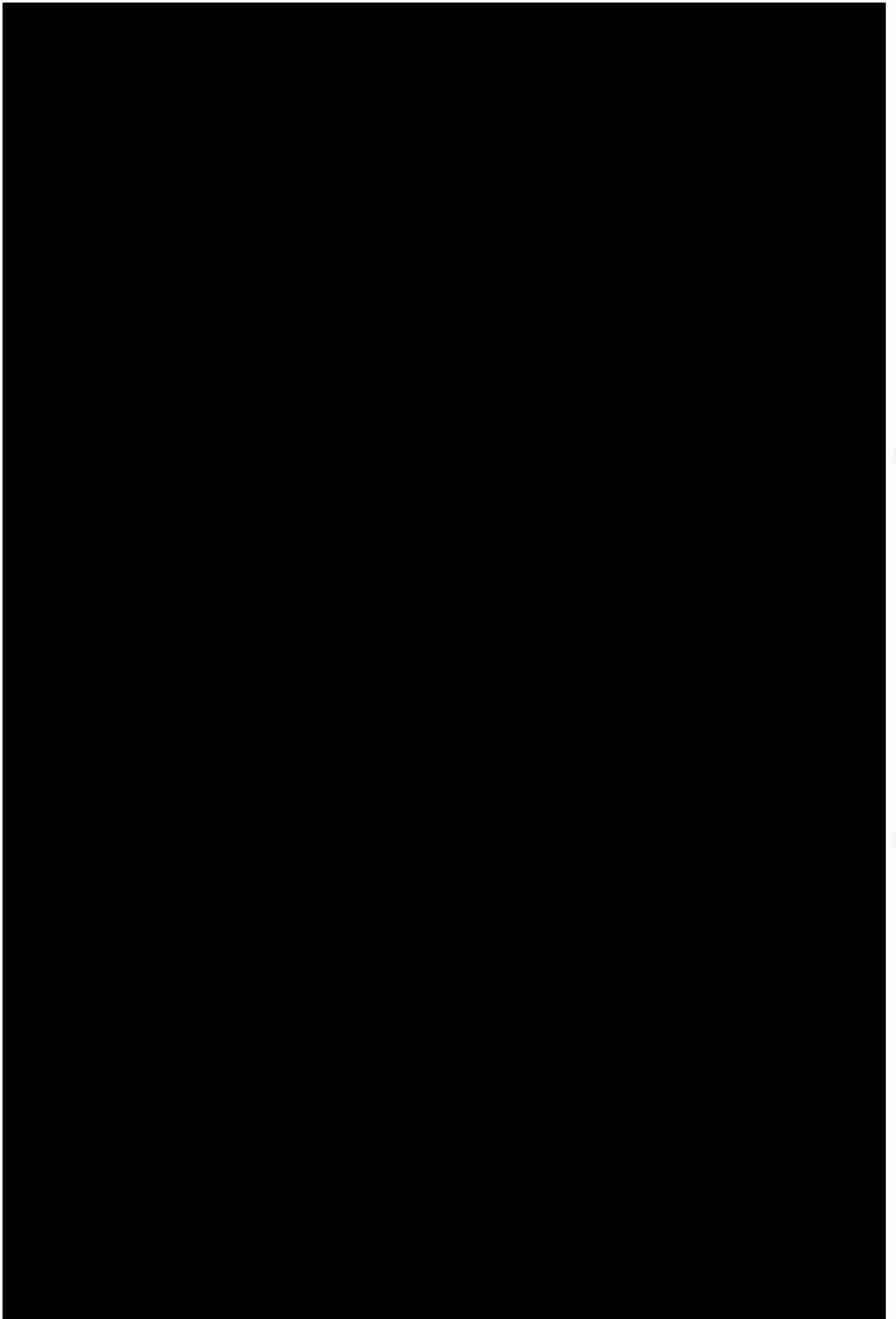


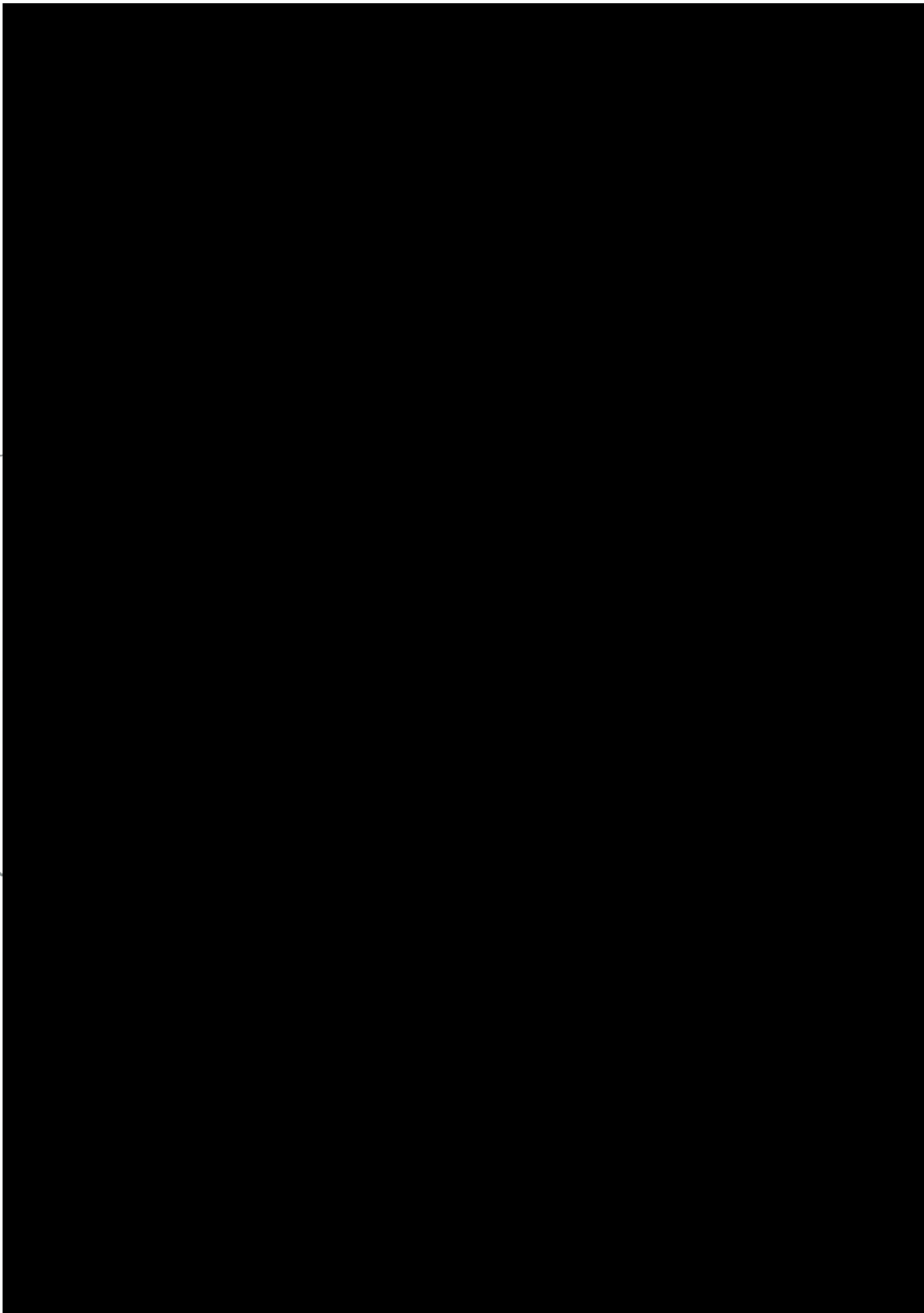


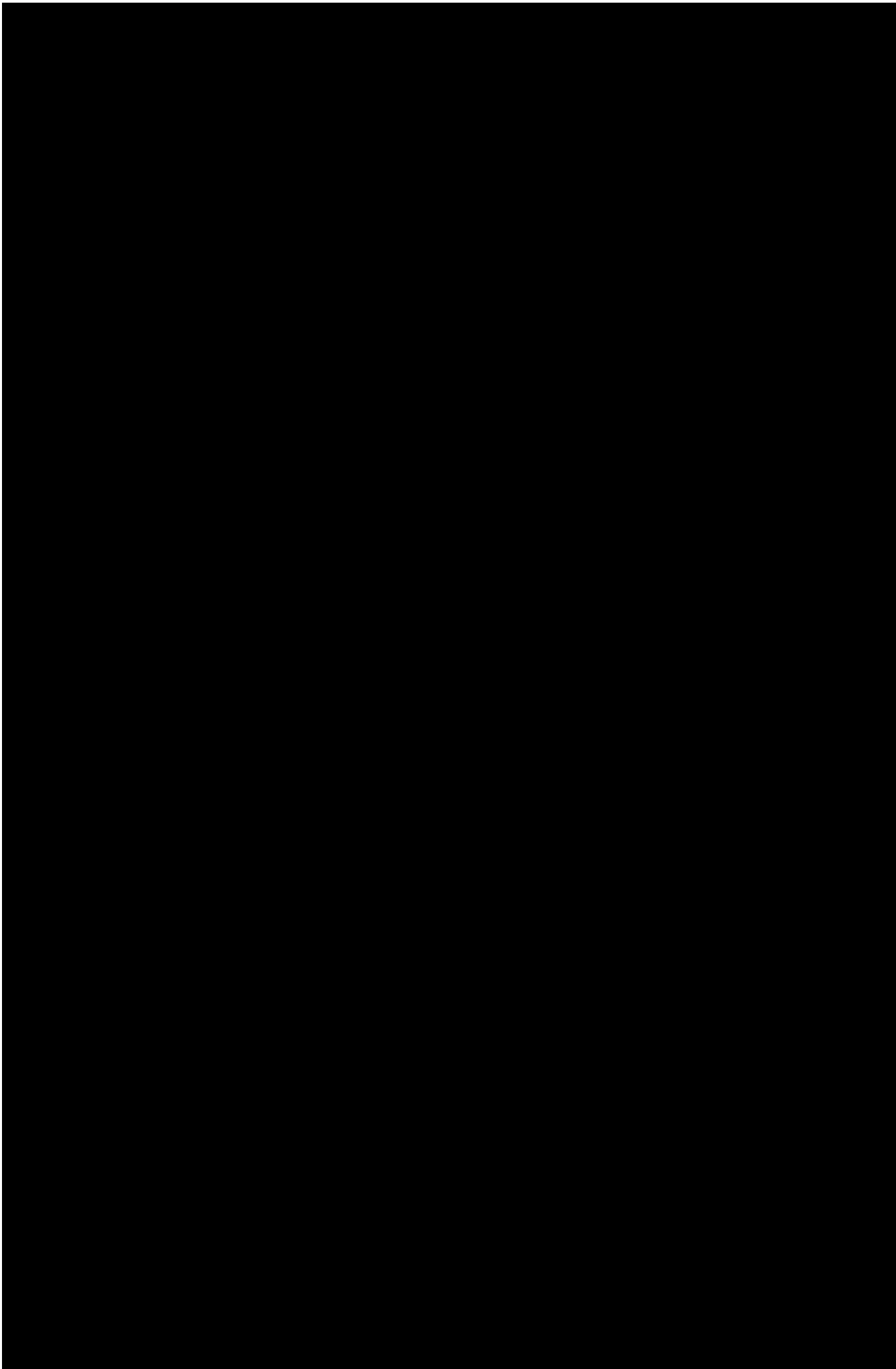


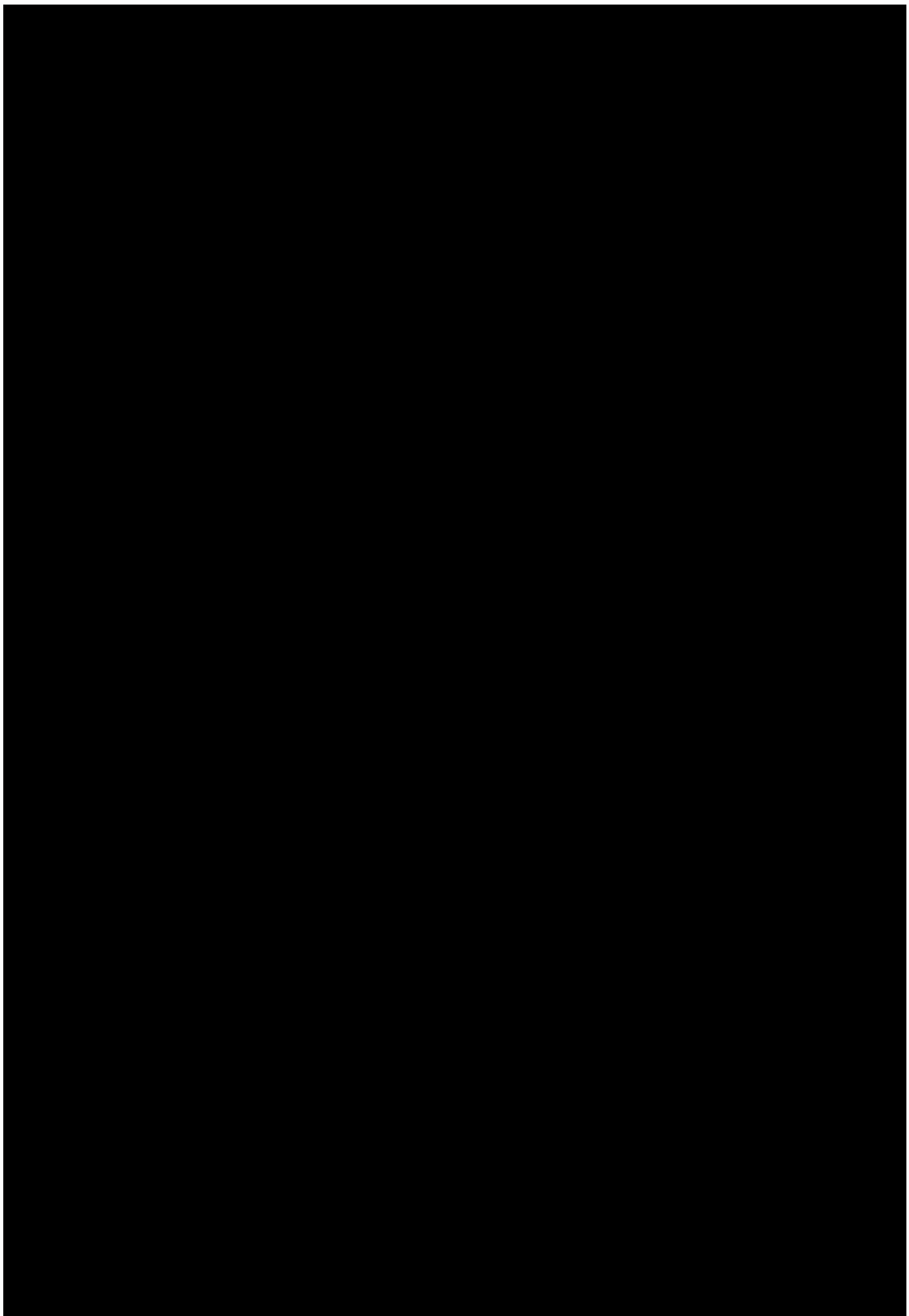
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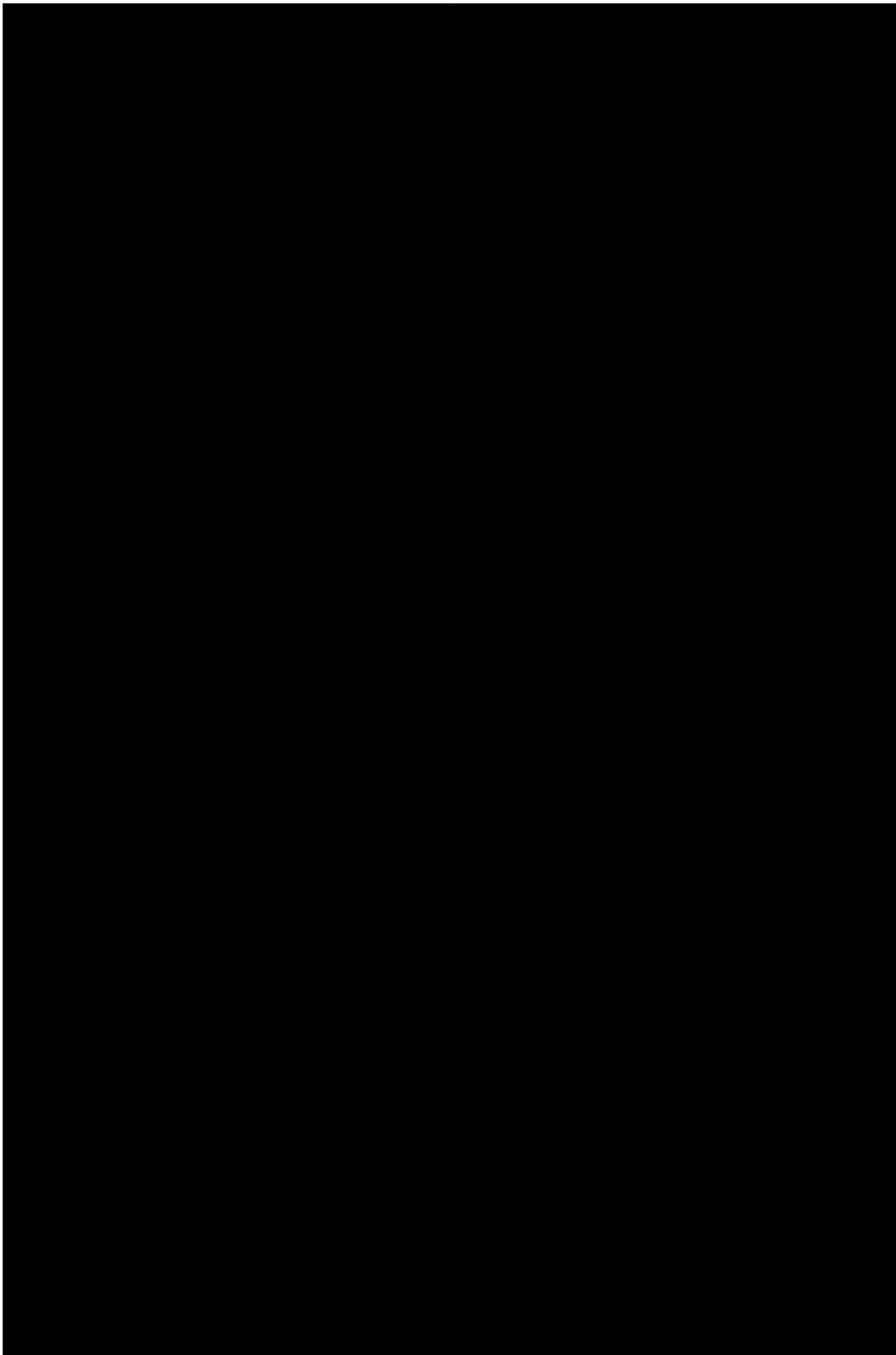
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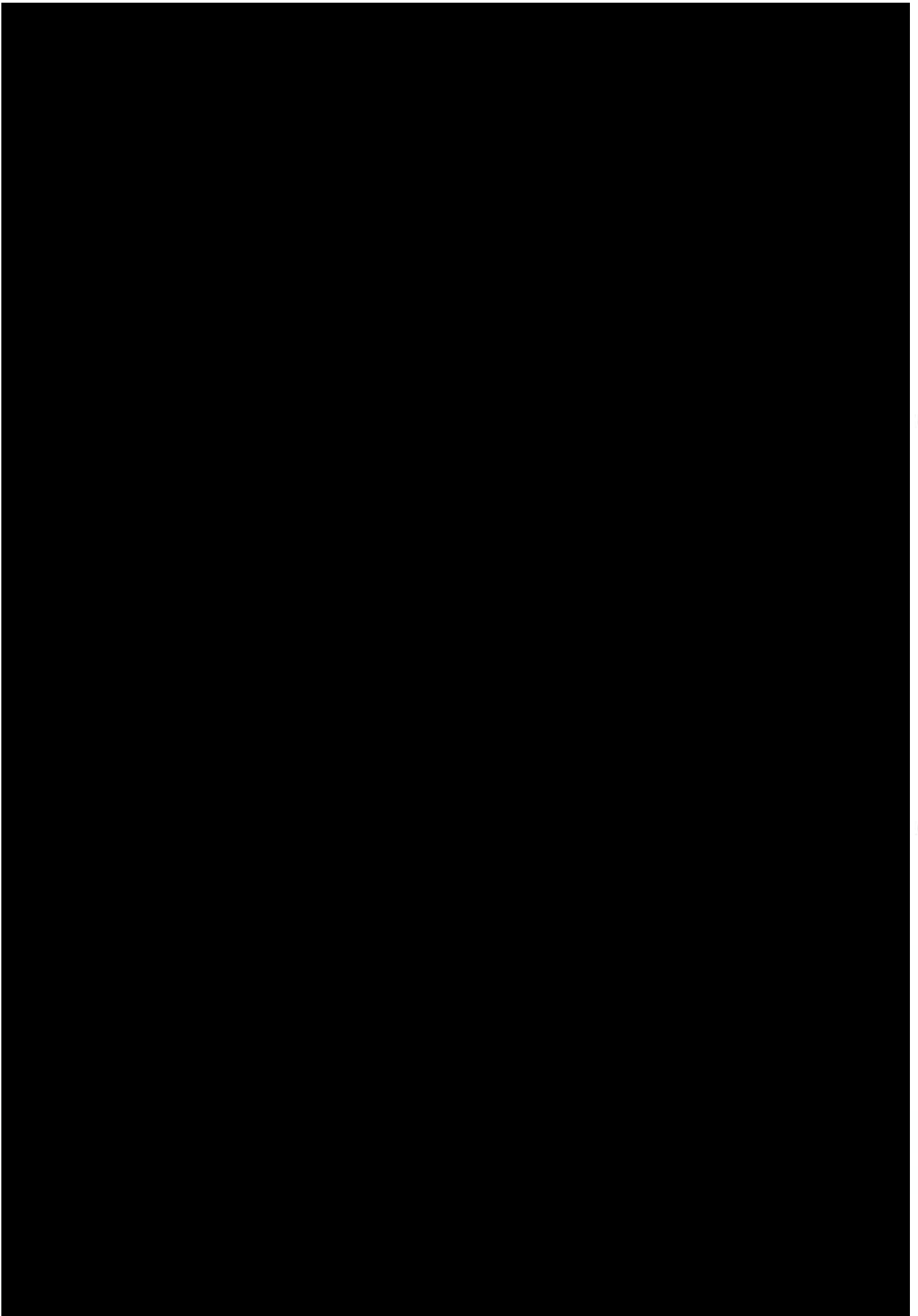






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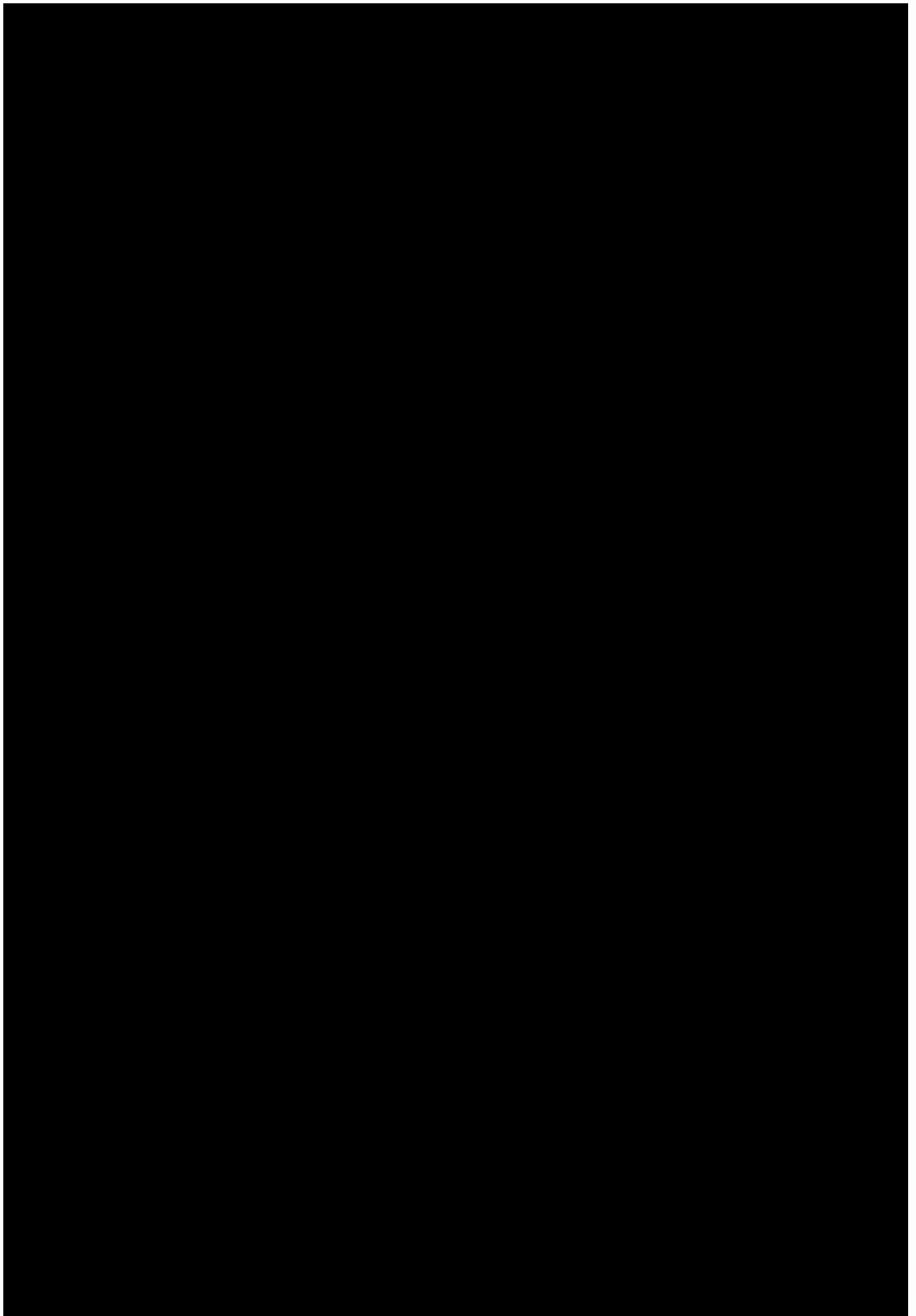
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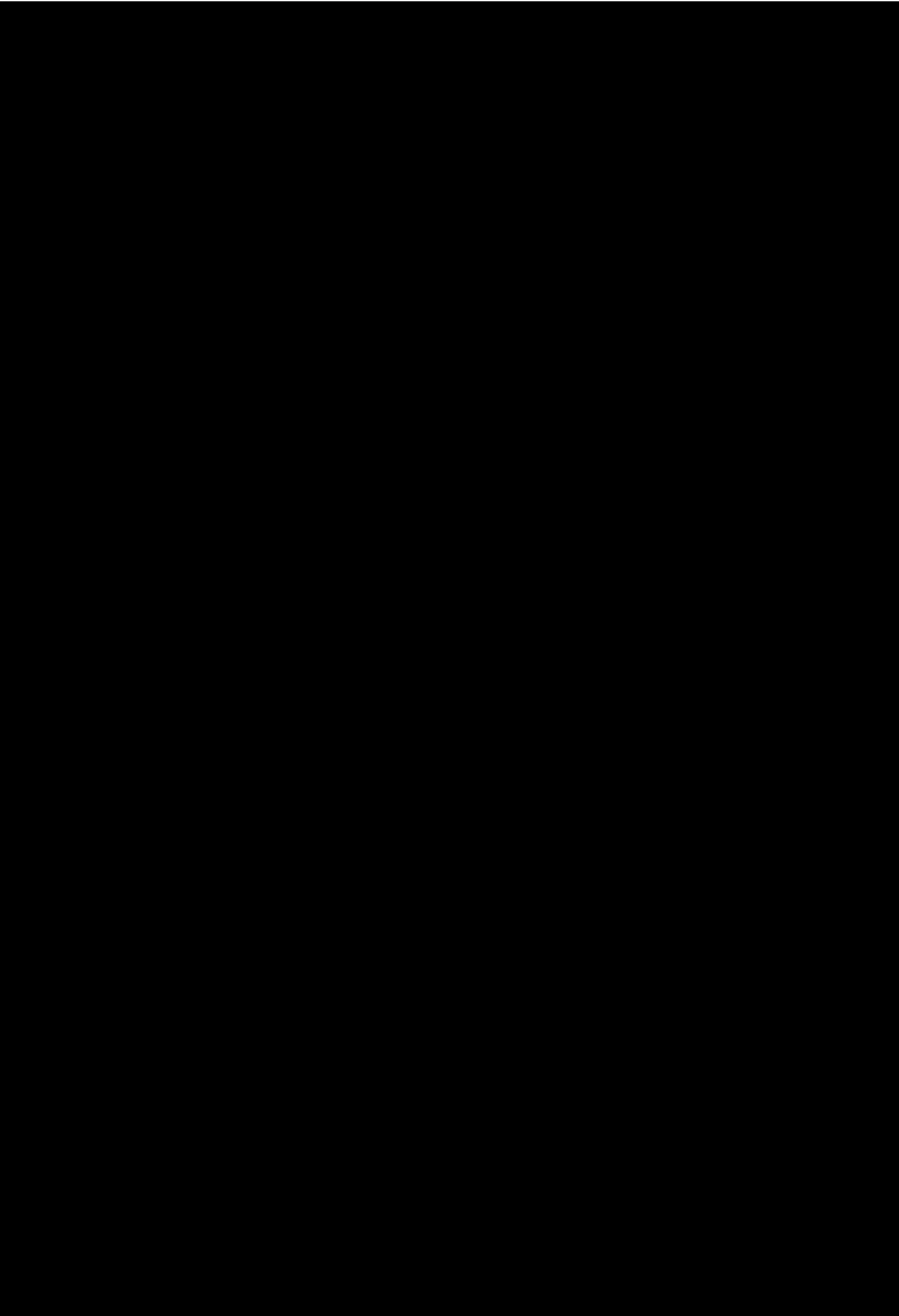




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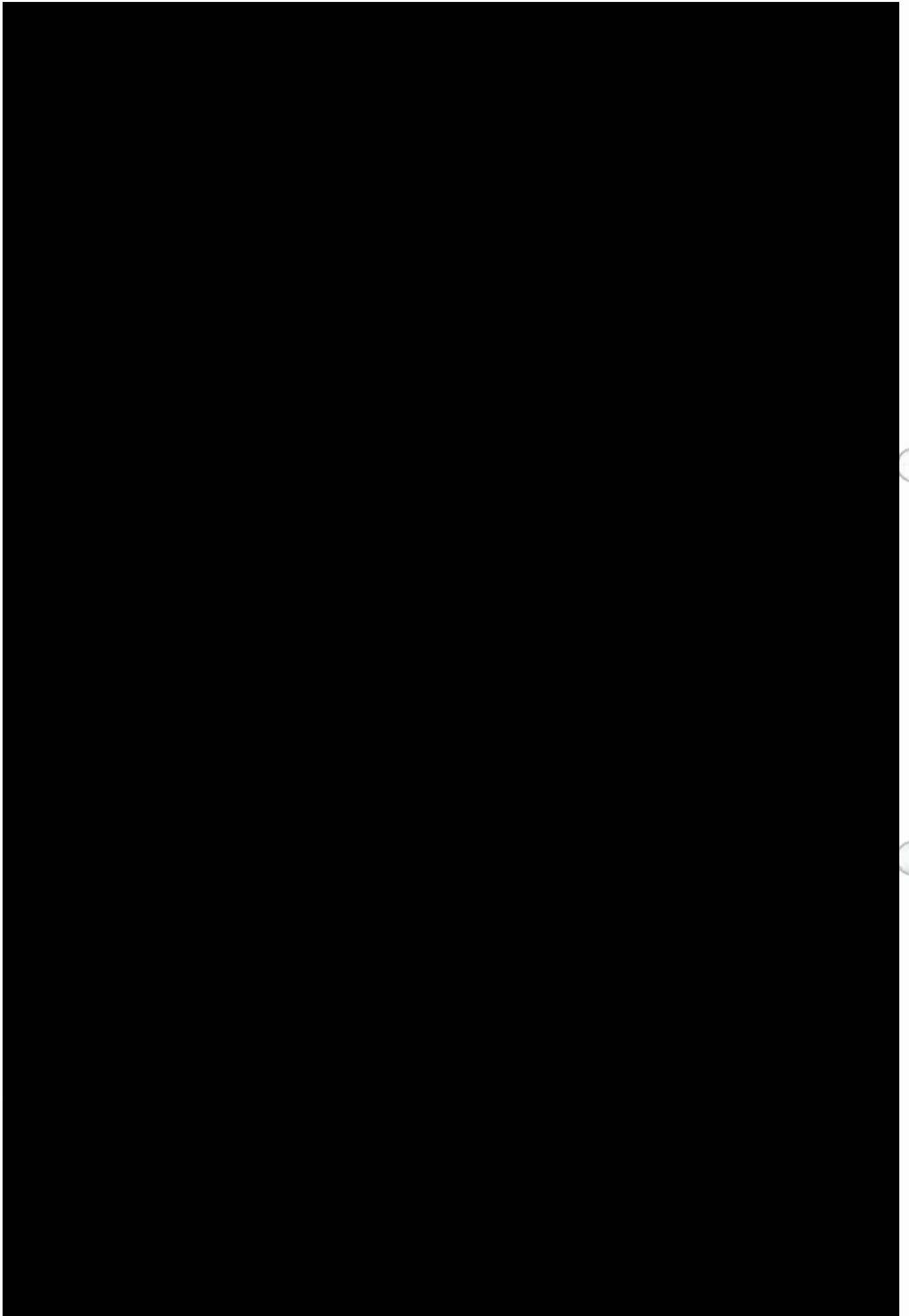
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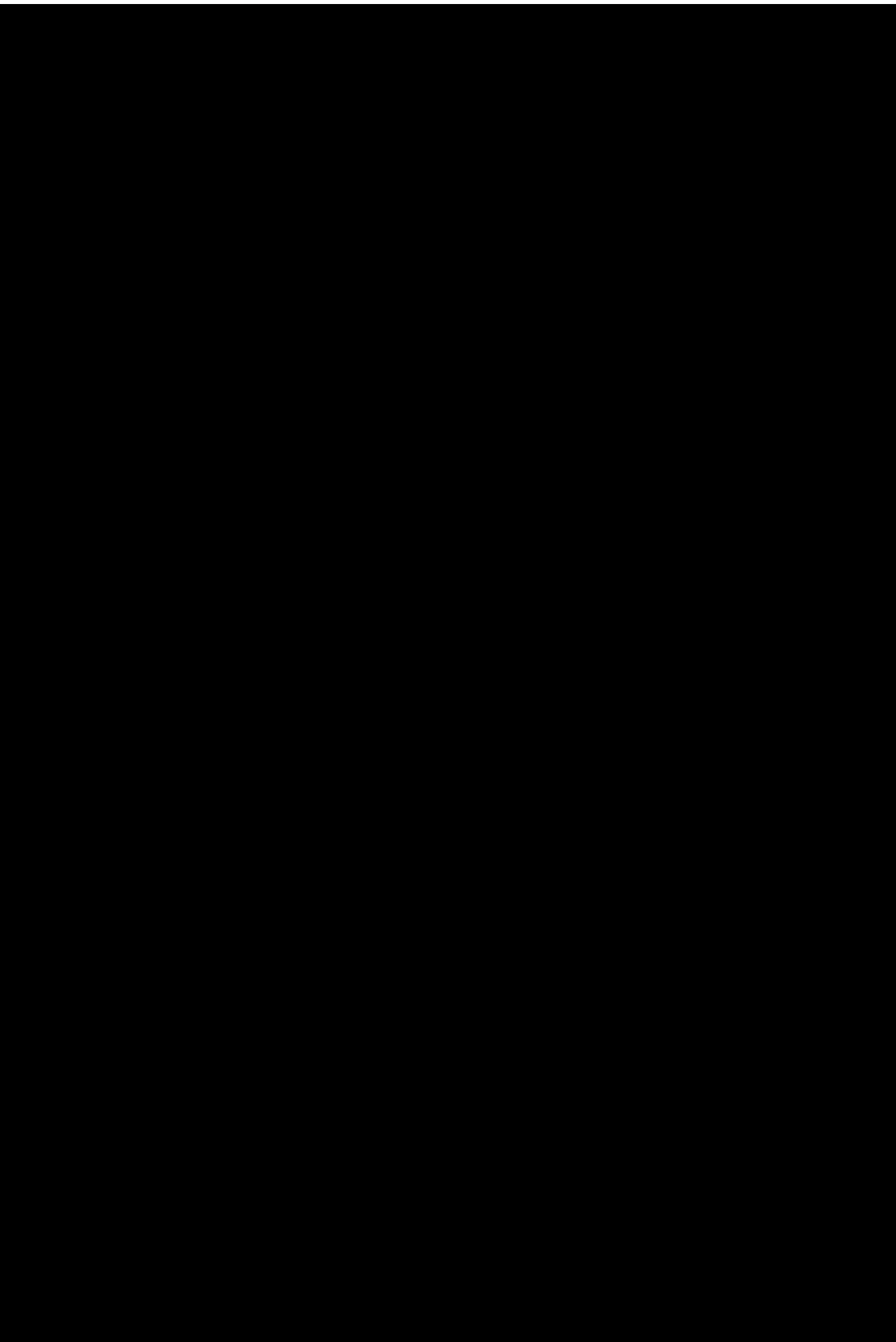




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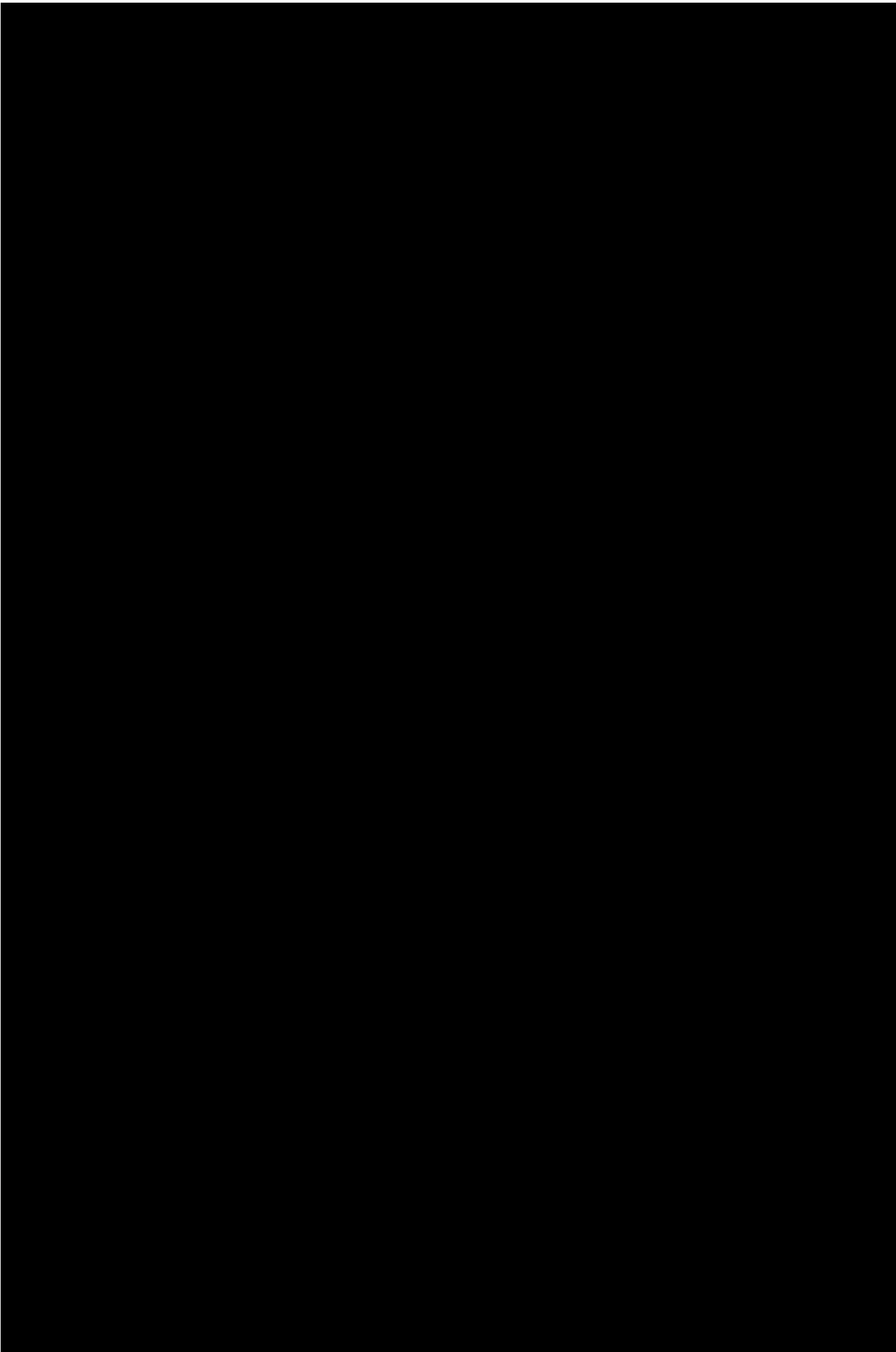
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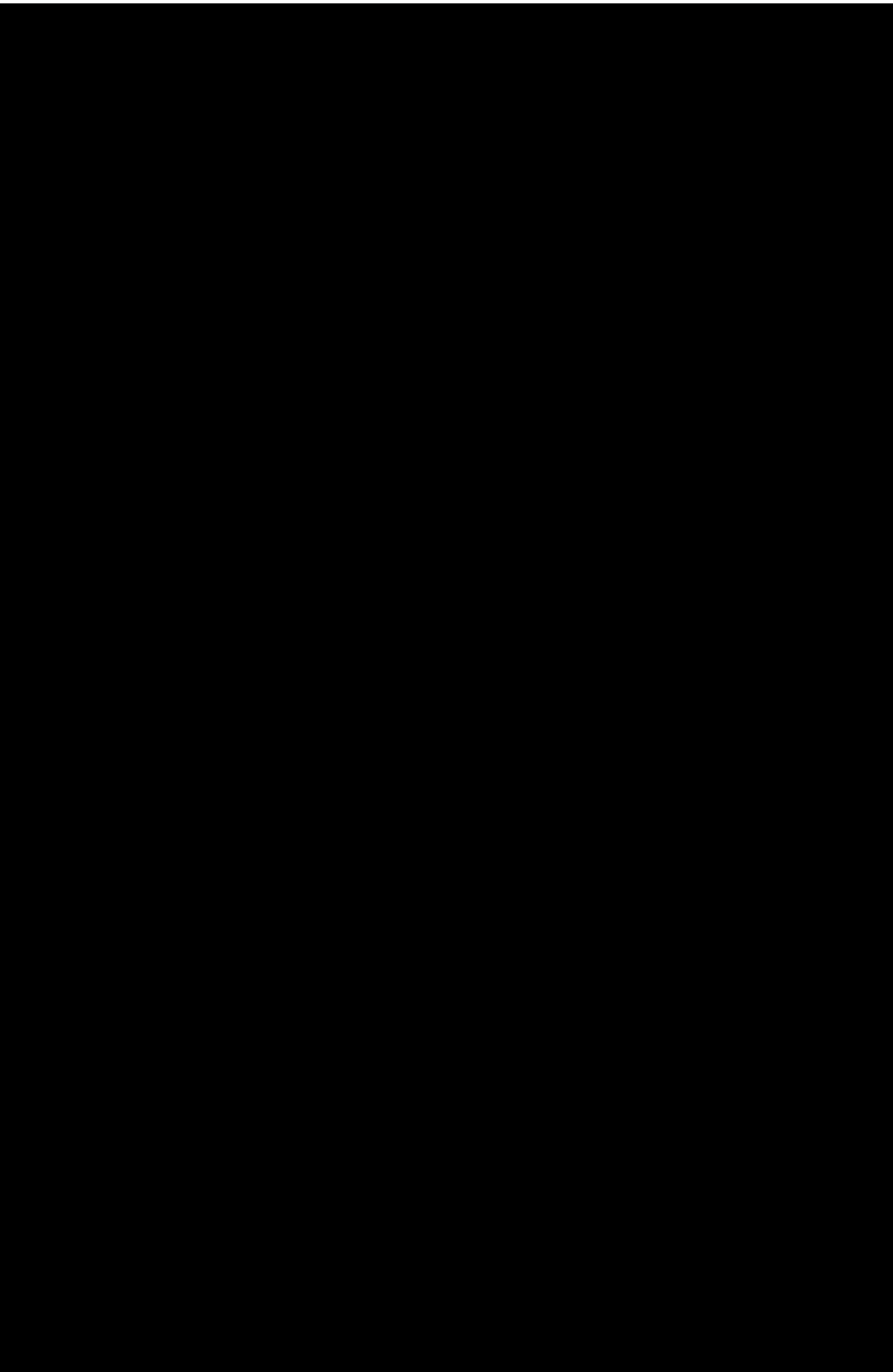




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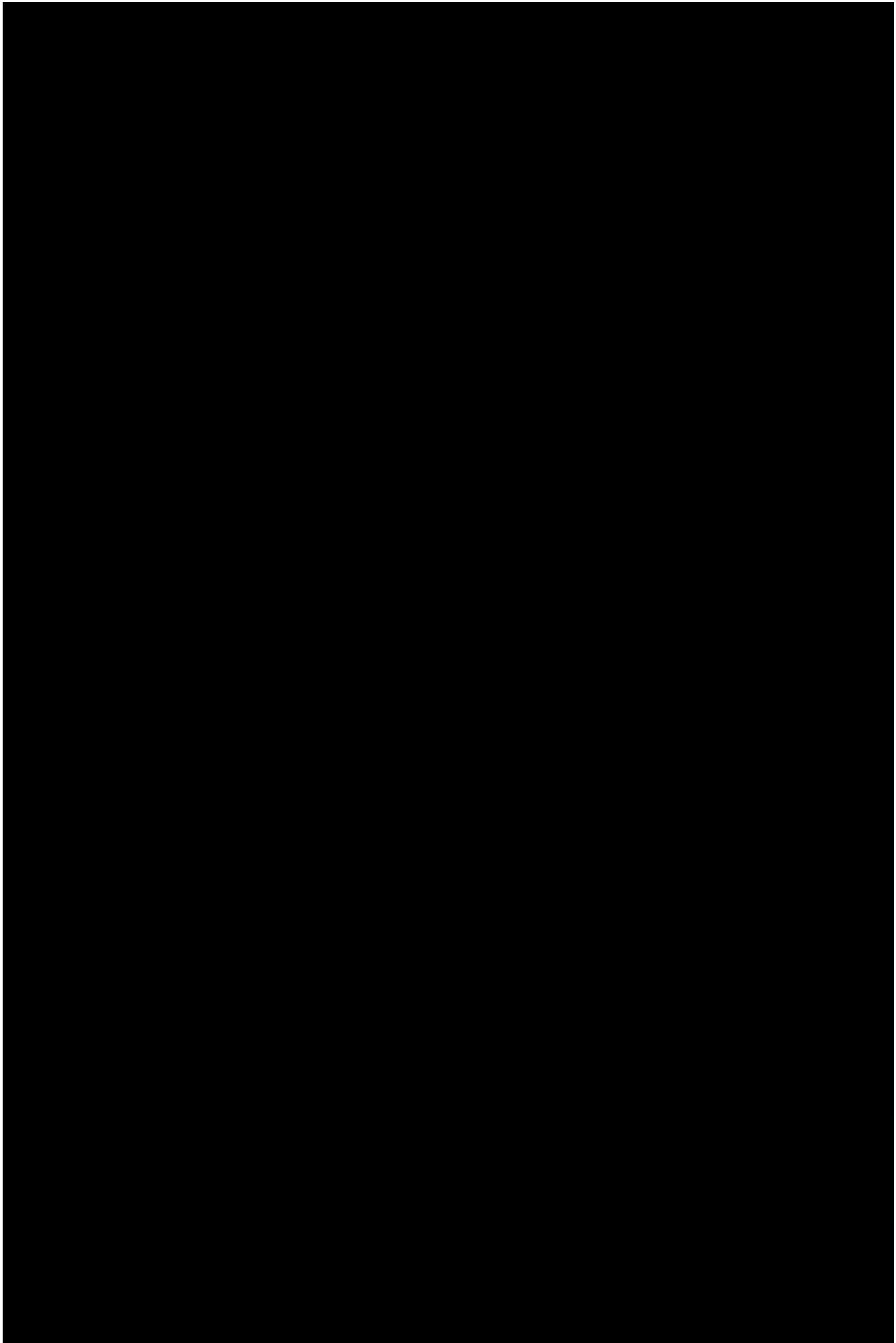
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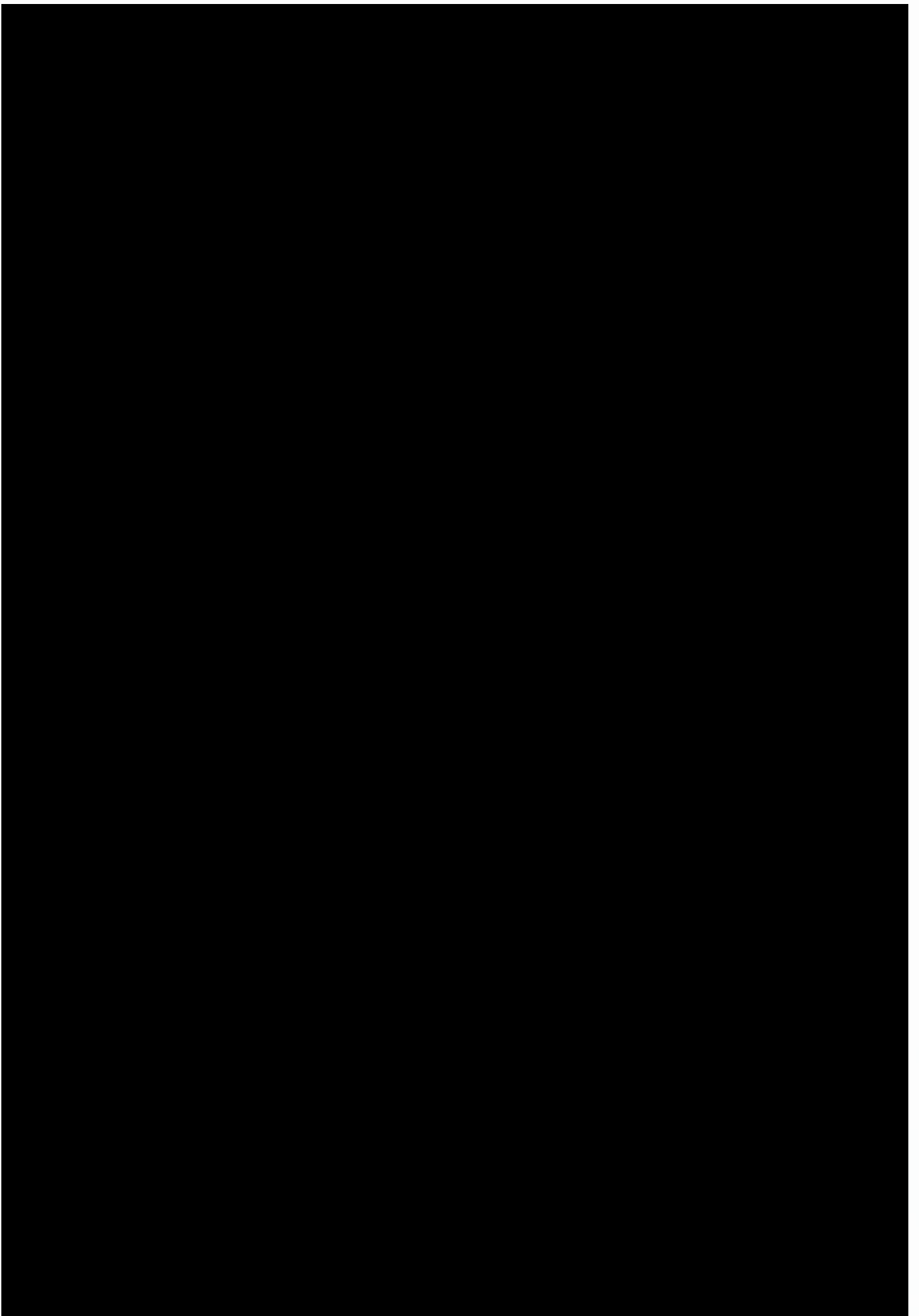
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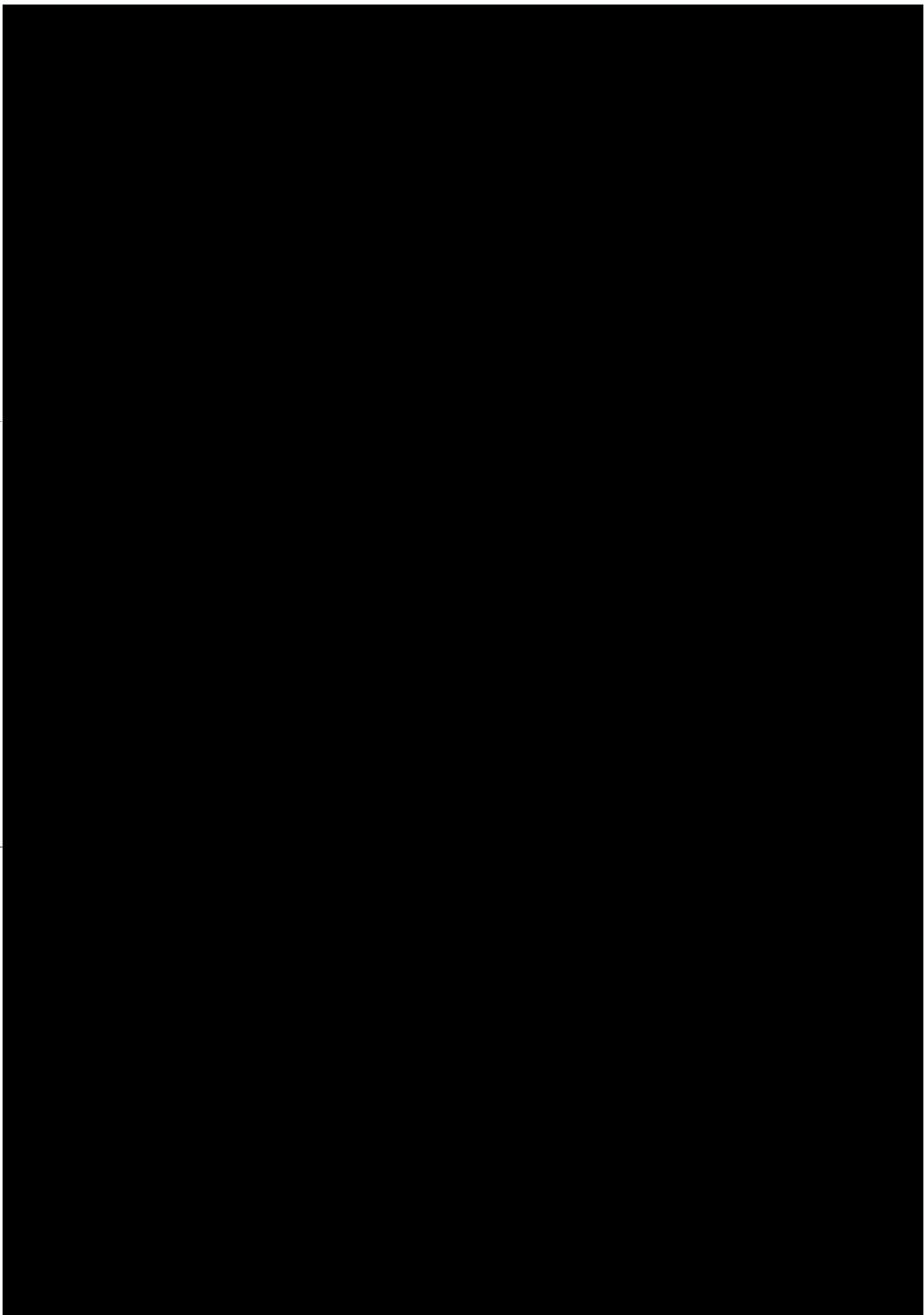


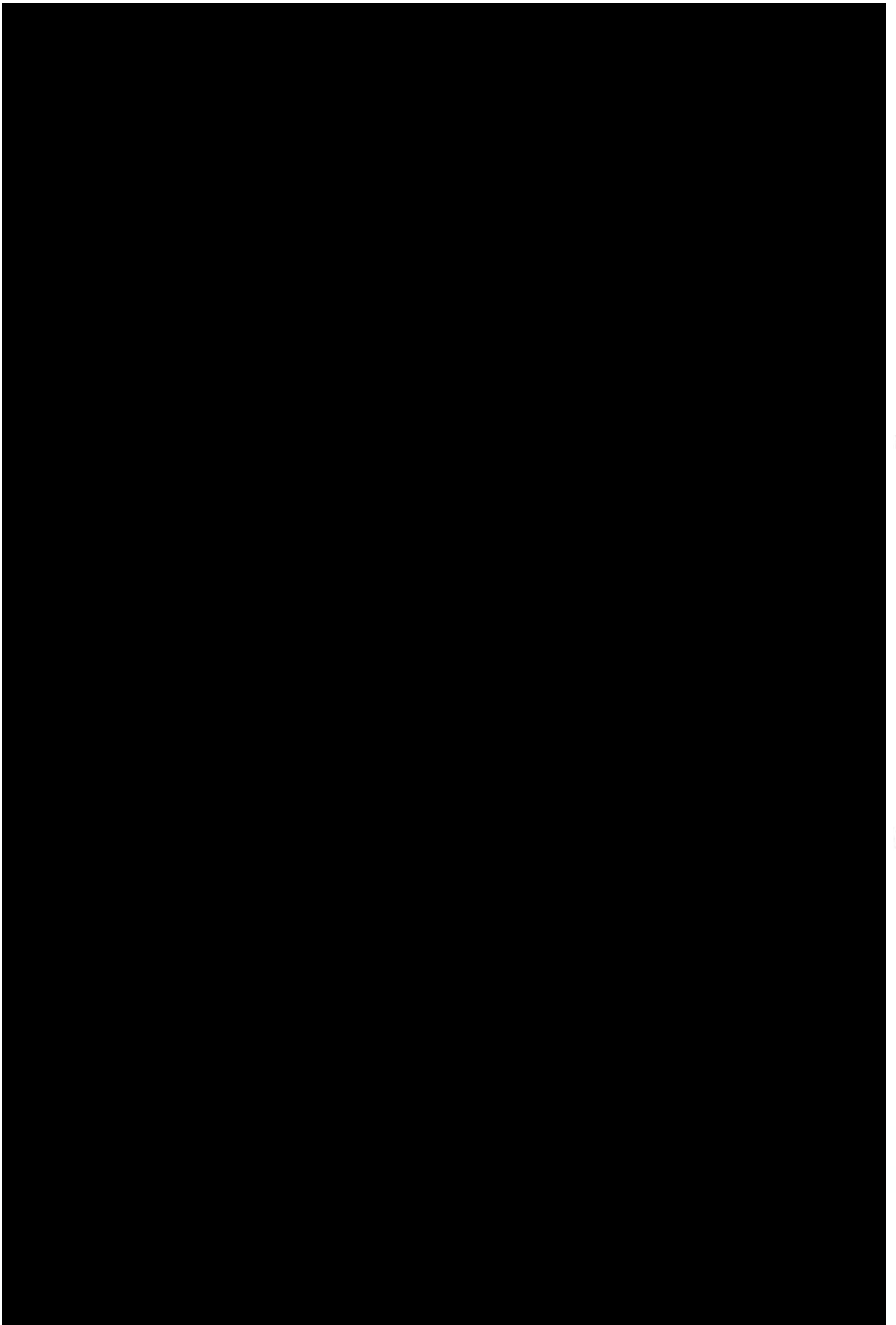


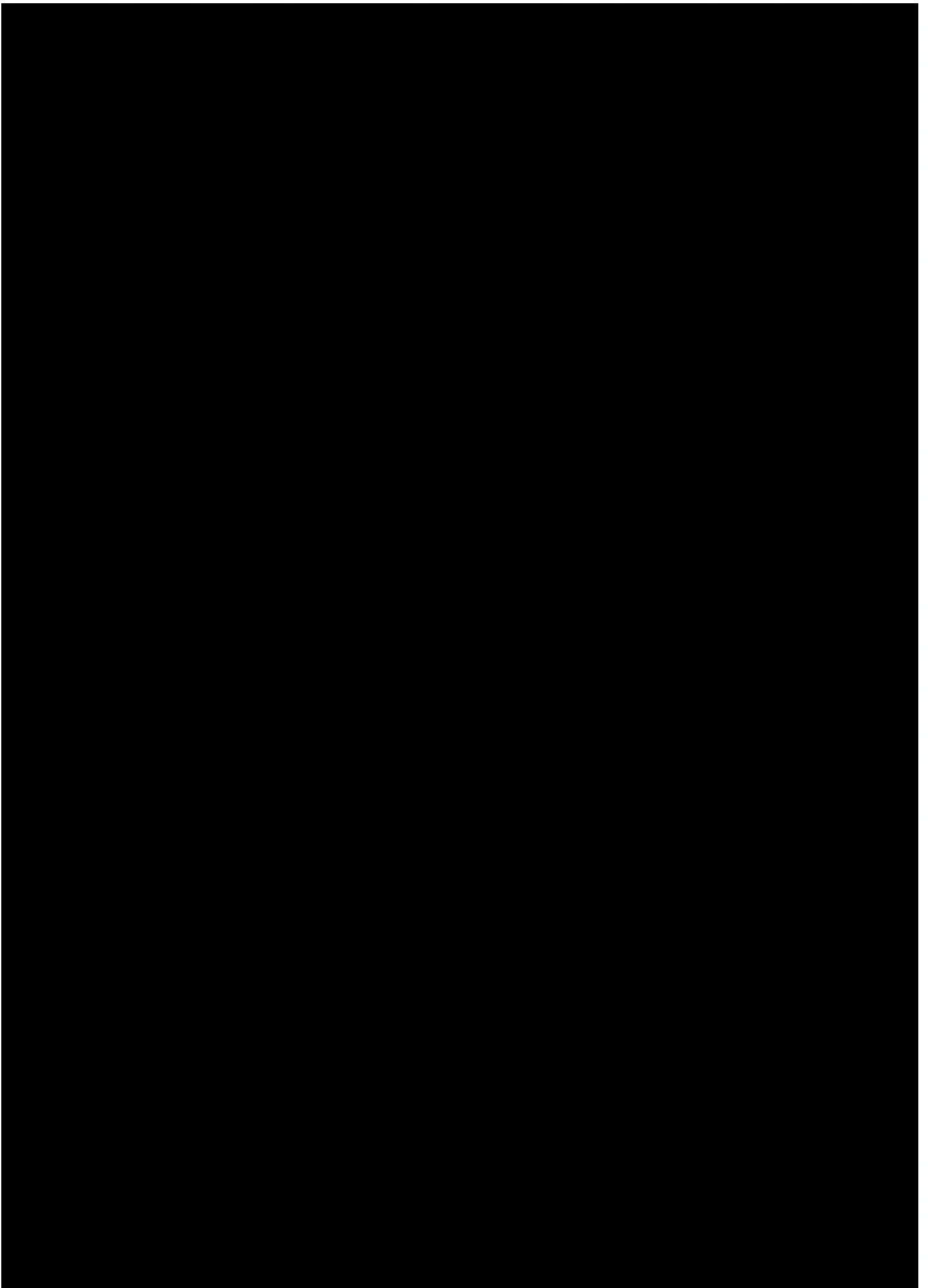
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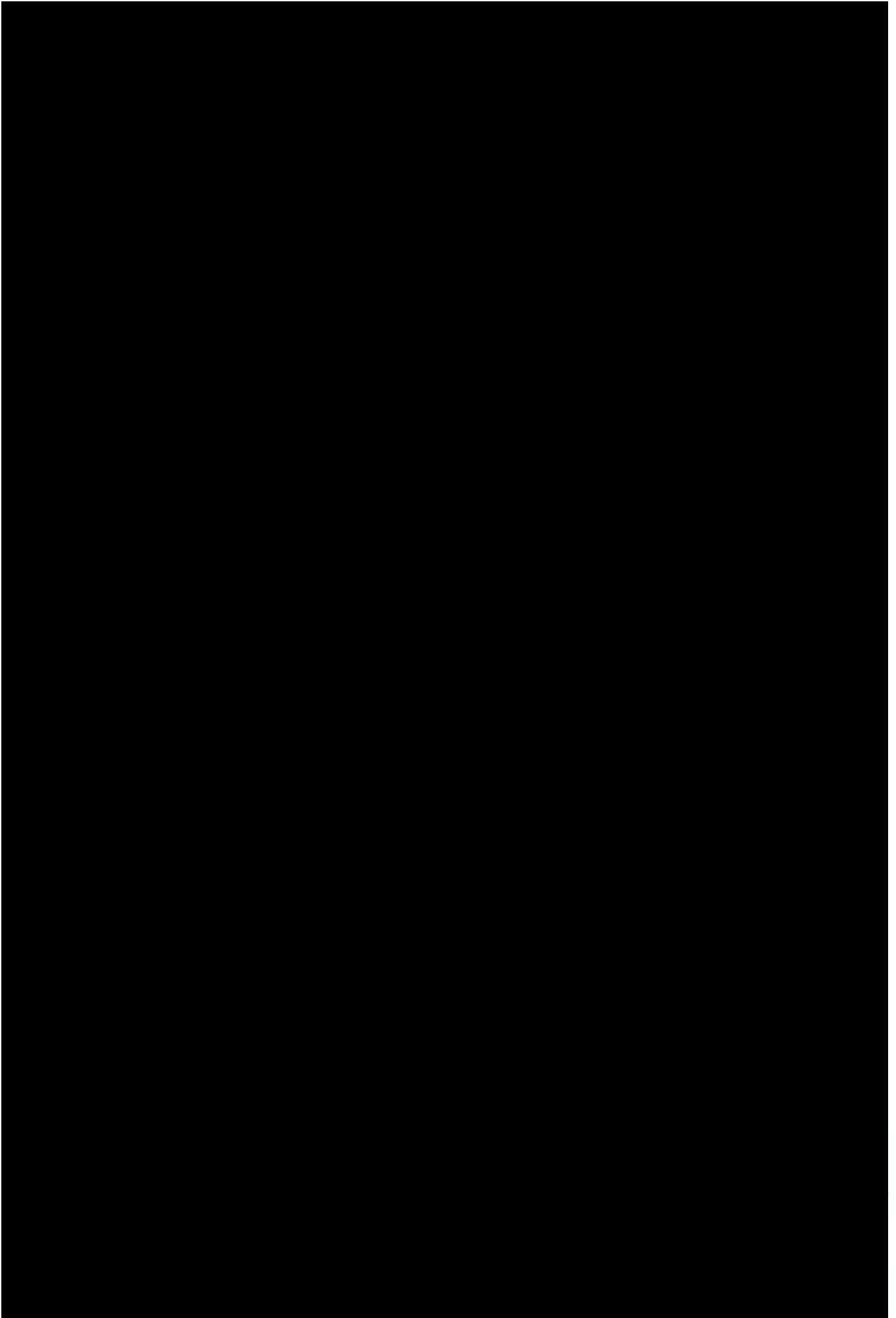
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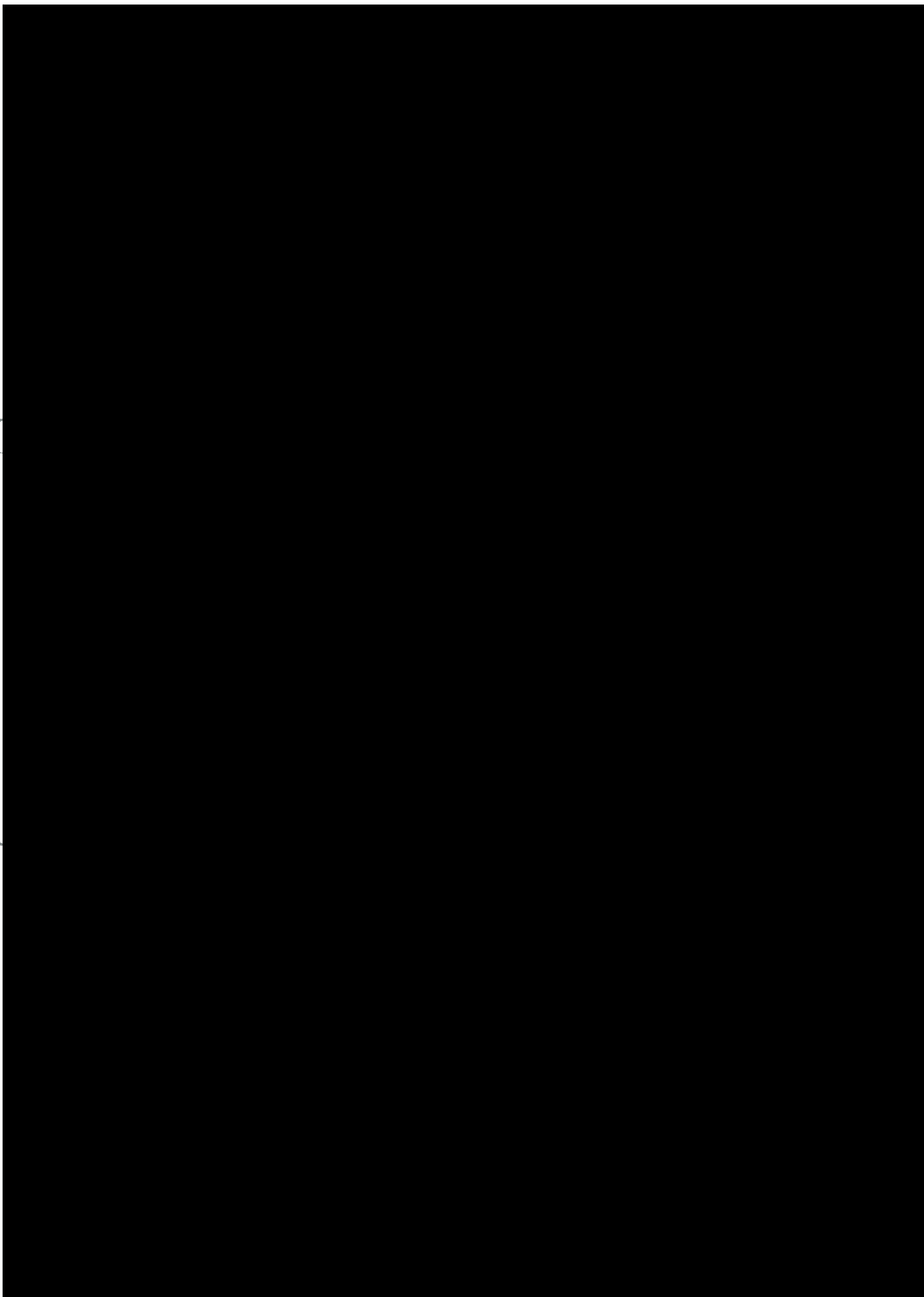


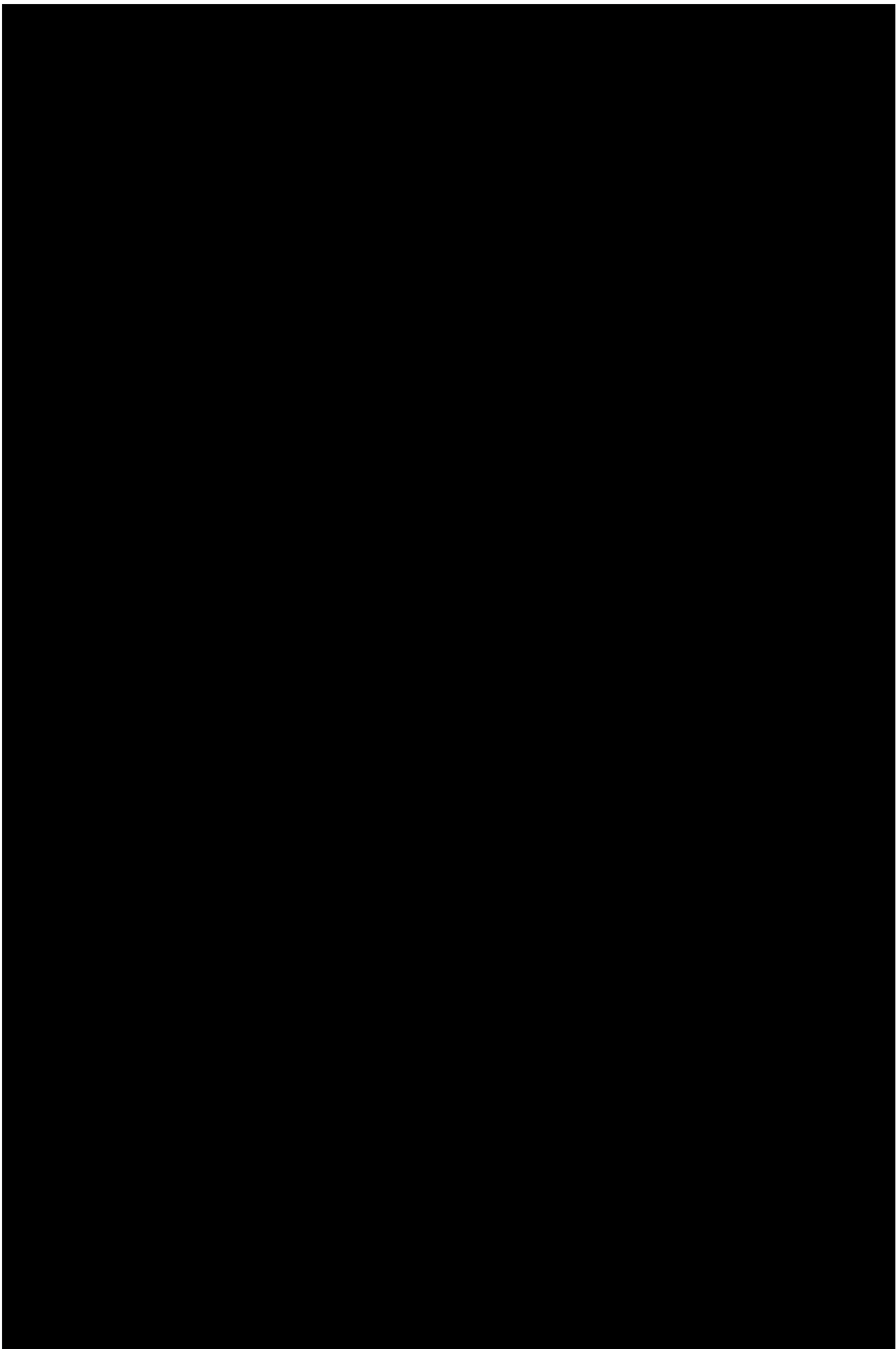




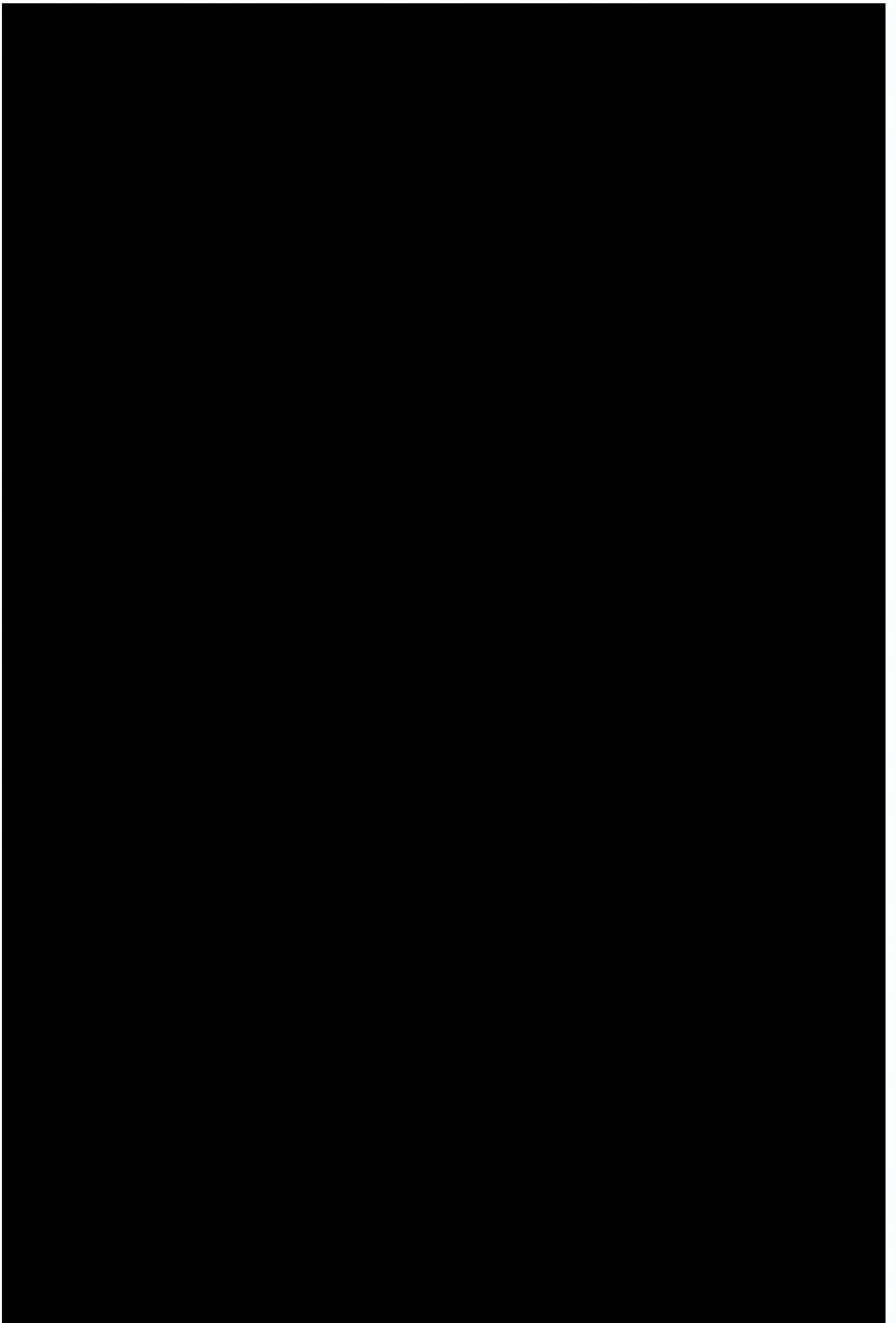


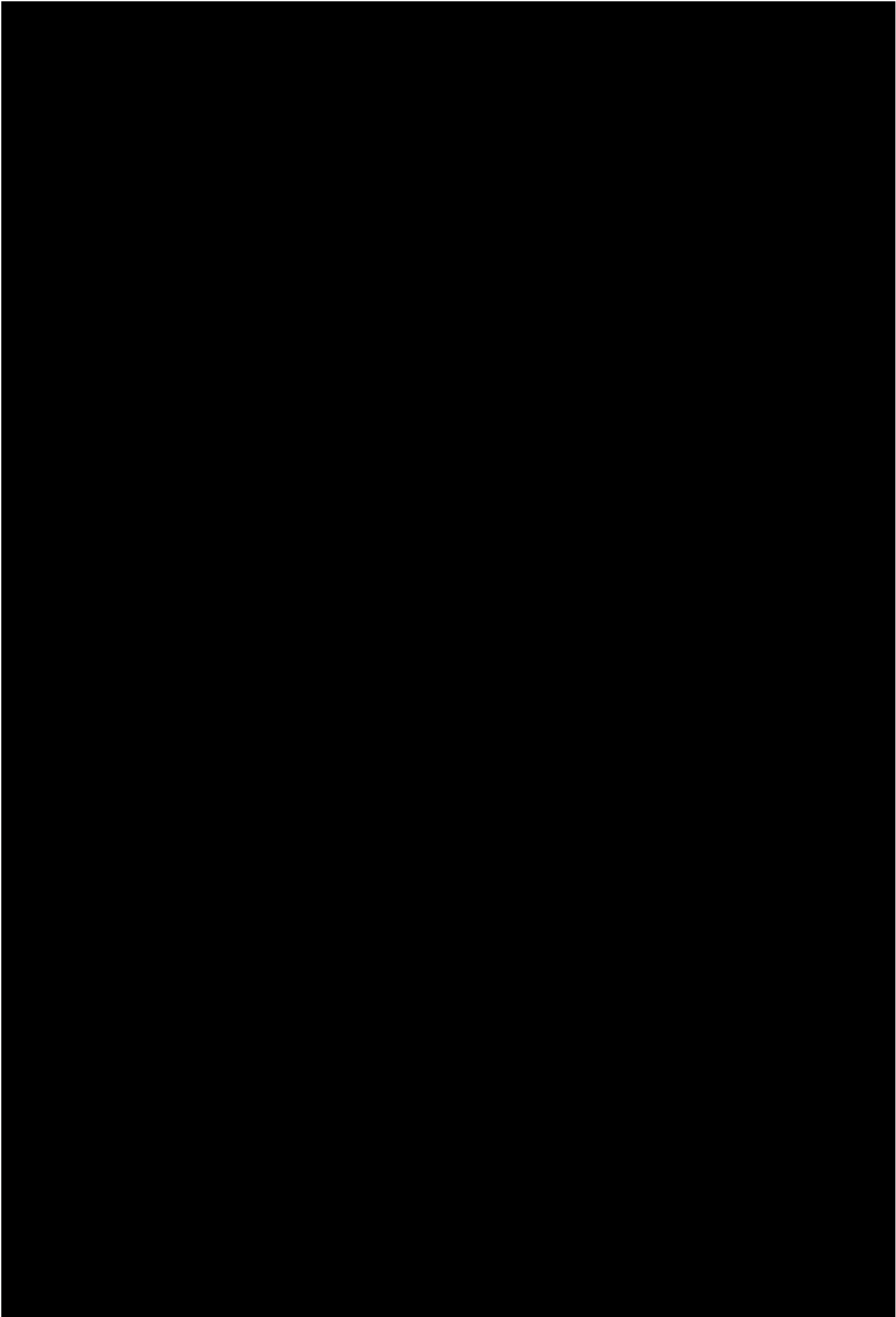












**SCHEDULE 24**

**Amendments to Schedule B9**

Schedule B9 is amended as set out in the attached mark-up.

**SCHEDULE B9 - INDEPENDENT CERTIFIER'S FORM OF DESIGN CERTIFICATION**

(Clause 10.8(b)(iii)(B)(bb))

To: The Principal's Representative / The SSJ Contractor / the Operator (if it accedes to the Independent Certifier Deed)

From: [ ] (ABN [ ])

This certificate is given in accordance with the "Sydney Metro City & Southwest Sydenham Station and Junction Works (Incentivised Target Cost Contract)" (Contract No:[#]) dated [ ] (**SSJ Contract**). Words defined in the SSJ Contract have the same meaning in this certificate.

In accordance with the terms of clause 10.8(b)(iii)(B)(bb) of the SSJ Contract, we hereby certify that, having performed all relevant Services (as defined in the Independent Certifier Deed) in accordance with the requirements of the Independent Certifier Deed, the attached Design Documentation complies with all the requirements of the SSJ Contract (including the SWTC) except for the Minor Non-Compliances identified in the attached list.

.....

Signed for and on behalf of

[insert name of Independent Certifier]

**ATTACHMENT A**

**List of Minor Non-Compliances**

No.	Minor Non-Compliance	Recommended action to be taken by the SSJ Contractor to address Minor Non-Compliance

**SCHEDULE 25**

**Amendments to Schedule B12**

Schedule B12 is amended as set out in the attached mark-up.

**SCHEDULE B12 - ~~INDEPENDENT CERTIFIER'S CERTIFICATE - DEFECTS CORRECTION PERIOD~~ NOT USED**

(Clause 6.4(a)(iii))

To: The Principal's Representative

From: [insert name of Independent Certifier] (ABN [—])

This certificate is given in accordance with the "~~Sydney Metro City & Southwest Sydenham Station and Junction Works (Incentivised Target Cost Contract)~~" (Contract No:[#]) dated [ ] — (~~SSJ Contract~~). Words defined in the SSJ Contract have the same meaning in this certificate.

In accordance with the terms of clause 6.4(a)(iii) of the SSJ Contract, we hereby certify that, having performed all relevant Services (as defined in the Independent Certifier Deed) in accordance with the requirements of the Independent Certifier Deed, as at the date of expiration of the final Defects Correction Period:

- (a) all design, construction, inspection, repairs and monitoring by the SSJ Contractor has been undertaken in accordance with the SSJ Contract; and
- (b) all documentation has been recorded and submitted to the Principal's Representative in accordance with the SSJ Contract.

.....  
Signed for and on behalf of  
[insert name of Independent Certifier]

**SCHEDULE 26**

**Amendments to Schedule B14**

Schedule B14 is amended as set out in the attached mark-up.



**SCHEDULE B14 – ~~INDEPENDENT CERTIFIER'S CERTIFICATE – PAYMENT CLAIMS~~NOT USED**

(Clause 16.4(a)(ii))

To: ~~The Principal's Representative~~

From: ~~{insert name of Independent Certifier} (ABN {—})~~

~~This certificate is given in accordance with the "Sydney Metro City & Southwest Sydenham Station and Junction Works (Incentivised Target Cost Contract)" (Contract No: {#}) dated [ ] (SSJ Contract). Words defined in the TSE Contract have the same meaning in this certificate.~~

~~In accordance with the terms of clause 16.4(a)(ii) of the SSJ Contract, we hereby certify that, having performed all relevant Services (as defined in the Independent Certifier Deed) in accordance with the requirements of the Independent Certifier Deed, all work the subject of the attached progress claim by the SSJ Contractor has been executed and is in accordance with the requirements of the SSJ Contract, including the SWTC, subject to the following:~~

(a) ~~{Insert details of non-compliances as required}~~

.....

Signed for and on behalf of

{insert name of the Independent Certifier}

## **SCHEDULE 27**

### **Amendments to Schedule C1**

Schedule C1 is amended as follows:

1. the cover page is amended as set out in the attached mark-up;
2. the Main Body is amended as set out in the attached mark-up;
3. Appendix B1.0 is amended as set out in the attached mark-up;
4. Appendix B2.0 is amended as set out in the attached mark-up;
5. Appendix B2.0 – Attachment 1 is replaced by the attached version;
6. Appendix B3.0 is amended as set out in the attached mark-up;
7. Appendix B4.0 is amended as set out in the attached mark-up;
8. Appendix B5.0 is amended as set out in the attached mark-up;
9. Appendix B6.0 is amended as set out in the attached mark-up;
10. Appendix B9.0 is amended as set out in the attached mark-up;
11. Appendix B10.0 is amended as set out in the attached mark-up;
12. Appendix B11.0 is amended as set out in the attached mark-up;
13. Appendix B12.0 is amended as set out in the attached mark-up;
14. Appendix B13.0 is amended as set out in the attached mark-up;
15. Appendix B14.0 is amended as set out in the attached mark-up;
16. Appendix B2.0 is amended as set out in the attached mark-up;
17. Appendix C1.0 is amended as set out in the attached mark-up;
18. Appendix C1.0 – Attachment 1 is replaced by the attached version;
19. Appendix C1.1 is amended as set out in the attached mark-up;
20. Appendix C1.1 – Attachment 1 is replaced by the attached version;
21. Appendix C1.2 is amended as set out in the attached mark-up;
22. Appendix C1.2 – Attachment 1 is replaced by the attached version;
23. Appendix C1.3 is amended as set out in the attached mark-up;
24. Appendix C1.3 – Attachment 1 is replaced by the attached version;
25. Appendix C2.0 is amended as set out in the attached mark-up;
26. Appendix C2.0 – Attachment 1 is replaced by the attached version;
27. Appendix C2.0 – Attachment 2 is replaced by the attached version;

28. Appendix C2.0 – Attachment 3 is replaced by the attached version;
29. Appendix D3.0 is replaced by the attached version;
30. Appendix D4.0 is replaced by the attached version;
31. Appendix D5.0 is replaced by the attached version;
32. Appendix D6.0 is replaced by the attached version;
33. Appendix E3.0 is amended as set out in the attached mark-up; and
34. Appendix E3.0 – Attachment 1 is replaced by the attached version.

Clean versions of each of the amended documents specified in this Schedule 27 are attached as electronic files.

**SCHEDULE C1. – SWTC**

(Clause 1.1)

Those parts of the SWTC that are electronic files are included in Schedule G1.



**Transport  
for NSW**

# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Sydenham Station and Junction (SSJ)

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	14 <del>September</del> <a href="#">May 2017</a> <del>2018</del>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.5</del> <a href="#">E</a>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<a href="#">SMCSWSSJ-SMD-WSS-CT-SC H-000050</a>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC		

Sydenham Station and Junction (SSJ)

## Table of Contents

<b>1.</b>	<b>Introduction</b>	<b>6</b>
1.1.	Scope of Works and Technical Criteria (SWTC) Overview	6
1.2.	Project Background	7
1.3.	Project Overview	7
1.4.	Project Objectives	9
1.5.	Purpose and interpretation of SWTC	9
1.6.	Definitions and interpretations	10
<b>2.</b>	<b>Scope Description</b>	<b>12</b>
2.1.	General	12
2.2.	SSJ Contractor's Activities	13
2.3.	Project Works	14
2.3.1.	Sydney Metro Works	15
2.3.2.	Brownfield Works	23
2.3.3.	Utility Service Works	<del>30</del> <u>28</u>
2.3.4.	Sydney Water Stormwater Drainage Works	<del>32</del> <u>30</u>
2.3.5.	Property Works	<del>33</del> <u>31</u>
2.3.6.	Local Area Work	<del>33</del> <u>31</u>
2.4.	Temporary Works	<del>34</del> <u>32</u>
<b>3.</b>	<b>General Requirements</b>	<b><del>38</del><u>36</u></b>
3.1.	General	<del>38</del> <u>36</u>
3.2.	Effect of the Project Works, the Temporary Works and the SSJ Contractor's Activities	<del>39</del> <u>37</u>
3.3.	Site Investigation	<del>41</del> <u>39</u>
3.4.	Survey	<del>42</del> <u>40</u>
3.5.	Commissioning and Testing	<del>43</del> <u>41</u>
3.6.	Rail Corridor Services	<del>43</del> <u>41</u>
3.6.1.	General	<del>43</del> <u>41</u>
3.6.2.	Rail Corridor Services Survey	<del>44</del> <u>42</u>
3.7.	Utility Services	<del>45</del> <u>43</u>
3.7.1.	General	<del>45</del> <u>43</u>
3.7.2.	Redundant Utility Services	<del>45</del> <u>43</u>
3.8.	Road Safety Audits	<del>46</del> <u>44</u>
<b>4.</b>	<b>Technical Requirements</b>	<b><del>47</del><u>45</u></b>
4.1.	General	<del>47</del> <u>45</u>
4.2.	Minimum Codes and Standards	<del>48</del> <u>46</u>
4.3.	Design Life	<del>49</del> <u>47</u>
4.4.	Maintainability Design	<del>53</del> <u>51</u>
4.4.1.	Accessibility	<del>55</del> <u>53</u>
4.4.2.	Fault Indication/Isolation/Diagnosis	<del>56</del> <u>55</u>
4.4.3.	Standardisation and Modularisation	<del>57</del> <u>55</u>
4.4.4.	Materials and Finishes	<del>58</del> <u>56</u>
4.4.5.	Cleaning	<del>58</del> <u>56</u>
4.4.6.	Technical Maintenance Plan	<del>58</del> <u>57</u>
4.4.7.	Obsolescence Management	<del>59</del> <u>57</u>



Sydenham Station and Junction (SSJ)

4.4.8.	Operations and Maintenance Manuals & Training	<del>60</del> <u>58</u>	
4.4.9.	Spare Parts and Tools	<del>60</del> <u>58</u>	
4.5.	Durability	<del>61</del> <u>59</u>	
4.6.	Operating environment ranges	<del>62</del> <u>60</u>	
4.7.	Electromagnetic compatibility	<del>62</del> <u>60</u>	
4.8.	Civil and structural works	<del>63</del> <u>61</u>	
4.9.	Rail, rail systems and communications	<del>63</del> <u>61</u>	
4.10.	Buildings, precinct and public domain works	<del>63</del> <u>61</u>	
4.11.	Mechanical and electrical services	<del>63</del> <u>61</u>	
4.12.	Fire and life safety	<del>64</del> <u>62</u>	
4.13.	Noise mitigation measures and structures	<del>64</del> <u>62</u>	
4.13.1.	<del>Acoustic Design Integration</del>	<del>64</del>	
4.13.2.	<del>Operational noise and vibration review</del>	<del>64</del>	
4.13.3.	<del>Ground borne noise trigger levels</del>	<del>65</del>	
4.13.4.	<del>Vibration Dose Values</del>	<del>66</del>	
4.13.5.	<del>Airborne noise requirements</del>	<del>66</del>	
4.13.6.	<del>Land-use assessment</del>	<del>67</del>	
4.13.7.	Metro Station and Station Precinct (internal noise levels)	<del>67</del> <u>62</u>	
4.13.8.	<del>4.13.2.</del>		Noise from mechanical systems <del>68</del> <u>63</u>
4.14.	Heritage	<del>69</del> <u>63</u>	
4.15.	Sustainability requirements	<del>69</del> <u>63</u>	
<b>5.</b>	<b>Construction Requirements</b>	<b><del>71</del><u>65</u></b>	
5.1.	General	<del>71</del> <u>65</u>	
5.2.	Temporary Site Facilities	<del>72</del> <u>66</u>	
5.2.1.	Site Facilities for Principal	<del>73</del> <u>67</u>	
5.2.2.	Site Facilities for Independent Certifier	<del>74</del> <u>68</u>	
5.3.	Demolition	<del>75</del> <u>69</u>	
5.4.	Acid Sulphate Soils and Rock	<del>77</del> <u>71</u>	
5.5.	Storage and Stockpile on Site	<del>78</del> <u>72</u>	
5.6.	Noise and Vibration	<del>78</del> <u>72</u>	
5.7.	Discharge Water Quality	<del>79</del> <u>73</u>	
5.8.	Pedestrian Management during Construction	<del>79</del> <u>73</u>	
5.9.	Station Precinct Operation Impact Assessment Group	<del>79</del> <u>73</u>	
5.10.	Hoarding and temporary fencing	<del>80</del> <u>74</u>	
5.11.	Maintenance	<del>81</del> <u>75</u>	
5.12.	Interface Contractors Access Requirements	<del>82</del> <u>76</u>	
5.13.	Property Access and Utility Services	<del>82</del> <u>76</u>	
5.14.	Site Protection and Restoration	<del>82</del> <u>76</u>	
5.15.	Road Condition	<del>83</del> <u>77</u>	
5.16.	Security Regime	<del>84</del> <u>78</u>	
5.17.	Access	<del>84</del> <u>78</u>	
5.17.1.	Control of Access to the Site	<del>84</del> <u>78</u>	
5.17.2.	Control of Access into Rail Corridor	<del>84</del> <u>78</u>	
5.18.	Traffic Management during Construction	<del>85</del> <u>79</u>	
5.19.	Special Events	<del>87</del> <u>81</u>	
5.20.	Emergency/Incident Management	<del>88</del> <u>82</u>	
5.21.	Fire Life Safety	<del>88</del> <u>82</u>	

Sydenham Station and Junction (SSJ)

5.22.	Chain of Responsibility	<del>99</del> <u>82</u>
5.23.	Temporary Works	<del>99</del> <u>83</u>
5.24.	Sydney airport flight path	<del>99</del> <u>84</u>
<b>6.</b>	<b>APPENDICES</b>	<b><del>91</del><u>85</u></b>

# 1. Introduction

## 1.1. Scope of Works and Technical Criteria (SWTC) Overview

- (a) This SWTC sets out the scope, general requirements and technical requirements for the Project Works, Temporary Works and the SSJ Contractor's Activities for the Sydney Metro City & Southwest Sydenham Station and Junction.
- (b) The SWTC has been developed based on the system performance, functions and process defined in the Business Requirements Specification (BRS) and Systems Requirements Specifications (SRS). The BRS and SRS provide the structure and context to the contract Scope of Works and Technical Criteria (SWTC).
- (c) Requirements in this document are project specific and are in addition to the requirements of the Management Requirements (MR's) that are included in schedules to the Contract.
- (d) The SSJ SWTC comprises:
  - (i) section 1 which outlines the structure of the SWTC, of the project background, objectives and interpretation of the SWTC;
  - (ii) section 2 which includes the high level scope of the SSJ Contractor's Activities, the Project Works and the Temporary Works;
  - (iii) section 3 which includes the general requirements that the SSJ Contractor must comply with;
  - (iv) section 4 which includes the technical requirements including performance criteria for the development of design and construction elements that the SSJ Contractor must comply with;
  - (v) section 5 which includes the construction requirements that the SSJ Contractor must comply with; and
  - (vi) the following appendices:
    - A. Appendix A1.0 which contains definitions of terms and acronyms used in the SWTC;
    - B. Appendix A2.0 which lists the minimum Codes and Standards for Sydney Metro Works;
    - C. Appendix B inclusive which contain technical requirements and scope elements for the Project Works, the Temporary Works and the SSJ Contractor's Activities;
    - D. Appendix C which contains specifications for the Project Works, the Temporary Works and the SSJ Contractor's Activities;
    - E. Appendix D which contains the SWTC Drawings referred to in Sections 1 to 5 inclusive and other Appendices; and

- F. Appendices E which contains the Interface Requirements Specification (IRS) and Interface Schedules.

## 1.2. Project Background

- (a) The Sydney Metro City & Southwest is a 30 kilometre metro rail between Chatswood and Bankstown, including; 17 kilometres of new tunnel from Chatswood, under the harbour to Sydenham connecting 7 new underground stations at Crows Nest, Victoria Cross (North Sydney), Barangaroo, Pitt Street, Martin Place, Central and Waterloo, and upgrading 13 kilometres of the Bankstown line, including 11 existing stations; Sydenham, Marrickville, Dulwich Hill, Hurlstone Park, Canterbury, Campsie, Belmore, Lakemba, Wiley Park, Punchbowl and Bankstown plus southern service facilities.
- (b) The Project Works comprises upgrades to rail and station infrastructure to support customer movement and experience, and address fundamental transport and functionality needs across the existing Sydenham Station and Junction.

## 1.3. Project Overview

- (a) Sydenham Station lies approximately 6km south of the Sydney CBD and 2.5km from Sydney (Kingsford Smith) Airport.
- (b) Sydenham falls within the Inner West Council (formerly Marrickville) Local Government Area. The suburb is bounded by St Peters to the east, Marrickville to the west, Enmore to the north and Tempe to the south.
- (c) Land use around the station is mixed, with low density residential as well as commercial and industrial areas to the south that generally date from the late 19th century and early 20th century, and later industrial areas to the north.
- (d) The station is bounded by Burrows Ave to the south and Railway Parade to the north and with Sydenham and Marrickville Roads, form an important north/south connection for both general traffic and heavy vehicles. Burrows Avenue on the southern edge of the station is a busy local road. There are three high amenity recreational reserves within walking distance of the station: Fraser Park, Sydenham Green and Tillman Park.
- (e) Sydenham Station is on Schedule 5 of the Marrickville Local Environmental Plan 2011 as a heritage item of state heritage significance. Sydenham Station is also on the State Heritage Register, and RailCorp Section 170 Heritage and Conservation Register, including platform buildings, overhead booking office, overbridge and perimeter brick walls which are of 'aesthetic significance'.
- (f) The existing station consists of six platforms; two side platforms: 1 and 6; and two island platforms 2/3 and 4/5.
- (g) Current Sydney Trains operations through Sydenham Station, include:
- (i) T3 Bankstown Line services stop at Platform 1 and 2;
  - (ii) Limited T2 Inner West and South Line stop at Platform 3 and 4; and
  - (iii) T4 Eastern Suburbs and Illawarra Line services stop at platform 5 and 6.

Sydenham Station and Junction (SSJ)

- (h) The existing station entry concourse on Gleeson Avenue was the subject of a Transport Access Program (TAP) upgrade in 2013 that included new stairs and lifts to all platforms, as well as ticketing, bicycle parking and other facilities.
- (i) The station currently provides accessible access (lifts) to all platforms, a ticket gateline and modern station concourse facilities. The station access is located on Gleeson Ave and provides good connectivity into the Sydenham precinct.
- (j) The station is currently serviced by three bus routes, 418, 425 and M30 with northbound stops located on Burrows Avenue, and southbound stops located on Railway Parade and Gleeson Avenue. In addition there is a school bus service.
- (k) Sydenham Station and Junction (SSJ) Project is a key component of Sydney Metro City & Southwest that is located at the interface between the tunnel from Chatswood to Sydenham and the Bankstown line conversion.
- (l) The SSJ scope involves remodelling of the existing Sydenham Station and Junction to allow for Sydney Metro City & Southwest operations, including a new aerial concourse constructed at the city end of the Sydenham Station to give access to all platforms and enable passenger interchange between train services, new platforms, new station buildings, station entries and forecourts, and new transport interchanges.
- (m) The northern interchange on Railway Parade will enable a connection to the proposed Sydney Metro City & Southwest trains facility south (stabling yard) to the north. The SSJ scope also includes adjustment of existing Sydney Trains rail systems and civil and structural work to enable separation between Sydney Trains and Sydney Metro City & Southwest operations.
- (n) To facilitate the conversion of Platforms 1 and 2 for the operation of Sydney Metro City & Southwest services the existing Bankstown line and XPT Maintenance Centre access tracks will be temporarily diverted through Platforms 3 and 4.
- (o) Two existing platforms (platforms 1 and 2) will be straightened and extended for Sydney Metro City & Southwest services. Existing platforms 3, 4, 5, and 6 will continue to be used by Sydney Trains services allowing Metro customers to interchange with T2 Inner West and South Line and T4 Eastern Suburbs and Illawarra Line.
- (p) The SSJ Contractor's Activities will require significant enabling works including relocation of existing Sydney Trains combined services routes, modification of public utilities including Sydney Water stormwater drainage network. The modification to the Sydney Water stormwater drainage system will include an aqueduct over Sydenham Pit, realigned drainage channels, new under-track culvert and a new pumping station.



Sydenham Station and Junction (SSJ)



**Figure 1.3 Sydenham Station and Junction**

**1.4. Project Objectives**

- (a) The Principal’s objectives for the Sydney Metro City & Southwest project are contained in clause 2.1 of the General Conditions.
- (b) The Principal’s objectives for the Project Works are contained in clause 2.2 of the General Conditions.

**1.5. Purpose and interpretation of SWTC**

- (a) The criteria and requirements in this SWTC are minimum criteria and requirements, including technical, operational and performance criteria and requirements for the Project Works, the Temporary Works and the SSJ Contractor's Activities which the SSJ Contractor must satisfy to fulfil its obligations under the Contract.
- (b) If more than one criterion or requirement applies in respect of any part of the Project Works, the Temporary Works and the SSJ Contractor's Activities then all criteria and requirements must be satisfied. If there are criteria and requirements which are mutually exclusive, then the criterion or requirement which delivers the greatest level of service or is of the highest standard, will apply.
- (c) Reference to any work is deemed to include a requirement to undertake any additional activities necessary for the satisfactory completion and performance of that work and full compliance with the SWTC.
- (d) The SSJ Contractor bears the risk that compliance with this SWTC will not fulfil the SSJ Contractor's obligations under the Contract. In particular, the SSJ Contractor must carry out any work, tasks and activities additional to that contemplated by this SWTC to ensure that the SSJ Contractor satisfies its obligations under the Contract.
- (e) The SWTC Drawings are contained in Appendix D. The SWTC Drawings provide criteria and requirements that the SSJ Contractor must satisfy in development of the Design Documentation in conjunction with the SWTC.

- (f) Notwithstanding the requirements of the Contract, if the SSJ Contractor proposes to Change the dimensions, sizes, numbers or the specified minimum requirements specified by the SWTC and SWTC Appendices to meet a “performance” requirement in the SWTC, the SSJ Contractor must:
  - (i) gain approval from the Principal to use the “performance” based solution or any proposed reduction in the specified minimum requirements prior to incorporation into the Design Documentation in accordance with the Contract;
  - (ii) provide sufficient calculations and details of the “performance” based dimensions, sizes or numbers support the SSJ Contractor’s assessment that it meets or improves the level of service and standard required by the SWTC;
  - (iii) provide drawings as may be required to show the layout of the element based on:
    - A. the “performance” based dimensions or sizes; and
    - B. the SWTC Drawings.
  - (iv) provide justification of any “performance” based solution or reduction in the specified minimum requirements.
- (g) Regardless of the “performance” based calculation or assessment, any alternative infrastructure or equipment must be able to provide an equivalent or better level of service than the infrastructure or equipment it replaces; and
- (h) Notwithstanding any approval(s) given by the Principal for any Change(s) to the dimensions, sizes, numbers or the specified minimum requirements shown on the SWTC Drawings, the SSJ Contractor remains responsible for the completion of the SSJ Contractor’s Activities in accordance with the Contract including all Codes and Standards.

## **1.6. Definitions and interpretations**

- (a) The SWTC (including appendices) must be read in conjunction with all other parts of the Contract.
- (b) Unless the context requires otherwise, terms which have a defined meaning in clause 1.1 of the General Conditions have the same meaning where used in this SWTC.
- (c) Appendix A1.0 contains definitions of terms and acronyms used in this SWTC that are additional to those set out in clause 1.1 of the General Conditions.
- (d) Unless stated otherwise any reference in this SWTC to an Assets Standards Authority, Sydney Trains or RailCorp standard is to be read as the same standard.
- (e) Unless stated otherwise, any reference to a ‘section’ or ‘clause’ in this SWTC is a reference to a section or clause of this SWTC.
- (f) Unless stated otherwise, any reference to an ‘appendix’ or ‘appendices’ in this SWTC is a reference to an appendix or appendices of this SWTC.

Sydenham Station and Junction (SSJ)

- (g) Unless stated otherwise, any reference to a 'Worksite' or 'Worksites' in this SWTC is a reference to a Worksite or Worksites set out in Schedule E1 of the Contract.
- (h) Unless stated otherwise, any reference to an 'existing' item of infrastructure in this SWTC must be read as a reference to the item of infrastructure existing at the date of the Contract.
- (i) Unless stated otherwise, all reduced levels specified in this SWTC, including those in the Appendices, are to Australian Height Datum (AHD).
- (j) Unless stated otherwise, all survey coordinates specified in this SWTC, including those in the Appendices, are to the Map Grid Australia (MGA-GDA-94).



## 2. Scope Description

### 2.1. General

- (a) The SSJ Contractor must undertake the SSJ Contractor's Activities in accordance with the requirements of the Contract, including this SWTC, SWTC appendixes, and the Planning Approvals.
- (b) The SSJ Contractor must implement an integrated approach to the performance of the SSJ Contractor's Activities using effective and robust systems which accommodate and address the project objectives and management requirements in Contract Schedules Part D.
- (c) In particular the SSJ Contractor must:
  - (i) satisfy the technical and procedural requirements of the Principal with respect to investigation, design and construction and handover of the Project Works;
  - (ii) demonstrate a whole of life approach in the design and construction of the Project Works to minimise asset operation, maintenance, replacement and refurbishment cost;
  - (iii) demonstrate an ability to understand the importance of customer outcomes and adopt customer centred design approaches;
  - (iv) demonstrate an appreciation of the Sydney Metro City & Southwest design objectives and a commitment to design excellence;
  - (v) establish and maintain a collaborative and effective working relationship with the Principal, Interface Contractors, stakeholders and the community;
  - (vi) ensure that its planning and programming is comprehensive and provides for the concurrent delivery of the performance and management requirements of the Contract;
  - (vii) ensure that risks are considered and mitigated throughout the performance of the SSJ Contractor's Activities;
  - (viii) proactively liaise with and satisfy the requirements of all relevant Authorities;
  - (ix) diligently address safety, function, operability, maintainability durability, sustainability and reliability and aesthetics in all aspects of the Project Works, the Temporary Works and the SSJ Contractor's Activities;
  - (x) implement a proactive stakeholder and community involvement strategy which enables the SSJ Contractor to respond to and accommodate reasonable stakeholder and community expectations in all aspects of the Project Works, the Temporary Works and the SSJ Contractor's Activities;
  - (xi) ensure a high standard of environmental, sustainability, community, safety and quality performance in the delivery of the SSJ Contractor's Activities

Sydenham Station and Junction (SSJ)

by developing and implementing effective Project Plans and providing effective leadership to develop and maintain the culture and values that are consistent with this performance objective;

- (xii) demonstrate the importance of customer outcomes and adopt customer centred design approaches; and
- (xiii) demonstrate an appreciation of the Sydney Metro City & Southwest design objectives and a commitment to design excellence.

## 2.2. SSJ Contractor's Activities

- (a) Without in any way limiting the SSJ Contractor's obligations under the Contract, the SSJ Contractor's Activities include all tasks and things necessary to:
  - (i) undertake its own assessment on all existing assets and systems determine whether the existing assets and systems should be kept, modified, replaced or removed to meet the SWTC;
  - (ii) investigate, design, construct, test and commission the Project Works and Temporary Works;
  - (iii) preserve and protect all existing infrastructure including structures, public transport facilities including bus driver amenities and associated facilities, cycle ways, footpaths, Utility Services, roads, railways, buildings and improvements, that are affected by the SSJ Contractor's Activities, except for the existing infrastructure that is required to be demolished or modified under the Contract;
  - (iv) handover the Project Works to the Principal or relevant owner by the relevant Dates for Construction Completion in the condition required by the Contract;
  - (v) correct all Defects during the Defects Correction Period applicable to the relevant parts of the Project Works;
  - (vi) secure, maintain, repair, reinstate and hand back, in the specified condition, areas occupied or affected by the Temporary Works;
  - (vii) prepare the design, design integration and Design Documentation;
  - (viii) provide submissions in relation to configuration change, certification, construction testing and commissioning of the Project Works and Temporary Works;
  - (ix) prepare the SSJ Contractor's Programs;
  - (x) provide quality assurance of the SSJ Contractor's Activities;
  - (xi) ensure the Environmental Representative can perform its role under the Planning Approval;
  - (xii) mitigate environmental impacts during the design and construction of the Project Works and the Temporary Works;
  - (xiii) develop and implement sustainability strategies and initiatives for the SSJ Contractor's Activities, Project Works and the Temporary Works;

Sydenham Station and Junction (SSJ)

- (xiv) implement all necessary traffic and transport management methods to effectively manage traffic, transport, pedestrian and passengers affected by the construction of the Project Works and the Temporary Works;
- (xv) develop, implement and maintain the Contract Management Plans in accordance with the Contract;
- (xvi) provide effective stakeholder and community engagement, including effective communication, in relation to the Project Works and the Temporary Works and the SSJ Contractor's Activities;
- (xvii) provide site facilities and accommodation as required in the Contract;
- (xviii) maintain and repair the Project Works and the Temporary Works until the relevant Date of Construction Completion;
- (xix) enable the Independent Certifier to perform its functions including those identified in the Independent Certifier Deed to certify the Project Works and the Temporary Works;
- (xx) manage the nominated contractors to integrate the works delivered into the Project Works;
- (xxi) ensure that all rail and station systems remain accessible, functional, and at the applicable level of services, at all times during construction;
- (xxii) maintain customer access to Sydenham Station including station facilities, amenities and train services at the required level of service, at all times during construction, unless otherwise agreed to by Sydney Trains and the Principal;
- (xxiii) maintain the required level of fire safety in all parts of the Sydenham Station that remain operational during construction;
- (xxiv) remove all equipment, architectural elements, cabling and all other associated installations made redundant through the SSJ Contractor's Activities; and
- (xxv) made good all affected assets and substrate.

### 2.3. Project Works

- (a) The Project Works include all permanent new infrastructure and permanent modifications to existing infrastructure which must be constructed to enable the SSJ Contractor to satisfy the requirements of the Contract, including the requirements of this SWTC and the SWTC appendices.
- (b) The Project Works include the following categories of works:
  - (i) Sydney Metro Works;
  - (ii) Brownfield Works;
  - (iii) Utility Service Works;
  - (iv) Sydney Water Stormwater Drainage Works;

Sydenham Station and Junction (SSJ)

- (v) Property Works; and
- (vi) Local Area Works.

### 2.3.1. Sydney Metro Works

- (a) The Sydney Metro Works are the works for a new metro station for the Sydney Metro City & Southwest at Sydenham (Metro Station) and the associated metro rail corridor, which will be handed over to the Principal to be incorporated in the operating Sydney Metro City & Southwest or the Principal's nominees.
- (b) The Sydney Metro Works will interface with rail infrastructure, electrical systems, communications systems and control systems to be installed by Interface Contractors.
- (c) Elements of the Sydney Metro Works will be integrated into the Existing Operators rail network on an interim basis pending handover to the Principal.
- (d) The Sydney Metro Works include:
  - (i) the Metro Station and Interchange Works described in section 2.3.1.1; and
  - (ii) the Metro Corridor Works described in section 2.3.1.2.

#### 2.3.1.1. Metro Station and Interchange Works

- (a) The Metro Station Works and Interchange comprise permanent new station infrastructure and permanent adjustments to existing infrastructure at Sydenham Station and interchange in accordance with Appendix D4.0 and Appendix D5.0, (including the associated transport interchange and precinct infrastructure), for the purposes of the operation and maintenance of the Metro Station.
- (b) The Metro Station and Interchange Works include:
  - (i) adjustments to existing Sydenham Station infrastructure (including the associated transport interchange and precinct infrastructure) to enable the construction of the new metro assets, including:
    - A. reconstruction and extension of platforms 1 and 2 as straight platforms, including:
      - i) level access for Sydney Metro City & Southwest trains;
      - ii) provision, including footings, recesses and fixtures, for Platform Screen Door (PSD) system in accordance with Appendix E1.5;
      - iii) platform edge screens extending to all areas of ~~platforms~~[platform 1 and 2 coping edge](#) not covered by PSDs including platform end access gates;
      - [iv\) platform security fencing to all back of platform area in accordance with Appendix B3.0 Section 7.6.3;](#)
      - [v\) ~~iv\)~~ ramps at the city ends of the platforms to allow:](#)
        - 1. maintenance access to and from the Rail Corridor; and

Sydenham Station and Junction (SSJ)

2. Egress of passengers off the end of platforms.

- vi) ~~v)~~ platform buildings and staff facilities;
- vii) ~~vi)~~ platform canopies;
- viii) ~~vii)~~ platform drainage and rainwater collection tank(s);
- ix) ~~viii)~~ floor tiles;
- x) ~~ix)~~ tactile ground surface indicators; and
- xi) ~~x)~~ platform furniture including seating, bins and other furniture.

B. ~~A.~~ archival recording, demolition and removal of State Heritage listed building on Platform 1 (Parcel Office);

C. ~~B.~~ archival recording, demolition and removal of billboards located adjacent to Sydenham Road; and

D. ~~C.~~ archival recording, demolition and removal of Sydney Trains Sydenham Civil Depot (geotechnical building) located off Railway Parade, south of the station.

(ii) new aerial paid concourse (Metro Concourse) positioned on the city end of the existing Sydenham Station platforms which will link the northern end of Railway Parade, northern end of Burrows Avenue, and all six existing Sydenham Station platforms including:

- A. removal of any obstructing residual in-ground foundation structures/elements from the 2011 Railcorp temporary foot bridge constructed as part of the TfNSW Transport Access Program;
- B. new Vertical Transport from all six platforms to the Metro Concourse on the paid side, including lifts to each platform;
- C. covered stair access from all six platforms to the Metro Concourse on the paid side;
- D. single unified concourse canopy;
- E. tactile ground surface indicators; and
- F. all wall, floor and ceiling finishes.

(iii) new at-grade Metro Station entry plazas and integrated transport interchange located at the intersection of Sydenham Road, Railway Parade and Lower Railway Parade, and on Burrows Avenue between the intersection of George Street and Hogan Avenue including:

- A. paved station Primary Plaza and Secondary Plaza including; new accessible pathways / ramps between the station and interchange facilities;
- B. station entrance structure, including ticket Gateline(s) and extended weather protection;
- C. customer facilities including ticket self-service machines and ATMs;

Sydenham Station and Junction (SSJ)

- D. bicycle parking facilities including rails and lock-up parking;
  - E. vehicle management devices;
  - F. street furniture including public seating adjacent to pedestrian paths;
  - G. modification to existing road reserve and Local Area precinct including, signalised and non-signalised pedestrian crossings to suit the new station entrance and pedestrian desire lines;
  - H. plaza landscaping including hard and soft landscaping: paving drainage, tree cover, planter boxes;
  - I. drinking fountains;
  - J. lighting;
  - K. integrated public art;
  - L. bus stops adjacent to stations with and accessible path of travel to station entry;
  - M. dedicated accessible taxi and kiss and ride zones, with accessible facilities and paths of travel to station entry;
  - N. customer shelters at bus stops and at taxi and kiss and ride zones;
  - O. modification to existing and new footpaths, driveways and stairs;
  - P. kerb and road realignment;
  - Q. modification to existing and new fencing, retaining walls and balustrades;
  - R. modification to existing and new stormwater drainage;
  - S. modification to existing on street parking;
  - T. modification to existing and new tactile indicators; and
  - U. removal and disposal of existing infrastructure made redundant through the SSJ Contractor’s Activities.
- (iv) modifications to Sydenham Road and Railway Parade, including vertical realignment to providing an accessible path of travel from the bus interchange to the Metro Station entrance avoiding the realigned Sydney Water culverts, including associated modifications to brick retaining wall.
- ~~(v) new active transport corridor treatments on the southern side of Shirlow Street between Garden Street and Saywell Street, including:~~
- ~~A. a continuous pedestrian pathway along the length of the street using concrete unit pavers on a rigid base; and~~
  - ~~B. an on-road cycle path.~~
- (v) ~~(vi)~~ new Metro Station buildings as defined in Appendix C1.0 Metro Station Room Schedule and C1.1 Room Data Sheets, including:



Sydenham Station and Junction (SSJ)

- A. all fixtures and fittings;
- B. door and door hardware, including electric door ironmongeries to the security level described in Appendix E1.9;
- C. all wall, floor and ceiling surfaces including soffits, cladding, roofing and painting;
- D. handrails, fencing and balustrades;
- E. louvres and grilles;
- F. painting of surfaces;
- G. all other architectural finishes;
- H. all other equipment, cable containment, troughing and all other requirements described with the Interface Schedules;
- I. tactile indicators; and
- J. internal room layouts and fit out suitable for staff, equipment and plant accommodation.

(vi) ~~(vii)~~ new services equipment facility located within the current Sydney Trains Sydenham Civil Depot including the following:

- A. services equipment building and rooms as defined in Appendix C1.0 Metro Station Room Schedule;
- B. maintenance parking; and
- C. shared vehicular access driveway to the Sydenham Station padmount substation, including separate designated Sydney Trains maintenance parking adjacent to the substation.

(vii) ~~(viii)~~ new low voltage (LV) power supplies and distribution systems, centralised UPS system, dedicated UPS system and photovoltaic systems, including all associated low voltage electrical equipment, foundations, cabling, cable containment, earthing, bonding, lighting, monitoring, control, renewable energy sources to the Metro Station and precinct, service equipment rooms and trackside facilities in accordance with Appendix C1.3;

(viii) ~~(ix)~~ earthing, bonding and electrolysis protection systems necessary for the protection of all infrastructure comprising the Project Works and Temporary Works;

(ix) ~~(x)~~ Environmental Control Systems (ECS) including:

- A. heating, ventilation, and air-conditioning (HVAC) systems;
- B. equipment room cooling and ventilation systems;
- C. back-up cooling systems for critical equipment rooms;
- D. economy cycles and heat recovery systems;

Sydenham Station and Junction (SSJ)

- E. pressurisation systems;
- F. pressure relief and purge systems;
- G. associated equipment and system component supports, intakes, discharges, risers, civil and structural works, and acoustic treatments;
- H. power supply, control, and monitoring systems and interfaces;
- I. water supply, treatment, and drainage systems; and
- J. fire separation, fire stopping, fire proofing, and fire system interfaces.

(x) ~~(xi)~~ cable containment system (including route design) which includes, equipment footing, pits, junction boxes, bracketry, equipotential bonding conductors, conduits, cable outlet boxes, underground cable routes, cable tray, troughing, pits, undertrack crossings, to vertical transport system, platform screen doors, radio system, central control system and communication systems in accordance with Appendix E1.0 to Appendix E1.9;

(xi) ~~(xii)~~ new building services including:

- A. Low voltage;
- B. trackside facilities;
- C. station Environmental Control Systems (ECS);
- D. hydraulic services;
- E. lighting services;
- F. signage and advertising panels;
- G. Vertical Transport;
- H. entrance shutters; and
- I. fire indication panels and associated systems.

(xii) ~~(xiii)~~ new building management system with all necessary components and interfaces for local control and monitoring of entries to the Metro Station and facility building services, including:

- A. Low voltage;
- B. trackside facilities;
- C. station Environmental Control Systems (ECS);
- D. hydraulic services;
- E. lighting services;
- F. signage and advertising panels;



- G. Vertical Transport;
- H. entrance shutters; and
- I. fire indication panels and associated systems.

(xiii) ~~(xiv)~~ provisions for new ticket Gatelines and electronic ticketing equipment (ETS) including gate array controller (GAC), recharge facilities and self-service machines, including:

- A. power supply to all ETS and GAC Equipment including power cables, earthing cables, cable containment and connections to local LV distribution boards and LV switch boards;
- B. installation of emergency gate opening panel (EGOP) and emergency opening buttons;
- C. all Fire Safety System interfaces associated with Gatelines including cabling and cable containment and connection between Gatelines and the fire indicator panels and break glass;
- D. all works associated with civil and cable containment works for data communications cable, including:
  - a. ducting and footings associated with below ground civil works;
  - b. draw wires for underfloor ducting and conduits;
  - c. access pits and panels to any cabling containment system;
  - d. cable containment to all ETS equipment to connect to the local area network switches, interfacing to the Sydney Metro data communications network and/or Sydney Trains data communications network; and
  - e. civil works, including ducting and footings associated with ground civil works.
- E. spatial provision for secure storage of rotables and consumables to support first line maintenance of ETS Equipment.

(xiv) ~~(xv)~~ all wayfinding, general, safety and statutory signage throughout the Metro Station and Interchange including:

- A. station entrances, public amenities, Vertical Transport, concourses and platforms;
- B. areas of Sydenham Station which are impacted by Contractor Activities;
- C. Station Precinct;
- D. direction signage to bus, taxi, Kiss and Ride, bike storage and other transport mode areas within the Station Precinct and Interchange;
- E. other general advisory and information signage regarding wayfinding;
- F. all safety and emergency signage;

Sydenham Station and Junction (SSJ)

- G. all statutory signage;
- H. Fire Life Safety signs;
- I. street signs and traffic control signs;
- J. removal and disposal of all redundant signage;
- K. repairs and reinstatement of all surfaces and substrates from which existing signage is removed, to match the surrounding surfaces;
- L. provisions for public art installations;
- M. provisions for free standing digital advertising totems inside the Metro Station Gatelines, Metro Concourse and platform 1;
- N. provisions for large format digital advertising screens on the Metro Concourse; and
- O. provision for retail facilities in the Primary Plazas and Secondary Plazas.

**2.3.1.2. Metro Corridor Works**

- (a) The Metro Corridor Works comprise permanent new infrastructure, and permanent adjustments to existing infrastructure, in the Rail Corridor for the purposes of the operations and maintenance of the Sydney Metro City & Southwest.
- (b) The Metro Corridor Works include:
  - (i) cable containment system (including route design) which includes, equipment footing, pits, junction boxes, bracketry, equipotential bonding conductor, conduits, cable outlet boxes, underground cable routes, cable tray, troughing, pits, undertrack crossings for radio systems, signalling and train control systems, and communications systems in accordance with Appendix E1.0 to Appendix E1.9 and Appendix C1.2;
  - (ii) cable containment system (including route design) which includes, equipment footing, pits, junction boxes, bracketry, equipotential bonding conductor, conduits, cable outlet boxes, underground cable routes, cable tray, troughing, pits, undertrack crossings for electrical systems including;
    - A. high voltage reticulation;
    - B. low voltage; and
    - C. overhead wiring and traction supply.
  - (iii) widening of existing rail embankment on Up side of Rail Corridor adjacent to the Bankstown Line to provide for slewing of the Bankstown Line, including widening of the bridge(s) over the drainage canals;
  - (iv) deep and shallow stabilisation and protection works to embankments and cuttings, including retaining walls;

Sydenham Station and Junction (SSJ)

- (v) new, upgraded and modified track and track formation in accordance with the track design and the physical extent of trackwork defined in Appendix D3.0 and D6.0 including:
  - A. provision for northern shunt neck, eastern bypass road and down metro SW and up metro SW;
  - B. formation transition slabs associated with the Transgrid suspended slab on the northern shunt neck as detailed in Appendix E3.0;
  - C. formation transition slab associated with the southern dive portal for the up and down tracks as detailed in Appendix E3.0;
  - D. provision for straight track alignments through the Metro Station platforms;
  - E. new 802 A&B crossovers between the Up and Down Bankstown lines;
  - F. temporary buffer stops with associated equipment on the Up and Down Bankstown lines at the country end of platforms 1 and 2;
  - G. replacement and/or upgrading of existing track, track formation, drainage, ballast or ballast reconditioning to meet the technical requirements;
  - H. slew Up and Down Bankstown lines to final Sydney Metro City & Southwest vertical and horizontal alignment, including superelevation adjustments required to maintain Sydney Trains interim operations;
  - L ~~A~~-guard rails and other track infrastructure required to support Sydney Metro City & Southwest operations;
  - J ~~B~~-staging of the works to ensure continued operations of the Sydenham maintenance centre and the ARTC goods line;
  - K ~~C~~-staging of track work to ensure continued operation of Sydney Trains and ARTC operations during the course of construction; and
  - L ~~D~~-coordination with Interface Contractors.
- (vi) new, upgraded and modified overhead wiring and associated overhead wiring infrastructure to meet Sydney Metro City & Southwest operational requirements and revised track alignments, including:
  - A. OHW and OHWS for Sydney Metro City & Southwest final 1500V configuration, including switched overlaps, in accordance with Appendix E4.0;
  - B. OHWS through Metro Station platform areas in accordance with Interface Contractor requirements as detailed in Appendix E1.4; and
  - C. Sydney Trains and Sydney Metro City & Southwest shared OHWS in accordance with Interface Contractors requirements as detailed in Appendix E1.4.
- (vii) modification to the existing canal underbridge at Ch 5.646km including:

Sydenham Station and Junction (SSJ)

- A. widening the bridge, including new approach slabs;
  - B. new waterproofing to bridge deck; and
  - C. widening the stormwater culvert, including, infill slab, approach slab and headwall.
- (viii) new service ~~bridges~~bridge(s) for the cable routes located on the Up side of the Bankstown Line over drainage channels at approximately Ch5.635 and Ch5.653km;
- (ix) new, upgraded and modified stormwater drainage including inter-track, cross track, cess and trunk stormwater infrastructure to meet Sydney Metro City & Southwest operational requirements and revised track alignments;
- (x) ~~noise walls and access gates, as required by the Environmental Documents and the SWTC;~~spatial and structural provisioning for future noise wall at the following locations:
- A. Retaining structure, where required, on the Up side of the track between chainage 6km 175 and 6km 255;
  - B. The Up side of the bridge across the Sydney Water drainage canal between chainage 6km 255 and 6km 280; and
  - C. Retaining walls on the Up side of the track between chainages 6km 280 and 6km 480.
- (xi) Rail Corridor boundary security fencing including access gates to prevent both deliberate and unintentional access to the rail corridor in accordance with Appendix D1.0 and E, including:
- A. maintenance access gates; and
  - B. provision for (and coordination with) Trackside Intruder Detection System using fencing structures.
- (xii) internal corridor fencing and access gates to segregate (segregation fencing) in accordance with Appendix D1.0 and Appendix E, including:
- A. the Sydney Trains corridor;
  - B. the Sydney Metro City & Southwest unattended train operation (UTO) area from other maintenance and accessible areas within the rail corridor; and
  - C. facilitate the Interface Contractor activities.

### 2.3.2. Brownfield Works

- (a) The Brownfield Works are the works at and around Sydenham Station and Sydenham Junction associated with, or required to enable, the construction, integration, operation and maintenance of the Sydney Metro Works.
- (b) The Brownfield Works will be designed and constructed for the use of existing rail operators, other than the Operator of the Sydney Metro City & Southwest.

Sydenham Station and Junction (SSJ)

- (c) The Brownfield Works include:
  - (i) the Brownfield Rail Works described in section 2.3.2.1;
  - (ii) the Sydenham Junction Works described in section 2.3.2.2; and
  - (iii) the Sydenham Bridge Works described in section 2.3.2.3.

**2.3.2.1. Brownfield Rail Works**

- (a) The Brownfield Rail Works comprises permanent new infrastructure, permanent adjustments, and protection measures for existing rail and station systems to facilitate the construction of the Sydney Metro Works.
- (b) The Brownfield Rail Works include:
  - (i) relocation of all existing Sydney Trains rail systems cable routes and cabling outside of the Sydney Metro City & Southwest Rail Corridor as designated by the separation and boundary fence, including:
    - A. 11kv feeder 608/2 and 686/2;
    - B. signalling cables;
    - C. copper communications cables;
    - D. optic fibre cables;
    - E. low voltage cables;
    - F. 1500v dc system;
    - G. compressed air; and
    - H. digital train radio.
  - (ii) relocation, adjustment and protection to existing cable routes including:
    - A. the 11kv aerial feeder 608/3 cable route through Burrows Ave; and
    - B. the 33kv feeder 799 cable route through Burrows Ave.
  - (iii) ~~relocation (and associated terminations) of existing~~ re-configuration of signalling equipment and cables to support the Brownfield Works, including: recovery of all redundant assets.
    - ~~A. main signalling and communication cables, and where necessary tail cables, coming into SM577;~~
    - ~~B. SM583 location case;~~
    - ~~C. main signalling and communications cables, and where necessary tail cables, coming into SM592 A&B locations;~~
    - ~~D. main signalling and communications cables and, where necessary tail cables, coming into SM595 location;~~
    - ~~E. main signalling and communications cables, and where necessary tail cables, coming into SM599 A&B locations;~~



Sydenham Station and Junction (SSJ)

- ~~F. removal of SM599B, SM600B and Fixed Red signals;~~
- ~~G. relocation of 598AT track circuit feed;~~
- ~~H. removal of the track circuits on the Bankstown line feed from SM599 A&B location cases;~~
- ~~I. removal of 599 intermediate trainstop;~~
- ~~J. removal of platform 1 and 2 guard's indicators;~~
- ~~K. the main signalling and communications cables, and where necessary tail cables, coming into SM607 location;~~
- ~~L. SM611 A&B location cases;~~
- ~~M. main signalling and communications cables, and where necessary tail cables, coming into SM611 A&B locations;~~
- ~~N. removal of SM606 signal;~~
- ~~O. removal of the existing SM611B signal;~~
- ~~P. removal of SM613B signal;~~
- ~~Q. removal of 606 intermediate trainstop;~~
- ~~R. removal of redundant track circuits;~~
- ~~S. main signalling and communications cables, and where necessary tail cables, coming into 607BT location;~~
- ~~T. removal of 620 intermediate trainstop;~~
- ~~U. renewal of impacted tail cables due to track slews;~~
- ~~V. main signalling and communications cables, and where necessary tail cables, coming into 616AT location from Sydenham Equipment Centre and SM676A&B locations;~~
- ~~W. SM620B signal and associated equipment. Top green aspect to be replaced with a yellow aspect. The bottom green and low speed aspects removed;~~
- ~~X. main signalling and communications cables coming into SM624 A&B from Sydenham Equipment Centre location;~~
- ~~Y. main signalling cables between Sydenham Equipment Centre and SM645 Equipment Room at Tempe;~~
- ~~Z. SM678 A&B location cases;~~
- ~~AA. main signalling and communications cables, and where necessary tail cables, coming into SM676 A&B locations;~~
- ~~BB. signal SM678B with bottom green aspect removed;~~
- ~~CC. main signalling and communications cables, and where necessary tail cables, coming into SM687 location;~~

Sydenham Station and Junction (SSJ)

~~DD. main signalling and communications cables, and where necessary tail cables, coming into SM701A location;~~

~~EE. new equipment for 802 crossovers installed in SM155 location for future Sydney Metro operations; and~~

~~FF. electrolysis bonds on Down Illawarra main and Up Bankstown located at the City side of goods line.~~

- (iv) signal sighting and signage modifications in accordance with the signal plans.
- (v) removal of “out of service” aerial feeder 608 and poles between pole 3b to 13, including associated works to stabilise existing feeder at pole 14;
- (vi) relocation, adjustment and protection to existing Sydenham Station infrastructure, including:
  - A. reconstruction and resurface;
  - B. platform buildings;
  - C. drainage;
  - D. sewer;
  - E. seating and bins;
  - F. canopies;
  - G. lighting; and
  - H. wayfinding signage and customer information.
- (vii) localised reconstruction, resurfacing and regrading on platform 3, 4, 5 and 6;
- (viii) relocation, adjustment and protection to existing Sydenham Station systems, including:
  - A. operation critical data network (OCDN);
  - B. station earthing system;
  - C. closed circuit television system (CCTV);
  - D. passenger information display system (PIDS);
  - E. telephone systems;
  - F. precise clocks;
  - G. public address systems (PA);
  - H. electronic security systems (ESS);
  - I. electronic access control systems (EACS);
  - J. electronic tickets systems (ETS);

Sydenham Station and Junction (SSJ)

- K. audio frequency induction loop (AFIL);
- L. Fire Life Safety (FLS);
- M. local area network (LAN) including Kronos and office equipment;
- N. radio systems, and
- O. low voltage systems including UPS.
- (ix) replacement, adjustment and protection to existing overhead wiring and staged works, including;
  - A. Sydney Trains and Sydney Metro City & Southwest shared OHWS in accordance with Interface Contractors requirements;
  - B. OHW and OHWS in areas which accommodate Sydney Trains interim and final operations in accordance with Appendix D2.0 and Appendix E4.0; and
  - C. OHW and OHWS for the Sydney Metro City & Southwest final configuration in accordance with Appendix D2.0 and Appendix E4.0.
- (x) archival recording, demolition and removal of State Heritage listed building and Platform 6;
- (xi) replacement and relocation of all equipment and functionality of rooms within State Heritage listed buildings on Platform 1 and Platform 6 to the satisfaction of Sydney Trains;
- (xii) [replacement and relocation of the refuse facility on platform 6 to the satisfaction of Sydney Trains;](#)
- (xiii) ~~(xii)~~ relocation, adjustment and protection to existing track drainage to meet Sydney Metro City & Southwest operational requirements and staged Sydney Trains track alignments;
- (xiv) ~~(xiii)~~ removal of all infrastructure made redundant through the SSJ Contractor's Activities from the Sydney Metro City & Southwest corridor; and
- (xv) ~~(xiv)~~ return of all redundant Sydney Trains equipment and assets in accordance with Sydney Trains requirements.

**2.3.2.2. Sydenham Junction Works**

- (a) Sydenham Junction Works comprises permanent new infrastructure, and permanent adjustments, to the existing track and signal configuration at Sydenham Junction.
- (b) Design and execute the SSJ Contractor's Activities in accordance with the Appendix D2.0, Appendix E2.0 and Appendix B2.0 Attachment 1 Signalling Functional Specification (SFS).
- (c) [Where the SSJ Contractor intends to use existing CSR for signalling cabling external to the Construction Site, the existing CSR is assumed to be of sufficient quality and have sufficient capacity to accommodate the required cabling.](#)



Sydenham Station and Junction (SSJ)

- (d) ~~(e)~~ The Sydenham Junction Works include:
- (i) design, supply, installation, test and commission the computer based interlocking located at Sydenham equipment room to replace the existing signalling interlocking (route relay interlocking) , excluding the Meeks road triangle and the goods line;
  - (ii) design, supply, installation, test and commission of trackside architecture and associated equipment required to facilitate the interface with the new computer based interlocking and the field;
  - (iii) design of all new, upgraded and modified infrastructure and systems in accordance with the ~~final and~~ interim track design, interim signalling design must provision for the final track configuration;
  - (iv) design of all new, upgraded and modified infrastructure and systems in accordance with the final track design, excluding signalling design;
  - (v) ~~(iv)~~ installation of new, upgraded and modified track and track formation in accordance with the interim track design, including;
    - A. new 735 A&B crossovers between the Up and Down Illawarra Locals;
    - B. new 736 A&B crossovers;
    - C. removal of existing 737 A&B&C points;
    - D. removal of existing 738 A&B points;
    - E. removal of existing 739 A&B crossovers;
    - F. removal of existing 740 A&B crossovers;
    - G. new 740 points between the Up Illawarra Local and Down Bankstown line;
    - H. temporary 741 A&B points;
    - I. removal of existing 742A turnout and 742B catch points;
    - J. new 742A turnout between the Up Illawarra Local and the SMC;
    - K. new 742B catch points with throw off towards the Down Bankstown/Goods line;
    - L. new temporary 800 A&B crossovers on the slewed Bankstown line;
    - M. new temporary 801 turnout points on the Down Bankstown line;
    - N. superelevation adjustment as required; and
    - O. replacement and/or upgrading of existing Rail Track including fixings, sleepers, ballast and drainage to meet the technical requirements.
  - (vi) ~~(v)~~ design, supply, install, test and commission of all the signalling circuits, location case alterations, new location cases (including location bases and retaining walls where necessary), signals (including signal bases and retaining walls where necessary), track circuits, trainstops, interlocking

data and pneumatic air supply, including and any other rail systems necessary to commission the Sydenham Junction Works;

- ~~A. removal of SM583I signal MLRI and blanking of the bottom shunt route indicator;~~
- ~~B. removal of top yellow aspect and shunt route indicator on SM585 signal;~~
- ~~C. convert existing SM597 automatic signal to a controlled signal fitted with right hand turnout repeater;~~
- ~~D. provision of new SM600IL signal and co-acting signal;~~
- ~~E. provision of new guard's indicators for platform 4 for up direction movements;~~
- ~~F. provision of new guard's indicators on platform 3 for the down direction movement;~~
- ~~G. remove control of SM609II signal and its associated equipment and transfer to SM611A location case. Remove the outer home sign on the signal;~~
- ~~H. provision of new SM609IL signal and associated equipment. This signal is currently being controlled from SM607 location case. Replace its existing 2 aspect top head with 3 aspect top head. Provide a new shunt aspect with shunt route indicator;~~
- ~~I. provision of new SM611IL signal and co-acting signal and associated equipment on the Up Illawarra Local for movements from platform 3;~~
- ~~J. remove the bottom shunt route indicator and the multi lamp route indicator on SM616IL signal;~~
- ~~K. modify the shunt route indicators for signal SM618 to display 3 and 4 instead of 1 and 2;~~
- ~~L. provision of right had turnout repeater for SM626IL signal; and~~
- ~~M. provision of MLRI and SRI on signal SM676G.~~

(vii) ~~(vi)~~ provisions for and integrating of the ATRICS train control system for changes to Sydenham Junction. (The Principal will engage Sydney Trains resource for the modification of the ATRICS system which will include the providing a signal works testing qualified testing staff including lead systems tester), refer to Appendix E2.0;

(viii) ~~(vii)~~ removal of the existing SMC staff level crossing;

(ix) ~~(viii)~~ removal of all infrastructure made redundant through the SSJ Contractor's Activities ~~from the Sydney Trains corridor;~~

(x) ~~(ix)~~ return of all redundant Sydney Trains equipment and assets in accordance with Sydney Trains requirements;

(xi) ~~(x)~~ staging of the works to ensure continued operations of the Sydenham maintenance centre and the ARTC goods line;

Sydenham Station and Junction (SSJ)

~~(xii)~~ ~~(xi)~~ staging of the work to ensure continued operation of Sydney Trains network during the course of construction; and

~~(xiii)~~ ~~(xii)~~ coordination with Interface Contractors.

### 2.3.2.3. Sydenham Bridge Works

(a) The Sydenham Bridge Works comprise permanent new bridges, and permanent adjustment to existing bridges and underpasses that cross over and under the rail corridor, which are necessary to facilitate the construction of Sydney Metro Works.

(b) The Sydenham Bridge Works include:

(i) adjustments to the existing Bedwin Road Overbridge (at Ch 4.320km) including:

A. new traffic barriers and protection screens, including steel balustrades to extend over the Rail Corridor accordance with standards;

B. new traffic barriers and steel balustrades to extend over local roads

C. removal of horizontal protection screen over the Sydney Metro City & Southwest span only

D. localised waterproofing to the bridge deck areas impacted by the SSJ Contractors activities and associated localised resurfacing;

E. ~~C.~~ new concrete pedestrian footpath to areas impacted by the SSJ Contractors activities, integrated with bridge deck on both sides of bridge;

F. ~~D.~~ mortar loss and crack repointing in the abutment, piers and jack arches;

G. ~~E.~~ water stain removal supporting the Sydney Metro City & Southwest span only; and

H. ~~F.~~ cleaning and painting of the existing steel girders supporting the Sydney Metro City & Southwest span only.

(ii) adjustments to the existing Gleeson Avenue Overbridge (at Ch 5.386km) including:

A. new traffic barriers and protection screens, including steel balustrades;

B. ~~new~~ localised waterproofing to bridge deck areas impacted by the SSJ Contractors activities and associated localised resurfacing;

C. new concrete pedestrian footpath to areas impacted by the SSJ Contractors activities, integrated with bridge deck;

D. mortar loss and crack repointing in the abutment, piers and jack arches;

E. ~~E.~~ water stain removal supporting the Sydney Metro City & Southwest span only; and



~~E. F.~~ cleaning and painting of the existing steel girders supporting the Sydney Metro City & Southwest span only.

(iii) adjustments to the existing ARTC Overpass (at Ch 5.550km), including:

A. mortar loss and crack repointing in the abutment, ~~and~~

~~B. cleaning and painting of the existing steel members and connections,~~  
within the Sydney Metro City & Southwest span only.

(iv) adjustments to the existing XPT Access Footbridge (at Ch 5.637km), including:

A. demolition and removal of site.

### 2.3.3. Utility Service Works

(a) The Utility Service Works comprise permanent new Utility Services, permanent relocation, and adjustments including protection to existing Utility Services, required for, or as a consequence of the Sydney Metro Works, Brownfield Works, Sydney Water Stormwater Drainage Works, Property Works and Local Area Works.

(b) The Utility Service Works exclude works associated with Sydney Trains, ARTC and Sydney Metro City & Southwest assets and infrastructure.

(c) The Utility Service Work includes works in relation to Sydney Water assets, but excludes the Sydney Water Stormwater Drainage Works as detailed in section 2.3.4.

(d) Utility Services impacted by the Project Works, including:

(i) Ausgrid power cables, pits, substations, poles, and lights, including:

A. protection of HV cables, 2 x DN125 PVC conduits, located on Bedwin Rd bridge eastern footpath;

B. relocation of overhead power lines from Garden St along the access road to the Sydenham Pit and pump station;

C. relocation of HV cables from the substation on lower Railway Parade to the substation at 11 Sydenham Rd and on through Garden St including service connection to existing building;

D. decommissioning and removal of the existing padmount substation at 11 Sydenham Road; including supply, install, test and commissioning of new replacement substation, design by others;

E. relocation of HV cables from substation at 11 Sydenham Rd to UGOH pole lower Railway Parade including service connection to existing buildings;

F. relocation of substation adjacent to the Sydney Water Pumping Station building including high voltage cables under the Access Road to the pumping station;

G. relocation of HV cables to crossing under the track works near Sydenham Road / Railway Parade;

Sydenham Station and Junction (SSJ)

- H. relocation of overhead power lines at the corner of Sydenham Rd and Railway parade;
  - I. protection of 132kV cables passing under existing stormwater channel and existing railway tracks from Sydenham Road to Bolton Street;
  - J. protection of 33kV cables passing under existing railway tracks from Sydenham Road to Bolton Street;
  - K. relocation of HV cables (4no direct buried) under Garden St footpath to the intersection with access rd to Sydenham Pit and pumping station; and
  - L. relocation of fibre communication cable within platform 1.
- (ii) Transgrid power cables, including:
- A. protection of 330 kV cable longitudinal to railway line where it crosses the Rail Corridor at approximately Ch4.306, Ch4.660, Ch5.530 and south Sydenham Station on Burrows Avenue.
- (iii) Telstra cables, pits, including:
- A. relocation of P50 optic fibre cables adjacent to Garden St and Sydenham Pit;
  - B. decommission P50 communication cables within 11 Sydenham Rd; and
  - C. protection of conduits passing under existing railway tracks immediately east of ARTC Overpass west of Sydenham Station.
- (iv) Optus cables and pits including:
- A. relocation of optic fibre cables located along Sydenham Pit access road and adjacent to 11 Sydenham Rd.
- (v) Sydney Water (sewer/water) pipes, pits, structures, including:
- A. protection of DN250 DICL water main located on Bedwin Rd bridge eastern footpath;
  - B. protection of DN525 VC sewer main passing under existing railway tracks and under existing stormwater channel from Garden Street to Bolton Street;
  - C. relocation of DN100 CICL water main under Garden St adjacent to Sydenham Pit;
  - D. decommission of DN100 CICL water main along western boundary of access road to Sydenham Pit adjacent to 11 Sydenham Rd;
  - E. relocation of DN150 CICL water main along Sydenham Pit access road services pump station;
  - F. protection of DN600 SCL water pipe through a DN1000 RC pipe passing under railway tracks and stormwater channel from Railway Parade to Burrows Avenue;

Sydenham Station and Junction (SSJ)

- G. relocation of DN200 CICL water main under Sydenham Rd adjacent to northern Metro Station entrance;
  - H. relocation of DN225 VC sewer passing under tracks immediately east of ARTC Overpass; and
  - I. protection of DN375 CICL water main passing under tracks from Marrickville Rd to Railway Rd.
- (vi) Jemena conduits, pipes and pits, including:
- A. protection of high pressure (1050kPa) main located on Bedwin Rd bridge eastern footpath;
  - B. decommission 50mm Ny / medium pressure under access road to Sydenham Pit adjacent to 11 Sydenham Road; and
  - C. relocation of 110mm Ny / medium pressure under existing track from Sydenham Rd to Bolton St.
- (vii) Qenos conduit, pipes, including:
- A. protection of high pressure ethylene pipeline, 150mm steel main passing under tracks immediately west of ARTC Overpass.

#### 2.3.4. Sydney Water Stormwater Drainage Works

- (a) Sydney Water Stormwater Drainage Works comprises new infrastructure, and adjustment, protection and relocation of Sydney Water infrastructure necessary to facilitate the construction of Sydney Metro City & Southwest through the Sydenham.
- (b) The Sydney Water Stormwater Drainage Works include:
- (i) construction of a new aqueduct across Sydenham Pit (detention basin) for the diversion of the stormwater channels to meet the works being constructed by the Interface Contractor on the north side of Sydenham Pit;
  - (ii) confluence structure and associated sedimentation pit, transitioning from and the culverts constructed by the Interface Contractor on the north side of the Sydenham Pit and the aqueduct;
  - (iii) new twin culverts between ~~Sydenham Pit~~ the new aqueduct and the downstream connection point ~~south of Sydenham Road~~;
  - ~~(iv) construction of a new pump station adjacent to Sydenham Pit;~~
  - ~~(v) decommissioning~~ modification of the existing pump station ~~adjacent to Sydenham Pit;~~ to satisfy the requirements of the hydraulic flood modelling;
  - ~~(vi) construction of a new access road and ramp into Sydenham Pit, suitable for heavy vehicles to access and cleaning of the detention basin;~~
  - ~~(vii) strengthening to~~ localised remediation of the Sydenham Pit walls impacted by SSJ Contractors activities;

Sydenham Station and Junction (SSJ)

- ~~(vii)~~ ~~(viii) construction of a new cross corridor~~ maintaining the high flow drainage connection path from Bolton Street to Sydenham Pit St to the Sydney Water stormwater drainage system;
- ~~(viii)~~ ~~(ix)~~ maintain, extend, and/or protect existing cross corridor stormwater connections and Sydenham Pit inlets, including:
  - A. DN600 MSCL Inlet at the eastern corner of Sydenham Pit;
  - B. DN838 Inlet passing under track at the south eastern boundary of Sydenham Pit;
  - C. DN1050 RC Inlet at the south eastern boundary of Sydenham Pit;
  - D. DN914 Inlet at the southern corner of Sydenham Pit; and
  - E. various diameter cross corridor stormwater mains passing under Rail Corridor at northern end of Sydenham Station platforms.
- ~~(ix)~~ ~~(x)~~ construction of downstream culvert modifications including dwarf walls;
- ~~(x)~~ ~~(xi)~~ staged cutover of the existing culverts to the new culvert system; and
- ~~(xi)~~ ~~(xii)~~ demolition and removal of existing culvert system below the Sydney Metro City & Southwest up and down track.

### 2.3.5. Property Works

- (a) The Property Works comprise permanent adjustments to existing private properties, required for, or as a consequence of the Sydney Metro Works, the Brownfield Works and the Utility Services Works, including:
  - (i) the demolition and removal of 11 Sydenham Rd commercial premises including clearing the site.

### 2.3.6. Local Area Work

- (a) The Local Area Works comprise modification, reinstatement and improvement of public space, roads and pedestrian way, required for, or as a consequence of the Sydney Metro Works, the Brownfield Works, the Utility Services Works and the Sydney Water Stormwater Drainage Works and hand over to the Principal or the relevant authority in accordance with this Contract and the SWTC, including:
  - (i) works within the Public Domain;
  - (ii) adjustment and upgrades to streets, kerbs, traffic barriers, public roads, road pavement markings, street signage and footpaths beyond the Station Precincts including works resulting from Utility Service Works and the Sydenham Bridge Works;
  - (iii) landscape treatments to streets, plazas, public open space, riparian zones and other disturbed areas;
  - (iv) modifications to street parking and off street car parking facilities;
  - (v) new and/or relocated accessible parking spaces at the Metro Station;

Sydenham Station and Junction (SSJ)

- (vi) street and pedestrian lighting;
- (vii) pedestrian pavements, shelters, plazas, ramps, stairs and road crossings; and
- (viii) modified and new traffic signals and or signalised pedestrian crossings.

## 2.4. Temporary Works

- (a) The Temporary Works include all staged works and installations necessary to maintain the Existing Operator networks throughout the construction period.
- (b) The Temporary Works include providing:
  - (i) temporary arrangements to divert and control pedestrians, public transport users, cyclists, public transport and traffic and to provide public access, amenity, security and safety during all stages of design and construction of the Project Works, including:
    - A. pedestrian access adjacent to or through the Site and Extra Land to maintain current access routes;
    - B. temporary access stairs, walkways and platforms;
    - C. safely access all property, including publicly accessible space affected by the SSJ Contractor's Activities;
    - D. road works and associated drainage;
    - E. pavement markings;
    - F. Signage;
    - G. traffic signals and traffic signal modifications;
    - H. lighting; and
    - I. fencing, safety barriers and furniture.
  - (ii) temporary construction hoardings, fencing, noise walls, access gates and barriers; and around the Site;
  - (iii) environmental and sustainability safeguards and measures necessary to mitigate environmental effects which may arise during the design and construction of the Project Works;
  - (iv) cleaning, maintenance, repair, replacement and reinstatement of all areas occupied by the SSJ Contractor during design and construction of the Project Works;
  - (v) temporary infrastructure required to undertake the staging of the Project Works;
  - (vi) formwork, falsework and scaffolding installed or erected to undertake design and construction of the Project Works;



Sydenham Station and Junction (SSJ)

- (vii) temporary Utility Services diversions and temporary protection of Utility Services affected or impacted by, or at reasonable risk of being affected or impacted by the SSJ Contractor's Activities;
- (viii) temporary combined services routes including all associated cabling and infrastructure to maintain Sydney Trains operations as deemed necessary for staged delivery;
- (ix) temporary station communication systems including all associated cabling and infrastructure to maintain Sydney Trains operations as deemed necessary for staged delivery;
- (x) temporary signalling including all associated cabling and infrastructure to maintain Sydney Trains operations as deemed necessary for staged delivery;
- (xi) temporary electrical systems including all associated cabling and infrastructure to maintain Sydney Trains operations as deemed necessary for staged delivery;
- (xii) ~~(xiii)~~ provision of interim primary power supply provided from an electrical distribution Authority or a local distribution network service provider for testing and commissioning of Metro Station Work, including;
  - A. assessing, investigating, understanding and obtaining information from the relevant Authorities and Interface Contractors to confirm the networks has sufficient capacity, including any electrical data logging to determine the existing load capacity;
  - B. completing all necessary applications to electrical distribution Authority or a local distribution network service provider for connection to and supply from the their networks;
  - C. obtaining approval from electrical distribution Authority or a local distribution network service provider for connection to and supply from the their networks;
  - D. supplying and installing all new equipment, containment and cables, including power poles, isolating switches, pole and/or ground mounted distribution or isolation transformers, padmount transformers, distribution supply main switchboard and cables whether aerial or underground; and
  - E. connection and commissioning of the interim power supply system.
- (xiii) ~~(xii)~~ interim power supply and associated equipment must be adequate for the SSJ Contractor to undertake all testing and commissioning activities only.
- (xiv) ~~(xiii)~~ temporary groundwater and stormwater collection, treatment and discharge systems and measures required to achieve discharge water quality required by all relevant Authorities and Approvals;

Sydenham Station and Junction (SSJ)

- (xv) ~~(xiv)~~ site establishment, including:

  - A. all amenities for the SSJ Contractor, SSJ Contractor's employees, Subcontractors and providing all site office facilities for the Principal and connection of all required Services including water, power, sewer, telephone;
  - B. suitable Site security measures;
  - C. general Site safety signage and temporary wayfinding signage as a result of the SSJ Contractor's Activities;
  - D. areas for storage of materials and plant and assembly of equipment;
  - E. stockpile areas;
  - F. areas for storage of rubbish and site debris; and
  - G. lockable purpose-designed storage cages for flammable items with appropriate safety signage.
- (xvi) ~~(xv)~~ Site access during construction including:

  - A. temporary sealed roads for vehicular access;
  - B. erection of temporary signage; and
  - C. emergency vehicle access.
- (xvii) ~~(xvi)~~ bus layover facility on 117 Railway Road, Sydenham for weekend rail possession and rail shutdown periods including:

  - A. access driveway on Railway Road;
  - B. egress driveway on Burrows Avenue;
  - C. pavement area within trafficable areas of the site;
  - D. landscaping in non-trafficable areas of the site;
  - E. drivers room; and
  - F. security fencing and gates.
- (xviii) ~~(xvii)~~ maintaining all Temporary Works for the duration of the SSJ Contractor's Activities in accordance with Codes and Standards and in a manner suitable to maintain all required safety and public amenity standards;
- (xix) ~~(xviii)~~ removing all Temporary Works and reinstatement of all Temporary Works areas; and
- (xx) ~~(xix)~~ all other temporary works and measures required for the construction of the Project Works.

Sydenham Station and Junction (SSJ)

## 2.5. Works by the Principal

- (a) The Works by the Principal include works and installation necessary to facilitate the new ticket Gatelines and electronic ticketing equipment.
- (b) The Works by the Principal include:
- (i) Supply and installation of all electronic ticketing equipment and head end equipment, including:
    - A. ~~Gateline;~~ E2 ticket gate array;
    - B. gate ~~access~~ array controller (GAC);
    - C. electronic ticketing ~~equipment~~ station computer;
    - ~~D. station controller;~~
    - D. E- ticket machines /TOTEMS;
    - ~~F. emergency open control in gate; and~~
    - ~~G. emergency gate open panel (supply only).~~
  - ~~(ii) make all communications connections at the ticket gates and the ticketing equipment.~~
  - ~~(iii) supply and install data communications cabling to all ETS Equipment to connect to the local area network switches, interfacing to the Sydney Metro data communications network and/or Sydney Trains data communications network.~~
  - (ii) ~~(iv)~~ termination of power and connection of communication cables within ticket gates and in ticket vending machines. commission and integrate the new ticket gate or ticketing equipment into the local station network.
  - (iii) ~~(v)~~ relocate existing ETS equipment and headend equipment affected by the SSJ Contractor's Activities.

## 3. General Requirements

### 3.1. General

- (a) The SSJ Contractor must ensure that all investigation, design and construction activities carried out by the SSJ Contractor are entirely integrated and compatible and that together they mutually satisfy all the requirements of the Contract, including this SWTC.
- (b) The required performance of the Project Works and the Temporary Works must be taken into account and addressed during all stages of the SSJ Contractor's Activities.
- (c) Safety must be taken into account in all aspects of the Project Works, the Temporary Works and the SSJ Contractor's Activities. The SSJ Contractor must address the following in the development and production of the Design Documentation:
  - (i) safety during construction;
  - (ii) safety during testing and commissioning;
  - (iii) safety during operation;
  - (iv) safety during maintenance; and
  - (v) safety during decommissioning.
- (d) Continuing operability and maintainability of the station interchange must be taken into account in all aspects of the Project Works, the Temporary Works and the SSJ Contractor's Activities. The SSJ Contractor must address the following in the development and production of the Design Documentation:
  - (i) operations and maintenance during construction; and
  - (ii) operations and maintenance during decommissioning.
- (e) Environmental and sustainability management must be taken into account in all aspects of the Project Works, the Temporary Works and the SSJ Contractor's Activities. The SSJ Contractor must address the following in the development and production of the Design Documentation:
  - (i) environmental and sustainability management during construction;
  - (ii) environmental and sustainability management during testing and commissioning;
  - (iii) environmental and sustainability management during operation;
  - (iv) environmental and sustainability management during maintenance; and
  - (v) environmental and sustainability management during decommissioning.

Sydenham Station and Junction (SSJ)

- (f) The Project Works and the Temporary Works must be designed and constructed to deliver the performance requirements of the Contract, including this SWTC.

### 3.2. Effect of the Project Works, the Temporary Works and the SSJ Contractor's Activities

- (a) Subject to section 3.2(b) and except for infrastructure which is to be demolished, the SSJ Contractor must ensure the Project Works, the Temporary Works and the SSJ Contractor's Activities do not damage or have any adverse impact on the condition or performance of any infrastructure on, in, or adjacent to or in the vicinity of the Site (including structures, roads, railways, retaining walls, bridges, Utility Services and buildings) or any existing properties adjacent to or in the vicinity of the Site including any adverse impact on:

- (i) amenity;
- ~~(ii)~~ ~~(i)~~ aesthetics;
- ~~(iii)~~ ~~(ii)~~ durability;
- ~~(iv)~~ ~~(iii)~~ structural integrity;
- ~~(v)~~ ~~(iv)~~ function;
- ~~(vi)~~ ~~(v)~~ user benefits;
- ~~(vii)~~ ~~(vi)~~ health and safety during construction, operation and maintenance;
- ~~(viii)~~ ~~(vii)~~ environmental performance; and
- ~~(ix)~~ ~~(viii)~~ access to such infrastructure or existing properties.

- (b) The SSJ Contractor may be relieved of the requirements of section 3.2 ((a) to the extent that it satisfies the requirements of any infrastructure owner, Utility Services owner, property owner or occupier, having regard to relevant standards and practices and the nature of the damage or adverse impact.
- (c) The SSJ Contractor must undertake a detailed engineering analysis (including numerical modelling), in accordance with its accredited AEO engineering management system, to predict the effects (the "Predicted Effects") of the Project Works, the Temporary Works and the SSJ Contractor's Activities on existing ground conditions and infrastructure (including structures, roads, railways, retaining walls, bridges, Utility Services and buildings). The analysis must also ensure that the predicted movements, vibration and stray current effects will satisfy the requirements of section 3.2 (a) or section 3.2 (b). This analysis must be documented in a report and submitted with the Design Documentation.
- (d) The SSJ Contractor's detailed engineering analysis must include consideration of the influence of:
  - (i) excavation and earthworks construction;
  - (ii) piling;
  - (iii) under line crossing, under bores and or jacking;

Sydenham Station and Junction (SSJ)

- (iv) cranes and other mobile plant;
  - (v) temporary works and fixed plant;
  - (vi) geological variations;
  - (vii) the impact on groundwater;
  - (viii) the effects over time;
  - (ix) stray currents;
  - (x) flooding;
  - (xi) vibration from construction and compaction equipment; and
  - (xii) wheel / rail noise and vibration.
- (e) The SSJ Contractor must also determine the extent to which the existing ground conditions and infrastructure may be acceptably affected (the “Acceptable Effects”, consistent with satisfying the requirements in subsection 3.2(a) above.
- (f) Throughout the period when the SSJ Contractor is undertaking the SSJ Contractor's Activities, the SSJ Contractor must monitor continuously over time the actual effects of the Project Works, the Temporary Works and the SSJ Contractor's Activities on the ground conditions and infrastructure and compare the actual effects to both the Predicted Effects and the Acceptable Effects.
- (g) Monitoring of the actual effects of the Project Works, the Temporary Works and the SSJ Contractor's Activities on existing ground and infrastructure must be undertaken by accredited and experienced surveyors, geologists, geotechnical engineers, structural engineers, noise and vibration specialists and environmental specialists.
- (h) In the event that the actual effects of the Project Works, the Temporary Works and the SSJ Contractor's Activities on the existing ground conditions and infrastructure exceed the Predicted Effects or significantly vary over time, the SSJ Contractor must review and, if necessary, re-evaluate the Predicted Effects and make any adjustment subsequently necessary to any aspects of the manner in which the SSJ Contractor's Activities are undertaken to ensure that the Acceptable Effects are not exceeded and to ensure full compliance with section 3.2(a) above.
- (i) Notwithstanding the Predicted Effects on infrastructure contemplated in section 3.2(c) above, the SSJ Contractor must repair and reinstate infrastructure at the earliest opportunity so that the SSJ Contractor satisfies the requirements in section 3.2(a) above for each item of infrastructure.
- (j) The SSJ Contractor must promptly and progressively provide the Principal's Representative with:
- (i) analysis and determinations, including any revisions, and re-evaluations of the Predicted Effects and the Acceptable Effects;
  - (ii) results of monitoring the actual effects of the Project Works, the Temporary Works and the SSJ Contractor's Activities on the existing



ground conditions and infrastructure over time, in a form which is directly comparable to the Acceptable Effects and Predicted Effects;

- (iii) details of any adjustments to the manner in which the SSJ Contractor's Activities are carried out which are necessary as a consequence of any re-evaluation of Predicted Effects; and
  - (iv) details of designs and materials for the repair and reinstatement infrastructure required by section 3.2(i) above.
- (k) The SSJ Contractor must submit, prior to the Date of Construction Completion for the Project Works, a final updated report detailing the Predicted Effects, Acceptable Effects and actual effects of the Project Works, the Temporary Works and the SSJ Contractor's Activities on the existing ground conditions and infrastructure.

### **3.3. Site Investigation**

- (a) The SSJ Contractor must undertake all site investigations required for the performance of the SSJ Contractor's Activities.
- (b) Geotechnical site investigation work must be undertaken in accordance with AS1726 Geotechnical Site Investigations. The SSJ Contractor must maintain records of all tests, site investigation and geotechnical reports (including position and level of test and investigation locations).
- (c) Site investigation work associated with Contamination must be undertaken in accordance with Environment Protection Authority - Contaminated Sites: Sampling Design Guidelines.
- (d) Site investigations, in conjunction with the design process, must identify all ground conditions and infrastructure conditions (including the condition of roads, access driveways, bus stops and associated bus service infrastructure, taxi and kiss and ride areas, parks and other publicly accessible areas, footpaths and cycle ways, Utility Services, railways, buildings and other structures) which may be affected by the Project Works, the Temporary Works or the SSJ Contractor's Activities.
- (e) Where ground conditions or infrastructure are expected to be affected by the Project Works, the Temporary Works or the SSJ Contractor's Activities, the SSJ Contractor must diligently monitor the actual effects in accordance with the requirements of section 3.2 and section 3.3.
- (f) All site investigations must be included in the Design Documentation in the following electronic formats:
  - (i) pdf; and
  - (ii) ASCII data file in Association of Geotechnical and Geo-environmental Specialists (AGS) format.
- (g) In addition to the requirements in section 3.3(e) above, all insitu test results, including cone penetration, stress, packer permeability and pressure meter test results, groundwater monitoring and laboratory test results related to site investigations must be provided in electronic format (either .xls or .xlsx). All

Contamination laboratory test results must be provided in ESdat electronic lab data format.

- (h) All samples and cores from site investigations must be appropriately stored until completion of the final Defect Correction Period.
- (i) Site investigations, in conjunction with the design process, must identify all existing Sydney Trains rail and station system and infrastructure which may be affected by the Project Works, the Temporary Works or the SSJ Contractor's Activities.
- (j) Where Existing Operator system or infrastructure are expected to be affected by the Project Works, the Temporary Works or the SSJ Contractor's Activities, the SSJ Contractor in-consultation with Existing Operator must develop an impact assessment report, identifying each system or asset affected and a proposed treatment acceptable to Existing Operator.
- (k) ~~(j)~~ The SSJ Contractor must provide the Principal's Representative with two copies of all site investigation and impact assessment reports, including progressive copies of such documents as each is developed, promptly, and in any event within 5 Business Days of the SSJ Contractor receiving such reports.

### 3.4. Survey

- (a) The SSJ Contractor must assess the adequacy of any survey information provided to it and if necessary engage the services of a surveyor with NSW suburban Rail Corridor experience for the undertaking and completion of all surveys, field work and setting out which will form part of the Design Documentation or the delivery of the SSJ Contractor's Activities.
- (b) The SSJ Contractor must provide a survey to the Principal prior to the commencement of any detailed design activities, which:
  - (i) utilises the MGA (Map Grid of Australia) survey coordination system;
  - (ii) identify and accurately locate:
    - A. all property boundaries, including encroachments and the location of the Site in relation to the property boundaries;
    - B. all Authority and private Services;
    - C. the position of all built infrastructure and natural features;
    - D. the position and level of all Tracks prior to the commencement of any design or construction activities involving or that may affect or impact on any Tracks and highlight any differences between these positions and levels and the current Sydney Trains and ARTC track design positions and levels;
    - E. the position and level of all catenaries and contact wires prior to the commencement of any design or construction activities involving or that may affect or impact on any catenaries or contact wires;
    - F. the position and type of all OHWS and foundations; and



- G. the existing position and level of all platform / coping edges prior to the commencement of any design or construction activities involving or that may affect or impact on any platform / coping edges.
- (iii) details all set out and surveying tasks required for the SSJ Contractor's Activities; and
- (iv) shows a new track maintenance alignment for all new affected track.
- (c) During construction of the Project Works and Temporary Works, the SSJ Contractor must:
  - (i) establish new permanent survey marks ("PSMs"), through the site in accordance with requirements of the Surveying Regulation 2006 (NSW) & ASA standards;
  - (ii) monitor platform / coping edge positions and levels during the period of the SSJ Contractor's Activities; and
  - (iii) monitor track and embankment position and level in accordance with RailCorp specifications SPC 207 – Track Monitoring Requirements for Undertrack Excavation.
- (d) The SSJ Contractor must, as part of the Work as Executed Drawings, provide survey drawings showing all property boundaries and the positions and levels of all infrastructure on the Site including Utility Services, Tracks, OHWS and OHW and all platform / coping edge positions and levels.
- (e) All survey and design levels must refer to Australian Height Datum ("AHD"). All survey plan coordinates must refer to the MGA -94 Zone 56 coordinates, based on the Geocentric Datum of Australia ("GDA").

### **3.5. Commissioning and Testing**

- (a) The SSJ Contractor must undertake comprehensive testing and commissioning of the Project Works and the Temporary Works to ensure that the Project Works and Temporary Works comply with the requirements of the Contract.
- (b) The testing and commissioning must be carried out progressively to ensure that Construction Completion is achieved by the Date for Construction Completion of each Portion.

### **3.6. Rail Corridor Services**

#### **3.6.1. General**

- (a) The SSJ Contractor's Activities include the design, construction and commissioning of services in the rail corridor owned by RailCorp ("Rail Corridor Services").
- (b) In relation to Rail Corridor Services, the SSJ Contractor must:
  - (i) assess the extent of all existing Rail Corridor Services and any need to modify or upgrade an existing Rail Corridor Services as part of the SSJ Contractor's Activities, Project Works and Temporary Works;

Sydenham Station and Junction (SSJ)

- (ii) appoint and use specialist locators to identify the accurate location of existing Services using non-destructive digging, including as may be required, documenting the position of the Services and consulting with the relevant Authority to obtain conditions of approval for any alteration of a Service;
- (iii) protect all existing Rail Corridor Services and keep them in operation during the SSJ Contractor's Activities, including as may be required, providing all necessary Temporary Works, including temporary services;
- (iv) notify the commencement of all work and obtain as may be required, attendance of the relevant Authority to witness and/or undertake work, such as any required testing or commissioning, and any required approval or certification of the completed work;
- (v) provide any new or upgraded under line crossings (ULX) to permit new or upgraded Services to cross the rail corridor;
- (vi) remove all Rail Corridor Services made redundant through the SSJ Contractor's Activities; and
- (vii) provide any other RailCorp and Sydney Trains Services requirements in this SWTC and Appendix D.

### 3.6.2. Rail Corridor Services Survey

- (a) The SSJ Contractor must undertake all necessary survey of Rail Corridor Services required for the SSJ Contractor's Activities. The survey must be undertaken to either Internal Services Search (ISS) or Detailed Service Survey (DSS) format in accordance with ASA standards.
- (b) The SSJ Contractor must undertake all necessary additional investigations using non-destructive investigation means to identify and mark the locations and depths of all services shown on the Rail Corridor Services search data prior to any works being carried out in any area within or adjacent to Rail Corridor Services or the Rail Corridor.
- (c) The SSJ Contractor is to be the primary controller of the Rail Corridor Services search data and must engage the services of a registered surveyor from the Sydney Trains Surveyor Panel who has undertaken Sydney Trains Detailed Site Survey Training to undertake all survey activities.
- (d) The SSJ Contractor's surveyor must:
  - (i) progressively update the Rail Corridor Services search data in accordance with RailCorp or Sydney Trains requirements to show installed / amended / removed Services;
  - (ii) issue Rail Corridor Services search data field drawings to secondary controllers as and when required; and
  - (iii) prepare a final "as built" DSS showing the final position and levels of all buried or hidden Rail Corridor Services in accordance with ASA DSS requirements.

## 3.7. Utility Services

### 3.7.1. General

- (a) The SSJ Contractor's Activities include the design, construction and commissioning of Utility Services owned by Authorities other than RailCorp. For these Utility Services the SSJ Contractor must:
- (i) liaise with the relevant Authority;
  - (ii) assess the extent of all existing Utility Services and any need to modify or upgrade an existing Utility Service as part of the SSJ Contractor's Activities;
  - (iii) establish regular interface meeting with the Authorities, record meeting and distribute within 3 days and invite the Principal to attend interface meetings;
  - (iv) appoint and use specialist locators to identify the accurate location of existing Utility Services using non-destructive digging, including as may be required, documenting the position of the Utility Services and consulting with the relevant Authority to obtain conditions of approval for any alteration of a Utility Service;
  - (v) produce construction methodologies in conjunction with Authorities for works in vicinity of Utility Services;
  - (vi) protect all existing Utility Services, relocate them as may be required and keep them in operation during the SSJ Contractor's Activities, including as may be required, providing all necessary Temporary Works including temporary services;
  - (vii) complete the design, prepare and make all submissions, pay all fees, gain all approvals from the relevant Authorities and construct or modify all new, upgraded or existing Utility Services as required to enable the SSJ Contractor's Activities to be undertaken and completed in accordance with the requirements of the Contract;
  - (viii) notify the commencement of all work and obtain as may be required, attendance of the relevant Authority to witness and/or undertake work, such as any required testing or commissioning, and any required approval or certification of the completed work; and
  - (ix) provide all equipment, cabling, isolations, ground works (including reinstatement), containment, civil works.

### 3.7.2. Redundant Utility Services

- (a) Utility Services made redundant through the SSJ Contractor's Activities must be, unless stated otherwise in this SWTC:
- (i) removed above ground Utility Services and containment, including those within ceiling spaces; and

Sydenham Station and Junction (SSJ)

- (ii) removed or cap all redundant underground hydraulic Utility Services in accordance with Codes and Standards.
- (b) Remove all equipment, foundations, pits, slabs, cables and containment associated with Utility Services made redundant through the SSJ Contractors Activities.
- (c) Disconnect and remove all lighting and power systems including cables, containment, light fittings and switches made redundant through the SSJ Contractors Activities.
- (d) If any redundant Utility Service is located that is not required to be modified or replaced as part of the SSJ Contractor's Activities, the redundant Utility Service and containment may be left in place provided that:
  - (i) the Utility Service does not affect the Project Works or any other works to be carried out by Interface Contractors;
  - (ii) the SSJ Contractor meets the requirements of all relevant Codes and Standards; and
  - (iii) the SSJ Contractor updates Sydney Trains Detailed Services Survey (DSS) and other relevant Utility Services surveys.

### **3.8. Road Safety Audits**

- (a) The SSJ Contractor must carry out road safety auditson all aspects of the SSJ Contractors Activities which affect public roadways prior to any works commencing and prior to opening of any road or road related areas.
- (b) Road safety audits must be carried out in accordance with the "NSW Centre for Road Safety's Guidelines for Road Safety Audit Practices, July 2011" and "Austroads Guide to Road Safety Part 1: Overview & Part 6: Road Safety Audits".
- (c) Road Safety Audits must be carried out, as a minimum, at the following stages of the Project:
  - (i) at or near completion of the detailed design stage noting that the findings of this road safety audit must be incorporated into the Design Stage 3 submission; and
  - (ii) after completion of construction and prior to opening and operation of any road or road related areas.
- (d) Additional road safety audits may be required depending on the size and complexity of the road or road related areas as it relates to road safety risk.
- (e) Additional road safety audits may be required for Temporary Works and staged works.
- (f) Road safety audits must be carried out by a team consisting of a lead auditor (Level 3) and at least one other member who is experienced in traffic engineering. The lead auditor must be accredited / recognised by the NSW Centre for Road Safety.

Sydenham Station and Junction (SSJ)

- (g) Road safety audits should be undertaken by a team which is independent to the SSJ Contractor's design team. The road safety audit team may be from the same organisation as the design team except when:
  - (i) the affected public roadway is a State Road; or
  - (ii) there is a requirement to enter into a works activity deed (WAD) with RMS.

## 4. Technical Requirements

### 4.1. General

- (a) The SSJ Contractor must provide the entire design necessary for the construction, testing and commissioning, operation and maintenance of the Project Works and Temporary Works.
- (b) The design must be developed using a fully integrated approach, recognising the different functional requirements, statutory requirements, authority requirements, Planning Approvals and community and stakeholder expectations.
- (c) The SSJ Contractor must meet the following key design principles:
  - (i) the Principal places the customer first and applies Customer Centred Design (CCD). Stations are to be welcoming and intuitive with simple, uncluttered spaces that ensure a comfortable, enjoyable and safe experience for a diverse range of customers;
  - (ii) ~~(i)~~ Sydney Metro City & Southwest is a transit-oriented project that prioritises clear and legible and accessible connections with other public and active transport modes within the wider metropolitan travel network that intersect with this new spine;
  - (iii) ~~(ii)~~ Sydney Metro City & Southwest is a landmark opportunity to regenerate and invigorate the Sydenham station and associated development that engage with the precincts, raise the urban quality and enhance the overall experience of the area;
  - (iv) ~~(iii)~~ Sydney Metro City & Southwest identity is stronger for the unique conditions of centres and communities through which it passes. This local character is to be embraced through distinctive station architecture and public domain that is well integrated with the inherited urban fabric of existing places; and
  - (v) ~~(iv)~~ Sydney Metro City & Southwest is a positive legacy for future generations. A high standard of design across the corridor, stations and station precincts, that sets a new benchmark, is vital to ensuring the longevity of the Sydney Metro City & Southwest system, its enduring contribution to civic life and ability to adapt to a changing city over time.
- (d) The SSJ Contractor must deliver a design that:
  - (i) achieves easy customer experiences informed through the customer-centric design process;
  - (ii) satisfies the Sydney Metro City & Southwest design objectives; and
  - (iii) achieves compliance with the TfNSW Modal Hierarchy.



## 4.2. Minimum Codes and Standards

- (a) The Project Works, the Temporary Works and the SSJ Contractor's Activities must conform to and meet the requirements of all relevant Australian codes and standards (including the publications of Standards Australia (AS, AS/NZS), Austroads, Engineers Australia, ABCB, ISCA, Transport for NSW, other NSW Government agencies' etc), and the international codes and standards identified in the Contract.
- (b) If there are:
- (i) no relevant Australian codes and standards; or
  - (ii) no international standards identified in the Contract,
- for an element of the Project Works, the Temporary Works or the SSJ Contractor's Activities, the SSJ Contractor must use international codes and standards that reflect world's best practice.
- (c) Codes and standards include as a minimum:
- (i) in relation to the Sydney Metro Works, those identified in Appendix A2.0;
  - (ii) in relation to the Brownfield Works, the network standards for NSW transport assets which are set and managed by ASA ("ASA Standards");
  - (iii) in relation to Utility Services Works, the standards which are set and managed by Utility Services owners, including any codes and standards identified in relevant Third Party Agreements; and
  - (iv) in relation to Local Area Works, the standards which are set and managed by the Authorities who will assume responsibility for those works upon their completion, including any codes and standards identified in relevant Third Party Agreements.
- (d) Except where compliance with a particular code or standard is specified in the Contract, the hierarchy of the codes and standards will be as follows:
- (i) Acts and secondary legislation;
  - (ii) Transport for NSW and other NSW Government agencies' documents and standards (RMS, NSW EPA, Sydney Buses, etc.);
  - (iii) other Australian codes and standards (Standards Australia (AS, AS/NZS), Austroads, Engineers Australia, ABCB, ISCA, etc.);
  - (iv) international Standards (ISO, IEC, IEEE, CENELEC, ITU, etc.);
  - (v) European Norms (EN, TSI); and
  - (vi) other relevant international standards, which must be ~~reviewed~~approved by the Principal's Representative ~~and approved by~~after consultation with the Independent Certifier ~~prior to use~~.

Sydenham Station and Junction (SSJ)

- (e) Wherever two or more codes or standards apply to the same issue, or conflicts arise between codes or standards, the more stringent must apply to the extent section 4.2(d) does not apply to or resolve the conflict.

**4.3. Design Life**

- (a) The Project Works must be designed to ensure minimal replacement and repair of components.
- (b) In this SWTC “Design Life” means the period for which an Asset or a component of the Asset must be designed to meet the requirements of the Contract (including this SWTC) and perform its intended function, without replacement, unscheduled refurbishment unscheduled maintenance or unscheduled work that requires the operation of Sydenham Station, Sydney Metro City & Southwest operations, or Sydney Trains operations to be disrupted.
- (c) The SSJ Contractor must ensure that the various Assets and their components achieved, as a minimum, the Design Life specified in Table 4-3.

**Table 4-3 Design Life**

<b>Structural</b>	
All retaining structures above 2m	120
All structural elements (excluding retaining structures above 2m height) rock bolts, rock anchors, sprayed concrete to external retained structures, culverts, platforms, pre cast and cast in place concrete, track slab, overhead wiring structures, deflection walls, substructure including piling, building transfer systems, buildings, load bearing masonry, steel and other structural load bearing elements.	100
Concrete infill elements (i.e. between permanent linings and existing/new rock faces or surfaces)	100
Inaccessible drainage structures and inaccessible pipe systems	100
Accessible drainage elements	50
Waterproofing systems, including waterproofing membranes	100
Noise barriers, noise attenuation devices and acoustic panels and support systems	50
Non-load bearing building masonry elements	50
Service Buildings	50



Sydenham Station and Junction (SSJ)

Elastomeric bridge bearings	50
Canopies that cross over tracks	100
Sign support structures and other roadside furniture	50
Canopies on platforms	50
Canopy footings	100
OHW structure footings	100
Track transition slab (approach slab)	100
<b>Civil</b>	
Embankments and cuttings	100
Flood scour protection	50
Road pavements - concrete	50
Flexible (asphalt) road pavements, car park surfaces, external paving, footpaths and hard landscaping features	20
External pedestrian paving (including substrate and paving finish)	30
Non-load bearing building masonry elements <sup>1</sup>	50
Railway side barriers and other railway side furniture and fixtures	40
<b>Track</b>	
Permanent way track including supports, fixings and fastening systems, turnouts, crossing diamonds, arrestor systems, noise and vibration isolation components	30
<b>OHW</b>	
Overhead wiring (excluding support structures)	30
<b>Signalling</b>	
Signalling and train control systems, wayside equipment	20

Sydenham Station and Junction (SSJ)

<b>Communications</b>	
Public telecommunication operator's communication systems and radio systems	20
Passenger information systems, public address , help points	15
Access control and security systems including CCTV	15
Rail telecommunications systems – fibre and copper back bones	30
All other rail telecommunications systems	15
Cabling, conduits and support systems	30
<b>General Fire, Mechanical and Electrical Control Systems</b>	
Permanent and inaccessible elements of fire protection, mechanical and electrical control systems.	50
<b>Electrical</b>	
Electrical supply and traction power supply systems, transformer, main distribution boards, switches and control systems	30
High voltage switchboards, transformers and electrical systems	30
Low voltage switchboards, lighting fixtures and electrical systems	30
Earthing, bonding and electrolysis protection systems (inaccessible)	100
Earthing, bonding and electrolysis protection systems (accessible)	30
<b>Mechanical</b>	
Mechanical ventilation systems	30
Fixed elements of water treatment plant and systems	30
Drainage pump systems and associated electrical equipment	30
All other pump systems and associated electrical equipment	30
Pumps, tanks and valves, pump control systems and accessible pipe systems	20

Sydenham Station and Junction (SSJ)

Lifts, escalators and vertical transportation	30
<b>Fire Systems</b>	
Fire systems (fixed) – suppression, hydrant and hose reel systems (fixed parts)	30
Fire systems (non-fixed) – automatic detection and hoses	20
<b>Buildings fixtures, finishes and fit out</b>	
External building roof finishes, glazing and external cladding	30
Platform screen doors – glazing, frames, fixtures and fittings	30
Internal non-structural elements – fit out, building finishes and fixtures	20
External furniture, fittings, fences, screens and security/fire gates or doors	20
Artwork, signage and wayfinding foundation structures and any permanent primary support connections	50
Artwork, signage and wayfinding primary support systems (excluding foundation systems or panel faces/fascia panels)	30
Artwork, signage and wayfinding panel faces and fascia panels (internal and external)	20
Ticketing system - structures, gantries, and other equipment structures not supplied by Principal	30
<b>Building Services</b>	
General lighting, electrical, ventilation, fire and other fire life safety services	25
Building services – main switchboards, central systems and plant and reticulation	30
Access control and security systems including CCTV	15
Multi-User-Screens (MUS), UPS batteries, HV/LV switch/control batteries, battery chargers, IT equipment and white goods	5

(d) In relation of the Design Life specified in Table 4-3:

- (i) The minimum Design Life of all any asset not listed above must be typical industry values for similar assets used in the railway environment of a high standard and quality;
- (ii) The design of concrete structures with a Design Life greater than 50 years be in accordance with durability requirements of AS5100.5:2017. For structures with a Design Life of 50 years or less the durability requirements of AS3600 may be adopted;
- (iii) For concrete structures, the onset of corrosion of the steel reinforcing and prestressing tendons must not have commenced within the specified Design Life;
- (iv) For steel structures, the design must allow for additional steel thickness for sacrifice due to corrosion assuming that no further protective coating is provided within the specified Design Life;
- (v) The design for civil and structural elements must allow for only infrequent, minor and non-disruptive maintenance activities during the Design Life of the element;
- (vi) The protection system for any metallic item must not use active corrosion protection (such as cathodic protection) to achieve the required Design Life; and
- (vii) The Design Life must take into account the environment in which the asset is contained.

#### **4.4. Maintainability Design**

- (a) The Project Works must be designed to meet the following maintainability requirements:
  - (i) provide space for the ease, efficiency and safe access to equipment for maintenance. In particular, assets must be designed to allow inspection and maintenance to be undertaken remotely away from the operational railway. Where this is not possible, particular attention should be given in design to the installation of remote condition monitoring equipment;
  - (ii) adopt a whole-of-life approach in the design to minimise the asset operation, maintenance, replacement, and refurbishment costs;
  - (iii) enable maintenance to be carried out with minimum disruption to passengers and normal station operations;
  - (iv) minimise both complexity and time requirements for maintenance;
  - (v) adopt a line-wide design approach through applying standard modules, common design and common materials as far as practicable;
  - (vi) provide systems, facilities, buildings, structures and finishes that are accessible, durable, and safe to maintain. Hazardous conditions during maintenance must be reduced to SFAIRP;

Sydenham Station and Junction (SSJ)

- (vii) clearly specify and tabulate cleaning and maintenance access provisions for the building and services elements;
- (viii) ensure that access to and maintenance of equipment should take ergonomic factors into consideration, should require minimum effort and should not impose undue strain on maintenance personnel;
- (ix) minimise the need for specialist skills and competences for maintenance personnel through good design;
- (x) allow safe access and sufficient space around equipment for maintenance, inspection and replacement;
- (xi) provide maintenance access to high levels and deep pits through fixed facilities such as stairs, cat-ladders or transfer platforms SFAIRP;
- (xii) minimise the size of the maintenance crew required to perform any particular maintenance task;
- (xiii) allow adequate space for manoeuvring and operating specific mobile equipment to carry out maintenance activities if mobile maintenance equipment if needed for high level/deep pit access;
- (xiv) ensure all voids are accessible and provided with suitable ventilation;
- (xv) provide safe access to the track walls, Platform Screen Doors and platform edge barriers and the areas above the tracks requiring a power outage (which may be provided by 'hi-rail' vehicle or a mobile scaffold erected on the track bed);
- (xvi) locate electrical, communications and fire services routes in services bulkheads above station platforms and at ceiling level where access is provided via accessible ceiling panels;
- (xvii) provide access for inspection and maintenance of the drainage systems (Drainage systems for the Operator must be independent from the Existing Operators and other developments);
- (xviii) ensure all access covers are easy to handle by maintenance staff in the most expeditious way without using special tools/equipment. (The weight of the cover must be taken into consideration in design);
- (xix) provide fixed emergency, maintenance and operational access to the station from the track and to the track from the station;
- (xx) provide adequate maintenance routes for delivery and future replacement of all plant and equipment;
- (xxi) strategically apply condition monitoring and condition-based maintenance improve system performance and maintenance cost effectiveness. The components and the condition parameters to be monitored should be defined. The condition monitoring equipment should provide effective monitoring and diagnosis functions that enable a clear evaluation of the actual condition of the component;

Sydenham Station and Junction (SSJ)

- (xxii) locate equipment rooms of service critical systems such as signalling, communications, platform screen doors, etc., in the back-of-house areas near the station concourse or platforms and within easy reach of the operations and maintenance staff on duty at the station to facilitate speedy service recoveries. External areas such as car parks and station precincts are not suitable locations for these equipment rooms; and
- (xxiii) consideration to possession boundaries and the associated overhead line sectioning requirements.

**4.4.1. Accessibility**

- (a) The SSJ Contractor must:
  - (i) allow safe access and sufficient space around equipment for maintenance, inspection and replacement;
  - (ii) provide adequate provision and maintenance routes for delivery and future replacement of all plant and equipment;
  - (iii) provide maintenance access to high levels and deep pits through fixed facilities such as stairs, cat-ladders, transfer platforms, etc, as far as practicable;
  - (iv) should mobile maintenance equipment be needed for high level/deep pit access, allow adequate space for manoeuvring and operating specific mobile equipment to carry out maintenance activities;
  - (v) design stations around the use of a standard six-metre scissor lift for access to the majority of areas requiring cleaning or maintenance access;
  - (vi) size lift cars to transport scissor lifts between all station levels;
  - (vii) provide a maintenance equipment store with a battery charging point at each station to accommodate a scissor lift and other maintenance equipment;
  - (viii) ensure all voids are accessible and provided with suitable ventilation;
  - (ix) provide access to the track walls, Platform Screen Doors/platform edge barriers and the areas above the tracks that require a power outage. Access may be provided by 'hi-rail' vehicle or a mobile scaffold erected on the concrete track bed;
  - (x) locate principal electrical, communications and fire services routes in services bulkheads above platforms and at ceiling level where access is provided via accessible ceiling panels;
  - (xi) provide access for inspection and maintenance of the drainage systems. Drainage systems for the metro and any adjacent Over Station Design (OSD) should be independent, and drainage systems from the adjacent OSD should not pass through or enter into the Station Premises;

Sydenham Station and Junction (SSJ)

- (xii) ensure all access covers are easy to handle by maintenance staff in the most expeditious way without using special tools/equipment. The weight of the cover should be taken into consideration in design;
- (xiii) provide fixed emergency, maintenance and operational access to the station from the track and to the track from the station;
- (xiv) configure equipment in such a way that ease of access corresponds to the frequency of access for both preventive and corrective maintenance, with the most frequently accessed part having the easiest access;
- (xv) ensure the layout and mounting of equipment facilitates inspections, testing and replacement during fault finding;
- (xvi) ensure adequate access is provided so that when inspecting, testing or replacing one particular component it will not be necessary to remove other components which may block the access, and that failed parts or modules can be removed and replaced easily and without damaging or disturbing other parts;
- (xvii) use hinged access doors/covers for equipment cases and cabinets instead of covers that are held in place by screws or fasteners. If hinged doors/covers cannot be used due to practical constraints, captive quick release fasteners should be used;
- (xviii) ensure all equipment installed at platforms is maintainable from the platform side;
- (xix) ensure all equipment, cables and wiring installed have adequate clearance/access/space for maintenance and future replacement;
- (xx) ensure all control and monitoring panels have easy and adequate access for maintenance and replacement of internal components;
- (xxi) ensure all maintenance operations can be undertaken with access from one direction only;
- (xxii) routine servicing points are not located behind other components, in enclosed spaces, or in any areas that are difficult to access;
- (xxiii) provide adequate access to water and power points at appropriate locations to facilitate cleaning, washing, equipment charging and other maintenance activities; and
- (xxiv) allow for traction power isolation for remote control of isolation and earthing to permit rapid and safe response to track and electrical faults and maintenance activities. Maintenance staff who access the equipment will be trained in electrical safety to protect themselves and permit them to undertake the appropriate tasks.



#### **4.4.2. Fault Indication/Isolation/Diagnosis**

- (a) The SSJ Contractor must:
- (i) provide means of speedy recovery of component failures and reducing maintenance down time by provisions for rapid identification, isolation and/or localisation of faults;
  - (ii) use a failure modes and effects analysis as a baseline for fault indication, isolation and diagnosis;
  - (iii) install power on and miscellaneous alarm/fault indicators at a suitable location so that visual inspection can be conducted conveniently;
  - (iv) provide all control and monitoring panels with a lamp test button;
  - (v) make maximum use of self-test facilities by means of built-in-test equipment;
  - (vi) provide clearly labelled test points when use of external test equipment is required;
  - (vii) locate test points on the front panel and close to the controls and displays with which they are associated whenever possible;
  - (viii) provide sufficient test points so that it will not be necessary to remove any parts to conduct fault diagnosis; and
  - (ix) ensure test equipment enables fault isolation to the line replacement unit (LRU) level.

#### **4.4.3. Standardisation and Modularisation**

- (a) The SSJ Contractor must:
- (i) use standard commercial parts as much as possible;
  - (ii) minimise the number of different parts used in all equipment;
  - (iii) use standard tools and test equipment as much as possible. Use of special purpose or non-standard tools or test equipment should be avoided as much as possible;
  - (iv) minimise the number of required tools and test equipment items;
  - (v) base designs on easily replaceable modules to support remove-and-replace maintenance concept;
  - (vi) optimise each module to contain components for a single given function instead of providing multiple and divergent functions;
  - (vii) where possible, modules must be designed to be “plug-in” and tray mounted with simple, accessible securing devices;
  - (viii) standardise modules and receptacles, but design must prevent inadvertent plugging into the wrong receptacle;



Sydenham Station and Junction (SSJ)

- (ix) design modules to permit effective functional testing after removal and require little adjustment after replacement; and
- (x) design components in the same module to have similar level of reliability.

#### **4.4.4. Materials and Finishes**

(a) The SSJ Contractor must:

- (i) select materials and finishes that minimise ongoing cleaning and maintenance costs, easily and cost-effectively maintained with commonly used equipment.
- (ii) use materials suitable for their purpose and location, particularly with regard to:
  - A. good appearance throughout their useful life;
  - B. soil and stain resistance;
  - C. vandal resistance;
  - D. wear resistance and durability;
  - E. access to concealed services; and
  - F. ease of maintenance operations taking account of the limited duration each day for inspection, repair and equipment replacement.
- (iii) provide effective weather protection for systems and facilities on the platform and concourse of at grade stations.
- (iv) provide anti-graffiti finishes for all internal wall finishes.
- (v) apply anti-graffiti protective films on all glazed materials in station areas that are accessible by customers for effective removal of graffiti or etching.

#### **4.4.5. Cleaning**

(b) The SSJ Contractor must:

- (i) avoid unnecessary ledges, horizontal surfaces and recesses for ease of cleaning;
- (ii) use self-cleaning glass, materials and surfaces for external structures as much as practicable;
- (iii) incorporate aesthetic bird deterrent measures to minimise cleaning, material degradation and the dangers of bird-borne diseases;
- (iv) provide adequately sized, conveniently distributed storage space to accommodate small and large cleaning equipment and materials;
- (v) provide waste handling and recycling space for undertaking effective waste management and recycling procedures; and
- (vi) provide adequate rubbish and recycling bins located along the platform and elsewhere in the concourse and station precinct.

#### 4.4.6. Technical Maintenance Plan

- (a) A technical maintenance plan must be produced in accordance with the requirements of Appendix B12.
- (b) The technical maintenance plan will define the preventive and corrective maintenance activities to be carried out to ensure that the system/equipment is maintained to:
  - (i) perform to its designed performance requirements;
  - (ii) achieve the required Reliability, Availability and Maintainability (RAM) targets; and
  - (iii) as specified in the applicable PS.
- (c) The technical maintenance plan must cover the maintenance team set-up, manning level and roster, provision of spares, special tools and test equipment.
- (d) The technical maintenance plan must be developed from a structured maintenance requirement analysis using failure identification and analysis techniques such as Fault Tree Analysis, Reliability Centre Maintenance or Failure Modes and Effects Analysis. In-service reliability performance data must be used to support the analysis.

#### 4.4.7. Obsolescence Management

- (a) The SSJ Contractor must provide an Obsolescence Management Plan to identify and manage potential obsolescence issues of the system/equipment over its life cycle and to provide mitigation measures whereby the Design Life as defined section 4.3 may be realised.
- (b) The Obsolescence Management Plan must describe the consideration given to obsolescence management of both hardware and software during design, construction, testing and commissioning and over the Design Life of the system/equipment.
- (c) The Obsolescence Management Plan must be developed in accordance with the requirements of:
  - (i) BS 7000-5:2001 Design management systems – Guide to managing obsolescence; and
  - (ii) BS EN 62402:2007 Obsolescence management – Application guide.
- (d) The Obsolescence Management Plan must describe the following:
  - (i) roles and responsibilities of the supplier;
  - (ii) obsolescence management process that the operator/maintainer and the suppliers intend to follow;
  - (iii) a list of critical components that are likely to become obsolete during the Design Life and for which special attention will be required when a replacement or a substitute is being introduced in the event that the

original component is obsolete. The criteria for the selection of a replacement or a substitute should be given;

- (iv) the planning of any hardware renewal arrangements over the Design Life of the system/equipment;
- (v) the planning of any software upgrade arrangement over the Design Life of the system/equipment; and
- (vi) the provision of hardware and software services and support over the Design Life of the system/equipment after the end of the Defects Correction Period.

#### **4.4.8. Operations and Maintenance Manuals & Training**

- (a) The Operations and Maintenance must comply with performance and design requirements in Appendix B12 of the SWTC.
- (b) The first draft of the O&M Manuals must be provided at least 12 months and the final approved version six months before Construction Completion of the final Portion.
- (c) In the event that training is required to be provided so as to ensure that the system/equipment will be operated and maintained as intended, a Training Plan must be submitted and the O&M Manuals must be available well in advance of the start of the first training session.
- (d) The Training Plan must specify the course contents, programme, duration and location (in the Sydney Metropolitan area).

Training courses (as required under the Training Plan) must be delivered by competent trainers using appropriate training materials. Subject to approval from the Principal, the SSJ Contractor may use the systems/equipment that has been installed, tested or commissioned for training purposes.

- (e) The SSJ Contractor must implement a means of assessing each trainee's understanding and competence to perform the function for which he/she was trained. At the completion of each training course, post training evaluation should be conducted to assess whether or not the trainees have achieved the desired skill level.

#### **4.4.9. Spare Parts and Tools**

- (a) The spare parts and tools must comply with performance and design requirements in Appendix B12 of the SWTC.
- (b) The SSJ Contractor must recommend the scope, quantities and unit prices of the spare parts, special tools and test equipment necessary for maintenance. Spare parts recommendations must cover consumable spares that are sufficient for two years of operation, and routable spares and insurance spares for longer term maintenance and overhaul need. The lead time for ordering spare parts and special tools must be specified.
- (c) All special tools and test equipment supplied must be accompanied by operation manuals, drawings and, if applicable, procedures for calibration and alignment.

Sydenham Station and Junction (SSJ)

- (d) Spare parts, special tools and test equipment must be available for purchase for at least 15 years from Completion.
- (e) All spare parts must be identical to the equivalent installed items and strictly interchangeable. They must be suitably marked and numbered for easy identification.
- (f) All spare parts must be suitably packed and protected to prevent damage from shock, vibration and rough handling. If necessary parts must be coated in protective material to prevent deterioration.
- (g) The SSJ Contractor must identify at least two sources of supply for general spare parts such as electronic components, lamps, fuses, and other consumable and high-usage items.
- (h) The SSJ Contractor must provide sufficient commissioning spares to ensure the successful completion of the testing and commissioning activities.

#### **4.5. Durability**

- (a) The SSJ Contractor must prepare and submit to the Principal for review an overarching durability assessment report as part of the Design Documentation demonstrating that the durability and the required Design Life for each Asset element will be achieved.
- (b) The durability assessment report must include all elements of the design and the expected range of environments that the asset elements will be exposed to. The durability assessment report must detail the requirements and methods for future inspection, testing, monitoring and maintenance of all elements of the design.
- (c) The durability assessment report must address the issues of reliability, availability, maintainability and system safety (RAMS) including the following:
  - (i) the micro environment including soil and water condition, contamination, exposure conditions etc.;
  - (ii) the potential deterioration mechanisms in this micro environment;
  - (iii) design life modelling to ascertain the likely rate of deterioration and likely life;
  - (iv) the feasibility and cost of in-situ monitoring and/or replacement during the normal operating period and restricted non-operating period;
  - (v) the necessity and cost benefit analysis of providing additional protection;
  - (vi) the significance of failure; and
  - (vii) inspection and monitoring requirements.
- (d) The micro-environment for each element must be determined by implementing site investigation and testing.
- (e) Assets and systems must be housed and installed in an environment that supports the specified design life.

Sydenham Station and Junction (SSJ)

- (f) Durability statements must be included in each design package or part package and for each submission that requires the Principal's review.

**4.6. Operating environment ranges**

- (a) Where not specified in the Contract or within the codes and standards all assets shall be able to perform their normal duties or cycles, within the continuous operating environmental ranges provided in Table 4-5 below.

**Table 4-5 External Operating Environment**

Ambient Air Temperature	-10oC to 55oC dry bulb
Relative Humidity	10% to 95% non-condensing
Rainfall Rate	up to 40mm/hour
Solar Radiation	Up to 1000 W/m2
Wind Speed	up to 150 kph
Dust and Particulates	Subject to local condition investigations by the Operator
Vibration	Not in excess of an acceleration rate of 0.1 G continuously, or 0.25G intermittently in the frequency range of 5 to 25 Hz
Ambient Lighting	10 to 100,000 lux

**4.7. Electromagnetic compatibility**

- (a) Electromagnetic emissions from equipment and systems shall not interfere with medical devices, communications equipment, safety-critical electronic equipment, or the comfort of passengers or staff.
- (b) All items of equipment, systems and integrated systems forming part of the Project Works shall be electromagnetically compatible with:
  - (i) each other;
  - (ii) all electrical and mechanical systems provided by Interface Contractors; and
  - (iii) third party systems within and external to the Project Works.
- (c) All service systems must comply with the 'class A electromagnetic limits' established in:

Sydenham Station and Junction (SSJ)

- (i) AS/NZS CISPR 22:2009 'Information Technology Equipment – Radio disturbance characteristics – Limits and method of measurement'; or
  - (ii) I.S. EN 55022:2010 'Information Technology Equipment – Radio disturbance characteristics – Limits and method of measurement'; and
  - (iii) AS/NZS 61000.6.1:2006 'Electromagnetic Compatibility – Part 6.1 – Generic Standards – Immunity for Residential, Commercial and Light Industrial environments'.
- (d) Electromagnetic compatibility must be in compliance with the ARPANS (Australian Radiation Protection and Nuclear Safety) Legislation including the ARPANSA (Australian Radiation Protection and Nuclear Safety Agency) Radiation Protection Series (RPS) Codes and Standards.
- (e) Where not specified within guidelines, codes or standards the SSJ Contractor must comply with the following vibration criteria and assessment requirements:
- (i) assess individual vibration-sensitive equipment where vibration-free performance is essential to the operating outcome, including assessing any construction impact and operational vibration impacts prior to commissioning and at Completion;
  - (ii) assess individual vibration-sensitive equipment using generic 'Vibration Criterion' (VC) curves specified in 'Institute of Environmental Sciences and Technology' (IEST) industry standard IEST-RP-CC012:2007 – 'Considerations in Cleanroom Design'; and
  - (iii) where required by the SSJ Contractors vibration assessment carry out field measurements to confirm conformance with the standards. All field measurements must be in accordance with international standard ISO 8569:1996 'Mechanical vibration and shock – Measurement and evaluation of shock and vibration effects on sensitive equipment in buildings'.

#### **4.8. Civil and structural works**

- (a) The civil and structural works must comply with performance and design requirements in Appendix B1.0 of the SWTC.

#### **4.9. Rail, rail systems and communications**

- (a) The rail, rail systems and communications works must comply with performance and design requirements in Appendix B2.0 of the SWTC.

#### **4.10. Buildings, precinct and public domain works**

- (a) The buildings, precinct and public domain works must comply with the requirements in Appendix B3.0 of the SWTC.

#### **4.11. Mechanical and electrical services**

- (a) The mechanical and electrical services works must comply with performance and design requirements in Appendix B4.0 of the SWTC.



## 4.12. Fire and life safety

- (a) Fire and life safety works must comply with performance and design requirements in Appendix B5.0 of the SWTC and relevant design requirement in Appendix B1.0 to B4.0.

## 4.13. Noise mitigation measures and structures

### 4.13.1. ~~Acoustic Design Integration~~

- (a) ~~The SSJ Contractor must prepare and implement an acoustic design integration plan (ADIP) that will:-~~
- ~~(i) encompass all aspects of design relating to the operational acoustics, noise and vibration performance of the Worksite (hereafter referred to as the acoustic performance);-~~
  - ~~(ii) incorporate a land use report to identify the land use category and the associated construction and operational noise and vibration criteria at all existing and proposed (identified at the time of the relevant Planning Approval) sensitive receivers potentially impacted by the Project Works;~~
  - ~~(iii) address the operating lifespan of the Project Works;~~
  - ~~(iv) be submitted with the design plans in accordance with MR-T;~~
  - ~~(v) identify all design packages, components and interfaces that affect the acoustic performance of the Project Works;~~
  - ~~(vi) determine how the acoustic design interfaces will be managed and coordinated; and~~
  - ~~(vii) implement a risk-based approach to managing acoustic design risks.~~
- (b) ~~The acoustic design integration plan (ADIP) must:~~
- ~~(i) be updated regularly throughout the design phase (as a minimum, quarterly); and~~
  - ~~(ii) ensure all relevant components of the ADIP are referred to and addressed in each design submission that relates to acoustic performance.—~~

### 4.13.2. ~~Operational noise and vibration review~~

- (a) ~~In addition to the operational noise and vibration review (ONVR) requirements in the Planning Approvals conditions, the SSJ Contractor must include assessment of the following in the ONVR:~~
- ~~(i) ground-borne noise and vibration; and~~
  - ~~(ii) airborne noise.~~
- (b) ~~When completing the ONVR, the SSJ Contractor must:~~
- ~~(i) take into account the parameters listed in ISO14837-1; and~~

Sydenham Station and Junction (SSJ)

- (ii) ~~include verification and justification that the mitigation and maintenance measures nominated are feasible as defined in the rail noise guidelines referred to in Planning Approvals and demonstrate that these measures have been used in other locations effectively.~~
- (c) ~~In addition to the requirements in Planning Approvals, the ONVR must include:~~
  - (i) ~~a tabulation of where all sensitive receivers will be positioned where they are within 100 m of the nearest track (or within 200m of the nearest stationary facility); and~~
  - (ii) ~~a tabulation that includes a unique identification nomenclature for each receiver, with its planned distance to the nearest track (or stationary facility), receiver type, and applicable criteria, to be recorded.~~
- (d) ~~The ONVR report must fully describe the design, assumptions, calculation process, mitigation strategy, maintenance strategy and other relevant factors to enable the ONVR to be independently verified by a noise and vibration expert.~~
- (e) ~~The ONVR report must describe and quantify the accuracy of the input parameters and predictions, how any inaccuracies are proposed to be resolved or have been resolved during the design process.~~
- (f) ~~The ONVR report must provide evidence that the noise and vibration prediction model has been validated via measurement and predictions for the existing alignment. Measurements must be undertaken at a representative number of sensitive receivers. Measurements must be undertaken at the most affected locations within the project area.~~

**4.13.3. Ground borne noise trigger levels**

- (a) ~~In addition to the requirements of the Planning Approvals, the SSJ Contractor must meet the ground borne noise trigger levels in Table 4.12.3~~

**Table 4.12.3 Ground-borne noise trigger levels**

<b>Location</b>	<b>Trigger</b>
<del>General office areas</del>	<del><math>L_{Amax(slow)}</math> 45dBA (when in use)</del>
<del>Private offices and conference rooms</del>	<del><math>L_{Amax(slow)}</math> 40 dBA (when in use)</del>
<del>Retail areas</del>	<del><math>L_{Amax(slow)}</math> 50 dBA (when in use)</del>
<del>Cinemas</del>	<del><math>L_{Amax(slow)}</math> 35dBA (when in use)</del>
<del>Public halls</del>	<del><math>L_{Amax(slow)}</math> 35dBA (when in use)</del>
<del>Lecture theatres</del>	<del><math>L_{Amax(slow)}</math> 35dBA (when in use)</del>
<del>Film/TV/sound recording studios</del>	<del>NR15 (refer AS/NZS2107:2016)</del>



Sydenham Station and Junction (SSJ)

Medical institutions	$L_{Amax}(slow)$ 40 dBA (when in use)
Drama theatres	NR 25 (refer AS/NZS2107:2016)
Other critical spaces	Satisfactory levels in AS/NZS2107:2016

#### 4.13.4. Vibration Dose Values

- (a) In addition to the requirements of Planning Approvals, the SSJ Contractor must meet the maximum vibration dose values in assessing vibration. The maximum vibration dose values are provided below in Table 4.12.4.

**Table 4.12.4 Vibration dose values**

Location	Daytime criteria ( $m/s^{1.75}$ )	Night-time criteria ( $m/s^{1.75}$ )
Critical areas	0.20	0.20
Residences	0.40	0.26
Offices, schools, educational institutions and places of worship	0.80	0.80
Workshops	1.60	1.60

#### 4.13.5. Airborne noise requirements

- (a) In addition to the requirements of Planning Approvals, the SSJ Contractor must meet the maximum airborne noise requirements. The SSJ Contractor must in relation to airborne noise:
- (i) include verification and justification that the mitigation and maintenance measures nominated are feasible and have been used in other equivalent systems effectively;
  - (ii) meet the noise trigger levels provided in the DECs Rail Infrastructure Noise Guideline; and
  - (iii) meet the maximise airborne noise levels in Table 4.12.5.

**Table 4.12.5 Airborne noise levels**

Type of development	Daytime criteria	Night-time criteria
Redevelopment of existing rail	Development increases existing $L_{Aeq(Period)}$ rail noise levels by 2 dB or more, or existing $L_{Amax}$ rail noise levels by 3 dB or more, and predicted rail noise levels exceed:	

Sydenham Station and Junction (SSJ)

line	65 LAeq(15hour) or 85 LAfmax	60 LAeq(9hour) or 85 LAfmax
Other sensitive land uses		Noise trigger levels dB(A) (when in use)
Development increases existing rail noise levels by 2 dB(A) or more in LAeq for that period, and resulting rail noise levels exceed:		
Schools, educational institutions and child care centres	45 LAeq(1hour) internal	
Places of worship	45 LAeq(1hour) internal	
Hospital wards	35 LAeq(1hour) internal	
Hospitals other uses	65 LAeq(1hour) external	
Open space – passive use (eg parkland, bush reserves)	65 LAeq(1hour) external	
Open space – active use (e.g. sports field, golf course)	65 LAeq(1hour) external	

**4.13.6. Land use assessment**

- (a) ~~Where background data is not provided or available in environmental documents, The SSJ Contractor must undertake any and all additional noise and vibration measurements required to determine the applicable noise and vibration criteria at sensitive receivers for the land use assessment.~~
- (b) ~~The land use assessment will consider the current use of the property and all approved development applications and assess the more stringent use.~~

**4.13.1. 4.13.7. Metro Station and Station Precinct (internal noise levels)**

- (a) The SSJ Contractor must design the architectural finishes in all public areas of the Metro Station to enable the public address (PA) system and system for intercom and emergency purposes to achieve speech intelligibility index of 0.5 required by AS1670.4 and the requirements of ASA standard T MU TE 61003 ST.
- (b) The reverberation time in all public areas of the Metro Stations must be designed in accordance with AS2107.
- (c) Noise criteria for service equipment must not exceed the values set out in the following tables when the Metro Station mechanical services are in normal operation and the Metro Station is unoccupied.

Sydenham Station and Junction (SSJ)

**Table 4.12.7.1 Station Plant Noise Criteria – Public Areas**

Paid Concourse, Gateline and Platform areas (normal fan operation)	55dBA
Paid Concourse, Gateline and Platform areas (congested fan operation)	65dBA
Paid Concourse, Gateline and Platform areas (emergency fan operation)	75dBA

**Table 4.12.7.2 Ancillary Equipment Noise Criteria – Public Areas**

Escalators	55dBA
Lifts	55dBA

- (d) The acoustic design of the Metro Station must be verified by acoustic computer modelling of the station entry, paid concourse and cavern spaces.
- (e) The computer acoustic modelling must represent the proposed internal finishes, advertising, loudspeaker design and be otherwise empty of people.
- (f) The SSJ Contractor must design other internal spaces of the station and precinct buildings (excluding plant rooms) to be lower than the maximum design sound levels and reverberation times stated in AS/NZS 2107.

**4.13.2. ~~4.13.8.~~ Noise from mechanical systems**

- (a) In addition to the noise criteria in Planning Approvals, the SSJ Contractor must comply with the requirements set by AS/NZS2107, and the internal noise criteria illustrated in Table ~~7.4.13.8.~~

**Table ~~4.12.84.13.8~~ Internal Noise Criteria**

Plant Rooms (excluding tunnel ventilation and trackway exhaust fan rooms)	85
Equipment Rooms and Electrical Rooms	75
Customer service desk/office	45

Staff room	40
Locker room	50
Store room	50
Garbage Room	65
Ticket sales areas	50

- (b) The above criteria do not apply to systems or components operating in emergency mode. In this situation, noise generated by the systems or their components must not exceed levels that affect speech intelligibility in egress paths, evacuation assembly areas, or operational or emergency control rooms or areas.
- (c) Noise from systems or components operating in emergency mode must not exceed 85dBA when measured at 1m from any air intake or discharge point, including internal registers and grilles.

**4.14. Heritage**

- (a) Heritage must comply with the Planning Approvals and the performance and technical requirements in Appendix B6.0 of the SWTC.

**4.15. Sustainability requirements**

- (a) Sustainability requirements must comply with performance and technical requirements in Appendix B7.0 of the SWTC.

**4.16. Customer Centred Design requirements**

- (a) The SSJ Contractor must comply with the customer centric design (CCD) requirements in Appendix B9.0 of the SWTC.

**4.17. Wayfinding requirements**

- (a) The SSJ Contractor must comply with the wayfinding requirements in Appendix B10 of the SWTC.

**4.18. Public Art**

- (a) The SSJ Contractor must comply with the public art requirements in Appendix B11 of the SWTC.

**4.19. Asset Management**

- (b) The SSJ Contractor must comply with the asset management requirements in Appendix B12 of the SWTC.

**4.20. Advertising**

- (a) The SSJ Contractor must comply with the advertising requirements in Appendix B13 of the SWTC.

Sydenham Station and Junction (SSJ)

#### **4.21. Retail**

- (a) The SSJ Contractor must comply with the retail requirements in Appendix B14 of the SWTC.



## 5. Construction Requirements

### 5.1. General

- (a) The SSJ Contractor must provide sufficient design resources during the construction phase to ensure effective monitoring of construction activities including testing and commissioning activities, verification and validation of the integration of all components of the Project Works, clarification of design issues, review of design changes, witnessing of acceptance tests and release of Hold Points.
- (b) The SSJ Contractor must ensure that all SSJ Contractor's Activities:
- (i) are constructed in a manner and to standards which comply with and meet the requirements of the Contract, including this SWTC;
  - (ii) are planned, programmed, staged and completed to ensure minimal interruption to station operations (including maintenance activities), to Sydney Trains staff, customers and the general public's access to, from and through the station(s) and transport interchange(s);
  - (iii) are completed in a manner not to compromise/reduce the existing operation levels, level of service and safety standards of the station(s) or transport interchange(s), or of Sydney Trains staff, customers or the general public;
  - (iv) do not disrupt existing Rail Operator networks and infrastructure or delay rail services/timetables;
  - (v) have no unplanned impacts to Rail Operators;
  - (vi) maintain connectivity with rail and other interchange transport services;
  - (vii) do not impact existing station emergency evacuation capability and procedures at all times;
  - (viii) do not damage or have any unacceptable or adverse impact on the condition or performance of the existing environment, urban context or any infrastructure or property on, in, or adjacent to the Site or Extra Land;
  - (ix) are staged to minimise the reduction in numbers of car parking, Kiss and Ride, taxi and similar parking spaces; and
  - (x) are effective monitoring and validated by authorised and accredited design resources including testing and commissioning activities, verification and validation of the integration of the design components, clarification of design issues, review of design changes, witnessing of acceptance tests and release of Hold Points.
- (c) When a Worksite is used by the SSJ Contractor located on property owned by an Authority, the SSJ Contractor must:

Sydenham Station and Junction (SSJ)

- (i) complete the SSJ Contractor's Activities to minimise any disruption to the public, adjoining landowners or tenants; and
  - (ii) complete all of the SSJ Contractor's Activities and bring the SSJ Contractor's Activities on the Worksite to Construction Completion as soon as possible after the SSJ Contractor is provided access to the Worksite.
- (d) The SSJ Contractor must liaise regularly with Sydney Trains and other stakeholder's representatives and without limiting any of the SSJ Contractor's obligations under the Contract, must ensure that neither Sydney Trains, other stakeholders and the Principal has any objection to the SSJ Contractor's proposed means of carrying out the SSJ Contractor's Activities.

## 5.2. Temporary Site Facilities

- (a) The SSJ Contractor, after being granted access to any part of the Site, must:
- (i) set out and establish the Site in accordance with the requirements of Management Requirements MR-C, MR-E and the Planning Approval at locations and positions that minimise the impact on adjoining properties and residents;
  - (ii) provide site amenities in accordance with the SafeWork Australia Code of Practice for Construction Work, the SafeWork Australia Code of Practice Managing the Work Environment and Facilities and the WorkCover NSW Amenities for Construction Work Code of Practice;
  - (iii) in addition to the requirements of clause 308 of the Work Health and Safety Regulations 2011, provide clean and visible mandatory, temporary and safety signage in accordance with Codes and Standards to identify and designate restricted areas and develop and implement a procedure to determine how access to restricted areas will be prevented, the type of barriers and signage that are required and the persons who will be granted access;
  - (iv) provide safe accesses, fences, barriers, hoardings and walking surfaces within, to and adjoining the Site and Extra Lands to ensure the safety of all persons involved in the SSJ Contractor's Activities and all members of the public. Where the SSJ Contractor's Activities affect existing infrastructure, the SSJ Contractor must install temporary infrastructure which provides as a minimum the same level of safety and convenience as the existing infrastructure for the SSJ Contractor's personnel and the public until Construction Completion;
  - (v) construct and maintain all facilities utilised for the purpose of the SSJ Contractor's Activities in excellent condition for the duration of the Contract; and
  - (vi) ensure all site facilities incorporate:
    - A. energy efficient design features, and best practice energy efficient lighting solutions, light fittings and high efficiency electrical equipment and appliances;

Sydenham Station and Junction (SSJ)

- B. high performance thermal insulation in all walls, ceilings and floors that optimise thermal performance;
  - C. natural daylighting;
  - D. natural ventilation;
  - E. water efficient fixtures, fittings and controls, eg Water Efficiency Labelling Scheme (WELS);
  - F. air conditioning refrigerants and fire suppression system with low or zero global warming potential;
  - G. bicycle storage facilities, showers and changing room facilities; and
  - H. Crime Prevention through Environmental Design (CPTED) principles.
- (b) ensure that security and warning lighting used must be installed so that light is not directed at neighbouring properties or in such a way that light reflects onto structures or neighbouring properties.
- (c) provide traffic management as necessary on roads and footpaths affected by the SSJ Contractor's Activities.
- (d) secure the Site and install all required security, safety and environmental controls and appropriate site safety and identification signage in accordance with MR –E.
- (e) provide secure separation between the Rail Corridor and other parts of the Site for the duration of the SSJ Contractor's Activities.
- (f) provide all temporary services and infrastructure required by the SSJ Contractor to undertake and complete the SSJ Contractor's Activities.
- (g) provide survey for and construction of all temporary offices and amenities, including those for the Principal and all subcontractors, perimeter fences, construction roads, signage, wheel wash facilities, temporary drainage, hard stand areas and other facilities required by the SSJ Contractor to undertake and complete the SSJ Contractor's Activities.
- (h) supply and erect two bill boards inside the perimeter security fence in positions identified by the Principal two weeks prior to commencing the SSJ Contractor's Activities on the Site. The size is to be not less than 1200 mm high and 2400 mm wide. The bill boards will prominently display:
- (i) the SSJ Contractor's 24 hour contact (name and telephone number);
  - (ii) the Principal's Emergency Hotline; and
  - (iii) other information advised by the Principal.

**5.2.1. Site Facilities for Principal**

- (a) From the date that the SSJ Contractor establishes its site offices, the SSJ Contractor must provide site facilities for the exclusive use of the Principal and its personnel ("Principal's office").
- (b) The Principal's office must:



Sydenham Station and Junction (SSJ)

- (i) be located immediately adjacent to the SSJ Contractor's main site offices;
  - (ii) an integrated, air conditioned open plan office of a standard that is suitable to accommodate five full-time persons, that complies with all relevant building codes and health and safety requirements;
  - (iii) include five workstations of four square metres each, with an appropriate walkway space. Each workstation must include:
    - A. a desk;
    - B. a lockable pedestal drawer unit;
    - C. an office chair;
    - D. shelving units;
    - E. a minimum of four power sockets; and
    - F. a separate telephone and computer data point.
  - (iv) provide a meeting room capable of seating 10 persons at the table;
  - (v) office standard printer and a minimum 10Mbps (Megabits per second) Internet connection for the TfNSW server;
  - (vi) all equipment, furniture, fittings and finishes provided for the Principal's office must be new and of a standard that is suitable for a professional office;
  - (vii) have six designated parking spaces adjacent ; and
  - (viii) be fully serviced and maintained by the SSJ Contractor including undertaking all security, cleaning and maintenance.
- (c) The Principal will supply all mobile information technology and communication equipment (such as computers, data cards and mobile phones) for use by the Principal's personnel.

**5.2.2. Site Facilities for Independent Certifier**

- (a) From the date that the SSJ Contractor establishes its site offices, the SSJ Contractor must provide site facilities for the exclusive use of the Independent Certifier and its personnel ("Independent Certifier's office").
- (b) The Independent Certifier's office must:
  - (i) be located immediately adjacent to the SSJ Contractor's main site offices;
  - (ii) be an integrated, air conditioned open plan office of a standard that is suitable to accommodate two full-time persons, that complies with all relevant building codes and health and safety requirements;
  - (iii) include two workstations of four square metres each, with an appropriate walkway space. Each workstation must include:
    - A. a desk;

Sydenham Station and Junction (SSJ)

- B. a lockable pedestal drawer unit;
  - C. an office chair;
  - D. shelving units;
  - E. a minimum of four power sockets; and
  - F. a separate telephone and computer data point.
- (iv) include all equipment, furniture, fittings and finishes provided for the Independent Certifier's office must be new and of a standard that is suitable for a professional office;
  - (v) include an office standard printer and a minimum 10Mbps (Megabits per second) Internet connection;
  - (vi) have three designated parking spaces adjacent ; and
  - (vii) be fully serviced and maintained by the SSJ Contractor including undertaking all security, cleaning and maintenance.
- (c) The Independent Certifier's will supply all mobile information technology and communication equipment (such as computers, data cards and mobile phones) for use by the Independent Certifier's representatives.

### **5.3. Demolition**

- (a) Where demolition of infrastructure and buildings is required, the SSJ Contractor must:
- (i) undertake the demolition work in accordance with AS 2601 The demolition of structures;
  - (ii) provide a levelled site free of depressions and undulations;
  - (iii) disconnect all Utility Services at the Site boundaries in accordance with the requirements of the relevant Utility Services owners, including:
    - A. remove all water meters and return them to Sydney Water. The incoming water supply must be capped at the water meter location supply point;
    - B. cap all hydrant service at the location of the incoming supply feed to the requirement of Sydney Water;
    - C. disconnect all gas supply service at the supply meter;
    - D. disconnect all Telstra service at the supply location;
    - E. disconnect and remove all broadband telecommunication feeds to the supply locations;
    - F. cap all stormwater pipes exposed by the SSJ Contractor's Activities at ground level using sealed caps and plugs. All stormwater services below ground, and at ground surface levels must be retained at Completion (kerb inlet pits, carpark/roadway pits, grated drains etc.);

Sydenham Station and Junction (SSJ)

- G. cap all sewer pipes including floor wastes, waste stacks, vents, basin, pan and sink connection points exposed by the SSJ Contractor's Activities at ground level using sealed caps. All sewer services below ground and at ground surface levels, must be retained at Completion; and
- H. disconnect all electrical supply services to buildings, structures, lighting structures, etc. within the Demolition Site including low and high voltage supply feeds. The Contractor must engage the relevant electrical Utility Authority or authorised contractor to disconnect all overhead and inground supply feeds, including removal and return of all electrical meters.
  - (iv) cap all conduits and pipes at the disconnection points to prevent ingress of surface runoff and groundwater;
  - (v) remove all structures, facilities and debris above ground level;
  - (vi) remove all ground slabs, basement structures, foundations, strip and pad footings, pile caps, tanks and other structures below ground level excluding piles below pile cap level and basement structures that can be utilised as ground support structures;
  - (vii) remove all demolished materials and debris from the Site;
  - (viii) backfill all excavations with fill free of deleterious materials and compact to a density consistent with the surrounding ground;
  - (ix) develop and implement a demolition method that minimises adverse noise, vibration and air quality impacts;
  - (x) prepare the Demolition Management Plan and submit it in accordance with Management Requirements – Project Administration (MR-PA);
  - (xi) remove and dispose of all contamination and hazardous materials in accordance with applicable Australian Standards and Codes of Practice;
  - (xii) design, install and construct all Temporary Works to ensure safe demolition;
  - (xiii) undertake all structural design, certification and installation of temporary shoring measures to enable safe demolition below ground levels. The temporary shoring measures are part of the Temporary Works;
  - (xiv) prepare and submit a survey plan for each demolition site in accordance with MR-PA detailing the final surface levels, and locations of all disconnected/isolated Utility Services. The survey plan must include:
    - A. a topographical survey that identifies the final surface levels of each demolition site;
    - B. certification from a licensed electrician, plumber and gas fitter (or supply provider) that all Utility Services have been disconnected/isolated in accordance with the relevant Australian Standards and the Supply Authority Guidelines;

Sydenham Station and Junction (SSJ)

- C. video evidence that all retained main sewer and stormwater pipework is clear of debris and rubble created by the SSJ Contractors Activities;
  - D. photographic evidence of the isolation method for each Utility Services; and
  - E. prepare and submit condition surveys.
- (xv) prepare demolition and submit in accordance with MR-PA, methodologies with endorsement from an appropriately qualified Demolition Structural Engineer;
  - (xvi) engage Demolition Structural Engineers to perform design and inspection roles in accordance with the SafeWork NSW Demolition Work Code of Practice July 2015, AS2601 – The Demolition of Structures – 2001, and AS1170 – 0 – 2002, AS1170 – 1, 2002 and AS1170 – 2;
  - (xvii) engage Demolition Structural Engineers to undertake designs of the following Temporary Works:
    - A. general demolition Temporary Works for activities including back propping of slabs; modification of structures to allow materials handling and vehicle access through buildings; support of heavy equipment; designs required by Third Party Agreements, etc. (Category A);
    - B. temporary shoring where basements are demolished and required shoring and anchoring, if required, below footpaths/ surrounding ground levels (Category B);
    - C. hoarding (Category C); and
    - D. scaffold (Category D).
  - (xviii) the Demolition Structural Engineers for Categories A and B designs must be a member of the Australian Institute of Engineers with a minimum 15 years' experience in this type of work;
  - (xix) the Demolition Structural Engineers for Category C and D designs must be suitably qualified with a minimum 5 years relevant experience;
  - (xx) all Category A and B designs by the SSJ Contractor's Structural Engineer must be reviewed by the Proof Engineer; and
  - (xxi) for work related to the removal of equipment, fittings and fit out materials from buildings, the SSJ Contractor must salvage, reuse and recycle equipment, fittings and materials to the maximum extent practicable, and provide a report to the Principal's Representative on how this has been accomplished.

#### **5.4. Acid Sulphate Soils and Rock**

- (a) The SSJ Contractor must treat and dispose of any acid sulphate soils and rocks in accordance with:

- (i) Guidelines for the Management of Acid Sulphate Materials: Acid Sulphate Soils, Acid Sulphate Rock and Monosulfidic Black Ooze, RTA;
- (ii) Department of Environment, Climate Change and Water requirements;
- (iii) Acid Sulphate Soil Manual, NSW Acid Sulphate Soils Management Advisory Committee, (August 1998);
- (iv) NSW Environmental Protection Authority - Assessing and Managing Acid Sulphate Soils; and
- (v) Environment Protection Authority, Victoria Information Publication 655 - Acid Sulphate Soil and Rock.

## 5.5. Storage and Stockpile on Site

- (a) The SSJ Contractor must make its own arrangements for temporary and any permanent stockpiles of materials, including earthwork materials and excavated tunnelling materials, arising from the SSJ Contractor's Activities which take place or are performed outside of the Site.
- (b) Any materials, including earthwork materials, which are surplus to or are not suitable for incorporation in the Project Works or the Temporary Works must be removed from the Site and properly disposed of in compliance with the requirements of the Contract.
- (c) Stockpiles must not be placed in drainage lines, channels or paths.
- (d) Stockpiles must not obstruct rail access points.
- (e) The SSJ Contractor is responsible for providing secure and safe storage for all of the SSJ Contractor's construction plant and the materials to be used for or in carrying out the SSJ Contractor's Activities. Storage methods must prevent mechanical and climatic damage.
- (f) Storage areas must be kept safe and tidy to maintain a safe work environment and to minimise hazards to persons, other materials and equipment. The SSJ Contractor must take proper precautions to keep hazardous or dangerous substances in places secured against access by unauthorised persons and in a manner to prevent damage to the environment.

## 5.6. Noise and Vibration

- (a) The SSJ Contractor must:
  - (i) install and maintain acoustic walls and other noise attenuation devices in accordance with the requirements in the Planning Approval to provide noise mitigation during the performance of the SSJ Contractor's Activities. SSJ Contractor's Activities that require the installation of acoustic walls or other noise attenuation devices must not commence until the acoustic walls or other noise attenuation devices are erected; and
  - (ii) make any temporary acoustic walls and other noise attenuation devices from as-new or recycled materials and must at all times be maintained in a neat and tidy condition and be sympathetic with the surroundings.

Sydenham Station and Junction (SSJ)

## 5.7. Discharge Water Quality

- (a) The SSJ Contractor must:
- (i) treat and disposed in accordance with the Planning Approval and the requirements of relevant Authorities water including groundwater seepage, captured within the Site; and
  - (ii) monitor the quality of all water discharged from the Site.

## 5.8. Pedestrian Management during Construction

- (a) The SSJ Contractor must:
- (i) comply with the MR-C, Exhibit E Site Access Conditions and in addition the requirements set out below to minimise the impact to pedestrians in and around Sydenham Station;
  - (ii) produce pedestrian modelling for every stage of construction, inclusive of temporary or staged works. All width routes through to lifts, run off areas from escalators and other pinch points around the station must be justified by the pedestrian modelling;
  - (iii) notify the Principal 30 days before any major wayfinding changes at Metro Station or Sydenham Station;
  - (iv) plan and execute the SSJ Contractor's Activities to ensure safe pedestrian conditions are maintained at all times during the SSJ Contractor's Activities. Temporary or modified access for pedestrians must comply with the requirements of relevant Authorities; and
  - (v) maintain existing Public Thoroughfares and Rights of Way or provide approved alternative unimpeded and uninterrupted access twenty four hours a day, seven days a week for:
    - A. all existing formalised pedestrian access;
    - B. adjoining and nearby property owners, occupiers and users to areas adjacent to and outside the Site;
    - C. Sydney Trains and other contractors requiring access to the Rail Corridor through any access gate; and
    - D. all emergency services.

## 5.9. Station Precinct Operation Impact Assessment Group <sup>2</sup>

- (a) The SSJ Contractor must attend weekly Station Precinct Operation Impact Assessment Group (SPAG) meetings to communicate the upcoming construction activities to Sydney Trains station staff.
- (b) Agenda items must include:

<sup>2</sup> Group name changed to reflect Sydney Train interface agreement – Access to Sydney Trains Facilities – Annexure C



- (i) presentation of the latest staging diagrams;
- (ii) 3 month look ahead program review;
- (iii) identification of Sydney Trains resource requirements;
- (iv) detailed 3 week look ahead program review;
- (v) 1 week look ahead deep dive program review;
- (vi) impact on station operations including noise works; and
- (vii) implementation of the Global Safety Interface Agreement.

## **5.10. Hoarding and temporary fencing**

- (a) The SSJ Contractor must:
  - (i) obtain approval from both the Principal and Sydney Trains before erecting hoarding and fencing within the station and Rail Corridor;
  - (ii) obtain approval from both the Principal and relevant Authority before erecting hoarding and fencing outside the station;
  - (iii) install and maintain temporary hoardings, fencing and walls on and around the Site as necessary to provide safety and security in the performance of the SSJ Contractor's Activities. The temporary hoardings, fencing and walls must be erected prior to commencing the SSJ Contractor's Activities in the affected areas and kept securely locked at all times;
  - (iv) install hoardings and fencing from new materials and must at all times be maintained in a neat and tidy condition and be sympathetic with the surroundings. Hoardings are to be clean, painted free of snagging or sharp protrusions on both the worksite side and the public side and also comply with the relevant hoarding standards;
  - (v) maintain hoardings, fencing or walls on or around the Site free of graffiti and any advertising material not authorised by the Principal's Representative until the Date of Construction Completion of the last Portion to achieve Construction Completion;
  - (vi) design hoarding to appropriate, wind loading, train generated turbulent forces, crowd loading, dust, noise electrical earthing and bonding and fire rating requirements. Hoardings must not be full height in order to allow smoke to vent into the adjacent construction area;
  - (vii) provide hoarding and fencing with doors/gate that open inward to the site, no gaps should be evident between the edge of the hoarding and any permanent structure; and
  - (viii) provide appropriate netting between the top of the hoarding and any roof/canopy to prevent unwanted materials or potential ignition sources being thrown into the construction zone. This netting or barrier must be permeable.

## 5.11. Maintenance

- (a) The SSJ Contractor must:
- (i) maintain and repair the Project Works within a Portion until the Date for Construction Completion for that Portion (including any part of the Project Works temporarily handed back to Sydney Trains);
  - (ii) maintain any systems affected by the SSJ Contractor Activities throughout the Site until Construction Completion of the Portion relating to that system;
  - (iii) ensure that all infrastructure, facilities and amenities in the areas being maintained are at all times fit for their intended purpose (as at the date of the Contract), clean and tidy;
  - (iv) maintain the Site and any other areas affected by the SSJ Contractor's Activities in a clean and tidy manner throughout the duration of the SSJ Contractor's Activities;
  - (v) not store rubbish or loose items on the Site for any extended period;
  - (vi) maintain existing landscaping and ground vegetation within the Site;
  - (vii) remove weeds or other undesirable vegetation within the Site duration of the SSJ Contractor's Activities;
  - (viii) promptly remove rubbish on the Site or area impacted by SSJ Contractor Activities;
  - (ix) keep clean any public areas and back of house of the Sydenham Station affected by the SSJ Contractor's Activities;
  - (x) engage appropriately skilled and experienced cleaners to keep clean the public areas of Sydenham Stations affected by the SSJ Contractor's Activities;
  - (xi) ensure that any dust created by SSJ Contractor Activities is removed. Dust entering public areas or where it is likely to interfere with operating equipment must be removed at the end of each shift. Every effort is to be made to reduce dust emanation from the works; and any rubbish, dust, or residue from dirty work boots deposited in public areas or egress areas is promptly removed;
  - (xii) not dispose of any rubbish, including dust or dirty water into the track drainage system or Sydney Trains waste facilities;
  - (xiii) ensure any rubbish, dust, or residue from dirty work boots deposited in public areas or egress areas is removed within 30 minutes;
  - (xiv) provide shared access to all operating Sydney Trains facilities;
  - (xv) maintain access for a mobile elevated platform for Sydney Trains around the Sydenham Station for maintenance purposes; and



Sydenham Station and Junction (SSJ)

- (xvi) ensure that its activities do not interfere with mobile phone or radio coverage within the Sydenham Station.

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

### 5.13. Property Access and Utility Services

- (a) Where the SSJ Contractor Activates requires adjustments to private properties and or Utility Services the SSJ Contractor must:
  - (i) do all things necessary to satisfy the reasonable requirements of individual owners, occupiers of and visitors to properties, businesses and community facilities affected by the SSJ Contractor's Activities in respect of timing, duration and the carrying out of the relevant SSJ Contractor's Activities;
  - (ii) ensure that suitable access is maintained at all times to all properties and between severed portions of properties. Appropriate detours must be arranged and provided;
  - (iii) not reduce the level of access, (vehicular or pedestrian) to any commercial property during its relevant trading hours is permitted without the written agreement of the owner and occupier; and
  - (iv) make all required arrangements with the affected public in relation to the impacts and consequences of the interruption of any Utility Services.
- (b) Where Properties are adjacent to site or impacted by SSJ Contractors activities the SSJ Contractor must:
  - (i) prevent nuisance to the owners, tenants or occupiers of properties adjacent to the Site;
  - (ii) take all necessary steps to maintain safe, clear, unobstructed access to adjacent buildings; and
  - (iii) consider and take appropriate steps regarding any property adjacent to the Site which the SSJ Contractor needs to enter to undertake and complete the SSJ Contractor's Activities, as Extra Land.

### 5.14. Site Protection and Restoration

- (a) The SSJ Contractor must:
  - (i) comply with the requirements in the Planning Approval and ensure that significant trees (based on species, age or size) which may be affected by

Sydenham Station and Junction (SSJ)

- the SSJ Contractor's Activities are identified and appropriate protection management measures implemented including fencing and pruning;
- (ii) reinstate the Site progressively as each part of the Project Works and Temporary Works is completed;
- (iii) reinstate all land outside the Site (including the Extra Land) which has been in any way affected by SSJ Contractor's Activities to a condition at least equivalent to that existing before that occupation or use;
- (iv) reinstate the Site, including the removal of all temporary infrastructure, reinstating all built and natural surfaces, features, landscaping and the natural environment to a condition not less than that existing immediately prior to the SSJ Contractor obtaining access to the Site; and
- (v) prior to Construction Completion of each Portion:
  - A. complete a final clean of the SSJ Contractor's Activities;
  - B. employ experienced workers or professional cleaners for final cleaning operations;
  - C. comply with the manufacturer's instructions for cleaning operations;
  - D. cleaning to a standard expected from a cleaning and maintenance program for a first class building;
  - E. remove of labels and all manufacturer's markings that are not required as permanent labels or markings;
  - F. avoiding disturbance of natural weathering of adjoining surfaces;
  - G. cleaning all light fixtures and lamps so as to function with full efficiency, including re-lamping any non-functioning lamps; and
  - H. cleaning of all signage.

## 5.15. Road Condition

- (a) The SSJ Contractor must:
  - (i) ensure that any road, footpath, shared path or cycleway which is open to the public is at all times kept free of any mud, dirt, deleterious material, trip hazards and debris arising from the SSJ Contractor's Activities;
  - (ii) as a minimum, install, maintain and utilise wheel wash facilities and cover all construction vehicles to prevent any loss of fuels, lubricants, load or other substances, whether in the form of dust, liquids, solids or otherwise. Any spillage or build-up of such material or debris must be cleaned up immediately and any damage caused by such an occurrence must be immediately repaired;
  - (iii) apply appropriate treatments to roads, footpaths, shared paths or cycle ways that protect the roads, footpaths, shared paths or cycle ways from damage arising from the SSJ Contractor's Activities and allow for repair if damage occurs; and

Sydenham Station and Junction (SSJ)

- (iv) repair immediately any damage to any road, footpath, shared path or cycleway which is open to the public, caused by the SSJ Contractor's Activities. The road, footpath, shared path or cycleway must be repaired to the satisfaction of the relevant Authority.

## **5.16. Security Regime**

- (a) The SSJ Contractor must:
  - (i) provide 24 hour security at all access points to the Site;
  - (ii) ensure access and egress is available to Sydney Trains and NSW Trains maintenance contractors to complete maintenance and repairs to the within the Station and corridor;
  - (iii) use a radio communication system during the SSJ Contractor's Activities that cannot be accessible by the general public;
  - (iv) ensure that staff has photo identification clearly on display whilst in the public areas of Sydenham Station, Sydenham Equipment Centre and XPT maintenance yard at all times; and
  - (v) allow to move, adjust or change existing CCTV cameras due to construction hoarding, site facilities etc.

## **5.17. Access**

### **5.17.1. Control of Access to the Site**

- (a) The SSJ Contractor must ensure that access to the Site is restricted to authorised personnel and registered visitors. The SSJ Contractor is responsible for controlling access to / from the Site until Completion of the relevant Portion and must:
  - (i) provide a secure perimeter to any part of the Site where hazards exist;
  - (ii) minimise access points to the Site;
  - (iii) control all access points with gates kept closed during working hours and locked when the Site is unoccupied, open gate must be manned at all times;
  - (iv) install a notice at the main gate of the site compound stating the name and the 24 hour contact number of the person who has custody of the keys to access the Site; and
  - (v) provide clear and prominently positioned directional, information and safety signage in regard to visitors, site safety, emergency egress and assembly points, the wearing of personal protective equipment, emergency contact numbers and the rules regarding the conduct required to be maintained on the Site.

### **5.17.2. Control of Access into Rail Corridor**

- (a) The SSJ Contractor must ensure and maintain access control to the Rail Corridor at all times.

Sydenham Station and Junction (SSJ)

- (b) Where the SSJ Contractor's Activities affect existing Sydney Trains access roads and gates etc. to the Rail Corridor, the SSJ Contractor must maintain access to the Rail Corridor for Sydney Trains employees, subcontractors and equipment at all times, except during Track Possessions and Temporary Shutdowns when the SSJ Contractor has approved control of access to the Rail Corridor.
- (c) The SSJ Contractor must maintain an access road equivalent to that in existence prior to the SSJ Contractor's Activities or an all-weather access with a minimum width of 4 metres, whichever is the more onerous.
- (d) The SSJ Contractor must maintain unobstructed 24 hour vehicular access with designated maintenance parking to the Sydney Trains padmount substation located within the current Sydney Trains Sydenham Civil Depot.

### **5.18. Traffic Management during Construction**

- (a) The SSJ Contractor must;
  - (i) plan traffic and transport management associated with the SSJ Contractor's Activities to avoid delays and detours that will inconvenience the affected public or road users or interfere with traffic during periods of heavy traffic flows;
  - (ii) obtain approval from relevant Authorities prior to implementing any changes to traffic flow, vehicle, pedestrian, public transport and bicycle movements or adjustments to arrangements for control of traffic on roads and footpaths;
  - (iii) comply with the Environmental Documents and the following:
    - A. Principal's General Specification (G10 – Traffic and Transport Management);
    - B. RMS Traffic Control at Worksites Manual;
    - C. AS 1742.3 Manual of uniform traffic control devices - Traffic control for works on roads;
    - D. Relevant Austroads Guides;
    - E. SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard;
    - F. Construction Traffic Management Framework; and
    - G. RMS Supplements to Australian Standards and Austroads.
  - (iv) document how traffic will be managed when construction works are being carried out in a Construction Traffic Management Plan (CTMP). The CTMP is to describe the work activities being proposed, their impact on the roadway and on road users, and how these impacts will be addressed. The CTMP is to be prepared in accordance with the Construction Traffic Management Framework which describes the traffic management objectives, principles and strategies to be implemented during Sydney Metro City & Southwest construction, having regard to contractual

Sydenham Station and Junction (SSJ)

requirements, the Revised Environmental Mitigation Measures (REMM) and other obligations of the SSI Planning Approval;

- (v) provide copies of any traffic control plans approved by relevant Authorities that set out specific traffic and transport management arrangements to be implemented at specific locations during the construction of the Project Works and Temporary Works to the Principal's Representative and the Independent Certifier;
- (vi) address any unplanned traffic management activities, including emergency work due to incidents, in the Construction Traffic Management Plan to the satisfaction of the relevant Authorities;
- (vii) where traffic control devices include safety barriers, the safety barriers will:
  - A. comply with the RTA Traffic Control at Worksite Manual; and
  - B. be offset from the edge of the nearest adjacent traffic lane in accordance with relevant standards.
- (viii) comply with the requirements of all relevant Authorities regarding Temporary traffic lanes on roads, including minimum lane widths, in accordance with relevant standards;
- (ix) only enter, operate within or exit from a worksite in a manner which does not endanger the public and under suitably designed and appropriate traffic control measures;
- (x) provide suitable intersections or points of access for vehicles entering or leaving the Site and at locations where the traffic volumes are increased as a result of the SSJ Contractor's Activities. The intersection and access treatments must comply with the requirements of all relevant Authorities;
- (xi) undertake Community notification to advise the affected public and road users of the proposed changes to traffic flow, vehicle, pedestrian and bicycle movements and arrangements for control of traffic on roads in accordance with the requirements in MR-C;
- (xii) obtain approval from relevant Authorities for all road and footpath, occupancies, detours and closures. Relevant Authorities may elect to defer or modify road and footpath occupancies, detours or closures due to special events or other high traffic demands. An occupancy licence may be required from relevant Authorities for road and footpath occupancies, detours and closures;
- (xiii) immediately advise the Principal's Representative and the relevant Authorities of any unplanned closure of a lane, shoulder or footpath or a restriction in the flow of pedestrians, cyclists, public transport services or traffic. Details of the closure or restriction and of the schedule for reopening of the lanes, shoulders or footpaths must be provided. The SSJ Contractor must take all required measures to open the lanes, shoulders or footpaths as quickly as possible;

- (xiv) comply with any traffic direction or instruction given by the New South Wales Police Service, a relevant Authority or the Principal's Representative in respect of any traffic and transport management. The New South Wales Police Service, a relevant Authority or the Principal's Representative may, at any time, instruct the SSJ Contractor to re-open a lane, shoulder or footpath without delay, whether or not that lane, shoulder or footpath was closed by prior agreement. The SSJ Contractor must immediately comply with such instructions;
- (xv) plan and execute the SSJ Contractor's Activities to ensure safe cycling conditions are maintained at all times during the SSJ Contractor's Activities. Temporary or modified facilities for bicycles must comply with the requirements of relevant Authorities;
- (xvi) plan and execute the SSJ Contractor's Activities to ensure safe pedestrian conditions are maintained at all times during the SSJ Contractor's Activities. Temporary or modified facilities for pedestrians must comply with the requirements of relevant Authorities;
- (xvii) plan and execute the SSJ Contractor's Activities to ensure conditions for safe and efficient road based public transport services and operations are maintained at all times during the SSJ Contractor's Activities;
- (xviii) plan and execute the SSJ Contractor's Activities to ensure conditions for safe and efficient use of railway stations by commuters, passengers and other railway station users are maintained at all times during the SSJ Contractor's Activities and minimise impact on these commuters, passengers and other railway station users. Temporary or modified facilities for a railway station must comply with the requirements of relevant Authorities and relevant stakeholders; and
- (xix) maintain bus vehicle access including rail replacement bus access, bus customer access and bus operational requirements at all times during the SSJ Contractor's Activities. Temporary or modified facilities for bus vehicles, bus customers and bus drivers, including supporting infrastructure such as bus stops, shelters and signage, must comply with the requirements of the relevant Authorities and relevant stakeholders including bus operators.

## 5.19. Special Events

- (a) A "special event" is:
  - (i) a "Special Event" as defined in Management Requirement-PA of the Contract; or
  - (ii) any other local or regional event which generates increased vehicle and/or pedestrian traffic or reduces traffic speed or lowers the capacity of the road network around the Site or any Extra Land.
- (b) Where special events are expected to generate additional vehicle and/or pedestrian traffic in any areas directly or indirectly affected by the Works, the Temporary Works and the SSJ Contractor's Activities, the SSJ Contractor must cooperate



with the Principal's Representative and all relevant Authorities and emergency services in relation to the planning and preparation for the special event, to facilitate the special event and any associated traffic and pedestrian flows around the Site or any Extra Land.

- (c) The SSJ Contractor must modify the SSJ Contractor's Activities to accommodate the requirements of special events and perform the SSJ Contractor's Activities so as to minimise any interference with or disruption to any special event or the planning and preparation for any special event.
- (d) The SSJ Contractor must attend any meeting relating to any special event or the planning and preparation for any special event as required and requested by the Principal's Representative.
- (e) The SSJ Contractor must consider any additional security requirements during special events.

## **5.20. Emergency/Incident Management**

- (a) In an emergency event the SSJ Contractor must comply with overarching Sydney Trains Sydenham Station emergency procedures.
- (b) The SSJ Contractor must develop an Emergency and Incident response plan, including updating Sydenham Station specific emergency plans.
- (c) The SSJ Contractor will be required to attend Emergency Planning Committee (EPC) meetings and will be required to provide input information for updating the Sydenham Station Incident Management Plan (SIMP).

## **5.21. Fire Life Safety**

- (a) The SSJ Contractor must develop a Fire and Life Safety concept of operations during construction and it must be agreed with the Principal and Sydney Trains.
- (b) The SSJ Contractor must obtain approval from the Principal and Sydney Trains before isolating any alarm devices, loops or sprinklers, unless otherwise agreed in a Fire Isolation Process. All isolations will require permits signed by Sydney Trains.
- (c) The Rail Emergency Response Unit (RERU) is responsible for completing all fire isolations on Sydney Trains dry assets. RERU will attend site to complete any isolations and will not complete any shunt isolations remotely.
- (d) Areas of fire risks such as plant spaces, electrical switch rooms and store areas must be fire separated with an FRL of at least 60/60/60. For higher risk rooms, an FRL of 120/120/120 must be adopted.
- (e) The SSJ Contractor must carry out regular emergency rehearsals/drills at Sydenham Station with their staff, Sydney Trains and emergency services to test the adequacy of the Fire and Life Strategy and Emergency Procedures.

## **5.22. Chain of Responsibility**

- (a) Contractors must have systems in place to ensure compliance with Chain of Responsibility legislation, including the Heavy Vehicle National Law and regulations

Sydenham Station and Junction (SSJ)

at all times. All necessary heavy vehicle approvals and permits (e.g. oversize, over mass, etc.), must be obtained from the relevant road manager. Specific Chain of Responsibility requirements are further outlined in the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard.

- (b) The SSJ Contractor must take account of and incorporate all applicable, relevant or necessary requirements in relation to the chain of responsibility provisions of the Heavy Vehicle National Law in all aspects of the SSJ Contractor’s Activities.
- (c) The SSJ Contractor must hold and document the outcomes of formal risk workshops to identify and assess chain of responsibility risks associated with the SSJ Contractor’s Activities and develop mitigation strategies. The formal risk workshops must be held at the start of and progressively at all stages and phases throughout the SSJ Contractor’s Activities, The Principal’s Representative must be invited to attend and allowed to participate in the formal workshops.
- (d) All heavy vehicle movements must be coordinated with the TfNSW CBD Coordination Office.

### 5.23. Temporary Works

- (a) The SSJ Contractor must:
  - (i) maintain current levels of service of the station and transport interchange during the installation, use and presence of all Temporary Works;
  - (ii) certify and gain approval from relevant Authorities for the design life of Temporary Works and staged works;
  - (iii) prior to commencing delivery, installation or removal of the ~~Temporary Works~~ or staged works, submit all Design Documentation, including configuration change information as necessary, to the Principal and Independent Certifier for review and approval in accordance with the Contract;
  - (iv) pay all fees relating to Temporary Works and staged works;
  - (v) obtain and keep valid all Authority approvals, configuration change board approvals licenses, permits and the like relating to Temporary Works and staged works; and
  - (vi) ensure that all false work and formwork design is undertaken by a competent structural engineer and the designs are certified in accordance with AS 3610 and:
    - A. where there is any risk to existing rail infrastructure from collapse of the false work or formwork, the SSJ Contractor must ensure that the design of the false work or formwork is independently reviewed in accordance with AS 3610;
    - B. after erection of the false work or formwork and prior to commencement of any concrete pour, the SSJ Contractor must ensure that an inspection is carried out by the structural engineer who provided the design and that a written certification from the structural engineer is provided to the Principal stating that the false work or formwork is compliant with the design and is safe for concrete placement to commence; and



- C. during the concrete pour, the SSJ Contractor must ensure that the false work or formwork is continuously monitored for deflection and stability to ensure there is no risk of collapse. If any deflection or instability is found, the SSJ Contractor must immediately stop the concrete pour.

## 5.24. Sydney airport flight path

- (a) The SSJ Contractor must address the all potential risks associated with undertaking works in the vicinity of Sydney Airport flight path including the following mitigations:
  - (i) Obstacle Limitation Surface (OLS) permits (where required) to stand and operate cranes and other construction plant (Piling Rigs, etcetera). CASA permits and approvals may include crane marking – red and white striping on top 6 metres of crane jib;
  - (ii) airport lighting requirements (low and high density lighting where required). See lighting in the vicinity of aerodromes (Consultation upon lighting, both temporary and permanent to ensure compliance with regulations relating to lighting in the vicinity of aerodromes);
  - (iii) limitations on the type and use of construction laser equipment in the vicinity of aerodromes (Class 1 type if of the ‘invisible beam’ type, and Class 1 or Class 2 if emitting visible light.); and
  - (iv) dust management, control and containment (mitigation) methods from dust arising from construction and demolition works undertaken in the vicinity of aerodromes.

## 6. APPENDICES

Appendix A1.0 – Definitions and Acronyms
Appendix A2.0 – Codes and Standards
Appendix B1.0 – Civil and Structural Works
Appendix B2.0 – Track, Rail Systems and Communication Works
Appendix B3.0 – Building, Precinct and Public Domain Works
Appendix B4.0 – Mechanical and Electrical Services Works
Appendix B5.0 – Fire and Life Safety Works
Appendix B6.0 – Heritage
Appendix B7.0 – Sustainability Requirements
Appendix B8.0 – Additional Environmental Requirements
Appendix B9.0 – CCD Requirements
Appendix B10 – Wayfinding Requirements
Appendix B11 – Public Art
Appendix B12 – Asset Management Information
Appendix B13 – Advertising
Appendix B14 – Retail and Commercial
Appendix C1.0 – Metro Station Room Schedule
Appendix C1.1 – Room Data Sheets

Sydenham Station and Junction (SSJ)

Appendix C1.2 - Cable and Containment Schedule
Appendix C1.3 - Metro Power Demand Schedule
Appendix C2.0 – Metro Station Vertical Transport Specification

Appendix D1.0 - Sydenham Station and Junction - Civil Fencing
Appendix D2.0 - Sydenham Station and Junction - Electrical
Appendix D3.0 - Sydenham Station and Junction - Track Alignment and Set out
Appendix D4.0 - Sydenham Station and Junction - Structure Platform and Concourse Set out
Appendix D5.0 - Sydenham Station and Junction – Urban Design Station Precinct
Appendix D6.0 – Sydenham Station and Junction – Permanent Way Transit Space

Appendix E1.0 – Interface Requirements Specification
Appendix E1.1 – IRS - VT and Communications
Appendix E1.2 – IRS - Track and Tunnel Services
Appendix E1.3 – IRS - High Voltage Power Supply
Appendix E1.4 – IRS - OHL & Traction Power
Appendix E1.5 – IRS - Platform Screen Doors
Appendix E1.6 – IRS - Radio Systems
Appendix E1.7 – IRS - Signalling and Train Control Systems
Appendix E1.8 – IRS - Central Control System
Appendix E1.9 – IRS - Communications System
Appendix E2.0 - Sydney Trains
Appendix E3.0 - TSE
Appendix E4.0 - SSC

Sydenham Station and Junction (SSJ)

# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B1.0 – Civil and Structural Works

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	14 <del>September</del> <u>May 2017</u> <u>2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2</del> <u>E</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-CE-S</u> <u>CH-000019</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B1.0 Civil and Structural		



# Contents

<b>1.</b>	<b>Overview</b>	<b>1</b>	
<b>2</b>	<b>Requirements</b>	<b>2</b>	
2.1	General	2	
2.2	Design loading	4	
2.2.1	General	4	
2.2.2	Operational and maintenance loads	5	
2.2.3	Surcharge loading	7	
2.2.4	Collision loads and risk review	7	
2.3	Station platforms	8	
2.4	Direct drilling requirements	<del>9</del> <u>8</u>	
2.5	Sydney Water Works	9	
2.6	Structural works, including elevated concourse structures	9	
<u>2.6.2</u>	<u>Fire safety design requirements for structures</u>	<u>9</u>	
2.7	Retaining walls	<del>13</del> <u>14</u>	
2.8	Noise barrier walls	16	
2.9	<u>Anti-Vandal Coatings</u>	<u>17</u>	
<u>2.10</u>	Overhead wiring support structures	<del>16</del> <u>17</u>	
<del>2.10</del> <u>2.11</u>	Canopy structures	<del>16</del> <u>17</u>	
<del>2.11</del> <u>2.12</u>	Drainage and hydrology	<del>16</del> <u>17</u>	
<del>2.11.12</del> <u>2.12.1</u>			General <del>16</del> <u>17</u>
<del>2.11.22</del> <u>2.12.2</u>			Water Quality <del>18</del> <u>19</u>
<u>2.12.3</u>	<u>Flood Impacts</u>	<u>20</u>	
<del>2.11.32</del> <u>2.12.4</u>			Average Recurrence Intervals <del>19</del> <u>20</u>
<del>2.11.42</del> <u>2.12.5</u>			Flood immunity <del>20</del> <u>21</u>
<del>2.11.52</del> <u>2.12.6</u>			Drainage design modelling <del>20</del> <u>22</u>
<del>2.11.62</del> <u>2.12.7</u>			Scour protection <del>24</del> <u>22</u>
<del>2.11.72</del> <u>2.12.8</u>			Drainage of underground structures <del>24</del> <u>22</u>
<del>2.12</del> <u>2.13</u>	Earthworks and formation	<del>24</del> <u>23</u>	
<del>2.13</del> <u>2.14</u>	Access Roads	<del>22</del> <u>24</u>	
2.15	<u>Vehicular access and parking for service buildings</u>	<u>24</u>	
<del>2.14</del> <u>2.16</u>	Local Area Works	<del>22</del> <u>25</u>	
<del>2.15</del> <u>2.17</u>	Utility Services	<del>22</del> <u>25</u>	
<u>2.18</u>	<u>Corridor Intrusion</u>	<u>25</u>	



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# 1. Overview

- (a) The civil and structural works addressed by this document include the permanent new infrastructure and modifications to existing infrastructure associated with the Project Works and Temporary Works.

## 2 Requirements

### 2.1 General

- (a) The following issues must be addressed by the SSJ Contractor in the design of the civil and structural works:
  - (i) Design Life, durability, and whole of life cycle;
  - (ii) reliability, availability, maintainability and safety requirements;
  - (iii) architectural and urban design requirements;
  - (iv) fire and life safety strategy;
  - (v) flood protection;
  - (vi) impact of the SSJ Contractor's Activities on Interface Contractors; and
  - (vii) provision for future expansion, upgrades, and improvement.
- (b) Permanent structural elements are not permitted within the structure gauge. Where any permanent structural element is proposed adjacent to, above or below the structure gauge, the clearance to the structure gauge for Sydney Trains, ARTC and the Operator must be submitted by the SSJ Contractor as part of the Design Stage 1 Design Documentation.
- (c) Permanent structural elements, including ground anchors, rock bolts, soil nails, and batters are not permitted to extend outside of the Site without approval from the Principal's Representative.
- (d) All permanent ground supports within the Site, including soil nails, rock bolts, and anchors, must have their influence zone at least 3m lands outside the Site.
- (e) Structures must be designed such that settlement, heave or movement between elements during all stages of construction and throughout the Design Life of the structure is kept to the design limits, and that the Design Documentation states the design movements and limits.
- (f) Epoxy anchors, or other forms of structural anchorage which are reliant on adhesion, must not be used to support tensile loads imposed by structural elements where the failure of the structural element may result in a risk to life or reduction in operational performance.
- (g) All temporary ground anchors installed to support excavations must be destressed by the SSJ Contractor, prior to or at Construction Completion of the permanent works.
- (h) Concrete used in all civil and structural works must meet the requirements set out in Table 2.1.

**Table 2.1** Maximum Cementitious Content

Up to and including 20MPa	280
20MPa to and including 25MPa	310
25MPa to and including 32MPa	360
Between and including 40MPa to 65MPa	450
Greater than 65MPa	500

- (i) The cement content in all concrete used in the Project Works and Temporary Works must contain fly ash or ground granulated blast furnace slag, in compliance with the following requirements:
  - (i) for concrete elements that are nominally thicker than 600mm, excluding local discrete thickening, and where the design water/cementitious ratio is less than 0.40, the cementitious content must contain at least 50% fly ash or 70% slag;
  - (i) for concrete elements less than or equal to 600mm in thickness, the cementitious content must contain at least 25% fly ash or 50% slag; and
  - (ii) concrete elements that have a fly ash content which is greater than or equal to 50% of the total cementitious content and/or a slag content which is greater than or equal to 70% of the total cementitious content must receive a minimum of 7 days of continuous moist curing after casting.
- (j) The minimum concrete strength grades must be as nominated in Table 2.1.1 below:

**Table 2.1.1** Minimum concrete strength grades

structural works generally U.N.O	40
precast members cast on rigid formwork	50
blinding and mass fill concrete	20
<u>Non-structural works not listed above</u> <u>(e.g. footpaths, kerb bedding)</u>	<u>33</u>

- (k) Concrete finishes for formed surfaces must be Class 2C (exposed surfaces) and Class 3 for all permanently hidden surfaces in accordance with AS 3610.1.
- (l) Concrete elements must be designed and constructed with suitable control joints to ensure that cracks are straight and easy to maintain.



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## 2.3 Station platforms

- (a) Metro Station platforms must be designed to minimise the gap between the train and platform edges.
- (b) Where Metro Station platforms are retained existing platforms, they must accommodate platform screen doors or platform edge screens, comply with the requirements of ASA Standard T HR CI 12065 ST Station Platform, and comply with the minimum Design Life.
- (c) The SSJ Contractor must design and construct the modifications to the Sydney Station platforms, in accordance with ASA standards T HR CI 12065 ST 'Station Platform'.
- (d) The SSJ Contractor must design cable containments and allow provisions within the platforms as described in Interface Schedule.
- (e) Platform end ramps must not be provided, except where they are light weight steel or composite construction and it can be demonstrated that they will collapse under train collision loading.

## 2.4 Direct drilling requirements

- (a) The Project Works are to be designed to accommodate anchors for the support of services and finishes. The maximum anchor depth permitted is 125 mm and shall avoid any clashes or damage to reinforcement or tendons, and shall comply with the project durability requirements.
- (b) Post drill anchor systems are not permitted for the support of permanent structures other than those described in section 2.4 (a) above.
- (c) Post drill anchors systems are not permitted to be used for the support of OHWS, unless otherwise approved by the Principal's Representative.

## 2.5 Sydney Water Works

- (a) The aqueduct, maintenance access ramps, pump station, culverts and modifications to Sydenham Pit must be designed and constructed in accordance with Sydney Water [requirements](#)[Interface Agreement](#), [Specification and Standards](#).
- (b) The SSJ Contractor in carrying out the SSJ Contractor's Activities must preserve the State-Heritage listing status of the existing pump structure and Sydenham Pit.
- (c) New and retained Sydney Metro Works and Brownfield Works structural works must be structurally independent of Sydney Water assets, including:
  - (i) not relying on the Sydney Water assets for stability;
  - (ii) achieving long term durability performance; and
  - (iii) Collision protection.

## 2.6 Structural works, including elevated concourse structures

### 2.6.1 General

- (a) All New Bridges and Replacement Bridges must meet the requirements of AS5100 Bridge Design (all parts) unless demonstrated otherwise by risk assessment and approved by the Principal), RMS Bridgework specifications, RMS Bridge Technical Direction Manual, RMS Technical Directions, ASA Standard ESC 310 'Underbridges' and, T HR CI 12030 ST 'Overbridges and Footbridges', and other relevant Australian Standards and Codes. RMS Bridge Technical Direction Manual and RMS Technical Directions contain design and design detailing requirements that are additional to the requirements of AS5100 Bridge Design (all parts).
- (b) Where structures or buildings are to be retained, they must have a Load Rating undertaken.
- (c) Where Existing Bridges, structures or buildings are to be retained, they must have a condition inspection undertaken in accordance with TMC301 'Structures Inspection Manual'.
- (d) Where Existing Bridges, structures or buildings require maintenance by the SSJ Contractor, the maintenance works must be undertaken in accordance with TMC302 'Structures Repair Manual'.

### 2.6.2 [Fire safety design requirements for structures](#)

- (a) [Structural fire protection requirements for new overbridges, underbridges, footbridges and stations must be provided in accordance with the SSJ Contractor's FLS strategy.](#)
- (b) [Station structural fire ratings must comply with the prescriptive requirements of the BCA as a minimum. Additional fire safety protection may be required for asset protection and operational continuity, to be determined by the SSJ Contractor's FLS strategy.](#)
- (c) [New elevated concourse floor structures and columns supporting the concourse structure must have a minimum fire resistance of two hours measured in accordance with the AS1530.4 time-temperature curve.](#)

- (d) Structures that can be potential exposed to the heat from a train fire must, as a minimum, maintain structural integrity.

### **2.6.3 2.6.2 Structural performance and design requirements for new Project Works**

- (a) Where **New Bridges**new or replacement bridges (including station concourses), deflection structures and retaining walls have piled foundations, at least 15% of the piles (with a minimum of one pile per element) must be designed and constructed to include a full depth 50mm inclinometer casing to allow for future installation of inclinometers. Inclinometer casings must be safely accessible from the permanent access locations at the abutments and must have a removable and lockable cap.
- (b) An installation and monitoring procedure for the use of inclinometers must be provided. The procedure must detail the safe and appropriate use of the casings for the installation and monitoring of inclinometers during operation.
- (c) Polished stainless steel surface mating with polytetrafluoroethylene (PTFE) must be in accordance with ASTM A240/A240M Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications and not AS1449 Wrought alloy steels - Stainless and heat-resisting steel plate, sheet and strip.
- (d) The abutments for New Bridges, Replacement Bridges and elevated concourses must meet the following minimum requirements:
- (i) where retaining structures are located at the front face of the abutment, the design must incorporate a primary support system for the abutment headstock (such as piles);
  - (ii) steel piles must not be used; and
  - (iii) the maximum lateral soil movement after the construction of abutment piles must be no greater than that identified in the Design Documentation.
- (e) New Bridges or Replacement Bridges must have approach slabs that meet the following minimum requirements:
- (i) approach slabs must not be integral with the bridge's superstructure;
  - (ii) the design of approach slabs must be in accordance with RMS Bridge Technical Direction Bridge Policy Circular, BPC 2004/10 (overbridges) or ASA Standard ESC310 Underbridges (underbridges);
  - (iii) traffic barriers must not be designed as an integral part of the approach slabs;
  - (iv) in fill areas, provision must be made to enable jacking of the approach slabs after any settlement occurs. The methodology for jacking of approach slabs after settlement occurs must be included in the Design Documentation; and
  - (v) the surface of bridge joints and approach joints, including surface seal and cover plate areas, must not deviate by more than 3mm when measured from a 3m straight edge.

- (f) The installation of elastomeric bearings supporting concrete bridge girders must comply with the requirements of RMS Bridge Technical Direction Bridge Policy Circular BPC 2007/02. Recesses to the underside of the girders must not be used to fix the top of the elastomeric bearings.
- (g) Stainless steel dowel bars must be provided to connect the approach slabs to bridge abutments and in other situations where the dowel bars are acting structurally, including horizontal restraints between the bridges substructure and superstructure.
- (h) Stainless steel dowel bars must be Grade 304 conforming to ASTM A276.
- (i) Where restraint blocks are provided on top of overbridge piers and abutments to transfer lateral loads, such as earthquake loads, from the superstructure of the bridge to the substructure of the bridge, a buffer elastomeric bearing strip or pad must be provided. Restraint blocks must not be used to restrain traffic loads.
- (j) Concrete to concrete, or concrete to steel contact must not occur between the lateral restraint block and the sides of bridges beams.
- (k) Lateral restraint blocks must be constructed after the adjoining bridge beams have been erected to ensure a constant gap is maintained.
- (l) Structures that are subject to submergence must be designed to the requirements in AS 5100.2 and to the following additional requirements:
  - (i) structures that will be partially or fully submerged by flood events more frequent than or equivalent to the 1 in 50 year ARI must not have superstructures consisting of closed cell girders e.g. Super-T girders; and
  - (ii) structures subject to submergence must comply with the Appendix A of the "RMS Bridge Waterway Manual for all levels of submergence.

#### **2.6.4** ~~2.6.3~~ **Electrolysis protection**

- (a) Steel reinforcement in the substructure of bridges, elevated concourses and other spanning structures must be electrically continuous in compliance with AS2832.5 to achieve a half-cell circuit, bonded to electrolysis monitoring terminals.
- (b) Electrolysis monitoring terminals must be ERICO FDB 16 or equivalent and installed in compliance with AS2832.5 and RMS Bridge Technical Direction BTM 2008/13 in an accessible location at the abutment that minimises impacts on train operations.
- (c) Welding must be in accordance with AS1554.3 and RMS Specifications B80 and B204.

#### **2.6.5** ~~2.6.4~~ **Structures**

- (a) Stepped or half joints must not be used in new overbridge superstructures.
- (b) New Bridges being road overbridges must allow for the jacking up of the superstructure to facilitate bearing replacement under traffic in accordance with the requirements set out in RMS Bridge Technical Direction BTM 2007/12.
- (c) Bridge traffic barriers must be provided for all road overbridges.



- (d) The New Bridges and Replacement Bridges traffic barriers must be designed to a minimum of 'Medium Performance Level' in accordance with AS5100 and must be subject to a risk assessment to determine whether a higher performance level is required.
- (e) The Existing Bridges traffic barriers must be designed to the maximum performance level achievable for the bridge superstructure, and must be subject to a risk assessment in accordance with AS5100 to determine whether this performance level is acceptable.
- (f) The SSJ Contractor must comply with the following minimum requirements with respect to New Bridge and Replacement Bridge abutments and piers:
- (i) where reinforced soil walls are used as the front face of an abutment, the design must incorporate a primary support system for the abutment headstock (such as prestressed concrete pile);
  - (ii) abutment slope protection must be provided for all New Bridges and Replacement Bridges. Existing Bridges should be assessed to determine if abutment slope protection is required;
  - (iii) steel piles must not be used;
  - (iv) where the depth to 'rock Class IV' (as defined in Pells P. J. N., Mostyn, G. & Walker, B.F. 1998, 'Foundations on Sandstone and Shale in the Sydney Region', Australian Geomechanics – Dec 1998) or better exceeds 3m, raking pile configurations must not be used;
  - (v) displacement restraint and rotational restraint at the abutment pile head must be minimised to reduce the internal pile forces (bending moments, shear forces) induced by lateral soil movement;
  - (vi) downdrag (negative skin friction) effects due to settlement on piles must be allowed for in the design of such piles, together with methods to reduce such effects; and
  - (vii) the maximum lateral soil movement after the construction of overbridges abutment piles must be no greater than that designed in advance of construction.
- (g) Access must be provided to the following situations:
- (i) for inspection and maintenance of the structure without the need to disrupt or stop train operations, or within the specified maintenance periods; and
  - (ii) where necessary safety railings must be provided in accordance with AS1657.
- (h) The SSJ Contractor must comply with the following minimum requirements with respect to concrete and reinforcement:
- (i) references to concrete cover to steel reinforcement in standard RMS bridge drawings, RMS Bridge Technical Direction Manual and RMS Technical Directions refer to "nominal" cover as defined in section 4.10.3.1 of AS 5100.5 unless stated otherwise;

- (ii) crack control design for prestressed beams must be in accordance with section 8.6.2(a)(ii) in AS5100.5, except that the increment in steel stress must be limited to 160MPa as the load increases from the decompression state to the maximum combined serviceability limit state load;
  - (iii) lap splicing of shear reinforcement must not be undertaken;
  - (iv) where the least dimension of a concrete element exceeds 1000mm, the temperature differential across any face of the concrete element must not exceed 27°C during the curing period, thermocouples must be located within the concrete element to monitor the maximum temperature and differential temperature across the concrete;
  - (v) road overbridges must not incorporate low ductility steel reinforcement Class L;
  - (vi) any helix must be anchored at its ends by 1.5 extra turns of the helix at zero pitch and a hook around a main longitudinal reinforcing bar or a 300mm long cog into the concrete core of the column or pile;
  - (vii) within the length of a column or pile, a helix must be spliced by welding or mechanical anchor or 1.5 extra turns of the helix with hooks around the main longitudinal reinforcing bars or 300mm long cogs into the concrete core of the column or pile; and
  - (viii) the calculated torsion moment  $T^*$  in sub-sections 8.3.4(a)(i) and 8.3.4(a)(ii) in AS5100.5, must be calculated assuming the uncracked section properties.
- (i) Where waterproofing is required as defined in SWTC Sydenham Bridge Works the SSJ Contractor must provide it in accordance with RMS Specification B344 'Sprayed Bituminous Waterproofing Membrane'.

#### 2.6.5.2 ~~2.6.4.2~~ **Utility Service Works provisions for new road overbridges**

- (a) Utility Services must be provided in road overbridges in accordance with the requirements of RMS Technical Direction 2008/08.
- (b) The Utility Services and future Utility Services conduits and pipes must be provided in accordance with the requirements of the relevant Authority.
- (c) Future Utility Services conduits and pipes must be terminated a minimum of 1m beyond the bridge approach slab.
- (d) Utility Services and future Utility Services conduits and pipes must be located to ensure the future road or verge level provides cover in accordance with the relevant Authority requirements and must be protected from construction traffic loadings.
- (e) Utility Services and future Utility Services conduits and pipes must be designed to enable maintenance access in accordance with the relevant Authority requirements, from finished verge or roadway surface without requiring access to the track formation.

## 2.7 Retaining walls

- (a) All existing timber retaining walls within the Site must be replaced. Timber retaining walls must not be used on the Project Works.
- (b) Unless stated otherwise, new retaining wall works must be in accordance with the requirements of AS5100 and ASA Specification T HR CI 12060 ST 'Retaining Walls', SPC 301 'Structures Construction' and T HR CI 12111 SP Earthworks Material'.
- (c) Retaining walls adjacent to RMS infrastructure must comply with RMS Technical Direction GTD 2012/001.
- (d) Reinforced soil walls must comply with ASA Specification T HR CI 12060 ST 'Retaining Walls', RMS D&C Specification R57 and D&C Specification R58.
- (e) Soil nail walls (including rock bolt walls) must comply with BS8006-2 for soil nail design and ASA Specification T HR CI 12060 ST 'Retaining Walls'.
- (f) Soil nail walls (including rock bolt walls) must be constructed and tested in accordance with RMS D&C Specification R64.
- (g) All mesh for gabion walls must be polyvinylchloride (PVC) coated, or hot dipped galvanised or zinc aluminium alloy mesh baskets. Gabion walls shall be in accordance with ASA Specification T HR CI 12060 ST 'Retaining Walls'.
- (h) All anchor bolt and rock bolt heads must be recessed so that a uniform planar finish is achieved.
- (i) Retaining walls must be maintenance free and must not contain any prestressed elements such as ground anchors or rock anchors that require restressing and servicing for the Design Life of the retaining walls.
- (j) A safety handrail or barrier must be provided on top of a retaining wall where the wall height introduces a potential to fall vertically from the top of the ~~wall~~ retaining wall a distance greater than 1.5m or unless otherwise deemed appropriate by the SSJ Contractor following completion of a risk assessment against the risk criteria defined in 30-ST-164 TfNSW Enterprise Risk Management Standard
- (k) Where space allows, a 1m clear width must be provided at the base of all retaining walls to allow maintenance inspections to be undertaken. Any locations where a 1m clear width cannot be provided at the base of a retaining wall must be approved by the Principal's Representative.
- (l) ~~(k)~~ Retaining walls must include appropriate provision for back of wall drainage, including provisions for cleaning and maintenance of the drainage infrastructure.
- (m) ~~(l)~~ Where retaining walls support a bridge superstructure or any future bridge superstructure, the bridge must not be considered to provide lateral support to the retaining walls.
- (n) The design of retaining walls must be increased by minimum depth of 500mm for consideration of passive pressure in accordance with ASA T HR CI 12060 ST Retaining Walls. Subject to Principal's Representative's approval, this depth should be increased where future excavation for services in front of the retaining walls may be required.



- (o) ~~(m)~~ The design of retaining walls must consider and address the following geotechnical failure mechanisms, both internal and external to the structures:
- (i) ultimate limit states:
    - A. bearing failure;
    - B. sliding failure;
    - C. rotational failure; and
    - D. slip failure.
  - (ii) serviceability limit states:
    - A. settlement and lateral movement;
    - B. tilting and rotation; and
    - C. differential settlement.
- (p) ~~(n)~~ Soil supporting structures for the excavations must comply with the requirements in AS 5100.3 Bridge design - Bridge design - Foundations and soil-supporting structures.
- (q) ~~(e)~~ Ground anchors used to provide excavation support must comply with the requirements of ASA Specification T HR CI 12060 ST 'Retaining Walls' and Roads & Maritime Services Specification D&C B114 Ground Anchors, except that:
- (i) the requirements of Clauses 7.4.3, 9.4 and 12.3 of Roads & Maritime Services Specification D&C B114 Ground Anchors do not apply;
  - (ii) the Design Life requirements identified in section 4.2 of the SWTC apply; and
  - (iii) references to "Project Verifier" are to be read as a reference to Independent Certifier.
- (r) ~~(p)~~ Soil nails used to provide excavation support must comply with the requirements of Roads & Maritime Services Specification D&C R64 Soil Nailing, except that:
- (i) the requirements in Clauses 2.2.4 and 5.2.1 of Roads & Maritime Services Specification D&C R64 Soil Nailing and any requirements relating to obtaining approval from the RMS Representative do not apply;
  - (ii) the Design Life requirements identified in Clause 4.2 of the SWTC apply; and
  - (iii) references to "Project Verifier" are to be read as a reference to Independent Certifier.
- (s) ~~(q)~~ Retaining structures must have a plane surface finish, except for capping beams. The surface of the retaining structures must not depart at any point by more than 50mm from the surface plane of the retaining structures in a normal direction.
- (t) ~~(r)~~ Retaining structures must be designed and constructed to be free draining.

- (u) ~~(s)~~ Retaining structures must be designed and constructed to make allowance for a minimum water pressure behind the wall that is equivalent to one third of the retained height.
- (v) ~~(t)~~ Where retaining structures have a drainage system directly behind the facing of the retaining structures, the outlet level for the drainage system must be above the top of the adjoining finished surface level at the toe of the structure and no higher than 200mm above the adjoining finished surface level at the toe of the structure.
- (w) ~~(u)~~ Weepholes and bored drains must not discharge water on to the face of the retaining structure except where located above the top of the adjoining finished surface level at the toe of the structure and no higher than 200mm above the adjoining finished surface level at the toe of the structure.
- (x) ~~(v)~~ Where applicable retaining structures must allow for fixing of rail services and equipment using anchors with a maximum embedded depth of 125 mm with no adverse impact on structural integrity, durability or watertightness.
- (y) ~~(w)~~ The design of retaining structures must consider all adverse groundwater and surface water conditions that may occur during the Design Life.
- (z) ~~(x)~~ All sprayed concrete facings on retaining structures must be durable fibre reinforced concrete. Sprayed concrete facings must comply with the requirements of Roads & Maritime Services Specification D&C B82 Shotcrete Work, except that references to "Project Verifier" are to be read as a reference to the Independent Certifier.

## 2.8 Noise barrier walls

- (a) Noise barriers walls must comply with:
  - (i) ASA Standard T HR CI 12070 ST "Miscellaneous Structures;
  - (ii) AS5100 Bridge Design; and
  - (iii) RMS D&C Specification R271.
- (b) The final layout of the noise barrier walls must comply with the following:
  - (i) the top of the noise mitigation measures must be profiled parallel with the adjacent track gradient and / or upper surface of the relevant retaining wall or other structure. No steps are to be allowed in the top of the wall;
  - (ii) noise mitigation structures must be free from holes, openings and gaps;
  - (iii) where openings are required for personnel or vehicle access, an overlap is to be provided such that composite performance applies;
  - (iv) noise walls are to be constructed from pre-cast concrete panels or other modular construction, subject to approval of the Principal;
  - (v) noise wall layouts are to be simple, straight, or large radius curved alignments, sympathetic to the Rail Corridor, adjoining terrain and infrastructure. A strong vertical pattern and texture must be applied to all precast walls to form lines as specified in Appendix B3.0 of the SWTC;

- (vi) all exposed surfaces are to be coated with anti-graffiti treatment as specified in ASA standards, applied to the entire surface of the wall. The anti-graffiti coating must match the adjacent surface and the colour and appearance of the structure to the greatest extent possible; and
- (vii) noise mitigation structures must not encroach on minimum clearance zones for rail facilities, including access roads, and must be comply with ASA standards.

## **2.9 Anti-Vandal Coatings**

- (a) The Project Works must be designed to be vandal and tamper resistant.
- (b) Any operating panels and removable elements must only be capable of being opened or removed using specialist tools machinery.
- (c) Graffiti must be able to be removed without damage to the concrete.
- (d) The anti-graffiti coating must have a consistent appearance and must minimise any difference in the visual appearance of the treated and untreated parts of the structure.
- (e) The anti-graffiti coating must be capable of being reapplied when required in order to maintain the performance characteristics of the coating.

## **2.10 ~~2.9~~ Overhead wiring support structures**

- (a) OHWS (including shared structures) must comply with the requirements of the relevant ASA standards including ASA standard: THR CL 12040 ST – Overhead Wiring Structures and Signal Gentries.
- (b) All OHW structures (including feeder and other structures) shall also be designed and constructed to support the final 8 car 30tph configuration.

## **2.11 ~~2.10~~ Canopy structures**

- (a) Canopy columns that are integral with OHWS must comply with section 2.9 above.

## **2.12 ~~2.11~~ Drainage and hydrology**

### **2.12.1 ~~2.11.1~~ General**

- (a) The permanent new infrastructure for hydrology and drainage works include:
  - (i) all new drainage infrastructure, including surface, subsoil and track drainage;
  - (ii) water quality treatment facilities and/or modifications to existing facilities;
  - (iii) on site detention / attenuation storage or modifications to existing;
  - (iv) connections into the downstream drainage system or nearest watercourses;
  - (v) integration of water sensitive urban design elements;





- (x) DECC’s Draft Seas Level Rise Policy Statement, February 2009; and
- (xi) all other requirements to comply with all relevant Authorities.

(i) The SSJ Contractor must design the drainage system to intercept overland flow before entering the Rail Corridor wherever reasonable to do so in order to mitigate the extent of inter-track drainage and possession dependency.

(i) The SSJ Contractor must design and construct the drainage system to minimise infrastructure, such as inter-track drainage pits within the Sydney Trains operational areas.

**2.12.2 2.11.2 Water Quality**

(a) All Project Works and Temporary Works must include an integrated approach to urban water cycle management to minimise impacts upon local streams and waterways.

(b) The principles of the integrated approach must be to achieve:

- (i) stormwater quality targets which are suitable for either reuse or discharge into local streams and waterways; and
- (ii) a maximum use of stormwater in the urban landscape.

(c) (a) The water quality parameters specified in Table 2.11.2 must be applied within Metro Station and Station Precinct:

**Table 2.11.2.12.2** Water quality parameters

Water quality treatment to required pollutant reduction criteria (i.e. full treatment) in accordance with Table 2.11.2.1	70%
Water quality treatment to achieve some pollutant reduction and provide some gross pollutant capture, i.e. provision of bio retention gardens, where green landscape areas are available but not GPT (i.e. partial treatment)	20%
No water quality treatment	10%
<i>*urban design area = station car park Precinct (pavement and green areas) and station concourse roof areas.</i>	

**Table 2.11.2.12.12.2.1** Water quality treatment requirements

Litter	Retention of litter greater than 50mm for flows up to 25% of the 1 year ARI peak flow.
Coarse Sediment	Retention of sediment coarser than 0.125mm for flows up to 25% of the 1

	year ARI peak flow.
Oil and Grease	In areas with concentrated hydrocarbon deposition, no visible oils for flows up to 25% of the 1 year ARI peak flow.
Suspended solids	85% retention of the average load
Total phosphorus	65% retention of the average load
Total nitrogen	45% retention of the average annual load

(d) The provisions to achieve the water quality requirements may include:

- (i) grass or vegetated swales to capture stormwater drainage to all at-grade car parks. Ensure bio retention systems with 100mm freeboard to stormwater drainage pit to cater for larger rain events;
- (ii) pavement planes which fall to provide passive irrigation to adjacent garden beds, turf/grass areas and trees;
- (iii) drainage of all areas of pavement using trench drains and conveyed to adjacent planting beds;
- (iv) creating rain gardens in larger planting beds using swales with 100mm freeboard to a stormwater drainage pit to cater for larger rain events; and
- (v) area drains in planted swales having invert levels to allow temporary inundation to planting areas during rain events.

### **2.12.3 Flood Impacts**

- (a) The Sydney Metro Works must not worsen existing flooding characteristics in the vicinity of the Project Site or on adjoining lands, as required by the relevant conditions of the Planning Approval.
- (b) The Works must not result in a net increase in stormwater runoff rates in all storm events unless it can be demonstrated that increased runoff rates as a result of the Works would not increase downstream flood risk in accordance with conditions of approval.

### **2.12.4 2.11.3 Average Recurrence Intervals**

- (a) Drainage infrastructure elements must be designed to comply, as a minimum, with the Average Recurrence Interval (ARI) events and probable maximum flood (PMF) events as specified in Table 2.11.3.
- (b) The following climate change requirements must be included in the drainage Design Documentation:
  - (i) increase the design rainfall intensities by a minimum of 10% for events up to the 100 year ARI;
  - (ii) document the impact of increasing the design rainfall intensities by 20% and 30%; and

- (iii) document the impact of adopting a design sea level rise of 0.4m and 0.9m on flood behaviour.
- (c) The design must address the impact of blockage in accordance with standard drainage design practice (AR&R).

**Table 2.11.32.12.4** Design Average Recurrence Intervals

1	Drainage infrastructure for the surface Rail Corridor, including on grade sections of Track	50 year ARI + 10% increase in rainfall intensity to allow for climate change effects
2	Flood immunity of above ground rail formation for Tracks in the Sydney Metro Works from Marrickville dive to country end of Metro Station platforms	100 year ARI + 10% increase in rainfall intensity to allow for climate change effects
3	Protection of Marrickville dive from overland flow	Worst of 100 year ARI + 0.5m or PMF
4	Flood immunity of above ground rail formation for Tracks in the Sydney Metro Works from country end of Sydneyham station platforms toward Marrickville	50 year ARI + 10% increase in rainfall intensity to allow for climate change effects
5	Flood immunity of above ground rail formation for Sydney Trains tracks in the Brownfield Works	No increase in flood levels or frequency of flooding compared to existing or as required by Planning Approvals
6	Flood immunity of Metro Station entrances and other routes of potential water ingress into station entrances, platforms and Metro Concourse	100 year ARI + 10% increase in rainfall intensity to allow for climate change effects
7	Above ground rail system facilities	100 year ARI + 0.5m
8	Impact to adjacent properties	As required by Project Conditions of Approval
9	Discharge to external drainage systems	As required by Project Conditions of Approval
10	Spillway to basin-controlled discharge and scour protection	100 year ARI + 10% increase in rainfall intensity to allow for climate change effects



### **2.12.5 2.11.4 Flood immunity**

- (a) Metro Station ~~platforms and entrances from the Gateline~~ must be designed for and located above the flood level resulting from the 100 year ARI rainfall event + 10% increase in rainfall intensity to allow for climate change ~~effects~~, subject to flood risk assessment and flood evacuation plan to identify how flood risks are managed for larger events up to and including the probable maximum flood PMF.

### **2.12.6 2.11.5 Drainage design modelling**

- (a) The storm duration used for all drainage design must be the storm duration that produces the largest peak flows and levels.
- (b) Drainage design hydrological / hydraulic modelling must be undertaken using a design program that provides a routed reach outlet hydrograph and models the following:
- (i) pit/sump entry capacities;
  - (ii) bypass flows to next pits;
  - (iii) pipes and culverts sizing;
  - (iv) detention basins;
  - (v) overland flow times; and
  - (vi) infiltration rates.
- (c) Pipes that will run full must be analysed to determine their hydraulic performance. As a minimum, the analysis must include the identification of flow types and the production of hydraulic grade lines.
- (d) Pit entry and exit losses must be considered and addressed as part of the drainage design hydraulic modelling.
- (e) Inter-track drainage pits and cross track culvert inlet and outfall structures must be detailed in such a way to facilitate maintenance access and cleaning without impeding Sydney Metro City & Southwest operations and Sydney Trains operations where reasonable and feasible.
- (f) The stormwater design is to ensure that there are is no net increase of stormwater outfall runoff rates (velocities or quantities) as a result of the Project Works unless it can be demonstrated that any increased runoff rates as a result of the Project Works would not increase downstream flood risks.

### **2.12.7 2.11.6 Scour protection**

- (a) Scour protection must be provided in all areas susceptible to scouring, including batters and culvert outlets.
- (b) Scour protection must be designed for minimum maintenance-free life of 50 years.

### **2.12.8 2.11.7 Drainage of underground structures**

- (a) Where drainage or sewerage pipes discharge from an underground structure into a surface system, swan necks must be provided at a level above the PMF level.



- (b) If gravity drainage provisions are made for underground structures, the drainage exit points must be above the [PMF 100 year ARI + 0.5m freeboard](#) level to prevent any back flow of water into the sub-surface structures during floods.

**2.13 ~~2.12~~ Earthworks and formation**

- (a) Earthwork and formation activities must comply with;
  - (i) T HR CI 12110 ST 'Earthworks and Formation'; and
  - (ii) T HR CI 12111 SP 'Earthworks Materials'.
- (b) Allowance for a minimum future excavation of 1m at the toe of embankments, and cuttings must be included for all permanent formation earthworks.
- (c) Cuttings and embankments must be designed to be globally and locally stable throughout the Design Life.
- (d) All excavations, thrust bores, pipe jacks, stockpiling of materials or earthworks such as embankment widenings which have the potential to directly or indirectly affect the track formation and track geometry must be undertaken in accordance with the T HR CI 12100 ST and submitted to the Principal's Representative for review and approval.
- (e) ~~(d)~~ Batter slopes, which are to be landscaped, must be no steeper than 3H:1V to facilitate maintenance and durability unless approved by the Principal.
- (f) ~~(e)~~ Batter slope designs must detail measures to prevent erosion of material from seams in cuttings that are prone to rapid weathering.
- (g) ~~(f)~~ Protection of the earthworks from scour and erosion, both during and after construction must be incorporated into the Project Works.
- (h) ~~(g)~~ Post-construction settlement of all Track-supporting rail formation must be reduced to design limits that do not put onerous maintenance requirements on the rail operation. Formations must be designed and constructed to comply with the total vertical movement and differential movement limits specified in Table 2.12 during the formation Design Life, (where total vertical movement means the total amount of vertical deformation of the Track formation, at any location on the Track formation, and differential movement means the total change in grade of the track formation measured between any two locations up to 20 m apart, on any part of the track formation in any direction):

**Table 2.12.13** Track formation movement limits

<del>Type</del> <u>type</u>	<u>Track formation movement in first year (12 months) of operations</u>	<u>Track formation movement in the first 3 years of operations</u>	<del>over any twelve month period</del> <u>within the Design Life</u>	<del>Limit of track Formation-movement</del>
Total vertical	<u>15 mm</u>	<u>30 mm</u>	<del>10</del> <u>200</u> mm	<del>15 mm</del>



## **2.15 Vehicular access and parking for service buildings**

- (a) All access and parking must comply with AS2890.2 Parking Facilities Part 2: Off-street commercial vehicle facilities.
- (b) Design vehicle for access and parking must be an 8.8m medium rigid vehicle as defined in AS2890.2.
- (c) At service buildings:
  - (i) access roads and parking must be provided to allow the design vehicle to park adjacent to the service building;
  - (ii) a suitable level unloading area must be provided adjacent to the parking area;
  - (iii) a pathway with hard pavement surface must be provided from the unloading area to the building entrances. The pathway must be suitable for movement of materials and equipment using hand trolleys; and
  - (iv) In addition to the above, suitable provision must be made for installation and replacement of equipment as specified in the Interface Schedules. The SSJ Contractor must document methods for installation and replacement of equipment and the methods are to be approved by Principal's Representative.

## **2.16 ~~2.14~~ Local Area Works**

- (a) Local Area Works, unless those defined as Public Domain in B03, including roadwork, footpath, cycleway, bus bays and Kiss and Ride facilities must comply with the relevant asset ~~authorities~~Authorities' standards, specifications or guidelines.
- (b) The SSJ Contractor must consult with relevant ~~Authorities~~Authority in developing the road access design for the Project Works and Temporary Works and undertake works in accordance with the WAD where relevant.

## **2.17 ~~2.15~~ Utility Services**

- (a) Without limiting any other requirements set out in the Contract, the SSJ Contractor's Activities must:
  - (i) not adversely impact to the Transgrid (330Kv) and Ausgrid (132Kv) services resulting in relocation;
  - (ii) ensure that no Third Party Utility Services points (i.e. pits) are relocated to the Rail Corridor; and
  - (iii) avoid relocation of Utility Services into existing easements dedicated for other utilities.

## **2.18 Corridor Intrusion**

- (a) Road safety barrier systems must be designed in accordance with RMS and Austroads standards.





# Sydney Metro City & Southwest

## **Sydenham Station and Junction Works Contract Schedules**

Schedule C1

Scope of Works and Technical Criteria

Appendix B2.0

Track, Rail Systems and Communications  
Works

<b>PROJECT</b>	Sydenham Station & Junction	<b>DATE</b>	<del>14 September 2017</del> <u>16 May 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1-1D</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-SE-SC H-000111</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B2.0		



# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
<b>2</b>	<b>Requirements</b>	<b>2</b>
2.1	Track	2
2.1.1	Sydney Trains requirements	3
2.2	Traction Power Supply and electrification system	3
2.2.1	Sydney Trains requirements	3
2.3	Signalling and train control	4
2.3.1	Sydney Trains requirements	4
2.4	Communications systems	11
2.4.1	General requirements	11
2.4.2	Communications spaces	<del>11</del> <u>12</u>
2.4.3	Equipment rooms	<del>11</del> <u>12</u>
2.4.4	Data Communication Network systems	13
2.4.5	Radio systems	<del>13</del> <u>14</u>
2.4.6	Telephone systems	<del>13</del> <u>14</u>
2.4.7	Closed circuit television (CCTV) system and Help Points system	<del>13</del> <u>14</u>
2.4.8	Public address system	<del>14</del> <u>16</u>
2.4.9	Audio frequency induction loop (AFIL) system	<del>15</del> <u>17</u>
2.4.10	Passenger information display system (PIDS)	<del>15</del> <u>18</u>
2.4.11	Precise clocks	<del>16</del> <u>19</u>
2.4.12	Electronic access control system (EACS)	<del>16</del> <u>19</u>
2.4.13	Electronic security system (ESS)	<del>16</del> <u>20</u>
2.4.14	Electronic ticketing system (ETS)	<del>17</del> <u>21</u>
2.4.15	<u>Uninterruptable power supplies (UPS)</u>	<u>25</u>
<del>2.4.16</del>	Central control systems	<del>20</del> <u>26</u>
<del>2.4.16</del> <del>2.4.17</del>		
<del>2.4.18</del>	<u>Station Control Rooms</u>	<u>26</u>
<del>2.4.19</del>	<u>Copper Back Bone</u>	<u>26</u>
<del>2.4.20</del>	<u>Fibre Optic Backbone</u>	<u>26</u>
<del>2.4.21</del>	<u>Fire Life Safety</u>	<u>26</u>
2.5	Combined services route	<del>24</del> <u>27</u>
2.5.1	<del>Sydney Trains Requirements</del>	<del>22</del>
<del>2.5.2</del>	Space for current and future <u>Sydney Metro City &amp; Southwest</u> cables	<del>22</del> <u>29</u>
<del>2.5.3</del> <del>2.5.2</del>	Cable installation	<del>23</del> <u>29</u>
<del>2.5.4</del> <del>2.5.3</del>	Cable maintenance	<del>23</del> <u>30</u>
<del>2.5.4</del>	<u>Sydney Trains Requirements</u> <u>30</u>	
	<b>Attachment 1</b>	<b><del>25</del><u>31</u></b>
		<b>Control centres</b> <del>20</del> <u>26</u>







# 1 Overview

- (a) This Appendix B2.0 describes the performance and technical requirements for the following elements of the Project Works:
- (b) The SSJ Contractor must provide provision for, and coordinate with other Interface Contractors including within their scope, but not limited to the installation of the following:
  - (i) track;
  - (ii) Sydney Metro high voltage system;
  - (iii) Sydney Metro Platform screen doors;
  - (iv) ~~(ii)~~-Traction Power Supply and electrification system;
  - (v) ~~(iii)~~-signalling and train control;
  - (vi) ~~(iv)~~-communications systems; and
  - (vii) ~~(v)~~-combined services route.
- (c) All Temporary Works must comply with relevant Codes and Standards unless otherwise specified within the SWTC.

## 2 Requirements

### 2.1 Track

- (a) The Project Works must comply with Appendix A2.0 Codes and Standards.
- (b) Track and infrastructure must support a Maximum Operating Speed of 100km/h, except where not allowed by the track alignment shown in the SWTC Drawings.
- (c) The SSJ Contractor must:
  - (i) design and construct the temporary turnouts (738B points and 739B points) for Project Works. The formation capping must be designed to provide the required track system depth as defined in ASA Standard ESC 200 Track System;
  - (ii) construct the formation of the Project Works Up and Down MSW tracks from the TSE contract boundary to the end infill panels of 737B and 739B temporary turnouts;
  - (iii) construct the formation of the Project Works Northern Shunt Neck and Eastern Bypass Road from the end of track near Bedwin Road Overbridge to the connection to the Down MSW near the Sydenham Pit;
  - (iv) construct the formation of the turnouts on the Up MSW near the Sydenham Pit, which provide access into the proposed Sydney Metro City & Southwest Trains Facility (South);
  - (v) construct the formation, and install ballast and trackwork for the proposed Sydney Metro City & Southwest Works Marrickville crossover;
  - (vi) construct the formation and install ballast and trackwork for the Brownfield Works;
  - (vii) make spatial provision within the Metro Station platform extents for the Metro Station platform kinematic envelope (KE) dimensions and tolerances as shown on SWTC Drawing NWRL0TS-NRT-SWD-PW-DRG-550850;
  - (viii) make spatial provision outside of the Metro Station platform extents for the Metro Station plain line KE dimensions and tolerances as shown on SWTC Drawing NWRL0TS-NRT-SWD-PW-DRG-550510;
  - (ix) provide Metro Station platform edges at 1565mm (-0/+5mm) horizontal offset to the Metro Station design track centreline as shown on SWTC Drawing NWRL0TS-NRT-SWD-PW-DRG-550850;
  - (x) provide pre cast structural slabs for Metro Station platforms at 1030mm (-5/+0mm) above the design track low rail level and 170mm below FFL, as shown on SWTC Drawing NWRL0TS-NRT-SWD-AR-DRG-620179; and
  - (xi) construct, test and commission all trackwork in accordance with the requirements of RailCorp Engineering Specification SPC 206 Track Construction.

### 2.1.1 Sydney Trains requirements

- (a) The track design for the Brownfield Works must comply with all applicable ASA Standards, Codes and Standards and all relevant SWTC Drawings.
- (b) Brownfield Works track and infrastructure must support the minimum design speeds as indicated in section 4.2 of the Signalling Functional Specification.
- (c) The track design for Brownfield Works must be presented in MGA coordinates, requiring the current ISG coordinated track alignment designs to be converted to MGA coordinates and update of the Track Control Network to reflect the installed design following completion of the Brownfield Works.

### 2.2 Traction Power Supply and electrification system

- (a) The SSJ Contractor must provide the following:
  - (i) spatial provision, fixtures, fittings, containment, earthing, bonding, and other infrastructure to comply with requirements of the Sydney Metro City & Southwest to allow for Interface Contractors to undertake OHW works.
  - (ii) [all existing OHWS retained for Sydney Metro City & Southwest operations must be upgraded to accommodate the future installation of System 12 configuration, for the Bankstown line up to B6+140.](#)
  - (iii) [all new OHWS must design and construction to accommodate the future installation of System 12 configuration.](#)

#### 2.2.1 Sydney Trains requirements

- (a) The existing Traction Power Supply and Traction Return configuration for the Existing Operator (Sydney Trains) must be modified to accommodate the Project Works.
- (b) Modification to the Existing Operators (Sydney Trains) OHW conductor systems must utilise the same configurations as currently installed, these being System 2 for the Illawarra Main and Illawarra Local lines and System 9 for the crossovers, unless otherwise specified in the Appendix E2.0 Sydney Trains Interface Schedule.
- (c) The SSJ Contractor must design and construct the OHW and OHW structures for the interim stage layout including temporary crossovers (includes 738B and 739B turnouts and end infill panels).
- (d) The SSJ Contractor must design and construct the OHW and OHW structures for the Brownfield Works.
- (e) The SSJ Contractor must develop and obtain approval of any Proposed Operating Diagrams, including modifications to existing, required as a result of the Project Works.
- (f) The SSJ Contractor must construct the OHW and OHW structures for the proposed Sydney Metro City & Southwest Works Marrickville crossover.

- (g) New or modified Existing Operators (Sydney Trains) OHW and OHW structures must be designed and constructed by the SSJ Contractor in accordance with applicable ASA Standards.
- (h) New or modified Existing Operators (Sydney Trains) bonding, including OHW structures and track, must be designed and constructed by the SSJ Contractor in accordance with applicable ASA Standards.
- (i) Traction Return and Bonding of the Existing Operators (Sydney Trains) network must be isolated from the Sydney Metro City & Southwest Traction Return network.
- (j) The SSJ Contractor must install secondary insulation on all Existing Operators (Sydney Trains) OHW supports attached to multi-track structures supporting Sydney Metro City & Southwest OHW within the Shared Corridor.

## 2.3 Signalling and train control

- (a) The SSJ Contractor must provide:
  - (i) equipment rooms for the signalling equipment to comply with requirements of Appendix E1.0 Interface Requirements Specification and Appendix C1.0 Metro Station Room Schedule;
  - (ii) space, power and cooling requirements associated with the Sydney Metro City & Southwest communication based train control (CBTC) to comply with requirements of the Appendix E1.0 Interface Requirements Specification; and
  - (iii) spatial provisions within the CSR for the CBTC cabling requirements in accordance with the requirements of the Appendix E1.0 Interface Requirements Specification.
- (b) The SSJ Contractor must design and construct all works required for the Operators CBTC signalling system as detailed in the Appendix E1.0 Interface Requirements Specification.

### 2.3.1 Sydney Trains requirements

#### 2.3.1.1 General requirements

- (a) The SSJ Contractor must:
  - (i) design and execute the SSJ Contractor's Activities to comply with the Appendix E2.0 Sydney Trains Interface Schedule and the updated and accepted Signalling Functional Specification (SFS) ~~in Attachment 1 of this Appendix B2.0;~~
  - (ii) conduct correlation and produce associated correlation reports of existing locations, relay rooms, IRJ positions, fringe signal boxes, cable conditions and the like;
  - (iii) progress the signalling concept design to detailed signalling design for construction (green copies) – where concept design is the approved SFS and signalling plans;

- (iv) progress to AFC (green copies) all approved signalling detail designs as required for the Project Works;
- (v) progress all signalling detail designs as required by the Project Works to testing (pink copies), commissioning (yellow copies) and as-built documentation (white copies);
- (vi) prepare all other documentation (including specifications) required to complete the Project Works;
- (vii) design, install, test and commission the Project Works to comply with ASA Standards;
- (viii) conduct all necessary stakeholder liaison and gain sign off of all input documentation by key TfNSW stakeholders including the ATRICS delivery team, operator, asset management, and maintenance;
- (ix) issue all final signed off input documentation to the Principal for final sign off prior to detailed signalling design commencement;
- (x) commence and chair signalling system HazID meetings and maintain a live hazard log;
- (xi) ensure all signalling equipment is designed, supplied, installed, constructed, terminated, tested, and commissioned in accordance with the approved design documents, ASA Standards and the MRs;
- (xii) ~~(i)~~ provide complete and comprehensive instructions and training to Existing Operators (Sydney Trains) to ensure the safe operation, maintenance and fault finding of the equipment supplied.; and
- (xiii) ~~(xii)~~ ensure all signalling equipment is type approved by ASA before being placed into service. The SSJ Contractor is to advise if any equipment proposed requires Type Approval during the Target Cost Development Phase.

### 2.3.1.2 Technical requirements

- (a) The SSJ Contractor must:
  - (i) replace the existing route relay interlocking at Sydenham Station with a computer based interlocking (CBI). This replacement is not to include the Meeks Road area;
  - (ii) provide a CBI with hot standby functionality;
  - (iii) provide a CBI that interfaces with the existing 50V DC relays and inputs;
  - (iv) provide a system compatible with European train control system (ETCS) Level 2, either directly or through an interface;
  - (v) provide single field I/O (Geographical segregation of I/O allocation);
  - (vi) design SFAIRP the signalling system in such a way that the existing power distribution can be utilised without upgrade;
  - (vii) maintain operation from the existing ATRICS system (with all current operational functionality maintained);

- (viii) provide an interface between the new CBI and the Existing Operators (Sydney Trains) train control system ATRICS, including where protocols do not already exist between any proposed interlocking and ATRICS, work with the Existing Operators (Sydney Trains) ATRICS team to develop suitable protocols within the project timescales;
- (ix) preserve automated signal control (automatic route setting – ARS);
- (x) minimise the requirements for ATRICS stageworks and changes;
- (xi) ensure that any cable diversion works at Sydenham OCC and in the field have minimal negative impact on train operations;
- (xii) ensure any modifications to the existing entry/exit route interlocking include interlocking 'wiring' rationalisation\removals on completion of the interlocking works;
- (xiii) include provision for ATP arrangements (advance migration train control System - AMS);
- (xiv) identify and review multi-SPAD or problematic signals identified by drivers and signallers;
- (xv) ensure any track circuit installed as part of a turnout, friction buffer stops or track (all or portion of) has regular (i.e. weekly) rail movements to ensure an effective drop shunt at all times;
- (xvi) provide adequate capacity to handle loads in track circuit components, impedance bonds and bonding as per heavy rail requirements;
- (xvii) assess the requirement for warning lights, and impacts on the existing safe places or the requirement to provide new safe places as a result of the SSJ Contractor's Activities; and
- (xviii) remove from site all signalling infrastructure made redundant by the SSJ Contractor's Activities.

### 2.3.1.3 Operational requirements

- (a) The following operational criteria must be followed by the SSJ Contractor:
  - (i) enable all Existing Operators (Sydney Trains) operations through Sydenham Station and Sydenham Junction outside of planned Track Possessions and Temporary Shutdowns;
  - (ii) enable all NSW Train operations through Sydenham Station and Sydenham Junction outside of Track Possessions and Temporary Shutdowns;
  - (iii) enable all freight operations through Sydenham Station and Sydenham Junction outside of Track Possessions and Temporary Shutdowns;
  - (iv) enable 3rd party operations and operations of work trains through Sydenham Station and Sydenham Junction outside of planned Track Possessions and Temporary Shutdowns;
  - (v) ensure the existing timing in aspect sequence facilitating delay recoveries is retained as it is or improved;



- (vi) provide for service frequencies in future timetables that may be introduced during the Delivery Phase;
- (vii) braking requirements are to adopt worst performance train on the line S-Set acceleration, trip braking (GE52A) and service braking GE62;
- (viii) all lines to maintain the current stopping headways of 153 seconds;
- (ix) dwell time allowance must be:
  - A. Platform 1: 30 seconds;
  - B. Platform 2: 30 seconds;
  - C. Platform 3: 42 seconds;
  - D. Platform 4: 42 seconds;
  - E. Platform 5: 42 seconds; and
  - F. Platform 6: 42 seconds;
- (x) for Up services on the Illawarra Locals and Bankstown Line maintain ability to terminate and turnaround up to 8 services per hour at Sydenham Station platform 1 and 2 arriving from Tempe, until the platforms are isolated for Metro conversion works. Similar functionality to terminate and turnaround services on platforms 3 and 4 must be provided before platforms 1 and 2 are isolated, to ensure functionality is not lost during the Delivery Phase;
- (xi) for Down services on the Illawarra Locals provide functionality to terminate and turnaround 8 services per hour by use of a new crossover between the Up and Down Illawarra Local lines on the city end of Sydenham Station;
- (xii) changes in the ATRICS map of control are to ensure the upper limit for signaller workloads (must not exceed manual work load score of 164) and Operator utilisation is not exceeded;
- (xiii) provide for all fleet types on this section as specified in the train operating condition (TOC) manual;
- (xiv) retain the ability to perform all provisioning and maintenance activities that are currently performed within SMC at all times outside of planned closedowns and possessions;
- (xv) retain or increase the entry and exit speed into SMC;
- (xvi) maintain the ability for SMC to transpose and amalgamate consists (or parts thereof) on all roads at either end of the centre, at any time of day, seven days per week for scheduled and unscheduled works outside of planned closedowns and possessions; and
- (xvii) maintain the ability to turnaround (rotate the leading and trailing positions) 9-car XPT sets, locos and/or carriages on the freight forks as required, with ability to enter or exit SMC from either end of the maintenance centre.

#### 2.3.1.4 Input documentation process

- (a) Prior to the commencement of detailed signalling design the SSJ Contractor must:
- (i) complete a detailed site survey (DSS) of the rail corridor affected by the SSJ Contractor's Activities and determine the impacted wayside signal equipment, signalling cable routes and pneumatic air system lines;
  - (ii) produce a signalling architecture specification. This specification must as a minimum:
    - A. layout the proposed architecture for the whole signalling system for the Project Works in accordance with the technical, operational and milestone requirements;
    - B. contain an I/O and naming convention schedule. In addition, provide an early draft of this schedule to the Existing Operators (Sydney Trains) ATRICS team to enable early engagement; and
    - C. identify all interfaces and fringes with other systems and interlockings and detail the input requirements sufficiently for each of these interfaces to enable detailed design to be developed;
  - (iii) update the SFS ~~(if required)~~ in Attachment 1 of this Appendix B2.0 for ~~approval~~acceptance by the Principal and the relevant operator;
  - (iv) complete operational modelling of the updated SFS via the Principal RSDO department to demonstrate the proposed design meets the operational requirements of the Sydenham Junction Concept of Operations;
  - (v) produce a signalling testing and commissioning strategy. This strategy must:
    - A. be lead, owned and updated by an appointed test and commissioning engineer from commencement through to commissioning delivery;
    - B. contain a possession schedule detailing all signalling possession requirements, including ATRICS alterations and testing; and
    - C. meet all technical, operational and milestone requirements;
  - (vi) produce a signalling design management plan. This plan must detail the following:
    - A. project scope of works/design brief;
    - B. all design inputs including a list of all relevant Codes and Standards;
    - C. any non-compliances or derogations required and the process proposed to gaining approval;
    - D. any product type approval required and the process proposed to gaining approval;

- E. a design schedule of all designs to be produced throughout the course of the works listed out for each design stage with indicative submission dates to meet the proposed test and commissioning strategy and in accordance with the signalling architecture specification;
  - F. any environmental considerations;
  - G. RAMS;
  - H. overlapping and parallel work;
  - I. the review and acceptance process to be implemented, including identification of key personnel; and
  - J. roles and responsibilities including an organogram of the full design and testing team including percentage time to be spent on the SSJ Contractor's Activities;
- (vii) produce an interlocking data development plan (IDDP), including:
- A. detail of the end to end data production and factory acceptance testing process;
  - B. highlight areas of risk and mitigation; and
  - C. detail the process for managing change during the end to end process;
- (viii) form a preliminary signal sighting committee and undertake signal sighting for the impacted signals and guard indicators due to the SSJ Contractor's Activities;
- (ix) produce preliminary signal sighting forms implementing the recommendations of the preliminary signal sighting committee and secure committee sign off;
- (x) ensure all of the above has been fully signed off by all the key stakeholders and is accepted by the Principal prior to the commencement of detailed signalling design;
- (xi) following acceptance of input documentation by the Principal and during each Design Stage:
- A. chair a workshop to integrate the signalling test and commissioning strategy with all other necessary engineering disciplines, ensuring that the key principles of the document previously agreed with stakeholder signatories are upheld, or where this is not possible the service provider must re-obtain sign off from key stakeholders; and
  - B. chair a workshop with all other engineering design disciplines to ensure integration of the signal sighting with the overall Project Works, and confirm the preliminary signal sighting forms as final copies. Where changes to the preliminary signal and signage sighting forms are required, revised signal sighting forms must be

produced and will require further sign off by the signal sighting committee.

- (xii) conduct a survey of the Sydenham Station equipment centre relay room and produce an interlocking hardware schematic proposing the location of the interlocking and any associated cable routes within the relay room and gain appropriate stakeholder sign off.

#### **2.3.1.5 Control tables and data preparation**

- (a) The SSJ Contractor must:
  - (i) assume that as-built control table records have not been maintained and updated. A review of all as-built records must be conducted and where necessary as-built records updated to support the design works;
  - (ii) review as-built records and produce and/or update aspect sequence charts to support the signalling plans in conjunction with any interim and final control tables;
  - (iii) ensure that any data is set to work as part of the checking process prior to independent verification; and
  - (iv) assume that the control tables and data will go through three passes of independent verification updates and three passes of principles testing updates and account for this within the programme timescales.

#### **2.3.1.6 Testing**

- (a) The SSJ Contractor must:
  - (i) conduct factory acceptance testing of all new field equipment and interlocking hardware;
  - (ii) produce data in a format to enable through factory simulating testing and staff training of the data with the ATRICS system prior to an 8 week soak test period;
  - (iii) provide and lead all necessary testing and management resources, including those required to integrate the testing of the ATRICS systems testers within the overall testing and commissioning activities of the signalling works;
  - (iv) ensure data is produced, tested and commissioning ready to be able to support a system soak test and FRACAS analysis no later than 8 weeks prior to the commencement of any data commissioning possession. The supporting documentation to demonstrate that data is complete may include some or all of the following:
    - A. inspections of the testing control tables to ensure all entries have been endorsed by the testers;
    - B. review of testing certification to ensure that it has been endorsed as 'ready for EPROM production' by the testers;

- C. review the status of interface/fringe data testing (the control tables may show this or it may be recorded within the interface/fringe specification or design);
  - D. all data test logs closed (with the exception of issues that require input from site or cannot be closed until the commissioning); and
  - E. review of schematics used for through testing (copy may have to be obtained or site visit arranged) to ensure all functions (with the exception of commissioning changeovers e.g. interface points and points that cannot be rehearsed) have been endorsed by the testers;
- (v) complete all factory and site acceptance testing for all interlocking and field equipment no later than 8 weeks prior to the commencement of any commissioning to support a system soak test.

## 2.4 Communications systems

### 2.4.1 General requirements

- (a) The SSJ Contractor must adjust the Existing Operators (Sydney Trains) communications systems as a result of the SSJ Contractors Activities, and these modifications must be completed in accordance with the ASA Standards and in consultation with the Existing Operators (Sydney Trains).
- (b) The SSJ Contractor must provide all infrastructures to support the Sydney Metro City & Southwest communications systems throughout the Project Site, including all cable support structures and containment, equipment rooms, earthing and bonding and spatial requirements for each of the communications systems in accordance with the ASA Standards and Appendix A2.0 Codes and Standards and in consultation with the Interface Contractors.
- (c) The SSJ Contractor's communication systems must be designed in accordance with the requirements of the Appendix E1.0 Interface Requirements Specification:
  - (i) facilitate all rail operators and the Interface Contractors activities;
  - (ii) ensure that all communications systems infrastructure designed, procured or installed by the SSJ Contractor do not interfere with the operation of any existing or proposed communications systems;
  - (iii) provide secure voice, data and video signal communication
  - (iv) be integrated into the Sydney Trains and Sydney Metro Northwest and Sydney Metro City & Southwest networks as per Appendix E1.0 - Interface Requirements Specifications of the SWTC and be connected to third party networks as required;
  - (v) be designed such that they can be integrated without degrading rail operations;
  - (vi) be designed such that it may be upgraded without degrading rail operations;

- (vii) ensure that wherever practical all devices are "commercial off the shelf" and meet relevant rail operator and Interface Contractors' requirements;
- (viii) be terminated within patch panels, trays or enclosures and provided with patch cord management;
- (ix) be labelled and have record documentation as defined within AS3085.1;
- (x) support the Sydney Trains security management plan and fire life strategy;
- (xi) comply with the SSJ Contractor's Fire Life strategy; and
- (xii) support the requirements of the signalling and train control system for the Sydney Trains
- (xiii) Communications systems with exposure to external elements must have suitable ingress protection (INP) ratings for the environment in which it is located.
- (xiv) All cabling within enclosed spaces is to be low smoke zero halogen (LSZH).
- (xv) At Construction Completion, all trunk fibre optic and copper cables must have at least the minimum number of unused fibres and pairs for future expansion as required by the ASA standards

#### **2.4.2 Communications spaces**

- (a) The SSJ Contractor must provide all power and environmental control systems (ECS), and make spatial allowances for all temporary and permanent infrastructures required to support the communications systems for the Project Works.
- (b) Diverse cable routes must be provided for communications systems requiring a redundant configuration.
- (c) Communication spaces for Sydney Metro City & Southwest must be segregated from Sydney Trains communications spaces unless agreed otherwise by Sydney Trains and the Operator.

#### **2.4.3 Equipment rooms**

- (a) Equipment room layouts and equipment room space requirements must be confirmed with the Principal, Existing Operator (Sydney Trains) and the Interface Contractor's prior to detail design commencing. Additional floor space must be allowed for future modifications in accordance with ASA Standards.
- (b) Rooms for the Existing Operator (Sydney Trains) must be climatically controlled in accordance with ASA Standard T MU TE 21001 ST. Wherever forced-air ventilation or air conditioning is used, HVAC must be designed with redundancy such that if the primary system fails the secondary system can maintain the temperature and humidity limits as defined in the ASA Standards and is suitable to maintain the required lifetime of the equipment.
- (c) Stand-by power sources must be installed in TERM consequence rated C5 and C4 equipment rooms that are capable of supplying the full load of the operational equipment and HVAC for a minimum stand-by period of 4 hours. Standby power



sources must include an additional independent ac supply from an alternate electricity authority.

- (d) Equipment rooms must be located as per the Australian Government physical security management guidelines – security zones and risk mitigation controls.
- (e) Lighting levels must be agreed with the relevant equipment room owners during Design Stage 1.
- (f) Communications spaces for Sydney Metro City & Southwest communications systems must be segregated from the Existing Operators (Sydney Trains) and Existing Operator (ARTC) communications systems.
- (g) The SSJ Contractor must provide for the Operator's use:
  - (i) a new communications equipment room 1 (CER1) in accordance with the Appendix C1.0 Metro Station Room Schedule and Appendix C1.1 Room Data Sheets;
  - (ii) a new communications equipment room 2 (CER2) in accordance with the Appendix C1.0 Metro Station Room Schedule and Appendix C1.1 Room Data Sheets;
  - (iii) a new Metro Station communications equipment room 1 (SCER) in accordance with the Appendix C1.0 Metro Station Room Schedule and Appendix C1.1 Room Data Sheets; and
  - (iv) new communications equipment cupboards located in accordance with the Appendix C1.0 Metro Station Room Schedule and Appendix C1.1 Room Data Sheets.
- (h) The SSJ Contractor must make provision for all civil infrastructure, space, containment, power and environmental control system requirements in accordance with the Appendix E1.0 Interface Requirements Specification.

#### **2.4.3.1 Sydney Trains requirements**

- (a) The SSJ Contractor must:
  - (i) make provision for all temporary and permanent space requirements for the new and relocated communication systems and third party communication systems, including associated power and ECS requirements in accordance with the Appendix E2.0 Sydney Trains Interface Schedule, the Appendix E1.0 Interface Requirements Specification, Appendix C1.0 Metro Station Room Schedule and Appendix C1.1 Room Data Sheets;
  - (ii) ensure communication rooms, communication equipment cupboards, and containment spaces for Existing Operator (Sydney Trains) communication systems are segregated in independent rooms from those required for Sydney Metro City & Southwest and ARTC communication systems;
  - (iii) at Construction Completion of the final Portion to reach Construction Completion ensure the trunk cable routes have a minimum of 50% unused capacity for future expansion; and

- (iv) provide diverse cable routes for the communication systems requiring a redundant configuration, in accordance with ASA Standard T-MU-TE-21001-ST and T-MU-MD-20002-ST.
- (b) The SSJ Contractor's communication systems must be designed in accordance with the requirements of the Appendix E2.0 Sydney Trains Interface Schedule.
- (c) The SSJ Contractor must provide for the Existing Operators (Sydney Trains) use:
  - (i) a new conference meeting equipment room in accordance with the Room Schedule; and
  - (ii) a new control room or platform hub on platform 6 in accordance with the Room Schedule.

#### **2.4.4 Data Communication Network systems**

- (a) The Contractors design must make provision for all civil infrastructures; space, power and cooling requirements associated with the Sydney Metro City & Southwest DCN systems, in accordance with the Interface Contractors requirements.

##### **2.4.4.1 Sydney Trains Data Communication Network systems**

- (a) The SSJ Contractor must adjust the Existing Operators (Sydney Trains) data communications systems as a result of the SSJ Contractors Activities, and these modifications must be completed in accordance with the ASA Standards and in consultation with the Existing Operators (Sydney Trains).

#### **2.4.5 Radio systems**

- (a) The Contractors design must make provision for all civil infrastructure, space, power and cooling requirements associated with the Sydney Metro City & Southwest CBTC system, in accordance with the Interface Contractors requirements.
- (b) The Contractors design must make provision for all civil infrastructure, space, power and cooling requirements associated with the Sydney Metro City & Southwest TCS, in accordance with the Interface Contractors requirements.

##### **2.4.5.1 Sydney Trains requirements**

- (a) The Contractor must extend Existing Operators (Sydney Trains) SPI Wi-Fi coverage into the new areas associated with the Project Works, including Metro Station and Station Precinct, in accordance with Existing Operators (Sydney Trains) requirements.
- (b) The Contractors design must make provision for all civil infrastructure, space, power and cooling requirements associated with the Sydney Metro City & Southwest O&M radio system, in accordance with the Interface Contractors requirements.

#### **2.4.6 Telephone systems**

- ~~(c)~~ ~~(a)~~ The telephone system for the Metro Station must comply with the interface requirements in accordance with the Appendix E1.0 Interface Requirements



Specification and applicable Third Party Agreements for all telephone systems to be provided with the Metro Station.

#### 2.4.6.1 Sydney Trains requirements

- (a) The Sydenham Station telephone systems impacted by the SSJ Contractor must be in accordance with the Appendix E2.0 Sydney Trains Interface Schedule.

#### 2.4.7 Closed circuit television (CCTV) system and Help Points system

- (a) The SSJ Contractor must provide infrastructure to support any new CCTV and help point systems required for Metro Station and Station Precinct, and modify any existing CCTV and help point systems due to the SSJ Contractor Activities in consultation with the Principal and Existing Operator (Sydney Trains).

- (b) The SSJ Contractor must:

- (i) coordinate closed circuit television (CCTV) camera and equipment positions with street furniture, signage, advertising and lighting locations to minimise visual and physical clutter;
- (ii) ensure that landscaping does not impede the function of CCTV coverage; and
- (iii) ensure CCTV camera and equipment and positions are vandal resistant.

- (c) The CCTV system must provide coverage of:

- (i) All operational areas of the Metro Station, including but not limited to platforms, concourses, vertical transport, doors to staff and equipment room access points, ticket gate lines;
- (ii) Primary Plazas;
- (iii) Secondary Plazas; and
- (iv) Interchange.

- (d) Notwithstanding the obligations and requirements for the SSJ Contractor embodied in the IRS for the Communication Systems and Radio Systems, the SSJ Contractor shall make allowance for the following:

- (i) 150 CCTV cameras and brackets, 90 within the platform and concourse and 60 within the Primary Plaza, Public Domain and car parks;
- (ii) 40 pairs of PA speakers;
- (iii) 10 PIDS on each platform;
- (iv) four Help Points on each platform and four Help Points on the Metro Station Concourse;
- (v) communication cupboards 80m apart on each platform, which are 2m long by 1m wide and 1.8m tall;
- (vi) three radio antennae, one at each end and on top of the platform canopy and one on top of the Metro Station Concourse canopy; and
- (vii) other communication systems and radio systems nominated in the IRS.

- (e) The SSJ Contractor's CCTV systems must enhance pedestrian safety, provide safety for rail passengers and enable efficient operation of the Metro Stations and deter assets from being vandalised
- (f) The SSJ Contractor's design must be in accordance with AS 4806 Close Circuit Television and ASA T-MU-SY-10001-ST Public Transport Closed Circuit Television (CCTV) Functional Requirements Standard.
- (g) The SSJ Contractor's design must be in accordance with AS 4806 Close Circuit Television and ASA T-MU-SY-10001-ST Public Transport Closed Circuit Television (CCTV) Functional Requirements Standard.
- (h) Help Point systems must interface with their respective CCTV system to provide the following functionality:
  - (i) single button initiation of a two-way, hands-free aural communication between customers and the station control room (SCR) or central control room (CCR) and Sydney Trains endpoints as defined and configured by Sydney Trains;
  - (ii) automatic activation of the nearby dedicated CCTV camera, switching the video image to the ROC or CCR operator's display;
  - (iii) CCTV cameras provided at Help Points must have sufficient resolution to be capable of facial recognition of customers at the Help Point location;
  - (iv) a dedicated built in hearing induction loop for hearing impaired customers; and
  - (v) both sides of all Help Point calls must be able to be recorded on their respective centralised voice recording facility and stored for a minimum duration of 3 (three) months

#### **2.4.7.2**     ~~2.4.7.1~~ **Sydney Trains requirements**

- (a) The SSJ Contractor must undertake a security risk assessment and ensure that CCTV and help point systems designs are undertaken by the Existing Operators (Sydney Trains) approved electronic security contractor. The design of the CCTV cameras coverage must be undertaken by a consultant holding a Class 2A Security License under the Security Industry Act 1997 (NSW).
- (b) The Existing Operators (Sydney Trains) head-end CCTV and help point systems equipment must be installed in racks in the Existing Operators (Sydney Trains) communications equipment room.
- (c) Help points for the Existing Operator (Sydney Trains) must be located in accordance with Railcorp standard ESB 004 Station design standard – station services and systems.
- (d) The Sydney Metro City & Southwest CCTV system must interface with the Existing Operators (Sydney Trains) CCTV system to provide CCTV imagery to the Existing Operators. (Sydney Trains) The SSJ Contractor must, in consultation with the Interface Contractors, develop a functional specification for the interface between Sydney Trains and Sydney Metro City & Southwest.



- (e) Help points for Sydney Metro City & Southwest must be provided in locations to be agreed with the Interface Contractor and in accordance with the Appendix E1.0 Interface Requirements Specification.

#### 2.4.8 Public address system

- (a) The SSJ Contractor must provide the infrastructure to support new public address systems required for Metro Station, and to modify any existing public address systems in Sydenham Station due to the SSJ Contractor Activities in consultation with the Principal and the Existing Operator (Sydney Trains).
- (b) The SSJ Contractor must provide acoustic modelling for Sydenham Station and Metro Station to confirm system coverage for general public and emergency announcements. Nuisance overspill of public address noise must be minimised. The SSJ Contractor must design the public address system based on the outcome of the acoustic modelling.
- (c) The SSJ Contractor must provide the infrastructure to support any new public address systems within Metro Station and Interchange Works in accordance with the Appendix E1.0 Interface Requirements Specification.
- (d) The public address systems must enable station, OCC or ROC staff to communicate live or pre-recorded audio messages regarding train service running, descriptions, adjustments and security/emergency messages to customers.
- (e) The public address systems must cover all station public areas, including retail, and emergency egress routes.
- (f) The public address system must be compliant with ASA requirements and AS1670:2015 'Fire detection, warning, control and intercom systems – System design, installation and commissioning Part 4 – Emergency warning and intercom systems.'
- (g) Cabling between public address head-end and zones must be fire rated to AS3013 WS51W and in accordance with ASA Technical Note TN 038:2016, where the fire rated cabling extends to the first device in each PA zone.
- (h) The public address systems must be able to support inputs that allow staff to make manual announcements from either a control position or microphones from roving staff and support local or remote control of locally stored digital voice announcements (DVA) in addition to remote inputs providing long line public address (LLPA) functionality.
- (i) In the event of Degraded Operations, customers must be able to be advised in clear, consistent, concise and real time information via public address and PIDS at Metro Station Concourses, as relevant to the nature and scope of the degraded services, of the situation, any alternative measures in effect to facilitate services, and other relevant advice consistent with the recovery plan in place
- (j) Sydney Trains staff and Operator staff must be able to make manual public address announcements from the ROC, OCC, central control room, station control room and from handheld devices in accordance with the station public address system interface functional specification agreed between the two operators.

#### 2.4.8.1 Sydney Trains requirements

- (a) The Existing Operators (Sydney Trains) public address system must interface with the Metro Station public address system such that the Existing Operators (Sydney Trains) announcements can be broadcast to either the entire station or specific zoned areas. The SSJ Contractor must, in consultation with relevant stakeholders, develop a functional specification for the interface between Existing Operator (Sydney Trains) and the Interface Contractors systems.

#### 2.4.9 Audio frequency induction loop (AFIL) system

- (a) The SSJ Contractor must provide the infrastructure to support any new AFIL systems required at Metro Station, and modify any existing AFIL systems due to the SSJ Contractors Activities in consultation with the Principal and Existing Operator (Sydney Trains).

(b) The AFIL system must be provided in accordance with

(i) Parts of AS 1428: 2010 'Design for access and mobility – communications for people who are deaf or hearing impaired' (Part 5) (refer to ASA standard T MU TE 61005 ST for detail on which parts of this standard are applicable);

(ii) Disability Standards for Accessible Public Transport (DSAPT) 2002 (as amended);

(iii) ASA standard T MU TE 61005 ST Customer Information Systems for Public Transport Buildings and Conveyances; and

(iv) AS 60118:2007 "Hearing aids – magnetic field strength in audio-frequency induction loops for hearing aid purposes"

(c) ~~(b)~~ The SSJ Contractor must provide AFIL signage in the coverage areas.

(d) A standalone AFIL system must be provided at each Help Point location and connected to the Help Point intercom system.

#### 2.4.10 Passenger information display system (PIDS)

- (a) The passenger information display system (PIDS) provided by the Interface Contractor must display train running, station operations, disruption, safety and emergency related information.
- (b) The SSJ Contractor must provide the infrastructure to support any new PIDS required at Metro Station, and modify any existing PIDS due to the SSJ Contractors Activities in consultation with the Principal and Existing Operator (Sydney Trains).
- (c) The location of the PIDS must avoid interference/glare from direct sunlight during the day or relative to the lighting grid, including ensuring smooth public flows are maintained and avoid any obstructions.
- (d) The SSJ Contractor must provide spatial and cable route provision for any other required transport operator's passenger information display systems.



- (e) The location of the PIDS must allow for Customers to view the content of digital information screens irrespective of their standing or seating location on platforms, at the interchange or concourses under Fruin C loading conditions.
- (f) The SSJ Contractor must provide specified requirements for Passenger Information Display Systems within Project Works, in accordance with Appendix E1.0 Interface Requirements Specification.

#### 2.4.10.1 Sydney Trains requirements

- (a) The PIDS provided by Interface Contractor as per Appendix E2.0 Sydney Trains Interface Schedule shall meet the requirements of Existing Operator (Sydney Trains) and comply with ASA Standard T MU TE 61005 ST 'Customer Information Systems for Public Transport Buildings and Conveyances.
- (b) The Existing Operators (Sydney Trains) PIDS must interface with the Metro Station PIDS such that the Sydney Trains text based announcements can be displayed on all PIDS at Sydenham Station. The SSJ Contractor must, in consultation with relevant stakeholders, develop a functional specification for the interface between Existing Operator (Sydney Trains), Principal and the Interface Contractors.

#### 2.4.11 Precise clocks

- (a) The SSJ Contractor must provide the infrastructure to support any new precise clocks required at Metro Station, and modify any existing precise clocks due to the SSJ Contractors Activities in consultation with Principal and Existing Operator (Sydney Trains).
- (b) The SSJ Contractor must provide specified requirements for precise clock systems within Metro Station, in accordance with the Appendix E1.0 Interface Requirements Specification.

#### 2.4.12 Electronic access control system (EACS)

- (a) The SSJ Contractor must provide the infrastructure to support any new electronic access control system required for Metro Station, and modify any existing electronic access control system due to the SSJ Contractor Activities in consultation with Principal and Existing Operator (Sydney Trains).
- (b) For the Metro ~~Station~~Stations the ~~electronic access control system~~EACS must control and monitor the ~~Operator~~Sydney Metro City & Southwest doors and trackside access points, must be compatible to the system used on Sydney Metro Northwest, and must be monitored by the central control system (CCS).
- (c) All door access, excluding Temporary Works, must be controlled through the use of electronic swipe cards, with door and locations requiring electronic access to be confirmed by the SSJ Contractor as part of Design Stage 1 design.
- (d) The EACSs must:
  - (i) allow free egress for all doors and/or points equipped with EACS;
  - (ii) provide key accessible doors to main facilities, such as equipment rooms, as a secondary access method in the event of a power supply/access system failure;

- (iii) is capable of checking for validity of access rights, access area, access times, and any other criteria associated with a presented access authority, through stored information in intelligent field controllers;
- (iv) provide a means to control access through doors having electric locking-door functionality with status, monitoring and access readers;
- (v) is able to grant or deny access depending on the access authority presented to the reader;
- (vi) comprise an intelligent master controller package, control workstation and power distribution panels with UPS backup. The master controller packages must be installed in a wall mounted enclosure provided inside the communications equipment room. The master controller must have dedicated connection to the network switch located in the LAN rack via a DSX LAN module;
- (vii) has all cabling in dedicated and concealed conduits;
- (viii) applies to all non-public areas; and
- (ix) alarm through the Sydney Trains and/or the Sydney Metro City & Southwest electronic security system and control system, as relevant, should any protected entry/exit be forcibly opened.

#### **2.4.12.2 ~~2.4.12.1~~ Sydney Trains requirements**

- (a) New Existing Operator (Sydney Trains) areas as a result of the Project Works must be fitted with Existing Operators (Sydney Trains) electronic access control system in accordance with Existing Operators (Sydney Trains) and ASA Standards on security. There must be no interface between Existing Operator (Sydney Trains) and Sydney Metro City & Southwest electronic access control system. Card readers from both systems must be installed on doors where access is required by all operators.
- (b) The Existing Operators (Sydney Trains) electronic access control system must be installed on all doors and gates accessing the rail corridor, workshop, ancillary and administration buildings and all doors to equipment rooms, control rooms, offices and any other areas as identified by Existing Operators (Sydney Trains) and Interface Contractors security management plan.

#### **2.4.13 Electronic security system (ESS)**

- (a) The SSJ Contractor must provide the infrastructure to support any new electronic security system required at, and modify any existing electronic security system due to the SSJ Contractor Activities in consultation with the Principal and Existing Operator (Sydney Trains).
- (b) Security planning must follow the directives and standards of TfNSW, Emergency Services and other relevant regulatory bodies.
- (c) The ESS will be designed to prevent and detect unauthorised access to Sydney Trains and Sydney Metro City & Southwest facilities and assets and protect staff against assaults and threats.
- (d) The ESS must:

- (i) monitor station facilities, plant, equipment and control rooms;
- (ii) include multiple alarms zones to permit staff to access staff rooms after hours without the need to disarm the station;
- (iii) integrate with the EACSS to present an alarm to the CCR and ROC should any protected entry/exit be forcibly opened; and
- (iv) integrate with the CCTV systems such that the CCTV camera adjacent to the active alarm point is activated and automatically moves to the relevant pan tilt zoom pre-set with vision brought to the attention of the CCR and ROC operators.

#### **2.4.13.1 Sydney Trains requirements**

- (a) The SSJ Contractor must consult with the Existing Operator (Sydney Trains) and Interface Contractors to develop agree and implement the electronic security system remote monitoring requirements.
- (b) The SSJ Contractor must consult with the Existing Operator (Sydney Trains) and the Interface Contractors during Design Stage 1 and agree a set of functional requirements as to how each electronic security system interfaces with each Operator.

#### **2.4.14 Electronic ticketing system (ETS)**

- (a) The SSJ Contractor must provide the infrastructure to support any new electronic ticketing system required at Metro Station, and modify any existing electronic ticketing system due to the SSJ Contractors Activities in consultation with Principal and Existing Operator (Sydney Trains).
- (b) The electronic ticketing system must conform to the requirements of the Principal network wide integrated ticketing strategy (OPAL system).
- (c) The new and modified gate lines must interface with the FIP so that in the case of a fire the ticketing gates must open automatically.
- (d) Gateline systems must include a remote gate release button, emergency break glass for opening gates and a UPS for each of the ticket gates.
- (e) All electronic ticketing system locations must have CCTV coverage in accordance with Railcorp station standard and ASA Standard for CCTV.
- (f) All cabling to the self service machines (SSM) and automatic ticket gates must be concealed.
- (g) The local station computer must communicate with the Principal's offsite electronic ticketing system server via existing communications channels.
- (h) Principal will provide and install ETS equipment as described in section 2.6 of the SWTC main body.
- (i) The SSJ Contractor must incorporate ETS equipment arrangements into each Station design in accordance with Appendix B3.0 of the SWTC.
- (j) The SSJ Contractor must provide space, power and data connection for a gate array controller (GAC) to be located locally, preferably within line of sight of each respective Gateline at Stations.



- (k) The SSJ Contractor must provide and locate ETS related wayfinding and signage as per Appendix B10 of the SWTC.

#### **2.4.14.1 ETS equipment quantities**

- (a) The SSJ Contractor must undertake all design activities, including pedestrian modelling, necessary to confirm the quantity of ETS equipment to be installed at Metro Station based on the following:
  - (i) the minimum Station design capacities provided in Appendix B3.0 of the SWTC; and
  - (ii) all other design considerations for the Stations.
- (b) In particular, the SSJ Contractor must design the Metro Station and Sydenham Station and provide ETS supporting infrastructure and space to accommodate the ETS equipment future requirements.
- (c) The SSJ Contractor must provide secure storage for rotables and consumables to support first line maintenance of ETS equipment.
- (d) Storage capacity must be provided to accommodate rotatable quantities of at least 10% of the total number of each model assigned to the Operator rounded up to a whole number, including:
  - (i) read-only readers;
  - (ii) ticket gate readers;
  - (iii) ticket gate reader displays; and
  - (iv) cash load device (CLD (cash)) and cashless load device (CLD (EFT)) repairable components.

#### **2.4.14.2 ETS supporting infrastructure**

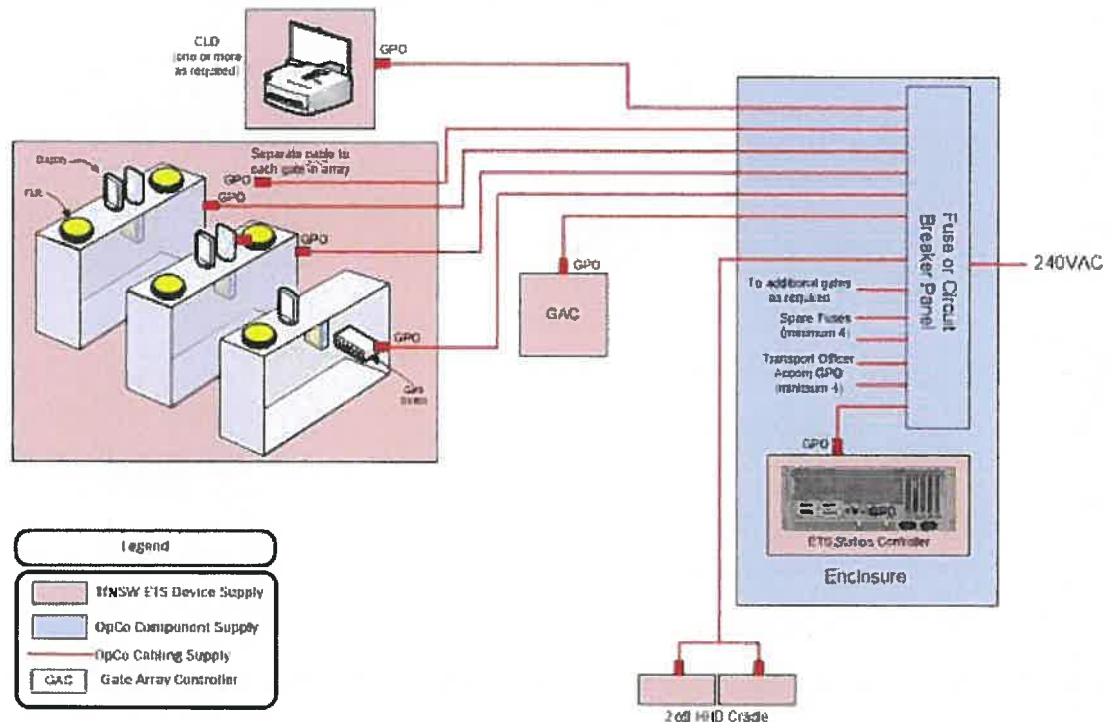
- (a) The SSJ Contractor must provide space within the Metro Station design and supporting infrastructure for the ETS equipment to be installed at Metro Station, including the supporting infrastructure referred to in section 2.4.14.2(b) - (h).
- (b) The SSJ Contractor must provide the following physical infrastructure to support the ETS equipment:
  - (i) ETS equipment footings in accordance with ETS equipment drawings provided by Principal;
  - (ii) cable access trenches and ducting to facilitate installation of ETS equipment; and
  - (iii) mounting and fixing for all other ETS equipment as required.
- (c) The SSJ Contractor must provide the following power supply infrastructure to support the ETS equipment:
  - (i) a floor mounted IP56 rated power outlet for each item of ETS equipment mounted on a footing;
  - (ii) power outlets mounted at each ticket gate footing must have a separate cable from the circuit breaker panel to each ticket gate power outlet;



- (iii) wall mounted power outlets for ETS equipment located in an office environment;
- (iv) separate 20 amp fused power supplies for ETS equipment such that the power may be disconnected independently from any other device;
- (v) co-located and clearly labelled circuit protection for ETS equipment; and
- (vi) a minimum of four spare circuit breakers must be provided in each circuit breaker panel supplying ETS equipment.

(d) An indicative power cabling schematic for the ETS equipment is shown below in Figure 1 below.

**Figure 1** Indicative Station power for ETS Equipment



(e) ~~(d)~~ All ticketing gates in an array must be powered using the same phase on the low voltage supply.

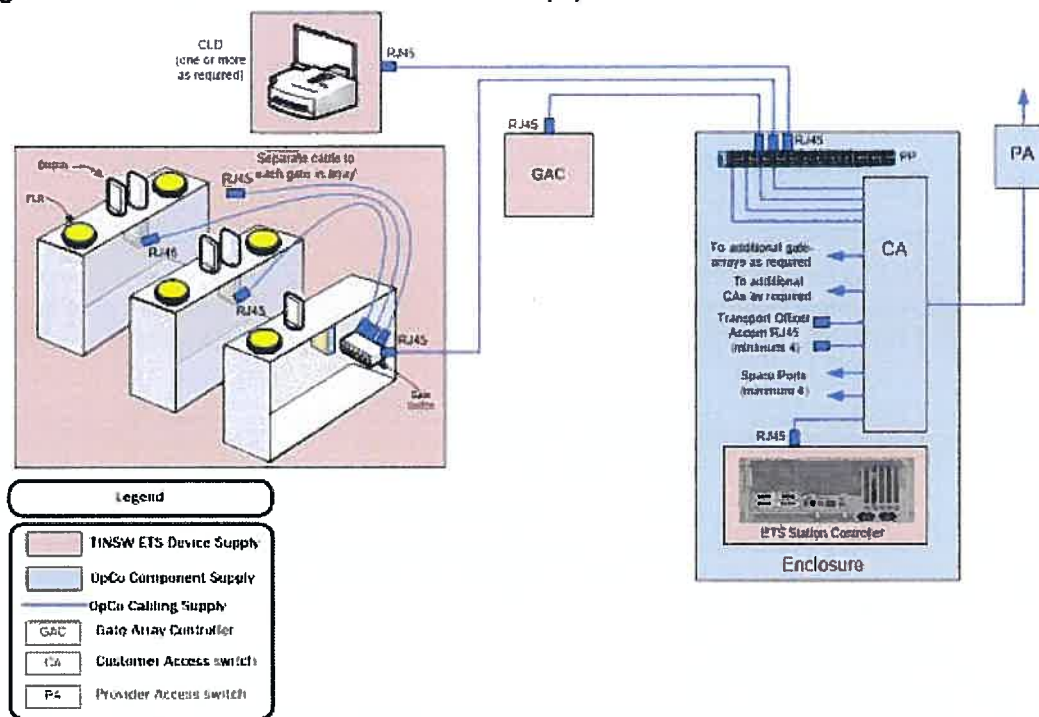
(f) ~~(e)~~ The SSJ Contractor must provide the following data communications infrastructure to support the ETS equipment:

- (i) all cabling must be suitable to support a communications rate of 100Mbps;
- (ii) a dedicated bandwidth of 3Mbps must be available from the Operators firewall to each provider access switch at Metro Station and Sydenham Station;
- (iii) all cabling must be terminated with an RJ-45 plug;
- (iv) two metres of slack cable emanating from the footing for footing mounted ETS equipment;

- (v) five metres of slack cable emanating from the wall outlet for ETS devices located in an office environment;
- (vi) data communications enclosure space to house the station controller; and
- (vii) the Operators data communications equipment to support the ETS equipment communication protocols as notified by the Principal.

(g) An indicative data cabling schematic for the ETS equipment is shown below in Figure 2 below.

**Figure 2** Indicative Station data for ETS Equipment



- (h) ~~(f)~~ The SSJ Contractor must provide communications and power cabling in separate ducting.
- (i) ~~(g)~~ SSJ Contractor must provide remote monitoring of alarms and status of ETS equipment by the Central Control System (CCS) and automated notification (within 10 seconds) to the Operator of any activation of the ticket gate emergency open circuit. This monitoring must include monitoring of the availability of power and data communications connectivity to each individual device.
- (j) ~~(h)~~ The SSJ Contractor must provide local (on both the paid and unpaid side of the Gatelines) and remote interfaces with the ETS equipment emergency gate opening functionality so that both Customers and the Operator staff may trigger alarm systems and emergency gate opening functionality.

#### 2.4.14.3 ETS supporting infrastructure performance

- (a) The SSJ Contractor must meet the following power supply performance requirements, over and above the requirements of Appendix B4.0 of the SWTC:

- (i) planned power supply outages must be outside of Operating Hours; and
- (ii) power supply outages must not exceed a 4 hour duration in any 24 hour period which starts at the moment of power outage.

**2.4.14.4 Design assumptions**

- (a) The SSJ Contractor must use the design capacity assumptions in Table 2.4.14.4 as minimum requirements for their design of Metro Station and Sydenham Station and ETS supporting infrastructure.

**Table 2.4.14.4 Minimum ETS equipment design capacity assumptions**

CLD (EFT/Cashless)*	500 x 1650 x 630	2.5 Amps
CLD (Cash)*	1280 x 1650 x 630	2.5 Amps
Ticket Gate	164 x 1271 x 1309 Ref [E2S Gate Stanchion] Width between stanchions - Standard Aisle - 620 mm - Wide Aisle - 1080 mm	2.5 Amps
Gate array controller (GAC)	400 x 400 x 400 (Desktop space)	4.0 Amps
Read only portable reader (RPR)	4 off units each unit 380 x 130 x 180 (Desktop space)	5.0 Amps
Station controller	3RU 19" Rack Space	1.0 Amps

\*Note: Sometimes referred to as DVMs - disposable vending machines, as both CLD (EFT/Cashless) and CLD (Cash) will vend disposable smartcards.

- (b) For the purpose of the SSJ Contractor’s design of Metro Station, the SSJ Contractor must assume that ticket gate Customer flow is 30 people per minute during normal operations (i.e. gates operating in the normally closed mode). Wide access gates should assume 15 people per minute.

**2.4.15 Uninterruptable power supplies (UPS)**

- (a) The SSJ Contractor must provide the infrastructure to support any new UPS required at, and modify any existing UPS due to the SSJ Contractor's Activities in consultation with the Principal's Representative and Interface Contractors.
- (b) Centralised UPS systems must be provided to support the LV requirements of each Sydney Metro Works telecommunications equipment room, station communications equipment room and railway system equipment room. The need for a second redundant UPS feed for individual rail systems must be determined by RAMS analysis, performed to confirm critical load supplies have the required performance to ensure overall system availability.
- (c) Communications systems must operate for the period of the UPS backup without air-conditioning and ventilation.



#### **2.4.16** ~~2.4.15~~ **Central control systems**

- (a) The SSJ Contractor must provide specified requirements for the Central Control Systems in accordance with the Appendix E1.0 Interface Requirements Specification.

#### **2.4.17** ~~2.4.16~~ **Control centres**

- (a) The SSJ Contractor must provide specified requirements for the control centres in accordance with the Appendix E1.0 Interface Requirements Specification.

#### **2.4.18** **Station Control Rooms**

- (a) The SSJ Contractor must provide the infrastructure to support the specified requirements for the station control rooms in accordance with the Sydney Metro City & Southwest – Central Control System Interface Requirements Specification in Appendix E1.0.

#### **2.4.19** **Copper Back Bone**

- (a) The SSJ Contractor must provide the infrastructure to support the specified requirements for copper backbone in accordance with Sydney Metro City & Southwest Interface Requirements Specification in Appendix E1.

#### **2.4.20** **Fibre Optic Backbone**

- (a) The SSJ Contractor must provide the infrastructure to support the specified requirements for Fibre Optic backbone in accordance with Sydney Metro City & Southwest Interface Requirements Specification in Appendix E1.

#### **2.4.21** **Fire Life Safety**

- (a) The SSJ Contractor must provide infrastructure as defined by the SSJ Contractor's FLS strategy which as a minimum must include all systems and hardware to achieve the performance requirements below:
  - (i) end of station platform emergency exits which
    - A. raise an alarm on opening that is reported to the SCR and the OCC;
    - B. if normally locked, are able to be released remotely from the SCR and the OCC;
    - C. are provided with a Help Point to the SCR and OCC, located adjacent the exit on the platform side.
  - (ii) ticket gates must open on receipt of a fire alarm signal through the station Fire Indicator Panel (FIP);
  - (iii) any additional gates, doors or other barriers required for egress must unlock on receipt of a fire alarm signal through the station FIP and fail-safe unlocked;
  - (iv) all fire alarm signals received at the FIP for a station, sub-station or ancillary building must be relayed to the SCR (in the case of stations), and the OCC (for all alarms), and the Sydenham Station FIP;

- (v) PIDS must be able to be utilised to broadcast incident management information and egress instructions in the event of an emergency.
- (vi) cupboards provided to house fire safety equipment including fire hydrant outlets, fire hose reels and portable fire extinguishers, must be fitted with tamper alarms, relayed to the SCR and OCC.

## 2.5 Combined services route

- (a) The SSJ Contractor must provide spatial provision, fixtures, fittings, containment, earthing, bonding and other infrastructure to comply with requirements of the Appendix E1.0 Interface Requirements Specification.
- (b) The SSJ Contractor must:
  - (i) relocate or provide new CSR for services including cabling, trenches, containment systems, pits and under-track crossings as necessary to suit or as a result of the SSJ Contractor's Activities;
  - (ii) size the CSR to accommodate installation of all required services in accordance with the requirements of the Interface Contractors and co-ordinate all systems to rationalise containment. Provide a minimum spare conduits and capacity in cable containment systems as detailed in Section [2.5.22.5.1](#) and [2.5.22.5.4.1](#) below; and
  - (iii) design and install the CSR to be sympathetic with all heritage fabric.
- (c) If the SSJ Contractor's Activities require the existing CSR to be altered, the SSJ Contractor must upgrade the extent that is altered by the SSJ Contractor's Activities, to meet the Codes and Standards.
- (d) All cables and equipment installed by the SSJ Contractor must not interfere with the operation of any existing services.
- (e) All new cabling by the SSJ Contractor must be continuous with minimal joints.
- (f) For the existing Sydenham Station cabling to be relocated by the SSJ Contractor, any joints and spacing between joints must be in accordance with ASA Standards and Sydney Train's standards, guidelines and manuals.
- (g) When designing the configuration of the CSR to provide cable route facilities, consideration must be given to providing physically separate paths for redundant services. Where redundant HV feeders are located on the same side of the corridor, the cable routes for these feeders must be mechanically separated by either feeder being buried and the alternative in galvanised steel troughing or both on separate galvanised steel troughing routes mechanically separated to provide adequate electrical, mechanical and fire separation.
- (h) The CSR must allow for HV circuits to be physically separated into different troughs. Sydney Metro City & Southwest 33kV and 11kV cables must be in different troughs on the up side CSR in the final configuration. Existing Operators (Sydney Trains) 33kV and 11kV cables must be in different troughs on the down side CSR. Where Existing Operator (Sydney Trains) have redundant 11kV feeder cables running parallel, these cables must be in independent troughs and/or galvanised steel troughing providing mechanical separation between each feeder.



Separation of feeders shall be in accordance with the Existing Operators (Sydney Trains) requirements.

- (i) Existing Operator (Sydney Trains) and the Operators cables must not run in the same cable route.
- (j) All HV, Traction Power Supply, electrification system and Traction Return cables must be continuously supported over the entire cable length by a cable containment system. Traction return cables shall be buried in conduit, where feasible, in non-tunnel sections.
- (k) Cable containment system must be ladder, conduit or enclosed troughing.
- (l) HV, Traction Power Supply, electrification system and Traction Return cable routes must not be direct buried.
- (m) All HV, Traction Power Supply, electrification system and Traction Return cable routes must facilitate maintenance and replacement.
- (n) For all cable ladders or support mechanisms containing multiple HV circuits, mechanical protection must be provided between each HV circuit.
- (o) Conduits used for HV, Traction Power Supply, electrification system and Traction Return cables must be orange heavy duty unplasticised poly vinyl chloride (HD UPVC) to AS2053.
- (p) All outdoor conduits must be Heavy Duty and UV stabilised to prevent UV damage.
- (q) Pit locations and design considerations, including construction, drainage, access, location of track/structures/drainage must comply with ASA standards.

## 2.5.1 ~~Sydney Trains Requirements~~

- ~~(r) (a) The SSJ Contractor must provide spatial provision, fixtures, fittings, containment, and other infrastructure required for the Sydney Trains CSR. The SSJ Contractor must design and construct the CSR in accordance with the ASA standards and attention is drawn to T HR CI 12190 ST Service Installations within the Rail Corridor.~~
- ~~(b) The SSJ Contractor must:~~
  - ~~(i) relocate or provide new CSR for services including cabling, trenches, containment systems, pits and under track crossings as necessary to suit or as a result of the SSJ Contractor's Activities;~~
  - ~~(ii) size the Existing Operators (Sydney Trains) CSR to accommodate installation of all required services, including those of Interface Contractors and co-ordinate all systems to rationalise containment. SSJ Contractor must provide spare capacity as required by ASA Standards and Railcorp standards; and~~
  - ~~(iii) design and install the CSR to be sympathetic with all heritage fabric.~~
- ~~(s) The segregation design must, where practical and where space allows, provide for Sydney Metro City & Southwest and Sydney Trains assets to be physically segregated to allow cable routes to be independently maintained, and for Sydney Trains to access their services from outside Operator operations.~~

- (t) Where space constraints prevent physical segregation, the SSJ Contractor must as far as physically possible ensure there is sufficient diversity in the Sydney Trains cable routes as well as the Sydney Metro City & Southwest route to ensure that the risk to Operator and Sydney Trains operations can be managed by avoiding the need to dig up wither the Sydney Trains or Sydney Metro City & Southwest cable routes.
- (u) Existing CSR may only be used for Sydney Metro City & Southwest services where alternative provision has been made for Sydney Trains services and all Sydney Trains cabling has been removed and the existing CSR can be demonstrated to meet all specified requirements for Sydney Metro City & Southwest CSR, including Design Life
- (v) Segregation of communications cabling must be provided in accordance with AS/CA S009 and additional requirements as specified in the specifications of the Metro Cable Containment Schedules in Appendix C2.1 and Appendix C2.2.
- (w) Aerial cables must not be used for any new or relocated services route.

### **2.5.1 2.5.2 Space for current and future Sydney Metro City & Southwest cables**

- (a) The SSJ Contractor must allow for additional HV and traction power system cables to be installed in the future by providing spare conduits and capacity in cable containment systems of:
  - (i) 100% for enclosed wiring systems; and
  - (ii) 30% for unenclosed wiring systems.
- (b) The SSJ Contractor must allow for additional communications and signalling system cables to be installed in the future by providing spare conduits and capacity in cable containment systems of:
  - (i) 50% for enclosed wiring systems; and
  - (ii) 50% for unenclosed wiring systems.
- (c) The SSJ Contractor must allow for additional LV Distribution power system cables to be installed in the future by providing spare conduits and capacity in cable containment systems of:
  - (iii) 25% for enclosed wiring systems; and
  - (iv) 20% for unenclosed wiring systems.
- (d) The SSJ Contractor must provide specified requirements for the traction power system cables in accordance with the Appendix E1.0 Interface Requirements Specification.

#### **2.5.2.1 ~~Sydney Trains cables~~**

- (a) ~~The SSJ Contractor's CSR must provide cable route facilities that do not change the effective cable rating of Existing Operators (Sydney Trains) 11kV and 33kV circuits and individual cables as specified by the Existing Operators (Sydney Trains).~~



- ~~(b) The Existing Operators (Sydney Trains) 33kV and 11kV cables routes from St Peters to Meeks Rd includes a combination of racking, underground conduits and above ground galvanised steel troughing. The proposed relocation of Existing Operators (Sydney Trains) cables in a new CSR (for part of their route) must be in a combination of the same (racking, underground conduits and above ground galvanised steel troughing).~~
- ~~(c) The SSJ Contractor must allow for all additional Existing Operators (Sydney Trains) cable requirements and spare capacity (including but not limited to communications, signalling LV and HV cables) to be installed including provision of spare conduits and capacity in cable containment systems in accordance with ASA Standards.~~

### **2.5.2 2.5.3 Cable installation**

- (a) All HV, Traction Power Supply, electrification system and Traction Return cables must be installed in accordance with the manufacturer's recommendations for bending radius, pulling tension and environmental conditions.
- (b) All ULX crossings must be provided with cable pits on both sides of the tracks being crossed.
- (c) Conduits must be installed that does not allow for conduits to be able to fill with water, with conduits to drain to pits.
- (d) Pits must be provided for buried conduit routes as required by Codes and Standards. The SSJ Contractor must demonstrate in Design Documentation that the buried CSR design including pits or other conduit entry arrangements allows the proposed cables to be installed in accordance with the manufacturer's recommendations for bending radius and pulling tension.

### **2.5.3 2.5.4 Cable maintenance**

- (a) The SSJ Contractor must provide the CSR with the following maintenance access:
  - (i) cables in each HV circuit in separate troughing;
  - (ii) access to a specific HV circuit must not require other HV circuits to be de-energised;
  - (iii) the gap between each row of trough must allow removal of lid and access to the cable without affecting adjacent CSR;
  - (iv) installation of joints must not require dismantling of any other part of the CSR; and
  - (v) ensure that the maintenance of the cables can be carried out without the need for track possessions and built in accordance with ASA Standards.
  - (vi) segregation of cable classifications (and terminations) is compliant with relevant standards

### **2.5.4 Sydney Trains Requirements**

- (a) The SSJ Contractor must provide spatial provision, fixtures, fittings, containment, and other infrastructure required for the Sydney Trains CSR.



(b) The SSJ Contractor must:

- (i) relocate or provide new CSR for services including cabling, trenches, containment systems, pits and under-track crossings as necessary to suit or as a result of the SSJ Contractor's Activities;
- (ii) size the Existing Operators (Sydney Trains) CSR to accommodate installation of all required services. SSJ Contractor must provide spare capacity as required by ASA Standards and Railcorp standards; and
- (iii) design and install the CSR to be sympathetic with all heritage fabric.

**2.5.4.1 Sydney Trains cables**

- (a) The SSJ Contractor's CSR must provide cable route facilities that do not change the effective cable rating of Existing Operators (Sydney Trains) 11kV and 33kV circuits and individual cables as specified by the Existing Operators (Sydney Trains).
- (b) The Existing Operators (Sydney Trains) 33kV and 11kV cables routes from St Peters to Meeks Rd includes a combination of racking, underground conduits and above ground galvanised steel troughing. The proposed relocation of Existing Operators (Sydney Trains) cables in a new CSR (for part of their route) must be in a combination of the same (racking, underground conduits and above ground galvanised steel troughing).
- (c) The SSJ Contractor must allow for all additional Existing Operators (Sydney Trains) cable requirements and spare capacity (including but not limited to communications, signalling LV and HV cables) to be installed including provision of spare conduits and capacity in cable containment systems in accordance with ASA Standards.



# Attachment 1

Signalling Functional Specification (SFS)





Transport  
for NSW



city & southwest

Transport for NSW

Sydney Metro – City & Southwest – Phase 1

Sydenham Station Junction

Signalling Functional Specification

18 February 2018

Document No: NWRLSRT-JHL-WSS-SI-SPC-000003


Revision No: 2.3

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**Report Approval Signatures – Sydenham Junction Signalling Functional Specification (Document Number NWRLSRT-PBA-WEC-SI-SPC-000007 Rev 2.1)**

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# Contents

	Page number
<b>1. Introduction</b>	<b>1</b>
1.1 Reference Documents	2
<b>2. Operational requirements</b>	<b>3</b>
<b>3. Track layout changes</b>	<b>4</b>
<b>4. Line speeds</b>	<b>5</b>
4.1 Existing Line Speeds	5
4.2 Proposed Line Speeds	6
<b>5. Existing signalling equipment and interfaces</b>	<b>9</b>
5.1 Existing Equipment	10
5.2 Existing Interfaces	10
<b>6. Proposed signalling works</b>	<b>11</b>
6.1 Overview	11
6.2 Train Control System	11
6.3 Signalling Interlocking Configuration and Equipment Rooms	12
6.4 Signalling Location Cases	13
6.5 Compressed Air Supply	17
6.6 Cabling and Cable Routes	17
6.7 Signalling Design Criteria	18
<b>7. New field equipment</b>	<b>20</b>
7.1 Equipment Type	20
7.2 Interlocking	20
7.3 Signals	20
7.4 Points / EOL	21
7.5 Track Circuits / Train Detection	21
7.6 Trainstops	22
7.7 Bonding	22
7.8 Guard Indicators	22
7.9 Signalling Power Supply	22
7.10 Warning Lights	22

7.11	Telephones	22
7.12	Speed Boards	22
<b>8.</b>	<b>Existing, new and altered routes and points</b>	<b>23</b>
8.1	Existing and Altered Signal Routes	23
8.2	New Signal Routes	26
8.3	Existing and Altered Points	28
8.4	New Points	29
<b>9.</b>	<b>Train Operations</b>	<b>30</b>
9.1	Interlocking Principles	30
<b>10.</b>	<b>Staging works</b>	<b>32</b>
10.1	Staging Overview	32
10.2	Support Works	32
10.3	Sydenham Signalling Stage Works	32
<b>11.</b>	<b>Testing and Commissioning</b>	<b>36</b>
11.1	Factory Acceptance Testing	36
11.2	Site Acceptance Testing	36
11.3	Commissioning	36
<b>12.</b>	<b>Requirements for Sydney Metro</b>	<b>37</b>
12.1	Track layout changes	37
12.2	Line speeds	37
12.3	Train control system	37
12.4	Signalling Interlocking Configuration and Equipment Rooms	38
12.5	Cabling and Cable Routes	39
12.6	New field equipment	39
12.7	Points / EOL	39
12.8	Track Circuits / Train Detection	40
12.9	Bonding	40
12.10	Telephones	40

## List of tables

		<b>Page number</b>
Table 4-1	Existing speeds – down direction	5
Table 4-2	Existing speeds – up direction	5

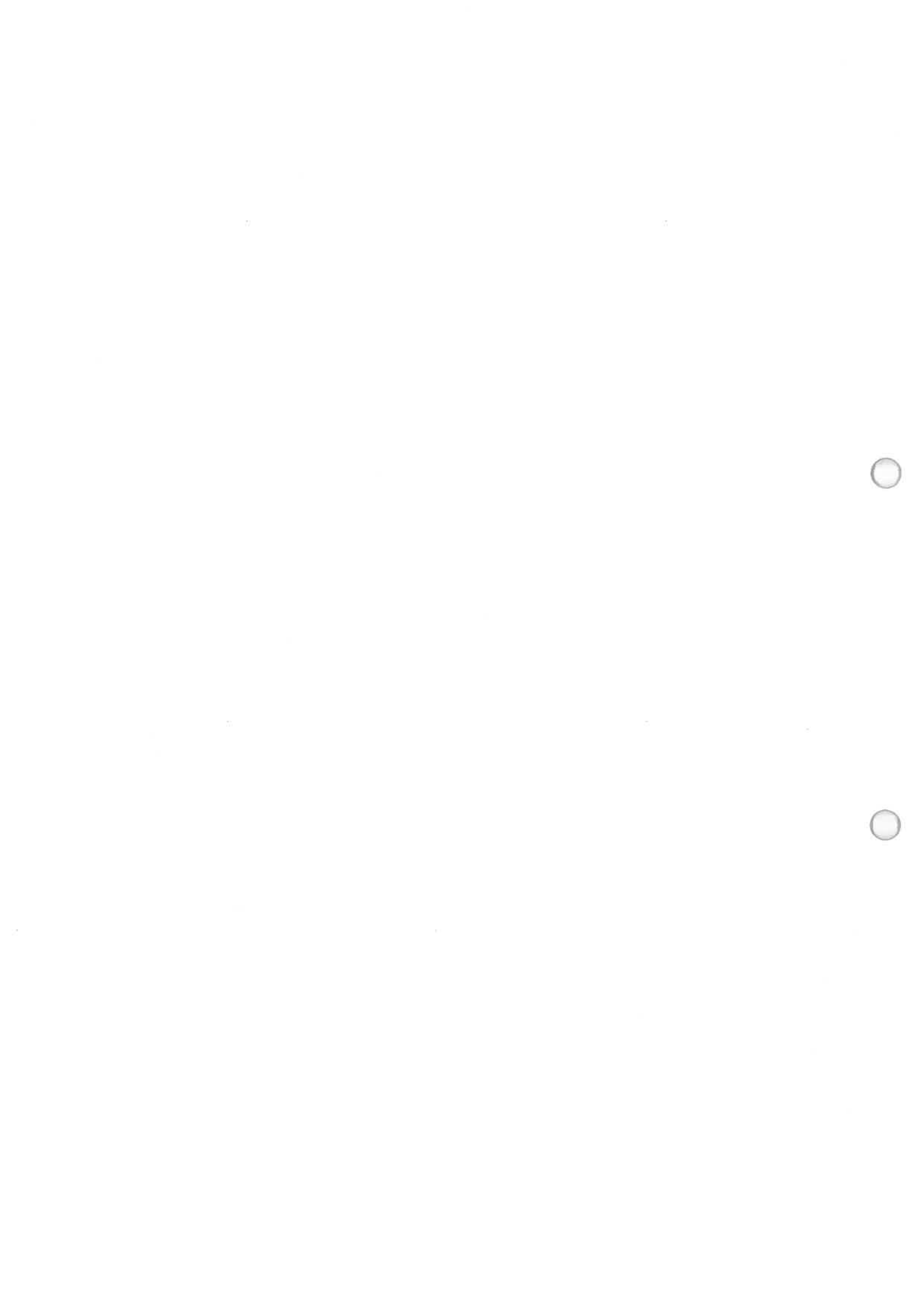
Table 4-3	Proposed speeds – down direction	6
Table 4-4	Proposed speeds – up direction	8
Table 5-1	Existing equipment – Sydenham Area	10
Table 6-1	Key design criteria – Bankstown line	19
Table 7-1	Proposed new equipment at Sydenham	20
Table 8-1	Existing signals / routes	23
Table 8-2	Proposed new signals / routes	26
Table 8-3	Points alteration	28
Table 8-4	Proposed new points	29
Table 12-1	Proposed new equipment at Sydenham – Sydney Metro Asset	39
Table 12-2	Proposed new points	39

## List of figures

		<b>Page number</b>
Figure 5.1	Existing signalling system configuration	9

## List of appendices

Appendix A	Train Operations Modelling
Appendix B	Existing Sydenham Driver's Diagrams
Appendix C	Stage 1 – Proposed Services Relocation DD
Appendix D	Stage 1 – Proposed Air System Schematic
Appendix E	Stage 1 – Proposed CSR Relocation
Appendix F	Stage 2 – Proposed Points Installation DD
Appendix G	Stage 3 – Proposed Sydenham Junction Remodelling DD
Appendix H	Stage 3 – Proposed Air System Schematics



# 1. Introduction

Sydney Metro – City & Southwest project is the subsequent stage of Sydney Metro – Northwest project. The Northwest project addresses all scope from Cudgegong to Chatswood. The City & Southwest project addresses all scope of works between Chatswood and Bankstown and comprises of three key components as follows:

- Phase 1 – Sydney Metro – City – 16.5 km City Extension from Chatswood, under North Sydney and Sydney Harbour and then beneath the Sydney CBD to Central and Sydenham.
- Phase 2 – Sydney Metro – Southwest – 13.4 km Southwest Extension – Sydenham to Bankstown.
- Sydenham Stabling Facility, located at the city end of Sydenham station on the up side of the rail corridor.

The signalling for the Sydney Metro – City & Southwest will be a Communications Based Train Control (CBTC) system, employing integrated Automatic Train Protection (ATP) and Automatic Train Operation (ATO) with Unattended or Driverless Train Operation (UTO or DTO). The CBTC system will be controlled from the proposed (as part of Sydney Metro – Northwest) Operations and Control Centre (OCC) located at Tallawong with a backup at Bella Vista.

The existing Sydney Trains Bankstown line service operates from the City Circle to Lidcombe and Liverpool via Bankstown. The proposed Phase 2 of the Sydney Metro – City & Southwest project will extend from Sydenham (platform 1 and 2) to Bankstown. This will be segregated from the Sydney Trains network and integrated into the Sydney Metro Second Harbour Crossing extension which extends from Chatswood. Sydney Trains services will continue to operate west of Bankstown, with Bankstown station being converted to a terminus.

After completion of the Phase 1 of the Sydney Metro – City & Southwest project, Sydney Metro trains will terminate at the upgraded Sydenham platforms 1 and 2. To maintain Sydney Trains operations on the Bankstown line, Sydenham Junction will be reconfigured to enable the Bankstown lines to connect to the Illawarra Locals on the country side of Sydenham station. The provision of new crossovers and turnouts at the country end of Sydenham station will enable Sydney Trains up and down Bankstown line trains to operate via Sydenham station platforms 3 and 4. A new turnout on the Up Illawarra Local will be installed for access to the existing XPT Maintenance Centre. The existing Sydenham Route Relay Interlocking at Sydenham signal box will be replaced with a Computer Based Interlocking (CBI) for the affected area.

The overall signalling works as described in this SFS will be completed in three main stages. The detailed staging of the works is covered in the NWRLSRT-JHL-WSS-TC-SCH\_000001 Signalling Testing & Commissioning Strategy and outlined in Section 10 of this report. Stages 1 and 2 are essentially enabling stages and involve CSR relocation and minor changes to the existing track layout. Stage 3 will include the junction reconfiguration and the replacement of the existing Route Relay Interlocking with a WESTRACE Mk II Computer Based Interlocking.

This Signalling Functional Specification (SFS) forms one of the four SFSs which describe the changes to the Sydney Trains network resulting from the implementation of the Sydney Metro – City & Southwest project between Sydenham and Bankstown. The four SFSs are:

- NWRLSRT-PBA-WEC-SI-SPC-000001 – Sydenham to Hurlstone Park SFS
- NWRLSRT-PBA-WEC-SI-SPC-000002 – Canterbury to Lakemba SFS
- NWRLSRT-PBA-WEC-SI-SPC-000003 – Lakemba to Bankstown SFS
- NWRLSRT-JHL-WSS-SI-SPC-000003 – Sydenham Junction SFS (this document)

This SFS covers Phase 1 of the Sydney Metro – City & Southwest project scope of works around Sydenham Junction with the three other SFSs covering Phase 2 of the Sydney Metro – City & Southwest project scope of works.

TfNSW is currently in the process of delivering the AMS project across the Sydney Trains network. The SSJ project will interface with the AMS Project and work together to enable the AMS Project team to modify the AMS system configuration to incorporate the SSJ track alterations.

## 1.1 Reference Documents

The following documents have been referred in preparation of this document:

- D0440001.DGN Erskineville (x) – Sydenham Signalling Plan (dated: 8/12/2012)
- D0440004.DGN Meeks Road Signalling Plan (dated: no exact date however the previous date is 19/09/2012)
- E0440001.dgn Erskineville (x) – Sydenham Track Insulation Plan (26/11/2012)
- CB044 Sydenham Circuit Books 1-14 (dated:30/05/2014)
- CB044 COCs
- St Peters DSS (dated: 20/12/2013)
- Sydenham DSS (dated: 18/12/2013)
- Sydenham to Tempe DSS (dated: 06/03/2014)
- Sydenham Pneumatic System (dated: 27/03/2012)
- Concept of Operations Document for Sydenham Junction Rev 13/01/2017-CONOPS
- NWRLSRT-PBA-WS-PL-DWG-719902 – Sydenham Station Phase Diagram Rev C (dated: 24/03/2017)
- NWRLSRT-PBA-WSS-PL-DWG-719913 – XPT Maintenance Centre Segregation – 6 Track Option Phase Diagrams Rev A (dated: 24/03/2017)
- NWRLSRT-PBA-WSS-RD-DWG-971131 – 971138 Sydenham Station and Junction Track Setting out details Rev 01
- NWRLSRT-JHL-WSS-TC-SCH\_000001 Signalling Testing & Commissioning Strategy Rev 4.0
- NWRLSRT-JHL-WSS-SI-SPC-000001 Signalling System Architecture Specification Rev 2.0
- NWRLSRT-PBA-WSS-RD-DWG-671031 – 671032 Horizontal Track Alignment – Sydney Trains Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671035 Horizontal Track Alignment – Interim staging Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671045 Vertical Track Alignment – Down Illawarra Local Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671047 - 671048 Vertical Track Alignment – Up Illawarra Local Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671050 - 671051 Vertical Track Alignment – Eastern Bypass Road Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671052 Vertical Track Alignment – Goods Line Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671053 Vertical Track Alignment – XPT Entry Road Rev B
- NWRLSRT-PBA-WSS-RD-DWG-671061 Horizontal Track Alignment and Turnout Schedule – Sydney Trains Rev A

## 2. Operational requirements

As part of Phase 1 of the Sydney Metro – City & Southwest project, the Sydenham Station Junction scope of works will remove platforms 1 and 2 from Sydney Trains operation. These two platforms will be upgraded for Sydney Metro operations.

Existing 737 and 738 points connecting the Bankstown lines to the Illawarra Locals at the city side of Sydenham station will be removed. A new 740 turnout will be installed on the country side leading to the Down Bankstown and Goods Line. New 742A turnout and 742B catch points will be provided for the connection between the XPT Maintenance Centre and the Up Illawarra Local.

New 741A and 741B points will be used by the trains on the Up Bankstown line in the up direction leading to the Up Illawarra Local. Trains leaving the XPT Maintenance Centre and Goods line towards Sydenham will use 742A/B turnout to access either platform 3 or 4 through the new 736 crossover.

Platform 3 will be equipped to provide the ability to turnback trains towards Hurstville. Platform 4 will be equipped for turnback movements towards the city and towards Hurstville. New crossovers 735 installed at the city end and 736 installed at the country end of Sydenham station to facilitate the movements.

The train movements are further discussed in the Sydenham CONOPS document. Details on Sydney Trains operations are discussed in Appendix A – Runtime Impact Evaluation, which was completed by Rail Program Delivery (RPD).

Operational requirements for the Sydney Metro will be covered in the NWRLSRT-PBA-SRT-SI-SPC-000002 – CBTC Signalling Functional Specification.

### 3. Track layout changes

The Sydney Metro – City & Southwest project phase 1 works involve some track layout changes as shown in the Driver's Diagrams in Appendix F and Appendix G. These changes are as follows:

- City end of Sydenham station:
  - ▶ Removal of existing 737 A&B&C points.
  - ▶ Removal of existing 738 A&B points.
  - ▶ Provision of new crossover (735 A&B points) between the Up and Down Illawarra Local lines.
- Country end of Sydenham station:
  - ▶ Removal of the existing XPT staff level crossing.
  - ▶ Removal of existing 739 A&B points.
  - ▶ Removal of existing 740 A&B points.
  - ▶ Removal of existing 742 A&B points.
  - ▶ Slewing of the Bankstown lines towards the up side of the rail corridor between 5.426km and 5.850km.
  - ▶ Provision of new crossover (736 A&B points) between the Down and Up Illawarra Local lines on the country end of Sydenham station.
  - ▶ Provision of new turnout (741A) on the Up Illawarra Local for the Up Bankstown line connection on the country end of Sydenham station.
  - ▶ Provision of new point (741B) between the Up Illawarra Local and the Up Bankstown line.
  - ▶ Provision of new turnout (740) on the Up Illawarra Local for Down Bankstown line.
  - ▶ Provision of new turnout (742A) on the Up Illawarra Local for XPT Maintenance Centre.

Provision of new catch point (742B) between Up Illawarra Local and XPT Maintenance Centre with throw off towards the Down Bankstown/Goods line. A Guard rail will be provided to protect the Down Bankstown line.

Sydney Metro assets to be installed are detailed in section 12 of this document.



## 4. Line speeds

### 4.1 Existing Line Speeds

Existing line speed signs obtained from TS TOC.2, Version 11.0 dated 15 December 2017 around the Sydenham area including Meeks Road in both the Up and Down directions are as shown in Table 4-1. The turnouts/points which do not have speeds listed in the TOC manual are shown as default (25km/h) as per TOC manual recommendation.

**Table 4-1 Existing speeds – down direction**

Line	Train Type	Line Speed (Km/h)	Kilometrages	
			From (km)	To (km)
Down Illawarra Main	Normal	65	2.970	5.730
Down Illawarra Main	Normal	X25 (733A points)	4.930	
Down Illawarra Main	Normal	Default (744A points)	5.664 (approx.)	
Down Illawarra Main	Normal	90	5.730	6.410 (Tempe)
Down Illawarra Main	Normal	65	6.410	6.453
Down Illawarra Main	General/Medium/High	60/65/65	6.453	6.720
Down Illawarra Local	Normal	70	3.240	5.100
Down Illawarra Local	Normal	50 #	5.100	5.410
Down Illawarra Local	Normal	65 #	5.410	5.770
Down Illawarra Local	Normal	75	5.770	6.410 (Tempe)
Down Illawarra Local	Normal	65	6.410	6.660
Down Illawarra Local	General/Medium/High	65/70/75	6.660	7.172
Up Illawarra Local	Normal	Default (743A points)*	5.626 (approx.)	
Down Bankstown	Normal	X20 (737A points) #	5.100	
Down Bankstown	Normal	40 #	5.510	6.040
Down Bankstown	Normal	Default (740A points) #	5.510 (approx.)	
Down Bankstown	Normal	Default (742A points) #	5.590 (approx.)	
Down Bankstown	Normal	Default (760A points)	5.670 (approx.)	

\* Down direction speed sign on Up Illawarra Local line.

# Existing Speed signs that will be removed

**Table 4-2 Existing speeds – up direction**

Line	Train Type	Line Speed (Km/h)	Kilometrages	
			From (km)	To (km)

Line	Train Type	Line Speed (Km/h)	Kilometrages	
			From (km)	To (km)
Up Illawarra Main	Normal	70	6.450	5.730
Up Illawarra Main	Normal	50	5.730	5.470
Up Illawarra Main	Normal	75	5.470	5.040
Up Illawarra Main	Normal	80	5.040	3.950 (St Peters)
Up Illawarra Local	General/Medium/High	60/65/70	6.660	5.670
Up Illawarra Local	Normal	X15 (747B points)	6.480	
Up Illawarra Local	Normal	Default (745B points)	5.770 (approx.)	
Up Illawarra Local	Normal	Default (740B points) #	5.580 (approx.)	
Up Illawarra Local	Normal	65	5.670	5.200
Up Illawarra Local	Normal	50 #	5.200	4.700 (St Peters)
Up Illawarra Local	Normal	X25 (734B points)	5.050	
Up Bankstown	Normal	40	6.040	5.170
Down Bankstown	Normal	15* #	5.411	End of Platform
Up Bankstown	Normal	X25 (738B points) #	5.170	

\* Up direction speed sign on Down Bankstown line.

# Existing Speed signs that will be removed

## 4.2 Proposed Line Speeds

As part of the Sydenham Junction scope of works, there will be some speed signs that will be removed and new speed signs proposed due to removal or installation of new turnouts and crossovers. The proposed speed signs in the area are as follows:

**Table 4-3 Proposed speeds – down direction**

Direction	Status	Train Type	Line Speed (Km/h)	Kilometrages	
				From (km)	To (km)
Down Illawarra Main	Existing	Normal	65	2.970	5.730
Down Illawarra Main	Existing	Normal	X25 (733A points)	4.930	
Down Illawarra Main	Existing	Normal	Default (744A points)	5.664 (approx.)	
Down Illawarra Main	Existing	Normal	90	5.730	6.410 (Tempe)
Down Illawarra Local	Existing	Normal	70	3.240	5.100
Down Illawarra Local	New	Normal	55	5.100	5.531

Direction	Status	Train Type	Line Speed (Km/h)	Kilometrages	
				From (km)	To (km)
Down Illawarra Local	New	Normal	X40 (736A points)	5.442 (approx.)	
Down Illawarra Local	New	Normal	65	5.531	5.770
Down Illawarra Local	Existing	Normal	75	5.770	6.410 (Tempe)
Up Illawarra Local	New	Normal	X40 (740 points)*	5.536 (approx.)	
Up Illawarra Local	New	Normal	X25 (742A points)	5.575 (approx.)	
Up Illawarra Local	Existing	Normal	Default (743A points)	5.626 (approx.)	
Down Bankstown	Existing	Normal	Default (760A points)	5.670 (approx.)	

\* Down direction speed sign on Up Illawarra Local Line

Table 4-4 Proposed speeds – up direction

Direction	Status	Train Type	Line Speed (Km/h)	Kilometrages	
				From (km)	To (km)
Up Illawarra Main	Existing	Normal	70	6.450	5.730
Up Illawarra Main	Existing	Normal	50	5.730	5.470
Up Illawarra Main	Existing	Normal	75	5.470	5.040
Up Illawarra Main	Existing	Normal	80	5.040	3.950 (St Peters)
Up Illawarra Local	Existing	General/Medium/High	60/65/70	6.660	5.670
Up Illawarra Local	Existing	Normal	X15 (747B points)	6.480	
Up Illawarra Local	Existing	Normal	Default (745B points)	5.770 (approx.)	
Up Illawarra Local	Existing	Normal	65	5.670	5.532
Up Illawarra Local	New	Normal	X40 (736B points)	5.503 (approx.)	
Up Illawarra Local	Existing	Normal	X25 (734B points)	5.050	
Up Illawarra Local	New	Normal	55	5.532	4.700 (St Peters)
Down Illawarra Local	New	Normal	X40 (735B points)	5.121 (approx.)	
Up Bankstown Line	Existing	Normal	40	6.040	5.508
Up Bankstown Line	New	Normal	X35 (741B points)	5.508 (approx.)	

## 5. Existing signalling equipment and interfaces

The Sydenham area is controlled by a Route Relay Interlocking (RRI) which was commissioned in 1992. The interlocking is located at Sydenham Control Centre and the control area covers from St Peters past Sydenham, extending along the Bankstown line up to Hurlstone Park and along Illawarra lines up to Arncliffe. The Sydenham area is equipped with a compressed air system for points and trainstops operation. Along the Bankstown line the compressed air system is used for trainstops operation till Hurlstone Park. The point machines on the Goods lines are all electrical operated machines.

The current configuration is shown below with the area affected by Sydney Metro highlighted:

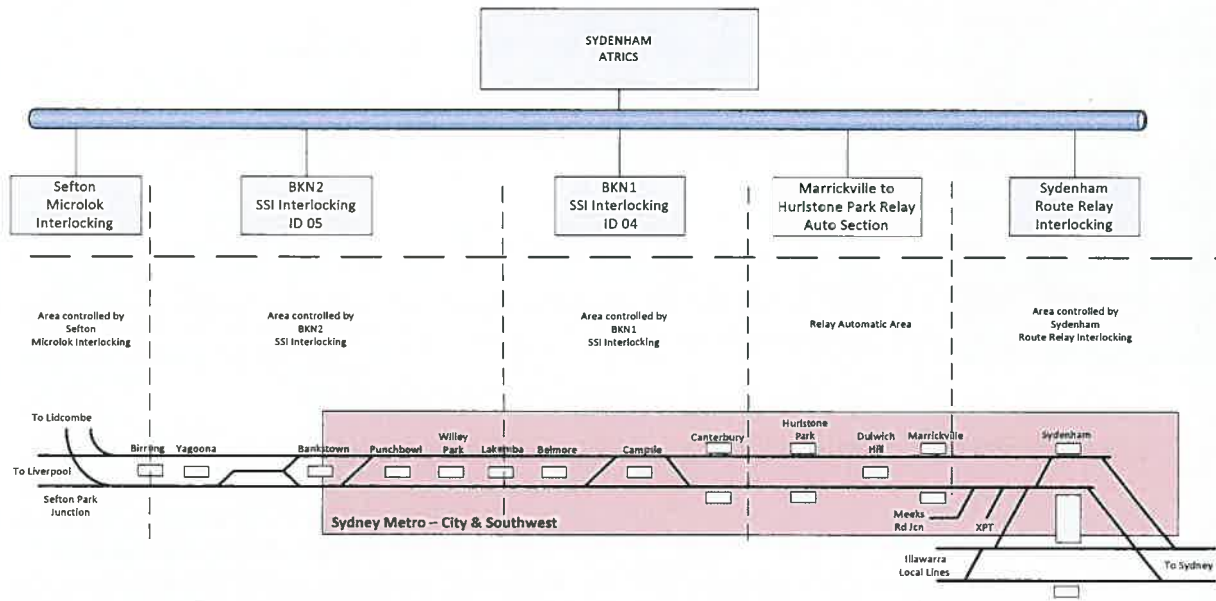


Figure 5.1 Existing signalling system configuration

## 5.1 Existing Equipment

The existing signalling equipment at Sydenham is listed in the table below:

**Table 5-1 Existing equipment – Sydenham Area**

Item	Type
Signals	Double light, incandescent Westinghouse SL35 lamps and Alstom LED signals.
Train Stops	Electro – Pneumatic, Westinghouse JA Trainstops
Track Circuits	FS2500 Audio Frequency, Joint less track circuits Jeumont Schneider, single rail, high voltage impulse (HVI) for the points. Westinghouse Compensated DPU
Points	Westinghouse Points Machines with EOLs and EPBs with Spherolock Mechanism: Style A Style S
Interlocking	Route Relay Interlocking (RRI)
Train Control	ATRICS controlled from Sydenham Control Centre

## 5.2 Existing Interfaces

The Sydenham to Arncliffe area including the Meeks Road South and North Forks roads are controlled by a Route Relay Interlocking which interfaces with Sydenham to Redfern and Sydenham to Hurlstone Park automatic relay sections. These two automatic sections form part of the Sydenham Relay Interlocking. These interfaces will be modified when the existing Sydenham relay interlocking is upgraded to a new WESTRACE Mk II Computer Based Interlocking.

## 6. Proposed signalling works

### 6.1 Overview

The proposed signalling works include:

- Removal of redundant signals and associated equipment (trainstops and track circuits).
- Modification of existing impacted signals.
- Removal of redundant points and associated equipment including EOL.
- Decommissioning of existing signalling equipment associated with platforms 1&2.
- Relocation of cable routes (temporary or permanent) and removal of redundant cables.
- Relocation of impacted location cases.
- Provision of new signals and associated trainstops.
- Provision of intermediate trainstops.
- Provision of new track circuits where required.
- Provision of new crossovers and turnouts.
- Provision of new location cases where required.
- Modification of the existing compressed air system.
- Modification of ATRICS.
- Provision of a new CBI Interlocking replacing the existing Sydenham RRI.

### 6.2 Train Control System

#### 6.2.1 ATRICS

The existing Sydney Trains signalling system in the Sydenham area is controlled by the Advanced Train Running and Information Control System (ATRICS) located at Sydenham Control Centre. Sydenham ATRICS systems will require modification to the affected Rail Control System (RCS) such as:

- RCS Main Computer
- RCS Workstations
- Logger Computer
- Master Telemetry Unit
- Remote Telemetry Unit
- Control Maps
- Overview Maps
- Map Viewer/Replay Viewer

In conjunction with the ATRICS RCS updates, the following external systems will require modification:

- Line Information Control Systems (LICS) / Passenger Information (PI)



- Operational System Server (OSS)
- Train Describer Timetable Edit System (TDTES)
- Timetable Scrolls
- Metronet and Telephones.

ATRICS changes are planned to be completed in stage 3.

## 6.2.2 Interface Display Screens

Sydney Metro will take control of the existing platforms 1 and 2 at Sydenham and they will be upgraded to Metro requirements. To effectively manage the two networks especially in a case of emergency and incident situations, visibility will be required between the two operators.

To facilitate this, interface display screens shall be provided by others at Tallawong Control Centre showing the Sydney Trains impacted area on the shared zone. In addition, interface display screens shall be installed by others at Sydenham Control Centre showing the Sydney Metro impacted area on the shared zone. The interface display screens will cover the Sydney Metro and Sydney Trains stations area. The boundaries of the indication areas shall be defined at later stage in the NWRLSRT-PBA-SRT-SI-SPC-000002 – CBTC Signalling Functional Specification.

## 6.3 Signalling Interlocking Configuration and Equipment Rooms

### 6.3.1 Sydenham Equipment Room (SER)

The existing route relay interlocking controlling Sydenham area will be replaced with a Hot Standby Computer Based Interlocking system with the exception of Meeks Road triangle (North and South Fork Roads) and the Goods line. The installation of the new CBI will ensure that the usage of existing equipment trackside is maximised. The CBI will be able to interface with existing 50VDC relays and inputs. The boundaries of the new CBI will be as follows:

- At the city end of Sydenham station, the last signals in the up direction will be SM580I and SM582IL and the first signals in the down direction will be SM577I and SM579IL.
- At the country end of Sydenham station on the Illawarra line, the first signals in the up direction will be SM630I and SM632IL, and the last signals in the down direction will be SM627I and SM629IL.
- On the Bankstown line, the first signal in the up direction will be SM678B and the last signal in the down direction will be SM675B.
- On the Goods Line, the first signal in the up direction will be SM676G.

The proposed CBI system is Siemens Trackguard Westrace MKII. The CBI system architecture is described in the NWRLSRT-JHL-WSS-SI-SPC-000001 Signalling System Architecture Specification.

The new CBI will interface with the Sydenham to Redfern automatic section at SM577 location case and Sydenham to Hurlstone Park automatic section at SM676 location case. The new CBI will also interface to the remaining Sydenham RRI controlling Meeks Road triangle and the Goods line at SM676 location case and Tempe area at SM627 location case.

All the input/output cables from the Sydenham Equipment Centre will be renewed where required to the requirements of new CBI system including the cables for the control centre due to the track slews and the construction of the new Sydney Metro tracks. The ATRICS interface will also be modified for the new interlocking. The CBI will allow for ATRICS



integration testing (to be completed as part of the Factory Acceptance Testing) for minimising the disruption to the existing system.

## 6.4 Signalling Location Cases

New location cases or equipment rooms will be provided as required to accommodate new CBI equipment including Object controllers as detailed in NWRLSRT-JHL-WSS-SI-SPC-000001 Signalling System Architecture Specification. Any proposed new location cases will be as per ASA standards SPG0708 and guidelines. As for the existing location cases around Sydenham, modifications will be as follows:

### 6.4.1 SM577 Location

The existing CSR on the city end of Sydenham station will be relocated from up side to down side of the rail corridor as shown in Appendix E. As a result, the main signalling and communications cables coming into SM577 location from the country end of Sydenham station will be renewed to the requirements of new CBI system.

### 6.4.2 SM583 Location

The existing CSR will be relocated from the up side to the down side of the rail corridor as shown in Appendix E. As a result, the main signalling and communications cables coming into SM583 location will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be completed due to removal of the Bankstown lines connections to the Illawarra lines at the city end of Sydenham station:

- Relocation of SM583 location case from the up side to down side of the rail corridor. Renew all the tail cables to this location.
- Removal of SM583I signal MLRI and blanking of the bottom stencil route indicator.
- Removal of top yellow aspect and stencil route indicator on SM585 signal.

### 6.4.3 SM592 A&B Location

The existing CSR will be relocated from the up side to the down side of the rail corridor as shown in Appendix E. As a result all the main signalling and communications and some tail cables coming into SM592 A&B locations will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be completed:

- Provision of new 735 crossover and associated equipment between the Illawarra Locals.
- Existing 585CT track upgraded to Jeumont Schneider Double Rail with new relay.
- 598CT track feed renamed to 598BT and upgraded to Jeumont Schneider Double Rail with new relay.

### 6.4.4 SM595 Location

The existing CSR will be relocated from the up side to the down side of the rail corridor as shown in Appendix E. As a result, the main signalling and communications cables coming into SM595 location will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be completed:

- Convert existing SM597 automatic signal to a controlled signal fitted with right hand turnout repeater.
- Provision of new SM600IL signal and co-acting signal and trainstop.
- Provision of new guard's indicators for platform 4 for up direction movements.

## 6.4.5 SM599 A&B Location (Renamed SM598 A&B)

The existing CSR will be relocated from the up side to the down side of the rail corridor as shown in Appendix E. As a result, the main signalling and communications and some tail cables coming into SM599 A&B locations will be renewed to the requirements of new CBI system. Due to removal of SM599 signal, SM599 A&B will be renamed SM598 A&B respectively. In addition, the following signalling scope will be completed due to removal of the Bankstown lines connections to the Illawarra lines at the city end of Sydenham station:

- Removal of 737 A, B & C points and associated equipment.
- Removal of 738 A&B points and associated equipment.
- Removal of SM599B, SM600B and Fixed Red signals and their associated equipment.
- Relocation of 598AT track circuit feed from Down Bankstown line to Up Illawarra local.
- Removal of the track circuits on the Bankstown line feed from SM599 A&B location cases.
- Removal of 599 intermediate trainstop.
- Removal of platform 1 and 2 guard's indicators.

## 6.4.6 SM607 Location

The existing CSR towards the City will be relocated from platform 1 and will be re-routed via platform 3 as shown in Appendix E. The CSR at the country end of Sydenham station will be relocated further to the up side to make way for the construction of the Up Metro line. As a result, the main signalling and communications cables coming into SM607 location will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be undertaken:

- Removal of SM609IL signal and its associated equipment and transfer to SM611A location case. Remove the outer home sign on the signal.

## 6.4.7 SM611 A&B Location

The existing CSR will be relocated via platform 4 instead of the current route via platform 1 towards the City as shown in Appendix E. SM611 A&B location cases will be removed and a new SM611 Bungalow provided between the Up Illawarra Main and Down Illawarra Local to make way for construction of the demarcation fence. As a result, the main signalling and communications cables, and tail cables coming into SM611 A&B locations will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be undertaken:

- Removal of SM606B signal and associated equipment.
- Provision of new SM609IL signal and associated equipment. This signal is currently being controlled from SM607 location case. Replace its existing 2-aspect top head with 3-aspect top head. Provide a new shunt aspect with stencil route indicator.
- Removal of the existing SM611B signal and associated equipment.
- Provision of new SM611IL signal and co-acting signal and associated equipment on the Up Illawarra Local for movements from platform 3.
- Removal of SM613B signal and associated equipment.
- Removal of 606 intermediate trainstop.
- Provision of new temporary 741 crossovers and associated equipment connecting Up Illawarra Local to Up Bankstown. The crossovers will be removed in Phase 2 scope of works.
- Provision of new 736 crossovers and associated equipment between the Illawarra Locals.

- Removal of 739 crossovers and associated equipment.
- Removal of redundant track circuits.
- Provision of new track circuits over 741 and 736 crossovers.
- Provision of new guard's indicators on platform 3 for the down direction movement.
- Removal of guard's indicators for platform 1 and 2.
- Relocation of 597BT track relay.

### 6.4.8 607BT Location

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling and communications and some tail cables coming into 607BT location will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be undertaken:

- Provision of new SM612 shunt signal on the Up Illawarra Local for movements towards platform 3 or 4. This signal will be over-set by SM616IL and SM676G main routes.
- Provision of new SM613 shunt signal on the Up Illawarra Local for down direction movements on the Up Illawarra Local, XPT Centre and Down Bankstown. This signal will be over-set by SM609IL and SM611IL main routes on the Up Illawarra Local.
- Removal of 620 intermediate trainstop.
- Relocation of 616 ITS.
- Removal of existing 740 crossovers and associated equipment.
- Provision of new 740 turnout points and associated equipment from the Up Illawarra Local to the Goods and Down Bankstown line.
- Relocation of 616AT/616BT track joint by approximately 17m towards the country end.
- Provision of new track circuits over 740 and 742A turnouts.
- Renew impacted tail cables due to track slews.
- Relocation of 742A turnout points from the Down Bankstown to Up Illawarra Local. Renew the tail cables.

Note the control relays for the signals, trainstops and points are located in the Sydenham Equipment Centre.

### 6.4.9 616AT Location

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling and communications and some tail cables coming into 616AT location from Sydenham Equipment Centre and SM676A&B locations will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be undertaken:

- Remove the stencil route indicators and the multi lamp route indicator on SM616IL signal.
- Remove the stencil route indicators for signal SM618.
- Relocation of SM620B signal and associated equipment. Top green aspect will be replaced with a yellow aspect. The bottom green and low speed aspects removed.
- Removal of the XPT staff level crossing and its associated equipment.

Note the control relays for the signals, trainstops and points are located in the Sydenham Equipment Centre.

## 6.4.10 SM624 A&B Location

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling and communications cables coming into SM624 A&B from Sydenham Equipment Centre location will be renewed to the requirements of new CBI system. In addition, the following signalling scope will be undertaken:

- Provision of right hand turnout repeater for SM626IL signal.
- Provision of shunt limit board on Up Illawarra Local approximately 180m from the new shunt signal SM612.

## 6.4.11 SM627 Location

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling and communications cables coming into SM627 from Sydenham Equipment Centre location will be renewed to the requirements of new CBI system.

## 6.4.12 SM645 Equipment Room (Tempe)

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling cables between Sydenham Equipment Centre and SM645 Equipment Room will be renewed.

## 6.4.13 SM401 & SM420 Locations (Turrella)

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling cables between Sydenham Equipment Centre and SM401 & SM420 locations will be renewed.

## 6.4.14 SM676 A&B Location

The existing CSR on the up side of the Bankstown line rail corridor will be relocated to the down side of the rail corridor as shown in Appendix E. SM678 A&B location cases will be relocated to the down side of the rail corridor to ensure that there is maintenance access. As a result, the main signalling and communications cables coming into SM676 A&B locations will be renewed to the requirements of new CBI system. All tail cables will also be renewed. In addition, the following signalling scope will be undertaken:

- Relocation of signal SM678B and associated equipment for the Bankstown track slew. Bottom green aspect removed.
- Provision of MLRI on signal SM676G.
- New Jeumont Schneider track circuits will be provided for the up and down Bankstown lines.

## 6.4.15 SM687 Location

The existing CSR on the up side of the Bankstown line rail corridor will be relocated to the down side of the rail corridor as shown in Appendix E. As a result, the main signalling and communications cables coming into SM687 location will be renewed.

## 6.4.16 SM155 Location

The existing CSR on the up side of the rail corridor near Sydenham Equipment Centre will be relocated as shown in Appendix E to make way for the Up Bankstown track slewing. As a result, the main signalling and communications cables coming into SM155 from Sydenham Equipment Centre location will be renewed. In addition, the following signalling scope will be undertaken

- New Jeumont Schneider track circuits will be provided for the up and down Bankstown lines

## 6.4.17 SM701A Location

The existing CSR on the up side of the Bankstown line rail corridor will be relocated to the down side of the rail corridor as shown in Appendix E. As a result, the main signalling and communications cables coming into SM701A location will be renewed.

## 6.5 Compressed Air Supply

The existing compressed air system has three compressors with the first compressor located at Meeks Road, the second compressor located at Turrella and the third compressor located at Hurlstone Park. Along the Illawarra line the air system extends from Sydenham to Turrella while on the Bankstown line it extends to Hurlstone Park. At the city end of Sydenham station, the compressed air system is connected to the main air system towards Central.

The compressed air system including its associated equipment on the up side of the rail corridor between SM577 and SM592 locations will be relocated to the down side of the rail corridor. Where the air system is currently on both sides of the rail corridor, that redundancy (though spatially reduced) will be retained by running the diverse air system in a different service route.

The compressed air system running via platform 1 towards the City will be relocated from the up side of the rail corridor to the down side via platform 4. At the country side of Sydenham station, the compressed air system will be relocated as part of the CSR relocation towards the down side of the rail corridor to make way for the track slews.

New crossovers will be connected to the existing compressed air supply system. Where required the compressed air system will be relocated or renewed.

The spatial diversity of the compressed air supply at the city end will be retained in the final configuration with a second compressed air line on the up side of the rail corridor as part of the Sydenham to Hurlstone Park scope of works (see NWRLSRT-PBA-WEC-SI-SPC-000001 – Sydenham to Hurlstone Park SFS).

For the staged compressed air supply design see Appendix D and Appendix H.

## 6.6 Cabling and Cable Routes

To facilitate the construction of the Sydney Metro – City & Southwest project and to achieve the segregation of the two networks (Sydney Metro and Sydney Trains) various sections of the existing Combined Service Route (CSR) will require relocation. The relocation can either be temporary or permanent depending on what will be retained in the final segregated configuration.

For the new CSR information see Appendix E.

## 6.7 Signalling Design Criteria

There are new signals and crossovers proposed as part of Sydenham Junction scope of works. The proposed layout changes will affect the braking and overlap distances however there is no proposal to change the current headway.

The following design criteria should be followed for the proposed signalling layout modifications to Sydney Trains network signalling infrastructure:

**Table 6-1 Key design criteria – Bankstown line**

Design Criteria	
Braking Curve – Service (General)	GE62
Braking Curve – Overlaps	GE52A
Headway	Maintain the current headway (refer to concept of operations)

## 7. New field equipment

### 7.1 Equipment Type

The following new equipment is proposed to be installed in the Sydney Trains network at Sydenham:

**Table 7-1 Proposed new equipment at Sydenham**

Item	Type
Interlocking	CBI – WESTRACE Mk II
Signals	Double light, colour light Siemens LED signals
Points	EP points machine, Style A.
Track Circuits	Jeumont Schneider high voltage impulse (HVI).
Train Stops	Electro-Pneumatic, Westinghouse JA Trainstop
Relays	All relays to be Type Approved by Sydney Trains / ASA and from an approved manufacturer. All vital relays to be BR930 series 50V DC

### 7.2 Interlocking

To reduce testing and commissioning risk, the existing relay interlocking will be replaced by a Computer Based Interlocking system. The new Interlocking system will be WESTRACE Mk II.

Type approval is in progress and will be completed in 2018.

The following CBI requirements must be met:

- The CBI must be a hot standby interlocking.
- The signalling system design shall allow sufficient capacity and space for future expansion.
- The new interlocking must be able to interface with the existing 50V DC relays and inputs.
- The CBI design and installation must maximise the use of the existing signalling equipment.
- CBI to be provided with redundant communications links
- Single field I/O (Geographical segregation of I/O allocation)
- The CBI must minimise the need for power upgrade as far as possible.

### 7.3 Signals

Due to the modification of Sydenham Junction, a number of signals will be removed and new signals installed. The scope is as follows:

- SM597IL signal converted to controlled signal and fitted with right hand turnout repeater.
- Provision of new SM600IL main line signal and co-acting signal for movements from platform 4 (Down Illawarra Local) in the up direction.



- Provision of new SM609IL signal (in place of current SM609IL signal) near new 736 crossovers.
- Provision of new SM611IL main signal with multi lamp route indicator and co-acting signal for turnback movements on platform 3 (Up Illawarra Local) in the down direction.
- Provision of new SM612 shunt signal and associated equipment.
- Provision of new SM613 shunt signal and associated equipment.
- Provision of new Turnout Repeater for SM626 signal
- Provision of new multi lamp route indicator for SM676 signal
- Replacement of signal SM620B with LED type with top green aspect replaced with a yellow aspect and removal of bottom green and low speed aspects
- Replacement of signal SM678B with LED type with the bottom green and shunt aspect removed

Details of the removed signals are shown in Appendix G.

New Signals SM600, SM609, SM611, SM612, SM613 will be driven by WESTRACE Mk II Lamp Output Modules (LOM).

All new signals will be double head LED type and will be controlled from the Sydenham CBI. All new signals should have the standard full size signal heads and posts as per ASA standards. Where there is deviation to the standards, a concession is to be sought from ASA. The final signal position and mounting arrangements will be subject to endorsement by a signal sighting committee.

With regards to alterations to the existing signals in the same position, consideration may be given to upgrading these to LED. A signal sighting inspection will be required to confirm and to avoid potential read through issues by 'mixing' different lamp types on consecutive running signals or sections.

## 7.4 Points / EOL

As part of the modifications of Sydenham Junction, some crossovers will be relocated and new ones installed as detailed below. All new points to be Electro Pneumatic Style 'A' Unit with In Bearer Spherolock and provided with an EOL facility. Determination of the Master/Slave units and position of the EOLs and EP Boxes will take place during site inspection with maintainers.

- Provision of new 735 crossovers and associated equipment between Up and Down Illawarra Locals at the city end of Sydenham station.
- Provision of new 736 crossovers and associated equipment between Up and Down Illawarra Locals at the country end of Sydenham station.
- Provision of temporary 741 crossovers and associated equipment between Up Illawarra Local and Up Bankstown at the country end of Sydenham station.
- Provision of new 740 turnout points and associated equipment between Up Illawarra Local and Down Bankstown/Goods Line at the country end of Sydenham station.
- Provision of new 742A turnout points and associated equipment from the Up Illawarra Local to the XPT Maintenance Centre.

Details of temporary points to be provided for Sydney Metro are provided in section 12.7 of this document.

## 7.5 Track Circuits / Train Detection

Double rail Jeumont Schneider track circuits will be provided as per ASA standards. Where possible existing track circuit equipment will be reused.

## 7.6 Trainstops

All new main line signals will be fitted with new pneumatic operated JA trainstops. Intermediate trainstops will be provided where necessary.

## 7.7 Bonding

Traction bonding will be required throughout the new crossovers and points proposed around the Sydenham Station, and will be as per ASA Standard SPG 0709.

There are two existing electrolysis bonds located at the City side of ARTC Goods line which will need to be relocated for the track slew with one on the Down Illawarra Main and the other on the Up Bankstown.

## 7.8 Guard Indicators

New guard indicators will be required at Sydenham platform 3 (for down direction movements) and platform 4 (for up direction movements). The guard indicators at Sydenham station platforms 1 & 2 will be removed. Quantity and location of guard indicators is subject to Signal Sighting Committee recommendations.

## 7.9 Signalling Power Supply

The power supply around Sydenham is via the Normal Supply and Emergency Supply with an emergency changeover unit with the main power rooms at Sydenham Equipment Centre.

Sydenham power room has incoming 3-phase 415V for both the normal and emergency supplies and it is equipped with a 415V/120V 150KVA step down transformer. A new UPS will be provided as per ASA standards for the new CBI system. From this power room 120VAC and 50VDC is reticulated to the following CBI area location cases SM577, SM583, SM592, SM595, SM598, SM607, SM611, SM607BT, SM616AT, SM676, SM624 and SM627.

During stage 1, the existing power cables will be renewed and relocated in the new CSR. The alterations to Signalling power supply arrangement due to the new CBI are detailed in the NWRLSRT-JHL-WSS-SI-SPC-000001 Signalling System Architecture Specification.

## 7.10 Warning Lights

No new warning lights have been proposed in this area as part of this project, however due to the proposed track slews, a signal sighting will be required to establish if the existing warning lights will need to be retained.

## 7.11 Telephones

New EOLs and signals will be fitted with new signal post telephones as part of the Sydney Metro – City & Southwest project. Where signals and EOLs are removed, the associated telephones will also be removed.

## 7.12 Speed Boards

The proposed changes to the speed boards around Sydenham area are shown in Section 4.

## 8. Existing, new and altered routes and points

### 8.1 Existing and Altered Signal Routes

The following existing signal routes around Sydenham area will be altered as part of this project:

**Table 8-1 Existing signals / routes**

Signal	Km	Route	Description	Route Indicator	Remarks
SM583I	4.841	(M)A	Home, Down Illawarra Main		Routes (M)C & (S)C removed, MLRI removed. Bottom Route Indicator (RI) blanked.
		(S)A	Shunt, Down Illawarra Main	I	
		(M)B	Home, Down Illawarra Main to Down Illawarra Local		
		(S)B	Shunt, Down Illawarra Main to Down Illawarra Local	IL	
SM585IL	4.841	(M)	Home, Down Illawarra Local		Routes (M)B (top yellow aspect disconnected) & (S)B removed, Route (M)A renamed (M), and route (S)A renamed (S). Stencil route Indicator removed.
		(S)	Shunt, Down Illawarra Local		
SM597IL	5.235		Home, Down Illawarra Local		Align bottom head to become controlled signal. Right hand turnout repeater added.
SM599B	5.222	(M)	Home, Down Bankstown		Signal and trainstop removed, ITS removed.
Fixed Red	5.224		Fixed Red, Down Bankstown		Signal removed
SM600B	5.228	(M)	Home, Up Bankstown		Signal and trainstop removed, Guards Indicator (x3) removed.
		(S)	Shunt, Up Bankstown		
SM609IL	5.429	(M)A	Home, Down Illawarra Local		Relocated the signal towards the city (to 5.416km) to make way for the construction of new 736A points. Replace 2-aspect top head with 3- aspect top head. Provision of shunt
		(S)A	Shunt, Down Illawarra Local	D	

Signal	Km	Route	Description	Route Indicator	Remarks
		(S)B	Shunt, Down Illawarra Local to Up Illawarra Local	U	aspect with stencil route indicator. Rename existing route to have main routes (M)A, (M)C and shunt routes (S)A and (S)B.
		(M)C	Home, Down Bankstown		
SM611B	5.411	(M)A	Home, Down Bankstown to Down Illawarra Local		Signal and trainstop removed, Guards Indicator (x2) removed.
		(S)A	Shunt, Down Bankstown to Down Illawarra Local	IL	
		(S)B	Shunt, Down Bankstown to XPT Maintenance Centre	X	
		(M)C	Home, Down Bankstown		
		(S)C	Shunt, Down Bankstown	B	
SM613B	5.423	(M)A	Home, Up Bankstown to Down Illawarra Local	IL	Signal and trainstop removed, Guards Indicator (x2) removed.
		(S)A	Shunt, Up Bankstown to Down Illawarra Local	IL	
		(S)B	Shunt, Up Bankstown to XPT Maintenance Centre	X	
		(M)C	Home, Up Bankstown to Down Bankstown	B	
		(S)C	Shunt, Up Bankstown to Down Bankstown	B	
SM606B	5.430	(M)	Home, Up Bankstown		Signal and trainstop removed, ITS removed.
SM616IL	5.626	(M)A	Home, Up Illawarra Local		Routes (M)A, (S)A, (M)B & (S)B removed, MLRI and SRIs removed,

Signal	Km	Route	Description	Route Indicator	Remarks
		(M)B	Home, Up Illawarra Local to Down Illawarra Local		Routes (M)C and (S)C retained and renamed (M)A and (S) respectively. 616 ITS relocated
		(S)	Shunt, Up Illawarra Local		New routes (M)B added for movement from Up Illawarra Local to Down Illawarra Local towards platform 4.
SM618	5.639	(S)	Shunt, XPT to Up Illawarra Local		Signal to have only one route towards Up Illawarra Local Route indicators removed.
SM620B	5.639	(M)	Home, Up Bankstown to Up Illawarra Local		Relocate the signal retaining the same kilometrage due to track slew.
		(S)	Shunt, Up Bankstown to Up Illawarra Local		Replace to green aspect with a yellow aspect. Remove the bottom green and low speed aspects.
SM626IL	5.807	(M)A	Home, Up Illawarra Local		Right Hand Turnout Repeater added.
		(S)A	Shunt, Up Illawarra Local	IL	
		(M)B	Home, Up Illawarra Local to Up Illawarra Main		
		(S)B	Shunt, Up Illawarra Local to Up Illawarra Main	I	
SM676G	5.735	(M)A	Home, Goods Line to Up Illawarra Local	U	Add MLRI. Provision of new route.
		(M)B	Home, Goods Line to Down Illawarra Local	D	
		(S)	Shunt, Goods Line to Up Illawarra Local		
SM678B	5.813	(M)	Home, Up Bankstown		Relocate the signal retaining the same kilometrage due to track slew.
		(S)			Removal of bottom green aspect. (S) Route Removed.

## 8.2 New Signal Routes

The proposed new signals and routes are as shown in the table below:

**Table 8-2 Proposed new signals / routes**

Signal / Route Name	Km	Route	Description	Route Indicator	Remarks
SM600IL	5.237 (appx)	(M)	Home, Down Illawarra Local to Up Illawarra Local		New signal fitted with a train stop for movements from platform 4 in the up direction. Provision of new guard's indicator.
		(S)	Shunt, Down Illawarra Local to Up Illawarra Local		
SM600IL Co-Acting	5.237 (appx)	(M)	Home, Down Illawarra Local to Up Illawarra Local		Provision SM600IL Co-Acting due to insufficient structure gauge clearance
		(S)	Shunt, Down Illawarra Local to Up Illawarra Local		
SM611IL	5.416 (appx)	(M)A	Home, Up Illawarra Local to Down Illawarra Local	L	New signal fitted with train stop for movements from platform 3 in the down direction. New MLRI provided. New guards indicators provided.
		(M)C	Home, Up Illawarra Local to Down Bankstown	B	
		(S)B	Shunt, Up Illawarra Local		
SM611IL Co-Acting	5.416(ap px)	(M)A	Home, Up Illawarra Local to Down Illawarra Local	L	Provision SM600IL Co-Acting due to insufficient structure gauge clearance New MMLRI provided.
		(M)C	Home, Up Illawarra Local to Down Bankstown	B	
		(S)B	Shunt, Up Illawarra Local		
SM612	5.525	(S)A	Shunt, Up Illawarra Local	U	New shunt signal to facilitate turnback movements New MMLRI provided. Displays "Green" when SM616 at clear (G/G)
		(S)B	Shunt, Up Illawarra Local to Down Illawarra Local	D	

Signal / Route Name	Km	Route	Description	Route Indicator	Remarks
SM613	5.523	(S)A	Shunt, Up Illawarra Local to Down Illawarra Local	D	New shunt signal to facilitate turnback movements to XPT Maintenance Centre. New MMLRI provided
		(S)B	Shunt, Up Illawarra Local	U	
		(S)C	Shunt, Up Illawarra Local to XPT Maintenance Centre	X	
		(S)D	Shunt, Up Illawarra Local to Down Bankstown	B	

## 8.3 Existing and Altered Points

The following points will be removed:

**Table 8-3 Points alteration**

Points No	Description	Remarks
737A	Turnout Down Illawarra Local to Down Bankstown	Removed Existing Style 'A' EP with EOL & EPB
737B	Catch Point (Guard Rail) Down Bankstown	Removed Existing Style 'A' EP with EOL
737C	Catch Point (Guard Rail) Up Illawarra Local	Removed Existing Style 'A' EP with EOL
738A	Turnout Up Illawarra Local to Up Bankstown	Removed Existing Style 'A' EP with EOL & EPB
738B	Catch Point (Guard Rail) Up Bankstown	Removed Existing Style 'A' EP with EOL
739A/B	Crossover Up Bankstown to Down Bankstown	Removed Existing Style 'S' EP with EOL & EPB
740A/B	Crossover Down Bankstown to Up Illawarra Local	Removed Existing Style 'S' EP with EOL & EPB
742A	Turnout Down Bankstown to XPT Maintenance Centre	Removed Existing Style 'A' EP with EOL & EPB
742B	Catch Point Down Bankstown to XPT Maintenance Centre	Removed Existing Style 'A' EP with EOL



## 8.4 New Points

New points that are proposed around Sydenham area are as follows.

**Table 8-4 Proposed new points**

Points No	Description	Remarks
735A/B	Crossover Down Illawarra Local to Up Illawarra Local	New EP points with EOL & EPB
736A/B	Crossover Down Illawarra Local to Up Illawarra Local	New EP points with EOL & EPB
740	Turnout Up Illawarra Local to Down Bankstown	New EP points with EOL & EPB
741A	Turnout Up Bankstown to Up Illawarra Local	Temporary new EP points with EOL & EPB
741B	Catch Points Up Bankstown to Up Illawarra Local	Temporary new EP catch points with EOL & EPB
742A	Turnout Up Illawarra Local to XPT Maintenance Centre	New EP points with EOL & EPB
742B	Catch Points XPT Maintenance Centre	New EP catch points with EOL & EPB

## 9. Train Operations

The train operations around Sydenham area will change due to the changed track layout configuration. The city end Bankstown line connection to the Illawarra Locals will be replaced with country end connections. To maintain Bankstown line operation a temporary connection will be built to operate Bankstown services via platforms 3 & 4 instead of platforms 1 & 2. The trains in the down direction towards Bankstown will go via platform 4 and trains from Bankstown towards the city will go through platform 3.

The system will allow two trains in the up direction to approach Sydenham station. A train on the Up Illawarra Local approaching platform 4 via 736 crossover reverse will be able to make that movement while another train is approaching platform 3 from the Bankstown Line.

### **Turnback Operation**

Down trains approaching Sydenham station on the Down Illawarra Local will be able to terminate on platform 4. The driver will change train ends, and then the train will be signalled via 600(M) or (S) routes with 735 crossover reverse. The train will proceed via Up Illawarra Local towards the City.

Alternatively, a Down Train can terminate on platform 4, and then proceed via 609(S)B route with 736 crossover reverse through 613(S)B route to the Shunting Limit Board on Up Illawarra Local. The train will then turnback in to platform 3 via 612(S)A route.

Up trains approaching Sydenham station from Tempe on the Up Illawarra Local will have the ability to terminate at either platform 3 or 4. Trains terminating on platform 3, will turn back to Tempe via 611(M)A route with 743 crossover reverse.

Up trains approaching Sydenham station from Tempe on the Up Illawarra Local can also use platform 4, via 616(M)B route with 736 crossover reverse. The train will then turn back via 609(M)A or (S)A routes to the Down Illawarra Local.

Up trains approaching Sydenham station on the Up Bankstown will terminate on platform 3 and will be able to turnback towards Tempe or Bankstown via signal SM611L.

Platforms 3 and 4 will also be used for trains from the XPT Maintenance Centre. The trains will access platform 3 or 4 signalled via 612(S)A or (S)B respectively. A short train will be able to stop at SM604IL signal and turnback to the XPT Centre with 613(S)C route or towards the Bankstown line/Goods line via 613(S)D route without entering Sydenham station.

Further details on the Sydney Trains operations are discussed in Appendix A – Operational Modelling.

### 9.1 Interlocking Principles

#### 9.1.1 Approach Locking and Release

New controlled signals SM5971 (replacing the existing auto signal), SM600IL, SM611L, SM612 and SM613 will have a 120s approach locking time release as per ASA standard ESG100.11.

#### 9.1.2 Automatic Normalisation

Automatic normalisation functionality will be provided on new controlled signals SM5971 (replacing the existing auto signal), SM600IL, SM611L, SM612 and SM613 as per ASA standard ESG100.10.

### 9.1.3 Automatic Re-clearing of Routes

Automatic re-clearing will be provided on all Illawarra Up Main/Local and Down Main/Local signals.

### 9.1.4 Automatic Route Setting (ARS)

The existing ATRICS ARS configuration will be modified to reflect the revised Junction operation.

### 9.1.5 Conditional Clearing of Signals

Controlled signals SM609IL and SM611IL will be provided with conditional overlaps. SM620B conditional overlap will be removed as its full overlap is reduced.

### 9.1.6 Route Releasing

The requirement for route releasing on the new and altered routes will be confirmed during the detailed design phase when the control tables are produced.

## 10. Staging works

### 10.1 Staging Overview

Sydenham Junction signalling scope of works will be completed in three stages.

The first stage will be the services relocation in preparation of the track slews and construction of the Sydney Metro line.

The second stage will be the installation of new crossovers between the Illawarra Locals on the city and country end of Sydenham station.

The third stage will be the commissioning of the new WESTRACE Mk II, the junction reconfiguration and removal of the existing connections of the Bankstown line to the Illawarra Locals on the city end of Sydenham station. Provision of city turnback on platform 4 and country turnback on platform 3 will be enabled in this stage. This stage will free up platforms 1 and 2 to be upgraded to Sydney Metro requirements.

All these stages can be further broken down or combined if possessions and resources allow for such changes. The staging and commissioning plan is detailed in NWRLSRT-JHL-WSS-TC-SCH\_000001 Signalling Testing & Commissioning Strategy.

### 10.2 Support Works

Some of the project stage works are not directly associated with operational changes and may require signalling design and commissioning support ahead of the stage works described below. These may include works such as bonding associated with track circuit alterations, construction of new ULXs or enabling works for CSR construction.

### 10.3 Sydenham Signalling Stage Works

#### 10.3.1 Stage 1 – CSR and Signalling locations Relocation

To make way for the proposed changes to Sydenham Junction at the country end of Sydenham station and the new Metro railway line at the City end of Sydenham station the existing combined service route, existing signalling location cases, SM583, SM611A&B and SM676A&B will be relocated. These works affect the following cables and Compressed Air System.

The cables affected are

- all multicore signalling, communication and power cables between the Sydenham Equipment Centre and existing signalling locations SM577, SM583, SM592A&B, SM595, SM599A&B, SM607, SM611A&B, 607BT, 616AT, SM624A&B, SM627A&B, SM637, SM645, SM401, SM420, SM676A&B, SM681A&B, SM155, SM687 & SM701
- loc to loc cables between these locations
- some tail cables from locations SM577, SM592A&B, SM595, SM599A&B, SM607, 607BT, 616AT, SM624A&B, SM627A&B, SM637, SM645, SM401, SM420, SM676A&B, SM681A&B, SM155, SM687 and SM701 that are run through main CSR
- all tail cables from locations SM583, SM611A&B, SM676A&B

The proposed strategy is to replace the multicore signalling copper cables with fibre optic and commission the WESTRACE Mk II interlocking in a "Pass through" configuration and to run new power, communication cables and

compressed air system pipes in the new CSR. Further details about the Pass through interlocking system are in the NWRLSRT-JHL-WSS-SI-SPC-000001 Signalling System Architecture Specification. The Stage 1 works will be sub-divided as follows to suit available possessions:-

- Stage 1a – Pass through interlocking for SM676 (including relocation of SM676A&B location cases)
- Stage 1b – Pass through interlocking for Turrella area locations SM401 and SM420
- Stage 1c – Pass through interlocking for Tempe area locations SM637 and SM645
- Stage 1d – Pass through interlocking for Sydenham CBI area locations SM577 through SM627 (including relocation of SM583 and replacement of SM611A&B locations with SM611 Bungalow)

Further details about the stages are in the NWRLSRT-JHL-WSS-TC-SCH-000001 Test and Commissioning Strategy.

There will be no ATRICS modifications required in this stage.

The drawings for stage 1 including modifications to pneumatic system are found in Appendix C to Appendix E.

### 10.3.2 Stage 2 – Preparation of New Bankstown Connections

In preparation for the Sydenham Junction reconfiguration, new points will be installed on the city and country end of Sydenham station as follows:

- Provision of new 735 crossover (A&B points) between the Up and Down Illawarra Locals and associated equipment. The points will be clipped and SL locked. The crossovers to be brought to operational use in stage 3
- Provision of new 736 crossover (A&B points) between the Up and Down Illawarra Locals and associated equipment. The points will be clipped, SL locked and detected normal. The crossovers to be brought to operational use in stage 3.
- Provision of new 741A points from the Up Illawarra Local. The points will be clipped and SL locked. The points to be brought into operational use in stage 3.

The drawings for stage 2 are found in Appendix F.

### 10.3.3 Stage 3 – RRI Replacement and Junction Reconfiguration

At this stage the existing relay interlocking will be replaced by a Computer Based Interlocking covering the boundaries discussed in section 6.3.1. Additionally at this stage the following operational changes will be carried out.

- ▶ the connections between the Illawarra Locals and the Bankstown Line with provision of new connections and removal of the existing connections and to enable the turnback operation for the trains from the city on platform 3
- ▶ the turnback movement from the country end on platforms 3 and 4 will be commissioned

The signalling scope of works will be as follows:

- New WESTRACE Mk II for the Sydenham Station area with new ATRICS Connection
- Provision of EOL and telephone for new 735 crossover.
- Provision of the EOL and telephone for 736 crossover.
- Removal of the existing 737 A&B&C points and associated equipment.
- Provision of new temporary 741B catch points and associated equipment.
- Installation of the EOL and telephone for 741 points.

- Removal of the existing 738 A&B points and associated equipment.
- Removal of existing 739 crossovers and associated equipment.
- Removal of existing 740 crossovers and associated equipment.
- Provision of new 740 turnout points and associated equipment on the Illawarra Local at the country end of Sydenham station.
- Removal of existing 742A turnout, 742B catch points and associated equipment.
- Provision of new 742A turnout points and associated equipment on the Up Illawarra Local.
- Provision of 742B catch points and associated equipment on the line to XPT Maintenance centre.
- Removal of the signal SM583I MLRI and blank the bottom stencil route indicator.
- Removal of the top yellow aspect and stencil route indicator on signal SM585.
- Convert existing SM597IL automatic signal to a controlled signal fitted with right hand turnout repeater.
- Removal of SM599B signal and associated equipment.
- Removal of the Fixed Red signal at the city end of platform 2.
- Removal of SM600B signal and associated equipment.
- Provision of new SM600IL signal and co-acting signal and associated equipment for movements in the up direction from platform 4.
- Removal of SM606B signal and associated equipment.
- Relocate SM609IL signal for the installation of 736A points and replace its 2-aspect top head with a 3-aspect head. Install a shunt aspect with stencil route indicator.
- Removal of the existing SM611B signal and associated equipment.
- Provision of new SM611IL signal with multi lamp route indicator and co-acting signal on Up Illawarra Local for movements in the down direction from platform 3.
- Removal of the existing SM613B signal and associated equipment.
- Provision of new SM612 shunt signal and MMLRI on the Up Illawarra Local. Green indication provided.
- Provision of new SM613 shunt signal and MMLRI on the Up Illawarra Local.
- Removal of MLRI and SRIs on signal SM616IL.
- Provision of right hand turnout repeater on signal SM626IL.
- Remove SRIs on SM618 signal.
- Relocation of SM620B signal and associated equipment for track slew retaining the current kilometrage. The top green aspect to be replaced with a yellow aspect. The bottom green and low speed aspects to be removed.
- Provision of a MLRI on signal SM676G for additional routes.
- Relocate SM678B signal and associated equipment for track slew retaining the current kilometrage. The bottom green aspect to be removed.
- Rename existing SM599A and SM599B location cases to SM598A and SM598B respectively. Rename any other affected equipment by the naming change.
- Removal of 599 intermediate trainstop.
- Removal of 606 intermediate trainstop.
- Relocation of 616 intermediate trainstop.
- Removal of 620 intermediate trainstop.
- Removal of guard indicators on platforms 1 and 2.

- Provision of new guard indicators on platform 3 for the down direction movement.
- Provision of new guard indicators for platform 4 for the up direction movement.
- Remove no. 1 platform warning light. The other existing warning lights to be relocated subject the signal sighting committee recommendation.
- Remove all the level crossing warning boards for XPT Maintenance Centre staff crossing.
- Provision of new shunting limit board on Up Illawarra Local.
- Provision of new speed signs and removal of redundant speed signs.
- Modify the Computer Based Interlocking.
- Modify the Relay Interlocking for interface changes.
- Modify the pneumatic system for the signalling layout alterations.
- Modify ATRICS for these changes.
- Track circuits to be upgraded to Double Rail Jeumont Schneider where necessary.

The drawings for stage 3 are found in Appendix G and Appendix H.

## 11. Testing and Commissioning

An initial Test and Commissioning strategy has been developed as detailed in NWRLSRT-JHL-WSS-TC-SCH\_000001 Signalling Testing & Commissioning Strategy; broadly the following testing will be completed.

### 11.1 Factory Acceptance Testing

Design integrity testing of the Computer Based Interlocking will be completed off-site in a simulated environment. A detailed factory acceptance plan will be completed later in the project. Lab testing of elements of the WESTRACE Mk II configuration will be completed as well as FAT in conjunction with the ATRICS design.

### 11.2 Site Acceptance Testing

The site testing will be carried out to complete tests not carried out in a factory simulated environment. This will involve ATRICS SAT, WESTRACE Mk II configuration testing and interface tests. Staging and enabling work, including over and back testing will be completed to minimise the testing required for the final commissioning at stage 3. A detailed site acceptance plan will be completed later in the project.

### 11.3 Commissioning

The commissioning of the new works will include a full correspondence test of all new/alterd track circuits, point machines, trainstops, signalling aspects, miscellaneous equipment and alarms to the Sydenham Control Centre. The detailed commissioning plans will be developed later during the lifecycle of the project.

As part of the commissioning process the changes to the infrastructure will be advertised in the Weekly Notice. A driver's diagram will be provided as part of the notice. The insertion will be prepared and signed as approved to meet the publication dates.



## 12. Requirements for Sydney Metro

As part of Phase 1 of the Sydney Metro – City & Southwest project, the Sydenham Station Junction area reconfiguration is required for part of Sydney Trains' assets to facilitate Sydney Metro operations during intermediate stage. The intermediate stage is defined as a period from commissioning of reconfigured Sydenham Junction until readiness of entire Phase 1 and 2 works of the Sydney Metro – City & Southwest project.

During this intermediate stage, Sydney Metro may operate test trains originating from Platforms 1 & 2 of Sydenham Junction to the Up and Down Bankstown lines respectively. The operational arrangements will have to be defined and agreed amongst various Stakeholders. In addition, the detailed timeline of this intermediate stage is also to be agreed with Sydney Trains and other Stakeholders.

To facilitate operation of Sydney Metro test trains on the Bankstown lines from Platforms 1 & 2, some temporary assets will be installed as part of Phase 1 of the Sydney Metro – City & Southwest project as detailed below.

### 12.1 Track layout changes

A part of Phase 1 of the Sydney Metro – City & Southwest project there will be some track layout changes in the Sydenham Junction area belonging to Sydney Trains. These changes are shown in the Driver's Diagram in Appendix G. These changes are as follows:

- Country end of Sydenham:
  - ▶ Provision of new temporary 800 A&B crossover on the slewed Bankstown lines (To facilitate Sydney Metro Phase 2 integration testing). Temporary Sydney Metro assets, time of installation and configuration to be advised.
  - ▶ Provision of new temporary 801 turnout points on the Down Bankstown line (To facilitate Sydney Metro Phase 2 integration testing). Temporary Sydney Metro assets, time of installation and configuration to be advised.
  - ▶ Provision of new 802 A&B crossover between the Up and Down Bankstown lines (For future Sydney Metro use). Sydney Metro assets, time of installation and configuration to be advised.
  - ▶ Provision of temporary buffer stops with associated equipment on the Up and Down Bankstown lines at the country end of platforms 1 and 2.

The temporary points 800 A&B, 801 and 802 A&B will be set, clipped and SL locked and detected in the Normal during train operations by Sydney Trains on Bankstown line.

### 12.2 Line speeds

The speed restrictions for the Sydney Metro Phase 2 integration testing train run on the Bankstown lines are yet to be agreed with Stakeholders and to be detailed in the Sydney Metro SFS.

### 12.3 Train control system

The existing Sydney Trains signalling system in the Sydenham area is controlled by the Advanced Train Running and Information Control System (ATRICS) located at the Sydenham Control Centre. The Sydenham ATRICS system will require modification to the reflect track circuit indications over temporary turnouts and crossovers. The points for 800 A&B, 801 and 802 A&B will not be controlled from Sydenham ARTICS but Normal detection indication will be provided.

The operational procedure to release the control of these points to Sydney Metro's integration testing is yet to be defined and agreed with Stakeholders. Further details to be provided at later stage.

## 12.4 Signalling Interlocking Configuration and Equipment Rooms

### 12.4.1 Sydenham Equipment Room (SER)

The 800 A&B, 801 and 802 A&B point detection will be read in to the new Westrace MkII for signal interlocking and indication purposes.

### 12.4.2 607BT Location & Annex

The new temporary 800 crossover fall under the area covered by Sydney Trains 607BT Location. The point detection, however, will be provided in nearby 607BT Annex Location to allow independent access to Sydney Metro maintenance staff. A temporary cable from the annex to the main location will be run to read the point detection and the EOL into the Westrace MkII object controller. The track relay for the track circuits over the new temporary 800 crossover will be provided in 607BT Location. The following signalling scope will be undertaken:

- Provision of new temporary 800 crossover and associated equipment on Bankstown line.
- Provision of new track circuits over 800 crossover.

### 12.4.3 676 A&B Location & Annex

The new temporary 801 turnout falls under the area covered by Sydney Trains 676 A&B Location. The point detection, however, will be provided in nearby 676 A&B Annex Location to allow independent access to Sydney Metro maintenance staff. A temporary cable from the annex to the main location will be run to read the point detection and the EOL into the Westrace MkII object controller. The track relay for the track circuits over the new temporary 801 turnout will be provided in 676 A&B Location. The following signalling scope will be undertaken:

- Due to the track slews in preparation for Sydney Metro operation, a new temporary 801 turnout and associated equipment will be installed near existing 760A turnout.
- Provision of new track circuit over 801 turnout.

### 12.4.4 SM155 Location & Annex

The new 802 crossover falls under the area covered by Sydney Trains SM155 Location. The point detection, however, will be provided in nearby SM155 Annex Location to allow independent access to Sydney Metro maintenance staff. A temporary cable from the annex to the main location will be run to read the point detection and the EOL into the nearest Westrace MkII object controller. The track relay for the track circuits over the new 802 crossover will be provided in SM155 Location. The following signalling scope will be undertaken:

- New 802 A&B crossover and associated equipment will be installed for future Sydney Metro operations. In addition, new track circuits will be provided over this crossover.

## 12.5 Cabling and Cable Routes

The cables for temporary assets of Sydney Metro will be run in a new cable route being provided for Phase 1 of the Sydney Metro – City & Southwest project. These cables will be made redundant after the commissioning of Phase 2 of the Sydney Metro – City & Southwest project.

## 12.6 New field equipment

The following new Sydney Metro equipment is proposed to be installed in the Sydney Trains network at Sydenham.

**Table 12-1 Proposed new equipment at Sydenham – Sydney Metro Asset**

Item	Type
Points	D84M electric point machines
Track Circuits	Jeumont Schneider, high voltage impulse (HVI) for the points.
Relays	All relays to be Type Approved by Sydney Trains / ASA and from an approved manufacturer. All vital relays to be BR930 series 50V DC

## 12.7 Points / EOL

As part of the modifications of the Sydenham Junction, crossovers 800 A&B and 802 A&B, turnout 801 will be D84M type and provided with an EOL facility. Determination of the position of the EOLs will take place during site inspection with the maintainers.

- Provision of temporary 800 crossover and associated equipment on the slewed Up Bankstown line at the country end of Sydenham station. Temporary Sydney Metro assets, time of installation and configuration to be advised.
- Provision of the new temporary 801 turnout points and associated equipment. Temporary Sydney Metro assets, time of installation and configuration to be advised.
- Provision of the new 802 points and associated equipment for Sydney Metro operation. The installation time of this asset to be advised as they may be used by Sydney Trains in the interim.

These points will not be electrically controlled from the Sydenham Control Centre. The operation of these points for the purpose of integration testing will be achieved manually using the EOL. The operational requirement to gain access to the EOL from Sydenham Control Centre is yet to be defined and agreed with Stakeholders. The details to be provided at a later stage.

**Table 12-2 Proposed new points**

Points No	Description	Remarks
800A/B	Crossover Up Bankstown to Down Bankstown Metro	New temporary Sydney Metro D84M points, the time of installation and configuration to be advised
801	Turnout Down Bankstown to Down Bankstown Metro	New temporary Sydney Metro D84M points, the time of installation and configuration to be advised.
802	Crossover Up Bankstown to Down Bankstown	New Sydney Metro D84M points, time of installation to be advised. This asset may be used by Sydney Trains in the interim. Details to be advised.

## 12.8 Track Circuits / Train Detection

Double Rail Jeumont Schneider track circuits will be provided over the new temporary points 800 A&B, 801 and 802 A&B. The track circuit indications are to be provided on both Interface Display Screens.

## 12.9 Bonding

Traction bonding will be required throughout the new temporary points 800 A&B, 801 and 802 A&B and connected to the Sydney Trains traction return system. The Down Bankstown electrolysis bond will be transferred to Sydney Metro when the Bankstown line is converted to metro operation. Further details about the interface between the Sydney Trains & Sydney Metro traction system is to be defined by Sydney Metro at later stage.

## 12.10 Telephones

The new temporary points 800 A&B, 801 and 802 A&B will be provided with EOL phones to coordinate release of control from the Sydenham Control Centre. The operational requirements to be discussed and agreed with Stakeholders.

## Appendix A

### Train Operations Modelling





Transport  
for NSW

# Bankstown Slew Project

## Runtime Impact Evaluation v2.0

May 2017



## Background

- Sydney Metro will be undertaking track slews on the Bankstown Line during the conversion works from 2019 to 2024.
- The slewing is to accommodate straight platforms at the future Bankstown Line metro stations whilst minimising impact on existing structures e.g. bridges. It is expected that the realignments will impact train speeds and require tighter bends in some locations. Location of signals may also be altered.
- Sydney Metro seeks advice from RSDO on:
  - Differences in minimum runtimes between today and future change.
  - Impact on the 2018 Timetable during the peaks and off peak – evaluating the overall recovery and impact on the timetable structure and headways.



## Assumptions

- Rollingstock performance – C set operating on 6% recovery allowance.
- 2018 RailSys Infrastructure (RailNetwork\_180923\_160912\_v4.xx)
- 2018 Sector 2 Design Timetable (December 2016)
- Train Operation Conditions (TOC) Manual Book 2 – Division pages version 8 (19 December 2016) for the current track speeds.
- Signal Functional Specifications for the different stages:
  - NWRLSRT-PBA-WEC-SI-SPC-000001 – Sydenham to Hurlstone Park
  - NWRLSRT-PBA-WEC-SI-SPC-000002 – Canterbury to Lakemba
  - NWRLSRT-PBA-WEC-SI-SPC-000003 – Lakemba to Bankstown  
Note: The changes for the final Bankstown layout are excluded in the model to allow the normal operation of the T3 Bankstown services.
  - NWRLSRT-PBA-WEC-SI-SPC-000007 – Sydenham Station Junction(SSJ)  
Note: Up and Down Bankstown tracks will be connected through Sydenham platforms 3 and 4.

## Assumptions (contd.)

- Sample trips
  - All stops between St Peters and Bankstown.
  - Limited stops – Sydenham, Marrickville, Campsie, Lakemba and Bankstown.
  - Bankstown services will operate via Sydenham platforms 3 and 4.



## Minimum runtime changes (w/ 6% allowance) - Up

Table below shows a summary of the minimum runtime (with 6% allowance) on the down direction. Overall, an improvement in runtime of up to 19 seconds faster on the all stops service.

Up Bankstown to St Peters (times in seconds)							
Section		All stops			Limited Stops		
From	To	Current	Proposed	Change	Current	Proposed	Change
Bankstown	Punchbowl	157	164	+7	142	148	+6
Punchbowl	Wiley Park	92	86	-6	57	52	-5
Wiley Park	Lakemba	84	85	+1	65	67	+2
Lakemba	Belmore	110	115	+5	99	105	+6
Belmore	Campsie	131	120	-11	124	113	-11
Campsie	Canterbury	119	123	+4	102	107	+5
Canterbury	Hurlstone Park	114	114	0	87	87	0
Hurlstone Park	Dulwich Hill	88	90	+2	60	61	+1
Dulwich Hill	Marrickville	106	111	+5	94	99	+5
Marrickville	Sydenham (3)	133	127	-6	133	127	-6
Sydenham (3)	St Peters	143	123	-20	129	108	-21
<b>Total</b>		<b>1134</b>	<b>1135</b>	<b>-19</b>	<b>963</b>	<b>966</b>	<b>-18</b>

## Minimum runtime changes (w/ 6% allowance) - Down

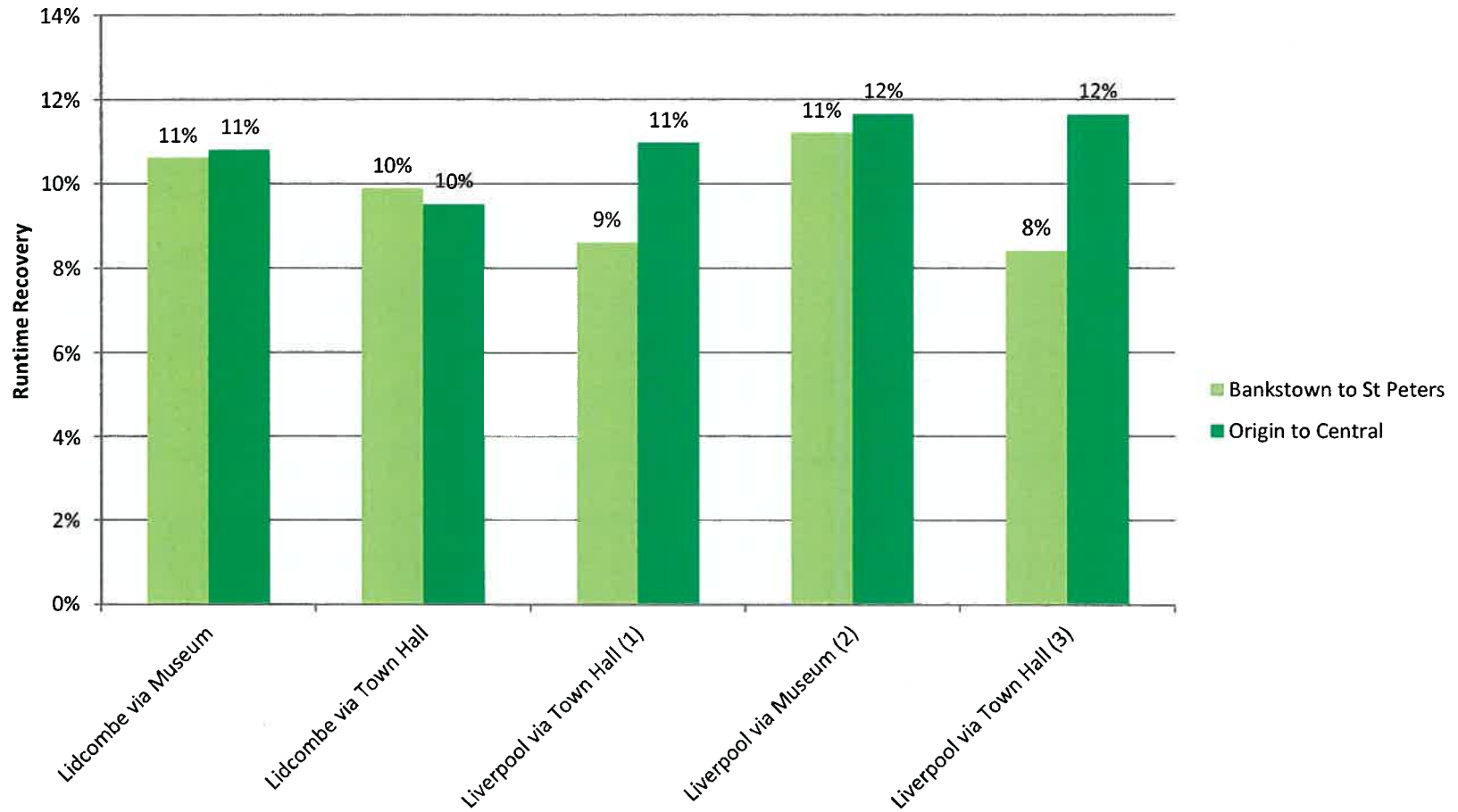
Table below shows a summary of the minimum runtime (with 6% allowance) on the down direction. Overall, an improvement in runtime of up to 36 seconds faster on the limited stops service.

DOWN St Peters to Bankstown (times in seconds)							
Section		All stops			Limited Stops		
From	To	Current	Proposed	Change	Current	Proposed	Change
St Peters	Sydenham (4)	152	132	-20	138	118	-20
Sydenham (4)	Marrickville	154	126	-28	154	126	-28
Marrickville	Dulwich Hill	107	113	+6	92	98	+6
Dulwich Hill	Hurlstone Park	89	90	+1	60	61	+1
Hurlstone Park	Canterbury	113	114	+1	87	87	0
Canterbury	Campsie	120	125	+5	107	112	+5
Campsie	Belmore	126	123	-3	116	113	-3
Belmore	Lakemba	113	116	+3	105	108	+3
Lakemba	Wiley Park	86	84	-2	66	64	-2
Wiley Park	Punchbowl	94	88	-6	55	49	-6
Punchbowl	Bankstown	151	159	+8	138	146	+8
<b>Total</b>		<b>1305</b>	<b>1270</b>	<b>-35</b>	<b>1118</b>	<b>1082</b>	<b>-36</b>

## 2018 T3 Bankstown Peak Recovery

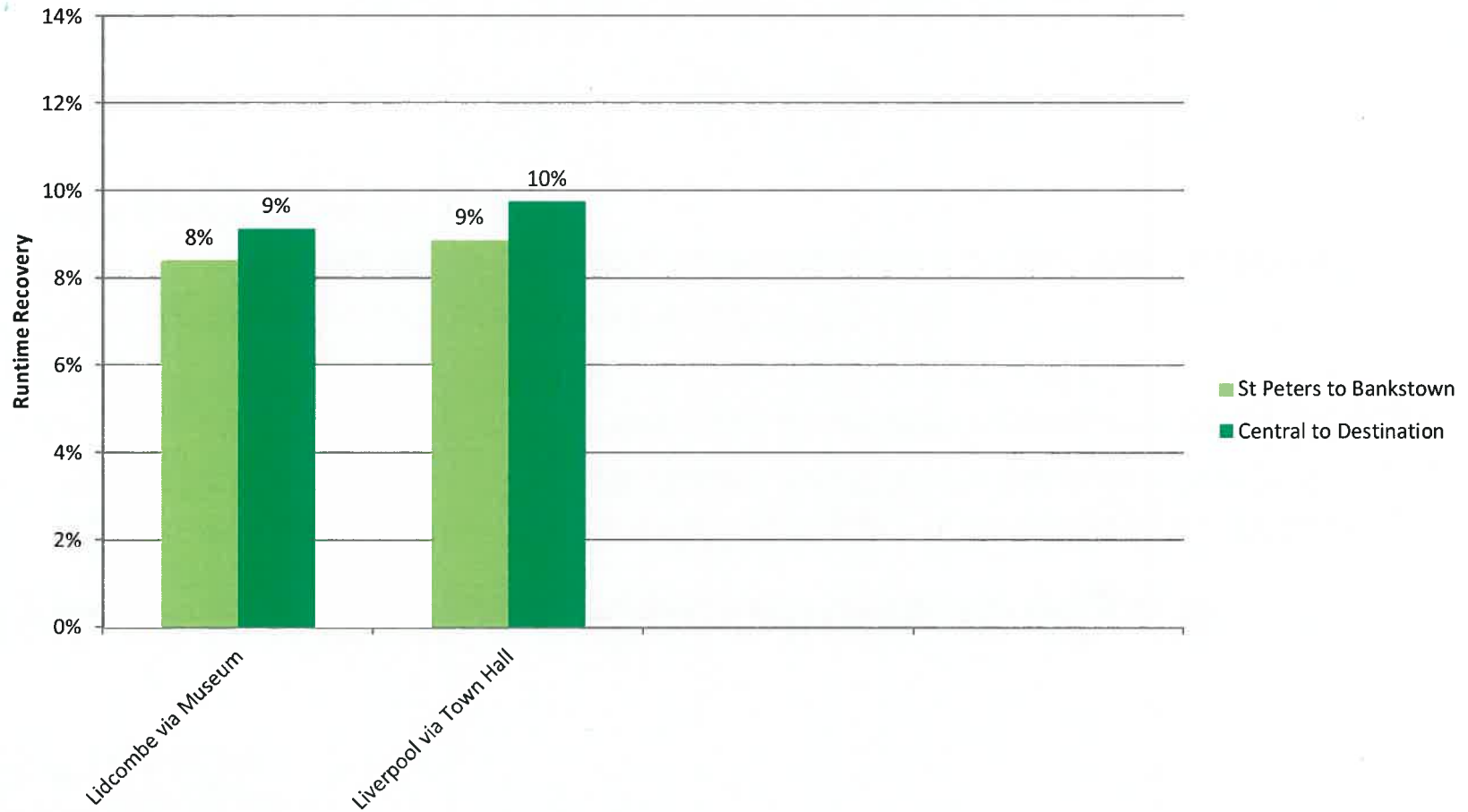
- AM Peak services will have acceptable amount of sectional recovery between Bankstown and St Peters, which is between 8%-11% and the overall recovery between 10% - 12% as shown in the next 2 slides.
- Similarly, the PM peak will see 8% - 10% sectional recovery between St Peters and Bankstown and the overall recovery between 9% - 10% as also shown in the next 2 slides.

### 2018 AM Peak T3 Bankstown Runtime Recovery





### 2018 PM Peak T3 Bankstown Runtime Recovery





## Sydenham Platform Operations Analysis

- Sydenham was analysed to examine the impact of operating all timetable services from and to the T3 Bankstown Line through platforms 3 and 4.
- Analysis was looking at the junction moves on the country end of Sydenham platforms for timetable clashes.
- Revised timings can be seen on the following slide.
- NSW TrainLink Regional services (and associated empty moves) have not been assessed at this time.





## Sydenham platform operations <sup>^</sup>

Service	Platform	Arrive	Depart
T2 Airport via Sydenham	U-3	07:30:02	07:30:32
T3 Bankstown	D-4	07:30:54	07:31:18
T3 Bankstown	U-3	07:33:12	07:33:42
T3 Bankstown	U-3	07:36:30	07:37:00
T3 Bankstown	U-3	07:41:06	07:41:36
T2 Airport via Sydenham	U-3	07:45:02	07:45:32
T3 Bankstown	D-4	07:45:54	07:46:18
T3 Bankstown	U-3	07:49:42	07:50:12
T3 Bankstown	U-3	07:53:36	07:54:06
T3 Bankstown	D-4	07:54:54	07:55:18
T2 Airport via Sydenham	U-3	08:00:02	08:00:32
T3 Bankstown	D-4	08:00:54	08:01:18
T3 Bankstown	U-3	08:03:30	08:04:00
T3 Bankstown	U-3	08:06:30	08:07:00
T3 Bankstown	D-4	08:09:54	08:10:18
T3 Bankstown	U-3	08:11:06	08:11:36
T2 Airport via Sydenham	U-3	08:15:02	08:15:32
T3 Bankstown	D-4	08:15:54	08:16:18

Service	Platform	Arrive	Depart
T3 Bankstown	U-3	08:19:42	08:20:12
Empty	D-4		08:22:08
Empty	D-4		08:25:36
T3 Bankstown	U-3	08:23:36	08:24:06
T2 Airport via Sydenham	U-3	08:30:02	08:30:32
T3 Bankstown	D-4	08:30:54	08:31:18
T3 Bankstown	U-3	08:33:30	08:34:00
Empty	D-4		08:36:33
T3 Bankstown	U-3	08:36:30	08:37:00
T3 Bankstown	D-4	08:39:54	08:40:18
T3 Bankstown	U-3	08:41:06	08:41:36
T2 Airport via Sydenham	U-3	08:45:02	08:45:32
T3 Bankstown	D-4	08:45:54	08:46:18
T3 Bankstown	U-3	08:49:24	08:49:54
Empty	D-4		08:52:08
Empty	D-4		08:53:36
T3 Bankstown	U-3	08:55:00	08:55:24
T3 Bankstown	U-3	09:00:30	09:00:54

<sup>^</sup> - timings are indicative and T2 Airport via Sydenham are stopping at St Peters.

## Summary Results

- Point to point runtimes - up to 19 seconds faster on the Up direction and 36 seconds faster on the down direction on the minimum runtime between Bankstown and St Peters section based on C-Set Performance (6%).
- Runtime Recovery - AM peak will see 8-11 percent between Bankstown and St Peters and 10-12 percent in the overall. PM peak will see 8-10 percent between St Peters and 9-10 percent in the overall. Recovery levels are at acceptable levels.
- Bankstown services operating via platforms 3 and 4 proved to be operationally feasible. T2 Airport via Sydenham services will now stop at St Peters to allow a minimum of 8 trains per hour at this station. Please note that the additional stop at St Peters is inherent from the latest change of 2017 version 2. To note that the times at Sydenham platforms are indicative and are subject to full review of the T3 Bankstown stopping pattern in the AM peak.
- No impacts to the 2018 timetable structure were found as a result of the changes in the infrastructure.

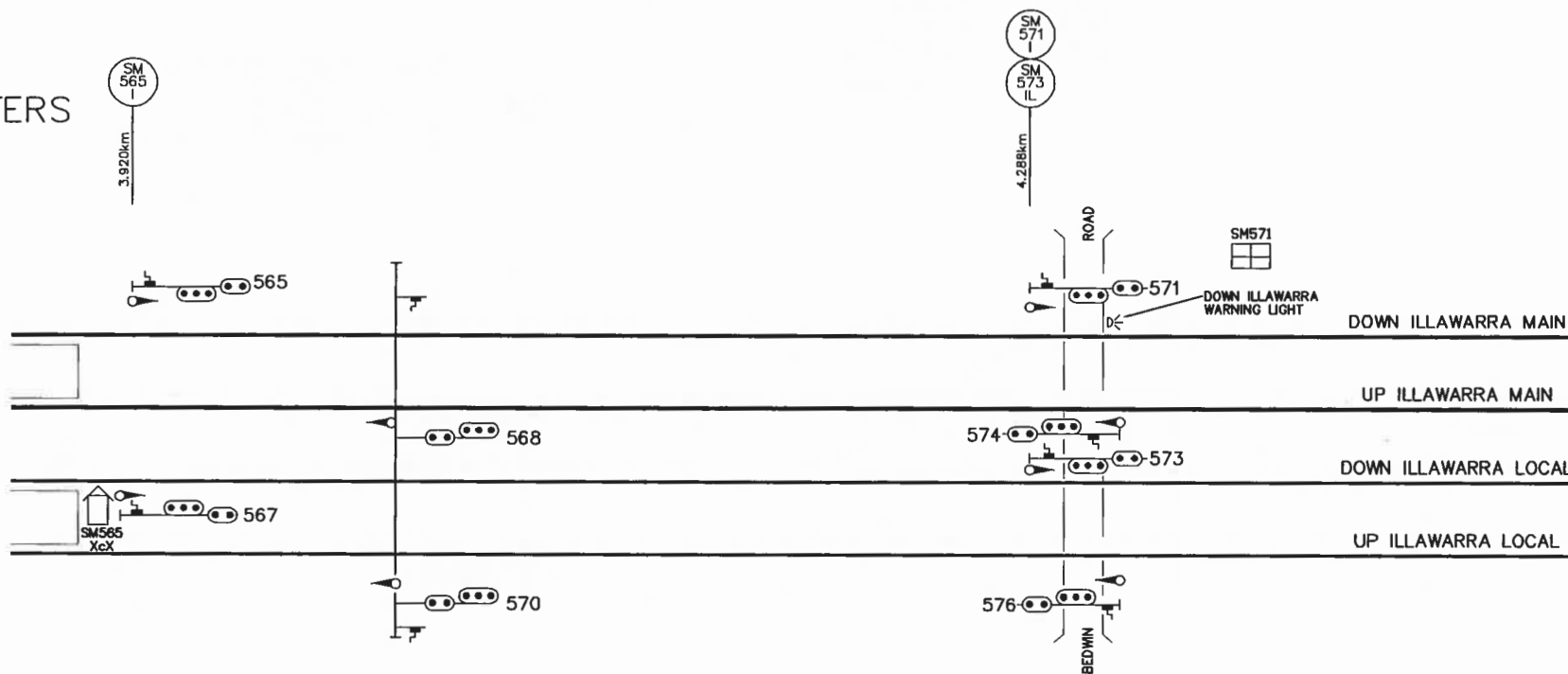
## Appendix B

### Existing Sydenham Driver's Diagrams



ST. PETERS

FROM SYDNEY



CONTINUED ON SHEET 2

Plot Date & Time 6/23/2017 8:33 AM

File Plotted SYDENHAM JUNCTION\_DD\_EXISTING.dwg

Plotted by WATTS, STEVE

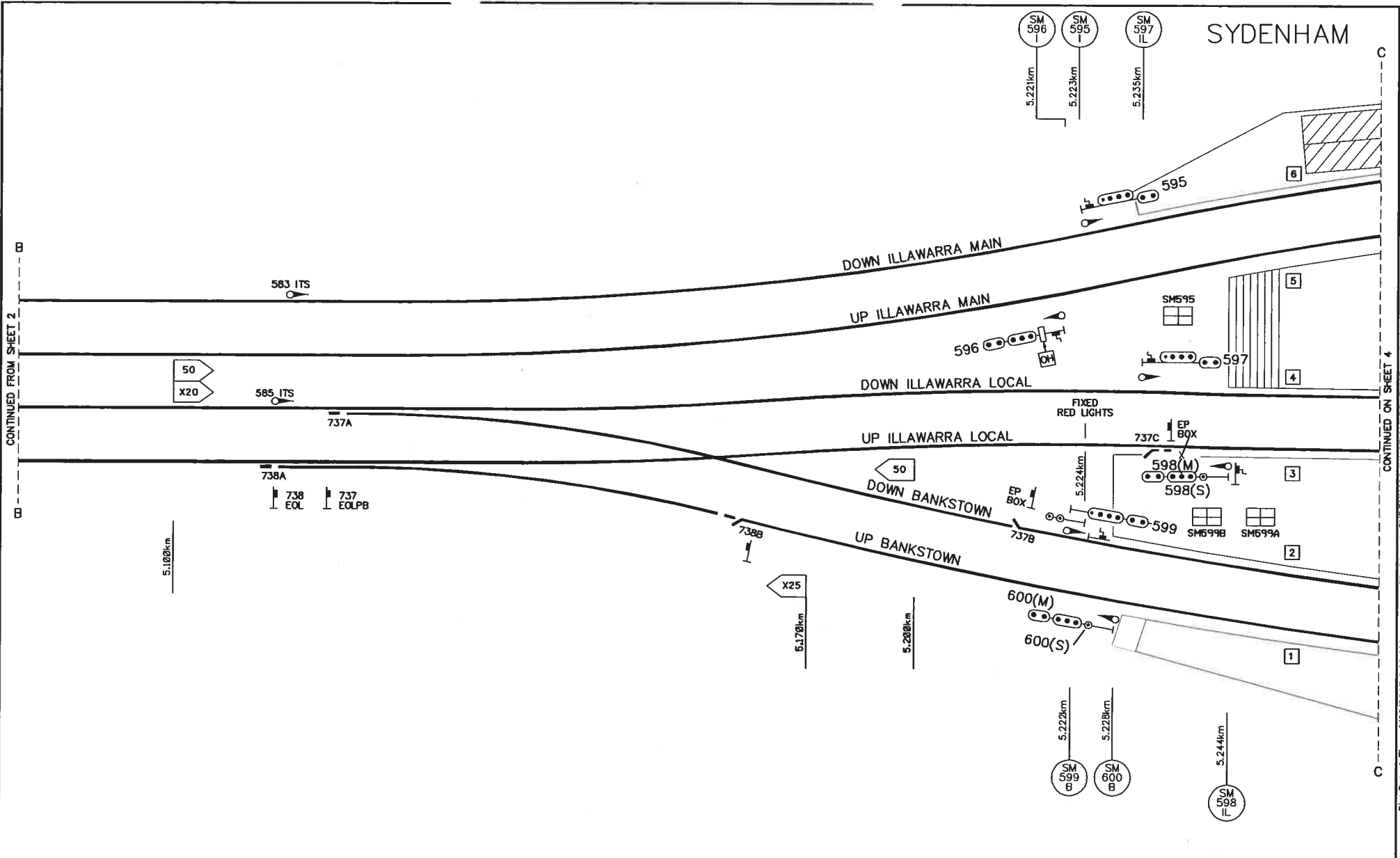
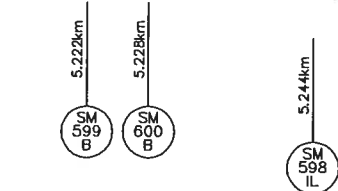
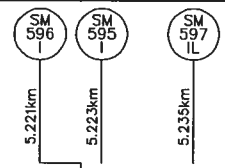


SYDENHAM JUNCTION  
EXISTING DRIVERS DIAGRAM  
SIGNALLING ARRANGEMENT SHEET 1 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 23062017



# SYDENHAM



CONTINUED FROM SHEET 2

CONTINUED ON SHEET 4

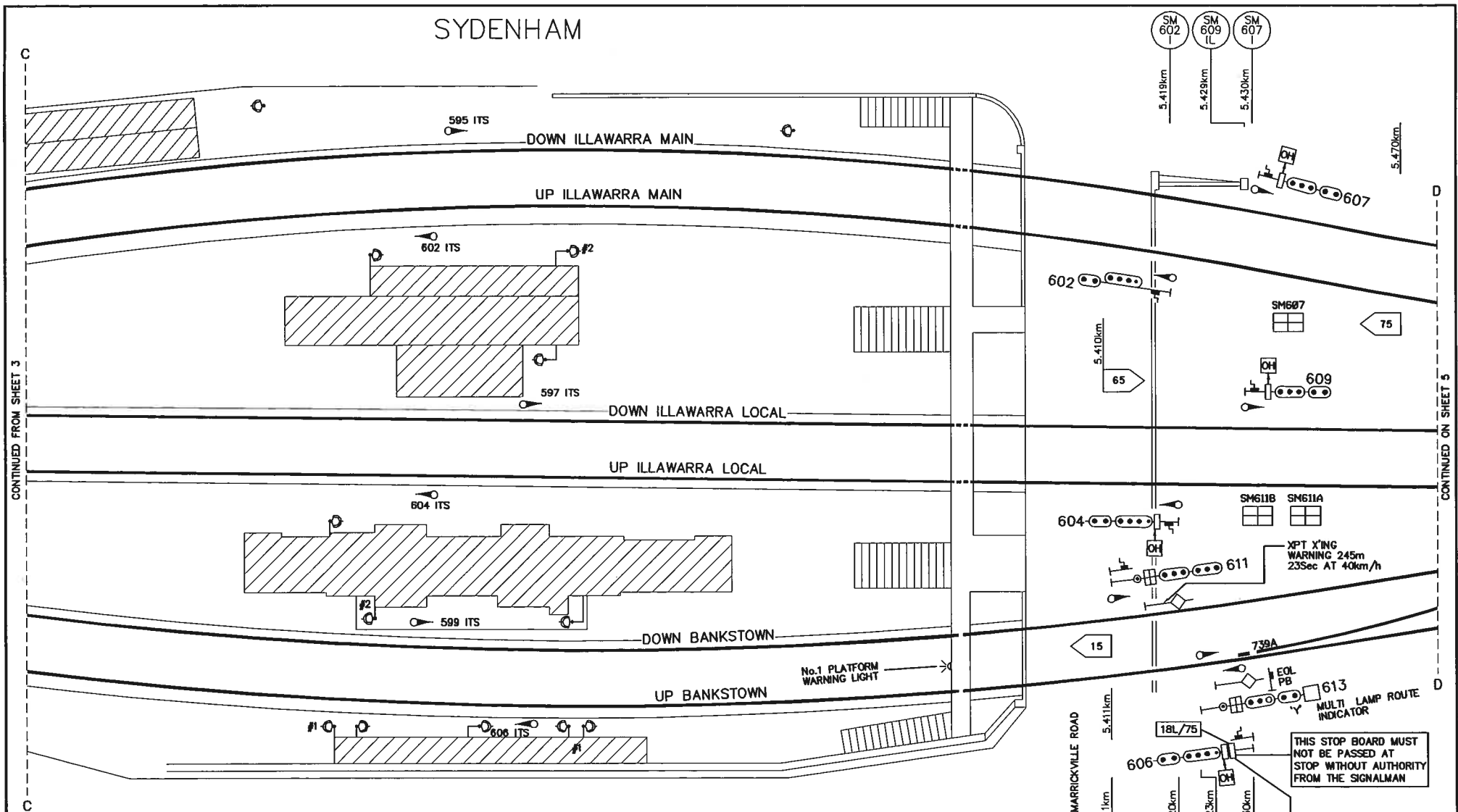
Plot Date & Time 6/23/2017 8:33 AM File Plotted SYDENHAM\_JUNCTION\_DO\_EXISTING.dwg



## SYDENHAM JUNCTION EXISTING DRIVERS DIAGRAM SIGNALLING ARRANGEMENT SHEET 3 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 23062017

# SYDENHAM



CONTINUED FROM SHEET 3

CONTINUED ON SHEET 5

File Plotted: SYDENHAM JUNCTION\_DD\_EXISTING.dwg

Plot Date & Time: 6/23/2017 8:33 AM

Plotted by: WATTS, STEVE

- #1 ALDRIDGE LED UNIT
- #2 120V ALDRIDGE LED UNIT

A	IL	X	B
	B	C	

613(S)	SIGNAL	ROUTE	DESTINATION	IND.
A	613	(M)A	DOWN ILLAWARRA LOCAL	IL
		(S)A	DOWN ILLAWARRA LOCAL	IL
		(S)B	DOWN XPT	X
		(M)C	DOWN BANKSTOWN	B
		(S)C	DOWN BANKSTOWN	B

611(S)	SIGNAL	ROUTE	DESTINATION	IND.
A	611	(M)A	DOWN ILLAWARRA LOCAL	-
		(S)A	DOWN ILLAWARRA LOCAL	IL
		(S)B	DOWN XPT	X
		(M)C	DOWN BANKSTOWN	-
		(S)C	DOWN BANKSTOWN	B

A	IL	X	B
	B	C	



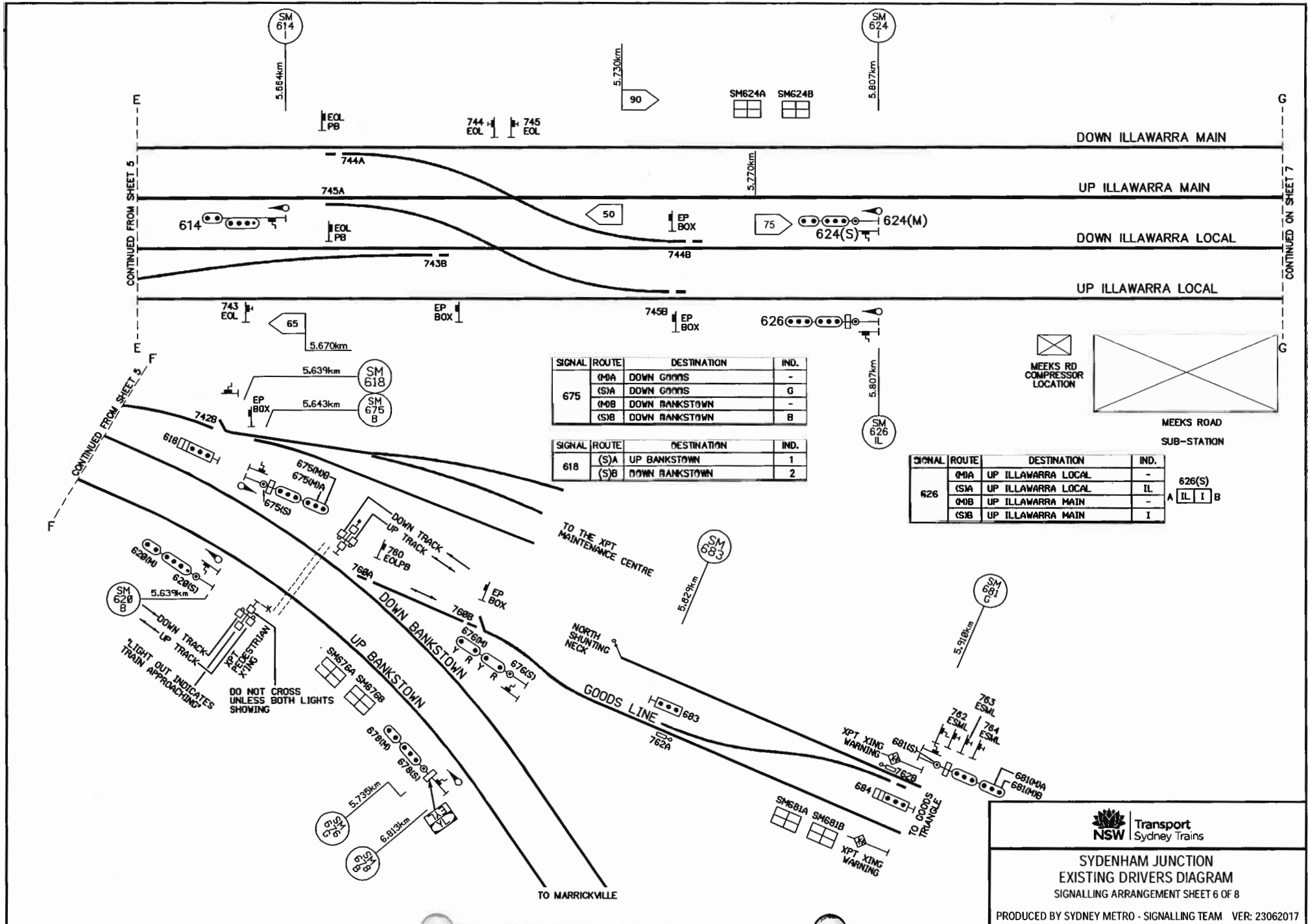
## SYDENHAM JUNCTION EXISTING DRIVERS DIAGRAM

SIGNALLING ARRANGEMENT SHEET 4 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 23062017



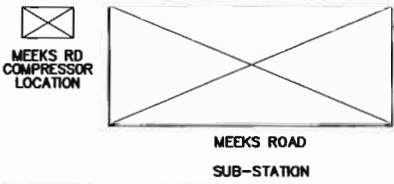




SIGNAL	ROUTE	DESTINATION	IND.
675	(MA)	DOWN GOONNS	-
	(SA)	DOWN GOONNS	G
	(MB)	DOWN BANKSTOWN	-
	(SB)	DOWN BANKSTOWN	B

SIGNAL	ROUTE	DESTINATION	IND.
618	(SA)	UP BANKSTOWN	1
	(SB)	DOWN BANKSTOWN	2

SIGNAL	ROUTE	DESTINATION	IND.
626	(MA)	UP ILLAWARRA LOCAL	-
	(SA)	UP ILLAWARRA LOCAL	IL
	(MB)	UP ILLAWARRA MAIN	-
	(SB)	UP ILLAWARRA MAIN	I



CONTINUED FROM SHEET 5

CONTINUED ON SHEET 7

DO NOT CROSS UNLESS BOTH LIGHTS SHOWING

\*LIGHT OUT INDICATES TRAIN APPROACHING

**SYDENHAM JUNCTION**  
 EXISTING DRIVERS DIAGRAM  
 SIGNALLING ARRANGEMENT SHEET 6 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 23062017

CONTINUED FROM SHEET 6

CONTINUED ON SHEET 8

SIGNAL	ROUTE	DESTINATION	IND.
639	(MA)	DOWN ILLAWARRA MAIN	-
	(SA)	DOWN ILLAWARRA MAIN	I
	(MB)	DOWN ILLAWARRA LOCAL	-
	(SB)	DOWN ILLAWARRA LOCAL	IL

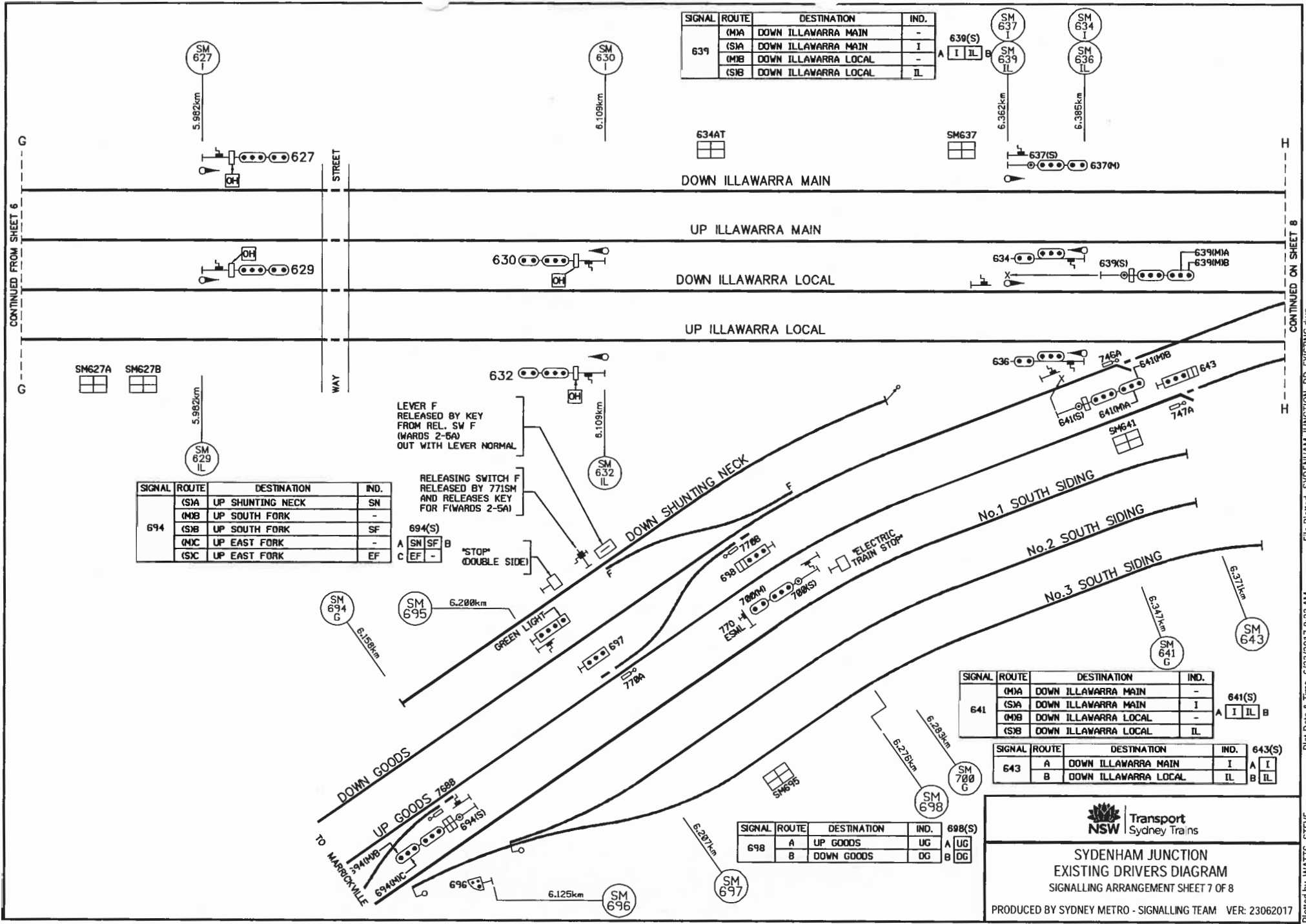
SIGNAL	ROUTE	DESTINATION	IND.
694	(SA)	UP SHUNTING NECK	SN
	(MB)	UP SOUTH FORK	-
	(SB)	UP SOUTH FORK	SF
	(NC)	UP EAST FORK	-
	(SC)	UP EAST FORK	EF

SIGNAL	ROUTE	DESTINATION	IND.
641	(MA)	DOWN ILLAWARRA MAIN	-
	(SA)	DOWN ILLAWARRA MAIN	I
	(MB)	DOWN ILLAWARRA LOCAL	-
	(SB)	DOWN ILLAWARRA LOCAL	IL

SIGNAL	ROUTE	DESTINATION	IND.
643	A	DOWN ILLAWARRA MAIN	I
	B	DOWN ILLAWARRA LOCAL	IL

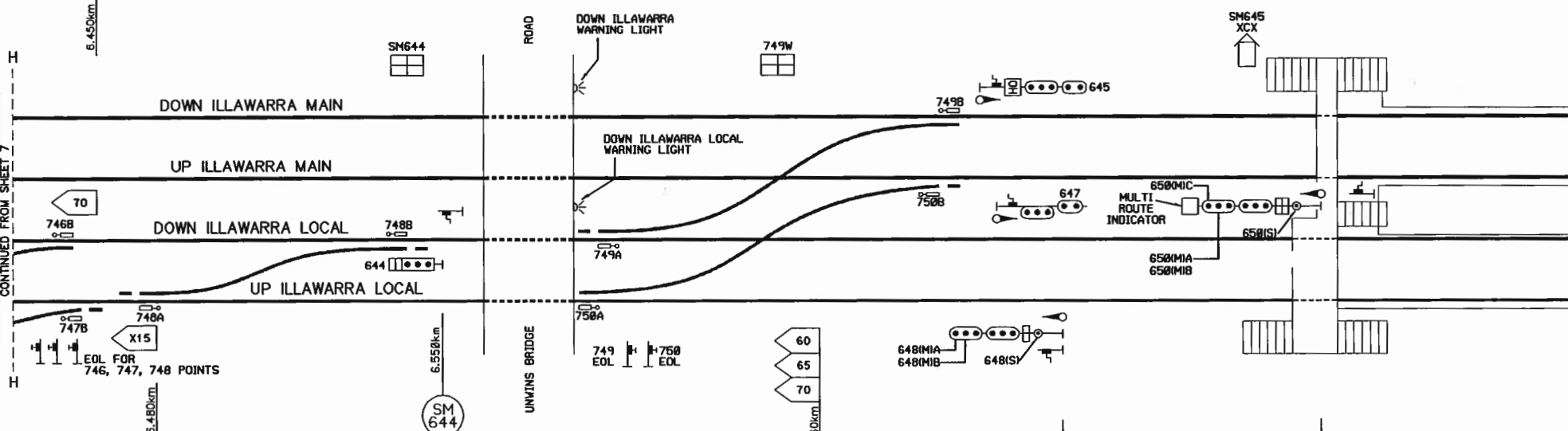
SIGNAL	ROUTE	DESTINATION	IND.
698	A	UP GOODS	UG
	B	DOWN GOODS	DG


  
**SYDENHAM JUNCTION**  
 EXISTING DRIVERS DIAGRAM  
 SIGNALLING ARRANGEMENT SHEET 7 OF 8  
 PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 23062017



Plot Date & Time 6/23/2017 8:33 AM  
 File Plotted SYDENHAM JUNCTION\_DD\_EXISTING.dwg  
 Plotted by WATTS, STEVE

TEMPE



CONTINUED FROM SHEET 7

SIGNAL	ROUTE	DESTINATION	IND.	644(S)
644	A	UP GOODS	G	A G
	B	UP ILLAWARRA LOCAL	IL	B IL

SIGNAL	ROUTE	DESTINATION	IND.	648(S)
648	(M)A	UP GOODS	-	A G IL B
	(S)A	UP GOODS	G	
	(M)B	UP ILLAWARRA LOCAL	-	
	(S)B	UP ILLAWARRA LOCAL	IL	

SIGNAL	ROUTE	DESTINATION	IND.	650(S)
650	(M)A	UP GOODS	G	A G IL B C
	(S)A	UP GOODS	G	
	(M)B	UP ILLAWARRA LOCAL	IL	
	(S)B	UP ILLAWARRA LOCAL	IL	
	(M)C	UP ILLAWARRA MAIN	-	
	(S)C	UP ILLAWARRA MAIN	I	

**SYDENHAM JUNCTION**  
 EXISTING DRIVERS DIAGRAM  
 SIGNALLING ARRANGEMENT SHEET 8 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 23062017

Plot Date & Time 6/23/2017 8:33 AM File Plotted SYDENHAM\_JUNCTION\_DD\_EXISTING.dwg Plotted by WATTS, STEVE

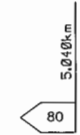
# Appendix C

## Stage 1 – Proposed Services Relocation DD



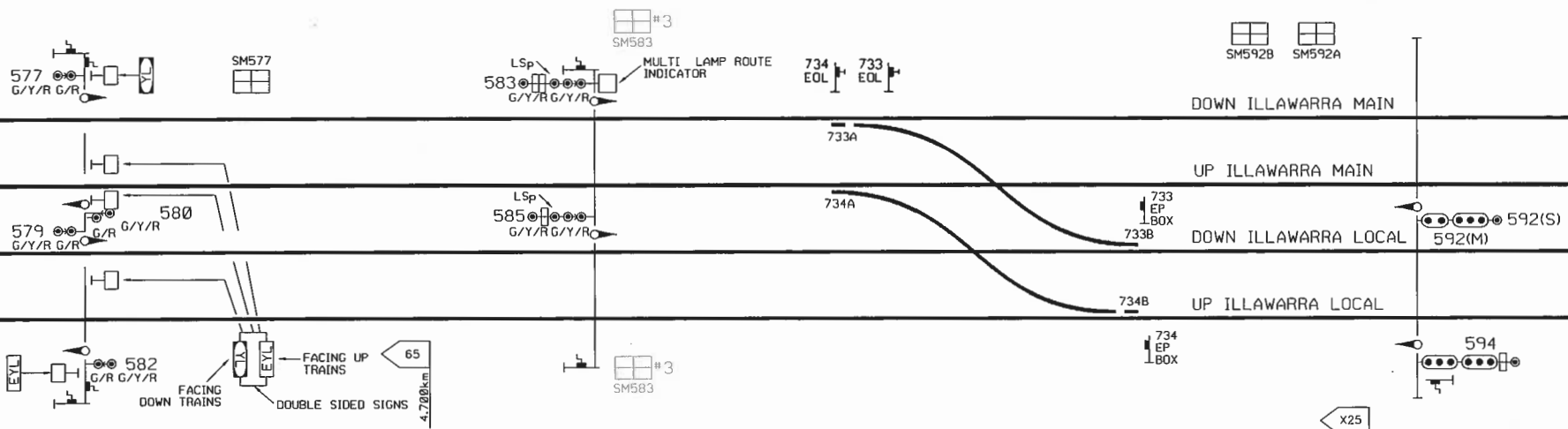


SIGNAL	ROUTE	DESTINATION	IND.
583	(MIA)	DOWN ILLAWARRA MAIN	-
	(SIA)	DOWN ILLAWARRA MAIN	I
	(MIB)	DOWN ILLAWARRA LOCAL	IL
	(SIB)	DOWN ILLAWARRA LOCAL	IL
	(MIC)	DOWN BANKSTOWN	B
(SIC)	DOWN BANKSTOWN	B	



CONTINUED FROM SHEET 1

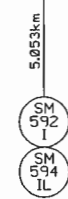
CONTINUED ON SHEET 3



SIGNAL	ROUTE	DESTINATION	IND.
585	(MIA)	DOWN ILLAWARRA LOCAL	-
	(SIA)	DOWN ILLAWARRA LOCAL	IL
	(MIB)	DOWN BANKSTOWN	-
	(SIB)	DOWN BANKSTOWN	B



SIGNAL	ROUTE	DESTINATION	IND.
594	(MIA)	UP ILLAWARRA LOCAL	-
	(SIA)	UP ILLAWARRA LOCAL	IL
	(MIB)	UP ILLAWARRA MAIN	-
	(SIB)	UP ILLAWARRA MAIN	I



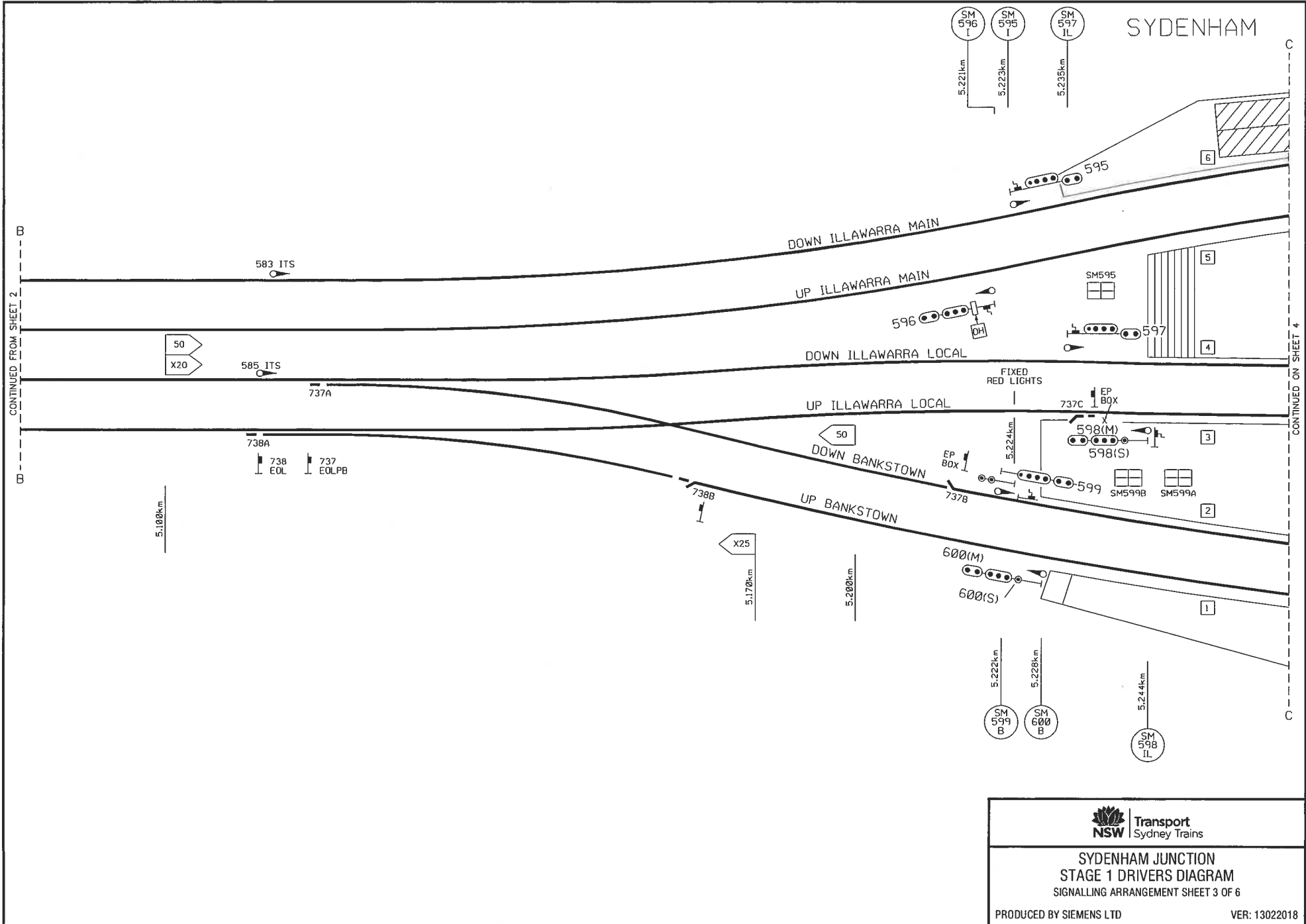
NOTE:  
#3 RELOCATED FOR SYDNEY METRO TRACKS CONSTRUCTION.

**SYDENHAM JUNCTION**  
**STAGE 1 DRIVERS DIAGRAM**  
SIGNALLING ARRANGEMENT SHEET 2 OF 6

PRODUCED BY SIEMENS LTD VER: 13022018

Plotted by SGRO, TANYA (RC-AU MO R3RMS \$06p & Time 2/16/2018 3:36 PM File Plotted SYDENHAM\_JUNCTION\_DD\_STAGE 1.dwg

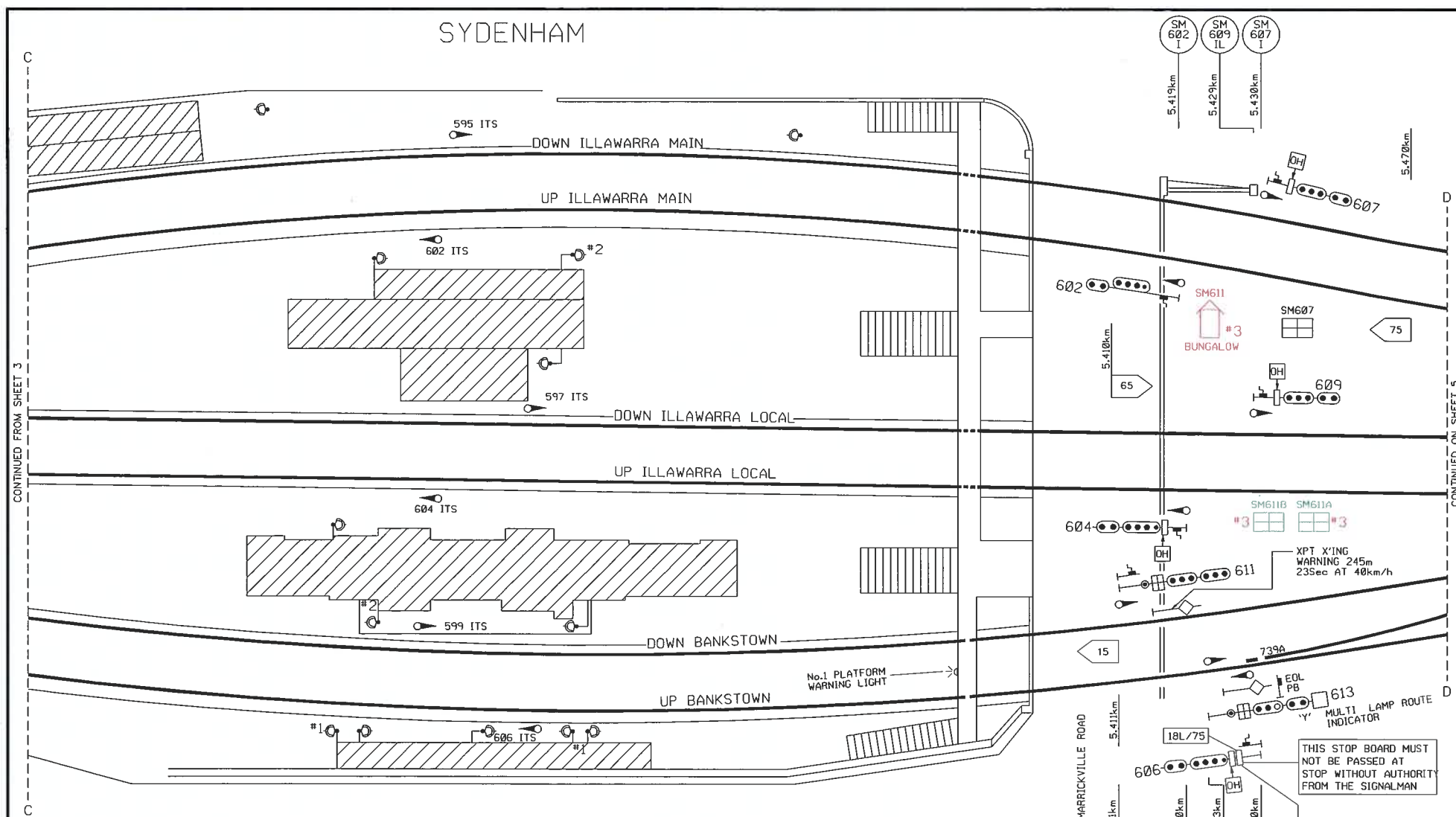




<b>SYDENHAM JUNCTION</b> <b>STAGE 1 DRIVERS DIAGRAM</b> SIGNALLING ARRANGEMENT SHEET 3 OF 6	
PRODUCED BY SIEMENS LTD	VER: 13022018

Plotted by SGRG, TANYA (RC-AU MO R3) Date: 2/16/2018 3:36 PM File Plotted: SYDENHAM\_JUNCTION\_UD\_STAGE 1.dwg

# SYDENHAM



CONTINUED FROM SHEET 3

CONTINUED ON SHEET 5

- \*1 ALDRIDGE LED UNIT
- \*2 120V ALDRIDGE LED UNIT

613(S)	
A	B
IL	X
B	C

SIGNAL	ROUTE	DESTINATION	IND.
613	(M)A	DOWN ILLAWARRA LOCAL	IL
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN XPT	X
	(M)C	DOWN BANKSTOWN	B
	(S)C	DOWN BANKSTOWN	B

SIGNAL	ROUTE	DESTINATION	IND.
611	(M)A	DOWN ILLAWARRA LOCAL	-
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN XPT	X
	(M)C	DOWN BANKSTOWN	-
	(S)C	DOWN BANKSTOWN	B

611(S)	
A	B
IL	X
B	C

NOTE:  
\*3 RELOCATED TO NEW POSITION FOR DEMARCATION FENCE AND CONVERTED TO A BUNGALOW.

THIS STOP BOARD MUST NOT BE PASSED AT STOP WITHOUT AUTHORITY FROM THE SIGNALMAN

XPT X'ING WARNING 236m 215sec AT 40km/hr

**SYDENHAM JUNCTION**  
**STAGE 1 DRIVERS DIAGRAM**  
SIGNALLING ARRANGEMENT SHEET 4 OF 6

PRODUCED BY SIEMENS LTD VER: 13022018

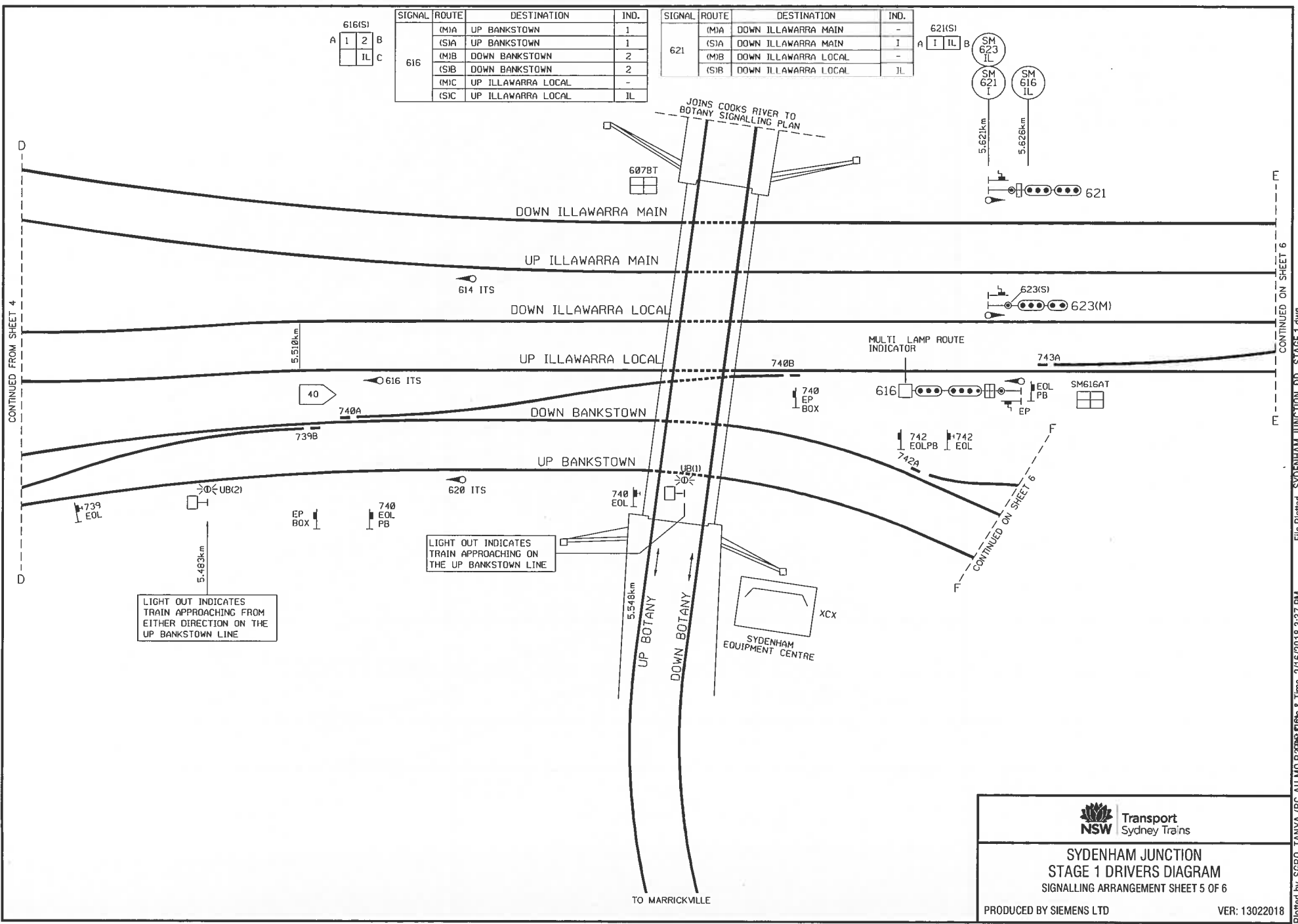
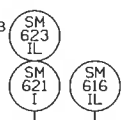
File Plotted SYDENHAM JUNCTION\_DD\_STAGE1.dwg Plotted by SGRC, TANVA (RC-AU MO R3PRN \$166 & Time 2/16/2018 4:13 PM

616(S)		
A	1	2
	IL	C

SIGNAL	ROUTE	DESTINATION	IND.
616	(M)A	UP BANKSTOWN	1
	(S)A	UP BANKSTOWN	1
	(M)B	DOWN BANKSTOWN	2
	(S)B	DOWN BANKSTOWN	2
	(M)C	UP ILLAWARRA LOCAL	-
	(S)C	UP ILLAWARRA LOCAL	IL

SIGNAL	ROUTE	DESTINATION	IND.
621	(M)A	DOWN ILLAWARRA MAIN	-
	(S)A	DOWN ILLAWARRA MAIN	I
	(M)B	DOWN ILLAWARRA LOCAL	-
	(S)B	DOWN ILLAWARRA LOCAL	IL

621(S)		
A	I	IL
	IL	B



LIGHT OUT INDICATES TRAIN APPROACHING ON THE UP BANKSTOWN LINE

LIGHT OUT INDICATES TRAIN APPROACHING FROM EITHER DIRECTION ON THE UP BANKSTOWN LINE

**SYDENHAM JUNCTION**  
**STAGE 1 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 5 OF 6

PRODUCED BY SIEMENS LTD
VER: 13022018

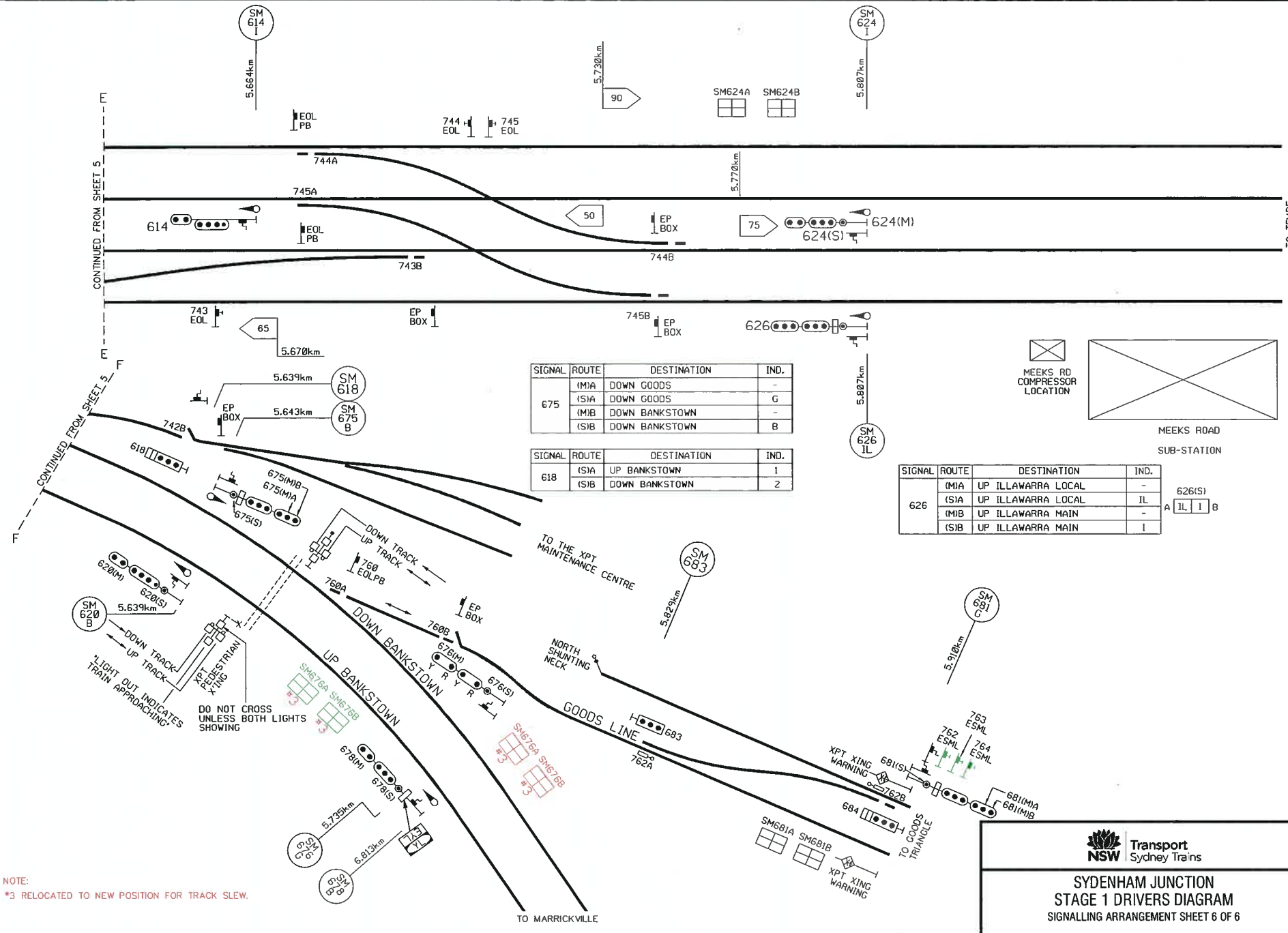
CONTINUED FROM SHEET 4

CONTINUED ON SHEET 6

CONTINUED ON SHEET 6

File Plotted: SYDENHAM\_JUNCTION\_DD\_STAGE1.dwg

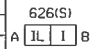
Plotted by SGRO, TANYA (RC-AU MO R3PMA) Date & Time 2/16/2018 3:37 PM



SIGNAL	ROUTE	DESTINATION	IND.
675	(M)A	DOWN GOODS	-
	(S)A	DOWN GOODS	G
	(M)B	DOWN BANKSTOWN	-
	(S)B	DOWN BANKSTOWN	B

SIGNAL	ROUTE	DESTINATION	IND.
618	(S)A	UP BANKSTOWN	1
	(S)B	DOWN BANKSTOWN	2

SIGNAL	ROUTE	DESTINATION	IND.
626	(M)A	UP ILLAWARRA LOCAL	-
	(S)A	UP ILLAWARRA LOCAL	IL
	(M)B	UP ILLAWARRA MAIN	-
	(S)B	UP ILLAWARRA MAIN	I



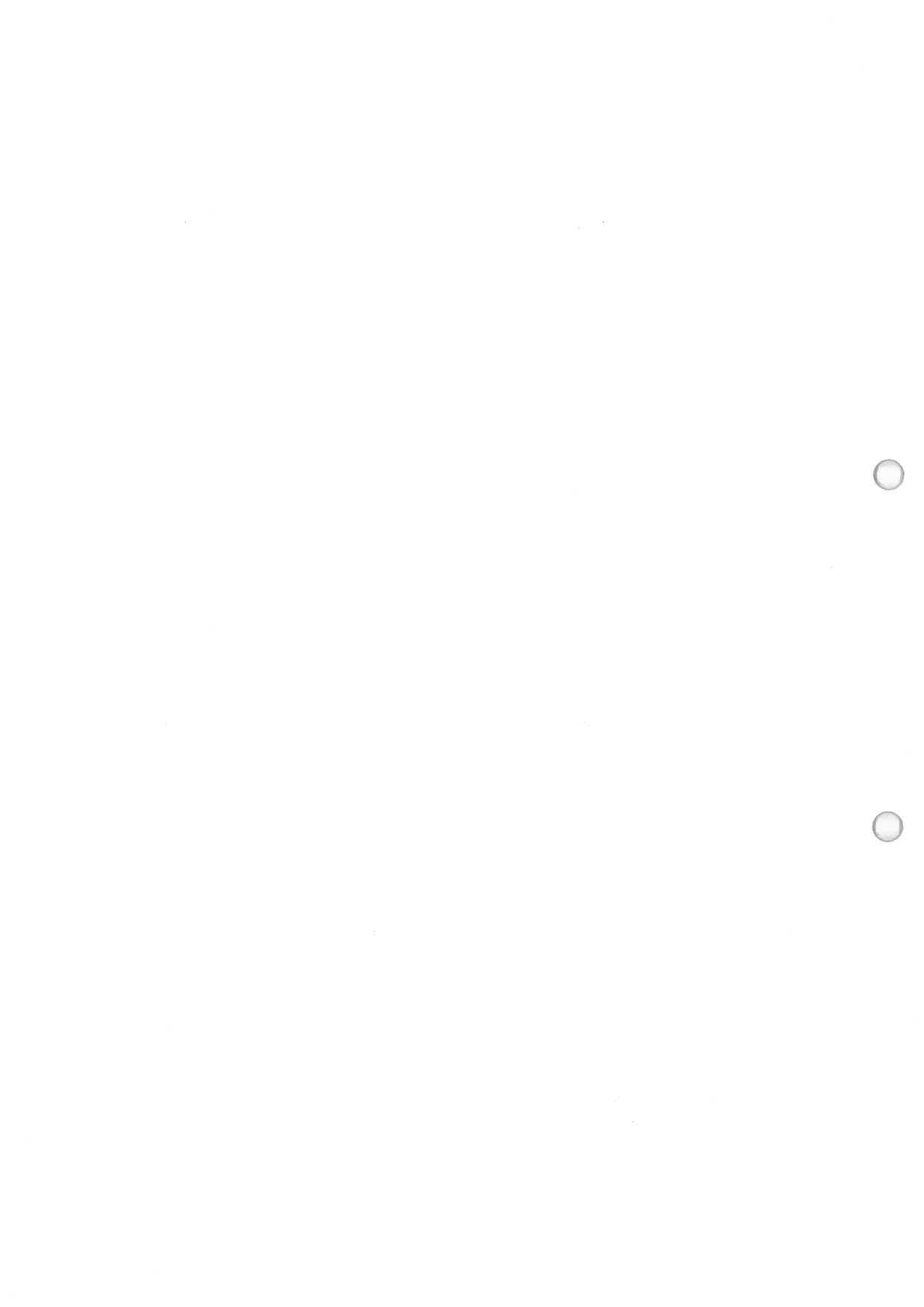
NOTE:  
 \*3 RELOCATED TO NEW POSITION FOR TRACK SLEW.

**SYDENHAM JUNCTION**  
**STAGE 1 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 6 OF 6

PRODUCED BY SIEMENS LTD
VER: 13022018

# Appendix D

## Stage 1 – Proposed Air System Schematic






























# SYDNEY METRO CITY & SOUTH WEST

## SYDENHAM PNEUMATIC SYSTEM PROPOSAL

### STAGE 1

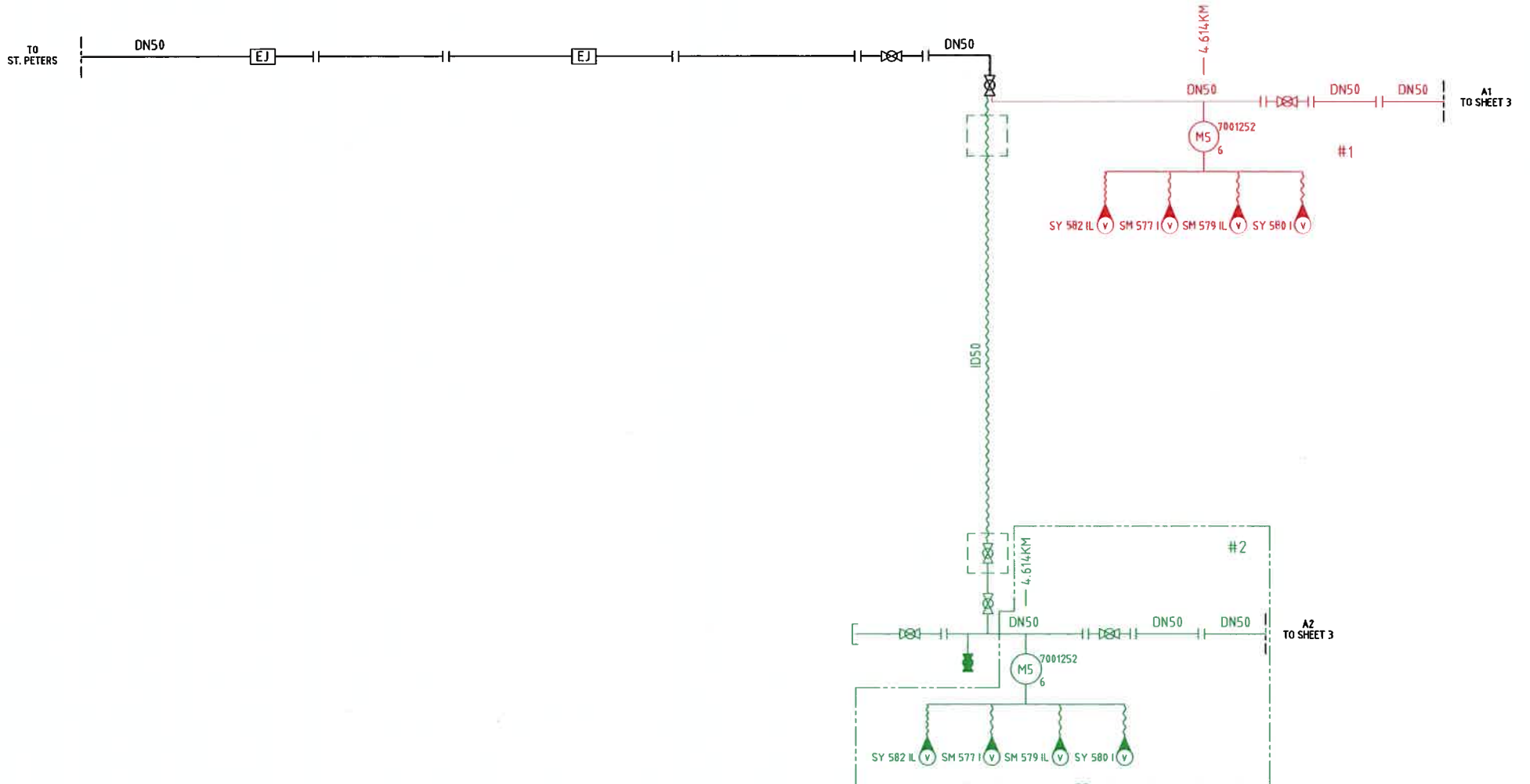
#### LEGEND

	VALVE (GENERAL)		FLANGE		DN20 ABOVE-GROUND PIPE
	VALVE (NC)		POINTS CONTROLLER		DN20 UNDERGROUND PIPE
	BALL VALVE		POINT MACHINE		50ID FLEXIBLE HOSES
	BALL VALVE (NC)		TRAIN STOPS		50ID UNDERGROUND FLEXIBLE HOSES
	PRESSURE RELIEF VALVE		PLUNGER LOCK SOLENOID		
	REGULATOR		PLUNGER LOCK		
	PIT		STRAINER		
	MANIFOLD M1 - MANIFOLD ID 3 - No. OF BRANCHES ON MANIFOLD		BLANKED END		
	EXPANSION JOINT: TYPE 1 - 100mm TRAVEL TYPE 2 - 200mm TRAVEL ETC		PRESSURE TRANSMITTER		
	UNION		PRESSURE INDICATOR		
			DRAIN - AUTO / MANUAL		
			ROTARY SCREW COMPRESSOR (ELECTRIC MOTOR DRIVE)		
			RECEIVER		



SYDENHAM JUNCTION  
PROPOSED STAGE 1 AIR LINE SCHEMATICS  
ARRANGEMENT SHEET 1 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017



NOTES:

- #1 RELOCATED FROM THE UP SIDE OF THE RAIL CORRIDOR.
- #2 RELOCATED TO THE DOWN SIDE OF THE RAIL CORRIDOR.

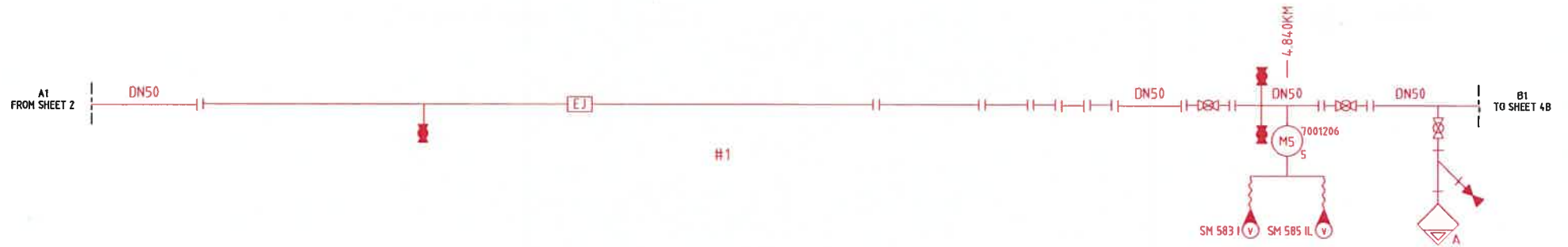


SYDENHAM JUNCTION  
 PROPOSED STAGE 1 AIR LINE SCHEMATICS  
 ARRANGEMENT SHEET 2 OF 8

PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017


Plot Date & Time 3/30/2017 4:45 PM File Plotted SSFAL-Proposer\_Stage 1.awg Plotted by BILLING, CHERIE

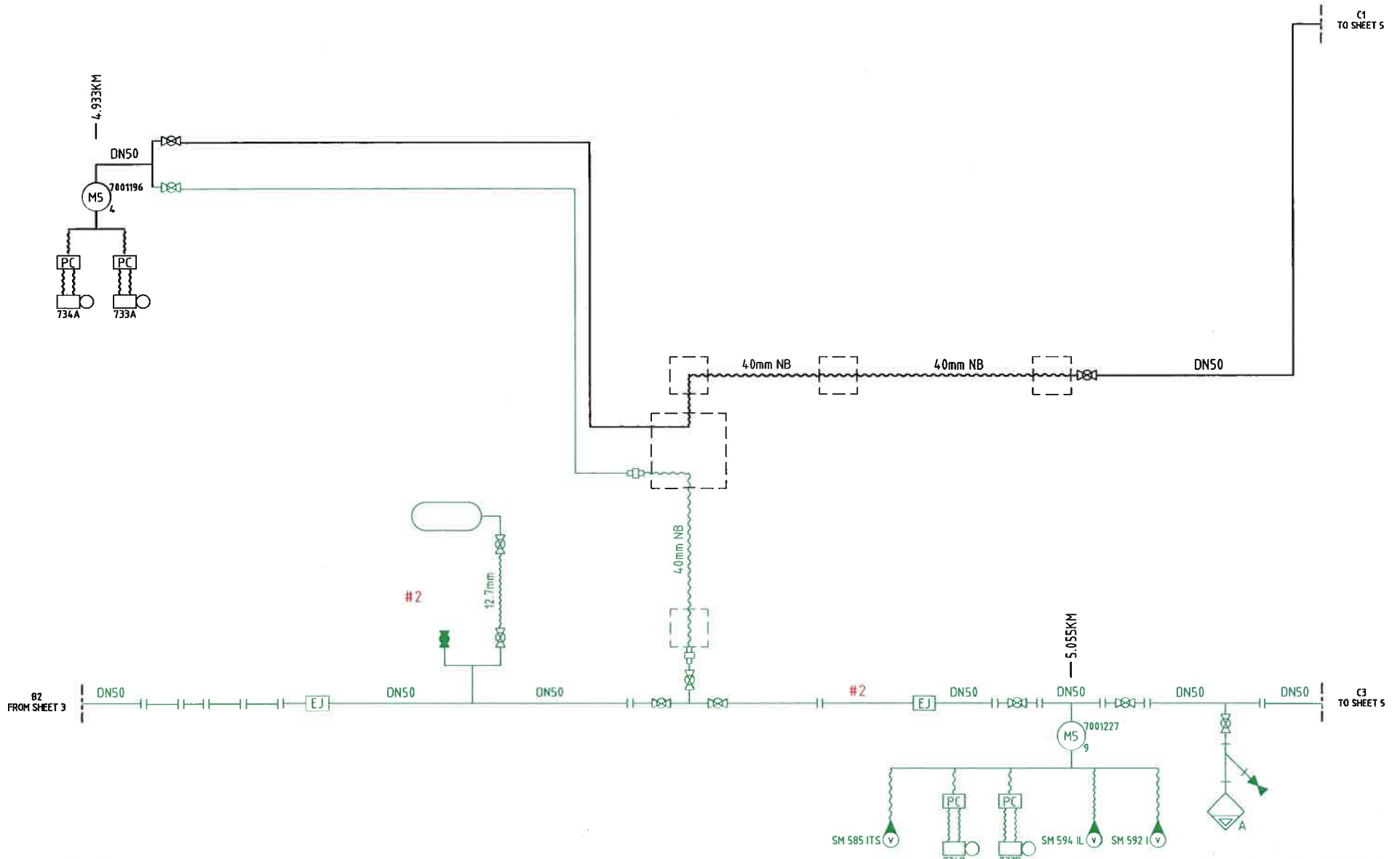




**NOTES:**

- #1 RELOCATED FROM THE UP SIDE OF THE RAIL CORRIDOR.
- #2 RELOCATED TO THE DOWN SIDE OF THE RAIL CORRIDOR.

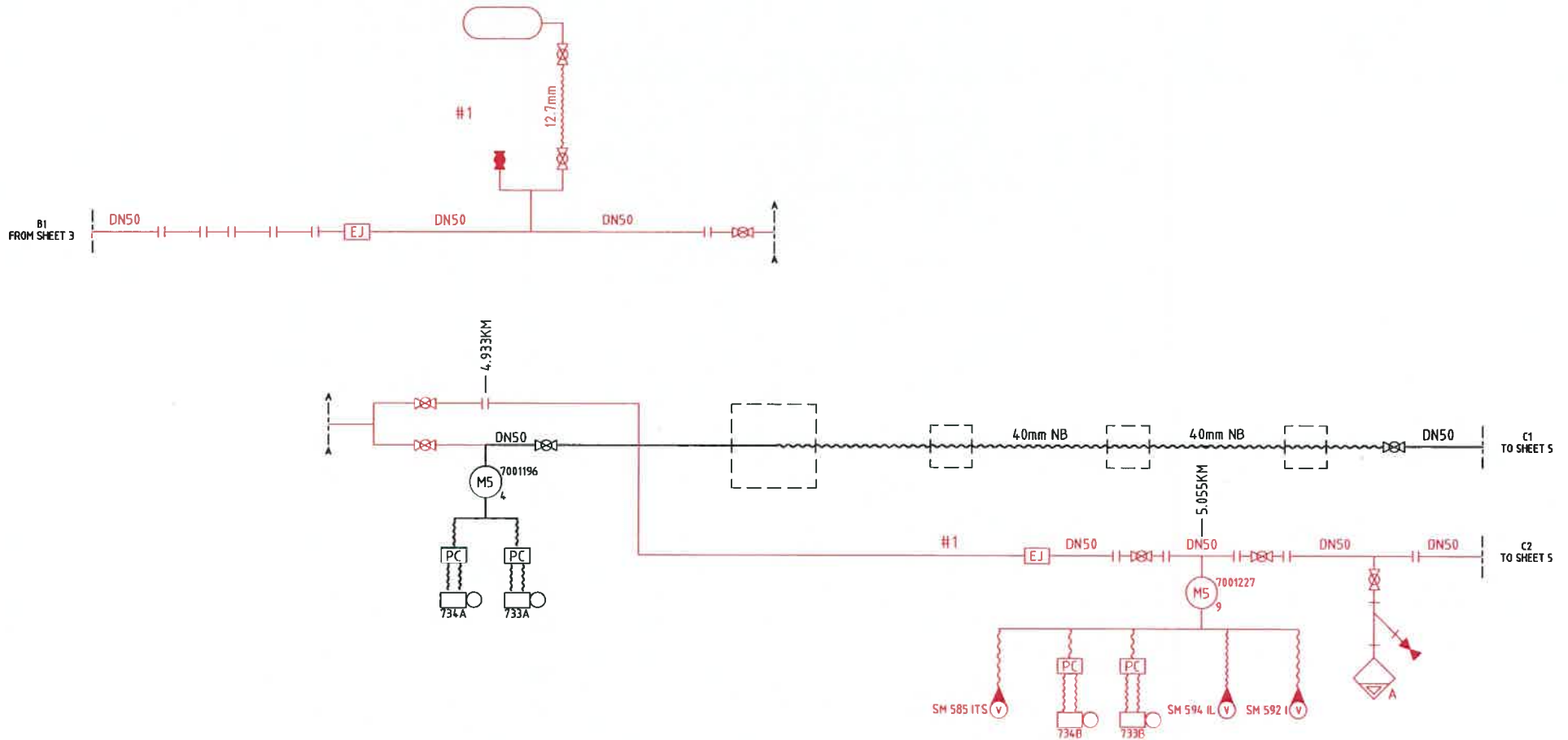

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 3 OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017



NOTE:  
 #2 RELOCATED TO THE DOWN SIDE OF THE RAIL CORRIDOR.

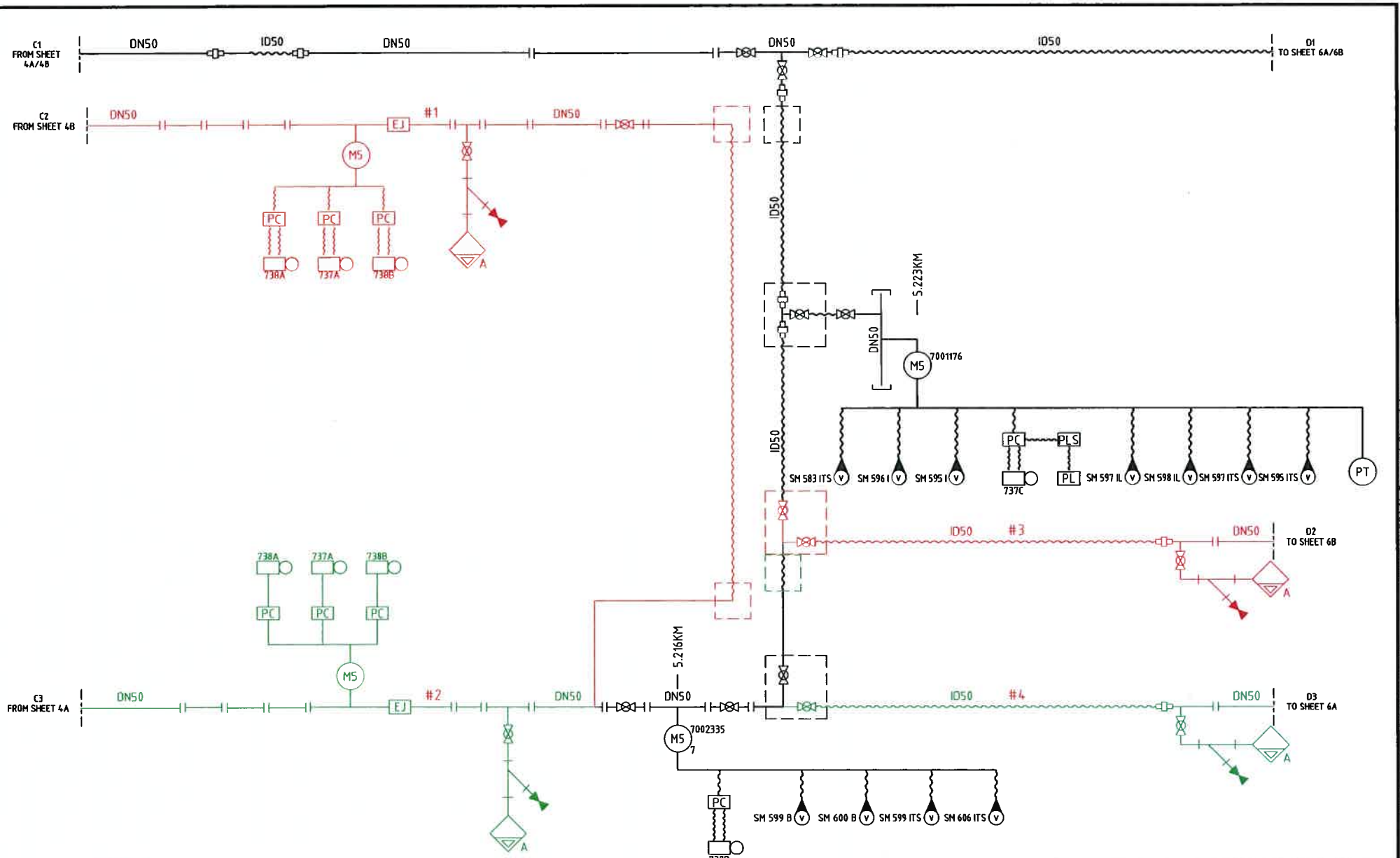
<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> REMOVAL WORKS ARRANGEMENT SHEET 4A OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017

Plot Date & Time: 8/30/2017 4:45 PM  
 File Plotted: SSI-AL-Proposed\_Stage 1.dwg  
 Plotted by BILLING, CHERIE



NOTE:  
 #1 RELOCATED FROM THE UP SIDE OF THE RAIL CORRIDOR.

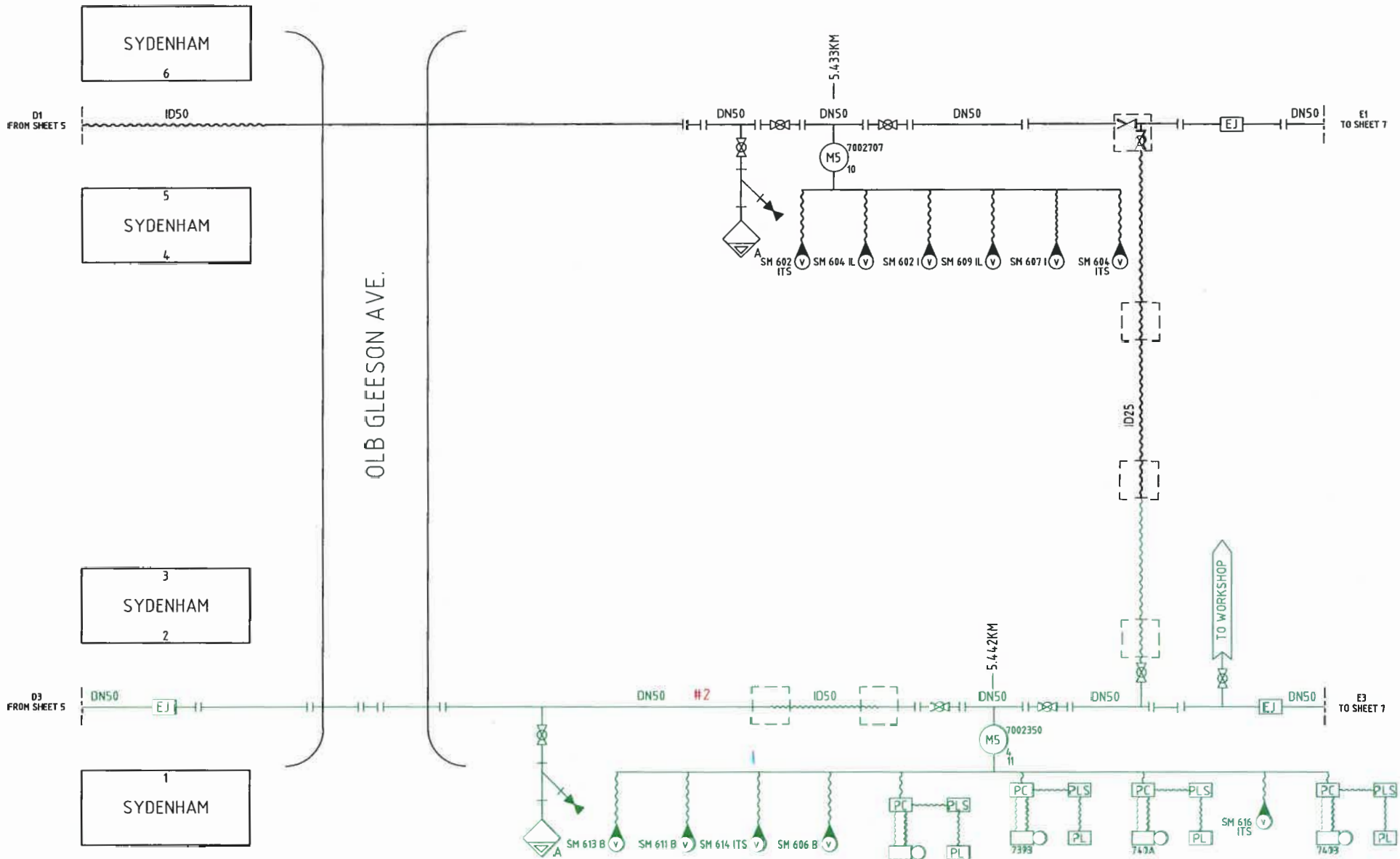

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> NEW WORKS ARRANGEMENT SHEET 4B OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017



- NOTES:
- #1 RELOCATED FROM THE UP SIDE OF THE RAIL CORRIDOR.
  - #2 RELOCATED TO THE DOWN SIDE OF THE RAIL CORRIDOR.
  - #3 RELOCATED FROM PLATFORM 1 TO PLATFORM 3.
  - #4 RELOCATED TO PLATFORM 3 TO PLATFORM 1.

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 5 OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017

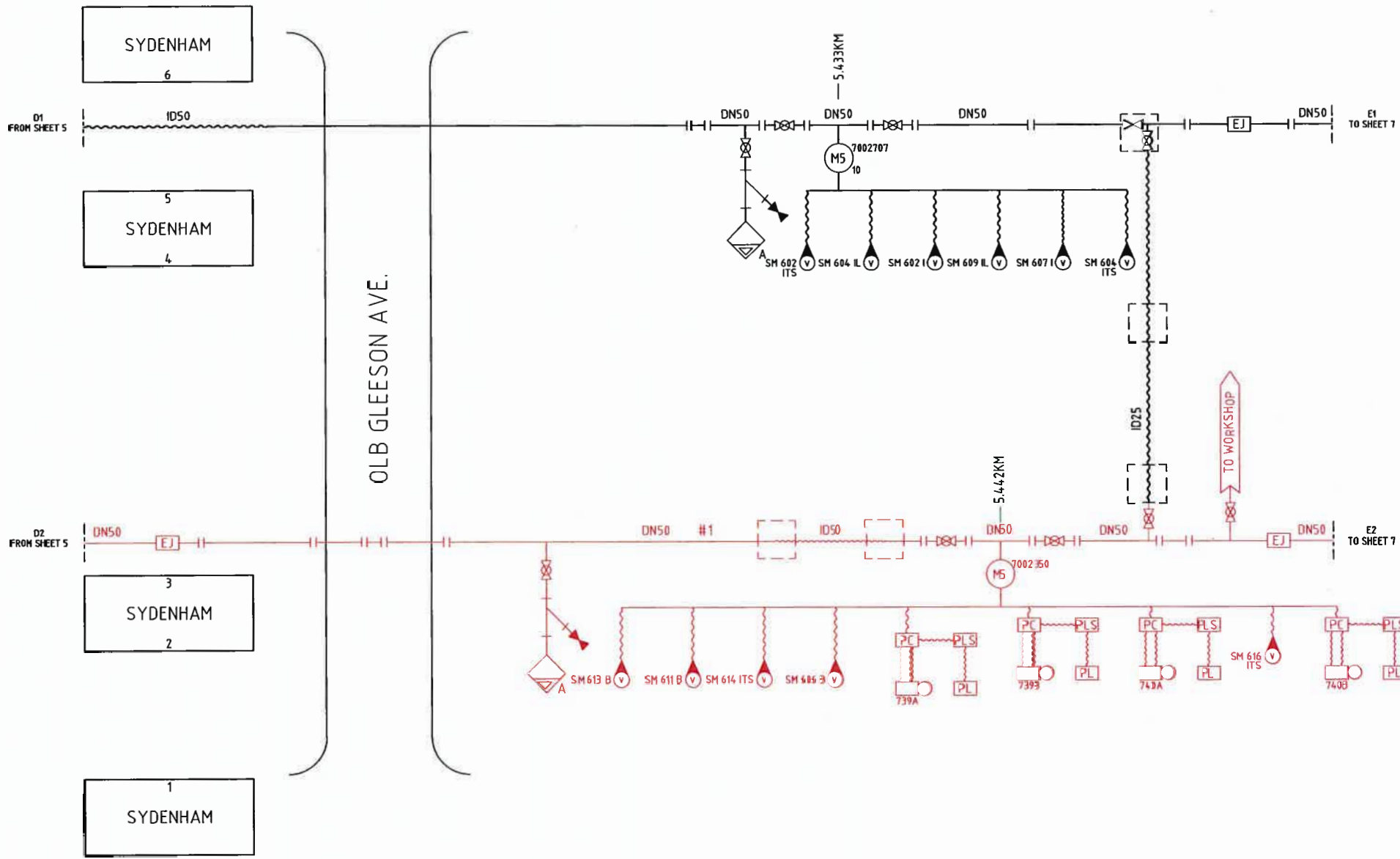
File Plotted: SSJ-AL-Proposed\_Stage 1.dwg  
 Plot Date & Time: 3/30/2017 4:45 PM  
 Plotted by: BILLING, CHERIE



NOTE:  
 #2 RELOCATED TO THE DOWN SIDE OF THE UP SIDE RAIL CORRIDOR.

  
**SYDENHAM JUNCTION**  
 PROPOSED STAGE 1 AIR LINE SCHEMATICS  
 REMOVAL WORKS ARRANGEMENT SHEET 6A OF 8  
 PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017

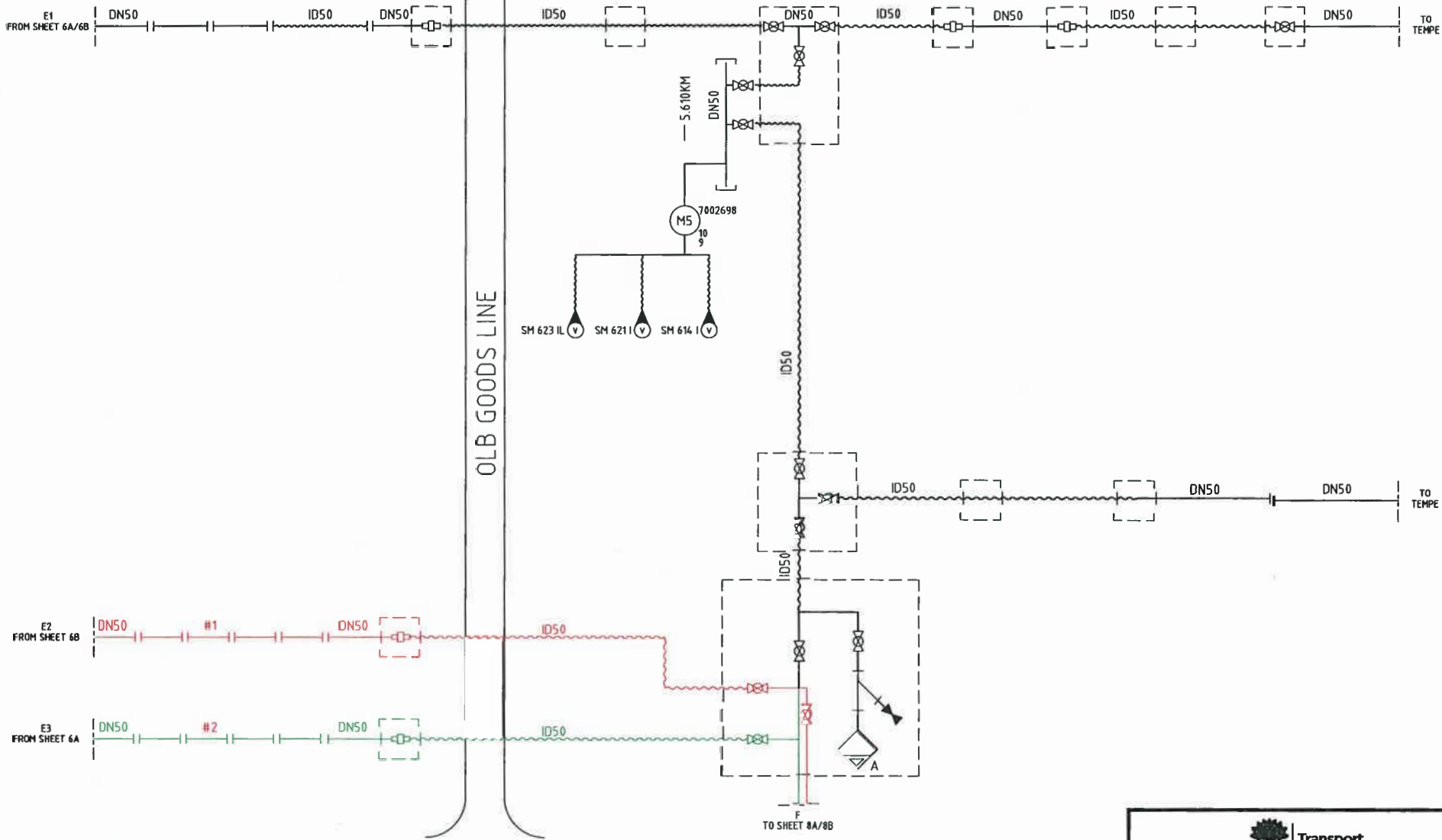
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 Plot Date & Time: 30/03/2017 4:45 PM  
 Plotted by BILLING, CHERIE



NOTE:  
 #1 RELOCATED FROM THE UP SIDE OF RAIL CORRIDOR TO COME OFF PLATFORM 3.

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> NEW WORKS ARRANGEMENT SHEET 6B OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017

Plot Date & Time: 3/30/2017 4:45 PM  
 File Plotted: SSJ-AL-Proposed\_Stage 1.rdw  
 Plotted by BILLING, CHERIE



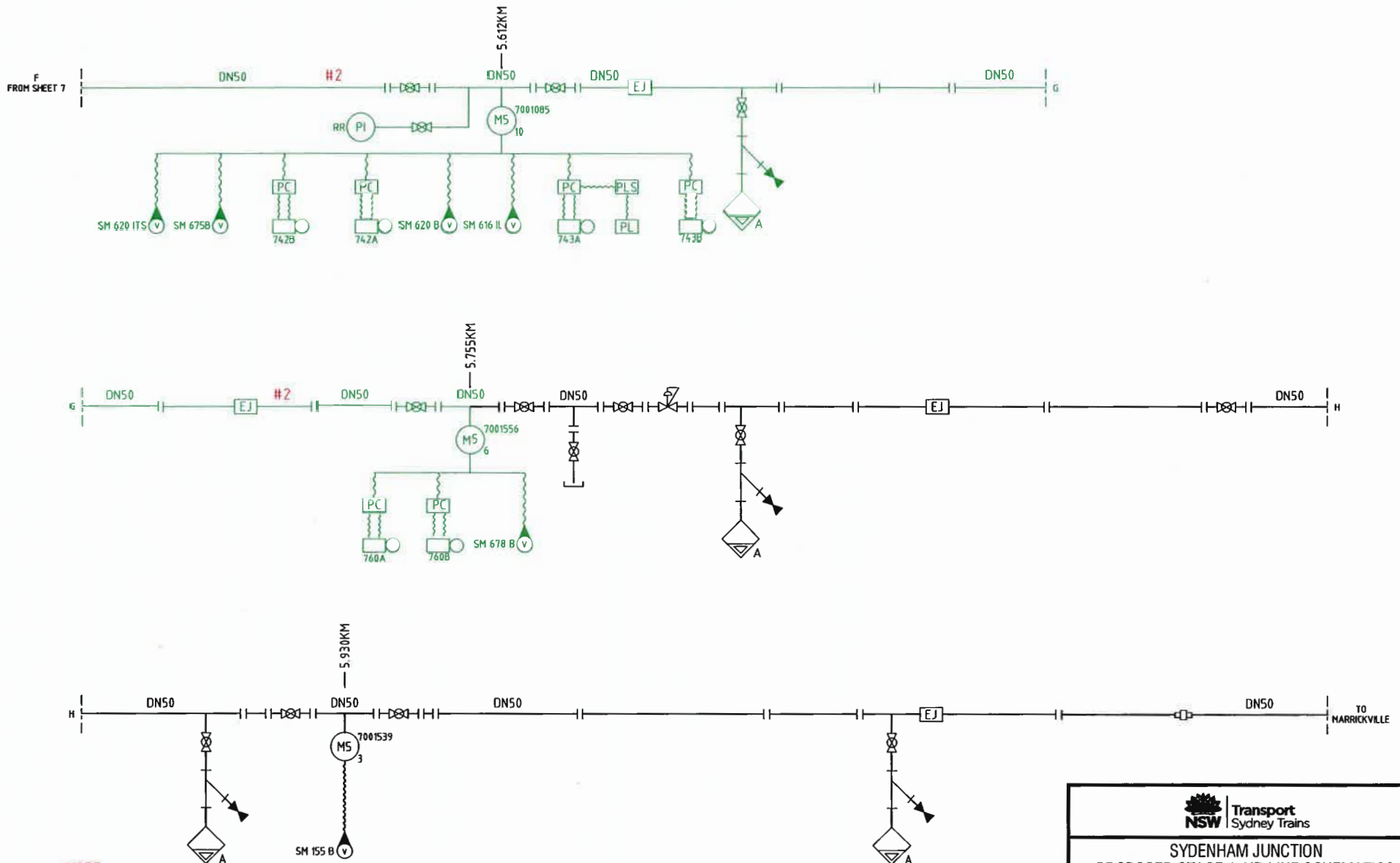
**NOTES:**

- #1 RELOCATED FROM THE UP SIDE OF RAIL CORRIDOR.
- #2 RELOCATED TO COME OFF PLATFORM 3.

<p><b>SYDENHAM JUNCTION</b>  <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b>          ARRANGEMENT SHEET 7 OF 8</p>
<p>PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017</p>

Plotted by BILLING, CHERIE  
 Plot Date & Time 3/30/2017 4:45 PM  
 File Plotted SSJ-AI-Propose U Stage 1.dwg



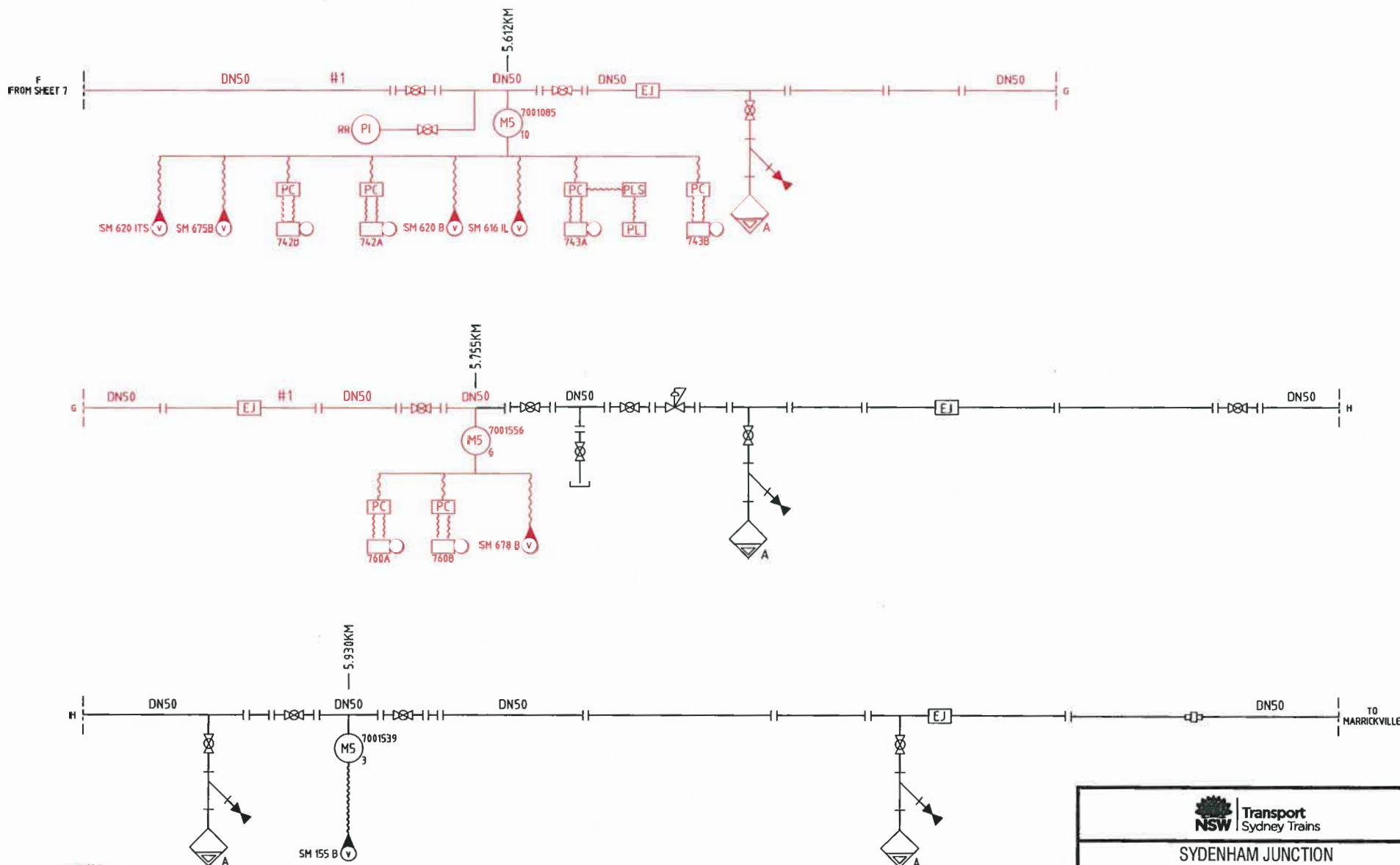


NOTE:  
 #2 RELOCATED FURTHER TO THE UP SIDE OF THE RAIL CORRIDOR.


<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> REMOVAL WORKS ARRANGEMENT SHEET 8A OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017

File Plotted SSS-AL-Proposed\_Stage 1.dwg  
 Plot Date & Time 3/30/2017 4:45 PM  
 Plotted by BILLING, CHERIE





NOTE:  
 #1 RELOCATED FURTHER TO THE UP SIDE OF THE RAIL CORRIDOR.

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 1 AIR LINE SCHEMATICS</b> NEW WORKS ARRANGEMENT SHEET 88 OF 8
PRODUCED BY SYDNEY METRO - SIGNALLING TEAM VER: 30032017

## Appendix E

### Stage 1 – Proposed CSR Relocation

(

(

### GENERAL

- SSJ - Site establishment at 11 Sydenham Rd, Marrickville NSW 2204 (SP 773349) (ST1)
- SSC - Sydney Metro Conversion works Sydenham to Bankstown (ST2 & 4)
- Note:
  - XPT staff access across Bankstown lines decommissioned
  - Possession of all tracks may be required for services cutover (TBA) (ST4)

Temporary Sydney Water access ramp required on Garden St for Sydenham Pit maintenance access

#### POSSESSION REQUIREMENTS:

- Possession of Up and Down Illawarra Lines required (ST4)
- Exclude Up & Down Illawarra Local Line Sydenham to Hurstville (ST 5B)
- Overnight Possession of All Tracks required (Bankstown line, Illawarra Locals & Mains): (3 Stages 5B, 5D, 5H)

### ELECTRICAL

- SSJ - 11KV FEEDER 8663 & 11KV FEEDER 6882 HV ROUTE RELOCATIONS (1155m - 4+230km to 5+785km)
  - Install Sydney Trains ULX/NV4 at 5+450km under Bankstown In rail (Iawarra Local portion of ULX/NV4 to be completed in Configuration: 1 possession) (ST2) / Install Sydney Metro ULX at 5+445 under Bankstown lines (ST2) / Connect Sydney Trains HV route adjacent the Up Bankstown line (5+450km-5+785km) (ST2) / Install Sydney Trains ULX/ULX16 & ULX16 (5+785km) under Bankstown; req: (ST2) / Install HV CSR adjacent to Down Illawarra Main 4+230km - 5+245km (Clear of running lines) (ST3A) / Install HV ULX/ULX1 under Up and Down Illawarra Main lines at 5+245km (Platform modifications required) (ST3B) / Install Sydney Trains ULX/NV4 under Illawarra Locals at 5+450km (ST3B) / Install HV route adjacent to Down Illawarra Main 4+230km - 5+245km (Possession dependent areas) (ST3B) / Install HV route through Platform 5 Sydenham Station (5+245km-5+450km) (ST3B) / Install HV route through Platform 5 Sydenham Station (5+220km-5+450km) (Design TBC) (ST3D) / Complete Up side HV route and pull cables (5+450km-5+760km) (ST3E) / Commission HV routes relocation (4+230km-5+785) (ST5D) / Remove redundant HV routes Bedwin Road to Sydenham Station (ST5E)
- SSJ - OHWS RELOCATIONS TO ENABLE NEW ALIGNMENT
  - Install possession dependant OHWS footings adjacent Up and Down Bankstown line (Design TBC) (ST2) / Install OHWS footings adjacent Illawarra Lines (Design TBC) (ST3B & 3D) / Install OHWS over all tracks (Design TBC) (ST4) / Transfer Illawarra Mains and Local OHWS to new structures and re-profile (Design TBC) (ST5B, 5D & 5H)
- SSJ - WORKS ADJACENT SOUTHERN DIVE TO SUPPORT SMTFS (4+240km - 4+990km)
  - OHWS footings installation (ST3F & 5F)
  - SSJ - Re-align existing 33KV feeder at the rear of Platform 6 (5+220km - 5+275km) (ST3B)

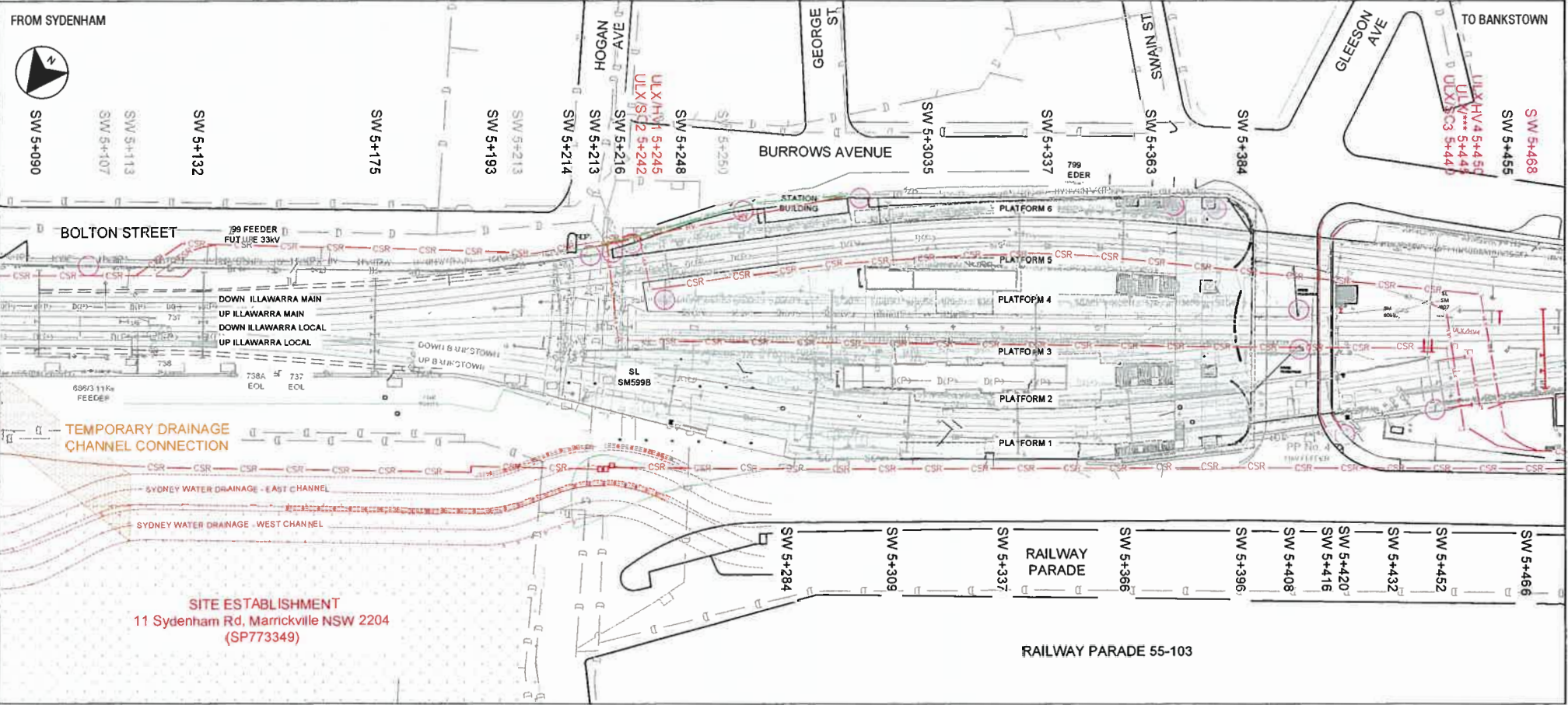
### SIGNALS AND COMMS

- SSJ - SIGNALS/COMMUNICATIONS & COMPRESSED AIR ROUTE RELOCATIONS (1155m - 4+230km to 5+455km)
  - Install new signals/comm CSRs adjacent Down Illawarra Main 4+230km - 5+242km (Clear of running lines) (ST1 & 3A) / Install Sydney Trains Signal/Comms/Compressed Air ULX/UC3 adjacent Down Illawarra lines at 5+440km (ST2) / Install new signals/comm CSRs adjacent Down Illawarra Main 4+230km - 5+242km (Possession dependent areas) (ST3B) / Install Signal/Comms/Compressed Air route through Platform 3 Sydenham Station (5+242km-5+440km) (Design TBC) (ST3B) / Install signals/comm ULX/UC2 under Up and Down Illawarra Main & Local lines at 5+242km (Platform modifications required) (ST3B) / Install Sydney Trains ULX/UC3 under Illawarra Locals at 5+440km (ST3B) / Install new signals/comm CSRs adjacent Down Illawarra Main 4+230km-6+000km (Design TBC) (ST3B) if route is required for interlocking upgrade (ST3B) / Install Signal/Comms/Compressed Air route through Platform 3 Sydenham Station (5+242km-5+440km) (Design TBC) (ST3D) / Complete route and pull cables up side Sydney Trains and Sydney Metro Signal/Comms/Compressed Air routes Sydenham Station Platform 3 to Bedwin Road (4+230km - 6+000km) (ST3E) / Commission Signal/Comms/Compressed Air routes for Bankstown and Illawarra Local line services only (4+230km-5+760) (ST4) / IC over n5 n5 g/C/Comms/Compressed Air routes for Illawarra Main line services only (4+230km-5+760) (ST5B) / Remove redundant Up side Signal/Comms/Compressed Air routes (to Bedwin Road) to Sydenham Station (ST5C)
  - SSJ - Local cable route mod: 80 m/s for trackside equipment (ST3B & 3D)
  - SSJ - Install Station services but on g/n5 n5 3 compound off Railway Parade (ST3A)
- SSJ - WORKS ADJACENT SOUTHERN DIVE TO SUPPORT SMTFS (4+240km - 4+990km)
  - Local cable route modifications for trackside equipment (ST3F & 5F)

### CIVIL

- SSJ - Platform 6 services relocation and platform support works (Scope TBC) (ST3B)
- SSJ - WORKS ADJACENT SOUTHERN DIVE TO SUPPORT SMTFS (4+240km - 4+950km)
  - Interact drainage modifications (ST3F & 5F) / Demarcation & segregation fencing adjacent Southern Dive structure (ST3F & 5F)
- SSJ - SYDNEY WATER DRAINAGE CHANNEL DIVERSION & SYDENHAM PIT AQUEDUCT WORKS
  - Construct Sydney Water Drainage Channel Diversion works including temporary connection on West side of Sydenham Pit, Sydenham pit Aqueduct, pumphouse & access ramp (Scope and program TBA) (ST5A, 5C, 5E, 5G, 5I)
- SSJ - BRIDGE WORKS
  - Install throw screens and traffic barriers to Gleeson Avenue & Bedwin Road OB's (ST2, 3B, 3D, 4, 5B)

### TRACK



<b>LEGEND</b>	<b>EXISTING</b>	<b>NEW</b>	<b>COMPLETED</b>	<b>COMMISSIONED</b>	<b>DECOMMISSIONED</b>	<b>MODIFIED</b>	<b>REMOVED</b>	<b>TEMPORARY</b>	<b>ACCESS POINT</b>	<b>BRIDGE</b>	<b>CLEAR AND GRUB</b>	<b>DRAINAGE</b>	<b>EARTHWORKS</b>	<b>EXCAVATION (TUNNEL)</b>	<b>PLATFORM SITE COMPOUND</b>	<b>HERITAGE</b>	<b>NOTES</b>	<b>WORKSITE</b>	<b>OBSTACLE</b>	<b>FENCES</b>	<b>RELOCATED HV ROUTE</b>	<b>TRACK</b>	<b>DRY</b>	<b>RETAINING WALL</b>	<b>TELSTRA SERVICES</b>	<b>SIGS AND COMMS</b>	<b>DATE</b>	<b>STAGE</b>	<b>PERIOD</b>	<b>COMP</b>	<b>DAYS</b>	

Monday, 1 January 2018

Friday, 17 August 2018

PHASE 01 PH1 ENABLING WORKS

228

NOTE: Do not use in this drawing.

NSW GOVERNMENT

Transport for NSW

PARSONS BRINCKERHOFF

AZCOM

RedPlanning

COX HASSELL

SYDNEY METRO CITY & SOUTHWEST

WESTERN EXTENSION SYSTEM WIDE

SYDENHAM STATION - PHASE DIAGRAMS

PHASE 01

STATUS: FOR INFORMATION ONLY

SHEET 4 OF 8

2017

Drawn by: NWVLSRT-PBA-WSS-PL-DWG-719902

REV. D

P:\DWG Files\31 March 2017 3:14 PM\SSJ - RPB\Desktop\DWG\NRL\BRT\FBA-WSS-PL-DWG-719902.dwg  
 P:\DWG Files\31 March 2017 3:14 PM\



### GENERAL

- SSC - Sydney Metro Conversion works Sydenham to Bankstown
- SSJ - DSS validation

### ELECTRICAL

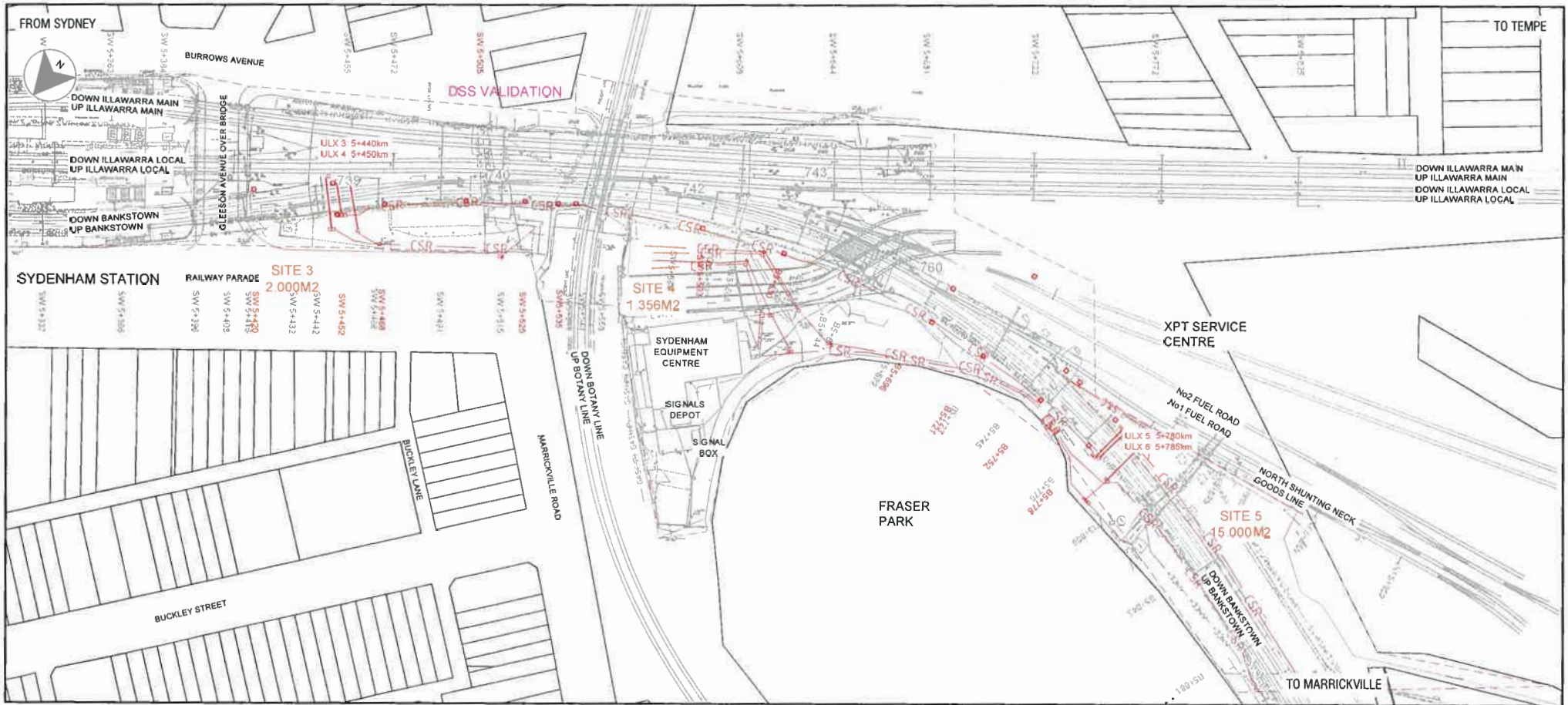
- SSJ - Install Sydney Trains ULX/RV4 at 5+450km under Bankstown lines (Illawarra Local portion of ULX/RV4 to be completed in Configuration 1 possession)
- SSJ - Construct Sydney Trains 11kV Feeder 686/3 & 11kV Feeder 608/3 HV routes adjacent the Up Bankstown line (5+450km - 5+785km)
- SSJ - Construct Sydney Metro CSR's Up & Down Sides of Bankstown lines (4+230km - 6+000km)
- Construct Sydney Metro ULX (5+445km) under Up & Down Bankstown Lines
- SSJ - Install Sydney Trains ULX5 (5+780km) & ULX6 (5+785km) under Bankstown lines
- SSJ - Install possession dependant OHWS footings adjacent Up and Down Bankstown line SW5+420 (Terminating Structure Footing Adjacent Down Bankstown), SW5+452 (2X Anchor Footings), SW5+468 (Up Side Footing), SW5+505 (Up Side Bankstown), SW5+525 (Terminating Structure Adjacent Up Bankstown), SW5+535 (Footing + Anchor Footing Up Side Bankstown), SW5+593 (Up Bankstown Footing), B5+630 (Footing), B5+696 (Up & Down Side Bankstown Lines), B5+721 (Up & Down Bankstown Lines), B5+752 (Up & Down Side Bankstown Lines + Anchor Footing Down Side), B5+778 (Up & Down Bankstown) (Design TBC)

### SIGNALS AND COMMS

- SSJ - Install Sydney Trains Sigs/Comms/Compressed Air ULX/SC3 under Bankstown lines at 5+440km
- SSJ - Construct Sydney Metro CSR's Up & Down Sides of Bankstown lines (4+230km - 6+000km)
- SSJ - Construct Sigs & Comms ULX (5+ 792km) Under Up & Down Bankstown Lines

### CIVIL

### TRACK



LEGEND		BRIDGE		PLATFORM		TRACK		POSSESSION	
EXISTING	NEW	MOORFIED	REMOVED	COMPLETED	TEMPORARY	COMMISSIONED	DECOMMISSIONED	BRIDGE	CLEAR AND GRUB
DRAINAGE	EARTHWORKS	EXCAVATION (TUNNEL)	PLATFOM SITE	COMPOUND	HERITAGE	NOTES	WORKSITE	CSR	OHWS
ACCESS POINT								RETAINING WALL	TELETRA SERVICES
								SIGS AND COMMS	ULX

DATE	FROM	TO	CURRENT
Saturday, 3 March 2018	Saturday, 3 March 2018	Sunday, 4 March 2018	
STAGE	PERIOD	CLINING	DAYS
STAGE 02	POSS	BANKSTOWN LINE POSSESSION	2

NSW GOVERNMENT Transport for NSW

PARSONS BRINCKERHOFF AECOM

PalPlanning

COX HASSELL

SYDNEY METRO CITY & SOUTHWEST

SYDENHAM STATION & JUNCTION WORKS - XPT MAINTENANCE CENTRE SEGREGATION - 6 TRACK OPTION - STAGING DIAGRAMS

STAGE 02

STATUS: FOR INFORMATION ONLY

SHEET 5 OF 47

2017

REV. 8

Doc No: NWRLSRT-PBA-WSS-PL-DWG-719913

CAD File: C:\user\stam\Stam - PRC\DWG\SSC\DWG\SET\_PBA\_MSS\_PL\_DWG\_218913.dwg

Plt Date: Friday, 31 March, 2017 1:58:48 PM

A3 Original Co-ordinate System: MGA Zone 56 Height Datum: A.H.D. This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing.

### GENERAL

- SSJ - DSS validation

### ELECTRICAL

- SSJ - Install 11kV Feeder 686/3 & 11kV Feeder 608/3 HV CSR adjacent to Down Illawarra Main 4+230km - 5+245km (Clear of running lines) (Refer to Sydenham Station Phase Diagrams (NWRLSRT-PBA-WSS-PL-DWG-719902) (2 of 3)

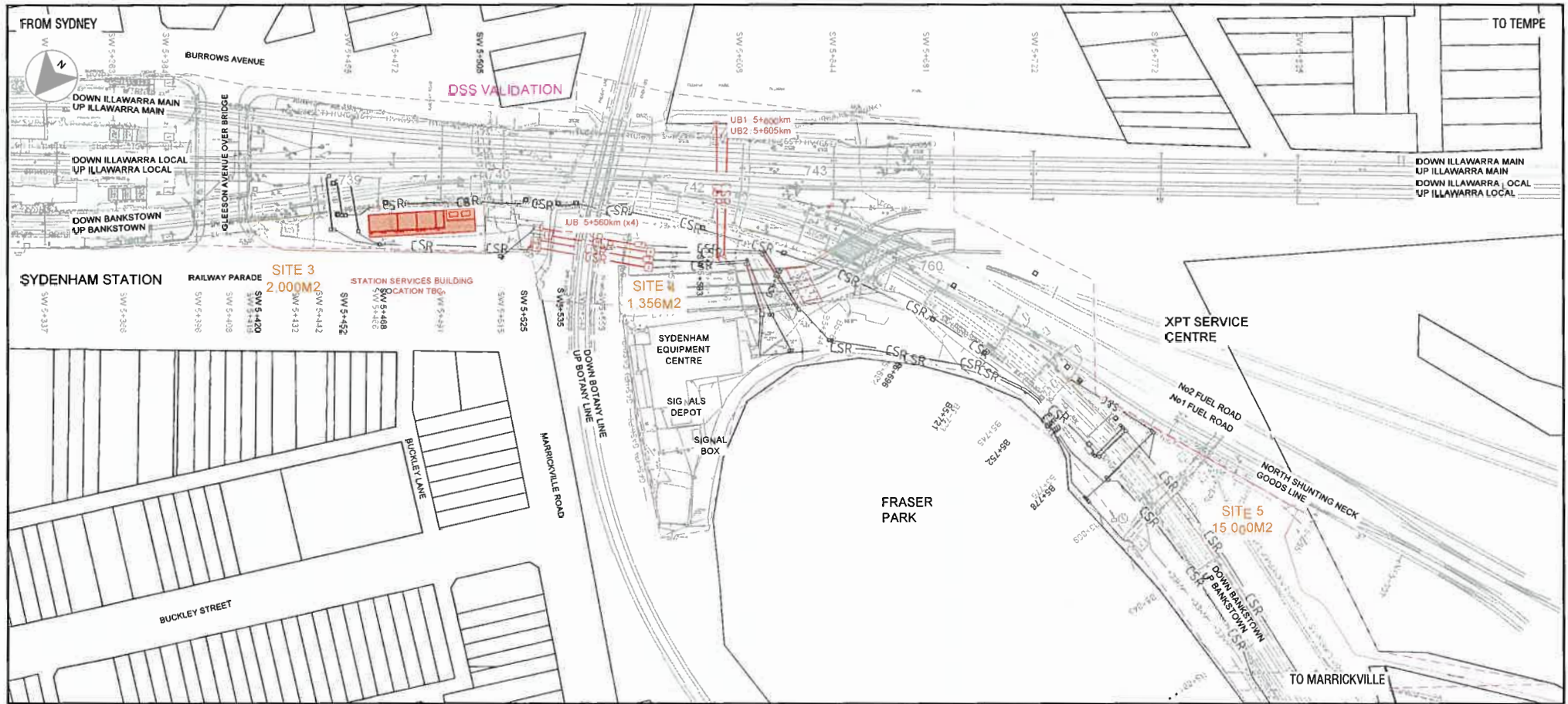
### SIGNALS AND COMMS

- SSJ - Install new sigs/comms CSR adjacent Down Illawarra Main 4+230km - 5+242km (Refer to Sydenham Station Phase Diagrams NWRLSRT-PBA-WSS-PL-DWG-719902) (2 of 3)
- SSJ - Install Station services building in Site 3 compound off Railway Parade

### CIVIL

- SSJ - Install Sydney Trains and Sydney Metro services underbores (4 off) through freight embankment between Sites 3 and 4 on the UP side of the rail corridor (5+560km)
- SSJ - Install Underbores. UB1 at 5+600km & UB2 at 5+605km
- SSJ - Construct 2 new service bridges of drainage canal (5+630km & 5+640km)
- SSJ - Install temporary access bridge over drainage channel

### TRACK



CAD File: C:\Users\m\OneDrive\Desktop\SSJ\DWRLSRT-PBA-WSS-PL-DWG-719913.dwg

Plot Date: Friday, 31 March, 2017 1:53:53 PM

<b>LEGEND</b>	EXISTING	MODIFIED	BRIDGE	PLATFORM	CSR
NEW	REMOVED	CLEAR AND GRUB	SITE COMPOUND	HERITAGE	ENCLOSURE
COMPLETED	TEMPORARY	DRAINAGE	NOTES	WORKSITE	FENCES
DECOMMISSIONED	ACCESS POINT	EARTHWORKS			HW ROUTE
		EXCAVATION (TUNNEL)			TRACK
					RETAINING WALL
					TELSTRA SERVICES
					SKS AND CONDUITS
					LEX

FROM	TO	CLIENT
Monday, 5 March 2018	Friday, 9 March 2018	NSW Transport for NSW
STAGE	PERIOD	CONV ID
STAGE 03A	NP	NON POSSESSION
DATE		
5		

NOTE: Do not use this drawing.

**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION & JUNCTION WORKS - XPT MAINTENANCE CENTRE SEGREGATION - 6 TRACK OPTION - STAGING DIAGRAMS STAGE 03A  
 STATUS: FOR INFORMATION ONLY  
 SHEET 6 OF 47  
 DRAWING NO. NWRLSRT-PBA-WSS-PL-DWG-719913  
 REV. B



## Appendix F

### Stage 2 – Proposed Points Installation DD





SIGNAL	ROUTE	DESTINATION	IND.
583	(M)A	DOWN ILLAWARRA MAIN	-
	(S)A	DOWN ILLAWARRA MAIN	I
	(M)B	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN ILLAWARRA LOCAL	IL
	(M)C	DOWN BANKSTOWN	B
(S)C	DOWN BANKSTOWN	B	



4.611km

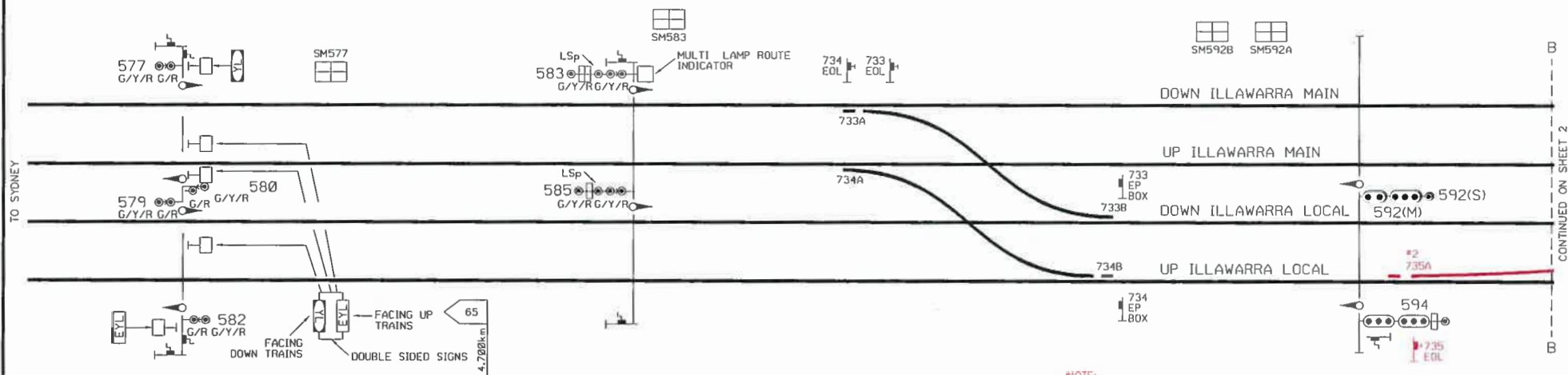
4.841km

4.930km

5.840km

X25

80

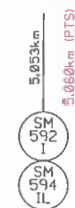


SIGNAL	ROUTE	DESTINATION	IND.
585	(M)A	DOWN ILLAWARRA LOCAL	-
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(M)B	DOWN BANKSTOWN	-
	(S)B	DOWN BANKSTOWN	B



4.611km

SIGNAL	ROUTE	DESTINATION	IND.
594	(M)A	UP ILLAWARRA LOCAL	-
	(S)A	UP ILLAWARRA LOCAL	IL
	(M)B	UP ILLAWARRA MAIN	-
	(S)B	UP ILLAWARRA MAIN	I



5.053km

5.060km (PTS)

NOTE:  
#2 735A AND 735B POINTS CLIPPED AND LOCKED NORMAL.

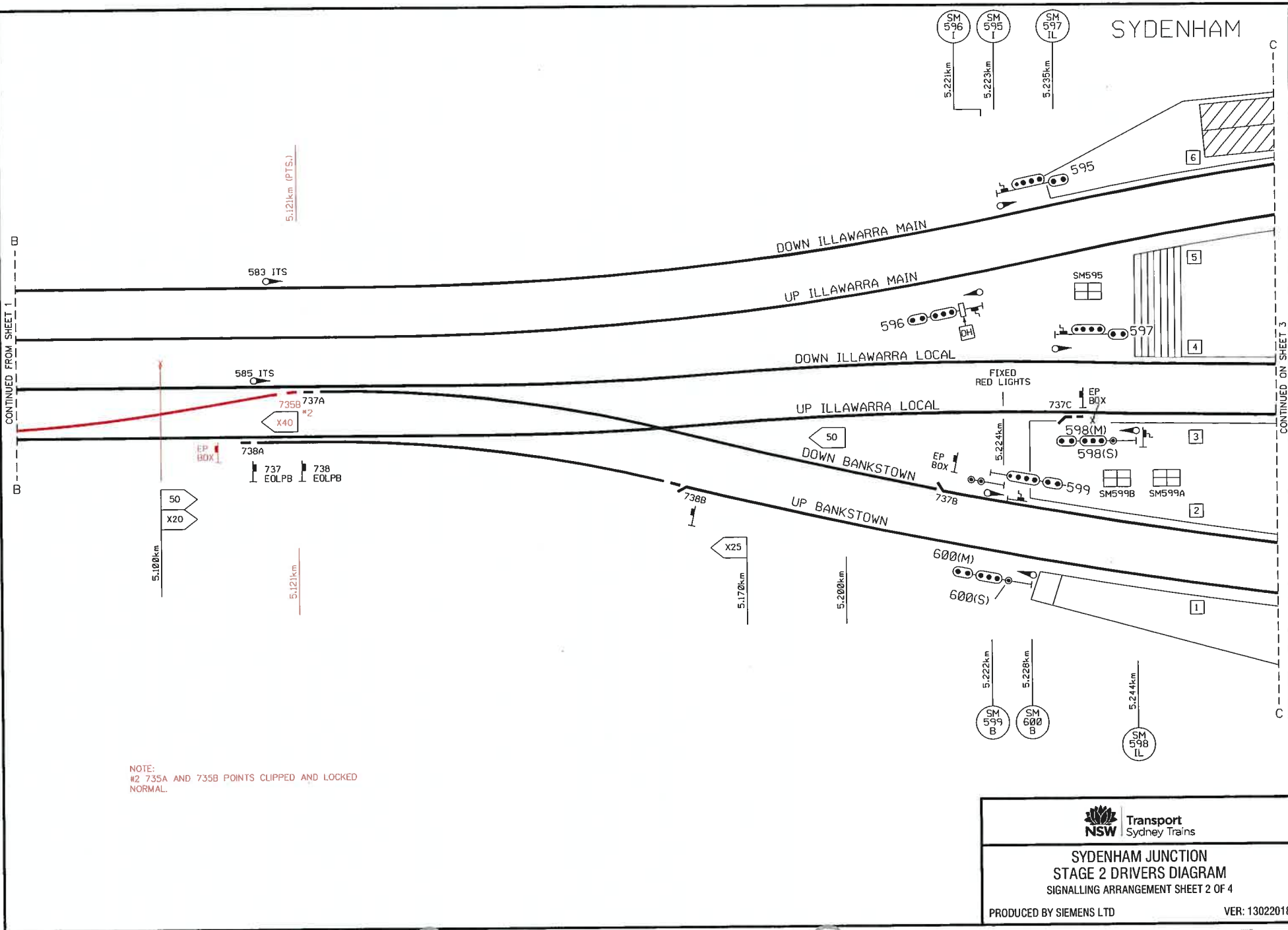


SYDENHAM JUNCTION  
STAGE 2 DRIVERS DIAGRAM  
SIGNALLING ARRANGEMENT SHEET 1 OF 4

PRODUCED BY SIEMENS LTD

VER: 13022018

Plotted by SGRO: TANYA (RC-AU MO R3P) Date & Time 2/19/2018 11:12 AM File Plotted: SYDENHAM JUNCTION\_DD\_STAGE 2.dwg



NOTE:  
#2 735A AND 735B POINTS CLIPPED AND LOCKED  
NORMAL.

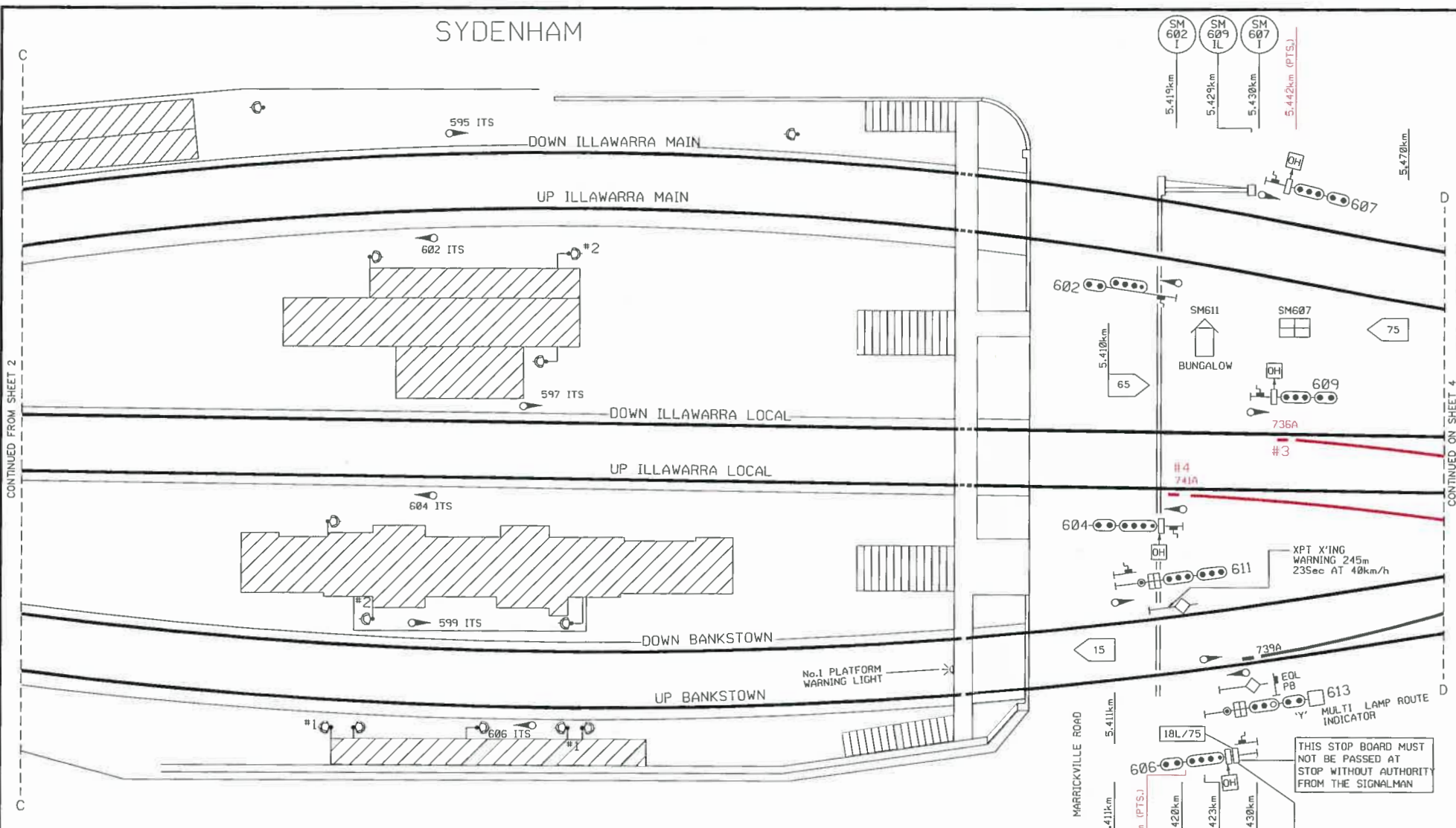
<b>SYDENHAM JUNCTION STAGE 2 DRIVERS DIAGRAM</b> SIGNALLING ARRANGEMENT SHEET 2 OF 4	
PRODUCED BY SIEMENS LTD	VER: 13022018

CONTINUED FROM SHEET 1

CONTINUED ON SHEET 3

Plotted by SGR0, TANYA (RC-AU MO R3P) Date & Time 2/19/2018 11:13 AM File Plotted SYDENHAM JUNCTION\_DD\_STAGE 2.dwg

# SYDENHAM



CONTINUED FROM SHEET 2

CONTINUED ON SHEET 4

- \*1 ALDRIDGE LED UNIT
- \*2 120V ALDRIDGE LED UNIT

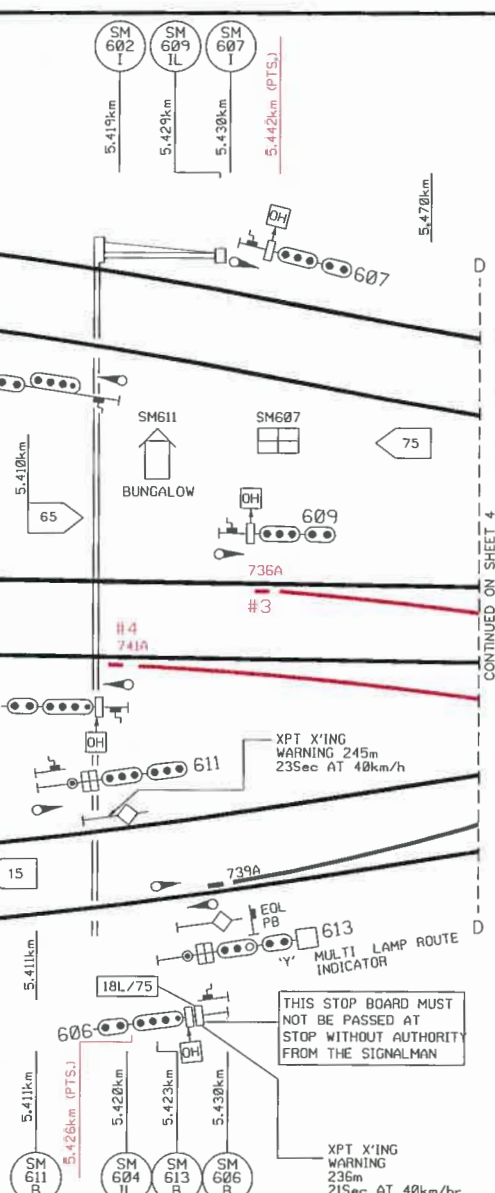
613(S)		
A	IL	X
B		B

SIGNAL	ROUTE	DESTINATION	IND.
613	(M)A	DOWN ILLAWARRA LOCAL	TL
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN XPT	X
	(M)C	DOWN BANKSTOWN	B
(S)C	DOWN BANKSTOWN	B	

SIGNAL	ROUTE	DESTINATION	IND.
611	(M)A	DOWN ILLAWARRA LOCAL	-
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN XPT	X
	(M)C	DOWN BANKSTOWN	-
(S)C	DOWN BANKSTOWN	B	

611(S)		
A	IL	X
B		B

NOTE:  
 #3 736A AND 736B POINTS CLIPPED, LOCKED AND  
 DETECTED NORMAL.  
 #4 741A POINTS CLIPPED AND LOCKED NORMAL.



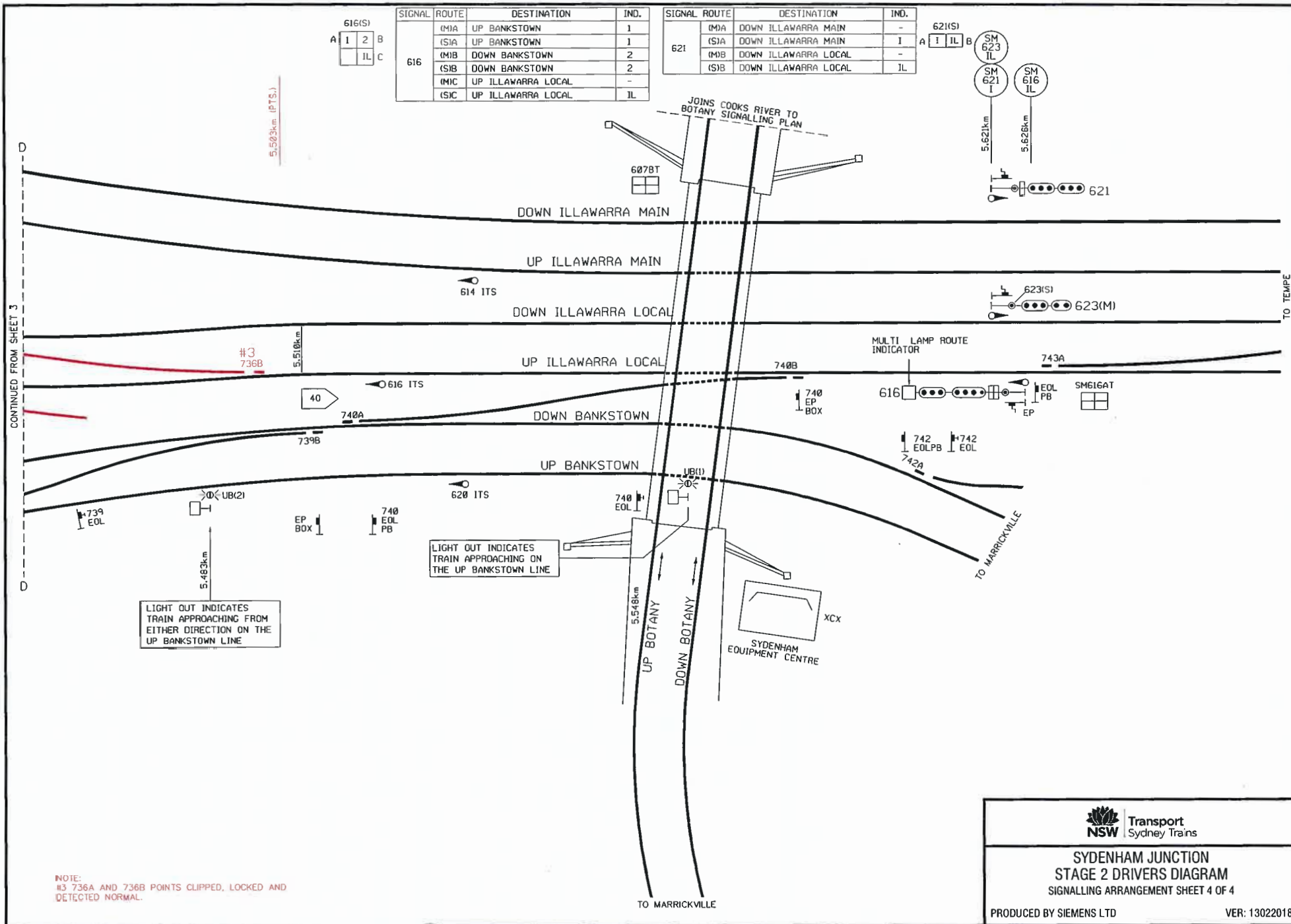
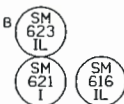
**SYDENHAM JUNCTION**  
**STAGE 2 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 3 OF 4

PRODUCED BY SIEMENS LTD VER: 13022018

Plotted by SGRC, TANYA (RC-AU MO RARE) Date & Time 2/19/2018 11:13 AM File Plotted SYDENHAM JUNCTION\_DD\_STAGE 2.dwg

SIGNAL	ROUTE	DESTINATION	IND.
616	(M)A	UP BANKSTOWN	1
	(S)A	UP BANKSTOWN	1
	(M)B	DOWN BANKSTOWN	2
	(S)B	DOWN BANKSTOWN	2
	(M)C	UP ILLAWARRA LOCAL	-
	(S)C	UP ILLAWARRA LOCAL	IL

SIGNAL	ROUTE	DESTINATION	IND.
621	(M)A	DOWN ILLAWARRA MAIN	-
	(S)A	DOWN ILLAWARRA MAIN	I
	(M)B	DOWN ILLAWARRA LOCAL	-
	(S)B	DOWN ILLAWARRA LOCAL	IL



NOTE:  
#3 736A AND 736B POINTS CLIPPED, LOCKED AND  
DETECTED NORMAL.

  
**SYDENHAM JUNCTION**  
**STAGE 2 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 4 OF 4  
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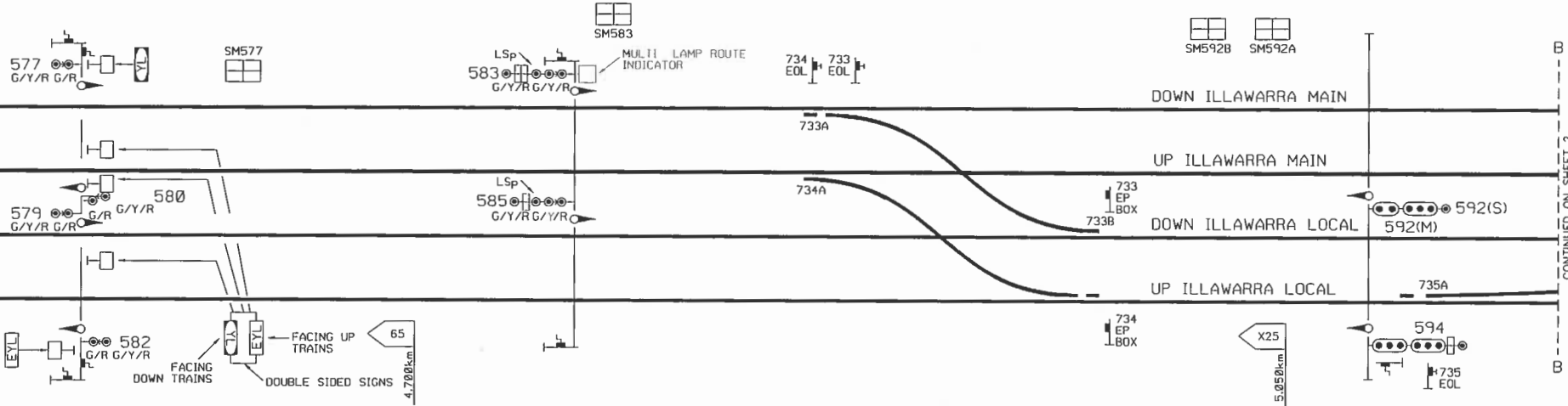
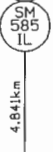
Plotted by SGRO, TANYA (RC-AU MO R3) on 2/19/2018 11:13 AM File Plotted 'SYDENHAM\_JUNCTION\_DD\_STAGE 2.dwg'

## Appendix G

### Stage 3 – Proposed Sydenham Junction Remodelling DD



SIGNAL	ROUTE	DESTINATION	IND.
583	(M)A	DOWN ILLAWARRA MAIN	-
	(S)A	DOWN ILLAWARRA MAIN	I
	(M)B	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN ILLAWARRA LOCAL	IL
	(M)C	DOWN BANKSTOWN	B
(S)C	DOWN BANKSTOWN	B	



SIGNAL	ROUTE	DESTINATION	IND.
585	(M)A	DOWN ILLAWARRA LOCAL	-
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(M)B	DOWN BANKSTOWN	B
	(S)B	DOWN BANKSTOWN	B



SIGNAL	ROUTE	DESTINATION	IND.
594	(M)A	UP ILLAWARRA LOCAL	-
	(S)A	UP ILLAWARRA LOCAL	IL
	(M)B	UP ILLAWARRA MAIN	-
	(S)B	UP ILLAWARRA MAIN	I



NOTE:  
#4 BOTTOM SHUNT ROUTE INDICATOR TO BE  
BLANKED OUT WITH BLANKING PLATE.

**SYDENHAM JUNCTION**  
**STAGE 3 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 1 OF 7

PRODUCED BY SIEMENS LTD
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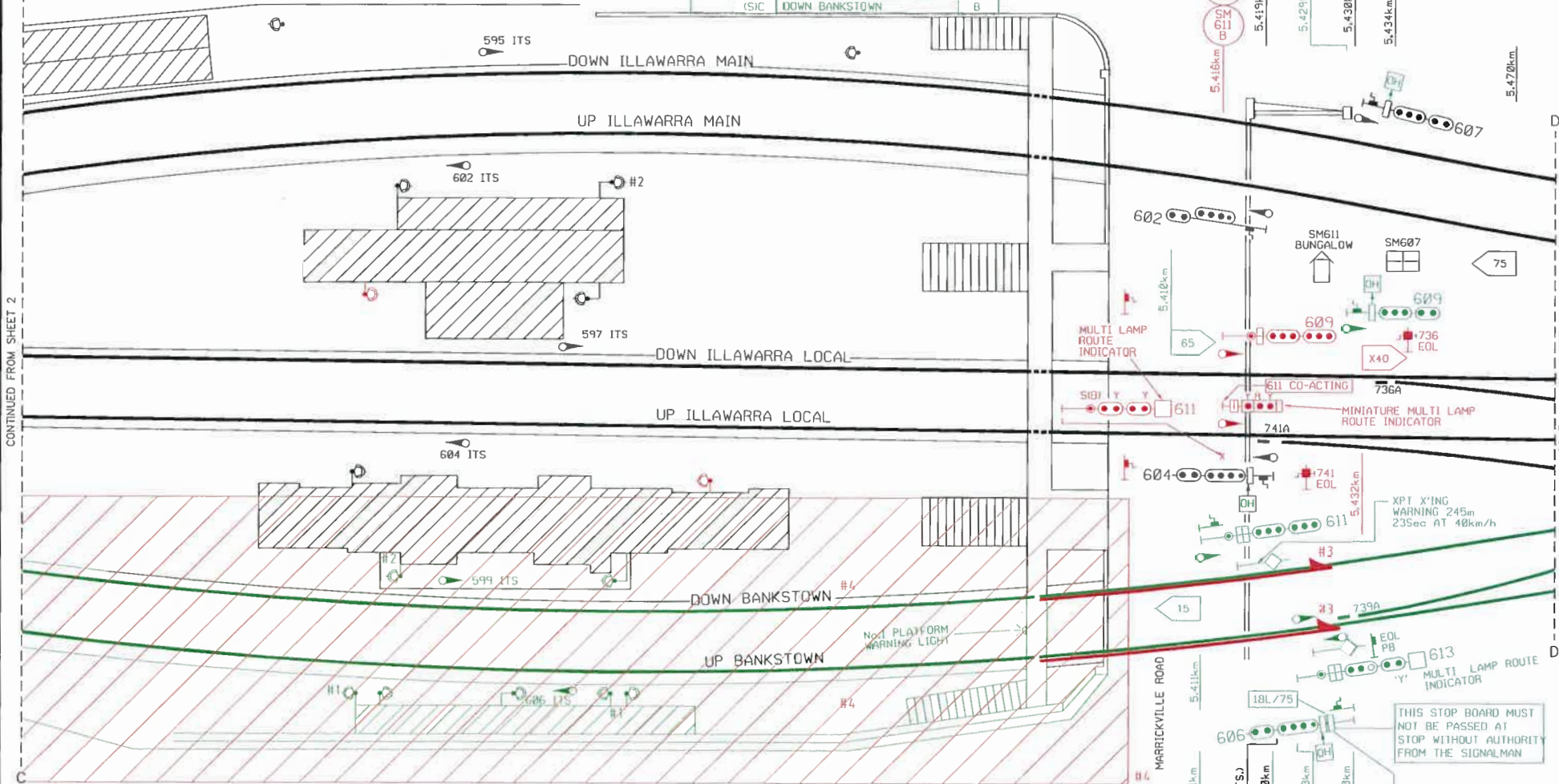
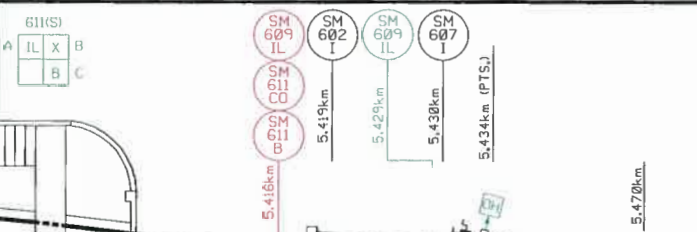






# SYDENHAM

SIGNAL	ROUTE	DESTINATION	IND.
611	(M)A	DOWN ILLAWARRA LOCAL	-
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN XPT	X
	(M)C	DOWN BANKSTOWN	-
	(S)C	DOWN BANKSTOWN	B



SIGNAL	ROUTE	DESTINATION	IND.
609	(M)A	DOWN ILLAWARRA LOCAL	-
	(S)A	DOWN ILLAWARRA LOCAL	D
	(S)B	UP ILLAWARRA LOCAL	U
	(M)C	DOWN BANKSTOWN	-



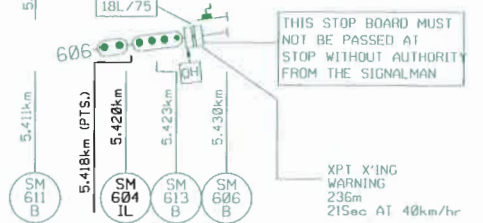
SIGNAL	ROUTE	DESTINATION	IND.	CO-ACTING IND.
611	(M)A	DOWN ILLAWARRA LOCAL	L	L
	(S)B	UP ILLAWARRA LOCAL	-	-
	(M)C	DOWN BANKSTOWN	B	B

SIGNAL	ROUTE	DESTINATION	IND.
613	(M)A	DOWN ILLAWARRA LOCAL	IL
	(S)A	DOWN ILLAWARRA LOCAL	IL
	(S)B	DOWN XPT	X
	(M)C	DOWN BANKSTOWN	B
	(S)C	DOWN BANKSTOWN	B



- #1 ALDRIDGE LED UNIT
- #2 120V ALDRIDGE LED UNIT

- NOTES
- #3 TEMPORARY BUFFER STOP
  - #4 PLATFORMS 1 & 2 CLOSED FOR SYDNEY METRO REMODELING
  - \*1 RENAME ONLY



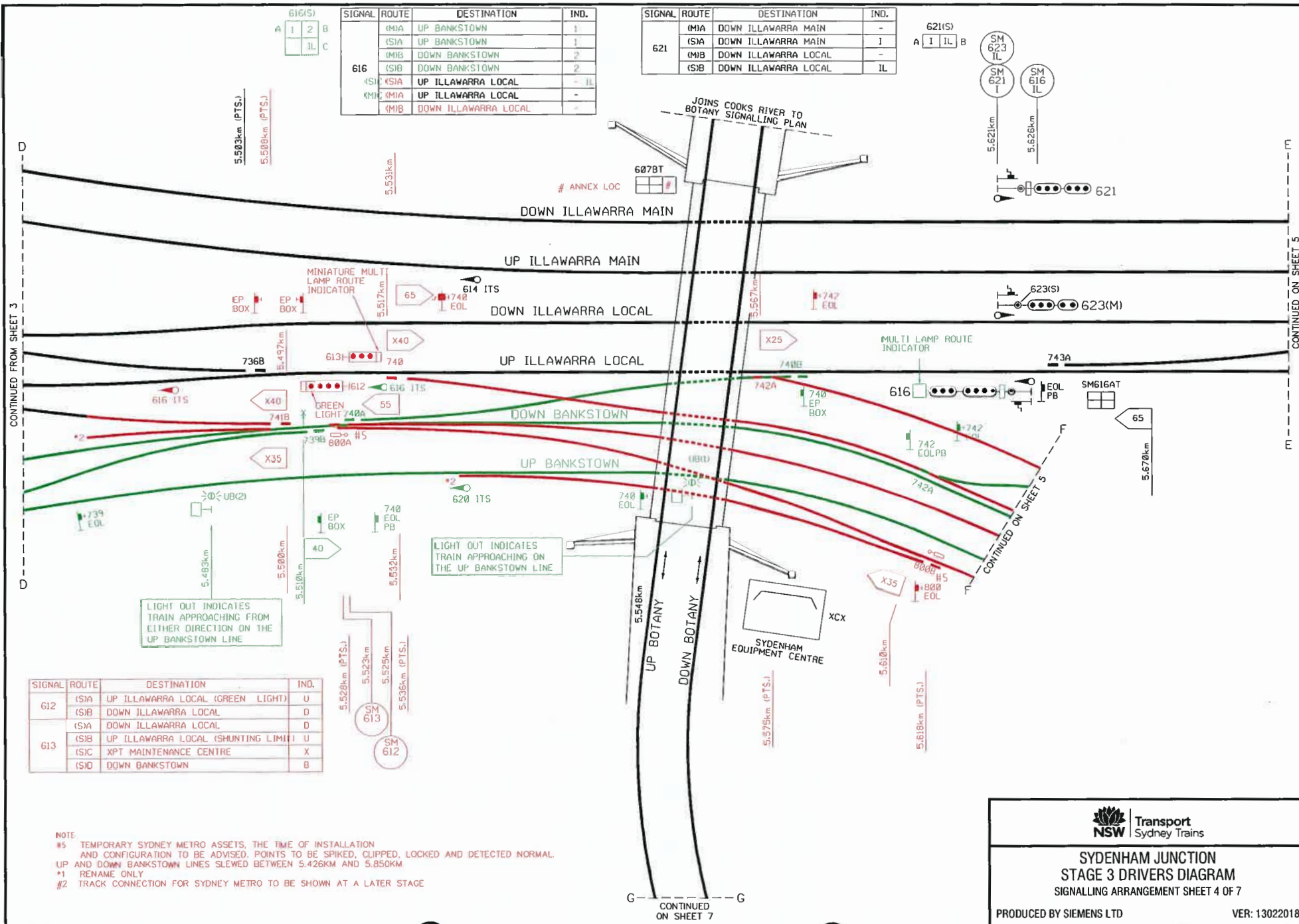
NSW Transport Sydney Trains

**SYDENHAM JUNCTION**  
**STAGE 3 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 3 OF 7

PRODUCED BY SIEMENS LTD VER: 13022018

CONTINUED FROM SHEET 2

CONTINUED ON SHEET 4



SIGNAL	ROUTE	DESTINATION	IND.
616	(M)A	UP BANKSTOWN	1
	(S)A	UP BANKSTOWN	1
	(M)B	DOWN BANKSTOWN	2
	(S)B	DOWN BANKSTOWN	2
	(S)C	UP ILLAWARRA LOCAL	- IL
	(M)C	UP ILLAWARRA LOCAL	-
616	(M)A	UP ILLAWARRA LOCAL	-
	(M)B	DOWN ILLAWARRA LOCAL	-

SIGNAL	ROUTE	DESTINATION	IND.
621	(M)A	DOWN ILLAWARRA MAIN	-
	(S)A	DOWN ILLAWARRA MAIN	1
	(M)B	DOWN ILLAWARRA LOCAL	-
	(S)B	DOWN ILLAWARRA LOCAL	-

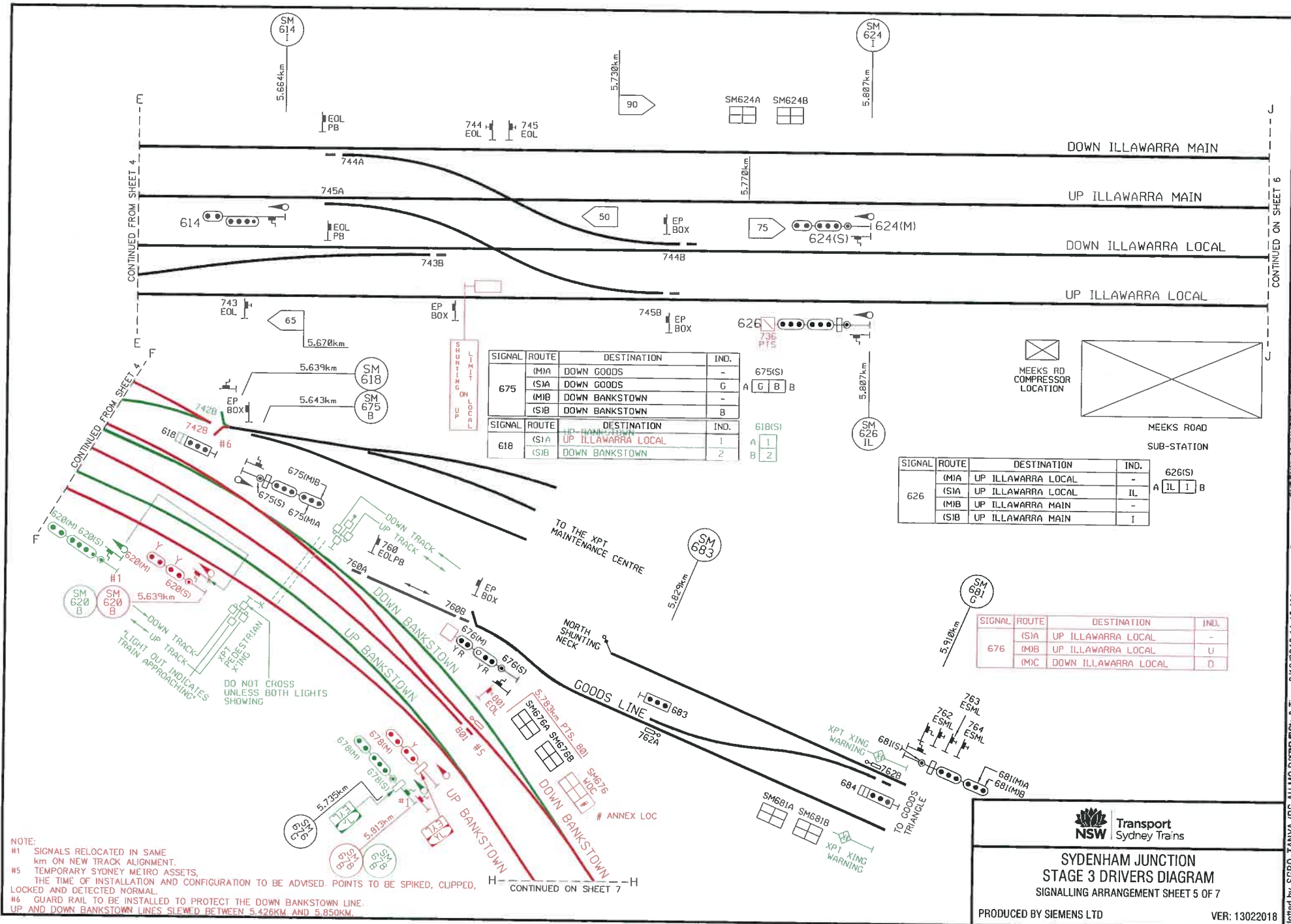
SIGNAL	ROUTE	DESTINATION	IND.
612	(S)A	UP ILLAWARRA LOCAL (GREEN LIGHT)	U
	(S)B	DOWN ILLAWARRA LOCAL	D
	(S)A	DOWN ILLAWARRA LOCAL	D
613	(S)B	UP ILLAWARRA LOCAL (SHUNTING LIMIT)	U
	(S)C	XPT MAINTENANCE CENTRE	X
	(S)D	DOWN BANKSTOWN	B

NOTE:  
 #5 TEMPORARY SYDNEY METRO ASSETS. THE TIME OF INSTALLATION AND CONFIGURATION TO BE ADVISED. POINTS TO BE SPIKED, CLIPPED, LOCKED AND DETECTED NORMAL.  
 UP AND DOWN BANKSTOWN LINES SLEWED BETWEEN 5.426KM AND 5.850KM.  
 #1 RENAME ONLY  
 #2 TRACK CONNECTION FOR SYDNEY METRO TO BE SHOWN AT A LATER STAGE

**SYDENHAM JUNCTION**  
**STAGE 3 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 4 OF 7  
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SIGNAL	ROUTE	DESTINATION	IND.
675	(M)A	DOWN GOODS	-
	(S)A	DOWN GOODS	G
	(M)B	DOWN BANKSTOWN	-
	(S)B	DOWN BANKSTOWN	B
618	(S)A	UP ILLAWARRA LOCAL	1
	(S)B	DOWN BANKSTOWN	2

SIGNAL	ROUTE	DESTINATION	IND.
626	(M)A	UP ILLAWARRA LOCAL	-
	(S)A	UP ILLAWARRA LOCAL	IL
	(M)B	UP ILLAWARRA MAIN	-
	(S)B	UP ILLAWARRA MAIN	I

SIGNAL	ROUTE	DESTINATION	IND.
676	(S)A	UP ILLAWARRA LOCAL	-
	(M)B	UP ILLAWARRA LOCAL	U
	(M)C	DOWN ILLAWARRA LOCAL	D

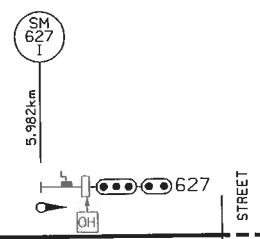
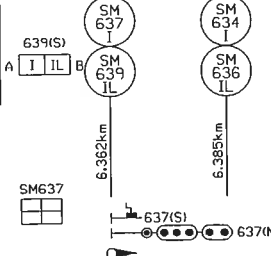
**NOTE:**  
 #1 SIGNALS RELOCATED IN SAME km ON NEW TRACK ALIGNMENT.  
 #5 TEMPORARY SYDNEY METRO ASSETS, THE TIME OF INSTALLATION AND CONFIGURATION TO BE ADVISED POINTS TO BE SPIKED, CLIPPED, LOCKED AND DETECTED NORMAL.  
 #6 GUARD RAIL TO BE INSTALLED TO PROTECT THE DOWN BANKSTOWN LINE.  
 UP AND DOWN BANKSTOWN LINES SLEWED BETWEEN 5.426KM AND 5.850KM.

  
**SYDENHAM JUNCTION**  
**STAGE 3 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 5 OF 7  
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CONTINUED FROM SHEET 5

TO TEMPE  
File Plotted: SYDENHAM JUNCTION\_DD\_STAGE 3.dwg  
Plotted by: SGR0\_TANYA (RC-AU MO R3) Date & Time: 27/19/2018 11:10 AM

SIGNAL	ROUTE	DESTINATION	IND.
639	(MIA)	DOWN ILLAWARRA MAIN	-
	(SIA)	DOWN ILLAWARRA MAIN	I
	(MIB)	DOWN ILLAWARRA LOCAL	-
	(SIB)	DOWN ILLAWARRA LOCAL	IL



SIGNAL	ROUTE	DESTINATION	IND.
694	(SJA)	UP SHUNTING NECK	SN
	(MIB)	UP SOUTH FORK	-
	(SIB)	UP SOUTH FORK	SF
	(MIC)	UP EAST FORK	-
	(SIC)	UP EAST FORK	EF

LEVER F  
RELEASED BY KEY  
FROM REL. SW F  
(WARDS 2-5A)  
OUT WITH LEVER NORMAL

RELEASING SWITCH F  
RELEASED BY 77ISM  
AND RELEASES KEY  
FOR FWARDS 2-5A

694(S)  
A SN SF B  
C EF -

\*STOP\*  
(DOUBLE SIDE)

SIGNAL	ROUTE	DESTINATION	IND.
641	(MIA)	DOWN ILLAWARRA MAIN	-
	(SIA)	DOWN ILLAWARRA MAIN	I
	(MIB)	DOWN ILLAWARRA LOCAL	-
	(SIB)	DOWN ILLAWARRA LOCAL	IL

SIGNAL	ROUTE	DESTINATION	IND.
643	A	DOWN ILLAWARRA MAIN	I
	B	DOWN ILLAWARRA LOCAL	IL

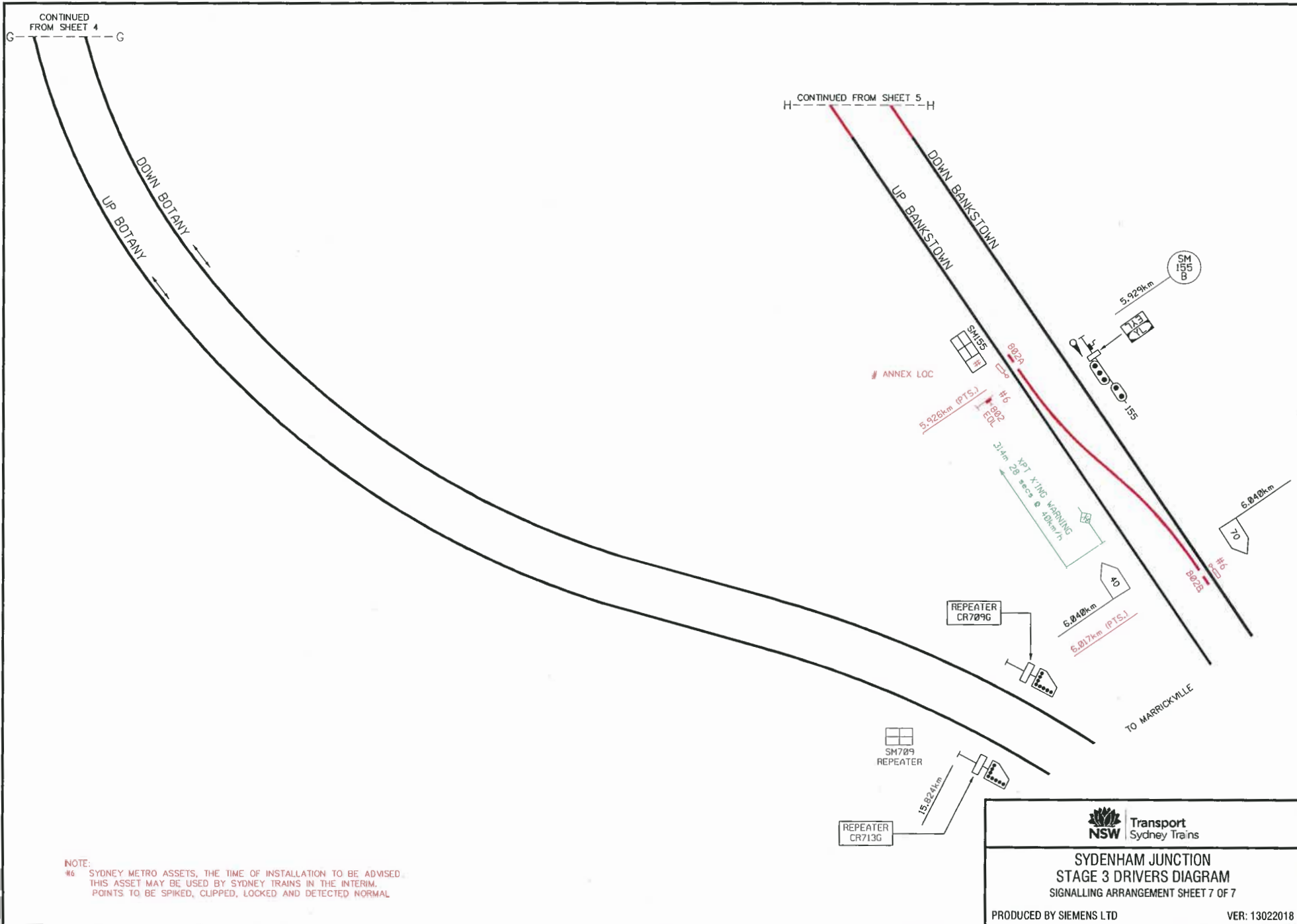
SIGNAL	ROUTE	DESTINATION	IND.
698	A	UP GOODS	UG
	B	DOWN GOODS	DG



**SYDENHAM JUNCTION  
STAGE 3 DRIVERS DIAGRAM**  
SIGNALLING ARRANGEMENT SHEET 6 OF 7

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NOTE:  
 #6 SYDNEY METRO ASSETS, THE TIME OF INSTALLATION TO BE ADVISED.  
 THIS ASSET MAY BE USED BY SYDNEY TRAINS IN THE INTERIM.  
 POINTS TO BE SPIKED, CLIPPED, LOCKED AND DETECTED NORMAL

**SYDENHAM JUNCTION**  
**STAGE 3 DRIVERS DIAGRAM**  
 SIGNALLING ARRANGEMENT SHEET 7 OF 7  
 PRODUCED BY SIEMENS LTD VER: 13022018

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 DF 390\*277 A3

## Appendix H

### Stage 3 – Proposed Air System Schematics

# SYDNEY METRO CITY & SOUTH WEST


## SYDENHAM PNEUMATIC SYSTEM PROPOSAL

### STAGE 3

#### LEGEND

 VALVE (GENERAL)

 VALVE (NC)


 BALL VALVE


 BALL VALVE (NC)

 PRESSURE RELIEF VALVE

 REGULATOR

 PIT

 M1  
3  
MANIFOLD ID  
No. OF BRANCHES  
ON MANIFOLD  
MANIFOLD

 EXPANSION JOINT:  
TYPE 1 - 100mm TRAVEL  
TYPE 2 - 200mm TRAVEL ETC

 UNION

 FLANGE

 POINTS CONTROLLER

 POINT MACHINE


 TRAIN STOPS

 PLUNGER LOCK SOLENOID


 PLUNGER LOCK

 STRAINER

 BLANKED END

 PRESSURE TRANSMITTER

 PRESSURE INDICATOR

 DRAIN - AUTO / MANUAL

 ROTARY SCREW COMPRESSOR  
(ELECTRIC MOTOR DRIVE)

 RECEIVER

 DN20 ABOVE-GROUND PIPE

 DN20 UNDERGROUND PIPE

 50ID FLEXIBLE HOSES

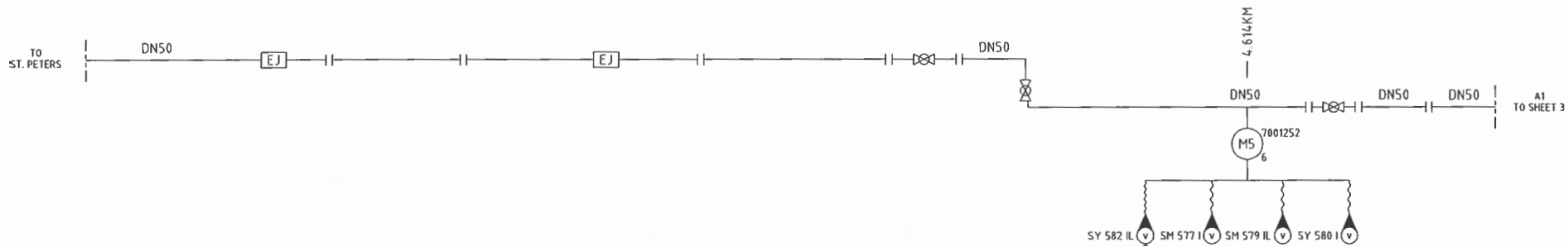
 50ID UNDERGROUND FLEXIBLE HOSES



SYDENHAM JUNCTION  
PROPOSED STAGE 3 AIR LINE SCHEMATICS  
ARRANGEMENT SHEET 1 OF 8

PRODUCED BY SIEMENS LTD

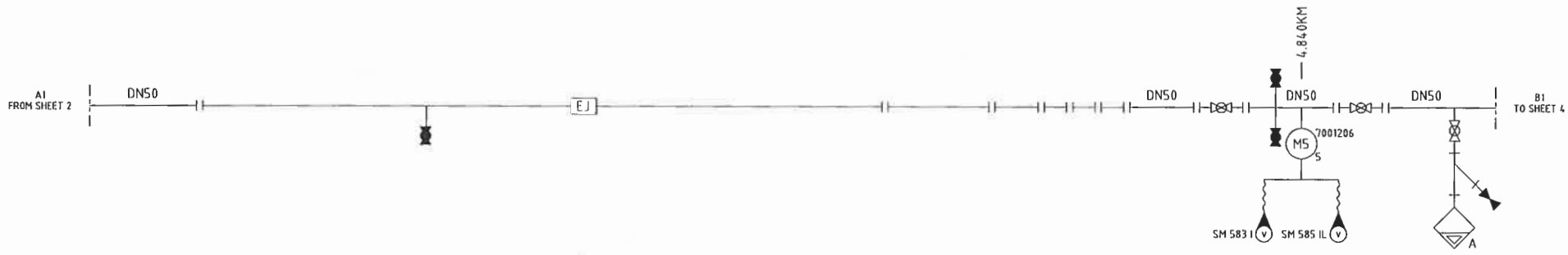
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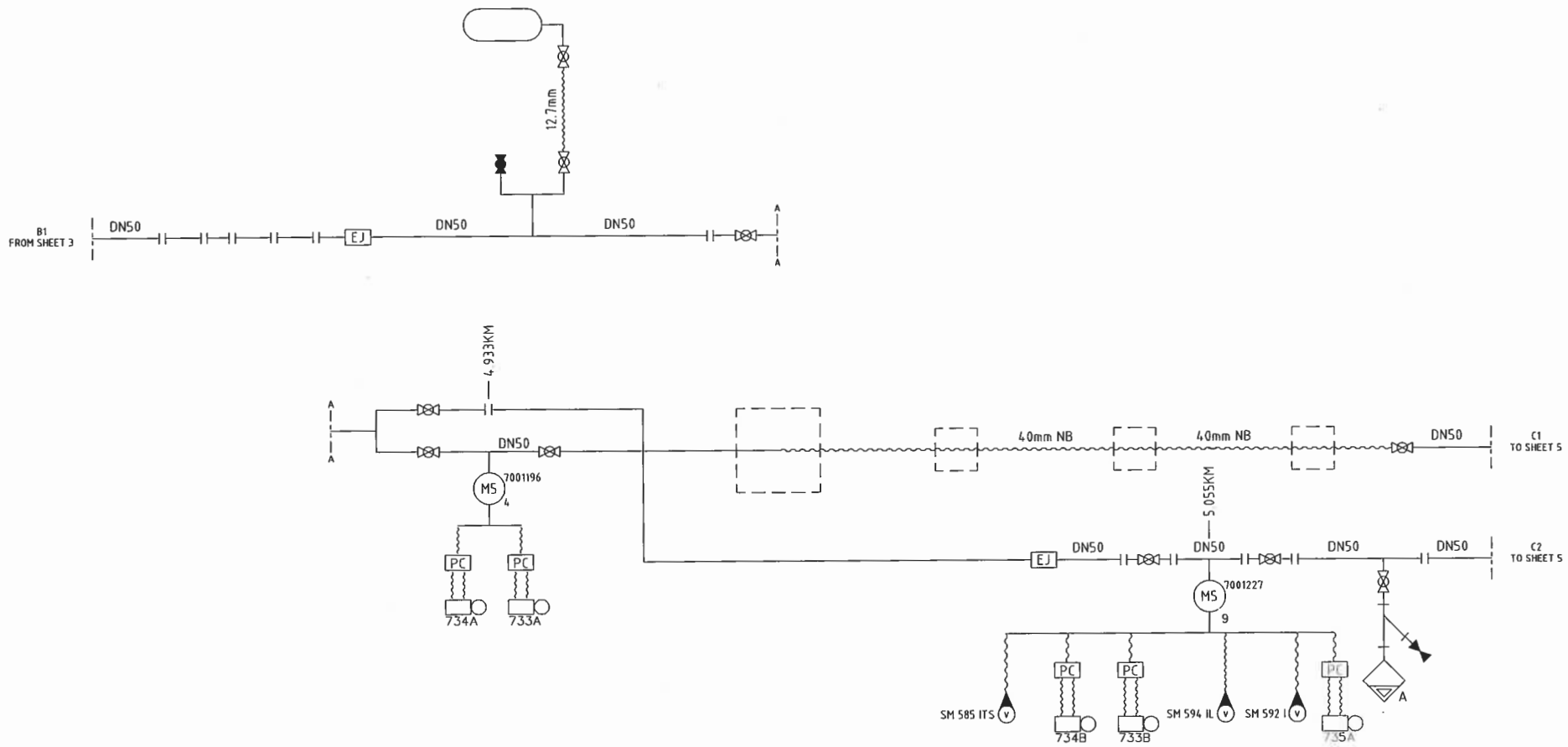

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 3 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 2 OF 8
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<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 3 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 3 OF 8	
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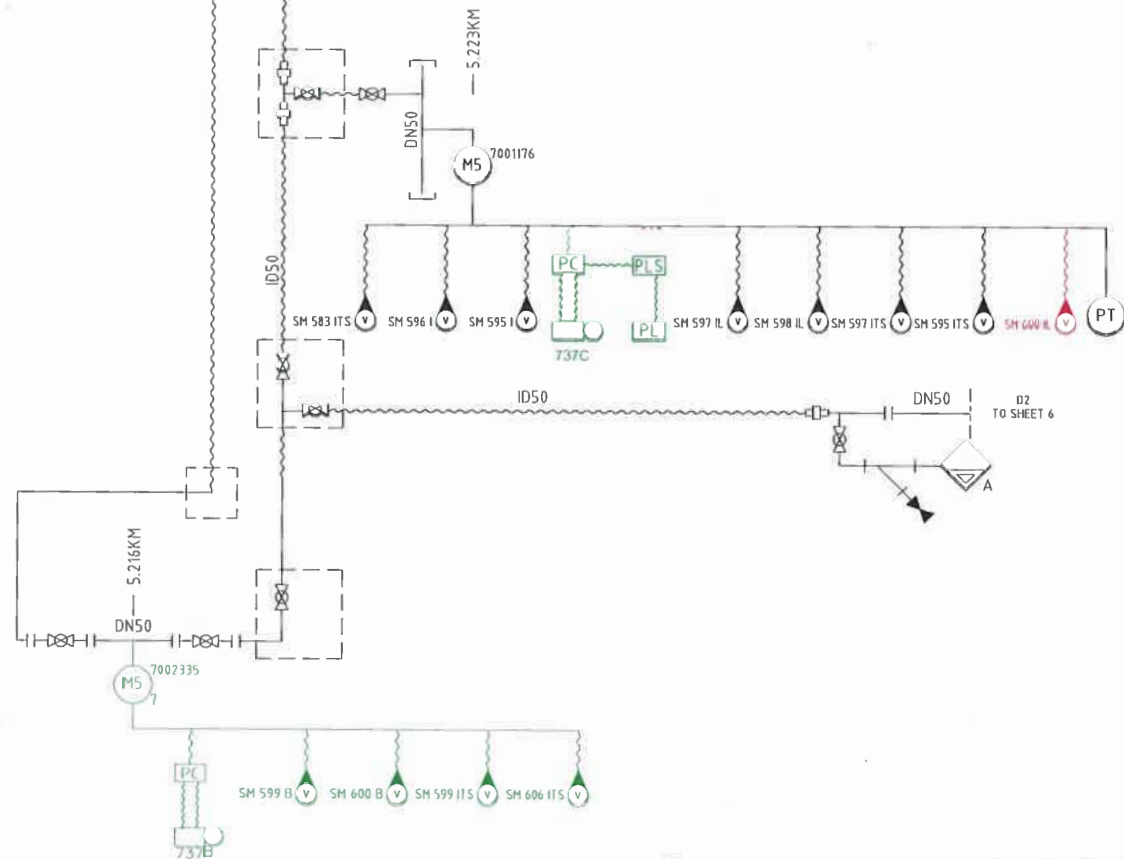
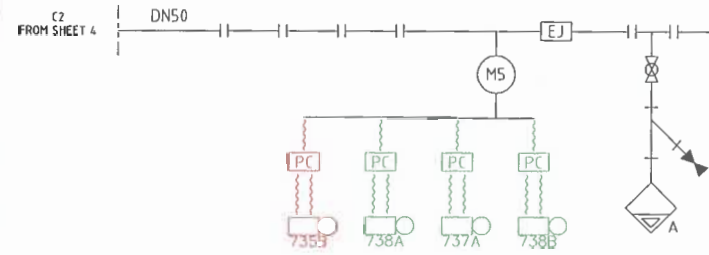
Plotted by SGR0, TANYA (RC-AU MO R 3300) Date & Time 2/16/2018 4:50 PM File Plotted SYDENHAM JUNCTION-AL-Proposed\_Stage 4.dwg



<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 3 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 4 OF 8	
PRODUCED BY SIEMENS LTD	VER: 16022018

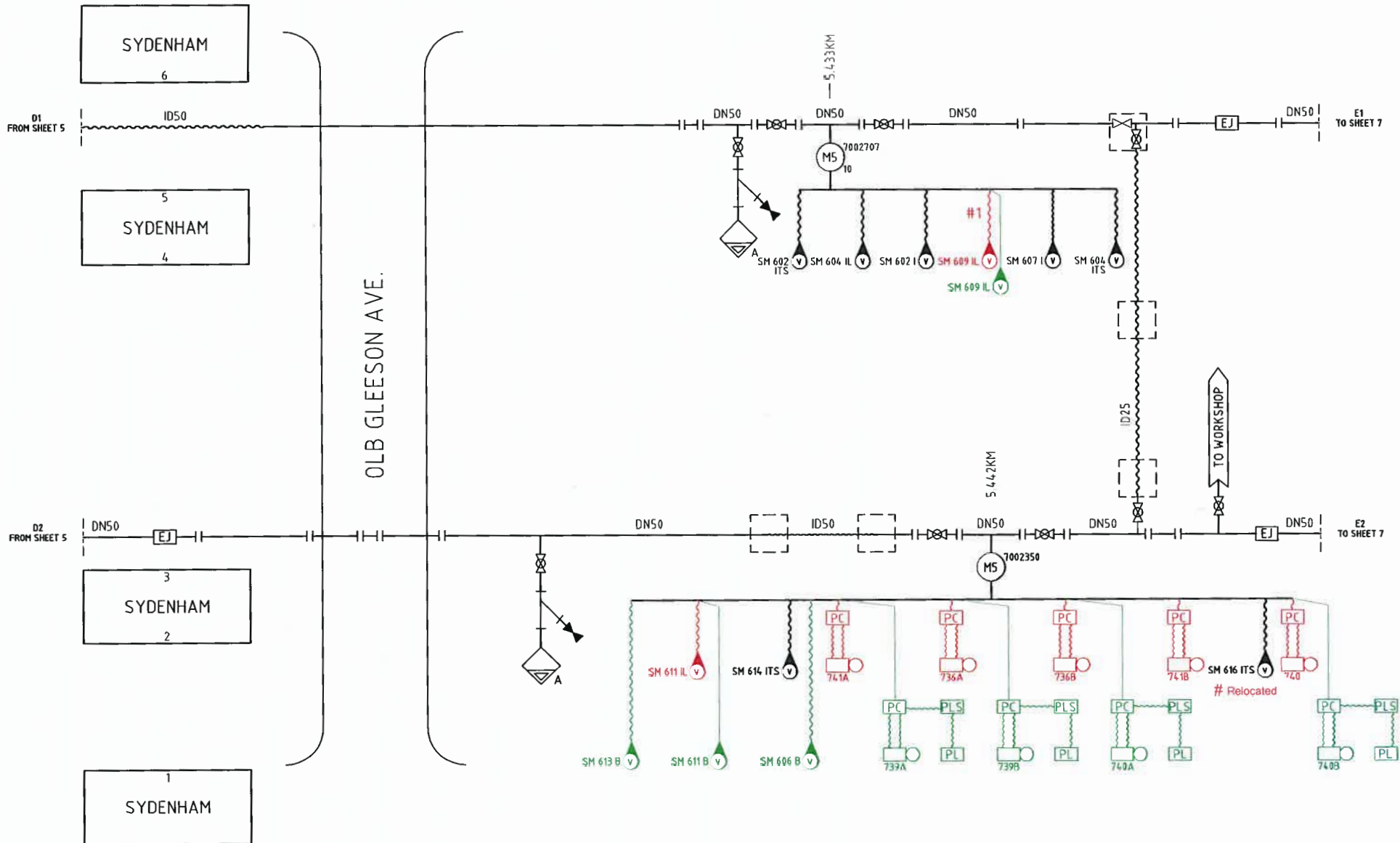
Plotted by SGR0, TANYA (RC-AU MO R:3:2018 4:52 PM) File Plotted SYDENHAM JUNCTION-AI-Proposed\_Stage 4.dwg

C1 FROM SHEET 4 DN50 ID50 DN50 DN50 ID50 D1 TO SHEET 6



**SYDENHAM JUNCTION**  
**PROPOSED STAGE 3 AIR LINE SCHEMATICS**  
 ARRANGEMENT SHEET 5 OF 8  
 PRODUCED BY SIEMENS LTD VER: 16022018

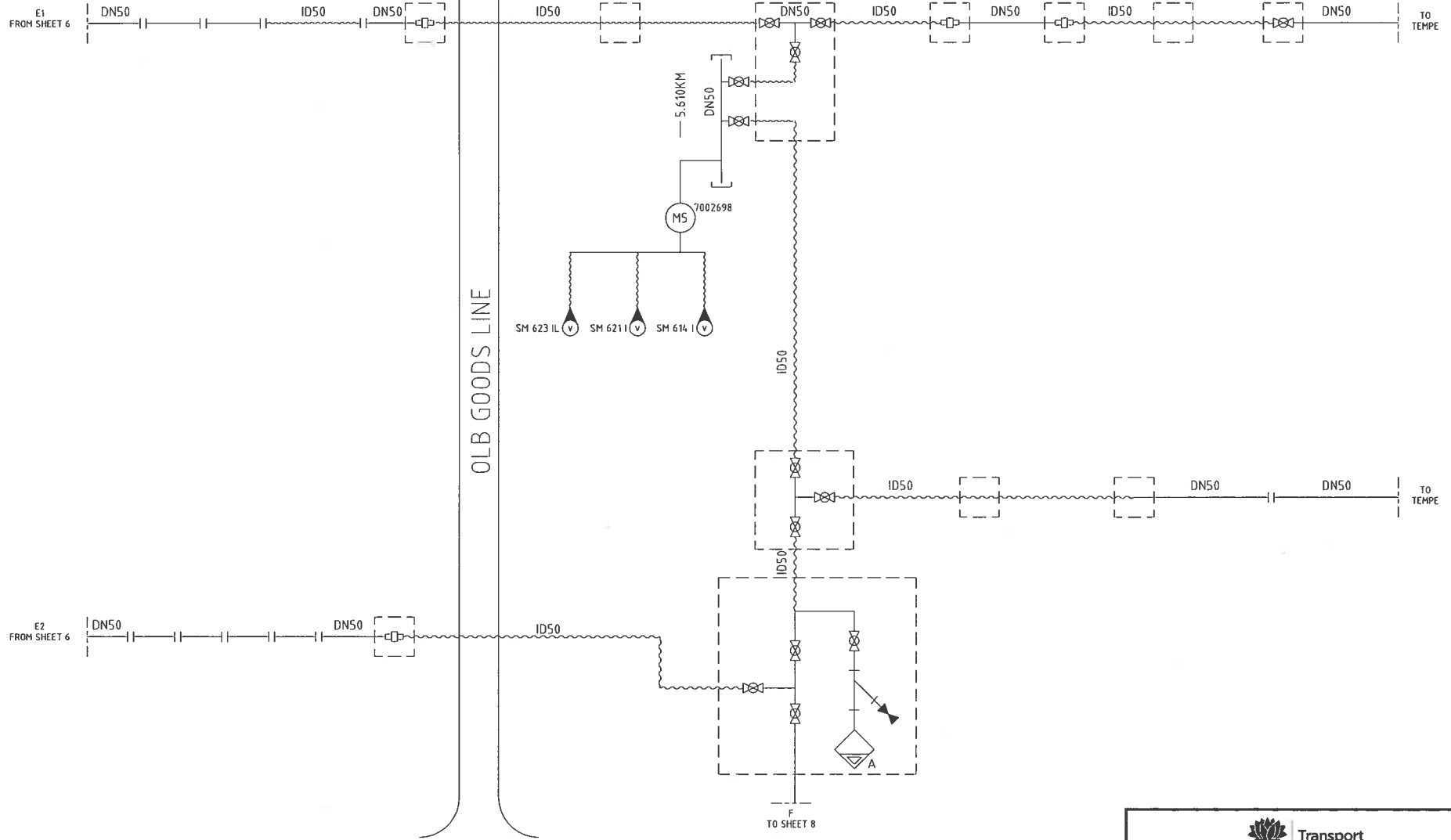
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 Plotted by SGR0, TANYA (PC-AU) MO R 3:58:58pm & Time 2/16/2018 4:53 PM  
 DF 390\*277 A3



NOTE:  
 #1 PIPE RENEWED AS PART OF TRAINSTOP RELOCATION.

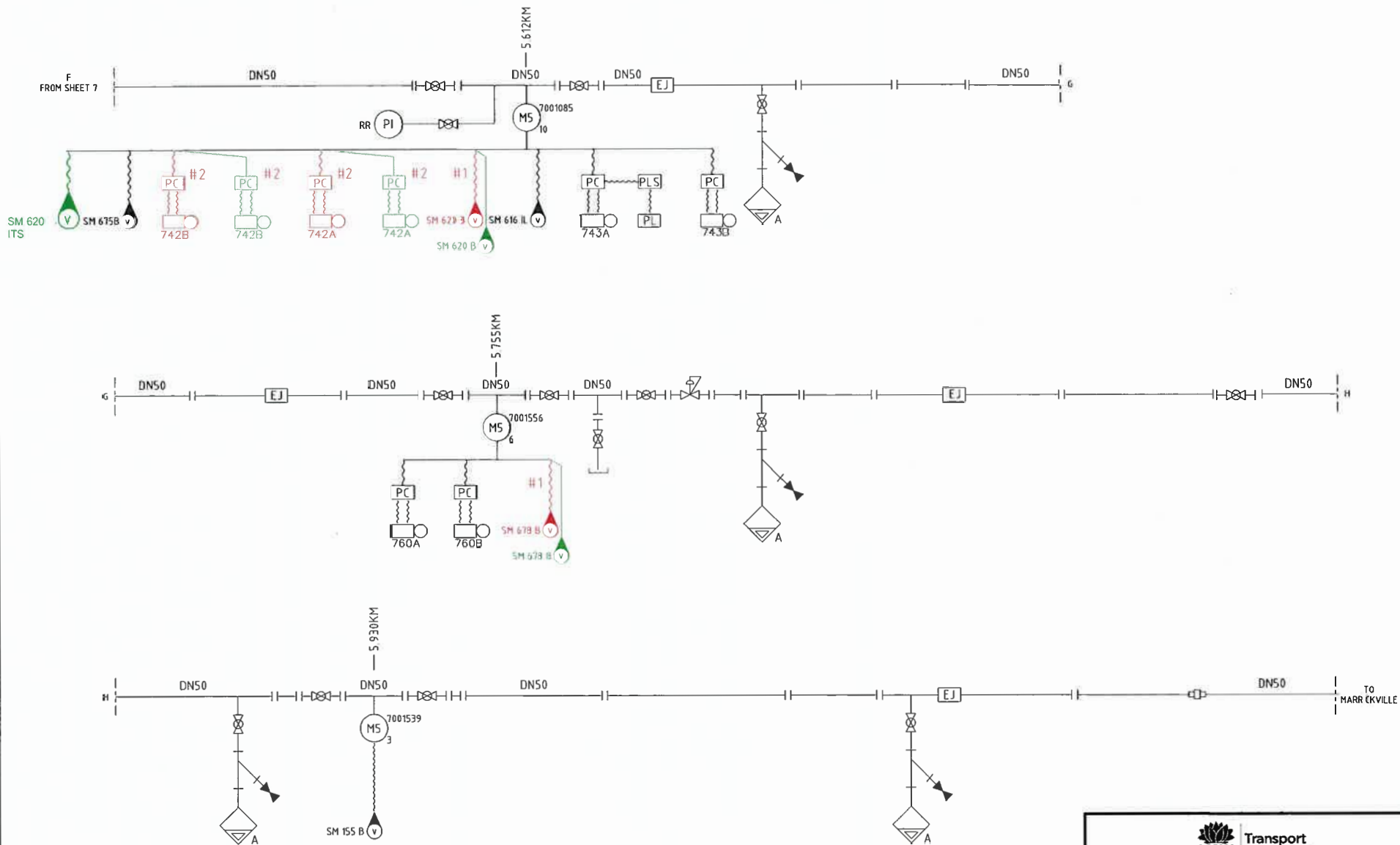
<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 3 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 6 OF 8
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Plotted by WATTS, STEVE  
 Plot Date & Time: 5/5/2017 12:54 PM  
 File Plotted: SSJ-AL-Proposed\_Stage4.dwg



<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 3 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 7 OF 8	
PRODUCED BY SIEMENS LTD	VER: 16022018

File Plotted: SYDENHAM JUNCTION-AL-Proposed\_Stage 4.dwg  
 Plotted by: SGR0, TANYA (RC-AU) MO R 2/16/2018 4:54 PM  
 DF 390\*277 A3



NOTE:  
 #1 PIPE RENEWED AS PART OF TRAINSTOP RELOCATION  
 #2 PIPE RENEWED AS PART OR POINTS RELOCATION.

<b>SYDENHAM JUNCTION</b> <b>PROPOSED STAGE 3 AIR LINE SCHEMATICS</b> ARRANGEMENT SHEET 8 OF 8	
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# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B3.0 – Building, Precinct and Public  
Domain Works

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September</del> 17 <u>May 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2</del> <u>E</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-AT-SC H-000017</u>
<b>FILE NAME</b>	Schedule C1 – Appendix B3.0 – Building Precinct Public Domain		



# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
1.1	System requirements	1
<b>2</b>	<b>Design objectives</b>	<b>2</b>
2.1	Design Objectives	2
2.2	SSJ design quality	3
2.3	Architectural design requirements	4
2.4	Design excellence	7
2.5	Delivery excellence	8
<b>3</b>	<b>Station and buildings spatial and functional requirements</b>	<b>10</b>
3.1	Spatial and functional requirements	10
3.1.1	Minimum clear height (MCH)	10
3.1.2	Natural light access	10
3.2	Customer spatial planning	11
3.2.1	General	11
3.2.2	Design capacity requirements	12
3.2.3	Level of service and space criteria	12
3.2.4	Run-off and queue zone requirements	13
3.2.5	Customer toilets	13
3.3	Operational Spatial Planning	14
3.3.1	General	14
3.3.2	Station operation	14
3.3.3	Staff amenities	15
3.3.4	Service buildings and facilities	15
3.3.5	Plant and equipment rooms, and corridors	16
3.3.6	Building services integration	<del>16</del> 17
3.4	Station entrance	17
3.4.1	General	17
3.4.2	Ticketing equipment	<del>17</del> 18
3.5	Gateline elements	<del>18</del> 19
3.6	Metro Concourse	<del>19</del> 20
3.6.1	Commercial vending machines	<del>20</del> 21
3.7	Vertical Transport	<del>20</del> 21
3.8	Platform spatial requirements	22
3.8.1	Sydenham Station requirements	22
3.8.2	Metro Station requirements	22
3.8.3	Platform Seating	24
3.8.4	Passenger information displays system (PIDS)	<del>24</del> 25
3.8.5	Platform Screen Doors (PSD)	25
3.9	Canopy typologies	<del>25</del> 26
<del>3.9.2</del> 3.9.1	Type 1: entrance canopies	26
<del>3.9.3</del> 3.9.2	Type 2: Metro Concourse canopy	<del>26</del> 27
<del>3.9.4</del> 3.9.3	Type 3: platform canopies	27
3.10	Sustainability	28
3.11	<u>Light Line Elements</u>	<u>29</u>

<a href="#">3.12</a>	Help Points	<a href="#">2829</a>
<del>3.12</del> <a href="#">3.13</a>	Security	<a href="#">2930</a>
<del>3.13</del> <a href="#">3.14</a>	Blast requirements	<a href="#">3031</a>
<b>4</b>	<b>Station and buildings finishes, fittings, and fixtures</b>	<b><a href="#">3132</a></b>
4.1	General	<a href="#">3132</a>
4.2	Public area flooring	<a href="#">3233</a>
4.2.2	Surface drainage	<a href="#">3334</a>
4.2.3	Access hatches	<a href="#">3334</a>
4.2.4	Wet area flooring	<a href="#">3334</a>
4.2.5	Tactile ground surface indicators	<a href="#">3335</a>
4.3	Public area wall cladding	<a href="#">3435</a>
4.3.2	Service building louvres and grilles	<a href="#">3436</a>
4.3.3	Skirting	<a href="#">3536</a>
4.3.4	Wet area walls	<a href="#">3536</a>
4.3.5	Trackside wall	<a href="#">3637</a>
4.4	Public area ceilings and soffits	<a href="#">3637</a>
4.4.2	Wet area ceilings	<a href="#">3738</a>
4.5	Staff office and back of house flooring	<a href="#">3738</a>
4.6	Staff office and back of house wall cladding	<a href="#">3738</a>
4.7	Staff office and back of house ceilings and soffits	<a href="#">3739</a>
4.8	Roofing	<a href="#">3839</a>
<del>4.8.24</del> <a href="#">4.8.1</a>	PV system	<a href="#">3839</a>
<del>4.8.34</del> <a href="#">4.8.2</a>	Canopy soffits	<a href="#">3940</a>
<del>4.8.44</del> <a href="#">4.8.3</a>	Gutters and down pipes	<a href="#">3940</a>
<a href="#">4.8.4</a>	<a href="#">Service building roofs</a>	<a href="#">41</a>
4.8.5	Service building <del>roofs</del>	<a href="#">39</a>
<del>4.8.6</del>	<del>Service building walls</del>	<a href="#">4041</a>
<del>4.8.74</del> <a href="#">4.8.6</a>	Exposed structures	<a href="#">4041</a>
4.9	Stairs	<a href="#">4042</a>
4.10	Handrails, balustrade and screens	<a href="#">4142</a>
4.11	Doors and doorways	<a href="#">4143</a>
4.12	Platform edge screens	<a href="#">4243</a>
4.13	Seating	<a href="#">4244</a>
4.14	Rubbish bins	<a href="#">4344</a>
4.15	Barriers and security line	<a href="#">4445</a>
4.16	Pest bird, bat and vermin protection	<a href="#">4445</a>
<a href="#">4.17</a>	<a href="#">Fire Separation and Compartmentation</a>	<a href="#">46</a>
<b>5</b>	<b>Station and buildings materials requirements</b>	<b><del>46</del> <a href="#">47</a></b>
5.1	General	<a href="#">4647</a>
5.2	Concrete	<a href="#">4647</a>
<del>5.2.25</del> <a href="#">5.2.1</a>	Finishes and tolerances	<a href="#">4647</a>
<del>5.2.35</del> <a href="#">5.2.2</a>	Colour and consistency	<a href="#">4849</a>
5.3	Brick and block masonry	<a href="#">4950</a>
5.4	Cladding	<a href="#">4950</a>
<a href="#">5.4.1</a>	<a href="#">Performance criteria</a>	<a href="#">51</a>
5.4.2	<del>Performance criteria</del>	<a href="#">50</a>
<del>5.4.3</del>	Materials and products	<a href="#">5152</a>
5.5	Window, curtain walling, glazed screens and glazed doors	<a href="#">5354</a>
<a href="#">5.5.1</a>	<a href="#">Performance criteria</a>	<a href="#">54</a>

5.5.2	<del>Performance criteria</del>		<del>53</del>
<del>5.5.3</del>	Material and components		<del>54</del> <u>55</u>
5.6	Glazing		<del>55</del> <u>56</u>
5.6.1	General		<del>55</del> <u>56</u>
<u>5.6.1</u>	<u>Performance criteria</u>		<u>56</u>
5.6.2	<del>Performance criteria</del>		<del>56</del>
<del>5.6.3</del>	Materials and components		<del>56</del> <u>57</u>
5.7	Roofing		<del>58</del> <u>59</u>
<u>5.7.1</u>	<u>Performance criteria</u>		<u>59</u>
5.7.2	<del>Performance criteria</del>		<del>58</del>
<del>5.7.3</del>	Roof plumbing		<del>59</del> <u>60</u>
<del>5.7.4</del> <u>5.7.3</u>	Translucent roof cladding		<del>59</del> <u>60</u>
5.8	Roof access		<del>59</del> <u>60</u>
<del>5.8.2</del> <u>5.8.1</u>	Performance criteria		<del>60</del> <u>61</u>
5.9	Wall and ceiling linings		<del>60</del> <u>62</u>
5.10	Suspended Ceilings		<del>62</del> <u>63</u>
<del>5.10.2</del> <u>5.10.1</u>		Materials and components	<del>62</del> <u>63</u>
5.11	Plastering and rendering		<del>63</del> <u>64</u>
5.12	Tiling and paving		<del>63</del> <u>64</u>
<del>5.12.2</del> <u>5.12.1</u>		Stone paving	<del>65</del> <u>66</u>
<del>5.12.3</del> <u>5.12.2</u>		Terazzo tiling	<del>65</del> <u>66</u>
5.13	Resilient finishes		<del>67</del> <u>68</u>
5.14	Joinery		<del>67</del> <u>69</u>
5.15	Doorsets		<del>69</del> <u>70</u>
5.16	Architectural louvres		<del>70</del> <u>72</u>
5.17	Carpets		<del>71</del> <u>72</u>
5.18	Painting		<del>72</del> <u>73</u>
5.19	Steel paint coating		<del>74</del> <u>75</u>
5.20	Metalwork and metal fixtures		<del>75</del> <u>76</u>
5.21	Balustrades		<del>75</del> <u>76</u>
<b>6</b>	<b>Station Precinct and Public Domain spatial and functional requirements</b>		<del>77</del> <u>79</u>
6.1	General		<del>77</del> <u>79</u>
6.2	Amenity		<del>78</del> <u>80</u>
6.3	Pedestrian movement and facilities		<del>78</del> <u>80</u>
6.4	Primary Plaza, Secondary Plaza and Public Domain		<del>79</del> <u>81</u>
6.4.1	Public telephones		<del>84</del> <u>83</u>
6.4.2	Automatic teller machines (cash)		<del>84</del> <u>83</u>
6.5	Active transport corridor		<del>84</del> <u>83</u>
6.6	Bicycle movement		<del>82</del> <u>84</u>
6.7	Bicycle facilities		<del>82</del> <u>84</u>
6.8	Bus facilities		<del>83</del> <u>85</u>
6.9	Taxi facilities		<del>84</del> <u>86</u>
6.10	Kiss and Ride facilities		<del>84</del> <u>86</u>
6.11	Shared zone facilities		<del>85</del> <u>87</u>
6.12	Shared paths		<del>85</del> <u>87</u>
6.13	Visually separated walking and cycle path (VSWCP)		<del>85</del> <u>87</u>
6.14	Streets		<del>85</del> <u>88</u>
<u>6.15</u>	<u>Service access, Emergency Services access and facilities</u>		<u>89</u>

## **7 Station Precinct and Public Domain Finishes, Fittings, Fixtures and Materials 8791**

7.1	General	<u>8791</u>
7.2	Pavements	<u>8891</u>
7.2.1	General	<u>8891</u>
7.2.2	Primary Plaza	<u>8993</u>
7.2.3	Secondary Plaza	<u>9094</u>
7.2.4	Public Domain	<u>9094</u>
7.2.5	Footpaths, Visually Separated Cycle and Walking Paths, shared paths and bicycle paths	<u>9094</u>
7.2.6	Low trafficked areas	<u>9195</u>
7.2.7	Tactile ground surface indicators	<u>9195</u>
7.3	Street furniture	<u>9296</u>
7.3.1	General	<u>9296</u>
7.3.2	Bench seats	<u>9397</u>
7.3.3	Custom bench seats	<u>9397</u>
7.3.4	Rubbish bins	<u>9397</u>
7.3.5	Bollards	<u>9397</u>
7.3.6	Tree grates	<u>9498</u>
7.3.7	Drinking fountains	<u>9498</u>
7.3.8	Trench grates	<u>9498</u>
7.4	Shelters	<u>9498</u>
7.5	Bicycle parking	<u>96100</u>
7.5.1	Bicycle parking lock-ups – class 2	<u>96100</u>
7.5.2	Bicycle parking rails – class 3	<u>96100</u>
7.6	Fencing	<u>96100</u>
7.6.1	General	<u>96100</u>
7.6.2	<u>Station Precinct and Public Domain</u>	<u>102</u>
<u>7.6.3</u>	Security fence	<u>97102</u>
<del>7.6.3</del> <u>7.6.4</u>	Palisade fence	<u>98103</u>
<del>7.6.4</del> <u>7.6.5</u>	High security fence	<u>98103</u>
<del>7.6.5</del> <u>7.6.6</u>	Segregation fence	<u>98104</u>
<u>7.6.7</u>	<u>Access Gates</u>	<u>105</u>
<del>7.6.6</del> <u>7.6.8</u>	Handrails	<u>98105</u>
<del>7.6.7</del> <u>7.6.9</u>	Protection screens	<u>98105</u>

## **8 Urban Design Infrastructure – ~~99~~ 107**

8.1	Earthworks associated with urban design infrastructure	<u>99107</u>
8.2	Noise walls	<u>99107</u>
8.3	Road bridges	<del>100</del> <u>108</u>
8.4	Pedestrian bridges	<del>102</del> <u>110</u>
8.5	Retaining walls	<del>103</del> <u>111</u>
8.6	Stairs and ramps	<del>104</del> <u>112</u>
8.7	Walls	<del>105</del> <u>113</u>
8.7.1	General	<del>105</del> <u>113</u>
8.7.2	Concrete wall	<del>105</del> <u>113</u>
8.7.3	Masonry unit wall	<del>106</del> <u>114</u>
8.7.4	Gabion wall	<del>106</del> <u>114</u>
8.7.5	Cuttings, embankments, land form and slope stabilisation	<del>106</del> <u>114</u>
8.8	Anti-vandal treatment	<del>107</del> <u>115</u>

<b>9</b>	<b>Landscape Works Requirements</b>	<b><del>108</del>116</b>
9.1	Landscape works	<del>108</del> 116
9.2	Planting	<del>109</del> 117
9.3	Tree protection	<del>111</del> 119
9.4	Trees, planting, procurement and implementation	<del>111</del> 119
<del>9.4.2</del> 9.4.1	Tree pit design	<del>113</del> 121
<del>9.4.3</del> 9.4.2	Planting and turf	<del>113</del> 121
<del>9.4.4</del> 9.4.3	Topsoil and mulch	<del>114</del> 122
9.5	Water Sensitive Urban Design	<del>118</del> 126
9.6	Irrigation	<del>118</del> 126
<b>10</b>	<b>SSJ Specific Requirements</b> <del>120</del> <b>128</b>	
10.1	Metro Station and Station Precinct	<del>120</del> 128
10.1.1	Metro Station general	<del>120</del> 128
10.1.2	Station Precinct and Public Domain requirements	<del>120</del> 128
10.1.3	Sydenham Pit general requirements	<del>123</del> 131
10.1.4	Sydenham aqueduct requirements	<del>124</del> 131
<del>10.1.5</del>	<del>New pumping station requirements</del>	<del>126</del>
<b>11</b>	<b>Prototypes, Samples and Quality Benchmarks</b>	<b><del>127</del>134</b>
11.1	General	<del>127</del> 134
11.2	Process	<del>128</del> 135



# 1 Overview

- (a) The building works to Sydenham Station, Metro Station, Station Precinct and Public Domain addressed by this document, include the permanent new infrastructure and modifications to existing infrastructure associated with the Project Works and Temporary Works. This documents addresses the following in relation to that infrastructure:
- (i) design objectives;
  - (ii) spatial and functional requirements for precincts and public domain;
  - (iii) finishes, fittings, fixtures and materials for Sydenham Station and Metro Station buildings, Station Precinct and Public Domain;
  - (iv) urban design infrastructure;
  - (v) landscape works; and
  - (vi) prototypes, samples and quality benchmarks.

## 1.1 System requirements

- (a) Sydenham Station and Metro Station must be developed to deliver the following specific functions and characteristics:
- (i) station type: surface;
  - (ii) centre type: local centre;
  - (iii) primary station function: origin / customer transfer / destination;
  - (iv) catchment: residential and light industrial;
  - (v) access modes to be delivered or integrated: walk, cycle, train, bus, taxi, Kiss & Ride, accessible parking;
  - (vi) bus interchange requirement is to connect Metro Station services to existing bus services via existing and relocated bus stops; and
  - (vii) rail interchange requirement is to connect Metro Station services to Sydney Trains services.
- (b) The SSJ Contractor must provide operational requirements to the Principal's Representative and then prepare the Metro Station and Station Precinct Interchange Operations and Maintenance Plan.
- (c) The SSJ Contractor must prepare the Metro Station and Station Precinct Maintenance Plan.

## 2 Design objectives

### 2.1 Design Objectives

- (a) The SSJ Contractor must demonstrate a design response to the following design objectives:
- (i) ensure an easy customer experience.
    - A. customer experience and needs are the starting point for all aspects of planning and design; and
    - B. the stations and interchanges must be welcoming and intuitive with simple, uncluttered spaces that ensure a comfortable, enjoyable and safe experience for a diverse range of customers with varying levels of personal mobility.
  - (ii) be part of a fully integrated transport system.
    - A. achieve clear and legible connections and seamless integration of transport modes and services.
  - (iii) be a catalyst for positive change.
    - A. maximise the landmark opportunity to regenerate and invigorate Sydney with a new station and associated development that engages with the Station Precinct; and
    - B. raise the urban quality and enhance the overall experience.
  - (iv) be responsive to distinct contexts and communities;
    - A. embrace local character through internationally benchmarked high quality station architecture and Public Domain that is well integrated with the valuable inherited urban fabric of the existing place;
  - (v) deliver an enduring and sustainable legacy for Sydney.
    - A. demonstrate excellent and enduring design quality for future generations; and
    - B. demonstrate a high standard of design across the stations, Station Precinct and associated development that sets a new benchmark, is vital to ensuring the longevity of Sydney Metro City & Southwest, its enduring contribution to civic life and an ability to adapt to a changing city over time.
- (b) The SSJ Contractor must demonstrate a design response to the architectural design objectives for the Project Works, which are to provide:
- (i) an integrated multi-modal interchange that:



- A. builds on world class precedents to be nominated by the SSJ Contractor prior to starting Design Stage 1 and agreed by the Principal's Representative;
  - B. supports Sydney Metro City & Southwest product and operations; and
  - C. exemplifies design excellence.
- (ii) an Interchange that provides effortless accessibility and connectivity by:
- A. improving the accessibility and connectivity within and across the Station Precinct;
  - B. improving accessibility and connectivity with and between other transport modes; and
  - C. providing equitable and universal accessibility.
- (iii) a revitalised place with an enhanced civic role as a key part of the city by:
- A. reinforcing and supporting Sydenham Station and Metro Station as a local centre, their role as a customer origin and transfer point within the NSW transport network, and destination for employees within the surrounding employment area;
  - B. creating public spaces that contribute to city life; and
  - C. creating the Station Precinct to be a social and cultural asset;
- (iv) a sustainable legacy where heritage is integral to the identity of the place that:
- A. builds on the legacy of the Sydenham Station origins by integrating the next stage the NSW transport network's evolution with the introduction of the Sydney Metro City & Southwest; and
  - B. achieves a sustainable outcome that respects Sydenham Station's architectural, transport and social heritage and supports environmentally, economically and socially sustainable development.

## 2.2 SSJ design quality

- (a) The SSJ Contractor must deliver a design outcome at Sydenham that:
- (i) provides an architectural response that demonstrates importance of Metro Station as the first above ground station and a major point of passenger interchange in the southwest section of the Sydney Metro City & Southwest;
  - (ii) presents a contemporary design solution that recognises the unique interface Metro Station elements have with the existing Sydenham Station facilities;
  - (iii) utilises high quality finishes and materials that provides a unique theme to Sydenham Station and Metro Station;

- (iv) demonstrates meticulous attention to detailing that delivers a fully coordinated design outcome with seamless transitions between materials and spaces;
- (v) integrates Sydney Metro City & Southwest linewide elements such as platform screen doors, light line along platform edge and customer information elements that provide a sense of uniformity and consistency between other Sydney Metro City & Southwest stations; and
- (vi) demonstrates a high standard of design across the Metro Station, Sydenham Station, Station Precinct and Public Domain that sets a benchmark for other above ground stations in the future, ensuring the longevity of the Sydney Metro City & Southwest.

### **2.3 Architectural design requirements**

- (a) The SSJ Contractor must demonstrate through regular presentations, submissions, reports, prototyping, mock ups, physical models, visualisations and the like (through Design Stage 1, Design Stage 2 and Design Stage 3) a design response that meets the design objectives and following additional design requirements.
- (b) The SSJ Contractor must respond to local context with a solution that must:
  - (i) identify with, protect and enhance the heritage, environment and urban environment of Sydenham Station;
  - (ii) respect and reinforce local character and its community;
  - (iii) be planned and developed to integrate into the existing urban environment through sensitive integration of new buildings within both existing and future context with consideration of scale, height, character, massing and material;
  - (iv) ensure that important existing views are not obscured, whilst recognising and enhancing important vistas and visual connections;
  - (v) interpret the existing exceptional heritage value the Sydenham Station group and platform 2-3 and 3-4 buildings;
  - (vi) respond to the environmental conditions including climate and aircraft noise;
  - (vii) reflect the broader aspirations of Sydney Metro City & Southwest in its role as a stimulus for efficient intermodal public transport, community benefits, and as a key element of place making;
  - (viii) reflect a consistent line-wide identity for Sydney Metro City & Southwest using elements including Platform Screen Doors, Light Line, lifts and canopies while responding sensitively to the local context around Sydenham Station;
  - (ix) be a simple and unified solution to provide a strong and identifiable presence;
  - (x) use a consistent and coherent architectural language demonstrating how the new elements of the design responds to Sydenham Station;

- (xi) be an inspiring and uplifting civic presence that provides a positive and lasting legacy for future generations; and
  - (xii) maximise opportunities for improved and efficient connectivity to adjoining uses and areas.
- (c) The SSJ Contractor must deliver an easy door to door to door customer experience by:
- (i) being equitable and universally accessible;
  - (ii) being designed in direct response to the outcomes of the Customer Centred Design (CCD) process with consideration of customer types, journey types and user requirements;
  - (iii) applying Sydney Metro Customer Service Principles;
  - (iv) responding to Customer Satisfaction Drivers (Timeliness, Convenience, Safety and Security, Comfort, Accessibility, Information, Ticketing, Cleanliness, Customer Service);
  - (v) delivering a consistent high quality integrated customer experience, in terms of products and systems;
  - (vi) maximising personal safety and security through the provision of appropriate active and passive surveillance in accordance with crime prevention through environmental design (CPTED) principles;
  - (vii) creating safe, inviting and attractive places for different trip purposes and people of all ages and abilities to visit;
  - (viii) maximising comfortable environments that provide shade, shelter, resting points, minimise wind and glare disturbance, and minimise nuisance through noise;
  - (ix) delivering a well-considered integration and complementary relationship between the Sydney Metro City & Southwest brand, public art, signage and wayfinding; and station identity to provide a well-integrated customer experience;
  - (x) providing an effortless, intuitive and easy customer journey and pedestrian connectivity;
  - (xi) promoting activation in all Primary and Secondary Plazas through the identification of retail opportunities, public art, advertising. This must be included in Design Documentation as fully detailed Precinct Activation Strategy including all supporting design and technical inputs;
  - (xii) promoting and providing facilities for active uses (e.g. services for permanent and temporary retail, services for community activities both permanent and temporary) that enhance the customer experience; and
  - (xiii) providing seamless and intuitive customer experience with simple access that is consistent with TfNSW Wayfinding Planning Guide.
- (d) The SSJ Contractor must respond to the integrated station and transport interchange requirements by:

- (i) directly responding to the Sydenham Interchange Access Plan (IAP) which identifies design principles and requirements for transport integration elements.
  - (ii) incorporating safe, well defined, clear, direct, accessible and adequately sized pedestrian access and circulation routes.
  - (iii) supporting easy station access and transfer between transport modes and services
  - (iv) providing direct pedestrian connectivity and interchange with other transport modes, with street level entrances and exits that minimise level and direction change for pedestrians.
  - (v) adopting integrated transport solutions that include application of a hierarchy of movement access modes that places relative importance to each transport mode in accordance with the following TfNSW Modal Hierarchy:
    - A. Priority 1: pedestrian movement and access;
    - B. Priority 2: bicycle movement and access;
    - C. Priority 3: train (Sydney Trains) movement and access;
    - D. Priority 3: bus movement and access;
    - E. Priority 4: taxi movement and access;
    - F. Priority 5: Kiss-and-Ride movement and access; and
    - G. Priority 6: park and ride movement and access.
- (e) The SSJ Contractor must provide a high-quality solution that:
- (i) applies design excellence in the whole and in each component part;
  - (ii) creates spaces that are cohesive, welcoming, safe and attractive;
  - (iii) is simple, elegant and aesthetically pleasant;
  - (iv) utilises high quality and consistent materials, finishes and detailing;
  - (v) is architecturally innovative and creative;
  - (vi) provides high quality spaces that balance performance and function, while remaining adaptable and able to meet any changing functional needs; and
  - (vii) is designed integrally, fusing architecture with engineering as one cohesive and compelling product.
- (f) The SSJ Contractor must provide coordinated materials and finishes that:
- (i) are high quality attractive, robust, durable and long-life materials that are graffiti resistant and easy to clean and maintain;
  - (ii) address the local environment and context;
  - (iii) do not impede legibility, decision making or wayfinding, and where appropriate;

- (iv) enrich the station, accentuating movement around the circulation and vertical transport areas; and
- (v) maximises economies of scale and ensures safe installation, maintenance and replacement.
- (g) The SSJ Contractor must demonstrate how the materials selected express the architectural concept and promote the civic character for Metro Station, Sydenham Station, Station Precinct and Public Domain.
- (h) The SSJ Contractor must coordinate components:
  - (i) to offer a consistent customer experience, reinforce Sydney Metro City & Southwest line-wide identity and maximise economies of scale; and
  - (ii) to be integrated as part of a system.
- (i) The SSJ Contractor must coordinate and integrate lighting with the architectural design.
- (j) The SSJ Contractor must coordinate customer-facing elements into the station architecture or building elements so as to enhance and not conflict with the overall customer environment; and must:
  - (i) contain coordinated detailing, and palette of materials and finishes;
  - (ii) assist in the legibility, wayfinding, and orientation of customers; and
  - (iii) respond to the principles of the TfNSW Wayfinding Planning Guide.
- (k) The SSJ Contractor must facilitate and integrate adjacent site development (ASD) with Metro Station, Sydenham Station, Station Precinct and Public Domain ensuring no adverse impacts on Metro Station or Sydenham Station operations via construction and operation of ASD and provide a seamless Sydenham Station, Metro Station and Public Domain environment. ASD information will be provided by others prior to Design Stage 1.
- (l) The SSJ Contractor must provide facilities that are easily maintained and provide ease of access for maintenance, repair and replacement of materials, fittings, fixtures and equipment.
- (m) The SSJ Contractor must provide innovation and flexibility to enable future upgrades, improvements and augmentation to be implemented without materially impacting on the management, use, operation and maintenance of Metro Station and Sydenham Station and without being seen as an 'add-on'.
- (n) The SSJ Contractor must integrate Human Factors into the Project Works and encompass all aspects of the safety management system to be adopted during operations and maintenance, and related issues.
- (o) The SSJ Contractor must prepare and meet the threat protection requirements as defined in the SSJ Sydney Metro Security Management Plan and in accordance of this Appendix B3.0.

## 2.4 Design excellence

- (a) The SSJ Contractor must clearly demonstrate how design excellence has been achieved. As a minimum, this must include;
- (i) regular monthly presentations and workshops with the Design Review Panel, the Heritage Working Group, the Operator, Inner Council, the Principal's Representative and other key stakeholders;
  - (ii) a detailed design process including fortnightly design coordination meetings with the Principals Representative;
  - (iii) application of the Customer Centred Design process in an integrated manner throughout the design process;
  - (iv) preparation of regular submissions, reports and option analysis for recommendation and comment;
  - (v) undertaking extensive prototyping and mock up production and testing;
  - (vi) preparation of physical models, visualisations, perspective views and the like for the Principal Representative's review, comment and sign off; and
  - (vii) providing evidence that the following have been addressed and incorporated into the design:
    - A. the design objectives identified in Section 2;
    - B. recommendations and findings from the Customer Centred Design process;
    - C. recommendations from user acceptance testing and customer testing;
    - D. the recommendations and comments of the Design Review Panel;
    - E. the recommendations and comments of the Heritage Working Group;
    - F. the recommendations and comments from the Operators;
    - G. the recommendations and comments from the Principal's Representative; and
    - H. the comments and recommendations from other key stakeholders.
- (b) The demonstration of how design excellence has been achieved must be included in the Design Documentation for Design Stages 1, Design Stage 2 and Design Stage 3.

## 2.5 Delivery excellence

- (a) This Appendix B3.0 defines the minimum workmanship and quality requirements for materials and trades to be used by the SSJ Contractor.
- (b) The SSJ Contractor must ensure all work is undertaken by fully qualified, skilled and experienced personnel.

- (c) The SSJ Contractor must comply with all relevant Codes and Standards, including but not limited to fire hazard properties specified in the BCA and the SSJ Contractor's FLS strategy.
- (d) The SSJ Contractor must ensure all work is designed and constructed to:
  - (i) remain intact, weatherproof and waterproof (exterior systems only) under the ambient in-service and climatic conditions;
  - (ii) withstand the anticipated loads without damage or impairment of performance;
  - (iii) provide adequate means of dealing with thermal and differential movement;
  - (iv) resists ambient climatic conditions; and
  - (v) satisfy thermal, acoustic, and other specified performance criteria.
- (e) The SSJ Contractor must design and construct to meet the following ambient climatic conditions:
  - (i) air temperature range (shade) as per 100-year return period of Bureau of Meteorology records for maximum and minimum temperature at the Site, taking into account projected changes in climate.
- (f) The SSJ Contractor must install and assemble all materials in accordance with manufacturer's published instructions.

## 3 Station and buildings spatial and functional requirements

### 3.1 Spatial and functional requirements

- (a) The SSJ Contractor must provide for the spatial and planning requirements at Sydenham Station and Metro Station, and their integration within the Station Precinct and Public Domain.
- (b) The Project Works must be designed to meet all functional requirements outlined in this Appendix B3.0 for Normal Operations, Degraded Operations, and Abnormal Operations and Emergency Operations unless otherwise specified.

#### 3.1.1 ~~3.1.2~~ Minimum clear height (MCH)

- (a) The Metro Station public areas must provide the MCH ~~as follows~~ indicated below:

- (i) station entrance (underside of canopy) – 3.5m;
- (ii) Metro Concourse (underside of canopy) - 4.0m;
- (iii) other public circulation areas - 3.8m;
- (iv) platform canopies (underside of canopy) - 3.3m;
- (v) public stairs connecting Metro Concourse to platform - ~~5.0~~4.0m;
- (vi) stairs not connecting ~~Metro Concourse~~ concourse to platform - 4.0m;
- (vii) underside of signage / PIDs - 2.4m;
- (viii) BOH circulation space / corridors - 2.4m; ~~and~~
- (ix) fire stairs and passageways - 2.4m;
- (x) top of rail to underside of concourse – 5.5m.

- (b) Headroom spaces of 2.1m or less under stairs and escalators must be enclosed to the minimum height

#### 3.1.2 ~~3.1.3~~ Natural light access

- (a) The SSJ Contractor must provide natural light into the Metro Station and plazas (via full height glazing, roof lights, skylights, and the like) with an emphasis on circulation zones.
- (b) The structure for providing natural light access must, :
  - (i) provide weather protection to the Metro Concourse and VT areas;
  - (ii) be designed to minimise structural supports and associated visual obstructions;
  - (iii) minimise solar heat gain to provide customer comfort;



- (iv) integrate with the canopy structures;
- (v) prevent unauthorised (climbing) access;
- (vi) provide unobtrusive maintenance access;
- (vii) minimise the edge and fascia depth;
- (viii) facilitate natural ventilation, smoke and heat dissipation strategies consistent with the SSJ Contractor's FLS strategy; and
- (ix) integrate roof shading devices and insulation to achieve comfort conditions.

## 3.2 Customer spatial planning

### 3.2.1 General

- (a) Spatial planning for all Metro Station elements must accommodate year 2056 25tph 8-car pedestrian demand scenario and ultimate design of 30tph 8-car scenarios for Normal Operation and Degraded Operation for Peak Hours.
- (b) Spatial planning for Normal Operations must:
  - (i) minimise congestion;
  - (ii) allow adequate capacity for surges in demand;
  - (iii) be resilient to train service disruptions;
  - (iv) provide sufficient space to enable efficient customer movement and operational function;
  - (v) allow sufficient additional space for customer decision making;
  - (vi) minimise pedestrian cross flows; and
  - (vii) provide adequate space in areas expected to become congested or where multiple circulation routes interact.
- (c) The spatial planning must provide sufficient space for customers to wait in weather-protected areas for Normal Operations.
- (d) Spatial planning must ensure that obvious routes and minimal travel distances are achieved, which are free from obstructions, have good sightlines and avoid dead ends and hiding places.
- (e) Metro Station, Station Precinct and interchange design must consider the micro-climate and prevailing winds, minimising the likelihood of wind tunnel effects.
- (f) Views within Primary Plaza areas to Gatelines must be unobstructed.
- (g) The Metro Station must be fully accessible including the platform-train interface, platform, concourse, facilities, and interchange.
- (h) Platform to customer transfer connections must be easy, intuitive, efficient and direct.

- (i) Resting seats must be provided along pathways within Sydenham Station and Metro Station in accordance with the DSAPT requirements and in relation to Sydenham Interchange Access Plan.
- (j) Metro Station furniture must comply with relevant guidelines for comfort in transit environments, CPTED principles, and incorporate graffiti prevention treatments.

### 3.2.2 Design capacity requirements

- (a) Design capacity requirements are defined for two design years:
  - (i) initial design year – the requirement for capacity to be provided from the start of train operations ; and
  - (ii) ultimate design year - the requirement for capacity to be safeguarded to allow for long term patronage growth to year 2056.
- (b) The Sydenham Station entry and exit design capacity requirements for the two design years are included in Table 1.

**Table 1** One hour AM peak entry and exit capacity requirements

	Entries	Exits	Entries	Exits
Sydenham Station (total)	1450	1250	1600	1300

•Total figures i.e. including Metro Station customers and Sydenham Station customers.

- (c) The Metro Station only boarding and alighting design capacities are provided in Table 2.

**Table 2** Metro Station only boarding and alighting design capacities

	Boardings	Alightings	Boardings	Alightings
Metro Station only	3550	1550	3800	1600

### 3.2.3 Level of service and space criteria

- (a) Gatelines, unpaid areas and Metro Concourses must have sufficient customer capacity to prevent crowding or queuing during Peak Hours.
- (b) Queue lines must not be allowed to block access paths.
- (c) Adequate marshalling areas must be provided where large customer surges could occur including missed headways and during Abnormal Operations.
- (d) The SSJ Contractor must demonstrate through pedestrian modelling during the design process that the Metro Station design LoS achieves following:
  - (i) for platforms, walkways, general queuing areas during Normal Operation and Degraded Operation – minimum LoS to be level C;

- (ii) for stairs during Normal Operation and Degraded Operation – minimum LoS to be level D, and
- (iii) confirm the number and configuration of all gates within each Gateline
- (e) During construction of the Project Works the level of pedestrian continuity at Sydenham Station must be maintained for all station elements to a minimum LoS level D.
- (f) The SSJ Contractor must use the design capacities provided in this section for planning and spatial design of the Metro Station.
- (g) The SSJ Contractor must use the queuing and space criteria as defined in this section for Vertical Transportation (VT) calculations for Metro Station.
- (h) The SSJ Contractor must provide for the following queuing and space criteria during Normal Operations:
  - (i) maximum delay of 60 seconds within a queue for platform level VT;
  - (ii) Platform Clearance time must be not more than 120 seconds;
  - (iii) maximum delay within a queue for Gateline of 20 seconds; and
  - (iv) minimum space per person on platform with Peak Hour population, (exclude 0.3m distance from wall for edge effect and 0.3m from PSD) of 0.8m<sup>2</sup> per person.

### 3.2.4 Run-off and queue zone requirements

- (a) The Metro Station design must incorporate the minimum run-off requirements as below (noting that run-off, circulation and queue zones must not overlap):
  - (i) stair to Gateline - 6m;
  - (ii) stair to platform heritage building – 5m;
  - (iii) stair to passageway - 4m;
  - (iv) stair at street (to Rail Corridor / Site boundary or Inner West Council footpath) - 4m;
  - (v) Gateline to any cross flow or circulation - 6m;
  - (vi) Opal Machines and equipment queuing zones - 4m;
  - (vii) customer information (including poster cases and information points) – 2m;
  - (viii) vending machines and ATMs – 2m; and
  - (ix) lift queue waiting zone – 1.5m times the lift car depth.

### 3.2.5 Customer toilets

- (a) The SSJ Contractor must provide at least ~~five~~<sup>4</sup> customer toilets within the paid area of the Metro Station, ~~visible from the Gateline~~with a preference to be on the platforms unless agreed otherwise by the Principals Representative. and configured as follows:
  - (i) one male ~~and~~super standard toilet.

- (ii) one female ~~accessible~~super standard toilet;
  - (iii) ~~(ii) one male and one female ambulant~~unisex super standard toilet; and
  - (iv) ~~(iii) one parent room containing a toilet, baby change facilities and clean facilities for breastfeeding / private space.~~unisex accessible toilet.
- (b) Toilets must be located where they are easy to find and where surveillance opportunities exist, with sightlines to the doors from public spaces.
  - (c) Toilet doors must not open directly onto public spaces.
  - (d) Toilets must meet DDA and DSAPT requirements.
  - (e) Toilet design for customers must apply TfNSW ~~CSD's Toilet Design for Customers Guidelines.~~Bathroom Standards.

### 3.3 Operational Spatial Planning

#### 3.3.1 General

- (a) The SSJ Contractor must provide staff amenities and customer service facilities to facilitate Sydney Metro City & Southwest operational requirements at Metro Station and Sydney Trains operational requirements at Sydenham Station, in accordance with Appendix C1.1 - Metro Station Room Schedule.
- (b) All rooms must be located to be accessible from public areas.
- (c) The Metro Station must have a Station Control Room (SCR) with provision to house equipment and staff to support monitoring and management of:
  - (i) Sydney Metro City & Southwest train locations;
  - (ii) local building services equipment status;
  - (iii) fare collection equipment status;
  - (iv) Public Emergency Alarms (PEA) within the Metro Station, Station Precinct and Interchange; and
  - (v) local CCTV, public address and passenger information systems.
- (d) The Metro Station must have a secure storage area to temporarily hold lost property found at that Station, Station Precinct or Interchange.
- (e) A fire control room must be provided in accordance with Fire and Rescue NSW requirements.
- (f) The SSJ Contractor must prepare an access and maintenance strategy during Design Stage 1 for the Metro Station with all architectural and Station Precinct requirements identified and include it in the Design Documentation. It must address the access and maintenance requirements as defined in the Station and Precinct Maintenance Plan.
- (g) Access and maintenance gates must be provided as required by the SSJ Contractor's access and maintenance strategy.

- (h) Light fittings, fire detectors and other maintainable equipment at heights must be designed to be situated and installed so that location-specific access arrangements (such as scaffolding) are not required for maintenance.

### **3.3.2 Station operation**

- (a) Any cleaning and maintenance equipment to be kept at Metro Station must be located in a designated room in accordance with the Appendix C1.1 - Metro Station Room Schedule and accessible by staff from the paid area.
- (b) Any chemicals required for maintenance and operation must be located in a designated and separate room to the general store room.
- (c) Provision must be made for emergency and rescue equipment storage at Metro Station and at emergency access/egress points on Sydney Metro City & Southwest. At station, emergency and rescue equipment must be in a designated room at a convenient location at Platform level. Such equipment must include:
  - (i) rail mounted multipurpose trolleys;
  - (ii) stretchers and first aid equipment;
  - (iii) portable boarding ramps; and
  - (iv) ladders, special tools, torches, and safety vests etc.
- (d) A multipurpose room that can be used for multiple functions (including first aid, incident co-ordination and temporary storage) must be provided. Facilities must be available for administering first aid or calming customers in distress.
- (e) Access and maintenance gates must be provided as required by the SSJ Contractor's Access and Maintenance Strategy.
- (f) The SSJ Contractor must at Metro Station provide garbage room facilities in accordance with Appendix C1.1 - Metro Station Room Schedule:
  - (i) for storage of both general waste and co-mingled-recyclables;
  - (ii) that are located for efficient station operations and discreet and remote from the public areas; and
  - (iii) that are easily accessible for collection.

### **3.3.3 Staff amenities**

- (a) Staff facilities (toilets, meal room and lockers) must be provided by the SSJ Contractor for customer facing staff.
- (b) Staff facilities (toilets, meal room and lockers) must be provided by the SSJ Contractor for maintenance staff.
- (c) Access to the staff toilet must be provided by the SSJ Contractor via a "two door" arrangement from the secure back of house. Access must not be via a single door to the toilet straight off the concourse or the platform or plaza.

### **3.3.4 Service buildings and facilities**

- (a) The service buildings and facilities must:

- (i) be fit for purpose based on the operational and functional needs at the Metro Station and Sydenham Station;
  - (ii) be fully secured with appropriate measures based on a security assessment;
  - (iii) minimise the impact of the built form on the Station Precinct and Public Domain by integrating the facility with the landscape and topography;
  - ~~(iv) incorporate integrated vegetated or green wall elements;~~
  - ~~(iv)~~ ~~(v)~~ contain minimal blank walls;
  - ~~(v)~~ ~~(vi)~~ ensure access for maintenance and replacement of plant;
  - ~~(vi)~~ ~~(vii)~~ ensure service access points are consolidated to reduce the scale of impact on the existing environment and are located away from customer interface points;
  - ~~(vii)~~ ~~(viii)~~ allow for the integration of energy generation according to the requirements of Appendix B7.0; and
  - ~~(viii)~~ ~~(ix)~~ reduce security risks by incorporating a clean, open, bright and highly visible environment (both internally and externally).
- (b) Service building roofs must not be visible from ground level.
  - (c) Utility Services equipment located on the roofs must not be visible from ground level or from any platform or Station Precinct.
  - (d) Ancillary buildings lighting design must consider public safety, customer and staff movement and navigation, site security and operational requirements.

### 3.3.5 Plant and equipment rooms, and corridors

- (a) In relation to plant and equipment rooms, the SSJ Contractor must:
  - (i) provide safe access to all equipment;
  - (ii) ensure integration with the Metro Station and Sydenham Station planning; and
  - (iii) provide clear access for maintenance and replacement of all equipment is achievable without the removal of other equipment or permanent infrastructure; ~~and~~
  - ~~(iv)~~ ensure clear access for maintenance and replacement of all equipment without interruption of normal operation of the Sydney Metro City & Southwest and the Sydenham Station.
- (b) In relation to corridors, the SSJ Contractor must:
  - (i) provide clear access for maintenance and replacement of plant and equipment; and
  - (ii) allow for personnel access for regular maintenance tasks and provide safe access and egress to all areas of services buildings.
- (c) In relation to hatches, the SSJ Contractor must:



- (i) provide clear access for maintenance and replacement of plant and equipment;
- (ii) provide safe access all equipment;
- (iii) ensure integration with the Sydenham Station planning; ~~and~~
- (iv) provide clear access for maintenance and replacement of all equipment is achievable without the removal or damage to the building, other equipment or permanent infrastructure, where possible; and
- (v) ensure clear access for maintenance and replacement of all equipment without interruption of normal operation of the Sydney Metro City & Southwest and the Sydenham Station.

### 3.3.6 Building services integration

- (a) All building services must:
  - (i) be integrated into designated combined services routes or zones;
  - (ii) not impede on designated clear circulation areas;
  - (iii) be concealed from customer view in public areas; and
  - (iv) ensure all voids and ducts are provided with maintenance access, including provision for future capacity.

## 3.4 Station entrance

### 3.4.1 General

- (a) The station entrances must be recognisable, easily identifiable, logical and support the inherent functionality of the space.
- (b) The design of station entrances must assist wayfinding for customers.
- (c) The station entrance must include the following elements:
  - (i) a Gateline, in accordance with the requirements set out in Section 3.5;
  - (ii) a means of securing Metro Station to a minimum height of 2400mm above ground level, that:
    - A. is operable at all times;
    - B. is consistent in design with adjacent wall systems;
    - C. is concealed when stored (in the open position), clear of all circulation and queuing zones;
    - D. when closed, provide security to station entrances that is equivalent to adjacent wall systems;
    - E. provides for emergency egress which must be a minimum 820mm wide, adjacent to the security barrier; and be permanently available (ticket doors/gates or other access doors integrated into roller shutters are not permitted); and

- F. is alarmed and connected back to the Metro Station OCC.
  - (iii) journey planning and wayfinding information in accordance with TfNSW Wayfinding Planning Guide.
  - (iv) Electronic ticketing machine (Opal) located in a convenient and safe location in the vicinity the Gateline;
  - (v) Video Help Points and customer information points; and
  - (vi) a utility space ~~(equivalent in size to two of 2m x 1m including supporting infrastructure for ATMs)~~ in the unpaid area of the Metro Station to accommodate customer facilities, located so that it is visible from the Gateline.
- (d) Provisions must be made for group meeting points (20 people) that are a 'safe place' for customers to wait and orient themselves, ~~between the Gateline and station exit and are easily identifiable and comfortable~~ located in the Primary Plaza under cover, in accordance with CPTED principles. This provision must be demonstrated within the Design Documentation.
- (e) Where plant rooms are located adjacent to the Metro Station entrances, the SSJ Contractor must ensure that blank walls of plant rooms, where possible, are activated, without impeding plant service access and functional requirements.

### 3.4.2 Ticketing equipment

- (a) The SSJ Contractor must provide space and supporting infrastructure at Metro Station for the electronic ticketing system (ETS) equipment.
- (b) Ticket gates must integrate seamlessly with adjacent elements including glazed screens and glazed security screens.
- (c) Ticketing equipment, including self-service machines (SSMs), must be located in a convenient and safe location and be recessed flush with adjacent wall surfaces.
- (d) SSMs must be clearly identifiable and incorporated within a modular cladding system in a consistent manner across the Metro Station and Sydenham Station.
- (e) SSMs must be grouped together and integrated into a dedicated customer information facility in locations to support easy customer access.
- (f) All ETS equipment in public areas must be monitored by CCTV in accordance with Appendix B2.0 - Track, Rail Systems and Communication Works.
- (g) SSMs display screens must be provided with shading from direct and indirect sunlight.
- (h) ETS (Opal) purchase and recharge must be available in Metro Station, Station Precinct and Interchanges at all times.
- (i) ETS (Opal) self-service machines must make reference to the TfNSW ticketing SSM placement principles.
- (j) Placement of SSMs must comply with TfNSW ticketing self-service machines placement Principles [A4683915] and accessible for those with disabilities (i.e. DDA compliant installation).



- (k) The design of Metro Station must allow provision for ~~ETS cashless~~ ticket vending machines (TVM) ~~on Metro Concourse~~ to meet the following parameters as nominated by the ~~Opal system~~ ETS supplier in compliance with applicable current TfNSW guidelines including: 1 cash and 1 EFT per Gateline:
- (i) physical footprint;
  - (ii) space for maintenance of equipment;
  - (iii) preferred location;
  - (iv) power supply; and
  - (v) communications.

### 3.5 Gateline elements

- (a) The SSJ Contractor must incorporate the number of gates required in each Gateline as follows:
- (i) minimum number of standard gates:
    - A. northern entrance (Sydenham Road) 3
    - B. southern entrance (Burrows Avenue) 3
  - (ii) minimum number of wide aisle gates:
    - A. northern entrance (Sydenham Road) 2
    - B. southern entrance (Burrows Avenue) 2
- (b) The SSJ Contractor must locate Gatelines within the Metro Station to address the following:
- (i) minimise cross flow and congestion and where possible provide left-in / left-out access;
  - (ii) wide aisle gates within the Gateline array based on considerations in (iii) and (iv);
  - (iii) accommodate the following customers:
    - A. people with a disability;
    - B. parents with prams; and
    - C. those with luggage and bulky items.
  - (iv) accommodate the runoffs and queue zone requirements noted in this section, with no conflict or overlap with other circulation or queuing zones;
  - (v) provide shading from direct and indirect sunlight on gate display screens; and
  - (vi) ensure the Gateline has closed circuit television (CCTV) coverage.
- (c) Each Gateline must include the following elements:
- (i) a clock facing both entry and exit that is architecturally designed and integrated with the Metro Station design.

- (d) Gateline operational elements must be recessed and integrated into adjacent structure and/ or floor to conceal.
- (e) Gateline locations must not impede emergency evacuation and the required circulation paths and widths in accordance with SSJ Contractor's FLS strategy.
- (f) Gatelines must integrate seamlessly with adjacent security screens, walls and balustrades.

### **3.6 Metro Concourse**

- (a) The Metro Concourse must:
  - (i) provide an open and spacious appearance with clear sightlines with minimum changes of direction in line with CPTED principles;
  - (ii) provide an ongoing logical progression to platforms and customer facilities with consistent wayfinding;
  - (iii) provide perimeter barriers to a minimum height of 2400 mm;
  - (iv) accommodate queuing zones which must not interfere with pedestrian flows or impede circulation spaces;
  - (v) be free of recesses and indentations which could hinder passive surveillance;
  - (vi) maximise natural light and natural ventilation throughout;
  - (vii) allow for CCTV coverage to Metro specifications;
  - (viii) be weather protected to all areas where possible;
  - (ix) integrate services within the architectural design; and
  - (x) have perimeter walls or screens that are glass or a material that can achieve a minimum of 80% transparency in order to maintain clear views, according to CPTED principles.
- (b) All Metro Concourse structures must:
  - (i) present smooth, clean lines and have a minimum structural depth that is consistent with their spans and method of construction;
  - (ii) have a continuous MCW of 4.05\_0m across the entire Metro Concourse;
  - (iii) be supported by slimline piers or blade walls that minimise visual clutter;
  - (iv) respond to and provide evidence of consistency with the RMS 'Environmental Impact Assessment Guidance Note - Guidelines for landscape character and visual impact assessment' in the design of the pedestrian bridges; and
  - (v) respond to and provide evidence of consistency with the 'Bridge Aesthetics Design Guideline to Improve the Appearance of Bridges in NSW', RMS, July 2012. As a minimum demonstrate a response to:
    - A. design approach;

- B. response to context;
- C. understanding of form;
- D. design of parts and components;
- E. design of details; and
- F. finishes.

### 3.6.1 Commercial vending machines

- (a) The SSJ Contractor must provide space and supporting infrastructure for two commercial vending machines at the Metro Station.
- (b) Commercial vending machines must not impede customer flows or access paths, must be located in a safe location and be recessed with adjacent wall surfaces.
- (c) Commercial vending machines must be located in the paid station and be visible from the ~~Gateline~~Gatelinee, in a location agreed with the Principal's Representative.
- (d) The queuing areas for commercial vending machines must not overlap with customer circulation paths, or other queuing zones.

### 3.7 Vertical Transport

- (a) Vertical Transport (VT) must be provided in sufficient quantity, capacity and distribution to meet the needs of users, including customers, retail employees, rail operations staff, maintenance staff, and emergency service personnel during Normal Operations, Degraded Operations, Abnormal Operations and Emergency Operations.
- (b) The SSJ Contractor must verify the quantity of the VT to platforms to be installed at the Metro Station based on the following:
  - (i) the Metro Station design quantities provided in this section; and
  - (ii) all other design considerations for the Metro Station.
- (c) All passenger lifts must be a minimum 17 person capacity and in accordance with the Appendix C2.0 Metro Station Vertical Transport specifications and the SSJ Contractor's Fire and Life Safety (FLS) strategy.
- (d) All passenger lifts must be able to accommodate a mobile elevated work platform (MEWP) that is capable of maintaining the underside of the concourse canopy.
- (e) Lift access must be from the platform level to the Metro Concourse level in a single rise.
- (f) The SSJ Contractor must make provision for the following lifts from platform level to the Metro Concourse:
  - (i) platform 1 – one lift;
  - (ii) platform 2/3 – one lift;

- (iii) platform 4/5 – one lift; and
  - (iv) platform 6 – one lift.
- (g) The SSJ Contractor must install the following stairs from platform level to the Metro Concourse with the following MCW:
- (i) platform 1 – MCW 4.0m;
  - (ii) platform 2/3 – MCW 3.5m;
  - (iii) platform 4/5 – MCW 3.5m; and
  - (iv) platform 6 – MCW 3.5m.
- (h) The VT must be capable of meeting the spatial and functional requirements as outlined in this section and the following requirements:
- (i) for a rise of up to 2m, ramps must be used where space permits. Where space does not allow a ramp to be used or a ramp would provide an excessive footprint or poor outcome, lifts must be provided;
  - (ii) for a rise up to 5.4m, stairs must be used;
  - (iii) for a rise between 5.4 to 6.6m, stairs and/or escalators must be used; and
  - (iv) for a rise over 6.6m, escalators must be used.
- (i) Public stair tread and riser dimensions must be in accordance with the requirements of DSAPT 2002.
- (j) All egress and maintenance access stairs must include intermediate landings on emergency egress stairs used by customers, which incorporate resting points outside of the circulation and customer flow with a minimum depth of 900mm, such that the vertical rise between the resting points does not exceed 6m.
- (k) Lifts must present a safe and secure environment through transparency and clear sightlines.
- (l) Vertical Transportation must have CCTV coverage.

### **3.8 Platform spatial requirements**

#### **3.8.1 Sydenham Station requirements**

- (a) All modifications to the existing Sydenham Station platforms must be in accordance with ASA monitoring and control standards.

#### **3.8.2 Metro Station requirements**

- (a) The SSJ Contractor must comply with the Sydney Metro City & Southwest Interface Requirements Specifications in Appendix E1.0.
- (b) Where platforms 3, 4, 5 and 6 are impacted by Sydney Metro Works, the SSJ Contractor must remove, relocate and/or replace, in a location to be agreed with Sydney Trains and the Principal's Representative, any station equipment and infrastructure, including:
- (i) seating;

- (ii) rubbish bin;
  - (iii) signage;
  - (iv) CCTV;
  - (v) guards indicators;
  - (vi) ETS equipment;
  - (vii) lighting; and
  - (viii) Help Point.
- (c) The SSJ Contractor must ensure that new or modified platform surface ties into the existing platform surfaces.
- (d) New platforms (including platforms 1 & 2 at Sydenham Station) must:
- (i) provide good sightlines, open and spacious customer circulation and waiting areas;
  - (ii) be accessible for the whole extent in accordance with the accessibility requirements;
  - (iii) provide features to assist all customers who may be unfamiliar with the station environments;
  - (iv) have minimal platform obstructions which must be located in a neat and orderly manner;
  - (v) gaps between trains and platform edges that comply with the DSAPT requirements without mechanical gap fillers;
  - (vi) allow for level access to trains;
  - (vii) enable customers to board and alight from trains in a safe and efficient manner;
  - (viii) have equipment, components and signage located to not obstruct pedestrian movement or sightlines along platforms;
  - (ix) have a platform edge that is a consistent height above the track for its entire length;
  - (x) not fall towards platform edges;
  - (xi) be free of unnecessary clutter;
  - (xii) allow for safety zone and accessible paths;
  - (xiii) provide efficient wayfinding and signage;
  - (xiv) have CCTV coverage in accordance with Interface Requirements Specifications in Appendix E;
  - (xv) be straight for a minimum of 68 car trains and must provide a compliant gap for 8 cars without mechanical gap fillers;

- (xvi) contain sufficient seating and lean bars for the comfort of waiting customers. The placement and orientation of these must not impede customer traffic flows across platforms;
  - (xvii) provide sufficient space for:
    - A. customers to wait for trains in relative comfort;
    - B. customers circulation to, from and along the platform; and
    - C. a range of operational and customers facilities.
  - (xviii) provide wheelchair waiting positions and positions for customers with luggage or bulky items on the platform; and
  - (xix) facilitate efficient train loading, unloading and traffic flows at Peak Hours, in consideration of the rolling stock door and ~~platform edge barrier~~ ~~(PEB Platform Screen Doors (PSD))~~ configuration; and
  - (xx) provide emergency egress from platforms for pedestrians at the ends of the platforms in accordance with the SSJ Contractor's FLS Strategy and the following minimum requirements:
    - A. exit doors from the platform must be at least 1m unobstructed clear width;
    - B. end of platform egress must provide direct access to public space, where reasonably practicable. Where not reasonably practicable, egress is to the automated train operational area;
    - C. changes in level in the exit path must be via ramps with a gradient no steeper than 1:8, handrails on both sides and an unobstructed clear width between handrails of 1m;
    - D. where egress is to the automated train operational area, a level landing at track level must be provided that is trafficable by a wheelchair and will not block the egress of other occupants from the platform; and
    - E. exit doors from the platform must always be openable from the automated train operational side without the use of a key or other tool.
- (e) Platform dimensions must be:
- (i) a minimum of 170m long;
  - (ii) a minimum clear width MCW of ~~9m for island platforms or~~ 3m for side platforms; and
  - (iii) a MCW at any publicly accessible location clear of obstructions of 1.8m.
- (f) The Metro Station platforms must:
- (i) integrate with the Platform Screen Doors (PSD), platform edge screens and the track support systems;
  - (ii) be an efficient conversion of Sydenham Station to interface with trains to operate at the Metro Station;

- (iii) allow for the rapid integration, testing and commissioning of PSD;
- (iv) ensure there is no requirement to relocate track support systems or other trackside equipment to enable the conversion of the Sydenham Station to Metro Station; and
- (v) ensure the conversion of the Sydenham Station does not require any additional testing and Commissioning of the CBTC system.
- (vi) [accommodate required under platform refuge zones to ASA standards for the extent of the 8 car operational platform length plus 2m on the country side of the new platforms 1 and 2](#)

### 3.8.3 Platform Seating

- (a) The SSJ Contractor must provide seating, including:
  - (i) on platform 2:
    - A. a minimum of four bench type seats each capable of seating four people, back to back with seating for platform three where possible; and
    - B. located on the centreline of the platform where possible and evenly distributed along its length.
  - (ii) on platform 1:
    - A. a minimum of four bench type seats, each capable of seating four people; and
    - B. located at the back edge of platforms and evenly distributed along its length.
  - (iii) for Metro Station platforms
    - A. one of the allocated bench type seats must be a priority seat; and
    - B. be located near to a lift.
  - (iv) new Metro Concourse:
    - A. as required by DDA standards;
    - B. evenly distributed along its length; and
    - C. must not obstruct circulation paths and queuing zones.
- (b) Public seating must be functional, comfortable and easily maintained.

### 3.8.4 Passenger information displays system (PIDS)

- (a) The SSJ Contractor must make provision for PIDS at Metro Station located as follows:
  - (i) at each station entry and if the Gateline is located at ground level adjacent to the self-service machines (SSMs);
  - (ii) at Metro Concourse, centrally located, free of key customer flow areas;
  - (iii) on the approach to the Gateline; and



- (iv) on the Metro Station platform back to back PIDS at approximately every two car length (minimum four locations) evenly distributed and adjusted to accommodate VT run offs.
- (b) The SSJ Contractor must provide cable containment details and break out point's locations to enable customer information displays cabling and installation.
- (c) The SSJ must provide power to the location of each PIDS.

### 3.8.5 Platform Screen Doors (PSD)

- (a) The SSJ Contractors responsibilities regarding PSD are outlined in the Interface Requirements Specification included as Appendix E1.5.
- (b) The SSJ Contractor must provide integrated platform edge screens extending to all areas of ~~platforms~~ platform 1 and 2 coping edge not covered by PSD including platform end access gates.

## 3.9 Canopy typologies

- (a) The SSJ Contractor must provide three types of canopy:
  - (i) Type 1: entrance canopy;
  - (ii) Type 2: Metro Concourse canopy; and
  - (iii) Type 3: platform canopy.
- (b) The three types of canopy must be designed as a series of distinct types, which can be assembled in order to form a unified design.
- (c) The degree of detail must be progressively refined so that the closer the customer is to the canopy, the more refined the detail, accordingly:
  - (i) less refined at the Metro Concourse canopy;
  - (ii) more refined at the entrance canopy; and
  - (iii) most refined at the platform canopy.
- (d) Station entrance canopies, Metro Concourse canopies and platform canopies must:
  - (i) integrate acoustic panels where required to achieve specified sound levels;
  - (ii) integrate renewable energy technology in accordance with Appendix B7.0 Sustainability Requirements;
  - (iii) deter non-authorized access;
  - (iv) have minimal edge and fascia depth;
  - (v) support operational equipment;
  - (vi) accommodate wayfinding; and
  - (vii) have downpipes that are concealed within structural columns and gutters and are concealed from view from all parts of the stations accessible by customers.



- (e) The design for access, inspection and maintenance requirements must address the issues of undertaking tasks within proximity to the live operating rail environment and the issues of possible rail occupation.
- (f) Where regular maintenance access across a roof is required, a safe walkway must be defined and roof finishes suitably protected.

### 3.9.1 ~~3.9.2~~ Type 1: entrance canopies

- (a) An entrance canopy must be provided at each new station entrance.
- (b) The entrance canopies must:
  - (i) provide weather protection to the station entrance, customer information, elements nominated in section 3.4 and 3.5, all queuing zones and pedestrian connections where there are high volumes of customer transfer;
  - (ii) provide protection from wind-driven rain with an angle of 35 degrees to the vertical to customer information, ~~elements nominated in section 3.4 and 3.5,~~ all queuing zones and VT areas;
  - (iii) where one canopy is adjacent to another canopy and within a distance of not more than 10 metres, ensure sufficient canopy overlap so as to provide a continuous covered walkway;
  - (iv) provide a station identity for the Metro Station entries;
  - (v) provide access to natural light that is aligned with circulation routes and VT locations;
  - (vi) be designed to minimise support columns;
  - (vii) not obstruct key sightlines or pedestrian movement; and
  - (viii) be naturally ventilated and non-enclosed.

### 3.9.2 ~~3.9.3~~ Type 2: Metro Concourse canopy

- (a) The Metro Concourse canopy must:
  - (i) provide a contemporary identity to the Metro Station, providing civic identity and presence recognising the existing Sydenham Station;
  - (ii) be a single canopy above the Metro Concourse with the predominant expression in the horizontal plane;
  - (iii) reinforce the interchange function of the Metro Concourse;
  - (iv) provide weather protection of the Metro Concourse to platform stairs to comply with the requirements of entrance canopies set out in section 3.9.1;
  - ~~(v) ensure an obstruction-free clear sightline to the platform heritage listed building from the Metro Concourse, when viewed from top of stair, at an eye height of 1500mm;~~
  - ~~(vi) ensure an obstruction-free clear sightline to the first four train doors provide clear sightlines (underneath the canopy) from 1500mm from~~

the top of the stairs at Metro Station Concourses to platforms and to the platform edge 30 meters from the bottom of the stairs, ~~when viewed from top of stair, at an eye height of 1500mm;~~

- (vi) ~~(vii)~~ be located at a height such that all lift overruns are located beneath the canopy and do not protrude through the roof plane be accessible for cleaning and maintenance;
- (vii) ~~(viii)~~ be designed to minimise support columns;
- (viii) ~~(ix)~~ not obstruct key sightlines or pedestrian movement; and
- (ix) ~~(x)~~ integrate all operational equipment, including means for cleaning the underside of canopy elements that extend over the live rail corridor.

### **3.9.3 3.9.4 Type 3: platform canopies**

- (a) The platform canopy structure on the Metro Station must:
  - (i) be designed to minimise column supports and associated visual obstructions;
  - (ii) locate columns centrally on island platforms;
  - (iii) locate columns to the rear of the side platform;
  - (iv) be predominantly in the horizontal plane;
  - (v) integrate canopy soffits with all operational equipment;
  - (vi) consider views from adjacent properties onto roof elements in terms of colour, glare and detailing; and
  - (vii) provide protection from wind-driven rain with an angle of 35 degrees to the vertical to the rear face of side platforms.
- (b) The platform canopy height must be a minimum of ~~3.33~~ 4m above finished floor level from the lowest point of the underside of the canopy soffit.
- (c) Any item suspended from the canopy must have a minimum of 2.7m clearance above finished floor level.
- (d) The platform canopy must extend to the platform edge or as close as possible considering transit space, overhead wiring and other safety requirements.
- (e) The existing fabric of platform canopies of heritage buildings must be unaltered.
- (f) Platform canopies, where located adjacent to heritage platform canopies, must not diminish the heritage values of the existing structures.
- (g) The platform canopy must:
  - (i) cover the whole customer journey from the Metro Concourse to platform waiting area clear of VT and run-off zones;
  - (ii) provide coverage to a minimum of ~~6~~ 4 cars of the train;
  - (iii) include cover for wheelchair users or customers travelling with large items;

- (iv) extend for a minimum of 15m beyond the end of the VT on the platform;  
and
- (v) where lift doors face platform edges, provide protection from wind-driven rain with an angle of 35 degrees to the vertical to the queuing areas in front of lifts, for the full width of the lift shaft.
- (h) New platform canopies must deter non-authorized access.
- (i) ~~All new platform canopies must provide~~ Provide a minimum clearance of ~~2.0m~~ 3m ~~from all new platform canopy columns~~ to existing heritage listed platform buildings ~~and canopies;~~
- (j) ~~No~~ Not fix elements of new platform canopies ~~may be fixed from~~ to heritage listed platform buildings or canopies; ~~and.~~
- (k) Not diminish the heritage values of the existing structures where new platform canopies are located adjacent to heritage platform canopies.

### 3.10 Sustainability

- (a) Refer to Appendix B7.0 Sustainability Requirements for all other sustainability requirements.
- (b) Contribution to urban heat island effects must be minimised at Metro Station, Station Precinct and Public Domain.
- (c) Where enclosing or providing covered shelter, solar heat gain and UV penetration must be limited to achieve thermal comfort in accordance with Appendix B4.0 Mechanical and Electrical Technical Requirements, including the following:
  - (i) Vertical glazing (in the absence of any applicable BCA Section J requirements): U-Value <6, SHGC <0.65;
  - (ii) Building awnings: SHGC <0.5; and
  - (iii) Roofs / canopies: SHGC <0.35.
- (d) In the absence of any BCA Section J requirements, the following minimum performance must be achieved for regularly occupied enclosed spaces:
  - (i) external walls achieve a minimum total thermal resistance of 1.5; and
  - (ii) roofs achieve a minimum total thermal resistance of 2.0.

### 3.11 Light Line Elements

- (a) The SSJ Contractor must incorporate the following items from the Sydney Metro Northwest Public Art Plan with the view of reinforcing a line wide identity and station colour:
  - (i) reinterpretation of skylights and lanterns where appropriate;
  - (ii) reinterpretation of colour to skylights and overhead lighting where appropriate; and
  - (iii) elevate customer experience and amenity to undercroft spaces.

### **3.12** ~~3.11~~ Help Points

- (a) The SSJ Contractor must provide accessible prominent coordinated public emergency alarm, video ~~emergency help/~~ customer ~~information points and audio-emergency assistance and~~ help points in accordance with the Wayfinding Planning Guide and all applicable legislation, as per the Interface Requirements Specification in Appendix E1.0 to this SWTC.
- (b) Front of house emergency Help Points must be integrated with Video Customer Assistance Points as per Sydney Metro Northwest to provide a consistent customer experience informed by the Operator's requirements and staffing model.
- (c) ~~(b)~~ Video customer assistance Help Points must be installed in a consistent manner across the ~~station.~~ Metro Stations and in a similar manner to the rest of the Sydney Metro City & Southwest line.
- (d) ~~(e)~~ Video customer assistance Help Points must have their position co-ordinated within the station design to ensure they are clearly identifiable.
- (e) ~~(d)~~ Accessible prominent Public Emergency Alarm and Help Points must be located in locations that maximise visibility and lighting from the surrounding area while minimising the number of units that need to be installed.
- (f) ~~(e)~~ Video emergency help/ customer information points must be located in the following locations:
- (i) in the Primary Plaza close to ticketing equipment;
  - (ii) in the Metro Station entrance point either side of the Gateline, adjacent to wide aisle gates where possible;
  - (iii) close to Metro Station lift entries; and
  - (iv) on Metro Station platforms ~~as required by the Operator,~~ visible on arrival.
- (g) ~~(f)~~ Audio Emergency Help Points must be located in the following locations:
- (i) all egress routes and ~~egress refuge areas~~ Places Of Relative Safety as defined by the SSJ Contractor's FLS Strategy;
  - (ii) along the typical passenger circulation; and
  - (iii) adjacent the public toilets.

### **3.13** ~~3.12~~ Security

- (a) The SSJ Contractor must conduct a security risk assessment workshop for both the construction and operation of Metro Station and the Sydenham Station and document a security risk assessment within 60 Business Days after the date of the commencement of the Delivery Phase and 20 Business Days prior to submission of the Design Stage 1. The security risk assessment must be included in the Design Documentation.
- (b) The SSJ Contractor must engage the services of a security consultant with NSW Security Licence Class 2A and experience in Human Factors and CPTED in



security risk assessments. The security consultant must facilitate the security risk assessment workshops which must include all relevant stakeholders.

- (c) The SSJ Contractor must adhere to RailCorp Security Standards and in accordance with TfNSW Overview of Rail Security Standards and Interpretation Guide.
- (d) The SSJ Contractor must consider CPTED and its outputs must be incorporated into the design development process. A CPTED report is required as a deliverable of Design Stage 1.
- (e) A second security risk assessment must be conducted to ensure all proposed mitigation strategies are appropriate and agreed by stakeholders. A second assessment workshop must be completed prior to submission of the Design Stage 2. The outcome of the second security risk assessment mitigation strategies must be incorporated into the design development during Design Stage 2.
- (f) The security risk assessment must be updated at Design Stage 3 and any outcomes included in the Design Documentation.
- (g) The SSJ Contractor must arrange additional security assessments workshops where required or as requested by the Principal's Representative. These security assessments workshops must be completed using current and accurate crime statistics to inform the process as well as consideration of the security operational plans, procedures and processes of the existing operators.
- (h) The security risk assessments must identify, assess and minimise the risk of terrorism and crime occurring on the Site during construction and during the operational phases.
- (i) The security risk assessment must assess all relevant security equipment within the design solution, including CCTV, access control, radios and Help Point systems amongst others.
- (j) The design must comply with the minimum security requirements defined under ASA Standards and Design Criteria for Stations:
  - (i) RSS-001 to RS004;
  - (ii) National Surface Transport Security Strategy;
  - (iii) Preventive Security Guide – Counter Terrorism Planning for Rail Operations; and
  - (iv) Crime Prevention through Environmental Design Parts A and B.

### **3.14 ~~3.13~~ Blast requirements**

- (a) The SSJ Contractor must address blast threat mitigation by implementing an overall strategy that aims to reduce the risk to life safety by reducing the probability of structural collapse without compromising other design requirements. The following principle aims are to be applied within the design process:
  - (i) minimise loss of life, structural collapse and damage – achieved through incorporation of threat independent progressive collapse mitigation within the structural design of the Metro Station incorporating threat specific blast protection of critical structural elements in addition to incorporating

- recommended detailing requirements for glazed areas to minimise flying debris hazard; and
- (ii) improve post-disaster recovery – achieved through strengthening of emergency egress routes and critical emergency support services, in addition to understanding the consequences of credible blast threat scenario to supplement operational security, emergency response and evacuation plans.
- (b) Where the nominated threat independent measures cannot be incorporated or where critical structural elements are in proximity to a potential blast reference location, additional consideration must be given to hardening these critical support elements to maximise the capacity under the specific design basis threat (DBT) scenario extreme loads in addition to consideration of the threat independent prescriptive measures (LER Method to eliminate brittle failure modes).
- (c) The threat dependant design must be considered to document the vulnerability of key structural elements to the DBT scenarios, thereby outlining critical elements that require further enhancement to achieve the desired level of protection (LOP). The assessment must include development of appropriate blast analysis models to determine the peak response (relative to the desired LOP) of the primary and secondary structural elements exposed to each DBT.

## 4 Station and buildings finishes, fittings, and fixtures

### 4.1 General

- (a) The SSJ Contractor must ensure all the material, finishes, fixtures and fittings for Metro Station, Station Precinct and Public Domain are consistent and co-ordinated.
- (b) All materials, finishes, fixtures and fittings must:
- (i) be fit-for-purpose with a focus on meeting customers' needs;
  - (ii) minimise discoloration, leaching, mould growth and deterioration due to wildlife, weathering and UV light;
  - (iii) enhance spatial quality, visual surveillance, permeability, and encourage natural light entry;
  - (iv) minimise hazards to customers such as slip, trip and fall, rips and cuts;
  - (v) be coordinated with the Station Precinct, Public Domain and Local Areas architectural and material response;
  - (vi) ~~(v)~~ support the CPTED principles and enhance passive surveillance and perceived ~~Customer~~ customer and public levels of safety in accordance with CPTED principles;
  - (vii) ~~(vi)~~ be easily cleaned and maintained without disruption to operations or material performance;
  - (viii) ~~(vii)~~ be able to be spot repaired in the case of minor damage and be easily replaced;
  - (ix) ~~(viii)~~ be easily replaced without the removal of adjacent materials and components;
  - (x) ~~(ix)~~ discourage vandalism through material selection and provide a high level of resistance to vandalism;
  - (xi) ~~(x)~~ be well-considered in form, application and function to minimise dirt and dust build up from the surrounding environmental conditions;
  - (xii) ~~(xi)~~ minimise horizontal surfaces and ledges that collect dust, dirt and soiling;
  - (xiii) ~~(xii)~~ resist damage from train-generated vibrations;
  - (xiv) ~~(xiii)~~ achieve and maintain accessibility requirements for customers and employees; and
  - (xv) ~~(xiv)~~ be durable and meet agreed benchmarked standards and best practice from projects locally and internationally to the approval of the Principals Representative.

- (xvi) [be coordinated with public art, signage, advertising and Sydney Metro City & Southwest branding elements in accordance with the Sydney Metro City & Southwest Public Art Master Plan and TfNSW Wayfinding Planning Guide.](#)
- (c) The SSJ Contractor must comply with all relevant Codes and Standards, including the fire hazard properties specified in the BCA and SSJ Contractor's FLS strategy.
- (d) The SSJ Contractor must install and assemble all materials in accordance with manufacturer's published instructions.
- (e) The SSJ Contractor must use an industrial designer for the design of all public area and customer facing components.
- (f) Where materials and finishes are used to provide enclosed or covered shelter they must be water tight, and water and weather-proof.
- (g) Standardisation of materials, finishes, fixtures and fittings must be provided to achieve a repetitive cladding and flooring geometry, and soffit arrangement within the Metro Station.
- (h) All wall, soffit, floor, base plate fixings must be concealed.
- (i) Any visible fixings must be countersunk and recessed flush or recessed within a shadow gap.
- (j) Unless specified otherwise all anti-slip finishes must a minimum slip resistance in accordance with HB197 and AS/NZS 4586.

## 4.2 Public area flooring

- (a) All flooring used throughout the Project Works including set out, joints, expansion joints and access covers must be consistent throughout public areas and integrated within the overall design concept.
- (b) The SSJ Contractor ~~must not~~ may use asphaltic concrete [with integrated tile edges](#) for new platform 1 and 2 areas. ~~Metro Concourse and stair public areas.~~
- (c) The SSJ Contractor may use asphaltic concrete on platforms 3, 4, 5 and 6 to make good Sydenham Station platforms and tie into existing platform surface finishes.
- (d) Floor finishes must withstand maintenance equipment loading.
- (e) Vertical tolerances (of floor finishes) must meet AS1428.1.
- (f) Floor finishes must withstand differential surface temperatures. Any movement must not result in permanent deformation.
- (g) Expansion joints must be 304 stainless steel and be minimised.
- (h) Floor finishes in public areas where water or wash down water is present must have a non-slip textured finish compliant with AS 4586, AS 1428.1 and 2, HB 197.
- (i) Any junction between a floor and wall/column must facilitate the cleaning of the floor without damage to the floor and wall.
- (j) Floor finishes must resist staining, enable easy cleaning and maintenance, be water resistant and be hard wearing and durable.



- (k) Floor threshold into plant rooms must be level.
- (l) Floor tile joints must be 3-4mm.
- (m) Floor tiles must be square edged.
- (n) Floor grouting colour must match the tile colour.
- (o) The SSJ Contractor must select from the following range of materials and finishes for public area floors:
  - (i) granite tiles;
  - (ii) bluestone tiles;
  - (iii) ceramic tiles; and
  - (iv) insitu terrazzo.
- (p) The SSJ Contractor must ensure the street paving integrates with the adjoining Local Area footpaths, Public Domain, Station Precinct, Metro Station and Metro Concourse to create a seamless connection between the station and the public realm.

#### **4.2.2 Surface drainage**

- (a) Surface drain covers must:
  - (i) be 316 stainless steel;
  - (ii) be set flush with the adjacent flooring;
  - (iii) have slip resistant equivalent to that of adjacent flooring; and
  - (iv) provide heel guard protection.
- (b) Grates and drains must not be located in primary pedestrian routes.
- (c) Grates and drains must not create hazards for high heels, bicycle wheels or wheelchair wheels.

#### **4.2.3 Access hatches**

- (a) Access hatches must:
  - (i) be set flush with the adjacent finished level;
  - (ii) be discreetly located; and
  - (iii) incorporate a discreet 316 stainless steel edge trim.
- (b) Access hatch materials and finishes must match the adjacent material, alignment and detailing.

#### **4.2.4 Wet area flooring**

- (a) The SSJ Contractor must select from the following materials and finishes for wet area flooring:
  - (i) vitrified ceramic tiles; and

- (ii) tiles to match the adjacent public area flooring.

#### **4.2.5 Tactile ground surface indicators**

- (a) Tactile ground surface indicators must:
  - (i) be selected and applied in accordance with AS1428.4.1;
  - (ii) be placed consistently;
  - (iii) not be installed in front of Platform Screen Doors in the Metro Station; and
  - (iv) have a luminance contrast to the background surface meeting clause 2.2 of AS1428.4.1 in both wet and dry conditions.
- (b) Tactile ground surface indicator joints must align with floor tile joints.
- (c) The SSJ Contractor must select from the following range of materials and finishes for tactile ground surface indicators:
  - (i) Ceramic, concrete tiles or natural stone tiles; and
  - (ii) stainless steel metal studs with R13 anti-slip as defined in AS/NZS4586. Where luminance contrast cannot be achieved and/or suitable R13 product is not commercially available, a minimum anti-slip requirements of R11 or a product tested to provide a wet slip resistance classification of P4 is acceptable.

#### **4.3 Public area wall cladding**

- (a) The cladding zone between the floor level and a minimum of 2700mm high in public areas must be suitably robust to resist impact deformation and vandalism.
- (b) Wall finishes in locations where routine cleaning cannot be easily undertaken must have surface characteristics that do not show accumulated dirt and dust.
- (c) Finishing materials must have a diffuse reflectance not less than 30%.
- (d) Acoustic treatment must be integrated with wall and column finishes, and be positioned above 2700mm from finished floor level.
- (e) Acoustic treatments must be integrated within overall assemblies and materials and be capable of withstanding ambient conditions.
- (f) The SSJ Contractor must select from the following range of materials and finishes for wall cladding:
  - (i) 316 stainless steel finish incorporating solid sheet metal and be fully backed;
  - (ii) vitreous enamel;
  - (iii) glass and curtain wall glazed systems;
  - (iv) colourback glass panels;
  - (v) terracotta or glazed ceramics;
  - (vi) natural stone;

- (vii) timber panels or battens;
- (viii) pre-cast concrete panels with Class 1 finish as per AS3610;
- (ix) glass reinforced concrete (GRC); and
- (x) aluminium panels or battens incorporating solid sheet metal that is fully backed.

#### **4.3.2 Service building louvres and grilles**

- (a) Louvres and grilles must:
  - (i) be integrated into building facades and cladding systems in terms of proportion, colour, and finish;
  - (ii) be responsive to context and communities;
  - (iii) be modular in size;
  - (iv) be removable or hinged to permit equipment access;
  - (v) comply with requirements of B04 Mechanical and Electrical Services Works;
  - (vi) be flush and not protrude beyond the building envelope; and
  - (vii) provide weather protection.
- (b) The SSJ Contractor must select from the following range of materials and finishes for louvres and grilles are:
  - (i) anodised or powder coated aluminium;
  - (ii) 316 stainless steel; and
  - (iii) terracotta or ceramic battens.

#### **4.3.3 Skirting**

- (a) Skirtings must be finished flush or recessed with the wall lining and be easily cleaned and maintained.
- (b) Skirting material must resist the following without noticeable change in surface appearance:
  - (i) vandalism;
  - (ii) heavy impacts; and
  - (iii) abrasion from cleaning methods, cleaning machines and maintenance systems.
- (c) The SSJ Contractor must select from the following range of materials and finishes for skirting in public areas:
  - (i) 316 stainless steel; and
  - (ii) Materials that match the floor finish.

#### **4.3.4 Wet area walls**

- (a) The SSJ Contractor must use floor to ceiling wall tiles on all wet area walls.
- (b) Where wet areas have ceilings then tiling must extend a minimum of 150mm above ceiling line.
- (c) Tile grouting must match the adjacent wall tiles.
- (d) The SSJ Contractor must select from the following range of materials and finishes for Station wet areas:
  - (i) glazed or vitrified ceramic tiles.

#### **4.3.5 Trackside wall**

- (a) The trackside wall must:
  - (i) provide easy access for the replacement of electrical components without removing fittings from their mounting, or disassembling adjacent construction; and
  - (ii) have all visible fixings countersunk and tamper proof.
- (b) The SSJ Contractor must select from the following range of materials and finishes for trackside walls:
  - (i) off-form concrete or precast concrete with class 2 finish as per AS3610;
  - (ii) metal panel or ceramic sheet/tile system; and
  - (iii) materials to complement the Metro Station palette of materials.
- (c) Use of shotcrete as a wall finish is permitted under the following criteria;
  - (i) be minimised and demonstrated as a final design outcome for approval by Principals Representative;
  - (ii) be in accordance with RMS Shotcrete Design Guideline 2016;
  - (iii) to be applied in controlled lifts;
  - (iv) finish to be float finish to a smooth consistent surface;
  - (v) elevation design must include expressed horizontal and vertical joints, and
  - (vi) comply with requirement detailed in section 5.2.

#### **4.4 Public area ceilings and soffits**

- (a) Ceiling joints must be coordinated with the placement of lighting, signs, and access to mechanical and electrical systems and other equipment, as well as acoustic treatments.
- (b) Ceiling materials must have a diffuse reflectance not less than 30%.
- (c) Acoustic treatment must be integrated with ceiling types and colours.
- (d) Ventilation grilles must be integrated with ceiling types and colours.
- (e) The SSJ Contractor must select from the following range of materials and finishes for ceilings and soffits are:

- (i) panelised prefinished metal;
- (ii) timber panels or battens with clear sealer;
- (iii) glass and curtain wall glazed systems;
- (iv) natural stone;
- (v) glass reinforced concrete (GRC);
- (vi) Class 1 pre-cast or off-form concrete; and
- (vii) ceramic or aluminium tubes or battens systems.

#### **4.4.2 Wet area ceilings**

- (a) Wet area ceilings must be moisture resistant.
- (b) The SSJ Contractor must select from the following range of materials and finishes for wet area ceiling materials:
  - (i) prefinished metal tiles;
  - (ii) fully sealed 6mm compressed fibre cement sheet lining with paint finish and
  - (iii) set 13mm water resistant plasterboard with paint finish.

#### **4.5 Staff office and back of house flooring**

- (a) The SSJ Contractor must select from the following range of materials and finishes for flooring in BOH, store, garbage, and cleaner rooms:
  - (i) slip resistant and impervious to attack from concentrated cleaning chemicals; and
  - (ii) non-slip floor surface, with good drainage to a floor waste with no liquid ponding.
- (b) The SSJ Contractor must select from the following range of materials and finishes for BOH office flooring:
  - (i) carpet with heavy duty underlay; and
  - (ii) vinyl or rubber.
- (c) The SSJ Contractor must select from the following range of materials and finishes for plant and BOH areas not covered by 4.5 (a) or 4.5 (b) excluding metal raised floor systems:
  - (i) concrete with oil resistant sealer (clear penetrating sealer); and
  - (ii) vinyl and rubber.

#### **4.6 Staff office and back of house wall cladding**

- (a) The SSJ Contractor must select from the following range of materials and finishes for staff office and BOH wall cladding:

- (i) cement render with an integral colour;
- (ii) fully sealed 9mm compressed fibre cement sheet lining with paint finish; and
- (iii) concrete or blockwork with a high quality protective paint finish.

#### **4.7 Staff office and back of house ceilings and soffits**

- (a) The SSJ Contractor must select from the following range of materials and finishes for staff office and BOH ceilings:
  - (i) acoustic grid ceiling system with prefinished mineral fibre tiles;
  - (ii) set 10mm plasterboard sheet lining with paint finished;
  - (iii) off-form class 2 concrete as per AS3610 with a penetrating oil resistant sealer; and
  - (iv) fully sealed 9mm fibre cement or compressed fibre cement.
- (b) The SSJ Contractor must select from the following range of materials and finishes for over track areas:
  - (i) off-form class 2 concrete as per AS3610 with clear sealer.
- (c) Ventilation grilles must be integrated, set flush and colour match the adjacent ceiling finish.

#### **4.8 Roofing**

- (a) The SSJ Contractor must select from the following range of materials and finishes for all new and modified canopy structure:
  - (i) zincalume metal deck with a Colorbond® Ultra marine grade finish longline or equivalent;
  - (ii) zinc;
  - (iii) combination of solar performance and UV rated glass (maximum of 20%);
  - (iv) copper or similar high quality alloy; and
  - (v) other integrated high quality integrated panel system.
- (b) The SSJ Contractor must select from the following range of materials and finishes for canopy fascia:
  - (i) painted mild steel with 3 coat protective paint coating system;
  - (ii) approved high quality cladding system; and
  - (iii) solar performance or UV rated glass.

##### **4.8.1 4.8.2 PV system**

- (a) The SSJ Contractor must provide a photovoltaic (PV) array(s) at the Metro Station to achieve the Appendix B7.0 Sustainability Requirements peak array power output associated with utilising either:

- (i) integrated photovoltaic array(s) provided on new or reinstated canopies; or
  - (ii) roofs that are integrated with the canopy roof envelope to form the finished roofing material (for example integrated glass PV that functions as the canopy roof); or
  - (iii) roof mounted photovoltaic array(s) provided on new or reinstated canopies or roofs that are mounted parallel to the roof pitch.
- (b) The photovoltaic arrays must:
- (i) utilise consistent panel design and maximised module/panel size within the array(s) as practicable;
  - (ii) include UV coatings, films or frits as required to achieve a SHGC <0.35 where non-opaque canopies are utilised;
  - (iii) be designed to conceal junction boxes where possible;
  - (iv) be designed to conceal inverters an appropriate distance from the PV array to reduce system losses;
  - (v) are trafficable for maintenance; and
  - (vi) utilise toughened glass encapsulation.

#### **4.8.2 4.8.3 Canopy soffits**

- (a) Soffits must be designed to allow a visually integrated system of jointing, services, and acoustic treatments.
- (b) Suspended ceiling systems must provide access to concealed services and have suitable structure and mechanical fixings to withstand air uplift and downdrafts from train movements.
- (c) The SSJ Contractor must select from the following range of materials and finishes for visible ceilings and soffits:
  - (i) Class 1 finished pre-cast concrete;
  - (ii) panelised prefinished metal system;
  - (iii) timber panels or battens with clear finish; and
  - (iv) ceramic or aluminium panels, tubes or batten systems.
- (d) The design of the soffit must prevent birds and other vermin from roosting or nesting.
- (e) Additional vermin deterrent measures (such as spikes) may be used only where hidden from view.

#### **4.8.3 4.8.4 Gutters and down pipes**

- (a) Gutters and down pipes must:
  - (i) be integrated with the canopy structure and structural design;
  - (ii) be concealed; and

- (iii) minimise bends.
- (b) Any exposed gutters or down pipes and fittings must be stainless steel, copper or a similar material.
- (c) Gutters must be integrated with operation and maintenance walkways where applicable.

#### **4.8.4 4.8.5 Service building roofs**

- (a) Flashings and edge trims on service building roofs must be discreet.
- (b) The SSJ Contractor must select from the following range of materials and finishes for service buildings roofs:
  - (i) concrete with waterproof membrane;
  - (ii) zincalume metal deck with a Colorbond ® Ultra marine grade finish; and
  - (iii) other high quality integrated panel system.

#### **4.8.5 4.8.6 Service building walls**

- (a) Service building walls must be designed with consideration of the surrounding streetscape environment and surrounding architectural materiality and language.
- (b) The SSJ Contractor must select from the following range of materials and finishes for service buildings walls:
  - (i) precast concrete panels to a Class 1 finish as per AS3610, with an integrated surface modulation and pattern. Concrete panels must be arranged with vertical joint lines and with a single panel spanning from ground level to roof parapet;
  - (ii) recycled brick reclaimed from the demolished buildings and platforms at Sydenham Station; and
  - (iii) textured masonry elements integrated with items (i) and (ii).
- (c) The SSJ Contractor must use vandal and graffiti resilient materials.
- (d) The SSJ Contractor must use materials that are easily cleaned and maintained.
- (e) The SSJ Contractor must optimise opportunities for vegetation and vertical green walls to provide graffiti resilient walls and surfaces.

#### **4.8.6 4.8.7 Exposed structures**

- (a) The SSJ Contractor must ensure the design of exposed structures prevents birds and other vermin from roosting and nesting.
- (b) Additional deterrent measures (such as spikes) must be used only where hidden from customer view.
- (c) Corrosion protection systems and finishes to structural elements such as steel and concrete must be capable of being recoated in situ to match adjacent finish, sheen, texture and colour.



- (d) Any exposed structural connections must be well considered and of a high architectural standard in composition and detail to compliment the architectural language of the station.
- (e) The SSJ Contractor must select from the following range of materials and finishes for exposed structures:
  - (i) painted / pre-finished mild steel;
  - (ii) stainless steel; and
  - (iii) concrete with clear sealer.

#### **4.9 Stairs**

- (a) Stair design must meet the provisions of AS1428.1 and AS1428.2.
- (b) Stairs must not have open risers.
- (c) The design of balustrades on stairs must prevent objects from falling to the level below.
- (d) Public access stairs must provide a going of 300mm and a riser of 150mm.
- (e) Materials and finishes for stairs in public areas must match the adjacent public area flooring, jointing and grouting.
- (f) The SSJ Contractor must select from the following range of materials and finishes for stair nosing:
  - (i) anti-slip and anti-wear stainless steel or aluminium;
  - (ii) ceramic or stone; and
  - (iii) cast metal with abrasive anti-slip coloured inserts.
- (g) Egress and maintenance access stairs must be in accordance with the SSJ Contractor's FLS strategy.
- (h) The SSJ Contractor must select from the following range of materials and finishes for egress stairs:
  - (i) concrete with an anti-slip finish; and
  - (ii) steel.

#### **4.10 Handrails, balustrade and screens**

- (a) Handrails on stairs and ramps must comply with AS1428.1 and AS1428.2, with no hooked end detail.
- (b) Handrails must be 316 stainless steel or recycled hardwood with outer diameter between 40mm and 50mm.
- (c) Handrails and balustrades must have seamless joints.
- (d) Balustrades within the station must have a minimum height of 1200mm above finished floor level.

- (e) Throw screens and safety barriers within station must be:
  - (i) provided in areas where crossing over tracks;
  - (ii) where positioned close to overhead wires; and
  - (iii) a minimum of 1800mm high.
- (f) Materials and finishes for balustrades and screens are:
  - (i) standard clear glass; and
  - (ii) 316 stainless steel woven mesh.
- (g) Balustrade framing must be painted or pre-finished mild steel or 316 stainless steel.

#### **4.11 Doors and doorways**

- (a) Doors and doorways must comply with AS1428.1 clause 13. This includes circulation, intermediate lobby arrangements.
- (b) Door hardware must meet AS1428.1 clause 13.5.
- (c) The SSJ Contractor must use stainless steel materials and finishes for door facings in public areas.
- (d) Public facing cupboard and service doors must be flush with adjacent cladding.

#### **4.12 Platform edge screens**

- (a) Platform edge screens (to areas not serviced by PSD's) must:
  - (i) be consistent with a high quality product;
  - (ii) must be the same height as the PSDs;
  - (iii) be modular;
  - (iv) be low maintenance;
  - (v) be transparent;
  - (vi) minimum edge and trim profiles;
  - (vii) have the same structural grid as the PSD's;
  - (viii) incorporate manifestation to DDA requirements;
  - (ix) be light weight with minimal structure and wind loading; and
  - (x) incorporate gates for both maintenance and emergency egress as required.
- (b) The SSJ Contractor must select from the following range of materials and finishes for platform edge screens not serviced by PSD's:
  - (i) glass panels that are replaceable from the platform side with low iron anti-reflective single layer toughened glass with butt joints and dark sealants and protective film;
  - (ii) powder coated aluminium; and

- (iii) 316 Stainless steel.
- (c) Any high level cladding above the platform edge screen and PSD must be well-considered and compliment the Metro Station platform designs.
- (d) The SSJ Contractors responsibilities regarding PSD are outlined in the Interface Requirements Specification included as Appendix E1.5.

#### **4.13 Seating**

- (a) The SSJ Contractor must design station seats with reference to Sydney Trains and TfNSW product requirements. In accordance with Design Guidelines.
- (b) All seating types must:
  - (i) be designed by an agreed industrial designer as a common suite of elements see Section 7.3.1(b);
  - (ii) use consistent detailing, use a consistent palette of materials, finishes, fixings and fittings;
  - (iii) use vandal and graffiti resilient materials;
  - (iv) use materials that are easily cleaned and maintained;
  - (v) have concealed footings and fixings;
  - (vi) provide a minimum 30% luminance contrast to the background environment;
  - (vii) incorporate back rests where the seats are adjacent to other objects;
  - (viii) not incorporate back rests where the seats are located with double sided access;
  - (ix) have a stainless steel or cast aluminium frame and posts;
  - (x) have any slats running parallel to the front edge of the seat;
  - (xi) be a minimum length of 1800mm and a minimum width of 400mm;
  - (xii) be installed horizontally level with a height above ground level in accordance with clause 27.2 Note 1 in AS1428.2; and
  - (xiii) be securely fixed with concealed fixings.
- (c) Seats must comply with the requirements of AS1428.2 and DSAPT including:
  - (i) variety of seating with and without armrests; and
  - (ii) seats with armrests and back rests.

#### **4.14 Rubbish bins**

- (a) The SSJ Contractor must design rubbish bins with reference to Sydney Trains and TfNSW product requirements. In accordance with Design Guidelines.
- (b) Rubbish bins must:

- (i) be designed by an agreed industrial designer as a common suite of elements see Section 7.3.1(b);
- (ii) use consistent detailing, and a consistent palette of materials, finishes, fixings and fittings;
- (iii) have a lockable enclosure;
- (iv) be pest and vermin resistant;
- (v) be made with vandal resistant and robust materials;
- (vi) be clearly identifiable;
- (vii) be transparent (support structure and bags);
- (viii) incorporate clear labelling for waste and recyclables;
- (ix) incorporate chute heights in accordance with AS1428.2; **and**
- (x) be mounted with concealed fixings;
- (xi) comply with any additional threat protection requirements.

#### 4.15 Barriers and security line

- (a) The SSJ Contractor must design a barrier for all **stationMetro Station** and **precinctStation Precinct** entrances that integrates into the **stationMetro Station**.
- (b) The barriers must:
  - (i) meet the requirements of the SSJ's Security Management Plan;
  - (ii) ensure vehicles cannot be driven into **stationMetro Station** entrances;
  - (iii) make use of public domain elements to prevent vehicle access;
  - (iv) not be just a series of bollards;
  - (v) be integrated into public domain design; **and**
  - (vi) **must** not obstruct the flow of customers; **and**
  - (vii) not unreasonably impede access by Emergency Services.
- (c) The security line must:
  - (i) meet the requirements of SSJ Contractor's Security Management Plan.

#### 4.16 Pest bird, bat and vermin protection

- (a) The design of Metro Station, Station Precinct and Public Domain must provide for protection from pest bird, bat and vermin, including:
  - (i) to prevent opportunities for winged species to nest or roost. Refer also section 4.8.7 Exposed structures; and
  - (ii) appropriate measures must be taken to prevent vermin infestation.
- (b) SSJ Contractor must prepare a pest bird, bat and vermin management strategy describing the approach for mitigation of the negative impacts of the presence of

pest bird and bat populations on the Metro Station, Station Precinct and Public Domain.

- (i) The strategy must assess and report on:
    - A. potential pest bird, bat and vermin species;
    - B. negative impacts of each species; and
    - C. strategies to prevent and control each species.
  - (ii) The SSJ Contractor must appoint an ecological expert within 30 Business Days after the commencement of the Delivery Phase to prepare the strategy pest bird, bats and pest management strategy. The expert must have experience gained in Australia of pest, bird, bats and pest management of infrastructure, public transport and public building projects.
  - (iii) The SSJ Contractor must submit the pest bird, bat and vermin management strategy to the Principal's Representative for approval within 90 Business Days after the commencement of the Delivery Phase.
  - (iv) The SSJ Contractor must demonstrate implementation of the strategy within Design Stage 2 Design Documentation.
  - (v) The SSJ Contractor must update the strategy within Design Stage 3 Design Documentation.
- (c) The SSJ Contractor must provide a management and maintenance plan for on-going pest bird, bat and vermin management and control by the Operator and the Existing Operator.

#### **4.17 Fire Separation and Compartmentation**

(a) Fire compartmentation must be provided to:

- (i) The requirements of the BCA;
- (ii) The SSJ Contractor's FLS Strategy; and
- (iii) The following additional requirements:
  - A. BOH plant and storage areas must be fire separated from public areas with a minimum FRL of (120)/120/120.
  - B. Rooms for main switchboards, power supply equipment, HV equipment, Traction Power Supply substations, battery rooms, switch rooms, and electrical cupboards in public areas must be fire separated with a minimum FRL of (120)/120/120. Any penetrations must have a -/120/- fire rating unless more onerous requirements are required by the services provider.
  - C. The fire hydrant booster assemblies must be protected by fire rated walls achieving an FRL of 90/90/90 extending 2m to either side and 3m above the booster valves, or be located at least 10m from any Metro Station structure.



## 5 Station and buildings materials requirements

### 5.1 General

- (a) This section defines the minimum workmanship and quality requirements for materials and trades to be used by the SSJ Contractor.
- (b) Materials must be capable of maintaining required fire resistance properties and fire ratings, including the performance of individual materials and performance of whole assemblies.
- (c) The SSJ Contractor must ensure the compatibility of systems, components, materials, assemblies and work sequencing so that performance requirements of materials continue at interfaces with adjacent work and construction.

### 5.2 Concrete

- (a) Formwork design and construction for formed surface finishes must be in accordance with AS3610.
- (b) The SSJ Contractor must provide finishes to formed and unformed concrete surfaces which are:
  - (i) appropriate to the importance (visual or physical) of the concrete elements;
  - (ii) compatible with subsequent trades and finishes; and
  - (iii) compatible with the uses and functions.

#### **5.2.1** ~~5.2.2~~ Finishes and tolerances

- (a) Unformed surface finishes must be as per Table 3 and Table 4.
- (b) Formed finishes must be to finish classes as per Table 5.
- (c) For unformed surface finishes of floors and unformed surfaces of 'off-form' concrete elements surface finish Classes 2 and 3, the SSJ Contractor must determine the finished surface tolerance class using a straight edge placed anywhere on the surface in any direction in accordance with Table 3.

**Table 3** Unformed surface finishes tolerance classes

A	3m straight edge	3
B	3m straight edge	6
C	600mm straight edge	6

**Table 4** Unformed concrete finishes schedule – insitu concrete

<b>Insitu Internal Floors</b>			
Under sheet or liquid applied waterproof membrane	Steel trowel unless otherwise recommended by the membrane manufacturer	A	Nil
Under carpet and timber floating floor finishes	Steel trowel	A	Nil
Under resilient floor sheet or tile, vinyl rubber or similar finish	Steel trowel	A	Nil
Under seamless liquid applied floor finishes	Steel trowel	A	Nil
Set-downs for thick floor finishes: bedded tile etc: – As a substrate for liquid applied waterproof membrane or debonded topping slabs	Steel trowel unless otherwise recommended by the membrane manufacturer	B	Nil
– As a substrate for bonded bedding or topping slabs, or where no particular requirement	Screed	C	Nil
Granolithic topping (monolithic on fresh concrete substrate)	Steel trowel	A	Non-slip granules to stair treads, landings and ramps. Non-slip inserts to nosings
Granolithic topping (monolithic on hardened concrete substrate) – Substrate – Topping	Screeded	C	Nil



**Table 5** Formed finishes schedules

<b>External concrete</b>			
Exposed concrete for exterior building surfaces – where not covered by any further applied finish	Off-Form, Smooth Class 2	Nil	Grey Scales 2-5
– where covered by a specified clear coating finish	Off-Form, Smooth Class 2	Clear coating	Grey Scales 2-5
– where covered by a specified opaque coating finish	Off-Form, Smooth Class 2	Opaque coating	Nil
Concealed concrete substrate under waterproof membrane	Off-Form, Smooth Class 3	Membrane	Nil
Concealed concrete substrate under render/plaster or concealed behind other construction elements	Off-Form, Class 4	Various	Nil
<b>Internal concrete</b>			
Exposed concrete for interior building surfaces of public – where not covered by any further applied finish	Off-Form, Smooth Class 1	Nil	Grey Scales 2-5
– where covered by a specified clear coating finish	Off-Form, Smooth Class 1	Clear coating	Grey Scales 2-5
– where covered by a specified opaque coating finish	Off-Form, Smooth Class 2	Opaque coating	Nil
Exposed concrete for services and utility spaces e.g. plant rooms, store rooms.	Off-Form, Smooth Class 3	Nil	Nil

- (d) Shotcrete must be Class 2 finish with scribed joints in accordance with AS 3600 and CIA Z5 Shotcreting in Australia.

**5.2.2 5.2.3 Colour and consistency**

- (a) Concrete must be uniform in colour and texture.
- (b) Coloured concrete must be cured in accordance with AS/NZS3799.
- (c) To prevent surface blemishing, the SSJ Contractor must not cure with plastic sheeting, intermittent wetting and drying, membranes, paper, wet hessian sheet, sodium or fluoro-silicate hardeners or other compounds which can cause discolouration.

### **5.3 Brick and block masonry**

- (a) The SSJ Contractor must meet the requirements for clay brickwork and concrete blockwork standards as below:
  - (i) masonry units requirements in accordance with AS/NZS4455.1; and
  - (ii) materials construction and detailing in accordance with AS3700.
- (b) The minimum age for clay bricks must be seven days before bricklaying.
- (c) The minimum value of characteristic unconfined compressive strength must be:
  - (i) for concrete blocks used in unreinforced non-loadbearing masonry: 4MPa;
  - (ii) for concrete blocks used in unreinforced load bearing masonry: 10MPa.
  - (iii) for concrete blocks used in reinforced masonry: 15MPa; and
  - (iv) for clay bricks: 20MPa.
- (d) Concrete blocks must have a mean coefficient of residual drying contraction of not more than 0.6mm/m.
- (e) Clay bricks must have a mean coefficient of expansion of not more than 0.8mm/m.
- (f) Connectors and accessories must be provided in accordance with AS/NZS2699.1, AS/NZS2699.2 and AS/NZS2699.3.
- (g) Mortar must comply with AS3700.
- (h) Flashings and damp-proof courses must be provided in accordance with AS/NZS2904.
- (i) Brick block and masonry walls including all connectors, fixings, and supports must be capable of maintaining structural integrity for the whole assembly under design loads applicable to each application.
- (j) The SSJ Contractor must protect masonry materials and components from ground moisture and contamination.
- (k) For steel door frames, the SSJ Contractor must fill the backs of jambs and heads solid with mortar as the work proceeds.
- (l) The SSJ Contractor must keep the top surface of blockwork covered to prevent the entry of rainwater and contaminants and protect all construction materials from adverse conditions.
- (m) The SSJ Contractor must clean progressively as the work proceeds to remove mortar smears, stains and discolouration, including:
  - (i) by the use of acid solutions; and
  - (ii) not eroding joints if using pressure spraying.

### **5.4 Cladding**

- (a) Cladding must meet the requirements of AS/NZS4284.

- (b) The SSJ Contractor must provide external wall and soffit cladding and associated work which:
- (i) satisfies the product performance requirements;
  - (ii) provides control joints to accommodate thermal and any other movements;
  - (iii) has fixings as required to withstand the ambient conditions;
  - (iv) complies with the recommendations of SA publication HB 39;
  - (v) provides for a coordinated and integrated appearance. All associated componentry such as trims, joints and flashings are compatible in terms of performance and appearance; and
  - (vi) has graffiti protection applied to all visible surfaces.
- (c) The SSJ Contractor must ensure that all non-load-bearing facing cladding:
- (i) is individually supported by means of structural stainless steel fixings; and
  - (ii) provides control joints to accommodate thermal and any other movements.
- (d) The SSJ Contractor must ensure that all cladding materials and systems meet the following tolerances:
- (i) face dimensions:  $\pm 2$  mm;
  - (ii) squareness (difference between diagonals): not more than 1.5 times the tolerance on a long edge;
  - (iii) thickness:  $\pm 3$  mm;
  - (iv) flatness:  $\pm 1.5$  mm per metre;
  - (v) edge straightness:  $\pm 0.5$  mm per metre;
  - (vi) anchor hole locations:  $\pm 1$  mm;
  - (vii) ~~(i)~~ maximum bow or twist in finishes:  $\pm 1.5$  mm in 1200 mm; and
  - (viii) ~~(ii)~~ maximum bow or twist in natural riven faces:  $\pm 10$  mm in 1200 mm.
- (e) All stainless steel sheet, timber panels, stone, terracotta, ceramic and vitreous enamel cladding systems must use 316 stainless steel fixings, which are:
- (i) adjustable in 3 directions;
  - (ii) designed to deflect water from within the cavity;
  - (iii) designed to attach to substrate wall using stainless steel masonry anchors; and
  - (iv) not to be fixed using block liners or resin-bonded fixings.

#### 5.4.1 ~~5.4.2~~ Performance criteria

- (a) Design loads on cladding include incidental loads that may occur, including those resulting from manufacture, transport, and installation.
- (b) Provide for deflections, displacements and other movements:

- (i) within the cladding systems;
  - (ii) between the cladding systems;
  - (iii) with the building structure (including fire stop and smoke flashing connections if applicable);
  - (iv) all other adjoining façade elements; and
  - (v) caused by ambient temperature changes, wind loads, design dead and live loads and shrinkage.
- (c) Provide cladding systems that accommodate movements silently and without permanent deformation, reduction of performance, or other detrimental effects such as:
- (i) damage to or undue stress on structural elements, fixings and panels/sheets; and
  - (ii) failure of joint seals.
- (d) Provide for differential movement between the cladding systems and the building caused by building movements, including:
- (i) edge beam or slab deflections under designed dead and live loads;
  - (ii) column or frame shortening (elastic, creep, shrinkage etc.); and
  - (iii) lateral deflection under wind load.
- (e) Provide for differential movement between the cladding system and adjoining façade elements e.g. curtain wall systems and precast concrete panels or masonry walls, as occurring.
- (f) Movement joints must meet the following requirements:
- (i) where movement joints are to be provided within or between structures or structural elements, provision must be made to ensure the movements must be accommodated by the cladding system without damage or distortion; and
  - (ii) movement jointing systems to be visually compatible in finish and material with overall system.

#### **5.4.2** ~~5.4.3~~ **Materials and products**

- (a) The SSJ Contractor must isolate dissimilar metals to prevent electrolytic corrosion.
- (b) Aluminium sheet must be powder coated perforated aluminium sheet cladding in accordance with AS 3715:2002 and AS 4506 - 2005.
- (c) Aluminium metal blades / battens must meet the following requirements:
  - (i) powder coat finish in accordance with AS 3715 and AS 4506 - 2005; and
  - (ii) minimum wall thickness of aluminium 4mm BMT.
- (d) Stainless steel sheet must meet the following requirements:
  - (i) 316 grade facing to BS1449 or equivalent, minimum 0.9mm thickness; and

- (ii) fully bonded to min. 12mm exterior structural grade plywood – all edges protected.
- (e) Woven wire mesh must be 316 stainless steel wire.
- (f) Solid timber cladding must be either timber boards or battens with a minimum 19mm thickness, clear finished.
- (g) Timber panel lining must be of a proprietary prefinished exterior-grade plywood type with slotted face and including black backing scrim to preserve and conceal fixings and acoustic backing where required. Where veneers are used, they must be of veneer quality A , in accordance with AS2271 Exterior Plywood.
- (h) Timber batten linings must meet the following requirements:
  - (i) proprietary system of solid factory-finished timber battens complete with rails, clips and other required accessories;
  - (ii) tested in accordance with AS/NZS1080 parts 1-3 for moisture content, grain and density; and
  - (iii) finished with a clear sealer.
- (i) Terracotta or ceramic battens or panels must be:
  - (i) designed and installed to the requirements of BS8298;
  - (ii) a non-watertight proprietary system of terracotta panels and/ or battens, glazed or unglazed finish;
  - (iii) supported on extruded aluminium furring channels (black painted) complete with all accessories and incidentals for complete installation; and
  - (iv) where backing or support wall is masonry, a liquid applied membrane must be provided.
- (j) Flush soffit linings must be a minimum of 9mm fibre cement, using a proprietary system of sheets and accessories specially formulated for external use.
- (k) Natural stone cladding, both internally and externally, must:
  - (i) be designed and installed to the requirements of BS8298;
  - (ii) comply with the following property tests:
    - A. unconfined compressive strength (dry and saturated): intact rock core specimens - Test Standard ASTM D7012;
    - B. unconfined compressive strength (dry and saturated): dimension stone – Test Standard ASTM C170;
    - C. surface absorption rate – Test Standard ASTM C97;
    - D. porosity – Test Standard ASTM C97;
    - E. wet and dry density – Test Standard ASTM C97;
    - F. modulus of rupture – Test Standard ASTM C99;
    - G. sodium sulphate soundness; and

H. flexural strength – Test Standard ASTM C880.

- (I) Vitreous enamel panels must:
- (i) be a proprietary, panelised system of ceramic (vitreous enamel) coated steel;
  - (ii) have a mounting system with concealed fixings which allow for individual panel replacement;
  - (iii) have coating applied to all sides; and
  - (iv) be fully backed to ensure required flatness.

## 5.5 Window, curtain walling, glazed screens and glazed doors

- (a) Windows, curtain walling, glazed screens and glazed doors must meet the following standards:
- (i) AS1428.1 and 1428.2;
  - (ii) AS2047 for windows;
  - (iii) AS/NZS1664.1 or AS/NZS1664.2 for stress analysis of members;
  - (iv) AS1288 for glazing thickness, materials, and installation;
  - (v) AS4145.1 Appendix D for hardware;
  - (vi) AS/NZS 2904 for flashings; and
  - (vii) AS/NZS 4667 for glass types and quality.

### 5.5.1 **5.5.2 Performance criteria**

- (a) The SSJ Contractor must design and construct window systems and associated work, that:
- (i) provide adequate means of dealing with vapour pressure, condensation and corrosion;
  - (ii) provide adequate means of dealing with thermal movement and differential movement of the building structure;
  - (iii) provide and maintain the design lines, section profiles and stiffness of components; and provide for deflections, displacements and other movements:
    - A. within the window and door assemblies;
    - B. between the window and door assemblies and the building structure (including fire stop and smoke flashing connections if applicable), and all other adjoining façade elements (e.g. cladding, masonry); and
    - C. caused by ambient temperature changes, wind loads, design dead and live loads and shrinkage.

- (b) The SSJ Contractor must provide windows and doors to accommodate movements silently and without permanent deformation, reduction of performance, or other detrimental effects including:
  - (i) damage to or undue stress on structural elements, fixings, glass and panels;
  - (ii) failure of joint seals; and
  - (iii) loss of normal function in operable elements (e.g. doors and window sashes).
- (c) The SSJ Contractor must provide within windows and doors assemblies that must not:
  - (i) reduce the glass "bite" to less than 75% of the design dimension; or
  - (ii) reduce the clearance between framing members and non-structural infill units (e.g. glass) or between framing members and operable units (e.g. sashes, doors) to less than the minimum specified by the respective unit manufacturers.
- (d) Where movement joints are to be provided within or between structures or structural elements, provision must be made to ensure the movements are accommodated by the window and door systems without damage or distortion.

#### **5.5.2 ~~5.5.3~~ Material and components**

- (a) All framing must be heavy duty, commercial grade.
- (b) Minimal wall thickness of any component (except beads) must be 2.5mm.
- (c) For aluminium the following standards must be met:
  - (i) AS/NZS1664.1 or AS/NZS1664.2 as applicable for stress analysis of members;
  - (ii) AS 1734 for aluminium sheet and plate;
  - (iii) AS 1866 for aluminium alloy sections; and
  - (iv) AS1231 and AS 4506 for architectural coatings.
- (d) Flashings and weatherings must be:
  - (i) in accordance with AS/NZS2904; and
  - (ii) corrosion resistant, compatible with the other materials in the installation, and coated with a non-staining compound where necessary. Visible flashings and weatherings must be of the same materials and finishes as the exposed framing members of the window and door systems unless otherwise specified.
- (e) Fixing and joints must:
  - (i) conform to the fasteners and fastener spacing recommendations of the manufacturer.
  - (ii) conceal fasteners; and

- (iii) make accurately fitted tight joints so that neither fasteners nor fixing devices such as pins, screws, adhesives or pressure indentations are visible on exposed surfaces.

## 5.6 Glazing

### 5.6.1 General

- (a) Glazing for exterior and interior building elements must meet the following standards:
  - (i) AS/NZS1866;
  - (ii) AS1288;
  - (iii) AS/NZS2208;
  - (iv) AS3715;
  - (v) ISO 11600; and
  - (vi) AS/NZS4667.
- (b) The design of glazing including facades, windows, walls, glazed entry doors, roof lights, balustrade, integrated components and other glazed elements must:
  - (i) minimise dirt and litter build-up and streaking;
  - (ii) ~~be use~~ self-cleaning ~~except internal glass not exposed to the weather glass with a photocatalytic and hydrophobic coating to solar control glazing exposed to direct sunlight and precipitation, with a minimal pitch of 10°;~~
  - (iii) be low iron ~~glass or solar control glass for external applications or where glazing is partly under cover to ensure continuity;~~
  - (iv) must be blast resistance glass.
  - (v) have load crowing and structural stability; ~~and~~
  - (vi) where glass is within a public reach zone as minimum include a propriety film to help prevent scratching vandalism; ~~;~~
  - (vii) ~~be standard clear glass for internal applications (other than where partly under cover);~~
  - (viii) ~~use an easy clean (hydrophobic and oleophobic) factory applied coating to both sides of all other glazing; and~~
  - (ix) ~~limit solar heat gain and UV penetration where enclosing or providing covered shelter;~~

### 5.6.1 ~~5.6.2~~ Performance criteria

- (a) The SSJ Contractor must ensure that in designing for thermal loads the following are considered:
  - (i) thermal stability: no glass must suffer from thermal fracture;



- (ii) thermal analysis: carry out a thermal analysis and modelling for all glass applications, demonstrating that the glass will not suffer from thermal fracture. The analysis must consider, orientation, glass type, glazing method, framing material, framing colour, framing shading, external shading and blind/drape types; and
  - (iii) thermal analysis: carry out a thermal analysis and modelling for all glass applications, demonstrating how customer comfort is maintained.
- (b) The SSJ Contractor must ensure that in designing for human live loads the following are considered:
- (i) horizontal and sloping glass configurations: glass in a window system, awning, skylight etc. must be capable of supporting superimposed human live loads (e.g. maintenance personnel), without collapse, fracture, permanent distortion, failure of seals or fastenings, or other damage; and
  - (ii) vertical glass configurations: glass in a balustrade system must be capable of supporting lateral human live loads (e.g. impact and surge) without collapse, fracture, permanent distortion, failure of seals or fastenings, or other damage.
- (c) The SSJ Contractor must make provision to accommodate incidental loads that may occur, including those resulting from manufacture, transport, and installation.
- (d) The SSJ Contractor must ensure that the following are considered:
- (i) glass deflection due to horizontal loads from serviceability wind pressure including operational air pressures due to running Trains and ventilation requirements, as installed and without permanent deformation, must not exceed:
    - A. 4-sided support: span/90 or 20mm whichever is smaller; and
    - B. 2-sided support: span/90 or 35mm whichever is smaller.
- (e) The SSJ Contractor must ensure that the following are considered:
- (i) general: provide for deflections, displacements and other movements within the glazed assemblies including but not limited to movements caused by deflections of building structure, ambient temperature changes, wind loads, and design dead and live loads; and
  - (ii) accommodation: provide glazing to accommodate these movements silently and without permanent deformation, reduction of performance, or other detrimental effects.

### **5.6.2** ~~5.6.3~~ **Materials and components**

- (a) The SSJ Contractor must ensure that:
- (i) all glass panels in public and external areas are laminated, and in combination with annealed, heat strengthened, or toughened as required by specific applications; and
  - (ii) glass and glazing materials provided are of a thicknesses to comply with AS1288.

- (b) All glazing in public areas must be designed to minimise fragmentation and panel separation associated with the threat protection requirements as agreed with the Principals Representative and included in SSJ Security Management Plan.
- (c) Glass and glazing materials must:
  - (i) for glass, be free from impurities e.g. nickel sulphide, or other defects which detract from appearance or interfere with performance under normal conditions of use;
  - (ii) for glazing plastics, be free from surface abrasions, and warranted by the manufacturer (for the Design Life) against yellowing or other colour change, loss of strength and impact resistance, and general deterioration;
  - (iii) have glass tolerances (size, squareness and flatness) in accordance with AS/NZS2208;
  - (iv) have plate and sheet:
    - A. for roller wave: maximum 0.15 mm. The peaks and troughs of the roller wave must run horizontally in the installed glass panes;
    - B. for float glass quality: glazing select quality q3 in accordance with ASTM C 1036;
  - (v) meet safety glass standards in accordance with AS/NZS2208;
  - (vi) have a permanent standards mark;
  - (vii) have heat soaking where required for all toughened and heat strengthened glass exposed to the exterior;
  - (viii) for insulating glass units (double glazed units), comply with AS/NZS4666 2012;
  - (ix) have a blast resistant film as required by the Security Management Plan; and
  - (x) for opacified glass, must comply with ASTM C 1048.
- (d) Glazing materials (including glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks and compression wedges) must be appropriate for the conditions of application and the required performance.
- (e) Structural glazing materials must be provided where glass is not secured by other physical means.
- (f) Jointing materials must be compatible with each other and with the contact surfaces and non-staining to finished surfaces. Bituminous materials must not be used on absorbent surfaces.
- (g) Elastomeric sealants must meet the following requirements:
  - (i) sealing compound: polyurethane, polysulphide, acrylic;
  - (ii) single component: Type II, Class A;
  - (iii) multi component: ASTM C920;
  - (iv) sealing compound (silicone); and

- (v) single component: Class A;
- (h) Pile weather strips must meet the following requirements:
  - (i) materials: polypropylene or equivalent pile and backing, low friction silicone treated, ultra violet stabilised; and
  - (ii) finned type: a pile weather seal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.
- (i) Extruded gaskets and seals must meet the following requirements:
  - (i) type: non cellular (solid) elastopressive seals;
  - (ii) material:
    - A. rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): to BS4255:1; and
    - B. flexible polyvinyl chloride (PVC): To BS2571, E type compounds, colour fastness grade B.
- (j) The SSJ Contractor must apply the recommended primer to the surfaces in contact with sealant materials.
- (k) Movement joints must meet the following requirements:
  - (i) depth of elastomeric sealant: one half the joint width, or 6 mm, whichever is the greater;
  - (ii) foamed materials (in compressible fillers and backing rods): closed-cell or impregnated types that do not absorb water; and
  - (iii) bond breaking: backing rods, and other back-up materials for sealants that do not adhere to the sealant.

## 5.7 Roofing

- (a) The SSJ Contractor must design and install sheet roof and wall metal cladding in accordance with AS1562.1.
- (b) The SSJ Contractor must design and install roof drainage systems in accordance with AS/NZS3500.3.

### 5.7.1 ~~5.7.2~~ Performance criteria

- (a) The SSJ Contractor must provide roofing systems and associated works that:
  - (i) are durable and remain intact, weatherproof and waterproof under the ambient in-service atmospheric and climatic conditions of the installations;
  - (ii) withstand the specified imposed loads without damage or impairment of performance;
  - (iii) provide adequate means of dealing with vapour pressure, condensation and corrosion;
  - (iv) provide adequate means of dealing with thermal movement and differential movement of the building structure.; and

- (v) provide and maintain the design lines, section profiles and stiffness of components.
- (b) The SSJ Contractor must ensure that incidental and maintenance loads accommodate all permanent and temporary incidental stresses that may arise during both the service life and construction phases. Such stresses must include those due to manufacture, transport, installation and in-service maintenance.
- (c) The SSJ Contractor must ensure that the thermal performance of roofing in conjunction with insulation and vapour barriers must achieve the minimum thermal properties specified in BCA section J.
- (d) The SSJ Contractor must ensure that measures are taken to prevent drumming effect from rainfall on metal roofing.

### **5.7.2** ~~5.7.3~~ **Roof plumbing**

- (a) The SSJ Contractor must ensure that roof plumbing components are free of distortions including for flashings, cappings, gutters, rainwater heads, overflows, outlets, downpipes, and incidentals necessary to complete the roof system.
- (b) Metal rainwater components must comply with AS/NZS2179.1.
- (c) Flashing and capping materials must comply with AS/NZS2904.
- (d) Flashing and capping sheet metal types must be folded profiles, according to case material and colour to match the main roofing type.
- (e) Roof plumbing materials and systems must be compatible with rainwater harvesting in accordance with Appendix B7.0 Sustainability Requirements and B04 Mechanical and Electrical Services Works.

### **5.7.3** ~~5.7.4~~ **Translucent roof cladding**

- (a) Design, supply and installation of translucent roof cladding must be by a specialist installer.
- (b) Translucent roofing products must be:
  - (i) type: ETFE;
  - (ii) thickness: as recommended by the manufacturer;
  - (iii) Configuration: provide extruded continuous stainless steel edge stiffeners to permit fixing to steel structure as necessary; and
  - (iv) fixings: stainless steel.

## **5.8 Roof access**

- (a) The SSJ Contractor must provide roof access and safety for roofing in accordance with:
  - (i) access for maintenance: AS1657;
  - (ii) industrial fall-arrest systems and devices: AS1891 Parts 1-4;
  - (iii) design loads: AS 1170; and

- (iv) any other specific requirements of WorkCover.
- (b) Ladders, walkways and platforms must conform to the following requirements:
  - (i) materials and components must be fabricated as required and continuous welded;
  - (ii) finishes of:
    - A. internal items must be painted in accordance with requirements in section 5.19 Painting; and
    - B. external items must be hot dip galvanised to AS/NZ 4680:2006 after fabrication.
- (c) The fall arrest system must:
  - (i) provide a permanent visually unobtrusive roof fall arrest and façade access systems integrated with roof access;
  - (ii) have all connections and attachments to structural members;
  - (iii) include components, anchor points and static lines, all in accordance with the requirements of statutory authorities;
  - (iv) be 316 stainless steel; and
  - (v) maintain the waterproofing integrity of roofing and cladding without damage or distortion.

#### 5.8.1 ~~5.8.2~~ Performance criteria

- (a) Roof penetrations must:
  - (i) where supports or fixings penetrate metal roofing materials, have suitable flashings such that roofing remains weatherproof and watertight;
  - (ii) be located such that roof water does not become trapped in pans between ribs;
  - (iii) use flexible Ethylene Propylene Diene Monomers (EPDM) polymer overflashings or equivalent; and
  - (iv) form to the profiles of the penetrating elements and roofing and seal with neutral-cure silicone mastic.
- (b) Roofing support must ensure that:
  - (i) the supported items are separated from roofing by means of flexible mounts or isolator strips;
  - (ii) loads are distributed such that roofing material is not caused to distort; and
  - (iii) electrolytic corrosion is prevented.
- (c) Roof access must ensure that:
  - (i) internal items are hot dip galvanised or painted; and
  - (ii) external items are hot dip galvanised or natural anodised.

## 5.9 Wall and ceiling linings

- (a) Fabrication and installation tolerances must meet the following requirements:
- (i) joint alignment tolerance:
    - A. panel sizes < 600mm: +/- 2mm; and
    - B. panel sizes > 600mm: +/- 3mm.
  - (ii) flatness tolerance:
    - A. no visible oil canning;
    - B. panel sizes < 600mm: +/- 1mm from design profile; and
    - C. panel sizes > 600mm: +/- 2mm from design profile.
- (b) Lining:
- (i) fire resistance must meet the following requirements:
    - A. fire hazard properties: BCA clause C1.10 and related BCA Specification C1.10a. Verify by prescribed testing; and
    - B. fire hazard properties: SSJ Contractor's FLS strategy.
  - (ii) plasterboard: AS/NZS2588.
  - (iii) fibre cement:
    - A. AS/NZS2908.2;
    - B. wall and ceiling linings: type b category 3; and
    - C. type: recessed edge for flush-set plaster joints.
  - (iv) compressed fibre:
    - A. AS/NZS 2908.2; and
    - B. compressed lining/cladding: type a category 5.
  - (v) plywood:
    - A. interior use: in accordance with AS/NZS2270; and
    - B. exterior use:
      - (i) general: in accordance with AS/NZS2271. bond quality type A; and
      - (ii) marine quality: in accordance with AS/NZS2272.
  - (vi) high pressure decorative laminate sheet: AS/NZS2924.1.
  - (vii) particleboard:
    - A. AS/NZS1859.1;
    - B. classification: provide according to fitness for purpose in the subject location(s) in accordance with the following:

- (i) general non-air conditioned and air conditioned areas: moisture resistant, general purpose; and
- (ii) humid/wet areas: high performance.
- (viii) dry-processed fibreboard (also referred to by common industry term "medium density fibreboard (MDF)":
  - A. AS/NZS1859.2;
  - B. classifications: provide according to fitness for purpose in the subject location(s) in accordance with the following:
    - (iii) general non-air conditioned and air conditioned areas: moisture resistant medium density fibreboard; and
    - (iv) humid/wet areas: high performance medium density fibreboard.
- (ix) ceramic tiles installation: AS3958.1 and BS5385-3 and adhesives tested in accordance with AS/ISO13007.

## 5.10 Suspended Ceilings

- (a) Suspended ceilings must be coordinated with structural and services requirements and installed to manufacturers recommendations.
- (b) Suspended ceilings must meet the following standards:
  - (i) suspended ceilings: AS/NZS2785; and
  - (ii) luminaire and air diffuser interface: in accordance with AS 2946.
- (c) Suspended ceilings must be designed for wind loads in accordance with AS/NZS1170.2. The SSJ Contractor must take into account all relevant variable local and project exposure factors and their respective multipliers:
  - (i) importance level (BCA table B1.2a): 3;
  - (ii) annual probability of exceedance: 1 : 1000;
  - (iii) regional wind speeds v 1000 (ultimate): 46 m/s;
  - (iv) basic wind speed v 20 (serviceability): 37 m/s;
  - (v) region: A2; and
  - (vi) terrain category: 3.

### 5.10.1 ~~5.10.2~~ Materials and components

- (a) Supports and trim for coated steel must be:
  - (i) hot dip galvanised in accordance with AS1397; and
  - (ii) coating class: Z200 or AZ150 as applicable.
- (b) Supports and trim for aluminium must be:
  - (i) in accordance with AS 1866; and
  - (ii) architectural quality finish.

- (c) Panels and linings must meet the following requirements:
  - (i) fire resistance:
    - A. fire hazard properties: BCA clause c1.10 and related BCA specification C1.10a; or
    - B. SSJ Contractor's FLS strategy, whichever results in the more stringent requirement;
  - (ii) Plasterboard: AS/NZS2588;
  - (iii) fibre cement:
    - A. AS/NZS2908.2;
    - B. type: type b, category 2. Recessed edge for flush-set plaster joints;
  - (iv) compressed fibre cement: AS/NZS 2908.2; and
  - (v) mineral fibre tiles must be spun mineral fibres pressed together with mineral fillers and binders: AS/NZS2785.
- (d) Metal panel lining must be coated steel in accordance with AS1397.
- (e) Proprietary systems must meet the following requirements:
  - (i) consistency: provide suspended ceilings as complete proprietary systems, each fabricated by one manufacturer and installed by a specialist installer of demonstrated capacity; and
  - (ii) support: complete proprietary suspension system fixed to the structural framing.

## 5.11 Plastering and rendering

- (a) Cement rendering must be in accordance with AS3972.
- (b) Gypsum plaster must be a proprietary product containing calcium sulfate hemihydrates with additives to modify setting.
- (c) Lime render must be limes for building in accordance with AS1672.1.
- (d) Lime putty must meet the following requirements:
  - (i) stand dry hydrate of lime in accordance with AS1672.1 and water for 24 hours or more without drying out; and
  - (ii) stand quicklime and water for 14 days or more without drying out.
- (e) Metal lath must meet the following requirements: expanded metal in accordance with AS1397.

## 5.12 Tiling and paving

- (a) Tiling and paving materials and components must meet the following requirements:



- (i) all materials, components, treatments and proprietary products including membranes, acoustic/impact insulation, admixtures, adhesives, bedding materials, grouts, joint sealants, pre-sealers and finishing sealers and the like, must be compatible when used in association with each other and the substrates. Comply with the manufacturers'/suppliers' published recommendations regarding all aspects;
- (ii) consistency: for the whole quantity of each material or product use the same source or manufacturer and provide consistent type, size, quality and appearance. Stone materials must come from the same area stock within the source quarry;
- (iii) tiles and accessories:
  - A. vitrified tiles; and
  - B. best commercial quality (first quality) in accordance with AS/ISO13006 for classifications, characteristics and marking requirements;
- (iv) exposed edges: in positions where the edge is exposed provide purpose-made border tiles with the exposed edge (whether round, square or cushion) glazed to match the tile face;
- (v) accessories: provide tile accessories matching the composition, colour and finish of surrounding tiles;
- (vi) coves, nosing's and skirtings:
  - A. provide matching stop ends and external angle tiles moulded for that purpose. If such tiles are not available, install plastic external corner quad trim colour of colour to match tiles; and
  - B. provide skirting tiles with cove to tiled floors in food and beverage, and wet areas.
- (vii) adhesives in accordance with AS2358;
- (viii) premixed mortar must not be used;
- (ix) cement type in accordance with AS3972;
- (x) white cement: iron salts content \* 1%;
- (xi) off-white cement: iron salts content \* 2.5%;
- (xii) sand: washed fine aggregate selected for grading. Clay content \* 5%;
- (xiii) lime: in accordance with AS1672.1;
- (xiv) water: in accordance with AS3958.1;
- (xv) bedding mortar/screed:
  - A. proportioning: select proportions from the range 1:3 – 1:4 cement: sand. Provide minimum water and/or appropriate admixtures;
  - B. mixing: in accordance with AS3958.1;

- C. reinforcement: 50 x 50 x 2.5mm galvanised wire mesh in accordance with AS3958.1;
  - D. admixtures: provide proprietary admixtures that are suitable for purpose for the particular circumstances, limitations and conditions of service;
  - E. use admixtures in accordance with the manufacturers' published instructions;
- (xvi) external tiled areas reinforced polymer modified bedding mortar/screed:
- A. proportioning: 1:4 cement: sand, together with an approved polymer admixture; and
  - B. reinforcement: 50 x 50 x 2.5mm galvanised wire mesh in accordance with AS3958.1.
- (xvii) waterproofing wet areas:
- A. standard: wet areas: in accordance with AS3740; and
  - B. compliance: comply with the waterproofing of wet areas as required by the BCA and AS3740.

#### **5.12.1 5.12.2 Stone paving**

- (a) Stone supply must meet the following requirements:
  - (i) bedding and grouting mortar: use a mix which is suitable for the stone type and must contain an admixture which prevents efflorescence and leaching; and
  - (ii) stone finishing: after paving installation is complete and thoroughly cleaned, apply a stone surface enhancer and hardener.
- (b) Any granite must be in accordance with AS3958 and AS/NZS4455.
- (c) Any blue stone must be in accordance with AS4459.
- (d) Natural stone pavements must be coordinated with structural and services requirements.

#### **5.12.2 5.12.3 Terazzo tiling**

- (a) This section describes the minimum acceptable and technical requirements for terrazzo wall and floor finishes.
- (b) Terrazzo wall and floor finishes must meet the following tolerance requirements:
  - (i) thickness < 15 mm: ± 2 mm;
  - (ii) thickness ≥ 15 < 30 mm: ± 5 mm;
  - (iii) thickness ≥ 30 mm: ± 10 mm;
  - (iv) flatness: measured under a 3000 mm straightedge laid in any direction on a plane surface: < 3 mm;
  - (v) tile/panel joint alignment < 600mm : ± 1mm; and

- (vi) tile/panel joint alignment >600mm:  $\pm 2$ mm.
- (c) Cement matrix terrazzo must meet the following requirements:
  - (i) water: general: to be clean and free from any deleterious matter;
  - (ii) cement: type in accordance with AS3972;
  - (iii) fine aggregate: to be fine, sharp, well graded sand with a clay content less than 5% and free from efflorescing salts;
  - (iv) coarse aggregate (in underbeds and cores): dense natural rock aggregate;
  - (v) facing aggregate: dense natural rock aggregate;
  - (vi) characteristics: natural stone, angular in shape, as distinct from elongated or flaky, graded within the required sizes, free from dust, and free from deleterious material;
  - (vii) pigments:
    - A. general: resistant to lime bloom and efflorescence; and
    - B. pigment proportion:  $\leq 5\%$  by weight of cement.
  - (viii) reinforcement: in accordance with AS3600, with galvanised protective coating;
  - (ix) divider strips:
    - A. preformed strip for insitu applications: a proprietary single bar strip with lugs or ribs for mechanical keying of depth appropriate to the topping thickness and such that the strip is anchored firmly in the underbed and set flush with the finished surface;
    - B. where changes of floor finish occur at doorways insert the divider strip directly below the closed door;
    - C. material: brass; and
    - D. depth: to suit terrazzo thickness.
  - (x) cement matrix terrazzo mix:
    - A. mix proportions (by weight): 4 cement: 9 facing aggregate; and
    - B. water: cement ratio: 18 L water: 40 kg cement.
  - (xi) movement joints must meet the following requirements:
    - A. movement joint strip: a proprietary expansion joint consisting of a neoprene filler sandwiched between plates with lugs or ribs for mechanical keying; and
    - B. locations: floors and paved surfaces, in accordance with AS3958.
  - (xii) slide plate divider strip: an arrangement of interlocking metal plates grouted into pockets formed in the concrete joint edges;

- (xiii) sealant: one-part self-levelling non-hardening mould resistant, silicone or polyurethane sealant applied over a backing rod. finish flush with the terrazzo surface;
- (xiv) floors: trafficable, shore hardness > 35;
- (xv) backing rod: compressible closed cell polyethylene foam with a bond-breaking surface;
- (xvi) slip resistance of floor finishes: in accordance with AS/NZS4586; and
- (xvii) base preparation:
  - A. rigid, dry, sound, smooth and free from grease, dirt and other contaminants;
  - B. sufficient to permit specified flatness and regularity of finished;
  - C. surfaces given the permissible minimum and maximum thickness of bedding; and
  - D. comply strictly to manufacturers recommendations.

### **5.13 Resilient finishes**

- (a) Resilient finishes must meet the following requirements:
  - (i) fire hazard properties:
    - A. critical radiant flux: in accordance with BCA specification C1.10a-2, Table 1 of 1.2kW/M2; and
    - B. also comply with SSJ Contractor's FLS strategy.
  - (ii) substrate dryness:
    - A. concrete substrates: test for dryness before laying or coating using the hygrometer test or electrical resistance test described in AS1884 appendix A;
    - B. criteria: relative humidity must not exceed 70%; and
    - C. adhesion in accordance with AS1580.408.4.
  - (iii) slip resistance in accordance with AS/NZS4586;
  - (iv) sheets and tiles:
    - A. edges of sheets and tiles: ensure edges are firm, unchipped, machine-cut accurately to size and square to the face, and that tile edges are square to each other;
    - B. underlay's; as required by carpet supplier and installers recommendations subject to review. ensure compatibility with floor covering and associated products and materials;
    - C. levelling compound: polymer modified cementitious self-smoothing and levelling compound to achieve even surface;
    - D. surface tolerances: in accordance with AS1884 clause 2.1.1.3;

- E. thickness: 2.5mm minimum;
- F. adhesives: in accordance with AS1884 and manufacturers recommendations AS3553;
- G. linoleum: in accordance with BS/EN/ISO24011; and
- H. rubber: in accordance with BS8203.

## 5.14 Joinery

- (a) Joinery, cabinetwork and associated items, materials and finishes must meet the following requirements:
  - (i) joinery timber:
    - A. hardwood: in accordance with AS2796.3;
    - B. grade: select grade unless otherwise specified; and
    - C. softwood: in accordance with AS4785.3.
  - (ii) plywood:
    - A. interior use generally: in accordance with AS/NZS 2270; and
    - B. interior use, exposed to moisture: in accordance with AS/NZS 2271.
  - (iii) wet-processed fibreboard:
    - A. hardboard: in accordance with AS/NZS1859.4; and
    - B. classification: moisture resistant.
  - (iv) particleboard:
    - A. in accordance with AS/NZS1859.1;
    - B. general non air-conditioned and air-conditioned areas: moisture resistant, general purpose; and
    - C. humid/wet areas: high performance.
  - (v) dry-processed fibreboard (also referred to by common industry term "medium density fibreboard"):
    - A. in accordance with AS/NZS1859.2;
    - B. general non air-conditioned and air-conditioned areas: moisture resistant, medium density fibreboard; and
    - C. humid/wet areas: high performance, medium density fibreboard.
  - (vi) decorative overlays in accordance with AS/NZS1859.3;
  - (vii) high-pressure decorative laminated sheets:
    - A. in accordance with AS/NZS2924.1;
    - B. for horizontal surfaces fixed to a continuous background: 1.2mm;

- C. for vertical surfaces fixed to a continuous background: 0.8mm;
  - D. for post formed laminate fixed to a continuous background: 0.8mm;
  - E. for vertical surfaces fixed intermittently: 3.0mm; and
  - F. for edge strips: 0.4mm.
- (viii) preservative treatment:
- A. cutting and machining: completed as far as possible before treatment;
  - B. extensively processed timber: re-treat timber sawn lengthways, thickened, planed, ploughed and similar; and
  - C. exposed surfaces: where exposed by minor cutting and/ or drilling treat with two flood coats of solution as recommended by treatment solution manufacturer.
- (ix) finishes:
- A. smooth, even and suitable to receive finishes;
  - B. ease arrises unless shown otherwise on drawings;
  - C. seal external components with primer or sealer;
  - D. to be coordinated with painting specifications; and
  - E. allow to dry before assembly.

## 5.15 Doorsets

- (a) Flashings and weatherings must:
- (i) be provided in accordance with AS/NZS2904;
  - (ii) be corrosion resistant, compatible with the other materials in the installation, and coated with a non-staining compound where necessary;
  - (iii) be compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bituminous materials on absorbent surfaces;
  - (iv) be polypropylene or equivalent pile and backing, low friction silicone treated, ultra-violet stabilised; and
  - (v) for finned type, have a pile weather seal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.
- (b) Extruded gaskets and seals must meet the following requirements:
- (i) Type: Non cellular (solid) elastopressive seals in accordance with AS 2047: 1999 and ISO 11600;
  - (ii) rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS4255.1 or ISO11600; and

- (iii) flexible polyvinyl chloride (PVC): To BS 2571. 100% solids with high consistency, ultra-violet stabilised.
- (c) Nylon brush seals must be dense nylon bristles locked into galvanised steel strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door with double sided PVC foam tape.
- (d) Aluminium door frames must meet the following requirements:
  - (i) frames assembled from extruded powder coated aluminium sections (Minimum - Floraset Xtreme), including necessary accessories such as buffers, pile strips, strike plates, fixing ties or brackets and cavity flashing, with suitable provision for fixing specified hardware; prefinished with protective coatings, built in or fixed to prepared openings. Include matching suite framed glazed sidelight where occurring;
  - (ii) materials, construction and installation must be in accordance with AS 2047: 1999 and AS 4506 - 2005;
  - (iii) where the frame includes a threshold member, provide a self-draining section with anti-skid surface;
  - (iv) provide cavity flashings for external frames in cavity masonry; and
  - (v) provide for fixing hardware including hinges and locksets, using 6mm aluminium backplates and lugs. Mount strike plates, locksets, flush bolts and the like flush with the face of the frame. Provide suitable cutouts and fixing cleats.
- (e) Aluminium doorsets must meet the following requirements:
  - (i) proprietary doorset system comprising aluminium framed glazed doors associated with façade glazing and cladding, if occurring, and inclusive of the necessary hardware and accessories; and
  - (ii) materials construction and installation: AS2047.
- (f) Steel frames must meet the following requirements:
  - (i) continuously welded from metallic-coated steel sheet sections, including necessary accessories such as buffers, strike plates, spreaders, mortar guards, switch boxes, fixing ties or brackets, and cavity flashing with suitable provision for fixing hardware and electronic security assemblies, and prefinished with a protective coating;
  - (ii) ~~(i)~~ finish: Grind the welds smooth, cold galvanize the welded joints and shop prime;
  - (iii) ~~(ii)~~ hardware and accessories: provide for fixing hardware including hinges and closers, using 4mm backplates and lugs. screw fix the hinges into tapped holes in the back plates;
  - (iv) ~~(iii)~~ minimum base metal thickness:
 

A.	general	1.4mm;
B.	fire rated door sets	1.6mm; and

- C. security and external doorsets 1.6mm.
- (v) ~~(iii)~~ metallic-coated steel sheet: in accordance with AS1397:
  - A. coating class interior Z275; and
  - B. coating class exterior Z450.

## 5.16 Architectural louvres

- (a) Steelwork must be in accordance with AS/NZS4680.
- (b) Aluminium work must be in accordance with the following standards:
  - (i) AS/NZS1866;
  - (ii) AS 4506 2005;
  - (iii) AS3715; and
  - (iv) ISO11600.
- (c) The architectural louvres must resist the working loads and be fit for purpose to withstand all dead and live loads on the metal cladding and louvre elements and fixings.
- (d) Architectural louvre materials must meet the following requirements:
  - (i) aluminium extrusions and sheet for architectural profiles to support glazing;
  - (ii) sections: select suitable aluminium alloys in profiles, sizes and grades, structural applications and applied finishes to suit the functional requirements and conditions in accordance with AS/NZS1664-1 and AS/NZS 1664-2;
  - (iii) extrusions generally: to be aluminium alloy grade 6063 temper T5 or T6, in accordance with AS1866;
  - (iv) blade mullions: to be grade 5083 aluminium;
  - (v) sheet: unless otherwise indicated alloy must be grade 5005 temper H34 in accordance with AS1734. Unless otherwise indicated on the drawings, thicknesses of sheet material must not be less than 4mm;
  - (vi) prevent direct contact between incompatible metals by suitable means, including separation layers, sleeves or gaskets of plastic film, bituminous felt, mastic, paint coatings and the like. Separation materials must not be visible on exposed surfaces; and
  - (vii) hot dipped galvanised mild steel painted in accordance with AS1627.0-4.
- (e) Complete fabrication, and drill fixing holes before applying coatings.
- (f) Remove paint, grease, flux, rust, burrs and sharp arises before painting.

## 5.17 Carpets

- (a) Carpets must meet the following requirements:



- (i) fire resistance: critical radiant flux: in accordance with BCA specification C1.10a-2, Table 1 of 1.2kW/M2;
- (ii) carpet tolerances: in accordance with AS/NZS 1385;
- (iii) batching: ensure that carpet laid in a single area and of a single specified type, quality, colour and design, comes from one manufacturing batch and dye lot; and
- (iv) insect resistance: insecticide in accordance with IWS E -10 or Woolmark Specification CP-4:2013 and the approved insecticides in Table 6.

**Table 6** Approved insecticides

	Dyebath application	Scouring application
Eulan U33	0.36%	0.45%
Mitin LP	0.44%	0.54%
Perigen	0.25%	0.32%

- (v) electrical resistance: in accordance with AS4155.6;
- (vi) electrostatic propensity: maximum electrostatic propensity value for carpet of 2500 V at a relative humidity of 25%; and
- (vii) underlays:
  - A. general: in accordance with AS/NZS2455.1;
  - B. soft underlay in accordance with AS4288; and
  - C. adhesives and tapes in accordance with AS/NZS2455.1.

## 5.18 Painting

- (a) Coating systems to substrates must meet the following requirements:
  - (i) consistent in colour, gloss level, texture and dry film thickness;
  - (ii) free of runs, sags, brush marks, blisters, or other discontinuities;
  - (iii) paint systems fully opaque;
  - (iv) clear finishes at the level of transparency consistent with the product;
  - (v) fully adhered;
  - (vi) resistant to environmental degradation within the manufacturer's stated life span; and
  - (vii) any specified performance requirements.

- (b) Painting processed in their entirety must be carried out in accordance with the published recommendations and instructions of each respective manufacturer.
- (c) Unless recommended otherwise by the manufacturer, each paint system must consist of at least 3 coats.
- (d) Paints and other materials must comply with Australian Paint Approvals Scheme (APAS) specifications and are scheduled in the APAS "List of Approved Products".
- (e) Paints from different manufacturers must not be combined in a paint system.
- (f) Paint systems must comply with the requirements of appendix P Uniform Paint Standard to the Standard for the Uniform Scheduling of Drugs and Poisons.
- (g) Paint types must conform to the Australian Standard as referenced in Table 7.
- (h) Anti-graffiti coatings must be applied to substrates as outlined in Section 8.7.6 Anti-vandal treatment.

**Table 7** Paint types

Semi-gloss solvent-borne: interior	B3	AS3730.5
Full gloss solvent-borne: exterior	B5	AS3730.6 AS/NZS3750.22
Full gloss solvent-borne: interior	B5	AS3730.6
Flat latex: exterior	B6	AS3730.7
Flat latex: interior	B6	AS3730.1
Low gloss latex: exterior	B7	AS3730.8
Low gloss latex: interior	B7	AS3730.3
Semi-gloss latex: exterior	B8	AS3730.9
Semi-gloss latex: interior	B8	AS3730.2
Gloss latex: exterior	B9	AS3730.10
Gloss latex: interior	B9	AS3730.12
Wood primer, solvent-borne	B10	AS3730.13
Wood primer, latex	B10A	AS3730.17
Metal primer for steel, lead and chromate free	B11	AS3730.21 AS/NZS3750.19
Metal primer, latex	B11A	AS3730.15
Metal primer for metallic-coated surfaces solvent-borne	B12	AS3730.21
Metal primer for metallic-coated	B12A	AS3730.15

surfaces, latex		
Two-pack etch primer for metals, chromate free	B13	AS/NZS3750.17
Zinc-rich organic binder/primer for steel	B14	AS/NZS3750.9
Concrete and masonry sealer	B15	AS3730.22
Undercoat, solvent-borne	B17	AS3730.14
Undercoat, latex: exterior	B17A	AS3730.18
Undercoat, latex: interior	B17A	AS3730.18
Furniture varnish, one-pack	B19	AS3730.25
Two-pack clear gloss floor finish	B20	AS3730.27
Exterior latex stain, opaque	B22	AS3730.16
Exterior stain, lightly pigmented	B23	AS3730.28
One-pack paving paint for concrete	B24	AS3730.29
Two-pack epoxy enamel	B29	AS/NZS3750.1
Two-pack high build epoxy	B29	AS/NZS 3750.4
Texture finish latex coating for masonry and concrete: exterior	B38	AS/NZS4548 Parts 1 to 4
Texture finish latex coating for masonry and concrete: interior	B38	AS/NZS4548 Parts 1 to 4
Full gloss polyurethane (2-pack) for steel	B44	AS/NZS3750.6

## 5.19 Steel paint coating

- (a) Steel paint coatings must meet the following requirements:
- (i) standards:
    - A. surface preparation and coating in accordance with AS/NZS2312;
    - B. metal finishing: preparation and pre-treatment of surfaces in accordance with AS1627.0; and
    - C. corrosion protection in accordance with AS/NZS2312.
  - (ii) manufacturer's instructions:

- A. the complete scope in this section must be carried out in accordance with the manufacturer’s published recommendations and instructions for each coating system; and
  - B. supply coating materials and accessories in accordance with paint manufacturers recommendations.
- (iii) protective and decorative coatings must:
- A. provide functionality and maintainability;
  - B. retain substrate integrity for the design life through successive maintenance paintings;
  - C. minimise the average cost of service for corrosion protection;
  - D. lower risk to personnel, the public and the environment; and
  - E. retain or enhance aesthetics where required.
- (b) The SSJ Contractor must conform to the requirements and recommendations of the coating manufacturer in all respects of applying steel paint coatings.
- (c) Durability of steel paint coatings must be in accordance with Table 8.

**Table 8** Durability of steel paint coatings

External steelwork (exposed)	High durability	C3M
Internal steelwork (exposed)	High durability	C1
External steel cladding framing (concealed)	High durability	C3M
Internal steelwork (concealed)	High durability	C1

## 5.20 Metalwork and metal fixtures

- (a) Metal fixtures and associated work must:
- (i) comply with relevant Codes and Standards, including the BCA and regulations of Authorities;
  - (ii) be durable and remain intact and serviceable under the in-service operating conditions of the building;
  - (iii) withstand the in-service imposed loads without impairment of performance;
  - (iv) provide adequate means of dealing with corrosion;
  - (v) provide adequate means of dealing with thermal movement and differential movement of the building structure;
  - (vi) provide and maintain the design lines, section profiles and stiffness of components; and
  - (vii) satisfy other performance criteria if specified.

## 5.21 Balustrades

- (a) Balustrades and handrails must meet the following standards:
- (i) AS1231;
  - (ii) AS/NZS1866;
  - (iii) AS1288;
  - (iv) AS1554.1;
  - (v) AS1657;
  - (vi) AS 2074;
  - (vii) AS/NZS2208;
  - (viii) AS/NZS2312; and
  - (ix) AS/NZS4680.
- (b) Design loads for balustrades must be in accordance with AS/NZS1170.1 Table 3.3.
- (c) Balustrades and handrails must resist the working loads and be fit for purpose to withstand all dead and live loads on the balustrade elements and fixings.
- (d) Balustrades and handrails materials and components must meet the following requirements:
- (i) aluminium:
    - A. selection of suitable aluminium alloys in profiles, sizes and grades, structural applications and applied finishes are to suit the functional requirements and conditions in accordance with AS/NZS1664 and ADCA Aluminium Standards and Data - Wrought products; and
    - B. extrusions generally: to be aluminium alloy grade 6063 temper T5 or T6, in accordance with AS/NZS1866.
  - (ii) aluminium finishes: anodised in accordance with AS1231, to a minimum coating thickness of 25 microns;
  - (iii) glass:
    - A. general: glass balustrades must be laminated glass composed of toughened and annealed glass and clear polyvinyl butyral (pvb) interlayer(s); and
    - B. edges: flat polished and arised. Top edges are to be sealed with a flat aluminium strip bonded to the full thickness of the glass using a clear silicone elastomeric glazing sealant.
  - (iv) steel: hot rolled structural bars and sections in accordance with AS3679:300MPa; and
  - (v) stainless steel:
    - A. weld type: butt;

- B. internal weld category: level 2;
- C. external weld category: class B;
- D. welding materials: compatible with metal being welded; and
- E. weld quality: free from imperfections such as cracks and pits. grind and polish to give required surface finish. Continuous exposed welds.

## 6 Station Precinct and Public Domain spatial and functional requirements

### 6.1 General

- (a) The Station Precinct, Public Domain and Interchange areas must provide convenient and direct access to public transport modes for all Customers.
- (b) The SSJ Contractor must:
  - (i) design and construct Station Precinct, and Public Domain areas to be consistent with drawing number NWRLSRT-PBA-WSS-AT-DWG-971801 and NWRLSRT-PBA-WSS-AT-DWG-971802 contained in Appendix D;
  - (ii) design and construct Station Precinct, and Public Domain areas to follow the principles and guidelines as specified in the Sydney Metro South West Design Guidelines;
  - (iii) identify and resolve functionality conflicts throughout Station Precinct and, Public Domain areas, particularly at key customer decision points at Metro Station entrances and exits and areas which must accommodate high pedestrian traffic volumes;
  - (iv) ensure that the facilities within the transport Interchange comply with the Interchange Access Plan;
  - (v) consider the different requirements of arriving and departing customers and different customer segments as detailed in SWTC Appendix B9.0;
  - (vi) consider and respond to issues of ownership, management and maintenance;
  - (vii) ensure that the Station Precinct includes movement capacity and configurations commensurate to the design capacity requirements in Section 3.2;
  - (viii) design pedestrian spaces and thoroughfares to deliver a minimum LOS of level C;
  - (ix) ensure that Station Precinct and, Public Domain areas provides safe, pleasant, intuitive and convenient environments for all customers;
  - (x) ensure that Station Precinct and, Public Domain accommodate space for wheelchairs and prams;
  - (xi) ensure that Station Precinct, and Public Domain have been designed and constructed to avoid customer congestion;
  - (xii) ensure that day-to-day operational and functional requirements of the Station Precinct, and Public Domain are not readily compromised by emergency events;

- (xiii) ensure that the Station Precinct, and Public Domain areas minimise the potential for littering and graffiti and are able to achieve the cleanliness requirements of Appendix B9.0;
- (xiv) ensure that the Station Precinct, and Public Domain deliver an easy and safe customer experience by minimising hazards such as slips, trips and falls, exposure to rail infrastructure and protection from inclement weather;
- (xv) ensure public art, signage and wayfinding, advertising and Sydney Metro City & Southwest branding elements are fully integrated into the Station Precinct and Public Domain;
- (xvi) adopt the TfNSW Modal Hierarchy in Section 2.3 , including space allocation and priority of access within Station Precinct;
- (xvii) provide landscaping in the Station Precinct and Public Domain, incorporating advanced trees in the size specified in Section 10.1.2 from low maintenance species in accordance with Inner West Council guidelines;
- (xviii) achieve road access to Metro Station and Sydenham Station in consultation with the Traffic and Transport Liaison Group;
- (xix) outline loading bays operation in a maintenance access strategy, with the required precinct provisions identified; and
- (xx) design the Project Works to crime prevention through environment design (CPTED) principles.

## 6.2 Amenity

- (a) Station Precinct, Public Domain must be designed to be clean, orderly, efficient and be easily maintained with an attractive sense of place and scale that positively influences perceptions of the public transport system.
- (b) Station Precinct must be designed to function as a place to meet, with attractive open space and be integrated with its surroundings to provide pleasant human scaled spaces.
- (c) SSJ Contractor must:
  - (i) ensure waiting areas provide options for accessible seating, standing and leaning in relative comfort for periods of time;
  - (ii) provide seating where resting points are required; and
  - (iii) provide shading as required.

## 6.3 Pedestrian movement and facilities

- (a) The Project Works must incorporate pedestrian circulation and safety as a priority function. This includes external spaces such as placement of pedestrian crossings, pedestrian connections, pedestrian bridges and access, and internal spaces, such as entry/exit from trains and station, and similar high-volume pedestrian traffic areas in conjunction with the road authority.



- (b) The Project Works must provide pedestrian routes that maximise clear sightlines between transport modes and key destinations.
- (c) Pedestrian access from Metro Station platforms and Metro Station entrances to connecting modes must be clear, direct, unimpeded, and comfortable providing for clear sight lines and passive surveillance and facilitate easy circulation.
- (d) The SSJ Contractor must:
  - (i) reduce risk by highlighting all hazards with high contrast finishes, special lighting or tactile paving;
  - (ii) provide accessible paths of travel in accordance with DSAPT, AS1428.1 and AS1428.2 (where more onerous) and on all other desired lines of travel within the Station Precinct;
  - (iii) provide legible, suitably demarcated and signed alternative routes as close as possible to the main travel path where topography prohibits the provision of a direct accessible path of travel in accordance with the requirements of Appendix B10 Wayfinding Requirements;
  - (iv) coordinate the location of signage, security, lighting and other street furniture into common locations and alignments to minimise clutter and facilitate free movement of pedestrian and cyclists;
  - (v) design for low speed traffic (vehicle and bicycle) environments to the Station Precinct to ensure a safer pedestrian environment; and
  - (vi) provide suitable kerb and surface finishes as well as tactile ground surface indicators to assist people with disabilities, as required by AS1428.4.1.
- (e) Service building doors must not be placed to open onto a Secondary Plaza.
- (f) Views within station plaza areas to Gatelines must be unobstructed, to assist with pedestrian movement.
- (g) Pavements and pathways must be designed to transition in alignment and width as required to meet existing pathways.
- (h) A safe and well defined pedestrian connection must be provided from each Metro Station entrance/exit to the nearest footpath on the adjacent street network.
- (i) Where pedestrian crossings are provided, pram ramps must be included to facilitate pedestrian movement in all directions and promote walkability within the Station Precinct and neighbourhood.

#### **6.4 Primary Plaza, Secondary Plaza and Public Domain**

- (a) The SSJ Contractor must locate each Primary Plaza, Secondary Plaza and Public Domain in accordance with drawing number NWRLSRT-PBA-WSS-AT-DWG-971801 and NWRLSRT-PBA-WSS-AT-DWG-971802, contained in Appendix D.
- (b) The SSJ Contractor must provide and coordinate elements for Primary Plaza, Secondary Plaza and Public Domain elements as described in this Appendix B3.0, including:

- (i) paving;
  - (ii) fencing, protection screens and access control elements;
  - (iii) bicycle crossover points and access routes;
  - (iv) kerb ramp access points to pavements;
  - (v) new and existing vehicle access points and pavement crossovers;
  - (vi) all lighting and CCTV coverage;
  - (vii) utilities and services trench locations and surface covers;
  - (viii) surface drainage;
  - (ix) signage and wayfinding elements;
  - (x) emergency egress during both operating hours and non–operating hours;
  - (xi) vehicle management devices; and
  - (xii) trees and soft landscaping.
- (c) The Primary Plaza must meet the performance criteria for pedestrian circulation and queuing as outlined in this Appendix B3.0. The Primary Plaza must include the following elements:
- (i) dedicated queuing zones and run-offs;
  - (ii) orientation space for arriving and departing customers;
  - (iii) marshalling space for customers in the event of an emergency;
  - (iv) appropriate sized areas for cleaning, deliveries, emergency service and staff access; and
  - (v) natural access control strategies to restrict accidental or deliberate vehicle access to the Station entrance, concourse and VT shafts consistent with the requirements of Sydney Metro Security Management Plan.
- (d) The Primary Plaza must incorporate the following:
- (i) a smooth logical and intuitive flow of customers during the peak 15 minutes;
  - (ii) [incorporation of any shared path associated with the Active Transport Corridor](#);
  - (iii) ~~(iii)~~ trees, shelters, bicycle parking, bench seating, drinking fountains, planting beds and rubbish bins;
  - (iv) ~~(iii)~~ shared path associated with the active transport corridor;
  - (v) ~~(i)~~ retail provision as described in Appendix B14; ~~and~~
  - (vi) ~~(iv)~~ group meeting space (20 person) for public use; and
  - (vii) [street furniture and planting elements](#).
- (e) The Secondary Plaza must incorporate the following:

- (i) a smooth logical and intuitive flow of customers during the peak 15 minutes;
  - (ii) incorporation of any shared path associated with the Active Transport Corridor;
  - (iii) ~~(iii)~~ trees, shelters, planting beds, and rubbish bins; and
  - (iv) ~~(iii)~~ shared path associated with the Active Transport Corridor.
- (f) The Public Domain must incorporate the following:
- (i) a smooth logical and intuitive flow of customers to and from the Primary Plaza and Secondary Plaza;
  - (ii) Street trees and planting beds; and
  - (iii) incorporation of the shared path associated with the active transport corridor infrastructure.
- (g) Primary Plaza areas must be kept free of service buildings and structures except canopy supports.

#### 6.4.1 ~~6.4.2~~ **Public telephones**

- (a) The SSJ Contractor must provide public telephone communications infrastructure in accordance with Appendix B2.0.
- (b) Metro Station must include space and communications infrastructure for one public telephone in each Primary Plaza in close proximity to Gatelines.
- (c) The public telephones must be:
  - (i) adjacent to ATMs;
  - (ii) clearly visible in positions that will avoid encroaching upon the free flow of customers;
  - (iii) integrated with other fixed elements, in order to avoid clutter; and
  - (iv) designed for use by people with a disability, including hearing impairment.

#### 6.4.2 ~~6.4.3~~ **Automatic teller machines (cash)**

- (a) The SSJ Contractor must provide space and supporting infrastructure for two automatic teller machines (ATM).
- (b) ATMs must be in a safe location and be recessed with adjacent wall surfaces. Backloaded ATMs are required for external areas.
- (c) ATMs must be in the vicinity of or visible from the Gateline and in accordance with TfNSW Wayfinding Planning Guide.
- (d) The queuing areas for ATMs must not overlap with Customer circulation paths, or other queuing zones.

## 6.5 Active transport corridor

- (a) Where the active transport corridor journeys through the Station Precinct, Public Domain and Local Area, SSJ Contractor must provide the following for pedestrian and cycle movement, in accordance with requirements in this B3.0 Appendix:
- (i) space;
  - (ii) materials; ~~and~~
  - (iii) supporting line-marking, wayfinding and signage; and
  - (iv) a clear transition zone between the Active Transport Corridor and Metro Stations must be provided to enable integration of the infrastructure as specified in Austroads Guide Part 6A (2009).

## 6.6 Bicycle movement

- (a) The Project Works must incorporate safe access for bicycle riders in accordance with the TfNSW Modal Hierarchy described in Section 2.3 and the Interchange Access Plan. This includes external elements such as placement and operation of crossings facilities, cycling connections and access.
- (b) Bicycle paths form part of the active transport corridor.
- (c) The SSJ Contractor must:
- (i) comply with all Austroads requirements for dedicated and shared bicycle paths and facility design;
  - (ii) where the station has a Gateline at street level or aerial concourse, where achievable, locate bicycle parking adjacent to access movement paths a maximum of 50m from a Gateline;
  - (iii) where the station does not have a Gateline at street level or aerial concourse, where achievable, locate the bicycle parking adjacent to access movement paths a maximum of 50m walking distance from a station entrance; and
  - (iv) provide clear and consistent signage to bicycle parking facilities from all networks.
- (d) Bicycle paths must be fully integrated within the Station Precinct and connect with Inner West Council strategies for existing and planned bicycle paths.
- (e) Bicycle paths must be legible, with a distinct and identifiable character separate to the pedestrian and vehicular network, where feasible to do so.
- (f) Conflicts between pedestrians and cyclists must be minimised generally and at high activity zones.
- (g) Bicycle paths within the Interchange, adjoining roads and open spaces must be designed to accommodate modelled volumes/demands in accordance with Australian Standards and Austroads Guidelines and consider TfNSW Modal Hierarchy described in Section 2.3, Sydney's Cycling Future and the Interchange Access Plan.

## 6.7 Bicycle facilities

- (a) The SSJ Contractor must provide bicycle parking facilities to accommodate the number of bicycles defined in the transport requirement tables in Section 10 for each class of bicycle parking.
- (b) Bicycle parking facilities must be provided according to the following classes as defined in AS/NZS 2890.3:
  - (i) Class 2 – bicycle parking lock-ups; and
  - (ii) Class 3 – bicycle parking rails.
- (c) The SSJ Contractor must
  - (i) include the installation of electronic ticketing system access for bicycle lock-ups;
  - (ii) locate bicycle parking, where achievable within 30m of the active transport corridor;
  - (iii) where the Metro Station has a Gateline at street level or aerial concourse, adjacent to access movement paths a maximum of 50m from a Gateline where achievable; and
  - (iv) ~~(iii)~~ locate bicycle parking with clear sightlines to the Primary Plaza.
- (d) Bicycle parking must be located in areas with good passive surveillance, with bicycle parking rails to be located in a highly visible and easily accessible location close to the Metro Station entrances.
- (e) Provision for future additional bicycle parking facilities must be located with existing facilities where practical and feasible.

## 6.8 Bus facilities

- (a) The length of bus bays must be in accordance with the State Transit Bus Infrastructure Guide Issue 2, 2011, assuming 14.5m buses, articulated buses and nose-to-tail operation.
- (b) Bus lanes and indented bus bays must meet the requirements of the Austroads Guide to Road Design Part 3 Geometric Design.
- (c) The SSJ Contractor must:
  - (i) provide bus set down lanes in concrete pavement;
  - (ii) where the Gateline is located at ground level provide bus stops and associated facilities within a maximum walking distance of 100m from Gatelines to the head of the first bus stop in each bay;
  - (iii) where the station entrance does not have a Gateline located at ground level provide bus stops and associated facilities where practical within a maximum walking distance of 100m from the station entrance;
  - (iv) ensure bus stops are located with good passive surveillance and clear sight lines between bus drivers and waiting customers; and

- (v) provide tactile ground surface indicators to assist people with disabilities identify bus stop locations, as required in AS1428.4.
- (d) The SSJ Contractor must provide signage and customer information at all bus stops utilising the TfNSW Wayfinding Planning Guide, in consultation with the Principal and relevant stakeholders.
- (e) Bus bays provided or modified as part of the Project Works must meet NSW state and national guidelines for size and layout. Where the national standard cannot practically apply, the highest practical standard should be provided in excess of NSW state standards and guidelines.
- (f) Sufficient space must be provided to accommodate buses in the event of planned or unplanned disruption of Normal Operations in accordance with the Interchange Access Plans.
- (g) Sufficient space must be provided to accommodate the layover of at least one articulated bus.

## **6.9 Taxi facilities**

- (a) The SSJ Contractor must:
  - (i) provide designated single taxi ranks and facilities as part of kerb side parking and not in structures or dedicated facilities. Where feasible the front taxi must be closest to the Metro Station entrances;
  - (ii) provide taxi ranks in accordance with DSAPT standards;
  - (iii) provide taxi spaces in a single rank;
  - (iv) where the station has a Gateline located at ground level provide taxi ranks and facilities where practical a maximum of 130m walking distance to the head taxi rank from the Gateline;
  - (v) where the station does not have a Gateline located at ground level provide taxi rank and facilities where practical a maximum of 130m walking distance to the head of the taxi rank from the station entry; and
  - (vi) ensure taxi ranks are located with good passive surveillance and clear sight lines between taxi drivers and waiting customers.
- (b) Refer to Section 10 for specific taxi facility requirements.

## **6.10 Kiss and Ride facilities**

- (a) The SSJ Contractor must:
  - (i) provide designated Kiss-and-Ride locations as part of kerb side parking;
  - (ii) where the station has a Gateline located at ground level provide Kiss and Ride locations where practical a maximum of 130m from the head Kiss and Ride space to the Gateline;
  - (iii) where the station does not have a Gateline located at ground level provide Kiss and Ride facilities where practical a maximum of 130m to the head of the Kiss and Ride location from the station entry; and

- (iv) ensure Kiss-and-Ride facilities are located with good passive surveillance and clear sight lines between approaching Kiss-and-Ride drivers and waiting Customers.
- (b) Where safeguarding of additional Kiss-and-Ride spaces is required, the space for these additional spaces must be safeguarded on-street without the need for kerb adjustments.
- (c) The dimensions of Kiss-and-Ride spaces are to comply with Austroads Guide to Road Design Part 3: Geometric Design 2009, AS 2890.5, AS 2890.1, and AS 2890.6.
- (d) The width of Kiss-and-Ride spaces must not be less those existing adjacent short stay parking spaces.
- (e) Accessible Kiss-and-Ride spaces, where they are feasible to be provided, must be a minimum 7.8m in length and suitably marked to distinguish them from the remainder of the Kiss-and-Ride zone.
- (f) Where beneficial a proportion of Kiss and Ride spaces may be considered for flexible use in the off peak.
- (g) Refer to Section 10 for site specific Kiss-and-Ride facility requirements.

### **6.11 Shared zone facilities**

- (a) Any new or altered Shared Zones must be designed and constructed in accordance with 'TD 2016/001 Technical Direction – Traffic management and road safety practice', RMS, February 2016. Service and emergency access.
- (b) Shared zones must provide equal access for pedestrian and vehicle movement.
- (c) Use must be made of street furniture elements and surface material design to provide vehicle access control. Use of bollards is to be minimised.
- (d) Must provide access for emergency and maintenance vehicles.

### **6.12 Shared paths**

- (a) Shared paths form part of the active transport corridor and must:
  - (i) be minimum 4 metre wide;
  - (ii) be sign posted clearly, and included in SSJ Contractors Signage and Wayfinding Strategy;
  - (iii) must comply with Austroads Guide to Road Design Part 6a: Pedestrian and Cyclist Paths; and
  - (iv) be set-back from kerb at 1.0m where there is on-street car parking.

### **6.13 Visually separated walking and cycle path (VSWCP)**

- (a) The VSWCP must form part of the active transport corridor ~~Active Transport Corridor~~ and must:—



- (i) be minimum 4.0 metre wide and ~~comprising of~~comprise a minimum 2.5 metre wide bike path and a minimum 1.5 metre wide pedestrian path;
- (ii) be sign posted clearly, and included in SSJ Contractors Signage and Wayfinding Strategy;
- (iii) have minimum and maximum gradients which comply with Austroads Guide to Road Design Part 6a: Pedestrian and Cyclist Paths;
- (iv) have line marking which must comply with Australian Standards 1742 (Set): Manual of uniform traffic control devices;
- (v) provide kerb ramps at all kerb transition points; and
- (vi) be set-back from kerb ~~at a minimum of~~ 1.0m where there is on-street parallel parking.

## 6.14 Streets

- (a) Any altered streets or laneways must provide a clear hierarchy of street typologies appropriate to the street function around the Station Precinct.
- (b) The street typologies must address the existing and future adjacent development form and potential access.
- (c) New, altered and upgraded streets must be designed as urban places with a high level of pedestrian amenity, allowance for street trees and inherent traffic calming measures.
- (d) Vehicular traffic planning must be integrated with the built form and spatial planning of the Station Precinct.
- (e) Any new or altered shared zones must be designed and constructed in accordance with 'TD 2016/001 Technical Direction – Traffic management and road safety practice', RMS, February 2016. Service and emergency access.
- (f) Streets must be well presented with lighting and tree lining which are coordinated with existing and or future utility provision.
- (g) The SSJ Contractor must ensure the Station Precinct, Public Domain and service facility areas are designed to meet the SSJ Contractor's FLS strategy.
- (h) Service vehicle (all vehicle classes) access for all Station Precinct functions must be addressed as part of the broader Interchange Access Plan.
- (i) The Interchange Access Plan must address increased service vehicle access over the life of the Station Precinct.
- (j) Movement paths for service and emergency vehicles must be legible to both vehicle drivers and pedestrians.
- (k) Service and emergency vehicle movement paths must be efficient and minimise movements and impacts on the pedestrian and bicycle movement functions.
- (l) Parking requirements for service and maintenance vehicles must be accommodated on-street or within a secured service facility area and must not be located within or adjacent to Station Precinct areas.



- (m) Adequate space at emergency assembly areas and emergency egress points must be provided to ensure they are free of clutter and remain accessible at all times.
- (n) The SSJ Contractor must ensure that firefighting and emergency equipment such as hydrants and boosters:
  - (i) are integrated into the built form of the Station Precinct;
  - (ii) are unobstructed by other Station Precinct functions; and
  - (iii) do not obstruct other Station Precinct functions.
- (o) Customers must be able to complete a door to door to door journey easily without requiring the assistance of staff, however assistance must be available if required.

### **6.15 Service access. Emergency Services access and facilities**

- (a) Service access and Emergency Services access and facilities must be provided in accordance with the:
  - (i) SSJ Contractor's access and maintenance strategy;
  - (ii) SSJ Contractor's FLS Strategy;
  - (iii) Interchange Access Plans;
  - (iv) Interchange Operations and Maintenance Plan; and
  - (v) Sydney Metro Concept of Operations.
- (b) Movement paths for service and Emergency Services vehicles must be legible to both vehicle drivers and pedestrians.
- (c) Service and Emergency Services vehicle movement paths must be efficient and minimise movements and impacts on the pedestrian and bicycle movement functions.
- (d) Parking requirements for service and maintenance vehicles must be accommodated on-street or within a secured service facility area and must not be located within or adjacent to Station Precincts.
- (e) Adequate space at emergency assembly areas and emergency egress points must be provided to ensure they are free of clutter and remain accessible at all times.
- (f) The SSJ Contractor must ensure that fire-fighting and emergency equipment such as hydrants and boosters are:
  - (i) integrated into the built form of the Station Precincts;
  - (ii) where built form does not exist within minimum access requirements, enclosures for equipment must be designed as part of the architectural components in the Station Precincts;
  - (iii) unobstructed by other Station Precinct functions; and
  - (iv) not obstructing other Station Precinct functions.
- (g) A hydrant booster assembly must be provided at the Metro Station and its location must:

- (i) avoid impact to heritage structures, so far as is reasonably practicable;
- (ii) provide a vehicle hard stand area for two general fire appliances within 8m of the booster inlet valves;
- (iii) allow fire appliances attending from the nearest fire station to directly pull up without the need to travel the wrong way down one-way streets or carry out U-turns;
- (iv) allow for a 11.3m turning circle of the fire appliance such that when arriving and leaving, the fire appliance is be able to drive out in a forward direction without needing to reverse or carry out 3-point turns;
- (v) not be located in driveways or carpark entrances;
- (vi) not have access blocked by parked or stationery vehicles including buses, so far as is reasonably practicable;
- (vii) minimise the impact, so far as is reasonably practicable, of parked fire appliances on vehicle traffic;
- (viii) be a minimum of 10m away from any substation or high voltage switch room; and
- (ix) be within sight of the main Metro Station entrances.

# 7 Station Precinct and Public Domain Finishes, Fittings, Fixtures and Materials

## 7.1 General

- (a) The SSJ Contractor must ensure the finishes, fittings, fixtures and materials are consistent and co-ordinated across the Station Precinct and Public Domain areas.
- (b) All Station Precinct and Public Domain area finishes, fittings, fixtures and materials must:
  - (i) be fit for purpose and universally accessible;
  - (ii) achieve an inviting, uplifting, calm, bright, light and clean presentation of the Station Precinct and Public Domain areas and service facilities;
  - (iii) be coordinated with the Metro Station and Sydenham Station architectural and material response, in particular at GateLines located at street level;
  - (iv) support the CPTED principles and enhance passive surveillance and perceived customer and public levels of safety;
  - (v) provide for a safe customer experience generally by the minimisation of hazards from the design and material selection;
  - (vi) withstand the wear and tear applicable to a busy public transport system;
  - (vii) be easily cleaned and maintained without disruption to operations or material performance;
  - (viii) discourage vandalism through material selection and provide a high level of resistance to vandalism;
  - (ix) minimise discoloration, leaching, mould growth and deterioration due to weathering and UV light;
  - (x) minimise unnecessary horizontal surfaces and ledges that collect dust, dirt and soiling;
  - (xi) be suitable for environmental conditions such as humidity, corrosive environments and exposure to stray electrical currents;
  - (xii) enable ease of replacement with availability of spare parts; and
  - (xiii) be coordinated with all other requirements of in the SWTC.

## 7.2 Pavements

### 7.2.1 General

- (a) Paving and ground surface finishes must be used to support a unified space within the Metro Station and an integrated Public Domain approach between Station Precinct, Metro Station and Metro Concourse.
- (b) Pavements must be designed to ensure requirements of Appendix B9.0 Customer Centred Design are achieved.
- (c) Station Precinct and Public Domain pavements must be designed to integrate with adjoining pavements and be consistent with the materials palette of the adjoining area, or to Inner West Council's future proposed materials for the adjoining areas where upgrade works are proposed.
- (d) All pavement types must:
  - (i) provide a positively drained surface with no pooling or ponding;
  - (ii) use planar grading with runoff directed to planting beds and trench drainage;
  - (iii) have a minimum slip resistance classification (Class): W - as classified by AS/NZS 4586, with the exception of gravel pavement areas;
  - (iv) use a bedding, base and subgrade suitable for required design loads;
  - (v) have 3-4mm flexible mortar filled joints between pavement units;
  - (vi) be square edged; and
  - (vii) be sealed with a impregnator penetrating sealant.
- (e) All unit and granular pavements must be provided with a flush stainless steel restraint to all edges adjacent to planting and turf areas.
- (f) Service access pits in pavement areas must have pavement infill access covers, with adjacent pavements type and patterns continued and aligned through the cover.
- (g) Service access pits in pavement areas must be aligned to the pavement pattern orientation.
- (h) The SSJ Contractor must not use asphaltic concrete as a pedestrian pavement finish in the Station Precinct or Public Domain.
- (i) The SSJ Contractor must provide a minimum 3m unobstructed paved circulation space behind street furniture and shelter structures in Station Precinct areas, except where site conditions restrict space available, in which case street furniture and shelter structures can be placed adjacent to a building or planting bed edge and circulation space be provided to the front of the element.
- (j) Pavement design must meet the requirements of clauses 6 and 7 of AS1428.1.
- (k) The SSJ Contractor must provide resting points in accordance with the Disability Standards for Accessible Public Transport (DSAPT) 2002 and AS1428.2.
- (l) Pedestrian areas must have a maximum crossfall of 2.5%. Longitudinal fall must meet the requirements of AS 1428:2010 'Design for access and mobility, along disability routes'.

- (m) Natural stone used in pavements must be selected, handled, prepared and laid in accordance with the requirements of the Australian Stone Advisory Association Natural Stone Design Manual.
- (n) All natural stone pavements used must be sourced from quarries located in Australia, and all concrete unit pavers must be manufactured in Australia. The SSJ Contractor must provide evidence of the point of origin of the sourced stone material, and the location of manufacture of any concrete unit pavers.
- (o) Granite pavements must have the following quality requirements:
  - (i) a minimum flexural strength (wet/dry) of 9.5MPa / 11.1MPa;
  - (ii) a maximum water absorption rate of 0.14%;
  - (iii) a minimum compressive strength (wet /dry) of 193MPa / 217MPa; and
  - (iv) a minimum bulk specific gravity of 2.90 tonnes/m<sup>3</sup>.
- (p) Bluestone pavements must have the following quality requirements:
  - (i) a minimum flexural strength (wet/dry) of 14MPa / 14MPa;
  - (ii) a maximum water absorption rate of 1.6%;
  - (iii) a minimum compressive strength (wet /dry) of 100MPa / 100MPa; and
  - (iv) a minimum bulk specific gravity of 2.50 tonnes/m<sup>3</sup>.
- (q) Concrete unit pavements as a minimum must have the following quality requirements:
  - (i) a minimum breaking load of 5kN;
  - (ii) a maximum moisture content and water absorption of 7%; and
  - (iii) a minimum compressive strength of 35MPa.
- (r) The SSJ Contractor must develop and implement a paving strategy for the Metro Station, Station Precinct and Public Domain and including the following pavement typologies:
  - (i) streets;
  - (ii) footpaths;
  - (iii) shared paths;
  - (iv) cycle paths; and
  - (v) walkways and pathways.

### **7.2.2 Primary Plaza**

- (a) The SSJ Contractor must provide pavements and pavement units in the Primary Plaza areas in accordance with Section 10, and the following requirements:
  - (i) pavers must be of a natural stone material, which is of a standard and quality of granite, bluestone or equivalent;



- (ii) pavers must satisfy the requirements of AS4455.2 and must have a non-slip honed surface finish;
- (iii) pavers must be of a large format size with a minimum paver dimension of 400mm long and 150mm wide;
- (iv) pavers must have 3-4mm flexible mortar filled joints between pavement units;
- (v) paving must align with jointing to paving tiling used in the Metro Concourse and Metro Station entrances; and
- (vi) pavers must be installed on a rigid base.

### 7.2.3 Secondary Plaza

- (a) The SSJ Contractor must provide pavements and pavement units in the Secondary Plaza areas in accordance with Section ~~10.10~~ and [SWTC Appendix D5.0](#), and the following requirements:
  - (i) pavers must be of a natural stone material or precast concrete unit material;
  - (ii) paving layout must be designed in response to the Inner West Council guidelines and multiple paver sizes;
  - (iii) pavers must have 3-4mm flexible mortar filled joints between pavement units;
  - (iv) paving material, arrangement and paver sizes must be designed and constructed to align with paving jointing used in adjacent Primary Plaza areas; and
  - (v) pavers must be installed on a rigid base.

### 7.2.4 Public Domain

- (a) SSJ Contractor must ~~provide pavements to~~ [develop a strategy and implement Public Domain spaces improvements](#) in accordance with Appendix D – SWTC Drawings NWRLSRT-PBA-WSS-AT-DWG-971801 and NWRLSRT-PBA-WSS-AT-DWG-971802, ~~using materials, finishes equal to the following: responding to the local context and following the relevant council codes and guidelines. The materials and finishes must be developed in a hierarchy as follows:~~
  - (i) type A - Station Precinct;
  - (ii) type B - adjacent town centre streets;
  - (iii) type C – adjacent local streets; and
  - (iv) active transport corridor route shared path, finish as depicted by the immediate surrounds.
- (b) Paving materials and layout must be designed in response to the local context, follow Council guidelines.

### 7.2.5 Footpaths, Visually Separated Cycle and Walking Paths, shared paths and bicycle paths

- (a) Unless specified in Section 10, footpaths, Visually Separated Cycle and Walking Paths (VSWCP), shared paths and bicycle paths must:
- (i) be natural grey concrete, or material to suit Inner West Council's code;
  - (ii) be finished in a light broom finish perpendicular to direction of travel;
  - (iii) be provided with 5mm saw cut joints at maximum 2.0m spacing; and
  - (iv) have a +/- 10mm vertical tolerance measured with a 4m straight edge

### 7.2.6 Low trafficked areas

- (a) ~~(e)~~ Low trafficked areas must be paved with gravel pavement where planting is not appropriate to use in that location.
- (b) ~~(d)~~ Gravel pavement must:
- (i) be decomposed granite or equivalent;
  - (ii) not be used as an alternative to trafficable pavement in streetscapes and Public Domain areas;
  - (iii) have a maximum 10mm aggregate diameter;
  - (iv) have a minimum depth of 100mm;
  - (v) not be used where grading exceeds 5% in any direction; and
  - (vi) be cement stabilised to engineering recommendations to prevent scouring.

### 7.2.7 Tactile ground surface indicators

- (a) Tactile ground surface indicators must:
- (i) be either discrete stainless steel, or integrated pavers when used on Primary Plaza and Secondary Plaza or footpath pavements;
  - (ii) for stainless steel, be R13 as defined in the anti-slip requirements of AS/NZS4586. Where luminance contrast cannot be achieved and/or a suitable R13 product is not commercially available, a minimum anti-slip requirements of R11 or a product tested to provides a wet slip resistance classification of P4 is acceptable;
  - (iii) be applied in accordance with AS 1428.4.1; and
  - (iv) have a luminance contrast to the background surface meeting clause 2.2 of AS1428.4.1 in both wet and dry conditions.
- (b) Integrated tactile indicators must:
- (i) be pavers of the same material as the adjacent paving; and
  - (ii) be aligned where feasible with the adjacent paving pattern to minimise cut pavers.
- (c) Discrete indicators must:

- (i) be mechanically fixed to pavement surfaces;
- (ii) if stainless steel, not use carborundum infill; and
- (iii) be fixed away from edge of pavement to avoid cracking.

## 7.3 Street furniture

### 7.3.1 General

- (a) Street furniture includes bench seats, lean bars, rubbish bins, bollards, tree grates, tree guards, pedestrian lights, street lights, drinking fountains, shelters and bicycle parking rails.
- (b) The SSJ Contractor must appoint within 30 Business Days after the commencement of the Delivery Phase an industrial designer to prepare designs for street furniture, including platform seating and rubbish bins, and seek approval from the Principals Representative at each Design Stage.
- (c) All street furniture types must:
  - (i) be designed and constructed as a common suite of elements;
  - (ii) use consistent detailing, and a consistent palette of materials, finishes, fixings and fittings;
  - (iii) use vandal and graffiti resilient materials;
  - (iv) use materials that are easily cleaned and maintained;
  - (v) have concealed footings and fixings; and
  - (vi) provide a minimum 30% luminance contrast to the background environment.
- (d) All street furniture in streets must be in accordance with Inner West Council guidelines where maintained by them.
- (e) Street furniture within Station Precinct and Public Domain must:
  - (i) relate to the Sydney Metro North West public domain furniture suite;
  - (ii) be functional, comfortable and designed to be easily maintained;
  - (iii) comprise a coordinated palette of considered elements that use a consistent design aesthetic; and
  - (iv) be consistently and legibly placed in Station Precinct and Public Domain.
- (f) Street furniture outside of Station Precinct and Public Domain must be designed, supplied and installed in accordance with Inner West Council guidelines. [If Inner West Council guidelines are not available refer to City of Sydney Guidelines.](#)
- (g) Trench grates must be used for all pavement surface drainage collection where drainage is not otherwise directed into planting areas.
- (h) Street furniture must not project into an access path or present a risk of collision by someone with vision impairment.



- (i) Set out requirements for street furniture must be as follows:
  - (i) minimum offset from face of kerb to street furniture element (nearest edge) is 0.9m;
  - (ii) minimum offset from face of kerb to street light (centre) is 0.9m;
  - (iii) minimum clearance from face of kerb to any part of shelter below 2100mm high is 1.2m; and
  - (iv) minimum offset from face of kerb to shelter roofline extent is 0.6m.

### **7.3.2 Bench seats**

- (a) Bench seats must:
  - (i) incorporate back rests where the bench seats are adjacent to other objects;
  - (ii) not incorporate back rests where the bench seats are located with double sided access;
  - (iii) have a stainless steel or cast aluminium frame and posts;
  - (iv) have any slats running parallel to the front edge of the seat;
  - (v) be a minimum length of 1800mm and a minimum width of 400mm; and
  - (vi) be installed horizontally level with a height above ground level in accordance with clause 27.2 Note 1 in AS1428.2.

### **7.3.3 Custom bench seats**

- (a) Custom bench seats:
  - (i) may be used in Station Precinct and Public Domain areas to create sculptural, visual and spatial focus points; and
  - (ii) must use materials that satisfy the maintenance, durability and other performance requirements of this Appendix.

### **7.3.4 Rubbish bins**

- (a) Rubbish bins must:
  - (i) prevent rainwater, pest and animal access;
  - (ii) include an ash receptacle only when placed in locations where smoking is not prohibited by the Smoke-free Environment Act 2000 (NSW);
  - (iii) accommodate a minimum 80 litre wheelie bin;
  - (iv) be able to be grouped and signed to provide recycling options; and
  - (v) be installed horizontally level with a height above ground level in accordance with clause 27.2 Note 1 in AS1428.2.

### **7.3.5 Bollards**

- (a) Bollards must:

- (i) be used only where necessary to separate pedestrians and streetscape elements from vehicles;
- (ii) be stainless steel or cast aluminium;
- (iii) be a minimum 900mm high; and
- (iv) be a maximum cross sectional dimension of 300mm.

### 7.3.6 Tree grates

(a) Tree grates must:

- (i) be used in high pedestrian traffic areas at tree positions surrounded by paving in Primary Plaza and Secondary Plaza pavements;
- (ii) accommodate water sensitive urban design solutions;
- (iii) be paver infill, aluminium, stainless steel or cast iron;
- (iv) have a non-slip surface as required to achieve the slip resistance requirement of the adjacent pavement; and
- (v) meet the provisions of clause 7.5 in AS1428.1.

(b) For trees surrounded by paving in low pedestrian traffic areas, planter beds may be used around trees providing pedestrian modelling can prove pedestrian access or movement is not inhibited.

### 7.3.7 Drinking fountains

(a) Drinking fountains must:

- (i) enable filling of water bottles;
- (ii) be wheelchair accessible;
- (iii) include a free draining system, with no basins;
- (iv) be located at the edge of pedestrian and cyclist movement routes; and
- (v) be predominantly stainless steel or cast aluminium.

### 7.3.8 Trench grates

(a) Trench grates must:

- (i) be a maximum 200mm wide;
- (ii) be pedestrian heel proof; **and**
- (iii) be grade 316 stainless steel; **and**
- (iv) be used for all pavement surface drainage collection where drainage is not otherwise directed into planting areas unless otherwise agreed by the Principal's Representative.

## 7.4 Shelters

(a) Shelters must be provided at the following customer waiting areas:

- (i) 1 at each bus stop;
  - (ii) 1 at each taxi rank; and
  - (iii) 1 at each Kiss and Ride rank.
- (b) Where multiple shelter modules are required, shelters must provide a minimum length of 9m with continuous roof coverage and minimise internal obstructions to movement.
- (c) Elements of shelters below 2.5m high must not project into pavements, footpaths, bicycle paths or ramps.
- (d) Shelters must provide a high-quality customer-focused design consistent with a modern transport system that:
- (i) provides a safe environment and security features that provide a perception of safety; and
  - (ii) provides customer amenity including seating, lighting and off-the-ground bag provision.
- (e) Shelters must provide a high-quality customer-focused design consistent with a modern transport system that supports the inclusion of the following through a cable pathway from the Metro Station to an in-ground pit adjacent to shelter for:
- (i) payment and access systems;
  - (ii) static and digital information systems and enablers;
  - (iii) digital advertising; and
  - (iv) CCTV.
- (f) Shelters at bus stops, taxi ranks and Kiss-and-Ride facilities must:
- (i) have a powder coated metal or stainless steel frame and toughened glass infill panels;
  - (ii) be a modular cantilevered construction with a minimum module length of 4000mm, minimum clear height of 2500mm and a minimum covered roof width of 2000mm including a roof overhang of 720mm from the back face;
  - (iii) have a minimum clear gap between any modules of 1300mm;
  - (iv) maintain continuous roof coverage over the gap between adjacent modules;
  - (v) not have glazed roof panels;
  - (vi) be installed horizontally level;
  - (vii) have concealed footings and fixings;
  - (viii) provide a minimum weather protection canopy coverage of 5m<sup>2</sup> over resting points where not otherwise covered;
  - (ix) be set out in accordance with the minimum set out requirements for street furniture;

- (x) located at the head of rank at bus stops, taxi ranks and Kiss-and-Ride areas;
  - (xi) have a minimum of two minimum 1200mm long seats per module integrated to the frame or structure; and
  - (xii) have a minimum 30% luminance contrast to the background environment.
- (g) Shelters in other Public Domain areas must:
- (i) be used to provide shade, weather protection or other pedestrian amenity;
  - (ii) have a minimum clear height of 2500mm;
  - (iii) not have glazed roof panels;
  - (iv) incorporate lighting where covered; and
  - (v) have a minimum 30% luminance contrast to the background environment.

## **7.5 Bicycle parking**

### **7.5.1 Bicycle parking lock-ups – class 2**

- (a) Bicycle parking lock-up areas must:
- (i) comply with ASA bicycle parking facilities requirements;
  - (ii) be integrated with Metro Station or service building built form where possible;
  - (iii) designed to allow views into the lock up areas from the public domain;
  - (iv) have a full weather protection roofing system detailed and coloured to integrate with the Metro Station architecture;
  - (v) include electronic ticketing system for each bicycle;
  - (vi) have minimal signage attached to the lock-up structure; and
  - (vii) have pump and quick tools available;
  - (viii) be provided in accordance with Austroads Guide Part 6A (2009).

### **7.5.2 Bicycle parking rails – class 3**

- (a) Bicycle parking rails must:
- (i) be stainless steel or equal quality;
  - (ii) be a simple half circle or similar shape;
  - (iii) have concealed footings and fixings;
  - (iv) accommodate storage of two bicycles per rail;
  - (v) have protection from weather; and

- (vi) be provided in accordance with Austroads Guide Part 6A (2009), detailed and coloured to integrate with the Metro Station architecture

## 7.6 Fencing

### 7.6.1 General

- (a) ~~The design and materials details including joints, junctions, and fixings, and placement of support posts, for all fencing must be fully integrated with all other urban elements.~~
- (a) ~~(b)~~ The SSJ Contractor must develop and implement a fencing strategy ~~based on~~ for the following ~~typologies~~:
  - (i) security fences within Station Precincts;
  - (ii) security fences to the Rail Corridor boundary;
  - (iii) segregation fences within the Rail Corridor;
  - (iv) residential fences adjacent to the Active Transport Corridor; and
  - (v) protection screens;
    - A. ~~(i) protection screen fences~~ on pedestrian and vehicular bridges;
    - B. ~~(ii) protection screen fences~~ adjacent to pedestrian and vehicular bridges; and
  - (iii) ~~security fences within Station Precinct;~~
  - (iv) ~~security fences to the rail corridor boundary;~~
  - (v) ~~segregation fences within and around the Sydney Metro City & Southwest rail corridor;~~
  - (vi) ~~protection screens at Metro Station;~~
  - (vii) ~~general handrails; and~~
  - C. ~~(viii) fences to be provided~~ to all new and existing road overbridges.
- (e) ~~Fencing design must prevent climbing, providing no footholds.~~
- (d) ~~Fencing throughout the Station Precinct and Public Domain areas must avoid creating dead ends or sight line conflicts.~~
- (e) ~~Fencing designs must minimise the potential for vandalism and graffiti.~~
- (f) ~~Fencing located along a pedestrian walkway must be provided with a solid kerb upstand of at least 65mm high.~~
- (b) ~~(g)~~ Security fencing types must be consistent across the ~~Station Precinct and Public Domain~~ Project Works and respond to the contextual environment of the Rail Corridor, including provision for high quality fencing at Station ~~Precinct and security fencing protecting rail infrastructure~~ Precincts.



- (c) Security fencing must be placed along both sides of the Sydney Metro City & Southwest maintenance area.
- (d) Segregation fencing must be placed between the ARTC Tracks and Sydney Metro City & Southwest Tracks and be positioned to allow Sydney Trains safe maintenance access to the Sydney Trains services in the combined services route without the need to enter the Automatic Trains Operations area.
- (e) Security fencing can be placed between the ARTC Tracks and the Sydney Metro City & Southwest Tracks provided the level of security is not reduced and the requirements of section 7.6.5 are satisfied.
- (f) Fencing must be coordinated with other infrastructure elements including retaining walls, overhead wiring structures and Active Transport Corridor to enable operations and maintenance activities.
- (g) Insulated panels must be provided in accordance with ASA T HR CI 12160 ST Boundary Fences.
- (h) Where required, noise walls may replace security or segregation fencing provided the level of security is not reduced.
- (i) Where the placement of both a security and segregation fencing is not achievable, a single security fence must be provided.
- (j) Suitable security measures must be applied to drainage infrastructure and other services infrastructure to prevent unauthorised access.
- (k) Fencing must include provision for security measures as required by any Interface Contractor.
- (l) Fence panels must be raked to follow the surface grade and not stepped.
- (m) The exact fence locations as detailed in SWTC Drawings can be adjusted to suit the SSJ Contractor's design.
- (n) The final placement, positioning and number of the fence line must maximise the land available to be returned for alternate public use.
- (o) The fence types and extents as detailed in SWTC Drawings show the relationship to parts of the Metro Stations and Station Precincts where a higher quality is required and will need to be adjusted to suit the SSJ Contractor's design.
- (p) Fencing must not be positioned to obstruct maintenance activities or obstruct maintenance access roads.

### **7.6.2 Station Precinct and Public Domain**

- (a) Fencing within Station Precincts and the Public Domains must comply with the following:
  - (i) the design and materials details including joints, junctions, and fixings, and placement of support posts, for all fencing must be fully integrated with all other urban elements;
  - (ii) fencing must prevent climbing, providing no footholds;
  - (iii) fencing must avoid creating dead ends or sight line conflicts;

- ~~(iv) fencing must minimise the potential for vandalism and graffiti;~~
- ~~(v) (h) Where bollards are proposed to protect Metro Station entrances or Rail Corridor intrusion, the materials, scale, location and detail design must integrate with the Station Precinct street furniture;~~
- ~~(vi) (i) Fence fixing points must be minimised with bolts, base plates and fixing mechanisms to be detailed in a consistent, rationalised and unobtrusive manner;~~
- ~~(j) Security fencing must be provided to secure the Rail Corridor in public domain areas outside of the Station Precinct.~~
- ~~(k) Palisade fencing must be provided to secure the Rail Corridor within the Station Precinct except at bridges and adjacent to Metro Station entrances.~~
  - ~~(vii) fencing within Station Precincts and located along a pedestrian walkway must be provided with a solid kerb upstand of at least 65mm high; and~~
  - ~~(viii) protection screens (anti-throw screens) complying with ASA Standard T HR CI 1030 ST - Overbridges and Footbridges must be provided where fencing to publicly accessible areas is in close proximity to Tracks or Traction Power Supply equipment.~~
- ~~(b) Handrails in Station Precincts and the Public Domains must:~~
  - ~~(i) be satin finish stainless steel where adjacent to walkways, stairs and ramps; and~~
  - ~~(ii) (l) High security fencing must be provided to secure rail service facility locations; have a continuous line to the top rail and not be stepped.~~
- ~~(m) High security fencing must be located to comply with the SSJ Security Management Plan.~~

### **7.6.3 7.6.2 Security fence**

- (a) Security fencing must:
  - ~~(i) be a minimum 2400mm high and a maximum 2700mm high to comply with the Security Management Plan;~~
  - ~~(i) (ii) comply with the requirements of ASA T HR CI 12160 ST Boundary Fences- Section 8.5 Security fences; be a close spaced welded mesh fence;~~
  - ~~(ii) secure and separate the Rail Corridor from the publicly accessible areas for the full length of the Rail Corridor by interfacing with structures including bridges abutments, bridge parapet anti-throw screens, protection screens and Metro Station structures;~~
  - ~~(iii) be located to maximise the Public Domain areas for the Active Transport Corridor where practical without impacting on Sydney Metro City & Southwest operations including reasonable and safe access for maintenance;~~
  - ~~(iv) be provided to enclose service buildings;~~



- (v) be a minimum 2400mm high and a maximum 2700mm high to comply with the SSJ Contractor's Security Management Plan; and
- (vi) ~~(iii)~~ be powder coated matte black; and,
- (b) Where the security fence delineates residential properties from the Sydney Metro City & Southwest maintenance area the existing boundary fence must be retained and the security fence must be offset a maximum 300mm from the existing boundary fence. The surface treatment within the 300mm zone must be maintenance free and the bottom of the fence detailed to prevent the collection of litter or debris.
- (c) Where the security fence is located within Station Precincts or within 20m from Metro Station platforms (measured parallel to tracks) the security fence must:
  - (i) be a close spaced welded mesh fence with an aperture size of 13mm x 76mm. The orientation of the mesh must be such that the horizontal mesh aperture (76mm) is larger than the vertical mesh aperture (13mm);
  - (ii) incorporate a shark tooth top plate or approved equivalent.
- (d) Where the security fence is located outside of Station Precincts and greater than 20m from Metro Station platforms (measured parallel to tracks) the security fence must:
  - (i) ~~(iv)~~ be a palisade fence configuration in accordance with ASA standard T HR CI 12160 ST Boundary Fences - Section 8.5 Security fence; and
  - (ii) incorporate a spiked anti-climb topping or approved equivalent.

#### **7.6.4 7.6.3 Palisade fence**

- (a) Palisade fencing must:
  - (i) be a minimum 2400mm high and a maximum 2700mm high to comply with the Security Management Plan;
  - (ii) be powder coated matte black; and
  - (iii) be in accordance with ASA standard T HR CI 12160 ST.

#### **7.6.5 7.6.4 High security fence**

- (a) High security fencing must:
  - (i) be 3000mm high;
  - (ii) be powder coated matte black; and
  - (iii) be in accordance with ASA standard T HR CI 12160 ST.

#### **7.6.6 7.6.5 Segregation fence**

- (a) Segregation fencing must:
  - (i) secure and separate the Automatic Train Operations area from both the Sydney Metro City & Southwest maintenance area and the Sydney Trains maintenance area for the full length of the Rail Corridor by interfacing with structures including bridge abutments and Metro Station platforms;



- (ii) be placed clear of the ballast and OHWS where achievable;
  - (iii) have a bottom rail a maximum of 125mm off the adjacent ground or ballast;
  - (iv) be a minimum 1800mm high measured from the top of the footing to the top of the fence panel;
  - (v) make suitable provision for maintenance access to drainage, OHWS and other infrastructure; and
  - (vi) not obstruct Sydney Trains signals sighting.
- (b) Segregation fencing must comply with requirements for Security fence - palisade fence configuration in accordance with ASA T HR CI 12160 ST Boundary Fences:
  - (i) The fence must be 1800mm high;
  - (ii) footing details must suit subsurface conditions including coordination with track drainage and other in ground infrastructure and maintenance activities; and
  - (iii) the fence can be palisade, mesh or chain-link depending on the location and Sydney Trains requirements as identified within the Sydney Trains Interface Agreement.
- (c) Where Sydney Metro City & Southwest Tracks and Sydney Trains Tracks are adjacent, the segregation fencing must:
  - (i) be placed between the Sydney Metro City & Southwest Tracks and the Sydney Trains Tracks;
  - (ii) be positioned where possible to ensure Sydney Trains infrastructure is outside the Authorised Train Operations area;
  - (iii) be positioned where possible to ensure Sydney Metro City & Southwest infrastructure, such as inter-track drainage pits can be accessed from within the Authorised Train operations area;
  - (iv) not obstruct access to Sydney Trains infrastructure;
  - (v) provide framed modular panels, at specific predetermined locations agreed by the Operator and Sydney Train, that can be removed and replaced by 2 persons manually handling;
  - (vi) provide adequate clearance to Sydney Trains, Sydney Metro City & Southwest kinematic envelopes;
  - (vii) provide adequate clearance to Sydney Trains, Sydney Metro City & Southwest ballast cleaning operations;
  - (viii) provide temporary safety refuges, handrails or suitable temporary openings in the fence for Sydney Trains personnel during construction stages in accordance with:
    - A. ASA T HR CI 12070 ST (Miscellaneous Structures); and
    - B. RailCorp Engineering Standard ESC 215 Transit Space.

- (d) Where the segregation fence is located on top of retaining walls and embankments, a handrail may be used in lieu of a segregation fence where appropriate.
- (e) In the event of temporary openings being required in the segregation fencing as part of construction staging, the SSJ Contractor must provide all segregation fence infill panels, fixings and ironmongery as part of the Project Works. The SSJ Contractor must ensure that any infill panels are appropriately labelled by chainage and stored for future erection by the Interface Contractor. Any stored segregation fence panels must be able to be erected by 2 persons manually handling by the Interface Contractor without any modifications.

### **7.6.7 Access Gates**

- (a) Vehicle and personnel gates must:
  - (i) be ~~a minimum 2400mm high and a maximum 2700mm high to comply with the Security Management Plan;~~ provided in fences and noise walls at a minimum of 300m centres;
  - (ii) be ~~powder coated matte black;~~ located to provide suitable:
    - A. access for infrastructure and Rail Corridor maintenance; and
    - B. emergency access.
  - (iii) be in accordance with ASA standard T HR CI 12160 ST; and maintain existing Sydney Trains access where still required;
  - (iv) be ~~in accordance with the Operator's requirements;~~ provided at each substation and service building;
  - (v) in both security and segregation fencing at each Metro Station, be as close as practicable to the end of platform emergency egress ramp.
- (b) Access gate locations must be agreed with ARTC, Sydney Trains and with the Interface Contractors as required.

### **7.6.8 7.6.6 Handrails**

- (a) Handrails must:
  - (i) be satin finish stainless steel where adjacent to walkways, stairs and ramps; and
  - (ii) have a continuous line to the top rail and not be stepped.

### **7.6.9 7.6.7 Protection screens**

- (a) Protection screens must:
  - (i) comply with the requirements of AS5100 except as noted in this Appendix;
  - (ii) be a minimum of 2400mm high above the adjacent finished bridge pavement level;
  - (iii) have integrated junctions with adjacent fencing types to form a continuous visual and secure boundary to the Rail Corridor; and

(iv) be powder coated matte black.



## 8 Urban Design Infrastructure

### 8.1 Earthworks associated with urban design infrastructure

- (a) The earthworks and stabilisation treatments where located in the Station Precinct must be designed and constructed to integrate with the adjacent finished surface level and must include the following features:
- (i) the vertical and horizontal alignment of any earthwork batters must be feathered to meet the existing landform and landscape;
  - (ii) earthwork batters must not be steeper than 1v:3h gradient;
  - (iii) cut batters up to 3m high and external to the rail corridor must be designed with a constant width at the base sufficient to allow space for planting; and
  - (iv) soil for landscape works, structural mounding or fill earthworks must prioritise the use of site won topsoil and subsoil before additional topsoil and subsoil is introduced.
- (b) Existing batters within the Rail Corridor must be assessed for their structural integrity and rectified where necessary to ensure public safety and safety to rail operation.

### 8.2 Noise walls

- (a) Noise walls must be designed to meet the requirements set out in Appendix B1.0 Civil and Structural Works.
- (b) Noise walls must comply with the 'Noise wall design guideline', RMS, March 2016.
- (c) Noise walls must be designed as a legible, consistent, 'whole of corridor' composition as viewed along both the internal and external alignment.
- (d) Noise walls must be designed to:
- (i) emphasise the long, linear nature of the Railway Corridor;
  - (ii) be minimal, contemporary designs that are legible at speed from passing trains;
  - (iii) be designed to incorporate landscape strategies such as mounds, climbing plants and tree planting to reduce their visual impact, especially to adjoining development;
  - (iv) follow linear alignments with long, even curvatures and run parallel with the rail track;
  - (v) present a continuous top line (horizon) free of steps;
  - (vi) adopt rectilinear, modular wall panels throughout for consistency of appearance;



- (vii) terminate with a curved or raked wall section to integrate with adjacent structures or landform, or terminate by over lapping with adjacent structures in a planned and considered way;
  - (viii) have vertical or horizontal joint lines perpendicular to the adjacent ground plane;
  - (ix) be graffiti resistant;
  - (x) be easily maintained;
  - (xi) incorporate security requirements; and
  - (xii) incorporate access gates for staff and vehicles as required.
- (e) Where steps within the length of noise walls are necessary due to unavoidable gradients, they must present a consistent and legible rhythm in the design.
  - (f) Vertical post supports must not be visible from the track side unless designed specifically to create a specific rhythm effect when viewed from passing trains.
  - (g) The SSJ Contractor must minimise the height of noise walls.
  - (h) A minimum clearance of 0.5m must be provided ~~on the outside~~ between face of noise walls ~~to~~ and any planting.
  - (i) Where noise walls are used in combination with retaining structures, they must be designed together as a coordinated element.
  - (j) Where noise walls overshadow residential properties transparent materials are to be used.
  - (k) Where noise walls are mounted above retaining structures, the inner, track-side face of the noise wall must align with the face of the supporting structure beneath.
  - (l) Noise walls must incorporate anti-climb features.

### 8.3 Road bridges

- (a) The design of road bridges must be consistent with the 'Bridge Aesthetics Design Guideline to Improve the Appearance of Bridges in NSW', RMS The design of road bridges must demonstrate a response to:
  - (i) design approach;
  - (ii) context;
  - (iii) understanding of form;
  - (iv) design of parts and components;
  - (v) design of details; and
  - (vi) finishes.
- (b) The design of road bridges must be of a high architectural standard.
- (c) The design of road bridges must present smooth, clean lines with a minimum structural depth that is consistent with their spans and method of construction.

- (d) Road bridges, including new additions to existing, must be designed as holistic, coherent and symmetrical structures considering the proportion of all elements of the structure including any parapets, barriers, fencing, safety screens and other critical elements.
- (e) The thickness of road bridge superstructures must be minimised.
- (f) Connections between road and road bridge traffic barriers must be neat and simple.
- (g) The junction between road bridges and adjacent retaining walls must establish a clear separation from, or integration with, the bridge girder.
- (h) Road bridge parapets must:
  - (i) be elegant and attractive with neat, evenly spaced joints, smooth even lines and consistent high quality surfaces and colour;
  - (ii) be installed plumb and extend parallel to the road surface for the full length of the bridge;
  - (iii) extend no less than one parapet length beyond the bridge abutments;
  - (iv) have a top surface that angles towards the road to channel rainwater onto the bridge and minimise staining of the outside face of the parapet;
  - (v) be shaped to be self-cleaning; and
  - (vi) be integrated with traffic barriers.
- (i) Protection and throw screens on road bridges must:
  - (i) be of a high architectural standard;
  - (ii) be integrated with the design of the road bridge as a whole and be of the same type as adjoining fences;
  - (iii) be designed with post spacing to provide a pleasing and ordered visual relationship with other road bridge details, including safety barrier posts, lighting columns sign posts and parapet joints;
  - (iv) be provided with fixing points which are in line with the barrier rail fixing positions (where used) to minimise visual clutter; and
  - (v) be integral with the shape and form of the parapets, including the traffic barrier railing system and any skirt systems.
- (j) Where road bridge barriers or screens are of different heights to adjoining traffic barriers or screens on the approach or departure, barriers must be provided with transitions of 15:1 or flatter between the adjacent elements.
- (k) Utility Services and future provisions for Utility Services must not be visible on road bridges.
- (l) Road bridge abutments must be designed such that they:
  - (i) are easily maintainable and do not promote vandalism or graffiti; and
  - (ii) promote the slender appearance of the road bridge.

- (m) Stormwater drainage from the bridge deck must be concealed and extend from the bridge deck to connect to the local stormwater drainage system below ground.
- (n) The appearance of concrete retaining structures associated with road bridges must have a strong horizontal visual emphasis.
- (o) In-situ concrete used as a finished surface for retaining walls and other structures must, for formed surfaces, have a class 2 finish in accordance with AS3610.
- (p) Concrete in road bridges must be an off-white colour throughout.

## **8.4 Pedestrian bridges**

- (a) The design of all pedestrian bridges must consider the 'Bridge Aesthetics Design Guideline to Improve the Appearance of Bridges in NSW, RMS July 2012'. The design of road bridges must demonstrate a response to:
  - (i) design approach;
  - (ii) context;
  - (iii) understanding of form;
  - (iv) design of parts and components;
  - (v) design of details; and
  - (vi) finishes.
- (b) Pedestrian bridges must:
  - (i) be of a high architectural standards;
  - (ii) be designed for shared use by both pedestrians and cyclists;
  - (iii) present smooth, clean lines with a minimum structural depth that is consistent with their spans and method of construction;
  - (iv) have end to end visibility for users; and
  - (v) have a minimum 3.0m wide internal clearance.
- (c) Protection and throw screens on pedestrian bridges must:
  - (i) be integrated with the design of the pedestrian bridge as a whole and be of the same type as any adjoining station fences; and
  - (ii) be designed with post spacing to provide a pleasing and ordered visual relationship with other pedestrian bridge details, posts, and lighting columns.
- (d) Pedestrian bridges over roadways must:
  - (i) ensure accessibility provisions meet AS1428.1 and AS1428.2 requirements;
  - (ii) be provided with a combination of either ramps and stairs and/or lifts and stairs at both ends;



- (iii) be provided with a failsafe means of egress from at least one end of the bridge to ground level for customers who cannot utilise stairs. A failsafe means is considered to be either a ramp or a lift where a loss of power cannot occur;
  - (iv) ensure that access ramps and stair design do not dominate views or detract from the expression of span of the pedestrian bridge;
  - (v) be supported by slimline piers that minimise visual clutter and obstruction to vehicles;
  - (vi) be provided with roof canopy coverage to the pedestrian bridge deck, stairs deck, stairs, lift entries and any ramps that are provided in lieu of a lift, with a minimum headroom clearance of 2.7m above the pedestrian bridge trafficable surface;
  - (vii) where a truss span is to be used, have a steel structure comprising of UC section, UB section, rectangular hollow section or welded circular steel pipe structure;
  - (viii) consider the RTA 'Environmental Impact Assessment Guidance Note - Guidelines for landscape character and visual impact assessment in the design of the pedestrian bridges'; and
  - (ix) incorporate integrated safety screens that do not obscure the pedestrian bridge structure and that extend to the ends of the pedestrian bridge span.
- (e) In situ concrete used as a finished surface must, have a class 2 finish in accordance with AS3610.
- (f) Concrete in pedestrian bridges must be an off-white colour throughout.
- (g) Pedestrian bridges over drainage channels, creeks or other stormwater structures must:
- (i) be of steel parallel flange channel span construction;
  - (ii) have stainless steel handrails and black powder coated steel balustrades; and
  - (iii) have handrails, kickrails, and balustrading appropriate for both pedestrians and cyclists.

## 8.5 Retaining walls

- (a) All Station Precinct and Public Domain cut or fill retaining walls must:
- (i) exhibit a consistent design in all respects regardless of structural typology or location so that they form part of a related family of wall types;
  - (ii) not be gabion walls;
  - (iii) be designed to be cohesive and unified with adjacent and associated elements including road and pedestrian bridges, noise barriers and landscaping;
  - (iv) divert drainage away from the face of the retaining structure;

- (v) have cladding systems and form work to match the panel size, proportions and joint set out of any associated noise wall system;
  - (vi) have any vertical joints located at regular and consistent centres;
  - (vii) be designed so that any vertical joints can be coordinated with the vertical joints or stanchions of related elements that are added to the tops of the walls;
  - (viii) be designed in parallel with the noise mitigation requirements to ensure that the structural requirements of any noise wall are met; and
  - (ix) be designed in association with landscape strategies such as mounds, climbing plants and tree planting to reduce their visual impact, especially to adjoining development.
- (b) Drainage pipework and equipment in other structures must be concealed excluding swales, catchpits, inlet structures and outlet structures.
  - (c) Shuttering and tie holes to retaining walls are to be arranged in a consistent pattern so that any shutter lines and tie holes expressed in the final product form a logical and consistent pattern as part of the whole wall. The pattern must be parallel to the vertical and horizontal line of the walls.
  - (d) Interlocking unit retaining systems, for example keystone, must not be used.
  - (e) All retaining walls must have a capping beam to accommodate a noise wall mounted on top.
  - (f) Where noise walls are integrated on top of retaining walls all capping beams must be structurally designed accordingly.
  - (g) Where security fencing is integrated on top of retaining walls the face of walls and fence must not provide any footholds.

## **8.6 Stairs and ramps**

- (a) The use of stairs must be avoided where possible.
- (b) Stairs must be used where level changes on pedestrian movement paths cannot be accommodated with ramps.
- (c) Where stairs are used, a clearly legible alternative accessible path must be provided.
- (d) Alternative accessible paths must be as close as possible and not isolated from the primary circulation route.
- (e) Wheeling ramps or channels for bicycles must be provided at stairs where feasible. Ramps must only be used where walkways are not able to be provided.
- (f) Stairs and ramps must:
  - (i) be positively drained to ensure no pooling or ponding of water; and
  - (ii) use satin finished stainless steel handrails.

- (g) All stairs must be provided with minimum 200mm wide concrete kerb edge or restraint wall to each edge.
- (h) Stairs must:
  - (i) be in-situ or precast concrete, or be pavers to match adjacent paving;
  - (ii) be class 2C steel form finish as per AS3610;
  - (iii) have minimum 150mm and maximum 165mm high risers;
  - (iv) have minimum 275mm and maximum 300mm deep treads;
  - (v) be a minimum 2000mm wide;
  - (vi) incorporate an angled riser or other shadow-line recess to the riser;
  - (vii) have 10mm pencil rounded step nosing's; and
  - (viii) meet the provisions of AS1428.1 or 2, whichever is the more onerous.
- (i) Ramps must be a minimum 1500mm wide.
- (j) Ramp kerbs must:
  - (i) match the adjacent paving material and pattern;
  - (ii) have a slip resistance classification (Class): W - as classified by AS/NZS 4586; and
  - (iii) not intrude into pedestrian or bicycle movement paths.

## 8.7 Walls

### 8.7.1 General

- (a) All walls must provide positively drained capping or top surfaces that allow no pooling or ponding.
- (b) All walls except gabion walls must not have weep-hole or other wall face drainage systems.
- (c) Walls capping and tops of walls must address longitudinal changes of level in a controlled and consistent manner.

### 8.7.2 Concrete wall

- (a) Concrete walls must:
  - (i) be used where retaining up to 1.5m, at seating walls or other walls as necessary in Primary Plaza and Secondary Plaza areas;
  - (ii) be in-situ or precast concrete;
  - (iii) be class 2C steel form finish as per AS3610;
  - (iv) be a minimum 400mm wide on the top surface where used as seating walls;
  - (v) be provided with a 25mm chamfer to exposed edges;

- (vi) be provided with a 50mm high x 50mm deep shadow-line at ground level;
  - (vii) incorporate 316 stainless steel skate deterrents at maximum 2.0m spacing where walls are less than 1m high;
  - (viii) provide positively drained capping or top surfaces that allow no pooling or ponding; and
  - (ix) not have weep-hole or other wall face drainage systems.
- (b) Walls capping and tops of walls must address longitudinal changes of level in a controlled and consistent manner.
- (c) In situ concrete used as a finished surface for retaining walls and other structures, must have a:
- (i) minimum flatness tolerance equal to class 3 in accordance with AS3610;
  - (ii) manually levelled, wood float and sponge surface finish; and
  - (iii) be painted dark grey.

### **8.7.3 Masonry unit wall**

- (a) Masonry unit walls must:
- (i) be used where retaining over 1.5m in Primary Plaza and Secondary Plaza areas and streetscapes except where gabion retaining walls are used;
  - (ii) be concrete masonry split faced core filled block work;
  - (iii) be a consistent block size;
  - (iv) have a smooth face concrete capping unit;
  - (v) be charcoal or sandstone in colour; and
  - (vi) have a minimum convex curve radii of 6m.

### **8.7.4 Gabion wall**

- (a) Gabion walls must:
- (i) use site won material before using additional off-site material;
  - (ii) use stacked block mesh baskets to a consistent size;
  - (iii) have the mesh size and wire diameter sized to engineering requirements;
  - (iv) have natural tumbled stone fill;
  - (v) have hot dipped galvanised or zinc aluminium alloy mesh baskets;
  - (vi) have rock sizes consistent with requirements of AS 2758.4 maximum rock size to be 250mm, minimum rock size to be 100mm; and
  - (vii) be constructed with the bottom and seen front face hand placed with rock and dry stacked with flat edges to front edge.
- (b) The design and construction of gabion walls must comply with RMS QA Specification R55.

### **8.7.5 Cuttings, embankments, land form and slope stabilisation**

- (a) The earthworks and stabilisation treatments must be designed to integrate with the adjacent existing ground level and must include the following features:
  - (i) the vertical and horizontal alignment of any cutting and embankment batters must be feathered to meet the existing landform and landscape;
  - (ii) cutting and embankment batters must not be steeper than 1v:3h gradient; and
  - (iii) be designed in association with landscape strategies for adjacent areas, Station Precinct and Public Domain.

### **8.8 Anti-vandal treatment**

- (a) The Sydney Metro Works must be designed to be vandal and tamper resistant.
- (b) Any operating panels and removable elements must only be capable of being opened or removed using specialist tools or machinery.
- (c) Anti-graffiti coating must be applied to the surfaces of all walls, structures and barriers to a minimum height of 3m above the adjacent finished surface level or any accessible foothold or area of the structure that is accessible from above.
- (d) Graffiti must be able to be removed without damage to the surface it is protecting.
- (e) The application of an anti-graffiti coating must have a consistent appearance and must minimise any difference in the visual appearance of the treated and untreated parts of the structure.
- (f) The anti-graffiti coating must be capable of being reapplied when required in order to maintain the performance characteristics of the coating.

## 9 Landscape Works Requirements

### 9.1 Landscape works

- (a) The SSJ Contractor must design and provide landscaping to all Project Works areas including:
- (i) Station Precinct and Public Domain areas;
  - (ii) upgraded and re-built streets;
  - (iii) active transport corridor;
  - (iv) riparian zones, landscape rehabilitation and visual buffer areas;
  - (v) street and shared zone verge treatments between kerbs and adjacent property boundaries;
  - (vi) secured Rail Corridor and service facility areas;
  - (vii) areas over built structure;
  - (viii) stabilisation of earthworks; and
  - (ix) restoration works to return disturbed existing landscape areas to original condition.
- (b) All permanent landscape treatments must:
- (i) respond to and be consistent with adjacent established landscape treatments;
  - (ii) where not otherwise specified in this Appendix, be in accordance with 'Landscape Guideline: Landscape design and maintenance guidelines to improve the quality, safety and cost effectiveness of road corridor planting and seeding', RMS, April 2008;
  - (iii) maximise the retention of existing established trees that provide value to the landscape character of the Station Precinct and Public Domain areas;
  - (iv) be chosen to suit the local soil, drainage, microclimate and development environment;
  - (v) comprise plant species that have minimal additional water requirements beyond the establishment phase, with the exception of planting with irrigation;
  - (vi) comprise plant species that are demonstrated to require low maintenance and have drought tolerance following establishment;
  - (vii) ensure sight lines of pedestrians and cyclists across Station Precinct and Public Domain areas are maintained, and signage is not obscured by planting; and

- (viii) provide setbacks from planting to adjacent structures, street furniture and pathways to enable clear access for maintenance and visual inspections when landscape matures.
- (c) The SSJ Contractor must provide planted landscape areas where required for mitigation purposes that provide a visual screen with vegetation coverage at under storey, mid storey and canopy level to a minimum height of 8m when fully mature.
- (d) Planted areas must be designed to minimise the need for irrigation following establishment but where necessary, plants must be grouped to take advantage of the irrigation layout.
- (e) The SSJ Contractor must engage a suitably qualified arborist to assess the condition of any existing trees within the Site and must adopt any recommended treatments and protection measures proposed by the arborist to maximise the health and longevity of retained trees.
- (f) The SSJ Contractor must engage a suitably qualified horticulturalist to assess proposed plant species, plant associations, species arrangements, vegetation growing media and growing media volumes and must adopt any assessment recommendations that maximise vegetation health and growing conditions.

## 9.2 Planting

- (a) The SSJ Contractor must develop and implement a landscape strategy for tree and planting for the following areas:
  - (i) Station Precinct areas;
  - (ii) Public Domain areas;
  - (iii) Local Areas;
  - (iv) Operator's Rail Corridor areas; and
  - (v) other areas as requested by the Principal's Representative.
- (b) Planting in Station Precinct areas must:
  - (i) meet the requirements of Inner West Council guidelines;
  - (ii) provide robust, structured, dense, and verdant species that are suited to an urban environment;
  - (iii) provide planting species with a clean appearance that does not include significant die-back;
  - (iv) not include fruits, spikes or seeds that will cause a hazard to pedestrians or cyclists;
  - (v) be planted in either single species mass planting arrangements, or structured groupings of plant species that are consistent in height and character;
  - (vi) be setback from planter bed edges to the minimum so that plants when established do not spill out onto pedestrian paths or roads;

- (vii) provide a focus on amenity planting, incorporating shade and colour highlights; and
  - (viii) provide shade to reduce potential heat island effects and be positioned to provide amenity for Customers and the broader community.
- (c) Tree planting in Station Precinct areas must:
- (i) Primary Plaza areas must have minimum container size of new trees at installation - 800 litre container;
  - (ii) provide a mature height that between 7-15m that provides a civic scale in proportion to the Metro Station canopies;
  - (iii) provide a mature canopy of a minimum 3m to underside to allow for pedestrian movement and clear sight lines beneath canopy;
  - (iv) provide an upright form with a uniform shape providing a formal quality;
  - (v) provide a clean straight trunk preferably with smooth bark;
  - (vi) be suitable to thrive in an urban streetscape environment;
  - (vii) provide strong, legible structured planting that reinforces the spatial connectivity with adjacent areas;
  - (viii) consider the endemic planting of the area;
  - (ix) provide a balance of winter sun and summer shade; and
  - (x) enhance environmental quality.
- (d) All planting in Public Domain areas must:
- (i) meet the requirements of Inner West Council guidelines;
  - (ii) be themed to primarily represent the existing native vegetation of the locality and region;
  - (iii) provide shade to reduce potential heat island effects and be positioned to provide amenity for customers and the broader community;
  - (iv) be setback from planter bed edges to the minimum distance so that plants when established do not spill out onto pedestrian paths or roads; and
  - (v) contribute to the visual integration of infrastructure elements where possible.
- (e) All planting in Local Areas must:
- (i) meet the requirements of Inner West Council guidelines;
  - (ii) provide strong, legible structured planting that reinforces the spatial connectivity with adjacent areas;
  - (iii) provide shade to reduce potential heat island effects and be positioned to provide amenity for Customers and the broader community;
  - (iv) be setback from planter bed edges to the minimum distance so that plants when established do not spill out onto pedestrian paths or roads;



- (v) enhance environmental quality; and
- (vi) provide strong visual continuity, identity and character.
- (f) All planting within the Operators Rail Corridor must:
  - (i) be carefully integrated at Station Precinct to ensure access is not required to the operational rail zone for maintenance or rubbish removal.
- (g) All planting must:
  - (i) not be placed directly in front of vehicular or pedestrian gateways;
  - (ii) not have a mature height over 4m within 6m of any rail line;
  - (iii) maintain a clearance, when further than 6m from any rail line or overhead utility, equal or greater than the plants mature height; and
  - (iv) not have a mature height over 4m when located directly underneath overhead utilities.
- (h) Tree planting in street must have center line of all street trees to be a minimum of 0.9m from the kerb face unless otherwise prescribed by local council guidelines.
- (i) All planting arrangements must be physically robust and readily accessible for maintenance.

### **9.3 Tree protection**

- (a) The SSJ Contractor must ensure that:
  - (i) tree survey documentation is provided in Design Stage 1 that clearly indicates existing trees to be removed and existing trees to be retained and protected, and the methodologies to be employed to remove or protect them are comprehensively documented;
  - (ii) an arborist is engaged within 60 Business Days after the commencement of the Delivery Phase who is qualified in arboriculture to Australian Qualifications Framework (AQF) level 5 or above, and who has at least 5 years demonstrated experience in managing trees within complex development sites; and
  - (iii) within 30 Business Days after the appointment of the arborist, a tree protection plan is prepared by the arborist which specifies measures that will be taken to ensure the ongoing health and stability of the trees.

### **9.4 Trees, planting, procurement and implementation**

- (a) The SSJ Contractor must ensure that the following planting procurement requirements are achieved for all trees and planting:
  - (i) trees and planting must be grown to NATSPEC 'Specifying Trees – a guide to assessment of tree quality' by Ross Clarke and Australian Standard 2303:2015;

- (ii) trees and planting must be procured in a timely manner accounting for growing seasons, to ensure the required container size is achieved at time of planting;
- (iii) the tree and planting Sub-contractor conforms to the following requirements:
  - A. encourage and maintain healthy growth for the duration of the Contract, and provide a suitable potting up, irrigation, pruning, fertiliser and monitoring program for all trees;
  - B. take any other precautions required to safeguard the health and wellbeing of all trees to and including their delivery to the Site;
  - C. ensures that the soil potting mixes and fertilisers are determined by a soil scientist and is complementary to the soil mixes being supplied to the tree pits and planting beds for the respective trees and plants;
  - D. ensures that at time of delivery the trees have foliage size, texture and colour consistent with the foliage, size, texture and colour shown in healthy specimens of the nominated species;
  - E. ensures that trees are free of disease and insect adults, eggs, pupae, or larvae;
  - F. ensures that trees and plants have healthy root systems well-proportioned in relation to the size of the plant material, conducive to successful transplantation, and free of any indication of having been restricted or physically damaged or other conditions that would prevent thriving growth;
  - G. ensure that tree trunks are straight and well tapered. Trees with multiple leaders, unless specified, must be rejected;
  - H. ensures that trees have extension growth consistent with that exhibited in vigorous specimens of the species nominated;
  - I. ensures that trees are free from damage and restricted habit due to growth in nursery rows. Damaged, cut, or crooked leaders, including bark, bark abrasions, sunscald, disfiguring knots, mould and prematurely opened buds, or cuts of limbs over 2cm diameter that are not completely callused are cause for rejection;
  - J. ensure that trees are free from stress resulting from inadequate watering, excessive shade or excessive sunlight experienced at any time during their development;
  - K. ensure that trees are grown and hardened off to suit the conditions that could reasonably be anticipated to exist on the site at the date of delivery;
  - L. ensures that tree are free of any indication of having been restricted or damaged; and
  - M. ensures that the root system of the trees and plants are to be well proportioned in relation to the size of the plant material, conducive

to successful transplantation, and free of any indication of having been restricted or damaged.

#### 9.4.1 ~~9.4.2~~ Tree pit design

- (a) The soil volume of each tree pit must be no less than 1.5m in depth and ten (10) cubic metres of volume per tree. The following points must be considered in the calculation of available soil volumes:
  - (i) the space occupied by rock or other structural pavement supports must be excluded from the soil volume calculation;
  - (ii) existing site soil must be included in soil volume calculations only if it can be demonstrated that the soil has acceptable physical and chemical qualities to sustain long term tree growth and tree roots have unrestricted access to it; and
  - (iii) the alignment of service trenches, the space they occupy, and their possible restriction of natural root spread and development must be excluded from the soil volume calculation.
- (b) The tree pit system must be developed with consideration of existing site constraints and the need to provide adequate soil volumes.
- (c) The tree pit must provide uncompacted soil suitable for tree growth beneath load bearing pavements.
- (d) Must provide generous understorey planting suitable for rainwater inundation and to filter stormwater
- (e) Consideration must be given to the need for gaseous exchange and aeration of the tree pit soil, as well as future access for the provision of soil treatments or amendments if necessary.
- (f) The tree pit must allow for the natural growth and development of the trees structural root system to ensure their long term structural stability.
- (g) Root barriers must only use when necessary to protect infrastructure or underground Utilities Services.
- (h) Tree pits must allow free and natural drainage, and subsoil drainage and with connections to storm water infrastructure.
- (i) The potential for harvesting surface stormwater and diverting it into the tree pits must be assessed and incorporated into the design whenever feasible.

#### 9.4.2 ~~9.4.3~~ Planting and turf

- (a) All groundcovers and grasses used must be planted at a density of six (6) plants / m<sup>2</sup> and have a minimum 140mm diameter container size when planted.
- (b) All shrubs used must be planted at a density of minimum three (3) plants / m<sup>2</sup> and have a minimum 140mm diameter container size when planted.
- (c) Seeding must not be used except for temporary stabilisation.
- (d) Turf species used must satisfy the following criteria:

- (i) be demonstrably drought tolerant;
  - (ii) be suited to local climatic conditions;
  - (iii) be capable of maintaining a consistent leaf height of 25-50mm;
  - (iv) provide a consistent leaf colour presentation year round; and
  - (v) be hard wearing and suitable for high pedestrian traffic.
- (e) Forest tube stock and/or viro tubes are permissible in bioswale/wetland/landscape buffer planting.
- (f) 25L minimum size trees are permissible in landscape buffer planting and/or to supplement planting as described in items (a) and (b).
- (g) Any existing living trees that are removed as part of the Project Works must be replaced in accordance with the Transport for NSW Tree Replacement Strategy.

#### **9.4.3 9.4.4 Topsoil and mulch**

- (a) Testing of the existing topsoil in the Site must be undertaken by a soil scientist with the following qualifications: National Association of Testing Authorities (NATA) registration, Certified Professional Soil Scientist (CPSS) accreditation, The Australasian Soil and Plant Analysis Council (ASPAC) certification, as well as urban horticultural and revegetation experience.
- (b) Soil scientist reports must include the following data for soil testing: pH and electrical conductivity, salinity, sodium, chloride, cation balance and ratio, phosphorous saturation, nitrate, phosphate, potassium, sulphate, calcium, magnesium, iron, manganese, zinc, copper, boron, total organic matter, total nitrogen and carbon / nitrogen.
- (c) The SSJ Contractor must engage a qualified soil scientist to undertake a topsoil paedology survey and analysis of each topsoil landscape and vegetation community type within all disturbed Project Works areas, with a minimum of three samples from each community type. This survey is to be provided in a soil report that is to be used in the design of the proposed landscape tree and planting species selection.
- (d) The SSJ Contractor must:
- (i) engage a soil scientist within 60 Business Days after the commencement of the Delivery Phase to undertake a topsoil stripping management plan that provides a description of the existing soils within the Site and soil stripping and stockpiling procedures to minimise soil degradation and maximise availability of suitable soils for rehabilitation;
  - (ii) strip and store topsoil within all areas to be disturbed in the site, for reuse in the landscape works, in accordance with soil scientist's recommendations;
  - (iii) ensure that topsoil for reuse from different soil or vegetation types is stripped and stored separately and not mixed, in accordance with soil scientist recommendations;
  - (iv) ensure that topsoil for reuse from different soil or vegetation types is stripped and stored separately and not mixed, in accordance with soil scientist's recommendations; and

- (v) ensure the following soil types are not stripped for topsoil reuse: heavy saline, sodic, alkaline clay, and heavy plastic clay.
- (e) Prior to the placement of topsoil, the SSJ Contractor must continuously eradicate weeds in topsoil stored for reuse. When monitoring indicates that weed cover is reduced to less than 5% over four weeks after the last spray, a final eradication spray must be undertaken.
- (f) Finished subgrade surfaces to planting and turf areas must be cultivated to a minimum of 150mm depth immediately prior to spreading of topsoil.
- (g) All planting areas must be provided with a minimum 100mm depth of organic mulch that is placed so that it is not in direct contact with tree trunks and feather mulched away from trunks at base of root ball.
- (h) All mulch must be free of deleterious and extraneous matter, including soil, weeds, rocks, twigs and the like.
- (i) Topsoil types and depths must be provided in accordance with Table 9 and Table 10.

**Table 9** Topsoil types and depth

Description/intended use		'A' Horizon (Topsoil) Turf Areas	'A' Horizon (Topsoil) General at-grade planting areas	'B' Horizon (Subsoil) Turf areas and General at-grade planting areas	
Station Precinct areas – installation min depth (mm)		200	400	300	
Public Domain areas– installation min depth (mm)		100	300	200	
Riparian zones – installation min depth(mm)		N/A	100	Ameliorate 150	
pH in CaCl <sub>2</sub> (1:2) <sup>1</sup>		5.8 to 7.2	5.8 to 7.0	5.8 to 7.2	
Electrical Conductivity (1:2) <sup>2</sup> (dS/m)		< 0.6	< 0.9	< 0.6	
Cation Balance	Sodium <sup>3</sup>	%ECEC	< 5	< 5	
		SAR	< 15	< 15	
	Potassium <sup>3</sup>	%ECEC	5 to 15	5 to 15	5 to 15
		mg/kg	N/A	150 to 390	N/A
	Calcium <sup>3</sup>	%ECEC	60 to 75	60 to 75	60 to 75
		mg/kg	N/A	1200 to 2400	N/A

	Magnesium m <sup>3</sup>	%ECEC	15 to 25	15 to 25	15 to 25
		mg/kg	N/A	120 to 365	N/A
	Aluminium 3	%ECEC	< 2	<2	<2
Ca:Mg			3 to 7	3 to 7	3 to 7
Phosphate <sup>4</sup>	P sensitive planting (mg/kg)		N/A	1.6 to 5	N/A
	General plantings (mg/kg)		20 to 50	10 to 30	N/A
Ammonium + Nitrate <sup>5</sup> (mg/kg)			20 to 100	10 to 50	N/A
Sulphate <sup>6</sup> (mg/kg)			20 to 50	20 to 50	N/A
Micronutrient analysis	Iron <sup>6</sup> (mg/kg)		76 to 150	76 to 150	N/A
	Manganese <sup>12</sup> (mg/kg)		20 to 50	20 to 50	N/A
	Zinc <sup>12</sup> (mg/kg)		6 to 12	6 to 12	N/A
	Copper <sup>12</sup> (mg/kg)		7 to 30	7 to 30	N/A
	Boron <sup>13</sup> (mg/kg)		1.1 to 2.0	1.1 to 2.0	N/A
Organic Matter <sup>7</sup> (% by mass)			2 to 8	5 to 12	< 1
Bulk Density <sup>8</sup> (kg/L)			1.0 to 1.4	0.7 to 1.2	1.2 to 1.6
Toxicity Assessment <sup>9</sup> (%)			> 70	> 70	N/A
Percentage Clay (<0.002mm) (% by mass)			<8	10 to 20	10 to 20
Maximum Particle Size (mm)			20	50	50
Large Hard Particles <sup>10</sup>	>2mm	% by mass	< 15	<60	< 65
	>20mm		< 5	<8	< 10
	>50mm		0	<1	<1
Permeability <sup>11</sup> (cm/hr)			20 to 60	20 to 60	> 25

**Table 10** Topsoil types and depth

Description/intended use	'A' Horizon (Topsoil) on-structure planting areas	'B' Horizon (Subsoil) on-structure planting areas	'B' Horizon Backfill for tree planting positions
Station Precinct areas – installation min	400	800	200 around

depth (mm)				root ball	
Public Domain areas– installation min depth (mm)		N/A	N/A	200 around root ball	
Riparian zones – installation min depth(mm)		N/A	N/A	200 around root ball	
pH in CaCl <sub>2</sub> (1:2) <sup>1</sup>		6.0 to 6.8	5.8 to 7.2	5.8 to 7.2	
Electrical Conductivity (1:2) <sup>2</sup> (dS/m)		< 1.2	< 1.0	<0.6	
Cation Balance	Sodium <sup>3</sup>	%ECEC	< 5	< 5	< 5
		SAR	< 15	< 15	< 15
	Potassium <sup>3</sup>	%ECEC	5 to 15	5 to 15	5 to 15
		mg/kg	150 to 390	N/A	N/A
	Calcium <sup>3</sup>	%ECEC	60 to 75	60 to 75	60 to 75
		mg/kg	1200 to 2400	N/A	N/A
	Magnesium <sup>3</sup>	%ECEC	15 to 25	15 to 25	15 to 25
		mg/kg	120 to 365	N/A	N/A
Aluminium <sup>3</sup>	%ECEC	<2	<2	<2	
Ca:Mg		3 to 7	3 to 7	3 to 7	
Phosphate <sup>4</sup>	P sensitive planting (mg/kg)	1.6 to 5	N/A	N/A	
	General plantings (mg/kg)	20 to 50	N/A	N/A	
Ammonium + Nitrate <sup>5</sup> (mg/kg)		30 to 100	N/A	N/A	
Sulphate <sup>6</sup> (mg/kg)		20 to 50	N/A	N/A	
Micronutrient analysis	Iron <sup>6</sup> (mg/kg)	76 to 150	N/A	N/A	
	Manganese <sup>12</sup> (mg/kg)	20 to 50	N/A	N/A	
	Zinc <sup>12</sup> (mg/kg)	6 to 12	N/A	N/A	
	Copper <sup>12</sup> (mg/kg)	7 to 30	N/A	N/A	
	Boron <sup>13</sup> (mg/kg)	1.1 to 2.0	N/A	N/A	
Organic Matter <sup>7</sup> (% by mass)		15 to 25	< 1	<1	
Bulk Density <sup>8</sup> (kg/L)		0.5 to 1.0	0.5 to 1.0	1.2 to 1.6	
Toxicity Assessment <sup>9</sup> (%)		> 70	N/A	N/A	
Percentage Clay (<0.002mm) (% by					

mass)		10 to 20	10 to 20	<30	
Maximum Particle Size (mm)		30	30	75	
Large Hard Particles <sup>10</sup>	>2mm	% by mass	<30	<30	< 65
	>20mm		<8	<8	< 10
	>50mm		0	0	<5
Permeability <sup>11</sup> (cm/hr)		30 to 80	> 30	>25	
<p><i>Notes above refer to the following standards:</i></p> <p><sup>1</sup> AS4419 (2003) Appendix D</p> <p><sup>2</sup> AS4419 (2003) Appendix D</p> <p><sup>3</sup> Method 15A1 Rayment &amp; Higginson (1992)</p> <p><sup>4</sup> Bray N<sup>o</sup>:2</p> <p><sup>5</sup> AS4419 (2003) Appendix D and Bradley et al (1983)</p> <p><sup>6</sup> Method 83.1 to 83.5 Black (1983)</p>		<p><sup>7</sup> Total C by Leco Furnace</p> <p><sup>8</sup> AS4419 (2003) Appendix B</p> <p><sup>9</sup> AS4419 (2003) Appendix F</p> <p><sup>10</sup> SESL method based on BS1377-2 (1990)</p> <p><sup>11</sup> AS4419 (2003) Appendix H</p> <p><sup>12</sup> Method 83-1 to 83-5 Black (1983)</p> <p><sup>13</sup> Method 12C2 Rayment &amp; Higginson (1992)</p>			

## 9.5 Water Sensitive Urban Design

- (a) Refer to Appendix B7.0 Sustainability Requirements for Water Sensitive Urban Design (WSUD) requirements.
- (b) The SSJ Contractor must provide water sensitive urban design in all Station Precinct and Public Domain areas, in accordance with Inner West Council guidelines to achieve the following:
- (i) grass or vegetated swales to capture stormwater drainage to all at-grade car parks. Ensure bio retention systems with 100mm freeboard to stormwater drainage pits to cater for larger rain events;
  - (ii) pavement planes which fall to provide passive irrigation to adjacent garden beds, turf/grass areas and trees;
  - (iii) drainage of all areas of pavement using trench drains and conveyed to adjacent planting beds;
  - (iv) creating rain gardens in larger planting beds using swales with 100mm freeboard to a stormwater drainage pit to cater for larger rain events; and
  - (v) area drains in planted swales having invert levels to allow temporary inundation to planting areas during rain events.

## 9.6 Irrigation

- (a) The SSJ Contractor must provide automatic irrigation at the following locations:
- (i) planting areas located beneath bridges;
  - (ii) planting areas over built structure;



- (iii) tree planting pits and planting beds in Primary Plaza, Secondary Plaza, shared zones and aqueduct areas; and
  - (iv) any planting areas in rail cuttings and service yards.
- (b) Irrigation design must be based on the following requirements:
- (i) irrigation water must be delivered evenly across the soil, providing water to the root zones of trees, turf and planting through sub-surface micro-irrigation;
  - (ii) irrigation reticulation must be made out of high density polyethylene (HDPE) or equivalent;
  - (iii) the irrigation system must be equipped with a monitoring system that will provide information on soil moisture levels to minimise the waste of irrigation water;
  - (iv) irrigation zones must be individually controlled to provide accurate management of irrigation water application; and
  - (v) there is project wide water metering and monitoring of the irrigation system, including real-time leak detection.
- (c) Water supply rates to the plants must be based on a low-stress scenario, allowing for the minimum water requirement to allow the landscape to thrive.
- (d) The SSJ Contractor must provide to Principal's Representative an irrigation water demand report at each Design Stage, that estimates irrigation water requirements based on the following factors: local daily rainfall, local daily evapotranspiration, landscape life stage (growing, newly planted or established), planting type (exotic or hardy species), surrounding environment and planting (microclimate), and soil type considering moisture retention.



# 10 SSJ Specific Requirements

## 10.1 Metro Station and Station Precinct

### 10.1.1 Metro Station general

- (a) Metro Station must be an at grade station.
- (b) The Project Works must be designed in compliance with the heritage requirements set out within Appendix B6.0.
- (c) The design of Metro Station must reflect the station's role as an Interchange station between Sydney Metro City & Southwest and Sydney Trains.
- (d) The design of Metro Station must prioritise placement of lifts and stair elements to ensure the most efficient and direct means of customer interchange between Sydney Trains platforms 3, 4, 5 and 6 and the Operators platforms 1 and 2.
- (e) Metro Station must have two new entrances. One from Sydenham Road (north) and one from Burrows Road (south) at the city end of existing platforms to supplement existing Gleeson Avenue overbridge entrance.
- (f) The SSJ Contractor must provide a new elevated paid interchange aerial Metro Concourse served by the two new entrances across all station platforms, located at the city end of the existing platforms.
- (g) The SSJ Contractor must provide a single unified concourse canopy to the Metro Concourse, ensuring weather protection, as per the requirements of section 3.9 canopy typologies.
- (h) The Metro Concourse canopy must provide a unifying station identity and means for customers to readily identify the location of new Metro Station entrances.
- (i) The SSJ Contractor must not construct any rooms on the Metro Concourse.
- (j) The service building for Metro Station must not detract from the quality of the Public Domain in accordance with Section 2.
- (k) The Sydenham Road entrance (north) must provide customer toilets in accordance with section 3.2.5 customer toilets.
- (l) The Burrows Road entrance (south) must provide 1 x male accessible toilet and 1 x female accessible toilet within the paid area in the vicinity of the Gateline.

### 10.1.2 Station Precinct and Public Domain requirements

- (a) The SSJ Contractor must provide Station Precinct and Public Domain areas in accordance with the Appendix D - SWTC Drawings NWRLSRT-PBA-WSS-AT-DWG-971801 and NWRLSRT-PBA-WSS-AT-DWG-971802.
- (b) The SSJ Contractor must provide new bus stops and zones that include the following:

- (i) a new southbound bus zone on Railway Parade that:
    - A. is located on the southern side of Railway Parade adjacent to the northern Metro Station entry, with an accessible path of travel to the Gateline; and
    - B. has a bus stopping zone for both a 14.5m standard bus and an 18m articulated bus.
  - (ii) a new northbound bus zone on Burrows Avenue that:
    - A. is located on the southern side of Bolton Street adjacent to the southern Metro Station entry; and
    - B. has a bus stopping zone for two 14.5m standard bus vehicles.
  - (iii) the design of infrastructure should be supported by detailed traffic engineering and modelling
- (c) The SSJ Contractor must provide northern and southern Primary Plazas that include the following:
- (i) advance plaza trees that are positioned and arranged to identify the northern and southern Metro entry points, and to provide shade and amenity;
  - (ii) bicycle parking;
  - (iii) bench seating;
  - (iv) pedestrian pole top lighting;
  - (v) drinking fountains;
  - (vi) planting beds; and
  - (vii) rubbish bins.
- (d) The SSJ Contractor must provide new pedestrian crossings that include the following:
- (i) a signalised crossing on Railway Parade to the west of the northern Metro Station entry, subject to a pedestrian and road safety assessment to be undertaken by the SSJ Contractor;
  - (ii) a zebra crossing on Lower Railway Parade at the junction of Sydenham Road;
  - (iii) a new zebra crossing on Burrows Avenue at the intersection of George Street;
  - (iv) a new zebra crossing on George Street at the intersection of Burrows Avenue; and
  - (v) new kerb ramps on the northern end of Hogan Street and George Street linking to the Secondary Plaza and Bus Zone.
  - (vi) new kerb ramps on Burrow Ave at the intersection of George Street linking the southern end of the Primary Plaza and Secondary Plaza.

- (vii) New kerb ramp on the northwest of Hogan Avenue at the intersection with Bolton Street linking to corresponding new kerb ramp on northwest of the Primary Plaza.
- (e) The SSJ Contractor must provide the following streetscape improvements:
  - (i) new Secondary Plaza verge treatments to the northern and southern sides of Railway Parade that provide the following:
    - A. new street trees at maximum 10m centres; and
    - B. any impacts to the existing heritage listed brick wall on Railway Parade must be minimised, with any modifications designed and constructed to match the existing wall material and appearance.
  - ~~(ii) new street verge treatments on the eastern side of Garden Street including:
    - A. a 3m wide continuous shared path along the length of the street using concrete unit pavers;
    - B. rearranged on-street parking from perpendicular to a parallel parking arrangement, subject to agreement with Inner West Council by the SSJ Contractor; and
    - C. new street trees at 6m centres aligned to the head of the parallel parking bays.~~
  - ~~(iii) new street verge treatments on the southern side of Shirlow Street between Garden Street and Saywell Street including:
    - A. a continuous pedestrian pathway along the length of the street using concrete unit pavers on a rigid base; and
    - B. an on-road cycle path.~~
- ~~(f) The SSJ Contractor must provide the following connections from the finished floor level of the aqueduct to the new shared path on the eastern side of Garden Street and ensure that the level differences between the finished floor level of the aqueduct and Garden Street are mitigated by:
  - ~~(i) a series of generously proportioned stepped and landscape terraces across the full width of Garden street, including the following elements:
    - A. a stair – with a minimum width of 4m;
    - B. a continuous DDA accessible path integrated within the stepped terraces;
    - C. bench seating;
    - D. pedestrian pole top lighting; and
    - E. planting beds.~~~~
- (f) ~~(g)~~ The SSJ Contractor must provide specific Station Precinct requirements as follows:
  - (i) Metro Station transport requirements:

- A. bicycle parking (northern entry)
  - 1. class 2 – lock-up (bicycles): 40
  - 2. class 3 – rails:10 (for 20 bicycles)
  - 3. total bicycles spaces 60
- B. bicycle parking (southern entry)
  - 1. class 2 – lock-up (bicycles): 18
  - 2. class 3 – rails: ~~65~~ (for ~~1210~~ bicycles)
  - 3. total bicycles spaces 30
- C. maintenance parking spaces: 2 (to be located at service building).
- D. accessible parking spaces: 2 (one accessible parking space to be relocated from Burrow Ave onto Bolton Street with an accessible path of travel to the Gateline).
- E. [motorcycle parking: 2 bays located in Bolton St car park](#)
- E. ~~E.~~ bus stops (northern entry)
  - 1. standard length (14.5m): 1
  - 2. articulated length (18m): 1
- G. ~~F.~~ bus stops (southern entry)
  - 1. standard length (14.5m): 2
- H. ~~G.~~ Kiss-and-Ride bays (southern entry): 6
- L. ~~H.~~ taxi stopping bays (southern entry): 1

(ii) Metro Station customer shelter requirements:

- A. head of Kiss-and-Ride rank: 1 per rank
- B. head of bus stop: 1 per stop
- C. head of taxi rank: 1 per rank

(iii) Metro Station plant materials minimum size requirements:

- A. Primary and Secondary Plaza areas: minimum container size of new trees at installation - 800 litre; and
- B. Public Domain areas (streets) a minimum container size of new trees – 400 litre.

(g) ~~(h)~~ The SSJ Contractor must allow for future Station Precinct requirements as follows:

- (i) bicycle parking.
  - A. class 2 – lock-up (bicycles): 58;
  - B. class 3 – rails: 16 (for 32 bicycles); and

- C. total bicycle spaces 90.

### 10.1.3 Sydenham Pit general requirements

- (a) The Project Works must be designed in compliance with the heritage requirements set out within Appendix B6.0.
- (b) The SSJ Contractor must demonstrate how impacts to the existing Sydenham Pit and pumping station as defined in the State Heritage Register due to construction, temporary or permanent works are being minimised where possible.
- (c) The SSJ Contractor must ensure that any physical impacts to the Sydenham Pit, including base and walls of pit are reinstated using materials and design to match the existing adjacent material to preserve the historical character.
- (d) The SSJ Contractor must ensure that any new drainage penetrations within the Sydenham Pit walls are designed to integrate with the sloped geometry of the pit walls and are minimised in size.
- (e) The SSJ Contractor must demonstrate how visual impacts to the Sydenham Pit and pumping station are being minimised, particularly for the following key views;
  - (i) view from the Rail Corridor;
  - (ii) view from Garden Street;
  - (iii) view from the pedestrian access way on the north western side; and
  - (iv) view from the aqueduct of the northern face of the heritage listed pumping station, including views of the distinctive fin elements extending to the pit floor.
- (f) The SSJ Contractor must ensure that any existing lighting and CCTV, where impacted by new works, is replaced, in accordance with Appendix B2.0 and B4.0.
- (g) The SSJ Contractor must ensure that any new works are designed in accordance with CPTED principles.
- (h) The SSJ Contractor must ensure that a secure perimeter to the Sydenham Pit is maintained during construction, and provide a new High Security fence to the perimeter of the site, as per the requirements of section 7.7 Security Fencing.

### 10.1.4 Sydenham aqueduct requirements

- (a) The SSJ Contractor must provide an aqueduct and maintenance vehicular access ramp.
- (b) The Sydenham aqueduct must:
  - (i) be a fully closed design with a trafficable top surface to allow access for maintenance vehicles and pedestrians;
  - (ii) be located parallel to the southern Sydenham Pit embankment wall;
  - (iii) integrate services within the architectural design, including but not limited to:
    - A. lighting integrated design within the balustrade detail to provide lux level 100 lux to the finished floor level and the vertical fascia;

- B. lighting elements;
  - C. CCTV; and
  - D. surface drainage.
- (iv) present smooth, clean lines and have a minimum structural depth that is consistent with the spans and method of construction;
  - (v) minimise the extent of new structure required to support the aqueduct constructed within the Sydenham Pit;
  - (vi) have columns placed so that they minimise the visual impact of the heritage listed pumping station when viewed from the pedestrian access way on the north western side;
  - (vii) have a structure that integrates the headstock with the deck structure and columns to minimise visual clutter;
  - ~~(viii) have a tapering cross sectional profile to minimise the visual impact of the aqueduct deck. The profile must an expressed leading edge of maximum 150 mm depth;–~~
  - (viii) ~~(ix)~~ have a Class 2 fair face concrete finish with anti-graffiti coating;
  - (ix) ~~(x)~~ have cambered abutments and ensure that modifications to the existing sandstone embankment are minimised, with making good works to match the existing;
  - (x) ~~(xi)~~ have a feature balustrade treatment consistent along the full length, comprised of vertical steel fins that can achieve a minimum of 80% transparency in order to maintain clear views through according to CPTED principles, to minimise elevational massing, and deter opportunities for graffiti and vandalism; and
  - (xi) ~~(xii)~~ have a vehicle crash barrier (e.g. bollards offset from the edge, rather than typical W-section barrier).
- (c) In Design Stage 1, the SSJ Contractor must respond to and provide evidence of consistency with the RMS 'Environmental Impact Assessment Guidance Note - Guidelines for landscape character and visual impact assessment' in the design of the pedestrian bridges.
  - (d) In Design Stage 1, the SSJ Contractor must respond to and provide evidence of consistency with the 'Bridge Aesthetics Design Guideline to Improve the Appearance of Bridges in NSW', RMS, July 2012. As a minimum demonstrate a response to:
    - (i) design approach;
    - (ii) context;
    - (iii) understanding of form;
    - (iv) design of parts and components;
    - (v) design of details; and
    - (vi) finishes.



- (e) ~~(b)~~ The surface finish for the aqueduct must:
- (i) be natural grey concrete, or material to suit Inner West Council's code;
  - (ii) be finished in a light broom finish perpendicular to direction of travel;
  - (iii) be provided with 5mm saw cut joints at maximum 2.0m spacing; and
  - (iv) have a +/- 10mm vertical tolerance measured with a 4m straight edge.
- (f) ~~(e)~~ The Sydenham Pit maintenance vehicular ramp must:
- (i) be located parallel to the Sydenham Pit west embankment;
  - (ii) provide maintenance vehicular access to the floor of the Sydenham Pit via Garden Street for an articulated 18m truck;
  - (iii) provide an architectural feature balustrade to match the aqueduct; and
  - (iv) provide a vehicle barrier concealed to the inside of the ramp.
- (g) ~~(f)~~ The Sydenham aqueduct must not preclude a future proof:
- (i) ~~a~~ DDA accessible public walkway along the full length and width of the aqueduct from Garden Street to the interface with the Sydney Metro Train Facility South (SMTFS);
  - (ii) ~~a~~ DDA accessible connection between the aqueduct and the potential over site development at the Sydney Metro Train Facility South (SMTFS);
  - (iii) ~~a~~ ground level connection into the future development at No 11 Sydenham Road (SP73349) in order to ensure a step-free and level access between the development and the aqueduct; and
  - (iv) ~~potential~~ programmable space for pop-up market functions and the like.

#### 10.1.5 New pumping station requirements

- (a) ~~The SSJ Contractor must provide a new pumping station.~~
- (b) ~~The new pumping station must:-~~
- (i) ~~be located to ensure the visual impact to the Sydenham Pit is minimised;~~
  - (ii) ~~be located a minimum of 25m from the existing heritage pump house;~~
  - (iii) ~~be a contemporary building with reference to existing heritage pump house in form (gable roof), scale and height;~~
  - (iv) ~~have an external cladding treatment of metal (slats, trellis) to achieve a translucent appearance to express the inner working of the pump house; and~~
  - (v) ~~have a building structure to be concealed from outside.~~

# 11 Prototypes, Samples and Quality Benchmarks

## 11.1 General

- (a) The SSJ Contractor must design and construct the Project Works to comply with the Quality Benchmarks, specified in the SSJ SWTC Main Body and Appendices.
- (b) The SSJ Contractor must prepare and submit as a minimum to the Principal's Representative and the Independent Certifier project specific, prototypes, samples (including materials and finish boards), and quality benchmarks for all customer and staff facing aspects of the Project Works, as part of the design submission process described in the SWTC and MRT. As a minimum this must include:
  - (i) finishes – floors, walls and ceiling – for all areas;
  - (ii) furniture, fittings and fixtures – platforms, concourses and plaza's, and BOH areas, etc;
  - (iii) canopies – structure, finishes and cladding, etc;
  - (iv) Vertical Transport – structure, finishes, layout, etc;
  - (v) lighting – fixings, finishes, luminance, etc - all areas;
  - (vi) Gatelines;
  - (vii) fencing and balustrades;
  - (viii) security elements – cameras, bollards, gates, barriers, etc
  - (ix) signage and wayfinding;
  - (x) public art;
  - (xi) advertising;
  - (xii) control rooms;
  - (xiii) equipment rooms;
  - (xiv) toilets; and
  - (xv) change rooms.
- (c) The SSJ Contractor must construct, manufacture or procure and submit samples and prototypes for all quality benchmarks. The SSJ Contractor must not proceed with and equivalent permanent work until the Independent Certifier has certified that the submitted sample or prototype is at least equivalent to the quality benchmark. Once certified by the Independent Certifier, the prototype and or sample will become the quality benchmark to be achieved in the Project Works.
- (d) These samples and prototypes for all quality benchmarks must be used when evaluating options and different products for each application.

- (e) These samples and prototypes must be independent of any mock-ups, samples or prototypes produced to support the CCD process.
- (f) All prototypes, samples, materials and finishes submissions must be:
  - (i) as appropriate, placed in 'live' environments so that they can be tested over long periods of time before final decisions are made;
  - (ii) tested in accordance with Codes and Standards;
  - (iii) photographed and referenced in the Design Documentation relevant to the appropriate design package;
  - (iv) accompanied by relevant product data sheets and test certificates;
  - (v) permanently labelled with the submission details including date and description;
  - (vi) modified to remain consistent with the latest designs;
  - (vii) kept by the SSJ Contractor and made available to the Principal's Representative, customers and stakeholders until Completion;
  - (viii) placed at venue/s where they can be accessed and independently viewed/tested by third parties without entering the Site;
  - (ix) securely stored by the SSJ Contractor in a dedicated facility (the location to of which must be agreed by the Principal's Representative) and able to be moved to the locations requested by the Principal's Representative; and
  - (x) be disposed of by the SSJ Contractor or be provided to the Principal's Representative where requested by the Principal's Representative, at Completion.

## 11.2 Process

- (a) The SSJ Contractor must prepare and submit to the Principal's Representative and the Independent Certifier a detailed list of proposed prototypes, samples and quality benchmarks within 60 Business Days after commencement of the Delivery Phase for approval.
- (b) Within 30 Business Days after the approval of the list of proposed prototypes, samples and quality benchmarks, the SSJ Contractor must submit to Principal's Representative and the Independent Certifier a detailed prototype, samples and quality benchmarks plan.
- (c) The prototypes, samples and quality benchmarks plan must include as a minimum for each proposed prototype, sample and quality benchmark:
  - (i) the program demonstrating how prototypes will feed back into the design process;
  - (ii) the location;
  - (iii) the purpose;
  - (iv) the options considered;

- (v) the design package that it supports;
  - (vi) the testing regime;
  - (vii) the testing organisation;
  - (viii) the outcomes to be derived; and
  - (ix) those samples that are subject to independent third party testing.
- (d) The SSJ Contractor must update the prototypes, samples and quality benchmarks plan in all progress reports and at the end of each Design Stage.
- (e) The SSJ Contractor must not change the prototypes, samples and quality benchmarks list or plan without the approval of the Principal's Representative.
- (f) Where a sample or prototype is to be tested to destruction then at least one other identical sample must be kept as a control.
- (g) Where a sample or prototype is to be tested by an independent third party then the SSJ Contractor must also undertake the same tests and at least one other identical sample must be kept as a control.

# ( Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

( Scope of Works and Technical Criteria  
(SWTC)

Appendix B4.0 – Mechanical and Electrical  
Services

<b>PROJECT</b>	Sydenham Station and Junction	<b>DATE</b>	<del>14 September 2017</del> <u>16 May 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2D</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-ME-S CH-000102</u>
<b>FILE NAME</b>	Sydenham Station and Junction SWTC App B4.0 Mechanical Electrical Services		



# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
<b>2</b>	<b>Electrical</b>	<b><del>23</del></b>
2.1	General	<del>23</del>
2.2	Power monitoring and control systems	<del>23</del>
2.2.1	Sydney Trains requirements	<del>23</del>
2.2.2	Sydney Metro requirements	<del>23</del>
2.3	Low voltage power supply and distribution	<del>24</del>
2.3.1	General requirements	<del>24</del>
2.3.2	Sydney Trains requirements	<del>34</del>
2.3.3	Sydney Metro City & Southwest requirements	<del>34</del>
2.4	High voltage power supply and distribution	<del>39</del>
2.5	Earthing, bonding and Electrolysis protection	<del>310</del>
2.5.1	General requirements	<del>310</del>
2.5.2	Earthing and bonding system	<del>911</del>
2.5.3	Electrolysis and Stray Current mitigation	<del>1412</del>
2.5.4	Electromagnetic compatibility	<del>1412</del>
2.5.5	Testing and commissioning requirements	<del>1213</del>
2.6	Lighting	<del>1214</del>
2.6.1	Sustainability	<del>1214</del>
2.6.2	Maintenance	<del>1314</del>
2.6.3	Safety and security	<del>1314</del>
2.6.4	Emergency lighting and exit signage	<del>1415</del>
2.6.5	Lighting control and equipment	<del>1415</del>
<b>3</b>	<b>Mechanical</b>	<b><del>1819</del></b>
3.1	Environmental control systems	<del>1319</del>
3.1.1	General requirements	<del>1319</del>
3.1.2	Environmental design conditions	<del>1920</del>
3.1.3	Occupancy levels and heat loads	<del>2021</del>
3.1.4	Internal design temperatures	<del>2021</del>
3.1.5	ECS design requirements	<del>2021</del>
3.1.6	Redundancy	<del>2425</del>
3.1.7	Availability	<del>2526</del>
3.1.8	Systems and components	<del>2526</del>
3.2	Building management system	<del>2728</del>
<del>3.2.23.2.1</del>	<del>Controls and monitoring</del>	<del>2729</del>
3.3	Hydraulics services systems	<del>3031</del>
3.3.1	Overview	<del>3031</del>
3.3.2	General requirements	<del>3031</del>
3.3.3	Water services system	<del>3233</del>
3.3.4	Drainage system	<del>3436</del>
3.3.5	Interfacing, control and monitoring	<del>3738</del>
3.4	Vertical transportation	<del>3840</del>
3.4.1	General requirements	<del>3840</del>



3.4.2	Lifts	<del>39</del> <u>40</u>
3.5	Fire services systems	<del>39</del> <u>41</u>
3.5.1	General requirements	<del>39</del> <u>41</u>
3.5.2	Fire <u>sprinkler systems</u>	<u>41</u>
<u>3.5.3</u>	<u>Fire</u> and smoke detection and alarm system	<del>39</del> <u>41</u>
<del>3.5.3</del> <u>3.5.4</u>	Fire hydrant system	<del>43</del> <u>46</u>
<del>3.5.4</del> <u>3.5.5</u>	Fire hose reel system	<del>45</del> <u>48</u>
<del>3.5.5</del> <u>3.5.6</u>	Gaseous suppression system	<del>45</del> <u>49</u>
<del>3.5.6</del> <u>3.5.7</u>	Portable fire extinguishers	<del>46</del> <u>49</u>
<del>3.5.7</del> <u>3.5.8</u>	Interfacing	<del>46</del> <u>50</u>
<del>3.5.8</del> <u>3.5.9</u>	Control and monitoring	<del>47</del> <u>51</u>

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# 1 Overview

- (a) This Appendix describes the performance and technical requirements of the following electrical services:
- (i) Power control system (PCS);
  - (ii) Building Management System (BMS);
  - (iii) Low voltage power supply and distribution;
  - (iv) High voltage power supply and distribution;
  - (v) Earthing, bonding ~~and Electrolysis~~, electrolysis protection, ~~where the earthing and bonding includes~~ and EMC/EMI, including:
    - A. new earthing systems for Sydney Metro Works;
    - B. modification to existing Sydney Trains earthing systems;
    - C. interconnection between new and existing Sydney Metro Works and earthing systems;
    - D. earthing of low voltage and high voltage AC power systems;
    - E. bonding of DC traction structures;
    - F. earthing and bonding requirements for all other infrastructure; and
    - G. EMC system requirements for the Project Works.
  - (vi) Lighting.
- (b) This Appendix describes the performance and technical requirements of the following mechanical services:
- (i) Environmental control systems;
  - (ii) Building Management System (BMS);
  - (iii) ~~(ii)~~ Hydraulics, water and sewerage;
  - (iv) ~~(iii)~~ Vertical transportation; and
  - (v) ~~(iv)~~ Fire detection, suppression and alarm systems.
- (c) The SSJ Contractor must develop a comprehensive plant access, maintenance and replacement strategy. The strategy must:
- (i) ensure compliance with all relevant building code and occupational health and safety legislative requirements;
  - (ii) ensure fit for purpose, convenient access for the purpose of operations, maintenance, repair and replacement of all plant and equipment with maintainable working components;
  - (iii) provide safe means of access to plant and equipment including roof mounted items;

- (iv) accommodate the need for personnel to access all plant and equipment for initial installation and through-life replacement of central type plant. The maintenance/service clearances as recommended by plant and equipment manufacturers must be provided in addition to designated access walkways/pathways; and
- (v) provide suitable access within the design for the overhaul and / or replacement of major plant, including any removable panels, floor and wall hatches and the like

## 2 Electrical

### 2.1 General

- (a) The Brownfield Works electrical systems must be segregated within the Site to be independent of the Operators electrical system and other third parties with the exception of earthing and bonding as defined in Section 2.5 of this Appendix.

(b) All cabling in enclosed areas must be low smoke zero halogen (LSZH).

### 2.2 Power monitoring and control systems

#### 2.2.1 Sydney Trains requirements

- (a) All modifications to the Brownfield Works low voltage installation must be in accordance with ASA standards and guidelines.

#### 2.2.2 Sydney Metro requirements

- (a) The LV Distribution System must be remotely monitored by the Operators power control system (PCS) , including monitoring of:
- (i) low voltage main switchboard and distribution boards;
  - (ii) status of low voltage switchboard circuit breakers, distribution boards main switch, local, remote control, metering, healthy incoming supply, protection and power factor;
  - (iii) low voltage main switchboards: status of main switches;
  - (iv) Fire detection and protections systems for HV switchrooms; and
  - (v) UPS's: status of AC supply or battery power source and general alarms.
- (b) The PCS must ~~control~~monitor the following as a minimum:
- (i) LV status of the low voltage main switchboards main switches, local/remote control status, incoming supplies metering, healthy incoming supplies, protection and power factor;
  - (ii) all plant room equipment for the HV switchrooms in accordance with the requirements of the Sydney Metro City & Southwest – High Voltage Power Supply Interface Schedules Appendix E1.3 and Sydney Metro City & Southwest – OHW & Traction Power Interface Schedules Appendix E1.4;
  - (iii) fire detection and protection systems for HV switchrooms;
  - (iv) status of AC supply or battery power source and general alarms for systems UPS's;
  - (v) ~~(ii) Status~~status and alarms for low voltage auxiliary supplies within HV switchrooms;

- (vi) ~~(iii) Access~~ access monitoring and intruder detection systems in HV switchrooms; ~~and~~
- (vii) ~~(iv) Status~~ status and alarms for switchroom communications systems.

## 2.3 Low voltage power supply and distribution

### 2.3.1 General requirements

- (a) Functions, facilities and services that are the responsibility of Sydney Trains must be powered from the electrical distribution network managed by Sydney Trains as specified in section 2.3.2 of this Appendix.
- (b) Functions, facilities and services that are the responsibility of the Operator must be powered from the electrical distribution network managed by the Operator as specified in section 2.3.3 of this Appendix.

### 2.3.2 Sydney Trains requirements

- (a) All modifications to the Brownfield Works low voltage installation impacted by the SSJ Contractor Activities must be designed, installed, monitored and controlled in accordance with ASA standards.
- (b) Modifications to the low voltage electrical system must be designed so that a failure of any single component does not result in Degraded Operation.

### 2.3.3 Sydney Metro City & Southwest requirements

- (a) Connected electrical Loads must be classified as:
  - (i) Safety Service Load;
  - (ii) Normal Load; or
  - (iii) Operations Critical Load. Continuity of service to Operations Critical Loads must be ensured through provision of Redundancy of supply and/or through the provision of alternative sources of power.
- (b) The LV Distribution System must be provided so that a failure of any single component does not result in Degraded Operation.
- (c) Renewable electrical power generation sources must be connected to the LV Distribution System.
- (d) All LV Distribution System equipment must be proven, "off the shelf" technology used successfully for a minimum period of three years in three separate rail systems.
- (e) The SSJ Contractor must make capacity, safeguarding and augmentation provision for the LV Distribution System and Loads to be extended with no disruption to train services.
- (f) The LV Distribution System must deliver the electrical power Loads required by the Project Works including the following:
  - (i) Lifts;
  - (ii) Escalators;

- (iii) Advertising LCD screens;
- (iv) Vending machines;
- (v) Lighting;
- (vi) Single phase and three phase power outlets;;
- (vii) Buildings and rooms;
- (viii) Retail facilities;
- (ix) Gateline equipment and associated equipment;
- (x) Electronic ticketing systems (ETS);
- (xi) Passenger information displays;
- (xii) CCTV cameras and monitors;
- (xiii) Communication systems;
- (xiv) Environmental control systems;
- (xv) Building management central processing system and station control room;
- (xvi) Fire systems, including fire control room and pumps;
- (xvii) Mechanical services;
- (xviii) Signalling systems;
- (xix) Plant and equipment;
- (xx) Extra power needed during maintenance tasks;
- (xxi) Equipment access including power for moving/lifting equipment.
- (xxii) Power control system equipment; and
- (xxiii) All other systems and equipment requiring a low voltage power supply as a result of the SSJ Contractor Activities and Interface Contractor requirements as per Appendix C1.3.

(xxiv) All essential Fire Safety Systems are classified as Safety Service Loads

### 2.3.3.1 Redundancy

- (a) The LV Distribution System must provide a minimum level of N-1 Redundancy for low voltage main switchboard incomers.
- (b) Electrical loads classified as Safety Service Loads and Operations Critical Loads must have the minimum level of Redundancy of N-1 and meet the following requirements:
  - (i) Loads which have a battery backup that can maintain the load for the required time has a Redundancy of N-1; and
  - (ii) Any Load used as a mechanical backup for another load must be supplied from separate bus ~~sections~~section of a main ~~LV~~low voltage switchboard or an independent switchboard.



### **2.3.3.2 Low voltage distribution system**

- (a) The following requirements for time to restore must be incorporated in the design:
  - (i) for Safety Service Loads and Operations Critical Loads, 15 minutes as a maximum; and
  - (ii) for Normal Loads, 24 hours.
- (b) The LV Distribution System must provide an uninterruptible power supply (UPS) to Loads that cannot sustain short term switching outages for the duration of any switching outage.
- (c) All main low voltage switchboard equipment must be contained within a dedicated fire compartment(s) that has a minimum fire resistance level of FRL 120/120/120 except doors which must have a minimum fire resistance level of FRL -/120/30; unless all parts of the equipment dedicated fire compartment(s) are more than 6m separated from any other fire compartment(s), including adjacent building(s) fire compartments, but excluding BCA Class 10 buildings where fire rating provisions are not otherwise specified.
- (d) All main low voltage switchboards must be maintained at a minimum of 0.95 power factor lagging and leading.
- (e) Electricity generated from renewable energy sources must be metered.
- (f) Electrical meters must:
  - (i) have an accuracy class of 0.2 over the full power factor range;
  - (ii) be able to provide current, voltage, kWh consumption and maximum demand in real time; and
  - (iii) be installed to provide for reading locally and remotely by the PCS or BMS.

### **2.3.3.3 Main low voltage switchboards and distribution boards**

- (a) All main low voltage switchboards must be located indoors.
- (b) Indoor switchboards and distribution boards must have a minimum IP rating of IP42.
- (c) Outdoor distribution boards must have a minimum IP rating of IP65.
- (d) Main low voltage switchboards that require N-1 rated supplies must have separate bus sections for these supplies or separate switchboards with a common busbar with mechanically interlocked incoming circuit breakers.
- (e) Electrical metering must be provided on the incoming supplies at each low voltage main switchboard used to supply the station.
- (f) All secondary revenue electrical supplies must have tariff metering.
- (g) Sub-metering must be provided for final loads over 100 kVA connected load.
- (h) Main low voltage switchboards must be form 4a as per AS/NZS3439.1.
- (i) All switchboard and distribution board neutral busbars and incomers from low voltage terminals of transformer must be the same size as the phase busbar.

#### 2.3.3.4 Station Precincts

- (a) The SSJ Contractor must provide the following electrical systems for the Primary and Secondary Plazas including:
  - (i) power;
  - (ii) lighting; and
  - (iii) monitoring and control.
- (b) For all Local Area Works outside the Station Precinct all electrical work must meet the relevant Authorities requirements.

#### 2.3.3.5 Solar photovoltaic cells

- (a) The SSJ Contractor must provide renewable energy at Sydenham Station for the Operator loads in accordance with the requirements of Appendix B7.0 of this SWTC.
- (b) The SSJ Contractor must provide a renewable electrical power generation source that complies with ASA Technical Note TN031 – 'Requirements for photovoltaic installations connected via inverters to the RailCorp low voltage (LV) distribution network'.
- (c) Power generated by the photovoltaic (PV) system must be used in the ~~Operators~~Sydney Metro Works low voltage distribution system and must not be exported to the ~~Operators~~Sydney Metro Works 11kV system or the Sydney Trains, Works electrical network.
- (d) The PV system by SSJ Contractor must:
  - (i) be designed to conceal junction boxes where possible;
  - (ii) be designed to conceal inverters an appropriate distance from the PV array to reduce system losses;
  - (iii) be designed to ramp down generation to match demand during daily operation;
  - (iv) be capable of capturing, storing and displaying information communicating the operation of the photovoltaic system including set up to enable remote online reading of data by the BMS; and
  - (v) utilise inverters with a minimum 10 year performance warranty and be on the clean energy Council's list of approved inverters for installation.
- (e) The PV array must:
  - (i) achieve the minimum peak array power output as nominated in Sustainability Appendix B7.0 specified for either an integrated photovoltaic array or a roof mounted photovoltaic array;
  - (ii) utilise panels with a minimum 25 year 80% panel output performance warranty;
  - (iii) have a local switch to de-energise the panels in a fire situation involving the panels.
  - (iv) ~~(iii)~~ have a minimum 5 year workmanship/installation/defects warranty;

- (v) ~~(iv)~~ have a minimum peak power output of 140w/m<sup>2</sup> (based on manufactured rated panel output);
- (vi) ~~(v)~~ utilise high quality photovoltaic cells or panels (where panels are utilised) from a Bloomberg Tier 1 manufacturer (others may be considered on merit); and
- (vii) ~~(vi)~~ utilise Clean Energy Council approved panels for roof mounted panels.

### 2.3.3.6 Uninterruptable power supplies (UPS)

- (a) The SSJ Contractor must provide a uninterruptible power supply (UPS) of adequate size to provide back-up time as follows:
  - (i) For communications equipment loads, as per Appendix B2.0;
  - (ii) For signalling and train control equipment loads as per Appendix B2.0;
  - (iii) For other Safety Service Loads and Operations Critical Loads, a minimum time in accordance with relevant Standards; and
  - (iv) For all other Loads a minimum time to support operations activities consistent with the operations requirements and the SSJ Contractors Fire and Life Safety strategy as specified in Appendix B5.0 of the SWTC.
- (b) The UPS(s) must:
  - (i) be distributed via fixed wiring to labelled plug tops for portable equipment and direct connection to fixed cabinets;
  - (ii) be industrial grade;
  - (iii) include:
    - A. maintenance bypass;
    - B. static transfer switch;
    - C. batteries with minimum design life of seven years; and
    - D. monitoring by the BMS for emergency lighting and by the PCS, for station systems to provide UPS AC supply or battery power source status and general alarms.

### 2.3.3.7 Installation requirements

- (a) Sydney Trains LV cabling and Sydney Metro Works low voltage cabling must not share a common trench, ladder, conduits or troughing.
- (b) ~~(a)~~ All services in public areas are to be embedded or concealed in a manner that:
  - (i) ensures that adequate access is permitted for maintenance of the service;
  - (ii) does not diminish the aesthetic appeal of the installation;
  - (iii) does not undermine the integrity of any substrate it is embedded in; and
  - (iv) does not undermine the integrity of any surface it is mounted to.
- (c) ~~(b)~~ All penetrations must:
  - (i) maintain the relevant fire resistance level; and

- (ii) be sealed to retain the waterproofing rating.
- (d) ~~(e)~~ All supports are to be designed and installed to accommodate the loads supported.
- (e) ~~(d)~~ Cable containment system must be ladder, conduit or enclosed troughing for all mains, submains and routes containing more than 10 circuits.
- (f) ~~(e)~~ Cable pits must not be installed in new platforms.
- (g) Cable pits must be sized to suit:
  - (i) the quantity of conduits to be installed in each direction
  - (ii) the quantity and size of cables to be installed through the pit; and
  - (iii) the installation methodology and requirement of cables, including allowance for future cable installation, without damaging cables.
- (h) ~~(f)~~ Pits and conduits must:
  - (i) be water free before cables are installed and remain water free after installation;
  - (ii) have all pits drained prior to the installation of services;
  - (iii) have all conduits capped prior to the installation of services and inspected prior to installation of services to ensure any water ingress has drained away; and
  - (iv) have appropriate measures designed and implemented to mitigate water ingress or to allow drainage of water from pits subsequent to the installation of services.
- (i) ~~(g)~~ All spare conduits must have non-metallic draw wires installed.
- (j) ~~(h)~~ Cable pulling tensions must not exceed the manufacturers limit during installation:
  - (i) all cable pulls are to be planned with prior estimation of maximum anticipated tensions; and
  - (ii) assessment is to be made prior to all cable pulls to determine the methods used to monitor the tension during the pull.
- (k) ~~(j)~~ Cable pulling rollers and lubricating additives must not undermine the integrity of the cable or cable containment system.
- (l) ~~(k)~~ Minimum cable bending radii must not exceed the manufacturer's specifications:
  - (i) during storage prior to and during construction; and
  - (ii) during all stages of installation.

### 2.3.3.8 Cable installation

- (a) LV Distribution System cable installation must not:
  - (i) interfere with other services;
  - (ii) be surface mounted in public areas; and

- (iii) encroach into identified public access routes.
- (b) The SSJ Contractor must provide, at Construction Completion of each Portion, spare cable containment system(s) spatial capacity and thermal derating, including:
  - (i) the higher of one additional cable or 25% of additional design/route capacity, for areas that are inaccessible for future cable containment installation; and
  - (ii) the higher of one additional cable or 20% of additional design/route capacity, for areas that are accessible for future cable containment installation.

## **2.4 High voltage power supply and distribution**

- (a) The Interface Contractor, in accordance with the Sydney Metro City & Southwest – High Voltage Power Supply Interface Requirements Specification within Appendix E of the SWTC is responsible for the design, installation, testing and commissioning of the Sydney Metro Works high voltage and Traction Power Supply cabling and equipment.
- (b) The SSJ Contractor must provide:
  - (i) foundation, cable containment, earthing, bonding and all other civil requirements within the Project Works area for permanent infrastructure to be installed by the Interface Contractor.
  - (ii) Sydney Metro Works high voltage power supply CSR & cable containment requirements in accordance with the requirements of Appendix B2.0 and the Interface Schedule Appendix E1.0 Interface Requirements Specification of the SWTC.

## **2.5 Earthing, bonding and Electrolysis protection**

### **2.5.1 General requirements**

- (a) The SSJ Contractor must prepare an Earthing, Bonding, Isolation, Electrolysis protection and Electromagnetic Compatibility Plan for all existing, modified or new infrastructure impacted by the SSJ Contractor's Activities and implement all mitigation measures identified in that plan.
- (b) The SSJ Contractor must assess the potential for Stray Current, transfer potentials and earth potential rise and the impact on the existing earthing and bonding system resulting from the SSJ Contractor's Activities including onsite testing as an input to Design Stage 1 to establish a "baseline".
- (c) The SSJ Contractor must take into consideration the Operators electrical network, Sydney Trains electrical network and all Third Parties influenced by the Project Works and Temporary Works.
- (d) The earthing and bonding systems must be designed, constructed, tested and commissioned to ensure the below outcomes in the following priority order:
  - (i) protection of persons;
  - (ii) protection of infrastructure;
  - (iii) assurance of Asset operability;

- (iv) ease of maintenance; and
- (v) ease of constructability.
- (e) The EMC systems and risk mitigation measures must be designed, constructed, tested and commissioned to ensure the below outcomes in the following priority order:
  - (i) protection of persons;
  - (ii) protection of infrastructure; and
  - (iii) assurance of Asset operability.
- (f) The SSJ Contractor must design, construct, test and commission an earthing and bonding system that meets all of the system diversity requirements of the Project Works.

## **2.5.2 Earthing and bonding system**

- (a) The SSJ Contractor must provide an earthing and bonding system for the reticulation and distribution networks throughout the Operators and Sydney Trains networks, in order to aid the mitigation of stray DC current flow.
- (b) The design and construction of the high voltage earthing system within the service building must follow the process outlined in Figure 8.1, AS 2067.
- (c) Where the low voltage earthing system is combined with the HV earthing system it must comply with AS/NZS 3000 (Set).
- (d) Earth grids must provide the following level of system Redundancy:
  - (i) a minimum of two points of connection must be provided between earth grid electrodes and the earth grid; and
  - (ii) a minimum of two fault current rated connections must be provided between the main earth bar and the earth grid.
- (e) For the earthing and bonding system:
  - (i) earthing systems must be isolated from the earthing systems of the local electricity supply authority and in all cases in compliance with applicable Third Party agreements and Utility Services requirements;
  - (ii) where a low voltage supply taken directly from local electricity supply authorities within the Metro Station and Station Precinct, the connection must be made via an isolation transformer;
  - (iii) the high voltage/low voltage earthing systems for Sydney Metro Works or Brownfield Works are not to extend beyond the boundaries of the Rail Corridor;
  - (iv) all earth electrodes must have a minimum cross sectional area of 70 square millimetres (70mm<sup>2</sup>);
  - (v) earth electrodes must be composed entirely of copper (bi-metallic electrodes must not to be used); and
  - (vi) all earth electrodes must be accessible for testing and must be able to be easily maintained without degradation of operations activities.

- (f) The SSJ Contractor must ensure that no touch or step potential issues occur between equipment.
- (g) For the purpose of assessing step and touch potential hazards, all traction electrification system supports that do not incorporate supplementary insulation must be treated as part of the Traction Return system.
- (h) DC touch potentials associated with the Traction Return system and traction electrification system supports must be mitigated through the use of equipotential bonding and isolation to comply with ASA standards, and EN 50122-1 and EN 50122-2.
- (i) The SSJ Contractor must determine design targets for step and touch potential, earth potential rise and transfer of touch potential based on the following:
  - (i) step and touch potential limits must be derived according to both ENA EG1 and AS/NZS 60479:
    - (i) ~~A~~-where the limits derived from AS/NZS 60479 are more onerous they must be combined with the limits derived from ENA EG1 to form an ALARP assessment range; and
    - (ii) ~~B~~-where the limits derived from ENA EG1 are more onerous they must form the design target and the less onerous value derived from AS/NZS 60479 must be disregarded in the ALARP assessment.
  - (ii) specific touch voltage limits must be derived from the requirements of AS 2067 and IEEE 80 for existing swimming pool conditions for all land abutting the Rail Corridor;
  - (iii) consideration must be made for differentiation of allowable voltage for touch and step limits, which must be based on the degree of access (public or restricted);
  - (iv) allowance for the impact of water-wet conditions; and
  - (v) the resistivity of concrete must be based on the assumption that the concrete is wet.
- (j) The SSJ Contractor must assume zero footwear resistance in public areas when calculating fault pathways.
- (k) Earthing and bonding system performance with regard to the transfer of earth potential to metallic pipelines must comply with AS/NZS4853.
- (l) The SSJ Contractor must determine earthing and bonding system performance targets with regard to the transfer of potential to communications equipment that comply with AS/NZS3835 (Set) in addition to the design target criteria derived from ENA EG1 and AS/NZS60479.
- (m) The SSJ Contractor must provide a lightning protection system which protects all infrastructure within the Site in accordance with applicable codes and standards.
- (n) The Project Works lightning protection system must not rely on the use of active air terminals.
- (o) For the purpose of the SSJ Contractor's lightning risk assessment, the lightning protection system must comply with AS/NZS1768.

### **2.5.3 Electrolysis and Stray Current mitigation**

- (a) The SSJ Contractor must comply with Sydney Trains Interface Schedule included within Appendix E2.0 of the SWTC and install the mitigations on the impact of Electrolysis and Stray Current in Sydney Trains electrified networks.

### **2.5.4 Electromagnetic compatibility**

- (a) The SSJ Contractor must prepare and implement an EMC Plan as defined in MR-T.
- (b) The SSJ Contractor must ensure that all the SSJ Contractor's Activities are designed to achieve compliance with the following standards:
  - (i) AS/NZS61000 (Set);
  - (ii) EN50121 (Set); and
  - (iii) AS2832.
- (c) The SSJ Contractor must carry out and implement an electromagnetic compatibility review and prepare a report on the Project Works to assess the potential impact and required mitigation methods on:
  - (i) Operator infrastructure;
  - (ii) Existing Operator (Sydney Trains) infrastructure;
  - (iii) Existing Operator (ARTC) infrastructure; and
  - (iv) Adjacent Third Party infrastructure.
- (d) The SSJ Contractor must carry out an electromagnetic compatibility review and prepare a report on Project Works and Temporary Works to assess the potential impact of operations activities on Operators infrastructure, Sydney Trains infrastructure, Existing Operator (ARTC) infrastructure and on other infrastructure impacted by the SSJ Contractor's Activities.
- (e) The SSJ Contractor must implement the recommendations of the electromagnetic compatibility report and carry out field measurements for all operational modes and supply an independent verification certificate provided by the agreed independent electromagnetic compatibility expert to confirm that the SSJ Contractor's Activities, including test and normal running of trains, do not have any adverse impacts on the condition or performance of:
  - (i) Operator infrastructure;
  - (ii) Existing Operator (Sydney Trains) infrastructure;
  - (iii) Existing Operator (ARTC) infrastructure; or
  - (iv) Adjacent Third Party infrastructure.
- (f) Failure of any electromagnetic suppression components fitted to safety critical systems must not cause that equipment to fail and cause an unsafe condition on the Operator or Sydney Trains, when it is subjected to interference that is within the bounds of EN50121.



## 2.5.5 Testing and commissioning requirements

- (a) The SSJ Contractor must test and commission the earthing and bonding, Electrolysis and EMC systems in accordance with the requirements of Section 2.5.4 of the SWTC and the following specific testing and commissioning activities:
- (i) factory acceptance testing (FAT) on the following equipment if supplied as part of the Project Works or Temporary Works:
- (i) ~~A.~~ rail earth contactor (if used);
  - (ii) ~~B.~~ Traction Return to earth connection equipment and;
  - (iii) ~~C.~~ Traction Return to earth connection current monitoring equipment.
- (ii) site acceptance tests in all sections of Sydney Metro Works and modified areas of Brownfield Works. Tests must include:
- A. earthing grid impedance tests;
  - B. current injection testing (high voltage earthing systems only);
  - C. rail to earth insulation tests;
  - D. rail to earth voltage tests;
  - E. rail to earth current test;
  - F. insulation testing of all traction electrification supports (including double insulation and associated test circuits); and
  - G. insulation testing of all specific isolation measures implemented to mitigate Stray Current propagation and touch potentials between rail and earth.

## 2.6 Lighting

### 2.6.1 Sustainability

- (a) Signage, wayfinding, glare and light spill and reflection requirements are specified in Appendix B3.0 of the SWTC.
- (b) The SSJ Contractor must maximise the energy efficiency of lighting power consumption and operational control. Lighting, power consumption and control systems must be designed to support achievement of the minimum station percentage improvement in energy efficiency over Section J of the National Construction Code, Building Code of Australia (NCC BCA) as defined in Appendix B7.0 Sustainability requirements.

### 2.6.2 Maintenance

- (a) The SSJ Contractor must provide a lighting system that enables each luminaire to be accessed for maintenance without the need for bespoke scaffolding constructions or suspension harnessing arrangements and that the luminaire location and the fixing arrangements mitigate where possible the requirement for possession maintenance.

- (b) Lamp modules within luminaires must be replaceable without the need to discard the whole luminaire.
- (c) Light emitting diodes (LED) luminaires must enable replacement of LED modules.
- (d) Lighting circuits must be split to enable circuits to be switched off for maintenance whilst maintaining a minimum of 40% of lighting in any affected area.
- (e) The maintenance plan must include bulk replacement of LED light sources within a lighting design element (as opposed to spot replacement) to ensure consistency of technology within the design element is retained.
- (f) Lighting must be designed to be maintainable without impacting on or restricting train operations and be implemented with maintenance and sustainability in mind.

### 2.6.3 Safety and security

- (a) Luminaires mounted in locations that require a maintenance climbing aid must include lanyards on removable components to facilitate lamp replacement and cleaning.
- (b) Vertical illumination in pedestrian and plaza areas must meet 'P' categories, as assessed in accordance with AS/NZS 1158, and be in accordance with local regulatory body guidelines.
- (c) Lighting and light levels must be adequate for CCTV and other security systems operations.
- (d) Light sources must have a colour rendition of no less than 80 in line with CIE-1960.
- (e) All public area luminaires must have a cover to ensure that lamp explosions do not scatter broken lamp glass.
- (f) All luminaires within public spaces with mounting heights at or below 2.4m above finished floor level must have a minimum IK Rating of 10.
- (g) All luminaires within public spaces with mounting heights above 2.4m above finished floor level must have a minimum IK Rating of 8.
- (h) Surface temperatures of luminaires at or below 2.4m from finished floor level must not exceed 50 degrees Celsius.
- (i) In ground luminaires in trafficable areas must have slip resistant glass treatments.

### 2.6.4 Emergency lighting and exit signage

- (a) Emergency light fittings in public areas and office areas must be incorporated in to the area general use light fittings.
- (b) Emergency light fittings must be supported by a UPS (~~uninterruptable power supply~~), via a fire rated cabling system.
- (c) All emergency light fittings in the presence detection controlled areas must remain on.
- (d) The SSJ Contractor must provide all emergency lights with a monitoring and testing system that complies with AS/NZS2293.

- (e) The emergency monitoring and testing system must interface with the local building management system (BMS).

## 2.6.5 Lighting control and equipment

### 2.6.5.1 Lighting control, circuiting and monitoring

- (a) Emergency lighting coverage must be provided to:
- (i) all publicly accessible areas of platforms and concourses; and
  - (ii) emergency exits including the exit ramps, landings and level crossings at platform ends.
- (b) ~~(a)~~ Lighting must be arranged so the failure of any one circuit must not affect more than 60% of all lights in the area affected by the failure of a distribution board from which a final circuit emanates.
- (c) ~~(b)~~ All lighting must be remotely monitored and controlled by the local BMS.
- (d) ~~(c)~~ All public area lighting must be installed in zones that can be controlled, monitored and isolated as a group.
- (e) ~~(d)~~ Local operation and monitoring of lighting zones must be provided via Sydenham Station BMS.
- (f) ~~(e)~~ Dual technology presence detection must be used in public toilets and Back of House Areas, excluding service areas, maintenance areas and equipment plant rooms where unexpected loss of light could create a safety hazard.
- (g) ~~(f)~~ External lighting must be controlled by daylight sensors and astronomical time clocks, either of which must operate the lighting.
- (h) ~~(g)~~ Timed lighting control must be linked to an astronomical time clock.
- (i) ~~(h)~~ Luminaires specified to be dimmable with DMX / DSI / 0-10v / DALI protocols must achieve smooth and flicker free operation through the entire range, which may be from full brightness (100%) through to 1%.
- (j) ~~(i)~~ Natural daylight harvesting must react in a smooth dimmable way from 1% to 100% to balance the required artificial illumination levels with the ingress of natural daylight in public access areas and office areas.
- (k) ~~(j)~~ The daylight monitoring and control of lighting must have:
- (i) a light level threshold set to twice the area lighting design level; and
  - (ii) a time out period for a minimum of 10 minutes.
- (l) ~~(k)~~ Only immediate start luminaires can be used on sensor controlled circuits in public access areas and office areas.
- (m) ~~(l)~~ All lighting to public art and all surrounding lighting which impacts the public art zone must be dimmable.

### 2.6.5.2 Lighting equipment

- (a) The SSJ Contractor must use high quality lighting equipment.
- (b) Luminaires located in:

- (i) interior public areas must have a minimum IP rating of IP44;
  - (ii) exterior areas must have a minimum IP rating of IP65;
  - (iii) on platform levels, must have a minimum IP rating of IP44; and
  - (iv) interior Back Of House Areas must have a minimum IP rating of IP20.
- (c) Light sources, excluding signage, must have a colour range of between 2700K and 4500K in accordance with CIE-1931.
  - (d) Light sources must have chromaticity coordinates which fall within maximum 3 SDCM (standard deviation colour matching), equivalent to a 3-step MacAdam ellipse.
  - (e) Light sources must have an efficacy of not less than 60 lumens / Watt.
  - (f) Light sources must have a lamp life of not less than 10,000 hours.
  - (g) Control gear, including LED drivers and transformers, must have a operation life of not less than 25,000 hrs.
  - (h) LED light sources must have a minimum of 70% lumen maintenance after 50,000hrs for 90% of the light sources (L70 B10), unless otherwise specified.
  - (i) Lighting materials must comply with AS/NZS60598.1.
  - (j) Light output ratio combined with the reflector and optics must deliver a minimum of 60% light output ratio, in accordance with AS/NZS1680.
  - (k) Light fittings must provide 60% of the lamp lumen output of the fitting in the peak intensity, as defined by the fitting beam angle.
  - (l) The SSJ Contractor must select from the following range of light sources:
    - (i) high efficient LED or equivalent;
    - (ii) circular and linear T5 fluorescent; and
    - (iii) metal halide.
  - (m) Luminaires must only be mounted in accordance with luminaires and lamp manufacturers' recommendations.
  - (n) All fittings including control gear and lamps must be appropriately temperature rated for mounting in their intended location.
  - (o) All transformer / ballast / control gear required must be purchased from the specified lamp manufacturer or be confirmed as suitable by the lamp manufacturer.
  - (p) All lighting control equipment must be electronic.
  - (q) All fluorescent and LED lighting control equipment must be high frequency.
  - (r) For linear LED product, total length of linear product fed from a single feed must not exceed manufacturer recommendations.
  - (s) All luminaires in the surrounding plazas and public domain must meet the requirements and guidelines of the local regulatory body and energy provider.

### 2.6.5.3 Lighting performance

- (a) The light level must be calculated in accordance with the IESNA handbook.
- (b) The SSJ Contractor must provide lighting performance in accordance with AS1680 and the minimum lighting levels in Table 2.6.5.

**Table 2.6.5** Minimum lighting levels

<b>General</b>		
Plant rooms and Back of House Areas	160	N/A
Offices	Refer to AS1680 for levels specific to each office type	
Station toilets and Customer amenities	200	20
<b>Open cut and elevated stations</b>		
Entrance, passageways, walkways	42	14
Ramps and stairs	42	14
Subways	35	17.5
Open footbridge	42	14
Enclosed footbridge	150	20
Covered areas	160	N/A
Platform <u>(uncovered areas)</u>	42 <del>(to the extent of covered area)</del>	<del>30</del> <u>15</u>
<u>Platform (covered areas)</u>	<u>150</u>	<u>21</u>
<b>Station precincts</b>		
Transport interchange (open entrance walkway)	42	<del>12</del> <u>15</u>
Accessible path (station open entry to car park)	42	<del>8</del> <u>15</u>
Surrounding plazas and public domains	Refer to local regulatory body for specific guidelines and requirements	

- (c) Light performance level calculation must use maintenance factors listed below as a maximum:
  - (i) Sydenham Station – interior public zones 0.7
  - (ii) Sydenham Station – exterior public zones 0.6

- |       |                                       |     |
|-------|---------------------------------------|-----|
| (iii) | Exterior public zones                 | 0.7 |
| (iv)  | Maintenance buildings and plant rooms | 0.7 |
| (v)   | Administration and office spaces      | 0.8 |
- (d) Deviation from the lighting performance requirements in Table 2.6.5 may be permissible where demonstration is provided that a reduction to these values is appropriate and does not negatively impact safety or task performance.
- (e) The SSJ Contractor must ensure that lighting performance complies with the SSJ Contractor's fire and life safety (FLS) strategy.

#### **2.6.5.4 Strobing**

- (a) The SSJ Contractor must ensure all installed lighting in Sydenham Station does not cause a stroboscopic effect on persons.

#### **2.6.5.5 Colour Rendering Index**

- (a) Luminaires should have a minimum CRI (Colour Rendering Index) of 80 to ensure high colour rendering is achieved throughout the day and night.

## 3 Mechanical

### 3.1 Environmental control systems

#### 3.1.1 General requirements

- (a) The SSJ Contractor must provide the ECS in accordance with the performance requirements of this SWTC, the BCA, applicable Australian Standards and codes, local NSW codes of practice, good practice industry guidelines, and the SSJ Contractors FLS strategy.
- (b) The ECS must;
- (i) ventilate, heat, cool, or air-condition occupied spaces, as required, to achieve a safe and comfortable thermal environment as defined by the criteria in section 3.1.4;
  - (ii) ventilate and cool Back of House Areas, equipment spaces, toilets, wet areas, lift shafts, and hazardous areas to:
    - A. maintain suitable operating conditions for safe and normal operation of equipment in accordance with manufacturers requirements;
    - B. remove heat from any embodied operating equipment and limit temperature rise within acceptable ranges for safe and normal operation of equipment, as intended by design;
    - C. provide basic amenity for enclosed spaces where expected occupancy is less than 30 minutes duration in any situation;
    - D. positively pressurise against dust ingress;
    - E. mitigate condensation and mould growth;
    - F. capture, contain and remove obnoxious and hazardous substances, contaminants, gases, and vapours;
    - G. prevent the development of potentially hazardous or explosive environments;
    - H. maintain any hazardous area classifications;
    - I. relieve pressure build up in rooms with gaseous fire suppression to protect integrity of structure;
    - J. purge rooms with gaseous fire suppression to clear room for access or to resume normal operations, and to avoid development of a hazardous environment in adjacent spaces;
    - K. prevent fire spread; and
    - L. ensure the continuous operation of critical systems and services including signalling equipment room, platform edge barrier equipment room, communications equipment room, and station communication room.

- (c) The ECS must maintain the availability of systems and services required for emergency operation.
- (d) Natural ventilation must be prioritised over mechanically forced ventilation where reasonably practicable.

### 3.1.2 Environmental design conditions

- (a) The Ambient Design Conditions must take into account climate change temperature increases to the ambient temperature base case design, by applying the change in environmental conditions due to climate change predicted by the Representative Concentration Pathway (RCP) 8.5 for 2030 and 2050 scenarios. The predicted climate change conditions must be assumed in accordance with document *NWRLSRT-PBA-SRT-SU-REP-000022 (28/09/2016)*.
- (b) Ambient design temperatures and wind characteristics must be based on recorded data from the closest weather station to Sydenham Station from the Australian Bureau of Meteorology.
- (c) For summer ECS comfort applications, the summer design hour ambient conditions must:
  - (i) be based on the 90th percentile summer dry bulb temperature from temperature observations for the last 30 years; and
  - (ii) not be exceeded on more than 10 days of the 92 summer days of the year.
- (d) For winter ECS comfort applications, the winter design hour ambient conditions must:
  - (i) be based on the 10th percentile winter dry bulb temperature from temperature observations for the last 30 years; and
  - (ii) be selected for the system operating hours or hours in which the serviced spaces are typically utilised.
- (e) For ECS critical applications, the summer design hour ambient conditions must:
  - (i) be based on the summer dry bulb temperature not exceeded on more than 0.25% of plant operating hours per year; or
  - (ii) be the 98th percentile dry bulb temperature from data of the hottest month from temperature observations for the last 30 years, whichever is more onerous.
- (f) Relative humidity must be that which corresponds to the respective design dry bulb temperature in each case.
- (g) Background noise levels must be based on baseline measurement reports, future land use assessments and requirements of Planning Approvals.
- (h) Wind characteristics must account for local wind effects, including prevailing wind direction, frequency, and magnitude.
- (i) Remotely recorded wind data must be corrected for use at a specific geographic location based on the approach detailed in American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 2009 Fundamentals Handbook chapter 24.



- (j) Site measurements or local records must be used to support any correction factors.

### 3.1.3 Occupancy levels and heat loads

- (a) Design occupancies must be based on specific occupancies for the design or on the values (people/m<sup>2</sup>) provided in Appendix A of AS1668.2, whichever greater.

### 3.1.4 Internal design temperatures

- (a) The ECS must be provided to meet the internal design temperatures, as per Table 3.1.4 below, against the respective environmental design conditions determined in Section 3.1.2.

**Table 3.1.4** Internal design temperatures

Covered public platform and concourse areas	Nominally ambient, to a maximum 5°C above ambient temperature.
Equipment rooms	24°C±1.5°C
Critical equipment rooms	24°C±1.5°C
Garbage rooms	Nominally ambient + 5°C (maximum) by mechanical ventilation if no food waste. 22°C ±1°C where food waste may be present.
Occupied spaces - non-transient ECS comfort applications	23°C ±1°C (summer) 21°C ±1°C (winter)
Workshops	Nominally ambient + 5°C (maximum)
Lift shafts	Ambient + 5°C (to maximum of 40°C )
Electrical rooms	Ambient + 5°C (maximum)
Plant rooms	Ambient + 5°C (maximum)

- (b) The design must mitigate extremes in relative humidity. Relative humidity in occupied spaces must be controlled between 30-60%.
- (c) Condensation must not occur at any time on the internal surfaces of served spaces or on equipment in those spaces.
- (d) The cooling systems must be designed to avoid condensation on grilles and air terminals.
- (e) Maximum internal design temperatures of rooms and spaces must meet the equipment supplier's requirements for any respective embodied equipment.
- (f) Maximum internal design temperatures of lift shafts must meet the supplier's or manufacturer's requirements.

### 3.1.5 ECS design requirements

- (a) The ECS must preclude condensation downstream from grill discharges.

- (b) Rooms and enclosed spaces served by the ECS must employ passive measures to reduce energy use and the ECS capacity, including; thermal insulation, shading of external walls, roofs, and windows, solar treatment of glazing, and room location and orientation.
- (c) Passive thermal performance measures must be applied to cooled spaces and exceed energy reductions achieved by the performance requirements as set in Section J of the BCA.
- (d) Canopies and shade structures must be capable of restricting solar radiation to achieve the design temperatures nominated in this Appendix and the energy performance requirements nominated in Buildings, Precincts and Public Domain Appendix B3.0 of the SWTC.
- (e) The ECS must be designed to operate efficiently both under full load and part load conditions by use of variable speed drives and high efficiency motors.
- (f) The ECS must be installed with a minimum of 20% spare capacity including heating or cooling and ventilation capacity, against ECS Peak operations and the respective design conditions, where ECS peak operations are defined as the peak hot summer day, the peak winter day, and the peak ventilation demand for each system.
- (g) The ECS must be demand controlled where the purpose is to control temperature, maintain a minimum air quality, or where it is serving a normally occupied area.
- (h) Demand control must be on a respective zone basis.
- (i) Toilet ventilation must be configured to operate on demand.
- (j) Garbage rooms which are not subject to food waste may be provided with ventilation only with a minimum 10 l/s/m<sup>2</sup> and bin wash-out complete with hot water hose in lieu of air conditioning.
- (k) The ECS, including ventilation and refrigeration equipment, ductwork and pipework insulation must exceed the performance requirements within Section J of the BCA.
- (l) The ECS for critical cooling applications must be able to operate at full system design capacity in ambient conditions -5°C to 45°C dry-bulb.
- (m) The ECS for critical cooling applications may operate with reduced capacity but must not fail to operate in ambient conditions up to 50°C dry-bulb.
- (n) The ECS for comfort cooling applications must be able to operate at full system design capacity in ambient conditions 4.5°C to 35°C dry-bulb.
- (o) The ECS for comfort cooling applications may operate with reduced capacity but must not fail to operate in ambient conditions up to 45°C dry-bulb.
- (p) Comfort cooling Applications apply to rooms that are conditioned for human occupancy and comfort including Station Control Rooms, Staff Meal Room, Staff Locker Rooms, Maintenance Office, Multipurpose Rooms and the like.
- (q) Critical cooling applications apply to rooms which house temperature-sensitive equipment critical to station or railway operations, such as communication equipment rooms, signalling equipment rooms and Station Communications rooms and the like, supporting key safety infrastructure.

- (r) Belt driven fans and pumps must not be used, with the exception of cooling tower fan drives.
- (s) Electric duct heaters must not be used.
- (t) Ductwork must be designed to minimise airflow resistance and system effect factors and be constructed in accordance with AS4254 and Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) standards and fan and air handling unit manufacturers' recommendations for good practice and low whole life cycle cost.
- (u) All mitred bends in ductwork must use turning vanes.
- (v) Abrupt transitions in ductwork and pipework must be avoided.
- (w) High performance, low resistance noise attenuators must be used, where noise attenuators are required.
- (x) ECS water services, including gravity or pressure water pipes, cooling and heating services, and condensate drainage, must be located external to rooms containing critical equipment susceptible to water damage, including communications equipment, signalling equipment, and motor control cabinets or drives, servers, switchboards, switch gear, transformers.
- (y) Water pipes or drainage must not be routed directly above any equipment or devices susceptible to water damage.
- (z) Critical equipment rooms must be cooled using CRAC units, which must be serviceable from outside of the critical equipment room.
- (aa) Condensate drip trays must be provided under cooling coils, fan coil units, evaporator units, and where condensate may form, with trap and gravity drainage to the closest available tundish.
- (bb) Where a room or enclosed space can be defined as more than one type or area by its contents or functions, then the most onerous design criteria and extent of ECS provisions set by its individual contents or functions must be applied to the whole room or space.

#### **3.1.5.1      ~~3.1.5.2~~ Ventilation requirements**

- (a) Ventilation systems provided for temperature control, must be provided to meet the supplier's maximum design temperatures for the respective equipment.
- (b) Ventilation must be configured to fully ventilate spaces, providing cross-ventilation throughout the area
- (c) Relief air paths by door grilles are not permitted in public areas or those subject to trolley deliveries. Transfer grilles at high level with appropriate security must be provided.
- (d) Rooms served by gaseous fire suppression must have passive pressure relief, to atmosphere where possible, and a purge ventilation system, principally extraction, to clear the room of suppression agent at a minimum rate of six air changes per hour.

- (e) Gaseous fire suppression extraction systems must be ducted to atmosphere, and supported with suitable make up air to the room.
- (f) Gaseous fire suppression extraction systems must feature high and low level exhaust points in each respective room according to the gas density to ensure all discharged extinguishing agents and smoke is captured and removed.
- (g) Discharge from pressure relief and purging systems must not be allowed to enter any space in concentrations or velocities that may cause harm to occupants.
- (h) Rooms with high density heat loads and electrical rooms which contain equipment that can operate at temperatures above ambient and is not sensitive to dust must be naturally ventilated where such rooms are above ground.
- (i) Natural ventilation must be augmented with mechanical ventilation as required for temperature control, air quality requirements, and smoke control.
- (j) Garbage rooms must be provided with a cross flow extract ventilation of minimum 10l/s per floor m2.

#### 3.1.5.2      ~~3.1.5.3~~ **Intakes and discharges**

- (a) The ECS must be designed and provided to meet as a minimum the separation and discharge requirements set by AS1668.2.
- (b) Outdoor air intakes must be located and arranged to avoid drawing air in from sources of contamination and pollution above that present in the general ambient air quality for the locality.
- (c) Outdoor air intakes must not be located in the predominant downwind direction from exhaust points and cooling tower discharges.

#### 3.1.5.3      ~~3.1.5.4~~ **Air filtration**

- (a) Mechanical supply air and cooling systems must be filtered to adequately clean air delivered to occupied and serviced spaces.
- (b) Filters must be rated in accordance with and selected with consideration of energy rating set out in EN779.
- (c) Filters must be selected and provided on the basis of a whole system life cycle cost assessment.

#### 3.1.5.4      ~~3.1.5.5~~ **Noise criteria**

- (a) The ECS must meet the noise criteria as specified in Section 4.12 of the SWTC main body.

#### 3.1.5.5      ~~3.1.5.6~~ **Vibration criteria**

- (a) The ECS must be designed and provided with the necessary vibration isolation to keep vibration to a practical minimum and achieve the criteria defined in AS2670 series, and with reference to ASHRAE: 2007 Application Handbook chapter 47.
- (b) Static and dynamic balancing of all rotating machinery must be undertaken to comply with the requirements of AS1359 parts 50 and 51, and AS2625.

### 3.1.5.6

### ~~3.1.5.7~~ Fire rating and fire proofing

- (a) The ECS must be designed and provided to meet the fire rating and separation requirements set by the BCA and the SSJ Contractor's FLS strategy.
- (b) Ventilation systems must include non-latching smoke sensors in fresh air and return air intakes or mixing plenums.
- (c) Smoke sensors must be selected and positioned to minimise false alarms, notably from dust.
- (d) For underground spaces ventilation systems, or those critical vent systems required to continue operation in the event of a building fire alarm, two sensors must be used to provide positive confirmation of smoke entering the ventilation system.
- (e) Ventilation systems serving multiple rooms or zones must incorporate dampers and controls to isolate any fire affected compartment and continue ventilation of non-affected areas.
- (f) Fire dampers must be provided to maintain the fire resistance level of fire rated partitions.

### 3.1.6 Redundancy

- (a) All ECS components provided for ~~ECS-critical application~~Critical Cooling Applications or serving lift shafts, must apply duty/standby provisions to all powered active equipment, including redundant fans, pumps, compressors of equivalent duty.
- (b) Toilets are to be fitted with an exhaust system comprising dual fans so as to provide 100% standby Redundancy.
- (c) Duty/standby equipment must be programmed to swap duty cycle at defined intervals or start occasionally if normally dormant to ensure equal run times and check for compliant operation of the system.
- (d) All ECS components must automatically restart at the previous set point following restoration of power and clearing of any fire alarms.
- (e) Standby equipment must automatically activate on detection of failure of the respective duty device.
- (f) The ECS must incorporate fail safe modes, including:
  - (i) load shedding non-critical service to support critical operations in fault mode operation;
  - (ii) motorised dampers which spring return to close, power to open, so that in complete failure, fire separation and system and equipment isolation is maintained; and
  - (iii) interlocked or passively reactive fan and damper operation.
- (g) The design and installation must limit exposure of the passive pipework and ductwork to damage which could cause failure of the whole cooling system.
- (h) Inherent Redundancy must be provided for cooling system pipework to remote terminal units and field devices such that in the event of failure of the pipework an

alternative route may be provided for the cooling medium whilst rectification is undertaken.

- (i) Back-up cooling system components must be located with the primary duty cooling system components in a common plant room.
- (j) A mechanically protected pipework route or redundant pipework, connected by normally closed isolation valves, must be provided where co-location of the back-up cooling system components and primary duty cooling system components are not possible.

**3.1.7 Availability**

- (a) The SSJ Contractor must ensure system availability is maintained during periods of high ambient conditions as identified in the Sustainability requirements in Appendix B7.0 of the SWTC.
- (b) The SSJ Contractor must ensure the ECS system heat rejection is suitable to maintain system critical operations at all times.

**3.1.8 Systems and components**

**3.1.8.1 Heating, cooling and air-conditioning and refrigerant systems**

- (a) The SSJ Contractor must apply a system to meet with the availability requirements of the area it serves. The system type must be as defined below:

**Table 3.1.8.1 System Type**

Air Cooled - Refrigerant based	Suburban - Above Ground

- (b) The SSJ Contractor must ensure that refrigerant systems within temporary site facilities and permanent infrastructure have zero ozone depletion potential and have a low or zero 100 year global warming potential.
- (c) The SSJ Contractor must ensure refrigerants within the permanent station HVAC&R systems have a combined Total System Direct Environmental Impact (TSDEI) less than 35, and a leak detection system and automatic refrigerant recovery system is in place. Compliance must be demonstrated in accordance with the Green Star Design and As Built Refrigerants Impacts Calculator.
- (d) The SSJ Contractor must maximise the energy efficiency of HVAC power consumption and operational control. HVAC, power consumption and control systems must be designed to support achievement of the minimum station percentage improvement in energy efficiency over Section J of the National Construction Code, Building Code of Australia (NCC BCA) and in accordance with Sustainability requirements within Appendix B7.0 of the SWTC.
- (e) Chlorofluorocarbon (CFC) and hydro chlorofluorocarbon (HCFC) refrigerants must not be used.
- (f) A refrigerant leak detection system must be provided where there is a significant consolidation of condensers.

- (g) Rooms containing condensers or chillers must be ventilated to mitigate refrigerant build up.
- (h) Air cooled condensers must feature automatic defrosting functions.
- (i) Split, multi-split, and variable refrigerant volume or flow direct expansion air conditioning systems must have inverter driven compressors.
- (j) Use of individual direct expansion split system units must be avoided except where servicing remote and isolated buildings, where connection to centralised cooling systems are not feasible.
- (k) Window mounted package units must not be used.
- (l) Primary cooling must be provided by centralised heat rejection systems so to increase the overall efficiency of the ECS, except where remote and discrete Equipment Rooms or offices require cooling.
- (m) Without requiring the need for the provision of additional or upsized outdoor air systems for systems below 1000L/s, cooling and air-conditioning systems must incorporate outdoor air economy cycles to utilise fresh outside air for cooling where ambient conditions permit, except where air-conditioning performance is required for temperature and humidity sensitive applications.
- (n) ~~(m)~~ Cooling and air-conditioning systems must incorporate outdoor air economy cycles to utilise fresh outside air for cooling where ambient conditions permit.
- (o) ~~(n)~~ Cooling and air-conditioning systems with supply rates greater than 1,000 l/s must be capable of operating on 100% outside air, or be supported with separate direct ventilation systems.

### 3.1.8.2 Occupied spaces (non-transient)

- (a) Occupied spaces must include, as a minimum; offices, staff rooms, operations rooms, meeting rooms, control rooms, meal rooms, lockers, change rooms, and backup control rooms.
- (b) Ventilation systems serving occupied spaces must be separate to ventilation systems serving public space, and ventilation systems serving equipment, electrical and plant rooms.

### 3.1.8.3 Equipment, plant, and electrical rooms

- (a) Critical cooling applications must include communications rooms for railway operations, platform edge barrier equipment rooms and signalling rooms.
- (b) Critical ventilation applications must include battery rooms as defined by AS2676, hazard material stores, chemical stores, garbage rooms, fire pump rooms (if provided), and force ventilated sumps or pits.
- (c) Rooms with sensitive electronic equipment must be mechanically ventilated with filtered air supply to maintain consistent positive pressure and mitigate dust ingress.
- (d) Rooms containing potentially hazardous or obnoxious substances, including wet areas or stores, sewerage ejector rooms, sumps, and chemical stores, must be



mechanically ventilated and maintained under negative pressure to contain odours, vapours and contaminants.

- (e) Rooms containing potentially hazardous or obnoxious substances must have dedicated exhaust systems that are completely ducted to their discharge point and do not mix with any other airstreams.
- (f) Ventilation systems serving plant rooms, electrical rooms, and equipment rooms must be separate to ventilation systems serving occupied spaces, and to ventilation systems serving public space.
- (g) Rooms containing combustion engines must discharge exhaust directly to the outside, through a thermally lagged flue.
- (h) If a fire pump room is required, it must be naturally ventilated unless demonstrated to be not reasonably practical due to noise control requirements.
- (i) ~~(h)~~ ECS provided for critical applications must be capable of 24 hour, continuous operation.

#### **3.1.8.4 Lift shaft ventilation**

- (a) Lift shafts must be mechanically ventilated with filtered supply air to limit temperature rise and mitigate dust ingress.
- (b) Lift shafts must have louvres at the top of the shaft to allow air to exhaust and promote natural ventilation.

#### **3.1.8.5 Hazardous area ventilation**

- (a) Enclosed hazardous areas must be ventilated to prevent the development of potentially hazardous or explosive atmospheres.
- (b) Classifications of potentially hazardous or explosive atmospheres must be determined according to AS/NZS 60079.10.1.
- (c) Extraction ventilation serving hazardous areas must be continuously ducted to the external discharge point and not mix with any other airstreams.
- (d) Extraction ventilation systems must operate with the majority of the duct-run under negative pressure, the fan must be as close as practical to the point of discharge.
- (e) Explosion proof fans and components must be provided to the rooms where a risk of explosion exists.
- (f) Electrical apparatus for explosive gas atmosphere must use a suitable protection technique from the AS60079 (Set) for the zone classification and explosive gas identified in the hazardous area classification.
- (g) Hazardous area ventilation systems performance must be monitored by a suitable instrument and all electrical energy (other than intrinsically safe systems) disconnected to remove power and potential ignition sources from the hazardous area.

### **3.2 Building management system**

- (a) Provide a direct digital control open protocol, interoperable building management system (BMS) system with interface to the central control system (CCS)



- (b) Provide interface requirements with Sydney Train's BMS as Interface Requirements Specification within Appendix E2.0 of the SWTC.

### 3.2.1 ~~3.2.2~~ Controls and monitoring

- (a) The SSJ Contractor must provide the control systems, including software, for the ECS.

#### 3.2.1.1 ~~3.2.2.2~~ Sydney Trains requirements

- (a) In the event that Sydney Trains assets are modified due to the SSJ Contractor Activities, the SSJ Contractor must:
- (i) Operate the Sydney Trains station air conditioning and mechanical ventilation systems automatically under the control of a direct digital control systems (DDCS), and be monitored and controlled by the station management control systems (SMCS) workstation located in the communication room, in accordance with ASA standard ESB004 4.3.1.10.
  - (ii) Locate the mechanical services switchboard for Sydney Trains within the switch room and segregated into essential and non-essential power supplies. It must interface with Sydney Trains station management control system (where applicable) to provide centralized monitoring and control of all station ventilation and air conditioning systems.

#### 3.2.1.2 ~~3.2.2.3~~ Metro Station requirements

- (a) The SSJ Contractor must:
- (i) Connect the ECS to a local building management system which provides overall monitoring and control of the ECS, and interface with sub-systems, other building management systems, the fire system, and the Operator (SMNW and SMC&SW) CCS.
  - (ii) Operate each respective ECS sub-system on demand on a room or zone basis in response to the metric it is designed to control.
  - (iii) Ensure the ECS is capable to operate automatically without manual intervention, including automatic restart at the previous set point on restoration of power or clearing of any fire alarms within a 180 second period.
  - (iv) Provide decentralised mechanical control panels in mechanical plant rooms close to the equipment they serve.
  - (v) Provide local control in each mechanical plant room for emergency and maintenance operation.
  - (vi) Ensure the ECS and sub systems are able to detect faults within the system elements including; no or low airflow or water flow, sudden pressure loss, flooding, short circuits, motor fail to start, and power supply failure as applicable.
  - (vii) Ensure the Metro Station equipment rooms provided with cooling or air-conditioning have independent temperature sensors, which:
    - A. monitor the temperature in the space and report to the building management system (BMS); and

- B. raise a high temperature alarm to the BMS when the room temperature exceeds 28°C dry-bulb.
  - (viii) Ensure Rooms provided with ventilation for temperature control have independent temperature sensors, which:
    - A. monitor the temperature in the space and report to the BMS; and
    - B. raise a high temperature alarm when the space exceeds more than 8°C above ambient.
  - (ix) Ensure the localised purge ventilation system control is provided by a keyed switch outside the rooms with gaseous fire suppression.
  - (x) Ensure the ECS control systems provided throughout the Sydenham Station are of the digital programmable type, with a facility for data output and interrogation via a digital communications network.
- (b) The BMS must monitor the following characteristics of the ECS:
  - (i) operation mode of systems: normal, manual, fault;
  - (ii) operation status of dynamic equipment: on, off, standby, fail to start;
  - (iii) operating time of dynamic equipment: log of running hours;
  - (iv) position of motorised dampers and valves: actuator status, and blade or valve position;
  - (v) temperature of respective rooms or spaces, where ECS is provided for temperature control;
  - (vi) air quality of respective rooms or spaces, where ECS is provided to control accumulation of contaminants, specifically in a potentially hazardous area;
  - (vii) fan and pump vibration and operating temperature, for motors greater than 5kW;
  - (viii) filter resistance: clean, dirty based on the design allowance;
  - (ix) water quality of water systems: alarm on upper and lower limits;
  - (x) leak detection in plant rooms as appropriate; and
  - (xi) fault signals, operating status, and performance metrics from packaged elements which include their own local controls, including chillers, condenser units, and air handling units and split and/or variable flow direct expansion systems.
- (c) Positive confirmation of dynamic equipment operation must be provided by flow or pressure switches, valves, or limit switches, as appropriate to the device.
- (d) The BMS must log all alarms from the ECS where:
  - (i) dynamic equipment fails to start;
  - (ii) positive confirmation of dynamic equipment operation is not received;
  - (iii) room conditions, including temperature and accumulated contaminants, exceed design allowances;

- (iv) high level temperature alarm set points are exceeded;
  - (v) faults are received from local device controllers or instrumentation;
  - (vi) filter resistance exceeds design allowance;
  - (vii) water quality does not meet design allowances; and
  - (viii) pre-set water alarm levels are exceeded.
- (e) For alarms that indicate complete failure of a system serving a ECS critical application must be reported up to the CCS and brought to the attention of the operator, including: failure to start standby devices;
- (i) failure to confirm positive operation of respective systems;
  - (ii) high level temperature alarms;
  - (iii) detection of contaminants in hazardous areas above pre-defined limits, including; 10% lower explosive limits; and
  - (iv) detection of toxic gases, vapours or depletion of oxygen in monitored spaces including those fitted with gaseous fire suppression systems at pre-defined limits.

### **3.3 Hydraulics services systems**

#### **3.3.1 Overview**

- (a) The SSJ Contractor must provide the hydraulic services in accordance with the requirements of this Appendix, the deed Contract and the NCC Building Code of Australia (BCA), applicable Australian Standards and codes, best practice industry guidelines and the SSJ Contractors fire and life safety (FLS) strategy.
- (b) The SSJ Contractor must provide hydraulic services to supply potable and non-potable water to all necessary service and building systems and to capture, convey, treat and discharge waste water and effluent from all necessary service and building systems.
- (c) The hydraulic services must be standalone systems.
- (d) The SSJ Contractor must provide complete and integrated hydraulic service systems with all necessary components and approvals.
- (e) The hydraulic services detailed in this Section 3.3 do not cover the fire water services, which are specified in Section 3.5 of this Appendix.
- (f) The hydraulic services detailed in this Appendix do not deal with overland flows or stormwater drainage, or drainage from the precincts, bridges, or track. These flows are managed by the civil drainage system, specified in the Appendix B1.0 of the SWTC.
- (g) This Appendix does not specify landscape irrigation beyond provision of water supply for irrigation purpose. Landscape irrigation is specified in Appendix B3.0 of the SWTC.

### 3.3.2 General requirements

- (a) The hydraulic services must:
  - (i) protect the health and safety of the public, staff and service providers;
  - (ii) provide potable cold water, and heated water as required, to potable water consuming fixtures and fittings;
  - (iii) provide non-potable rainwater, and recycled non-potable water where available, to non-potable water consuming outlets or users;
  - (iv) provide waste water capture, treatment, and drainage;
  - (v) provide rainwater capture, treatment, storage, and drainage;
  - (vi) employ sustainable design initiatives;
  - (vii) provide roof drainage and downpipes;
  - (viii) provide stormwater drainage extending from the downpipes to the rainwater tank; and
  - (ix) provide stormwater drainage, receiving discharge from the rainwater tank overflow, downpipes not discharging to the rainwater tank and from the platform grated trench drain outlets and extend to the civil drainage infrastructure.
- (b) Hydraulic services pipework, unless it specifically services the room, must be located external to rooms containing electrical equipment susceptible to water damage including communications equipment, signalling equipment, motor control cabinets or drives, servers, switchboards, switch gear and transformers.
- (c) Water pipes or drainage must not be routed directly above any equipment or devices susceptible to water damage.
- (d) Water pipes must be lagged as required to prevent condensation.
- (e) Screwed, flanged or mechanical joints must not be made in pipes concealed behind wall linings or inaccessible spaces.
- (f) Pipework must be laid out to minimise crossovers and offsets.
- (g) All pipes, valves, and fittings must be arranged to ensure neat and orderly appearance with true alignment and grade to make these elements conveniently accessible and readily replaceable.
- (h) Pipes running in the same direction must be parallel.
- (i) Pipes runs must be arranged to avoid/minimise air locks and dead ends.
- (j) Precautions must be taken to prevent water hammer.
- (k) Hydraulic services and pipework must be arranged and sized to minimise resistance and obstruction to flow.
- (l) Offsets in piping must use 45° bends wherever possible.

- (m) Flanges, unions and other approved mechanical couplings must incorporate replaceable gaskets or 'O' rings for sealing to ensure that re-sealing is achievable after servicing.
- (n) Metal-to-metal seals must not be used.
- (o) Flanged joints must be made with gaskets suitable for the service or as recommended by equipment manufacturers.
- (p) Permanently installed automatic air release vents must only be fitted in plant rooms and service areas.
- (q) Access for cleaning must be provided so that all sections of the installation can be rodded or otherwise cleaned without cutting into the pipe or damaging wall or ceiling linings, or other building elements
- (r) Liaise and engage a Sydney Water service coordinator for the submittal of a Section 73 application.
- (s) Submit calculations, drawings and pay all associated fees for Section 73 application and adhere to/ install all the requirements listed in Sydney Water's Notice of Requirements (NOR).

### 3.3.3 Water services system

#### 3.3.3.1 General requirements

- (a) Water supply systems must be provided with a minimum discharge pressure of 25 metres head, at the most disadvantaged outlet.
- (b) Water supply systems must be provided with a maximum pipe velocity of 1.6m/s, or a maximum pipe velocity of 1.2m/s for pipework installed in hot water circulating systems.
- (c) Water supply system infrastructure, including Authority connections, meters, valves, pipework, pumps, and associated components, must be provided with a minimum spare flow capacity of 20% at time of Construction Completion of each Portion, above the calculated probable simultaneous flow rate, in accordance with AS/NZS 3500.1.
- (d) Stop valves must be installed to isolate outlet groups, including:
  - (i) bathroom and amenities groups;
  - (ii) individual serviced plant rooms;
  - (iii) inlets to individual water heating units; ~~and~~
  - (iv) any other discrete equipment requiring water supply; ~~and~~
- (e) All Project Works and Temporary Works must adopt an integrated approach to urban water cycle management to minimise impacts upon local streams and waterways. The principles of the integrated approach must be to achieve:
  - (i) a reduction in potable water demand through the use of rainwater and/or greywater where a reticulated reuse is not available, and adopt the use of water efficient appliances and fittings.
  - (ii) a reduction in wastewater generation.



- (f) Garbage Rooms must be provided with:
- (i) Hot and cold water service cleaning tap outlets;
  - (ii) Hot water hose reel connected to hot water supply.
- (g) ~~(e)~~ Fixture outlets for new/temporary fixtures must meet the requirements described in Table 3.2.3.

**Table 3.2.3** Minimum water efficiency ratings

Basins – Customer use	6	4.5	Vandal proof Timed flow push button
Basin – non public	6	4.5	Timed flow push button
Basins – disabled amenities	6	4.5	Not Applicable DDA compliant
Sink	4	7.5	Not Applicable
Shower	3	9.0	Not Applicable
Urinal – customer use	Not Applicable	Not Applicable	Vandal proof Low flush type: less than 1.0 Litre per flush
Urinal – non public	Not Applicable	Not Applicable	Low flush type: less than 1.0 Litre per flush
Water Closet – customer use	4	Not Applicable	Vandal proof Dual flush (3 Litre half flush/ 4.5 Litre full flush)
Water Closet – non public	4	Not Applicable	Dual flush (3 Litre half flush/ 4.5 Litre full flush)

### 3.3.3.2 Water supply

- (a) Flexible, non-metallic connections for the incoming water supply must be provided to accommodate differential settlement where the potential exists.
- (b) All metal pipe work must be electrically isolated by means of an insulation pipe section at the site boundary to prevent earth leakage and egress of Stray Current.
- (c) The SSJ Contractor must provide water supply connections with backflow control and any isolation and separation provisions to meet the requirements of local water supply Authorities.
- (d) Supply points and length of connections must be agreed with the local water supply Authorities.

### 3.3.3.3 Potable domestic cold water

- (a) The potable domestic cold water must be interconnected to create a ring main.

- (b) Sectional isolation valves must be provided to each ring main at a maximum of two branch pipe intervals.
- (c) The SSJ Contractor must provide a new water service extending from the new water supply connection/ meter and extend to serve all the water consuming fixtures, tap fitting and the fire hose reel system.
- (d) Isolation valves installed in-line on the system where connected to fire hose reels must be fitted with lockable isolation valves and the required statutory signage adjacent to the isolation valve.

#### **3.3.3.4 Potable domestic heated water**

- (a) Potable domestic heated water must be provided to:
  - (i) basins in disabled amenities;
  - (ii) non-customer basins;
  - (iii) sinks; and
  - (iv) showers.
- (b) Water must not be heated by gas fired systems within Sydenham Station or service facilities.
- (c) Thermostatic mixing valves must be provided to limit the water temperature at sanitary fixtures used primarily for personal hygiene purposes and where heated water service is provided.
- (d) Heated water must be available at all times.
- (e) Dead legs in hot water pipework must be kept to a maximum of 10 metres from hot water system/ring main to the fixture outlet.

#### **3.3.3.5 Rainwater service**

- (a) A rainwater service must be provided.
- (b) The rainwater service must primarily source water from the rainwater capture system, specified in section 3.3.4.3 of this Appendix.
- (c) A failsafe back-up water supply must be provided to the rainwater service.
  - (i) Rainwater back-up water supply must be provided from the potable domestic cold water service.
- (d) Where recycled non-potable cold water is provided from an external source, a rainwater service must only be provided to supply water to the landscape irrigation system.
- (e) Rainwater service must be provided to supply captured rainwater for:
  - (i) toilet flushing;
  - (ii) cleaning and wash down; and
  - (iii) landscape irrigation.
- (f) The captured rainwater must be treated to a 'Class A' quality in accordance with EPA's Guidelines for Environmental Management – Use of Reclaimed Water, prior

- to being supplied to rainwater service applications, except where captured rainwater is used for irrigation purposes only.
- (g) The captured rainwater must be pumped using a dual pumpset configuration. The pumpset must consist of in-line pumps complete with foot valve arrangement and a pressure vessel installed on the pumpset's outlet manifold.
  - (h) The rainwater re-use pumpset must be provided with a spare flow capacity of a minimum of 20% above the calculated capacity required at time of Construction Completion of each Portion.

### **3.3.4 Drainage system**

#### **3.3.4.1 General requirements**

- (a) Drainage pump and sump installations must meet the following criteria:
  - (i) inclusion of dual identical sump pumps, for duty and standby provision;
  - (ii) equipment protection level suitable for the hazardous area classification;
  - (iii) pumps alternate as duty and standby on a 24 hour basis;
  - (iv) pump housing constructed of ductile cast iron;
  - (v) impeller constructed of ductile cast iron;
  - (vi) motor constructed of cast iron;
  - (vii) vortex impeller or macerator type;
  - (viii) hard piping with stainless steel guide rail system;
  - (ix) stainless steel clamps on rising main;
  - (x) stainless steel step irons or access ladders be provided, where the internal pit depth is greater than 1 metre;
  - (xi) stainless steel heavy duty lifting chains connecting to a stainless steel bracket below a heavy duty gas tight cover in accessible position;
  - (xii) hose and electrical cables of sufficient length to allow removal of pumps without entering the pit;
  - (xiii) valves located outside of sump;
  - (xiv) located within a plant room and not accessed by public spaces;
  - (xv) sump base benched to fall at a minimum of 1% to the sump well; and.
  - (xvi) pump control panels must be located within a plant room and not accessed by public spaces.
- (b) Any sewer pump-out system must not exceed the pumping flowrates outlined in Sydney Water's guidelines.
- (c) The SSJ Contractor must determine and apply the classifications of potentially hazardous or explosive atmospheres in accordance with Australian Standards, including AS/NZS 60079.10.1-2009.



- (d) Explosion or flame proof pumps and components must be provided according to the SSJ Contractor's classification and risk assessment of the space in which they operate and the characteristic of the medium being conveyed.
- (e) Drainage systems must restrict potential sources of ignition, including exclusion of any energised equipment from any potentially explosive zone.
- (f) Drainage pump stations must be internally coated with a polyurea component spray applied polyurethane or polyurea water proofing system, complete with primer and 3mm basecoat, to AS3735.
- (g) Garbage Rooms must be provided with bucket waste floor trap system and drainage.

#### **3.3.4.2 Sewer drainage system**

- (a) Sewer drainage system infrastructure must be provided with a minimum spare flow capacity of 20% above the calculated fixture unit ratings at time of Construction Completion of each Portion, in accordance with AS/NZS3500.2.
- (b) All sewer drainage must be connected to the Sydney Water sewerage drainage network, where available.
- (c) Gravity sewer drainage systems must be used where levels permit. New additional authority sewer drainage connection points are to be installed prior to the use/ installation of a sewer pump-out system being adopted.
- (d) Where a gravitational feed to the main is not possible, a sewer pump-out system may be incorporated into the design and installation to pump effluent to a section of the gravity sewer drainage system.
- (e) Provide a sewer drainage system extending from either the gravity sewer or pump-out systems to receive the discharge from the sanitary fixtures and fittings.
- (f) The sanitary drainage systems must be complete with boundary traps/ or inspection shafts, overflow relief gully, drainage pipe installation and vents.

#### **3.3.4.3 Rainwater capture and drainage system**

- (a) Rainwater capture systems must be provided to feed the respective rainwater re-use service.
- (b) The rainwater capture systems must collect rainfall runoff in an on-site rainwater harvesting tank or system of multiple onsite rainwater harvesting tanks to achieve the required volume.
- (c) The rainwater capture system must collect rainfall run-off to provide the minimum required roof catchment areas for the system from the either of the following areas;
  - (i) roofs; and
  - (ii) canopies;
- (d) Where rainwater is not collected by rainwater harvesting tanks, rainwater must be directed by guttering, pipes and drains to the respective stormwater drainage system in accordance with local codes, the BCA and Australian Standards and discharged to the nearest suitable civil stormwater pit / infrastructure.

- (e) The SSJ Contractor must ~~ensure that where new canopies are provided, rainwater harvesting tanks are sized to collectively supply a minimum of 60% of the annual rainwater services~~ size the rainwater harvesting tank(s) taking into consideration the average rainwater capture from new roof and new canopies which are connected to the tank(s), such that it is able to provide (across the year) at least 60% of the annual non-potable water demand across the Sydenham Metro Station, and Interchange Works. Rainwater tanks must be a minimum of 25kL capacity.
- ~~(f) Rainwater tanks must be a minimum of 25kL capacity.~~
- ~~(f)~~ (g) The SSJ Contractor must ensure the roof catchment areas are appropriately balanced to suit the tank size and must be a minimum catchment area of 880m<sup>2</sup>.
- ~~(g)~~ (h) The rainwater capture and drainage system infrastructure must be provided with a minimum spare flow capacity of 20% at the time of Construction Completion of each Portion, excluding the rainwater harvesting tank capacity.
- ~~(h)~~ (i) The rainwater harvesting tank(s) must gravity overflow to the respective site stormwater drainage system.
- ~~(i)~~ (j) A first flush diverter must be provided to each rainwater capture system prior to the tank or tanks.
- ~~(j)~~ (k) The first flush diverter must be sized, at minimum, to flush / divert one litre (1L) of water for every one squared metre (1m<sup>2</sup>) of roof area capture, or part thereof.
- ~~(k)~~ (l) All overflows and drainage emanating from the catchment areas noted in 3.3.4.3 must be reticulated and drained via a piped system and discharged to the closest civil stormwater drainage pit / infrastructure.

#### 3.3.4.4 Roof and stormwater drainage system

- (a) The SSJ Contractor must provide stormwater drainage extending from the downpipes to the rainwater tank.
- (b) The roof gutters must be installed to the requirement of AS3500 Part 3 and Australian Rainfall and Runoff guidelines, based on the following minimum criteria:
- (i) Eaves Gutters – 1 in 20 year 5 minute storm event (5% Annual Exceedance Probability) plus an additional 10% to cater for future climate change; and
  - (ii) Box Gutters – 1 in 100 year 5 minute storm event (1% Annual Exceedance Probability) plus an additional 10% to cater for future climate change.
- (c) Gutters must be provided with all necessary overflows to suit the installation type.
- (d) The SSJ Contractor must provide stormwater drainage that receives discharge from rainwater tank overflow, downpipes not discharging to the rainwater tank and from the platform grated trench drain outlets and extend this stormwater drainage to the civil drainage infrastructure.

#### 3.3.5 Interfacing, control and monitoring

- (a) The SSJ Contractor must provide the control systems, including software, for the hydraulics services.
- (b) The hydraulics services must connect to a local building management system (BMS).

- (c) Each respective hydraulic system must normally operate under local control and on demand.
- (d) Each respective hydraulic system must be capable to operate automatically without manual intervention, including automatic restart on restoration of power, and clearing of any fire alarms.
- (e) Standby equipment must automatically activate on detection of failure of the respective duty device.
- (f) Local mechanical control panels must be provided within plant rooms close to the equipment they serve.
- (g) The local control must be provided in each plant room for emergency and maintenance operation.
- (h) The hydraulics services systems and sub systems must be able to detect faults within the system elements including, no or low water flow, sudden pressure loss, flooding, short circuits, motor fail to start and power supply failure as applicable for each component of active equipment.
- (i) The BMS must monitor the following characteristics of the hydraulics services:
  - (i) operation mode of systems: normal (automatic), manual, fault;
  - (ii) operation status of dynamic equipment: on, off, standby, fail to start;
  - (iii) operating time of dynamic equipment: log of running hours;
  - (iv) position of motorised valves: actuator status, and valve position;
  - (v) water levels in sumps and tanks: level alarms, and analogue level;
  - (vi) water quality of the rainwater service: analogue scale and limits;
  - (vii) leak detection in plant rooms as appropriate; and
  - (viii) fault signals, operating status, and performance metrics from packaged elements which include their own local controls.
- (j) Positive confirmation of dynamic equipment operation must be provided by flow or pressure switches, or limit switches, as appropriate to the device.
- (k) The BMS must log all alarms from the hydraulics services systems where:
  - (i) dynamic equipment fails to start;
  - (ii) positive confirmation of dynamic equipment operation is not received;
  - (iii) high level temperature alarm set points are exceeded;
  - (iv) faults are received from local device controllers or instrumentation;
  - (v) water quality does not meet design allowances; and
  - (vi) pre-set water alarm levels are exceeded, including high level, and low level in tanks and sumps as appropriate.
- (l) Alarms that indicate complete failure of an operations critical or safety service system must be reported up to the CCS and brought to the attention of the operator, including:

- (i) failure to start standby devices;
  - (ii) failure to confirm positive operation of respective systems; and
  - (iii) high level alarms of sumps.
- (m) Water sub-meters must be provided to the following areas:
- (i) site potable domestic cold water supply;
  - (ii) Rainwater service site usage;
  - (iii) make-up water supply to mechanical cooling systems;
  - (iv) supplies to commercial opportunity services; and
  - (v) back-up supply to site rainwater service.
  - (vi) [irrigation water supply provisions](#).
- (n) Water sub-meters must duplicate the local water supply authority meter and be provided with an analogue output.
- (o) For external water supplies, water sub-meters must be provided directly upstream of the local water supply authority meter.
- (p) Water sub-meters must connect to the local BMS to log water usage from each respective meter.

## **3.4 Vertical transportation**

### **3.4.1 General requirements**

- (a) All vertical transport forming part of the Metro Station works must be procured from the VT Contractor under the DSI Contract.
- (b) The SSJ Contractor must provide all VT including lift shafts and other associated infrastructure for the Metro Station Works.
- (c) The Metro Station VT works must be designed to meet the following requirements:
  - (i) egress requirements of the SSJ Contractors FLS strategy; and
  - (ii) all safety assessments and approvals in accordance with the requirements of the relevant codes, standards and authorities.

### **3.4.2 Lifts**

#### **3.4.2.1 Compliance**

- (a) The equipment and installation must conform to the requirements of all relevant Codes and Standards as documented in Appendix A2.0.

#### **3.4.2.2 General**

- (a) All lifts must incorporate facilities for disabled and mobility impaired customers. As a minimum all lifts to be compliant to AS1735.12
- (b) Lifts that serve customers or other members of the public, on bridges or access ways on the periphery of the station must:



- (i) have the lift car wall, door and shaft construction as transparent as far as is practicable, with minimal obstruction to view from structural and other elements as a minimum in accordance with Appendix B3.0 of the SWTC.
- (c) Shading must be provided to glazed lift shafts to reduce solar gains in contribution to limited shaft temperatures in accordance with section 3.1.4.
- (d) All lifts must be compliant with the specification in Appendix C2.0, including;
  - (i) Ride comfort, noise and vibration;
  - (ii) Lift shaft requirements;
  - (iii) landing lobbies;
  - (iv) lift car requirements;
  - (v) interface systems;
  - (vi) control features;
  - (vii) control and monitoring;
  - (viii) lift car finishes and indication; and
  - (ix) testing and commissioning requirements.

### **3.5 Fire services systems**

#### **3.5.1 General requirements**

- (a) The SSJ Contractor must provide fire services systems in accordance with relevant NCC Building Code of Australia (BCA) requirements, relevant Australian Standards and the SSJ Contractor's FLS strategy.
- (b) The systems must be able to give audible and visual signals for faults and warnings at the Sydney Metro City & Southwest SCR and OCC.

#### **3.5.2 Fire sprinkler systems**

- (a) If sprinklers are required by the BCA or the SSJ Contractor's FLS strategy:
  - (i) the sprinkler system must not be combined with the station hydrant system;
  - (ii) the sprinkler system must be fed as a minimum by a Grade 2 water supply as defined by AS2118.1:1999;
  - (iii) the sprinkler system must have its own booster assembly, adjacent to the station hydrant booster assembly;
  - (iv) any upgrades required to achieve the necessary water supplies are the responsibility of the SSJ Contractor;
  - (v) 80% of potable water associated with fire protection system testing must be reused through recirculation systems and temporary storage.

### 3.5.3 ~~3.5.2~~ Fire and smoke detection and alarm system

#### 3.5.3.1 ~~3.5.2.1~~ Sydney Metro areas

- (a) The SSJ Contractor must provide a fire and smoke detection and alarm system for the Metro Station Works including:
- (i) Fire detection compliant with AS 1670.1:2015 to the following areas as a minimum:
    - A. All staff facilities for Metro Station;
    - B. ~~Metro Station Back-of-House Areas;~~ BOH areas including the services buildings;
    - C. New lift shafts; and
    - D. Fresh-air intakes to all mechanical air handling systems.
    - E. The requirement for fire detection to public area platforms and concourses is to be determined by the SSJ contractor's FLS strategy
  - (ii) Manual call points to Back-of-House Areas. Manual call points are not required in public access areas, subject to an approved alternative solution in the SSJ Contractors FLS strategy.
  - (iii) A new addressable ~~Operator~~ Sydney Metro City & Southwest fire indicator panel (FIP) at the Metro Station and the associated services building that must:
    - A. receive fire alarm signals from all ~~areas listed in 3.4.2.1 a) i) and 3.4.2.1 a) ii)~~ parts of the facility served by the FIP;
    - B. receive alarm signals from the operation of active fire safety systems within Operator areas including fire hydrants;
    - C. contain input/output modules, control modules and monitoring modules as required to support the functionality of the detection and alarm system;
    - D. have 25% spare capacity of the total addresses installed on each loop at Completion ;
    - E. be located in the Metro Station control room or other suitably accessible location agreed with Fire and Rescue NSW;
    - F. Interface with the new Sydney Trains FIP; and
    - G. The FIP must be must be capable of being remotely controlled and monitored from the ~~Operators~~ Sydney Metro & Southwest operations control centre (OCC) and backup OCC (EOCC), including putting the Metro Station into alarm mode if a fire is detected or identified on an approaching train.
  - (iv) A mimic FIP panel located at the new Burrows Avenue entrance that must be in a weatherproof location or enclosure, on the unpaid side of the gate line, and in a readily accessible location agreed with FRNSW.

- (v) A multipoint aspirating smoke detection system (MASDS) for early fire detection in Critical Equipment Rooms or where room flooding gaseous fire suppression systems are used . The MASDS must:
- A. be addressed as a separate alarm zone to the FIP;
  - B. provide an air sampling pipe network to transport air to the detection unit;
  - C. interface with the station fire detection and alarm system;
  - D. house the detector, filter and aspirating fan in a mounting box arranged in such a way that air is drawn from the fire risk area through the filter and detector by the aspirator;
  - E. provide a detection unit of the integrating LASER-based type or the high intensity Xenon flash tube type, and having an obscuration range of 0.005 - 20%/meter;
  - F. incorporate in the detector controller facilities with the ability to transmit detector fault and air flow fault conditions;
  - G. provide an assembly containing sufficient relays to annunciate all required alarm and fault conditions;
  - H. have a response time for the least favourable sampling point in the system of not more than 90 seconds;
  - I. balance the system so that the volume of air drawn from the last sampling point must not be less than 60% of the volume from the first sampling point;
  - J. include all necessary software and associated programming; and
  - K. be powered from a regulated 24 V DC supply. The battery charger and battery must comply with the requirements of AS 4428.5.
- (vi) For any MASDS system the SSJ Contractor must provide computer-generated calculations showing response times, suction pressures and balance details of each sampling point for each pipe system.
- (vii) Building occupant warning system (BOWS) compliant with AS1670.1 to all Metro Station Works areas that must:
- A. interface with the Sydney Metro FIP, PA system, data communications network and CCS;
  - B. ~~A.~~ include a manual call point in the station control room (SCR);
  - C. ~~B.~~ provide emergency audio message broadcasting coordinated with the public address (PA) system using options of pre-recorded messages and live announcements;
  - D. ~~C.~~ include a PA system that is able to be overridden by an emergency warning function from the fire alarm system to enable any emergency warning signals or announcements to have priority;



- E. ~~D.~~ include alarm systems that provide a means of alarm notification to the visually impaired and hearing impaired, So Far As Is Reasonably Practicable;
  - E. ~~E.~~ be able to override PIDS and display emergency warning and evacuation instruction messages as defined in the SSJ Contractor's FLS strategy;
  - G. ~~F.~~ include PA zones covering the Operator areas that are capable of being remotely controlled and monitored from the Operators OCC and the SCR; and
  - H. ~~G.~~ have 25% spare capacity of the total devices installed at Completion.
- (viii) Power supplies, batteries and battery chargers to support the detection and alarm system; and
- (ix) All necessary software and associated programming.
- (b) The type of fire detection system chosen by the SSJ Contractor must balance the requirements of:
- i) alarm sensitivity to support the activation times assumed in the SSJ Contractor's FLS Strategy;
  - ii) minimising the risk of unwanted false alarms; and
  - iii) minimising the safety risk, so far as is reasonably practicable, in the maintenance of the detection system.
- (c) All panel control and monitoring equipment must enable quick detection and location of line faults and component failure.
- (d) The system must be fault-tolerant in that failure of a single component must not affect the operation of more than one detection or alarm zone.
- (e) The fire detection system must be fully addressable— and provide output information via the FIP to other systems which at a minimum include:
- (i) zone based signals to initiate the building occupant warning system (BOWS) in accordance with the requirements of the SSJ Contractors FLS strategy;
  - (ii) the smoke management system to activate any mechanical smoke exhaust, operate any natural ventilation louvres, and control/shut down environmental control systems that do not provide a smoke management function;
  - (iii) the smoke management system to activate any mechanical smoke exhaust, operate any natural ventilation louvres, and control/shut down environmental control systems that do not provide a smoke management function;
  - (iv) lift control panels to determine the incident modes for lifts;
  - (v) the CCTV system to automatically identify and prioritise the feed from CCTV cameras covering the area of the alarm;



- (vi) the ticket barrier control system to open fare gates and release any additional doors/gates to facilitate egress;
- (vii) the release of any fire/smoke doors, shutters, or other fire/smoke barriers separating the station from adjoining properties; and
- (viii) local common fire alarm signal to Fire and Rescue NSW.
- (f) Fire signals from the fire detection and alarm system to local interfaced systems and devices must be via hard wire connection.
- (g) During construction, alarm systems in operating parts of Sydenham Station must remain active at all times those areas are occupied by the general public or Sydney Trains staff. Any isolations of the existing system are to occur outside operating hours or during possessions and risk mitigation measures are to be agreed with Sydney Trains prior to the isolation.

### 3.5.3.2      ~~3.5.2.2~~ **Sydney Trains areas**

- (a) The SSJ Contractor must provide a fire and smoke detection and alarm system for the Sydney Trains areas associated with the Metro Station Works including:
  - (i) Fire detection compliant with AS 1670.1:2015 to the rooms within the Heritage building located on Platform 2/3;
  - (ii) A new addressable Sydney Trains fire indicator panel (FIP) that must:
    - A. receive fire alarm signals from ~~the areas listed in 3.4.2.2 a)~~ all parts of the facility served by the FIP;
    - B. contain input/output modules, control modules and monitoring modules as required to support the functionality of the detection and alarm system;
    - C. have a minimum of 25% spare capacity of the total addresses installed on each loop at Completion;
    - D. be located in the Sydney Trains station managers office or other suitably accessible location agreed with Sydney Trains and Fire and Rescue NSW; and
    - E. interface with the new Operators FIP.
  - (iii) Building occupant warning system (BOWS) compliant with AS1670.1 to all Metro Station Works areas that must:
    - A. include a manual call point in the station managers office;
    - B. provide emergency audio message broadcasting coordinated with the public address (PA) system using options of pre-recorded messages and live announcements;
    - C. utilise or upgrade the existing PA system so that it is able to be overridden by an emergency warning function from the fire alarm system to enable any emergency warning signals or announcements to have priority;

- D. include alarm systems that provide a means of alarm notification to the visually impaired and hearing impaired, So Far As Is Reasonably Practicable;
  - E. be able to override PIDS and display emergency warning and evacuation instruction messages as defined in the SSJ Contractor's FLS strategy and agreed with Sydney Trains;
  - F. have 25% spare capacity of the total devices installed at Completion.
- (iv) Power supplies, batteries and battery chargers to support the detection and alarm system; and
  - (v) All necessary software and associated programming.
- (b) The Sydney Trains detection and alarm system must have the capability to be extended in the future to cover the remainder of Sydenham Station.
  - (c) The type of fire detection system chosen by the SSJ Contractor must balance the requirements of:
    - (i) alarm sensitivity to support the activation times assumed in the SSJ Contractor's FLS Strategy;
    - (ii) minimising the risk of unwanted false alarms; and
    - (iii) minimising the safety risk, so far as is reasonably practicable, in the maintenance of the detection system.
  - (d) All panel control and monitoring equipment must enable quick detection and location of line faults and component failure.
  - (e) The system must be fault-tolerant in that failure of a single component must not affect the operation of more than one detection or alarm zone.
  - (f) The fire detection system must be fully addressable.
  - (g) During construction, alarm systems in operating parts of Sydenham Station must remain active at all times those areas are occupied by the general public or Sydney Trains staff. Any isolations of the existing system are to occur outside operating hours or during possessions and risk mitigation measures are to be agreed with Sydney Trains prior to the isolation.

### **3.5.4 ~~3.5.3~~ Fire hydrant system**

#### **3.5.4.1 ~~3.5.3.1~~ General requirements**

- (a) The SSJ Contractor must provide a new fire hydrant system covering the Metro Station Works in accordance with the BCA and the SSJ Contractors FLS strategy.
- (b) The new hydrant system is to include:
  - (i) New booster assembly accessed from Railway Parade;
  - (ii) New pumps and tanks as required; and
  - (iii) hydrant coverage to:
    - A. Metro Station platforms;

- B. Sydney Metro City & Southwest trains when in the normal stopping position at the platforms;
  - C. ~~The new overhead concourse~~ Metro Concourse
  - D. stairs from the concourse leading to platforms and station entrances,;
  - E. All staff facilities for Metro Station;
  - F. Metro Station Back-of-House Areas; and
  - G. New lift shafts.
  - H. Any retail areas within the Metro Station Precincts
- (c) The new hydrant system is to have capacity and provide connection points for future extension to cover the whole of Sydenham Station.
- (d) During construction, an operational fire hydrant system providing full coverage of the Worksites is to be provided at all times.
- (e) The fire hydrant system must be monitored by the Sydney Metro City & Southwest FIP.
- (f) The fire hydrant pump and low water level alarm of the fire water storage tank, if present, must be monitored by the Sydney Metro City & Southwest FIP.

#### 3.5.4.2     ~~3.5.3.2~~ **Water supply**

- (a) The hydrant system must be fed by a minimum Grade 2 water supply as defined by AS2118.1:1999.
- (b) The hydrant system must be designed for a minimum of 3 hydrant outlets to flow simultaneously in accordance with Clause 2.3 of AS2419.1-2005.
- (c) Unless otherwise agreed with FRNSW, if the town main water supply location cannot provide the required system or supply pressure, a fire pump or water tank system, inclusive of diesel and electric driven fire pumps, and jockey or pressure maintenance pump must be provided in accordance with AS2419 including:
- (i) Provisions to sense changes in system pressure to start the jockey or pressure maintenance pump automatically; and
  - (ii) A means for recycling of water for testing of the fire pumps.
- (d) A hydrant booster assembly must be provided in accordance with the type of system, hydraulic requirements, the requirements of FRNSW, and relevant local council requirements.
- (e) The location of the booster must be agreed with Sydney Trains and FRNSW and must:
- (i) Provide vehicle hard stand area for two general fire appliances within 8m of the booster inlet valves;
  - (ii) Allow fire brigade appliances attending from the nearest fire station to directly pull up without the need to travel the wrong way down one-way streets or carry out U-turns;

- (iii) Allow for a 11.3m turning circle of the fire appliance such that when arriving and leaving, the fire appliance must be able to drive out in a forward direction without needing to reverse or carry out 3-point turns;
  - (iv) Not have access blocked by parked or stationery vehicles including busses, So Far As Is Reasonably Practicable; and
  - (v) Minimise the impact, So Far As Is Reasonably Practicable, of parked fire appliances impacting vehicle traffic.
- (f) Each booster inlet is to be labelled with the boost pressure required to achieve the performance requirements at all points of the system.
  - (g) Any upgrades to existing systems or supply required to achieve the necessary water supplies are the responsibility of the SSJ Contractor.
  - (h) Water supply from recycled water mains is to be used for fire fighting where available subject to approval from the relevant water Authorities and FRNSW.
  - (i) Fire protection systems must include technology to detect and identify leaks.
  - (j) The SSJ Contractor must ensure that 80% of potable water associated with fire protection system testing is reused through recirculation systems and temporary storage.

#### 3.5.4.3      ~~3.5.3.3~~ System design

- (a) The SSJ Contractor must provide a new fire hydrant system, inclusive of the following:
  - (i) Fire hydrant outlets must be located to provide coverage by a single 30m hose, including on surface platforms;
  - (ii) Fire hydrant outlets are to be no more than 40m apart with the distance measured based on the laid path of a fire hose to avoid obstructions;
  - (iii) Platform fire hydrants must provide coverage where a single 30m fire hose can extend at least 2m inside every train door of a train in the normally stopped position;
  - (iv) A hydrant outlet is to be provided outside both the Railway Parade station entrance and the Burrows Ave station entrance;
  - (v) Fire hydrant outlet locations must be agreed with Fire and Rescue NSW;
  - (vi) A take-off point(s) is to be provided that allows future extension of the hydrant system to existing areas of Sydenham Station;
  - (vii) The fire hydrant pipework must be interconnected to form a ring main;
  - (viii) Appropriate isolation valves must be provided to allow isolation of a particular section under failure or for maintenance purposes, while still maintaining functionality to the remainder of the ring main;
  - (ix) The number of isolation sections must be sufficient to avoid shutting off significant portions of the ring main; and



- (x) Hydrant outlet valves are to be protected in a manner agreed with FRNSW to minimise the risk of misuse and vandalism, So Far As Is Reasonably Practicable.

### **3.5.5** ~~3.5.4~~ Fire hose reel system

- (a) A fire hose reel system must be provided throughout the area of the Metro Station Works to provide full coverage to all floor areas with the exception of public access areas of Metro Station platforms and the overhead concourse where hose reels are not to be provided, subject to the approval of an alternative solution within the SSJ Contractor FLS strategy.
- (b) Valves serving the fire hose reel system must be secured and padlocked in the open position.
- (c) Fire hose reel coverage is not to require the hose to cross any fire compartment lines.

### **3.5.6** ~~3.5.5~~ Gaseous suppression system

- (a) A gaseous suppression system must be provided to rooms as defined by the SSJ Contractor's FLS strategy and in accordance with AS ISO14520.
- (b) Gaseous suppression is to be provided to protect rooms within the Metro Station Works:
  - (i) which contain equipment considered critical to Sydney Metro City & Southwest rail operations; and
  - (ii) where fully redundant (standby) critical equipment cannot be provided in a separate fire compartment with a minimum separation FRL of 120/120/120.
- (c) All gaseous suppression systems are to be of the total room flooding type;
- (d) Gaseous suppression must be of the clean agent inert gas type and a single type of gas is to be used across all rooms within the Sydney Metro Works.
- (e) ~~(d)~~ The type of gas selected must have the following characteristics:
  - (i) have zero ozone depletion potential;
  - (ii) have 100 year global warming potential of less than 10;
  - (iii) enable occupants to safely evacuate the room being flooded by gas within a reasonable time frame;
  - (iv) be approved/permitted for use in NSW and widely used in NSW; and
  - (v) be non-proprietary.
- (f) ~~(e)~~ Gaseous suppression is to be automatically activated by fire detection. The fire detection system must include two independent detection types. One type must be a MASDS type as described in section 3.5.2 of this Appendix. Room flooding gaseous suppression must not activate until both fire detection types confirm a fire event.
- (g) ~~(f)~~ A sufficient stock of fully-charged standby gas cylinders, (located in a secure maintenance location) must be provided.

- (h) ~~(g)~~ Mechanical systems for pressure relief and purging must be provided in accordance with section 3.1 of this Appendix.
- (i) ~~(h)~~ Gas bottle storage must be located such that replacement can be undertaken from on grade access or by lifts and not by stairways. Alternatively on grade fill points can be provided.
- (j) Any gaseous suppression system control panels must interface with the Sydney Metro City & Southwest FIP for system control and monitoring.
- (k) Any gaseous suppression systems must be able to interface with the ECS systems to close fire dampers, stop mechanical systems and activate pressure relief for the protected rooms in the event of the activation of the gaseous suppression system.

### 3.5.7 ~~3.5.6~~ Portable fire extinguishers

- (a) Portable fire extinguishers are to be provided as required by the BCA, applicable Australian Standards and the SSJ Contractor's FLS strategy.
- (b) Portable fire extinguishers must be conspicuously located in positions where they will be readily accessible and immediately available in the event of fire.
- (c) Portable fire extinguishers must be located near to room exits, corridors, and inside fire hose reel cabinets.
- (d) Any portable fire extinguishers located in areas accessible to the public must be contained in cabinets with break glass release and / or door open alarms monitored by the BMS via the fire system and displayed in the SCR.

### 3.5.8 ~~3.5.7~~ Interfacing

#### 3.5.8.1 ~~3.5.7.1~~ Fire detection and alarm

- (a) The SSJ Contractor must provide interfaces for the fire systems including as a minimum:
  - (i) the Metro Station FIP must provide zone based signals to initiate the building occupant warning system in accordance with the requirements of the SSJ Contractors FLS strategy.
  - (ii) fire alarm interface to the electronic ticketing system to open all fare gates at both the Railway Parade station entrance and the Burrows Ave station entrance, and release any additional doors/gates provided to facilitate egress;
  - (iii) fire alarm interface to lift control panels to control lifts to their emergency programme;
  - (iv) fire alarm interface for each fire detection zone for ventilation and air-conditioning shutdown control;
  - (v) fire alarm interface to the CCTV system to automatically identify and prioritise the feed from CCTV cameras covering the area of the alarm; and
  - (vi) local common fire alarm signal to Fire and Rescue NSW.
- (b) Fire signals from the fire detection and alarm system to local interfaced systems and devices must be via hard wire connection.

- (c) The Metro Station FIP must interface with the new Sydney Trains FIP so that any fire alarm signals received by the Operators FIP are relayed to the Sydney Trains FIP.
- (d) The new Sydney Trains FIP must interface with the Operators FIP so that any fire alarm signals received by the Sydney Trains FIP are relayed to the Operators FIP.

**3.5.8.2 ~~3.5.7.2~~ Building occupant warning system**

- (a) The Metro Station building occupant warning system must interface with the Metro Station FIP, PA system, data communications network, and Metro CCS.

**3.5.8.3 ~~3.5.7.3~~ Fire hydrant system**

- (a) The fire hydrant system must be monitored by the Metro Station FIP.
- (b) The fire hydrant pump and low water level alarm of the fire water storage tank, if present, must be monitored by the Metro Station FIP.

**3.5.8.4 ~~3.5.7.4~~ Gaseous suppression**

- (a) Any gas control panels must interface with the Metro Station FIP for system control and monitoring.
- (b) Any gaseous suppression systems must be able to interface with the ECS systems to close fire dampers, stop mechanical systems and activate pressure relief for the protected rooms in the event of the activation of the gaseous suppression system.

**3.5.9 ~~3.5.8~~ Control and monitoring**

- (a) The fire service systems must be able to detect faults within the system elements including, as a minimum, pressure loss, short circuits and power supply failure.
- (b) The fire service systems must be able to give audible and visual signals for faults and warnings at the Metro Station SCR and at the Operators OCC.
- (c) A link from the OCC and BOCC via the CCS must be provided to the Station FIP to enable putting the Metro Station into alarm mode if a fire is detected or identified on an approaching train.







# Sydney Metro City & Southwest

## **Sydenham Station Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B5.0 – Fire and Life Safety Works

<b>PROJECT</b>	Sydenham Station and Junction Works	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2C</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-FL-SC</u> <u>H-000096</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B5.0 - Fire Life Safety Works		



# Contents

<b>1</b>	<b>Requirements</b>	<b>1</b>
1.1	General	1
1.2	Fire engineering documentation and approvals process	3
1.3	Minimum fire engineering methodology requirements	5
1.3.1	Hazard assessment	6
1.3.2	Scenarios to be addressed	6
1.3.3	Scenario categorisation	9
1.3.4	FLS analysis	10
1.3.5	FLS analysis criteria	11
1.3.6	Fire Safety Systems	12
<u>1.3.7</u>	<u>Construction, testing and commissioning</u>	<u>12</u>
<u>1.3.8</u>	<u>Construction, testing and commissioning</u>	<u>13</u>
1.4	Qualified Fire Engineer	<del>12</del> 14
1.5	Check engineer (fire and life safety)	<del>13</del> 14

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# 1 Requirements

## 1.1 General

- (a) This Appendix describes the performance and methodology requirements for fire and life safety (FLS) for the Project Works and includes a description of submission requirements for Design Documentation. Specific design requirements related to FLS are contained in other appendices for specific disciplines.
- (b) The SSJ Contractor must develop a fire and life safety strategy (the SSJ Contractor's FLS strategy), documented and approved in accordance with section 1.2 (b), that provides a level of safety for Occupants and Emergency Services in the event of a fire, both during construction and for the operational lifetime of the facility, that at a minimum:
  - (i) meets the requirements of the NSW Environmental Planning & Assessment Act 1979 for the Project Works; and
  - (ii) demonstrates that the Risk from fire has been reduced So Far As Is Reasonably Practicable (SFAIRP) as required by the NSW Rail Safety (Adoption of National Law) Act 2012, for:
    - A. all parts of the Project Works; and
    - B. all parts of Sydenham Station directly and indirectly affected by the Project Works.
- (c) The SSJ Contractor must determine if any applicable overarching FLS strategy for Sydney Metro City & Southwest has been developed by the Principal or Operator, and must then ensure that the FLS strategy prepared by the SSJ Contractor for the Project Works is consistent and compatible with any overarching Sydney Metro City & Southwest FLS strategy, unless agreed in writing by both the Principal's Representative and Operator.
- (d) The SSJ Contractor must review the FLS strategy for ~~Sydney~~ Metro Northwest and must then ensure that the SSJ ~~Contractors~~ Contractor's FLS strategy ~~prepared by the SSJ Contractor~~ is consistent and compatible with the Metro Northwest FLS strategy, unless agreed in writing by both the Principal's Representative and the Operator.
- (e) The SSJ Contractor must determine if any FLS strategy already exists for Sydenham Station, and must then ensure that the FLS strategy prepared by the SSJ Contractor for the Project Works is consistent and compatible with any existing Sydenham Station FLS strategy. Where the SSJ Contractor's FLS strategy is not consistent with any existing FLS strategy, the inconsistency must be agreed in writing by both the Principal and Sydney Trains prior to implementation as part of the Project Works.
- (f) The FLS strategy for the Project Works is to address the Metro Station Works, Metro Corridor Works and Brownfield Works.
- (g) In areas of Sydenham Station not directly or indirectly affected by the Project Works, the FLS strategy must not reduce the existing level of fire safety.

- (h) Reliance on pre-existing Fire Safety Systems under clause 94 of the Environmental Planning and Assessment Regulation 2000, as sole justification for the Fire Safety Systems required within the SSJ Contractor's FLS strategy, is not acceptable.
- (i) The SSJ Contractor's FLS strategy must, So Far As Is Reasonably Practicable:
  - (i) reduce the Risk of heat, smoke or structural failure resulting from a fire event, either within the Project Works or originating from adjacent buildings, infrastructure or property, causing injury or fatality to Occupants, Emergency Services, neighbours or general public in the vicinity;
  - (ii) facilitate evacuation of Mobility Impaired Person's from all publicly accessible areas and light duty Back of House areas of the Project Works;
  - (iii) provide safe evacuation of Occupants from within the Project Works, with reasonable measures to reduce the Risk, So Far As Is Reasonably Practicable, from:
    - A. slips, trips and falls;
    - B. mechanical and electrical Hazards in the path(s) of evacuation;
    - C. crush injuries from an Uncontrolled Evacuation;
    - D. illness from anxiety and / or over-exertion;
    - E. manual handling injuries that may be sustained in the process of assisting the evacuation of a Mobility Impaired Person;
    - F. Hazards from fire suppression systems and firefighting operations;
    - G. train impacts to evacuating occupants that may enter the Rail Corridor; and
    - H. vehicle impacts to evacuating Occupants that may enter a road corridor.
  - (iv) reduce the Risk of injury to Occupants sustained from operating First Attack Firefighting equipment;
  - (v) minimize Risk of injury or fatality resulting from installation or maintenance of fire safety systems;
  - (vi) reduce the Risk of false alarms from Fire Safety Systems that trigger unnecessary evacuations or cause disruption to Normal Operations for all rail operators;
  - (vii) facilitate the operations of Fire and Rescue NSW (FRNSW), the Operator's emergency response unit (if provided) and ~~the Sydney Trains Rail~~ other Emergency Response Unit (RERU) Services, to:
    - A. enable them to attempt rescue of living Occupants;
    - B. prevent fire spread to adjacent buildings and properties;
    - C. prevent impact on adjacent buildings and properties due to structural failure from a fire;
    - D. manage the eventual extinguishment of the fire; and



- E. allow a timely return to Normal Operations.
- (viii) reduce the Risk of fire, including the consequences of extinguishment, clean-up, repairs and re-instatement, resulting in an interruption to Normal Operations for all rail operators;
- (ix) reduce the Risk of heat, smoke, structural failure or firefighting activities from a fire resulting in significant property damage to Rolling Stock, Rail Infrastructure (irrespective of the operator), Heritage listed property, neighbouring property and neighbouring infrastructure;
- (x) minimise the impact, SFAIRP, on the fabric of Heritage heritage listed property from the installation and maintenance of Fire Safety Systems;
- (xi) reduce the Risk of heat, smoke or firefighting activities from a fire within the Project Works resulting in environmental damage;
- (xii) minimise the water usage, energy usage and carbon footprint of required Fire Safety Systems; and
- (xiii) reduce the Risk of environmental harm associated with the installation, maintenance, and operation of Fire Safety Systems.
- (xiv) The SSJ Contractor must confirm with the Principal and Sydney Trains whether the Rail Emergency Response Unit (RERU) is to be part of the incident management response at Sydenham Station, and if so, are to consider RERU as an Emergency Service
- (j) During construction, the SSJ Contractor must determine and implement interim FLS strategies, prior to each phase of construction, documented and approved in accordance with section 1.2 (b), that maintain an acceptable level of fire safety in all parts of Metro Station and Sydenham Station that remain operational.
- (k) During construction, the SSJ Contractor must determine and implement FLS strategies, documented within the SSJ Contractor's Construction & Site Management Plan and Incident, Emergency and Crisis Management Plan (which are both listed in MR-PA). Both Management Plans must be submitted in accordance with the Contract and the timeframes specified in MR-PA.

## 1.2 Fire engineering documentation and approvals process

- (a) The SSJ Contractor must deliver FLS Design Documentation as defined for the Design Stages MR-T.
- (b) Prior to the commencement of any construction that may be affected by Fire Safety Systems, the SSJ Contractor must as a minimum:
  - (i) develop a Fire Engineering Brief (FEB) which must include all elements described in MR-T;
  - (ii) conduct associated stakeholder consultation and review of the FEB from all stakeholders listed in section 1.2(e);
  - (iii) revise the FEB as appropriate to incorporate comments from project stakeholders including those listed in section 1.2(e);
  - (iv) obtain agreement on the FEB from all stakeholders, acting reasonably, listed in section 1.2(e)(i) to include:

- A. written agreement on the elements of the FEB described in MR-T;  
and
- B. Approval-In-Principal of all other elements of the FEB.
- (v) develop a Fire Engineering Report (FER) which must include all elements described in MR-T;
- (vi) demonstrate within the FER that the FLS strategy meets the acceptance criteria agreed in the FEB in accordance with section 1.2(b)(iv)A.;
- (vii) ensure that the FER provides definition and justification of the required FLS strategy, including all required design and operational management elements that will achieve an appropriate level of fire safety, and be acceptable to all stakeholders listed in section 1.2(e) (i);
- (viii) ensure that the FER includes a comprehensive description and performance specification of all required Fire Safety Systems to facilitate:
  - A. a 100% detailed design of the Fire Safety Systems;
  - B. the integration of Fire Safety Systems with the balance of works;
  - C. the construction and commissioning Fire Safety Systems; and
  - D. timely certification of Fire Safety Systems.
- (ix) revise the FER as appropriate to incorporate comments from project stakeholders, including those listed in section 1.2(e);
- (x) obtain written approval of the FER from all stakeholders, acting reasonably, listed in 1.2(e) (i);
- (xi) obtain written approval or a Certificate Of No Objection to the FER from all stakeholders listed in 1.2(e)(ii); and
- (xii) prepare appropriate testing methodologies and specifications for any fire testing programs necessary to demonstrate the Fire Resistance Levels (FRL) and / or Fire Hazard Properties of any required Fire Safety Systems defined in the Approved FER.
- (c) Where the FLS strategy relies upon inputs and assumptions from third parties including information from Sydney Trains regarding existing systems and operational procedures at Sydenham Station, the SSJ Contractor must satisfy itself of the accuracy and reliability of those inputs so that the FLS strategy prepared by the SSJ Contractor can be approved as an integrated strategy for Metro Station and Sydenham Station.
- (d) During construction the SSJ Contractor must:
  - (i) review the Design Documentation and perform site inspections to ensure the construction and installation of all Fire Safety Systems is in accordance with the FLS strategy requirements as defined in the Approved FER;
  - (ii) witness commissioning and testing, including any testing programs necessary to demonstrate Fire Resistance Levels and / or Fire Hazard Properties, to ensure that all Fire Safety Systems required for the Project Works are constructed, installed and are operational in accordance with the Approved FER;
  - (iii) before the Completion of all Project Works relevant to the Fire Safety Systems, provide a certification letter(s), confirming that the Fire Safety

Systems meet the intent of the FLS strategy as defined in the Approved FER;  
and

- (iv) provide Sydney Trains with input into all operation and emergency response plans and provide all necessary information to Sydney Trains, in their role as Chief Warden in a fire incident, for Sydney Trains to update the site wide Site Incident Management Plan (SIMP) and First Responders Emergency Information Kit (FREIK).
- (e) The SSJ Contractor must:
- (i) consult, as a minimum, the following FLS stakeholders and obtain agreement as defined in section 1.2(b)(iv) for the FEB and section 1.2(b)(x) for the FER:
    - A. Transport for New South Wales (The Principal);
    - B. Sydney Trains, including the Rail Emergency Response Unit;
    - C. Fire and Rescue New South Wales (FRNSW);
    - D. the Operator;
    - E. the Crown Certifier;
    - F. the check engineer (fire life safety); and
    - G. the Independent Certifier for the Project Works.
  - (ii) brief, as a minimum, the following stakeholders on the FLS strategy and from whom comment should be sought within reasonable timeframes and their comments addressed within the FEB and FER So Far As Is Reasonably Practicable:
    - A. Interface Contractors;
    - B. Transport Management Centre (TMC);
    - C. New South Wales Trains;
    - D. Australian Rail Track Corporation (ARTC);
    - E. Inner West Council;
    - F. New South Wales Police;
    - G. Community and neighbouring properties (including those with direct frontage to, or a shared boundary with, Sydenham Station);
    - H. Ambulance Service of NSW;
    - I. Disability Council NSW; and
    - J. Heritage Council of NSW.

### **1.3 Minimum fire engineering methodology requirements**

- (a) This section defines the minimum requirements to be adopted in the development of the SSJ Contractor's FLS strategy. The SSJ Contractor must analyse, define and justify all parts of the FLS strategy, and may need to adopt levels of performance that are more onerous than those defined here.
- (b) The fire engineering methodology must follow the principle steps shown in Figure 1.

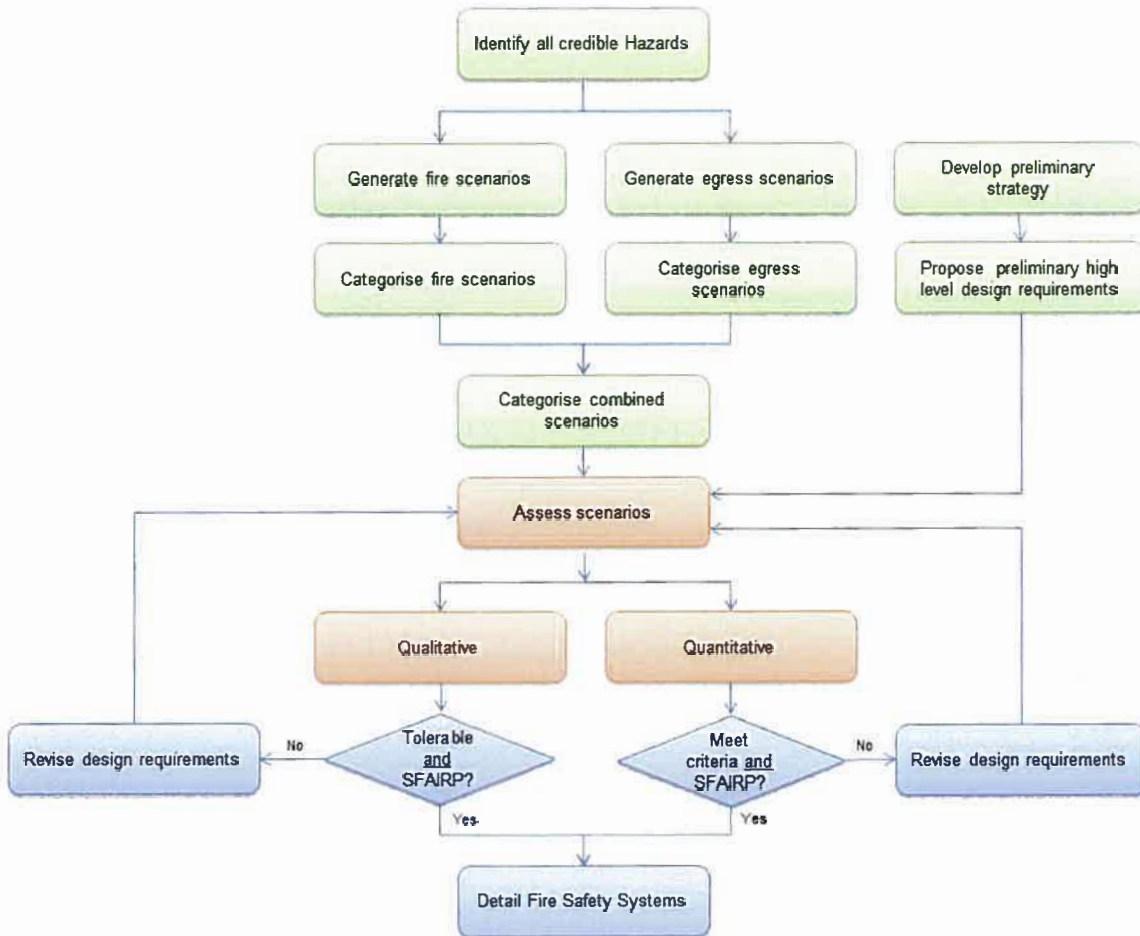


Figure 1: Fire engineering methodology

### 1.3.1 Hazard assessment

- (a) The FLS strategy must identify all credible fire related Hazards which must include:
- (i) Hazards that may result in a fire starting;
  - (ii) Hazards that may contribute to fire growth and the generation of heat and smoke;
  - (iii) Hazards that may affect the impact of heat and smoke from a fire on Occupants, Emergency Services, building structures, rail operations, and Rail Infrastructure; and
  - (iv) Hazards that may affect the efficacy of Fire Safety Systems.
- (b) All Hazards identified as part of the FLS strategy must also be recorded in the Project Works Risk Register.

### 1.3.2 Scenarios to be addressed

- (a) Scenarios must be developed that address all Hazards identified as part of the FLS strategy.
- (b) The FLS strategy must address separate train fire scenarios that include:
- (i) fire on a Sydney Metro City & Southwest train; and

- (ii) fire on a Sydney Trains heavy passenger train where the fire may affect any part of the Project Works.
- (c) Train fire scenarios must include the following operational scenarios, applicable to both Sydney Metro City & Southwest and Sydney Trains rolling stock as defined in section 1.3.2(b):
  - (i) a fire starting on the train whilst in motion and the train continuing to Metro Station and Sydenham Station from either direction and stopping wholly within the station;
  - (ii) a fire starting on the train whilst in motion and the train then stopped partly within Metro Station and Sydenham Station and partly within the corridor on either side of the station;
  - (iii) a fire on a train stopped in the corridor either side of Metro Station and Sydenham Station, requiring passengers to detrain and evacuate to Sydenham Station;
  - (iv) a fire on a train stopped under the Metro Concourse, with the fire located directly under the overbridge structure;
  - (v) a fire on a train stopped under the Sydenham Station overhead concourse and Gleeson Avenue road overbridge, with the fire located directly under the Gleeson Avenue road overbridge structure; and
  - (vi) a fire on a train stopped under the existing ARTC Overpass to the south of Sydenham Station, with the fire located directly under the ARTC rail overbridge structure.
- (d) The FLS strategy must assess train fires in the following locations:
  - (i) fire on the roof of a train;
  - (ii) fire beneath the floor of a train; and
  - (iii) fire within the passenger area of a train, including:
    - A. fire within an end car of the train car;
    - B. fire within the middle of the train;
    - C. fire within the train car immediately adjacent to each exit from the platform; and
    - D. fire within the train car that will produce the worst credible smoke conditions on the platform and connected concourses.
- (e) Irrespective of the fire scenario likelihood assessment conducted by the SSJ Contractor in accordance with section 1.3.3, the following train fire scenarios are the minimum that must be analysed through Deterministic Assessment:
  - (i) Design Fire Scenario - a 1MW medium growth fire in the passenger area of a train; and
  - (ii) High-Challenge Fire Scenario - a 3MW medium growth fire in the passenger area of a train.
- (f) The FLS strategy must assess fire scenarios within Metro and Sydenham Station and its ancillary buildings including fire on / in:
  - (i) platform 1 and 2;

- (ii) platform 3, 4, 5 and 6;
  - (iii) the Metro Concourse;
  - (iv) the Sydenham Station concourse;
  - (v) Metro Station street level main entrance off Railway Parade and Burrows Ave;
  - (vi) Metro Station Back-Of-House areas;
  - (vii) Heritage buildings on Platform 2/3;
  - (viii) Metro Station service equipment buildings; and
  - (ix) The existing Heritage pumping station and the new pumping station adjacent the Sydenham Pit.
- (g) Irrespective of the fire scenario likelihood assessment conducted by the SSJ Contractor in accordance with section 1.3.3, the following station fire scenarios are the minimum that must be analysed through Deterministic Assessment:
- (i) Design Fire Scenario - a 1MW medium growth fire in the station platform and concourse areas; and
  - (ii) High-Challenge Fire Scenario - a 2MW medium growth fire in the station platform and concourse areas.
- (h) The FLS strategy must consider both train and station fires that are located in the worst credible position with respect to smoke conditions produced, and impact on egress, noting that these may be different locations.
- (i) Arson fires must be assessed both on trains and in the station. Arson fire scenarios must allow for the ignition of materials available to hand.
- (j) The FLS strategy must assess the following egress scenarios with the following categorisations, irrespective of the scenario likelihood assessment conducted in accordance with section 1.3.3:
- (i) Design Egress Scenario - a train evacuated at Metro Station and Sydenham Station where the affected platforms and concourses have been previously evacuated;
  - (ii) Design Egress Scenario – a train evacuated at Metro Station and Sydenham Station with normal entraining passenger loads on all affected platforms and normal detraining passenger loads on non-incident platforms; and
  - (iii) High Challenge Egress Scenario – a train evacuated at Metro Station and Sydenham Station with affected platform passenger entraining loads incorporating a missed headway.
- (k) The determination of Occupant numbers for the purposes of the FLS strategy, must include Design Egress Scenarios based on:
- (i) patronage forecasts for the year 2056;
  - (ii) the following Sydney Metro City and Southwest train frequency:
    - A. 30 trains per hour per direction; and
    - B. 25 trains per hour per direction.



- (iii) train populations in combination with station populations for both AM Peak patronage and PM Peak patronage.
  - (iv) a minimum Peak-On-Peak Factor of 1.2 applied to the peak hour station entry and interchange patronage forecasts.
  - (v) a minimum of 5% of Occupants, rounded up to the nearest whole number, to have a mobility impairment that prevents them self-evacuating via stairs.
  - (vi) a minimum of 0.03% of Occupants, rounded up to the nearest whole number, to be wheelchair bound.
- (l) The FLS strategy is to assess a High Challenge Egress Scenario based on 20 trains per hour per direction with all other parameters as defined in section 1.3.2 (k).
- (m) In addition to section 1.3.3(k), for the purposes of the FLS strategy, peak hour train passenger populations for both Sydney Metro City and Southwest trains and Sydney Trains heavy passenger rolling stock, must be based on:
- (i) Design Egress Scenario - patronage data;
  - (ii) High-Challenge Egress Scenario - Peak Loaded Train, if the patronage based population is less than a Peak Loaded Train; and
  - (iii) High Challenge Egress Scenario - Crush Loaded Train, if the patronage based population is more than a Peak Loaded Train.
- (n) Where any combination of scenario requirements defined in section 1.3.2 results in conflicting scenario categorisations, the scenario categorisation with the less frequent Likelihood Return Period will apply.
- (o) For each Combined Design Scenario, as defined in section 1.3.2, or determined in accordance with section 1.3.3, the credible failure of individual Fire Safety Systems is to be assessed as a Combined High Challenge Scenario.

### **1.3.3 Scenario categorisation**

- (a) The SSJ Contractor must conduct an assessment of the likelihood of each scenario generated as required by section 1.3.2 and determine a categorisation on the following basis:
- (i) Design Fire Scenarios or Design Egress Scenarios – those scenarios with a Likelihood Return Period of 100 years or less;
  - (ii) High Challenge Fire Scenarios or High Challenge Egress Scenarios – those scenarios with a Likelihood Return Period greater than 100 years and less than or equal to 10,000 years; and
  - (iii) Extreme Event Fire Scenarios or Extreme Event Egress Scenarios – those scenarios with a Likelihood Return Period greater than 10,000 years.
- (b) A minimum scenario categorisation defined in section 1.3.2, will supersede a scenario categorisation determined in accordance with section 1.3.3(a).
- (c) When combining fire scenarios with egress scenarios, the following categorisation of the combined scenarios applies:
- (i) A Design Fire Scenario and a Design Egress Scenario results in a Combined Design Scenario;

- (ii) A Design Fire Scenario and a High-Challenge Egress Scenario results in a Combined High-Challenge Scenario;
- (iii) A High-Challenge Fire Scenario and a Design Egress Scenario results in a Combined High-Challenge Scenario;
- (iv) A High-Challenge Fire Scenario and a High-Challenge Egress Scenario results in a Combined Extreme Event Scenario; and
- (v) An Extreme Event Fire scenario and/or an Extreme Event Egress Scenario results in a Combined Extreme Event Scenario.

#### **1.3.4 FLS analysis**

- (a) Scenarios may be grouped for the purposes of collective analysis.
- (b) For fire scenarios at Metro Station and Sydenham Station, the following are the minimum parameters that must be analysed through Quantitative Assessment:
  - (i) temperature, visibility and toxicity of smoke within all egress paths and areas used as a Place Of Relative Safety, if the canopy design or surrounding construction can result in a layer of smoke and heat being trapped in areas where Occupants may be evacuating;
  - (ii) heat radiation received by evacuating Occupants, both from the fire and the potential hot smoke layer, in all egress paths and areas used as a Place Of Relative Safety;
  - (iii) heat exposure to adjacent structure including any footbridge, overbridge, concourse, canopy structure or building structure above the train; and
  - (iv) Occupant egress.
- (c) For the scenario of a fire on a train which has stopped in the Rail Corridor, the following are the minimum parameters that must be analysed through Quantitative Assessment:
  - (i) temperature, visibility and toxicity of smoke inside the train;
  - (ii) heat exposure to adjacent structure including any footbridge, overbridge, concourse or building structure above the train; and
  - (iii) Occupant detrainment.
- (d) For quantitative assessment of fire scenarios the convective component of the fire heat release rate is to be a minimum of 0.7.
- (e) The following is to be adopted for egress assessments:
  - (i) The maximum average travel speed of able bodied Occupants when not travelling through smoke is to be 1m/s;
  - (ii) The maximum average travel speed of the mobility impaired, aged, or children when not travelling through smoke is to be 0.8m/s;
  - (iii) The maximum average travel speed when travelling through smoke with a visibility greater than 5m, is to be 0.7m/s;
  - (iv) The maximum average travel speed when travelling through smoke with a visibility less than 5m, is to be 0.3m/s;
  - (v) Boundary layers must be incorporated in all egress width calculations;



- (vi) Fire blocking an exit is to be assessed, particularly for station platform fires; and
- (vii) The minimum pre-movement time for a fire on the station platform or concourse is to be 1 minute.

### 1.3.5 FLS analysis criteria

- (a) The following tenability criteria are the minimum to be used for Quantitative Assessment of Occupant egress from inside a train:
  - (i) maximum thermal Fractional Effective Dose (FED) of 0.3; and
  - (ii) maximum CO Fractional Effective Dose of 0.3.
- (b) The following tenability criteria are the minimum to be used for Quantitative Assessment of Occupant egress from / through / at Metro Station Sydenham Station:
  - (i) thermal radiation received by Occupants to be less than 2.5kW/m<sup>2</sup>;
  - (ii) for smoke below 2.1m above floor level, maximum smoke temperature to be 60°C, and maximum thermal Fractional Effective Dose (FED) of 0.3;
  - (iii) for smoke below 2.1m below floor level, minimum visibility to be 5m;
  - (iv) maximum CO Fractional Effective Dose of 0.3; and
  - (v) in a fire evacuation scenario, calculated queuing times at exits (including the open stairs), in public areas of stations must not exceed 8 minutes.
- (c) The following are the minimum criteria to be applied to the Quantitative Assessment of the performance of structures in fire scenarios:
  - (i) the maximum limiting temperature of structural steel is to be determined on a case by case basis in accordance with AS 4100 and / or Eurocode 3; and
  - (ii) concrete and any steel reinforcement within the concrete must be assumed to begin losing its strength at elevated temperatures as defined in section 3.2 of Eurocode 2 Part 1-2.
- (d) Where Quantitative Assessment is used:
  - (i) Combined Design Scenarios must be analysed through Deterministic Assessment and the FLS strategy demonstrated to provide adequate fire safety with a minimum safety factor of 1.5; and
  - (ii) Combined High Challenge Scenarios must be analysed through Deterministic Assessment and the FLS strategy demonstrated to provide adequate fire safety with a minimum safety factor of 1.0.
- (e) Where Qualitative Assessment is used, the FLS strategy must demonstrate that:
  - (i) the fire safety risk has been reduced to at least a Tolerable level when assessed against the risk matrix defined in the TfNSW North West Rail Link Integrated Management System (IMS) Project Safety Management Plan (PSMP) Safety Risk Management Standard; and
  - (ii) the fire safety risk has been reduced So Far As Is Reasonably Practicable as defined through the Rail Safety National Law and guidance from Office of the National Rail Safety Operator (ONRSR).

- (f) Extreme Event Fire Scenarios, Extreme Event Egress Scenarios and Combined Extreme Event Scenarios must be assessed to reduce the fire safety risk So Far As Is Reasonably Practicable as defined through the Rail Safety National Law and guidance from Office of the National Rail Safety Operator (ONRSR).
- (g) Compliance with the Rail Safety (Adoption of the National Law) Act must be demonstrated through a risk based first-principles approach. Compliance with the Rail Safety (Adoption of the National Law) Act is not achieved solely by:
  - (i) compliance with the prescriptive deemed-to-satisfy requirements of the BCA, or demonstration of equivalence with the prescriptive deemed-to-satisfy requirements of the BCA; or
  - (ii) compliance with the prescriptive requirements of the american standard NFPA130 Standard for Fixed Guideway Transit and Passenger Rail Systems, or demonstration of equivalence with the prescriptive requirements of NFPA130

### 1.3.6 Fire Safety Systems

- (a) For all credible fire scenarios, the SSJ Contractor is to determine and implement default automated Fire Safety System responses So Far As Is Reasonably Practicable. The FLS strategy is to minimise dependence on human intervention by staff.

### 1.3.7 Construction, testing and commissioning

- (a) The FER and all IFER's must be approved by the Principal's Representative and the Crown Certifier prior to the commencement of any construction that may be affected by the Fire Safety Systems described in the FER and all IFER's
- (b) During construction the SSJ Contractor must as a minimum:
  - (i) undertake site inspections as required to ensure construction and installation of all Fire Safety Systems is in accordance with the SSJ Contractor's FLS strategy requirements as defined in the Approved FER and all Approved IFER's.
  - (ii) undertake and witness commissioning and testing to ensure that all Fire Safety Systems required for the Project Works are constructed, installed and are operational in accordance with the Approved FER and all Approved IFER's, including:
    - A. where fire rating certification cannot be provided or is not available, undertake any testing programs necessary to demonstrate Fire Resistance Levels and / or Fire Hazard Properties; and
    - B. active testing to confirm all Fire Safety System responses as defined in the Cause and Effect Matrix contained in the Approved FER and all Approved IFER's.
  - (iii) provide Sydney Trains with input into all operation and emergency response plans and provide all necessary information to Sydney Trains, for Sydney Trains to update their Site Incident Management Plans (SIMP's), First Responders Emergency Information Kits (FREIK's) and other operational documents as requested by the Principal Representative, to incorporate:



- A. Sydney Trains' role as Chief Warden of Sydney Trains areas at Sydenham Station at the completion of the Project Works; and
  - B. all interim stages during construction of Metro Station where Sydney Trains remain operational and will fulfil the role of Chief Warden.
- (c) If design changes occur during construction that affect the Approved FER and any Approved IFER's from Design Stage 3, then that FER and / or IFER is to be updated and re-approved as per sections 1.2
- (d) The SSJ Contractor must provide to the Principal's Representative an electronic copy of any modelling and analysis described in MR-T Annexure C6 that has been updated during construction.

### **1.3.8 Construction, testing and commissioning**

- (a) The SSJ Contractor must provide the following certification (and any supporting documentation as required) to the Principal's Representative and the Independent Certifier if the FER or any IFER has been updated, re-issued and re-approved during construction:
  - (i) updated certification by the QFE of the fire engineering design as documented in the updated and Approved FER or IFER; and
  - (ii) updated certification by the check engineer (FLS) of the fire engineering design as documented in the updated and Approved FER or IFER.
- (b) The SSJ Contractor must provide certification by the QFE at the Completion of all Project Works relevant to the Fire Safety Systems that the installed and commissioned Project Works meet the requirements of the fire engineering design as documented in the Approved FER.
- (c) The SSJ Contractor must provide certification by the check engineer (FLS) at the Completion of all Project Works relevant to the Fire Safety Systems, that the installed and commissioned Project Works meet the requirements of the fire engineering design as documented in the Approved FER.
- (d) Certification of the installed and commissioned Project Works by the QFE and the check engineer (FLS) cannot be conditional on the satisfactory completion of any works, unless agreed in writing with the Principal's Representative.
- (e) Certification of the installed and commissioned Fire Safety Systems by the QFE and the proof engineer (FLS) as must include sufficient detail and evidence that a thorough inspection has been conducted including:
  - (i) dates of inspections and names of those conducting the inspections;
  - (ii) a breakdown of the elements of the SSJ Contractor's FLS strategy inspected. These may have been verified by various means including:
    - A. visual inspection;
    - B. witnessing of fire tests in accredited testing facilities;
    - C. witnessing commissioning of active systems;
    - D. review of test reports, letters of opinion, and installation certificates prepared by others;

E. active testing of systems including interlocks between systems (including hot or warm smoke tests); and

E. accompanying and witnessing the inspection by others (e.g. ERNSW).

## 1.4 Qualified Fire Engineer

- (a) The SSJ Contractor must engage an individual to act as the Qualified Fire Engineer (QFE). The QFE's must:
- (i) have a minimum of ten years' experience as a fire engineer in a rail environment;
  - (ii) have undertaken a fire engineering role on at least two projects of a similar nature;
  - (iii) have undertaken a fire engineering role on at least two Crown Projects in NSW in the last five years;
  - (iv) have undertaken a fire engineering role on at least two rail projects where the Rail Safety National Law applied, as administered by ONRSR; and
  - (v) be chartered in the field of fire engineering.
- (b) The QFE is responsible for:
- (i) leading the fire engineering elements of the design;
  - (ii) planning, preparing and updating the FEB, FER, and IFER's and all other fire engineering documentation;
  - (iii) communicating all necessary information regarding required Fire Safety Systems to other design disciplines so that the Fire Safety Systems are correctly incorporated into the detailed design;
  - (iv) coordinating and leading all stakeholder consultation as it relates to the FLS strategy;
  - (v) facilitating the approval of the FEB, FER and all IFER's as described in section 1.2;
  - (vi) witnessing the construction of the FLS components of the Project Works;
  - (vii) witnessing the installation, testing and commissioning process of the FLS components of the Project Works; and
  - (viii) certifying the compliance with the SSJ Contractor's Approved FER and all IFER's.

## 1.5 Check engineer (fire and life safety)

- (a) The SSJ Contractor must engage a check engineer (fire and life safety) to provide an independent design review and to provide proof certification of the Project Works fire engineering Design Documentation.
- (b) The check engineer (fire and life safety) must:
- (i) be independent of the SSJ Contractor and the SSJ Contractor's design team including the QFE;

- (ii) have a minimum of ten years' experience as a fire engineer in a rail environment;
  - (iii) have undertaken a fire engineering role on at least two projects of a similar nature;
  - (iv) have undertaken a fire engineering role on at least two Crown Projects in NSW in the last five years;
  - (v) have undertaken a fire engineering role on at least two rail projects where the Rail Safety National Law applied, as administered by ONRSR;
  - (vi) be chartered in the field of fire engineering;
  - (vii) review the FEB and the FER and provide an independent assessment report of the Project Works fire engineering as contained in the FEB and the FER;
  - (viii) undertake construction and commissioning reviews, including witnessing commissioning, and control system integration as necessary to verify that the design intent of the FLS strategy and the fire engineering requirements as defined in the Approved FER are met by the constructed and commissioned Project Works;
  - (ix) provide certification that the designed, constructed and commissioned Project Works meets the fire engineering requirements as defined in the Approved FER;
  - (x) provide a written report following the review of the FEB and following the review of the FER, to the TfNSW Representative and Independent Certifier containing detailed results of the review including an assessment of:
    - A. appropriateness of the FLS strategy;
    - B. changes to design objectives or design input parameters;
    - C. compliance with relevant legislation, codes and standards; and
    - D. appropriateness of assumptions, engineering methods, analysis and calculations.
- (c) If the check engineer (fire life safety) chooses to undertake Quantitative Assessment, calculations and / or computer modelling for the purposes of their review, the check engineer's (fire life safety) report must include input data and results of any such Quantitative Assessment, calculations and / or computer modelling and a summary of findings.





# Sydney Metro City & Southwest

## **Sydenham Station and Junction Main Works (SSJ)**

Schedule C1

Scope of Works and Technical Criteria (SWTC)

Appendix B6.0 – Heritage Conservation Works



Sydney Metro City & Southwest – Shedule C1  
Sydenham Station and Junction (SSJ)

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September 2017</del> <a href="#">17 May 2018</a>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2D</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<a href="#">SMCSWSSJ-SMD-WSS-HE-S CH-000097</a>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B6.0 - Heritage Conversation Works		



# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
<b>2</b>	<b>Heritage Objectives</b>	<b>2</b>
2.1	Heritage objectives	2
2.2	Heritage scope	<del>23</del>
<b>3</b>	<b>General heritage conservation measures</b>	<b>5</b>
3.1	General	5
3.2	Experienced heritage specialists	5
3.3	Heritage Construction Management Plan	5
3.4	Retention of heritage elements	6
3.5	Protection of retained heritage elements	6
3.6	Reuse of retained heritage elements	7
3.7	Photographic archival recording	7
3.8	Measured drawings	8
3.9	Salvage and recycling of heritage fabric	<del>89</del>
3.10	Interpretation	9
3.11	Long-term conservation management	10
<b>4</b>	<b>Sydenham Station heritage conservation measures</b>	<b>11</b>
4.1	General	11
4.2	Heritage design	11
4.3	Retention of heritage elements	11
4.4	Protection of retained heritage elements	12
4.5	Reuse of retained heritage elements	12
4.6	Archival recording	13
4.7	Measured drawings	13
<b>5</b>	<b>Sydenham Pit and DPS 1 Heritage Works</b>	<b>14</b>
5.1	General	14
5.2	Heritage design	14
5.3	Retention of heritage elements	14
5.4	Protection of retained heritage elements	15
5.5	Reuse of retained heritage elements	16
5.6	Archival recording	16
5.7	Measured Drawings	16
5.8	Interpretation	16



# 1 Overview

- (a) This Appendix B6.0 describes the heritage objectives and implementation measures and performance and technical requirements for the following:
  - (i) conservation, protection and reuse or adaptation of heritage fabric;
  - (ii) salvage and recycling of significant fabric to be removed;
  - (iii) archival recording; and
  - (iv) interpretation.
- (b) The implementation measures to achieve the heritage objectives are set out under the following broad categories:
  - (i) general best practice conservation measures applicable to all elements of the Project Works (Section 3);
  - (ii) specific measures applicable to Sydenham Station and the buildings and other elements that contribute to its heritage significance (Section 4); and
  - (iii) specific measures applicable to Sydenham Pit and other elements that contribute to its heritage significance (Section 5).

## 2 Heritage Objectives

### 2.1 Heritage objectives

- (a) The heritage objectives for the Project Works are to:
- (i) minimise the adverse impacts on the heritage buildings, elements, fabric, spaces and vistas that contribute to the overall significance of Sydenham Station and Sydenham Pit and Drainage Pumping Station (DPS) No. 1;
  - (ii) maximise the retention and legibility of those heritage buildings, structures, fabric, spaces and vistas that are individually significant and contribute to the overall significance of Sydenham Station and Sydenham Pit and DPS 1;
  - (iii) protect all heritage buildings, structures, fabric and moveable heritage items proposed to be retained, against damage during the SSJ Contractor's Activities;
  - (iv) reuse all retained heritage buildings and elements for original or new uses as part of the viable ongoing function of Sydenham Station and Sydenham Pit and DPS 1;
  - (v) design new buildings and other elements of the Project Works to complement retained heritage buildings, elements, fabric, spaces and vistas, and avoid outcomes that compromise the significance of these heritage items;
  - (vi) record all significant heritage buildings, fabric, elements, spaces and vistas to be removed or subject to substantial alteration;
  - (vii) salvage and store significant elements, fabric and moveable heritage items for future interpretive or maintenance or repair purposes;
  - (viii) interpret the history and cultural value of Sydenham Station and Sydenham Pit and DPS 1 to its future users; **and**
  - (ix) establish effective procedures and processes for the long-term conservation management of Sydenham Station and Sydenham Pit and DPS 1 at Construction Completion;
  - (x) retain and conserve, wherever possible, elements of heritage significance so that functional relationships can be understood and interpreted;
  - (xi) remove intrusive inoperative elements that detract from the core heritage values were impacted by Contractor Activities;
  - (xii) adaptively reuse the retained and conserved heritage buildings for Metro Stations and related functions;
  - (xiii) carefully and clearly express the presence of the Sydney Metro City & Southwest with new high quality design elements; and
  - (xiv) deliver a functionally viable line, stations and precincts while enhancing the legibility of key heritage values.

## 2.2 Heritage scope

(a) In order to achieve the range of heritage objectives and to achieve an outcome that minimises the adverse impacts on heritage buildings, elements, fabric, spaces and vistas, the SSJ Contractor must demonstrate within the Design Documentation, at each Design Stage, how the following has been addressed:

- (i) compliance with all heritage consent conditions within the Planning Approvals. Evidence of compliance at the conclusion of each Design Stage must be by providing a summary tracking register in the Design Documentation at each Design Stage;
- (ii) identification, retention and appropriate conservation of all heritage buildings, fabric, elements, spaces and vistas proposed to be retained. The SSJ Contractor must provide a Heritage Impact Assessment (HIA) with the Design Documentation for each Design Stage, so that the overall trend (either positive or negative) for heritage impact is clearly identified;
- (iii) measures for protection against damage of all heritage buildings, elements, fabric and moveable heritage items to be retained must be contained in the HIA included the in Design Documentation at each Design Stage;
- (iv) development and implementation of a strategy for appropriate adaptive reuse of retained heritage buildings and elements;
- (v) photographic archival recording of Sydenham Station and Sydenham Pit and DPS 1, both within and outside the boundaries that define the heritage listed area for the Sydenham Station complex and Sydenham Pit must be prepared prior to commencement of construction works. These recordings must be:
  - A. prepared by a qualified heritage specialist; and
  - B. prepared in accordance with NSW Heritage Office's How to Prepare Archival Records of Heritage Items (1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (2006).
- (vi) measured drawings of all exceptional or high significance heritage buildings, fabric, elements, spaces and vistas to be removed or subject to substantial alteration. Drawings must be included as an appendix in the Design Stage 3 design report;
- (vii) salvage, safe storage and reuse of significant elements, fabric and moveable heritage items for interpretive or maintenance or repair purposes;
- (viii) identification of salvage and reuse of significant elements, fabric and moveable heritage items for new uses in Metro Stations and Station Precincts;
- (ix) ~~(viii)~~ identification and interpretation of the key Aboriginal and Non-Aboriginal heritage values and stories of heritage items and heritage conservation areas impacted. This must be included in the Heritage Plan, and prepared in accordance with:
  - A. the NSW Heritage Manual;

B. the NSW Heritage Office's Interpreting Heritage Places and Items: Guidelines (August 2005); and

C. the NSW Heritage Council's Heritage Interpretation Policy.

(x) ~~(ix)~~ appointment and utilisation of suitably qualified and experienced heritage professionals to assist the SSJ Contractor's project team to achieve the heritage objectives; and

(xi) ~~(x)~~ effective procedures and processes established for the long-term conservation management of Sydenham Station and Sydenham Pit and DPS 1 following the conclusion of the Project Works.

(b) A Conservation Management Plan (CMP) must:

(i) be prepared by the SSJ Contractor in consultation with all relevant stakeholders;

(ii) meet the relevant OE&H standards and guidelines; and

(iii) be submitted to the Principal by the SSJ Contractor in final form following submission by the SSJ Contractor to and approval by the NSW Heritage Council.

## 3 General heritage conservation measures

### 3.1 General

- (a) This section sets out best practice conservation measures applicable to all elements of the Project Works. These measures must be implemented to achieve the best possible conservation outcome for the heritage listed Sydenham Station and Sydenham Pit and the various buildings, elements, fabric, spaces and vistas that contribute to their heritage significance.
- (b) An appropriate design approach must be utilised, using simple forms and restrained, but well resolved, detailing in high quality materials.

### 3.2 Experienced heritage specialists

- (a) Suitably experienced and qualified heritage specialists must be appointed by the SSJ Contractor to guide the design, documentation and implementation of the heritage component of the Project Works. The appointments must include, as a minimum:
  - (i) a heritage architect with at least 5 years demonstrated experience;
  - (ii) an archaeologist with at least 5 years demonstrated experience; and
  - (iii) a materials conservator with at least 5 years demonstrated experience.
- (b) The heritage specialists must, at a minimum, undertake the following:
  - (i) supervise conservation work, protection and removal of significant fabric, reuse of retained heritage buildings and elements, archival recording and interpretation; and
  - (ii) contribute to the detail design of new buildings and other elements where these interface with retained heritage buildings, elements, spaces and vistas.

### 3.3 Heritage Construction Management Plan

- (a) The SSJ Contractor must prepare a Heritage Construction Management Plan (HCMP), as required by MR-E to guide the identification, retention, protection, conservation, salvage and reuse of heritage elements throughout the Project Works.
- (b) The HCMP must set out both the methodology and critical stages for the identification, retention, protection, conservation, salvage and reuse of heritage elements.
- (c) The preparation of the HCMP must be undertaken by the heritage specialists appointed in accordance with clause 3.2.

### **3.4 Retention of heritage elements**

- (a) Prior to the commencement of construction of the Project Works, the SSJ Contractor must prepare a detailed inventory of all buildings, structures, fabric, spaces and vistas of heritage significance that are to be retained. The inventory must:
  - (i) be prepared by the heritage specialists appointed in accordance with clause 3.2;
  - (ii) provide an assessment of the heritage significance of each element and the sub-elements that comprise it;
  - (iii) specify its consequent tolerance for change;
  - (iv) include appropriate recommendations for its conservation, relative to the level of heritage significance; and
  - (v) be approved by the Principal's Representative.
- (b) Based on the inventory of heritage elements, the heritage specialists appointed in accordance with clause 3.2 must prepare and implement a scope of work that comprises conservation, repair and appropriate adaptation work for buildings and other structures to be retained.
- (c) The scope of conservation work must utilise accepted best practice conservation techniques and traditional materials, avoiding the use of contemporary sealants, acrylic paints, high strength mortars etc. that could result in accelerated deterioration of heritage fabric.
- (d) Subject to clause 3.4(a)(v), unsympathetic elements, alterations or additions not in keeping with the significant element or sub-element may be removed and any damage repaired.
- (e) The placement and design of new buildings or structures in proximity to significant buildings and other structures to be retained, or within spaces or vistas that have been identified as significant, must consider these and avoid adverse impacts on their heritage significance.

### **3.5 Protection of retained heritage elements**

- (a) Prior to the commencement of construction of the Project Works, the SSJ Contractor must prepare and implement detailed measures for the protection of all significant heritage buildings, structures and fabric proposed for retention, with the potential to be damaged by construction of the Project Works.
- (b) For elements to be retained in-situ, the measures identified in clause 3.5(a) must comprise either the provision of protective covering, screens, barriers etc.
- (c) For elements of moveable heritage, the measures identified in clause 3.5(a) must entail careful removal and relocation to a secure storage area in the greater Sydney area.
- (d) Proposed protection measures identified in clause 3.5(a) must be approved by the heritage specialists appointed in accordance with clause 3.2 and the Principal's Representative prior to implementation.



### 3.6 Reuse of retained heritage elements

- (a) Prior to the commencement of construction of the Project Works, the SSJ Contractor must prepare an Adaptive Reuse Strategy for the ongoing use of heritage buildings and other structures to be retained. The Adaptive Reuse Strategy must:
- (i) include a detailed analysis of the external and internal components of heritage buildings and other structures;
  - (ii) assess the ability of heritage buildings and other structures to contribute to the ongoing functionality of Sydenham Station and Sydenham Pit;
  - (iii) prioritise continued use of elements for their original purpose, or alternatively for the purpose to which they have been adapted where this is compatible with their design, fabric and heritage significance, whilst ensuring the continued use does not:
    - A. result in the removal of significant elements, fabric or design integrity;
    - B. require the subdivision of significant interior spaces; and
    - C. require the addition of obtrusive new elements or signage.
  - (iv) where a new use is proposed, ensure that the proposed use does not:
    - A. result in the removal of significant fixtures, fabric or design integrity;
    - B. require the subdivision of significant interior spaces; and
    - C. require the addition of obtrusive new elements or signage.
  - (v) be approved by the heritage specialists appointed in accordance with clause 3.2; and
  - (vi) be submitted to the Principal's Representative for approval prior to implementation.
- (b) Where it is not practicable to use identified elements for any viable purpose that is compatible with their design, fabric and heritage significance, the SSJ Contractor must undertake necessary conservation work to secure and protect elements against damage pending their possible future reuse.

### 3.7 Photographic archival recording

- (a) The SSJ Contractor must prepare a detailed methodology for photographic archival recording of the affected elements of Sydenham Station, Sydenham Pit and surrounding precincts, that:
- (i) outlines the proposed approach to capturing all the significant heritage elements being recorded; and
  - (ii) includes the use of annotated plans to show the points from which the images were taken.
- (b) The SSJ Contractor must undertake the following photographic archival recording activities:

- (i) general photographic archival recording, including the capture of images from key points within and outside the heritage listing boundary showing the relationship of the impacted elements in the context of Sydenham Station and Sydenham Pit as a whole and within their streetscape;
  - (ii) detailed photographic archival recording of exceptional, high or moderate heritage items identified for removal, or subject to substantial alteration, that corresponds with the level of heritage significance of the building or structure impacted, including:
    - A. internal images of fabric and structures; and
    - B. external images of fabric and structures.
  - (iii) for heritage buildings that are being retained with no change of use, but with a change of setting owing to the Project Works, only recording of the exterior of the building is required;
  - (iv) a similar methodology to that described in clauses 3.7(b)(i) to 3.5(b)(iii) is required for key spaces and vistas subject to change.
- (c) The SSJ Contractor must undertake photographic archival recording in accordance with:
- (i) NSW Heritage Council guideline “Photographic Recording of Heritage Items Using Film or Digital Capture (2006)”; and
  - (ii) NSW Heritage Office publication “How to Prepare Archival Records of Heritage Items (1998)”

### **3.8 Measured drawings**

- (a) A detailed inventory must be prepared that lists the buildings to be recorded as a part of a measured drawing set.
- (b) Measured drawings must be prepared for all affected elements of exceptional or high significance to be removed or subject to substantial alteration, including:
  - (i) plans;
  - (ii) elevations;
  - (iii) sections;
  - (iv) details; and
  - (v) a general plan showing the relative location of all affected elements and other elements.
- (c) Measured drawings must be prepared for all retained heritage buildings in their final state where impacted by Contractor Activities.
- (d) In the event that original drawings are available, the SSJ Contractor may use these drawings as an alternative to the requirements of section 3.8(b), but must confirm that the original drawings are consistent with the actual construction of the buildings and elements in question.

### 3.9 Salvage and recycling of heritage fabric

- (a) The SSJ Contractor must undertake salvage and recycling of significant heritage elements and fabric in accordance with Sydney Metro Chatswood to Sydenham; Metro Heritage Salvage and Storage Policy.
- (b) Where significant elements are to be removed and not reinstated, these elements must be salvaged and safely stored for future reuse or for heritage interpretation purposes.
- (c) The SSJ Contractor must inspect all relevant SHR and SHI sites and prepare a SSJ Heritage Salvage Register, in the format consistent with the template to be provided by the Principal's Representative. The SSJ Heritage Salvage register must be included in the design Documentation for each Design Stage.
- (d) ~~(e)~~ Elements to be salvaged may include, but are not limited to the following:
- (i) joinery (including doors, windows and architraves);
  - (ii) hardware and metalwork;
  - (iii) indicator boards, clocks, communications equipment & other functional elements;
  - (iv) roof tiles;
  - (v) fireplaces;
  - (vi) bricks and sandstone; and
  - (vii) structural wall and roof timbers.
- (e) ~~(d)~~ The SSJ Contractor must prepare an inventory of ~~significant / early elements and record their relevant provenance prior to any removal, storage and/or reuse~~ photographic archival recordings. The inventory format and detail must be submitted to Principals Representative for approval not less than 21 days prior commencement of construction of the Project Works.
- (f) ~~(e)~~ The SSJ Contractor must document the end location / salvage or recycling provider for each element in relation to Clause 3.9(d).
- (g) ~~(f)~~ The SSJ Contractor must carefully remove, protect and transport all salvaged stored items to ~~at the Principal's facility. This facility will be in the Greater Sydney area.~~ storage facility at 87 -103 Epsom Rd Roseberry NSW 2018.
- (h) ~~(g)~~ The work set out under clause 3.9 must be supervised and approved by the heritage specialists appointed in accordance with clause 3.2.

### 3.10 Interpretation

- (a) The SSJ Contractor must prepare and submit, for approval of the Principal's Representative, a Heritage Interpretation Plan (HIP). The HIP must document the story of the development of the Bankstown line through to the present day. The plan must then detail the history of the Sydenham Station and Sydenham Pit and DPS 1, and their contribution to the development of both the Bankstown line and the surrounding suburb. The Heritage Interpretation Plan must include a review of

all existing interpretation so that a consistent approach can be developed for Sydenham Station precinct.

- (b) The SSJ Contractor must develop an interpretation methodology that delivers the outcomes identified in the Heritage Interpretation Plan. This methodology must be approved by the Principal's Representative.
- (c) The SSL Contractor must submit a list of items that will be subject to this interpretation methodology for the approval of the Principal's Representative.
- (d) Interpretation is likely to be undertaken in a number of stages, in accordance with accepted methodology. It would include the following:
  - (i) stage 1 would comprise the preparation of an interpretation strategy, based on historic research, development of themes, identifying potential audiences and possible media formats, and preliminary concept development;
  - (ii) stage 2, The Heritage Interpretation Plan would comprise content development, formulation of text and selection of images, and the design of the media or installations; and
  - (iii) stage 3 would comprise the actual installation of the interpretive media. Refer to the document *Heritage Interpretation Strategy – Southwest Stations and Corridor Works* (GML Heritage, March 2017).
- (e) Where practicable, interpretation must utilise relevant material or elements salvaged from the demolition of buildings and other structures. The use of salvaged material or elements for in-situ interpretation must take precedence over delivery of the material to the Principal's Representative for the repair and maintenance of other stations.
- (f) Location of heritage media must be accessible and must not inhibit passenger movements or result in congestion in and around the station.

### **3.11 Long-term conservation management**

- (a) Prior to completion of the Project an overarching Conservation Management Plan (CMP) for the stations on the line from Sydenham to Bankstown and including the Sydenham Pit and DPS 1 will be prepared by the Principal. For Sydenham Station and the Sydenham Pit and DPS 1, the SSJ Contractor must prepare a Specific Element Conservation Plan (SECP) to guide the conservation of the heritage significance of these elements in the long term. The SECP must be prepared in consultation with Sydney Water Corporation, Sydney Trains and the Principal's Representative for endorsement by the NSW Heritage Council and the Principal's Representative.

## 4 Sydenham Station heritage conservation measures

### 4.1 General

- (a) The SSJ Contractor must implement the conservation measures outlined in this section, in addition to the general heritage conservation measures identified in Section 3, to achieve the best possible conservation outcome for Sydenham Station and the various buildings, structures, fabric, spaces and vistas that contribute to its heritage significance.

### 4.2 Heritage design

- (a) In general, the SSJ Contractor must ensure that the detailed design of the Metro Concourse and related elements at Sydenham Station minimise adverse heritage impacts on Sydenham Station and the various buildings, structures, fabric, spaces and vistas that contribute to its heritage significance.
- (b) The SSJ Contractor must ensure that the placement and detailed design of the Metro Concourse, platforms 1 and 2 and related Sydney Metro Works consider and minimise impacts on heritage elements and key views from within and outside Sydenham Station.

### 4.3 Retention of heritage elements

- (a) The SSJ Contractor must note that the Sydenham Station, comprising an intact series of platform buildings and awnings, parcels office, brick faced platforms, waiting sheds, steel overbridge structure and brick perimeter walls is of exceptional heritage significance and must be substantially retained and conserved.
- (b) The elements and sub-elements to be retained in-situ and documented in accordance with clause 3.4 must include, as a minimum:
  - (i) platform 2/3 building, platform 4/5 building, platform 1 waiting shed and significant original canopies;
  - (ii) brick faced platforms that are not impacted by the Sydney Metro Works;
  - (iii) The following brick perimeter walls within Sydenham Station and precinct on Railway Parade:
    - A. along platform 1 where they interface with the existing waiting shed;  
and
    - B. along Railway Parade between Lower Railway Parade parking area and the upper southbound traffic lanes.
- (c) New platform canopies on platform 2/3 must:
  - (i) provide a visual separation and a minimum two metres physical separation to the existing heritage listed platform building and canopies;

- (ii) be designed to be compatible with, rather than stylistically similar to, the overall building and roof form of the retained significant platform buildings and canopies; and
  - (iii) not be fixed to existing building and canopy elements.
- (d) Where brick perimeter walls are to be removed in order to construct new drainage culverts, the materials and detail of the new brick walls must:
  - (i) match the existing; and
  - (ii) be finished appropriately with no exposed sawn joints.
- (e) New services such as security cameras and lighting must:
  - (i) be attached to new elements rather than significant heritage fabric or be attached in a sympathetic manner as approved by the heritage specialists;
  - (ii) be rationalised according to need and number;
  - (iii) where services must be attached to significant fabric, use existing penetrations in preference to disturbing significant fabric; and
  - (iv) ensure new cabling is concealed rather than surface-mounted.
- (f) The work set out under clause 4.3 must be supervised by the heritage specialists appointed in accordance with clause 3.2. The SSJ Contractor must engage other specialist expertise required for the conservation work.

#### **4.4 Protection of retained heritage elements**

- (a) The SSJ Contractor must take particular care to avoid impact and vibration damage to the masonry platform buildings and existing brick-faced platforms which are susceptible to damage from construction works.
- (b) The methodology used by the SSJ Contractor for demolition and construction of new structures must avoid vibration that could cause damage to retained heritage elements.
- (c) The SSJ Contractor must erect hoardings or screens to protect buildings or elements susceptible to damage.

#### **4.5 Reuse of retained heritage elements**

- (a) Sydenham Station will continue to be used for its original purpose as a railway station. However, the future use of significant retained platform buildings may change. Prior to the commencement of construction of the Project Works, a strategy must be prepared for the ongoing use of the buildings. Should the SSJ Contractor propose to adaptively reuse the platform 2/3 and 3/4 buildings for other facilities, a detailed interior and exterior assessment must be undertaken to confirm whether there is scope within the platforms 2/3 and 4/5 buildings to accommodate other facilities without compromising their heritage significance.
- (b) Existing platform buildings must only be adapted for appropriate new uses that are compatible with their design, fabric and heritage significance. The proposed new use must not result in the removal of significant fixtures, fabric or design integrity,

require the subdivision of significant interior spaces or the addition of obtrusive new elements or signage.

- (c) Any proposed new use must, as far as practicable, allow for public access to the retained platform buildings, and be directly associated with the functions of Sydenham Station as a railway transport facility.

#### **4.6 Archival recording**

- (a) In accordance with clause 3.7(b)(ii), detailed photographic archival recording must be undertaken:
  - (i) for buildings being demolished on platforms 1 and 6;
  - (ii) for platforms to be removed or modified;
  - (iii) for retaining walls (within and outside the heritage listing boundary);
  - (iv) including the internal spaces and finishes, and fixtures including any evidence of mail handling facilities; and
  - (v) before any significant moveable objects are removed.

#### **4.7 Measured drawings**

- (a) The SSJ Contractor must undertake documentary research to obtain, if possible, original drawings of the buildings and elements to be removed and include them as part of the archival recording.
- (b) In the event that original drawings are available, as per Clause 4.7(a), the SSJ Contractor may use these as an alternative to the requirements of Clause 3.8(b).

## 5 Sydenham Pit and DPS 1 Heritage Works

### 5.1 General

- (a) The SSJ Contractor must implement the conservation measures outlined in this section, in addition to the general heritage conservation measures identified in Section 3, to achieve the best possible conservation outcome for the Sydenham Pit and DPS 1 and the various buildings, structures, fabric, spaces and vistas that contribute to its heritage significance.

### 5.2 Heritage design

- (a) The SSJ Contractor must ensure through the detailed design of new stormwater management infrastructure that adverse heritage impacts on Sydenham Pit and the various buildings, structures, fabric, spaces and vistas that contribute to its heritage significance are minimised.
- (b) The SSJ Contractor must ensure that the placement and detailed design of the proposed new aqueduct, pump house and other structures considers and minimises impacts on key views from within and outside Sydenham Pit.

### 5.3 Retention of heritage elements

- (a) The SSJ Contractor must note that the existing Sydenham Pit, comprising battered walls constructed in coursed sandstone blocks, access ramp and the original Drainage Pumping Station No.1 is of exceptional heritage significance (refer to *Sydenham Pit & Drainage Pumping Station 1 Draft CMP*, Sydney Water Corporation) and must be substantially retained and conserved.
- (b) The elements and sub-elements to be retained and documented in accordance with clause 3.4 must include, as a minimum:
  - (i) battered sandstone pit walls (except for the southeast wall, which is to be demolished and reconstructed);
  - (ii) access ramp against the northeast wall;
  - (iii) original inlet and overflow portals;
  - (iv) surviving oleander plantings along all sides of the pit (except where these conflict with new plantings);
  - (v) overall form, structure and fabric of the pump house building, including steel frame windows, terracotta ventilation ducts etc.;
  - (vi) original Vickers motors, pumps and associated machinery;
  - (vii) original decommissioned electrical switchboards; and,
  - (viii) original / early moveable objects (e.g. machinery, tools, manuals etc.), which may be conserved off site.



- (c) The elements and sub-elements to be removed by the SSJ Contractor must include:
  - (i) telecommunications tower;
  - (ii) brick toilet partition; and,
  - (iii) miscellaneous late 20<sup>th</sup> Century additions including internal walls within the pump house building, surface mounted conduit, handrails, ladders etc.
- (d) The southeast wall of Sydenham Pit must:
  - (i) where impacted by the SSJ Contractor Activities, be carefully removed by the SSJ Contractor prior to construction and the sandstone blocks catalogued and set aside; and
  - (ii) on completion of the SSJ Contractors Activities, be reconstructed by the SSJ Contractor to as far as practicable to its original design and appearance. The stones should not be cleaned or repaired to the extent that the existing wall's patina of age would be lost.
- (e) The surviving oleander plantings along all sides of Sydenham Pit (except where these conflict with new plantings) must be provided with appropriate horticultural treatment to facilitate their ongoing health by the SSJ Contractor. Where necessary, missing or unhealthy trees must be replaced with new plantings by the SSJ Contractor.
- (f) The work set out under clause 5.3 must be supervised by the heritage specialists appointed in accordance with clause 3.2.
- (g) In addition to the requirements of clause 5.3(f), the SSJ Contractor must engage other specialist expertise required for:
  - (i) the conservation of industrial archaeology (e.g. original Vickers motors, pumps and associated machinery);
  - (ii) traditional stone masonry (reconstruction of the southeast pit wall); and
  - (iii) horticulture (oleander planting).

#### **5.4 Protection of retained heritage elements**

- (a) The SSJ Contractor must ensure that adequate care is taken in the use of heavy plant to avoid impact damage to the sandstone pit walls and other pit elements, the pump house building and main sub-elements such as original Vickers motors, pumps and associated machinery, which are generally robust structures that will be reasonably resistant to damage from construction works.
- (b) The SSJ Contractor must adopt a methodology for demolition and excavation of new structures that avoids vibration that could cause damage to retained heritage elements.
- (c) The SSJ Contractor must ensure that more fragile significant original / early moveable objects from within the pump house building (e.g. machinery, tools, manuals etc.) is carefully removed, stored and conserved off site pending their reinstatement (to comply with the outcomes of the Heritage Interpretation Plan).

- (d) Oleander plantings proposed for retention must be protected by suitable barriers or screens during the progress of the Works.

## **5.5 Reuse of retained heritage elements**

- (a) The SSJ Contractor notes that the Sydenham Pit will continue to be used for its original purpose as a stormwater catchment basin. However, the function of the original drainage pumping station will be superseded by a new facility of a contemporary design.
- (b) Prior to the commencement of construction of the Project Works, the SSJ Contractor must develop a strategy for the ongoing use of the pump house, that:
  - (i) adapts the pump house for an appropriate new use including interpretive display that is compatible with its design, fabric and heritage significance;
  - (ii) does not result in the removal of significant fixtures, fabric or design integrity;
  - (iii) does not require the subdivision of significant interior spaces or the addition of obtrusive new elements or signage; and
  - (iv) allows for at least occasional public access to the pump house, subject to occupational health and safety requirements – noting that Public access would preferably be for an ongoing viable use of the building, but for pragmatic reasons may be limited to interpretative tours (pending the outcomes of the Heritage Interpretation Plan).

## **5.6 Archival recording**

In accordance with clause 3.7(b)(ii), detailed photographic archival recording must be undertaken:

- (a) for the pump house building, including the internal spaces and finishes;
- (b) for fixtures including Vickers motors, pumps-associated machinery;
- (c) for moveable objects (e.g. machinery, tools, manuals etc.); and
- (d) before any significant moveable objects are removed.

## **5.7 Measured Drawings**

- (a) Measured drawings for the southeast wall of Sydenham Pit must be recorded in detail prior to its demolition, to facilitate its accurate reconstruction.

## **5.8 Interpretation**

- (a) Where practicable, interpretation at the Sydenham Pit must utilise the various heritage elements and sub-elements that comprise the site, including the pit, access ramp and pump house building, internal fixtures including Vickers motors, pumps associated machinery, and moveable objects (e.g. machinery, tools, manuals etc.). The use of movable objects that have been removed and conserved off site, for interpretation should take precedence over their use for other purposes.

# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B9.0 – Customer Centred Design  
(CCD) Requirements

<b>PROJECT</b>	Sydenham Station and Junction	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.3B</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-CU-S-CH-000088</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B9.0 - Customer Centered Design		

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# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
<b>2</b>	<b>Requirements</b>	<b>2</b>
2.1	General	2
2.2	Incorporation of customer service principles in design and operation	2
2.3	Operational customer outcomes	5
<b>3</b>	<b>Customer centred design process</b>	<b>8</b>
3.1	Application of CCD methodology	8
3.2	Development and provision of plans	11
3.2.1	CCD Design Management Plan	11
3.2.2	Design Package CCD Implementation Plans	12
3.3	CCD capability	12



# 1 Overview

- (a) This Appendix B9.0 describes:
  - (i) the performance and technical requirements for Customer Centred Design (CCD) outcomes; and
  - (ii) the process requirements in relation to the application of CCD through the design development process.



## 2 Requirements

### 2.1 General

- (a) The SSJ Contractor must place the customer at the centre of all design decisions that impact upon customer experience outcomes. The SSJ Contractor must acknowledge that the engagement of customers in the design process is critical in providing assurance that solutions are fit for purpose.
- (b) Where there is a customer interface or where constraints exist that impact upon the customer experience, the SSJ Contractor must be able to demonstrate through options analysis and testing that proposed solutions:
  - (i) maximise to the greatest extent possible, that all design meet the needs of all customer segments, where customer segments, as defined in section 2.2(a)(iii) and 2.2(a)(iv);
  - (ii) are socially inclusive; and
  - (iii) do not preclude the operator(s) from meeting their obligations under legislation including DDA and DSAPT.
- (c) The SSJ Contractor must comply with the requirements of the CCD process defined in this Appendix B9.0 in the design and delivery of any design package that provides a customer-facing element, or facilitates the delivery of a customer service.
- (d) Where the design and delivery of Project Works requires the interaction and/or integration between more than one area of scope (e.g. Help Point design, placement, signage and operation), the SSJ Contractor must:
  - (i) co-ordinate solution design across design packages;
  - (ii) incorporate Operator(s) input;
  - (iii) apply the CCD process to ensure customer issues are identified and addressed; and
  - (iv) demonstrate how the design applies across the full door-to-door-to-door journey.

### 2.2 Incorporation of customer service principles in design and operation

- (a) The SSJ Contractor must incorporate the TfNSW customer service principles in the design and construction of the Project Works. These include:
  - (i) **Balanced:** Functional performance is balanced with customer service to achieve high levels of customer satisfaction. To ensure that the solution *balances* the needs of customers, the SSJ Contractor must demonstrate:
    - A. how the design aligns with relevant operator(s) Station Operations Management Plan / Interchange Access Plans, including:
      - 1. the Operator;

2. Sydney Trains;
  3. NSW Trains;
  4. Bus operators; and
  5. RMS.
- B. any aspects of the proposed solution where operational measures will be required to deliver on the customer outcomes; and
- C. alternative design options that may negate the requirement for operational measures.
- (ii) **Efficient assisted self-service:** A self-service system that is designed for easy intuitive use. Where assistance may be required, support is available and easy to get. To ensure that the solution supports efficient assisted self-service the SSJ Contractor must demonstrate how the principle of efficient assisted self-service has been interpreted and incorporated into the design solution in a way that:
- A. delivers a socially inclusive design;
  - B. facilitates interchanging from all access/egress modes;
  - C. promotes assistance-free travel for all who want it; and
  - D. facilitates timely and effortless access to assistance for those who require it.
- (iii) **Universally accessible:** Meets the needs of all members of the community with service features that accommodate the distinct needs of customer segments. The SSJ Contractor must demonstrate that the full range of customer segments has been addressed in the Project Works. The customer segments are defined by the following characteristics:
- A. demographic factors, including:
    1. age-related considerations;
    2. gender-related considerations;
  - B. physical access considerations, including:
    1. mobility impairment;
    2. visual and auditory impairments;
    3. families with young children;
    4. customers travelling with carers or assistance animals;
    5. customers travelling with bulky items;
    6. customers with medical conditions (e.g. Diabetics).
  - C. cognitive impairment factors.
- (iv) **Flexible:** Able to adapt to a range of typical usage patterns and service whilst delivering a consistent level of service outcomes. To ensure that the solution is flexible, the SSJ Contractor must demonstrate that the design and operations it facilitates, addresses a range of usage patterns by

different customer segments. These include consideration and allowance for:

- A. customer segments that relate to the customer's jobs to be done, including:
    - 1. Meeters: customers that use the station environment as somewhere to act as a meeting place, where they can wait in comfort and safety for others before continuing their journey.
    - 2. Homers: customers for whom the purpose of the journey is to return home at the end of their day – whether that is after school, work or a social activity.
    - 3. Taskers: customers that are using the public transport system as an enabler to completing tasks and errands.
    - 4. In-timers: customers for whom the focus of their trip is to be somewhere by a specific time. In-timers are sensitive to delays and indirect paths of travel.
    - 5. Out and abouters: customers for whom the journey is a part of the activity.
  - B. cultural and linguistically diverse (CALD) customers,
  - C. customers familiar or unfamiliar with the station,
  - D. time of travel (note, the reference to CBD in the below is not intended to suggest that the focus should solely be on CBD journeys),
    - 1. Early AM (pre-7am arrival in CBD);
    - 2. AM peak (7am-10am arrival in CBD);
    - 3. Interpeak (10am-12pm arrival in CBD; 12pm-3pm departure from CBD);
    - 4. PM peak (3pm-7pm departure from CBD);
    - 5. Early evening (7pm-10pm departure from CBD);
    - 6. Late evening (post-10pm departure from CBD);
    - 7. Weekend.
  - E. operational modes which are,
    - 1. Normal Operations;
    - 2. Abnormal Operations;
    - 3. Degraded Operations;
    - 4. Emergency Operation;
  - F. unplanned demand surges.
- (v) **Legible and consistent:** Reflects a service style and tone that is easily understood and consistent with the experience of an integrated transport

network. The SSJ Contractor must demonstrate how the design addresses the following TfNSW policy and guidelines. These guidelines include:

- A. Wayfinding Planning Guide Introduction;
- B. ~~Sydney Metro~~ [TfNSW](#) Brand Style Guide;
- C. Sydney Metro City & Southwest Public Art Master Plan;
- D. ~~Ticketing Self Service Machines~~ [TfNSW SSM](#) Placement Principles [Guidelines](#);
- E. Sydney Metro Easy Door-to-Door-to-Door: Sydney Metro Journey Map and Customer Principles; and  
[E. Sydney Metro Easy Customer Principles.](#)

- (vi) **Responsive:** A service system open to feedback from customers that adjusts over time as needs and preferences change, and continuously improves. To demonstrate that the solution is responsive, the SSJ Contractor must demonstrate:
  - A. any, and all, facets of the Project Works that provide future-proofing for long-term customer growth; and
  - B. any, and all facets of the Project Works that provide flexibility in how the Metro Station and Station Precinct might be used to deliver customer-facing solutions (e.g. provision for pop-up retail, temporary art etc.).

### 2.3 Operational customer outcomes

- (a) The SSJ Contractor must work with the operator(s) to understand the proposed customer service, operational and maintenance approaches for the Project Works.
- (b) The SSJ Contractor must demonstrate that the design and delivery of the Project Works incorporates and supports and facilitates the operator(s) in delivering the following timeliness outcomes for customers, including:
  - (i) journey time will be consistent, and transit to customers destinations will help them to make the most efficient use of their time;
  - (ii) customers will have confidence of service availability through international best practice for reliability; and
  - (iii) overall travel times will be minimised, including walk-up access and the time taken to transfer between private vehicles, buses, taxis and bicycle facilities.
- (c) The SSJ Contractor must design and deliver the Project Works to enable the operator(s) to deliver personal safety and security outcomes for customers by providing:
  - (i) stations, Station Precinct, Public Domain and trains that incorporate environmental design principles and service features to give customers a high degree of confidence about personal safety and security in accordance with crime prevention through environmental design principles (CPTED); and
  - (ii) effective lighting and active Station Precincts that enhance passive surveillance and facilitates a safe customer environment.

- (d) The SSJ Contractor must deliver Project Works that enable the operator(s) to provide customers with the following ticketing outcomes:
  - (i) a consistent ticketing system and service across all transport modes through the implementation of the Electronic Ticketing System (ETS); and
  - (ii) seamless connections across public transport modes, facilitating multi-modal journeys that are not dependant on the car.
- (e) The SSJ Contractor must deliver the Project Works that enable the operator(s) to provide customers with the following convenience outcomes:
  - (i) facilities provided across public transport modes, car parks and Interchanges that are part of integrated Station Precincts;
  - (ii) amenities at stations have well-located facilities; and
  - (iii) secondary revenue opportunities (such as retail and advertising) are appropriate to the social expectations of the local community and reflect the NSW Government's public policy outcomes.
- (f) The SSJ Contractor must design and construct Project Works that enable the operator(s) to deliver the following accessibility outcomes to customers:
  - (i) the Station Precinct integrates pathways, cycle paths, Kiss and Ride areas and other transport facilities;
  - (ii) the system provides the benchmark for compliance with requirements for disability access in public transport; and
  - (iii) customers' special needs, whether cognitive, physical or sensory, and when travelling with children or handling luggage, are accommodated by the operation of the Project Works.
- (g) The SSJ Contractor must provide comfort features and facilities in stations and Station Precinct including shelter, seating and service amenities for customers.
- (h) The SSJ Contractor must deliver Project Works and Temporary Works ensuring that the station and Station Precinct materials, fixtures and fittings are kept clean and maintain a high quality appearance at all times.
- (i) The SSJ Contractor must provide a design that safeguards the infrastructure for the effective cleaning and maintenance by the Operator, contributing to the customer's feeling of comfort and safety, as well as their satisfaction with the standard of cleanliness.
- (j) The SSJ Contractor must deliver Project Works that enable the operator(s) to provide customers with the following information outcomes:
  - (i) wayfinding and signage helps customers to navigate the transport network easily and intuitively, and is consistent with the TfNSW wayfinding system;
  - (ii) customers get accurate, reliable real-time information as they need it to help them use the transport network and be properly informed;
  - (iii) customers are kept informed to help them work out how to get to their final destination if a service is disrupted; and
  - (iv) infrastructure that provide information about the services the system provides and are fully integrated into customer information channels.

- (k) The SSJ Contractor must deliver Project Works which enable the operator(s) to provide the following customer service outcomes;
  - (i) assist those with special needs, respond to questions about the transport system and ETS, and provide advice on connecting services and locality information;
  - (ii) accurate, prompt and responsive service, particularly when delays occur and during Abnormal Operations; and
  - (iii) understanding of the accepted norms for social behaviour on the system.

## 3 Customer centred design process

### 3.1 Application of CCD methodology

- (a) To facilitate the effective application of CCD, the SSJ Contractor must use an iterative design process that delivers a CCD report associated with the design at the following points in time:
- A. 6 weeks prior to the Design Stage 1 Review submission;
  - B. 6 weeks prior to the Design Stage 2 Review submission;
  - C. 6 weeks prior to the Design Stage 3 Review submission.; and
  - D. at the end of each Design Stage.
- (b) The SSJ Contractor must apply CCD to iterate the design based on relevant customer engagement and insights garnered throughout each Design Stage.
- (c) The SSJ Contractor must use a CCD process that is aligned with the following stages:
- (i) **Understand:** The SSJ Contractor must demonstrate an advanced knowledge of global trends and innovations relevant to the context of the design. The SSJ Contractor must demonstrate the use of this knowledge to inform the proposed customer interaction and how this interaction is reflected in the design.
  - (ii) **Empathise:** The SSJ Contractor must demonstrate its understanding of the needs of the people for whom it is designing and the customer outcomes to be delivered.
  - (iii) **Define:** The SSJ Contractor must demonstrate its understanding of the problems to be solved for each customer segment as defined in section 2.2(a)(iii) and 2.2(a)(iv). The SSJ Contractor must demonstrate how its design focuses on problem solving for each customer segment and how the SSJ Contractor will make specific design decisions based on those needs identified in the Empathise stage of the CCD process.
  - (iv) **Ideate:** The SSJ Contractor must demonstrate that it provides and participates in independently facilitated ideation sessions in conjunction with TfNSW and third parties to explore all possible solutions for customers in solving anticipated customer problems in the proposed designs. The SSJ Contractor must provide independent facilitation to ensure the integrity of the process and that idea generation and idea evaluation are maintained as separate activities. The SSJ Contractor must demonstrate whether the global trends and innovations (identified in the Understand stage of the CCD process stage) are suitable as solutions to address anticipated customer needs identified in the Empathise phase.
  - (v) **Prototype:** The SSJ Contractor must undertake prototyping (both low fidelity and high fidelity) in the iteration of its design. The SSJ Contractor must

- demonstrate how the prototype contributes to the journey experience for each customer segment in addressing the needs identified in the earlier Empathise, Define and Ideate CCD process stages.
- (vi) **Test:** The SSJ Contractor must undertake customer testing, using prototypes at each Design Stage. In these testing rounds the SSJ Contractor must capture all feedback provided by customers to TfNSW and provide evidence of how this feedback is being used to refine the SSJ Contractors design for the Project Works.
  - (vii) **Synthesise:** The SSJ Contractor must synthesise the findings from the customer testing against the Contract requirements. Through this process, the SSJ Contractor must identify any requirements that conflict with the achievement of customer outcomes, require clarification, or are potentially not required.
  - (viii) **Refine:** Following feedback and review of findings supplied by the SSJ Contractor, from the Synthesis stage of the CCD process, TfNSW may instigate a Change.
- (d) The SSJ Contractor must establish a Customer Reference Panel (CRP) for the purposes of customer interaction that is:
    - (i) comprised of members of the public who are external to, and independent of, any entity involved in the Project;
    - (ii) reflective of the demographic and customer segments defined in sections 2.2(a)(iii) and 2.2(a)(iv) relevant to the Project Works; and
    - (iii) of not less than 60 people and of sufficient depth to allow for patterns and themes of customer behaviour to be identified to support design decisions.
  - (e) The SSJ Contractor must undertake customer testing through the CRP against the customer service principles (as detailed in section 2.2) to demonstrate that the design solution is fit for purpose and that design excellence is achieved.
  - (f) The SSJ Contractor must demonstrate through customer testing with the CRP during design that the customer outcomes (as detailed in section 2.3) are able to be realised in operation.
  - (g) The SSJ Contractor must undertake customer testing of the design through the CRP against the Sydney Metro Easy Customer Principles (Easy Principles) to provide evidence through attitudinal feedback that customers agree that the designs promote an easy journey experience. The 'Easy Principles' that must be tested include:
    - (i) **Understood:** designs demonstrate awareness and appreciation of Customers requirements for certainty, safety and value by providing easy and effective transport experiences that match specific needs and wants as outlined in section 2.2;
    - (ii) **Confident:** designs demonstrate a clear appreciation for the integrated service offerings available through the Project. Customers are assured that they can trust the Project to provide dependable, safe and secure solutions that meet individual needs as part of a timely and comfortable journey;



- (iii) **Informed:** designs provide easy access to clear, accurate, relevant and up-to-date information at appropriate points in the journey and through convenient channels that enable pro-active journey planning, execute against plans and share details with others to easily achieve personal goals with the least amount of effort, confusion and with minimal disruption;
  - (iv) **Guided:** designs provide solutions that show customers the best way to get to their destination, in order to get there in time, with the least amount of frustration, stress or uncertainty by directing, instructing and managing flow, crowding or impediments. It also means helping customers resolve any problems that might be encountered that might negatively impact on the overall experience;
  - (v) **Reliable:** designs provide solutions that provide an effective frequency of integrated services that meet customer needs, whilst dependably collecting and delivering according to scheduled times that enables customers to successfully manage their commitments and life;
  - (vi) **Valued:** designs facilitate effective transport solutions that can be accessed with the minimum amount of effort, at the right times and through convenient channels that truly respects customer's time. In addition, safety, security, health and wellbeing are all being considered and provided for in the design and delivery of services and customer facilities;
  - (vii) **Controlled:** designs empower customers with the necessary knowledge and ability to make choices. It means reducing uncertainty and stress by allowing customers to play an active role in journey management. Providing advanced notice of problems with guidance and real-time updates that keep customers informed gives the freedom to update arrangements with others that may be impacted by the situation; and
  - (viii) **Connected:** designs bring customers closer to the people and things that are most important to them. A more effective transport solution provides a vital contribution to meeting customer's interpersonal needs including a sense of belonging, self-esteem, friendship, love and security. Being connected is an integral enabler and a key component of the broader community experience.
- (h) The SSJ Contractor must ensure that during any testing activities involving the CRP that participants are informed that what is being interacted with is a prototype and whilst input will inform the refinement of solutions, that ultimately the final solution may be considerably different to that shown in the session;
  - (i) The SSJ Contractor must include the following questions at all rounds of customer testing:
    - (i) Based on what you have seen today, on a scale of 0 to 10 – where 0 is not at all likely and 10 is extremely likely – please rate how likely you would be to recommend the Project to others?
    - (ii) What was the main reason for your rating?
  - (j) The SSJ Contractor must incorporate relevant 'Customer Pain Points' in its CCD process at each Design Stage. 'Customer Pain Points' include:
    - (i) customer flow and conflict at:
      - A. Gatelines;

- B. top and bottom of all Vertical Transport, including stairs;
  - C. junctions of concourses and precincts;
  - D. in front of information points including ticket machines, information cases, PIDS, vending machines;
  - E. at critical changes of direction; and
  - F. in front of PSDs.
- (ii) placement of, and security around:
    - A. toilets; and
    - B. bike storage.
  - (iii) ease of interchange, in particular, between public transport modes.
- (k) The SSJ Contractor must incorporate any relevant 'Customer Pain Points' nominated by the Principal's Representative in addition to those listed in 3.1(j), in its CCD process at each Design Stage. Relevance will be determined by:
    - (i) whether it is the appropriate point in the design process for the SSJ Contractor to reasonably address the issue identified; and
    - (ii) ability of the SSJ Contractor to adequately address the Customer Pain Point without requiring known amendments to contractual requirements.
  - (l) The SSJ Contractor must apply its CCD process in tandem with the Design Stages for all other parts of the design.

## 3.2 Development and provision of plans

### 3.2.1 CCD Design Management Plan

- (a) Within 30 Business Days after the commencement of the Delivery Phase, the SSJ Contractor must submit its CCD Design Management Plan for review and ~~approval~~comment by Principal's Representative ~~and Independent Certifier~~ in accordance with the Contract.
- (b) The CCD Design Management Plan must be used by the SSJ Contractor to define the process for embedding customer engagement across all relevant design processes for the Project Works and must:
  - (i) identify all design packages where customer touch-points exist and where the CCD process will be applied;
  - (ii) detail how customer input, feedback and validation will be incorporated at, and between, each Design Stage;
  - (iii) how the SSJ Contractor will ensure an appropriate cross-section and quantum of CRP members are engaged at each Design Stage to avoid individual bias in feedback;
  - (iv) how the CCD lead will work collaboratively with design managers across the design process; and
  - (v) detail the governance structure, roles and decision rights of parties within the SSJ Contractor to ensure CCD is embedded within the organisation's design and decision making processes for the Project Works;

### **3.2.2 Design Package CCD Implementation Plans**

- (a) At least 20 days before the commencement of each Design Stage for each design package, the SSJ Contractor must submit to the Principal's Representative and Independent Certifier a Design Package CCD Implementation Plan.
- (b) The Design Package CCD Implementation Plan must, for each design package detail and describe the proposed CCD methodology, including:
  - (i) which elements of the design are going to be tested using CCD, including any identified Customer Pain Points (in accordance with section 3.1(k), and why, supported by evidence from the 'Understand' phase, as per section 3.1(c)(i);
  - (ii) how the application of the methodology will address the requirements of sections 3.1(e), 3.1(f) and 3.1(g);
  - (iii) how the inter-relationship between product, services, systems and spaces is to be addressed; and
  - (iv) any change in methodology, between iterations of the design or between different stages of the design process and supporting rationale.

### **3.3 CCD capability**

- (a) The SSJ Contractor must have demonstrated capability in CCD as a core capability within the team. Demonstrated capability for the purpose of this Appendix B9.0 is defined as:
  - (i) A minimum 10 years' experience applying a recognised CCD methodology in product and service design; and
  - (ii) At least 3 examples from the last 5 years where CCD has been used successfully in a project of significant value (>\$100m) to influence and maximise customer outcomes.





## ( Sydney Metro City & Southwest

### **Sydenham Station and Junction (SSJ)**

Schedule C1

( Scope of Works and Technical Criteria (SWTC)

Appendix B10 – Wayfinding and Signage

<b>PROJECT</b>	Sydenham Station and Junction	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.3</del> <u>C</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-SW-S CH-000115</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B10-Wayfinding		



# Contents

<b>Sydney Metro City &amp; Southwest</b>	<b>1</b>
<b>1 Overview</b>	<b>2</b>
<b>2 Requirements</b>	<b>3</b>
2.1 General	3
2.2 Wayfinding and signage in customer-facing environments	4
2.3 Wayfinding and signage planning in non-customer-facing environments	<u>45</u>
2.4 Construction Signage	5
<b>3 Process</b>	<b>6</b>
3.1 Development and Provision of Plans	6
3.1.1 Wayfinding Design Management Plan	6
3.1.2 Wayfinding Production Plan	6
3.2 Appointment of wayfinding designer	7
3.3 Appointment of the wayfinding project manager	7
3.4 Stakeholder Engagement	7
3.4.1 TfNSW Wayfinding Program team	7
3.4.2 Existing Operators (Sydney Trains) operational team	8
3.4.3 Sydney Metro City & Southwest Operator	8



# 1 Overview

- (a) This Appendix B10 describes the wayfinding technical and performance requirements for the Project Works.
- (b) The TfNSW wayfinding system includes all of the elements that support customers to use and navigate the transport network, including printed maps and customer information, static signs, digital signs, audible signs and information, ground markings and other elements as described in the TfNSW Wayfinding Program document “Wayfinding Planning Guide – Introduction, V1.0” , as may be updated from time to time.

## 2 Requirements

### 2.1 General

- (a) The SSJ Contractor must:
- (i) plan, procure and install signage and wayfinding assets in accordance with the “Wayfinding Planning Guide – Introduction, v1.0” in all customer-facing areas of the Project Works;
  - (ii) design, procure and install a signage and wayfinding system to all non-customer-facing areas of the Project Works that meets the requirements of relevant operators, building codes and other statutory requirements; and
  - (iii) procure, install and manage temporary wayfinding measures during construction to ensure customers are able to safely and efficiently navigate areas impacted by Project Works.
- (b) The SSJ Contractor must ensure that signage schemes are contemporary and relevant to customers at the commencement of operations, reflecting the expectations and requirements of customers that is present-day. To achieve this, the SSJ Contractor must:
- (i) provide flexibility for signage at each design Stage, to allow signage schemes to be adjusted or new sign types and requirements to be included during construction phases;
  - (ii) identify opportunities for innovation in the application of signage and wayfinding, based on the needs of the station environments, world’s best practice, and customer requirements;
  - (iii) collaborate with TfNSW to develop new signage elements and wayfinding solutions, for incorporation into the TfNSW wayfinding system; and
  - (iv) integrate the signage and wayfinding requirements with other elements of the station environment.
- (c) The SSJ Contractor must develop a fully integrated signage and wayfinding application that integrates the Sydney Trains requirements with the Sydney Metro City & Southwest requirements for all customer-facing and operational signs seamlessly throughout the station(s) and interchange(s) in accordance with the TfNSW Wayfinding Program document “Wayfinding Planning Guide – Introduction, v1.0”, including:
- (i) Station entry, concourses and platforms;
  - (ii) Areas within the existing station environment which are impacted by the new Metro requirements;
  - (iii) Bus stops, taxi stands, Kiss and Ride bays, bike storage, parking and other transport mode areas within each station and transport interchange;
  - (iv) Station Precinct(s); and

- (v) other general advisory and information signage regarding wayfinding.
- (d) The SSJ Contractor must undertake the design, manufacture, supply and installation of all general, safety and statutory signage to augment, upgrade and replace the general, safety, statutory and street signage in all area impacted by the SSJ Contractor Activities, including within the Sydneyham Station, Metro Station, Primary Plaza, Secondary Plaza, Interchange(s) and adjacent streets in accordance with Codes and Standards, including:
  - (i) all safety and emergency signage;
  - (ii) all statutory signage;
  - (iii) fire hydrant and hose reel signs;
  - (iv) street signs and traffic control signs;
  - (v) removal and disposal of all redundant signage;
  - (vi) repairs and reinstatement of all surfaces and substrates from which existing signage is removed, to match the surrounding surfaces; and
  - (vii) any other signage requirements in this SWTC.

## 2.2 Wayfinding and signage in customer-facing environments

- (a) The SSJ Contractor must apply the TfNSW wayfinding system in all customer-facing areas of the Project Works.
- (b) The SSJ Contractor must demonstrate a fully integrated signage and wayfinding application that addresses the following modes:
  - (i) Sydney Metro City & Southwest trains;
  - (ii) Sydney Trains trains; and
  - (iii) light rail.
- (c) The SSJ Contractor must demonstrate appropriate provision throughout the design and construction process for the delivery of signage and wayfinding in the operations phase of the Sydney Metro City & Southwest for, including demonstration of:
  - (i) spatial provisioning;
  - (ii) structural integrity;
  - (iii) power and data provision;
  - (iv) earthing and bonding strategy;
  - (v) security monitoring;
  - (vi) installation access; and
  - (vii) maintenance access.
- (d) The SSJ Contractor must provide power and data to each sign location identified through application of the TfNSW Wayfinding Planning Guide with data fed back to:

(i) [Sydney Trains communications room; and](#)

(ii) [Sydney Metro City & Southwest communications room.](#)

(e) ~~(b)~~ The SSJ Contractor must develop appropriate fixing details for all customer-facing signs, which are integrated and coordinated with station structure and architectural finishes. Fixing details must be:

- (i) designed to minimise the impact of signage updates to finishes; and
- (ii) approved by the Principal's Representative.

(f) ~~(c)~~ The SSJ Contractor must procure and install TfNSW wayfinding system-related assets from a supplier on an agreed panel provided by TfNSW.

(g) ~~(d)~~ The SSJ Contractor must procure and install any necessary signage to ensure compliance with relevant Codes and Standards, statutory regulations and the Principal's and Authority (including the local council) requirements.

## 2.3 Wayfinding and signage planning in non-customer-facing environments

- (a) The SSJ Contractor must implement a wayfinding and signage system in non-customer-facing areas that:
  - (i) complies with relevant Codes and Standards;
  - (ii) is not based on the customer-facing TfNSW wayfinding system, signage or graphics;
  - (iii) complies with the design requirements outlined in Appendix B3.0;
  - (iv) complies with Sydney Trains requirements in non-customer-facing areas of Sydneyham Station; and
  - (v) complies with the Operator's requirements in non-customer-facing areas of the Metro Station.
- (b) All wayfinding and signage assets must be appropriately tagged and recorded in the relevant operator(s) Asset Management System.

## 2.4 Construction Signage

- (a) The SSJ Contractor must apply and install temporary wayfinding during construction in accordance with the TfNSW Disruption Wayfinding Guidelines.

## 3 Process

### 3.1 Development and Provision of Plans

#### 3.1.1 Wayfinding Design Management Plan

- (a) Within 30 Business Days after the commencement of the Delivery Phase, the SSJ Contractor must submit its initial Wayfinding Design Management Plan for review and comment by the Principal's Representative ~~and Independent Certifier~~ in accordance with the Contract.
- (b) The SSJ Contractor must submit an updated Wayfinding Design Management Plan for approval by the Principal's Representative and Independent Certifier within 30 Business Days after receiving feedback from the Principal's Representative and Independent Certifier on the initial Wayfinding Design Management Plan.
- (c) A updated Wayfinding Design Management Plan must be submitted at Design Stage 1, Design Stage 2 and Design Stage 3 for review and approval by the Principal's Representative and Independent Certifier in accordance with the Contract.
- (d) The Wayfinding Design Management Plan must be used by the SSJ Contractor to define the process for addressing customer and non-customer facing wayfinding requirements in each Design Stage:
  - (i) for customer-facing elements, detail how:
    - A. the TfNSW Wayfinding Program team will be engaged at, and between, each Design Stage; and
    - B. customer input, feedback and validation will be incorporated at, and between, each Design Stage.
  - (ii) for non-customer facing elements, detail how:
    - A. the Sydney Trains Operational Team will be collaboratively engaged across the design process; and
    - B. the Metro Operator will be collaboratively engaged across the design process.

#### 3.1.2 Wayfinding Production Plan

- (a) Prior to the submission of Design Documentation for Design Stage 3, the SSJ Contractor must submit its Wayfinding Production Plan for review and approval by the Principal's Representative in accordance with the Contract. The Wayfinding Production Plan must include:
  - (i) implementation and installation plan;
  - (ii) sign-off procedures from the TfNSW Wayfinding Program team for customer-facing wayfinding and signage;

- (iii) sign-off procedures from operator(s) for non-customer-facing wayfinding and signage;
- (iv) production and installation program;
- (v) sign removals schedules and plans; and
- (vi) interface schedules and location plans.

### **3.2 Appointment of wayfinding designer**

- (a) The SSJ Contractor must engage a wayfinding designer to deliver the requirements of this SWTC.
- (b) The wayfinding designer must:
  - (i) be selected from an agreed panel provided by TfNSW; or
  - (ii) where the proposed wayfinding designer is not on a TfNSW panel:
    - A. the SSJ Contractor must submit details of its proposed wayfinding designer, who must have a minimum of 5 years' experience in the application of wayfinding and signage in major public transport systems to demonstrate adequate capability and experience to undertake the design; and
    - B. the SSJ Contractor must not appoint the wayfinding designer without the approval of the Principal's Representative.

### **3.3 Appointment of the wayfinding project manager**

- (a) The SSJ Contractor must engage a wayfinding project manager with a minimum of 5 years' experience in the delivery of wayfinding and signage in major public transport systems to deliver the requirements of this contract, within 30 days after the commencement of the Delivery Phase.
- (b) The wayfinding project manager must act as the primary point of contact for the wayfinding designer and the TfNSW Wayfinding Program team.
- (c) The SSJ Contractor must not appoint the wayfinding project manager without the approval of the Principal's Representative.

### **3.4 Stakeholder Engagement**

#### **3.4.1 TfNSW Wayfinding Program team**

- (a) The SSJ Contractor must engage with the TfNSW Wayfinding Program team on the design, manufacture, installation and commissioning of all the customer-facing signage. This process must include the following activities:
  - (i) the development of the initial strategy;
  - (ii) the development of the proposed procurement strategy and program;
  - (iii) the design;
  - (iv) the location and provisioning;

- (v) the developing and testing of samples and prototypes; and
  - (vi) the manufacture, installation and commissioning.
- (b) Each of the activities in section 3.4.1(a) requires the approval of the Principal's Representative before proceeding to each subsequent activity.

### **3.4.2 Existing Operators (Sydney Trains) operational team**

- (a) The SSJ Contractor must engage with the Existing Operators (Sydney Trains) team on the design, manufacture, installation and commissioning of all Sydneyham Station BOH signage. This process must include the following activities:
- (i) the identification of operator requirements;
  - (ii) the design;
  - (iii) the location and provisioning; and
  - (iv) the manufacture, installation and commissioning.
- (b) Each of the activities in section 3.4.2(a) requires the approval of the Principal's Representative before proceeding to each subsequent activity.

### **3.4.3 Sydney Metro City & Southwest Operator**

- (a) The SSJ Contractor must engage with the Operator on the design, manufacture, installation and commissioning of all Metro Station BOH signage. This process must include the following activities:
- (i) the identification of operator requirements;
  - (ii) the design;
  - (iii) the location and provisioning; and
  - (iv) the manufacture, installation and commissioning.
- (b) Each of the activities in section 3.4.3(a) requires the approval of the Principal's Representative before proceeding to each subsequent activity.







# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B11 – Public Art

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.3</del> <u>C</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-PA-SC H-000103</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B11-Public Art		



# Contents

<b>1</b>	<b>Overview and scope</b>	<b>1</b>
<b>2</b>	<b>Requirements</b>	<b>2</b>
2.1	Public art <del>infor</del> the <del>operations phase</del> <u>Project Works</u>	2
2.2	Public art during construction.	3
<b>3</b>	<b>Process</b>	<b><u>54</u></b>
3.1	Public Art Management Plan	<u>54</u>
3.2	Public art working group	<u>65</u>
3.3	Appointment of a Public Art <del>Project Manager</del> <u>representative</u>	<u>5</u>



# 1 Overview and scope

- (a) This Appendix B11 describes the requirements for public art, in relation to the Project Works.
- (b) Public art is specified in the Sydney Metro City & Southwest Public Art Master Plan (Public Art Master Plan) produced by the Principal.
- (c) The Public Art Master Plan:
  - (i) defines the vision, locations, ~~number, size, scale, placement,~~ and process for art to be commissioned and procured, ~~and approach to art-related heritage interpretation;~~ and
  - (ii) addresses the requirements for public art for ~~both~~ the design and construction ~~phases~~ of the ~~Project Works and the operational phase of the completed~~ Project Works.

## 2 Requirements

### 2.1 Public art ~~infor the operations phase~~Project Works

- (a) The SSJ Contractor must develop a Public Art Management Plan (as described in section 3 below) that is consistent with the Public Art Master Plan for the Project Works.
- (b) Through the Public Art Management Plan and otherwise, the SSJ Contractor must:
- (i) demonstrate provisions throughout the design and construction process for the delivery of public art both during construction of the Project Works and when the Project Works become operational. This must include demonstration in relation to Public Art of:
    - A. spatial provisioning;
    - B. structural integrity, including hanging points, foundations and the like;
    - C. lighting;
    - D. power and data provision;
    - E. earthing and bonding;
    - F. security, anti-theft and anti-vandalism provisions;
    - G. installation and replacement access; and
    - H. maintenance access.
  - (ii) allow for the following:
    - A. removal, transportation to the TfNSW storage facility in the Greater Sydney area, and re-installation of public art as directed by the Principal's Representative, which was in place prior to, and removed to enable the Project Works;
    - B. permanent and temporary public art that is ~~procured, managed, curated, and~~developed in collaboration with artist(s) drawn by SSJ Contractor from a list selected by the TfNSW Selection Committee and resulting artwork(s) commissioned by TfNSW and installed by SSJ Contractor through the project manager for art;
    - C. artworks on loan displayed in secure and purpose-designed cases and/or fixings for which TfNSW will manage the loan;
    - D. future art programs (including performance art) which may require services (utilities) and/or built elements to support them; and
    - E. public art involving community input coordinated by artist(s) selected by SSJ Contractor from the TfNSW artist longlist and contracted, co-ordinated and commissioned by ~~TfNSW, SSJ Contractor through the project manager for art.~~

- (iii) install public art in accordance with the Public Art Master Plan, including construction and provision of:
  - A. Utility Services required for ongoing operation;
  - B. construction of purpose-designed secure display cases and fixings to facilitate display of on-loan (temporary) public art; ~~and~~
  - C. construction of purpose-designed secure display cases mounts and fixings to facilitate the display of permanent public art; ~~and~~
  - D. lighting, signage and plaques required to present and identify art.

## 2.2 Public art during construction.

- (a) To support the Principal's Representative in developing a hoarding content strategy, the SSJ Contractor must provide the Principal's Representative with details of:
  - (i) all locations where hoardings are required during construction in relation to the Project Works; and
  - (ii) the period during which hoardings will be in situ.



## 3 Process

### 3.1 Public Art Management Plan

- (a) ~~Within 30 days after the commencement of the Delivery Phase, the~~ The SSJ Contractor must submit its Public Art Management Plan for review and approval by the Principal's Representative (through the public art working group) and Independent Certifier in accordance with the Contract ~~at the end of Design Stage 1.~~
- (b) The Public Art Management Plan ~~must~~ describes how the SSJ Contractor will ~~work and collaborate with the Principal to~~ design and deliver the ~~relevant parts of the Public Art Master Plan~~ public art.
- (c) An updated Public Art Management Plan must be submitted at Design Stage 1, Design Stage 2 and Design Stage 3 for approval by the Principal's Representative and Independent Certifier in accordance with the Contract.
- ~~(d) The Public Art Management Plan must be updated every 6 months.~~
- (d) ~~(e)~~ The Public Art Management Plan must include and address:
- (i) a statement on how the ~~artistic vision and~~ public art projects ~~outlined in the Principal's Public Art Master Plan~~ are to be managed and protected from damage and/or theft;
  - (ii) a description in images and text of the proposed artworks;
  - (iii) ~~(ii)~~ how any existing public art that was in place prior to the Project Works commenced is to be protected or removed, stored and re-installed;
  - (iv) ~~(iii)~~ the approach and methodology for the design development, management, installation and integration of public art ~~procured by the Principal~~ into Metro Station and Station precinct;
  - (v) ~~(iv)~~ the way that Utility Services required to operate/present art can be managed and maintained;
  - (vi) ~~(v)~~ the way that any element of the Project Works which performs dual functions such as screens, which may be used for public art and/or advertising will be installed, operated and maintained;
  - (vii) ~~(vi)~~ the management of all technical interfaces for public art supplied by TfNSW;
  - (viii) ~~(vii)~~ a specification of the additional resources ~~(other than the Public Art Project Manager)~~ required to manage the implementation of the Public Art Management Plan. This plan is to include:
    - A. roles and responsibilities required;
    - B. resource plan;
    - C. resource schedule; and

D. other as required.

- (ix) ~~(viii)~~ a programme which includes activities for the implementation of the Public Art Management Plan and the commissioning of each location that is to display public art. The program must be consistent with the SSJ Contractor's Program for the Project Works;
- ~~(ix) how heritage or archaeological materials resulting from any demolition works, can be retained, interpreted and incorporated into the locality from which they are found, in line with Appendix B6.0;~~
- ~~(x) how further recommendations which relate to heritage interpretation made in any salvage or excavation heritage reports will be incorporated into public art; and~~
- ~~(xi) detailing consultation with heritage specialists.~~

### 3.2 Public art working group

- (a) The Principal's Representative will operate a public art working group to oversee the execution of the Public Art Master Plan and ongoing development, execution and delivery of the artworks.
  - (i) ~~in the event that a final Public Art Master Plan is not available~~, the public art working group must agree the artwork, and scope of work at each location.
- (b) The public art working group for SSJ will include:
  - (i) the SSJ Contractor's Public Art ~~Project Manager~~representative;
  - (ii) the Principal's Representative;
  - (iii) the Principal's Public Art ~~Curator~~Project Manager who is responsible for development and realisation of the Public Art Master Plan;
  - (iv) other relevant contracted parties; and
  - (v) other parties nominated by the Principal's Representative or SSJ Contractor subject to TfNSW's representative approval.
- (c) The purpose of the public art working group is to provide a forum for considering ~~and~~, discussing and approving the best approach to curating, procuring, integrating, installing and decommissioning public art as outlined in the Public Art Master Plan and the ~~Public~~SSJ Art Management Plan.
- (d) The SSJ Contractor must confirm the actions arising from the public art working group sessions, and confirm any ambiguous requirements with the Principal's Representative.

### 3.3 Appointment of a Public Art ~~Project Manager~~representative

- (a) The SSJ Contractor must ~~appoint an experienced and expert Public Art Project Manager~~nominate an existing senior project resource to manage the artist and artworks who has:
  - (i) demonstrated experience in the co-ordination and installation of Public Art.

- (ii) ~~(i) a minimum of 5 years demonstrated experience in the co-ordination and installation of Public Art,~~ project management experience in similar scale art-~~architectural~~ commissions, urban design and architectural management skills; and
- (iii) ~~(ii)~~ be approved by the Principal's Representative.
- (b) The SSJ Contractor must ~~appoint~~nominate the Public Art ~~Project Manager~~representative within 30 days after the commencement of the Delivery Phase.
- (c) The role of the SSJ Contractor's Public Art ~~Project Manager~~representative is to:

  - (i) interface with the Principal's Representative and public art working group to facilitate all technical interfaces that will ensure the efficient and smooth installation of artworks to be supplied and installed;
  - (ii) advocate, educate and promote a strong understanding of public art and its role as part of the Project Works within the SSJ Contractor team during design and construction; and
  - (iii) be the responsible person for the SSJ Contractor to ~~execute~~agree and implement the Public Art Management Plan.
- ~~(d) The SSJ Contractor's Public Art Project Manager will be involved on the project until the expiry of the final Defects Correction Period.~~





# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria (SWTC)

Appendix B12 - Asset Management Information

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2</del> <u>B</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-AM-S CH-000016</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B12-Asset Management Information		



# Contents

<b>1</b>	<b>General Requirements</b>	<b>2</b>
<b>2</b>	<b>Asset Management Information for the Sydney Metro Works</b>	<b>3</b>
2.1	General	3
2.2	Document identification	3
2.3	Document file types	3
2.4	Document transmittals	4
2.5	Project descriptions	5
2.6	Schedule of contact details	5
2.7	Asset register	5
2.8	Work-as-executed Design Documentation	<u>56</u>
2.9	Operations and Maintenance Manuals	6
<b>3</b>	<b>Asset Management Information for the Brownfield Works</b>	<b>11</b>
	<b>Annexure A – O&amp;MM Standard Format</b>	<b>13</b>



# 1 General Requirements

- (a) In this Appendix B12:
  - (i) "Asset Handover" has the meaning given in MR-Prelude.
- (b) The requirements below apply to all the Asset Management Information (AMI) to be provided by the SSJ Contractor to the Principal's Representative and the Independent Certifier:
  - (i) the SSJ Contractor must progressively prepare and submit all AMI to the Principal's Representative and the Independent Certifier as stipulated in the Contract, for review in accordance with the Contract in three stages, "Initial Draft Version", "Final Draft Version" and "Final Version";
  - (ii) the Initial Draft Version must be submitted in accordance with MR-T;
  - (iii) The SSJ Contractor must provide Final Versions of all AMI for a Portion as a condition precedent to Completion of the relevant Portion, and where required by the Principal's Representative, prior to Asset Handover;
  - (iv) the SSJ Contractor must structure AMI into packages and schedule their staged submission and the configuration change management process described in MR-T, in order to provide the required AMI ahead of all Asset Handovers, or as otherwise required by the Principal's Representative to ensure that those entities with a safety, operational or maintenance responsibility are in possession of the necessary technical information at that time;
  - (v) final Version AMI packages, in accordance with this Appendix B12 which are acceptable to the Principal's Representative must be completed prior to achieving Completion of any Portion; and
  - (vi) each submission of the AMI must be validated and verified in terms of accuracy and compliance with the requirements of the Contract by the SSJ Contractor prior to submission to the Principal's Representative and the Independent Certifier or as otherwise required under the Contract.
- (c) The SSJ Contractor must comply with the requirements for AMI for the Sydney Metro Works and Brownfield Works specified in sections 2 and 3 respectively of this Appendix B12. In addition, the SSJ Contractor must consult with the owners, operators, and/or maintainers of other elements of the Project Works and any other persons nominated by the Principal's Representative, and incorporate their requirements into the AMI prepared by the SSJ Contractor.

## 2 Asset Management Information for the Sydney Metro Works

### 2.1 General

AMI must be prepared for the Sydney Metro Works in accordance with the requirements of:

- (a) this section 2 of Appendix B12;
- (b) Sydney Metro Employers Information Requirements SM EM-ST-203; and
- (c) Sydney Metro CAD/GIS/BIM Manual SM EM-PW-304.

### 2.2 Document identification

- (a) The numbering system generated by the Principal's Project Data and Collaboration System (PDCS) must be used for all AMI.
- (b) The Principal's project descriptors and drawing band numbers will be provided by the Principal's Representative upon request by the SSJ Contractor.
- (c) Revision numbers for the initial draft versions of the Asset Management Information must be in an alphabetic format (e.g. "A", "B", "C").
- (d) Revision numbers for the Final Draft Version and Final Version of the AMI must be in a numeric format (e.g. "1", "2", "3") with no decimal places.
- (e) AMI must, as a minimum, be identified in the following ways:
  - (i) by the document number and revision number in the electronic file name, separated by a unique divider (e.g. "-" or ".") that is not used elsewhere in the file name;
  - (ii) by the document number and a fully descriptive title on the front page of the document; and
  - (iii) by the above document number and revision number on all pages of the document.

### 2.3 Document file types

The SSJ Contractor must:

- (a) submit each AMI document in its own file. Multiple AMI documents must not be contained in a compressed (zipped) file;
- (b) submit the AMI documents in an acceptable format for the document type. Acceptable electronic formats are Microstation CAD files, TIF format image files, JPG format photographs, Microsoft Excel spreadsheets, Microsoft Word, word-processing files, Microsoft PowerPoint presentation files, Microsoft Access relational data base files and Adobe Acrobat portable document format (PDF);
- (c) submit drawings in the format required by the Principal's Representative;

- (d) submit native 'updateable' files for the final draft versions of the AMI, including:
  - (i) drawings, 3D drawings, or other modelled data;
  - (ii) work-as-executed Design Documentation;
  - (iii) asset registers;
  - (iv) operation and maintenance manuals;
  - (v) schedules of finishes;
  - (vi) technical maintenance plans;
  - (vii) technical descriptions and operating guides;
  - (viii) service schedules;
  - (ix) failure modes, effects, and criticality analysis (FMECA) and/or reliability availability maintainability and safety (RAMS) calculations;
  - (x) equipment software and configuration files (including software programs necessary to access such files);
  - (xi) training programs; and
  - (xii) forms required for maintenance activities;
- (e) include all required data within the designated file (whether view file or native file). Links between files are not acceptable;
- (f) submit all AMI in digital form as individual computer files via the PDCS;
- (g) submit a separate PDCS document transmittal that includes an index to these documents where large numbers of documents (more than 100) are submitted on one subject (e.g. certificates and concrete records); and
- (h) identify each AMI document submitted, with appropriate metadata as defined by the Principal's Representative.

## **2.4 Document transmittals**

- (a) The SSJ Contractor must adhere to the standard transmittal format generated by the PDCS.
- (b) The PDCS document transmittals must, as a minimum, include the following metadata for each document:
  - (i) document number;
  - (ii) revision number;
  - (iii) full document title / description matching that written in the document front page;
  - (iv) the discipline responsible for the preparation of the document;
  - (v) document type (e.g. "manual", "drawing", "certificate"); and
  - (vi) the location of the Asset to which the document relates.

## 2.5 Project descriptions

The SSJ Contractor must provide a Project Description, containing:

- (a) details of the scope of the ~~Project~~Sydney Metro Works;
- (b) details of the major stakeholders;
- (c) details of any interfaces with adjoining existing assets including identification of those assets not forming part of the ~~Project~~Sydney Metro Works;
- (d) ~~datelines; i.e. Completion and Commissioning dates for elements of the Sydney Metro Works; and~~
- (e) any new or altered services or systems included; and
- (f) any other relevant information.

## 2.6 Schedule of contact details

The SSJ Contractor must provide a Schedule of Contact Details, including:

- (a) the names of the SSJ Contractor's key personnel and the Subcontractors' key personnel involved in the design, construction, commissioning and certification and the corresponding initials utilised on drawings and documentation;
- (b) the correct name of all Subcontractors, including the ABN number;
- (c) the role of all Subcontractors under the Contract;
- (d) address, telephone and fax numbers for all Subcontractors;
- (e) primary contact names within the SSJ Contractor's and Subcontractors' organisations for enquiries relating to the Project Works; and
- (f) website addresses of all Subcontractors.

## 2.7 Asset register

The SSJ Contractor must provide an Asset Register that:

- (a) is a comprehensive data collection system for all ~~assets~~Assets forming the ~~Project~~Sydney Metro Works which includes a digital version of the Asset ~~Register~~register in a single ~~relational~~electronic database format that is acceptable to the Principal's Representative, including the classification and location system, and will allow uploading of the data into the Operator's Asset Management System;
- (b) provides details of all assets forming the ~~Project~~Sydney Metro Works other than architectural floor, wall and ceiling finishes which must be included in the Schedule of Finishes;
- (c) is divided into sub asset groups containing items that are commonly grouped together e.g. systems. There must be an index to the groups in the front of the Asset Register; and
- (d) can be uploaded to the Operator/Maintainer's asset management system without further manipulation by reflecting their required asset breakdown structure of sub assets, systems and nomenclature.

## 2.8 Work-as-executed Design Documentation

The SSJ Contractor must provide "~~work-as-executed~~ Design Documentation as-built documentation", whereby the SSJ Contractor must:

- (a) submit sample ~~work-as-executed Design Documentation~~ as-built documentation for all assets for review by the Principal's Representative prior to production of any ~~Work As-Executed~~ as-built documentation in a format that is consistent with the format of the Operator's other Design Documentation from other parts of Sydney Metro and can be included in the Operator's Asset Information System;
- (b) show on ~~work-as-executed Design Documentation~~ as-built documentation the details of the locations of existing infrastructure within the Site and the location and extent of the completed Works;
- (c) update the approved for construction Design Documentation to produce the work-as-executed Design Documentation and other drawings as necessary to fully describe the ~~Project~~ Sydney Metro Works;
- (d) ensure that ~~work-as-executed Design Documentation~~ as-built documentation for any building components of the ~~Project~~ Sydney Metro Works include all drawings produced for the building component of the ~~Project~~ Sydney Metro Works, including but not limited to design drawings, shop drawings and drawings produced by specialist trades (for example, combined services layouts, structural electrical and mechanical drawings, and equipment installation drawings);
- (e) ensure the content, accuracy and level of detail of ~~work-as-executed Design Documentation~~ as-built documentation are equivalent to those in the Design Documentation used for construction and are sufficient to describe, to enable and to facilitate the safe and efficient operation and maintenance of the assets forming the ~~Project~~ Sydney Metro Works;
- (f) include in ~~work-as-executed Design Documentation~~ as-built documentation, the final survey drawings undertaken and signed by a licensed surveyor, in accordance with the Surveying and Spatial Information Regulation 2012 (NSW), certifying the positioning of the ~~Project~~ Sydney Metro Works relative to the primary survey grid and the cadastral boundaries and that the Project Works are located within any nominated minimum and maximum clear opening tolerances;
- (g) include in the ~~work-as-executed Design Documentation~~ as-built documentation the locations and extremities of all ground and infrastructure support including rock bolts;
- (h) certify, via a statutory declaration that each item of ~~work-as-executed Design Documentation~~ as-built documentation is accurate, complete and correct, and that the ~~Project~~ Sydney Metro Works as completed are wholly contained within the Site;
- (i) ensure the ~~work-as-executed Design Documentation~~ as-built documentation complies with AS 1100 Technical drawing and the Sydney Metro CAD/GIS/BIM Manual SM EM-PW-304 November 2016, unless otherwise instructed by the Principal's Representative; and
- (j) where necessary to describe the ~~Project~~ Sydney Metro Works, or where directed by the Principal's Representative, include digital photographs of specific aspects of the

Project Sydney Metro Works in ~~work-as-executed Design Documentation~~ as-built documentation.

## 2.9 Operations and Maintenance Manuals

The SSJ Contractor must produce operations and maintenance manuals (O&MM) which:

- (a) ~~provide an O&MM for~~ address each key element of the Project Sydney Metro Works as identified in the ~~Asset Management Plan~~ AMIDP;
- (b) provide descriptions of the location, functions performed, and operating instructions for all assets forming the Project Works;
- (c) are written from the perspective of the ~~operator or maintainer~~ Operator looking to locate and identify the operation and maintenance requirements of ~~a 'single system'~~ the SSJ works and underpin the maintenance assumptions made in the design;
- (d) are written using clear concise English;
- (e) provide a central document that provides cross-references to all other relevant documentation for the system;
- (f) include all the standard format listed and detailed in Annexure A of this Appendix 12. Where a section is not applicable to a particular asset, the words 'Not Applicable' or similar must be included under the relevant section heading;
- (g) include a reference document number and the location within that document where the relevant information can be found, should references to other documents be included in the O&MM;
- (h) include figures and pictures where appropriate to present information which is difficult to describe by text alone and provide identification of tools, parts and other such items;
- (i) include only "Halftone" figures (photographs) which are suitable for electronic scanning and photocopying without loss of detail;
- (j) include a "Schedule of Finishes" that provide the following data for any internal and external architectural materials and finishes on the Project Works:
  - (i) description or name of material or finish;
  - (ii) thickness/weight/gauge;
  - (iii) profile or size;
  - (iv) colour/finish details unless scheduled in a separate colour schedule;
  - (v) manufacturer or supplier name and contact details;
  - (vi) cleaning and maintenance recommendations or standards;
  - (vii) warranty details; and
  - (viii) A location schedule such that details of materials and finishes in each room, space, area or building component can be located.
- (k) include "Technical Descriptions" which provide:



- (i) a short description of all assets, even if it is a proprietary item, with relevant technical tables, a table of dimensions, performance ratings;
  - (ii) operating guidelines, procedures and principles for all of the assets;
  - (iii) a basic working description of all of the assets, including novel features, any automatic control, and the operational purposes and functions of the various components and systems;
  - (iv) a location plan to identify and locate all of the assets, or a written description if more appropriate;
  - (v) details of any utilities critical to the operation of the assets and where necessary the isolation points; and
  - (vi) functional specifications for software oriented systems (hardware and software), systems programs, individual program modules, including flow charts and source codes.
- (l) include individual "Operating Guides" for each key element of the Project Works which provide comprehensive details of technical information relevant to all elements of the asset with a step by step procedure arranged into sections relating to the following, where applicable:
- (i) safety procedures;
  - (ii) operating limitations due to temperature, pressure and flow, or other relevant factors;
  - (iii) checks before, and procedures for, equipment start-up, operations and shutdown;
  - (iv) emergency shutdown and abnormal operation;
  - (v) full information on alarm and trip settings;
  - (vi) links to inspection, servicing and maintenance schedules as defined in the Technical Maintenance Plan;
  - (vii) component manuals covering maintenance and repair of all items of installed equipment;
  - (viii) fault finding guides, for use at the operating maintenance level;
  - (ix) illustrated parts catalogues;
  - (x) supply contract details;
  - (xi) name of supplier;
  - (xii) address for service calls; and
  - (xiii) any other information needed by operating staff to ensure the safe and efficient operation of the equipment.
- (m) provide copies of all compliance and certification documents in a register, including:
- (i) Building Code of Australia compliance reports and certificates;
  - (ii) Disability Discrimination Act compliance reports and certificates;

- (iii) fire and life safety compliance reports and certificates;
  - (iv) a description of the quality assurance systems utilised by the SSJ Contractor and the location of all detailed test results, inspection and test plans and other quality assurance data;
  - (v) the first registration certificate for every asset that requires annual or periodic registration;
  - (vi) all other Authority Approvals received; and
  - (vii) all licenses.
- (n) include “Technical Maintenance Plans” including “Service Schedules”, and template records that are required for maintenance actions. Sample forms are to be delivered as separate documents in native format (e.g. Microsoft Word or Microsoft Excel);
- (o) include a “Spares Schedule” that has adopted the following methodology in its development to ensure:
- (i) the Spares Schedule is developed using a clearly defined methodology that is acceptable to the Principal’s Representative;
  - (ii) long lead time spares (those with a one month or greater supply time) and high-value spares are identified and listed;
  - (iii) nominated spares have been considered at the equipment level and not at the part level (e.g. a full pump or motor is a spare, not an impellor or bearing);
  - (iv) the assessment methodology adopts established in-service failure rates and the related maintenance policies, and identifies the range and quantity of spares required to be made available at any time to maintain the systems and ensure they meet the availability requirements;
  - (v) the need for insurance spares to meet unplanned needs has been addressed, and a separate assessment process used to identify, quantify and list those insurance spares is included; and
  - (vi) the methodology used for the assessment of spares requirements is included in the Technical Maintenance Plans.
- (p) include a Spares Schedule which details the recommended range and quantity of consumables and the spares required to support the operational and maintenance requirements of the assets forming the Project Works, and includes the following information:
- (i) item identification (name, manufacturer’s part or reference number and specification, as appropriate);
  - (ii) recommended spares quantities;
  - (iii) price expected;
  - (iv) source;
  - (v) procurement lead time;
  - (vi) failure rate;



- (vii) number of items installed in the Project Works;
  - (viii) predicted usage rate and whether the item is consumable or is used in support of scheduled preventative maintenance;
  - (ix) proposed location of spares; and
  - (x) the probability of the required item being available to suit the recommended spares quantity.
- (q) include data on spare parts, listed under the following headings:
- (i) "List of Suppliers" listing: manufacturer, ABN number; manufacturer's nearest representative; company address; telephone and fax numbers; and website;
  - (ii) "Illustrated Parts List", including a list (or lists) of parts with part numbers referenced to an illustration, preferably an exploded view of a sectional drawing and a specification;
  - (iii) "Recommended Spare Parts", including a list of recommended spare parts with part numbers and quantities, and highlighting critical spares (to be held at all times);
  - (iv) "Availability of Spare Parts", including a short statement quoting the worst case procurement lead time/availability to suit the quantities of parts from suppliers; and
  - (v) "Ordering Information" including specific details that would be required when ordering replacement parts, such as serial number, model number, name and reference number;
- (r) include a "Schedule of Special Tools, Facilities and Equipment" that contains:
- (i) the recommended number of special tools, facilities and equipment required for the operation and maintenance of the Project Works;
  - (ii) identification of the items required to perform specific maintenance, repair and recovery tasks on the systems, including scheduled preventative maintenance of the systems, the removal, installation and testing of rotatable and repairable items, and other procedures, such as temporary repairs during normal operating periods for unscheduled failures with follow-up maintenance and emergency recovery;
  - (iii) details of any special purpose test equipment and facilities needed in support of the maintenance tasks, including specialist hand-tools;
  - (iv) details of, and a specification for, each item;
  - (v) a description of the purpose of the item;
  - (vi) maintenance requirements for each item;
  - (vii) the supplier's name and contact details;
  - (viii) the quantity required;
  - (ix) price and validity period expected; and
  - (x) lead times.

- (s) include manuals and documents provided by suppliers and manufacturers, only where they comply with the requirements of MR-T and are integrated into the O&MMs.

### 3 Asset Management Information for the Brownfield Works

- (a) AMI must be prepared for the Brownfield Works in accordance with the ASA Requirements, and the Sydney Trains AMI documents listed below.
- (i) T MU AM 01001 ST - Life Cycle Costing
  - (ii) T MU AM 01002 MA - Maintenance Requirements Analysis Manual
  - (iii) T MU AM 01003 ST - Development of Technical Maintenance Plans (Standard) + Technical Note
  - (iv) T MU AM 01003 F1 - Blank FMECA Sheet
  - (v) T MU AM 01003 F2 - Blank Service Schedule Sheet
  - (vi) T MU AM 01003 F3 - Blank TMP Sheet
  - (vii) T MU AM 01003 F4 - TMP Review and Authorisation Form
  - (viii) T MU AM 01004 ST - Maintenance Service Schedule Classification and Compliance
  - (ix) T MU AM 01005 ST - Asset Handover Requirements (Standard)
  - (x) T MU AM 01006 ST - Asset Reference Codes
  - (xi) T MU AM 01006 F1 - Asset Reference Code Form
  - (xii) T MU AM 01007 TI - Asset Reference Codes Register
  - (xiii) T MU AM 01008 ST - Technical Maintenance Plans and Coding System
  - (xiv) T MU AM 01009 TI - Technical Maintenance Coding Register
  - (xv) T MU AM 01010 ST - Framework for Developing an Asset Spares Assessment and Strategy
  - (xvi) T MU AM 01010 F1 - Blank Spares Requirements Analysis Model Form
  - (xvii) T MU AM 01012 ST - Engineering Document Requirements
  - (xviii) T MU AM 01012 F1 - Metadata Spreadsheet for Engineering Documents
  - (xix) T MU AM 02001 GU - Developing Configuration Information Delivery Plans
  - (xx) T MU AM 02001 ST - Asset Information and Register Requirements (Standard)
  - (xxi) T MU AM 02002 TI\_1 - Asset Classification System
  - (xxii) T MU AM 02003 TI - Register of Asset Information Systems and Repositories
  - (xxiii) T MU AM 06007 GU - Guide to Requirements Definition and Analysis
  - (xxiv) T MU AM 06009 ST - Maintenance Concept Definition

- (b) The AMI for Brownfield Works must be provided in a format that is able to be loaded into SAP Equip Platform (SAP) in accordance with the ASA Asset Classification and Information Standards and Sydney Trains' data specifications.



## Annexure A – O&MM Standard Format

General	<p><u>Front Cover</u></p> <p>The front cover of the O&amp;MM must contain:</p> <ul style="list-style-type: none"> <li>- the Transport for NSW logo;</li> <li>- the project name;</li> <li>- the document description consisting of the key element description (e.g. asset type or discipline) and the words "Operation and Maintenance Manual"; and</li> <li>- the document number.</li> </ul>
General	<p><u>Page Headers</u></p> <p>The page headers of the O&amp;MM must contain the project name and the document description.</p>
General	<p><u>Page Footers</u></p> <p>The page footers of the O&amp;MM must contain:</p> <ul style="list-style-type: none"> <li>- the document number and revision number; and</li> <li>- page numbers in the format "Page x of y". Page numbers must be continuous throughout the document and not reset at section breaks.</li> </ul>
General	<p><u>Revision History</u></p> <p>The revision history of the O&amp;MM must be included in a "Revision Control Table" at the start of the manual. The revision control table must provide, for each revision:</p> <ul style="list-style-type: none"> <li>- revision letter or number with no decimal places;</li> <li>- date of revision; and</li> <li>- summary of change(s) in comparison to the previous version.</li> </ul>
General	<p><u>Glossary of Terms</u></p> <p>A glossary of terms for each O&amp;MM must be included at the start of the manual, including all acronyms and technical terms listed in the manual.</p>
General	<p><u>Table of Contents</u></p> <p>A table of contents, listing sections and sub-sections of the O&amp;MM.</p>
Section 1	<p><u>Purpose of the O&amp;MM</u></p> <ul style="list-style-type: none"> <li>- Brief description of the O&amp;MM's purpose, structure and content;</li> <li>- Identification of Asset Owner, Contractor, Subcontractors and other involved parties; and</li> <li>- Tabulation of Subcontractors and utilities/service providers, together with contact details for each significant element of the assets.</li> </ul>

Section 2	<p><u>Description of the System</u></p> <ul style="list-style-type: none"> <li>- An overview of sufficient detail to provide the reader with immediate understanding of the whole of the system;</li> <li>- A location plan / diagram with introductory text to identify the main components of the system and the interfaces; and</li> <li>- Detailed description of each of the elements of the assets covered by the O&amp;MM to complement the location plan, including all equipment, components, systems and items, with a tabulation of dimensions, performance ratings, and asset number, information and attributes.</li> </ul>
Section 3	<p><u>System Interfaces</u></p> <ul style="list-style-type: none"> <li>- Details of all systems with which this system interfaces;</li> <li>- Description of how these interfaces operate (i.e. how this system works with / impacts on the other systems);</li> <li>- Description of the limits of responsibility and other parties responsibility at each interface;</li> <li>- Impacts of system failures either by this system or by other systems, impacting on this system;</li> <li>- Summary diagrams of the various utilities and services including communication services, electrical services, drainage, fire services, water treatment and utilities, gas, sewer, stormwater and water; and</li> <li>- References of where further information for the interfacing systems can be found.</li> </ul>
Section 4	<p><u>Detailed Technical Descriptions and Operating Guides</u></p> <ul style="list-style-type: none"> <li>- Detailed Technical Descriptions of the asset, aimed at the operators and maintainers, and covering each element of the system, including all equipment, components, systems and items in accordance with section 2.9(k) of this Appendix B12; and</li> <li>- Detailed Operating Guides in accordance with section 2.9(l) of this Appendix B12.</li> </ul>
Section 5	<p><u>Safety and Environment</u></p> <ul style="list-style-type: none"> <li>- Consolidation of all relevant safety issues associated with the system (may be duplicating content of supplier/manufacturer manuals located elsewhere in the manual), noting all hazards and highlighting specific risks;</li> <li>- A tabulation or listing of emergency contact organisations, personnel or positions, phone/fax numbers and operational procedures relating to emergencies; and</li> <li>- Suppliers' material safety data sheets.</li> </ul>
Section 6	<p><u>FMECA/RAMS</u></p> <ul style="list-style-type: none"> <li>- Statement of whether FMECA was carried out. Explanation of the basis for original design and equipment selected for installation (e.g. performance requirements); and</li> </ul>

	<ul style="list-style-type: none"> <li>- Statement of whether RAMS was carried out. Reports are to include actual calculations.</li> </ul>
Section 7	<p><u>Asset Register</u></p> <ul style="list-style-type: none"> <li>- Comprehensive Asset Register including system details relevant to the assets included in each O&amp;MM.</li> </ul>
Section 8	<p><u>Schedule of Spares (refer section 2.9(o) of this Appendix B12)</u></p> <ul style="list-style-type: none"> <li>- Details of the methodology used to develop the Spares Schedule (e.g. based on FMECA/RAMS, manufacturers' recommendations, etc.) and the operating period addressed by the spares and include details of: <ul style="list-style-type: none"> <li>- The level at which spares are to be held (e.g. component, assembly, sub-system or system level);</li> <li>- Expected failure rates;</li> <li>- Maintenance policies that the spares selection is based on;</li> <li>- Expected procurement lead time;</li> <li>- Ongoing availability of spares;</li> <li>- Storage requirements, including storage environmental constraints such as temperature and humidity; and</li> <li>- Spares Schedule, divided into "General Spares" and "Insurance Spares" categories.</li> </ul> </li> </ul>
Section 9	<p><u>Maintenance</u></p> <ul style="list-style-type: none"> <li>- Comprehensive step by step instructions in preventative and corrective maintenance procedures, nominating the work to be carried out by qualified tradespersons and others, and the designated service periods, such as weekly, monthly, quarterly, semi-annually, annually;</li> <li>- A schedule of refurbishment and replacement reflecting asset design life and maintenance standards;</li> <li>- Maintenance standards;</li> </ul> <p>Technical Maintenance Plans in accordance with section 2.9(n) of this Appendix B12</p> <ul style="list-style-type: none"> <li>- Maintenance instructions for each of the service periods subdivided into the following categories: unit running, unit stopped;</li> <li>- Location of maintenance action (on-system, in workshop etc.);</li> <li>- Consumables and special tools required;</li> <li>- List of recommended consumables, greases and oils, stating quantities, methods and frequency for application;</li> <li>- Troubleshooting instructions in tabular form listing "fault", "possible cause" and "remedial action", with testing regimes and instructions;</li> <li>- A Schedule of Special Tools, Facilities and Equipment in accordance with section 2.9(r) of this Appendix B12; and</li> <li>- A Schedule of Finishes in accordance with section 2.9(j) of this Appendix B12.</li> </ul>



Section 10	<p><u>Training Program</u></p> <ul style="list-style-type: none"> <li>- A program of appropriate training for operation and maintenance personnel;</li> <li>- Train the trainer style manuals appropriate to the personnel associated with the operation and maintenance of the system; and</li> <li>- If the training information included in the Operating Guides or suppliers'/manufacturers' manuals does not meet the requirement, then additional information is required; and</li> <li>- Training materials.</li> </ul>
Section 11	<p><u>Installation, Commissioning &amp; Overhauling</u></p> <ul style="list-style-type: none"> <li>- Details of standards and procedures for mounting or erecting, wiring or setting up, and commissioning equipment;</li> <li>- All testing and commissioning certificates and all associated commissioning and test results issued in respect of the Works the system/sub-system and equipment;</li> <li>- System configuration information, including protection settings for electrical equipment; and</li> <li>- Unless otherwise contained in the Technical Maintenance Plans or Service Schedules, step by step instructions and procedures for complete overhauls, indicating those procedures to be carried out by qualified tradespersons, described under at least the following subheadings: <ul style="list-style-type: none"> <li><input type="checkbox"/> Dismantling;</li> <li><input type="checkbox"/> Cleaning, inspection, repair and adjustment;</li> <li><input type="checkbox"/> Reassembly; and</li> <li><input type="checkbox"/> Final checks and unit running.</li> </ul> </li> </ul>
Section 12	<p><u>Manufacturer's/Supplier's Operation and Maintenance Manuals, Equipment Warranties and Compliance Certificates</u></p> <ul style="list-style-type: none"> <li>- Manufacturer's operation and maintenance manuals (can be embedded in the Operation and Maintenance Manual or delivered as a separate referenced document);</li> <li>- Relevant warranties and guarantees as required under the Contract for each major item of equipment; and</li> <li>- Compliance certificates as required by specific items of plant, equipment and works and a register in accordance with section 2.9(m) of this Appendix B12;</li> <li>- Warranties must be arranged in a logical sequence and include an index.</li> </ul>
Section 13	<p><u>Other Information</u></p> <p>Any relevant information not specifically covered in the previous sections.</p>

Section 14	<p><u>Document Reference List</u></p> <ul style="list-style-type: none"><li>- A reference list of all documents and drawings referred to in the body of the Operation and Maintenance Manual as well as those not specifically referenced but which are required to complete the documentation related to the asset.</li><li>- References must be listed in order of type and document number, and provide the title of each document.</li><li>- Examples of contents are:<ul style="list-style-type: none"><li><input type="checkbox"/> Calculations;</li><li><input type="checkbox"/> Commissioning results;</li><li><input type="checkbox"/> Procedures;</li><li><input type="checkbox"/> Quality forms and records;</li><li><input type="checkbox"/> Reference manuals;</li><li><input type="checkbox"/> Software;</li><li><input type="checkbox"/> Technical specifications and reports;</li></ul></li></ul>



# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B13 - Advertising

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.3B</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-SW-S CH-000116</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B13-Advertising		



# Contents

<b>1</b>	<b>Overview</b>	<b>2</b>
<b>2</b>	<b>Requirements</b>	<b>3</b>
2.1	Advertising in operations phase	3
2.2	Metro Station Minimum Requirements	4
<b>3</b>	<b>Process</b>	<b>5</b>
3.1	Advertising Provisioning Plan	5
3.2	Advertising capability	5

# 1 Overview

- (a) This Appendix B13 describes the requirements for advertising in relation to the Project Works.
- (b) Advertising types and locations in relation to the Project Works will be specified by the Sydney Metro City & Southwest Advertising Strategy (Advertising Strategy).
- (c) The Advertising Strategy will define the guiding principles for placement, types, size, and scale. This strategy will be developed and tested through requirements at each Design Stage.





## 2 Requirements

### 2.1 Advertising in operations phase

- (a) In accordance with the Advertising Strategy, the SSJ Contractor must:
- (i) demonstrate appropriate provision throughout the design and construction process for the delivery of advertising in the operations phase of the Sydney Metro City & Southwest, including demonstration of:
    - A. spatial provisioning;
    - B. structural integrity;
    - C. lighting integration;
    - D. ~~power and~~ data provision, reticulated to the Metro Station communications room at each location;
    - E. earthing and bonding strategy;
    - F. security monitoring;
    - G. installation access; and
    - H. maintenance access.
  - (ii) allow for the following types of advertising to be delivered:
    - A. free-standing digital totems placed within station environment;
    - B. free-standing digital totems placed within the wider station precinct;
    - C. indoor large-format digital screens that are suspended / wall mounted;
    - D. outdoor large-format digital screens that are bridge-mounted / wall-mounted;
    - E. indoor digital poster cases;
    - F. outdoor LED backlit static lightboxes;
    - G. indoor LED backlit static lightboxes;
    - H. technology-based advertising platforms (e.g. beacons, Wi-Fi etc.); and
    - I. screens integrated into the PSD ~~/PES~~ & platform edge barriers.
  - (iii) demonstrate how advertising equipment can be installed, upgraded and removed without impacting on long-term materials performance or the aesthetic of the surrounding fabric;
  - (iv) demonstrate how advertising equipment can be installed, upgraded and removed without impacting on station operations or customer experience;

- (v) ensure that advertising, where provided, is integrated into the station architecture or building elements with the ability to support customer information systems;
  - (vi) ensure that advertising does not conflict with customer signage or wayfinding or impede customer flows;
  - (vii) ensure that advertising is:
    - A. coordinated to achieve unobstructed sightlines and legibility of the signage;
    - B. coordinated and integrated with adjacent architectural finishes;
    - C. coordinated with station spatial planning; and
    - D. integrated and coordinated with adjacent wall cladding.
  - (viii) ensure that any trackside wall signage and advertising is integrated with the surrounding cladding system;
  - (ix) ensure that all ~~services~~Utility Services and equipment associated with advertising is concealed; and
  - (x) ensure that advertising is not located on stair treads or risers, seating, GateLine, flooring, ceiling and in 'slow spaces' as defined by the Principal.
  - (xi) ensure that advertising does not conflict or compromise heritage buildings, elements and vistas.
- (b) The SSJ Contractor must develop an "Advertising Provisioning Plan" in accordance with clause 3.1 below to demonstrate how the SSJ Contractor will work with the Principal to deliver the Advertising Strategy.

## 2.2 Metro Station Minimum Requirements

- (a) The SSJ Contractor must make provision for the following at the Metro Station:
- (i) 7 \* free-standing digital totems in the paid area of the station, including:
    - A. two located inside the southern Metro Station GateLine;
    - B. two located inside the northern Metro Station GateLine;
    - C. one at each end of the Metro Concourse; and
    - D. one on the rear wall of Platform 1 near the shunt track.
  - (ii) 4 \* indoor large-format digital screens in the paid area of the station, on the Metro Concourse.



## 3 Process

### 3.1 Advertising Provisioning Plan

- (a) Within 30 Business Days after the commencement of the Delivery Phase, the SSJ Contractor must submit its Advertising Provisioning Plan for review and **approval comment** by the Principal's Representative ~~and Independent Certifier~~ in accordance with the Contract.
- (b) The Advertising Provisioning Plan must describe how the SSJ Contractor will work with the Principal to deliver the Advertising Strategy, including:
  - (i) demonstrated appreciation of how the application of the Advertising Strategy impacts the Project Works, including the approach to addressing the requirements of clause 2.1(a); and
  - (ii) the identification of, and approach to the management of any inter-relationships between advertising and customer-facing elements across the Project Works, including circulation space, wayfinding and signage, retail and public art.
- (c) An updated Advertising Provisioning Plan must be submitted at Design Stage 1, Design Stage 2 and Design Stage 3 for review and approval by the Principal's Representative and Independent Certifier in accordance with the Contract.

### 3.2 Advertising capability

- (a) The SSJ Contractor must have a demonstrated advertising capability as a core capability within the team.
- (b) The advertising capability is to be in place within 30 Business Days after the commencement of the Delivery Phase.
- (c) Demonstrated capability for the purpose of this appendix is defined as:
  - (i) a minimum of 5 years demonstrated experience in the co-ordination and installation of advertising projects; and
  - (ii) at least 3 examples from the last 5 years where an advertising solution has been successfully integrated in a mixed use project of significant value, including at least one public transport project.
- (d) The advertising capability is to be used:
  - (i) to interface with the Principal's Representative to facilitate all technical interfaces that will ensure the efficient and smooth installation of the agreed advertising solution; and
  - (ii) as the responsible entity for the SSJ Contractor to execute the Advertising Provisioning Plan.
- (e) The advertising capability must be retained to support the SSJ Contractor's activities until the date of expiry of the final Defects Correction Period.







# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix B14 – Retail and Commercial

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September 2017</del> <u>31 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.3</del> <u>C</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-PN-S CH-000107</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix B14 - Retail and Commercial		



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# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
<b>2</b>	<b>Requirements</b>	<b>2</b>
2.1	Retail in operations phase	2
2.2	Metro Station minimum requirements	3
2.3	Retail fitout for tenancy units	3
2.4	Development of retail kiosk solution	5
2.5	Provisions for pop-up / promotional retail	6
<b>3</b>	<b>Process</b>	<b>7</b>
3.1	Retail <del>Provisioning Plan</del>	<del>7</del>
<del>3.2</del>	<del>Retail</del> capability	7



# 1 Overview

- (a) This Appendix B14 describes the requirements for retail and commercial opportunities in relation to the Project Works.
- (b) Retail types and locations in relation to the Project Works will be specified by the Sydney Metro City & Southwest Retail Strategy (Retail Strategy).
- (c) The Retail Strategy will define the guiding principles for the placement and types of retail to be delivered. This Strategy will be developed and tested through requirements at each Design Stage.

## 2 Requirements

### 2.1 Retail in operations phase

- (a) In accordance with the Retail Strategy, the SSJ Contractor must:
- (i) demonstrate appropriate provision throughout the design and construction process for the delivery of retail in the operations phase of the Project, including demonstration of:
    - A. spatial provisioning;
    - B. structural integrity;
    - C. lighting integration;
    - D. metered power provision;
    - E. earthing and bonding provision;
    - F. data and telecoms provision;
    - G. metered potable water provision;
    - H. sewage and grease-trap provision;
    - I. security monitoring;
    - J. installation access;
    - K. maintenance access; and
    - L. delivery access.
  - (ii) allow for the following types of retail to be delivered:
    - A. tenancy units;
    - B. retail kiosks; and
    - C. pop-up / promotional retail.
  - (iii) demonstrate how retail facilities can be installed, upgraded and removed without:
    - A. impacting on long-term materials performance or the aesthetic of the surrounding fabric; and
    - B. impacting on station operations or customer experience.
  - (iv) ensure that retail does not conflict with customer signage or wayfinding or impede customer flows;
  - (v) ensure that retail is:
    - A. integrated into the station architecture or building elements;
    - B. coordinated to support intuitive wayfinding;

- C. coordinated and integrated (where appropriate) with adjacent architectural finishes; and
- D. coordinated with station spatial planning.
- (vi) ensure that all services and equipment associated with retail is concealed; and
- (vii) ensure that retail is not located in 'fast spaces' as defined by the Principal.

~~(b) The SSJ Contractor must develop a "Retail Provisioning Plan" in accordance with clause 3.1 to demonstrate how the SSJ Contractor will work with the Principal's Representative to deliver the Retail Strategy.~~

## 2.2 Metro Station minimum requirements

- (a) The SSJ Contractor must make provision for the following at the Metro Station:
  - (i) 2 \* 20m<sup>2</sup> tenancy locations in the Northern Primary Plaza;
  - (ii) 6 \* retail kiosk locations in the Northern Secondary Plaza;
  - (iii) 2 \* pop-up/promotional locations in the Northern Secondary Plaza; and
  - (iv) 1 \* pop-up/promotional location in the Southern Primary Plaza.

## 2.3 Retail fitout for tenancy units

- (a) The SSJ Contractor must provide fitout on a 'shell and core' basis for all retail fitout works as provided for in the Retail Provisioning Report approved by the Principal.
- (b) For tenancy units that provide a food offer the SSJ Contractor must provide inter-tenancy walls that are block work (unfinished, smoothed grout) or cement fibre sheet (taped, set and sealed) to AS 4674-2004.
- (c) The SSJ Contractor must use the following occupation loadings for spatial provisioning purposes:
  - (i) front of house of 1 person per 3 square metres of net area;
  - (ii) back of house 1 person per 20 square metres of net area; and
  - (iii) area splits must be 50 percent retail and 50 percent back of house.
- (d) The SSJ Contractor must provide each unit, area or zone with enclosures including external access doors for tenant access complete with door furniture and locks and associated party wall construction including floor, wall and ceiling finishes, Utility Services, mechanical and electrical requirements.
- (e) The SSJ Contractor must meet the following flooring requirements in relation to tenancy units:
  - (i) the structural floor slab must be finished a maximum of 75mm and a minimum of 20mm lower than the final finished floor level (finished smooth grade 2 finish), scabbled smooth and free of adhesives and debris; and
  - (ii) divots in floor to a maximum of 15 mm.

- (f) The SSJ Contractor must meet the following air supply requirements in relation to tenancy units:
  - (i) 10 litres per second per person per 10 metres square of area (all areas);
  - (ii) a single duct run (from roof level or to side wall point) of 0.8 by 0.8 metres square for kitchen air supply, with sufficient access room along the run for fire dampers, maintenance and cleaning; and
  - (iii) provision for tenancy air-conditioning/fan units and the installation of the dampers, inline fans, weather cowling and ductwork to the tenancy boundary to open floor plan to service a design heat load capacity of:
    - A. counter service: total of 275 W/m sq. (including lighting and back of house; and
    - B. walk-in: total of 300 W/m sq. (lighting, front of house and back of house).
- (g) The SSJ Contractor must seal the supply points with a weather proof cover designed for a 20-year Design Life.
- (h) The SSJ Contractor must meet the following air extraction requirements in relation to tenancy units:
  - (i) 10 litres per second per person per 10 metres square of area (all areas); and
  - (ii) a single 'high heat' duct run (to roof level or to side wall exhaust point) of 0.5 by 0.5 metres square for kitchen exhaust, with sufficient access room along the run for fire dampers, maintenance and cleaning.
- (i) The installation of the ductwork, dampers, inline fans and weather cowling will be by others. The SSJ Contractor must seal the exhaust points with a weather proof cover designed for a 20-year Design Life.
- (j) The SSJ Contractor must meet the following electrical power requirements in relation to tenancy units:
  - (i) metered power sub board (a minimum of 100 Amp three phase), including:
    - A. 50CB;
    - B. smart meter; and
    - C. supply and installation of 36 pole EDB.
- (k) The SSJ Contractor must provide fire systems (sprinklers, smoke and heat detector) in accordance with the FEB and be capable of an additional 20 percent expansion (to allow tenancy room changes and partitioning).
- (l) The SSJ Contractor must provide emergency lighting and signage to tenancy units.
- (m) The SSJ Contractor must provide general tenancy lighting, including temporary lighting of 40 lux at 0.7 metres above floor level.
- (n) The SSJ Contractor must provide services connections and lines terminating with the tenancy space for:



- (i) 25mm diameter potable water supply, with meter, check valves and backflow protection devices;
  - (ii) 100mm sanitary/sewage connection, including primary stack venting (to roof level or to side wall exhaust point);
  - (iii) 100mm trade waste connection, including primary stack venting (to roof level or to side wall exhaust point); and
  - (iv) telecommunications lines and terminal panels for a minimum of 5 telephone or internet or cash flow/data connections or alarm/security lines.
- (o) The SSJ Contractor must not provide natural gas to tenancy units.
- (p) The SSJ Contractor must provide space for a minimum of two 240 litre mobile garbage bins per tenancy unit.
- (q) The SSJ Contractor must meet the following ceiling requirements in relation to tenancy units:
- (i) minimum clear ceiling zone of 3.5 metres; and
  - (ii) the structural ceiling slab must be cleaned and sealed.
- (r) Other elements to be provided include:
- (i) Toilet access to each tenant;
  - (ii) sewage connection;
  - (iii) grease arrestor with suitable pump out provisions;
  - (iv) all doors and hardware; and
  - (v) high-quality, commercial grade, powder-coated shop-fronts.

## 2.4 Development of retail kiosk solution

- (a) The SSJ Contractor must design a retail kiosk solution at locations and of sizes provided for in the Retail Provisioning Report approved by the Principal.
- (b) The SSJ Contractor must provide the following services to retail kiosks:
- (i) 3 phase from below slab, 63AMP including 50CB and smart meter. Supply and installation of 24 pole EDB;
  - (ii) data and telecoms;
  - (iii) lighting to customer waiting areas;
  - (iv) fire prevention and management systems;
  - (v) garbage management solution;
  - (vi) metered potable water; and
  - (vii) sewage and grease-trap.
- (c) The SSJ Contractor must design the retail kiosk solution such that it:
- (i) integrates with the overall design concept for the Project Works;

- (ii) has a minimum Design Life of ~~40~~20 years;
- (iii) provides adequate weather protection for tenants;
- (iv) can be appropriately secured by the tenants to prevent theft or unauthorised access;
- (v) is resistant to vandalism and graffiti;
- (vi) does not attract birds or other animals to nest; and
- (vii) facilitates passive surveillance of the surrounding area.

## **2.5 Provisions for pop-up / promotional retail**

- (a) The SSJ Contractor must make provision for a pop-up/promotional retail solution at locations and of sizes provided for in the Retail Provisioning Report approved by the Principal.
- (b) The SSJ Contractor must provide the following services to pop-up / promotional retail locations:
  - (i) hard-standing area to accommodate a 3,500kg temporary stand, finished to match the paving of the surrounding plazas;
  - (ii) indicators inlaid into the paving to indicate corners/perimeter of location;
  - (iii) 1 x double GPO, IP67-rated; and
  - (iv) data.
- (c) The services in clause 2.5(b) must be housed by the SSJ Contractor within a subfloor service box that is:
  - (i) finished to match the surrounding fabric;
  - (ii) watertight and weatherproof;
  - (iii) able to be secured when not in use; and
  - (iv) able to withstand the cleaning regime for the surrounding fabric.

## 3 Process

### **3.1 Retail Provisioning Plan**

- (a) ~~Within 30 Business Days after the commencement of the Delivery Phase, the SSJ Contractor must submit its Retail Provisioning Plan for review and approval by the Principal's Representative and Independent Certifier in accordance with the Contract.~~
- (b) ~~The Retail Provisioning Plan must describe how the SSJ Contractor will work with the Principal to deliver the Retail Strategy, including:~~
  - (i) ~~demonstrated appreciation of how the application of the Retail Strategy impacts the Project Works, including approach to addressing the requirements of clause 2.1(a) and clause 2.2; and~~
  - (ii) ~~the identification of, and approach to the management of any inter-relationships between Retail and other customer-facing elements across the Project Works, including the provision of ticketing and customer information, customer circulation space, wayfinding and signage, advertising and public art.~~
- (c) ~~The SSJ Contractor must submit an updated Retail Provisioning Plan for approval by the Principal's Representative and Independent Certifier within 30 Business Days of receiving feedback from the Principal's Representative and Independent Certifier on the initial Retail Provisioning Plan.~~
- (d) ~~An updated Retail Provisioning Plan must be submitted at Design Stage 1, Design Stage 2 and Design Stage 3 for approval by the Principal's Representative and Independent Certifier in accordance with the Contract.~~

### **3.2 Retail capability**

- (a) The SSJ Contractor must have a demonstrated retail capability as a core capability within the team.
- (b) The retail capability is to be in place within 30 Business Days after the commencement of the Delivery Phase.
- (c) Demonstrated capability for the purpose of this appendix is defined as:
  - (i) a minimum of 5 years demonstrated experience in the co-ordination and installation of retail projects;
  - (ii) at least 3 examples from the last 5 years where a retail solution has been successfully integrated in a mixed use project of significant value, including at least one public transport project; and
  - (iii) approved by the Principal's Representative.
- (d) The retail capability is to be used:

- (i) to interface with the Principal's Representative to facilitate all technical interfaces that will ensure the efficient and smooth installation of the agreed retail solution; and
  - (ii) as the responsible entity for the SSJ Contractor to execute the ~~Retail Provisioning Plan~~ obligations identified within [SWTC Appendix B14](#).
- (e) The retail capability must be retained to support the SSJ Contractor's Activities until the date of expiry of the final Defects Correction Period.



# ( Sydney Metro City & Southwest

## **Sydenham Station and Junction Works Contract Schedules**

Schedule C1

( Scope of Works and Technical Criteria  
Appendix C1.0  
Metro Room Schedule

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September</del> <u>5 December</u> 2017
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.0</del> <u>C</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	
<b>FILE NAME</b>	<del>Schedule</del> C1 - <del>SWTC</del> Appendix C1.0 - Metro Room Schedule - <del>v1.0</del> - <u>Revision C</u>		



# Contents

<b>1</b>	<b>Metro Room Schedule</b>	<b>2</b>
	<b>Attachment 1</b>	<b>3</b>



# 1 Metro Room Schedule

- (a) The SSJ Contractor must design and construct all rooms as specified in Attachment 1 Metro Room Schedule.
- (b) The Metro Room Schedule lists rooms relating to Sydney Metro Works. Any rooms associated with Brownfield Works are not listed in the Metro Room Schedule; however the SSJ Contractor must design and construct any rooms required as part of the SSJ Contractor's Activities.
- (c) The dimensions shown on the Metro Room Schedule are minimum dimensions. The rooms shall be sized to accommodate the equipment / furniture within the room, and be fit for its intended purpose. The SSJ Contractor must also include any additional provisions necessary for compliance with the Contract, statutory requirements, Codes and Standards, including BCA requirements, DDA requirements and the SSJ Contractor's Fire Engineering Report.



# Attachment 1



Sydenham Station and Junction - SWTC  
Appendix C1.0 - Metro Station Room Schedule  
Version 1.3 (05/12/2017)

Item Number	Room Number	Asset/Area Function	Room Acronym	Minimum Room Size (m)			Floor Useable Area	Sub Floor	Area Affinity
				W	D	H	Minimum (m2)	Depth Required (m)	
1	101	Platform Screen Door Equipment Room	PER	4	6	3.5	24		Platform
2	102	Signalling and Telecom Equipment Room	STER	23.5	6	3.5	141	0.6	Service Building
3	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Concourse
4	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Concourse
5	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Platform
6	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Platform
7	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Platform
8	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Platform
9	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Platform
10	2C1	Communication Distribution Cupboard	CDB	1.5	1.5	2.1	2.25		Platform
11		ETS Room #1 (Electronic Ticketing System Room)		1.1	1		2		Next to gateline.
12		ETS Room #2 (For station that have second entry)		1.1	1		2		Next to gateline.
13		EDB Room #1 (Electrical distribution board)		1.1	1.05		2		Next to ETS Room.
14		EDB Room #2 (For station that have second entry)		1.1	1.05		2		Next to ETS Room. Final room size to be confirmed by Ticketing and Concessions Department
15	400A, 400B	11kV Padmount Substation (11kV/400V) x 2	STX	11	8.5	2	93.5		Service Building
16	404A	LV Main Switch Room (400V DBs)		4	3	3	12		Platform
17	404B	LV Main Switch Room (400V DBs)		4	3	3	12		Platform
18		Centralised UPS Room		14	6	4	84		Service Building
20	500	Air Cooled Condensing Unit Bay #1		6	2	3	12		Service Building
21	501	Air Cooled Condensing Unit Bay #2		6	2	3	12		Service Building
22	502	Air Cooled Condensing Unit Bay #3		2	3	3	6		Concourse
23	502	Air Cooled Condensing Unit Bay #4		2	3	3	6		Platform
24	502	Air Cooled Condensing Unit Bay #5		2	3	3	6		Platform
25	502	Air Cooled Condensing Unit Bay #6		2	3	3	6		Platform
26	700a	Gas Suppression Equipment Room		3.5	3	3	11		Service Building
27	700b	Gas Suppression Equipment Room		-	-	-			On Platform for PSD Equipment room.
28	701	Fire Brigade Booster		2	1	1.5	2		Precinct
29	704	Fire Indicator Panel (FIP)		2	1	2	2		Inside Station Management Room
30		Fire Indicator Mimic Panel - North Entry		2	1	2	2		Primary Plaza. Near Entrance
31		Fire Indicator Mimic Panel - South Entry		2	1	2	2		Primary Plaza. Near Entrance
32	805	Rainwater reuse filtration and pump room & first flush diversion system		2	3	2.5	6		Adjacent to rain water collection tanks
33	806	Rainwater collection tanks		7.5	2	2	15		Adjacent to rain water pumps. At ground level close to canopy or roof area. Depot tank size to be determined.
34	812	Potable water pump set room		2.5	2.3	2.1	6		To be located near water supply point at boundary edge and Fire Booster point. At street level.
35	813	Water meter & back flow prevention enclosure		2	1	1.5	2		To be located near water supply point 1m from boundary edge and Fire Booster point. At street level.
36	901	Vertical transportation; 18 passenger lifts #1		3.1	3.1			2	Concourse to Platform
37	901	Vertical transportation; 18 passenger lifts #2		3.1	3.1			2	Concourse to Platform
38	901	Vertical transportation; 18 passenger lifts #3		3.1	3.1			2	Concourse to Platform
39	901	Vertical transportation; 18 passenger lifts #4		3.1	3.1			2	Concourse to Platform
40	1000	Scissor Lift Room	SCLR	3	3.5		10		Platform
41	1002C	Staff Locker Room (Female)	LCKF	2	4		8		Platform
42	1002D	Staff Locker Room (Male)	LCKM	2	4		8		Platform
43	1003	Multipurpose room	MPR	4	3		12		Platform
44	1007A	Cleaners Store 1 - Concourse	CLS	4	2.5		10		Platform.
45	1007B	Cleaners Store 2 - Platform	CLS	2	2.5		5		Platform
46	1008A	Station Staff WC (Female)	STFWC	2	3.5	2.4	7		Platform
47	1008B	Station Staff WC (Male)	STFWC	2	3.5	2.4	7		Platform
48	1010	Briefing and Meal Room	BMR	3.3	3	3	10		Platform
49	1011	Refuse Room	RR	4.4	2.5		11		Street / Ground level with direct access to lift

Sydenham Station and Junction - SWTC  
Appendix C1.0 - Metro Station Room Schedule  
Version 1.3 (05/12/2017)

Item Number	Room Number	Asset/Area Function	Room Acronym	Minimum Room Size (m)			Floor Useable Area	Sub Floor	Area Affinity
				W	D	H	Minimum (m2)	Depth Required (m)	
50	1012	Bin Room	BR	2.5	2		5		BOH and accessible to platform and refuse room at ground via lift
51	1016	Station store room	STS	3	5	2.7	15		Platform.
<del>52</del>	<del>1017</del>	<del>Maintenance office</del>	<del>MAO</del>	<del>4</del>	<del>3</del>	<del>2.7</del>	<del>12</del>		<del>(Deleted)</del>
53	1018	Car parking - service building		6	8.6		51.6		Service Building
54	1019	Security door stacker - North Entry					2		Next to gateline
55		Security door stacker - South Entry					2		Next to gateline
56	1023	Station Management Room (Southwest)	SMRSW	6	6		36	0.58	Platform
57	1024	Maintenance and Chemical Store	MCHEMS	4	2.5		10		Platform
58	1102a	Side platform (Up)		170	4.5	4			Platform
59	1102b	Side platform (Down)		170	4.5	4			Platform
60	1108a	Super Standard Male WC		2.14	1.95		4.173		Platform
61	1108b	Super Standard Male WC							(Deleted)
62	1108c	Super Standard Male WC							(Deleted)
63	1108d	Super Standard Female WC		2.14	1.95		4.173		Platform
64	1108e	Super Standard Female WC							(Deleted)
65	1108f	Super Standard Female WC							(Deleted)
66	1108g	Super Standard Unisex WC		2.14	1.95		4.173		Platform
67	1108h	Accessible Public WC		2.8	2.1		5.88		Platform
68	11F1	Poster cases - inward journey planning		6	0.5	2	3		Adjacent to ticket vending machines and within Primary Plaza area - ideally on the left for inward flow.
69	11F2	Poster cases - outward journey planning		3	0.5	2	1.5		At street and within Primary Plaza area - ideally on the left for outward flow.
70	11F3	Ticket vending machines (TVM) - North Entry		1.5	1	1.8	1.5		At gateline and within Primary Plaza area - ideally on the left for inward flow.
71	11F3	Ticket vending machines (TVM) - South Entry		1.5	1	1.8	1.5		At gateline and within Primary Plaza area - ideally on the left for inward flow.
72	11F4	Vending machines - North Entry		1.4	1	1.8	1.4		Paid Station area near gateline
73	11F4	Vending machines - South Entry		1.4	1	1.8	1.4		Paid Station area near gateline
74	11F5	Access and maintenance gates - North Entry		2.4	1.5	1.7			Next to gateline
75	11F5	Access and maintenance gates - South Entry							Next to gateline
76	1200	Group meeting point							Precinct
77	1201	Emergency evacuation assembly area							Precinct
78	12F1	Secured bicycle parking							Primary Plaza
79	12F2	Sheltered bicycle parking hoops							Primary Plaza



# Sydney Metro City & Southwest

## **Sydenham Station and Junction Works Contract Schedules**

Schedule C1

Scope of Works and Technical Criteria

Appendix C1.1

Metro Room Data Sheets

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September</del> <u>11 October</u> 2017
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>4.0B</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	
<b>FILE NAME</b>	<del>Schedule C1 - SWTC</del> Appendix C1.1 - Metro Room Data <del>Sheets_v1.0</del> <u>Sheet - Revision B</u>		





# Contents

<b>1</b>	<b>Metro Room Data Sheets</b>	<b>2</b>
	<b>Attachment 1</b>	<b>3</b>



# 1 Metro Room Data Sheets

- (a) The Metro Room Data Sheets included in Attachment 1 applies to all Metro City & Southwest Stations, not all rooms will be applicable to the SSJ Contractor Activities. The rooms not applicable to the SSJ Contractor Activities have been marked as “for city stations only” on the Metro Room Data Sheets.
- (b) The Room Data Sheets contain minimum requirements and the SSJ Contractor must include additional provisions necessary for compliance with the Contract, statutory requirements, Codes and Standards, including BCA requirements, DDA requirements, and the SSJ Contractor’s Fire Engineering Report.
- (c) Subject to sections 1(d) and 1(e) below, the rooms must comply with the Room Data Sheets.
- (d) Dimensions of the rooms, in plan, must:
  - (i) not be less than any relevant minimum dimensions specified in the Room Data Sheets, except that rooms may be sized to have one side with a dimension which is less than that specified for that side in the Room Data Sheet provided that:
    - A. the total room area is not less than the area determined by multiplication of the minimum room dimensions; and
    - B. can accommodate the equipment / furniture within the room, and be fit for its intended purpose; and
    - C. the SSJ Contractor has obtained Approval from the Principal’s Representative of the room dimensions; and
  - (ii) be sized to accommodate that equipment.
- (e) Copies of the Interface Contractor and Operator’s acceptance of Change to room dimensions, if any, must be submitted to the Principal’s Representative and the Independent Certifier with the relevant Design Documentation.
- (f) For Station Control Room at Sydenham, Group Station Control Room requirements apply. Refer to Room Data Sheets for requirements.
- (g) For rooms listed on the Metro Room Schedule in Appendix C1.0, and not covered in the Metro Room Data Sheets, the SSJ Contractor must design and construct the rooms in accordance with the Contract, statutory requirements, Codes and Standard, including BCA requirements, DDA requirements, and the SSJ Contractor’s Fire Engineering Report.



# Attachment 1



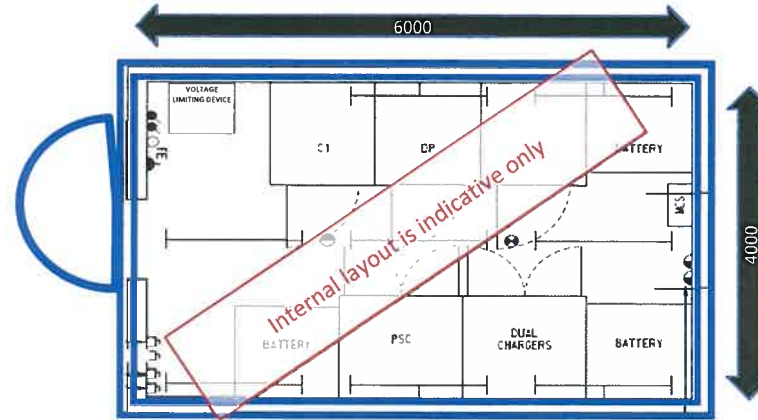
ROOM DATA SHEET	
Abbreviation	Long Form
PSD	Platform Screen Door
PEB	Platform Edge Barrier
STC	Sound Transmission Class
EACS	Electronic Access Control System
RM	Room
Ac/hr	Air Change per hour
IP	Ingress Protection
SSISEP	Sound System and Intercom for Emergency Purposes
MASDS	Multipoint Aspirated Smoke Detection System
DNE	Do Not Enter
TPN	Triple Pole and Neutral
UPS	Uninterruptible Power Supply
CCS	Central Control System
PCS	Power Control System
EVAC	Environment and Air Conditioning
TER	Telecom Equipment Room
CTR	Cable Termination Room

EACS Type	Detail
High	<p><u>DOOR, Ironmongery and accessories to be provided and installed by Civil Contractor</u></p> <ol style="list-style-type: none"> <li>1. Door and ironmongery</li> <li>2. Door Sensor / Reed Switch</li> <li>3. Fail safe electric lock, the latch shall be retracted mechanically by key outside.</li> <li>4. Extend the cable from door sensor / reed switch / electric lock to the Local Control Unit</li> </ol> <p><u>Secure Side - provided and installed by EACS Contractor</u></p> <ol style="list-style-type: none"> <li>1. Local Control Unit - Secure side on high level</li> <li>2. Breakglass release Unit</li> </ol> <p><u>Secure Side - provided and installed by Building Service Contractor</u></p> <ol style="list-style-type: none"> <li>1. 10A Power socket for Local Control Unit</li> </ol> <p><u>Non-secure side - provided and installed by EACS Contractor</u></p> <ol style="list-style-type: none"> <li>1. Pin Keypad</li> <li>2. Card Reader</li> </ol> <p><u>Non-secure side - provided and installed by Building Service</u></p> <ol style="list-style-type: none"> <li>1. Consealed conduit and junction box for pin keypad</li> <li>2. Consealed conduit and junction box for card reader</li> </ol>
Medium	<p><u>DOOR, Ironmongery and accessories to be provided and installed by Civil Contractor</u></p> <ol style="list-style-type: none"> <li>1. Door and ironmongery</li> <li>2. Door Sensor / Reed Switch</li> <li>3. Fail safe electric lock</li> <li>4. Extend the cable from door sensor / reed switch / electric lock to the Local Control Unit</li> </ol> <p><u>Secure Side - provided and installed by EACS Contractor</u></p> <ol style="list-style-type: none"> <li>1. Local Control Unit - Secure side on high level</li> <li>2. Breakglass release Unit</li> </ol> <p><u>Secure Side - provided and installed by Building Service Contractor</u></p> <ol style="list-style-type: none"> <li>1. 10A Power socket for Local Control Unit</li> </ol> <p><u>Non-secure side - provided and installed by EACS Contractor</u></p> <ol style="list-style-type: none"> <li>1. Card Reader</li> </ol> <p><u>Non-secure side - provided and installed by Building Service</u></p> <ol style="list-style-type: none"> <li>1. Consealed conduit and junction box for card reader</li> </ol>
Low	<p><u>DOOR, Ironmongery and accessories to be provided and installed by Civil Contractor</u></p> <ol style="list-style-type: none"> <li>1. Door and ironmongery</li> <li>2. Door Sensor / Reed Switch</li> <li>3. Mechanical lock</li> <li>4. Extend the cable from door sensor / reed switch / electric lock to the Local Control Unit</li> </ol> <p><u>Secure Side - provided and installed by EACS Contractor</u></p> <ol style="list-style-type: none"> <li>1. Local Control Unit - Secure side on high level</li> </ol>

**Room Data Sheet - Platform Screen Door Equipment Room (applies to city and southwest stations)**

<b>General notes:</b>			
<u>Size and Dimension</u>			
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.			
<u>Building services requirements and finishing requirement</u>			
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.			
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.			
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.			
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.			
ROOM NUMBER	103		
ROOM ACRYONYM	PSR		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	To house PSD equipment and critical PSD Spare Parts		
SIZE / DIMENSION (in mm)	Minimum 6000 (w) x 4000 (d) x 3500 (h)		
LOCATION	Platform level. Adjacent to Signalling Equipment Room (city station only).		
CONNECTION	Adjacent to Signalling Equipment Room within 50m.		
<b>MATERIALS &amp; FINISHES</b>		<b>WATER TIGHTNESS*</b>	
FLOOR	Epoxy Floor Coating on Granolithic	N/A	
SKIRTING	Epoxy Floor Coating on Granolithic		
WALL	Epoxy Paint on Fair Faced Concrete or Blockwork	The complete absence of any leakage, seepage and damp patches.	
CEILING	Fair Faced Concrete		
<b>OTHERS</b>			
<b>DOORS &amp; IRONMONGERY</b>			
CLEAR OPENING REQUIRED	2100mm (H) x 1200 mm (W)		
DIRECTION OF SWING	SWING OUT AT 180°		
FIRE RESISTANCE	SAME AS FRP AS THE ENCLOSURE		
AIR RESISTANCE	N/A		
STC RATING	20		
LOCK FUNCTION	EACS		
ACCESSORIES	KICK PLATES		
EACS/SECURITY LEVEL	High		
<b>OTHERS</b>			
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	1.5 m (W) x 2.2m (H)		
<b>RM. NOISE LEVEL</b>			
NR80			
<b>COMMUNICATIONS FACILITIES</b>			
Radio coverage RJ45 socket (digital phone) Qty 1 PABX phones Qty 1			
ECS Ventilation (from Essential Power Supply); min. 8 ac/hr; max room ambient 38°C; 2 duty fans each min 60% of design flow			
LIGHTING	TYPE	1) Fluorescent 2) local switch 3) motion sensor 4) emergency lighting	
	DIFFUSER	..	
	LUX	Essential: 300; Emergency: 10	
	IP	N/A	
FIRE PROTECTION	DETECTION	Smoke Detection/Heat Detection	
	SUPPRESSION	Gas suppression	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	NIL	
	OTHERS	..	
ELECTRICAL/POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
		2	Wall
			SOCKET TYPE
			Twin 30A, 230V
			CONDUIT TYPE
			Exposed
	SPECIFIC EQUIPMENT	Two 80A Isolating Switch (One from essential power supply and the other from centralised UPS) One 20A DP Isolating Switch from essential power supply for voltage limiting device. Two 10A Fused Connection Units from UPS supply for CCS. Two 10A Fused Connection Units from UPS Supply for PCS Earthing terminal One double power point	
<b>PLUMBING &amp; DRAINAGE</b>			
NIL			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
NIL			
<b>TYPE &amp; LOCATION</b>			
NIL			
<b>OTHERS</b>			
NIL			

Typical Layout

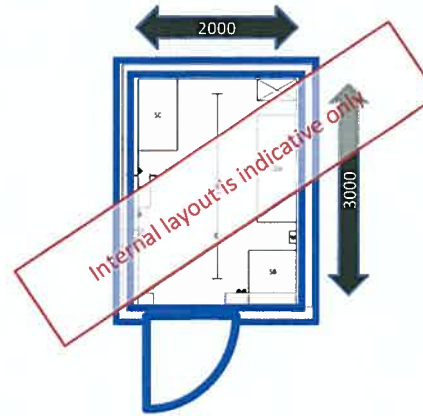




**Room Data Sheet - Cable Termination Room (applies to city stations only)**

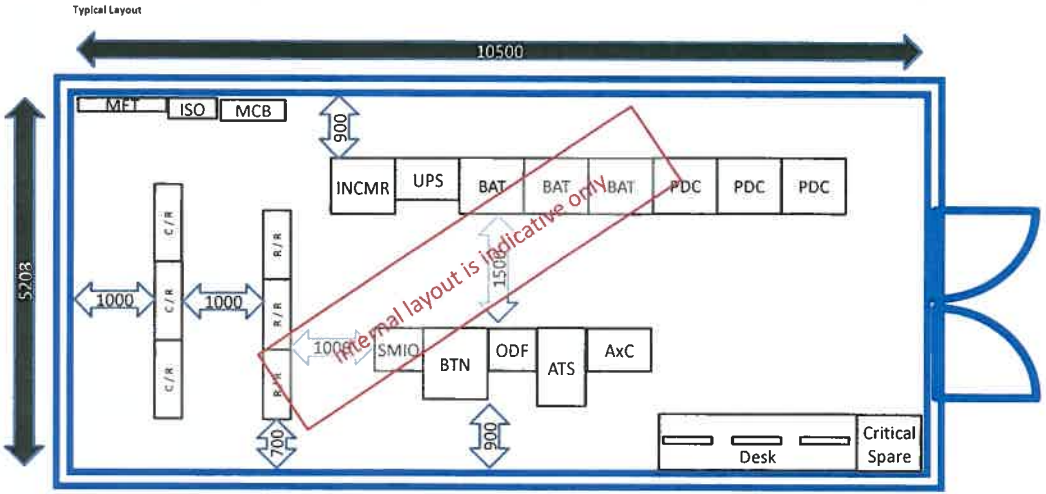
<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	306
ROOM ACRYMNM	CTR
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	Terminate Trackside Trunk Cables and Telecom Equipment
SIZE / DIMENSION (In mm)	To suit equipment sizes. Minimum 2000 (w) x 3000 (d). Height > 3m
LOCATION	Each End of Platform, City End (One of the CTRs be directly under TER)
CONNECTION	Direct to PLATFORM
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Epoxy Floor Coating on Granolithic
SKIRTING	Epoxy Floor Coating on Granolithic
WALL	Epoxy Paint on Fair Faced
CEILING	Wall Sealer Paint on Fair Faced Concrete
<b>OTHERS</b>	
DOORS & IRONMONGERY	
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)
DIRECTION OF SWING	Swing out at 90 degrees
FIRE RESISTANCE	Same FRP as the enclosure
AIR RESISTANCE	N/A
STC RATINGS	>20
LOCK FUNCTION	Latch operable by key outside; inside always free for exit
ACCESSORIES	Kick Plates
EACS/SECURITY LEVEL	Medium
<b>OTHERS</b>	
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	1m (W) x 2m (H)
RM. NOISE LEVEL	NR80
<b>COMMUNICATIONS FACILITIES</b>	
Radio coverage	
Ventilation; Minimum 8ac/hr. Maximum room ambient 40°C.	
2 duty fans each min 50% of design flow	
ECS	
LIGHTING	1) Fluorescent 2) local switch 3) motion sensor 4) emergency lighting
TYPE	
DIFFUSER	--
LUX	Essential: 300; Emergency: 10
IP	N/A
FIRE PROTECTION	Smoke Detection/Heat Detection=1
DETECTION	NIL
SUPPRESSION	Yes
EXTINGUISHER	Yes
SEPARATION	Yes
SMOKE EXTRACT	NIL
<b>OTHERS</b>	
ELECTRICAL/ POWER REQUIREMENTS	
GENERAL SOCKET	NUMBER: 2 LOCATION: WALL SOCKET TYPE: Twin 10A, 230V CONDUIT TYPE: EXPOSED
SPECIFIC EQUIPMENT	- Earthing terminal - one 20A SPN - dedicated room db = 1
PLUMBING & DRAINAGE	No exposed water bearing pipe within the room
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	NIL
OTHERS	NIL
OTHERS	NIL

Typical Layout



**Room Data Sheet - Signalling Equipment Room (applies to city stations only)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	100
ROOM ACRYMNM	SEH
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	HOUSE SIGNALLING AND AUTOMATIC TRAIN CONTROL EQUIPMENT
SIZE / DIMENSION (in mm)	10500 (W) x 5200 (D) x 5200 (H)
LOCATION	Platform end in the city section and close to trackside in southwest
CONNECTION	It cannot be located adjacent, above or below High Voltage Equipment Room. DIRECT TO PLATFORM
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Resilient Tile on Access Floor
SKIRTING	Resilient Skirting
WALL	Epoxy Paint on Fair Faced
CEILING	Wall Sealer Paint on Fair Faced Concrete
OTHERS	The complete absence of any leakage, seepage and damp patches.
<b>DOORS &amp; IRONMONGERY</b>	
CLEAR OPENING REQUIRED	2400mm (H) x 2100mm (W) (nominal door width = 1000mm)
DIRECTION OF SWING	SWING OUT AT 90°
FIRE RESISTANCE	SAME AS FRP AS THE ENCLOSURE
AIR RESISTANCE	N/A
STC RATING	20
LOCK FUNCTION	EACS
ACCESSORIES	DOOR CLOSER; KICK PLATES
EACS/SECURITY LEVEL	High
<b>OTHERS</b>	
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	3 m (W) x 3 m (H)
RM. NOISE LEVEL	NR80 (note 1)
<b>COMMUNICATIONS FACILITIES</b>	
RADIO coverage RJ45 socket (digital phone) Qty 1 PABX phones Qty 1	
ECS	A/C, 25.5 °C, 50% ± 10% RH, Standby A/C, Essential power supply
LIGHTING	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting
	Essential: 320; Emergency: 10
	Lighting Generally in accordance with AS1680 & SPR 17 Lighting to be configured to take into account rack layout
	N/A
FIRE PROTECTION	Smoke Detection / Heat Detection gas suppression Yes SEPARATION Yes SMOKE EXTRACT -- OTHERS --
ELECTRICAL/ POWER REQUIREMENTS	NUMBER LOCATION SOCKET TYPE CONDUIT TYPE 4 (Essential.) WALL Twin 10A, 230V EXPOSED SPECIFIC EQUIPMENT 2 TP&N ISOLATING SWITCHES (EACH FORM DIFFERENT LV ESSENTIAL BUSBAR, RATING IS LOCATION SPECIFIC) EARTHING TERMINAL
PLUMBING & DRAINAGE	No exposed water bearing pipe within this room.
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	NIL
OTHERS	NIL
OTHERS	No movement joint inside the room YELLOW ARROW TO BE PROVIDED ON FLOOR TO INDICATE THE ESCAPE ROUTE IN CASE OF EMERGENCY. Under-floor cable access via raised access floor UPS BATTERY INSTALLED INSIDE THE ROOM. dedicated room db = 1



Item	Description	Size: W * D * H (mm)
AxC	Axle Counter	600 * 600 * 2150
SMIO	Smart I/O	600 * 600 * 2000
R / R	Relay Rack	950 * 330 * 2150
C / R	Cable Rack	1114 * 330 * 2150
ATS	ATS Cabinet	600 * 100 * 2250
BTN / DCS	Network Cabinet	600 * 1000 * 2100
ODF	Optical Distribution Frame	600 * 600 * 2000
Desk	Desk for workstation	800 * 2600 * 770
BAT	Battery Cabinet	600 * 800 * 2000
UPS	UPS Cabinet	600 * 800 * 2000
MFT	Main Earth Terminal	
ISO	Isolator	
LVDB	Low Voltage Distribution Board	
PDC	Power Distribution Cubicle	800 * 800 * 2000
INCMR	Incomer Cabinet	800 * 800 * 2000

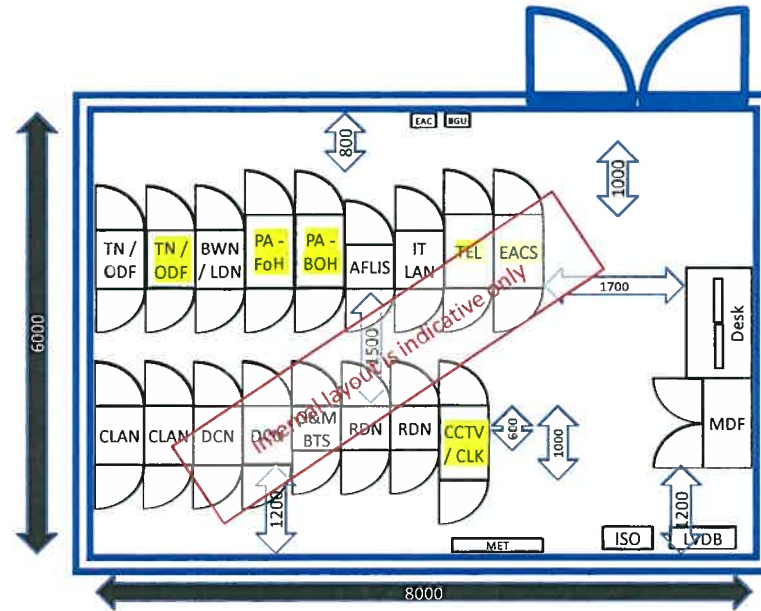
**Room Data Sheet - Telecom Equipment Room (applies to city stations only)**

**General notes:**  
**Size and Dimension**  
 The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**  
 1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.  
 2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.  
 3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.  
 4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	200				
ROOM ACRYOVMN	TER				
FUNCTIONAL REQUIREMENTS	HOUSE TELECOM EQUIPMENT INCLUDING RADIO, COM, EACS, TIDS				
FUNCTION	1) City stations: Min8000 (w) x 6000 (d) x 3000 (h) x 1 TER + Min 5200 (w) x 6000 (d) x 3000 (h) x 1 TER 2) Service Building in Artamon, South & North Dive, 6000(w) * 6000 (d)				
SIZE / DIMENSION (In mm)	PREFERABLY DIRECT ABOVE CABLE TERMINATION ROOM				
LOCATION	DIRECT TO SERVICE COORIDOR				
CONNECTION	WATER TIGHTNESS* N/A				
MATERIALS & FINISHES	Epoxy Floor Coating on Granolithic		Epoxy Floor Coating on Granolithic		
FLOOR	Epoxy Paint on Fair Faced		Concrete or Blockwork		
SKIRTING	The complete absence of any leakage, seepage and damp patches.				
WALL	Wall Sealer Paint on Fair Faced Concrete				
CEILING	OTHERS				
DOORS & IRONMONGERY	CLEAR OPENING REQUIRED 2100mm (H) x 2100mm (W)				
DIRECTION OF SWING	Swing out at 90 degrees				
FIRE RESISTANCE	SAME AS FRP AS THE ENCLOSURE				
AIR RESISTANCE	N/A				
STC RATING	20				
LOCK FUNCTION	EACS				
ACCESSORIES	Kick Plates				
EACS/SECURITY LEVEL	High				
OTHERS	BUILDING SERVICES DELIVERY ROUTE SIZE 1.6 m (W) x 2.5 m (H)				
RM. NOISE LEVEL	NR80				
COMMUNICATIONS FACILITIES	RADIO coverage R45 socket (digital phone) Qty 1 PABX phones Qty 1				
ECS	A/C, 25.5 °C, 50% ± 10% RH, Standby ventilation, Essential power supply				
LIGHTING	TYPE	DIFFUSER			1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting
FIRE PROTECTION	DTECTION	SUPPRESSION			Smoke Detection/Heat Detection gas suppression
ELECTRICAL/POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	SPECIFIC EQUIPMENT	6	WALL	Twin 10A, 230V	EXPOSED
PLUMBING & DRAINAGE	No exposed water bearing pipe within the room				
FIXTURES, EQUIPMENT & LOOSE FURNITURE	TYPE & LOCATION NIL				
OTHERS	NIL				

Typical Layout



Item	Description	Size: W * D * H (mm)
AFLIS	Audio Frequency Induction Loop	600 * 600 * 2200
BWN / LDN	Block Wiring Network / Local Data Network	600 * 800 * 2200
CLAN	CCS Local Area Network	600 * 800 * 2200
CCTV / CLK	Closed Circuit Television / Clock System	600 * 1000 * 2200
DCN	Data Communication Network	600 * 800 * 2200
IT LAN	IT Local Area Network	600 * 800 * 2200
MDF	Main Distribution Frame	1200 * 600 * 2200
D&M	Operation and Maintenance	600 * 600 * 2200
PA	Passenger Announcement (2 nos. one for 100% (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100) (101) (102) (103) (104) (105) (106) (107) (108) (109) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120) (121) (122) (123) (124) (125) (126) (127) (128) (129) (130) (131) (132) (133) (134) (135) (136) (137) (138) (139) (140) (141) (142) (143) (144) (145) (146) (147) (148) (149) (150) (151) (152) (153) (154) (155) (156) (157) (158) (159) (160) (161) (162) (163) (164) (165) (166) (167) (168) (169) (170) (171) (172) (173) (174) (175) (176) (177) 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ISO	Isolator (for 10kV)	800 * 200 * 1000

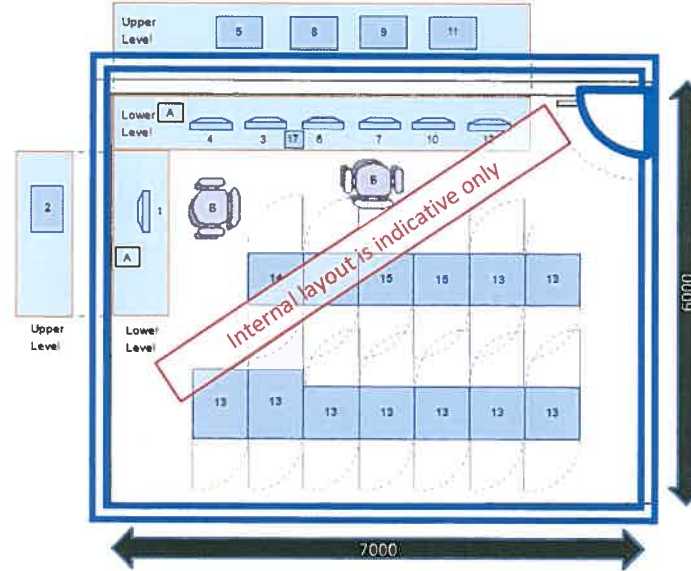


**Room Data Sheet - Station Computer Room (applies to city stations and Campsie)**

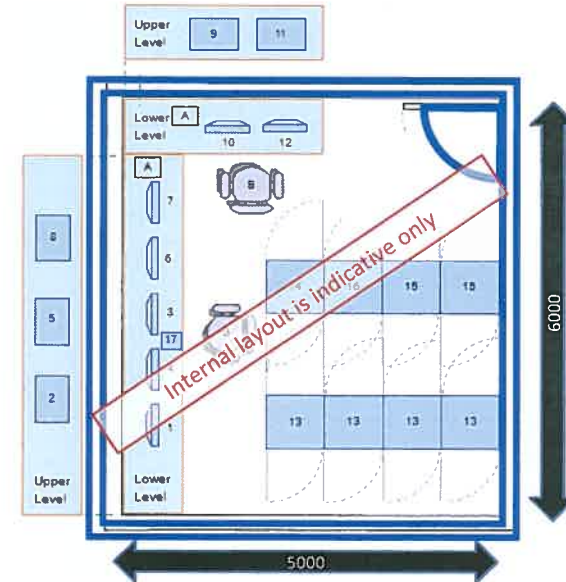
<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	J05
ROOM ACRYMNM	SCRM
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	System equipment computer room for station controls
SIZE / DIMENSION (in mm)	5000 (w) * 6000 (d) / 7000(w) * 6000 (d)
LOCATION	Adjacent to Station Management Room where practicable
CONNECTION	Access through SMR preferred
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Resilient tile on access floor
SKIRTING	Resilient skirting
WALL	Wall Based Paint on Plaster
CEILING	Mineral Fibre Tile
<b>WATER TIGHTNESS*</b>	
The complete absence of any leakage, seepage and damp patches.	
access floor to be 700mm minimum about AFFL of the adjoining concourse/platform floor height of the raised floor shall be 580mm max.	
<b>OTHERS</b>	
DOORS & IRONMONGERY	SET 1
CLEAR OPENING REQUIRED	2100mm(H) x 1050mm(W)
DIRECTION OF SWING	Swing-in at 90 degrees
FIRE RESISTANCE	Same FRP as the adjoining wall
AIR RESISTANCE	N/A
STC RATING	35
LOCK FUNCTION	EACS
ACCESSORIES	Door closer: acoustic seal if necessary;
EACS/SECURITY LEVEL	High
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	1.0m(W) x 2m(H)
RM. NOISE LEVEL	NR80
<b>COMMUNICATIONS FACILITIES</b>	
<b>RADIO coverage</b>	
ECS	A/C, 25.5 °C, 50% ± 10% RH, Standby ventilation, Essential power supply
<b>LIGHTING</b>	
TYPE	FLUORESCENT
DIFFUSER	
LUX	Essential: 300; Emergency: 10
IP	N/A
<b>FIRE PROTECTION</b>	
DETECTION	smoke detector
SUPPRESSION	gas suppression
EXTINGUISHER	Yes
SEPARATION	Yes
SMOKE EXTRACT	
<b>ELECTRICAL/ POWER REQUIREMENTS</b>	
GENERAL SOCKET	NUMBER: 2, LOCATION: WALL, SOCKET TYPE: Twin 10A, 230V, CONDUIT TYPE: Concealed
SPECIFIC EQUIPMENT	Refer to power demand schedule for specific power requirements
Earthing terminal	
<b>PLUMBING &amp; DRAINAGE</b>	
NIL	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
<b>TYPE &amp; LOCATION</b>	
<b>OTHERS</b>	
* Under floor cable access via raised floor	
* Earthing (terminals under the access floor)	

Typical Layout

Typical Station Computer Room (applies to Barangaroo and Campsie Station)



(Typical Station Computer Room (applies to city station except Barangaroo))



**Room Data Sheet - Common Telecom Equipment Room (applies to city stations only)**

**General notes:**

**Size and Dimension**

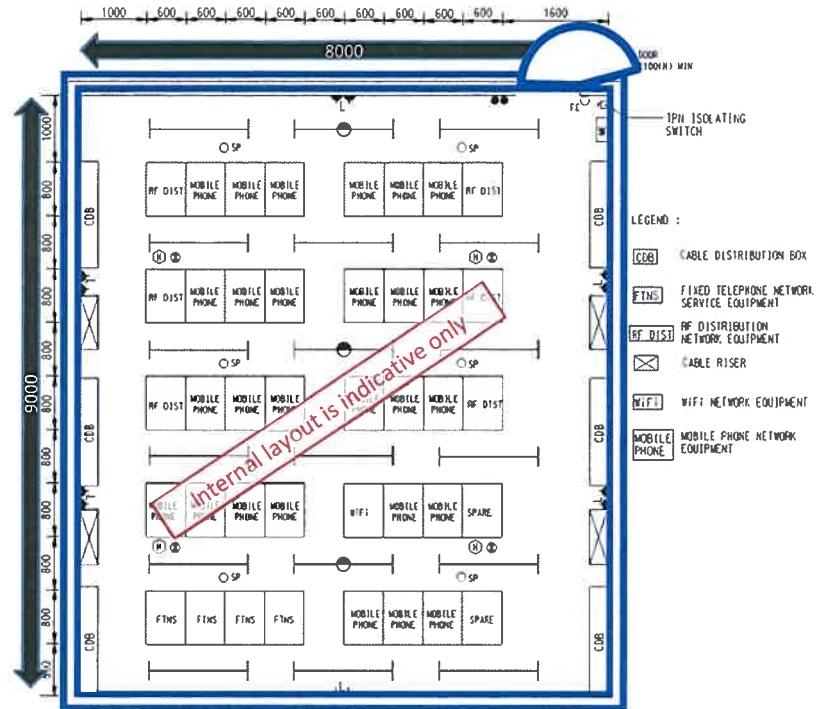
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	303		
ROOM ACRYMNM	CTRB		
FUNCTIONAL REQUIREMENTS	House telecom equipment including Radio		
FUNCTION	8000 (w) * 9000 (d), minimum height 3000		
SIZE / DIMENSION (in mm)	PREFERREDDY DIRECT ABOVE CABLE TERMINATION ROOM		
LOCATION	Direct to service corridor and telecom cable lead-in manhole at ground level is required		
CONNECTION	WATER TIGHTNESS*		
MATERIALS & FINISHES	Epoxy Floor Coating on Granolithic Epoxy Floor Coating on Granolithic Epoxy Paint on Fair Faced Concrete or Blockwork Wall Sealer Paint on Fair Faced Concrete		
FLOOR	N/A		
SKIRTING	The complete absence of any leakage, seepage and damp patches		
WALL			
CEILING			
OTHERS			
DOORS & IRONMONGERY	2100mm (H) x 900mm (W) Swing out at 180 degrees Same FRP as the Adjoining Wall N/A 20 EACS Door closer; kick plates High		
CLEAR OPENING REQUIRED			
DIRECTION OF SWING			
FIRE RESISTANCE			
AIR RESISTANCE			
STC RATING			
LOCK FUNCTION			
ACCESSORIES			
EACS/SECURITY LEVEL			
OTHERS			
BUILDING SERVICES	1.6 m (W) x 2.5 m (H)		
DELIVERY ROUTE SIZE	NR80		
COMMUNICATIONS FACILITIES	RADIO coverage RJ45 socket (digital phone) Qty 1 PABX phones Qty 1		
ECS	A/C, 25.5 °C, 50% ± 10% RH, Standby ventilation, Essential power supply		
LIGHTING	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
	Essential: 320; Emergency: 10		
	N/A		
FIRE PROTECTION	DETECTION smoke detector SUPPRESSION gas suppression EXTINGUISHER Yes SEPARATION Yes SMOKE EXTRACT OTHERS		
ELECTRICAL/POWER REQUIREMENTS	NUMBER	LOCATION	SOCKET TYPE CONDUIT TYPE
	6	WALL	Twin 10A, 230V EXPOSED
	One TPN Isolating switch from essential power supply		
	Earthing terminal		
	Dedicated Room DB = 1		
PLUMBING & DRAINAGE	No exposed water bearing pipe within the room		
FIXTURES, EQUIPMENT & LOOSE FURNITURE			
TYPE & LOCATION	NIL		
OTHERS	NIL		
OTHERS			

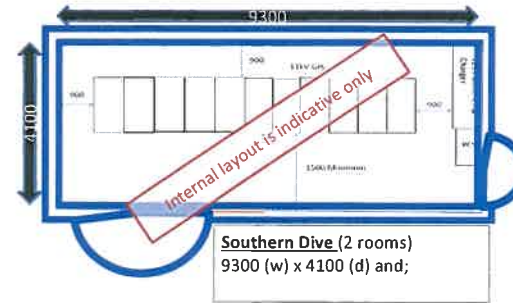
Typical Layout



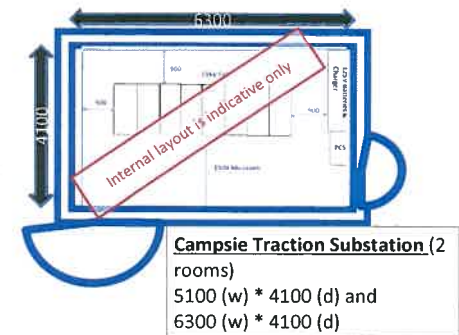
**Room Data Sheet - 11kV Switchgear Room (applies to city and southwest stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
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2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	407
ROOM ACRYOYM	TGR
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	Switching for 11kV Power Supply Network
SIZE / DIMENSION (in mm)	Room Height of 4m
LOCATION	Near to 11kV Transformer Room
CONNECTION	Direct to Service Corridor
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Floor sealer on granolithic
SKIRTING	Floor sealer on granolithic
WALL	Fair faced concrete or blockwork
CEILING	Fair faced concrete
OTHERS	
<b>DOORS &amp; IRONMONGERY</b>	
SET 1	SET 2
CLEAR OPENING REQUIRED	3000mm (H) x 1500mm(W) 2100mm (H) x 900mm (W)
DIRECTION OF SWING	Swing out at 180 degrees Swing out at 180 degrees
FIRE RESISTANCE	Same FRP as the Adjoining Wall Same FRP as the Adjoining Wall
AIR RESISTANCE	N/A N/A
STC RATING	30 30
LOCK FUNCTION	EACS EACS
ACCESSORIES	Door closer; kick plates Door closer; kick plates
EACS/SECURITY LEVEL	Medium Medium
OTHERS	
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	2m (W) x 3m (H)
RM. NOISE LEVEL	NR 80
<b>COMMUNICATIONS FACILITIES</b>	
RADIO coverage R145 socket (digital phone) Qty 2 PABX phones Qty 1 Direct Line Phone Qty 1	
ECS Ventilation system (2 duty fans each with 60% design flow) from essential power supply	
<b>LIGHTING</b>	
TYPE	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting
DIFFUSER	
LUX	Essential: 300; Emergency: 15
IP	N/A
<b>FIRE PROTECTION</b>	
DETECTION	smoke detector
SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level
EXTINGUISHER	Yes
SEPARATION	Yes
SMOKE EXTRACT	
OTHERS	
<b>ELECTRICAL/ POWER REQUIREMENTS</b>	
GENERAL SOCKET	NUMBER LOCATION SOCKET TYPE CONDUIT TYPE
	2 Wall Twin 10A 230V exposed
SPECIFIC EQUIPMENT	Main Earth Terminal One SP&N Wall Mounted (4 Way) MCB Distribution Board complete with 63A Incoming Switch One 63A TPN Switch directly fed from the Essential Busbar of the LV Main Switchboard for Battery Charger 2 x 10A Fused Connection Units from UPS Supply (for PCS)
<b>PLUMBING &amp; DRAINAGE</b>	
Refer to BS Design	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	NIL
OTHERS	NIL
<b>OTHERS</b>	
2.1m (H) Basement for cables Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation Electric Shock labels on the Door and Inside the Room.	

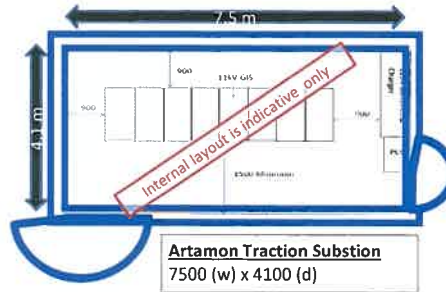
Typical Layout



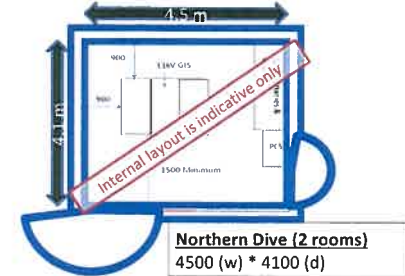
**Southern Dive (2 rooms)**  
9300 (w) x 4100 (d) and;



**Campsie Traction Substation (2 rooms)**  
5100 (w) \* 4100 (d) and  
6300 (w) \* 4100 (d)



**Artamon Traction Substation**  
7500 (w) x 4100 (d)



**Northern Dive (2 rooms)**  
4500 (w) \* 4100 (d)



**Room Data Sheet - 11kV Switchboard & Transformer Room (applies to city stations) / 11kV Padmount Substation**  
(applies to southwest)

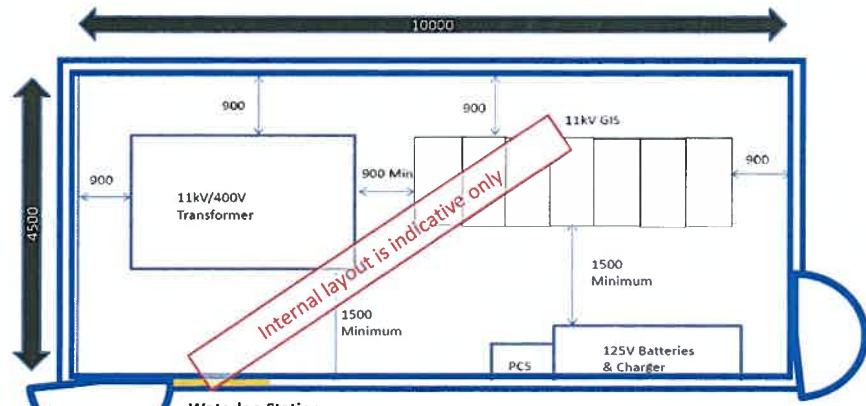
**General notes:**  
**Size and Dimension**  
 The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

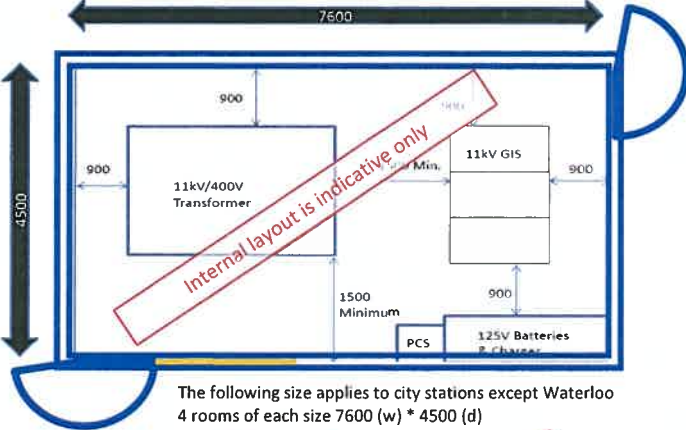
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- The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
- The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
- The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	400		
ROOM ACRYOYM	STK		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	Switching for 11kV Power Supply Network & Transform Voltage from 11kV to 400V		
SIZE / DIMENSION (in mm)	Room Height of 4m		
LOCATION	Preferably Adjacent to LV Switchroom		
CONNECTION	Direct to Service Corridor		
<b>MATERIALS &amp; FINISHES</b>			
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS* N/A	
SKIRTING	Floor sealer on granolithic	The complete absence of any leakage, seepage and damp patches.	
WALL	Fair faced concrete or blockwork		
CEILING	Fair faced concrete		
<b>OTHERS</b>			
DOORS & IRONMONGERY	SET 1	SET 2	
CLEAR OPENING REQUIRED	3000mm (H) x 2500mm (W)	2100mm (H) x 900mm (W)	
DIRECTION OF SWING	Swing out at 180 degrees	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	N/A	
SIC RATING	30	30	
LOCK FUNCTION	EACS	EACS	
ACCESSORIES	Door closer, kick plates	Door closer, kick plates	
EACS/SECURITY LEVEL	Medium	Medium	
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	3m (W) x 3m (H)		
RM. NOISE LEVEL	NRB0		
<b>COMMUNICATIONS FACILITIES</b>			
ECS	Ventilation system (2 duty fans each with 60% design flow) from essential power supply. 1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
LIGHTING	TYPE	DIFFUSER	
	LUX	Essential: 300; Emergency: 15	
	IP	N/A	
FIRE PROTECTION	DETECTION	smoke detector	
	SUPPRESSION	Gas suppression for room located below ground level, Nil for room located at or above ground level	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	-	
	OTHERS	-	
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
	SPECIFIC EQUIPMENT	2	Wall
			SOCKET TYPE
			Twinn 10A, 230V
			CONDUIT TYPE
			Exposed
PLUMBING & DRAINAGE	NIL		
FIXTURES, EQUIPMENT & LOOSE FURNITURE	NIL		
<b>OTHERS</b>			
	2.1m (H) Basement for cables		
	Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation		
	Electric Shock labels on the Door and Inside the Room		

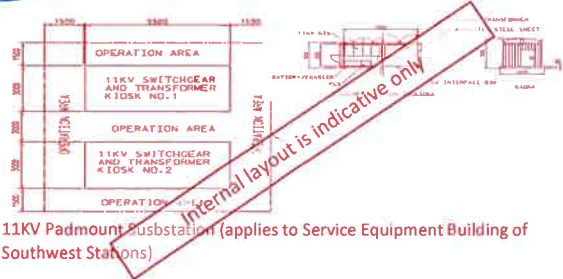
Typical Layout



**Waterloo Station**  
 Three different sizes as per the configuration  
 1 room of each size of 10000 (w) \* 4500 (d)  
 2 rooms of each size of 8200 (w) \* 4500 (d)  
 1 room of each size of 7600 (w) \* 4500 (d)



The following size applies to city stations except Waterloo  
 4 rooms of each size 7600 (w) \* 4500 (d)



11kV Padmount Substation (applies to Service Equipment Building of Southwest Stations)

**Room Data Sheet - 11kV Transformer Room (applies to Northern Dive and Southern Dive)**

**General notes:**

Size and Dimension

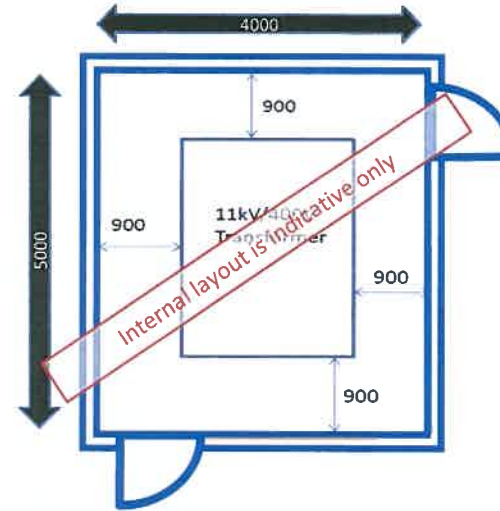
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Building services requirements and finishing requirement

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2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	401			
ROOM ACRYOYM	TRR			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Transform Voltage from 11kV to 400V			
SIZE / DIMENSION (in mm)	4000 (w) * 5000 (d) Room Height of 4m			
LOCATION	Preferably Adjacent to LV Switchroom and HV Switchgear Room			
CONNECTION	Direct to Service Corridor			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS*		
SKIRTING	Floor sealer on granolithic	N/A		
WALL	Fair faced concrete or blockwork	The complete absence of any leakage, seepage and damp patches.		
CEILING	Fair faced concrete			
<b>OTHERS</b>				
DOORS & IRONMONGERY	SET 1	SET 2		
CLEAR OPENING REQUIRED	3000mm (H) x 2500mm (W)	2100mm (H) x 900mm (W)		
DIRECTION OF SWING	Swing out at 180 degrees	Swing out at 180 degrees		
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall		
AIR RESISTANCE	N/A	N/A		
STC RATING	30	30		
LOCK FUNCTION	EACS	EACS		
ACCESSORIES	Door closer; kick plates	Door closer; kick plates		
EACS/SECURITY LEVEL	Medium	Medium		
<b>OTHERS</b>				
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	3m (W) x 3m (H)			
RM. NOISE LEVEL	NR80			
<b>COMMUNICATIONS FACILITIES</b>				
ECS	RADIO coverage R145 socket (digital phone) Qty 2 PABX phones Qty 1 Direct Line Phone Qty 1			
LIGHTING	Ventilation system (2 duty fans each with 60% design flow) from essential power supply			
	TYPE	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
	DIFFUSER	--		
	LUX	Essential: 300; Emergency: 15		
	IP	N/A		
<b>FIRE PROTECTION</b>				
	DETECTION	smoke / heat detection		
	SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	--		
	OTHERS	--		
<b>ELECTRICAL/ POWER REQUIREMENTS</b>				
	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	2	Wall	Twin 10A, 230V
		Main Earth Terminal		
		2 x 10A Fused Connection Units from UPS Supply (for PCS)		
		double power point = 1		
		CONDUIT TYPE		
		Exposed		
<b>PLUMBING &amp; DRAINAGE</b>				
		NIL		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	NIL			
OTHERS	2.1m (H) baseboard for cables Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation Electric Shock labels on the Door and Inside the Room			

Typical Layout



2 rooms required.



**Room Data Sheet - Traction HV Switchgear Room (applies to city and southwest stations / dive / Traction Substation)**

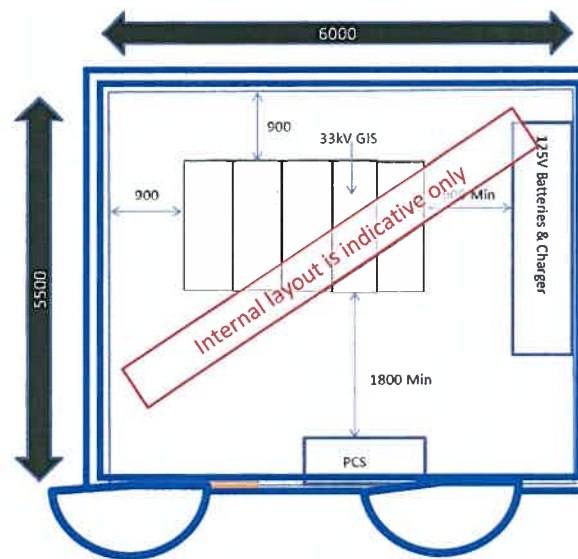
**General notes:**  
**Size and Dimension**  
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**Building services requirements and finishing requirement**

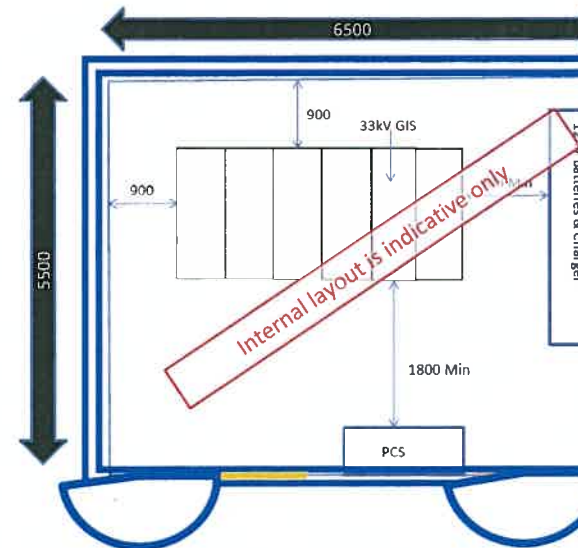
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3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	300		
ROOM ACRYMNM	TSG		
FUNCTIONAL REQUIREMENTS	Switching for 33kV Power Supply Network		
FUNCTION	Room Height of 4m		
SIZE / DIMENSION (In mm)	Near to Rectifier Transformer Room		
LOCATION	Direct to Service Corridor		
CONNECTION	WATER TIGHTNESS*		
MATERIALS & FINISHES	N/A		
FLOOR	Floor sealer on granolithic		
SKIRTING	Floor sealer on granolithic		
WALL	Fair faced concrete or blockwork		
CEILING	Fair faced concrete		
OTHERS	The complete absence of any leakage, seepage and damp patches.		
DOORS & IRONMONGERY	SET 1	SET 2	
CLEAR OPENING REQUIRED	3000mm (H) x 1500mm (W)	2100mm (H) x 900mm (W)	
DIRECTION OF SWING	Swing out at 180 degrees	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	N/A	
STC RATING	30	30	
LOCK FUNCTION	EACS	EACS	
ACCESSORIES	Door closer, kick plates	Door closer, kick plates	
EACS/SECURITY LEVEL	Medium	Medium	
OTHERS	-		
BUILDING SERVICES	-		
DELIVERY ROUTE SIZE	2m (W) x 3m (H)		
RM. NOISE LEVEL	NR 80		
COMMUNICATIONS FACILITIES	RADIO coverage		
ECS	Ventilation system (2 duty fans each with 60% design flow) from essential power supply		
LIGHTING	TYPE	Fluorescent	
	DIFFUSER	-	
	LUX	Essential: 300, Emergency: 15	
	TP	N/A	
FIRE PROTECTION	DETECTION	smoke detector	
	SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	-	
	OTHERS	-	
ELECTRICAL/ POWER REQUIREMENTS	NUMBER	LOCATION	SOCKET TYPE
	2	Wall	Twin 10A, 230V
	CONDUIT TYPE	exposed	
	SPECIFIC EQUIPMENT	Main Earth Terminal One SP&N Wall Mounted (4-Way) MCB Distribution Board complete with 63A Incoming Switch One 63A TPN Switch directly fed from the Essential Busbar of the LV Main Switchboard for Battery Charger 2 x 10A Fused Connection Units from UPS Supply (for PCS)	
PLUMBING & DRAINAGE	NIL		
FIXTURES, EQUIPMENT & LOOSE FURNITURE	NIL		
TYPE & LOCATION	NIL		
OTHERS	NIL		
OTHERS	2.1m (H) basement for cables Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation Electric Shock Labels on the Door and Inside the Room		

Typical Layout



Applies to Victoria Cross, Barangaroo, Pitt Street, Punchbowl TSS, Lakemba TSS, Canterbury TSS, Dulwich Hill TSS ONLY  
 6000 (w) \* 5500 (d)



Applies to Southern Dive

**Room Data Sheet - Bulk Supply Infeed Switchgear Room (applies to infeed Substation)**

**General notes:**

**Size and Dimension**

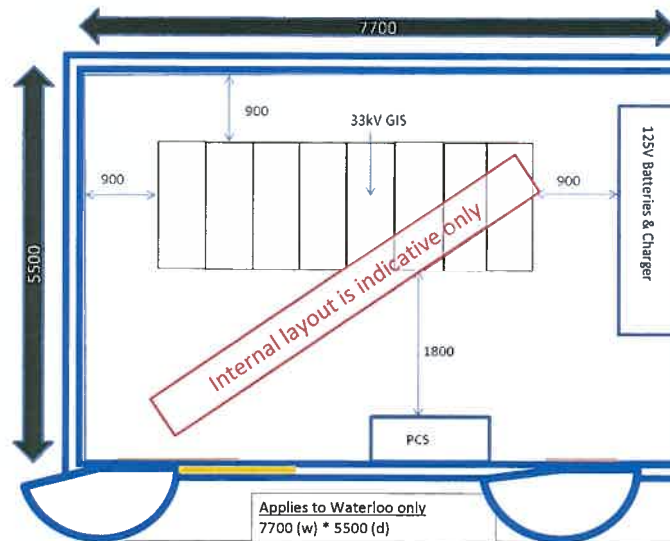
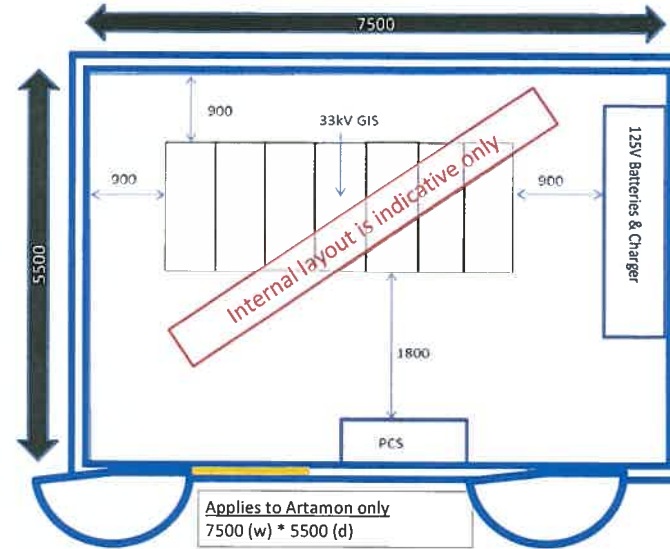
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3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	313			
ROOM ACRYONYM	IRG			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Obtain 33kV Bulk Infeed Supply and Switching for 33kV Power Supply Network			
SIZE / DIMENSION (In mm)	Room Height of 4m			
LOCATION	Near to 33/11kV Transformer Room ; Rectifier Transformer Room in Artamon and Waterloo			
CONNECTION	Direct to Service Corridor			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS*		
SKIRTING	Floor sealer on granolithic	N/A		
WALL	Fair faced concrete or blockwork	The complete absence of any leakage, seepage and damp patches.		
CEILING	Fair faced concrete			
<b>OTHERS</b>				
<b>DOORS &amp; IRONMONGERY</b>				
CLEAR OPENING REQUIRED	SET 1	SET 2		
DIRECTION OF SWING	3000mm (H) x 1500mm(W)	2100mm (H) x 900mm (W)		
FIRE RESISTANCE	Swing out at 180 degrees	Swing out at 180 degrees		
AIR RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall		
STC RATING	N/A	N/A		
LOCK FUNCTION	30	30		
ACCESSORIES	EACS	EACS		
EACS/SECURITY LEVEL	Door closer; kick plates	Door closer; kick plates		
OTHERS	Medium	Medium		
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	2m (W) x 3m (H)			
RM. NOISE LEVEL	NR 80			
<b>COMMUNICATIONS FACILITIES</b>				
RADIO coverage				
ECS	Ventilation system (2 duty fans each with 60% design flow) from essential power supply.			
LIGHTING	TYPE	Fluorescent		
	DIFFUSER			
	LUX	Essential: 300; Emergency: 15		
	IP	N/A		
FIRE PROTECTION	DETECTION	smoke detector		
	SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	-		
	OTHERS	-		
<b>ELECTRICAL/ POWER REQUIREMENTS</b>				
	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	2	Wall	Twin 10A, 230V
		Exposed		
		Main Earth Terminal		
		One SP&N Wall Mounted (4-Way) MCB Distribution Board complete with 63A Incoming Switch		
		One 63A TPN Switch directly fed from the Essential Busbar of the LV Main Switchboard for Battery Charger		
		2 x 10A Fused Connection Units from UPS Supply (for PCS)		
		double 10A power point = 1		
<b>PLUMBING &amp; DRAINAGE</b>				
NIL				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	NIL			
OTHERS	2.1m (H) basement for cables Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation Electric Shock labels on the Door and inside the Room			

Typical Layout

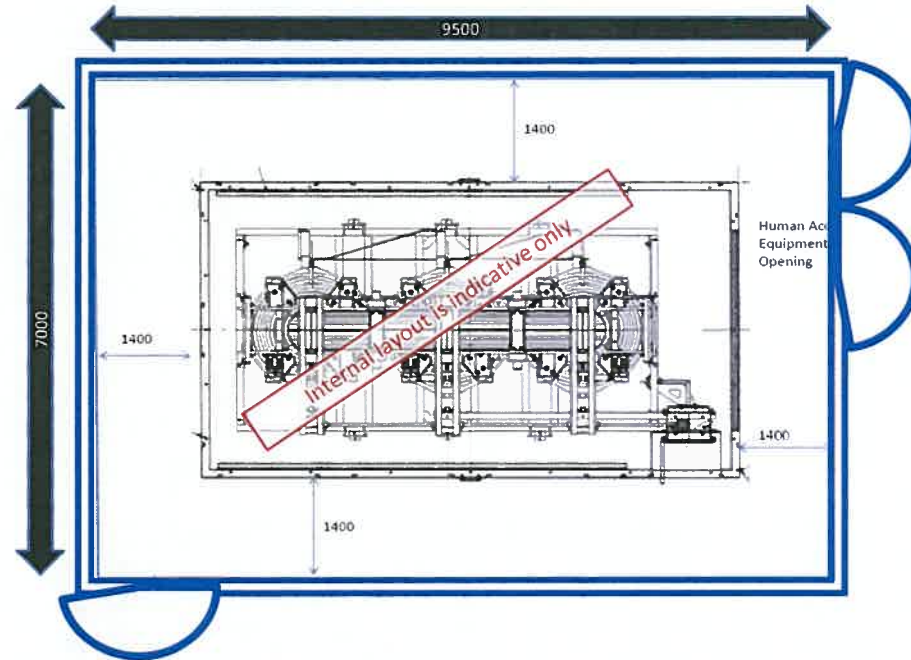


**FOR BULK SUPPLY INFEEED SUBSTATION IN Campsie TSS, the room dimensions are**  
The following sizes apply to Campsie Traction Substation  
7100 (w) \* 5500 (d) and

**Room Data Sheet - 33/11 kV Transformer Room / Bay (applies to city and southwest stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	310
ROOM ACRYMNM	3111TK
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	Transform Voltage from 33kV to 11kV
SIZE / DIMENSION (in mm)	9500 (w) * 7000 (d), Room Height of 6m or Outdoor Bay
LOCATION	Preferably Adjacent to Bulk Supply Infeed Switchgear or HV Traction Switchgear Room
CONNECTION	Direct to Road for equipment delivery
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Floor sealer on granolithic
SKIRTING	Floor sealer on granolithic
WALL	Fair faced concrete or blockwork
CEILING	Fair faced concrete or blockwork or open for outdoor bay
<b>OTHERS</b>	
DOORS & IRONMONGERY	SET 1 SET 2
CLEAR OPENING REQUIRED	4500mm (H) x 4000mm (W) Demountable Wire Mesh or Wall with Louvre for Equipment Delivery
DIRECTION OF SWING	Swing out at 180 degrees
FIRE RESISTANCE	Same FRP as the Adjoining Wall
AIR RESISTANCE	N/A
STC RATINGS	30
LOCK FUNCTION	EACS
ACCESSORIES	Door closer; kick plates
EACS/SECURITY LEVEL	Medium
<b>OTHERS</b>	
BUILDING SERVICES	
DELIVERY ROUTE SIZE	5m (W) x 4.5m (H)
RM. NOISE LEVEL	NR80
<b>COMMUNICATIONS FACILITIES</b>	
ECS	RADIO coverage
LIGHTING	Ventilation system (2 duty fans each with 60% design flow) from essential power supply
TYPE	Fluorescent
DIFFUSER	yes
LUX	Essential: 300; Emergency: 15
IP	Waterproof
FIRE PROTECTION	DETECTION: NIL for outdoor, smoke detector for indoor
SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level
EXTINGUISHER	Yes
SEPARATION	Yes
SMOKE EXTRACT	--
<b>ELECTRICAL/ POWER REQUIREMENTS</b>	
GENERAL SOCKET	NUMBER LOCATION SOCKET TYPE CONDUIT TYPE
SPECIFIC EQUIPMENT	2 Wall Twin 10A (Waterproof), 230V Exposed
- Main Earth Terminal	
- One SP&N Wall Mounted Waterproof (4 Way) MCB Distribution Board complete with 63A Incoming Switch	
- One Waterproof 32A TPN Switch	
<b>PLUMBING &amp; DRAINAGE</b>	
floor drains	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	NIL
OTHERS	NIL
<b>OTHERS</b>	
- 2.1m (H) basement for cables	
- Provision of haulage lugs and plinths	
- Demountable wiremesh or wall with louvre	
- Position and loading of l-bolts attached to the ceilings (if provided) to be confirmed by the LWC Contractor	
- Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation	
- Electric Shock labels on the Door and Inside the Room	

Typical Layout



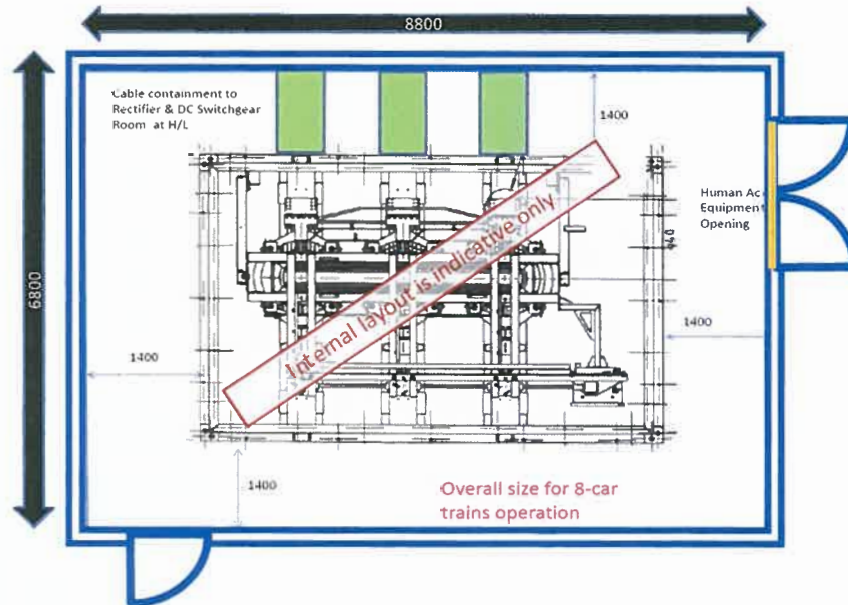
ONE 33/11KV TRANSFORMER ROOM IS REQUIRED AT ARTARMON, WATERLOO and CAMPSIE TSS



**Room Data Sheet - Rectifier Transformer Room / Bay (applies to city and southwest stations)**

<b>General notes:</b>				
<b>Size and Dimension</b>				
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.				
<b>Building services requirements and finishing requirement</b>				
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.				
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.				
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.				
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.				
ROOM NUMBER	301			
ROOM ACRYMM	RTK			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Transform Voltage from 33kV to a level suitable for input to Rectifier			
SIZE / DIMENSION (in mm)	8.8m (L) x 6.8m (W), Room height of 5.5m or Outdoor Bay			
LOCATION	Adjacent to Rectifier & DC Switchgear Room			
CONNECTION	Direct to Road for equipment delivery			
<b>MATERIALS &amp; FINISHES</b>		<b>WATER TIGHTNESS*</b>		
FLOOR	Floor sealer on granolithic	N/A		
SKIRTING	Floor sealer on granolithic	The complete absence of any leakage, seepage and damp patches.		
WALL	Fair faced concrete or blockwork			
CEILING	Fair faced concrete or blockwork or open for outdoor bay			
<b>OTHERS</b>				
DOORS & IRONMONGERY	SET 1	SET 2		
CLEAR OPENING REQUIRED	4000mm (H) x 4000mm (W) Demountable Wire Mesh or Wall with Louvre for Equipment Delivery	2100mm (H) x 900mm (W)		
DIRECTION OF SWING	Swing out at 180 degrees	Swing out at 180 degrees		
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall		
AIR RESISTANCE	N/A	N/A		
STC RATING	30	30		
LOCK FUNCTION	EACS	EACS		
ACCESSORIES	Door closer; kick plates	Door closer; kick plates		
EACS/SECURITY LEVEL	Medium	Medium		
<b>OTHERS</b>				
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	5m (W) x 4m (H)			
RM. NOISE LEVEL	NR80			
<b>COMMUNICATIONS FACILITIES</b>				
ECS	RADIO coverage Ventilation system (2 duty fans each with 60% design flow) from essential power supply if room provided.			
LIGHTING	TYPE	Fluorescent		
	DIFFUSER	Yes		
	LUX	Essential: 300; Emergency: 15		
	IP	Waterproof		
FIRE PROTECTION	DETECTION	NIL for outdoor, smoke detector for indoor		
	SUPPRESSION	Gas suppresion for room located below ground level, NIL for room located at or above ground level		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT			
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
		2	Wall	Twin 10A (Waterproof), 230V
	SPECIFIC EQUIPMENT	Main Earth Terminal One SP&N Wall Mounted Waterproof (4-Way) MCB Distribution Board complete with 63A Incoming Switch One Waterproof 32A TPN Switch		
<b>PLUMBING &amp; DRAINAGE</b>				
floor drains				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	NIL			
OTHERS	2.1m (H) basement for cables Provision of haulage lugs and plinths Demountable wiremesh or wall with louvre Position and loading of l-bolts attached to the ceilings (if provided) to be confirmed by the LWC Contractor Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation Electric Shock labels on the Door and inside the Room			

Typical Layout

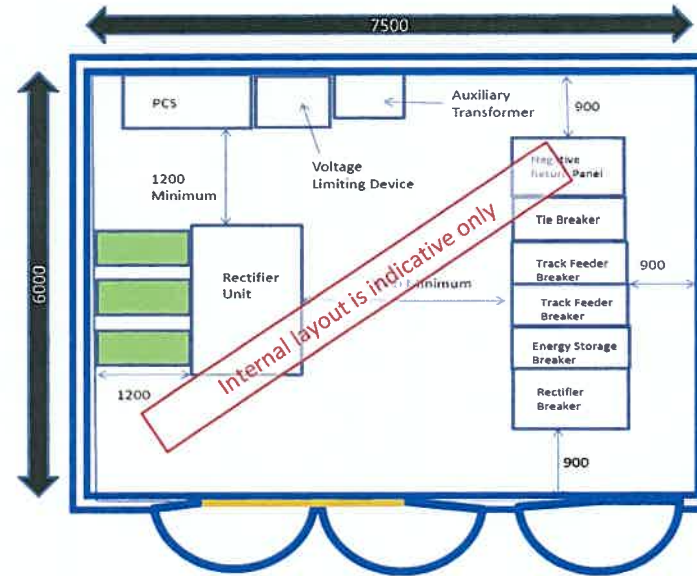


TWO RECTIFIER TRANSFORMER ROOMS ARE REQUIRED AT ARTARMON, VICTORIA CROSS, BARANGAROO, PITT STREET, WATERLOO, SOUTHERN DIVE, Punchbowl TSS, Lakemba TSS, Canterbury TSS, Campsie TSS and Dulwich Hill TSS

**Room Data Sheet - Rectifier and DC Switchgear Room (applies to city and southwest stations)**

<b>General notes:</b>			
<b>Size and Dimension</b>			
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.			
<b>Building services requirements and finishing requirement</b>			
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.			
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.			
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.			
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.			
ROOM NUMBER	305		
ROOM ACRYOVMN	BSG		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	Rectifier AC Power Supply to DC Power Supply and Switching for 1500V DC Traction Power Supply		
SIZE / DIMENSION (in mm)	7500 (w) * 6000 (d), Room Height of 4m		
LOCATION	Near to Rectifier Transformer Room		
CONNECTION	Direct to Service Corridor		
<b>MATERIALS &amp; FINISHES</b>			
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS*	
SKIRTING	Floor sealer on granolithic	N/A	
WALL	Fair faced concrete or blockwork	The complete absence of any leakage, seepage and damp patches.	
CEILING	Fair faced concrete		
<b>OTHERS</b>			
DOORS & IRONMONGERY	SET 1	SET 2	
CLEAR OPENING REQUIRED	3000mm (H) x 2500mm(W)	2100mm (H) x 900mm (W)	
DIRECTION OF SWING	Swing out at 180degrees	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	N/A	
STC RATING	30	30	
LOCK FUNCTION	EACS	EACS	
ACCESSORIES	Door closer, kick plates	Door closer, kick plates	
EACS/SECURITY LEVEL	Medium	Medium	
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	2.5m (W) x 3m (H)		
RM. NOISE LEVEL	NR 80		
<b>COMMUNICATIONS FACILITIES</b>			
ECS	RADIO coverage		
LIGHTING	Ventilation system (2 duty fans each with 60% design flow) from essential power supply.		
	TYPE	Fluorescent	
	DIFFUSER	---	
	LUX	Essential: 300; Emergency: 15	
	IP	Refer to local requirement // Fire and life safety strategy	
FIRE PROTECTION	DETECTION	Smoke Detector	
	SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	---	
	OTHERS	---	
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
		2	Wall
	SOCKET TYPE	Twin 10A, 230V	
	CONDUIT TYPE	exposed	
	SPECIFIC EQUIPMENT	Main Earth Terminal One SP&N Wall Mounted (6-Way) MCB Distribution Board complete with 63A Incoming Switch 2 x 10A Fused Connection Units from UPS Supply (for PCS)	
<b>PLUMBING &amp; DRAINAGE</b>			
NIL			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
NIL			
<b>OTHERS</b>			
2.1 m (H) Basement for cables Emergency Push Button shall be located away from the Lighting Switches and Door Frame to avoid Inadvertent Operation Electric Shock labels on the Door and inside the Room			

Typical Layout



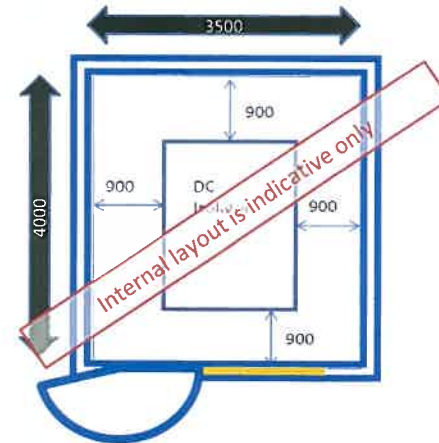
Victoria Cross, Barangaroo, Pitt Street, Waterloo, Artamon, Punchbowl TSS, Lakemba TSS, Canterbury TSS, Campsie TSS and Dulwich Hill TSS ONLY.  
7500 (w) \* 6000 (d)

Southern Dive (two rooms)  
7500 (w) \* 6000 (d);

**Room Data Sheet - DC Isolating Links Room (applies to city and southwest stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	RD6
ROOM ACRYM	DCIL
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	For O&H Sectioning
SIZE / DIMENSION (in mm)	3500 (w) * 4000 (d) Room Height of 4m
LOCATION	At Each End of Platform Level (Near Rectifier & DC Switchgear Room)
CONNECTION	Direct to service corridor
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Floor sealer on granolithic
SKIRTING	Floor sealer on granolithic
WALL	Fair faced concrete or blockwork
CEILING	Fair faced concrete
OTHERS	
DOORS & IRONMONGERY	SET 1
CLEAR OPENING REQUIRED	3000mm (H) x 2000mm (W)
DIRECTION OF SWING	Swing out at 180 degrees
FIRE RESISTANCE	Same FRP as the Adjoining Wall
AIR RESISTANCE	N/A
STC RATING	30
LOCK FUNCTION	EACS
ACCESSORIES	Door closer; kick plates
EACS/SECURITY LEVEL	Medium
OTHERS	
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	1.5m (W) x 3m (H)
RM NOISE LEVEL	NR 80
<b>COMMUNICATIONS FACILITIES</b>	
ECS	RADIO coverage
LIGHTING	Ventilation system (2 duty fans each with 60% design flow) from essential power supply.
	Fluorescent
	DIFFUSER
	LUX
	Essential: 300; Emergency: 15
	IP
	N/A
<b>FIRE PROTECTION</b>	
	DETECTION
	smoke detector
	SUPPRESSION
	Gas suppression for room located below ground level, NIL for room located at or above ground level
	EXTINGUISHER
	Yes
	SEPARATION
	Yes
	SMOKE EXTRACT
	OTHERS
<b>ELECTRICAL/ POWER REQUIREMENTS</b>	
	GENERAL SOCKET
	2
	LOCATION
	Wall
	SOCKET TYPE
	Twin 10A, 230V
	CONDUIT TYPE
	Exposed
	SPECIFIC EQUIPMENT
	- Main Earth Terminal
	- One 20A Double Pole Isolating Switch from Essential Power Supply
	- 2 x 10A Fused Connection Units from UPS Supply (for PCS)
<b>PLUMBING &amp; DRAINAGE</b>	
	NIL
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	NIL
OTHERS	NIL
OTHERS	2.1m (H) cable basement or under platform void for cables. Electric Shock labels on the Door and inside the Room

Typical Layout



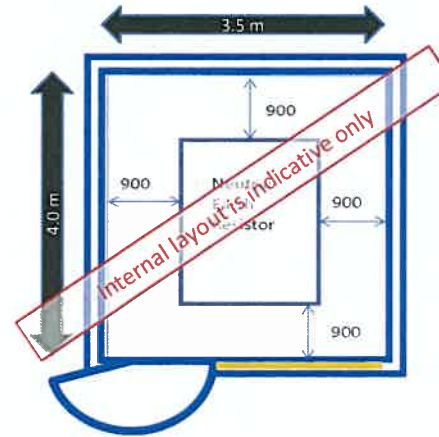
3500 (w) \* 4000 (d) - applies to city stations;  
 4000 (w) \* 4000 (d) - applies to Artamon, Punchbowl TSS, Lakemba TSS, Canterbury TSS, Dulwich Hill TSS and Campsie TSS  
 7500 (w) \* 4000 (d) - applies to Southern dive



**Room Data Sheet - Neutral Earth Resistor Room (applies to city and southwest stations)**

<b>General notes:</b>				
<b>Size and Dimension</b>				
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.				
<b>Building services requirements and finishing requirement</b>				
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.				
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.				
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.				
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.				
ROOM NUMBER	317			
ROOM ACRYOYMN	NER			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Earthing of Neutral of 33/11kV Transformer Through A Resistor			
SIZE / DIMENSION (In mm)	4m (L) x 3.5m (W), Room Height of 4m			
LOCATION	Adjacent to 33/11kV Transformer Room			
CONNECTION	Direct to Service Corridor			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic			
SKIRTING	Floor sealer on granolithic			
WALL	Fair faced concrete or blockwork			
CEILING	Fair faced concrete			
OTHERS				
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	3000mm (H) x 2000mm (W)			
DIRECTION OF SWING	Swing out at 180 degrees			
FIRE RESISTANCE	Same FRP as the Adjoining Wall			
AIR RESISTANCE	N/A			
STC RATING	30			
LOCK FUNCTION	EACS			
ACCESSORIES	Door closer; kick plates			
EACS/SECURITY LEVEL	Medium			
OTHERS				
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	2m (W) x 3m (H)			
RM. NOISE LEVEL	NR80			
<b>COMMUNICATIONS FACILITIES</b>				
ECS	RADIO coverage			
VENTILATION	Ventilation system (2 duty fans each with 60% design flow) from essential power supply.			
LIGHTING	Fluorescent			
	DIFFUSER			
	LUX			
	Essential: 300; Emergency: 15			
	IP			
	N/A			
FIRE PROTECTION	DETECTION			
	smoke detector			
	SUPPRESSION			
	Gas suppression for room located below ground level, NIL for room located at or above ground level			
	EXTINGUISHER			
	Yes			
	SEPARATION			
	Yes			
	SMOKE EXTRACT			
	--			
	OTHERS			
	--			
ELECTRICAL/ POWER REQUIREMENTS	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	2	Wall	Twin 10A, 230V	Exposed
	SPECIFIC EQUIPMENT - Main Earth Terminal			
PLUMBING & DRAINAGE	Nil			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	NIL			
OTHERS	Electric Shock labels on the Door and inside the Room			

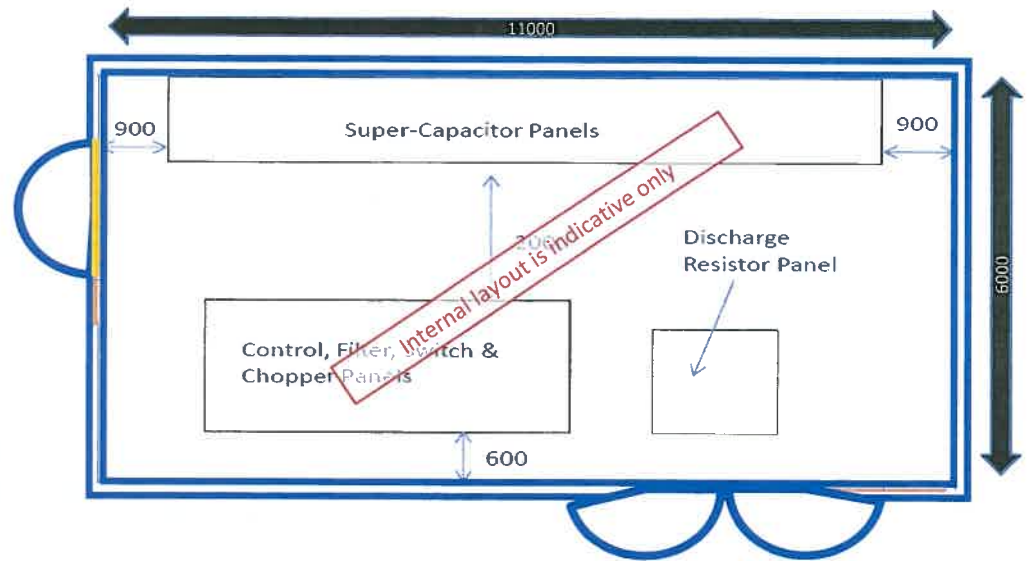
Typical Layout



**Room Data Sheet - DC Energy Storage Equipment Room (applies to city and southwest stations)**

<b>General notes:</b>			
<b>Size and Dimension</b>			
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.			
<b>Building services requirements and finishing requirement</b>			
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.			
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.			
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.			
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.			
ROOM NUMBER	307		
ROOM ACRYOYM	DCES		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	Storage of Regenerative Braking Energy from Rolling Stock and Deliver Power for Rolling Stock Running		
SIZE / DIMENSION (in mm)	11000 (w) * 6000 (d), Room Height of 4m		
LOCATION	Near to Rectifier and DC Switchgear Room		
CONNECTION	Direct to Service Corridor		
<b>MATERIALS &amp; FINISHES</b>			
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS*	
SKIRTING	Floor sealer on granolithic	N/A	
WALL	Fair faced concrete or blockwork	The complete absence of any leakage, seepage and damp patches.	
CEILING	Fair faced concrete		
<b>OTHERS</b>			
DOORS & IRONMONGERY	SET 1	SET 2	
CLEAR OPENING REQUIRED	3000mm (H) x 2500mm (W)	2100mm (H) x 900mm (W)	
DIRECTION OF SWING	Swing out at 180 degrees	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	N/A	
STC RATING	30	30	
LOCK FUNCTION	EACS	EACS	
ACCESSORIES	Door closer; kick plates	Door closer; kick plates	
EACS/SECURITY LEVEL	Medium	Medium	
<b>OTHERS</b>			
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	2.5m (W) x 3.0m (H)		
RM. NOISE LEVEL	NR 80		
<b>COMMUNICATIONS FACILITIES</b>			
ECS	RADIO coverage		
LIGHTING	Ventilation system (2 duty fans each with 60% design flow) from essential power supply.		
	TYPE	Fluorescent	
	DIFFUSER		
	LUX	Essential: 300; Emergency: 15	
	IP	N/A	
<b>FIRE PROTECTION</b>			
	DETECTION	smoke detector	
	SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT		
<b>OTHERS</b>			
<b>ELECTRICAL/ POWER REQUIREMENTS</b>			
	GENERAL SOCKET	NUMBER	LOCATION
	SPECIFIC EQUIPMENT	2	Wall
		SOCKET TYPE	CONDUIT TYPE
		Twins 10A, 230V	Exposed
		- Main Earth Terminal	
		- One SP&N Wall Mounted (4-Way) MCB Distribution Board complete with 63A Incoming Switch	
		- 2 x 10A Fused Connection Units from UPS Supply (for PCS)	
<b>PLUMBING &amp; DRAINAGE</b>			
NIL			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
TYPE & LOCATION	NIL		
<b>OTHERS</b>			
	2.1m (H) cable basement or cable trenches for cables.		
	Electric Shock labels on the Door and Inside the Room		

Typical Layout





**Room Data Sheet - 33KV HV Harmonics Filter Room / 11KV HV Harmonics Filter Room (applies to city and southwest stations)**

**General notes:**

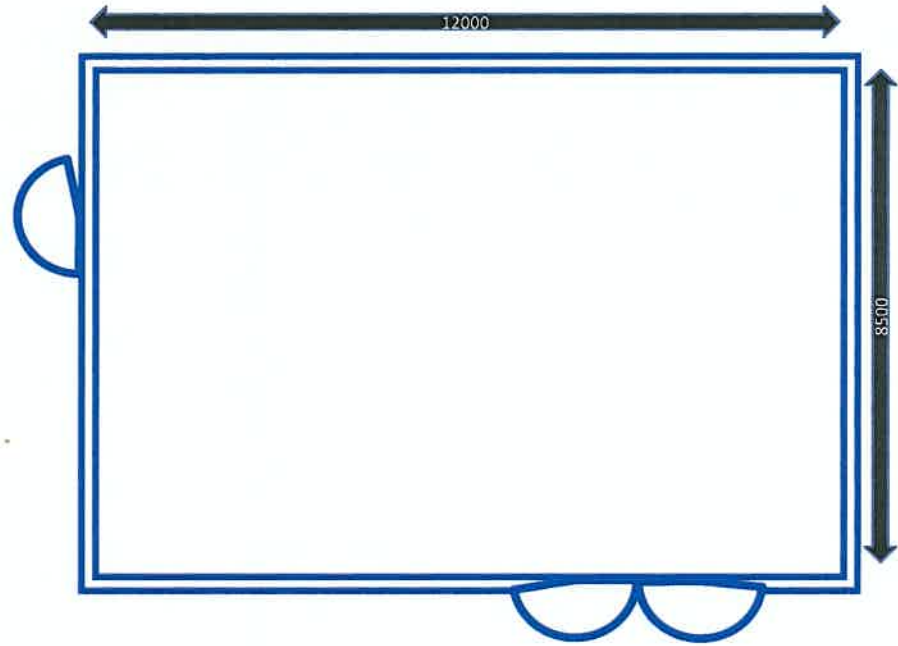
**Size and Dimension**

The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	311		
ROOM ACRYOYM	H#		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	Filtering of Excessive Harmonics in HV Power Supply Network at Bulk Supply Infeed Substation		
SIZE / DIMENSION (in mm)	12000 (w) * 8500 (d). Room Height of 6m or Outdoor Bay		
LOCATION	Near to Bulk Supply Infeed Switchgear Room In Artarmon and Waterloo		
CONNECTION	Direct to Road or Service Corridor		
<b>MATERIALS &amp; FINISHES</b>			
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS*	
SKIRTING	Floor sealer on granolithic	N/A	
WALL	Fair faced concrete or blockwork	The complete absence of any leakage, seepage and damp patches.	
CEILING	Fair faced concrete		
<b>OTHERS</b>			
DOORS & IRONMONGERY	SET 1	SET 2	
DOOR TYPE	Gate for Wire Mesh for outdoor bay or Type 10A for indoor room	Gate for Wire Mesh for outdoor bay or Type 5 for indoor room	
CLEAR OPENING REQUIRED	4000mm (H) x 4000mm (W) Demountable Wire Mesh or Wall with Louvre for Equipment Delivery	2100mm (H) x 900mm (W)	
DIRECTION OF SWING	Swing out at 180 degrees	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	N/A	
STC RATING	30	30	
LOCK FUNCTION	EACS	EACS	
ACCESSORIES	Door closer; kick plates	Door closer; kick plates	
EACS/SECURITY LEVEL	Medium	Medium	
<b>OTHERS</b>			
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	4m (W) x 4m (H)		
RM. NOISE LEVEL	NR 80		
<b>COMMUNICATIONS FACILITIES</b>			
ECS	RADIO coverage		
LIGHTING	Ventilation system (2 duty fans each with 60% design flow) from essential power supply.		
	TYPE	Fluorescent	
	DIFFUSER		
	LUX	Essential: 300; Emergency: 15	
	TP	N/A	
FIRE PROTECTION	DETECTION	NIL for outdoor, smoke detector for indoor	
	SUPPRESSION	Gas suppression for room located below ground level, NIL for room located at or above ground level	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT		
	OTHERS		
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
		2	Wall
	SPECIFIC EQUIPMENT	SOCKET TYPE	CONDUIT TYPE
	Main Earth Terminal	Twins 10A, 230V	Exposed
	One SP&N Wall Mounted (4-Way) MCB Distribution Board complete with 63A Incoming Switch		
	2 x 10A Fused Connection Units from UPS Supply (for PCS)		
PLUMBING & DRAINAGE	NIL		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
TYPE & LOCATION	NIL		
OTHERS	NIL		
OTHERS	2.1m (H) basement for cables.		
OTHERS	Electric Shock labels on the Door and inside the Room.		



**Room Data Sheet - Tunnel Ventilation Fan Room (applies to city stations)**

**General notes:**

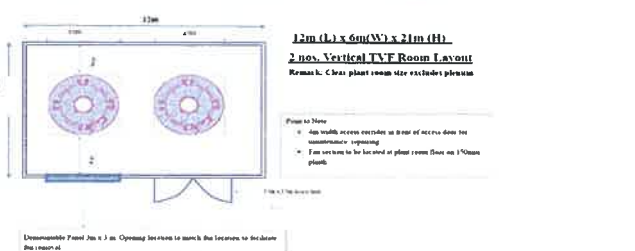
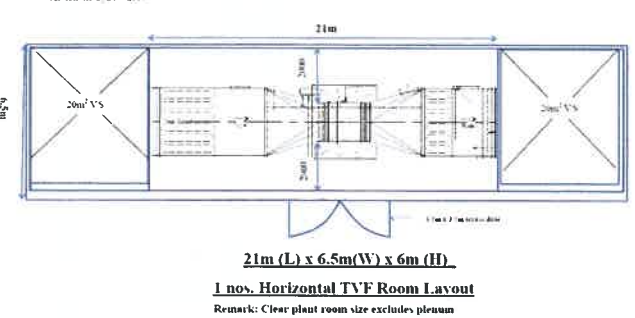
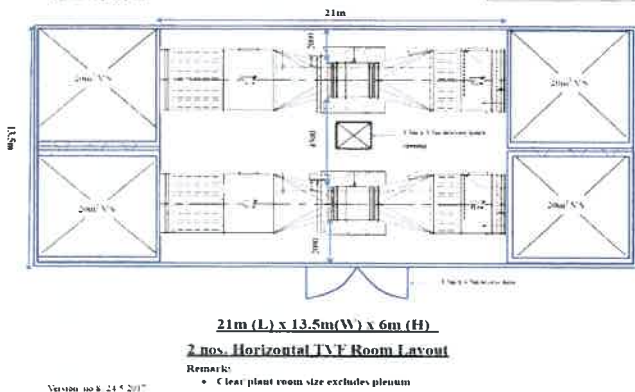
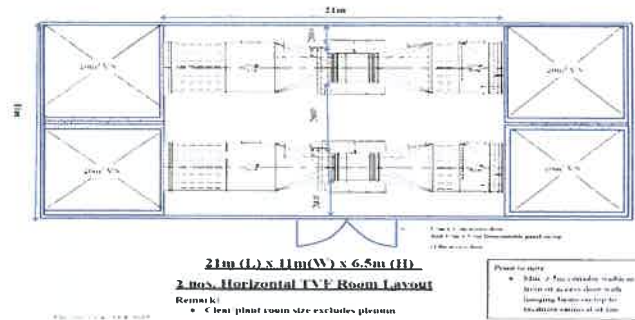
**Size and Dimension**

The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	1802			
ROOM ACRYONYM	TVF			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Plant room to house TVF plant			
SIZE / DIMENSION (in mm)	as opposite			
LOCATION	Close to tunnels			
CONNECTION	Direct to service corridor and track			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic	<b>WATER TIGHTNESS*</b>		
SKIRTING	Floor sealer on granolithic			
WALL	Fair faced concrete or blockwork			
CEILING	Fair faced concrete			
OTHERS	..			
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	As shown on plans			
DIRECTION OF SWING	Swing out at 180 degrees			
FIRE RESISTANCE	Same FRP as the Adjoining Wall			
AIR RESISTANCE	N/A			
STC RATING	30			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer; kick plates			
CAC/SECURITY LEVEL	Medium			
OTHERS	..			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	As shown on plans or at least 3.5m (W) x 3.5m (H)			
RM. NOISE LEVEL	To meet local requirement			
<b>COMMUNICATIONS FACILITIES</b>				
ECG	Not required unless there is local requirement for ventilation provision			
LIGHTING	TYPE	Fluorescent		
	DIFUSER	yes		
FIRE PROTECTION	LUX	300 Lux (control), 160 Lux (General), 10 Lux (emergency)		
	IP	weatherproof IP54		
	DETECTION	Refer to local requirement / fire and life safety strategy or with the minimum: smoke / heat detection + 1 audible alarm + 1		
ELECTRICAL/ POWER REQUIREMENTS	SUPPRESSION	sprinkler subject to FSI strategy		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	..		
PLUMBING & DRAINAGE	OTHERS	..		
	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	2	Wall	Twins 10A, 230V
	CONDUIT TYPE	Exposed		
Need to provide floor drain if sprinkler is required by Fire & Life Safety Strategy				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	NIL			
OTHERS	<ul style="list-style-type: none"> <li>- Plinth as required and advised by the Designer.</li> <li>- Lifting hook to be provided.</li> <li>- Yellow arrow to be provided.</li> <li>- Cat ladder to be provided inside vent shaft.</li> <li>- Floor of air plenum should be constructed to fall to the floor drains.</li> </ul>			



Dimensions: Panel 1m x 3 m. Opening between to match the location to location the room at.

**Room Data Sheet - Trackway Exhaust Fan Room (applies to city stations)**

**General notes:**

**Size and Dimension**

The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	R04	
ROOM ACRYONYM	TEFm	
<b>FUNCTIONAL REQUIREMENTS</b>		
FUNCTION	Plant room to house TEFs	
SIZE / DIMENSION (m/m)		
LOCATION	Close to station trackways	
CONNECTION	Direct to service corridor and track	
<b>MATERIALS &amp; FINISHES</b>		
FLOOR	Floor sealer on @randolithic	The complete absence of any leakage, seepage and damp patches.
SKIRTING	Floor sealer on @randolithic	
WALL	Fair faced concrete or blockwork	
CEILING	Fair faced concrete	
<b>WATER TIGHTNESS*</b>		
OTHERS		
<b>DOORS &amp; IRONMONGERY</b>		
CLEAR OPENING REQUIRED	As shown on plans	
DIRECTION OF SWING	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	
STC RATING	30	
LOCK FUNCTION	Latch operable by key outside, inside always free for exit	
ACCESSORIES	Door closer/kick plates	
RACS/SECURITY LEVEL	Medium	
OTHERS		
<b>BUILDING SERVICES</b>		
DELIVERY ROUTE SIZE	As shown on plans or at least 3m (W) x 3m (H)	
RM. NOISE LEVEL	To meet local requirements	
<b>COMMUNICATIONS FACILITIES</b>		
RADIO coverage		
RIAS socket (digital phone) Qty 1		
PARK phones Qty 1		
OTHERS		
<b>ECS</b>		
Not required unless there is local requirement for ventilation provision		
<b>LIGHTING</b>		
TYPE	1) Fluorescent 2) motion sensors 3) BMS 4) emergency lighting	
DIFFUSER	yes	
LUX	300 Lux (control), 180 Lux (General), 10 Lux (emergency)	
IP	weatherproof IP54	
<b>FIRE PROTECTION</b>		
DETECTION	Refer to local requirement / Fire and Life safety strategy or with the minimum 1) Smoke Detection/Heat Detection 2) audible alarms	
SUPPRESSION	sprinkler subject to FSI strategy	
EXTINGUISHER	Yes	
SEPARATION	Yes	
SMOKE EXTRACT	-	
OTHERS		
<b>ELECTRICAL/ POWER</b>		
GENERAL SOCKET	NUMBER	LOCATION
	2	Wall
		SOCKET TYPE
		Twins 10A, 230V
		CONDUIT TYPE
		Exposed
REQUIREMENTS		
SPECIFIC EQUIPMENT	Earthing terminal	
<b>PLUMBING &amp; DRAINAGE</b>		
Need to provide floor drain if sprinkler is required by Fire & Life Safety Strategy		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>		
TYPE & LOCATION	NIL	
OTHERS		
- Plinth as required and advised by the Designer.		
- Lifting hook to be provided		
- Yellow arrow to be provided.		
- Cat ladder to be provided inside vent shaft.		
- Floor of air plenum should be constructed to fall to the floor drains.		
- Provision of 150mm door curb is required if no plinth is installed for equipments / with sprinklers installed		

Option 1: L=13m if with attenuation facilities in plenum  
Option 2: L=18m if without external attenuation



- Points to Note**
1. 3m \* 3m access door
  2. 3m \* 3m demountable panel on top of access door
  3. 3.0m wide access corridor in front of access door for maintenance / repairing
- Fan section to be located at plant room floor on

5m (height)

- Remark:**
1. Clear plant room size excludes plenum
  2. Room for 3 nos fan will be installed.
  3. If a combine room for 5 TVFs, please add up the width.

Option 1: L=13m if with attenuation facilities in plenum  
Option 2: L=18m if without external attenuation



- Points to Note**
1. 3m \* 3m access door
  2. 3m \* 3m demountable panel on top of access door
  3. 3.0m wide access corridor in front of access door for maintenance / repairing
- Fan section to be located at plant room floor on

5m (height)

- Remark:**
1. Clear plant room size excludes plenum
  2. Room for 2 nos fan
  3. If a combine room for 5 TVFs, please



Demountable panel 3m \* 3m  
Opening location to match fan

18m (height)

- Remark:**
1. 3.5m width access corridor in front of access door for maintenance / repairing
  2. 5 nos fan will be installed.
  3. Fan section to be located at plant room floor on 150mm plinth
  4. Clear plant room size excludes plenum



Demountable panel 3m \* 3m  
Opening location to facilitate fan removal

18m (height)

- Remark:**
1. Clear plant room size excludes plenum.



**Room Data Sheet - Compressor Plant Room (applies to city Stations)**

**General notes:**

Size and Dimension

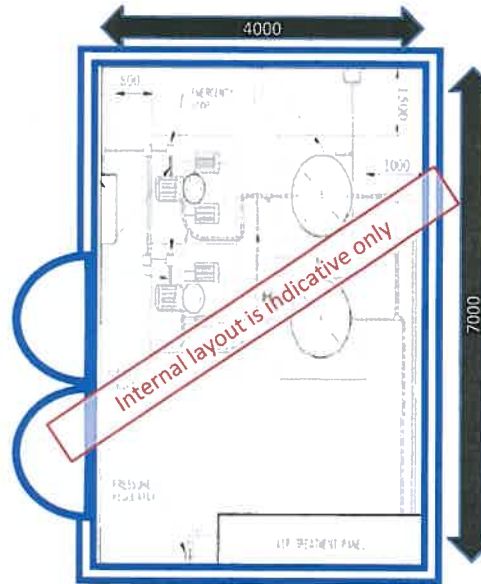
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

Building services requirements and finishing requirement

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	NOR	
ROOM ACRYOMN	CPR	
<b>FUNCTIONAL REQUIREMENTS</b>		
FUNCTION	Plantroom for Air Compressor / Receiver	
SIZE / DIMENSION (In mm)	7000 (w) * 4000 (L)	
LOCATION	Adjacent to TEF / TVF Rooms	
CONNECTION	Direct to service corridor	
<b>MATERIALS &amp; FINISHES</b>		
FLOOR	Floor sealer on granolithic	WATER TIGHTNESS* The complete absence of any leakage, seepage and damp patches.
SKIRTING	Floor sealer on granolithic	
WALL	Fair faced concrete or blockwork	
CEILING	Fair faced concrete	
OTHERS		
<b>DOORS &amp; IRONMONGERY</b>		
CLEAR OPENING REQUIRED	SET 1	SET 2
DIRECTION OF SWING	2100mm (H) x 2100mm (W) Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	
STC RATING	20	
LOCK FUNCTION	EACS	
ACCESSORIES	Door closer; kick plates	
EACS/SECURITY LEVEL	Medium	
OTHERS		
<b>BUILDING SERVICES</b>		
DELIVERY ROUTE SIZE	2m (W) x 2.1m (H)	
RM. NOISE LEVEL	Refer to local requirement	
<b>COMMUNICATIONS FACILITIES</b>		
ECS	By ventilation with 8 air-change per hour and maximum temperature not to exceed 40 deg C; two duty fans with 60% design flow each.	
LIGHTING	Fluorescent. 1) motions sensors 2) BMS 3) emergency lighting	
	TYPE	
	DIFFUSER	yes
	LUX	300 Lux (control), 160 Lux (General), 10 Lux (emergency)
	IP	weatherproof IP54
FIRE PROTECTION	DETECTION smoke detection	
	SUPPRESSION	NIL
	EXTINGUISHER	Yes
	SEPARATION	Yes
	SMOKE EXTRACT	
	OTHERS	
ELECTRICAL/ POWER REQUIREMENTS	NUMBER	LOCATION
	GENERAL SOCKET	2
	SPECIFIC EQUIPMENT	Wall
		SOCKET TYPE
		Twins 10A, 230V
		CONDUIT TYPE
		Exposed
PLUMBING & DRAINAGE	Floor drain	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>		
TYPE & LOCATION	NIL	
OTHERS	NIL	
OTHERS	<ul style="list-style-type: none"> <li>Plinth and lifting hook as required and advised by designer.</li> <li>Yellow &amp; black paint strip to be provided.</li> <li>150mm curb to be provided at entrance door.</li> </ul>	

Typical Layout



**Room Data Sheet - MCC and Control Equipment Room (applies to city Stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	508
ROOM ACRYONYM	MCC
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	Room for MCC / TVS Control
SIZE / DIMENSION (in mm)	Refer to typical layout
LOCATION	Adjacent to TEF / TSF / TVS Fan Rooms
CONNECTION	Direct to service corridor
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Floor sealer on granolithic
SKIRTING	Floor sealer on granolithic
WALL	Fair faced concrete or blockwork
CEILING	Fair faced concrete
OTHERS	
<b>DOORS &amp; IRONMONGERY</b>	
SET 1	
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)
DIRECTION OF SWING	Door not shown in diagram but to be provided
FIRE RESISTANCE	Swing out at 180 degrees
AIR RESISTANCE	Same FRP as the Adjoining Wall
STC RATING	N/A
LOCK FUNCTION	EACS
ACCESSORIES	Door closer; kick plates
EACS/SECURITY LEVEL	High
OTHERS	
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	2m (W) x 2.5m (H)
RM. NOISE LEVEL	Refer to local requirement
<b>COMMUNICATIONS FACILITIES</b>	
ECS	RADIO coverage
LIGHTING	Air-conditioning to maintain 28 deg. C and back-up ventilation to be provided
	Fluorescent
	DIFFUSER
	N/A
	LUX
	300 Lux (control), 160 Lux (General), 10 Lux (emergency)
	IP
	N/A
<b>FIRE PROTECTION</b>	
	DETECTION
	smoke detection
	SUPPRESSION
	gas suppression
	EXTINGUISHER
	Yes
	SEPARATION
	Yes
	SMOKE EXTRACT
	---
	OTHERS
	---
<b>ELECTRICAL/ POWER REQUIREMENTS</b>	
	GENERAL SOCKET
	NUMBER
	2
	LOCATION
	Wall
	SOCKET TYPE
	Twins 10A, 230V
	CONDUIT TYPE
	Exposed
	SPECIFIC EQUIPMENT
	- For main MCC (i.e. Directly connected to service transformer), lighting and general socket shall be fed from another power supply source.
	- One 125V DC isolating switch derived from the nearest 125V DC battery charger energised from the same power source.
	- Earthing Terminal.
	- Two fused connection units from centralised UPS.
<b>PLUMBING &amp; DRAINAGE</b>	
	NIL
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
	NIL
<b>TYPE &amp; LOCATION</b>	
	NIL
<b>OTHERS</b>	
	- Floor tolerance 3mm max. under a 3m long straight edge placed on any plane surface or edge in any direction. Lifting book as required.
	- No movement joint inside the room.
	- Yellow arrow to be provided.
	- Electrical stock label to be provided.
	- Provision of 150mm door curb is required if no plinth is installed for equipments / with sprinklers installed.
<b>OTHERS</b>	

MCC AND CONTROL EQUIPMENT SHOULD BE A SHARED ROOM FOR STATION ECS AND TVS MCC & CONTROL EQUIPMENT.



**Room Data Sheet - Trackside LV Switch Room (applies to city stations)****General notes:****Size and Dimension**

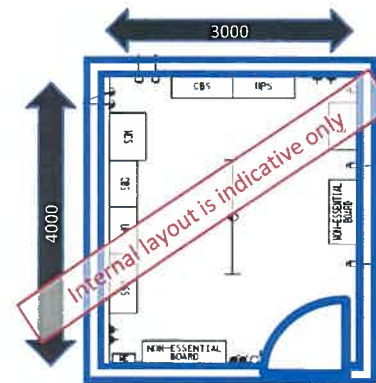
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	406		
ROOM ACRYMNM	TIVS		
FUNCTIONAL REQUIREMENTS	To house control and monitoring equipment of trackside E&M system.		
FUNCTION	3000 (w) * 4000 (d)		
SIZE / DIMENSION (in mm)	Two in total. One at each platform end		
LOCATION	Direct to service corridor		
CONNECTION			
MATERIALS & FINISHES	WATER TIGHTNESS*		
FLOOR	Floor sealer on granolithic	N/A	
SKIRTING	Floor sealer on granolithic		
WALL	Fair faced concrete or blockwork	The complete absence of any leakage, seepage and damp patches.	
CEILING	Fair faced concrete		
OTHERS	--		
DOORS & IRONMONGERY	SET 1		
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)		
DIRECTION OF SWING	Swing in at 90 degrees		
FIRE RESISTANCE	Same FRP as the adjoining wall		
AIR RESISTANCE	-		
STC RATING	70		
LOCK FUNCTION	Latch operable by key outside; inside always free for exit		
ACCESSORIES	Door closer; door stop		
ECS/SECURITY LEVEL	Medium		
OTHERS	--		
BUILDING SERVICES			
DELIVERY ROUTE SIZE	1.6m (W) x 2.5m (H) for LV Switchboard		
RM. NOISE LEVEL	Refer to local requirement		
COMMUNICATIONS FACILITIES	RADIO coverage RJ45 socket (digital phone) Qty 1 PABX phones Qty 1		
ECS	By ventilation with 8 air-change per hour and maximum temperature not to exceed 40 deg C; two duty fans with 60% design flow each.		
LIGHTING	TYPE	1) Fluoresnt 2) local switch 3) motion sensor 4) emergency lighting	
	DIFFUSER	N/A	
	LUX	300 Lux (control), 160 Lux (General), 10 Lux (emergency)	
	IP	N/A	
FIRE PROTECTION	DETECTION	smoke detector	
	SUPPRESSION	gas suppression	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	--	
	OTHERS	--	
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
		2	Wall
	SPECIFIC EQUIPMENT	SOCKET TYPE	CONDUIT TYPE
		Twins 10A, 230V	Exposed
		- Isolating switches derived from LV Essential Power Supply, LV Non-essential Power Supply, 30 min. centralized UPS. (Quantities and ratings are location specific).	
		- Two fused connection units for CCS. Each directly derived from 30 min. centralized UPS distribution board (subject to confirmation by CCS).	
		- Earthing terminal	
		- double power point = 2	
PLUMBING & DRAINAGE	NIL		
FIXTURES, EQUIPMENT & LOOSE FURNITURE	NIL		
TYPE & LOCATION	NIL		
OTHERS	NIL		
OTHERS	- No water tank above the room. - 150mm curb to be provided at entrance door.		

Typical Layout

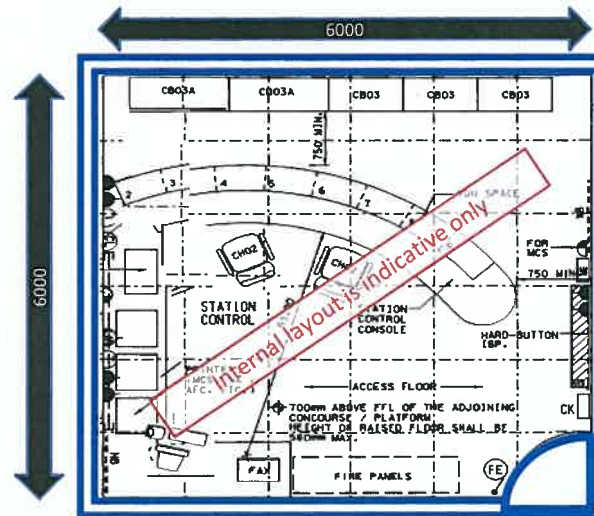
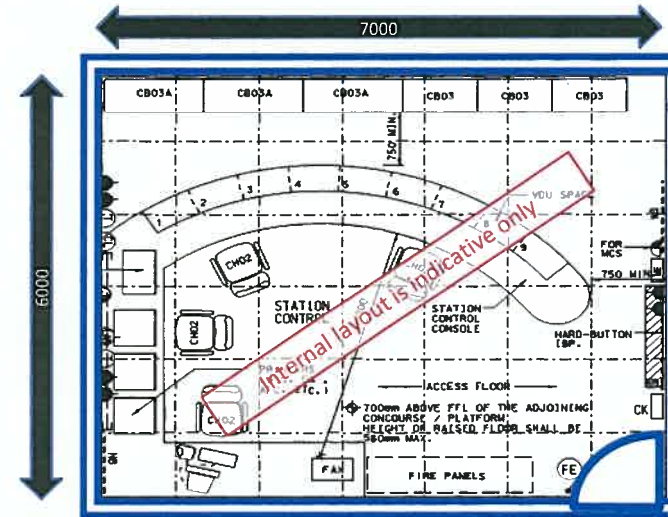




**Room Data Sheet - Station Management Room (applies to city stations and Campsie)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	1009
ROOM ACRYONYM	SMR
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	For the management, coordination and administration of normal station operations. The Station Management Room is also used for the control and surveillance of station operation for special events and during degraded and emergency operations.
SIZE / DIMENSION (In mm)	Barangaroo and Campsie Station: 7000 (w) * 6000 (d) Satellite Station: 6000 (w) * 6000 (d)
LOCATION	Quick access to Sydney Metro areas
CONNECTION	Glazed opening between control and waiting area
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Resilient Tile on Access Floor
SKIRTING	Resilient Skirting
WALL	Water based paint on plaster
CEILING	Fibre Cement board
<b>OTHERS</b>	
- works floor to be 750mm minimum above A/F of the adjoining concourse/platform floor height of the raised floor shall be 580mm max.	
<b>DOORS &amp; IRONMONGERY</b>	
CLEAR OPENING REQUIRED	2300mm (H) x 1050mm (W)
DIRECTION OF SWING	Swing in at 90 degrees
FIRE RESISTANCE	Same FRP as the adjoining wall
AIR RESISTANCE	
STC RATING	35
LOCK FUNCTION	EACS
ACCESSORIES	Door closer; acoustic seal; door viewer; door stop
EACS/SECURITY LEVEL	HIGH
<b>OTHERS</b>	
BUILDING SERVICES	
DELIVERY ROUTE SIZE	1m(W) x 2.3m(H) for SCR console delivery
RM. NOISE LEVEL	NR40
<b>COMMUNICATIONS FACILITIES</b>	
Radio coverage RJ45 socket (digital phone) Qty 4 PABX phones Qty 1 Cityline phone Qty 1 Intercom Qty 1 Phone Terminal Qty 1	
ECS	A/C with independent room fresh supply air pressurized relative to adjacent area (both system from essential power supply). The A/C unit shall not be located at public areas.
LIGHTING	1) Fluorescent 2) local switch 3) motion sensor 4) emergency lighting Essential: 320 Nominal, 500 Desktop; Emergency: 10
FIRE PROTECTION	smoke detectors w/retrofit pre-action sprinkler and equivalent provisions to local regulation Yes Yes Yes Yes
ELECTRICAL/POWER REQUIREMENTS	NUMBER LOCATION SOCKET TYPE CONDUIT TYPE 4 WALL twins 10A, 230V Consealed One wall-mounted power socket outlet at high level from essential power supply for digital clock (by COM) Electrical provisions for system panels and consoles One power socket from essential supply for COM Earthing terminal double power point = 4 numbers dedicated power DB = 1 number
PLUMBING & DRAINAGE	Floor drain
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	See indicative room layout
OTHERS	First-aid kit; room sign
OTHERS	Under-floor cable access via raised access floor

Typical Layout



### Room Data Sheet - Fire Control Room (applies to city Stations)

#### General notes:

##### Size and Dimension

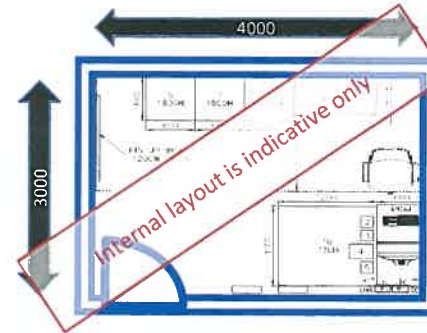
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

##### Building services requirements and finishing requirement

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	T04			
ROOM ACRYM	FCR			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Accommodating local fire equipment controls			
SIZE / DIMENSION (In mm)	4000 (w) * 3000 (d)			
LOCATION	Ground/Street level			
CONNECTION	--			
<b>MATERIALS &amp; FINISHES</b>		<b>WATER TIGHTNESS*</b>		
FLOOR	Resilient Tile on Access Floor	The complete absence of any leakage, seepage and damp patches.		
SKIRTING	Resilient Skirting			
WALL	Water Based Paint on Plaster			
CEILING	Fibre Cement Board			
OTHERS	--			
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	2100mm (H) x 900 mm (W)			
DIRECTION OF SWING	SWING IN AT 90°			
FIRE RESISTANCE	SAME AS FRP AS THE ENCLOSURE			
AIR RESISTANCE	N/A			
STC RATING	35			
LOCK FUNCTION	FACS			
ACCESSORIES	Door closer; door stop			
EACS/SECURITY LEVEL	Medium			
OTHERS	--			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	--			
RM. NOISE LEVEL	NRS0			
<b>COMMUNICATIONS FACILITIES</b>				
		Radio coverage		
		RJ45 socket (digital phone) Qty 3		
		PABX phones Qty 1		
		Direct Line Phones Qty 1		
A/C 25.5 °C, 50% ± 10% RH, with independent room fresh supply air pressurized relative to adjacent area (both systems from essential power supply). The A/C unit shall not be located at public areas.				
ECS				
LIGHTING	TYPE	1) Fluorescent 2) local switch 3) motion sensor 4) emergency lighting		
	DIFFUSER	YES		
	LUX	Essential: 320 Nominal, 500 Desktop; Emergency: 10		
FIRE PROTECTION	IP	N/A		
	DETECTION	Smoke Detection/Heat		
	SUPPRESSION	NIL		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	--		
ELECTRICAL/ POWER REQUIREMENTS	OTHERS	--		
	GENERAL SOCKET	NUMBER	LOCATION	
	SPECIFIC EQUIPMENT	1	WALL	SOCKET TYPE
				twins 10A, 230V
				CONDUIT TYPE
		Consealed		
One wall mounted power socket outlet at high level from essential power supply for digital clock (by COM)				
Electrical provisions for system panels and consoles				
One power socket from essential supply for COM				
EARTHING TERMINAL				
double power points = 2				
No exposed water bearing pipe within this room.				
<b>PLUMBING &amp; DRAINAGE</b>				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION				
See indicative room layout				
OTHERS				
Room sign				
OTHERS				
FRL 120/120/120 with direct egress to a road or open space and a change in level of no more than 300mm				

Typical Layout



#### LEGEND:

SYMBOL	DESCRIPTION
1.	CCS WS VDU 1.
2.	DIRECT LINE (COM).
3.	PABX TELEPHONE (COM).
4.	PA BACK UP PANEL.
5.	RADIO HANDSET & CHARGER (RAD).
6.	FIRE INDICATION PANEL.
7.	SOUND SYSTEM AND INTERCOM SYSTEM
8.	EMERGENCY PANEL.
9.	FIRE FAN CONTROL PANEL.
10.	EMERGENCY VENTILATION PANEL.
	MAP PLANNING TABLE.

#### SYMBOL

#### DESCRIPTION



MAINTENANCE AND ACCESS CLEARANCE REQUIRED.



WALL MOUNTED UPS BACKED DOUBLE GPO TO BE INSTALLED 300mm ABOVE GROUND AND EQUALLY SPACED.



WALL MOUNTED X PORT LAN SOCKET FOR CCS TO BE INSTALLED 500mm ABOVE GROUND AND EQUALLY SPACED.



WALL MOUNTED X PORT LAN SOCKET FOR COM TO BE INSTALLED 500mm ABOVE GROUND AND EQUALLY SPACED.



**Room Data Sheet - Briefing and Meal Room (applies to city and southwest stations)**

**General notes:**

**Size and Dimension**

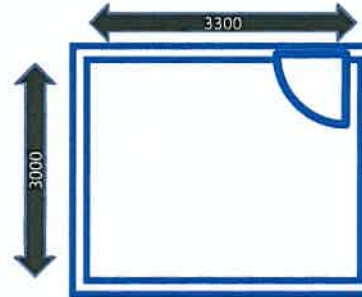
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	1010			
ROOM ACRYOYMN	BMM			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Meal and briefing area for station and maintenance staff			
SIZE / DIMENSION (in mm)	3300 (w) * 3000 (d)			
LOCATION	within station staff area and adjacent to locker room and multipurpose meeting room			
CONNECTION				
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Resilient Tile	<b>WATER TIGHTNESS*</b> The complete absence of any leakage, seepage and damp patches.		
SKIRTING	Resilient Skirting			
WALL	Water Based Paint on Plaster			
CEILING	Fibre Cement board			
OTHERS				
<b>DOORS &amp; IRONMONGERY</b>				
DOOR TYPE	SET 1			
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)			
DIRECTION OF SWING	Swing in at 90 degrees			
FIRE RESISTANCE				
AIR RESISTANCE				
STC RATING	20			
LOCK FUNCTION				
ACCESSORIES	Door closer; door stop			
SAMS/SECURITY LEVEL				
OTHERS				
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE				
RM. NOISE LEVEL				
<b>COMMUNICATIONS FACILITIES</b>				
<b>ECS</b>				
LIGHTING	TYPE			
	DIFFUSER			
FIRE PROTECTION	LUX			
	IP			
	DETECTION	See Fire and life safety strategy		
	SUPPRESSION	See Fire and life safety strategy		
ELECTRICAL/ POWER REQUIREMENTS	EXTINGUISHER	One 4.5kg CO2 Fire extinguisher		
	SEPARATION	See Fire and life safety strategy		
	SMOKE EXTRACT			
	OTHERS			
PLUMBING & DRAINAGE	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
<b>TYPE &amp; LOCATION</b>				
OTHERS				
OTHERS	NIL			

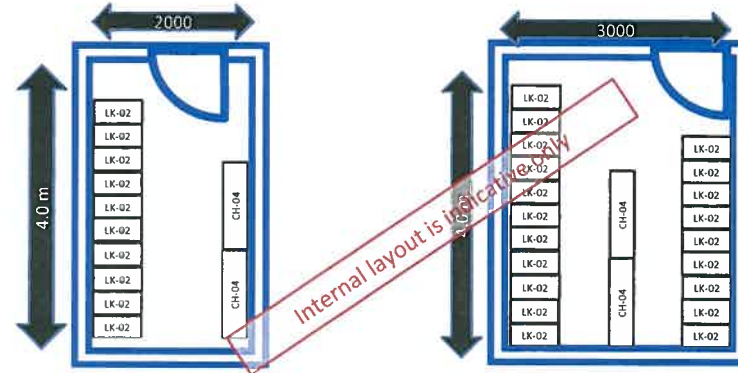
Typical Layout



**Room Data Sheet - Staff Locker Room (applies to city and southwest stations)**

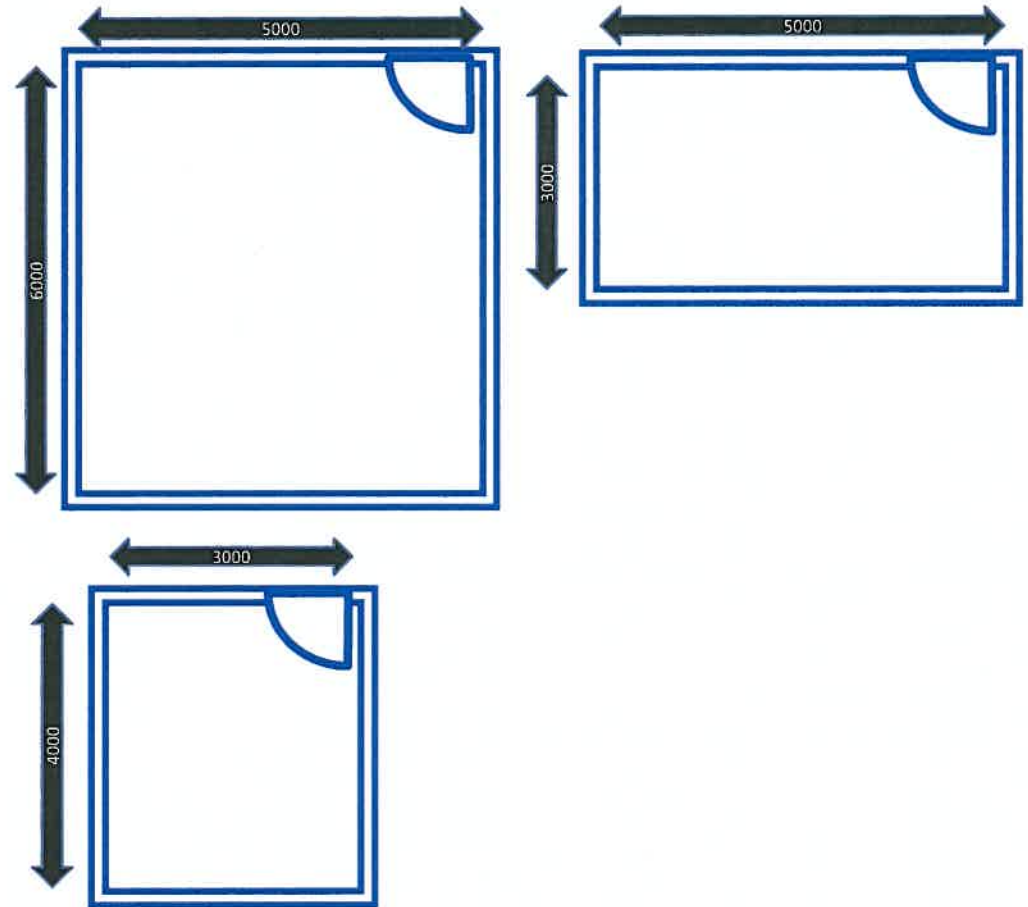
<b>General notes:</b>					
<b>Size and Dimension</b>					
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.					
<b>Building services requirements and finishing requirement</b>					
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.					
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.					
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.					
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. <b>Building Services pipe runs above equipment shall be avoided.</b>					
ROOM NUMBER	1002				
ROOM ACRYMM	LCKM / LCKF				
<b>FUNCTIONAL REQUIREMENTS</b>					
FUNCTION	Locker room for station staff				
SIZE / DIMENSION (in mm)	2000 (w) * 4000 (d) all stations except Campsie and Barangaroo 3000 (w) * 4000 (d) for Campsie and Barangaroo				
LOCATION	within station staff area and adjacent to multipurpose meeting room				
CONNECTION	--				
<b>MATERIALS &amp; FINISHES</b>					
FLOOR	Resilient Tile				<b>WATER TIGHTNESS*</b>
SKIRTING	Resilient Skirting				
WALL	Masonry paint on fair faced concrete or blockwork (To door height). Wall sealer paint on fair faced concrete or blockwork (Above door)				
CEILING	Water resistant plasterboard				
OTHERS	--				
DOORS & IRONMONGERY	SET 1				
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)				
DIRECTION OF SWING	Swing in at 90 degrees				
FIRE RESISTANCE	Same FRP as the adjoining wall				
AIR RESISTANCE	-				
STC RATING	20				
LOCK FUNCTION	Latch operable by key outside; inside always free for exit				
ACCESSORIES	Door closer; door stop				
EACS/SECURITY LEVEL	Medium				
OTHERS	--				
<b>BUILDING SERVICES</b>					
DELIVERY ROUTE SIZE	--				
RM. NOISE LEVEL	--				
<b>COMMUNICATIONS FACILITIES</b>					
ECS	RADIO coverage Normal A/C				
LIGHTING	TYPE 1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting				
	DIFFUSER	--			
	LUX	200 Lux, 10 Lux emergency			
	IP	--			
FIRE PROTECTION	DETECTION	smoke / heat detection			
	SUPPRESSION	sprinklers			
	EXTINGUISHER	Yes			
	SEPARATION	Yes			
	SMOKE EXTRACT	--			
	OTHERS	--			
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	SPECIFIC EQUIPMENT	2	WALL	twins 10A, 230V	Concealed
		double power point = 2 numbers 1 Powerpoint near mirror (nominal 1200 high) 1 Powerpoint near coat hooks(300 above floor)			
PLUMBING & DRAINAGE	Floor drain				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>					
TYPE & LOCATION	See indicative room layout				
OTHERS	Room sign				
OTHERS	NIL				

Typical Layout



**Room Data Sheet - Multipurpose Room (applies to city and southwest stations)**

<b>General notes:</b>					
<b>Size and Dimension</b>					
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.					
<b>Building services requirements and finishing requirement</b>					
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.					
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.					
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.					
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.					
ROOM NUMBER	1003				
ROOM ACRYOMN	MPR				
<b>FUNCTIONAL REQUIREMENTS</b>					
FUNCTION	1. For first aid, incident and special event coordination as described in CONOP 2. Meal, resting and presentation area for station staff 3. For Campsie and Central, extra space for staff meetings (partition required)				
SIZE / DIMENSION (in mm)	City stations: 5000 (w) * 3000 (d) except Central which is 5000 (w) * 6000 (d) for 20 ppl Southwest stations: 12 m2 except Campsie which is 30m2 for 20 ppl				
LOCATION	Concourse level within station staff area and adjacent to staff locker room				
CONNECTION	----				
<b>MATERIALS &amp; FINISHES</b>					
FLOOR	Resilient Tile	WATER TIGHTNESS*			
SKIRTING	Resilient Skirting	The complete absence of any leakage, seepage and damp patches.			
WALL	Water Based Paint on Plaster				
CEILING	Fibre cement board				
OTHERS	----				
DOORS & IRONMONGERY	SET 1				
CLEAR OPENING REQUIRED	2100mm (H) x 900 mm (W)				
DIRECTION OF SWING	SWING IN AT 90°				
FIRE RESISTANCE	SAME AS FRP AS THE ENCLOSURE				
AIR RESISTANCE	N/A				
STC RATING	35				
LOCK FUNCTION	Mechanical key lock				
ACCESSORIES	Door closer, door stop				
EACS/SECURITY LEVEL	NIL				
OTHERS	----				
<b>BUILDING SERVICES</b>					
DELIVERY ROUTE SIZE	----				
RM. NOISE LEVEL	----				
<b>COMMUNICATIONS FACILITIES</b>					
ECS	RADIO coverage RJ45 socket (digital phone) Qty 2 PABX phones Qty 1 RJ45 LAN Ports = 1 Normal A/C				
LIGHTING	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting				
	TYPE	---			
	DIFFUSER	---			
	LUX	320 lux, 10 lux emergency			
	IP	Lighting Generally in accordance with AS1680. Lighting control via DALI system, timers, motions sensors to be documented in a lighting control document. Room to include override panel for dimming and manual control.			
FIRE PROTECTION	DETECTION	smoke /heat detection			
	SUPPRESSION	sprinklers			
	EXTINGUISHER	Yes			
	SEPARATION	Yes			
	SMOKE EXTRACT	---			
	OTHERS	---			
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	SPECIFIC EQUIPMENT	2	Wall	twins 10A, 230V	Concealed
PLUMBING & DRAINAGE	double power point = 2 numbers Floor drain				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>					
TYPE & LOCATION	---				
OTHERS	Room sign				
OTHERS	partition required for separating area for meeting purpose				



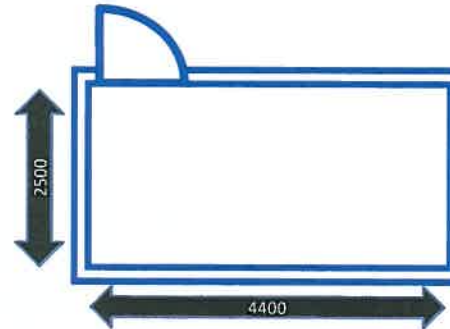
**Room Data Sheet - Refuse Room (applies to city and southwest stations)****General notes:****Size and Dimension**

The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

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4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	3011			
ROOM ACRYM	RR			
FUNCTIONAL REQUIREMENTS	Bulk refuse storage and collection			
FUNCTION	Bulk refuse storage and collection			
SIZE / DIMENSION (in mm)	4400 (w) * 2500 (d)			
LOCATION	Street / Ground level with direct access to lift			
CONNECTION				
MATERIALS & FINISHES	WATER TIGHTNESS*			
FLOOR	Vitrified Ceramic Floor tile			The complete absence of any leakage, seepage and damp patches.
SKIRTING	Vitrified Ceramic Floor tile, square top coved			
WALL	Vitrified Ceramic wall tile			
CEILING	Wall sealer paint on fair faced concrete			
OTHERS				
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	2100mm (H) x 1050mm (W)			
DIRECTION OF SWING	Swing out at 90 degrees			
FIRE RESISTANCE				
AIR RESISTANCE				
STC RATING	20			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer; armour plate; door stop			
EACS/SECURITY LEVEL	Medium			
OTHERS				
BUILDING SERVICES				
DELIVERY ROUTE SIZE				
RM. NOISE LEVEL				
COMMUNICATIONS FACILITIES	RADIO coverage			
ECS	Air condition (segregated exhaust system)			
LIGHTING	TYPE	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
	DIFFUSER	yes		
	LUX	160 Lux, 10 Lux emergency		
	IP	weatherproof IP54		
FIRE PROTECTION	DETECTION	smoke / heat detection		
	SUPPRESSION	sprinklers		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	..		
	OTHERS	..		
ELECTRICAL/ POWER	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
		1	WALL	twins 10A, 230V
REQUIREMENTS	SPECIFIC EQUIPMENT	double power point = 1 number		
PLUMBING & DRAINAGE	Cleansing water supply and floor drain			
FIXTURES, EQUIPMENT & LOOSE FURNITURE				
TYPE & LOCATION	NIL			
OTHERS	Room sign			
OTHERS	NIL			





**Room Data Sheet - Bin Room (applies to city and southwest stations)**

**General notes:**

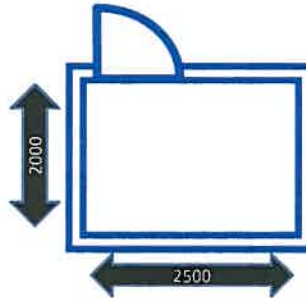
Size and Dimension

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Building services requirements and finishing requirement

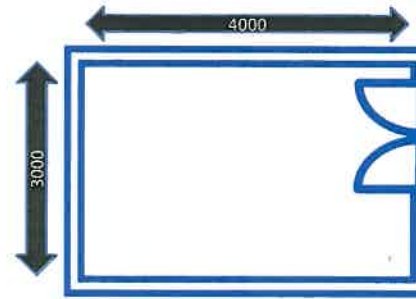
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
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4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. **Building Services pipe runs above equipment shall be avoided.**

ROOM NUMBER	1017		
ROOM ACRYOYM	BIN		
FUNCTIONAL REQUIREMENTS	Storage area of rubbish bins		
FUNCTION	2500 (w) x 2000 (d)		
SIZE / DIMENSION (in mm)	Concourse back of house area and accessible to platform and refuse room at ground via lift		
LOCATION	Concourse back of house area and accessible to platform and refuse room at ground via lift		
CONNECTION	-		
MATERIALS & FINISHES	WATER TIGHTNESS*		
FLOOR	Vitrified Ceramic Floor tile	The complete absence of any leakage, seepage and damp patches.	
SKIRTING	Vitrified Ceramic Floor tile, square top covered		
WALL	Vitrified Ceramic wall tile		
CEILING	Wall sealer paint on fair faced concrete		
OTHERS	-		
DOORS & IRONMONGERY	SET 1		
CLEAR OPENING REQUIRED	2100mm (H) x 1050mm (W)		
DIRECTION OF SWING	Swing out at 90 degrees		
FIRE RESISTANCE	-		
AIR RESISTANCE	-		
STC RATING	20		
LOCK FUNCTION	Latch operable by key outside; inside always free for exit		
ACCESSORIES	Door closer; armour plate; door stop		
EACS/SECURITY LEVEL	NIL		
OTHERS	-		
BUILDING SERVICES	-		
DELIVERY ROUTE SIZE	-		
RM. NOISE LEVEL	-		
COMMUNICATIONS FACILITIES	RADIO coverage		
ECS	Ventilation (segregated exhaust system)		
LIGHTING	TYPE	1) Fluorescent 2) local switch 3) motion sensor 4) emergency lighting	
	DIFFUSER	yes	
	LUX	min. 160 Lux, 10 Lux emergency	
	IP	weatherproof IP54	
FIRE PROTECTION	DETECTION	Smoke Detection/Heat Detection	
	SUPPRESSION	sprinklers	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	-	
	OTHERS	-	
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
	SPECIFIC EQUIPMENT	double power point = 1 number	
PLUMBING & DRAINAGE			Floor drain
FIXTURES, EQUIPMENT & LOOSE FURNITURE			
TYPE & LOCATION			NIL
OTHERS			Room sign
OTHERS			NIL



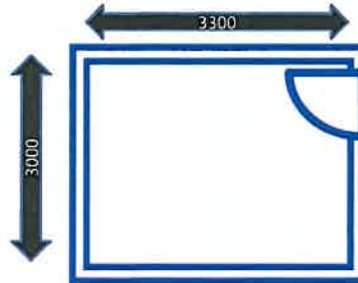
**Room Data Sheet - Platform Cleaning Machine Room (applies to city stations)**

<b>General notes:</b>				
<b>Size and Dimension</b>				
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.				
<b>Building services requirements and finishing requirement</b>				
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.				
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.				
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.				
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.				
ROOM NUMBER	1006			
ROOM ACRONYM	CLMR			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Storage of platform cleaning machine			
SIZE / DIMENSION (in mm)	4000 (w) * 3000 (d)			
LOCATION	Adjacent to cleaner store with direct access to lift			
CONNECTION	3m circulation required externally at the door to allow machine turning			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic		<b>WATER TIGHTNESS*</b> The complete absence of any leakage, seepage and damp patches.	
SKIRTING	Floor sealer on granolithic			
WALL	Wall sealer paint on fair faced concrete or blockwork			
CEILING	Wall sealer paint on fair faced concrete or blockwork			
OTHERS	--			
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	2100mm (H) x 1500mm (W)			
DIRECTION OF SWING	Swing in at 90 degrees			
FIRE RESISTANCE	Same FRP as the Adjoining Wall			
AIR RESISTANCE	-			
STC RATING	20			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer; flush bolts and sockets; armour plates; door stop			
SACS/SECURITY LEVEL	Medium			
OTHERS	---			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	---			
RM. NOISE LEVEL	---			
<b>COMMUNICATIONS FACILITIES</b>				
ECS	RADIO coverage			
LIGHTING	Ventilation system			
	TYPE	Flourescent		
	DIFFUSER	---		
	LUX	min. 160 Lux, 10 Lux emergency		
	IP	---		
FIRE PROTECTION	DETECTION	smoke detectors		
	SUPPRESSION	sprinklers		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	---		
	OTHERS	---		
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	2	Wall	Twins 10A 230V
				Concealed
PLUMBING & DRAINAGE	Floor drain			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	Room sign			
OTHERS	NIL			



**Room Data Sheet - Station Presentation Store Office (applies to city stations)**

<b>General notes:</b>					
<b>Size and Dimension</b>					
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.					
<b>Building services requirements and finishing requirement</b>					
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.					
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.					
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.					
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. <b>Building Services pipe runs above equipment shall be avoided.</b>					
ROOM NUMBER	1013				
ROOM ACRYOYM	FRS				
<b>FUNCTIONAL REQUIREMENTS</b>					
FUNCTION	Storage of presentation material for staff presentation				
SIZE / DIMENSION (In mm)	1) City stations: 3300 (w) * 3000(d) 2) Southwest stations: No such room and combined with Station Store Room (1016)				
LOCATION	Back of house staff area				
CONNECTION	Adjacent to cleaners store				
<b>MATERIALS &amp; FINISHES</b>			<b>WATER TIGHTNESS*</b>		
FLOOR	Floor sealer on granolithic		The complete absence of any leakage, seepage and damp patches.		
SKIRTING	Floor sealer on granolithic				
WALL	Masonry paint on fair faced concrete or blockwork to door height; Wall sealer paint on fair faced concrete or blockwork above door				
CEILING	Wall sealer paint on fair faced concrete				
OTHERS	--				
DOORS & IRONMONGERY	SET 1				
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)				
DIRECTION OF SWING	Swing in at 90 degrees				
FIRE RESISTANCE	Same FRP as the adjoining wall				
AIR RESISTANCE	NIL				
STC RATING	20				
LOCK FUNCTION	Latch operable by key outside; inside always free for exit				
ACCESSORIES	Door closer; armour plate; door stop				
EACS/SECURITY LEVEL	Medium				
OTHERS	--				
BUILDING SERVICES	--				
DELIVERY ROUTE SIZE	--				
RM. NOISE LEVEL	--				
<b>COMMUNICATIONS FACILITIES</b>					
ECS			RADIO coverage		
LIGHTING			Ventilation system		
TYPE	1) Fluorescent 2) local switch 3) motion sensor				
DIFFUSER	--				
LUX	min. 160 Lux, 10 Lux emergency				
IP	--				
FIRE PROTECTION			smoke detectors		
DETECTION	smoke detectors				
SUPPRESSION	sprinklers				
EXTINGUISHER	Yes				
SEPARATION	Yes				
SMOKE EXTRACT	--				
OTHERS	--				
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	SPECIFIC EQUIPMENT	2	Wall	twins 10A, 230V	Concealed
PLUMBING & DRAINAGE					
Floor drain					
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>					
TYPE & LOCATION					
NIL					
OTHERS					
Room sign					
OTHERS					
NIL					



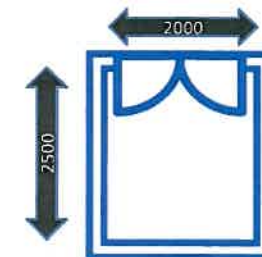
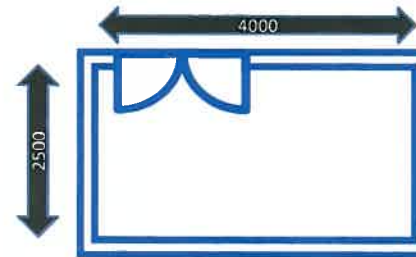
**Room Data Sheet - Cleaners Store Room (applies to city and southwest stations)****General notes:****Size and Dimension**

The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
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3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	1007		
ROOM ACRYM	CLS		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	1. Storage area for cleaning tools (e.g. poles, scrubbers, etc) and cleaning consumables (e.g. detergent) 2. Storage area for scrubbing machine (as combined with Platform Cleaning Machine Room)		
SIZE / DIMENSION (In mm)	1) City stations: 4000 (w) x 2500 (d) x 2 rooms = 10 m <sup>2</sup> x 2 rooms 2) Southwest stations: (after combining with Platform Cleaning Machine Room) 4000 (w) x 2500 (d) = 10 m <sup>2</sup> on concourse 2000 (w) x 2500 (d) = 5 m <sup>2</sup> on platform		
LOCATION	1) City Stations: one is adjacent to station staff toilet and one is adjacent to public toilets 2) Southwest stations: large one on concourse, small one on platform		
CONNECTION	Adjacent to toilets		
<b>MATERIALS &amp; FINISHES</b>		<b>WATER TIGHTNESS*</b>	
FLOOR	Vitrified Ceramic Floor tile	The complete absence of any leakage, seepage and damp patches.	
SKIRTING	Vitrified Ceramic Floor tile, square top coved		
WALL	Vitrified Ceramic wall tile		
CEILING	Wall sealer paint on fair faced concrete		
OTHERS	Glazed ceramic tiles splash back above slop sink		
<b>DOORS &amp; IRONMONGERY</b>		SET 1	
CLEAR OPENING REQUIRED	2100mm (H) x 1500mm (W)		
DIRECTION OF SWING	Swing in at 90 degrees		
FIRE RESISTANCE	Same FRP as the adjoining wall		
AIR RESISTANCE	NIL		
STC RATING	20		
LOCK FUNCTION	Latch operable by key outside; inside always free for exit		
ACCESSORIES	Door closer, flush bolts and sockets; armour plates; door stop		
EACS/SECURITY LEVEL	Medium		
OTHERS	---		
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	---		
RM. NOISE LEVEL	---		
<b>COMMUNICATIONS FACILITIES</b>		RADIO coverage RI45 sockt (digital phone) Qty 1 PABX Phone Qty 1	
ECS	Ventilation system		
LIGHTING	TYPE	1) motion sensor 2) BMS 3) lighting control Lighting Generally in accordance with SPR 17. Lighting control via DALI system. timers, motions sensors to be documented in a lighting control document.	
	DIFFUSER	---	
	LUX	min. 160 Lux, 10 Lux emergency	
	IP	---	
FIRE PROTECTION	DETECTION	smoke / heat detection	
	SUPPRESSION	NIL	
	EXTINGUISHER	Yes	
	SEPARATION	Yes	
	SMOKE EXTRACT	---	
	OTHERS	---	
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
	SPECIFIC EQUIPMENT	2	Wall
		double power point = 1	
PLUMBING & DRAINAGE	Floor drain, cleansing water supply with sink and fittings		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
TYPE & LOCATION	See indicative room layout		
OTHERS	Room sign		
OTHERS	NIL		





### Room Data Sheet - Staff Toilet (applies to city and southwest stations)

#### General notes:

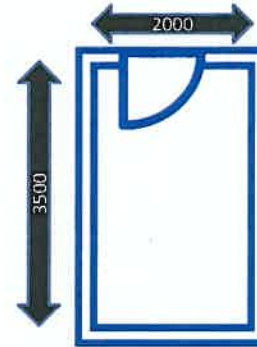
##### Size and Dimension

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##### Building services requirements and finishing requirement

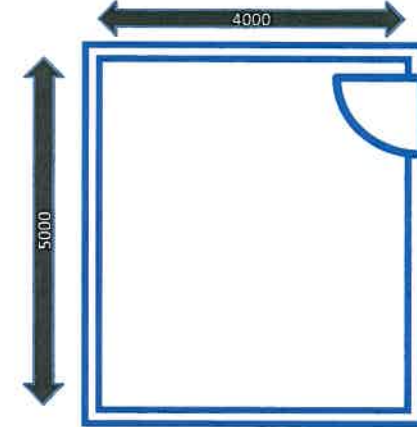
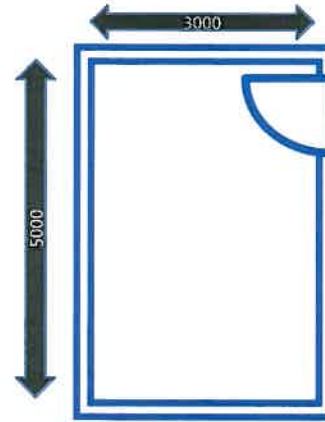
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	1008		
ROOM ACRYMN	STFWC		
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION	Lavatory for station staff		
SIZE / DIMENSION (in mm)	2000 (w) * 3500 (d)		
LOCATION	Concourse within station staff area		
CONNECTION	Adjacent to staff locker room		
<b>MATERIALS &amp; FINISHES</b>		<b>WATER TIGHTNESS*</b>	
FLOOR	Vitrified Ceramic Floor tile	The complete absence of any leakage, seepage and damp patches.	
SKIRTING	Vitrified Ceramic Floor tile, square top coved		
WALL	Vitrified Ceramic wall tile		
CEILING	Water resistant plasterboard		
OTHERS	--		
<b>DOORS &amp; IRONMONGERY</b>	SET 1		
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)		
DIRECTION OF SWING	Swing in at 90 degrees		
FIRE RESISTANCE	Same FRP as the adjoining wall		
AIR RESISTANCE	NIL		
STC RATING	20		
LOCK FUNCTION	Latch operable by key outside; inside always free for exit with thumb-turn to disable normal key operation except emergency key.		
ACCESSORIES	Door closer; door stop		
EACS/SECURITY LEVEL	NIL		
OTHERS	--		
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE	--		
RM. NOISE LEVEL	--		
<b>COMMUNICATIONS FACILITIES</b>			
ECS	RADIO coverage		
LIGHTING	Ventilation (segregated exhaust system)		
TYPE	1) FLUORESCENT 2) local switch 3) motion sensor		
DIFFUSER	--		
LUX	min. 200 Lux, 10 Lux emergency		
IP	--		
FIRE PROTECTION	DETECTION smoke detectors		
	SUPPRESSION sprinklers		
	EXTINGUISHER Yes		
	SEPARATION Yes		
	SMOKE EXTRACT --		
	OTHERS --		
ELECTRICAL/ POWER REQUIREMENTS	NUMBER	LOCATION	SOCKET TYPE
GENERAL SOCKET			
SPECIFIC EQUIPMENT	double power point = 1		
PLUMBING & DRAINAGE	Floor drains, water supply with basin		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
TYPE & LOCATION	See indicative room layout		
OTHERS	Room sign		
OTHERS	NIL		



**Room Data Sheet - Station Store Room (applies to city and southwest stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
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<b>Building services requirements and finishing requirement</b>	
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ROOM NUMBER	1016
ROOM ACRYVMN	ST5
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	1. For stationery and consumable items storage 2. Temporary storage area for contractor workers 3. Storage area for barriers, sign boards, etc (as combined with presentation store room)
SIZE / DIMENSION (in mm)	1) City stations: 4000 (w) * 5000 (d) 2) Southwest stations: 3000 w) * 5000 (d) (after combining with presentation store room)
LOCATION	Concourse within station staff area
CONNECTION	--
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Floor sealer on granolithic
SKIRTING	Floor sealer on granolithic
WALL	Masonry paint on fair faced concrete or blockwork to door height; Wall sealer paint on fair faced concrete or blockwork above door
CEILING	Wall sealer paint on fair faced concrete or blockwork
OTHERS	--
<b>DOORS &amp; IRONMONGERY</b>	
CLEAR OPENING REQUIRED	SET 1 2100mm (H) x 1050mm (W)
DIRECTION OF SWING	Swing in at 90 degrees
FIRE RESISTANCE	Same FRP as the adjoining wall
AIR RESISTANCE	NIL
STC RATING	20
LOCK FUNCTION	Latch operable by key outside; inside always free for exit
ACCESSORIES	Door closer; armour plates; door stop
EACS/SECURITY LEVEL	Medium
OTHERS	--
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	--
RM, NOISE LEVEL	--
COMMUNICATIONS FACILITIES	RADIO coverage
ECS	Ventilation system
LIGHTING	TYPE 1) FLUORESCENT 2) local switch 3) motion sensor
	DIFFUSER
	LUX
	IP
	min. 200 lux, 10 Lux emergency
FIRE PROTECTION	DETECTION smoke detectors
	SUPPRESSION sprinklers
	EXTINGUISHER Yes
	SEPARATION Yes
	SMOKE EXTRACT --
	OTHERS --
ELECTRICAL/ POWER REQUIREMENTS	NUMBER LOCATION SOCKET TYPE CONDUIT TYPE
GENERAL SOCKET	2 WALL twms 10A, 230V Concealed
SPECIFIC EQUIPMENT	Double Power Point= 1 number Floor drain
PLUMBING & DRAINAGE	
FIXTURES, EQUIPMENT & LOOSE FURNITURE	
TYPE & LOCATION	See indicative room layout
OTHERS	Room sign
OTHERS	NIL



**Room Data Sheet - Maintenance Office (applies to city and southwest stations)**

**General notes:**

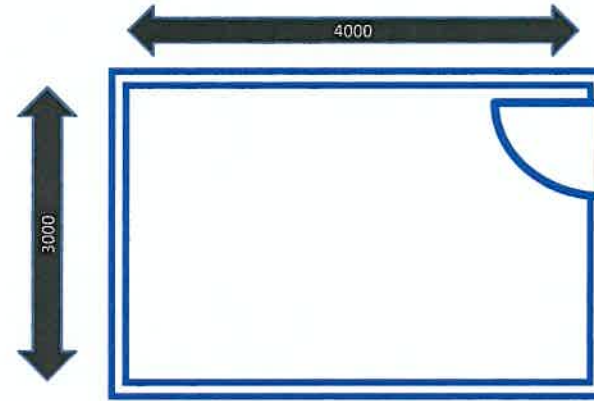
**Size and Dimension**

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ROOM NUMBER	1017			
ROOM ACRYOMN	MAO			
FUNCTIONAL REQUIREMENTS	Office for maintenance staff			
FUNCTION	4000 (w) * 3000 (d)			
SIZE / DIMENSION (in mm)	Concourse within station staff area			
LOCATION	Adjacent to maintenance store room			
CONNECTION	WATER TIGHTNESS*			
MATERIALS & FINISHES	The complete absence of any leakage, seepage and damp patches.			
FLOOR	Resilient Tile			
SKIRTING	Resilient Skirting			
WALL	Water based paint on plaster			
CEILING	Fibre cement board			
OTHERS				
DOORS & IRONMONGERY	SET 1	SET 2		
DOOR TYPE	1			
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)			
DIRECTION OF SWING	Swing in at 90 degrees			
FIRE RESISTANCE	Same FRP as the adjoining wall			
AIR RESISTANCE	NIL			
STC RATING	35			
LOCK FUNCTION	Latch operable from either side when unlocked; latch locked / unlocked by key outside or by thumb-turn inside.			
ACCESSORIES	Door closer; acoustic seal; door stop			
EACS/SECURITY LEVEL	Medium			
OTHERS				
BUILDING SERVICES				
DELIVERY ROUTE SIZE				
RM. NOISE LEVEL				
COMMUNICATIONS FACILITIES	Radio coverage R145 socket (digital phone) Qty 2 PABX phone Qty 2			
ECS	Ventilation system			
LIGHTING	TYPE	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
	DIFFUSER	---		
	LUX	320		
	IP	---		
FIRE PROTECTION	DETECTION	Smoke Detection/Heat Detection		
	SUPPRESSION	sprinklers		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	---		
	OTHERS	---		
ELECTRICAL/ POWER REQUIREMENTS	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	5	WALL	twins 10A, 230V	Concealed
PLUMBING & DRAINAGE	Floor drain			
FIXTURES, EQUIPMENT & LOOSE FURNITURE	See Indicative room layout			
OTHERS	Room sign			
OTHERS	NIL			



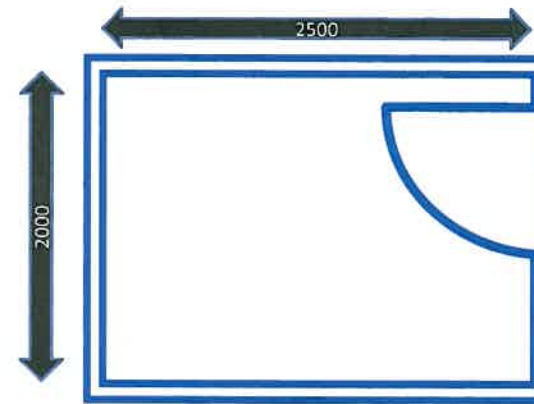
**Room Data Sheet - Maintenance In-house Store Room (applies to city Stations)****General notes:****Size and Dimension**

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ROOM NUMBER	1018			
ROOM ACRYMNM	MAS			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Storage of material and equipment for maintenance			
SIZE / DIMENSION (in mm)	1. City stations: 2500 (w) * 2000 (d) 2. Southwest stations: No such room and combined with Chemical Store Room (Maintenance and Chemical Store Room)			
LOCATION	Concourse within station staff area			
CONNECTION	Adjacent to maintenance office			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Granolithic			WATER TIGHTNESS*
SKIRTING	Granolithic			
WALL	Masonry paint on fair faced concrete or blockwork			
CEILING	Wall sealer paint on fair faced concrete			
OTHERS	--			
<b>DOORS &amp; IRONMONGERY</b>				
DOOR TYPE	SET 1		SET 2	
CLEAR OPENING REQUIRED	2			
DIRECTION OF SWING	2100mm (H) x 900mm (W) Swing in at 90 degrees			
FIRE RESISTANCE	Same FRP as the adjoining wall			
AIR RESISTANCE	NIL			
STC RATING	35			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer and coordinator; armour plate; door stop			
EACS/SECURITY LEVEL	Medium			
OTHERS	--			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	--			
RM. NOISE LEVEL	--			
Radio coverage RJ45 socket (digital phone) Qty 1 PABX Phone Qty 1				
<b>COMMUNICATIONS FACILITIES</b>				
ECS	Ventilation system			
LIGHTING	TYPE	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
	DIFFUSER	See Fire and life safety strategy		
	LUX	min. 160		
	IP	See Fire and life safety strategy		
FIRE PROTECTION	DETECTION	smoke / heat detection		
	SUPPRESSION	sprinklers		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	--		
	OTHERS	--		
<b>ELECTRICAL/ POWER</b>				
REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	2	WALL	twins 10A, 230V
				Concealed
<b>PLUMBING &amp; DRAINAGE</b>				
		Floor drain		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	See indicative room layout			
OTHERS	Room sign			
OTHERS	NIL			





**Room Data Sheet - Public Toilet (applies to city Stations)**

**General notes:**

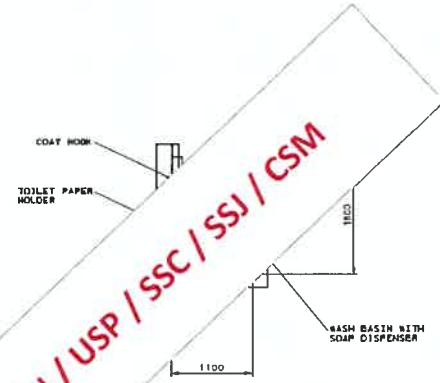
**Size and Dimension**

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ROOM NUMBER			
ROOM ACRYOMN			
FUNCTIONAL REQUIREMENTS			
FUNCTION			
SIZE / DIMENSION		3 m2	
LOCATION		Paid concourse	
CONNECTION			
MATERIALS & FINISHES		WATER TIGHTNESS*	
FLOOR	Vitrified Ceramic Floor tile	A	
SKIRTING	Vitrified Ceramic Floor tile, square top, covered	A	
WALL	Vitrified Ceramic wall tile	A	
CEILING	Fibre cement board	A	
OTHERS			
DOORS & IRONMONGERY	SET 1		
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)		
DIRECTION OF SWING	Swing In at 90 degrees		
FIRE RESISTANCE			
AIR RESISTANCE	20		
STC RATING			
LOCK FUNCTION			
ACCESSORIES	Door closer, door stop		
SAMS/SECURITY LEVEL			
OTHERS			
BUILDING SERVICES			
DELIVERY ROUTE SIZE			
RM. NOISE LEVEL			
COMMUNICATIONS FACILITIES			
ECS			
LIGHTING	TYPE		
	DIFFUSER		
	LUX		
	IP		
FIRE PROTECTION	DETECTION	See Fire and life safety strategy	
	SUPPRESSION	see above	
	EXTINGUISHER	see above	
	SEPARATION	see above	
	SMOKE EXTRACT	see above	
	OTHERS	see above	
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION
	SPECIFIC EQUIPMENT	SOCKET TYPE	CONDUIT TYPE
PLUMBING & DRAINAGE			
FIXTURES, EQUIPMENT & LOOSE FURNITURE			
TYPE & LOCATION			
OTHERS			
OTHERS			



**Room Data Sheet - Parenting Room (applies to city Stations)****General notes:****Size and Dimension**

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**Building services requirements and finishing requirement**

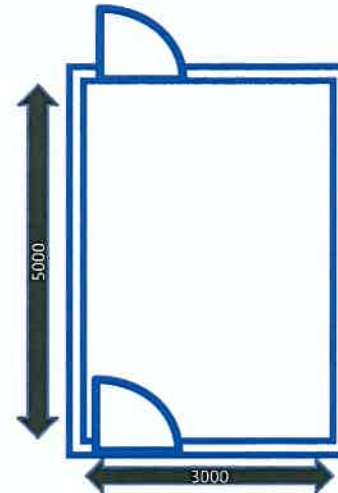
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4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER					
ROOM ACRYM					
FUNCTIONAL REQUIREMENTS					
FUNCTION					
SIZE / DIMENSION		8 m2			
LOCATION		Paid concourse			
CONNECTION		Adjacent to public toilets			
MATERIALS & FINISHES					
FLOOR		Vitrified Ceramic Floor tile		WATER TIGHTNESS*	
SKIRTING		Vitrified Ceramic Floor tile, square top coved		A	
WALL		Vitrified Ceramic wall tile		A	
CEILING		Fibre cement board		A	
OTHERS					
DOORS & IRONMONGERY		SET 1			
DOOR TYPE					
CLEAR OPENING REQUIRED		2100mm (H) x 900mm (W)			
DIRECTION OF SWING		Swing in at 90 degrees			
FIRE RESISTANCE					
AIR RESISTANCE					
STC RATING		20			
LOCK FUNCTION					
ACCESSORIES		Door closer; door stop			
SAMS/SECURITY LEVEL					
OTHERS					
BUILDING SERVICES					
DELIVERY ROUTE SIZE					
RM. NOISE LEVEL					
COMMUNICATIONS FACILITIES					
ECS					
LIGHTING		TYPE			
		DIFFUSER			
		LUX			
		TP			
FIRE PROTECTION		DETECTION See Fire and life safety strategy			
		SUPPRESSION see above			
		EXTINGUISHER see above			
		SEPARATION see above			
		SMOKE EXTRACT see above			
		OTHERS see above			
ELECTRICAL/ POWER REQUIREMENTS		NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
		GENERAL SOCKET			
		SPECIFIC EQUIPMENT			
PLUMBING & DRAINAGE					
FIXTURES, EQUIPMENT & LOOSE FURNITURE					
TYPE & LOCATION					
OTHERS					
OTHERS NIL					

To be designed by METRON / USP / SSC / SSJ / CSM

**Room Data Sheet - Track Trolley Room (applies to city Stations)**

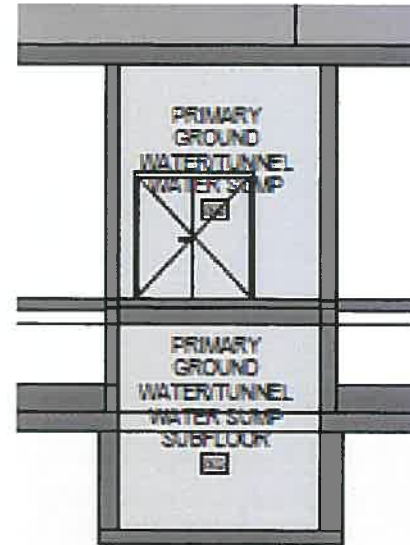
<b>General notes:</b>					
<u>Size and Dimension</u>					
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.					
<u>Building services requirements and finishing requirement</u>					
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.					
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.					
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.					
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. <b>Building Services pipe runs above equipment shall be avoided.</b>					
ROOM NUMBER		706			
ROOM ACRYOVMN		TTR			
<b>FUNCTIONAL REQUIREMENTS</b>					
FUNCTION		Storage area of trolley for emergency purpose City Stations: 3000 (w) * 5000 (d) Southwest Stations: No such room			
SIZE / DIMENSION (in mm)		Back of hiuse at end of platform			
LOCATION		---			
CONNECTION		---			
<b>MATERIALS &amp; FINISHES</b>		<b>WATER TIGHTNESS*</b>			
FLOOR		Floor sealer on granolithic			
SKIRTING		Floor sealer on granolithic			
WALL		Wall sealer / paint on fair faced concrete or blockwork			
CEILING		Wall sealer paint on fair faced concrete or blockwork			
OTHERS		---			
<b>DOORS &amp; IRONMONGERY</b>		SET 1			
CLEAR OPENING REQUIRED		c			
DIRECTION OF SWING		See diagram			
FIRE RESISTANCE		Same FR# as the adjoining wall			
AIR RESISTANCE		NIL			
STC RATING		20			
LOCK FUNCTION		Latch operable by key outside; inside always free for exit			
ACCESSORIES		Door closer; armour plates; door stop			
EACS/SECURITY LEVEL		Medium			
OTHERS		---			
<b>BUILDING SERVICES</b>		---			
DELIVERY ROUTE SIZE		---			
RM. NOISE LEVEL		---			
<b>COMMUNICATIONS FACILITIES</b>					
ECS		Independent ventilation system for battery charging (2 duty fans each 60% of design flow) to comply with local statutory requirement.			
LIGHTING		Fluorescent			
TYPE		N/A			
DIFFUSER		N/A			
LUX		300 lux (control area), 160 lux (general area) 10 lux emergency			
FIRE PROTECTION		N/A			
DETECTION		smoke detectors			
SUPPRESSION		sprinklers			
EXTINGUISHER		Yes			
SEPARATION		Yes			
SMOKE EXTRACT		---			
OTHERS		---			
<b>ELECTRICAL/ POWER REQUIREMENTS</b>		NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
GENERAL SOCKET		2	WALL	twins 10A, 230V	Concealed
SPECIFIC EQUIPMENT		One 5&PN One wall-mounted fuse connection unit at high level from essential power supply for digital clock (by COM) Electrical provisions for system panels and consoles One fuse connection unit from essential supply for COM Earthing terminal Floor drain			
<b>PLUMBING &amp; DRAINAGE</b>					
FIXTURES, EQUIPMENT & LOOSE FURNITURE					
TYPE & LOCATION					
See indicative room layout					
OTHERS					
Room sign					
OTHERS					
NIL					



**Room Data Sheet - Primary / Secondary Ground Water Sump (applies to city Stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	802 / 803
ROOM ACRYM	PWS / SWS
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	Maintenance area for Tunnel Groundwater Sump (Sub-floor) not including station box ground water seepage.
SIZE / DIMENSION (in mm)	Primary Tunnel Water Sump = 4m(W) x 4m(L) x 4m(H) Secondary Tunnel Water Sump = 3m(W) x 3m(L) x 4m(H)
LOCATION	Primary Sump at South Platform End / Secondary Sump at North Platform End
CONNECTION	Tunnel Groundwater Sump (Subfloor) down below
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Water Tightness* Floor sealer on granolithic Refer to SWTC
SKIRTING	Floor sealer on granolithic Refer to SWTC
WALL	Wall sealer paint on fair faced concrete or blockwork Refer to SWTC
CEILING	Wall sealer paint on fair faced concrete or blockwork Refer to SWTC
OTHERS	--
<b>DOORS &amp; IRONMONGERY</b>	
CLEAR OPENING REQUIRED	SET 1 2100mm (H) x 1500mm (W)
DIRECTION OF SWING	Swing out at 180 degrees
FIRE RESISTANCE	Same FRP as the Adjoining Wall
AIR RESISTANCE	N/A
STC RATING	30
LOCK FUNCTION	EACS
ACCESSORIES	Door closer: kick plates
EACS/SECURITY LEVEL	Medium
OTHERS	--
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	2 m wide corridor outside room for pump delivery
RM. NOISE LEVEL	--
<b>COMMUNICATIONS FACILITIES</b>	
ECS	Ventilation system (from non-essential power supply)
LIGHTING	TYPE: 1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting DIFFUSER: yes LUX: Essential: 320 Nominal, 500 Desktop; Emergency: 10 IP: Weatherproof IP54
FIRE PROTECTION	DETECTION: As per Fire and Life Safety Strategy SUPPRESSION: smoke detectors EXTINGUISHER: sprinklers SEPARATION: Yes SMOKE EXTRACT: Yes OTHERS: --
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET: NUMBER: 2, LOCATION: Wall, SOCKET TYPE: twins 10A, 230V, CONDUIT TYPE: Concealed SPECIFIC EQUIPMENT: One wall-mounted fuse connection unit at high level from essential power supply for digital clock (by COM) Electrical provisions for system panels and consoles One fuse connection unit from essential supply for COM EARTHING TERMINAL double power points = 2 Cleansing water supply
<b>PLUMBING &amp; DRAINAGE</b>	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	1, 4 Nos of Safety Harness Anchor Points at Floor Level
OTHERS	--
OTHERS	NIL

Typical Layout

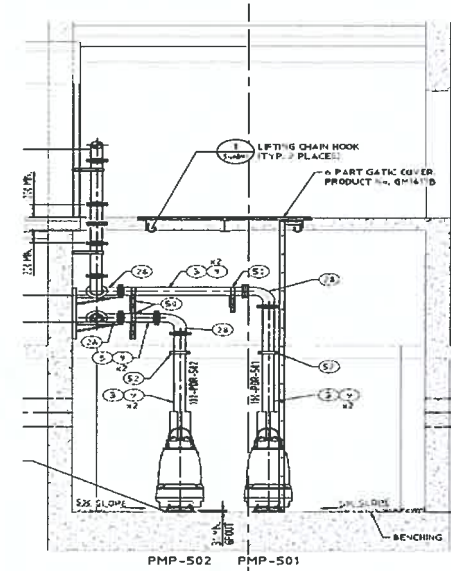
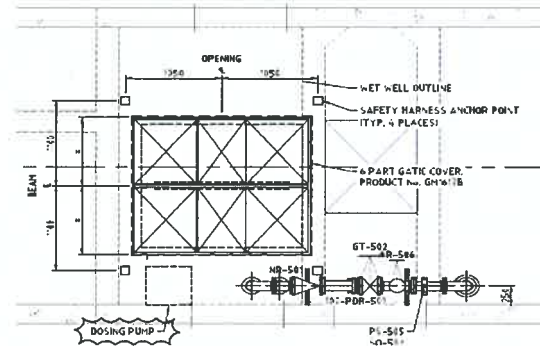




**Room Data Sheet - Primary /Secondary Ground Water Sump (Sub-floor) (applies to city Stations)**

<b>General notes:</b>					
<b>Size and Dimension</b>					
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.					
<b>Building services requirements and finishing requirement</b>					
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.					
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.					
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.					
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. <b>Building Services pipe runs above equipment shall be avoided.</b>					
ROOM NUMBER	802 / 803				
ROOM ACRYMIM	PWS / SWS				
<b>FUNCTIONAL REQUIREMENTS</b>					
FUNCTION	To pump water from the sump at the designated flow rate and pressure through the rising main to discharge				
SIZE / DIMENSION (in mm)	Primary Tunnel Water Sump (Subfloor) = 4000 (w) * 4000 (d) * 4000 (h) Secondary Tunnel Water Sump (Subfloor) = 3000(w) x 3000 (d) x 4000(h)				
LOCATION	Primary at South Platform End / Secondary at North Platform End				
CONNECTION	Tunnel Groundwater Sump (Directly above at Platform Level)				
<b>MATERIALS &amp; FINISHES</b>			<b>WATER TIGHTNESS*</b>		
FLOOR	Floor sealer on granolithic		Refer to SWTC		
SKIRTING	Floor sealer on granolithic		Refer to SWTC		
WALL	Wall sealer paint on fair faced concrete or blockwork		Refer to SWTC		
CEILING	Wall sealer paint on fair faced concrete or blockwork		Refer to SWTC		
OTHERS	Floor with 5% benching				
DOORS & IRONMONGERY	SET 1				
CLEAR OPENING REQUIRED			N/A		
DIRECTION OF SWING			N/A		
FIRE RESISTANCE			N/A		
AIR RESISTANCE			N/A		
STC RATING			N/A		
LOCK FUNCTION			N/A		
ACCESSORIES			N/A		
EACS/SECURITY LEVEL			N/A		
OTHERS			N/A		
<b>BUILDING SERVICES</b>					
DELIVERY ROUTE SIZE	Lifting chain hook for lifting @ vms				
RM. NOISE LEVEL					
<b>COMMUNICATIONS FACILITIES</b>					
ECS	Ventilation system (for non-essential power supply)				
<b>LIGHTING</b>					
	TYPE				
	DIFFUSER				
	LUX				
	IP				
<b>FIRE PROTECTION</b>					
	DETECTION	As per Fire and Life Safety Strategy			
	SUPPRESSION	Refer to FS provision of sump pump room			
	EXTINGUISHER	Yes			
	SEPARATION	Yes			
	SMOKE EXTRACT				
	OTHERS				
<b>ELECTRICAL/ POWER REQUIREMENTS</b>					
	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	SPECIFIC EQUIPMENT	NIL			
<b>PLUMBING &amp; DRAINAGE</b>					
		NIL			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>					
TYPE & LOCATION	See indicative diagram				
OTHERS	NIL				
OTHERS	1. Stainless steel access ladder with safety hoop for access to bottom level.				

Typical Layout



**Room Data Sheet - Fire Brigade Booster - Tunnel Hydrant (applies to city Stations)****General notes:****Size and Dimension**

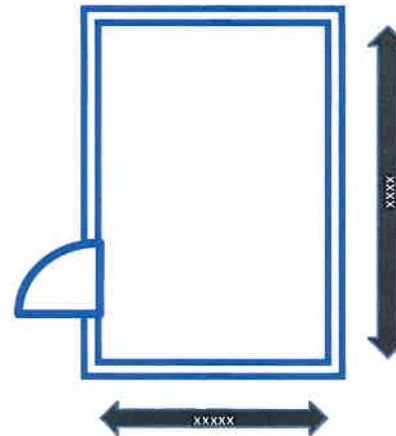
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER				JCS
ROOM ACRYM				FBIH
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	1. Emergency Response Team to use as appropriate in emergency situations.			
SIZE / DIMENSION (in mm)	To suit equipment size			
LOCATION	1. Surface level accessible outside of station by fire bridge 2. Next to water metre cupboard and water main connection 3. Minimum 10 m from substation / electrical rooms			
CONNECTION	--			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic			WATER TIGHTNESS*
SKIRTING	Floor sealer on granolithic			
WALL	Wall sealer paint on fair faced concrete or blockwork			
CEILING	Wall sealer paint on fair faced concrete or blockwork			
OTHERS	--			
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	2100mm (H) x 900mm (W)			
DIRECTION OF SWING	Swing out at 90 degrees			
FIRE RESISTANCE	Same FRP as the adjoining wall			
AIR RESISTANCE	NIL			
STC RATING	NIL			
LOCK FUNCTION	NIL			
ACCESSORIES	NIL			
EACS/SECURITY LEVEL	NIL			
OTHERS	--			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	--			
RM. NOISE LEVEL	--			
<b>COMMUNICATIONS FACILITIES</b>				
Radio coverage				
RJ45 socket (digital phone) Qty 1				
PABX Phone Qty 1				
ECS	Ventilation system			
LIGHTING	TYPE	1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting		
	DIFUSER	yes		
	LUX	Essential: 320 Nominal, Emergency: 10		
	IP	weatherproof IP54		
FIRE PROTECTION	DETECTION	smoke detectors		
	SUPPRESSION	NIL		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	--		
	OTHERS	--		
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	1	Wall	twins 10A, 230V
				Consealed
PLUMBING & DRAINAGE	floor drain with 150mm diameter drainage outlet			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	See indicative room layout			
OTHERS	Room sign			
OTHERS	NIL			

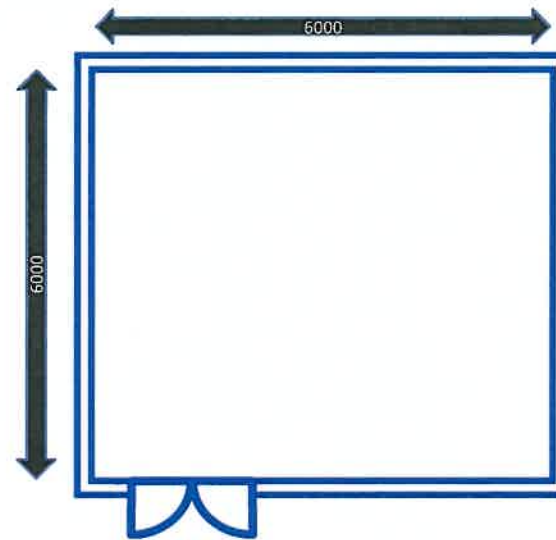
Typical Layout



**Room Data Sheet - Tunnel Fire Services Pump Room (applies to city Stations)**

<b>General notes:</b>		
<b>Size and Dimension</b>		
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.		
<b>Building services requirements and finishing requirement</b>		
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.		
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.		
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.		
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. <b>Building Services pipe runs above equipment shall be avoided.</b>		
ROOM NUMBER	702	
ROOM ACRYONYM	TTP	
<b>FUNCTIONAL REQUIREMENTS</b>		
FUNCTION	For fuel replacement and maintenance	
SIZE / DIMENSION (in mm)	6000 (w) x 6000 (d) x 4000 (h)	
LOCATION	1. Surface level accessible outside of station by fire bridge 2. Next to Fire Water Storage Tank 3. At same station end as Fire Control Room	
<b>CONNECTION</b>		
<b>MATERIALS &amp; FINISHES</b>		
FLOOR	Floor sealer on granolithic	
SKIRTING	Floor sealer on granolithic	
WALL	Wall sealer paint on fair faced concrete or blockwork	
CEILING	Wall sealer paint on fair faced concrete or blockwork	
OTHERS		
<b>DOORS &amp; IRONMONGERY</b>		
CLEAR OPENING REQUIRED	2100mm (H) x 1500mm (W)	
DIRECTION OF SWING	Swing out at 180 degrees	
FIRE RESISTANCE	Same FRP as the Adjoining Wall	
AIR RESISTANCE	N/A	
STC RATING	30	
LOCK FUNCTION	Latch operable by key outside; inside always free for exit	
ACCESSORIES	Door closer; kick plates	
EACS/SECURITY LEVEL	Medium	
OTHERS	--	
<b>BUILDING SERVICES</b>		
DELIVERY ROUTE SIZE	2 m wide corridor outside room for pump delivery	
RM. NOISE LEVEL	--	
<b>COMMUNICATIONS FACILITIES</b>		
ECS	VENTILATION system (2 duty fans each 60% design flow) from essential supply	
LIGHTING	RADIO coverage 1) FLUORESCENT 2) local switch 3) motion sensor 4) emergency lighting	
FIRE PROTECTION	DETECTION	smoke detectors
	SUPPRESSION	NIL
	EXTINGUISHER	Yes
	SEPARATION	Yes
	SMOKE EXTRACT	--
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER: 2 LOCATION: Wall SOCKET TYPE: twins 10A, 230V CONDUIT TYPE: Consealed
	SPECIFIC EQUIPMENT	One wall-mounted fuse connection unit at high level from essential power supply for digital clock (by CGM) Electrical provisions for system panels and consoles One fuse connection unit from essential supply for COM EARTHING TERMINAL double power points = 2
PLUMBING & DRAINAGE	floor drain with 150mm diameter drainage outlet; cleansing water supply.	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>		
TYPE & LOCATION	See indicative room layout	
OTHERS	Room sign	
OTHERS	plinth and lifting hooks as required, curb at entrance door, safety railing on top of water tank adjacent to cat ladder	

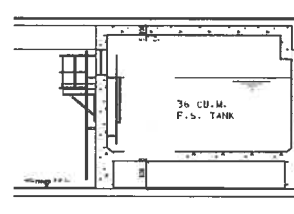
Typical Layout



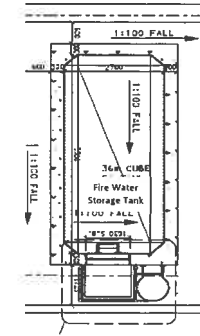
**Room Data Sheet - Fire Water Storage Tank Room (applies to city Stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
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3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.	
ROOM NUMBER	705
ROOM ACRYWM	FWT
<b>FUNCTIONAL REQUIREMENTS</b>	
FUNCTION	To store water for tunnel hydrant 5000 (w) x 5000 (d) x 4000 (h)
SIZE / DIMENSION (in mm)	size and quantity of water tank should be reviewed by BS/fire engineer to ensure statutory compliance
LOCATION	Next to Fire Pump Room
CONNECTION	--
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Floor sealer on granolithic Refer to SWTC
SKIRTING	Floor sealer on granolithic Refer to SWTC
WALL	Wall sealer paint on fair faced concrete or blockwork Refer to SWTC
CEILING	Wall sealer paint on fair faced concrete or blockwork Refer to SWTC
<b>OTHERS</b>	
DOORS & IRONMONGERY	SET 1
CLEAR OPENING REQUIRED	See diagram
DIRECTION OF SWING	N/A
FIRE RESISTANCE	Same FRP as the Adjoining Wall
AIR RESISTANCE	N/A
STC RATING	N/A
LOCK FUNCTION	NIL
ACCESSORIES	NIL
EACS/SECURITY LEVEL	NIL
<b>OTHERS</b>	
BUILDING SERVICES	--
DELIVERY ROUTE SIZE	--
RM. NOISE LEVEL	--
<b>COMMUNICATIONS FACILITIES</b>	
ECS	
LIGHTING	TYPE fluorescent luminaires, emergency lighting
	DIFFUSER yes
	LUX Essential: 320 Nominal, Emergency; 10
	IP weatherproof IP54
FIRE PROTECTION	DETECTION NIL
	SUPPRESSION NIL
	EXTINGUISHER NIL
	SEPARATION Yes
	SMOKE EXTRACT --
	OTHERS --
ELECTRICAL/ POWER REQUIREMENTS	NUMBER LOCATION SOCKET TYPE CONDUIT TYPE
	GENERAL SOCKET
	SPECIFIC EQUIPMENT
PLUMBING & DRAINAGE	NIL
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	See indicative room layout
OTHERS	Room sign
OTHERS	Minimum headroom of 1500mm shall be maintained over the top of water tank.
OTHERS	1. Stainless steel access ladder with safety hoop for access to bottom level.

Typical Layout



Section

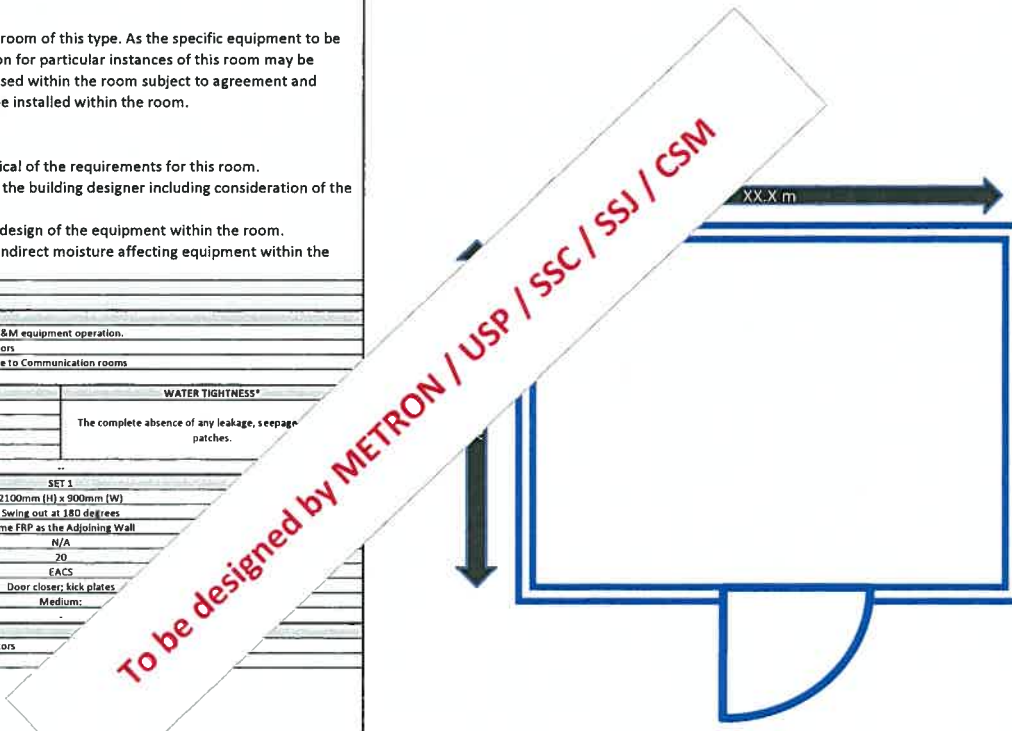


Plan



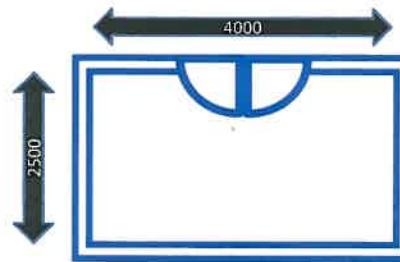
**Room Data Sheet - Centralised UPS Room (applies to city and Southwest stations)**

<b>General notes:</b>			
<u>Size and Dimension</u>			
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.			
<u>Building services requirements and finishing requirement</u>			
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3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.			
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.			
ROOM NUMBER			
ROOM ACRONYM			
<b>FUNCTIONAL REQUIREMENTS</b>			
FUNCTION		To house UPS and Batteries for the station and all E&M equipment operation.	
SIZE / DIMENSION (in mm)		Size to be determined by Building Services Contractors	
LOCATION		Preferably adjacent to LV main switch Room or close to Communication rooms	
CONNECTION		Direct to service corridor	
<b>MATERIALS &amp; FINISHES</b>			
FLOOR		Floor sealer on granolithic	
SKIRTING		Floor sealer on granolithic	
WALL		Fair faced concrete or blockwork	
CEILING		Fair faced concrete	
OTHERS		-	
<b>DOORS &amp; IRONMONGERY</b>		SET 1	
CLEAR OPENING REQUIRED		2100mm (H) x 900mm (W)	
DIRECTION OF SWING		Swing out at 180 degrees	
FIRE RESISTANCE		Same FRP as the Adjoining Wall	
AIR RESISTANCE		N/A	
STC RATING		20	
LOCK FUNCTION		EACS	
ACCESSORIES		Door closer; kick plates	
EACS/SECURITY LEVEL		Medium	
OTHERS		-	
<b>BUILDING SERVICES</b>			
DELIVERY ROUTE SIZE		Size to be determined by Building Services Contractors	
RM. NOISE LEVEL		Refer to local requirement	
<b>COMMUNICATIONS FACILITIES</b>			
RADIO coverage		-	
PABX phones Qty 1		-	
ECS		Independent ventilation system (2 duty fans each 60% of design) with local statutory requirement.	
<b>LIGHTING</b>			
TYPE		Fluorescent	
DIFFUSER		N/A	
LUX		300 lux (control area), 160 lux (general area), 10 lux emergency	
IP		N/A	
<b>FIRE PROTECTION</b>			
DETECTION		smoke detectors	
SUPPRESSION		# as suppression	
EXTINGUISHER		Yes	
SEPARATION		Yes	
SMOKE EXTRACT		-	
OTHERS		-	
<b>ELECTRICAL/ POWER REQUIREMENTS</b>			
GENERAL SOCKET		NUMBER	LOCATION
SPECIFIC EQUIPMENT		2	WALL
PLUMBING & DRAINAGE		SOCKET TYPE	CONDUIT TYPE
		twins 10A, 230V	Consealed
2 TPN isolating switches derived from two different LV essential busbars for UPS, Earthing terminal			
No water pipe or civil expansion joint inside the room / No water tank above the room			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>			
TYPE & LOCATION		NIL	
OTHERS		Room sign	
OTHERS		PCS equipment may be installed.	



**Room Data Sheet - Chemical Store Room (applies to city Stations)**

<b>General notes:</b>				
<b>Size and Dimension</b>				
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.				
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3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.				
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.				
ROOM NUMBER	1005			
ROOM ACRYMM	CHEMS			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	1. Storage area for chemical			
SIZE / DIMENSION (in mm)	4000 (w) x 2500 (d)			
LOCATION	Adjacent to station plant rooms			
CONNECTION				
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic		<b>WATER TIGHTNESS*</b> The complete absence of any leakage, seepage and damp patches.	
SKIRTING	Floor sealer on granolithic			
WALL	Wall sealer paint on fair faced concrete or blockwork			
CEILING	Wall sealer paint on fair faced concrete or blockwork			
OTHERS	Glazed ceramic tiles splash back above slop sink			
DOORS & IRONMONGERY	SET 1			
CLEAR OPENING REQUIRED	2100mm (H) x 1500mm (W)			
DIRECTION OF SWING	Swing In at 90 degrees			
FIRE RESISTANCE	Same FRP as the Adjoining Wall			
AIR RESISTANCE	-			
STC RATING	20			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer; flush bolts and sockets; armour plates; door stop			
EACS/SECURITY LEVEL	Medium			
OTHERS	-			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	-			
RM. NOISE LEVEL	-			
<b>COMMUNICATIONS FACILITIES</b>				
RADIO coverage				
ECS	Ventilation (segregated system) to meet the hazard class of chemical to local regulation			
LIGHTING	TYPE 1) FLUORESCENT 2) local switch 3) motion sensor			
	DIFFUSER	yes		
	LUX	min. 160 Lux, 10 Lux emergency		
	IP	Required for explosion proof class to local regulation		
FIRE PROTECTION	DETECTION	smoke / heat detection		
	SUPPRESSION	sprinkler or equivalent provisions to local regulations		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	-		
	OTHERS	-		
ELECTRICAL/ POWER REQUIREMENTS	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	2	WALL	twins 10A, 230V	Consealed
PLUMBING & DRAINAGE	SPECIFIC EQUIPMENT	double power point = 1 water points and floor drain		
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	See Indicative room layout			
OTHERS	Room sign			
OTHERS	NIL			



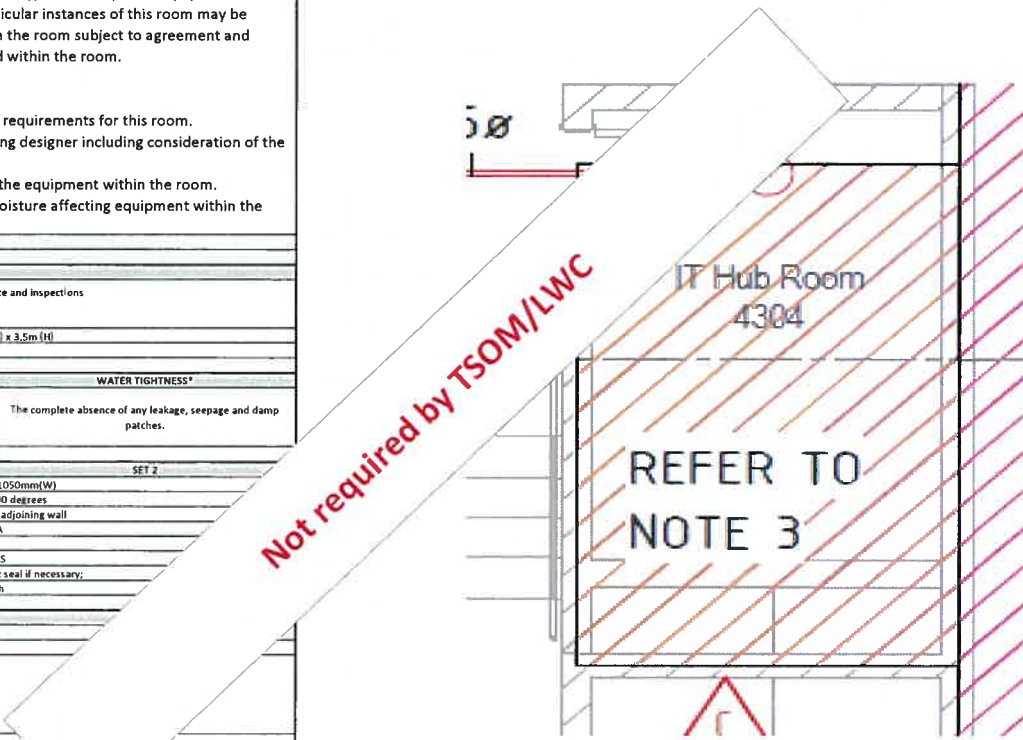
**Room Data Sheet - IT Hub Room (applies to city Stations)**

**General notes:**  
**Size and Dimension**  
 The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

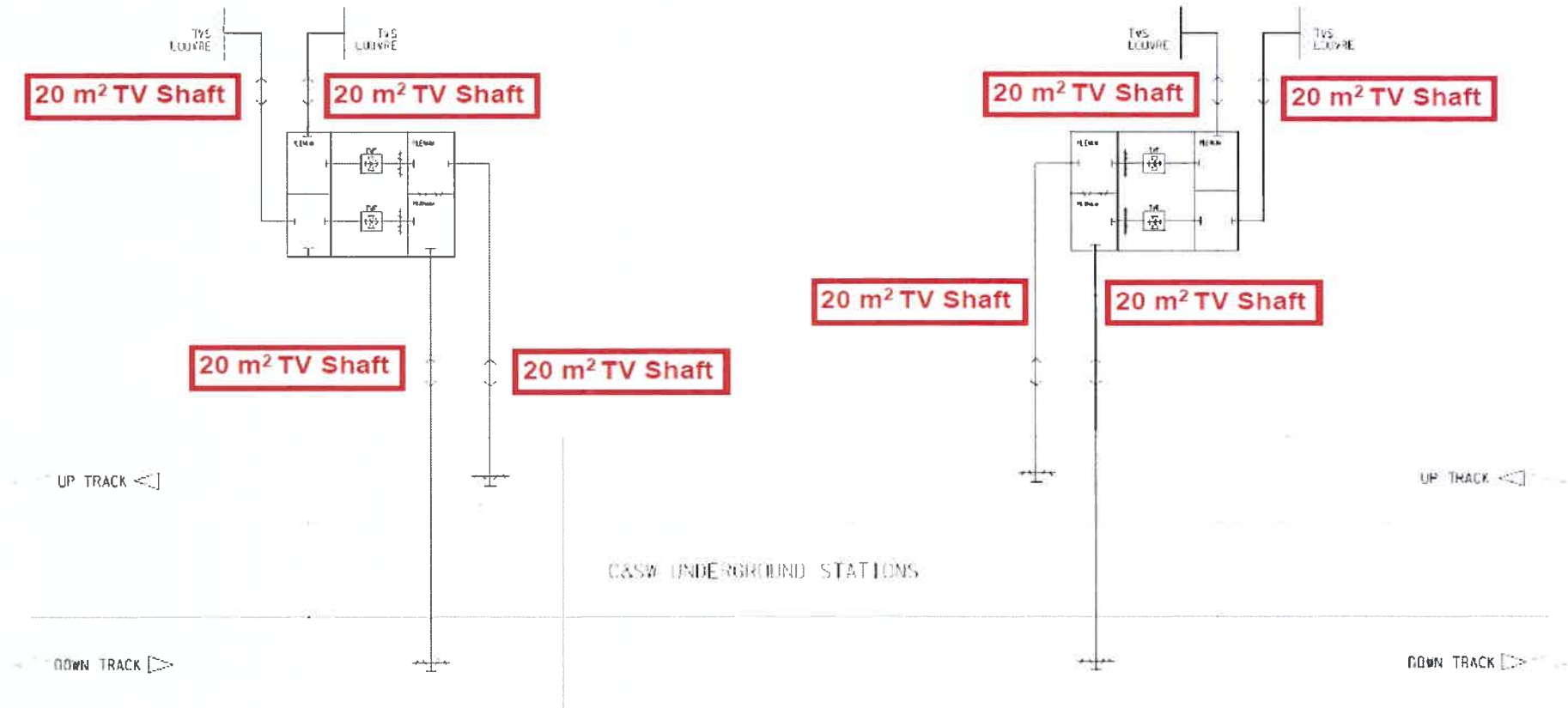
**Building services requirements and finishing requirement**  
 1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.  
 2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.  
 3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.  
 4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. **Building Services pipe runs above equipment shall be avoided.**

ROOM NUMBER			
ROOM ACRYTMN			
FUNCTIONAL REQUIREMENTS			
FUNCTION		1. Maintenance staff to provide scheduled preventive maintenance and inspections 2. Technician to address problems and replace equipments 3. At same station end as Fire Control Room	
SIZE / DIMENSION		3m(W) x 3m(L) x 3.5m (H)	
LOCATION			
CONNECTION			
MATERIALS & FINISHES			
FLOOR		Floor sealer on granolithic	
SKIRTING		Floor sealer on granolithic	
WALL		Wall sealer paint on fair faced concrete or blockwork	
CEILING		Wall sealer paint on fair faced concrete or blockwork	
OTHERS			
DOORS & IRONMONGERY		SET 1 SET 2	
CLEAR OPENING REQUIRED		2100mm(H) x 1050mm(W)	
DIRECTION OF SWING		Swing-in at 90 degrees	
FIRE RESISTANCE		Same FRP as the adjoining wall	
AIR RESISTANCE		N/A	
STC RATING		35	
LOCK FUNCTION		EACS	
ACCESSORIES		Door closer; acoustic seal if necessary;	
EACS/SECURITY LEVEL		High	
OTHERS			
BUILDING SERVICES			
DELIVERY ROUTE SIZE			
RM. NOISE LEVEL			
COMMUNICATIONS FACILITIES			
RADIO coverage			
PABX phones Qty 1			
ECS		A/C, 25.5 °C, 50% ± 10% RH, Standby ventil.	
LIGHTING		FLUORESCENT	
TYPE		DIFFUSER	
LUX		Essential: 300; Emergency: 10	
IP		N/A	
FIRE PROTECTION		Smoke detection / heat detection and audio alarm	
DETECTION		NIL	
SUPPRESSION		Yes	
EXTINGUISHER		Yes	
SEPARATION		Yes	
SMOKE EXTRACT			
OTHERS			
ELECTRICAL/ POWER REQUIREMENTS			
GENERAL SOCKET		NUMBER	LOCATION
SPECIFIC EQUIPMENT		2	WALL
		SOCKET TYPE	CONDUIT TYPE
		twins 10A, 230V	Consealed
PLUMBING & DRAINAGE			
NIL			
FIXTURES, EQUIPMENT & LOOSE FURNITURE			
TYPE & LOCATION		NIL	
OTHERS		Room sign	
OTHERS		NIL	

Typical Layout



ABBREVIATIONS:  
 TVF TUNNEL VENTILATION FAN  
 TVS TUNNEL VENTILATION SHAFT



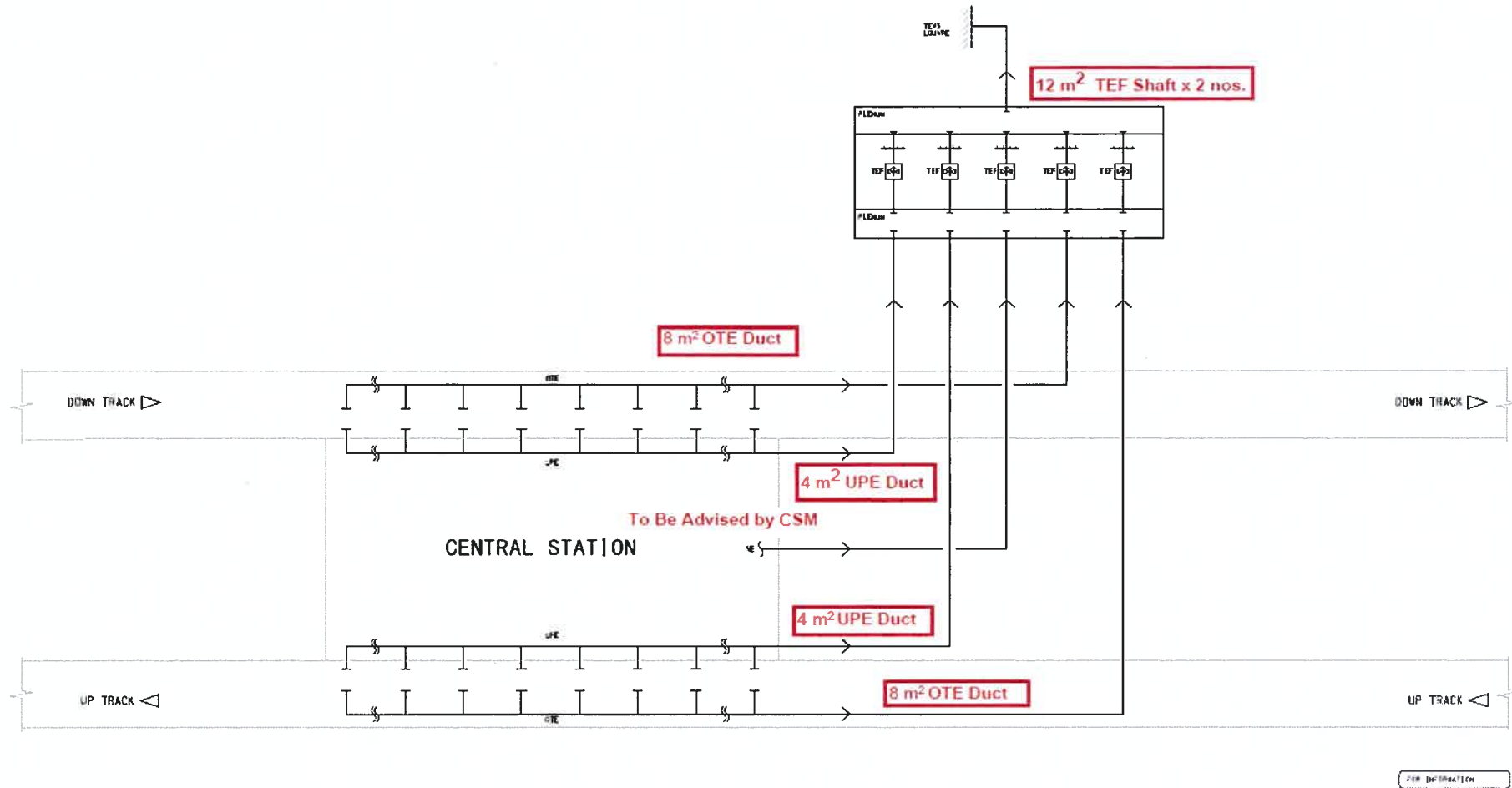
**A 20 m<sup>2</sup> Draught Relief Shaft near TVF Fan Room and with connection to both up-track and down-track tunnels shall also be provided at the two ends of Central Station (Total 2 numbers of Shafts)**

REV: 04/2017/09

-All building services requirement above are indicative only. Contractor to ensure statutory compliance



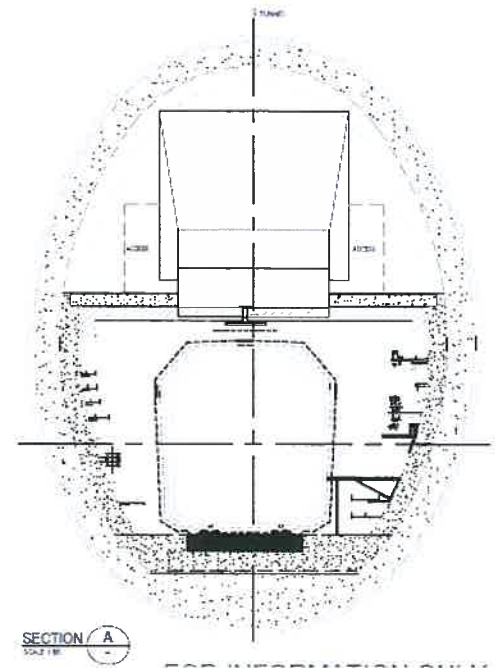
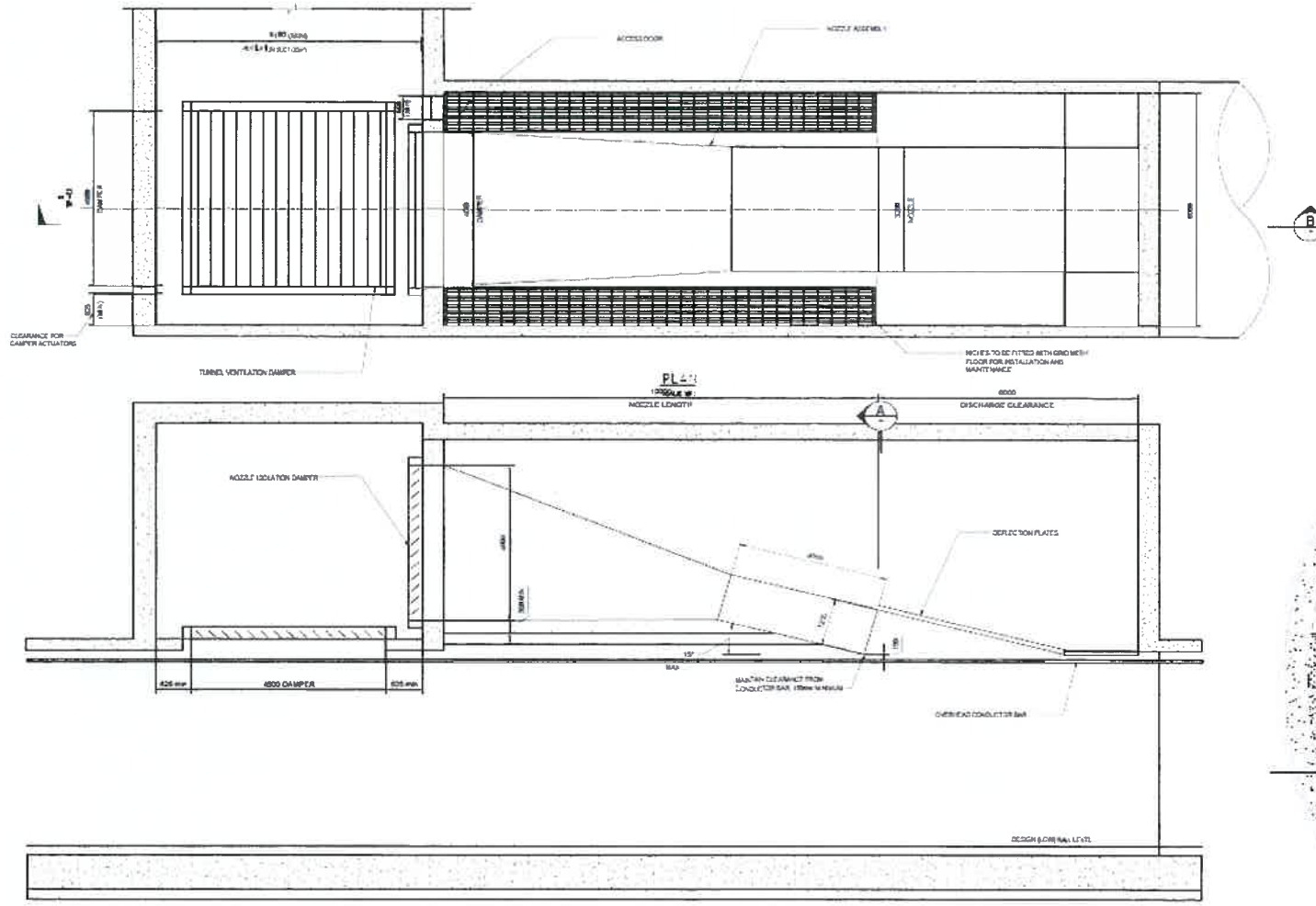
- ABBREVIATIONS:**
- OTE OVER TRACK EXHAUST
  - SE SMOKE EXTRACTION
  - TEF TRACKWAY EXHAUST FAN
  - TEVS TRACKWAY EXHAUST VENTILATION SHAFT
  - UPE UNDER PLATFORM EXHAUST



-All building services requirement above are indicative only. Contractor to ensure statutory compliance

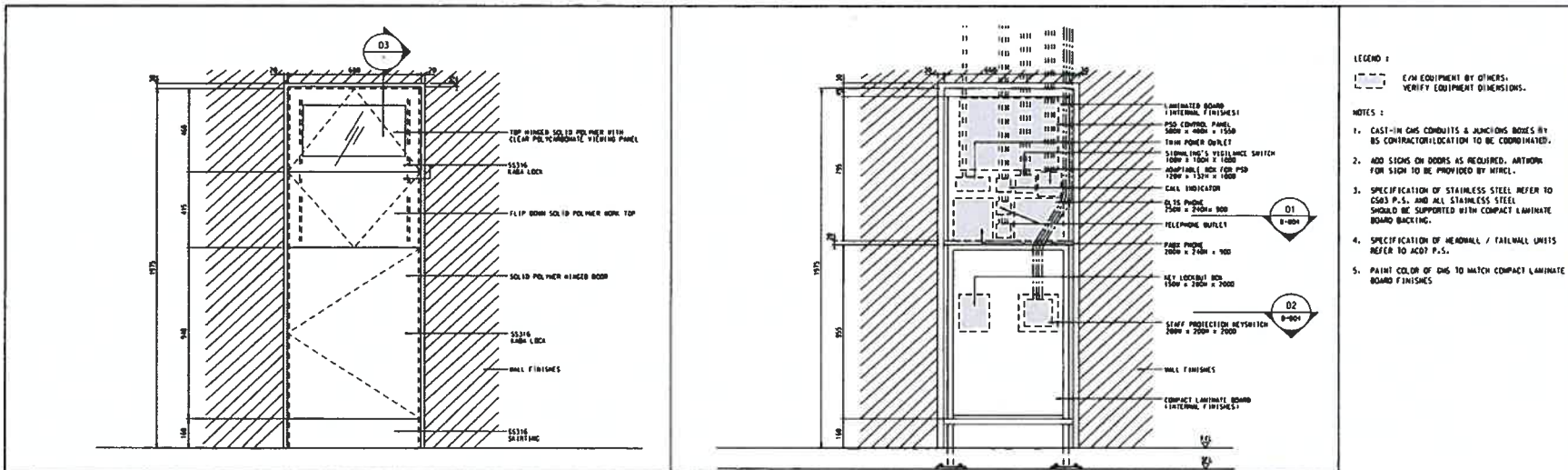
NOTES:

1. THIS DRAWING OUTLINES AN INDICATIVE ARRANGEMENT FOR A TUNNEL VENTILATION NOZZLE.
2. ALL DIMENSIONS ARE NOMINAL.
3. DAMPER SIZES ARE INTERNAL TO DAMPER FRAME.
4. MESH GARDENWAY OVER NOZZLE AND DAMPER TO BE PROVIDED WHERE REQUIRED FOR ACCESS. (NOT A CHAIN FOR CLARITY).
5. A DELUGED ACCESS TEST MAY BE CONSIDERED IF HIGH VELOCITY FLOW ACROSS THE CONDUCTOR BAR & PROBLEMATIC A 'DESIGN WITH' DOWNGON CONDUCTOR BAR WATER REQUIRED.
6. SUPPORT NOT SHOWN TO BE DEVELOPED AT LATER DETAIL.
7. NOT FOR CONSTRUCTION.
8. NOZZLE DIMENSIONS NOMINAL ARE INDICATIVE FOR 120m<sup>3</sup>/s FLOW WITH A DISCHARGE VELOCITY  $\leq 30$ m/s.
9. CONNECTION TO NOZZLE IS INDICATIVE AND WILL BE DEPENDANT ON INDIVIDUAL STATION ARRANGEMENT.



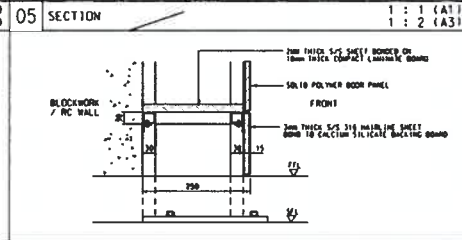
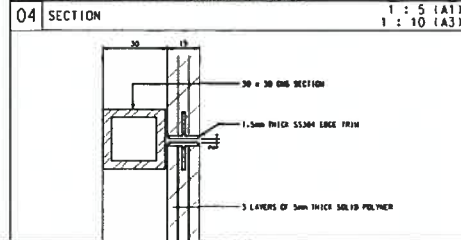
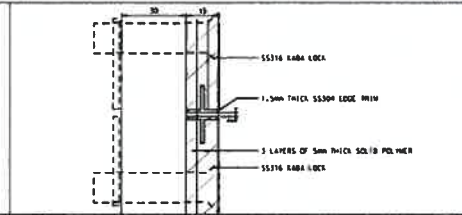
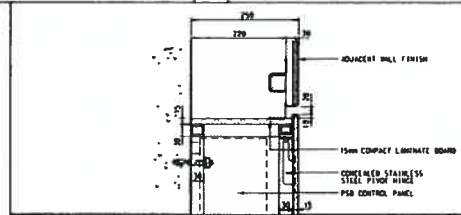
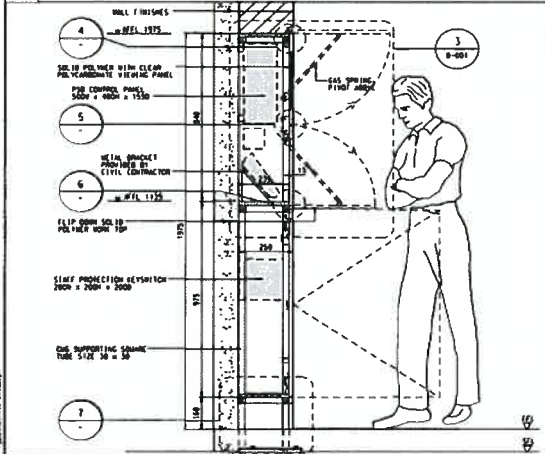
SECTION B  
1:4000

SECTION A  
1:2000



- LEGEND :**
- E/M EQUIPMENT BY OTHERS. VERIFY EQUIPMENT DIMENSIONS.
- NOTES :**
1. CAST-IN GMS CONDUITS & JUNCTION BOXES BY BS CONTRACTOR/LOCATION TO BE COORDINATED.
  2. ADD SIGNS ON DOORS AS REQUIRED. ARTWORK FOR SIGN TO BE PROVIDED BY MTRCL.
  3. SPECIFICATION OF STAINLESS STEEL REFER TO IS603 P.S. AND ALL STAINLESS STEEL SHOULD BE SUPPORTED WITH COMPACT LAMINATE BOARD BACKING.
  4. SPECIFICATION OF HEADWALL / TAILWALL UNITS REFER TO ACQ7 P.S.
  5. PAINT COLOR OF GMS TO MATCH COMPACT LAMINATE BOARD FINISHES

**01 FRONT ELEVATION : HW/TW UNIT** 1 : 10 (A1) 1 : 20 (A3) **02 INTERNAL ELEVATION : HW/TW UNIT** 1 : 10 (A1) 1 : 20 (A3)



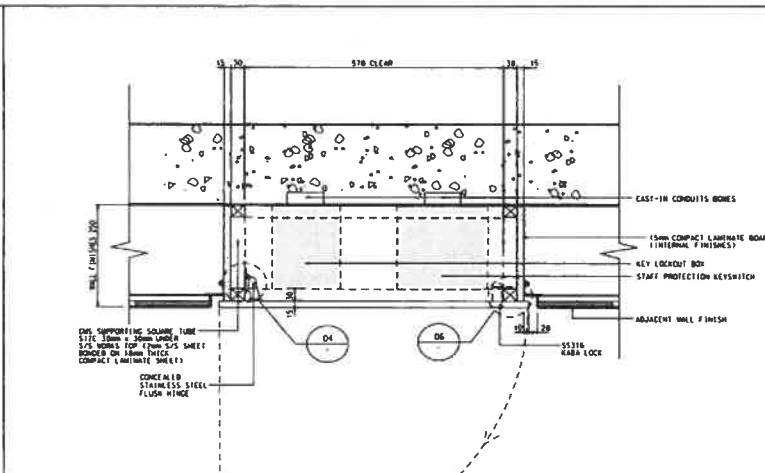
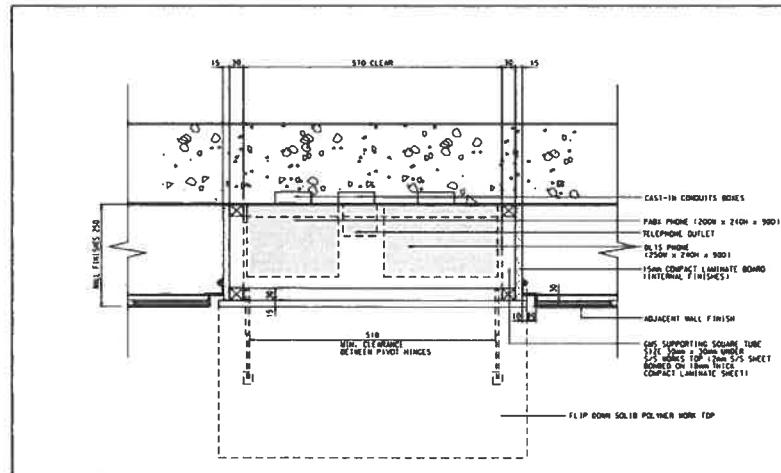
**03 SECTION : HW/TW UNIT** 1 : 10 (A1) 1 : 20 (A3) **04 SECTION** 1 : 5 (A1) 1 : 10 (A3) **05 SECTION** 1 : 1 (A1) 1 : 2 (A3) **06 SECTION** 1 : 1 (A1) 1 : 2 (A3) **07 SECTION** 1 : 5 (A1) 1 : 10 (A3)

DATE: 08/09/2017  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 APPROVED BY: [Name]  
 PROJECT: [Name]

**SIL (E) FRONT OF HOUSE HEADWALL/TAILWALL UNITS HW/TW UNIT ELEVATION & SECTIONS WALL MOUNT TYPE**

SCALE: AS SHOWN DRAWING NO: HW\_TW\_D-003 REV: A

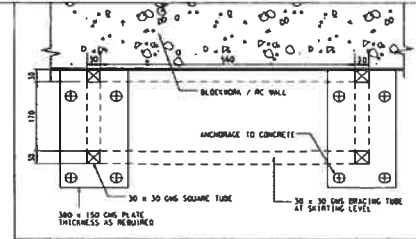
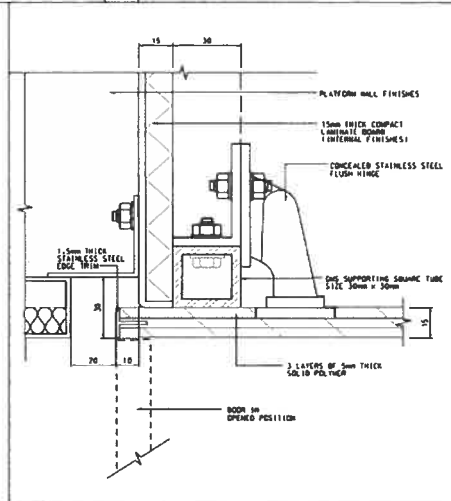
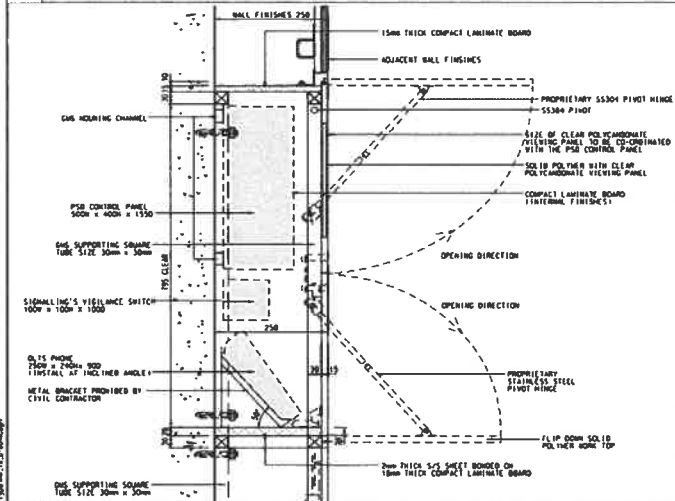
-All building services requirement above are indicative only. Contractor to ensure statutory compliance



- LEGEND 1
- E/M EQUIPMENT BY OTHERS - VERIFY EQUIPMENT DIMENSIONS.
- NOTES :
1. CAST-IN CMS CONDUITS & JUNCTIONS BORES BY BS CONTRACTOR. LOCATION TO BE COORDINATED.
  2. ADD SIGNS ON DOORS AS REQUIRED. ARTWORK FOR SIGN TO BE PROVIDED BY MTRCL.
  3. SPECIFICATION OF STAINLESS STEEL REFER TO DSD3 P.S. AND ALL STAINLESS STEEL SHOULD BE SUPPORTED WITH COMPACT LAMINATE BOARD BACKING.
  4. SPECIFICATION OF HEADWALL / TAILWALL UNITS REFER TO AC01 P.S.
  5. PAINT COLOR OF CMS TO MATCH COMPACT LAMINATE BOARD FINISHES

01 PLAN : HW/TW UPPER CASING 1 : 5 (A1) 1 : 10 (A3)

02 PLAN : HW/TW LOWER CASING 1 : 5 (A1) 1 : 10 (A3)



05 PLAN : HW / TW BASE CONNECTION 1 : 5 (A1) 1 : 10 (A3)

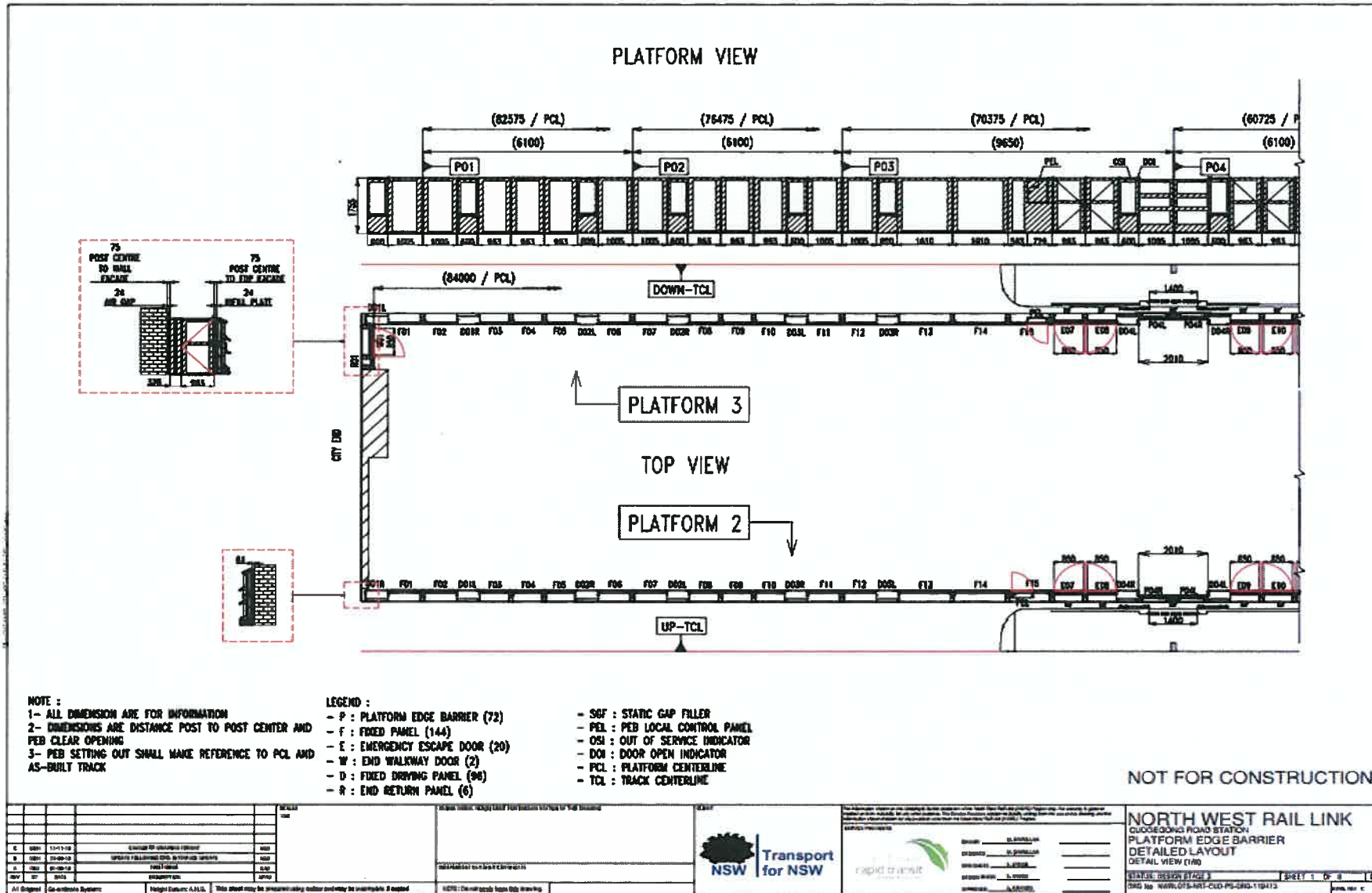
03 SECTION : HW/TW UPPER CASING 1 : 5 (A1) 1 : 10 (A3)

04 PLAN : HINGED DOOR 1 : 1 (A1) 1 : 2 (A3)

06 PLAN : HINGED DOOR 1 : 1 (A1) 1 : 2 (A3)

TYPE  
SIL(E) FRONT OF HOUSE  
HEADWALL/TAILWALL UNITS  
HW/TW UNIT PLANS AND SECTION  
WALL MOUNT TYPE

-All building services requirement above are indicative only. Contractor to ensure statutory compliance



-All building services requirement above are indicative only. Contractor to ensure statutory compliance



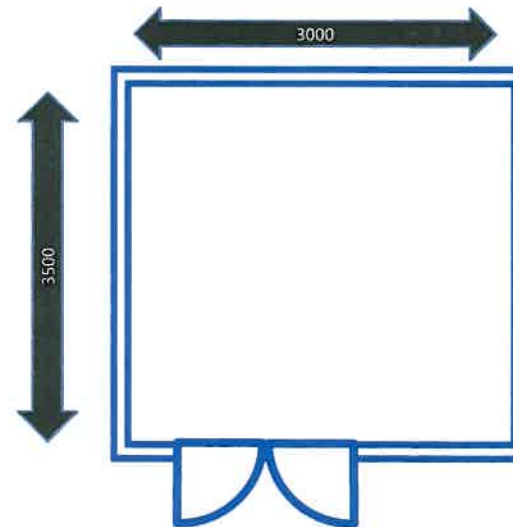
**Room Data Sheet - Scissor Lift Room (applies to city and southwest Stations)****General notes:****Size and Dimension**

The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	1000			
ROOM ACRYONYM	SCLR			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Storage and re-charging of batteries for Mobile Elevated Work Platform used for station maintenance.			
SIZE / DIMENSION (In mm)	3000 (w) * 3500 (d)			
LOCATION	Adjacent to Cleaners Store with direct access to lift			
CONNECTION	3m circulation required externally at the door to allow machine turning			
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic		<b>WATER TIGHTNESS*</b> The complete absence of any leakage, seepage and damp patches.	
SKIRTING	Floor sealer on granolithic			
WALL	Wall sealer paint on fair faced concrete or blockwork			
CEILING	Wall sealer paint on fair faced concrete or blockwork			
OTHERS	--			
<b>DODRS &amp; IRONMONGERY</b>				
CLEAR OPENING REQUIRED	SET 1 2100mm (H) x 1500mm (W)			
DIRECTION OF SWING	Swing in at 90 degrees			
FIRE RESISTANCE	Same FRP as the Adjoining Wall			
AIR RESISTANCE	--			
STC RATING	20			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer; flush bolts and sockets; armour plates; door stop			
EACS/SECURITY LEVEL	NIL			
OTHERS	--			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	--			
RM. NOISE LEVEL	--			
<b>COMMUNICATIONS FACILITIES</b>				
ECS	RADIO coverage			
LIGHTING	Ventilation system			
	TYPE	Flourescent		
	DIFFUSER	--		
	LUX	min. 160 Lux, 10 Lux emergency		
	IP	--		
FIRE PROTECTION	DETECTION	smoke detectors		
	SUPPRESSION	sprinklers		
	EXTINGUISHER	Yes		
	SEPARATION	Yes		
	SMOKE EXTRACT	--		
	OTHERS	--		
ELECTRICAL/ POWER REQUIREMENTS	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE
	SPECIFIC EQUIPMENT	2	Wall	Twins 10A 230V
				Concealed
PLUMBING & DRAINAGE	Floor drain			
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION	NIL			
OTHERS	Room sign			
OTHERS	NIL			

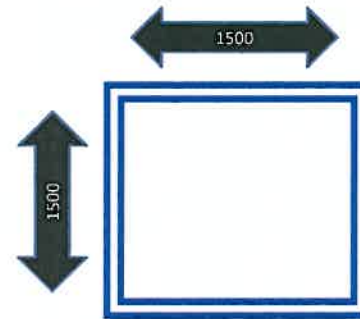


**Room Data Sheet - Communication Distribution Cupboard (applies to city and southwest stations)**

**General notes:**  
**Size and Dimension**  
 The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**  
 1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.  
 2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.  
 3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.  
 4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. **Building Services pipe runs above equipment shall be avoided.**

ROOM NUMBER	ZC1				
ROOM ACRONYM	CDB				
<b>FUNCTIONAL REQUIREMENTS</b>					
FUNCTION	Installation of communication distribution cabinet				
SIZE / DIMENSION in mm	1500 (w) * 1500 (d) * 2100 (h)				
LOCATION	There should be one COM cupboard within 80meters of each COM field equipment				
<b>CONNECTION</b>					
<b>MATERIALS &amp; FINISHES</b>					
FLOOR	WATER TIGHTNESS*				
SKIRTING					
WALL					
CEILING					
OTHERS					
DOORS & IRONMONGERY	SET 1				
CLEAR OPENING REQUIRED					
DIRECTION OF SWING					
FIRE RESISTANCE					
AIR RESISTANCE					
STC RATING					
LOCK FUNCTION					
<b>ACCESSORIES</b>					
EAC/SECURITY LEVEL	Low security if a room is built for this.				
OTHERS					
<b>BUILDING SERVICES</b>					
DELIVERY ROUTE SIZE	..				
RM. NOISE LEVEL	..				
<b>COMMUNICATIONS FACILITIES</b>					
ECS	Forced ventilation system, temperature sensor				
<b>LIGHTING</b>					
	TYPE	..			
	DIFUSER	..			
	LUX	..			
<b>FIRE PROTECTION</b>	IP	..			
	DETECTION	..			
	SUPPRESSION	..			
	EXTINGUISHER	..			
	SEPARATION	..			
	SMOKE EXTRACT	..			
	OTHERS	..			
<b>ELECTRICAL/ POWER REQUIREMENTS</b>					
	GENERAL SOCKET	NUMBER	LOCATION	SOCKET TYPE	CONDUIT TYPE
	SPECIFIC EQUIPMENT	..			
<b>PLUMBING &amp; DRAINAGE</b>					
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>					
TYPE & LOCATION	NIL				
OTHERS	Room sign				
OTHERS	avoid direct sunlight				



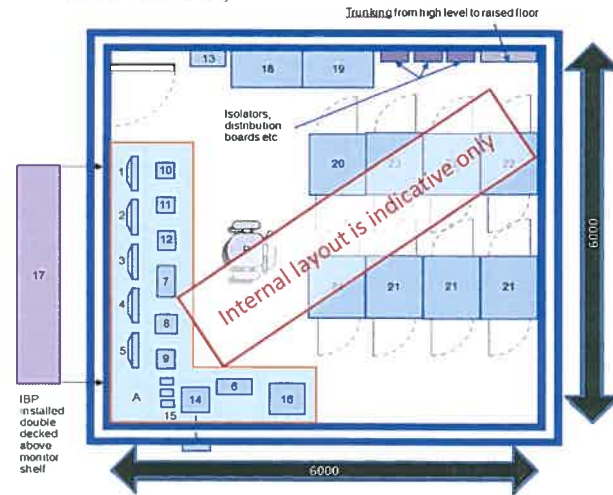
**Room Data Sheet - Station Management Room (Southwest) (applies to southwest satellite stations)**

<b>General notes:</b>	
<b>Size and Dimension</b>	
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.	
<b>Building services requirements and finishing requirement</b>	
1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.	
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.	
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.	
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. <b>Building Services Pipe runs above equipment shall be avoided.</b>	
ROOM NUMBER	1023
ROOM ACRYOYM	SMRSW
<b>FUNCTIONAL REQUIREMENTS</b>	
The Station Management Office enables the administration and operation of the station and station systems by the CSA (Station) and other O&M staff as necessary. The room also houses the IT equipment required to support the operation of the station.	
FUNCTION	
SIZE / DIMENSION in mm	6000 (w) * 6000 (d) * 3500 (h)
LOCATION	Quick access to Sydney Metro areas
CONNECTION	Typically adjacent to station entrance.
<b>MATERIALS &amp; FINISHES</b>	
FLOOR	Resilient Tile on Access Floor
SKIRTING	Resilient Skirting
WALL	Water based paint on plaster
CEILING	Fibre Cement board
<b>WATER TIGHTNESS*</b>	
The complete absence of any leakage, seepage and damp patches.	
*Access Floor to be 750mm minimum above A1-F1 at the adjoining concourse/platform floor height of the raised floor shall be 580mm max.	
<b>OTHERS</b>	
DOORS & IRONMONGERY	
CLEAR OPENING REQUIRED	2300mm (H) x 1050mm (W)
DIRECTION OF SWING	Swing In at 90 degrees
FIRE RESISTANCE	Same FRP as the adjoining wall
AIR RESISTANCE	..
STC RATING	35
LOCK FUNCTION	EACS
ACCESSORIES	Door closer; acoustic seal; door viewer; door stop
EACS/SECURITY LEVEL	HIGH
OTHERS	..
<b>BUILDING SERVICES</b>	
DELIVERY ROUTE SIZE	1m(W) x 2.3m(H) for SCh console delivery
RM. NOISE LEVEL	NR40
<b>COMMUNICATIONS FACILITIES</b>	
Radio coverage RI45 socket (digital phone) Qty 4 PABX phones Qty 1 Cityline phone Qty 1 Intercom Qty 1 Phone Terminal Qty 1	
A/C with independent room fresh supply air pressurized relative to adjacent area (both system from essential power supply). The A/C unit shall not be located at public areas.	
<b>ECS</b>	
LIGHTING	1) Fluorescent 2) local switch 3) motion sensor 4) emergency lighting
	DIFFUSER Yes
	LUX Essential: 320 Nominal, 500 Desktop; Emergency: 10
	IP ..
<b>FIRE PROTECTION</b>	
	DETECTION smoke detectors
	SUPPRESSION recycling pre-action sprinkler and equivalent provisions to local regulation
	EXTINGUISHER Yes
	SEPARATION Yes
	SMOKE EXTRACT ..
	OTHERS ..
<b>ELECTRICAL/ POWER REQUIREMENTS</b>	
GENERAL SOCKET	NUMBER 4 LOCATION Wall SOCKET TYPE twins 10A, 230V CONDUIT TYPE Consealed
SPECIFIC EQUIPMENT	One wall-mounted power socket outlet at high level from essential power supply for digital clock (by COM) Electrical provisions for system panels and consoles One power socket from essential supply for COM Earthing terminal double power point = 4 numbers dedicated power DB = 1 number
<b>PLUMBING &amp; DRAINAGE</b>	
Floor drain	
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>	
TYPE & LOCATION	See Indicative room layout
OTHERS	First-aid kit; room sign
OTHERS	NIL

Typical Layout

**Remark**  
CPU units of computer equipment to be accommodated under the workbench are not shown for clarity

**Room Size: 36 m<sup>2</sup>**



- 1 BMS/Fire Workstation VDU (BS)
  - 2 SIG Workstation VDU (SIG)
  - 3 CCS Workstation VDU (CCS)
  - 4 COM Workstation VDU (COM)
  - 5 CCTV Monitor (COM)
  - 6 ETS RPR Cradles (ETS)
  - 7 Lift & Intercom Panel (COM)
  - 8 PA Panel (COM)
  - 9 CCTV Panel (COM)
  - 10 City Line Telephone (COM)
  - 11 PABX Telephone (COM)
  - 12 Direct Line Telephone (COM)
  - 13 Digital Clock (COM)
  - 14 Intercom (COM)
  - 15 Radio Handset and Charger (RAD)
  - 16 Printer/Fax Machine (Others)
  - 17 Integrated Backup Panel (CCS)
  - 18 Fire Indicator Panel (BS)
  - 19 Sound Systems and Intercom Systems for Emergency Purposes (BS)
  - 20 SIG Network Cubicle (SIG)
  - 21 CCS Cubicle (CCS)
  - 22 Data Network Cubicle (COM)
  - 23 PCS Cubicle (PCS)
- A Control Console/Workbench (CCS)  
B Chair (CCS)

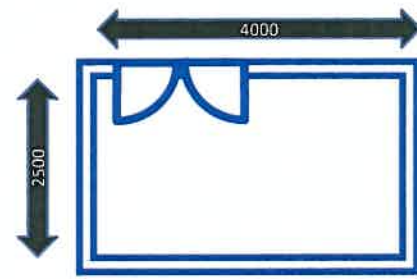


**Room Data Sheet - Maintenance and Chemical Store (applies to southwest stations only)**

**General notes:**  
**Size and Dimension**  
 The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**  
 1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.  
 2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.  
 3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.

ROOM NUMBER	1024			
ROOM ACRYOYM	MCHEMS			
<b>FUNCTIONAL REQUIREMENTS</b>				
FUNCTION	Storage of spare parts, tools and chemicals for station and infrastructure maintenance.			
SIZE / DIMENSION in mm	4000 (w) x 2500 (d)			
LOCATION	Adjacent to station plant rooms			
<b>CONNECTION</b>				
<b>MATERIALS &amp; FINISHES</b>				
FLOOR	Floor sealer on granolithic	<b>WATER TIGHTNESS*</b> The complete absence of any leakage, seepage and damp patches		
SKIRTING	Floor sealer on granolithic			
WALL	Wall sealer paint on fair faced concrete or blockwork			
CEILING	Wall sealer paint on fair faced concrete or blockwork			
OTHERS	Glazed ceramic tiles splash back above slop sink			
<b>DOORS &amp; IRONMONGERY</b>				
CLEAR OPENING REQUIRED	2100mm (H) x 1500mm (W)			
DIRECTION OF SWING	Swing in at 90 degrees			
FIRE RESISTANCE	Same FRP as the Adjoining Wall			
AIR RESISTANCE	-			
STC RATING	20			
LOCK FUNCTION	Latch operable by key outside; inside always free for exit			
ACCESSORIES	Door closer; flush bolts and sockets; armour plates; door stop			
EAC/S/SECURITY LEVEL	Medium			
OTHERS	-			
<b>BUILDING SERVICES</b>				
DELIVERY ROUTE SIZE	-			
RM. NOISE LEVEL	-			
<b>COMMUNICATIONS FACILITIES</b>				
Radio coverage				
RM45 socket (digital phone) Qty 1				
PABX phones Qty 1				
<b>ECS</b>				
Ventilation (segregated system) to meet the hazard class of chemical to local regulation				
<b>LIGHTING</b>				
TYPE 1) FLUORESCENT 2) local switch 3) motion sensor				
DIFFUSER yes				
LUX min. 160 lux, 10 Lux emergency				
IP Required for explosion proof class to local regulation				
<b>FIRE PROTECTION</b>				
DETECTION smoke / heat detection				
SUPPRESSION sprinkler or equivalent provisions to local regulations				
EXTINGUISHER Yes				
SEPARATION Yes				
SMOKE EXTRACT				
OTHERS -				
<b>ELECTRICAL/ POWER REQUIREMENTS</b>				
NUMBER LOCATION SOCKET TYPE CONDUIT TYPE				
GENERAL SOCKET 2 WALL twins 10A, 230V Consealed				
SPECIFIC EQUIPMENT double power point = 1				
<b>PLUMBING &amp; DRAINAGE</b>				
water points and floor drain				
<b>FIXTURES, EQUIPMENT &amp; LOOSE FURNITURE</b>				
TYPE & LOCATION NIL				
OTHERS Room sign				
OTHERS				



**Room Data Sheet - Signalling and Telecom Equipment Room (applies to southwest stations only)**

**General notes:**

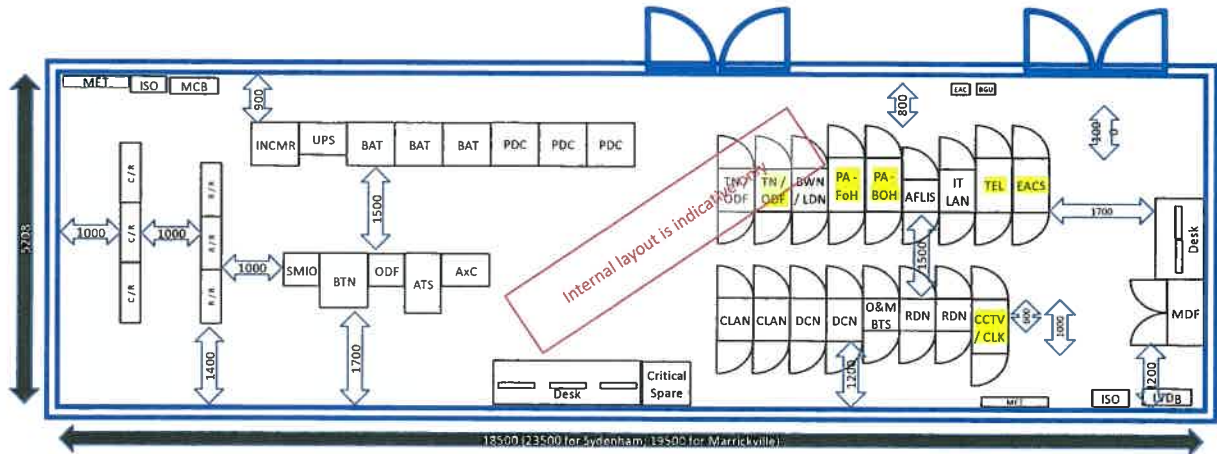
**Size and Dimension**  
The Size / Dimension specified below is the required minimum size for a typical room of this type. As the specific equipment to be contained within the room may vary from station to station, the Size / Dimension for particular instances of this room may be further optimised against the requirements of the specific equipment to be housed within the room subject to agreement and coordination between the building designer and the designer of equipment to be installed within the room.

**Building services requirements and finishing requirement**

1. The building service and finishing requirements specified in this sheet are typical of the requirements for this room.
2. The final building service and finishing requirements are to be determined by the building designer including consideration of the functional requirements, statutory obligations and relevant standards.
3. The design of the building services and finishes shall be coordinated with the design of the equipment within the room.
4. The design of building services shall be so as to minimise the risk of direct or indirect moisture affecting equipment within the room. Building Services pipe runs above equipment shall be avoided.

ROOM NUMBER	100
ROOM ACRYONYM	100
FUNCTIONAL REQUIREMENTS	Combine Signalling and Telecom Equipment Room
SIZE / DIMENSION (In mm)	3850 (W) x 6000 (D) x 3500 (H) while 8000(W) x 6000 (D) reserved for Communications. For Sydneyham: 2350 (W) x 6000 (D) x 3500 (H) while 8000(W) x 6000 (D) reserved for Communications. For Marrickville: 1850 (W) x 6000 (D) x 3500 (H) while 8000(W) x 6000 (D) reserved for Communications.
LOCATION	Private Equipment Building
CONNECTION	DIRECT FIB PLATFORM
MATERIALS & FINISHES	
FLOOR	Resilient Tile on Access Floor
CEILING	Resilient Slating
WALLS	Emery Paint on Fair Face
CERILUS	Wall Sealer Paint on Fair Face Concrete
OTHERS	
DOORS & WINDOW/SCREENERY	
CLEAR OPENING REQUIRED	2400mm (H) x 2100mm (W) (nominal door width x 1000mm)
DIRECTION OF SWING	SWINGS OUT AT 90°
FIRE RESISTANCE	SAME AS FAP AS THE ENCLOSURE
AIR RESISTANCE	N/A
ETC RATINGS	20
LOCK FUNCTION	EACS
ACCESSORIES	DOOR CLOSER, RICK PLATES
EAC/SPECURITY LEVEL	High
OTHERS	
BUILDING SERVICES	
DELIVERY ROUTE SIZE	3 m (W) x 3 m (H)
SMI NOISE LEVEL	NR80 (note 1)
COMMUNICATIONS FACILITIES	
RADIO	RADIO coverage R45 socket (digital phone) Qty 2 PABX phones Qty 2
ECS	A/C, 25.5°C, 50% RH, Sealedby A/C, Essential power supply
LIGHTING	TYPE: 31 FLUORESCENT 21 (incat switch 3) (main onser 4) emergency lighting LUX: Essential: 300; Emergency: 10 SP: Lighting Generally in accordance with AS1680 & SPR 17 lighting to be configured to take into account rack layout
FIRE PROTECTION	DETECTION: Smoke Detection / Heat Detection SUPPRESSION: gas suppression EXTINGUISHER: Yes REPARATION: Yes SMOKE EXTRACT: -- OTHERS: --
ELECTRICAL/POWER REQUIREMENTS	NUMBER: 8 (Essential) LOCATION: WALL SOCKET TYPE: Twin 10A, 230V CONDUIT TYPE: EXPOSED SPECIFIC EQUIPMENT: 2 TP&N ISOLATING SWITCHES (EACH FORM DIFFERENT LV ESSENTIAL BUSBAR, EARTHING TERMINAL No exposed water bearing pipe within this room
PLUMBING & DRAINAGE	
FURNITURE, EQUIPMENT & LOOSE FURNITURE	NIL
OTHERS	NIL
OTHERS	- NO MOVEMENT JOINT INSIDE THE ROOM - YELLOW ARROW TO BE PROVIDED ON FLOOR TO INDICATE THE ESCAPE ROUTE IN CASE OF EMERGENCY - One (1) fire cable access via raised access floor - UPS BATTERY INSTALLED INSIDE THE ROOM - dedicated room air 2 - One TP&N isolating switch from essential power supply - Earthing terminal

Typical Layout



Item	Description	Size: W * D * H (mm)	Item	Description	Item No. / Part No.
AxC	Axle Counter	800 * 600 * 2150	AMB	Air and Ingress 15, Inductance Unit	800 * 800 * 2000
SMIO	Smart I/O	600 * 600 * 2000	BWU L2N	Block Working Unit 2 / Unit of Data Network	800 * 800 * 2000
R / R	Relay Rack	980 * 335 * 2150	CLAN	CLAN 2000 2000	800 * 800 * 2000
C / R	Cable Rack	1114 * 335 * 2150	DCN	Data Network Cabinet	800 * 800 * 2000
ATS	ATS Cabinet	600 * 1100 * 2250	O&M BTS	O&M BTS	800 * 800 * 2000
BTN / DCS	Network Cabinet	800 * 1000 * 2100	RDN	RDN	800 * 800 * 2000
ODF	Optical Distribution Frame	600 * 600 * 2000	CCTV/CLK	CCTV/CLK	800 * 800 * 2000
Desk	Desk for three workstation	800 * 1200 * 750	MDF	Main Distribution Frame	800 * 800 * 2000
BAT	Battery Rack	800 * 800 * 2000	LVDB	Low Voltage Distribution Board	800 * 800 * 2000
UPS	UPS Rack	800 * 800 * 2000	PDC	Power Distribution Cubicle	800 * 800 * 2000
MET	Main Earth Terminal	800 * 800 * 2000	INCMR	Incomer Cabinet	800 * 800 * 2000
ISO	Isolator	800 * 800 * 2000			

# Sydney Metro City & Southwest

## **Sydenham Station and Junction Works Contract Schedules**

Schedule C1

Scope of Works and Technical Criteria  
Appendix C1.2  
Metro Cable Containment Schedules

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September</del> <u>2 November</u> 2017
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.0B</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	
<b>FILE NAME</b>	<del>Schedule C1 - SWTC Appendix C1.2 - Cable Containment Schedules_v1.0</del> <u>Schedule rev B</u>		



# Contents

<b>1</b>	<b>Metro Cable Containment Schedules</b>	<b>2</b>
	<b>Attachment 1</b>	<b>3</b>

# 1 Metro Cable Containment Schedules

- (a) The SSJ Contractor must design, supply and install all the Metro cable containment / support requirements in accordance with Attachment 1:
  - i. SSJ Trackside Cable Containment Schedule; ~~and~~
  - ii. SSJ Station Cable Containment Schedule; ~~and~~
  - iii. [SSJ Trackside Accommodation Schedule](#)
- (b) All cable containment must comply with requirements of Appendix B - Technical Requirements, and all relevant Codes and Standards.
- (c) The Metro Cable Containment Schedules is subject to further detailed design development and co-ordination with the Interface Contractors. The SSJ Contractor must co-ordinate and obtain acceptance from the Interface Contractors on the design and construction of all cable containment / support works in accordance with the Contract, Appendix E – Interface Schedules and Management Requirement – Technical Requirements.
- (d) The Metro Cable Containment Schedules is only applicable to Sydney Metro Works. Any cable containment associated with Brownfield Works are not included in the Metro Cable Containment Schedules; however the SSJ Contractor must design, supply and construct any cable containment required as part of the SSJ Contractor's Activities.





# Attachment 1



**SMCSW  
SSJ Trackside Cable Support Requirement**

Item	Discipline	Cable Type	Up Track or Down Track	From	To
1	COM	Fibre/Data/Feeder	Up Track (MSW)	Greenfield/SSJ boundary	SSJ/SSC Boundary
2	COM	Fibre/Data/Feeder	Dn Track (MSW)	Greenfield/SSJ boundary	SSJ/SSC Boundary
3	PSD	Control Cable	NA	Sydenham Signalling and Telecom Equipment Room (Service Building)	Sydenham Platform Screen Door Equipment Room (Station Platform)
4	PSD	Control / Power Cable	Up Track	Sydenham Platform Screen Door Equipment Room	Sydenham Up Platform End Overhang Void (Car 1 or Car 8, whichever is nearer)
5	PSD	Control / Power Cable	Down Track	Sydenham Platform Screen Door Equipment Room	Sydenham Down Platform End Overhang Void (Car 1 or Car 8, whichever is nearer)
6	HV POW	1 x 33kV 3x1/C Cables	Down Track (MSW)	Sydenham Traction Substation (Southern Dive)	SSJ/SSC Boundary
7	HV POW	1 x 33kV 3x1/C Cables	Up Track (MSW)	Sydenham Traction Substation (Southern Dive)	SSJ/SSC Boundary

8	HV POW	Pilot/Control Cables	Down Track (MSW)	Sydenham Traction Substation (Southern Dive)	SSJ/SSC Boundary
9	HV POW	Pilot/Control Cables	Up Track (MSW)	Sydenham Traction Substation (Southern Dive)	SSJ/SSC Boundary
10	HV POW	2 x 11kV 3/C Cables	Up Track (MSW)	Sydenham Portal Substation (Southern Dive)	Sydenham Station (Service Building)
11	HV POW	2 x 11kV 3/C Cables	Down Track (MSW)	Sydenham Portal Substation (Southern Dive)	Sydenham Station (Service Building)
12	HV POW	Pilot/Control Cables	Up Track (MSW)	Sydenham Portal Substation (Southern Dive)	Sydenham Station (Service Building)
13	HV POW	Pilot/Control Cables	Down Track (MSW)	Sydenham Portal Substation (Southern Dive)	Sydenham Station (Service Building)
14	HV POW	2 x 11kV 3/C Cables	Up Track (MSW)	Sydenham Station (Service Building)	SSJ/SSC Boundary
15	HV POW	2 x 11kV 3/C Cables	Down Track (MSW)	Sydenham Station (Service Building)	SSJ/SSC Boundary
16	HV POW	Pilot/Control Cables	Up Track (MSW)	Sydenham Station (Service Building)	SSJ/SSC Boundary
17	HV POW	Pilot/Control Cables	Down Track (MSW)	Sydenham Station (Service Building)	SSJ/SSC Boundary

18	HV POW	LV Power Cables	Up Track (MSW) or Down Track (MSW)	11kV Padmount Substation Kiosk #1 in Service Building	Main LV Switch Room #1
19	HV POW	LV Power Cables	Up Track (MSW) or Down Track (MSW)	11kV Padmount Substation Kiosk #2 in Service Building	Main LV Switch Room #2
20	HV POW	Control Cables	Up Track (MSW) or Down Track (MSW)	11kV Padmount Substation Kiosk #1 in Service Building	Main LV Switch Room #1
21	HV POW	Control Cables	Up Track (MSW) or Down Track (MSW)	11kV Padmount Substation Kiosk #2 in Service Building	Main LV Switch Room #2
22	Traction Power & OHL	Battery Cable	Up Track (MSW) or Down Track (MSW)	11kV Padmount Substation Kiosk #1 in Service Building	Platform Screen Door Equipment Room
23	Traction Power & OHL	Voltage Limiting Device Cable	Up Track (MSW) or Down Track (MSW)	Platform Screen Door Equipment Room	Nearest Up Track (MSW) or Down Track (MSW) at Platform End
24	Traction Power & OHL	Cross track bonding cables	Up Track (MSW) and Down Track (MSW)	Up Track (MSW) at Platform End	Down Track (MSW) at Platform End
25	Traction Power & OHL	LV power cables	Down Track (MSW)	Platform Screen Door Equipment Room	Trackside OHL Isolators at departure end of Sydenham Station and the turnout areas
26	Traction Power & OHL	LV power cables	Up Track (MSW)	Platform Screen Door Equipment Room	Trackside OHL Isolators at arrival end and departure end of Sydenham Station and the

27	Traction Power & OHL	Control cables	Down Track (MSW)	Platform Screen Door Equipment Room	Trackside OHL Isolators at departure end of Sydenham Station and the turnout areas
28	Traction Power & OHL	Control cables	Up Track (MSW)	Platform Screen Door Equipment Room	Trackside OHL Isolators at arrival end and departure end of Sydenham Station and the turnout areas
29	Signalling	Control cables	Up Track (MSW) main CSR	SSJ trackside areas	SSJ trackside areas
30	Signalling	Control cables	Down Track (MSW) main CSR	SSJ trackside areas	SSJ trackside areas
31	Signalling	Control cables	Up and Down Track main CSR  (Between service buildings and main CSR)	Sydenham (Service Building)	SSJ trackside areas
32	Signalling	Control cables	Up and Down Track CSR  (Under Track Crossing)	SSJ trackside areas	SSJ trackside areas

33	Signalling	Control Cables	At location of the trackside equipment (AP, axle counter and signal)	SSJ trackside areas	SSJ trackside areas
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Note 1 W: width of bracket/trough ; S: vertical spacing between brackets ; D: depth of trough

Note 2 Minimum space between HV cable bracket and base slab shall be 100mm

Note 3 The areas of cable containment shall be free of vegetation (including bushes and tree) for ca

Cable Support Requirement (e.g. Hook/Trough)	Interval(m)	Number of rows	Minumum Bending Radius (m)
<b>Note 1</b>			
Bracket 120mm (W) x 150mm (S)	1	2	0.7
Bracket 120mm (W) x 150mm (S)	1	2	0.7
<b>Option 1</b> Cable Trough 1 x 150mm (W) x 100mm (D) for trackside	-	1	0.1
<b>Option 2</b> GST 1 x 150mm x 150mm for trackside			
<b>Option 3</b> Cable duct 1 x 150mm for trackside			
<b>Option 1</b> Cable Tray 1 x 300(W) + 1 x 200(W) for platform side & Cable Trough 500mm (W) x 200mm (D) for trackside	-	1	0.1
<b>Option 2</b> Cable Duct 3 x 150mm for power and 2 x 150mm for control			
<b>Option 1</b> Cable Tray 1 x 300(W) + 1 x 200(W) for platform side & Cable Trough 500mm (W) x 200mm (D) for trackside	-	1	0.1
<b>Option 2</b> Cable Duct 3 x 150mm for power and 2 x 150mm for control			
Bracket 250mm (W) x 270mm (S) with sunshield or 250(w) x 200mm(h) GST	2	1	1.1
Bracket 250mm (W) x 270mm (S) with sunshield or 250(w) x 200mm(h) GST	2	1	1.1



Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 250mm (W) x 270mm (S) with sunshield or 2 x 200(w) x 200(h) GST	2	2	1.1
Bracket 250mm (W) x 270mm (S) with sunshield or 2 x 200(w) x 200(h) GST	2	2	1.1
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 250mm (W) x 270mm (S) with sunshield or 2 x 200(w) x 200(h) GST	2	2	1.1
Bracket 250mm (W) x 270mm (S) with sunshield or 2 x 200(w) x 200(h) GST	2	2	1.1
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7

6 x 150mm ducts / Trough 500mm (W) x 150mm (D)			0.7
6 x 150mm ducts / Trough 500mm (W) x 150mm (D)			0.7
2 x 100mm ducts / Trough 150mm (W) x 150mm (D)			0.7
2 x 100mm ducts / Trough 150mm (W) x 150mm (D)			0.7
2x100mm ducts or 150mmx150mm trough			0.7
2 x100mm ducts or 200mm x 200mm trough			0.7
2 x100mm ducts			0.7
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7

Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
Bracket 120mm (W) x 150mm(S) with sunshield or 150mm (w) x 150mm(h) GST	1	1	0.7
One GST of 200mm x 200mm			0.7
One GST of 200mm x 200mm			0.7
GST Between service buildings and main CSR  (i) Service Buildings to Up Track CSR: Two GST each of 200mm x 200mm and connect to the main Up Track CSR  (ii) Service Buildings to Down Track CSR: Two GST each of 200mm x 200mm and connect to the main Down Track CSR			0.7
Under Track Crossing (100mm Diameter)  (i) Three crossings at each turnouts (for point & signal & axle counter). Connect main CSR to the respective track			0.7

Rev A5, 1 Dec 10

Local cable containment between main CSR and the signalling trackside equipment			0.7
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able laying works.



Minimum Separation from High Voltage Cables (m)	Remark
0.9	2 rows of bracket for cable diversity
0.9	2 rows of bracket for cable diversity
0.9	<p>This trackside cable containment is required if the <b>Signalling and Telecom Equipment Room</b> is located in service building and <b>Platform Screen Door</b> equipment room is in station.</p> <p>The cable containment route should be less than 250m.</p>
0.9	<p>If <b>Platform Screen Door</b> Equipment Room is on the opposite platform, undertrack crossing (ULX) or overtrack crossing (OTX) will be required.</p> <p>The cable containment route should be less than 100m.</p>
0.9	<p>If <b>Platform Screen Door</b> Equipment Room is on the opposite platform, undertrack crossing (ULX) or overtrack crossing (OTX) will be required.</p> <p>The cable containment route should be less than 100m.</p>
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SMCSW  
Cable Containment Schedule  
SSJ Station

Version

19-Oct-17

Item	Discipline	Cable Containment Type	Cable Containment Dimensions (w: width ; h: height)	Quantity	Accommodated Cable Type	Point-to-Point Connection				Minimum Bending Radius (m)	Minimum Separation from High Voltage Cables (m)	Other Special Requirements	Remark
						From		To					
						Room Name	Room ID	Room Name	Room ID				
<b>CCS</b>													
1	740 CCS	Cable-trunking (power-and-data)	For data: 400mm(w) x 100mm(h) or 300mm(w) x 150mm(h). For LV power: 300mm(w) x 100mm(h).	1	Control	Station Communications Room (Station Computer Room)	205	STATION CONTROL ROOM (SCR)	1000	0.7	0.55		
2	740 CCS	Cable Tray	200mm (w)	1	Control	CCS Main Cable Containment along Concourse				0.7	0.55	CCS Main Cable Containment (connected to CCS Main Cable Containment at BoH)	
3	740 CCS	Cable Tray	200mm (w)	1	Control	CCS Main Cable Containment along platform				0.7	0.9	CCS Main Cable Containment (connected to CCS Main Cable Containment at BoH)	
4	740 CCS	Cable Tray	a) 300mm (w) (at the end/level where SCoR is located) b) 200mm (w) (Others)	1	Control	CCS Main Cable Containment along BoH				0.7	0.55	CCS Main Cable Containment (CCS Main Cable Containment at BoH at concourse level and platform level (at the same end) should be interconnected)	
5	740 CCS	Cable Tray	50mm (w)	1	Control	CCS Main Cable Containment		Platform Screen Door Equipment Room	101	0.7	0.9		
6	740 CCS	Cable Tray	100mm (w)	1	Control	CCS Main Cable Containment		LV MAIN SWITCH ROOM (415V DBs)	To be advised by SSJ	0.7	0.55		
7	740 CCS	Cable Tray	400mm (w)	1	Control	CCS Main Cable Containment		Signalling and Telecom Equipment Room	102	0.7	0.9 (see remark)	Assume Signalling and Telecom Equipment Room at service building	
8	740 CCS	Cable Tray	200mm (w)	1	Control	CCS Main Cable Containment		COMMUNICATIONS EQUIPMENT ROOM #2 (Telecom Equipment Room #2)	201	0.7	0.9 (see remark)	Assume Communications Equipment Room at service building	
9	740 CCS	Under raised floor (power-and-data) cable-trunking-systems (to be confirmed if raised floor will be raised)	For data: 400mm(w) x 100mm(h) or 300mm(w) x 150mm(h). For LV power: 100mm(w) x 100mm(h).	1	Control / Comms / Sig	Station Communications Room (Station Computer Room)	205	Station Communications Room (Station Computer Room)	205	0.7	0.55	To be shared with other E&M discipline	
10	740 CCS	Under raised floor (power and data) cable trunking systems (to be confirmed if raised floor will be raised)	For data: 400mm(w) x 100mm(h) or 300mm(w) x 150mm(h). For LV power: 100mm(w) x 100mm(h).	1	Control / Comms / Sig	Station Management Room	1023	Station Management Room	1023	0.7	0.55	To be shared with other E&M discipline	
11	740 CCS	Cable Tray	50mm (w)	1	Control	CCS Main Cable		Breaking and Meal Room	1010	0.7	0.55		
12	740 CCS	Cable Tray	50mm (w)	1	Control	CCS Main Cable		Maintenance Office	1017	0.7	0.55		
13	740 CCS	Cable Tray	50mm (w)	1	Control	CCS Main Cable		Multipurpose Room	1003	0.7	0.55		
<b>Electronic Access Control System (EACS)</b>													
1	EACS	Trunking	50mm x 50mm	1	Control/Data	Station Management Room	1023	EACS Local Controller		0.7	0.55 / 0.9 (see remark)	0.9 for cable containment along platform / trackside 0.55 for concourse and BoH	
2	EACS	Conduit/Trunking	20mm dia / 50mm x 50mm	1	Control/Data	EACS Door		EACS Local Controller		0.7	0.55 / 0.9 (see remark)	0.9 for cable containment along platform / trackside 0.55 for concourse and BoH	
<b>Signalling</b>													
1	730 Signalling	Cable tray	600mm (w) x 50mm (h)	2 (one for up track, one for down)	Control cables	Signalling and Telecom Equipment Room	102	main CSR of both tracks		0.7	0.9	Main cable routes	
2	730 Signalling	Cable duct	100 mm diameter	16	Control cables	Signalling and Telecom Equipment Room	102	main CSR of both tracks		0.7	0.9	8 cable ducts connected to Up MSW CSR; 8 cable ducts connected to Down MSW CSR	

Item	Discipline	Cable Containment Type	Cable Containment Dimensions (w: width ; h: height)	Quantity	Accommodated Cable Type	Point-to-Point Connection				Minimum Bending Radius (m)	Minimum Separation from High Voltage Cables (m)	Other Special Requirements	Remark
						From		To					
						Room Name	Room ID	Room Name	Room ID				
3	730 Signalling	Cable tray	150mm (w) x 50mm (h)	2 (one for each platform)	Control cables	Platform		Trackside main CSR		0.7	0.9		For cabling of platform equipment. The cables are originated from STER (Service Building) via trackside main CSR.
4	730 Signalling	Cable tray	150mm (w) x 50mm (h)	1	Control cables	Along each platform		Each PEKS in platform		0.7	0.9		The containment shall connect to the above cable containment (Item 3) for trackside main CSR. For cabling of platform equipment. These cables are originated from STER (Service Building) via trackside main CSR.
5	730 Signalling	Cable tray	150mm (w) x 50mm (h)	1	Control cables	Signalling Equipment Room	100 (suppose PSD Room will be separated from Signalling Room)	COMMUNICATIONS EQUIPMENT ROOM #1 (Telecom Equipment Room #1)	200	0.7	0.55 (see remark)		Assume both Signalling Equipment Room and Communications Equipment Room at service building.
6	730 Signalling	Cable tray	150mm (w) x 50mm (h)	1	Control cables	Signalling Equipment Room	100 (suppose PSD Room will be separated from Signalling Room)	COMMUNICATIONS EQUIPMENT ROOM #2 (Telecom Equipment Room #2)	201	0.7	0.55 (see remark)		Assume both Signalling Equipment Room and Communications Equipment Room at service building.
7	730 Signalling	Cable tray	150mm (w) x 50mm (h)	1	Control cables	Signalling and Telecom Equipment Room	102	Station Management Room	1023	0.7	0.9		The cable containments of Item 7 can be shared.
8	730 Signalling	Cable tray	200mm (w) x 50mm (h)	1	Control cables	Station Management Room	1023	Trackside main CSR		0.7	0.9		For cabling of SMR equipment. These cables are originated from STER (Service Building) via trackside main CSR.
9	730 Signalling	Cable Tray	100mm (w) x 50mm (h)	1	Control cables	SPKS(headwall + tailwall units)		Trackside main CSR		0.7	0.9		The containment shall connect to the above cable containment (Item 3) for trackside main CSR. The cable containments of Item 4 can be shared. For cabling of H/T wall unit equipment. These cables are originated from STER (Service Building).
10	730 Signalling	Concealed cable conduit	2 x 32mm diameter	12 (4 PEKS per platform, 2 SPKS per platform at head/tail)	Control cables	Cable tray for PEKS/SPKS		PEKS/SPKS		0.7	0.9	150mm(L) x 150mm(w) x 100mm(d) concealed adaptor box shall be provided for each PEKS & each SPKS; 6 for each platform. Two conduits for each PEKS. Two conduits for each SPKS	For PEKS and SPKS The 4th PEKS is reserve for 8-car provision.
<b>Communications and Radio</b>													
1	750 Comms & 680 Radio	Cable Tray	450mm (w)	1 no. per platform	Audio/Data /RF/Optical	Station Management Room	1023	Platform (Comms Main Cable Containment along platform)		0.4	0.9	cable tray end should be extended to room inner wall by no less than 300mm	Comms Main Cable Containment at platform to be from H/wall to T/wall
2	750 Comms & 680 Radio	Cable Tray	450mm (w)	1 no.	Audio/Data /RF/Optical	Station Management Room	1023	Concourse (Comms Main Cable Containment along Concourse)		0.4	0.55	Ditto	Comms Main Cable Containment at Concourse to be formed as a circular ring throughout the whole area
3	750 Comms & 680 Radio	Cable Tray	450mm (w)	1 no.	Audio/Data /RF/Optical	Station Management Room	1023	BoH (Comms Main Cable Containment along BoH, including vertical cable containments to connect Comms Main Cable Containment along platform and Concourse)		0.4	0.55	Ditto	

Item	Discipline	Cable Containment Type	Cable Containment Dimensions (w: width ; h: height)	Quantity	Accommodated Cable Type	Point-to-Point Connection				Minimum Bending Radius (m)	Minimum Separation from High Voltage Cables (m)	Other Special Requirements	Remark
						From		To					
						Room Name	Room ID	Room Name	Room ID				
4	750 Comms & 680 Radio	Cable Tray	200mm (w)	1 no.	Audio/Data /RF/Optical	Station Management Room	1023	Comms Main Cable Containment along platform		0.4	0.9	Ditto	
5	750 Comms & 680 Radio	Cable Tray or Cable Trunking	300mm (w) or 200mm x 200mm	1 no.	Audio/Data /Optical	Comms Main Cable Containment		Station Management Room	1023	0.4	0.55	Cable tray/ cable trunking end to be extended to room inner wall	
6	750 Comms & 680 Radio	Cable Tray or Cable Trunking	160mm (w) or 100mm x 100mm	1 no.	Audio/Data /Optical	Comms Main Cable Containment		RSS (TBC)	not yet covered in room schedule	0.4	0.9	Ditto	
7	750 Comms & 680 Radio	Cable Tray or Cable Trunking	150mm (w) or 100mm x 100mm	1 no.	Audio/Data /Optical	Comms Main Cable Containment		Each station entrance end (including Night Entrance, FSD Entrance) (TBC)		0.4	0.55		
8	750 Comms & 680 Radio	Conceal conduit (with outlet box)	1 x 32mm dia.	1 no.	Audio/Data /RF/Optical	Comms Main Cable Containment (at entrance)		Night Entrance VIC unit/ Help Point (TBC)		0.4	0.55		
9	750 Comms & 680 Radio	Conceal conduit (with outlet box)	2 x 32mm dia.	1 no.	Audio/Data /RF	Comms Main Cable Containment		HWU/ TWU/ Auxiliary Communication Unit		0.2	0.9		
10	750 Comms & 680 Radio	Cable Tray	200mm (w)	1 no.	Audio/Data/ RF/Optical	Comms Main Cable Containment		BoH (Comms Main Cable Containment along BoH)		0.4	0.55		Comms Main Cable Containment at BOH to be throughout all corridors
11	750 Comms & 680 Radio	Cable Tray or Cable Trunking	150mm (w) or 100mm x 100mm	1 no.	Audio/Data /Optical	Comms Main Cable Containment		Video Customer Assistance Points		0.4	0.55	Cable tray / cable trunking end to be extended to room inner wall	
12	750 Comms & 680 Radio	Cable Tray	100mm (w)	1 no.	Audio/Data	Comms Main Cable Containment		All BOH equipment rooms /plant rooms		0.2	0.55	Cable tray end to be extended to room inner wall	
13	750 Comms & 680 Radio	Cable Tray	50mm (w)	1 no.	Audio/Data	Comms Main Cable Containment		All staff rooms/ mess room/ meeting rooms/ Maintenance offices		0.2	0.55	Ditto	
14	750 Comms & 680 Radio	Cable Tray	150mm (w)	1 no.	Audio/Data/RF /Optical	Comms Main Cable Containment along platform		Comms Main/BOH Cable Containment		0.4	0.9	Ditto	
15	750 Comms & 680 Radio	Cable Tray	300mm (w)	1 no per track	Audio/Data/RF /Optical	Comms Main Cable Containment along platform		Trackside (Comms Cable Containment)		0.7	0.9	Ditto	
16	750 Comms & 680 Radio	Cable duct	100 mm diameter	8	Audio/Data/RF /Optical	Comms Main Cable Containment along platform		cable hanger of both tracks		0.7	0.9	4 cable ducts for each track	
17	750 Comms & 680 Radio	Cable Hanger	200mm (w)	2 no.	Audio/Data/RF /Optical	Along trackside (Comms Cable Containment), and reaching all gates with no greater than 0.5m away.				0.7	0.9		Tunnel wall along LV/ELV side at 1 meter intervals
18	750 Comms & 680 Radio	Cable Tray	150mm (w)	1 no.	Audio/Data RF/Optical	Comms Main Cable Containment		Lift control panel at top lift landing		0.4	0.55	Cable tray end to be extended to inner wall of the lift control panel from inside of lift shaft	
19	750 Comms & 680 Radio	Cable Tray	100mm (w)	1 no.	Audio/Data /RF/Optical	Comms Main Cable Containment		Retail Opportunity		0.4	0.9	Ditto	
20	750 Comms & 680 Radio	Conceal conduit (with outlet box)	32mm dia.	1 no.	Audio/Data /RF/Optical	Comms Main Cable Containment		Digital Panel Controller		0.4	0.9		
21	750 Comms & 680 Radio	Conceal conduit (with outlet box)	32mm dia.	1 no.	Audio/Data /RF/Optical	Digital Panel Controller		Digital Wayfinding Screens		0.4	0.9		
22	750 Comms & 680 Radio	Conceal conduit (with outlet box)	25mm dia.	1 no.	Audio/Data /RF/Optical	Station Management Room	1023	SMR intercom		0.4	0.55		
23	750 Comms & 680 Radio	Cable Tray	200mm (w)	1 no.	Optical	Comms Main Cable Containment		Distributed Equipment Cabinet (DEC)		0.4	0.9		

Item	Discipline	Cable Containment Type	Cable Containment Dimensions (w: width ; h: height)	Quantity	Accommodated Cable Type	Point-to-Point Connection				Minimum Bending Radius (m)	Minimum Separation from High Voltage Cables (m)	Other Special Requirements	Remark
						From		To					
						Room Name	Room ID	Room Name	Room ID				
24	750 Comms & 680 Radio	Cable Tray	100mm (w)	1 no.	Audio/Data	Comms Main Cable Containment		Intermediate Distribution Frame (DF) / Termination Box (TB)		0.4	0.9		
25	750 Comms & 680 Radio	Cable Tray	200mm (w)	1 no.	Audio/Data /RF/Optical	Communications Equipment Room (Telecom Equipment Room)	200-201	Signalling Equipment Room	100	0.4	0.55 (see remark)	Ditto	Assume both Signalling Equipment Room and Communications Equipment Room at service building
26	750 Comms & 680 Radio	Cable Tray	200mm (w)	1 no.	Audio/Data /RF/Optical	Station Management Room	1023	Signalling and Telecom Equipment Room	102	0.4	0.9	Ditto	
27	750 Comms & 680 Radio	Cable Tray	100mm (w)	1 no.	Audio/Data /RF/Optical	Each EACS controller		Comms Main Cable Containment along platform, concourse and BoH		0.4	0.9 / 0.55 (see remark)	Ditto	0.9 for cable containment along platform 0.55 for concourse and BoH
28	750 Comms & 680 Radio	concealed conduit	100mm (w)	1 no.	Audio/Data /RF/Optical	outside of EACH equipment room requiring access control through EACS		Comms Main Cable Containment along platform, concourse and BoH		0.4	0.9 / 0.55 (see remark)	Ditto	0.9 for cable containment along platform 0.55 for concourse and BoH
29	750 Comms & 680 Radio	Cable trunking	300mm (w)	1 no.	Audio/Data /Optical	Signalling and Telecom Equipment Room	102	Platform (Comms Main Cable Containment along platform)		0.4	0.9	Ditto	
30	750 Comms & 680 Radio	Cable trunking	300mm (w)	1 no.	Audio/Data /Optical	Communications Equipment Room #2 (Telecom Equipment Room #2)	201	Platform (Comms Main Cable Containment along platform)		0.4	0.9	Ditto	
31	750 Comms & 680 Radio	Cable Tray	100mm (w)	1 no.	Audio/Data	Comms Main Cable Containment along concourse and platforms		No greater than 0.5m away from COM field equipment		0.4	0.9 / 0.55 (see remark)	Ditto	0.9 for cable containment along platform and trackside 0.55 for concourse and BoH
32	750 Comms & 680 Radio	Cable tray	300mm (width)	1 no.	Audio/Data /Optical	Signalling and Telecom Equipment Room	102	Station telecom lead-in drawpit		0.7	0.55 / 0.9 (see remark)	Ditto	0.9 for cable containment along platform and trackside 0.55 for concourse and BoH
33	750 Comms & 680 Radio	Cable tray	100mm (width)	1 no.	Audio/Data /Optical	Signalling and Telecom Equipment Room	102	Service building roof top		0.7	0.55 / 0.9 (see remark)	Ditto	0.9 for cable containment along platform and trackside 0.55 for concourse and BoH
34	750 Comms & 680 Radio	Cable tray	100mm (width)	1 no.	Audio/Data /Optical	Signalling and Telecom Equipment Room	102	Station roof top		0.7	0.55 / 0.9 (see remark)	Ditto	0.9 for cable containment along platform and trackside 0.55 for concourse and BoH
<b>Platform Edge Barrier</b>													
1	670 PSD	Cable Tray / Cable Trench (see remark)	200mm (w)	1	Control & Monitor	Platform Screen Door Equipment Room	101	One end of each platform		0.7	0.9	To the nearest platform ends at high level and same route as for the power cables	For remote location of Platform Screen Door equipment room, cable trench connected to the platform end of the trackside shall be provided. The cable trench may be combined with the one for PEB power cables with the minimum size 500W x 200D
2	670 PSD	Cable Tray / Cable Trench (see remark)	300mm (w)	1	Power	Platform Screen Door Equipment Room	101	One end of each platform		0.7	0.9	To the nearest platform ends at high level and same route as for the control & monitoring cables	For remote location of Platform Screen Door equipment room, cable trench connected to the platform end of the trackside shall be provided. The cable trench may be combined with the one for PEB control cables with the minimum
3	670 PSD	Cable Tray	150mm (w)	1	Control & Monitor	Platform Screen Door Equipment Room	101	Signalling and Telecom Equipment Room	102	0.4	0.9		
<b>HV</b>													
1	640 HV	Cable Trough	350mm (w) 200mm (h)	2	11kV Cable	11kV/415V Padmount Substation/Kiosk No. 1	400	Down track (MSW)		1.1	N/A	Segregated cable route from 11kV/415V Padmount Substation/Kiosk No. 2	
2	640 HV	Cable Trough	350mm (w) 200mm (h)	2	11kV Cable	11kV/415V Padmount Substation/Kiosk No. 2	400	Up track (MSW)		1.1	N/A	Segregated cable route from 11kV/415V Padmount Substation/Kiosk No. 1	
3	640 HV	Cable Trough	150mm (w) x 150mm (h)	1	Pilot cable	11kV/415V Padmount Substation/Kiosk No. 1	400	Down track (MSW)		0.21	0.9	Segregated cable route from 11kV/415V Padmount Substation/Kiosk No. 2	
4	640 HV	Cable Trough	150mm (w) x 150mm (h)	1	Pilot cable	11kV/415V Padmount Substation/Kiosk No. 2	400	Up track (MSW)		0.21	0.9	Segregated cable route from 11kV/415V Padmount Substation/Kiosk No. 1	



Item	Discipline	Cable Containment Type	Cable Containment Dimensions (w: width ; h: height)	Quantity	Accommodated Cable Type	Point-to-Point Connection				Minimum Bending Radius (m)	Minimum Separation from High Voltage Cables (m)	Other Special Requirements	Remark
						From		To					
						Room Name	Room ID	Room Name	Room ID				
5	640 HV	Cable tray	100mm	1	Control cables for PCS	PCS Main Cable Containment among 11kV Padmount Substation, LV Main Switchroom and Platform Screen Door Equipment Room [Room ID 400, TBA, 101]				0.7	0.9		For PCS communication cables
6	640 HV	Cable tray	100mm	1	Control cables for PCS	PCS Main Cable Containment		Signalling and Telecom Equipment Room	102	0.7	0.9		For PCS communication cables
7	640 HV	Cable tray	100mm	4	Control cables for PCS	PCS Main Cable Containment		Communications Equipment Room #2 (Telecom Equipment Room #2)	201	0.7	0.6		For PCS communication cables
8	640 HV	Cable tray	100mm	1	Control cables for PCS	PCS Main Cable Containment		Station Management Room	1023	0.7	0.55		For PCS communication cables
<b>OHL &amp; Traction Power Supply</b>													
1	650 OHL & TS	Cable Tray / Cable Trough (See remark)	Cable trough: 150mm (w) x 150mm (h) Cable Tray: 150mm (w)	1	Battery Supply Cable	11kV/415V Padmount Substation/Kiosk No. 1	400	Platform Screen Door Equipment Room	101	0.21	N/A		For remote location of Platform Screen Door equipment room, cable trough connected from the Service Building to Platform Screen Door equipment room in station platform end shall
2	650 OHL & TS	Cable Trough	200mm (w) x 150mm (h)	1	Voltage Limiting Device Cables	Platform Screen Door Equipment Room	101	Nearest track (Station Platform End)		0.7	N/A		
3	650 OHL & TS	Cable Ducts	100mm Diameter	2	Cross Track Bonding Cables	Down track (MSW)		Up track (MSW)		0.7	N/A		
<b>Lift and Escalator</b>													
1	620 L&E	N/A	N/A	N/A	N/A	N/A		N/A		N/A	N/A	Cabins provided by other systems	

Note 1 Assume separate Platform Screen Door equipment room at platform, Signalling and Telecom Equipment Room at service building  
Note 2 Cable containment should be provided for control & monitoring purpose in BMS section since Lift will directly interface with BMS according to SPR requirement





Item	Discipline	Location Description	Chainage Number	Equipment Description	Spatial Requirements (m) x D (m) x H	Niche / Recess Required at Tunnel Side? (Y/N)	Niche / Recess Required on Track Bed? (Y/N)	Civil Mounting Provisions Requirements	LV Provisions Requirements	Power Demand						Other Special Requirements	Remark
										Essential (kVA)	30 min UPS (kVA)	120 min UPS (kVA)	6-hr UPS (kVA)	10-hr UPS (kVA)	Non- Essential (kVA)		
1	Traction Power	At the middle between Sydenham and Marrickville	Ch. 6.5 km	Two cross track bonding cables	--	N	N	4 x 100mm dia. cross track duct	No								2 x spare ducts included
2	Traction Power	At the middle between Canterbury and Campsie	Ch. 11.63 km	Two cross track bonding cables	--	N	N	4 x 100mm dia. cross track duct	No								2 x spare ducts included
3	Traction Power	At the middle between Punchbowl and Bankstown	Ch. 18.50 km	Two cross track bonding cables	--	N	N	4 x 100mm dia. cross track duct	No								2 x spare ducts included
4	Traction Power	Near each station platform end	As per location description	Two cross track bonding cables	--	N	N	4 x 100mm dia. cross track duct	No						Exact location is subject to the location of voltage limit bonding device connection at trackside		2 x spare ducts included
5	Traction Power	At the departure end of Sydenham Station - Up track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
6	Traction Power	At overrun of Sydenham Station - Up Track (MSW) near Sydenham Junction (Ch. 5.97 km)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
7	Traction Power	At overrun of Sydenham Station - Down Track (MSW) near Sydenham Junction (Ch. 5.97km)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
8	Traction Power	Near turnout (Ch. 6.5 km) - Down Track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
9	Traction Power	Near turnout (Ch. 6.7 km) - Up Track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
10	Traction Power	Near Ch. 11.83km - Down Track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
11	Traction Power	Near Ch. 11.83km - Up Track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
12	Traction Power	Near Ch. 13.15km - Down Track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
13	Traction Power	Near Ch. 13.55km - Up Track (MSW)	As per location description	20A DP Switch	--	N	N	Nil	Yes	1.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator
14	Traction Power	Near Ch. 18.91 km - Down Track (MSW)	As per location description	2 x 20A DP Switch	--	N	N	Nil	Yes	2.0					Exact location is subject to the location of the OHL motorised isolator		Assume SSC/SSJ will provide power to OHL isolator

Item	Discipline	Location Description	Chainage Number	Equipment Description	Spatial Requirements (m) x D (m) x H (m)	Niche / Recess Required at Tunnel Side? (Y/N)	Niche / Recess Required on Track Bed? (Y/N)	Civil Mounting Provisions Requirements	LV Provisions Requirements	Power Demand						Other Special Requirements	Remark
										Essential (kVA)	30 min UPS (kVA)	120 min UPS (kVA)	6-hr UPS (kVA)	10-hr UPS (kVA)	Non-Essential (kVA)		
15	Traction Power	Near Ch. 18.91 km - Up Track (MSW)	As per location description	2 x 20A DP Switch	--	N	N	Nil	Yes	2.0						Exact location is subject to the location of the OHL motorised isolator	Assume SSC/SSJ will provide power to OHL isolator
16	Communication	One unit at 500m interval between stations. Minimum one unit between every two stations.	As per location description	Radio repeaters for O&M radio with cabinet	3 x 0.4 x 0.8	N	N	Mounting provision is required. Civil to provide mast at each location. Height to be decided during detailed	Nil (assuming SSJ/SSC is not providing trackside power)							a) On the same side as the communications cables b) The radio repeater is preferably mounted at level 1m above the walkway to allow convenient access to the equipment. c) 1 x 100mm dia. cross track duct (from outer trackside to inner trackside) at each of the radio repeater location. d) Minimum bending radius is 300mm.	
17	Communication	Headwall and Tailwall	As per location description	Cross track duct (for Comms trackside cables cross track from platform side to opposite trackside)	3 x 100 dia. duct	N	N	Nil	Nil							Minimum bending radius is 300mm.	
18	Communication	At every gate along security fencing and segregation fencing	As per location description	Distributed Equipment Cabinet (DEC) to house local controller and PoE switch for EACS and TIDS	0.8 x 0.3 x 1	N	N	Mounting provision is required. Civil to advise the mounting method for	Nil (assuming SSJ/SSC is not providing trackside power)								
19	Communication	At every gate along security fencing and segregation fencing	As per location description	CCTV camera	0.6 x 0.6 x 0.6	N	N	Mounting provision is required. Civil to advise the mounting method for	Nil								
20	Communication	At every gate along security fencing and segregation fencing	As per location description	Card reader and pin pad for EACS	0.2 x 0.1 x 0.3 each	N	N	Mounting provision is required. Civil to advise the mounting method for	Nil								
21	Signalling	Distribute along the trackside. Red Aspect at approx. 2.3~2.8m above rail top:  1. Near point and crossing areas.	As per location description	Signal or point position indicator (PPI)	0.4m x 0.5m x 0.8m (LxDxH)	N	N	SSC/SSJ to provide local cable containment & footings	Nil							SSC/SSJ to provide the local CSR and footing.	
22	Signalling	Distribute along the trackside at approx. 1m from ground level  1. At point and crossing areas. 2. At platform ends.	As per location description	Axle Counter Box	0.35m x 0.35m x 0.35m (LxDxH)	N	N	SSC/SSJ to provide local cable containment & footings	Nil							SSC/SSJ to provide the local CSR and footing.	

Item	Discipline	Location Description	Chainage Number	Equipment Description	Spatial Requirements m) x D (m) x H	Niche / Recess Required at Tunnel Side? (Y/N)	Niche / Recess Required on Track Bed? (Y/N)	Civil Mounting Provisions Requirements	LV Provisions Requirements	Power Demand						Other Special Requirements	Remark
										Essential (kVA)	30 min UPS (kVA)	120 min UPS (kVA)	6-hr UPS (kVA)	10-hr UPS (kVA)	Non- Essential (kVA)		
23	Signalling	Point Toe, at space outside of the running rails	As per location description	Point Machine	Spaces close to point toe.  Provide slot/mounting sleepers for point machine driving rod & sleepers for point machine.	N	N	SSC/SSJ to provide local cable containment	Nil							SSC/SSJ to provide the local CSR	
24	Signalling	Every approx 200m along each track, at approx. 0.5-1m above top of train.	As per location description	DCS/CCTV Antenna	0.4m x 0.4m x 0.3m (LxDxH, each set)	N	N	SSC/SSJ to provide local cable containment & footings	Nil							SSC/SSJ to provide the local CSR and footing.	
25	Signalling	At each below equipment locations:  1. Signal or point position indicator (PPI) 2. Axle Counter 3. Point Machine	As per location description	SAB	0.6m x 0.3m x 0.6m (LxDxH)	N	N	SSC/SSJ to provide local cable containment & footings	15A maintenance outlet provision next to each SAB depends on O&M requirements							SSC/SSJ to provide the local CSR and footing.	
26	Signalling	At each DCS/CCTV Antenna (3 boxes per location)	As per location description	DCS/CCTV Antenna Box	0.9m x 0.25m x 0.6m (LxDxH, each box)	N	N	SSC/SSJ to provide local cable containment & footings	Nil							SSC/SSJ to provide the local CSR and footing.	
27	Signalling	Distribute along the trackside trackbed.  1. Approx. 10 nos. per platform track. 2. Approx. one every 50m in other areas.	As per location description	Beacon (with beacon cover/walkway at non-platform areas)	0.32m x 0.45m x 0.07m (LxDxH, for beacon)  3m x 1.03m (LxW, for beacon)	N	N		Nil						Metal free zone (0.64m x 0.82m x 0.21m LxWxD) for each beacon.	Mount by direct fixing on sleeper or rail mount. No Civil provision is anticipated.	
28	Signalling	Distribute along the trackside as required	As per location description	Marker Boards	0.3m x 0.3m (LxW)	N	N	SSC/SSJ to provide footings	Nil						SSC/SSJ to provide the footing.	No CSR is required for Marker Board	

Item	Discipline	Location Description	Chainage Number	Equipment Description	Spatial Requirements (m) x D (m) x H (m)	Niche / Recess Required at Tunnel Side? (Y/N)	Niche / Recess Required on Track Bed? (Y/N)	Civil Mounting Provisions Requirements	LV Provisions Requirements	Power Demand						Other Special Requirements	Remark
										Essential (kVA)	30 min UPS (kVA)	120 min UPS (kVA)	6-hr UPS (kVA)	10-hr UPS (kVA)	Non-Essential (kVA)		
29	Signalling	Cross track ducts for the below locations:  1. For connection between main CSR of each track and station (i.e. 2 local cable containment between trackside main CSR to station CSR)  2. At each above equipment location, if required. Connecting the main CSR and the	As per location description	Cable ducts for control cables	Each cable duct of 100mm diameter crossing under the track from inner to outer trackside.	N	N	SSC/SSJ to provide local cable containment	Nil							SSC/SSJ to provide the cross track ducts and local CSR when required	
30	Signalling	Cable duct for axle counter box, between the box at trackside and the axle counter head on the rail.	As per location description	Cable ducts for axle counter cables	A cable duct of 100mm diameter from trackside to the rail.	N	N	SSC/SSJ to provide local cable containment	Nil							SSC/SSJ to provide the cross track ducts and local CSR when required	

# Sydney Metro City & Southwest

## **Sydenham Station and Junction Works Contract Schedules**

### Schedule C1

### Scope of Works and Technical Criteria Appendix C1.3 Metro Power Demand Schedule

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September</del> <u>2 November</u> 2017
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.0</del> <u>B</u>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	
<b>FILE NAME</b>	<del>Schedule C1 - SWTC</del> Appendix C1.3 - Metro Power Demand Schedule <del>_v1.0</del> <u>Revision B</u>		



# Contents

<b>1</b>	<b>Metro Power Demand Schedule</b>	<b>2</b>
	<b>Attachment 1</b>	<b>3</b>



# 1 Metro Power Demand Schedule

- (a) The LV provision and power demand for the Interface Contractors (Linewide and TSOM Contractors), Vertical Transportation Contractor and Metro Operations and Maintenance rooms are included in Attachment 1.
- (b) The SSJ Contractor must design and construct the LV system to include the LV requirements in Attachment 1.
- (c) The LV provision and power demand in Attachment 1 may be subject to change during the detailed design stage. The SSJ Contractor must co-ordinate and confirm all the LV requirements with the Interface Contractors, Vertical Transportation Contractor and the Operator, prior to finalisation of the SSJ Contractor's LV system design.



# Attachment 1



Table E3 - Lifts Power Demand Schedule for Sydenham Station

Location	Room ID	LV Provision	Power Demand and Provisions			Remark	Justification for increase if any
			Essential (kVA)	TPN / SPN	Heat Dissipation in lift shaft (kW)		
Lift Control Panel at Top Landing (per lift)					10		
(disabled/passenger glass lift and fireman lift, speed 1.6 m/s, rated load 1275kg)	Paid Concourse	ML1	___A Isolating Switch	25	1 x 63A TPN		1. Air conditioner is provided inside the lift car 2. Essential power of 3kVA for Air conditioner is included. 3. 1 no. of lift with vertical rise of 6.0m
Lift Control Panel at Top Landing (per lift)					10		
(disabled/passenger glass lift and fireman lift, speed 1.6 m/s, rated load 1275kg)	Paid Concourse	ML2	___A Isolating Switch	25	1 x 63A TPN		1. Air conditioner is provided inside the lift car 2. Essential power of 3kVA for Air conditioner is included. 3. 1 no. of lift with vertical rise of 6.0m
Lift Control Panel at Top Landing (per lift)					10		
(disabled/passenger glass lift and fireman lift, speed 1.6 m/s, rated load 1275kg)	Paid Concourse	ML3	___A Isolating Switch	25	1 x 63A TPN		1. Air conditioner is provided inside the lift car 2. Essential power of 3kVA for Air conditioner is included. 3. 1 no. of lift with vertical rise of 6.0m
Lift Control Panel at Top Landing (per lift)					10		
(disabled/passenger glass lift and fireman lift, speed 1.6 m/s, rated load 1275kg)	Paid Concourse	ML4	___A Isolating Switch	25	1 x 63A TPN		1. Air conditioner is provided inside the lift car 2. Essential power of 3kVA for Air conditioner is included. 3. 1 no. of lift with vertical rise of 6.0m

Note: Lift quantity is updated to suit revised lift schedule



**Table E4 - PSD Power Demand Schedule for Sydenham Station**

Location	Room ID	LV Provisions	Power Demand				Heat dissipation	Remark	Justification for increase if any
			Essential		30 min. UPS		kW		
			(kVA)	SPN/TPN	(kVA)	SPN/TPN			
Platform Screen Door Equipment Room	101	2 x Isolating Switch	45.00	1 x 80 TPN	45.00	1 x 80 TPN	4.5		

Notes:

1 Power demand from BS within Platform Screen Door Equipment Room should be come from two different sources i.e. different LV main switchboards.





**Systemwide E&M Design Information for Station Design**

**Table E6 - Electronic Ticketing System (ETS) Power Demand Schedule for Sydenham Station**

Locations	Room ID	LV Provisions	Power Demand		Heat Dissipation (kW)	Remark	Justification for increase if any
			Essential				
			(kVA)	SPN/TPN			
<b>ETS Equipment at</b>							
Station Management Room	1023	4 x 20A socket outlets	2.0	SPN	1.7		
<b>ETS Equipment within Station</b>							
Ticket gates and self-service machines		20A socket outlet for each machine	1.0	SPN	0.9	this power demand is for ONE machine	



**Systemwide E&M Design Information for Station Design**

**Table E7 - COM & RAD Power Demand Schedule for Sydenham Station**

Locations	Room ID	LV Provisions	Power Demand		Heat Dissipation (KW)	Remark	Justification for increase if any
			6-hr UPS (kVA)	SPN/TPN			
<b>Comms Equipment at</b>							
Signalling and Telecom Equipment Room	102	2 x 32A isolating switch (see remark)	45.0	TPN	38.3		Including power demand for trackside radio amplifiers, PoE switches and local controllers.
Station Management Room	1023	6 x 10A socket outlets	4.0	SPN	3.4		
<b>Comms Field Equipment within station, at tracks and ancillary buildings</b>							
Passenger information display panels	N/A	20 x 10A sockets	10.0	SPN	8.5	Assuming total: 16 units	
PoE Switches	N/A	15 x 10A sockets	12.0	SPN	10.2	Assuming total: 6 units	
Help Point	N/A	10 x 5A sockets	1.0	SPN	0.9	Assuming total: 5 units	



Table E8 - CCS Power Demand Schedule for Sydenham Station

Locations	Room ID	LV Provisions	Power Demand						Heat Dissipation (KW)	Remark	Justification for increase if any
			Essential		2-hour UPS		6-hour UPS				
			(kVA)	SPN/TPN	(kVA)	SPN/TPN	(kVA)	SPN/TPN			
<b>Power demand for CCS equipment</b>											
Station Management Room	1023	1 x 63A isolating switch					8	SPN	0.4	Station Control Room & Station Computer Room is combined as Station Management Room, no increase in overall power consumption.	
Signalling and Telecom Equipment Room	102	1 x 63A isolating switch					8	SPN	0.4		



Table E9.1 - POW Power Demand Schedule for Sydenham Station

Equipment	Room ID	LV Provisions	Power Demand						Heat Loading (kW)	Remark	Justification for increase if any
			Essential			6-hr UPS					
			(kW)	(kVA)	SPN/TPN	(kW)	(kVA)	SPN/TPN			
<b>11kV Padmount Substation - Kiosk #1</b>											
for 11kV Switchgear (3 panels)	400	4-way MCB Board complete with 63A Isolating Switch		2.4	SPN				3		
for batteries and charger for 11kV/415V Transformer		63A Isolating Switch		10	TPN				1		
									10		
<b>11kV Padmount Substation - Kiosk #2</b>											
for 11kV Switchgear (3 panels)	400	4-way MCB Board complete with 63A Isolating Switch		2.4	SPN				3		
for batteries and charger for 11kV/415V Transformer		63A Isolating Switch		10	TPN				1		
									10		
<b>Platform Screen Door Equipment Room</b>											
for Voltage Limiting Device	101	20A DP Switch		0.5	DP				1		
for trackside OHL Isolator		63A DP Switch		12	DP						For remote on/off trackside OHL isolators at Sydenham
<b>11kV Padmount Substation, LV Main Switch Room and Platform Screen Door Equipment Room</b>											
for PCS	400, TBA, 101	2 x 10A 230 VAC socket outlets					2	SPN	1.6		
<b>Signalling and Telecom Equipment Room</b>											
for PCS	102	2 x 10A 230 VAC socket outlets					2	SPN	1.6		





**Systemwide E&M Design Information for Station Design****Table E10 - Signalling (SIG) Power Demand Schedule for Sydenham Station**

Location	Room ID	LV Provisions	Power Demand				Remark	Justification for increase if any	
			Essential		Heat Loading	4 hours UPS			
			(kVA)	SPN/TPN	(kw)	(kVA)			SPN/TPN
Signalling and Telecom Equipment Room in Service Building	102	2 x 100A isolating switches (dual sources)	45	TPN	36			Power requirements for BS provisions not included	
	102	4 x 10A sockets	4	SPN	3.2			Essential AC power for the portable maintenance equipment.	
Station Management Room	1023	1 x 10A Fused Connection 2 x 10A Sockets			0.8	1.0	SPN	For SIG network eqt & workstation in SCR	

## Note:

- 1 Power supply by SSC in STER should be come from two different sources ie. different LV main switchboards.
- 2 4 hours UPS provided by SSC for SMR SIG equipment
- 3 Crossover and Depot Exits
- 4 Fused connection should be replaced by sockets if cannot be provided



Systemwide E&M Design Information for Station Design**Table E11 - Electronic Access Control System (EACS) Power Demand Schedule for Sydenham Station****ONLY E&M ROOMS AND O&M ROOMS PROPOSED BY MTR ARE INCLUDED IN THE LIST BELOW.****FURTHER UPDATE TO THIS LIST IS EXPECTED WITH THE BS ROOMS OF THE STATION ARE DEFINED.**

Location	Room ID	LV Provisions	Power Demand			Remark	Justification for increase if any
			6-hr UPS		Heat Loading		
			(kVA)	SPN/TPN	(kw)		
Signalling and Telecom Equipment Room	102	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Platform Screen Door Equipment Room	101	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
11kV Padmount Substation	400	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Station Management Room	1023	1 x 13A Fused Connection w/5A fuse. 2 x 13A Socket Outlet	1	SPN	0.8		
Staff Locker Room (Male / Female) #1	1002-1	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Staff Locker Room (Male / Female) #2	1002-2	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Refuse Room	1011	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Cleaners Store #1	1007-1	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Cleaners Store #2	1007-2	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Store Room	1016	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		
Maintenance and Chemical Store	1024	1 x 13A Fused Connection w/5A fuse	0.2	SPN	0.16		

Note 1: Fused connection should be replaced by sockets if cannot be provided

Note 2: Door schedule is updated to suit latest room schedule



# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)** Schedule C1

Scope of Works and Technical Criteria  
(SWTC)

Appendix C2.0 - Metro Station Vertical  
Transport Specification

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September</del> <u>12 December</u> 2017
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	FINAL
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.2B</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC App C2.0 - Metro Station Vertical Transport Specification		



# Contents

<b>1</b>	<b>Overview</b>	<b>1</b>
<b>2</b>	<b>Performance and Technical Requirements</b>	<b>2</b>
2.1	Lifts	2
2.1.1	General	2
2.1.2	Ride Comfort, Noise and Vibration	3
2.1.3	Lift Shaft Requirements	3
2.1.4	Landing Lobbies	4
2.1.5	Lift Car Requirements	4
2.1.6	Interfacing Systems	5
2.1.7	Control Features	5
2.1.8	Control and Monitoring	5
2.1.9	Lift Car Finishes and Indication	6
<b>3</b>	<b>Testing and Commissioning Requirements</b>	<b>8</b>
<b>4</b>	<b>Attachments</b>	<b>9</b>



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# 1 Overview

- (a) This Appendix C2.0 applies to all lifts which form part of the Metro Station Works at Sydenham Station.
- (b) Unless the context otherwise requires:
  - (i) terms which have a defined meaning in the General Conditions and SWTC Appendix A1.0 have the same meaning where used in this Appendix;
  - (ii) any reference to "Specification" is a reference to this Appendix C2.0; and
  - (iii) any reference to a 'Section' in this Appendix is a reference to a section of this Appendix C2.0.

## 2 Performance and Technical Requirements

### 2.1 Lifts

#### 2.1.1 General

- (a) The lift equipment and installation must conform to the Operator's and SSJ Contractor's FLS strategy and the requirements of NFPA130 (2002) – Clause 5.3.5.5 and 5.3.5.7.
- (b) All lifts must:
- (i) be machine-room-less type;
  - (ii) not open towards Metro Station platform edges;
  - (iii) have fixings and finishes that are demonstrably vandal resistant;
  - (iv) where there are groups of two or more adjacent customer lifts, be controlled by a group controller providing full collective group control;
  - (v) be designed for continuous operation of 24 hours per day, every day, for the Design Life of the equipment;
  - (vi) be designed for a minimum number of motor starts of 240 per hour;
  - (vii) where glass used in the lift car, doors or shaft, use glass of sufficient thickness and laminated/toughened (11.7mm minimum thickness 2 layer bonded) or annealed as appropriate to comply with AS1735.2 Appendix "H" requirements;
  - (viii) have a levelling accuracy of +/- 3.0 mm;
  - (ix) be designed for their rated speed. Lift speeds must be congruent to the travel distance:
    - A. less than 5m at 1.0m/s;
    - B. between 5m and 10m at 1.6m/s;
    - C. between 10 and 15m at 1.75m/s; and
    - D. greater than 15m at 2.0 m/s.
  - (x) be commensurate with the 'Goods Class A' as defined by AS 1735.1 (1999);
  - (xi) have internal dimensions suitable for accommodating an ambulant stretcher;
  - (xii) have a light fitting provided on top of the lift cars. The fitting must be powered by a UPS;

- (xiii) provide car door locking;
  - (xiv) have the capacity to accommodate an elevated working platform, comparable to a JLS 2032ES;
  - (xv) utilise roller guides to the car and counterweight;
  - (xvi) include a mechanical, analogue, motor starts counter;
  - (xvii) include an automatic conservation mode; and
  - (xviii) incorporate facilities for disabled and mobility impaired customers. As a minimum all lifts must be compliant to AS1735.12.
- (c) Lifts that serve customers or other members of the public must:
- (i) be minimum 1275kg, 17 person capacity;
  - (ii) have the lift car wall, door and shaft construction as transparent as far as is reasonably practicable, with minimal obstruction to view from structural and other elements; and
  - (iii) where used to also access Back of House Areas, access control must segregate the entrance to the Back of House Area level from the public.

### **2.1.2 Ride Comfort, Noise and Vibration**

- (a) Lift noise at the lobbies, when measured at 1.5m from the floor and 1m from the door face with doors closed, must not exceed 50dB (A) at any time during the lift cycle.
- (b) Noise level in the lift cars, as measured during any part of the lifts cycle, with the ventilation fans and air conditioning running must not exceed 55 dB(A), excluding the door operation.
- (c) Lift vibrations, as measured during any part of the lifts cycle, must not exceed 0.15mg in any direction.

### **2.1.3 Lift Shaft Requirements**

- (a) The lift shafts for all lifts must:
  - (i) have water sensors in the lift pit. On activation of the water sensors, an alarm will be activated and the lift will automatically 'park' at the top served floor;
  - (ii) include mechanical ventilation in accordance with the SWTC;
  - (iii) have lighting;
  - (iv) use brushed stainless steel panelling for any flushing required by Codes and Standards;
  - (v) use stainless steel mesh panelling for any shaft division screens required by Codes and Standards; and
  - (vi) include fire, heat and smoke detection and fire suppression, with links to the fire system.

- (b) All pit division screens, required by Codes and Standards, must be stainless steel mesh panelling.
- (c) All maintenance panels must be 2mm thick brushed stainless steel, with 3-point lock system, for demonstrable vandal resistance.

#### 2.1.4 Landing Lobbies

- (a) The landing push buttons must be vandal proof “Dewhurst” US 91-15 type (or equivalent approved by the Principal’s Representative) with tactile lettering.
- (b) All buttons must be provided with double illumination enabling a low-level (half) illumination in a non-activated state, which intensifies to full illumination after operation of the button. The colour must be approved by the Principal’s Representative.
- (c) Indicators must be provided at each landing, which must illuminate an adjustable period before arrival, between 2 and 5 seconds.
- (d) An indicator must be provided at all floors displaying that the lift is out of normal service. The message displayed must be ‘OUT OF SERVICE’.

#### 2.1.5 Lift Car Requirements

- (a) All lift cars must have a minimum internal height of 2400mm.
- (b) Be minimum 1275kg, 17 person capacity:
  - (i) all lift cars must be a minimum of 1400mm wide;
  - (ii) all lift cars must be a minimum of 2000mm long; and
  - (iii) feature lift car and landing door openings must be a minimum of 1200mm wide clear and of the two panel centre opening type;
- (c) All lift doors must be provided with variable voltage variable frequency (VVVF) high-speed heavy-duty door operators, suitable for intensive traffic duty.
- (d) All lift doors must include continuous door safety edge protection.
- ~~(e) All lifts must be front and rear entry (through travel).~~
- (e) ~~(f)~~ Lifts must not contain doors at 90 degrees to each other. Interior lift car lighting must maintain an illumination of not less than 200 lux average horizontal illuminance and 150 lux average vertical illuminance, measured 1.5m above the floor level.
- (f) ~~(g)~~ All lift cars exposed to solar heat loads must incorporate mechanical cooling and mechanical ventilation in accordance with the BCA. The mechanical cooling is to operate when the temperature inside the lift car exceeds 21 degrees Celsius and be of sufficient capacity that the maximum temperature in the lift car interior does not exceed 25 degrees Celsius when the temperature in the lift shaft is 34 degrees Celsius.
- (g) ~~(h)~~ Lift drive systems must use VVVF drives with high efficiency permanent magnet AC motors.

- (h) ~~(h)~~ All lifts drives must be regeneration type; feeding power back into the Metro Station electrical network.
- (i) ~~(i)~~ The lifts must be provided with automatic audible information in the lift cars in accordance with AS1735.12.
- (j) ~~(j)~~ Where two or more lifts are provided at a location, one lift must form a mechanical back-up for the purposes of power supply.
- (k) ~~(k)~~ Lifts must include battery-based uninterruptible power supply (UPS) facilities to automatically move the lift car to the street level entrance and open both car and landing doors when there is a loss of main power supply. All lifts, upon reaching their destination and alighting passengers, must shut down until normal mains power is returned.
- (l) ~~(l)~~ Lift must include battery-based uninterruptible power supplies for the alarm sounder, car lighting, remote monitoring system, communication devices and powered ventilation equipment. The following standby times must be adhered to:

  - (i) emergency lighting: 4 hours;
  - (ii) communications system: 2 hours;
  - (iii) ventilation equipment: 2 hours;
  - (iv) car top light fitting: 2 hours; and
  - (v) alarm sounder 2 hours.
- (m) ~~(m)~~ Fault identification must be provided on each lift without the need to access the lift car or lift shaft. Faults must also be communicated to the building management system (BMS).

### 2.1.6 Interfacing Systems

- (a) Provisions must be made for works by Interface Contractors in accordance with the Interface Schedules, including for:
  - (i) closed circuit television coverage and communications systems; and
  - (ii) a direct telephone link from lift telephones to the Sydney Metro OCC.

### 2.1.7 Control Features

- (a) All lifts must be provided with fire service operation. A continuous audible signal in the car must sound and a visual signal must be displayed in the car identifying a 'FIRE SERVICE OPERATION' status.
- (b) All lifts must be provided with an independent service control for each lift with a control key switch located in the operating panel in the car.
- (c) Out-of-service key switches must be provided in one of the landing call panels. When the switch is activated:
  - (i) all landing calls must be cancelled;
  - (ii) the 'OUT OF SERVICE' indicator must illuminate on each landing; and
  - (iii) all existing car calls must be answered and no new call will be accepted.

### 2.1.8 Control and Monitoring

- (a) Lifts must include:
- (i) local control to the respective equipment in accordance with relevant Codes and Standards, the Operator's FLS strategy and SSJ Contractor's FLS strategy;
  - (ii) all necessary connections and control interfaces to provide alarms and functionality to associated systems including the fire systems, security, communications and hearing assistance;
  - (iii) connection with the OCC CCTV system and a functional control interface with the CCS; and
  - (iv) provision for alarm and status monitoring by the Metro Station BMS including:
    - A. alarm and stop button activation for all lifts;
    - B. the status of the system operations including direction of travel, system failure, fireman's control; and
    - C. data logging and asset information for the Project's asset information system.

### 2.1.9 Lift Car Finishes and Indication

- (a) All sills must be hollow stainless steel fabrication.
- (b) All lifts must be provided with digital information screens, to maximise the passengers' comfort. The screens must be a minimum 15 inch high resolution colour monitors.
- (c) All lift cars must have a minimum of two car operating panels of 2mm thick brushed stainless steel, securely fastened with hidden fixings, which must be demonstrably vandal resistant.
- (d) All lift car operating panels must be approved by the Principal's Representative for wayfinding and branding.
- (e) Lift car finishes must be as follows:
- (i) left-side car wall: framed glass with lower section under handrail to be protected with grating;
  - (ii) right-side car wall: framed glass with lower section under handrail to be protected with grating;
  - (iii) rear-wall (for single entry lift cars): framed glass with lower section under handrail to be protected with grating;
  - (iv) ceiling: brushed stainless steel;
  - (v) skirting: brushed stainless steel;
  - (vi) flooring: stone;
  - (vii) car doors: framed glass; and



- (viii) handrails: brushed stainless steel.
- (f) The car push buttons must be vandal proof "Dewhurst" US 91-15 type (or equivalent approved by the Principal's Representative) with tactile lettering.
- (g) All buttons must be provided with double illumination enabling a low-level (half) illumination in a non-activated state, which intensifies to full illumination after operation of the button. The colour must be approved by the Principal's Representative.
- (h) An indicator must be provided at all floors displaying that the lift is out of normal service. The message displayed will be 'OUT OF SERVICE'.

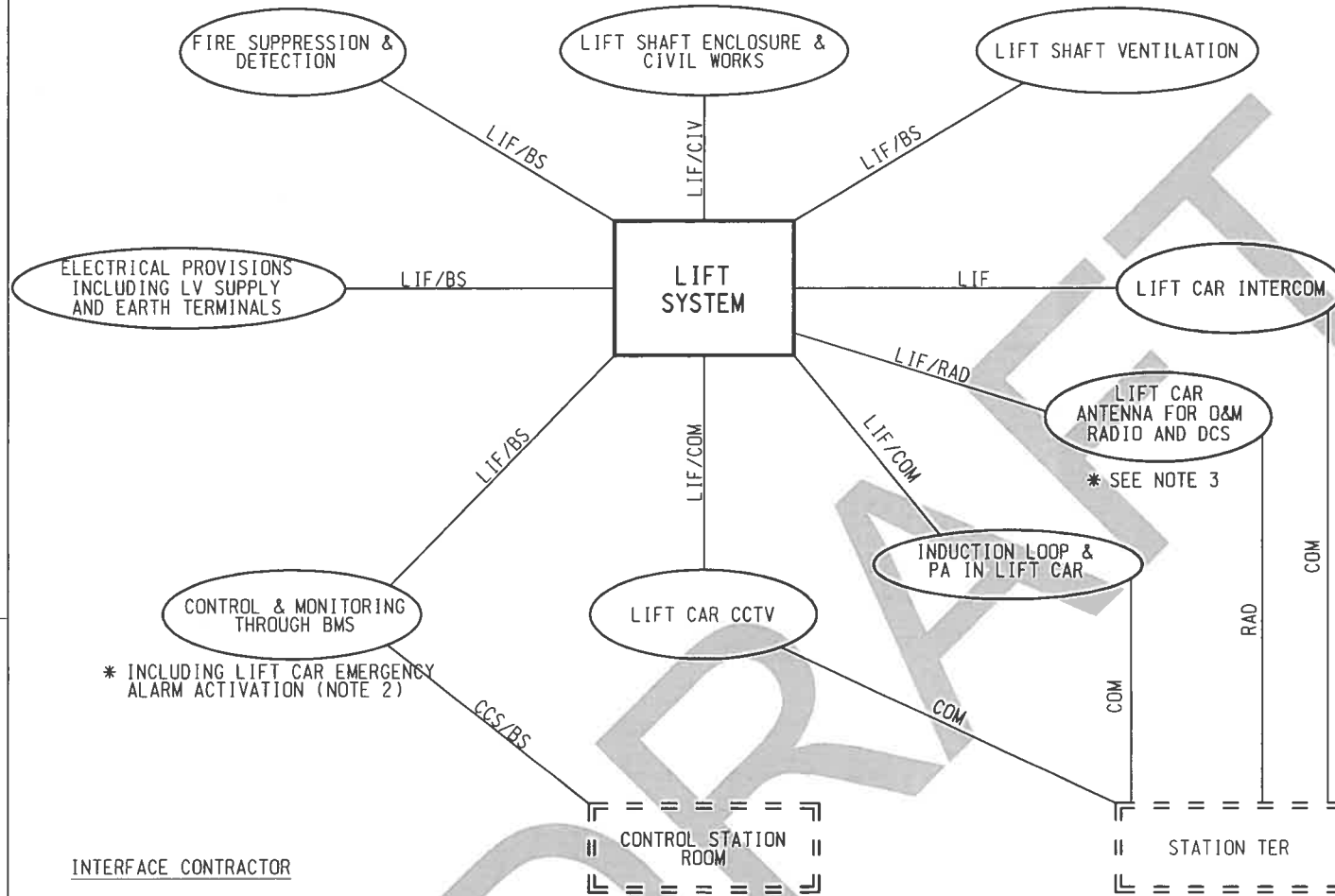
### 3 Testing and Commissioning Requirements

- (a) The lifts must undergo specific testing and commissioning activities including:
  - (i) lift car interior:
    - A. hidden area and anti-rubbish accumulation test; and
    - B. walls and ceiling panel removal tests;
  - (ii) landing and door strength:
    - A. landing door construction test;
    - B. car door construction test;
    - C. lower door guide test;
    - D. lower door construction test;
    - E. door locking strength;
    - F. horizontal deflection test;
    - G. door frame impact test;
    - H. operating panels and indication panel impact tests; and
    - I. lift walls impact test;

## 4 Attachments

- Attachment 1 – System Interface Architecture for Lift
- Attachment 2 - Typical Entrance Elevation of Passenger Lift
- Attachment 3 - Typical Loading Requirement in Lift Shaft





\* INCLUDING LIFT CAR EMERGENCY ALARM ACTIVATION (NOTE 2)

**INTERFACE CONTRACTOR**

BS	SSC, SSJ, CSM OR STME
CIV	SSC, SSJ, CSM, TSE OR STME
LIF	620 CONTRACTOR
RAD	680 CONTRACTOR
CCS	740 CONTRACTOR
COM	750 CONTRACTOR

**NOTES :**

1. DETAILS OF THE INTERFACE ARCHITECTURE ARE SUBJECT TO DETAILED DESIGN.
2. WHEN THE EMERGENCY ALARM BUTTON IS PRESSED, IT WILL ACTIVATE THE LIFT CAR INTERCOM.
3. NOT REQUIRED FOR LIFTS IN ABOVE GROUND AREA IN WHICH O&M RADIO WILL BE PROVIDED BY RAD ANTENNA WORK AND DCS COVERAGE BY OUTDOOR ANTENNA OF MOBILE NETWORK OPERATORS.
4. DETAILS REFER TO RESPECTIVE CONTRACTS (680/740/750).
5. THE INTERFACE ARCHITECTURE REFER TO THE STAGE PHASE 2A OPENING.
6. PRIOR TO FINALIZING THE REVISION, THIS DRAWING IS FOR INFORMATION ONLY, WITH A NUMERIC SUFFIX APPENDED TO THE REVISION CODE FOR VERSION CONTROL AND RELEASE DISTINCTION. THE REVISION FOR THE FINAL ISSUE OF THE DRAWING SHALL BE "A".

**LEGENDS & ABBREVIATION**

- SYSTEM
- FUNCTION
- LOCATION

**FOR INFORMATION ONLY**

PLOT DATE: 14/02/2017 10:52 AM  
 PLOT BY: 40107K  
 PLOTTER: HP PLOTTER  
 PLOT SIZE: A1  
 PLOT SCALE: 1:1  
 PLOT ORIGIN: 0,0  
 PLOT UNIT: METERS  
 PLOT FONT: 10  
 PLOT LINE WEIGHT: 0.5  
 PLOT LINE COLOR: BLACK  
 PLOT LINE DASH: NONE  
 PLOT LINE STYLE: SOLID  
 PLOT LINE THICKNESS: 0.5  
 PLOT LINE WEIGHT: 0.5  
 PLOT LINE COLOR: BLACK  
 PLOT LINE DASH: NONE  
 PLOT LINE STYLE: SOLID  
 PLOT LINE THICKNESS: 0.5

DRAWN: C Yeung DESIGNED: E Yeung CHECKED: E Yeung APPROVED: Zoe Tse DATE: FEB/2017				<b>MTR</b> SYDNEY METRO CITY & SOUTHWEST ENGINEERING DIVISION E&M ENGINEERING DEPARTMENT				TITLE: CONTRACT 620 LIFTS & ESCALATORS SYSTEM INTERFACE ARCHITECTURE FOR LIFT			
A1 FIRST DRAFT				620 T 000 MTR N25 003.dwg				SCALE: NTS DRAWING NO: 620/T/000/MTR/N25/003 REV: A1			



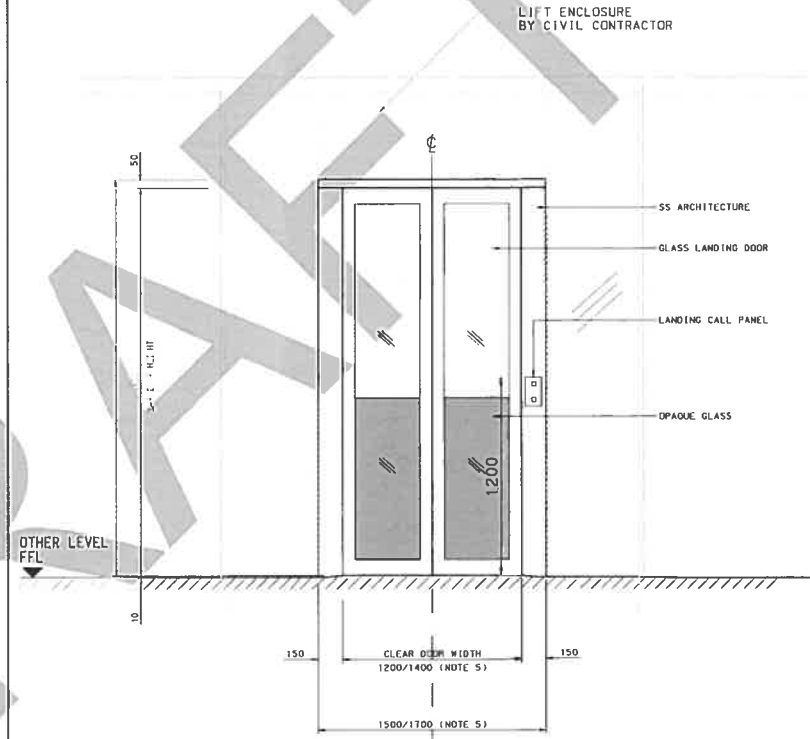
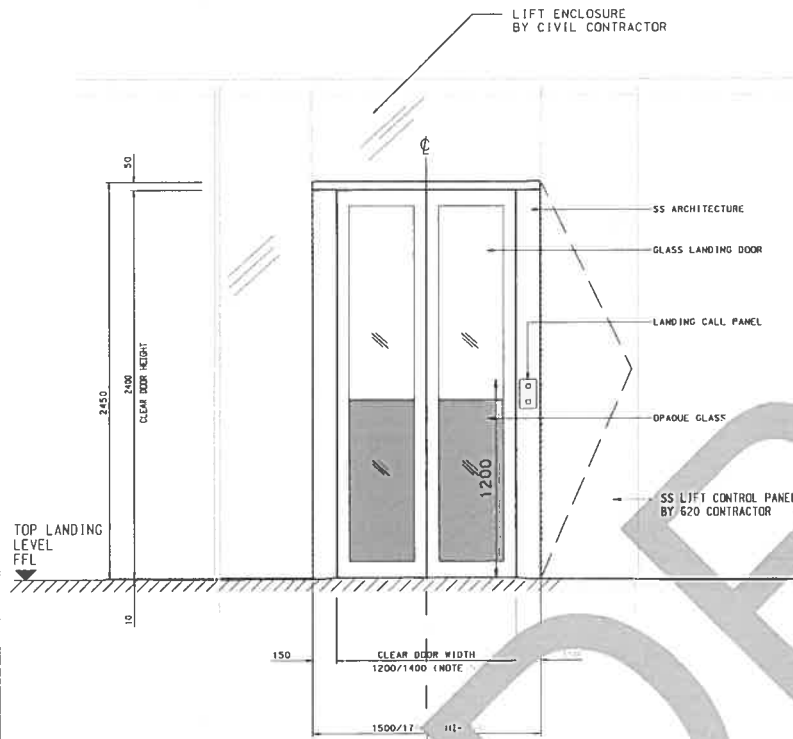
**LEGEND :**

SS STAINLESS STEEL

**NOTES:**

1. ALL REQUIRED LIFT EQUIPMENT & COMPONENTS TO BE SUPPLIED & INSTALLED BY 620 CONTRACTOR UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES ARE INDICATIVE ONLY. 620 CONTRACTOR SHALL VERIFY THESE DIMENSIONS TO ENSURE MEETING THE SPECIFIC PROJECT REQUIREMENTS.
3. LIFT SHAFT ENCLOSURE TO BE CONSTRUCTED BY CIVIL CONTRACTOR.
4. FOR SPECIFIC FINISHES REFER TO GENERAL ARRANGEMENT PLANS, ELEVATIONS, SECTIONS AND FINISHES SCHEDULE.
5. CLEAR DOOR WIDTH SHALL REFER TO THE LIFT CAPACITY:

1400mm FOR 2025 kg LIFT  
1200mm FOR 1275 kg LIFT



01 ELEVATION : LIFT LANDING DOOR AND ARCHITRAVE (FOR TOP LANDING LEVEL) 1 : 25 (A1)  
1 : 50 (A3)

02 ELEVATION : LIFT LANDING DOOR AND ARCHITRAVE (FOR OTHER LEVEL) 1 : 25 (A1)  
1 : 50 (A3)

DATE: 01/02/2017  
 DRAWN: C. Wong  
 CHECKED: E. Young  
 APPROVED: Zoe Tee  
 DATE: FEB/2017  
 PROJECT: 620 T 000 MTR N82 013.dwg

REV	DESCRIPTION	BY	DATE	APPROVED
A1	FIRST DRAFT			

BY	DATE	APPROVED
CF	FEB17	EY

**MTR**  
**SYDNEY METRO CITY & SOUTHWEST**  
 ORIGINATOR  
**ENGINEERING DIVISION** | **E&M ENGINEERING DEPARTMENT**  
 CADW REF. **620 T 000 MTR N82 013.dwg**

TITLE	<b>CONTRACT 620</b> LIFTS & ESCALATORS
TYPICAL ENTRANCE ELEVATION FOR PASSENGER LIFT	
SCALE	AS SHOWN
DRAWING NO.	620/T/000/MTR/N82/013
REV.	A1



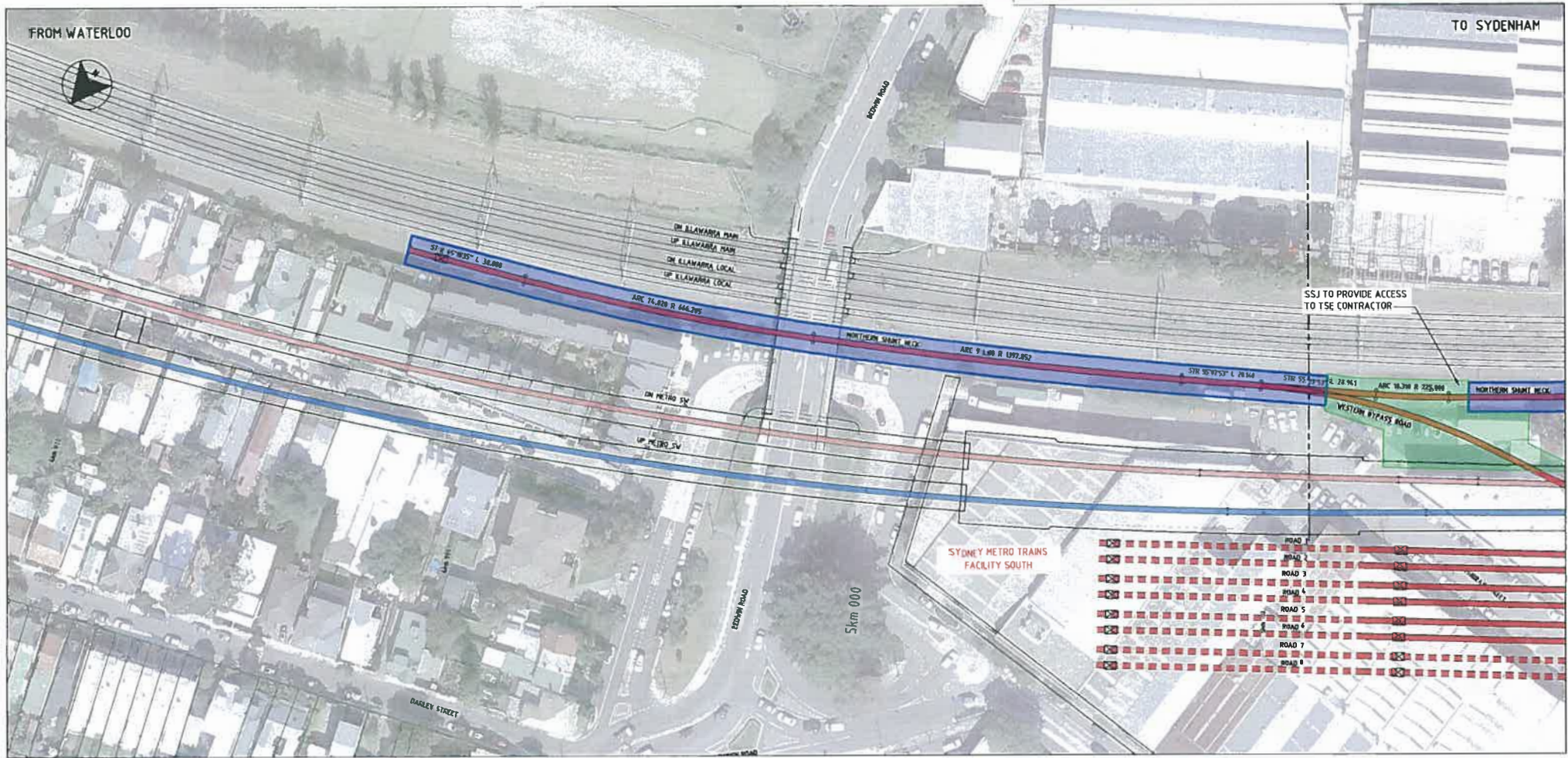






FROM WATERLOO

TO SYDENHAM



SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR

SYDNEY METRO TRAINS FACILITY SOUTH

PLAN SCALE 1:500

ALIGNMENT LEGEND

- PROPOSED UP MSW
- PROPOSED DOWN MSW
- PROPOSED SYDNEY METRO TRAINS FACILITY (SOUTH)
- SYDNEY TRAINS RECONFIGURATION
- EXISTING TRACK
- - - EXISTING TRACK TO BE REMOVED
- SSJ FORMATION ONLY
- TRANSGRID SLAB (BY TSE)

NOTES

1. CO-ORDINATE SYSTEM IS TO MAP GRID OF AUSTRALIA - MGA ZONE 56.
2. CURRENT DESIGN ALIGNMENTS FOR THE EXISTING ILLAWARRA LINE TRACKS AND THE EXISTING BAKESTOWN LINE TRACKS ARE BASED ON THE ISG COORDINATE SYSTEM. THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS. FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN, REQUIRING ISG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK, TRACK CONTROL NETWORK, AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS.
3. ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD).
4. ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
5. CHANGES SHOWN ARE UP MSW AND DOWN ILLAWARRA LOCAL.
6. LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
7. ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.
8. CONTRACT BOUNDARY AS PER VOLUME 3, SCHEDULE E2.
9. DRAWING TO BE USED FOR ALIGNMENT REQUIREMENTS AND FORMATION PURPOSES ONLY.

FOR INFORMATION ONLY

SYDNEY METRO CITY & SOUTHWEST  
 SYDENHAM STATION AND JUNCTION  
 RAIL  
 HORIZONTAL TRACK ALIGNMENT  
 METRO SOUTHWEST & SYDNEY TRAINS

STATUS: SWTC COPY SHEET 1 OF 6

HWL No. NWRLSRT-PBA-WSS-RD-DWG-971111 HWL REV. 01

REV	BY	DATE	DESCRIPTION	APPD
01	JS		ISSUED FOR SWTC COPY	

SCALE: 1:500 FULL SIZE A1

100mm AT FULL SIZE

CLIENT: Transport for NSW

STRUCK PROVIDERS: PARSONS BRINCKERHOFF, AECOM, COX HASSELL

DESIGNED: MICHELE L. JOYCE

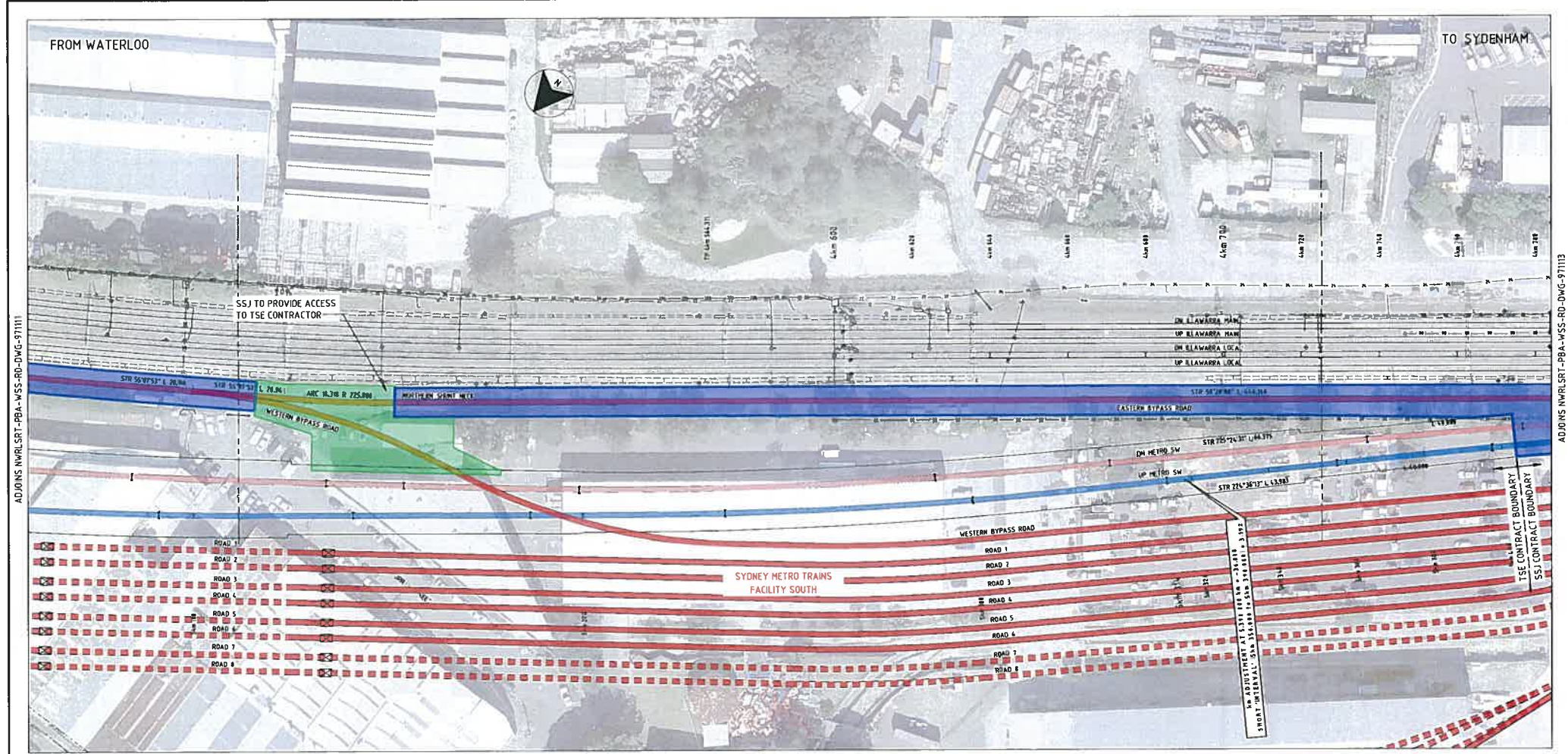
DESIGNED: GAVIN PATTERSON

ENG CHECK: HAYDEN PATTERSON

DESIGN CHECK: PAUL STOVES

APPROVED: MIA MCKINNAH-WHITTON





ADJONS NWRLSRT-PBA-WSS-RD-DWG-971111

ADJONS NWRLSRT-PBA-WSS-RD-DWG-971111

PLAN  
SCALE 1:500

**ALIGNMENT LEGEND**

- PROPOSED UP MSW
- PROPOSED DOWN MSW
- PROPOSED SYDNEY METRO TRAINS FACILITY (SOUTH)
- SYDNEY TRAINS RECONFIGURATION
- EXISTING TRACK
- EXISTING TRACK TO BE REMOVED
- SSJ FORMATION ONLY
- TRANSGRID SLAB (BY TSE)

**NOTES**

1. CO-ORDINATE SYSTEM IS MAP GRID OF AUSTRALIA - MGA ZONE 56.
2. CURRENT DESIGN ALIGNMENTS FOR THE EXISTING KILAWARRA LINE TRACKS AND THE EXISTING BANGSHOWN LINE TRACKS ARE BASED ON THE IGS COORDINATE SYSTEM. THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE MENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS FOR DETAILED DESIGN. AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN, REQUIRING IGS TO MGA CONVERSIONS OF THE BAIL SURVEY CONTROL NETWORK, TRACK CONTROL NETWORK AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS.
3. ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD).
4. ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
5. CHANGES SHOWN ARE UP MSW AND DOWN KILAWARRA LOCAL.
6. LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
7. ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.
8. CONTRACT BOUNDARY AS PER VOLUME 3, SCHEDULE E2.
9. DRAWING TO BE USED FOR ALIGNMENT REQUIREMENTS AND FORMATION PURPOSES ONLY.

REV	BY	DATE	DESCRIPTION	APPD
02	JS	08 06 17	RE-ISSUED FOR SWTC COPY	IMW
01	JS	04 05 17	ISSUED FOR SWTC COPY	IMW

At 1	Co-ordinate System: MGA Zone 56	Height Datum: A.H.D.	This sheet may be prepared using colour and may be incomplete if copied
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NOTE Do not sca

CLIENT

Transport for NSW

SERVICE PROVIDERS

DRAWN: MICHELLE JOYCE  
 DESIGNED: HAYDEN PATTERSON  
 DRG CHECK: HAYDEN PATTERSON  
 DESIGN CHECK: PAUL STOVES  
 APPROVED: IAN McILWAIN

**FOR INFORMATION ONLY**

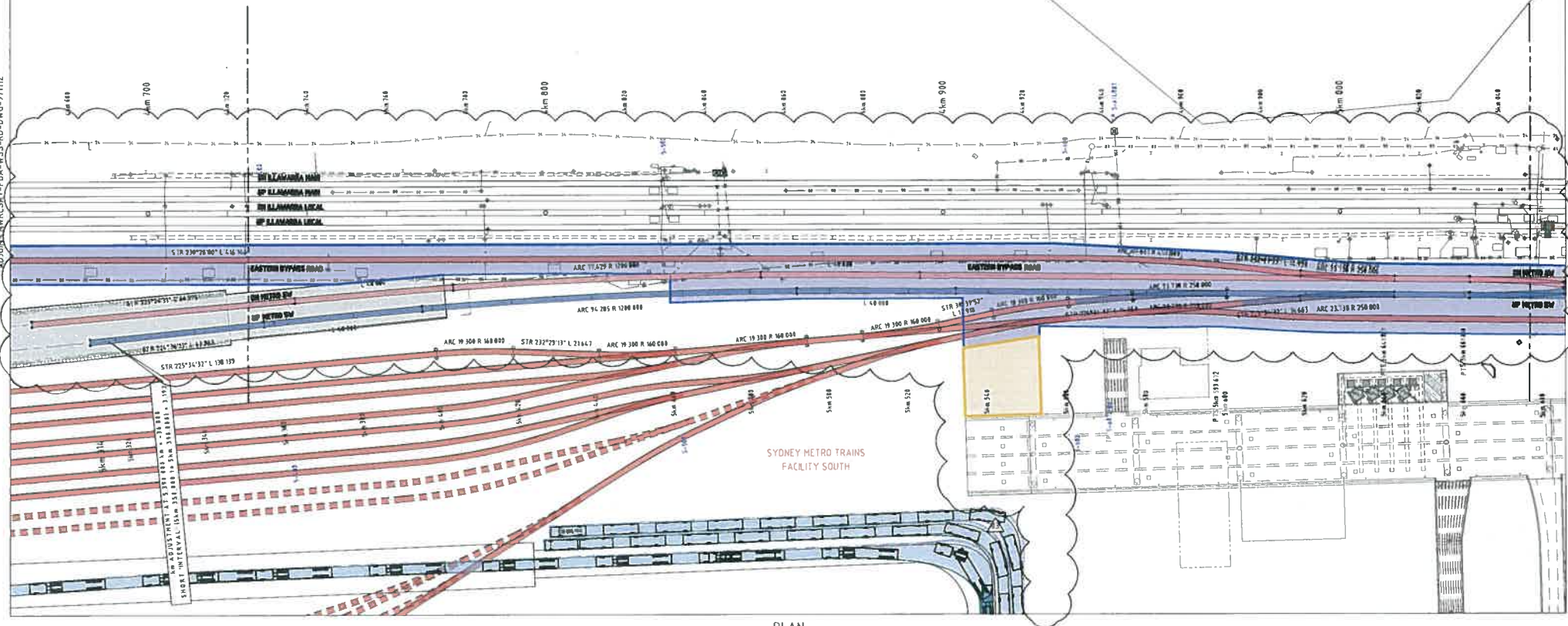
**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION AND JUNCTION  
 RAIL  
 HORIZONTAL TRACK ALIGNMENT  
 METRO SOUTHWEST & SYDNEY TRAINS

STATUS: SWTC COPY SHEET 2 OF 6  
 FILE: ADJONS NWRLSRT-PBA-WSS-RD-DWG-971111



FROM WATERLOO

TO SYDENHAM



100mm AT FULL SIZE Plot Date 23/02/18 - 12:12 Cad File C:\Users\Anthony.Bryant\Desktop\SSJ & SSC\Lang Orono\KOVASS\2018-02-02\_SSI\_SWT\_CAD\NWRLSRT-PBA-WSS-RD-DWG-971113.dwg

A:\DWG\NWRLSRT-PBA-WSS-RD-DWG-971114

**ALIGNMENT LEGEND**

- PROPOSED UP MSW
- PROPOSED DOWN MSW
- PROPOSED SYDNEY METRO TRAINS FACILITY (SOUTH)
- SYDNEY TRAINS RECONFIGURATION
- EXISTING TRACK
- EXISTING TRACK TO BE REMOVED

**FORMATION ONLY**

- SSJ FILL ONLY
- TRAINS GRAB SLAB (BY TSE)

**NOTES**

- 1 CO-ORDINATE SYSTEM IS TO MAP GRID OF AUSTRALIA - MGA ZONE 56
- 2 CURRENT DESIGN ALIGNMENTS FOR THE EXISTING ILLAWARRA LINE TRACKS AND THE EXISTING BANKS TOWN LINE TRACKS ARE BASED ON THE ISG COORDINATE SYSTEM THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN REQUIRING ISG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK, TRACK CONTROL NETWORK, AND CURRENT DESIGN ALIGNMENTS THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS
- 3 ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD)
- 4 ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE
- 5 CHANGES SHOWN ARE UP MSW AND DOWN ILLAWARRA LOCAL
- 6 LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY
- 7 ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN
- 8 CONTRACT BOUNDARY AS PER VOLUME 1 SCHEDULE E2
- 9 DRAWING TO BE USED FOR ALIGNMENT PRELIMINARIES AND FORMATION PURPOSES ONLY.

PLAN SCALE 1:500

REV.	BY	DATE	DESCRIPTION	APPD.
03	MJ		RE-ISSUED FOR SWTC COPY	BNV
02	JS	08.08.17	RE-ISSUED FOR SWTC COPY	BNV
01	JS	04.05.17	ISSUED FOR SWTC COPY	BNV

A1 Original Co-ordinate System: MGA Zone 56 Height Datum: A.H.D. This sheet may be prepared using colour and may be incomplete if copied

SCALE: 1:500 FULL SIZE A1

Plot Date 23/02/18 - 12:12

NSW GOVERNMENT Transport for NSW

Service Providers

DRAWN	MICHELLE ADVICE
DESIGNED	HAYDEN PATERSON
DRG CHECK	HAYDEN PATERSON
DESIGN CHECK	PAUL STOVES
APPROVED	IAN McILWAINE WHETTON

**FOR INFORMATION ONLY**

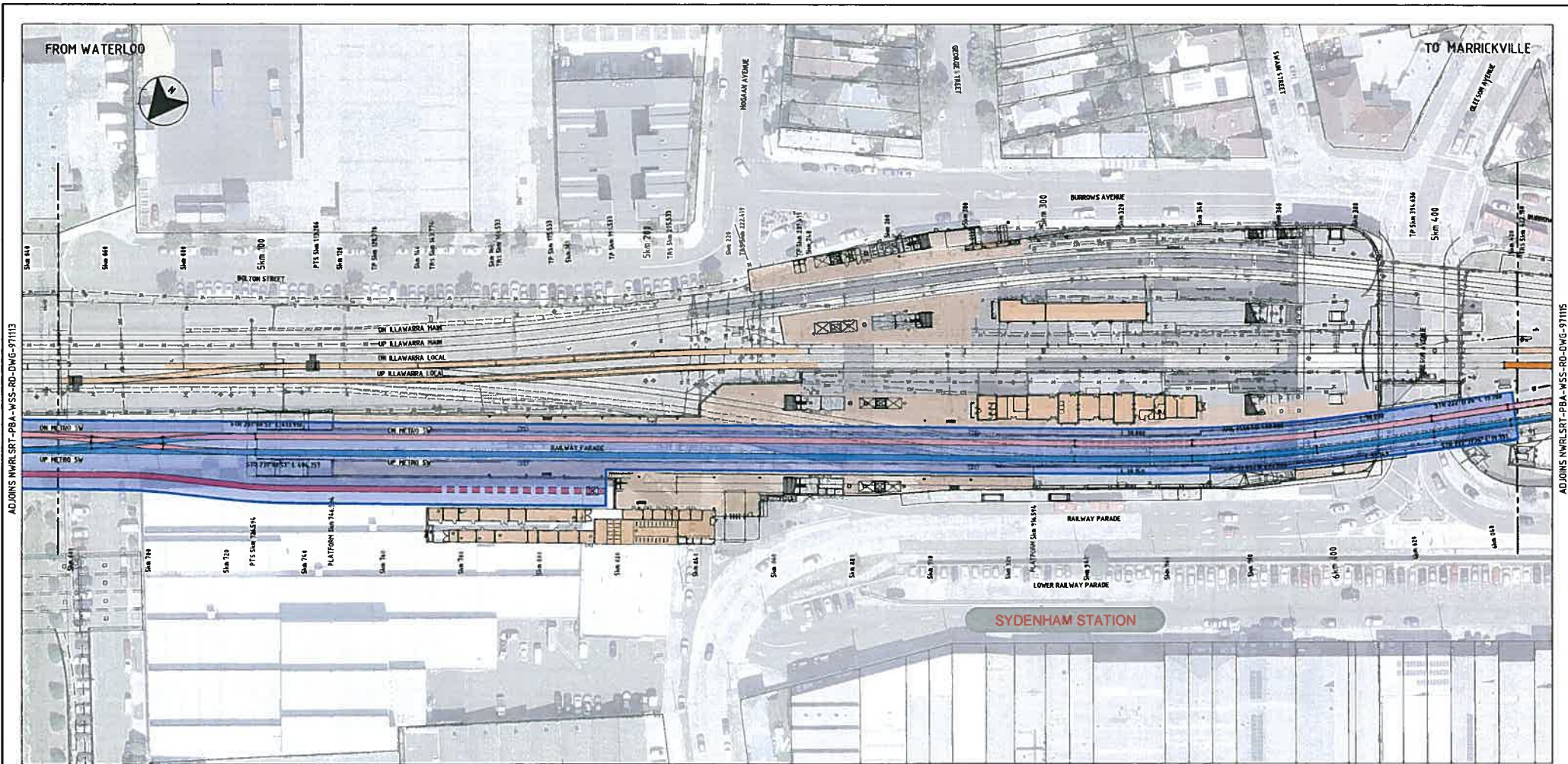
**SYDNEY METRO CITY & SOUTHWEST**

SYDENHAM STATION AND JUNCTION  
RAIL  
HORIZONTAL TRACK ALIGNMENT  
METRO SOUTHWEST & SYDNEY TRAINS

STATUS: SWTC COPY SHEET 3 OF 6

NWRLSRT-PBA-WSS-RD-DWG-971113 NWRLSRT-PBA-WSS-RD-DWG-971113





ADJONS NWRLSRT-PBA-WSS-RD-DWG-971114

ADJONS NWRLSRT-PBA-WSS-RD-DWG-971114

**ALIGNMENT LEGEND**

- PROPOSED UP HSW
- PROPOSED DOWN HSW
- PROPOSED SYDNEY METRO TRAINS FACILITY (SOUTH)
- SYDNEY TRAINS RECONFIGURATION
- EXISTING TRACK
- EXISTING TRACK TO BE REMOVED
- SSJ FORMATION ONLY
- TRANSGRID SLAB (BY TSE)

**NOTES**

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8. CONTRACT BOUNDARY AS PER VOLUME 3, SCHEDULE E2.
9. DRAWING TO BE USED FOR ALIGNMENT REQUIREMENTS AND FORMATION PURPOSES ONLY.

PLAN  
SCALE 1:500

100mm AT FULL SIZE

REV	BY	DATE	DESCRIPTION	ISSUED	APPROVED
01	JS		ISSUED FOR SWTC COPY		

Co-ordinate System: MGA Zone 56		Height Datum: A.H.D.	
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This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale dimensions from this drawing.



DRAWN	MICHELLE JOYCE
DESIGN	HAYDEN PATERSON
CHKD	HAYDEN PATERSON
DESIGN CHECK	PAUL STEVENS
APPROVED	DAN McILWAIN WRITTEN

**FOR INFORMATION ONLY**

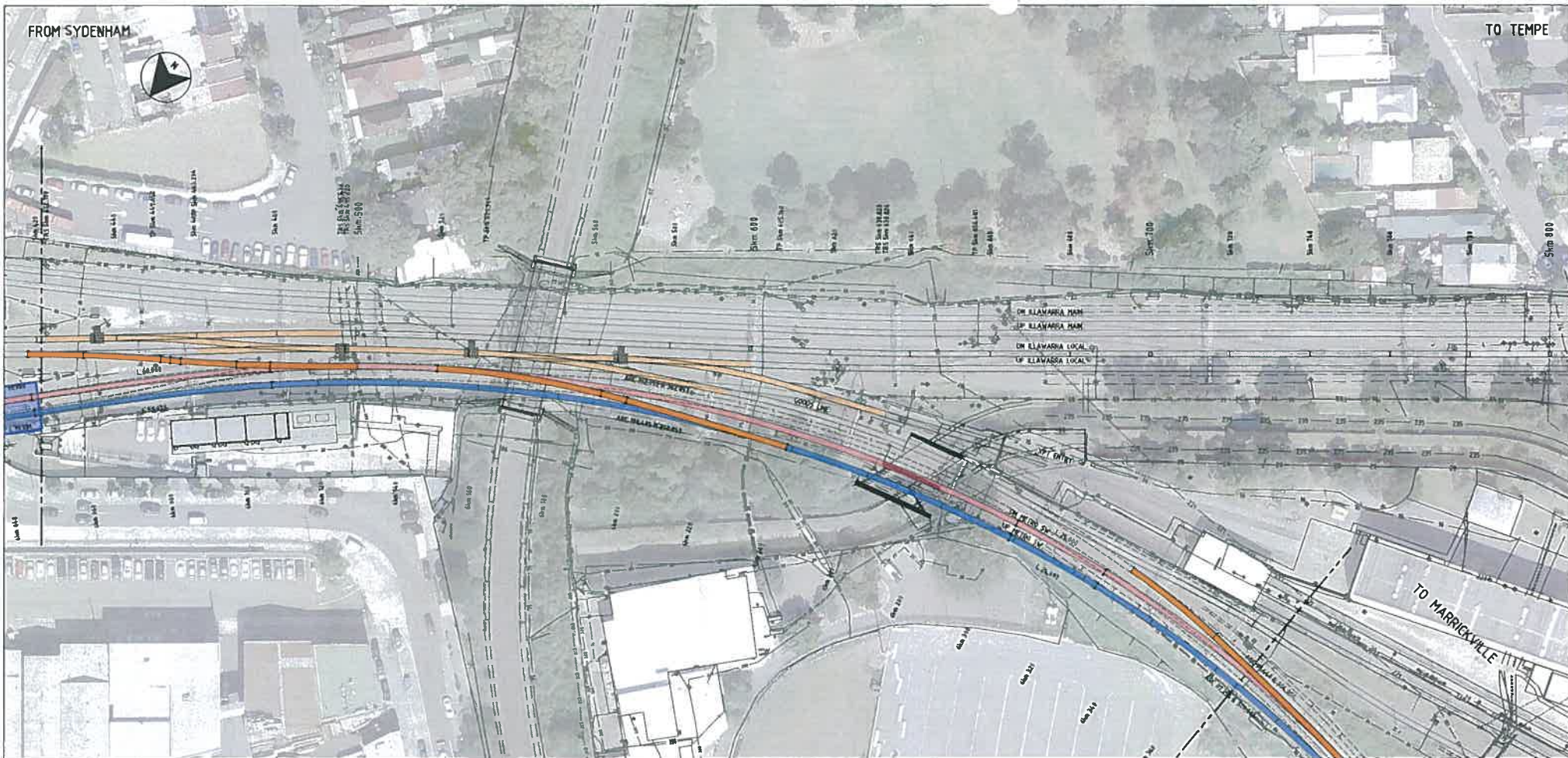
**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION AND JUNCTION  
 RAIL  
 HORIZONTAL TRACK ALIGNMENT  
 METRO SOUTHWEST & SYDNEY TRAINS

STATUS: SWTC COPY      SHEET 4 OF 6

NWRL Dwg No. NWRLSRT-PBA-WSS-RD-DWG-971114      NWRL REV. 01



ADJOINS NWRLSRT-PBA-WSS-RD-DWG-971114



ADJOINS NWRLSRT-PBA-WSS-RD-DWG-971116

PLAN  
SCALE 1:500

ALIGNMENT LEGEND	
	PROPOSED UP MSW
	PROPOSED DOWN MSW
	PROPOSED SYDNEY METRO TRAINS FACILITY (SOUTH)
	SYDNEY TRAINS RECONFIGURATION
	EXISTING TRACK
	EXISTING TRACK TO BE REMOVED
	SSJ FORMATION ONLY
	TRANSGRID SLAB (BY TSE)

- NOTES**
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  - CONTRACT BOUNDARY AS PER VOLUME 3, SCHEDULE E2.
  - DRAWING TO BE USED FOR ALIGNMENT REQUIREMENTS AND FORMATION PURPOSES ONLY.

100mm AT FULL SIZE

REV	BY	DATE	DESCRIPTION	APPD
01	JG		ISSUED FOR SWTC COPY	

SCALE
<p>1:500 FULL SIZE AT</p>

CLIENT

Transport for NSW

SERVICE PROVIDERS

DESIGNED BY: HAYDEN PATERSON  
 ORG CHECK: HAYDEN PATERSON  
 DESIGN CHECK: PAUL STOVES  
 APPROVED: IAN McLEWALNE WHITTON

**FOR INFORMATION ONLY**

**SYDNEY METRO CITY & SOUTHWEST**

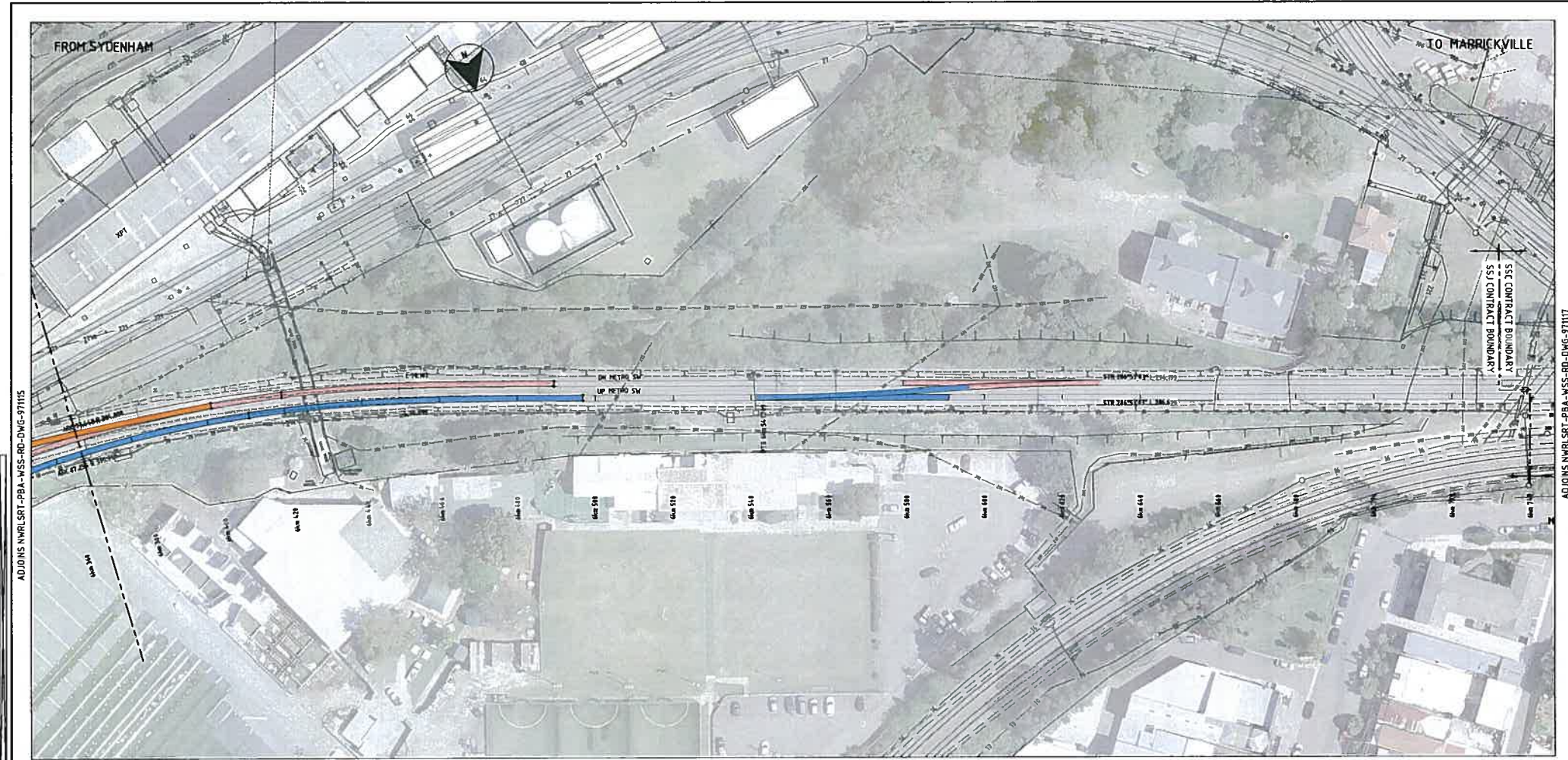
SYDENHAM STATION AND JUNCTION RAIL  
 HORIZONTAL TRACK ALIGNMENT  
 METRO SOUTHWEST & SYDNEY TRAINS

STATUS: SWTC COPY

Sheet 5 of 6

Drawn by: NWRLSRT-PBA-WSS-RD-DWG-971115





ADJOINS NWRLSRT-PBA-WSS-RD-DWG-971115

ADJOINS NWRLSRT-PBA-WSS-RD-DWG-971115

**ALIGNMENT LEGEND**

- PROPOSED UP HSW
- PROPOSED DOWN HSW
- PROPOSED SYDNEY METRO TRAINS FACILITY (SOUTH)
- SYDNEY TRAINS RECONFIGURATION
- EXISTING TRACK
- EXISTING TRACK TO BE REMOVED
- SSSJ FORMATION ONLY
- TRANSGRID SLAB (BY TSE)

**NOTES**

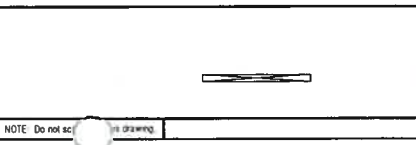
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8. CONTRACT BOUNDARY AS PER VOLUME 3, SCHEDULE E2
9. DRAWING TO BE USED FOR ALIGNMENT REQUIREMENTS AND FORMATION PURPOSES ONLY.

PLAN  
SCALE 1:500

100mm AT FULL SIZE

REV	BY	DATE	DESCRIPTION	ISSUED FOR SWTC COPY
01	JS			ISSUED FOR SWTC COPY

NOTE: Do not scale drawings.



SERVICE PROVIDERS <b>PARSONS BRINCKERHOFF</b> <b>AECOM</b> <b>COO HASSSELL</b>	DRAWN: MICHELLE JOYCE DESIGNED: HAYDEN PATERSON DNG CHECK: HAYDEN PATERSON DESIGN CHECK: PAUL STONES APPROVED: IAN MCKELWAIN WHITTON
---	--

**FOR INFORMATION ONLY**

<b>SYDENHAM STATION AND JUNCTION RAIL HORIZONTAL TRACK ALIGNMENT METRO SOUTHWEST &amp; SYDNEY TRAINS</b>	
STATUS: SWTC COPY	SHEET 6 OF 6
NWRLSRT-PBA-WSS-RD-DWG-971116	





VERTICAL SETTING OUT DETAILS (DOWN MSW)

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
Element Linear						4.30%	354.1650
IP	4km 943 0800	-12 9421	0 0000	0 0000			
SVC	5km 299 2730	2 2730	6246180.1217	330913 1323			
Element Symmetrical Parabola					4165 5979		200 0000
SVC	5km 299 2730	2 2730	0 0000	0 0000			
IP	5km 399 2730	6 6738	6246180.1217	330913 1323			
EVC	5km 499 2730	6 1725	6246110 4225	330830 4855			
Element Linear						-0.54%	40 0000
EVC	5km 499 2730	6 1725	6246110 4225	330830 4855			
IP	5km 539 2730	5 9720	6246080 4060	330807 4345			
Element Linear						-0.66%	310 7273
IP	5km 539 2730	5 9720	6246080 4060	330807 4345			
SVC	5km 850 0003	3 9225	6245892 9269	330565 8997			
Element Symmetrical Parabola					3363 6871		20 0000
SVC	5km 850 0003	3 9225	6245892 9269	330565 8997			
IP	5km 860 0003	3 8566	6245880 6358	330558 1265			
EVC	5km 870 0003	3 8501	6245880 3648	330550 3533			
Element Linear						-0.07%	102 8200
EVC	5km 870 0003	3 8501	6245880 3648	330550 3533			
IP	5km 972 8203	3 7832	6245815 2795	330470 7459			
Element Linear						0.12%	47 8291
IP	5km 972 8203	3 7832	6245815 2795	330470 7459			
SVC	6km 020 6494	3 8066	6245781 5587	330436 8687			
Element Symmetrical Parabola					5671 0317		40 0000
SVC	6km 020 6494	3 8066	6245781 5587	330436 8687			
IP	6km 040 6494	3 8066	6245766 7523	330423 4156			
EVC	6km 060 6494	4 0297	6245751 9384	330409 9787			
Element Linear						0.03%	15 3266
EVC	6km 060 6494	4 0297	6245751 9384	330409 9787			
SVC	6km 075 9760	4 1562	6245740 6588	330399 4030			
Element Symmetrical Parabola					4607 0575		20 0000
SVC	6km 075 9760	4 1562	6245740 6588	330399 4030			
IP	6km 085 9760	4 2307	6245733 3906	330392 7344			
EVC	6km 095 9760	4 2778	6245726 2352	330385 7486			
Element Linear						0.39%	40 9660
EVC	6km 095 9760	4 2778	6245726 2352	330385 7486			
IP	6km 142 9470	4 4495	6245695 0221	330350 4973			
Element Linear						0.10%	131 6702
IP	6km 142 9470	4 4495	6245695 0221	330350 4973			
SVC	6km 274 6122	4 8556	6245634 3919	330234 4336			
Element Symmetrical Parabola					6640 1676		40 0000
SVC	6km 274 6122	4 8556	6245634 3919	330234 4336			
IP	6km 294 6122	4 9154	6245629 8706	330215 3710			
EVC	6km 316 6122	5 0993	6245624 7252	330195 8404			
Element Linear						0.92%	176 5817
EVC	6km 316 6122	5 0993	6245624 7252	330195 8404			
SVC	6km 491 1939	6 7232	6245640 2142	330021 9760			

VERTICAL SETTING OUT DETAILS (DOWN MSW) - CONT.

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
Element Symmetrical Parabola					9764 5685		40 0000
SVC	6km 491 1939	6 7232	6245640 2142	330021 9760			
IP	6km 511 1939	6 9871	6245646 0218	330002 8306			
EVC	6km 531 1939	7 1731	6245651 0305	329983 7007			
Element Linear						1.33%	40 7211
EVC	6km 531 1939	7 1731	6245651 0305	329983 7007			
IP	6km 571 9150	7 7147	6245663 6574	329964 7350			
Element Linear						1.13%	74 6320
IP	6km 571 9150	7 7147	6245663 6574	329964 7350			
IP	6km 646 5470	8 5580	6245685 3333	329873 3200			
Element Linear						1.04%	59 6500
IP	6km 646 5470	8 5580	6245685 3333	329873 3200			
IP	6km 700 0000	9 1120	6245700 0500	329822 4712			
Element Linear						1.15%	69 0000
IP	6km 700 0000	9 1120	6245700 0500	329822 4712			
SVC	6km 749 9980	9 6760	6245715 9537	329774 4145			
Element Symmetrical Parabola					7077 1037		00 0000
SVC	6km 749 9980	9 6760	6245715 9537	329774 4145			
IP	6km 789 9980	10 1200	6245726 9785	329736 4307			

NOTES

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REFERENCES

- FOR HORIZONTAL TRACK ALIGNMENT PLANS REFER TO DRAWINGS  
NWRLSRT-PBA-WSS-RD-DWG-971111 TO 971116

LEGEND

IP	TANGENT POINT	SVC	START VERTICAL CURVE
IP	INTERSECTION POINT	IP	INTERSECTION POINT
R	RADIUS	EVC	END VERTICAL CURVE
C	CENTRE OF CIRCLE		

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FOR INFORMATION ONLY

SYDNEY METRO CITY & SOUTHWEST  
 SYDENHAM STATION AND JUNCTION  
 RAIL  
 TRACK SETTING OUT DETAILS  
 DOWN MSW - VERTICAL

STATUS: SWTC COPY SHEET 1 OF 1  
 NWRL Doc No. NWRLSRT-PBA-WSS-RD-DWG-971132 NWRL REV: 01

SERVICE PROVIDERS DRAWN: CH2M HILL DESIGNED: HAYDEN PATTERSON DWG CHECK: HAYDEN PATTERSON DESIGN CHECK: PAUL STORES APPROVED: PAUL MEKAWAINE WHITTON	SCALE: 1:1000 AT FULL SIZE	ISSUED FOR SWTC COPY DATE: 10/10/2011 BY: JC DATE: 10/10/2011 BY: JC DATE: 10/10/2011 BY: JC	A1 Original Co-ordinate System: MGA Zone 56 Height Datum: A.H.D. This sheet may be prepared using colour and may be incomplete if copied.	NOTE: Do not scale this drawing.

VERTICAL SETTING OUT DETAILS (UP MSW)

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
Element Linear						+ 3.9%	354.748
IP	4km 939 1968	-12 9789	0 0000	0 0000			
SVC	5km 295 9370	2 3690	626483 9235	338910 1175			
Element Symmetrical Parabola					4465 607		288 0000
SVC	5km 295 9370	2 3690	0 0000	0 0000			
IP	5km 395 9370	6 6690	626483 9235	338910 1175			
EVC	5km 495 9370	6 1678	6264116 8601	338835 9777			
Element Linear						- 0.58%	43 4028
EVC	5km 495 9370	6 1678	6264116 8601	338835 9777			
IP	5km 539 3390	5 9583	6264009 4312	338802 3420			
Element Linear						- 0.64%	381 4138
IP	5km 539 3390	5 9583	6264009 4312	338802 3420			
SVC	5km 846 7520	3 9226	6265896 8363	338563 7015			
Element Symmetrical Parabola					3386 382		288 0000
SVC	5km 846 7520	3 9226	6265896 8363	338563 7015			
IP	5km 856 7520	3 8566	6265889 7453	338555 6183			
EVC	5km 866 7520	3 8511	6265883 4542	338547 8371			
Element Linear						- 0.05%	188 2301
EVC	5km 866 7520	3 8511	6265883 4542	338547 8371			
IP	5km 966 9841	3 7963	6265828 1815	338478 1788			
Element Linear						0.18%	52 4938
IP	5km 966 9841	3 7963	6265828 1815	338478 1788			
SVC	6km 819 4818	3 8481	6265783 3642	338432 9690			
Element Symmetrical Parabola					3586 751		288 0000
SVC	6km 819 4818	3 8481	6265783 3642	338432 9690			
IP	6km 929 4818	3 8588	6265775 7628	338426 1864			
EVC	6km 939 4818	3 9249	6265768 3537	338414 4884			
Element Linear						0.67%	43 7666
EVC	6km 939 4818	3 9249	6265768 3537	338414 4884			
SVC	6km 883 2642	4 2177	6265736 3681	338389 8376			
Element Symmetrical Parabola					1893 971		48 0000
SVC	6km 883 2642	4 2177	6265736 3681	338389 8376			
IP	6km 183 2642	4 3515	6265721 1876	338375 7361			
EVC	6km 123 7642	4 4128	6265708 5699	338360 9963			
Element Linear						0.38%	166 4248
EVC	6km 123 7642	4 4128	6265708 5699	338360 9963			
SVC	6km 249 6718	4 8558	6265638 2639	338233 6955			
Element Symmetrical Parabola					6352 259		48 0000
SVC	6km 249 6718	4 8558	6265638 2639	338233 6955			
IP	6km 289 6718	4 9955	6265632 8896	338216 3539			
EVC	6km 389 6718	5 1019	6265628 6032	338194 9213			
Element Linear						0.93%	116 1817
EVC	6km 389 6718	5 1019	6265628 6032	338194 9213			
SVC	6km 425 8427	6 1845	6265629 1128	338079 3583			
Element Symmetrical Parabola					28173 464		48 0000

VERTICAL SETTING OUT DETAILS (UP MSW) - CONT.

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
SVC	6km 425 8427	6 1845	6265629 1128	338079 3583			
IP	6km 445 8427	6 3789	6265633 4716	338059 8331			
EVC	6km 445 8427	6 5969	6265638 6293	338048 5881			
Element Linear						1.15%	116 0881
EVC	6km 445 8427	6 5969	6265638 6293	338048 5881			
IP	6km 600 8510	8 1223	6265677 6357	329911 2821			
Element Linear						0.93%	714 218
IP	6km 600 8510	8 1223	6265677 6357	329911 2821			
IP	6km 812 3120	8 7829	6155698 3790	329842 9397			
Element Linear						1.18%	88 8854
IP	6km 872 2728	8 7829	6155698 3790	329842 9397			
SVC	6km 757 8776	9 7388	6265721 7893	329765 8889			
Element Symmetrical Parabola					8036 867		88 0000
SVC	6km 757 8776	9 7388	6265721 7893	329765 8889			
IP	6km 792 8776	10 2128	6265733 4955	329727 5326			

NOTES

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REFERENCES

- FOR HORIZONTAL TRACK ALIGNMENT PLANS REFER TO DRAWINGS MWRLSRT-PBA-WSS-RD-DWG-971111 TO 971116.

LEGEND

HORIZONTAL	VERTICAL
TP TANGENT POINT	SVC START VERTICAL CURVE
TRN TRANSITION POINT	IP INTERSECTION POINT
R RADIUS	EVC END VERTICAL CURVE
C CENTRE CENTRE OF CIRCLE	

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FOR INFORMATION ONLY

**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION AND JUNCTION  
 RAIL  
 TRACK SETTING OUT DETAILS  
 UP MSW - VERTICAL

STATUS: SWTC COPY SHEET 1 OF 1  
 MWRLSRT-PBA-WSS-RD-DWG-971133 MWRLS REV. 01

100mm AT FULL SIZE

<p>SCALE</p> <p>1:1</p>	<p>CLIENT</p> <p><b>NSW</b> Government          Transport for NSW</p>	<p>DESIGN PROVIDER</p> <p><b>PARSONS BRINCKERHOFF</b>  <b>AECOM</b>  <b>COX HASSELL</b></p>	<p>DRAWN: GREG MULLOY</p> <p>DESIGNED: HAYDEN PATERSON</p> <p>DRG CHECK: HAYDEN PATERSON</p> <p>DESIGN CHECK: PAUL STONES</p> <p>APPROVED: IAN MCKENNA-WHITTON</p>
<p>REV</p> <p>01</p> <p>BY</p> <p>JE</p> <p>DATE</p> <p>ISSUED FOR SWTC COPY</p>	<p>DESCRIPTION</p> <p>Co-ordinate System: MGA Zone 56</p> <p>HighN Datum: A.H.D.</p> <p>This sheet may be prepared using colour and may be incomplete if copied.</p>	<p>NOTE: Do not scale from this drawing.</p>	<p>APPROVED</p>

HORIZONTAL SETTING OUT DETAILS (DOWN ILLAWARRA LOCAL)

POINT	KILOMETRAGE (m)	EASTING (m)	NORTHING (m)	ELEMENT	BEARING	ELEMENT LENGTH (m)
TP	4km 564.311	310111 8020	6264292 4389		230°28'00"	
				STRAIGHT		561.3619
TP	5km 128.7759	330644 8507	6265935 1160		230°28'00"	
				SPIRAL		15.0000
TRS	5km 163.7759	330635.3264	6265925 5167		229°48'14"	
Center		330884 884.1	6265513 4538	R = -54.0 0000		16.7574
TRS	5km 160.5334	330622 7219	6265916 4731		227°53'33"	
				SPIRAL		15.0000
TP	5km 175.5334	330611 6472	6265906 3328		227°05'48"	
				STRAIGHT		15.0000
TP	5km 190.5334	330600 4997	6265896 1813		227°05'48"	
				SPIRAL		15.0000
TRS	5km 205.5334	330589 6651	6265883 9449		227°05'33"	
Center		330227 5829	6264284 5610	R = -14.0 0000		16.8868
TRS	5km 222.4196	330576 9626	6265872 8162		228°41'03"	
				SPIRAL		15.0000
TP	5km 237.4196	330565 4359	6265863 2176		230°28'49"	
				STRAIGHT		157.2664
TP	5km 394.4358	330444 1585	6265763 3737		230°28'49"	
				SPIRAL		27.5630
TRS	5km 422.1380	330423 0276	6265745 5760		229°41'51"	
Center		331076 2810	6264973 7057	R = -1006 8582		0.0113
TRS	5km 422.1500	330423 016.0	6265745 5847		229°41'49"	
				SPIRAL		27.5820
TP	5km 449.6520	330402 2831	6265727 5895		228°54'51"	
				STRAIGHT		18.9536
TP	5km 460.2036	330394 2501	6265720 6551		228°54'51"	
				SPIRAL		35.2810
TRS	5km 495.4854	330367 3195	6265697 7806		230°54'53"	
Center		330048 4167	6264890 4825	R = +545 924.8		0.1365
TRS	5km 495.6281	330367 2861	6265697 6958		230°55'47"	
				SPIRAL		35.2810
TP	5km 530.9011	330339 3463	6265676 1038		232°55'49"	
				STRAIGHT		72.4880
TP	5km 605.1676	330281 5537	6265632 4103		232°55'49"	

HORIZONTAL SETTING OUT DETAILS (UP ILLAWARRA LOCAL)

POINT	KILOMETRAGE (m)	EASTING (m)	NORTHING (m)	ELEMENT	BEARING	ELEMENT LENGTH (m)
TP	4km 553.4365	33086 3660	6264308 9432		230°28'00"	
				STRAIGHT		575.0882
TP	5km 133.5637	33064 0 8264	6265934 8994		230°28'00"	
				SPIRAL		15.0000
TRS	5km 148.5637	330629 3020	6265925 2891		229°48'15"	
Center		330978 7385	6265513 6264	R = -54.0 0000		16.7649
TRS	5km 165.3786	330616 6919	6265916 2626		227°53'31"	
				SPIRAL		15.0000
TP	5km 180.3786	330605 4574	6265906 0821		227°05'48"	
				STRAIGHT		15.0000
TP	5km 195.3786	330594 6700	6265893 8795		227°05'48"	
				SPIRAL		15.0000
TRS	5km 210.3786	330583 4355	6265883 7180		227°53'31"	
Center		330221 5449	6264284 3262	R = -54.0 0000		16.8927
TRS	5km 227.2213	330570 9280	6265872 5808		229°41'04"	
				SPIRAL		15.0000
TP	5km 242.2213	330559 4843	6265862 1922		230°28'49"	
				STRAIGHT		162.0079
TP	5km 484.2292	330434 4275	6265759 8895		230°28'49"	
				SPIRAL		27.5630
TRS	5km 491.7322	330413 2917	6265742 2918		229°41'49"	
Center		331064 0620	6264975 8116	R = -1006 8938		0.0010
TRS	5km 491.7332	330413 3909	6265742 2911		229°41'49"	
				SPIRAL		27.5820
TP	5km 459.2352	330392 4402	6265726 3107		228°54'51"	
				STRAIGHT		132.088
TP	5km 440.3849	330391 6294	6265723 5699		228°54'49"	
				SPIRAL		35.1650
TRS	5km 495.5899	330364 8732	6265700 7852		230°55'19"	
Center		330048 4198	6264890 4855	R = +582.0050		0.0061
TRS	5km 495.5151	330364 8885	6265700 7816		230°55'21"	
				SPIRAL		35.1640
TP	5km 532.4536	330337 8778	6265679 2722		232°55'51"	
				STRAIGHT		67.4559
TP	5km 599.9894	330283 2542	6265638 6112		232°55'51"	
				SPIRAL		25.6550
TRS	5km 625.5644	330262 8945	626562 30023		231°42'41"	
Center		330636 5292	6265149 7054	R = -483.0030		0.0049
TRS	5km 625.5694	330262 8987	626562 29993		231°42'38"	
				SPIRAL		25.6540
TP	5km 651.2234	330242 1929	6265606 8196		230°29'30"	
				STRAIGHT		482.364
TP	6km 133.5328	329870 8240	6265299 943		230°29'30"	

NOTES

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REFERENCES

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NWRLSRT-PBA-WSS-RD-DWG-971111 TO 971116.

LEGEND

HORIZONTAL		VERTICAL	
TP	TANGENT POINT	SVC	START VERTICAL CURVE
TRS	TRANSITION POINT	IP	INTERSECTION POINT
R	RADIUS	EVC	END VERTICAL CURVE
Centre	CENTRE OF CIRCLE		

REV	BY	DATE	DESCRIPTION	APPD
01	JS		ISSUED FOR SWTC COPY	

A1 Original Co-ordinate System: MGA Zone 56 Height Datum: A.H.D. This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not use this drawing

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FOR INFORMATION ONLY

**SYDNEY METRO CITY & SOUTHWEST**  
**SYDENHAM STATION AND JUNCTION**  
**RAIL**  
**TRACK SETTING OUT DETAILS**  
**UP & DOWN ILLAWARRA LOCAL - HORIZONTAL**

STATUS: SWTC COPY SHEET 1 OF 1  
 NWRL Proj No. NWRLSRT-PBA-WSS-RD-DWG-971114 MWL REV. 01



DESIGN PROVIDERS  
**PARSONS BRINCKERHOFF**  
**AECOM**  
**CHASSASS**

DESIGN CHECK: PAUL STOVES  
 APPROVED: IAN MCKEOWN-WHITTON

100mm AT FULL SIZE

VERTICAL SETTING OUT DETAILS (DOWN ILLAWARRA LOCAL)

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
IP	Skm 910 0000	4 5660	6246074.3731	338015.5823			
IP	Skm 940 0000	4 1630	6245991.6264	338715.3194			
Element Linear						-0.22%	80 0000
IP	Skm 940 0000	4 1630	6245991.6264	338715.3194			
IP	Skm 120 0000	3 9667	6245960.7821	338663.6192			
Element Linear						-0.19%	60 0000
IP	Skm 120 0000	3 9667	6245960.7821	338663.6192			
IP	Skm 160 0000	3 8310	6245954.8386	338623.1077			
Element Linear						-0.29%	60 0000
IP	Skm 160 0000	3 8310	6245954.8386	338623.1077			
SVC	Skm 220 0000	3 6557	6245874.3854	338578.8038			
Element Symmetrical Parabola					10966.4870		60 0000
SVC	Skm 220 0000	3 6557	6245874.3854	338578.8038			
IP	Skm 250 0000	3 5680	6245855.2128	338565.7312			
EVC	Skm 280 0000	3 6465	6245836.1216	338532.5898			
Element Linear						0.24%	50 0000
EVC	Skm 280 0000	3 6465	6245836.1216	338532.5898			
IP	Skm 330 0000	3 7728	6245804.3864	338494.8188			
Element Linear						0.25%	80 0000
IP	Skm 330 0000	3 7728	6245804.3864	338494.8188			
IP	Skm 410 0000	4 0483	6245753.3799	338432.3283			
Element Linear						0.51%	20 0000
IP	Skm 410 0000	4 0483	6245753.3799	338432.3283			
IP	Skm 410 0000	4 0483	6245753.3799	338432.3283			
Element Linear						0.39%	70 0000
IP	Skm 30 0000	4 9518	6245749.4701	338417.8453			
IP	Skm 400 0000	4 1443	6245787.7800	338379.2816			
Element Linear						0.24%	40 0000
IP	Skm 400 0000	4 1443	6245787.7800	338379.2816			
IP	Skm 520 0000	4 4581	6245682.6845	338364.8770			
Element Linear						0.44%	110 2000
IP	Skm 520 0000	4 4581	6245682.6845	338364.8770			
IP	Skm 639 9956	4 8378	6245611.8723	338254.8225			

VERTICAL SETTING OUT DETAILS (UP ILLAWARRA LOCAL)

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
IP	Skm 010 0000	4 8760	6246160.8472	338890.3765			
IP	Skm 039 7810	4 1637	6245994.5851	338713.3561			
Element Linear						-0.22%	55 2000
IP	Skm 039 7810	4 1637	6245994.5851	338713.3561			
IP	Skm 054 9930	4 0617	6245959.4373	338670.5690			
Element Linear						-0.45%	45 0000
IP	Skm 054 9930	4 0617	6245959.4373	338670.5690			
IP	Skm 160 0000	3 8620	6245938.7893	338635.8659			
Element Linear						-0.36%	45 0000
IP	Skm 160 0000	3 8620	6245938.7893	338635.8659			
IP	Skm 185 0000	3 7980	6245900.9189	338602.2357			
Element Linear						-0.31%	15 0000
IP	Skm 185 0000	3 7980	6245900.9189	338602.2357			
SVC	Skm 200 0000	3 7643	6245870.6898	338591.2448			
Element Symmetrical Parabola					9859.105		40 0000
SVC	Skm 200 0000	3 7643	6245870.6898	338591.2448			
IP	Skm 220 0000	3 6830	6245877.2897	338576.4028			
EVC	Skm 240 0000	3 7830	6245864.3959	338561.1167			
Element Linear						0.18%	80 0000
EVC	Skm 240 0000	3 7830	6245864.3959	338561.1167			
IP	Skm 330 0000	3 7930	6245807.1264	338491.6884			
Element Linear						0.35%	70 0000
IP	Skm 330 0000	3 7930	6245807.1264	338491.6884			
IP	Skm 400 0000	4 0145	6245762.5887	338437.6988			
Element Linear						0.39%	110 0000
IP	Skm 400 0000	4 0145	6245762.5887	338437.6988			
IP	Skm 510 0000	4 6186	6245691.3770	338353.5113			
Element Linear						0.16%	128 2000
IP	Skm 510 0000	4 6186	6245691.3770	338353.5113			
IP	Skm 639 9956	4 9278	6245613.9589	338251.6553			
Element Linear						0.28%	128 0000
IP	Skm 639 9956	4 9278	6245613.9589	338251.6553			
IP	Skm 759 9956	5 2578	6245537.6196	338159.0619			

NOTES

- CURRENT DESIGN ALIGNMENTS FOR THE EXISTING ILLAWARRA LINE TRACKS AND THE EXISTING BANKSTOWN LINE TRACKS ARE BASED ON THE ICG COORDINATE SYSTEM. THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS. FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN. REQUIRING ICG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK, TRACK CONTROL NETWORK, AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS.
- ALIGNMENT LEVELS ARE LOW PEARL DESIGN LEVELS.
- ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD).
- ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
- FOR HORIZONTAL TRANSITIONS AND VERTICAL CURVES, FORMULAE REFER TO ASA RAIL CORP STANDARD EIG 210.
- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

REFERENCES

- FOR HORIZONTAL TRACK ALIGNMENT PLANS REFER TO DRAWINGS:  
NWRLSRT-PBA-WSS-RD-DWG-971111 TO 971116

LEGEND

HORIZONTAL		VERTICAL	
IP	TANGENT POINT	SVC	START VERTICAL CURVE
TRS	TRANSITION POINT	IP	INTERSECTION POINT
R	RADIUS	EVC	END VERTICAL CURVE
CENTRE	CENTRE OF CURVE		

NOTES:

- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

FOR INFORMATION ONLY

**SYDNEY METRO CITY & SOUTHWEST**  
**SYDENHAM STATION AND JUNCTION**  
**RAIL**  
**TRACK SETTING OUT DETAILS**  
**UP & DOWN ILLAWARRA LOCAL - VERTICAL**

STATUS: SWTC COPY SHEET 1 OF 1

NWRLSRT-PBA-WSS-RD-DWG-971135 NWRL REV. 01

<p>SCALE: 1:1000</p>		<p>CLIENT: <b>Transport for NSW</b></p>	<p>SERVICE PROVIDERS:</p> <p><b>PARSONS BRINCKERHOFF</b></p> <p><b>AECOM</b></p> <p><b>COX HASSELL</b></p>	<p>DESIGNED BY: GREG MCLEOD</p> <p>DESIGNED BY: HAYDEN PATTERSON</p> <p>DRG CHECK: HAYDEN PATTERSON</p> <p>DESIGN CHECK: PAUL STOMER</p> <p>APPROVED: JILL MCELHANE WHITTON</p>
<p>REV. BY DATE</p> <p>01 JS ISSUED FOR SWTC COPY</p>	<p>DESCRIPTION</p> <p>ISSN</p> <p>APPRO</p>	<p>NOTE: Do not scale from this drawing.</p>		



HORIZONTAL SETTING OUT DETAILS (NORTHERN SHUNT NECK/EASTERN BYPASS ROAD)

POINT	KILOMETRAGE (m)	EASTING (m)	NORTHING (m)	ELEMENT	BEARING	ELEMENT LENGTH (m)
IP	km 84.9 2422	331363 8247	6244492 6731		145°18'35"	
				STRAIGHT		20 0000
TP	km 87.9 2422	3313365673	6246488 1397		245°18'35"	
Center		331336 8511	6245876 8407	R = -448 2847		74 8202
IP	km 93.3 2826	331271 1084	6246445 5516		238°56'37"	
Center		331892 2965	6245268 8476	R = -1191 8923		93 0100
TP	km 94.8 2726	331893 1650	6246394 9550		335°40'53"	
				STRAIGHT		4 9104
TP	km 99.3 2728	33152 8590	6246366 8838		335°40'53"	
Center		3312814 911	6246182 2794	R = -125 8888		18 3177
TP	km 113 8915	33108 2724	6246355 8119		238°28'08"	
				STRAIGHT		446 1650
TP	km 119 8376	330794 1805	6246071 8282		238°28'08"	
Center		330587 7436	6246418 8929	R = -450 0980		47 8416
TP	km 106 8788	330756 4019	6246043 8342		238°27'22"	
				STRAIGHT		16 9385
TP	km 83 8123	330743 9513	6246035 5794		238°27'22"	
Center		330882 0948	6245827 2136	R = -250 0888		23 7377
TP	km 84 5 5558	330724 8187	6246021 5438		238°27'22"	

NOTES:  
 1. LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.  
 2. ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

NOTES

- CURRENT DESIGN ALIGNMENTS FOR THE EXISTING ILLAWARRA LINE TRACKS AND THE EXISTING BANKSTOWN LINE TRACKS ARE BASED ON THE ISG COORDINATE SYSTEM THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS. FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN, RECURRING ISG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK; TRACK CONTROL NETWORK; AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS
- ALIGNMENT LEVELS ARE LOW RAIL DESIGN LEVELS
- ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD)
- ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE
- FOR HORIZONTAL TRANSITIONS AND VERTICAL CURVES FORMULAE REFER TO ASA RAIL CORP STANDARD ESC 210
- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN

REFERENCES

- FOR HORIZONTAL TRACK ALIGNMENT PLANS REFER TO DRAWINGS MWRLSRT-PBA-WSS-RD-DWG-971111 TO 971116.

LEGEND

HORIZONTAL		VERTICAL	
TP	TANGENT POINT	SVC	START VERTICAL CURVE
TXS	TRANSITION POINT	IP	INTERSECTION POINT
R	RADIUS	EVC	END VERTICAL CURVE
C	CENTRE OF CIRCLE		

REV	BY	DATE	DESCRIPTION	APPD
01	JS		ISSUED FOR SWTC COPY	

SCALE

CLIENT
NSW GOVERNMENT



SERVICE PROVIDER
PARSONS BRINCKERHOFF
AECOM
HASSELL

FOR INFORMATION ONLY	
SYDNEY METRO CITY & SOUTHWEST	
SYDENHAM STATION AND JUNCTION	
RAIL	
TRACK SETTING OUT DETAILS	
NORTHERN SHUNT NECK / EASTERN BYPASS ROAD - HORIZONTAL & VERTICAL	
STATUS: SWTC COPY	SHEET 1 OF 1
MWRLSRT-PBA-WSS-RD-DWG-971116	MWRLSRT-PBA-WSS-RD-DWG-971116

100mm AT FULL SIZE

HORIZONTAL SETTING OUT DETAILS (ARTC GOODS LINE)

POINT	KILOMETRAGE (m)	EASTING (m)	NORTHING (m)	ELEMENT	BEARING	ELEMENT LENGTH (m)
TP	5km 529 649	330339 3360	6265688 9781		232°55'51"	
Center		330388 6431	6265888 6551	H = +238 0000		38 1411
TP	5km 548 221	330366 8900	6265660 1936		261°44'00"	
				STRAIGHT		27 0000
TP	5km 595 3206	330283 8169	6265667 3784		261°44'00"	
Center		330364 7572	6265867 4379	H = +238 0000		75 0000
TP	5km 671 067	330278 8586	6265622 1916		258°58'58"	

VERTICAL SETTING OUT DETAILS (ARTC GOODS LINE)

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
Element	Kilometrage (m)	Elevation (m)	Northng (m)	Eastng (m)	Radius (m)	Grade (%)	Length (m)
Element Linear						0.36%	43 4574
IP	5529 4630	4 5253	6265688 9781	330339 3360			
SVC	5573 1864	4 6866	6265657 8784	330382 5867			
Element Symmetrical Parabola					4269 703		28 0000
SVC	5573 1864	4 6866	6265657 8784	330382 5867			
IP	5581 1864	4 7281	6265653 1481	330293 7762			
EVC	5593 1864	4 7894	6265648 4378	330284 9658			
Element Linear						-0.10%	42 9676
EVC	5593 1864	4 7894	6265648 4378	330284 9658			
SVC	5635 1679	4 6657	6265631 3996	330266 5761			
Element Symmetrical Parabola					1735 535		28 0000
SVC	5635 1679	4 6657	6265631 3996	330266 5761			
IP	5645 1679	4 6541	6265628 3187	330237 8638			
EVC	5655 1679	4 7561	6265625 6167	330227 4368			
Element Linear						1.02%	38 9788
EVC	5655 1679	4 7561	6265625 6167	330227 4368			
IP	5671 1589	4 9156	6265622 1016	330218 8184			

NOTES

- CURRENT DESIGN ALIGNMENTS FOR THE EXISTING KILMARRIE LINE TRACKS AND THE EXISTING BANYSTOWN LINE TRACKS ARE BASED ON THE IEG COORDINATE SYSTEM. THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS. FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN, REQUIRING IEG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK, TRACK CONTROL NETWORK, AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS.
- ALIGNMENT LEVELS ARE LOW RAIL DESIGN LEVELS.
- ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD).
- ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
- FOR HORIZONTAL TRANSITIONS AND VERTICAL CURVES FORMULAE REFER TO ASA RAILCORP STANDARD ESC 21W.
- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

REFERENCES

- FOR HORIZONTAL TRACK ALIGNMENT PLANS REFER TO DRAWINGS NWRLSRT-PBA-WSS-RD-DWG-971131 TO 971136.


LEGEND

HORIZONTAL		VERTICAL	
TP	TANGENT POINT	SVC	START VERTICAL CURVE
TR	TRANSITION POINT	IP	INTERSECTION POINT
R	RADIUS	EVC	END VERTICAL CURVE
C	CENTRE OF CURVE		

NOTES:

- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

FOR INFORMATION ONLY

 <b>Transport for NSW</b>		<small>The information shown on this drawing is for the convenience of the NSW State Rail Line (SRL) Project only. It is not to be used or relied on in any other way. The State Rail Line Project is a project of the NSW Government and the information shown on this drawing is not to be used for any other purpose.</small>		<b>SYDNEY METRO CITY &amp; SOUTHWEST</b> SYDENHAM STATION AND JUNCTION RAIL TRACK SETTING OUT DETAILS ARTC GOODS LINE - HORIZONTAL & VERTICAL	
SERVICE PROVIDERS <b>PARSONS BRINCKERHOFF</b> <b>AECOM</b> <b>COX HASSELL</b>		DRAWN: REG MCKEY DESIGNED: HAYDEN PATERSON DWG CHECK: HAYDEN PATERSON DESIGN CHECK: PAUL STONES APPROVED: IAN MCILWAIN WHITTON		STATUS: SWTC COPY SHEET 1 OF 1 NWRLSRT-PBA-WSS-RD-DWG-971137 NWRL REV 01	

100mm AT FULL SIZE

REV	BY	DATE	DESCRIPTION	APPD
01	JS		ISSUED FOR SWTC COPY	

NOTE: Do not scale from this drawing.

HORIZONTAL SETTING OUT DETAILS (XPT ENTRY LINE)

POINT	KILOMETRAGE (m)	EASTING (m)	NORTHING (m)	ELEMENT	BEARING	ELEMENT LENGTH (m)
TP	Sta 547 8228	330389.5181	4245458.4522		232°55'51"	
Center		330194.9988	4245818.9547	R = +109.9999		4.6754
TP	Sta 833 7383	330249.1736	4245635.1351		247°01'05"	
				STRAIGHT		68.6692
TP	Sta 873 3213	330213.8723	4245811.6828		247°01'05"	

VERTICAL SETTING OUT DETAILS (XPT ENTRY LINE)

ELEMENT	KILOMETRAGE (m)	ELEVATION (m)	NORTHING (m)	EASTING (m)	RADIUS (m)	GRADE (%)	LENGTH (m)
Element: Linear						0.34%	32.0000
IP	Sta 547 8233	4.6413	4245458.4519	330389.5177			
IP	Sta 559 8233	4.7779	4245641.3392	330282.4847			
Element: Linear						0.50%	35.8437
IP	Sta 559 8233	4.7779	4245641.3392	330282.4847			
IP	Sta 634 3811	4.9770	4245626.8858	330249.7218			
Element: Linear						-0.03%	27.9913
IP	Sta 634 3811	4.9770	4245626.8858	330249.7218			
PDE	Sta 642 2824	4.9680	4245615.9328	330226.0351			

NOTES

- CURRENT DESIGN ALIGNMENTS FOR THE EXISTING ILLAWARRA LINE TRACKS AND THE EXISTING BANKSTOWN LINE TRACKS ARE BASED ON THE ICG COORDINATE SYSTEM. THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS. FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN. REQUIRING ICG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK; TRACK CONTROL NETWORK; AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS.
- ALIGNMENT LEVELS ARE LOW RAIL DESIGN LEVELS.
- ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD).
- ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
- FOR HORIZONTAL TRANSITIONS AND VERTICAL CURVES FORMULAE REFER TO ASA RAILCORP STANDARD ESC 219.
- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

REFERENCES

- FOR HORIZONTAL TRACK ALIGNMENT PLANS REFER TO DRAWINGS: NWRLSRT-PDA-WSS-RD-DWG-971111 TO 971116.

LEGEND

HORIZONTAL		VERTICAL	
TP	TANGENT POINT	SVC	START VERTICAL CURVE
TR	TRANSITION POINT	IP	INTERSECTION POINT
R	RADIUS	EVC	END VERTICAL CURVE
C	CENTRE OF CIRCLE		

NOTES:

- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

FOR INFORMATION ONLY

SYDNEY METRO CITY & SOUTHWEST  
 SYDENHAM STATION AND JUNCTION  
 RAIL  
 TRACK SETTING OUT DETAILS  
 XPT ENTRY - HORIZONTAL & VERTICAL

REV	BY	DATE	DESCRIPTION	APPD.
01	JS		ISSUED FOR SWTC COPY	BMV

CLIENT:  Transport for NSW

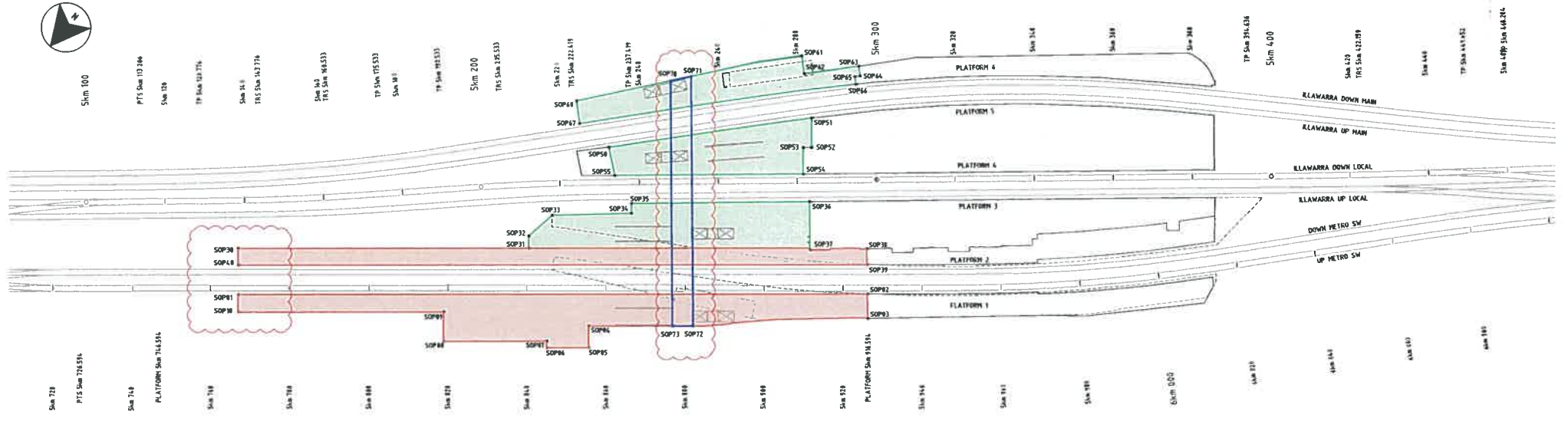
SERVICE PROVIDERS:   

DESIGN: DRA WN: \_\_\_\_\_ GREG MOLLOY  
 DESIG MD: \_\_\_\_\_ HAYDEN PATERSON  
 DRG CHECK: \_\_\_\_\_ HAYDEN PATERSON  
 DESIG CHECK: \_\_\_\_\_ PAUL STOKES  
 APPROVED: \_\_\_\_\_ IAN MCLWHAINE-WHEATON



FROM WATERLOO

TO MARRICKVILLE



PLAN  
SCALE 1:500

SETOUT COORDINATES PLATFORM 1		
POINT	EASTING (m)	NORTHING (m)
SOP1	330624.200	6245947.551
SOP2	330590.8116	6245947.3837
SOP4	330558.3648	6245948.1237
SOP5	330546.9120	6245942.2840
SOP6	330555.1596	6245989.0590
SOP7	330556.2332	6245907.3325
SOP8	330576.5813	6245926.1384
SOP9	330618.1754	6245918.2668
SOP10	330621.557	6245951.047

SETOUT COORDINATES PLATFORM 2 & 3		
POINT	EASTING (m)	NORTHING (m)
SOP20	330621.771	6245938.429
SOP21	330576.4778	6245982.7793
SOP32	330576.5400	6245989.7962
SOP33	330575.2355	6245881.9816
SOP34	330568.0866	6245869.0320
SOP35	330564.15372	6245907.0716
SOP36	330526.7706	6245838.3762
SOP37	330510.9931	6245864.7355
SOP38	330505.3606	6245851.6601
SOP40	330479.963	6245941.5718

SETOUT COORDINATES PLATFORM 4 & 5		
POINT	EASTING (m)	NORTHING (m)
SOP50	330575.0291	6245859.6340
SOP51	330579.0249	6245821.6802
SOP52	330535.1395	6245927.2793
SOP53	330536.7629	6245828.6804
SOP54	330532.4705	6245833.0954
SOP55	330549.3346	6245864.1926

SETOUT COORDINATES PLATFORM 6		
POINT	EASTING (m)	NORTHING (m)
SOP60	330581.0299	6245855.4716
SOP61	330551.7577	6245818.7108
SOP62	330548.6496	6245813.0203
SOP63	330530.8943	6245803.0049
SOP64	330537.0691	6245806.3930
SOP65	330537.9448	6245806.3545
SOP66	330536.5358	6245807.7395
SOP67	330504.5907	6245859.6449

MINIMUM 5m CLEARANCE CONCOURSE WIDTH PROPOSED CONCOURSE		
POINT	EASTING (m)	NORTHING (m)
SOP70	330529.579	6245826.541
SOP71	330518.222	6245832.340
SOP72	330529.767	6245891.457
SOP73	330533.040	6245884.761

NOTES:

- CO-ORDINATE SYSTEM IS TO MAP GRID OF AUSTRALIA - MGA ZONE 56.
- CURRENT DESIGN ALIGNMENTS FOR THE EXISTING ELAWARRA LINE TRACKS AND THE EXISTING BANKSTOWN LINE TRACKS ARE BASED ON THE ISG COORDINATE SYSTEM. THESE ALIGNMENTS HAVE BEEN APPROXIMATELY CONVERTED TO THE MGA COORDINATE SYSTEM WITHIN THE BENTLEY MICROSTATION SOFTWARE TO USE AS A BASIS FOR THE PROPOSED DESIGN ALIGNMENTS. FOR DETAILED DESIGN, AN MGA COORDINATED RAILWAY SURVEY MUST BE UNDERTAKEN, REQUIRING ISG TO MGA CONVERSIONS OF THE RAIL SURVEY CONTROL NETWORK, TRACK CONTROL NETWORK, AND CURRENT DESIGN ALIGNMENTS. THIS MAY RESULT IN THE PROPOSED DESIGN ALIGNMENTS FOR THE DETAILED DESIGN VARYING SLIGHTLY FROM THE PROPOSED DESIGN ALIGNMENTS IN THE CONTRACT DRAWINGS.
- ALL LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM (AHD).
- ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
- CHANGEGES SHOWN ARE UP, NSW AND DOWN LOCAL.
- LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.
- ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.
- THE CONTRACTOR IS TO ALLOWED ADDITIONAL WIDTH OVER AND ABOVE 5m TO ACCOMMODATE ADDITIONAL REQUIRED CONCOURSE FIXTURES AND FITTINGS.

NOTES:  
1. LEVELS AND DIMENSIONS SHOWN ARE INDICATIVE ONLY.  
2. ARRANGEMENT, SIZING AND LEVELS ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

LEGEND

- EXISTING PLATFORM
- PROPOSED PLATFORM
- PROPOSED RESURFACE EXISTING PLATFORM
- EXTENT OF PLATFORM TO BE DEMOLISHED
- PROPOSED 5m WIDTH CLEARANCE CONCOURSE WIDTH - 5m

FOR INFORMATION ONLY

**SYDNEY METRO CITY & SOUTHWEST**  
SYDENHAM STATION AND JUNCTION  
STRUCTURES  
PLATFORM AND CONCOURSE SETOUT

<p>SCALE</p> <p>1:500 FULL SIZE A1</p>	<p>CLIENT</p> <p>Transport for NSW</p>	<p>SERVICE PROVIDERS</p> <p>DRAWN: JULIAN BIRCH</p> <p>DESIGNED: ACHILLE POZIOUANEL</p> <p>DWG CHECK: ACHILLE POZIOUANEL</p> <p>DESIGN CHECK: ACHILLE POZIOUANEL</p> <p>APPROVED: IAN MCKELWYDE-WYATTSON</p>										
<p>REV</p> <table border="1"> <tr><th>NO</th><th>DATE</th><th>DESCRIPTION</th><th>BY</th><th>APPD</th></tr> <tr><td>01</td><td>J2</td><td>ISSUED FOR SWTC COPY</td><td></td><td></td></tr> </table>	NO	DATE	DESCRIPTION	BY	APPD	01	J2	ISSUED FOR SWTC COPY			<p>NOTE: Do not scale from this drawing</p>	<p>STATUS: SWTC COPY</p> <p>SHEET 1 OF 1</p> <p>HWRL DWG NO: NWRLSRT-PBA-WSS-ST-DWG-971301</p>
NO	DATE	DESCRIPTION	BY	APPD								
01	J2	ISSUED FOR SWTC COPY										

100mm AT FULL SIZE



TO WATERLOO

TO MARRICKVILLE

A

A

B

B

C

C

D

D

E

E

F

F

G

G

H

H

- LEGEND**
- PRIMARY PLAZA
  - SECONDARY PLAZA
  - PUBLIC DOMAIN WORKS
  - ADAPTIVE REUSE OF HERITAGE STRUCTURES IN CONJUNCTION WITH SYDNEY TRAMS
  - LANDSCAPING ZONE
  - TAXI
  - ACCESSIBLE PARKING
  - BUS STOP ZONE
  - NISS AND REK ZONE
  - EXTENT OF SECURITY FENCE TO REAR OF P2
  - PROPOSED LINE OF CANOPY ABOVE
  - EXISTING CANOPIES / AWNINGS
  - AERIAL CONCOURSE
  - NEW TRACK
  - SCOPE OF WORKS
  - SCOPE OF WORKS ADJACENT BY OTHERS
  - SCOPE OF WORKS - URBAN DESIGN
  - EXISTING RAIL CORRIDOR
  - STATION ENTRY



DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

**1 URBAN DESIGN STATION REQUIREMENTS 1 OF 2**



A1	COORDINATION ISSUE	R 10/23 03 18	DESIGNED	REVIEWED	APPROVED
AM0	DESCRIPTION	DESIGNED	REVIEWED	APPROVED	SCALE: 1 : 500
COORDINATE SYSTEM: MGA ZONE 56		HEIGHT DATUM: A. H. D.		SCALE: 1 : 500	

**NSW GOVERNMENT**  
**Transport for NSW**  
**HASSELL**

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**John Holland**  
 DRAWN: BOB NEALEY  
 DESIGNED: MARCO CECCO  
 DRG CHECK: [ ]  
 DESIGN CHECK: [ ]  
 APPROVED: [ ]

**SYDNEY METRO CITY & SOUTHWEST**  
**SYDENHAM STATION AND JUNCTION**  
**ARCHITECTURE**  
**GENERAL ARRANGEMENT**  
 URBAN DESIGN STATION REQUIREMENTS 1 OF 2

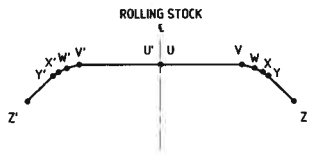
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 STATUS: PRELIMINARY  
 DRG No. [ ]  
 SWL/SKT/PBA/WSS-AT-DWG-971801 A1



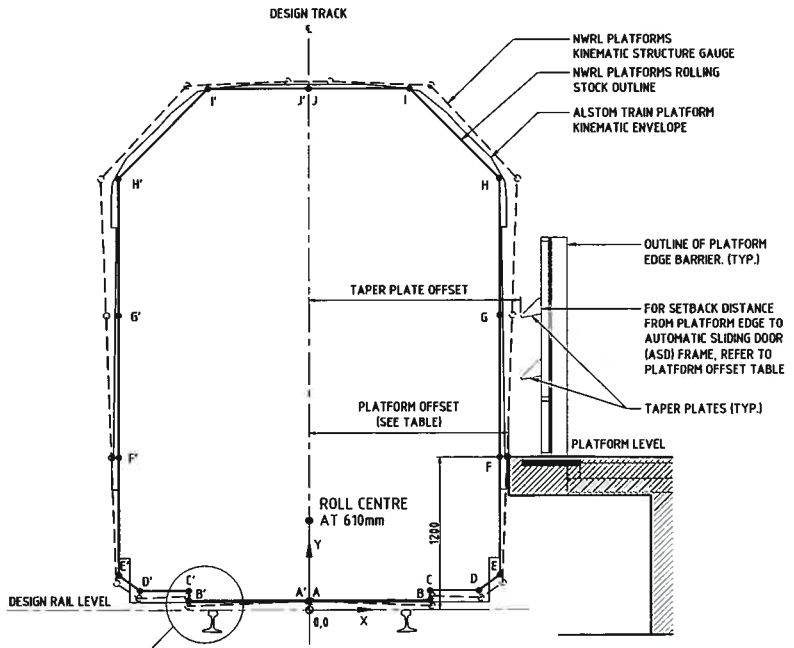




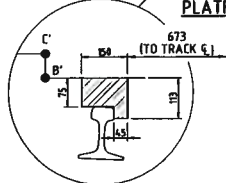




**MAXIMUM STATIC PANTOGRAPH PROFILE**  
SCALE 1:25



**PLATFORM KINEMATIC STRUCTURE GAUGE**  
NOT TO SCALE



**PHYSICAL WHEEL INTERFACE**  
NOT TO SCALE

MINIMUM CONTACT WIRE HEIGHT	
LOCATION	DIMENSION (mm)
RTRF YARD	5000
NWRL TUNNEL	4400
NWRL OPEN TRACK	4500
ECRL TUNNEL	4750
ECRL OPEN TRACK	4800

PANTOGRAPH DIMENSIONS		
POINT	LATERAL (X)	VERTICAL (Y)
U	0	0
V	634	0
W	731	-29
X	796	-59
Y	840	-89
Z	1038	-288
U'	0	0
V'	-634	0
W'	-731	-29
X'	-796	-59
Y'	-840	-89
Z'	-1038	-288

NWRL PLATFORMS ROLLING STOCK OUTLINE DIMENSIONS		
POINT	LATERAL (X)	VERTICAL (Y)
A	0	75
B	94.0	75
C	94.0	152
D	1320	152
E	1485	275
F	1485	1200
G	1485	2300
H	1485	3360
I	785	4060
J	0	4060
A'	0	75
B'	-94.0	75
C'	-94.0	152
D'	-1320	152
E'	-1485	275
F'	-1485	1200
G'	-1485	2300
H'	-1485	3360
I'	-785	4060
J'	0	4060
BOGIE CENTRES 14850		
BODY OVERHANG (MIN.) 3040		
VEHICLE LENGTH 20930		
VEHICLE WIDTH 2970		

PLATFORMS KINEMATIC STRUCTURE GAUGE DIMENSIONS (STRAIGHT TRACK)		
POINT	LATERAL (X)	VERTICAL (Y)
A	30	67
B	970	64
C	970	141
D	1350	140
E	1515	262
F	1518	1200
G	1522	2300
H	1526	3412
I	829	4115
J	44	4117
A'	-30	67
B'	-970	64
C'	-970	141
D'	-1350	140
E'	-1515	262
F'	-1518	1200
G'	-1522	2300
H'	-1526	3412
I'	-829	4115
J'	-44	4117

ROLLING STOCK TOLERANCES			
ROLLING STOCK: NWRL PLATFORMS			
DIRECTION	RELATIVE TO	DESCRIPTION	TOLERANCE
LATERAL	RELATIVE TO THE PLANE OF SUPERELEVATION (WITH ANY SUPERELEVATION VARIATION APPLIED)	BODY TO WHEELSET	± 24mm TOTAL
		WHEEL WEAR	
		WHEEL/RAIL FREE PLAY	
VERTICAL	RELATIVE TO THE DISPLACED VEHICLE CENTRELINE	EXTRA CLEARANCE	+0mm
		BOUNCE UPWARDS	+ 50mm
		BOUNCE DOWNWARDS	- 0mm
ROTATIONAL	ROLL ABOUT THE DISPLACED ROLL CENTRE OF THE ROLLING STOCK OUTLINE	EXTRA CLEARANCE UPWARDS	+ 0mm
		EXTRA CLEARANCE DOWNWARDS	- 0mm
ROTATIONAL	THE ROLL CENTRE MOVES LATERALLY AND VERTICALLY WITH ROLLING STOCK OUTLINE		± 0°

TRACK TOLERANCES			
TRACK CONFIGURATION			PLATFORMS
DIRECTION	RELATIVE TO	DESCRIPTION	TOLERANCE
LATERAL	RELATIVE TO THE PLANE OF THE DESIGN SUPERELEVATION	RAIL WEAR	±5mm TOTAL
	RELATIVE TO THE HORIZONTAL PLANE WITH RESPECT TO THE DESIGN TRACK CENTRELINE	HORIZONTAL CURVES -2000m RADIUS AND TANGENT TRACK	
VERTICAL	RELATIVE TO THE VERTICAL PLANE WITH RESPECT TO THE DESIGN RAIL LEVEL	HORIZONTAL CURVES -2000m RADIUS	±5mm
		LEVEL	±5mm
ROTATIONAL	RELATIVE TO THE VERTICAL PLANE WITH RESPECT TO THE DESIGN SUPERELEVATION	SUPERELEVATION	±5mm

PLATFORM OFFSET			
PLATFORM TYPE	OFFSET DISTANCE	SETBACK DISTANCE	TAPER PLATES
PSD (PLATFORM SCREEN DOORS)	1555	10	1540
PEB (PLATFORM EDGE BARRIERS)	1565	129	1550

**NOTES**

- FOR DERIVATION OF THE KINEMATIC ENVELOPE REFER TO THE NRT DESIGN STANDARDS MANUAL.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- INFRASTRUCTURE MAINTENANCE VEHICLES TO FIT WITHIN THE KINEMATIC ENVELOPE.
- HORIZONTAL AND VERTICAL OFFSETS SHALL BE ADJUSTED FOR ROLLING STOCK CURVING EFFECTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE NRT DESIGN STANDARDS MANUAL.
- OPERATIONAL SPEED RESTRICTIONS SHALL BE CONSIDERED THROUGH PLATFORMS IN ORDER TO LIMIT THE ROTATIONAL MOVEMENTS OF ROLLING STOCK INSIDE THE PLATFORM KINEMATIC STRUCTURE GAUGE.

**APPROVED FOR CONSTRUCTION**

REV	BY	DATE	DESCRIPTION	APPRO
00	CT	17/10/16	DESIGN LDT 203 - APPROVED FOR CONSTRUCTION	AG
01	CT	23/11/16	DESIGN LDT 203 - CORRECTED FOR MINOR ERRORS AND OMISSIONS ONLY	GW

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING	CLIENT
INDEPENDENT CERTIFIER CERTIFICATE NWRL0TS-DIC-SWD-TD-CER-000010	Transport for NSW

SERVICE PROVIDERS  
 DRAWN: C.TORRES  
 DESIGNED: R.BEEDHAM  
 DRG CHECK: A.TWISSON  
 DESIGN CHECK: C.WASION  
 APPROVED: A.GAFFNEY

<b>NORTH WEST RAIL LINK</b>	
SYSTEM WIDE LOCATION	
PERMANENT WAY	
TRANSIT SPACE	
NWRL STRUCTURE GAUGE - PLATFORMS	
STATUS: FOR CONSTRUCTION	SHEET 1 OF 1
DRG No NWRL0TS-NRT-SWD-PW-DRG-550634	NWRL REV 01

100mm AT FULL SIZE  
 24/11/16 - 11:01  
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# Sydney Metro City & Southwest

## **Sydenham Station and Junction (SSJ)**

### Schedule C1

### Scope of Works and Technical Criteria (SWTC)

### Appendix E3.0 – Interface Schedule – TSE Contractor

<b>PROJECT</b>	Sydenham Station and Junction (SSJ)	<b>DATE</b>	<del>14 September 2017</del> <u>29 January 2018</u>
<b>GROUP</b>	Sydney Metro City & Southwest	<b>STATUS</b>	Final
<b>AUTHOR</b>	Transport for NSW	<b>REVISION</b>	<del>1.1B</del>
<b>COMPANY</b>	Transport for NSW	<b>FILE NUMBER</b>	<u>SMCSWSSJ-SMD-WSS-IF-SC H-000101</u>
<b>FILE NAME</b>	Sydenham Station and Junction (SSJ) SWTC Appendix E3.0 – Interface Schedule – TSE Contractor		



Without limiting any other obligations of the SSJ Contractor under this Contract, the SSJ Contractor must:

1. provide the TSE Contractor a minimum of 4 weeks' notice for any required access to the TSE Contractor's site; and
2. make good any areas of the TSE Contractor's site that is affected as a result of the SSJ Contractors Activities.

The SSJ Contractor acknowledges that completion of adjacent work by the TSE Contractor may not occur until after completion of work by the SSJ Contractor.

All chainage referenced relates to Sydney Metro track kilometerage as detailed in Appendix D alignment drawings.

Interface Contractor: TSE Contractor			
Ref	System	Works By the SSJ Contractor	Works By the Interface Contractor
1.0	permanent way and track work (including to track components incl. rail and sleepers, track formation, ballast and all associated civil and earthwork adjustments)	<p>All of the work associated with the Project Works in accordance with SWTC and Appendix D – <a href="#">NWELSRT-PBA-WSS-RD-DWG-971112-971111</a> to <a href="#">NWELSRT-PBA-WSS-RD-DWG-971113</a>, including;</p> <ol style="list-style-type: none"> <li>1. Clearance of existing CSR and other Sydney Trains infrastructure in the area of the Transgrid suspended slab, prior to handing over the area to TSE for construction of the Transgrid suspended slab as detailed in item 5.0 below.</li> <li>2. <del>Transgrid formation</del> <a href="#">Formation</a> transition slabs for the <a href="#">western bypass road and</a> northern shunt neck and associated adjacent retaining walls in accordance with the Appendix E3.0 Attachment 1 -NWRL-SRT-PBA-WSS-CE-DWG-971731.</li> <li>3. <del>Dive portal formation transition slabs</del> <a href="#">Earthworks</a> for the up and down metro track <a href="#">shunt neck</a> and associated adjacent retaining walls in accordance with the Appendix E3.0 Attachment 1 - NWRL-SRT-PBA-WSS-CE-DWG-971713.</li> </ol>	<p>Transgrid suspended slab and spare Transgrid conduit provision and encasement.</p> <p>All civil and structural works necessary to facilitate the completion of <del>formation</del> <a href="#">earthworks</a> to the western bypass road and stabling yard roads 1 to 8.</p> <p>All civil and structural works necessary for the completion of the tunnel portal dive structures.</p>

Interface Contractor: TSE Contractor

Ref	System	Works By the SSJ Contractor	Works By the Interface Contractor
2.0	drainage and hydraulic systems (including track and cess drainage)	<p>All of the work associated with the Project Works, including all drainage and hydraulic systems for the northern shunt neck and eastern bypass road, <u>in accordance with SWTC and Appendix D – NWELSRT-PBA-WSS-RD-DWG-971731, including:</u></p> <ol style="list-style-type: none"> <li>1. <u>all drainage and hydraulic systems necessary to maintain existing overland flow over and through the SSJ Site; and</u></li> <li>2. <u>all discharge outlets/inlets and connections within the SSJ Site.</u></li> </ol>	<p>All permanent drainage and hydraulic work within the Interface Contractors site, <u>in accordance with SWTC and Appendix D – NWELSRT-PBA-WSS-RD-DWG-971731, including:</u></p> <ol style="list-style-type: none"> <li><del>1. all permanent drainage and hydraulic systems beneath the Transgrid suspended slab;</del></li> <li><del>2.</del></li> <li>1. all drainage and hydraulic systems necessary to maintain existing overland flow over and through the TSE Site; and</li> <li><del>3.</del></li> <li>2. all discharge outlets/inlets and connections within the TSE Site.</li> </ol>



Interface Contractor: TSE Contractor

Ref	System	Works By the SSJ Contractor	Works By the Interface Contractor
3.0	Sydney Water Stormwater Works	<p>All of the work associated with the Project Works, including</p> <ol style="list-style-type: none"> <li>1. Adjustments to Sydenham Basin No. 1 and the adjacent stormwater channels including the aqueduct, ramps and pump station;</li> <li>2. Realignment of the eastern channel from the <del>northern abutment of the</del> aqueduct to the downstream interface within the existing channels;</li> <li>3. Any works required to the stormwater channels downstream of Sydenham Pit No. 1; and</li> <li>4. Aqueduct <del>transition culvert structure</del> <u>confluence structures</u> to the realigned eastern channel, in accordance with SWTC Appendix E3.0 Attachment 1 - NWRL-SRT-PBA-WSS-CE-DWG-<del>971713</del> <u>971723</u>.</li> </ol>	<p>Final Hydraulic flood modelling for all Sydney Water Stormwater Drainage works including;</p> <ol style="list-style-type: none"> <li>1. the "Eastern Channel East Catchment" being the area of the Inner West Council catchment as defined in the Inner West Council documents: <ol style="list-style-type: none"> <li>a. EC East Subcatchment Management Plan Technical Report Volume 1 - Management Study (April 2011)</li> <li>b. EC East Subcatchment Management Plan Technical Report Volume 2 Flood Study (August 2010);</li> </ol> </li> <li>2. the "Marrickville Valley Catchment" being the area of the Inner West Council catchment as defined in the Inner West Council document, Marrickville Valley Flood Study (April 2013); and</li> <li>3. the full extent of the downstream system up to and including the connection to Cooks River. the following information to inform SSJ detailed design;</li> </ol> <p>Determining the following information to inform the SSJ Contractors Detailed Design; culvert dimensions, connection invert level, design flow rate, design hydraulic grade line; and inflow hydrographs.</p> <p>Realignment of eastern channels within stabling yard up to the northern abutment of the aqueduct.</p> <p>All discharge outlets/inlets and connections associated with the Sydney Water Stormwater Drainage Works upstream of the northern <del>abutment of the</del> aqueduct <u>confluence structure</u>.</p>

			<p>Temporary Works as required to maintain functionality and capacity of the stormwater system, including realignment of existing channels to connect to the Aqueduct.</p> <p>Construction access for the SSJ Contractor to undertake Sydney Water Stormwater Drainage Works.</p>
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**Interface Contractor: TSE Contractor**

Ref	System	Works By the SSJ Contractor	Works By the Interface Contractor
4.0	Rail Corridor boundary security fencing and internal corridor segregation fencing	<p>All of the work associated with the Project Works in accordance with SWTC and App D – NWELSRT-PBA-WSS-CE-DWG-971211 to NWELSRT-PBA-WSS-CE-DWG-971216, including;</p> <ol style="list-style-type: none"> <li>1. Installation of fencing to <del>segregating</del>segregate the Transgrid suspended slab and the tunnel portal dive structure from the live Rail Corridor</li> <li>2. Fencing to the existing rail corridor, adjacent to the Sydney Metro Trans Facility South; and</li> <li>3. Permanent security fencing <del>on the complete Transgrid suspended slab</del>, in accordance with SWTC Appendix E3.0 Attachment 1 - NWRL-SRT-PBA-WSS-CE-DWG-971731.</li> </ol>	Sydney Metro Trains Facility South perimeter security fencing.
5.0	Rail Corridor Services	<p>All of the work associated with the Project Works in accordance with SWTC, including;</p> <ol style="list-style-type: none"> <li>1. Relocation and removal of all Rail Corridor Services to enable the construction of the Transgrid Suspended slab</li> <li>2. Relocation and removal of all Rail Corridor Services to enable the construction of the tunnel portal dive structure.</li> </ol>	N/A

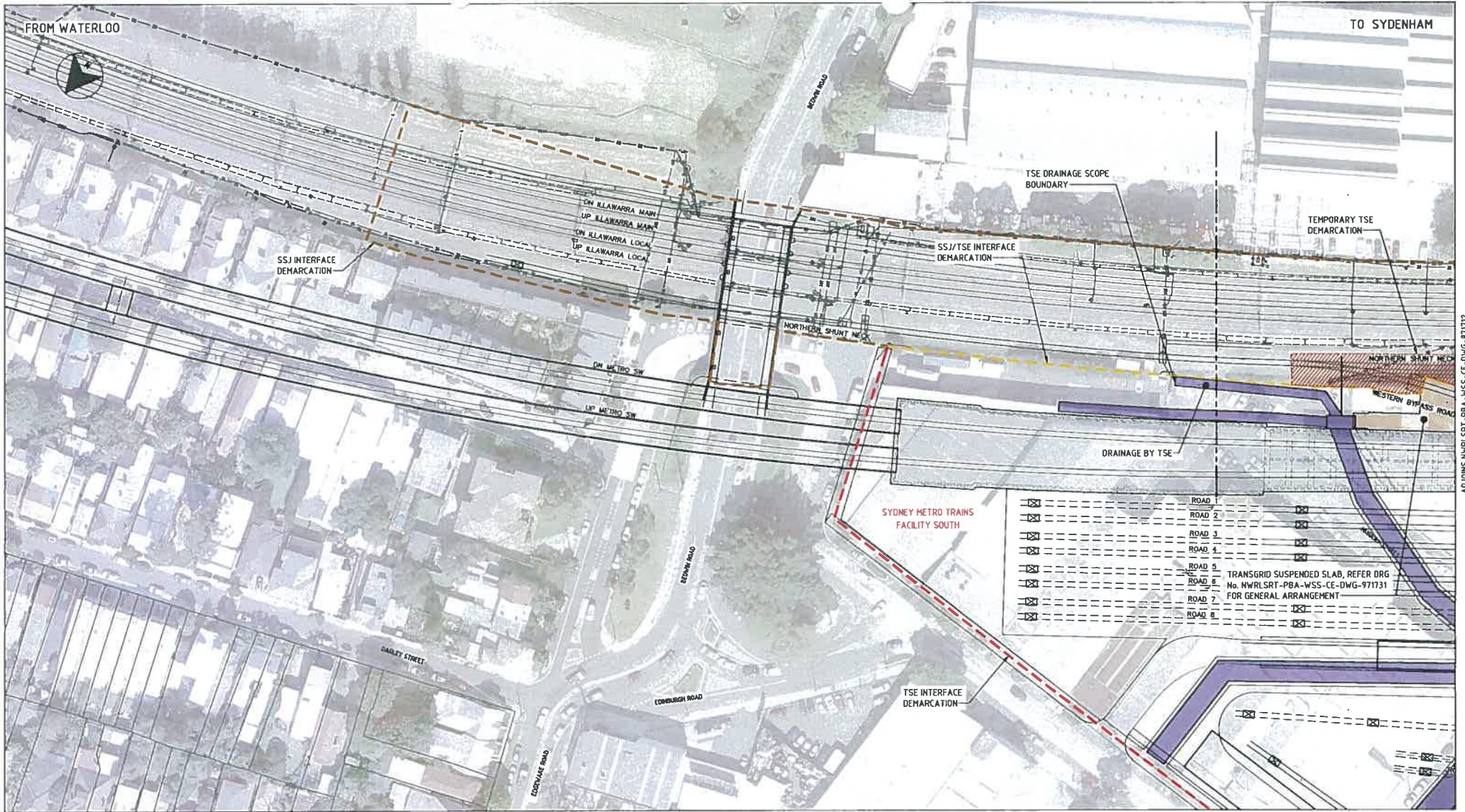
**Attachment 1 – Interface Drawings**





FROM WATERLOO

TO SYDENHAM



**LEGEND**

- PROPOSED SSJ INTERFACE DEMARCATION
- PROPOSED TSE INTERFACE DEMARCATION
- PROPOSED SSJ/TSE INTERFACE DEMARCATION
- SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS

PLAN  
SCALE 1:500

ROAD 1	☒
ROAD 2	☒
ROAD 3	☒
ROAD 4	☒
ROAD 5	☒
ROAD 6	☒
ROAD 7	☒
ROAD 8	☒

TRANSGRID SUSPENDED SLAB, REFER DRG No. NWRLSRT-PBA-WSS-CE-DWG-971731 FOR GENERAL ARRANGEMENT

REV	BY	DATE	DESCRIPTION	APPD
01	MJ	29 01 18	ISSUED FOR INFORMATION ONLY	PH

SCALES

1:500 FULL SIZE A1

Client: Transport for NSW

File Date: 29/01/18 - 16:48



Service Providers: PARSONS BRINCKERHOFF, AECOM, COX HASSELL

Drawn: MICHELLE JOYCE  
 Designed: PATRICK LEWIS  
 DRG Check: PATRICK LEWIS  
 Design Check: MIDRAY CLAYTON  
 Approved: PAUL JURCOMBE

**FOR INFORMATION ONLY**

SYDNEY METRO CITY & SOUTHWEST  
 SYDENHAM STATION AND JUNCTION  
 CIVIL  
 INTERFACE DRAWING  
 SHEET 1

STATUS: FOR INFORMATION ONLY SHEET 1 OF 3

NWRL Dwg No. NWRLSRT-PBA-WSS-CE-DWG-971711 NWRL REV. 01

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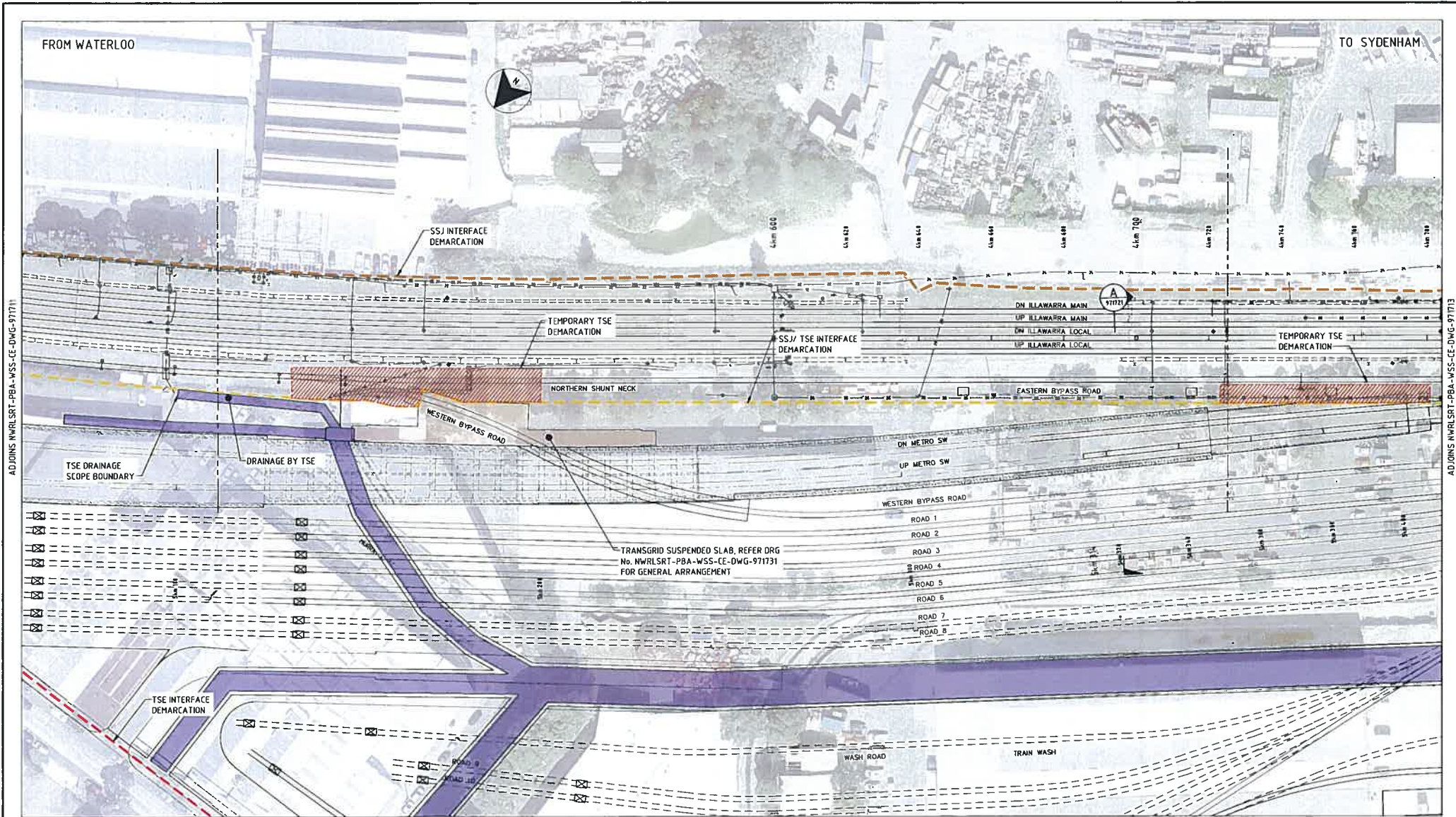
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100mm AT FULL SIZE



PLAN  
SCALE 1:500

LEGEND	
	PROPOSED SSJ INTERFACE DEMARCATION
	PROPOSED TSE INTERFACE DEMARCATION
	PROPOSED SSJ/TSE INTERFACE DEMARCATION
	SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS

REV	BY	DATE	DESCRIPTION	APPD
01	MJ	29 01 18	ISSUED FOR INFORMATION ONLY	PH

SCALES	
	FULL SIZE AT 1:500

Client: Transport for NSW	Scale: 1:500	Plot Date: 29/01/18 - 16:33
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CLIENT: Transport for NSW

SERVICE PROVIDERS: PARSONS BRINCKERHOFF, AECOM, OK HASSELL

DESIGNED BY: PATRICK LEWIS  
 URG CHECK: PATRICK LEWIS  
 DESIGN CHECK: ANDRAY CLAYTON  
 APPROVED: PAUL BURKOWSKI

DRAWN BY: MICHELLE JOYCE

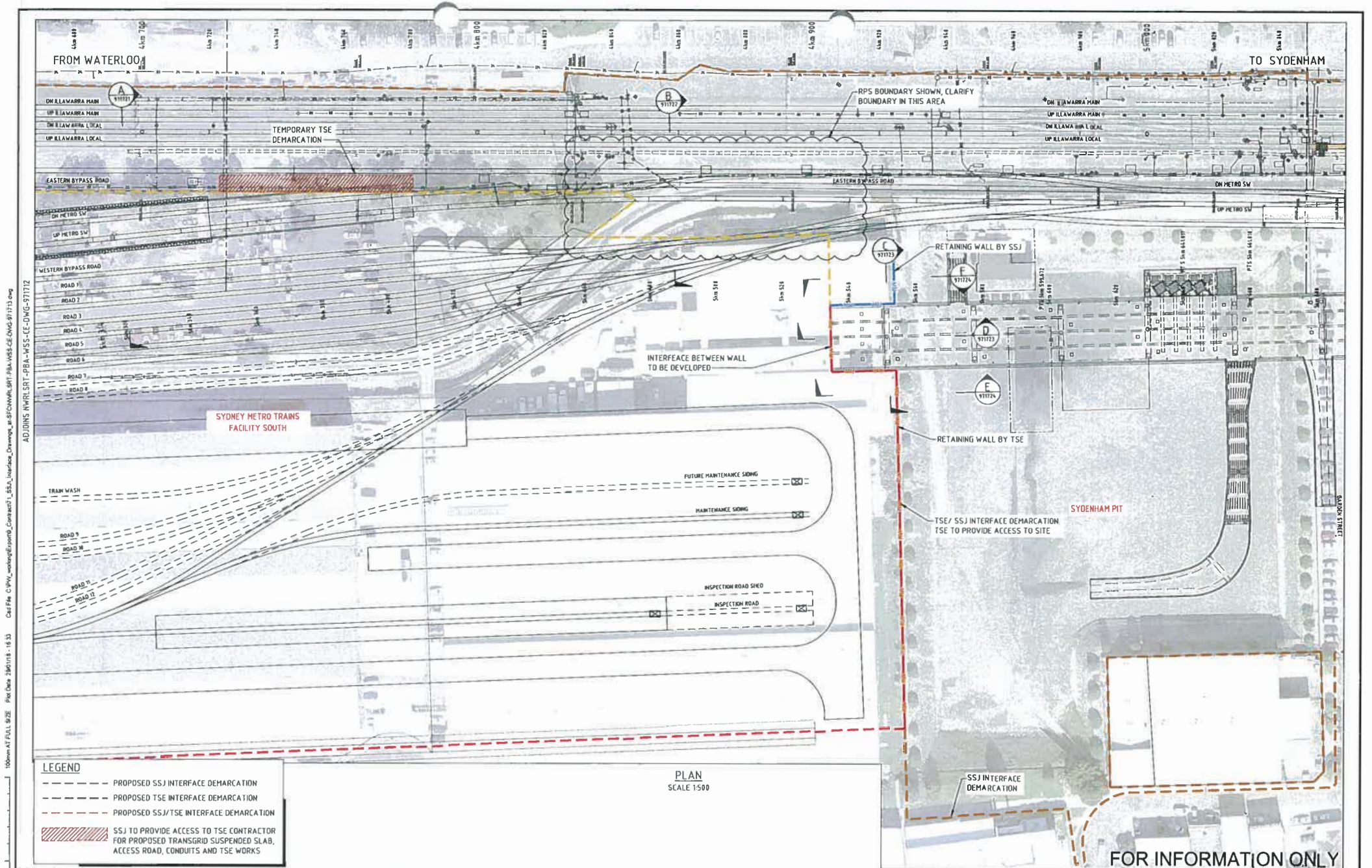
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FOR INFORMATION ONLY

SYDNEY METRO CITY & SOUTHWEST  
 SYDENHAM STATION AND JUNCTION  
 CIVIL  
 INTERFACE DRAWING  
 SHEET 2

STATUS: FOR INFORMATION ONLY | SHEET 2 OF 3 | ©  
 NWRL Dwg No. NWRLSRT-PBA-WSS-CE-DWG-91712 | NWRL REV. 01





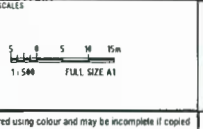
**LEGEND**

- PROPOSED SSJ INTERFACE DEMARCATION
- - - PROPOSED TSE INTERFACE DEMARCATION
- · - · PROPOSED SSJ/TSE INTERFACE DEMARCATION
- ▨ SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS

PLAN  
SCALE 1:500

FOR INFORMATION ONLY

REV.	BY	DATE	DESCRIPTION	APPRO.
01	MJ	29.01.18	ISSUED FOR INFORMATION ONLY	PH



Client Date 29/01/18 - 16:33

NOTE: Do not scale from this drawing.



CLIENT

PARSONS BRINCKERHOFF  
**AECOM**  
COX HASSELL

DESIGNED - MICHELLE ADVICE  
DESIGNED - PATRICK LEWIS  
DRG CHECK - PATRICK LEWIS  
DESIGN CHECK - LINDSAY CLAYTON  
APPROVED - PAUL HURCOMB

SYDNEY METRO CITY & SOUTHWEST  
SYDENHAM STATION AND JUNCTION  
CIVIL  
INTERFACE DRAWING  
SHEET 3

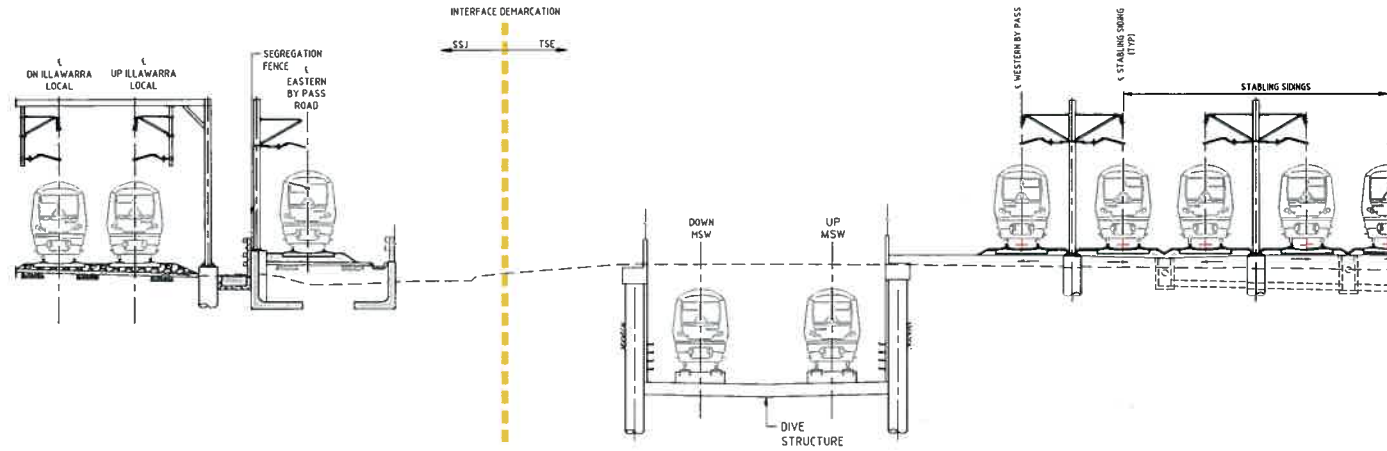
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HWL/01/18/NWLSRT-PBA-WSS-CE-DWG-971713 HWL/REV: 01

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**LEGEND:**

----- PROPOSED SSJ/TSE INTERFACE DEMARCATION



**SECTION A**  
HTS  
971712

- NOTES:**
- LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.
  - ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**FOR INFORMATION ONLY**

**SYDNEY METRO CITY & SOUTHWEST**  
SYDENHAM STATION AND JUNCTION  
CIVIL  
INTERFACE DRAWING  
SECTION - SHEET 1

STATUS: FOR INFORMATION ONLY SHEET 1 OF 4

NWRL City No. NWRLSRT-PBA-WSS-CE-DWG-971721 NWRL REV. 01

REV	BY	DATE	DESCRIPTION	APPD
01	MJ	25.01.18	ISSUED FOR INFORMATION ONLY	PH

SCALES


Plot Date: 29/01/18 - 18:33

NOT scale from this drawing

CLIENT

SERVICE PROVIDERS

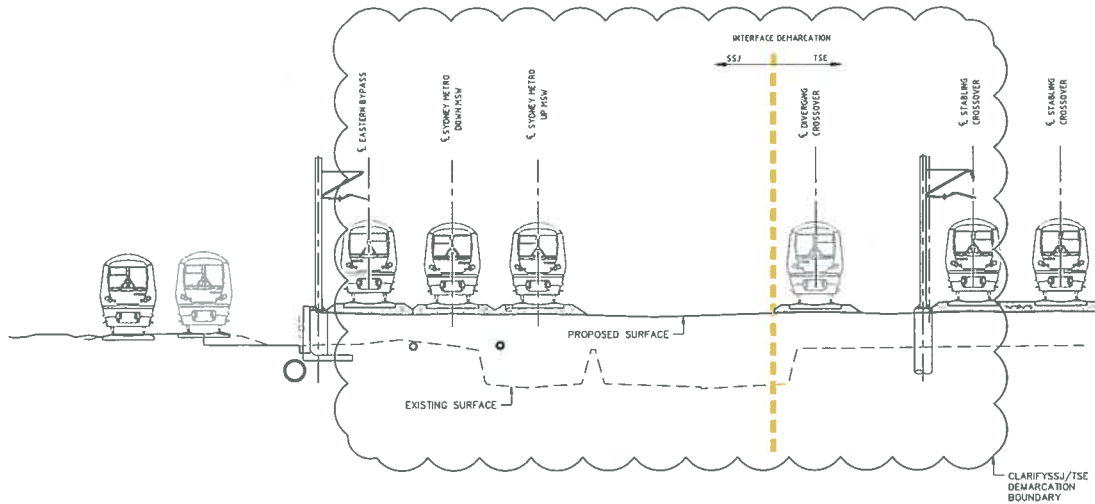
**PARSONS BRINCKERHOFF**  
**AECOM**  
**HASSELL**

DRAWN: MICHELLE JOYCE  
DESIGNED: PATRICK LEWIS  
DWG CHECK: PATRICK LEWIS  
DESIGN CHECK: LINDSAY CLAYTON  
APPROVED: PAUL MURDOCH

100mm AT FULL SIZE Plot Date: 29/01/18 18:33 C:\P\Working\Export\Contract\SSJ\Interface\_Drawing\SSJ\_Interface\_SST-TSE.dwg:971722.dwg

**LEGEND:**

----- PROPOSED SSSJ/TSE INTERFACE DEMARCATION



SECTION B  
N.T.S. 971713

**NOTES:**

1. LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.
2. ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**FOR INFORMATION ONLY**

**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION AND JUNCTION  
 CIVIL  
 INTERFACE DRAWING  
 SECTION - SHEET 2  
 STATUS: FOR INFORMATION ONLY SHEET 2 OF 4  
 MWRL Dwg No. NWRLSRT-PBA-WSS-CE-DWG-971722 MWRL REV. 01

REV	BY	DATE	DESCRIPTION	APPD
01	ML	29/01/18	ISSUED FOR INFORMATION ONLY	PH

Co-ordinate System: MGA Zone 55 Height Datum: A.H.D. This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing

CLIENT

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SERVICE PROVIDERS

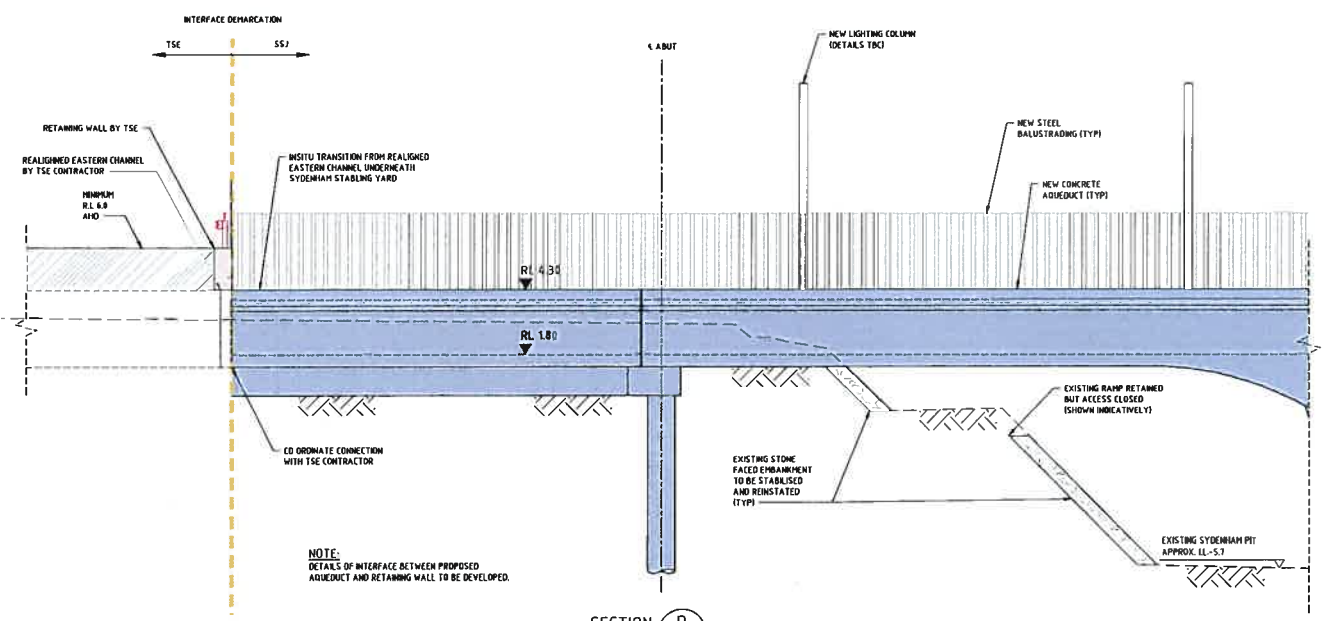
**PARSONS BRINCKERHOFF**  
**AECOM**  
**COX HASSELL**

DRAWN: MICHELLE JOYCE  
 DESIGNED: PATRICK LEWIS  
 DRG CHECK: PATRICK LEWIS  
 DESIGN CHECK: LINDSAY CLAYTON  
 APPROVED: PAUL HURCOMB

Plot Date: 29/01/18 - 16:33



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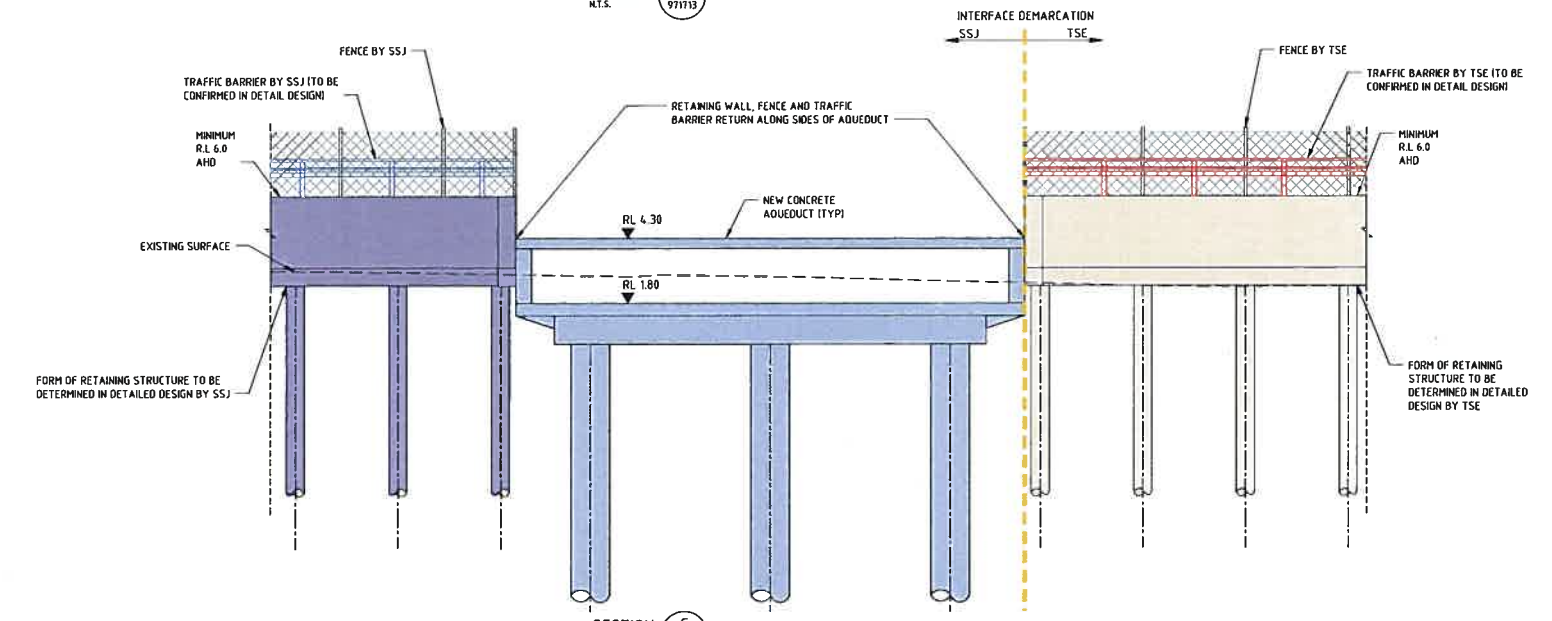


SECTION D  
NT.S. 971713

**NOTES:**  
 1. LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.  
 2. ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**LEGEND:**

- AQUEDUCT CONSTRUCTED BY SSJ
- PERIMETER RETAINING WALLS AND BUND WALL BY SSJ
- PERIMETER RETAINING WALLS AND BUND WALL BY TSE
- PROPOSED SSJ/TSE INTERFACE DEMARCATION



SECTION C  
NT.S. 971713

**NOTES:**  
 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRG NWRLSRT-PBA-WSS-CE-DWG-971711 TO 971716.

**FOR INFORMATION ONLY**

REV	BY	DATE	DESCRIPTION	APPD
01	MJ	29/01/18	ISSUED FOR INFORMATION ONLY	PH

Co-ordinate System: MGA Zone 56  
 Height Datum: A.H.D.  
 This sheet may be prepared using colour and may be incomplete if copied

Client: Transport for NSW  
 Project: Sydney Metro City & Southwest  
 Drawing: Interface Drawing Section - Sheet 3  
 Plot Date: 29/01/18 - 16:33

Service Providers:  
**PARSONS BRINCKERHOFF**  
**AECOM**  
**Ox HASSELL**

Drawn: MICHELLE JOYCE  
 Designed: PATRICK LEWIS  
 Draughtsman: PATRICK LEWIS  
 Design Check: LINDSAY CLAYTON  
 Approved: PAUL HURDLE

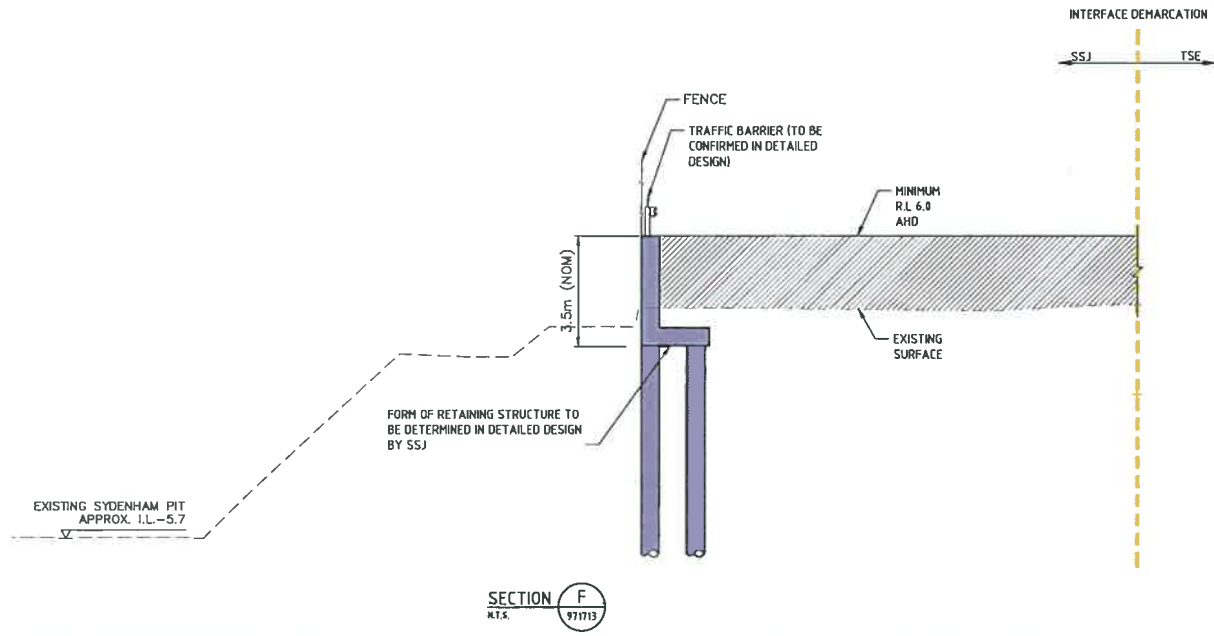
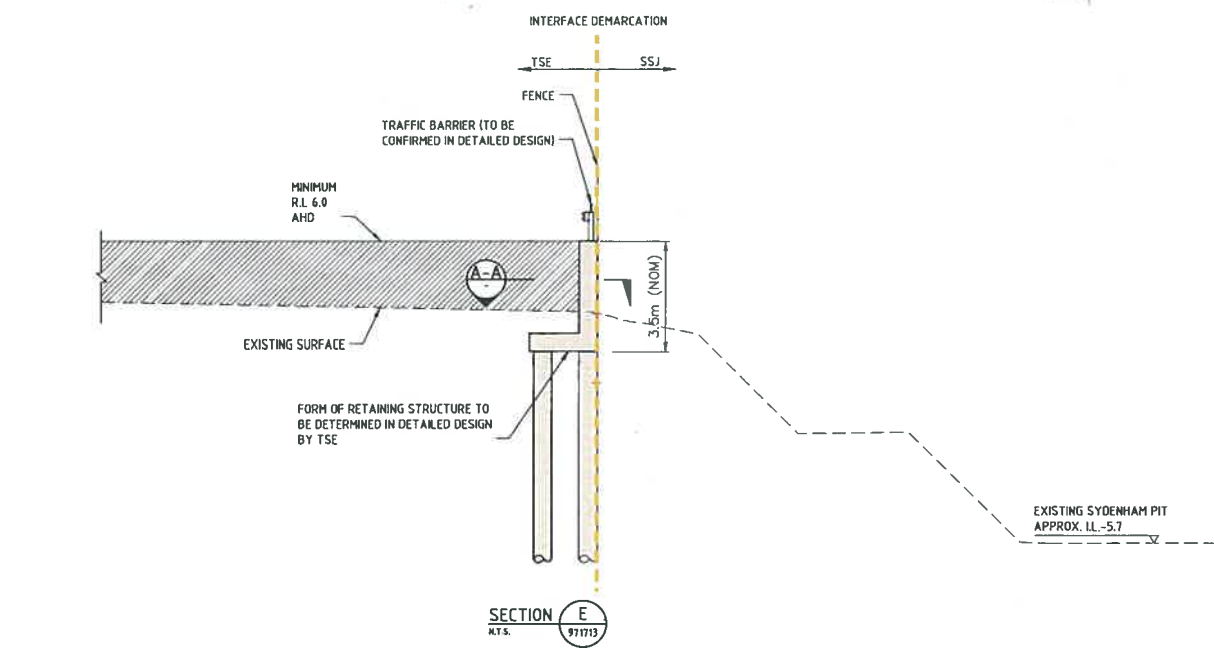
**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION AND JUNCTION  
 CIVIL  
 INTERFACE DRAWING  
 SECTION - SHEET 3

STATUS: FOR INFORMATION ONLY

SHEET 3 OF 4

DWG No. NWRLSRT-PBA-WSS-CE-DWG-971723

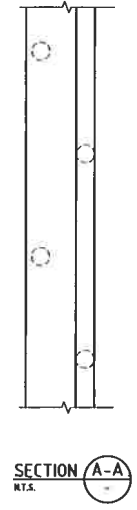
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**NOTES:**  
 1. LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.  
 2. ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**LEGEND:**

- EXTENT OF EARTHWORKS BY TSE TO BE COMPLETED BY 30TH APRIL 2021
- PERIMETER RETAINING WALLS AND BUND WALL BY TSE
- PERIMETER RETAINING WALLS AND BUND WALL BY SSJ
- PROPOSED SSJ/TSE INTERFACE DEMARCATION



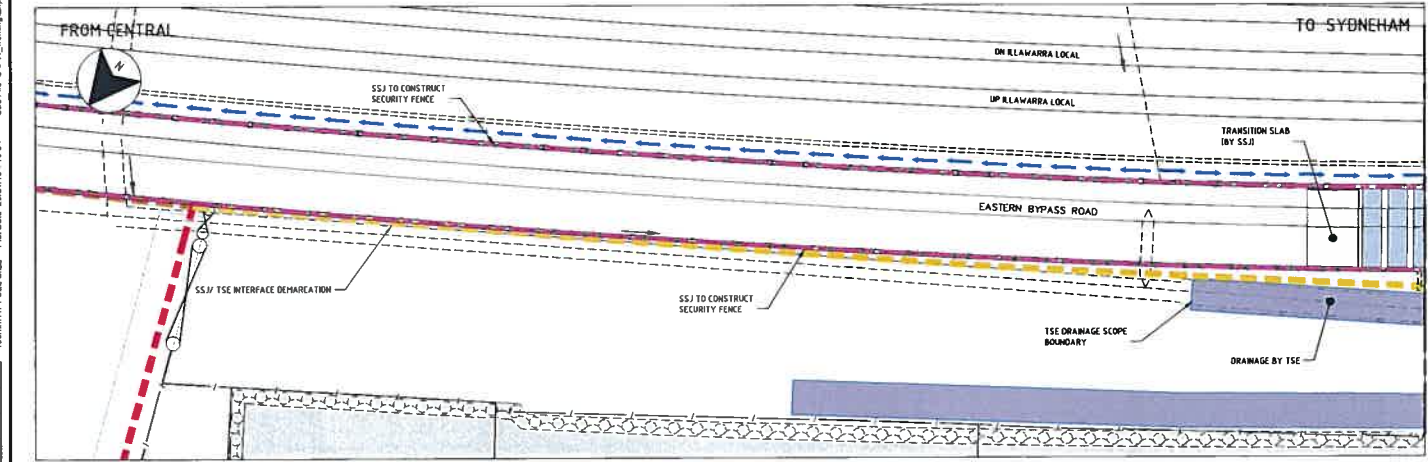
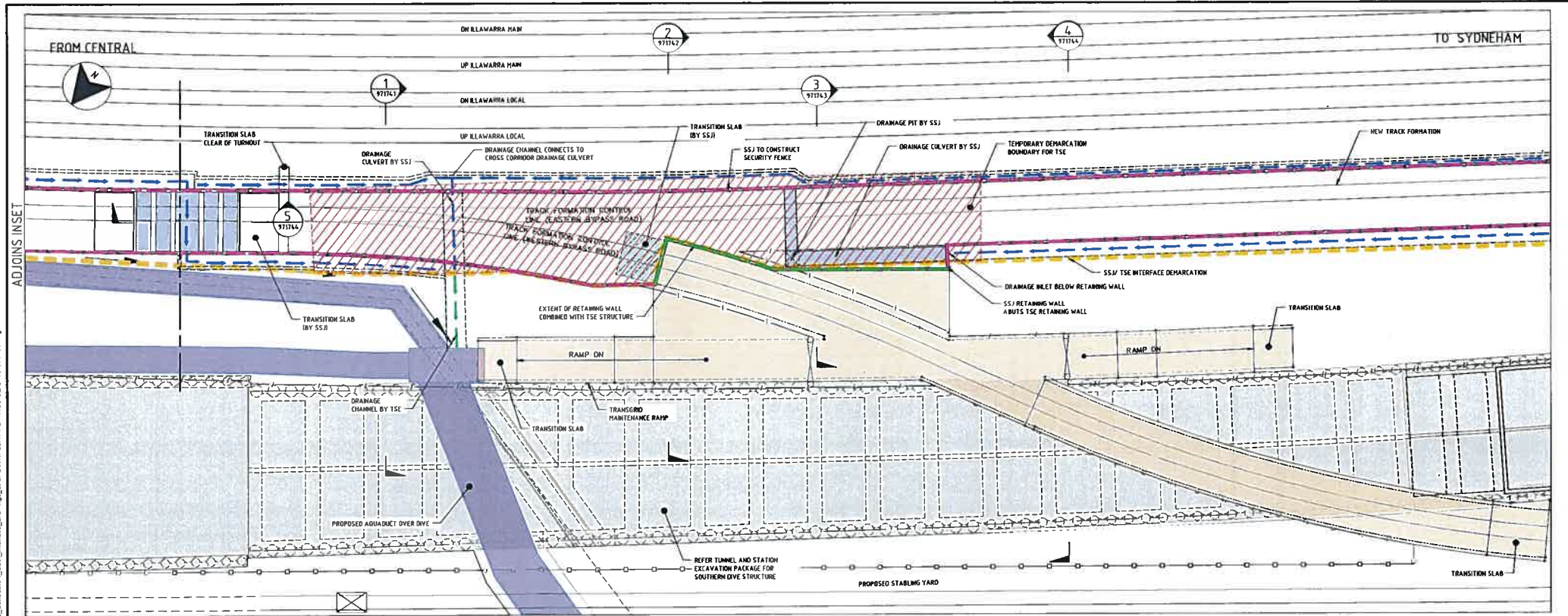
**NOTES:**  
 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRG. NWRLSRT-PBA-WSS-CE-DWG-971713.

**FOR INFORMATION ONLY**

01 MJ 29 01 18 ISSUED FOR INFORMATION ONLY PH		SCALES		CLIENT		SERVICE PROVIDERS PARSONS BRINCKERHOFF <b>AECOM</b> COX HASSELL		DRAWN: MICHELLE JOYCE DESIGNED: PATRICK LEWIS DRG CHECK: PATRICK LEWIS DESIGN CHECK: LINDSAY CLAYTON APPROVED: PAUL HUNTINGB		SYDENHAM STATION AND JUNCTION CIVIL INTERFACE DRAWING SECTION - SHEET 4	
A1 Original Co-ordinate System: MGA Zone 56 Height Datum: AHD		NOTE: Do not scale from this drawing		NSW GOVERNMENT Transport for NSW		STATUS: FOR INFORMATION ONLY SHEET 4 OF 4		NWRLSRT-PBA-WSS-CE-DWG-971724		DWG REV: 01	

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**PLAN**  
SCALE 1:200

**LEGEND**

	NEW SUSPENDED SLAB & RAMP BY TSE		NEW DRAINAGE CHANNEL BY SSJ
	NEW TRANSITION SLAB BY SSJ		NEW DRAINAGE CHANNEL BY TSE
	EXISTING TRACK ALIGNMENT		RETAINING WALL BY SSJ
	PROPOSED TRACK ALIGNMENT		RETAINING WALL BY TSE
	EXISTING WATER PIPE		SSJ TSE INTERFACE DEMARCATION
	NEW DRAINAGE BY TSE		SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS
	NEW DRAINAGE BY SSJ		

**NOTES:**

- LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.
- ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**INSET**  
SCALE 1:200

**FOR INFORMATION ONLY**  
**SYDNEY METRO CITY & SOUTHWEST**  
SYDNEYHAM STATION AND JUNCTION  
TUNNELS AND STATION EXCAVATION  
INTERFACED DRAWING  
TRANSGRID SUSPENDED SLAB - GENERAL ARRANGEMENT

REV	BY	DATE	DESCRIPTION	APPD
01	MJ	29 01 18	ISSUED FOR INFORMATION ONLY	PH

Scale: 1:200 FULL SIZE A1

Plot Date: 29/01/18 - 16:34

CLIENT: Transport for NSW

SERVICE PROVIDERS:

DESIGNED: PATRICK LEWIS  
DRA CHECK: PATRICK LEWIS  
DESIGN CHECK: LIBRISAY GLAYTON  
APPROVED: PAUL HURDLE

DRAWN: MICHELLE JOYCE  
DESIGNED: PATRICK LEWIS  
DRA CHECK: PATRICK LEWIS  
DESIGN CHECK: LIBRISAY GLAYTON  
APPROVED: PAUL HURDLE

STATUS: FOR INFORMATION ONLY SHEET 1 OF 1

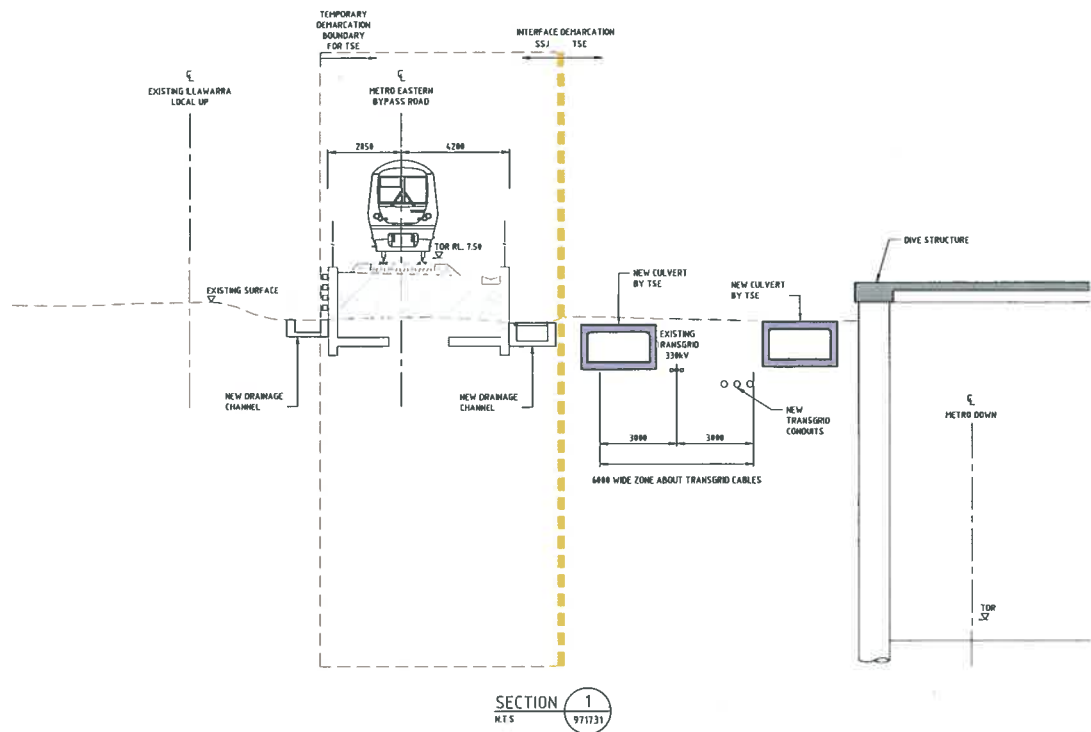
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**LEGEND:**

- NEW SUSPENDED SLAB & RAMP BY TSE
- PROPOSED SSJ/TSE INTERFACE DEMARCATION
- SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS
- NEW STORMWATER DRAINAGE WORKS BY TSE



**NOTES:**

1. LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.
2. ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**NOTES:**

1. CLEARANCES AND OFFSETS TO TRANSGRID CABLES TO BE APPROVED BY TRANSGRID.
2. FUTURE TRANSGRID SPARE CONDUITS ARRANGEMENT TO BE APPROVED BY TRANSGRID.
3. NEW METRO TRACK ALIGNMENT TO BE CONFIRMED AND APPROVED BY OTHERS.
4. DIVE STRUCTURE ROOF TO ACCOMMODATE FUTURE TRACK LOADINGS INCLUDING DEPARTMENT LOADS. LOADED AREA EXTENTS TO BE DETERMINED AT DETAIL DESIGN STAGE.

**FOR INFORMATION ONLY**

**SYDNEY METRO CITY & SOUTHWEST**  
 SYDENHAM STATION AND JUNCTION  
 TUNNELS AND STATION EXCAVATION  
 INTERFACE DRAWING  
 TRANSGRID SUSPENDED SLAB SECTIONS - SHEET 1

STATUS: FOR INFORMATION ONLY SHEET 1 OF 4

HWL Dwg No. NWRLSRT-PBA-WSS-CE-DWG-971741 HWL REV. 01

REV	BY	DATE	DESCRIPTION	APPD
01	MJ	29 01 18	ISSUED FOR INFORMATION ONLY	PH

SCALE:	CLIENT:
Plot Date 29/01/18 - 18:34	<b>Transport for NSW</b>

<small>The information shown on this drawing is for the purposes of the Health 100% Red Line (HWL) Project only. No warranty is given or implied as to its suitability for any other purpose. The Service Providers accept no liability arising from the use of this drawing and the information shown thereon for any purpose other than the Health 100% Red Line (HWL) Project.</small>	<b>PARSONS BRINCKERHOFF</b> <b>AECOM</b> <b>COX HASSELL</b>
SERVICE PROVIDERS: DRAWN BY: MICHELLE PRICE DESIGNED BY: PATRICK LEWIS DWG CHECK BY: PATRICK LEWIS DESIGN CHECK: LINDSEY CLAYTON APPROVED: PAUL HURCOMB	CLIENT: Transport for NSW

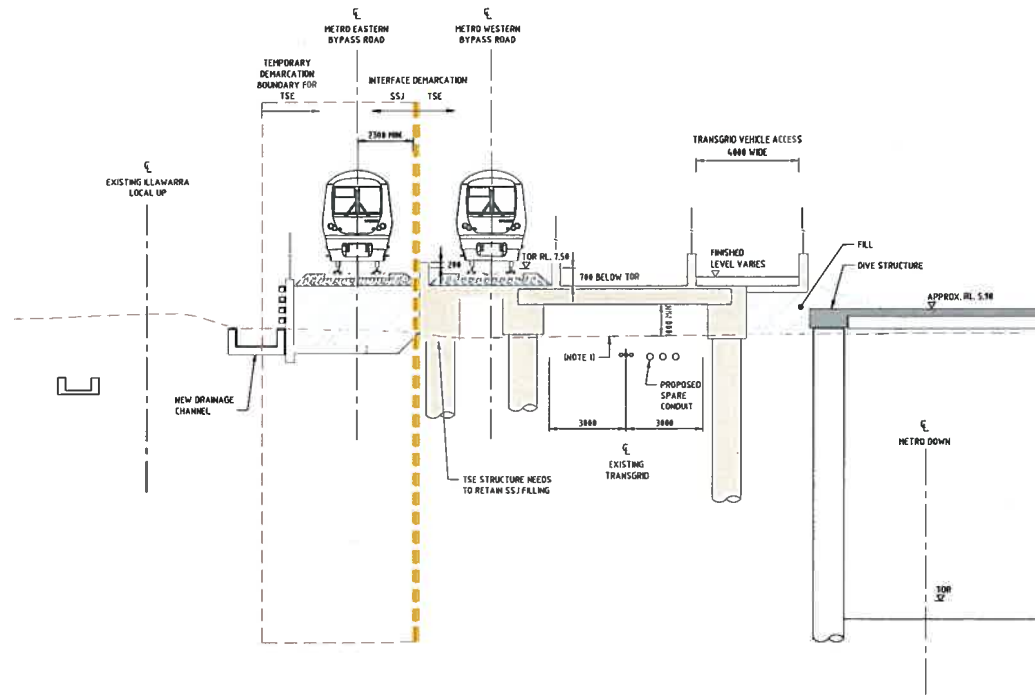
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NOTE: Do not scale from this drawing

NOTES:  
 1. LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.  
 2. ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.

**LEGEND:**

- NEW SUSPENDED SLAB & RAMP BY TSE
- PROPOSED SSJ/TSE INTERFACE DEMARCATION
- SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS



SECTION 2  
 HTS 971731

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FOR INFORMATION ONLY

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SCALES

Client: **NSW GOVERNMENT Transport for NSW**

Plot Date: 29/01/18 - 16:34

Service Providers: **PARSONS BRINCKERHOFF AECOM HASSELL**

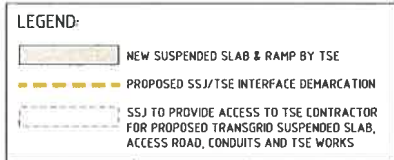
Drawn: MICHELLE JOYCE  
 Designed: PATRICK LEWIS  
 Dwg Check: PATRICK LEWIS  
 Design Check: LINDSAY CLAYTON  
 Approved: PAUL HURCOMB

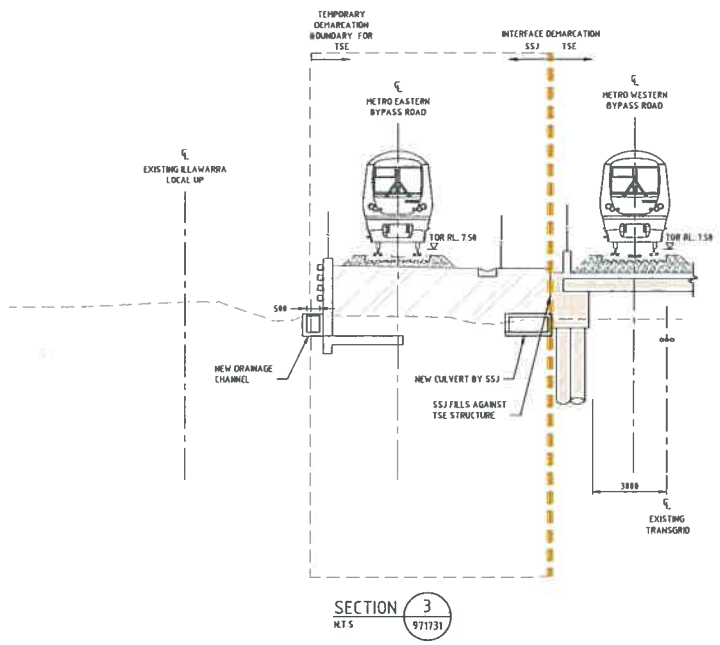
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STATUS: FOR INFORMATION ONLY SHEET 2 OF 4

HWL Rev No: **NWRLSRT-PBA-WSS-CE-DWG-971742** HWL REV. 01

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 1. LEVELS AND DIMENSIONS ARE SHOWN INDICATIVELY ONLY.  
 2. ARRANGEMENT, SIZING AND LEVELS BASED ON DEFINITION DESIGN AND ARE SUBJECT TO CONFIRMATION DURING DETAILED DESIGN.





**LEGEND:**  
  
 NEW SUSPENDED SLAB & RAMP BY TSE  
 PROPOSED SSJ/TSE INTERFACE DEMARCATION  
 SSJ TO PROVIDE ACCESS TO TSE CONTRACTOR FOR PROPOSED TRANSGRID SUSPENDED SLAB, ACCESS ROAD, CONDUITS AND TSE WORKS



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FOR INFORMATION ONLY

**SYDNEY METRO CITY & SOUTHWEST**  
 SYDNEY STATION AND JUNCTION  
 TUNNELS AND STATION EXCAVATION  
 INTERFACE DRAWING  
 TRANSGRID SUSPENDED SLAB SECTIONS - SHEET 3  
 STATUS: FOR INFORMATION ONLY SHEET 3 OF 4  
 PWR/01 No. NWRLSRT-PBA-WSS-CE-DWG-971743 NWR/REV. 01

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REV	BY	DATE	DESCRIPTION	APPS											
A1 Original Co-ordinate System: MGA Zone 56 Height Datum: A.H.D. This sheet may be prepared using colour and may be incomplete if copied		NOTE: Do not scale from this drawing	<small>The information shown on this drawing is for the purposes of the Health Wind Rail Line (HWRL) Project only. Its use is given as implied and is not suitable for any other purpose. The Service Provider accepts no liability arising from the use of this drawing and the information shown hereon for any purposes other than the Health Wind Rail Line (HWRL) Project.</small>												



**SCHEDULE 28**

**Amendments to Schedule C2**

Schedule C2 is amended as set out in the attached mark-up.

**SCHEDULE C2. – PRELIMINARIES**

(Clause 1.1)

**Preliminaries: Target Cost Development Phase**

For the Target Cost Development Phase, the Preliminaries consist of those functions and tasks not included in the Target Cost Development Phase Site Investigations, Design Work, Provisional Sum Work and Design Work (Signalling), that are to be performed by the SSJ Contractor itself including:

- (a) providing the SSJ Contractor's project management team, site supervision, administration and support staff including but not limited to;
  - (i) wages and salaries (including all applicable taxes);
  - (ii) staff recruitment and relocation costs;
  - (iii) all travel costs, including staff travel costs as well as suitable site vehicles (including running and maintenance costs);
  - (iv) accommodation and meal allowances;
  - (v) communication devices (for example, radios and mobile phones); and
  - (vi) WHS and site inductions, training and personal protective equipment;
- (b) providing suitable information technology, document control, stationary and office supplies, administrative systems, communications systems (including faxes, phones, radios and walkie talkies (or similar)), and other Construction Site consumables for use by the SSJ Contractor's and Principal's personnel (including the Independent Certifier and representatives);
- (c) provision, connection and maintenance of site offices, meeting rooms and other accommodation (including any necessary equipment, photocopiers, furniture, lighting, heating and the like) for use by the SSJ Contractor's personnel including connection to services and associated ongoing running costs such as power phone, data and water;
- (d) establishing on-site and providing site amenities, toilets, lunch rooms, crib rooms, water bubblers, and washing facilities for use by the SSJ Contractor's and Principal's personnel (including the Independent Certifier and representatives);
- (e) providing site amenities for the SSJ Contractor's personnel including subcontractors;
- (f) security, maintenance and cleaning of Construction Site amenities;
- (g) ensuring that the Construction Site is run in a clean, proper and efficient manner:
  - (i) having due regard to the occupation of premises adjacent to or near to the Construction Site; and
  - (ii) so as to ensure that the working areas are kept clean during the progress of the SSJ Contractor's Activities and that debris and waste is removed from the Construction Site as it arises and at completion of the Project;
- (h) providing first aid facilities for use by all construction personnel and the Principal's personnel and representatives;

- (i) provision for external quality and safety audits;
- (j) preparation and updating of Contract Management Plans;
- (k) provision for public communications and community consultation;
- (l) Project related statutory fees and charges including, but not limited to, those referred to in the definition of Authority Approvals;
- (m) carrying out all inductions for all personnel and attendance by the SSJ Contractor's personnel at Sydney Trains, NSW Trains or Other Contractors' inductions, as required to complete the SSJ Contractor's Activities;
- (n) setting out the Project Works, including provision of all surveying staff and equipment;
- (o) management of the Target Cost Development Phase Site Investigations;
- (p) development of the layout of the site facilities;
- (q) interfacing with Interface Contractors;
- (r) developing in conjunction with the Principal's Representative an overall construction methodology;
- (s) attending and chairing formal and informal briefings and meetings including keeping and distributing minutes of the meetings as required;
- (t) carrying out the functions and tasks relating to design management, including:
  - (i) determining in conjunction with the Principal's Representative the breakup of work into construction packages (including staging of the Project Works);
  - (ii) documenting and managing requests for information (RFIs), ensuring RFIs are sent to the appropriate persons with the ability to correctly supply the information and ensuring the information requested is distributed correctly and in a timely manner;
  - (iii) ensuring the requirements of all relevant Authorities and utility service providers are complied with in the design;
  - (iv) completing a detailed cost estimate of the Design Documentation following each design review stage, ensuring the cost estimate satisfies the Target Cost for construction; and
  - (v) reviewing shop drawings and identifying Defects in the drawings and ensuring those Defects are corrected;
- (u) carrying out the functions and tasks relating to the role of principal contractor and in respect to fulfilling the Principal's obligations under safety interface agreements;
- (v) corporate computer systems, software and support; and
- (w) effecting and maintaining insurances (other than insurances required to be effected and maintained by the Principal in accordance with clause 18) and allowances for insurance deductibles and excesses.



### Preliminaries: Delivery Phase

For the Delivery Phase, the Preliminaries generally consist of those functions and tasks, not included in the Provisional Sum Work and Design Work, to be performed by the SSJ Contractor itself including:

- (a) providing the SSJ Contractor's project management team, site supervision, administration and support staff including but not limited to;
  - (i) wages and salaries (including all applicable taxes);
  - (ii) staff recruitment and relocation costs;
  - (iii) all travel costs, including staff travel costs as well as suitable site vehicles (including running and maintenance costs);
  - (iv) accommodation and meal allowances;
  - (v) communication devices (for example, radios and mobile phones); and
  - (vi) WHS and site inductions, training and personal protective equipment.
- (b) providing suitable information technology, document control, stationary and office supplies, administrative systems, communications systems (including faxes, phones, radios and walkie talkies (or similar)), and other Construction Site consumables for use by the SSJ Contractor's and Principal's personnel (including the Independent Certifier and representatives);
- (c) provision, connection and maintenance of site offices, meeting rooms and other accommodation (including any necessary equipment, photocopiers, furniture, lighting, heating and the like) for use by the Contractor's personnel including connection to services and associated ongoing running costs such as power, phone, data and water;
- (d) establishing on-site and providing site amenities, toilets, lunch rooms, crib rooms, water bubblers, and washing facilities for use by the SSJ Contractor's and Principal's personnel (including the Independent Certifier and representatives);
- (e) providing site amenities for the SSJ Contractor's personnel including subcontractors;
- (f) security, maintenance and cleaning of Construction Site amenities;
- (g) ensuring that the Construction Site is run in a clean, proper and efficient manner:
  - (i) having due regard to the occupation of premises adjacent to or near to the Construction Site; and
  - (ii) so as to ensure that the working areas are kept clean during the progress of the SSJ Contractor's Activities and that debris and waste is removed from the Construction Site as it arises and at completion of the Project (Note: debris and waste spoil removal is Reimbursable Work);
- (h) providing first aid facilities for use by all construction personnel and the Principal's personnel and representatives;
- (i) provision for external quality and safety audits;
- (j) preparation and updating of Contract Management Plans;



- (k) provision for public communications and community consultation;
- (l) carrying out all inductions for all personnel and attendance by the SSJ Contractor's personnel at Sydney Trains, NSW Trains or Other Contractors' inductions, as required to complete the SSJ Contractor's Activities;
- (m) management of the setting out the Project Works, including management of the provision of all surveying staff and equipment;
- (n) management of any site investigations;
- (o) development of the layout of the site facilities;
- (p) interfacing with Interface Contractors;
- (q) developing in conjunction with the Principal's Representative an overall construction methodology;
- (r) attending and chairing formal and informal briefings and meetings including keeping and distributing minutes of the meetings as required;
- (s) small tools, equipment and disposables necessary for the SSJ Contractor to discharge its obligations under the MRs;
- (t) carrying out the functions and tasks relating to design management, including:
  - (i) determining in conjunction with the Principal's Representative the breakup of work into construction packages (including staging of the Project Works);
  - (ii) documenting and managing requests for information (RFIs), ensuring RFIs are sent to the appropriate persons with the ability to correctly supply the information and ensuring the information requested is distributed correctly and in a timely manner;
  - (iii) ensuring the requirements of all relevant Authorities and utility service providers are complied with in the design;
  - (iv) completing a detailed cost estimate of the Design Documentation following each design review stage, ensuring the cost estimate satisfies the Target Cost for construction; and
  - (v) reviewing shop drawings and identifying Defects in the drawings and ensuring those Defects are corrected.
- (u) carrying out the functions and tasks relating to construction management, including:
  - (i) ensuring that all necessary Authority Approvals, certificates, licences, consents, permits and approvals required from relevant Authorities, utility companies and adjoining owners are obtained so building and other certificates, licences, consents, permits and approvals may be obtained in a timely manner;
  - (ii) ensuring the requirements of all relevant Authorities and utility service providers are complied with during the construction of the Project Works and Temporary Works;

- (iii) advising on the provision and layout of site facilities and site services and obtaining approval from the Principal's Representative to those site facilities and site services to be provided by the SSJ Contractor;
  - (iv) coordinating and managing of Interface Works and access to worksites and the Construction Site, including as described in the Site Access Schedule;
  - (v) monitoring the performance of Subcontractors against the detailed SSJ Contractor's Program and Cost Plan to enable corrective action to be taken to minimise stoppages and delays;
  - (vi) ensuring that Subcontractors make good any damage caused by them to the Project Works (including the work of other subcontractors) or to the Construction Site or site facilities;
  - (vii) initiating a system of documentation and records for recording the performance of all Subcontractors;
  - (viii) developing in conjunction with the Principal's Representative an overall construction methodology;
  - (ix) managing the staging of the Project Works ensuring suitability and buildability with effective use of the Track Possessions and Temporary Shutdowns within the project constraints including liaising with and submitting the plan for review by the Principal's Representative, the proposed staging being designed to maintain all rail and station services required to operate the services in a safe manner;
  - (x) carrying out progressive work inspections and tests including Authority and utility company inspections and tests;
  - (xi) securing the prompt remedying of all Defects by Subcontractors in accordance with their Subcontracts; and
  - (xii) securing the prompt remedying of all Defects discovered following Construction Completion of each Portion and during the Defects Correction Periods; and
- (v) carrying out the functions and tasks relating to the role of principal contractor and in respect to fulfilling the Principal's obligations under safety interface agreements;
  - (w) protecting and safeguarding the Project Works, materials and plant against the effects of the weather and against damage, trespass or theft;
  - (x) temporary screens, fencing, hoardings, guard rails, barriers, gantries and the like together with any warning notices, night lighting and the like; and
  - (y) corporate computer systems, software and support;
  - (z) effecting and maintaining insurances (other than insurances required to be effected and maintained by the Principal in accordance with clause 18) and allowances for insurance deductibles and excesses; and
  - (aa) provision of security undertakings.

## **SCHEDULE 29**

### **Amendments to Schedule D1**

Schedule D1 is amended as set out in the attached mark-up.

Clean versions of each of the amended documents specified in this Schedule 29 are attached as electronic files.

**SCHEDULE D1. – MANAGEMENT REQUIREMENTS****(Clause 1.1)**

Those parts of the MRs that are electronic files are included in Schedule G1.

<u>Document Reference</u>	<u>Document Title</u>
<u>SMCSWSSJ-SMD-WSS-PM-REP-000104</u>	<u>MR - P (Prelude)</u>
<u>SMCSWSSJ-SMD-WSS-PM-REP-000013</u>	<u>MR - PA (Project Administration)</u>
<u>SMCSWSSJ-SMD-WSS-DM-REP-000009</u>	<u>MR - T (Technical Management)</u>
<u>SMCSWSSJ-SMD-WSS-CL-REP-000005</u>	<u>MR - C (Community Liaison)</u>
<u>SMCSWSSJ-SMD-WSS-SA-REP-000110</u>	<u>MR - S (Safety Management)</u>
<u>SMCSWSSJ-SMD-WSS-EM-REP-000126</u>	<u>MR - E (Environmental Management)</u>
<u>SMCSWSSJ-SMD-WSS-SU-REP-000014</u>	<u>MR - SY (Sustainability Management)</u>
<u>SMCSWSSJ-SMD-WSS-WD-REP-000015</u>	<u>MR - W (Workforce Development Requirements)</u>



Transport  
for NSW

# Management Requirements – Stakeholder and Community Liaison – Sydenham Station and Junction Works Contract (MR-C)

DOCUMENT NUMBER: SM-17-00013834

~~14 September 2017~~ 08 May 2018

## Table of Contents

1.	Introduction	3
2.	General Obligations	3
3.	Stakeholder and Community Liaison Personnel	4
4.	Planning and Progress	<del>5</del> 6
5.	Meetings with Stakeholders and the Community	<del>5</del> 6
6.	Communications Management Control Group	<del>6</del> 7
7.	Community Information Sessions	<del>6</del> 7
8.	Community Information Centre	<del>7</del> 8
9.	Principal's Education Programs	<del>7</del> 8
10.	Communication Material for the Public	<del>8</del> 9
11.	Contractor's Marketing and Promotional Material	<del>13</del> 14
12.	Contractor's Site Structures and Equipment	<del>14</del> 15
13.	Branding and Logos	<del>15</del> 16
14.	Animations	<del>16</del> 17
15.	Consultation Manager Database	<del>16</del> 17
16.	Enquires and Complaints Management	<del>16</del> 17
17.	Media and Government Relations	<del>18</del> 19
18.	Crisis Communication Procedures	<del>19</del> 20
19.	Organised Events	<del>20</del> 21
20.	Site Photography	<del>23</del> 24
21.	Site Inductions and Training	<del>25</del> 26
Annexure A:	Reference Documents	<del>26</del>
<del>Annexure B:</del>	<del>Project Specific Requirements</del>	<del>27</del>



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## **1. Introduction**

### **1.1. Purpose**

- (a) This Management Requirements – Stakeholder and Community Liaison (MR-C) describes requirements and processes for Stakeholder and community liaison. This MR-C must be read in conjunction with the Contract.
- (b) The Contractor must comply with the requirements of this MR-C, including the Reference Documents in Annexure A.

### **1.2. Definitions**

Refer to MR-Prelude and the General Conditions for a definition of terms used in this MR-C.

### **1.3. General Requirements**

Where noted in Annexure B – Project Specific Requirements, the Contractor must comply with the requirements of this MR-C, as amended by Annexure B.

### **1.4. Context**

The Contractor must take the lead on Stakeholder and community liaison and provide appropriate resources to liaise with the Principal's Representative, undertake Stakeholder and community liaison management and consultation. This will involve providing the required information about the Works, the Temporary Works and the Contractor's Activities.

## **2. General Obligations**

The Contractor is required to:

- (a) manage and coordinate Stakeholder and community liaison, consultation and Notification in relation to the Works, the Temporary Works and the Contractor's Activities;
- (b) work cooperatively with the Principal to provide a coordinated approach to Stakeholder and community liaison management, that is consistent across the Stakeholders and communities affected by the Works, Temporary Works and Contractor's Activities as well as any activities being carried out by any Interface Contractor, Other Contractor, Operator, and Existing Operator in so far as it relates to the Works;
- (c) enhance and protect the reputation of the NSW Government and the Principal in delivery of the Contractor's obligations under the Contract;
- (d) ensure that the Principal's Representative, Stakeholders and the community are provided with adequate Notification of planned construction activities and the Project's key milestones;
- (e) ensure that the Stakeholders and the community fully understand the impact of the Works, Temporary Works and Contractor's activities, and their objectives, benefits, potential impacts and expected outcomes;

- (f) ensure that the Principal's Representative is informed of all issues raised by an Authority in relation to the Contractor's Activities, Works and Temporary Works and is invited whenever the Contractor meets directly with an Authority;
- (g) ensure that the Principal's Representative is continuously informed of all issues raised directly with the Contractor by Stakeholders and the community and is given the opportunity to be involved in the planning and coordination of all meetings, presentations and site visits attended by Stakeholders and members of the community;
- (h) ensure that the Principal's Representative is contacted immediately in relation to planned or unplanned community protests that do or may arise during the performance of the Contractor's Activities;
- (i) ensure the timeframes for review and approval defined in this MR-C and resources for Document development, consultation, approval and Notification are incorporated into the Contractor's Program;
- (j) comply with the current version of the Community Communications Strategy; ~~SSJ~~  
SSJ
- (k) be proactive in providing the Principal's Representative with accurate and adequate information on the status of the Works, Temporary Works, Contractor's Activities and any associated impacts;
- (l) consult the Principal's Representative prior to taking any unilateral action that may impact on the Stakeholders or the community;
- (m) make appropriate senior personnel and subject matter experts available to attend meetings with the community or other Stakeholders, as required or requested by the Principal's Representative;
- (n) ensure that personnel and Subcontractor's personnel comply with the requirements of the Sydney Metro Overarching Community Communications Strategy ~~SM-SC-PW-303~~, and Transport for NSW Use of Social Media Policy CP13003; and
- (o) provide all Documents in .pdf format that comply with the Level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0).

### 3. Stakeholder and Community Liaison Personnel

#### 3.1. Personnel

The Contractor's ~~must provide at least a team must consist of the people nominated in Annexure B of this MR-C of two including a:~~

1. Stakeholder and Community Liaison Management Lead (minimum seven years' experience);
2. Community Place Manager (minimum five years' experience); and
3. Will draw additional resources from the joint venture partners as required for assistance with media, event management or engagement activities.



The personnel should adequately cover the following competencies, qualifications and experience relating to planning and delivery of major infrastructure projects similar to the Sydney Metro City & Southwest Project:

- (a) Stakeholder and Community Liaison Management:
  - (i) recognised and appropriate Stakeholder and Community Liaison qualifications; and / or active industry experience; and
  - (ii) at least seven years' experience in Stakeholder and Community Liaison management.
- (b) Public Affairs Management:
  - (i) recognised and appropriate public affairs qualifications or,
  - (ii) active industry experience including at least seven years' experience in public affairs management (with a background in journalism or public relations);
  - (iii) have access to the Contractor's managers and on site information; and
  - (iv) be authorised to prepare and issue media and other urgent Copy to the Principal's Representative on a 24 hour- seven day a week basis, as outlined in this MR-C, for media releases, holding statements and responses, government enquiries, award submissions, social media, websites, newspapers etc.
- (c) Place and Business Relationship Management:
  - (i) recognised and appropriate qualifications and/or experience; and
  - (ii) at least five years' relevant community liaison experience and relevant business relations management experience including the management of relationships with business, industry or senior Stakeholders.
- (d) Graphic Design Services to be outsourced as required.
- (e) Events and Public Affairs Services:
  - (i) at least five years' relevant experience in assisting client organisations with the organisation, coordination and implementation of access to major construction sites for a range of activities including but not limited to media, promotional and milestone ceremony events, photography and filming requirements.

### **3.2. General**

The Contractor must ensure that its team:

- (a) does not contain vacant positions for more than four weeks;
- (b) members described in ~~Annexure B~~ clause 3.1 (a) and (b) commence within 14 Business Days after the commencement of the Delivery Phase and remain until the Date of Construction Completion of the final Portion to reach Construction Completion; and
- (c) members providing capability other than that described in ~~Annexure B~~ clause 3.1 (a) and (b) above, commence within eight weeks after the commencement of the

Delivery Phase and remain until the Date of Construction Completion of the final Portion to reach Construction Completion.

## **4. Planning and Progress**

- (a) The Contractor must provide accurate information to the Principal's Representative regarding current and upcoming Contractor's Activities and all associated community impacts by developing, implementing and maintaining a Stakeholder and Community Liaison Program (CLP) that includes the following:
- (i) the key dates for the commencement and conclusion of construction activities;
  - (ii) associated impacts on Stakeholders and the community;
  - (iii) the Contractor's strategy for minimising those impacts;
  - (iv) Notifications and release of other information;
  - (v) production and distribution of all other Public Communication Material; and
  - (vi) media milestones.
- (b) The Contractor must submit an updated CLP to the Principal's Representative for review in accordance with the Contract, each fortnight including a two week and four week Look Ahead Program.
- (c) The Contractor's representative described in section 3.1(a) must meet with the Principal's Representative as required and requested to discuss the Contractor's Stakeholder and community liaison activities including progress against the Look Ahead Programs.
- (d) The Contractor's representative described in section 3.1(b) must meet with the Principal's Representative as required and requested to provide details of the Contractor's Activities and will be required to generate and maintain a program of media milestones and other opportunities.

## **5. Meetings with Stakeholders and the Community**

- (a) The Contractor must work collaboratively with the Principal's Representative to coordinate consultation activities with Stakeholders and the community.
- (b) The Contractor must organise meetings with Stakeholders and the community and also attend meetings along with the Principal's Representative to discuss the Contractor's Activities, work in progress, upcoming work or any issues in connection with the Contractor's Activities.
- (c) The Contractor must advise the Principal's Representative of the purpose for any consultation activities prior to organising them. The Principal's Representative will decide the Principal's level of involvement.
- (d) The Contractor must advise the Principal's Representative of the timing, purpose and attendees for all meetings with stakeholders and the community organised by the Contractor, seven days prior to the meetings taking place and invite the Principal's Representative to attend.

- (e) The Contractor must provide relevant materials for presentation and distribution at Stakeholder and community meetings in accordance with clause 10.2.
- (f) The Contractor must provide appropriate Contractor's personnel to attend and participate in Stakeholder and community meetings (including after-hours) and any meetings of working groups established by the Principal or as otherwise required by the Principal's Representative.
- (g) The Contractor's personnel must be adequately informed and suitably qualified to participate in and chair meetings to update Stakeholders and the community on the progress of the Works, the Temporary Works and the Contractor's Activities and resolve Stakeholder and community issues.
- (h) The Contractor must comply with all practicable suggestions and requests of Stakeholders and the community, where agreed by the Principal's Representative.

## **6. Communications Management Control Group**

- (a) The Principal will establish a Communications Management Control Group (CMCG) prior to the start of the Contractor's Activities to provide a forum to exchange information and coordinate communication and consultation activities with the community and Stakeholders and to deliver a consistent approach.
- (b) The CMCG will generally meet fortnightly throughout the duration of the Contractor's Activities or as otherwise required by the Principal Representative.
- (c) The Contractor's lead representative described in section 3.1(a), and additional Contractor's personnel requested by the Principal's Representative, must attend all CMCG meetings.
- (d) The Contractor must provide all relevant information regarding any potential impact that its activities may have on the community (including but not limited to local residents, property and business owners, transport users) in accordance with clause 10.2 below for inclusion in the CMCG meetings. Such information includes:
  - (i) a summary of current and upcoming work from the two week and four week Look Ahead Programs, their likely impacts, and proposed mitigation strategies to address those impacts;
  - (ii) an update on any current or emerging issues and/or any promotional opportunities;
  - (iii) an update on complaints received and action taken to resolve them; and
  - (iv) other information as requested by the Principal's Representative.

## **7. Community Information Sessions**

- (a) The Contractor must provide appropriate personnel, including technical experts, to attend community information sessions as required and requested by the Principal's Representative.



- (b) The Contractor must provide materials or information in accordance with clause 10 below, to support the community information sessions, and as requested by the Principal's Representative.

## 8. Community Information Centre

- (a) The Contractor must provide suitably qualified and experienced team members to attend the Principal's Community Information Centre or mobile Community Information Centre at least ~~twice~~once per week (~~including for a day (this may include weekends and out of office hours)~~ or as agreed with the Principal's representative to take part in education or group presentations, or community engagement events).
- (b) The Contractor must hold weekly briefings for personnel nominated by the Principal's Representative on the progress of the Contractor's Activities and current or emerging issues.
- (c) The Contractor must develop and install interactive displays, relating to the Contractor's Activities, for use by Community Information Centre visitors.
- (d) The Contractor must prepare a specification for the development and production of the interactive displays and submit it to the Principal's Representative for review. The Principal's Representative must be given a minimum of 20 Business Days to review and make comment upon the specification and the Contractor must address all the Principal's comments to the satisfaction of the Principal's Representative, prior to being approved.
- (e) The Principal's Representative's approval of the specification is a Hold Point.
- (f) The interactive displays must include 3D visualisation of the construction process, graphical information, simulations of excavation activities, photographs and videos, details of the Contractor's equipment, details of environmental protection work and sustainability initiatives.
- (g) The design of the interactive displays produced by the Contractor must comply with the approved specification described in clause 8 (d), above and must be submitted to the Principal's Representative for review. The Principal's Representative must be given a minimum of 20 Business Days to review and make comment upon the Documents and the Contractor must address all the Principal's comments on the Documents to the satisfaction of the Principal's Representative.
- (h) The Principal's Representative's approval of the Documents for the design of the interactive displays is a Hold Point.
- (i) The interactive displays must be initially developed, produced and installed within six months after the date of the Contract, and then be updated, as a minimum, on a six monthly basis until the Date of Construction Completion of the final Portion to reach Construction Completion.

## 9. Principal's Education Programs

- (a) The Contactor must provide information and photographs for inclusion in the Principal's Education Programs (PEP) as directed by the Principal's Representative.
- (b) The Contractor must also provide 2 attendant personnel with contracting and construction knowledge to support the Principal at a minimum of ~~15~~three PEPs (for their full duration) per annum.
- (c) The Contractor must ensure that all personnel that interact with children during the PEPs undergo the NSW Office of the Children's Guardian's "Working With Children Check" prior to attending any PEPs.

## 10. Communication Material for the Public

### 10.1. Principal's Material

The Principal may produce and distribute its own communication material and the Contractor must provide Copy contributing to the production of that communication material when requested by the Principal's Representative. This communication material may include information such as construction status and updates and information on the status of current and upcoming Contractor Activities.

### 10.2. Contractor's Public Communication Material

- (a) The Contractor must produce its own Public Communication Material (PCM). The Principal's Representative's approval of the Contractor's proposed PCM is a Hold Point.
- (b) Public Communication Material includes but is not limited to:
  - (i) information for the CMCG;
  - (ii) information for community and Stakeholder meetings;
  - (iii) information for the Principal's Education Programs;
  - (iv) materials for community information sessions, including photographs, items of interest including machinery, plant and equipment and other items as requested;
  - (v) community and Stakeholder Notifications;
  - (vi) advertisements concerning the Contractor's Activities;
  - (vii) quarterly construction update newsletters;
  - (viii) community emails;
  - (ix) information to comply with the Contractor's obligations relating to the Environmental Documents;
  - (x) all website content to be used on the Principal's or Contractor's websites as a means of communicating information for the benefit of the Principal, rather than the Contractor; and

- (xi) all information released on social media platforms.
- (c) All Public Communication Material, Copy and other publicly available information provided by the Contractor must comply with Transport for NSW Editorial Style Guide and Sydney Metro Brand Style Guidelines, and be written in plain English.
- (d) The Contractor must provide a copy of all final PCM, Copy and other information requested by the Principal's Representative in a.pdf format that complies with the Level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0) for uploading to the Principal's website and any other websites, on the day they are delivered or released to the public.
- (e) All PCM produced by the Contractor must be approved by the Principal's Representative. The Contractor must address any comments made by the Principal, to the satisfaction of the Principal's Representative prior to its approval in accordance with (i) below. The Contractor must allow for and comply with the following timeframes and requirements when scheduling and carrying out the Contractor's Activities:
  - (i) a period of at least five Business Days from acceptable submission for the Principal's Representative to approve any PCM;
  - (ii) an additional 30 Business Days from acceptable submission for Sydney Trains to approve any PCM regarding Track Possessions and Non Track Possessions;
  - (iii) a period of seven days after the PCM has been issued to the community or Stakeholders, before it commences any of the related Contractor's Activities; and
  - (iv) ensure that all personnel engaged in undertaking the Contractors' Activities are aware of, and abide by these requirements in this clause 10.2 and MR-C.
- (f) Where the Contractor's Activities are adjacent to other construction activities, being carried out by external parties public communication activities must be coordinated (via the CMCG) and shared as required before distribution to the public.

### **10.3. Community and Stakeholder Notifications**

- (a) The community and Stakeholders must be notified of any current and upcoming Works or Temporary Works or Contractor's Activities with the potential to impact them, prior to their occurrence, and with the exception of Emergency Works, in accordance with this clause 10.3 (c) to (i).
- (b) In the event of Emergency Works, the Contractor must provide written and verbal Notification to occupiers of properties immediately adjacent to or impacted by any Emergency Works within two hours, after commencing any Emergency Works.
- (c) The Contractor must produce and distribute all community and Stakeholder Notifications.

- (d) Written Notifications must be distributed to all properties within ~~500~~100 metres of the Contractor's Activities- unless the impact of the work being notified will extend beyond a 100 metre radius of the work site.
- (e) The Contractor must issue the Notifications for the following:
- (i) construction commencement;
  - (ii) significant milestones;
  - (iii) changes to the scope of work;
  - (iv) night works;
  - (v) changes to traffic conditions requiring traffic alerts;
  - (vi) modifications to pedestrian routes, cycle ways and bus stops;
  - (vii) out of hours work;
  - (viii) disruption of residential or business access;
  - (ix) changing or disrupting of Utility Services; and
  - (x) investigation activities.
- (f) The Contractor must ensure that all Notifications include all required details, including the following:
- (i) the scope of work;
  - (ii) the location of work;
  - (iii) the hours of work;
  - (iv) the duration of activity;
  - (v) the type of equipment used and likely impacts of the work including noise, vibration, traffic, access and dust;
  - (vi) the applicable mitigation measures; and
  - (vii) the Sydney Metro Project 24-hour Telephone Contact Number, postal address and email address.
- (g) The Contractor must issue traffic alerts by email, seven days before changes to traffic and access arrangements are made, to all key traffic and transport Stakeholders including:
- (i) relevant Authorities; and
  - (ii) transport operators, including bus, coach and taxi operators.
- (h) The Contractor must provide and erect signage that identifies changes to traffic and access arrangements, seven days before the changes take place, for the following events:
- (i) making changes to pedestrian routes;
  - (ii) making changes to platforms or concourses;

- (iii) impacting on cycle ways;
  - (iv) changing traffic conditions; and
  - (v) disrupting access to bus stops.
- (i) The Contractor must provide Notification to relevant Authorities at least seven days before commencing any Utility Service Works.

#### **10.4. Project Advertisements**

- (a) The Contractor must prepare and publish advertisements relating to the performance of the Contractor's Activities in accordance with clause 10.2, Law and relevant Authority approvals.
- (b) The Contractor must advertise all significant traffic management changes, detours, traffic disruptions and work outside any working hours contained in the Environmental Documents at least seven days before any detour, disruption, work or change occurs. These adverts must be placed in local newspapers that cover the geographical areas of the Contractors Activities.

#### **10.5. Quarterly Construction Update Newsletters**

- (a) The Contractor must develop, produce and distribute a quarterly construction update newsletter providing updates on the Works, Temporary Works and Contractor's Activities to the local community and Stakeholders in accordance with Clause 10.2.
- (b) The newsletters must:
- (i) Inform the community and Stakeholders of the progress of the SSJ Project and key milestones or activities taking place during the following three months;
  - (ii) be of a high quality, and include relevant photos, maps and illustrations;
  - (iii) be at least a single A4 double sided sheet in full colour;
  - (iv) be distributed to commercial and residential properties within a 500m radius of the Site; and
  - (v) be available at the community information centre for three months from the time of issue for distribution to commercial and residential properties.

#### **10.6. Community emails**

- (a) The Contractor must develop and distribute a monthly community update email, in accordance with Clause 10.2.
- (b) The update email must:
- (i) inform the community and Stakeholders of the progress of the Works, Temporary Works and Contractor's Activities and key milestones or activities taking place during the following month; and
  - (ii) be distributed to all Stakeholders registered in the Consultation Manager Database to receive community update emails.



## 10.7. Environmental Documents

Notwithstanding the requirements of the Contract, when requested by the Principal's Representative, the Contractor must provide information or input into addressing any communication requirements outlined in the Environmental Documents.

## 10.8. Project Websites

### 10.8.1. Contractor's Project Website

- (a) The Contractor must establish and maintain a new website or maintain a page on an existing web site to publish details on the status of the Works, Temporary Works and Contractor's Activities.
- (b) The Contractor must only publish on the website:
  - (i) employment or supplier opportunities;
  - (ii) information required to be published to comply with the Environmental Documents;
  - (iii) executive summaries of publicly available reports relating to the Works, Temporary Works and Contractor's Activities;
  - (iv) environmental, sustainability, transport, traffic and noise and vibration reports (and the executive summaries of these reports) that are publicly available; and
  - (v) web content and documents must comply with the Level AA accessibility requirements as outlined in Web Content Accessibility Guidelines (WCAG 2.0).
- (c) The Contractor must not include any other information, graphics or photographs on the website.

### 10.8.2. Principal's Project Website

- (a) The Contractor must provide the following information in electronic format which complies with the Level AA accessibility requirements of the Web Content Accessibility Guidelines (WCAG 2.0) to be uploaded onto the Principal's Project website:
  - (i) Public Communication Materials;
  - (ii) Marketing and Promotional Materials;
  - (iii) photography in accordance with clause 20;
  - (iv) each version of the Community Communications Strategy – [SSJ](#); and
  - (v) any other Copy or information, requested by the Principal's Representative.

## 10.9. Social Media

- (a) The Contractor must comply with Transport for NSW Use of Social Media Policy CP13003 .

- (b) The Contractor must, as a minimum, provide three, 180 character, social media updates ~~each week~~ per month with accompanying images or video, relating to the Contractor's Activities during the construction of the Works and Temporary Works.
- (c) The social media updates must include, but not be limited to, updates about the Contractor's Activities scheduled for the forthcoming week, construction progress and changes to the Contractor's Program.
- (d) During Business Hours, the Contractor must provide responses to any social media platform enquiries forwarded by the Principal within two hours of receiving the enquiry. Outside of Business Hours, the Contractor must provide a written response within two hours of the start of next Business Day.

## **11. Contractor's Marketing and Promotional Material**

### **11.1. General Requirements**

- (a) Marketing and Promotional Materials (MPM) include, but are not limited to:
  - (i) promotional or information related signage;
  - (ii) displays;
  - (iii) award submissions;
  - (iv) media articles;
  - (v) other forms of advertisements not otherwise included in the PCM;
  - (vi) internal newsletters and publications;
  - (vii) presentations at conferences;
  - (viii) presentations at internal events;
  - (ix) technical papers and reports;
  - (x) photographs;
  - (xi) sponsorships;
  - (xii) Contractor's website content promoting their involvement in the SSJ Project, not otherwise included in the PCM;
  - (xiii) case studies; and
  - (xiv) other corporate materials.
- (b) The Contractor must recognise and identify the Principal's role in any Marketing and Promotional Material that the Contractor develops.
- (c) The Contractor must not participate in any public local events or open days without prior approval from Principal's Representative.
- (d) The Contractor must identify innovative programs, processes and methodologies to support the Principal's engagement with, and support of; local communities, including engagement with local:

- (i) schools;
  - (ii) seniors;
  - (iii) environmental groups;
  - (iv) sporting groups;
  - (v) young people;
  - (vi) businesses; and
  - (vii) other community groups.
- (e) All drafts of Marketing and Promotional Materials must be submitted to the Principal's Representative prior to being publicly released by the Contractor. The Principal's Representative must be given a minimum of 10 Business Days to review and make comment upon the submitted Documents. The Contractor must address all the Principal's comments on the submitted Documents to the satisfaction of the Principal's Representative, prior to being approved. The Principal's Representative's approval of Marketing and Promotional Material is a Hold Point.

## **11.2. Community Signage**

- (a) The Contractor must prepare and install any way-finding signage to direct pedestrians, customers and vehicles around the Site as appropriate.
- (b) When requested, the Contractor must provide the required resources to assist the Principal with the provision and/or installation of any other signage or graphics required by the Principal, to be placed on or over the hoardings or fencing.
- (c) The Contractor must submit plans and details of all signage (other than signage containing safety advice or instruction only), advertising or branding on the external face of any hoarding, fence or structure to the Principal for review. The plans must be approved by the Principal's Representative prior to being used for their intended purpose. The Principal's Representative must be given a minimum of 10 Business Days to review and make comment upon the submitted Documents. The Contractor must address all the Principal's comments on the submitted Documents to the satisfaction of the Principal's Representative, prior to being approved.

## **12. Contractor's Site Structures and Equipment**

### **12.1. Contractor's Hoardings and Fences**

- (a) The Contractor must arrange for the production and installation of any site hoarding and fencing banners including vinyl (on solid hoarding), shade cloth or other material on the external face of any hoarding or fence within 30 days of Site establishment.
- (b) Site hoarding and fencing banners must be replaced every 12 months to ensure they remain clean and appropriate for their intended use.

- (c) All banner artwork print proofs must be submitted to and approved by the Principal's Representative prior to being used by the Contractor in the production of banner artwork. The Principal's Representative must be given a minimum of five Business Days to review the banner artwork print proofs. The Contractor must address all the Principal's comments on the print proofs to the satisfaction of the Principal's Representative, prior to being approved.
- (d) The Principal's Representative's approval of banner artwork print proofs is a Hold Point.
- (e) Installation plans for all hoardings or fencing banners, including shade cloth or other material on the external face of any hoarding or fence, must be submitted to and approved by the Principal's Representative prior to being erected by the Contractor. The Principal's Representative must be given a minimum of 10 Business Days to review and comment on banner installation plans. The Contractor must address the Principal's comments on the submitted Documents to the satisfaction of the Principal's Representative, prior to them being approved.
- (f) The Principal's Representative's approval of banner installation plans is a Hold Point.
- (g) Viewing holes and transparent panels must be provided in the hoardings at various locations, to be determined by the Principal's Representative in consultation with the Contractor.

## **12.2. Graffiti and Bill Posters**

- (a) Hoardings, site sheds, fencing, acoustic walls around the perimeter of the Site and any other structures built as part of the Works and Temporary Works must be maintained free of graffiti and any advertising not authorised by the Principal.
- (b) The Contractor must carry out daily inspections for graffiti and unauthorised advertising and must remove or cover any such graffiti or unauthorised advertising identified within the following timeframes:
  - (i) offensive graffiti must be cleaned or covered within 24 hours;
  - (ii) highly visible yet non-offensive graffiti must be cleaned or covered within one week;
  - (iii) graffiti that is neither offensive nor highly visible must be cleaned or covered during normal operations within one month; and
  - (iv) any advertising material including bill posters must be removed or covered within 24 hours.

## **13. Branding and Logos**

- (a) The Contractor must follow the Sydney Metro Brand Style Guidelines and Transport for NSW Editorial Style Guide for all branding and logos used on any items, including:
  - (i) Marketing and Promotional Material;
  - (ii) site safety signage;

- (iii) hoarding and site fencing;
  - (iv) cranes and their flags;
  - (v) other structures;
  - (vi) vehicles;
  - (vii) plant and equipment; and
  - (viii) clothing, including personal protection equipment.
- (b) All items carrying Sydney Metro branding and logos must be updated each year, unless otherwise agreed by the Principal's Representative.

## 14. Animations

- (a) The Contractor must supply high quality, high definition animations for public use of key sections of the Works, Temporary Works and Contractor's Activities, including ~~those nominated in Annexure B~~ the construction sequencing and the end state of:
- (i) the aqueduct and pump station, including associated Sydenham basin Works
  - (ii) the station and precinct Works
  - (iii) the junction Works.
- (b) The Contractor must engage an animation provider from the Principal's panel of nominated Subcontractors to create the animations contemplated in clause 14 (a).

## 15. Consultation Manager Database

- (a) The Contractor must use the Consultation Manager Database for the collection and recording of details of all contact and correspondence with Stakeholders and the community.
- (b) The Contractor must ensure that all relevant personnel complete formal training and become familiar with the Consultation Manager Database.
- (c) The Contractor must update and maintain the Consultation Manager Database with accurate contact details to ensure easy identification and rapid distribution of information.
- (d) The Contractor must record all details, including publication and distribution details relating to Public Communication Materials in the Consultation Manager Database.
- (e) The Contractor must ensure that the details of all interactions with Stakeholders and the community are recorded in the Consultation Manager Database within 48 hours of the interaction taking place.
- (f) The Contractor must record all contact with the media and elected government representatives, SSJ Project related articles (paper and web based) and online



discussions including blogging into the Consultation Manager Database and send copies of articles or web links to the Principal's Representative.

- (g) All entries made in the Consultation Manager Database must be in accordance with the requirements in the Sydney Metro Overarching Community Communications Strategy ~~SM SC ST 202~~.

## **16. Enquires and Complaints Management**

### **16.1. General**

- (a) The Contractor must ensure suitably qualified and experienced personnel are available to answer any questions, concerns, complaints or enquires in relation to the Contractor's Activities on a 24 hour a day seven day a week basis.
- (b) The Principal has established a Sydney Metro Project 24-hour Telephone Contact Number, postal address and email address to which enquires and complaints will be received. The Contractor must respond to enquiries and manage complaints directed to the Contractor, by the Principal or received directly.

### **16.2. Enquiries**

- (a) In responding to all enquiries the Contractor must:
  - (i) provide at least a verbal response to telephone enquiries within two hours from the time of the enquiry being received, unless the enquirer agrees otherwise;
  - (ii) provide a written response to, emails and online comments within 24 hours of their receipt;
  - (iii) provide a written response to letters within five Business Days of their receipt;
  - (iv) record details of enquiries received in the Consultation Manager Database within 48 hours of being received;
  - (v) report monthly to the Principal's Representative on any enquiries received, and responses given; and
  - (vi) provide responses to any social media platform enquiries forwarded by the Principal during in accordance with clause 10.9 (d).
- (b) In addition, in responding to media or government enquiries the Contractor must also comply with clause 17.

### **16.3. Complaints**

- (a) In responding to Complaints the Contractor must meet the following timeframes:
  - (i) within 24 hours of the complaint being received record details of every complaint received and how it was managed and closed out in the Consultation Manager Database in accordance with Sydney Metro Construction Complaints Management System ~~SM SC PW 303~~;

- (ii) for complaints received by phone: immediately investigate and determine the source of the complaint and within two hours make an initial call to the complainant where a phone number was provided or is available in the Consultation Manager Database, unless the complainant agrees otherwise;
  - (iii) for complaints received by email during Construction Hours: within four hours from receipt, provide a written response or provide a verbal response within two hours if a contact number is available;
  - (iv) for complaints received by email outside Construction Hours provide an immediate automated email response confirming receipt and explaining that a full response will follow, and then within the first four hours of the next Business Day from receipt, provide a written response
  - (v) for complaints received by letters/faxes received within Construction Hours: within 24 hours of receipt provide a written response (or a verbal response within two hours if a contact number is available);
  - (vi) for complaints received by letters/faxes outside of Construction Hours: within 24 hours of the start of next Business Day from receipt, provide a written response (or a verbal response within two hours if a contact number is available);
  - (vii) immediately notify the Principal's Representative if it is considered that the complaint does not relate to the Works, the Temporary Works or the Contractor's Activities;
  - (viii) forward information on any complaints received, including response times and details of any actions undertaken or proposed or investigations occurring, to the Principal's Representative in writing within one Business Day; and
  - (ix) provide feedback to requests for information from the Principal's Representative or the Community Complaints Commissioner in relation to responses to complaints within two hours of the request.
- (b) The Contractor must:
- (i) appropriately escalate complaints in accordance with the Sydney Metro Overarching Community Communications Strategy ~~SM-SC-PW-303~~;
  - (ii) take all actions and implement all practicable measures to prevent the reoccurrence of Stakeholder and community complaints;
  - (iii) develop and implement procedures for managing and resolving all Stakeholder and community complaints that comply with the requirements in AS 4269: 1995 Complaints handling, the Sydney Metro Overarching Community Communications Strategy ~~SM-SC-PW-303~~, and the Sydney Metro Construction Complaints Management System ~~SM-SC-PW-303~~; and
  - (iv) comply with all directions from the Principal's Representative, which may incorporate recommendations from the Community Complaints Commissioner in relation to the resolution of any escalated complaints.

## 17. Media and Government Relations

- (a) The Contractor must advise the Principal's Representative of any contact by the media or government representative within two hours of the contact.
- (b) The Contractor must not provide any statement (verbal or written) or any photographs or illustrations to the media or elected government representatives regarding the Works, Temporary Works, Contractor's Activities or the Project without the prior written approval of Principal's Representative.
- (c) The Contractor must not permit any media or elected government representative on any part of the Site without the prior written approval of Principal's Representative.
- (d) The Contractors Public Affairs Management team member must assist the Principal in the management of media and government relations 24 hours a day, seven days a week, as required and requested by the Principal's Representative.
- (e) The Contractor must provide the Principal's Representative with relevant information required to respond to media and government enquiries, including providing a holding statement within 30 minutes and full responses within two hours of the enquiry or contact being made. During an ongoing event, including during an emergency, Incident or crisis or as required and requested by the Principal's Representative, updates must be provided every hour.
- (f) Notwithstanding other requirements of the Contract, the Contractor must provide the Principal's Representative with at least eight weeks' notice prior to the commencement of the Works and Temporary Works or other Site related activity and eight weeks' notice prior to the anticipated Date of Construction Completion of any Portion. Update notification must be provided at 10 Business Days, and again at five Business Days prior to the anticipated Date of Construction Completion of any Portions.
- (g) The Contractor must provide at least 20 Business Days' notice to the Principal Representative of any significant milestones, to be agreed with the Principal's Representative, to enable the Principal to organise official media events.
- (h) The Contractor must ensure that all of its personnel and all of the Subcontractors' personnel engaged in the Contractor's Activities are aware of and abide by the requirements of this clause 17.

## 18. Crisis Communication Procedures

- (a) The Contractor must develop incident and crisis communications procedures.
- (b) The Contractor must immediately notify the Principal's Representative of any incident that may have an impact on the community, environment, personnel or subcontractors, which may attract the attention of the media, the Minister for Transport, a local Member of Parliament, local council or the broader community.
- (c) The Contractor must not contact or provide information to any person, other than that which is required to directly manage the Incident or to comply with law, without obtaining the prior approval of the Principal's Representative.



- (d) the Contractor must provide suitably qualified and experienced personnel, including the Contractor's Public Affairs Management team member, to support the Principal in responding to Stakeholders, the media or the public as required and requested by the Principal. The Contractor must also provide senior and experienced personnel to attend meetings with Stakeholders, the media or the public as requested by the Principal's Representative.
- (e) The Contractor must provide the Principal's Representative with all necessary communications materials or information that may need to be disseminated as a result of an incident.
- (f) The Contractor must, in the case of an incident that has attracted or can reasonably be expected to attract the attention of the media, the Minister for Transport, a local Member of Parliament, or the broader community, notify the Principal's Representative within 10 minutes of the incident occurring and for any other incidents notify the Principal's Principal Manager Project Communications within one hour of the incident occurring.
- (g) The Contractor must conduct and document formal incident and crisis communications exercises and invite the Principal's Representative to observe and participate.

## **19. Organised Events**

### **19.1. General**

- (a) The Project is expected to attract considerable interest from Stakeholders, the community, educational institutions and the engineering profession which may result in numerous requests to visit the Site. In the event the Principal is required to arrange for visitors to attend the Site, the Contractor must provide the required access with a minimum of two hours' notice of a request from the Principal's Representative.
- (b) The Contractor must accommodate weekly visits to the Site for the Principal's personnel including access for the purpose of photography or videography for promotional and documentary purposes. The Contractor must provide a dedicated safety escort around the Site.
- (c) The Contractor must incorporate into the Temporary Works, access stairs and walkways, which as well as providing access for the Contractor's Activities can also be used by visitors and the public for accessing the Site at the times set out under the Contract.
- (d) Safe public Site access routes must be agreed with the Principal's Representative and must be BCA compliant for temporary access. Where these routes require vertical transportation these elements must provide for the minimum dimensions in accordance with the *Discrimination Disability Act 1992*.

### **19.2. Principal Arranged Events**

- (a) The Contractor must accommodate Principal arranged Events for Media, VIPs and other guests.

- 
- (b) For each Event, the Contractor must provide Site access, site escorts, safety equipment including PPE, site inductions, site transport and Viewing Areas to accommodate all Event participants.
  - (c) An Event will be held prior to the Construction Completion of each Portion, when the construction of the Works associated with that Portion has been largely completed. Providing the support outlined in this MR-C for each Event must be accomplished by the Contractor prior to Construction Completion of each Portion.
  - (d) The location of the Viewing Areas associated with each Portion must provide access to the Works relating to the individual Portions, and in any event must be agreed with the Principal's Representative prior to Event taking place.
  - (e) For each Event, the Contractor must provide support as required by the Principal's Representative to facilitate Principal arranged Events, including:
    - (i) accommodating a Site inspection at least one week prior to the Event;
    - (ii) confirming the PPE requirements which will be provided for Event participants by the Contractor, on Site at least two weeks prior to an Event;
    - (iii) providing Viewing Areas incorporating exclusion zones demarcated by crowd control barriers, for Event participants to view the Works and Temporary Works;
    - (iv) identifying and providing safe access including a pedestrian route to the Viewing Areas;
    - (v) providing a VIP Viewing Area for VIPs and guests able to accommodate at least 30 people, within the Viewing Area;
    - (vi) providing a Media Viewing Area above to accommodate at least 30 people within the Viewing Area; where the VIP Viewing Area and Media Viewing Area are separated so as to avoid interaction between the two groups of Event participants;
    - (vii) providing power outlets as required by the Principal's Representative;
    - (viii) providing access to and supervision of, third party suppliers arranged by the Principal to deliver or install, and remove equipment required for the Events;
    - (ix) supplying and set up of marquees close to the Viewing Areas to provide shade to Event participants;
    - (x) providing lighting as required;
    - (xi) providing on site security to manage the entry and exit of Event participants;
    - (xii) providing a room for VIPs and guests, accommodating at least 30 people for them to change into PPE;

- (xiii) providing a room or covered area with flooring to accommodate at least 30 people, separate to that in clause 19.2 (e)(xii) above for media personnel to change into PPE;
  - (xiv) providing trestle tables and chairs in the rooms to be provided in clauses 19.2 (e) (xii) and (xiii), to be used to assist people with changing into PPE;
  - (xv) providing space and access to power outlets to set up TV and story boards either outside or inside the media PPE room described in 19.2 (e) (xiii);
  - (xvi) providing reserved parking to accommodate at least 30 vehicles for VIPs and guests, media and TfNSW staff;
  - (xvii) providing access to separate male and female toilet facilities for Event participants; and
  - (xviii) ensuring that new or existing Event and promotional site signage (provided by the Principal) is installed, clean, visible and in good condition. Any other banners on Site that are not pre-approved by the Principal must be removed at least a day prior to the Event or promotional opportunity.
- (f) In regards to the requirements for rooms and parking in clauses 19.2 (e) (xii), (xiii) and (xvi), off Site locations in close proximity to Site where the Contractor transfers visitors to Site may be utilised where prior approval by the Principal's Representative has been provided.

### 19.3. Principal Arranged Public Events

- (a) The Contractor must accommodate a minimum of ~~five~~three Public Events per year (unless otherwise agreed based on milestones), arranged by the Principal on the Site, for open day weekends, community and Principal's Education Program tours, each time catering for up to the Maximum Number of Visitors on Site;
- (b) The Contractor must provide access to Site as required by the Principal's Representative to facilitate Public Events including the provision of access for visitors including prams, wheelchairs or people with limited mobility;
- (c) The Contractor must provide Site escorts, safety equipment and viewing areas to accommodate all Public Event participants.
- (d) The Contractor must provide support as required to facilitate Public Events including:
  - (i) accommodating a Site inspection at least one week prior to the Public Event;
  - (ii) providing ~~the number of one separate~~ safe Viewing Areas ~~nominated in Annexure B~~, for visitors to view the Works, Temporary Works and Contractor's Activities ~~in locations nominated in Annexure B and as at a location to be~~ agreed with Principal's Representative;
  - (iii) accommodating up to 30 visitors including visitors with prams and wheelchairs, at each Viewing Area. Viewing Areas must be able to be used

simultaneously and provide shelter for wet weather and be in locations that do not require Site inductions or use of PPE;

- (iv) installing a TV, storyboards, chairs and models in one of the Site Viewing Areas;
  - (v) providing power;
  - (vi) providing access to, and supervising third party suppliers to deliver or install equipment required for the Public Event;
  - (vii) providing access to separate male and female and wheelchair accessible toilet facilities for visitors;
  - (viii) providing on-Site security to manage the entry and exit of visitors;
  - (ix) providing materials to support the Public Event including photographs, machinery, technical experts, guides and other items required and requested by the Principal's Representative;
  - (x) ensuring new or existing Public Event and promotional site signage provided by the Principal is installed, clean, visible and in good condition. Any other banners on site that are not pre-approved by the Principal must be removed at least a day prior to the Public Event;
  - (xi) providing dedicated first aid officers and room or tent in which to administer first aid to visitors; and
  - (xii) if required by the Principal's Representative, providing access to a lunch room with refrigerator and tables and chairs for staff breaks.
- (e) The Contractor must not organise any Site visits by Stakeholders or community members without approval from the Principal's Representative. The Contractor must provide the Principal's Representative with at least 48 hours prior written notice of all proposed visits.

## **20. Site Photography**

### **20.1. Site Photography by the Principal**

The Contractor must provide the following content and personnel for the production of a documentary, to be made by the Principal about the Project. The Contractor must:

- (a) provide interview subjects from its Workforce. All interview subjects, must be pre-approved by the Principal's Representative;
- (b) allow all approved interview subjects to take part in filming and interview activities in the course of their duties, including on equipment; and
- (c) co-ordinate Site activities with the Principal and its documentary producers, including pre-interviews and interviews with approved interviewees.

### **20.2. Site Photography by the Contractor**

The Contractor must supply on demand, captured photographs and recorded footage as requested by the Principal's Representative.



### 20.2.1. General

- (a) The Contractor must prepare a Photography Specification which must reflect the requirements of this MR-C. The Principal's Representative's approval of the Photography Specification is a Hold Point.
- (b) The Contractor's Photography Specification must include the need for professional photography and filming every month at the Site. The photography and filming must capture construction progress and human interest images.
- (c) The Photography Specification must be used by the Contractor to engage video, photography and time lapse providers from the Principal's panel of nominated Subcontractors.
- (d) All photographs must be of a professional quality (minimum 300 dpi) suitable for use by the Principal in publications, Project communications and promotions of a broader nature and for enlargement to use in display materials.
- (e) The Contractor must provide the Principal's Representative with photography and video of the Site that is suitable for uploading to the Principal's Project website to show the status of the Works, the Temporary Works and the Contractor's Activities.
- (f) ~~Photographs and images~~ Images must be provided, as a minimum, on a monthly basis, ~~uploaded to a shared server~~ electronically or as otherwise requested by the Principal's Representative.
- (g) All photographs, images, film and videos taken by the Contractor are the property of the Principal and must be provided when requested. The Principal may, without the Contractor's approval, use the photographs and film footage for whatever purpose the Principal deems necessary or appropriate.
- (h) The Contractor must obtain signed release forms from all employees and contractors who will feature in any form of photography, filming and video. Employees or contractors who do not provide signed release forms cannot be recorded in any photographs, filming or videos which would prevent the Principal from using the material.

### 20.2.2. ~~Monthly~~ Quarterly Footage Package

- (a) The Contractor must supply 30 minutes of professionally filmed and edited footage ~~every month~~ quarterly, to the Principal's Representative.
- (b) The proposed content of the ~~monthly~~ quarterly footage package must be approved by the Principal's Representative, prior to that footage being recorded. The Principal's Representative's approval of the ~~monthly~~ quarterly footage package is a Hold Point.
- (c) Each ~~monthly~~ quarterly footage package must capture construction progress and human interest images

### 20.2.3. Time Lapse Cameras

- (a) In addition to the professionally recorded and edited ~~monthly~~ quarterly footage package, the Contractor must install and produce edited time lapse photography.

- (b) The Contractor must install ~~the number of~~ at least one fixed high definition time lapse cameras ~~nominated in Annexure B~~, to monitor the Site and capture major activity at ~~the locations specified in Annexure B~~;
- (i) the aqueduct and pump station, including associated Sydenham basin Works
  - (ii) the station and precinct Works
  - (iii) the junction Works.
- (c) Should the view from any of the fixed high definition time lapse cameras in clause 20.2.3 (b) become obscured, the Contractor must relocate the camera to a position agreed by the Principal's Representative to continue capturing major activity.
- (d) The Contractor must also provide ~~the number of~~ two portable time lapse cameras ~~nominated in Annexure B~~, to be set up and operated by the Contractor in locations around the Site agreed with the Principal's Representative on a monthly basis. The fixed locations of these portable cameras will not exceed more than two different locations per month.
- (e) The Contractor must consult with the Principal's Representative on the installation and placement of all time lapse cameras. The Principal's Representative will provide final approval on placement.
- (f) The Contractor must:
- (i) provide an online viewing portal for each time lapse camera;
  - (ii) deliver electronically, every ~~month an edited compilation of~~ quarter footage from each camera;
  - (iii) provide on request, ~~edited~~ time lapse footage within 48 hours; and
  - (iv) Prior to Completion of the final Portion to reach Completion, provide all time lapse footage in a single ~~edited~~ high definition file for each camera.

## 21. Site Inductions and Training

- (a) The Contractor must ensure its personnel and Subcontractors' personnel are adequately inducted and trained in all of the Stakeholder and community liaison requirements detailed in this MR-C, Sydney Metro Principal Contractor Health & Safety Standard SM PS ST- 221 and the Sydney Metro Construction Environmental Management Framework SM ES-ST-204, with a particular focus on incident management, incident reporting procedures, community enquiries or complaints, and media and government enquiries prior to commencing any Contractor's Activities.
- (b) Site inductions and training material must be regularly updated to address any actions taken in response to Stakeholder and community complaints and any changes to the Community Communication Strategy - SSJ.
- (c) The Contractor must carry out further inductions and training of any personnel previously inducted and trained to ensure the Stakeholder and community liaison requirements procedures and protocols remain understood and current.

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- (d) All material produced for the purpose of Site inductions by the Contractor must be submitted to and approved by the Principal's Representative prior to it being released for its intended purpose. The Principal's Representative must be given a minimum of 10 Business Days to review and make comment upon the Site induction submitted Documents. The Contractor must address all the Principal's comments on the Site induction Documents to the satisfaction of the Principal's Representative. The approval by the Principal's Representative of Site induction Documents is a Hold Point.

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## Annexure A: Reference Documents

- Sydney Metro Overarching Community Communications Strategy ~~SM-SC-ST-202~~
- Transport for NSW Editorial Style Guide
- Sydney Metro Brand Style Guidelines
- Sydney Metro Construction Complaints Management System ~~SM SC-PW-303~~
- Sydney Metro Principal Contractor Health & Safety Standard SM PS ST- 221
- Sydney Metro Construction Environmental Management Framework SM ES-ST-204
- Transport for NSW Use of Social Media Policy CP13003 (available over internet)
- Web Content Accessibility Guidelines (WCAG 2.0) V2.0 (available over internet)



## ~~Annexure B: Project Specific Requirements~~

The following amendments apply to the clauses listed in the main body of this MR-C.

Section Number	(A) Clause No. to be deleted in full	(B) Clause No. to be amended / replaced	(C) New Clause No. to be added	(D) Clause wording to deleted and/or replaced
2 (j)		2 (j)		<p>(j) Comply with the current version of the Community Communications Strategy</p> <p>Replaced with</p> <p>(j) comply with the current version of the Community Communications Strategy – SSJ</p>
3.1		3.1		<p>The Contractor's team must consist of the people nominated in Annexure B of this MR-C.</p> <p>Replaced with</p> <p>The Contractor must provide a team consisting of a Stakeholder and Community Liaison Management Lead, supported by at least three team members, that must contain personnel that adequately cover the following competencies, qualifications and experience relating to planning and delivery of major infrastructure projects similar to the Sydney Metro City &amp; Southwest Project:</p> <p>(a) Stakeholder and Community Liaison Management:</p> <p>(i) recognised and appropriate Stakeholder and Community Liaison qualifications; and / or active industry experience; and</p> <p>(ii) at least ten years' experience in Stakeholder and Community Liaison management.</p> <p>(b) Public Affairs Management:</p> <p>(i) recognised and appropriate public affairs</p>

				<p>qualifications or-</p> <ul style="list-style-type: none"> <li>(ii) active industry experience including at least ten years' experience in public-affairs management (with a background in journalism or public relations;-</li> <li>(iii) have access to the Contractor's managers and on site information; and</li> <li>(iv) be authorised to prepare and issue media and other urgent Copy to the Principal's Representative on a 24 hour seven day a week basis, as outlined in this MR-C, for media releases, holding statements and responses, government enquiries, award submissions, social media, websites, newspapers etc.</li> </ul> <p>(c) Place Management:-</p> <ul style="list-style-type: none"> <li>(i) recognised and appropriate qualifications and/or experience; and</li> <li>(ii) at least five years' relevant community-liaison experience.-</li> </ul> <p>(d) Business Relationship Management:</p> <ul style="list-style-type: none"> <li>(i) recognised and appropriate qualifications and/or experience; and</li> <li>(ii) at least ten years' relevant business-relations management experience including the management of relationships with business, industry or senior Stakeholders.</li> </ul> <p>(e) Graphic Design Services:-</p> <ul style="list-style-type: none"> <li>(i) recognised and appropriate graphic-design qualifications;</li> <li>(ii) at least five years' relevant graphic-design experience;</li> <li>(iii) experience in Adobe Illustrator; and</li> <li>(iv) the ability to manage the preparation of all graphic design elements required of the team and outlined in this MR-C.</li> </ul> <p>(f) Events and Public Affairs Services:-</p> <p>at least five years' relevant experience in assisting-client organisations with the organisation,-</p>
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				<p>coordination and implementation of access to major construction sites for a range of activities including but not limited to media, promotional and milestone ceremony events, photography and filming requirements.</p>
10.8.2 (iv)		10.8.2 (iv)		<p>Each version of the Community Communications Strategy</p> <p>Replaced with</p> <p>Each version of the Community Communications Strategy—SSJ</p>
14 (a)		14(a)		<p>The Contractor must supply high quality, high-definition animations for public use of key sections of the Works, Temporary Works and Contractor's Activities, including those nominated in Annexure B.</p> <p>Replaced with</p> <p>The Contractor must supply high quality, high-definition animations for public use of key sections of the Works, Temporary Works and Contractor's Activities, including the construction sequencing and the end state of:</p> <ul style="list-style-type: none"> <li>(i) the aqueduct and pump station, including associated Sydenham basin Works</li> <li>(ii) the station and precinct Works</li> <li>(iii) the junction Works</li> </ul>
19.3 (d) (ii)		19.3 (d) (ii)		<p>providing the number of safe Viewing Areas nominated in Annexure B, for visitors to view the Works, Temporary Works and Contractor's Activities in locations nominated in Annexure B, as agreed with Principal's Representative;</p> <p>Replaced with</p> <p>providing three separate, safe Viewing Areas for visitors to view the Works, Temporary Works and Contractor's Activities in the following locations, as agreed with Principal's Representative;</p>



				<ul style="list-style-type: none"> <li>(i) <del>The aqueduct and pump station, including associated Sydenham basin Works</del></li> <li>(ii) <del>the station and precinct Works</del></li> <li>(iii) <del>the junction Works</del></li> </ul>
20.2.3 (b)		20.2.3 (b)		<p><del>The Contractor must install the number of fixed high definition time lapse cameras nominated in Annexure B, to monitor the Site and capture major activity at the locations specified in Annexure B.</del></p> <p>Replaced with</p> <p><del>The Contractor must install at least three fixed high definition time lapse cameras to monitor the Site and capture major activity at:</del></p> <ul style="list-style-type: none"> <li>(i) <del>The aqueduct and pump station, including associated Sydenham basin Works</del></li> <li>(ii) <del>the station and precinct Works</del></li> <li>(iii) <del>the junction Works.</del></li> </ul>
20.2.3 (d)		20.2.3 (d)		<p><del>The Contractor must also provide the number of portable time lapse cameras nominated in Annexure B, to be set up and operated by the Contractor in locations around the Site agreed with the Principal's Representative on a monthly basis. The fixed locations of these portable cameras will not exceed more than two different locations per month.</del></p> <p>Replaced with</p> <p><del>The Contractor must also provide two portable time lapse cameras, to be set up and operated by the Contractor in locations around the Site agreed with the Principal's Representative on a monthly basis. The fixed locations of these portable cameras will not exceed more than two different locations per month.</del></p>
21 (b)		21 (b)		Site inductions and training material must be

				<p><del>regularly updated to address any actions taken in response to Stakeholder and community complaints and any changes to the Community Communication Strategy.</del>  Replaced with</p> <p>Site inductions and training material must be regularly updated to address any actions taken in response to Stakeholder and community complaints and any changes to the Community Communication Strategy – SSJ.</p>
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Transport  
for NSW

# Management Requirements – Project Administration – Sydenham Station and Junction Works Contract (MR-PA)

DOCUMENT NUMBER: SM-17-00015434

Date of issue:

~~14 September 2017~~ 8 May 2018

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## Table of Contents

1.	Introduction	3
2.	Management Plans	3
3.	Management Plan Content	4
4.	Risk Management	27
5.	Contractor's Program	28
6.	Document Management	29
7.	Monthly Reporting	30
8.	Quality	32
9.	Audits and Surveillance	33
10.	Property Management	34
11.	Working In and Adjacent to the Rail Corridor and Rail Environment	39
12.	Commissioning and Operational Readiness	46
13.	Asset Handover	48
Annexure A:	List of Reference Documents	49
Annexure B:	Property Compliance Checklist	50
Annexure C:	Stages of Commissioning & Operational Readiness	53
Annexure D:	Project Specific Requirements	58



## 1. Introduction

### 1.1. Purpose

- (a) This Management Requirements – Project Administration (MR-PA) describes requirements and processes for the management and administration of the SSJ Project.
- (b) This MR-PA must be read in conjunction with other parts of the Contract.
- (c) The Contractor must comply with the requirements of this MR-PA, including the Reference Documents in Annexure A.

### 1.2. Definitions

Refer to MR-Prelude and the General Conditions for a definition of terms used in this MR-PA.

### 1.3. General Requirements

- (a) Where noted in Annexure D – Project Specific Requirements, the Contractor must comply with the requirements of this MR-PA, as amended by Annexure D.

## 2. Management Plans

### 2.1. General Requirements

The Contractor must have in place, maintain and consistently apply until Completion of the final portion to reach Completion, the Management Plans and associated Sub Plans nominated in the Contract and as referenced in Table 1 Annexure D. The Contract Management Plan (CMP) will act as a single framework document for the Management Plans such that it contains within it a series of Sub Plans. The Contractor's Activities must be in accordance with the CMP and its associated Management Plans. Each Management Plan must address the items below as well as any specific requirements described in the Contract, including the Reference Documents and MRs.

- (a) **Objectives:** The objectives that the Management Plan seeks to address and the processes that will be used by the Contractor to verify whether the Contractor's Activities and the Works are achieving those objectives. The nominated objectives must be based on the objectives listed in the Contract including the SWTC and its Appendices.
- (b) **Requirements:** The requirements, procedures and processes for the management and implementation of the relevant Management Plan and how those will be delivered, including addressing the requirements of the Contract, Authority Approvals, Laws, Codes and Standards, programs, agreements and proposed agreements, drawings and reports.
- (c) **Policies, procedures and processes:** Policies, procedures and processes for the management and implementation of the relevant Management Plan.
- (d) **Roles and responsibilities:** The allocation of personnel roles, responsibilities and delegation of authority, including the division within and between the Contractor and Subcontractors.

- (e) **Deliverables:** The various relevant Contract deliverables, including all Documents, reports and certificates and the outputs of the management process and procedures are to be detailed. The Management Plan must demonstrate how the requirements will be achieved.
- (f) **Documents/references:** Selected documents that are of ongoing importance for reference or monitoring, such as the development consent conditions. Where such documents are to be updated or are not immediately available, this should be noted in the Management Plan.
- (g) **Records:** A description of how the records of compliance, decisions and assumptions will be maintained.
- (h) **Timing:** An identification and integration of the timing for key milestones and targets.
- (i) **Assurance auditing:** Procedures for surveillance, self-checking and audit by the Contractor to confirm compliance of the Contractor's Activities with the requirements of the Management Plan and the Contract, and the effectiveness of the Contractor's management systems.

## 2.2. Relationship with Planning Approvals

To the extent that a Management Plan must be produced by the Contractor, under a Planning Approval, that Management Plan must be submitted in accordance with that Planning Approval. Where this MR-PA (or one of the Reference Documents) requires the same Management Plan to be produced, the Principal's Representative may, where requested by the Contractor, agree that a single, combined Management Plan be provided by the Contractor which is compliant with all of the relevant Contract requirements.

## 2.3. Submission

The timing for the submission of the Management Plans to the Principal's Representative for review in accordance with the requirements of the Contract is nominated in Annexure D of this MR-PA. All Management Plans must be submitted by the date nominated in Annexure D.

## 2.4. Updating Management Plans

The Management Plans must be progressively reviewed, monitored, amended and updated. The Contractor's reviews of the Management Plans must regularly reassess their applicability, suitability and effectiveness for managing the Contractor's Activities. As a minimum, the Management Plans must be updated every 6 months. Each update of the Management Plans must be submitted to the Principal's Representative for review, in accordance with the Contract.

# 3. Management Plan Content

## 3.1. Contract Management Plan

- (a) The CMP is the Contractor's overarching project Management Plan that describes all other Management Plans including any Sub Plans and management systems that the Contractor is required to develop under the Contract. The CMP must provide a framework to bring together all the management requirements for the Contractor's Activities into one coordinated and integrated management system.
- (b) The CMP must inform and direct personnel and others engaged by the Contractor about the specific work practices, resources, sequence of activities, controls and

checks that are to be implemented during the performance of the Contractor's Activities.

- (c) The CMP must:
- (i) explain in a systematic, coordinated and integrated structure the management method for performing the Contractor's Activities;
  - (ii) define responsibilities, resources and processes for planning and performing the Contractor's Activities;
  - (iii) define responsibilities, resources and processes for verifying that the Contractor's Activities meet the requirements of the Contract;
  - (iv) cover all the specific management systems, Management Plans and Documents required for the performance of the Contractor's Activities and to meet the requirements of the Contract;
  - (v) cross reference each Management Plan required to be developed by the Contractor, through the use of a matrix or equivalent, listing its compliance with the relevant Contract requirements;
  - (vi) identify the responsible person for developing and updating the CMP and any other Management Plan;
  - (vii) describe how the Contractor will interface with the Principal's Representative to enable specific knowledge and experience of the Principal to be utilised in the development of the Management Plans;
  - (viii) describe how the Contractor will comply with all Laws, Codes and Standards and requirements, applicable to the Contractor's Activities;
  - (ix) document the interface between the Management Plans and the Contractor's corporate systems as applicable under the Contract; and
  - (x) explain the alignment of the operating processes of the Contractor, Subcontractors and the Principal's Representative; and
  - (xi) incorporate a surveillance schedule in accordance with clause 9.1 of this MR-PA as well as an audit schedule and procedures for proactively managing auditing requirements consistent with the TfNSW Audit and Compliance Standard SM QM-ST-202 and clause 9 of this MR-PA.

### 3.2. **Construction and Site Management Plan**

The Construction and Site Management Plan must describe the procedures and processes that the Contractor will undertake to plan and execute the Works, and must:

- (a) detail how the Contractor will comply with its obligations under the Contract in relation to the control, establishment, security, use and rehabilitation of the Site including the arrangements to provide access to, within and through the Site for the Principal, Interface Contractors, Other Contractors, Operator, Existing Operators and any other person nominated by the Principal's Representative;
- (b) determine effective construction staging that will ensure that Station and rail operations and the associated transport facilities' operational requirements are maintained and impact to these operations is minimised and managed accordingly during construction of the Works and Temporary Works;
- (c) describe the processes to ensure the compatibility of any necessary Temporary Works with each other and with the Works;

- (d) where the Works includes tunnelling, detail specific measures in relation to construction practices to maintain safety during tunnelling works in accordance with requirements of WHS Legislation, Codes of Practice and Australian Standards and the tunnelling section of the Sydney Metro Principal Contractor Health & Safety Standard SM PS ST-221;
- (e) describe procedures to ensure the prompt identification and recording of Defects, and for the rectification of those Defects and the verification of the results;
- (f) describe procedures for the Contractor's mobilisation and demobilisation to carry out the Contractor's Activities, including mobilisation and demobilisation of personnel, Construction Plant and equipment;
- (g) address the Contractor's processes and procedures for the management of quality in accordance with the requirements of clause 8 of this MR-PA;
- (h) address the Contractor's management of time-related facets of the Contractor's Activities, including the production and update of the Contractor's Program;
- (i) refer to any associated Management Plans and Sub Plans required under the Contract;
- (j) address the management of interfaces with all Authorities, Interface Contractors, Other Contractors, Operator, Existing Operators, and other Stakeholders including:
  - (i) communication channels, processes for ensuring efficient information flow, communication protocols and meeting schedules;
  - (ii) sequencing and timing of activities with the interfaces, including special programs;
  - (iii) programming of works and communications to be conducted in conjunction with operations by others such as, for example, Track Possessions, Temporary Shutdowns, Non Track Possessions, Temporary Shutdowns or Milestones;
  - (iv) roles and responsibilities of personnel and organisations for key aspects of the interface;
  - (v) technical and program requirements;
  - (vi) work implications and applicable construction methodologies;
  - (vii) review of work methods, processes and impacts on operations and services (for example timetables, etc.);
  - (viii) outline an incident reporting procedure and crisis management procedures with reference to the Contract, including MR-S, MR-E and MR-C unless otherwise contained within another separate Sub Plan; and
- (k) describe the interface with other relevant Management Plans.

### 3.3. Demolition Management Plan

Where the Works involve Demolition, the Contractor must have a Demolition Management Plan, which must:

- (a) describe the procedures and processes that the Contractor will undertake to plan and execute the Contractor's Activities;
- (b) reflect the requirements of the SWTC;



- (c) detail what monitoring requirements are to be implemented, if any, prior to the demolition works commencing;
- (d) detail, if required, what engineering analysis will be implemented to predict the effects of the proposed demolition works;
- (e) detail how the Contractor will comply with its obligations under the Contract in relation to the control, establishment, security, use and rehabilitation of the Site including the arrangements to provide access to, within and through the Site for the Principal, Other Contractors and any other person nominated by the Principal;
- (f) describe procedures for the preparation and implementation of plans and Safe Work Method Statements before the start of related demolition work;
- (g) describe procedures for the management of Subcontractors and their plans and Safe Work Method Statements;
- (h) describe the processes for the preparation and certification of designs for Temporary Works and demolition methodology;
- (i) describe the processes during the demolition process to ensure the Temporary Works are constructed according to their design;
- (j) describe procedures to ensure the prompt identification and recording of Defects, including process for the rectification of those Defects;
- (k) include structured and verifiable processes for monitoring and ensuring compliance of the Contractor's Activities with the requirements of the Contract, as well as include structured and verifiable processes for the rectification of any non-conformances;
- (l) describe procedures for the Contractor's mobilisation and demobilisation to carry out the Contractor's Activities, including mobilisation and demobilisation of personnel, Construction Plant and equipment and closeout of Stakeholder communications;
- (m) address the Contractor's management of time related facets of the Contractor's Activities, including the production, subsequent and monthly updates of the Contractor's Program;
- (n) address the Contractor's processes and procedures for the management of Stakeholder and community liaison requirements in accordance with MR-C;
- (o) address the requirements of AS 2601 Demolition of Structures and the Demolition Code of Practice;
- (p) describe the Contractor's Quality Management System including the preparation of inspection and test plans (ITPs) and the method for the release of Hold Points;
- (q) address the management of interfaces with all Authorities and Other Contractors including:
  - (i) communication channels, processes for ensuring efficient information flow, communication protocols and meeting schedules;
  - (ii) sequencing and timing of activities with the interfaces, including special programs; and
  - (iii) roles and responsibilities of personnel and organisations for key aspects of the interface.
- (r) outline incident reporting and crisis management procedures with reference to the Contract, including the MRs;

- (s) include in its appendices, each demolition methodology and the requirement to submit each demolition methodology to the Principal's Representative for review in accordance with the Contract. In addition, each demolition methodology must include the following:
- (i) drawings showing the site establishment including the location of hoardings, scaffolding, entry to and egress from the Site, traffic controls, vehicle movements and major equipment;
  - (ii) drawings showing the staging of the demolition from site establishment through to Construction Completion of the final portion to reach Construction Completion, including works adjacent to adjoining properties;
  - (iii) each demolition methodology to be deployed including equipment to be deployed and sequence of removal of demolished materials;
  - (iv) scope and methodology for the removal and/or diversion of utilities;
  - (v) methodology for treatment of contamination;
  - (vi) proposed hours of work;
  - (vii) local barriers to shield high noise impacts;
  - (viii) all monitoring as required by the Contract;
  - (ix) details of unrestricted demolition licence and SafeWork NSW approved unrestricted demolition supervisors for each Site;
  - (x) practices to maintain safety during demolition in accordance with requirements of WHS Legislation;
  - (xi) measures to mitigate noise and vibration impacts to adjacent and surrounding properties in compliance with the Contract;
  - (xii) measures to mitigate dust and other environmental impacts in accordance with the Contract;
  - (xiii) input from and certification by a Structural Engineer or other such persons appointed in a similar certification or independent role; and
- (t) describe the interface with other relevant Management Plans.

### 3.4. **Interface Management Plan**

The Contractor must have an Interface Management Plan (IMP) to describe its responsibility in undertaking co-ordination with Other Contractors, Interface Contractors and all interfacing parties to ensure the design construction, testing and Commissioning of the Works are fully integrated. The IMP must:

- (a) nominate an interface representative to provide a single point of contact for all interfaces and interface management issues relating to design development;
- (b) describe the procedures in place to effectively manage the interfaces during delivery of the Works;
- (c) describe the processes to be implemented to permit access by Interface Contractors to work sites;
- (d) outline what temporary measures will be introduced to minimise damage to completed works;
- (e) describe the arrangements for interface management meetings and recording of the meeting minutes;

- (f) demonstrate compliance with the development of the design in accordance with MR-T;
- (g) reflect the requirements and processes to be implemented in relation to the management of the design interface as contemplated by MR-T;
- (h) demonstrate compliance with Rail Safety National Law, MR-S and the Sydney Metro Principal Contractor Health & Safety Standard SM PS ST-221 in relation to safety interface management;
- (i) list the interface parties the Contractor will consult with;
- (j) provide a schedule which defines the various interfaces, demarcation, the scope of the Works relevant to that interface, the parties and their roles and key milestones;
- (k) describe the processes to be used to consult with the various Stakeholders at each interface during the Design Stages, construction, testing and Commissioning, Operational Readiness and Asset Handover for both Milestones and Portions;
- (l) include a schedule describing the information, and its required date from Other Contractors, Interface Contractors, Existing Operators, the Operator and all other interfacing parties nominated by the Principal's Representative;
- (m) include the requirements of clause 12.2 of the table in Annexure B, MR-S;
- (u) describe the interface with other Management Plans; and
- (n) include as a sub plan, an Interface Testing and Commissioning Management Plan which describes the management of activities during the construction and proving phase of delivery to ensure that the Works will correctly interface with the Interface Works. The sub plan must include the following:
  - (i) the strategy for testing and commissioning interfaces, with tests between two interfacing parts of the Works and Interface Works being carried out to validate the functionality of the functions between the two interfacing systems. These will cover all interface functions specified in the IRS.
  - (ii) the roles and responsibilities of the Contractor and other Stakeholders involved in the testing and commissioning process;
  - (iii) a schedule, to be updated as required to ensure it is current, which describes the responsibility of the Contractor and Others as either "leading", or "supporting" in relation to testing and commissioning for each of the separate systems to be tested;
  - (iv) details of the individual interface tests specified in the ITS and DITP (referenced in MR-T) that will be carried out prior to the systems integration tests, including off-site, factory tests between two interfacing systems at system protocol and communication level before the respective system design is finalised and developed;
  - (v) details of the interface functions involving software development that will be verified with an Off-site Software Proving Platform (SPP), detailing the acceptance criteria of the functional and performance tests which must be agreed with the interfacing parties, prior to the testing.
  - (vi) details of any interface testing meetings that the Contractor has been requested to attend. The Contractor must attend all meetings whenever requested by the Principal's Representative.

- (vii) A section relating only to the testing and commissioning of the Metro Station Works, reflecting Clause 12 and Annexure C of this MR-PA which includes the following subsections and content:
- A. a schedule of tests of each system and individual component;
  - B. a schedule of commissioning activities of each piece of equipment and system in that component of the Works, reflecting the relevant stages outlined in Annexure C;
  - C. a detailed programme which includes information of testing and commissioning activities, their sequence, start and completion dates, testing and commissioning duration and float time;
  - D. testing and commissioning procedures;
  - E. step-by-step testing details;
  - F. check list, test forms, method statements, set up details, test equipment and instruments with calibration certificates and details;
  - G. step-by-step commissioning procedures and the system parameters, settings, time delays to be set for normal operation;
  - H. the scope, objectives, methodology, pre-requisites, strategy, sequencing and acceptance criteria of all testing and commissioning works;
  - I. design data and acceptance criteria;
  - J. Codes and Standards to be followed;
  - K. Details of the certification and approvals to be provided; and
  - L. details of the inclusion of data sheets which must be provided for all test equipment to be used indicating the manufacturers' name, model number and serial number, the last date of calibration, the date of next calibration, correction factors and the base standards to which it is manufactured.

### 3.5. **Workplace Relations Management Plan**

A Workplace Relations Management Plan is required to be provided and implemented by the Contractor pursuant to the NSW Implementation Guidelines to the New South Wales Code of Practice for Procurement: Building and Construction [http://www.industrialrelations.nsw.gov.au/biz\\_res/oirwww/pdfs/WRMP.pdf](http://www.industrialrelations.nsw.gov.au/biz_res/oirwww/pdfs/WRMP.pdf)

### 3.6. **Risk Management Plan**

A Risk Management Plan is required to detail the Contractor's approach and management of risk. The Risk Management Plan must include:

- (a) an outline of the framework and approach for developing, utilising, and maintaining a risk register capable of supporting effective risk management and reporting risk information;
- (b) the management of risks applicable to the undertaking all of the Contractor's Activities;
- (c) details of the Contractor's approach to risk management, its risk framework, processes and internal controls to manage risks in accordance with ISO 31000 -



Risk Management Guidelines and Principles and the Sydney Metro Risk Management Standard SM RM-ST-201;

- (d) processes and procedures for the systematic identification, assessment, treatment and management of hazards and risks;
- (e) details on how the Contractor will embed risk management through the Supply Chain and into the various functions, procedures and activities necessary to achieve optimal risk management outcomes;
- (f) details on how the Contractor's decision making processes and risk management systems are aligned;
- (g) details of the Contractor's organisational structure that identifies risk management roles, responsibilities, and accountabilities, and the expertise and training required to perform such roles;
- (h) the consultation processes employed by the Contractor in relation to identified risks and the personnel involved in the consultation process;
- (i) the means to identify and quantify risk situations as they emerge and to initiate corrective action immediately, regardless of the timing relative to planned risk management process reviews;
- (j) details of key SSJ Project timeframes and milestones where the Contractor will undertake risk workshops and meetings, including joint risk workshops with the Principal, to identify and, or review risks that update the Contractor's risk register;
- (k) the process that assigns, to an individual in the Contractor's management team, ownership of:
  - (i) each risk (including threat and opportunity events);
  - (ii) each control measure to manage threats and opportunities; and
  - (iii) each task (being a planned action and associated milestone to improve or enable effective controls).
- (l) details on the timing and scope of the Contractor's internal and external risk review processes, compliance, and audit related activities, including methods used to ensure that risk control measures and tasks are on schedule and effective;
- (m) risk criteria and a risk matrix that are appropriate for the Contractor's Activities;
- (n) details of how a risk register will be used as a tool to manage risks related to the delivery of the Contractor's Activities, and a template of the Contractor's proposed risk register;
- (o) details of internal and external reporting of risks and risk management;
- (p) a process and methodology for the management of any risks that are identified by the Principal, and for the inclusion of any such risks in the Contractor's risk register, as well as details of any specific measures the Contractor will adopt to minimise risks to the Stakeholders;
- (q) details on how the Risk Management Plan will be implemented;
- (r) details how the risks identified under the Risk Management Plan and its processes are integrated and managed with the other Management Plans;
- (s) performance criteria for the Risk Management Plan and processes to report on their results in the Contractor's Monthly Report, described in clause 7 of this MR-PA;

- (t) processes and procedures to show how the requirements of clause 4 of this MR-PA will be implemented; and
- (u) a description of the interfaces with other Management Plans.

### 3.7. **Quality Plan**

- (a) A Quality Plan is required to detail the Contractor's approach and management quality assurance and control.
- (b) The Quality Plan must be a contract-specific Management Plan which defines the procedures and other management controls which will be utilised to ensure compliance with the Contract.
- (c) The Contract must reflect the Contractors "AS/NZS ISO 9001" certified quality management system.

### 3.8. **Operations Configuration Change Management Plan**

- (a) During the Works, the operation of the Station will be impacted by the Contractor's Activities, which must be managed to ensure that any Operational Change does not interfere or negatively impact the continuous, uninterrupted station operations.
- (b) The Contractor must establish and lead an Operations Change Management Working Group (OCMWG) consisting of the Contractor, Principal, Existing Operators, Other Contractors and other Stakeholders, including local business owners, council and property owners, as agreed with the Principal's Representative. The OCMWG will be the forum for the Contractor to coordinate activities with Stakeholders across multiple interfaces in regards to Operational Changes.
- (c) The Contractor must coordinate the activities of the OCMWG, to ensure the continuous, uninterrupted operation of the Station and related rail network facilities, during each Operational Change whilst the Works and Contractors Activities proceed.
- (d) The Contractor must attend and interface with the Sydney Trains SPOIAG meetings as further defined in the SWTC.
- (e) The Contractor must develop and implement an Operations Configuration Change Management Plan (OCCMP) that includes the processes to ensure that adequate planning occurs prior to any Operational Change and that sufficient consultation, coordination, and resources are available for the required implementation of the OCCMP.
- (f) The OCCMP must include:
  - (i) a schedule (which must be updated as required) which shows occasions when it is anticipated that Operational Changes will occur, including details of the scope and key dates;
  - (ii) the processes and documents to be developed to plan and consult with necessary parties on the Operational Changes, including:
    - A. Sydney Trains;
    - B. NSW Trains;
    - C. NSW Police;
    - D. Federal Police;
    - E. NSW Fire Brigade; and

- F. Business owners.
- (iii) Reference to SWTC's requirements for "Pedestrian management during construction";
  - (iv) the steps, and timescales involved to manage Operational Changes, from the trigger point, through planning and consultation to implementation;
  - (v) a clear description of the trigger points in the Contractor's Activities, which will be used as the commencement of the planning and implementation processes;
  - (vi) the process for documenting, review and approval of both the OCCMP as well as the Documents required to be produced for each Operational Change;
  - (vii) the communications requirements, referencing the Community Communications Strategy in clause 3.9;
  - (viii) the requirements for operational staff training;
  - (ix) continued compliance with the requirements of the Environmental Documents, and all other approvals required under Law and the Contract;
  - (x) a pre-operational checklist, listing the activities and responsible party within the OCMWG which must occur prior to implementing any Operational Changes;
  - (xi) emergency response procedures and evacuation plans;
  - (xii) a Customer Management Sub-plan which describes the management of public movements and how they will be accommodated during the various stages of the Contractor's Activities. The Customer Management Sub-plan must include the following items or process and procedures detailing how and when these items will be addressed in the delivery of the Works:
    - A. procedures and processes detailing how the uninterrupted continuous operation of the Station, including transport services and the movement of customers, through the Station and its environs will be effectively managed throughout the duration of the Contract;
    - B. staging drawings showing, as a minimum, the layout of public areas, including facilities provided for operational staff and patrons and systems drawings at each stage of the Contractor's Activities;
    - C. drawings showing the proposed arrangement of the customer facilities clearly showing the position of hoardings, safe access and provisions for interchange. Clearances and free area of platforms and the like must be clearly documented. Fruin Level of Service diagrams must accompany the drawings and must indicate the level of service for the proposed arrangement;
    - D. drawings showing proposed arrangement of signage covering existing signage and new temporary signage. Details must include location, size and wording of temporary and permanent way finding signage and proposed modification to any existing signage;
    - E. drawings showing proposed arrangement of customer information panels including temporary relocations and modifications;
    - F. a program clearly indicating when existing configurations will be changed and proposed period of change;
    - G. controlled Site access points;
    - H. details of emergency egress arrangements;

- I. delineation lines and material to be used for delineation;
  - J. access point(s) from public modes of transport and general ingress and egress points;
  - K. identification of accommodation of level changes via ramps, stairs, and other means;
  - L. details of how the Contractor will comply with the requirements to install signage and delineation to clearly communicate to the public and others routes to safely and easily navigate around or through the Site; details of arrangements for the accommodation of public during the Principal Arranged Events, and Public Events described in MR-C;
    - i. details of the consultation that has been carried out with Sydney Trains and other Stakeholders nominated by the Principal's Representative during the development of this Management Plan, including the requirement to demonstrate that all Stakeholders comments have been addressed;
    - ii. references to, and be consistent with the Principal Contractor's Handover Process SMPS-PW-318 document; and
- (g) describe the interface with other Management Plans.

### 3.9. **Community Communications Strategy**

The Contractor must have Community Communications Strategy (CCS), which must reflect the requirements of MR-C and:

- (a) include policies, processes and procedures for Stakeholder and community relations and proactive communications management;
- (b) fulfil the requirements of any conditions of the Environmental Documents;
- (c) be reviewed every six months and undertake the ongoing development, amendment and updating of the CCS throughout the duration of the Contractor's Activities including to take into account:
  - (i) changes in the design and construction program;
  - (ii) changes in Stakeholder and community needs; and
  - (iii) changes in the Contractor's Activities and Stakeholder and community information requirements.
- (d) include a Business Management Sub Plan to ensure the impacts on businesses affected by the Contractor's Activities are minimised;
- (e) identify how the Contractor will comply with the Stakeholder and community relation requirements of the Contract;
- (f) address and detail the Stakeholder and community liaison management team structure, including key personnel, authority and roles of key personnel, lines of responsibility and communication, minimum skill levels of each role and interfaces with the Contractor's overall SSJ Project organisation structure;
- (g) detail strategies for the management of community liaison issues, dealing with all Stakeholders and mitigating impacts;
- (h) include specific key messages that will be used in Public Communications Materials and when responding to enquiries and complaints;

- (i) provide details of the development and implementation of communication and consultation tools, including community-based forums;
- (j) detail processes and procedures, for:
  - (i) the management of the interface between the Contractor and the Principal's Representative;
  - (ii) reporting;
  - (iii) developing Public Communication Materials;
  - (iv) community and Stakeholder consultation and timeframes for undertaking this consultation;
  - (v) handling complaints and enquiries;
  - (vi) handling of media and government enquiries;
  - (vii) incident and crisis communication management and reporting;
  - (viii) monitoring and evaluation; and
  - (ix) ensuring Subcontractors comply with the communications requirements of the Contract.
- (k) include Stakeholder and community liaison site induction information to be provided to Staff and Subcontractors;
- (l) include analysis of other major projects and influences around the Site with the potential to result in cumulative impacts to the community and strategies for managing these combined impacts;
- (m) include a comprehensive list of community liaison issues relating to the Works, the Temporary Works and the Contractor's Activities and a comprehensive list of Stakeholders and Stakeholder issues and interests;
- (n) include a detailed Project Milestone and Events Plan, as a Sub Plan including details on how the Principal's requirements for Events and Principal Events will be accommodated including, but not limited to those various events outlined in MR-C. This Sub Plan must provide details of how VIP's, media, photographers, and other Stakeholders and the public will be accommodated to ensure their safety, whilst providing the required access to view the Works and Contractor's Activities. The Sub Plan must comply with the minimum requirements of MR-C or outline alternative approaches to achieving the specified outcomes which must be approved by the Principal's Representative prior to any such events taking place;
- (o) include a program for the implementation of community liaison activities, including a framework for the development of milestone implementation plans. This program must include key dates for the commencement and conclusion of construction activities, associated impacts to the community and the Contractor's proposed strategy for minimising impacts and informing the community;
- (p) identify innovative programs, processes and methodologies for the Contractor to support the Principal's engagement with and support to local communities, including engagement with schools, seniors, environmental groups, sporting groups, young people, businesses and other community groups; and
- (q) describe the interface with other Management Plans.



### 3.10. **Procurement Plan**

The Contractor must have a Procurement Plan that describes how the Contractor will manage the procurement and tendering for the engagement of Subcontractors and an assessment for self-performance to deliver the Works. The Procurement Plan must:

- (a) set the Contractor's procurement objectives and targets, addressing:
  - (i) value for money, considering the benefits achieved compared to whole-of-life costs;
  - (ii) efficiency and effectiveness;
  - (iii) probity and equity; and
  - (iv) effective competition.
- (b) document the Contractor's procurement strategy, including procedures and processes that address:
  - (i) related parties;
  - (ii) packaging of works elements;
  - (iii) applicable contracting and commercial strategies (e.g. construct only, design and construct, lump sum, schedule of rates);
  - (iv) select tender lists, single action tenders and direct negotiations;
  - (v) buy or lease decision making based on business case benefit cost analysis;
  - (vi) use of contractor performance reviews and other performance information;
  - (vii) transparency;
  - (viii) how the Contractor will ensure that Subcontracts entered into are accurately reported and monitored and do not incur expenditure above the authorised limits;
  - (ix) re-testing the market where variations submitted are substantial increases to the original budget;
  - (x) not contracting with a Prohibited Subcontractor; and
  - (xi) the practicality of forming panel(s) of pre-qualified service providers for specialised or critical activities.
- (c) include delegations for procurement strategy, release of tender invitation documentation and award of contracts;
- (d) include an asset policy detailing how the Contractor intends to manage purchases and leases, track and dispose of assets;
- (e) detail the procurement and tendering procedures, processes, constraints and tools including those regarding:
  - (i) identification of procurement packages;
  - (ii) establishment and approval of Subcontracts;
  - (iii) selection of suitable tender methods and processes that suit the procurement and its level of risk, in particular ensuring sufficient tender assessment review

- of high value and/or high risk tenders by a tender review panel arrangement or similar;
- (iv) selection of a suitable tender methods and processes that suit timing and avoids unnecessary costs for tenderers; and safeguards the security and confidentiality of all tenders;
  - (v) compliance with the NSW Government Code of Practice for Procurement;
  - (vi) a requirement that any proposed transaction with a related body corporate will be on market tested and on commercially reasonable arm's length terms and only negotiated and entered into with the prior agreement with the Principal's Representative;
  - (vii) preparation of Subcontractor tender documents, including:
    - A. conditions of tendering, ensuring that:
      - standard conditions in relation to NSW Government Code of Practice for Procurement are included in all tender documents;
      - same tender conditions are used for each tenderer on any particular tender process;
      - all requirements, including the criteria for tender evaluation are clearly stated; and
      - where tenderers are encouraged to submit alternative tenders which do not fully meet the prescriptive conditions of tendering, the conditions under which these alternative tenders will be considered are specified.
    - B. for construction packages:
      - technical specification and other non-price acceptance criteria;
      - package management requirements, including requirements for inspection and test plans and method statements; and
      - provisions for the operating status of the railway system.
  - (viii) pre-determining the criteria for the handling of tender submissions which do not meet conditions of tendering (including late submissions), to ensure that the integrity and competitiveness of the tendering process is not compromised;
  - (ix) confidentiality, to ensure the Contractor does not disclose tenderer information that is intellectual property, commercial-in-confidence or otherwise confidential;
  - (x) the evaluation criteria that is consistent with the proposed Subcontract requirements and aims to identify the tenderer offering the best value for money with due consideration of price and non-price criteria;
  - (xi) the pre-determination of evaluation criteria, weightings, and scoring systems for non-price selection criteria which is ideally set prior to request for tenders, but no later than the close of tenders;
  - (xii) the evaluation of tenders which is based on conditions of tendering and evaluation criteria therein and ensures:

- A. any tender which does not adequately comply with conditions of tender may be passed over;
  - B. tenders are evaluated by people with necessary skills and knowledge and free from any conflict of interest which may undermine the fairness process;
  - C. tenders are evaluated for non-price criteria prior to price assessment; and
  - D. where a tenderer offers an alternative tender, a tender for that alternative is not sought from other tenderers and the Contractor does not breach confidentiality by using information contained in alternative tenders as the basis for calling subsequent tenders.
- (xiii) clarification of tenders when information in a tender is open to interpretation or not clear and is material to identifying the successful tender, ensuring the clarification process does not allow a tenderer to gain unfair advantage over other tenderers or allow the tenderer to revise or enhance its original tender;
- (xiv) where none of the tenders are acceptable at the end of a competitive tendering process, conducting exhaustive tender negotiations with the most acceptable tender (based on the evaluation criteria) with the aim to achieve a tender that is mutually acceptable;
- (xv) prohibition of “bid shopping”;
- (xvi) debriefing of tenderers, on request whose tenders were not accepted, on request, explaining how their tender performed against the evaluation criteria (rather than against the successful tender), with the objective of assisting them to improve future tenders; and
- (xvii) complete contractor and supplier performance reviews which assesses their performance in a transparent manner to inform future tender assessments.
- (f) describe the standard forms of contract to be used for subcontracting engagements, supply agreements, minor, medium and major Subcontract works, which need to be clearly communicated, well understood and approved by the Principal’s Representative;
- (g) provide details of how the Contractor will submit these forms of contract to the Principal’s Representative for approval in accordance with the Contract, during the early phase of the Contract to enable timely review and approval of these forms of contract;
- (h) provide details of how the Contractor will highlight those items of particular interest to the Principal when seeking approvals, such as:
- (i) limitations to liability;
  - (ii) insurance arrangements;
  - (iii) performance obligations;
  - (iv) liquidated damages;
  - (v) dispute resolution;
  - (vi) any proposed incentives in any of those contracting arrangements;



- (vii) other subcontracting requirements as set out in the Contract; and
- (i) describe the interface with other Management Plans.

### 3.11. **Cost Management Plan**

The Contractor must have a Cost Management Plan (separate to any other Cost Plan required in the General Conditions) describing the Contractor's approach, processes, governance and procedures to develop and establish transparent and robust cost management. The Cost Management Plan must include:

- (a) an overview of the cost management system;
- (b) how the contractor will manage costs following approval of the Target Cost including details of the:
  - (i) cost breakdown structure;
  - (ii) cost control structure;
  - (iii) accountabilities for cost control;
  - (iv) delegations for cost commitments, payments and contingency drawdown;
  - (v) processes for certification of hours worked and goods and materials received;
  - (vi) management of budget, budget establishment, budget allocation and budget reallocation;
  - (vii) management and reporting of rates based budgets for materials and plant hire;
  - (viii) management and reporting of budget variations;
  - (ix) management and reporting of Subcontractor and supplier variations, claims and disputes;
  - (x) management of contingency; and
  - (xi) linking budget line items into schedule activities for accurate cash flow projections.
- (c) variance monthly reporting, outlining the method for determining actual cost to date, accruals, Earned Value to date, budget to date, forecast cost at completion, and forecast budget at completion;
- (d) details on the proposed packaging of Subcontracts including;
  - (i) a cost analysis of each part of the Reimbursable Work, including a detailed breakup by reference to each separate Subcontract package of costs for construction and Commissioning which must set a budget (including a contingency) for each Subcontract package;
  - (ii) cashflow requirements of the Contract;
  - (iii) a reconciliation of each of the elements of the budget against the Target Cost.
- (e) any other cost related detail nominated by the Principal's Representative; and
- (f) a description of the interfaces with other Management Plans.

### 3.12. Workforce Development & Industry Participation Plan

The Contractor must develop, implement and maintain a Workforce Development & Industry Participation Plan that includes:

- (a) details of how the Contractor will comply with the requirements of the MR-W;
- (b) the Workforce Development and Industry Participation team structure, including roles and responsibilities of key personnel, lines of responsibility and communication, minimum skill levels of each role and interfaces with the Contractor's overall organisation structure;
- (c) as an annexure to the plan, an initial baseline forecast of Workforce Development & Industry Participation needs using the following Reference Documents:
  - (i) Workforce Profile and Gap Plan Template SM ES-FT-435;
  - (ii) Workforce Development Output Delivery Profile Template SM ES-FT-435;
  - (iii) Training Needs Analysis SM ES-FT-432, which will contribute to the outcomes required by this MR-W and in particular the requirements of 2.3.4; and
  - (iv) the Sydney Metro Industry Curriculum Program, utilising the Workforce Development Output Delivery Profile template SM ES-FT-~~433~~-435.
- (d) an outline of the systems and processes that will be used to support the management of Workforce Development and Industry Participation;
- (e) a list of education and training providers, employer services providers or other organisations involved in the delivery of the workforce development and industry participation activities;
- (f) types of nationally recognised and accredited training offered and the main beneficiaries of the training;
- (g) a description of the strategies to be undertaken to obtain funding, subsidies and grants in regards workforce development and programs;
- (h) a description of the main occupational areas offering potential apprentice and trainee opportunities;
- (i) details of the employment status of Apprentices and Trainees stating whether they are either directly employed, sourced via a Group Training Organisation or similar body;
- (j) strategies to support the employment of diversity and inclusion groups including those specified in MR-W;
- (k) strategies for engagement with local community groups, diversity and inclusion representatives and other organisations to maximise employment opportunities;
- (l) strategies to support an increase in the number of Women in senior leadership and management roles;
- (m) strategies to assess Local sourcing options to support Local and ANZ SME diversity;
- (n) the approach to sustainable procurement including:
  - (i) the approach for support of ANZ SMEs;
  - (ii) the approach for support of Certified Aboriginal Businesses;

- (iii) actions to be taken to ensure the support of Subcontractors; and
- (iv) how Subcontractors' performance and compliance will be managed; and
- (o) the interfaces with other Management Plans.

### 3.13. **Aboriginal Participation Plan**

The Contractor must develop, maintain and implement an Aboriginal Participation Plan, which identifies:

- (a) roles and responsibility for key personnel, lines of communication and minimum skill levels for each role in relation to the management of Aboriginal participation;
- (b) an outline of the systems that will be used to support the management of Aboriginal participation;
- (c) strategies for ongoing engagement with Local Aboriginal community groups, employment & training providers or other organisations to maximise education, training, employment or other related opportunities;
- (d) plans for participation in Aboriginal cultural celebration activities i.e. NAIDOC, Reconciliation week;
- (e) details of how the requirements of MR-W will be applied to Subcontractors and other suppliers;
- (f) methodologies and details of programs to increase Aboriginal participation including:
  - (i) mentoring programs that contribute to the engagement and retention of Aboriginal people in the workforce;
  - (ii) work experience placements for Aboriginal students or jobseekers;
  - (iii) Aboriginal Apprentice & Trainee opportunities;
  - (iv) education & training to provide opportunities for Upskilling of Aboriginal's in the Workforce;
  - (v) Cultural Awareness Training;
  - (vi) engagement & capacity building of Certified Aboriginal Businesses
  - (vii) as an annexure to the plan, a baseline forecast of the Aboriginal Workforce and business engagement using the Workforce Development Output Delivery Profile Template SM ES-FT-435; and.
- (g) the interfaces with other Management Plans.

### 3.14. **Training Management Plan**

The Training Management Plan must describe the Contractor's training policy and the training management guidelines. Where agreed by the Principal's Representative, the TMP may be combined with, or form a Sub-plan of the Project Training Plan required in the General Conditions, and must;

- (a) describe arrangements for managing the competence of staff, including the plans, processes, tools and methods for:

- (i) identifying professional development and training needs, considering:
    - A. prior learning and experience as a valid basis for competence development.
    - B. training requirements and procedures with law enforcement agencies, other emergency service providers and with other relevant transport providers.
  - (ii) identifying potential skill shortages and gaps and how they might be addressed;
  - (iii) planning, implementation and recording of relevant professional development and training activities to enhance the knowledge and skills of staff, and the organisation as a whole;
  - (iv) periodic assessments of staff competence;
  - (v) certification processes, including those required for staff undertaking systems assurance activities, testing and Verification activities, and rail safety work as defined in the Rail Safety National Law; and
  - (vi) establishing and maintaining competence records and a register of staff, containing appropriate and timely information about all competence aspects of staff, including certification.
- (b) include a schedule of training;
  - (c) provide a detailed description of the training facilities;
  - (d) include competence assessment programs and periodic proficiency testing by job function;
  - (e) include details on safety training and the competency requirements defined in MR-S and the Sydney Metro Principal Contractor Health & Safety Standard SM PS ST-221;
  - (f) include a description of course content and training materials, a list of training syllabi, presentations and special tools or equipment;
  - (g) provide a description of how quality of teaching, training and assessment will be evaluated, including training program development and delivery, trainer and assessor competence, resourcing and measurements of learner outcomes;
  - (h) outline the arrangements to maintain competence management records that contain appropriate and timely information about all competence aspects of a candidate; and
  - (i) describe the interfaces with other Management Plans.

### 3.15. **Defects Management Plan**

The Contractor must have a Defects Management Plan which describes the process of identification and rectification of Defects, addressing the Contractor's obligations and responsibilities relating to the management of Defects and must:

- (a) clearly specify the strategy for managing the rectification of any Defects raised;
- (b) articulate the role of the Principal's Representative and Independent Certifier in relation to Defects;
- (c) reflect the obligations of the Contract in relation to all kinds of Defects;

- (d) describe the software application used to record and track the status of Defects;
- (e) identify, wherever a non-conformance is proposed in relation to the rectification of a Defect, how the Contractor will submit a "Defect rectification methodology" including analysis to support the proposal in relation to the durability, whole of life performance, environment and sustainability performance, functional performance and safety to both the Principal's Representative and the Independent Certifier for review in accordance with the Contract;
- (f) include a procedure for pre Asset Handover inspections and recording of Defects and clearing required Defects ahead of Asset Handovers in relation to the Construction Completion and Completion of Portions as well as Milestones; and
- (g) include a procedure for rectification of remaining Defects where Construction Completion of a Portion has occurred; and
- (h) describe the interfaces with other Management Plans.

### 3.16. **Property Management Plan**

The Contractor must have a Property Management Plan (PMP) describing the procedures and processes the Contractor will implement to manage property issues and to minimise, detect, assess, mitigate and rectify damage to property caused by or as a result of the Contractor's Activities. The PMP must:

- (a) describe the management of risk and its mitigation;
- (b) describe the processes for carrying out and managing all condition surveys;
- (c) describe the processes for monitoring and managing property damage;
- (d) describe processes for managing Stakeholders, impacted adjoining land and assets;
- (e) describe the damage mechanisms, including trials of construction procedures and methods to help assess the risk of property damage;
- (f) include noise, vibration and settlement limits that will prevent the damage of existing property and items by the Contractor's Activities and the need to transfer these criteria into method statements and inspection and test plans to ensure that any Contractor's Activities are within the above limits and minimise damage risks. The plan must include procedures for the review of, and change to, construction methodologies to minimise or prevent damage;
- (g) contain a list of properties with the potential to be detrimentally or negatively affected by the Contractor's Activities;
- (h) contain a list of the properties and assets which will be subject to a condition survey by the Contractor;
- (i) include a clear statement that all Contractors' Activities causing any damage will cease until the construction methodology is reviewed and damage rectification agreed with the property owner and the Principal's Representative;
- (j) set out the Contractor's procedures for communicating with property owners and for managing property damage claims including the means of providing routine and regular advice to property owners and occupiers about the Contractor's Activities in close proximity to and with the potential to detrimentally or negatively affect their property;
- (k) describe processes for receipt and recording of reports of and claims relating to damage thought to be associated with the Contractor's Activities, the Temporary Works and the Works;



- (l) include in the property condition survey section of the PMP, descriptions of the Contractor's proposed approach to performing condition surveys. The PMP must as a minimum:
  - (i) set out the minimum standards of pre-construction and post-construction condition surveys;
  - (ii) include a procedure for the use of an independent third party to ensure compliance against the minimum standard of condition surveys; and
  - (iii) describe how the Contractor will minimise disruption to property owners and occupiers by completing single condition surveys in agreement with Other Contractors and Subcontractors; and
- (m) describe the interfaces with other Management Plans.

### 3.17. **Engineering Management Plan**

The Contractor must have an Engineering Management Plan (EMP) which must describe the approved AEO engineering management processes and controls which will be applied to the specific requirements of this Contract in order to develop a compliant design. The EMP must address the Works and Temporary Works, reflect the requirements included in MR-T and must:

- (a) describe the Contractors design team organisation diagram naming all personnel and their parent companies;
- (b) describe the design personnel roles and responsibilities, and lines of reporting;
- (c) include a staff competence assessment register;
- (d) describe how staff competence will be managed over the life of the Contract;
- (e) include a matrix demonstrating how the AEO structure covers the full scope of the Works and Temporary Works;
- (f) include details of how the ASA Requirements and other relevant Codes and Standards will be met;
- (g) describe how the Interface Coordination Team, described in MR-T will manage the coordination of the design development;
- (h) include the proposed design package structure, including number of packages and associated description/naming and a milestone program for staged submission;
- (i) include procedures relating to the management of staged design development and submission internal Validation and Verification prior to submission as well as external design reviews;
- (j) identify and quantify specialist reports required to meet the requirements of the design, key Stakeholders and authorities;
- (k) provide details of the management of the design development to accommodate the interface requirements described in MR-T;
- (l) provide details of the design control procedures to be implemented to ensure compliance with the requirements of the SWTC , MR-T, MR-S and WHS Guidelines are achieved during delivery of the design;
- (m) provide details on how the Contractor will ensure that the engineering, architectural and rail systems designs are integrated and work together and that potential clashes with new and existing infrastructure are identified and resolved during the design;

- (n) provide details on how the Contractor will ensure that any updates of the Codes and Standards will be addressed during the design development;
- (o) provide details of how the Contractor will coordinate and accommodate design reviews and acceptance requirements, as outlined in MR-T. Include adequately addressing and closing Stakeholders comments prior to the submission of design packages;
- (p) provide details of how the Contractor will manage complex Temporary Works design and staging with the Principal and key Stakeholders;
- (q) include procedures regarding interaction with the Independent Certifier;
- (r) include details of the proposed configuration management;
- (s) provide details of the approved design control procedures to effectively manage and system and safety assurance;
- (t) include details of systems and process for requirements management;
- (u) include procedures for RAM management arrangements;
- (v) include details of the testing philosophy, the provision of access as well as test procedures in a section on testing, which reflects the requirements of MR-T;
- (w) include processes, methodologies and the software that will be used for the creation, management and production of digital engineering;
- (x) provide details of how the Contractor will manage the competency assessments for a large team over an extended period of time for the SSJ Project;
- (y) include, as Sub Plan, a Digital Engineering Execution Plan (DEXP) and a supporting Master Information Delivery Plan (MIDP), both in accordance the Employers Information Requirements SM ES-ST-203;
- (z) include an Asset Management Information Plan which:
  - (i) describes the processes of creation, Validation and approval of the AMI at the various stages of delivery described in MR-T and SWTC;
  - (ii) identifies the key roles and responsibilities within the Contractor's team in relation to the production of AMI, as well as the interface with the broader Stakeholder group;
  - (iii) describes how the AMI packages for each key element of the Works will be identified and packaged;
  - (iv) describes how the Principal's different AMI specifications will be applied to suit the particular type of assets to which they relate, differentiating between those to be operated and maintained by Sydney Trains and those to be operated and maintained by an operator other than Sydney Trains;
  - (v) provides a standard list of content for each type of AMI package which describes how the AMI information will be collated to enable and assist ease of use to the Asset Owners and Operator/Maintainers; and
  - (vi) includes a schedule, to be agreed by the Principal's Representative, which defines the frequency and timing of the "data drops" contemplated in section 4.3 of the Employer's Information Requirements SM EM-ST-203. The data drops must reflect the nature of delivery of certain assets to their Operator/Maintainers and Asset Owners in accordance with the requirements of the Contract for Asset Handovers.

- (aa) include an Security Execution Plan Sub Plan which defines the process for embedding security into the design process and testing its outcomes;
- ~~(bb) include a Detailed Site Survey Management Plan in accordance with Sydney Train's "Detailed Site Survey Management Plan";~~
- (bb) ~~(cc)~~ include a Customer Centred Design Sub Plan, to define the process for embedding customer engagement through the CCD process in the overall design process, which must meet the requirements specified in the SWTC and must also include:
  - (i) the proposed customer centred design methodology, for each Design Stage 1, Design Stage 2 and Design Stage 3;
  - (ii) how the application of the methodology will assure the delivery of customer outcomes;
  - (iii) a description of how customer input, feedback and Validation will be incorporated at, and between, each Design Stage;
  - (iv) how the lead team member responsible for CCD will work collaboratively with other design managers across the design process;
  - (v) how the interrelationship between product, services, systems and spaces are being addressed;
  - (vi) any change in methodology and iterations versus previous Design Stages and supporting rationale; and
  - (vii) the governance structure and decision rights to ensure CCD is embedded within the organisation and the design decision making process.
- (cc) ~~(dd)~~ include a Wayfinding Design Management Plan, which details the process for addressing customer and non-customer facing wayfinding requirements for each Design Stage, as defined in the SWTC (Appendix B10)
- (dd) ~~(ee)~~ include an ~~Advertising~~Advertising Provisioning Plan, which details how the Contractor will work with the Principal to deliver the Advertising Strategy, as defined in the SWTC (Appendix 13)
- ~~(ff) include an Retail Provisioning Plan, which details how the Contractor will work with the Principal to deliver the Retail Strategy, as defined in the SWTC (Appendix 14)~~
- (ee) ~~(gg)~~ include a Public Art Management Plan, which details how the Contractor will manage the relevant parts of the Public Art Master Plan, as defined in the SWTC (Appendix B11); and;
- (ff) ~~(hh)~~ include all other Management Plans, required under the SWTC as Sub-Plans to this Engineering Management Plan; and
- (gg) ~~(ii)~~ describe the interfaces with other Management Plans.

### 3.18. **Commissioning and Operational Readiness Management Plan**

The Contractor must develop a Commissioning and Operational Readiness Management Plan (CORMP) which documents the procedures and management controls to be used to ensure the Commissioning, Operational Readiness and Asset Handover activities comply with the requirements of the Contract, and must:

- (a) describe the clear division of responsibility in regards the management of the processes of Commissioning, Operational Readiness and Asset Handover as described in MR-T, this MR-PA and the Contract;



- (b) detail of the Contractor's personnel in key positions relating to the Commissioning and Operational Readiness aspects of the Works;
- (c) define the interfaces with key Stakeholders and describes their roles and responsibilities in relation to Operational Readiness and Asset Handover;
- (d) include a staging plan which provides details of the staged Commissioning Events and program of Asset Handovers;
- (e) describe the operation and maintenance changes in relation to the constructed assets as a result of the Asset Handover;
- (f) include procedures for completion and Asset Handover of the Works at Construction Completion and Completion of Portions, Milestones and other relevant occasions;
- (g) contain the process for the progressive submission of records and documentation required for Completion and Construction Completion of Portions;
- (h) contain procedures to monitor the status of activities and tasks that must be completed in order to achieve Completion and Construction Completion of Portions;
- (i) contain procedures for the identification, monitoring and close out and identification of responsibility for issues which may adversely impact upon the achievement of Construction Completion and Completion of Portions;
- (j) describe the methodology to identify, track progress, obtain and submit all forms of certification, other approvals, documents (Including AMI) and sign-offs associated prior to all forms of Asset Handover including Milestones, Portion Construction Completion and Portion Completion;
- (k) include as a Sub Plan, an Interchange Operation and Maintenance Plan in accordance with ASA T MU MD 00015 ST; and
- (l) describe the interfaces with other Management Plans.

#### 4. **Risk Management**

- (a) The Contractor must undertake risk management as an integrated part of the Contractor's Activities, including:
  - (i) implementation of risk management techniques to identify and assess risks which are applicable to the undertaking of the Contractor's Activities and develop and implement strategies to treat and manage these risks to an acceptable level;
  - (ii) undertaking risk management in accordance with the requirements of AS/NZS/ISO31000, ISO/IEC31010, and consistent with the requirements of Sydney Metro Risk Management Standard SM RM-ST-201;
  - (iii) undertaking safety risk management in accordance with the requirements of MR-S and the Sydney Metro Principal Contractor Health & Safety Standard SM PS ST-221;
  - (iv) consideration of risk in order to identify potential property that could be affected or damaged by the Contractor's Activities;
  - (v) management of adverse impacts and realise potential opportunities relating to the performance of the Contractor's Activities;
  - (vi) holding joint risk workshops with the Principal at key SSJ Project phases and milestones to identify and assess key risks associated with the Contractor's Activities and development of mitigation strategies;

- (vii) production of a consolidated risk register that includes all reasonably foreseeable risks associated with the Contractor's Activities;
  - (viii) reporting on risks and risk management in accordance with the reporting requirements in the Risk Management Plan; and
  - (ix) ensure that the individuals and resources allocated to risk management activities are suitably trained and made available to effectively implement the Risk Management Plan.
- (b) The Contractor must maintain an up-to-date risk register, consistent with the requirements of the Risk Management Plan, which is inclusive of the following:
- (i) a description of all risks applicable to all stages and phases including transition between phases and their likely impact;
  - (ii) analysis, assessment and evaluation of all risks;
  - (iii) details of specific risk control measures and proposed treatments for identified risks to eliminate or reduce risks;
  - (iv) the current and residual risk level assessed for each risk in terms of consequence and likelihood in a manner compatible with the Principal's risk management system defined in the TfNSW Sydney Metro Risk Management Standard SM RM-ST-201;
  - (v) the personnel responsible for managing the risk and monitoring implementation of treatment measures; and
  - (vi) demonstration that risks have been eliminated, or have been minimised and managed so far as is reasonably practicable.
- (c) Upon request by the Principal's Representative, the Contractor must provide access to the Contractor's risk register. Where the Contractor's risk register is accessible electronically, and the Principal's Representative agrees, the Contractor may provide the Principal with access to relevant parts of its electronic system in lieu of paper copies.
- (d) Prior to Construction Completion the Contractor must provide a list of the residual risks which will be in existence beyond the Date of Construction Completion in relation to each Portion.

## 5. **Contractor's Program**

- (a) The Contractor's Program and its updates must be in accordance with the Sydney Metro Basis of Schedule & Management Procedure SM PD-PW-307.
- (b) The Contractor's Program and its updates must be developed and submitted to the Principals Representative for review in accordance with the Contract.
- (c) The initial and all subsequent versions of the Contractor's Program must meet the requirements of the Sydney Metro Basis of Schedule & Management Procedure SM PD-PW-307.
- (d) In particular, the Schedule is to:
  - i. Identify the key dates of CCB and CMAAC control gates including all SSJ Contractor's Activities relating to the requirements of MR-T in regard to the CCB and CMAAC

- ii. Identify all Track Possessions required for activities and provide detailed schedules for Track Possession / Temporary Shutdown works, details of Track Possession / Temporary Shutdown planning and booking of Track Possessions with Sydney Trains within the timeframes required by Sydney Trains, in accordance with Clause 11;
  - iii. Identify the dates when the SSJ Contractor will require information, documents, materials or instructions from the Principal's Representative under the Contract and the dates when the SSJ Contractor will provide information or documents to the Principal's Representative, taking account of the review or approvals processes and timeframes contemplated by the Contract;
  - iv. Differentiate between the work to be undertaken by the SSJ Contractor and the work to be undertaken by Subcontractors;
- (e) Monthly update reports reflecting the Contractor's Program must be submitted to the Principal's Representative on the first Business Day of each calendar month; which include progress information up to the end of the preceding calendar month and meet the requirements of Appendix A, Sydney Metro Basis of Schedule & Management Procedure SM PD-PW-307.

## 6. Document Management

### 6.1. General

- (a) The Contractor must control all copies of Documents in accordance with the Contract.
- (b) The Contractor must promptly advise the Principal's Representative of any changes made to the submitted Documents and submit the amended Documents for review in accordance with the Contract, within 5 Business Days of the amendment, with the amendments clearly marked on the Document.

### 6.2. Principal's Data and Collaboration System (PDCS)

- (a) Without limiting any specific requirements of the Contract, the Contractor must use the Principal's prescribed PDCS, as notified by the Principal's Representative for the duration of the Contractor's Activities.
- (b) The Contractor must carry out all liaison activities within the PDCS, including but not limited to uploading the following:
  - (i) all correspondence;
  - (ii) Requests for information (RFI);
  - (iii) Non-conformance reports (NCR's);
  - (iv) upload of all controlled Documents and Design Documentation including but not limited to, drawings, specifications, procedures, checklists, Management Plans, test plans, inspections, Safe Work Method Statements, certificates and schedules;
  - (v) Lot management;

- (vi) all Documents for review by the Principal's Representative in accordance with the Contract; and
- (vii) transmittal of documentation to other Project participants.
- (c) The Contractor must use the prescribed metadata, title information and document numbering formats provided by the Principal's Representative when uploading documents to the PDCS.
- (d) Access to the electronic portal will be granted to the Contractor's staff, only upon completion of general user training.
- (e) The Principal will not accept hard copy records in lieu of electronic versions.

### 6.3. **Document Formatting**

Where electronic copies are submitted to the PDCS they must be submitted in their native file formats as well as in pdf version. File formats used for archiving or compression will not be otherwise accepted.

## 7. **Monthly Reporting**

Without limiting any other reports that may be required under the Contract, the Contractor must prepare and submit to the Principal's Representative for review in accordance with the Contract, a Monthly Report on the first Business Day of each calendar month which meets the requirements of the Contract, including the following items:

- (a) a summary of the planned Contractor's Activities over the forthcoming month and quarter;
- (b) a list and timing of Hold Points and Witness Points planned for the forthcoming two months;
- (c) a description, including photographs, of the progress made on all current Contractor's Activities;
- (d) a summary of the financial status of the Contract, including detailed final cost forecasts, and separate lists for the cost of approved Changes, Claims and outstanding Claims for Changes;
- (e) a cost report which allocates all budget and actual cost items against separate funding sources, under a set of cost headings and codes. The format and content of the cost report must be submitted to the Principal's Representative in accordance with the Contract ahead of the submission of the first Monthly Report;
- (f) a cashflow forecast for the remainder of the Contractor's Activities on a month by month basis;
- (g) the number and categories of personnel and equipment currently engaged by the Contractor to carry out the Contractor's Activities (including those engaged in off-site functions), compared with the planned resources for the Contractor's Activities;
- (h) an updated Contractor's Program in accordance with clause 5;
- (i) the status of Design Documentation, major procurement orders, Subcontracts, and general construction;

- (j) a Temporary Works list as described in MR-T;
- (k) key dates for anticipation of design packages at Design Stages 1, 2 and 3 (or as otherwise defined in the Contract);
- (l) the status of planning activities including Authority Approvals;
- (m) where Contractor's Activities involve any related Track Possession, Temporary Shutdown or outage activity, the Monthly Report must also include monthly reliability statistics listing the following:
  - (i) Incidents in Track Possession/Temporary Shutdown/outage;
  - (ii) Incidents in Non-Track Possession/Temporary Shutdown/outage;
  - (iii) potential Incidents in Track Possession/Temporary Shutdown/outage; and
  - (iv) potential Incidents in Non-Track Possession/Temporary Shutdown/outage.
- (n) safety information and statistics, as required by MR-S;
- (o) sustainability reporting as required by MR-Sy;
- (p) Non conformances in any Authority Approvals, Contractor's Activities, Works and Temporary Works and the steps taken by the Contractor to address those Defects;
- (q) any issues arising from or affecting the CMP and its related Management Plans;
- (r) records of all corrective and preventative actions taken by the Contractor under the Contract and audits of such actions;
- (s) cooperation, coordination, industrial relations and interface issues with Other Contractors;
- (t) the status of interface management with Other Contractors highlighting the status of room handovers and any integration issues;
- (u) summary updates relating to community issues and potential community issues;
- (v) complaints received by the Contractor in relation to the Contractor's Activities;
- (w) other key issues that have the potential to affect the Contractor's Activities;
- (x) the status of audit activities during the reporting period. As a minimum, the Contractor must provide the following information:
  - (i) details of audits performed (planned vs completed);
  - (ii) audit findings (with rating / priority) and corrective actions;
  - (iii) implementation status of corrective actions (open and overdue); and
  - (iv) explanation for audits not completed as planned and for overdue corrective actions.
- (y) the status of any property damage claims;
- (z) a summary of key risks and opportunities, as defined in agreement with the Principal and corresponding risk treatments or opportunity implementations, either underway or planned;
- (aa) details of key risks likely to affect the Contractor's Program or the achievement of SSJ Project objectives including those associated with key Stakeholders including



the community, key interfaces, health and safety, environment and cultural heritage;

- (bb) key changes in the Contractor's risk profile and risk register since the previous Monthly Report and trend reporting, including:
  - (i) new or emerging risks that have been identified;
  - (ii) risks that have increased or decreased in risk exposure rating;
  - (iii) risks that have occurred and how the impact is being managed; and
  - (iv) risks that have been closed or eliminated.
- (cc) the current version of Contractor's risk register;
- (dd) other reporting requirements detailed in the Contract, including MRs, Environmental Documents and SWTC; and
- (ee) any other information the Principal's Representative reasonably requires.

## 8. Quality

### 8.1. Quality Management System

- (a) The Contractor must have in place, maintain and consistently apply an "AS/NZS ISO 9001" certified quality management system.
- (b) The Contractor must prepare a schedule of ITPs and ITP forms that the Contractor must use to verify that the Contractors Activities comply with the Contract.
- (c) The Contractor must submit a schedule showing the status of all ITPs, including any which are planned but not yet prepared, to the Principal's Representative on a monthly basis, for review in accordance with the Contract.
- (d) Where requested, the Contractor must submit any ITP to the Principal's Representative and Independent Certifier for review in accordance with the Contract.
- (e) The Contractor must prepare a schedule of Witness Points and Hold Points. This schedule must list all proposed Witness Points and Hold Points and must be kept up to date.
- (f) The Principal Representative or Independent Certifier may at any stage during the performance of the Contractors Activities nominate Hold Points and Witness Points for inclusion in the ITPs.
- (g) The Principal's Representative, Independent Certifier and the Environmental Representative may nominate persons to attend or witness the release of any Hold Point or to attend any Witness Point.
- (h) The Principal's Representative and the Independent Certifier must be given a minimum of 3 Business Days' notice of all forthcoming Hold Points and Witness Points.
- (i) The Contractor must assign a nominee for each Hold Point that is acceptable to the Principal's Representative.
- (j) The Contractor must develop a Project Records Index (PRI) to capture all the Contract requirements for records and documentation required for Construction Completion and Completion. The PRI must include:
  - (i) The Contract requirements including:

- A. submissions, information, data and records relating to the Contractor's Activities;
  - B. identified records relating to The Contractor's Activities ;
  - C. identified records relating to surveying activities;
  - D. "work as executed" Design Documentation; and
  - E. the Contractor's Programs;
- (ii) details of the party controlling the document,
  - (iii) details of the document format; and
  - (iv) the document reference number.

## 9. Audits and Surveillance

### 9.1. Principal's Audit and Surveillance

- (a) The Contractor's Management Plans, systems and processes will be subject to audit and surveillance by the Principal to gain assurance that the Contractor has established effective management systems and processes to meet the requirements of the Contract. The Principal may utilise its own auditor(s) and surveillance officer(s) to perform these activities, supported by subject matter experts where relevant.
- (b) The nature of audit and surveillance activities may include risk-based compliance testing; desktop review of documentation; inquiry and observation of activities; and review of developing processes or activities in the form of a review to test readiness to implement.
- (c) Where elements of the delivery program are sub-contracted, the Contractor must pass its audit and surveillance requirements to its Subcontractor and be able to provide evidence that these Contractor's Activities are being effectively overseen by the Contractor. If requested by the Principal, the Contractor will provide evidence of the effective implementation of management systems and procedures by its Subcontractors.
- (d) The Contractor must be cooperative in assisting the auditors and surveillance officers in undertaking their duties. This includes providing access to Sites; systems and documentation; facilities to perform audits and surveillance; and participation of representatives from the Contractor and Subcontractors if the scope of the audit warrants.

### 9.2. Collaborative Audit Program

- (a) Besides the Principal, a number of other parties (such as Regulators, an Authority etc.) are required to, or may have an interest in auditing systems and processes established by the Contractor. A collaborative audit program will be established by the Principal to coordinate audit activities across the SSJ Project.
- (b) It is an objective of the Principal that these audit activities are coordinated in order to provide timely and cost effective assurance that aligns and standardises the planning, conduct and reporting of audits. The Principal will conduct audits on the Contractor's compliance with the requirements of the Contractor and the Contractor's quality management system.

- (c) The Principal may conduct audits on the Contractor's compliance with the Contract and Management Plans.
- (d) The Principal will establish an Audit Working Group, with representatives from the Principal; Contractor; and other parties that may have an interest in the SSJ Project, to manage the collaborative audit program. The Audit Working Group will, on a collaborative basis, develop, agree and implement a risk based audit program covering all aspects of the Contractor's Activities.
- (e) The Contractor must attend the Audit Working Group meetings. The meetings will be held whenever requested by the Principal's Representative, but will typically be held on a monthly basis.
- (f) Where the Contractor performs compliance audits of its systems and procedures, the Principal's Representative must be invited to participate in the audit planning and oversee conduct of the audit. The Contractor must provide a copy of the audit report to the Principal's Representative.
- (g) The Contractor must implement systems and procedures to ensure audit recommendations and corrective actions are actioned in a timely and agreed manner.
- (h) Periodically, the Contractor must allow the Principal to verify the effectiveness of the audit action implementation and reporting process by providing evidence that audit actions have been implemented.

## 10. Property Management

### 10.1. General Property Obligations

- (a) The Contractor is responsible for managing the Site and minimising the impact of the Contractor's Activities on adjoining owners during any investigations, early/enabling works, construction and Defects rectification activities. The Contractor must ensure it has the necessary legal rights to access the appropriate property prior to commencing the Contractor's Activities.
- (b) The Contractor must appoint a site-based person to be the Contractor's property representative. This representative must be present during all inspections undertaken by the Principal.

### 10.2. Condition Surveys

The following requirements in clause 10.2 apply in addition to those set out in the Environmental Documents and the SWTC.

#### 10.2.1. Pre-Construction Condition Surveys

- (a) The Contractor must carry out pre-construction ground and infrastructure condition surveys to record the existing condition of ground and infrastructure which could be affected by the Contractor's Activities (including rail infrastructure, roads, access driveways, bus stops and associated bus service infrastructure, parks and other publicly accessible areas, footpaths and cycleways, Utility Services, buildings and other structures) prior to commencing construction and to assess the susceptibility of critical structures or buildings or Utility Services to damage or unacceptable changes or alterations as a result of the Contractor's Activities.
- (b) The pre-construction ground and infrastructure condition surveys must, where relevant be conducted with the agreement of the Utility Service owner, property owner and any occupier and be completed in accordance with the Contract



requirements. The Contractor must provide relevant Utility Service owners, property owners or occupiers with a notice proposing at least two alternative dates for the completion of pre-construction ground and infrastructure surveys. If a Utility Service owner, property owner or occupier does not provide the Contractor with sufficient access to carry out a pre-construction ground and infrastructure survey within 21 days of the latest date which the Contractor included in the notice, the Contractor must give the Principal's Representative and the Independent Certifier a copy of the notice and a signed statement by the Contractor to the effect that the Utility Service owner, property owner or occupier has not provided sufficient access to carry out the pre-construction ground and infrastructure survey.

- (c) The Contractor must prepare a detailed record that, as a minimum, includes dated photographs of the pre-construction conditions of all ground and infrastructure which may be affected and a summary description of the pre-construction conditions for each item.
- (d) The Contractor must provide the Principal's Representative, the Independent Certifier and, where relevant, the owner and/or occupier with a hard copy and an electronic copy in .pdf format of the survey report promptly, and in any event within 5 Business Days of the Contractor receiving such a report.
- (e) In addition to the requirements set out in the Contract and the MRs, the Contractor must comply with all requirements allocated to the Contractor for condition surveys and ongoing monitoring set out in Third Party Agreements and Environmental Documents.
- (f) The Principal's Representative may direct the Contractor to include additional properties and assets if it considers they have the potential to be damaged as part of the Contractor's Activities and the Principal's nominated person and the Independent Certifier may attend the undertaking of condition surveys.
- (g) The pre-construction ground and infrastructure condition surveys must be carried out by an independent and appropriately qualified and experienced assessor for the specific element of ground or infrastructure being surveyed.

#### **10.2.2. Post-Construction Condition Surveys**

- (a) Prior to Construction Completion of the last Portion, the Contractor must perform a post-construction condition survey on each item previously subject to a pre-construction ground and infrastructure condition survey.
- (b) The Contractor must ensure that post-construction ground and infrastructure condition surveys are performed to the same standards as the pre-construction ground and infrastructure condition surveys. The Contractor must ensure that the same surveyor performs both the pre-construction and post construction condition surveys on a particular item.
- (c) The Contractor must submit all post-construction ground and infrastructure condition survey reports to the Principal's Representative and the Independent Certifier for review in accordance with the Contract and then to any relevant owner and/or occupier. Each report must contain a certificate from the surveyor who performed the survey, certifying that the survey has been completed and is an accurate assessment of the ground and infrastructure's condition.
- (d) The post-construction ground and infrastructure condition survey reports must include a determination of the cause of any monitored change or damage identified (if any) since the pre-construction or previous construction survey and the

Contractor's proposed remedial works or activities. If any damage is found to have been caused by the Contractor's Activities, the Contractor must:

- (i) provide the Principal's Representative and the Independent Certifier with a proposal setting-out the remedial action required; and
  - (ii) obtain the relevant owner's acceptance, in a form agreed to by the Principal, of the compensation, repair or reinstatement work, and release from future claims and actions.
- (e) If no damage is found to have been caused by the Contractor's Activities, the Contractor must:
- (i) write to the owner and provide a copy of both reports for the property owner's records; and
  - (ii) provide the Principal's Representative with a copy of all records for its future reference.

### **10.2.3. Property Condition Surveys of Buildings**

- (a) The Contractor must ensure that the processes and procedures for performing all condition surveys are based on industry best practices. Examples of acceptable standards for condition surveys of buildings include:
  - (i) sections 4 and 5 of the "Royal Institute of Chartered Surveyors (RICS) Guidance Note 63/2010 Building surveys and technical due diligence"; and
  - (ii) "AS 4349 Inspection of Buildings – General Requirements", and with specific regard to the heritage elements.
- (b) The Contractor's reports on condition surveys of buildings must as a minimum record the following features and include dated photographs:
  - (i) major features of the buildings and developments including location, type, construction, age and present condition, including any defects or damage;
  - (ii) type of foundations including columns, walls and retaining structures;
  - (iii) an assessment of the susceptibility of the building to further movement or stress;
  - (iv) an assessment of the effectiveness of water-proofing systems in basements to the anticipated movements caused by the Contractor's Activities; and
  - (v) an assessment of the susceptibility of the building to changes in water levels resulting from the Contractor's Activities.
- (c) Existing levels of aesthetic damage are to be recorded in accordance with the assessment requirements of "Building Damage Classification", by Burland et al, 1977 and Boscardin and Cording, 1989 or another similar or equivalent assessment method to the satisfaction of the Principal's Representative.
- (d) The condition surveys must be carried out by an independent and appropriately qualified and experienced assessor for the specific property being assessed.

## **10.3. Design and Construction**

### **10.3.1. Pre-Construction Land Surveys**

The Contractor must verify survey control for the Contractor's Activities and must:

- (a) avoid, where reasonably possible, disturbance of existing survey marks and must re-establish any such marks disturbed or affected by the Contractor's Activities;
- (b) carry out boundary and engineering surveys in accordance with the Surveying and Spatial Information Act 2002 (NSW) and the Surveying and Spatial Information Regulation 2012 (NSW);
- (c) prior to commencing any activity which could affect existing infrastructure (including roads, railways, utility services and buildings), undertake a survey to identify and record the location of the construction site boundary in relation to existing infrastructure; and
- (d) provide the Principal's Representative and the Independent Certifier with reports on the location of the Site boundary in relation to existing infrastructure prior to commencing the relevant Contractor's Activities.

### **10.3.2. Design Documents**

The Contractor must clearly identify property boundaries on drawings it produces in respect of the design of the Works and Temporary Works.

### **10.3.3. Property Requirements as Part of Site Inductions**

- (a) The Contractor must ensure its employees and the employees of Subcontractors engaged in carrying out the Contractor's Activities on the Site are inducted and trained in any property requirements of the Contract to achieve a level of awareness and competence appropriate to their assigned activities.
- (b) The property requirements of the induction must include informing the relevant persons of Site boundaries, parking and vehicle delivery restrictions, Third Party Agreements, limitation of access rights and access procedures to minimise all potential property impacts including property damage, disturbance and any other property matters.

### **10.3.4. Property Records**

The Contractor must provide the following records:

- (a) a list of who holds issued documents on a register of current document issue, including revisions;
- (b) an index of all property records;
- (c) personnel and provider qualifications and skills and competency records;
- (d) induction and training records;
- (e) property control and constraints maps (worksite maps);
- (f) identified property Stakeholders within the complaints list as identified by the Principal;
- (g) a list of all adjoining property owners and details of all interaction and communications;
- (h) evidence of property inputs and outputs within the design development process including any sustainability initiatives;
- (i) surveillance, audit of Subcontractors property performance and controls;
- (j) Contractor's non-conformance reports and register; and

- (k) property non-compliance reports.

### **10.3.5. Construction Phase Monitoring**

- (a) The Contractor must implement a monitoring and inspection regime for properties with the potential to be detrimentally or negatively affected by the Contractor's Activities. The monitoring and inspection regime must address the requirements of the Contract, the Contractor's obligations relating to Environmental Documents and Third Party Agreements and agreements made with any Authority.
- (b) For activities in or adjacent to the Rail Corridor, the Contractor must implement specific monitoring regimes and emergency and response procedures for all Contractor's Activities close to or under, and likely to affect, live Rail Track in accordance with relevant monitoring Codes and Standards.

### **10.3.6. Planning Consistency Checks**

- (a) Consistency checklists, in the format provided by the Principal unless otherwise agreed, are to be completed by the Contractor and provided to the Principal's Representative for review in accordance with the requirements of the Contract in circumstances where the work is likely to deviate from the approved SSJ Project.
- (b) Should the Works be found not to be consistent with the approved SSJ Project, the Contractor may request the Principal seek a modification. Under such circumstances, it is the Contractor's responsibility to provide the necessary reports, studies and final submission to the Principal to justify the modification. Any modification must detail property impacts.

## **10.4. Property Risk Assessment**

- (a) The Contractor must undertake a comprehensive and site-specific property risk assessment in conjunction with the Contractor's construction personnel and in consultation with the property representative, prior to the commencement of early works (including pre- construction works).
- (b) A staged risk assessment may be utilised, upon agreement with the Principal. This risk assessment must identify the property aspects and actual and potential property impacts of the Contractor's Activities and the control measures that are required to be implemented in order to provide property protection in accordance with the requirements of the Contract. With respect to the Site (and where the Site is at more than one location, for each part of the Site).
- (c) This risk assessment is to include:
  - (i) potential damage to property and related infrastructure such as roads and footpaths etc. Factors to consider when determining an asset's susceptibility to damage must include maximum levels of movement or angular distortion, or strain, or settlement or deflection or groundwater draw down;
  - (ii) permanent and temporary worksite access requirements and timing;
  - (iii) access to or across adjoining properties and timing;
  - (iv) crane swings, air rights and impacts on neighbouring properties or the Rail Corridor;
  - (v) access to Utility Services;
  - (vi) any future subdivision, easements, other title interests or divestment requirements;



- (vii) any future commercial impacts of resultant work; and
- (viii) site investigation and contamination.

## 10.5. **Property Compliance Checklist**

The Contractor must prepare and submit to the Principal's Representative, the property compliance checklist plus supporting documents contained in Annexure B: Property Compliance Checklist, to demonstrate that all legal and contractual property related obligations have been met. The checklist must be submitted:

- (a) 10 Business Days prior to site access; and
- (b) 10 Business Days prior to commencement of the Delivery Phase.

## 11. **Working In and Adjacent to the Rail Corridor and Rail Environment**

### 11.1. **Operating Railway System**

The Contractor acknowledges and agrees that:

- (a) it is aware that Sydney Trains or another Operator/Maintainers may continue to use areas adjacent to the Site as part of normal operations of the railway system on a commercial basis during the undertaking of the Contractor's Activities;
- (b) the Contractor must not do anything to prevent the continuance of normal operations of the railway system, including within the Rail Corridor, the Site, adjoining areas and railway stations, to the satisfaction of the Operator/Maintainer;
- (c) it must ensure that the railway system operations and infrastructure are not impeded or interfered with by reason of the performance of the Contractor's Activities, except where this is approved in writing beforehand by the Principal's Representative;
- (d) it must maintain and coordinate sufficient access to the railway system, for users and Operator/Maintainers, so as not to hinder main traffic routes, including access to and from operating railway station platforms, ticketing areas and the Rail Corridor, and the flow of traffic, including on or accessing the Site and the adjoining areas, except where this is approved in writing beforehand by the Principal's Representative;
- (e) it must, in performing the Contractor's Activities, do everything that could be reasonably expected of the Contractor to avoid Sydney Trains or another Operator/Maintainer breaching any obligation it may have arising out of or in connection with the continuing operation of the railway system on a commercial basis;
- (f) it must ensure:
  - (i) access and egress for Sydney Trains or other Operator/Maintainers and its contractors to the Site to undertake regular inspections and to complete maintenance and repairs of their infrastructure where required;
  - (i) access and egress to those parts of the Site required by Other Contractors are made available and coordinated so as to minimise any interference with or disruption to the Contractor's Activities; and
  - (ii) emergency egress routes (including routes to the Rail Corridor and its support system) are maintained at all times and that emergency systems (including

the Sydney Trains emergency warning intercommunication system and fire alarm panels) remain operational throughout the duration of the Contract.

- (g) it must provide a safe place for persons carrying out Rail Track inspections and/or maintenance work, for example, refuges in any hoarding/fencing constructed adjacent to the Rail Track;
- (h) it must comply with any Sydney Trains or other Operator/Maintainer's standards applicable to the Works including for work that is adjacent to an operating rail line and to live overhead wires;
- (i) it must ensure that whilst undertaking the Contractor's Activities, no employees or Construction Plant (including, for example, by the slewing of cranes) of the Contractor, Subcontractors or consultants enter an operating Rail Corridor, except as permitted by [Sydney Trains "RailSafe Network Rules"](#); and
- (j) it must at all times, and to the satisfaction of the Principal's Representative, carry out the Contractor's Activities in a manner that will ensure the safety of all property and persons, including the general public, travelling public, station lessees, railway traffic, railway system personnel, road traffic and any person associated or engaged in connection with the Contractor's Activities.

## 11.2. Track Possessions / Temporary Shutdowns

- (a) The Track Possessions / Temporary Shutdowns available to the Contractor are set out in the Contract.
- (b) The Contractor must follow the applicable planning process, including notification lead times when requesting new or altering existing Track Possessions (including dates, configurations and start/finish times) as defined in the Sydney Trains Network Access Manual Volume 1 and Volume 2. All such requests from the Contractor must be made to the Principal's Representative who will then submit the information to Sydney Trains (which is the determining Authority).
- (c) For existing approved Track Possessions / Temporary Shutdowns, a description of the scope of Works and Temporary Works to be carried out in each Track Possession / Temporary Shutdown must be submitted to the Principal's Representative for review in accordance with the Contract, at least 16 weeks prior to the commencement of the Track Possession / Temporary Shutdown. The scope description must reference the possession number/sequence and include the following information:
  - (i) work description;
  - (ii) location of work including track and kilometrage/structure/signal numbers;
  - (iii) any tracks which are blocked due to the work;
  - (iv) any exclusion zones; and
  - (v) work train &/or track machine requirements associated with the work including times required at the worksite.
- (d) Where power isolation is required, the Contractor must specify what power is required to be isolated and its location, as well as the time and duration required for the power isolation. This information must be submitted to the Principal's Representative for review in accordance with the Contract at least 16 weeks prior to each Track Possession / Temporary Shutdown.
- (e) [Where critical construction resources \(electrical distribution, electrical mains, signalling, track and commissioning\) from Sydney Trains are required, the Contractor must submit a critical resource request \(MS-10-FM-09 & MS-10-FM-10\)](#)

to the Principal's Representative for review and processing at least 16 weeks prior to the commencement of the Track Possession / Temporary Shutdown.

- (f) ~~(e)~~ For each Track Possession/ Temporary Shutdown to be utilised by the Contractor, the Contractor must attend and incorporate the requirements from:
- (i) the "Works Coordination Meeting" with Sydney Trains held approximately 12 weeks prior to the Track Possession / Temporary Shutdown. This meeting will decide the coordination of all activities in the Track Possession / Temporary Shutdown, working hours, movements of equipment and work trains in the Track Possession / Temporary Shutdown area;
  - (ii) the "Possession Finalisation Meeting" with Sydney Trains held approximately 4 weeks prior to the Track Possession / Temporary Shutdown to identify and resolve any clashes or interface issues; and
  - (iii) the "Pre-Possession Meeting" with Sydney Trains, held approximately 3-5 Business Days prior to the Track Possession / Temporary Shutdown to confirm the detailed arrangements for the Track Possession / Temporary Shutdown and coordinate the activities of each party working in the Track Possession / Temporary Shutdown.
- (g) ~~(f)~~ Prior to the pre-possession meeting the Contractor must arrange and confirm names, contact details and shift times of the worksite supervisor and safeworking personnel associated with the Works and Temporary Works. The Contractor is to procure all safeworking personnel including the Possession Protection Officer (PPO), PPO Assist and Protection Officers (minimum PO2 accredited for Track Possessions / Temporary Shutdown) required for each Track Possession / Temporary Shutdown. The level of safeworking competency of safeworking personnel must be in accordance with the Network Rules and Procedures. Safeworking personnel must only be sourced from approved providers on the TfNSW Safeworking Panel.
- (h) ~~(g)~~ The Contractor must provide safe working personnel (in accordance Sydney Trains Network Rules) including, but not limited to Protection Officers, Pilots, and a Worksite Coordinator for each work location.
- (i) ~~(h)~~ The Worksite Coordinators must hold Protection Officer level PO4 competency, and be able to work as PPO assist as required.
- (j) ~~(i)~~ The Worksite Coordinator may be required to work on Site or in the Sydney Trains PPO Office.
- (k) ~~(j)~~ The Contractor must provide personnel to place and remove possession protection in accordance with Sydney Trains Network Rules for all Track Possessions / Temporary Shutdowns.
- (l) ~~(k)~~ The Contractor's Protection Officer must perform the role of PPO assist or PPO in accordance with the Sydney Trains Network Rules, when required.
- (m) ~~(l)~~ If a Track Possession / Temporary Shutdown involves an asset or partial asset being handed over to the Asset Owner or Operator/Maintainer (even if only for maintenance prior to it being commissioned), a formal Asset Handover will be required. In these circumstances, the following documents appertaining to the assets being handed over are required to be submitted to the Principal's Representative for review in accordance with the Contract at least six weeks prior to the Track Possession / Temporary Shutdown:
- (i) Safe Work Method Statements;
  - (ii) residual risk assessments;

- (iii) any asset management and operational documentation described in MR-T and the SWTC;
- (iv) Design Documentation; and
- (v) any other documents required as directed by the Principal's Representative.

(n) ~~(m)~~ The Contractor may not have exclusive access to any Rail Tracks or areas within the vicinity of Rail Tracks during a Track Possession / Temporary Shutdown, and must coordinate the Contractor's Activities with those sharing the Track Possession / Temporary Shutdown, including parties involved in the operation or maintenance of the rail system and Other Contractors. This includes, where required, the Contractor allowing for Operator/Maintainers' contractors and Other Contractors to pass through the worksite(s) during the Track Possessions / Temporary Shutdowns.

(o) ~~(n)~~ The extent of Operator/Maintainers' contractors' and Other Contractors' activities on or within the vicinity of the Rail Track during Track Possessions / Temporary Shutdowns will be determined at the "Works Coordination Meeting" referred to in clause 11.2 (e) of this MR-PA.

(p) ~~(o)~~ The Contractor must ensure that all persons invited or brought onto the Site by the Contractor or Other Contractors, and those who enter an area within the Rail Corridor undertake all necessary Site inductions and obey all directions given by the Worksite Protection Personnel.

(q) ~~(p)~~ The Contractor must comply with the requirements of Sydney Trains Possession Notice 10, in relation to the certification and handover of any part of the Works.

(r) ~~(q)~~ The Contractor must immediately comply with any instructions by the Principal's Representative to alter or curtail the Contractor's Activities if the Principal's Representative considers that continuing with intended Contractor's Activities will result in a delay to returning the Track Possession / Temporary Shutdown and/or delay to train operations.

(s) ~~(r)~~ The Principal may alter, cancel or curtail any Track Possession at any time.

(t) ~~(s)~~ If assets are being handed over to the Operator/Maintainer then the Contractor must assist the Principal in the process of formal Asset Handover.

(u) ~~(t)~~ The Contractor must prepare, maintain and update policies and procedures for planning and managing Track Possession / Temporary Shutdown work in accordance with the Sydney Trains Network Access Manual Volume 1 and Volume 2.

(v) ~~(u)~~ The Contractor must submit to the Principal's Representative for review in accordance with the Contract, a Project Criticality Analysis not less than 12 weeks prior to the Track Possession / Temporary Shutdown.

#### 11.2.1. Track Possession Temporary Shutdown Plan

- (a) The Contractor must prepare and submit to the Principal's Representative for review in accordance with the Contract, 12 weeks prior to each Track Possession / Temporary Shutdown a consolidated Track Possession / Temporary Shutdown Plan comprising all information required in advance of the Track Possession / Temporary Shutdown. Updates must be provided at 6, 4 and 2 weeks prior to the Track Possession / Temporary Shutdown, with a final plan submitted 1 week prior to the Track Possession / Temporary Shutdown.



- (b) The Track Possession / Temporary Shutdown Plan must include the following minimum documents and information:
- (i) a possession scope of works and Work Method Statement;
  - (ii) a possession layout plan, detailing worksite location, tracks affected, access locations;
  - (iii) an Oracle Primavera P6 subprogram;
  - (iv) a possession staging plans;
  - (v) Safe Work Method Statements and a Construction Environmental Management Plan;
  - (vi) a plant list;
  - (vii) a hi-rail plant movements schedule;
  - (viii) a possession request and notification documentation – including but not limited to; power isolation request, construction resource request, project works notification, project criticality assessment, work activity advice and any disruption notices etc.;
  - (ix) a worksite protection plan;
  - (x) a resource register of work personnel proposed to work on the possession with contact details and evidence of Rail Industry Safety Induction (RISI) certification or other safe working qualification (for each shift);
  - (xi) contact details for site based management including; Subcontractor management and protection officers;
  - (xii) detailed Site survey - for construction issue;
  - (xiii) out of hours work permit & community notifications;
  - (xiv) alternative accommodation letters (if applicable);
  - (xv) Authority Approvals – including but not limited to; road opening permit, road occupancy license, footpath opening permit;
  - (xvi) Traffic Management Plans / Traffic Control Plans;
  - (xvii) pedestrian management plans including within station and interchanges;
  - (xviii) approved for construction design including Temporary Works certification;
  - (xix) train-stop suppressions requirements;
  - (xx) possession train movements;
  - (xxi) ITPs, including a list of Hold Points and Witness Points;
  - (xxii) structural/civil/electrical/mechanical (plus all other disciplines) engineer advice (if applicable); and
  - (xxiii) workgroup interface meetings and notes.

### 11.2.2. Track Possession / Temporary Shutdown Program

- (a) The Contractor must prepare and submit to the Principal's Representative, for review, a detailed Track Possession / Temporary Shutdown program identifying the following minimum information:
- (i) the elements of the Contractor's Activities to be completed prior to the Track Possession / Temporary Shutdown;

- (ii) an hour by hour breakdown of the elements of the Contractor's Activities to be carried out during the Track Possession / Temporary Shutdown;
- (iii) milestones and the time and date by which they must be achieved so as to ensure that the rail infrastructure can be reinstated within the allocated time and which, if not achieved by the nominated time, would result in the Contractor bringing work to an end and commencing reinstatement of the rail infrastructure and other works to avoid a delay in returning the Track Possession / Temporary Shutdown and/or delays to trains;
- (iv) adequate allowance of time at the beginning and end of the Track Possession / Temporary Shutdown to safely remove and reinstate the affected rail infrastructure to operational condition and for providing and removing safeworking protection and for the Operator/Maintainer inspections and certifications;
- (v) the specific risks to be managed during the Track Possession / Temporary Shutdown and the procedures to be followed in managing these risks;
- (vi) any potential interface issue in any way connected with work carried out by an Other Contractor or involving the Operator/Maintainer's operational and maintenance activities; and
- (vii) progress / program review meetings scheduled during the Track Possession / Temporary Shutdown as requested by the Principal's Representative and/or the Operator/Maintainer.

### **11.2.3. Track Possession / Temporary Shutdown Staging Plans**

- (a) The Contractor must provide coloured staging plans for all work activities proposed to be completed during each Track Possession / Temporary Shutdown.
- (b) The Possession / Temporary Shutdown Staging Plans must include the following minimum documents and information:
  - (i) identifying various stage / work zones (colour coded);
  - (ii) all access paths, paths of travel for all equipment, lay down areas;
  - (iii) location of all plant and equipment (i.e. cranes, day makers, concrete pump / trucks etc.);
  - (iv) the swing and reach distances for each item of plant and equipment showing critical distances from rail infrastructure such as Track, platform edge / coping, signals, OHW and OHWS etc. and; and
  - (v) position of spotters, Protection Officers etc.

### **11.2.4. Track and Infrastructure Certification**

- (a) The Contractor must arrange a qualified track inspector to inspect and certify that the track infrastructure is suitable for train running after each Track Possession / Temporary Shutdown if the existing Tracks have been disturbed in any way e.g. excavation within the vicinity of the Track, or when the Track may have been used as an access for construction purposes during a Track Possession / Temporary Shutdown.
- (b) All remedial works required by the qualified track inspector must be undertaken and completed before the end of the Track Possession / Temporary Shutdown.

- (c) Any electrical or signal infrastructure disturbed or damaged as a result of the Contractor's Activities must be reported immediately to the Principal. The Contractor will be liable for the cost of rectification. The Contractor must take all necessary precautions and protect existing signal/electrical infrastructure when work is undertaken in the vicinity of such equipment.

### 11.2.5. Track Possession / Temporary Shutdown Progress reporting

- (a) The Contractor will submit a status report, every six hours from commencement of works, to the Principal Representative. The final status report will be issued once all worksites have been cleared and applicable permits returned.
- (b) The status report will be developed in consultation with the Principal's Representative. The status report will provide a summary narrative including progress, issues and mitigation measure related to the following; safety, environment, community, possession access and isolations, site interface, plant and resources, programme progress accompany by a stasured hour by hour program.
- (c) The Contractor will convene progress review meetings/conference calls during the Track Possession / Temporary Shutdown from site with the Principal Representative.

### 11.3. Non Track Possessions (including system isolations)

Where directed by the ~~Principle~~Principal's Representative, the Contractor must comply with the following requirements:

- (a) the Contractor must make the necessary arrangements with the Principal's Representative, Asset Owner or Operator/Maintainers prior to the Contractor's Activities taking place on assets or systems during Non Track Possessions;
- (b) the Contractor must comply with any permit requirements, rules and regulations or other requirements of the Asset Owner or Operator/Maintainer in regards the Contractor's Activities during Non Track Possessions;
- (c) Where critical construction resources (electrical distribution, electrical mains, signalling, track and commissioning) from Sydney Trains are required, the Contractor must submit a critical resource request (MS-10-FM-09 & MS-10-FM-10) to the Principal's Representative for review and processing at least 16 weeks prior to the commencement of the Non Track Possession.
- (d) ~~(e)~~ whilst the Principal will assist the Contractor in discussions with the relevant Asset Owners and Operator/Maintainers, the Principal cannot guarantee that all requests to take possession of assets or systems, for a Non Track Possession will be granted;
- (e) ~~(d)~~ the scope of Works and Temporary Works to be carried out in each Non Track Possession must be submitted to the Principal's Representative for review in accordance with the Contract, at least 8 weeks prior to the commencement of the Non Track Possession;
- (f) ~~(e)~~ the Contractor must comply with the requirements of the Principal's Representative, in relation to the certification and handover at the end of a Non Track Possession;
- (g) ~~(f)~~ the Contractor must immediately comply with any instructions by the Principal's Representative to alter or curtail the Contractor's Activities if the Principal's

Representative considers that continuing with intended Contractor's Activities will result in a delay to returning the Non Track Possession and/or delay to operational activities;

- (h) ~~(g)~~ the Principal may alter, cancel or curtail any Non Track Possession at any time;
- (i) ~~(h)~~ the Contractor must prepare and submit to the Principal's Representative for review in accordance with the Contract, prior to each Non Track Possession:
  - (i) a consolidated plan comprising all information required in advance of the Non Track Possession;
  - (ii) an Oracle Primavera P6 subprogram; and
  - (iii) any other information required by the Principal's Representative.

#### 11.4. Certification of the Works and Temporary Works

Before handing back an area at the end of any Track Possession / Temporary Shutdown or Non Track Possession, or before any Asset Handover; the Contractor must provide to the Principal's Representative and, if required by the Principal's Representative, to the Operator/Maintainer; the following:

- (a) written certification by the Contractor's designers (including design Subcontractors) that the relevant works are safely able to support the operating infrastructure;
- (b) for any adjustments to or interruptions of service to signalling, Track, overhead wiring or high voltage infrastructure, written certification from the Contractor's designers (including design Subcontractors) that such infrastructure is suitable for operations and complies with the approved design;
- (c) for any adjustments to or interruptions of service to signalling, overhead wiring or high voltage infrastructure, written certification from a Sydney Trains' (or other relevant Operator/Maintainer's) representative that such infrastructure is suitable for operations; and
- (d) all other infrastructure certification required by Sydney Trains or the relevant Operator/Maintainer and/or Asset Owner.

### 12. Commissioning and Operational Readiness

- (a) The Contractor must perform Commissioning and Operational Readiness activities on the Works and Temporary Works, prior to an Asset Handover.
- (b) The Contractor participate and lead Commissioning and Operational Readiness activities in accordance with this MR-PA and the stages listed in Annexure C.

#### 12.1. Commissioning

- (a) The Contractor must establish and chair a Commissioning Management Team whose membership may include representatives from the Principal, Asset Owners, Operator/Maintainer, TfNSW's technical advisors, Interface Contractors, Other Contractors, Follow on Contractors, Existing Operators and other Stakeholders, all as nominated by the Principal's Representative.
- (b) The role of the Commissioning Management Team is to ensure that the required activities are undertaken to enable all Works and Temporary Works to be commissioned and handed over in a controlled manner and in accordance with the Contract. This may apply to a permanent fulltime or temporary Asset Handover, where control of the assets return to the Contractor.



- (c) The Contractor's Commissioning activities must be carried out, in such a way as to compliment and support the Operational Readiness activities described in clause 12.2 below, and in accordance with the Contractor's Commissioning and Operational Readiness Management Plan described in this MR-PA.

## 12.2. **Operational Readiness**

- (a) The Contractor must work collaboratively with the Principal, Other Contractors, Interface Contractors, the Operator and Existing Operators to ensure that the programming, coordinating and execution of all Operational Readiness activities, including activities carried out by third parties to enable efficient Asset Handovers.
- (b) The Contractor must appoint a member from its organisation as the Contractor's Operational Readiness representative. The Contractor's Operational Readiness representative must be continuously available to participate in Operational Readiness Team (ORT) meetings organised by the Principal, and as otherwise required by the Principal.
- (c) The Contractor must:
- (i) attend all ORT meetings and Stakeholder's operation readiness meetings for the duration of the Contract;
  - (ii) provide information and report progress on the testing and Commissioning of the Works and Contractor's Activities, in order to facilitate Operational Readiness;
  - (iii) work collaboratively with the Principal and the ORT members;
  - (iv) develop and provide a training program or conducting familiarisation where required for the Operator/Maintainer's personnel;
  - (v) participate in Operational Readiness risk workshops, if requested by the Principal;
  - (vi) supply spares and any special tools, facilities and equipment required for Operational Readiness activities; and
  - (vii) prepare and maintain a register detailing all the certification and approvals required in relation to each type of Asset Handover (Milestone, Portion Completion or Construction Completion).
- (d) The Contractor must develop and implement training for the Operator/Maintainer and Asset Owner personnel as nominated by the Principal's Representative. The Contractor must:
- (i) provide training which covers the operation and maintenance of the Works;
  - (ii) provide to the Principal's Representative three full sets of training aids and material for the Principal's use in future training. All training aids and material must be of a good commercial standard and appropriate for the training to be conducted;
  - (iii) provide training that is based upon the Asset Management Information documentation developed in accordance with the Contract;
  - (iv) provide qualified people to conduct all training who are appropriately skilled, qualified, experienced and competent in the field involved, and who have completed formal training in instruction techniques;
  - (v) schedule training courses, taking into account the possibility that some trainees will be required to attend more than one course;

- (vi) conduct training on site wherever possible. When training is provided off-site, it must be provided in the Sydney metropolitan region;
- (vii) Where access to particular equipment is required, training must be undertaken on equivalent duplicate equipment to that in the Works. Off-site training must be supplemented with visits to the applicable installed system on site; and
- (viii) keep a register of attendance at training. These records must be submitted to the Principal's Representative at completion of the training.

### 13. **Asset Handover**

- (a) The Contractor must work with the Principal's Representative prior to each Asset Handover and provide the required AMI, Design Documentation, certification, Authority Approvals, Documents and other information to achieve successful Asset Handover.
- (b) Certification of the Works and Temporary Works, by the Contractor must be carried out progressively and as required by the Principal's Representative.
- (c) Where assets are handed over on a staged basis for Portion Completion, Construction Completion, Milestones or other situations, the Contractor's Program must reflect the relevant activities, including testing, commission, Operational Readiness and the provision of AMI prior to, and including Asset Handover.
- (d) Where relevant, the Contractor must comply with the requirements of the Principal Contractor's Handover Process SMPS-PW-318 document.

(e)

## **Annexure A: List of Reference Documents**

- Sydney Metro Industry Curriculum Guide SM ES-FT-433.
- Sydney Metro Basis of Schedule & Management Procedure SM PD-PW-307 TfNSW Audit and Compliance Standard SM QM-ST-202.
- Sydney Metro Principal Contractor Health & Safety Standard SM PS ST-221.
- Sydney Train's Detailed Site Survey Management Plan.
- TfNSW Sydney Metro Risk Management Standard SM RM-ST-201.
- Workforce Profile and Gap Plan Template SM ES-FT-435.
- Workforce Development Output Delivery Profile Template SM ES-FT-435.
- Training Needs Analysis SM ES-FT-432.
- Employers Information Requirements SM ES-ST-203.
- TfNSW's Coordinating and Reporting of AEOC Critical Resources through P6 4TP-PR-172.
- Chain of Responsibility Standard SM PS-ST 222.
- Principal Contractor's Handover Process SM PS-PW-318.
- ASA T MU MD 00015 ST (available on internet)
- Sydney Trains Network Access Manual Volume 1.
- Sydney Trains Network Access Manual Volume 2 (available on internet).
- Sydney Trains Possession Notice 10 (available on internet).

## Annexure B: Property Compliance Checklist

Property Compliance Checklist Pre-Site Occupation/Pre-Construction Commencement:


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1	Has the Contractor been liaising with the Principal's Property Manager?	Y N n/a Comment: [insert text here]	
2	Have all properties affected by the SSJ Project been identified?	Y N n/a Comment: [insert text here]	
3	Has a list of all affected properties been issued to the Principal?	Y N n/a Comment: [insert text here]	
4	Are all properties owned by the Principal?	Y N n/a Comment: [insert text here]	
5	Is access required to properties owned by other parties?	Y N n/a Comment: [insert text here]	
6	Are all agreements in place with other landowners to permit the contractor to undertake the works?	Y N n/a Comment: [insert text here]	
7	Have all surveys been conducted?	Y N n/a Comment: [insert text here]	
8	Have all surveys been cross-checked with the designs?	Y N n/a Comment: [insert text here]	
9	Do any of the proposed works fall outside the property/site boundaries?	Y N n/a Comment: [insert text here]	
10	If so, has the Contractor got agreements to build on the adjoining land?	Y N n/a Comment: [insert text here]	
11	Are new easements, stratum, MOUs or WADs with Stakeholders required for the SSJ Project?	Y N n/a Comment: [insert text here]	
12	Have any new easement,	Y N n/a	



	stratums, MOUs or WADs been drafted and issued to the Principal for review?	Comment: [insert text here]	
13	Have all property Pre-Condition Surveys been conducted and submitted?	Y N n/a Comment: [insert text here]	
14	Has the Asset Management Plan been considered in design?	Y N n/a Comment: [insert text here]	
15	Are there any other property risks?	Y N n/a Comment: [insert text here]	



## Annexure C: Stages of Commissioning & Operational Readiness

### C1: Non Metro Station Works

1	Factory acceptance tests	Element and system testing prior to delivery to Site	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
2	Installation / operational checks	Covers all tests and checks with installation of elements of the Works.	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
3	Site acceptance tests	Covers a final inspection, testing, Commissioning and Validation of individual systems.	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
4	System integration tests and Commissioning	Covers testing, Commissioning and Validation of interdependent systems and related systems including across interfaces with work of Other Contractors.	Contractor and Other Contractors	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
5	Integration with Network	Covers integration of systems into the existing network.	Contractor, Other Contractors and Operator/Maintainer or Owner	Certification by Contractor with an opportunity for the Principal's Representative and Independent

				Certifier to witness.
6	Acceptance tests	Covers acceptance tests to validate systems.	Contractor, Other Contractors and Operator/Maintainer or Owner	Certification by Contractor with an opportunity for the Principal's Representative and Independent Certifier to witness. All records and documentation provided and certified.
7	Accreditation of new infrastructure	Involves provision by Contractor of comprehensive documentation to enable Operator/Maintainer or Owner to seek and obtain amendment to its existing accreditation to allow for the incorporation of the new infrastructure provided under this Contract.	Contractor, Other Contractors and Operator/Maintainer or Owner	All records and documentation provided and certified.
8	Pre-commercial operations and operational staff training	Involves the Works operating on the network to enable owner / operator staff training to be completed and systems to be stabilised.	Operator/Maintainer or Owner and Contractor	Contractor to provide attendance and maintenance accompanied by Operator/Maintainer and Owner staff as part of the requirements for training and Asset Handover to Principal and operation.
9	Completion and Asset Handover of Works	Contractor's Certificate of Completion for the Works confirming the Works has been completed with no	Contractor and Operator/Maintainer or Owner	Certification by the Contractor

		outstanding Works, Contractor's Activities or Defects that prevent the fully functional operation of the Works.		
10	Setting to Works for commercial operation	Pre-commercial operation of the new parts of the network	Operator/Maintainer or Owner	Attendance by Contractor and completion of Defect rectification

### C2: Metro Station Works

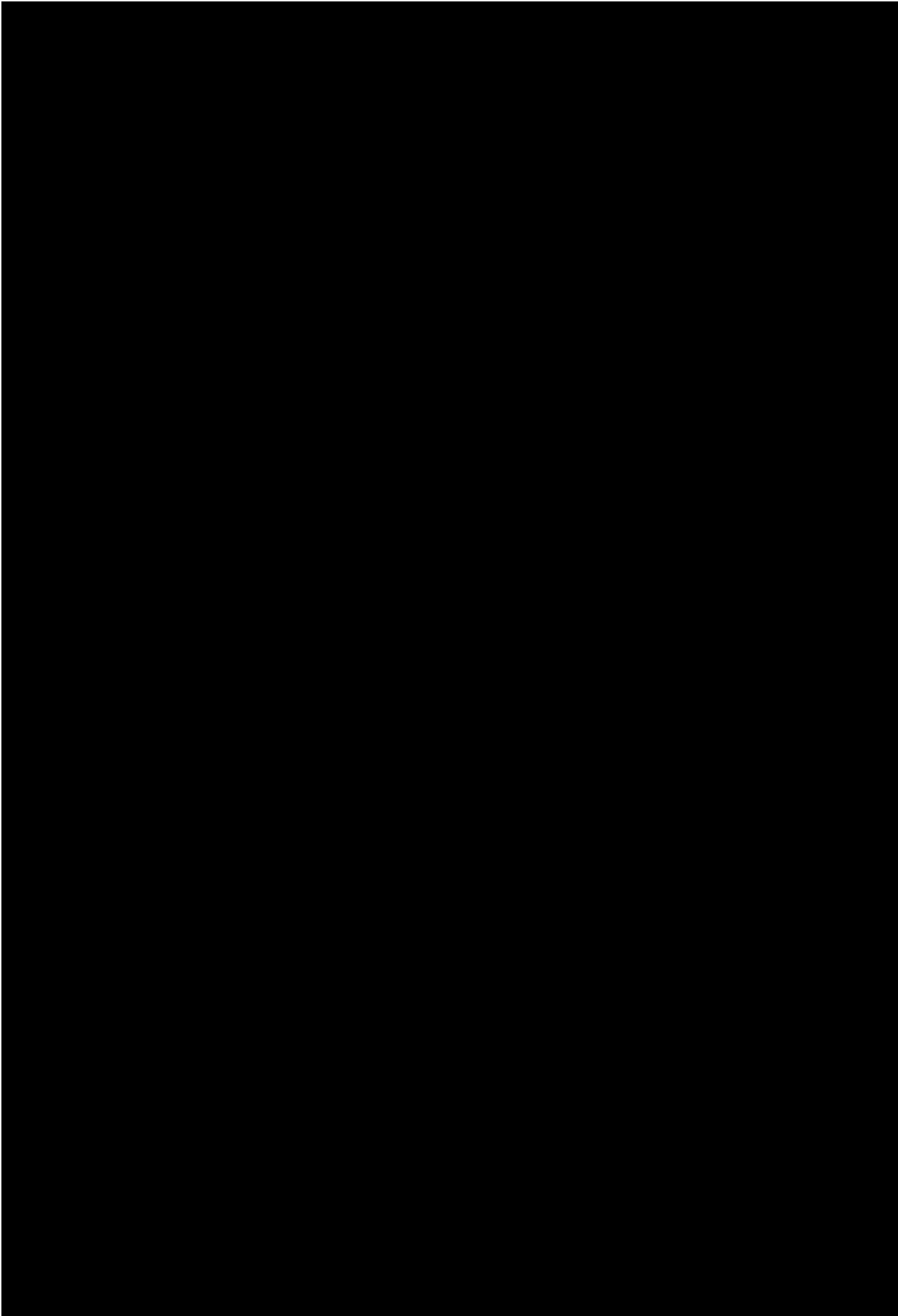
The following requirements apply to the Metro Station Works.

Stage 1: Off-Site Tests				
1	First Article Inspection Tests	Design of equipment being manufactured in factory is subject to quality, finish, dimensions and function checks	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
2	Type Tests	Material or equipment which has not been used in similar railway application and has not been subject to type test before.	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
3	Factory Acceptance Tests	Element and system testing in factory prior to delivery to Site demonstrating compliance with requirements of the Contract.	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.

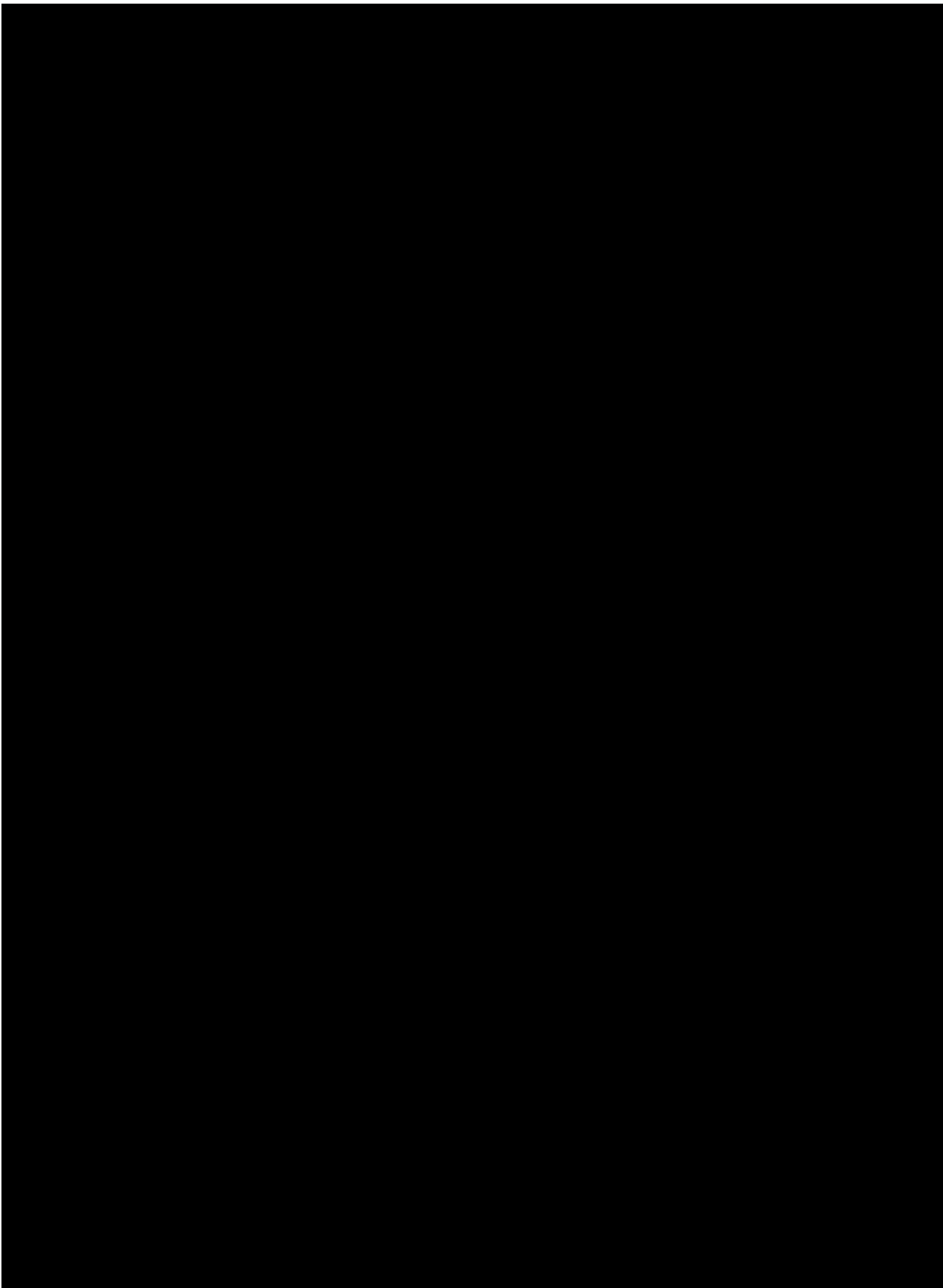


4	Integrated Factory Acceptance Tests	<p>The following interfaced systems must be verified for correct communication and information exchange using simulated testing setup.</p> <ul style="list-style-type: none"> <li>· Building Management System and Central Control System</li> <li>· Station fire indicator panel and Central Control System</li> </ul>	Contractor	Certification by Contractor, with an opportunity for the Principal's Representative and Independent Certifier to witness.
<b>Stage 2: Site Tests</b>				
5	Site installation and operations checks	Tests on a part or the whole of the installation, which are required to verify correct installation of the works, before they are covered or connected up. Example : "Megger" test, leakage test, pressure test	Contractor	To be agreed with the Principal's Representative and described in the relevant Management Plans
6	Site acceptance tests	Tests on a complete system or equipment verifying the full range of performance functions, as specified in the deed.	Contractor	To be agreed with the Principal's Representative and described in the relevant Management Plans
7	System integration tests	Tests which demonstrate the correct functioning and operation of interfacing systems, which form parts of the railway, in a systematic and controlled manner.	Contractor and Other Contractors	Scope of tests must be agreed prior to the tests with the expected outcome included in the draft procedures.
8	System acceptance tests (SAT)	<p>The tests undertaken to demonstrate that the system as a whole is capable of functioning in accordance with the specified requirements of the Contract</p> <p>SAT on individual systems must be satisfactorily completed prior to commencement of Test Running and Trial Running.</p>	Contractor and Other Contractors	To be agreed with the Principal's Representative and described in the relevant Management Plans
<b>Stage 3: Performance Tests</b>				

9	Initial Performance Test (Test Running)	These are system-wide tests to demonstrate the correct and safe operation of the entire railway. The railway as a whole is validated for meeting the system performance requirements (SPR). Tests are also performed to confirm achievement of the reliability and availability targets. Test Running must be satisfactorily completed before Trial Running commences.	Other Contractors	All contractors involved must provide support services to the Test Running.  Operator personnel will attend and witness the Test Running.
10	Trial Running	The railway will be operated according to a pre-planned train schedule, initially for a short duration which is progressively extended.	The Operator	The Operator will lead Trial Running supported by all other contractors.
11	System Performance Test	Operation of the integrated railway of SMNW (with passengers) and SMCSW (without passengers) continuously for a pre-agreed duration of time each day in accordance with Service and System Performance Requirements, achieving the target performance for 7 consecutive days.	The Operator	Supported by all contractors.
12	Capacity Performance Test	Operation of the integrated railway of SMNW and SMCSW continuously as in Revenue Service (without passenger) for a pre-agreed duration of time each day in accordance with the Capacity Performance Time-table, achieving the target performance for 2 hours in each of the 4 consecutive no service periods.	The Operator	Supported by all contractors.
13	Final Performance Test	Operate the integrated railway with the Indicative Final Performance time table for the City Section Final Performance Test to the Public and the integrated railway will be run in accordance with the Final Performance Test time table	To be agreed with the Principal's Representative and described in the relevant Management Plans	To be agreed with the Principal's Representative and described in the relevant Management Plans











Transport  
for NSW

# Management Requirements – Sustainability – Sydenham Station and Junction Works Contract (MR-Sy)

DOCUMENT NUMBER: SM-17-00013830

~~14 September~~ 13 December 2017

Table of Contents

1.	Introduction.....	3
2.	General.....	3
3.	Governance.....	3
4.	Climate Change.....	4
5.	Carbon and Energy Management.....	5
6.	Resources.....	6
7.	Supply Chain.....	7
8.	Community Benefit.....	8
9.	Sustainability Reporting.....	8
10.	Construction Environmental Management Framework (CEMF).....	11
Annexure A:	Reference Documents.....	12
Annexure B:	CEMF Requirements included in the Contractor's Activities.....	13
Annexure C:	Project Specific Requirements.....	15

## 1. Introduction

### 1.1. Purpose

- (a) This Management Requirements – Sustainability (MR-Sy) describes requirements and processes in relation to management, reporting and sustainability related aspects of the Works, Temporary Works and the Contractor's Activities.
- (b) This MR-Sy must be read in conjunction with other parts of the Contract.
- (c) The Contractor must comply with the requirements of this MR-Sy and any Reference Documents listed in Annexure A to this MR-Sy.

### 1.2. Definitions

Refer to MR-Prelude and the General Conditions for a definition of terms used in this MR-Sy.

## 2. General

- (a) Where noted in Annexure C – Project Specific Requirements, the Contractor must comply with the requirements of this MR-Sy, as amended by Annexure C.
- (b) The Contractor must provide copies of all the Documents required in this MR-Sy in “.pdf” format that comply with the Level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0).
- (c) The Contractor must ensure that sustainability is addressed throughout the performance of the Contractor's Activities and that sustainability is embedded into the design and construction of the Works and the Temporary Works.

## 3. Governance

- (a) The Contractor must develop, implement and maintain governance structures, processes and systems that ensure integration and implementation of all sustainability considerations, initiatives and reporting.
- (b) For the Contractor's Activities related to the Works, the Contractor must:
  - (i) enter into a Ratings Agreement to obtain an Infrastructure Sustainability Rating for the Contractor's Activities, and provide a copy to the Principal's Representative;
  - (ii) use the IS Rating Scheme to achieve a “Design” rating score of at least 75 for the design of the Works, and an “As Built” rating score of at least 75 for the constructed Works;
  - (iii) use the IS Rating Scheme credit weightings provided by the Principal's Representative; and
  - (iv) use the ISCA Base Case Assumptions provided by the Principal's Representative to develop Base Case Footprints for relevant IS Rating Scheme credits.

- (c) The rating scores under the IS Rating Scheme must be verified by Infrastructure Sustainability Council of Australia verifiers in accordance with the IS Rating Scheme process using the IS Rating Scheme tool version 1.2.
- ~~(d) For the Contractor's Activities related to the Works, the Contractor must:~~
- ~~(i) register the project with the Green Building Council of Australia (GBCA);~~
  - ~~(ii) use the Green Star Design & As Built Rating Tool (GSDABRT) to calculate the 'Design' and 'As Built' rating scores;~~
  - ~~(iii) achieve a GSDABRT 'Design' rating of at least 5 stars for the design of the Works; and~~
  - ~~(iv) achieve a GSDABRT 'As Built' rating of at least 5 stars for the delivery of the Works.~~
- ~~(e) The GSDABRT rating scores must be verified by the GBCA in accordance with the Green Star Rating System.~~
- (d) ~~(f)~~ The sustainability objectives and requirements described in the Contract must be allowed for and addressed in:
- (i) design briefings for all personnel involved in the preparation of Design Documentation;
  - (ii) the Design Documentation;
  - (iii) site inductions for all of the Contractor's personnel and Subcontractor's personnel engaged in the Contractor's Activities; and
  - (iv) Management Plans for the management, coordination and delivery of the Contractor's Activities.
- (e) ~~(g)~~ The Contractor must also:
- (i) participate in Sustainability Forums, hosted by the Principal's Representative on a regular (at least monthly) basis and present progress updates, sustainability performance information and sustainability lessons learned and provide other information as requested;
  - (ii) develop, implement, maintain and submit to the Principal's Representative for review in accordance with the Contract, a Sustainability Assurance Framework to identify and track compliance with the sustainability requirements defined in the Contract, ~~which complies with the requirements of the AA1000 Accountability Principles Standard (AA1000APS) 2008 and Global Reporting Initiative G3.1 Guidelines version 3.0;~~ and
  - (iii) prepare and submit each year, by 31 August to the Principal's Representative for review in accordance with the Contract, an annual sustainability report which demonstrates the Contractor's performance in economic, social, environmental and governance areas over the last Financial Year.

#### 4. **Climate Change**

The Contractor must:

- (a) identify and describe in the Design Documentation, and implement climate change initiatives which demonstrate that the Works have been designed to combat and be resilient to the effects of climate change during each Design Stage referred to in MR-T;
- (b) undertake climate change risk assessments in respect of the Works in accordance with the guidance and requirements included in the TfNSW Climate Risk Assessment Guidelines 2016 and the Infrastructure Sustainability Council of Australia's IS Rating Tool Technical Manual V1.2 – Climate Change Adaptation chapter. The risk assessments must be used as an input to inform the Design Work and be documented in the Design Documentation submitted to the Principal's Representative at Design Stage 1;
- (c) identify all necessary adaptation measures that comprehensively address risks classified as "extreme" and "high" during the design life of the Works using AS/NZS ISO 31000:2009 Risk management – Principles and guidelines;
- (d) implement measures to mitigate:
  - (i) all climate change risks classified as "extreme" and "high" in clause 4 (b) above; and
  - (ii) implement measures to mitigate at least 25% of all climate change risks classified as "medium" in clause 4 (b) above.
- (e) ensure that the climate change projections and guidance which the Contractor uses to underpin the climate change risk assessment in clause 4 (b) above are the most recent available and are consistent with industry best practice, including NWRLSRT-PBA-SRT-SU-REP-000022 Climate Resilience Report.

## 5. Carbon and Energy Management

The Contractor must:

- (a) undertake greenhouse gas assessment and reporting which covers the, Works, Temporary Works and Contractors Activities, in accordance with the requirements of TfNSW's Carbon Estimate and Reporting Tool (CERT). All reports required to be produced under the CERT must be provided to the Principal's Representative for review by the Principal's Representative in accordance with the Contract;
- (b) demonstrate, using the CERT, that the Contractor has achieved at least a 20% reduction in greenhouse gas emissions associated with the Contractors Activities, measured against the CERT Base Case generated using the CERT, during Design Stage 3 and again prior to the Date of Construction Completion of the final Portion to reach Construction Completion;
- (c) ensure, and provide evidence to the Principal's Representative that, as a minimum, ~~100~~25% of the total electricity being used in carrying out the Contractor's Activities is being offset through either one or a combination of the following:
  - (i) purchase of Australian Carbon Offset Credits; and
  - (ii) purchase of renewable energy from an Accredited Renewable Energy Supplier.



- (d) develop and implement Green Travel Plans for the personnel engaged in delivery of the Contractor's Activities.

## 6. Resources

### 6.1. Water Efficiency

The Contractor must:

- (a) undertake a water balance study and submit it to the Principal's Representative (prior to the commencement of construction work) that identifies the sources, uses and estimated quantities of potable and non-potable water which will be either created or used in the performance of the Contractor's Activities;
- (b) ensure that the water balance study in clause 6.1 (a) above identifies initiatives to reduce water demand and use non-potable water, which must be adopted in order to achieve the targets set out in clause 9; and
- (c) meter the water supplied for the Contractor's Activities from both recycled water networks and potable sources in order to report against the targets set out in clause 9 below.

### 6.2. Materials

The Contractor must:

- (a) include evidence in its Design Stage 1, Design Documentation of how materials use has been minimised through materials avoidance, reduction and innovative design;
- (b) undertake life-cycle assessments in accordance with ISO 14044:2006 or an alternative mechanism pre-agreed with the Principal's Representative to assist in selection of the most appropriate low-impact materials for the Contractor's Activities, Works and Temporary Works including (as a minimum):
  - (i) concrete;
  - (ii) steel;
  - (iii) architectural tunnel lining;
  - (iv) flooring;
  - (v) wall lining; and
  - (vi) glazing.
- (c) ensure that the life-cycle assessments in clause 6.2 (b) are undertaken before the completion of Design Stage 1, and the results of the life cycle assessments are included in its Design Documentation for Design Stage 1;
- (d) maximise the use of recycled steel, in the Works and Temporary Works;
- (e) use low volatile organic compounds (VOC) paints, finishes, sealants and adhesives and low emission formaldehyde composite wood products in the Works and the Temporary Works;
- (f) ensure that all surface coatings used in the Works comply with the VOC Limits defined in the Australian Paint Approval Scheme;



- (g) source the following materials for the Works and Temporary Works in accordance with the following requirements:
- (i) concrete must be sourced from members of the Cement Concrete and Aggregate Australia; or a “similar” international association or organisation by agreement with the Principal’s Representative;
  - (ii) steel must be sourced from suppliers that are certified under the Australian Certification Authority for Reinforcing and Structural Steels or a “demonstrated equivalent” approved association or organisation, where agreed by the Principal’s Representative;
  - (iii) steel must be sourced from steelmakers with an ISO 14001:2015 Environmental management certified Environmental Management System;
  - (iv) fabricated steel products must be in accordance with AS 5131:2016 Structural steelwork – Fabrication and erection and certified through the National Structural Steelwork Compliance Scheme;
  - (v) at least 60% by mass of all reinforcing steel has been produced using energy-reducing processes, which include Polymer Injection Technology or its equivalent, in its manufacture;
  - (vi) Polyvinyl chloride must be compliant with the Green Building Council of Australia Best Practice Guidelines for PVC in the Built Environment; and
  - (vii) timber products must be sourced from one or more of the following:
    - A. re-used timber;
    - B. post-consumer recycled timber;
    - C. timber suppliers in Australia certified by the Forest Stewardship Council, Australia; or
    - D. timber suppliers in Australia, certified under the Program for the Endorsement of Forest Certification.
- (h) record the percentage of steel sourced from Australian manufacturers and make this information available to the Principal’s Representative upon request;
- (i) identify and implement initiatives to both reduce spoil quantities which will be generated during the performance of the Contractor’s Activities and maximise the beneficial reuse of spoil; and
- (j) ensure that 100% of spoil which can be re-used, is beneficially reused in accordance with the spoil reuse hierarchy identified in the Environmental Documents and is not disposed to landfill.

## 7. Supply Chain

The Contractor must:

- (a) develop, implement and maintain a sustainable procurement policy and processes that comply with the requirements of BS 8903:2010 “Principles and framework for procuring sustainably – Guide”, and include them in the Sustainability Management Plan required in Appendix B clause 3.2;

- (b) achieve, as a minimum, the following for its procurement activities using the IS Rating Scheme version 1.2 tool:
  - (i) Level 2 for Pro-1 “Commitment to sustainable procurement”;
  - (ii) Level 3 for Pro-2 “Identification of suppliers”;
  - (iii) Level 3 for Pro-3 “Supplier evaluation and contract award”; and
  - (iv) Level 2 for Pro-4 “Managing supplier performance”.
- (d) demonstrate that sustainability training is being provided to High Impact Suppliers; and
- (e) use a risk based approach to ensure that where High Impact Materials are sourced from a Developing Country the supplier's operations are in compliance with:
  - (i) all relevant laws and regulations local to that country;
  - (ii) the International Labour Organization's Fundamental Conventions; and
  - (iii) the “Ten Principles” of the UN Global Compact.

## 8. Community Benefit

The Contractor must identify and implement at least four community benefit initiatives in each of the following categories which provide demonstrable and tangible benefits to:

- (a) local community groups, during the construction period; and
- (b) the broader local community beyond the construction period.

## 9. Sustainability Reporting

- (a) The Contractor must prepare and submit a report named the “Climate Change Impact Assessment Report” to the Principal's Representative for review in accordance with the Contract, at Design Stage 1, Design Stage 2, Design Stage 3 Design and again prior to the Date of Completion of the last Portion to reach Completion.
- (b) The Climate Change Impact Assessment Report must:
  - (i) be prepared in accordance with the guidance and requirements included in the TfNSW Climate Risk Assessment Guidelines;
  - (ii) identify any project-specific climate change risks (utilising climate modelling data); and
  - (iii) identify risk mitigation measures which have been and will be implemented to reduce risk levels.
- (c) The Contractor must prepare and submit to the Principal's Representative for review in accordance with the Contract, a report titled the “Greenhouse Gas Inventory Report”, to be prepared using the CERT at Design Stage 1, ~~Design Stage 2~~, Design Stage 3, ~~six-monthly~~ annually thereafter and again prior to the Date of Construction Completion of the last Portion to reach Construction Completion.
- (d) The Greenhouse Gas Inventory Report must include data relating to emissions associated with electricity and fuel consumption, on-site process emissions and

embodied emissions for all materials used in the Contractor's Activities, Works and Temporary Works.

- (e) The Contractor must provide an inventory of non-road diesel powered vehicles to be used for the Contractor's Activities within 1 month of the commencement of the Delivery Phase and subsequently, annually using TfNSW's Air Emission Data Collection Workbook 9TP-FT-439.
- (f) Until the Date of Construction Completion of the last Portion to reach Construction Completion, the Contractor must submit six hard copies of a report titled the "Quarterly Sustainability Report" (QSR) to the Principal's Representative in accordance with the Contract and one hard copy to the Independent Certifier by the seventh day of the month following the end of that quarterly period.
- (a) The QSR must be easy to understand and the Contractor must provide a copy in a.pdf format that complies with the Level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0) for uploading to the Principal's Sydney Metro website.
- (g) The QSR must, as a minimum, include, address and detail:
  - (i) an executive summary;
  - (ii) the status of the implementation of the sustainability strategies and initiatives identified in the Sustainability Management Plan, required under MR-PA;
  - (iii) an update on "Design" and "As Built" performance against the Infrastructure Sustainability Council of Australia IS Rating tool version 1.2 required in clause 3 above;
  - ~~(iv) an update on "Design" and "As Built" performance using the GSDABRT, as required in clause 3 above;~~
  - (iv) ~~(v)~~ climate change risk assessments undertaken and details of where the climate change risk assessment have influenced the design and construction for the Works and Temporary Works;
  - (v) ~~(vi)~~ details of greenhouse gas reduction initiatives which have been implemented in the design and construction Works and Temporary Works;
  - (vi) ~~(vii)~~ life cycle assessments undertaken, and details of environmental impact reduction initiatives which have been implemented in the design and construction Works and Temporary Works;
  - (vii) ~~(viii)~~ compliance with sustainable procurement requirements described in clause 7 above;
  - (viii) ~~(ix)~~ the sustainability performance of the Contractor against all other requirements contained in this MR-Sy; and
  - (ix) ~~(x)~~ corrective actions taken where Defects in the Works, Temporary Works or Contractor's Activities relating to sustainability were identified.
- (h) In addition and until the Date of Completion of the last Portion to reach Completion, the Contractor must submit to the Principal's Representative for review in accordance with the Contract, a report titled the "Monthly Sustainability Data Report" (MSDR) by the seventh day of each month ([A lag of one month is](#)

acceptable. For example, the Monthly Sustainability Data Report containing reporting data for the previous month October is due on the seventh day of December).

- (i) The Contractor's MS DR must as a minimum, detail the Contractor's performance against the targets identified in the Sustainability Management Plan, Spoil Management Plan, Carbon and Energy Management Plan, and Materials Management Plan (all required under MR-PA), using the Sydney Metro City & Southwest Sustainability Reporting Template SME ES-FT- 439 including reporting on:
  - (i) Scope 1 Carbon Emissions, Scope 2 Carbon Emissions, Scope 3 Carbon Emissions and Total Carbon Emissions;
  - (ii) performance against the Carbon Emission Target identified in the Carbon and Energy Management Plan;
  - (iii) electricity consumption and generation, including any on-site renewable energy generation and any renewable energy sourced for the construction of the Works and Temporary Works and performance against Electricity Consumption Targets included in the Sustainability Management Plan;
  - (iv) quantity of greenhouse gas emissions associated with electricity consumption which have been offset, and method of offset;
  - (v) fuel consumption and performance against Fuel Consumption Targets;
  - (vi) volume of potable mains water consumed for the Contractor's Activities, and performance against the Mains Water Consumption Target;
  - (vii) volume of non-potable water consumed for the Contractor's Activities, including details of the sources of non-potable water, and performance against the Non-Potable Water Consumption Target;
  - (viii) percentage of water consumed for the Contractor's Activities which has been sourced from non-potable sources;
  - (ix) waste generation, recycling and disposal; total quantity of waste generated; quantity of non-putrescible general solid waste generated and percentage which has been recycled or reused; quantity of construction and demolition waste generated and percentage which has been recycled or reused; quantity of office waste generated and percentage which has been recycled or reused;
  - (x) the volume of spoil reused within the Site, beneficially reused off-site or disposed of off-site against the Spoil Targets identified in the Spoil Management Plan;
  - (xi) destinations for spoil which has been beneficially reused off-site or disposed of off-site;
  - (xii) quantities of steel and concrete which have been used for the Contractor's Activities;
  - (xiii) volume weighted average percentage cementitious content in concrete used for the Contractor's Activities which has comprised fly ash or slag; and
  - (xiv) such other information that the Principal's Representative may request.

## 10. **Construction Environmental Management Framework (CEMF)**

The Contractor must comply with the relevant clauses of the CEMF SM ES-ST-204 as listed in Annexure B of this MR-Sy.

## Annexure A: Reference Documents

The following are Reference Documents:

- NWRLSRT-PBA-SRT-SU-REP-000013 Climate Change Resilience Report.
- Air Emission Data Collection Workbook 9TP-FT-439.
- Sydney Metro City & Southwest Sustainability Reporting Template SME ES-FT-439.
- Sydney Metro Construction Environmental Management Framework CEMF SM ES-ST-204.
- TfNSW Climate Risk Assessment Guidelines 9TP-SD-081 (available on internet).
- TfNSW Carbon Estimation and Reporting Tool "CERT" (available on internet).

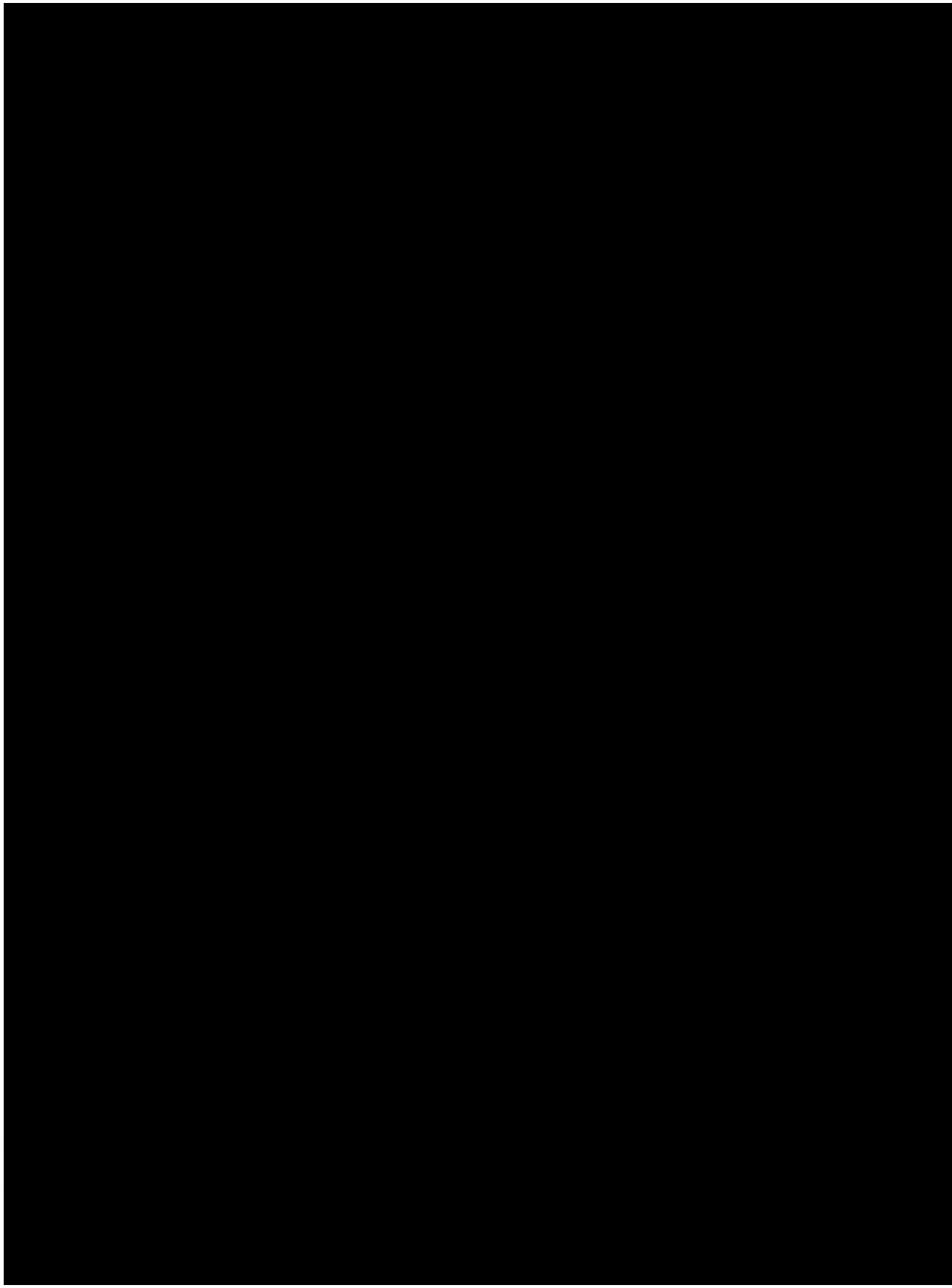


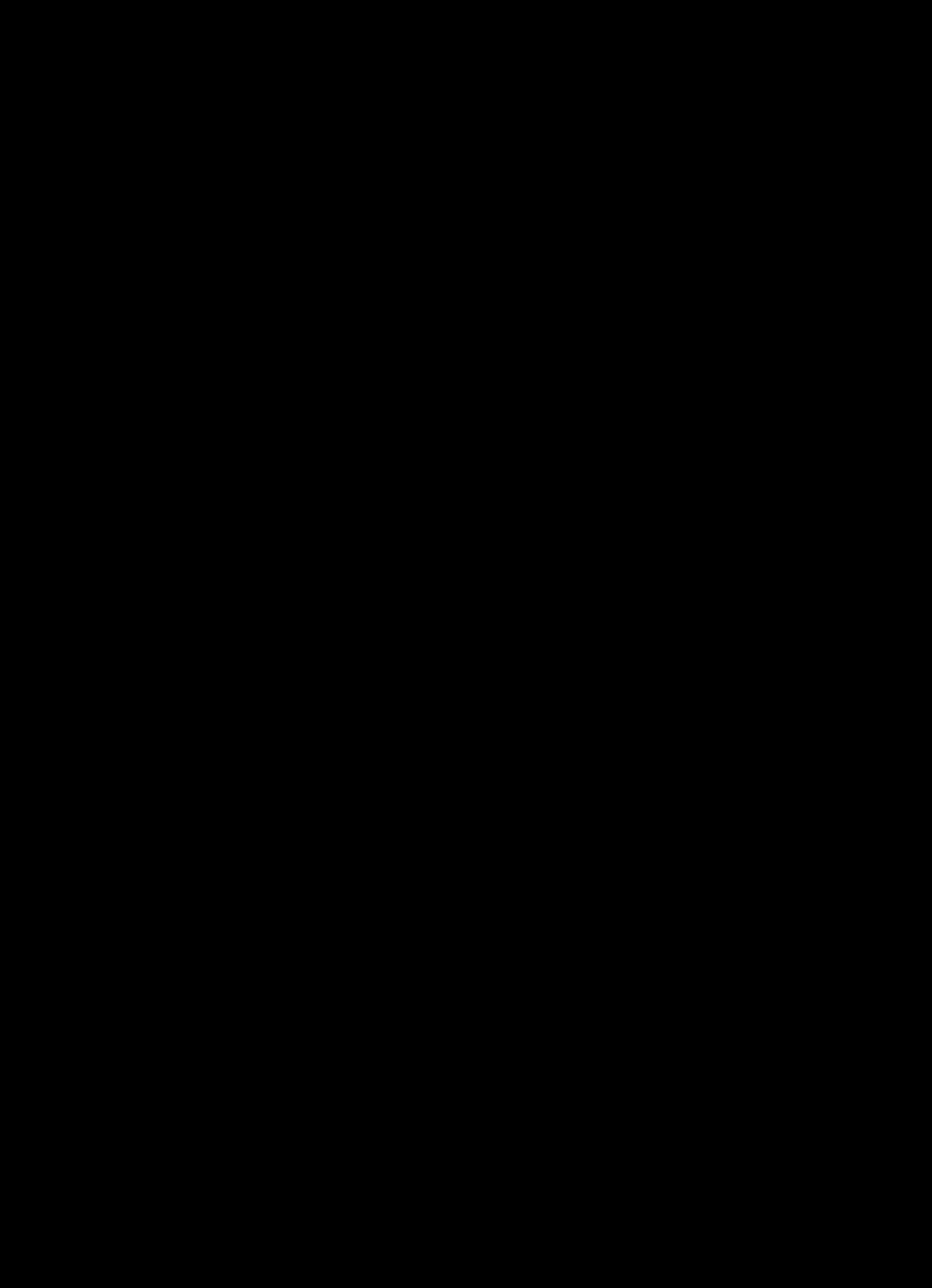
## Annexure B: CEMF Requirements included in the Contractor's Activities

1.3	Environment and Sustainability Policy	The Contractor must comply with these requirements.
2.1	Legislation	The Contractor must comply with these requirements except the Principal retains the obligation to address any legislation which is not relevant to the Contractor's Activities.
3.1	Environmental and Sustainability Management System	The Contractor must comply with these requirements.
3.2	Construction Sustainability Management Plan (referred to as the SMP)	<p>The Contractor must comply with these requirements. The SMP must also include a matrix of all the Contract requirements (including those in the SWTC and MR-Sy) relating to sustainability, referencing the relevant document clause.</p> <p>The Contractor must provide an SMP with the following sub-plans:</p> <ul style="list-style-type: none"> <li>a) Construction Carbon and Energy Management Plan;</li> <li>b) Waste Management and Recycling Plan; and</li> <li>c) A Materials Management Plan</li> </ul> <p>In relation to the Workforce Development Plan the Contractor must comply with the requirements of MR-PA and not clause 3.2 (d) of the CEMF.</p>
13.1	Carbon and Energy Management Objectives	The Contractor must comply with these requirements.
13.2	Carbon and Energy Management Implementation	The Contractor must comply with these requirements. The Carbon and Energy Management Plan must include estimates of Scope 1, Scope 2 and Scope 3 emissions and the Carbon Emission Target.
13.3	Carbon and Energy Mitigation	The Contractor must comply with these requirements.
14.1	Materials Management Objectives	The Contractor must comply with these requirements.

14.2	Materials Management Implementation	The Contractor must comply with these requirements.
14.3	Materials Mitigation	The Contractor must comply with these requirements.
17.1	Waste Objectives	The Contractor must comply with these requirements.
17.2	Waste Implementation	The Contractor must comply with these requirements.
17.3	Waste Mitigation	The Contractor must comply with these requirements.









Transport  
for NSW

# Management Requirements – Technical Management – Sydenham Station and Junction Works Contract (MR-T)

Document Number: SM-17-00015435

~~14 September 2017~~ 10 January 2018

**Table of Contents**

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<b>1.</b>	<b>Introduction</b>	<b>3</b>
<b>2.</b>	<b>General</b>	<b>3</b>
<b>3.</b>	<b>Design Development and Review</b>	<b>4</b>
<b>4.</b>	<b>Interface Management</b>	<b>11</b>
<b>5.</b>	<b>Design Review Panel</b>	<b>14</b>
<b>6.</b>	<b>Heritage Working Group (HWG)</b>	<b>15</b>
<b>7.</b>	<b>Presentation of the Design to Sydney Trains and the Operator</b>	<b>16</b>
<b>8.</b>	<b>Presentation of the Design to the ARTC</b>	<b>16</b>
<b>9.</b>	<b>Configuration</b>	<b>16</b>
<b>10.</b>	<b>Requirements Management</b>	<b>18</b>
<b>11.</b>	<b>Digital Engineering</b>	<b>19</b>
<b>12.</b>	<b>Value Engineering</b>	<b>20</b>
<b>13.</b>	<b>Temporary Works Design Management and Review</b>	<b>20</b>
<b>14.</b>	<b>System Verification Reviews</b>	<b>21</b>
<b>15.</b>	<b>Testing</b>	<b>22</b>
<b>16.</b>	<b>Construction Compliance with Design</b>	<b>22</b>
<b>17.</b>	<b>Physical Configuration Audit</b>	<b>23</b>
<b>Annexure A:</b>	<b>List of Reference Documents</b>	<b>24</b>
<b>Annexure B:</b>	<b>Project Specific Requirements</b>	<b>25</b>
<b>Annexure C:</b>	<b>Specific Design Documentation</b>	<b>26</b>

## 1. Introduction

### 1.1. Purpose

- (a) This Management Requirements - Technical Management (MR-T) describes technical engineering management requirements and processes.
- (b) This MR-T must be read in conjunction with other parts of the Contract.
- (c) The Contractor must comply with the requirements of this MR-T including the Reference Documents in Annexure A.

### 1.2. Definitions

Refer to MR-Prelude, the General Conditions and the Scope of Works and Technical Criteria-Appendix 01-Defined Terms and Acronyms for a definition of terms used in this MR-T.

### 1.3. General Requirements

Where noted in Annexure B – Project Specific Requirements, the Contractor must comply with the requirements of this MR-T, as amended by Annexure B.

## 2. General

- (a) The Contractor must manage the design process in accordance with the details and information provided in its Engineering Management Plan as described in MR-PA, and develop Design Documentation in accordance with this MR-T and the Contract.
- (b) The Contractor must engage with and coordinate input from various Stakeholders, Interface Contractors, Other Contractors, Operators and Existing Operators, including Sydney Trains Asset Management Division (AMD), in the development of the design to ensure that the system requirements, interfaces, spatial requirements, adjacent works by Interface Contractors or Stakeholders and associated specifications are accommodated (through regular working groups and design management meetings) within the design of the Works.
- (c) The Contractor must engage with Australian Rail Track Authority (ARTC) and coordinate any elements of the design which directly affect, or have the potential to indirectly affect ARTC assets or operations, as described in clause 8.
- (d) The Contractor must provide a high performance and highly skilled team for the duration of the SSJ Project, working in a collaborative manner with the Principal and other service providers and Stakeholders to deliver the Works.
- (e) The Contractor must regularly attend meetings with the Principal and other Stakeholders and present design development and progress information, at the Principal's request.
- (f) The Contractor must test and commission the Works and Temporary Works and must coordinate Asset Handovers with Interface Contractors, Other Contractors, Operators, Existing Operators and other entity or person nominated by the Principal's Representative.

- (g) Asset Management Information must be prepared for the Works in accordance with the SWTC;

### **3. Design Development and Review**

#### **3.1. General**

Unless otherwise agreed by the Principal's Representative, the Contractor must prepare design packages containing relevant Design Documentation in accordance with this MR-T and the Reference Documents at each of Design Stage 1, Design Stage 2, and Design Stage 3.

#### **3.2. Design Stages**

- (a) All Design Documentation must comply with the requirements of the Contract and must be submitted to the Principal's Representative and Independent Certifier and others for review in accordance with the Contract at the following times:
- (i) at the completion of the Design Stage 1 "System Design Stage" for each design package;
  - (ii) at the completion of the Design Stage 2 "Preliminary Design Stage" for each design package; and
  - (iii) at the completion of the Design Stage 3 "Critical Design Stage" for each design package, and must include all Design Documentation required to allow complete construction of the designed elements.
- (b) The Contractor may request permission from the Principal's Representative to remove either a Design Stage 1 or a Design Stage 2 submission from its schedule for a specific design package. Only when the Principal's Representative has provided a written approval to grant such a request may the Contractor delete that submission, and must then include all the content and Design Documentation of that deleted Design Stage in the subsequent Design Stage submission.
- (c) The submission of design packages must be as carried out in accordance with that detailed in the Contractor's Engineering Management Plan unless otherwise approved in writing by the Principal's Representative. In circumstances where such an approval has been provided, the Contractor must include in any new combined or split design package, all relevant requirements, information, descriptions including a traceability matrix to the previous design packages to ensure that the Principal and Independent Certifier can adequately review the new design package.

#### **3.3. Design Stage 1 Review (30%)**

- (a) The Design Stage 1 Design Documentation, submitted to the Principal's Representative for review in accordance with the Contract for each design package must:
- (i) include a Design Report as described in clause 3.8.1;
  - (ii) include a full set of preliminary general arrangement drawings, sections, elevations, room data sheets, finishes and material schedules and system schematics;
  - (iii) if requested, include preliminary calculations including assumptions;



- (iv) include a system concept review to ensure that the system requirements are technically feasible and achievable;
  - (v) include detailed pedestrian modelling and analysis that supports all key design decisions;
  - (vi) include an interface schedule highlighting interfaces with existing systems to ensure that the system interfaces are technically feasible and achievable;
  - (vii) include preliminary details of all equipment, plant, materials and finishes including Prototypes and Samples;
  - (viii) include any other details, calculations, models, drawings, reports or other information as requested by the Principal's Representative or the Independent Certifier;
  - (ix) be consistent with, and coordinated and fully integrated with all other design packages that have already been submitted for review;
  - (x) include fully integrated 3d digital models;
  - (xi) be of a quality and detail to demonstrate that the Contractor's proposed design approach complies with and satisfies the functional and performance requirements of the Contract;
  - (xii) demonstrate that the Contractor has identified, considered and resolved all of the relevant design requirements of the Contract;
  - (xiii) ~~include the endorsement of the Design Review Panel (DRP) as described in clause 5;~~ demonstrate that initial feedback from the DRP has been addressed and included in the design development for the stage 1 submission;
  - (xiv) ~~include endorsement of the Heritage Working Group (HWG) as described in clause 6;~~ demonstrate that initial feedback from the HWG has been addressed and included in the design development for the stage 1 submission;
  - (xv) include all concession applications to the ASA requirements; and
  - (xvi) include any other Design Documentation described elsewhere in the Contract as being required in the Design Stage 1 submission.
- (b) In addition to the Design Documentation listed in 3.3 (a), the Contactor must also produce and submit to the Principal's Representative for review in accordance with the Contract, the Design Documentation listed in Annexure C for Design Stage 1.

### **3.4. Design Stage 2 Review (70%)**

- (a) The submission of the Design Stage 2 Design Documentation must represent the completion of the design development for each design package. Further development of the design package in Design Stage 3 must be limited to design detailing and preparation of drawings suitable for construction.
- (b) The Design Stage 2 Design Documentation, submitted to the Principal's Representative for review in accordance with the Contract for each design package must:
  - (i) be consistent with, and incorporate the development of design packages submitted in the Design Stage 1 submissions;

- 
- (ii) demonstrate that comments made by the Independent Certifier on the Design Stage 1 Design Documentation have been addressed;
  - (iii) include an updated Design Report;
  - (iv) include a full set of general arrangement drawings, sections, elevations, complex details, room schedules and finishes and material schedules, room data sheets and room layouts and system schematics;
  - (v) include summary final calculations including assumptions (full calculation details must be provided at the request of the Principal's Representative);
  - (vi) include complete details and selections of all plant and equipment;
  - (vii) include complete details and selections of all materials and finishes;
  - (viii) include updated Prototypes and Samples including all testing and analysis carried out;
  - (ix) include updated detailed pedestrian modelling and analysis that supports all key design decisions;
  - (x) include details of all approved concession or waivers to the ASA Requirements, noting that all concession or waivers to the ASA Requirements must be submitted and approved by the ASA prior to the Design Stage 2 submission;
  - (xi) demonstrate to the Principal that the Contractor has identified, considered, completely thought through, resolved and drawn to scale on the design package drawings, all of the relevant design requirements of the Contract;
  - (xii) be coordinated with any Interface Work; and include any detailed interface requirement specifications developed with the Interface Contractors;
  - (xiii) need only the addition of detailing and specifications to the Design Documentation to permit the construction of the design with minimal risk of any abortive construction;
  - (xiv) include the endorsement of the DRP as described in clause 5;
  - (xv) include endorsement of the HWG as described in clause 6;
  - (xvi) be consistent with, and coordinated and fully integrated with all other design packages that have already been submitted for review; and
  - (xvii) include any other Design Documentation described elsewhere in the Contract as being required in the Design Stage 2 submission; and
    - (xviii) include demonstration of Stakeholder comment closure made as part of the Design Stage 1 Review,;
- (c) The following Design Documentation must also be produced and submitted to the Principal's Representative during Design Stage 2 for review in accordance with the Contract:
- (i) updated versions of all Documents required under clause 3.4 (b) above; and
  - (ii) all Design Documents listed in Annexure C.



### 3.5. Design Stage 3 Review (100%)

- (a) The Design Stage 3 Design Documentation, submitted to the Principal's Representative for review in accordance with the Contract for each design package must:
- (i) confirm comments made by the Independent Certifier and other Stakeholders, including the DRP on the Design Stage 2 Design Documentation have been addressed and must be ready for their Design Stage 3 status to be changed to AFC status without further amendment if no further comments are received from Stakeholders;
  - (ii) be of a quality and content to permit the Design Stage 3 design package Design Documentation to support application to the CCB Control Gate 3 for approval of the proposed configuration change;
  - (iii) be fully complete, correct, detailed, and co-ordinated;
  - (iv) be fully co-ordinated with the Interface Work and Interface Contractors;
  - (v) have any residual risks arising out of the design, operation and ongoing maintenance of the asset agreed with the Operator, Existing Operators, Independent Certifier and Principal's Representative;
  - (vi) include the Initial Draft version of the Asset Management Information;
  - (vii) include a full set of complete drawings technical specifications and acceptance criteria for construction suitable for construction of the Works and the Temporary Works;
  - (viii) include Verification of the Design Documentation against the design inputs, including achievement of acceptance criteria, safety, environmental and other management requirements for the Design Documentation;
  - (ix) include updated Prototypes and Samples;
  - (x) include an updated and final Design Report;
  - (xi) include the endorsement of the DRP as described in clause 5;
  - (xii) include verification of endorsement from the Heritage Working Group HWG as described in clause 6; and
  - (xiii) include demonstration of Stakeholder comment closure made as part of the Design Stage 2 Review.
- (b) The following Design Documentation must also be produced and submitted to the Principal's Representative during Design Stage 3 for review in accordance with the Contract:
- (i) updated versions of all Documents required under clause 3.5 (a) above; and
  - (ii) all Design Documents listed in Annexure C.

### 3.6. Additional Requirements for Customer Centred Design

In addition to the requirements of clauses 3.3, 3.4 and 3.5 the Contractor must also submit the Customer Centred Design Report (required under Annexure C) and the Design Documentation created for the Customer Facing Design Packages to the Independent

Certifier and Principal's Representative for review in accordance with the Contract, at the following times:

- (a) 6 weeks prior to the Design Stage 1 submission;
- (b) 6 weeks prior to the Design Stage 2 submission; and
- (c) 6 weeks prior to the Design Stage 3 submission.

### **3.7. Approved For Construction Design Documentation**

The Contractor must produce AFC drawings which accurately replicate the certified Design Stage 3 Design Documentation and must ensure at least two bound copies are kept on Site and made available for inspection by the Principal's Representative and the Independent Certifier during construction of the Works.

### **3.8. Design Documentation**

#### **3.8.1. Design Reports**

- (a) The Design Documentation prepared for each design package must include a comprehensive Design Report which describes the basis for the development of the design for each particular design package in which it appears.
- (b) All Design Reports must be of consistent format, layout and content. All changes to the design from the previous version of the Design Report must be summarised in the subsequent Design Report for each design package.
- (c) Design Reports must identify, address and include:
  - (i) the scope of the design package to which it applies;
  - (ii) a description of the overall asset, system and its sub assets and systems;
  - (iii) how the design objectives outlined in the SWTC have been met;
  - (iv) a list and description of all interfaces with Interface Work and Interface Contractors;
  - (v) a list of all the Documents that make up the design package;
  - (vi) a list of all design changes compared to the previous Design Stage submission;
  - (vii) a list of all the Codes and Standards, design guidelines and other design reference documents applicable to the design package;
  - (viii) details of how all review comments made against the previous Design Stage submission have been addressed;
  - (ix) details of the consultation held and process adopted to manage the Interface Work in accordance with clause 4 of this MR-T;
  - (x) all assumptions, dependencies and constraints;
  - (xi) other Design Documentation required to be produced by the Contractor, described in the SWTC;
  - (xii) references to and photographs of any quality benchmarks, Samples, scale models and Prototypes to be submitted as part of that design package;
  - (xiii) details of all concession applications submitted to ASA along with their status, including a list of any new concessions sought since the previous Design Report submission; and

- (xiv) a section on maintainability to demonstrate how the Contractor has addressed the following:
  - A. whole of life costs for asset operations, maintenance, replacement and refurbishment demonstrating how costs have been minimised;
  - B. enabling maintenance to be carried out with minimum disruption to passengers and normal operations;
  - C. RAMS demonstration as required by EN 50126 to support RAM targets;
  - D. tabulation of condition monitoring systems, parameters and interfaces required to the Operator/Maintainer's asset information system;
  - E. access points and methodology, and access time;
  - F. maintenance activities including replacement and refurbishment, including detailed steps, any special tools and equipment required, duration of activities with and without access time;
  - G. the appropriate application of whole of life considerations in the design and construction of the Works including application of AS4536 for quantitative whole life cycle cost analysis; and
  - H. standards and acceptance criteria applicable for maintenance activities.
- (d) Design Reports must identify and address all design inputs relevant to the design package including:
  - (i) the requirements of the SWTC;
  - (ii) any changes compared with the Contractor's Tender Design as well as any departures from the previous Design Stage, stating the reasons for the changes and demonstrating consultation of how these changes have been coordinated and agreed with Interface Contractors;
  - (iii) a list of all computer software used for analysis of the design or in preparation of the design package;
  - (iv) performance criteria and measures to comply with the performance requirements of discrete design components, parts or elements;
  - (v) environmental and sustainability design requirements;
  - (vi) the sustainability initiatives incorporated as part of the design package;
  - (vii) the findings of any assessments or review conducted with Stakeholders;
  - (viii) interim design reviews in summary form;
  - (ix) inputs from Stakeholders and the community involvement process;
  - (x) inputs from the Design Review Panel;
  - (xi) inputs from the Heritage Working Group;
  - (xii) inputs from all relevant Sydney Trains Working Groups and Operator;
  - (xiii) inputs from the Customer Centred Design (CCD) process;
  - (xiv) inputs from security assessments;
  - (xv) details of integration and multi-disciplinary design interface issues and risks associated with other discrete design elements and associated mitigation strategies;

- (xvi) details of durability issues and risks, and measures to comply with the durability requirements for the discrete design components, parts or elements;
  - (xvii) the design loadings, load combinations, exposure conditions and design standards that will be adopted for the detailed design of the discrete design elements or components;
  - (xviii) details of constructability issues; and
  - (xix) any specialist engineering input and reports including geotechnical, groundwater, hydrology, flooding, noise and vibrations, materials testing, settlement and movement assessment, monitoring and infrastructure protection.
- (e) The Design Reports must identify and reference all design outputs relevant to the design package including:
- (i) design drawings, calculations and schedules;
  - (ii) details of any computer software;
  - (iii) details of functional analysis and requirements allocation, including functional flow block diagrams;
  - (iv) RAMS (reliability availability and maintainability) assessments;
  - (v) details of any alternative designs considered and the process used to determine the recommended option;
  - (vi) consideration of requirements for future safeguarding;
  - (vii) detailed specifications for materials, finishes, equipment and systems; and
  - (viii) design model Verification.
- (f) The Design Reports must also identify and provide details of compliance and potential inconsistency with:
- (i) the Environmental Documents;
  - (ii) any Authority Approval; and
  - (iii) any other Approval that Contractor is required to obtain for the design and construction of the Works and the Temporary Works.
- (g) The Design Reports must identify safety issues and other risks relevant to the design package, and describe measures to comply with the criteria specified for the discrete design elements and components, including:
- (i) details to address the requirements of security, fire and life safety, accessibility, passenger and staff safety and amenity including wayfinding and signage;
  - (ii) details to address the requirements for accreditations or certification; and
  - (iii) details to address the safe construction of the Works through safety in design.
- (h) The Design Reports must identify all tests relevant to the design package, including the testing and commissioning requirements to be addressed in the relevant inspection and test plans (ITPs) and Management Plans, and contain any test results applicable to the Design Stage.

### **3.9. Design Changes and Non-Conformances During Construction**

- (a) The Contractor must submit details of any proposed changes to the approved Design Stage 3 design to the Principal's Representative and the Independent Certifier for review in accordance with the Contract prior to their inclusion within the Works.
- (b) The Contractor must not propose any change to the approved Design Stage 3 design or action to address non-conformances and Defects that would result in a lower standard or service level than that specified in the Contract.

## **4. Interface Management**

### **4.1. General**

- (a) The Contractor is responsible for the design of the Works. The Interface Contractors are responsible for the design of the Interface Work. The Contractor must cooperate, coordinate and interface with a number of Stakeholders including Interface Contractors, Other Contractors, Operators and Existing Operators in the development of the design of the Works to ensure that the interfaces and their associated specifications are accommodated within their design.
- (b) The Contractor must coordinate the development of the design to ensure that the required interfaces are accommodated within the design of the Works, so that the Works properly interface and integrate with the Interface Work as necessary.
- (c) The Contractor must submit to the Principal's Representative, for review in accordance with the Contract, a detailed construction interface specification (CIS) for all construction interfaces. The Contractor must identify contract boundaries for each of the interfaces, list relevant specifications and propose the demarcation of the responsibilities for each construction package. The CIS must also detail and describe any critical sequencing of the construction activity.
- (d) The Contractor must arrange and conduct regular technical working groups (TWG) reviews on key areas of the design with Stakeholders and Operator/Maintainers to ensure they are able to inform and contribute towards the design development. The TWG reviews must include the following elements as a minimum:
  - (i) rail and rail systems;
  - (ii) stations and precincts including heritage;
  - (iii) Interface Contractors;
  - (iv) Planning Approvals, Authority Approvals and all other required approvals;
  - (v) customer and transport integration;
  - (vi) signage and wayfinding, retail and advertising; and
  - (vii) Others as required by the Principal's Representative.
- (e) The Contractor must continuously manage the coordination process and provide input, feedback and the required Design Documentation until Construction Completion of all Portions involving the Metro Station and Station Precinct Works.
- (f) Without limiting the requirements of the General Conditions, as part of the coordination process and activities with the Interface Contractors, the Contractor must:



- (i) ensure timely and effective coordination for the interface documentation;
  - (ii) resolve all conflicts and discrepancies between any element of the Works and the Interface Work which may impact on access, headroom and clearance, equipment interference, delivery routing, maintenance provisions or general engineering practice;
  - (iii) ensure that loadings, supports, internal clear sizes, setting out dimensions, and layout of all the equipment rooms or areas (including cable ducts, pipe ducts, trench, underfloor void, ceiling void, and all the recessed details for electrical and mechanical equipment) shown on architectural drawings, structural and civil layout drawings, are sufficient and suitable for the Interface Contractor's equipment and installation;
  - (iv) ensure that the access requirements for maintenance and installation shown on all delivery route drawings, architectural drawings and/or civil layout and structural drawings are sufficient and suitable for the Interface Contractor's equipment and installation;
  - (v) attend site inspections to confirm with Interface Contractors the positions and setting out of cast-in items prior to concreting;
  - (vi) coordinate with the Interface Contractors, the attendance of Authorities at inspections of the Works and the Interface Work prior to Construction Completion of each Portion;
  - (vii) comply with all requirements of the delivery route drawings in determining the Contractor's method and sequence of construction; and
  - (viii) comply with the layout of major services routes and items of electrical and mechanical equipment shown on the combined services drawings and the room layout and major structures and penetrations shown on the structural electrical and mechanical drawings.
- (g) Where an Interface Contractor is appointed later than commencement of design coordination activities, the Principal will provide the inputs required by the Contractor in order to undertake its design obligations.
- (h) The Contractor must undertake all modifications to the Works, Temporary Works and Contractor's Activities, which may be necessary to achieve complete compatibility of the Works with the Interface Work.
- (i) All information and data exchanged between the Contractor and the Interface Contractors must also be copied to the Principal's Representative for information.

## **4.2. Interface Coordination Team**

- (a) The Contractor must have an Interface Coordination Team (ICT) to coordinate the interface management activity within the development of the design and construction testing and commissioning of the Works and Temporary Works.
- (b) The ICT must establish and lead fortnightly Interface Design Coordination Meetings (IDCM) with the Interface Contractors, Other Contractors, Operator and Existing Operators and other Stakeholders, as agreed with the Principal's Representative.
- (c) The ICT meetings must also provide design and technical support (inclusive of the use of aspects such as 3D visualisations, virtual reality, presentations, models and other interactive materials) to help communicate the design to the Stakeholders through the SSJ Project's delivery.

- (d) All relevant Design Documentation must be submitted to the members of the IDCM for regular review and comment as part of the Stakeholder consultation requirements of the Contract. The Contractor must address all comments raised by the members of the IDCM. Requests for information (RFI) are to be managed by the Contractor under its RFI process directly with the Interface Contractors, Other Contractors, Operators, Existing Operators and other Stakeholders.
- (e) The Contractor must mark-up drawings to identify the agreed requirements and obtain signatures from the attendees on the marked up drawings or draft drawings signifying the agreement of the requirements.

### **4.3. Interface Design and Coordination**

- (a) The Contractor must design, develop, and submit to the Principal's Representative for review in accordance with the Contract the following drawings for coordination of the design and construction activities with the Interface Contractors as further detailed in Annexure D:
  - (i) structural electrical and mechanical drawings (SEM);
  - (ii) combined services drawings (CSD);
  - (iii) wall elevation drawings (WEDs);
  - (iv) cable containment drawings;
  - (v) cast-in conduit drawings;
  - (vi) architectural builders works and finishes (ABWF) drawings; and
  - (vii) delivery route drawings (DRDs);
- (b) As a part of each submission, the Contractor must also issue the coordination drawings listed in 4.3 (a) above, to the relevant Interface Contractors in .pdf and native CAD format, as well as providing hard copies for marking up comments in coordination meetings with other Stakeholders.
- (c) The Contractor must, as part of each submission for each Design Stage, ensure that the Design Work complies with interface requirements of the SWTC, including the Interface Schedules as well as the physical constraints imposed by the Works and Interface Work.
- (d) The Contractor must resolve any conflicts between the Works and the Interface Work, including spatial coordination and system integration.
- (e) The Contractor must coordinate, prepare or provide input into the development of, and agree with the relevant Interface Contractors, detailed interface specifications (DIS) which cover all interfaces including design, manufacture and installation of structural, electrical, mechanical, functional, protocol, software and all other interfaces.
- (f) The Contractor must coordinate, prepare or provide input into the development of, and agree with the relevant Interface Contractors, interface test specifications (ITS)

and detailed interface test plans (DITP) which must be used to identify the testing activities and thereby verify that the DIS requirements have been satisfied.

- (g) The content for the ITS, DIS and DITP must be in accordance with Annexure D.
- (h) All documents required to be prepared by the Contractor in this section 4.3, are Design Documentation, and must be submitted to the Principal's Representative for review in accordance with the Contract.

## 5. Design Review Panel

- (a) The Principal will establish a Design Review Panel including various Stakeholders to review and provide comment on certain aspects of the design including architectural, heritage, CCD, wayfinding and signage, public art urban design and landscaping.
- (b) The Contractor must submit Presentation Materials and present to the DRP at the following times:
  - (i) as soon as practicable after the date of the Contract, to allow the DRP to provide feedback and comments on the proposed approach and guiding design principals;
  - (ii) monthly through each Design Stage 1, Design Stage 2 and Design Stage 3 of the design process to:
    - A. allow the DRP to provide design comments;
    - B. report on the progress of the listed elements in clause 5 (a) and any additional elements required by the DRP;
    - C. demonstrate how the DRP comments from the previous month have been either incorporated into the design or otherwise addressed; and
    - D. demonstrate how specific planning conditions in the Environmental Documents have been addressed.
  - (iii) after consultation with all Stakeholders including the Sydney Trains Working Group, the Operator and Sydney Trains CCBs during each of Design Stage 1, Design Stage 2 and Design Stage 3;
- (c) Prior to any presentation, the Contractor must allow 3 Business Days for the Principal's Representative to review the Presentation Material and associated Design Documentation and provide an approval to present.
- (d) If the Principal's Representative does not provide such an approval the Presentation Material and Design Documentation must be resubmitted and a further 3 Business Days will apply for the Principal's Representative to consider its approval.
- (e) Once approved under clause 5 (c), the Contractor must allow at least 5 Business Days prior to presenting the Presentation Material to the DRP.
- (f) Presentations must include appropriate drawings, models, images, renders and other media to adequately express the design outcomes to the audience.
- (g) Presentations must be accompanied by appropriate Design Documentation including samples, materials and finishes boards. Additional materials must be made available for review as per the presentations prior to the DRP.



- (h) If Prototypes are required, then a DRP presentation must be organised to view the Prototypes prior to the Design Stage 1 and Design Stage 2 submissions.
- (i) All comments provided by the DRP must be tabulated and appropriate responses provided to close the comments out. The Contractor must provide this table to the DRP to facilitate the DRP's endorsement.
- (j) The Contractor must obtain the DRP's written endorsement of the Design Documentation at each of the following stages, Design Stage 1, Design Stage 2, Design Stage 3, which must be submitted to the Principal's Representative in accordance with Clause 3 above. Such endorsement must be provided prior to proceeding to a subsequent Design Stage.
- (k) The Contractor must also comply with any requirements of the Planning Approvals in relation to the DRP and its membership.

## **6. Heritage Working Group (HWG)**

- (a) The Principal will establish a Heritage Working Group including various Stakeholders to review and provide comment on the heritage components of the design.
- (b) The Contractor must present the heritage elements of any designs to the Heritage Working Group:
  - (i) as soon as practicable after the date of the Contract to provide comments and feedback on the proposed designs that have an interface with any Heritage fabric;
  - (ii) monthly, through each of Design Stage 1, Design Stage 2 and Design Stage 3 to:
    - A. allow the HWG to provide comments on the design;
    - B. demonstrate how the heritage planning conditions in the Environmental Documents have been addressed;
    - C. report on design progress; and
    - D. demonstrate how the HWG comments, and other feedback from the previous month have been either incorporated into the design or otherwise addressed.
- (c) Prior to any presentation, the Contractor must allow 3 Business Days for the Principal's Representative to review the Presentation Material and provide an approval.
- (d) If the Principal's Representative does not approve the Presentation Material, it must be resubmitted in accordance with clause 6 (c) above and a further 3 Business Days will apply.
- (e) Once approved under clause 6 (c), the Contractor must allow at least 5 Business Days prior to presenting the Presentation Material to the HWG.
- (f) Presentation Materials must include appropriate drawings models, images, renders and other media to adequately express the design outcomes to the audience.
- (g) Appropriate Samples and Prototypes including materials and finishes boards must be made available for review as per the presentations prior to the HWG.

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## 7. Presentation of the Design to Sydney Trains and the Operator

- (a) The Contractor must present the design to the Sydney Trains Working Groups (STWG), and others as nominated by the Principal's Representative for review prior to the Design Stage 1, Design Stage 2 and Design Stage 3 submissions and at all other times requested by the Principal's Representative.
- (b) Prior to any presentation, the Contractor must allow 3 Business Days for the Principal's Representative to review the Presentation Material and provide an approval.
- (c) If the Principal's Representative does not approve the Presentation Material, it must be resubmitted in accordance with clause 7 (b) above and a further 3 Business Days will apply.
- (d) Once approved under clause 7 (b) the Contractor must allow at least 6 Business Days prior to presenting the Presentation Material to the STWG.
- (e) All comments from the STWG, Operator and others must be adequately addressed in the view of the Principal's Representative and Independent Certifier in accordance with the Contract prior to submission of each of the Design Stage 1, 2 and 3 submissions to the Principal's Representative for review in accordance with the Contract.

## 8. Presentation of the Design to the ARTC

- (a) The Contractor must present any design as affecting ARTC assets to ARTC engineering and maintenance for review prior to the Design Stage 1, Design Stage 2 and Design Stage 3 submissions and at all other times requested by the Principal's Representative.
- (b) Prior to any presentation, the Contractor must allow 3 Business Days for the Principal's Representative to review the Presentation Material and provide an approval.
- (c) If the Principal's Representative does not approve the Presentation Material, it must be resubmitted in accordance with clause 8 (b) above and a further 3 Business Days will apply.
- (d) Once approved under clause 8 (b) the Contractor must allow at least 6 Business Days prior to presenting the Presentation Material to ARTC.
- (e) All comments from the ARTC engineering and maintenance must be adequately addressed in the view of the Principal's Representative and Independent Certifier in accordance with the Contract prior to submission of each of the Design Stage 1, 2 and 3 submissions to the Principal's Representative for review in accordance with the Contract.

## 9. Configuration

### 9.1. Configuration Management

The Contractor must ensure that its configuration management activities include a change management process aligned with AS ISO 10007 Quality management systems - Guidelines for configuration management.

### 9.2. Configuration Control

- (a) The Contractor must have in place, maintain and consistently apply until Final Completion configuration control measures to ensure that ~~configuration control activities are supported to meet~~ the Contractor meets the requirements of the Sydney Metro Sub-CCB and CMAAC Gates, Configuration Control Board (SM Sub-CCB) and TfNSW Network Assurance Committee (TNAC) control gates.
- (b) The Contractor must prepare and submit to the Principal ~~all Design Documentation, including Asset Management Information required to support the following applications by the Principal to the Sydney Metro Sub-CCB and Configuration Management and Asset Assurance Committee (CMAAC)'s Representative~~ completed Configuration Change Requests (CCRs), including all supporting documentation required for the Contractor's submissions to the relevant SM Sub-CCB and TNAC for the following control gates:
  - (i) SM Sub-CCB Control Gate 3 "for construction" submission, which applies before finalisation of AFG Approved for Construction Design Documentation;
  - (ii) SM Sub-CCB Control Gate 4 "ready for testing" submission, which applies on completion of construction and is required as a condition precedent to testing the Works; and
  - (iii) CMAAC/SM Sub-CCB/TNAC Control Gate 5 "asset acceptance" submission, which applies prior to commissioning of the Works and placing into operational service.
- (c) The Contractor must not ~~commence any new Project Phase until the relevant configuration~~ proceed beyond a control board gate identified (in (b) above) until the relevant SM Sub-CCB and TNAC (where relevant), has issued an approved Configuration Change Request (CCR) and after any conditions imposed by the SM Sub-CCB or CMAAC/TNAC have been satisfactorily addressed to the satisfaction of the SM Sub-CCB or TNAC.
- (d) The Contractor must review and adequately adhere to any residual conditions imposed by the SM Sub-CCB or TNAC during Control Gates prior to the Control Gates noted in 9.2 (b) above.
- (e) The Contractor must appropriately address any open residual assurance and Stakeholder comments prior to making submissions under the next Control Gate.



### 9.3. Configuration Change Request Submissions to Control Gates

- (a) The Contractor must provide ~~all necessary Design Documentation including Asset Management Information required to support all CCR applications and submissions by completed Configuration Change Requests (CCRs), including all supporting documentation required for the Contractor's submissions to the Principal in support of the SM~~ Sub-CCB and ~~GMAAG Control Gates~~ TNAC control gates.
- (b) The Contractor's proposed ~~Design Documentation~~ documentation to support each CCR submission must be sufficient for, and of a quality that ~~permits the Principal to gain~~ enables SM Sub-CCB or ~~GMAAG~~ TNAC acceptance. The Principal may request additional ~~Documents~~ documents prior to the submission of each CCR.
- (c) The Contractor must ~~provide a list of all Design Documentation including revision numbers and must~~ complete and comply with the relevant Configuration Change Request Form (~~Sydney Metro Sub-CCB~~) SM EM FT 413 for each CCR ~~submission requirements for each CCR submission, including provision of a list of all supporting documentation with revision numbers. The completed CCR should address, in full for each control gate, all relevant requirements, including provision of all supporting evidence, prior to obtaining sponsorship from the Principal under clause 9.3 (d).~~
- (d) All CCR submissions will be sponsored by the Principal, and submitted to the SM Sub-CCB or ~~GMAAG~~ TNAC by the Principal on behalf of the Contractor.
- (e) Submissions to the ~~GMAAG~~ TNAC must be completed in accordance with the latest requirements published by ~~GMAAG~~ TNAC.
- (f) The Contractor ~~may be requested to support all submissions~~ will attend all SM Sub-CCB or TNAC control gate meetings by making available no more than 2 subject matter experts to present to the SM Sub-CCB or ~~GMAAG~~ the TNAC.
- (g) The Contractor must keep itself informed of the SM Sub-CCB and TNAC timetable at all times during the course of the Contractor's Activities.
- (h) ~~The Contractor must keep itself informed of the Sub-CCB and GMAAG timetable at all times during the course of the Contractor's Activities.~~ The Contractor must include due allowance in the Contractor's Program for the preparation of the required CCR Design Documentation and to ensure that:
- (i) a minimum of 3 Business Days is allowed for the Principal to review and approve the proposed CCR submission;
  - (ii) there is a minimum period of 6 Business Days after ~~an approval~~ a sponsorship has been provided under clause 8.3 (gd) i before the day of the ~~Principal~~ Contractor's presentation of the CCR submission to the SM Sub-CCB; and
  - (iii) there is a minimum period of 20 Business Days after ~~an approval~~ a sponsorship has been provided under clause 8.3 (gd) i before the day of the ~~Principal~~ Contractor's presentation of the CCR submission to the ~~GMAAG~~ TNAC.
- (i) ~~Applications of separate design packages for~~ Multiple Works package ~~submissions per control gate for SM~~ Sub-CCB and ~~GMAAG~~ the TNAC review ~~are~~ may be permitted with prior agreement of the Principal. The Contractor shall give due consideration in determining a strategy for submission of ~~design~~ works packages so that each part of the Contractor's Activities may proceed logically and ahead of the completion of the design for later stages.

## 9.4. Sydney Trains Regional CCB and Facilities CCB

- (a) The Contractor must present the relevant parts of the design works as determined by the Principal's Representative to both the Sydney Trains Regional CCB and Sydney Trains Facilities CCB for review when requested by the Principal's Representative. ~~Presentations may include discipline specific elements including track, overhead wiring, signalling, civil, drainage, electrical, earthing and bonding, and communications.~~
- (b) Presentations may include discipline specific elements including track, overhead wiring, signalling, civil, drainage, electrical, earthing and bonding, and communications.
- (c) ~~(b) Prior to any presentation, the~~ The Contractor must allow 3 Business Days for obtain the Principal's Representative ~~to review the Presentation Material and provide an approval-~~ to the presentation material prior to presentation to Sydney Trains Regional CCB or Sydney Trains Facilities CCB.
- (d) ~~(e) If~~ The Contractor must submit the proposed presentation material to the Principal Representative and allow the Principal's Representative ~~does not approve the Presentation Material, it must be resubmitted in accordance with clause 8.4 (b) above and a further 3 Business Days will apply~~ 3 Business Days to review and comment on the proposed presentation material.
- (e) Until the Principal's Representative approves the presentation material, the Contractor must continue to update the presentation material to address the Principal Representative's comments and resubmit to the Principal Representative.
- (f) The Contractor must allow the Principal's Representative a further 3 Business Days to review and comment on each submission of updated presentation material.
- (g) ~~(d) Once approved under clause 8.4.9.4 (bc),~~ the Contractor must allow at least 6 Business Days prior to presenting the Presentation Material to ~~a GCB~~ Sydney Trains Regional CCB or Sydney Trains Facilities CCB.
- (h) ~~(e) All comments from the GCB's~~ Sydney Trains Regional CCB and Sydney Trains Facilities CCB must be ~~adequately~~ addressed to the satisfaction of the Principal's Representative, prior to submission of each of the Design Stage 1, the Design Stage 2 and the Design Stage 3 submissions to the Principal's Representative.
- (i) ~~(f) By agreement of the Principal only,~~ presentations to the Sydney Trains Regional CCB and Sydney Trains Facilities CCB may be omitted at Design Stage 1 and Design Stage 2.

## 10. Requirements Management

The Contractor must adopt a formalised requirements management process to manage the requirements for the Contractor's Activities and as a means of Verification and Validation compliant with EN50126/IEC 62278, and must:

- (a) use the IBM Rational DOORS database for system requirements traceability and requirements Verification of the Works;
- (b) provide a RVTM which complies with T MU AM 06007 GU – ASA Guide to Requirements Definition and Analysis, IEE1220, ANSI/EIA632 or a similar standard) containing as a minimum the attributes in 9. (d);



- (c) submit an up-to-date RVTM with each design submission that demonstrates compliance with the measurable technical requirements of the Contract at each Design Stage 1, Design Stage 2 and Design Stage 3 of the design as well as the Sub-CCB and CMAAC Control Gate as identified in clause 8;
- (d) the RVTM as a minimum must include:
- (i) unique identifiers for each system and interface requirement;
  - (ii) measurable technical SWTC requirements including those requirements originating from safety controls identified in the Contractor's safety hazard log;
  - (iii) a reference to the source of all requirements including clause reference;
  - (iv) other references as appropriate including safety hazard log references;
  - (v) SFAIRP references to the justification of safety requirements, where these have been allocated;
  - (vi) an attribute identifying the RAM target and/or SIL associated with the requirement, where these have been allocated;
  - (vii) subsystem elements that satisfy a particular system requirement, with a link to subsystem requirements or specification document reference, as appropriate;
  - (viii) details of how the design or construction elements that satisfy the requirements will be verified and validated;
  - (ix) a work package reference;
  - (x) a Design Documentation reference;
  - (xi) a list of the Principal's Representative and Independent Certifier's comments on each element of the Design Documentation;
  - (xii) a list of the Contractor's response to Principal's Representative's and Independent Certifier's comments;
  - (xiii) risk categorisation of requirements to determine the level of verification and validation evidence;
  - (xiv) reference to worklot completion certification for standard requirements;
  - (xv) ~~(xiii)~~ ITP references including ITPs, and/or test procedures as relevant for critical requirements; and
  - (xvi) ~~(xiv)~~ reference to Verification and Validation status and records.
- (e) provide to the Principals Representative and the Independent Certifier for review in accordance with the Contract, at each Design Stage 1, Design Stage 2 and Design Stage 3 of the design ~~as well as the Sub-CCB and CMAAC Control Gate~~ as identified in clause 8, an electronic copy of all the Contractor's IBM Rational DOORS data in archive (.dpa) format on an electronic storage media device.

## 11. Digital Engineering

- (a) The Contractor must implement and comply with the Principal's requirements for digital engineering in accordance with the Sydney Metro Employers Information Requirements SM EM-ST-203 and Sydney Metro CAD/GIS/BIM Manual SM

EM-PW-304 in relation to the entire Works, including developing federated digital models and submitting the required Design Documentation to the Principal's Representative and Independent Certifier for review and certification in accordance with the Contract.

- (b) In addition, the Contractor must develop and upload AFC Design Documentation, work-as-executed drawings AMI, and other Contract Documentation and Materials as requested by the Principal's Representative, to the Principal's ~~Virtual Planroom database~~ [Document Management System](#) for the Works as determined by the Principal's Representative.

## 12. Value Engineering

- (a) The Contractor must implement a process of value engineering in order to drive value enhancements in the Design Work.
- (b) Within twenty five Business Days of the date of the Contract, the Contractor must submit and obtain agreement from the Principal's Representative, a matrix listing those design packages it proposes to perform value engineering analysis on, as well as the basis for its decision.
- (c) The Contractor must plan, organise and facilitate value engineering workshops on the agreed list of design packages with the Principal and other key Stakeholders at times suitable to allow for full integration of the value engineering outcomes into the following Design Stages:
  - (i) prior to completion of Design Stage 1;
  - (ii) prior to the completion of Design Stage 2;
  - (iii) prior to the completion of Design Stage 3; and
  - (iv) any other requirements of the General Conditions.
- (d) The value engineering workshops must be documented in separate value engineering reports, documenting the process followed, Stakeholder and Interface Contractors involvement, agreed outcomes, impact on program and cost (including capital and whole of life costs), compliance (and potential non-compliance) with the requirements of the Contract, and maintenance impact and must be submitted to the Principal's Representative within 7 days of the workshops for review in accordance with the Contract.
- (e) The Contractor must adopt only the agreed outcomes in its Design Work, as documented in the finalised value engineering reports, following the Principal Representative's review

## 13. Temporary Works Design Management and Review

- (a) The Contractor must develop and maintain a Temporary Works List. This must be kept up-to-date and contain a description of the status of the work, and be included in each Monthly Report, and at other times required by the Principal's Representative.
- (b) The Contractor must include the Temporary Works List, the design of Temporary Works and the review of Temporary Works designs in the Engineering Management Plan processes and as activities in the Contractor's Program.

- (c) Following any Principal's Representative review of the Temporary Works List, the Principal's Representative will advise the Contractor which of the Temporary Works designs (if any) are to be reviewed by the Principal as part of the design review process and which of the Temporary Works designs will require submission through the relevant CCB.
- (d) All designs to be submitted to the Principal's Representative in 11 (c) must be issued under the authority of an AEO. Temporary Works designers must work under the appropriate design consultant's AEO and design management processes.
- (e) For those Temporary Works designs that the Principal's Representative determines are to be reviewed by the Principal in 11 (c), the design submissions for the Temporary Works designs must include:
  - (i) A list of the Temporary Works assumptions that the designer has made in the construction, including any assumptions or calculated assessments relating to the load capacity of any existing infrastructure that is required to support the Temporary Works;
  - (ii) identification of potential effects on adjacent Works;
  - (iii) a description of mitigation measures to ensure that the design is adequate in both the short and long term;
  - (iv) any key site data that must be confirmed prior to construction of the Temporary Works;
  - (v) methods for reinstatement of any permanent infrastructure affected by the Temporary Works;
  - (vi) details of the staging and sequencing of the Works and Temporary Works;
  - (vii) inspection and test requirements; and
  - (viii) settlement monitoring criteria (if settlement of either the Temporary Works or existing infrastructure is a possibility).
- (f) The Contractor must address Temporary Works in a Safety Assurance Statement and Safety Assurance Report(s). The Contractor's Safety Assurance Report(s) must present the safety assurance demonstration for the design, construction, maintenance and dismantling of the Temporary Works. The safety assurance demonstration for the Temporary Works must be to a standard comparable to the safety assurance demonstration for the Works.

## **14. System Verification Reviews**

- (a) The Contractor must complete System Verification Reviews (SVR's) progressively.
- (b) The Contractors SVRs must be carried out on each system in the Works as well as any interfaces with other systems and the Interface Work.
- (c) The Contractor must ensure that the Documents for each SVR are of a consistent format and are progressively submitted to the Principal's Representative for review in accordance with the Contract as work proceeds.



- (d) Prior to the commencement of integration testing, the Contractor must demonstrate that all SVR actions are complete and that the system is ready for integration testing with the existing network, prior to final acceptance testing and Asset Handover.
- (e) The Contractor must ensure that final SVR documentation is submitted to the Principal's Representative for review in accordance with the Contract following system integration of the relevant system or subsystem and prior to Construction Completion of each Portion.

## **15. Testing**

- (a) The Contractor must undertake comprehensive testing of the Works and the Temporary Works to ensure compliance with the Contract.
- (b) The Contractor's Engineering Management Plan described in MR-PA must articulate the management systems, processes and procedures to be planned and implemented in order to successfully test the Works, taking into account the need to coordinate the Contractor's Activities in relation to testing prior to each Asset Handover.
- (c) The Contractor must plan and implement an inspection and testing regime to verify that the Works have been delivered in accordance with the requirements of the Contract and the Design Documentation.
- (d) The Contractor must identify all Hold Points and Witness Points necessary to ensure that the Works will comply with the certified design and that all Hold Points and Witness Points are accurately incorporated into the Contractor's ITPs.
- (e) A representative from the Contractor's design team must endorse each ITP prior to submission to the Principal's Representative and Independent Certifier for review in accordance with the Contract.
- (f) The Contractor must provide test results and certification to verify the compliance of materials, products and assemblies with the performance and technical requirements, stated in the Design Documentation and the requirements of the Contract.

## **16. Construction Compliance with Design**

- (a) The inspection and testing performed by the Contractor must include certification that the Construction of the Works is compliant with the AFC Design Documentation. Such certification must be provided by the Contractor and must include certification from Subcontractors who developed or assisted in the development of that Design Documentation. Certification documentation must be submitted to the Principal's Representative prior to obtaining Construction Completion for each Portion. Certification is required for the following design elements:
  - (i) All structural works, including foundations, superstructure, retaining walls, noise walls and the like;
  - (ii) all mechanical ventilation and air conditioning services;
  - (iii) all electrical services including lighting;

- (iv) all communications services, including cabling;
- (v) mechanical transportation systems, including lifts and escalators;
- (vi) all fire and life safety services;
- (vii) all glazing, including glazing support structures;
- (viii) all transport network infrastructure works, including train rails, traction power works, earthing and bonding, high voltage electrical works, transformers, cabling and signalling works; and
- (ix) any other component of the Works that the Principal's Representative requests.

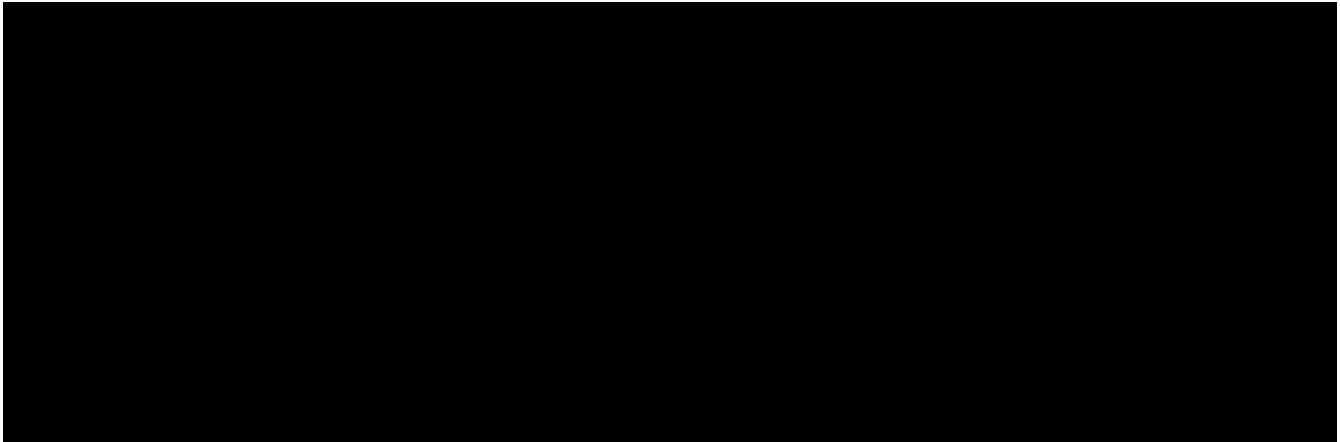
## **17. Physical Configuration Audit**

- (f) Prior to Completion of each Portion, the Contractor must conduct a Physical Configuration Audit (PCA) in conjunction with the Principal's Representative and the Independent Certifier, which demonstrates that the as-built configuration of the Works conforms to the AFC Design Documentation and that the work – as –executed Design Documentation and AMI represents an accurate record of the constructed Works.
- (g) The Contractor must issue a formal notification to the Principal's Representative at least 2 weeks prior to commencing a PCA. The Principal's Representative will advise the Contractor if the Principal's representative(s) intend to attend.

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## Annexure A: List of Reference Documents

- Sydney Metro Employers Information Requirements SM EM-ST-203.
- Sydney Metro CAD/GIS/BIM Manual SM EM-PW-304.
- Configuration Management Plan for Sydney Metro Sub-Configuration Control Board SM EM-ST-214.
- Sydney Metro Journey Map and Customer Principles
- Wayfinding Planning Guide – Introduction



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## Annexure C: Specific Design Documentation

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## Annexure C1 Specific Design Documentation: Civil and Structural Works

### Design Stage 1: Design Documentation for civil and structural works

The Design Documentation for civil and structural works at Design Stage 1 must include as a minimum:

- (a) a description of the proposed construction staging methodology;
- (b) a durability assessment description;
- (c) a risk and mitigation review report for all structural support elements that could be impacted by train or vehicle collision, noting that the Contractor must have obtained the prior agreement of the Principal's Representative for all proposed physical mitigation works for barriers, collision walls and all other mitigation measures proposed;
- (d) a draft document, detailing any "requirements" resulting from the design that are required to be included in the operations and maintenance documentation;
- (e) all design studies and input data used as an input to the design;
- (f) drainage design modelling and culvert data analysis demonstrating pre and post development culvert and drainage system calculations. The analysis must include pre and post flow velocity and volumes discharging from final outlets in to downstream Council or Sydney Water systems;
- (g) a draft version of load rating for relevant structures, including specifying strengthening works required;
- (h) preliminary drainage drawings and cross sections of proposed new cross track culverts and detention basin structures;
- (i) preliminary drawings showing formation replacement extents, embankment and cutting rectification works, retaining wall locations and associated earthworks cross sections;
- (j) preliminary overbridge and underbridge works, including preliminary utility relocations;
- (k) preliminary drawings of proposed Station platform extent and form, including preliminary details of Station structures, foundations and associated civils works;
- (l) preliminary locations of new and re-used ULX's;
- (m) preliminary drawings of noisewalls, segregation, boundary and security fencing and Active Transport Corridor alignment;
- (n) preliminary drawings of Station Services Buildings and Traction Substation buildings and proposed urban design treatments;

- (o) preliminary drawings showing proposed final CSR containment routes and temporary Sydney Trains relocated services, including supporting cross sections in complex areas and when on ARTC side of the rail corridor;
- (p) preliminary drawings showing proposed urban design and landscape treatments, and;
- (q) preliminary Technical Specifications;
- (r) Environmental report;
- (s) Geotechnical Assumptions Report;
- (t) Hydrology and Flooding Report;
- (u) Civil and Structural Report;
- (v) Assumptions and Dependencies Report,

## **Design Stage 2: Design Documentation for civil and structural works**

The Design Documentation for civil and structural works at Design Stage 2 must include as a minimum the developed documentation for Design Stage 1, including but not limited to the following:

- (a) a comprehensive set of computations and all supporting studies, reports or analysis used to develop the asset;
- (b) an updated durability assessment section confirming the asset durability;
- (c) an updated version of any requirements resulting from the design that are required to be inserted into the operations and maintenance manual;
- (d) an updated version of the drainage design modelling (excluding local council flood modelling);
- (e) detailed general arrangement plans for each asset describing all parts;
- (f) detailed reinforcement or construction drawings for each asset;
- (g) testing and commissioning requirements, including Hold Points and Witness Points;
- (h) material and equipment specifications and data sheets for all equipment to be provided;
- (i) detailed construction and installation drawings;
- (j) Sydney Trains Redundant Assets Report;
- (k) Geotechnical Factual Report;and
- (l) Updated risk and mitigation report.

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## **Design Stage 3: Design Documentation for civil and structural works**

The Design Documentation for civil and structural works at Design Stage 3 must include as a minimum:

- (a) An updated version of each of the documents requested in Design Stage 1 and 2.



## Annexure C2 Specific Design Documentation: Track

### Design Stage 1: Design Documentation for track

The Design Documentation for track at Design Stage 1 must include as a minimum:

- (a) 3-dimensional electronic CAD files of the alignment design;
- (b) Designs and calculations for:
  - (i) track alignments, following an operational simulation and the determination of speed profiles appropriate to the alignment and Rolling Stock design;
  - (ii) settlement;
  - (iii) rail inclination in plain line;
  - (iv) any additions for Sydney Trains, Sydenham equipment centre and Sydney Water.
- (c) track alignment design details showing:
  - (i) identification and naming of individual tracks;
  - (ii) horizontal setting out geometry details including horizontal curve parameters;
  - (iii) vertical setting out geometry details including cross sections;
  - (iv) cant and deficiency design in conjunction with the normal and maximum rolling stock speed profiles with due consideration of providing a smooth, comfortable ride and future maintenance requirements;
  - (v) clearances between the swept path of rolling stock and structure gauge and infringements into the structure gauge (such as Platform edges);
  - (vi) turnout and catchpoint type and layout; and
  - (vii) point machine configuration.
- (d) demonstration that the following interfaces have been addressed in the alignment design, including:
  - (i) survey control;
  - (ii) clearance between the swept path of the rolling stock and all infrastructure;
    - A. platform clearances and stepping distances;
    - B. construction, maintenance and operation tolerances;
    - C. wheel-rail interface issues;
    - D. interactions between the track and its supporting structures;
    - E. noise and vibration;

- F. safe walking route for emergency evacuation and maintenance;
- G. trackwork tolerances for calculating clearances;
- H. formation and earthwork construction and drainage;
- I. the transition between different structures, foundation materials and track types;
- J. electrification including traction return, earthing and bonding and stray current protection;
- K. level crossings; and
- L. services and rail systems infrastructure.

## **Design Stage 2: Design Documentation for track**

The Design Documentation for track at Design Stage 2 must include as a minimum:

- (a) 3-dimensional electronic CAD files of the alignment design;
- (b) a noise modelling assessment to provide supporting demonstration of compliance with the operational noise (criteria set out in the Environmental Impact Statement);
- (c) location of insulated joints in and around turnouts;
- (d) updated alignments;
- (e) updated cross sections;
- (f) staging plans;
- (g) speedboard configuration;
- (h) friction modification and flange lubrication design;
- (i) method statements for the following construction and maintenance activities:
  - (i) rail welding including inspection, testing and replacement welds;
  - (ii) rail bending;
  - (iii) rail stressing and maintenance of the stress free temperature;
  - (iv) rail profiling and grinding;
  - (v) trackform construction;
  - (vi) maintenance welding to crossing noses;
  - (vii) turnout installation to include as a minimum a record of nominal masses of turnout components to be transported on site and in safe procedures for handling them;
  - (viii) alignment monitoring, testing and evaluation; and
  - (ix) track geometry measurement and recording.

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### **Design Stage 3: Design Documentation for track**

The Design Documentation for track at stage 3 must include as a minimum:

- (a) 3-dimensional electronic CAD files of the alignment design;
- (b) An updated version of each of the documents requested in Design Stage 1 and 2.

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## **Annexure C3 Specific Design Documentation: Communication Systems**

### **Design Stage 1: Design Documentation for the communication systems**

The Design Documentation for communication systems at Design Stage 1 must include as a minimum:

- (a) an overall system description covering the principles of operation, overall functionality and individual element functionality during normal and degraded conditions including levels of redundancy;
- (b) systems level schematics;
- (c) network level schematics;
- (d) preliminary loss budgets;
- (e) spare port and cable allocation checks;
- (f) material and equipment availability;
- (g) software identification;
- (h) typical environmental limits;
- (i) typical floor plan;
- (j) changes to Power and Air-conditioning loads;
- (k) concept timing diagrams;
- (l) typical radio coverage;
- (m) concept design;
- (n) hazard analysis and design which includes:
  - (i) communications hardware and software;
  - (ii) emergency voice communications;
  - (iii) emergency recorded communications;
  - (iv) transmission of train control data; and
  - (v) transmission of 'signalling' data.

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## Design Stage 2: Design Documentation for the communications systems

The Design Documentation for communication systems at Design Stage 2 must include as a minimum:

- (a) a finalised system description and specification covering the communications operational philosophy, including interfaces;
- (b) finalised single line and system block schematics for each individual communications systems, showing design intent, connectivity and interfaces;
- (c) finalised design specifications for each communications systems including comprehensive performance details, functionality details, equipment specifications and datasheets;
- (d) approved room and rack layout drawings for all communications equipment showing equipment dimensions, maintenance access, cable routes
- (e) coverage diagrams and calculations for radio systems, CCTV, PA and other systems;
- (f) an updated reliability, availability and maintainability and safety analysis for each of the communications systems;
- (g) schedules of cabling and equipment for each of the communications systems;
- (h) detailed equipment lists
- (i) plant and equipment to be de-commissioned
- (j) final port and cable allocations
- (k) final loss budgets
- (l) availability calculations;
- (m) IP addresses
- (n) message formats
- (o) environmental limits
- (p) floor loads
- (q) heat dissipation and air-conditioning loads
- (r) timing diagrams
- (s) failure modes, effects and critical analysis
- (t) verified detailed design
- (u) installation standards;
- (v) draft inspection and testing plans (ITP's);
- (w) testing and commissioning plans.

- (x) final hazards and risk analysis

### **Design Stage 3 Design Documentation for the communications systems**

The Design Documentation for communication systems at stage 3 must include as a minimum:

- (a) an updated version of each of the documents requested in Design Stage 1 and 2

### **Annexure C4 Specific Design Documentation: Building, Precinct and public domain works**

#### **Design Stage 1: Design Documentation for the building, precinct and public domain works**

The Design Documentation for the Sydenham Metro Station and building spatial and functional requirements at Design Stage 2 must include:

- (a) Drawings and specifications
  - (i) a precinct master plan at an appropriate scale that shows all project interfaces and interchanges;
  - (ii) an urban design response that addresses the requirements in Appendix B03, Section 2: Design Objectives, inclusive of drawings, maps, schedules and reports;
  - (iii) for all architectural and Public Domain elements the Contactor must provide: 1:500 site plans and site sections;
  - (iv) 1:250 (A1) plans, sections, and elevations defining the layout, construction, materials, finishes of the architectural and Public Domain works;
  - (v) future links to other properties;
  - (vi) typical sketch details and wall sections of major architectural elements including walls, cladding, glazing, ceilings, floors, vertical transport elements, signage, lighting, heritage items;
  - (vii) typical sketch details of key Public Domain elements including: pavements, kerbs, stairs, ramps, walls, furniture, shelters, fences and gates, planting beds, tree pits, and lighting;
  - (viii) preliminary technical specifications;
  - (ix) material and finishes schedule; and
  - (x) all drawings must show key dimension, primary service routes, relationship of public spaces, service facilities and future surrounding developments.
- (b) a design report, in accordance with MR-T and the following specific deliverables:

- (i) a description and illustration of look, feel and function of the station;
- (ii) a description and illustration of the station designs and precinct surrounding the station;
- (iii) a description of impacts of the station entries and egress/exhaust structures on the Public Domain including height, massing, scale, address and entry, heritage, view corridors, solar access, wind, access, traffic and transport circulation networks;
- (iv) access plans identifying current and future pedestrian desire lines and key movement corridors;
- (v) relationship of station entries and station buildings with related development adjacent to the Station Precinct;
- (vi) pedestrian modelling report describing the demand analysis assumptions and pedestrian modelling to verify the design achieves the Levels of Service requirements;
- (vii) access, cleaning and maintenance strategy, including Public Domain areas;
- (viii) preliminary accessibility plan and report to demonstrate compliance with the Disability and Discrimination Act 1992, BCA and Australian Standards and the Disability Standard for Accessible Public Transport;
- (ix) preliminary crime prevention through environmental design review and report;
- (x) acoustic design strategy describing the compliance of the design with statutory controls, codes and standards and demonstrating the modelling of the internal acoustic environment;
- (xi) Building Code of Australia (BCA) report demonstrating compliance of the design with the BCA and the fire engineering strategy;
- (xii) wind study demonstrating that the design of station entrance buildings and Platforms enable comfortable and safe conditions;
- (xiii) Specific sustainability provisions;
- (xiv) a soil report from a soil scientist to meet the requirements of Section 9 Landscape Works;
- (xv) a landscape design strategy describing the planting design approach for the Station Precinct, Public Domain, service facilities, stabling facilities, and rail corridor areas;
- (xvi) a fencing design strategy describing the fencing design approach and typologies for all Station Precinct, service facilities, stabling facilities, and rail corridor areas;
- (xvii) a paving design strategy describing the pavement design approach for the Station Precinct, Metro Concourse, platform, and Public Domain areas;
- (xviii) a bird, bat and vermin management strategy describing approach for mitigation of the negative impacts of the presence of populations on the Station, Station Precinct and Public Domain; and



- (xix) a materials durability statement.
- (c) the following Still 3D stereo panoramic renders, capable of being viewed on a Virtual Reality (VR) headset, fully coordinated with the drawings and design report, as a minimum:
  - (i) Still 3D stereo panoramic renders, capable of being viewed on a Virtual Reality (VR) headset, describing Metro Station and Station Precinct illustrating the context, external architectural and Public Domain design;
  - (ii) Still 3D stereo panoramic renders, capable of being viewed on a Virtual Reality (VR) headset describing the internal and external station spaces including Primary Plaza, station entry, Paid Concourse, circulation, and platform areas;
  - (iii) Still 3D stereo panoramic renders, capable of being viewed on a Virtual Reality (VR) headset describing the external service/egress buildings;
  - (iv) Still 3D stereo panoramic renders, capable of being viewed on a Virtual Reality (VR) headset, describing external perspectives of the related Public Domain, and external landscape;
  - (v) All Still 3D stereo panoramic renders, capable of being viewed on a Virtual Reality (VR) headset, to be stored on a secure server, and all VR headsets can access the server to view all renders; and
  - (vi) Must provide 2 x VR headsets.
- (d) describe the sustainable design features and initiatives of the architectural and Public Domain design and compliance with the requirements;
- (e) describe the integration of the architectural design with related developments at Metro Station, Sydenham Station and Station Precinct by others, and with future links to adjacent properties, interchanges;
- (f) provide room schedules for Metro Station front of house, back of house;
- (g) describe and illustrate the lift car interiors and all visible surfaces within the lift shaft;
- (h) a preliminary external and internal materials, finishes and fixtures digital sample boards and a schedule, describing:
  - (i) product type, finish, colour, size, thickness and method of fixing;
  - (ii) manufacturer code number;
  - (iii) technical data, including test results to confirm compliance with Appendix B03 - Building, Precinct and Public Domain
  - (iv) design life to replacement or refurbishment;
  - (v) cross reference location of all materials and finishes on architectural drawings and schedules;
  - (vi) maximum replacement times from the time of damage; and



- (vii) examples, including quality benchmarks, in existing buildings where the proposed fitting and fixture has been used and demonstrating its suitability for Sydney Metro in terms of robustness, withstanding wear and tear and maintaining appearance over the design life.

## **Design Stage 2: Design Documentation for the building, precinct and public domain works**

The Design Documentation for the Sydenham Metro Station and building spatial and functional requirements at Design Stage 2 must include:

- (a) 1:100 (A1) plans, sections and elevations fully defining the layout, preliminary construction method, materials, finishes of the architectural and Public Domain works
- (b) typical details of key architectural elements including walls, cladding, glazing, ceilings, floors, vertical transportation elements, signage, lighting, heritage items;
- (c) typical details of all Public Domain elements including: pavements, kerbs, stairs, ramps, walls, furniture, shelters, fences and gates, planting beds, tree pits, and lighting;
- (d) provide 1:50 room layouts and room data schedules for Metro Station, front of house, back of house;
- (e) developed technical specifications; and
- (f) a topsoil stripping management plan to meet the requirements of Section 19 Landscape Works.
- (g) Submit samples of all materials, finishes, fixtures and fittings visible within public areas (internal and external) with specification, design life and maintenance details for each.
- (h) Submit updated materials durability statement
- (i) Submit all wet and dry slip test results for all paving materials at the time of construction to verify compliance with the relevant codes and standards.
- (j) Submit all luminance test results for stair nosings, tactile ground surface indicators and street furniture in compliance with AS1428.1 and AS1428.2.
- (k) Submit updated pest birds, bats and vermin strategy.

## **Design Stage 3: Design Documentation for the building, precinct and public domain works**

Design Stage 3 Design Documentation for Sydenham Metro Station and building spatial and functional requirements must include:

- (a) 1:100, 1:50, 1:20 (A1) plans, sections, elevations fully documenting the layout, final construction method, materials, finishes of the architectural and Public Domain works;

- (b) full construction detailing;
- (c) coordinated services drawings for all public areas of the station; and
- (d) final technical specifications.
- (e) final durability statement
- (f) pest bird, bats and vermin management and maintenance plan.

### **Design Documentation for building material, finish and fixtures**

- (a) Design Documentation for each building material, finish and fixture, must include:
  - (i) manufacturer's recommended cleaning methodology;
  - (ii) maintenance requirements and frequency;
  - (iii) repair and replacement methodology; and
  - (iv) design life to refurbishment or replacement.

### **Design, testing and commissioning requirements**

- (a) The Contractor must provide test results and certification to verify the compliance of materials, products and assemblies with the performance and technical requirements
- (b) The Design Documentation must include test results for paving, including both independent test results of paving product samples for batches utilised in the works, and independent test results of as-built paving.
- (c) The Contractor must submit in Design Stage 2 all wet and dry slip test results for all paving materials at the time of construction to verify compliance with the relevant codes and standards.
- (d) The Contractor must submit in Design Stage 2 all luminance test results for stair nosings, tactile ground surface indicators and street furniture in compliance with AS1428.1 and AS1428.2.
- (e) The Contractor must submit independent test results of as-built exposed structural steel paintwork to verify compliance with the requirements of Appendix B03.
- (f) single line diagrams;
- (g) maximum demand calculations for each load;
- (h) cable route diagrams;
- (i) low voltage distribution equipment sizes;
- (j) other discipline interfaces approvals from Utilities, Authorities, Councils, Regulatory bodies and other relevant stakeholders for relevant operations activities;
- (k) confirmation of conformance to relevant Codes and Standards;
- (l) cost benefit analysis of options and final selection;

## Item C5.1 Low Voltage Systems

### Design Stage 1: Design Documentation for Low Voltage Systems

The Design Stage 1 Design Documentation for the low voltage distribution system and electrical building services must as a minimum include:

- (a) low voltage distribution system modelling for all operations activities in all operational modes;
- (b) a fully dimensioned site plan;
- (c) a power supply design study to determine which functions of the Sydney Metro systems require supply from two or more independent sources; and supply from a UPS, which must also determine:
  - (i) the size of the loads;
  - (ii) the acceptance criteria for the quality of power in the 415V distribution systems;
  - (iii) power quality risks and methods and mechanisms to mitigate or eliminate risks
  - (iv) technical requirements and specifications of equipment for use on the electrical power system.
  - (v) the autonomy time required;
  - (vi) the recharge time following a blackout; and
  - (vii) the architecture of the intended uninterruptible power supply systems.
- (d) single line diagrams;
- (e) maximum demand calculations for each load;
- (f) cable route diagrams;
- (g) low voltage distribution equipment sizes;
- (h) other discipline interfaces approvals from Utilities, Authorities, Councils, Regulatory bodies and other relevant stakeholders for relevant operations activities;
- (i) confirmation of conformance to relevant Codes and Standards;
- (j) cost benefit analysis of options and final selection;

### Design Stage 2: Design Documentation for Low Voltage Systems

The Design Stage 2 Design Documentation for the low voltage distribution and electrical building services must include:

- (a) low voltage electrical protection schemes, including discrimination studies;

- (b) design studies, including: fault level, voltage drop and cable sizing calculation;
- (c) designer's risk assessment and traceability;
- (d) cable selection, cable schedule and cable routing arrangements;
- (e) fully dimensioned and confirmed site plan;
- (f) protection setting calculations;
- (g) test and commissioning plan
- (h) detailed bill of material covering all items;
- (i) specifications or datasheets for low voltage distribution items;
- (j) switchboard equipment general arrangement drawings;
- (k) a Feasibility Report prior to commencement of the detailed design of the PV system that includes:
  - (i) factors relating to the interaction of the new technology, including cost, implications of new technology for Sydney Metro and non-financial benefits;
  - (ii) Configuration options and preferred arrangement;
  - (iii) Cost-benefit analysis;
  - (iv) requirement specifications;
  - (v) for building integrated canopy structure systems, study the implication of installation into structures that are also used to support the 1500V overhead wire system.
  - (vi) installation risk assessment and mechanisms to mitigate risks;
  - (vii) equipment specifications and type approval plan;
  - (viii) technical drawings for all the equipment to be used;
  - (ix) verification and validation process, including detailed inspection and test tasks;
  - (x) operational instruction for the PV system;
  - (xi) asset management strategy, including detailed maintenance instructions; and
  - (xii) the earthing arrangement of the PV system, confirming that it is consistent with the overall earthing, bonding and electrolysis strategy of the Works.

### **Design Stage 3: Design Documentation for Low Voltage Systems**

The Design Documentation for low voltage systems at stage 3 must include as a minimum:

- (a) An updated version of each of the documents requested in Design Stage 1 and 2

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## Item C5.2 Earthing and Bonding

### Design Stage 1: Design Documentation for Earthing and Bonding

The Design Stage 1 Design Documentation for the earthing and bonding, electrolysis and EMC systems must include as a minimum:

- (a) a fully dimensioned site plan;
- (b) an electromagnetic compatibility (EMC) Plan;
- (c) an earthing and bonding strategy;
- (d) an electrolysis strategy;
- (e) identification of anticipated fault levels and protection clearing times;
- (f) analysis of detailed services search data and site investigations and the subsequent identification of earthing, electrolysis and EMC hazards;
- (g) development of soil resistivity structures based on the analysis of measured soil resistivity data;
- (h) determination of design target criteria;
- (i) assignment of design targets to identified hazards; and
- (j) identification of interfaces with third party assets and evidence that consultation with the associated parties has been initiated (including negotiation of bulk supply point arrangements with local distribution network providers).

### Design Stage 2: Design Documentation for Earthing and Bonding

Design Stage 2 Design Documentation for the earthing and bonding, electrolysis and EMC systems must include as a minimum:

- (a) Approvals from utilities, evidence of submissions to Authorities, councils, regulatory bodies and other relevant stakeholders for relevant Delivery Activities;
- (b) Evidence of submissions leading to third party technical and operational agreements;
- (c) system modelling, including earth potential rise (EPR), step and touch potentials, rail to earth potentials, stray currents and EMC for all operational modes;
- (d) compliance with transfer, step and touch potential design criteria;
- (e) compliance with stray current management criteria;
- (f) traction return schematics;
- (g) traction return arrangements, layouts and details, including rail isolation, and rail to earth voltage monitoring. Leakage current monitoring must be measured by portable devices and may not be shown on arrangements;

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- (h) earthing, bonding and isolation schematics;
  - (i) earthing, bonding and isolation arrangements, layouts and details, including earthing grids, earth bars, miscellaneous steel requirements, PSDs, third party infrastructure and isolated supplies;
  - (j) equipment and plant room arrangements and layouts, including plans, elevations and cross sections;
  - (k) cable infrastructure layouts, cross sections and details;
  - (l) equipment operations and maintenance strategy and planning;
  - (m) equipment replacement methodology; and
  - (n) installation and workmanship details.

### **Design Stage 3: Design Documentation for Earthing and Bonding**

Design Stage 3 Design Documentation for the earthing and bonding, electrolysis and EMC systems must include as a minimum:

- (a) Critical earthing design report
- (b) Construction drawings and information
- (c) Final earthing design report



## Item C5.3 Environmental Control Systems (ECS)

### Design Stage 1: Design Documentation for Environmental Control Systems

The Design Stage 1 Design Documentation for the ECS must include, as a minimum

- (a) a design report detailing:
  - (i) ECS system level description, including Stations, and service facilities;
  - (ii) primary system ventilation, cooling and heating methods;
  - (iii) system capacities for each location to +/-25% confidence;
  - (iv) ECS provisions for each room and area type, providing outline of services and sub-systems and heating, cooling and ventilation methods;
  - (v) a system description of cooling for both new and existing Sydenham Station buildings (if impacted by the Contractor's activities), including cooling system capacities to a +/-25% confidence level,
  - (vi) a description of cooling and ventilation methods,
  - (vii) a description of air distribution arrangement, and identification of any unique requirements or characteristics of any particular location;
  - (viii) a description of the normal and emergency operating modes;
  - (ix) preliminary equipment schedules for major equipment; and
  - (x) preliminary plant room schedules for major plant rooms at each geographic location.
- (b) a system schematic for each air, water, and refrigerant system;
- (c) typical plant room layouts, including:
  - (i) cooling tower plant room (if applicable);
  - (ii) chiller plant room (if applicable);
  - (iii) condenser plant room;
  - (iv) air-handling unit plant room(if applicable);
  - (v) major fan rooms;
- (d) site plans identifying, major heat rejection, intake and discharge locations, orientation, and aspect; and
- (e) preliminary system interface block diagrams.

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## Design Stage 2: Design Documentation for Environmental Control Systems

The Design Stage 1 Design Documentation for the ECS must include, as a minimum

- (a) an updated design report provided in Design Stage 1 with +/- 10% confidence on system capacities and equipment sizing;
- (b) final output from the cooling thermal model to confirm the cooling provision;
- (c) detailed equipment schedules, indicative of final equipment selections with details of the main system components including:
  - (i) their operation, function, and performance requirements;
  - (ii) performance curves;
  - (iii) noise data and treatments; and
  - (iv) weight, dimensions and power requirements;
- (d) an updated plant room schedule detailing the dimensions of each plant room, location and special requirements including specific service requirements;
- (e) updated system schematics for each system showing equipment sizing, cooling and heating capacities, air and water flow rates to discrete equipment and room level detail;
- (f) specific plant room layout drawings detailing equipment, services connections, maintenance access and plant replacement routes;
- (g) a list of fire rated equipment or specific plant room fire rating or detection and protection requirements;
- (h) a description of control architecture and strategy for all ECS systems;
- (i) a draft monitoring and control point schedule detailing the type of points proposed and the function of the point;
- (j) single line air and water distribution drawings for geographic location with identified cross section sizing;
- (k) drawings detailing main services penetrations, risers, and main distribution corridor cross-sections;
- (l) updated site plans identifying, all heat rejection, intake and discharge locations, orientation, and aspects;
- (m) updated system interface block diagrams;
- (n) a detailed design deliverables list and designers initial ITP list;
- (o) materials and workmanship specification for the ECS; and
- (p) calculations for all systems, including:
  - (i) heating and cooling load calculations;



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- (ii) fan sizing calculations;
  - (iii) electrical loading calculations;
  - (iv) detailed hydraulic calculations;
  - (v) noise and vibration calculations; and
  - (vi) indicative energy and water usage for each major system.

### **Design Stage 3: Design Documentation for Environmental Control Systems**

The Design Documentation for Environmental Control Systems at stage 3 must include as a minimum:

- (a) An updated version of each of the documents requested in Design Stage 1 and 2.

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## Item C5.4 Hydraulic Services

### Design Stage 1: Design Documentation for Hydraulic Services

The Design Stage 1 Design Documentation for the hydraulic services must include, as a minimum:

- (a) schematic layout drawings for each system, including:
  - (i) indicative main services reticulation route;
  - (ii) indicative main equipment location and layout; and
  - (iii) details of connection to Authorities' services.
- (b) preliminary risk analysis for the rainwater harvesting system, pump duties, sump volumes and rising main sizes;
- (c) a plant room schedule (including spatial provisions) and building showing all plant rooms and proposed servicing;
- (d) preliminary builder's work requirement schedules; and
- (e) preliminary control system point schedules.

### Design Stage 2: Design Documentation for Hydraulic Services

Design Stage 2 Design Documentation for hydraulic services must include, as a minimum:

- (a) detailed risk analysis report for the rainwater harvesting system, pump duties, sump volumes rising main sizes and biocide dosing rates;
- (b) preliminary material and workmanship specifications;
- (c) detailed builder's work requirement schedules; and
- (d) detailed control system point schedules.

### Design Stage 3: Design Documentation for Hydraulic Services

Design Stage 3 Design Documentation for hydraulic services must include, as a minimum:

- (a) detailed material and workmanship specifications, including manufacturer's technical catalogues;
- (b) finalised builder's work requirement schedules;
- (c) finalised control system point schedules;
- (d) plant and equipment installation and replacement strategy proposals;
- (e) noise and vibration control measures;
- (f) pump motor/starter and control panel schedules and drawings;

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- (g) technical schedules detailing the equipment performance data;
- (i) drawings and documentations prepared by Water Servicing Coordinator for the town mains/sewer mains/stormwater connections;
  - (ii) system interface block diagrams indicating the locations and details of the interface with Sydney Trains, Authorities and Other Contractors; and
  - (iii) equipment and material data sheets with details of the main system components, including materials and workmanship specifications for each hydraulic services system.

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## Item C5.5 Fire Services Systems

### Design Stage 1: Design Documentation for Fire Services Systems

The Design Stage 1 Design Documentation for the fire services system must include, as a minimum:

- (a) a system overview;
- (b) a description for each fire services system;
- (c) schematic diagrams for each fire services system;
- (d) system interface block diagrams indicating the locations and details of the interface between different trades;
- (e) fire services provision schedules;
- (f) plant room schedules; and
- (g) room data sheets.

### Design Stage 2: Design Documentation for Fire Services Systems

Design Stage 2 Design Documentation for the fire services system must include:

- (a) fire services calculations including:
  - (i) system design calculations – sizing, quantity & capacity;
  - (ii) electrical loading calculations;
  - (iii) detailed hydraulic calculations; and
  - (iv) noise and vibration calculations.
- (b) equipment technical details including:
  - (i) equipment data sheets detailing the main system components including their operation function, performance requirements and power requirements;
  - (ii) technical data for fire services equipment including pump curves and performance details;
  - (iii) pump motor/starter and control panel schedules and drawings; and
  - (iv) noise and vibration control measures.
- (c) fire services drawings including:
  - (i) plant room equipment layout drawings for each fire services system;
  - (ii) service layout drawings showing the main routing for each fire services system;
  - (iii) services penetration drawings; and

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- (iv) builder's work drawings.
  - (d) fire services schedules including:
    - (i) fire services provision schedules;
    - (ii) plant room schedules;
    - (iii) drawing list and submission schedule;
    - (iv) Sydney Metro central control system (CCS) and Sydney Metro City & Southwest building management system (BMS) point schedules;
    - (v) painting schedules; and
    - (vi) lifting facilities schedules.
  - (e) plant replacement and access strategy
  - (f) material and workmanship specifications; and
  - (g) system interface data and specification.

### **Design Stage 3: Design Documentation for Fire Service Systems**

The Design Documentation for fire service systems at stage 3 must include as a minimum:

- (a) An updated version of each of the documents requested in Design Stage 1 and 2.

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## Item C5.6 Lighting

### Design Stage 1: Design Documentation for Lighting

The Design Stage 1 Design Documentation for the lighting must include, as a minimum:

- (a) A lighting design strategy describing the objectives, themes, strategies and implementation of the lighting design;
- (b) Visualisations of overall intent, to cover each area and zone;
- (c) Architectural integration details;
- (d) Indicative luminaire types; and
- (e) Control strategy.

### Design Stage 2: Design Documentation for Lighting

The Design Stage 2 Design Documentation for the lighting must include, as a minimum:

- (a) An updated Lighting Design Strategy;
- (b) low level lighting plans showing luminaire types, mounting locations of luminaires on floor / walls and indicative set out dimensions;
- (c) reflected ceiling plan showing locations and types of luminaires and indicative set out dimensions;
- (d) luminaire specifications;
- (e) luminaire electrical loading details; and
- (f) preliminary light level calculations illustrating compliance with key design principles and requirements.

### Design Stage 3: Design Documentation for Lighting

The Design Stage 3 Design Documentation for the lighting must include, as a minimum:

- (a) low level lighting plans showing luminaire types, mounting locations of luminaires on floor / walls, indicative set out dimensions and control groupings;
- (b) a reflected ceiling plan showing locations and types of luminaires, indicative set out dimensions and control groupings;
- (c) sections and elevations illustrating mounting locations, critical dimensions and positions of integration details;
- (d) integration details shown within architectural deliverables including critical dimensions and surface finishes;

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- (e) a lighting control strategy, including specification of control system, sensors, time clocks etc. control groups and operation of those groups during various times of day;
  - (f) a luminaire specification;
  - (g) a control schedule outlining the following items per channel:
    - (i) luminaire type;
    - (ii) luminaire quantity;
    - (iii) unit load;
    - (iv) control type;
    - (v) total load;
  - (h) final illuminance and (where appropriate) luminance calculations, which illustrate horizontal, work surface and vertical illuminance where required;
  - (i) BCA compliance statement, outlining allocation of W/m<sup>2</sup> per space, area and room index of each space, any adjustment factors that have been used and any elements that have been, justifiably excluded from the calculation results; and
  - (j) Green star and NABERS energy rating compliance statement outlining targeted points and achievements.

## Annexure C6 Project Specific Design Documentation: Fire and Life Safety (FLS)

### Design Stage 1: Design Documentation for Fire and Life Safety

The Design Stage 1 Design Documentation for fire and life safety must include, as a minimum:

- (a) A preliminary Fire Engineering Brief (FEB). The FEB must be consistent with the guidance described in AS4825 Tunnel Fire Safety, and must as a minimum contain the following:
  - (i) project scope;
  - (ii) fire engineering design scope;
  - (iii) fire engineering design objectives;
  - (iv) regulatory framework;
  - (v) details of relevant stakeholders including a summary of consultation undertaken (minutes to be attached) and all agreements achieved;
  - (vi) elemental review and description of the Works infrastructure, systems and operations, as it relates to the FLS strategy, including interfaces to other rail facilities, adjoining properties and other rail operators;
  - (vii) Occupant characteristics, which must include:
    - A. population numbers to be used for egress assessment during AM peak, PM peak and off-peak;
    - B. the proportion of Occupants who are mobility impaired;
    - C. the likely location of Occupants within the station;
    - D. whether occupants are static (e.g. staff) or transient (e.g. commuters) and general flow patterns;
    - E. presence of homeless people sleeping rough;
    - F. presence of those involved in anti-social behaviour (e.g. graffiti vandals);
    - G. seasonal changes and school holidays; and
    - H. potential special events (e.g. New Year's Eve).
  - (viii) Hazards identified and preventative and protective measures;
  - (ix) fire and life safety (FLS) strategy;
  - (x) methodology of assessment including:
    - A. identification and likelihood based categorisation of all credible fire and egress scenarios;



- B. acceptance criteria including tenability criteria and safety factors;
  - C. proposed method for assessing risk to operational impact;
  - D. identification and justification of all key input parameters for quantitative assessment including smoke modelling, egress assessment, structural assessment, quantitative risk assessment, radiation modelling and fire brigade response;
  - E. description of software modelling and commentary provided as to its level of validation; and
  - F. a list of all assumptions, including assumed values as inputs to any quantitative likelihood assessment or Risk assessment.
- (xi) preliminary analysis and modelling results;
- (xii) trial design, including:
- A. proposed Fire Safety Systems;
  - B. required redundancies;
  - C. preliminary “cause and effect matrix” of required responses for all credible scenarios; and
  - D. proposed management of interfaces.
- (xiii) proposed methodology for justification of non-compliances with the Codes and Standards, including:
- A. deemed to satisfy provisions of the building codes of Australia (BCA);
  - B. ASA standards; and
  - C. Metro standards.

## **Design Stage 2: Design Documentation for Fire and Life Safety**

The Design Stage 2 Design Documentation for fire and life safety must include, as a minimum:

- (a) a final FEB that, in addition to the requirements of design stage 1, contains:
  - (i) updates in response to stakeholder review comments on the preliminary FEB;
  - (ii) Document Review Registers (DRR's) applicable to the preliminary FEB, including responses and response acceptances to all review comments raised; and
  - (iii) copy of all approvals.
- (b) a written report from the Proof Engineer (fire life safety) containing detailed results of their review of the final FEB including an assessment of:
  - (i) appropriateness of the trial design;

- 
- (ii) compliance with relevant legislation, codes and standards; and
  - (iii) appropriateness of assumptions, engineering methods, analysis and calculations.
- (c) a preliminary Fire Engineering Report (FER). The FER must be consistent with the guidance described in AS4825 Tunnel Fire Safety, and must as a minimum contain the following:
- (i) a project scope;
  - (ii) a fire engineering design scope;
  - (iii) a fire engineering design objectives;
  - (iv) a regulatory framework;
  - (v) details of relevant stakeholders including a summary of consultation undertaken (minutes to be attached) and all agreements obtained;
  - (vi) a description of the Works infrastructure, systems and operations, as it relates to the FLS strategy, which must specifically address interfaces to other rail facilities, adjoining properties and other rail Operators;
  - (vii) Occupant characteristics, which must include:
    - A. population numbers to be used for egress assessment during AM peak, PM peak and off-peak;
    - B. proportion of occupants who are mobility impaired;
    - C. the likely location of Occupants within the station;
    - D. whether Occupants are static (e.g. staff) or transient (e.g. commuters) and general flow patterns;
    - E. presence of homeless people sleeping rough;
    - F. presence of those involved in anti-social behaviour (e.g. graffiti vandals);
    - G. seasonal changes and school holidays; and
    - H. potential special events (e.g. New Year's Eve),
  - (viii) identified hazards and preventative and protective measures;
  - (ix) an assessment of all credible scenarios identified in the FEB, and in accordance with the methodology in the agreed FEB, including:
    - A. results of all Quantitative Assessment and Qualitative Assessment;
    - B. all design inputs and assumptions; and
    - C. all inputs to Risk assessments are to be agreed during stakeholder workshops.
- (d) a detailed description of the FLS strategy covering:

- (x) integration with fire safety elements of rail systems, rolling stock and operations;
  - (xi) means of escape for all occupants including the mobility impaired, including exit routes, travel distances, occupant numbers, exit widths, and fire protection of exit routes;
  - (xii) fire compartmentation and fire resistance, and Fire Hazard Properties of materials;
  - (xiii) smoke control;
  - (xiv) fire suppression systems, including sprinklers and gaseous suppression;
  - (xv) automatic fire detection;
  - (xvi) Occupant warning systems;
  - (xvii) emergency lighting and signage;
  - (xviii) firefighting access, facilities and equipment;
  - (xix) manual firefighting equipment;
  - (xx) emergency and other power requirements;
  - (xxi) fire incident management; and
  - (xxii) fire related operational requirements, maintenance and housekeeping,
- (e) a comprehensive list of required fire safety systems including:
- (i) a “cause and effect matrix” of required responses for all credible scenarios;
  - (ii) detail not prescribed in design standards; and
  - (iii) relevant inputs and assumptions that have formed the basis of the assessment.
- (f) detailed justification for non-compliances with Codes and Standards, including:
- (i) DtS provisions of the BCA;
  - (ii) ASA standards; and
  - (iii) Metro standards.
- (g) a detailed description of FLS interfaces with other systems and project elements;
- (h) a document map is to be provided identifying the linkages if the FER is dependent on other reports; and
- (i) the SFAIRP assessment demonstrating compliance with the Rail Safety (Adoption of National Law) Act 2012.

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## Design Stage 3: Design Documentation for Fire and Life Safety

The Design Stage 3 Design Documentation for fire and life safety must include, as a minimum:

- (a) a final FER that, in addition to the requirements of design stage 2, contains:
  - (i) updates in response to stakeholder review comments on the preliminary FER;
  - (ii) Document Review Registers (DRR's) applicable to the preliminary FER, including responses and response acceptances to all review comments raised; and
  - (iii) copy of all approvals.
- (b) a written report from the Proof Engineer (fire life safety) containing detailed results of their review of the final FER including an assessment of:
  - (i) any changes to design objectives or design input parameters from the FEB;
  - (ii) appropriateness of the FLS strategy;
  - (iii) compliance with relevant legislation, codes and standards; and
  - (iv) appropriateness of assumptions, engineering methods, analysis and calculations.
- (c) the following certificates (and any supporting documentation as required) to the Principal and the Independent Certifier:
  - (i) Certification by the QFE of the fire engineering design as documented in the Approved FER; and
  - (ii) Certification by the Proof Engineer (fire life safety) of the fire engineering design as documented in the Approved FER;
- (d) an electronic copy of all input and output files generated for the purposes of smoke modelling, egress modelling, structural fire modelling, radiation modelling, fire brigade response modelling, quantified Risk assessment(s) and supporting analysis that form part of the final FER.
- (e) testing methodologies and specifications for any fire testing programs necessary to demonstrate the Fire Resistance Levels and / or Fire Hazard Properties of any required Fire Safety Systems defined in the final FER.
- (f) All documents referenced within the final FER must be issued to the Principal and the Independent Certifier with the final FER before the FER can be approved by the Principal.

## **Annexure C7 Project Specific Design Documentation: Sustainability**

### **All Design Stages: Design Documentation for Sustainability**

The Design Documentation to be submitted for each Design Stage, Design Stage 1, Design Stage 2 and Design Stage 3 for sustainability must include, as a minimum:

- (a) estimates of operational electricity consumption which include a breakdown of electricity consumption, by system, and document the assumptions which have been used in the development of the estimates;
- (b) Climate Change Impact Assessment Reports which demonstrate how climate change risks have been mitigated in design; and
- (c) life-cycle assessment reports which describe how life-cycle assessment has been used as a decision making tool for material selection and sourcing and project design to minimise life cycle environmental impacts.

### **Design Stages 2 & 3: Design Documentation for Sustainability**

The Design Documentation to be submitted at Design Stage 2 and Design Stage 3 for sustainability must include, as a minimum:

- (a) completed Green Star Design and As Built Refrigerants Impacts Calculator for all station heating, ventilation, air conditioning and refrigerant (HVAC&R) systems at Design Stages 2 and 3;
- (b) documentation demonstrating that the Metro Station has been designed to achieve a minimum 15% improvement over a reference station based on the section J minimum performance requirements, defined by the National Construction Code (NCC) Building Code of Australia (BCA). The 15% design improvement and reference station must include all building related energy end uses (excluding process, communications and specialist equipment energy loads);
- (c) Where works are classified under a particular NCC BCA, Design Documentation must include energy simulation modelling and associated reporting against minimum performance requirements. Design Documentation must be provided initially during Design Stage 2 and updated at Design Stage 3 to reflect changes;
- (d) Where Works are not classified under a particular NCC BCA building classification, appropriate NCC BCA Section J benchmarks must be used to determine the minimum performance benchmark and improvements must be demonstrated by energy simulation modelling or detailed calculations and included in a report; and
- (e) The hourly use profiles and the relative levels for occupancy, energy consuming systems and equipment such as artificial lighting, air-conditioning, ventilation, lifts and internal transport devices, domestic hot water and variable energy using systems and equipment such as computers, datacom equipment and machinery,

must be developed, tested for appropriateness and stated within the energy calculations.

## **Annexure C8 Project Specific Design Documentation: Customer Centred Design (CCD)**

### **Design Stage 1: Design Documentation for Customer Centred Design**

In addition to the requirements set out in MR-PA, Design Documentation to be submitted in relation to CCD at Design Stage 1, as a minimum, must include:

- (a) Design Documentation for each relevant design package, must include a Design Package CCD Report.<sup>7</sup>
- (b) The Design Package CCD Report, which must address and include:
  - (i) a description of the findings from the application of steps, as specified in SWTC Appendix B09 ,including, but not limited to:
    - A. population numbers to be used for egress assessment during AM peak, PM peak and off-peak;
    - B. identification and analysis of potential issues that impact other design packages; and
    - C. an overview of outstanding customer design issues to be resolved through product, systems and spatial solutions in subsequent Design Stages.
  - (ii) how the Customer Reference Panel has been engaged during the Design Stage 1, including activities that have taken place, participant demographic/customer segment representation, feedback received, where and how this influenced the design solution, including;
    - A. details of level of prototyping applied, including;
      - 1. the test(s) completed using prototypes;
      - 2. the aim of the test(s);
      - 3. the type of prototype(s) used;
      - 4. the outcome of the test(s);
      - 5. photo / videographic images of the test(s) being completed with customers; and
      - 6. how this test(s) informed the design at Design Stage 1.
    - B. customer journey maps that address the relevant stages of the Sydney Metro Easy Door-to-door-to-door Journey Experience;
    - C. lessons learned for application in subsequent customer engagement activity



- (iii) analysis and commentary, supported by direct customer feedback, in relation to how the design performs against:
  - A. SWTC Appendix B09 Clause 3.1(g);
  - B. SWTC Appendix B09 Clause 2.2(a);
  - C. SWTC Appendix B09 Clauses 2.3(b) to (k);
- (iv) reporting against the findings of SWTC Appendix B09 Clause 3.1(i), including analysis and supporting commentary in relation to:
  - A. average score by demographic
  - B. average score by customer segment
  - C. net promotor score – calculated in the following way:
    - 1. sum of the number of responses that responded either 9 or 10 divided by the total number of respondents, less the sum of the number of responses scored between 0 and 6 divided by the total number of respondents.

## Design Stage 2: Design Documentation for Customer Centred Design

In addition to the requirements set out in MR-PA, Design Documentation to be submitted in relation to CCD at Design Stage 2, as a minimum, must include:

- (a) A Design Package CCD Report, which must address and include:
  - (i) a description of the findings from the application of steps as specified in SWTC Appendix B09 Clause 3.1(c)(iii) to (viii), including, but not limited to:
    - A. an overview of engagement activities and agreed actions that have taken place to address issues identified via Clause 1.b)i.a., above;
    - B. identification and analysis of potential issues that impact other design packages; and
    - C. an overview of outstanding customer design issues to be resolved through product, systems and spatial solutions in the subsequent Design Stage.
  - (ii) how the Customer Reference Panel has been engaged during the Design Stage, including activities that have taken place, participant demographic/customer segment representation, feedback received, where and how this influenced the design solution, including;
    - A. details of level of prototyping applied, including;
      - 1. the test(s) completed using prototypes;
      - 2. the aim of the test(s);
      - 3. the type of prototype(s) used;
      - 4. the outcome of the test(s)

5. photo / videographic images of the test(s) being completed with customers; and
  6. how this test(s) informed the design during Design Stage 2.
- B. customer journey maps that address the relevant stages of the Sydney Metro Easy Door-to-door-to-door Journey Experience; and
  - C. lessons learned for application in subsequent customer engagement activity.
- (iii) analysis and commentary, supported by direct customer feedback, in relation to how the design performs against:
- A. SWTC Appendix B09 Clause 3.1(g);
  - B. SWTC Appendix B09 Clause 2.2(a);
  - C. SWTC Appendix B09 Clauses 2.3(b) to (k);
- (iv) reporting against the findings of SWTC Appendix B09 Clause 3.1(i), including analysis and supporting commentary in relation to:
- A. average score by demographic
  - B. average score by customer segment
  - C. net promotor score – calculated in the following way:
    1. Sum of the number of responses that responded either 9 or 10 divided by the total number of respondents, less the Sum of the number of responses scored between 0 and 6 divided by the total number of respondents.
  - D. trend analysis relative to Design Stage 1.

### **Design Stage 3: Design Documentation for Customer Centred Design**

In addition to the requirements set out in MR-PA, Design Documentation to be submitted in relation to CCD at Design Stage 3 must include as a minimum:

- (a) a Design Package CCD Report at the conclusion of Design Stage 3. This report must include:
  - (i) a description of the findings from the application of steps as specified in SWTC Appendix B09 Clause 3.1(c)(iii) to (viii), including, but not limited to:
    - A. An overview of engagement activities and agreed actions that have taken place to address issues identified via Clause 2.b)i.b., above
    - B. identification and analysis of potential issues that impact other design packages.



- (ii) how the Customer Reference Panel has been engaged during the Design Stage, including activities have taken place, participant demographic/customer segment representation, feedback received, where and how this influenced the design solution, including;
  - A. details of level of prototyping applied, including;
    - 1. the test(s) completed using prototypes;
    - 2. the aim of the test(s);
    - 3. the type of prototype(s) used;
    - 4. the outcome of the test(s);
    - 5. photo / videographic images of the test(s) being completed with customers; and
    - 6. how this test(s) informed the design during Design Stage 3.
  - B. customer journey maps that address the relevant stages of the Sydney Metro Journey Map and Customer Principles and
  - C. lessons learned for application in subsequent customer engagement activity
- (iii) analysis and commentary, supported by direct customer feedback, in relation to how the design performs against:
  - A. SWTC Appendix B09 Clause 3.1(g);
  - B. SWTC Appendix B09 Clause 2.2(a);
  - C. SWTC Appendix B09 Clauses 2.3(b) to (k);
- (iv) reporting against the findings of SWTC Appendix B09 Clause 3.1(i), including analysis and supporting commentary in relation to:
  - A. average score by demographic
  - B. average score by customer segment
  - C. net promotor score – calculated in the following way:
    - 1. Sum of the number of responses that responded either 9 or 10 divided by the total number of respondents, less the Sum of the number of responses scored between 0 and 6 divided by the total number of respondents.
  - D. trend analysis relative to Design Stages 1 and 2.

## Prototypes and Samples

- (a) The Contractor must undertake prototyping at all Design Stages in accordance with the Overarching CCD Management Plan and Design Package CCD Implementation Plan.

- 
- (b) The Contractor must, where practicable, utilise the method of prototyping from the available options that best achieves a natural human interaction to support customer validation through testing.
- (c) Acceptable prototyping approaches at Design Stage 1 may include, but is not limited to:
- (i) paper-based imagery and renders;
  - (ii) models;
  - (iii) interaction-based tools such as building blocks and craft based materials;
  - (iv) low-fidelity user interface examples;
  - (v) site visits using analogous locations;
  - (vi) analogous off-the-shelf products; and
  - (vii) indicative sample materials.
- (d) Where an alternative prototyping approach is to be utilised to those identified in Clause 4.c), the Contractor must seek agreement from the Principal's Representative in writing prior to undertaking customer testing.
- (e) Acceptable prototyping approaches at Design Stage 2 may include, but is not limited to:
- (i) 3-dimensional computer based station imagery and renders;
  - (ii) 3-dimensional physical mock-ups;
  - (iii) high fidelity user interface examples;
  - (iv) virtual reality simulations;
  - (v) product and material samples as proposed;
  - (vi) activity-based interactions to complete a task with a mock up; and
  - (vii) site visits using analogous or actual locations (may be at a testing centre).
- (f) Where an alternative prototyping approach is to be utilised to those identified in Clause 4.e), the Contractor must seek agreement from the Principal's Representative in writing prior to undertaking customer testing.
- (g) Acceptable prototyping approaches at Design Stage 3 may include, but is not limited to:
- (i) 3-dimensional computer based station imagery and renders;
  - (ii) 3-dimensional physical mock-ups;
  - (iii) high fidelity user interface examples;
  - (iv) virtual reality simulations;
  - (v) actual pre-production (beta version) user interface examples;

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- (vi) activity based interactions to complete a task with the manufacturer's product;  
and
  - (vii) site visits using actual locations (may be at a testing centre).
- (h) Where an alternative prototyping approach is to be utilised to those identified in Clause 4.g), the Contractor must seek agreement from the Principal's Representative in writing prior to undertaking customer testing.

## Annexure C10 Project Specific Design Documentation: Wayfinding

At all stages, the Contractor must follow the design processes described in the Wayfinding Planning Guide and must use any documentation templates provided by the Principal.

### Design Stage 1: Design Documentation for Wayfinding

- (a) The Contractor must provide the following Design Documentation in relation to all customer-facing areas of the design solution submitted in Design Stage 1 Building, precinct and public domain works, and in accordance with the Wayfinding Planning Guide – Introduction, which must include as a minimum a Signage and Wayfinding Report which must identify, address and include:
- (i) the requirements of the Contract;
  - (ii) any departures from the tender design and any departures from the previous Design Stage if appropriate, and the reasons for the changes;
  - (iii) assumptions, dependencies and constraints;
  - (iv) interim design reviews in summary form;
  - (v) inputs from Stakeholders and the CCD process;
  - (vi) inputs from the Design Review Panel and Station Working Groups;
  - (vii) accompanied by relevant product data sheets and test certificates;
  - (viii) details of any alternative designs considered and the process used to determine the recommended option;
  - (ix) consideration of requirements for future safeguarding;
  - (x) detailed specifications for materials, finishes, equipment and systems; and
  - (xi) design verification.
- (b) a Wayfinding Provisioning Report, including control drawings and other specifications, demonstrating how provisions have been made to allow signs to be:
- (i) flexibly located and installed, based on customer requirements and decision points;
  - (ii) connected to data and power sources;
  - (iii) planned in relation to lighting, furniture, advertising, retail signage and any other relevant elements of the station environment; and
  - (iv) any other provisioning or allowances made.
- (c) Where an alternative prototyping approach is to be utilised to those identified in Appendix B10, Clause 4.g), the Contractor must seek agreement from the Principal's Representative in writing prior to undertaking customer testing.

- (d) Wayfinding Requirements Analysis, including but not limited to:
  - (i) issues analysis;
  - (ii) Benchmarks and exemplars; and
  - (iii) solution constraints.
- (e) Wayfinding Strategic Analysis Report, including but not limited to:
  - (i) Site/interchange boundaries;
  - (ii) zone and flow plans; and
  - (iii) services summary.
- (f) The Contractor must provide a non-Customer-facing Wayfinding Plan that:
  - (i) demonstrates compliance with building codes and statutory regulations;
  - (ii) identifies requirements and constraints identified through consultation with operator(s); and
  - (iii) demonstrates compliance with the design requirements in Appendix B3

## **Design Stage 2: Design Documentation for Wayfinding**

The Contractor must provide the following Design Documentation in relation to all customer-facing areas of the design solution submitted in Design Stage 2 Building, precinct and public domain works, and in accordance with the Wayfinding Planning Guide – Introduction, which must include as a minimum:

- (a) An updated Signage and Wayfinding Report;
- (b) A Wayfinding Concept Design Package, including but not limited to:
  - (i) new sign schedules and location plans;
  - (ii) New sign set outs;
  - (iii) sign removal schedules and location plans;
  - (iv) interface schedules and location plans; and
  - (v) Stakeholder consultation notes.
- (c) an updated non-Customer-facing Wayfinding Plan.

## **Design Stage 3: Design Documentation for Wayfinding**

The Contractor must provide the following Design Documentation in relation to all customer-facing areas of the design solution submitted in Design Stage 3 Building, precinct and public domain works, and in accordance with the Wayfinding Planning Guide – Introduction, which must include as a minimum::

- (a) An updated An updated Signage and Wayfinding Report;
- (b) A Wayfinding Assurance Report, including but not limited to:

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- (i) Sign verification schedules
  - (ii) RFIs and summary of changes for production order
  - (iii) Production order request
  - (iv) Bracket and fixing designs
  - (v) Shop drawings
  - (vi) Engineering certifications and assurances
- (c) A Wayfinding Production Order Package, including but not limited to:
- (i) production Order (from TfNSW Wayfinding Program);
  - (ii) new sign schedules and location plans;
  - (iii) new sign set outs;
  - (iv) sign removals schedules and location plans; and
  - (v) interface schedules and location plans;
- (d) an updated non-Customer-facing Wayfinding Plan.

## Annexure C11 Project Specific Design Documentation: Public Art

### Design Stage 1 Documentation for Public Art

The Contractor must provide the following Design Documentation in relation to the design solution submitted in Design Stage 1 Building, precinct and public domain works:

- (a) a Public Art Provisioning Report, including:
  - (i) control drawings and other specifications, demonstrating how the various provisions specified in SWTC Appendix B11 Clause 2.1(b)(i) have been addressed;
  - (ii) design drawings and renders (as appropriate) which identify opportunities for the incorporation of the different types of public art into the Works as per SWTC Appendix B11 Clause 2.1(b)(ii).
  - (iii) Options analysis of all public art opportunities and locations explored through the design process and
  - (iv) results of the CCD process (as defined by SWTC Appendix B9)

### Design Stage 2 Documentation for Public Art

The Contractor must provide the following Design Documentation in relation to the design solution submitted in Design Stage 2 Building, precinct and public domain works:

- (a) a Public Art Integration Report, that:
  - (i) demonstrates compliance with any specified requirements in relation to permanent art works as per SWTC Appendix B11 Clause 2.1(b)
  - (ii) demonstrates compliance with provisioning requirements in relation to temporary art works as per SWTC Appendix B11 Clause 2.1(b) and
  - (iii) identifies issues in relation to the realisation of the Public Art Master Plan that need to be resolved through Stage 3 Design.
  - (iv) Options analysis of all public art opportunities and locations explored through the design process as per Clause 2.1(b) and
  - (v) results of the CCD process (as defined by SWTC Appendix B9)

### Design Stage 3 Documentation for Public Art

The Contractor must provide the following Design Documentation in relation to the design solution submitted in Design Stage 3 Building, precinct and public domain works:

- (a) a revised Public Art Integration Report, that:

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- (i) demonstrates compliance with any specified requirements in relation to permanent public art as per SWTC Appendix B11 Clause 2.1(b)
  - (ii) demonstrates compliance with provisioning requirements in relation to temporary public art as per SWTC Appendix B11 Clause 2.1(b);
  - (iii) addresses how any issues identified at Stage 2 have been resolved; and
  - (iv) results of the CCD process (as defined by SWTC Appendix B9).



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## **Annexure C12 Project Specific Design Documentation: Asset Management**

- (a) The Contractor must provide a Maintainability Demonstration section in the Design Documentation for all Stages, which addresses the following:
  - (i) minimises whole of life costs for asset operations, maintenance, replacement and refurbishment costs;
  - (ii) enable maintenance to be carried out with minimum disruption to passengers and normal operations;
  - (iii) RAMS demonstration as required by EN 50126 to support RAM targets;
  - (iv) tabulate condition monitoring systems, parameters and interfaces required to the Operator / Maintainer's Asset Information System;
  - (v) access points and methodology, and access time.
  - (vi) maintenance activities including replacement and refurbishment, including detailed steps, any special tools and equipment required, duration of activities with and without access time.
  - (vii) standards and acceptance criteria applicable for maintenance activities.
- (b) The Contractor must provide Asset Management Information in accordance with SWTC Appendix B12.

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## **Annexure C13 Project Specific Design Documentation: Advertising**

### **Design Stage 1: Design Documentation for Advertising**

The Contractor must provide the following artefacts in relation to the design solution submitted in Design Stage 1 Building, precinct and public domain works:

- (a) Advertising Provisioning Report, including:
  - (i) control drawings and other specifications, demonstrating how the various provisions specified in SWTC Appendix B13 Clause 2.1(a)(i) have been addressed;
  - (ii) identify through design drawings and renders (as appropriate) opportunities for the incorporation of the different types of advertising into the Works as per SWTC Appendix B13 Clause 2.1(a)(ii) ;
  - (iii) Initial analysis of Customer traffic patterns proximate to identified advertising locations, supported by station pedestrian modelling, as appropriate;

### **Design Stage 2: Design Documentation for Advertising**

The Contractor must provide the following artefacts in relation to the design solution submitted in Design Stage 2 Building, precinct and public domain works:

- (a) Advertising Integration Report, that:
  - (i) Demonstrates compliance with any specified requirements as per SWTC Appendix B13 Clause 2.1(a) ;
  - (ii) Updated analysis of Customer traffic patterns proximate to identified advertising locations, supported by station pedestrian modelling, as appropriate;
  - (iii) Identifies issues in relation to the realisation of the Advertising Strategy that need to be resolved through Stage 3 Design.

### **Design Stage 3: Design Documentation for Advertising**

The Contractor must provide the following artefacts in relation to the design solution submitted in Design Stage 3 Building, precinct and public domain works:

- (a) An updated Advertising Integration Report that:
  - (i) Demonstrates compliance with any specified requirements as per SWTC Appendix B13 Clause 2.1(a);
  - (ii) Updated analysis of Customer traffic patterns proximate to identified advertising locations, supported by station pedestrian modelling, as appropriate;

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- (b) Addresses how any issues identified at Stage 2 have been resolved.

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## Annexure C14 Project Specific Design Documentation: Retail

### Design Stage 1: Design Documentation for Retail

The Contractor must provide the following artefacts in relation to the design solution submitted in Design Stage 1 Building, precinct and public domain works:

- (a) A Retail Provisioning Report, including:
  - (i) control drawings and other specifications, demonstrating how the various provisions specified in SWTC Appendix B14 Clause 2.1(a)(i) have been addressed;
  - (ii) identify through design drawings and renders (as appropriate) opportunities for the incorporation of the different types of retail into the Works as per SWTC Appendix B14 Clause 2.1(a)(ii);
  - (iii) options analysis of all retail opportunities and locations explored through the design process as per SWTC Appendix B14 Clause 2.1(a);
  - (iv) Initial analysis of Customer traffic patterns proximate to identified retail locations, supported by station pedestrian modelling, as appropriate; and
  - (v) Results of the CCD process (as defined by SWTC Appendix B9).
- (b) An updated Retail Provisioning Plan.

### Design Stage 2: Design Documentation for Retail

The Contractor must provide the following artefacts in relation to the design solution submitted in Design Stage 2 Building, precinct and public domain works

- (a) A Retail Integration Report that:
  - (i) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.1(a);
  - (ii) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.2;
  - (iii) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.3;
  - (iv) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.4;
  - (v) provides an updated analysis of Customer traffic patterns proximate to identified retail locations, supported by station pedestrian modelling, as appropriate;
  - (vi) identifies issues in relation to the realisation of the Retail Strategy that need to be resolved through Stage 3 Design; and

- (vii) results of the CCD process (as defined by SWTC Appendix B9).
- (b) An updated Retail Provisioning Plan.

### **Design Stage 3: Design Documentation for Retail**

The Contractor must provide the following artefacts in relation to the design solution submitted in Design Stage 3 Building, precinct and public domain works

- (a) An updated Retail Integration Report that:
  - (i) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.1(a);
  - (ii) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.2;
  - (iii) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.3;
  - (iv) demonstrates compliance with any specified requirements as per SWTC Appendix B14 Clause 2.4;
  - (v) provides as updated analysis of Customer traffic patterns proximate to identified retail locations, supported by station pedestrian modelling, as appropriate;
  - (vi) addresses how any issues identified at Stage 2 have been resolved; and
  - (vii) results of the CCD process (as defined by SWTC Appendix B9).
- (b) An updated Retail Provisioning Plan, including a detailed set of tenancy plans for each retail unit Tenancy plans should detail proposed lease lines, services locations, reflected ceiling plans, sections and elevations.

## **Annexure D: Interface Documentation and Coordination D1 Structural Electrical and Mechanical Drawings**

- (a) The Contractor must develop initial SEMs (Phase 1 SEMs) as part of Design Stage 1 for the Metro Station Works.
- (b) SEM drawings must coordinate the civil works of the Contractor and the civil requirements of the Interface Work for electrical and mechanical installation.
- (c) SEM drawings must comprise layout and sectional drawings that use the architectural layouts as a background with the structural framing superimposed to show (at a 1:100 / 1:50 scale) all the required:
  - (i) openings in slabs, sleeves, plinths, reinforced concrete walls, beams and blockwork walls;
  - (ii) openings required for access panels / doors in walls, slabs or beams for the delivery and maintenance of the electrical and mechanical equipment;
  - (iii) cast-in items including pipework, cable sleeves, lifting hooks, brackets, sockets, anchors, lifting beams, floor drains, equipment plinths, and electrical conduits; and
  - (iv) all rebates in concrete surfaces and chases in blockwork that are required for concealed conduits, cables and pipes.
- (d) For all openings, the SEM drawings must include the following installation details:
  - (i) entity responsible for providing the sleeves or steel enclosure;
  - (ii) entity responsible for sealing the opening within the sleeve; and
  - (iii) the Contractor to seal the remaining opening and outside the sleeve with fire resistant material, compatible with the fire rating of the wall.
- (e) The Phase 1 SEM must show the preliminary and approximate structural and architectural openings, penetrations, cast in items and builder's works provisions for plant and materials and Interface Contractors' installations. The provisions on the Phase 1 SEM are based on the intended locations and arrangements of the major services and the preliminary layout of Interface Contractors' equipment layout. The Contractor must not rely on the information provided in the provisions and must check all information prior to its use.
- (f) The Contractor must issue the Phase 1 SEMs to the Principal's Representative and relevant Interface Contractors. The Interface Contractors and Principals' Representative will review the Phase 1 SEMs and mark up amendments on the drawings to suit the Interface Work, as necessary, within 4 weeks of the issue of the drawings by the Contractor.
- (g) The Contractor must arrange coordination working sessions to be attended by the Principal's Representative and relevant Interface Contractors to review and reach agreement on the marked-up Phase 1 SEMs.



- (h) The Contractor must develop the detailed SEMs as part of Design 2 for the Metro Station Works and be based on the agreed marked-up Phase 1 SEMs.
- (i) Updated versions of all Documents listed in (a) to (g) above must be submitted as a part of the Design Stage 3 submissions.

## **D2 Combined Serviced Drawings**

- (a) CSDs are layout and sectional drawings which must show (generally at scales of 1:100, 1:50 or 1:25) combined and coordinated arrangements of all the major electrical and mechanical works on architectural layout backgrounds. The services routing and equipment layout must be coordinated with due regard to the design intent, construction sequence, operational safety, maintainability, constructability and aesthetic appearance.
- (b) The CSDs must include setting out dimensions and levels of the following items, unless their inclusion will reduce the clarity of the drawings (in which case these must be shown on separate drawings):
  - (i) ductwork routes;
  - (ii) cable trays and trunking routes;
  - (iii) pipework routes and valve locations;
  - (iv) louvres and grille locations;
  - (v) major equipment, including fans, chillers, switchboards, lighting fittings, pumps, air handling units, battery racks, UPS, control panels, compressors and vessels, generators and tanks; and
  - (vi) locations of earthing terminals, emergency push buttons, power isolators and switches, and water and drainage points.
- (c) The Contractor must coordinate with all relevant Interface Contractors to review, their mark-up amendments and reach agreement on the CSDs. This includes coordination with any CSDs developed by Interface Contractors.
- (d) The Contractor must develop initial CSDs ("Phase 1 CSDs") as part of Design Stage 1 design for the Metro Station Works.
- (e) The Phase 1 CSD must show the preliminary and approximate spatial arrangements of the building services installations. The arrangements on the Phase 1 CSD will be based on the assumed sizes of the equipment, the intended locations and arrangements of the major services and the preliminary layout of Interface Contractors' equipment. The Phase 1 CSDs may not be entirely suitable for the Contractor's sequence of Works and size of actual equipment to be used.
- (f) The Contractor must issue the Phase 1 CSDs to the Principal's Representative and relevant Interface Contractors. The Principal's Representative and relevant Interface Contractors will review and mark-up any proposed amendments to account for the Interface Work, as necessary, within 4 weeks of the issue of the drawings by the Contractor.

- (g) The Contractor must arrange a coordination working session to be attended by the Principal's Representative and relevant Interface Contractors to review and reach agreement on the marked-up Phase 1 CSDs.
- (h) The Contractor must develop the detailed CSDs ("Phase 2 CSDs") as part of Design Stage 2 design for the Metro Station Works and be based on the agreed marked-up Phase 1 CSDs.
- (i) The Interface Contractors will provide equipment layout and other necessary information for the equipment rooms. The Contractor must incorporate these details in the Phase 2 CSD for these equipment rooms.
- (j) Updated versions of all Documents listed in (a) to (i) above must be submitted as a part of the Design Stage 3 submissions.

### D3 Wall Elevation Drawings

- (a) WEDs are required to facilitate the coordination of wall openings, wall mounted equipment, structural reinforcement zones, and lintels, to avoid clashes and ensure constructability.
- (b) The WEDs must show all the openings for electrical, mechanical and systems Works based on the SEM drawings as well as all cast-in items, doors, access panels, blockwork reinforcement zones and the like, to illustrate the coordination arrangement amongst all these items. For any areas with false ceiling, the ceiling line must be shown on the WEDs.
- (c) The Contractor must develop initial WEDs ("Phase 1 WEDs") as part of the Design Stage 1 design for the Metro Station Works.
- (d) The Contractor must issue the Phase 1 WEDs to the Principal's Representative and relevant Interface Contractors. The Principal's Representative and relevant Interface Contractors will review and mark-up any proposed amendments to account for the Interface Work, as necessary, within 4 weeks of the issue of the drawings by the Contractor.
- (e) The Contractor must arrange a workshop to be attended by the Principal's Representative and relevant Interface Contractors to review and reach agreement on the marked-up Phase 1 WEDs.
- (f) The Contractor must develop the detailed WEDs ("Phase 2 WEDs") as part of Design Stage 2 design for the Metro Station Works.
- (g) The Interface Contractors will provide information on any large items which will be fixed to blockwork walls, and the imposed loads on the walls, including of runs of pipes, ducts, cable trays, and dampers. The Contractor must incorporate these details in the Phase 2 WEDs.
- (h) Updated versions of all Documents listed in (a) to (g) above must be submitted as a part of the Design Stage 3 submissions.
- (i) The final WEDs must be used for construction of the civil works, with an AFC version being released in accordance with this MR-T clause 3.7.



## **D4 Cable Containment Drawings**

- (a) The cable containments drawings are layout plans and installation details showing the arrangement of cable containment system with details of sizes, fixings, cables, terminations and hangers.
- (b) In accordance with the requirements of the agreed Phase 2 CSDs, the Contractor must review the cable containment requirements of the Interface Contractors for compatibility with the design of the Works and prepare the cable containment drawings.
- (c) Versions of all Documents listed in (a) to (b) above must be submitted as a part of the Design Stage 1, Design Stage 2 and Design Stage 3 submissions.

## **D5 Cast-in Conduit Drawings**

- (a) The cast-in-conduit drawings are layout plans and installation details, which must show the arrangement of cast in conduit, with conduit sizes and details of cables, loads and terminations (to a minimum of 1:100 scale).
- (b) The Interface Contractors will mark the general layout drawings to show the cast in conduit requirements to the Contractor, including mark-up on the general layout drawings.
- (c) The Contractor must review the cast in conduit requirements of Interface Contractors for compatibility with the design of the Works and must prepare the cast in conduit drawings.
- (d) The Contractor must arrange a workshop to be attended by the Principal's Contractor and all relevant Interface Contractors to review and reach agreement of the cast in conduit drawings.
- (e) Versions of all Documents listed in (a) to (d) above must be submitted as a part of the Design Stage 1, Design Stage 2 and Design Stage 3 submissions.

## **D6 Architectural Builders Works and Finishes Drawings**

- (a) ABWF drawings must show the various architectural and builder work finishes to be done in the civil structure or partitions and identify interfaces with all electrical and mechanical equipment.
- (b) ABWF drawings must include:
  - (i) reflected ceiling plans, which show the intended layout of ceiling fittings and fixtures with all ceiling or soffit mounted equipment, and where necessary, sectional drawings are produced to identify any visual obstructions;
  - (ii) wall cladding drawings;
  - (iii) floor tiling drawings;
  - (iv) internal glazing drawings;

- (v) balustrades and gates drawings;
  - (vi) lift shaft and lift machine room drawings;
  - (vii) door schedules;
  - (viii) external work drawings (including louvre, glazed wall, special roof drawings);
  - (ix) roller shutter schedules;
  - (x) raised floor drawings;
  - (xi) toilets, sanitary ware schedule etc.;
  - (xii) signage and advertising panels drawings; and
  - (xiii) head wall units and tail wall units (for signalling, communications and passenger screen door equipment) and hose reel cabinet drawings.
- (c) The Contractor must issue (at same time as issuing the Phase 1 CSD and Phase 1 SEM) the ABWF drawings to the Principal's Representative and relevant Interface Contractors for review and to mark-up any proposed amendments to account for the Interface Work.
- (d) The Contractor must arrange a coordination working session to be attended by the Principal's Representative and relevant Interface Contractors to review and reach agreement on the marked-up ABWFs.
- (e) The Interface Contractors will review and mark-up the ABWF drawings to account for the Interface Work. The Contractor must revise the ABWF drawings with agreed changes and reissue to the Interface Contractors.
- (f) Updated versions of all Documents listed in (a) to (e) above must be submitted as a part of the Design Stage 2 and Design Stage 3 submissions.

## **D7 Delivery Route Drawings**

- (a) DRDs must show the intended routes within the Site along which any large or heavy equipment which will be transported to their final installation positions and all permanent delivery routes required for future maintenance or equipment replacement. The DRDs will consist of plans, sections and elevations drawings as necessary.
- (b) DRDs must include:
- (i) temporary delivery routes required during construction;
  - (ii) permanent delivery routes for maintenance or equipment replacement;
  - (iii) dimensions of the largest piece of equipment expected to be delivered along each identified route;
  - (iv) maximum weight of equipment to be delivered along each route;
  - (v) temporary floor and wall openings;

- (vi) sections of walls and plantroom doors that will be temporarily omitted until after equipment delivery;
  - (vii) demountable louvers and wall panels that will be sealed off, but need to remain accessible for maintenance or equipment replacement in the future; and
  - (viii) hoisting provisions and structural beams.
- (c) The Contractor must issue (at same time as issuing the Phase 1 CSD and Phase 1 SEM) the DRDs to the Principal's Representative and relevant Interface Contractors for review and to mark-up any proposed amendments to account for the Interface Work.
- (d) The Contractor must arrange a coordination working session to be attended by the Principal's Representative and relevant Interface Contractors to review and reach agreement on the marked-up DRDs.
- (e) The Interface Contractors will review the DRDs to confirm if all large or heavy equipment and materials can be delivered along the routes indicated.
- (f) Versions of all Documents listed in (a) to (e) above must be submitted as a part of the Design Stage 1, Design Stage 2 and Design Stage 3 submissions.

## **D8 DIS, ITS and DITP requirements**

The Design Documentation for the DIS, ITS and DITP must include the following:

### **D8.1 Detailed Interface Specification (DIS)**

- (a) The detailed interface specification must include the design of the physical, electrical, mechanical, functional, protocol, software and all other interfaces between the Contractor and the Interface Contractors.
- (b) The DIS must show clearly the demarcation of responsibilities between the Contractor and the Interface Contractors.
- (c) The DIS must include and cover the items in the following table of contents:
- (i) Section 1. Purpose;
  - (ii) Section 2. Reference Documents;
  - (iii) Section 3. Glossary;
  - (iv) Section 4. Interface Specifications;
  - (v) Section 4.1 Interface Diagrams;
  - (vi) Section 4.2 Physical Interface;
  - (vii) Section 4.2.1 Nature, Location and Quantity;
  - (viii) Section 4.2.2 Electrical Description;
  - (ix) Section 4.2.3 Mechanical Description;
  - (x) Section 4.3 Functional Interface;

- (xi) Section 4.4 Protocols;
- (xii) Section 4.5 Software and Data Interface;
- (xiii) Section 4.6 Naming Convention;
- (xiv) Section 4.7 Design Constraints;
- (xv) Section 4.8 Electromagnetic Compatibility;
- (xvi) Section 5. Implementation and Installation;
- (xvii) Section 6. Quality Assurance;
- (xviii) Section 6.1 Interface Requirements References;
- (xix) Section 6.2 Verification and Validation;
- (xx) Appendices and Drawings;
- (xxi) Appendix. 1 Detailed Data Interface Schedules;
- (xxii) Appendix. 2 Cables Termination Schedules / Drawings; and
- (xxiii) Appendix. 3 System Start-up parameters.

## **D8.2 Detailed Interface Test Plan (DITP)**

- (a) The DITP must identify various tests required to ascertain the proper interfacing and interaction as required and must cover the purpose, methodology, sequence, testing instrument, inputs and expected outputs, responsibility of the Contractor and the Interface Contractors in each test.
- (b) The DITP must show clearly the demarcation of responsibilities between the Contractor and the Interface Contractors.
- (c) The detailed interface test plan must include and cover the items in the following table of contents:
  - (i) Section 1. Purpose;
  - (ii) Section 2. Reference Documents;
  - (iii) Section 3. Glossary;
  - (iv) Section 4. Test methodology;
  - (v) Section 5. Interface Test Specifications;
  - (vi) Section 5.1 Test XXX-YYY-IT-01;
  - (vii) Section 5.1.1 Purpose of this test;
  - (viii) Section 5.1.2 Reference to PS and other functionality requirements;
  - (ix) Section 5.1.3 Test Configuration;
  - (x) Section 5.1.4 Testing Equipment;

- (xi) Section 5.1.5 Test procedures with inputs and expected output (format only);
- (xii) Section 5.2 Test XXX-YYY-IT-02;
- (xiii) Section 5.2.1 Purpose of this test;
- (xiv) Section 5.2.2 Reference to PS and other functionality requirements;
- (xv) Section 5.2.3 Test Configuration;
- (xvi) Section 5.2.4 Testing Equipment;
- (xvii) Section 5.2.5 Test procedures with inputs and expected output (format only)(repeat for all tests);
- (xviii) Section 6. Logical sequence and dependence of the tests (can be illustrated using a fish-bone chart);
- (xix) Section 7. Quality Assurance;
- (xx) Section 7.1 Interface Requirements References;
- (xxi) Appendices and Drawings.

### **D8.3 Interface Test Specification**

- (a) For each of the interface tests identified in the DITP, a detailed ITS must be jointly developed between the Contractor and the relevant Interface Contractor, to verify that the detailed interface specification requirements have been satisfied.
- (b) The interface test specification of each interface test must cover the following items:
  - (i) purpose of the test;
  - (ii) reference to the SWTC and other functionality requirements;
  - (iii) pre-requisites for the test;
  - (iv) test configuration;
  - (v) testing equipment and resources;
  - (vi) expected duration of the test;
  - (vii) safety precautions; and
  - (viii) step by step test procedures with inputs and expected outputs and acceptance criteria.
- (c) The division of responsibilities between the Contractor and the Interface Contractors must be clearly specified in each interface test specification.
- (d) The step-by-step test procedures must demonstrate that all the required functionalities of the interface are fulfilled. Each test must be repeatable, and the same test results must be achieved under the same testing conditions.





Transport  
for NSW

# Management Requirements – Workforce Development & Industry Participation – Sydenham Station and Junction Works Contract (MR-W)

DOCUMENT NUMBER: SM-17-00013829

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## Table of Contents

1.	Introduction	3
2.	Workforce Development & Industry Participation Requirements	3
3.	Workforce Development and Industry Participation Programs	7
4.	Procurement Principles	9
5.	Reporting Requirements	9
	Annexure A: Reference Documents	<del>11</del> 12
	Annexure B: Project Specific Requirements	<del>12</del> 13



## **1. Introduction**

### **1.1. Purpose**

- (a) This Management Requirements – Workforce Development and Industry Participation (MR-W) describes specific requirements and processes in relation to workforce development and industry participation.
- (b) This MR-W must be read in conjunction with other parts of the Contract.
- (c) The Contractor must comply with the requirements of this MR-W, including the Reference Documents in Annexure A.
- (d) All the requirements defined in this MR-W apply across the Supply Chain.

### **1.2. Definitions**

Refer to MR-Prelude and the General Conditions for a definition of terms used in this MR-W.

### **1.3. General Requirements**

- (a) Where noted in Annexure B – Project Specific Requirements, the Contractor must comply with the requirements of this MR-W, as amended by Annexure B.
- (b) The Contractor must provide copies of all Documents required under this MR-W in “.pdf” format that comply with the Level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0).

## **2. Workforce Development & Industry Participation Requirements**

### **2.1. General Requirements**

- (a) The Contractor must develop, implement and maintain governance structures, processes and systems that ensure integration of the workforce development and industry participation requirements during the Contractor’s Activities as they apply across the Supply Chain and document them in the specific related Management Plans detailed in MR-PA.
- (b) The Contractor must engage and deploy suitable resources to manage, coordinate and deliver the requirements of this MR-W.
- (c) The Contractor must meet with the Principal’s Representative on a monthly basis to discuss progress and compliance with the requirements of this MR-W, and upcoming Contractor’s Activities in relation to the requirements of this MR-W.
- (d) The Contractor must advise the Principal’s Representative about its strategies to obtain workforce development funding, subsidies and grants and report on any funding, subsidies and grants it receives in relation to the Project.
- (e) The Contractor must assess current and future workforce development and industry participation needs and must submit to the Principal’s Representative 20

Business Days after the Contract date, the following completed templates and information for review in accordance with the Contract:

- (i) a completed Workforce Profile and Gap Plan Template SM ES-FT-435;
  - (ii) a completed Workforce Development Output Delivery Profile Template SM ES-FT-435;
  - (iii) a completed Training Needs Analysis SM ES-FT-432, which will contribute to the outcomes required by this MR-W and in particular the requirements of 2.3.4; and
  - (iv) estimated Workforce numbers that will participate in the Sydney Metro Industry Curriculum Program (SMIC).
- (f) The reporting in clause 2.1 (e) (i) to (iv) must also be updated and submitted to the Principal's Representative every 12 months on the anniversary of the date of the Contract until the Date of Completion of the last Portion to reach Completion.
- (g) The Contractor must provide the following completed documents to the Principal's Representative for review in accordance with the Contract, prior to submission to the NSW Procurement Board:
- (i) a NSW APiC Aboriginal Participation Plan Template SM ES-FT 426, 60 Business Days after the Contract Date; and
  - (ii) a NSW APiC Aboriginal Participation Report Template SM ES-FT 427, prior to the Date of Completion of the last Portion to reach Completion.
- (h) The Contractor must ensure that employment conditions for all Trainees and Apprentices meet or exceed the obligations and expectations of the National Code of Good Practice for Australian Apprenticeships, including pay rates reflecting individual awards or the national minimum wage for Trainees where no award or agreement exists.
- (i) The Contractor must participate in all meetings, working groups and sub groups relating to the Sydney Metro City & Southwest SEAG providing timely information to these groups, and as required by the Principal's Representative.
- (j) The Contractor is encouraged to support an increase in the number of women in senior leadership and management roles, and appropriate strategies must be developed and included in the Workforce Development & Industry Participation Plan required in MR-PA.

## 2.2. Key Personnel

- (a) The Contractor must engage a Workforce Development and Industry Participation Manager ~~and an~~ Aboriginal Participation ~~Manager~~ Resource to establish, monitor and implement strategies relating to workforce development and industry participation. These personnel must establish, monitor and implement strategies relating to workforce development and industry participation.
- (b) The minimum qualifications, skills, competencies and experience for these personnel are:
  - (i) Workforce Development & Industry Participation Manager qualifications:

~~A. Degree in Adult Education, Vocational Education, Organisational Development, Education or Human Resources; and~~

~~A. B.~~ Cert IV or equivalent in Training & Assessment.

(ii) Workforce Development & Industry Participation Manager experience:

A. minimum of ~~103~~ years' training or learning and development work experience in a similar role within the rail ~~or civil~~, construction, mining industry or on major infrastructure projects;

B. demonstrable ~~and significant~~ experience dealing ~~at a strategic level~~ with education providers, registered training organisations, skill services organisations, etc;

C. excellent communication and leadership skills;

D. experience in managing or delivering nationally accredited programs within recognised industry training packages;

E. experience in delivering workforce development requirements within infrastructure projects;

F. experience working with the implementation and delivery of diversity and inclusion programs;

G. experience in liaising with state and federal agencies in relation to accessing funding opportunities related to training; and

H. demonstrated ability to work within a team and engage with Stakeholders.

(iii) Aboriginal Participation ~~Manager~~Resource qualifications:

A. Cert IV or equivalent in Training & Assessment or other relevant discipline.

(iv) Aboriginal Participation ~~Manager~~Resource Experience:

A. demonstrable knowledge and understanding of Aboriginal communities and their cultures and an understanding of the issues affecting Aboriginal people;

B. demonstrated ability ~~in management, leadership~~ and capacity to mentor;

C. demonstrated high level communication skills, including the ability to effectively liaise with community; and

D. demonstrated ability to work within a team and engage with Stakeholders.

(c) In addition to the mandatory requirements of clause 2.2 (b) it would be preferable for the Workforce Development & Industry Participation Manager to:

(i) Degree in Adult Education, Vocational Education, Organisational Development, Education or Human Resources; or

- (ii) ~~(i)~~ hold tertiary qualifications in relevant discipline and equivalent experience in training, employment, social policy or corporate social responsibility fields in the infrastructure delivery sector; and
- (iii) ~~(ii)~~ have experience in improving participation amongst under-represented groups in the Workforce.

## 2.3. Workforce Development & Industry Participation Outputs

### 2.3.1. Industry Participation

By the Date of Completion of the last Portion to reach Completion, the Contractor must:

- (a) have engaged as a minimum the number of Australian and New Zealand Small and Medium Enterprises (ANZ SME) in the Supply Chain, as nominated in Annexure B;
- (b) ensure that the minimum number of ANZ SME's in the Supply Chain were Local ANZ SMEs, as nominated in Annexure B; and
- (c) ensure that the minimum number of ANZ SMEs in the Supply Chain were Certified Aboriginal Businesses, as nominated in Annexure B.
- ~~(d) work collaboratively with Sydney Metro to establish integrated Subcontractor and supplier performance monitoring and reporting that can be used to provide feedback to SME's on positive result areas as well as areas for improvement and development.~~
- ~~(e) Establish a program or procurement portal (website or social media platform) to facilitate wider market participation.~~
- ~~(f) Establish a collaborative forum between Sydney Metro and package principal contractors to identify opportunities to maximise continuity for suppliers and Subcontractors through coordinated programming of procurement activities.~~

### 2.3.2. Local Sustainable Jobs

The Contractor must ensure that by the Date of Completion of the last Portion to reach Completion:

- (a) at least 20% of the Workforce were employed in Local Sustainable Jobs identified through the Workforce Development and Industry Participation and Aboriginal Participation Plan as evidenced utilising the Local Sustainable Jobs Profile SM ES-FT-435. The completed Local Sustainable Jobs Profile SM ES-FT-435 must be submitted to the Principal's Representative as per MR PA Workforce Development and Industry Participation and Aboriginal Participation Plan; and
- (b) of the 20% described in 2.3.2 (a), at least 2.5% of that number of the Workforce employed in Local Sustainable Jobs, were Aboriginal workers.

### 2.3.3. Apprentices & Trainees

The Contractor must ensure that by the Date of Completion of the last Portion to reach Completion:

- (a) it has employed the minimum number of Apprentices or Trainees (equivalent full time employees), as nominated in Annexure B, across the Supply Chain; and



- (b) the minimum number of those people in clause 2.3.3 (a) were Aboriginal, as nominated in Annexure B.

#### **2.3.4. Workforce Skills Development**

- (a) In addition to the SMIC requirements, 20% of the Workforce (measured at the Date of Completion of the last Portion to reach Completion) must have participated in relevant Workforce Skills Development Training.
- (b) The 20% measure of the Workforce in clause 2.3.4 (a) above does not include training otherwise required by legislation, associated regulations, standards and accreditations or in the various approvals, licenses, and permits that may be necessary for the commencement, implementation and control of the Works, Temporary Works and Contractors Activities, (as it is not considered to be Workforce Skills Development Training).
- (c) The 20% measure of the Workforce in clause 2.3.4 (a) must include some of the Workforce obtaining the following Workforce Skills Development Training accreditations in the following occupations, (only where it can be demonstrated that they were obtained after the date of the Contract, and whilst working on the Project) as defined in Sydney Trains PR D 78701 Personnel Certifications Electrical <https://railsafe.org.au/electrical-safety-sms-documents>
- (i) Sydney Trains: Accredited OHW Personnel;
  - (ii) Sydney Trains: Accredited Aerial Line (HV&LV) Worker;
  - (iii) Sydney Trains: Accredited Cable Jointer; and
  - (iv) Rail Protection.
- (d) The Contractor must ensure by the Date of Completion of the last Portion to reach Completion that the minimum number of Aboriginal people within the Workforce, as nominated in Annexure B, have undertaken Upskilling at AQF Certificate IV equivalent and above.

#### **2.3.5. Diversity & Inclusion**

The Contractor must ensure that by the Date of Completion of the last Portion to reach Completion, the targets listed in 2.3.5 (a) to (d) have been met, and the Contractor must demonstrate how this is being progressively achieved throughout the period of the Contract by their inclusion in the monthly reports referred to in clause 5 of this MR-W:

- (a) a minimum of 15% of the Workforce were female;
- (b) 2.5% of the Workforce were Aboriginal;
- (c) 5% of the Workforce were females in Non-Traditional Trades; and
- (d) 8% of the Workforce were under the age of 25 years whilst working on the Project.

#### **2.3.6. Inspiring Future Talent**

- (a) The Contractor must develop and implement programs for engagement with NSW tertiary education establishments including Work Experience Placements and Graduate Placements.

- (b) The Contractor must ensure that by the Date of Completion of the last Portion to reach Completion, the minimum ~~number~~ numbers of employees in the Workforce were employed through Work Experience Placements; and the minimum ~~number~~ numbers of employees in the Workforce were employed through Graduate Placements, with the minimum numbers nominated in Annexure B.

### 3. Workforce Development and Industry Participation Programs

- (a) The Contractor must participate in the SMIC provided by the Principal, through Industry Curriculum Training Providers in accordance with the Sydney Metro City & Southwest Industry Curriculum Guide - SM ES-FT-433.
- (b) All training in the programs referred to in this MR-W must be completed, to the extent they apply, prior to the individuals commencing on the Site, unless otherwise stated in the Sydney Metro City & Southwest Industry Curriculum Guide - SM ES-FT-433.
- (c) All of the Workforce must complete Sydney Metro Orientation Training prior to commencement on Site.
- (d) All workers in the role of Supervisor must attend the Cultural Awareness Training.
- (e) The Contractor must also participate in the following Sydney Metro Workforce Development Programs in accordance with the SM ES-FT-444 Sydney Metro Workforce Development Program Guide:
- (i) Sydney Metro Apprentice and Trainee Scheme;
  - (ii) Sydney Metro Careers Program;
  - (iii) Sydney Metro Diversity and Inclusion Programs:
    - A. Sydney Metro Pre-Employment programs;
    - B. Aboriginal Participation Programs; and
    - C. Women In Non-Traditional Trades Program.
  - (iv) Sydney Metro Workforce Skills Development programs;
  - (v) Sydney Metro Job Brokerage; and
  - (vi) Sydney Metro Industry Participation Program.
- (f) In regards the Sydney Metro Pre-Employment Programs in clause 3 (e) (iii) A. the Contractor must:
- (i) attend all Sydney Metro Pre-Employment Program graduations; and
  - (ii) interview all participants, graduating from the Sydney Metro Pre-Employment Program who subsequently apply for a position with the Contactor
- (g) All Vacancies in the Workforce must be posted on the Principal's Website (Job portal pages).
- (h) In addition the Contractor must:

- (i) identify Australian Qualifications Framework recognised accredited programs and other arrangements for education and training that provide Relevant Qualifications for the Workforce;
- (ii) identify Australian Skills Quality Authority recognised educational and training facilities that can provide the accredited training and nationally recognised qualifications required for workforce participation;
- (iii) provide relevant Workforce Skills Development Training to assist in re-skilling and Upskilling the Workforce;
- (iv) provide Apprentice and Trainee programs;
- (v) provide access to the Site and all locations where the Works and Temporary Works are being carried out as requested by the Principal's Representative to enable the Principal's Accredited Assessors to carry out competency assessment as part of mandatory SMIC requirements;
- (vi) use ~~the~~ Principal's ~~nominated~~approved electronic access control software application or alternative system approved by the Principal to track and report total Workforce numbers and workforce development and industry participation outputs; and
- (vii) The approved electronic access control software application must include as a minimum the following capabilities:
  - (i) track and report total Workforce numbers and workforce development and industry participation outputs
  - (ii) capture Diversity and Inclusion information in line with workforce development and industry participation outputs
  - (iii) a unique identifier for each worker i.e. USI
- (iv) ~~(vii)~~ use the Principal's ~~nominated~~approved electronic access control software application to ensure that access to the Site is only granted to the required people having completed the SMIC.

## 4. Procurement Principles

The Contractor must:

- (a) include all workforce development and industry participation requirements in the selection process for its Subcontractors and in the Subcontracts;
- (b) maximise opportunities for Australian and New Zealand (ANZ) small and medium enterprises (SME) participation to supply goods or services where practicable;
- (c) identify ANZ SMEs for potential participation in the Supply Chain for the Works, and alert these ANZ SMEs of potential tenders and supply opportunities;
- (d) identify and implement sustainable procurement initiatives that provide environmental and social improvement and maximise opportunities for ANZ SMEs;
- (e) advertise all procurement opportunities through the Industry Capability Network Gateway <http://www.icn.org.au>;

- (f) provide the Principal all relevant information in order for the Principal to be able to comply with the *Australian Jobs Act 2013*, Sydney Metro Australian Industry Participation Plan and other relevant Government requirements;
- (g) comply with the NSW Aboriginal Participation in Construction Policy; and
- (h) comply with the NSW Procurement Directive PBD-~~2016~~2017-0205 – Construction Apprenticeships.

## 5. Reporting Requirements

- (a) The Contractor must submit a monthly progress report to the Principal's Representative for review in accordance with the Contract. The monthly progress report must be in accordance with the Sydney Metro City and Southwest Workforce Reporting Template SM ES-FT– 423.
- (b) The Contractor's monthly progress report must contain the following information, in each case showing the number in the current month, cumulative total and the predicted total number (by the Date of Completion of the last Portion to reach Completion):
  - (i) progress against the requirements of clause 2.3 of this MR-W;
  - (ii) Workforce numbers under the headings listed in A to G, below:
    - A. total number of people engaged in the Workforce;
    - B. Local Sustainable jobs;
    - C. Aboriginals in the Workforce;
    - D. gender ratio and numbers in the Workforce;
    - E. Apprentices;
    - F. Trainees; and
    - G. Apprentices and Trainees who are Aboriginal.
  - (iii) numbers of all Apprentices and Trainees employed in the Workforce, regardless of duration of employment i.e. also including those with less than 26 weeks continuous employment;
  - (iv) the proportion of the Workforce participating in Nationally Recognised Accredited Training;
  - (v) the proportion of the Workforce represented in the following groups:
    - A. women in Non-Traditional Trades;
    - B. women in senior leadership and management roles;
    - C. people under the age of 25 years;
    - D. Long Term Unemployed;
    - E. Mature Aged Workers;
    - F. people with a registered Disability; and

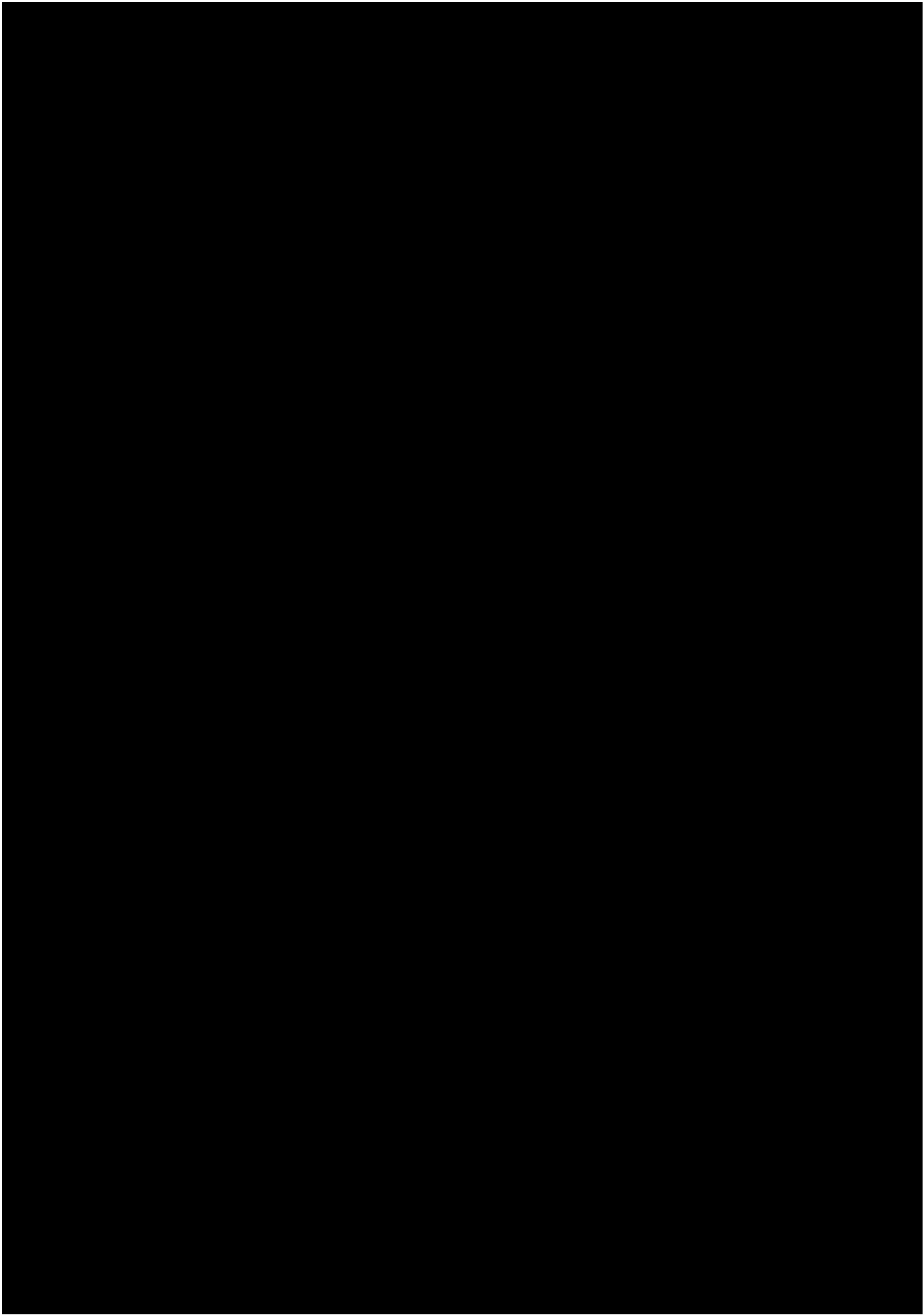


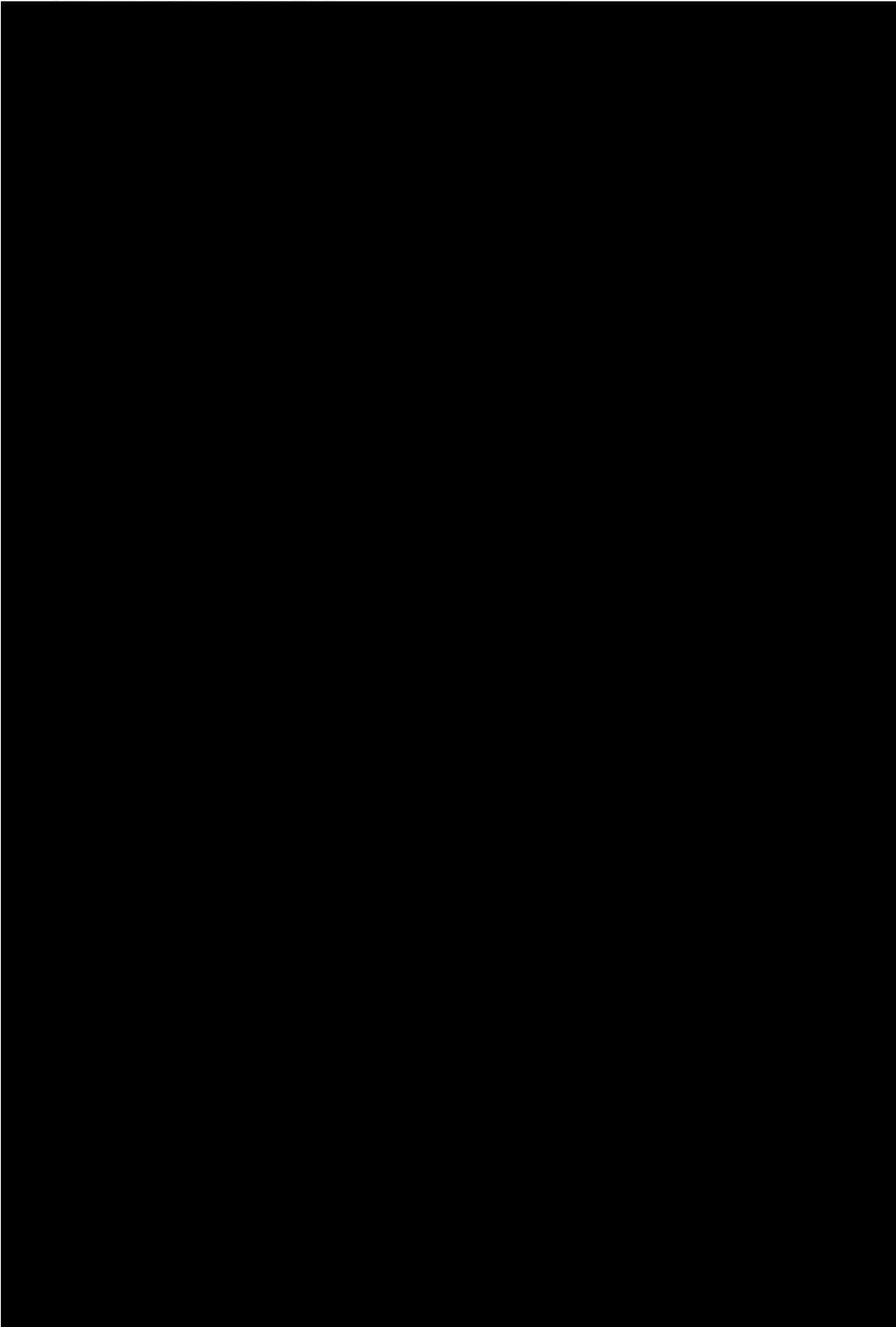
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- G. people under the age of 25 years, who have been out of education or training for six months or more.
- (vi) the number of ANZ SMEs participating in the Supply Chain;
  - (vii) the number of Local ANZ SMEs participating in the Supply Chain;
  - (viii) the number of Certified Aboriginal Businesses participating in the Supply Chain;
  - (ix) details of the Workforce participating in all Cultural Awareness Training;
  - (x) details of the Workforce participating in the Sydney Metro Workforce Development Programs, showing the results per individual program; and
  - (xi) details of any additional Nationally Recognised Accredited Training undertaken by the Workforce.
- (c) Randomly selected data from the monthly progress report will be audited by the Principal on a quarterly basis. The Contractor must provide the Principal's Representative with evidence associated with the reported data when requested by the Principal's Representative.

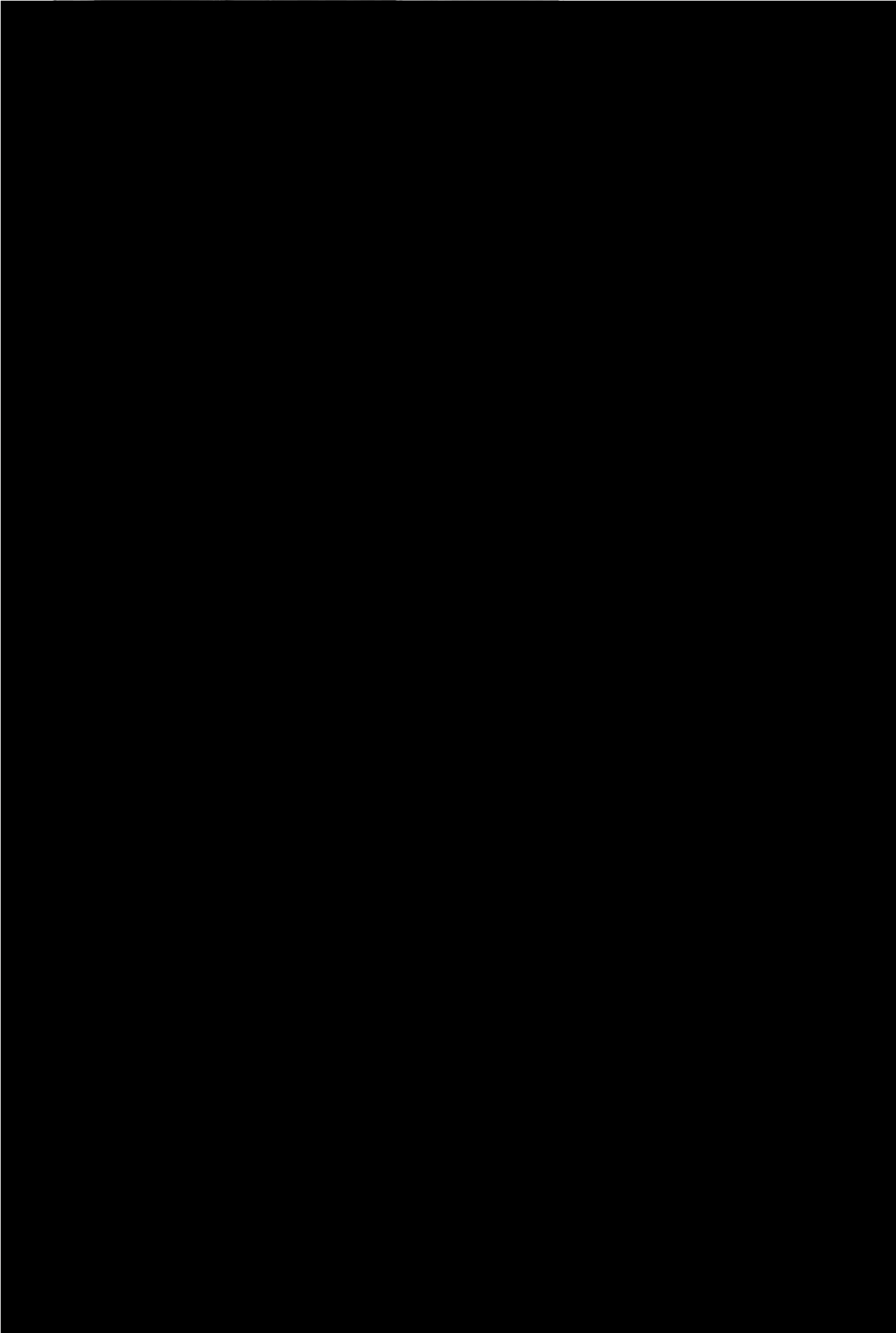
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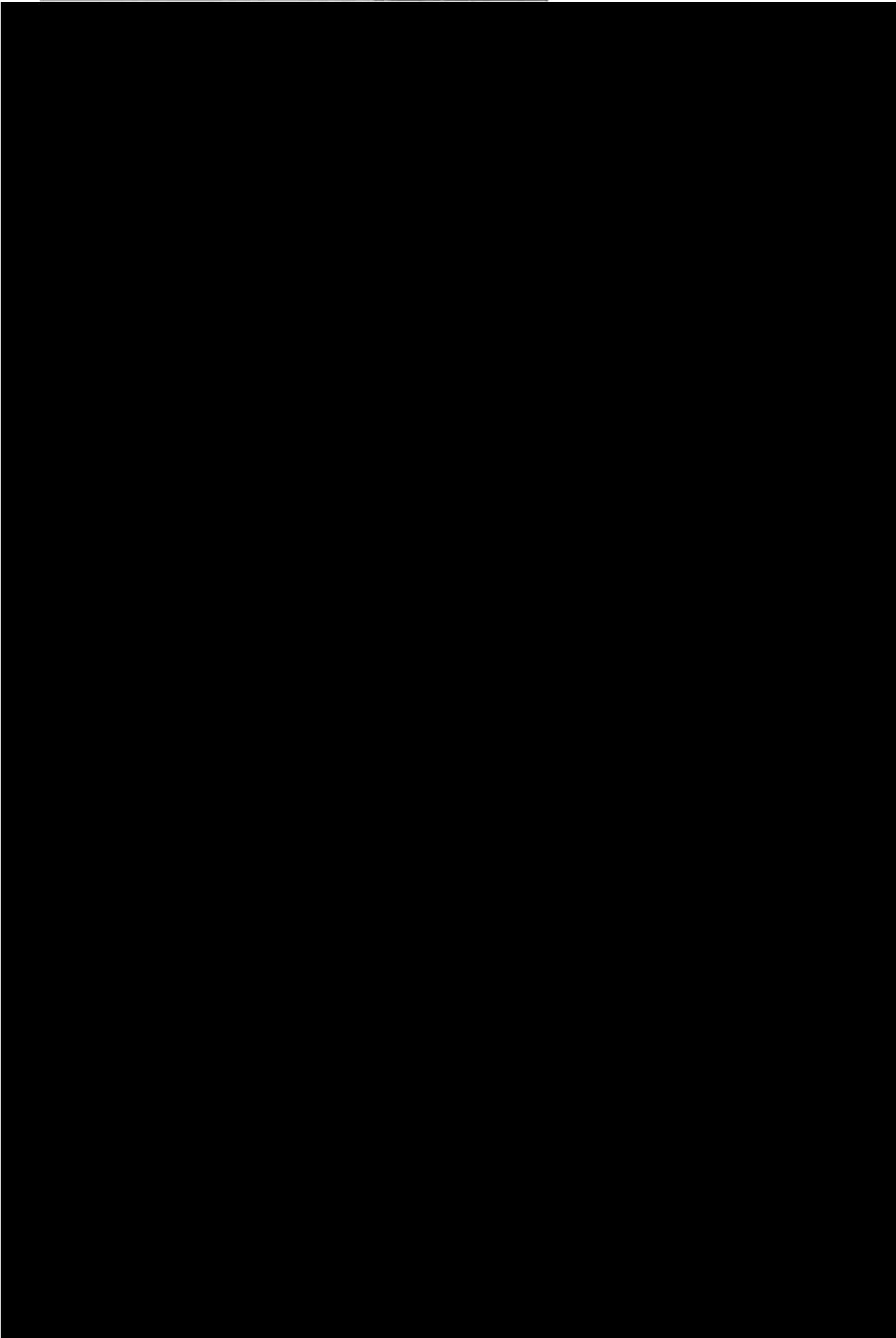
## Annexure A: Reference Documents

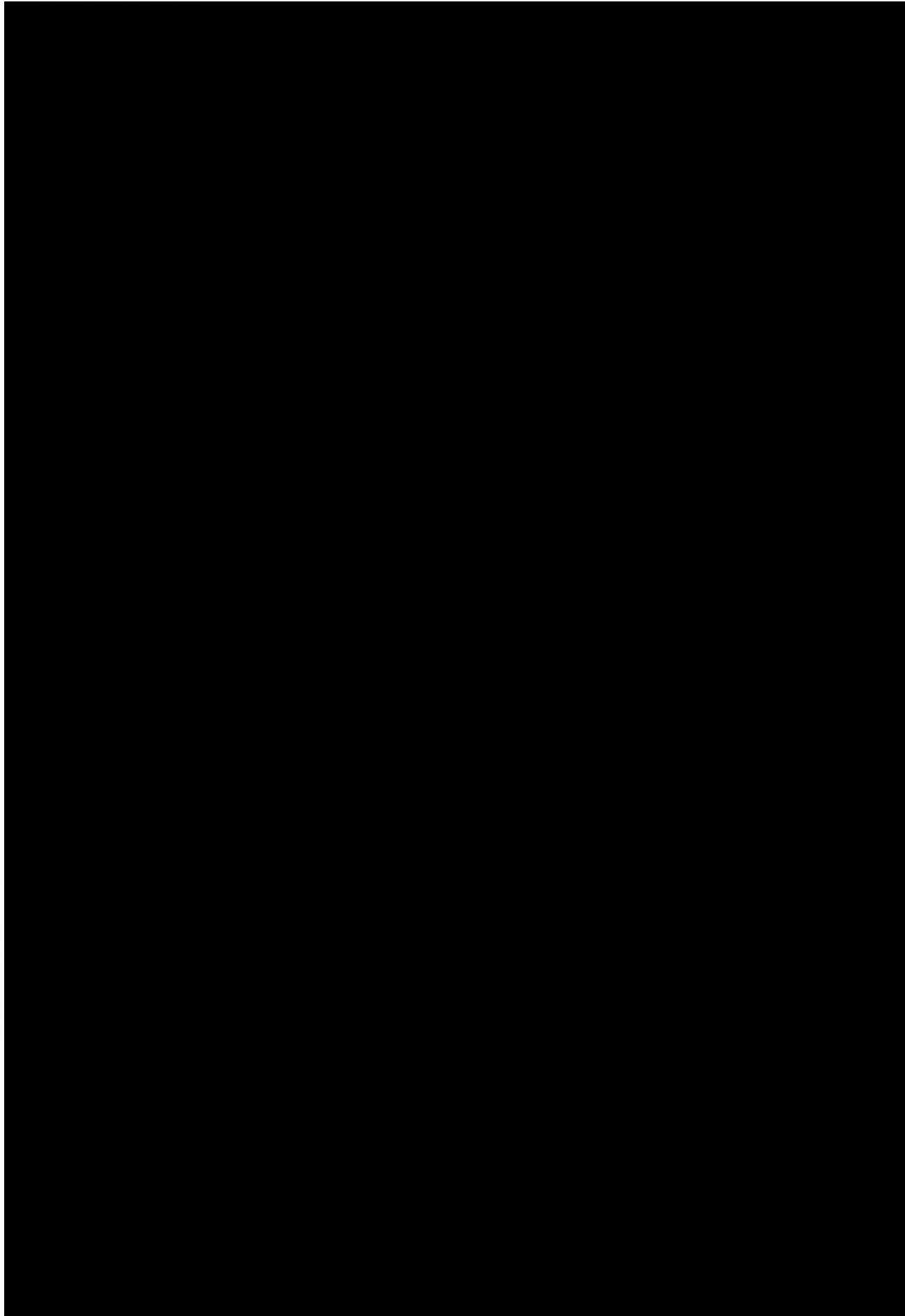
- Workforce Profile and Gap Plan Template SM ES-FT-435
- Workforce Development Output Delivery Profile Template SM ES-FT-435
- Training Needs Analysis SM ES-FT-432
- NSW APiC Aboriginal Participation Report Template SM ES-FT-427
- NSW APiC Aboriginal Participation Plan Template SM ES-FT-426
- Sydney Metro City & Southwest Industry Curriculum Guide SM ES-FT-433
- Sydney Metro Australian Industry Participation Plan
- Sydney Metro City and Southwest Workforce Reporting Template SM ES FT-423
- NSW Aboriginal Participation in Construction Policy "APiC" (available on internet)
- NSW Procurement Directive PBD-~~2016~~[2017-0205](#) Construction Apprenticeships (available on internet)
- National Code of Good Practice for Australian Apprenticeships (available on internet)
- Sydney Trains PR D 78701 Personnel Certifications - Electrical (available on internet)
- Web Content Accessibility Guidelines WCAG 2.0 (available on internet)
- Sydney Metro Workforce Development Program Guide SM ES-FT-444

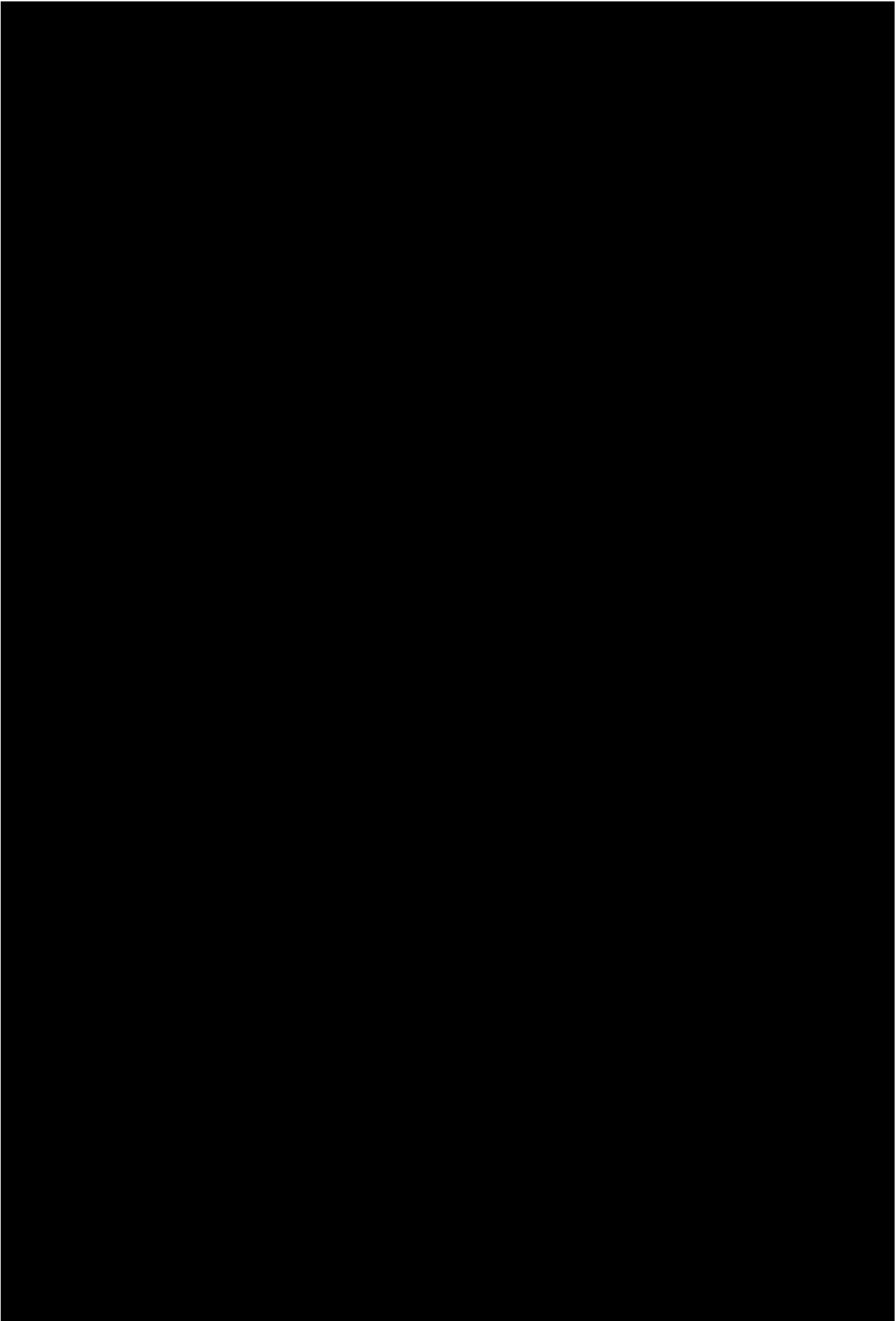




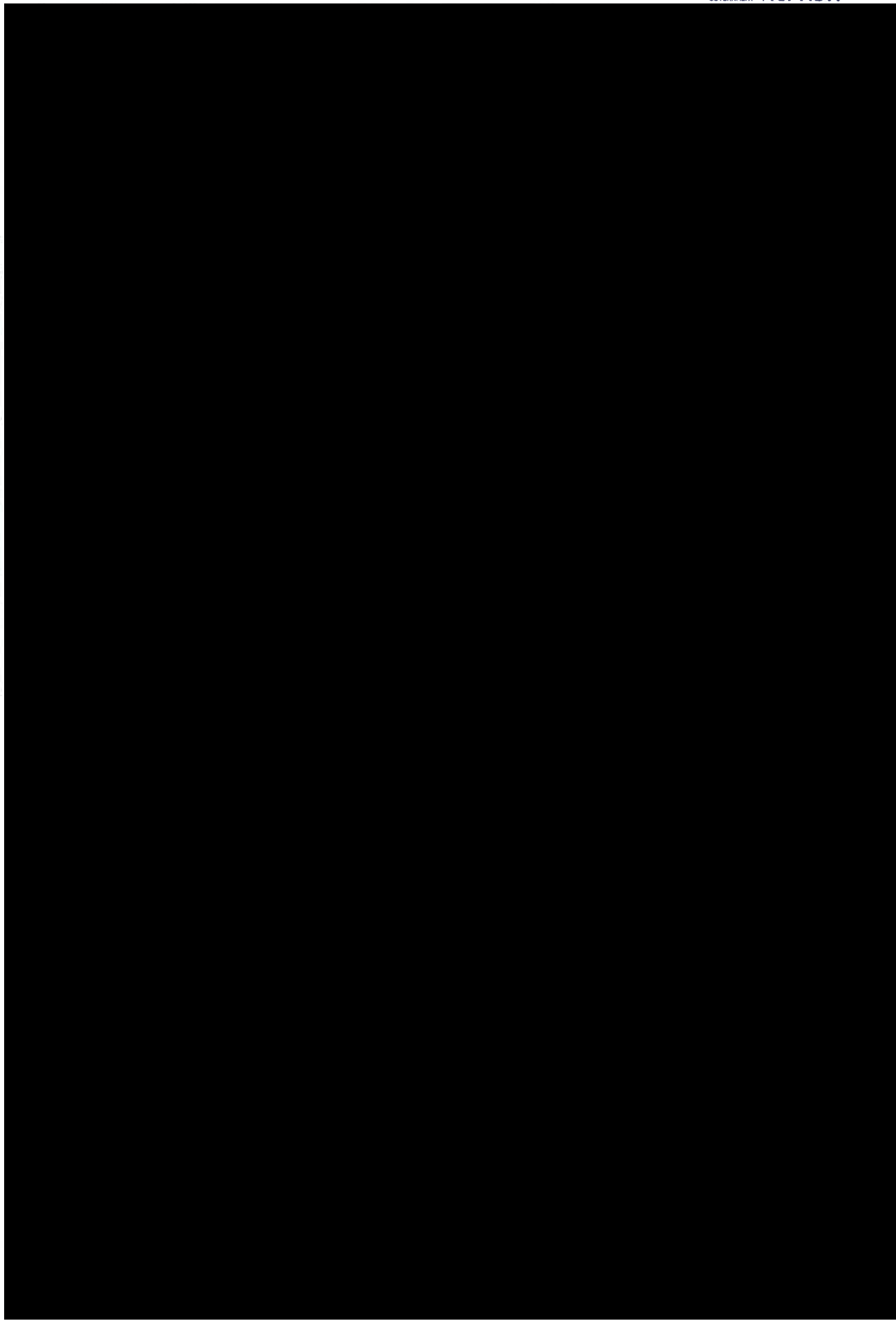






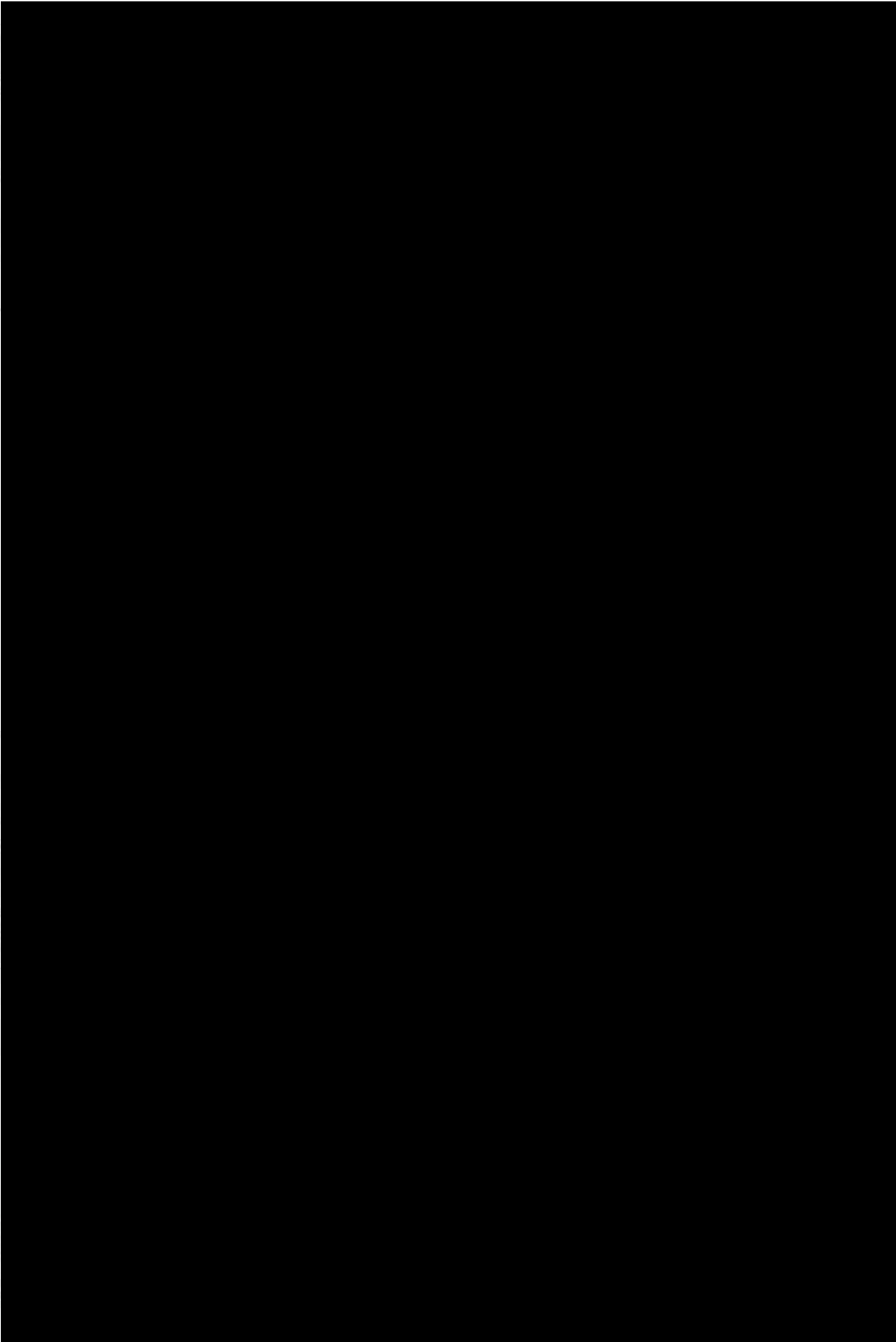


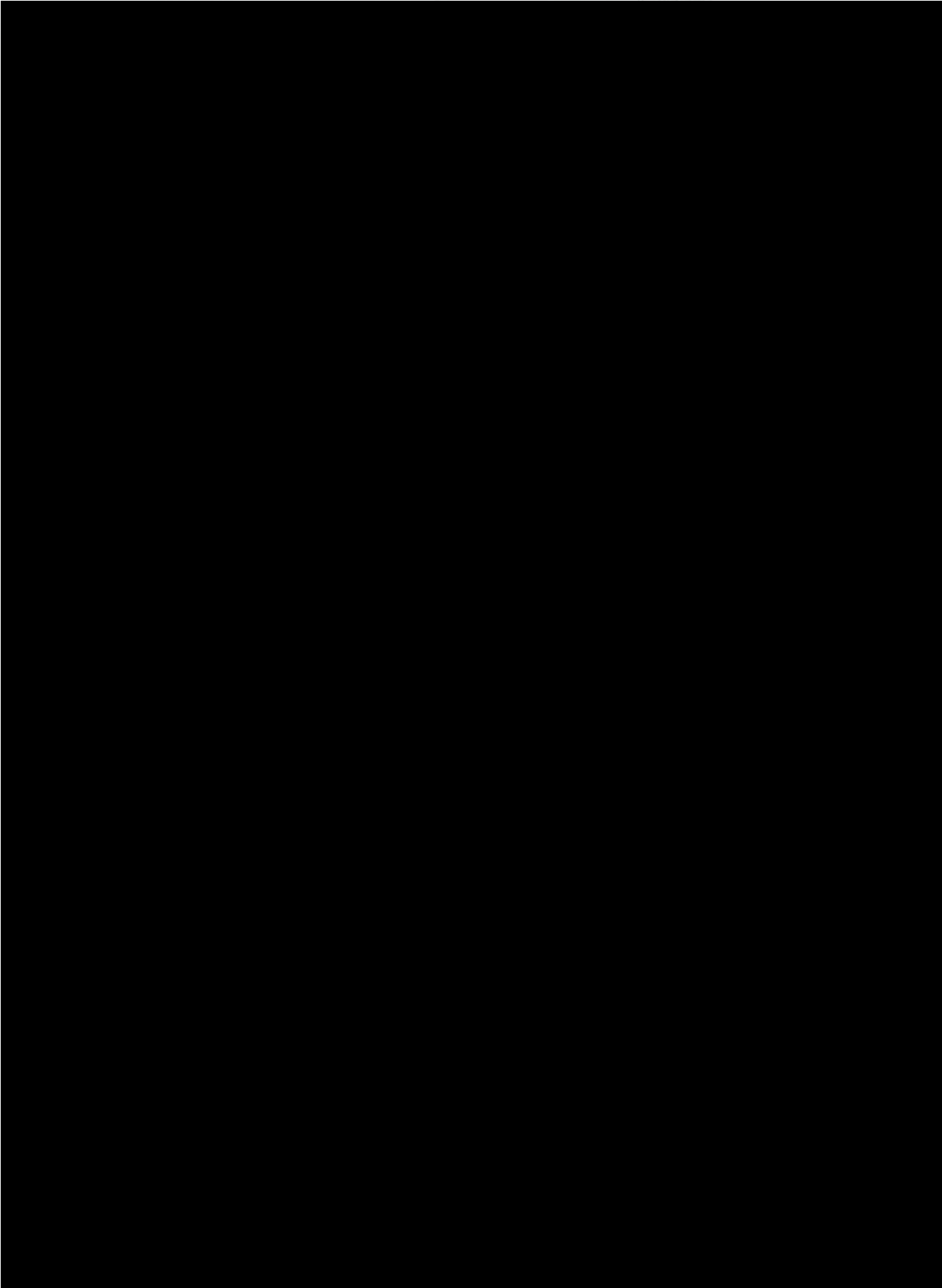




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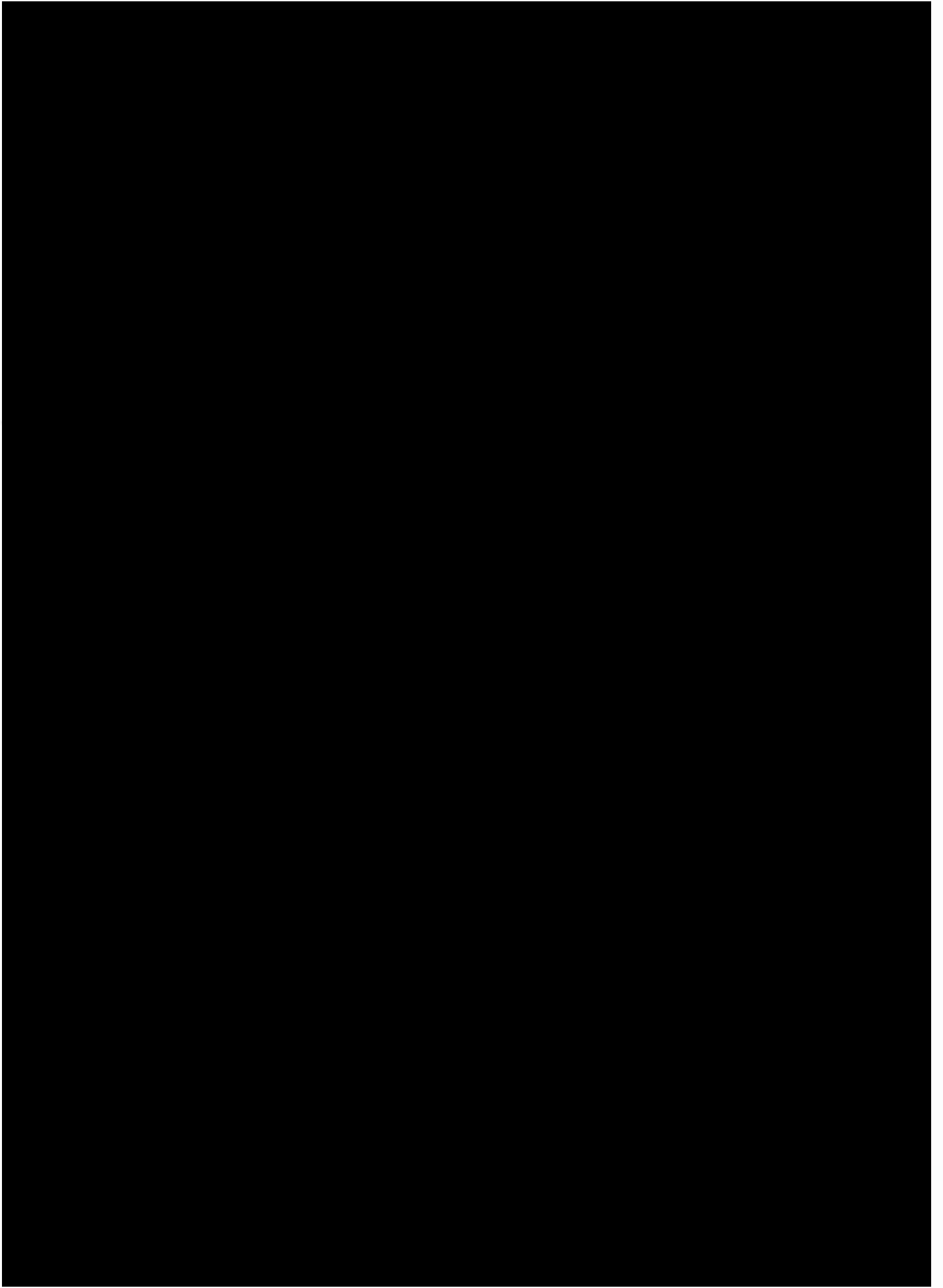


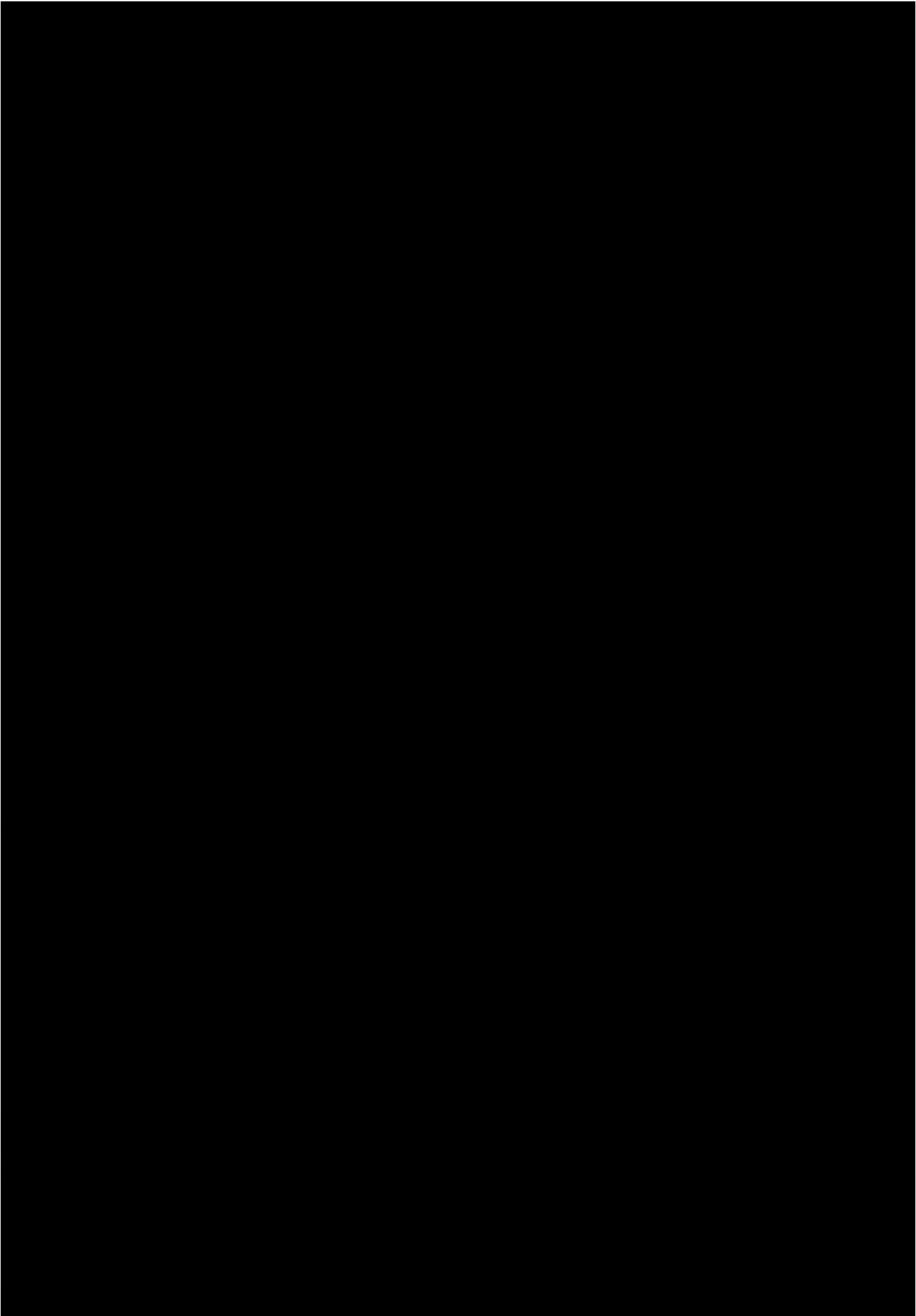


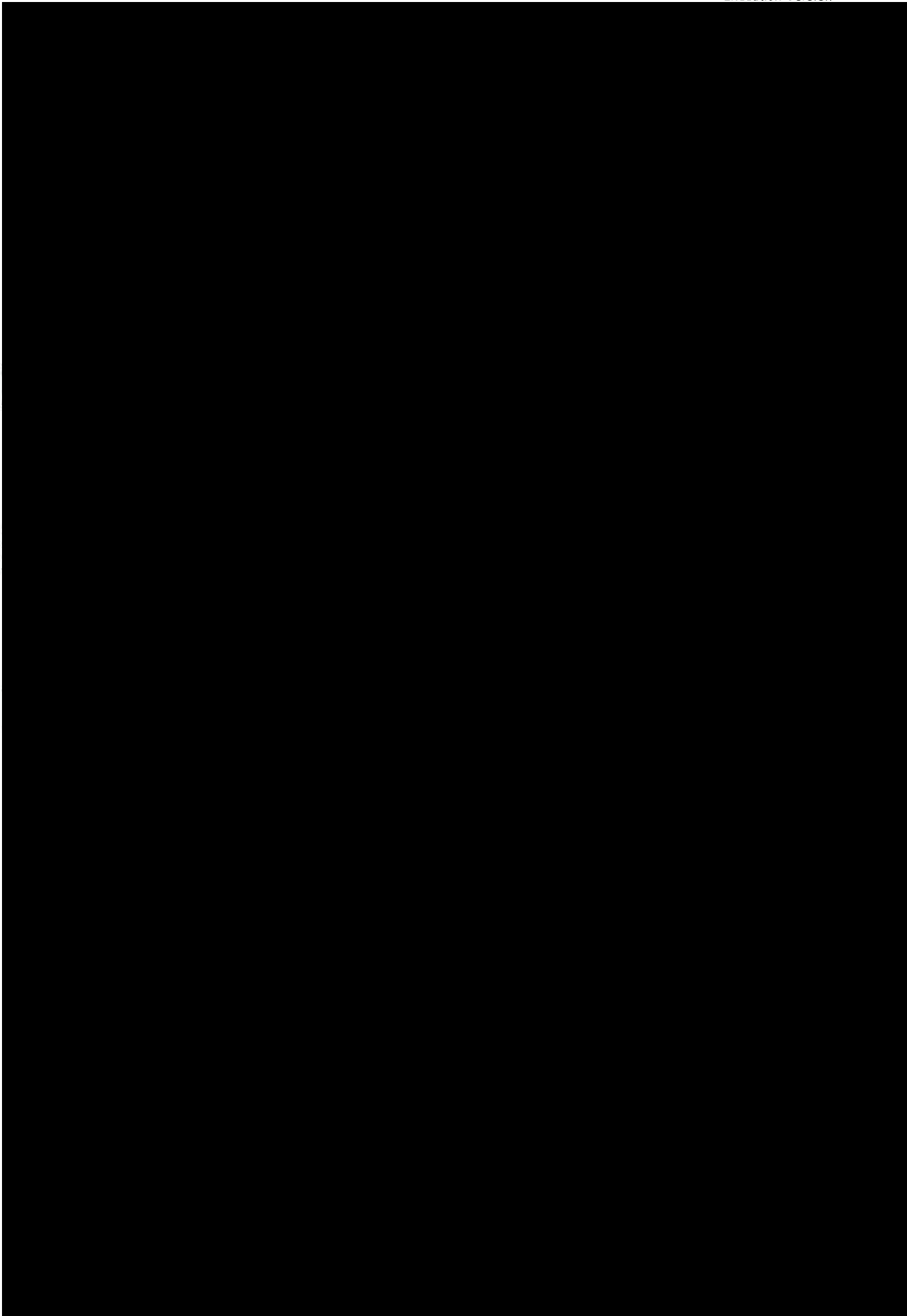
## **SCHEDULE 30**

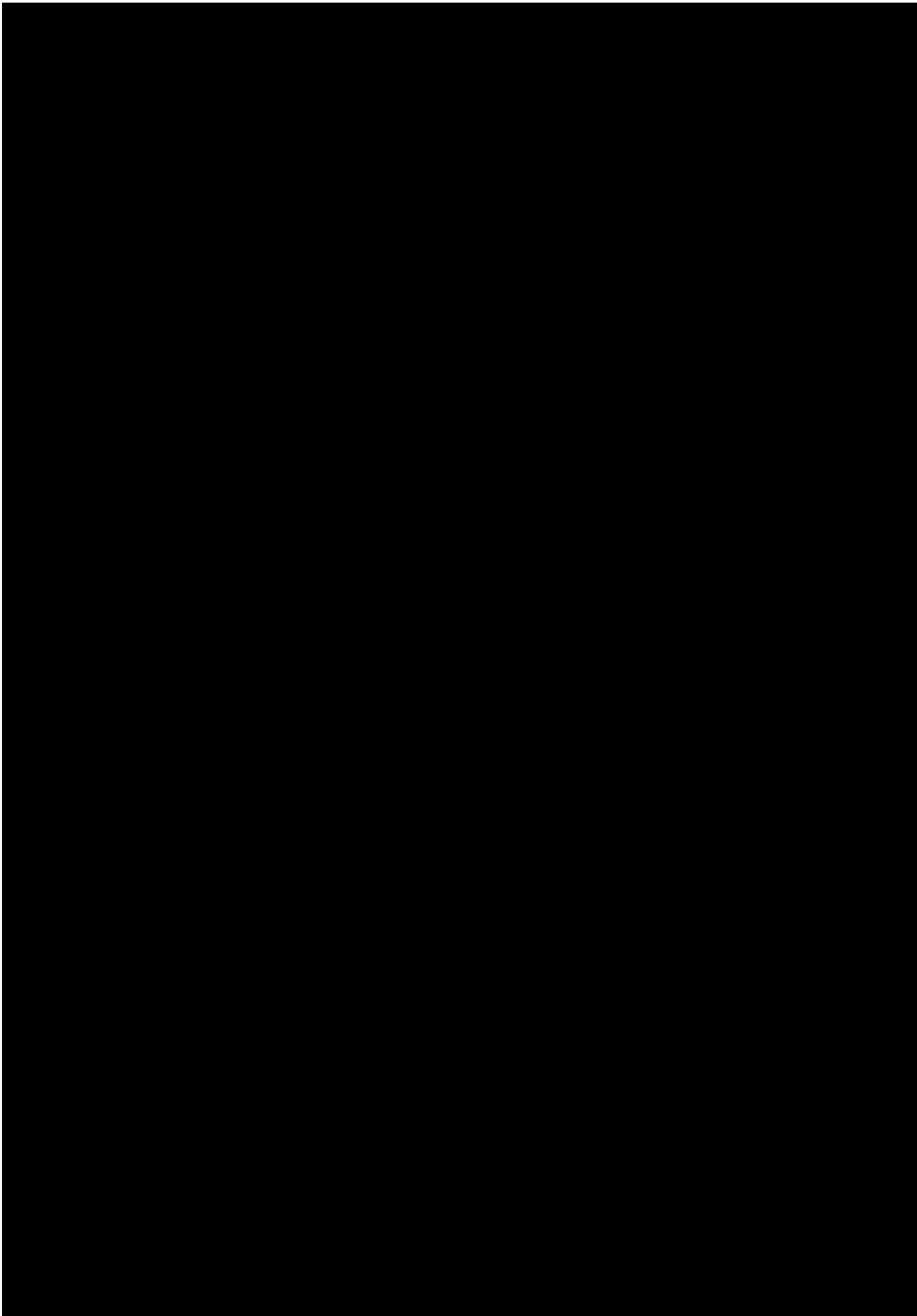
### **Amendments to Schedule E1**

Schedule E1 is amended as set out in the attached mark-up, except for the Site Access Drawings which are replaced by the attached version.

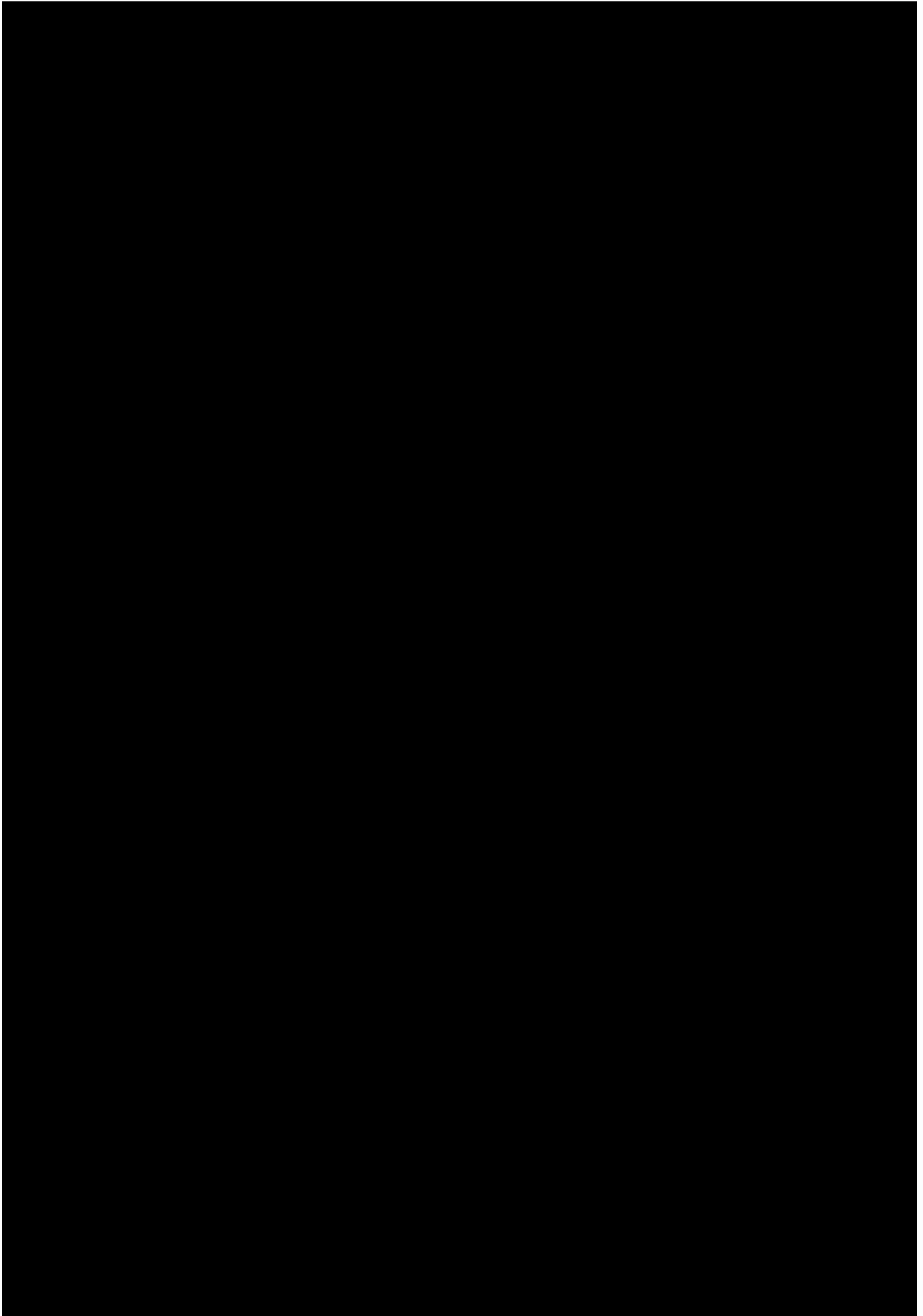


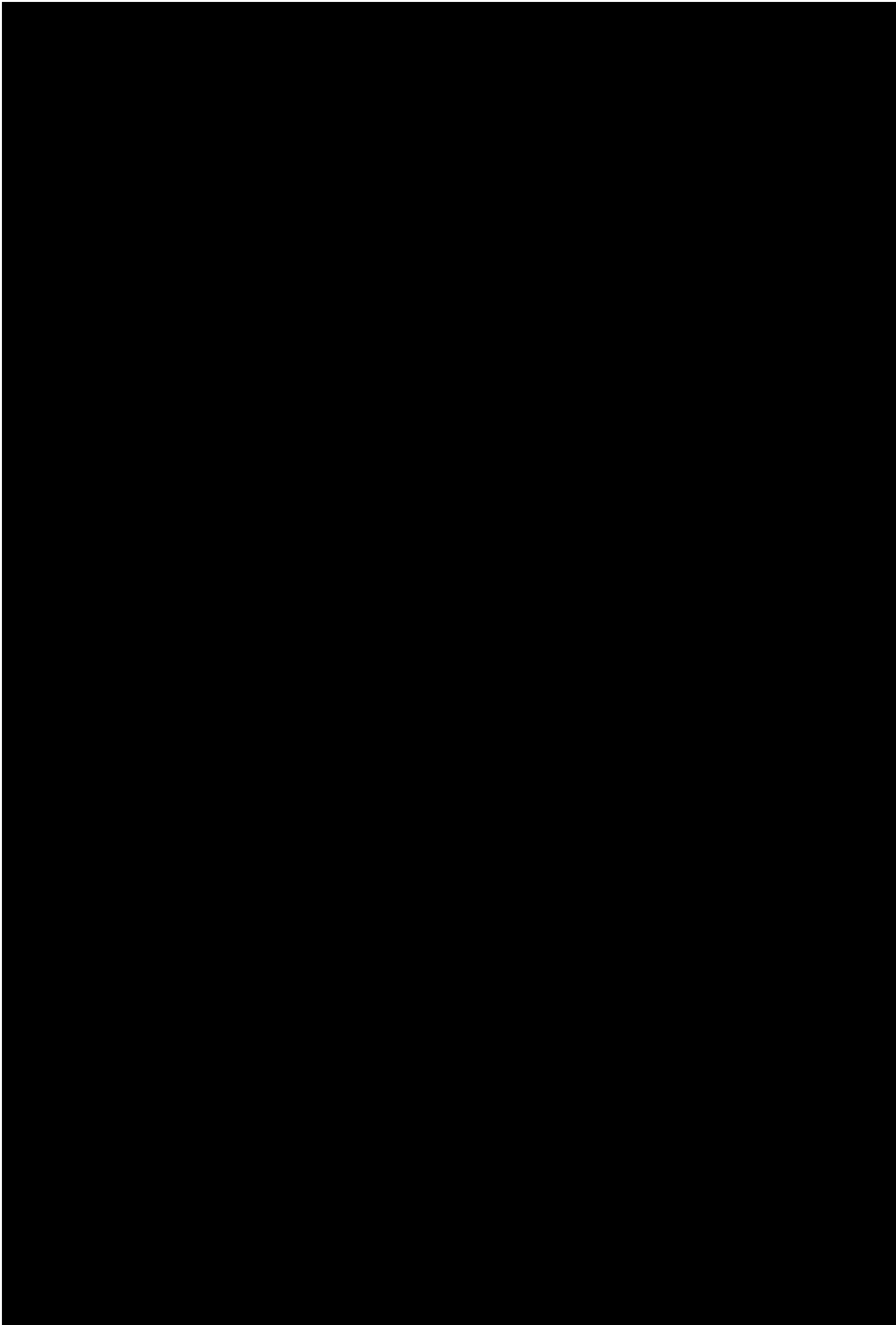


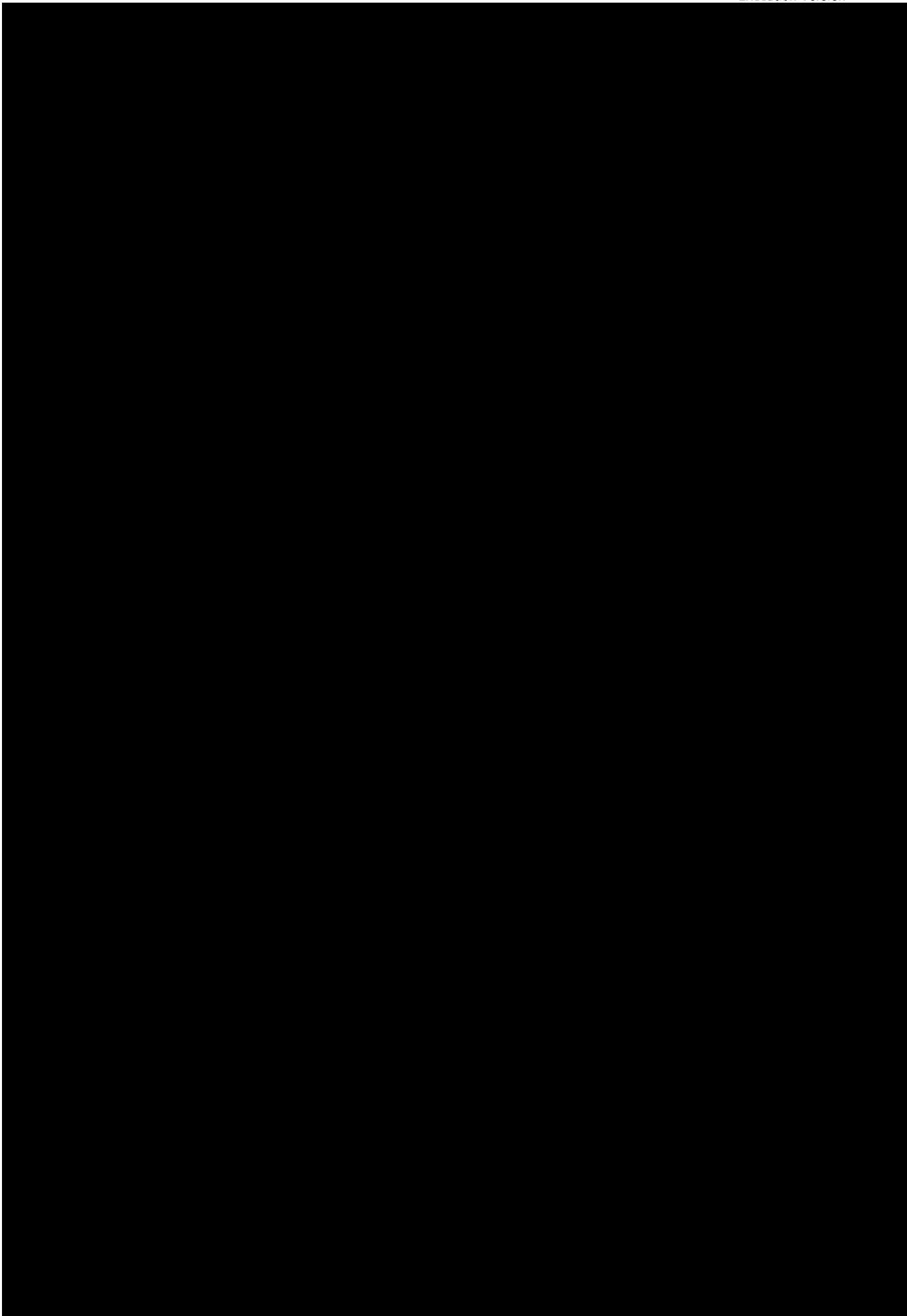






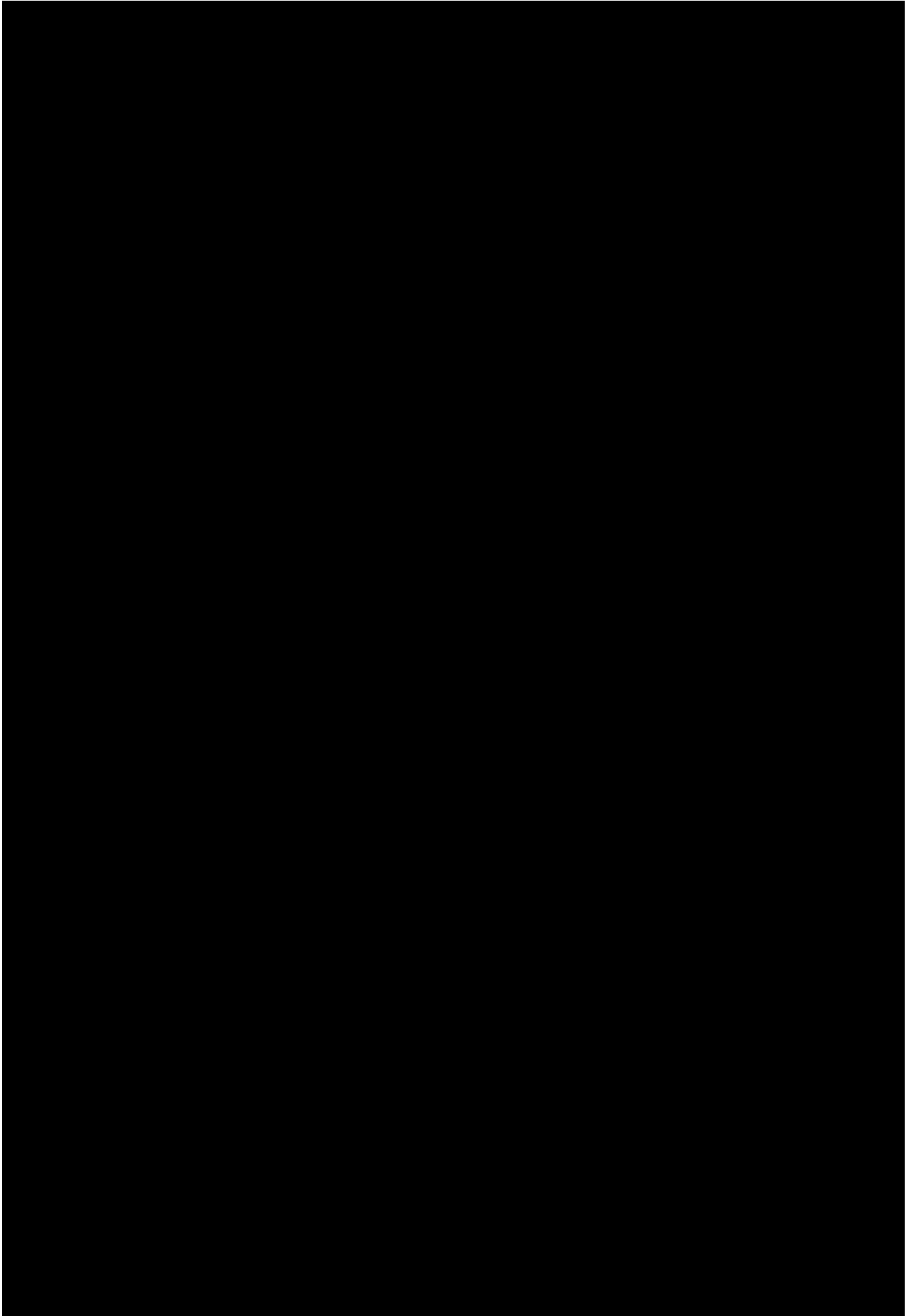


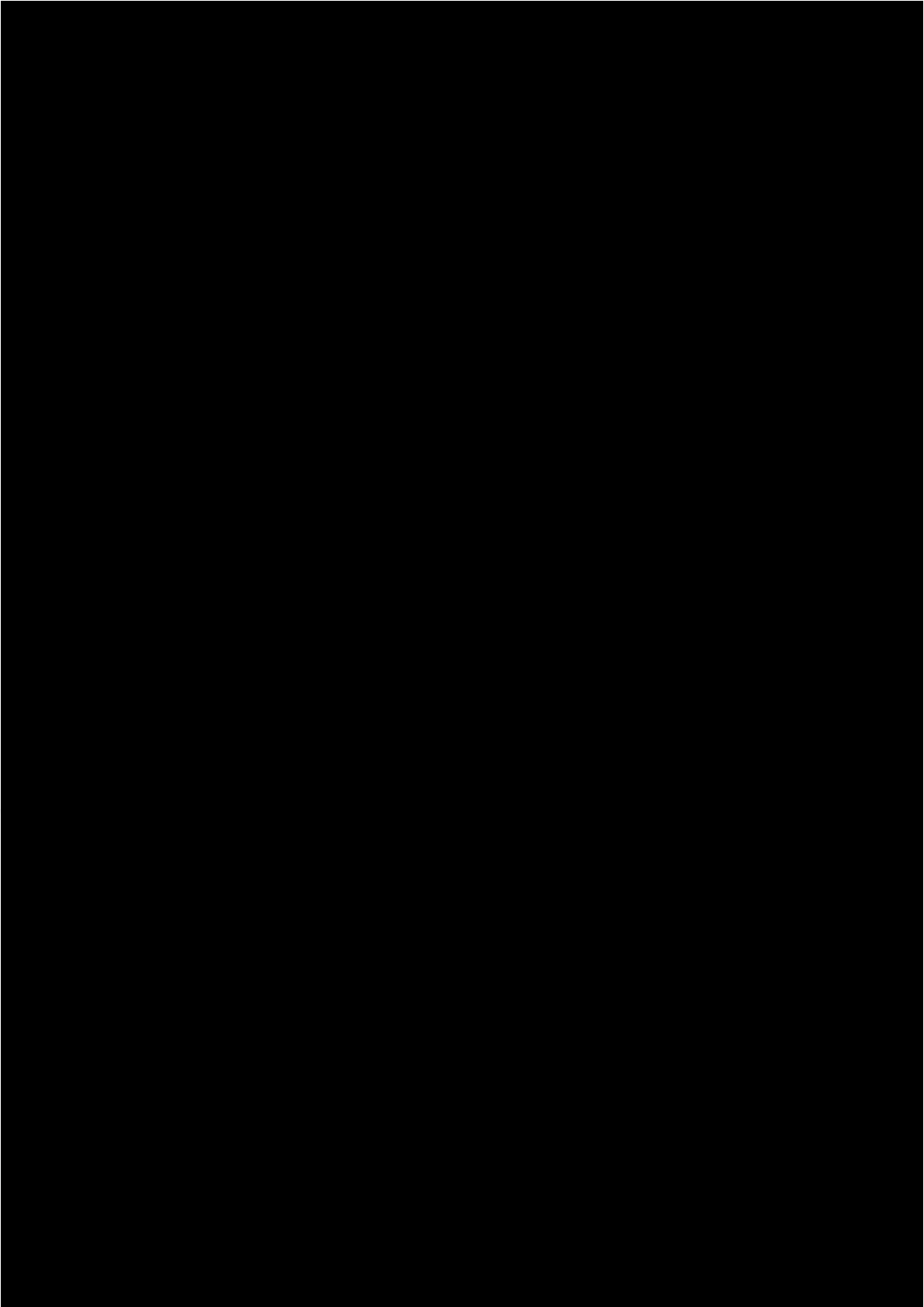




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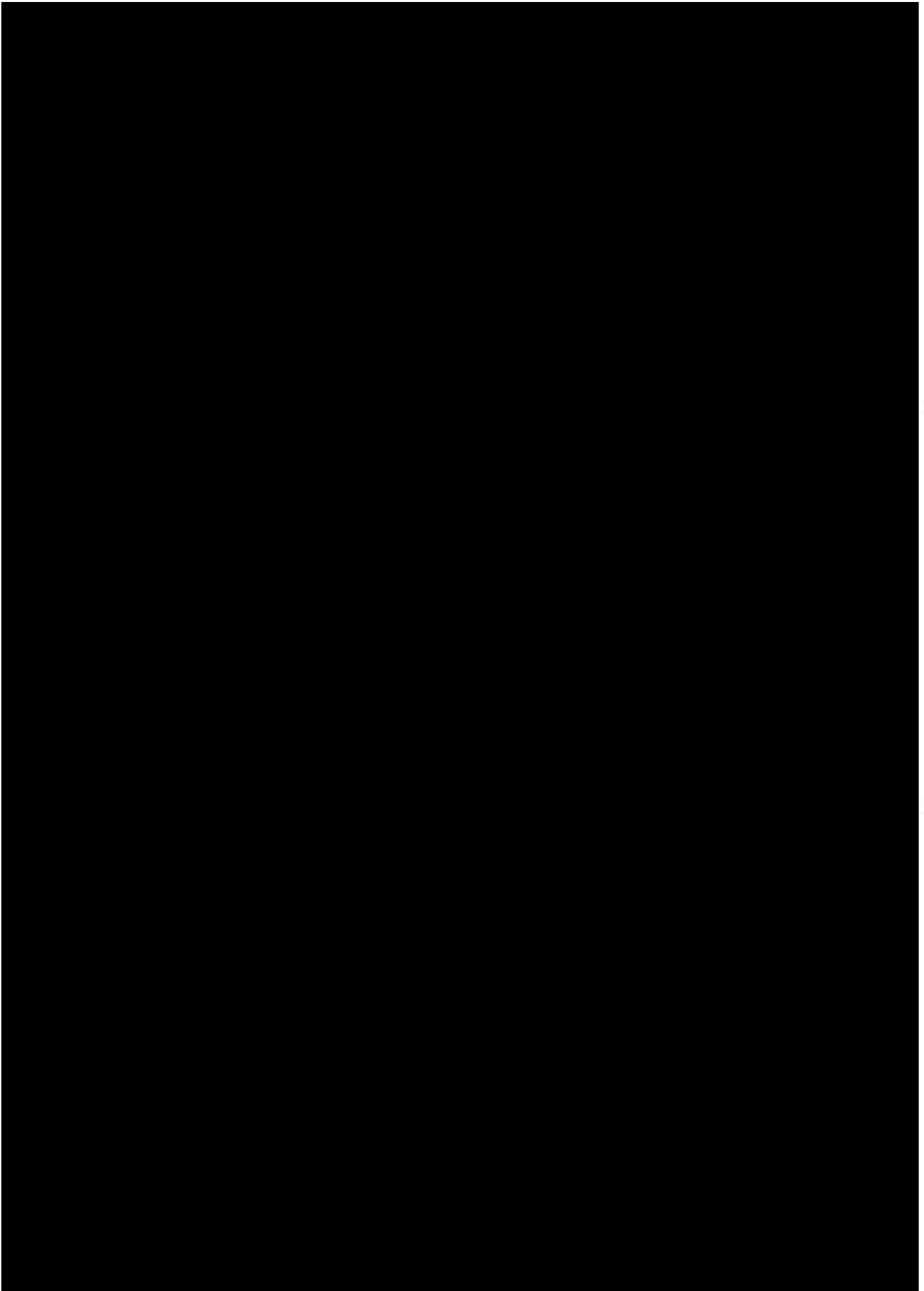
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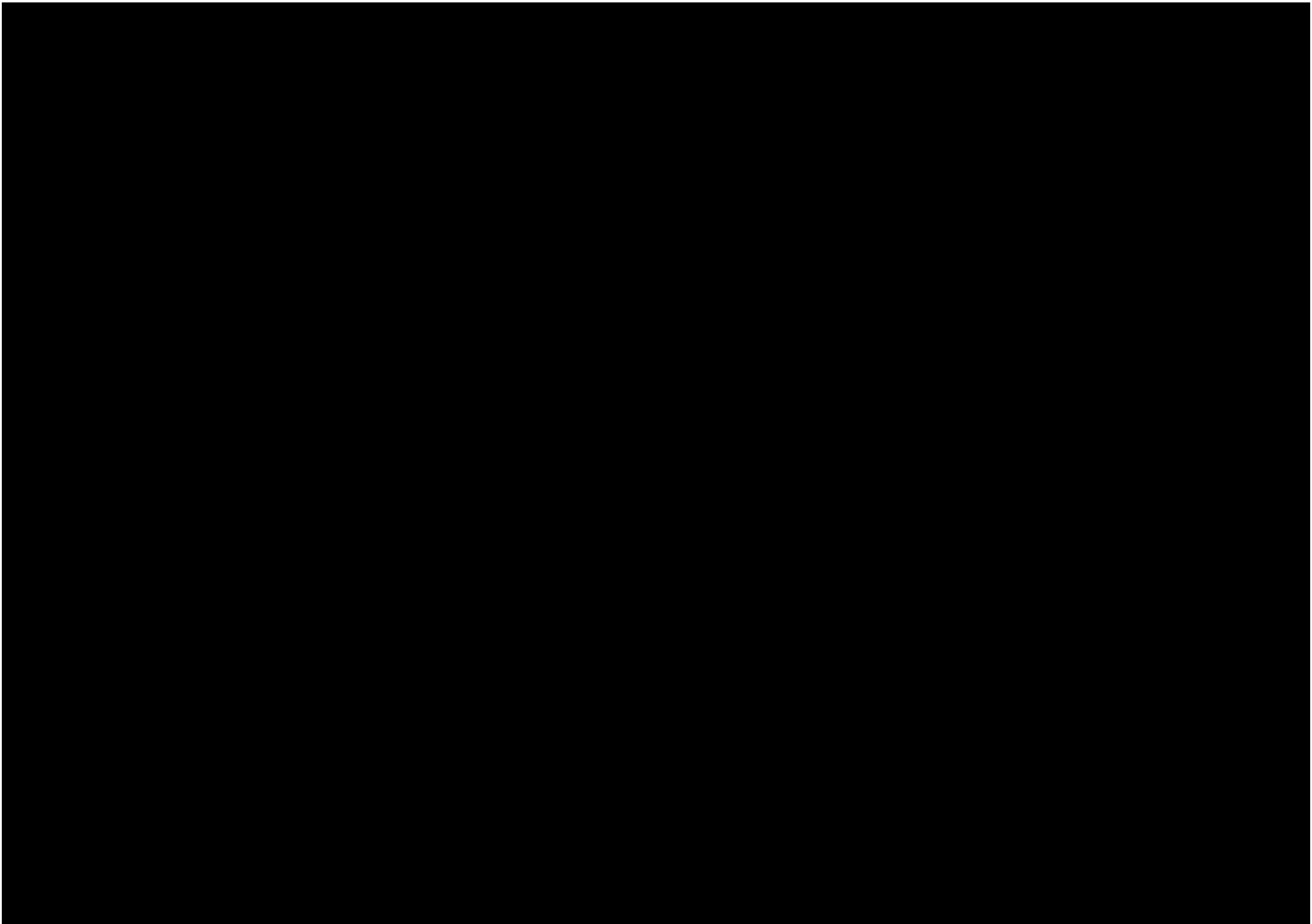


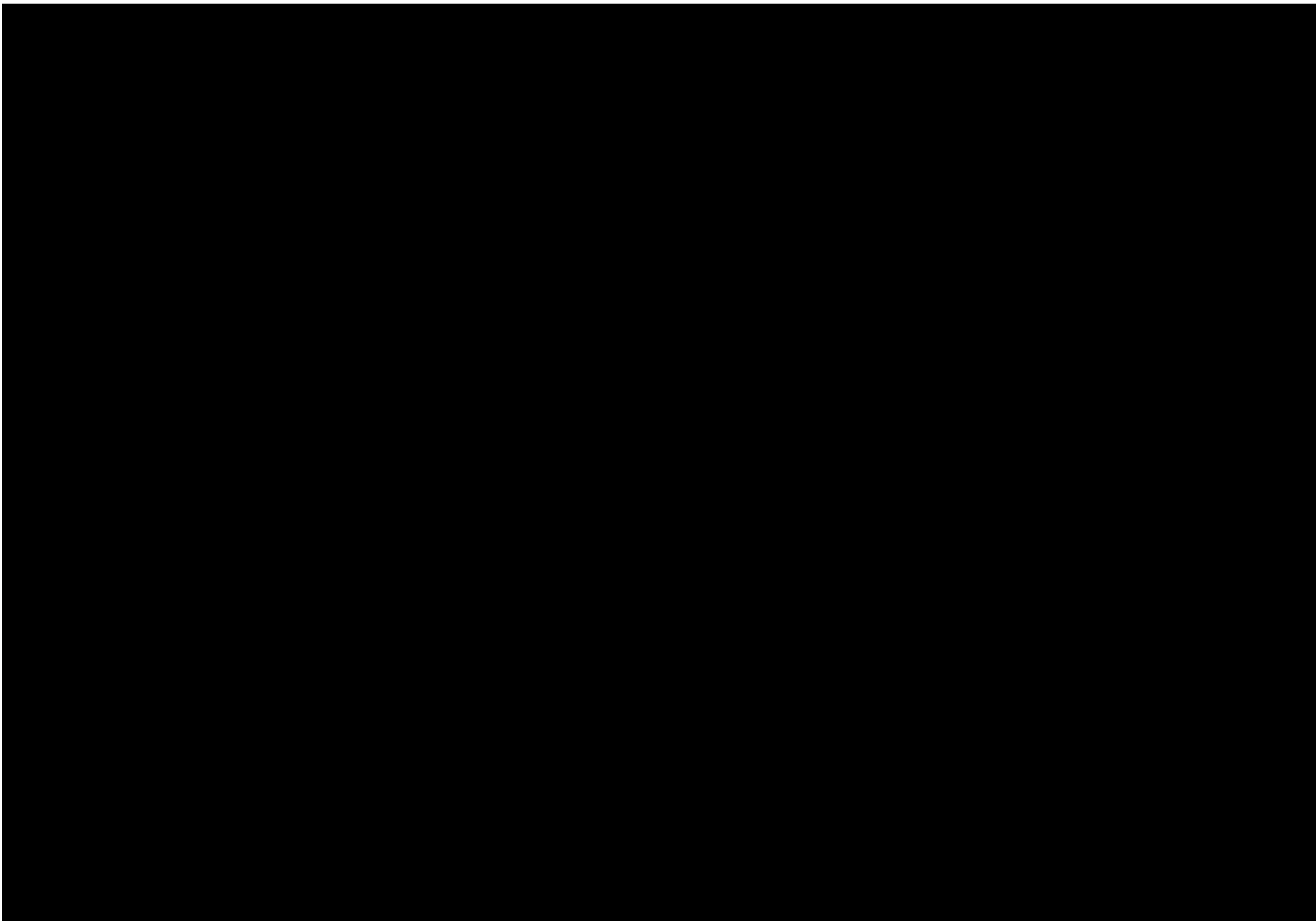


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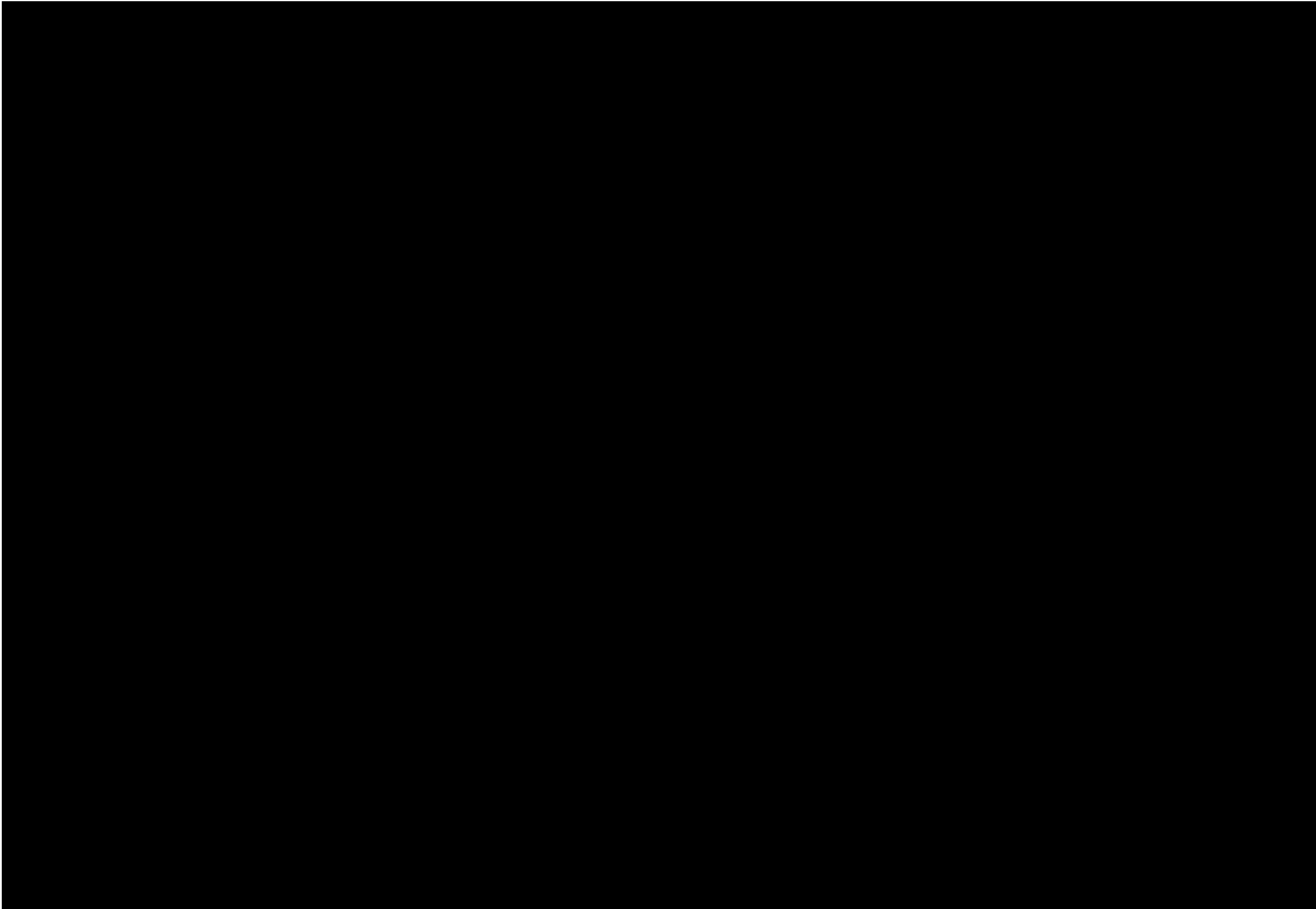
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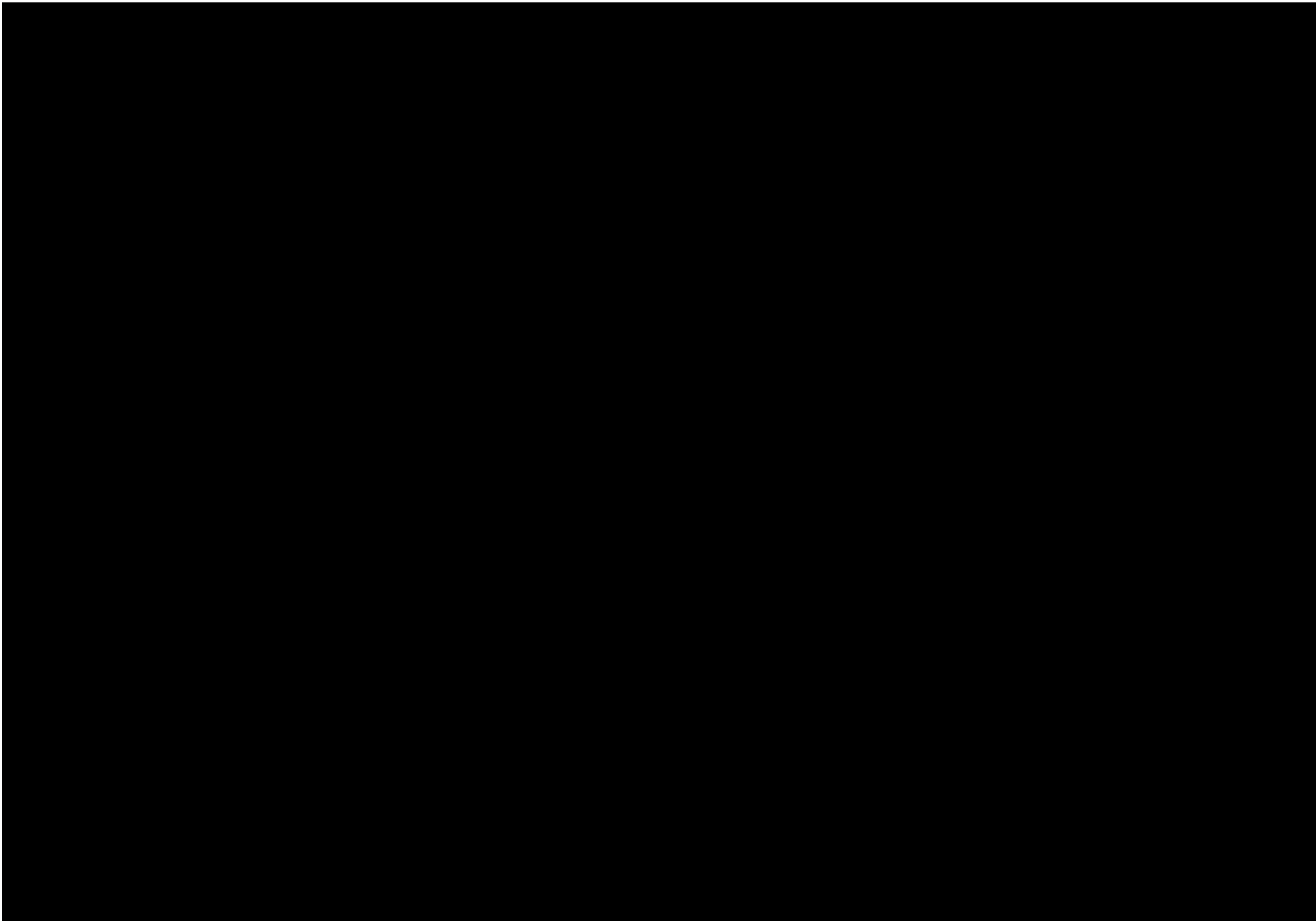


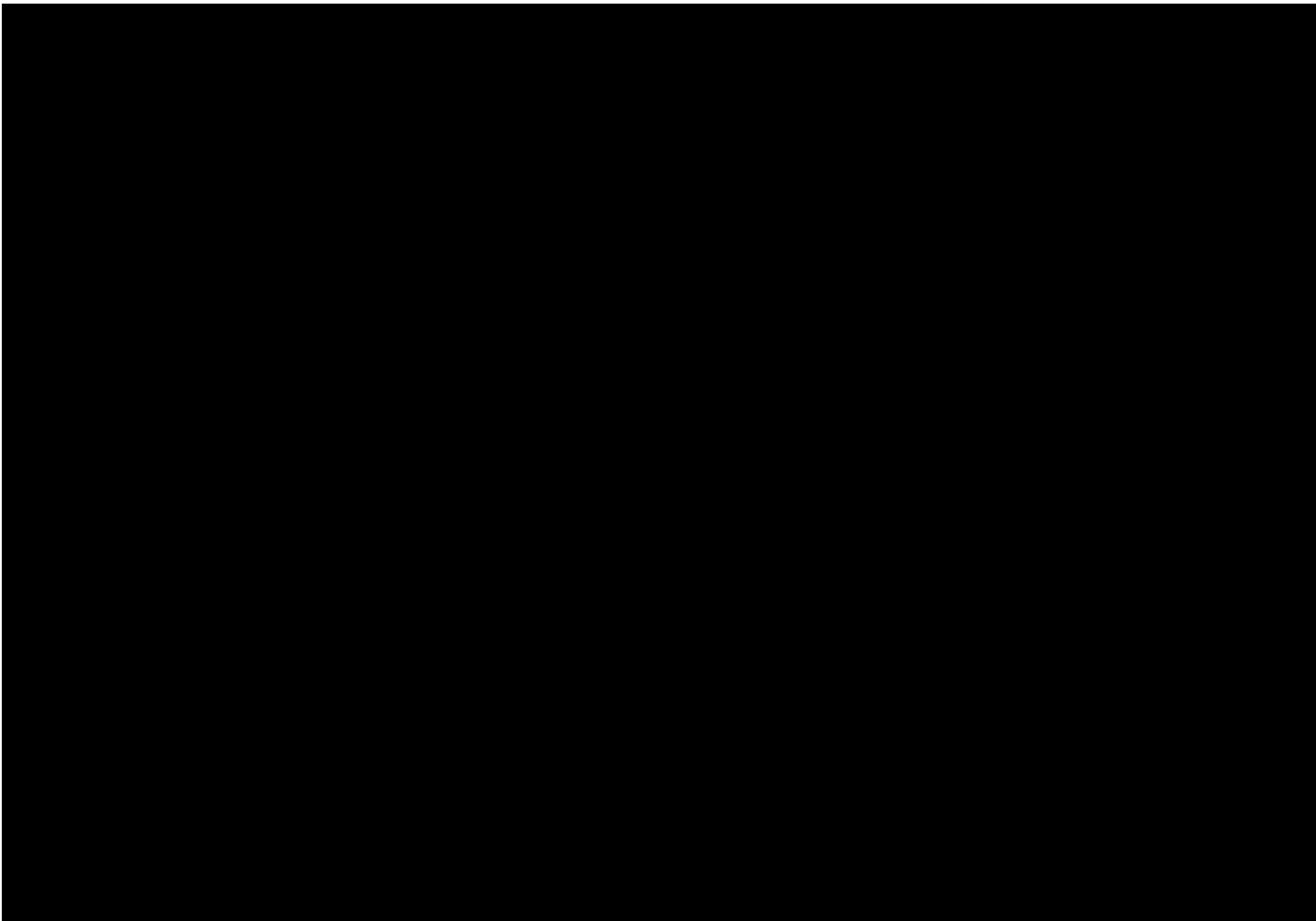


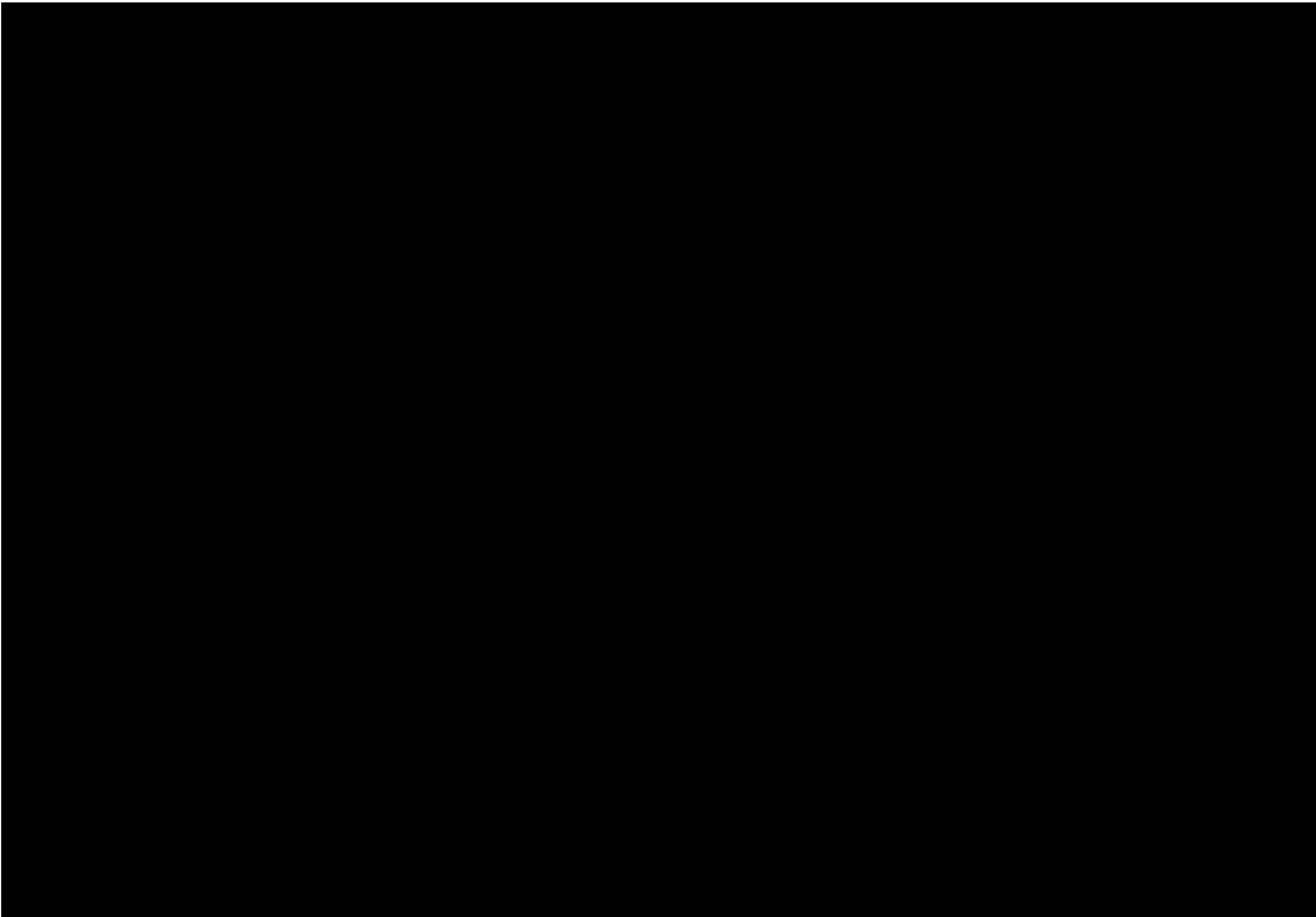


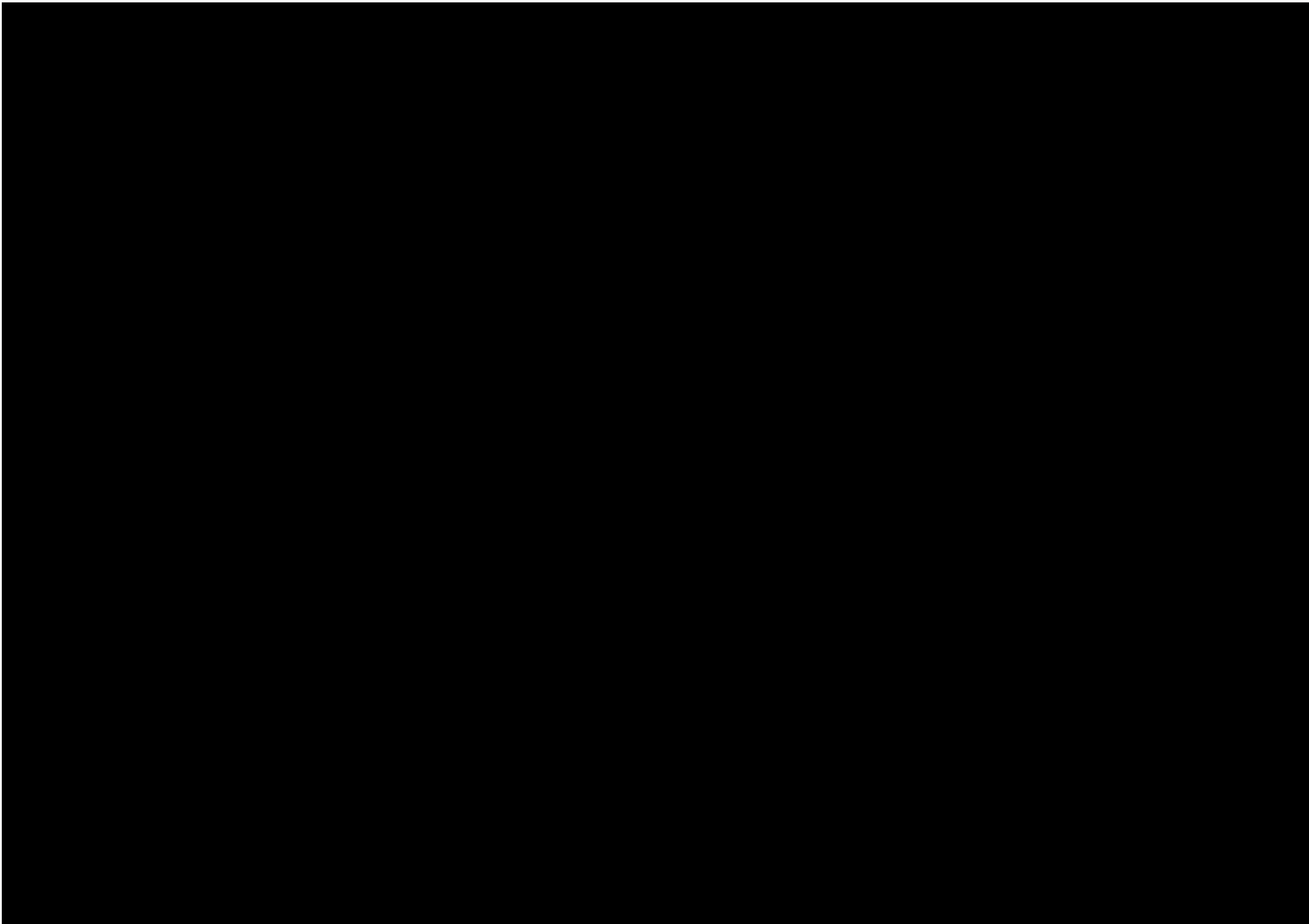












**SCHEDULE 31**

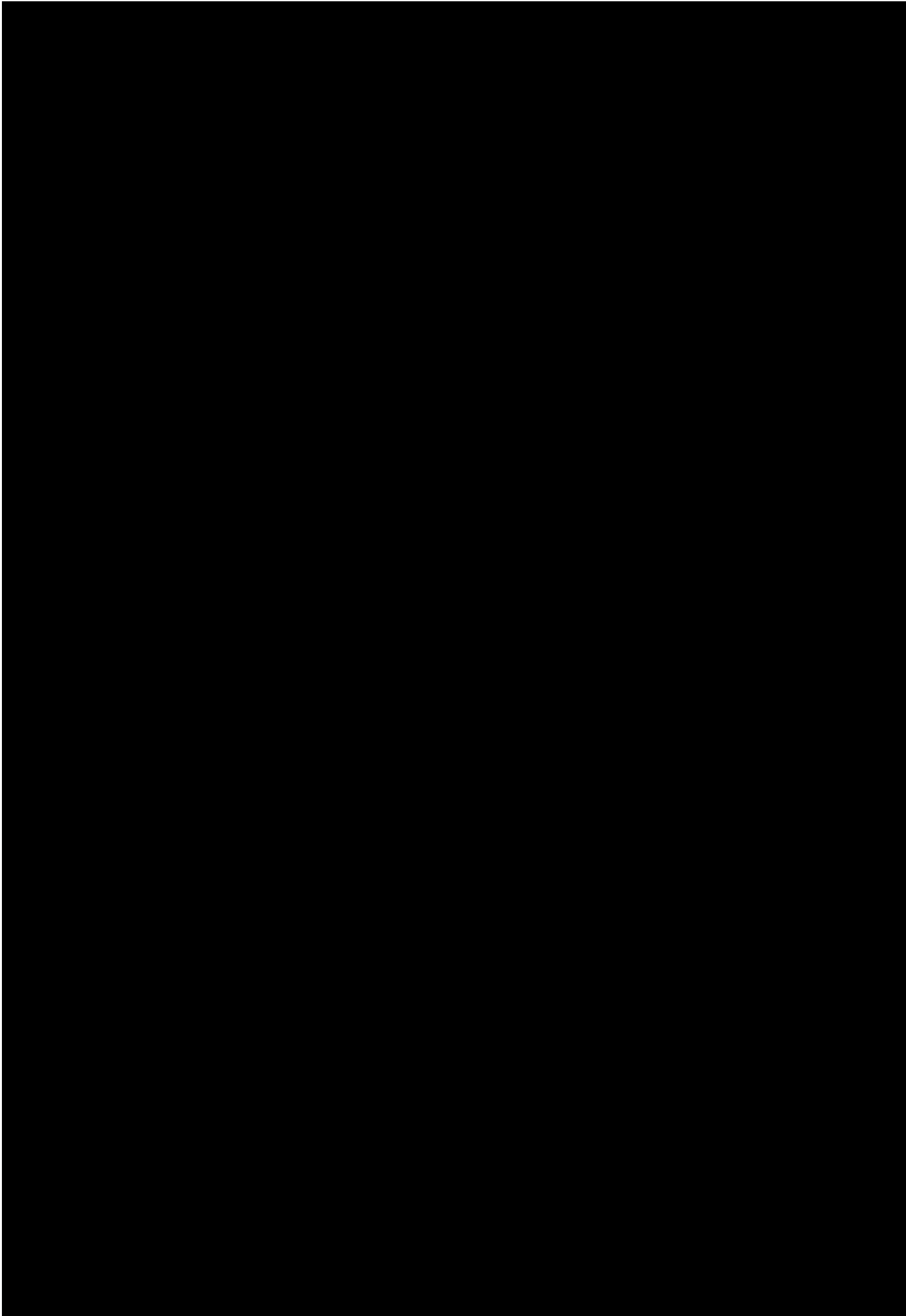
**Amendments to Schedule E2**

Schedule E2 is amended as set out in the attached mark-up.

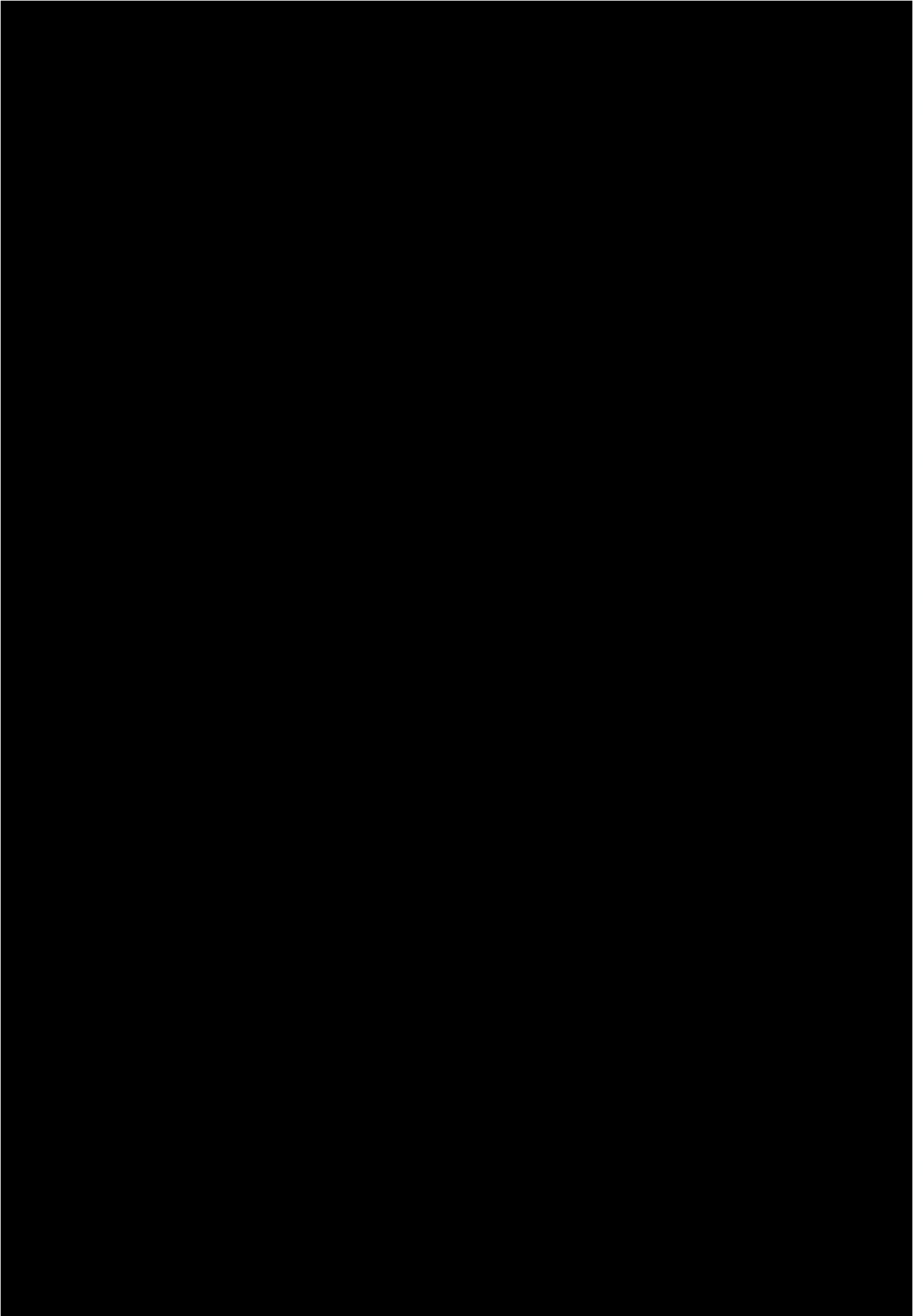


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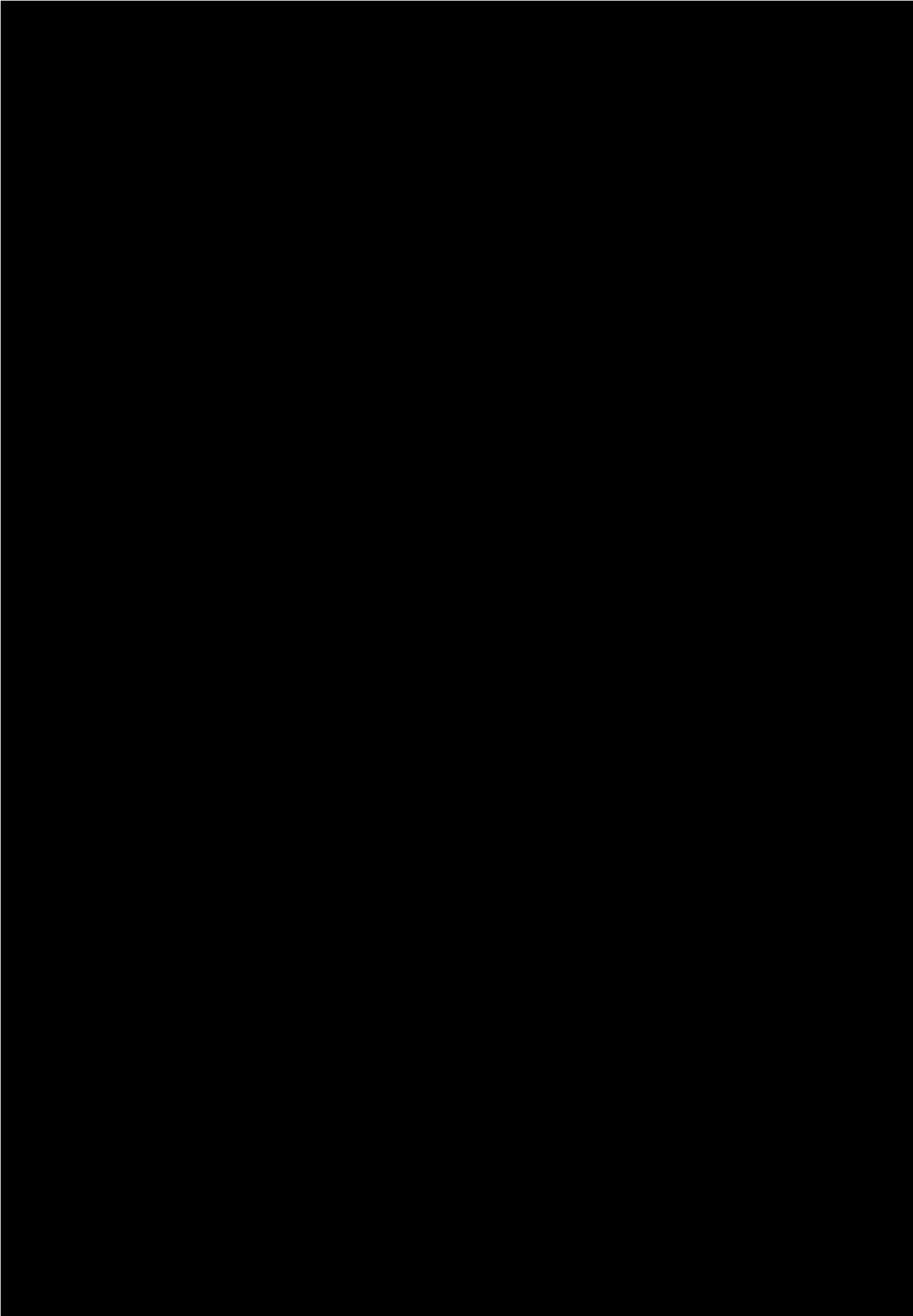
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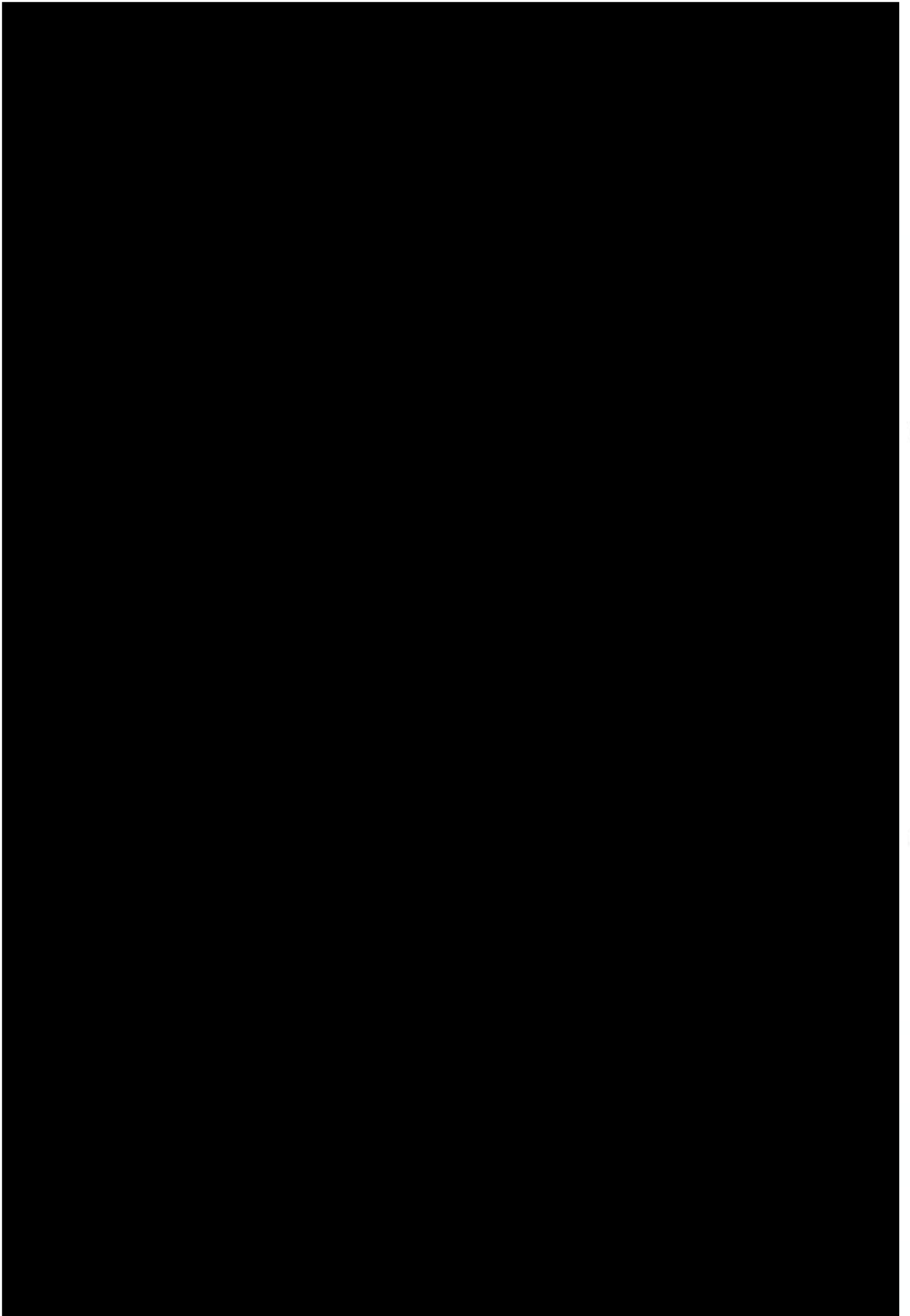


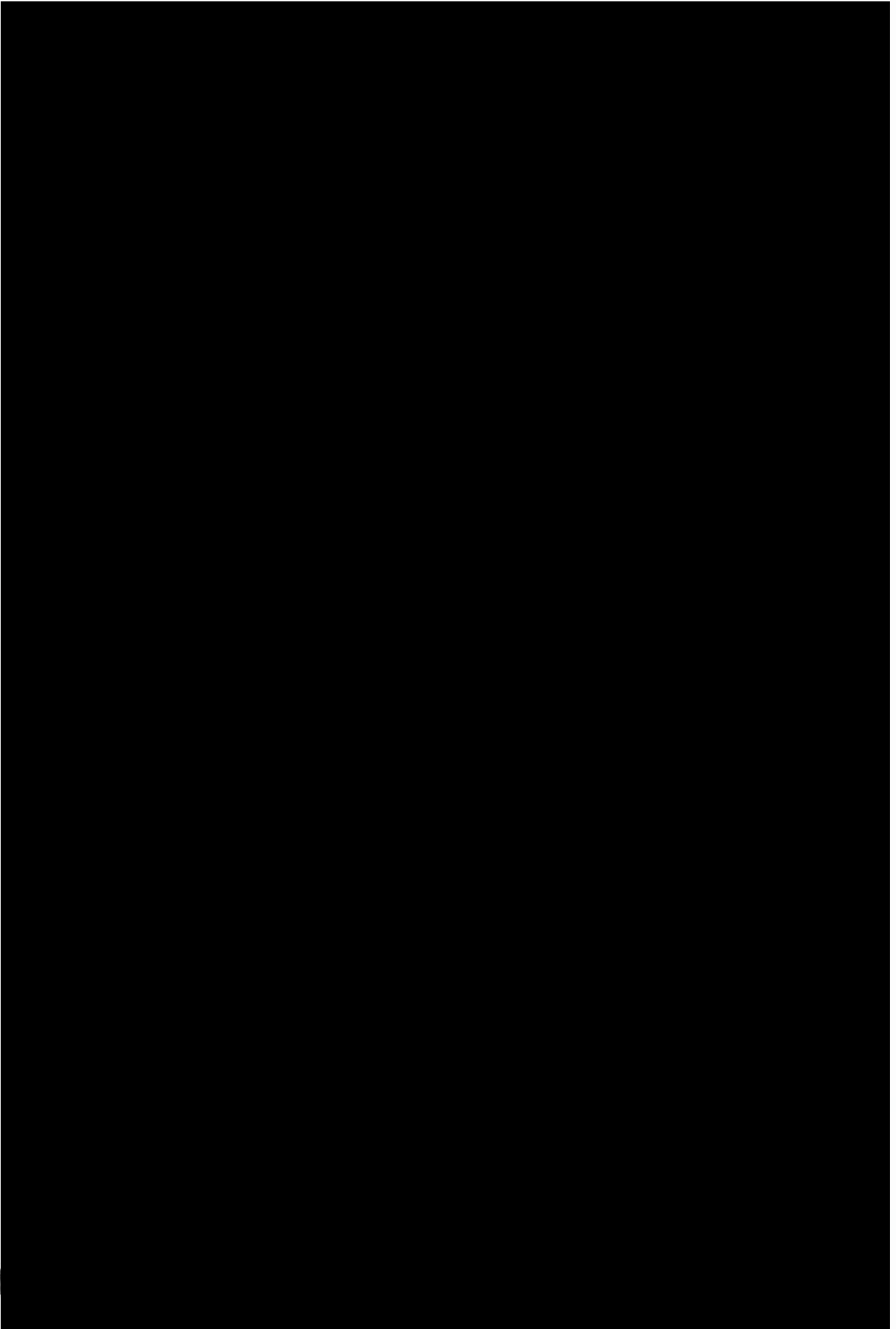


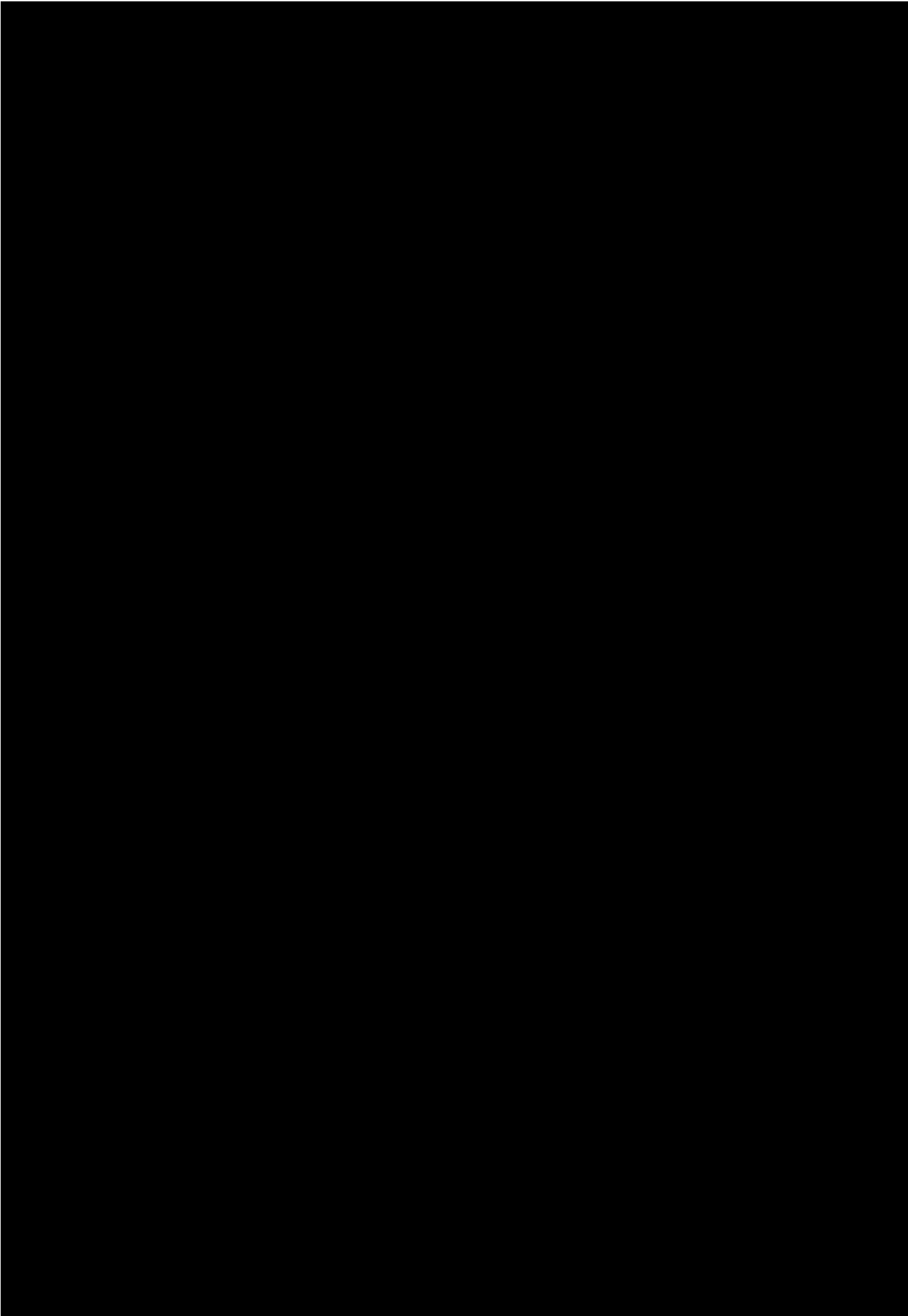


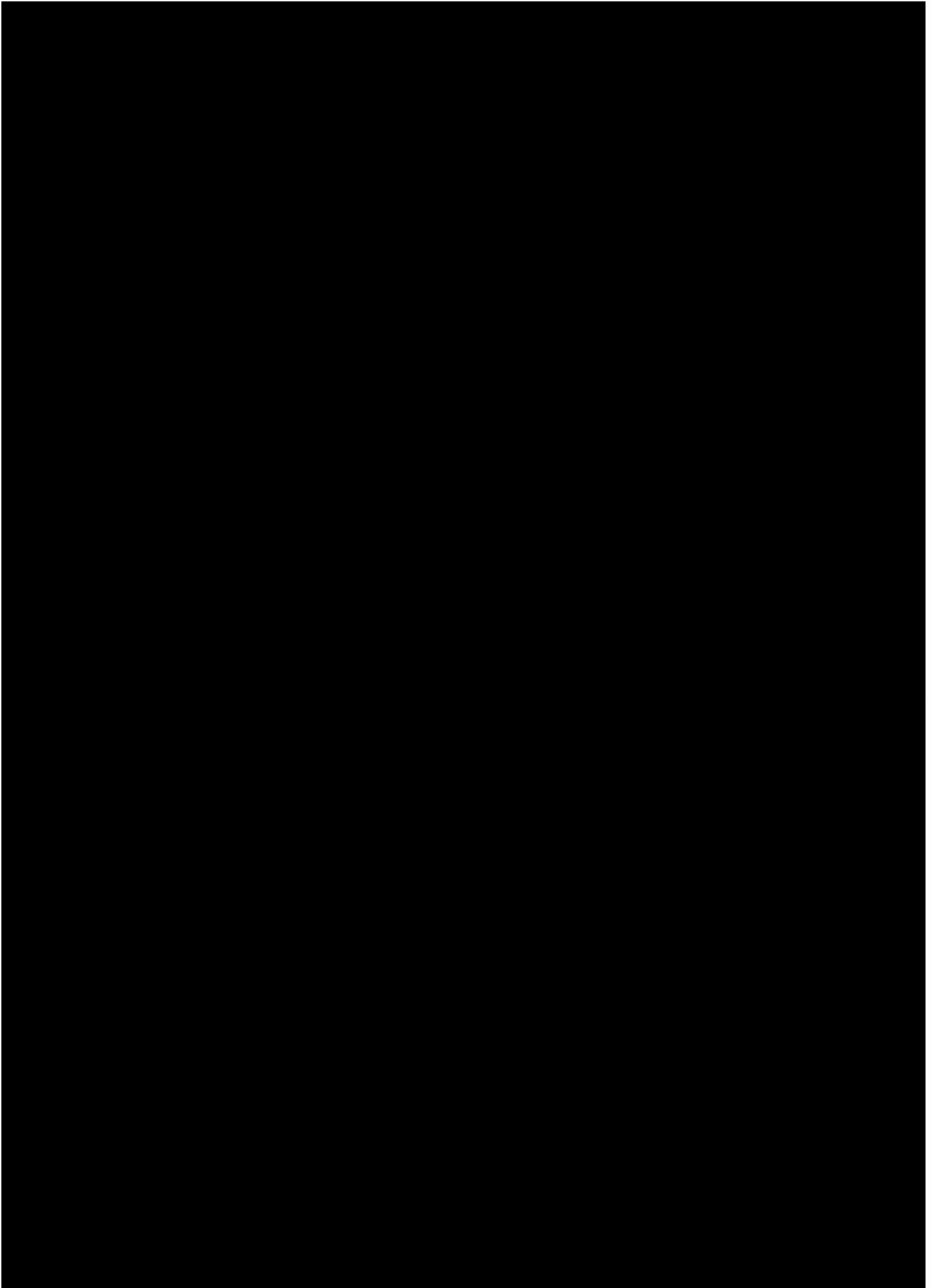
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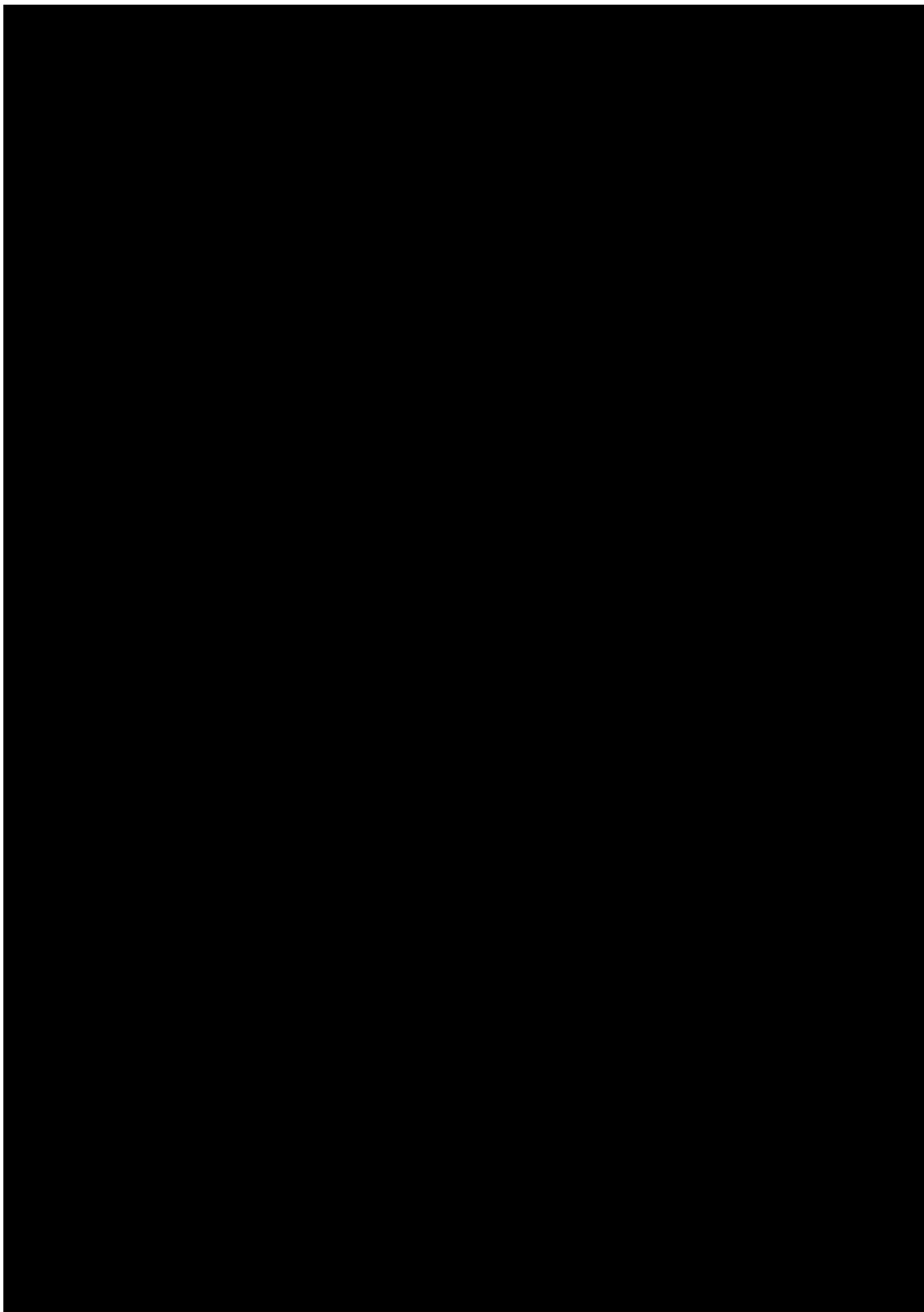
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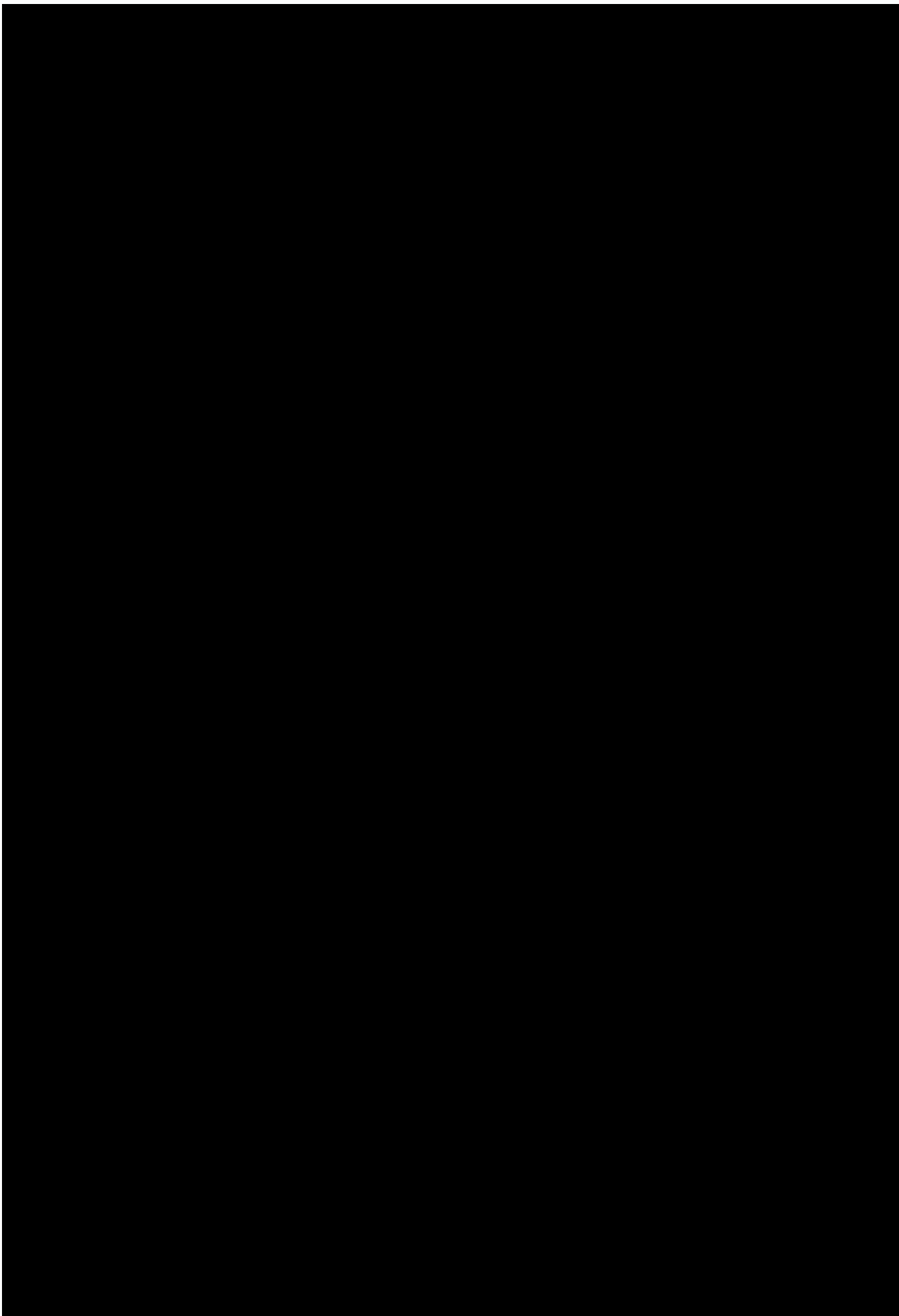












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**SCHEDULE 32**

**Amendments to Schedule E3**

Schedule E3 is amended as set out in the attached mark-up.

## SCHEDULE E3. – PROJECT PLANNING APPROVALS AND CONDITIONS

(Clauses 1.1 and 7.2)

### Part 1 – Project Planning Approval (Chatswood to Sydenham)

The Project Planning Approval (Chatswood to Sydenham) has been obtained by the Principal.

The SSJ Contractor must fulfil all the conditions and requirements of the Project Planning Approval (Chatswood to Sydenham) and Mitigation Measures, as if it were the Principal, except to the extent that this Schedule E3 provides that the Principal will comply with the obligation, condition or requirement or limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement. Nothing specified as being a responsibility of the Principal will relieve the SSJ Contractor from complying with any obligation set out elsewhere in the Contract. The SSJ Contractor may apply to have any part of any of the Approvals or Mitigation Measures listed below modified. The SSJ Contractor acknowledges and agrees that it is solely responsible for any such modification.

### Part A The Principal's obligations in respect of Planning Approval (Chatswood to Sydenham)

- (a) In relation to the Conditions of Approval the Principal will:
- (i) be responsible for A1 to the extent specified in this Part A(a);
  - (ii) be responsible for A2 to the extent specified in Part A(b);
  - (iii) be responsible for A3 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
  - (iv) be responsible for A4;
  - (v) be responsible for A5 and A6 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
  - (vi) be responsible for A7 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, the SSJ Contractor must undertake all activities necessary to comply with this condition (except submission to the Secretary) and provide the information to the Principal.  
  
The Principal will submit the information provided by the SSJ Contractor, to the Secretary;
  - (vii) be responsible for A8 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
  - (viii) be responsible for A9 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, the SSJ Contractor must undertake all activities necessary to comply with this condition (except submission to the Secretary) and provide the information to the Principal.  
  
The Principal will submit the information provided by the SSJ Contractor, to the Secretary;
  - (ix) be responsible for A10;

- (x) be responsible for A11 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xi) be responsible for A12 to A15, except that the SSJ Contractor must inform the Principal if staging of deliverables is required in addition to that identified in the Staging Report;
- (xii) be responsible for A16 to A20 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xiii) be responsible for A21;
- ~~(xiv) be responsible for A22 to A25;~~
- (xiv) ~~(xv)~~ be responsible for A26 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xv) ~~(xvi)~~ be responsible for A27 ~~to~~ and A28;
- (xvi) ~~(xvii)~~ be responsible for A29. The Principal will notify the SSJ Contractor of the date of submission to the Secretary and if there is any other timeframe agreed with the Secretary relevant to the Project Works and the SSJ Contractor's Activities;
- (xvii) ~~(xviii)~~ be responsible for A30, except that the SSJ Contractor must:
  - (A) provide the Principal with all the information, documents, details and data relating to the SSJ Contractor's Activities to enable the Principal to comply with this condition; and
  - (B) participate in any activities necessary under the Compliance Tracking Program;
- (xviii) ~~(xix)~~ be responsible for A31, except that the SSJ Contractor must provide the Principal with all the information, documents, details and data relating to the SSJ Contractor's Activities to enable the Principal to comply with A31. The Principal will be the single point of contact with the Secretary and notify the SSJ Contractor any other timeframe relevant to this condition agreed with the Secretary;
- (xix) ~~(xx)~~ be responsible for A32, except that the SSJ Contractor must provide the Principal with all the available information, documents, details and data relating to the SSJ Contractor's Activities that support the required compliance reporting under the Compliance Tracking Program;
- (xx) ~~(xxi)~~ be responsible for A33, except that the SSJ Contractor must provide the Principal with all the available information, documents, details and data relating to the SSJ Contractor's Activities that support the required compliance reporting under the Compliance Tracking Program;
- (xxi) ~~(xxii)~~ be responsible for A34, except that the SSJ Contractor must provide the Principal with all the information, documents, details and data relating to the SSJ Contractor's Activities to enable the Principal to comply with this condition;
- (xxii) ~~(xxiii)~~ be responsible for A35 and A36;
- (xxiii) ~~(xxiv)~~ be responsible for A37 to A40, except that the SSJ Contractor must:

- (A) provide the Principal with all the information, documents, details and data relating to the SSJ Contractor's Activities to enable the Principal to comply with A37; and
- (B) participate in any activities necessary under the Environmental Audit Program.

The Principal will submit the Environmental Audit Program to the Secretary and advise the SSJ Contractor of the date of submission;

(xxiv) ~~(xxv)~~ be responsible for A41 to A44, except that the SSJ Contractor must provide the Principal with all the information, documents, details and data relating to the SSJ Contractor's Activities to enable the Principal to comply with these conditions;

(xxv) ~~(xxvi)~~ be responsible for B1 to the extent that the Principal will prepare and submit for approval an Overarching CCS document. The SSJ Contractor must also prepare its own CCS information in a timely manner to enable to the Principal to review and submit it to the Secretary for approval;

(xxvi) ~~(xxvii)~~ be responsible for B2 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(xxvii) ~~(xxviii)~~ be responsible for B3 in relation to all works other than the Project Works and the SSJ Contractor's Activities. The SSJ Contractor must provide its Community Communication Strategy to the Principal and the Principal will submit the SSJ Contractor's Community Communication Strategy to the Secretary for approval and advise the SSJ Contractor when the approval of the Secretary is given;

(xxviii) ~~(xxix)~~ be responsible for B4 in relation to all works other than the Project Works and the SSJ Contractor's Activities. The Principal will notify the SSJ Contractor when the approval of the Secretary is given or of any other timeframe agreed with the Secretary;

(xxix) ~~(xxx)~~ be responsible for B5 in relation to all works other than the Project Works and the SSJ Contractor's Activities. The SSJ Contractor must comply with this condition in relation to the Project Works and the SSJ Contractor's Activities to the extent that the Overarching CCS and the SSJ Contractor's CCS requires actions to be undertaken by the SSJ Contractor;

(xxx) ~~(xxxi)~~ be responsible for B6 and B7, except that the SSJ Contractor must:

- (A) provide the Principal with all the information, documents, details and data relating to the SSJ Contractor's Activities that are required to prepare the "Complaints Management System" and maintain a complaints register; and
- (B) implement the Complaints Management System.

(xxxii) ~~(xxxiii)~~ be responsible for B8 to B12;

(xxxiii) ~~(xxxiiii)~~ be responsible for B13, except that except that the SSJ Contractor must:

- (A) provide the Principal and the Community Complaints Commissioner with all information, documents, details and data relating to the SSJ Contractor's Activities in order for the Community Complaints Commissioner to perform its function; and

- (B) co-operate with, and respond to the reasonable requirements of, the Community Complaints Commissioner;

~~(xxxiii)~~ ~~(xxxiv)~~ be responsible for B14, except that the SSJ Contractor must provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to enable the Principal to comply with this condition;

~~(xxxiv)~~ ~~(xxxv)~~ be responsible for B15, except that the SSJ Contractor must:

- (A) ~~provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to~~ establish and maintain a new website, or dedicated pages within an existing website, ~~for the provision of electronic information associated with the Sydney Metro City and Southwest Project~~ and comply with condition B15 in relation to the SSJ Contractor's Activities;
- (B) agree with the Principal on the extent of documentation to be posted on the SSJ Contractor's website considering privacy and confidentiality in relation to information, documents, details and data provided by the SSJ Contractor; ~~and~~
- (C) comply with level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0) ~~in respect of community publications (e.g. notifications and factsheets), Construction Environmental Management Plan and Sub Plans, and heritage investigation reports; and~~
- ~~(D)~~ provide TfNSW with all information, documents, details and data relating to the SSJ Contractor's Activities that are required for TfNSW to comply with condition B15;

~~(xxxv)~~ ~~(xxxvi)~~ be responsible for C1 in relation to all works other than the Project Works and the SSJ Contractor's Activities. The SSJ Contractor's CEMP must comply with C2;

~~(xxxvi)~~ ~~(xxxvii)~~ be responsible for C33, ~~except~~ in relation to ~~all works other than the Project Works and the SSJ Contractor's Activities~~ items referred to in C3(a), (c), (d) and (g). The SSJ Contractor's CEMP sub-plans must comply with C44. The SSJ Contractor must include biodiversity and groundwater aspects in the SSJ Contractor's CEMP in accordance with C2 in relation to the SSJ Contractor's Project Works and the SSJ Contractor's Activities;

~~(xxxvii)~~ ~~(xxxviii)~~ be responsible for C5 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, where an agency(ies) request(s) is not included the SSJ Contractor must provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to enable the Principal to provide the Secretary with justification as to why;

~~(xxxviii)~~ ~~(xxxix)~~ be responsible for C6, except that the SSJ Contractor must provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to enable the Principal to comply with this condition;

~~(xxxix)~~ ~~(xl)~~ in relation to C7, submit the endorsed CEMP to Secretary. The Contractor must provide a copy of the CEMP, including the ER's



endorsement, to the Principal in a timely manner to enable the Principal to comply with this condition;

- (xl) ~~(xlii)~~ be responsible for C8 in relation to all works other than the Project Works and the SSJ Contractor's Activities. The Principal will notify the SSJ Contractor when the approval of the Secretary is given;
- (xli) ~~(xlii)~~ be responsible for C9, ~~except~~ in relation to ~~all works other than the Project Works and the SSJ Contractor's Activities~~ items referred to in C9(a) and (c). The SSJ Contractor's Construction Monitoring ~~Program~~ Programs must comply with C10;
- (xlii) ~~(xliii)~~ be responsible for C11, ~~The 11, except that the SSJ Contractor must undertake real time monitoring will be reviewed and processed by the SSJ Contractor and made available to the Principal and provide the results to TfNSW, the Acoustics Advisor, the Environmental Representative, and the Environment Protection Authority every month. The SSJ Contractor must also provide access to the real-time monitoring data to the Secretary of the Department of Environment and Planning, the Acoustics Advisor and the Environment Protection Authority;~~ 11, except that the SSJ Contractor must undertake real time monitoring, review and process the results of the real time monitoring ~~will be reviewed and processed by the SSJ Contractor and made available to the Principal and provide the results to TfNSW, the Acoustics Advisor, the Environmental Representative, and the Environment Protection Authority every month. The SSJ Contractor must also provide access to the real-time monitoring data to the Secretary of the Department of Environment and Planning, the Acoustics Advisor and the Environment Protection Authority;~~
- (xliii) ~~(xliv)~~ be responsible for C12 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xliv) ~~(xlv)~~ be responsible for C13 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, the SSJ Contractor must provide a copy of the Construction Monitoring Programs, including the ER's endorsement, to the Principal in a timely manner to enable the Principal to comply with this condition.
- The Principal will notify the SSJ Contractor of the date the Construction Monitoring Programs have been submitted to the Secretary;
- (xlv) ~~(xlvi)~~ be responsible for C14 in relation to all works other than the Project Works and the SSJ Contractor's Activities.
- The Principal will notify the SSJ Contractor when the approval of the Secretary is given for the SSJ Contractor's Construction Monitoring Programs;
- (xlvi) ~~(xlvii)~~ be responsible for C15 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xlvii) ~~(xlviii)~~ be responsible for C16 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, the Principal will submit the Construction Monitoring Reports to the Secretary as required by this condition. The SSJ Contractor must provide copies of the Construction Monitoring Reports to the Principal in a timely manner to enable the Principal to comply with its retained obligation;
- (xlviii) ~~(xlix)~~ be responsible for C17 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xlix) ~~(l)~~ be responsible for D1 to D14;

- (i) ~~(ii)~~ be responsible for E1 ~~in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(iii)~~ be responsible for E2 to E5 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (ii) ~~(iii)~~ be responsible for E6, except that the SSJ Contractor must produce a Tree Report for trees impacted or removed by the SSJ Contractor's Activities and make provision for their replacement in accordance with Condition E6. The SSJ Contractor must provide the Tree Report to the Principal in a timely manner to enable the Principal to submit it to the Secretary in compliance with this condition;
- (iii) ~~(iv)~~ be responsible for E7;
- (iv) ~~(v)~~ be responsible for E8 to E10 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (v) ~~(vi)~~ be responsible for E11 and E12;
- (vi) ~~(vii)~~ be responsible for E13 to E21 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (vii) ~~(viii)~~ be responsible for E22;
- (viii) ~~(ix)~~ be responsible for E23 to E26 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (ix) ~~(x)~~ be responsible for E27, except that the Contractor must implement the Principal's Exhumation Management Plan;
- (x) ~~(xi)~~ be responsible for E28 ~~in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(xi)~~ be responsible for E29 ~~in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(xii)~~ be responsible for E30 ~~and to~~ E31 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xi) ~~(xiv)~~ be responsible for E32. The SSJ Contractor must implement the strategy in relation to the Project Works and the SSJ Contractor's Activities;
- (xii) ~~(xv)~~ be responsible for E33 ~~to E36 in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(xvi)~~ be responsible for E37 and 38;
- ~~(xvii)~~ be responsible for E39 to E46 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xiii) ~~(xviii)~~ be responsible for E47 in relation to preparation and submission of the Out of Hours Work Protocol. The SSJ Contractor must comply with the approved Out of Hours Work Protocol. The Out of Hours Work Protocol is contained in Appendix 1 to this Schedule E3;
- (xiv) ~~(xix)~~ be responsible for E48 and E49 in relation to all works other than the Project Works and the SSJ Contractor's Activities;



- (lxiv) ~~(lxix)~~ be responsible for E48~~50~~ to E52 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In accordance with the Staging Report, E50 to E52 is only applicable to the SSJ stage in the event that blasting activities are to be undertaken;
- (lxv) ~~(lxx)~~ be responsible for E53 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, if the SSJ Contractor prepares Blast Management Strategy, the SSJ Contractor must submit it to the Principal. The Principal will submit it to the Secretary and notify the SSJ Contractor when it has been submitted. In accordance with the Staging Report, E53 is only applicable to the SSJ stage in the event that blasting activities are to be undertaken;
- (lxvi) ~~(lxxi)~~ be responsible for E54 to E56 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In accordance with the Staging Report, E54 to E56 is only applicable to the SSJ stage in the event that blasting activities are to be undertaken;
- (lxvii) ~~(lxxii)~~ be responsible for E57;
- (lxviii) ~~(lxxiii)~~ be responsible for E58 to E61 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (lxix) ~~(lxxiv)~~ be responsible for E62 except that the SSJ Contractor must provide the Principal and the Independent Property Impact Assessment Panel with all information, documents, details and data relating to the Project Works and the SSJ Contractor's Activities in order for the Panel to perform its function. The terms of reference for the Independent Property Impact Assessment Panel are contained in Appendix 2 to this Schedule E3;
- (lxx) ~~(lxxv)~~ be responsible for E63 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, the SSJ Contractor must submit the results of monitoring to the Principal. The Principal will submit it to the Secretary on request;
- (lxxi) be responsible for E64, except in relation to items referred to in E64(a), (b), (c) and (e). The SSJ Contractor must provide TfNSW with all information, documents, details and data relating to the SSJ Contractor's Activities for items referred to in E64(d) and (f);
- (lxxii) ~~(lxxvi)~~ be responsible for E64~~65~~ to E67 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (lxxiii) ~~(lxxvii)~~ be responsible for E68 in relation to all works other than the Project Works and the SSJ Contractor's Activities. In relation to the Project Works and the SSJ Contractor's Activities, if the SSJ Contractor prepares a Site Audit Statement and Site Audit Report, the SSJ Contractor must submit them to the Principal. The Principal will submit them to the Secretary;
- (lxxiv) ~~(lxxviii)~~ be responsible for E69 to E71 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (lxxv) ~~(lxxix)~~ be responsible for E72. The SSJ Contractor must implement the Sustainability Strategy in relation to the Project Works and the SSJ Contractor's Activities. The Sustainability Strategy is contained in Appendix 3 to this Schedule E3;

(lxxvi) ~~(lxxx)~~ be responsible for E73 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxxvii) ~~(lxxxii)~~ be responsible for E74;

(lxxviii) ~~(lxxxiii)~~ be responsible for E75 and E76 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

~~(lxxxiii) establish the Transport and Transport Liaison Groups required under E77;~~

(lxxix) be responsible for E77, except that:

- (A) the SSJ Contractor must provide a representative to attend relevant meetings of the "Traffic and Transport Liaison Group(s)";
- (B) the SSJ Contractor must provide all relevant information, documents, details and data relating to the SSJ Contractor's Activities to the "Traffic and Transport Liaison Group(s)";
- (C) the SSJ Contractor must consult with the "Traffic and Transport Liaison Group(s) in preparing the "Construction Traffic Management Plans"; and
- (D) the SSJ Contractor must implement and comply with any "traffic and transport management measures";

(lxxx) ~~(lxxxiv)~~ be responsible for E78 to E80 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxxxii) ~~(lxxxv)~~ be responsible for E81. In relation to the Project Works and the SSJ Contractor's Activities the SSJ Contractor must provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to enable the Principal to comply with this condition. The Principal will submit the CTMF to the Secretary and advise the SSJ Contractor of the date of submission;

(lxxxiii) ~~(lxxxvi)~~ be responsible for E82 and E83 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxxxiiii) ~~(lxxxvii)~~ be responsible for E84;

(lxxxv) ~~(lxxxviii)~~ be responsible for E85 ~~to~~ and E8886 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxxxvi) be responsible for E86.1;

(lxxxvii) be responsible for E87 and E88 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxxxviii) ~~(lxxxix)~~ be responsible for E89 and E89.1;

(lxxxix) ~~(xc)~~ be responsible for E90 to E93 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxxxix) ~~(xci)~~ be responsible for E94 and E95;

(xc) be responsible for E95.1, except that the SSJ Contractor is responsible for developing the Interchange Access Plan and/or Station Design and Precinct

Plan relevant to the Sydenham Station upgrade and include the following information within:

- (A) a summary of the investigation into opportunities for dedicated cycle connections between Sydenham Station and Marrickville Station;
- (B) identification of any opportunities for dedicated cycle connections between Sydenham Station and Marrickville Station; and
- (C) provision for the delivery of any identified opportunities for dedicated cycle connections between Sydenham Station and Marrickville Station;

- (xci) ~~(xcii)~~ be responsible for E96 and E97 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xcii) ~~(xciii)~~ be responsible for E98;
- (xciii) ~~(xciv)~~ be responsible for E99 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xciv) ~~(xcv)~~ be responsible for E100;
- (xcv) ~~(xcvi)~~ be responsible for E101 and E102 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xcvi) ~~(xcvii)~~ be responsible for E103;
- (xcvii) ~~(xcviii)~~ be responsible for E104 to E108 in relation to all works other than the Project Works and the SSJ Contractor's Activities; and
- (xcviii) ~~(xcix)~~ be responsible for E109.

(b) In relation to the Mitigation Measures the Principal will:

- (i) be responsible for T1 to T6 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (ii) be responsible for T7 in relation to all works other than the Project Works and the SSJ Contractor's Activities and for community education events that allow pedestrians, cyclists or motorists to sit in trucks and understand the visibility restrictions of truck drivers, and for truck drivers to understand the visibility from a bicycle; and a campaign to engage with local schools to educate children about road safety and to encourage visual contact with drivers to ensure they are aware of the presence of children;
- (iii) be responsible for T8 and T9 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (iv) be responsible for T10 except that the SSJ Contractor must provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to enable the Principal to comply with this condition in a timely manner to suit the SSJ Contractor's Activities. The SSJ Contractor must provide appropriate wayfinding and Customer information to notify Customers of bus stops relocated as a result of the Project Works or SSJ Contractor's Activities;
- (v) be responsible for T11;



- (vi) be responsible for T12 to T14 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (vii) be responsible for T15 to T18;
- (viii) be responsible for T19 ~~to T22~~ in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (ix) be responsible for T20;
- (x) be responsible for T21 and T22 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xi) be responsible for T23 to T26;
- (xii) be responsible for T27 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xiii) be responsible for T28;
- (xiv) ~~(ix)~~ be responsible for OpT1;
- (xv) ~~(x)~~ be responsible for OpT2 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xvi) ~~(xi)~~ be responsible for OpT3;
- (xvii) ~~(xii)~~ be responsible for OpT4 ~~and OpT5~~ in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xviii) be responsible for OpT5 to OpT7;
- (xix) ~~(xiii)~~ be responsible for NV1 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xx) ~~(xiv)~~ be responsible for NV2;
- (xxi) ~~(xv)~~ be responsible for NV3 ~~to~~ and NV54 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxii) be responsible for NV5;
- (xxiii) ~~(xvi)~~ in relation to NV6 engage, nominate, and seek approval from the Secretary of a suitably qualified and experienced AA. The Principal will be the single point of contact with the Secretary and notify the SSJ Contractor of any other timeframe relevant to this condition agreed with the Secretary. The Principal will cooperate with the AA in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxiv) ~~(xvii)~~ be responsible for NV7 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxv) be responsible for NV8 to NV11;
- (xxvi) be responsible for NV12 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxvii) ~~(xviii)~~ be responsible for OpNV1 ~~to OpNV3~~ in relation to all works other than the Project Works and the SSJ Contractor's Activities;

- (xxviii) be responsible for OpNV2;
- (xxix) be responsible for OpNV3 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxx) be responsible for OpNV4 and OpNV5;
- (xxxi) be responsible for LP1;
- (xxxii) ~~(xix)~~ be responsible for BI1 to BI3 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(xx) be responsible for NAH1;~~
- (xxxiii) ~~(xxi)~~ be responsible for NAH1 and NAH2 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxxiv) ~~(xxii)~~ be responsible for NAH3 except for implementing the Exhumation Policy and Guideline in relation to the Project Works and the SSJ Contractor's Activities;
- (xxxv) be responsible for NAH4 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xxxvi) ~~(xxiii)~~ be responsible for NAH ~~4 to 5~~ and NAH6;
- (xxxvii) ~~(xxiv)~~ be responsible for NAH ~~7 and NAH8, except 7,~~ in relation to all works other than the Project Works and the SSJ Contractor's Activities and to the extent set out in the Contract, especially SWTC Appendix B6;
- ~~(xxv) be responsible for NAH9 to NAH19;~~
- (xxxviii) be responsible for NAH8 to NAH10;
- (xxxix) be responsible for NAH11 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xl) be responsible for NAH12 to NAH19;
- (xli) be responsible for NAH20 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xlii) be responsible for NAH21;
- (xliii) ~~(xxvi)~~ be responsible for AH1 and AH2 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xliv) ~~(xxvii)~~ be responsible for AH3;
- (xlv) ~~(xxviii)~~ be responsible for AH4 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- (xlvi) ~~(xxix)~~ be responsible for AH5;
- ~~(xxx) be responsible for AH6 in relation to all works other than the Project Works and the SSJ Contractor's Activities; to AH7;~~
- (xlvii) ~~(xxxi)~~ be responsible for LV1 to LV6 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

- ~~(xlviii)~~ ~~(xxxii)~~ be responsible for LV7 to LV9;
- ~~(xlix)~~ ~~(xxxiii)~~ be responsible for LV10 to LV12 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(l)~~ ~~(xxxiv)~~ be responsible for LV13 to ~~and~~ LV1618;
- ~~(li)~~ ~~(xxxv)~~ be responsible for ~~LV17 to~~ LV19 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(lii)~~ ~~(xxxvi)~~ be responsible for GWG1 and GWG2 ~~in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(liii)~~ ~~(xxxvii)~~ be responsible for SCW 1 ~~and~~ SCW2;
- ~~(xxxviii)~~ ~~be responsible for SCW3 and~~ to SCW4 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(liv)~~ ~~(xxxix)~~ be responsible for SCW5 to SCW7;
- ~~(lv)~~ ~~(xl)~~ be responsible for SO1;
- ~~(lvi)~~ ~~(xli)~~ be responsible for SO2 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(lvii)~~ ~~(xlii)~~ be responsible for B1 ~~to~~;
- ~~(lviii)~~ be responsible for B2 and B3 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(lix)~~ ~~(xliii)~~ be responsible for B4;
- ~~(lx)~~ ~~(xliv)~~ be responsible for FH1 to FH3;
- ~~(lxi)~~ ~~(xlv)~~ be responsible for FH4 ~~and~~ ~~FH5 in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(xlvii)~~ ~~be responsible for FH6;~~
- ~~(xlviii)~~ ~~be responsible for FH7 in relation to all works other than the Project Works and the SSJ Contractor's Activities;~~
- ~~(xlix)~~ ~~be responsible for FH8;~~
- ~~(xlvi)~~ ~~be responsible for FH9 and~~ to FH10 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(lxii)~~ ~~(l)~~ be responsible for AQ1 to AQ98 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(lxiii)~~ be responsible for AQ9;
- ~~(lxiv)~~ ~~(ii)~~ be responsible for HR1 to HR3 in relation to all works other than the Project Works and the SSJ Contractor's Activities;
- ~~(lxv)~~ ~~(iii)~~ be responsible for HR4 and HR5;
- ~~(lxvi)~~ ~~(iiii)~~ be responsible for WRWM1 to WRWM5 in relation to all works other than the Project Works and the SSJ Contractor's Activities;

(lxvii) ~~(iv)~~ be responsible for SUS1 to SUS10 in relation to all works other than the Project Works and the SSJ Contractor's Activities; and

(lxviii) ~~(iv)~~ be responsible for CU1 except that the SSJ Contractor must provide the Principal with all information, documents, details and data relating to the SSJ Contractor's Activities that are required to enable the Principal to comply with this condition.

**SCHEDULE 33**

**Amendments to Schedule E4**

Schedule E4 is amended as set out in the attached mark-up.



## **SCHEDULE E4. – REQUIREMENTS OF THIRD PARTY AGREEMENTS**

(Clause 1.1 and 3.6)

### **1. NO LIMITATION ON CONTRACT**

Nothing in this Schedule E4 limits the Principal's rights or affects the SSJ Contractor's rights and obligations under any clause of this Contract.

### **2. GLOBAL SIA**

- (a) The SSJ Contractor:
- (i) acknowledges that the Principal has entered into the Global Safety Interface Agreement dated 28 June 2013 with Sydney Trains (**Global SIA**); and
  - (ii) must, in performing, the SSJ Contractor's Activities:
    - (A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the Global SIA as if it were named as the Principal in the Global SIA so as to ensure that the Principal is able to fully meet those obligations under the Global SIA or otherwise at law except to the extent that the table below:
      - (aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or
      - (bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and
    - (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 2(a)(ii)(A) of this Schedule E4;
  - (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below; and
  - (iv) may not exercise any of the Principal's discretions or rights under the Global SIA unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) Where the Global SIA provides that the Principal must ensure that the SSJ Contractor will do something or comply with an obligation the SSJ Contractor must, in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 2(a)(ii) as if it was stated to be an obligation of the Principal.
- (c) Where the Global SIA provides for the Principal to provide a document, notice or information to Sydney Trains, the SSJ Contractor:
- (i) must not provide any such document, notice or information directly to Sydney Trains; and
  - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to the Principal within sufficient time for the Principal to review and comment on the document,

notice or information and provide it to Sydney Trains within the time period required by the Global SIA.

- (d) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities:
  - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the Global SIA or other requirements of Sydney Trains;
  - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to Sydney Trains under the Global SIA or otherwise at law; and
  - (iii) otherwise act consistently with the terms of the Global SIA.
- (e) Whenever, pursuant to the terms of the Global SIA, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to Sydney Trains under any clause of the Global SIA then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the Global SIA in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.
- (f) The SSJ Contractor acknowledges that to the extent that the Global SIA contains a provision pursuant to which Sydney Trains is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the Global SIA were set out fully in this Contract.
- (g) Nothing in the Global SIA or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
- (h) The SSJ Contractor must indemnify the Principal from and against any claim by Sydney Trains or any Liability of the Principal to Sydney Trains arising out of or in any way in connection with the Global SIA to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities:
  - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and
  - (ii) except to the extent it is limited in this Schedule E4.
- (i) The SSJ Contractor:
  - (i) bears the full risk of:
    - (A) it complying with the obligations under this Schedule E4; and
    - (B) any acts or omissions of Sydney Trains or its employees, agents, contractors or officers; and
  - (ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 16) arising out of or in any way in connection with:
    - (A) the risks referred to in clause 2(i)(i) of this Schedule E4; or



Clause	Title	Extent of the Principal's responsibility for the clause specified
		cooperation reasonably requested by the Principal (and in the time requested by the Principal) in connection with an Issue under this clause.
6.2	Costs	The Principal's obligations under this clause are limited to the extent that they relate to the obligations retained by the Principal under this Schedule E4.

### 3. DRAFT SYDNEY TRAINS TRANSITION AGREEMENT

(a) The SSJ Contractor:

- (i) acknowledges that the Principal will enter into the following agreements with Rail Corporation New South Wales ~~and Sydney Trains~~ entitled "~~Sydney Metro City & Southwest Transition Agreement~~" ~~on the terms of the proposed draft "Scope of Works and Access Schedule for Sydenham Station and Junction Works"~~ (~~Sydney Trains Transition Agreement~~); and:

(A) Sydney Trains Transition Agreement; and

(B) the "Scope of Works and Access Schedule for Sydenham Station and Junction Works" in accordance with clause 23 of the Sydney Trains Transition Agreement (SSJ Scope of Works and Access Schedule)

(together being the Sydney Trains Transition Agreement) and acknowledges that the terms of the Sydney Trains Transition Agreement must be read so as to include the SSJ Scope of Works and Access Schedule in order to determine the obligations of the parties under the Sydney Trains Transition Agreement and the obligations of the SSJ Contractor under this Schedule E4; and

(ii) must, in performing, the SSJ Contractor's Activities:

- (A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the Sydney Trains Transition Agreement as if it were named as the Principal in the Sydney Trains Transition Agreement so as to ensure that the Principal is able to fully meet those obligations under the Sydney Trains Transition Agreement or otherwise at law except to the extent that the table below:

(aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or

(bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and

- (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 3(a)(ii)(A) of this Schedule E4;



- (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below; and
  - (iv) may not exercise any of the Principal's discretions or rights under the Sydney Trains Transition Agreement unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) Where the Sydney Trains Transition Agreement provides that the Principal must ensure that the SSJ Contractor will do something or comply with an obligation, the SSJ Contractor must, in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 3(a)(ii) as if it was stated to be an obligation of the Principal.
- (c) The SSJ Contractor acknowledges that the Sydney Trains Transition Agreement provides for works to be undertaken for and on behalf of TfNSW that do not form part of the SSJ Contractor's Activities and nothing in this clause 3 of this Schedule E4 imposes obligations on the SSJ Contractor in relation to any Construction Foundation Infrastructure Works Contract or TfNSW Contract other than the SSJ Contract (as those terms are defined in the Sydney Trains Transition Agreement).
- (d) Where the Sydney Trains Transition Agreement provides for the Principal to provide a document, notice or information to Sydney Trains, the SSJ Contractor:
  - (i) subject to clause 3(d)(iii) of this Schedule E4, must not provide any such document, notice or information directly to Sydney Trains;
  - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to Sydney Trains within the time period required by the Sydney Trains Transition Agreement; and
  - (iii) for the purposes of:
    - (A) clause 26.2(a) of the Sydney Trains Transition Agreement ; and
    - (B) clauses 10.4(c) and 10.11(d) of this Contract,must submit the documentation directly to Sydney Trains.
- (e) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities:
  - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the Sydney Trains Transition Agreement or other requirements of Sydney Trains;
  - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to Sydney Trains under the Sydney Trains Transition Agreement or otherwise at law; and
  - (iii) otherwise act consistently with the terms of the Sydney Trains Transition Agreement.
- (f) Whenever, pursuant to the terms of the Sydney Trains Transition Agreement, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to Sydney Trains under any clause of the Sydney Trains Transition Agreement then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release

or warranty, indemnity, or covenant made or given by the Principal under the Sydney Trains Transition Agreement in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.

- (g) The SSJ Contractor acknowledges that to the extent that the Sydney Trains Transition Agreement contains a provision pursuant to which Sydney Trains is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the Sydney Trains Transition Agreement were set out fully in this Contract.
- (h) Nothing in the Sydney Trains Transition Agreement or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
- (i) The SSJ Contractor must indemnify the Principal from and against any claim by Sydney Trains against the Principal or any Liability of the Principal to Sydney Trains arising out of or in any way in connection with the Sydney Trains Transition Agreement to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities:
  - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and
  - (ii) except to the extent it is limited in this Schedule E4.
- (j) The SSJ Contractor:
  - (i) bears the full risk of:
    - (A) it complying with the obligations under this Schedule E4; and
    - (B) any acts or omissions of Sydney Trains or its employees, agents, contractors or officers; and
  - (ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 16) arising out of or in any way in connection with:
    - (A) the risks referred to in clause 3(j)(i) of this Schedule E4; or
    - (B) any acts or omissions of Sydney Trains or its employees, agents, contractors or officers.
- (k) Terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the Sydney Trains Transition Agreement.

**Draft Sydney Trains Transition Agreement**

Clause	Title	Extent of the Principal's responsibility for the clause specified
2	Associated Agreements	All
5.1(b) <del>5.1(d)</del>	Accreditation	All

Clause	Title	Extent of the Principal's responsibility for the clause specified
6.1	Independent Selection Certifier	All
6.2(a)	Independent Appointment Certifier	All
6.2(b)	Independent Appointment Certifier	All
7.1(d) 7.1(e) 7.1(f)	Track Possessions	All
7.2(e)	Temporary Shutdowns	All
7.3	General requirements for Track Possessions other than Temporary Shutdowns	All
8.1	Grant of Construction Leases	The Principal's obligations <del>under this clause</del> are limited to <del>compliance</del> <u>accepting the grant, and complying</u> with the terms of construction leases granted in relation to <u>any</u> Metro Lease Areas <del>for any TfNSW Contract other than those specified in Annexure B of</del> <u>(as that term is defined in the Sydney Trains Transition Agreement)</u> to the extent specified in the SSJ <u>Scope of Works and Access</u> Schedule <del>2</del> <u>table set out below.</u>
10.4(c)	Representative on-call	All
11	Information to be provided by Sydney Trains	All
17	Insurance	The Principal's obligations under this clause are limited to effecting the insurances required to be effected under clause 18.3 of this deed and providing the proof of <u>such</u> insurances required under subclause (c) of this clause..
18	Dispute Resolution	Without limiting clause <del>79</del> of this Schedule E4, the Principal will be responsible for complying with all of the obligations under this clause, except to the extent that the SSJ Contractor must provide all documents, assistance and cooperation reasonably requested by the

Clause	Title	Extent of the Principal's responsibility for the clause specified
		Principal (and in the time requested by the Principal) in connection with a dispute under this clause.
20	Transport Restructures	All
23.1	Application of Agreement to Construction Infrastructure Works	All
23.2	Scope of Works and Access Schedule	All
25.2	Approvals	The Principal's obligations under this clause are limited to obtaining the Planning Approval.
26.3(d)	Process for review and comment	The Principal retains responsibility for the obligations under this clause except to the extent the SSJ Contractor is directed to amend the relevant Design Documentation in accordance with a comment made by Sydney Trains in accordance with clause 26.3(b) as a Change.
26.3(e)	Process for review and comment	All
26.4(g)	Review of Relevant Design Documents for the final Review Stage	The Principal will be responsible for the obligations under this clause, except that the SSJ Contractor must provide any information and advice the Principal requires to enable the Principal to fulfil its obligation under this clause.
27	Initial Condition Reports and Dilapidation Surveys	<p>The Principal's obligations under this clause are limited to:</p> <ul style="list-style-type: none"> <li>(a) appointing the Condition Consultant;</li> <li>(b) providing instructions to the Condition Consultant; and</li> </ul> <p>The SSJ Contractor must comply with all other obligations of the Principal under clause 27 of the Sydney Trains Transition Agreement (including payment of the Condition Consultant's costs) in accordance with the terms of this Schedule E4.</p>
<del>37, 38,</del>	<del>OpCo2 CSW Works and</del>	



Clause	Title	Extent of the Principal's responsibility for the clause specified
<del>39, 40, 41, 42, 43, 44 and 45.</del>	<del>Operations Annexure B Schedule 2 clauses 3, 8, 9, 10, 11.</del>	All

**SSJ Scope of Works and Access Schedule**

<u>Clause</u>	<u>Title</u>	<u>Extent of the Principal's responsibility for the clause specified</u>
<u>Annexure B</u> <u>Clause 3</u>	<u>Rent</u>	All
<u>Annexure B</u> <u>Clause 8</u>	<u>Acquisition of Metro Lease Area by TfNSW</u>	All
<u>Annexure B</u> <u>Clause 9</u>	<u>Default and Termination</u>	All

**4. DRAFT SYDNEY WATER INTERFACE AGREEMENT DEED**

(a) The SSJ Contractor:

(i) acknowledges that the Principal ~~will enter~~has entered into ~~an agreement a~~ deed with Sydney Water Corporation (**Sydney Water**) on the terms of the ~~proposed draft~~ "Sydney Metro Program SWC Interface ~~Agreement Deed~~" (**Sydney Water Interface Agreement Deed**); and

(ii) must, in performing, the SSJ Contractor's Activities:

(A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the Sydney Water Interface ~~Agreement Deed~~ as if it were named as the Principal in the Sydney Water Interface ~~Agreement Deed~~ so as to ensure that the Principal is able to fully meet those obligations under the Sydney Water Interface ~~Agreement Deed~~ or otherwise at law except to the extent that the table below:

(aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or

(bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and

- (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 4(a)(ii)(A) of this Schedule E4;
  - (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below; and
  - (iv) may not exercise any of the Principal's discretions or rights under the Sydney Water Interface [AgreementDeed](#) unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) The SSJ Contractor acknowledges that the Sydney Water Interface [AgreementDeed](#) provides for works to be undertaken for and on behalf of TfNSW that do not form part of the SSJ Contractor's Activities and nothing in this clause 4 imposes obligations on the SSJ Contractor in relation to:
- (i) the works forming part of the TSE Package, ~~the TSE Package or any Further Sydney Metro Works~~ or any Future Project the subject of Design and Construction Requirements (as those terms are defined in the Sydney Water Interface [AgreementDeed](#)) added in accordance with clause ~~2.4~~[2.5\(c\)\(iii\)\(B\)](#) of the Sydney Water Interface [AgreementDeed](#);
  - (ii) any Construction Area or Operations and Maintenance Requirements (as those terms are defined in the Sydney Water Interface [AgreementDeed](#)) relevant to the TSE Package, ~~the TSE Package~~ or added in accordance with ~~clauses 2.4(e)(ii) and 2.4~~[clause 2.5\(c\)\(iii\)\(C\)](#) of the Sydney Water Interface [AgreementDeed](#).
- (c) Where the Sydney Water Interface [AgreementDeed](#) provides that the Principal must ensure that the SSJ Contractor will do something or comply with an obligation, the SSJ Contractor must in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 4(a)(ii) as if it was stated to be an obligation of the Principal.
- (d) Where the Sydney Water Interface [AgreementDeed](#) provides for the Principal to provide a document, notice or information to Sydney Water, the SSJ Contractor:
- (i) subject to clause 3(d)(iii), must not provide any such document, notice or information directly to Sydney Water;
  - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to the Principal within sufficient time for the Principal to review and comment on the document, notice or information and provide it to Sydney Water within the time period required by the Sydney Water Interface [AgreementDeed](#); and
  - (iii) for the purposes of:
    - (A) clause ~~19.2~~[17.1](#) of the Sydney Water Interface [AgreementDeed](#); and
    - (B) clauses 11.4(c) and 11.11(d) of this Contract,must submit the documentation directly to Sydney Water.

- (e) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities:
  - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the Sydney Water Interface [AgreementDeed](#) or other requirements of Sydney Water;
  - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to Sydney Water under the Sydney Water Interface [AgreementDeed](#) or otherwise at law; and
  - (iii) otherwise act consistently with the terms of the Sydney Water Interface [AgreementDeed](#).
- (f) Whenever, pursuant to the terms of the Sydney Water Interface [AgreementDeed](#), the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to Sydney Water under any clause of the Sydney Water Interface [AgreementDeed](#) then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the Sydney Water Interface [AgreementDeed](#) in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.
- (g) The SSJ Contractor acknowledges that to the extent that the Sydney Water Interface [AgreementDeed](#) contains a provision pursuant to which Sydney Water is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the Sydney Water Interface [AgreementDeed](#) were set out fully in this Contract.
- (h) Nothing in the Sydney Water Interface [AgreementDeed](#) or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
- (i) The SSJ Contractor must indemnify the Principal from and against any claim by Sydney Water against the Principal or any Liability of the Principal to Sydney Water arising out of or in any way in connection with the Sydney Water Interface [AgreementDeed](#) to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities:
  - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and

- (ii) except to the extent it is limited in this Schedule E4.
- (j) The SSJ Contractor:
- (i) bears the full risk of:
- (A) it complying with the obligations under this Schedule E4; and
- (B) any acts or omissions of Sydney Water or its employees, agents, contractors or officers; and
- (ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 16) arising out of or in any way in connection with:
- (A) the risks referred to in clause 4(j)(i) of this Schedule E4; or
- (B) any acts or omissions of Sydney Water or its employees, agents, contractors or officers.
- (k) Terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the Sydney Water Interface Agreement ~~Deed~~.

**Draft Sydney Water Interface Agreement ~~Deed~~**

1.7	Review of Operating Licence	All
1.8	<del>Periodic</del> <u>Term and periodic</u> Review of this deed	The Principal will be responsible for the obligation in this clause, except that the SSJ Contractor must provide any information and advice the Principal requires to enable the Principal to fulfil its obligation under this clause.
<del>1.9(e)</del> 2.2	Betterment	The Principal will be responsible for the obligations in this clause, except to the extent that the SSJ Contractor is directed to carry out any additional works as a Change.
2.3	Subcontracting	All, except to the extent that the TfNSW Contractor is the SSJ Contractor.
2.5	<del>Further Sydney Metro</del> <u>Adjustment</u> Works and Future Projects	All
3.1	<u>Land Adjustment</u>	All
5	Disputes	Without limiting clause <del>79</del> of this Schedule E4, the Principal will be responsible for complying with all of the obligations under this clause, except to the extent that the SSJ Contractor must provide all documents, assistance and cooperation reasonably requested by the Principal (and in the time requested by the Principal) in connection with a dispute under



		this clause.
6	Remedy Notices	The Principal will be responsible for the obligations in this clause, except that the SSJ Contractor must provide any information and advice the Principal requires to enable the Principal to fulfil its obligations under this clause.
7.1	Notification ( <del>Force</del> <u>Maieure Event</u> )	The Principal will be responsible for the obligations in this clause, except that the SSJ Contractor must provide any information and advice the Principal requires to enable the Principal to fulfil its obligations under this clause.
8.1(a)( <del>xii</del> <u>xi</u> )	Payments	All
<u>8.1(a)(xv)</u>	<u>Payments</u>	<u>All</u>
10.2	Assignment	All
<del>12.6</del> <u>12.4</u>	Insurance	The Principal's obligations under this clause are limited to effecting the insurances required to be effected under clause 18.3 of this Contract and providing the proof of insurances required under subclause (c) of this clause),.
<u>20.1(d)</u>	<u>Access by SWC to th</u> <u>SWC Assets during</u> <u>Design and</u> <u>Construction</u>	<u>All.</u>
22.2	TfNSW Representative	All.
22.3	Representatives to meet	All, except that a representative of the SSJ Contractor must attend a meeting of the Project Control Group if invited under clause 22.3(a)(ii) to participate in discussions.
<del>29</del> <u>30</u>	SWC Future Works	The Principal will be responsible for the obligation in this clause, except that the SSJ Contractor must provide any information and advice the Principal requires to enable the Principal to fulfil its obligation under this clause.
<u>31</u>	<u>Access to Sydney</u> <u>Metro corridor</u>	<u>All.</u>
<del>31</del> <u>32</u>	Project representatives and coordination protocol	All

**5. TRANSGRID INTERFACE AGREEMENT**

- (a) The SSJ Contractor:
  - (i) acknowledges that the Principal has entered into an agreement with NSW Electricity Networks Operations Pty Ltd ACN 609 169 959 as trustee for the NSW Electricity Networks Operations Trust on the terms of the "Sydney Metro City & Southwest TransGrid Interface Agreement" (**TransGrid Interface Agreement**); and
  - (ii) must, in performing, the SSJ Contractor's Activities:

- (A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the TransGrid Interface Agreement as if it were named as the Principal in the TransGrid Interface Agreement so as to ensure that the Principal is able to fully meet those obligations under the TransGrid Interface Agreement or otherwise at law except to the extent that the table below:
    - (aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or
    - (bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and
  - (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 5(a)(ii)(A) of this Schedule E4;
  - (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below; and
  - (iv) may not exercise any of the Principal's discretions or rights under the TransGrid Interface Agreement unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) The SSJ Contractor acknowledges that the TransGrid Interface Agreement provides for works to be undertaken for and on behalf of TfNSW that do not form part of the SSJ Contractor's Activities and nothing in this clause 5 of this Schedule E4 imposes obligations on the SSJ Contractor in relation to:
- (i) the works described or shown in Annexure C or any further Annexure added in accordance with clause 4.2(c)(i) of the TransGrid Interface Agreement;
  - (ii) the design shown in Annexure A or any further Annexure added in accordance with clause 4.2(c)(ii) of the TransGrid Interface Agreement; or
  - (iii) new TransGrid Assets (as that term is defined in the TransGrid Interface Agreement) added in accordance with clause 4.2(c)(iii) of the TransGrid Interface Agreement.
- (c) Where the TransGrid Interface Agreement provides that the Principal must ensure that the TfNSW Contractor will do something or comply with an obligation the SSJ Contractor must, in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 5(a)(ii) of this Schedule D4 as if it was stated to be an obligation of the Principal.
- (d) Where the TransGrid Interface Agreement provides for the Principal to provide a document, notice or information to TransGrid, the SSJ Contractor:
- (i) subject to clause 5(d)(iii) of this Schedule E4, must not provide any such document, notice or information directly to TransGrid;
  - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to TransGrid within the time period required by the TransGrid Interface Agreement; and
  - (iii) for the purposes of:

- (A) clause 5.3(a) and 6.1(a) of the TransGrid Interface Agreement; and
  - (B) clauses 11.4(c) and 11.11(d) of this Contract,
- must submit the documentation directly to TransGrid with a copy to the Principal.
- (e) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities:
    - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the TransGrid Interface Agreement or other requirements of TransGrid;
    - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to TransGrid under the TransGrid Interface Agreement or otherwise at law; and
    - (iii) otherwise act consistently with the terms of the TransGrid Interface Agreement.
  - (f) Whenever, pursuant to the terms of the TransGrid Interface Agreement, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to TransGrid under any clause of the TransGrid Interface Agreement then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the TransGrid Interface Agreement in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.
  - (g) The SSJ Contractor acknowledges that to the extent that the TransGrid Interface Agreement contains a provision pursuant to which TransGrid is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the TransGrid Interface Agreement were set out fully in this Contract.
  - (h) Nothing in the TransGrid Interface Agreement or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
  - (i) The SSJ Contractor must indemnify the Principal from and against any claim by TransGrid against the Principal or any Liability of the Principal to TransGrid arising out of or in any way in connection with the TransGrid Interface Agreement to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities:
    - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and
    - (ii) except to the extent it is limited in this Schedule E4.
  - (j) The SSJ Contractor:
    - (i) bears the full risk of:
      - (A) it complying with the obligations under this Schedule E4; and

- (B) any acts or omissions of TransGrid or its employees, agents, contractors or officers; and
- (ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 16) arising out of or in any way in connection with:



- (A) the risks referred to in clause 5(j)(i) of this Schedule E4; or
  - (B) any acts or omissions of TransGrid or its employees, agents, contractors or officers.
- (k) Terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the TransGrid Interface Agreement.

**TransGrid Interface Agreement**

Clause	Title	Extent of the Principal's responsibility for the clause specified
3.2	Project Control Group	All, except that:  (a) the SSJ Contractor must provide all documents, assistance and cooperation reasonably requested by the Principal (and in the time requested by the Principal) to enable the Principal to fulfil its obligations under this clause; and  (b) a representative of the SSJ Contractor must attend a meeting of the Project Control Group if invited under clause 3.2(b)(iii) .
4.2	Further Sydney Metro Works	All
5.2(a)	Concept Design	All
7.6	Variations	The Principal will be responsible for the obligations in this clause, except that the SSJ Contractor must provide any information and advice the Principal requires to enable the Principal to fulfil its obligations under this clause.
9.4	Routine Maintenance	All
9.6	Non-Routine Maintenance and fault rectification	All
9.7	TfNSW required maintenance	All
14	TransGrid access after practical completion	All
15	Dispute Resolution	Without limiting clause 79 of this Schedule E4, the Principal will be responsible for complying with all of the obligations under this clause, except to the extent that the SSJ Contractor must provide all documents,

Clause	Title	Extent of the Principal's responsibility for the clause specified
		assistance and cooperation reasonably requested by the Principal (and in the time requested by the Principal). The Principal must keep the SSJ Contractor informed of the progress and resolution of such disputes.
17	TfNSW Restructure	All
18	TransGrid Assignment	All
19.7	Further acts and documents	The Principal's obligations under this clause are limited to the extent that they relate to the obligations retained by the Principal under this Schedule E4.

## 6. DRAFT WORKS AUTHORISATION DEED

- (a) The SSJ Contractor:
- (i) acknowledges that the Principal will enter into the Works Authorisation Deed on the terms of the proposed draft (**SSJ WAD**) with Roads and Maritime Services (**RMS**); and
  - (ii) must, in performing, the SSJ Contractor's Activities:
    - (A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the SSJ WAD as if it were named as the Principal in the SSJ WAD so as to ensure that the Principal is able to fully meet those obligations under the SSJ WAD or otherwise at law except to the extent that the table below:
      - (aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or
      - (bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and
    - (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 6(a)(ii)(A) of this Schedule E4;
  - (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below;
  - (iv) may not exercise any of the Principal's discretions or rights under the SSJ WAD unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) Where the SSJ WAD provides that the Principal must ensure that the SSJ Contractor will do something or comply with an obligation the SSJ Contractor must,

- in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 6(a)(ii) as if it was stated to be an obligation of the Principal.
- (c) Where the SSJ WAD provides for the Principal to provide a document, notice or information to RMS, the SSJ Contractor:
    - (i) must not provide any such document, notice or information directly to RMS; and
    - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to the Principal within sufficient time for the Principal to review and comment on the document, notice or information and provide it to RMS within the time period required by the SSJ WAD.
  - (d) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities:
    - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the SSJ WAD or other requirements of RMS;
    - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to RMS under the SSJ WAD or otherwise at law; and
    - (iii) otherwise act consistently with the terms of the SSJ WAD.
  - (e) Whenever, pursuant to the terms of the SSJ WAD, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to RMS under any clause of the SSJ WAD then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the SSJ WAD in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.
  - (f) The SSJ Contractor acknowledges that to the extent that the SSJ WAD contains a provision pursuant to which RMS is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the SSJ WAD were set out fully in this Contract.
  - (g) Nothing in the SSJ WAD or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
  - (h) The SSJ Contractor must indemnify the Principal from and against any claim by RMS or any Liability of the Principal to RMS arising out of or in any way in connection with the SSJ WAD to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities:
    - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and
    - (ii) except to the extent it is limited in this Schedule E4.
  - (i) The SSJ Contractor:

- (i) bears the full risk of:
  - (A) it complying with the obligations under this Schedule E4; and
  - (B) any acts or omissions of RMS or its employees, agents, contractors or officers; and
- (ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than any Claim for payment under clause 16 of this Contract) arising out of or in any way in connection with:
  - (A) the risks referred to in clause 6(i)(i) of this Schedule E4; or
  - (B) any acts or omissions of RMS or its employees, agents, contractors or officers.

**Draft SSJ Works Authorisation Deed**

Clause	Title	Extent of the Principal's responsibility for the clause specified
3	Planning Approval	All
4.2	TfNSW may delete Works	All
4.3	TfNSW may add, delete and amend Works	The Principal will be responsible for the obligation in clause 4.3, except that the SSJ Contractor must provide any information the Principal requires for provision to RMS in accordance with clause 4.3(b).
5.1	Independent Certifier Selection	All
5.2 (a) (b) (c) (e)	Independent Certifier Appointment	All.
6.2(a)	Statutory Approvals	The Principal's obligations under this clause are limited to obtaining and maintaining the Planning Approval and complying with it to the extent it relates to the use of the Works.
6.4(c)	Compliance with Rail Safety Law	The Principal will enter into an interface agreement under this clause but the SSJ Contractor must comply with the requirements of any such interface agreement.
7.1	General	The Principal is responsible for financing the Works.

10.2(a)(ii)	General obligations of TfNSW in relation to design	All.
11.7(c)	Certification of Design Documents in Design Stage 3	Without limiting clause 79 of this Schedule E4, the Principal will be responsible for the obligations under this clause.
12.3(a)	Prior to Construction	The Principal's obligations under this clause are limited to obtaining, and providing evidence of currency of, those insurances that it is required to effect in accordance with clause 18.3 of this deed.
12.3(b)	Prior to Construction	The Principal's obligations under this clause are limited to obtaining the Planning Approval.
12.4(e)	Appointment of the SSJ Contractor	The Principal's obligations under this clause are limited to obtaining, and providing evidence of currency of, those insurances that it is required to effect in accordance with clause 18.3 of this deed.
14.3(b)	Completion of Project Works	All
15.11	Dedication of Land	All
16.3(d)	Final Certificate	The Principal is liable for amounts payable to RMS which are directly referable to the Principal's retained obligations.
18.3	Alteration of Works	All
24	Insurances	The Principal's obligations under this clause are limited to effecting and providing evidence of currency of the insurances required to be effected under clause 18.3 of this deed.
25.2	TfNSW liable to pay additional costs	The Principal is liable for amounts payable to RMS which are directly referable to the Principal's retained obligations.
26	Releases and Indemnities	The Principal proposes to retain obligations in respect of Use of The Works from the [last portion handover date] excluding to the extent arising out of the design, construction, or maintenance of the Works by or on behalf of the Contractor.
27	Dispute Resolution	Without limiting clause 79 of this Schedule E4, the Principal will be responsible for



		complying with all of the obligations under this clause, except to the extent that the SSJ Contractor must provide all documents, assistance and cooperation reasonably requested by the Principal (and in the time requested by the Principal) in connection with a dispute under this clause. The Principal must keep the SSJ Contractor informed of the progress and resolution of such disputes.
28	Assignment	All
33.4	Payments	The Principal is liable for amounts payable to RMS which are directly referable to the Principal's retained obligations.
34.3	GST Invoices	All

**7. SW1 & SW2 Construction Licence**

- (a) The SSJ Contractor:
- (i) acknowledges that the Principal has entered into an agreement with Sydney Water Corporation (**Sydney Water**) on the terms of the "SW1 & SW2 Construction Licence" (**SW1 & SW2 Construction Licence**); and
  - (ii) must, in performing, the SSJ Contractor's Activities:
    - (A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the SW1 & SW2 Construction Licence as if it were named as the Principal in the SW1 & SW2 Construction Licence so as to ensure that the Principal is able to fully meet those obligations under the SW1 & SW2 Construction Licence or otherwise at law except to the extent that the table below:
      - (aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or
      - (bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and
    - (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 7(a)(ii)(A) of this Schedule E4;
  - (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below; and
  - (iv) may not exercise any of the Principal's discretions or rights under the SW1 Construction Licence unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) Where the SW1 & SW2 Construction Licence provides that the Principal must ensure that the TfNSW Contractor will do something or comply with an obligation the SSJ Contractor must, in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 7(a)(ii) of this Schedule E4 as if it was stated to be an obligation of the Principal.
- (c) Where the SW1 & SW2 Construction Licence provides for the Principal to provide a document, notice or information to Sydney Water, the SSJ Contractor:
- (i) subject to clause 7c(ii) of this Schedule E4, must not provide any such document, notice or information directly to Sydney Water;
  - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to Sydney Water within the time period required by the SW1 & SW2 Construction Licence; and  
for the purposes of clauses 11.4(c) and 11.11(d) of this Contract, must submit the documentation directly to Sydney Water with a copy to the Principal.



- (d) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities:
  - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the SW1 & SW2 Construction Licence or other requirements of Sydney Water;
  - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to Sydney Water the SW1 & SW2 Construction Licence or otherwise at law; and
  - (iii) otherwise act consistently with the terms of the SW1 & SW2 Construction Licence.
- (e) Whenever, pursuant to the terms of the SW1 & SW2 Construction Licence, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to Sydney Water under any clause of the SW1 & SW2 Construction Licence then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the SW1 & SW2 Construction Licence in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.
- (f) The SSJ Contractor acknowledges that to the extent that the SW1 & SW2 Construction Licence contains a provision pursuant to which Sydney Water is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the SW1 & SW2 Construction Licence were set out fully in this Contract.
- (g) Nothing in the SW1 & SW2 Construction Licence or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
- (h) The SSJ Contractor must indemnify the Principal from and against any claim by Sydney Water against the Principal or any Liability of the Principal to Sydney Water arising out of or in any way in connection with the SW1 & SW2 Construction Licence to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities:
  - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and
  - (ii) except to the extent it is limited in this Schedule E4.
- (i) The SSJ Contractor:
  - (i) bears the full risk of:
    - (A) it complying with the obligations under this Schedule E4; and
    - (B) any acts or omissions of Sydney Water or its employees, agents, contractors or officers; and
  - (ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 15) arising out of or in any way in connection with:



- (A) the risks referred to in clause 7(i)(i) of this Schedule E4; or
- (B) any acts or omissions of Sydney Water or its employees, agents, contractors or officers.

(j) Terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the SW1 & SW2 Construction Licence.

**SW1 & SW2 Construction Licence**

<u>Clause</u>	<u>Title</u>	<u>Extent of the Principal's responsibility for the clause specified</u>
<u>3</u>	<u>Licence Fee</u>	<u>All</u>
<u>4.4(a)(ii) and 4.4(b)(iv)</u>	<u>Rock Anchors</u>	<u>All</u>
<u>4.4(a)</u>	<u>Rock Anchors</u>	<u>The Principal's obligations under this clause are limited to the extent that the updated information relates to clause 4.4(b)(iv).</u>
<u>7.6</u>	<u>Indemnity and release</u>	<u>Principal's obligations under this clause are limited to damage, expense, loss or liability which are directly referable to the Principal's retained obligations.</u>
<u>8</u>	<u>Representatives</u>	<u>All</u>
<u>9.3</u>	<u>Required Insurance</u>	<u>The Principal's obligations under this clause are limited to effecting the insurances required to be effected under clause 18.3 of this Contract and providing the proof of insurances required under subclause (c) of this clause.</u>
<u>10</u>	<u>Acquisition of part of Land by TfNSW</u>	<u>All</u>
<u>11</u>	<u>Holding over</u>	<u>All</u>
<u>13</u>	<u>Disputes</u>	<u>Without limiting clause 9 of this Schedule E4, the Principal will be responsible for complying with all of the obligations under this clause, except to the extent that the SSJ Contractor must provide all documents, assistance and cooperation reasonably requested by the Principal (and in the time requested by the Principal) in connection with a dispute under this clause. The Principal must keep the SSJ Contractor informed of the progress and resolution of such disputes.</u>
<u>14.8</u>	<u>Further Acts and documents</u>	<u>All</u>

<u>Clause</u>	<u>Title</u>	<u>Extent of the Principal's responsibility for the clause specified</u>
<u>14.10</u>	<u>Assignment and Subletting</u>	<u>All</u>
<u>14.14(b) and 14.14(d)(i)</u>	<u>Expenses</u>	<u>All</u>

**8. Draft SW3 & 4 Construction Licence**

- (a) The SSJ Contractor:
- (i) acknowledges that the Principal will enter into an agreement with Sydney Water Corporation (**Sydney Water**) on the terms of the draft construction licence set out in Schedule 10 to the Sydney Water Interface Deed (**SW3 & SW4 Construction Licence**); and
  - (ii) must, in performing, the SSJ Contractor's Activities:
    - (A) unless otherwise directed by the Principal, comply with, satisfy, carry out and fulfil all of the obligations, conditions and requirements of the SW3 & SW4 Construction Licence as if it were named as the Principal in the SW3 & SW4 Construction Licence so as to ensure that the Principal is able to fully meet those obligations under the SW3 & SW4 Construction Licence or otherwise at law except to the extent that the table below:
      - (aa) provides that the Principal will comply with, satisfy, carry out and fulfil the obligation, condition or requirement; or
      - (bb) limits the SSJ Contractor's obligation in respect of that obligation, condition or requirement; and
    - (B) comply with and fulfil any conditions, obligations or requirements allocated to the SSJ Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 7(a)(ii)(A) of this Schedule E4;
  - (iii) must assist the Principal, in any way that the Principal reasonably requires to enable the Principal to perform the obligations identified for the Principal to perform in the table below; and
  - (iv) may not exercise any of the Principal's discretions or rights under the SW3 & SW4 Construction Licence unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).
- (b) Where the SW3 & SW4 Construction Licence provides that the Principal must ensure that the TfNSW Contractor will do something or comply with an obligation, the SSJ Contractor must, in performing the SSJ Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 7(a)(ii) of this Schedule E4 as if it was stated to be an obligation of the Principal.
- (c) Where the SW2 Construction Licence provides for the Principal to provide a document, notice or information to Sydney Water, the SSJ Contractor:
- (i) subject to clause 8(c)(ii) of this Schedule E4, must not provide any such document, notice or information directly to Sydney Water;
  - (ii) must provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review and comment on the document, notice or information and provide it to Sydney Water within the time period required by the SW3 & SW4 Construction Licence; and



for the purposes of clauses 11.4(c) and 11.11(d) of this Contract, must submit the documentation directly to Sydney Water with a copy to the Principal.

- (d) The SSJ Contractor must, in carrying out the SSJ Contractor's Activities;
  - (i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of the SW3 & SW4 Construction Licence or other requirements of Sydney Water;
  - (ii) ensure that no act or omission of the SSJ Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to Sydney Water the SW3 & SW4 Construction Licence or otherwise at law; and
  - (iii) otherwise act consistently with the terms of the SW3 & SW4 Construction Licence.
- (e) Whenever, pursuant to the terms of the SW3 & SW4 Construction Licence, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to Sydney Water under any clause of the SW3 & SW4 Construction Licence then, subject to what is provided in this Schedule E4 and the other terms of this Contract, the SSJ Contractor is deemed to make the same acknowledgement or give the same release or warranty, indemnity, or covenant to the Principal on the same terms and conditions as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the SW3 & SW4 Construction Licence in the same way as if the relevant terms of the acknowledgement, release or warranty, indemnity or covenant were set out in full in this Contract.
- (f) The SSJ Contractor acknowledges that to the extent that the SW3 & SW4 Construction Licence contains a provision pursuant to which Sydney Water is stated to make no representation as to a state of affairs, the SSJ Contractor agrees that the Principal similarly makes no representation to the SSJ Contractor in respect of that state of affairs in the same way as if the relevant terms of the SW3 & SW4 Construction Licence were set out fully in this Contract.
- (g) Nothing in the SW3 & SW4 Construction Licence or this Schedule E4 limits the Principal's rights or the SSJ Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.
- (h) The SSJ Contractor must indemnify the Principal from and against any claim by Sydney Water against the Principal or any Liability of the Principal to Sydney Water arising out of or in any way in connection with the SW3 & SW4 Construction Licence to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the SSJ Contractor's Activities;
  - (i) provided that the SSJ Contractor's responsibility to indemnify the Principal will be reduced to the extent that a negligent act or omission of the Principal or an agent of the Principal contributed to the Liability or claim; and
  - (ii) except to the extent it is limited in this Schedule E4.
- (i) The SSJ Contractor;
  - (i) bears the full risk of;
    - (A) it complying with the obligations under this Schedule E4; and
    - (B) any acts or omissions of Sydney Water or its employees, agents, contractors or officers; and

(ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 16) arising out of or in any way in connection with:

- (A) the risks referred to in clause 7(i)(i) of this Schedule E4; or
- (B) any acts or omissions of Sydney Water or its employees, agents, contractors or officers.

(j) Terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the SW3 & SW4 Construction Licence.

**Draft SW3 & SW4 Construction Licence**

<u>Clause</u>	<u>Title</u>	<u>Extent of the Principal's responsibility for the clause specified</u>
<u>3</u>	<u>Licence Fee</u>	<u>All</u>
<u>4.4(a)(ii) and 4.4(b)(iv)</u>	<u>Rock Anchors</u>	<u>All</u>
<u>4.4(g)</u>	<u>Rock Anchors</u>	<u>The Principal's obligations under this clause are limited to the extent that the updated information relates to clause 4.4(b)(iv).</u>
<u>7.6</u>	<u>Indemnity and release</u>	<u>Principal's obligations under this clause are limited to damage, expense, loss or liability which are directly referable to the Principal's retained obligations.</u>
<u>8</u>	<u>Representatives</u>	<u>All</u>
<u>9.3</u>	<u>Required Insurance</u>	<u>The Principal's obligations under this clause are limited to effecting the insurances required to be effected under clause 18.3 of this Contract and providing the proof of insurances required under subclause (c) of this clause).</u>
<u>10</u>	<u>Acquisition of part of Land by TfNSW</u>	<u>All</u>
<u>11</u>	<u>Holding over</u>	<u>All</u>
<u>13</u>	<u>Disputes</u>	<u>Without limiting clause 9 of this Schedule E4, the Principal will be responsible for complying with all of the obligations under this clause, except to the extent that the SSJ Contractor must provide all documents, assistance and cooperation reasonably requested by the Principal (and in the time requested by the Principal) in connection with a dispute under this clause. The Principal must keep the SSJ Contractor informed of the progress and resolution of such disputes.</u>
<u>14.8</u>	<u>Further Acts and documents</u>	<u>All</u>

<u>Clause</u>	<u>Title</u>	<u>Extent of the Principal's responsibility for the clause specified</u>
<u>14.10</u>	<u>Assignment and Subletting</u>	<u>All</u>
<u>14.14(b) and 14.14(d)(i)</u>	<u>Expenses</u>	<u>All</u>



**9. ~~7.~~ COMMON DISPUTES**

- (a) In this clause ~~7~~9 of Schedule E4:

**Third Party** means a party to a Third Party Agreement other than the Principal.

**Common Dispute** means a dispute described in clause ~~7~~9(b) of this Schedule E4.

- (b) A Dispute under this Contract may be concerned with matters that also arise in respect of the respective rights and obligations of the Principal and a Third Party to one of the Third Party Agreements referred to in this Schedule E4 including where the:

- (i) Principal is in breach of a provision of this Contract to the extent such a breach is caused by a Third Party under its respective Third Party Agreement;
- (ii) Principal is entitled to obtain remedies or benefits under that Third Party Agreement which are similar to remedies or benefits claimed by the SSJ Contractor in a Claim by the SSJ Contractor under this deed;
- (iii) SSJ Contractor has rights against the Principal under this Contract, including under a warranty or indemnity or specific right of reimbursement or recovery in this Contract, and the Principal has similar rights against the Third Party under a Third Party Agreement including under a corresponding warranty or indemnity or specific right of reimbursement or recovery in the Third Party Agreement; or
- (iv) SSJ Contractor has a Claim against the Principal and the Principal has a Claim against a Third Party based on the same or similar events or circumstances.

- (c) In the event that there is a Common Dispute, the Principal may, in its absolute discretion:

- (i) determine that the Common Dispute be resolved in accordance with the provisions of this clause ~~7~~9 of Schedule E4; and
- (ii) notify the SSJ Contractor in writing of its decision within 20 Business Days of the Common Dispute arising,

in which case clauses ~~7~~9 (d) to ~~7~~9(k) of this Schedule E4 will then apply in respect of that Common Dispute.

- (d) In the event that there is a Common Dispute, then:

- (i) clauses 21.1 to 21.14 will not apply to the resolution of the Common Dispute that is the subject of the Principal's notice; and
- (ii) the SSJ Contractor acknowledges and agrees that the purpose of this clause 7 of Schedule E4 is:



- (A) to provide the SSJ Contractor with comparable remedies and entitlements in respect of Common Disputes, and to limit the SSJ Contractor's rights against the Principal in respect of Common Disputes by reference to the Principal's rights and entitlements under or in connection with Third Party Agreements; and
  - (B) not to reduce or disentitle or otherwise affect the validity of any Claim by the Principal against a Third Party under, arising out of, or in any way in connection with the relevant Third Party Agreement.
- (e) In respect of all Common Disputes:
- (i) the SSJ Contractor's entitlement to receive compensation from the Principal, and the Principal's liability to pay compensation to the SSJ Contractor, will only arise at the time the relevant Common Dispute is resolved or determined;
  - (ii) if any compensation is payable by the Principal to the SSJ Contractor under this Contract in respect of a Common Dispute, the SSJ Contractor will have the same entitlement to recover compensation under this Contract as the Principal has to recover that compensation from a Third Party under the relevant Third Party Agreement in respect of the subject matter of the Common Dispute;
  - (iii) any rights the SSJ Contractor has against the Principal will not exceed the equivalent rights to which the Principal is entitled under the relevant Third Party Agreement; and
  - (iv) the Principal will pass through to the SSJ Contractor the proportion of any compensation (including damages or other form or relief) to which the Principal is entitled under the relevant Third Party Agreement in respect of the subject matter of the Common Dispute:
    - (A) to the extent that this is referable to the SSJ Contractor, including any liability, Claim or loss of the SSJ Contractor; and
    - (B) determined by reference to what is actually compensated or allowed by a Third Party under the relevant Third Party Agreement.
- (f) The Principal agrees to:
- (i) request that the relevant Third Party permit the SSJ Contractor to directly make representations in respect of the Common Dispute;
  - (ii) if it is unable to obtain the Third Party's consent as contemplated under clause 7.2(f)(i) of this Schedule E4, make on behalf of the SSJ Contractor whatever representations in respect of the Common Dispute that the SSJ Contractor reasonably requests; and
  - (iii) provide:
    - (A) regular updates to the SSJ Contractor; and
    - (B) whatever information and documents the SSJ Contractor reasonably requests,as to the progress of the Common Dispute.

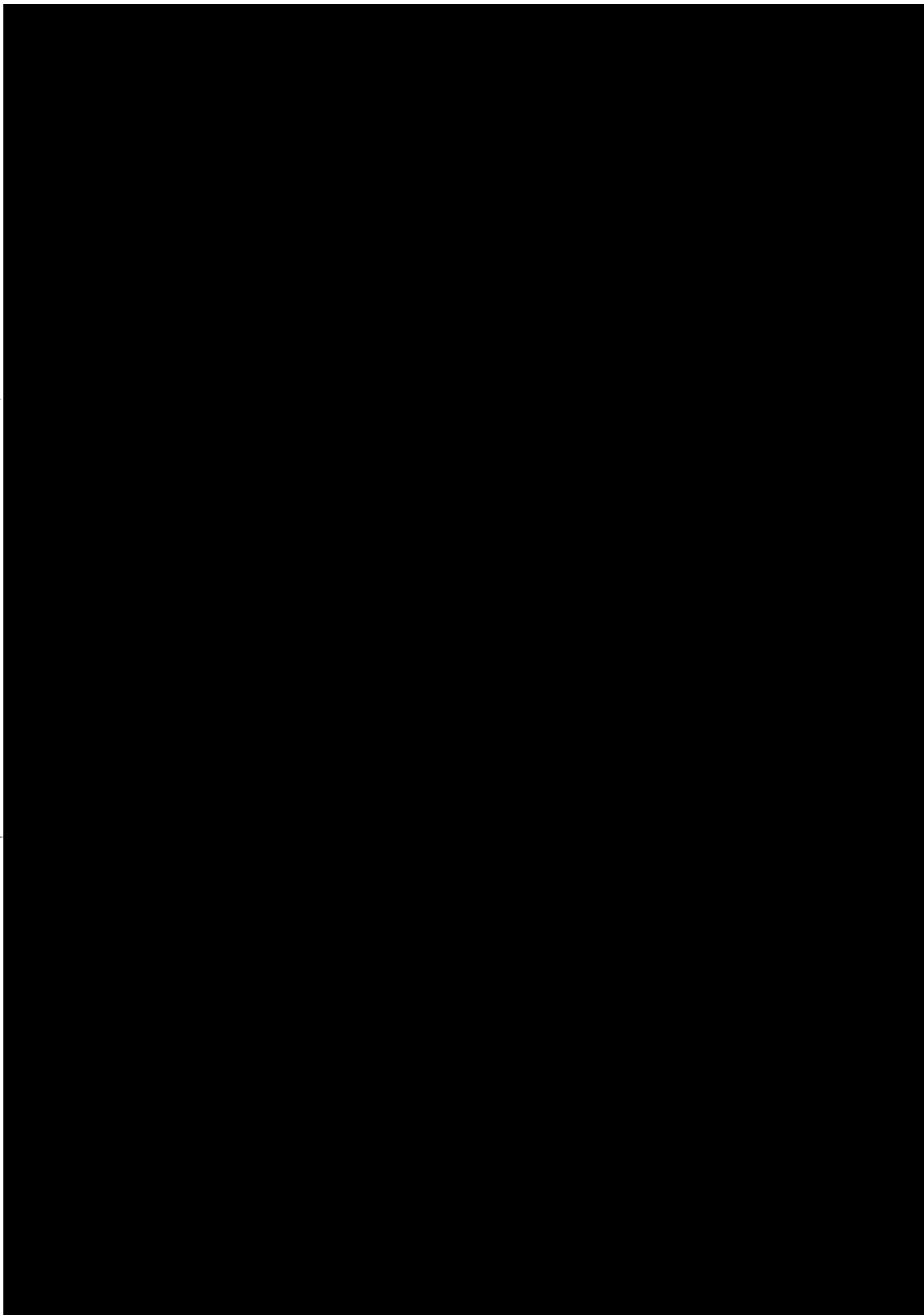
- (g) The Principal's Liability to the SSJ Contractor in respect of the subject matter of the Common Dispute:
  - (i) is satisfied by payment to the SSJ Contractor in accordance with this clause 79 of Schedule E4; or
  - (ii) if the Third Party is not liable to the Principal, is deemed to be satisfied on the determination of that matter (whether by dispute resolution under the respective Third Party Agreement or otherwise), provided that:
    - (A) the Principal has complied with its obligations under this clause 7 of this Schedule E4 with respect to recovery of the Principal's and the SSJ Contractor's entitlements from the Third Party; and
    - (B) all appeals from such determination have been exhausted.
- (h) The SSJ Contractor agrees:
  - (i) to provide all documents, assistance, and cooperation reasonably requested by the Principal (and in the time requested by the Principal) in connection with the Common Dispute;
  - (ii) that where a Third Party Agreement contemplates:
    - (A) alternative dispute resolution (including arbitration and expert determination):
      - (aa) a like process will apply to the Common Dispute between the parties; and
      - (bb) the SSJ Contractor consents to the Common Dispute being heard together with (or consolidated with) that alternative dispute resolution process; and
    - (B) litigation, the SSJ Contractor consents to the Common Dispute being consolidated with (or heard together with) that litigation; and
  - (iii) to be bound by the outcome of the Common Dispute resolution process to the extent it affects the SSJ Contractor's rights and obligations under this Contract.
- (i) The SSJ Contractor's entitlement to a remedy in respect of a Common Dispute will not be reduced to the extent to which the Principal's entitlements under a Third Party Agreement are reduced or extinguished due to the Principal's breach or failure to comply with the Third Party Agreement or other act or omission (in each case to the extent not caused by the SSJ Contractor).
- (j) To the extent the SSJ Contractor has recovered compensation in respect of a Common Dispute under another provision of this Contract, then the SSJ Contractor is not entitled to the same compensation under this clause 79 of Schedule E4.
- (k) Any payment to which the SSJ Contractor is entitled under this clause 79 of Schedule E4 in respect of a Common Dispute shall be paid by the Principal to the SSJ Contractor within 20 Business Days from the date of the settlement or final determination (with all rights of appeal having been exhausted) of the Common Dispute under or in connection with the Third Party Agreement.

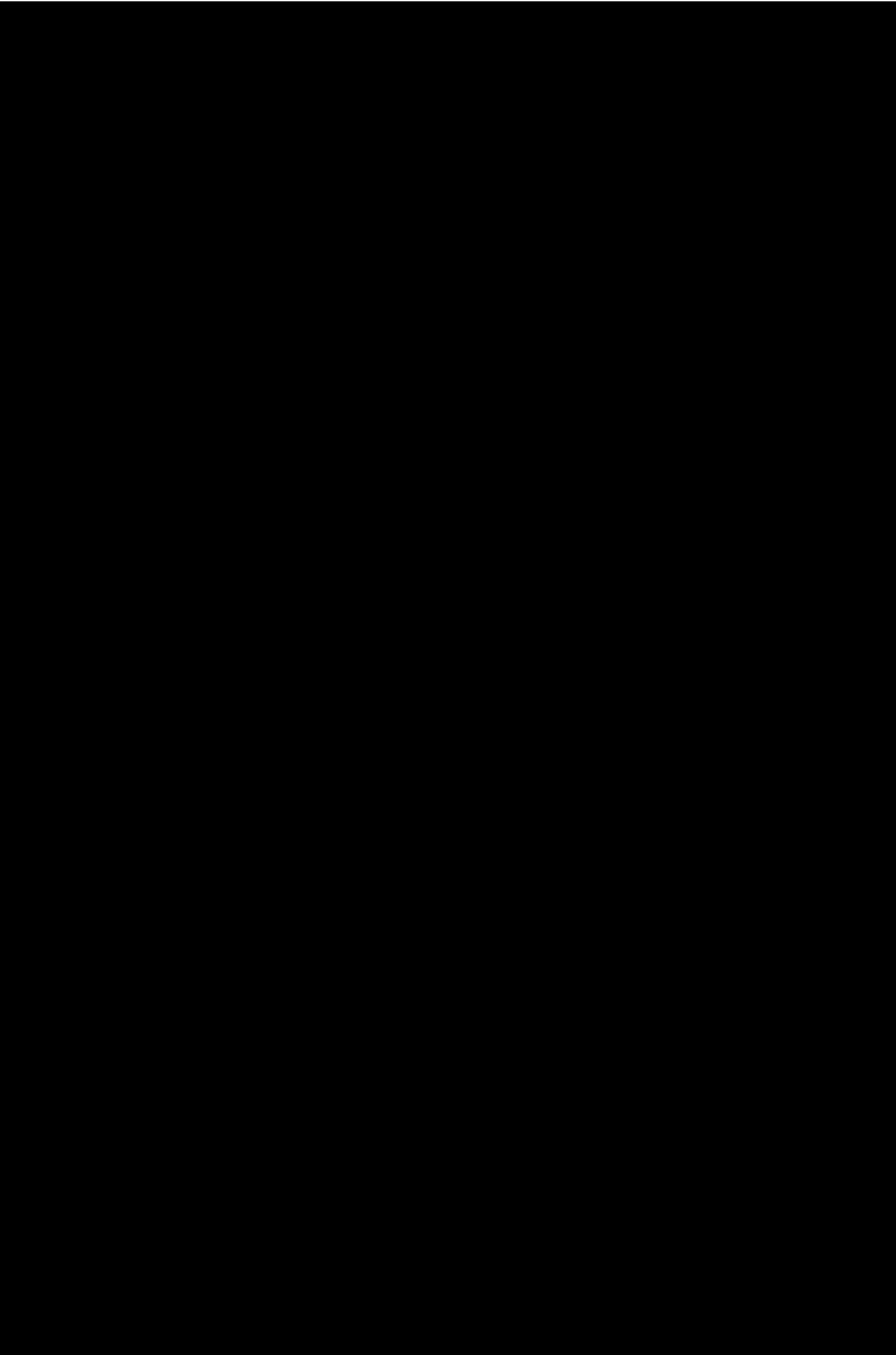


## **SCHEDULE 34**

### **Amendments to Schedule E5**

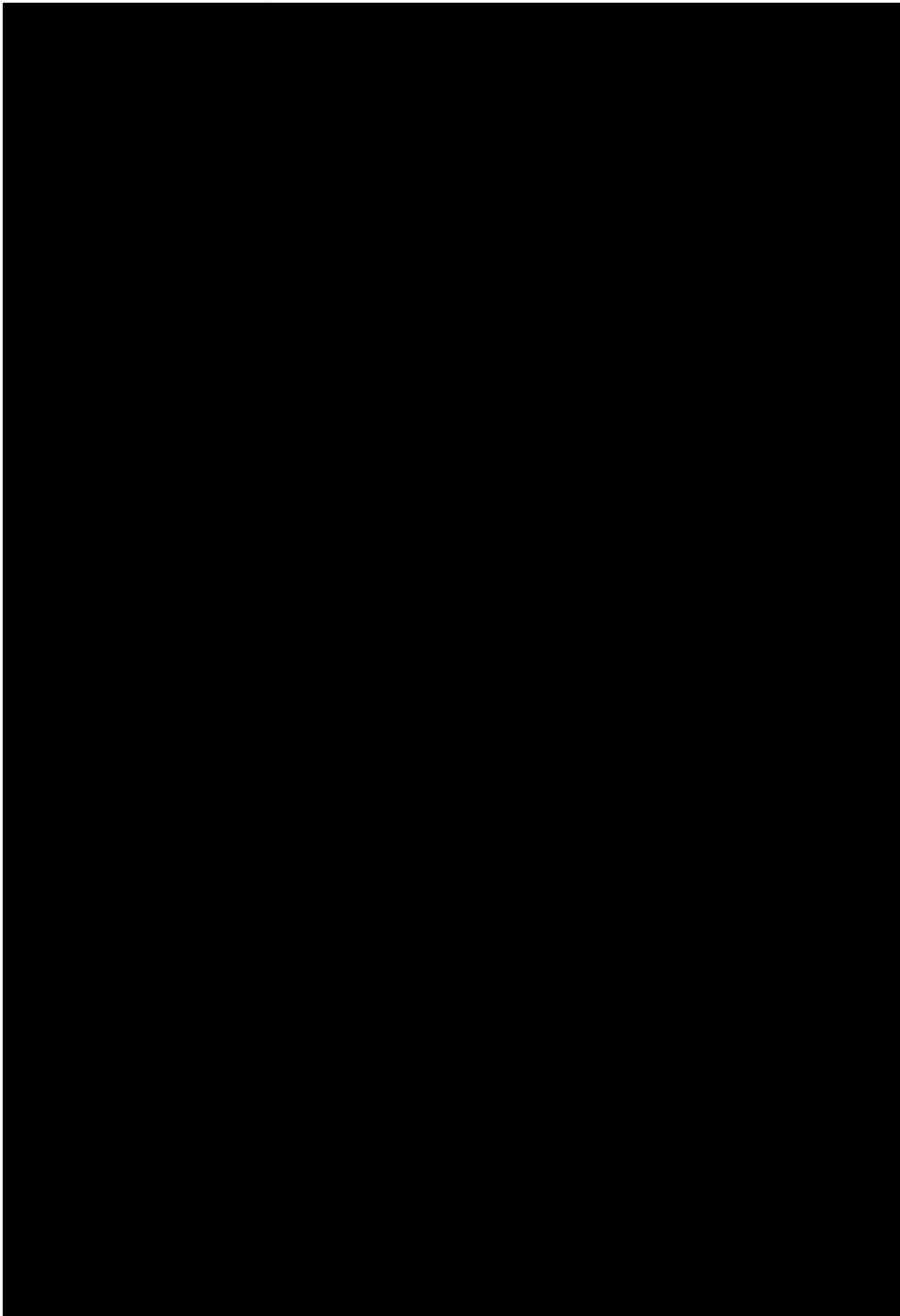
Schedule E5 is amended as set out in the attached mark-up, except for the SW1 & SW2 Construction Licence (as defined in Schedule 4 to the Principal Document) which is incorporated as a new document.

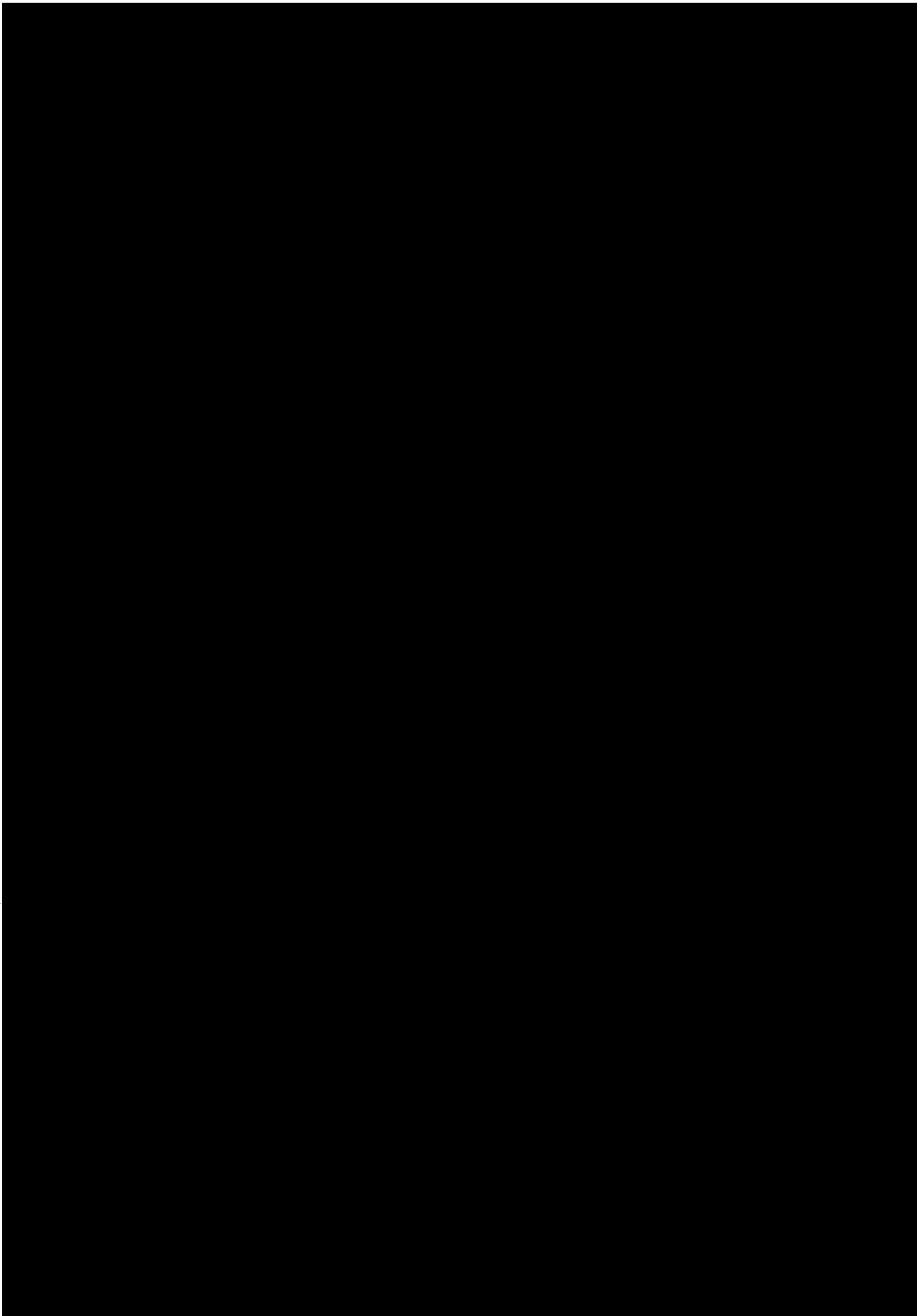




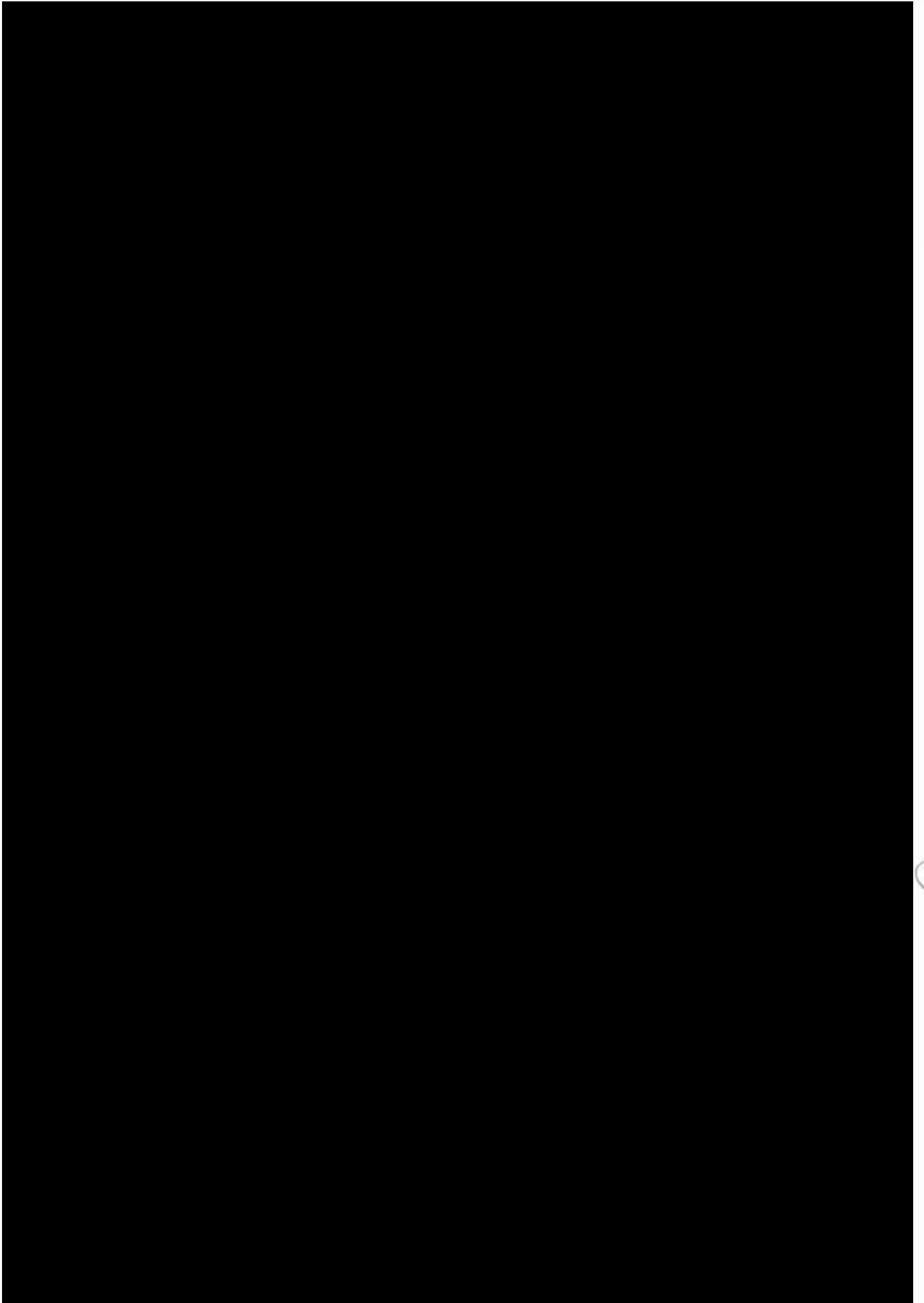
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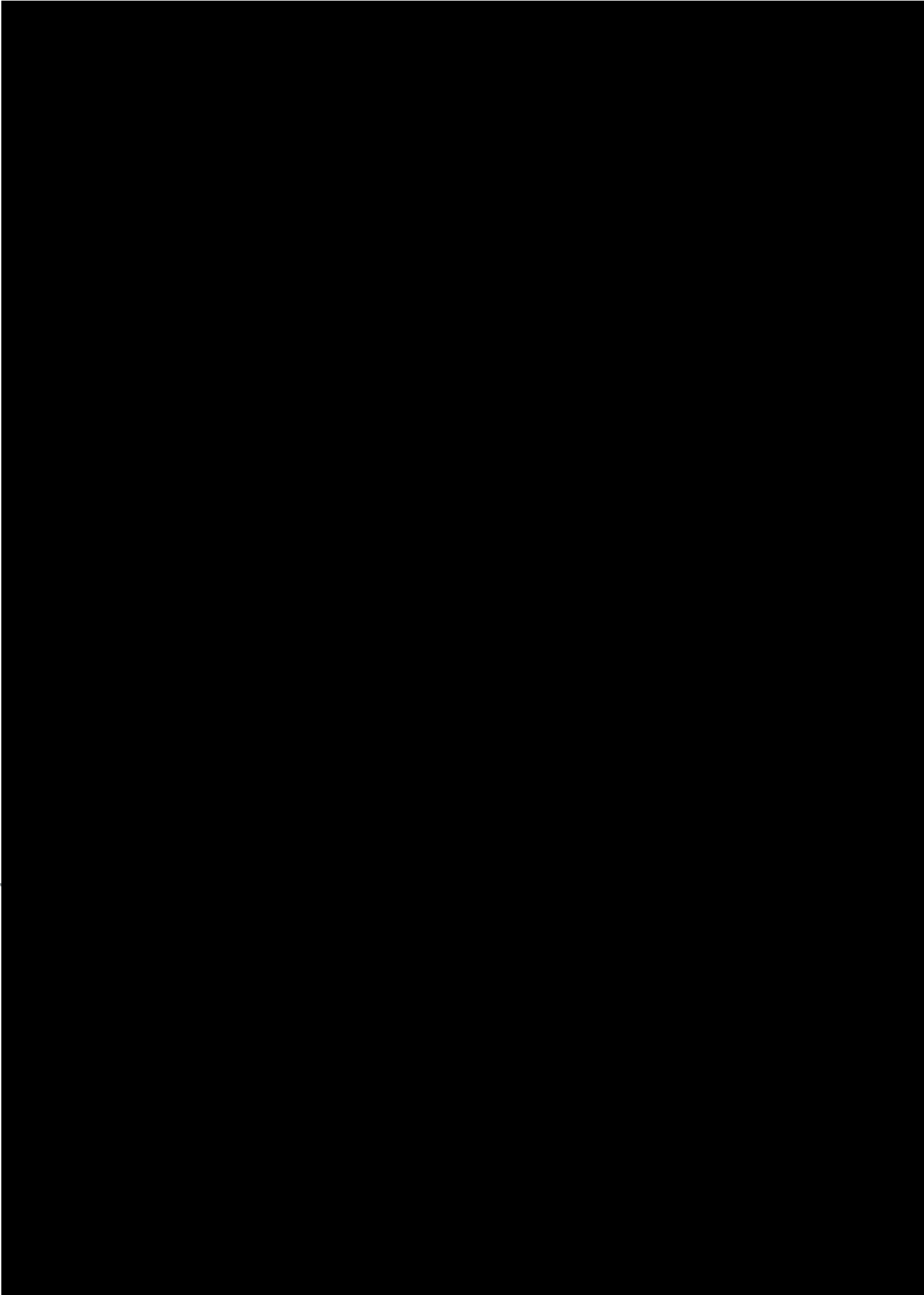
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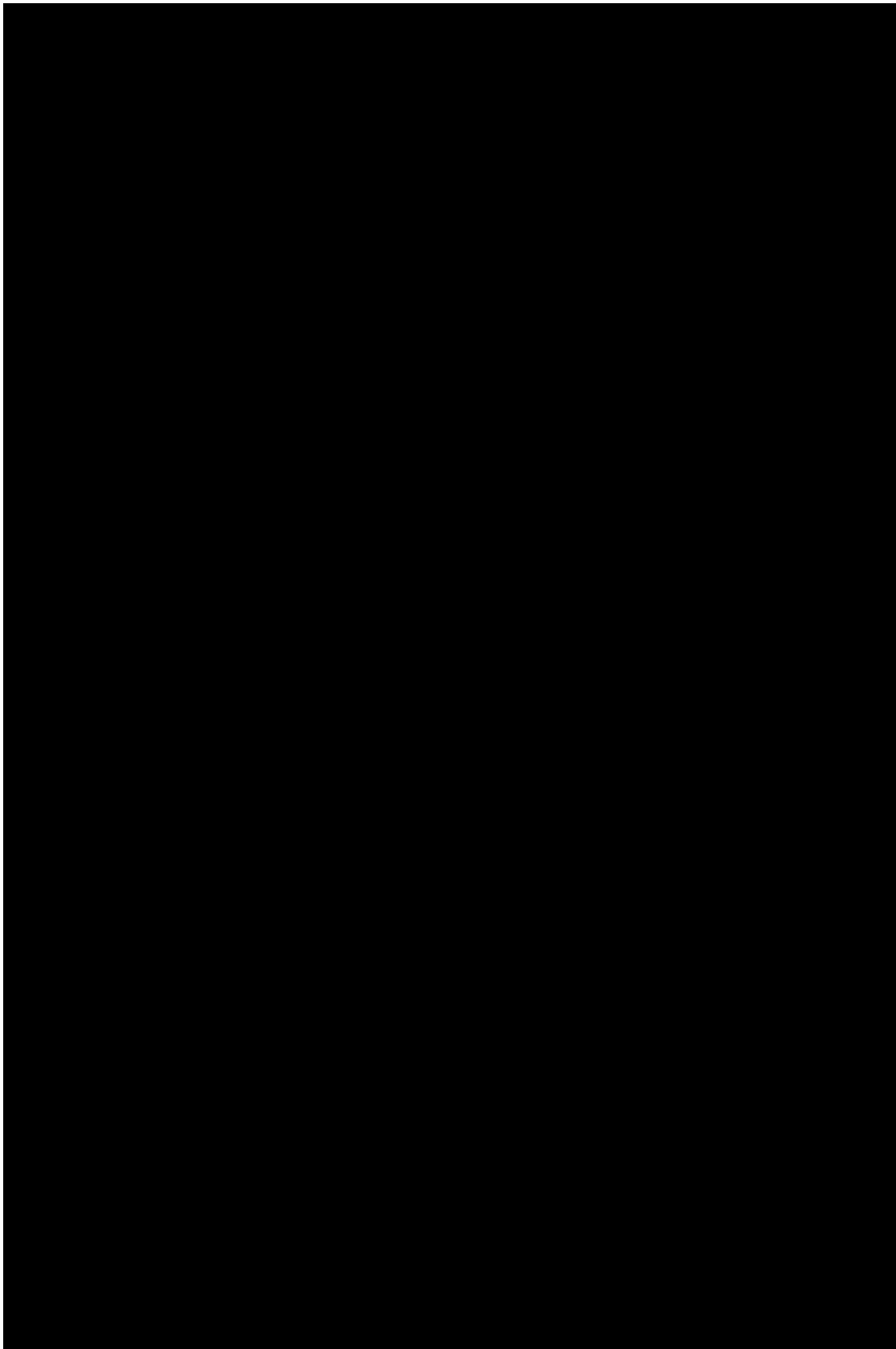


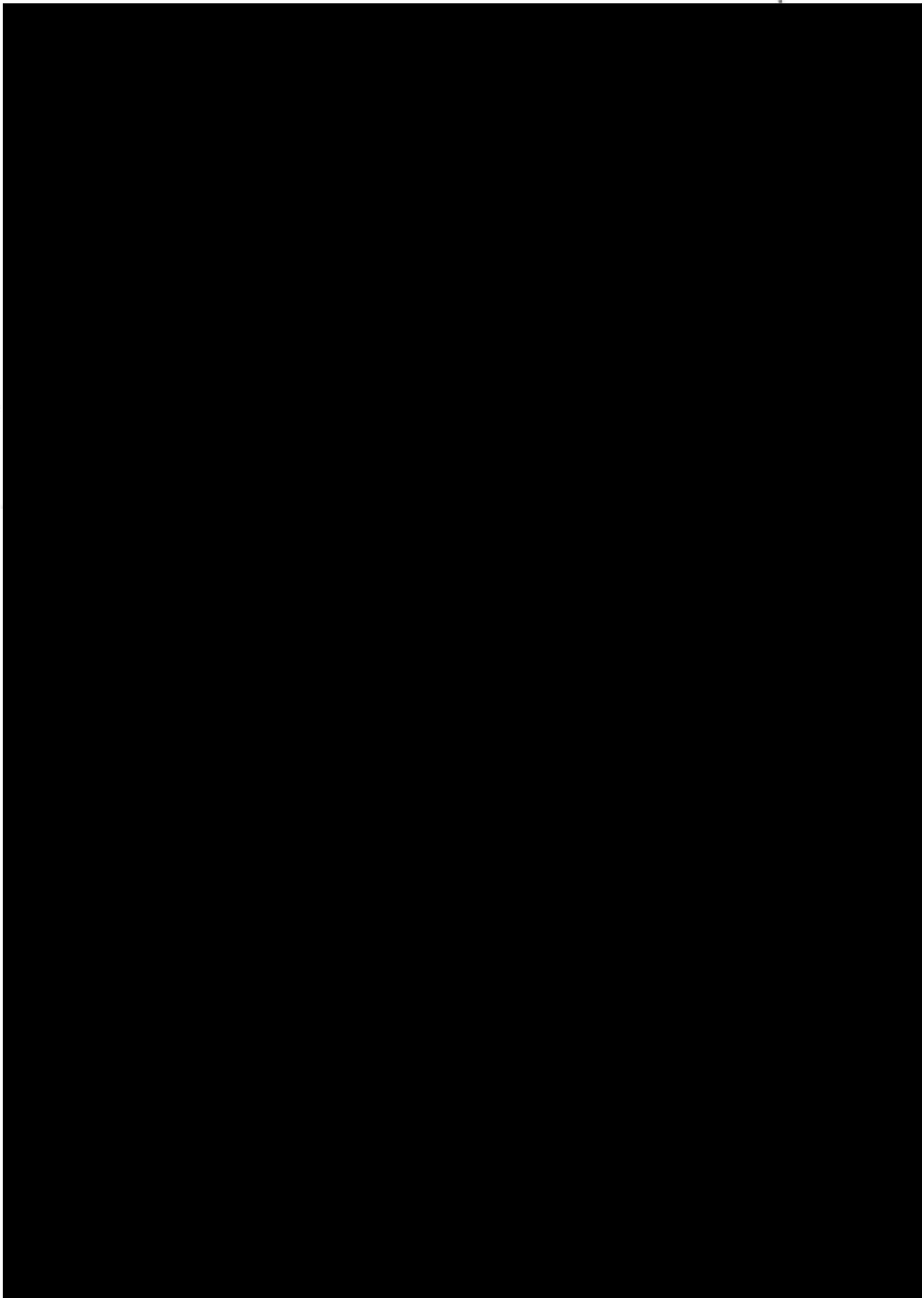






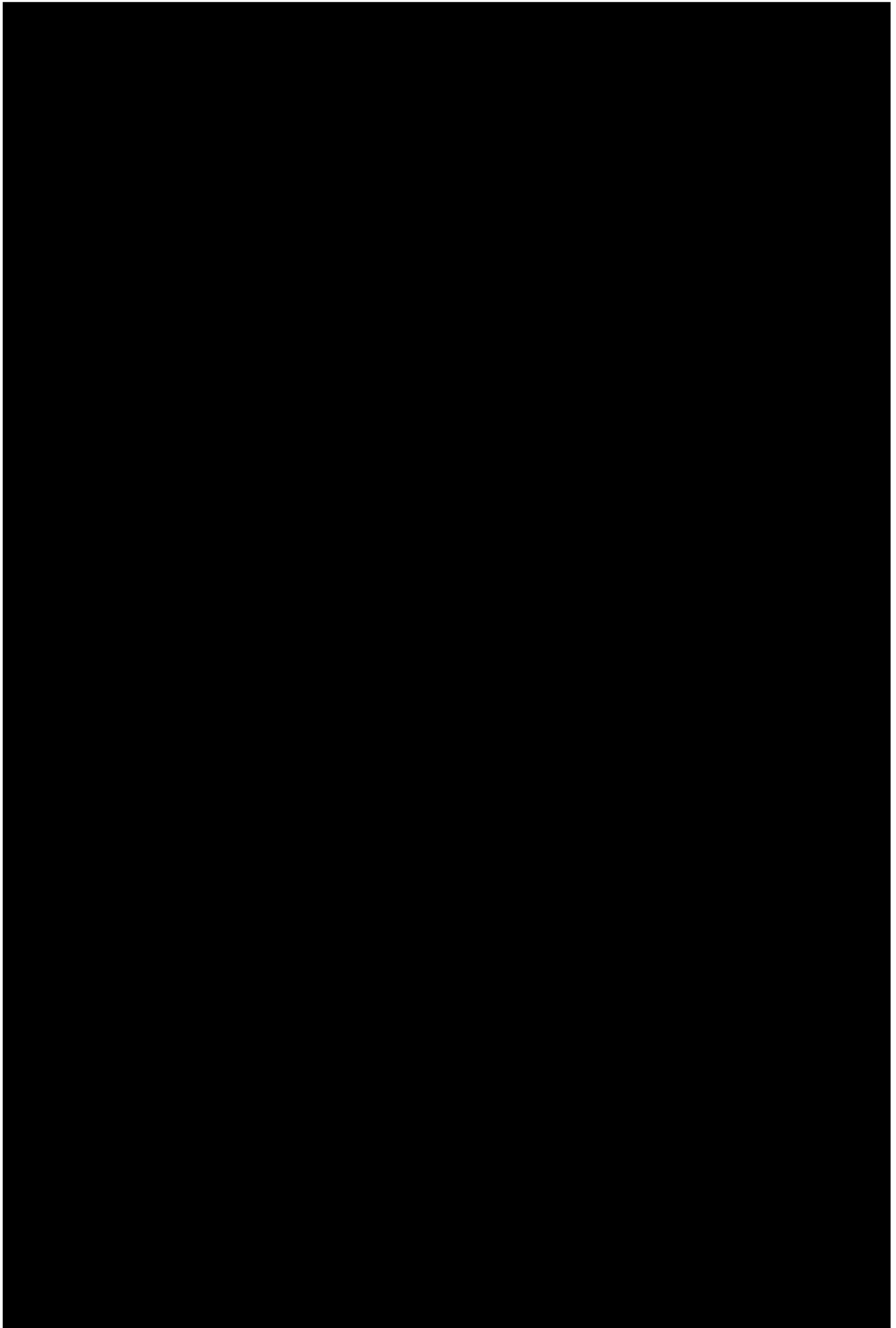


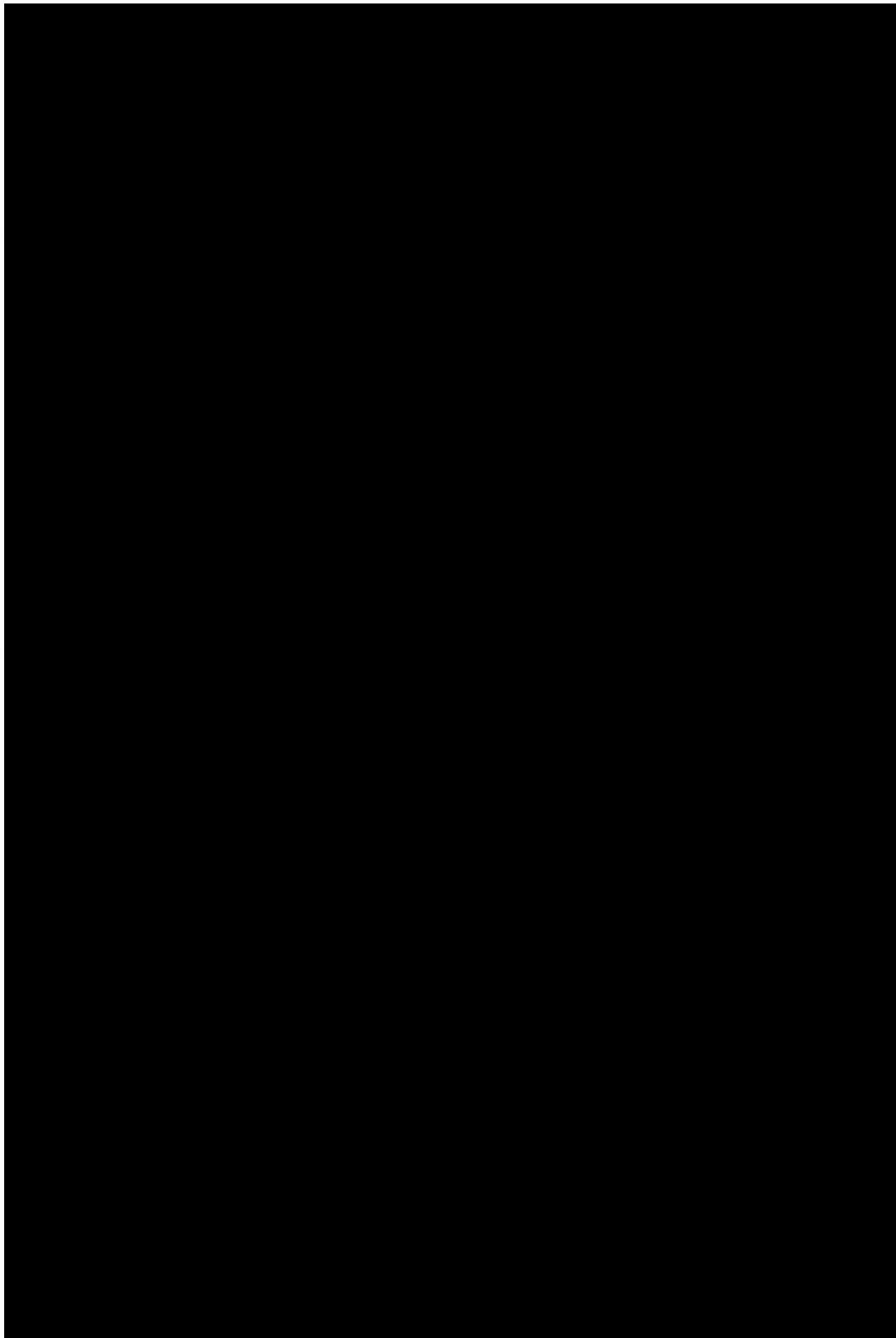




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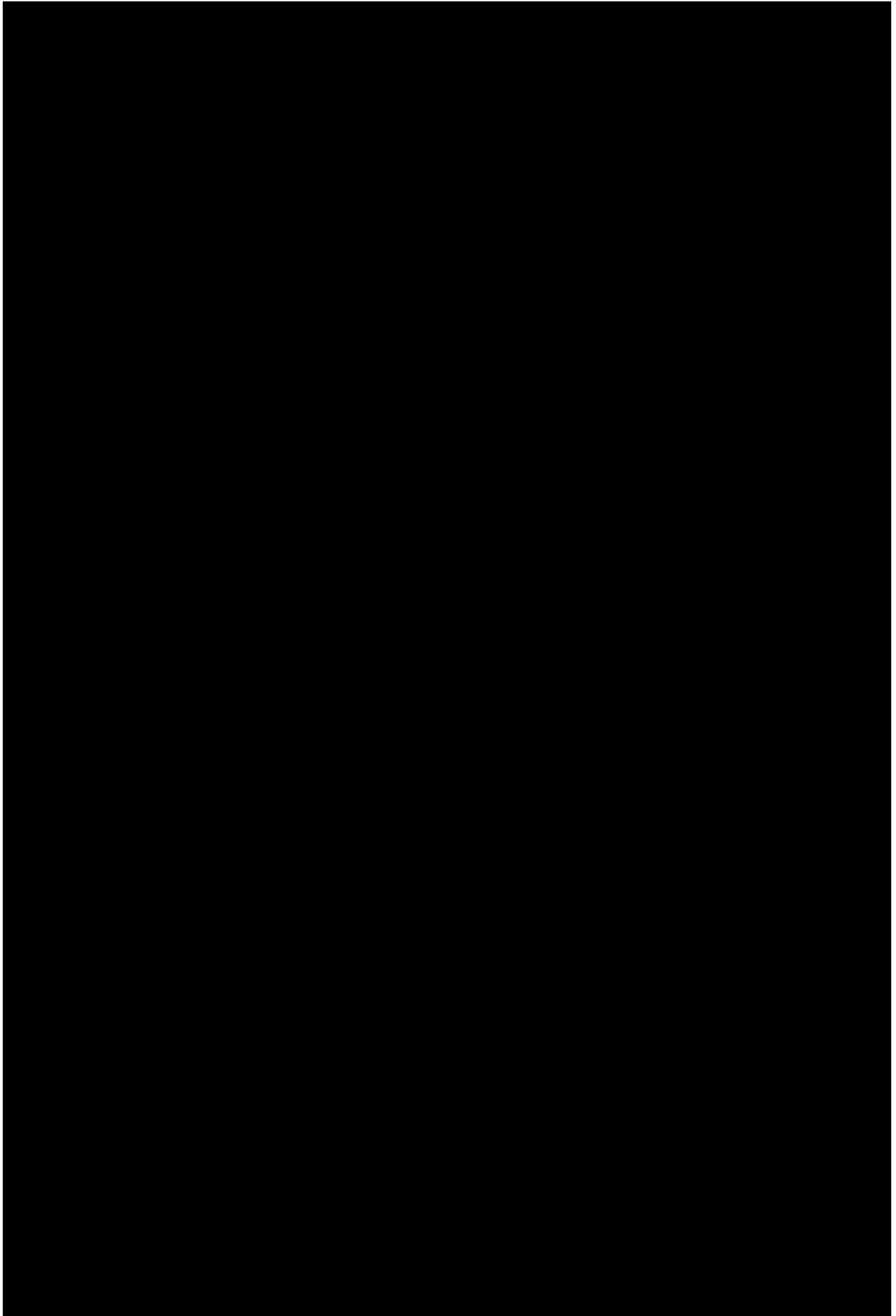
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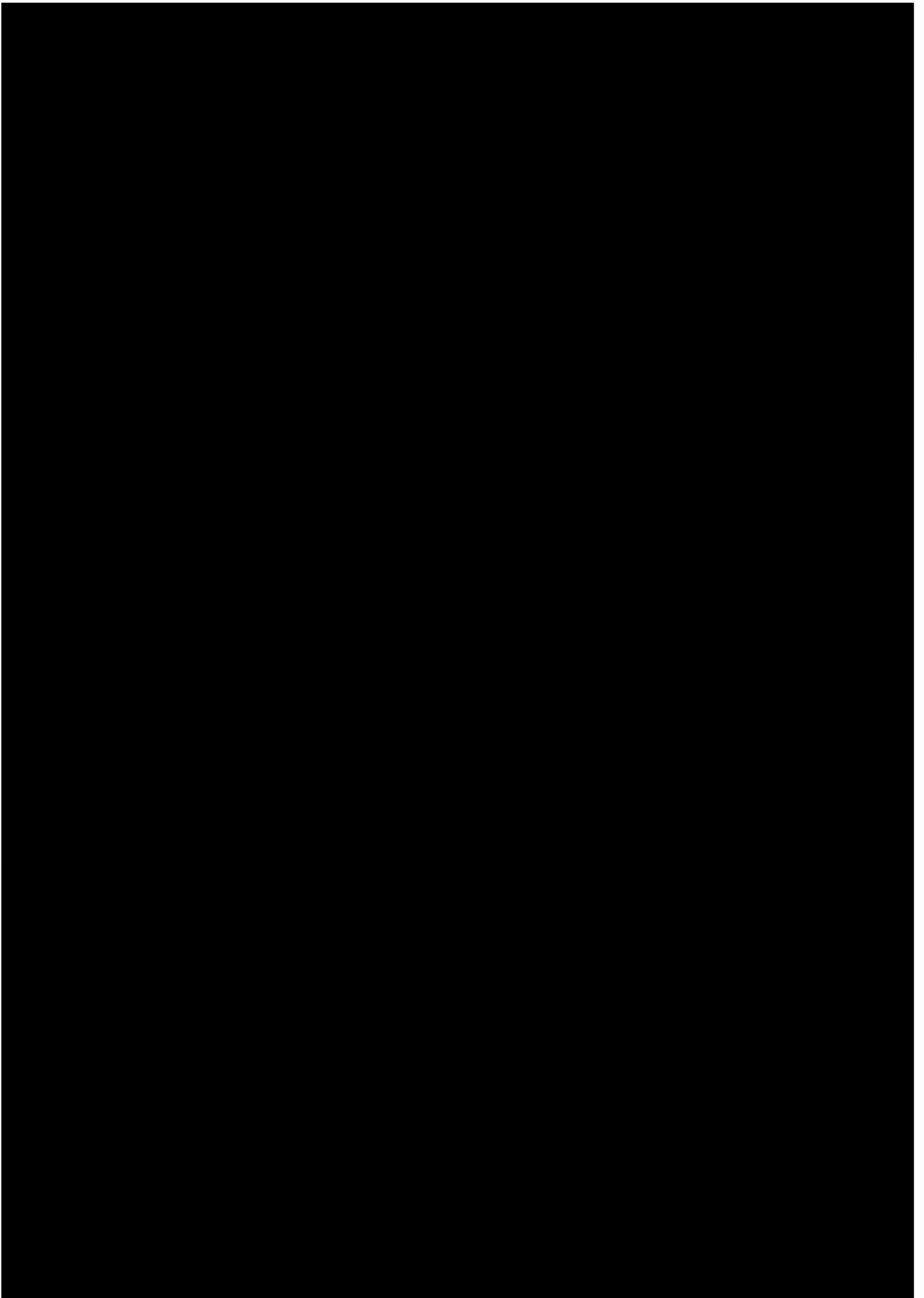




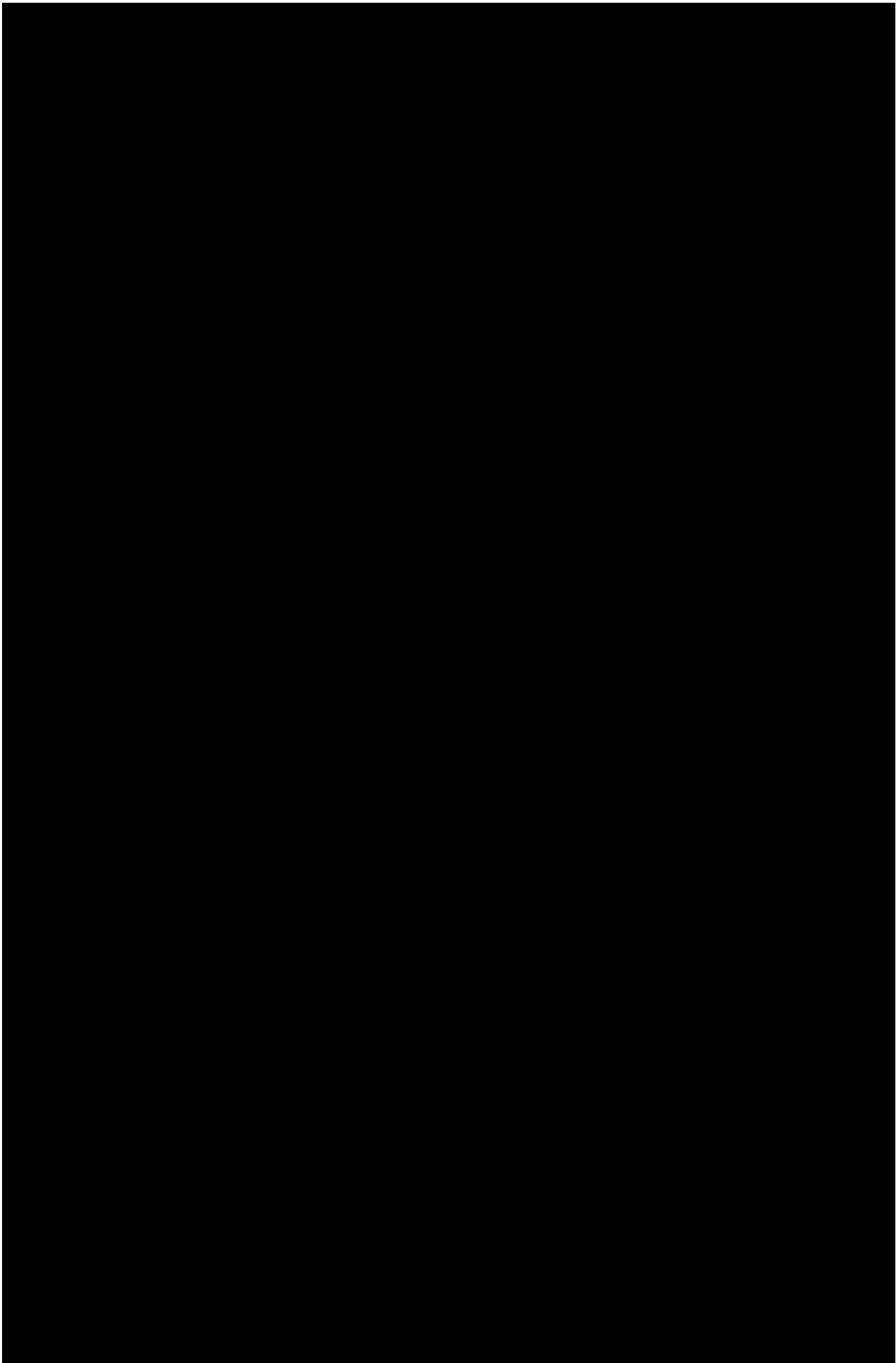
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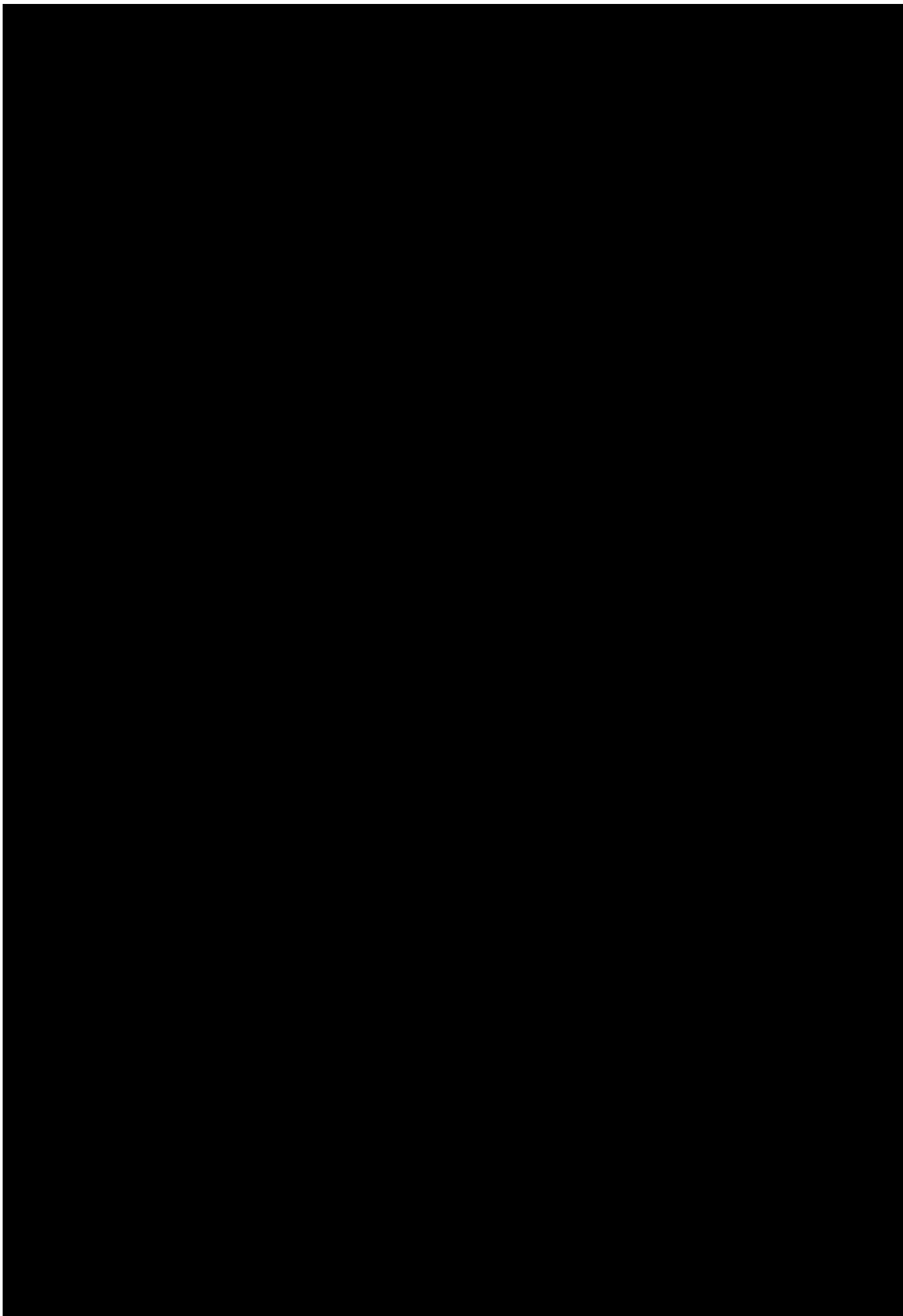
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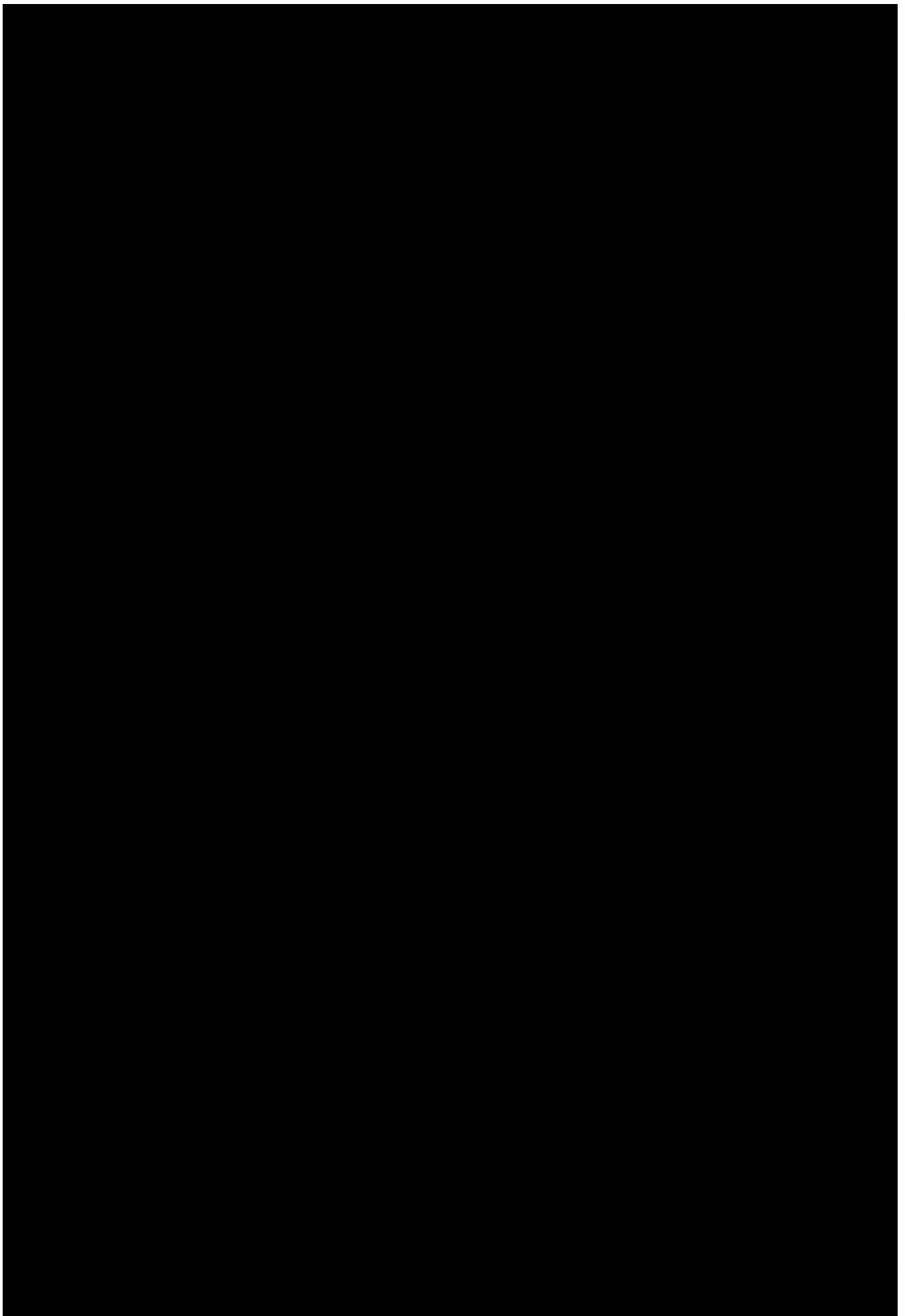


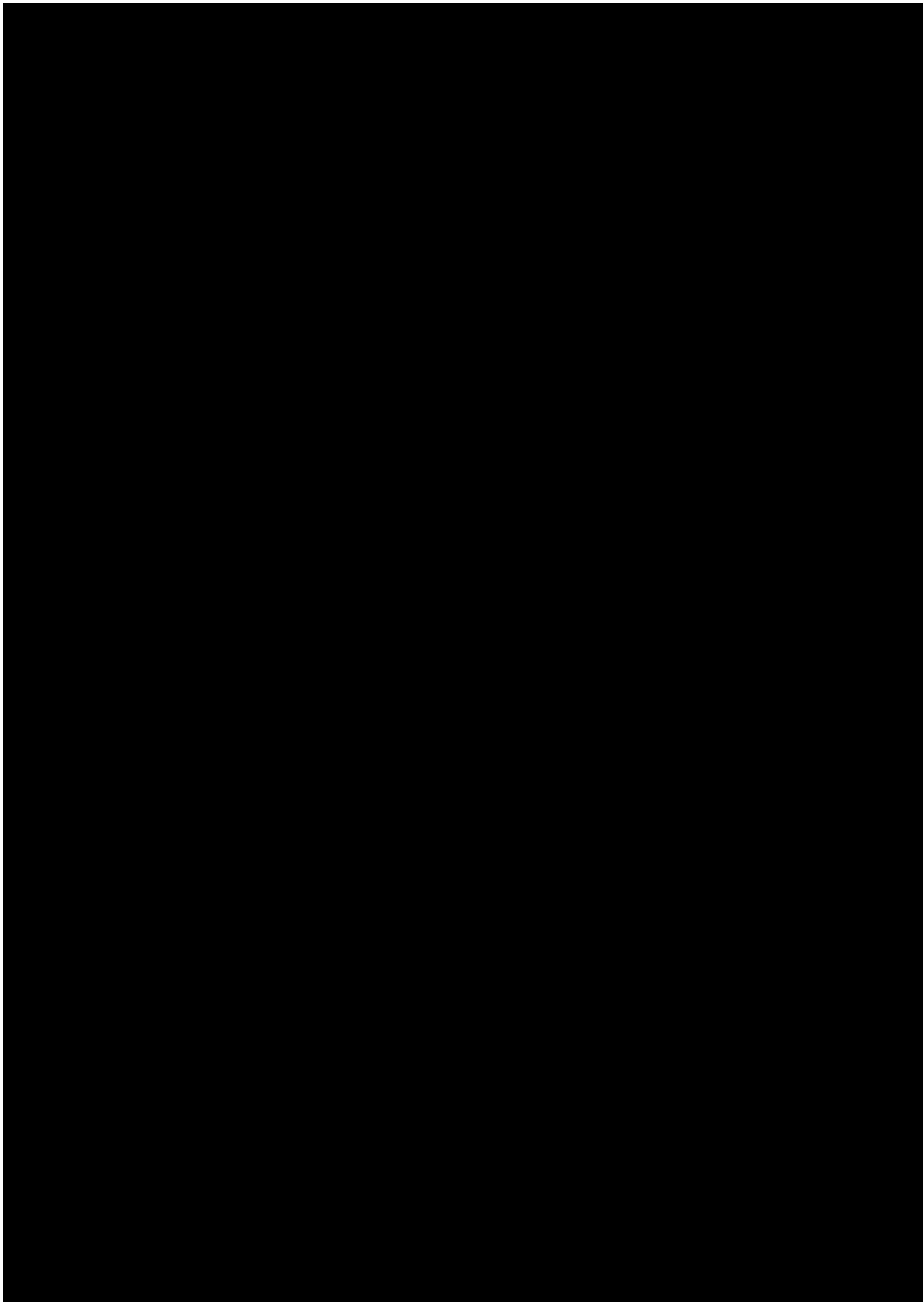




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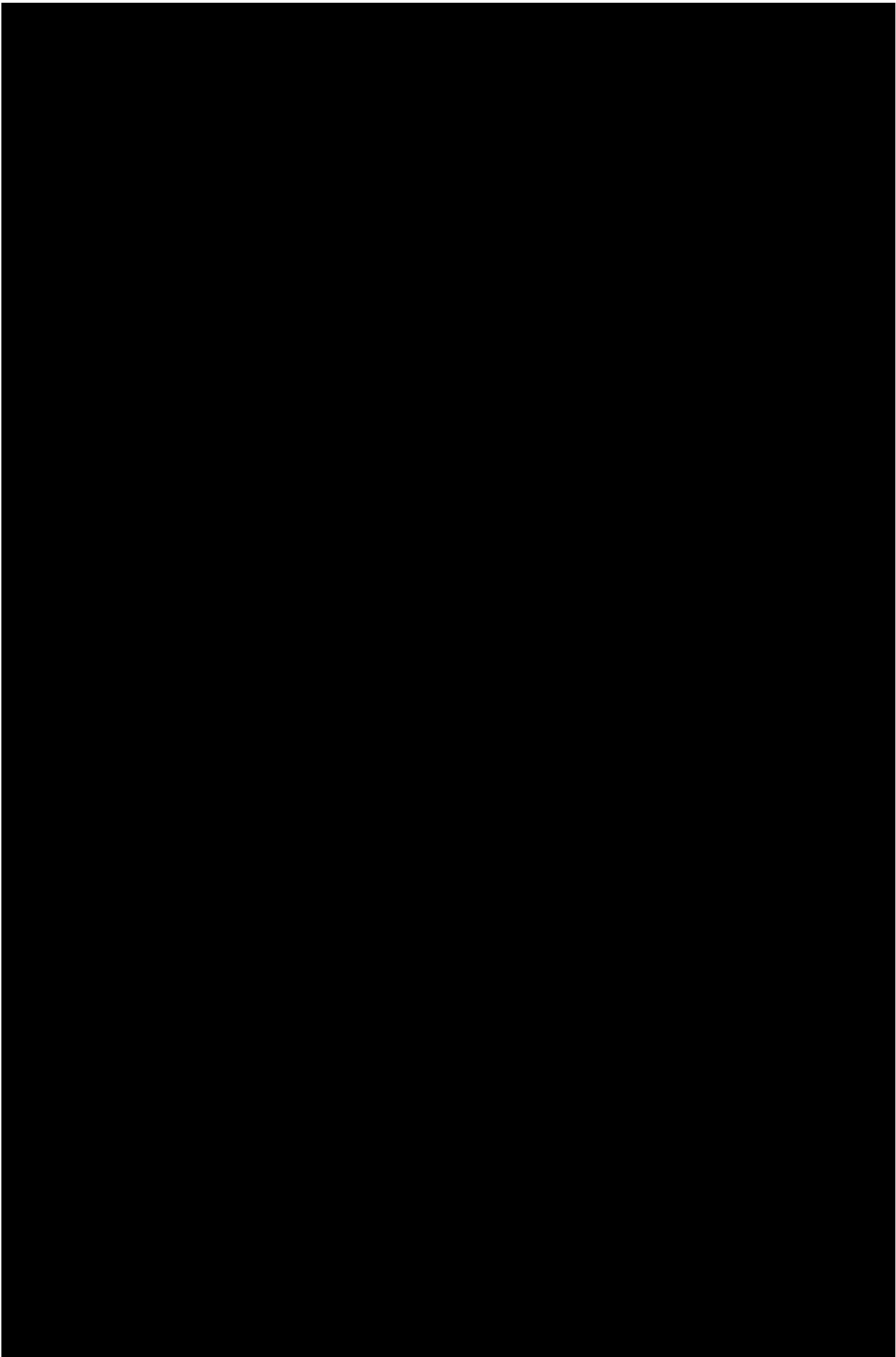
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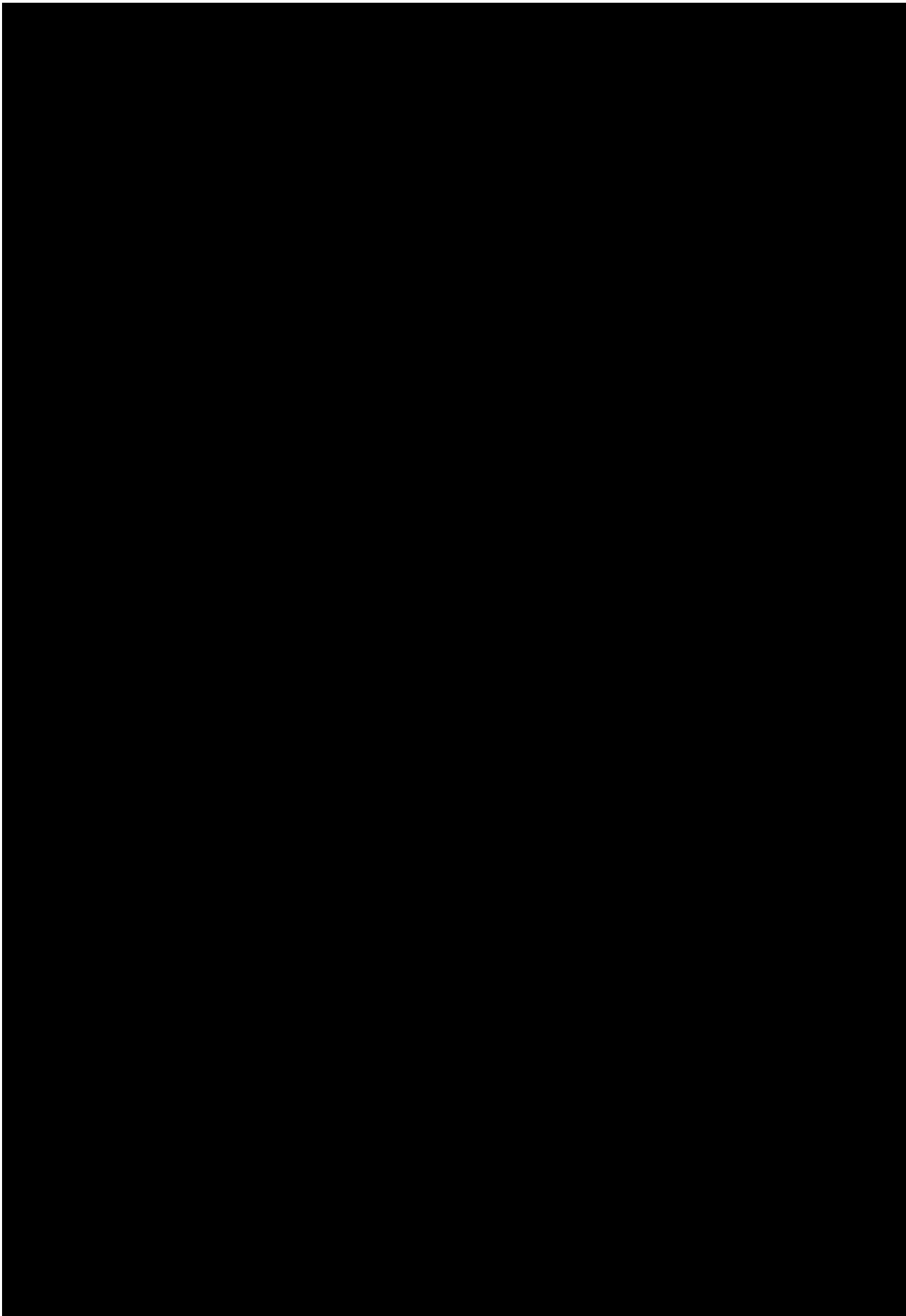




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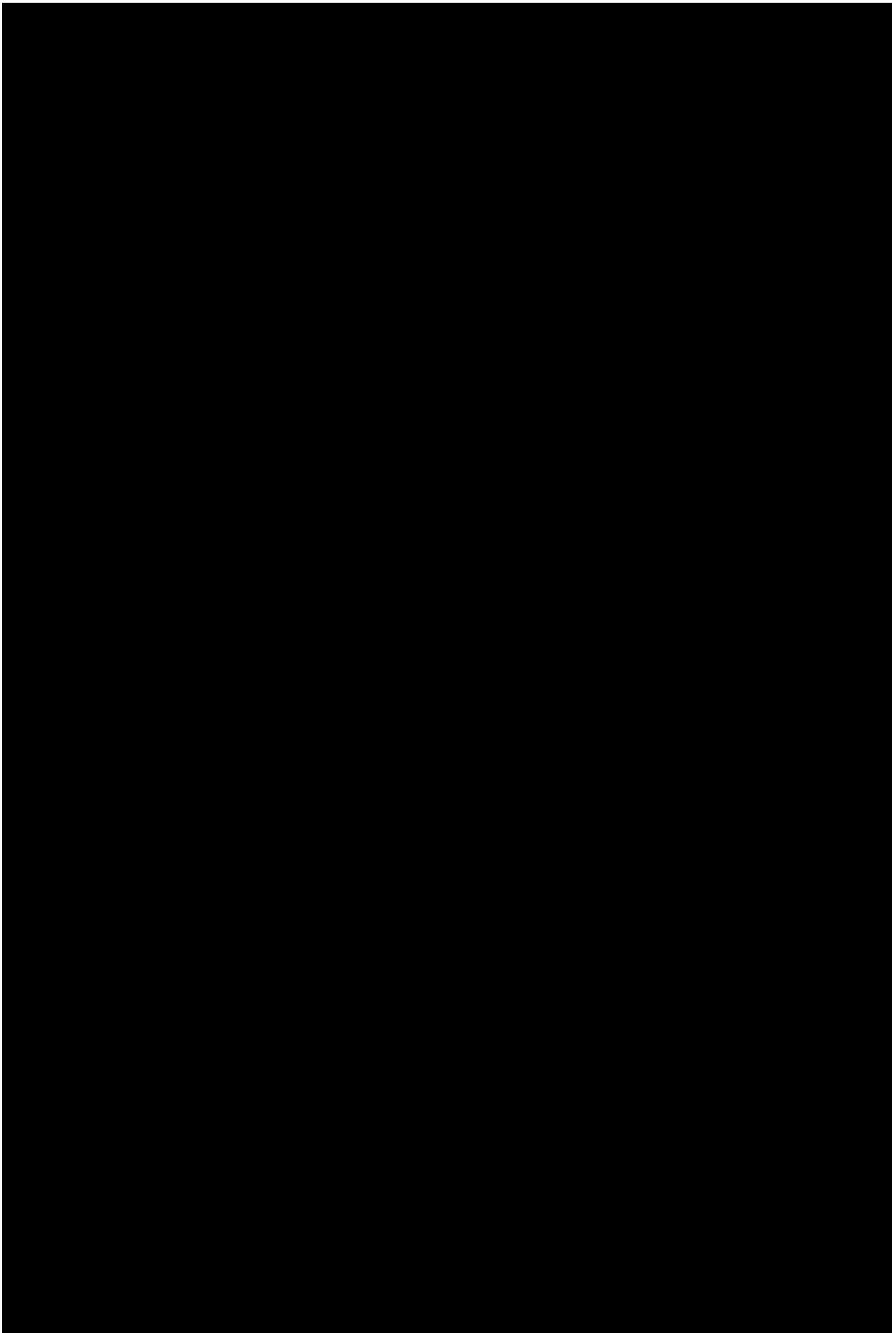
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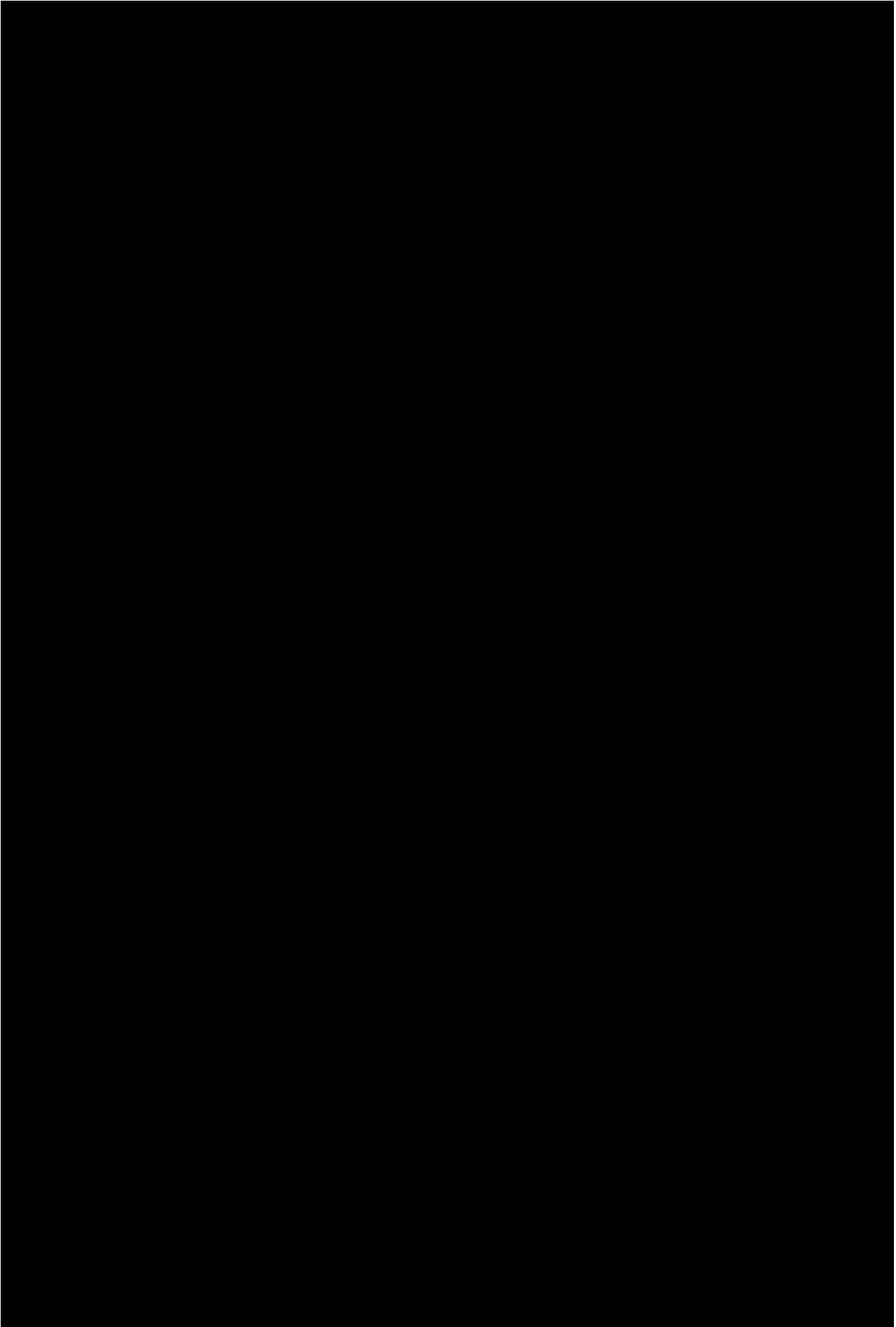
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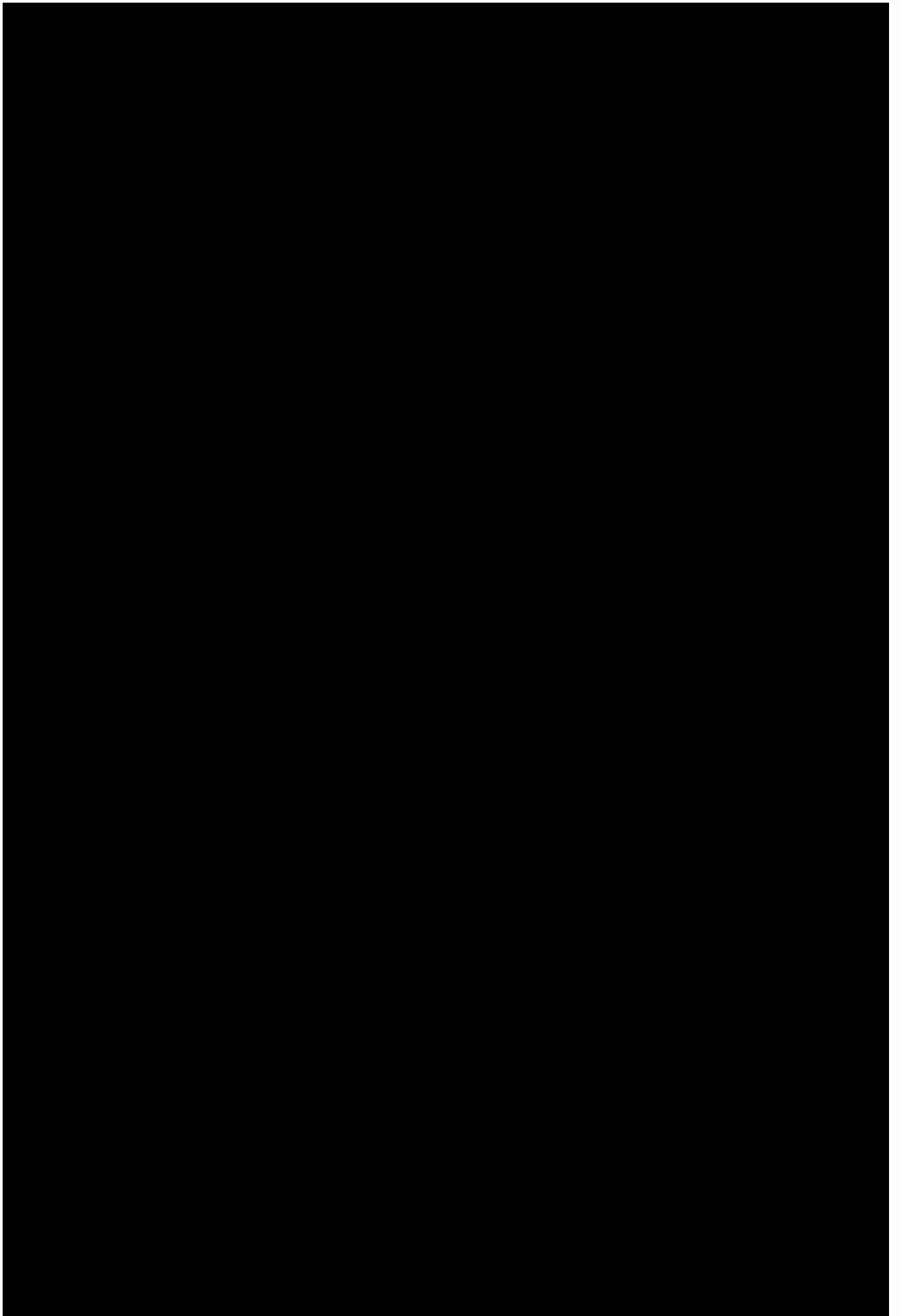


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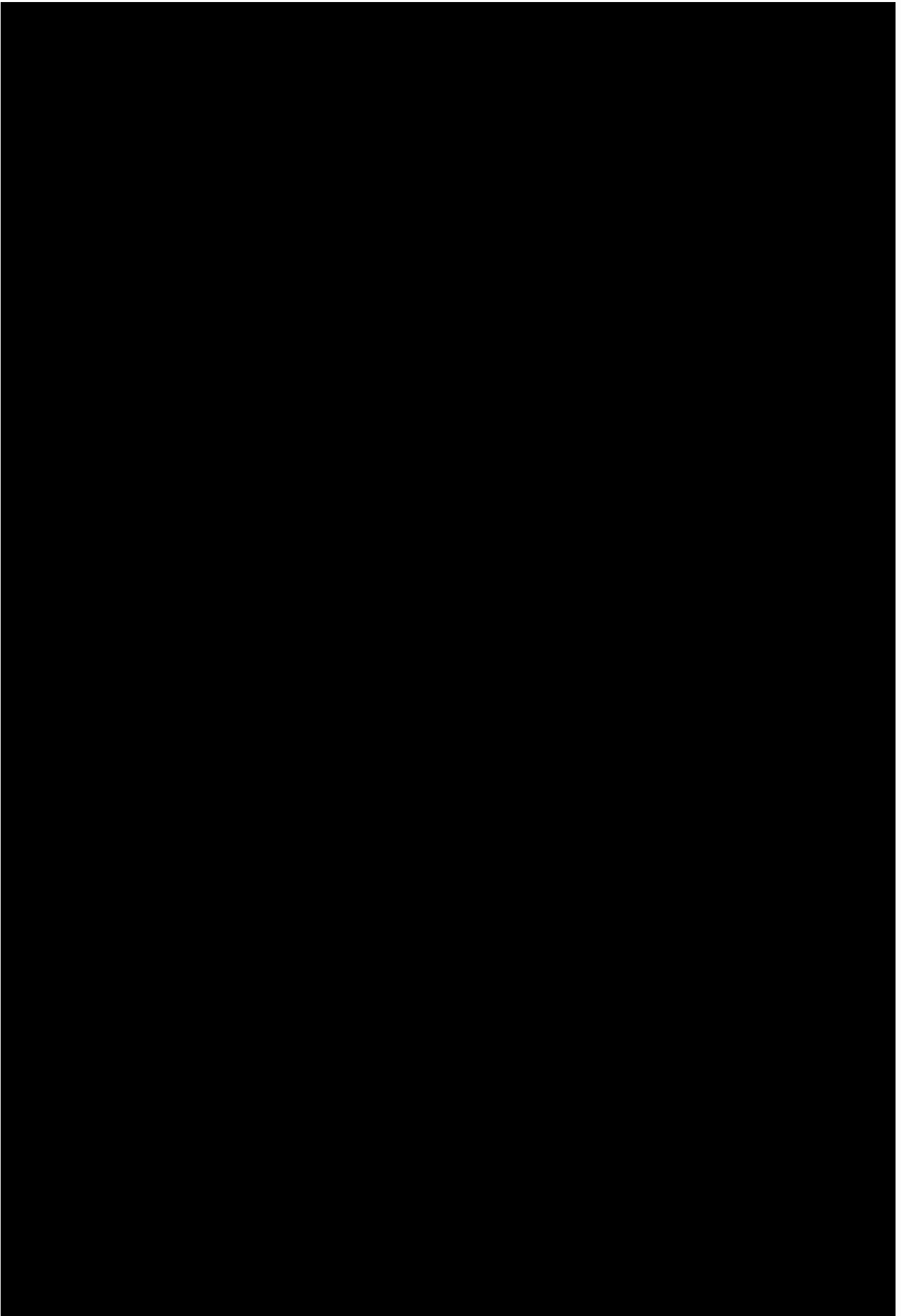


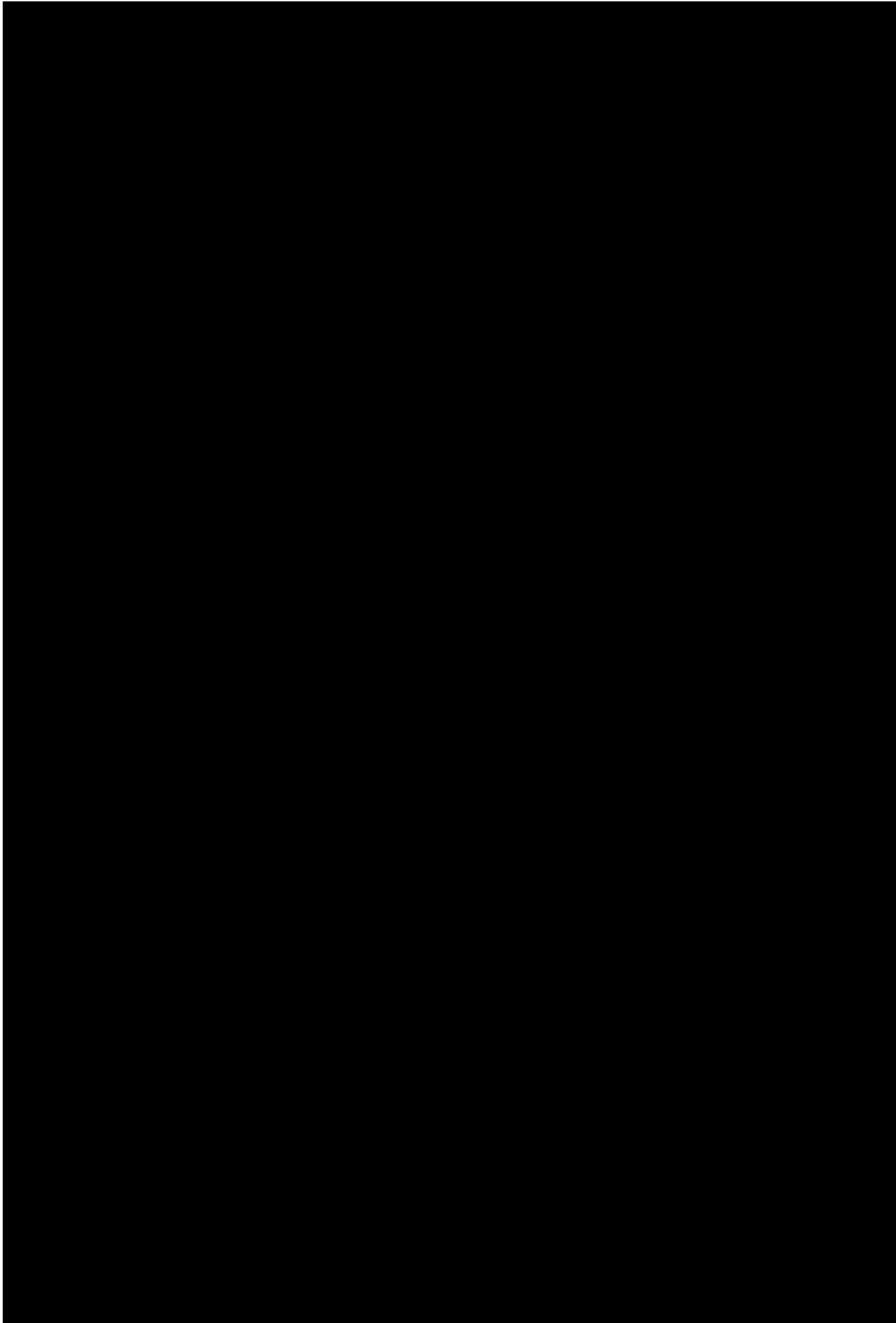


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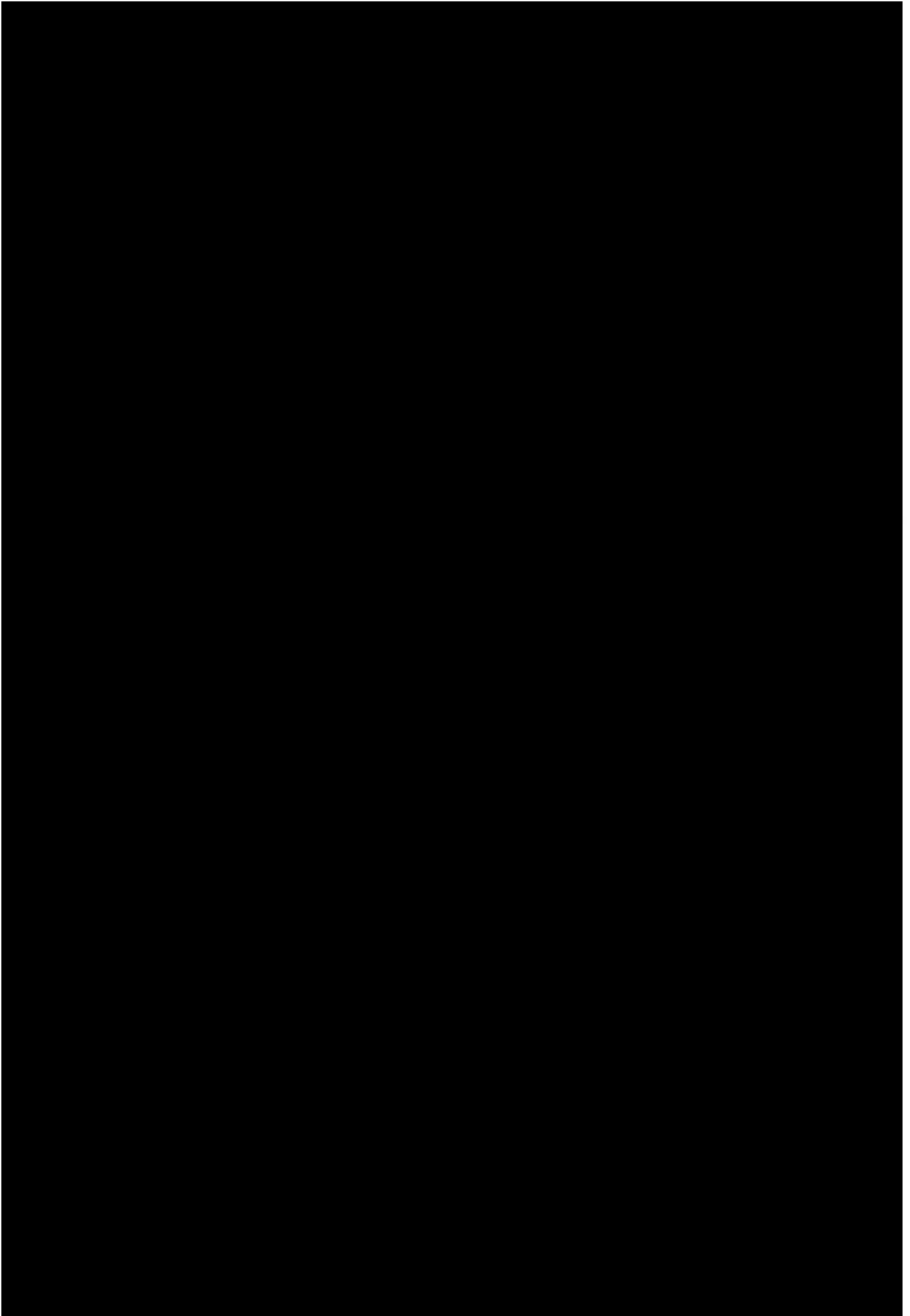
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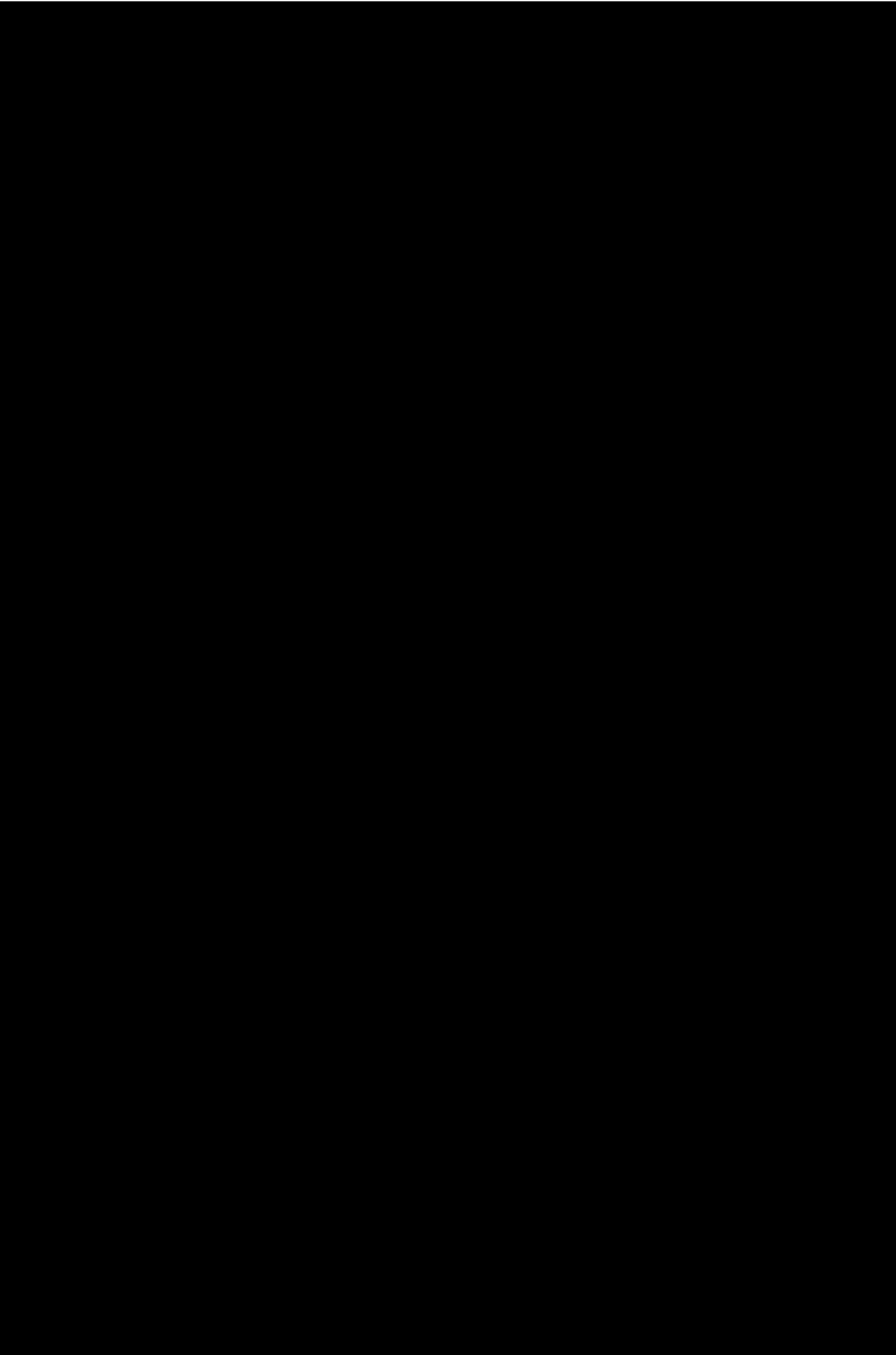




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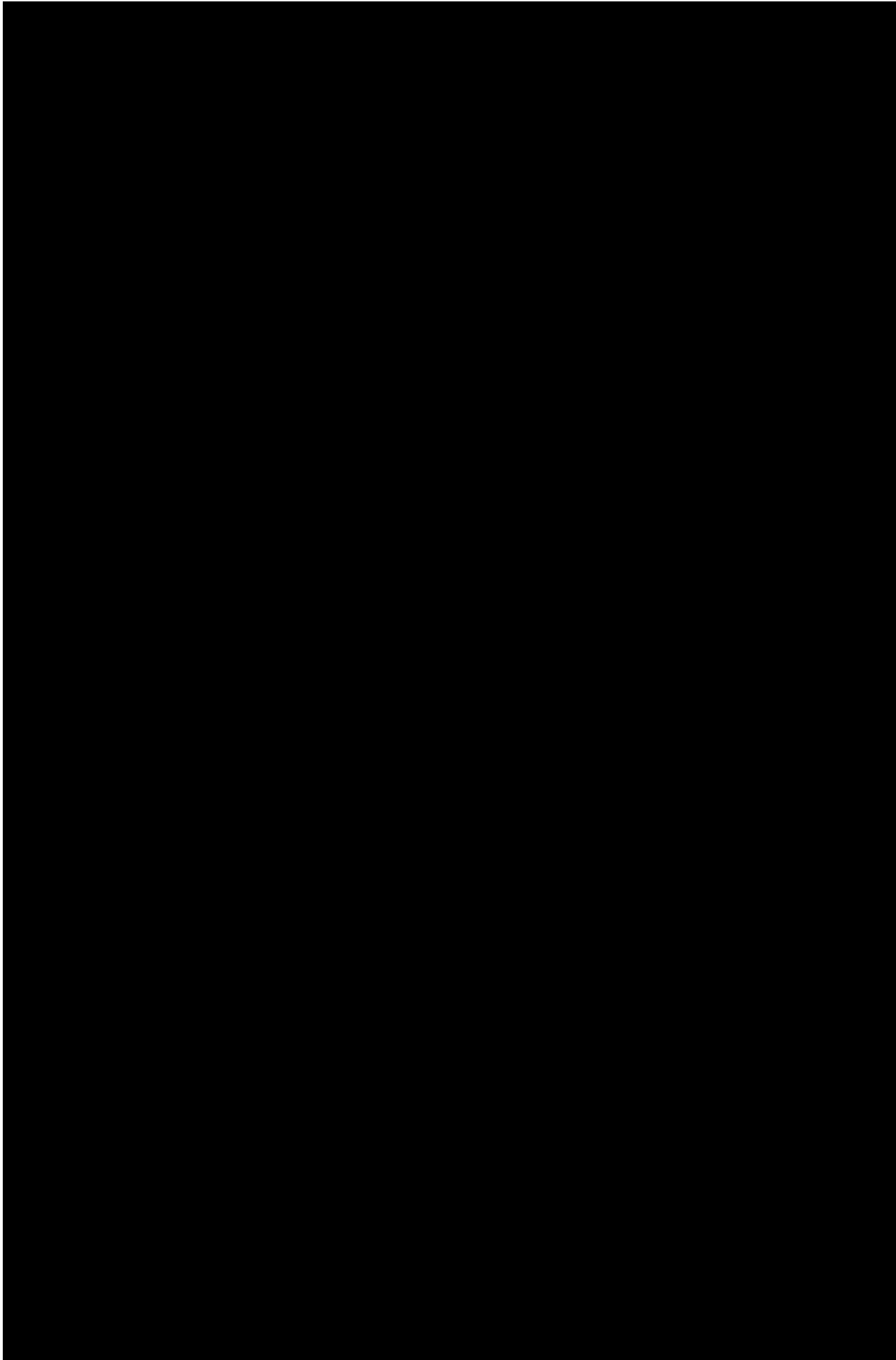
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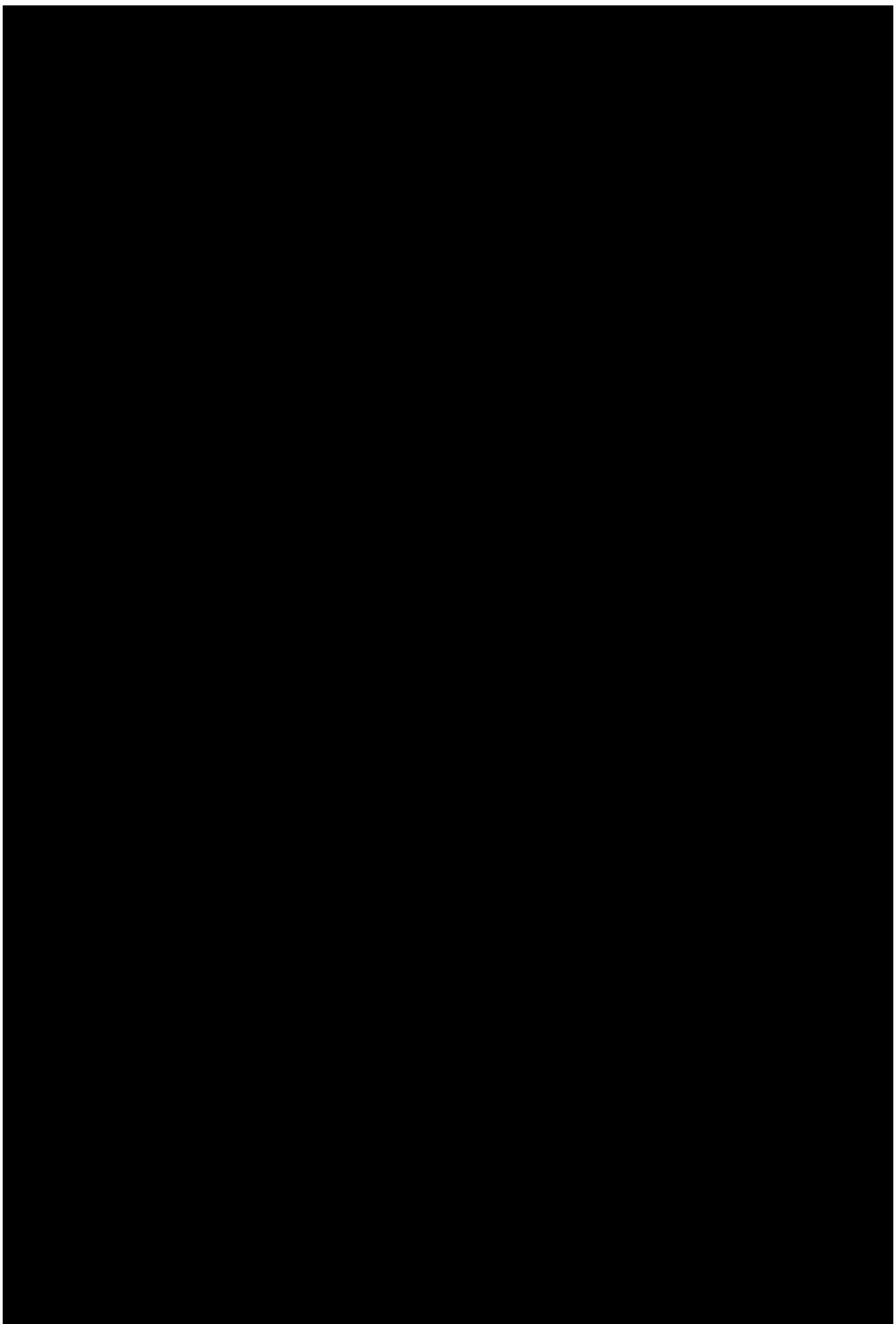




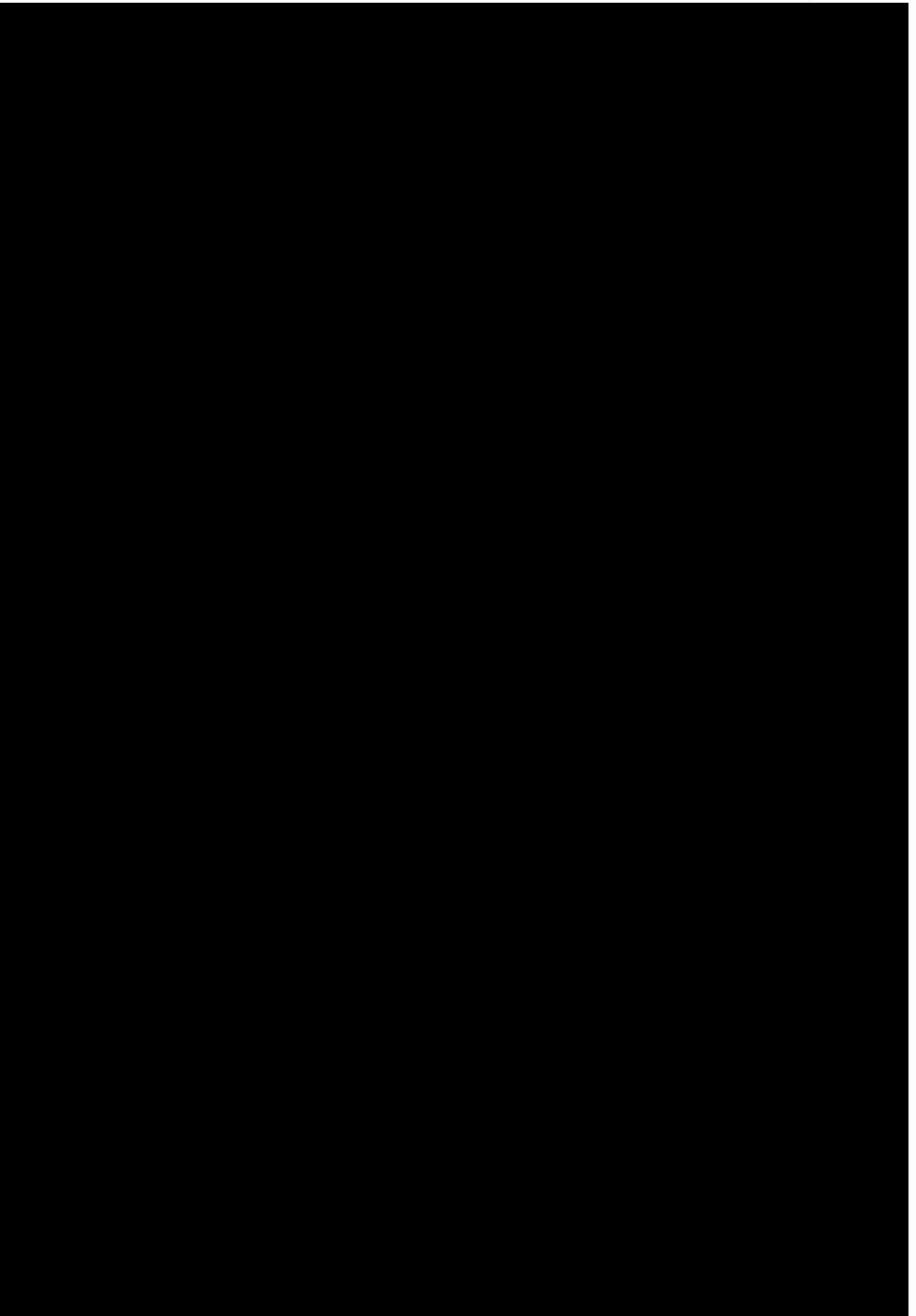
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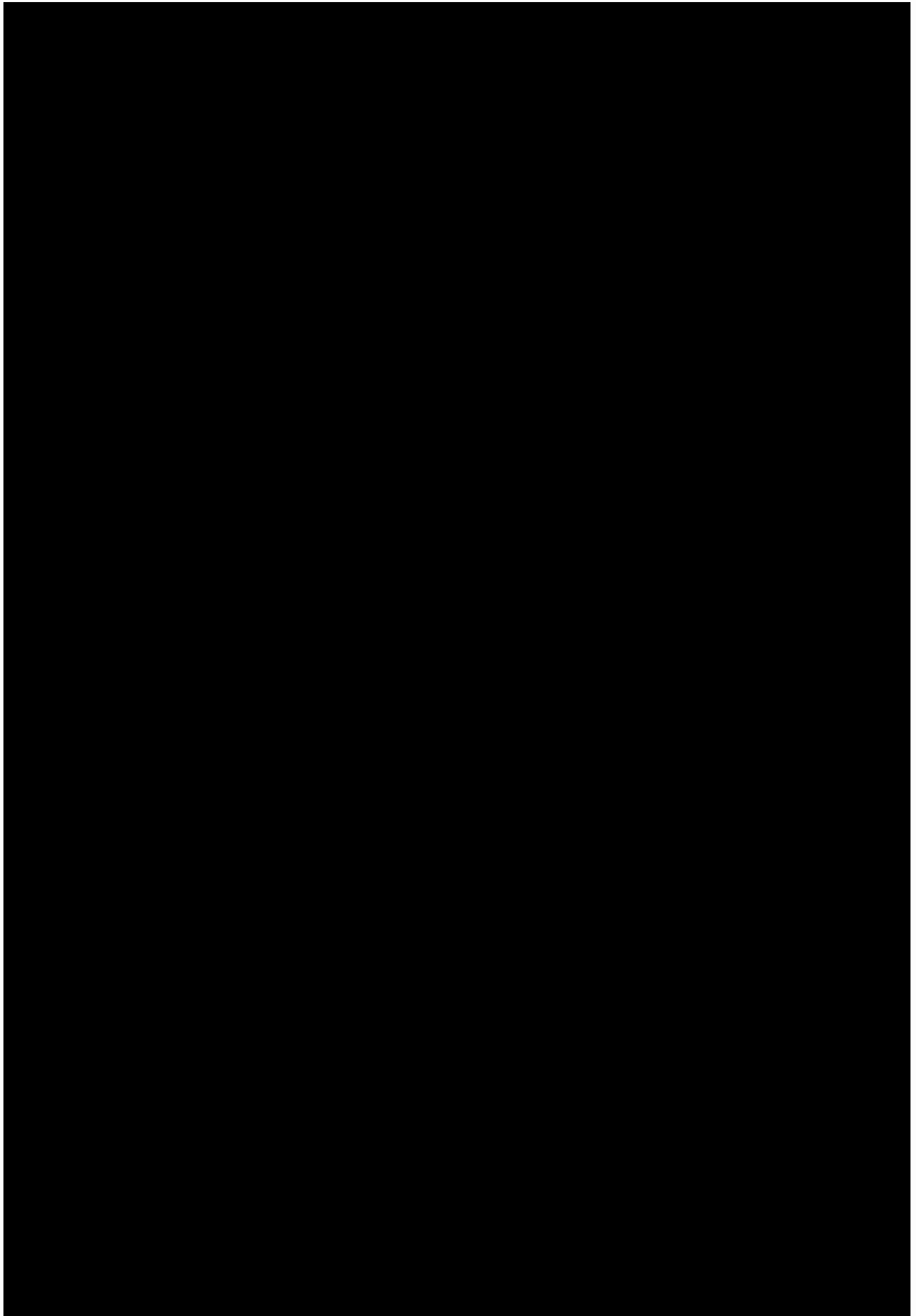


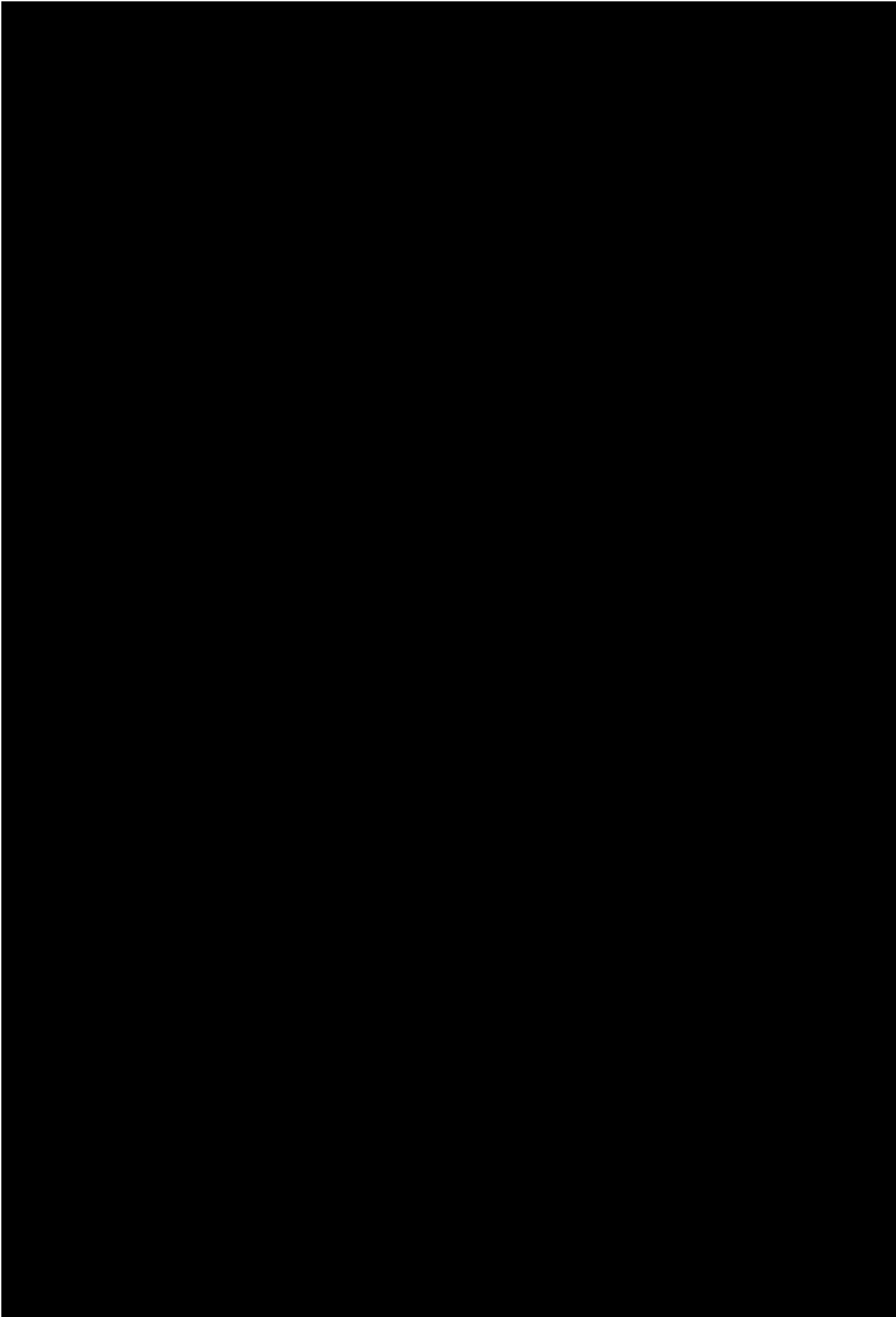




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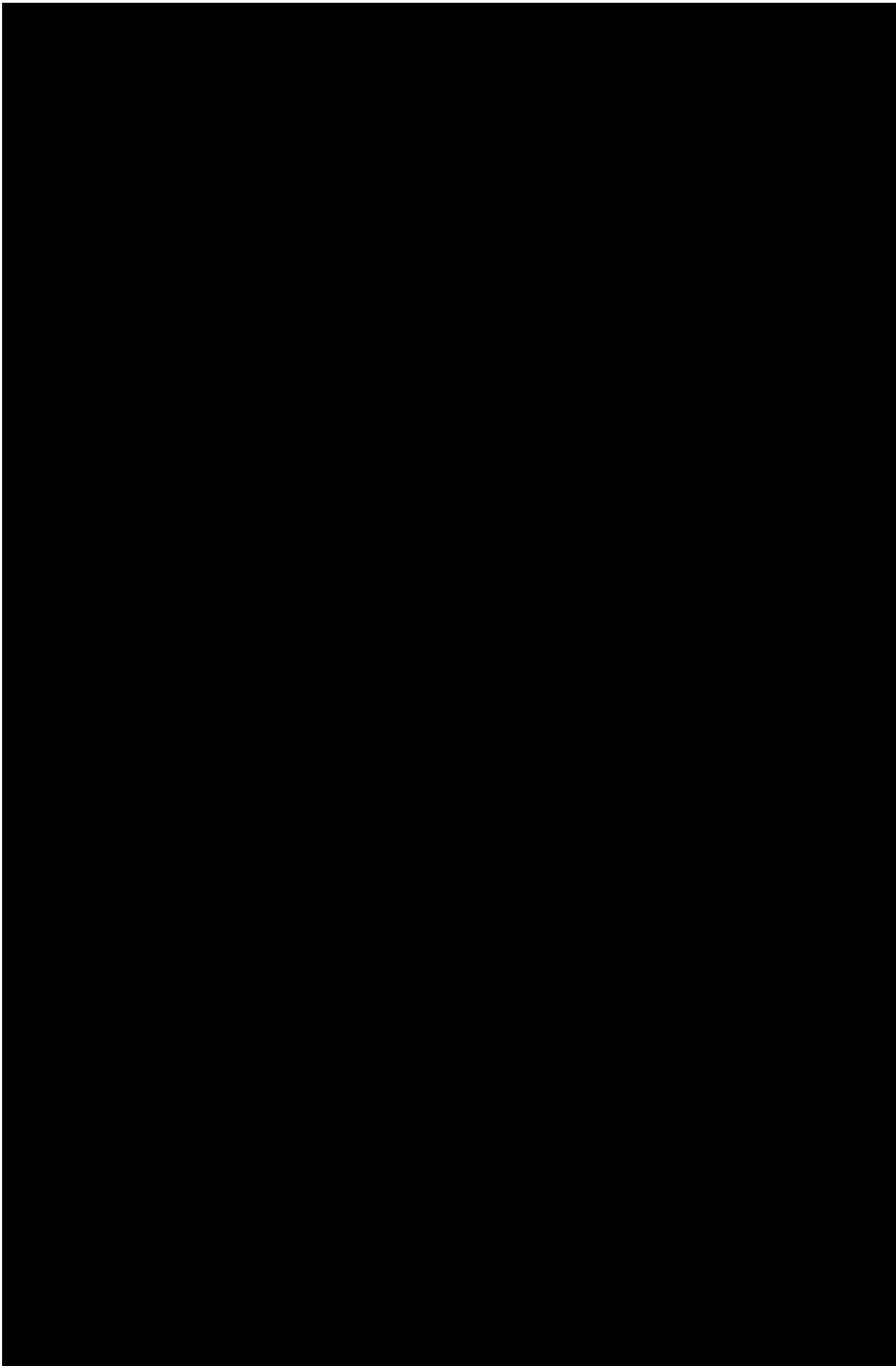
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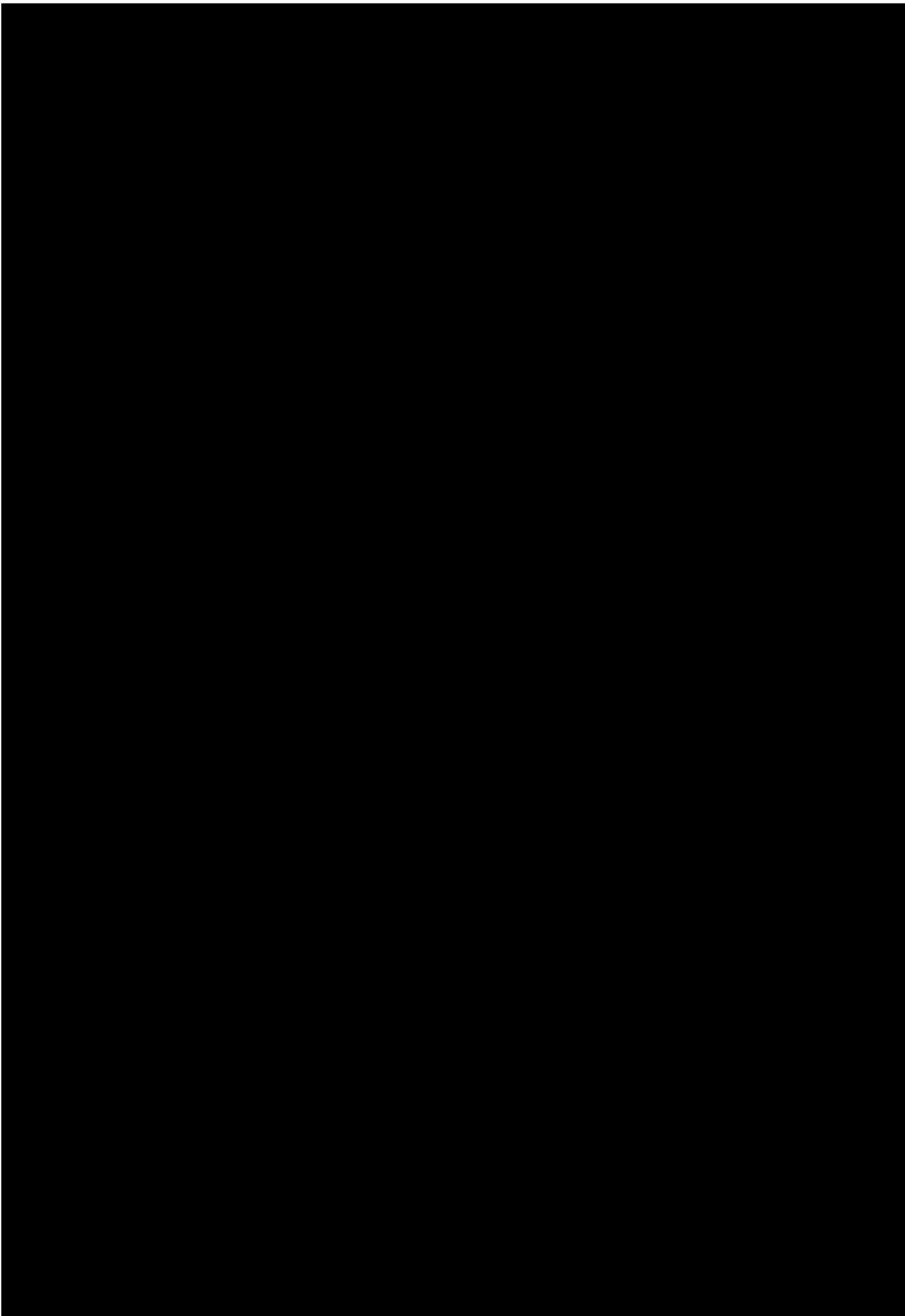




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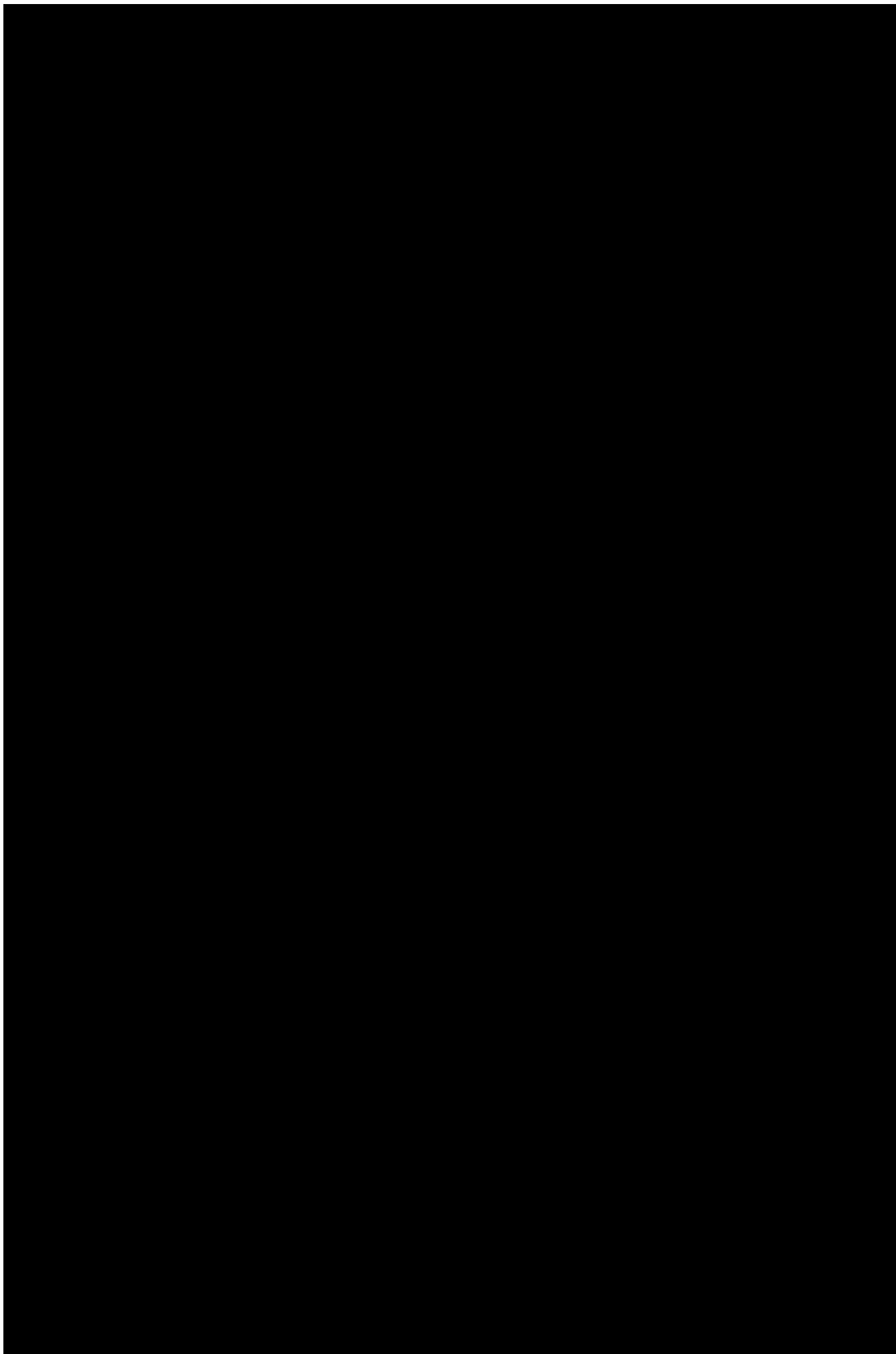
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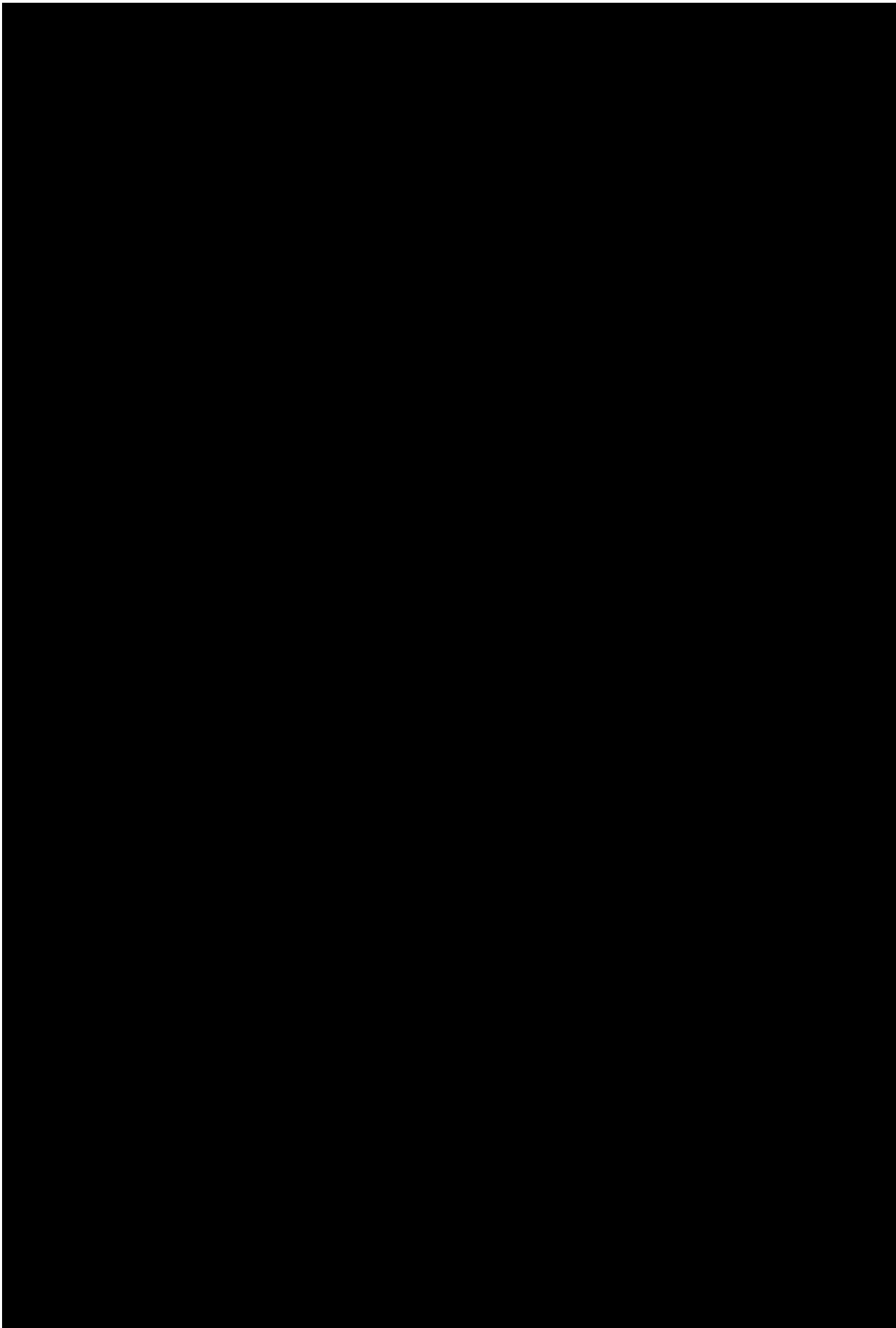
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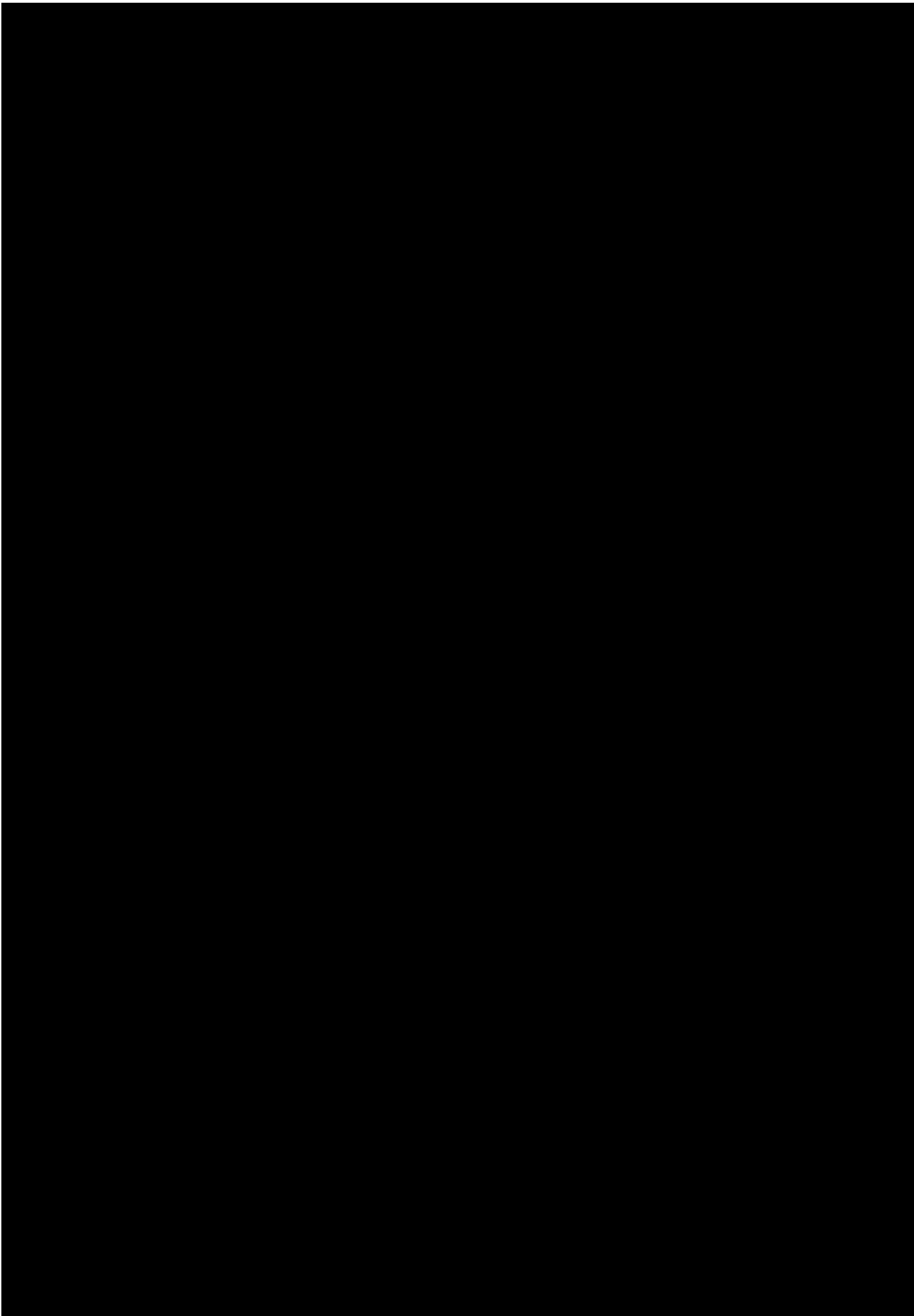


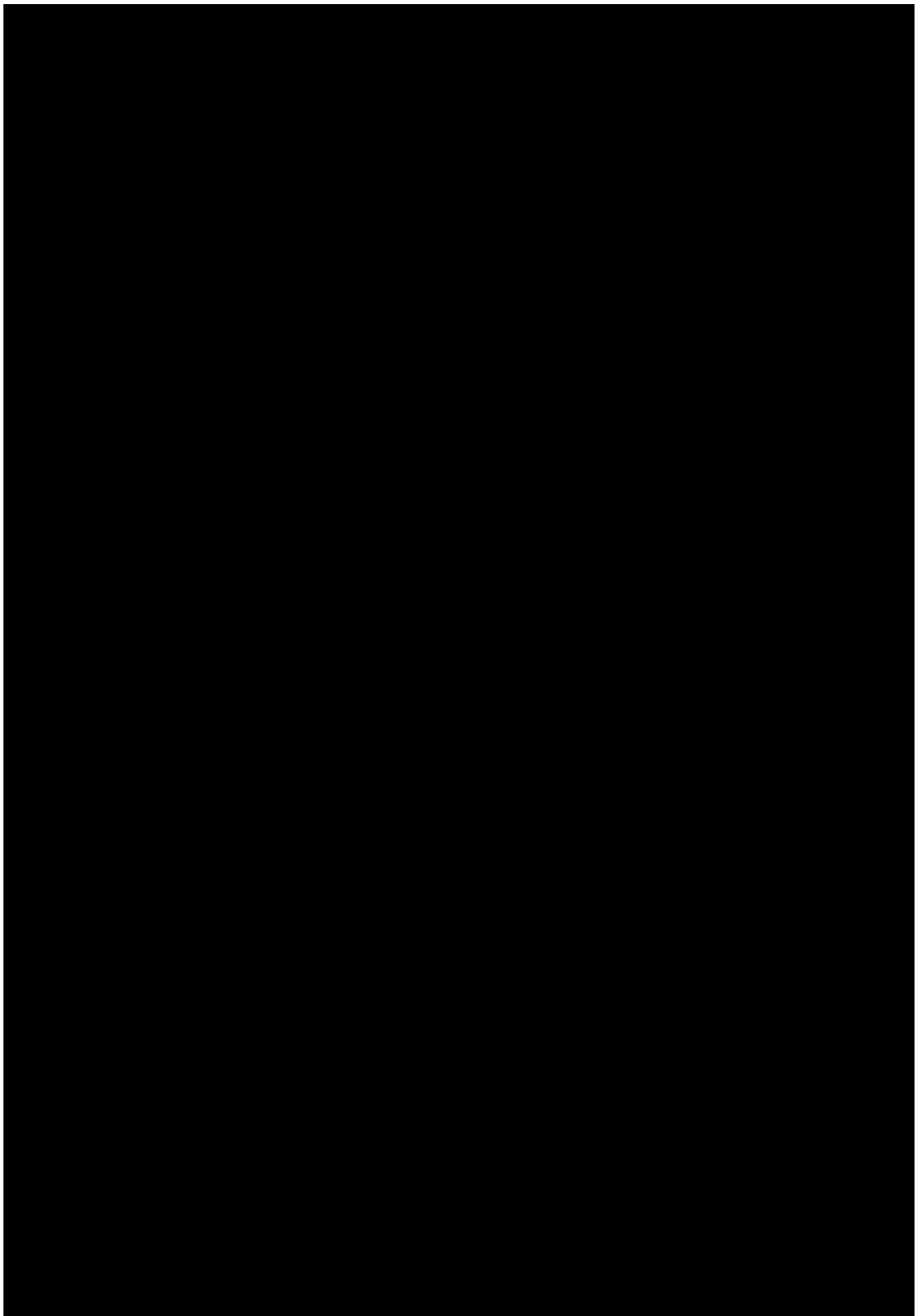
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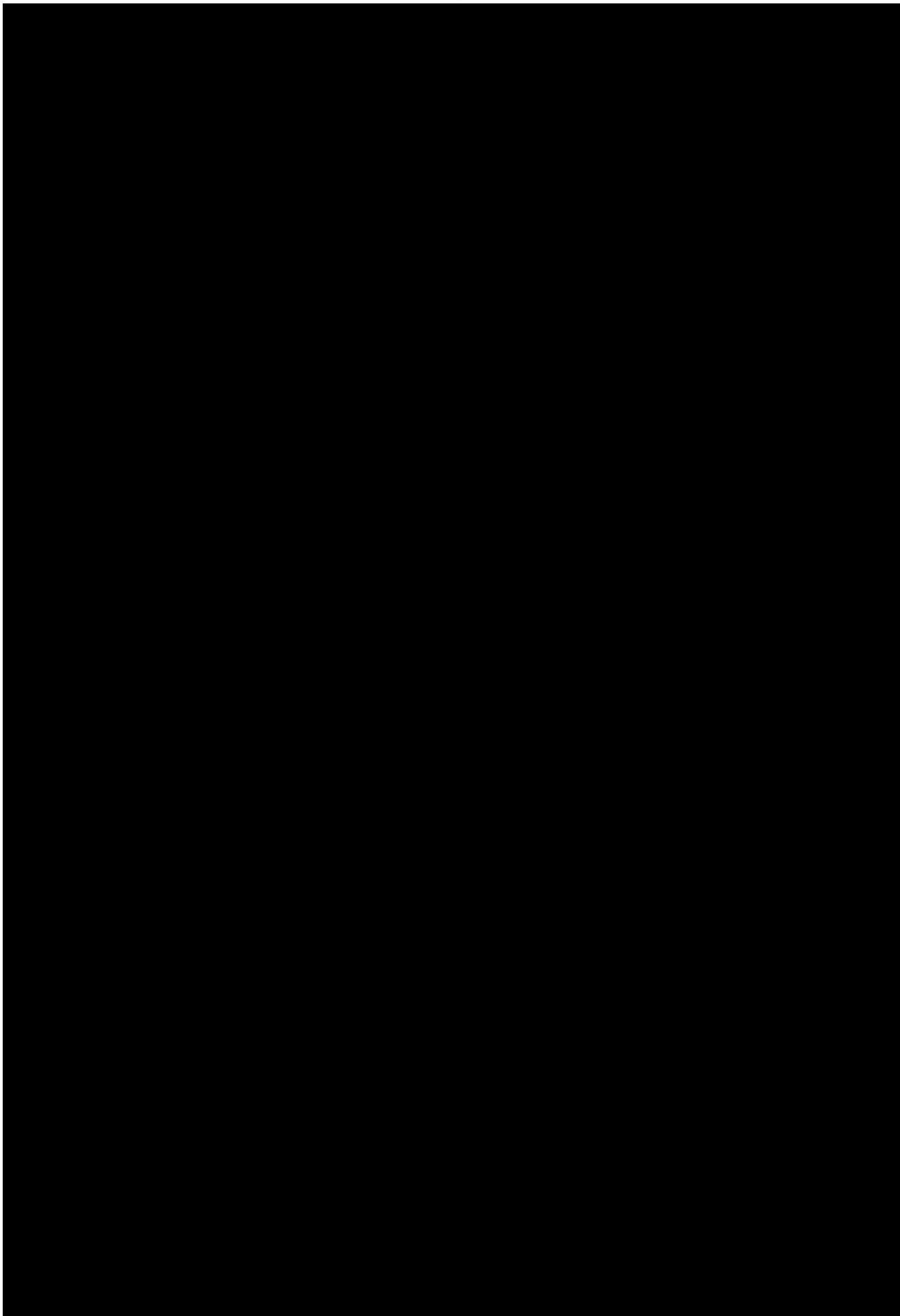
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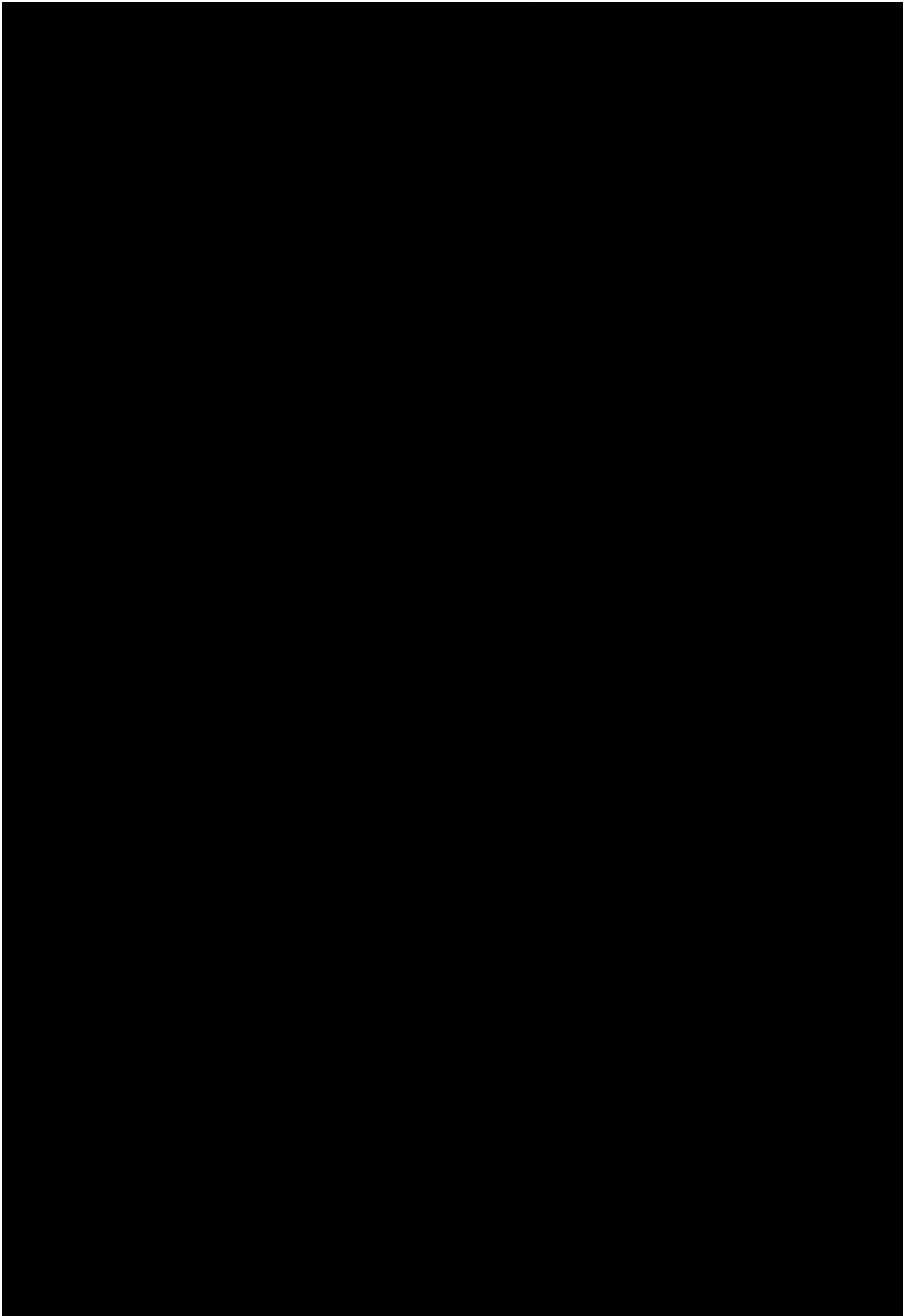






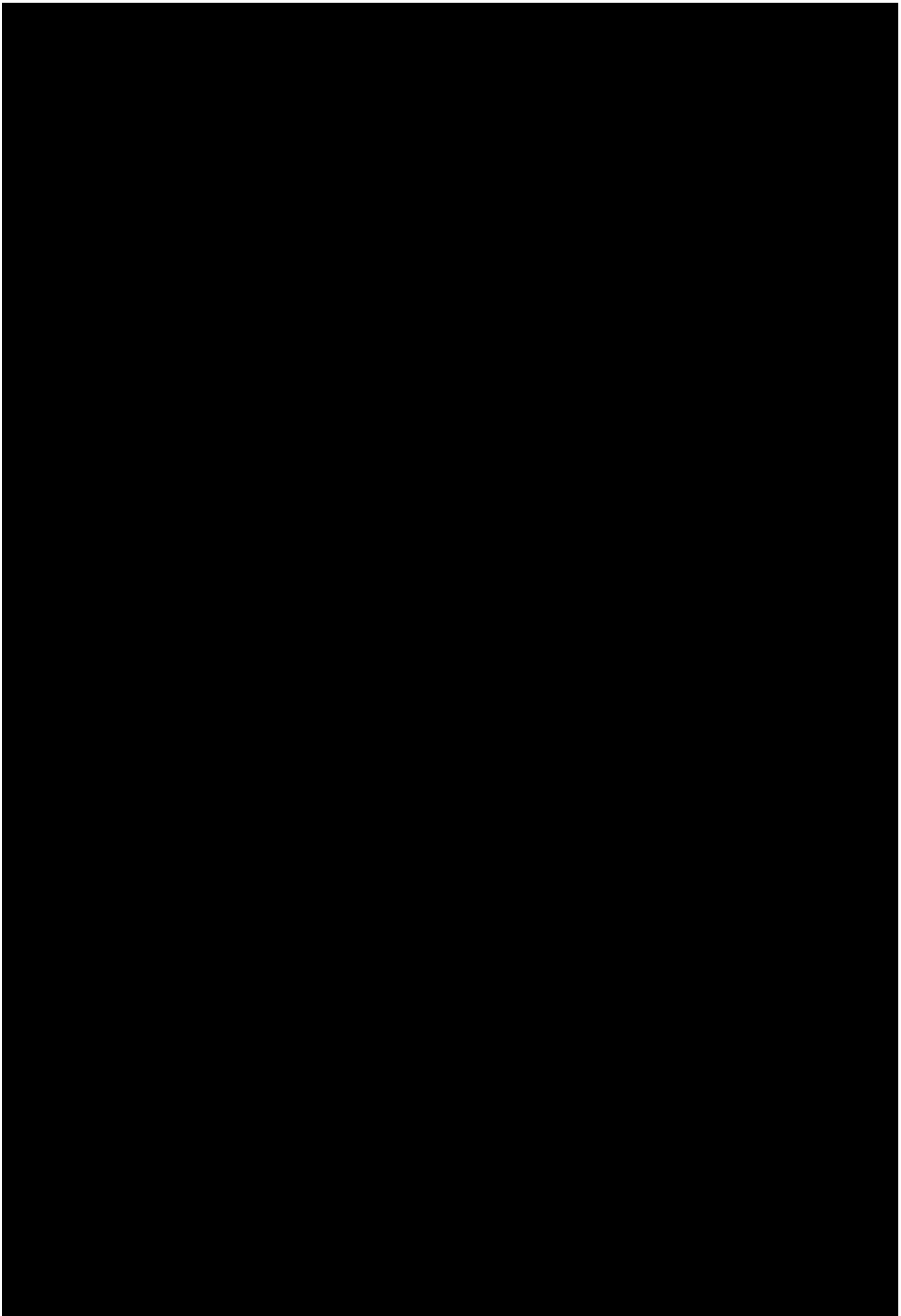
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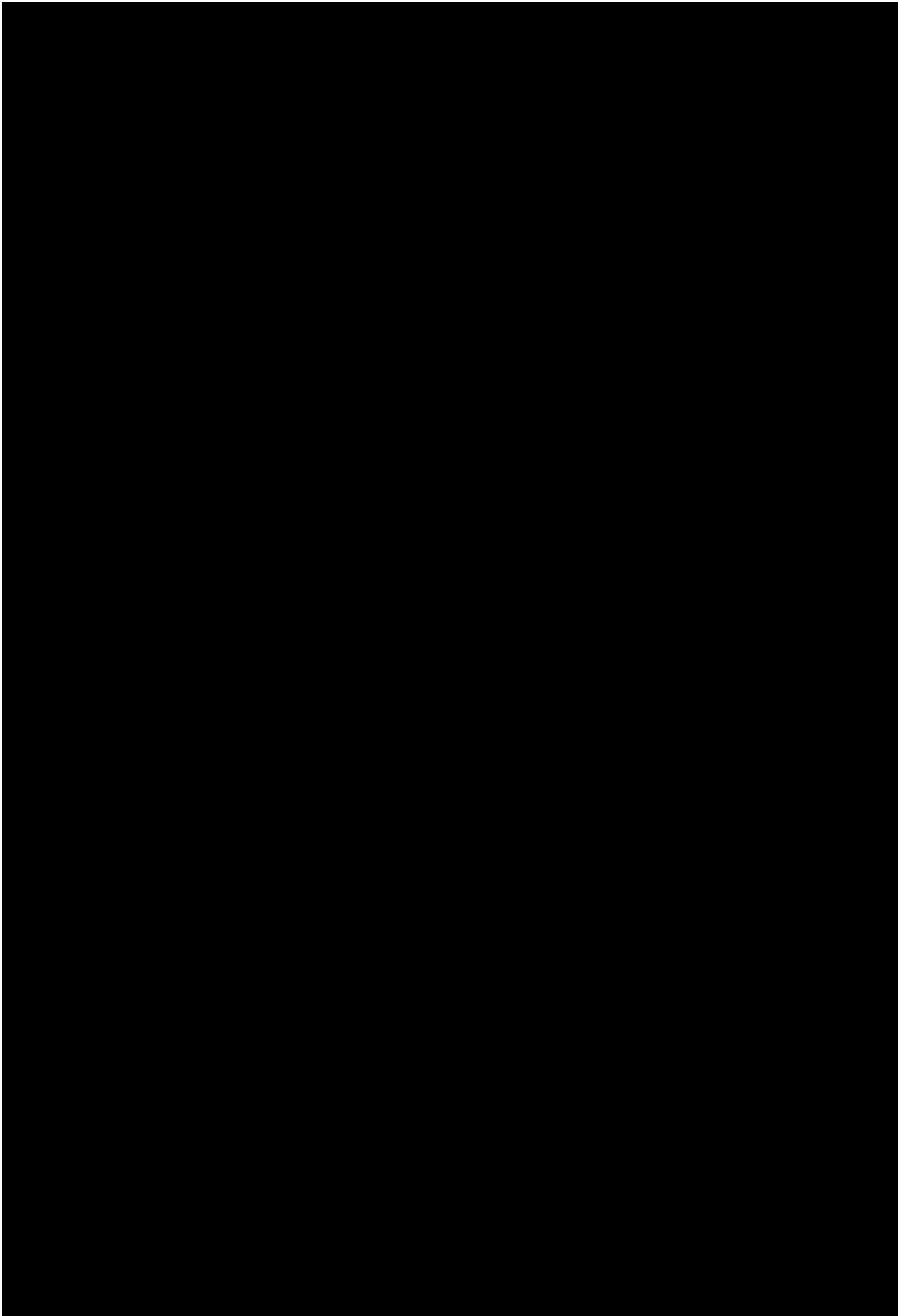
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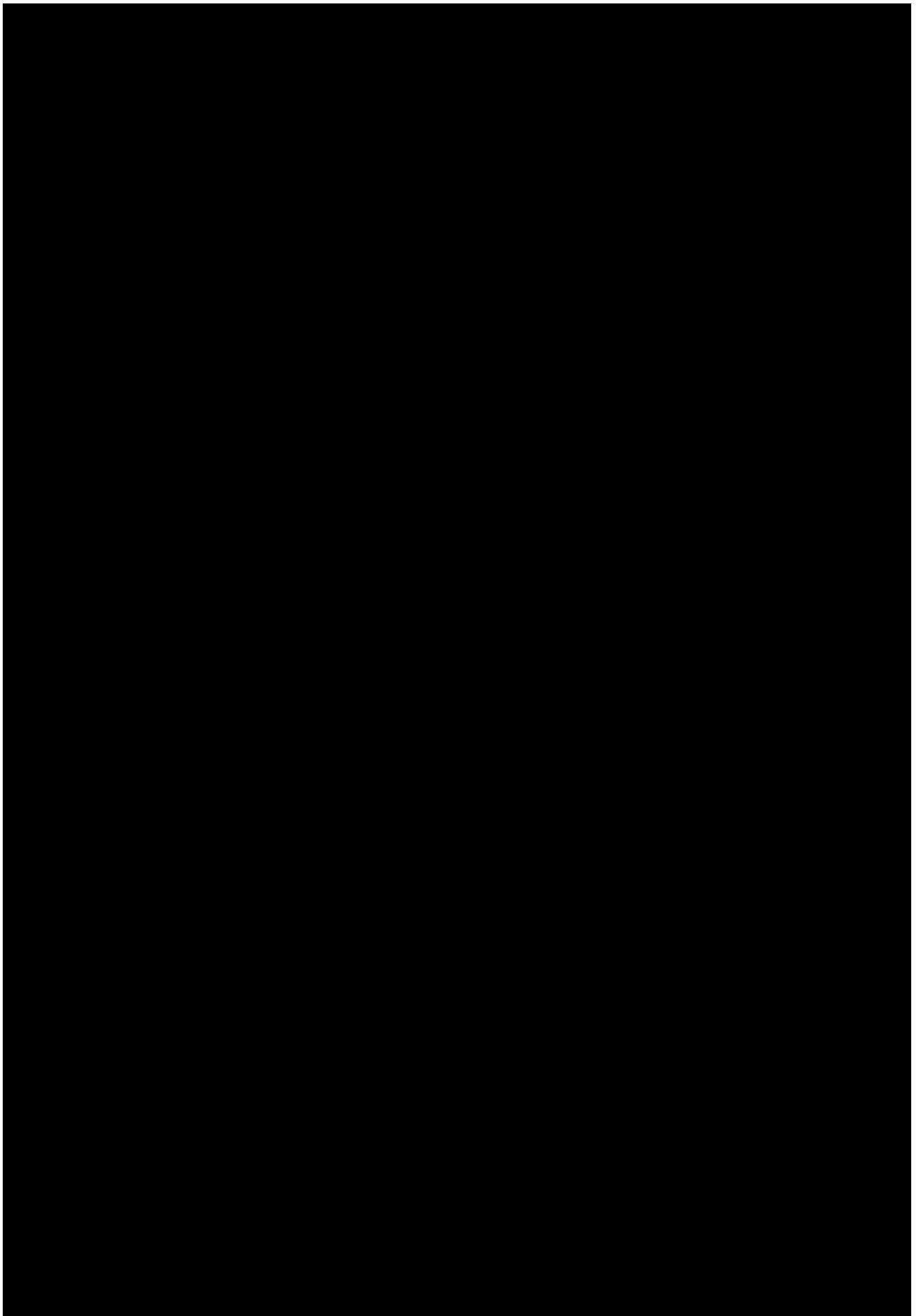
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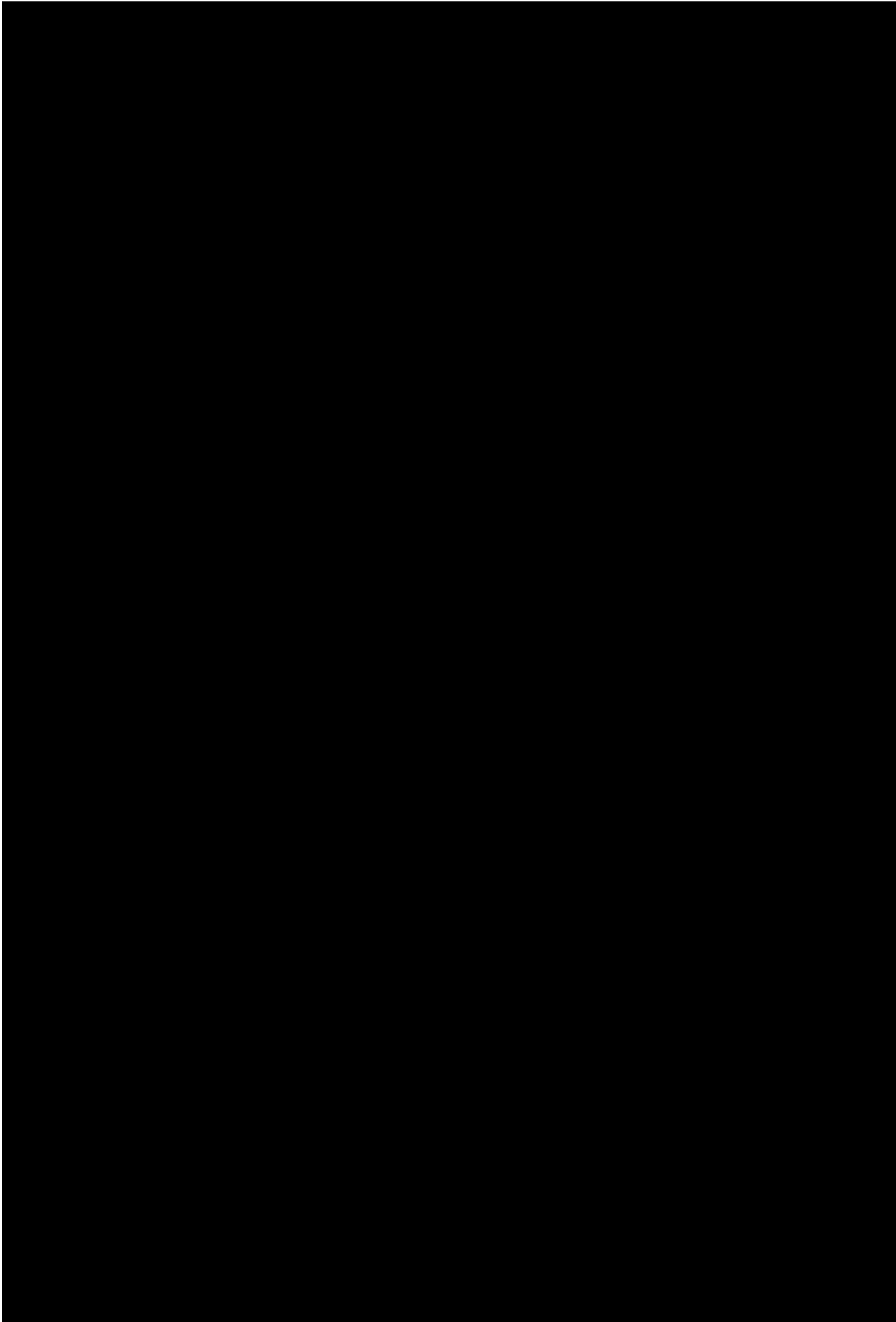




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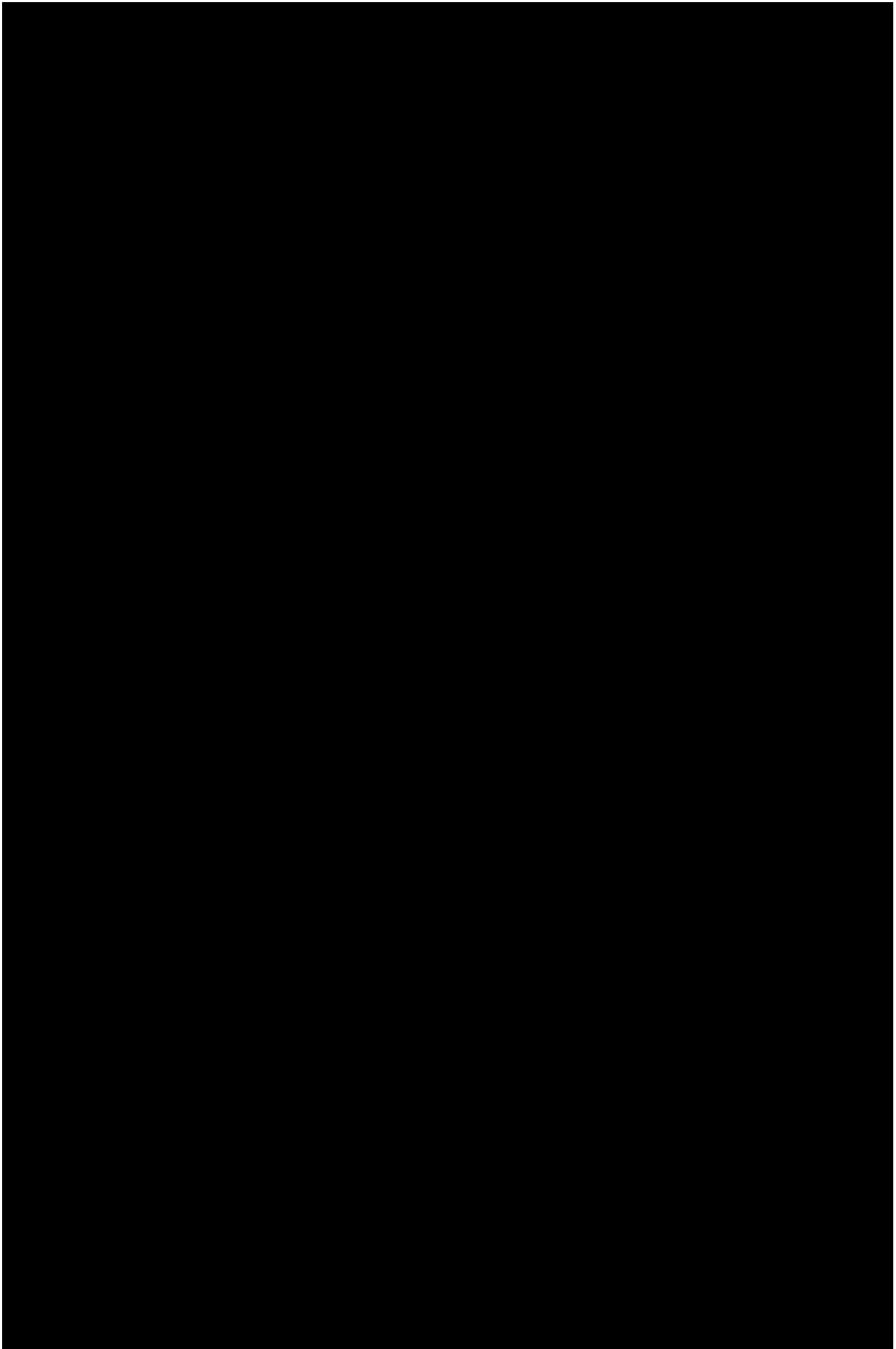
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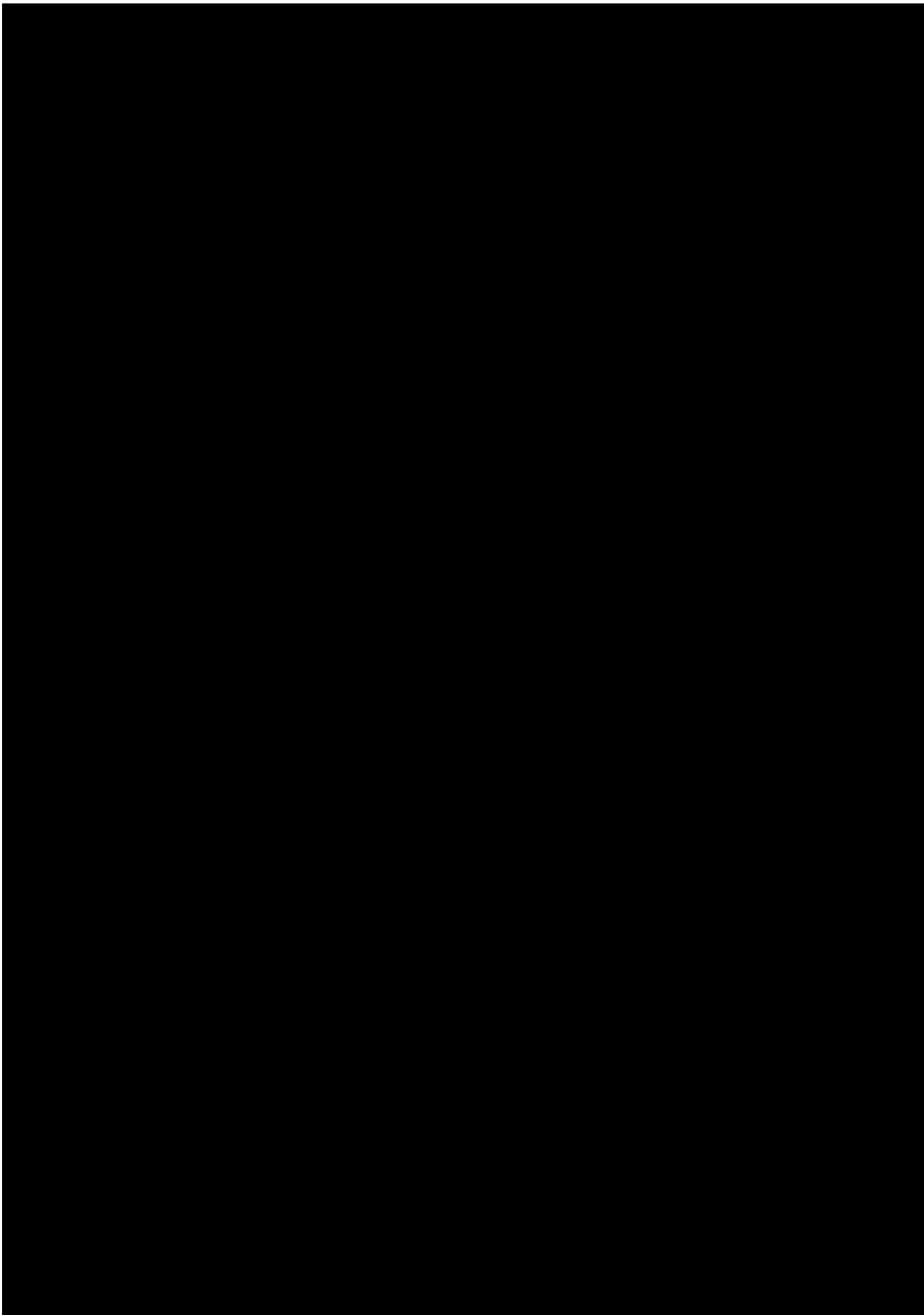




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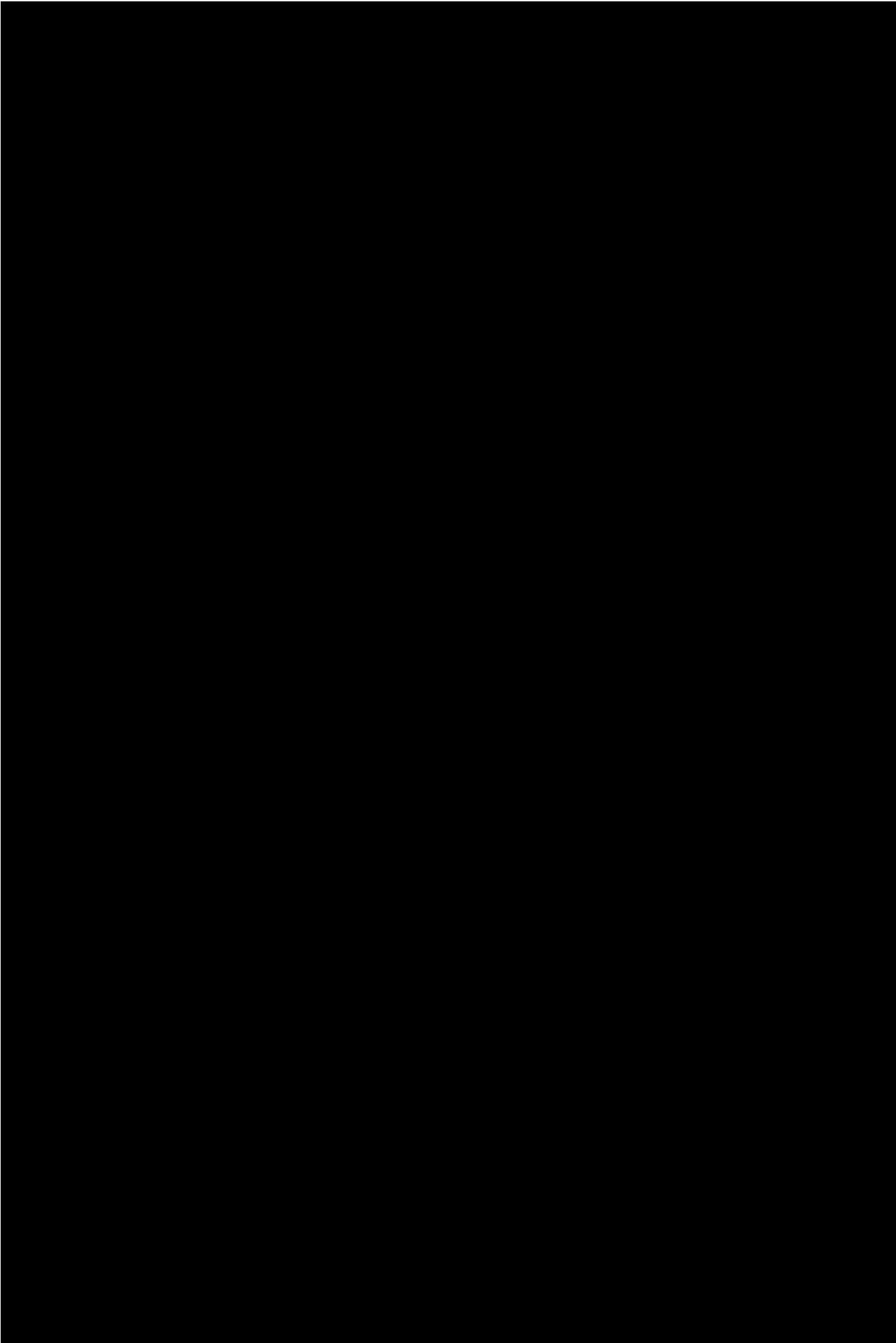
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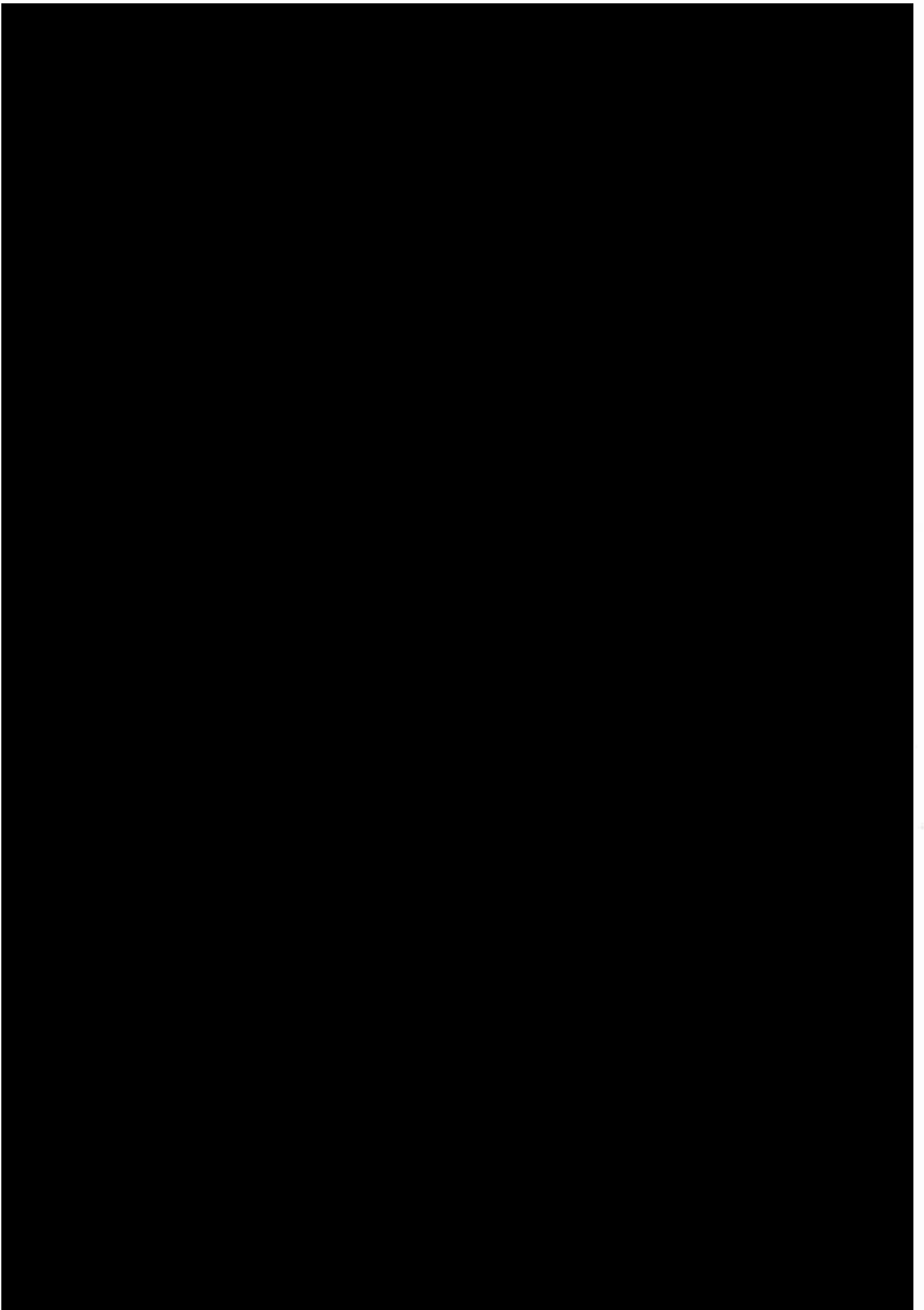




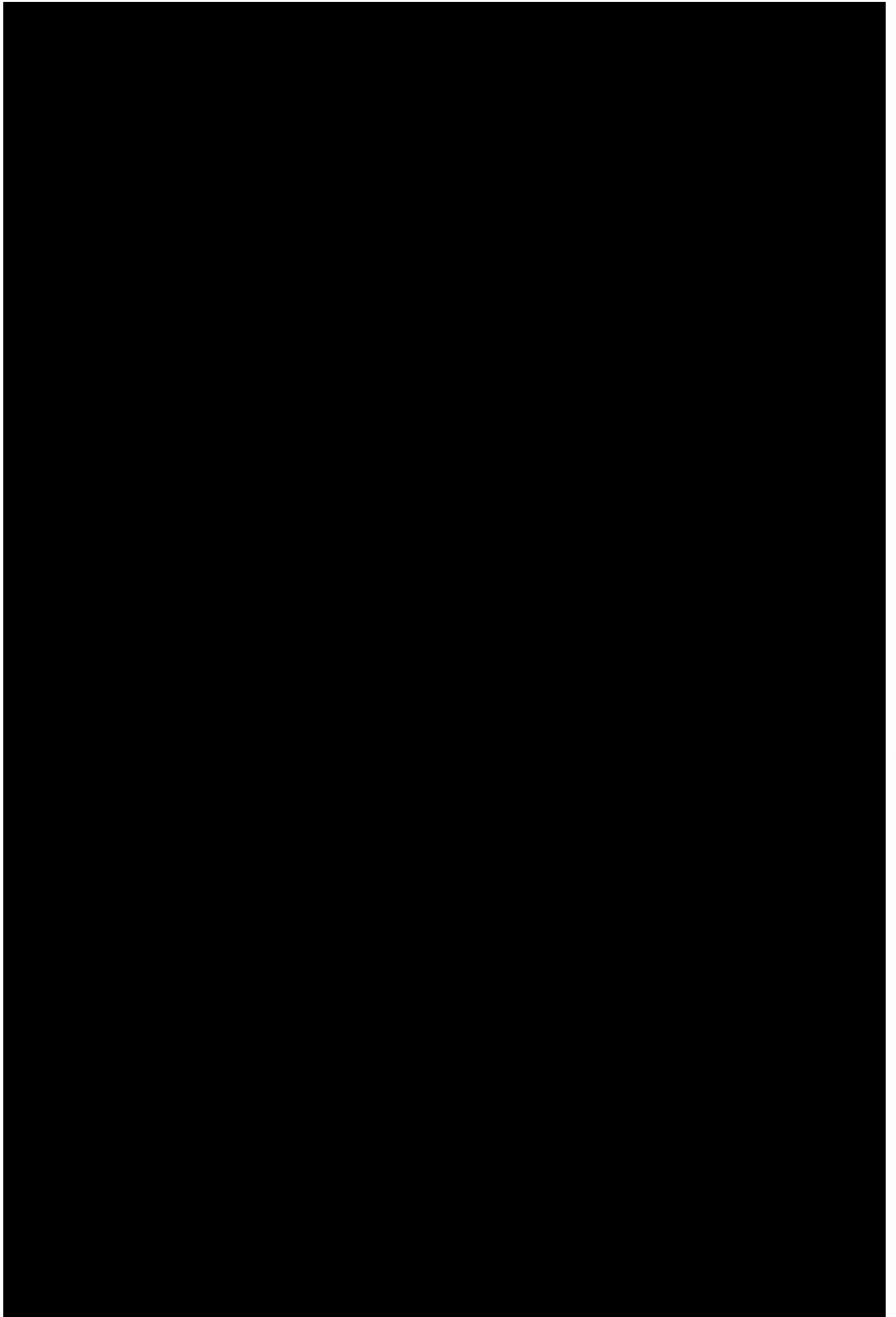
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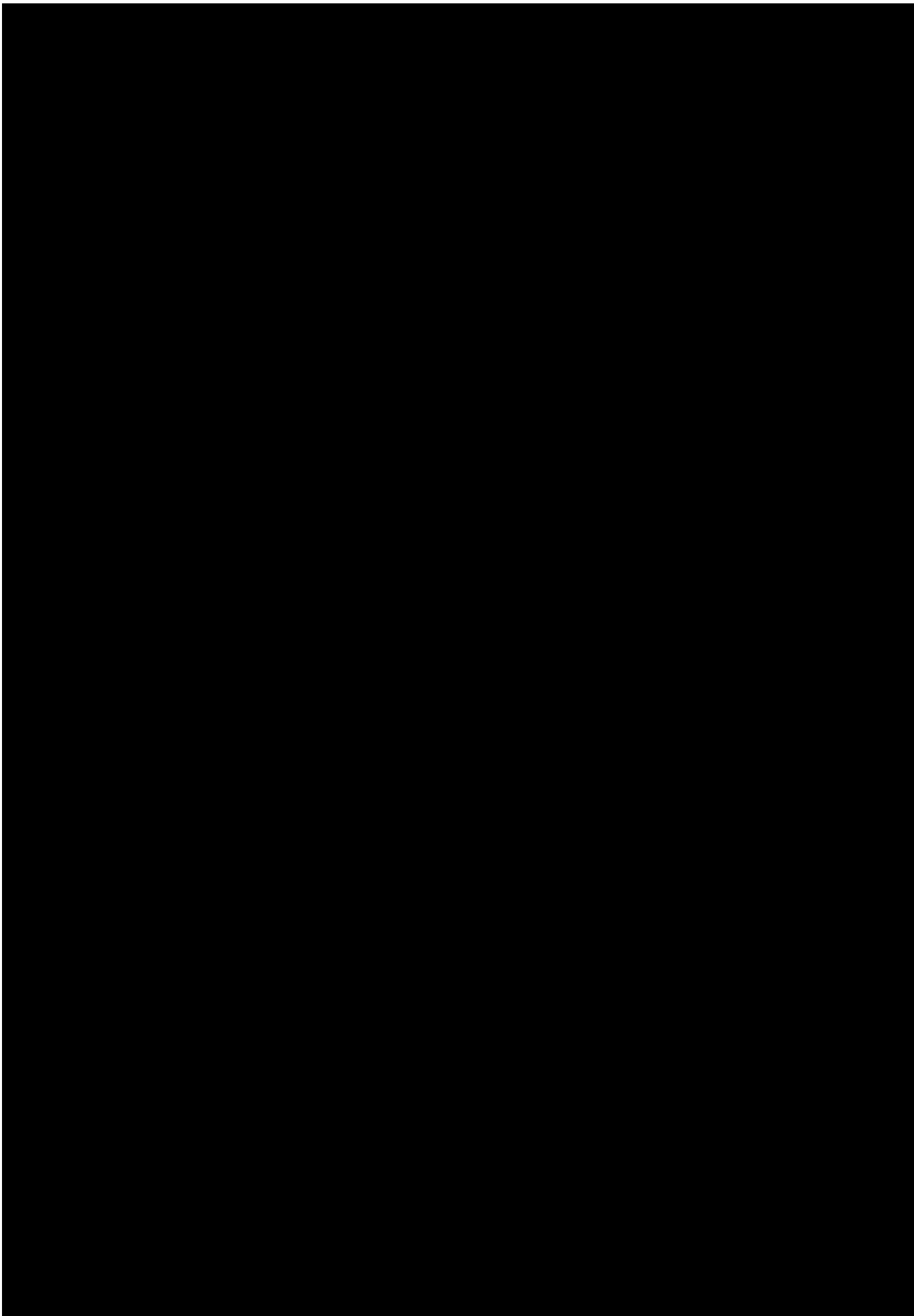


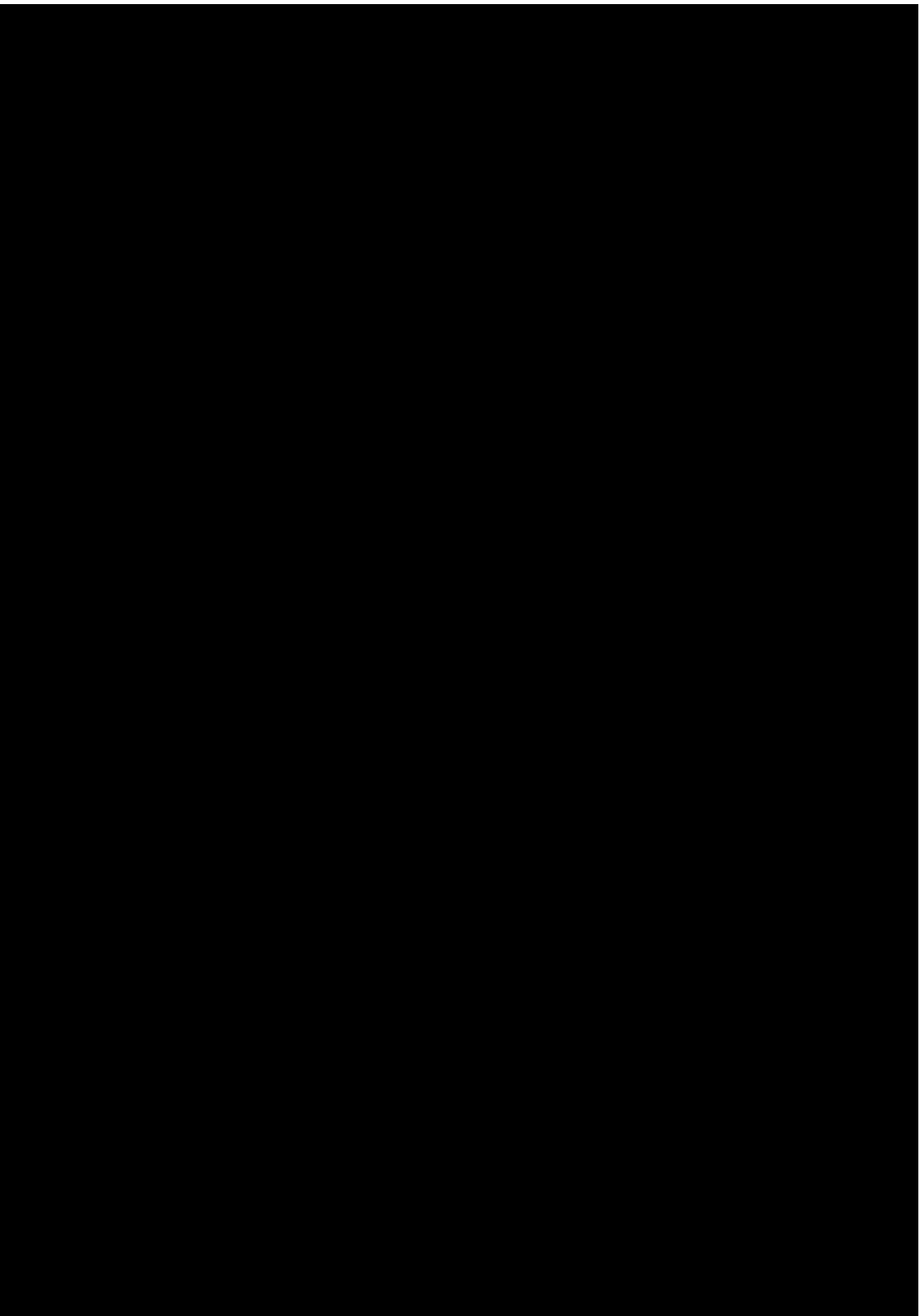




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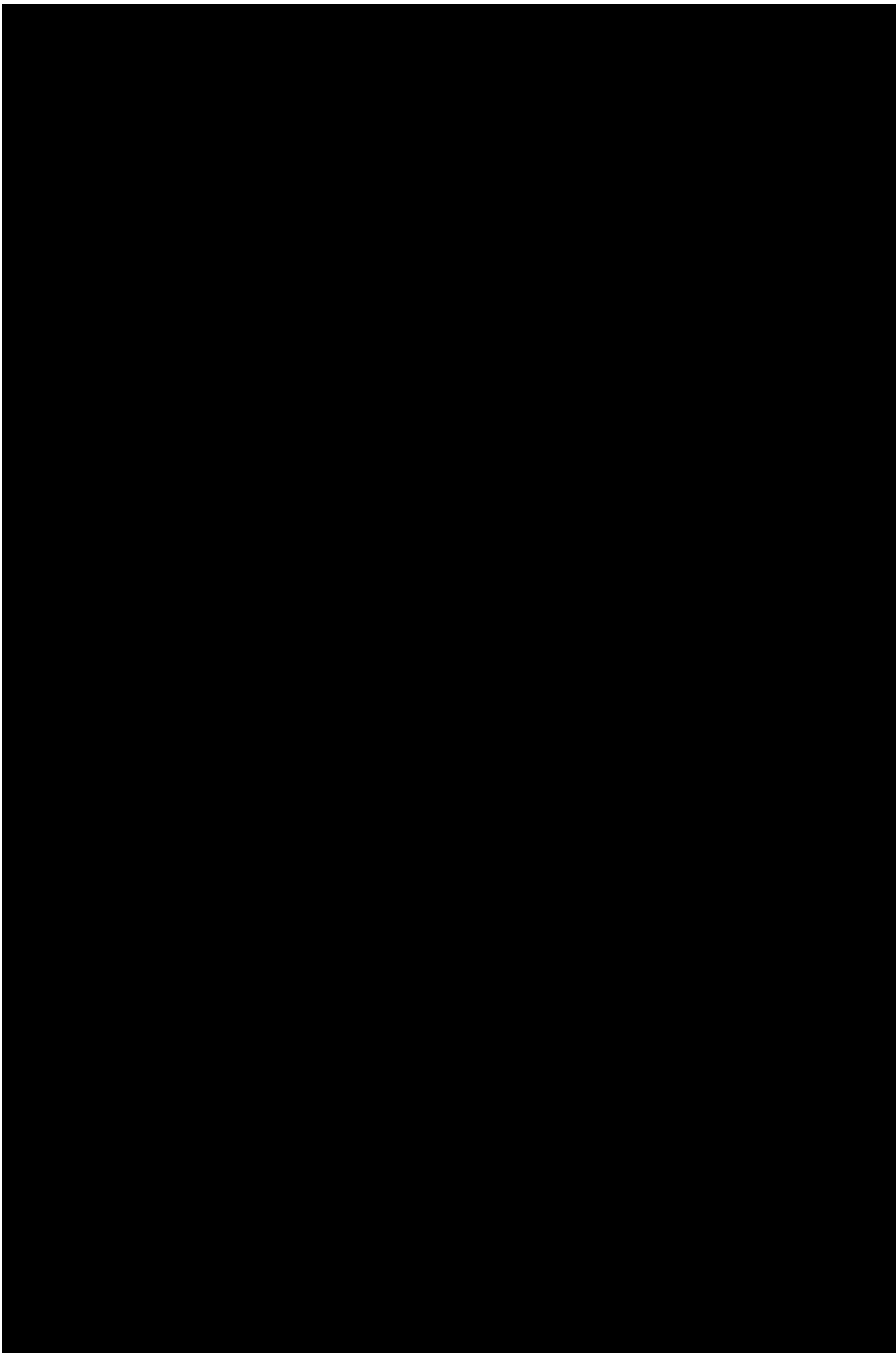
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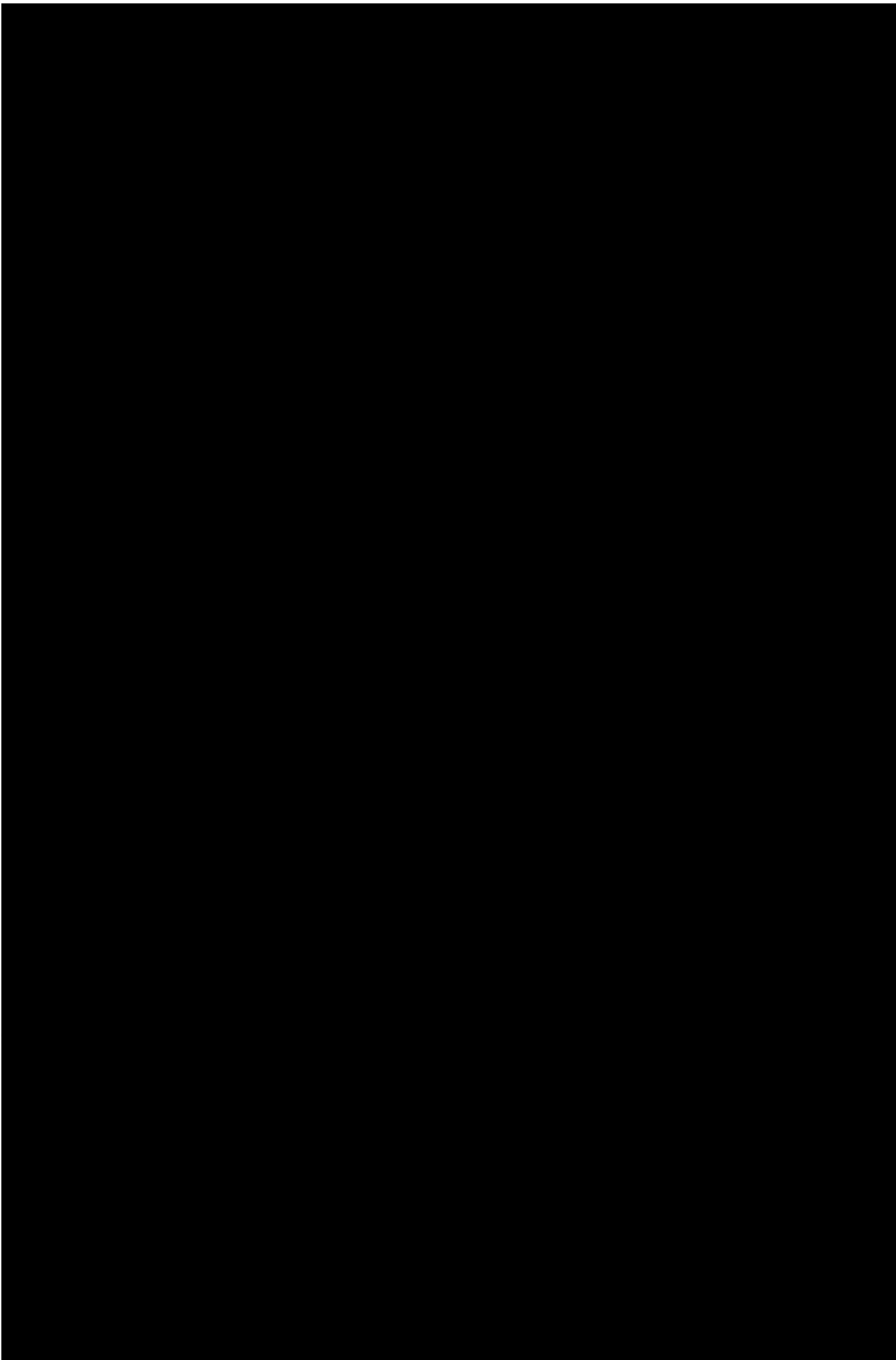




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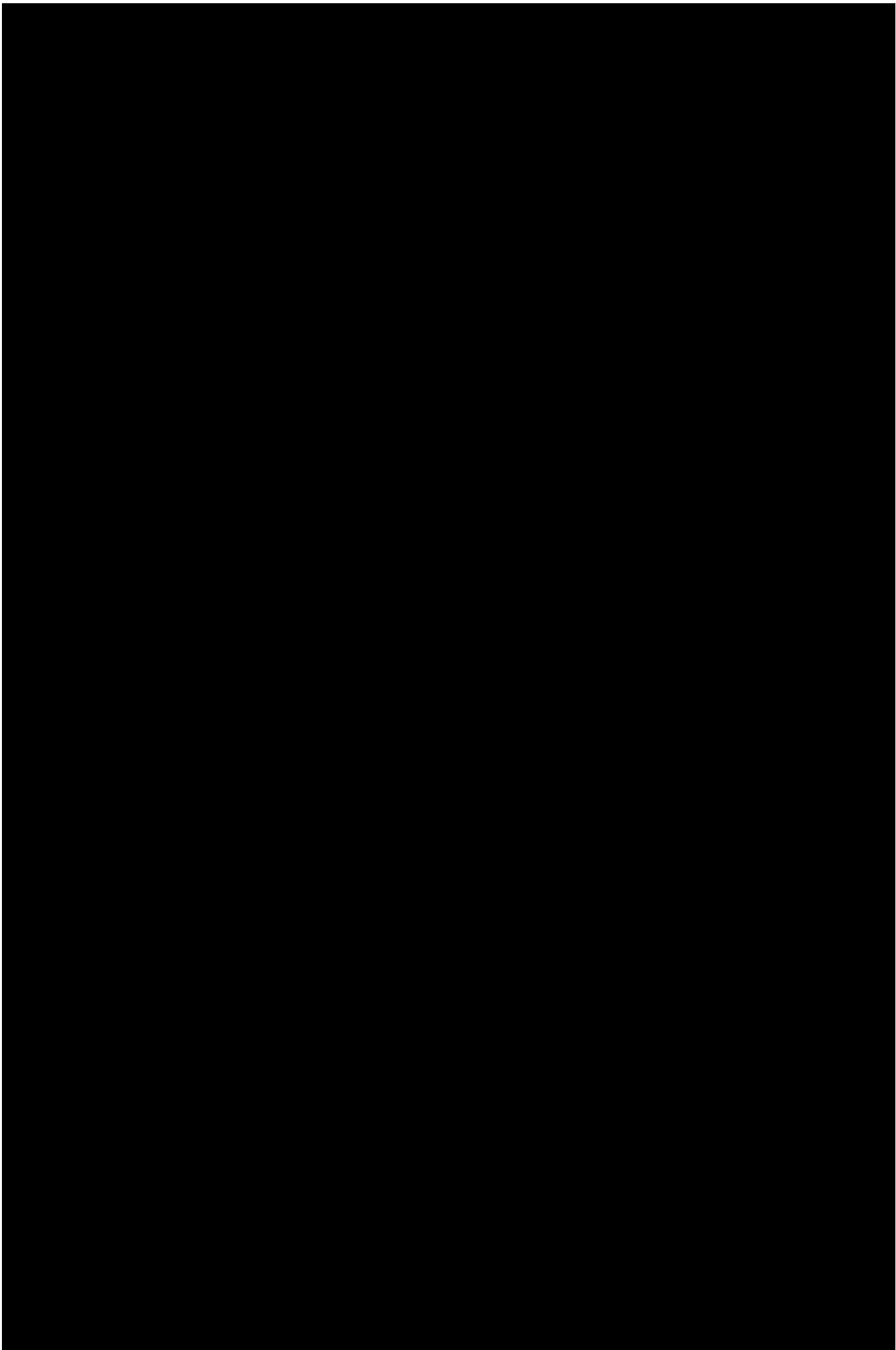
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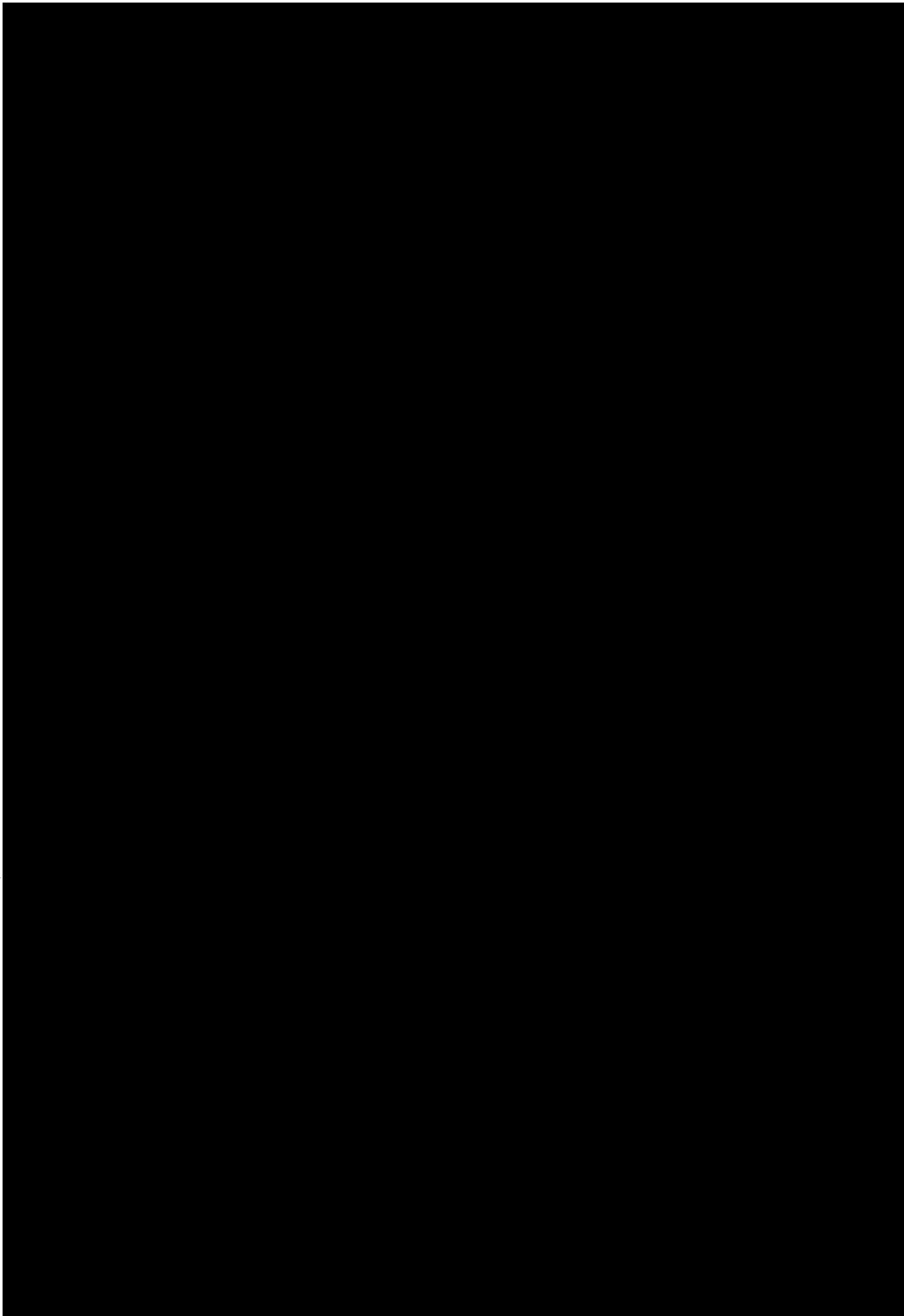




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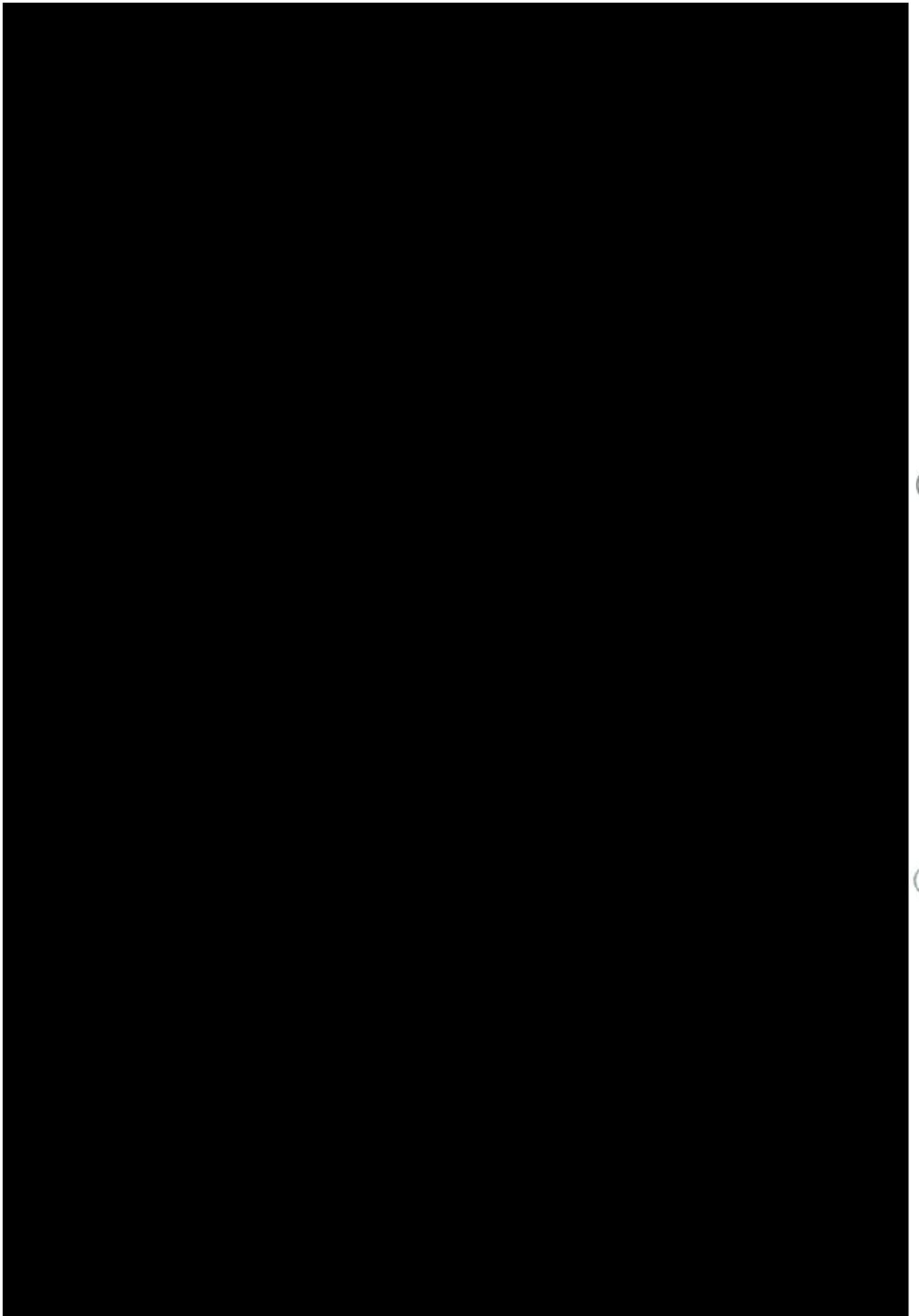




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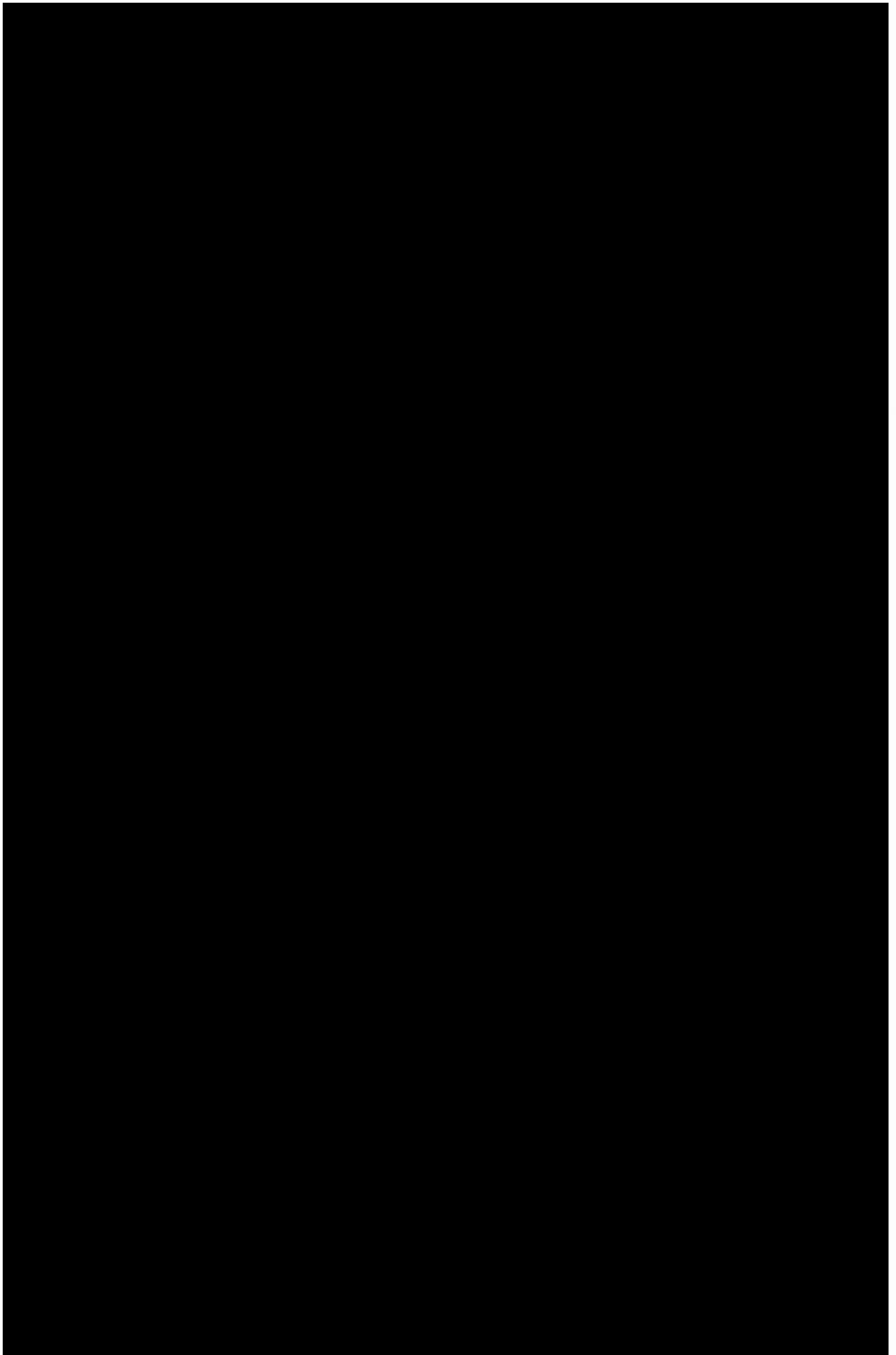
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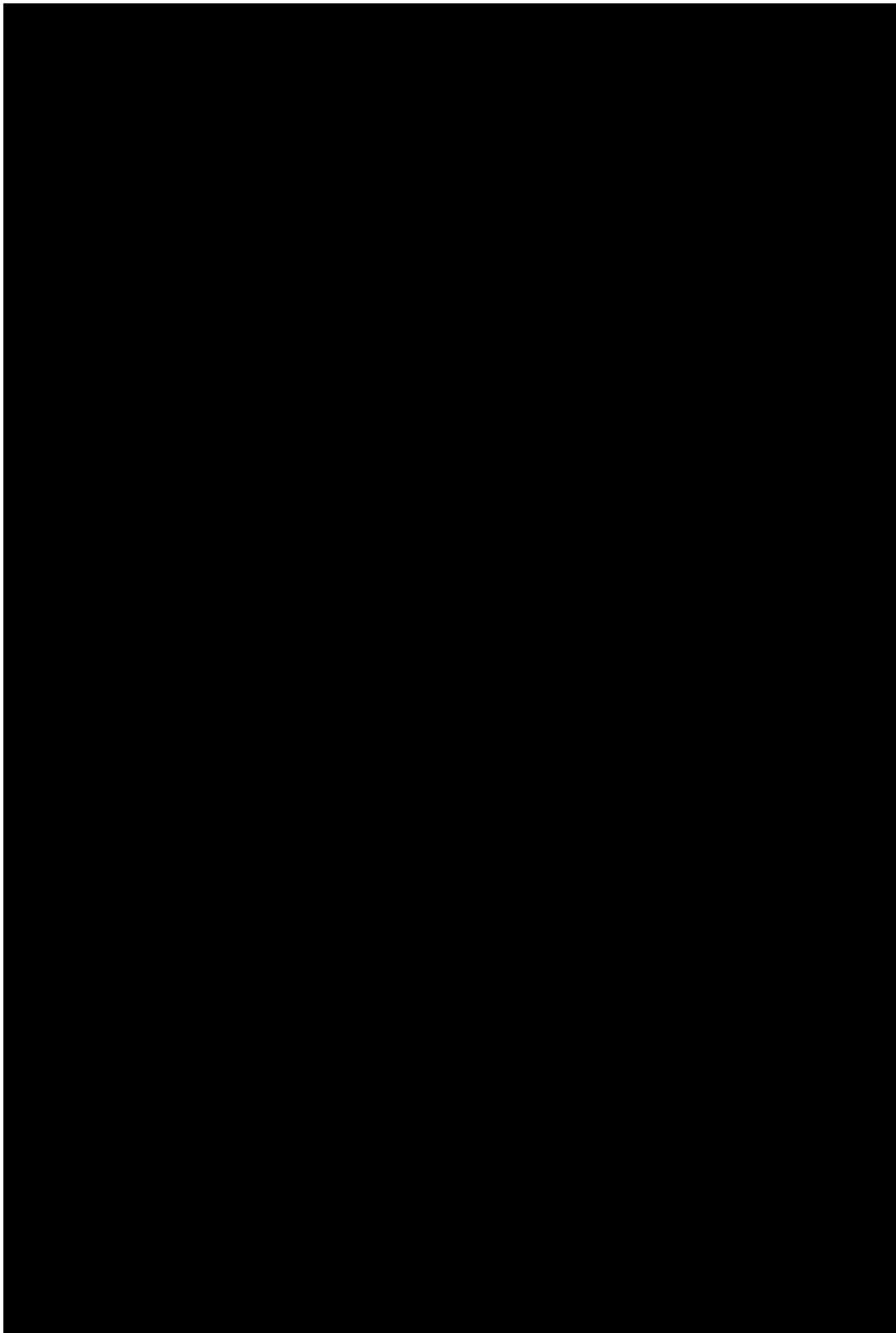
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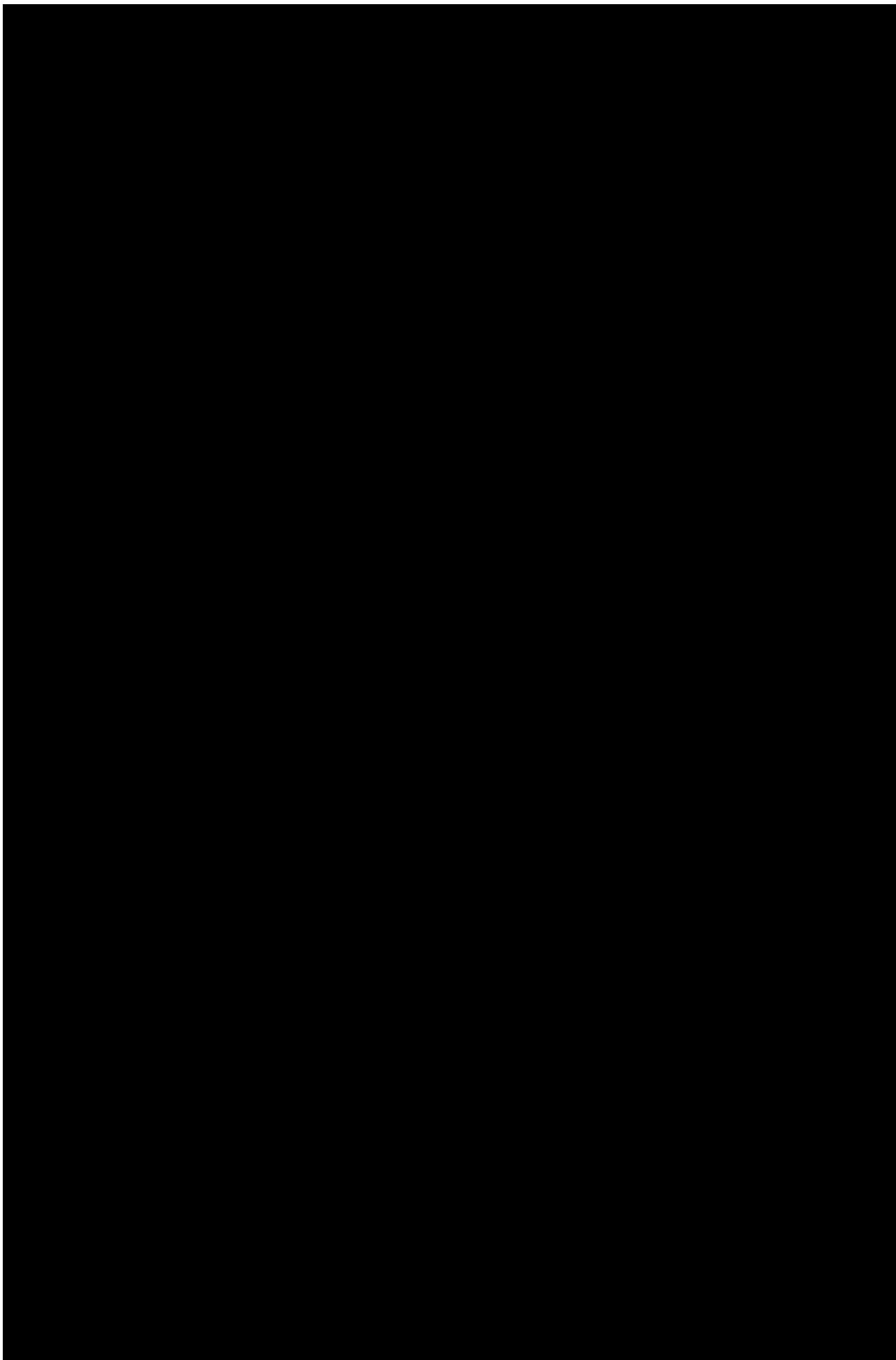
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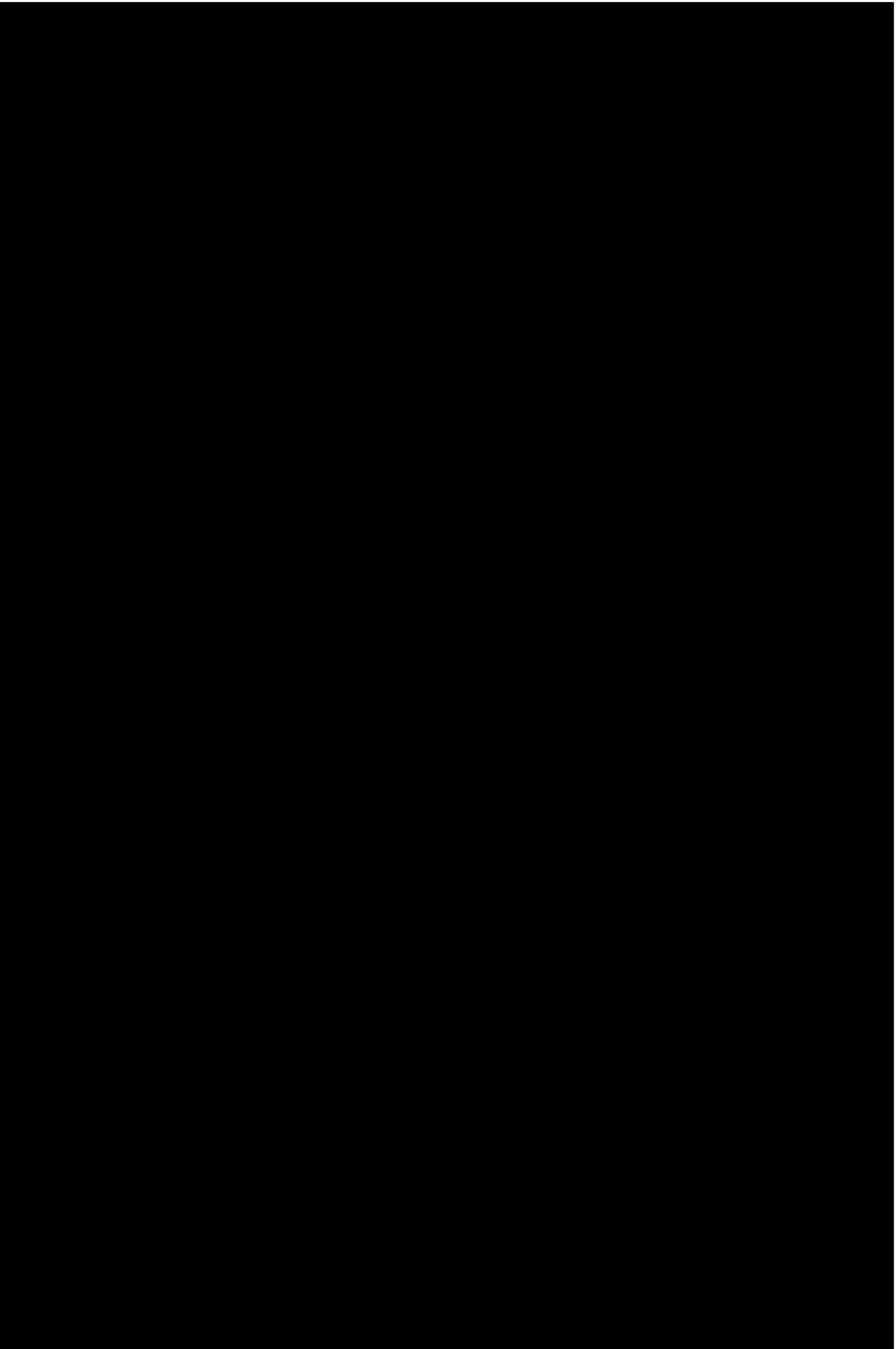
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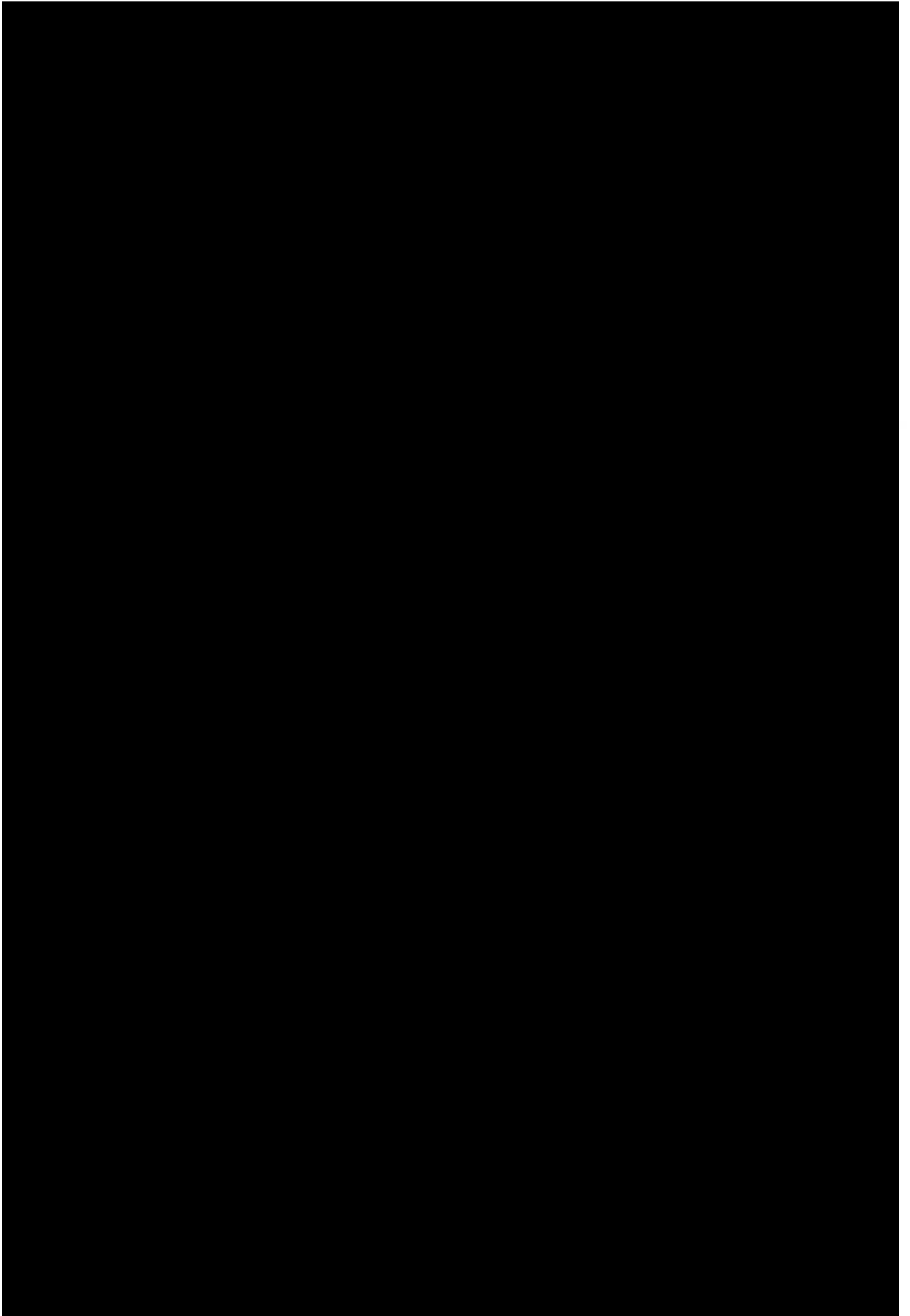




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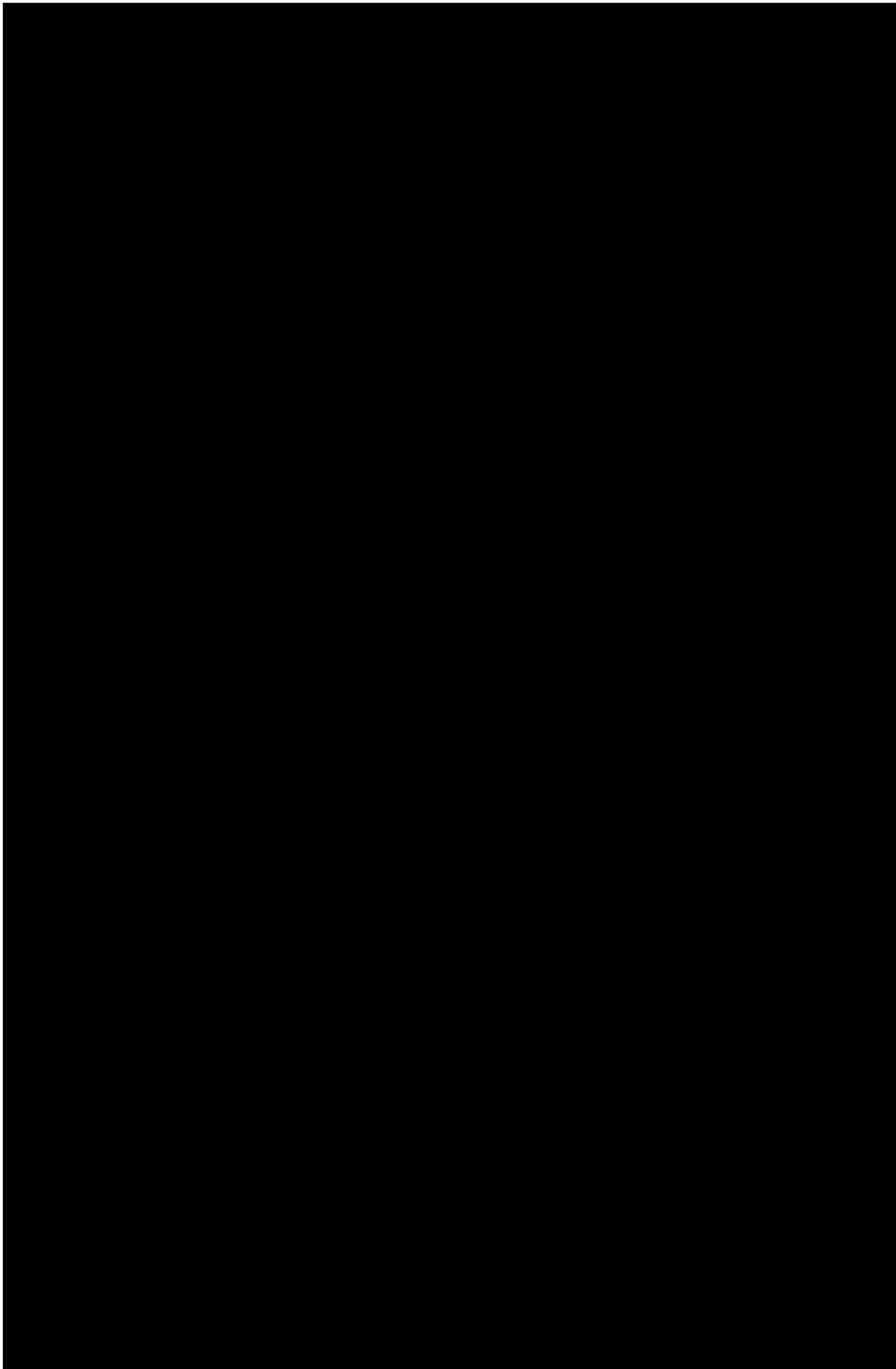


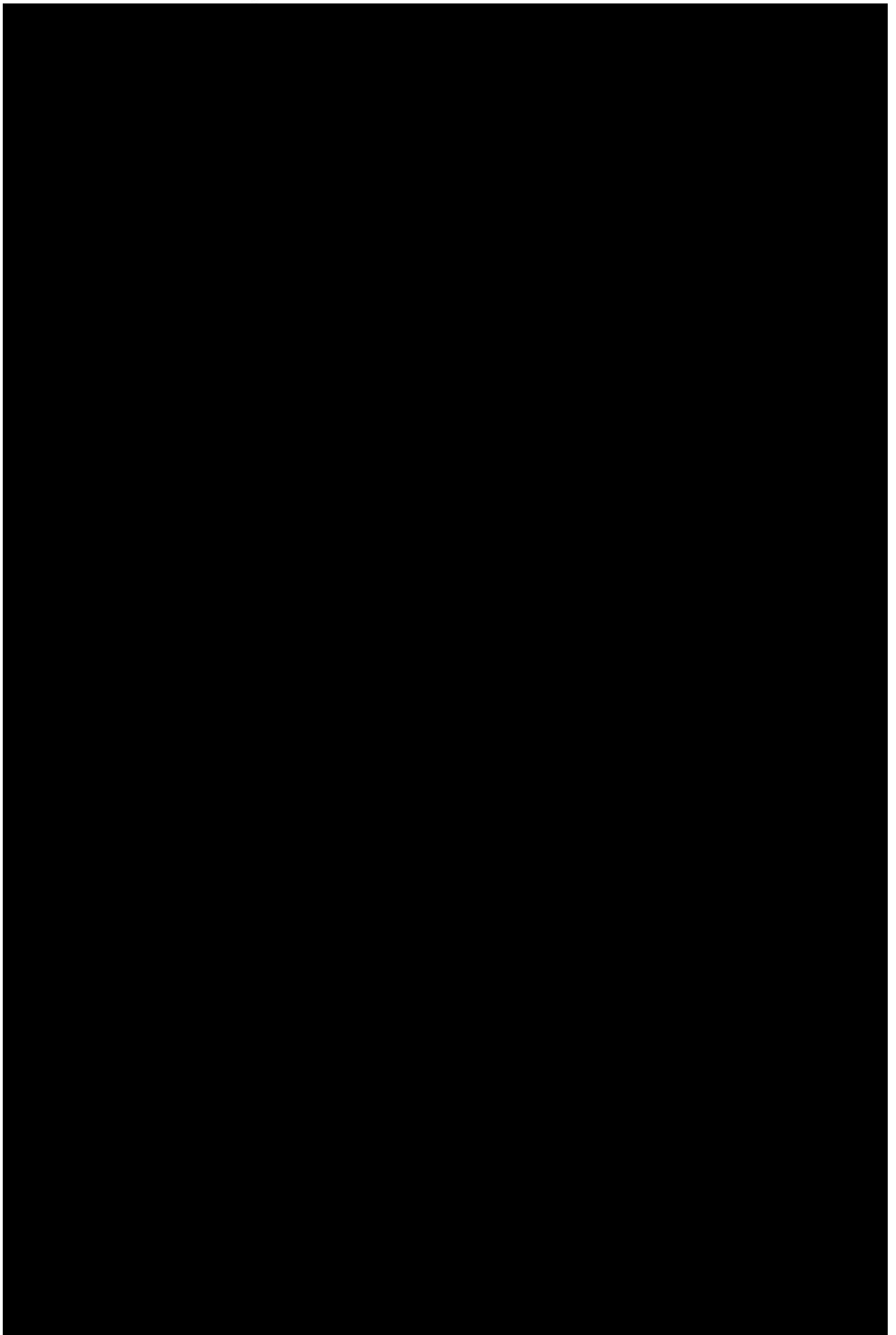


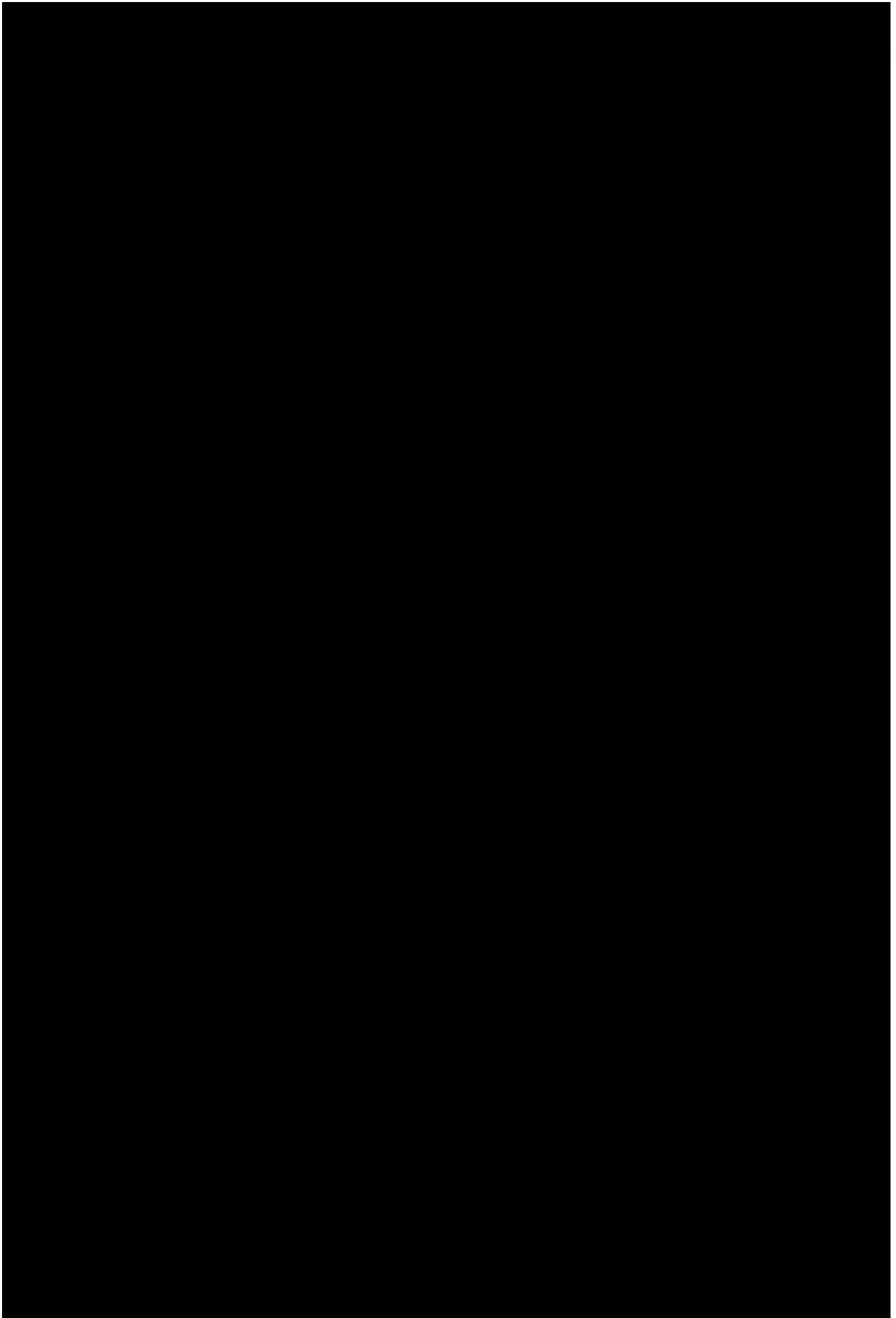
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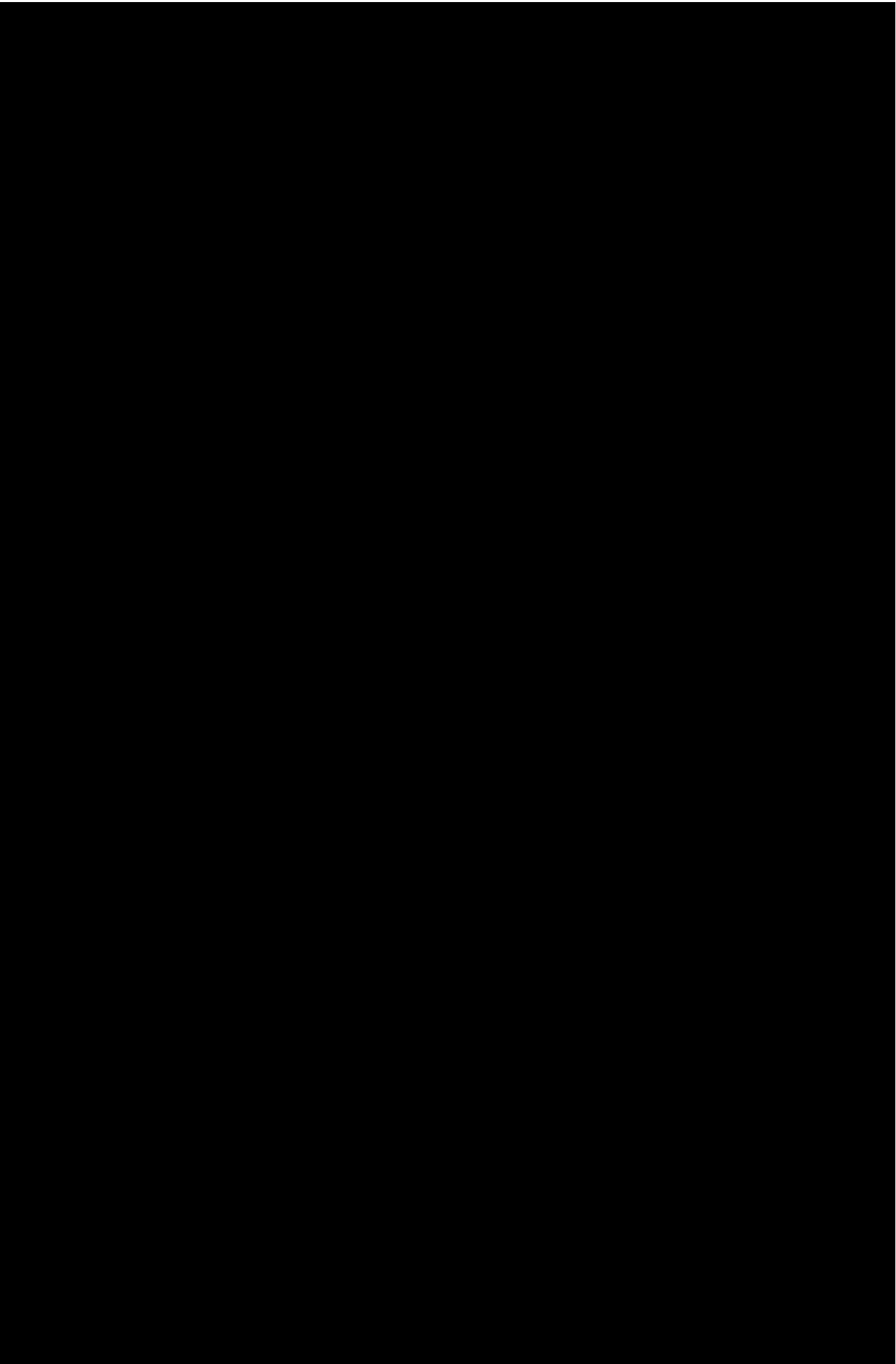
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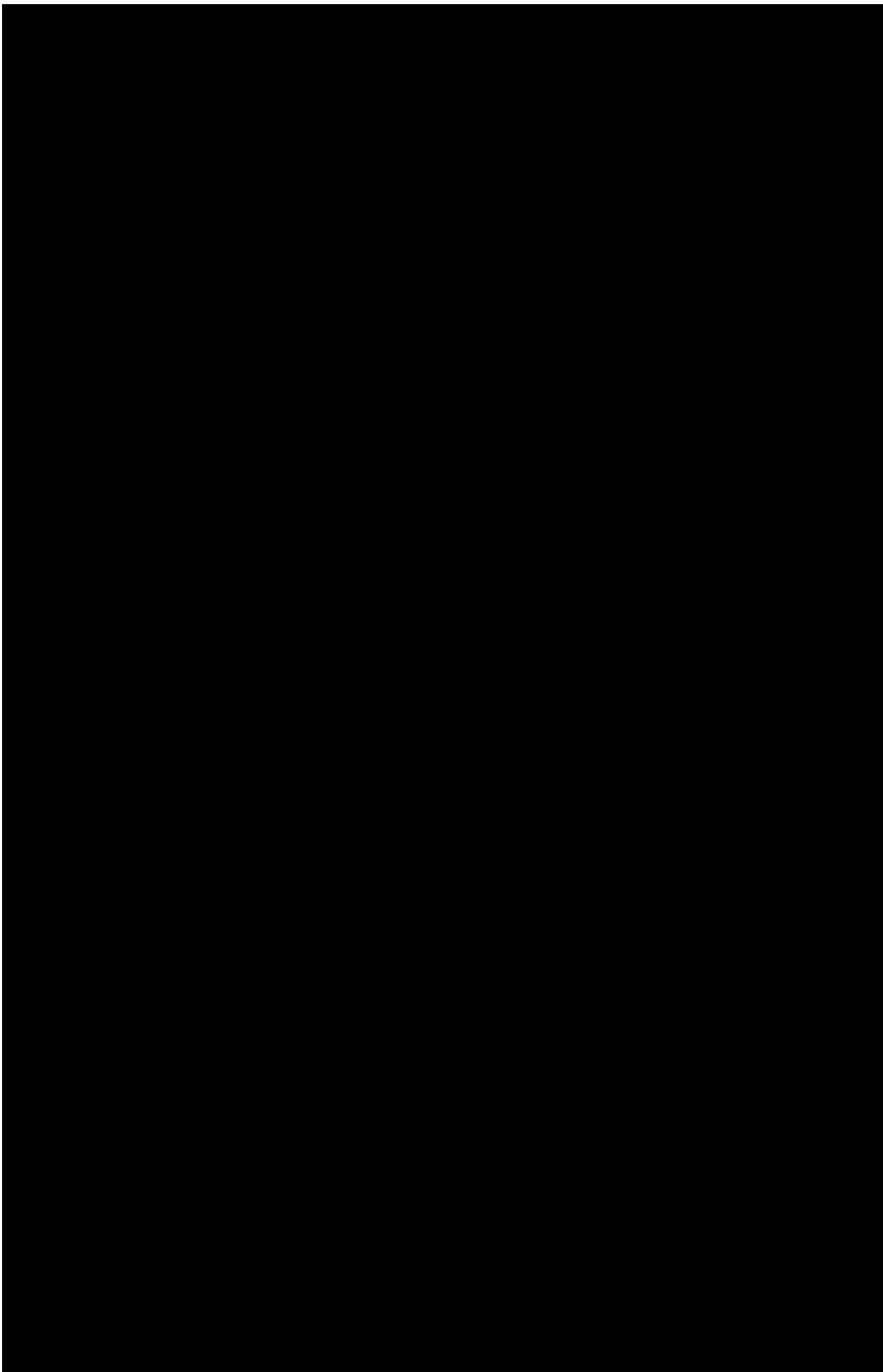






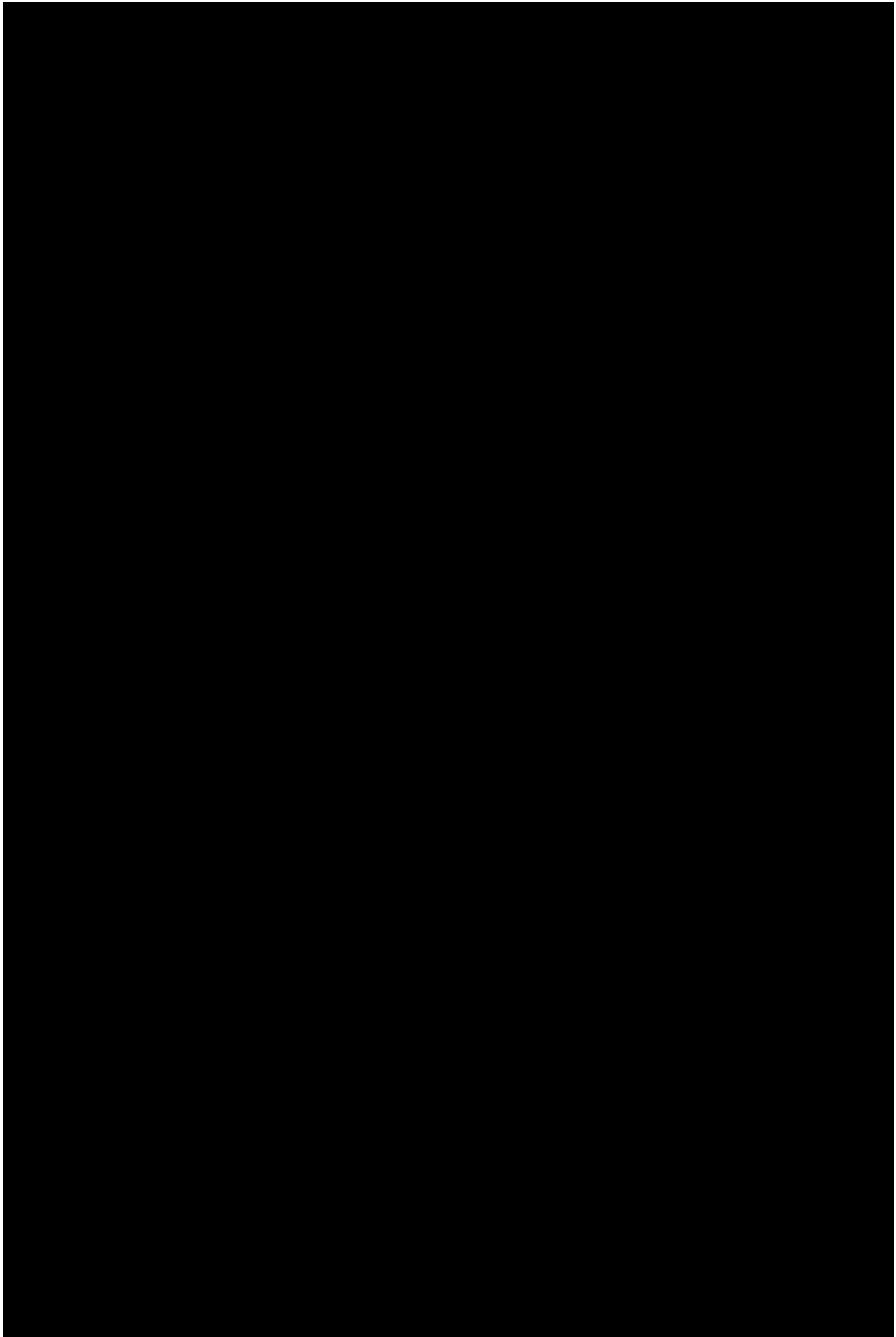
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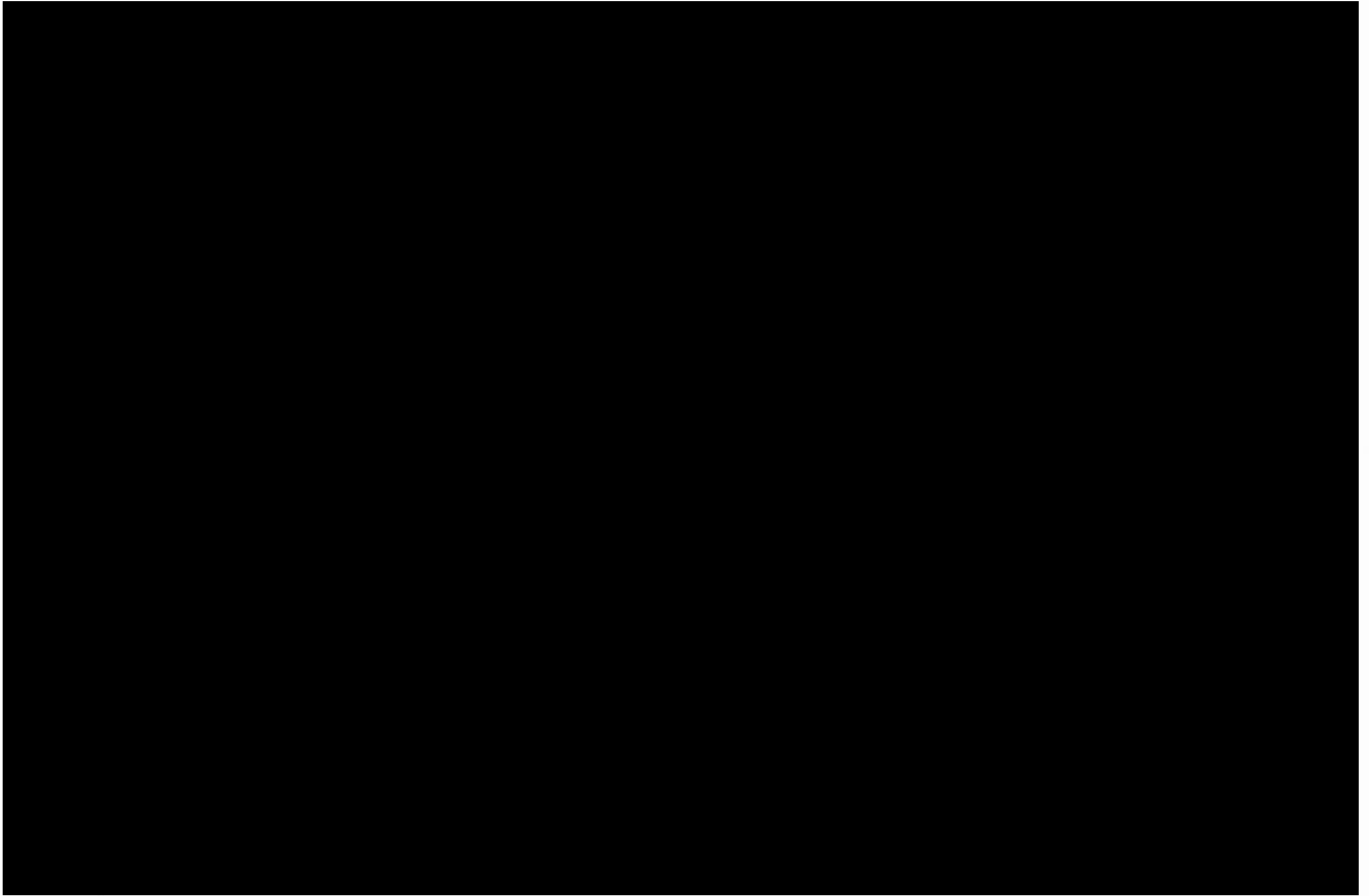
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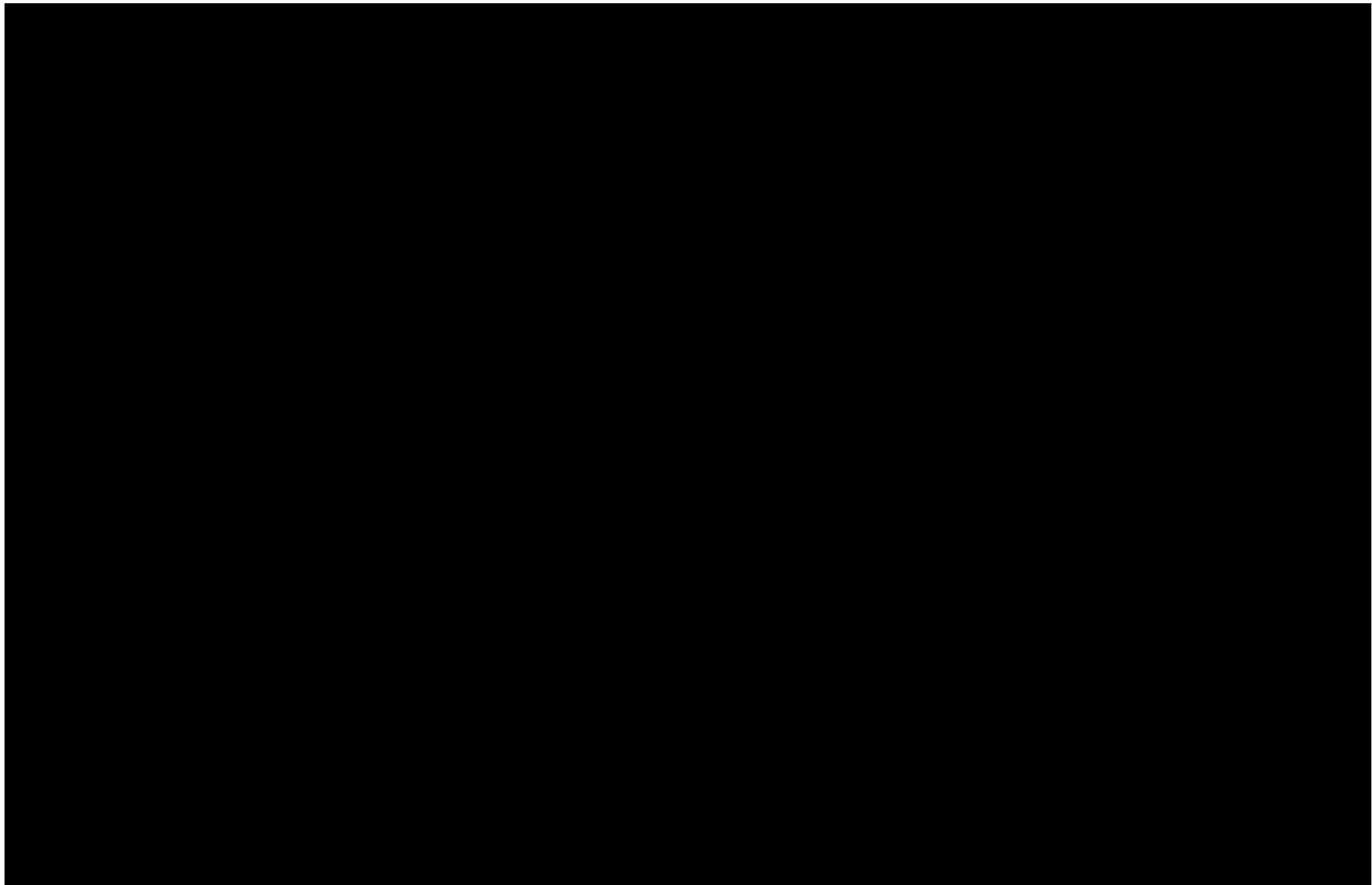
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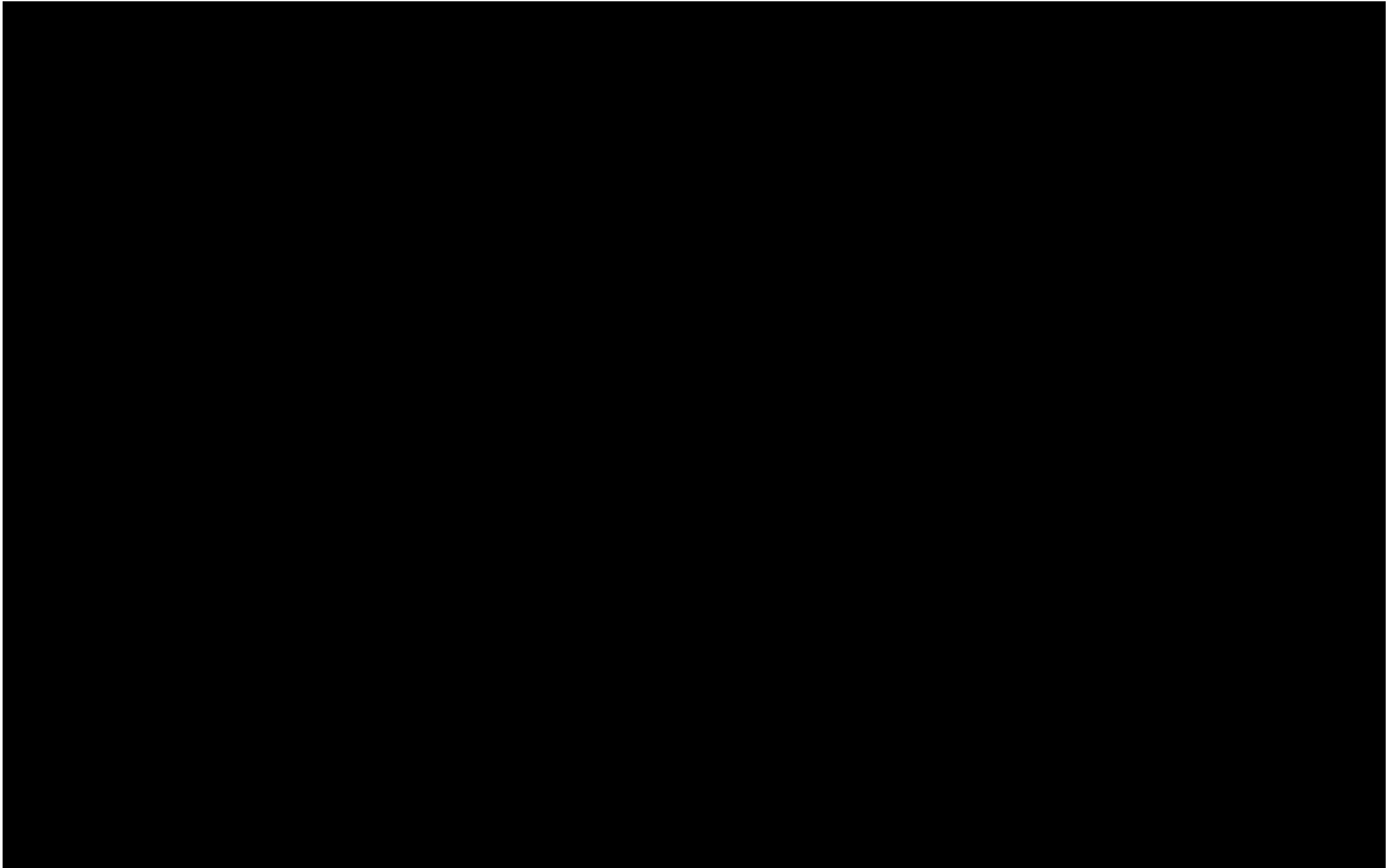
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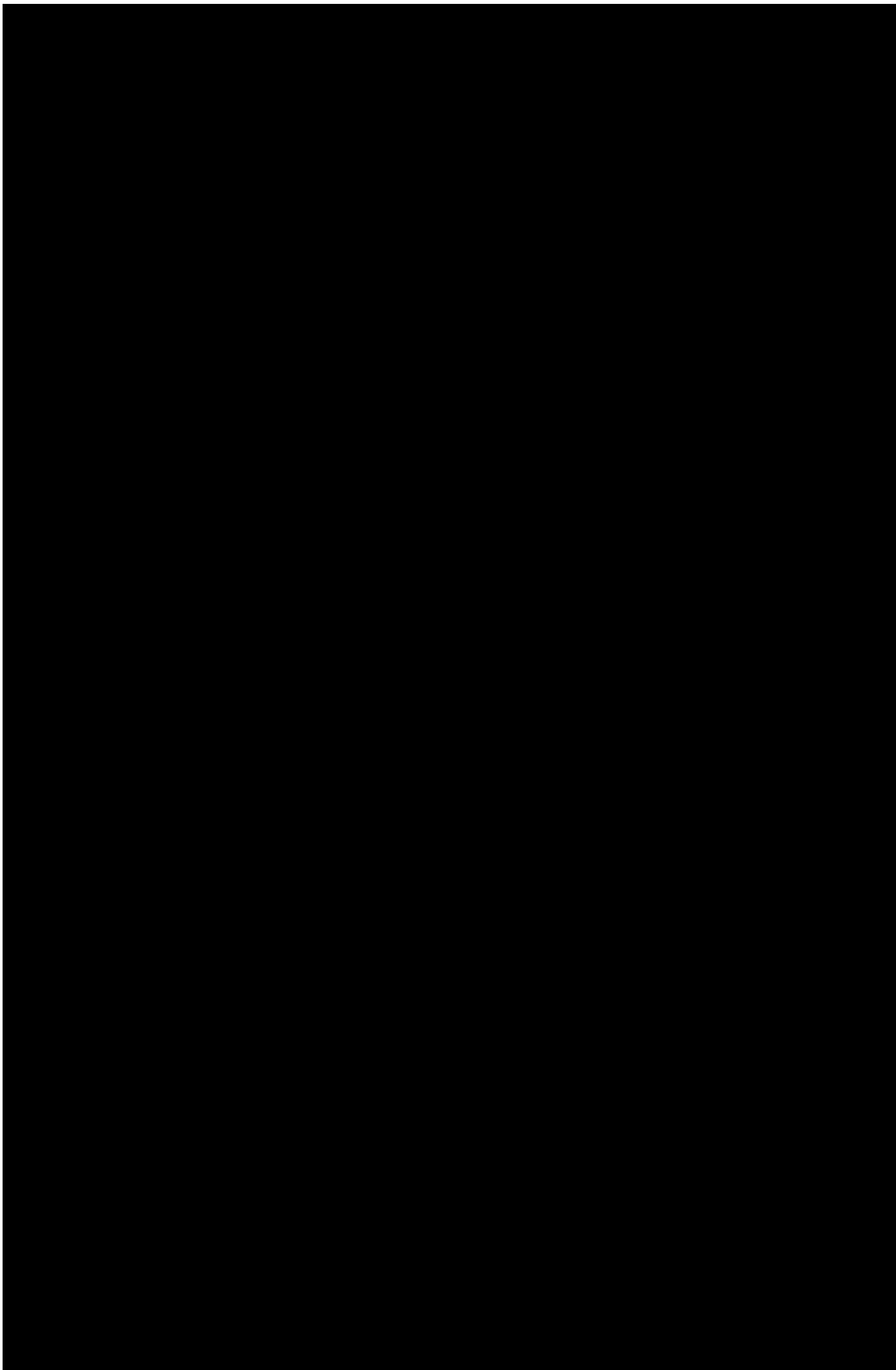


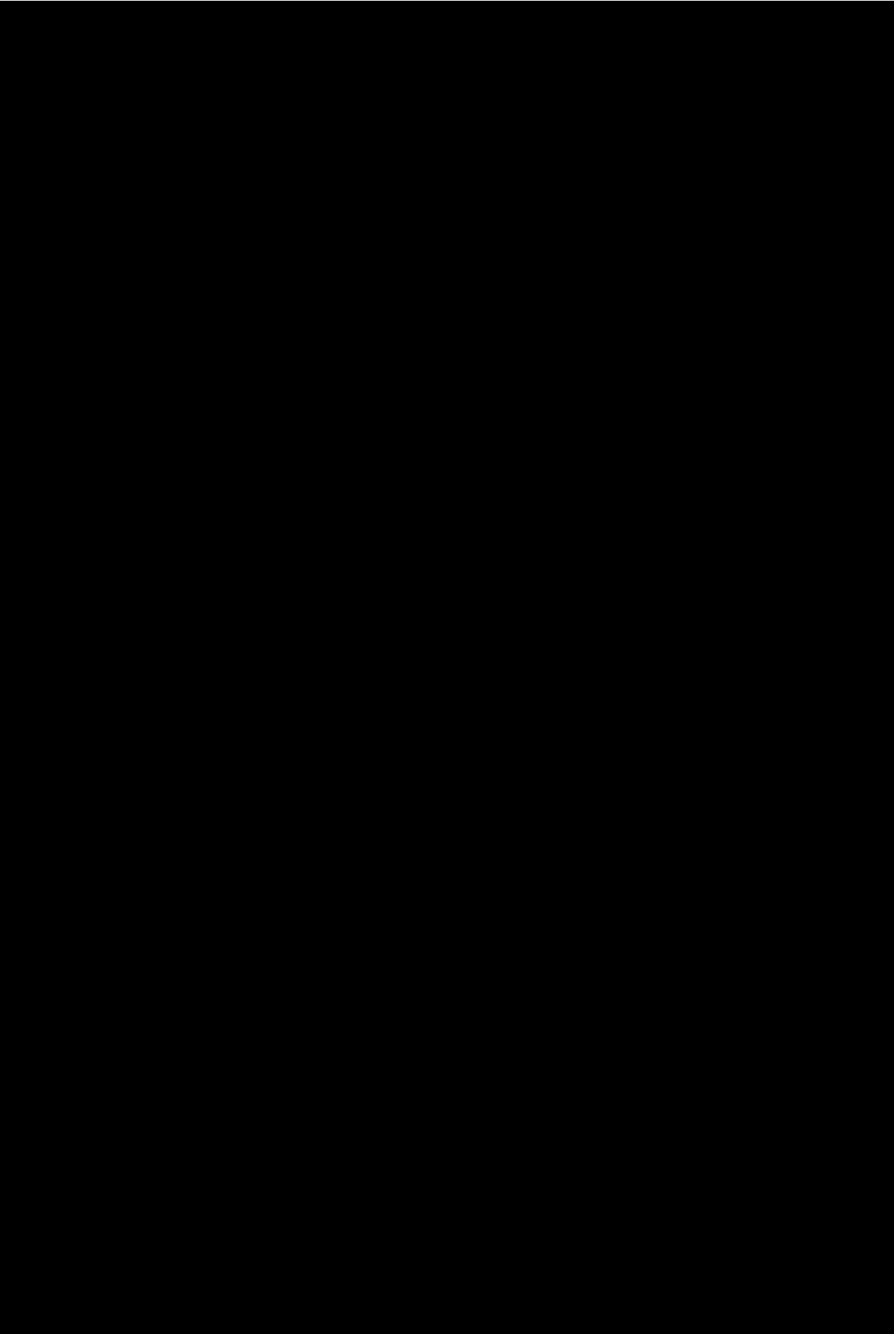












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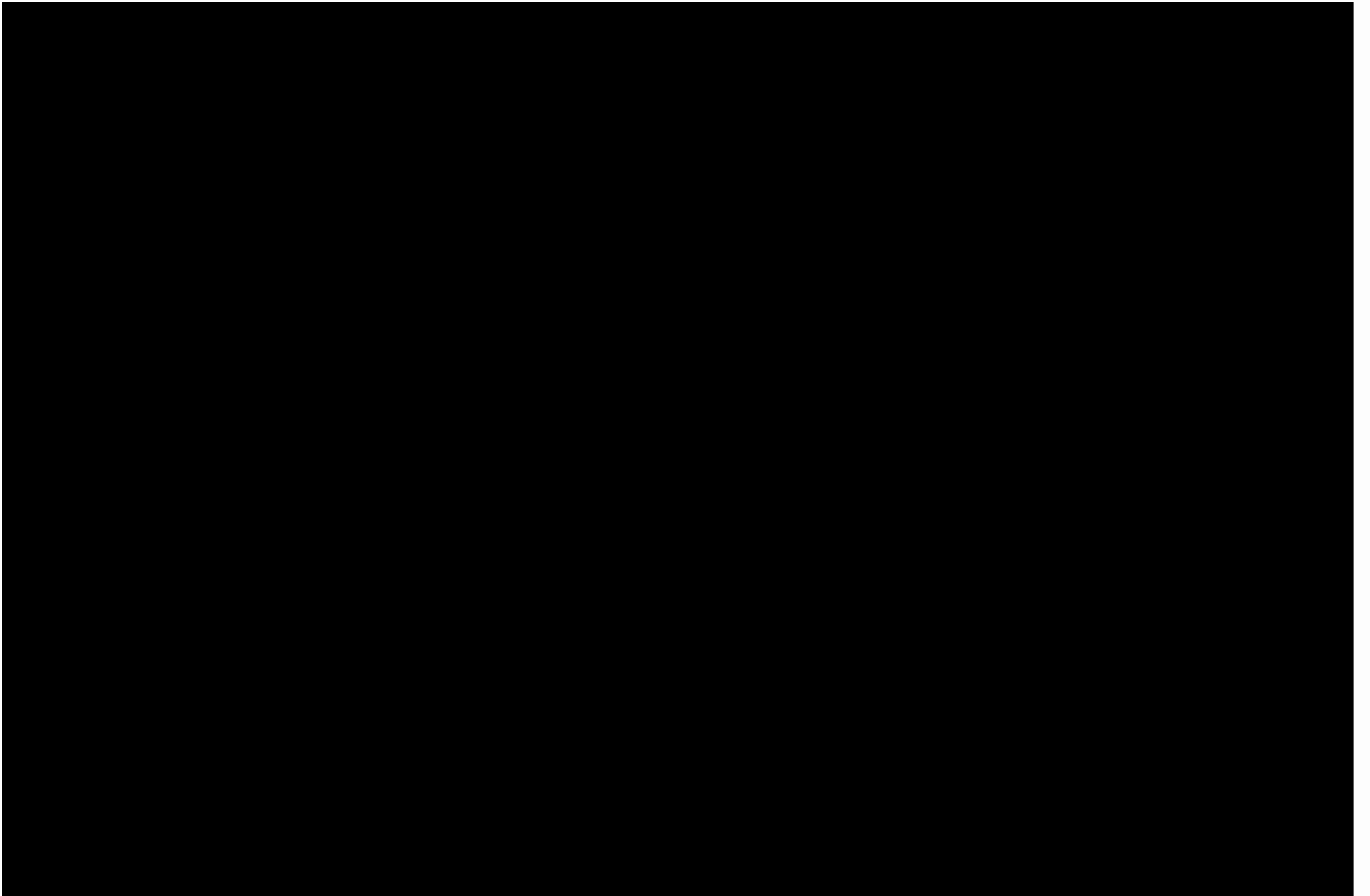
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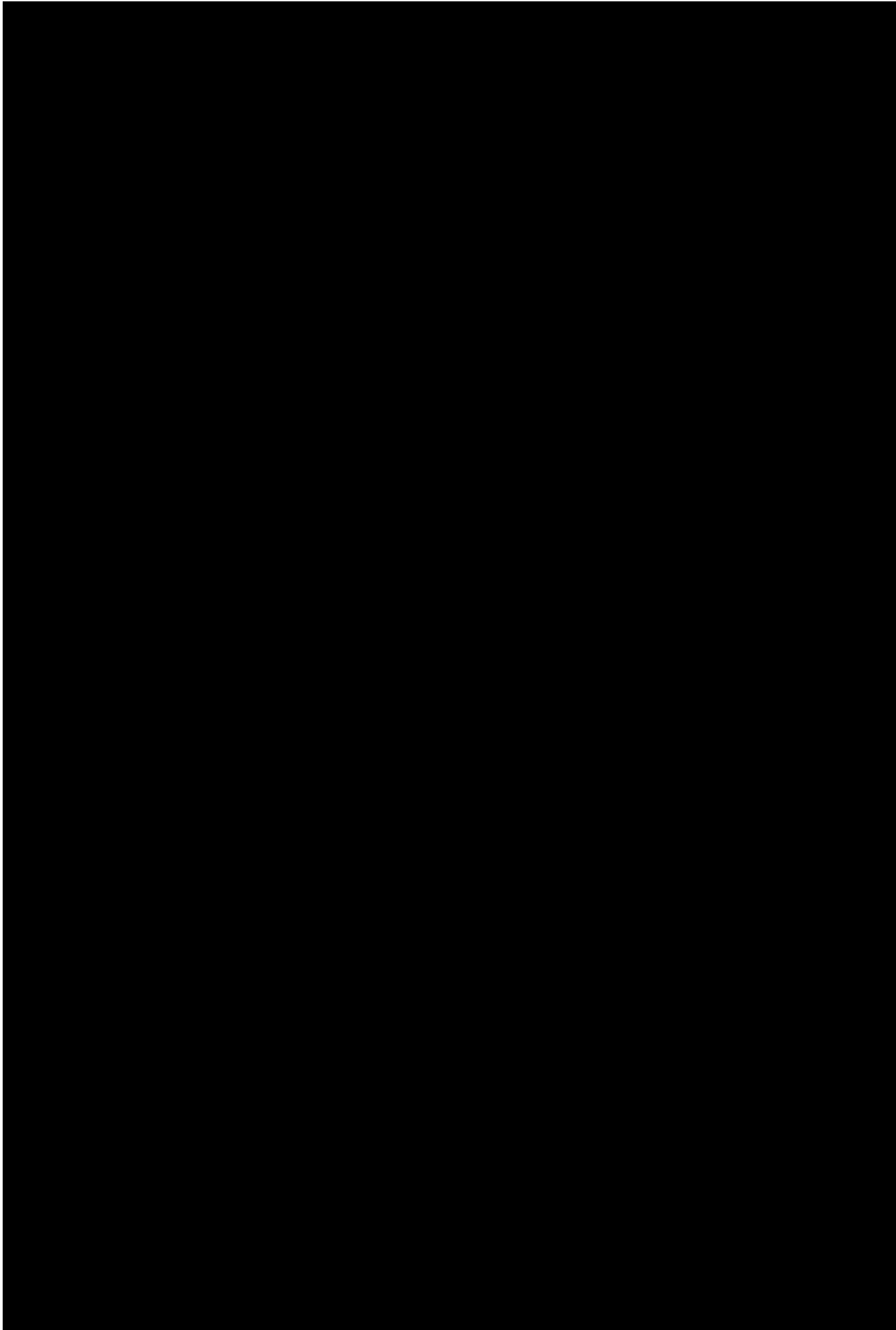


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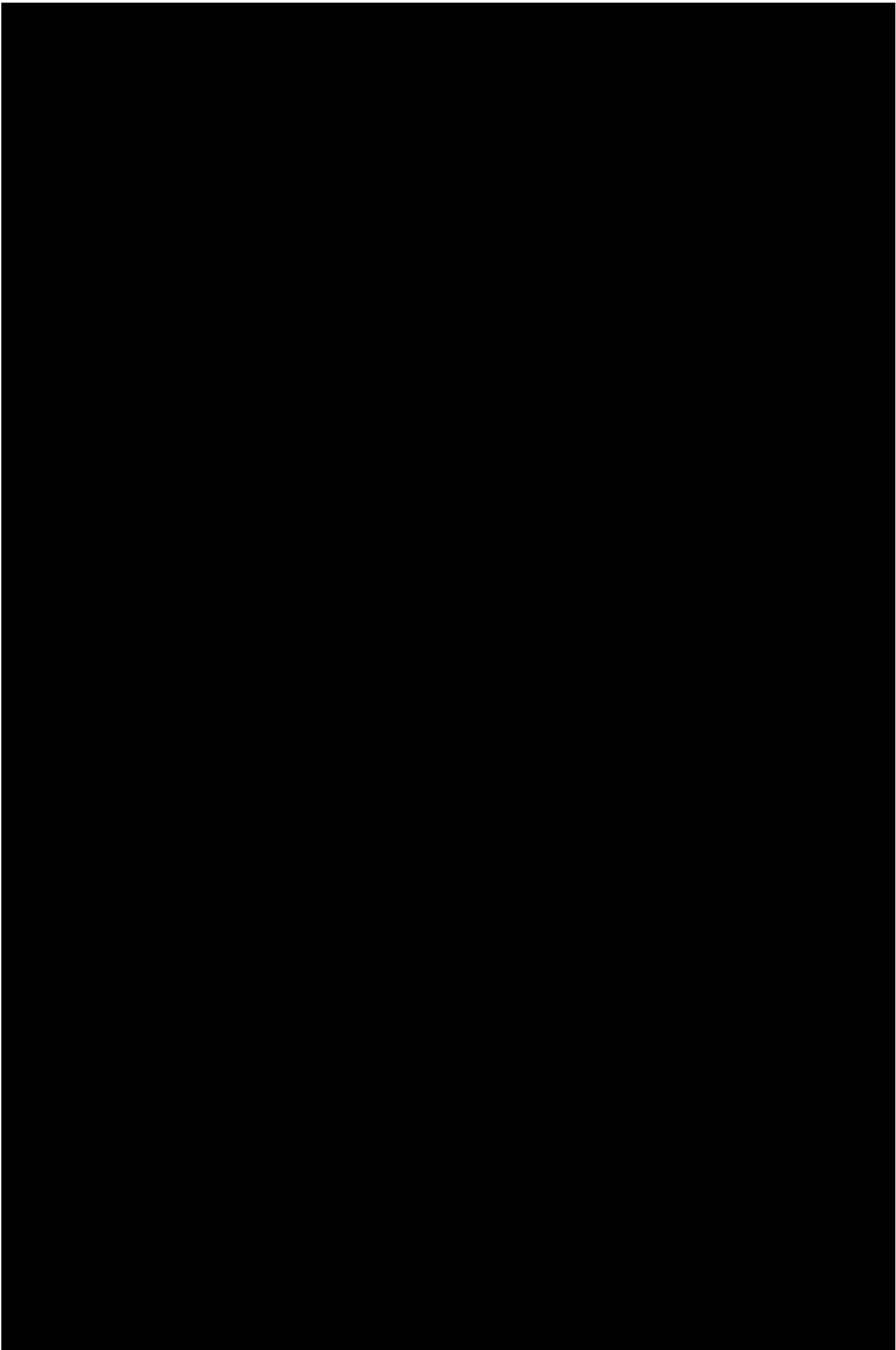




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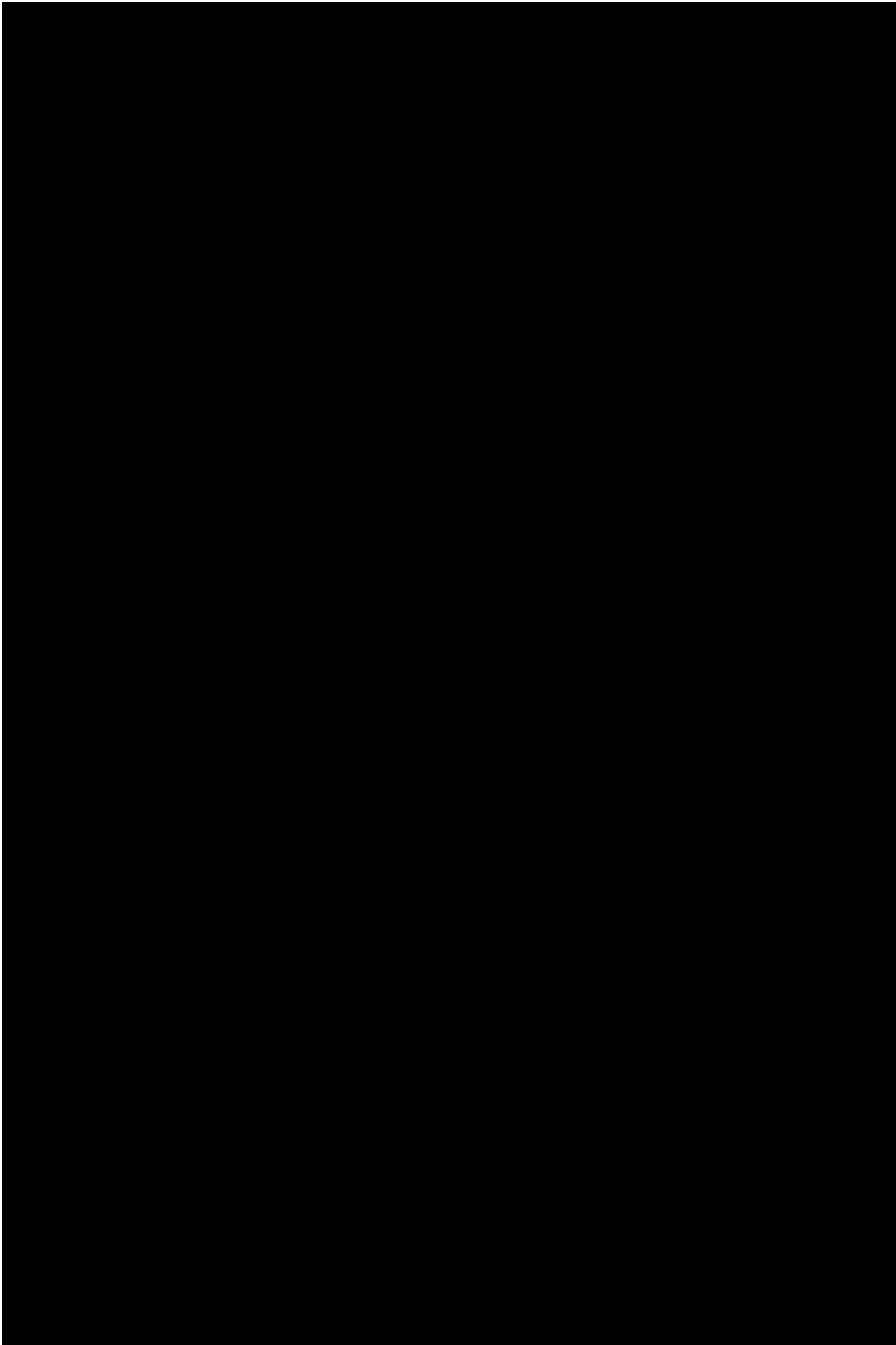
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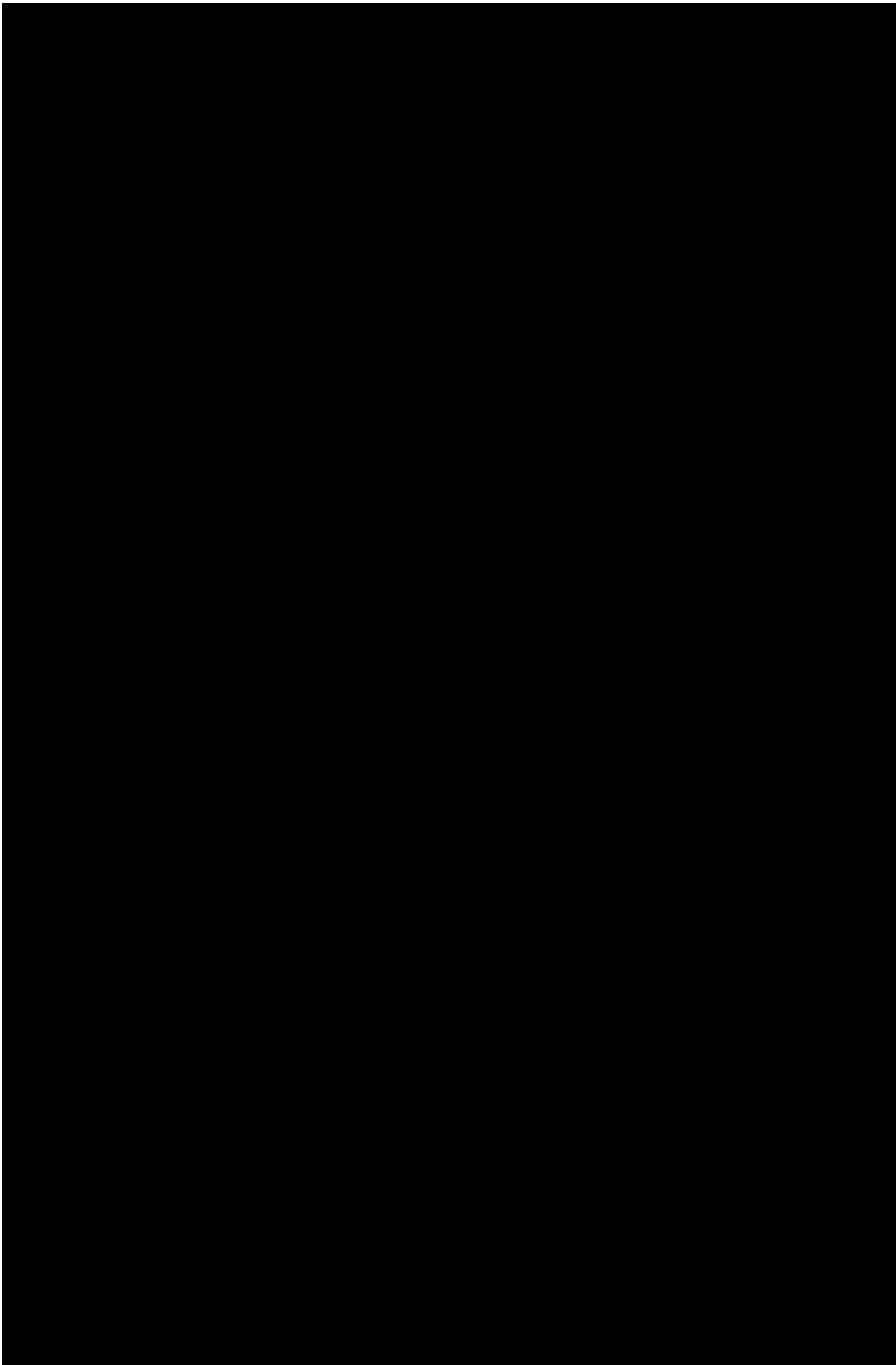
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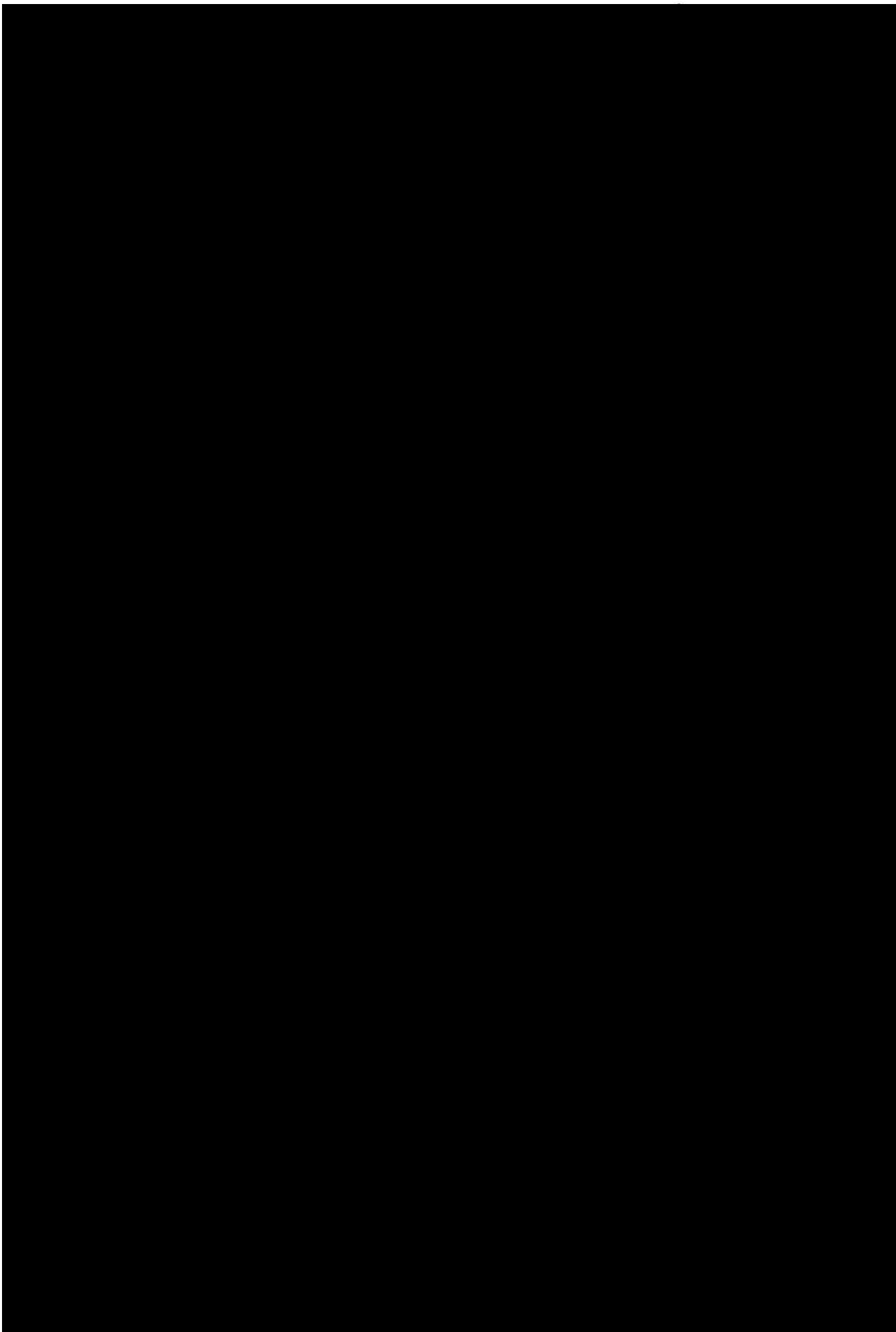
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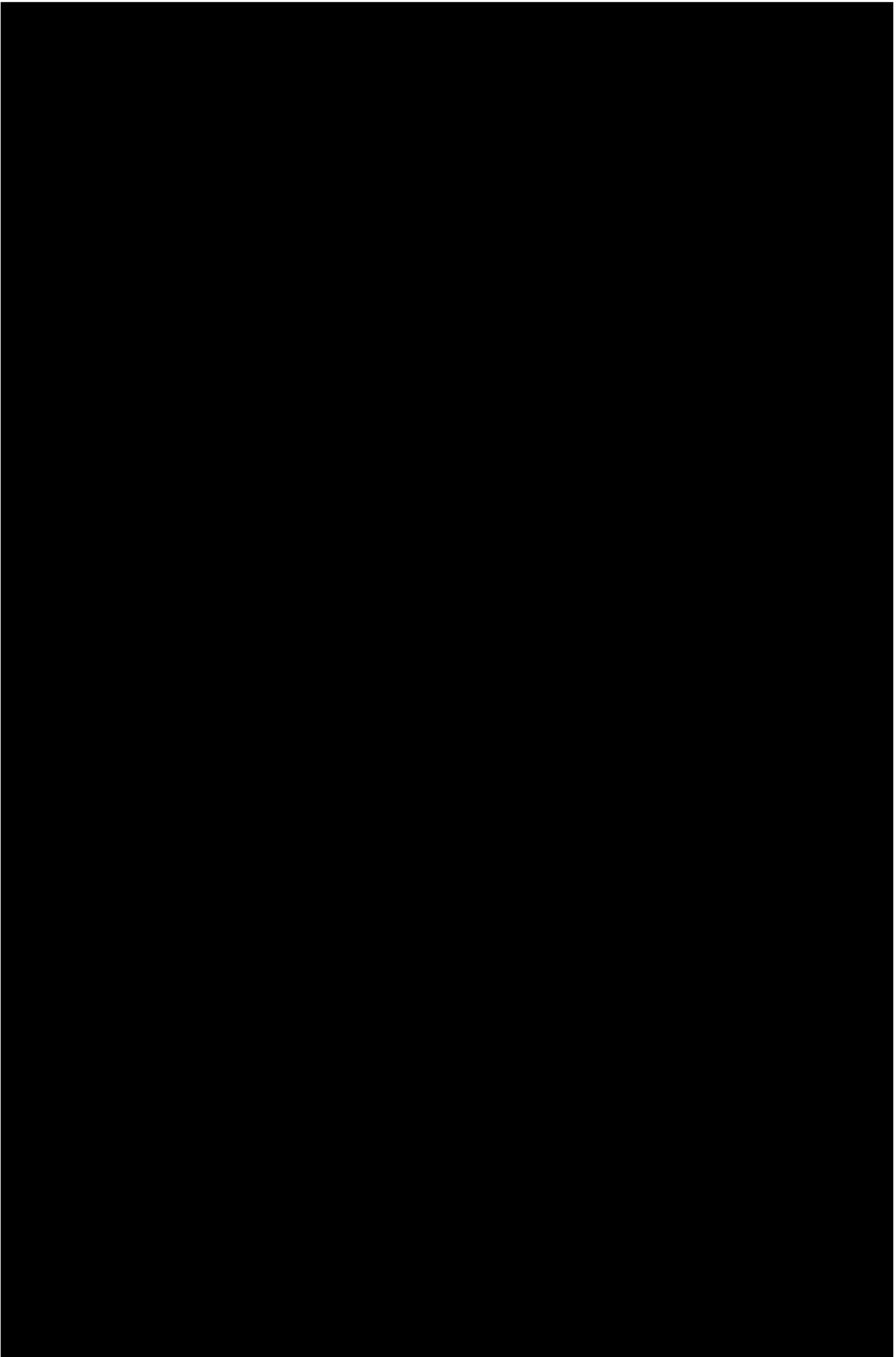
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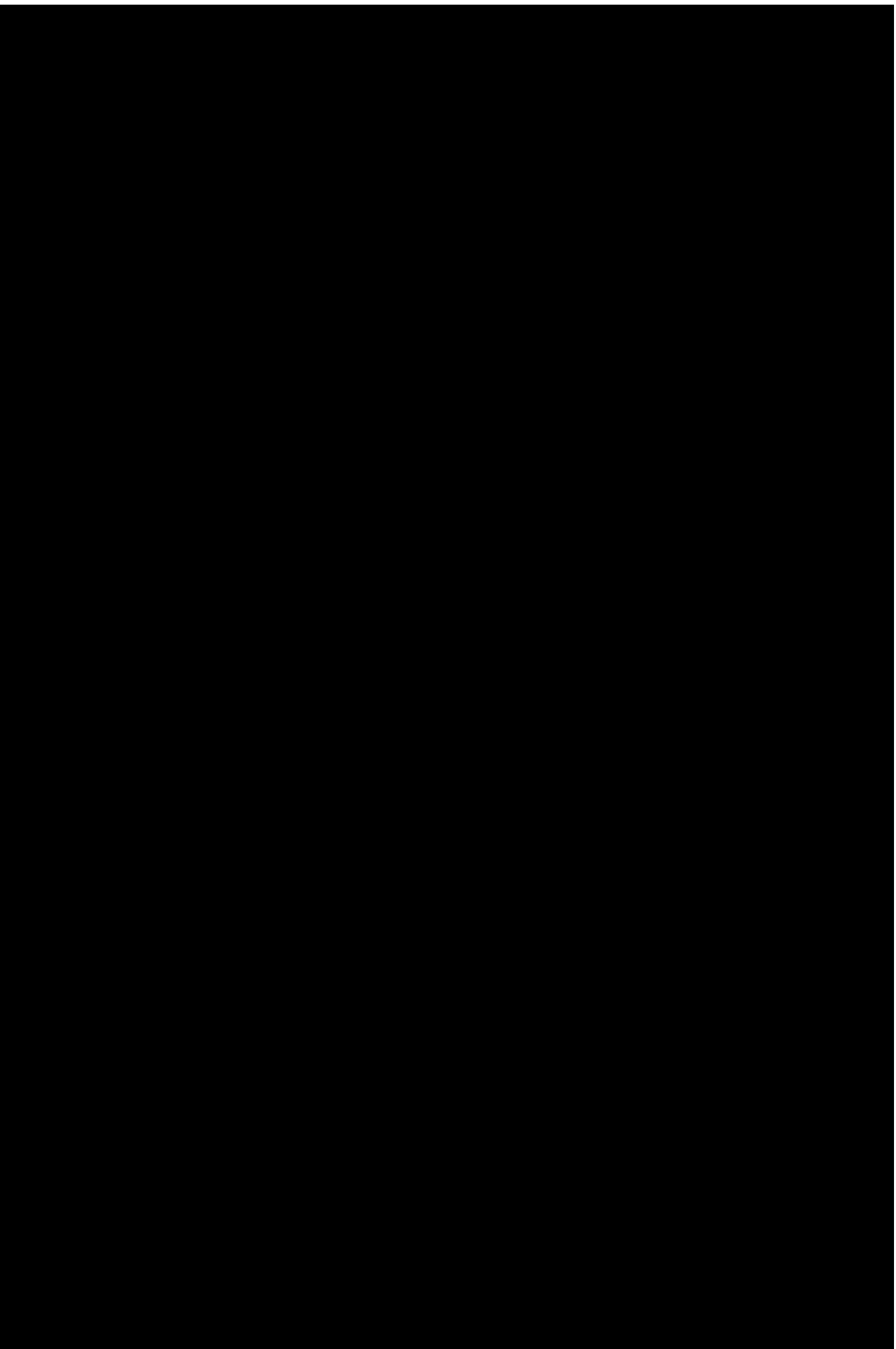




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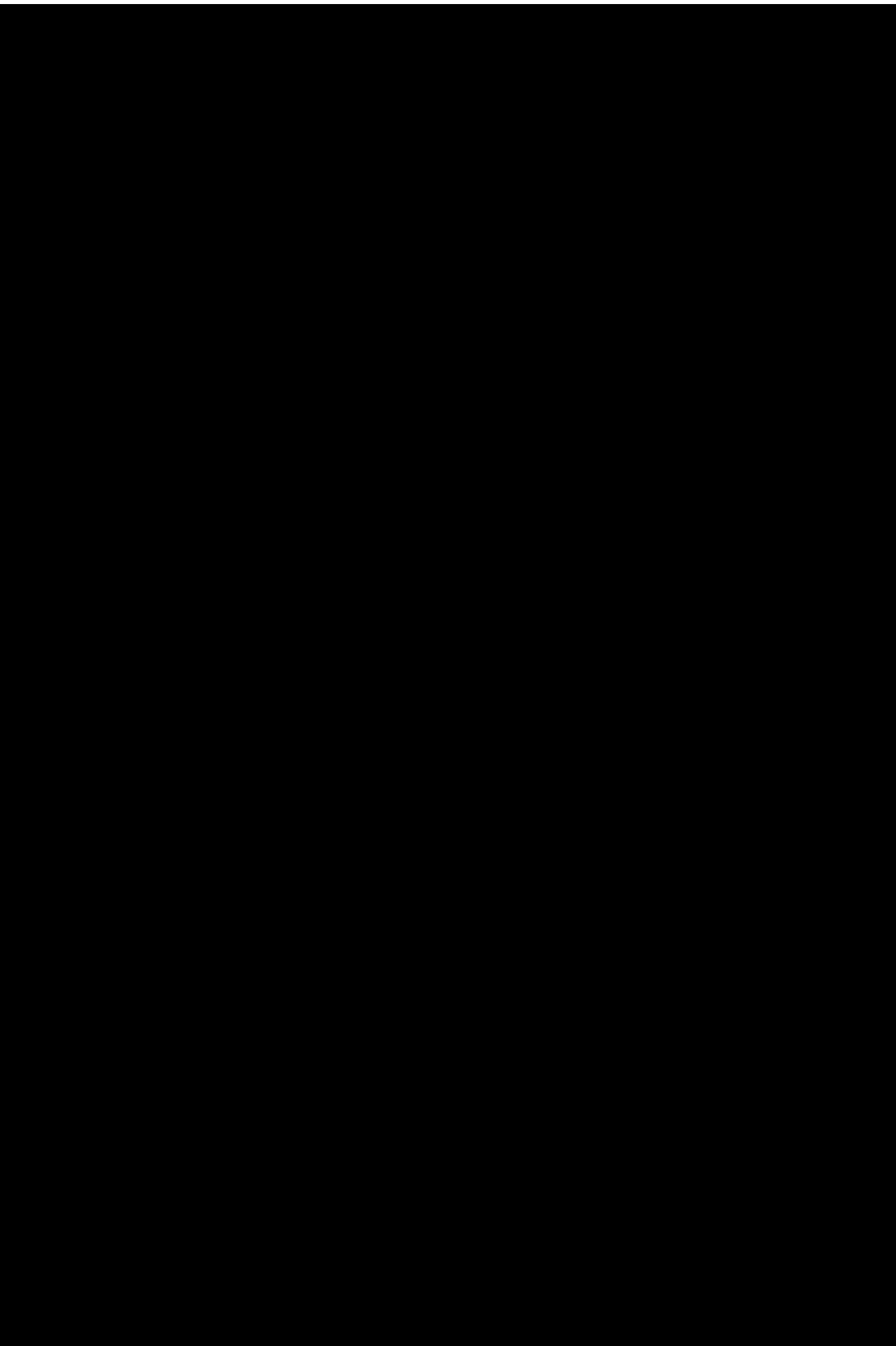


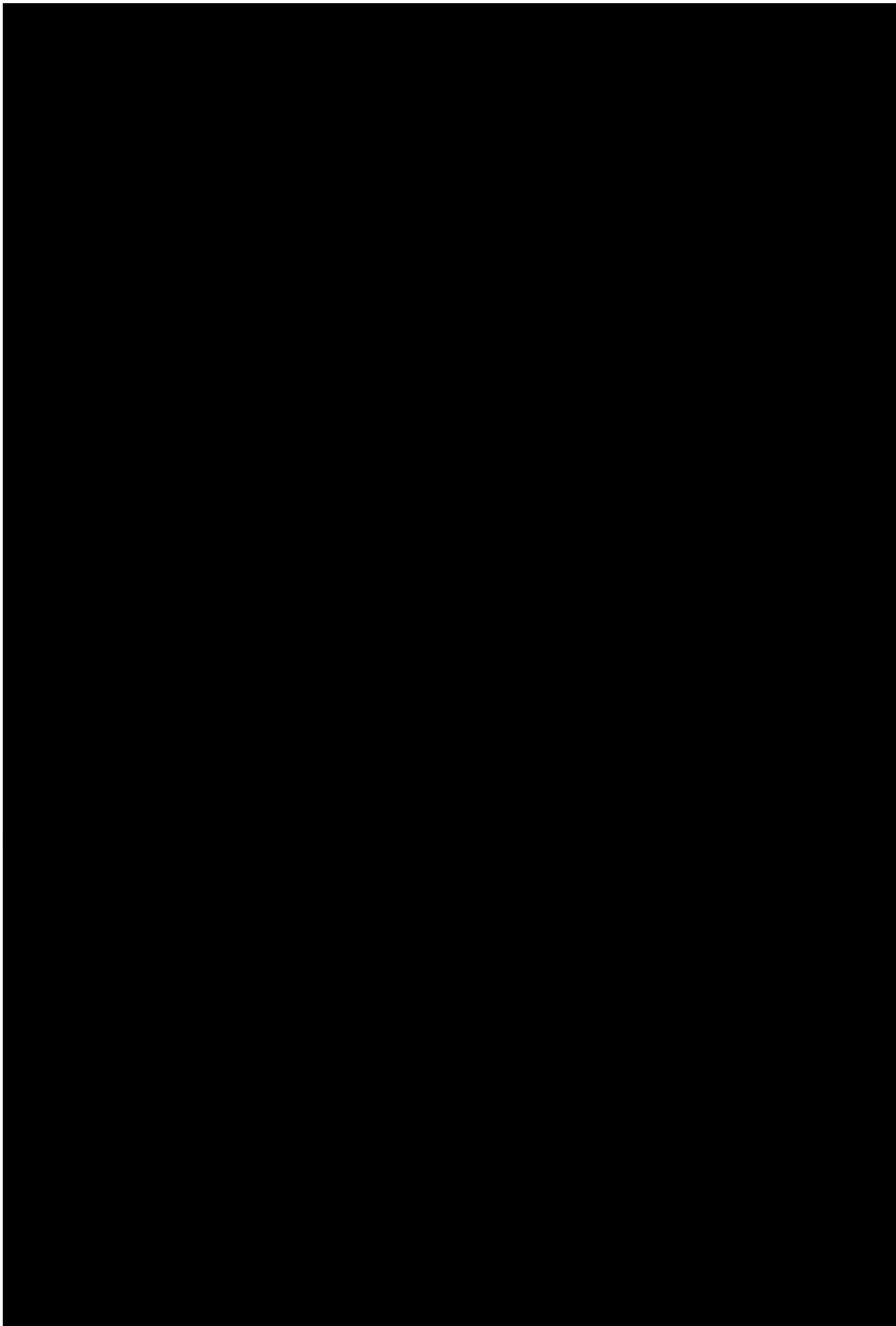


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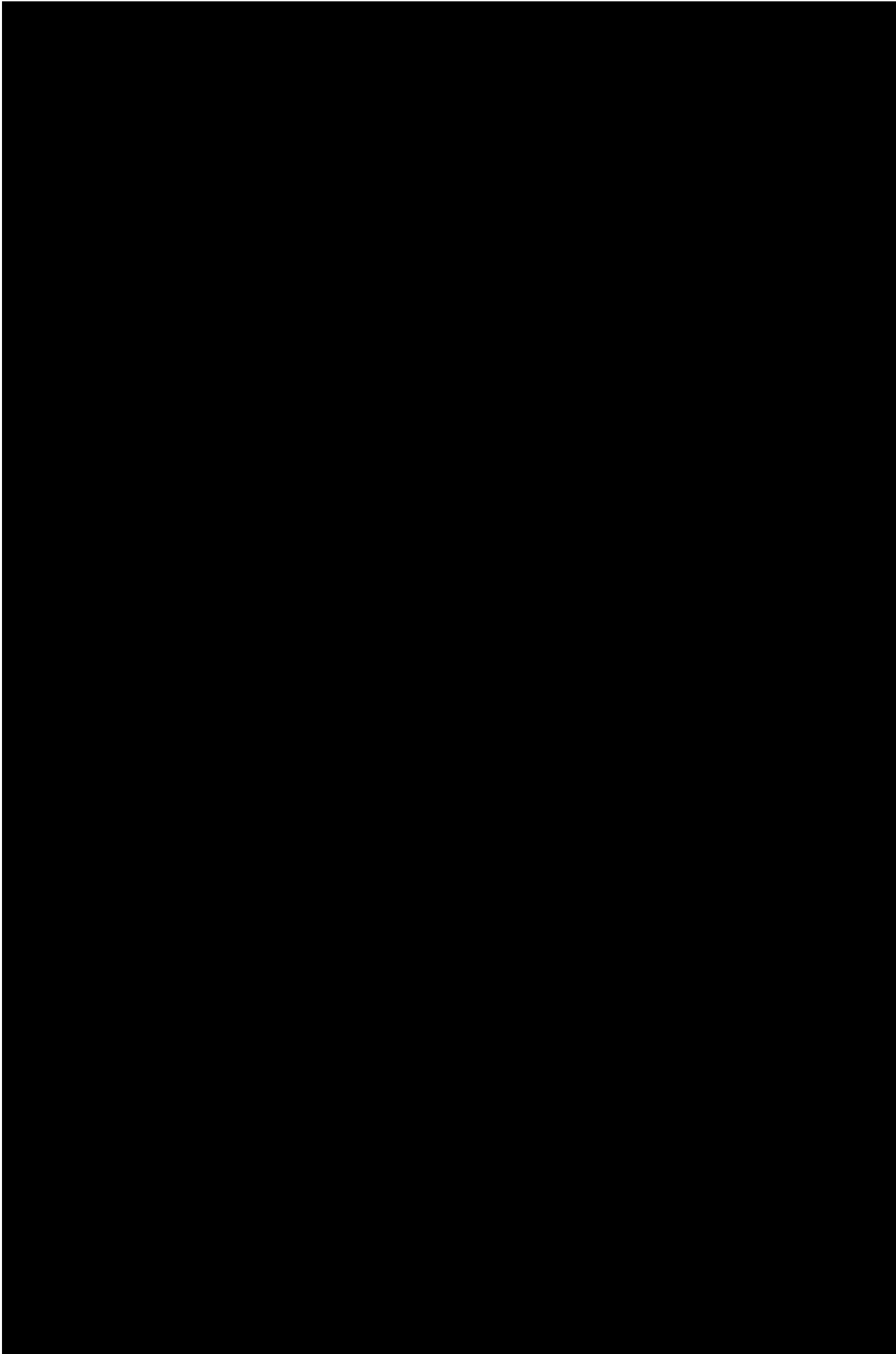


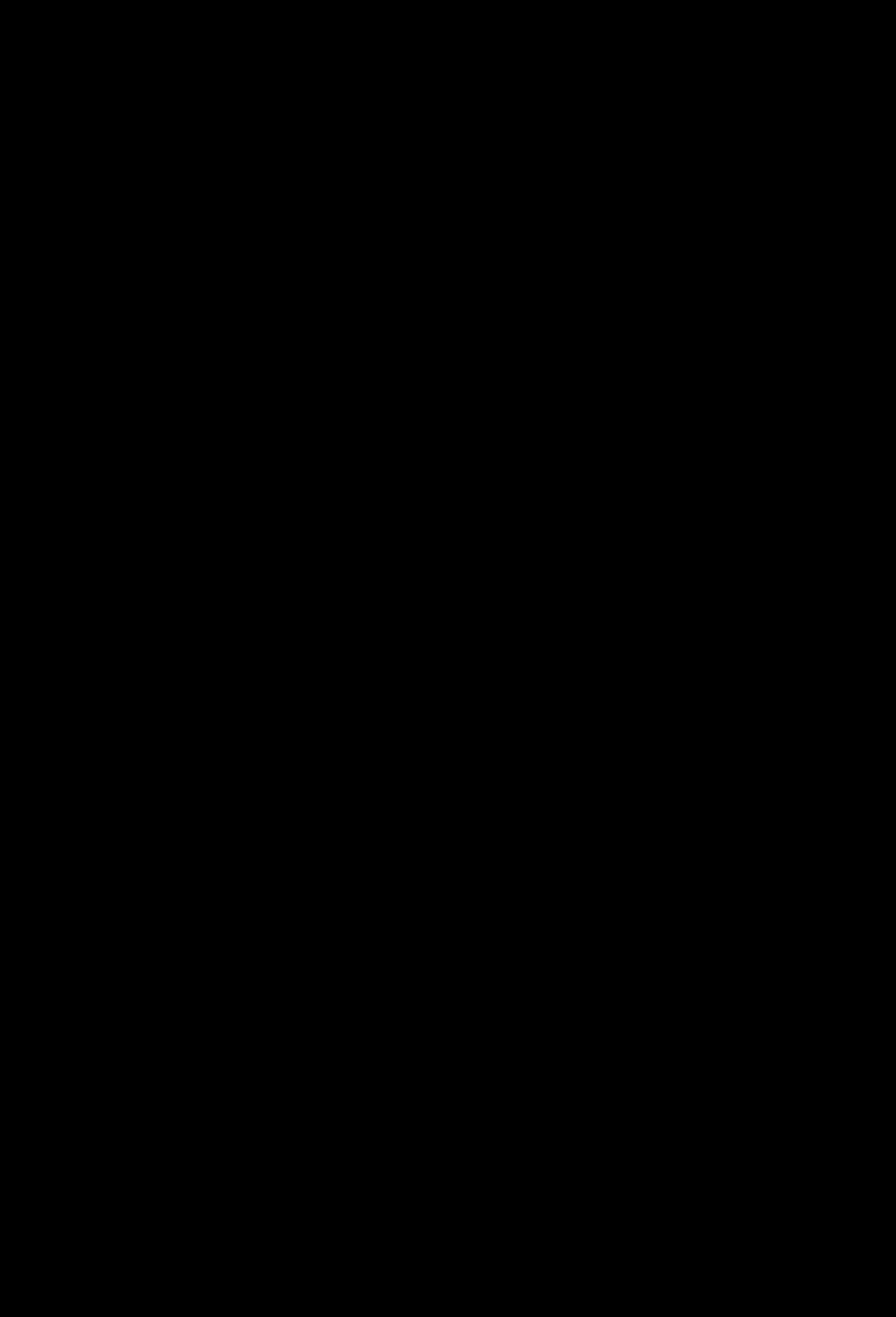




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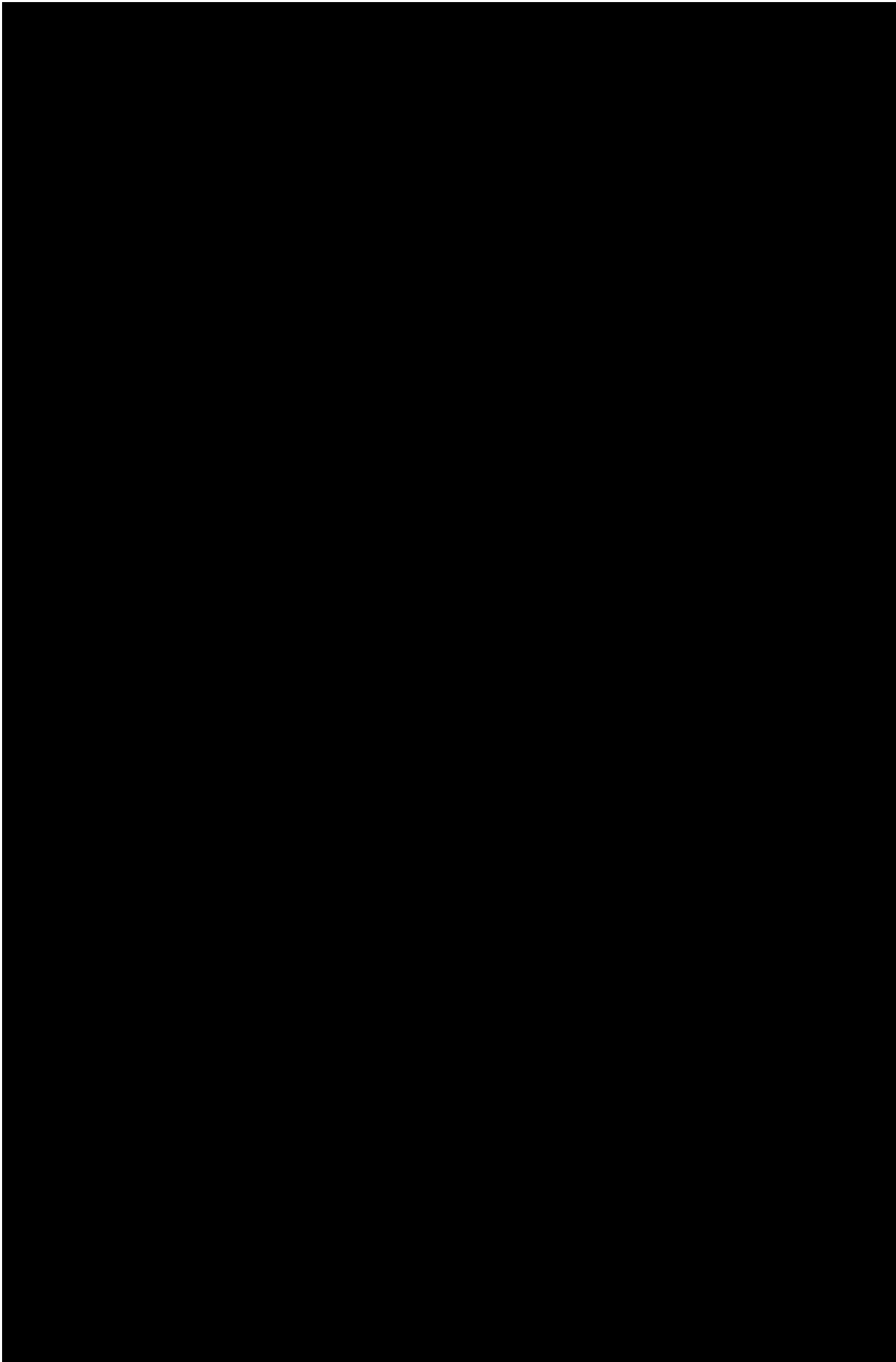
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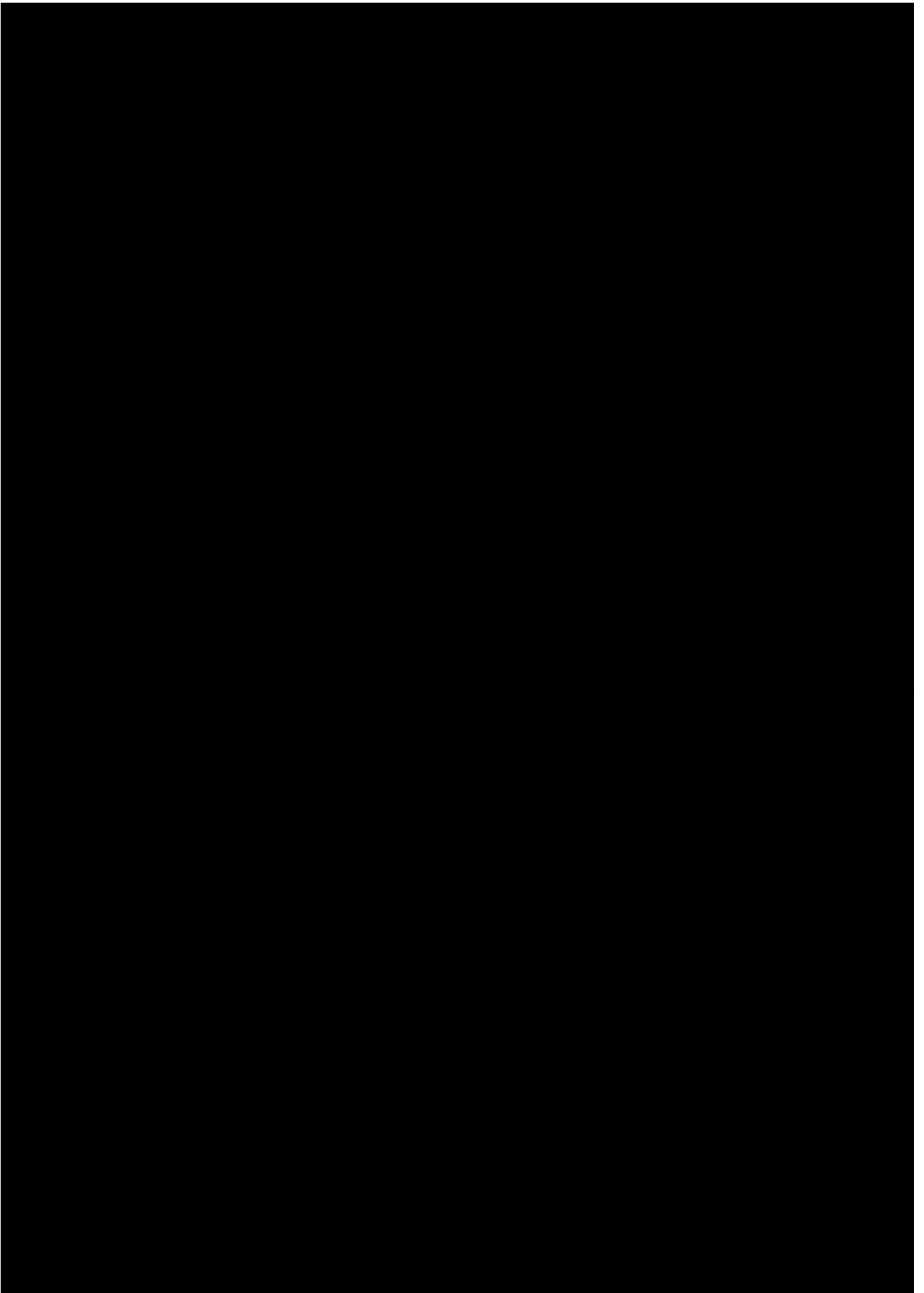




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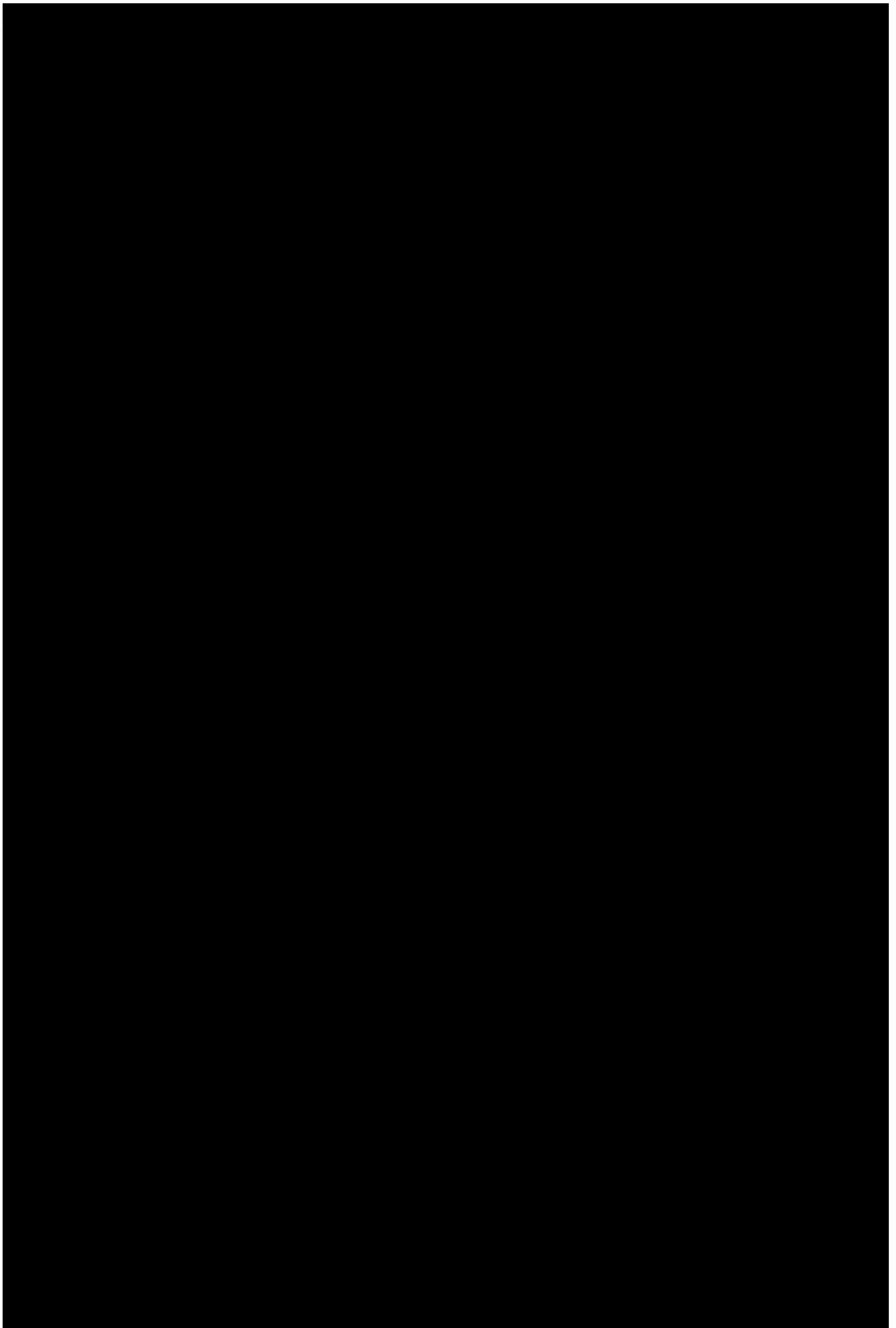
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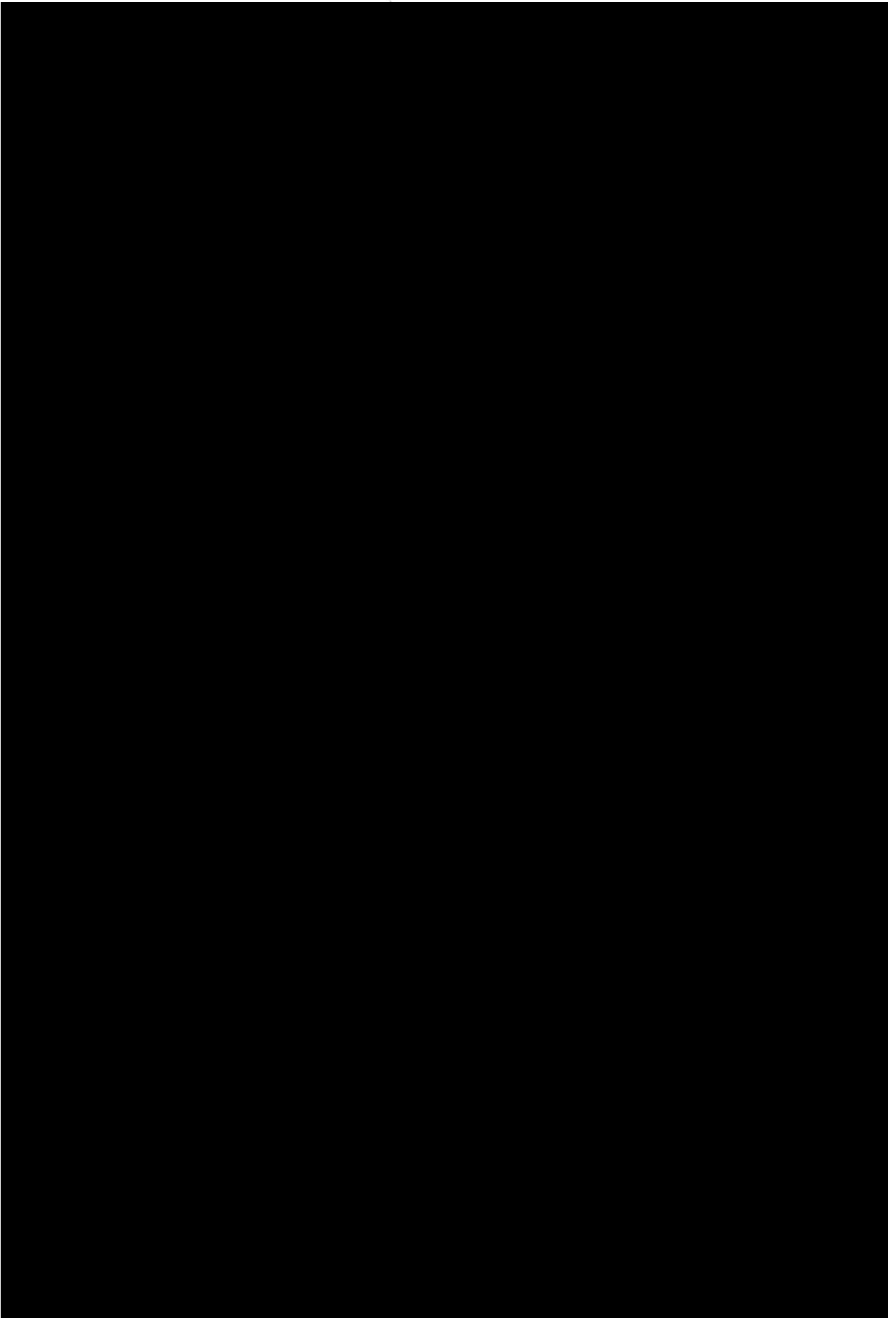




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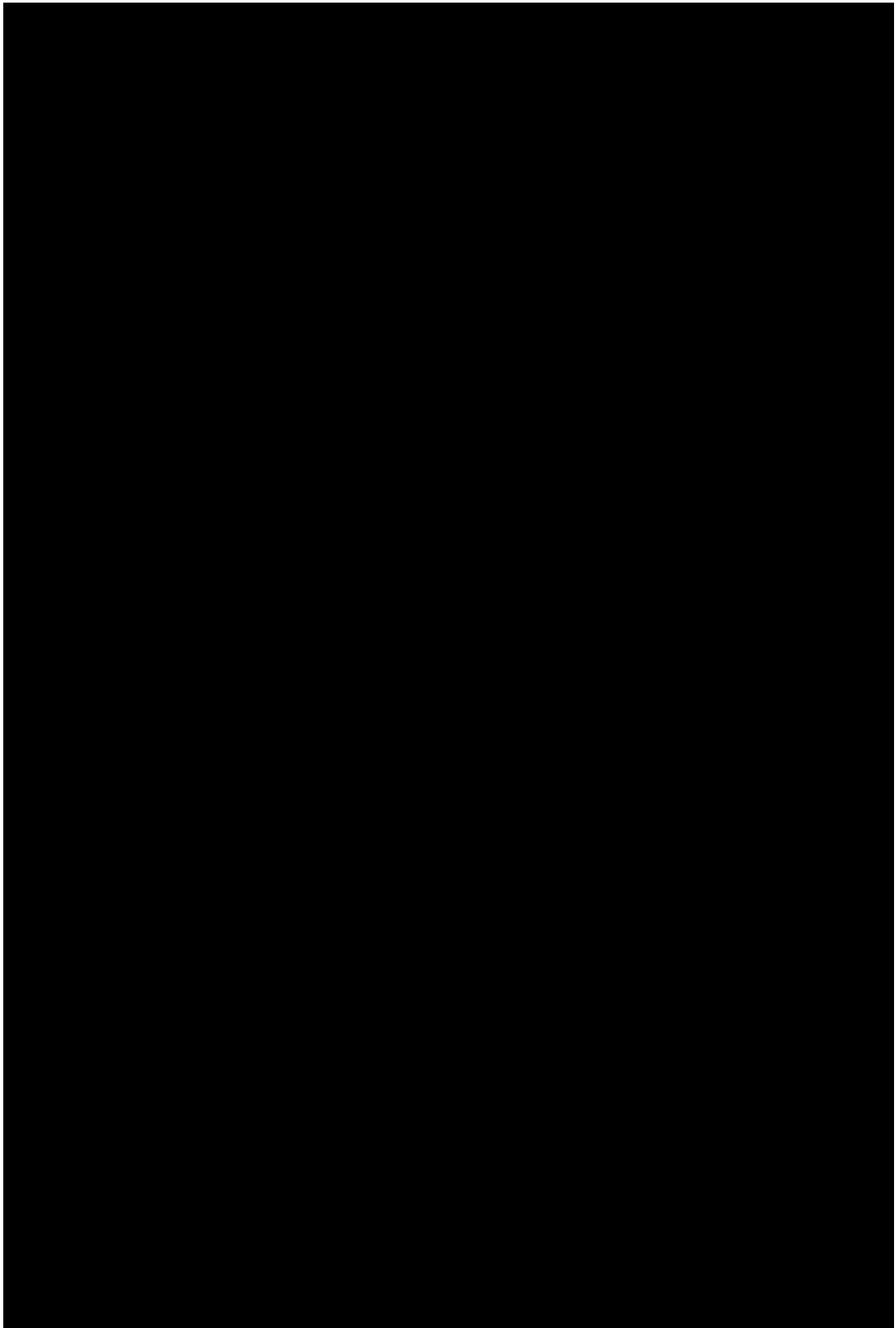




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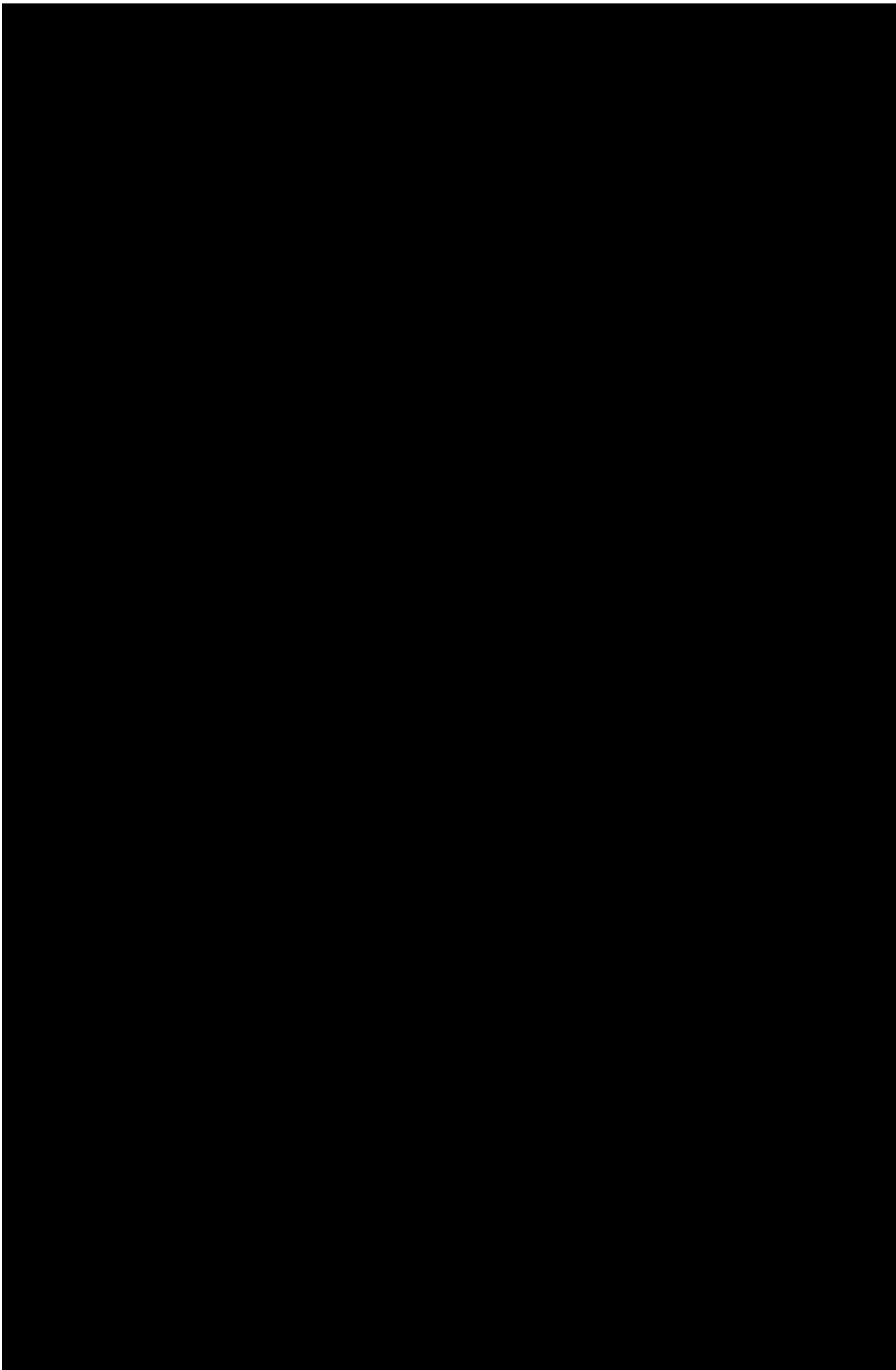
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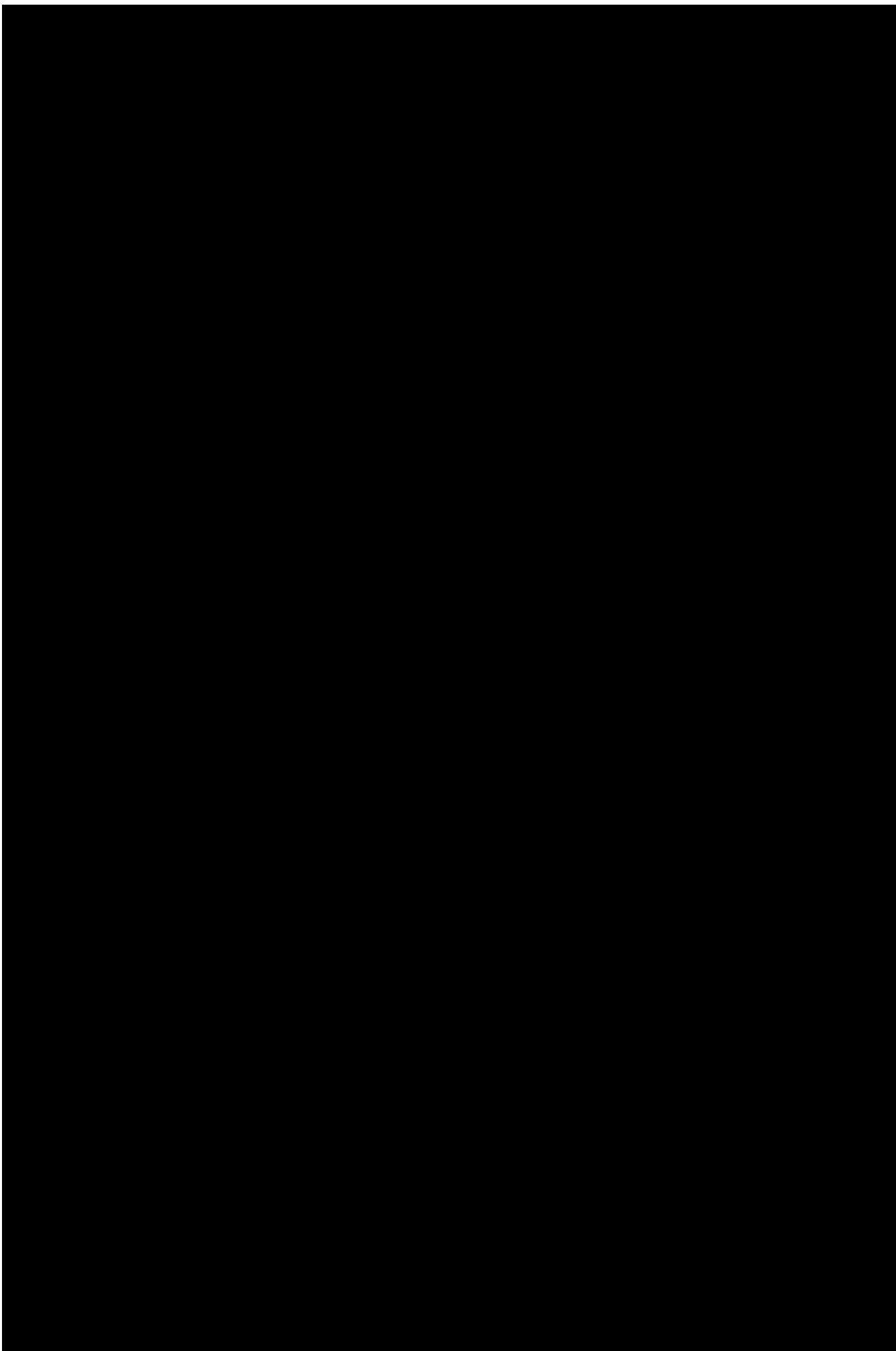




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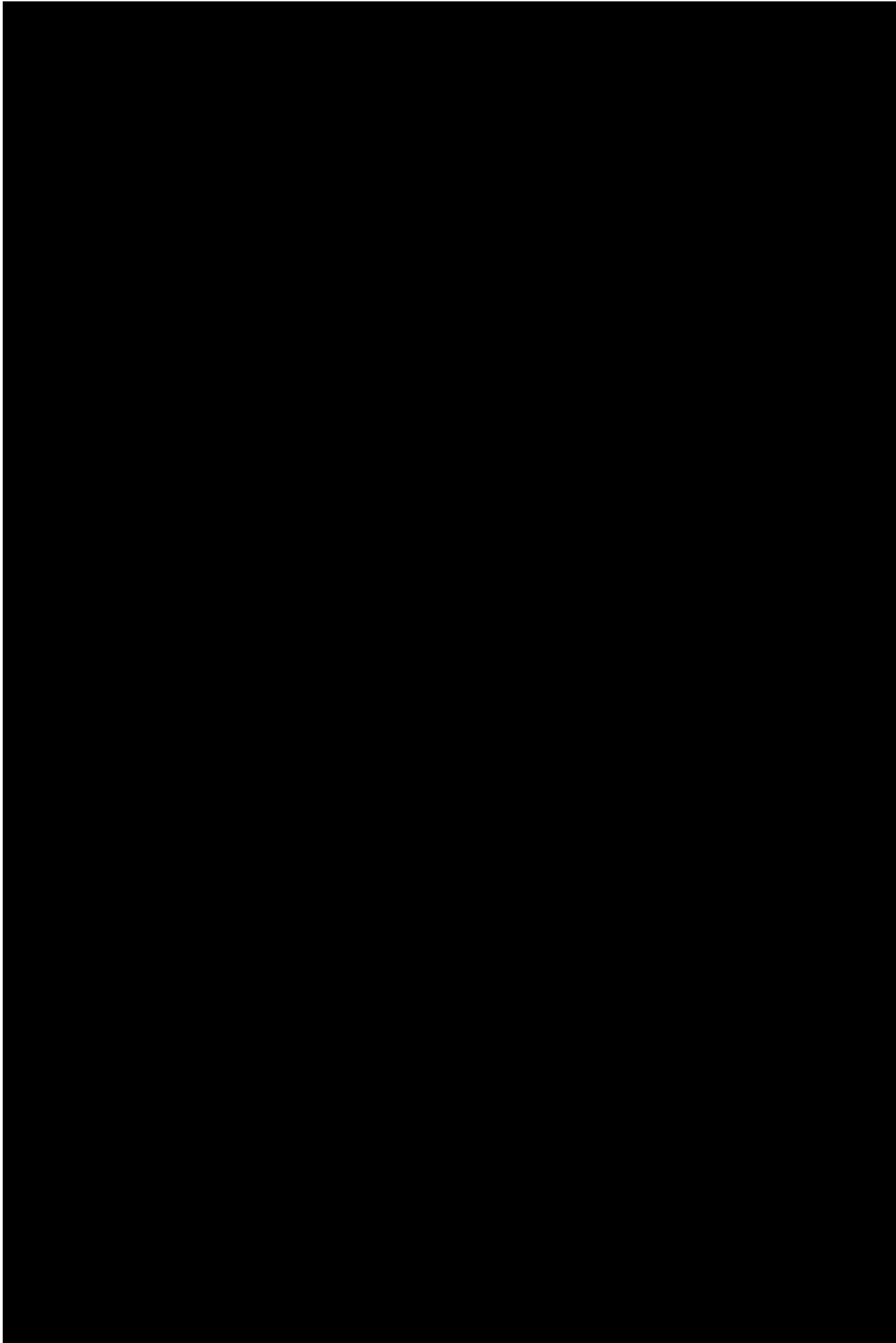
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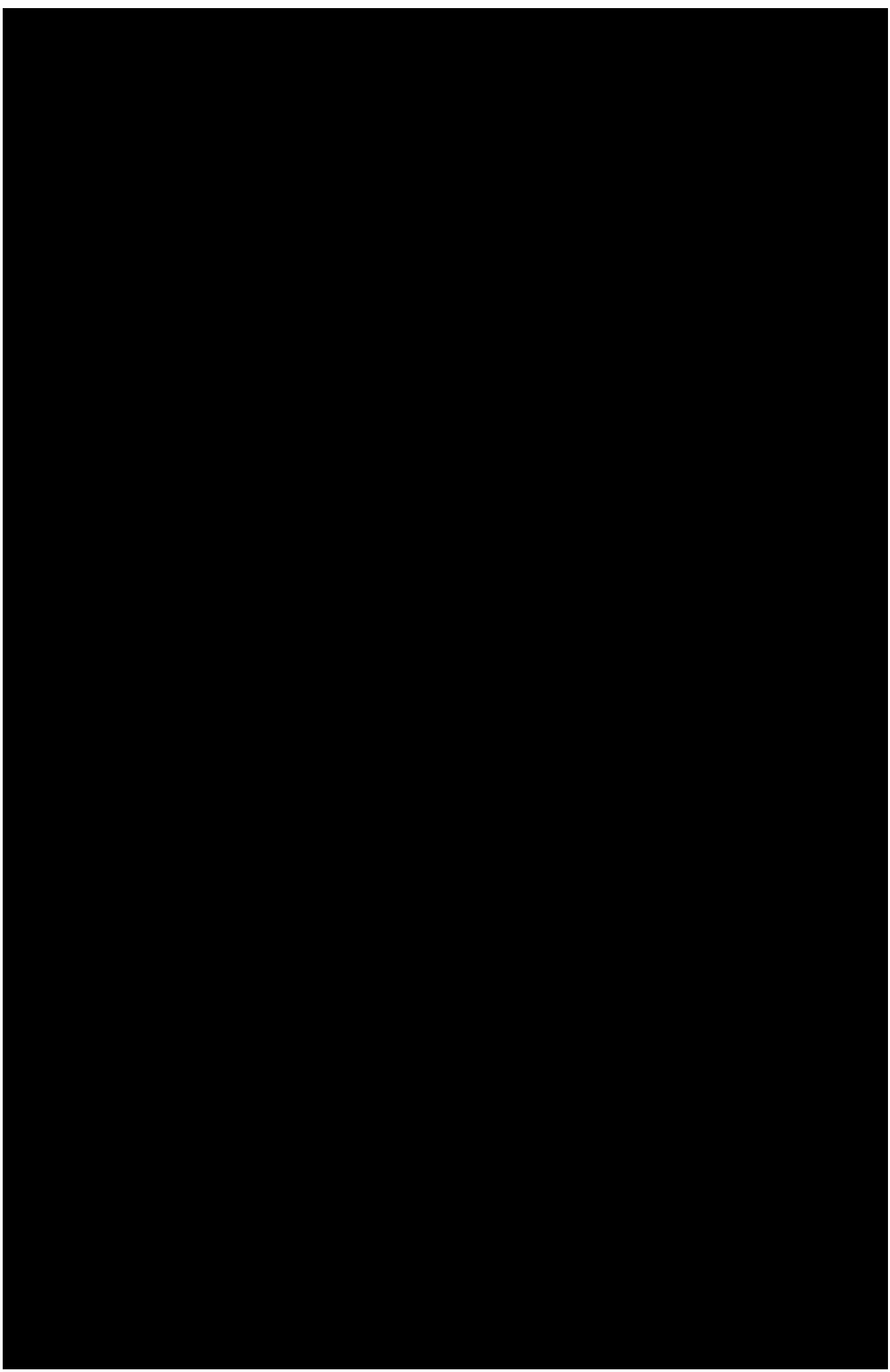




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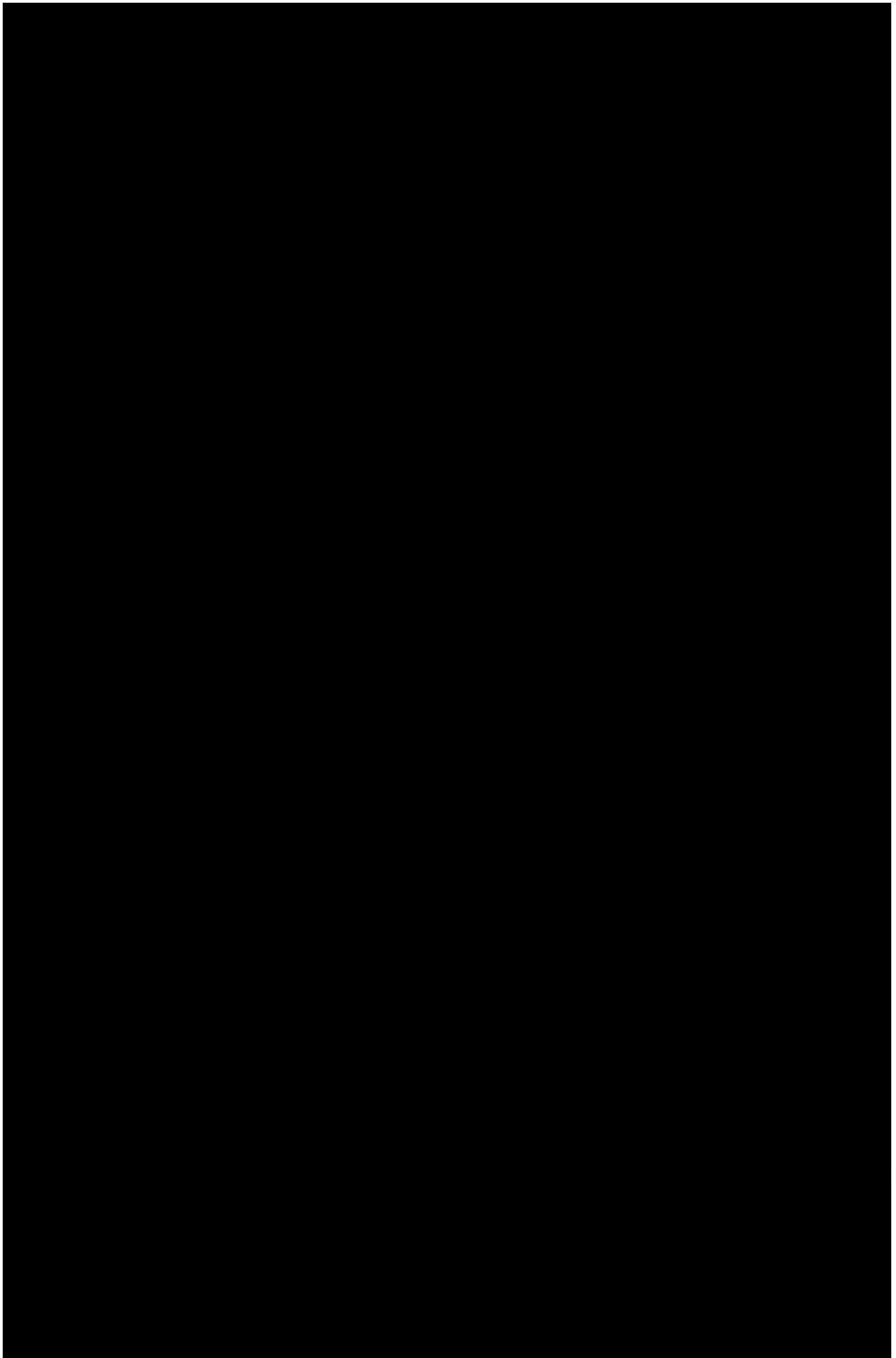
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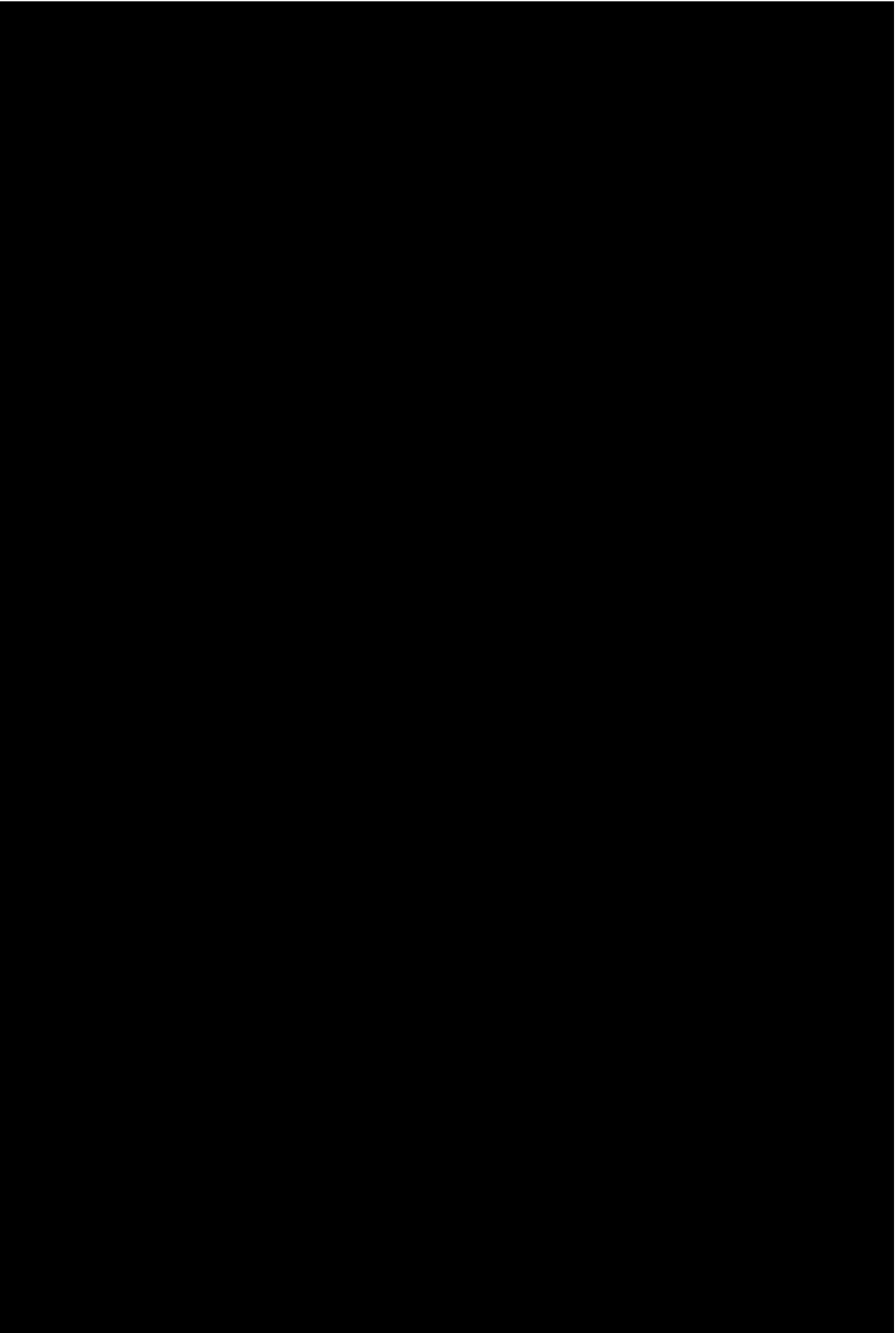




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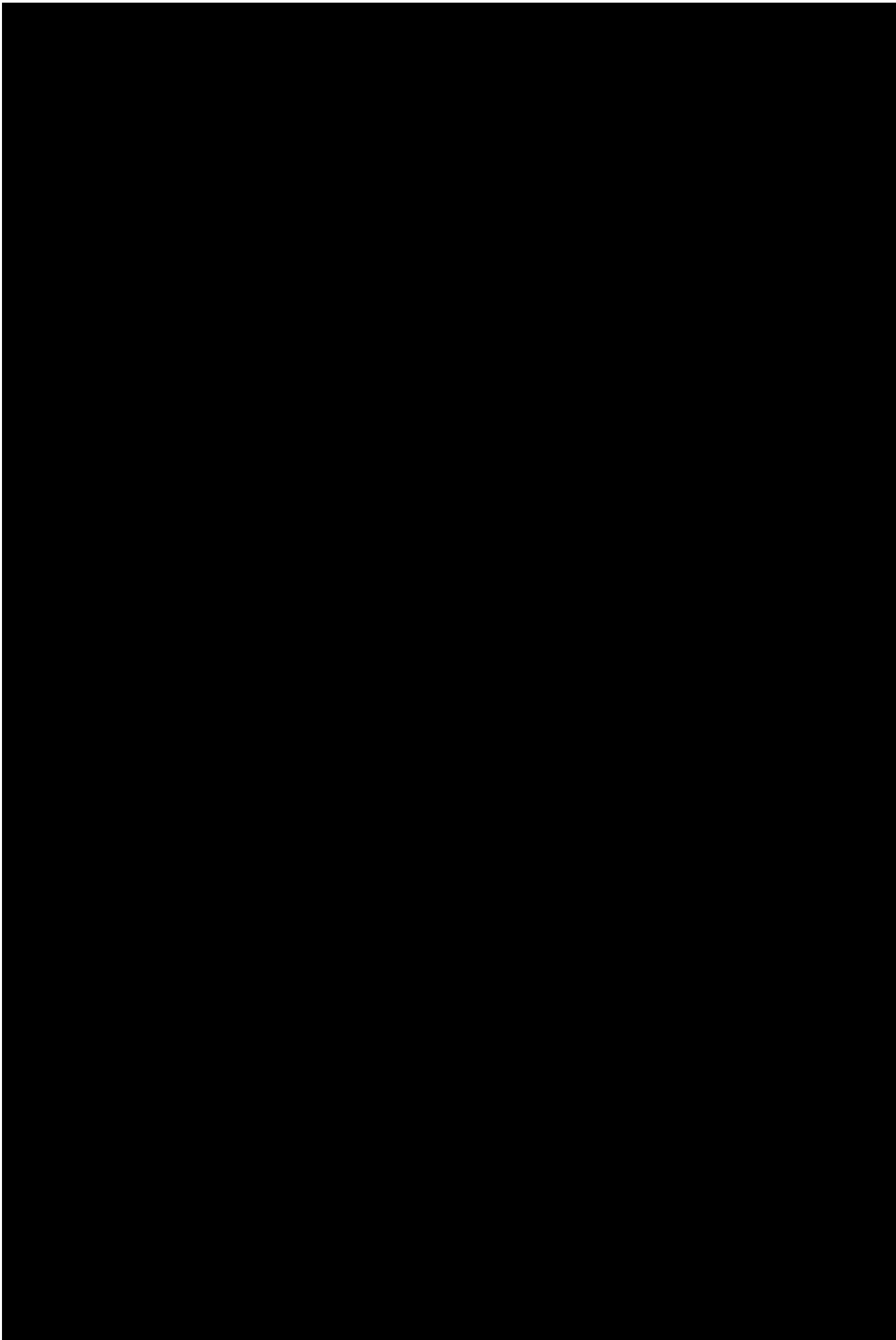




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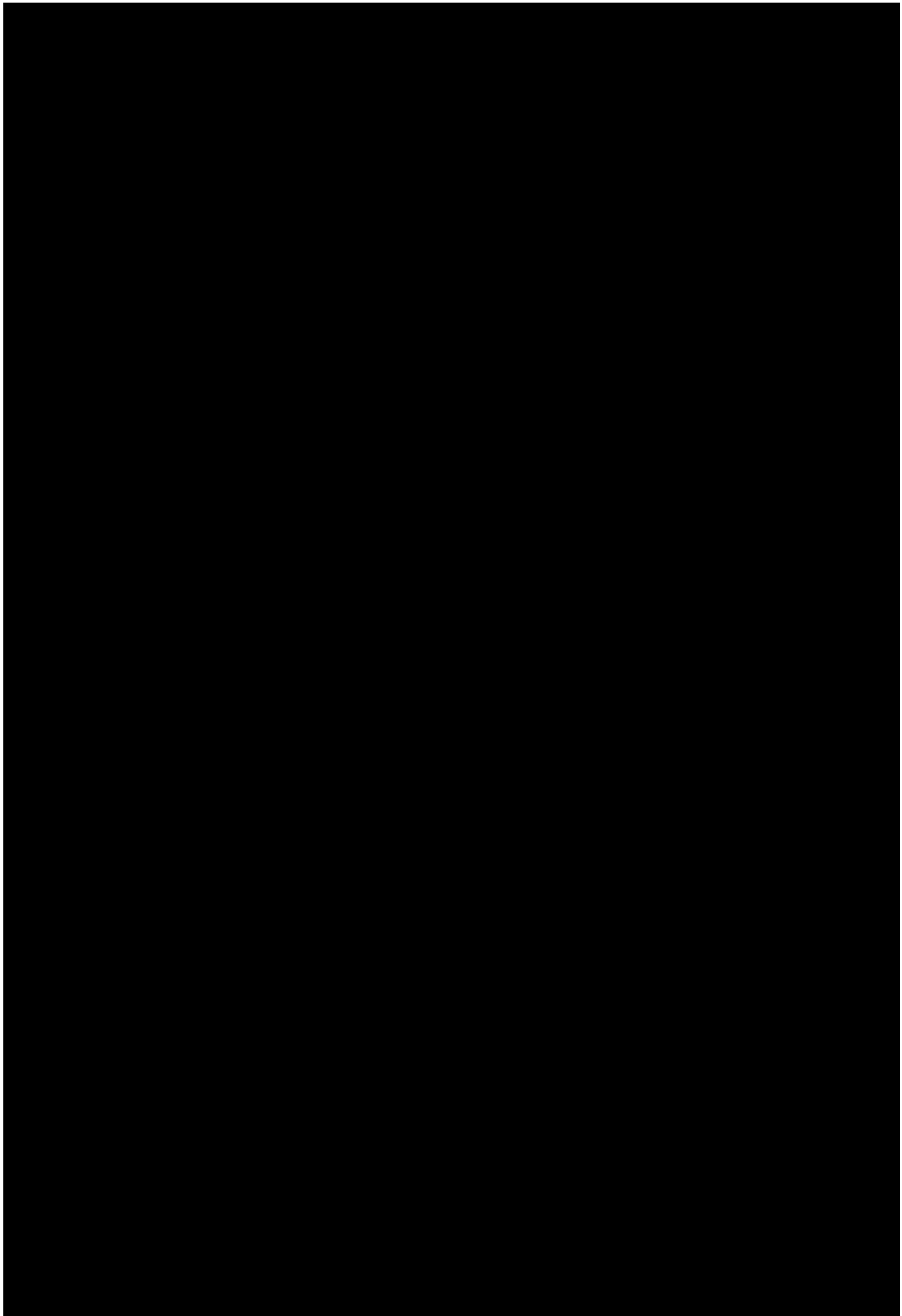
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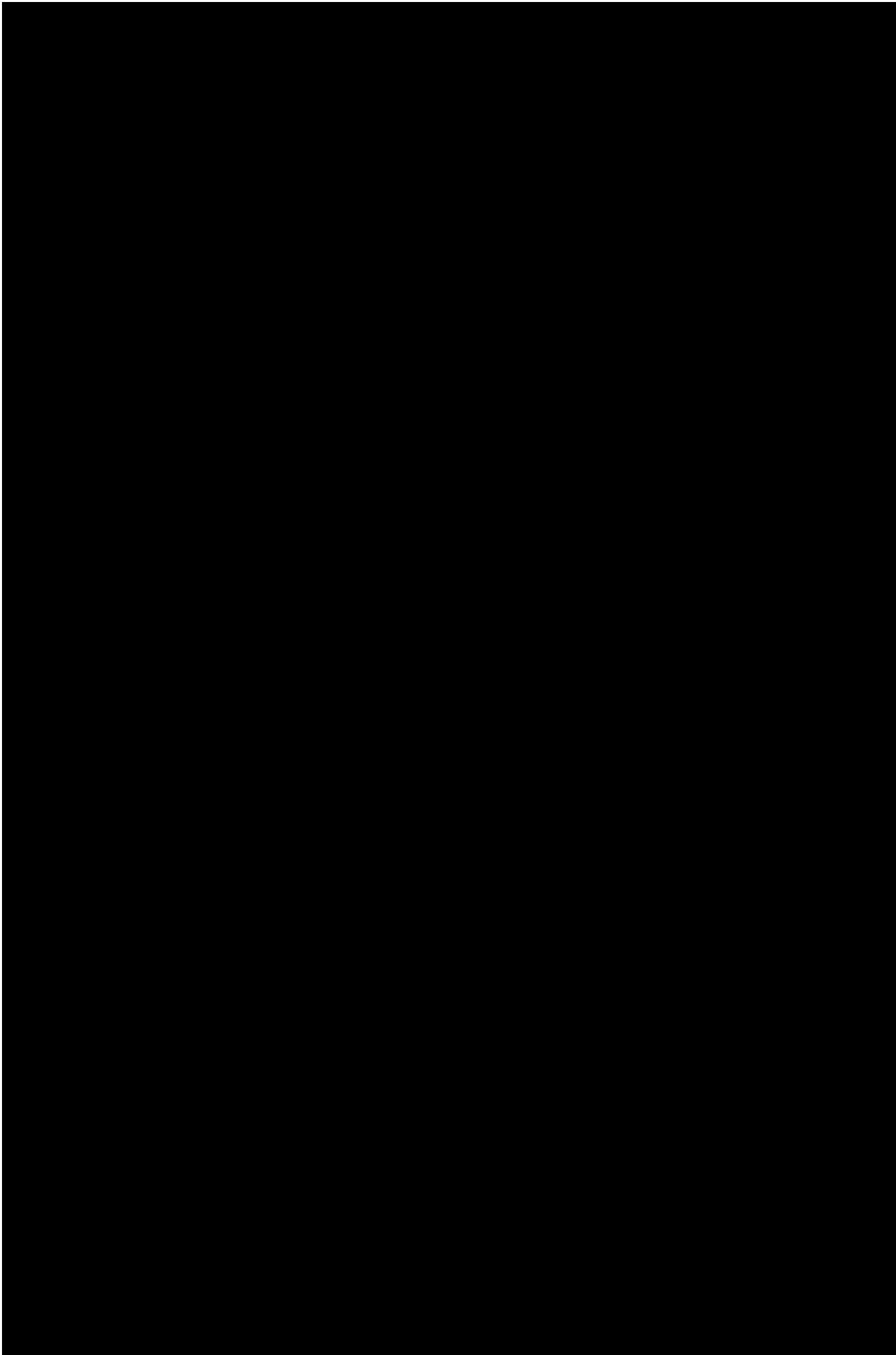
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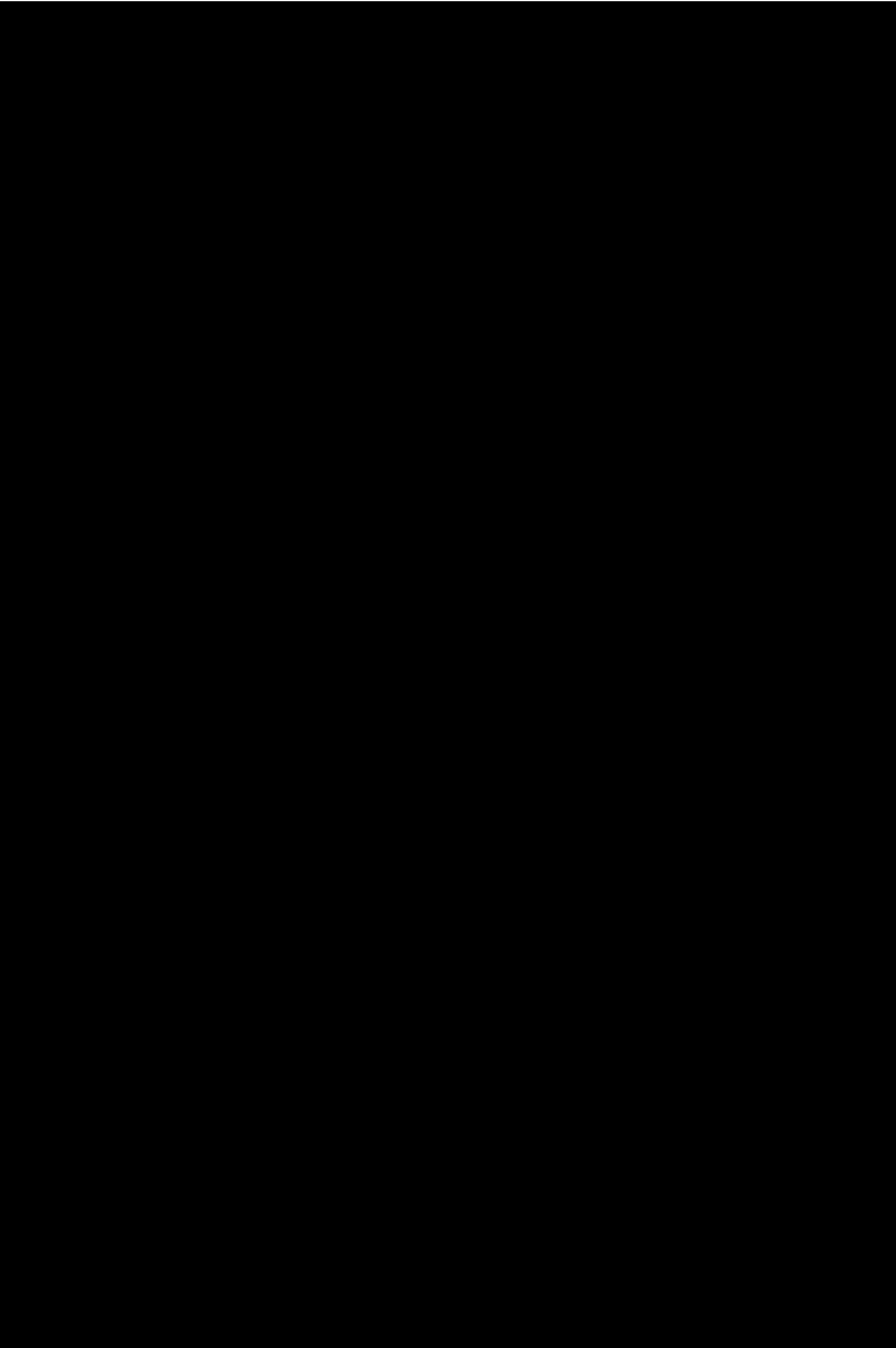
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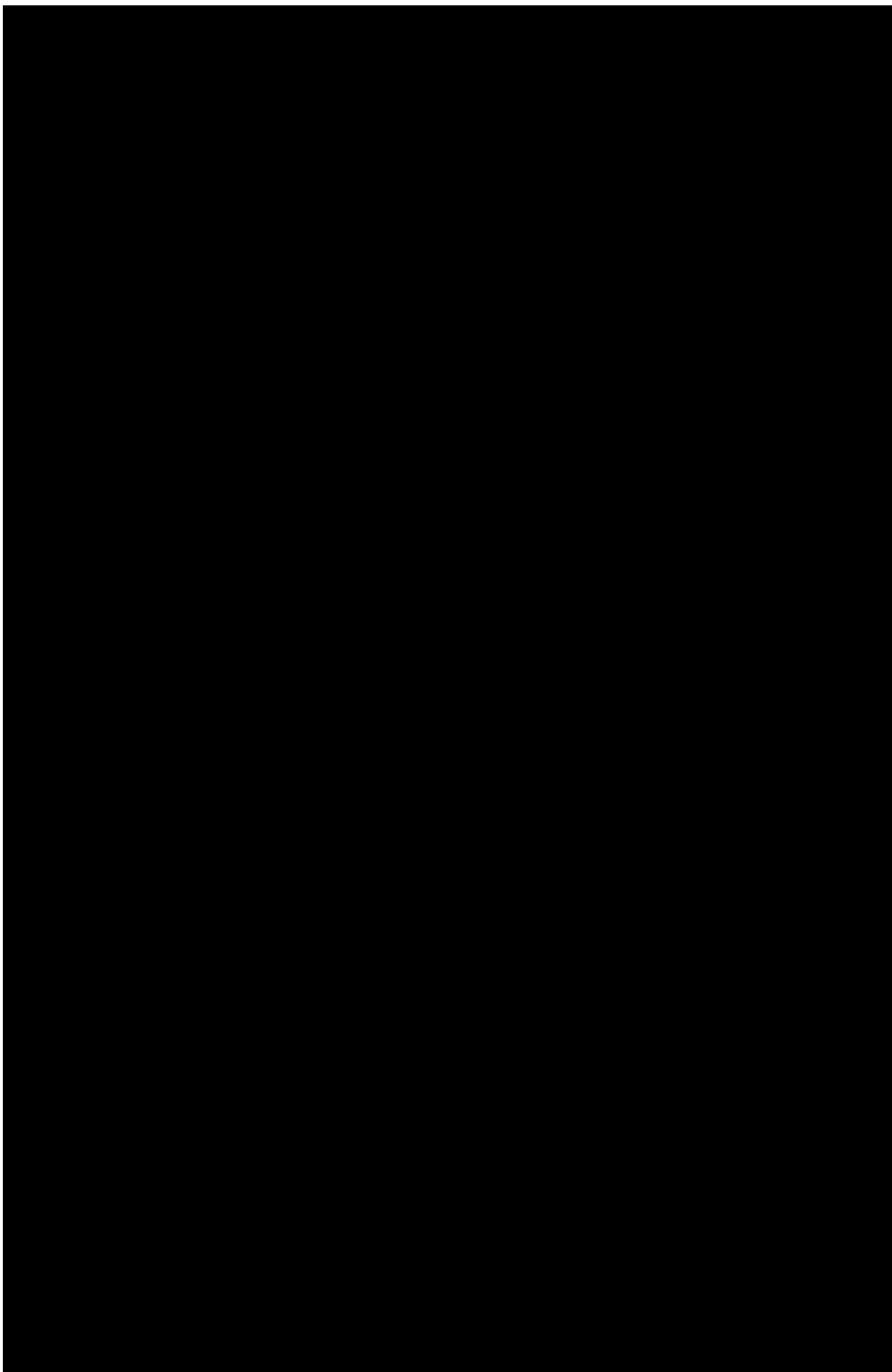
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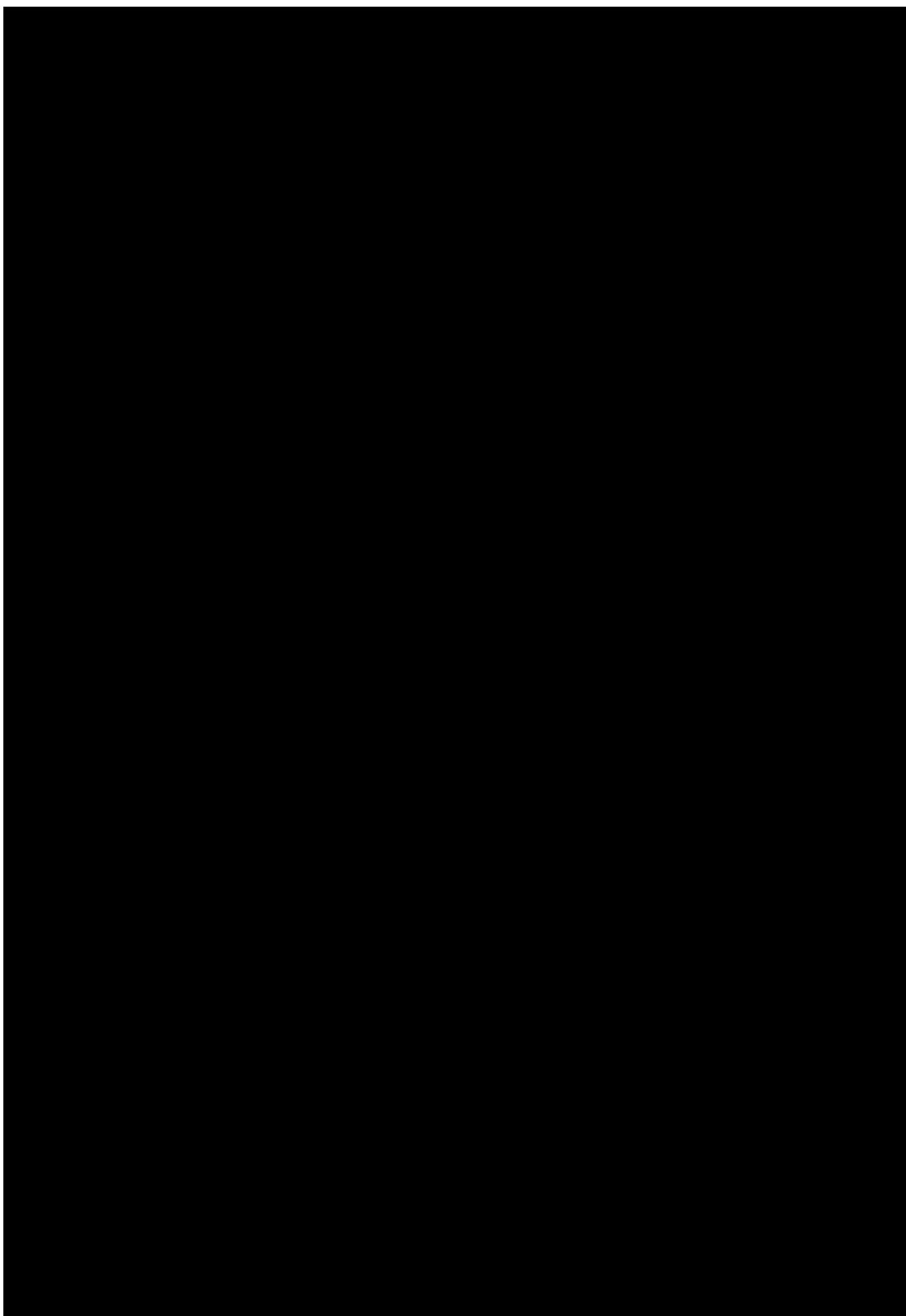
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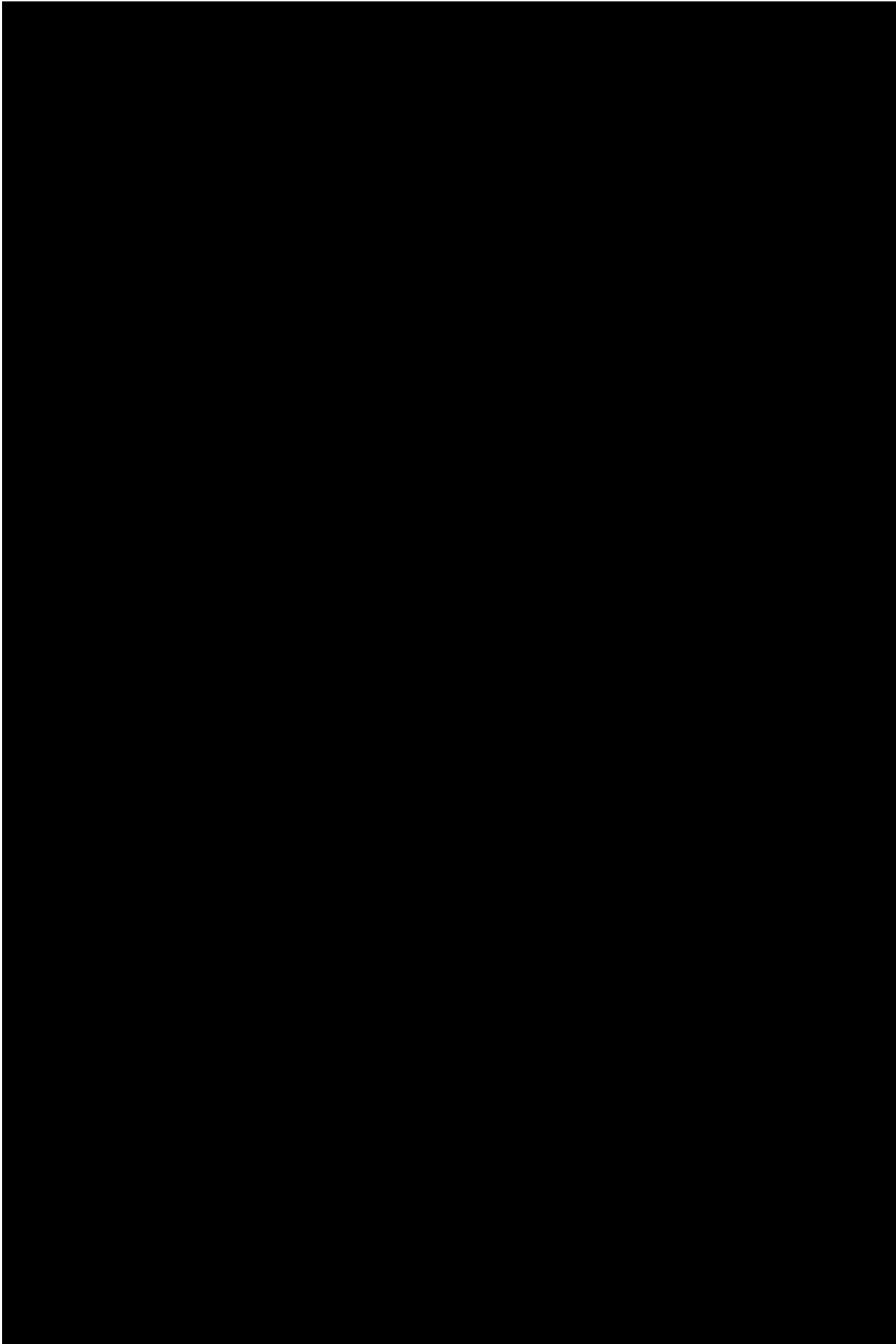


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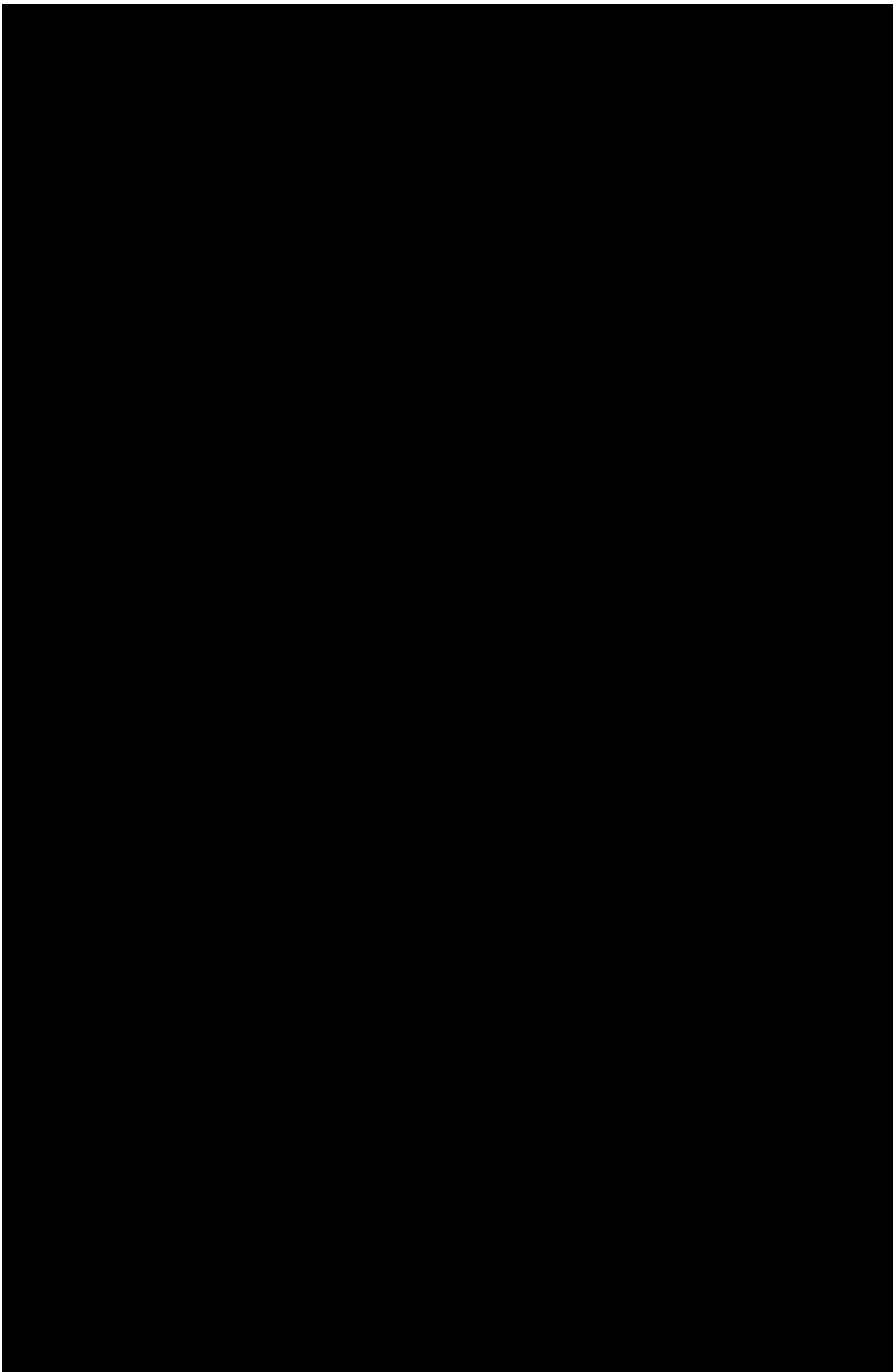


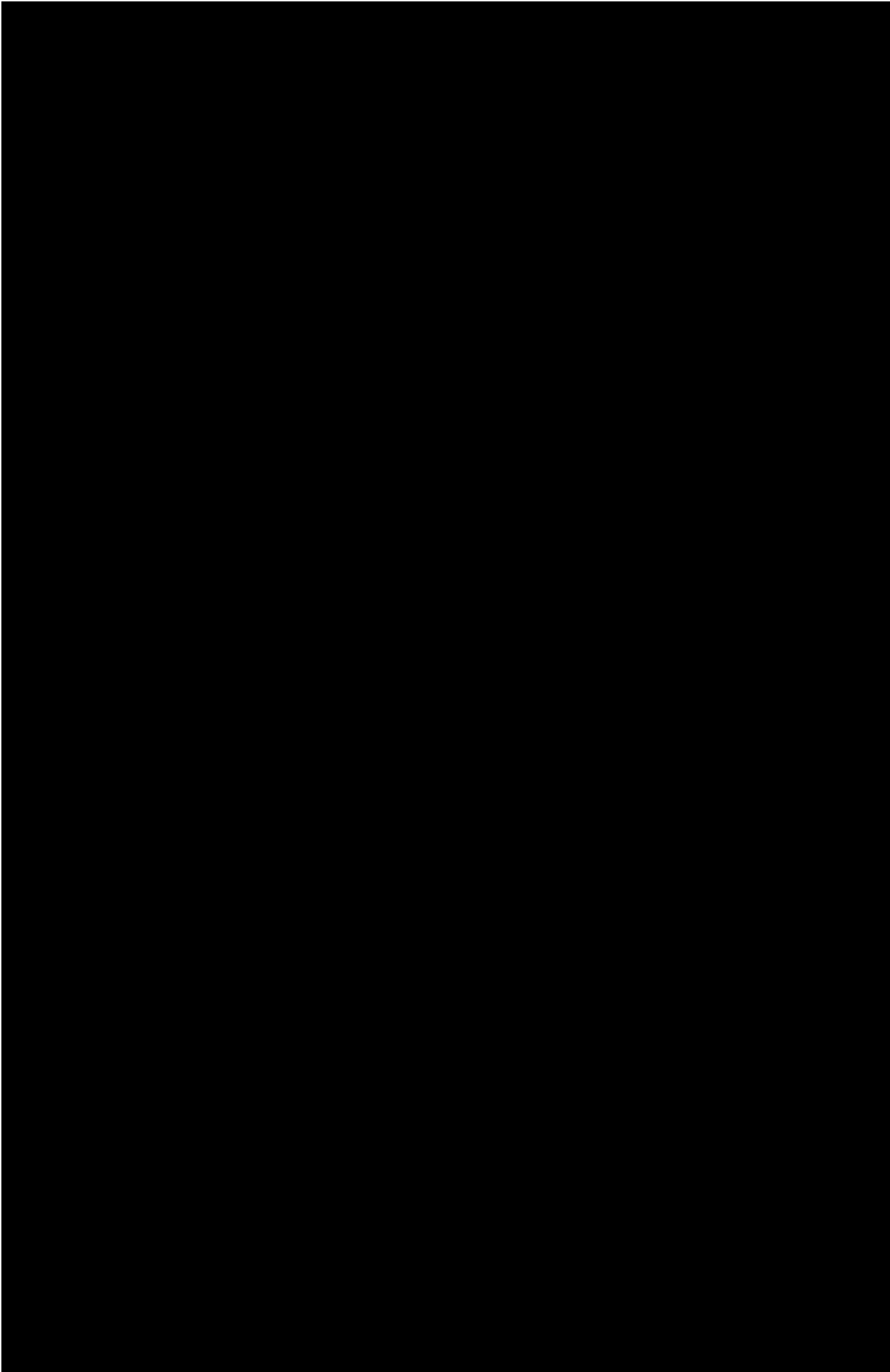




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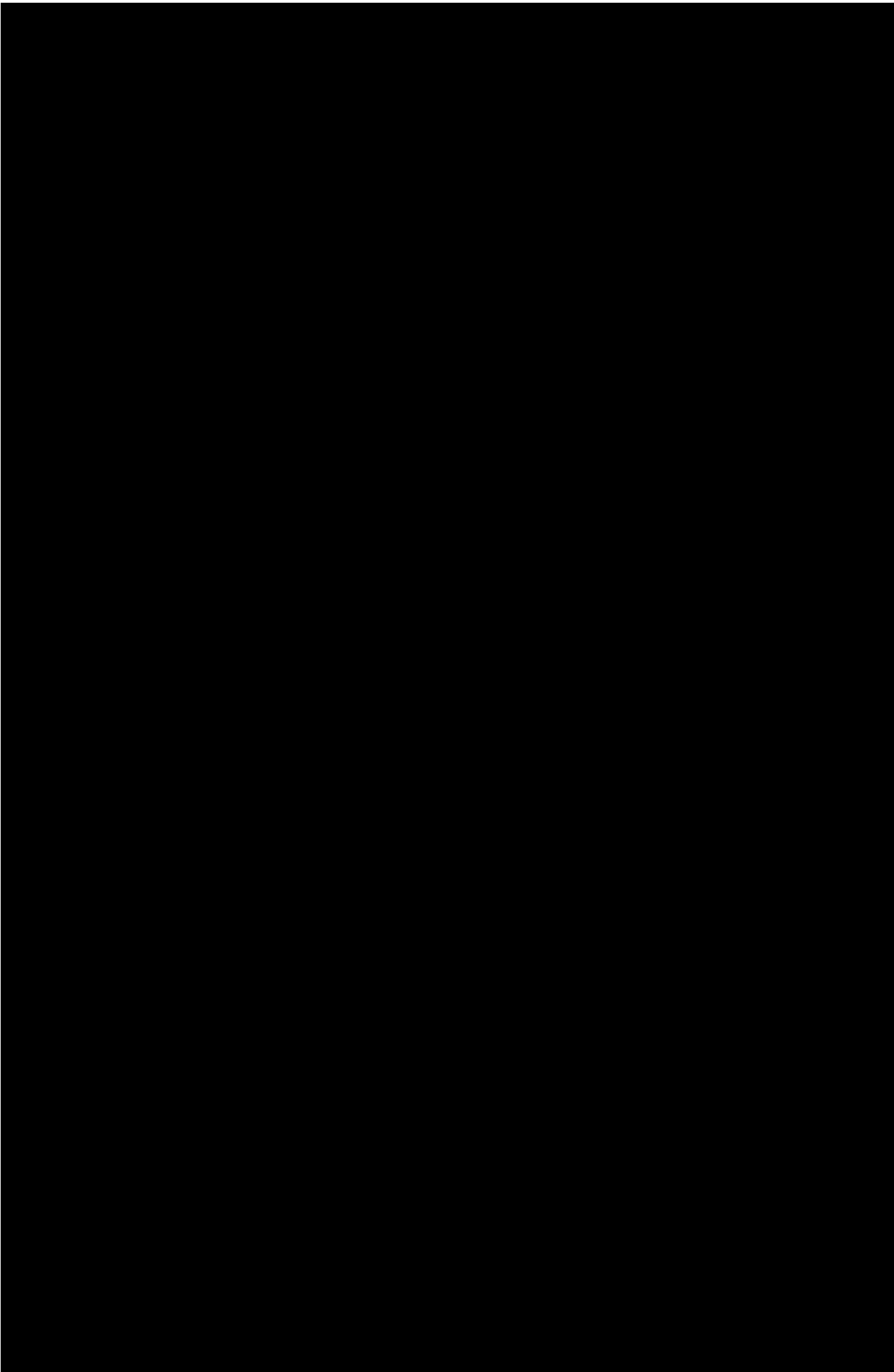
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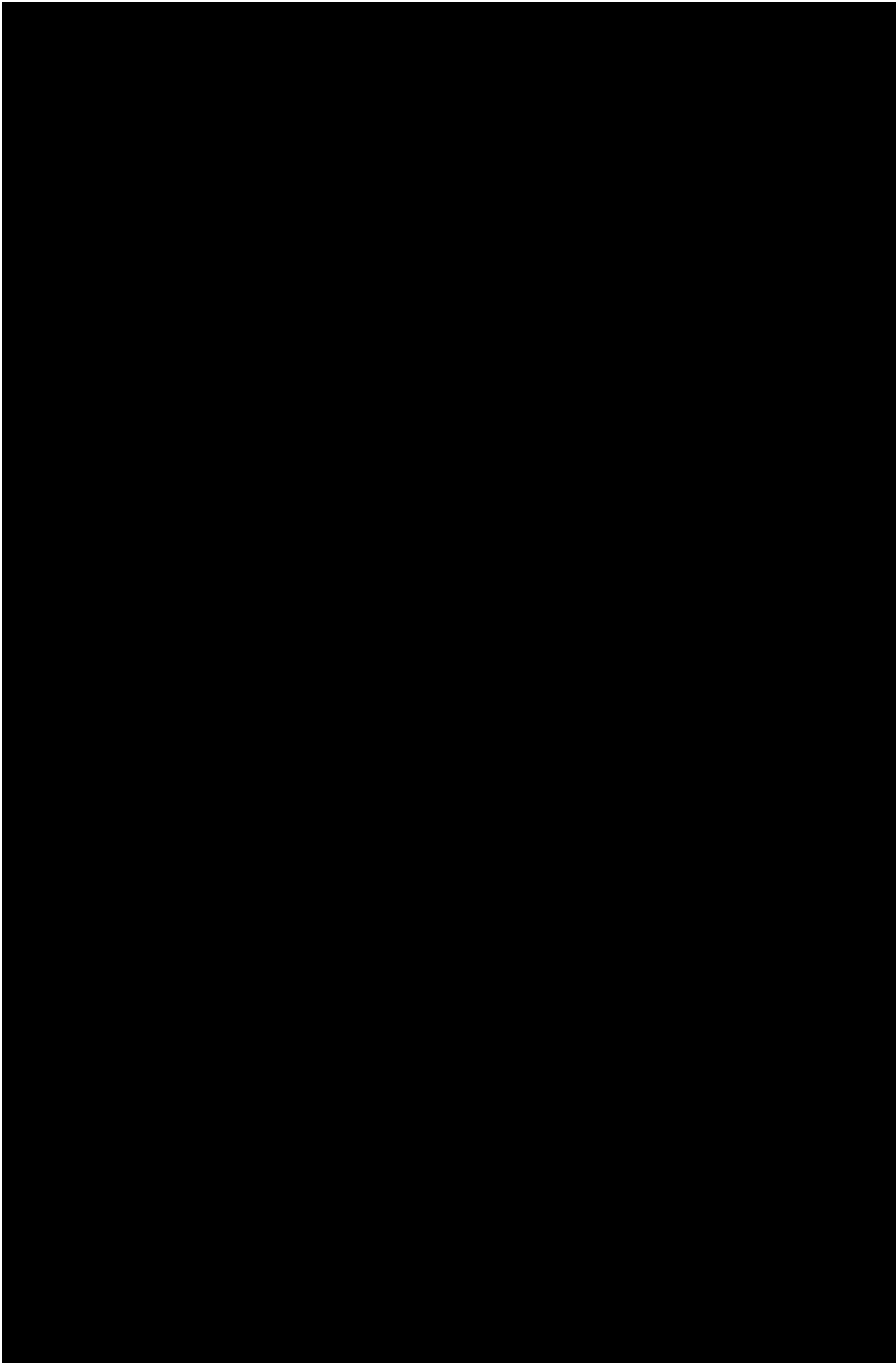




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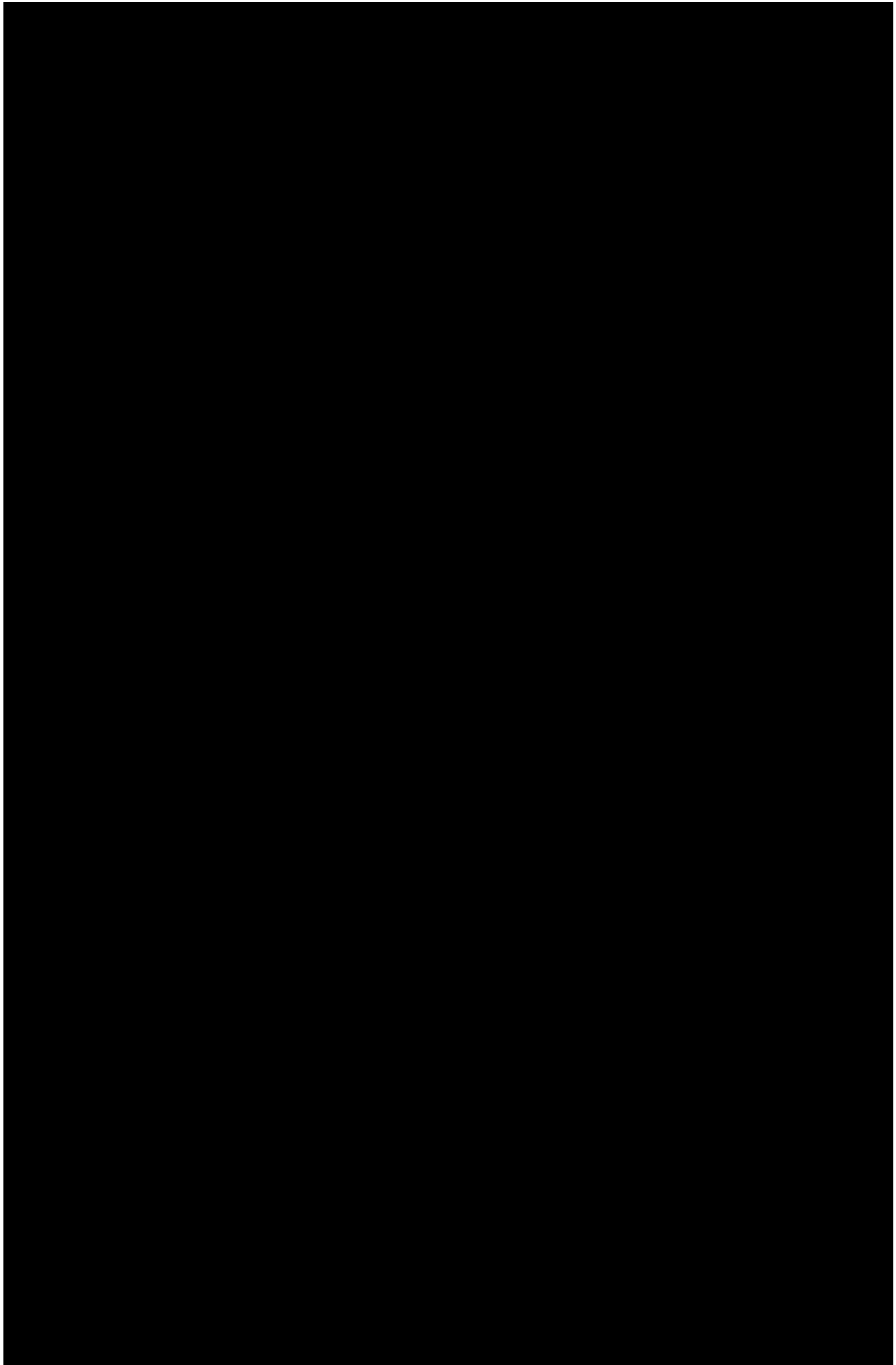
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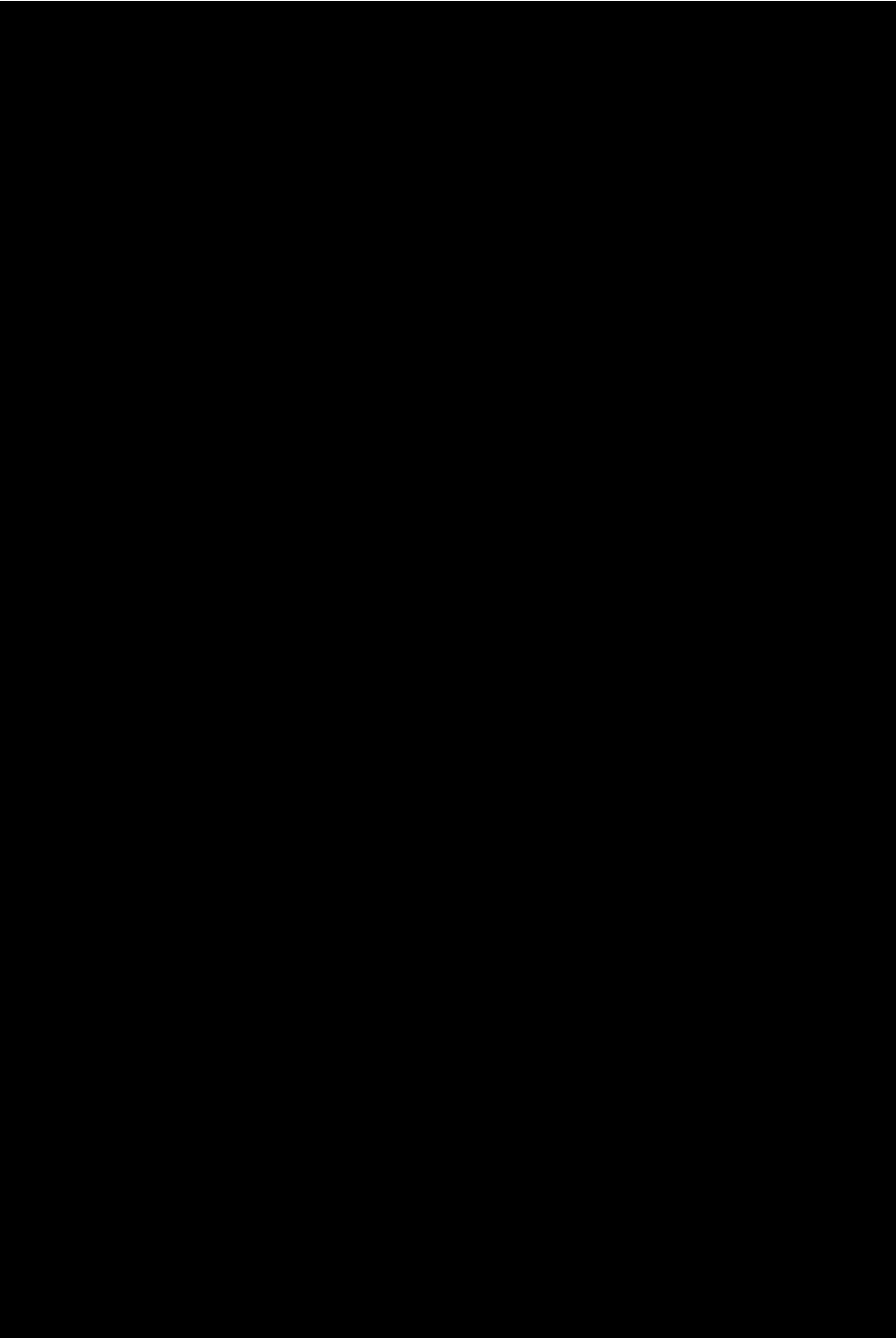




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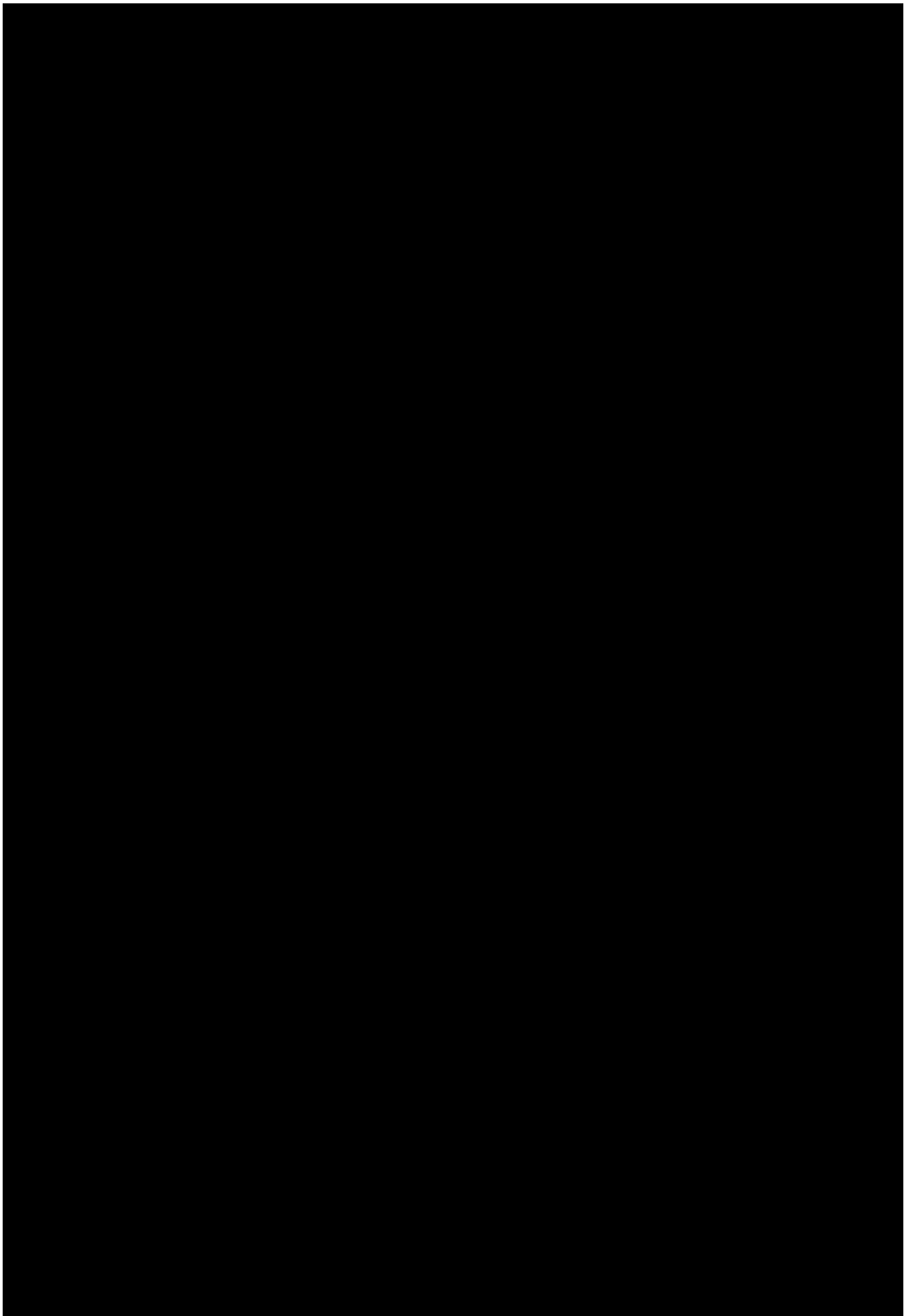




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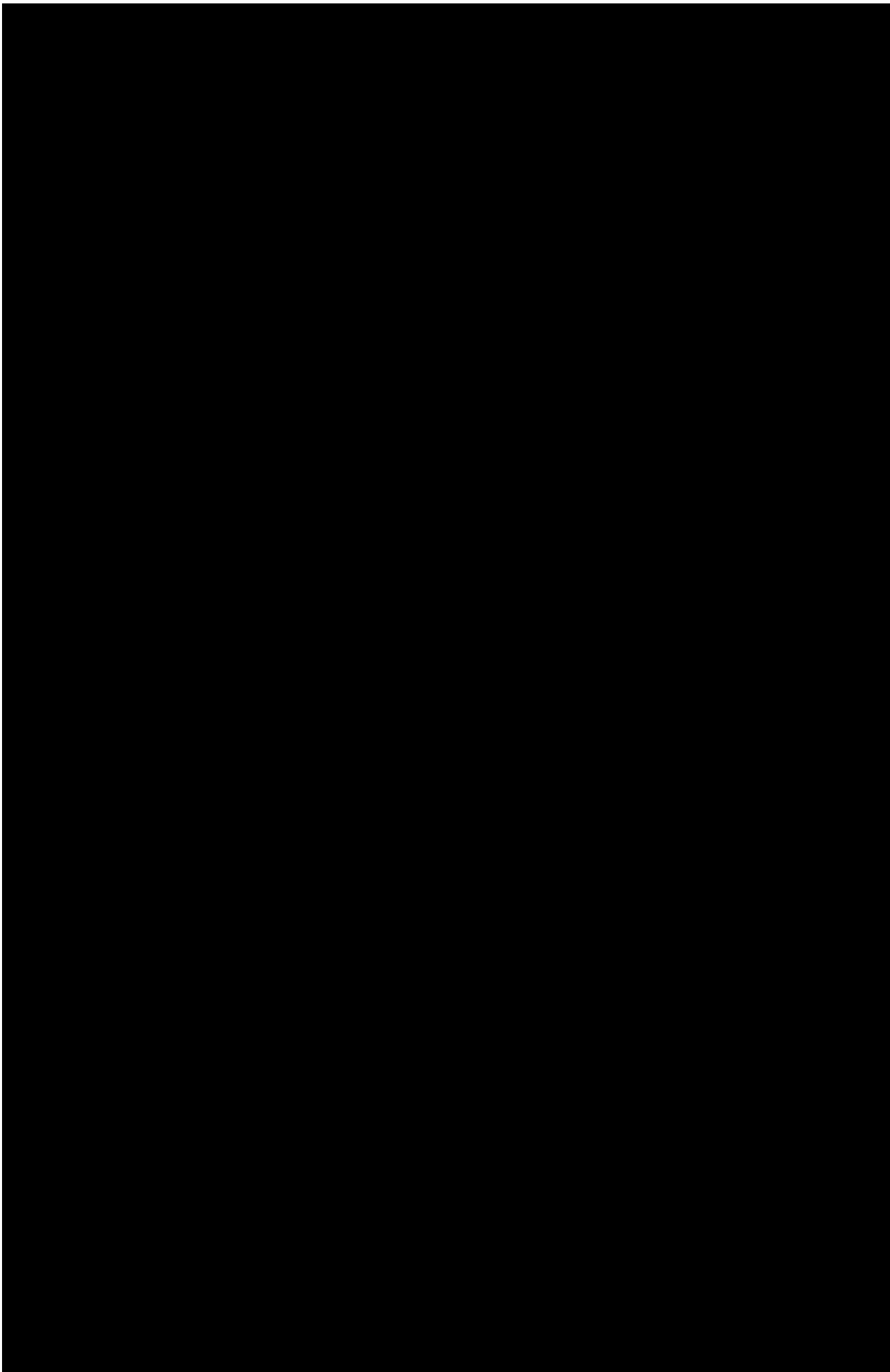
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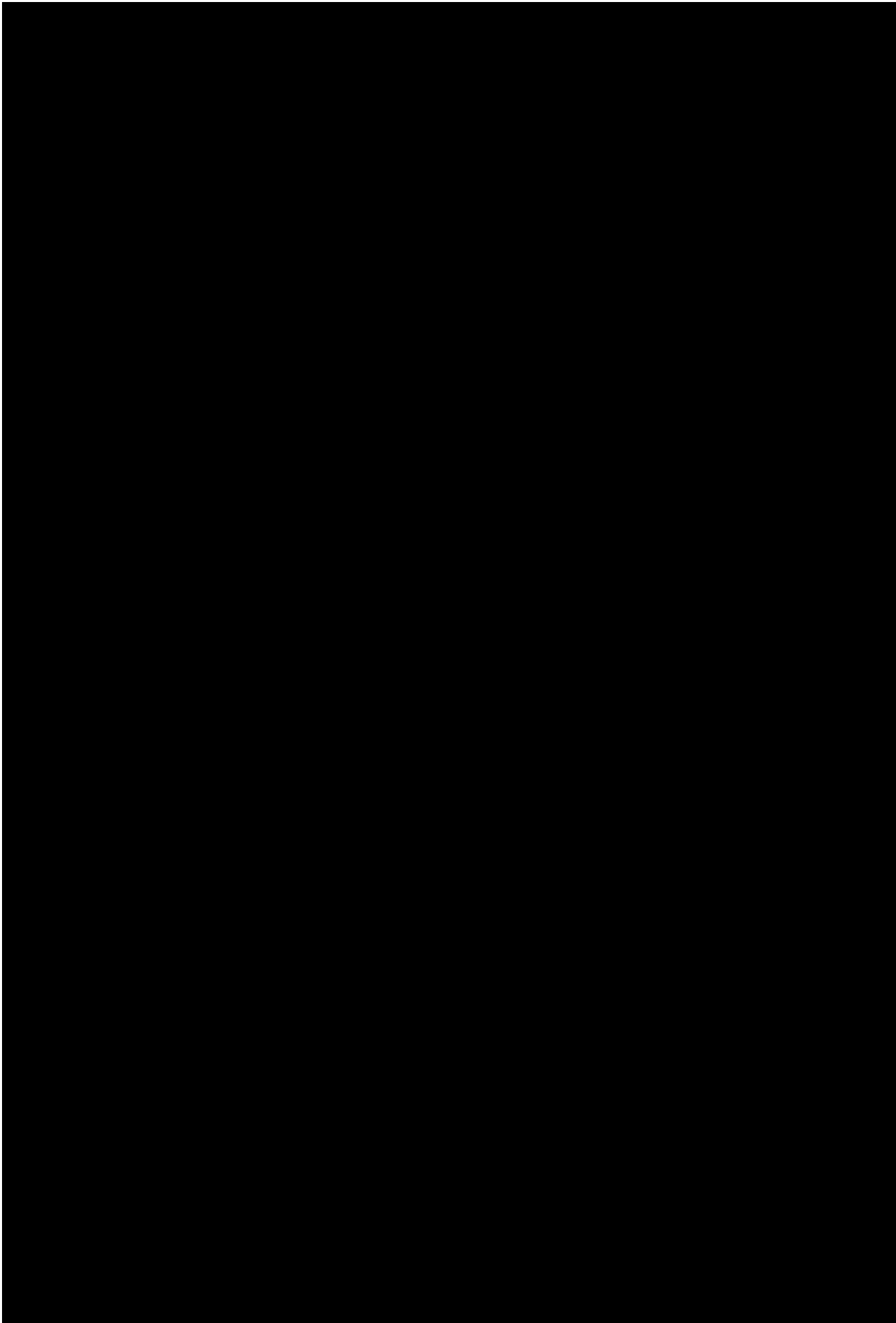
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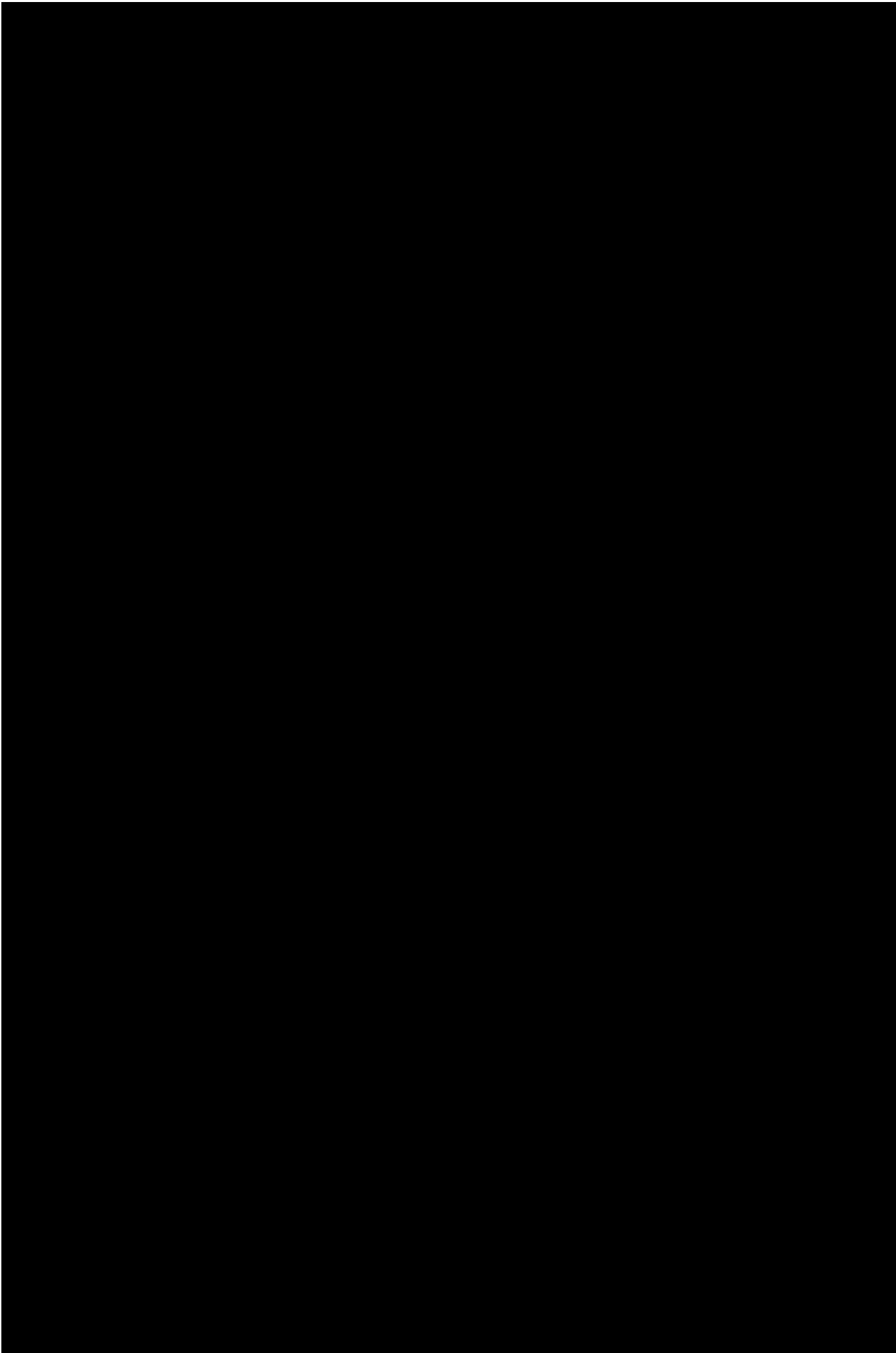
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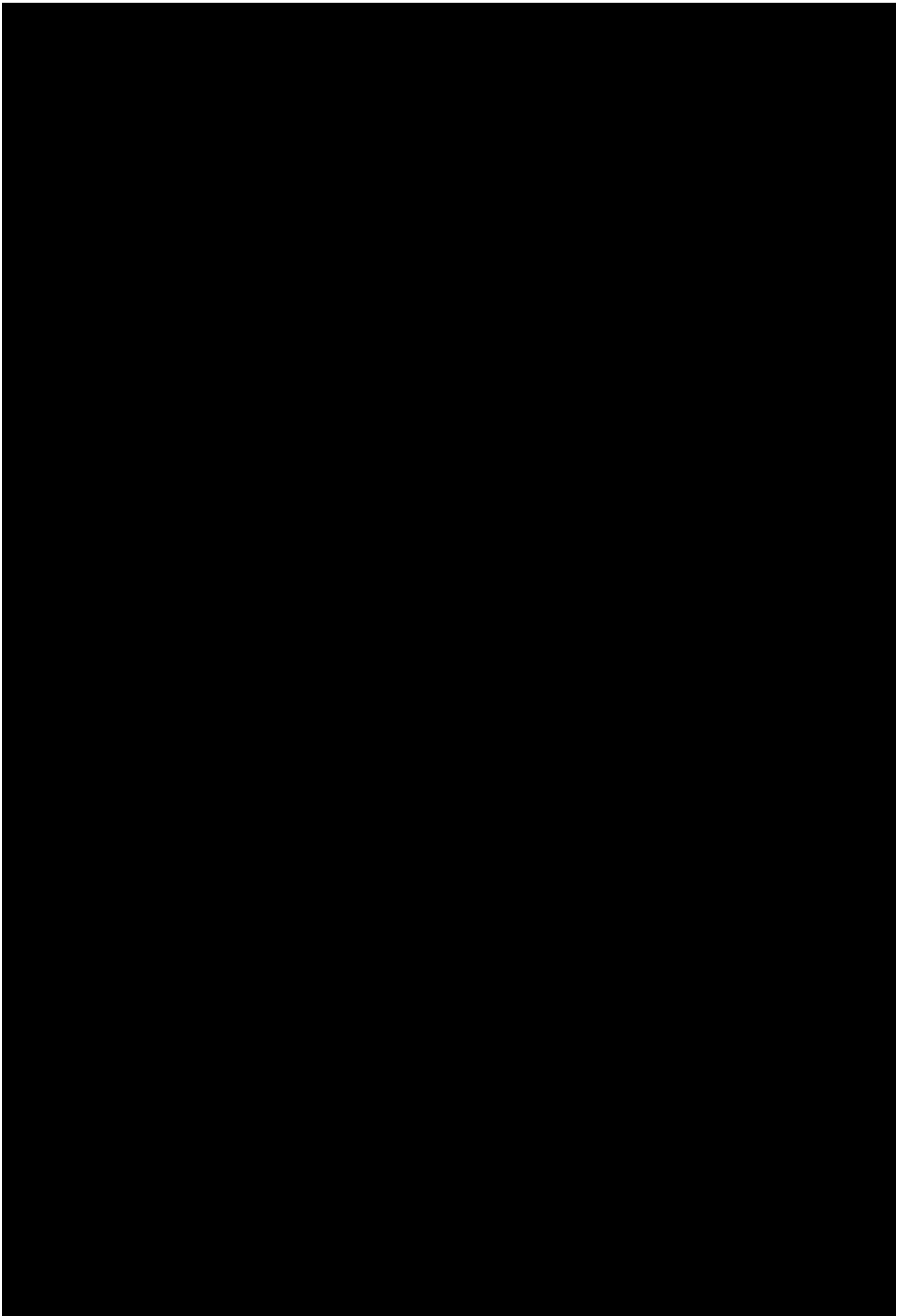
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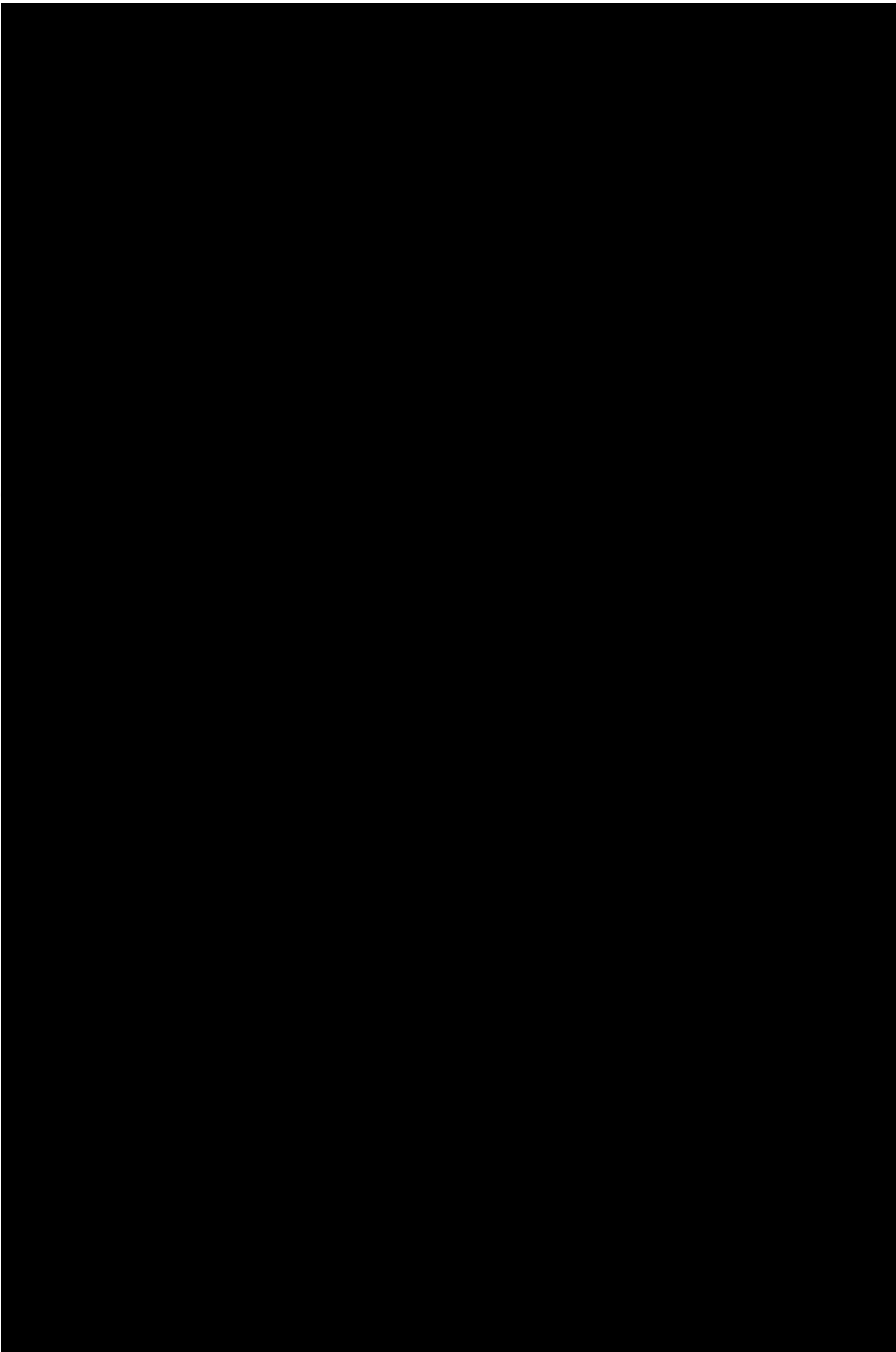




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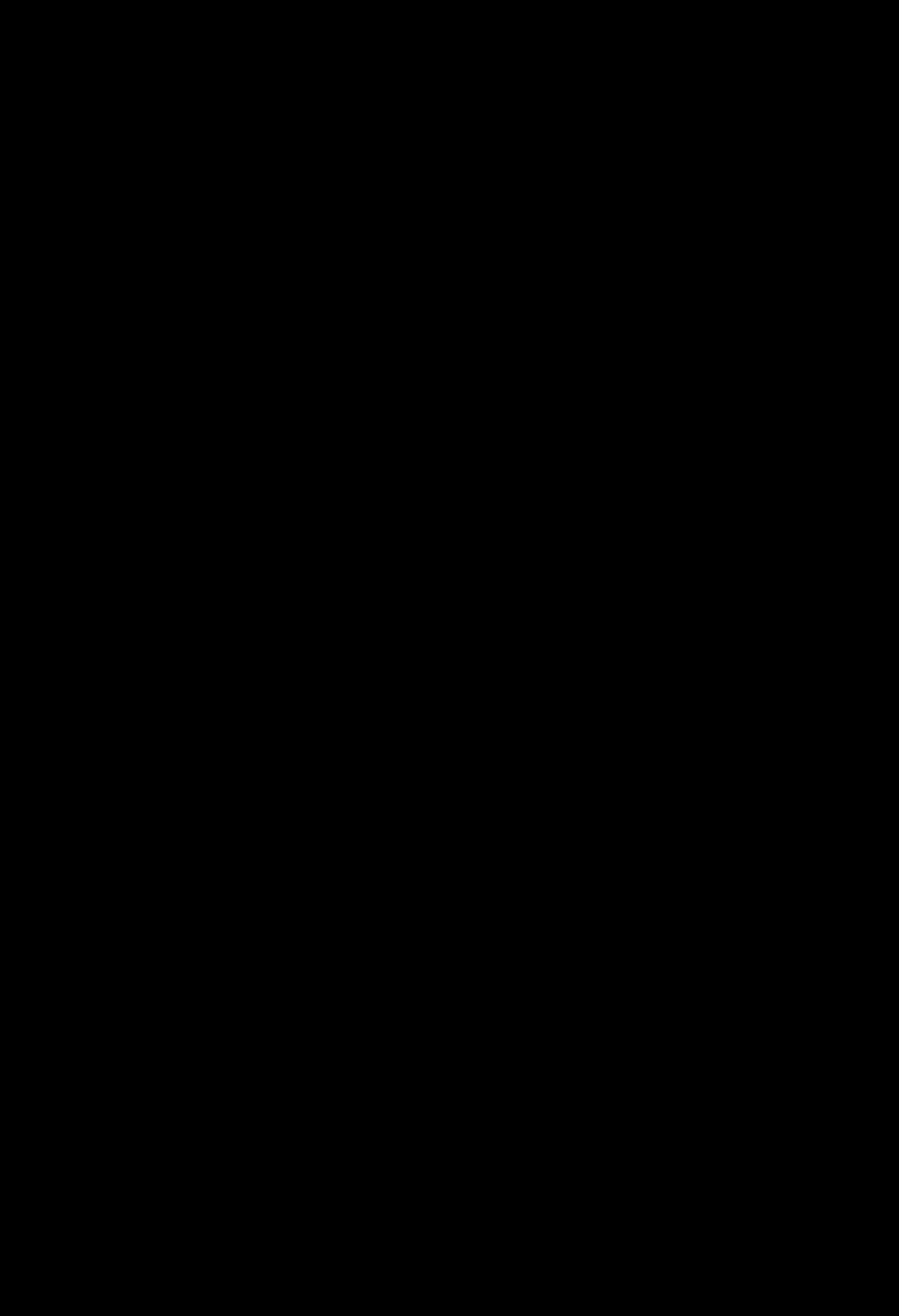




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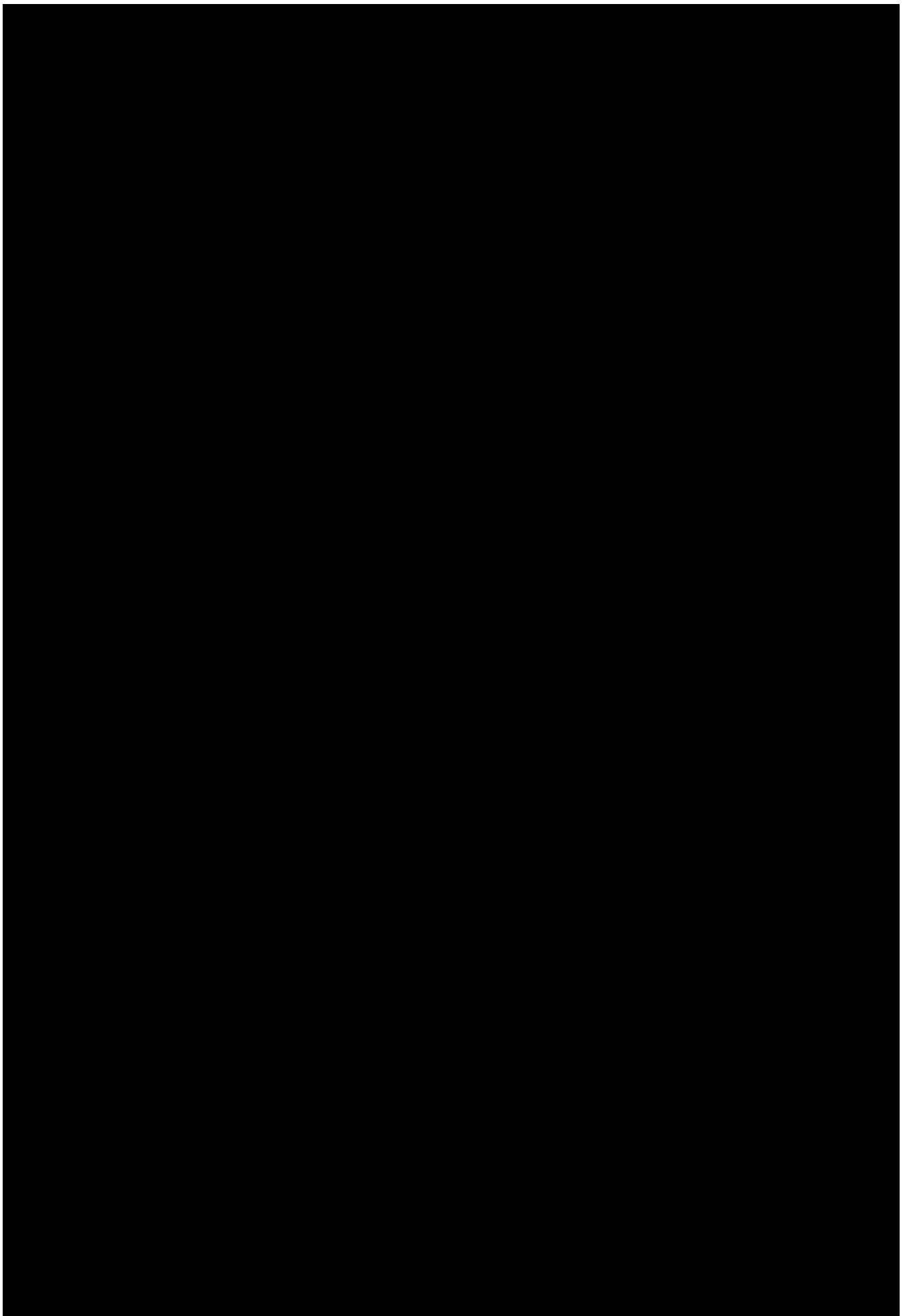
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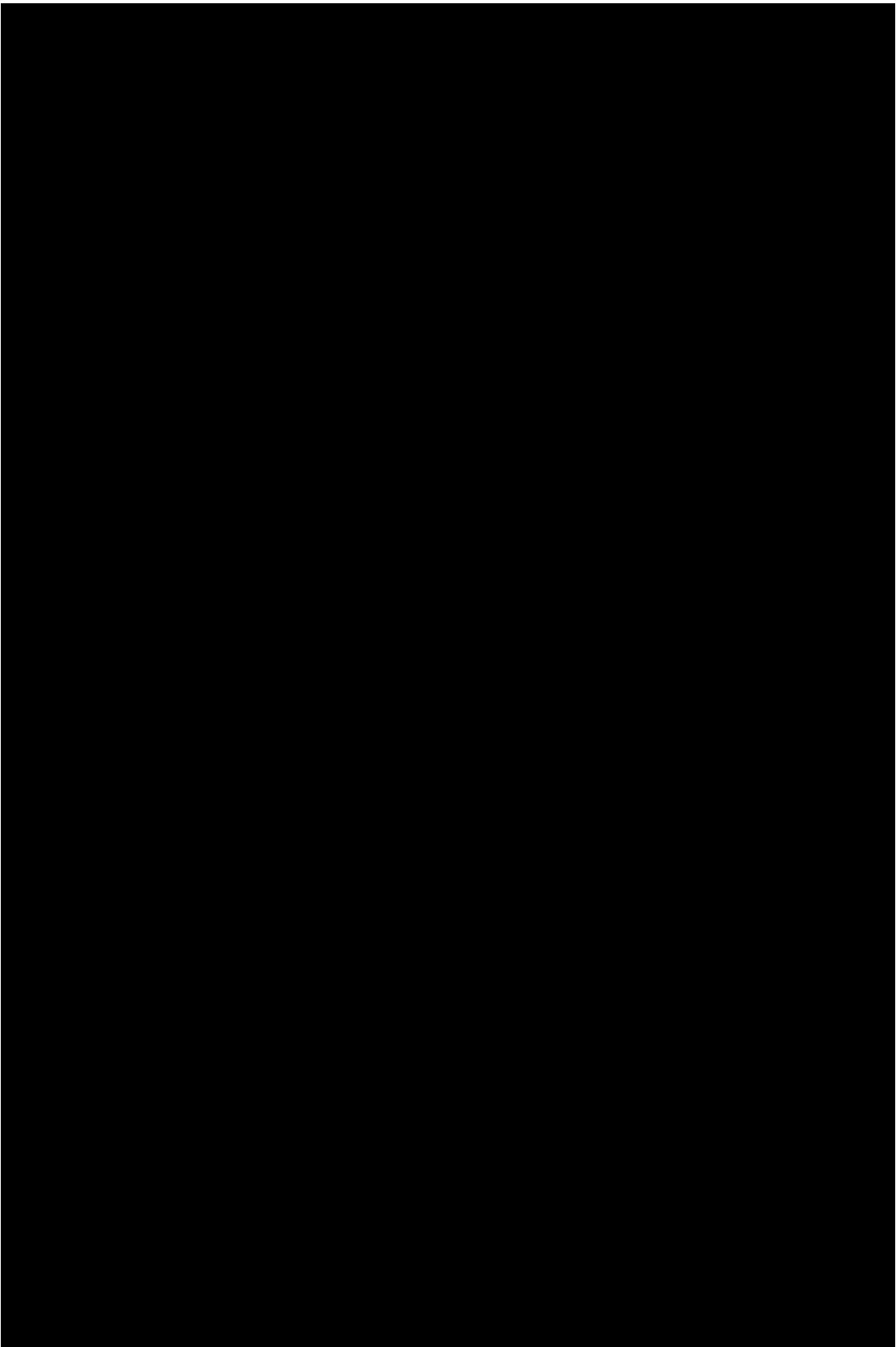


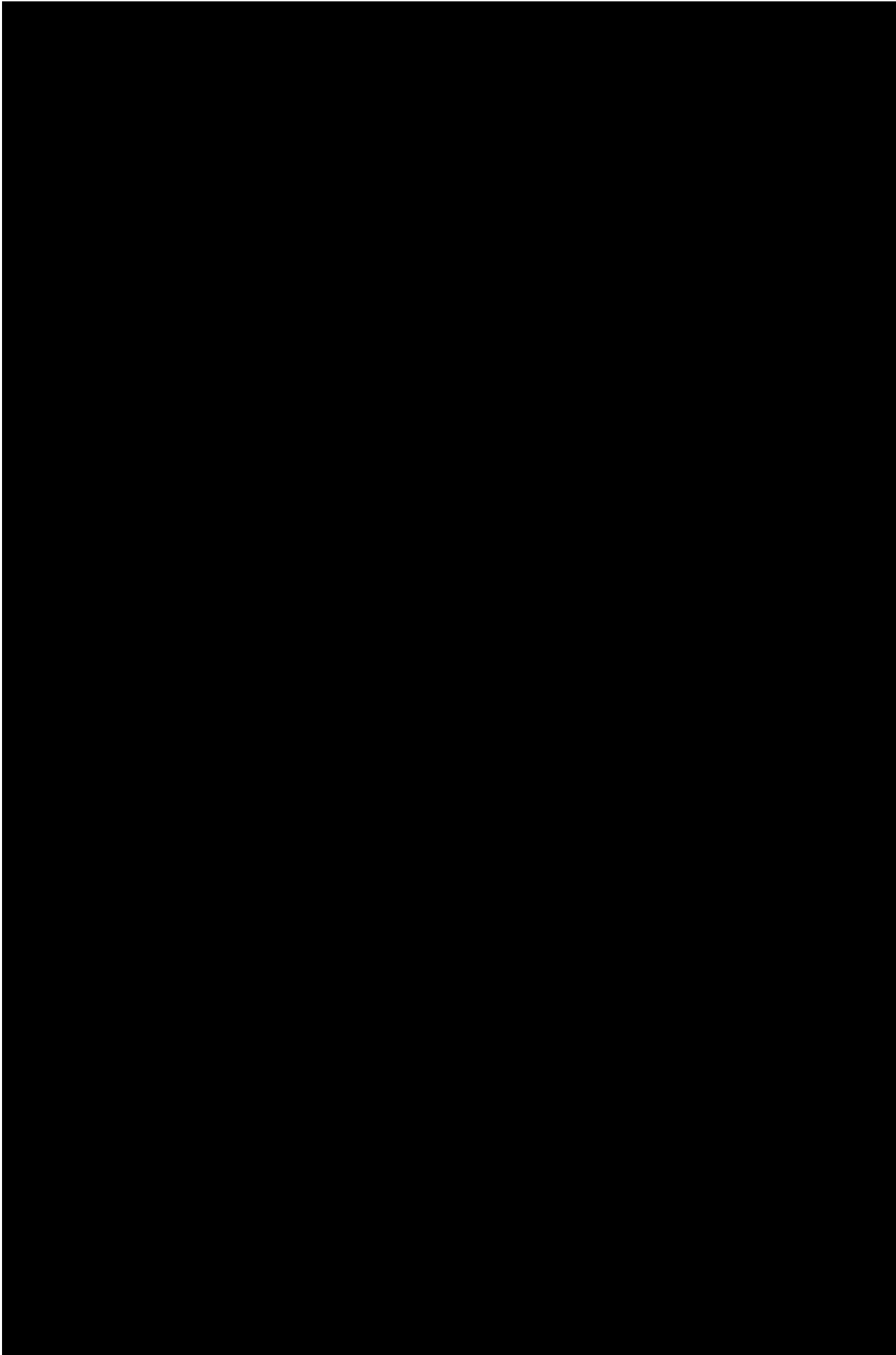


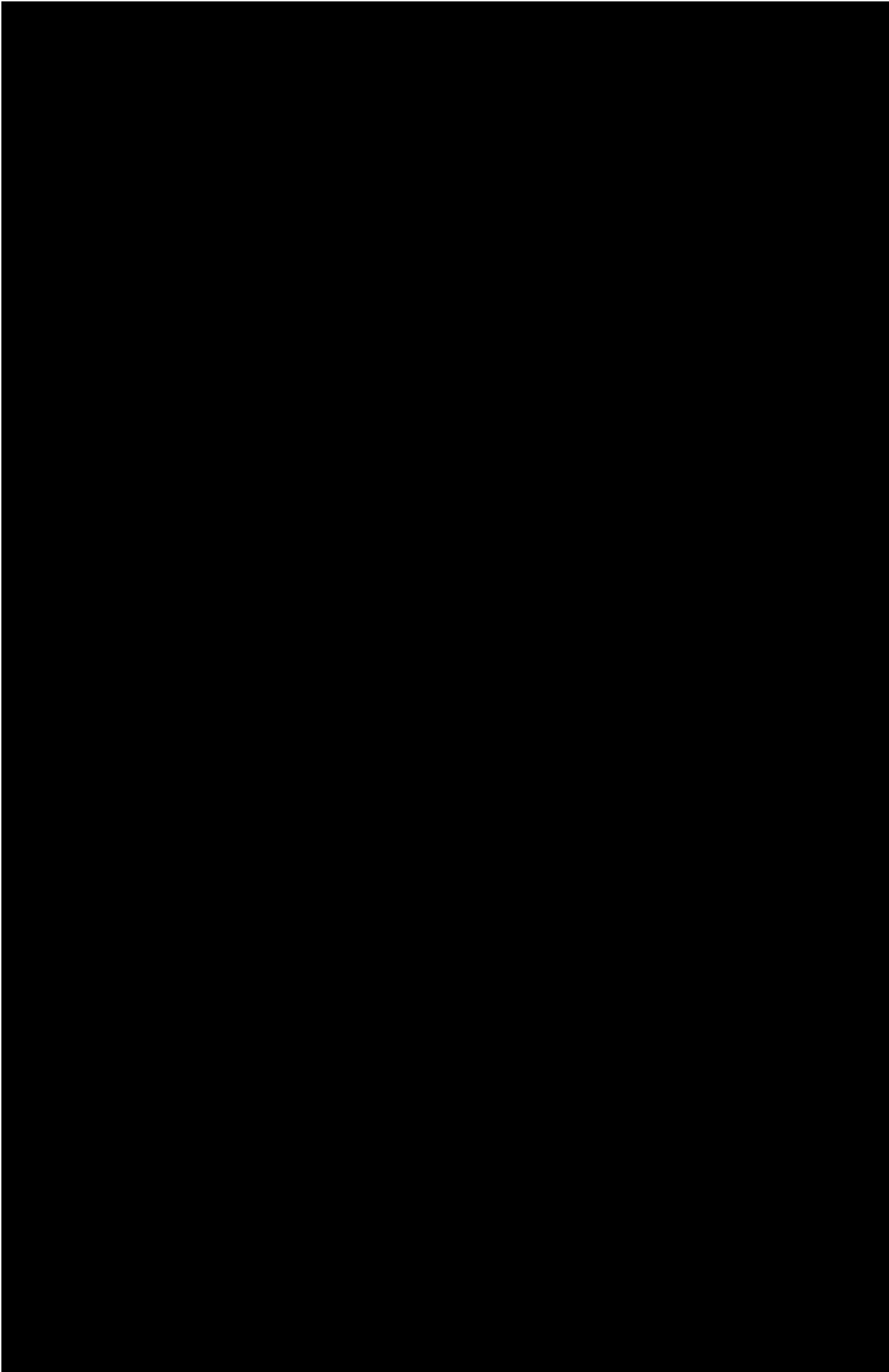
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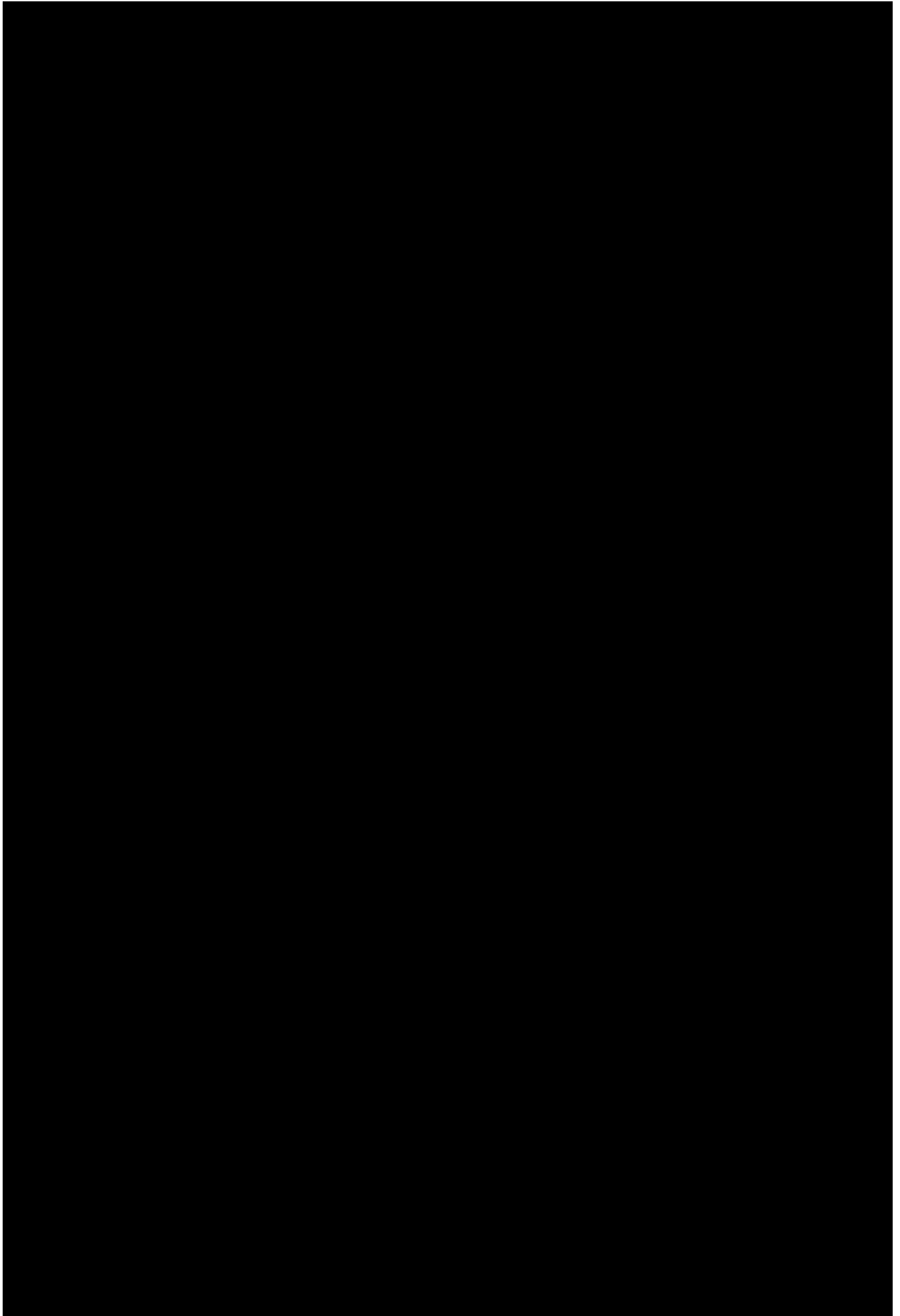






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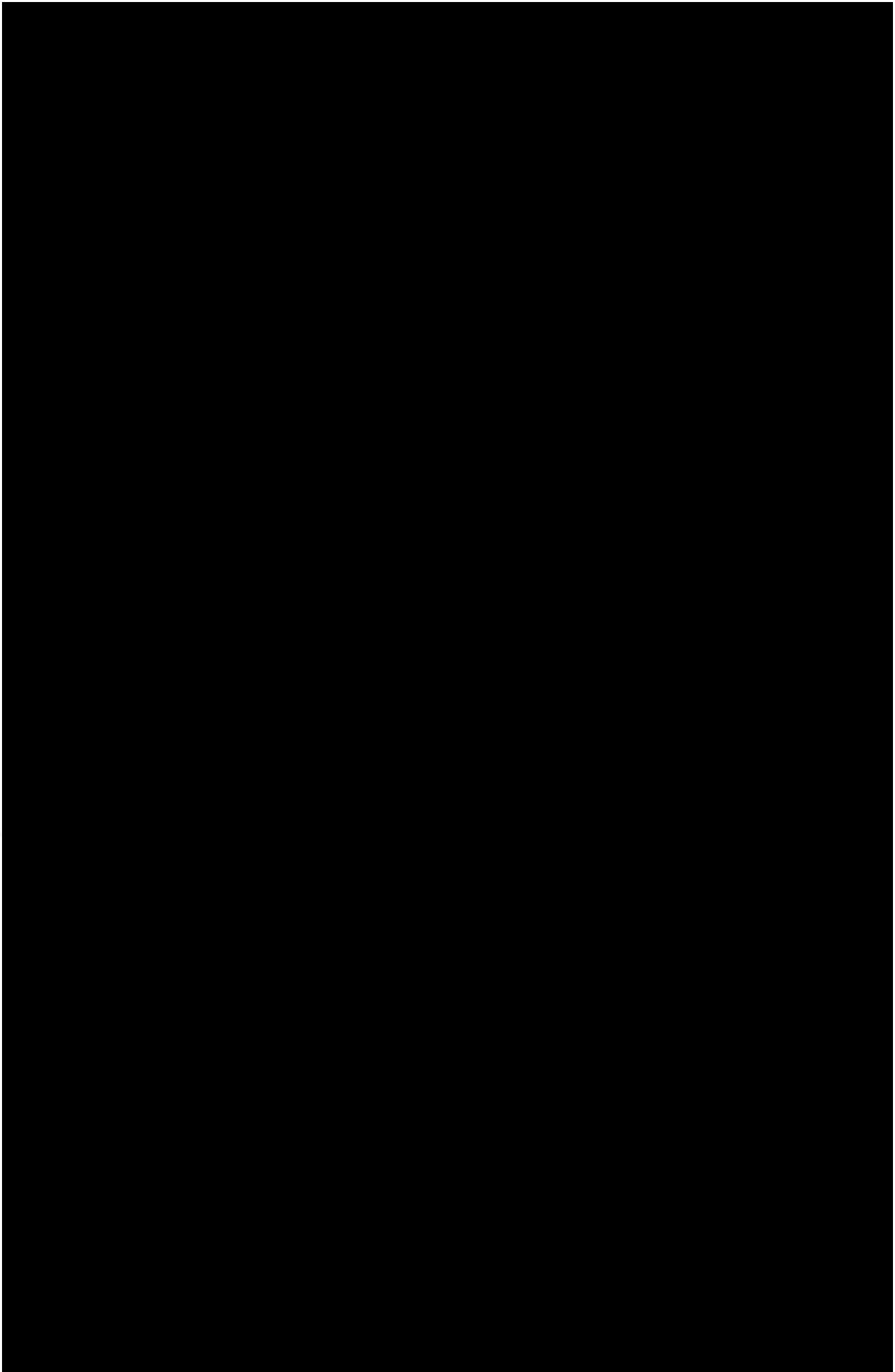
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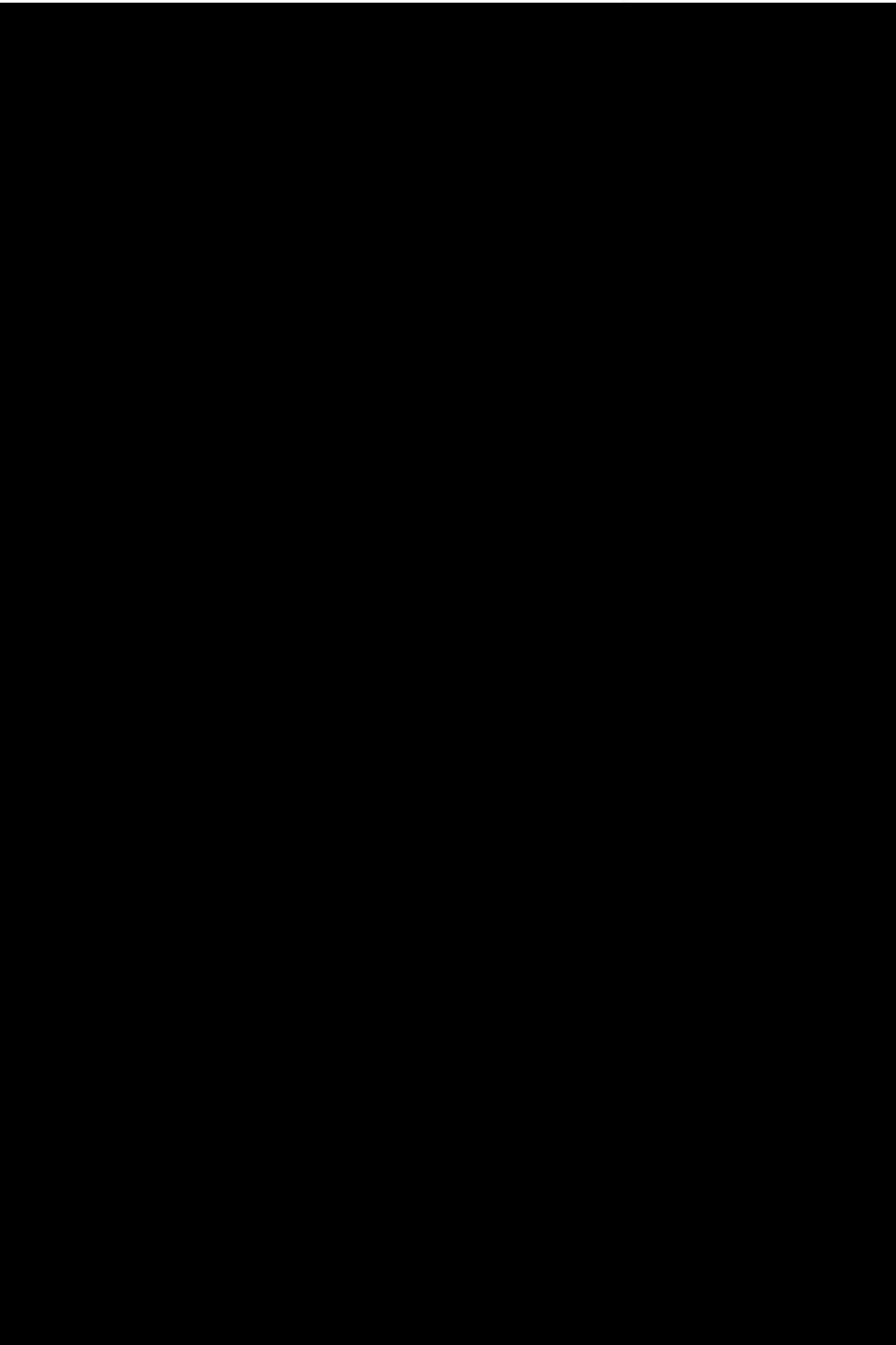


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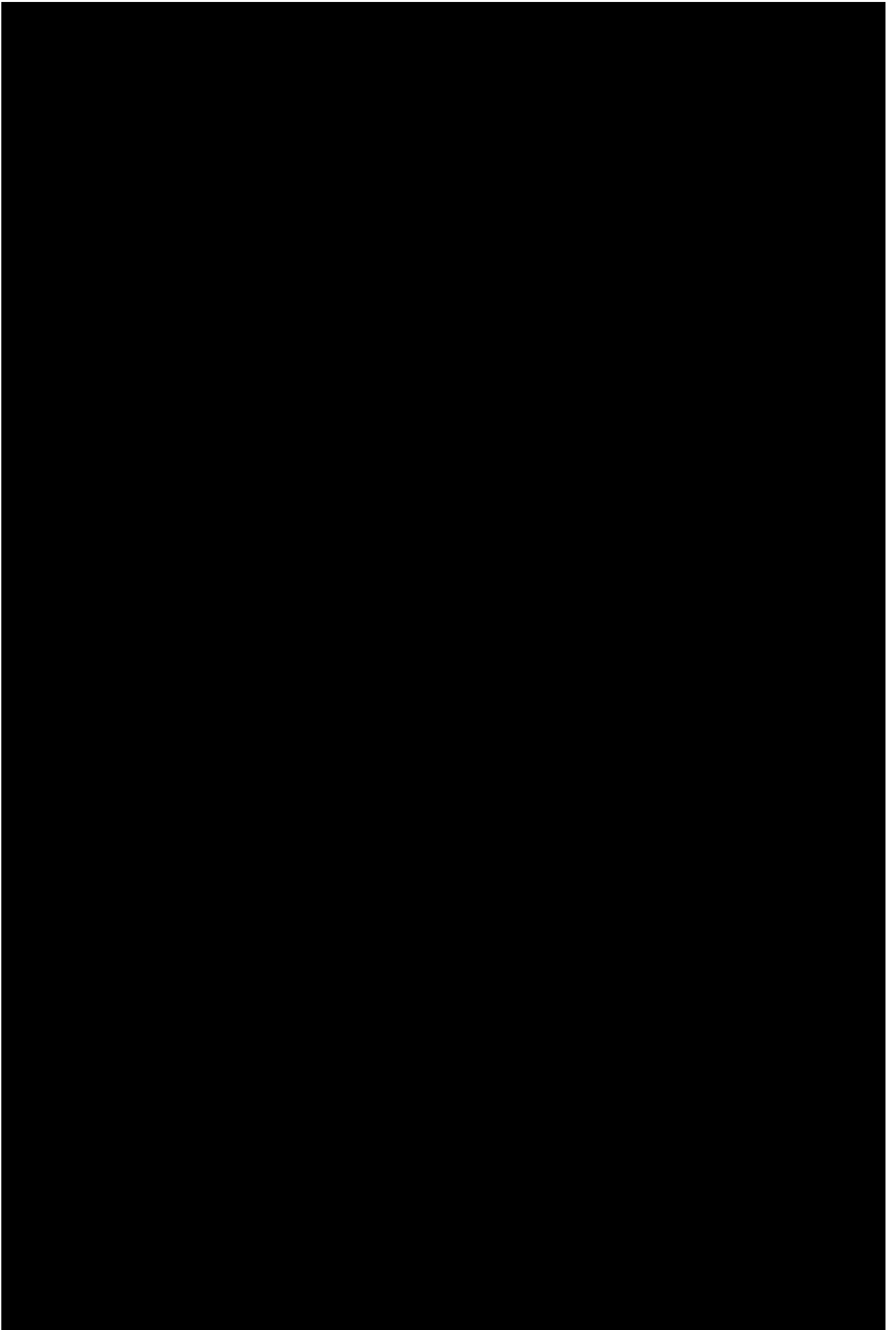






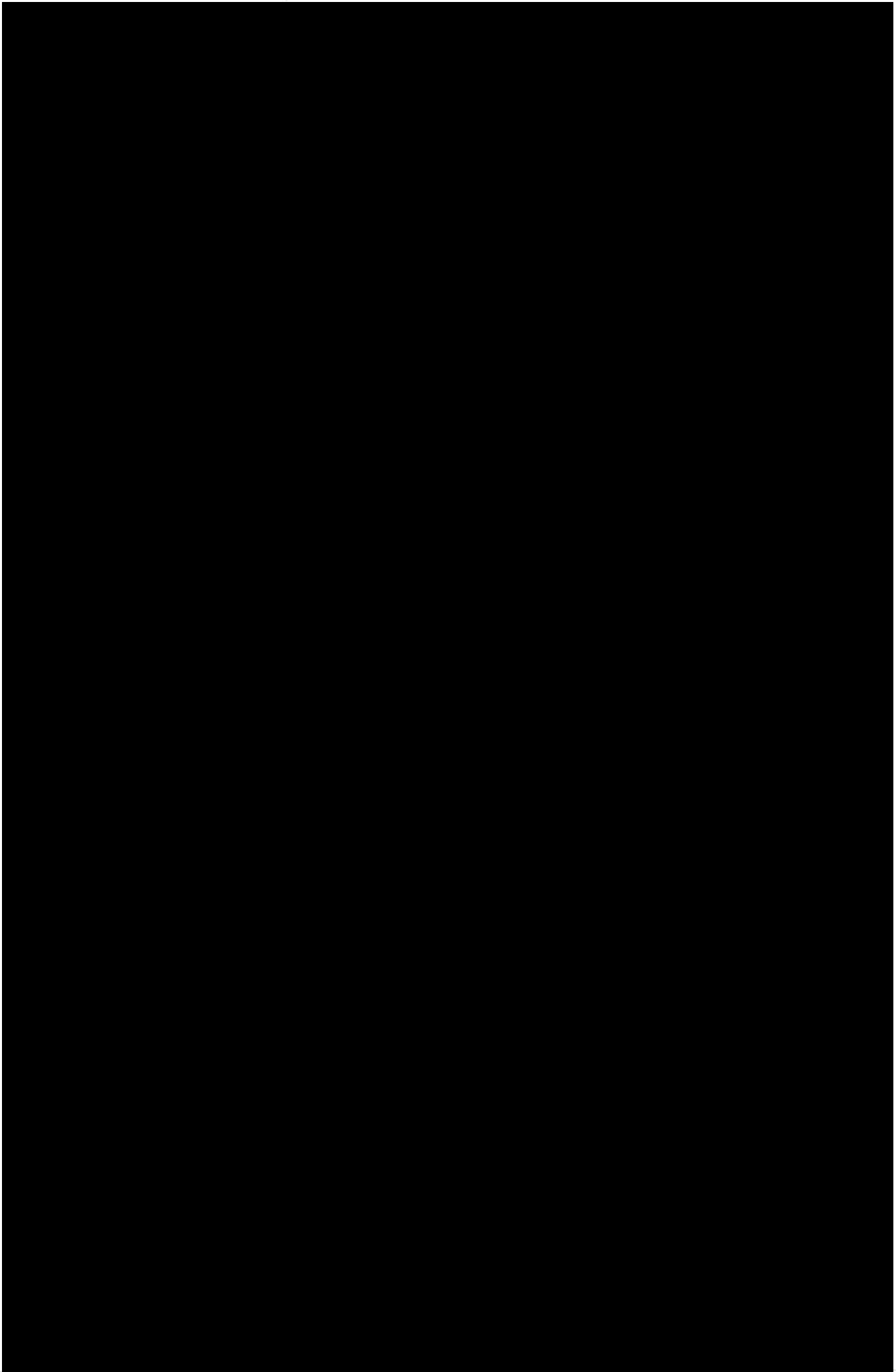
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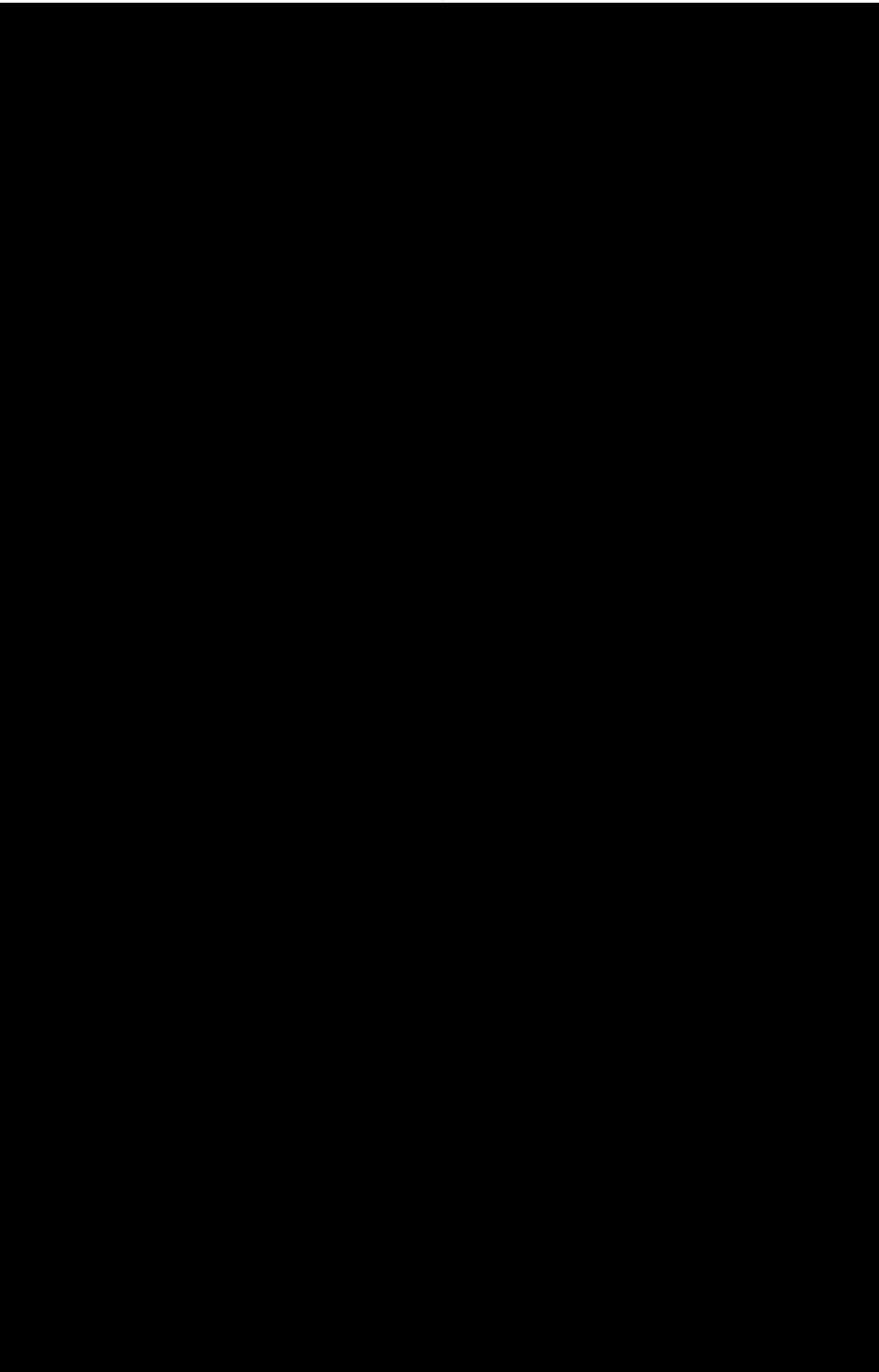
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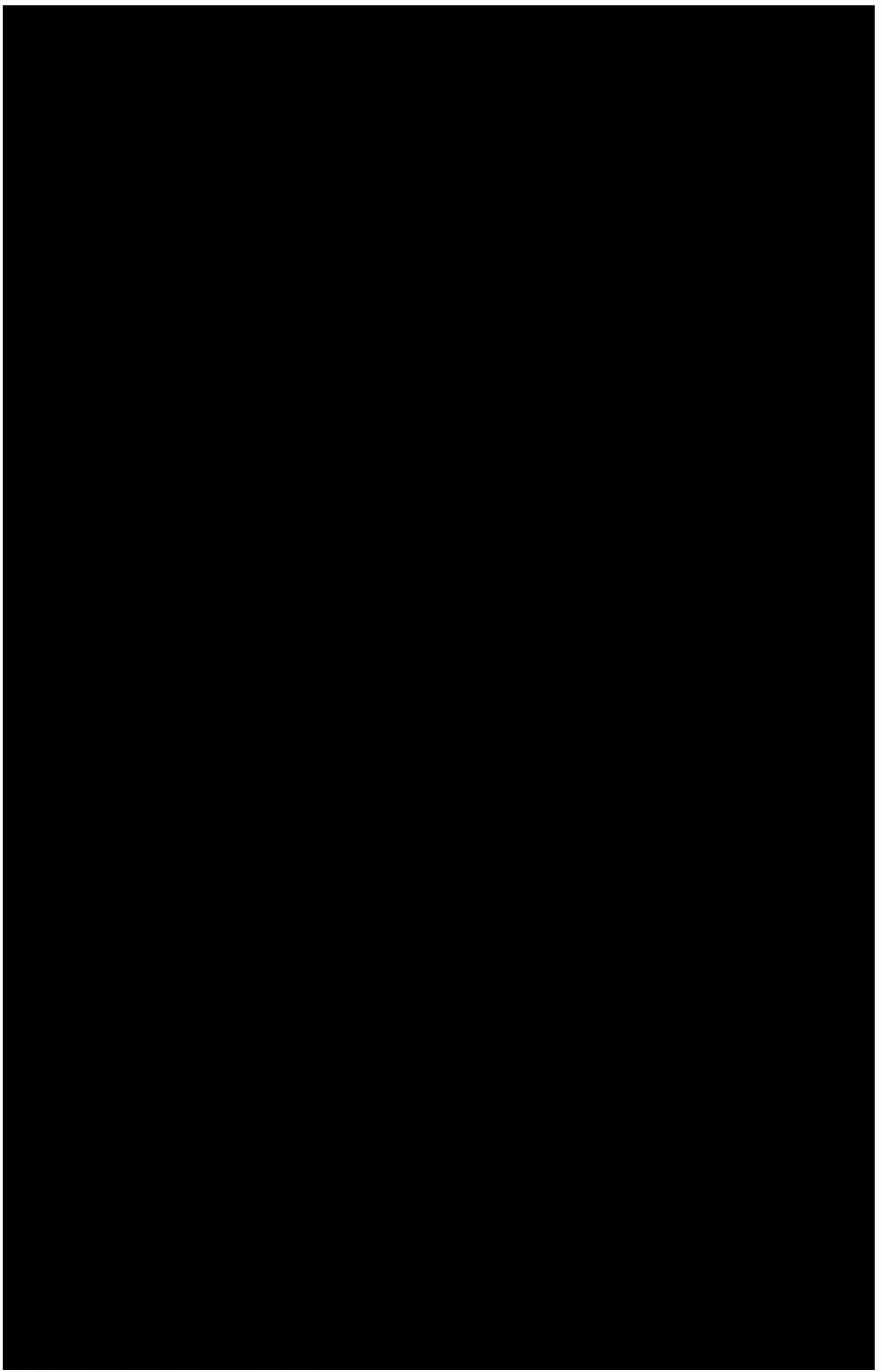
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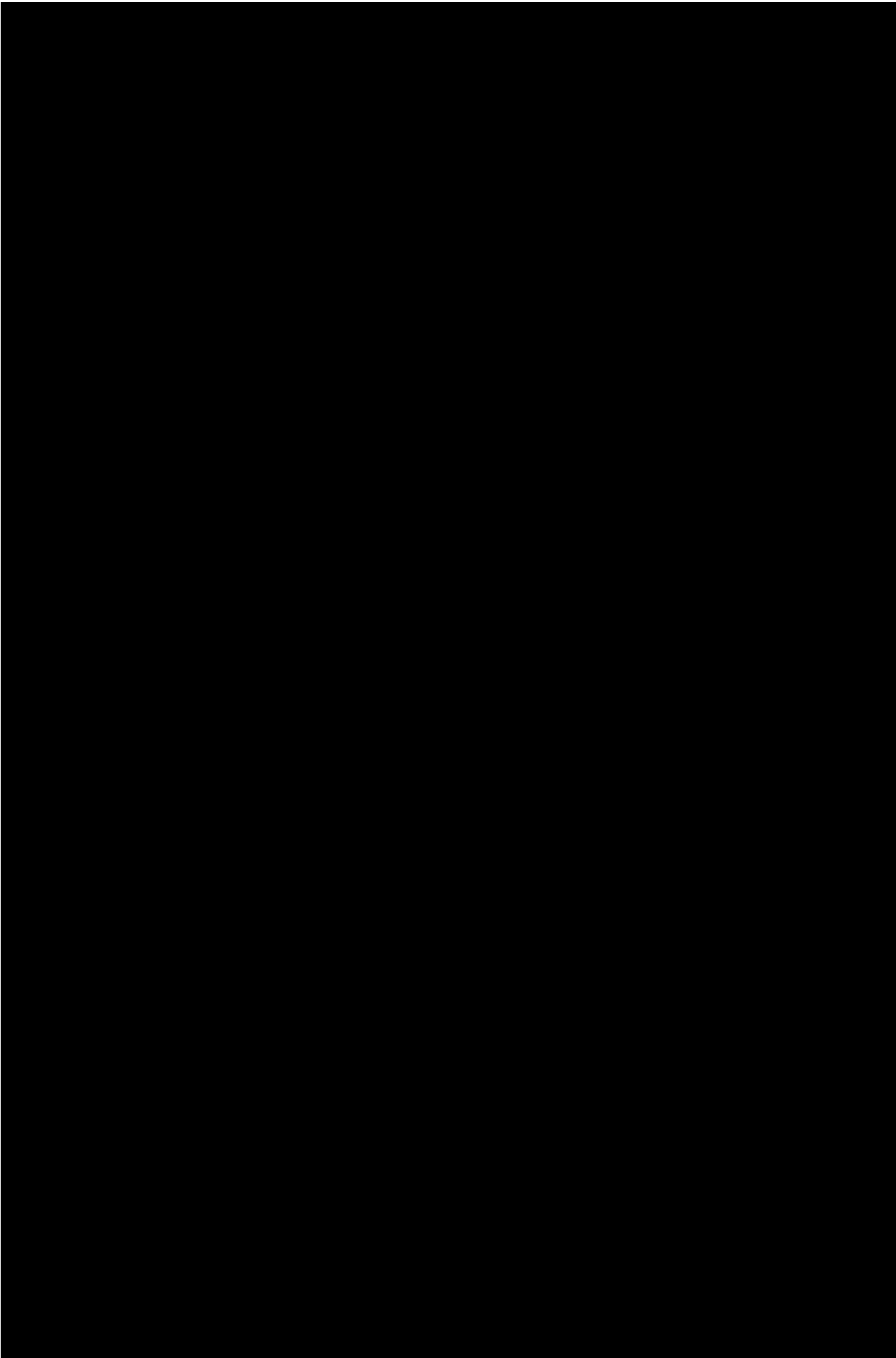
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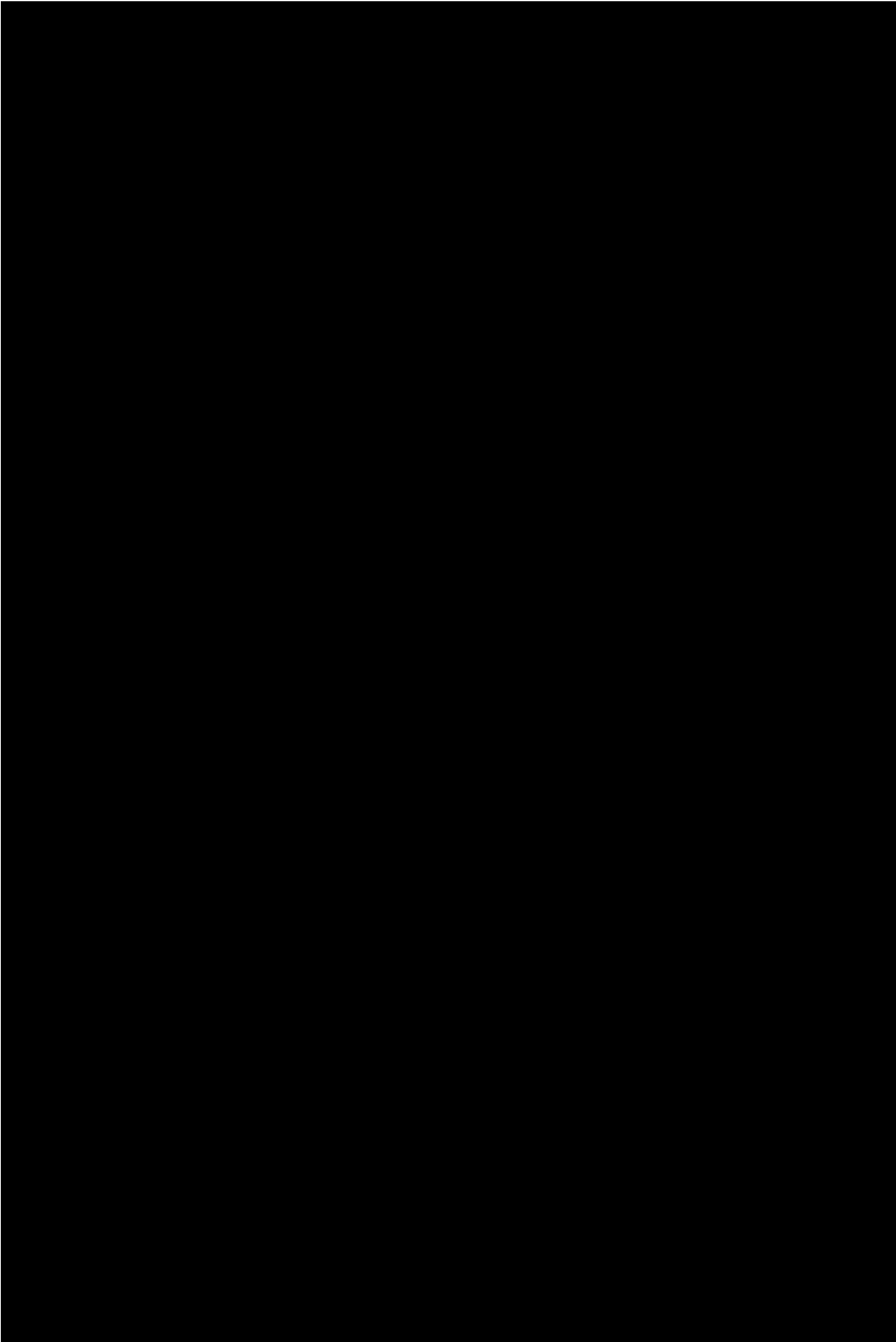




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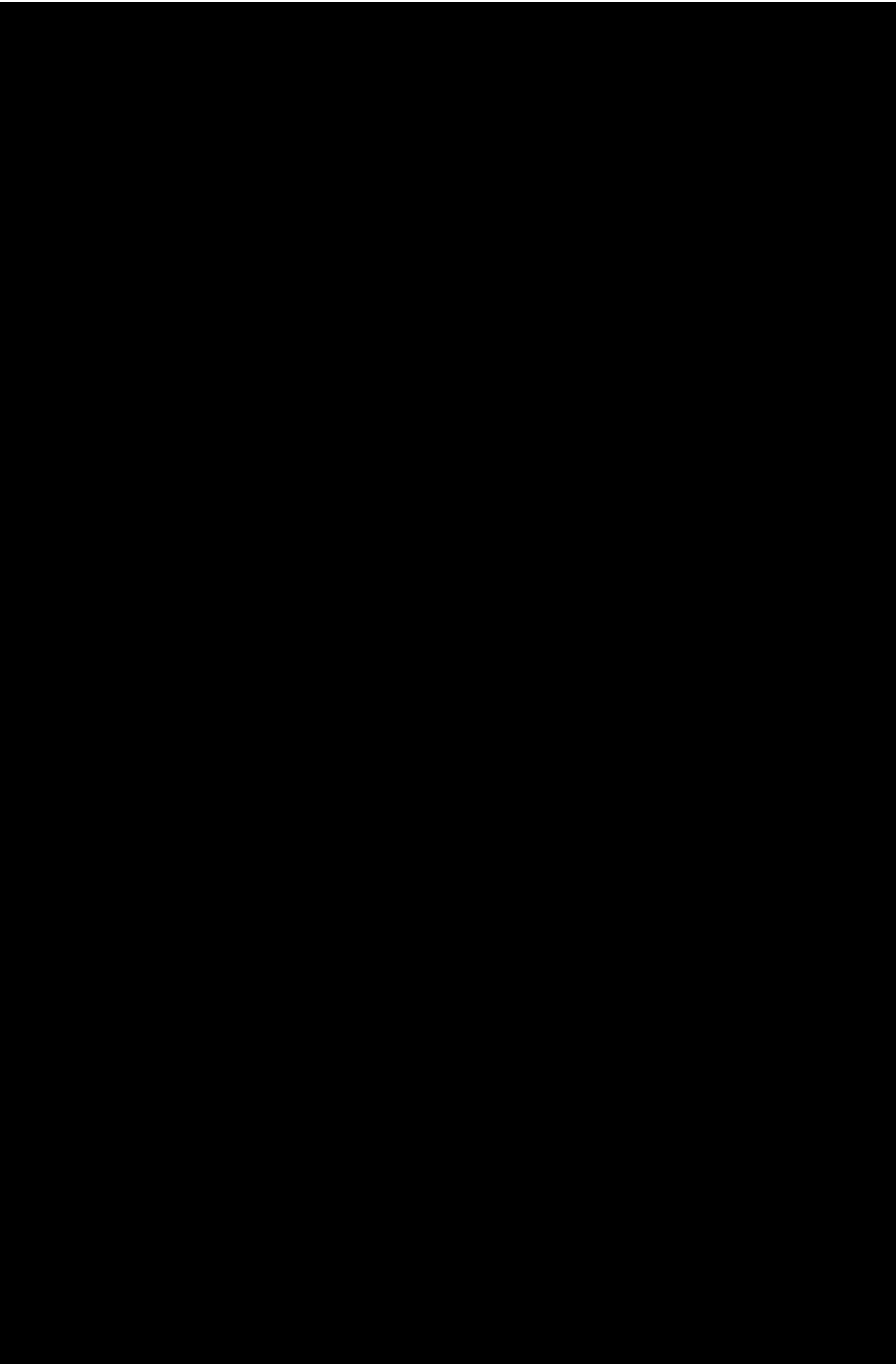
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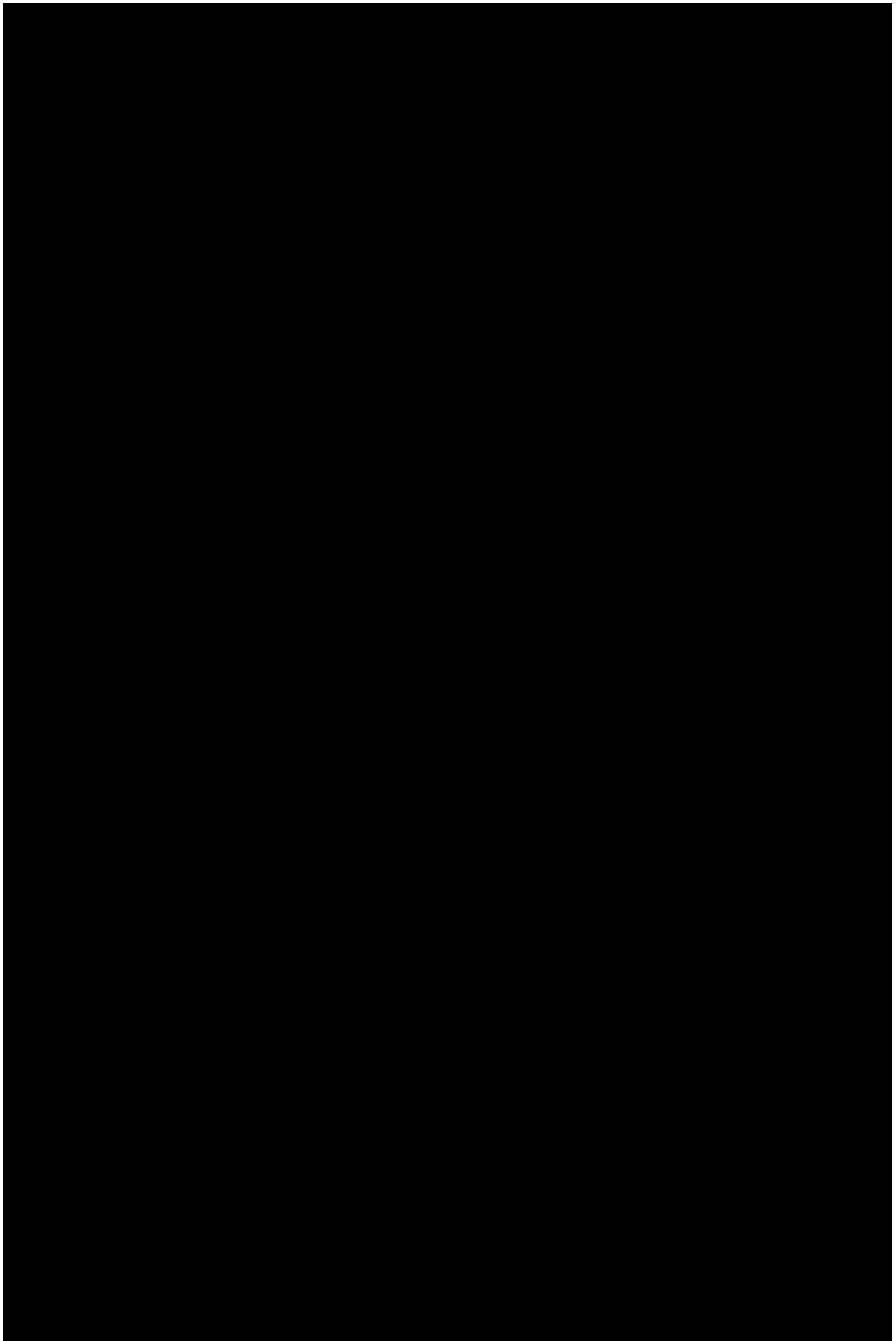
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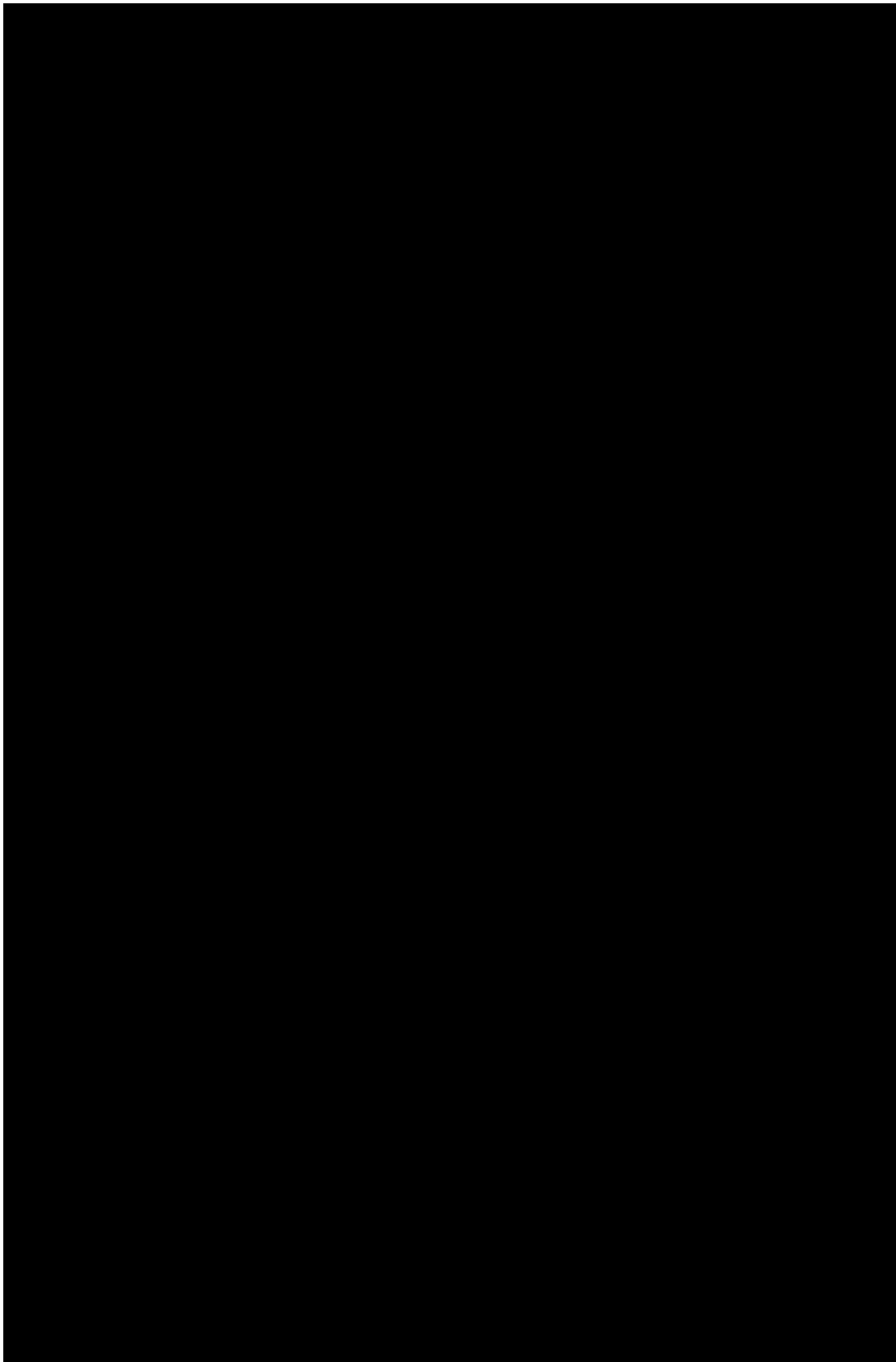
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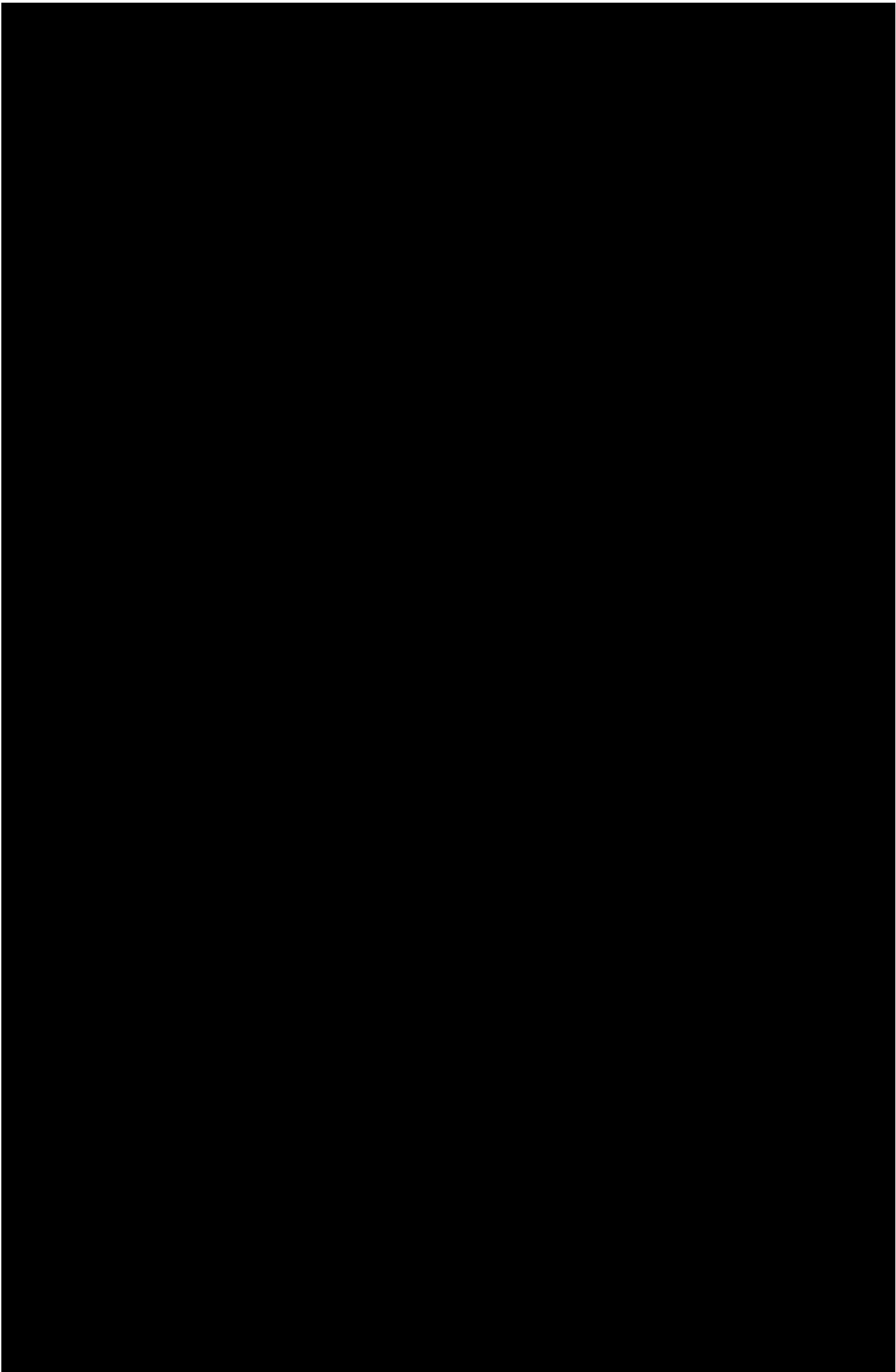
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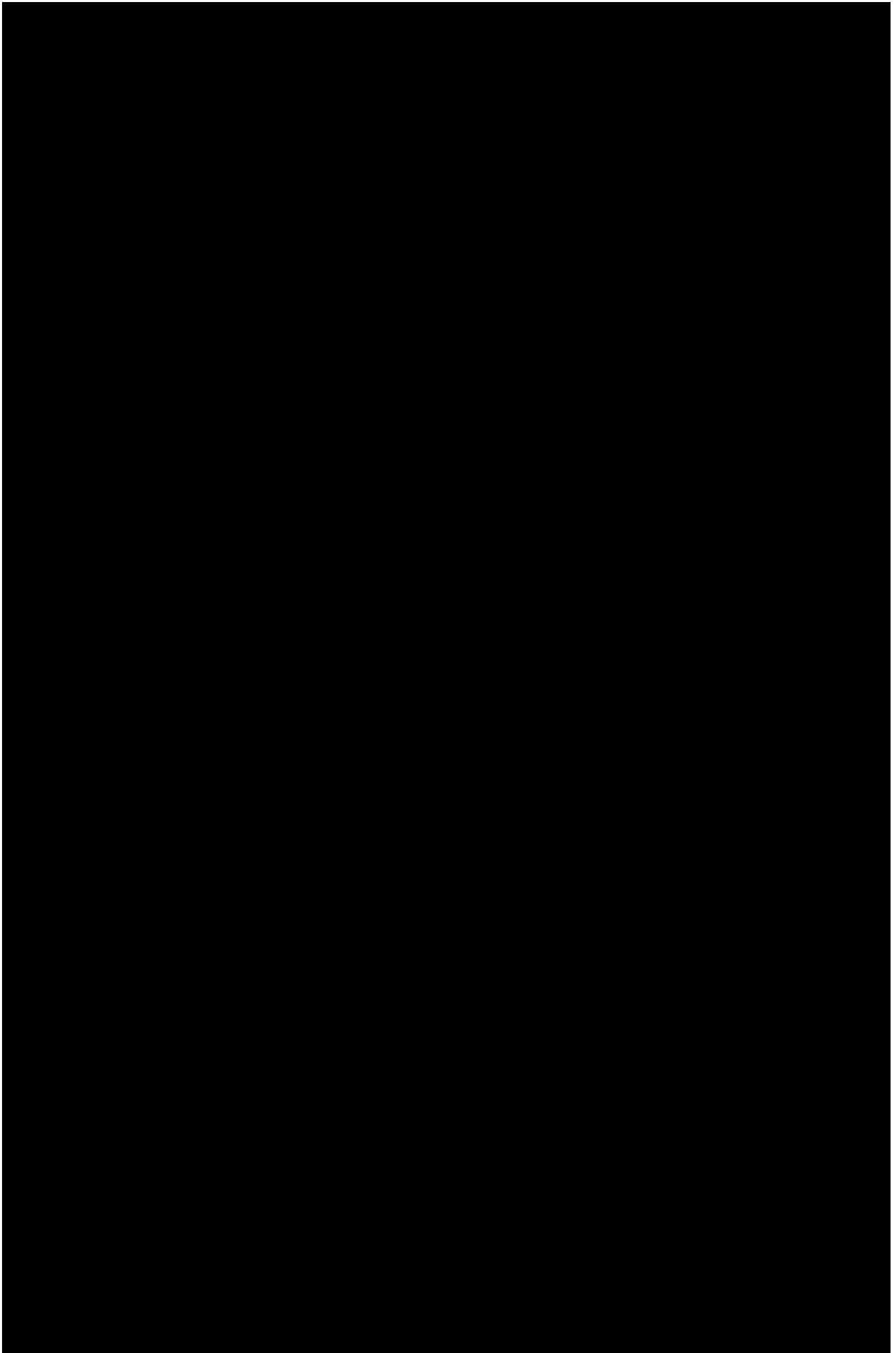
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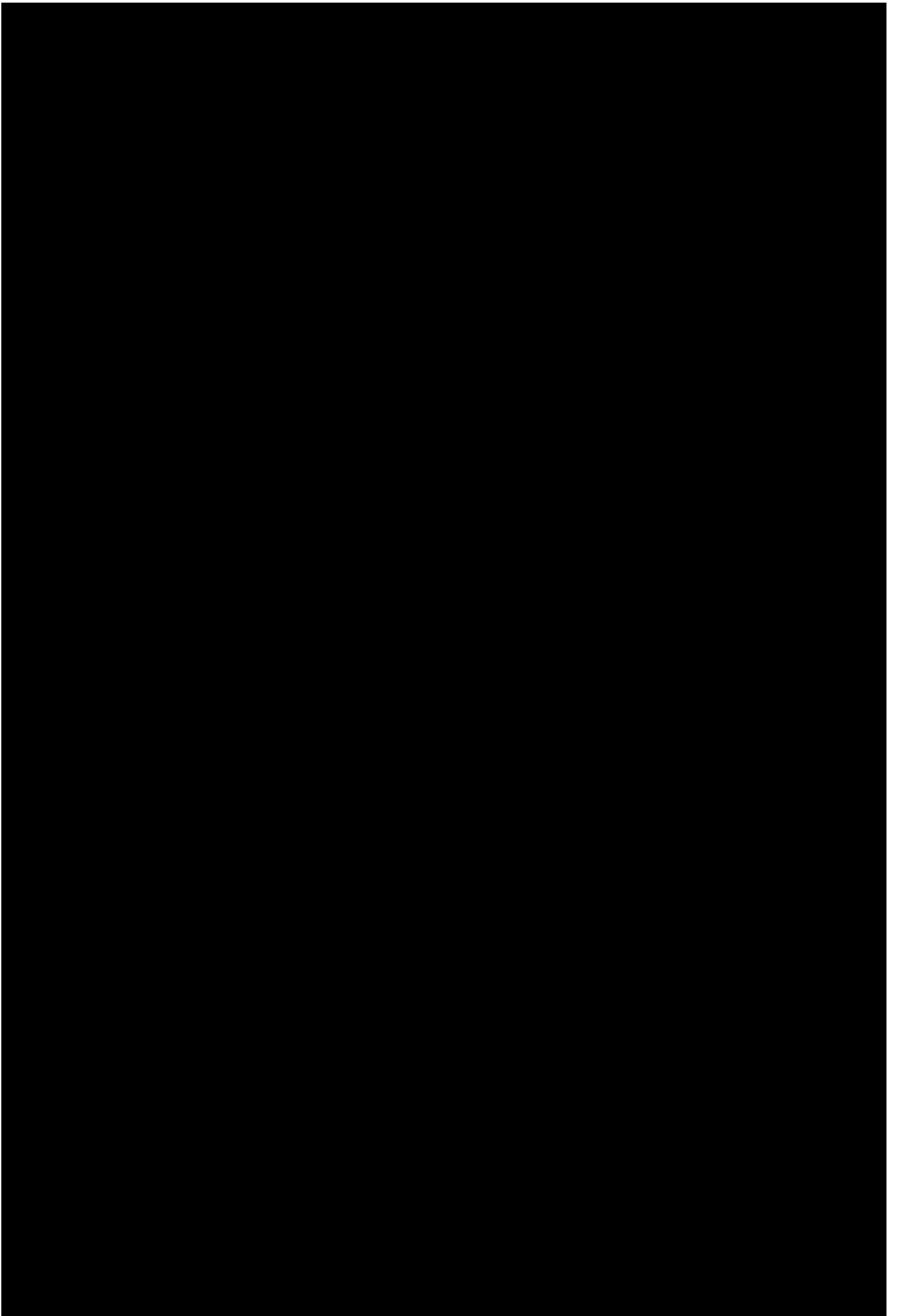
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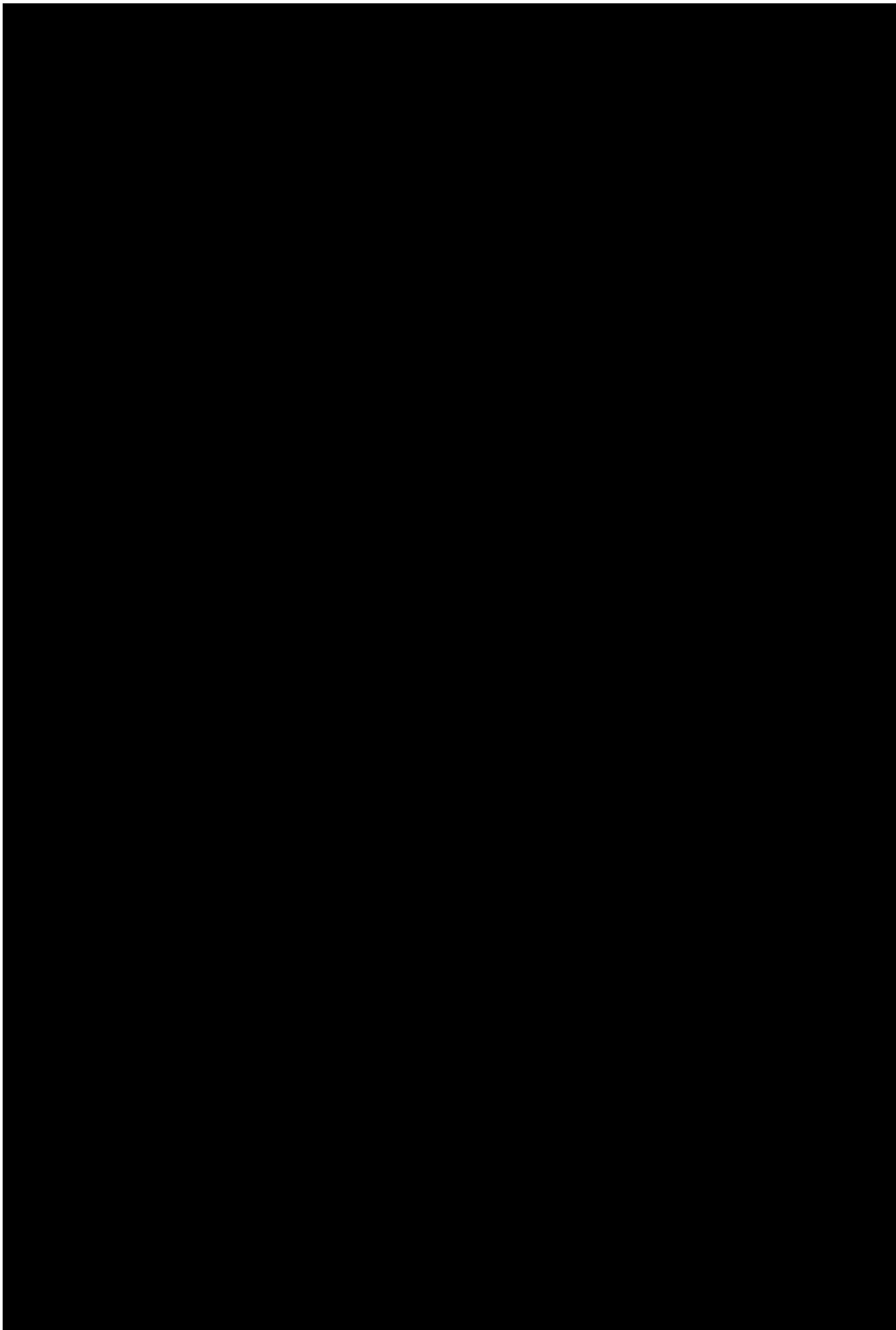


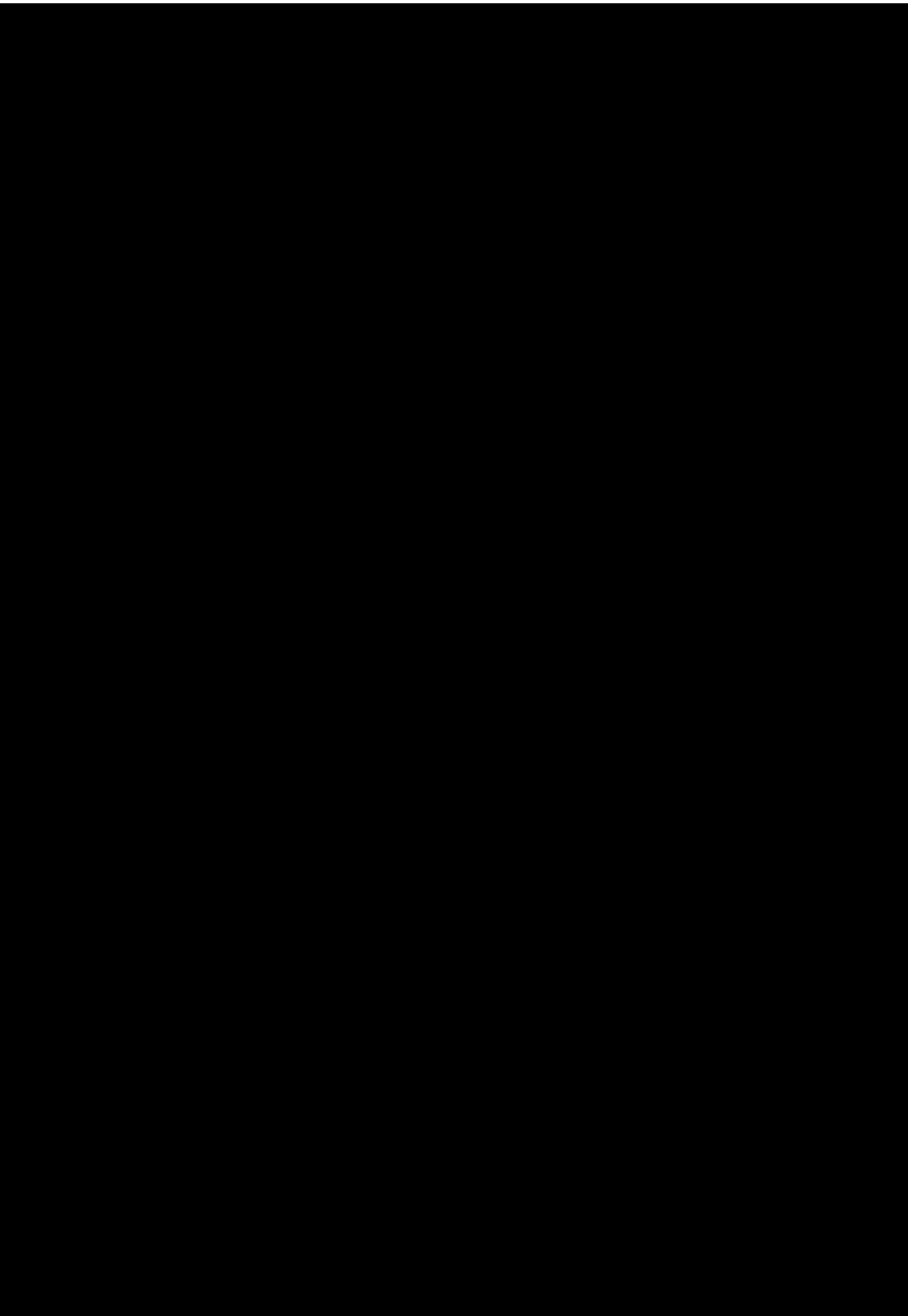
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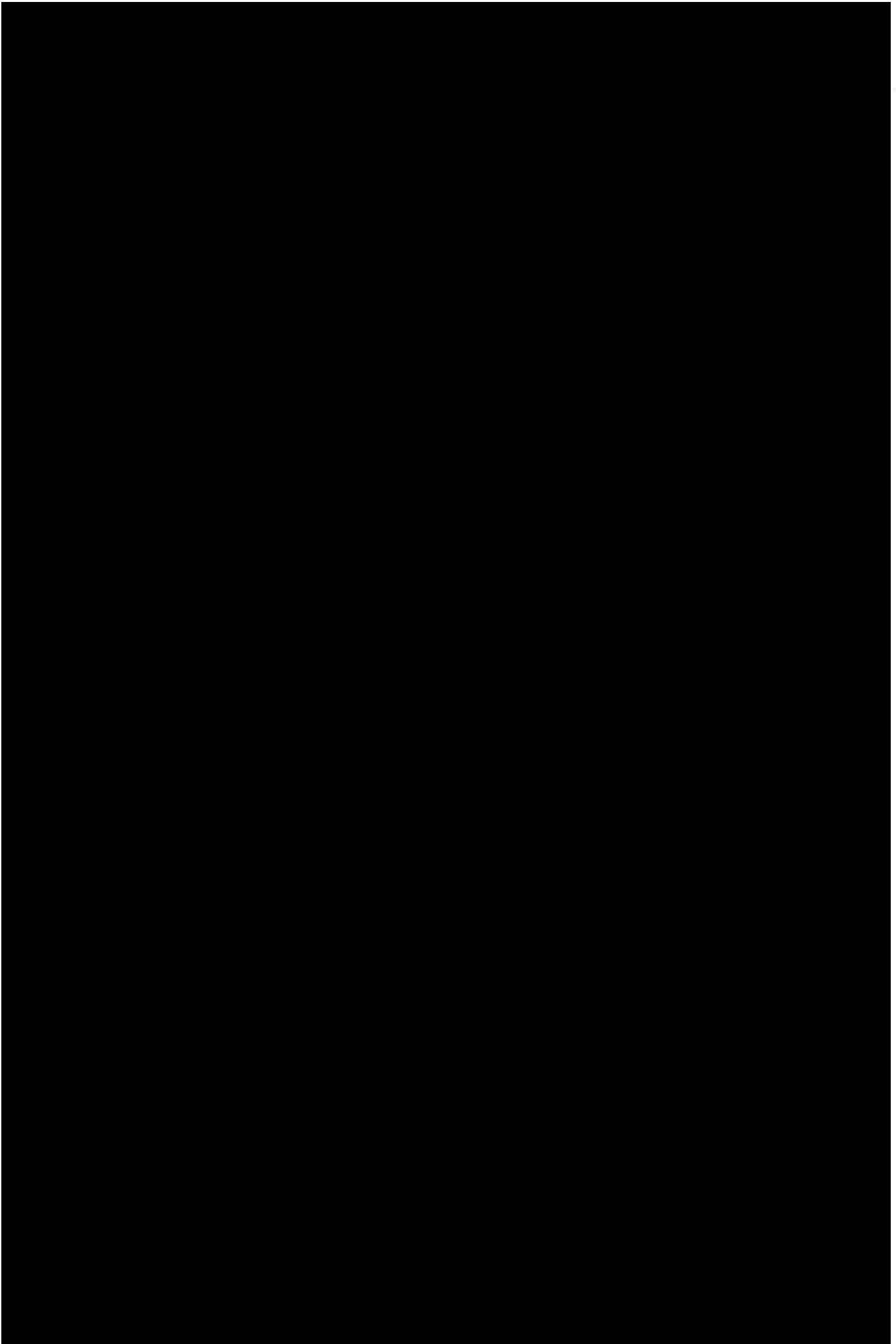




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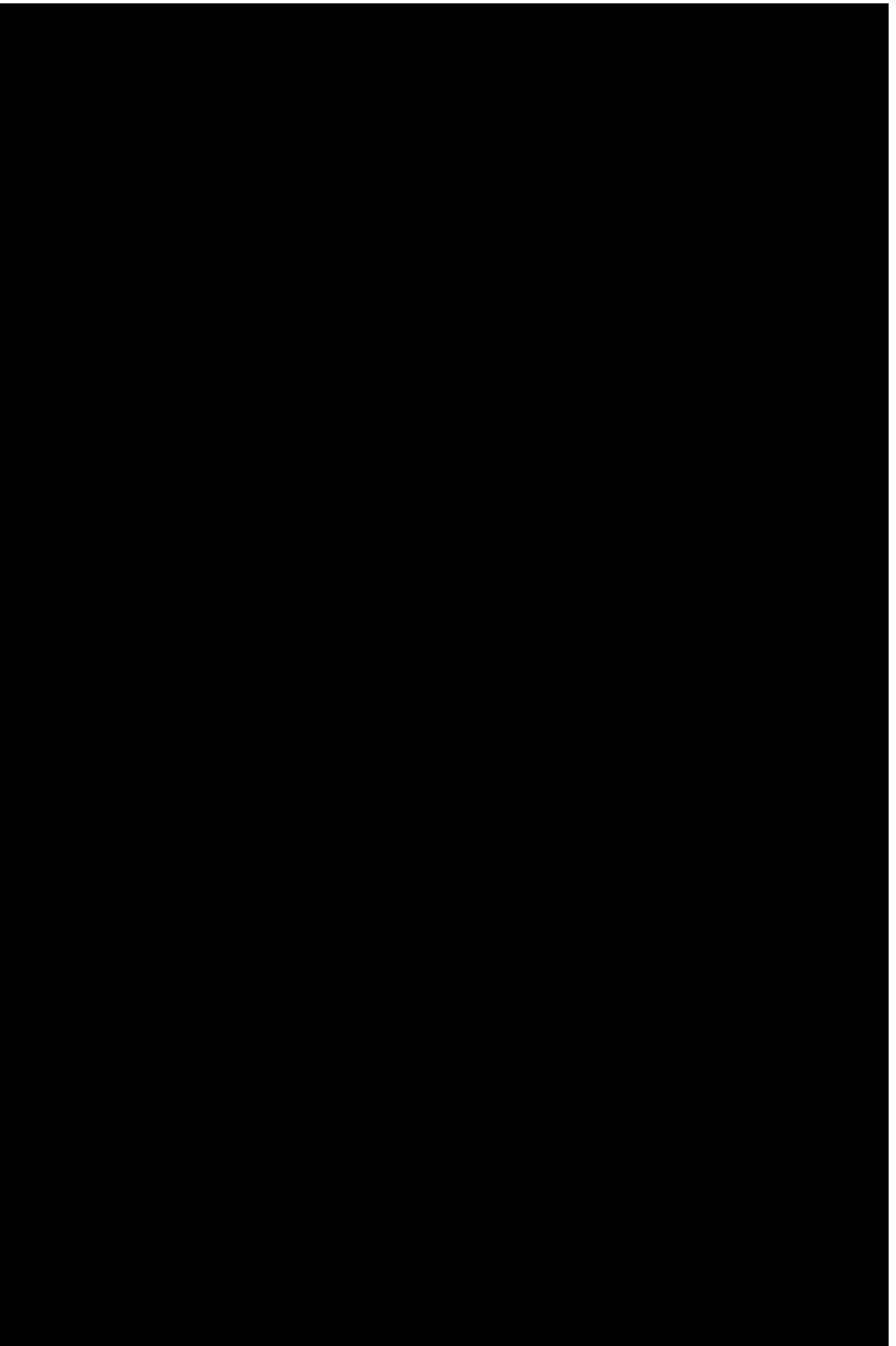
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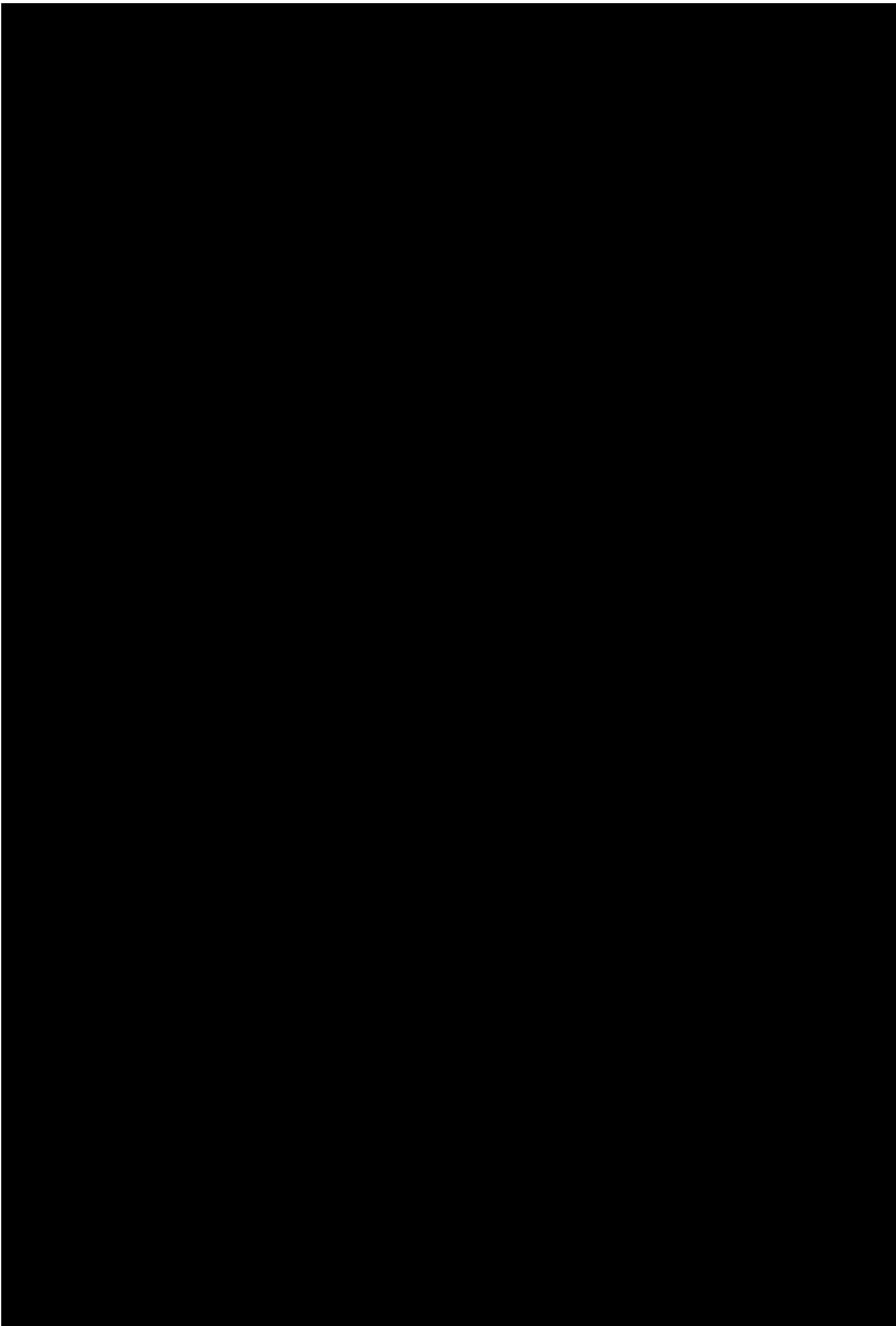
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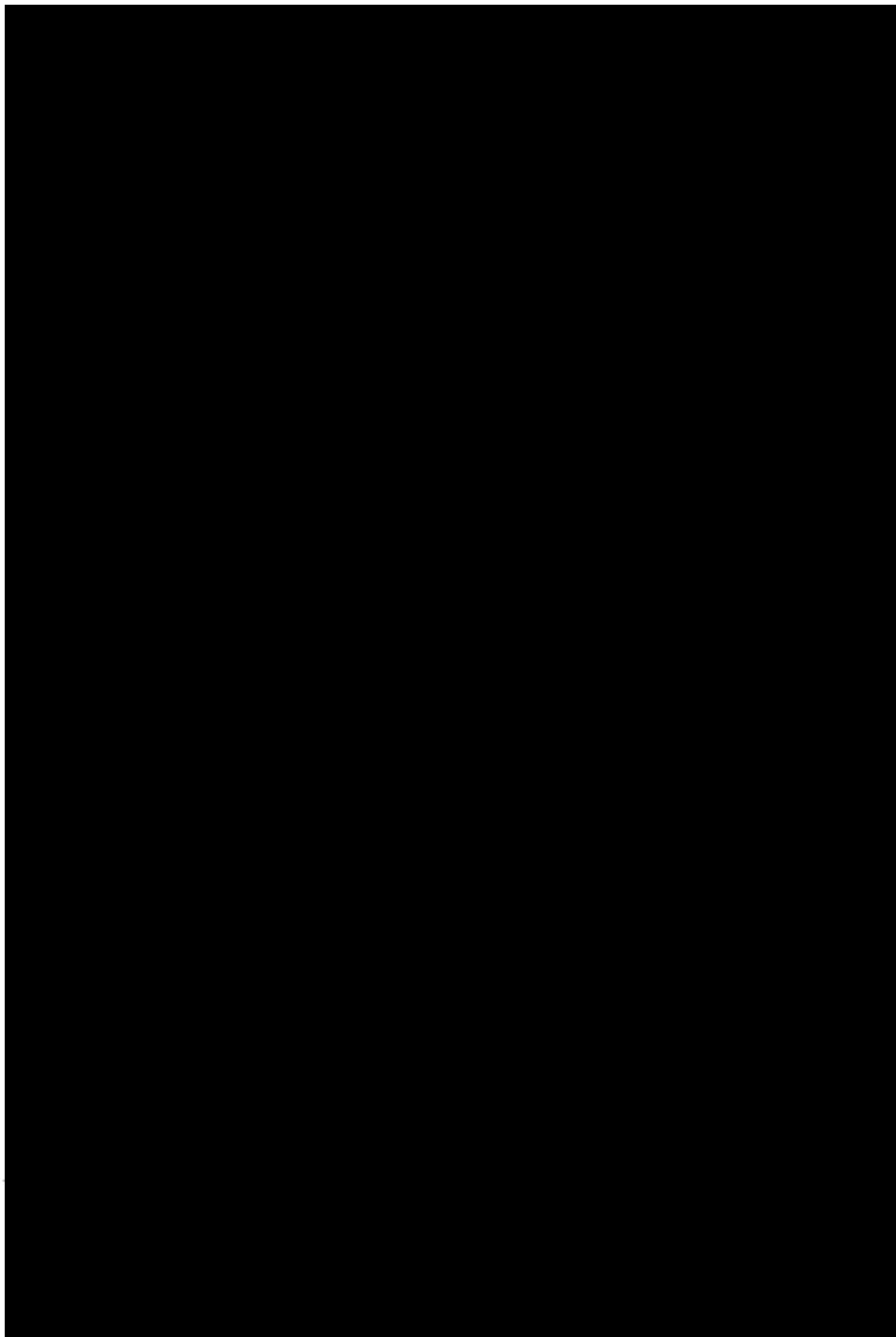
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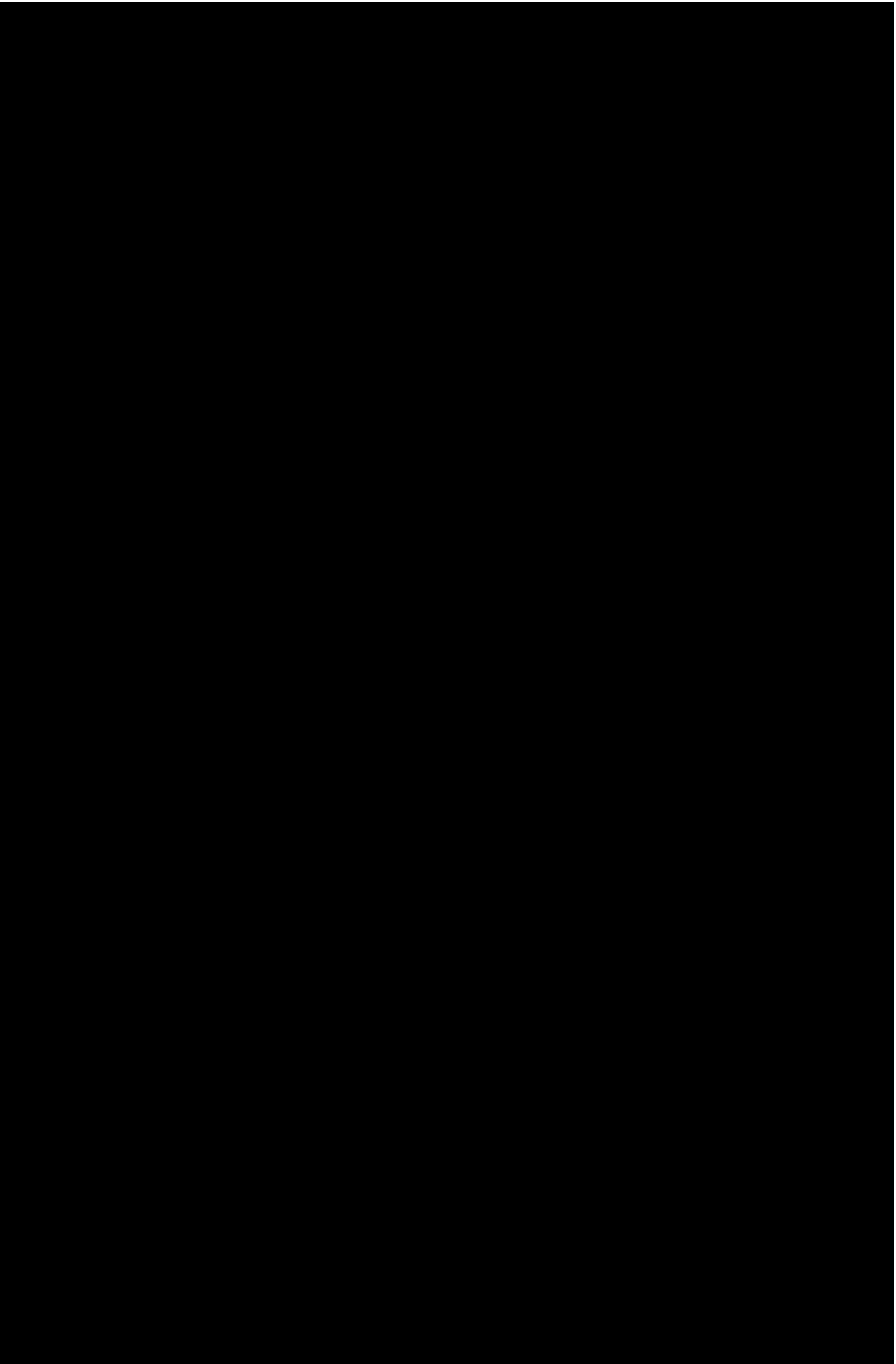
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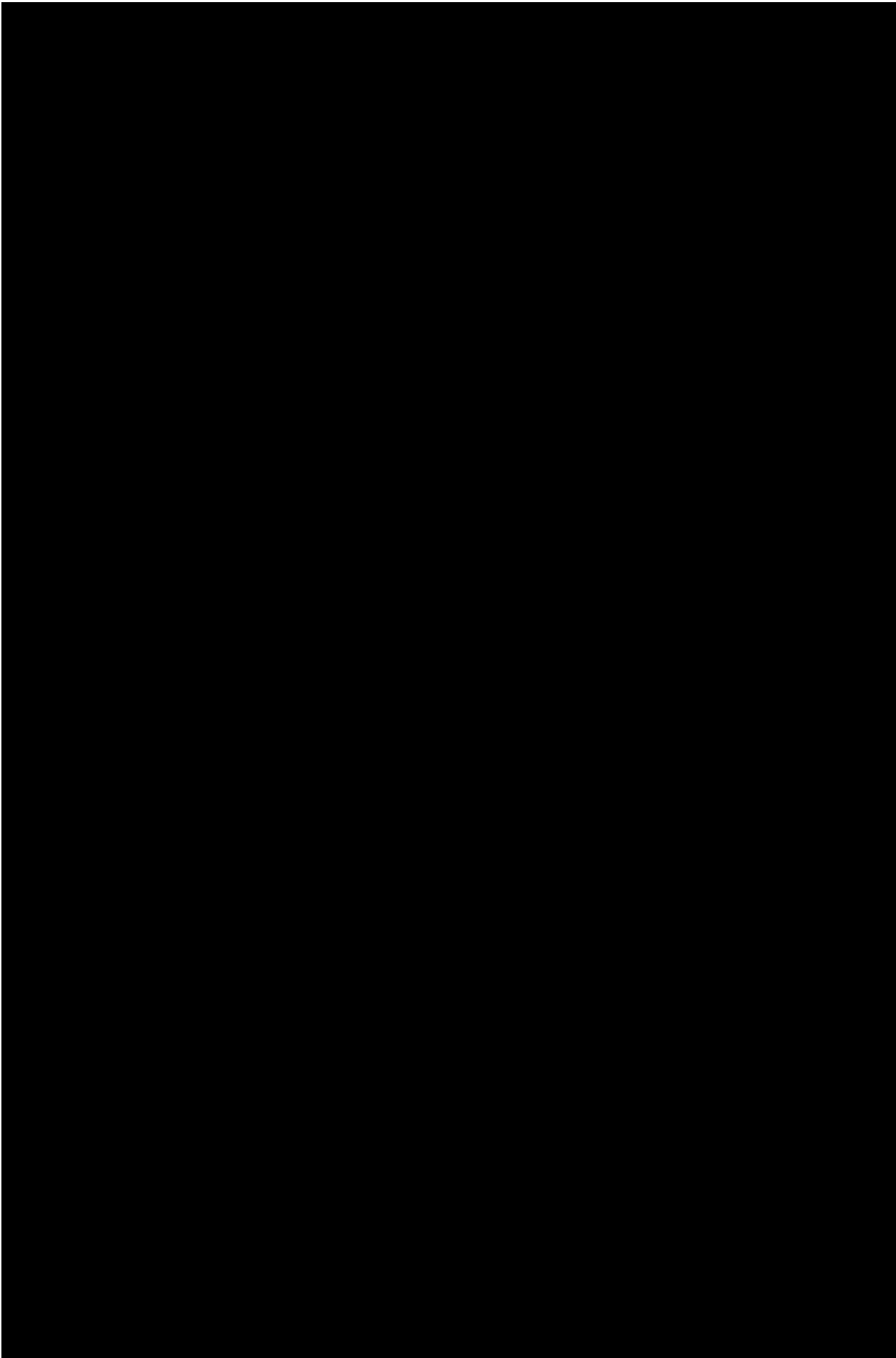


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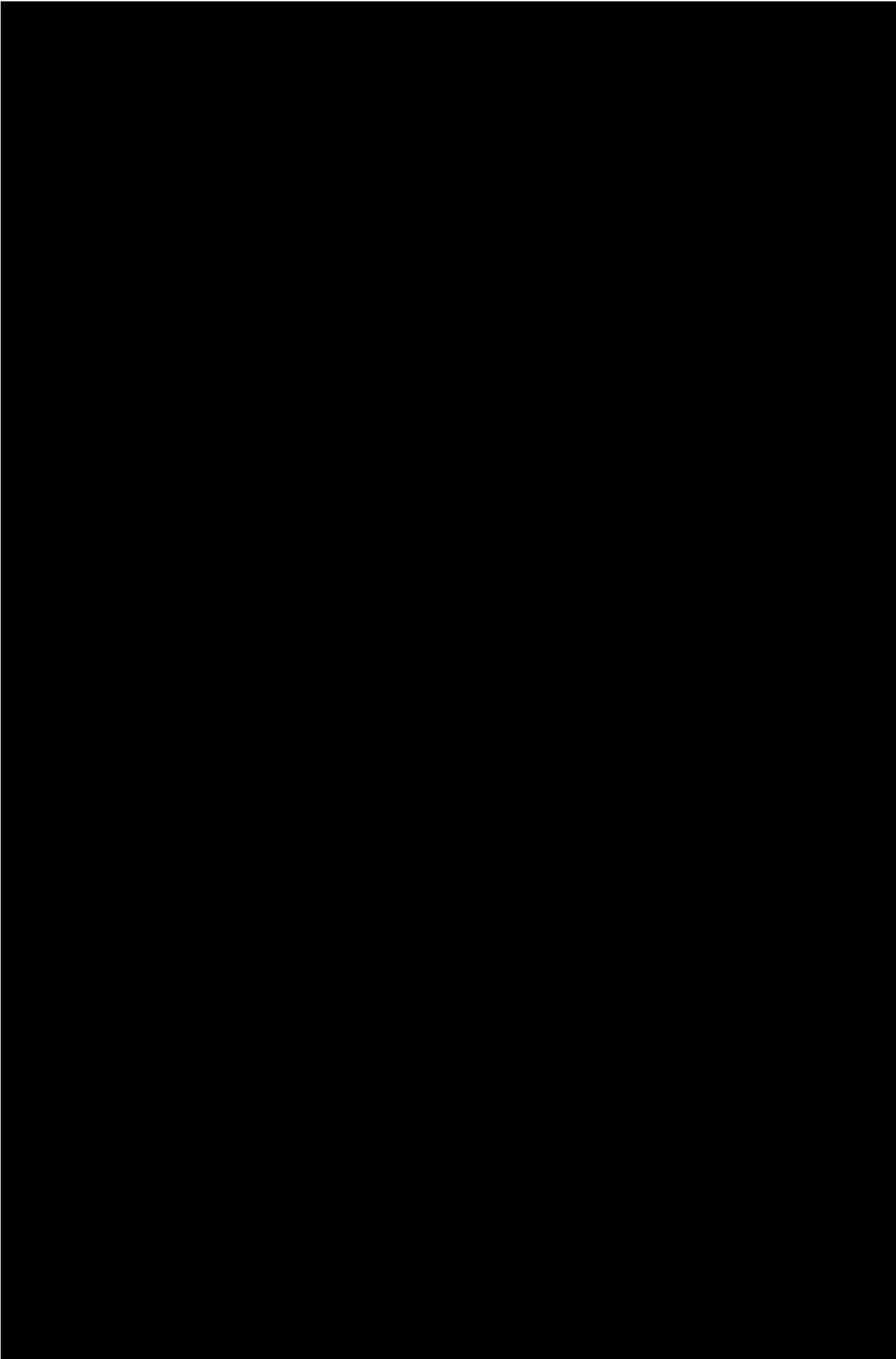






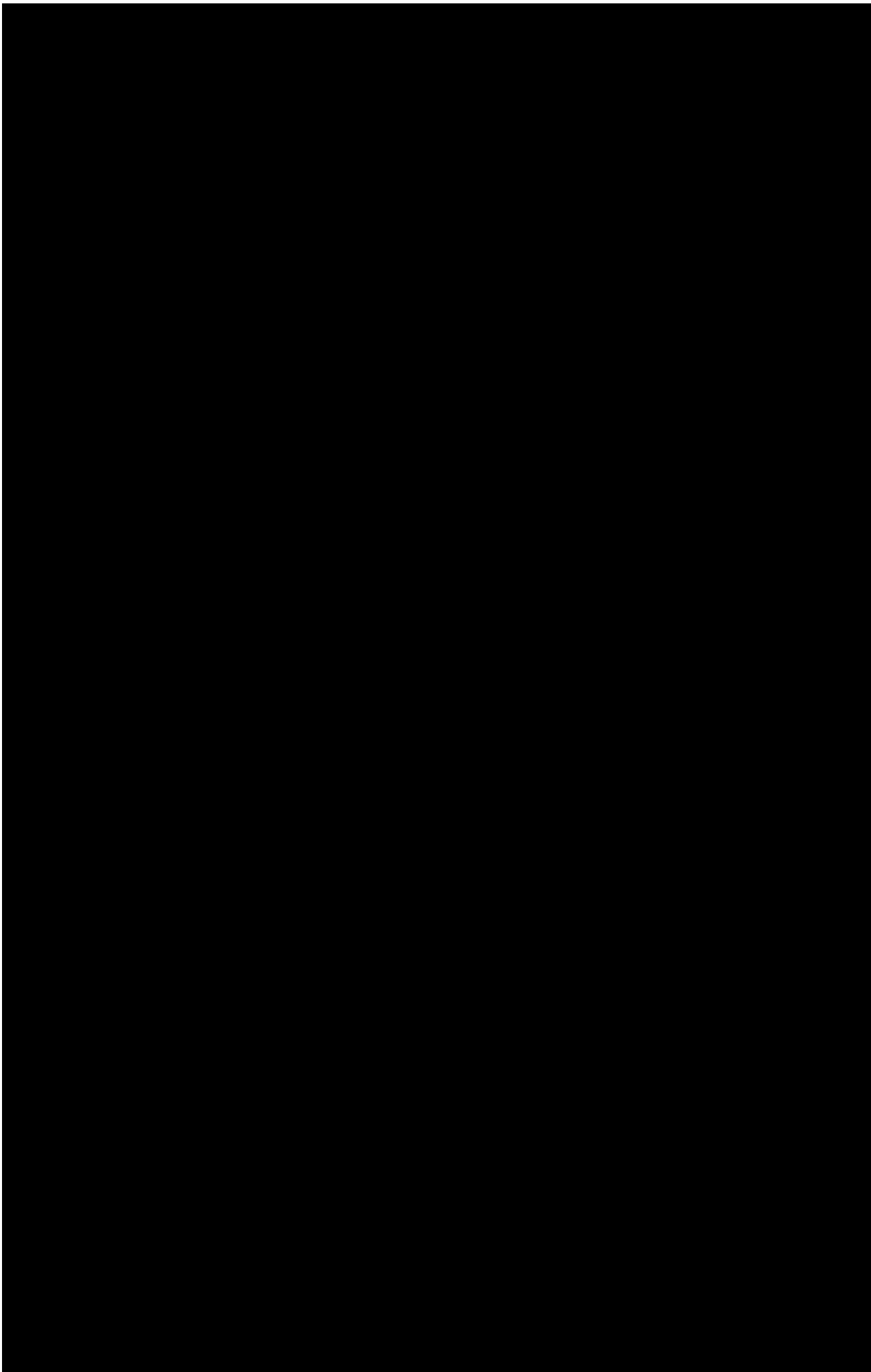
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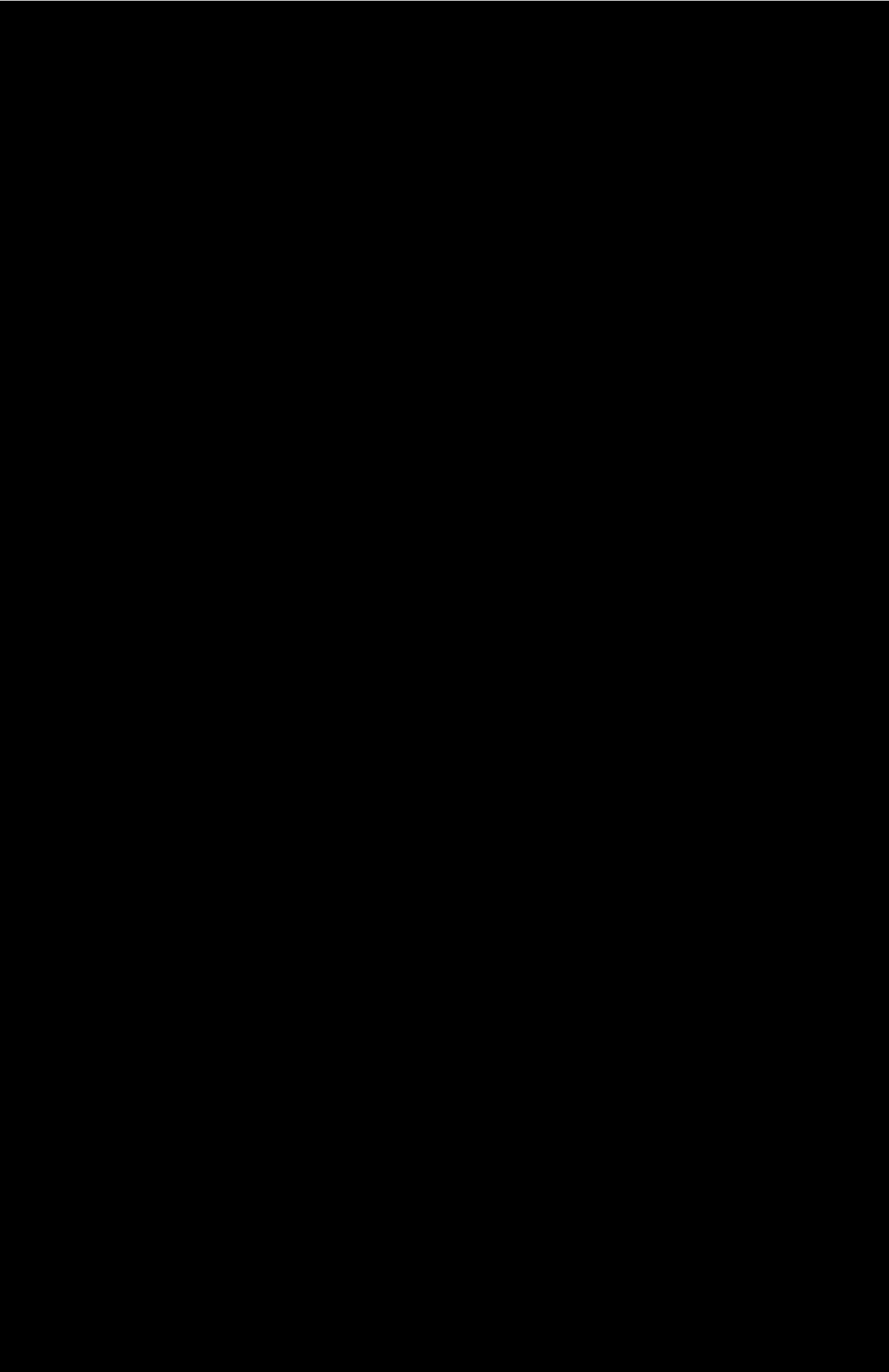
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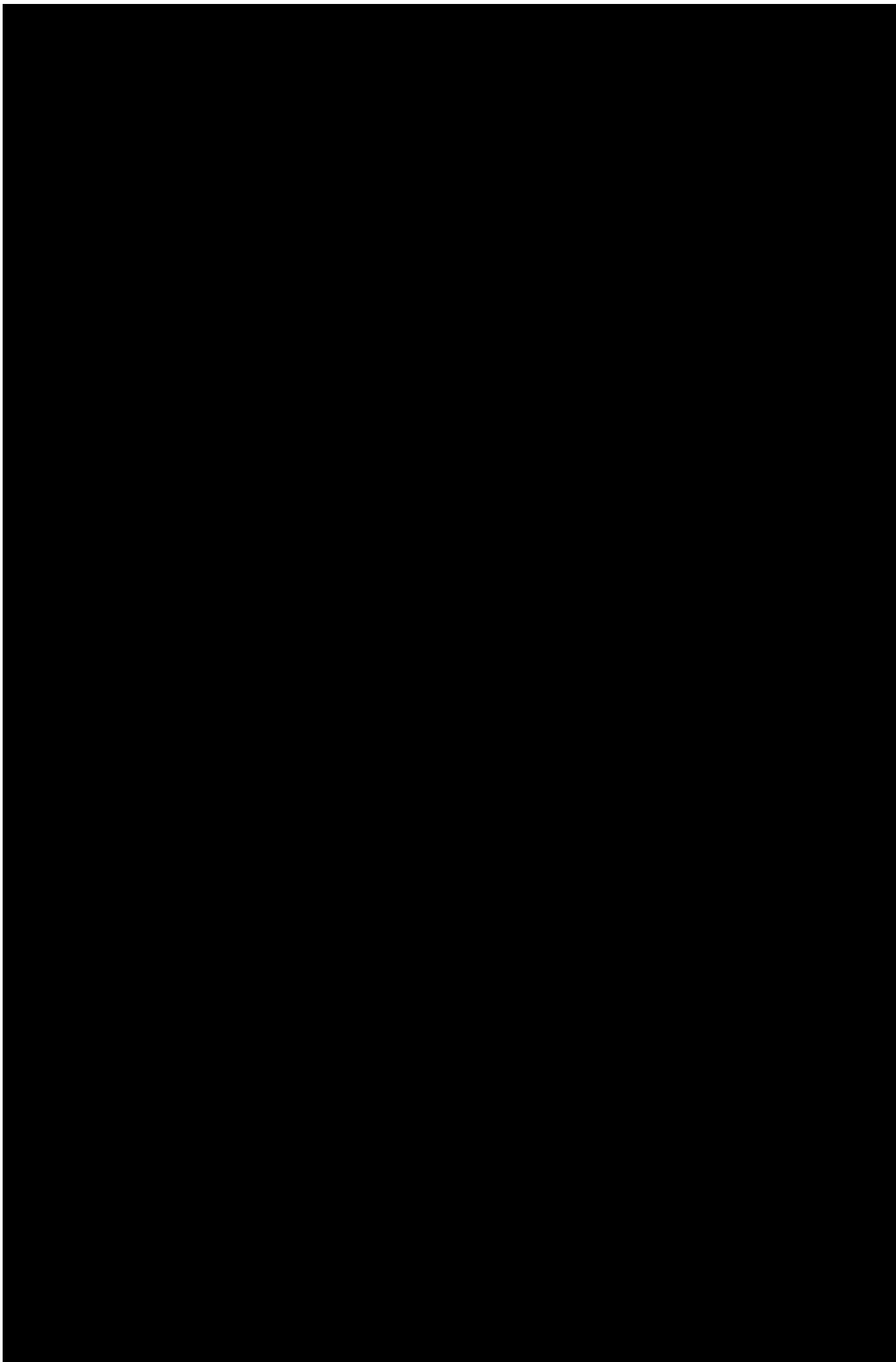
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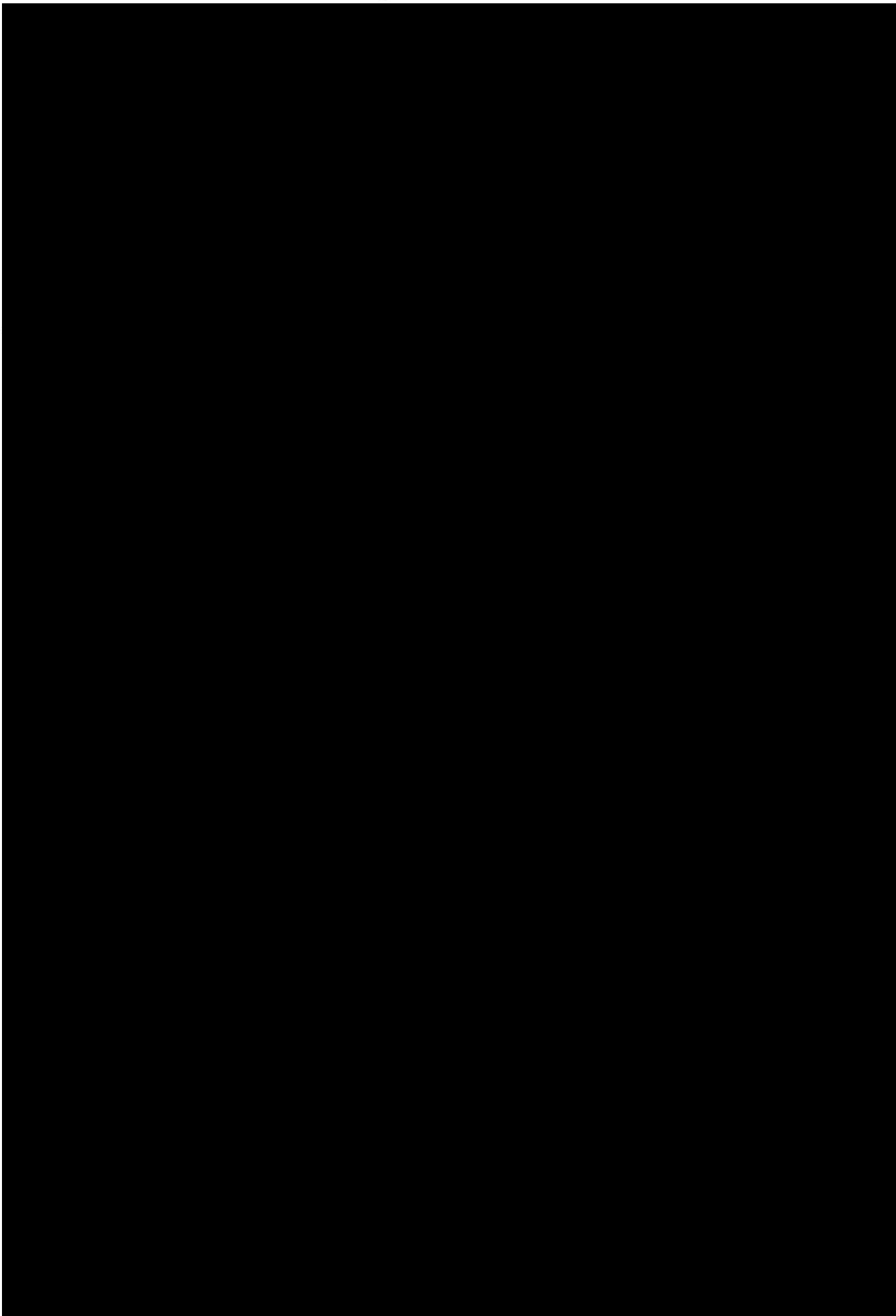




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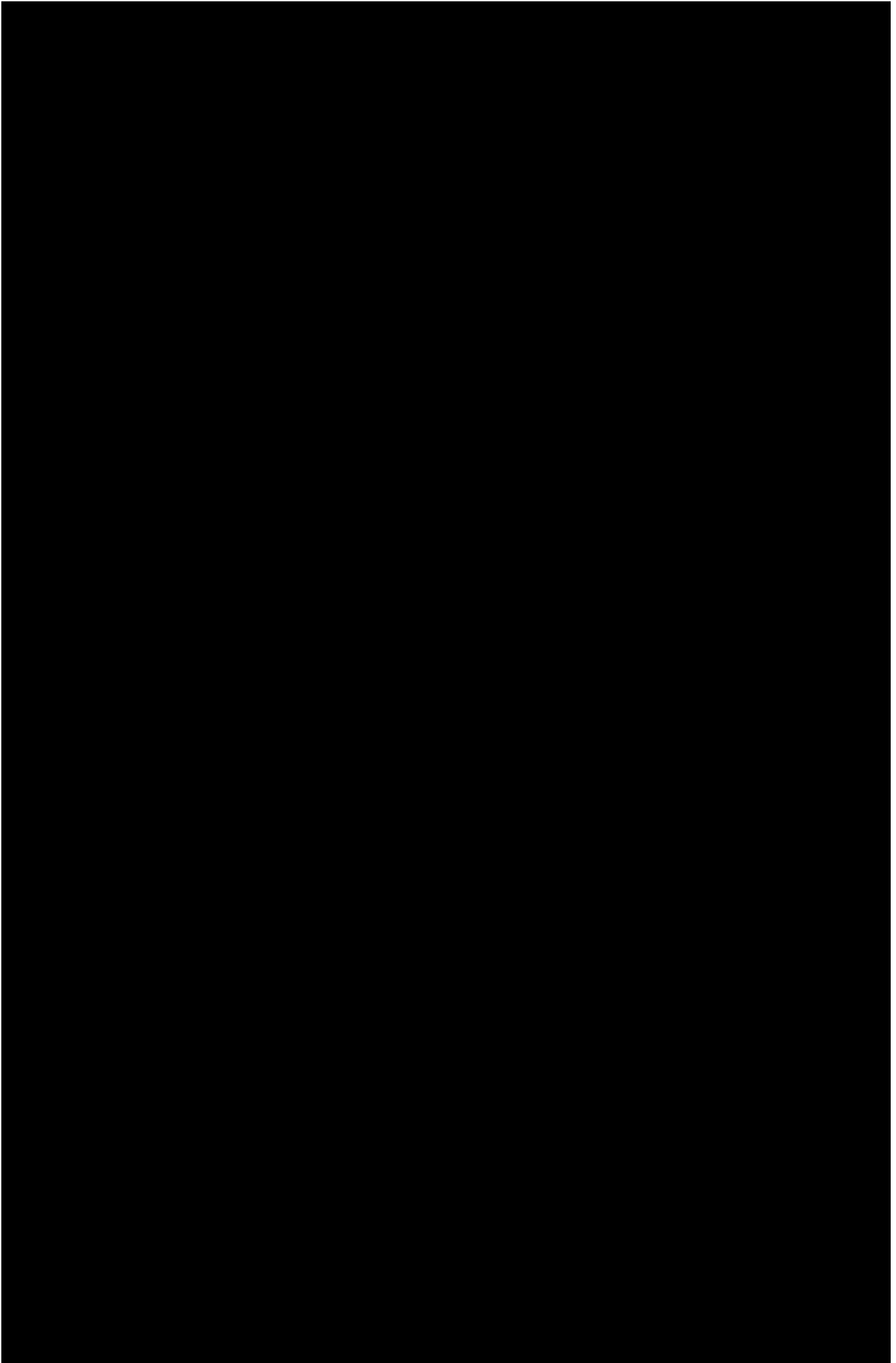


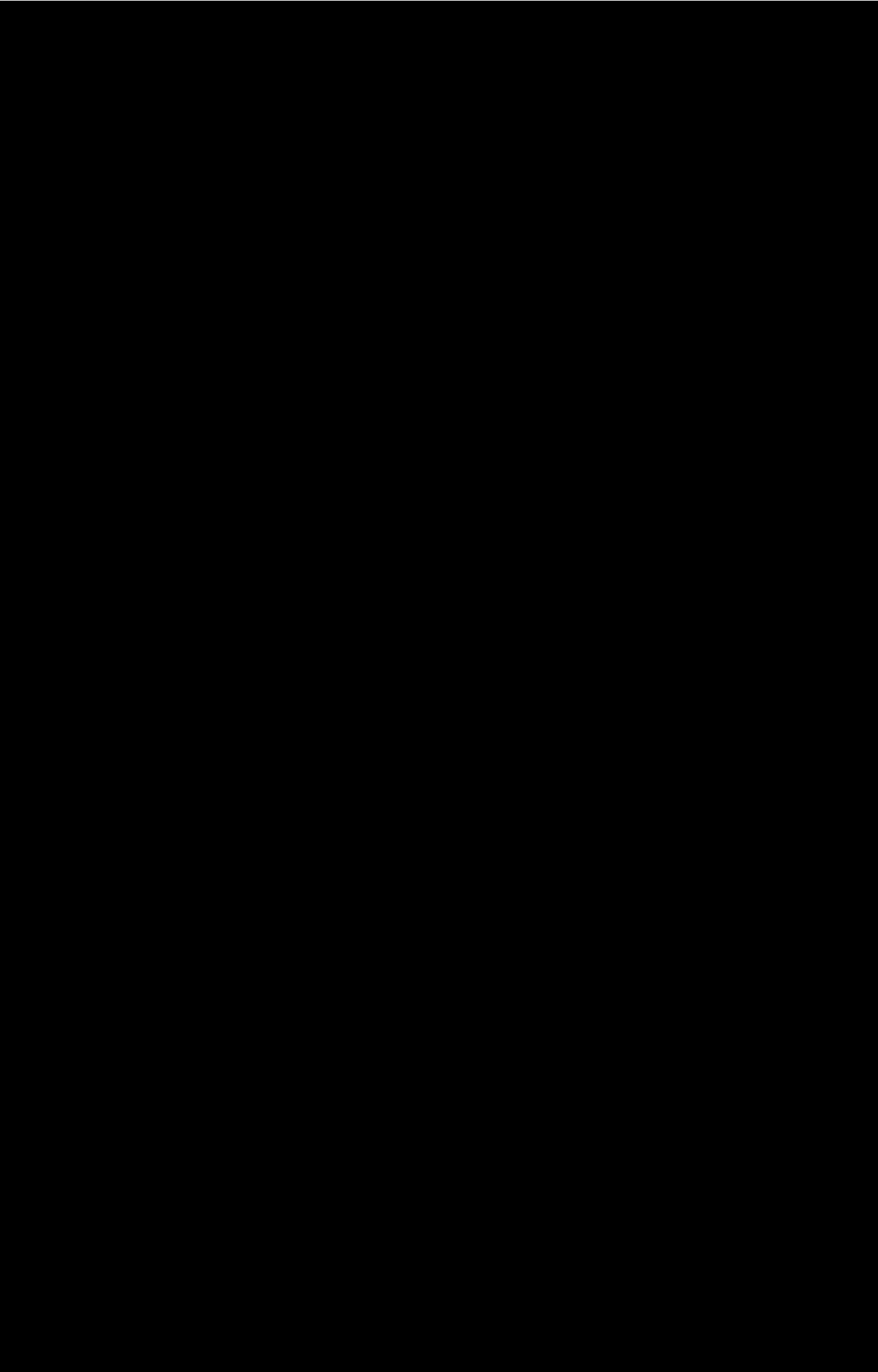


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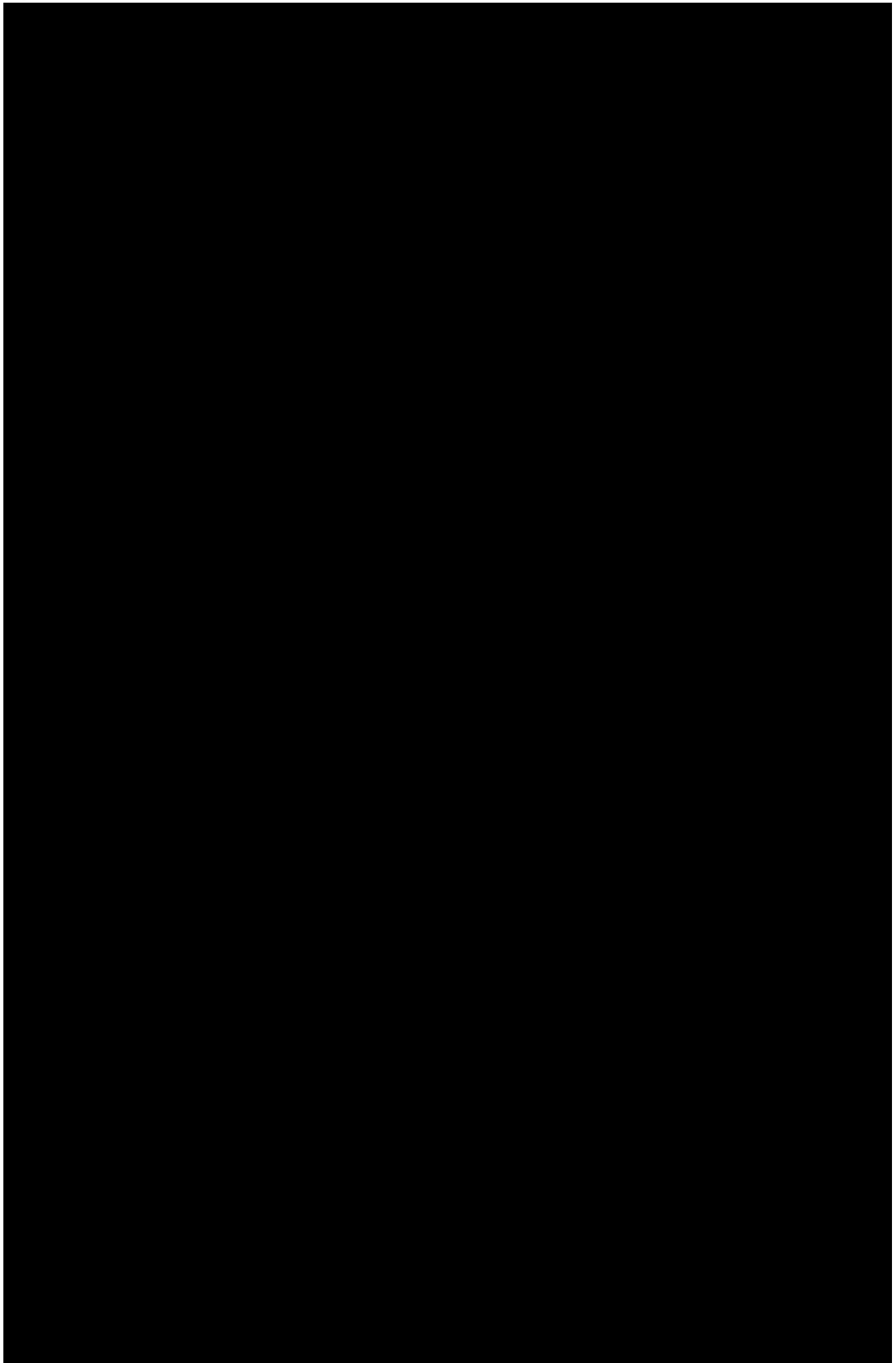






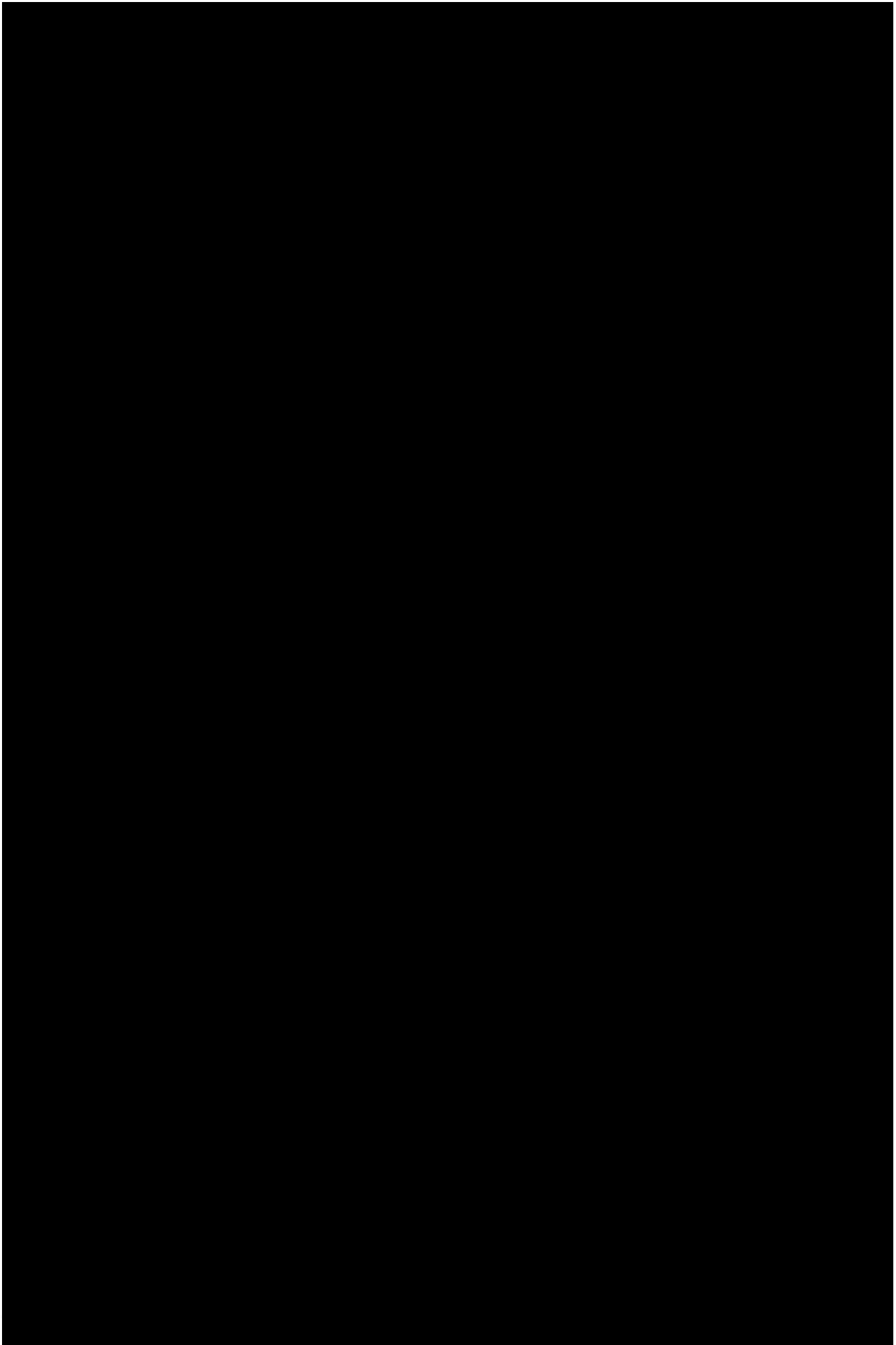
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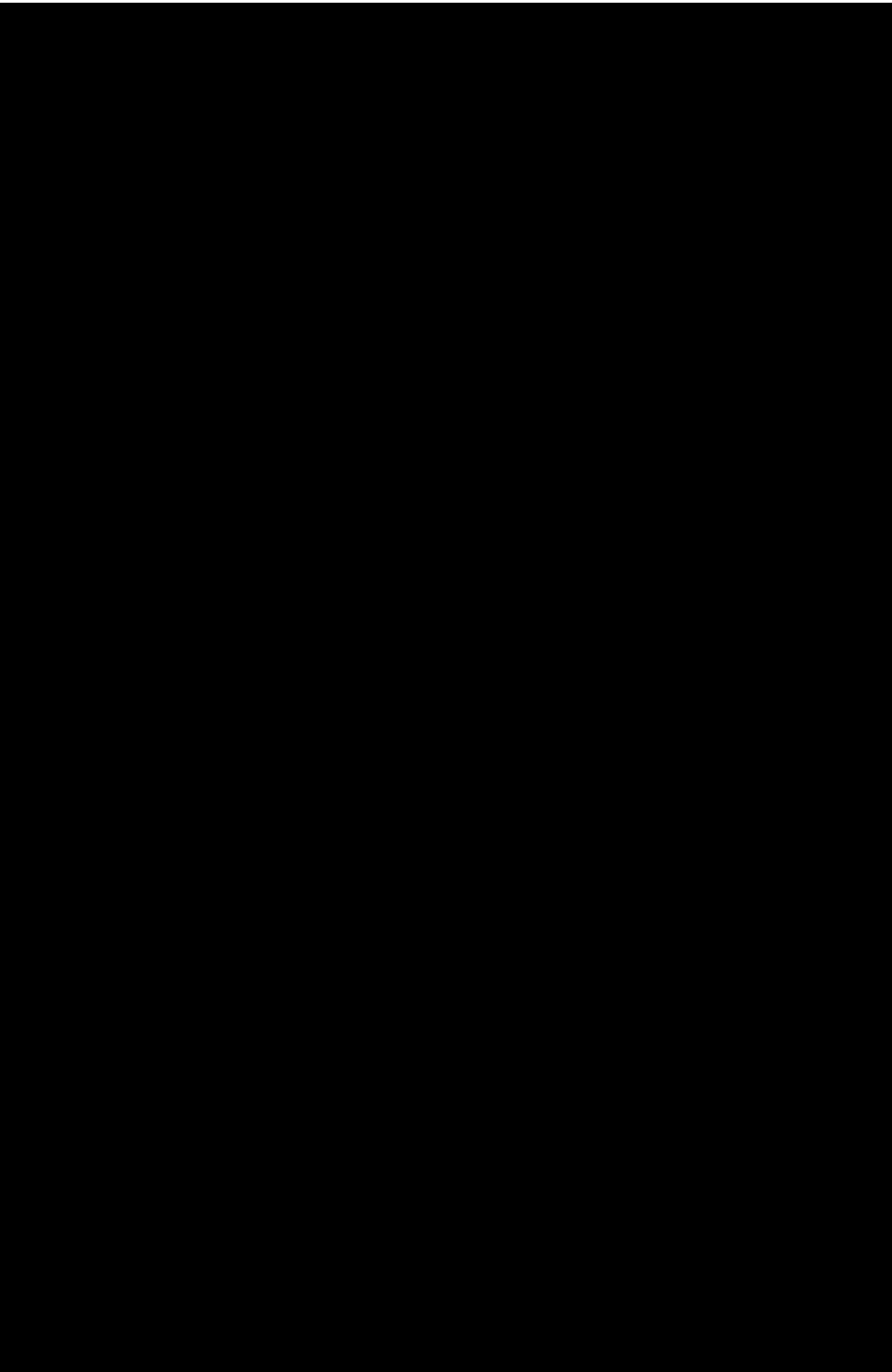
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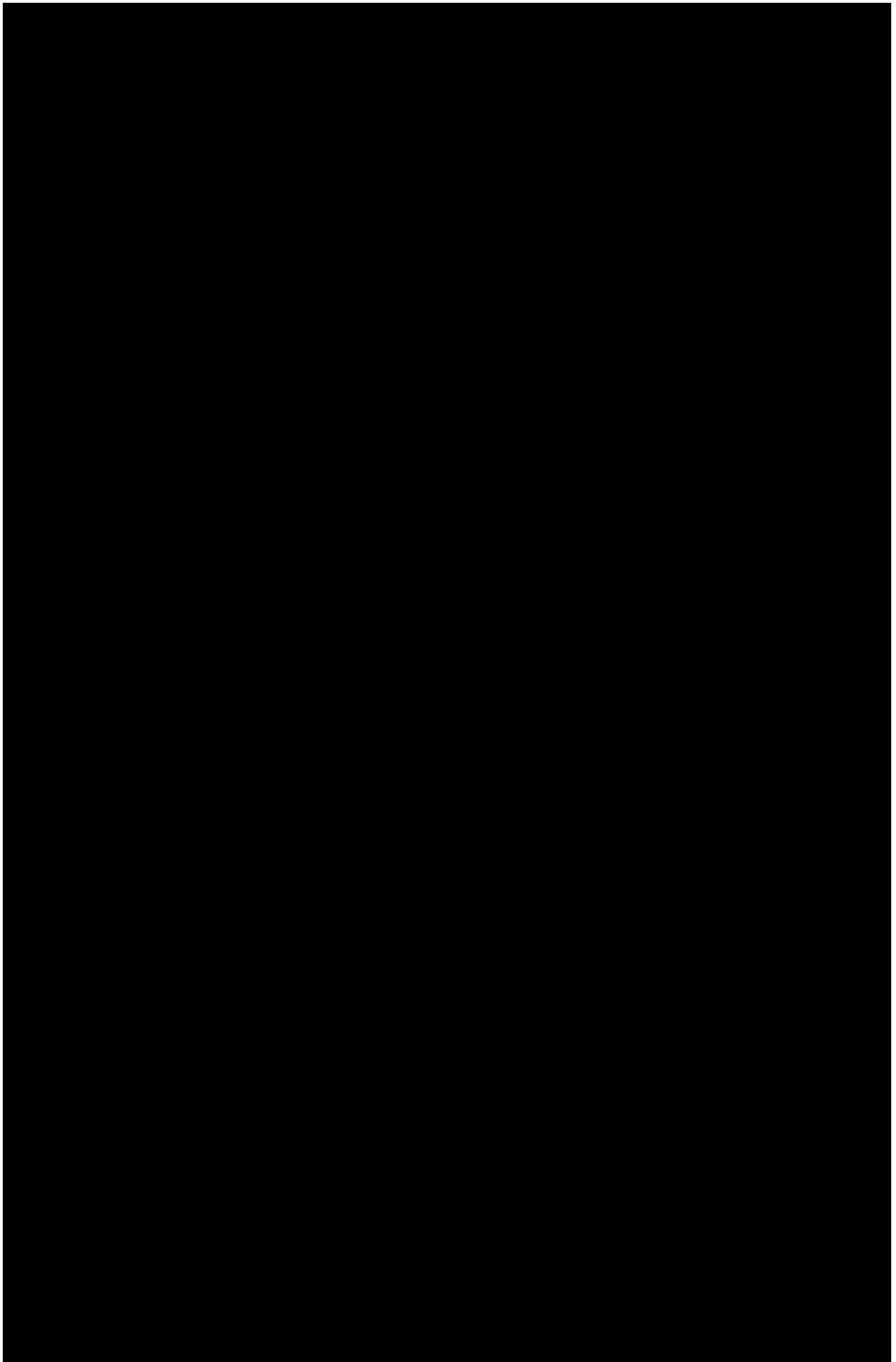
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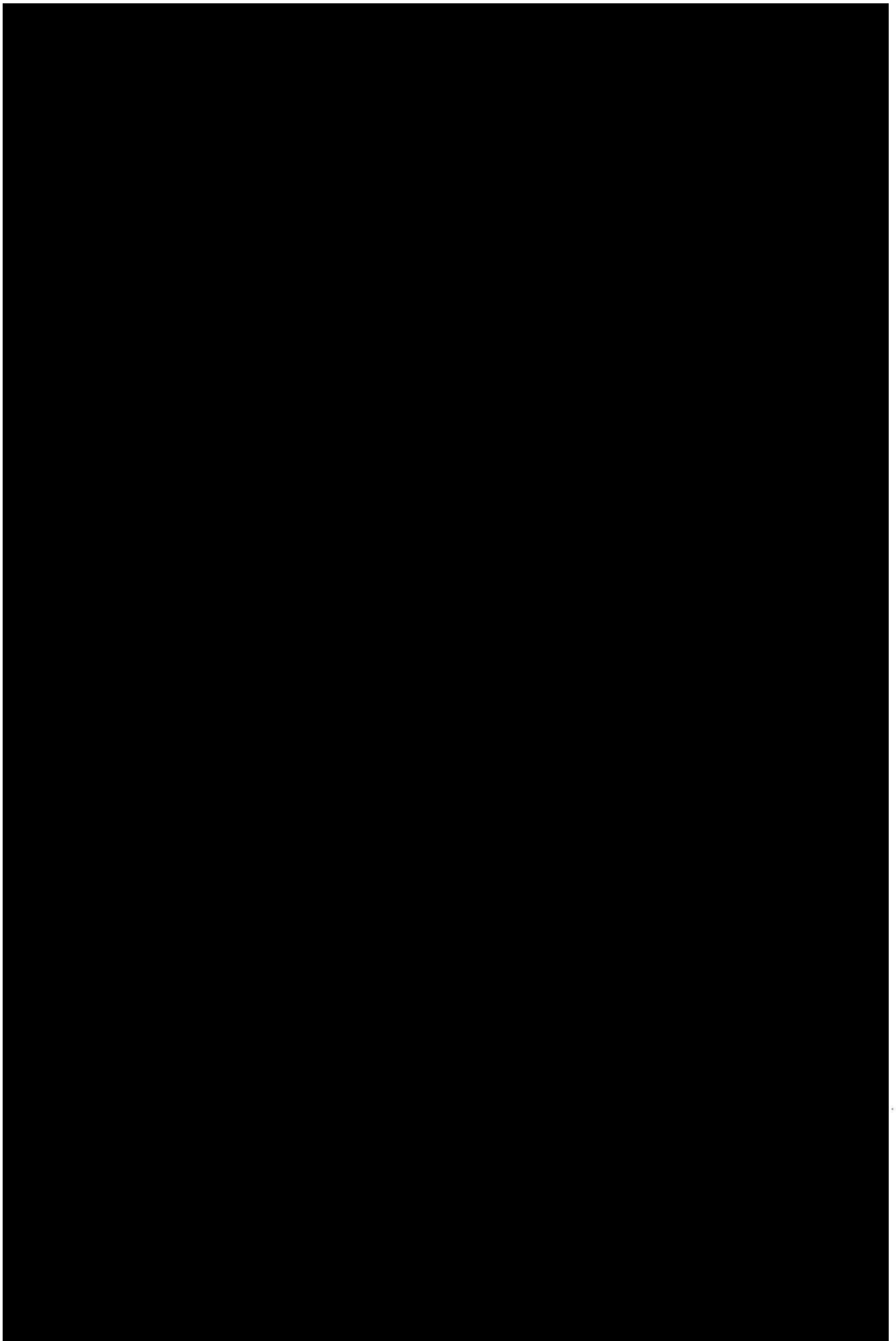
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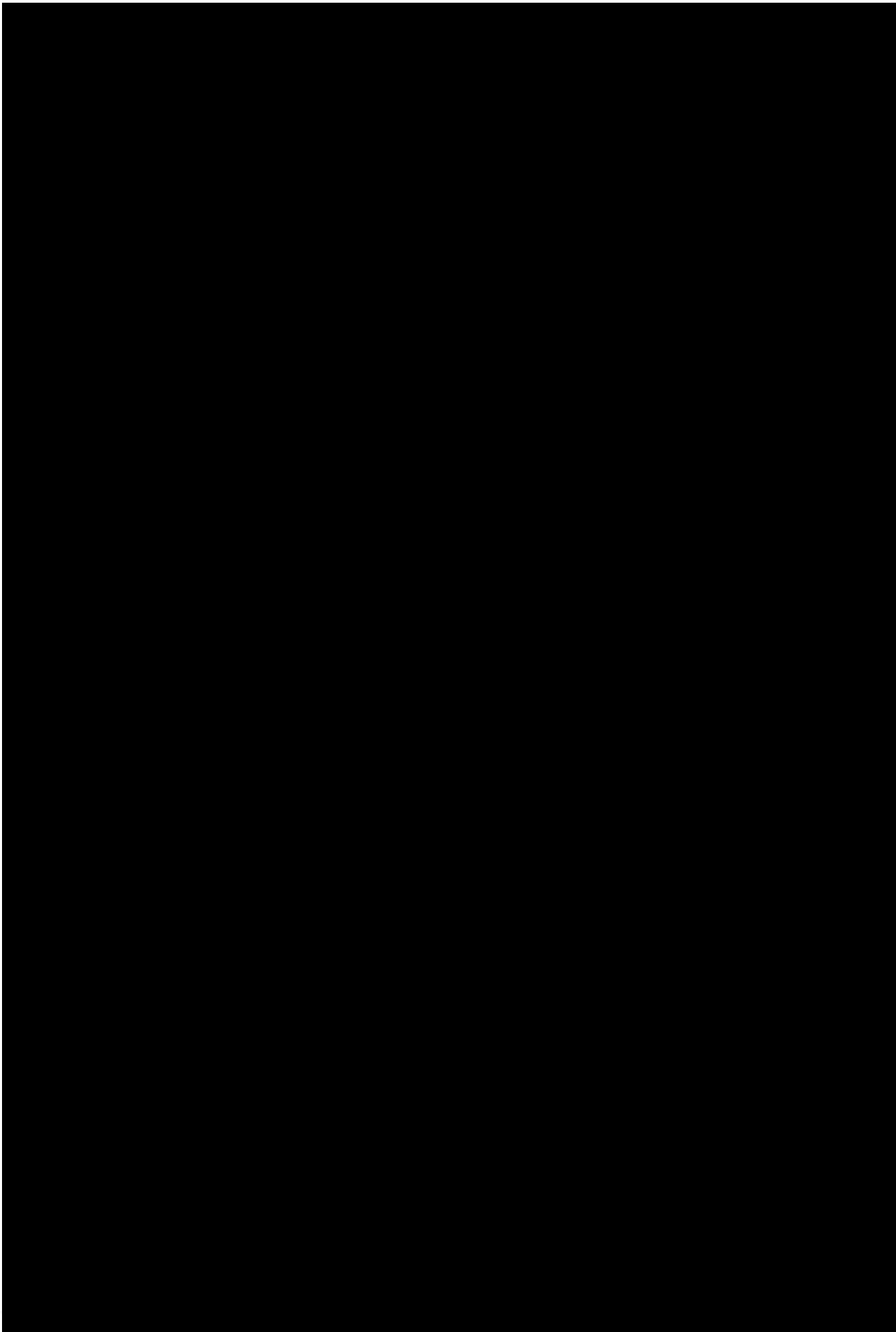
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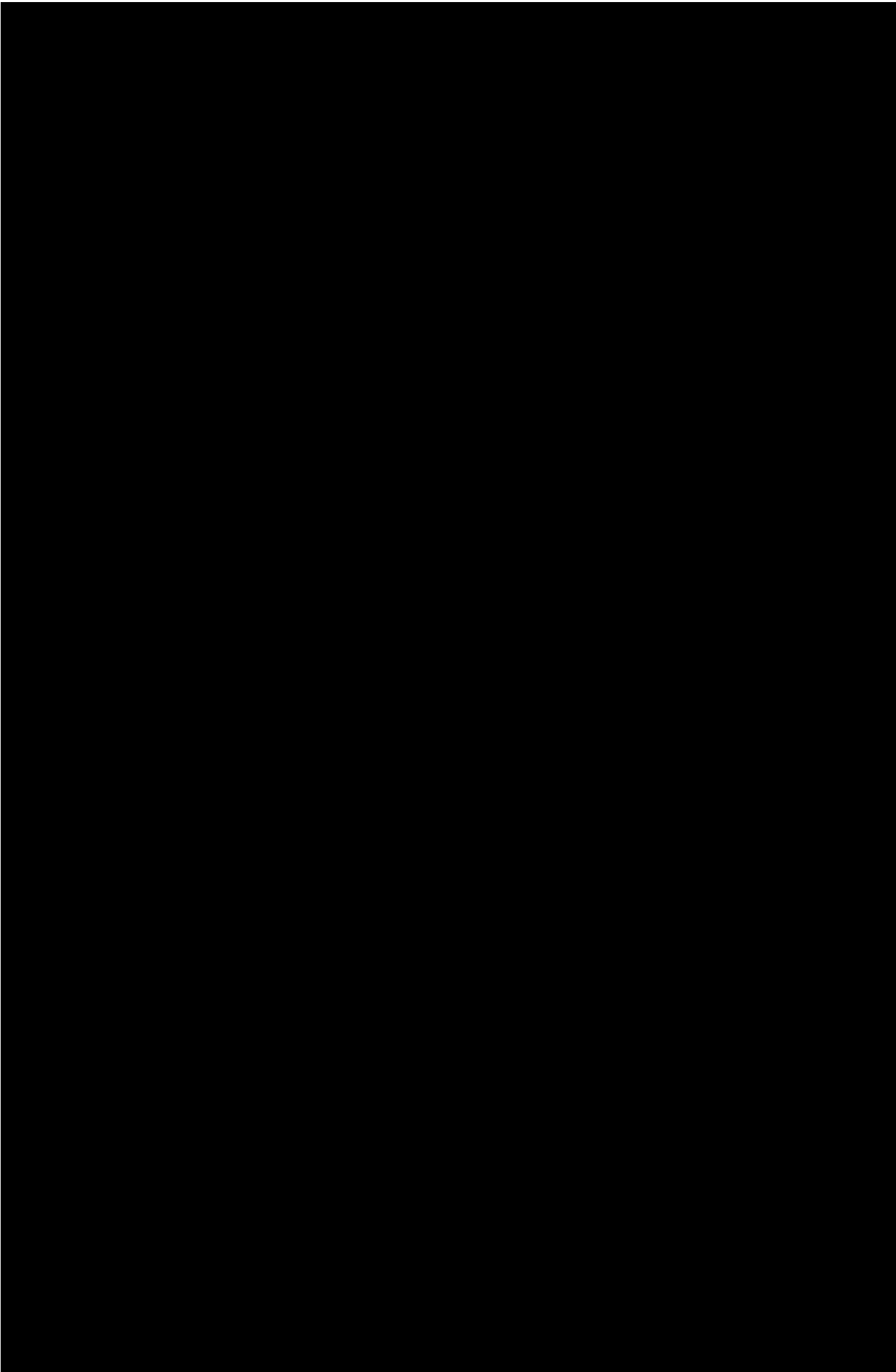
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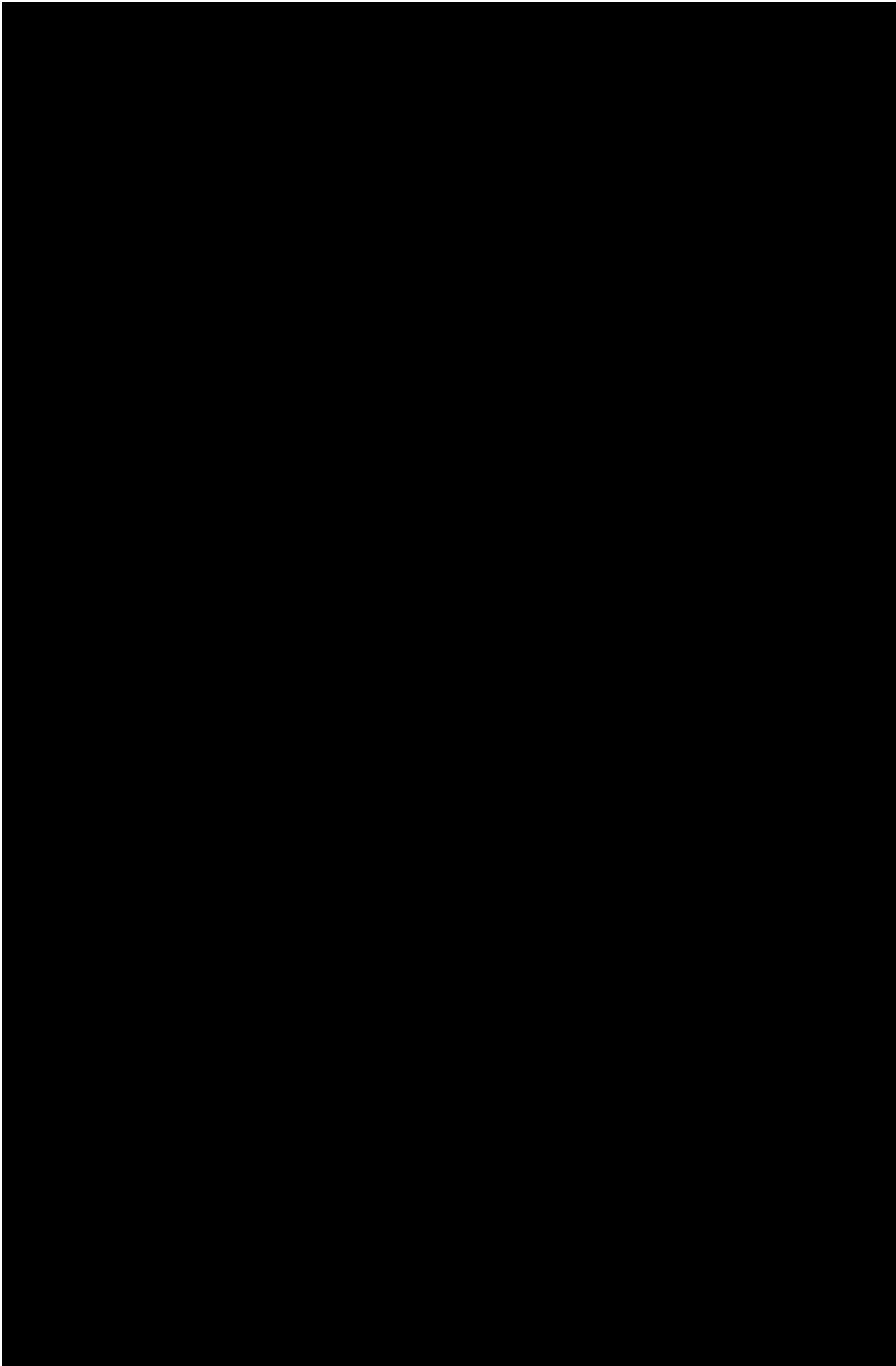
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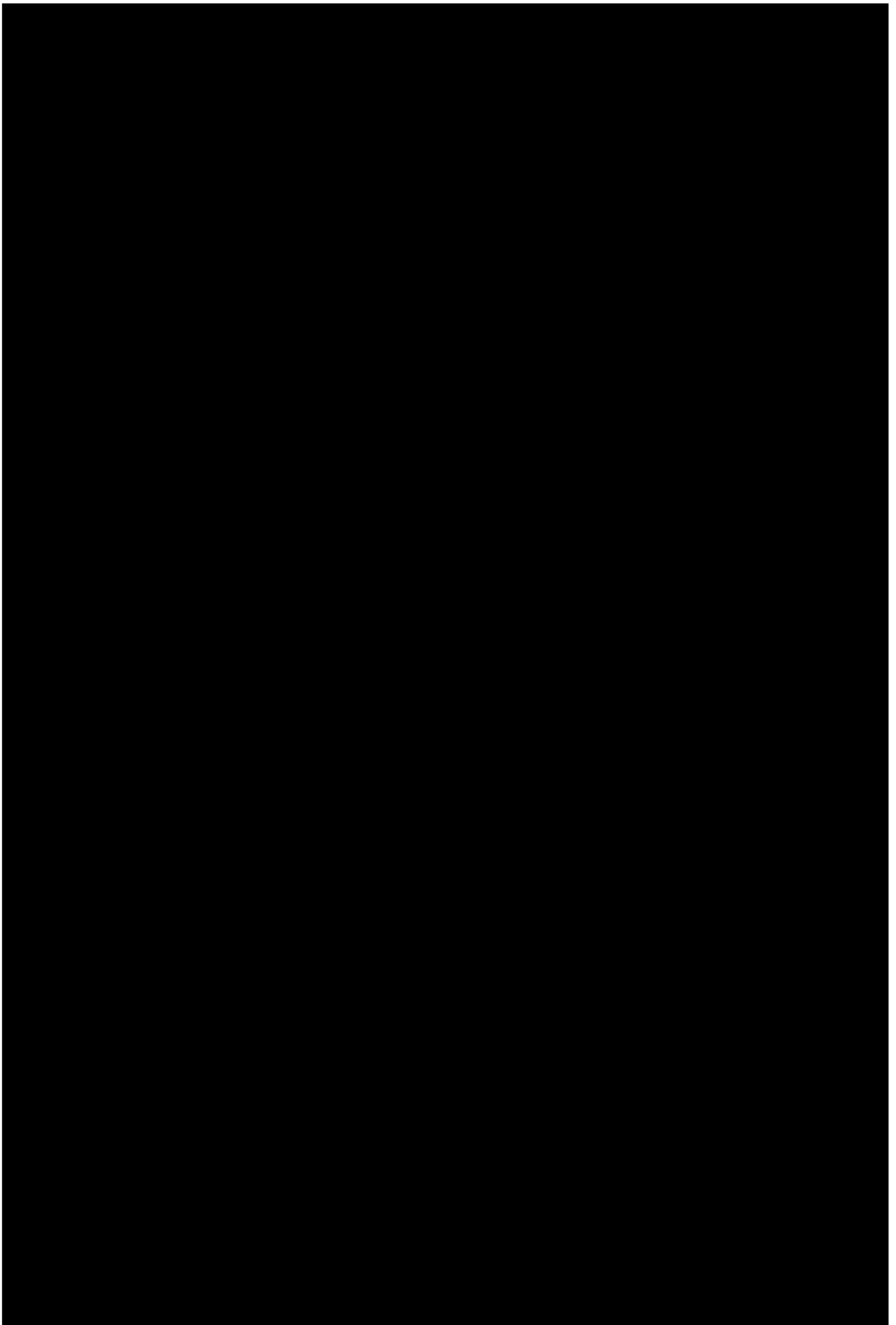
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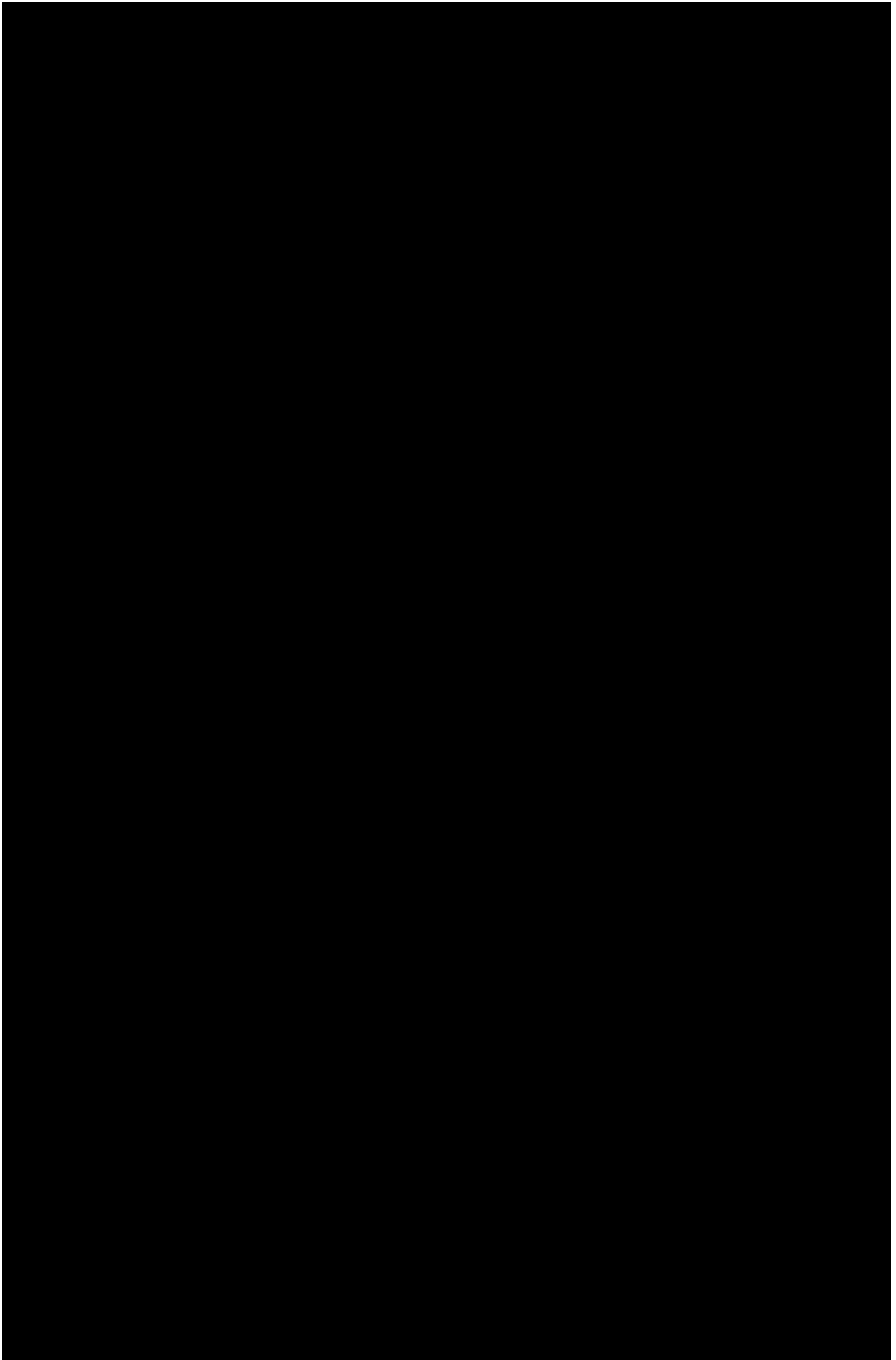
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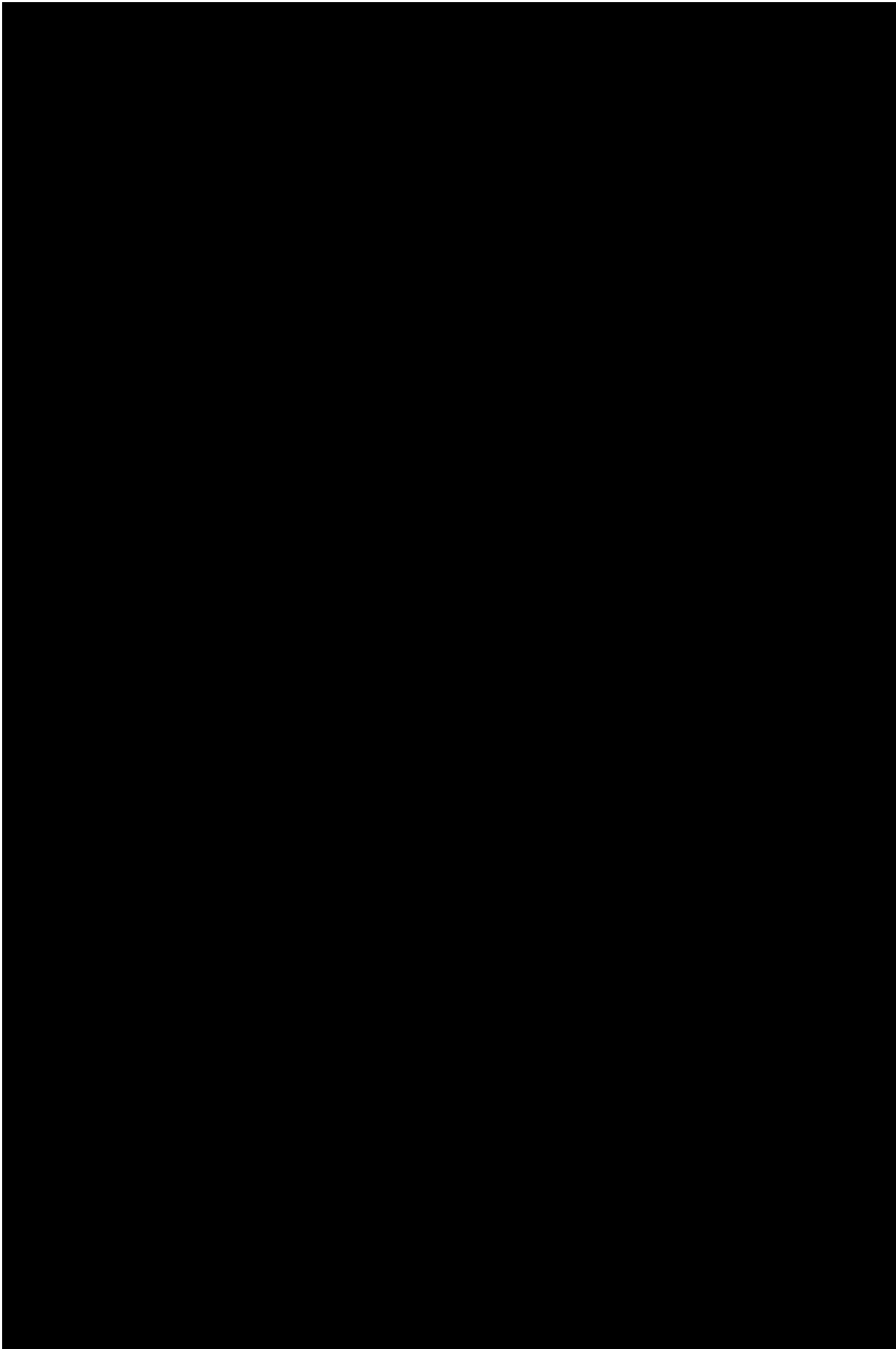
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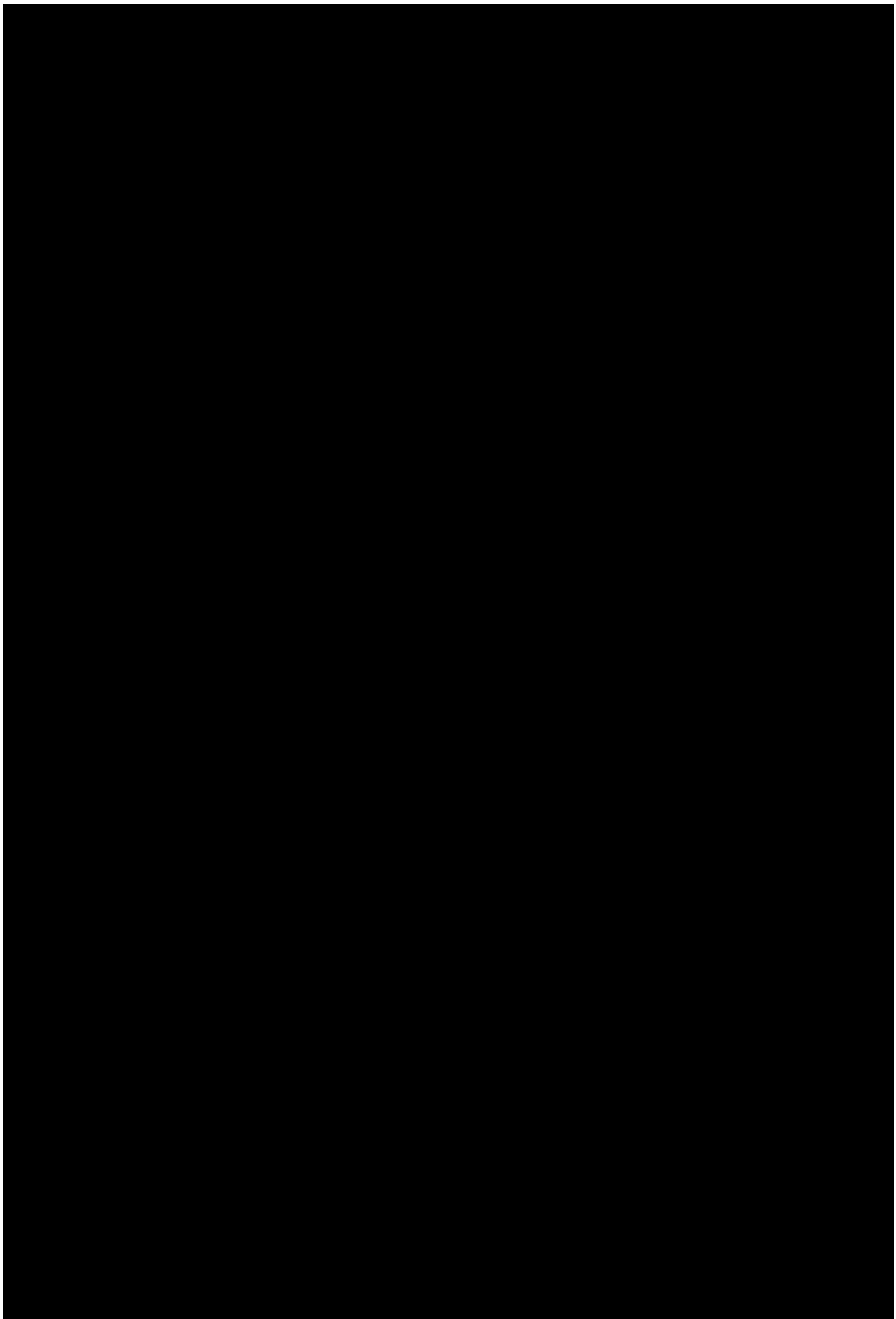


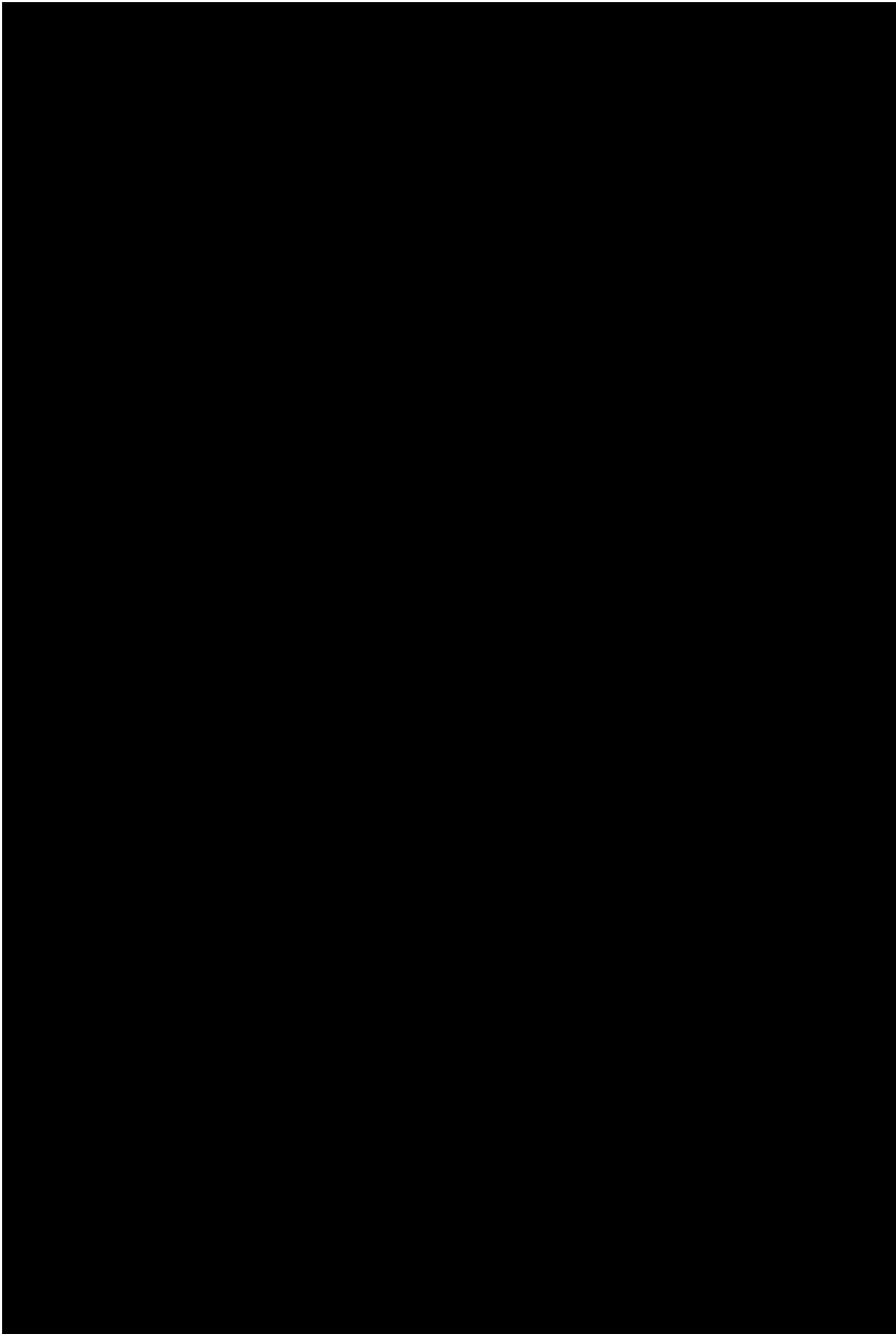
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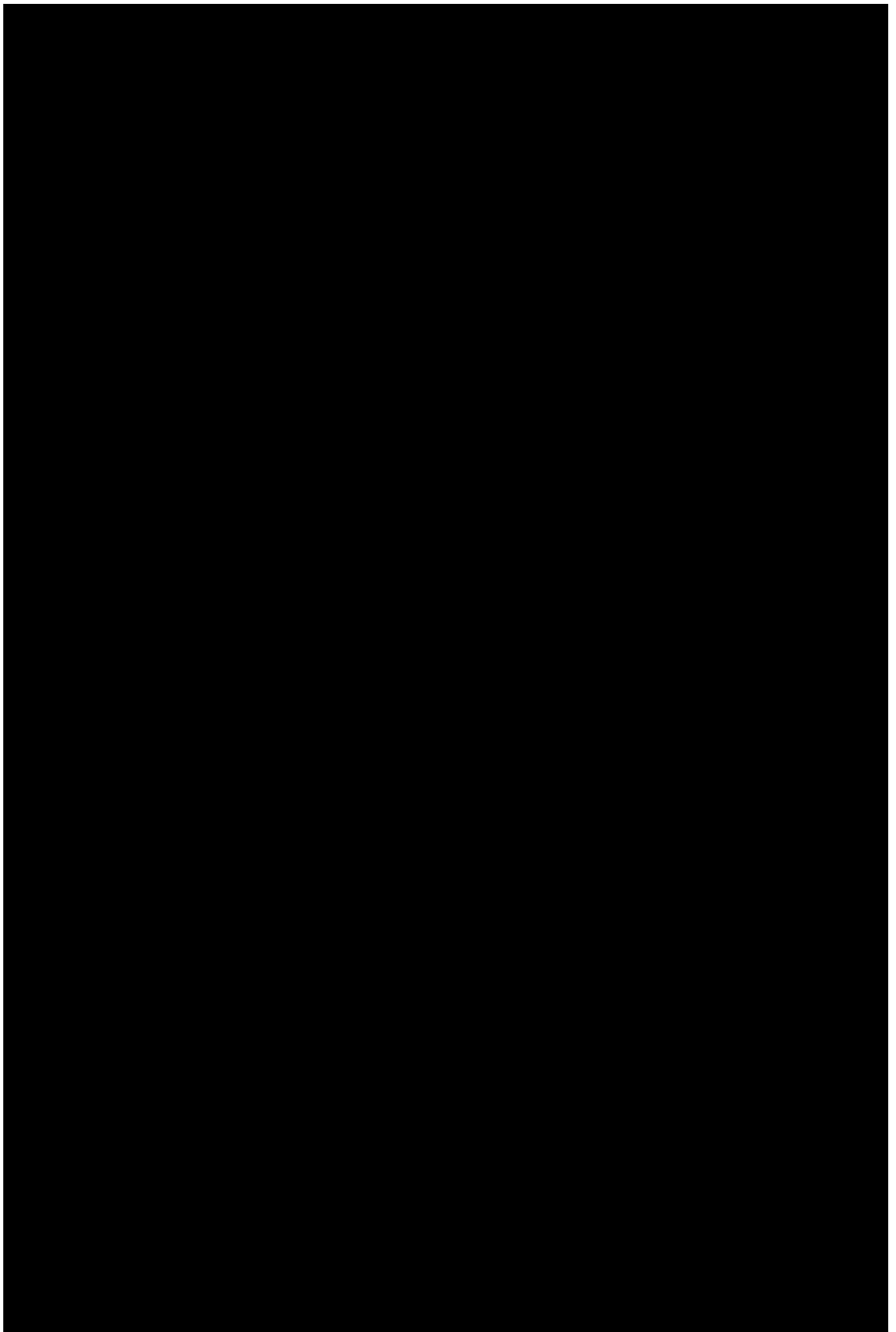




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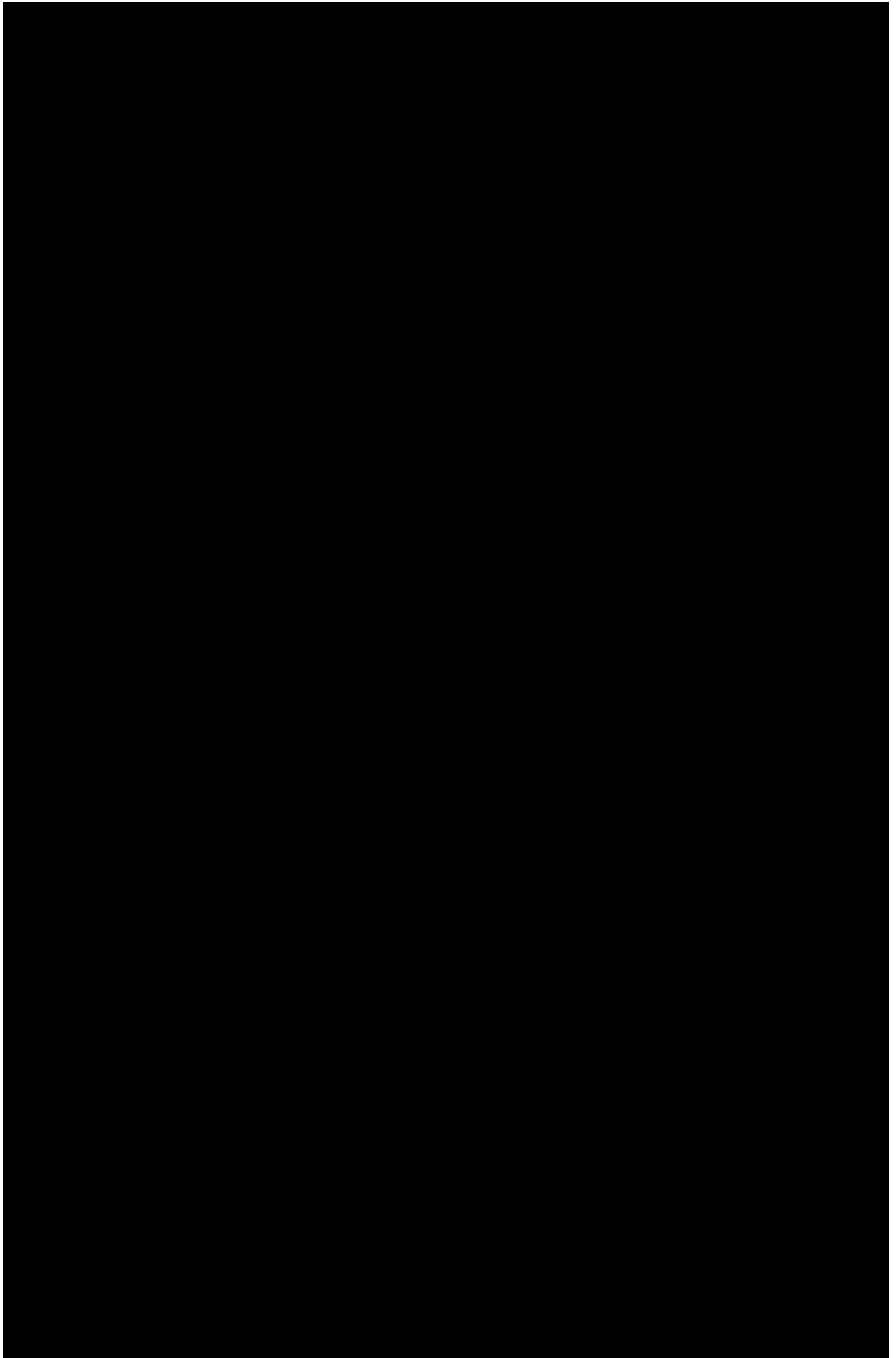
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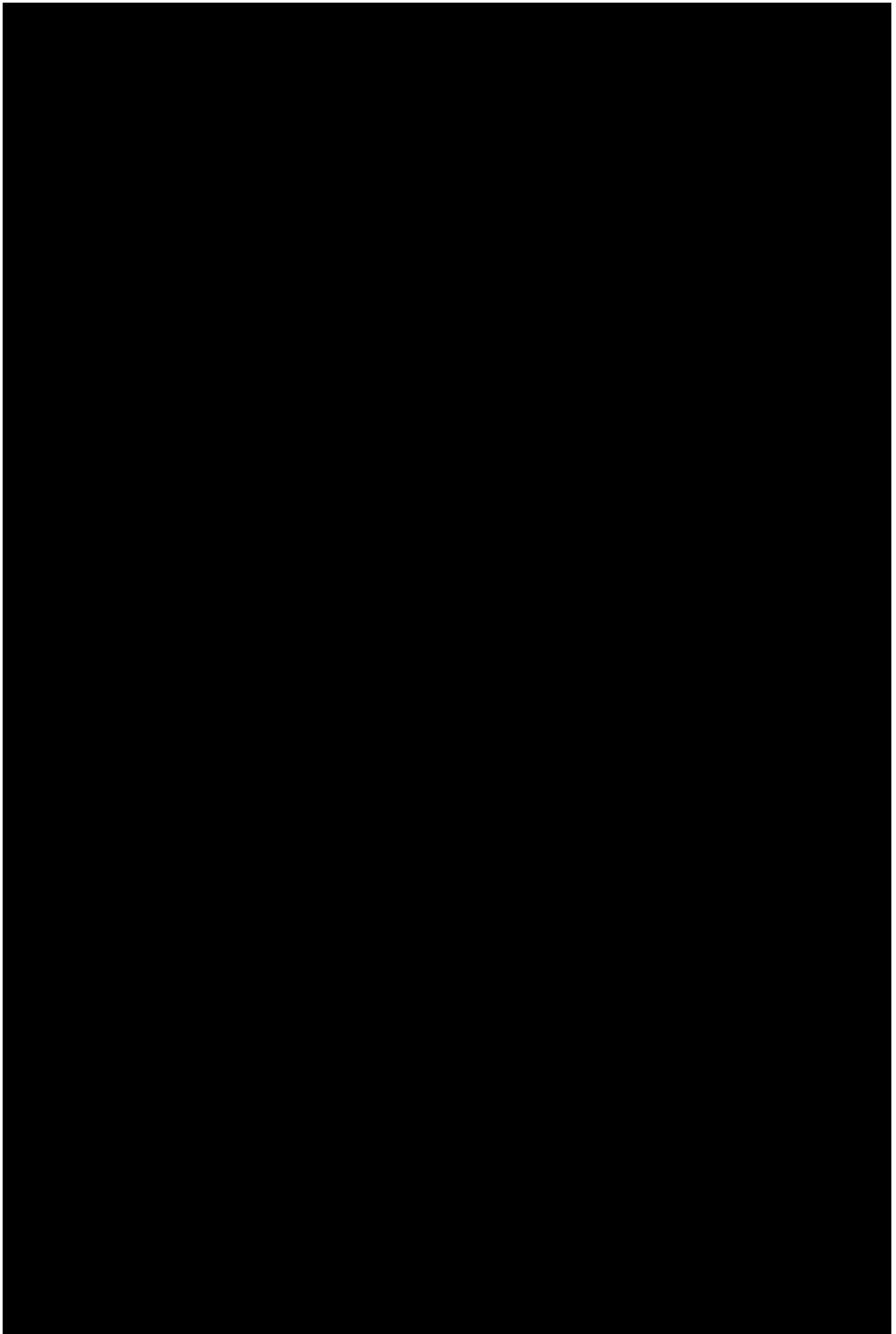
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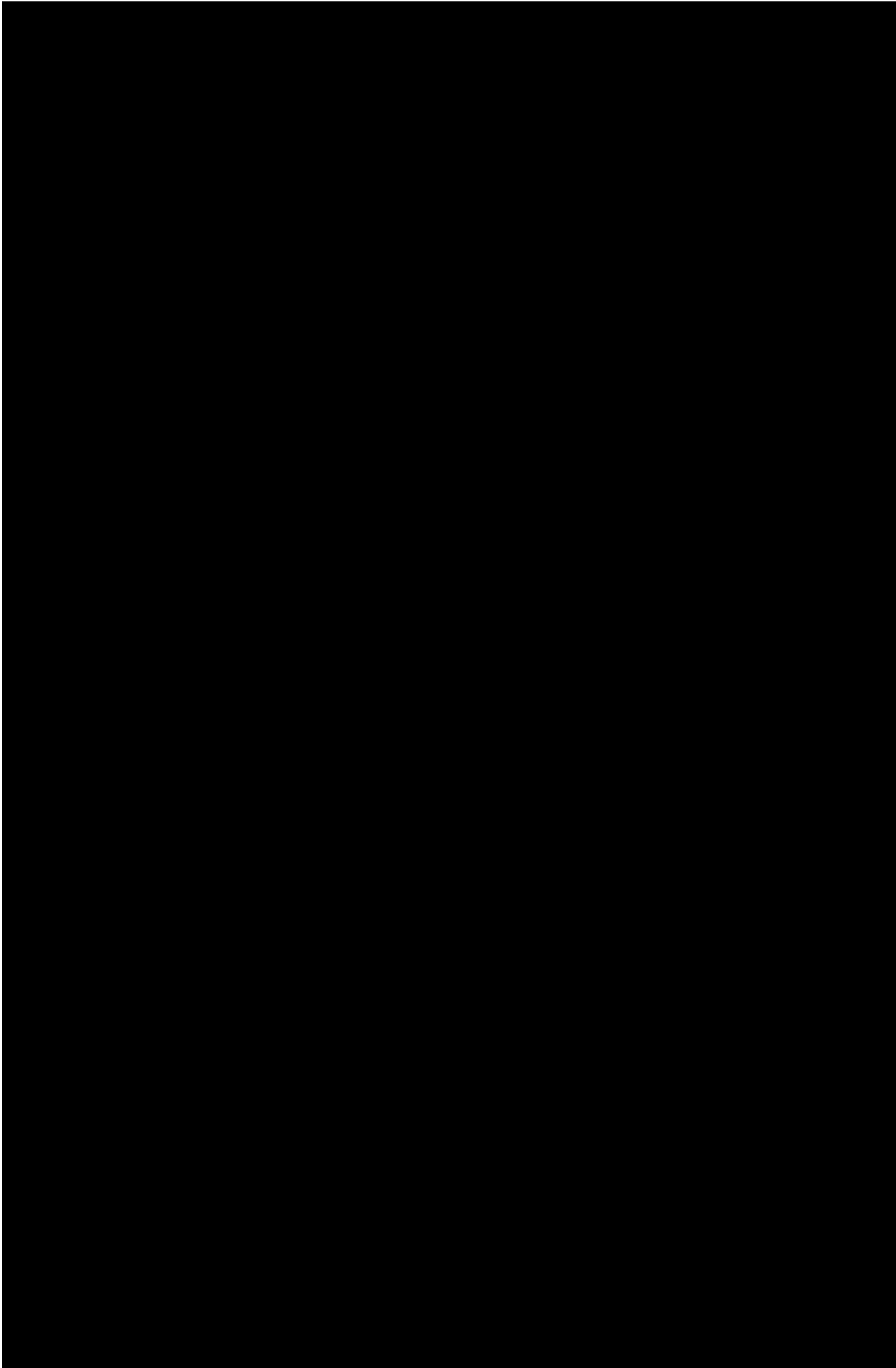
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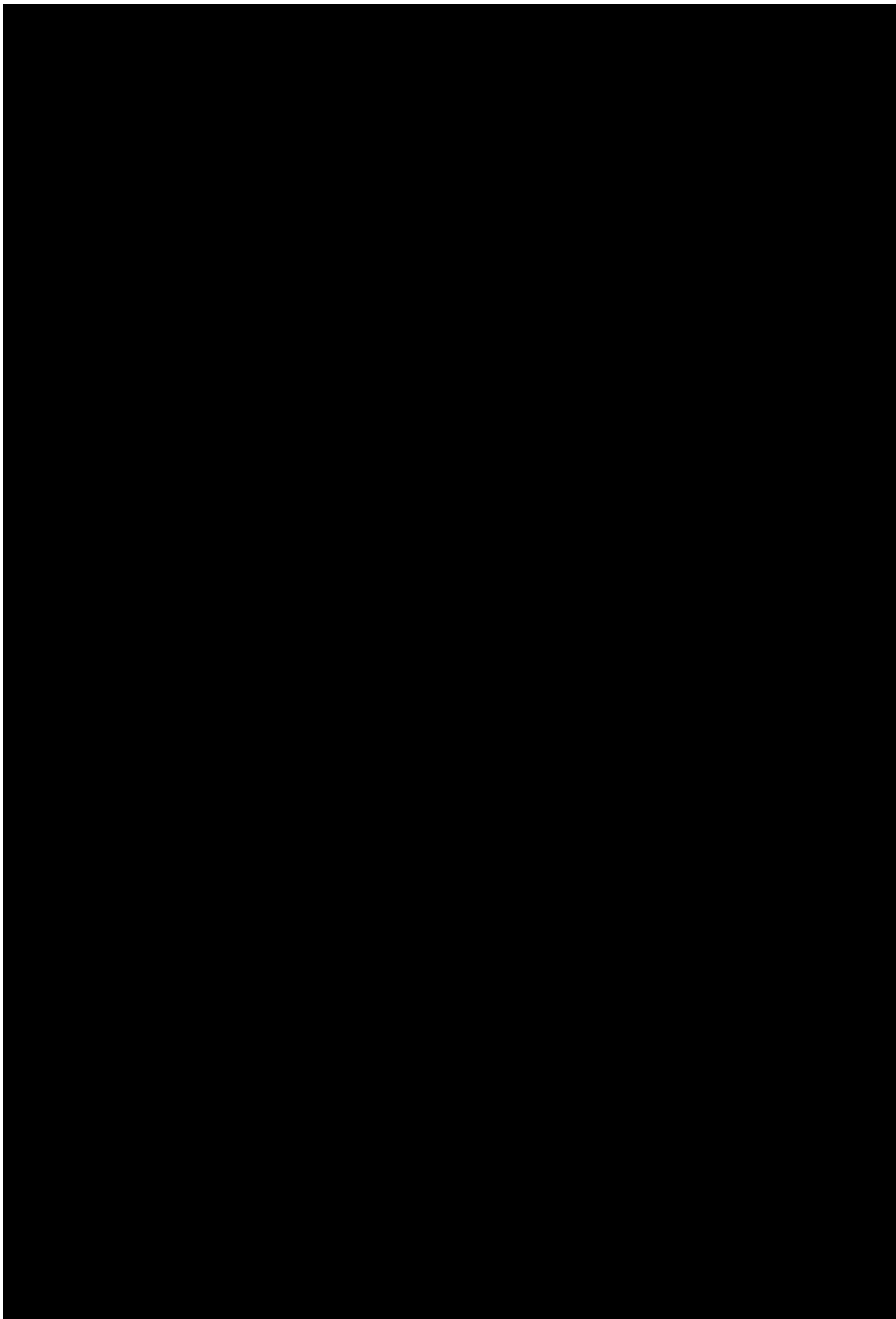
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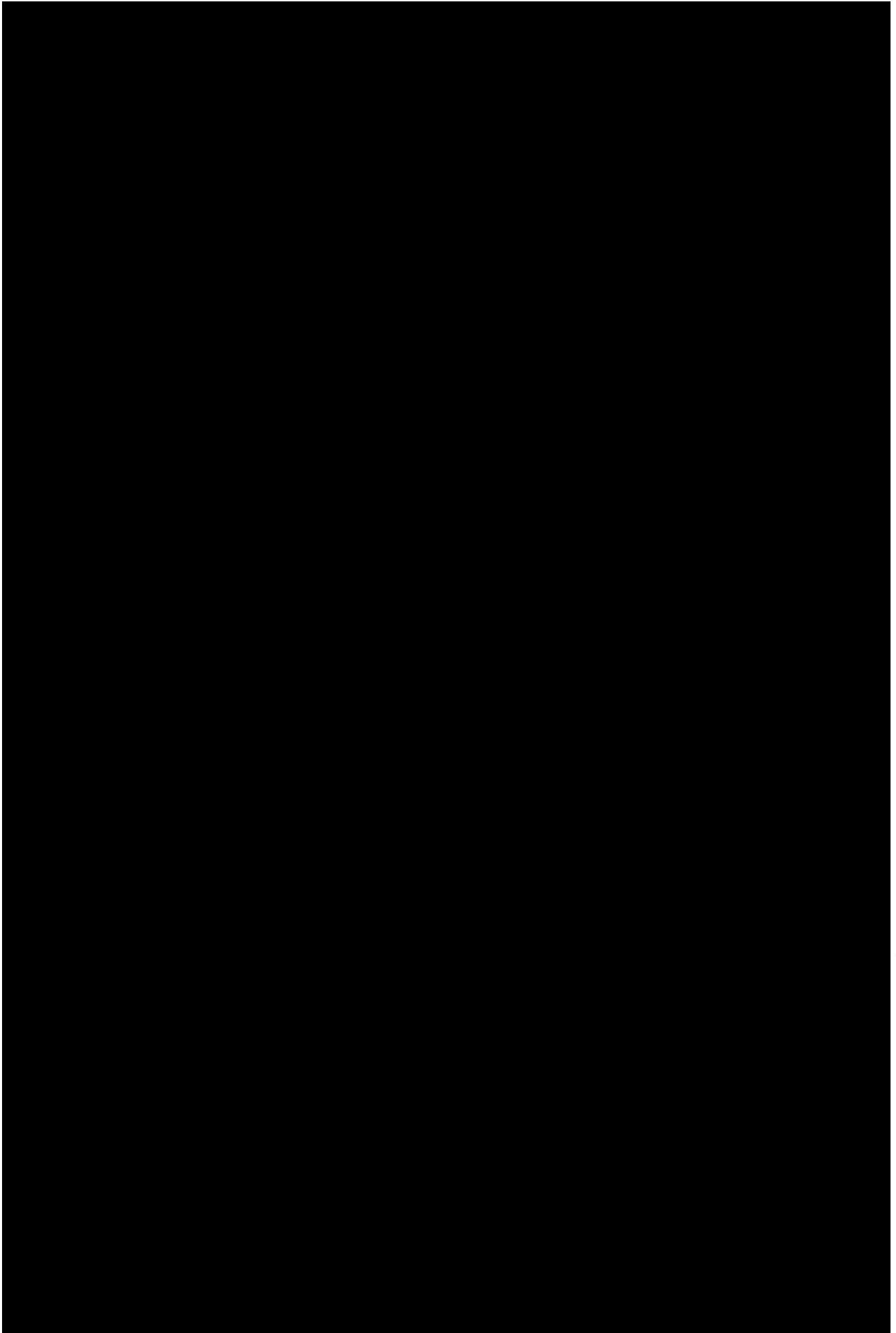


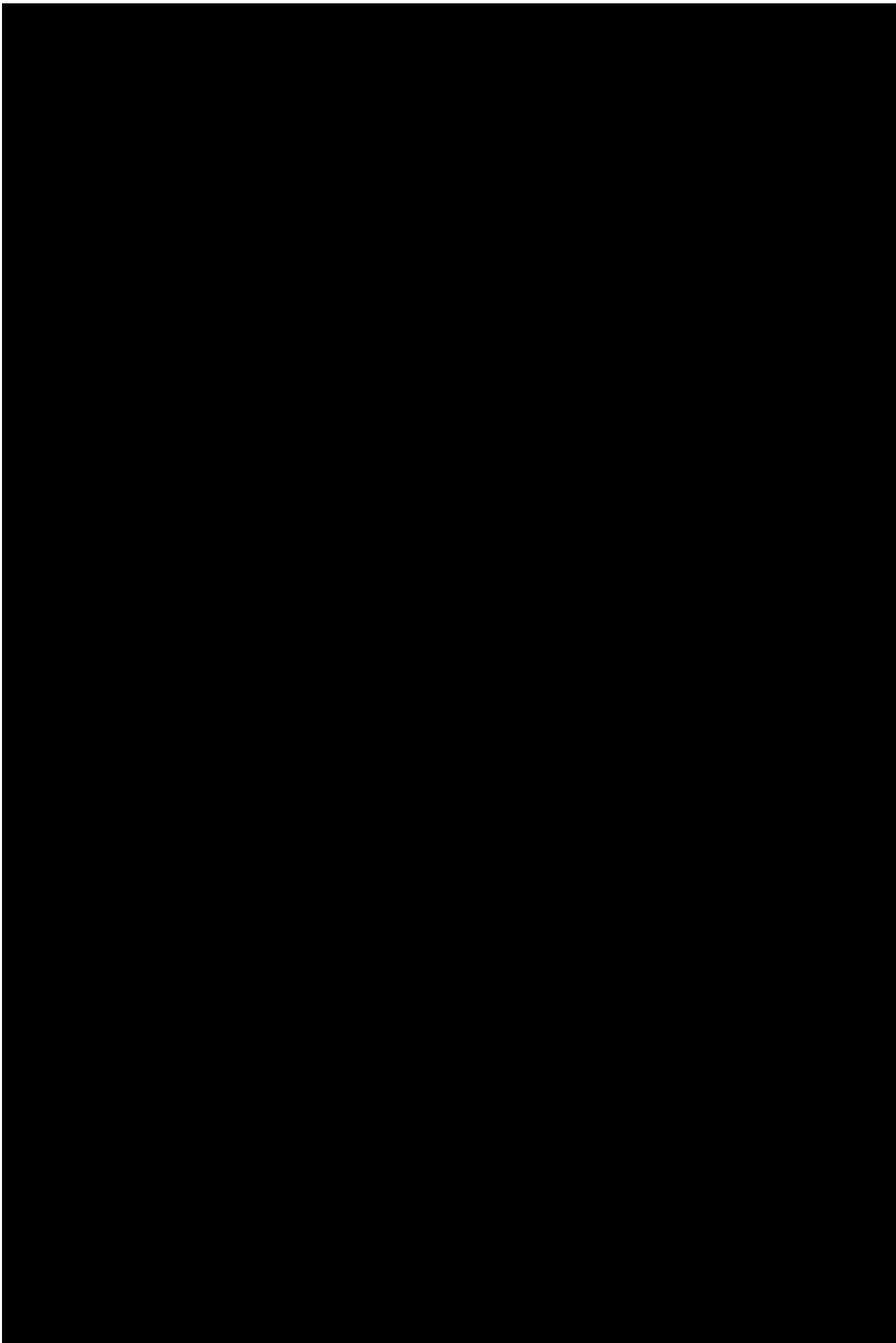


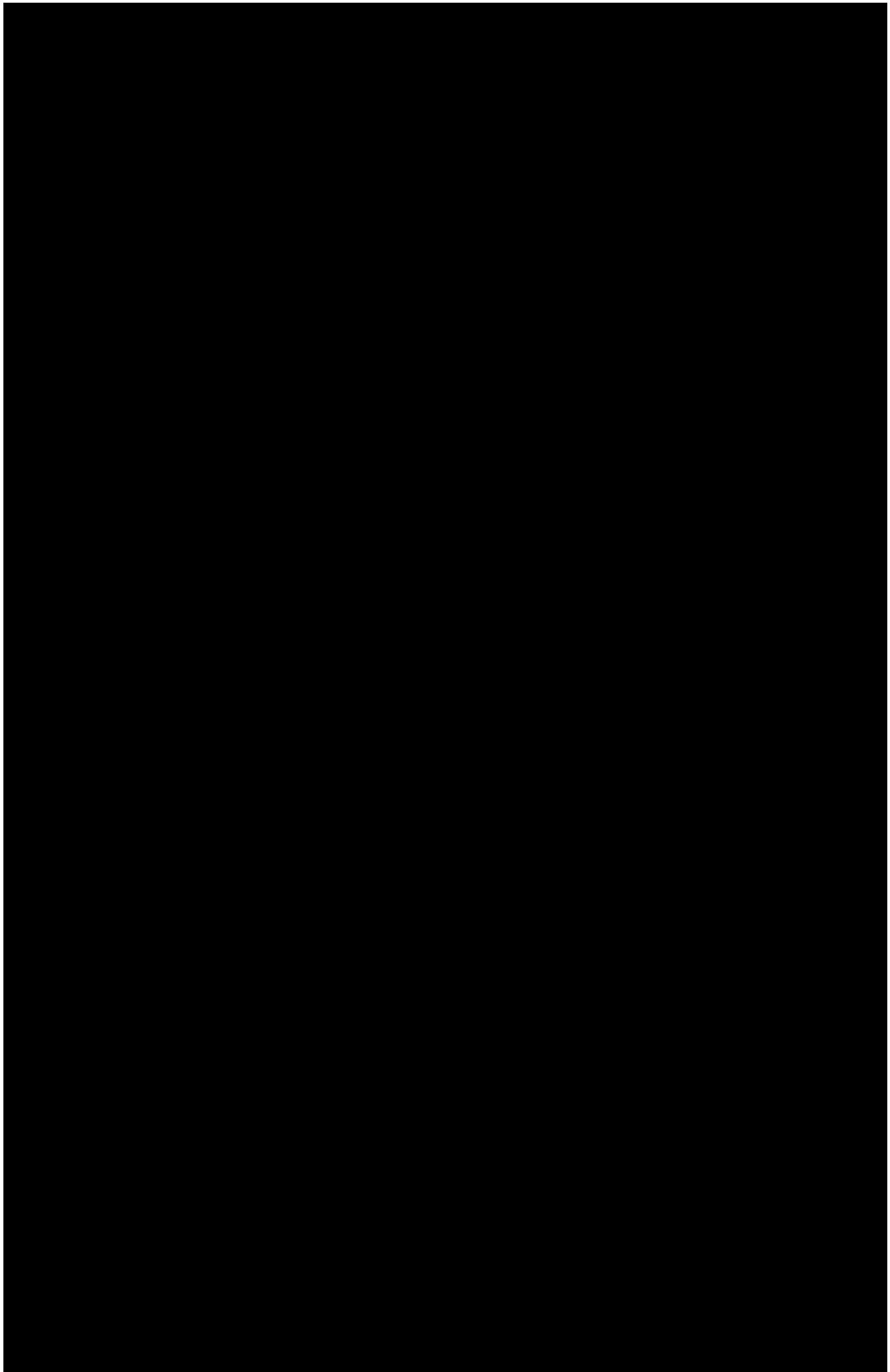
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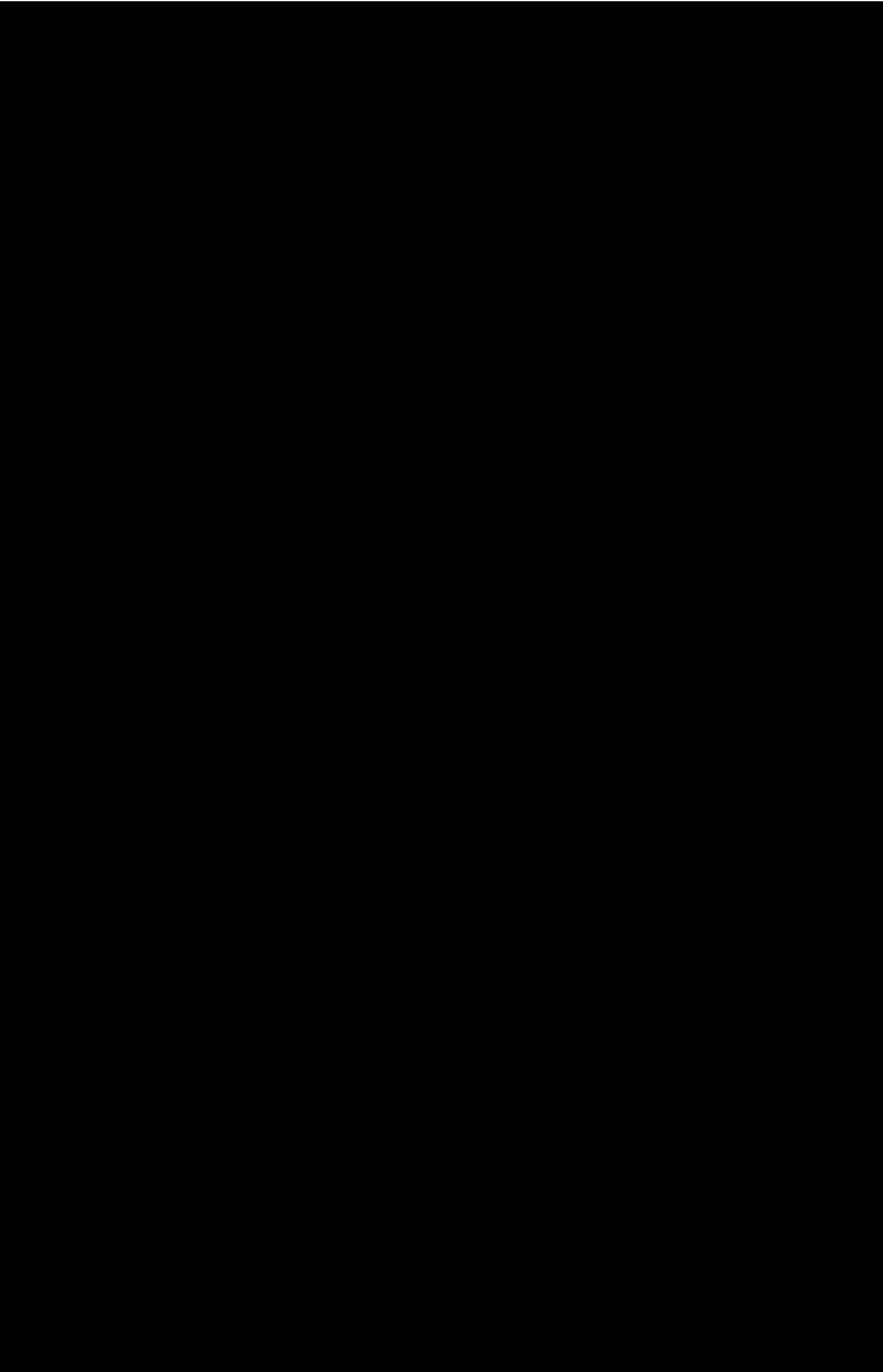


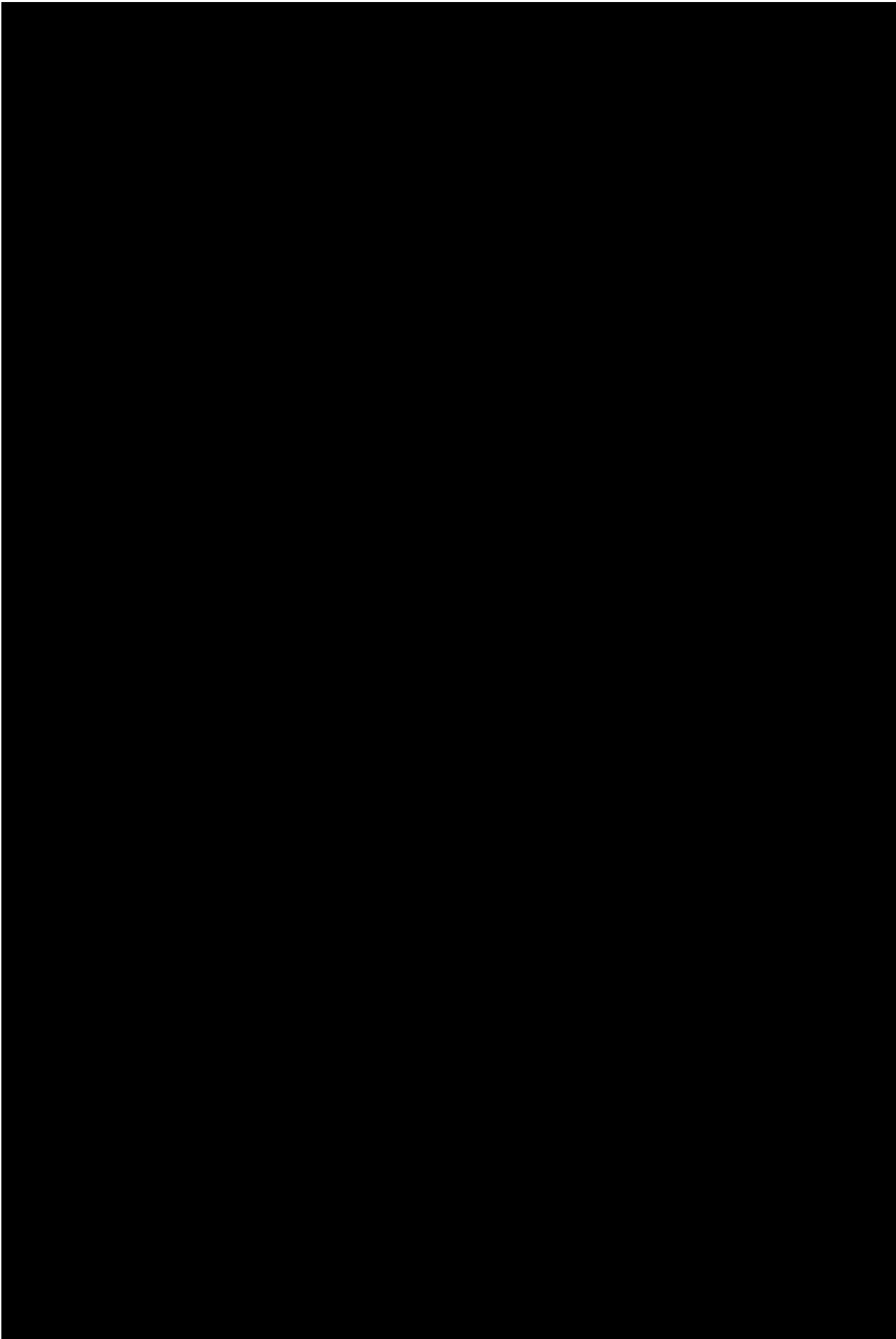




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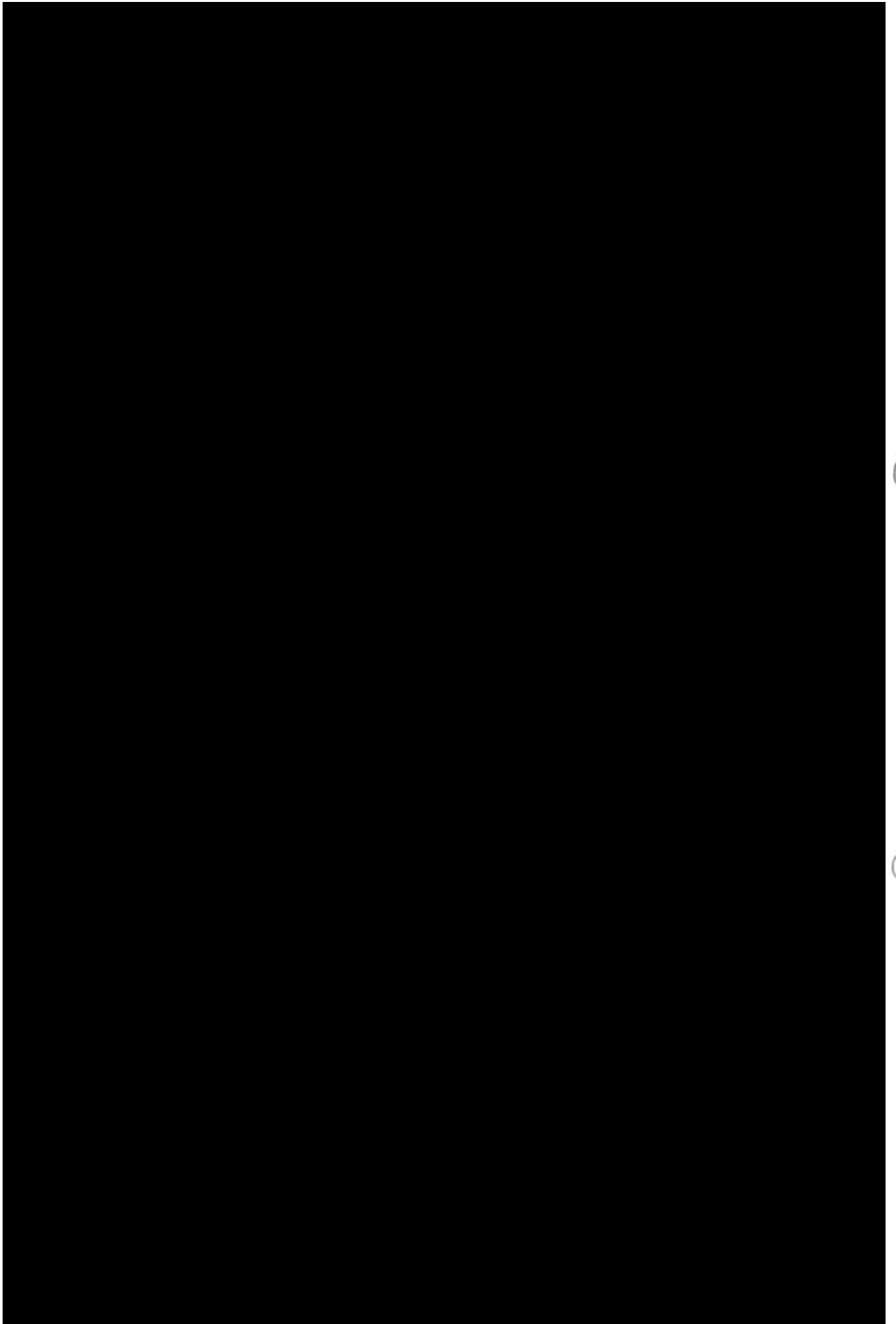
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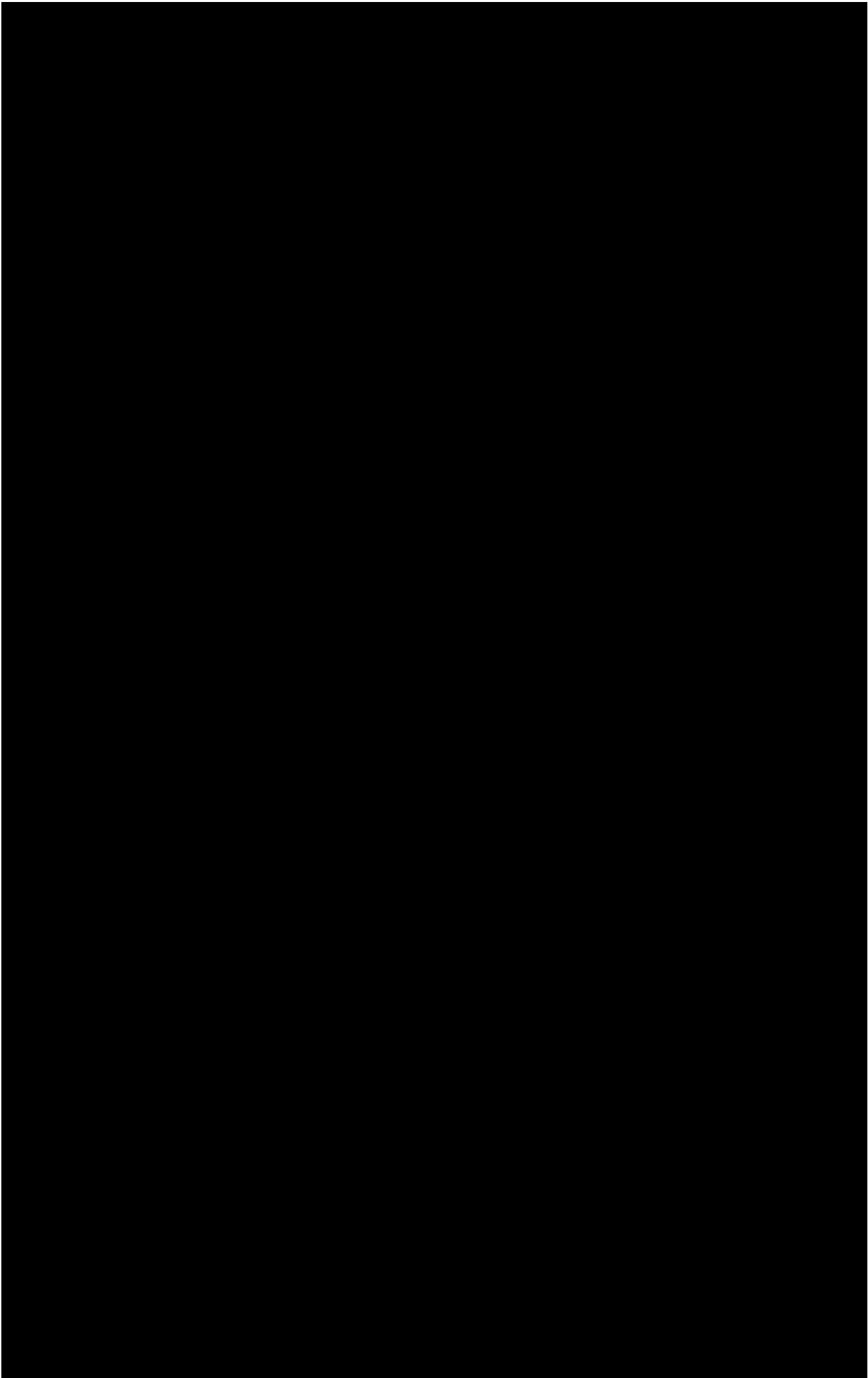




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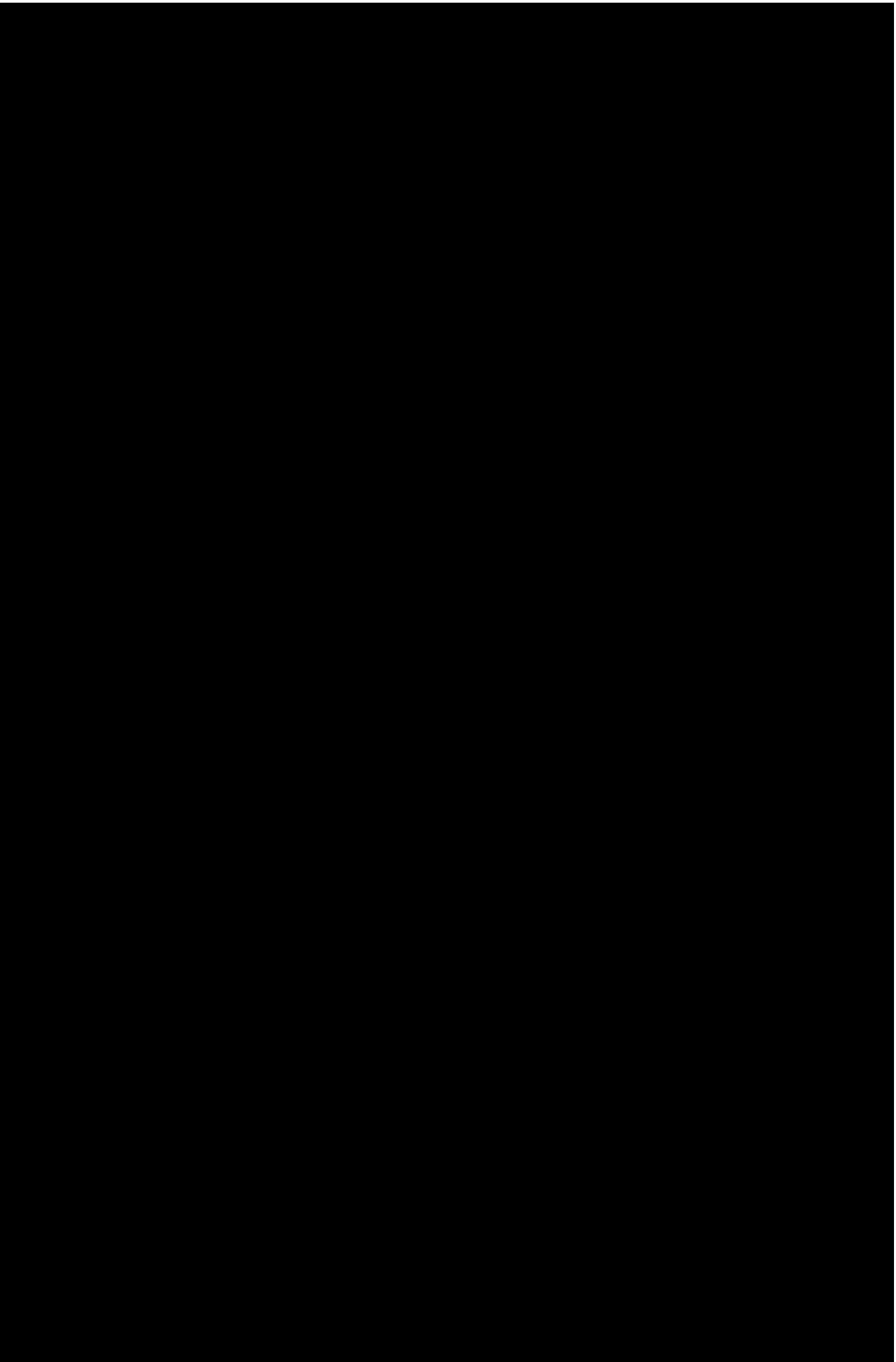


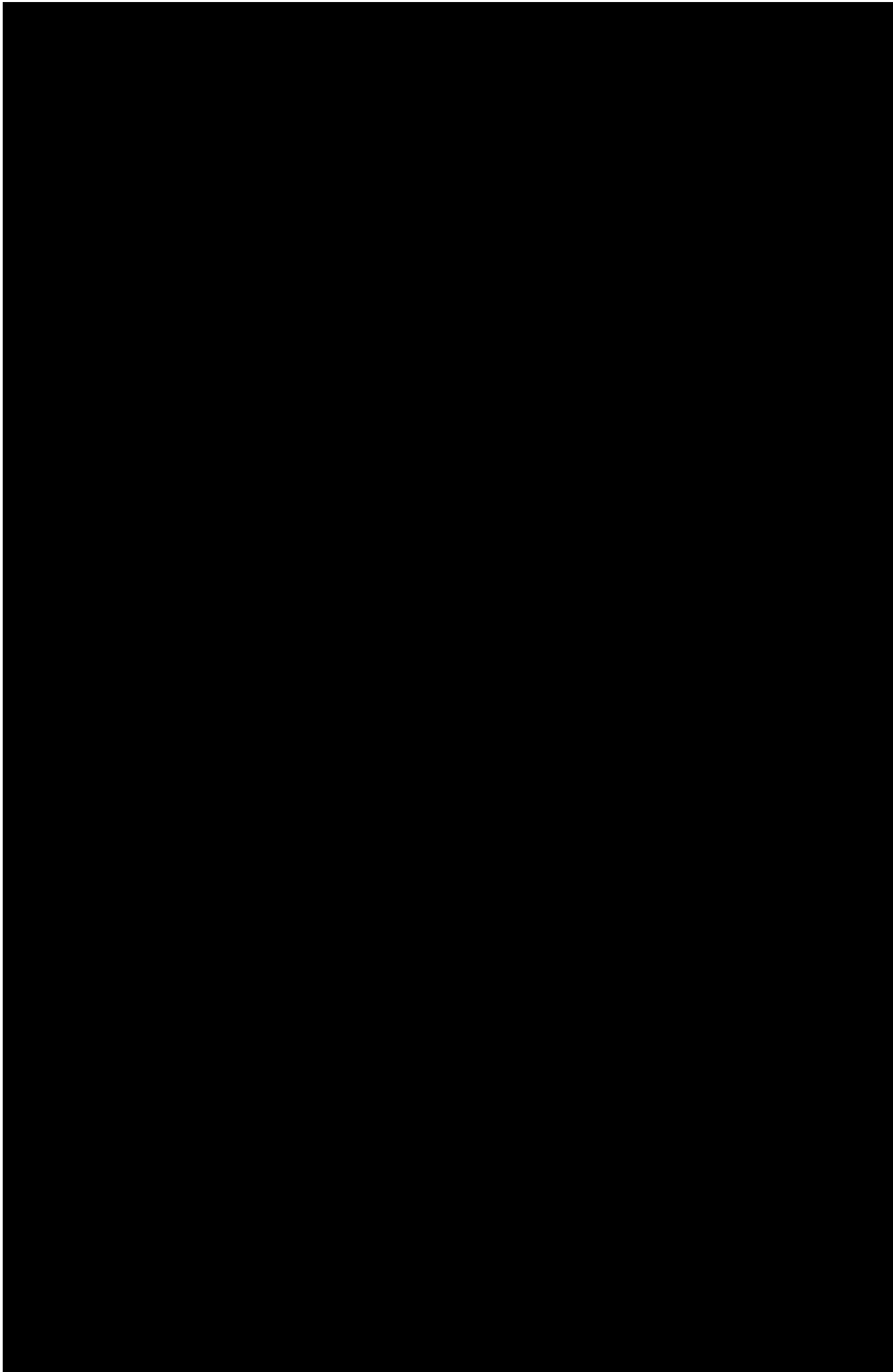


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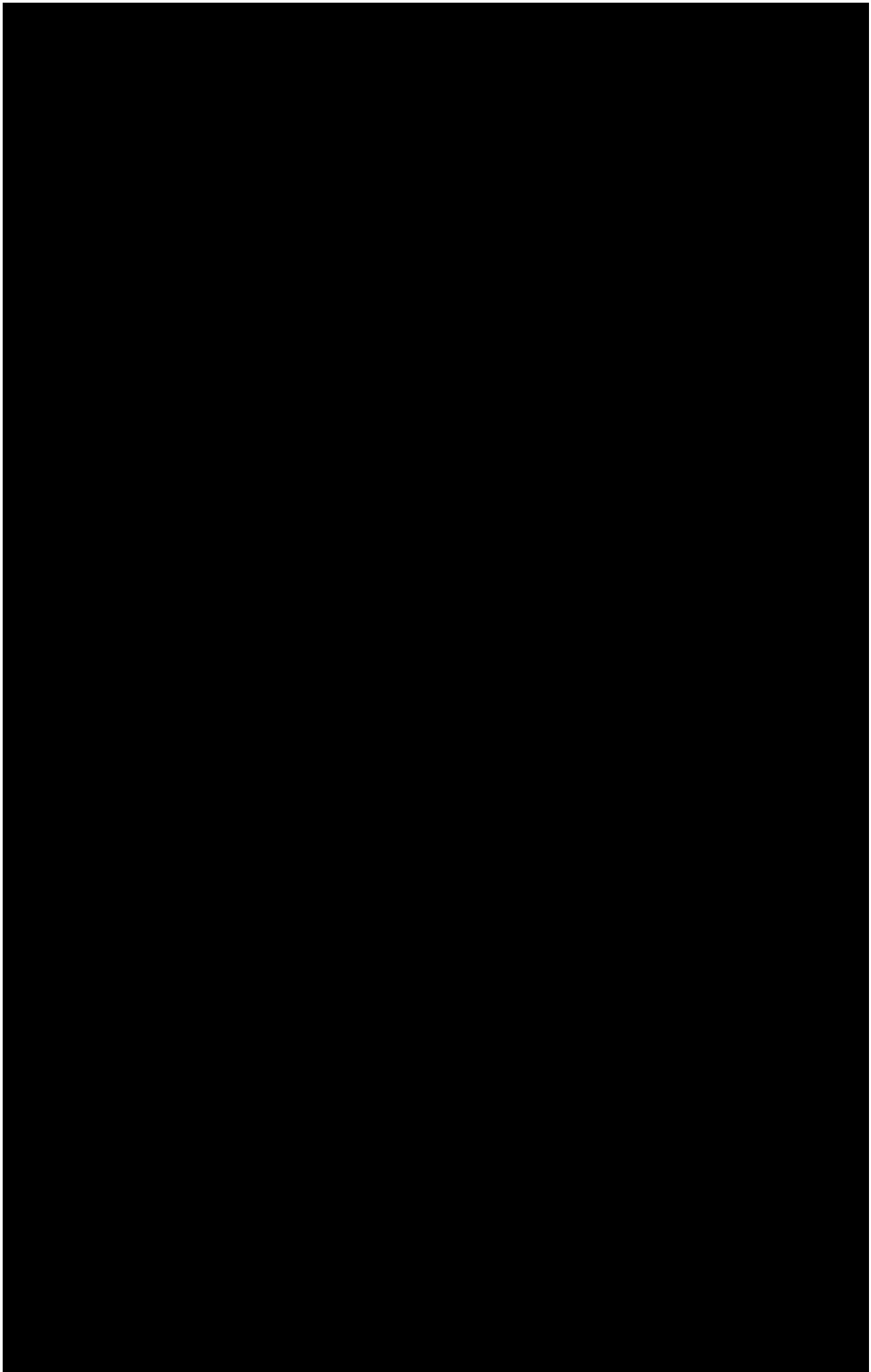




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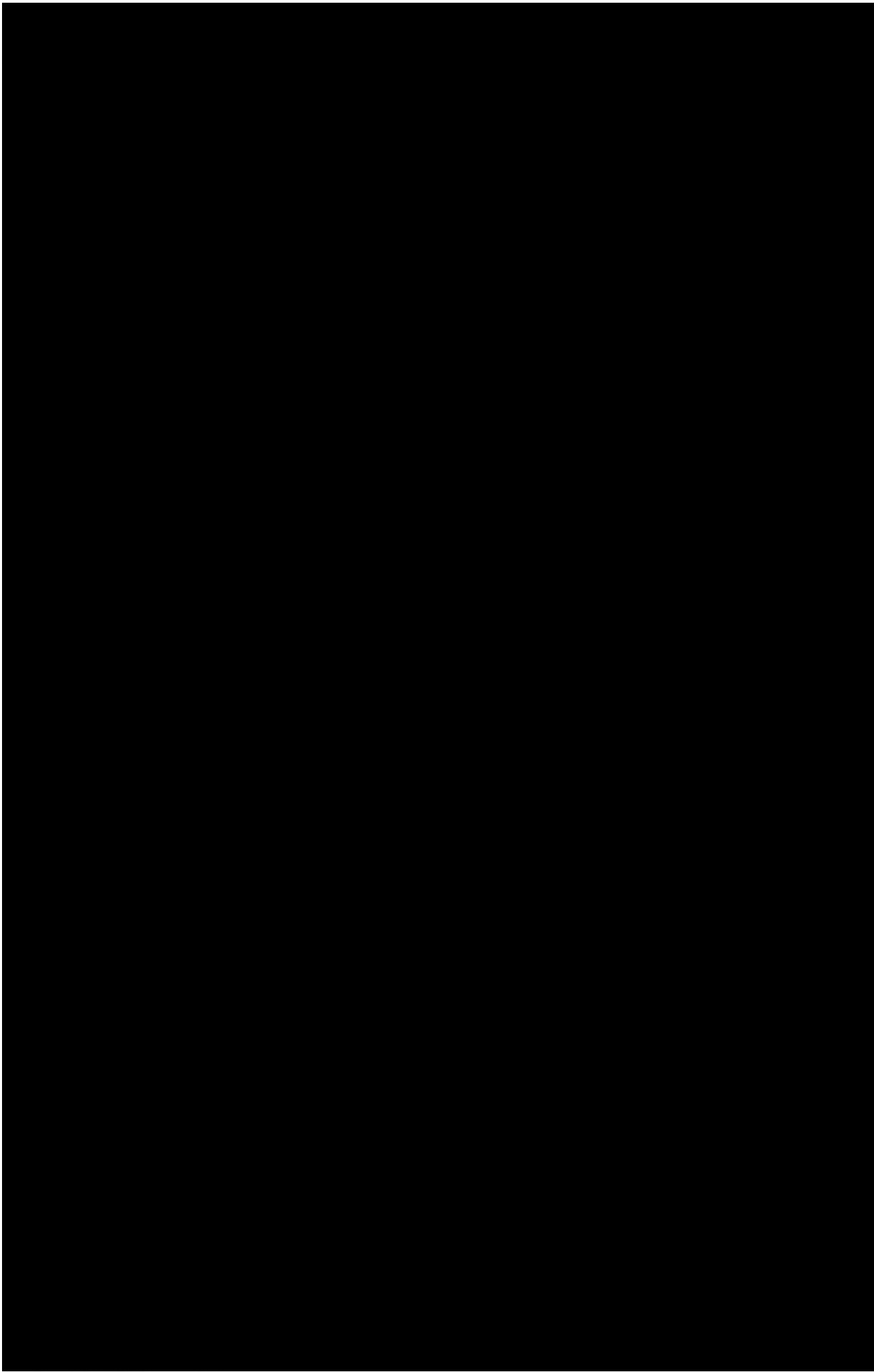


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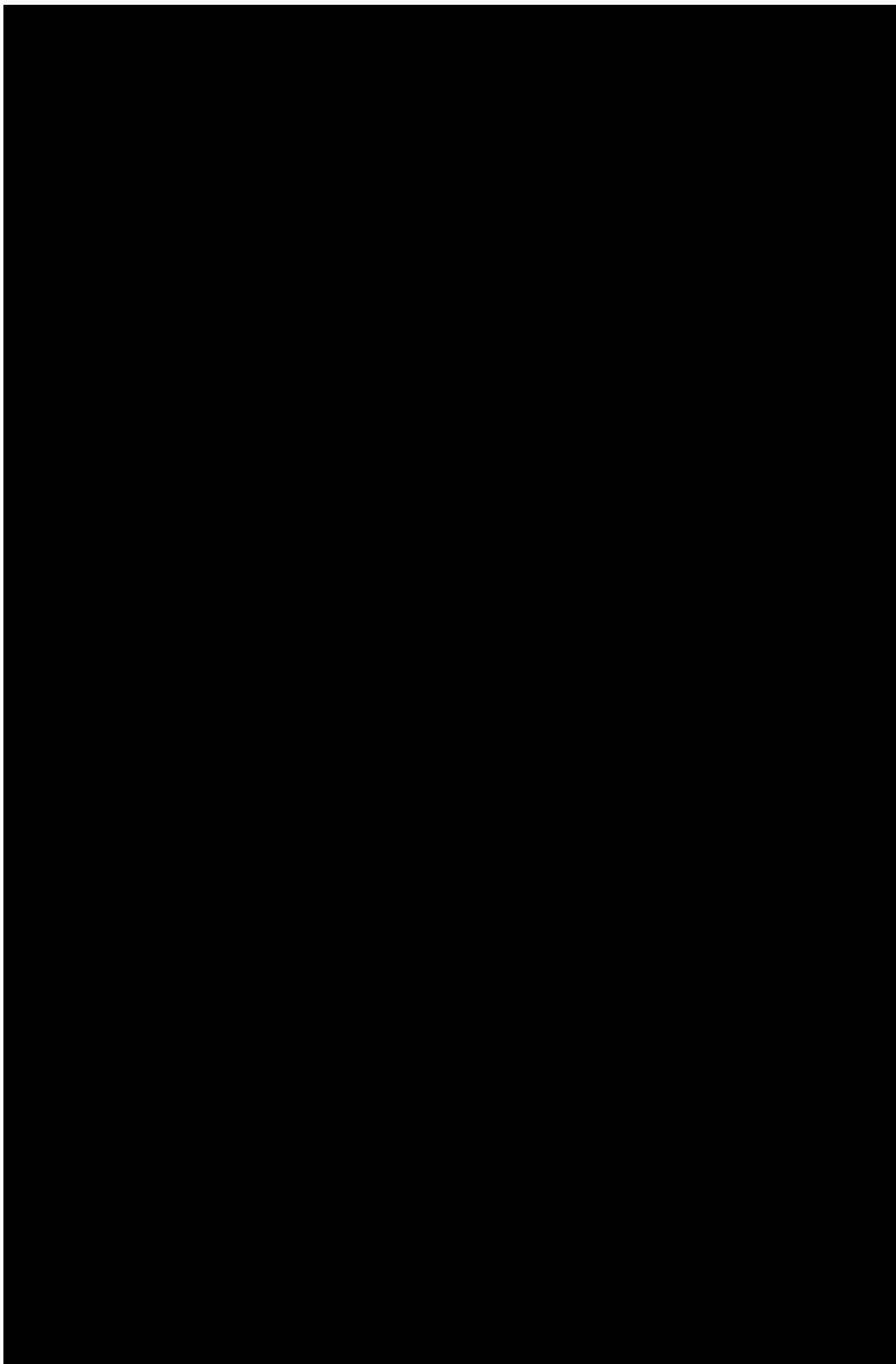
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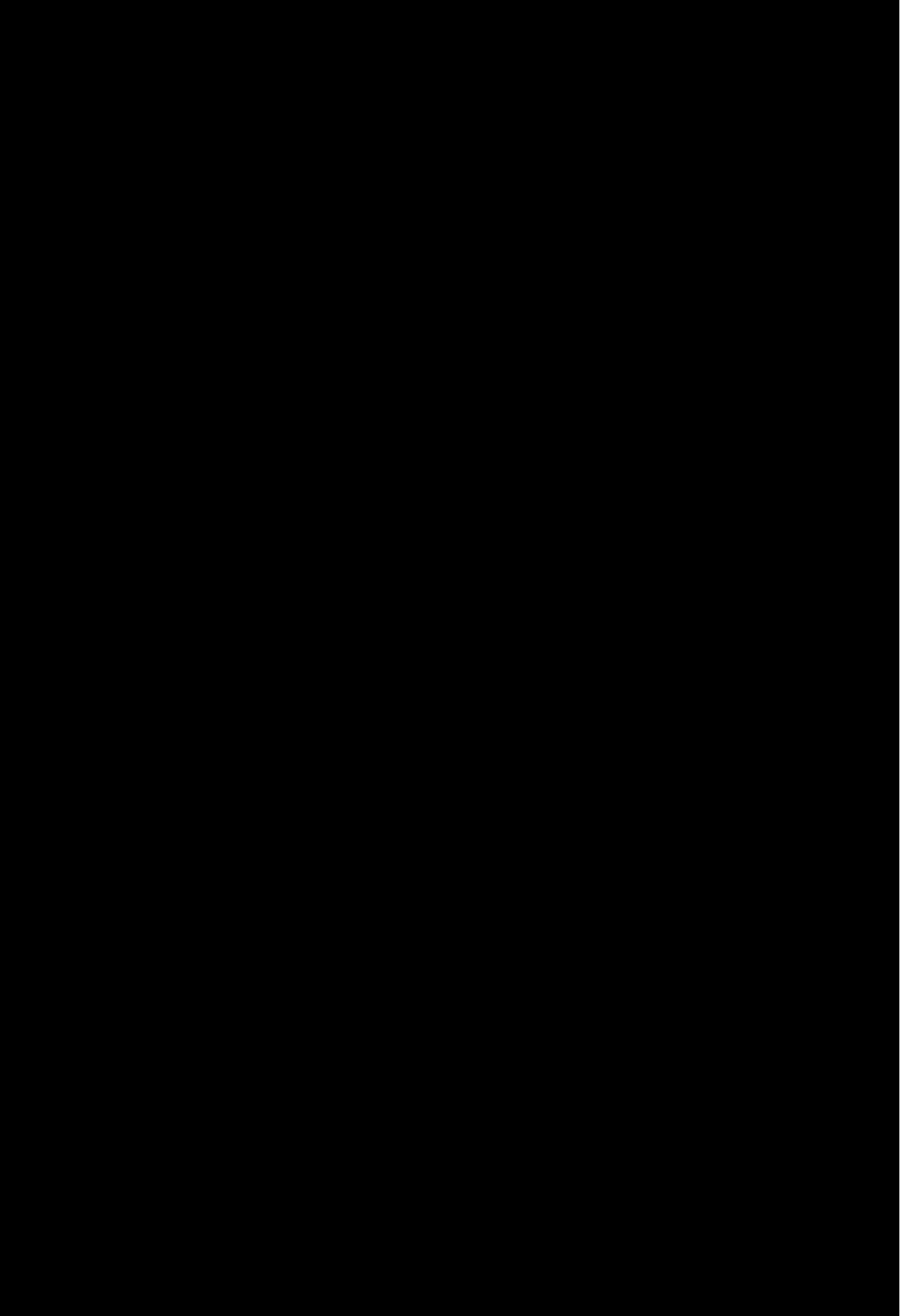
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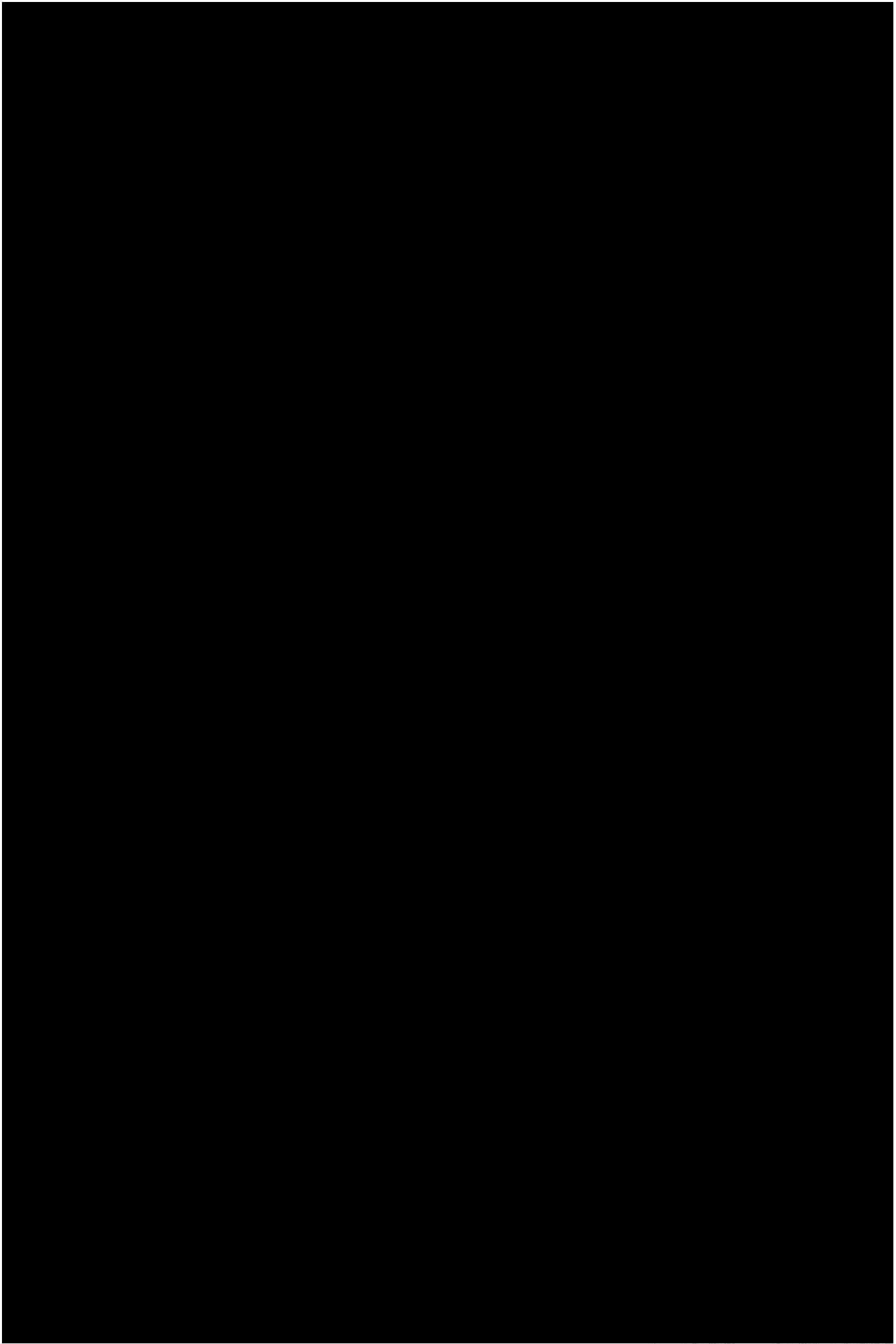


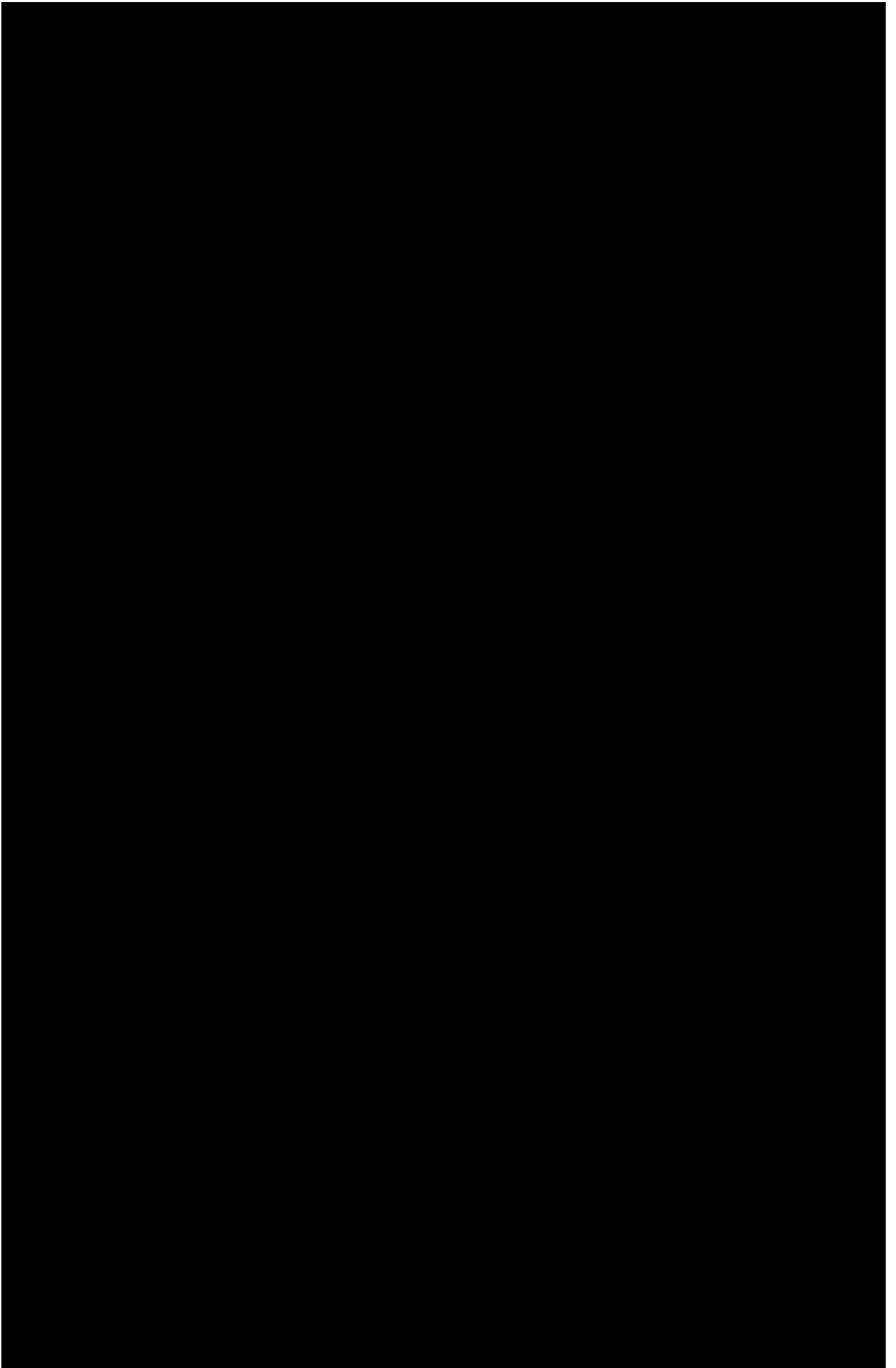


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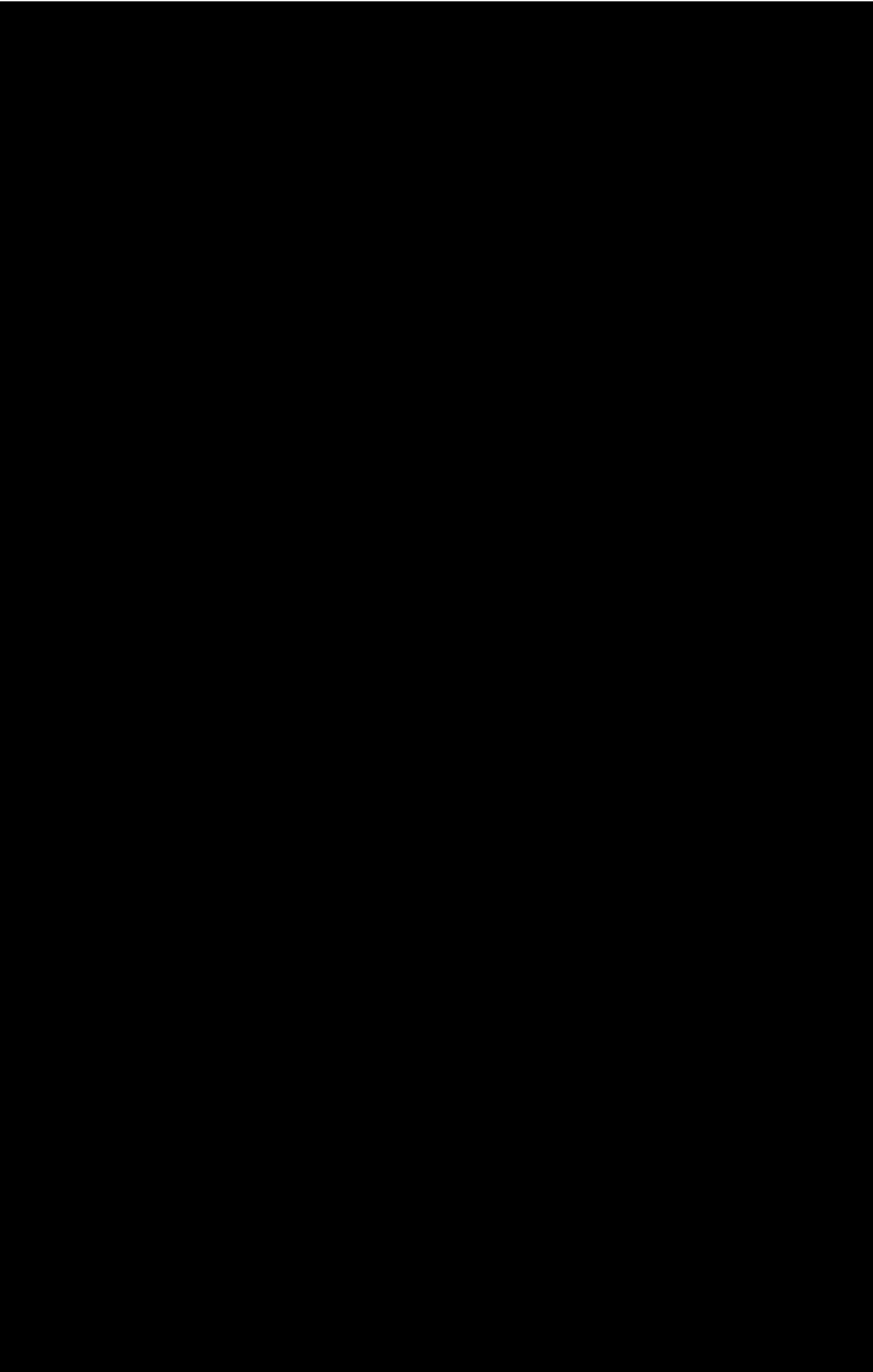






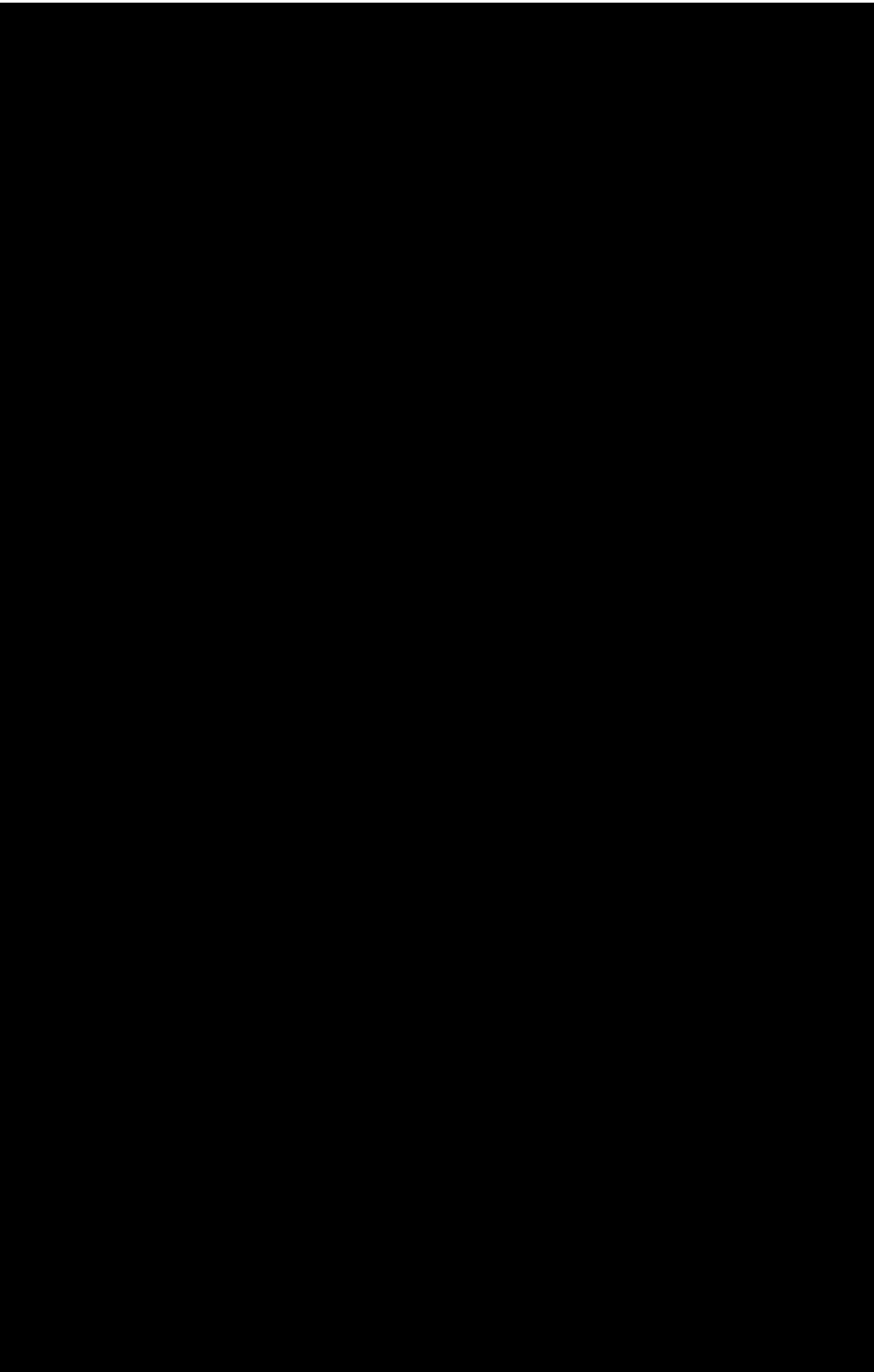
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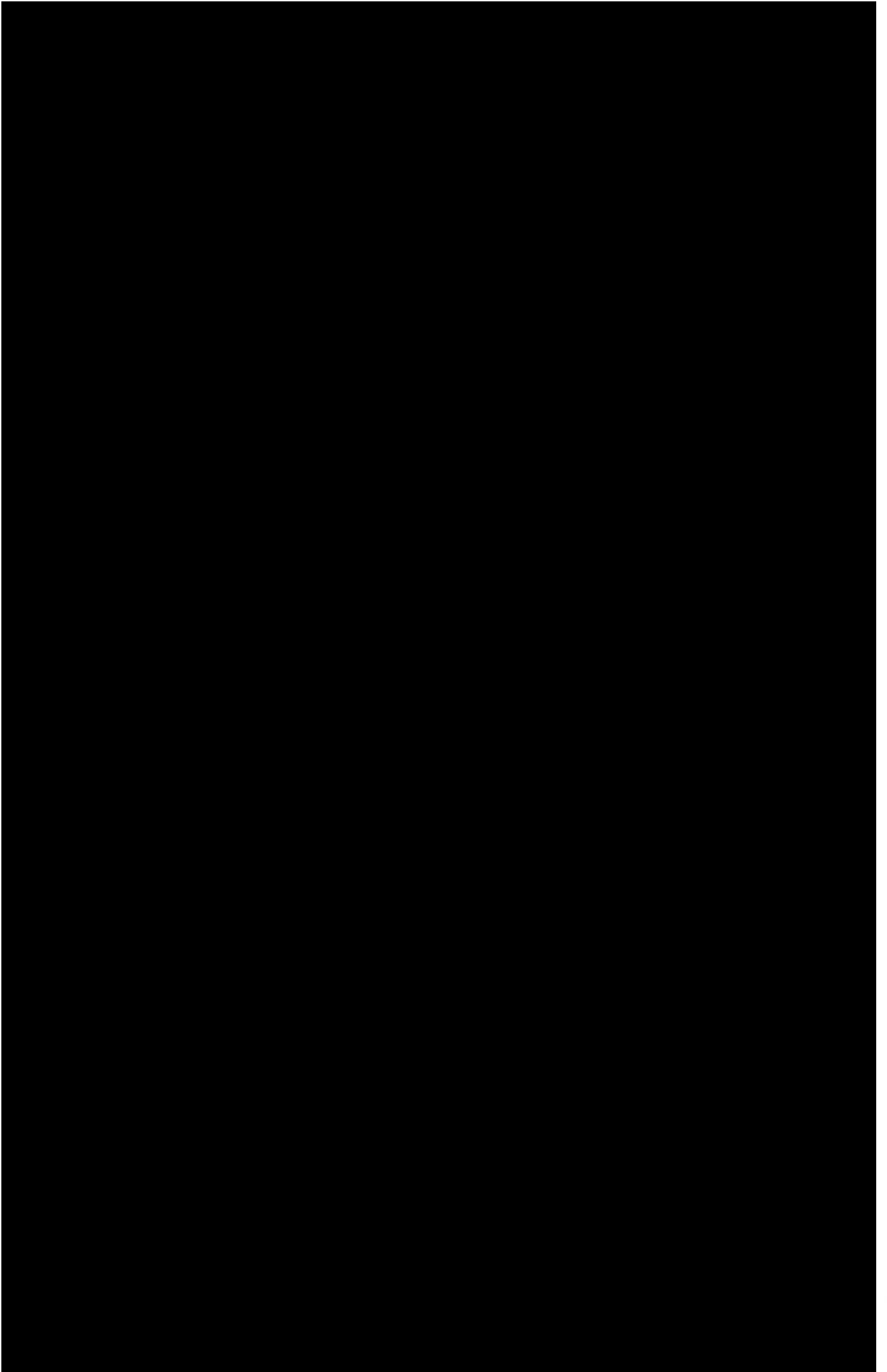
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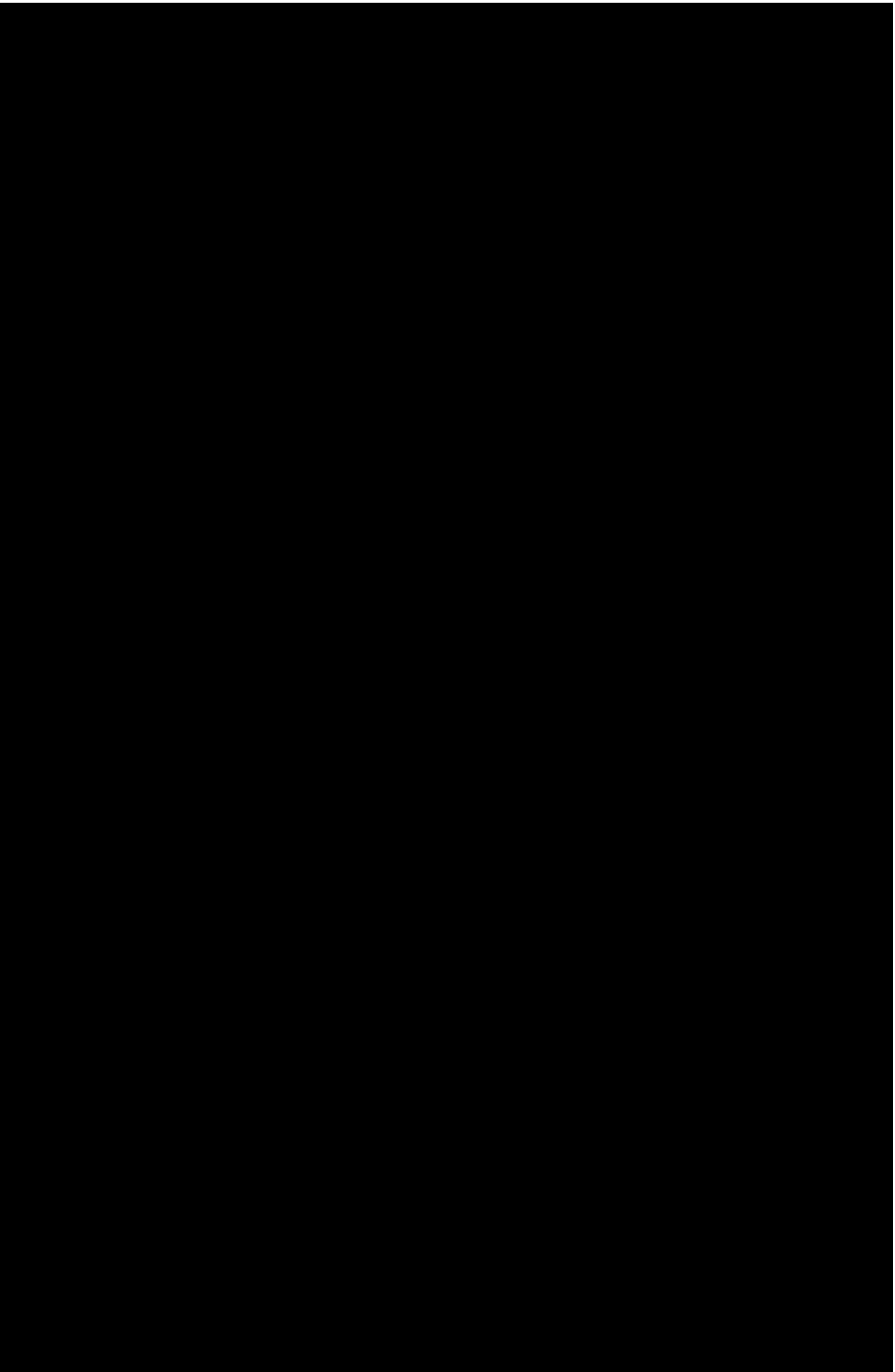
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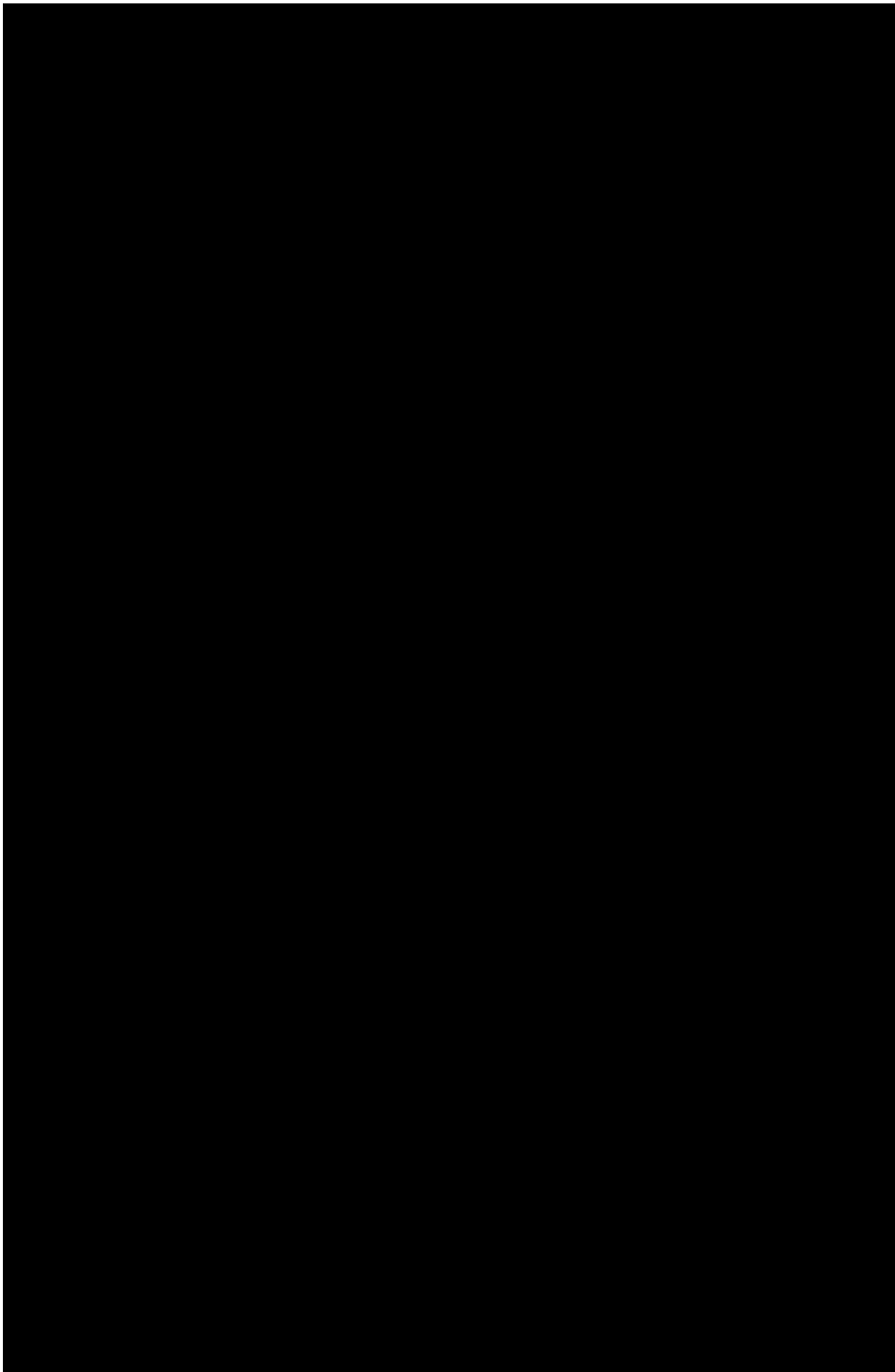




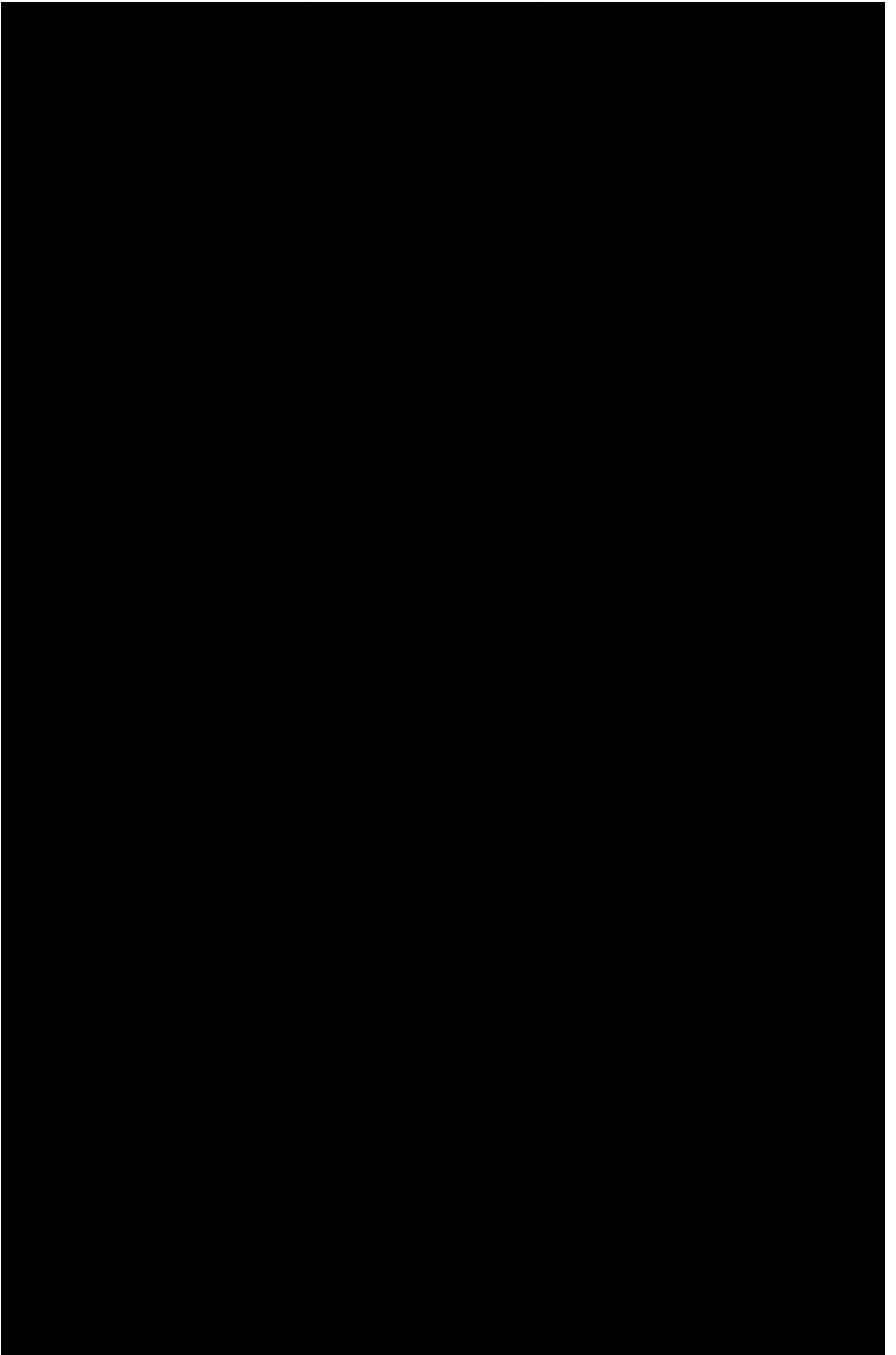
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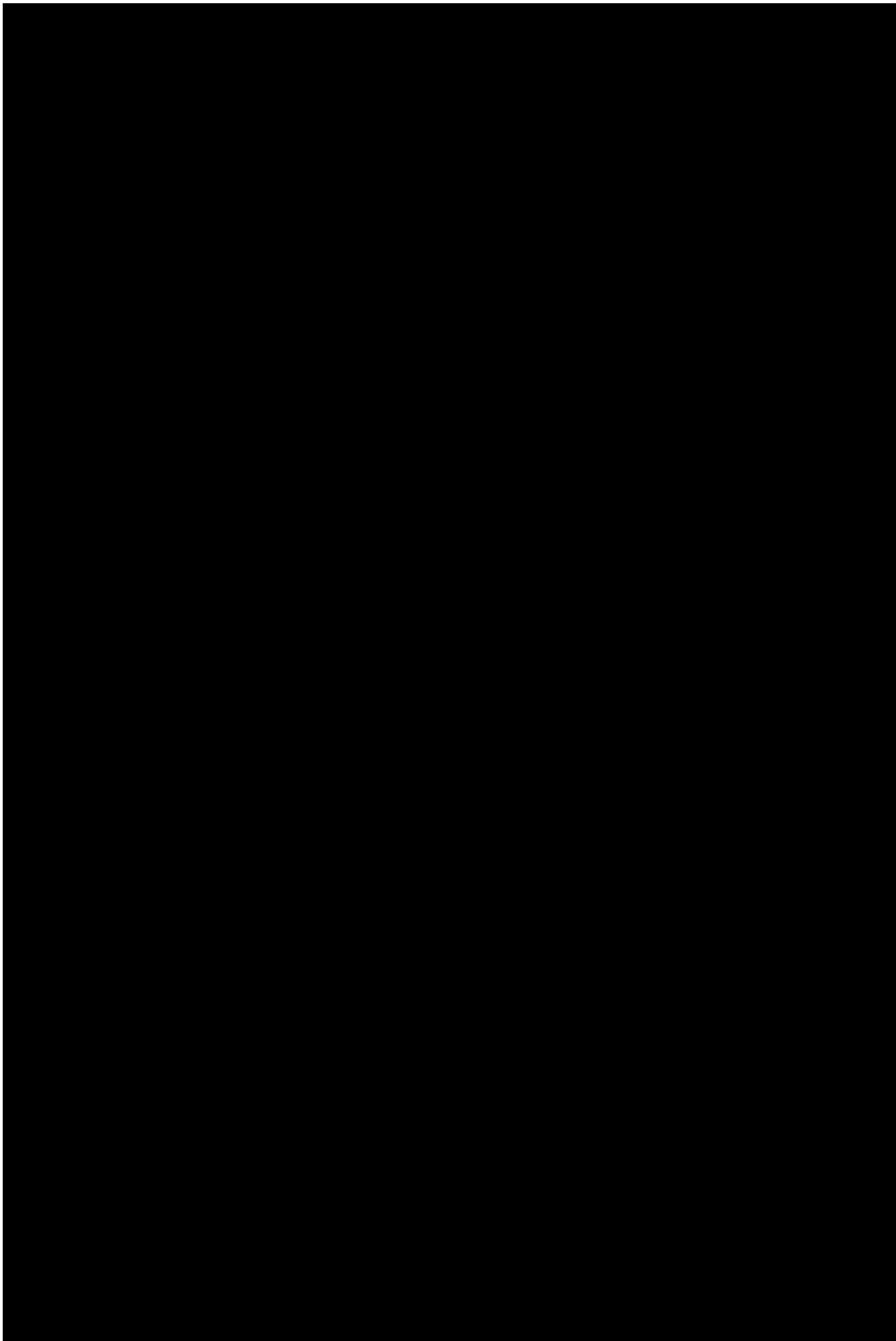
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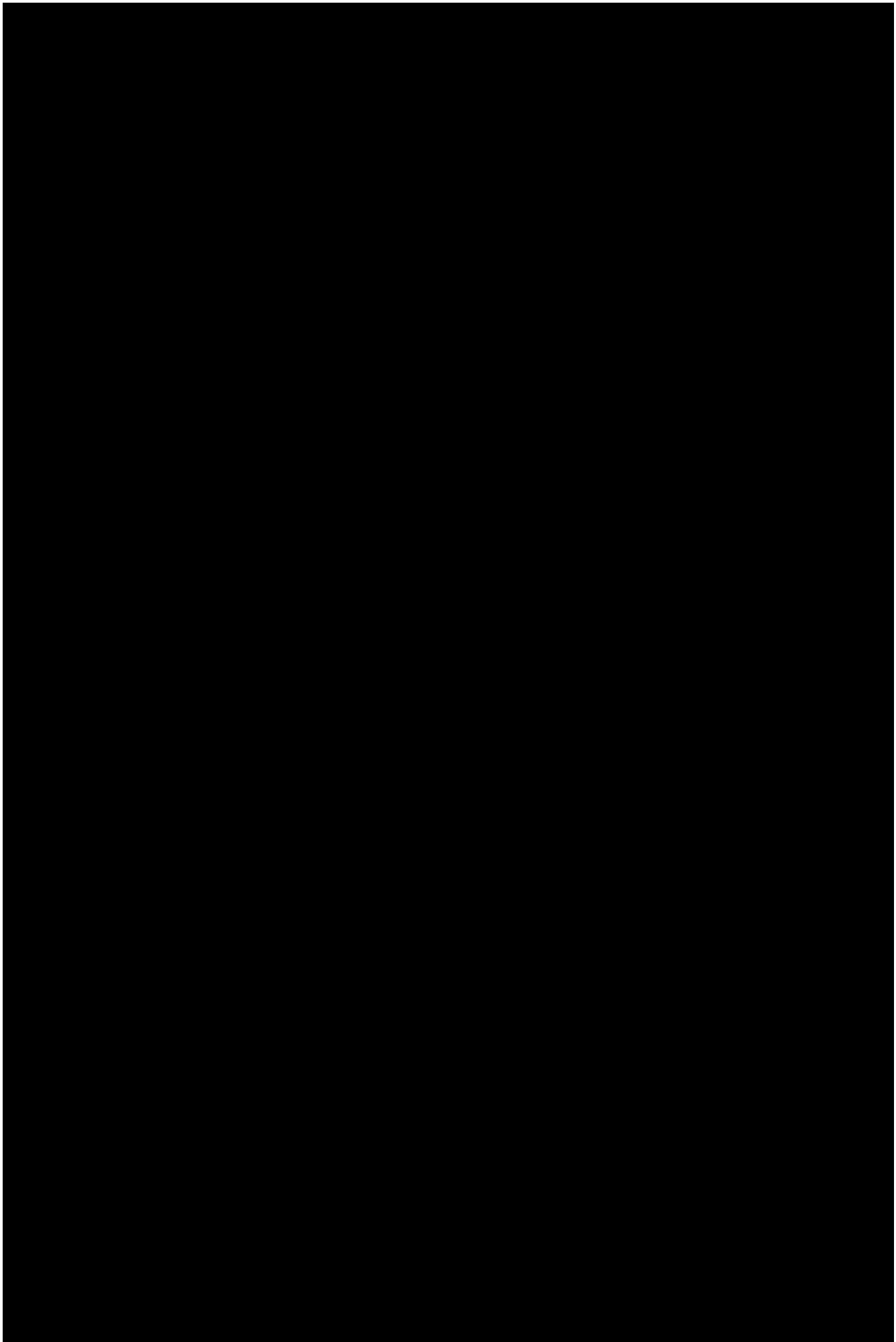


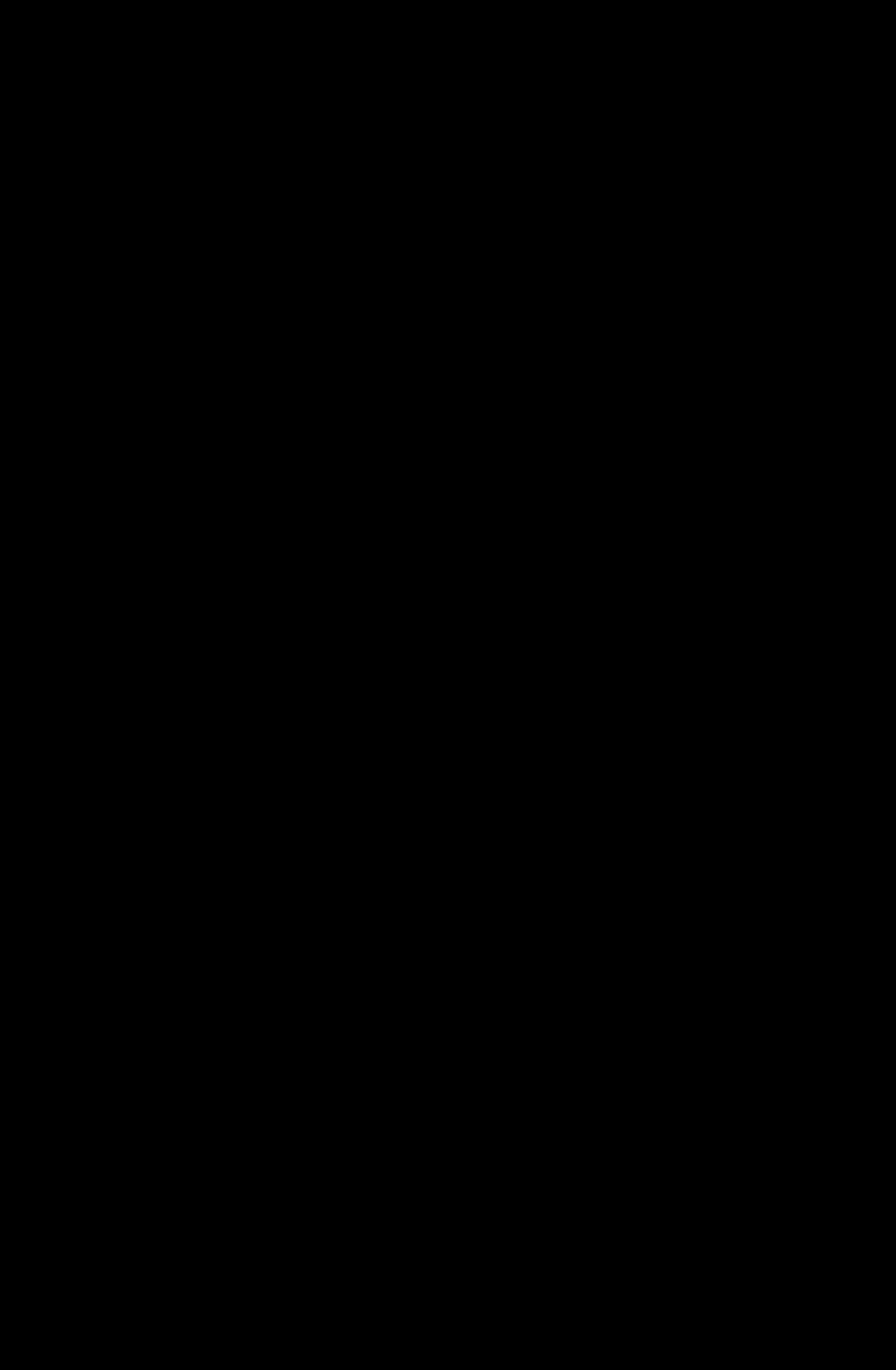




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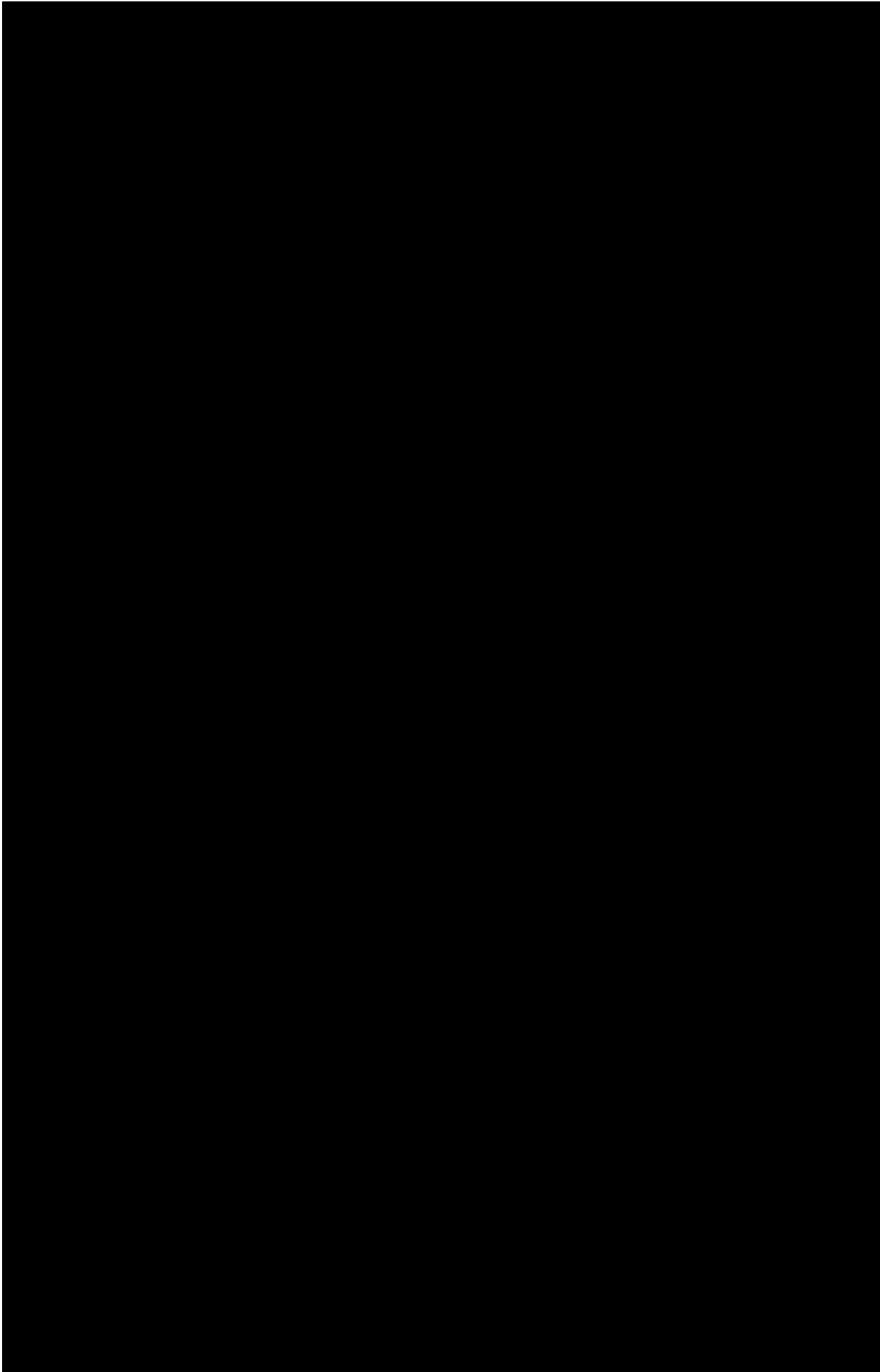




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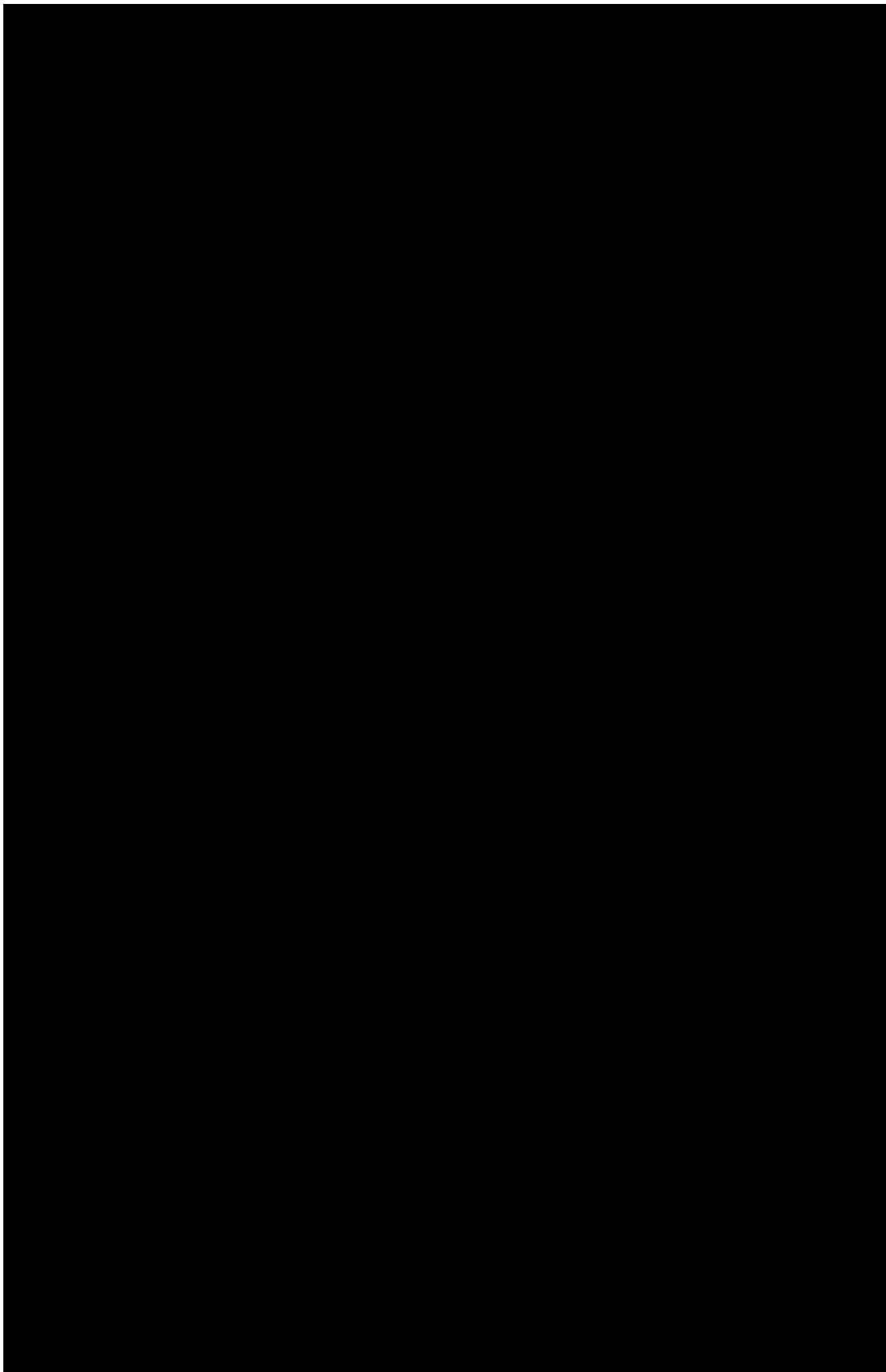
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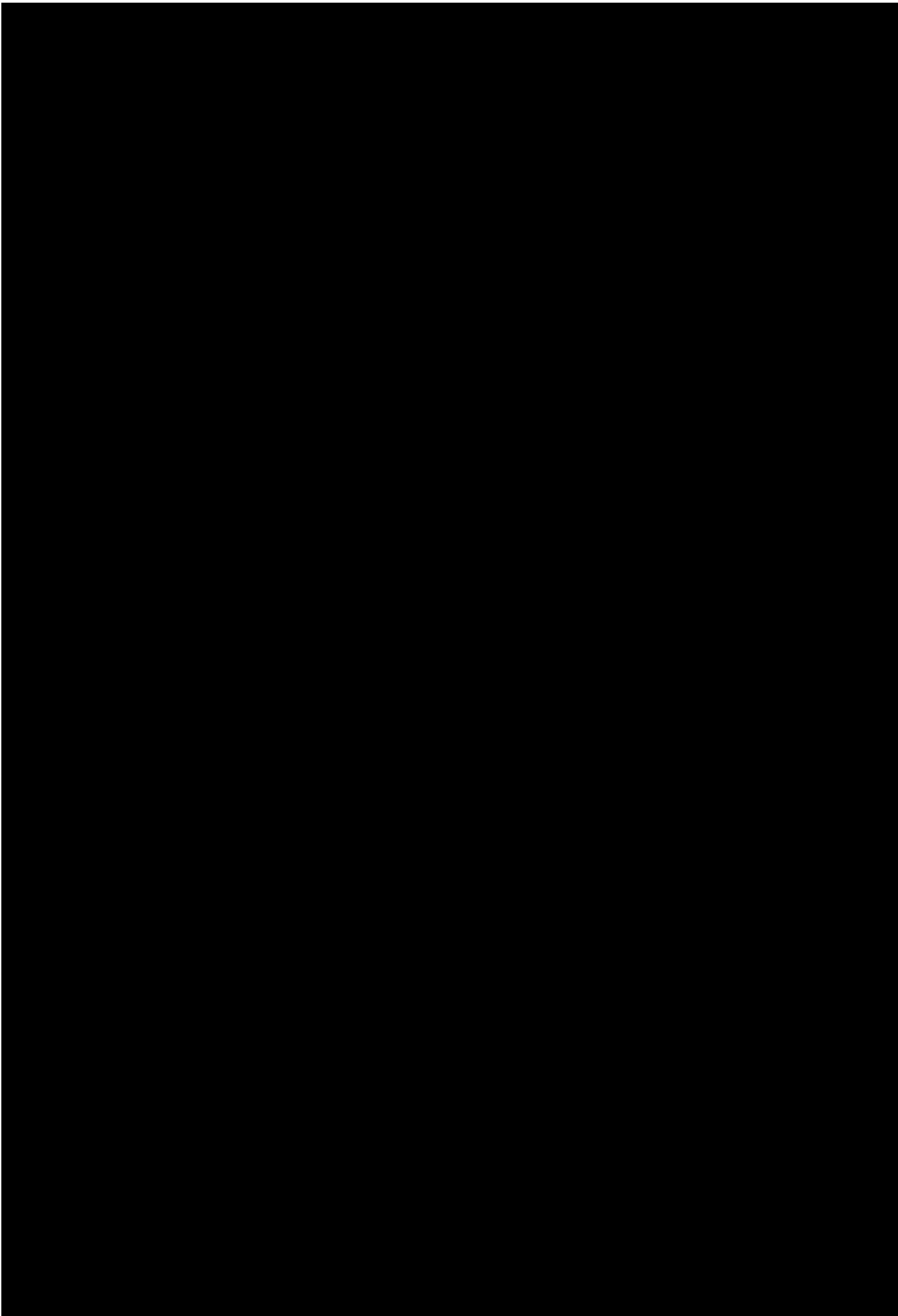
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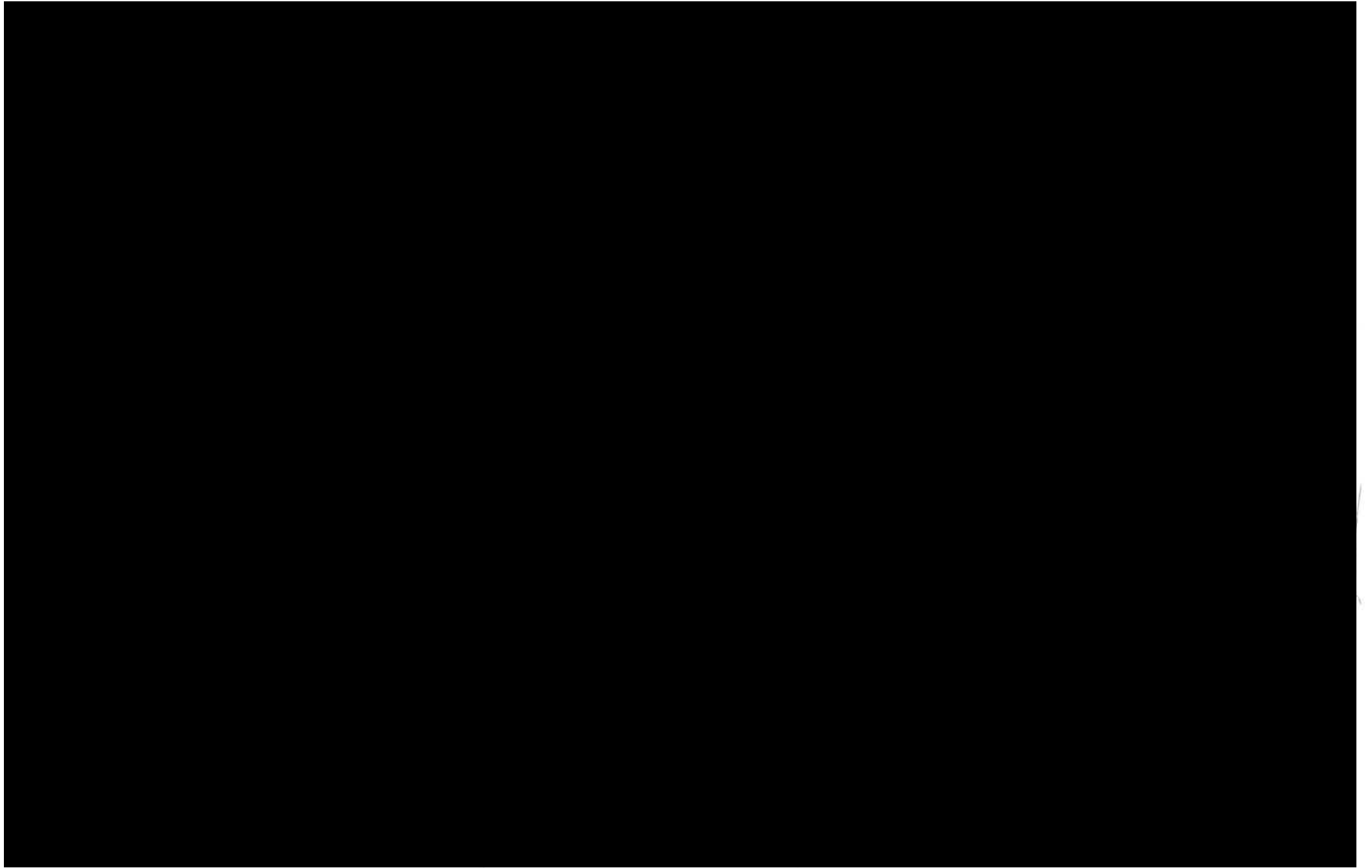




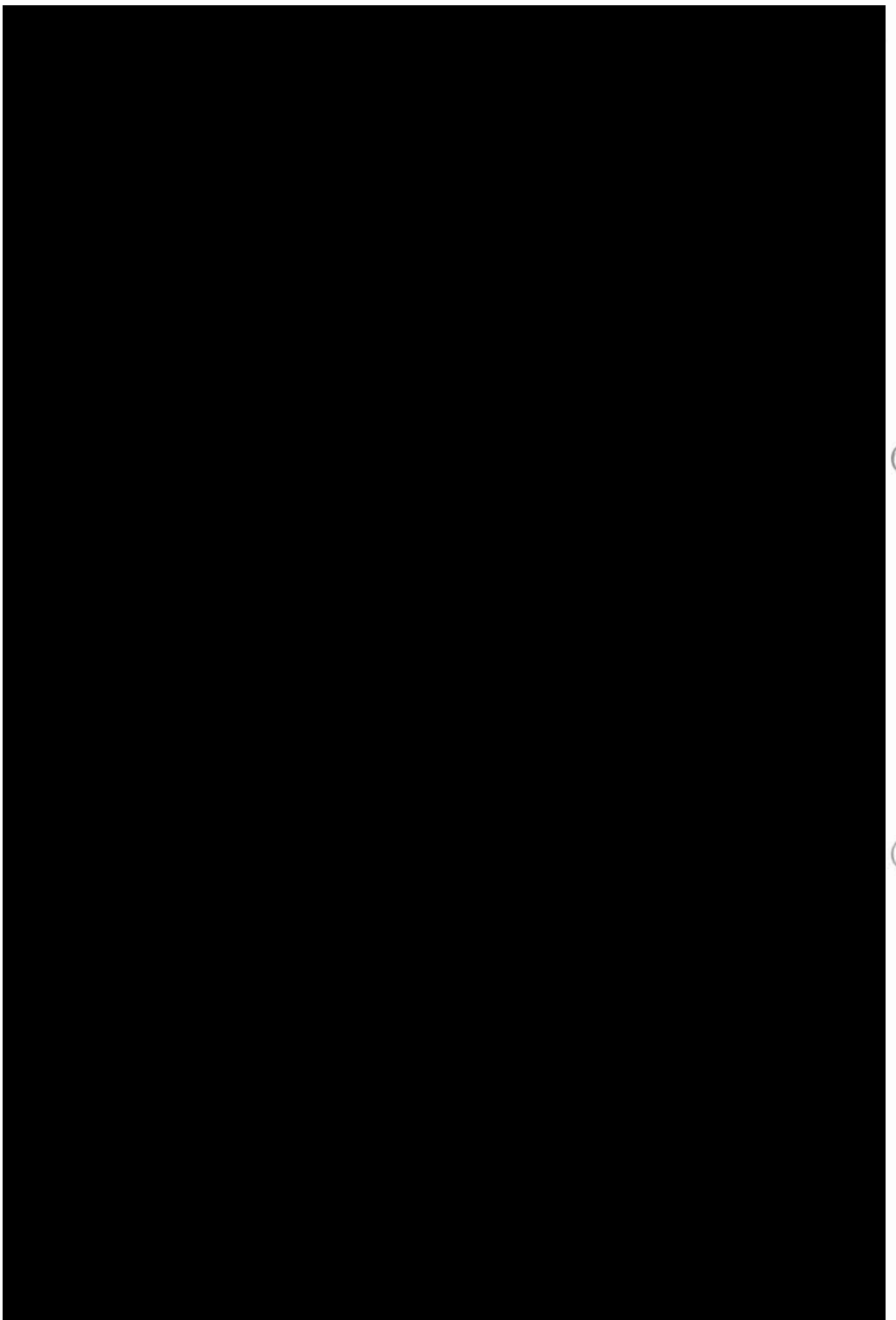
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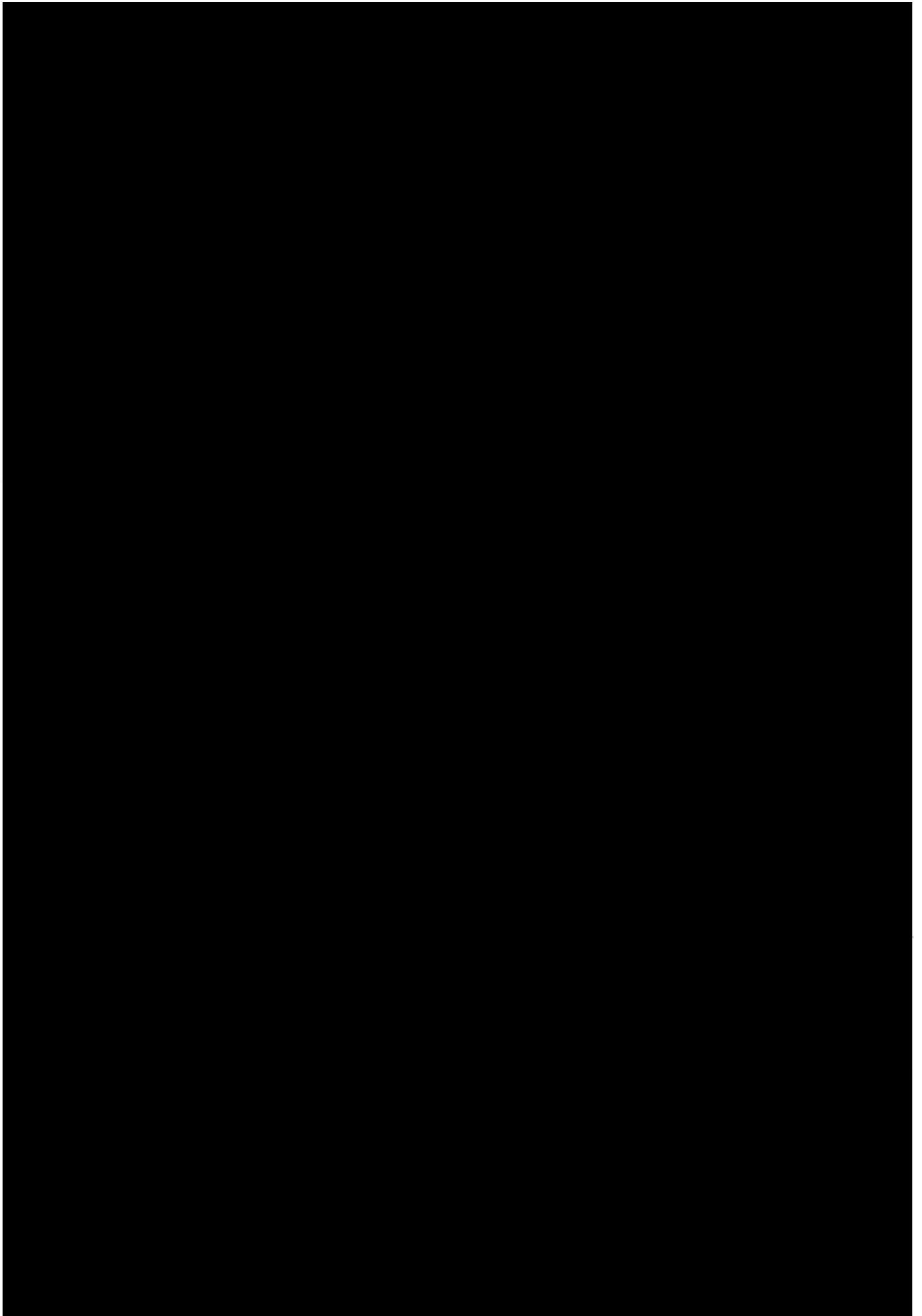
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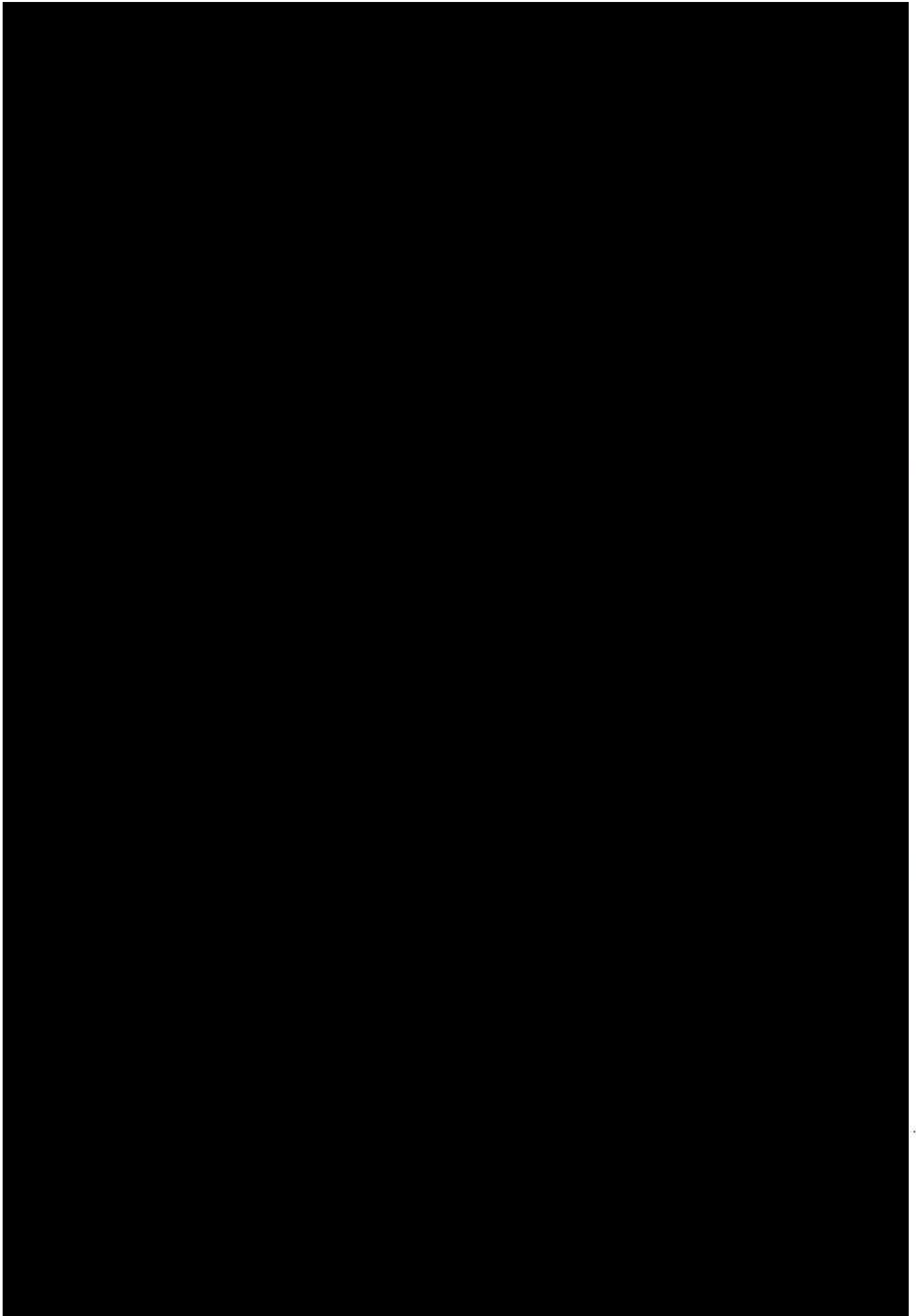


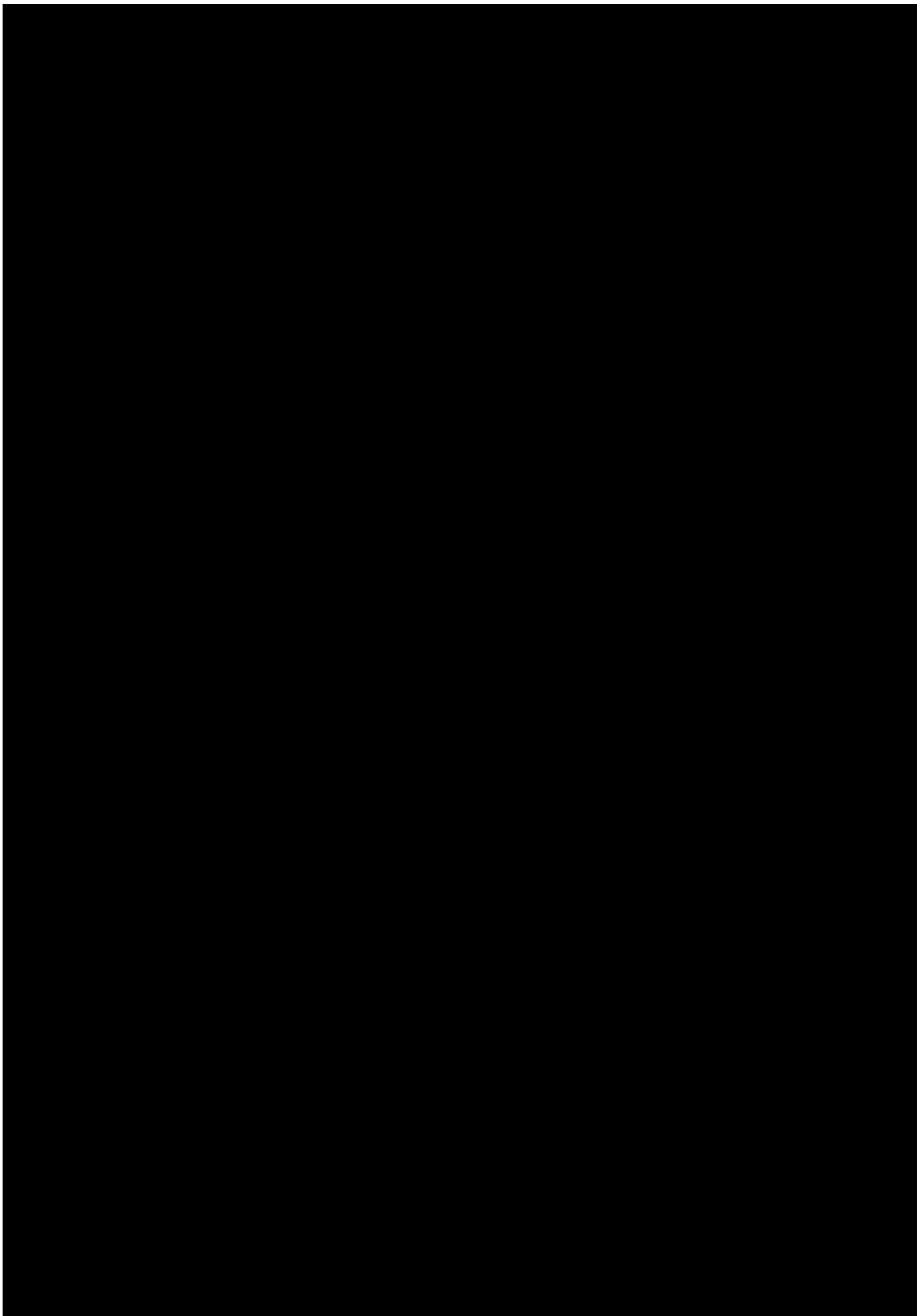


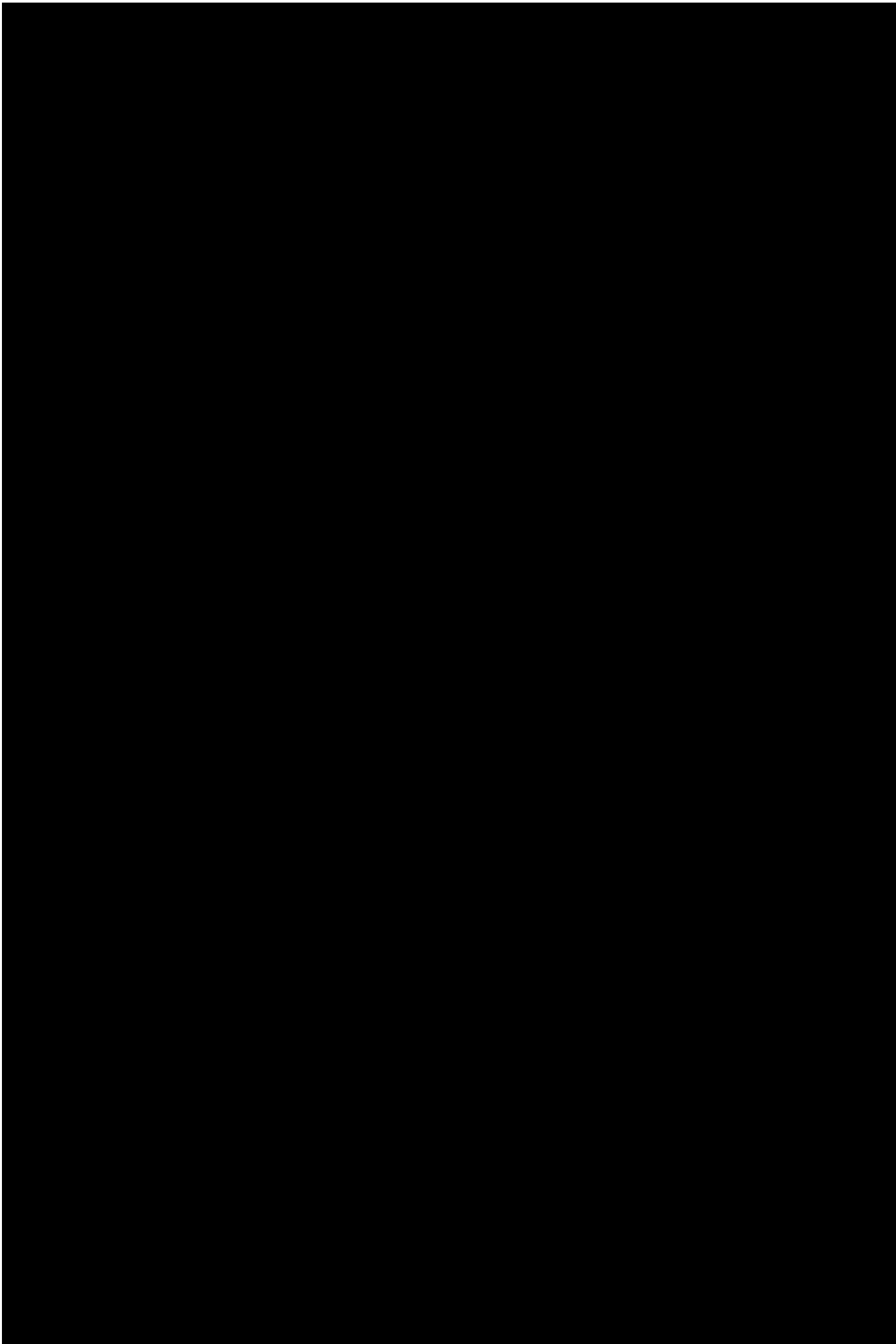








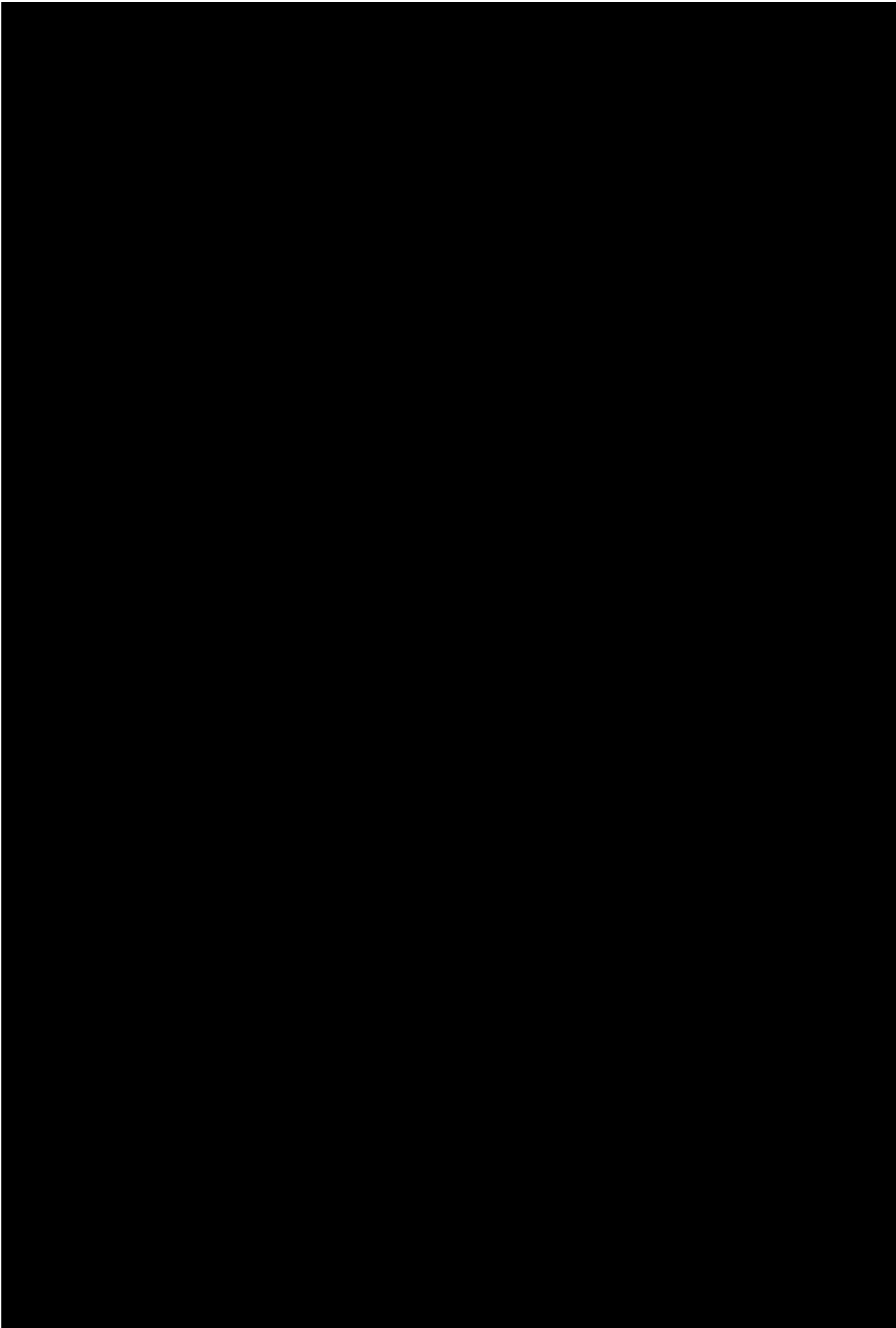


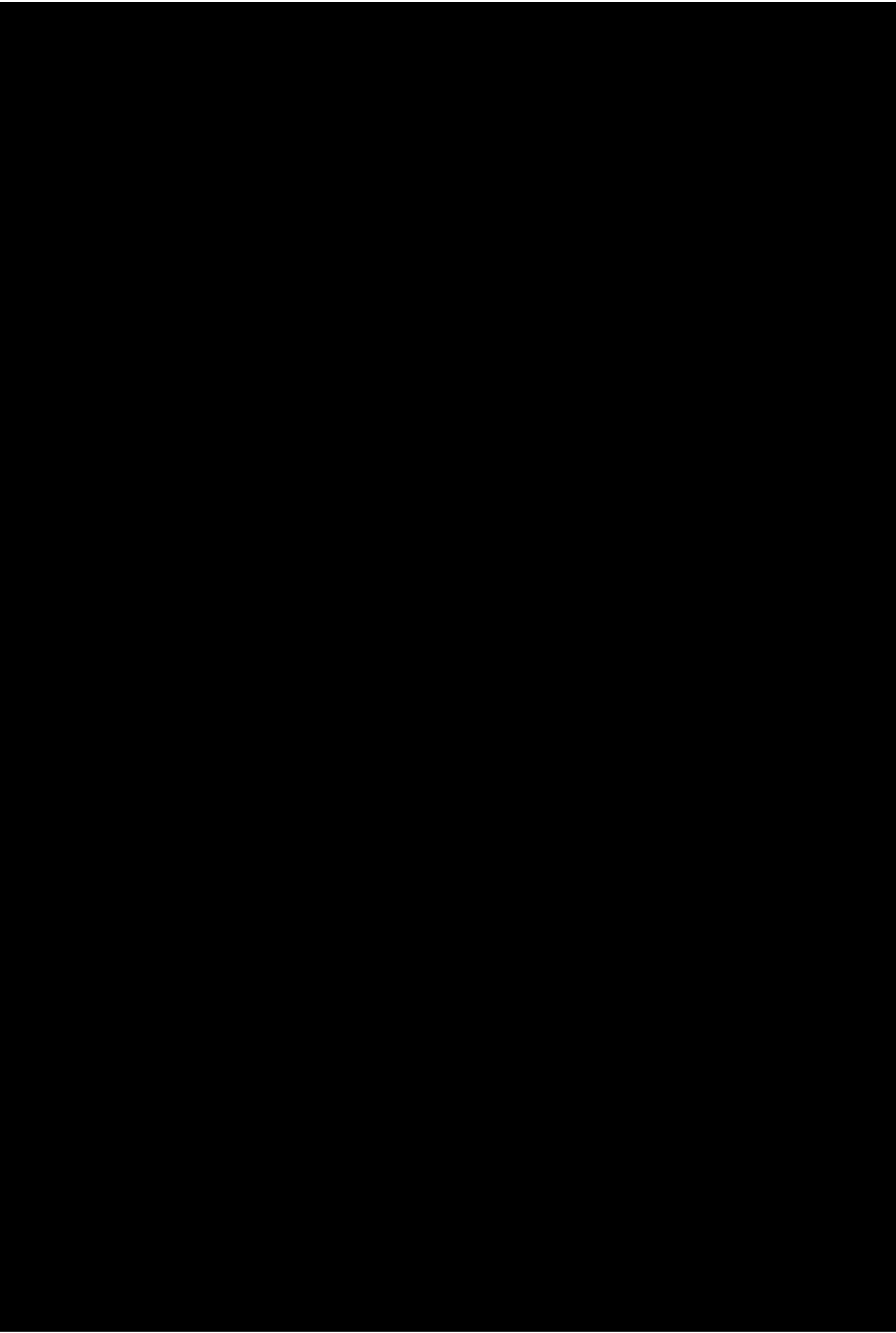


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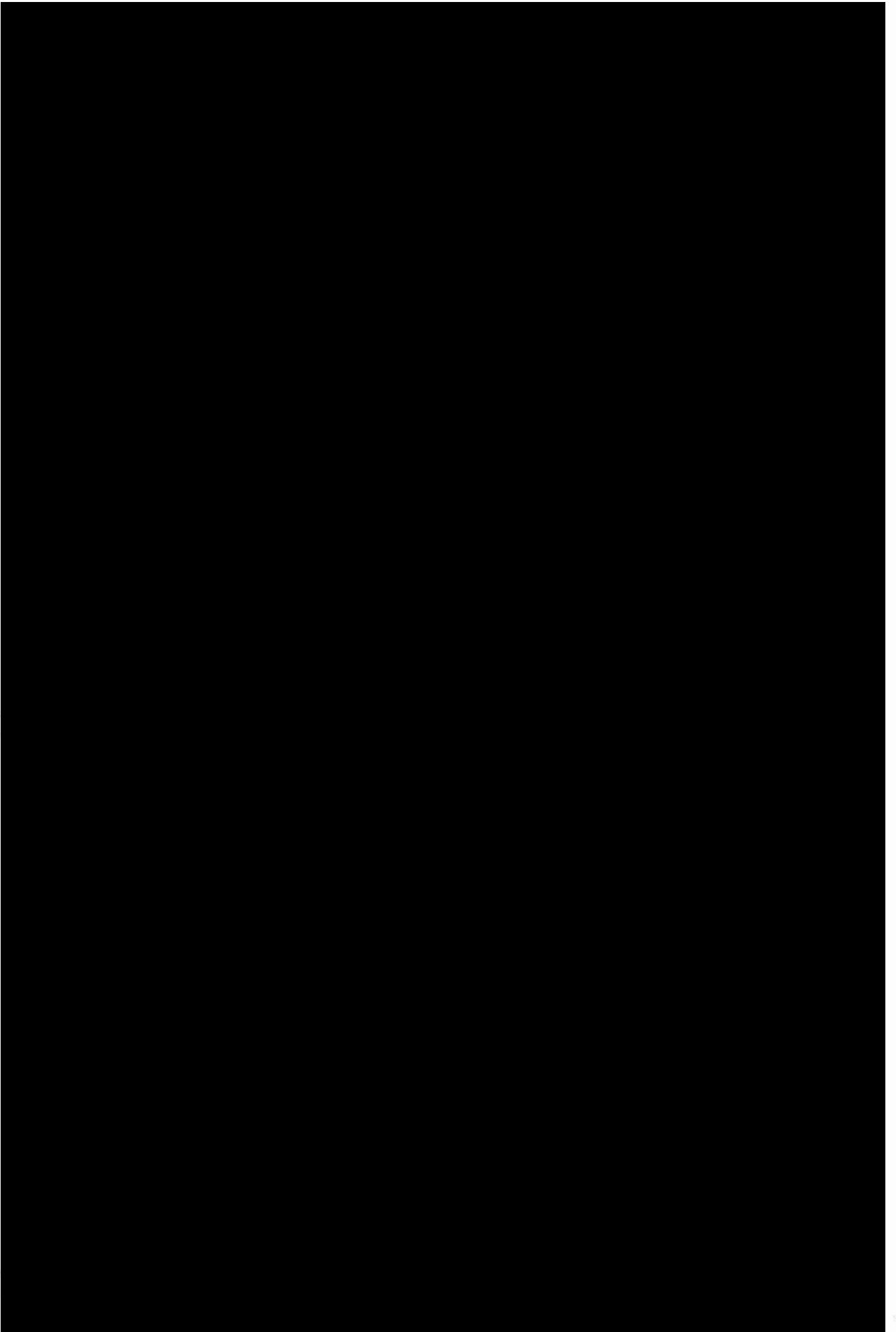






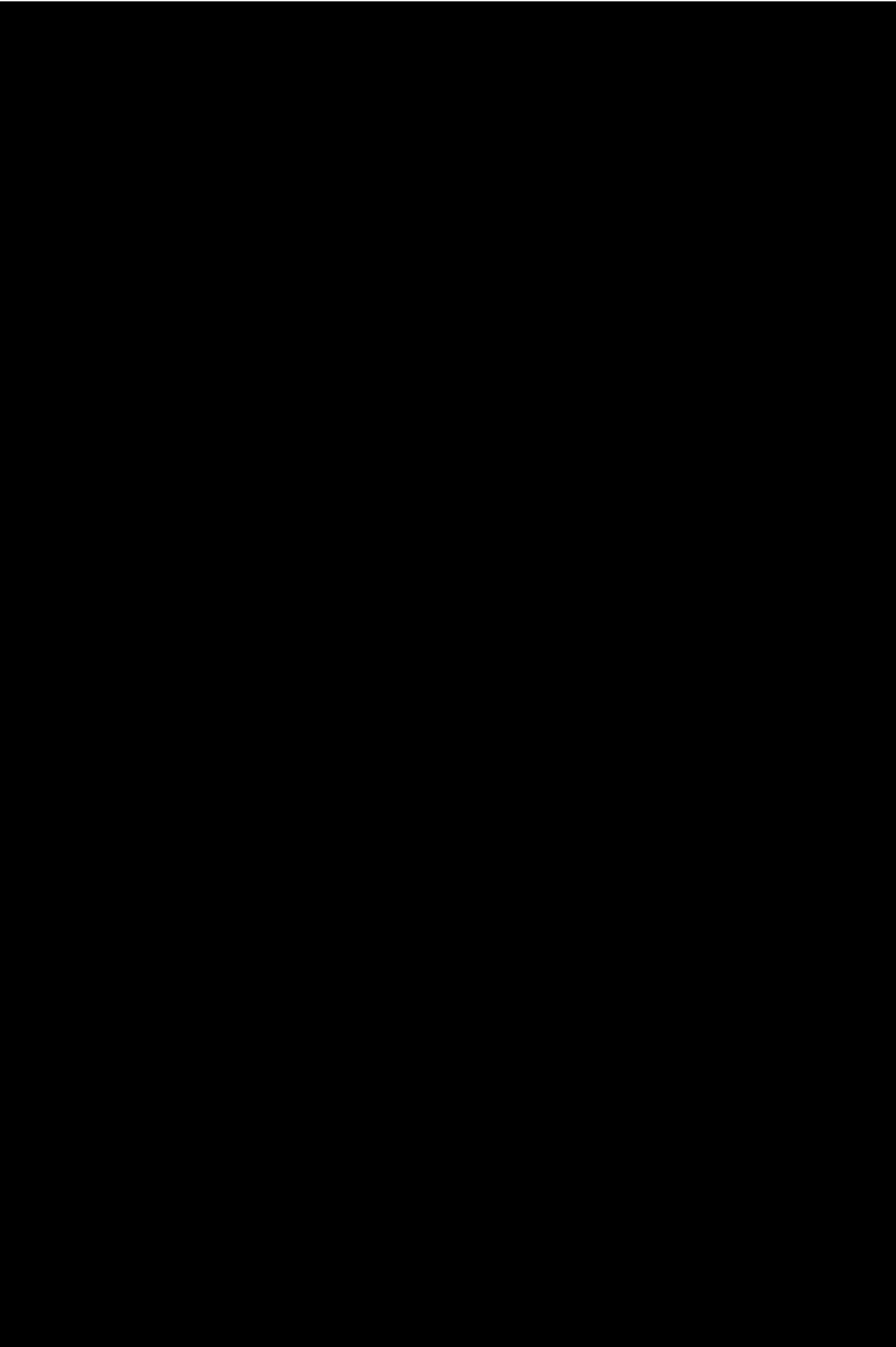
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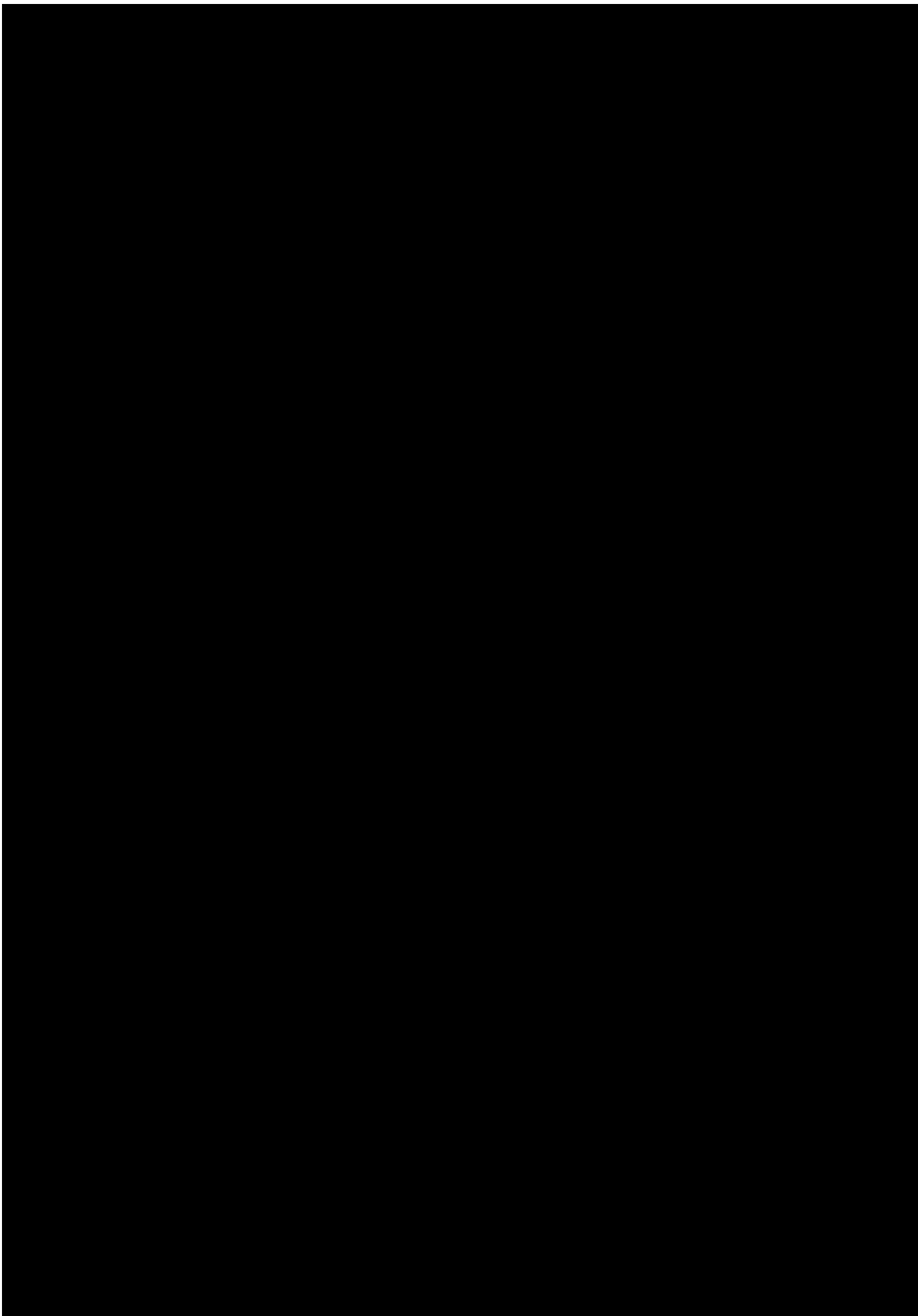
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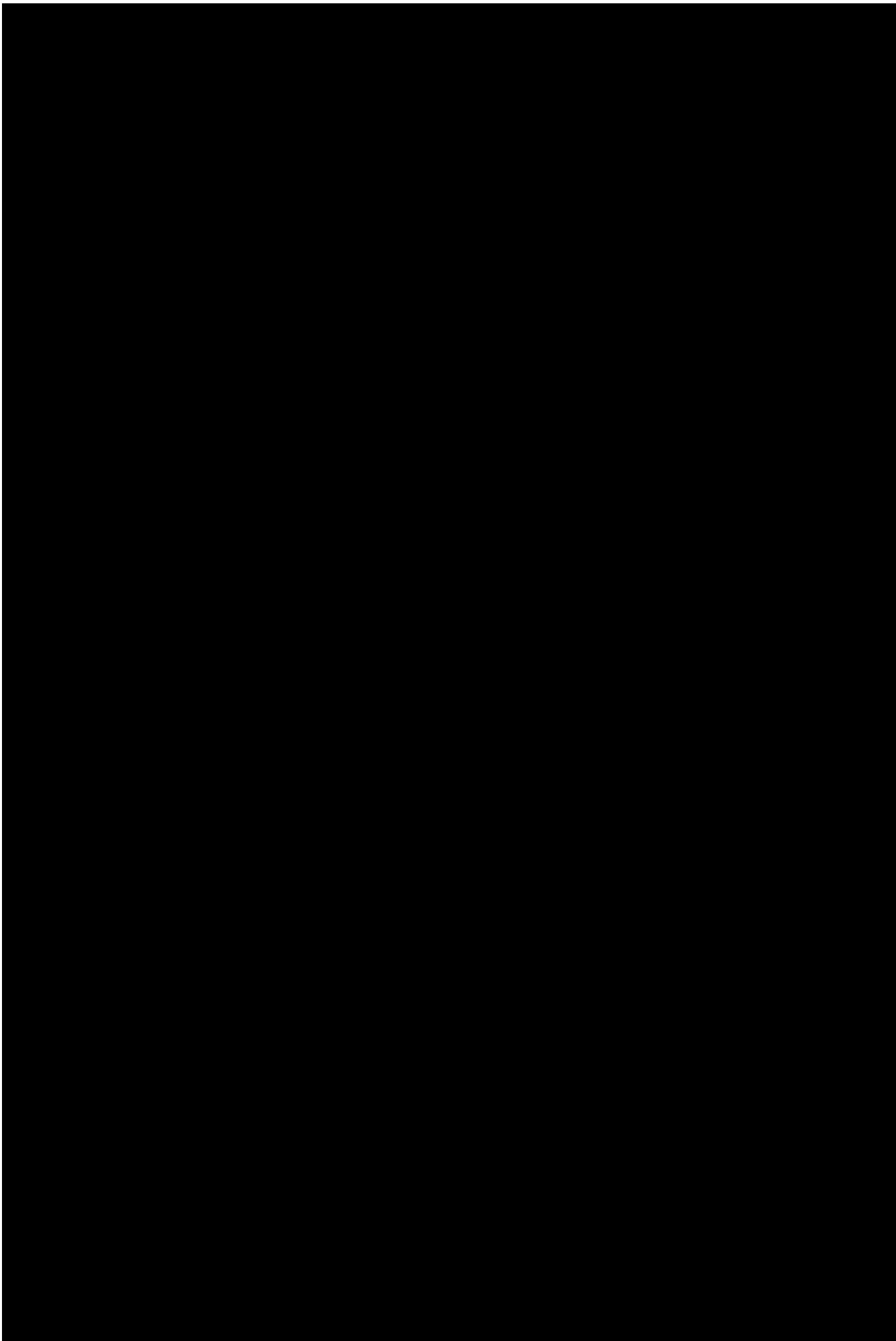
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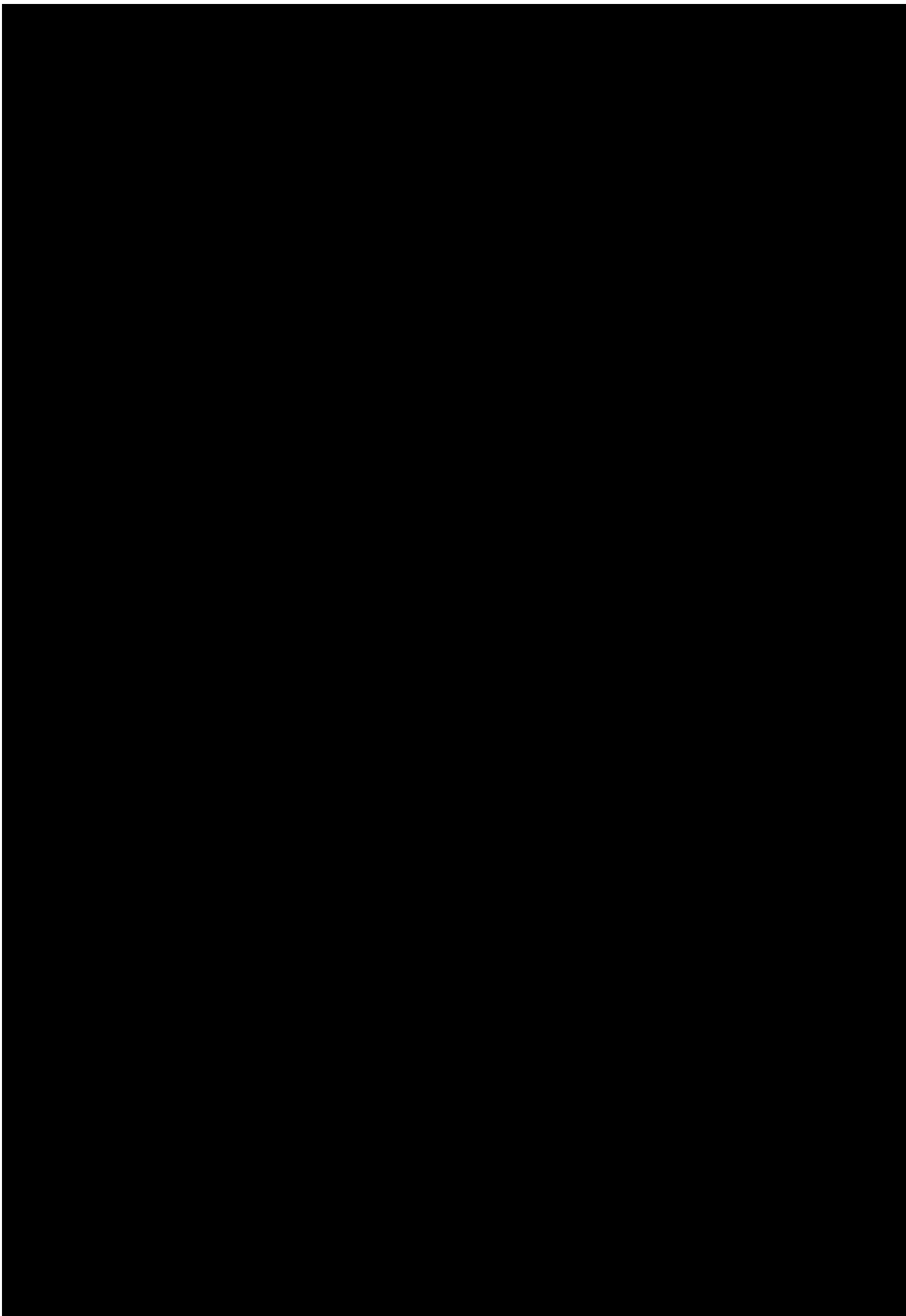




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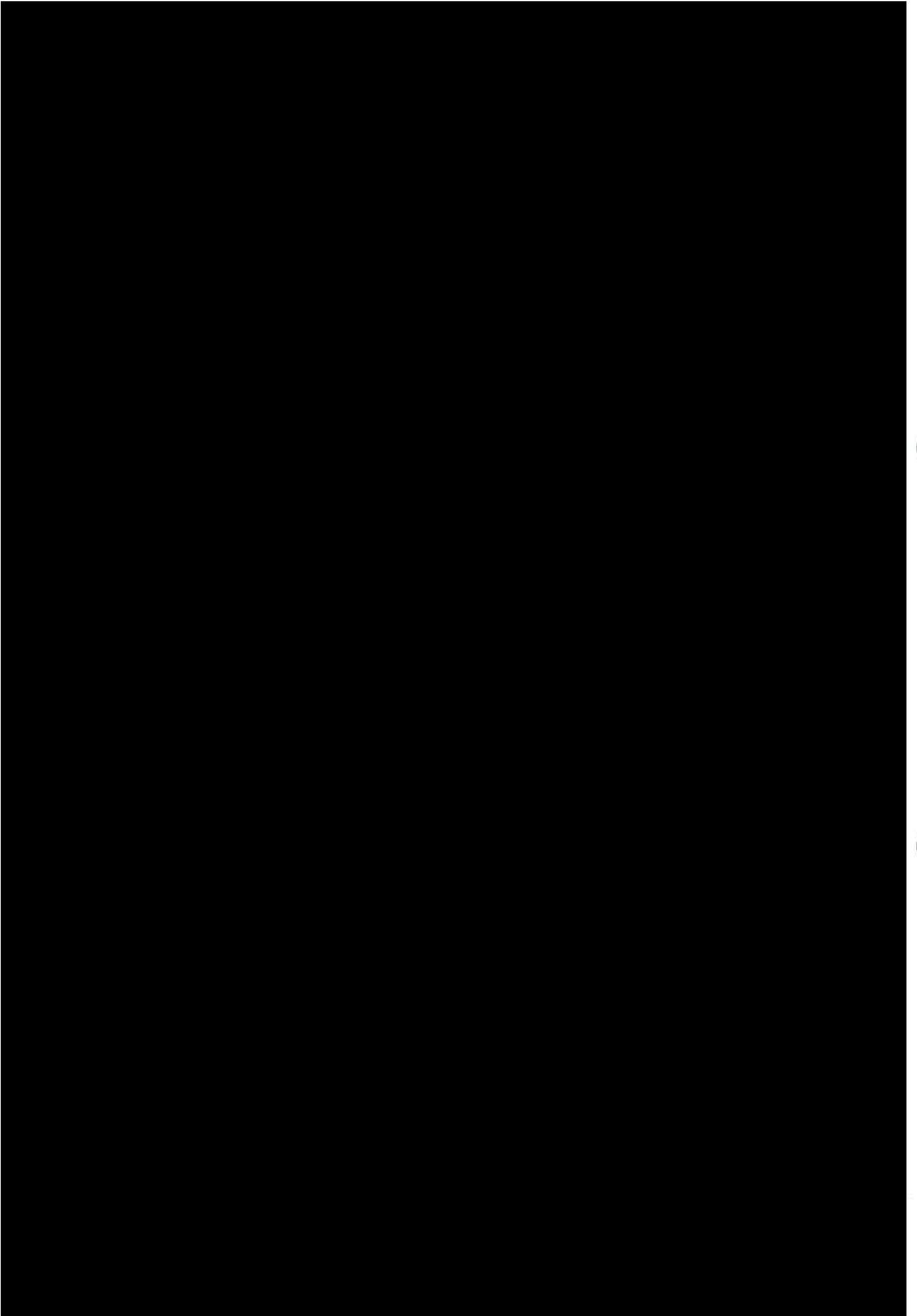


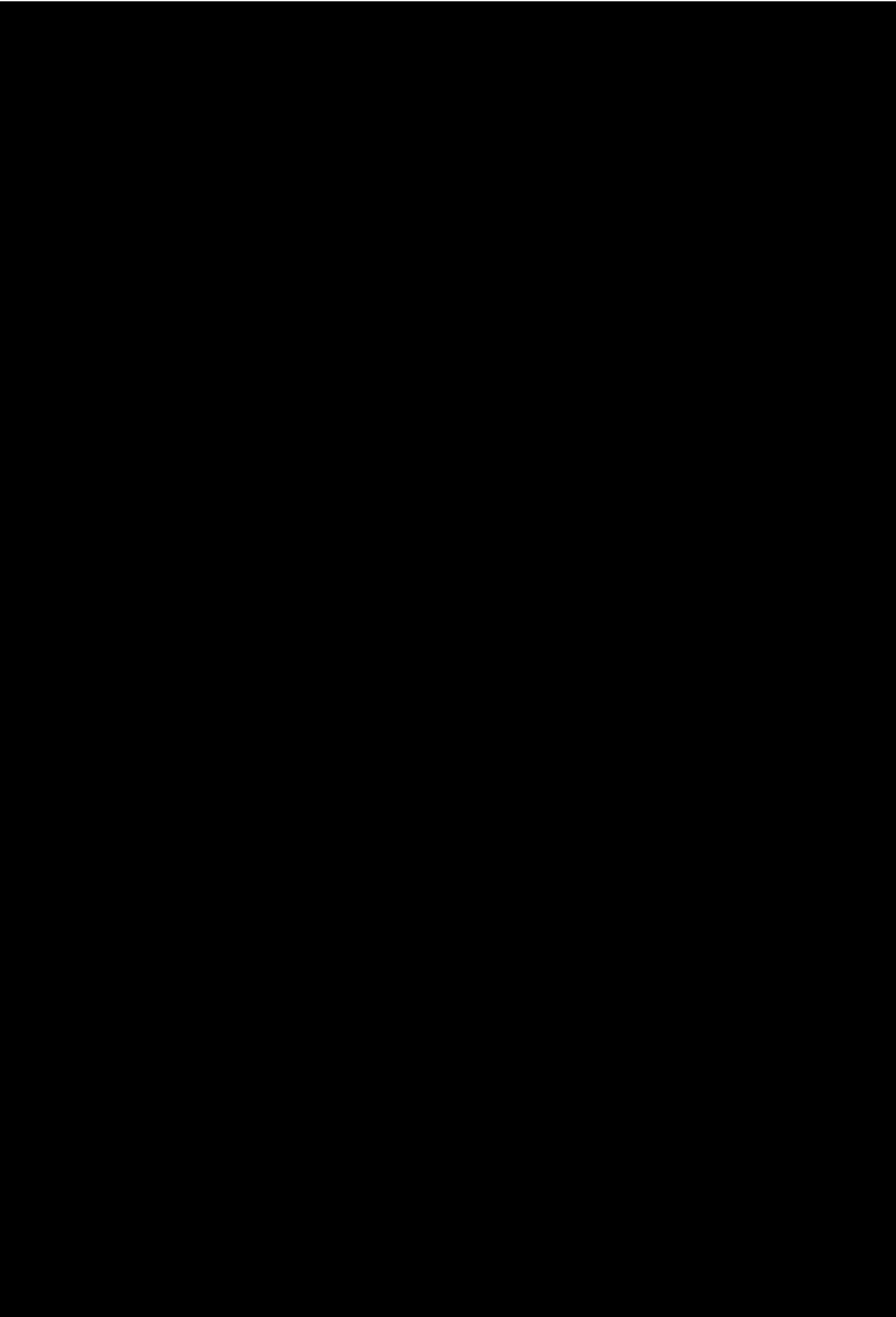


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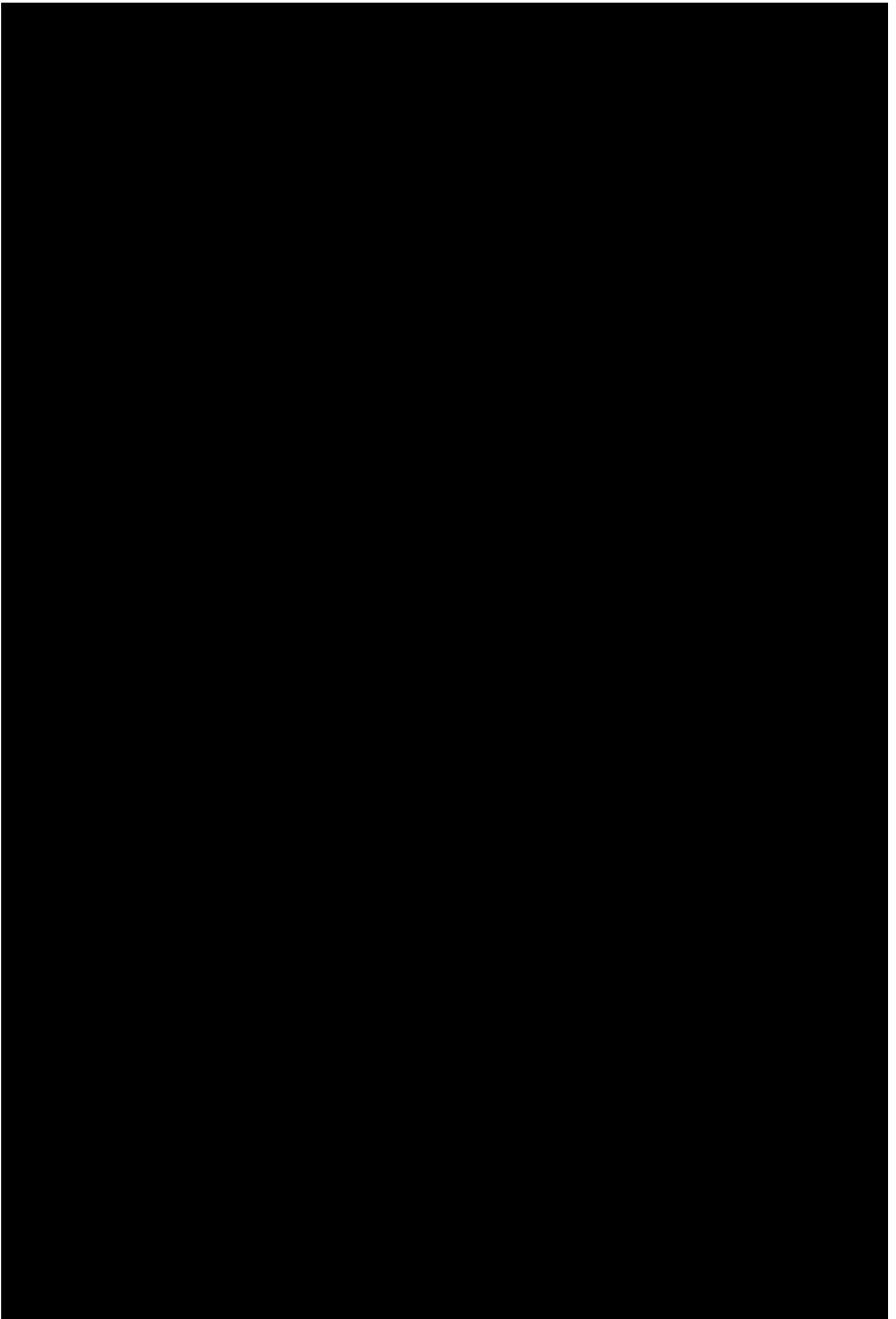


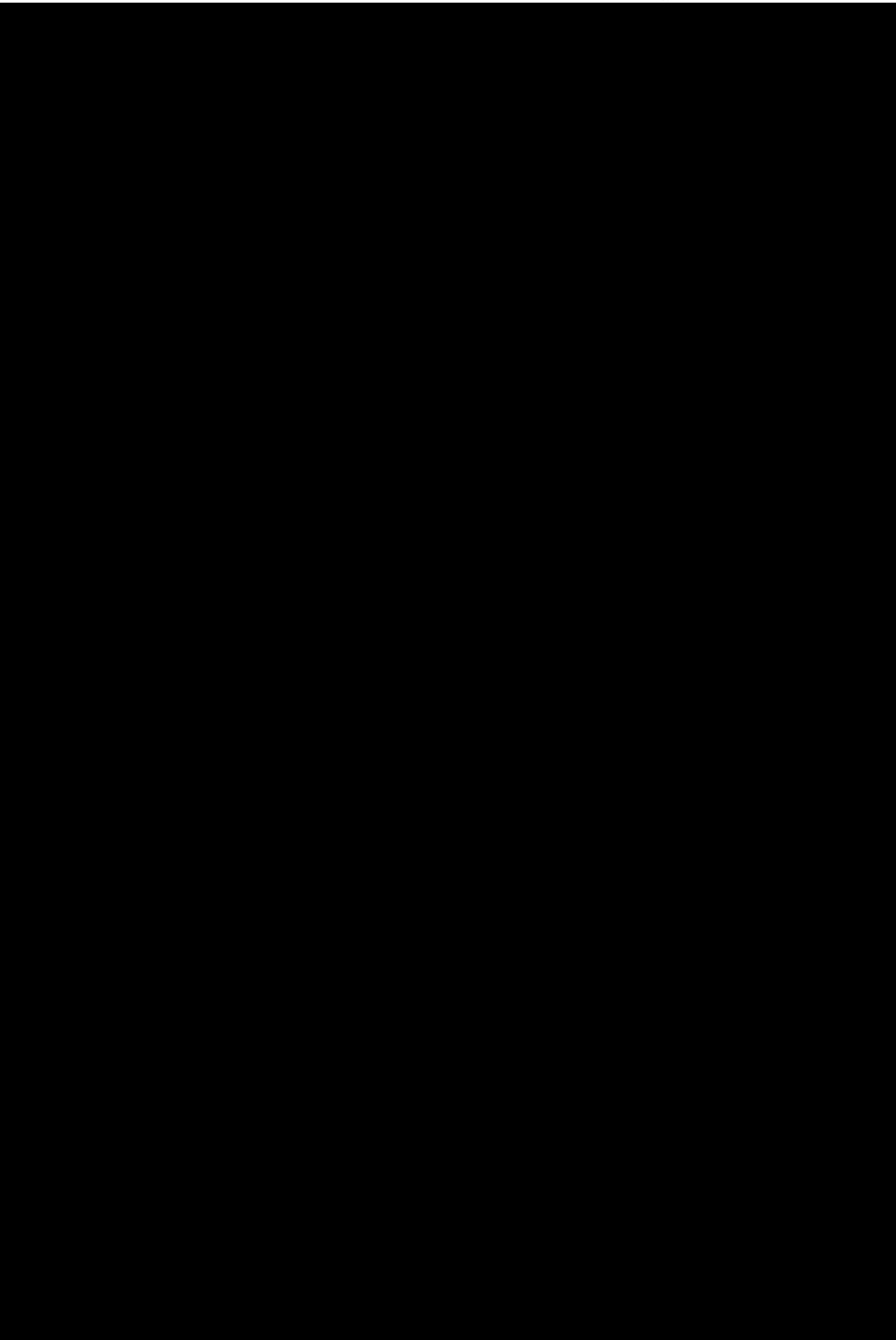




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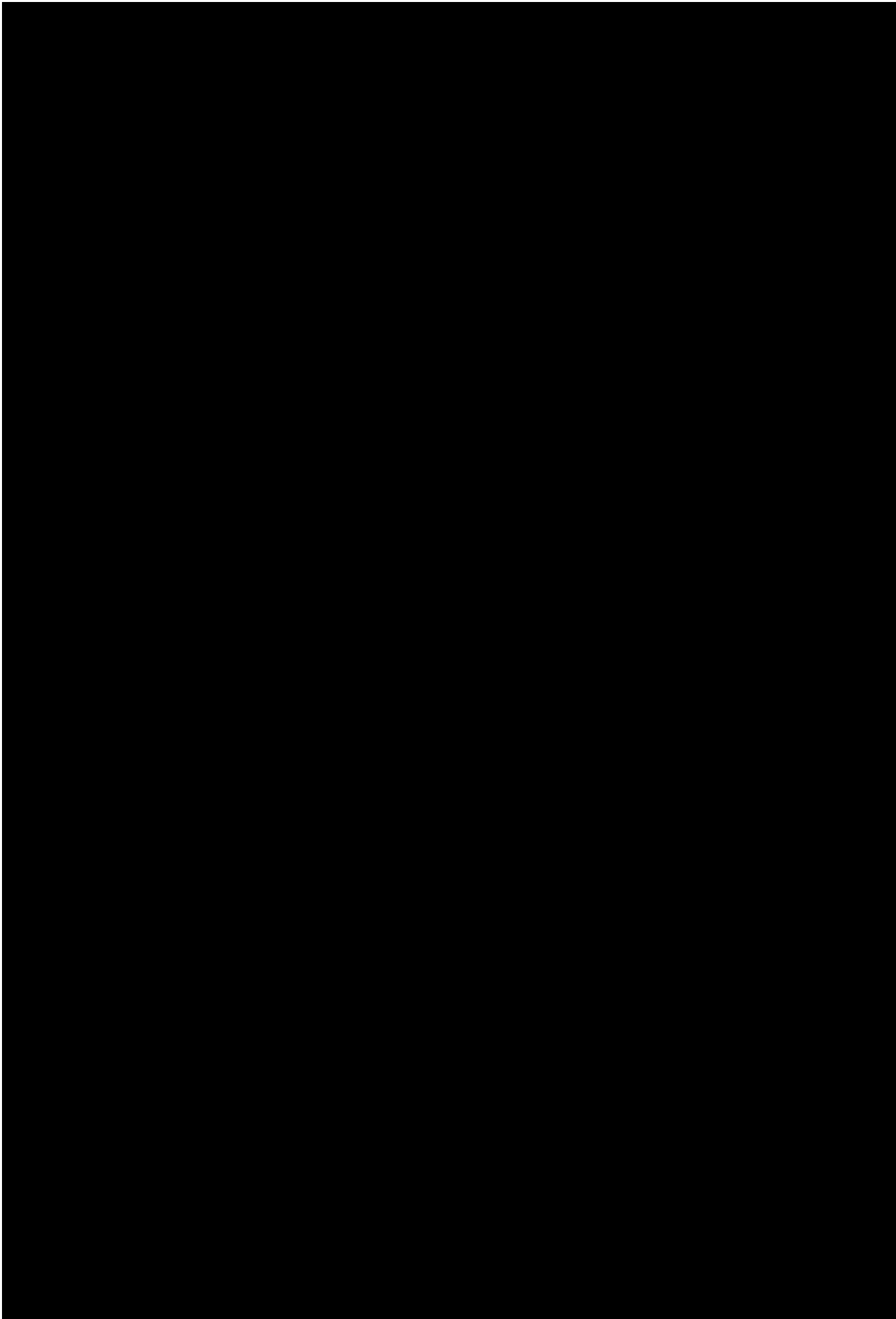
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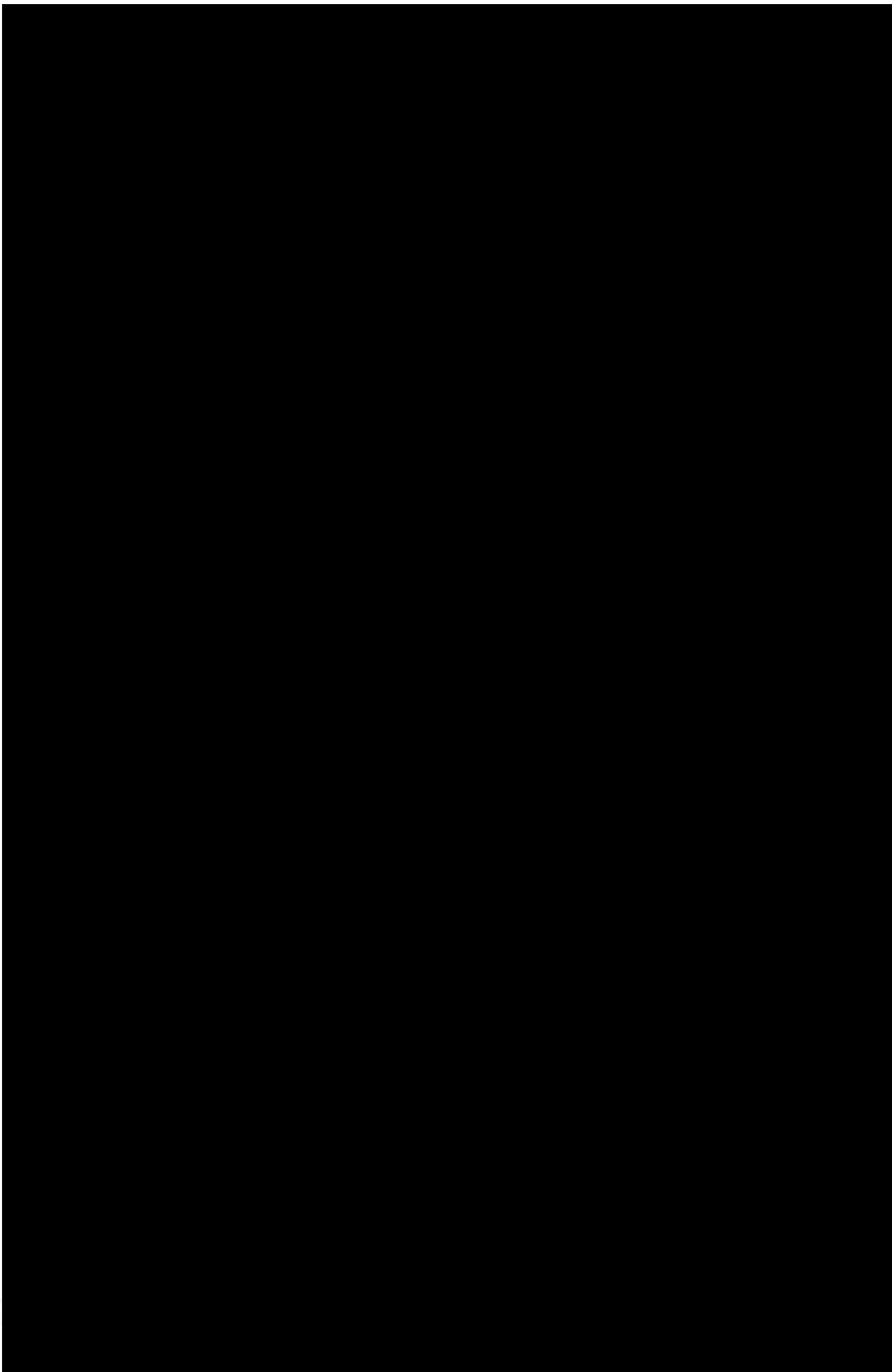
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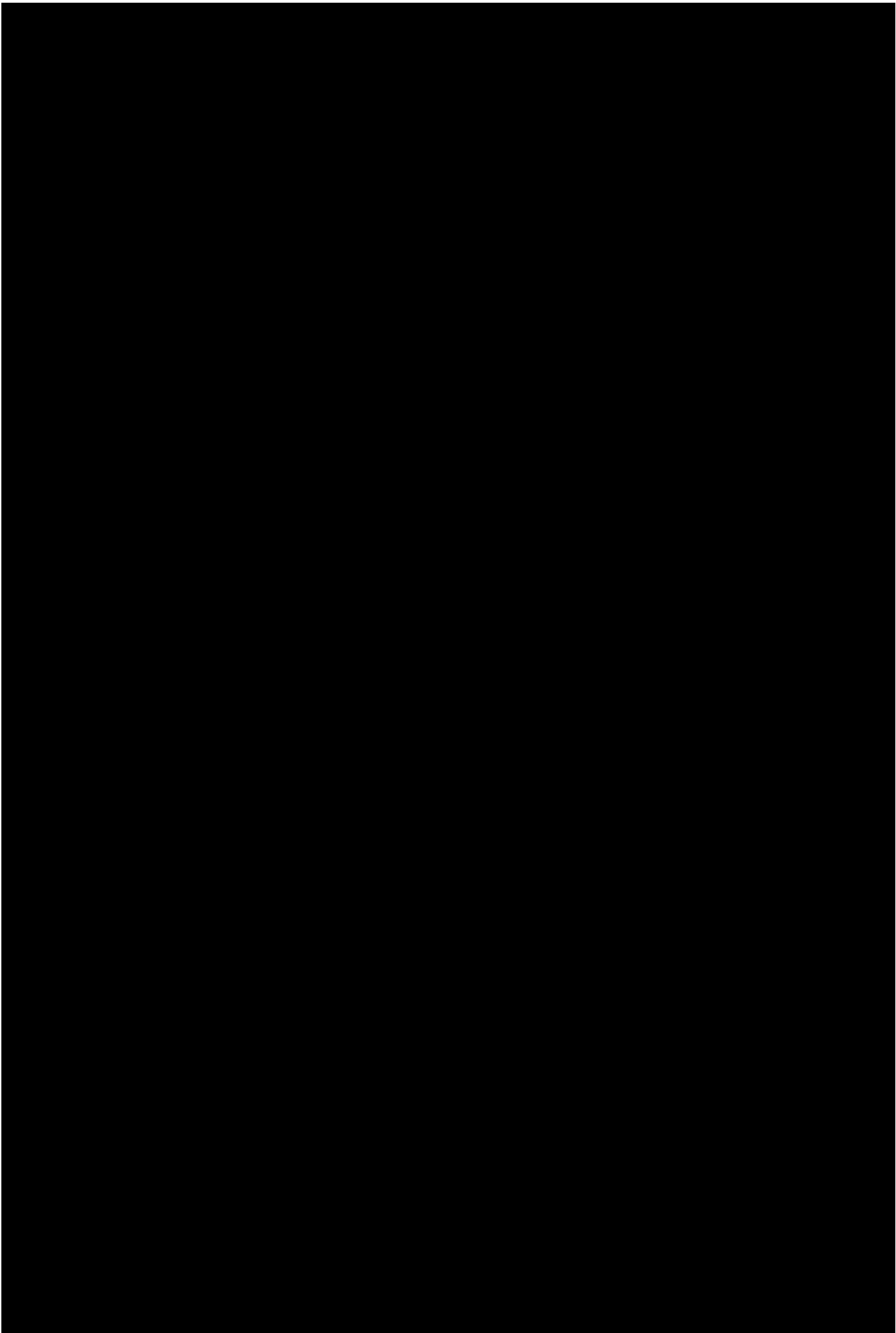
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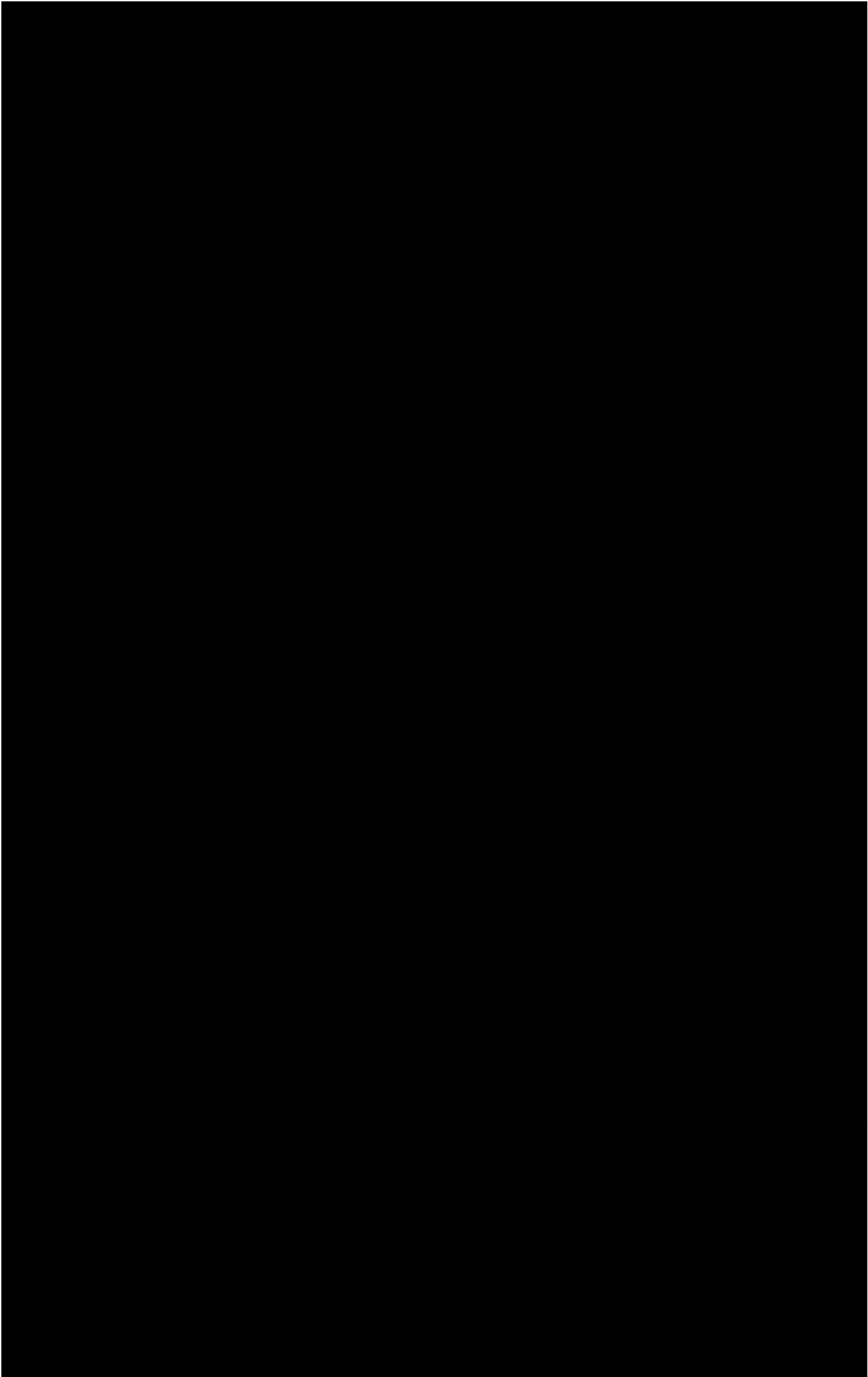




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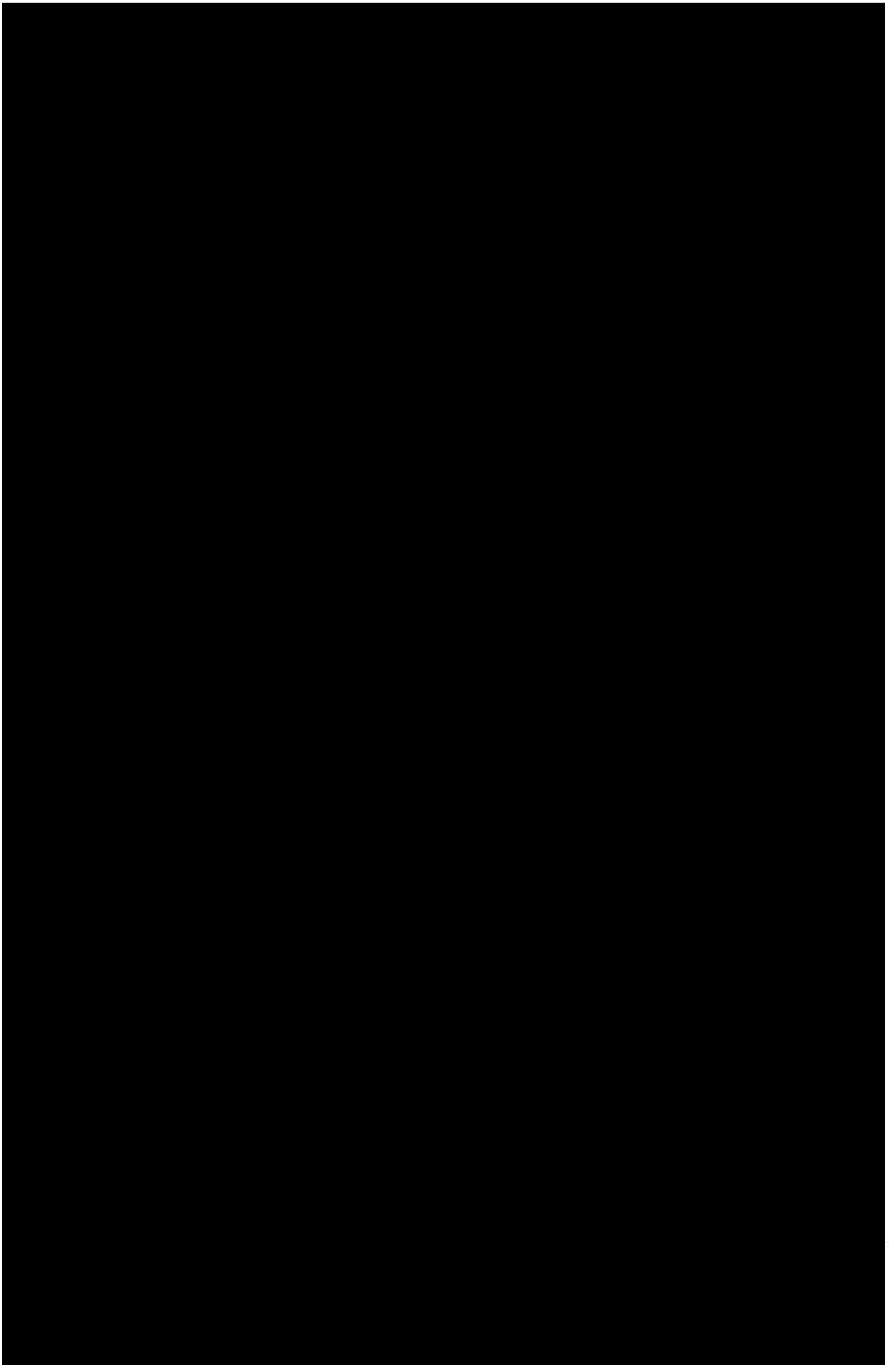
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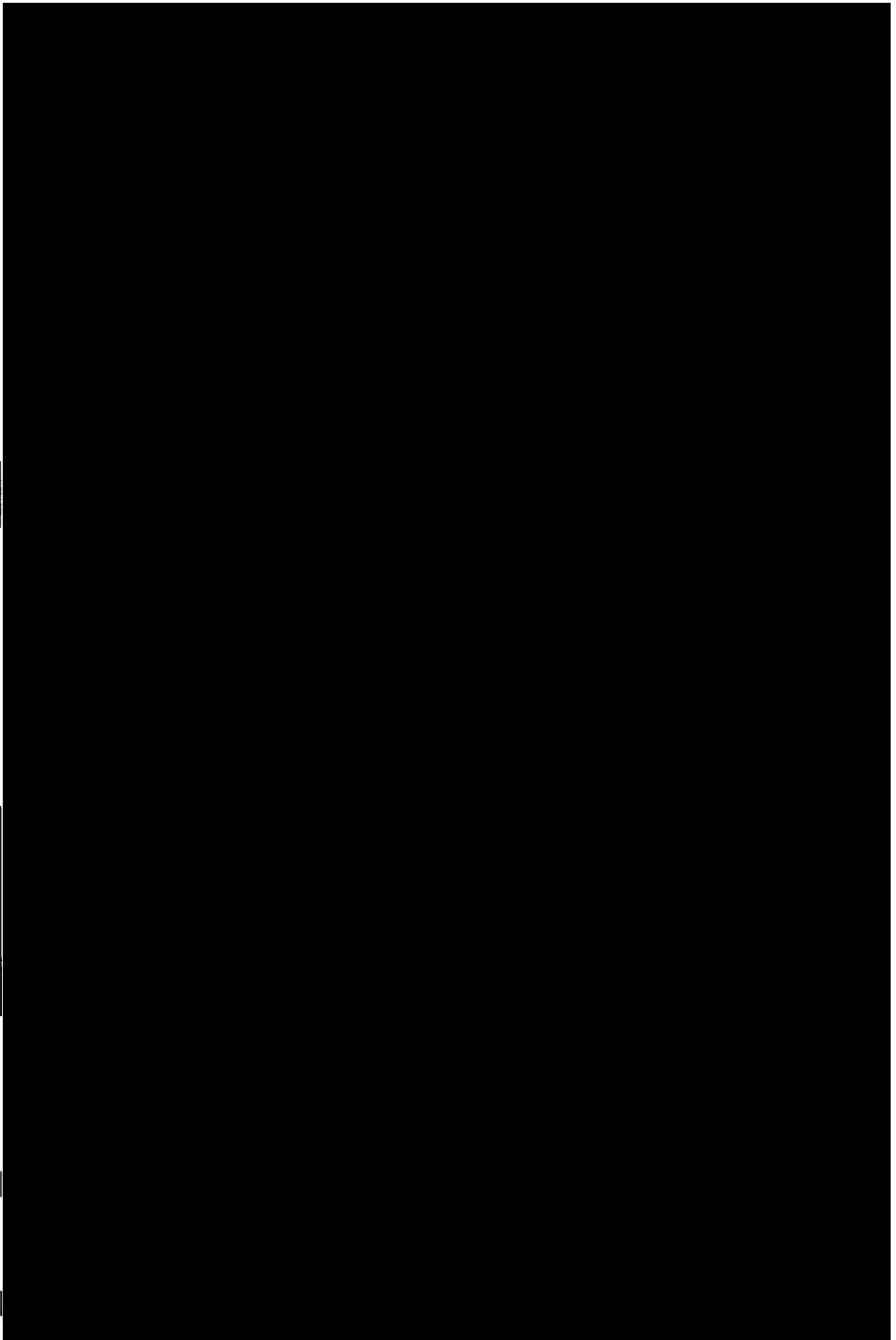
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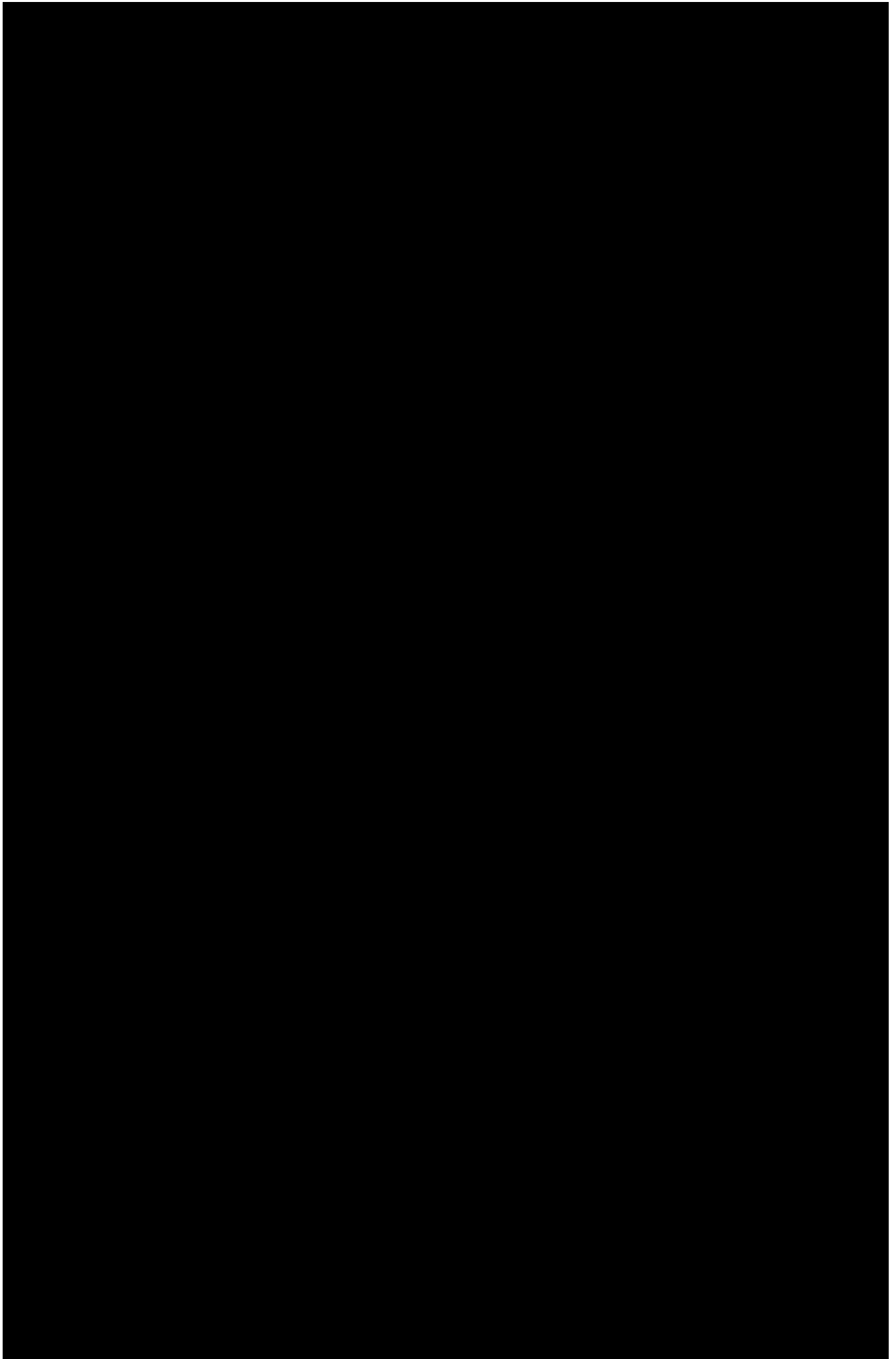
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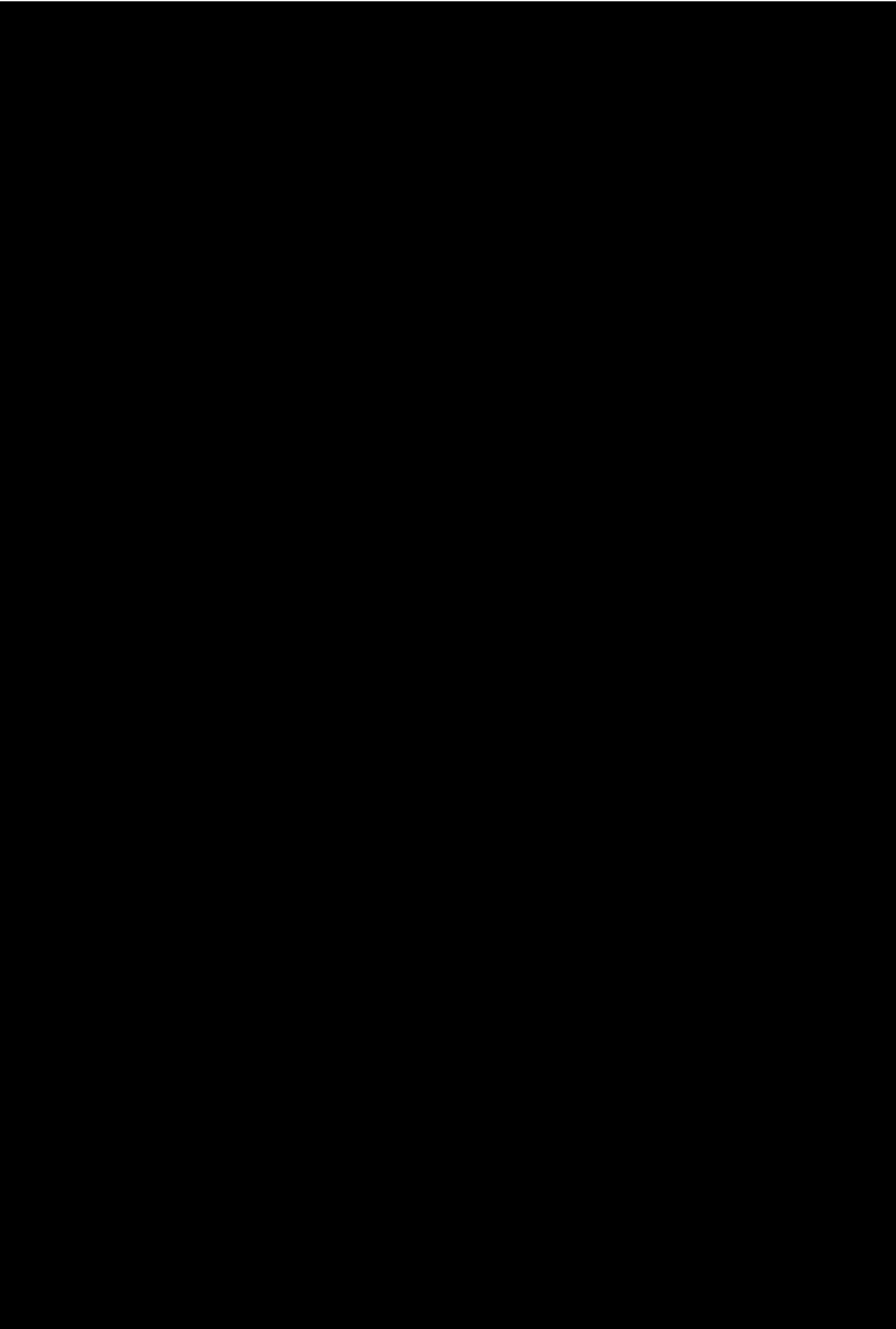


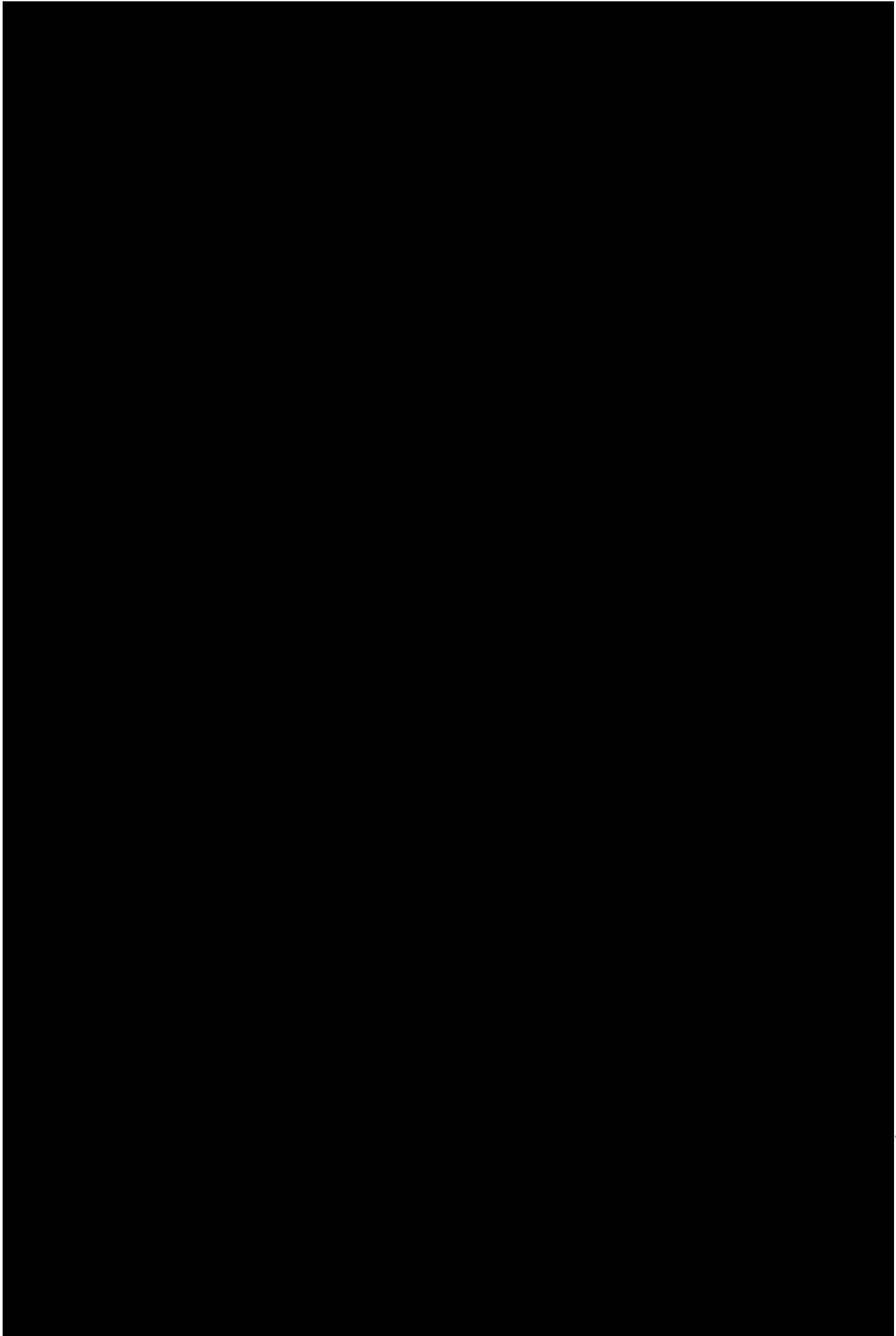


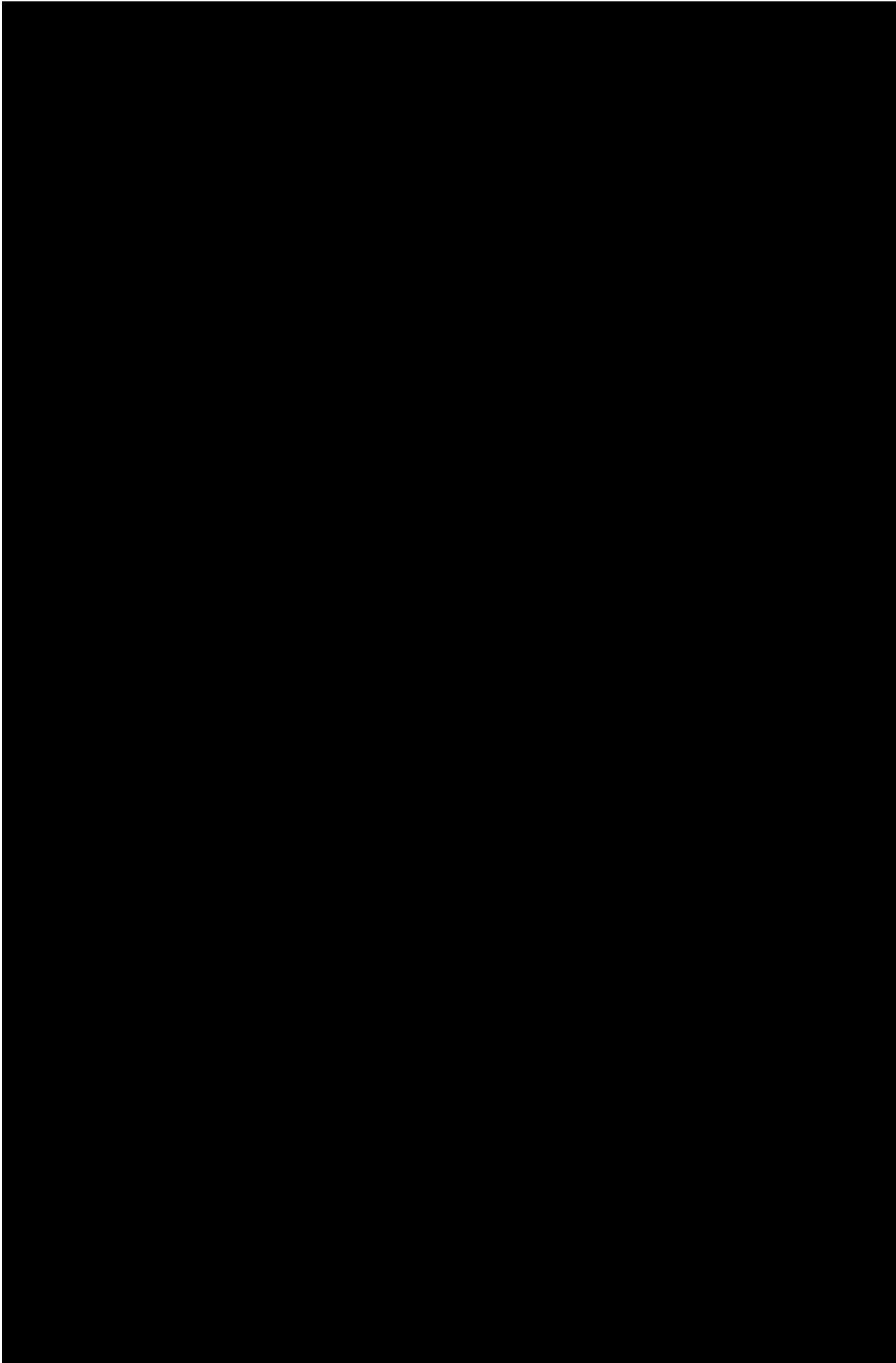
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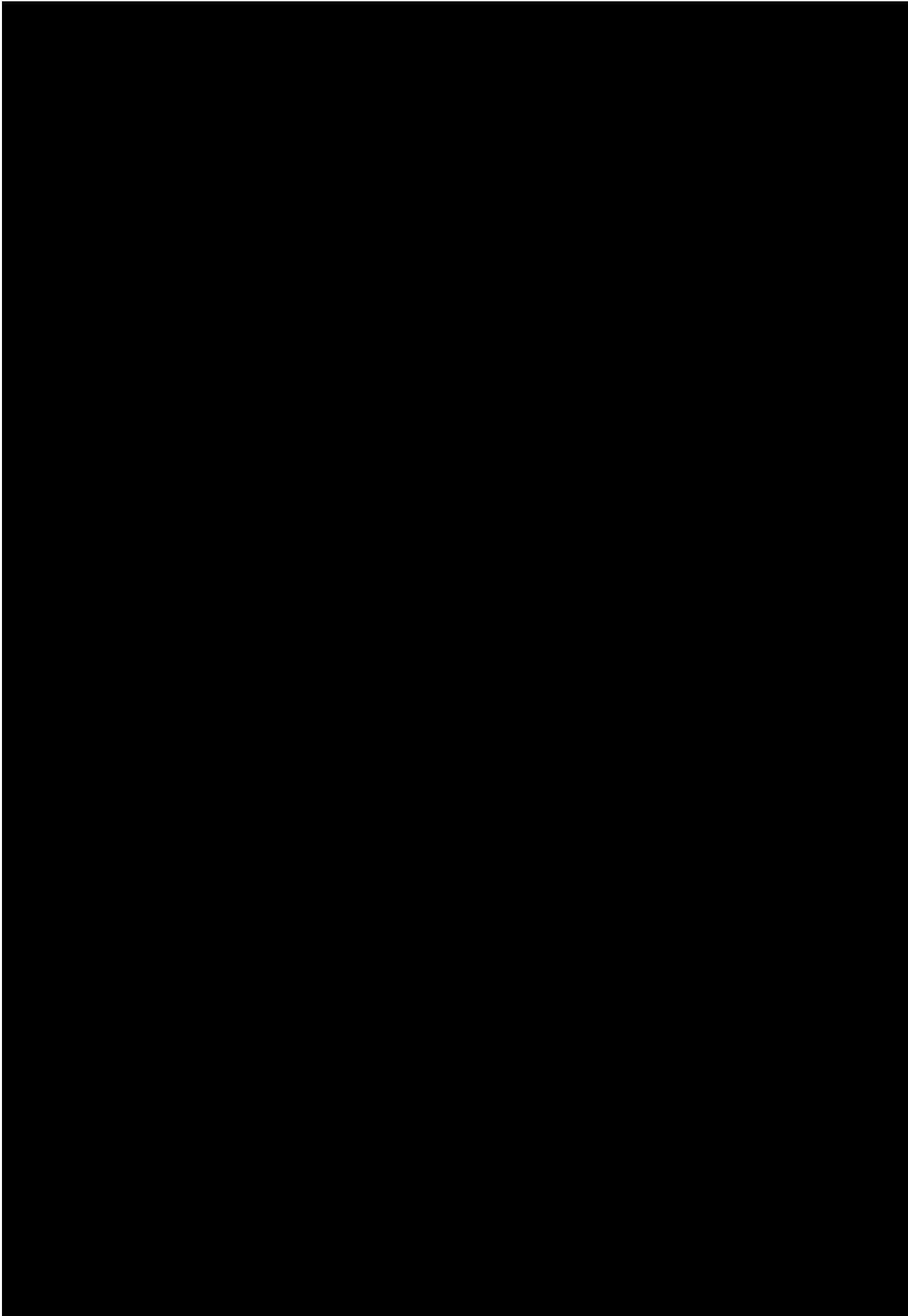
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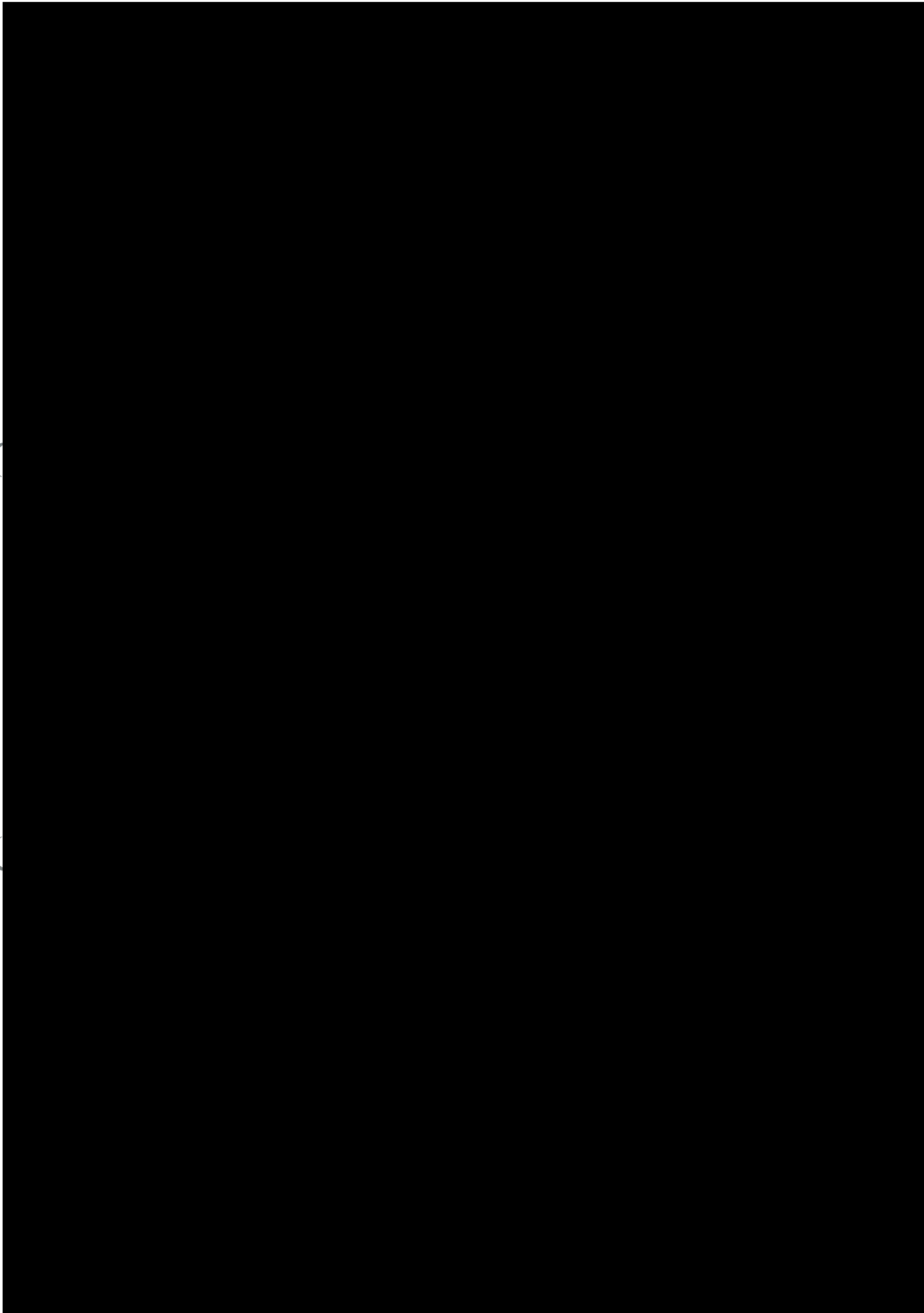
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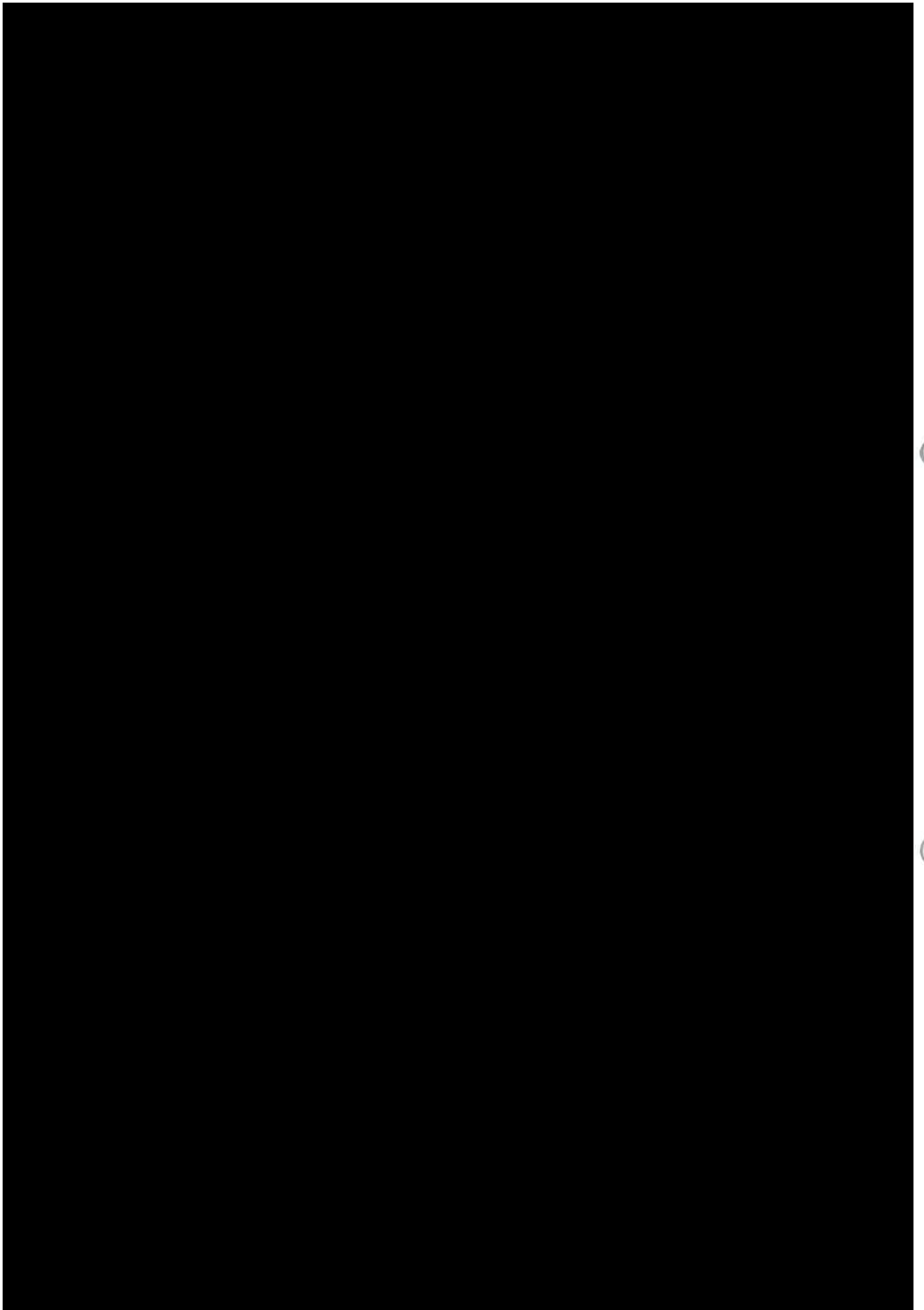
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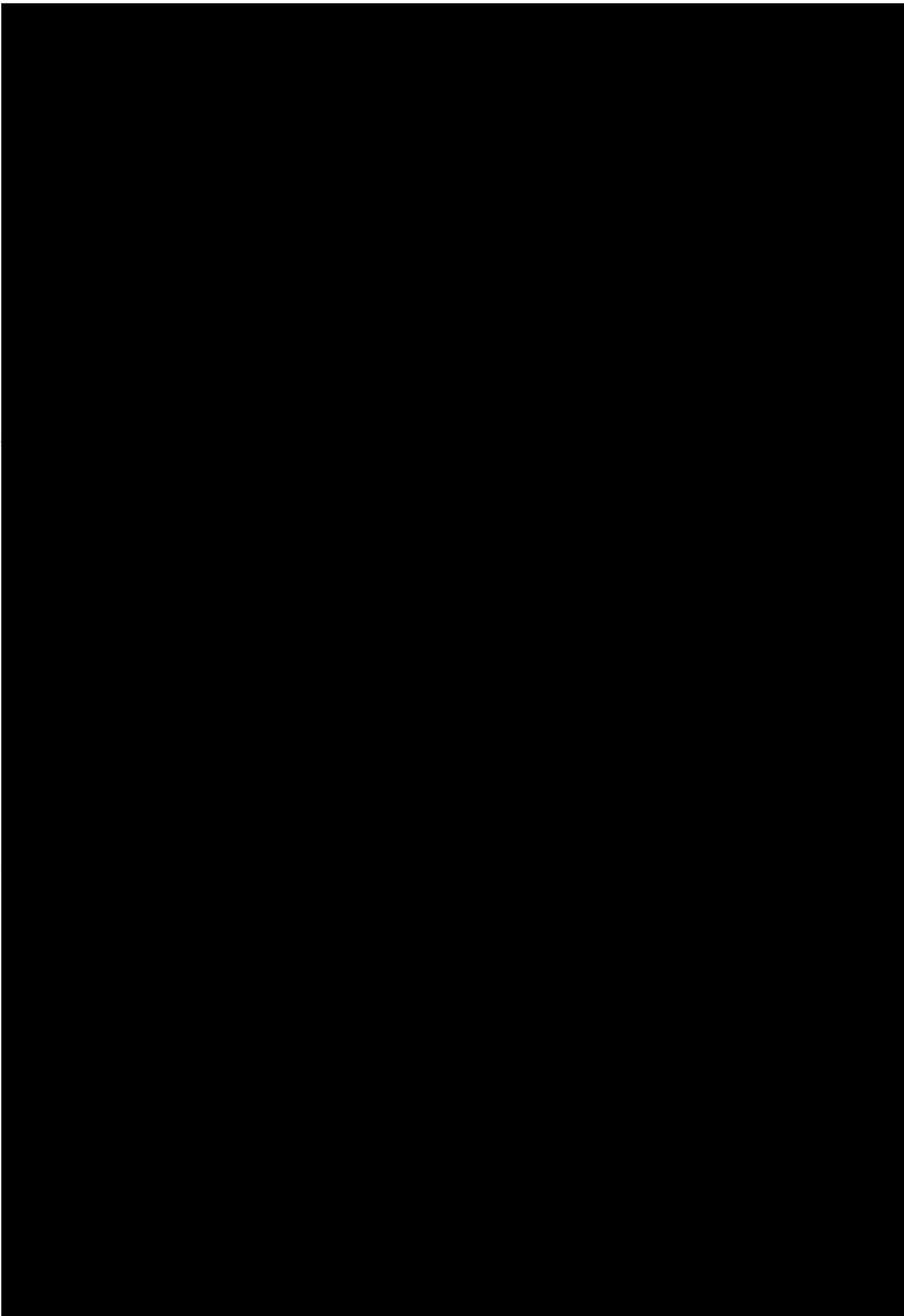
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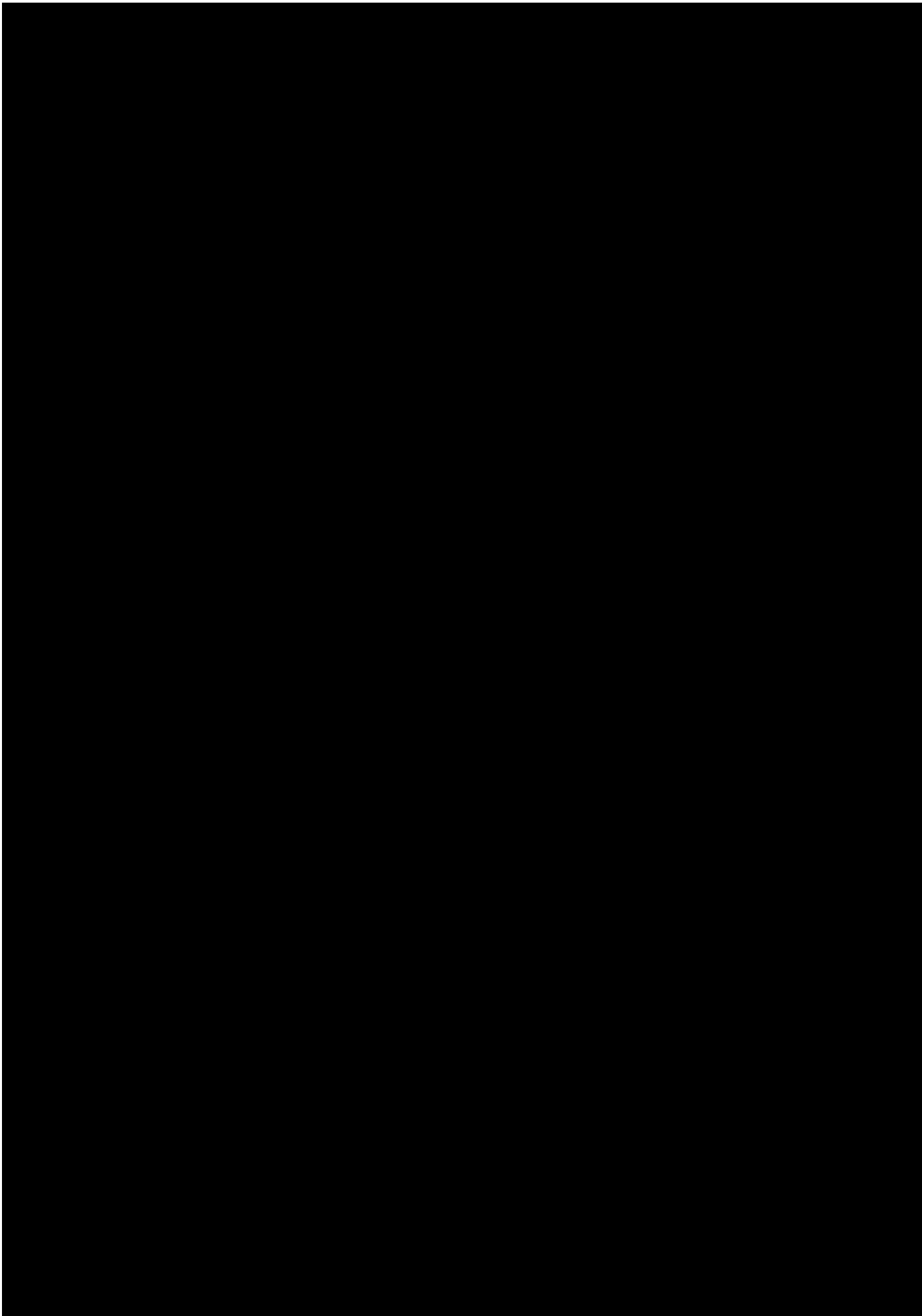


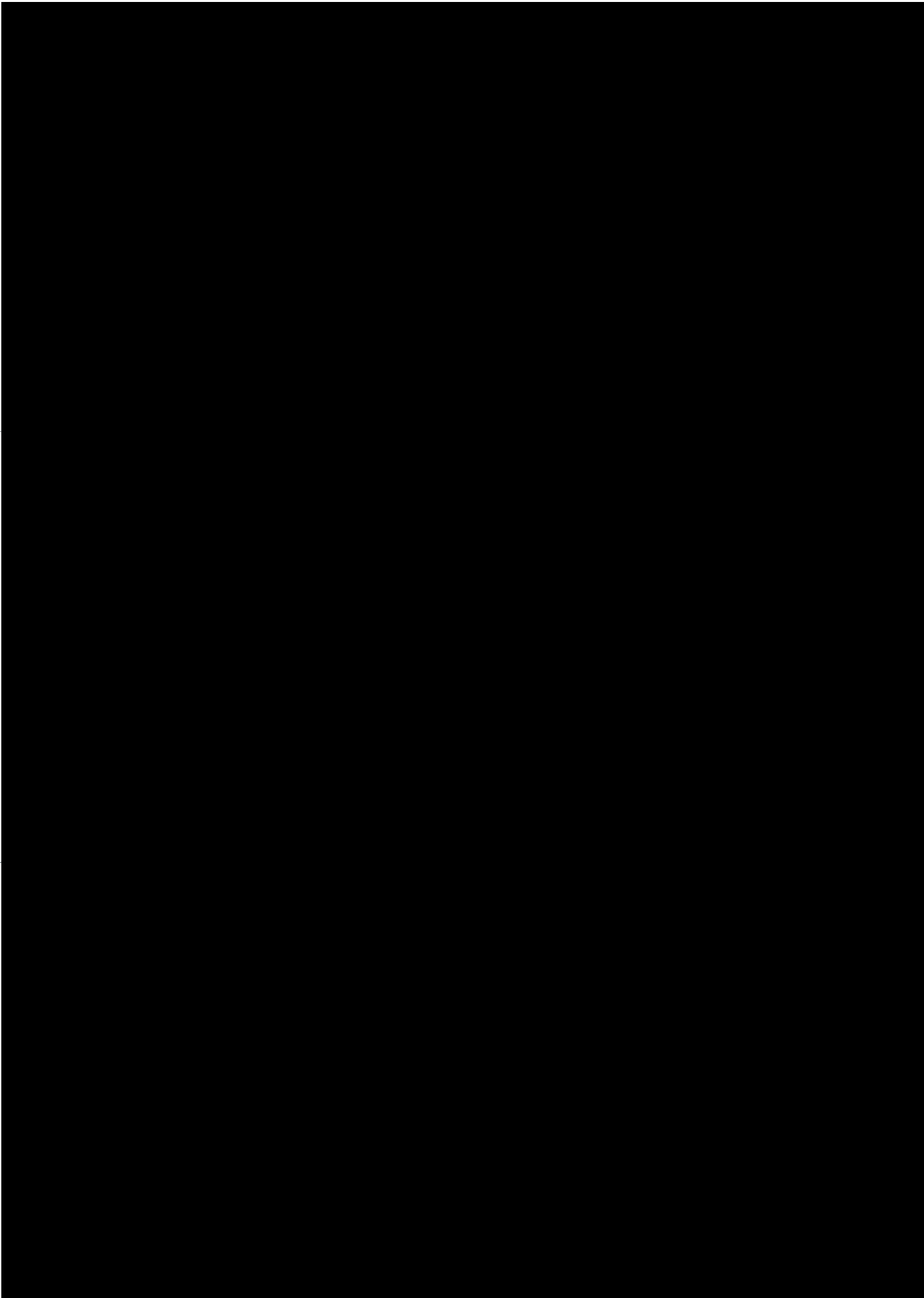


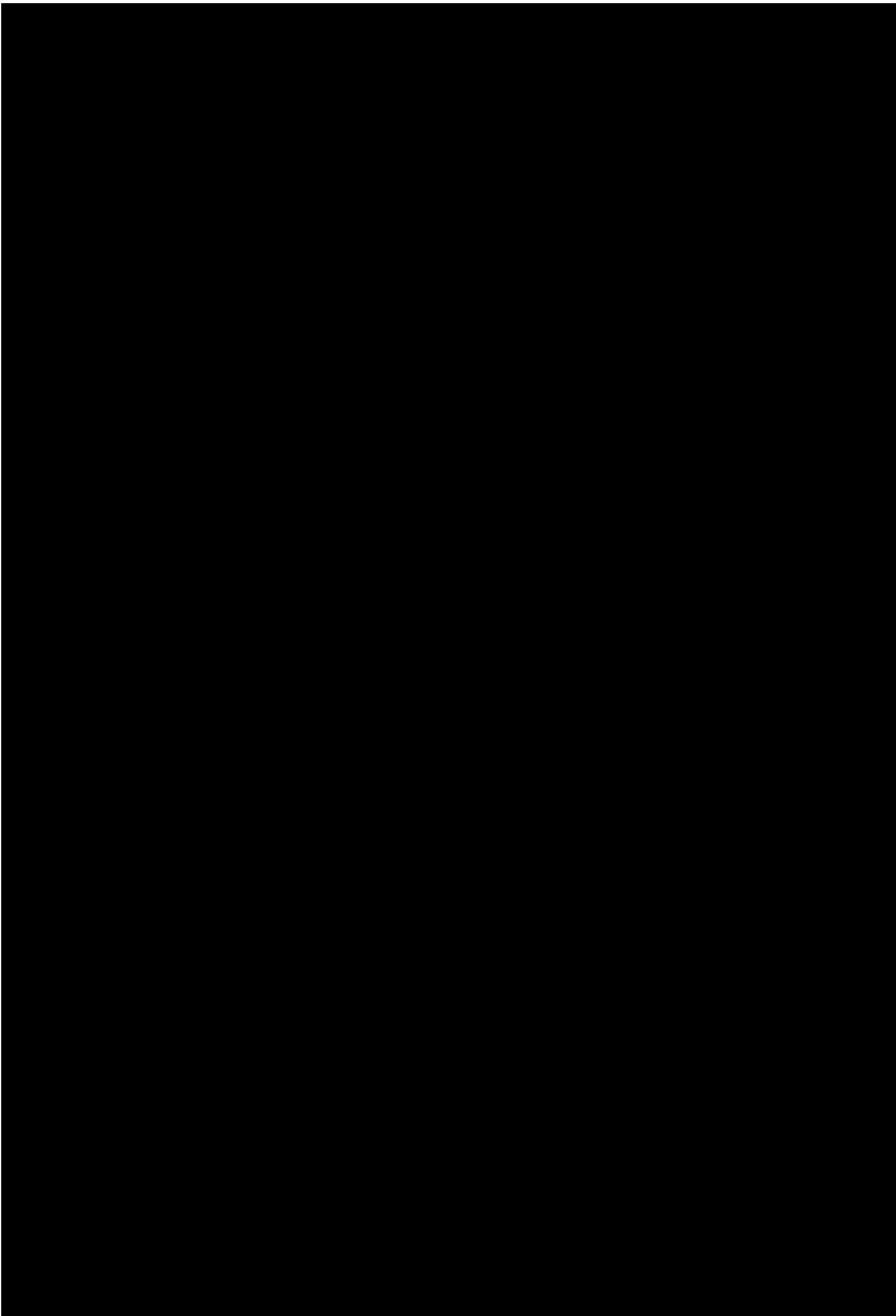


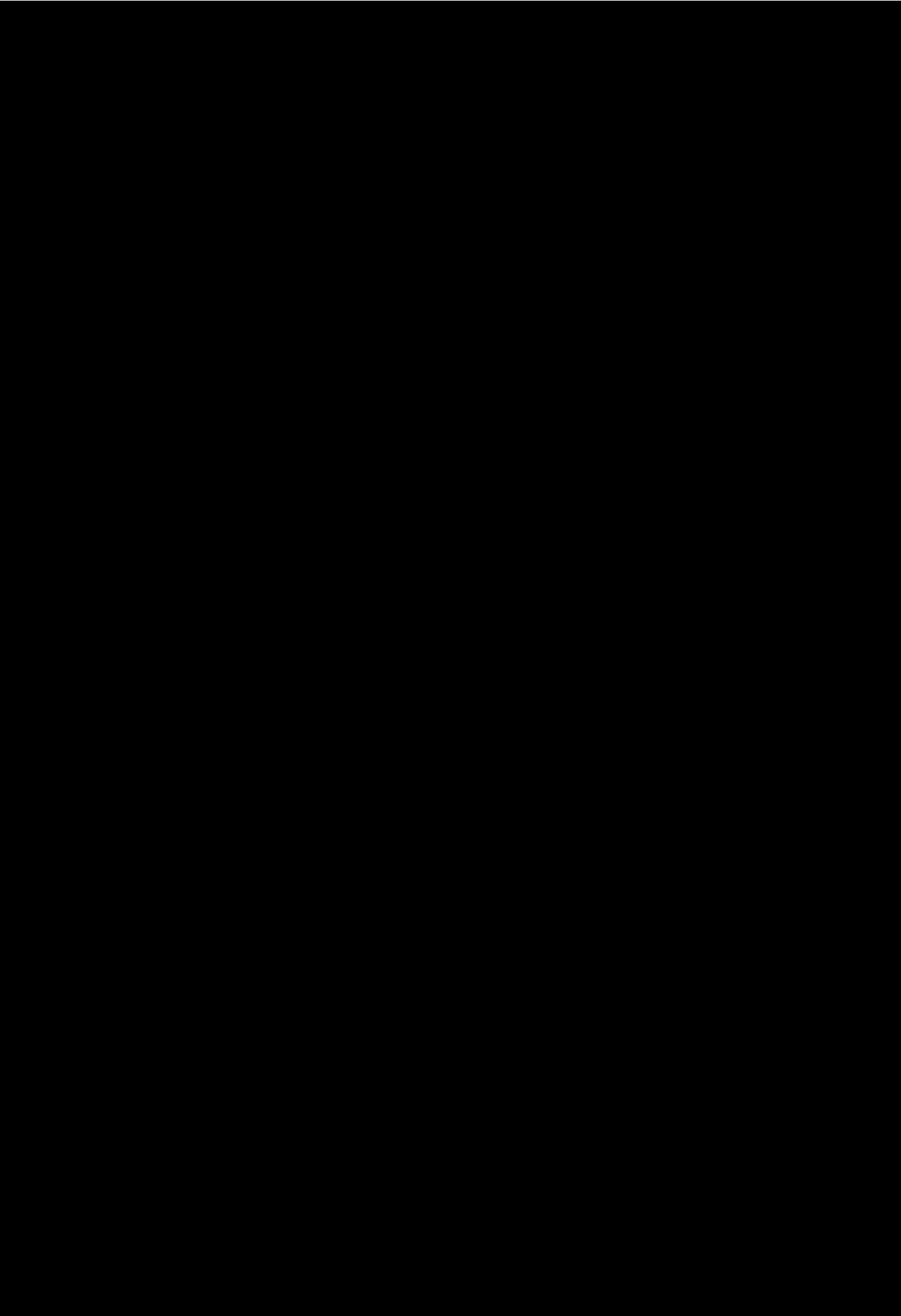








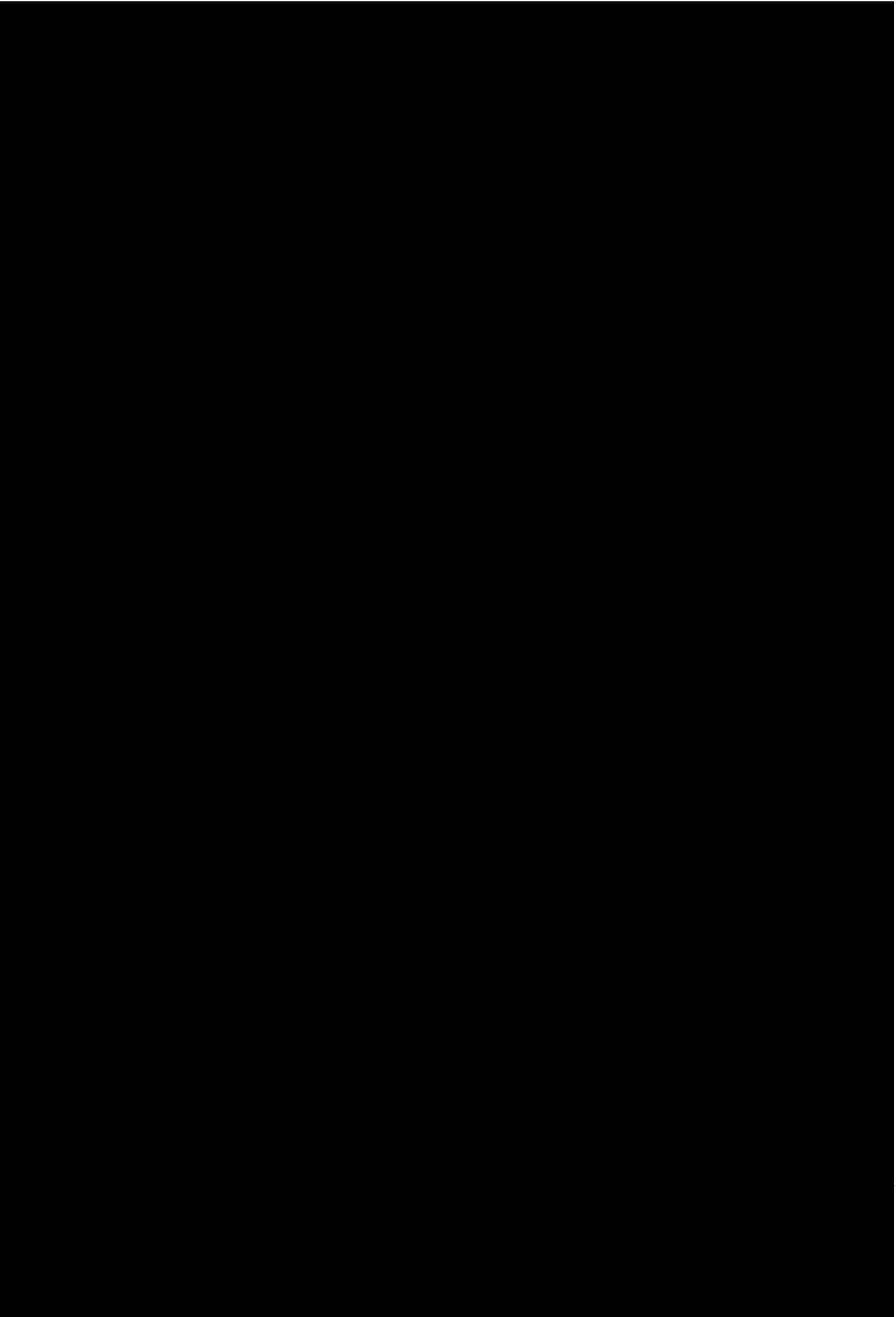




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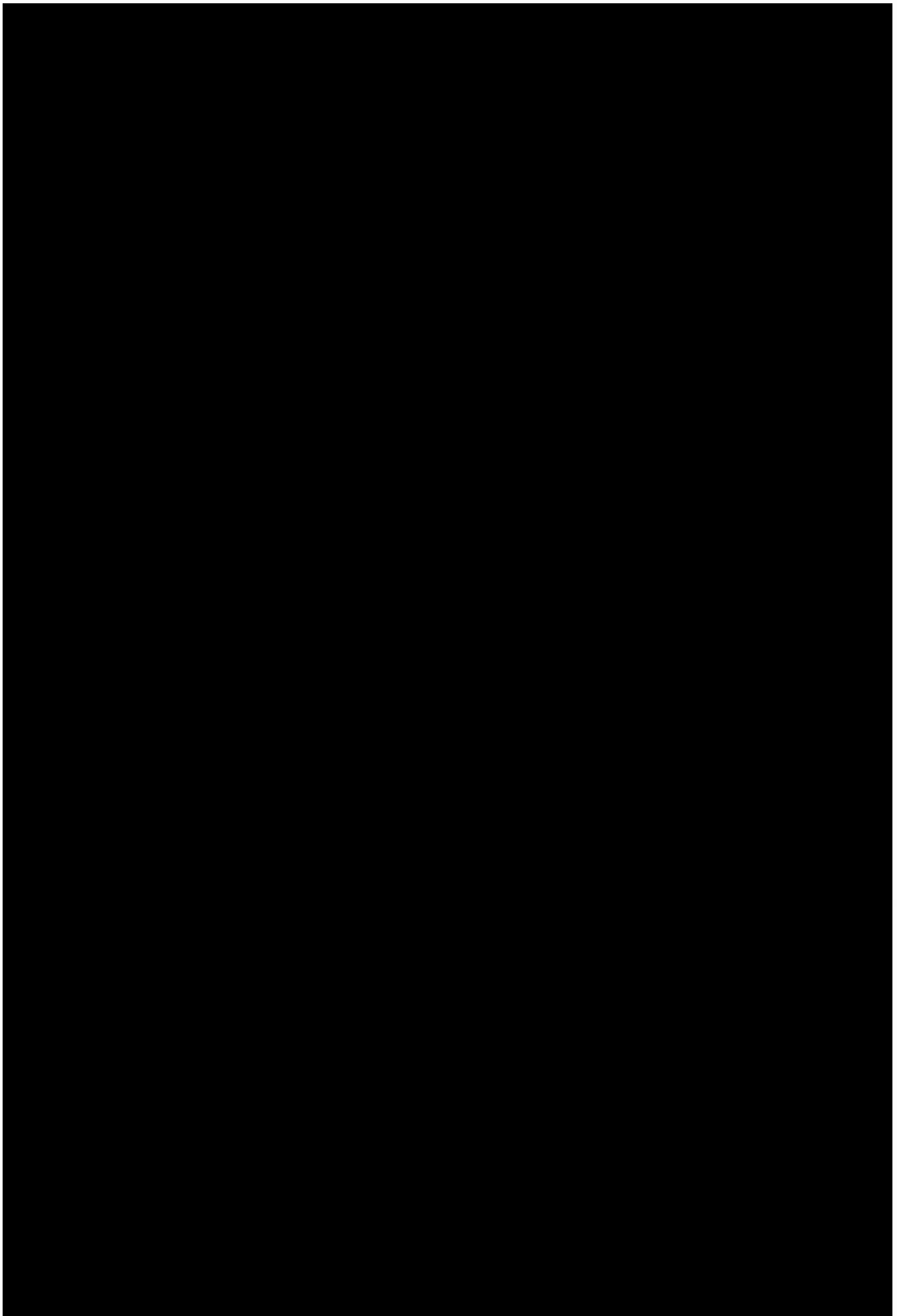






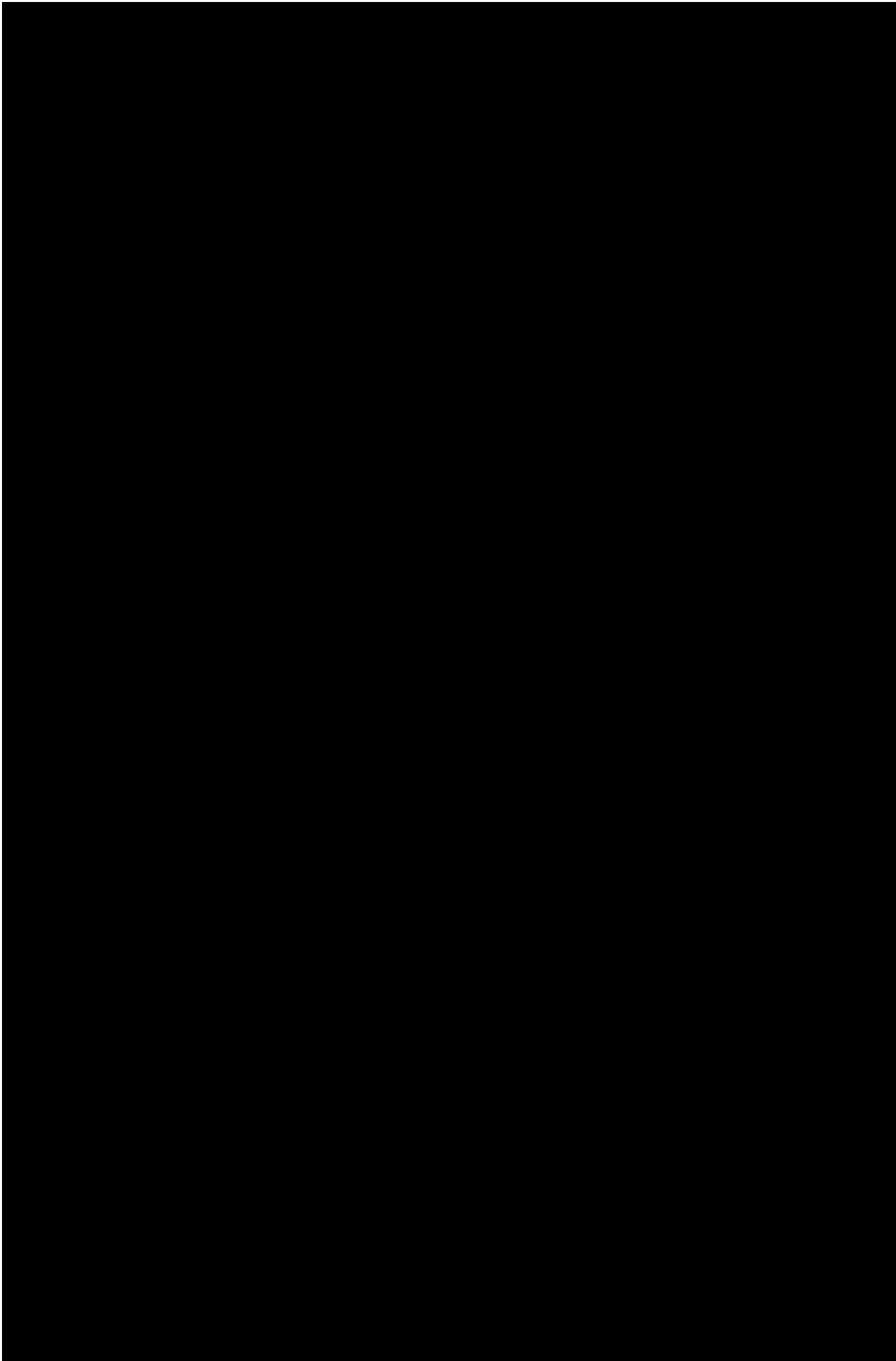
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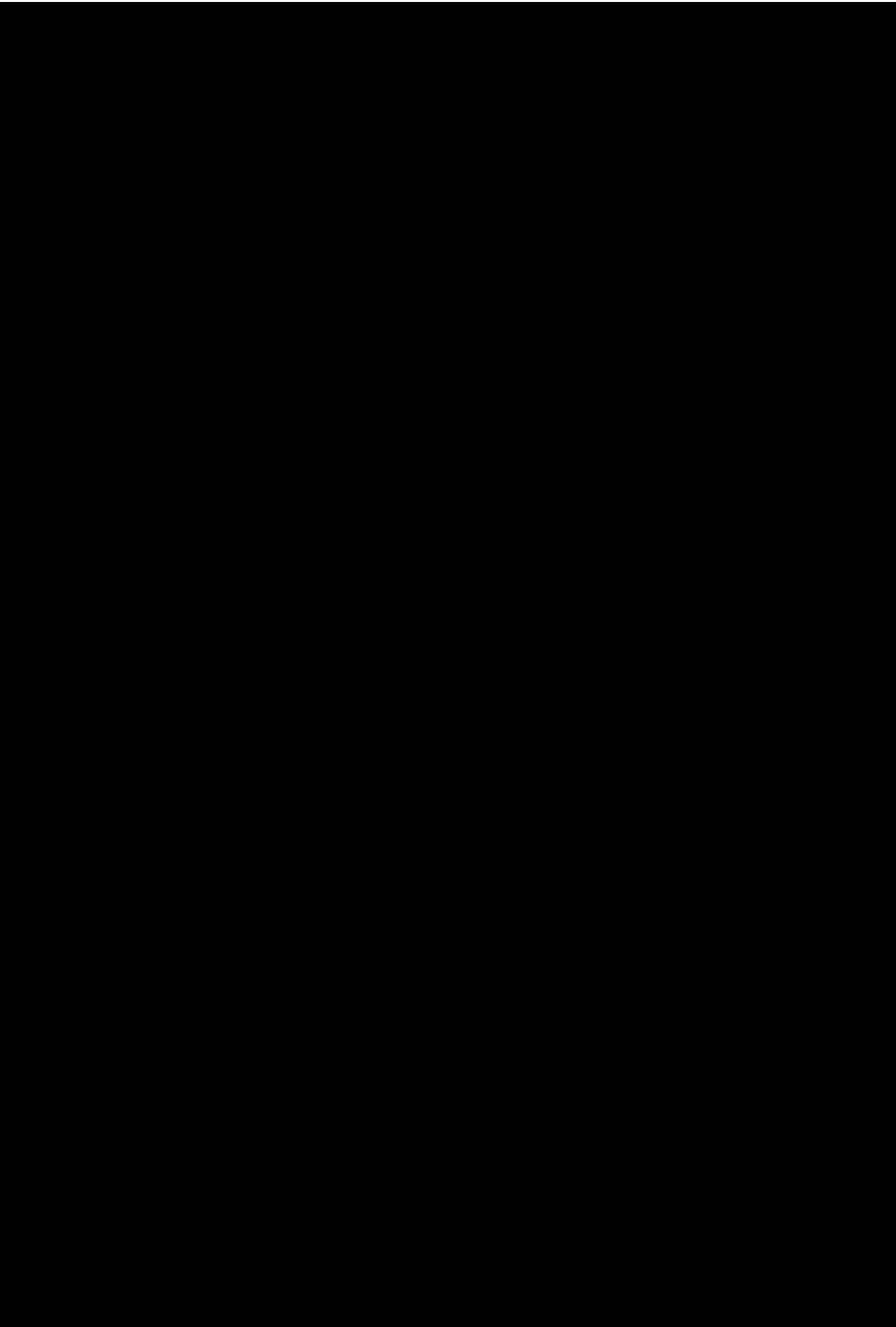
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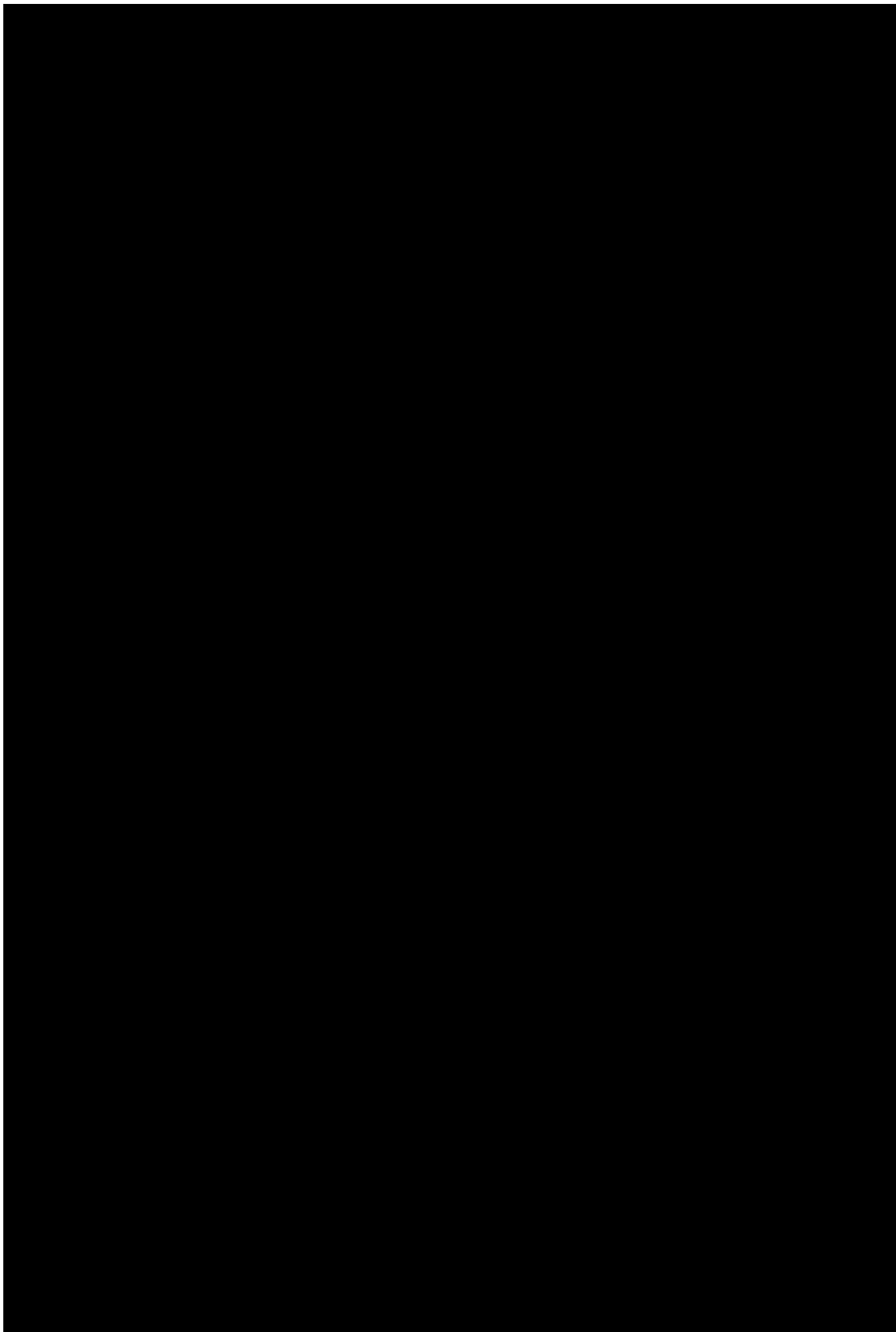
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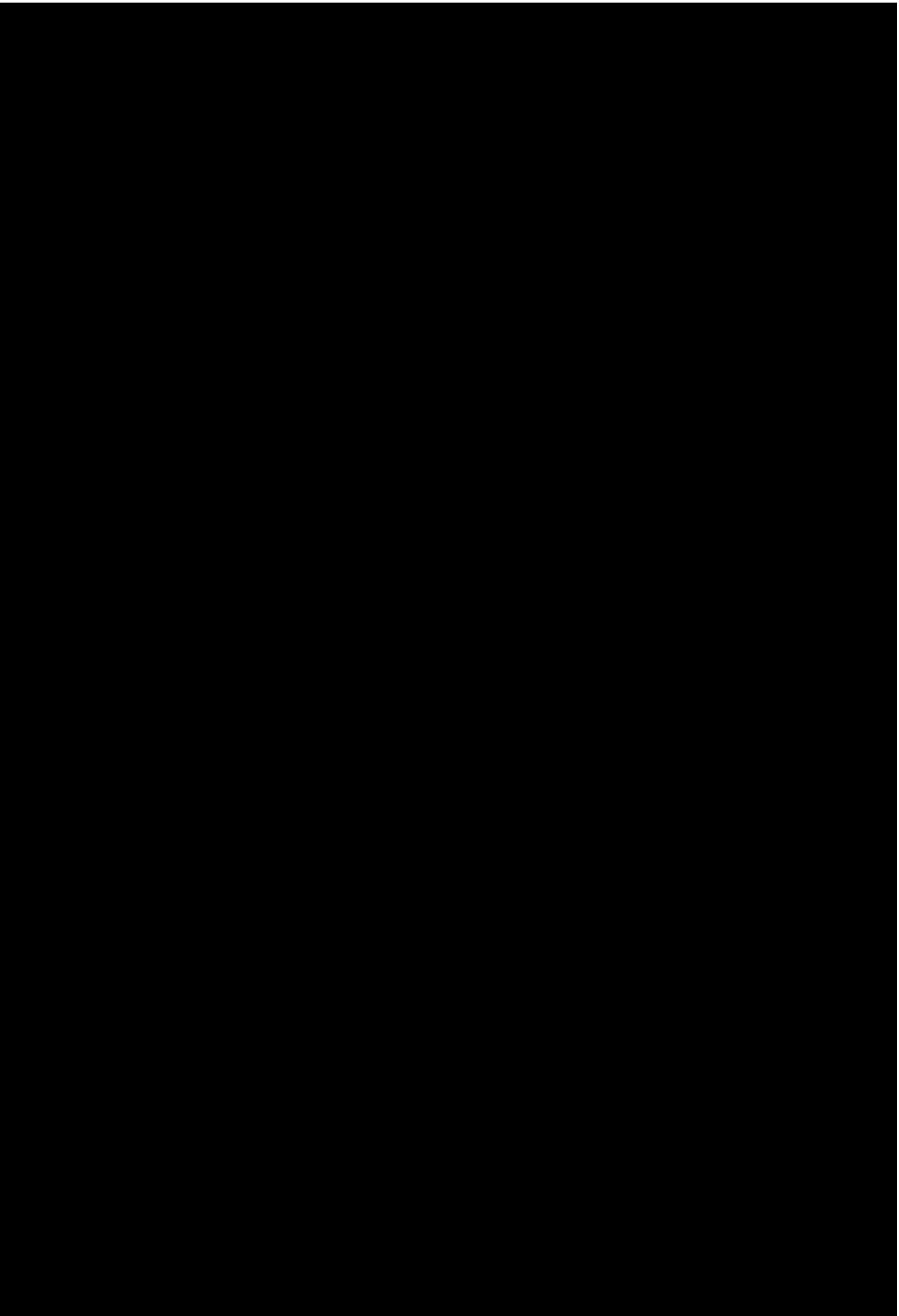




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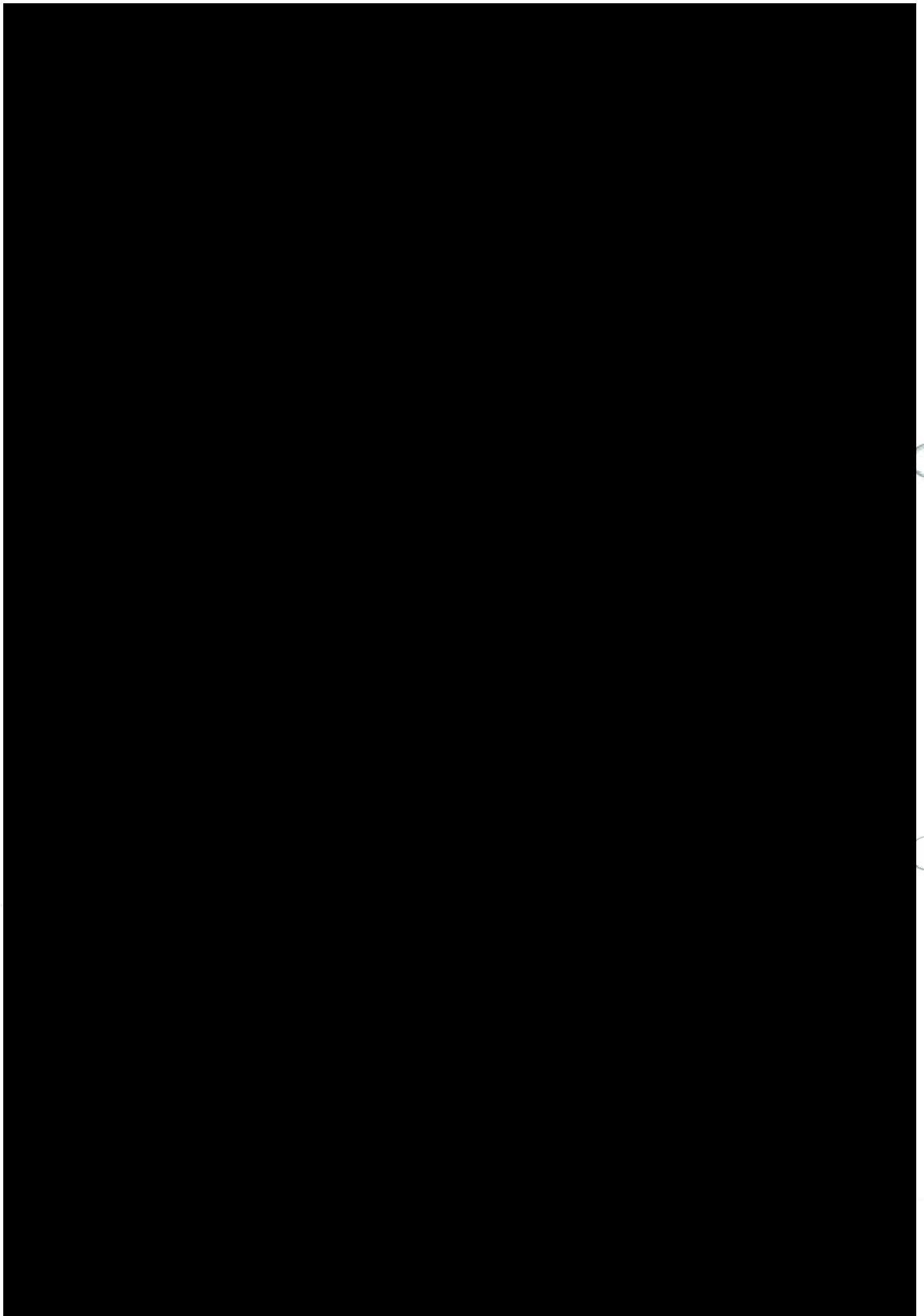
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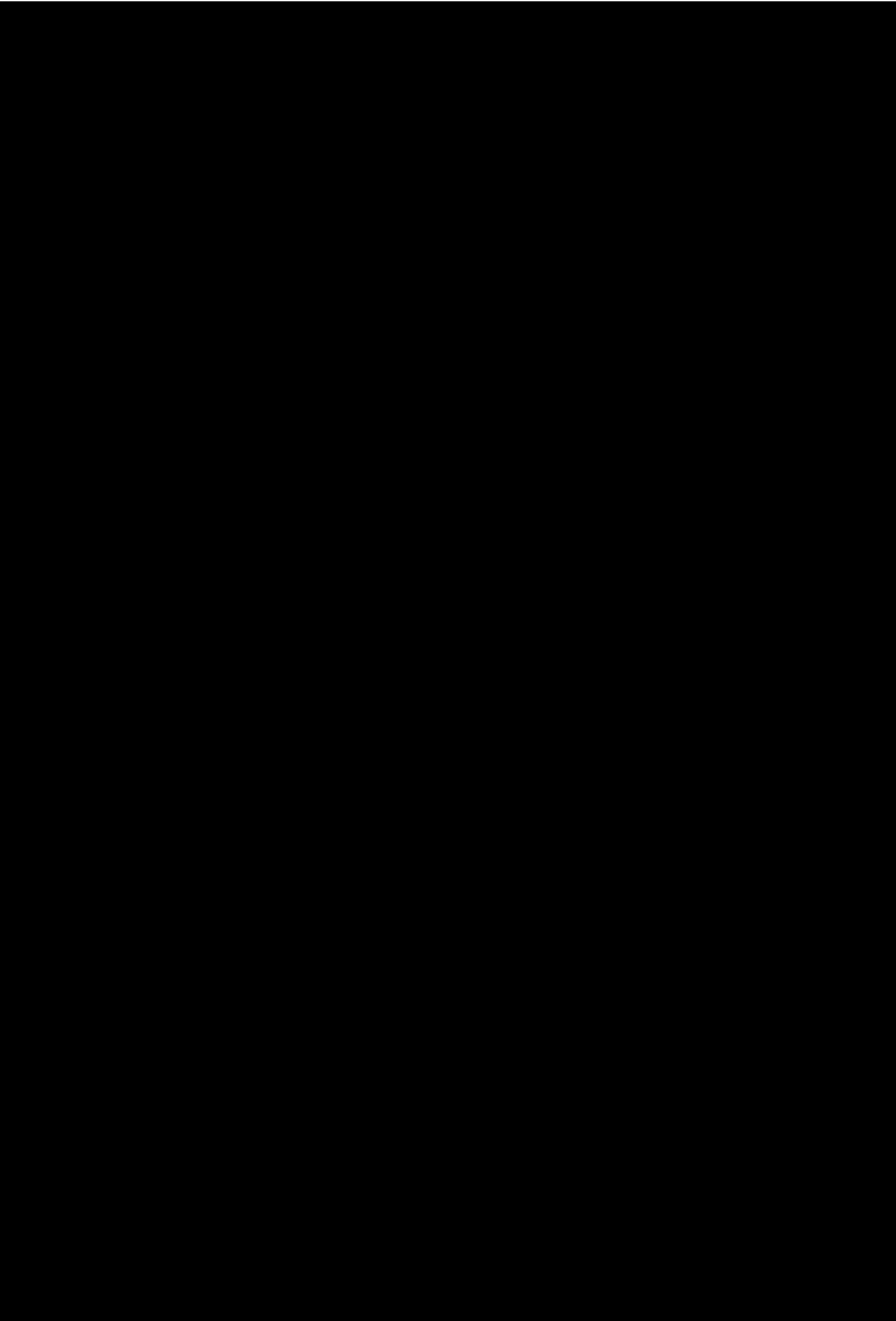
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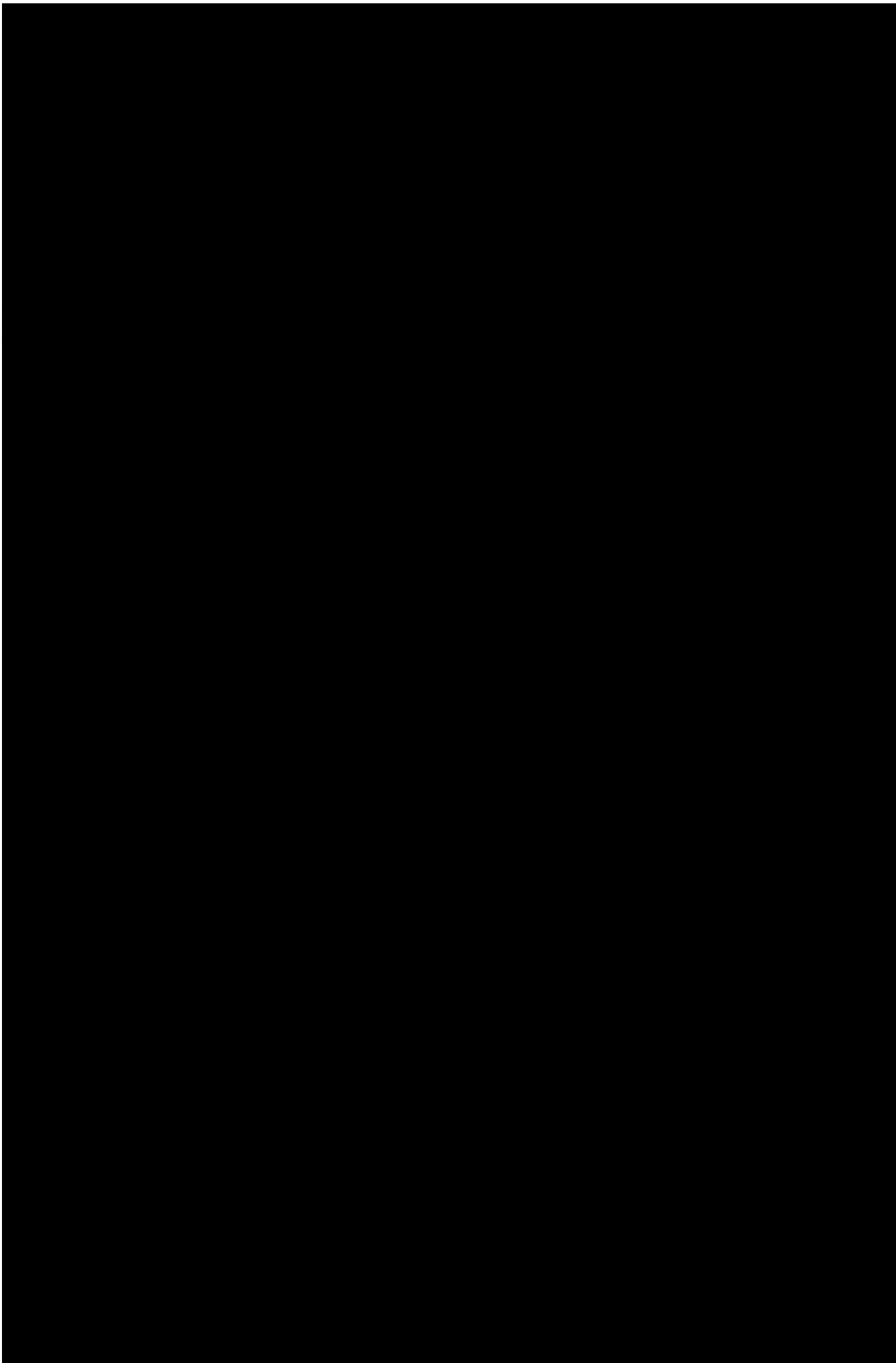


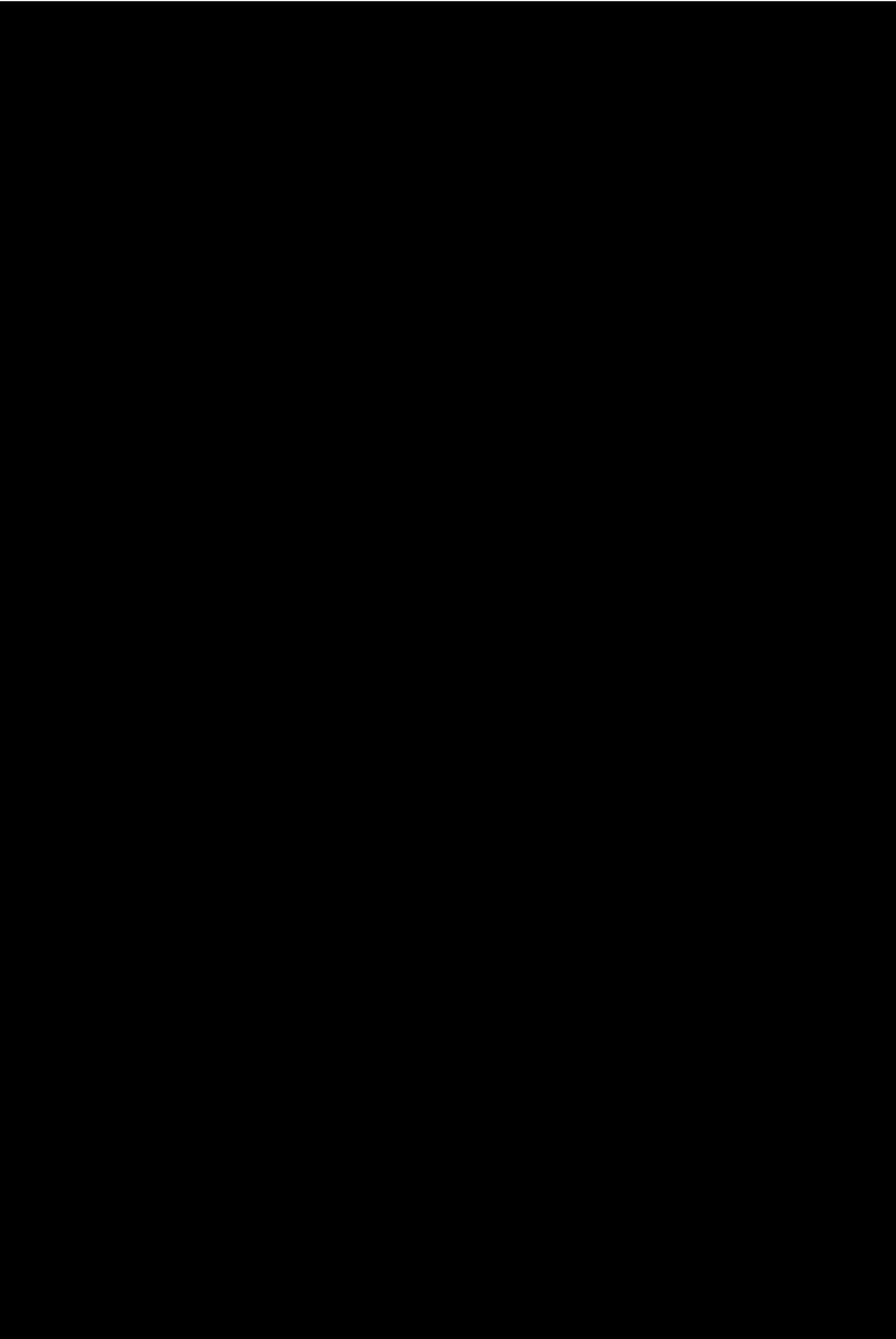


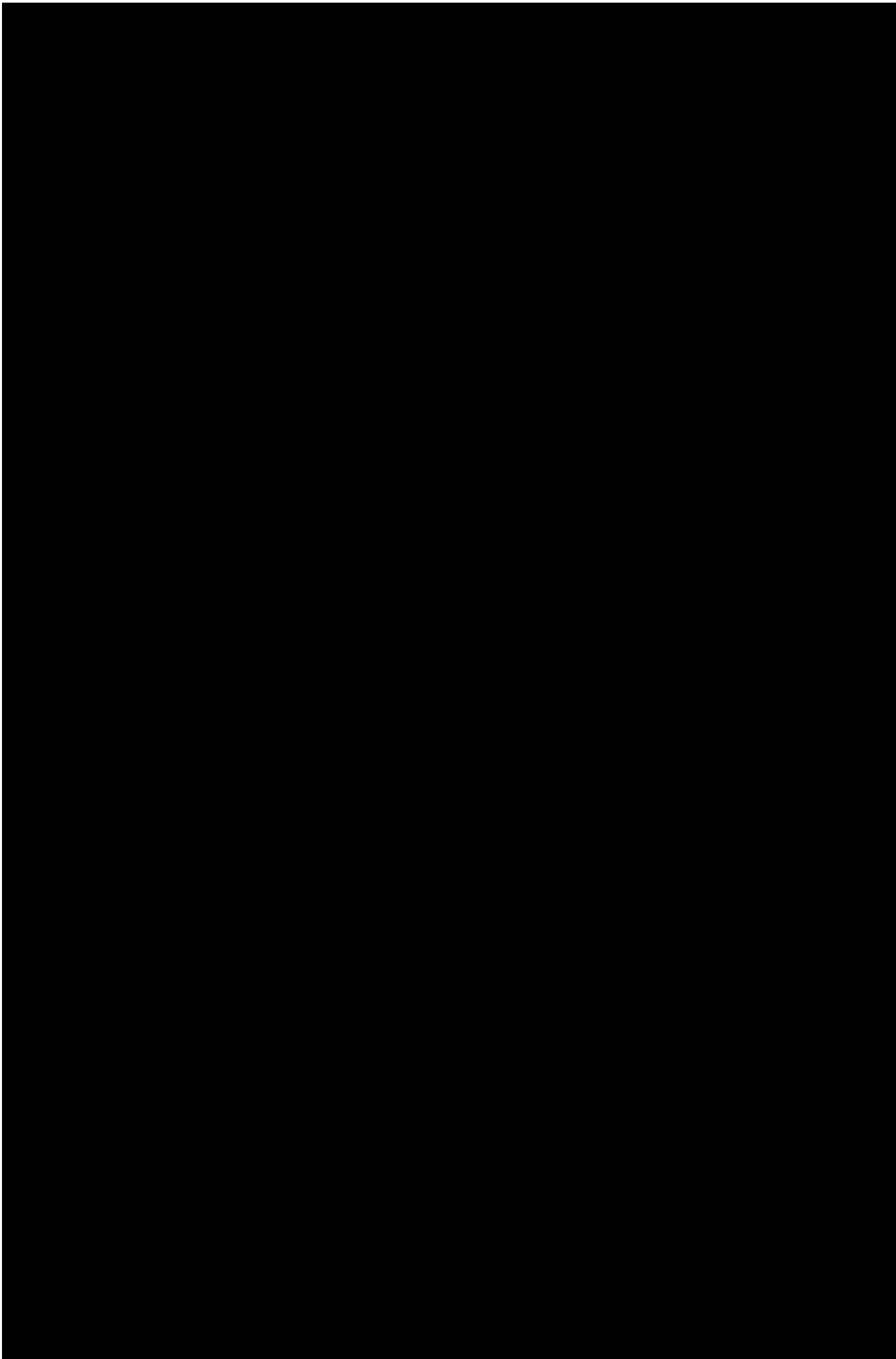
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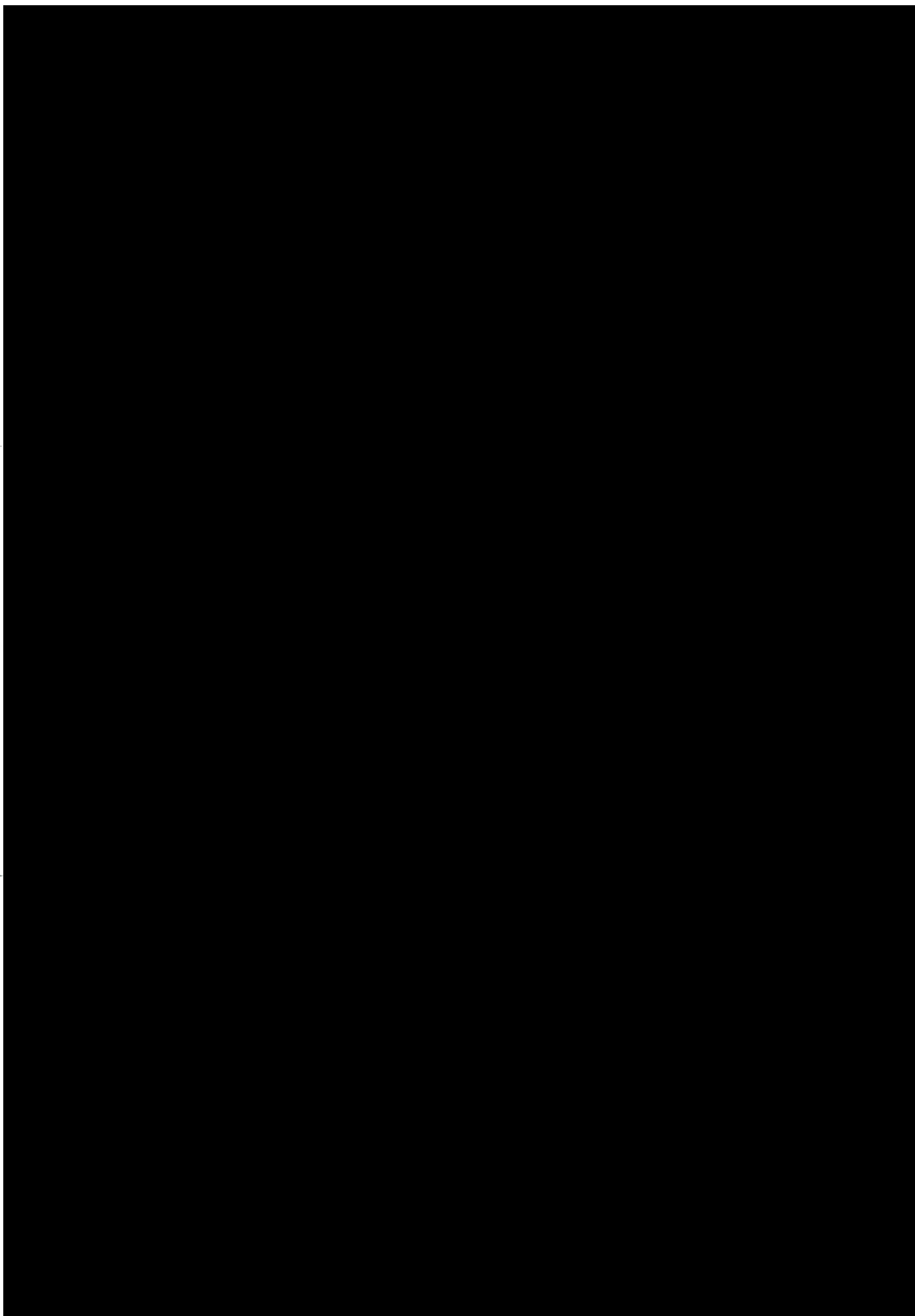
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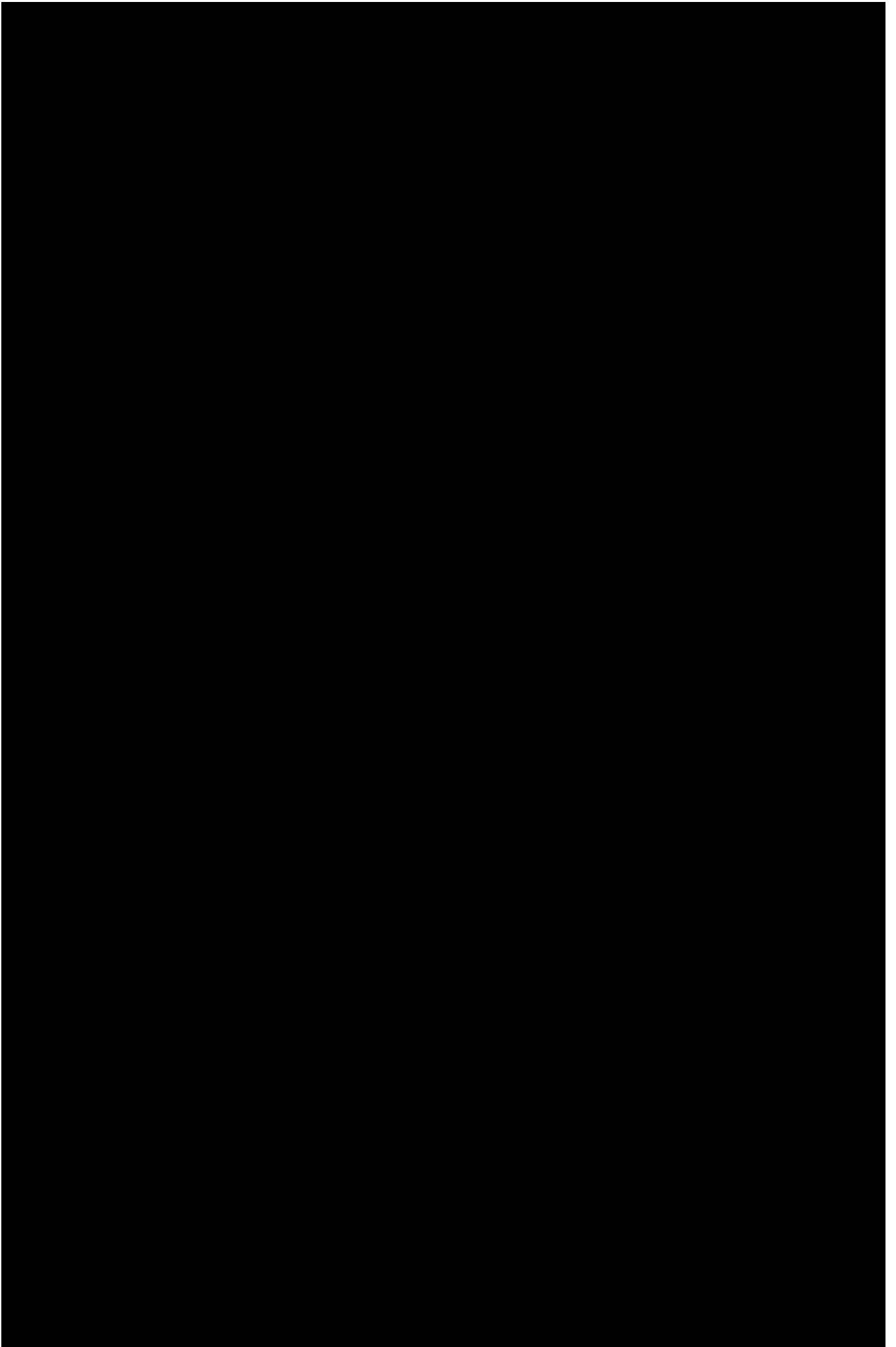
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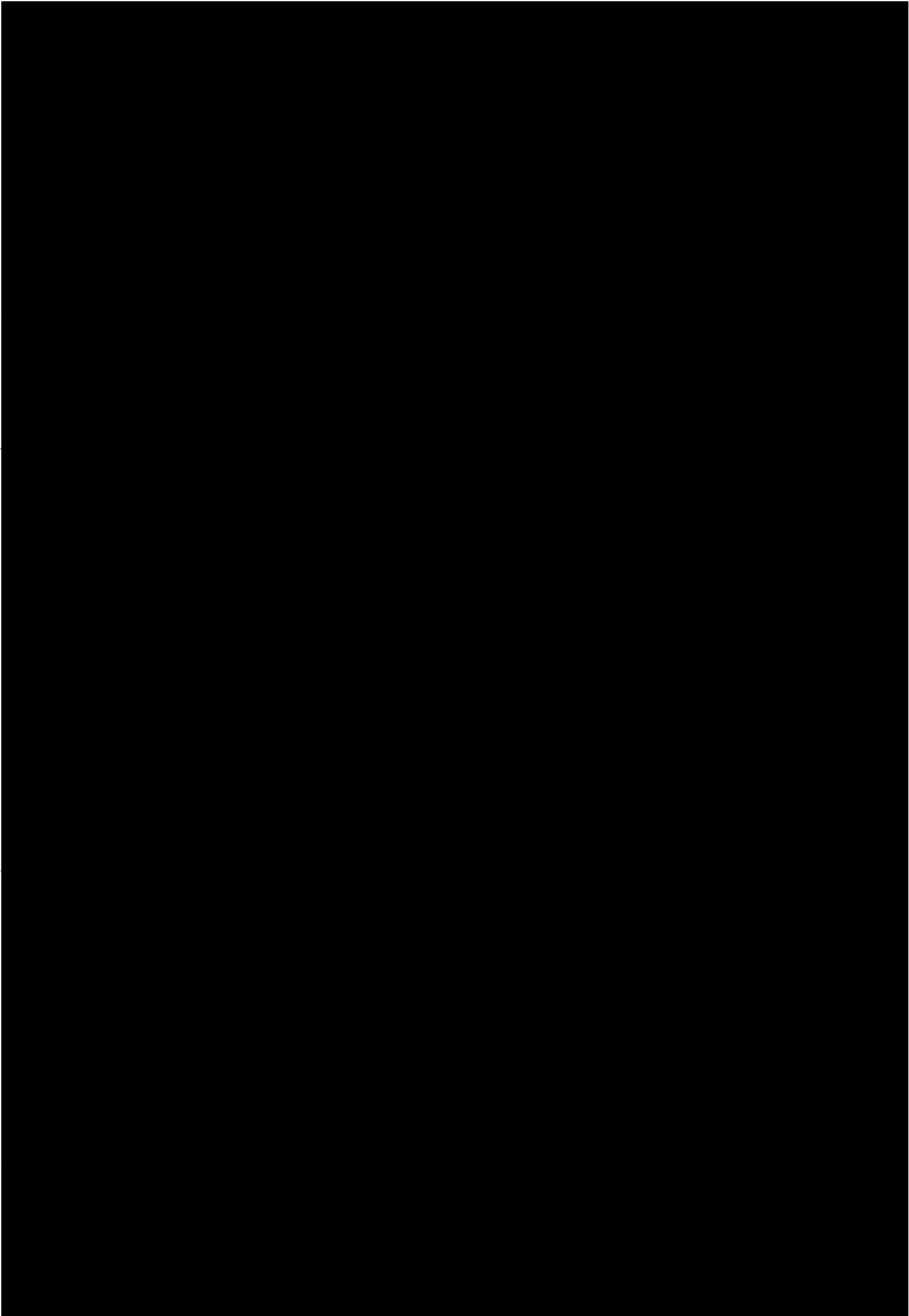




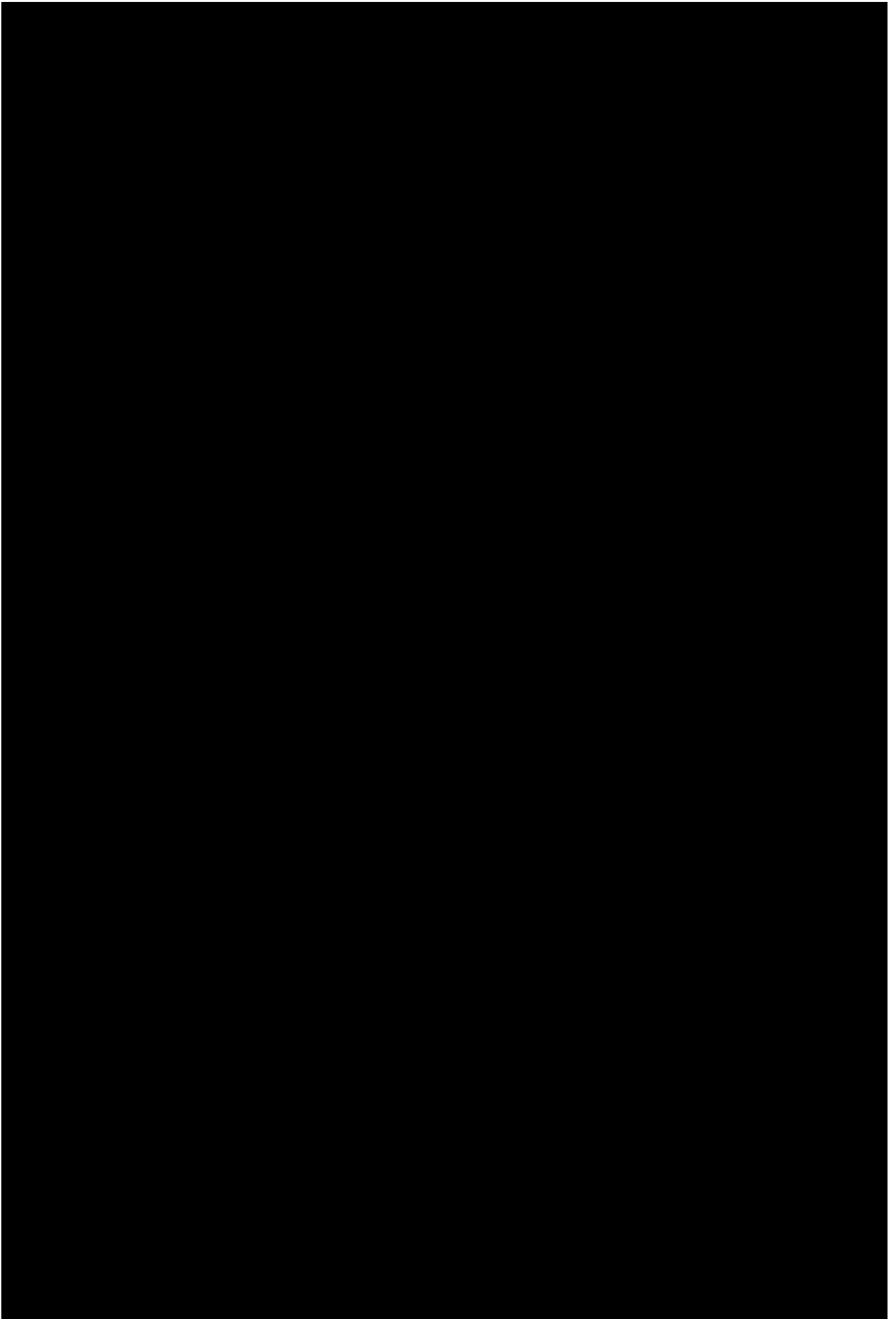


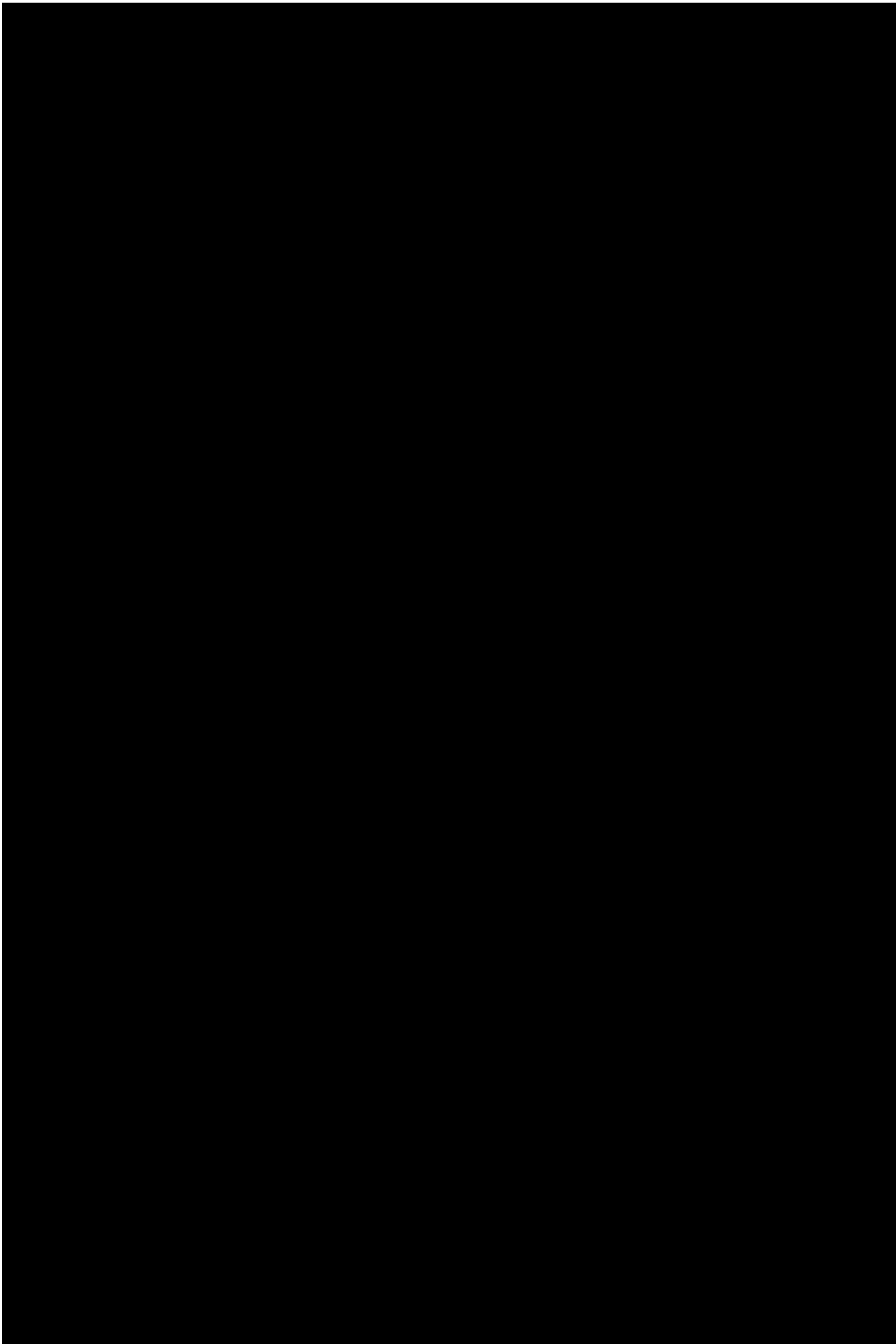






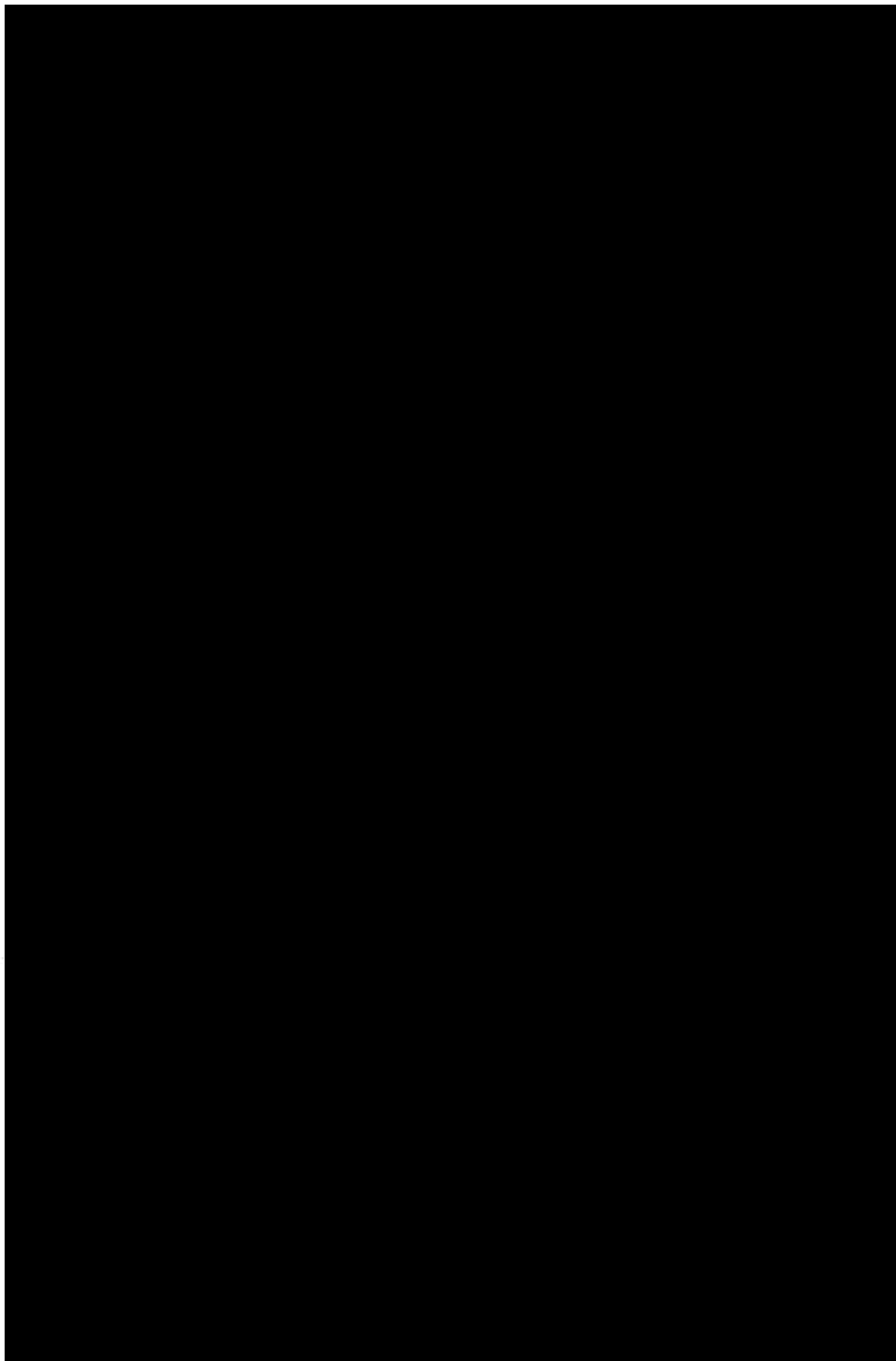






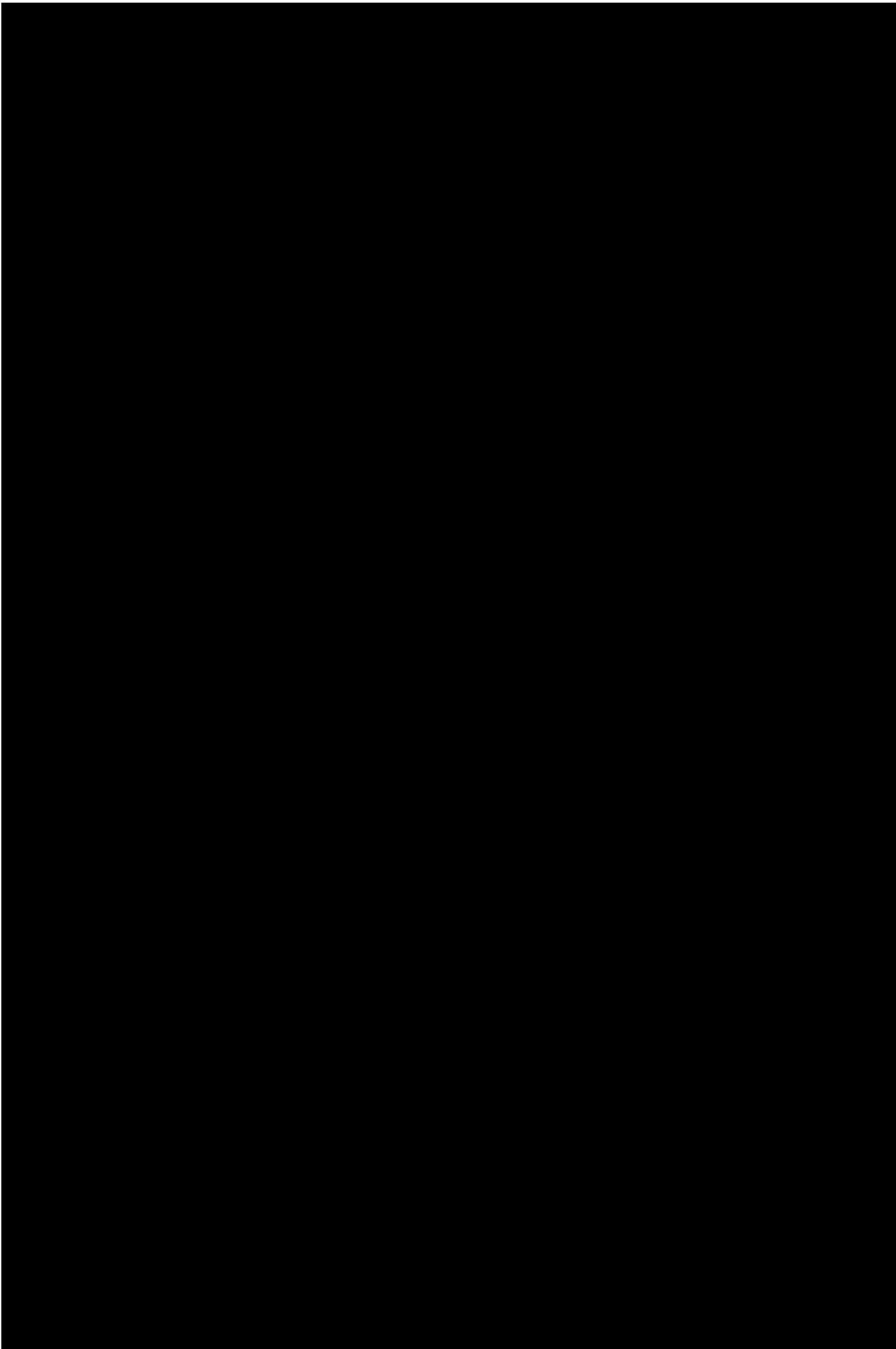
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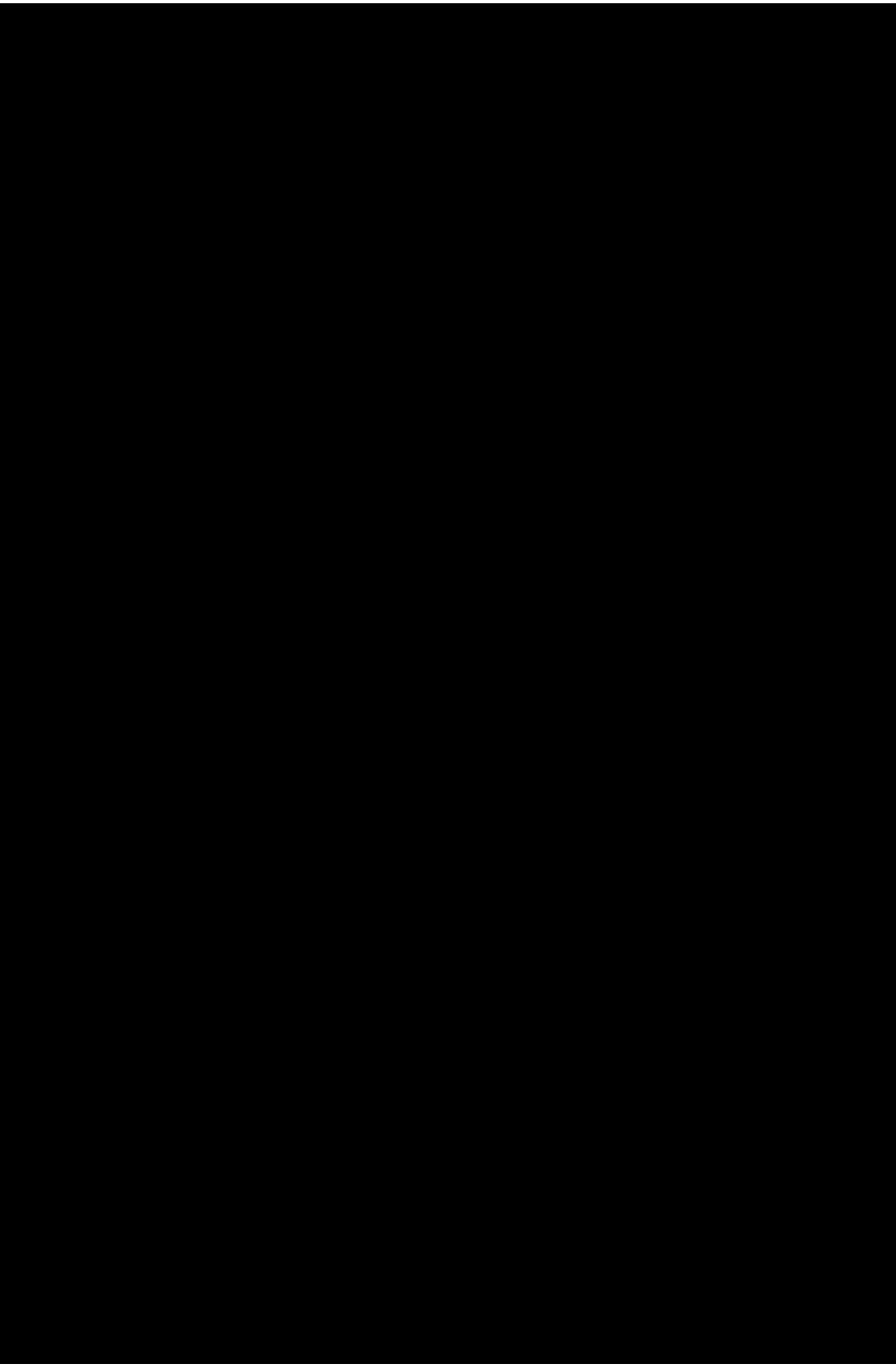
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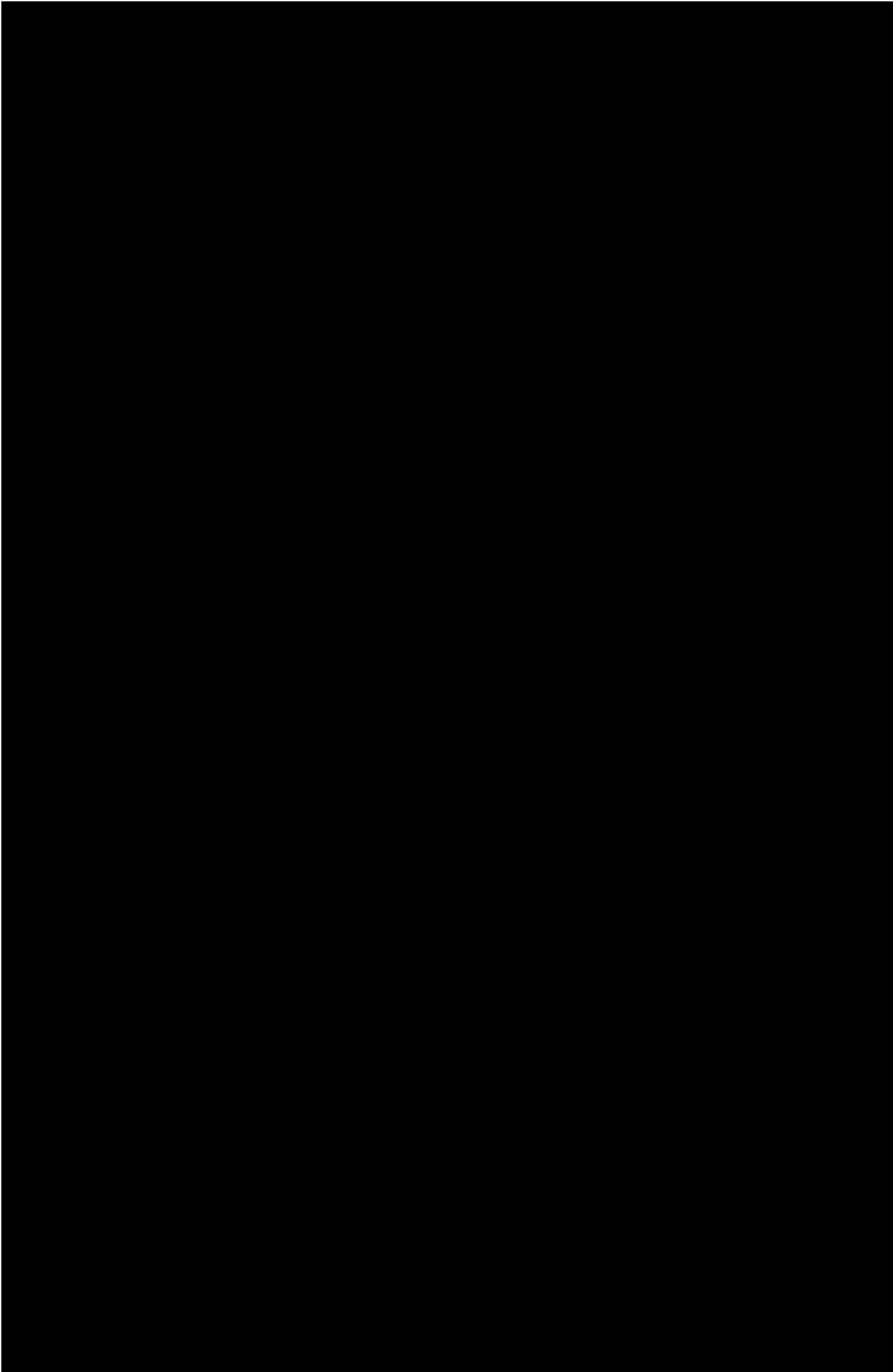
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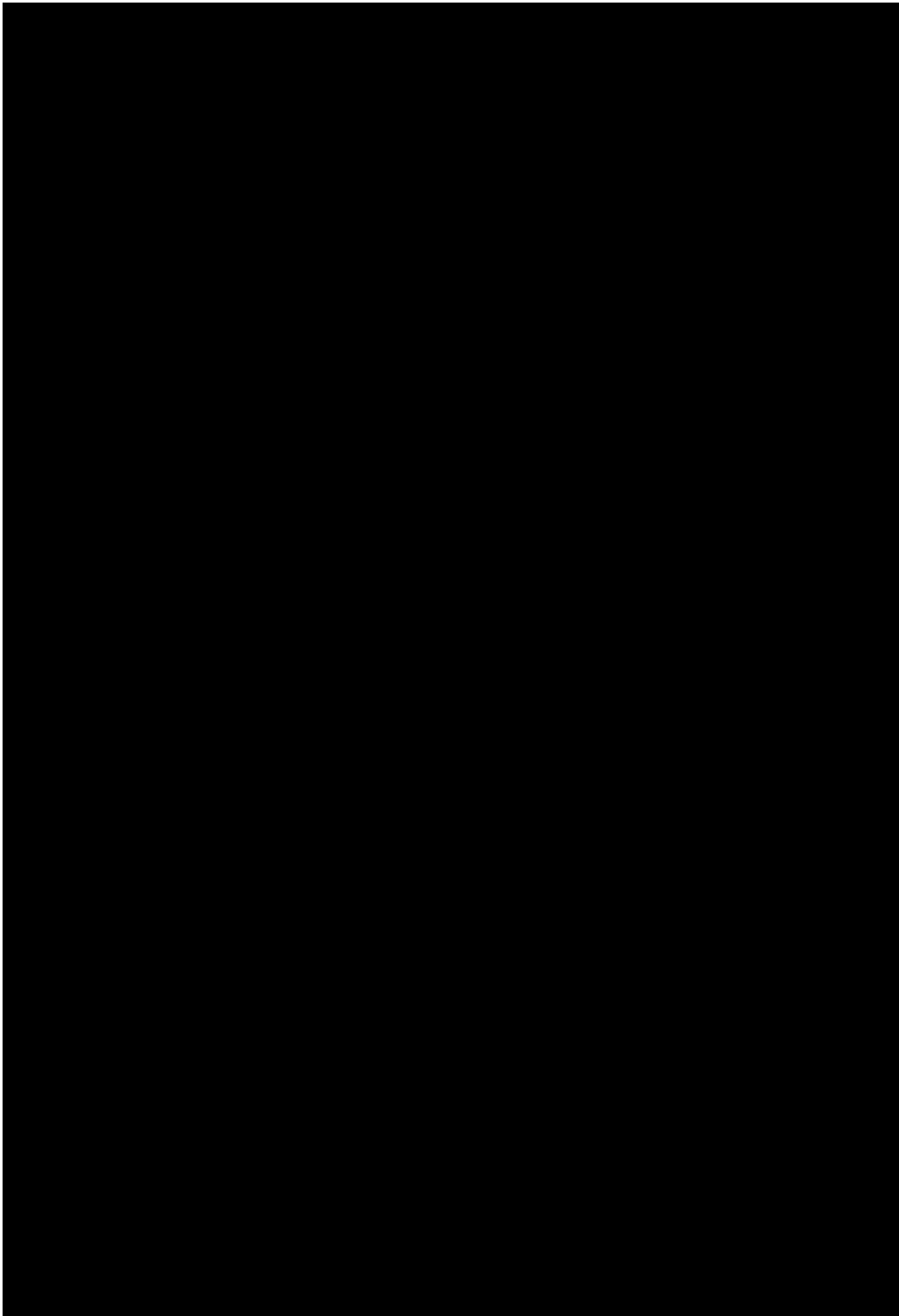




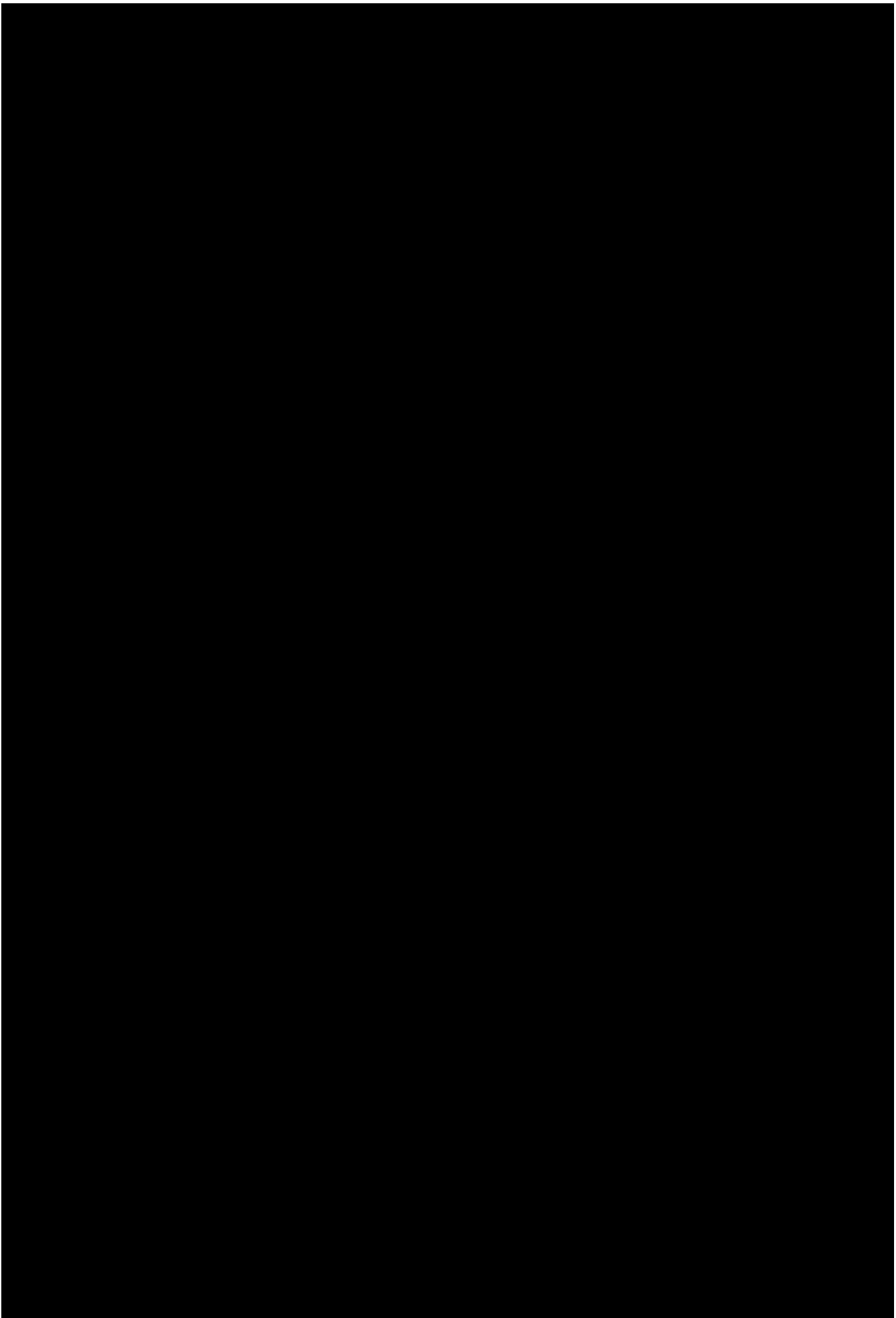
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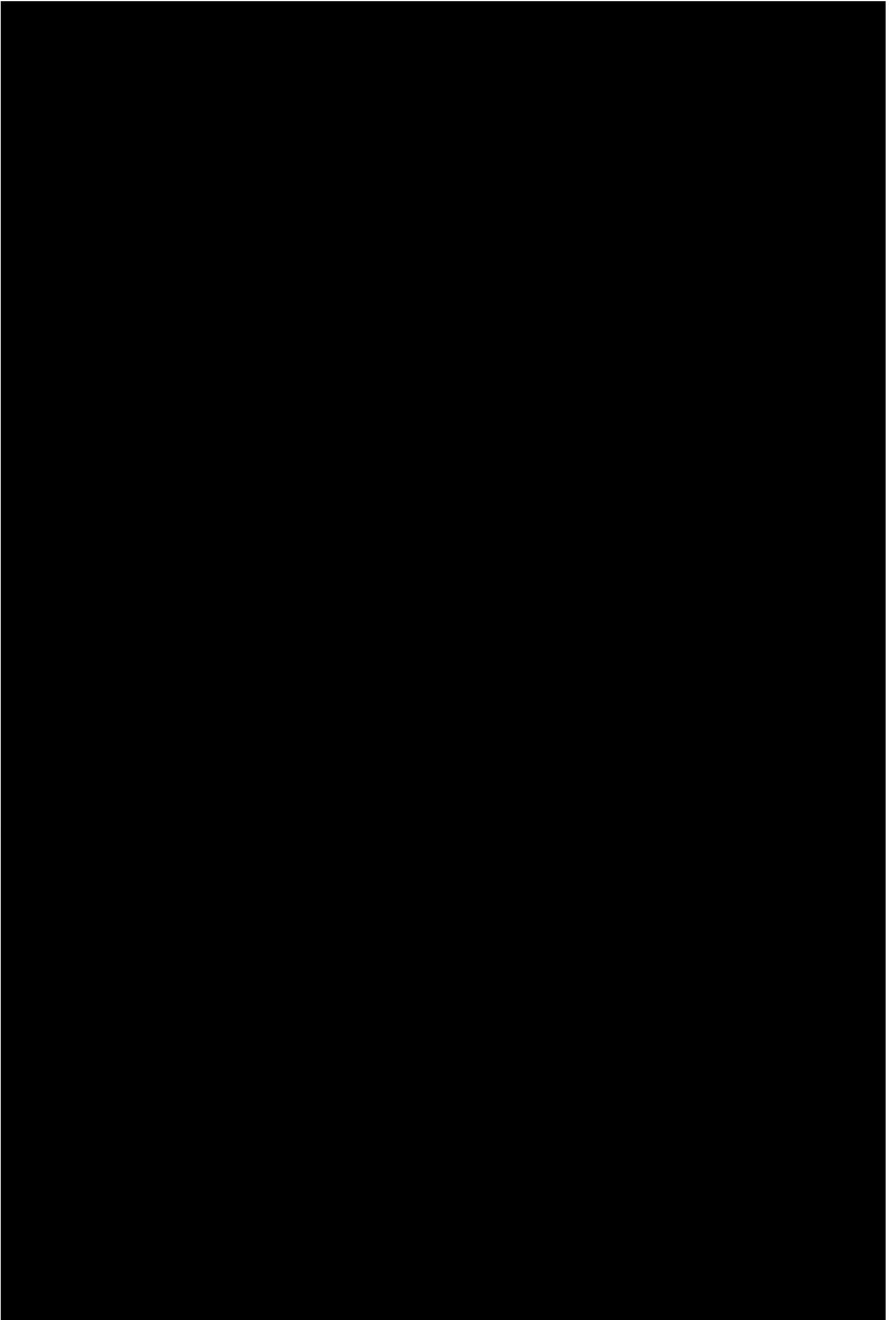
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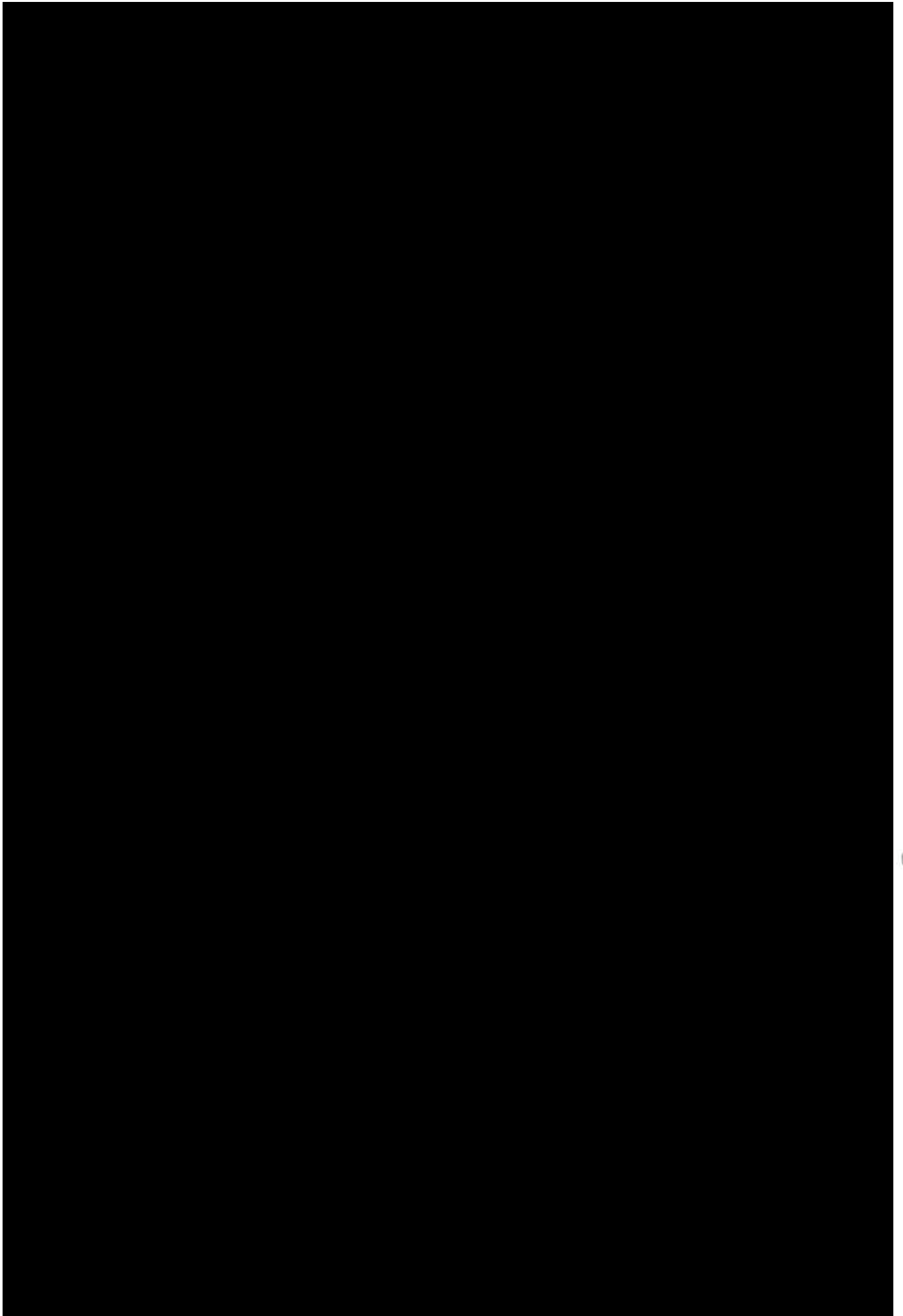


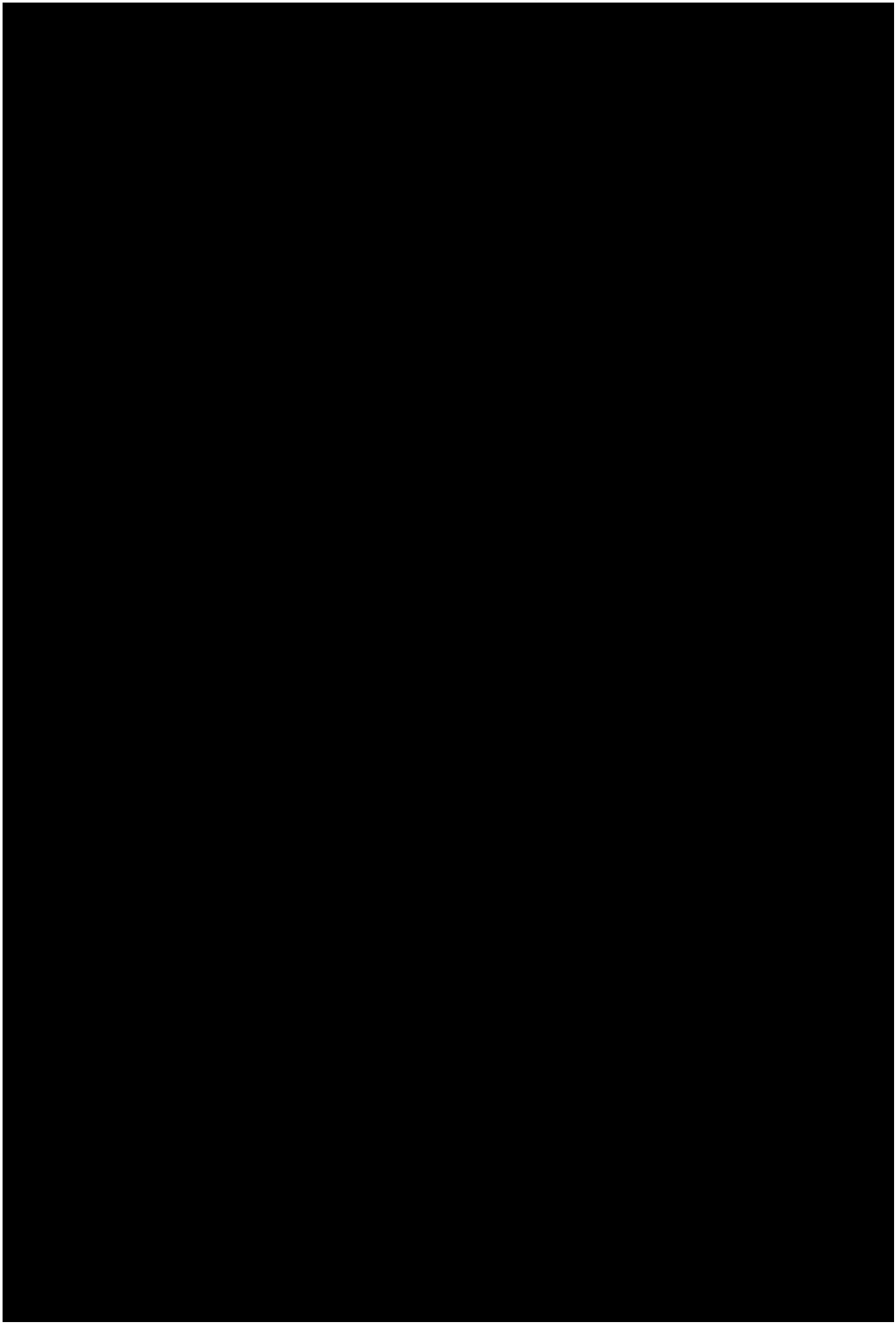






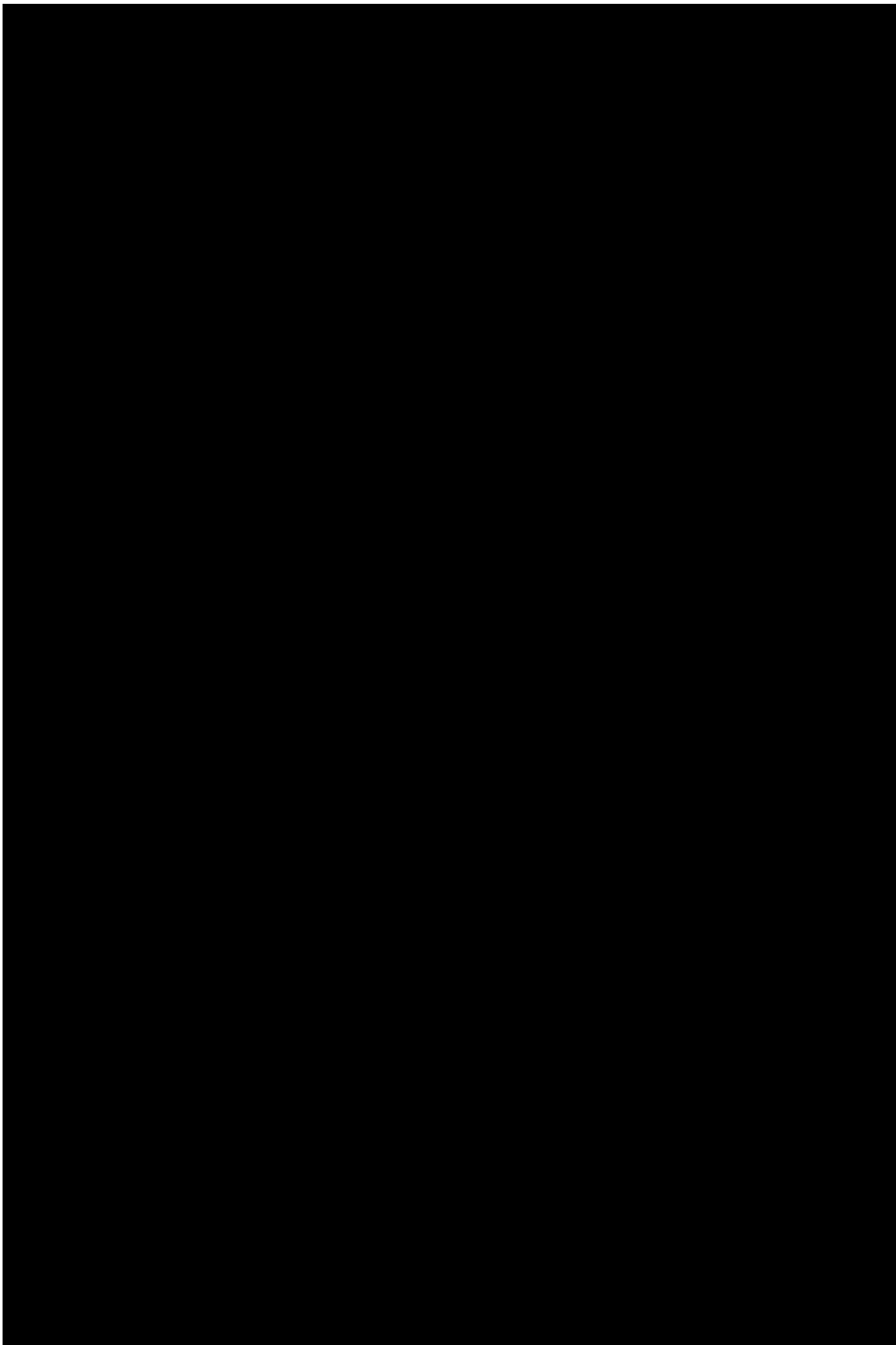


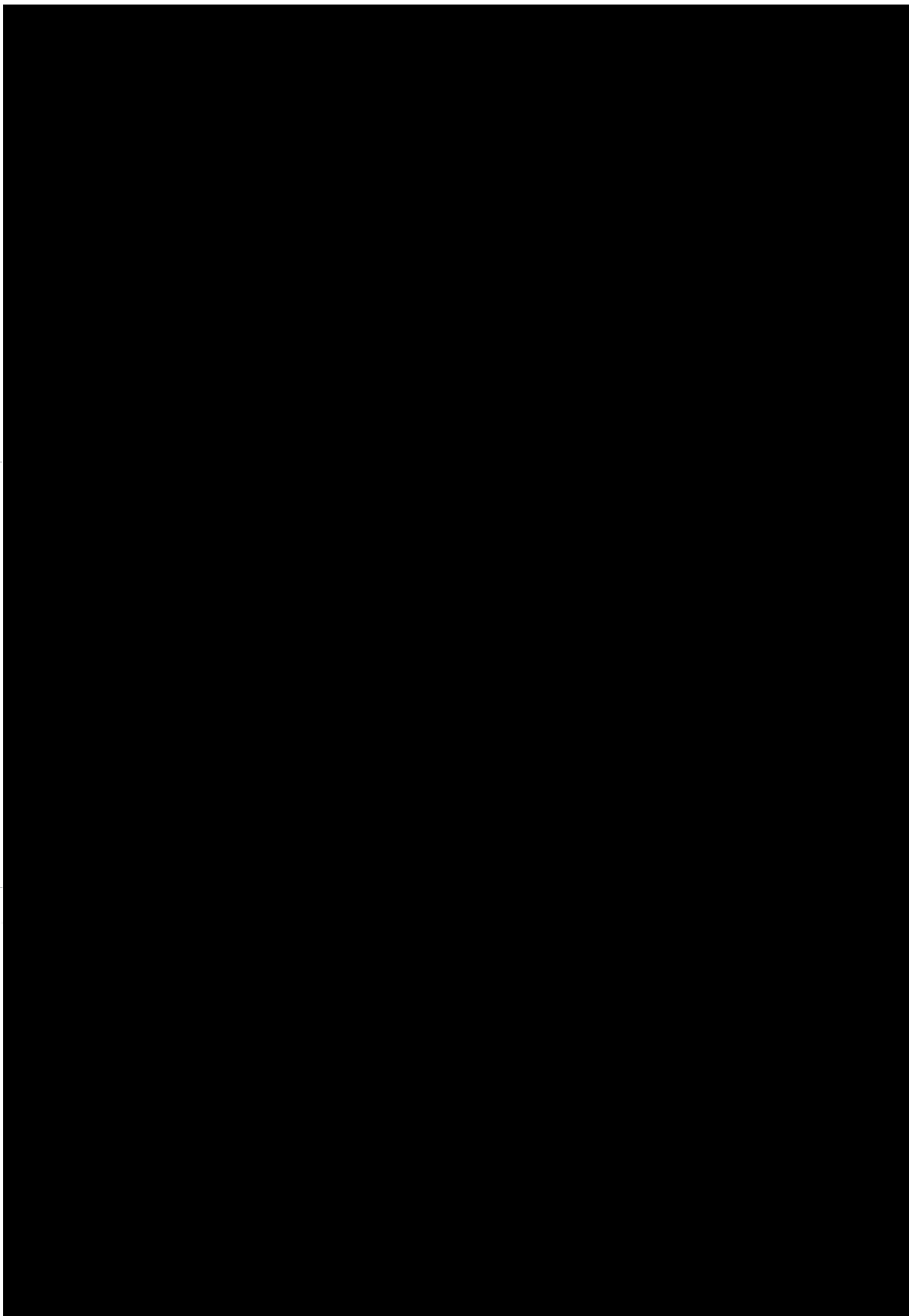


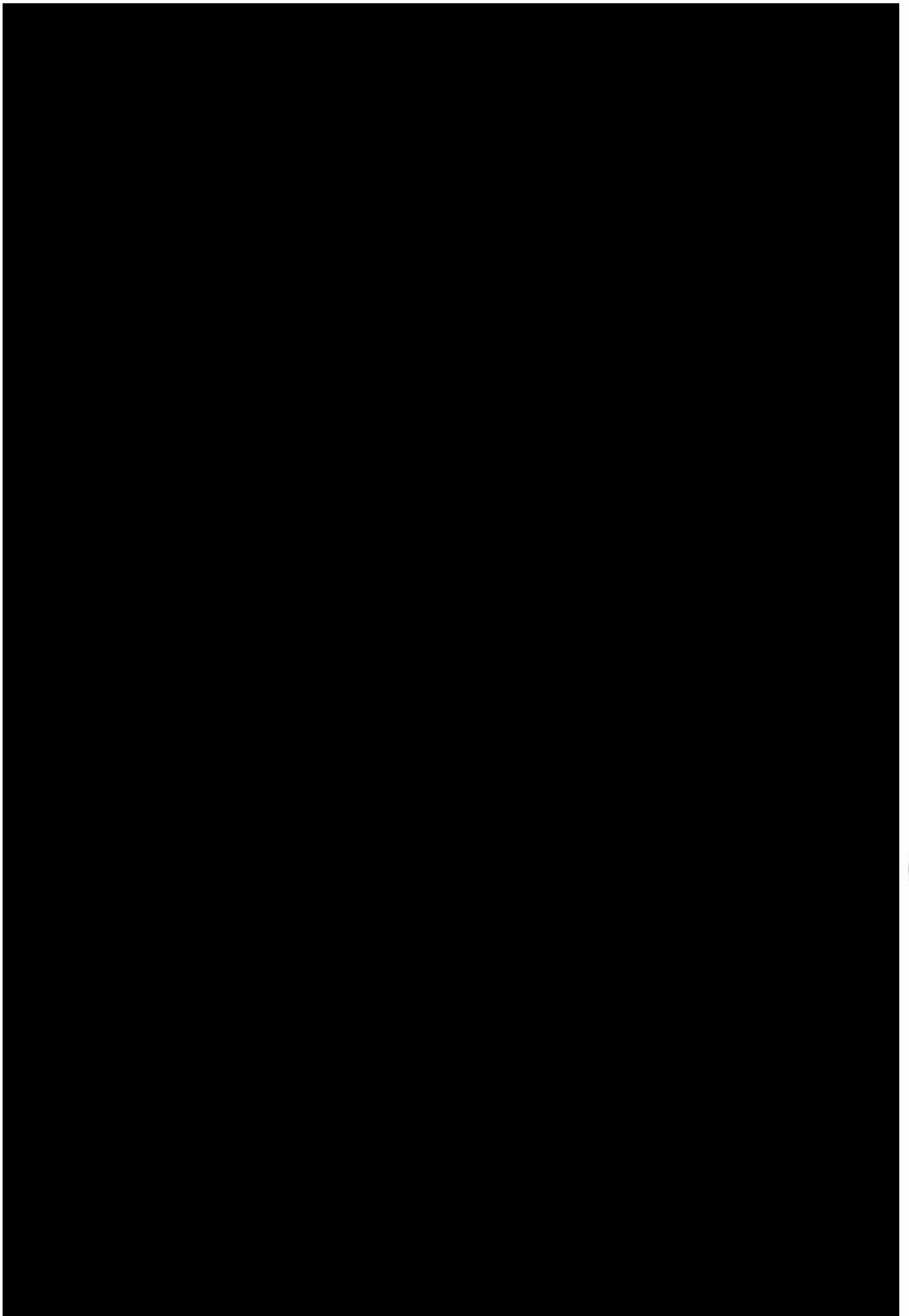


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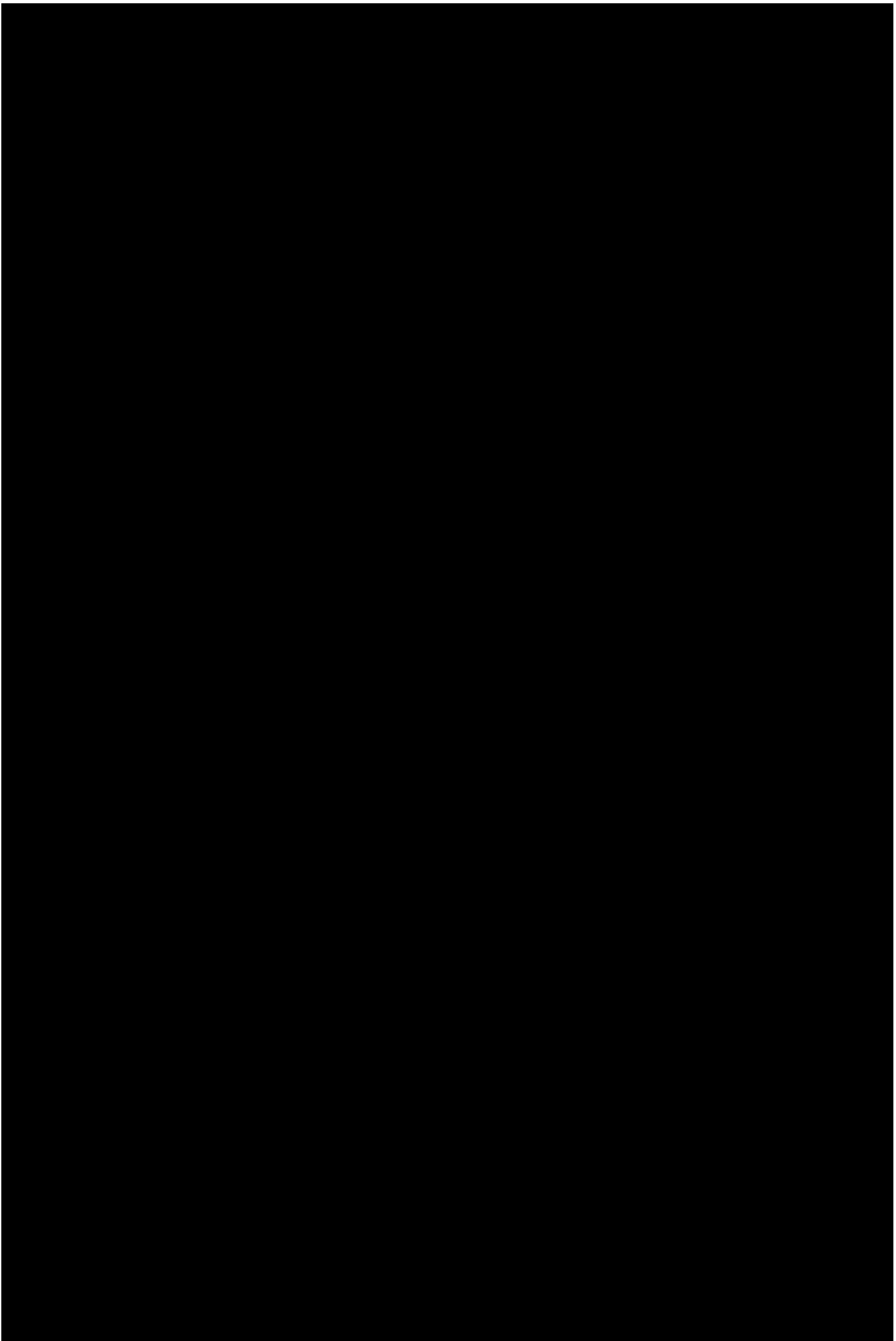


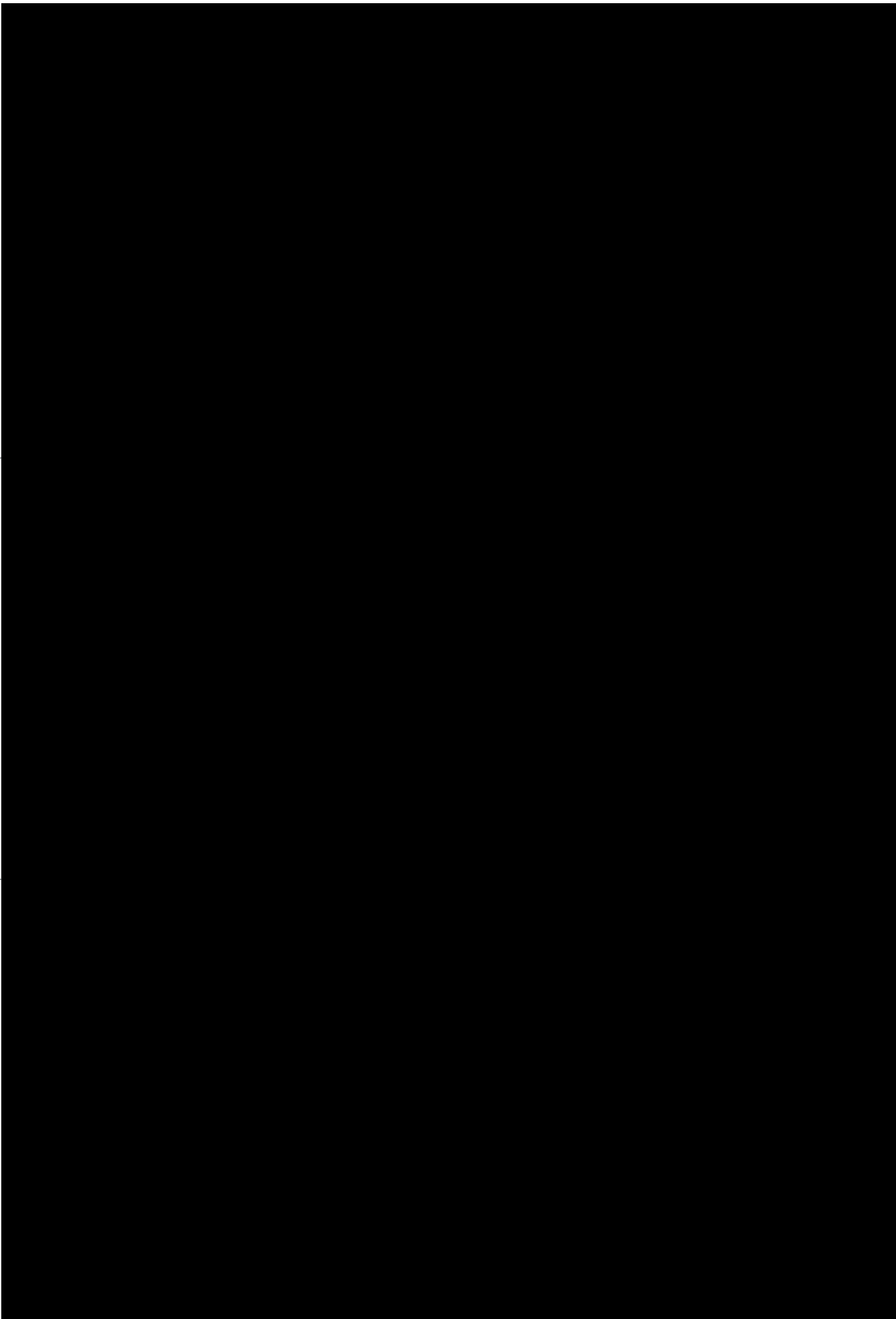


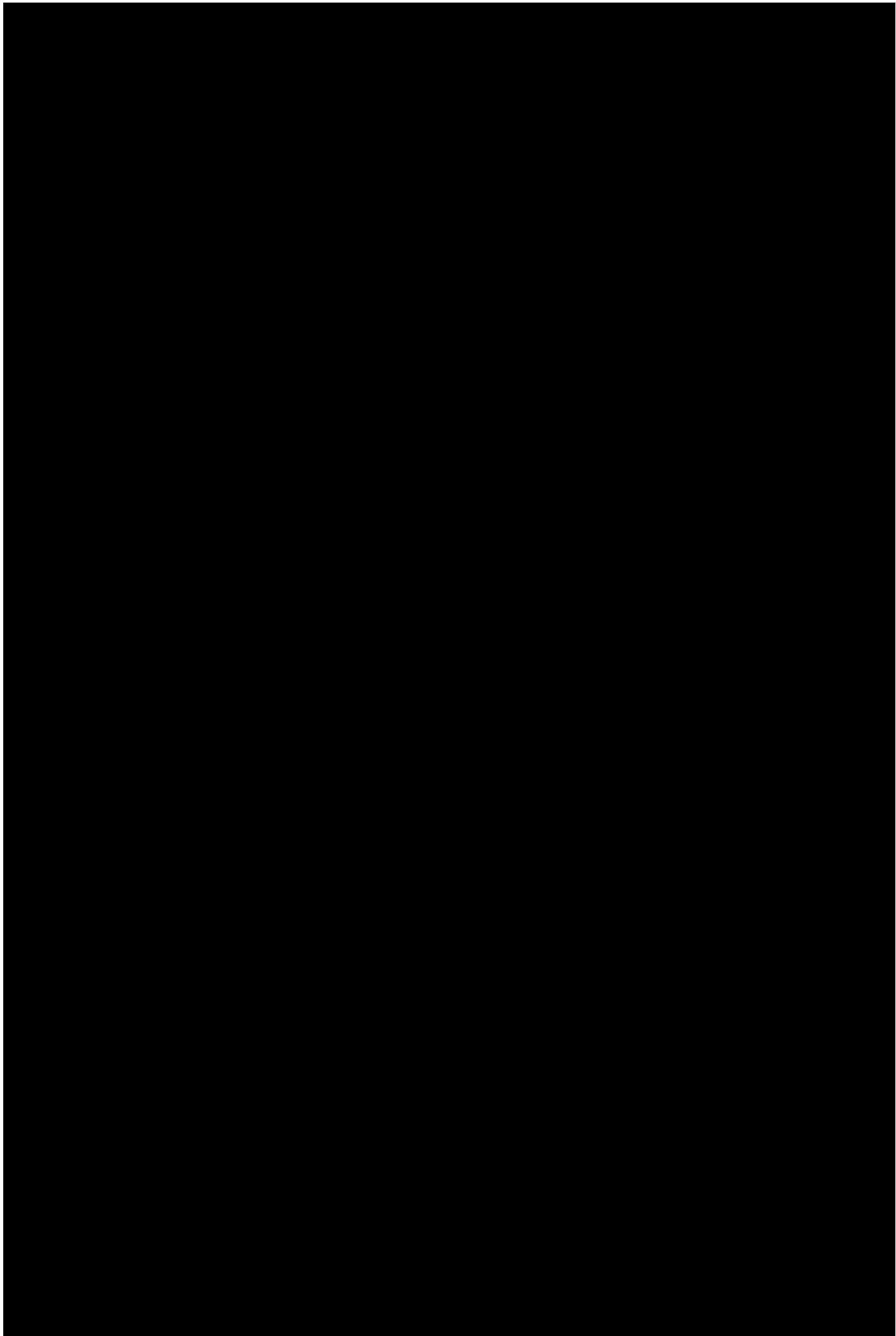
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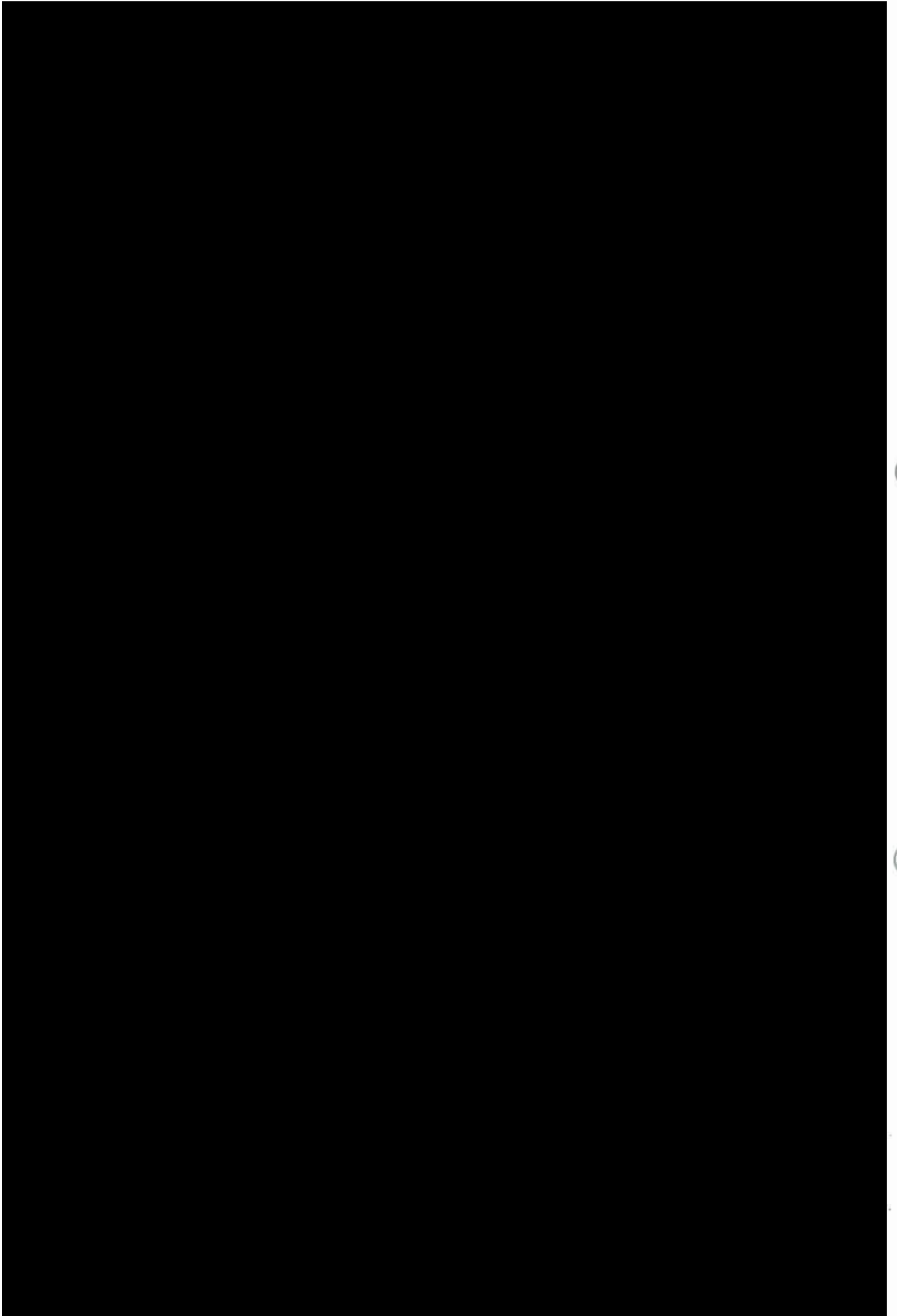


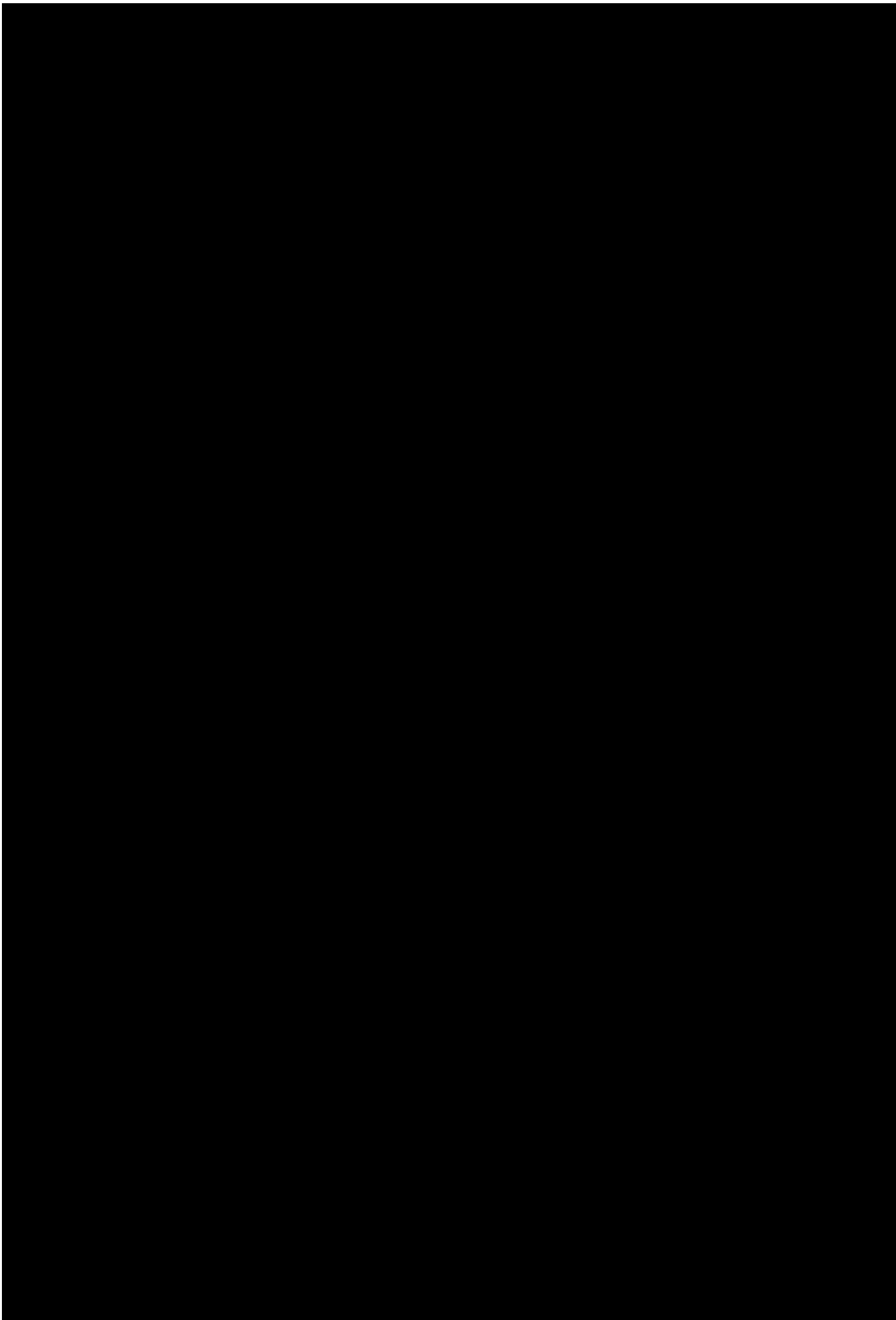




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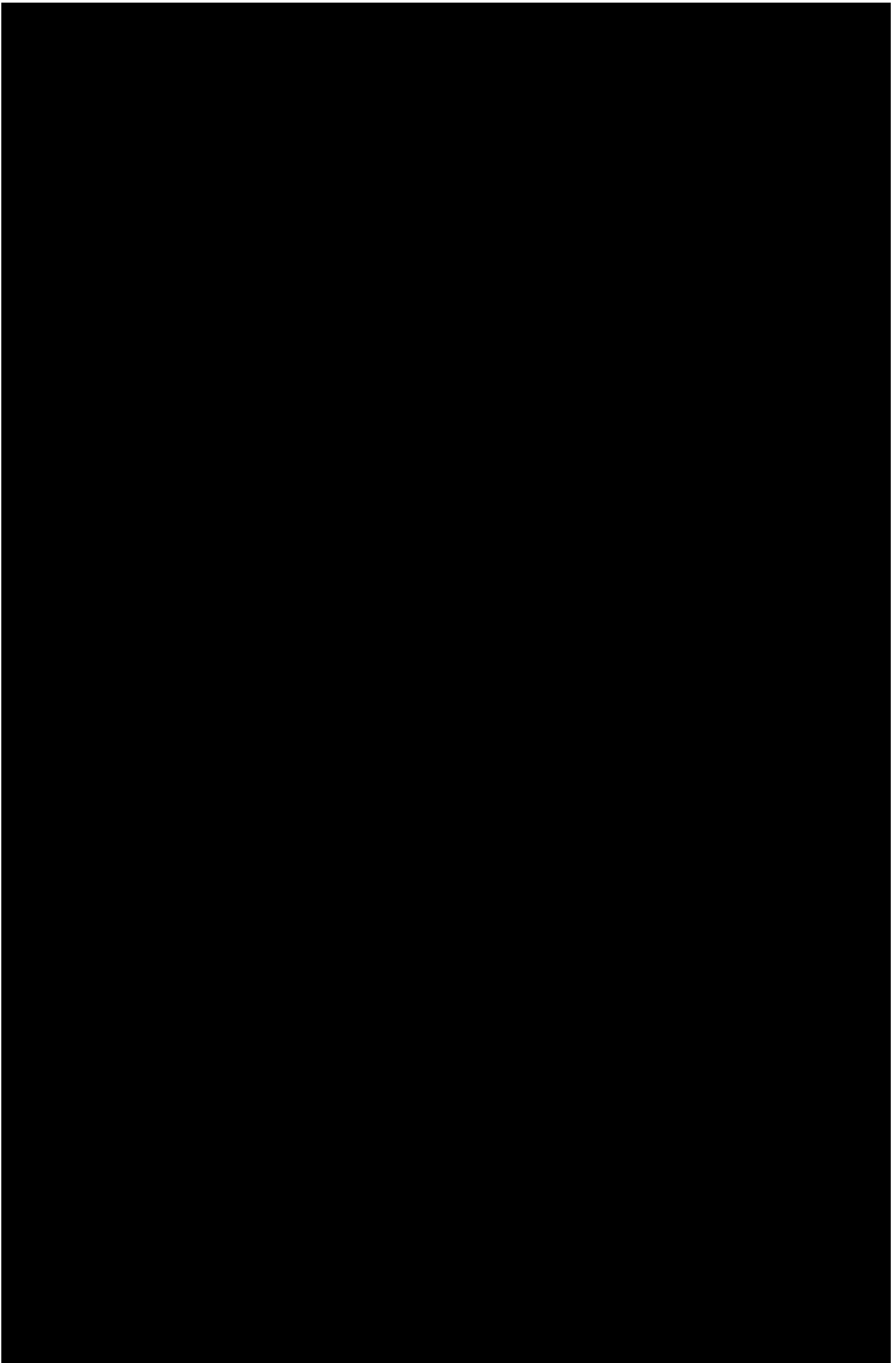
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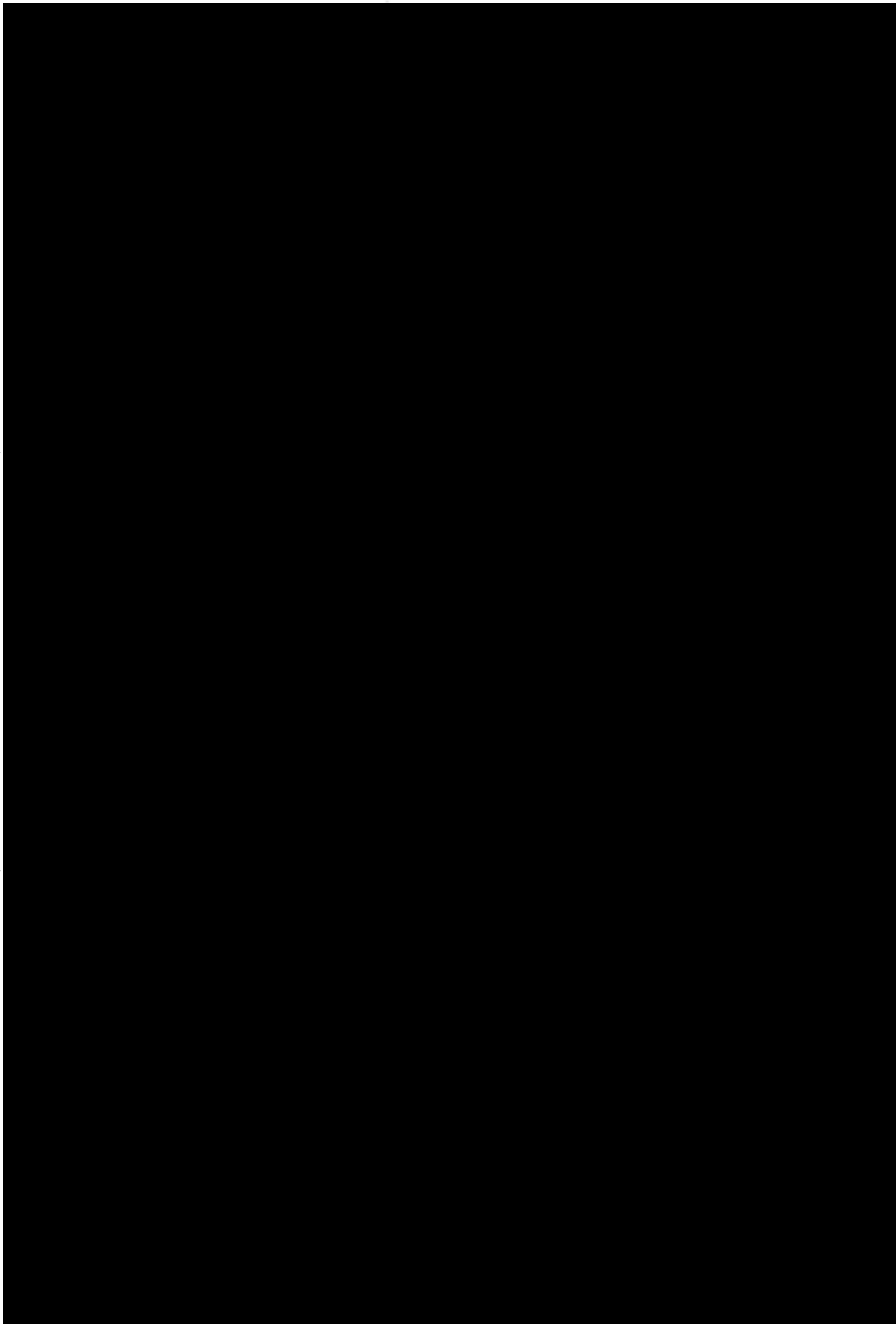




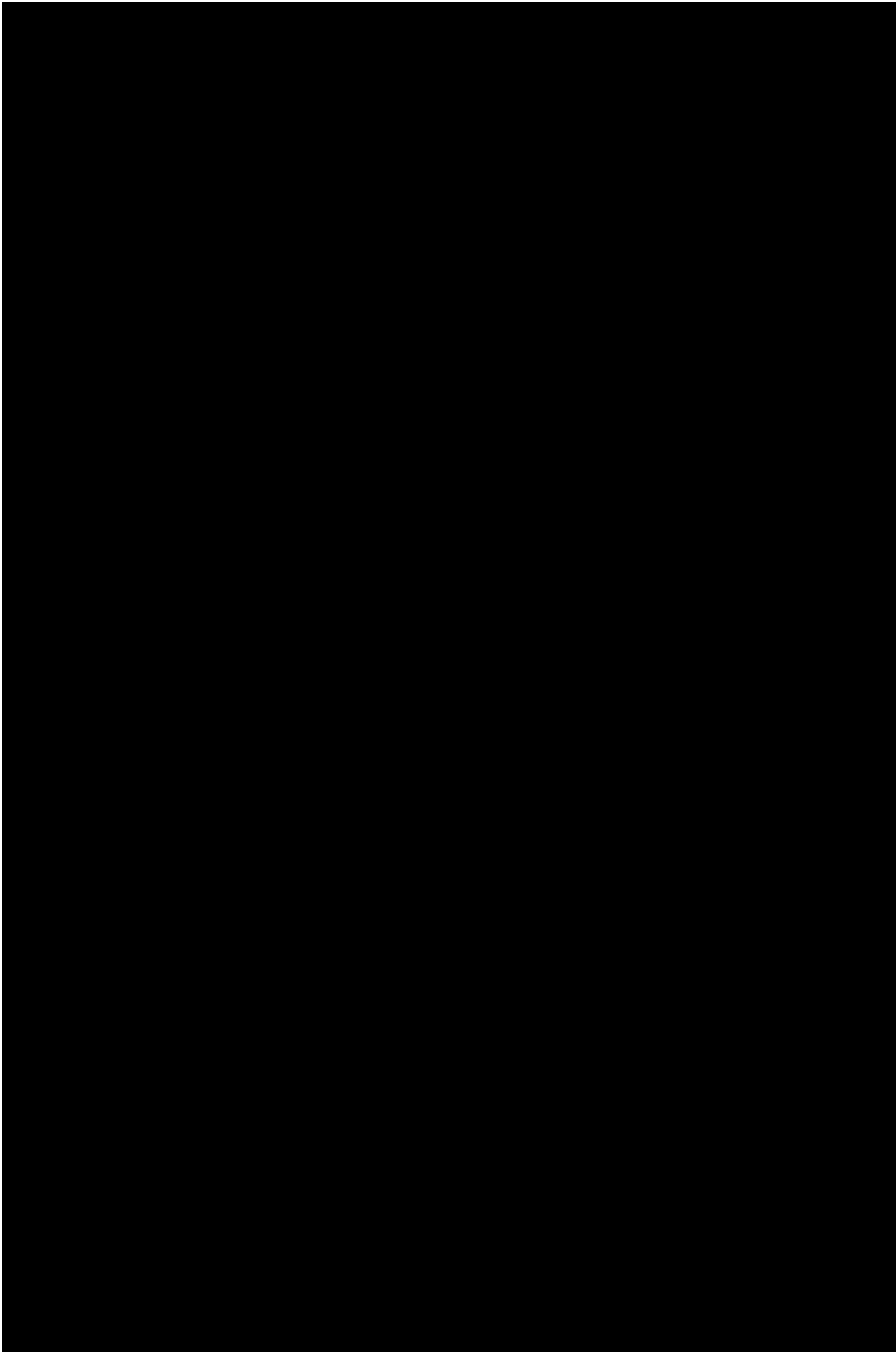
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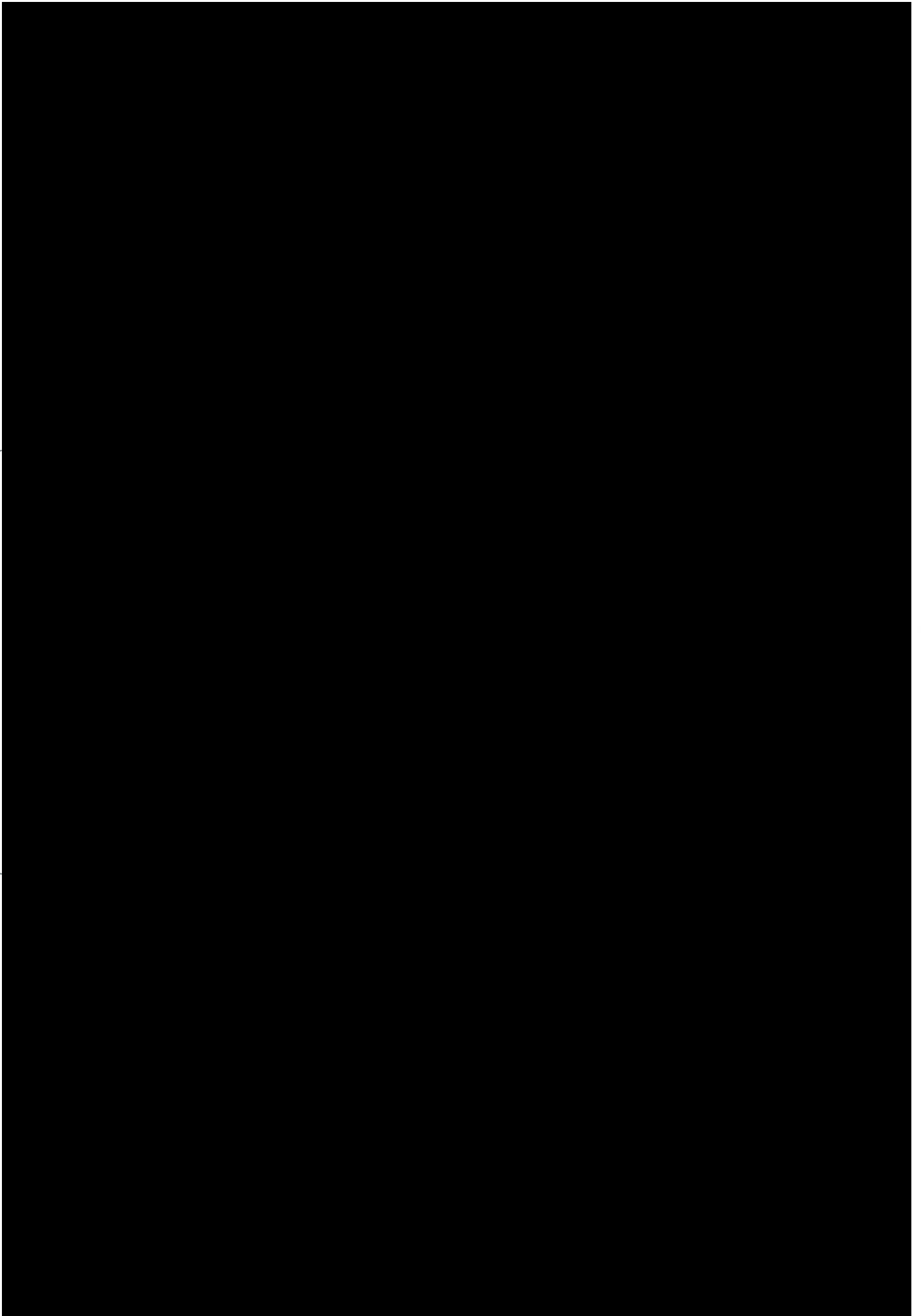
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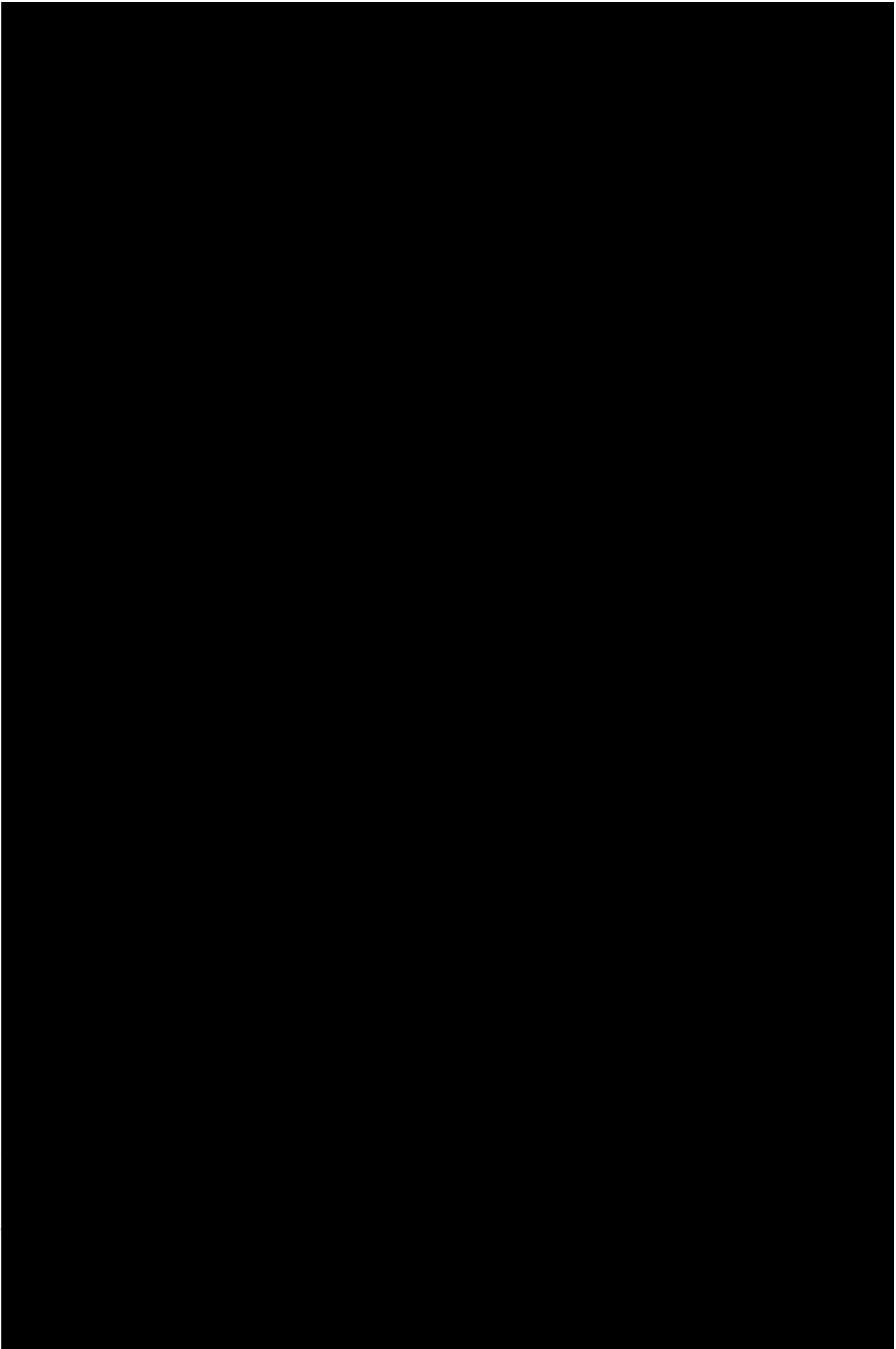


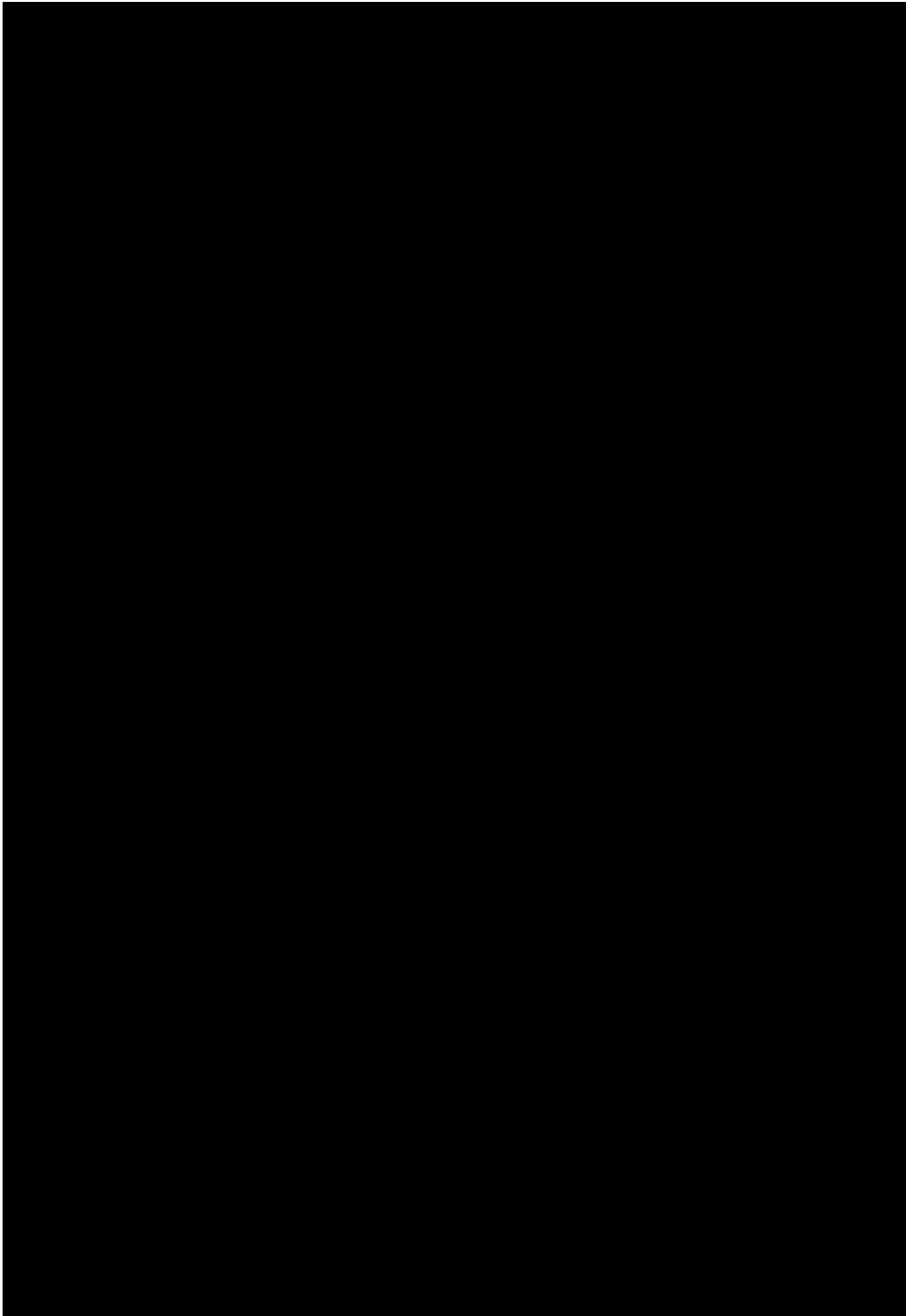


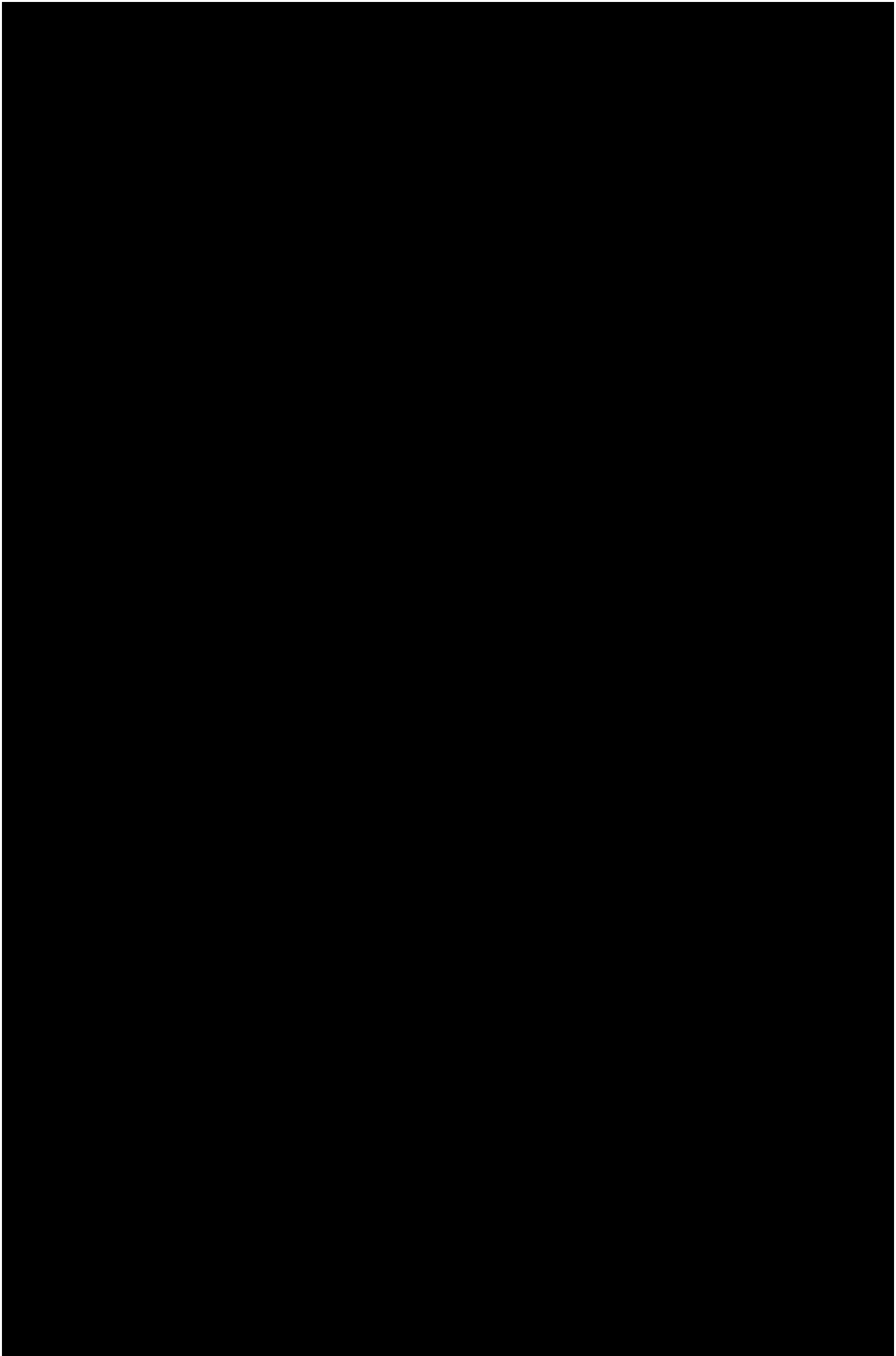






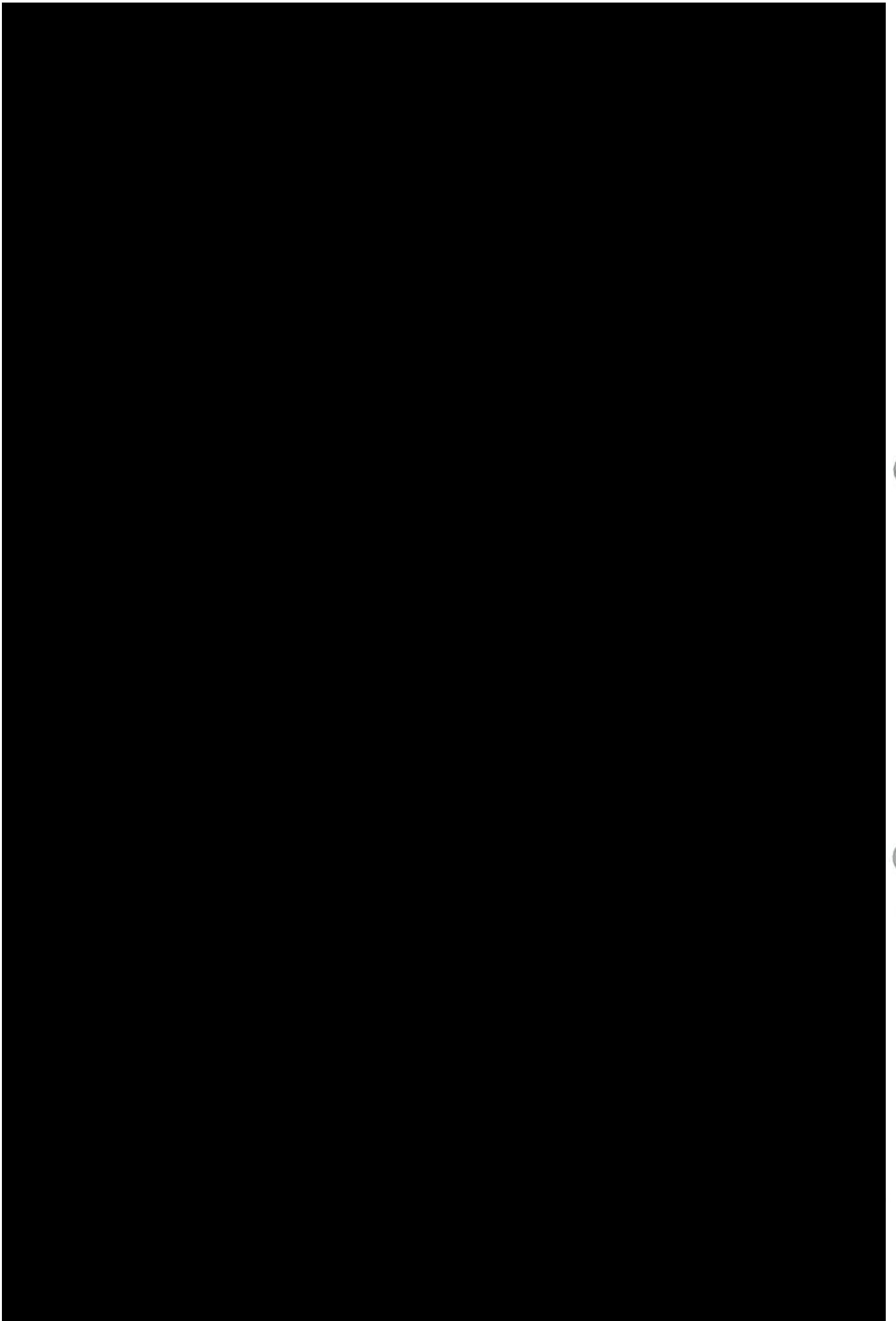






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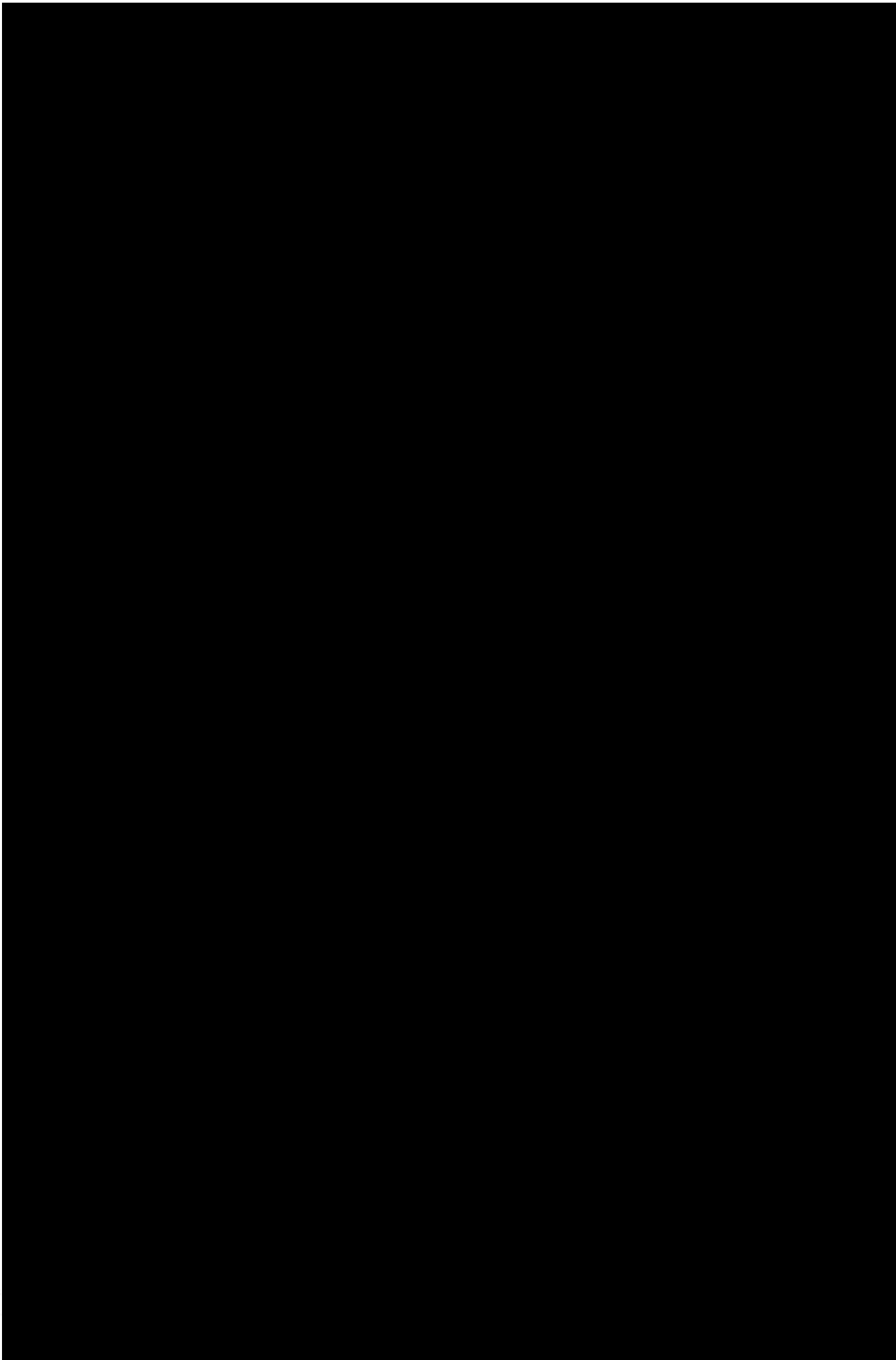
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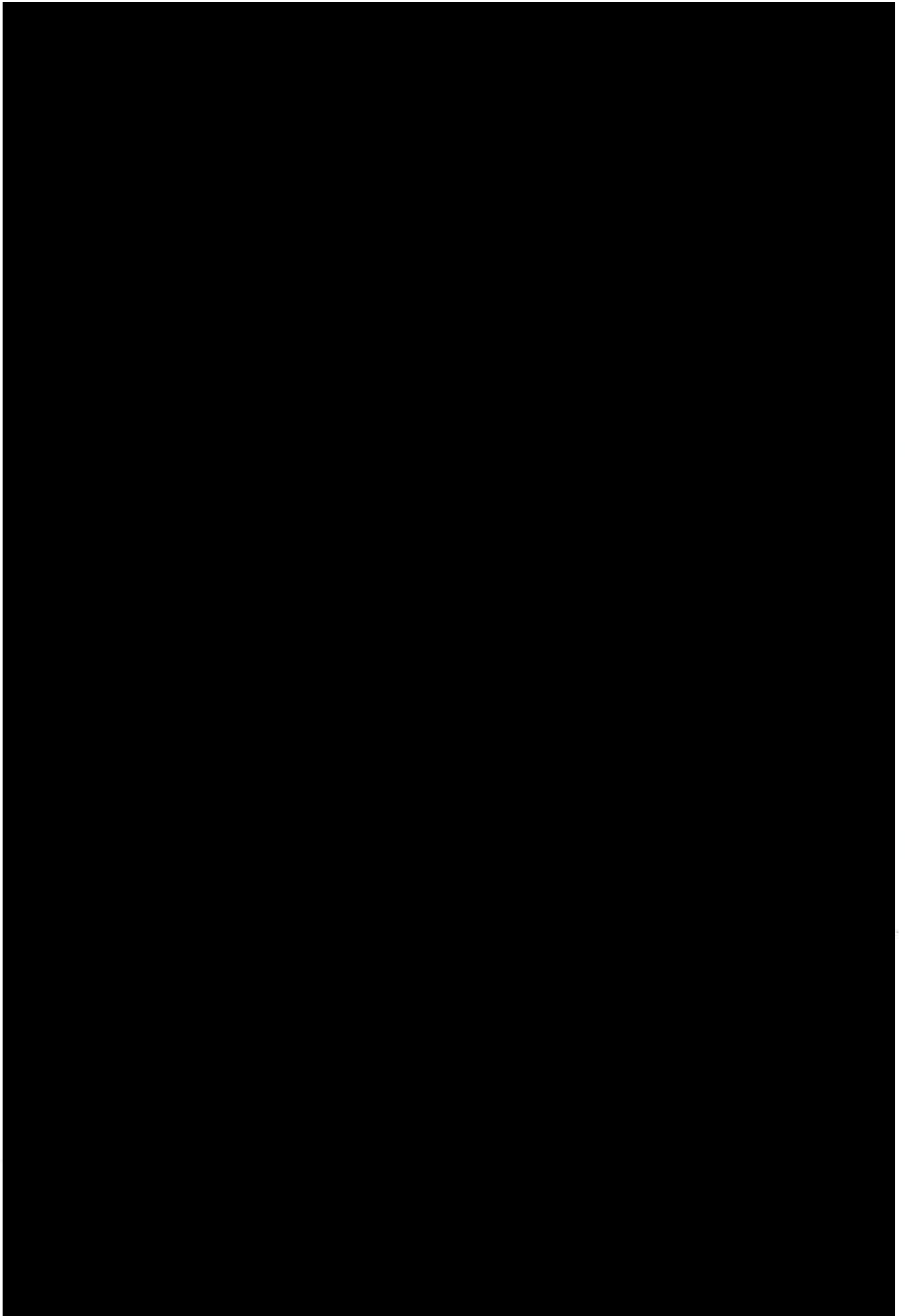
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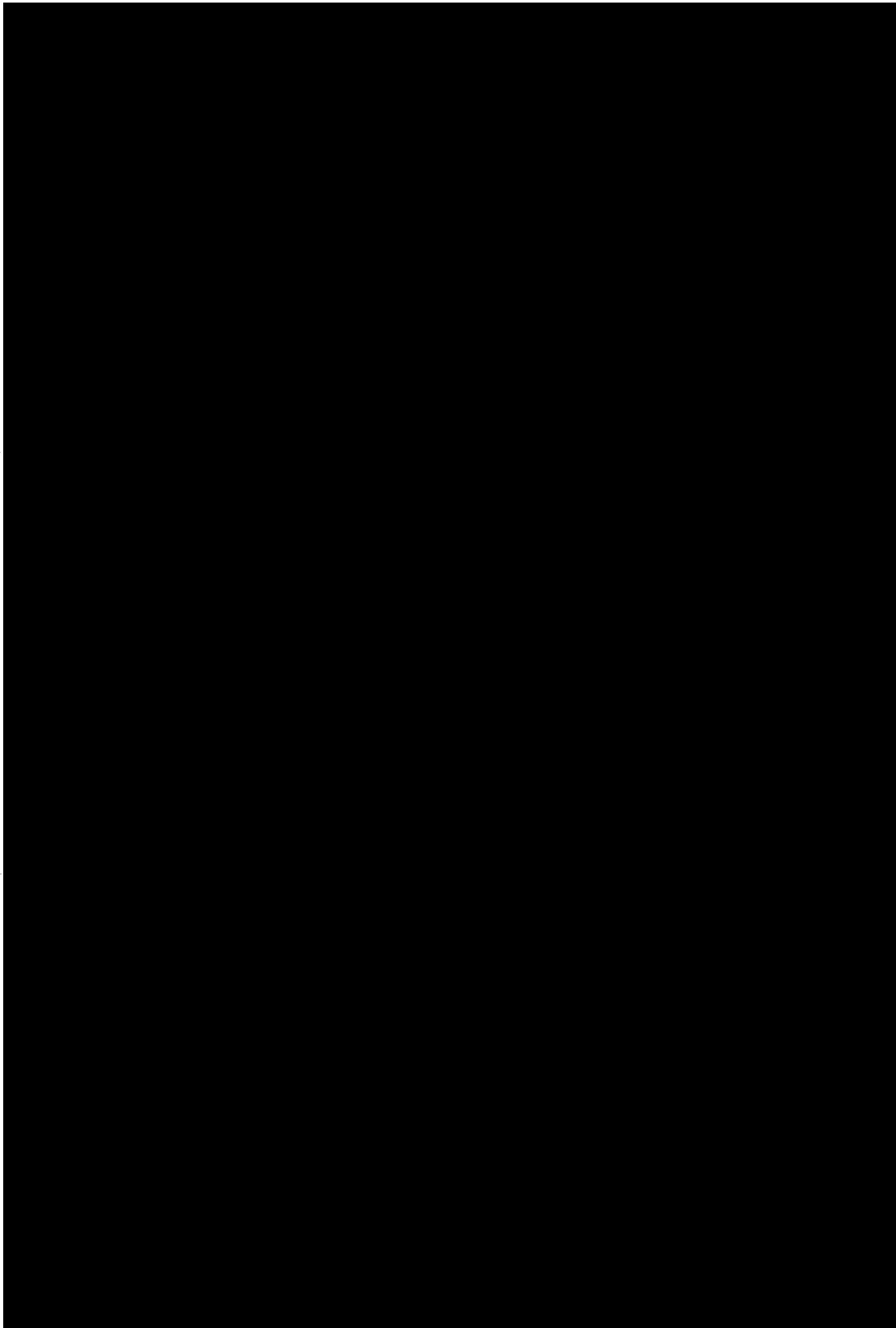


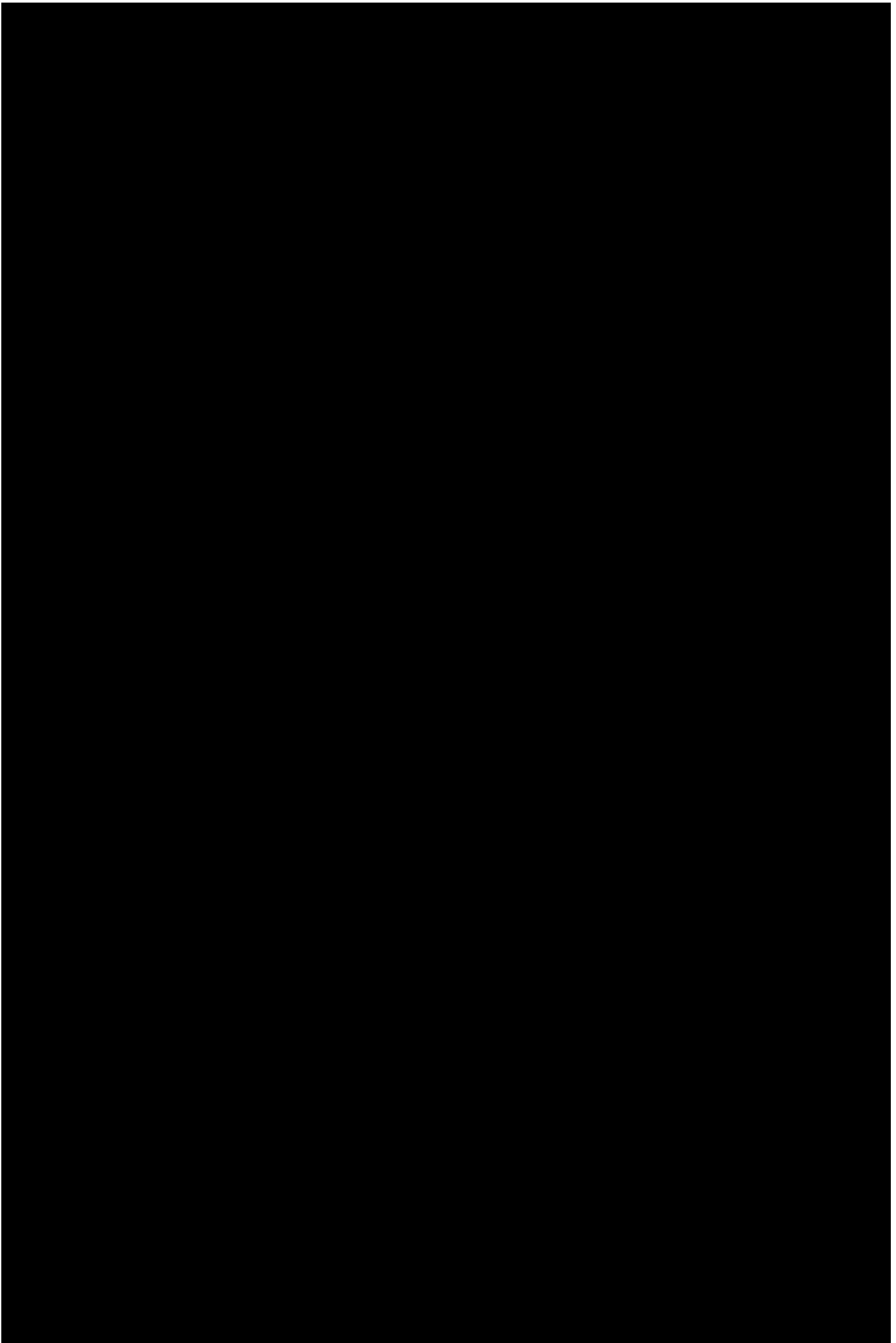


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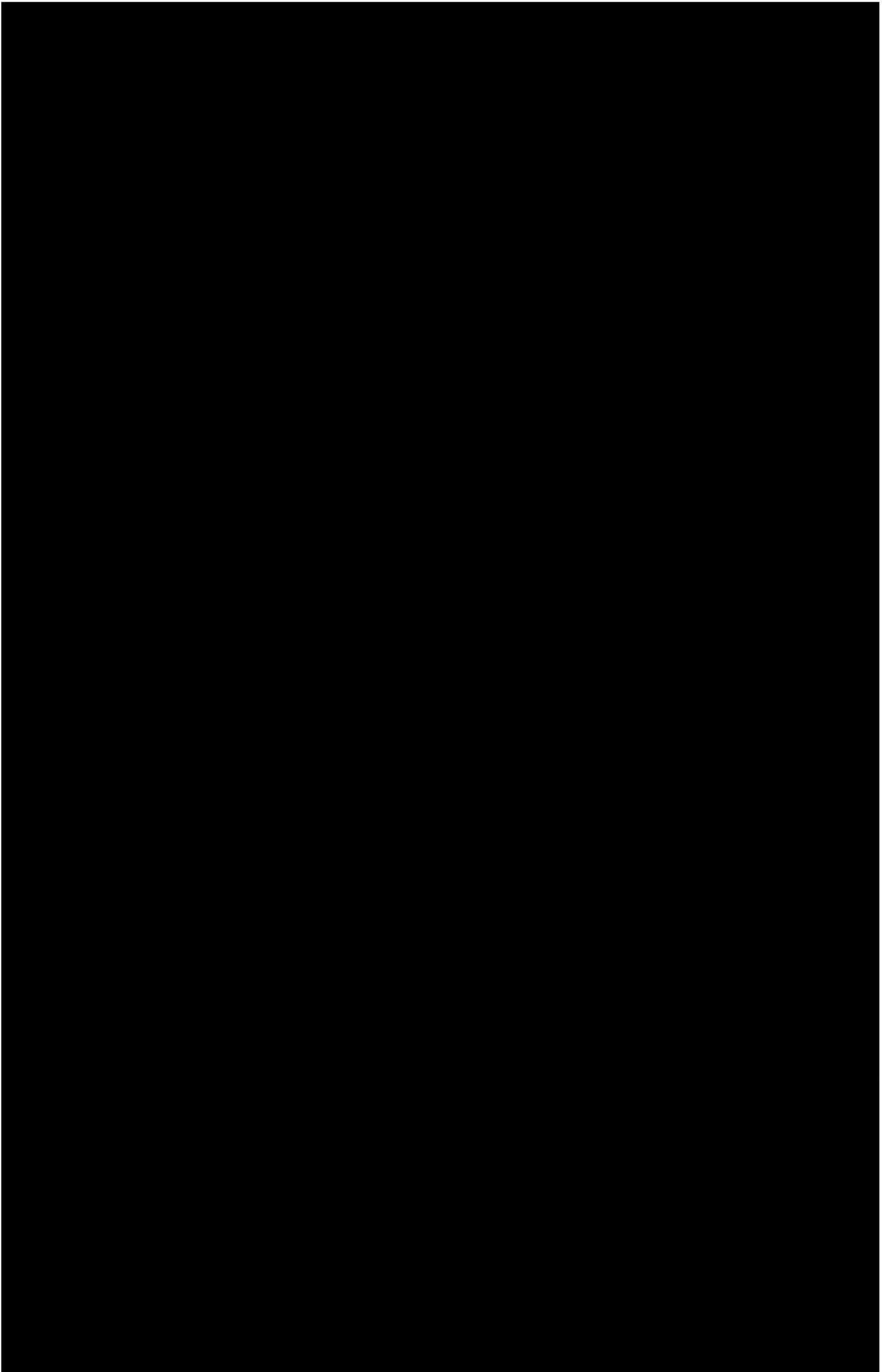


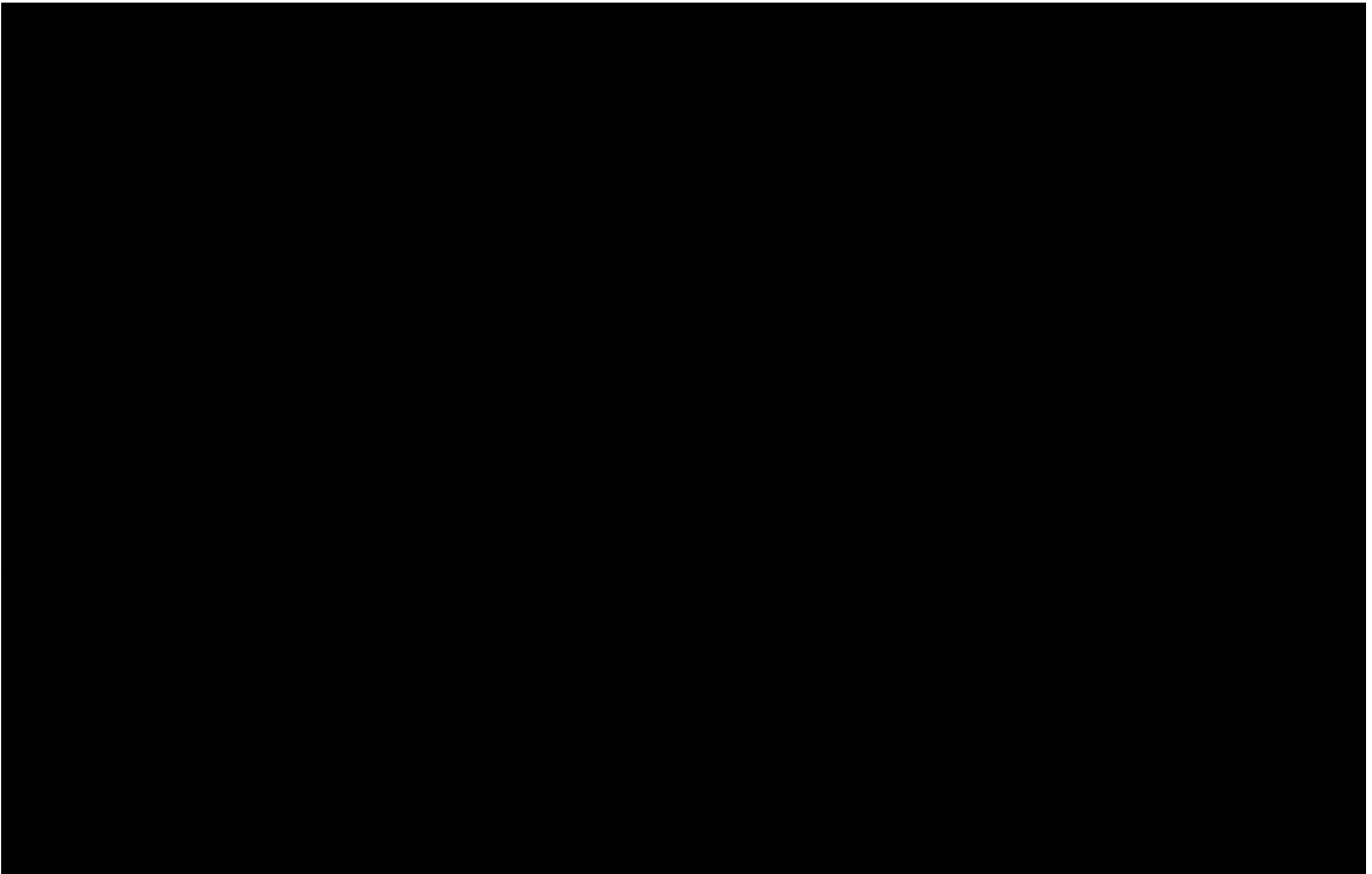




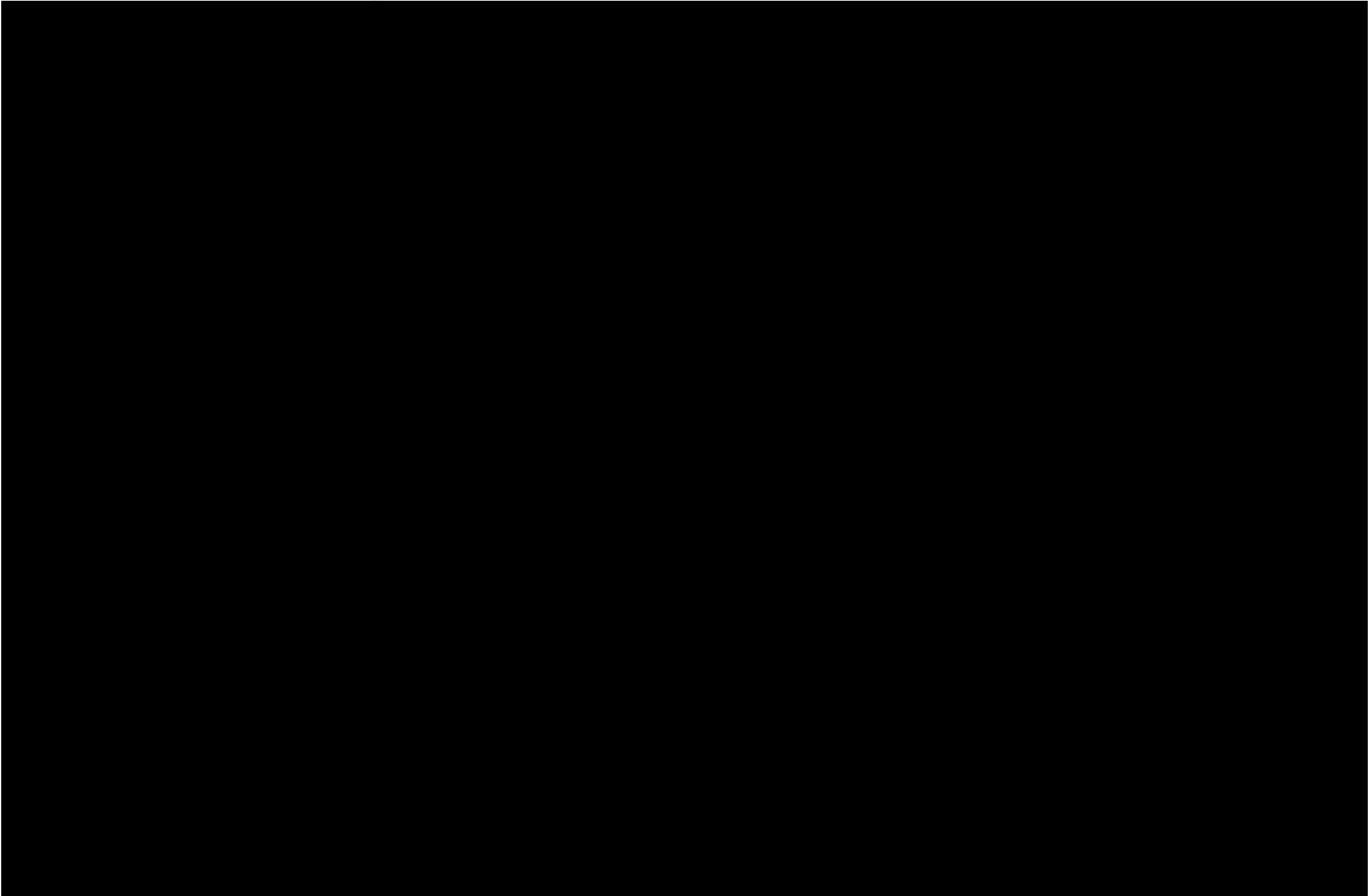
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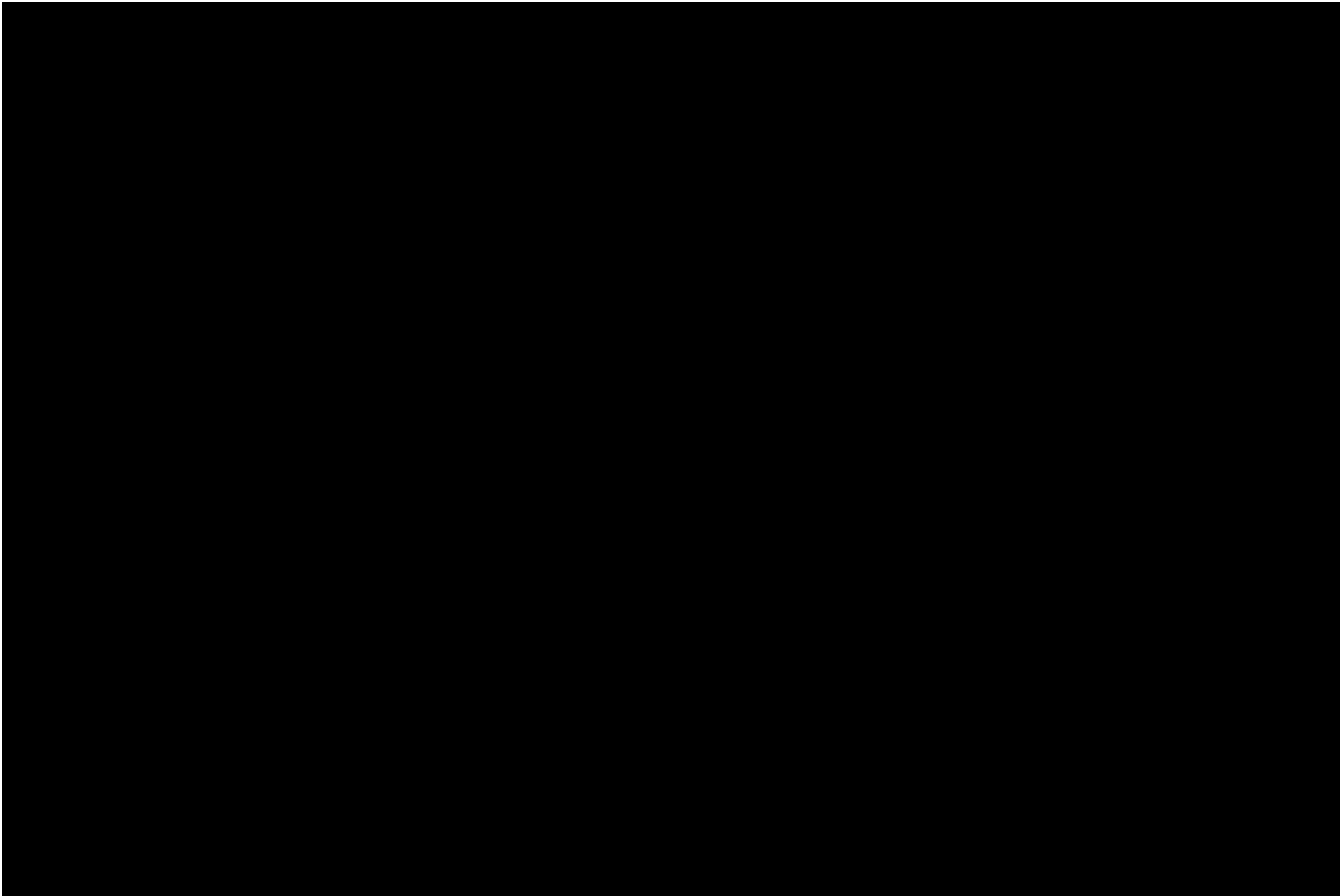
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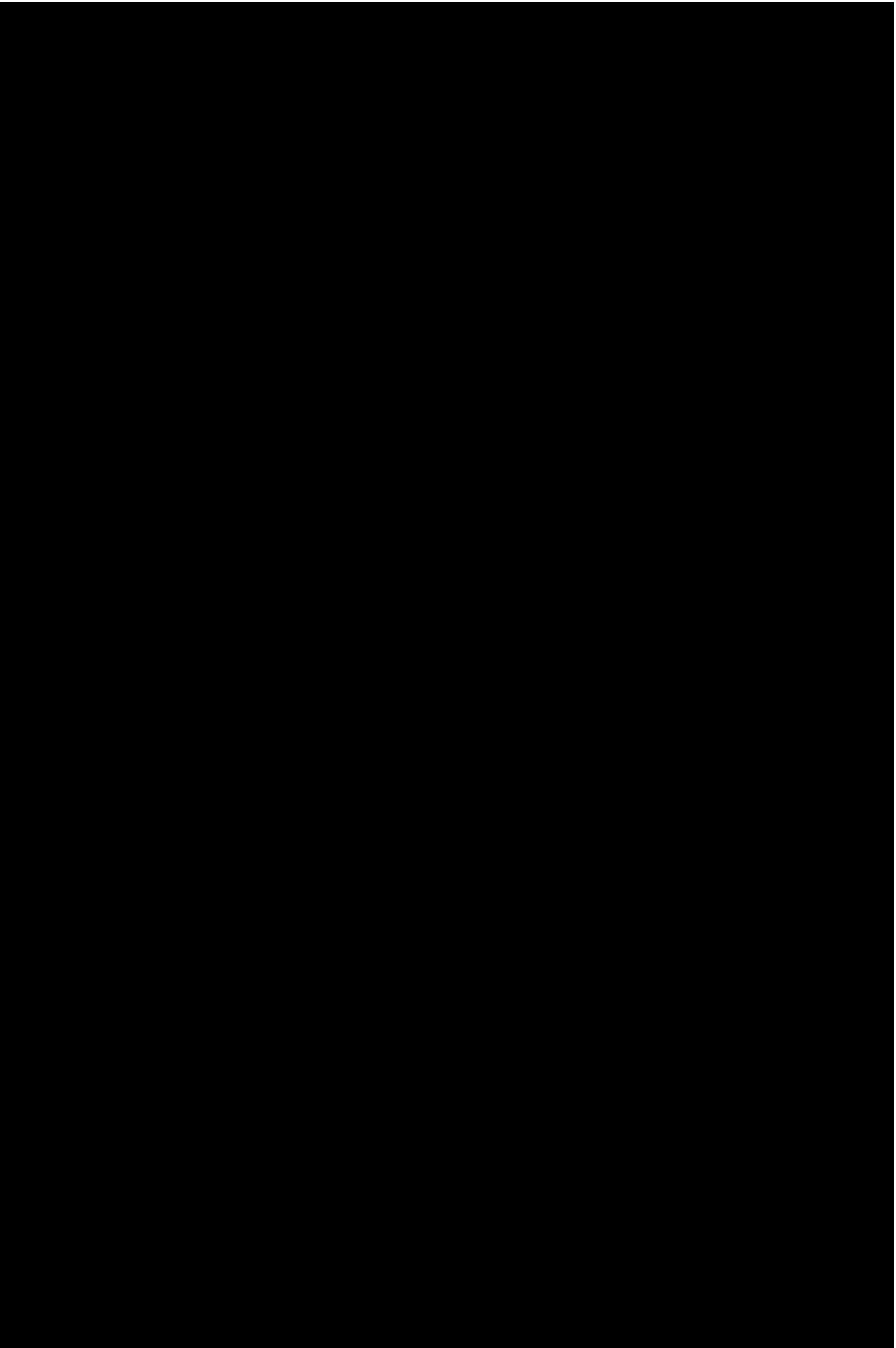


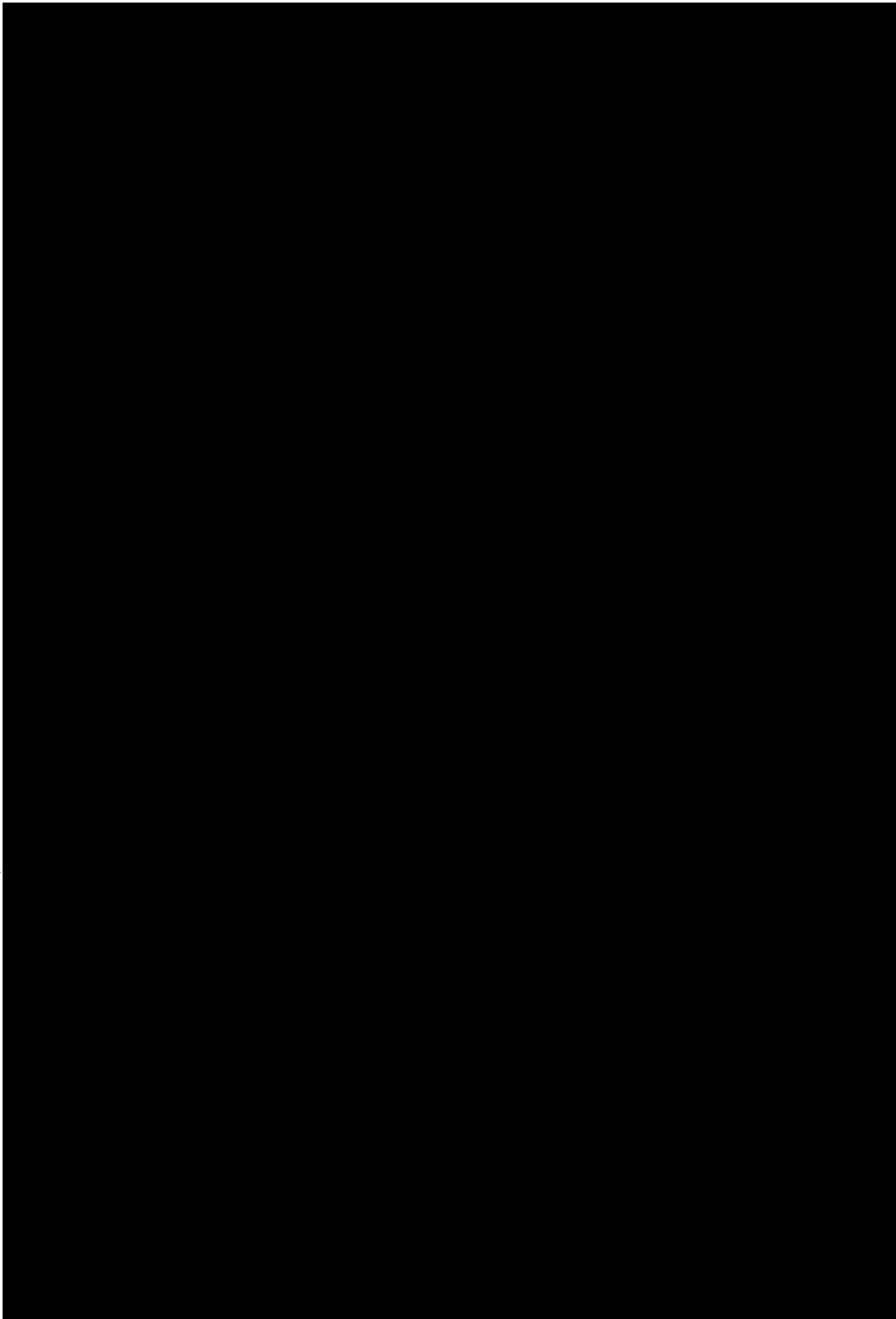


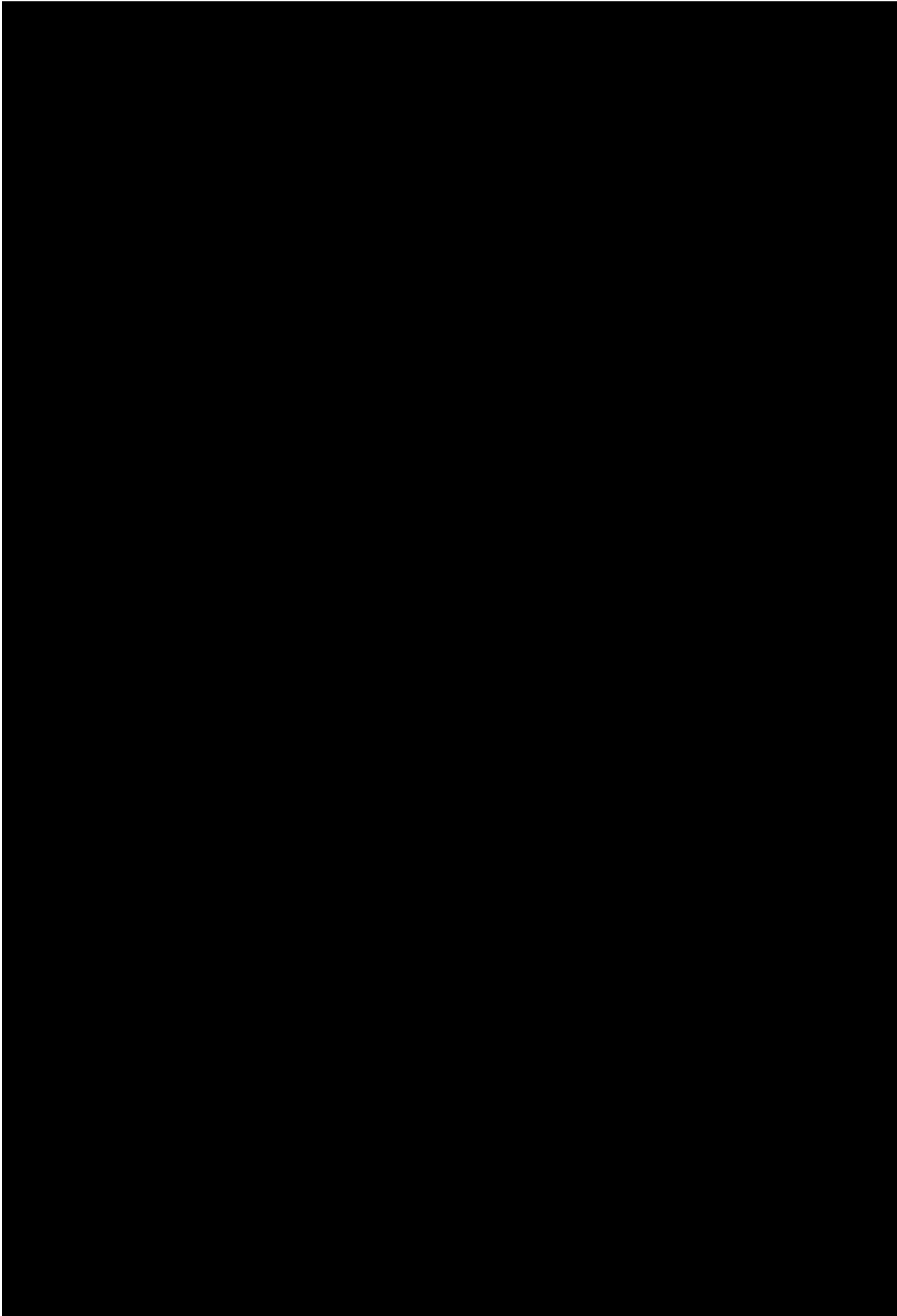


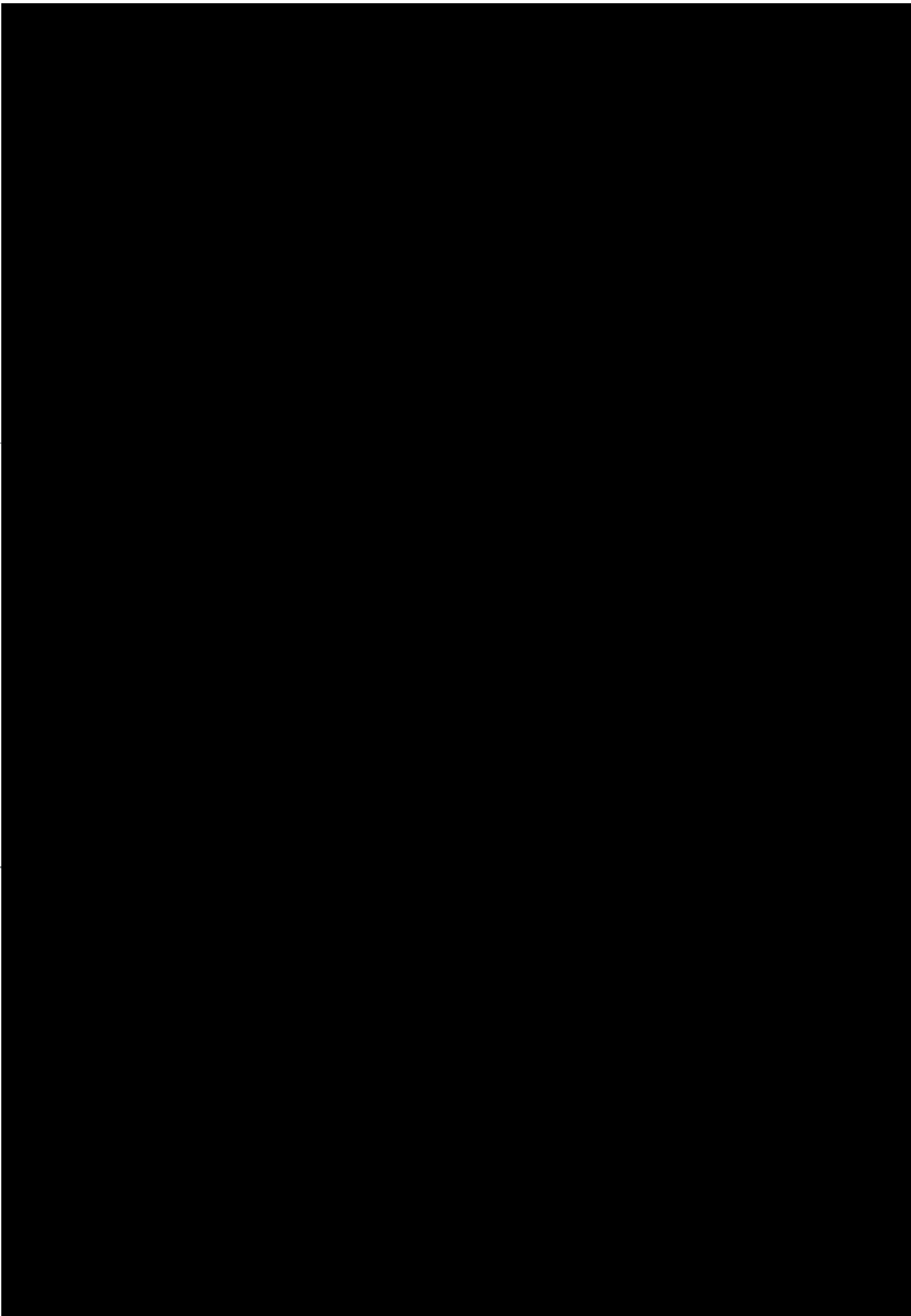


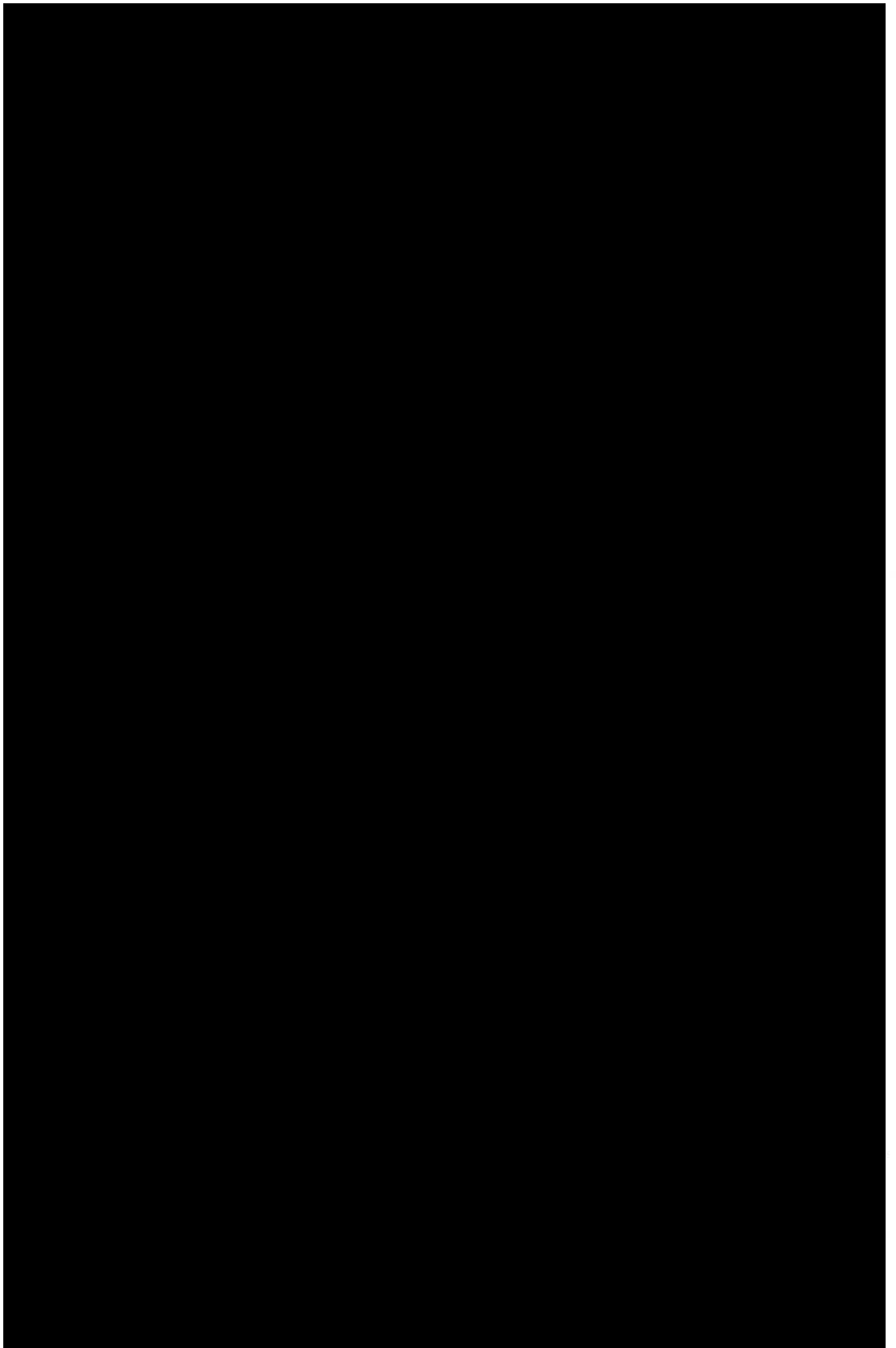


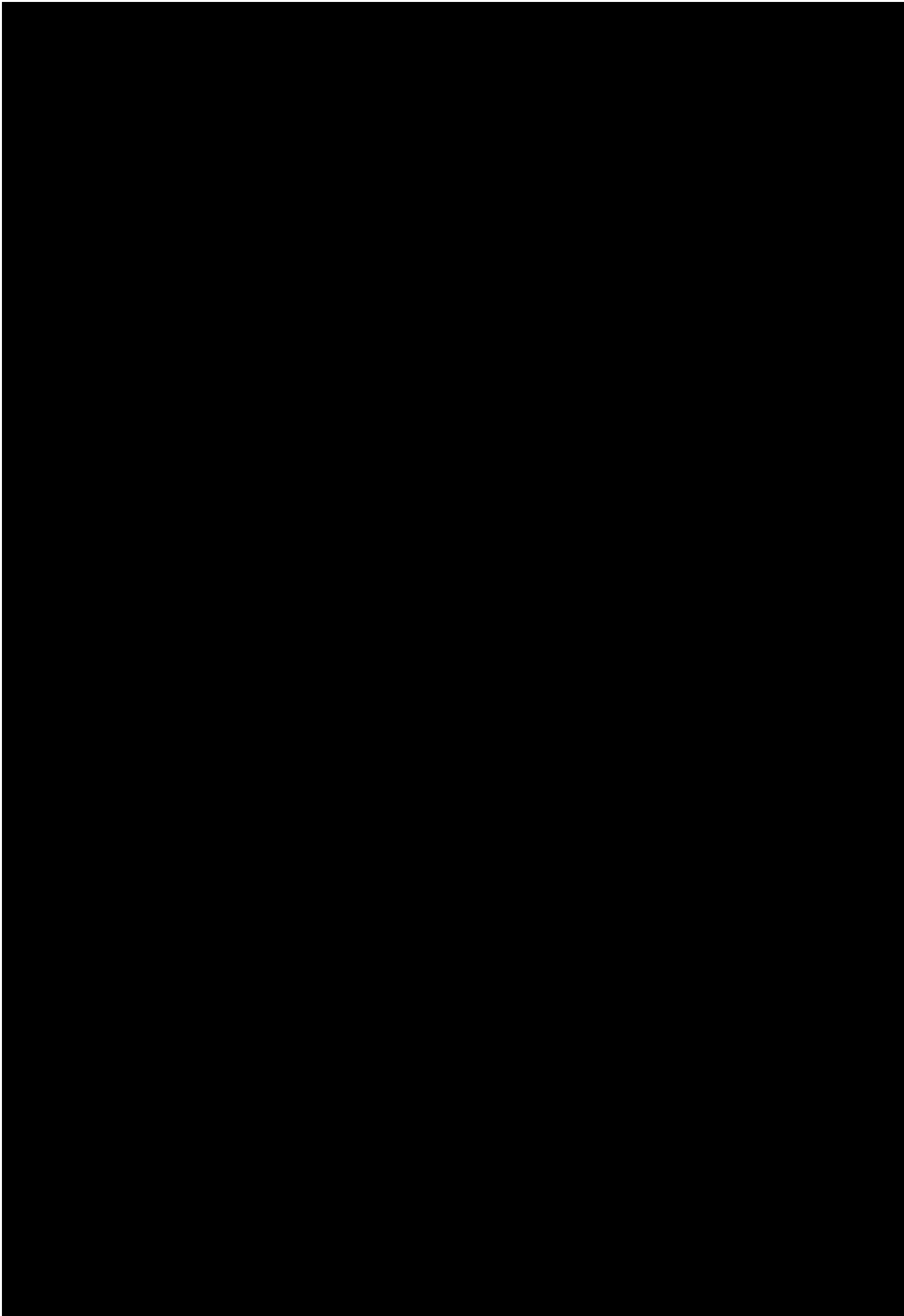








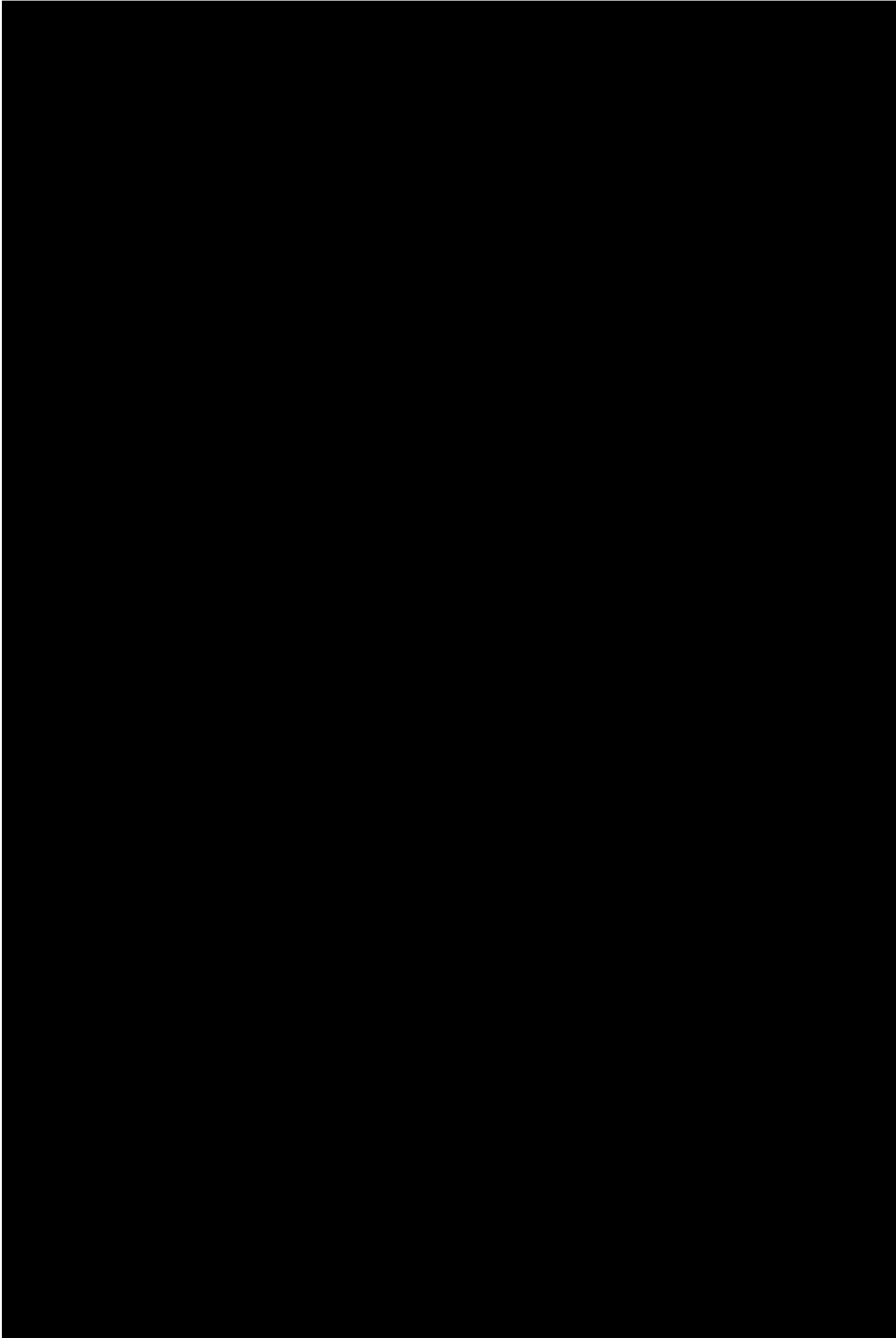


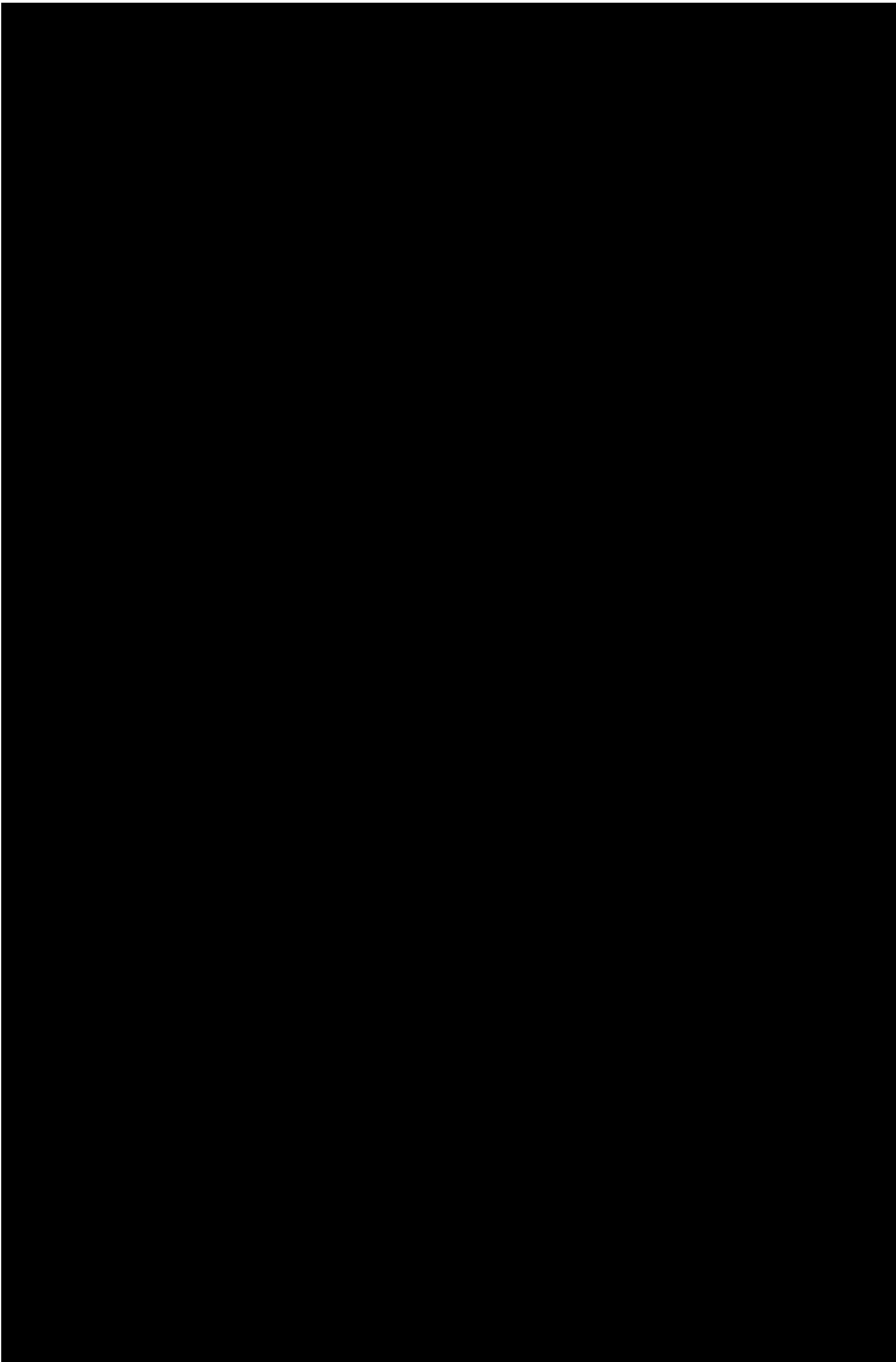


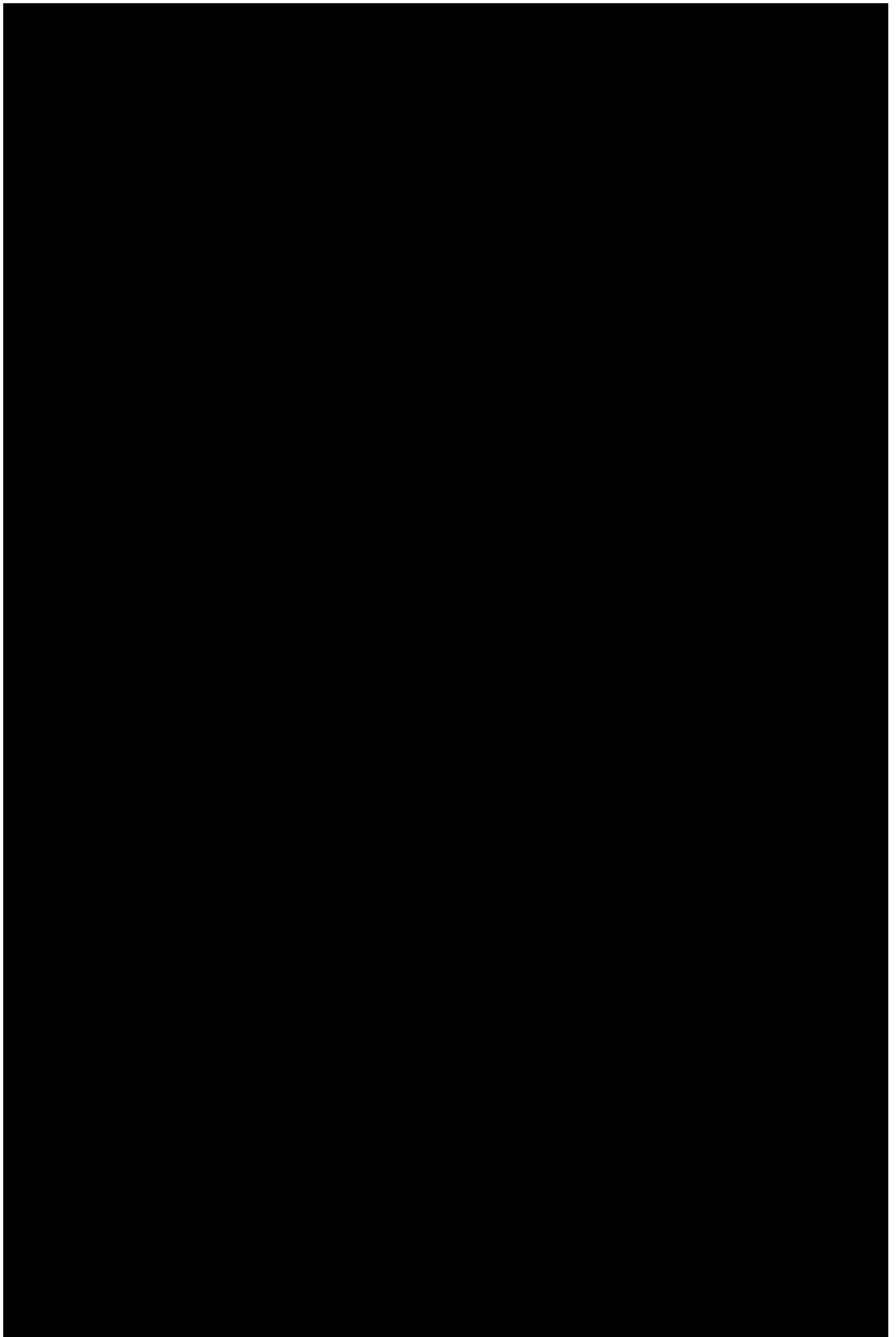
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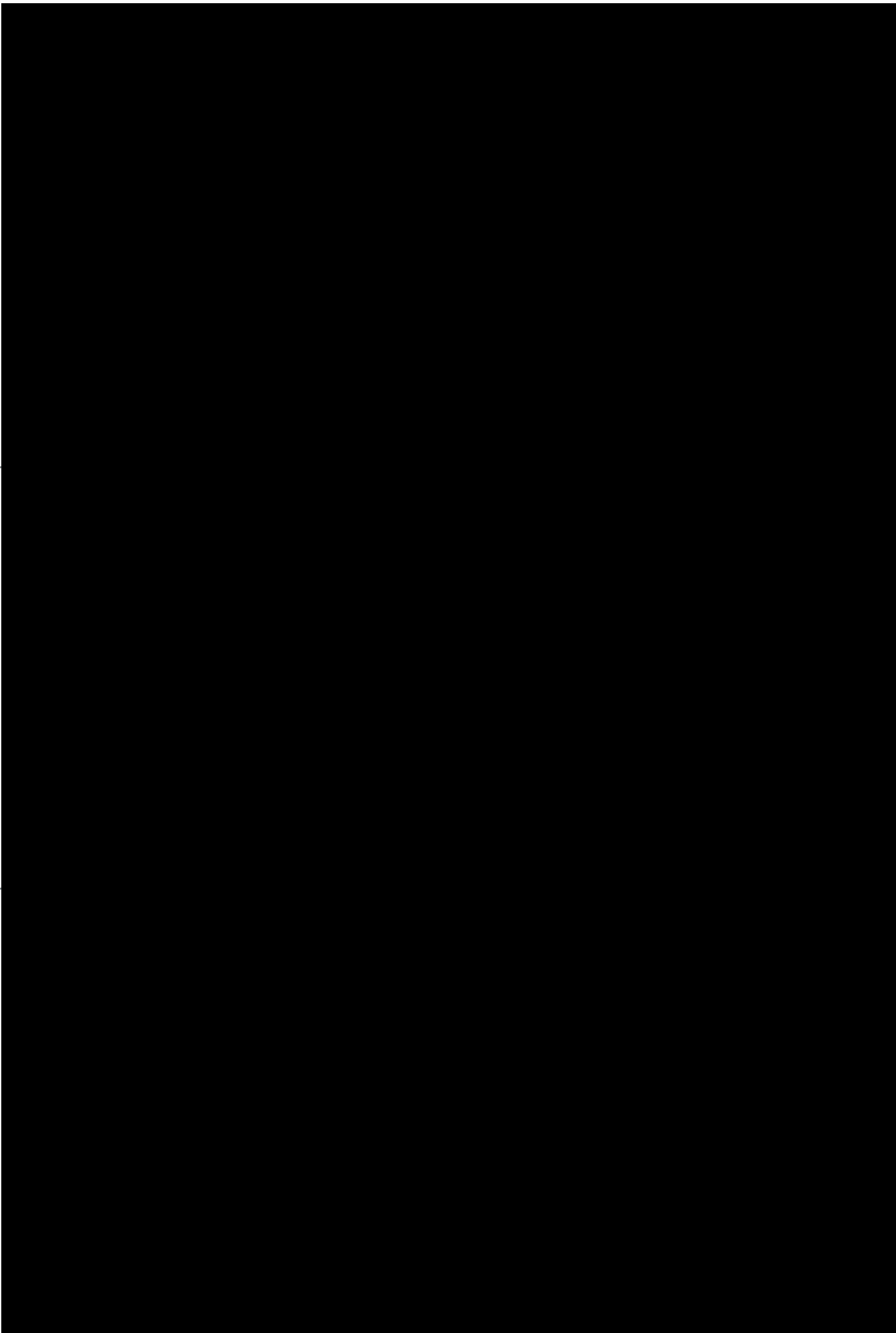
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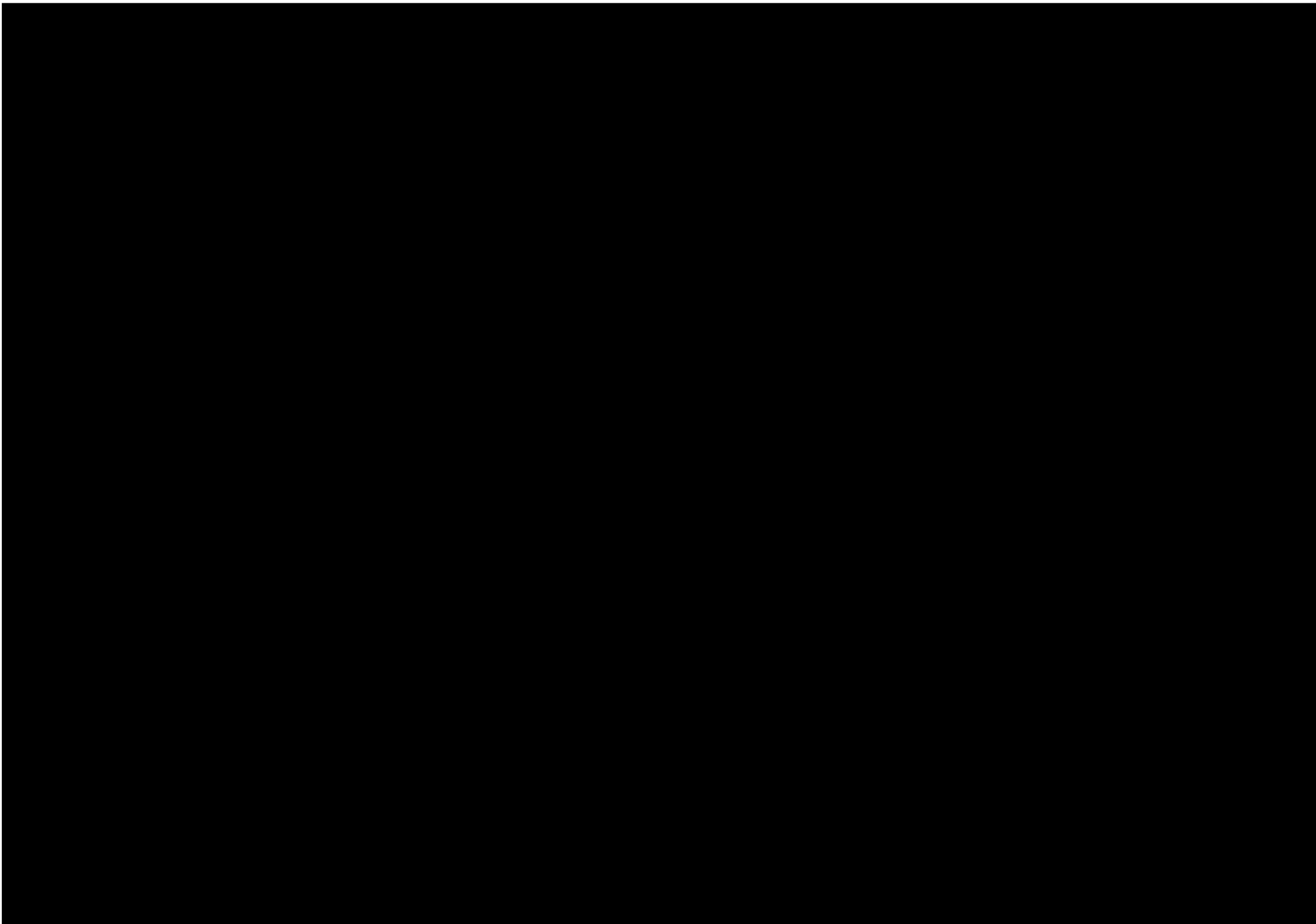


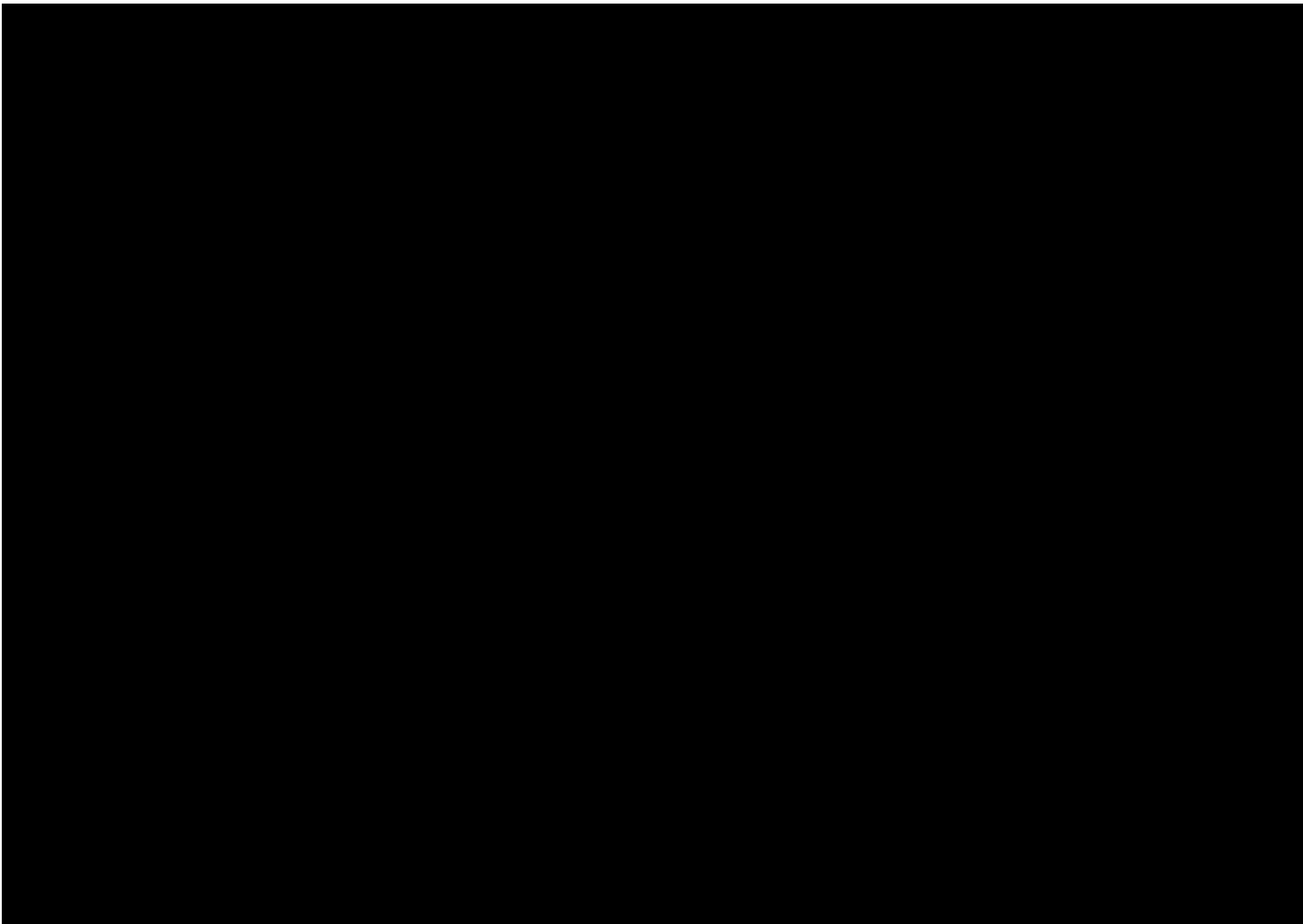




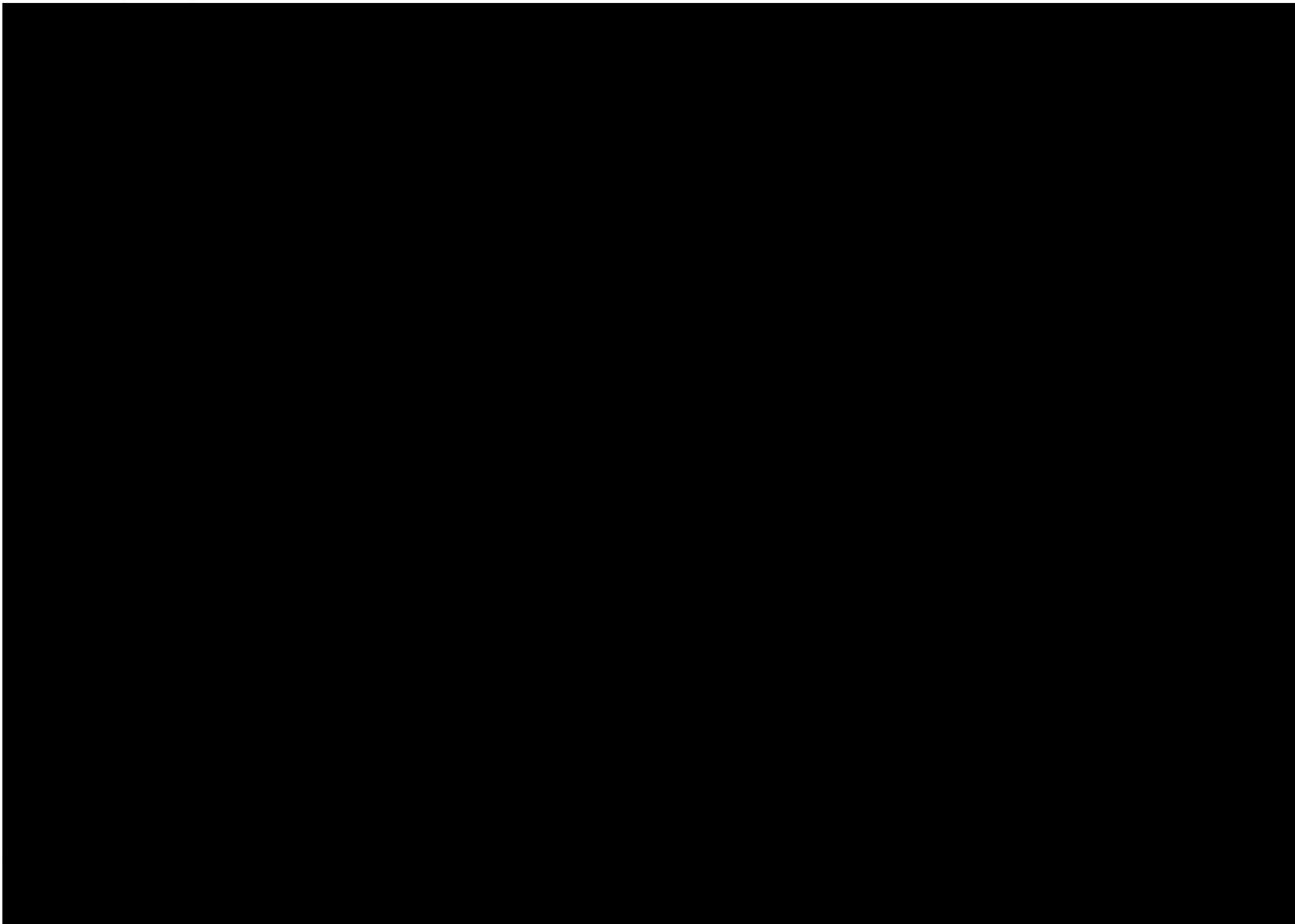




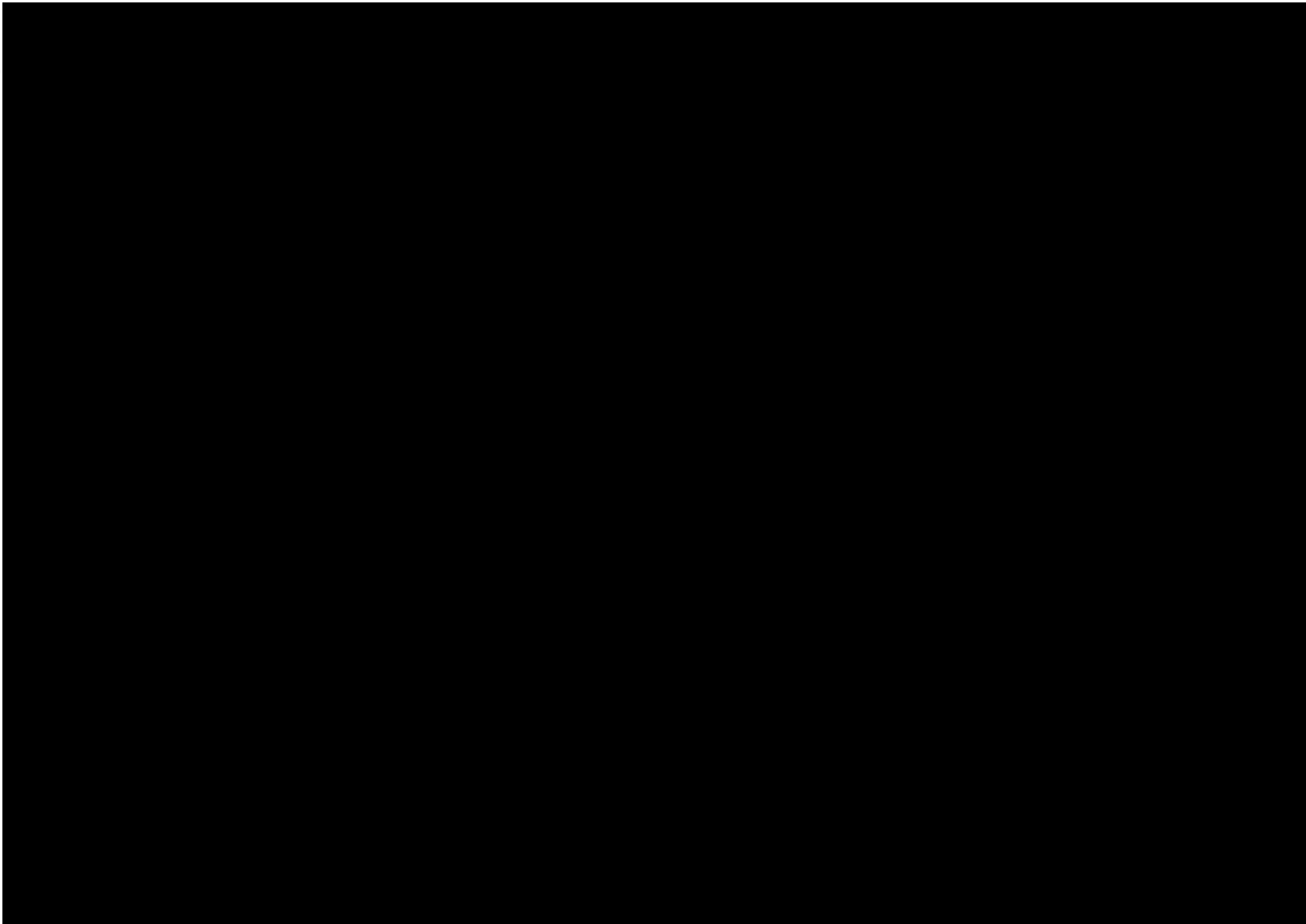






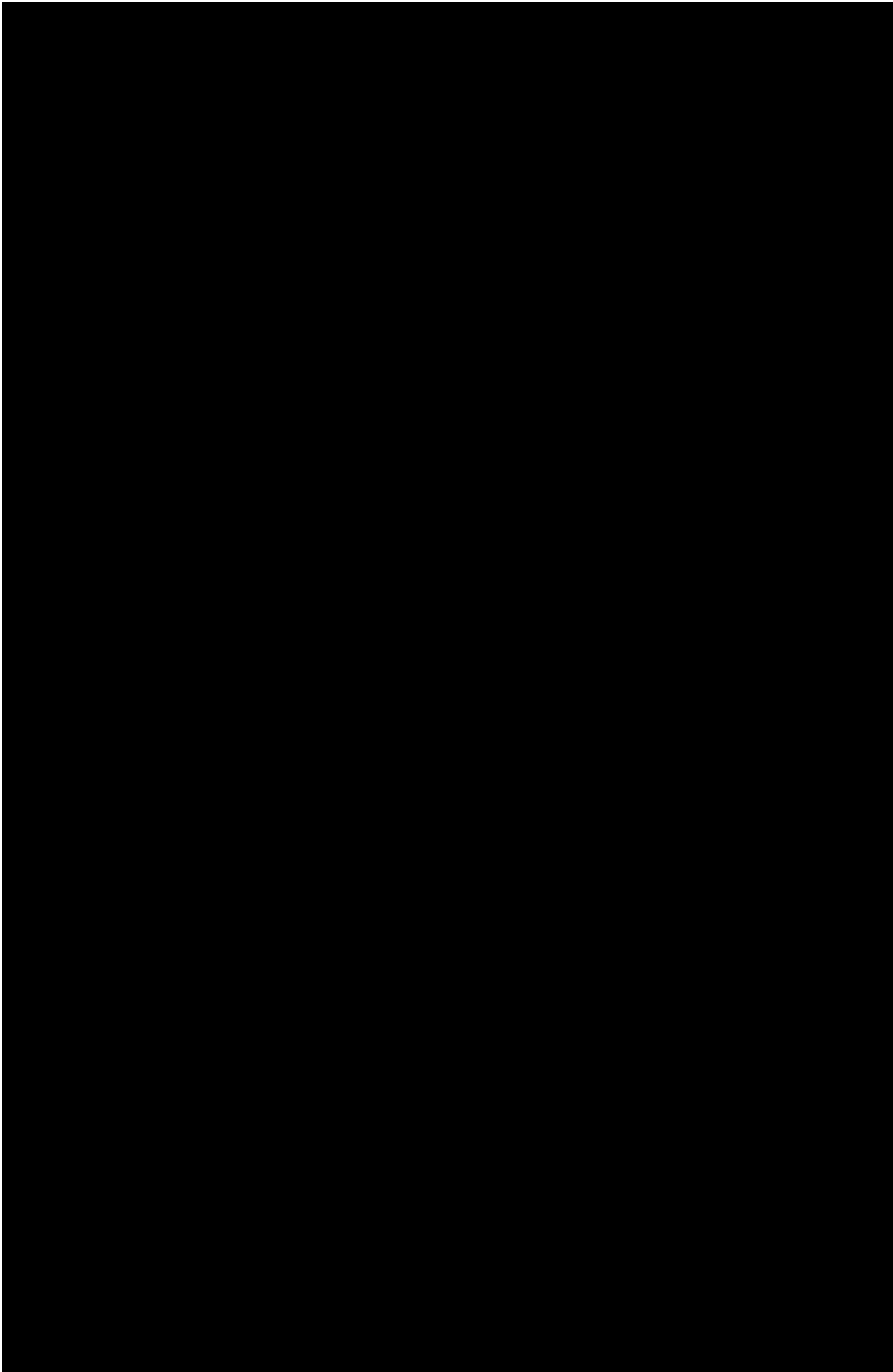






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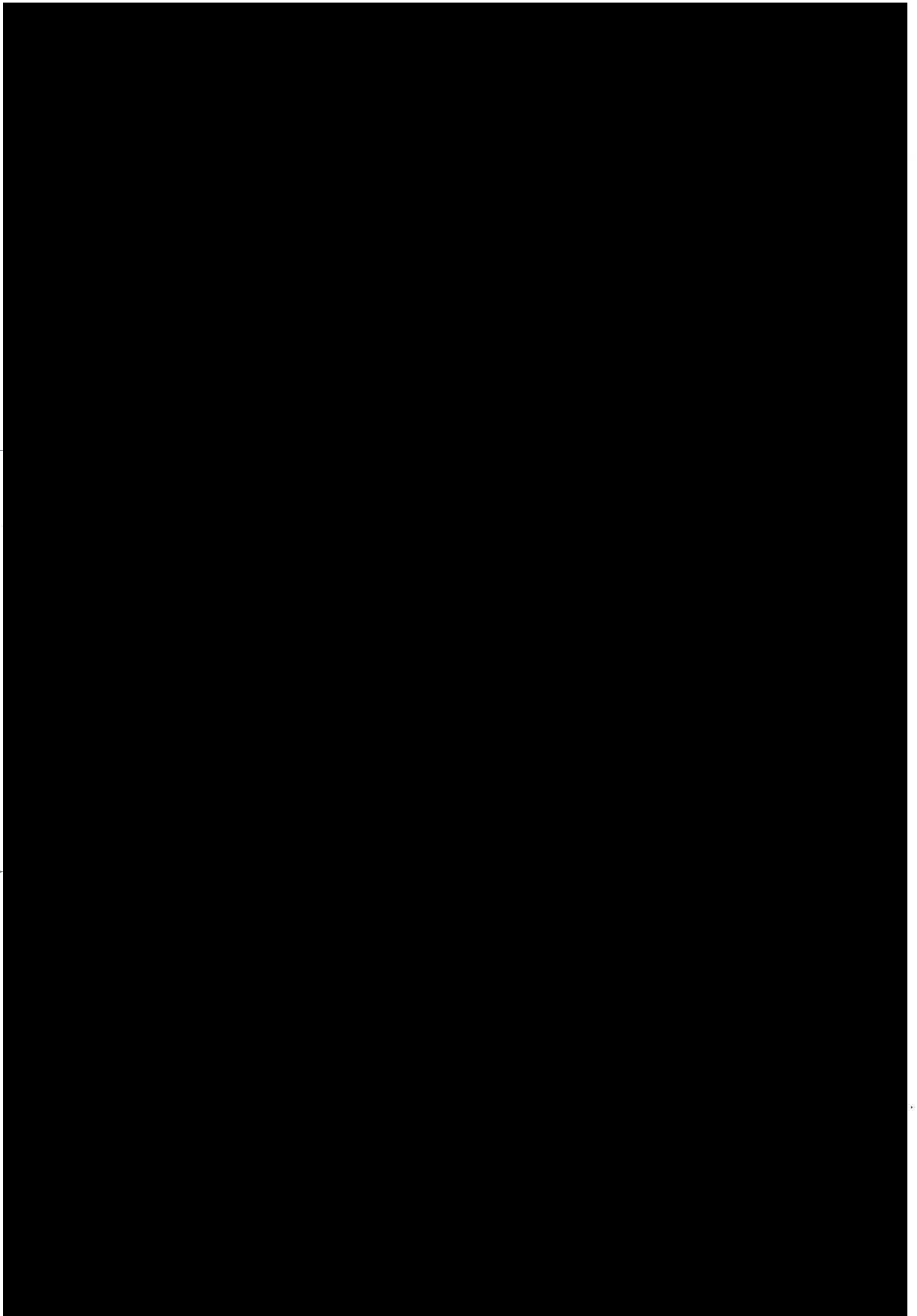
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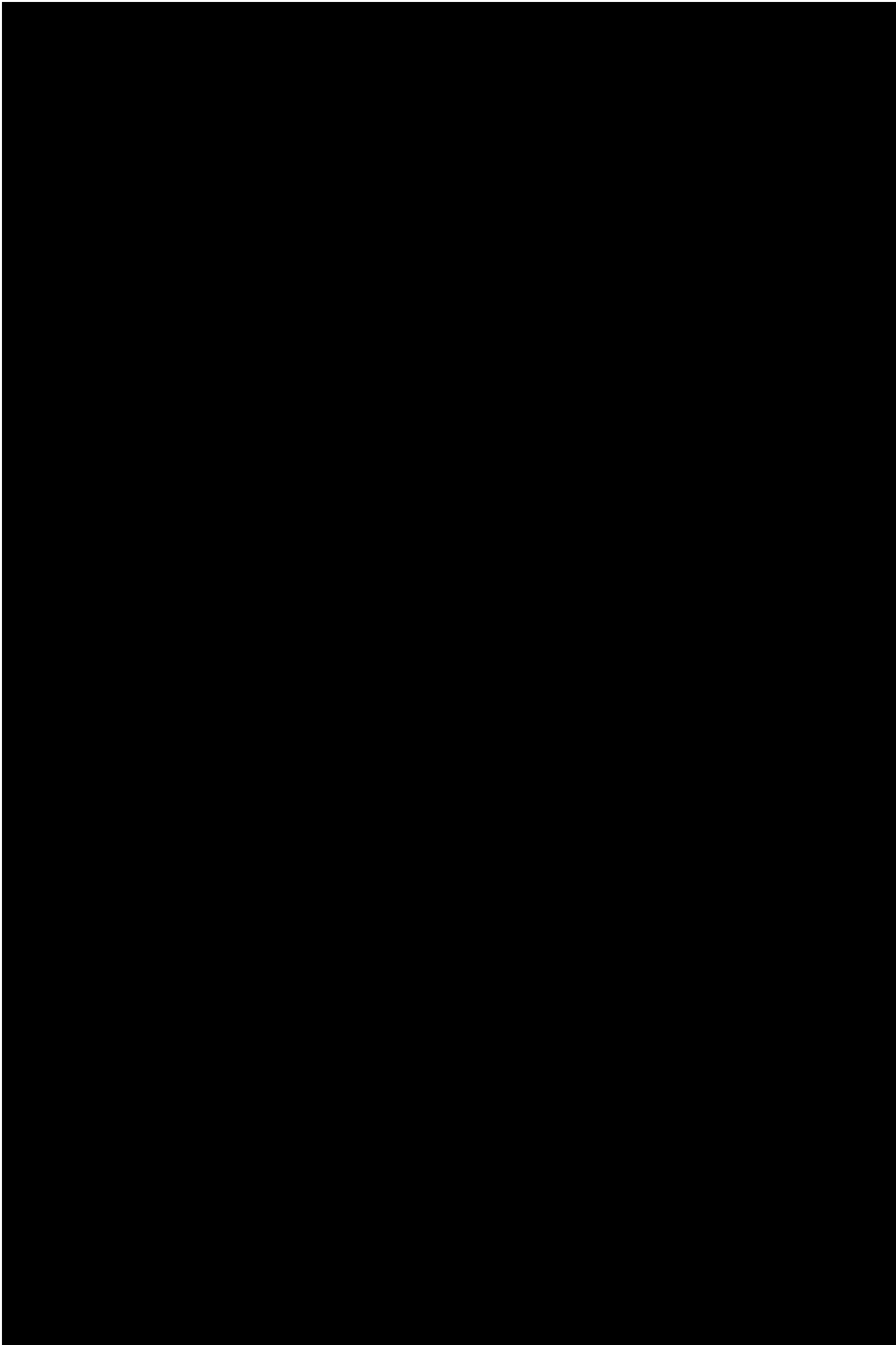
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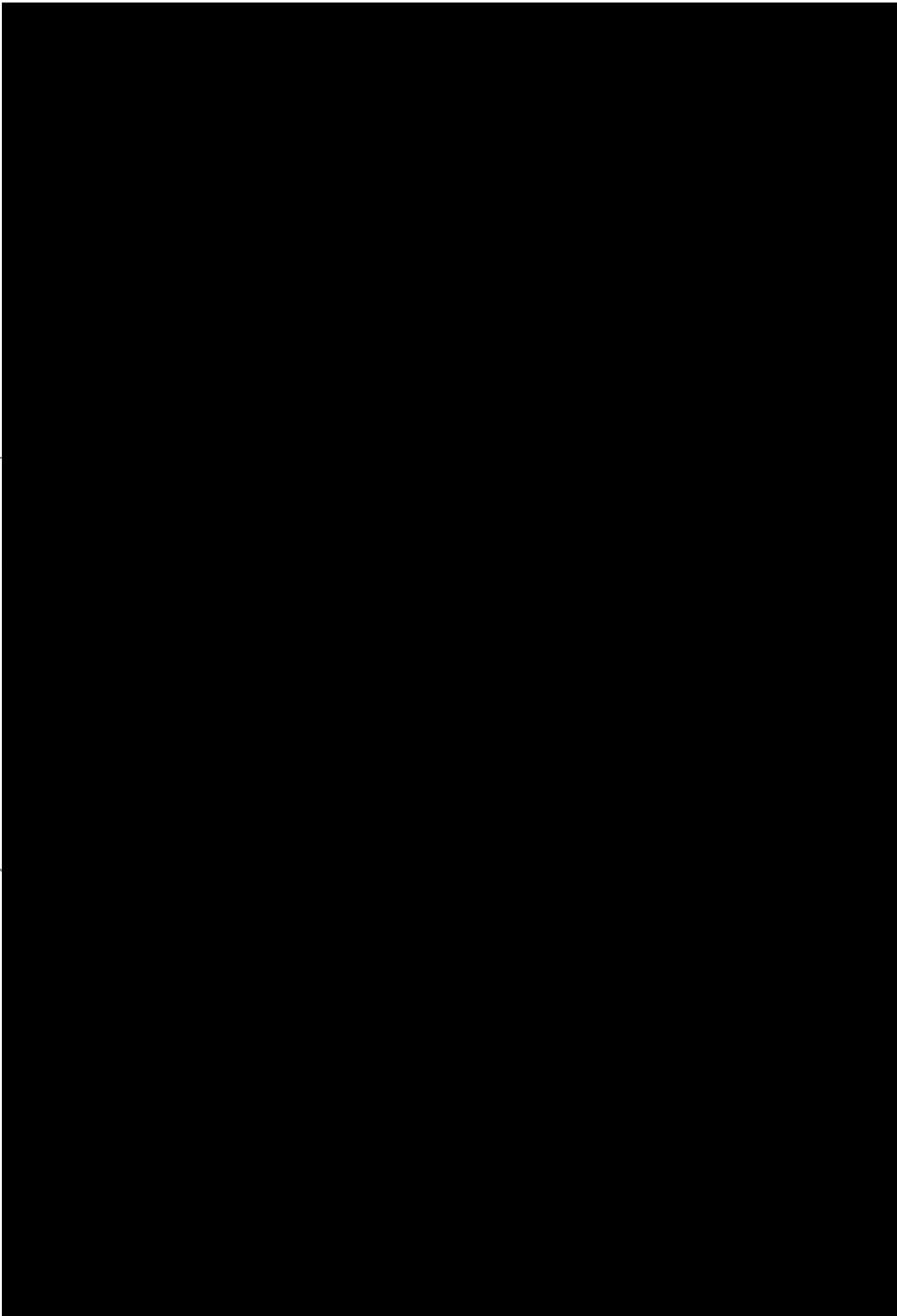
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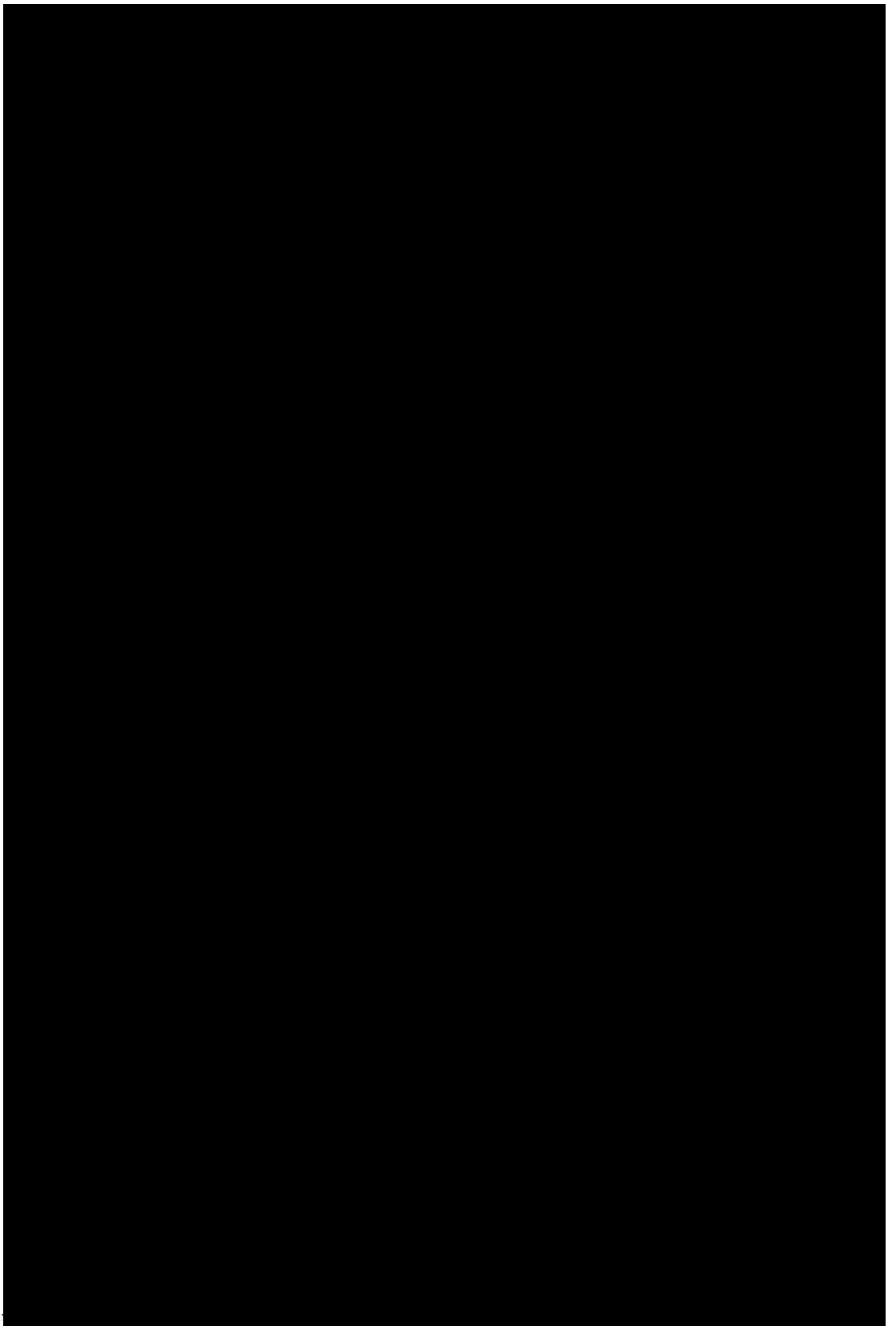
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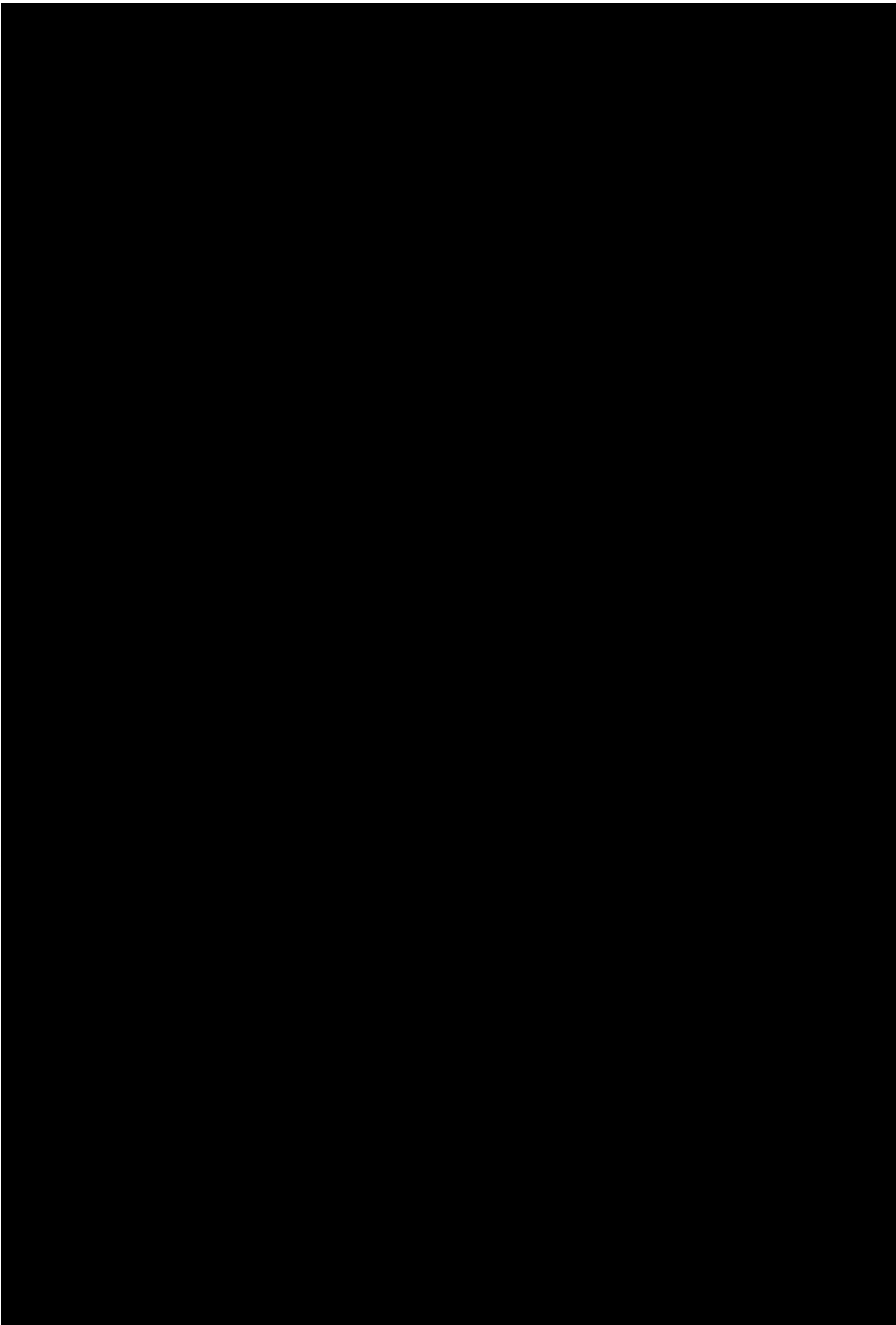








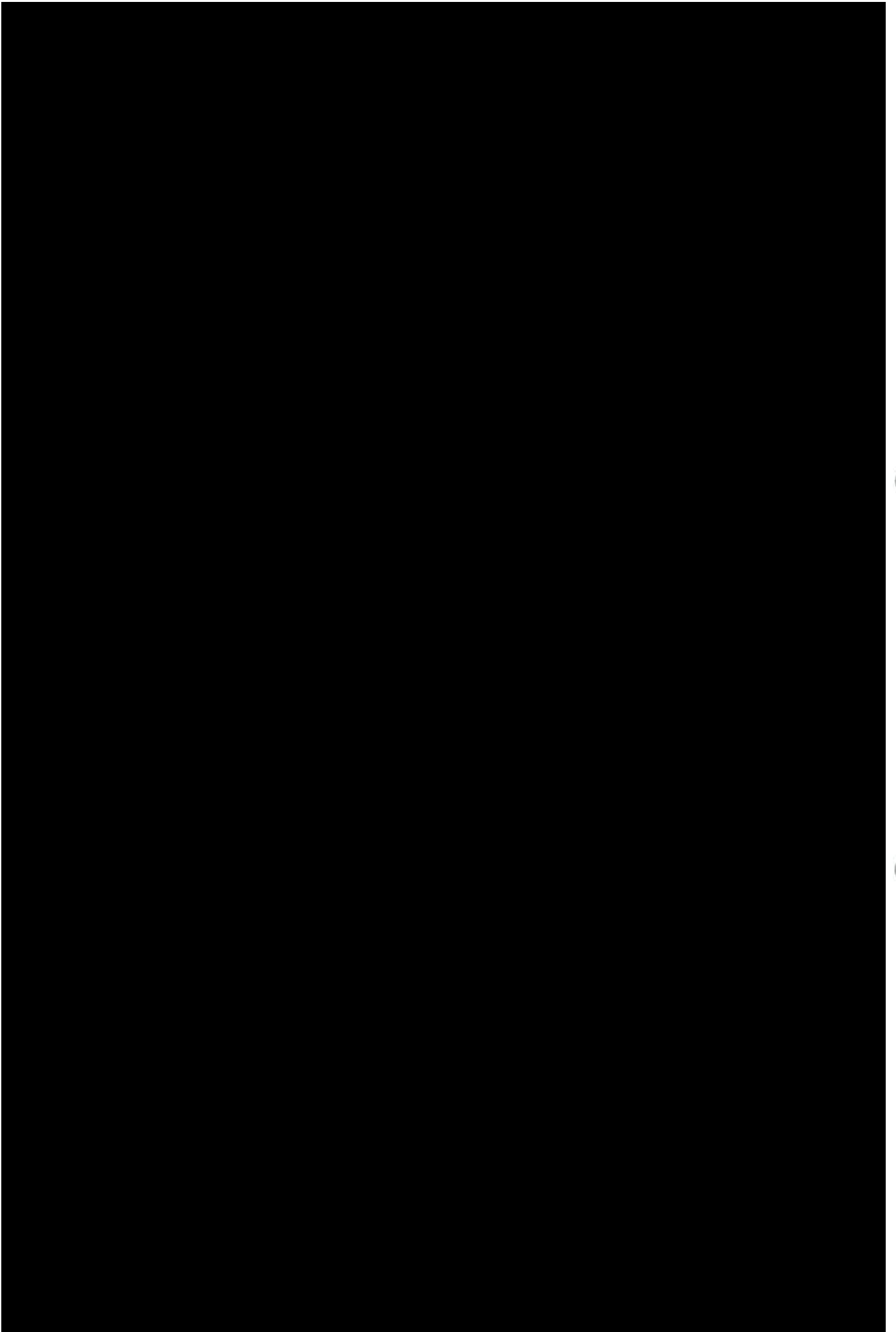


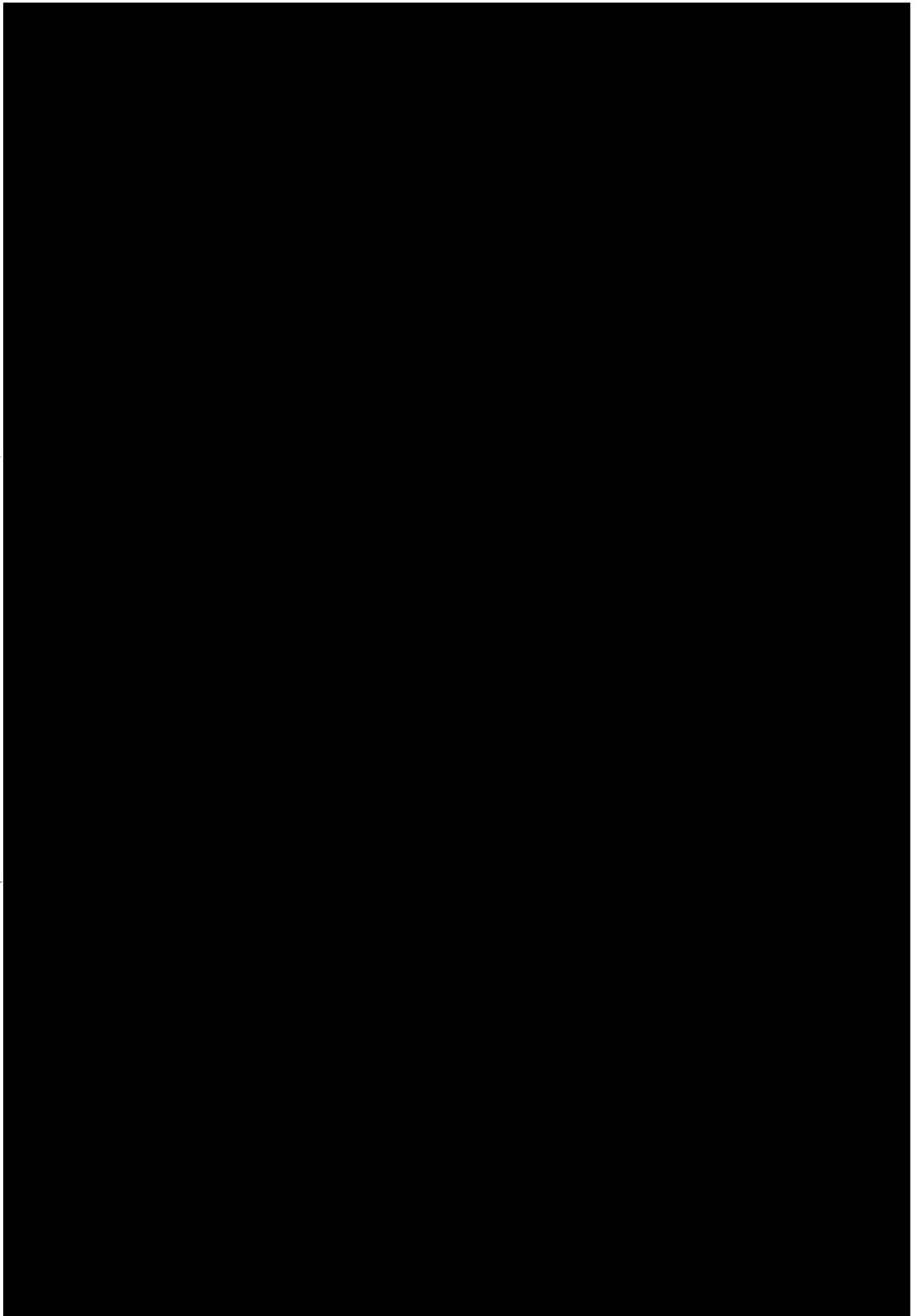


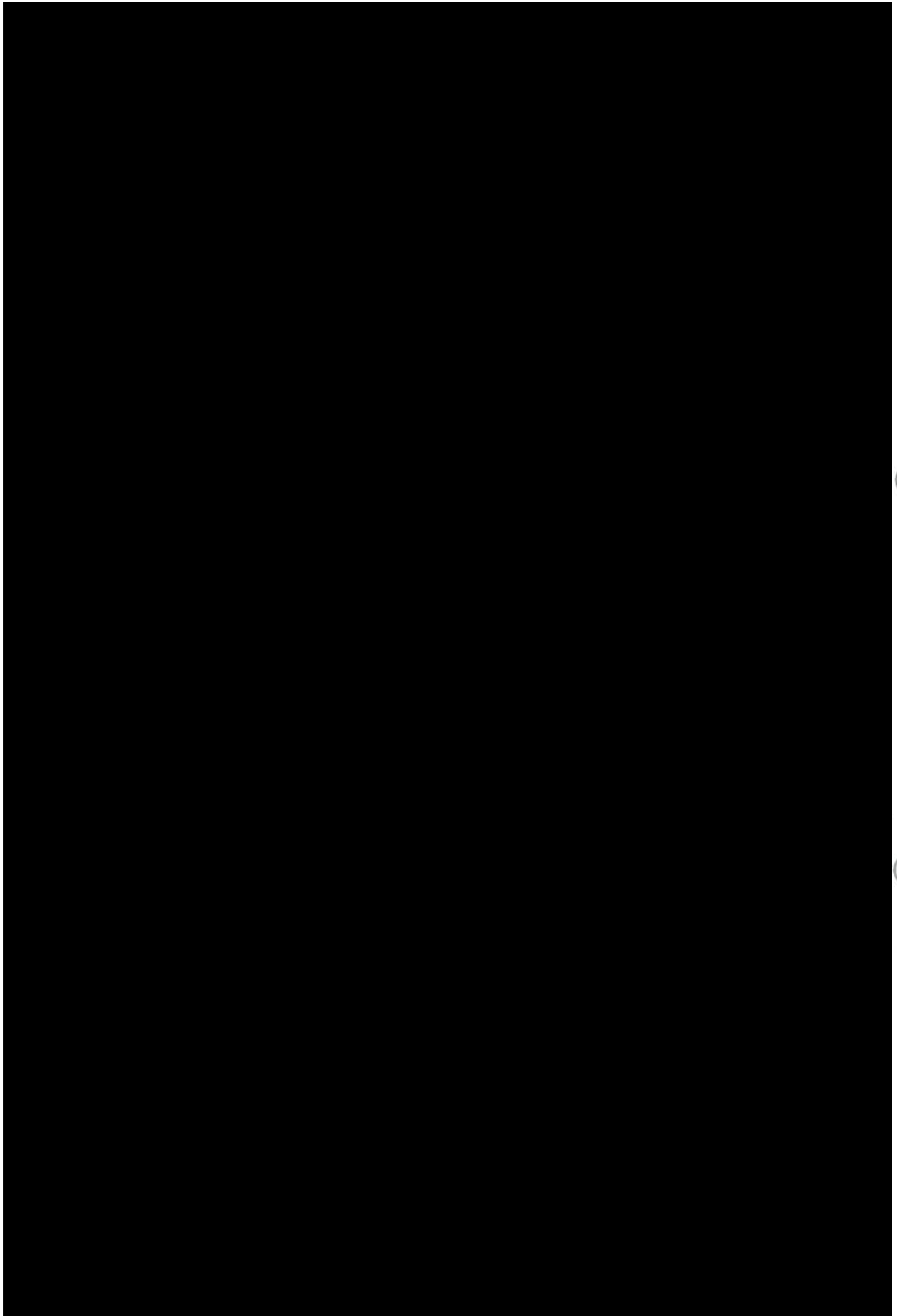
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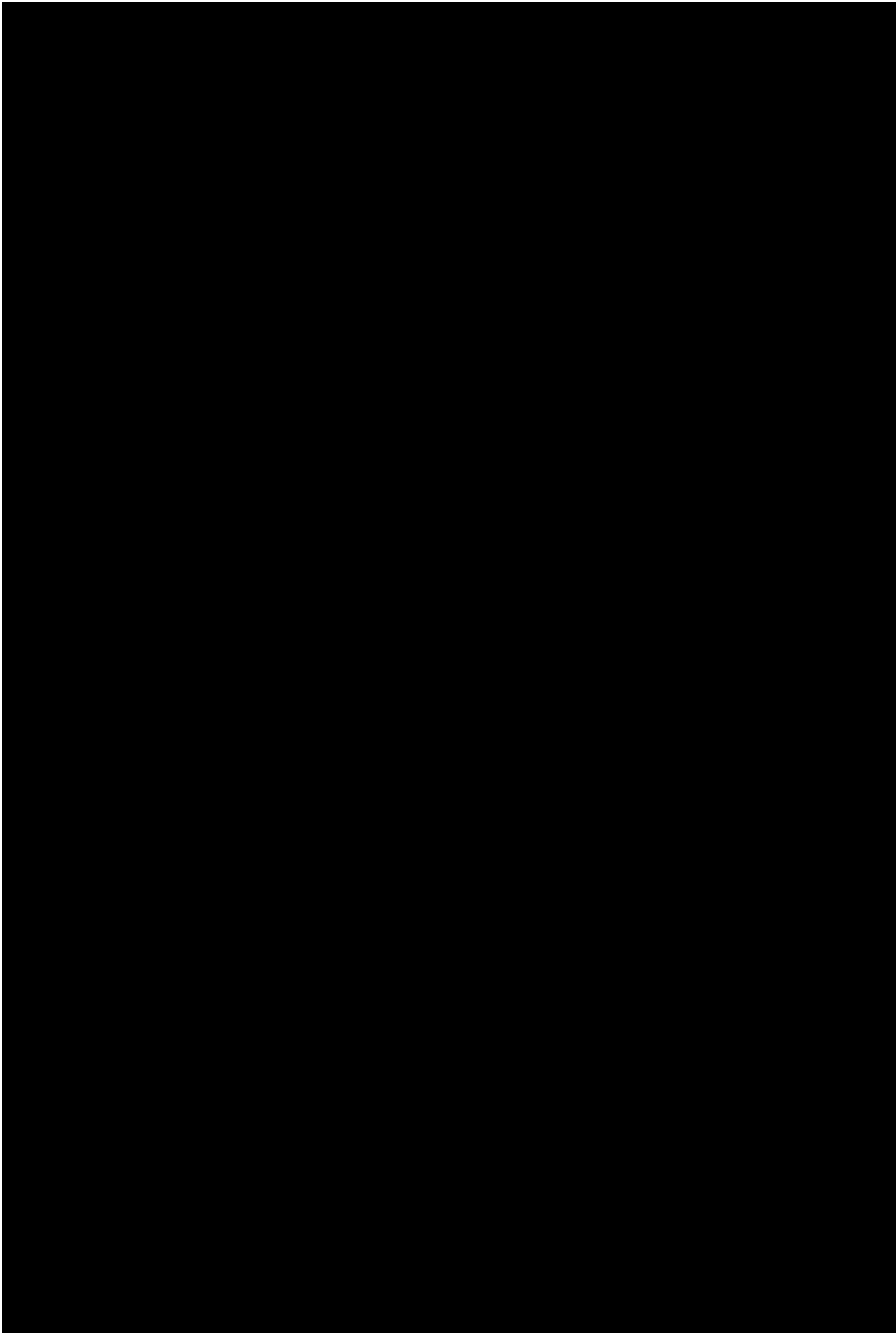


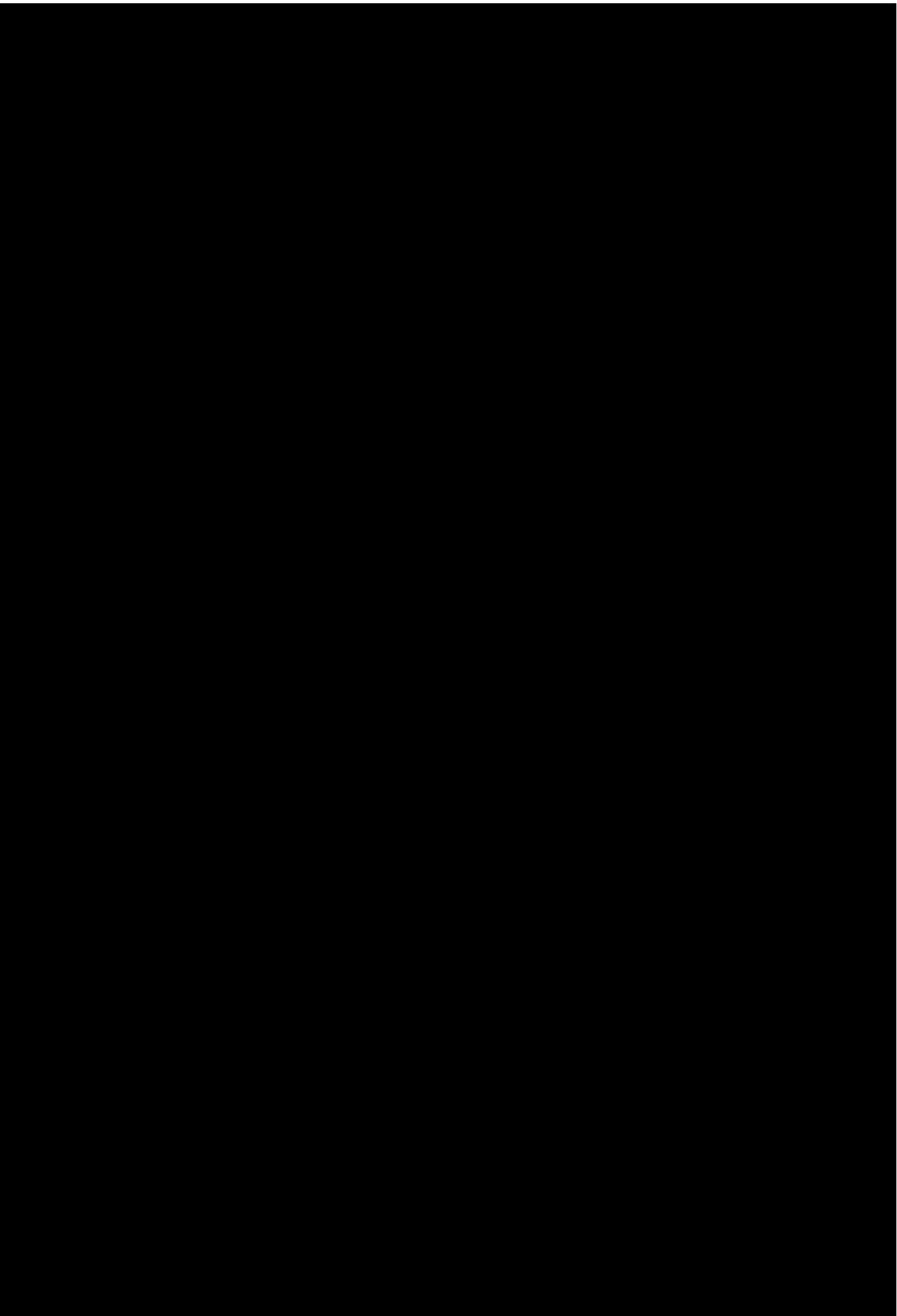


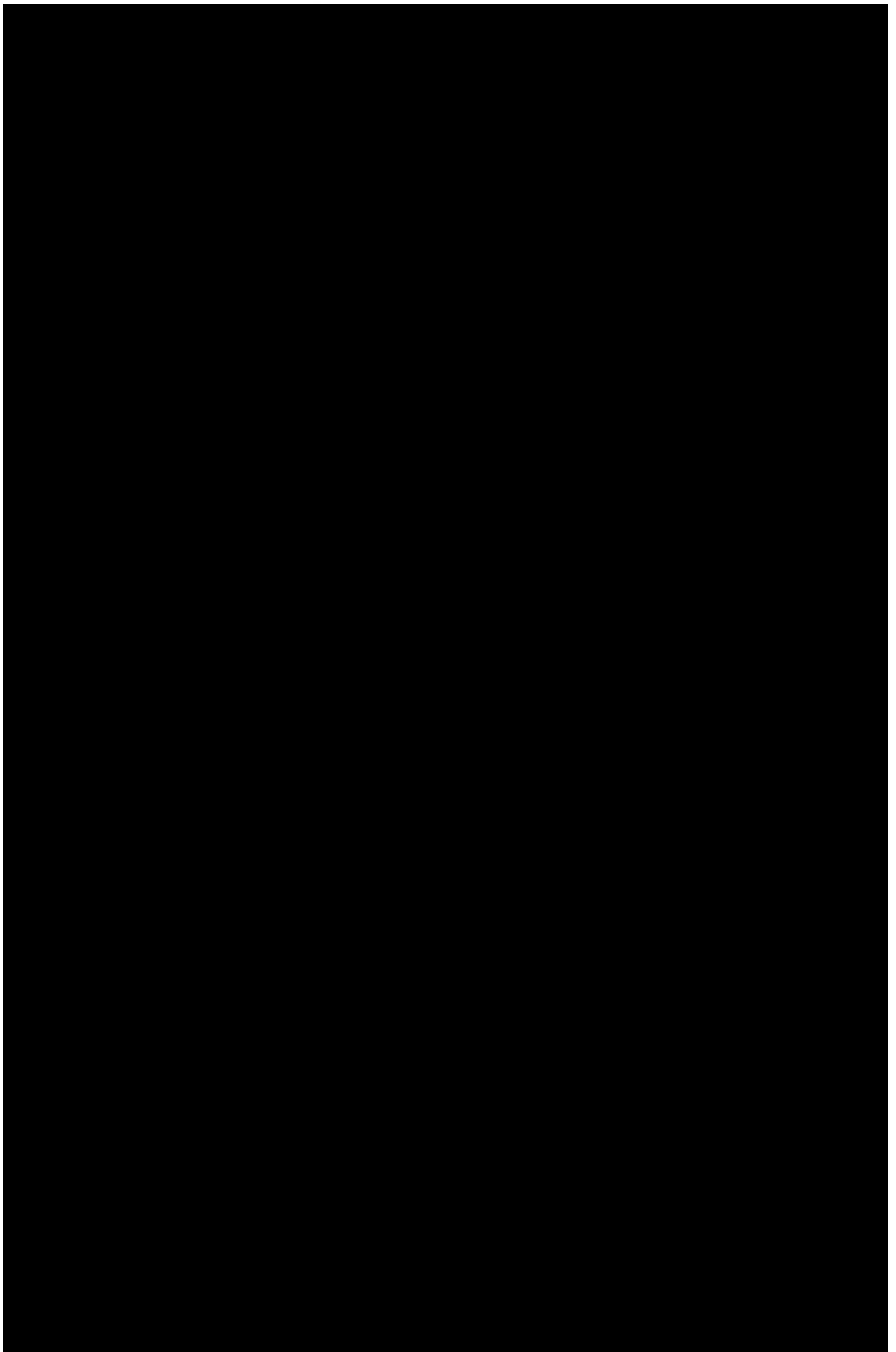


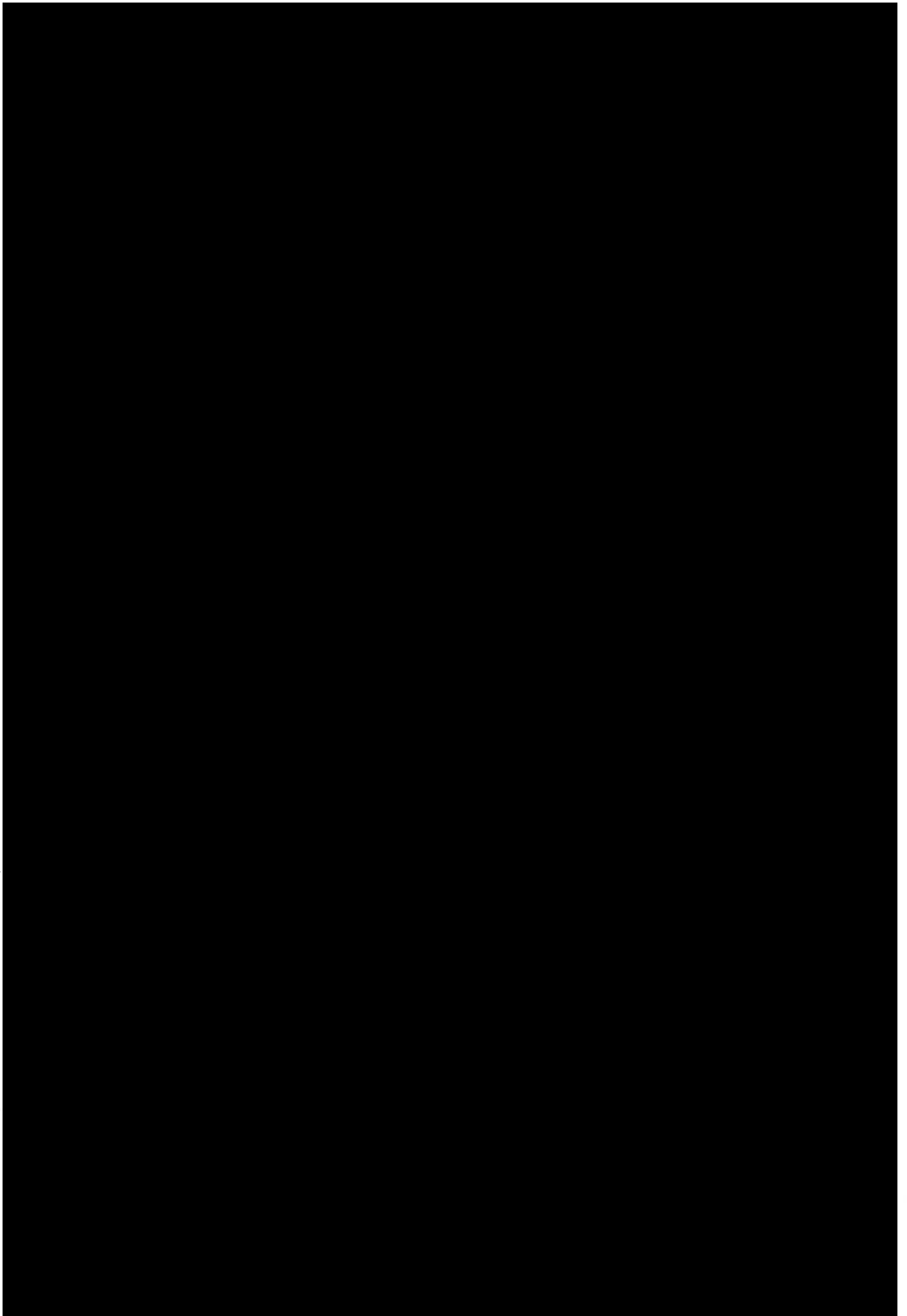
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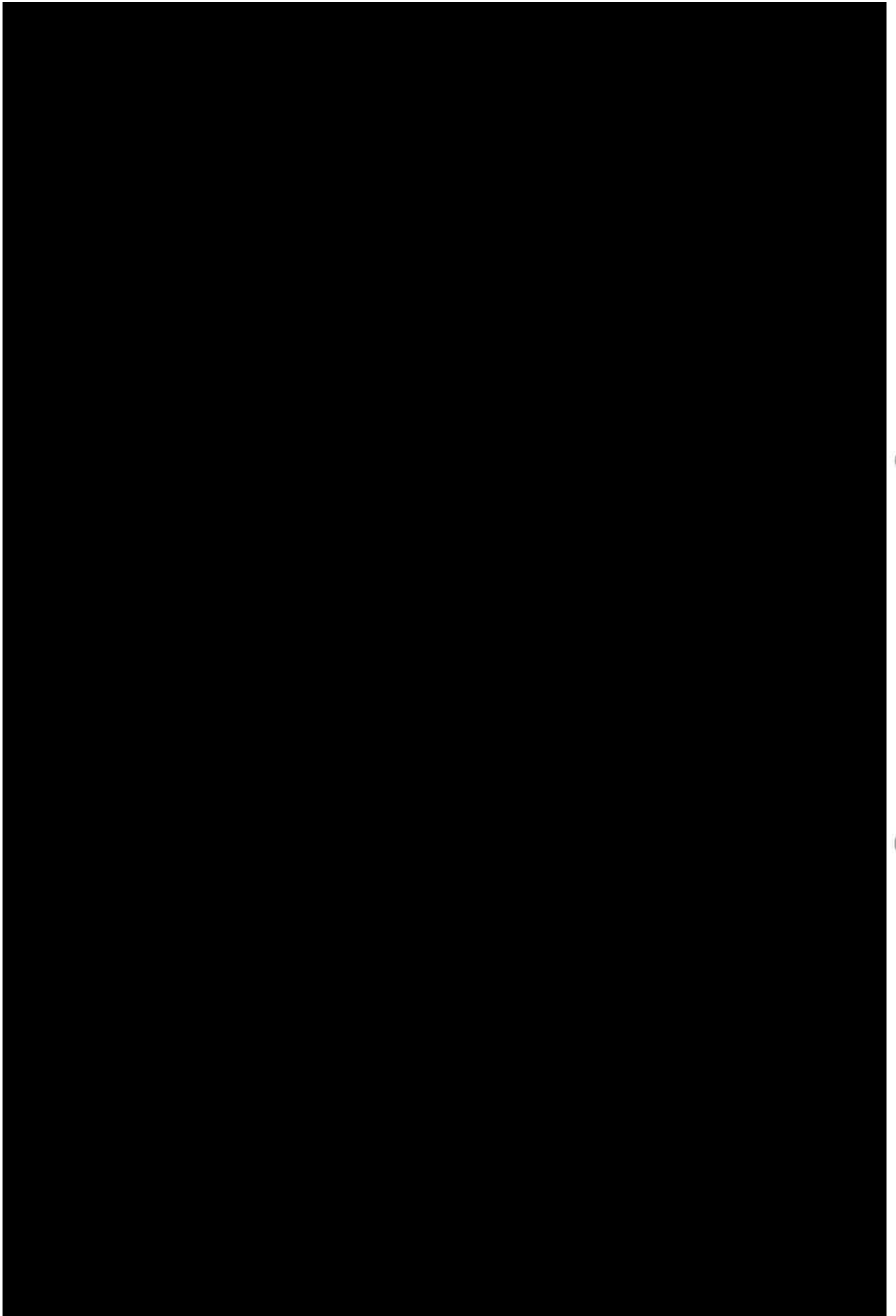




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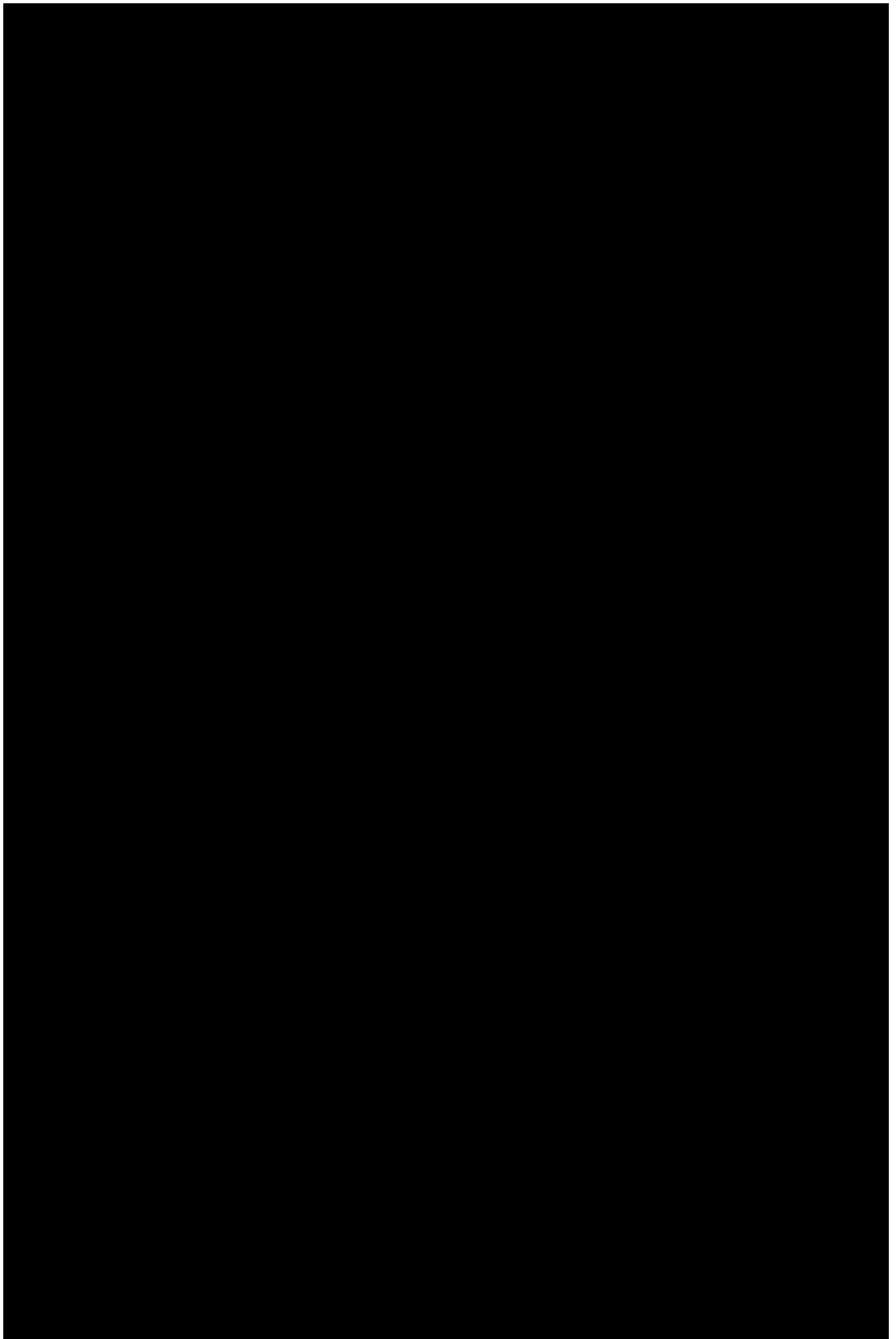
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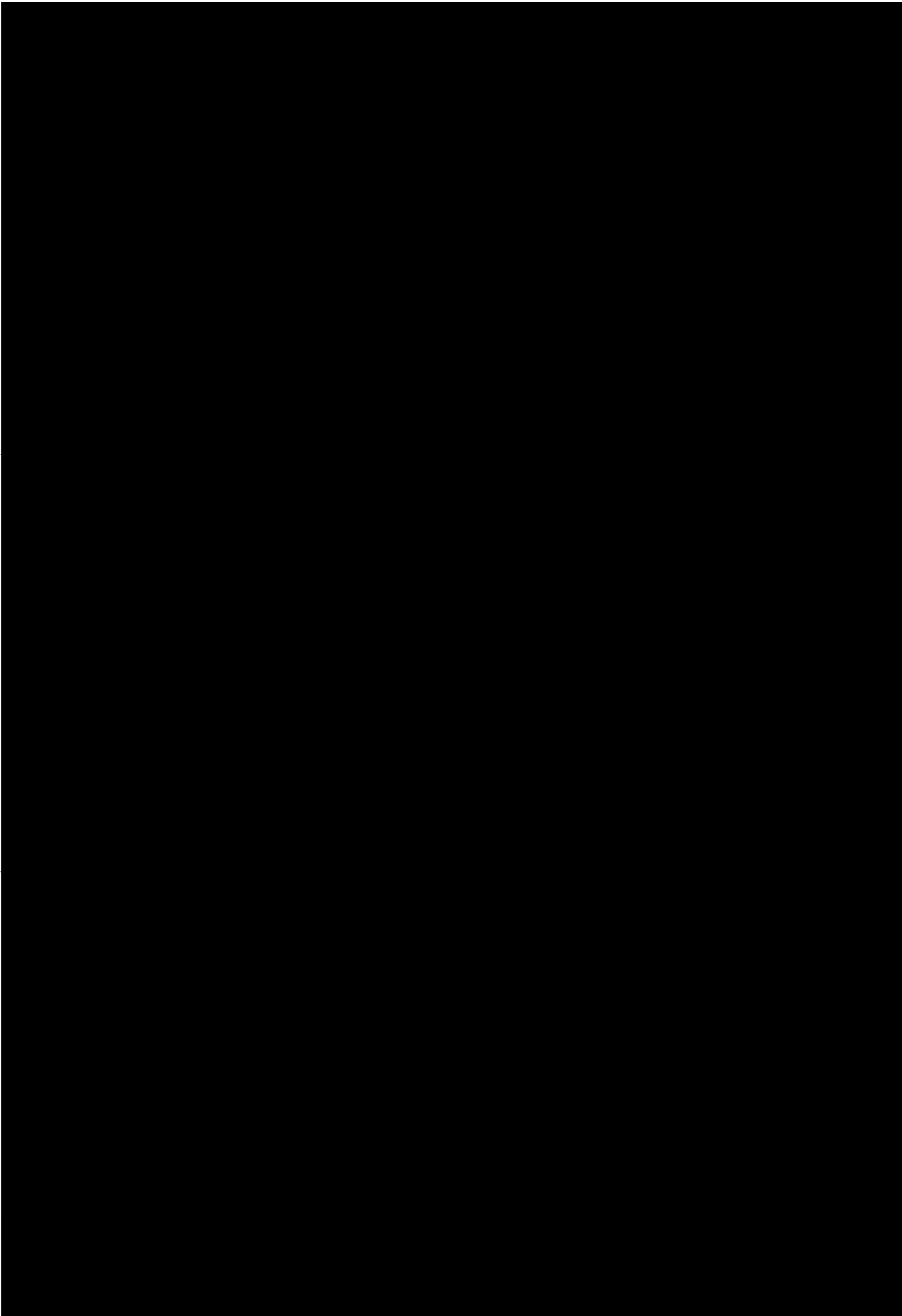


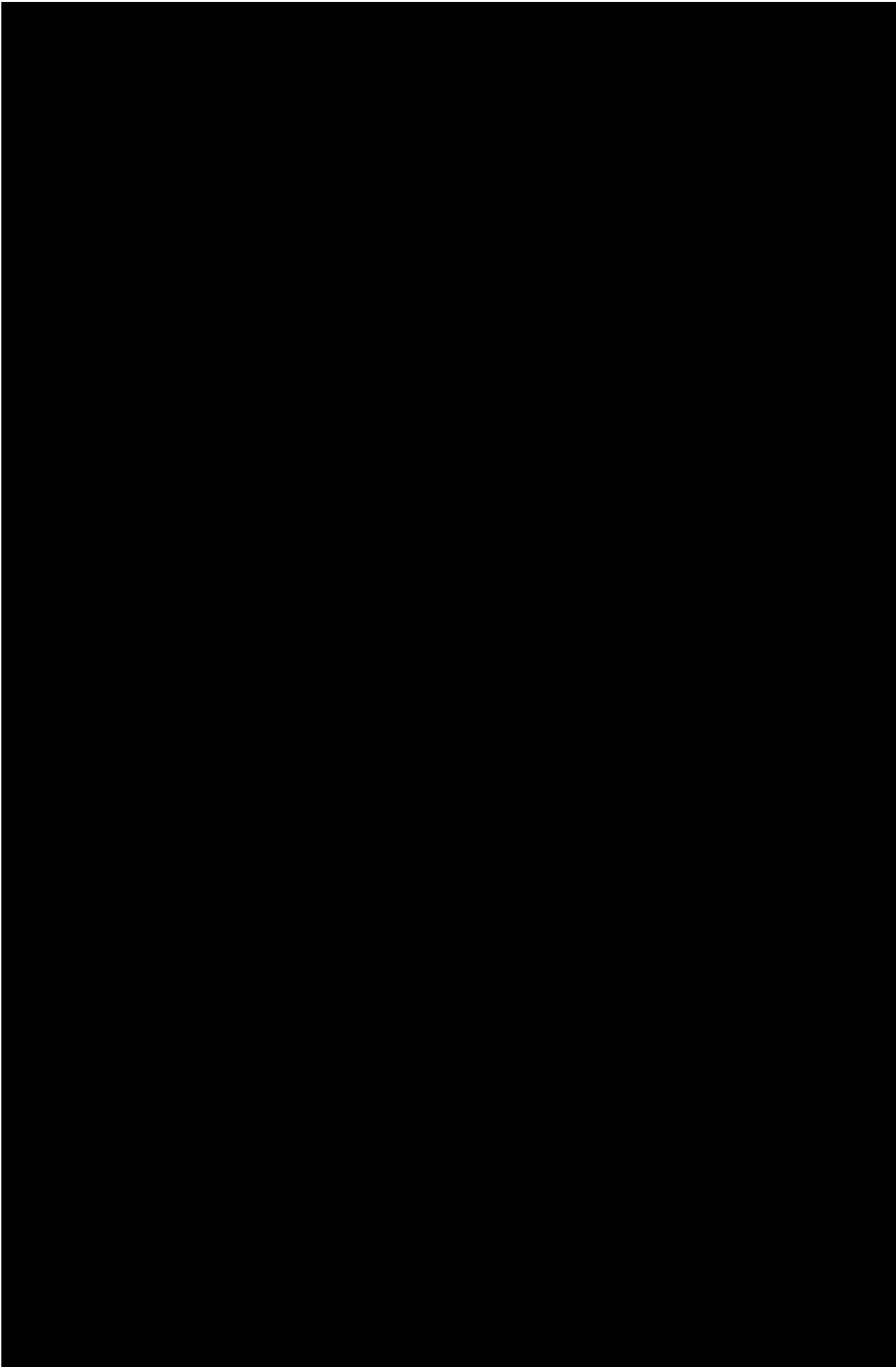


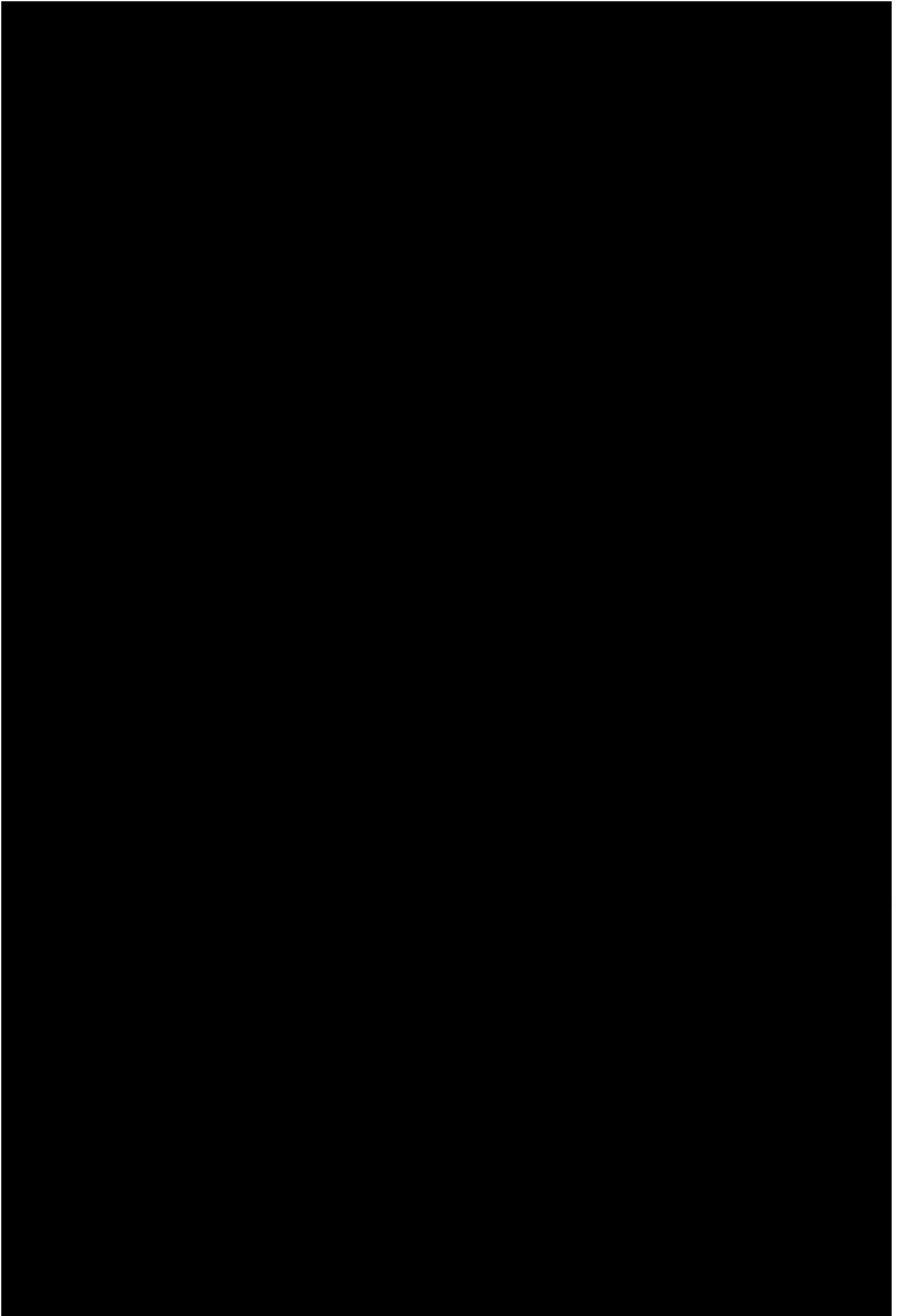
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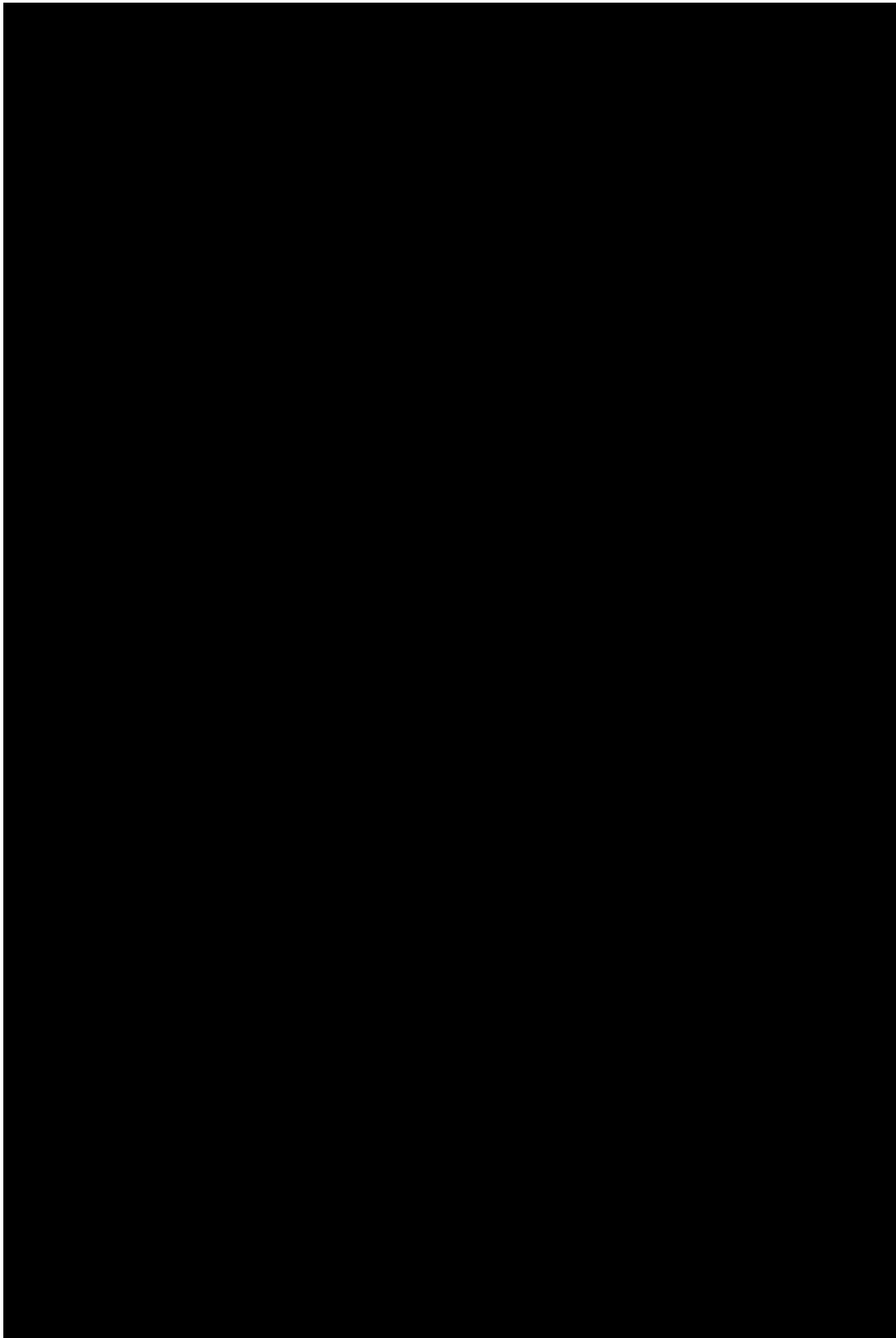
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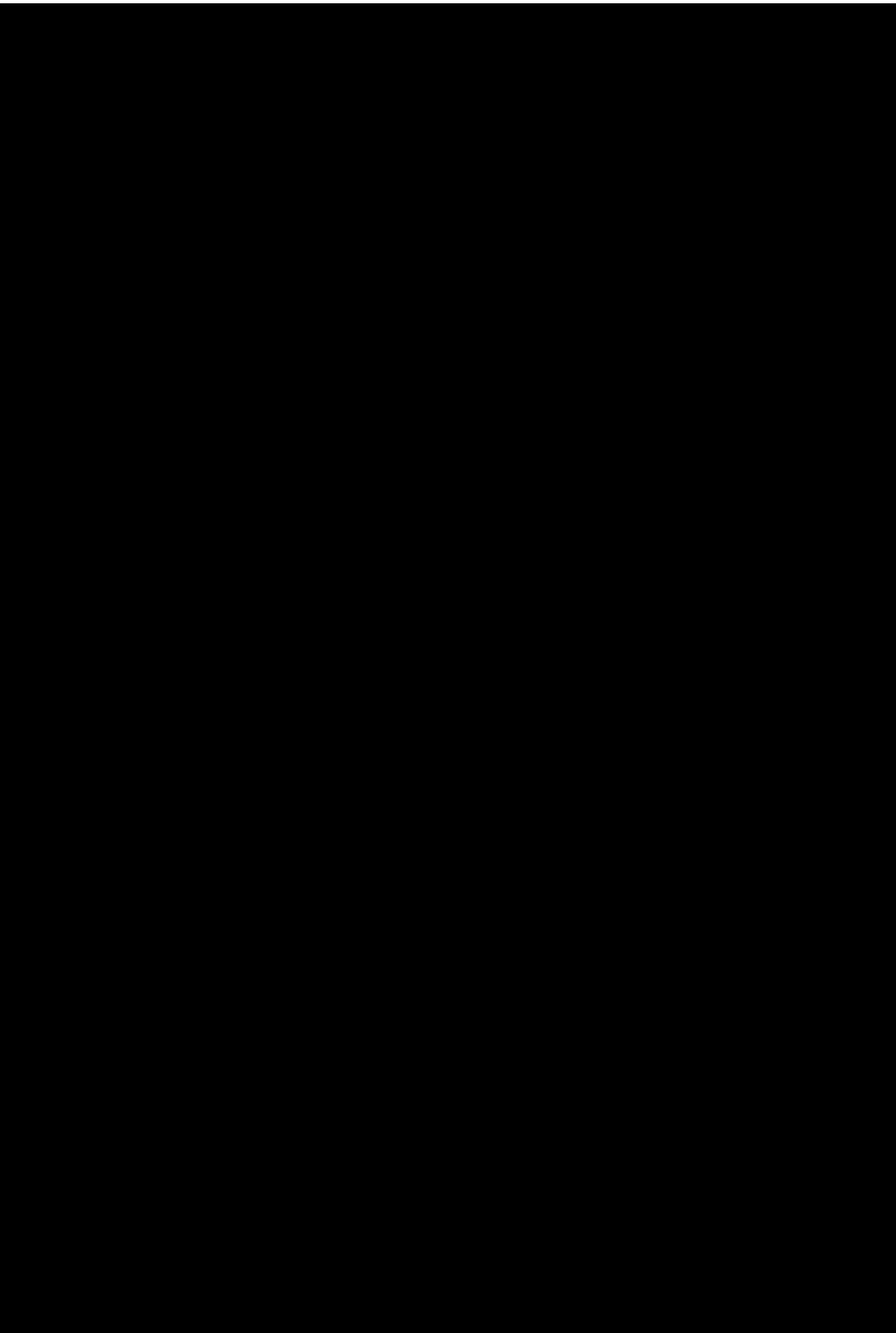








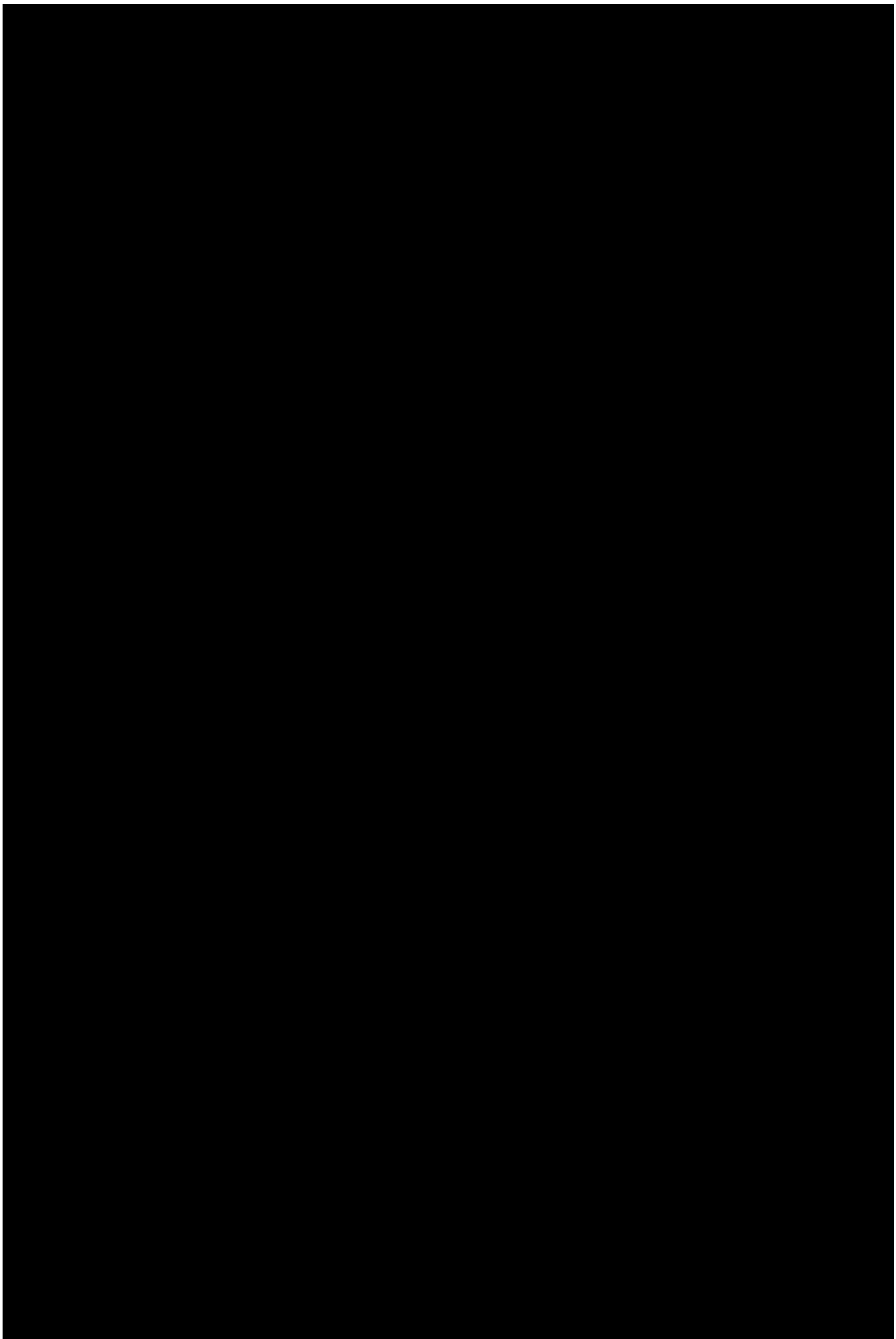




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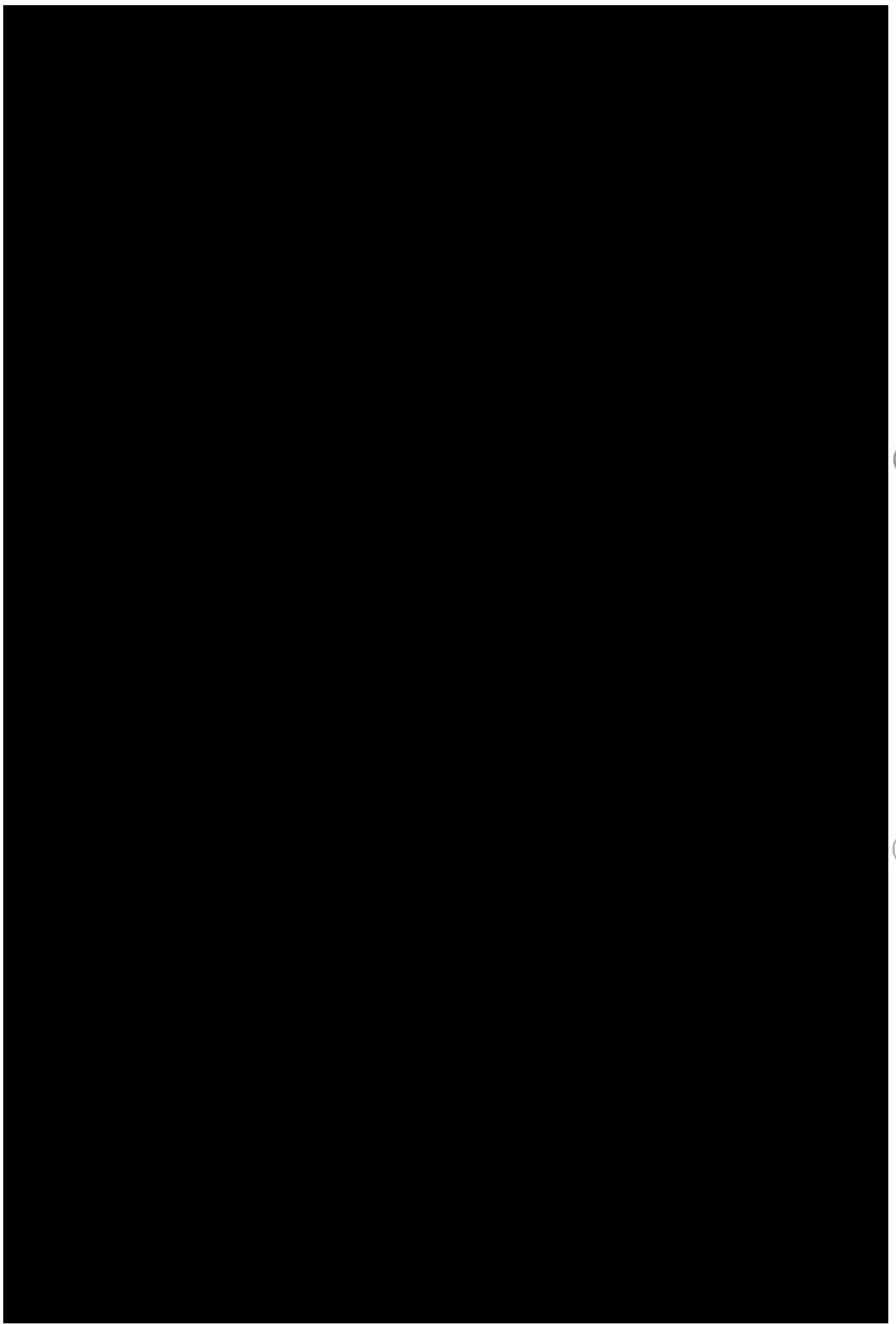
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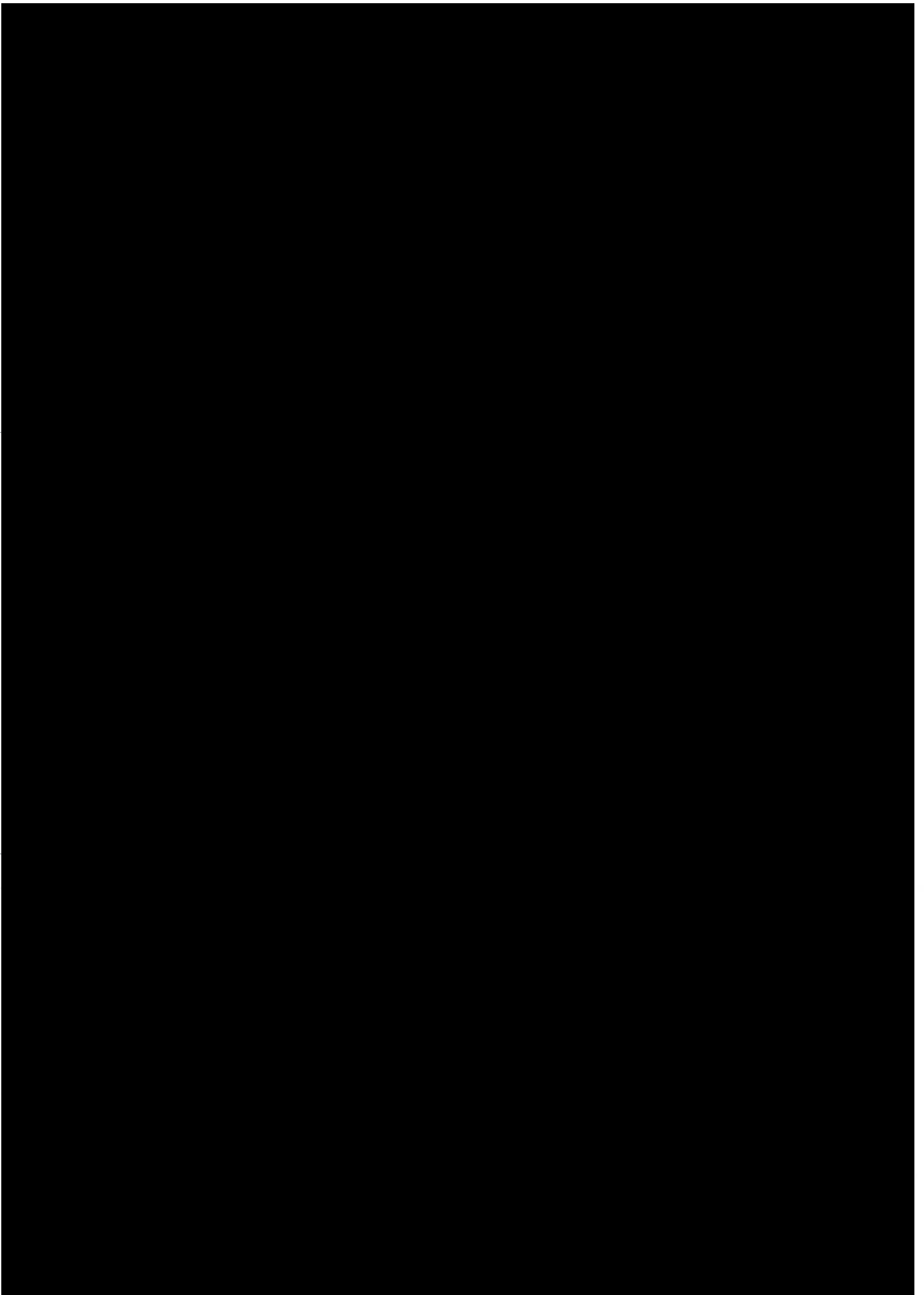


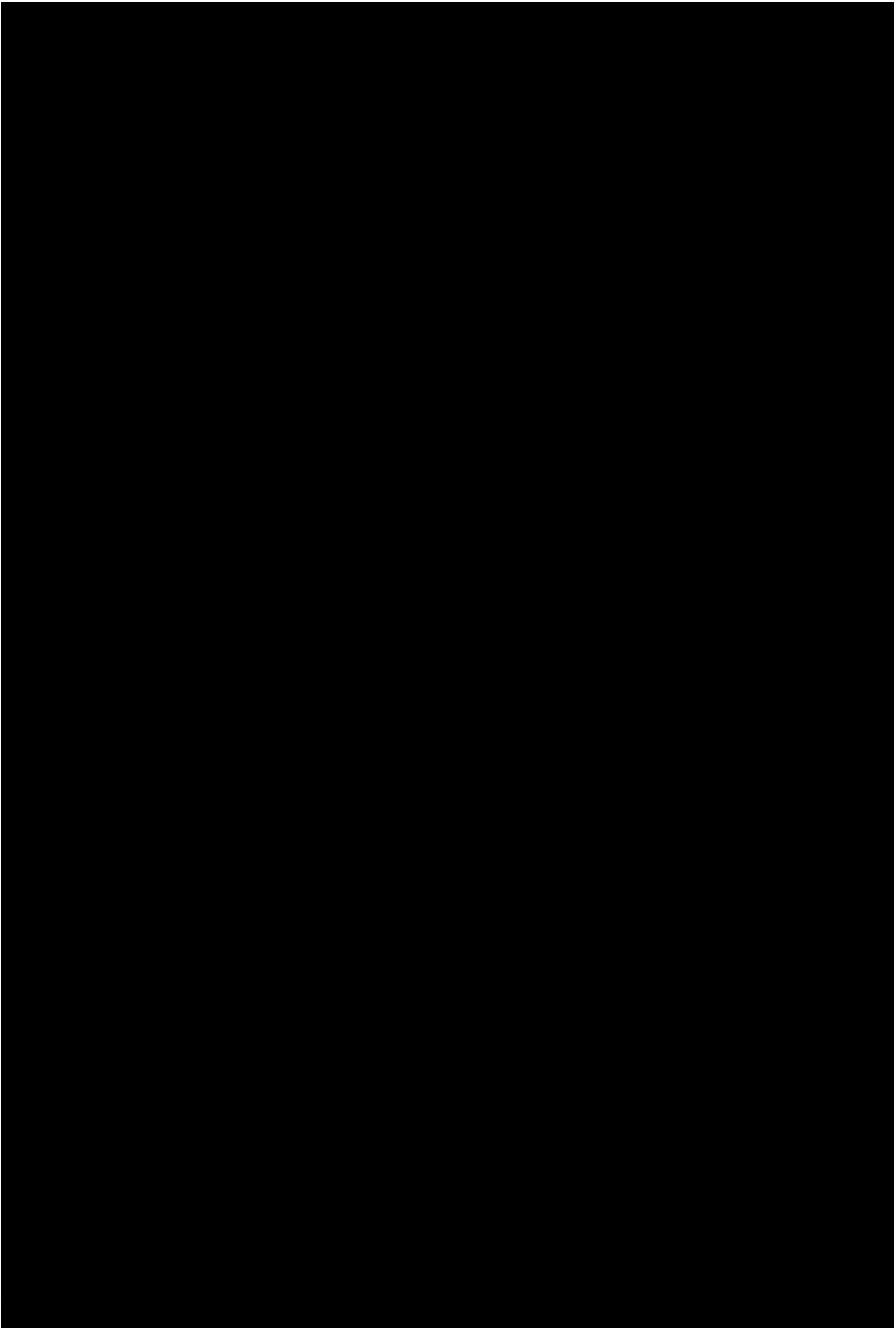


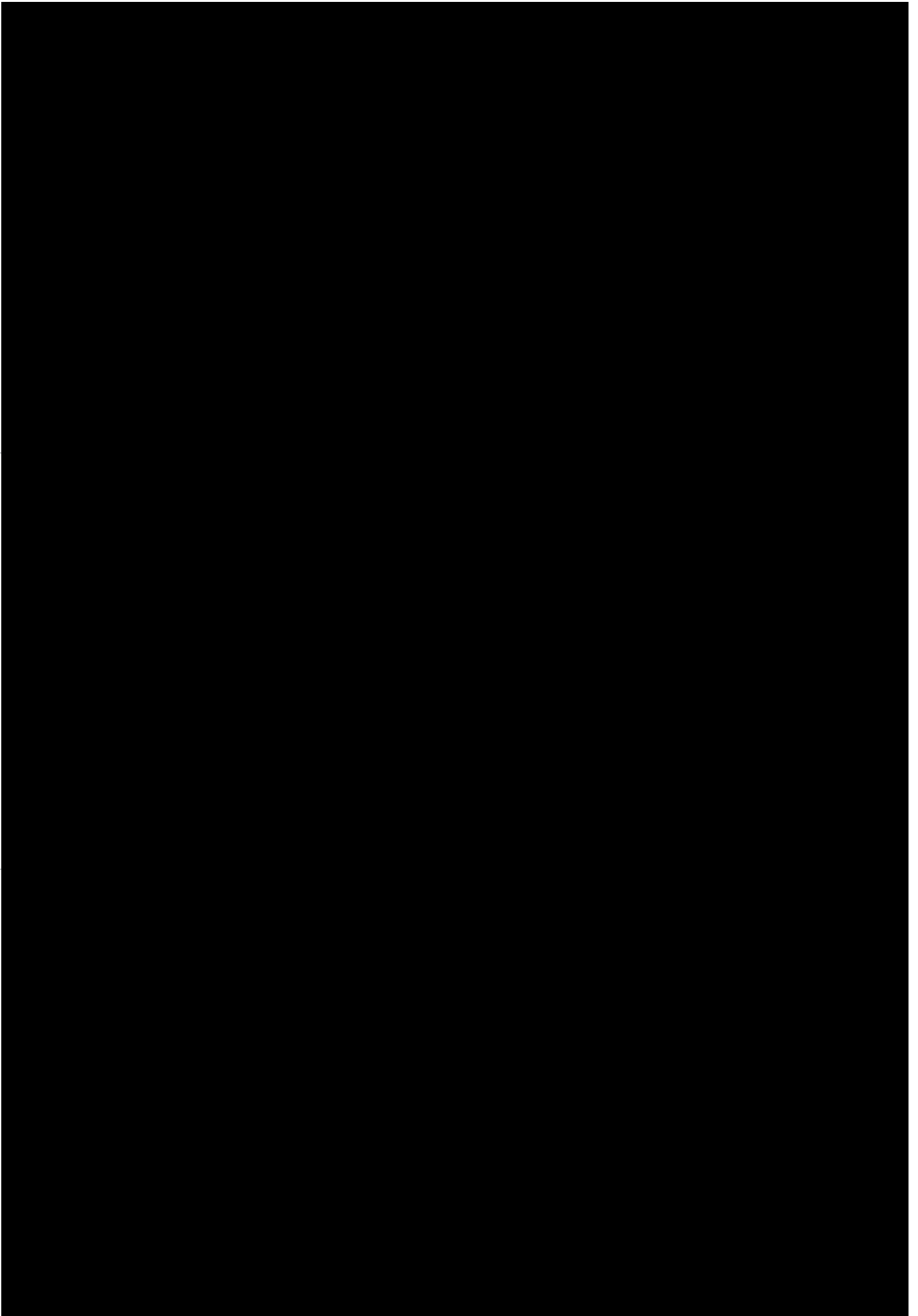
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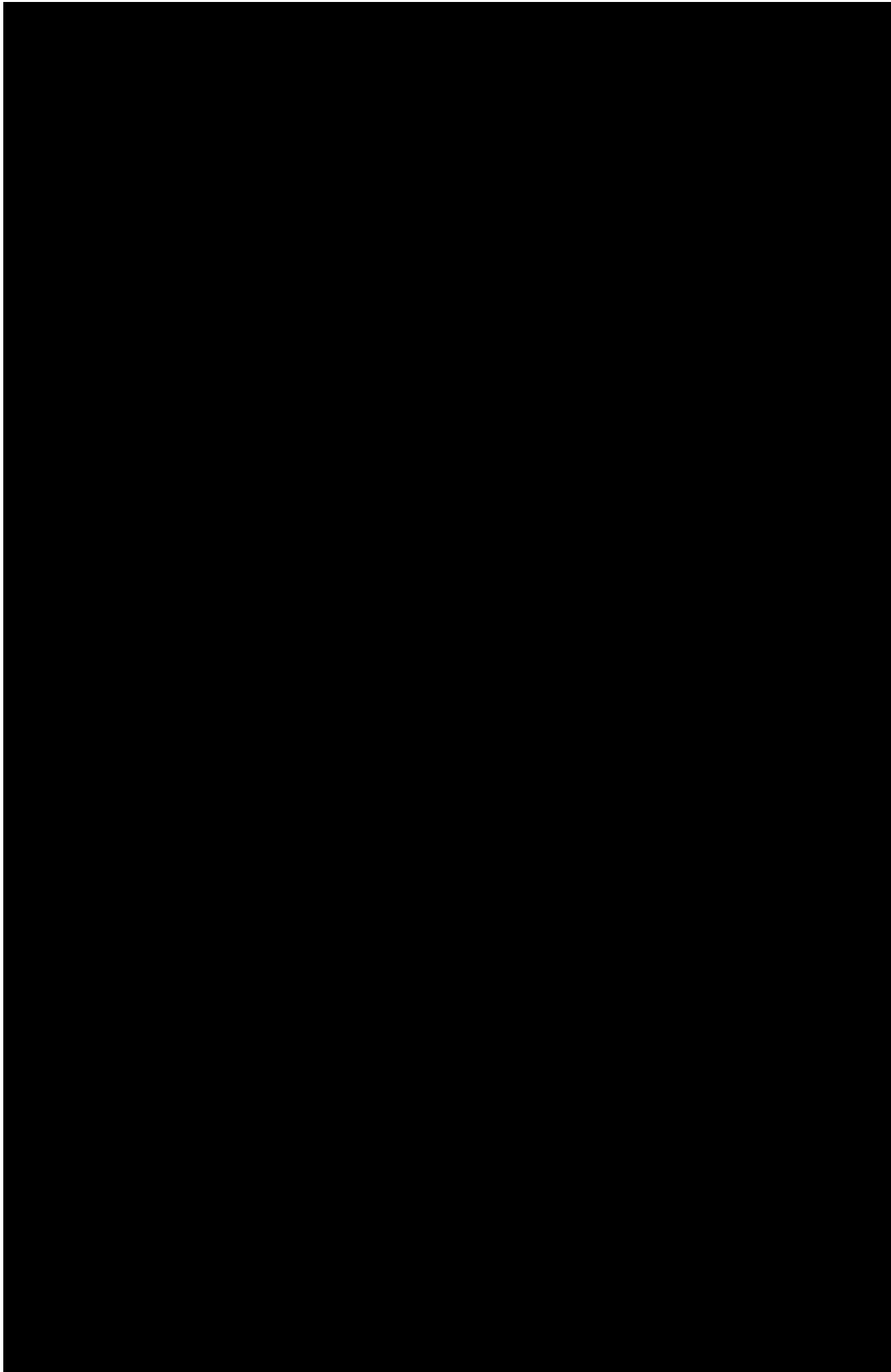
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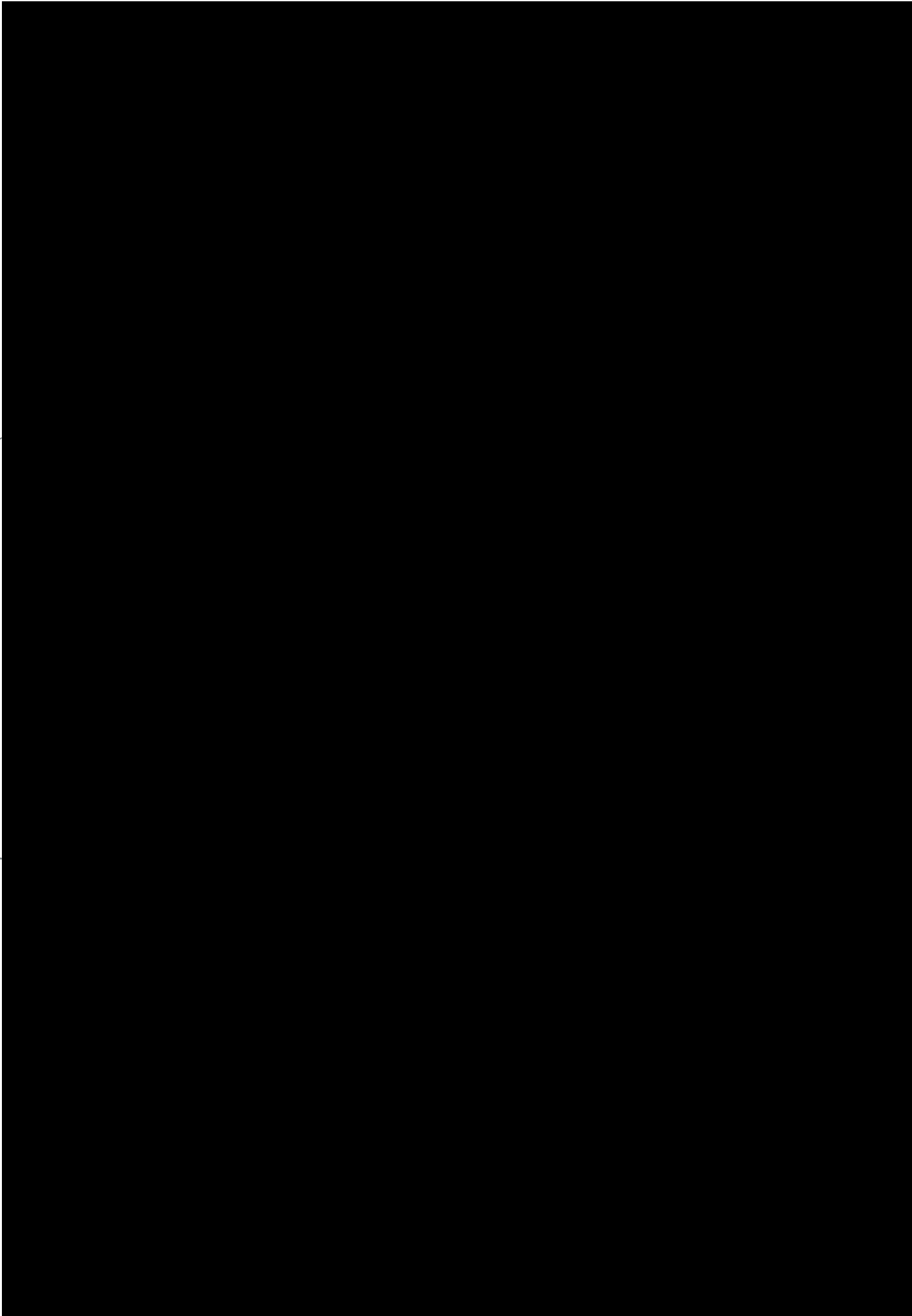




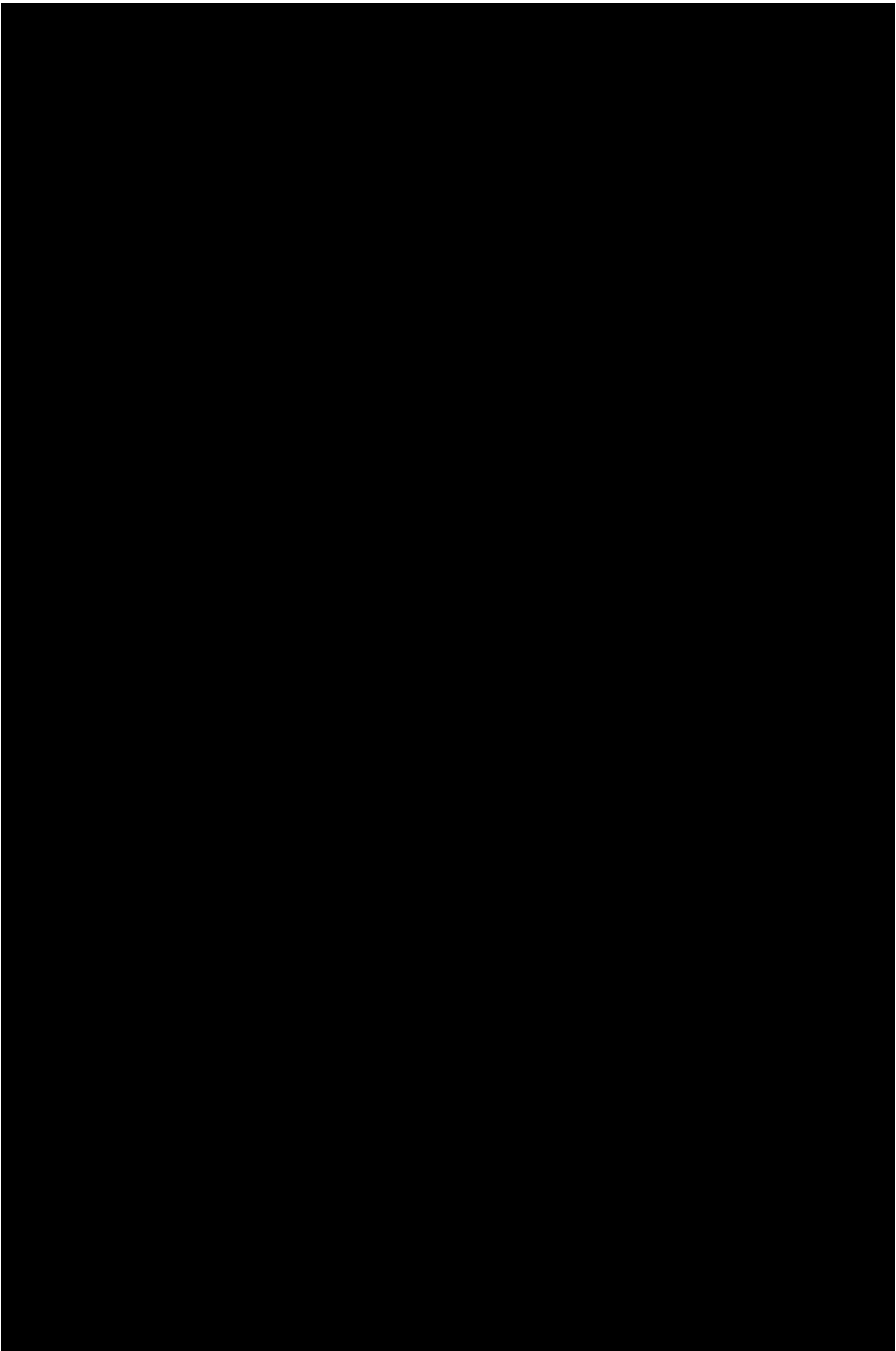


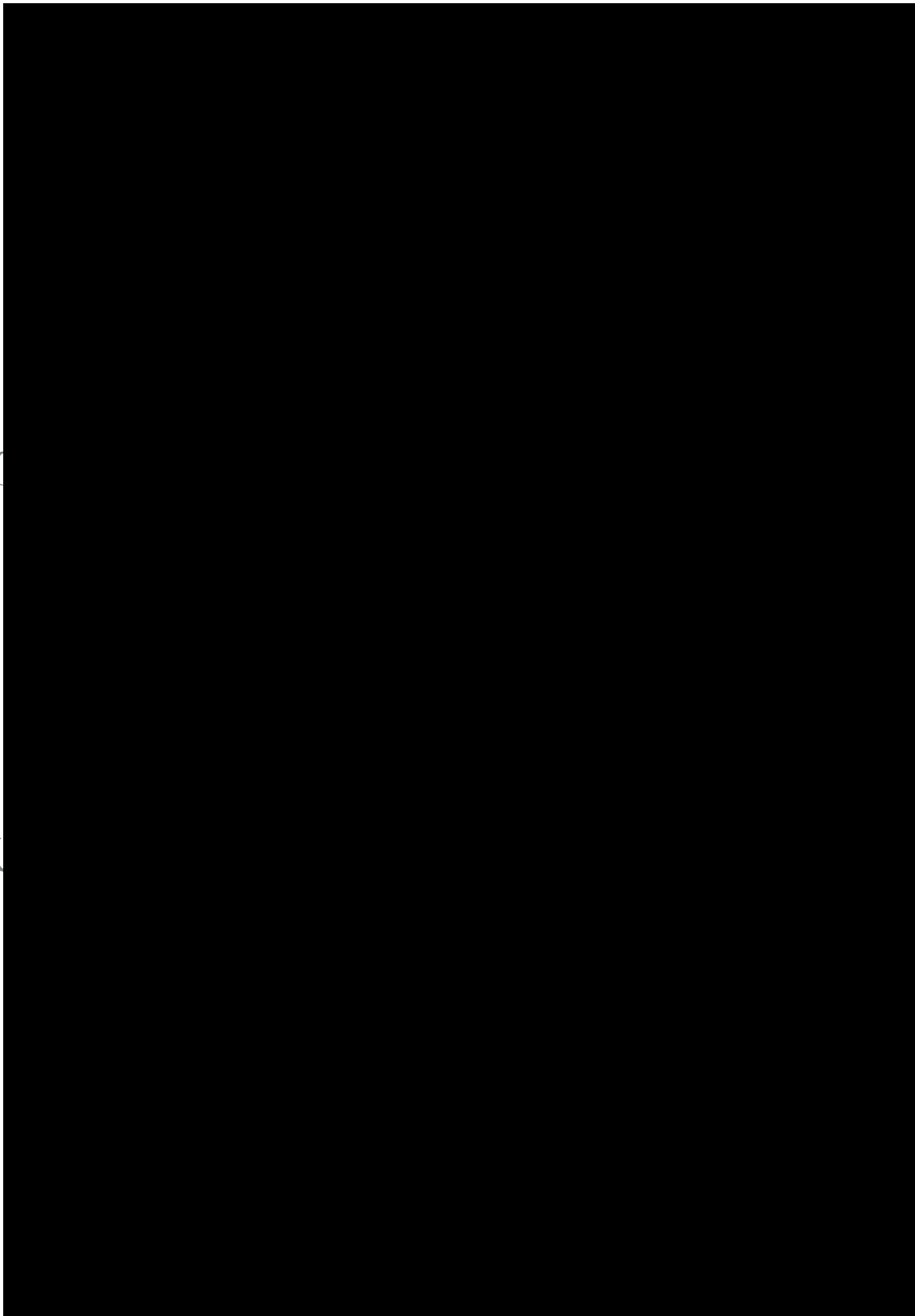


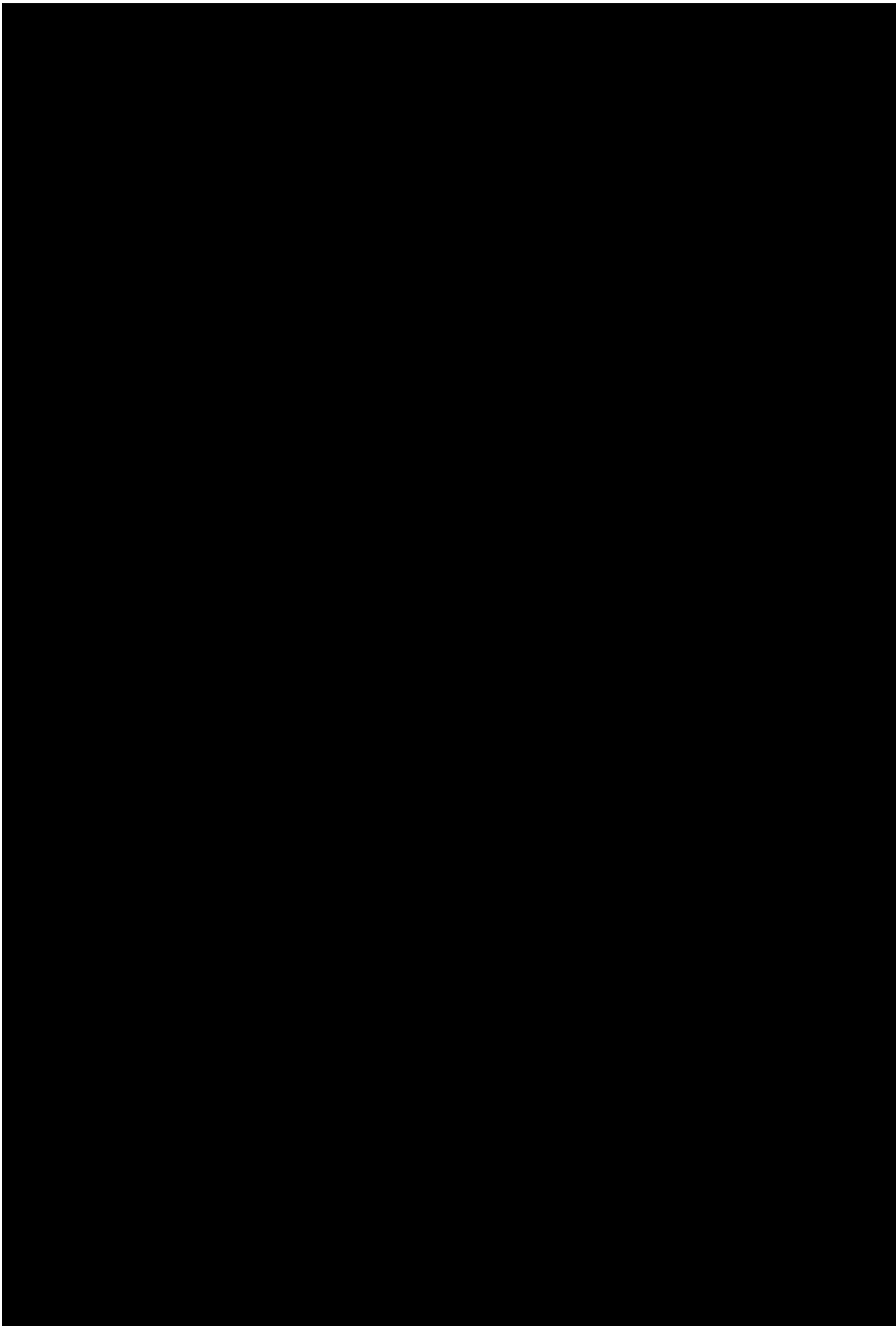


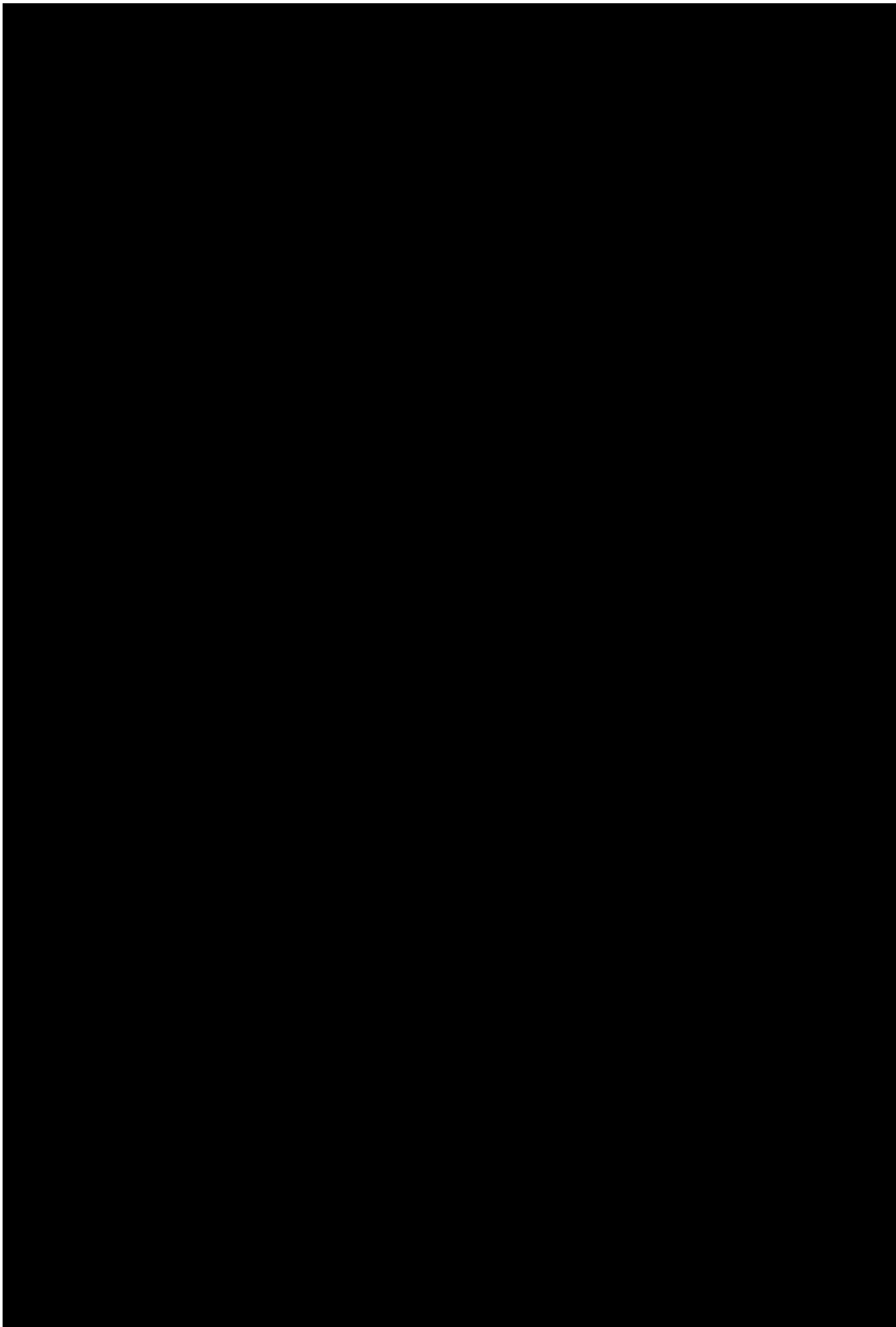






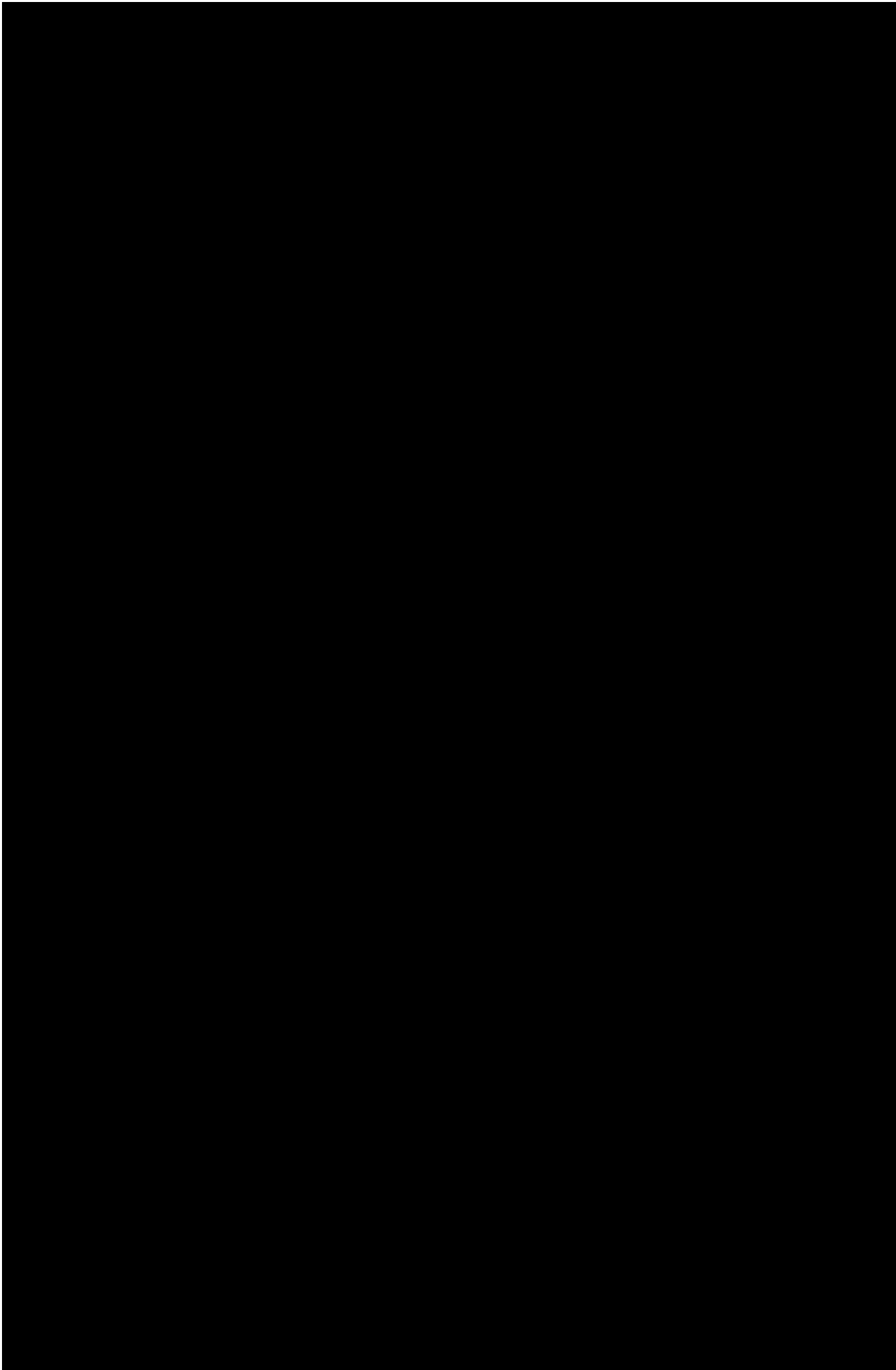






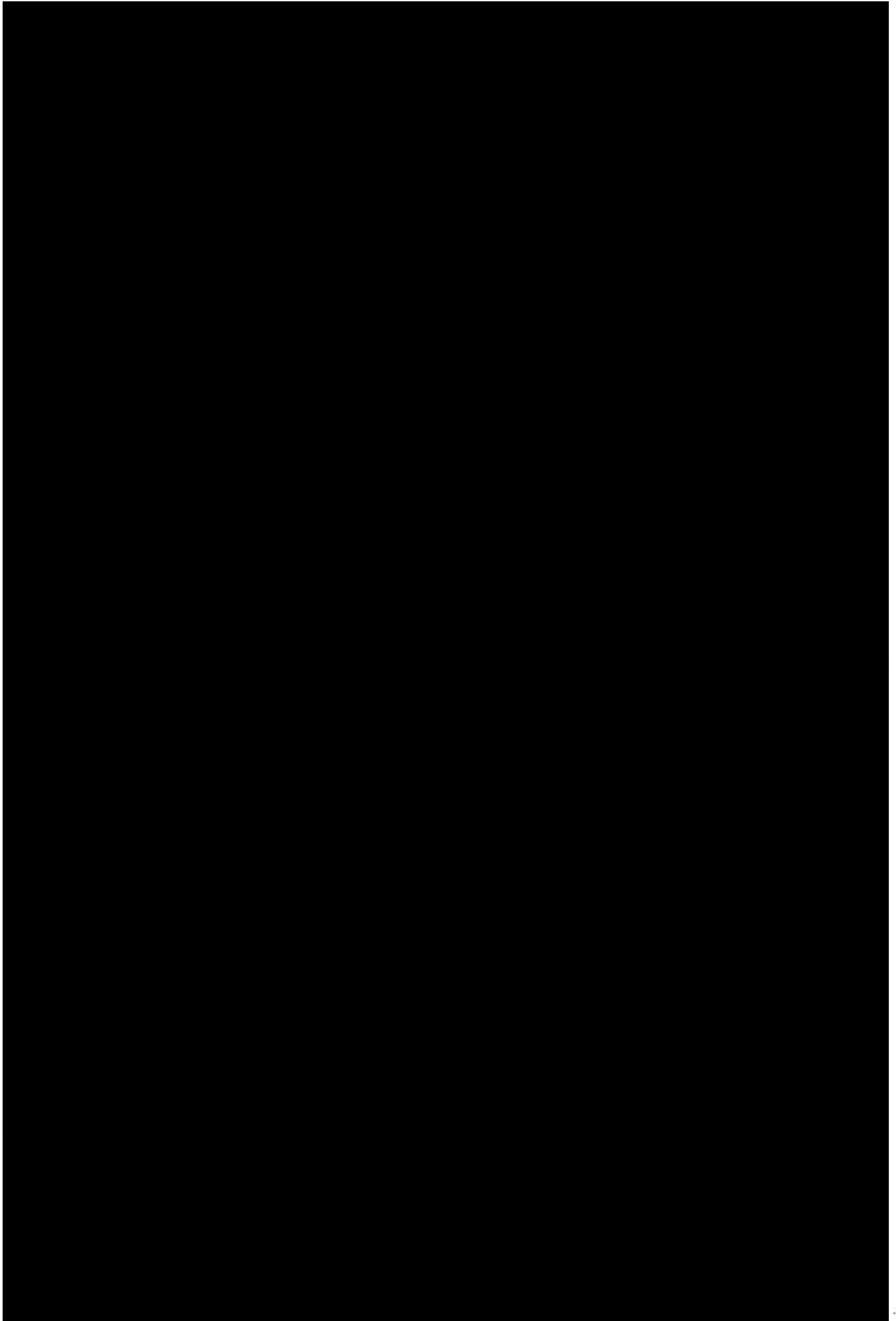
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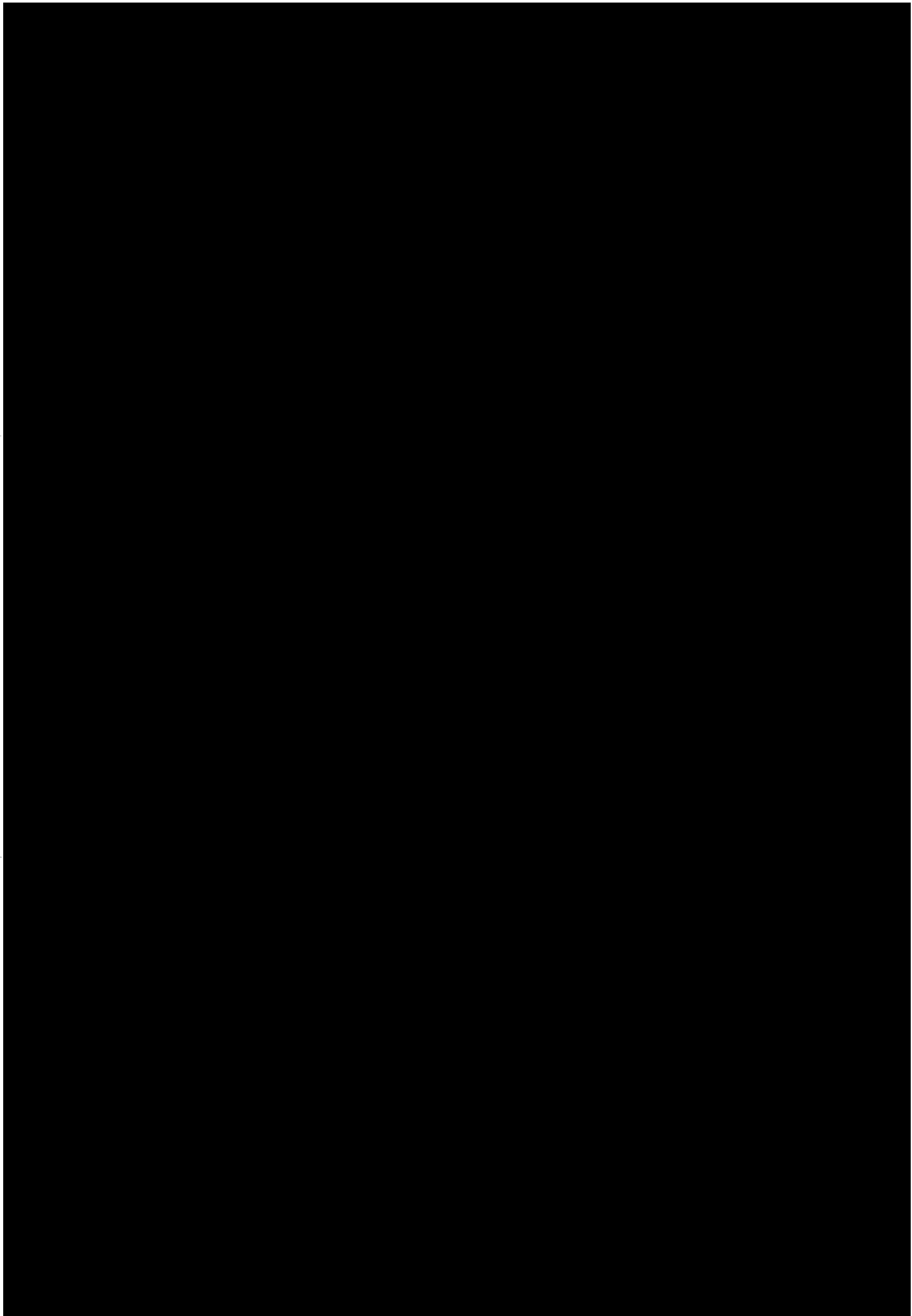
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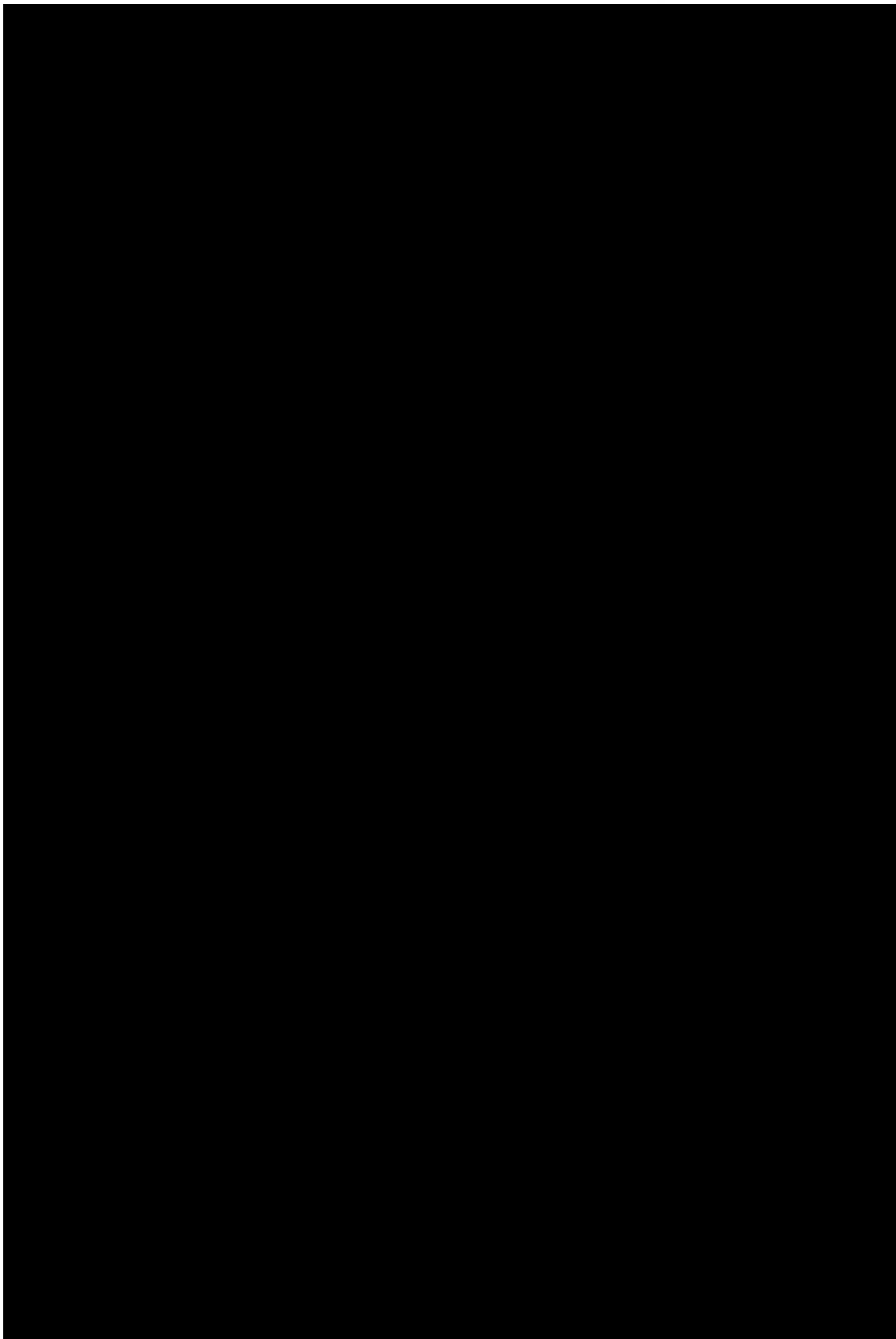
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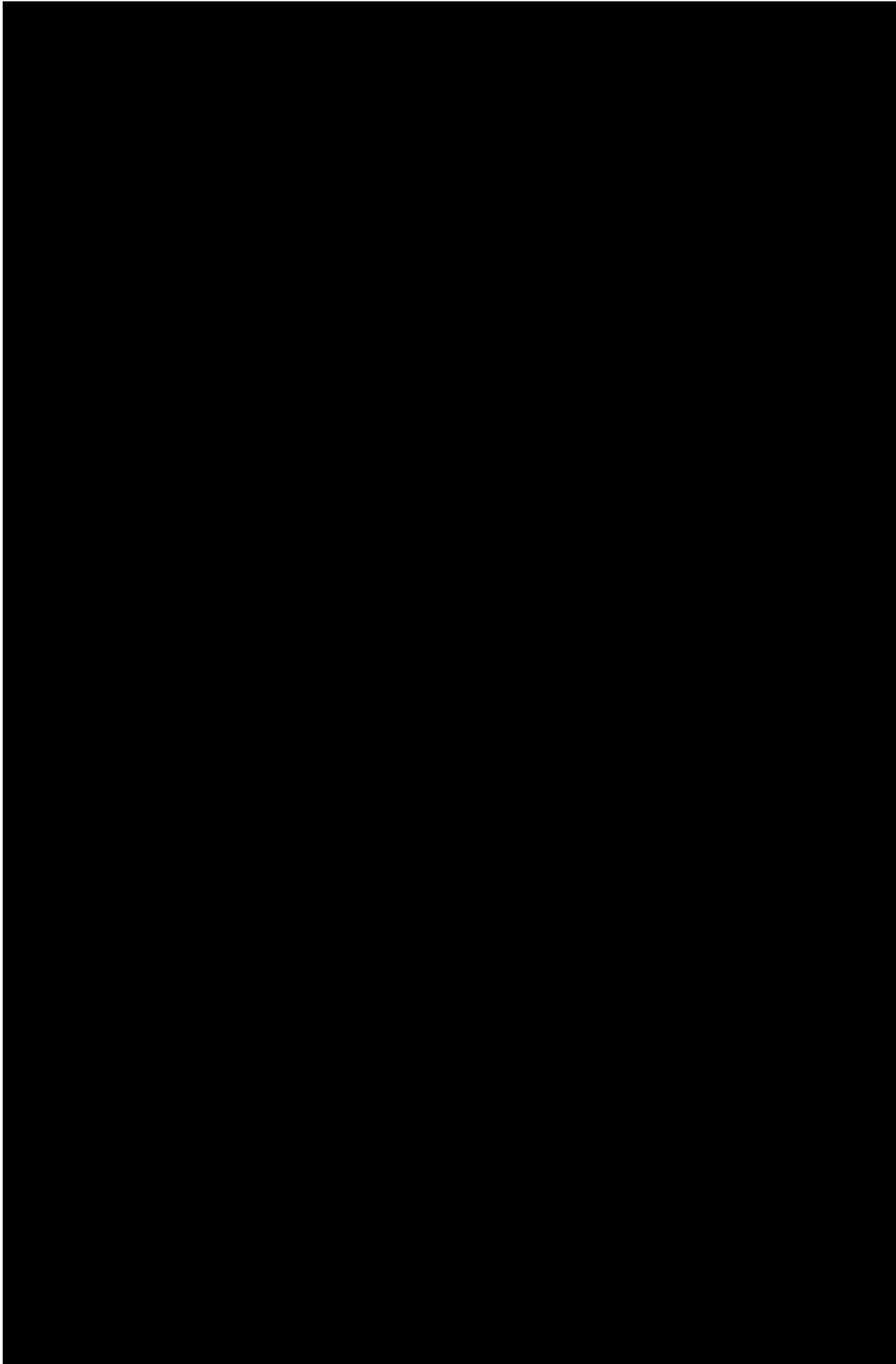






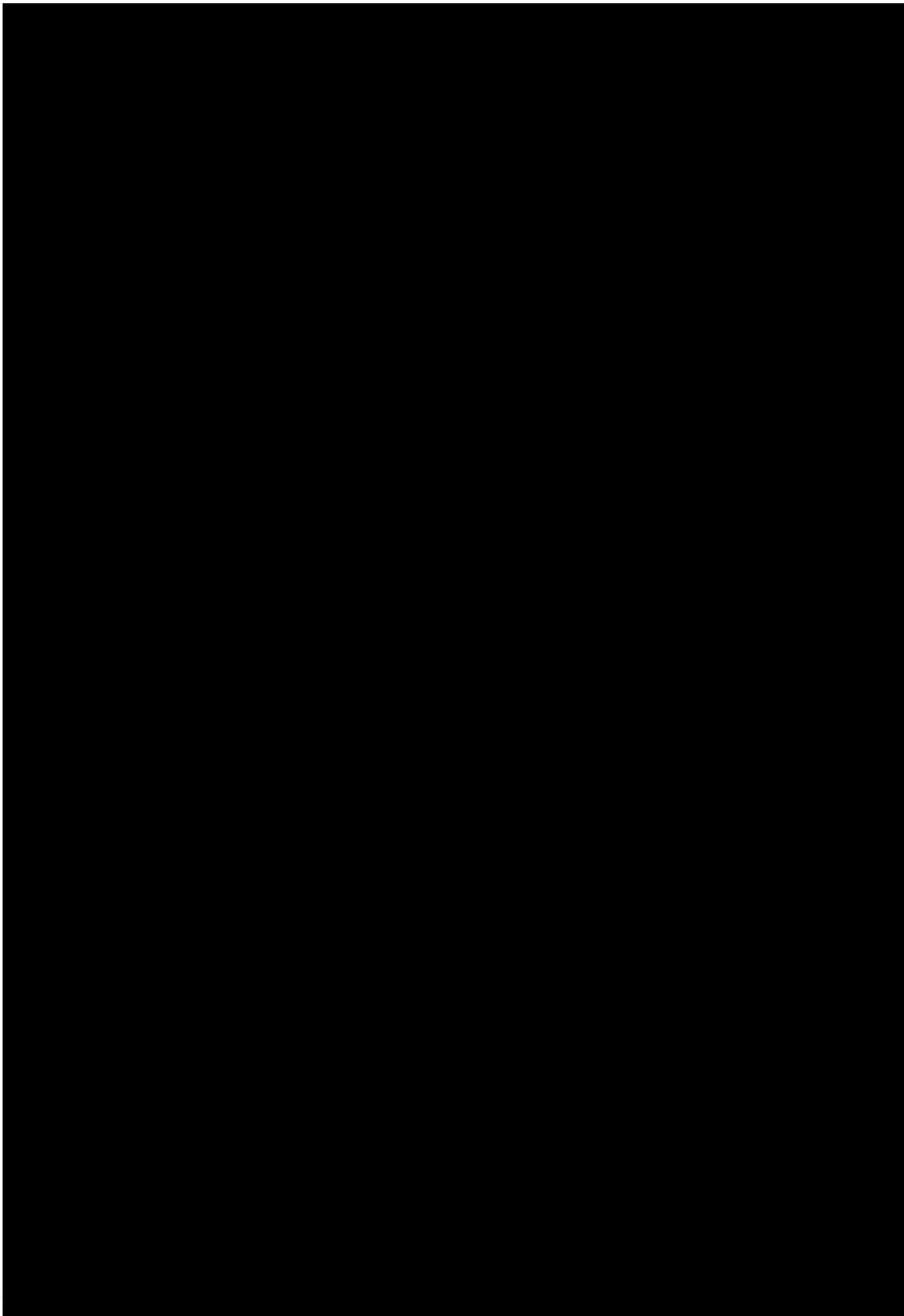
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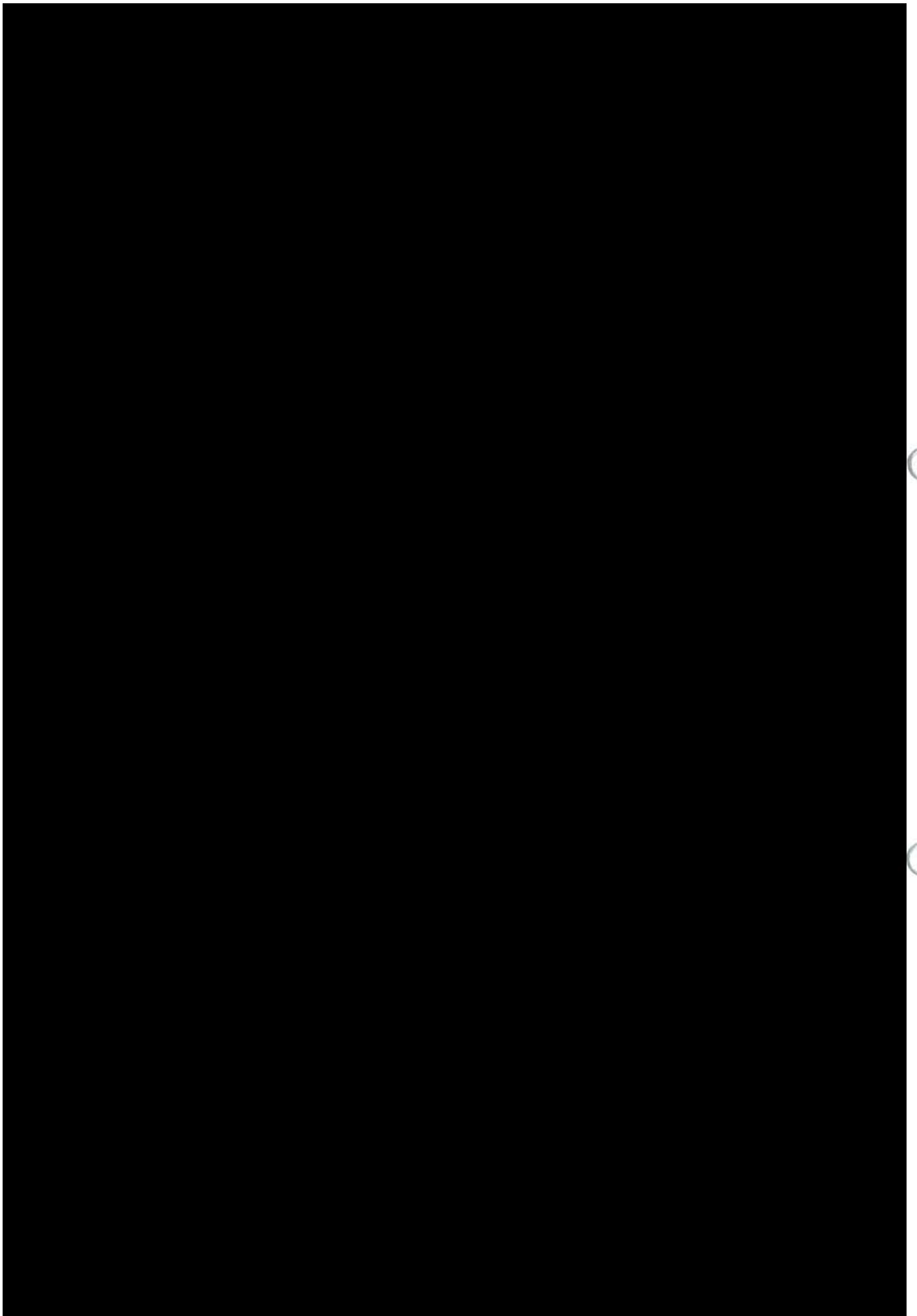
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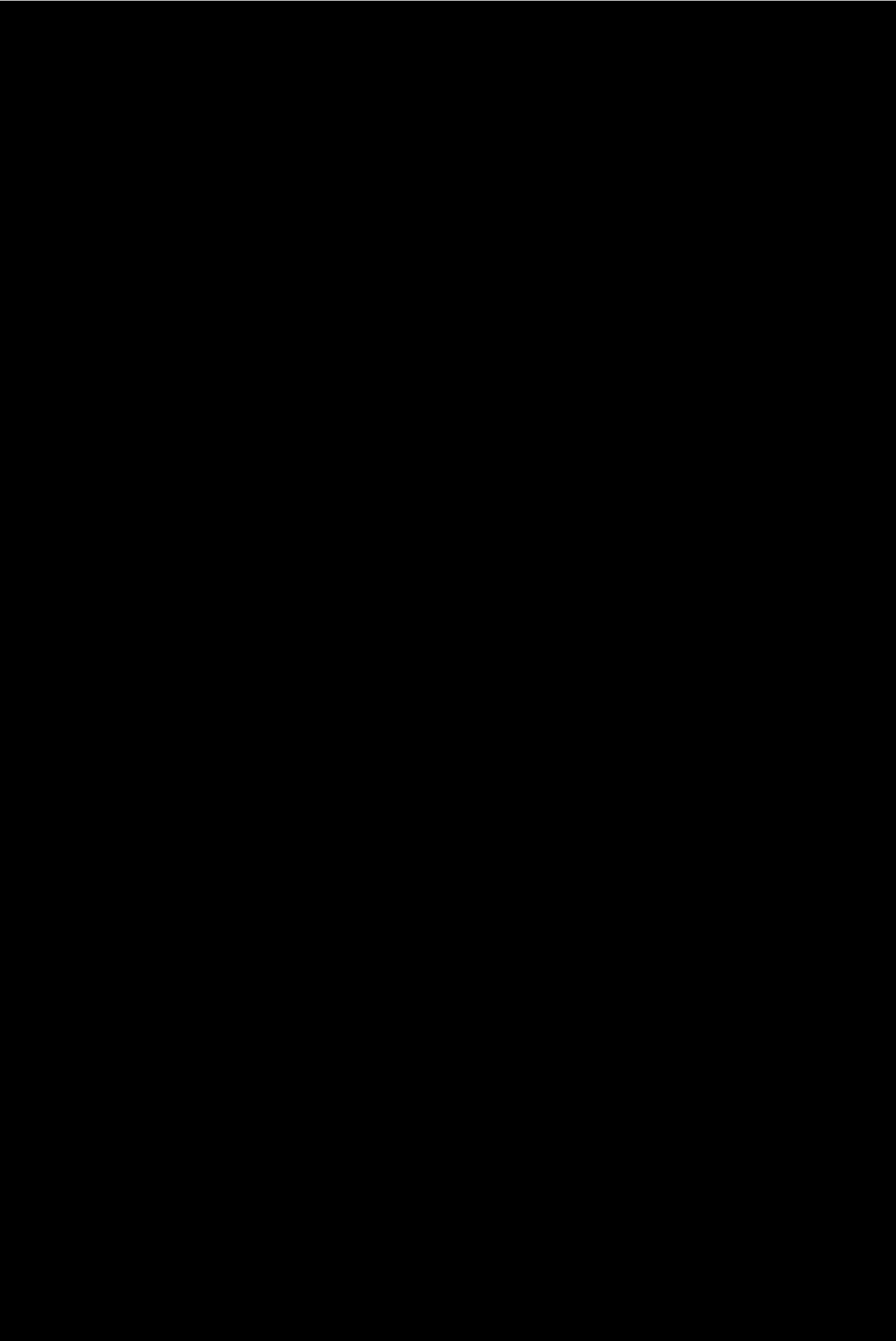
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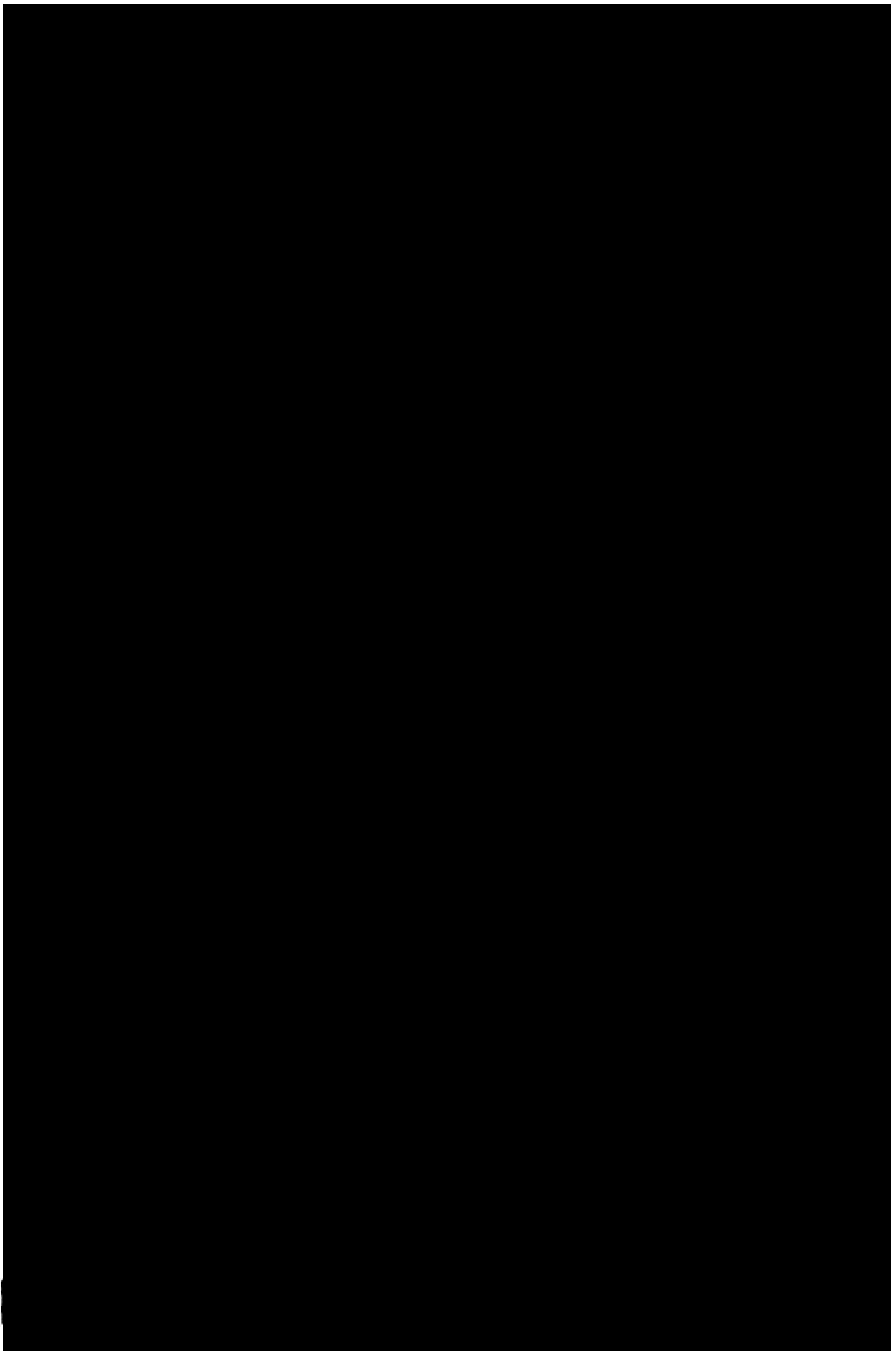
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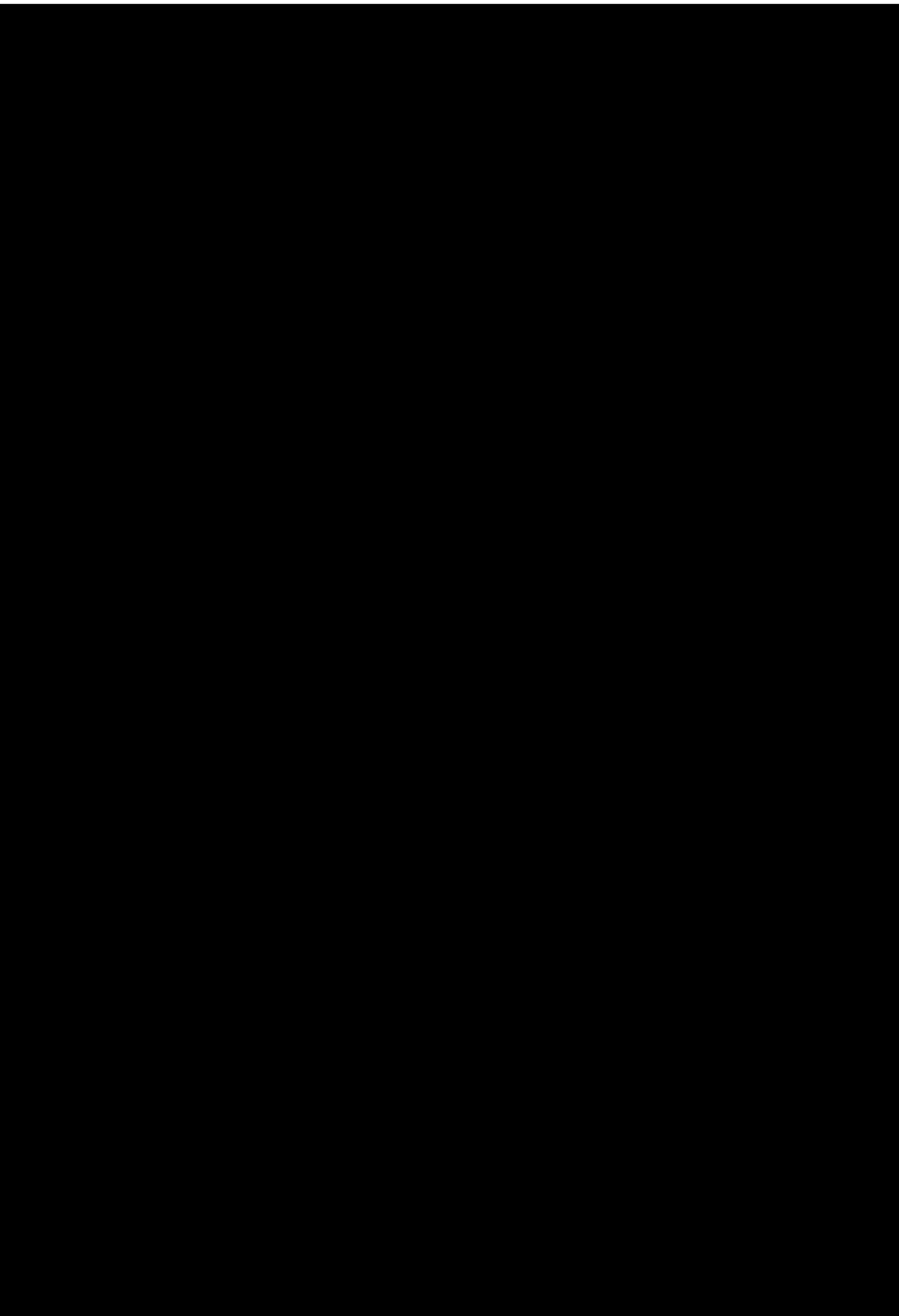
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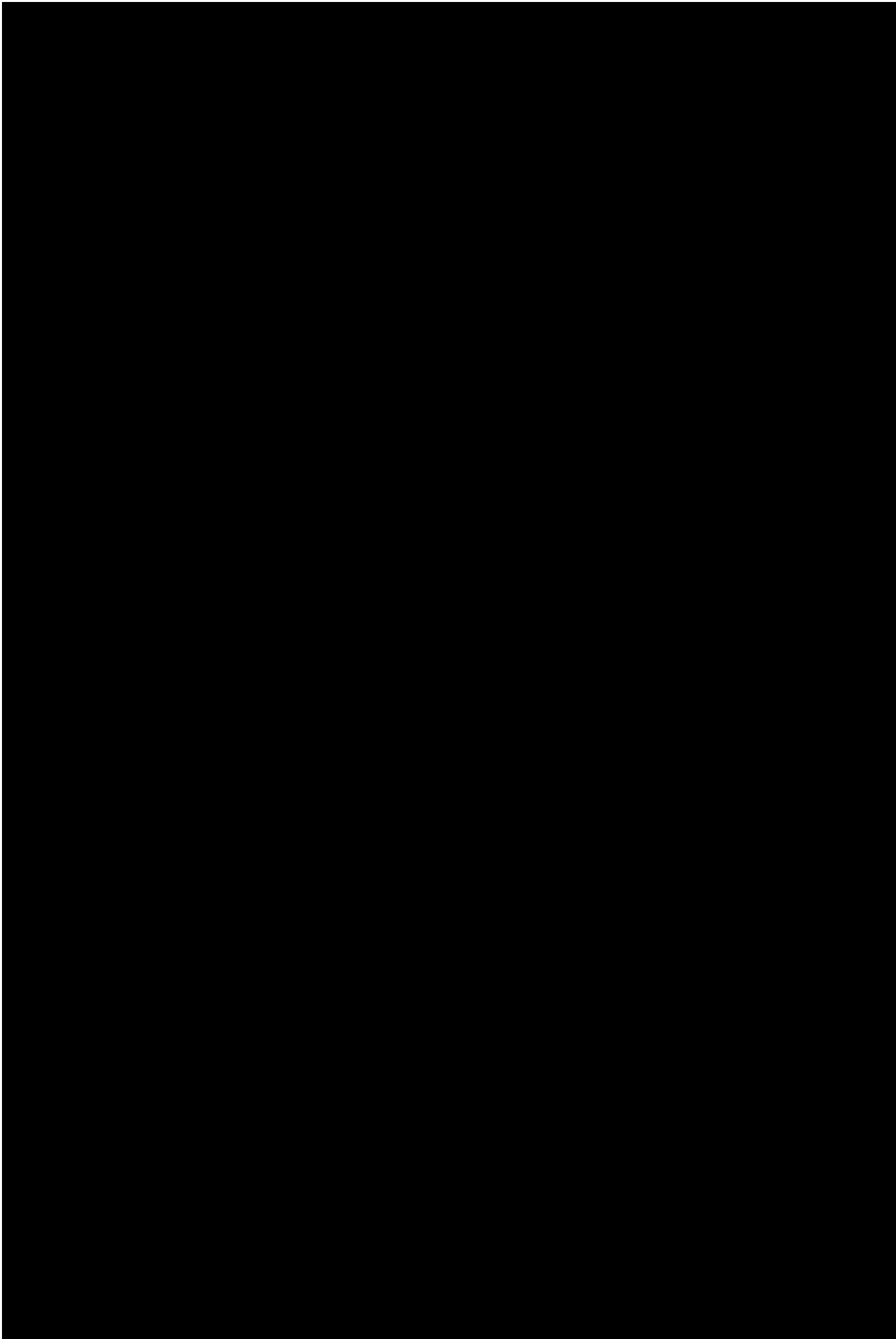


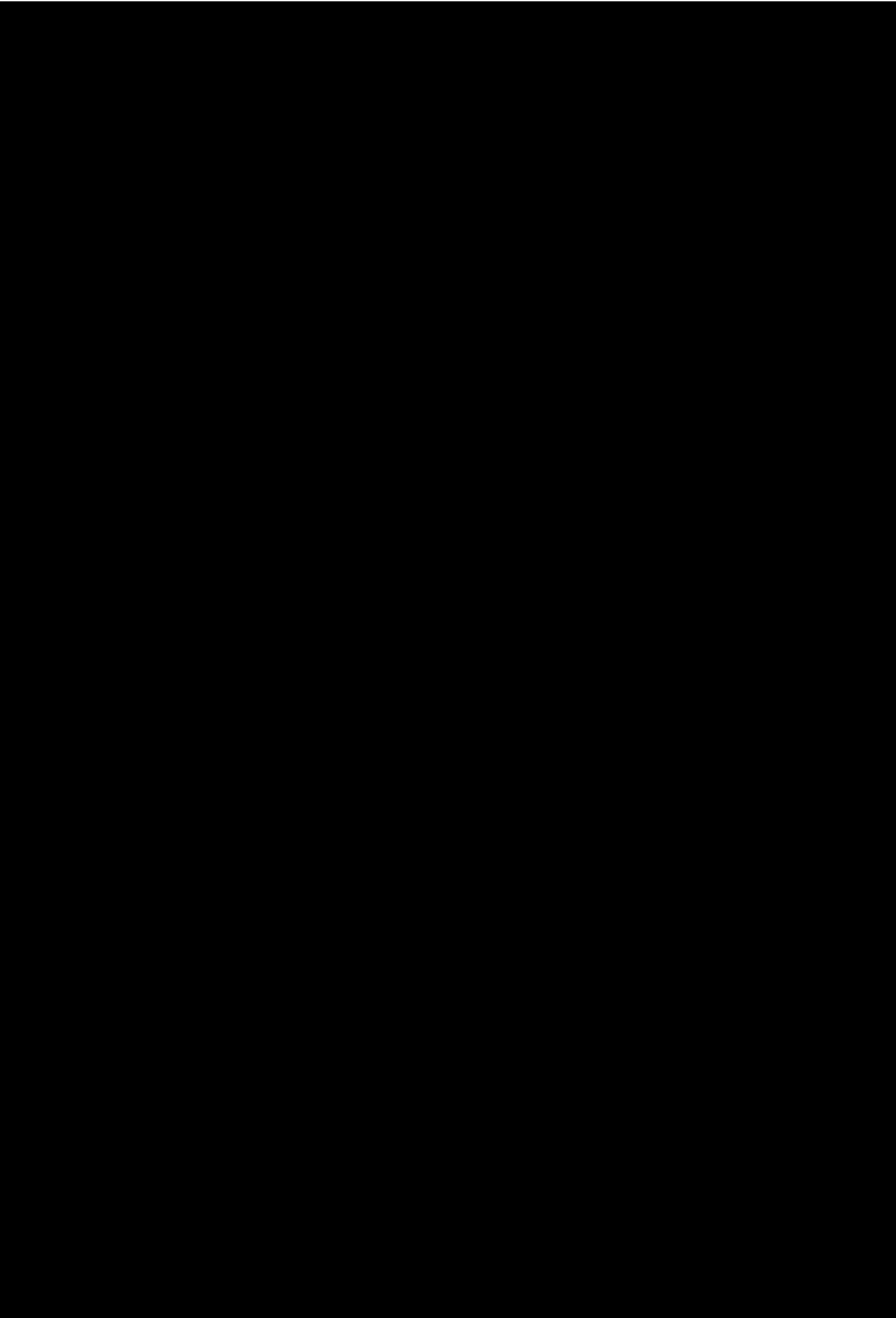
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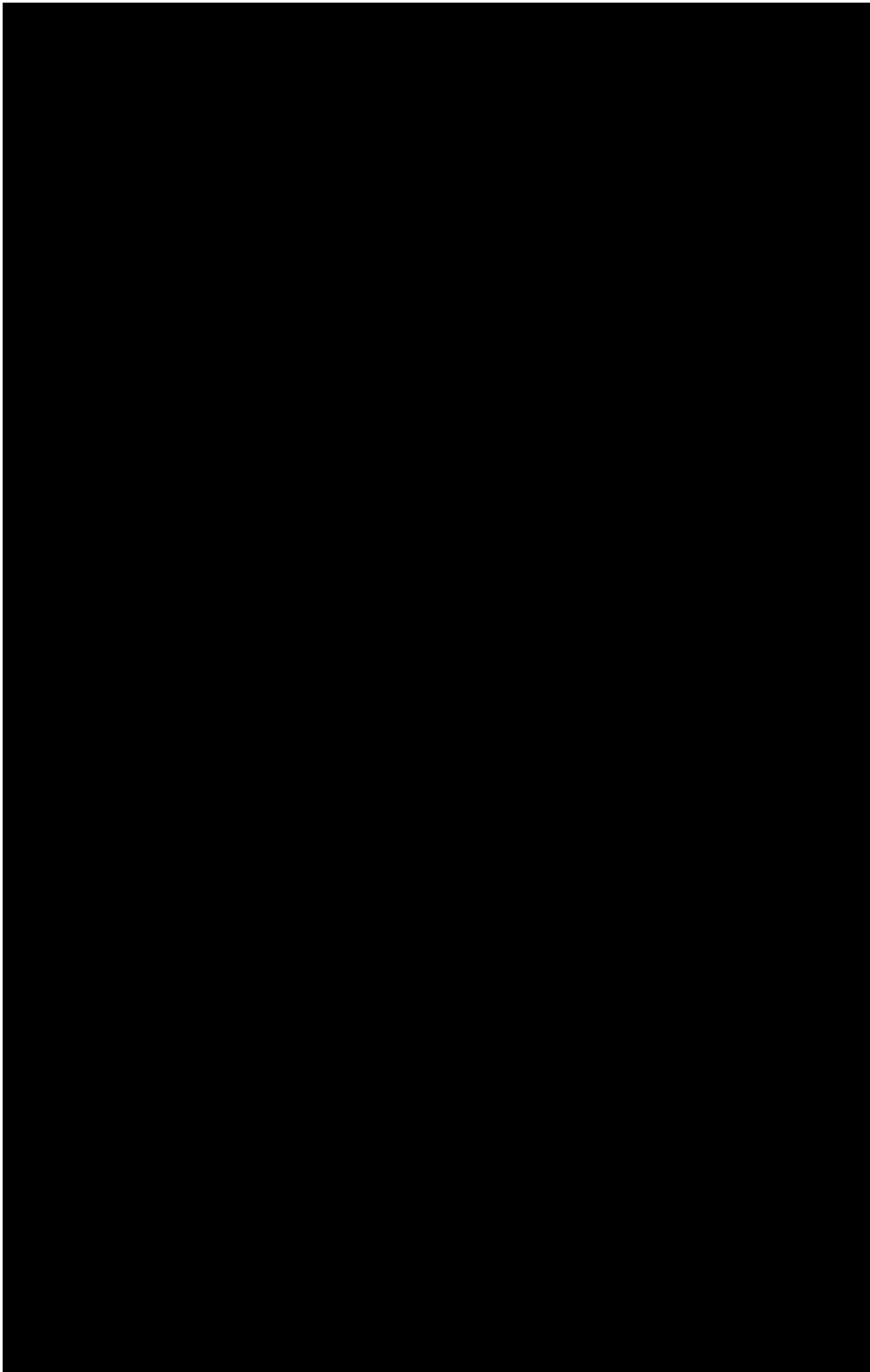
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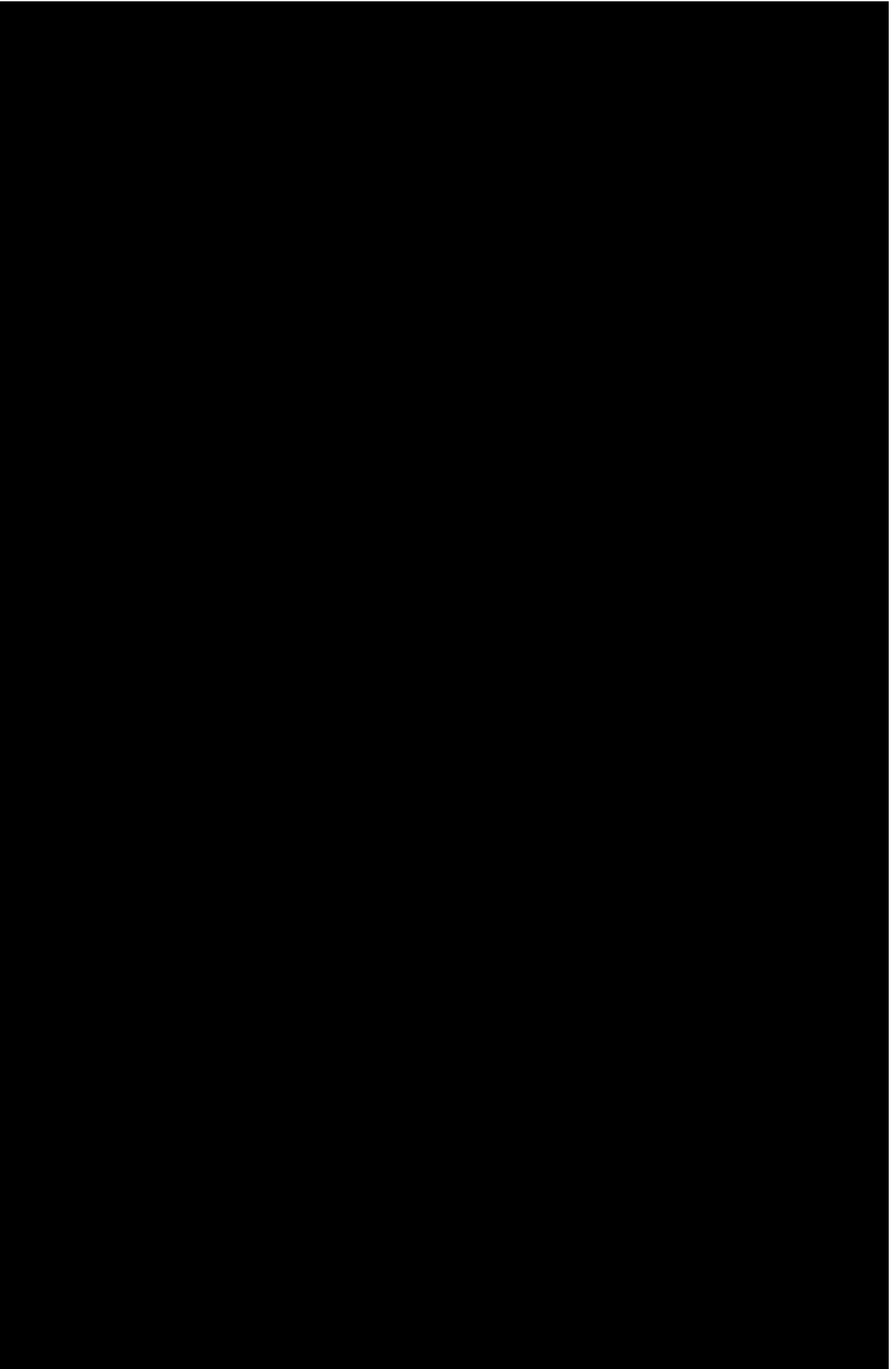
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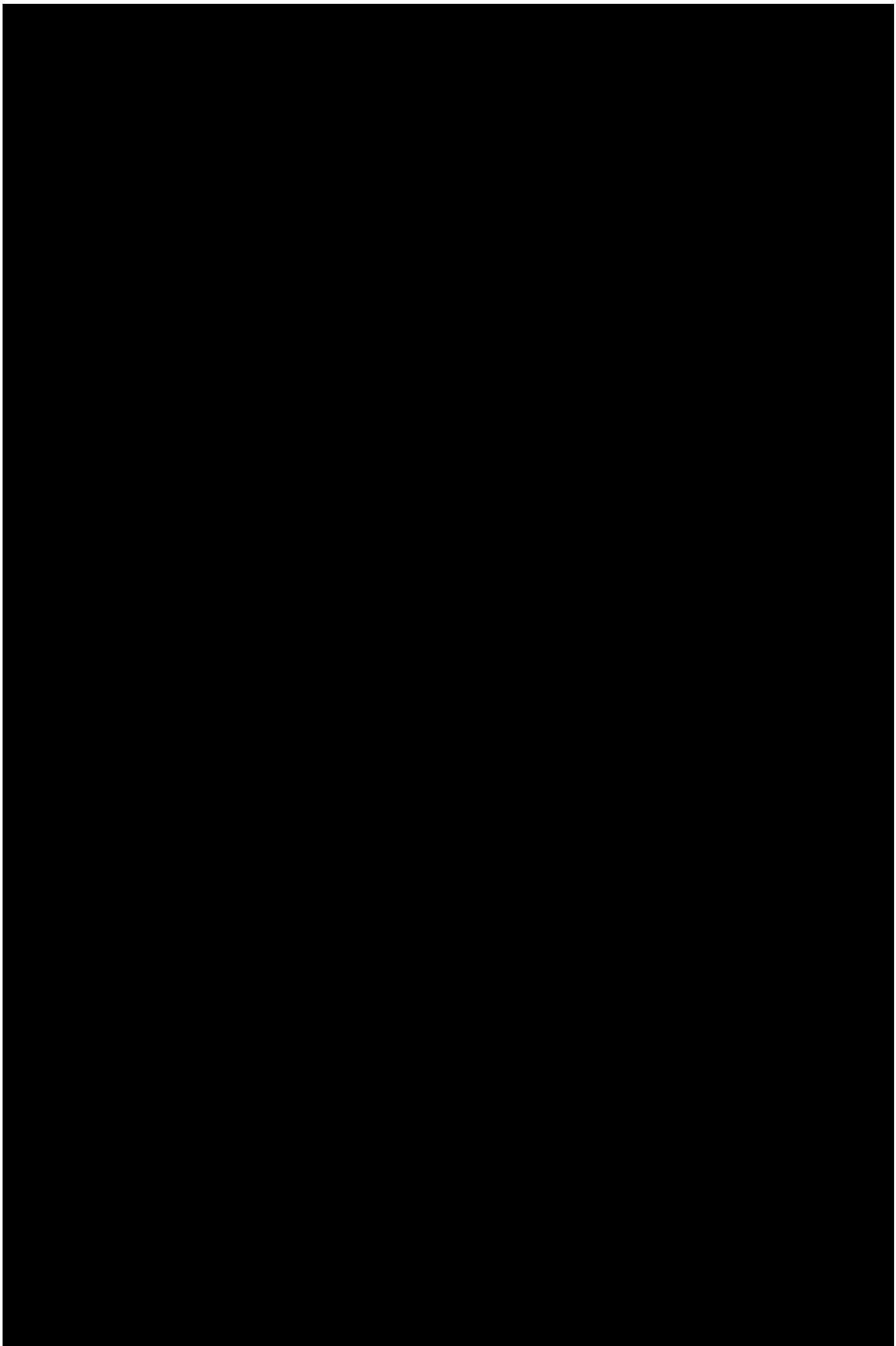
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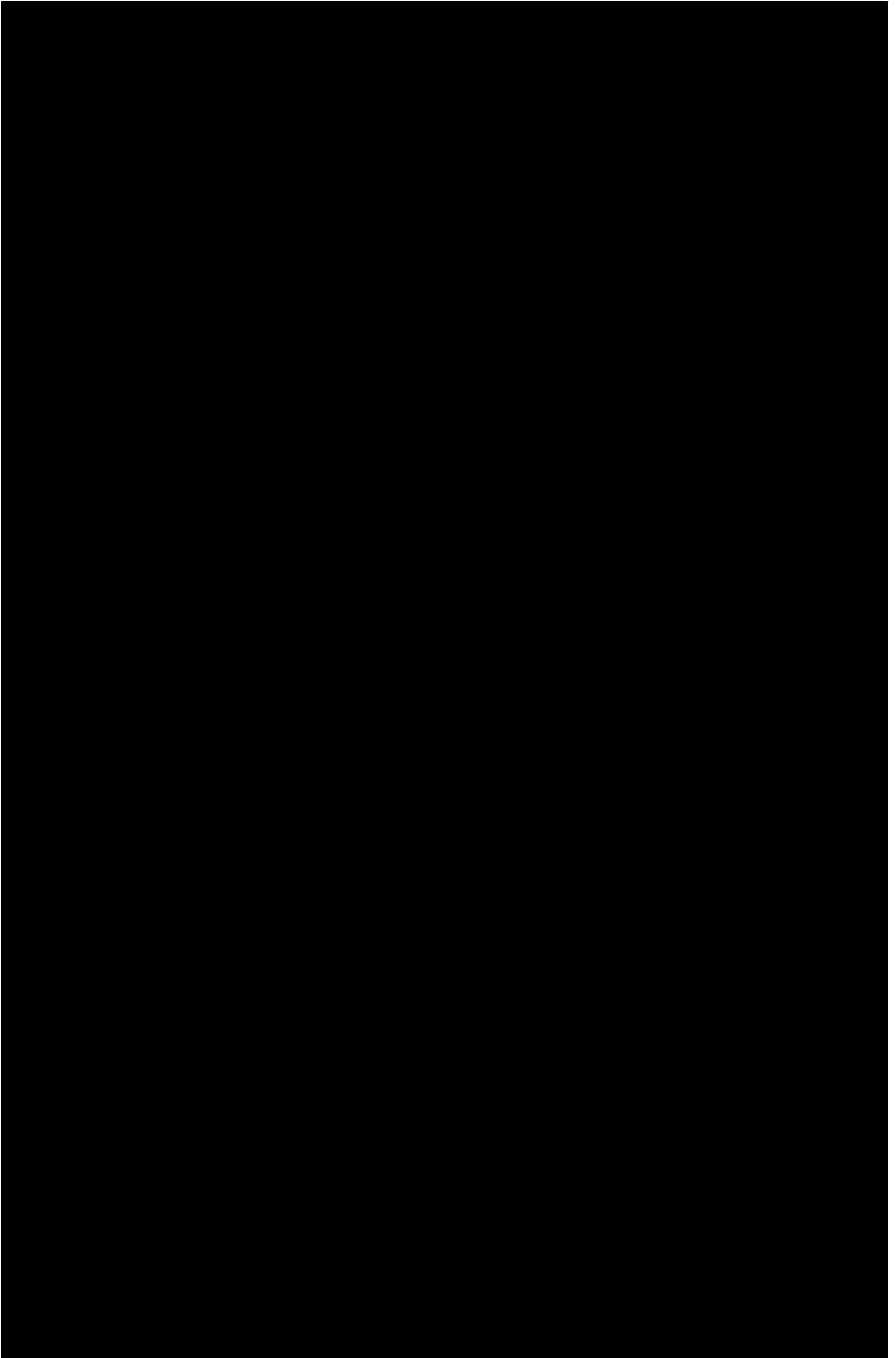
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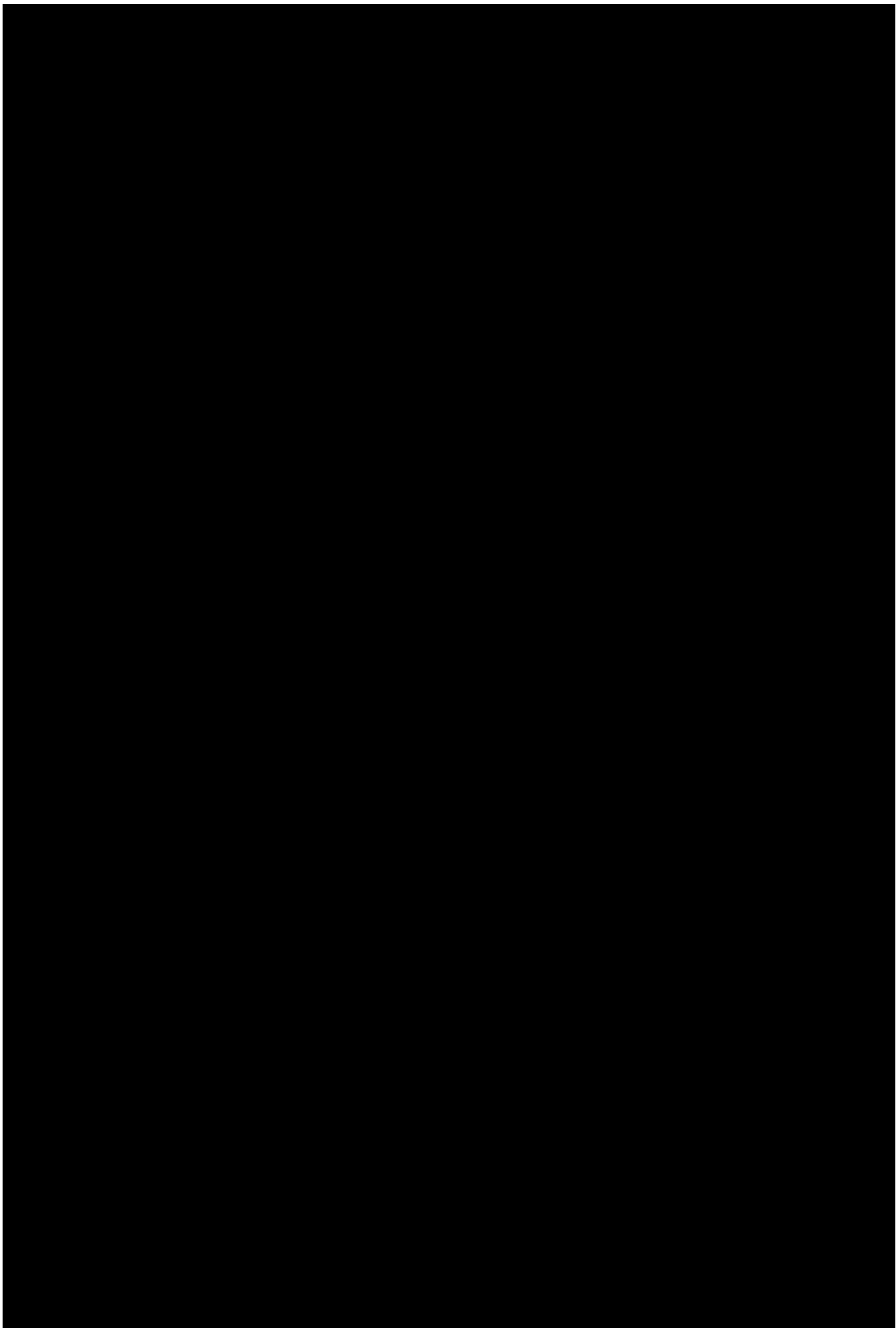


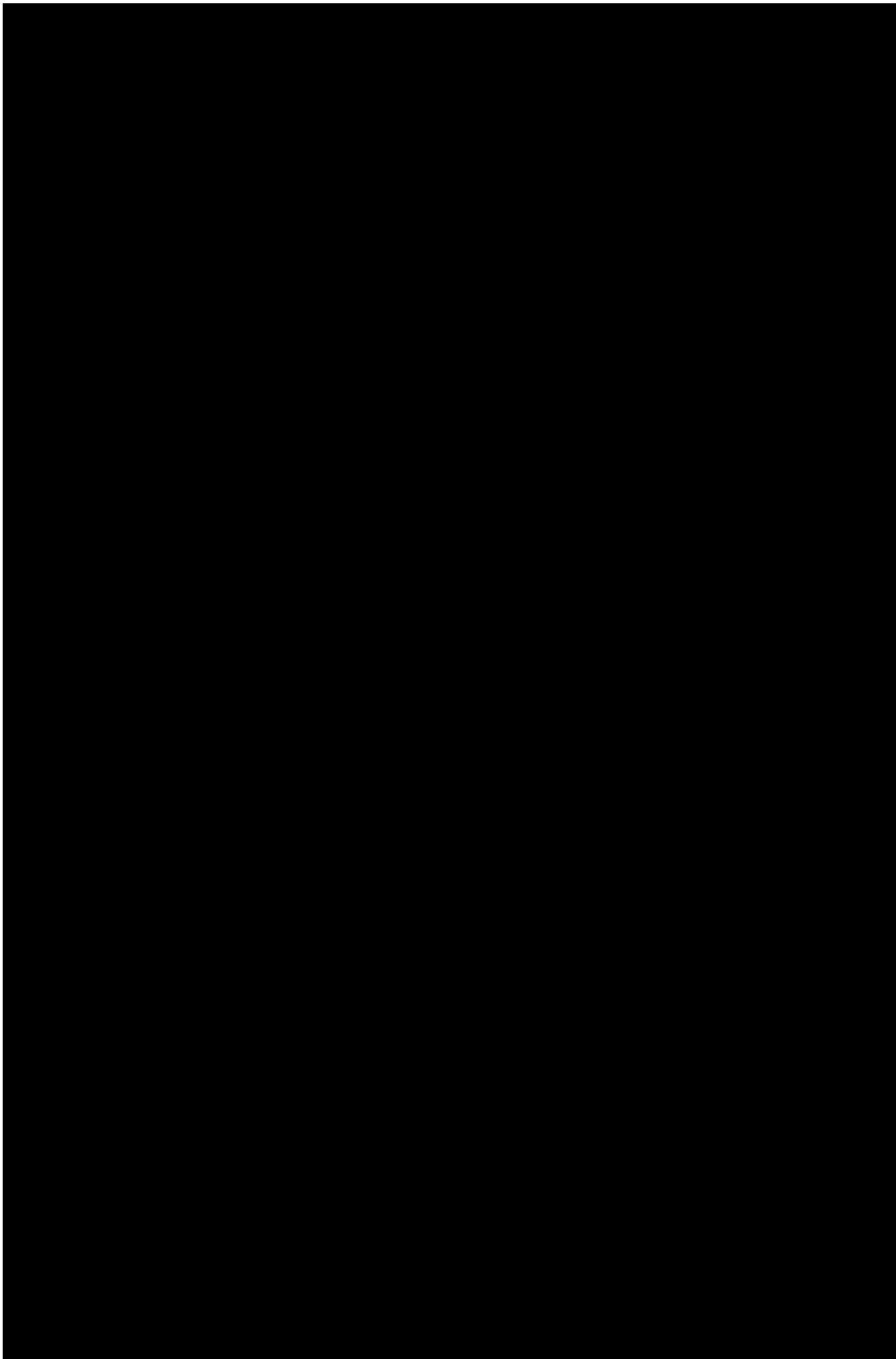


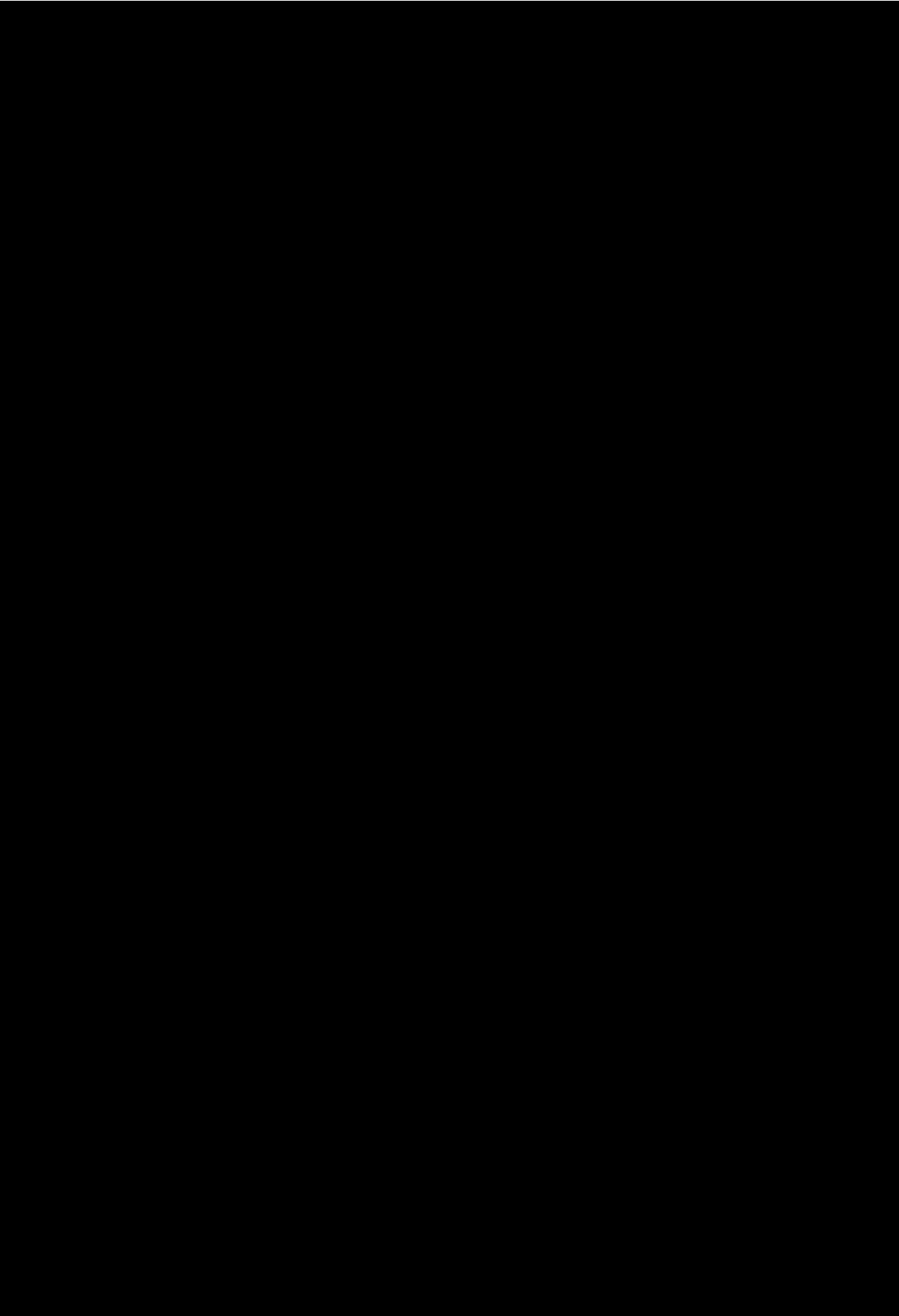
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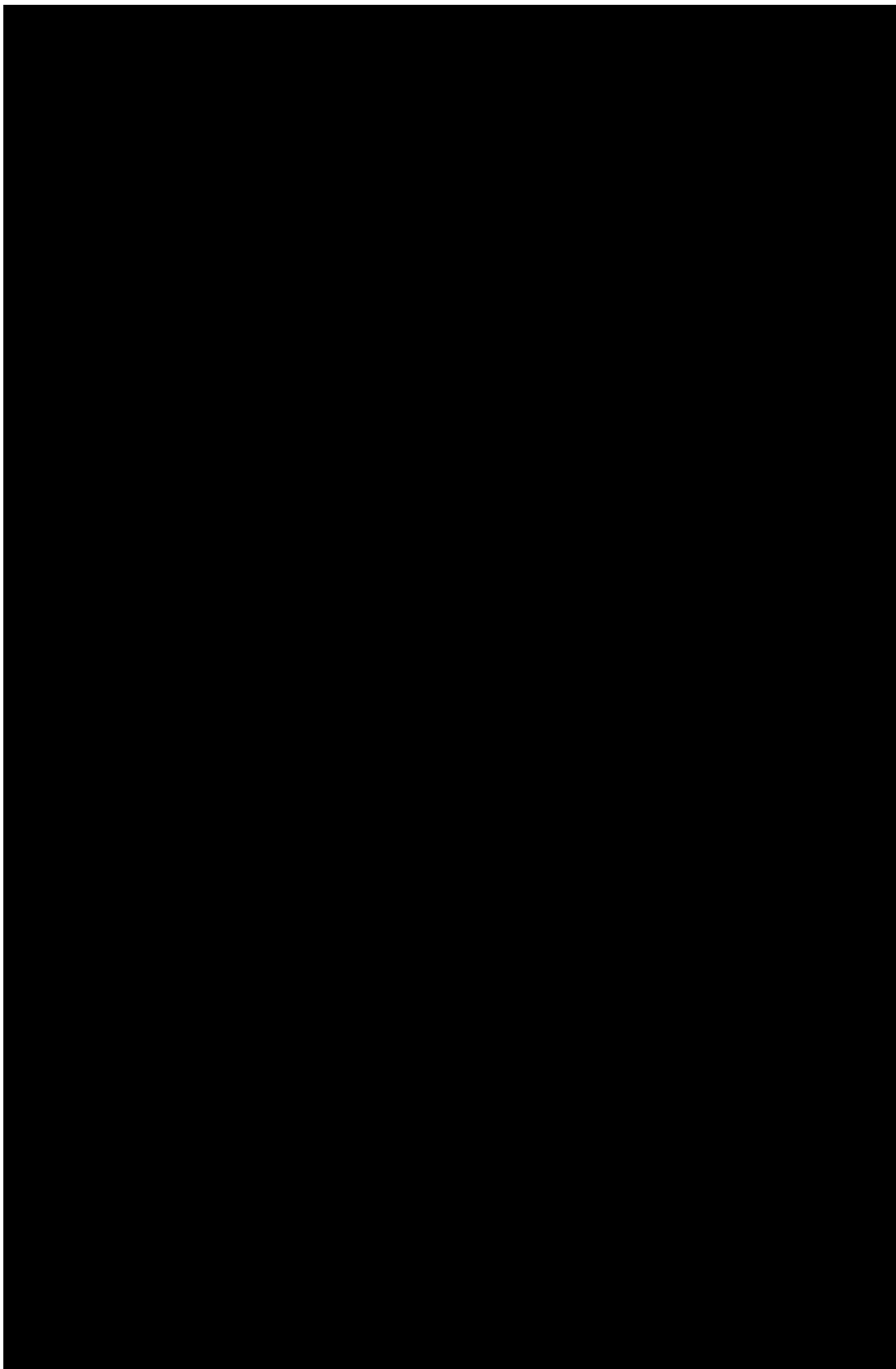


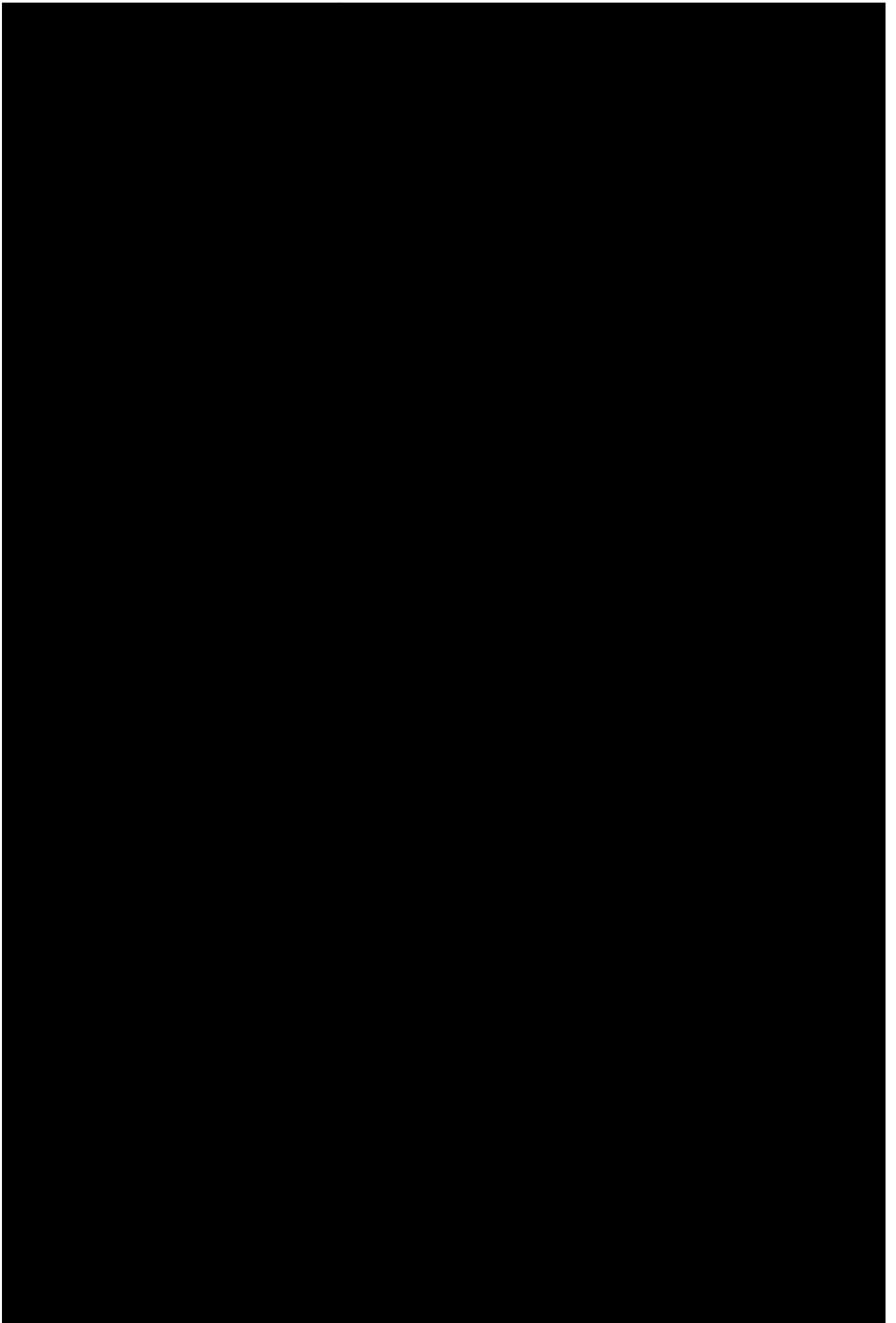




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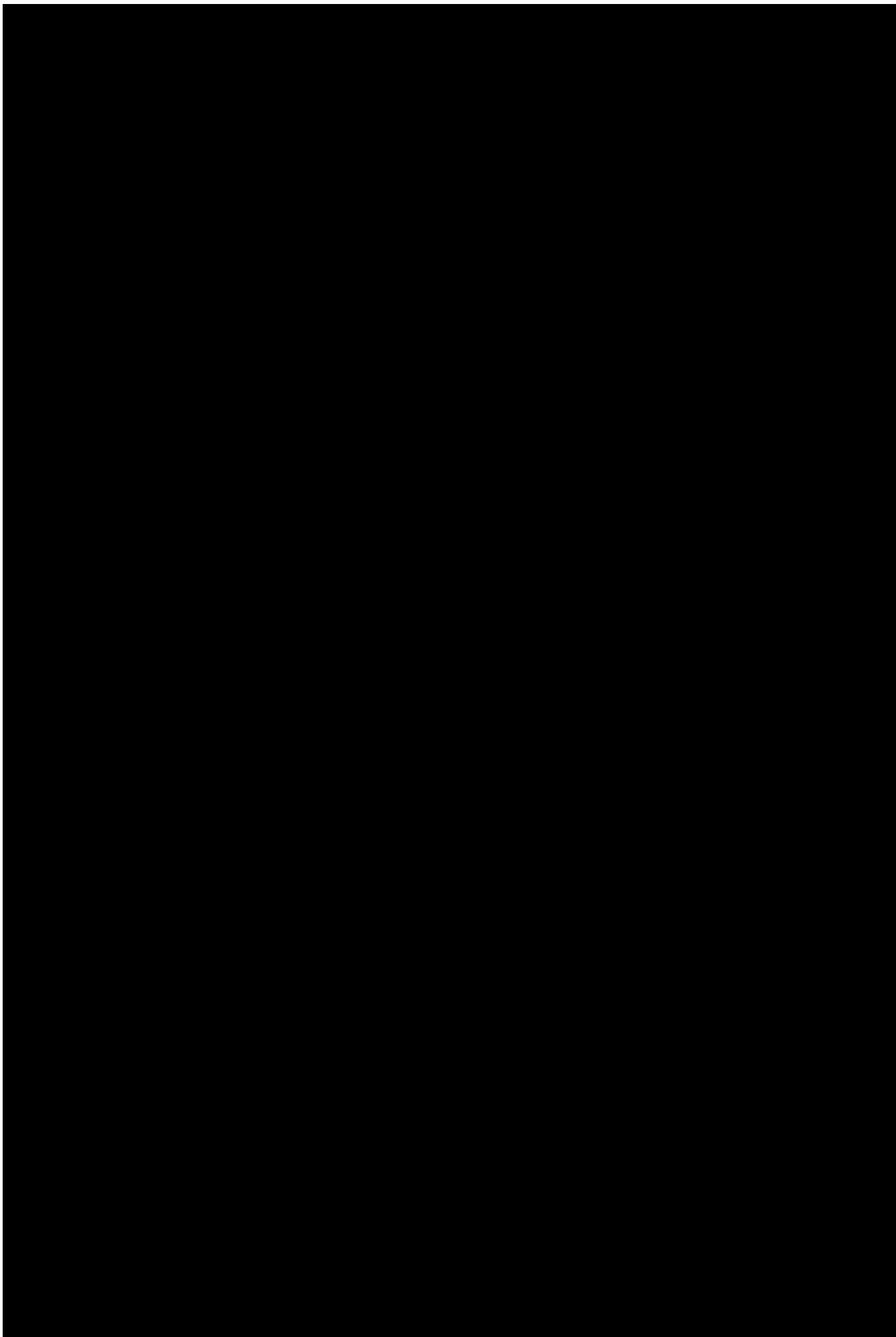


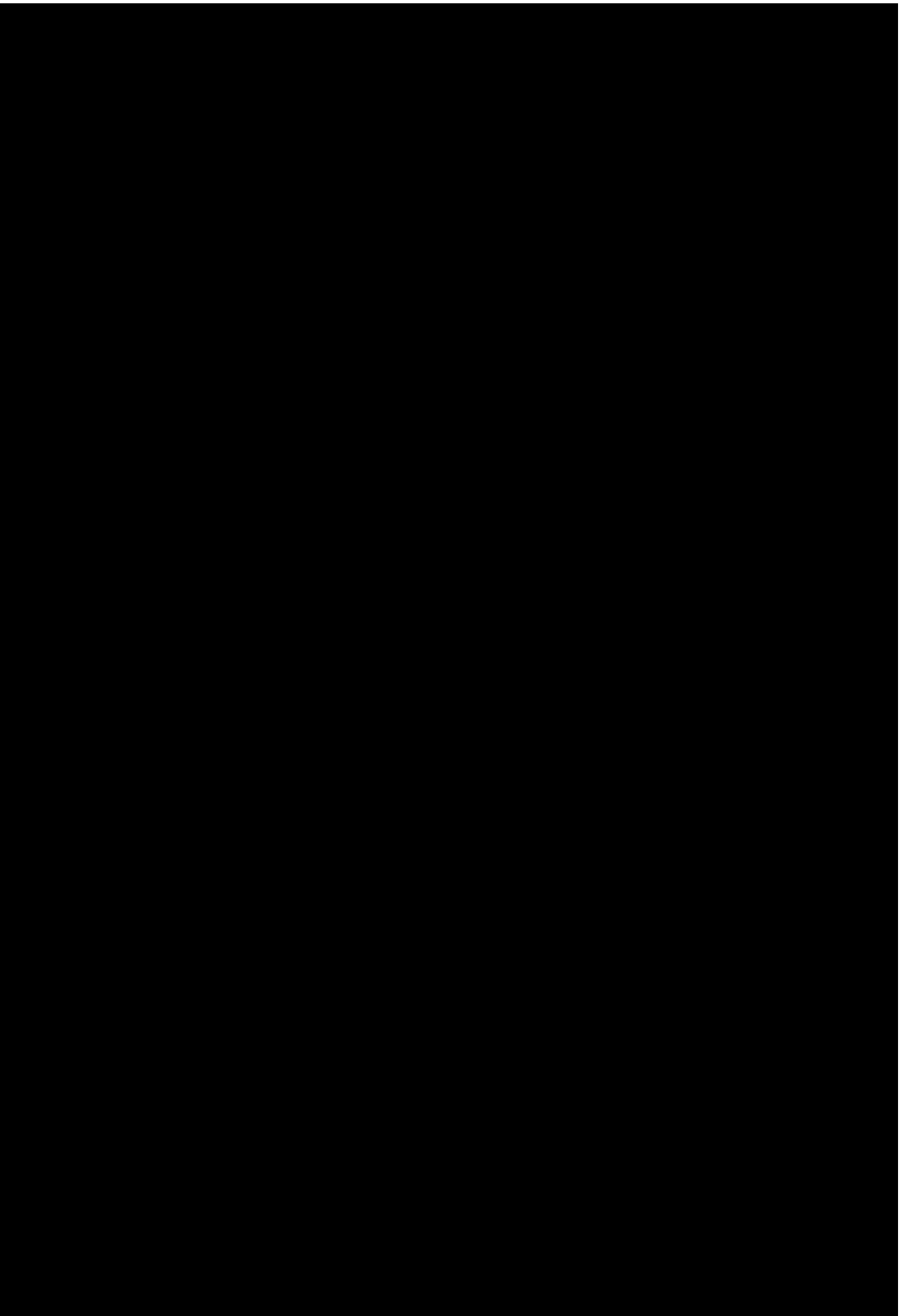


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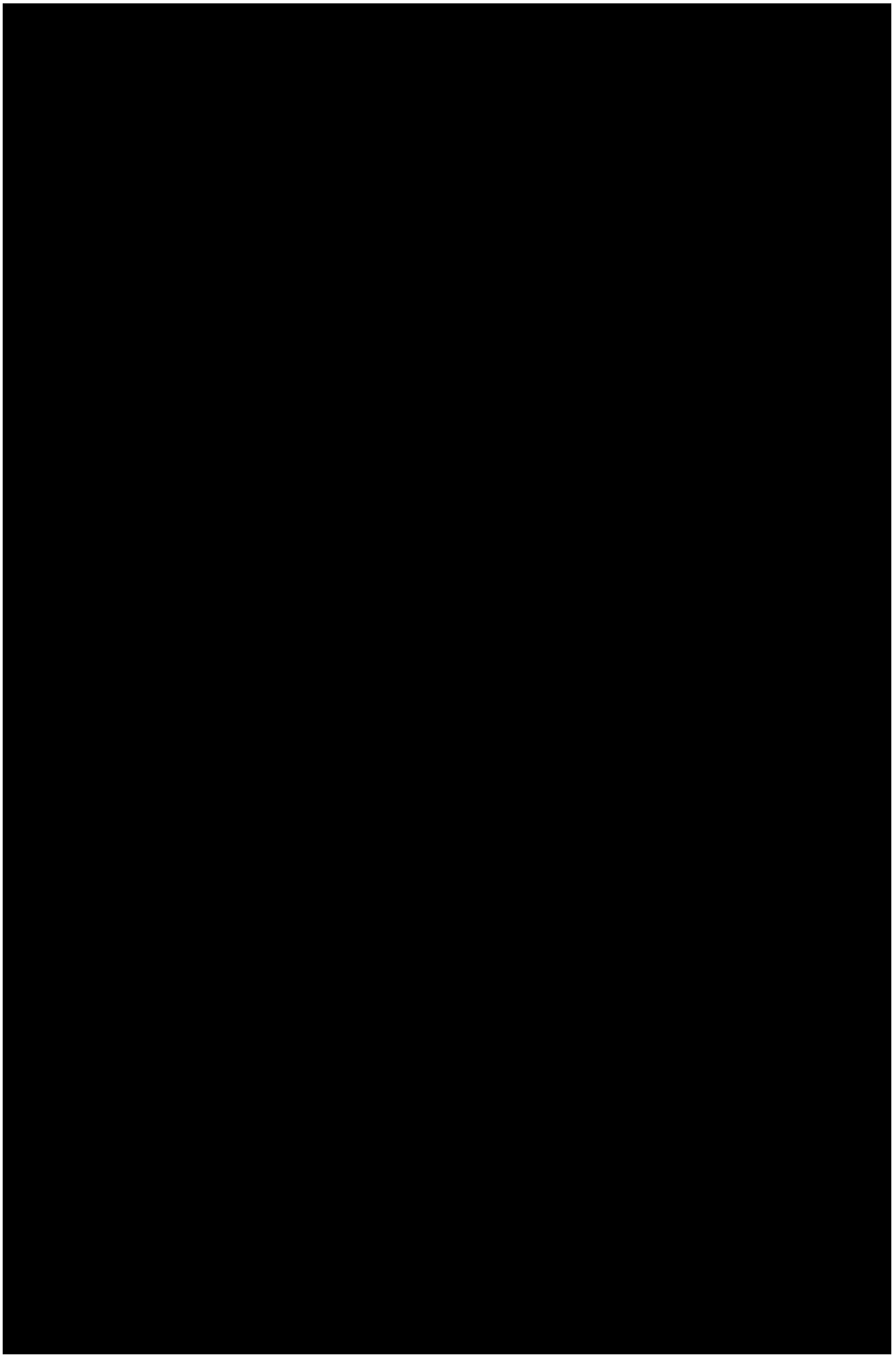


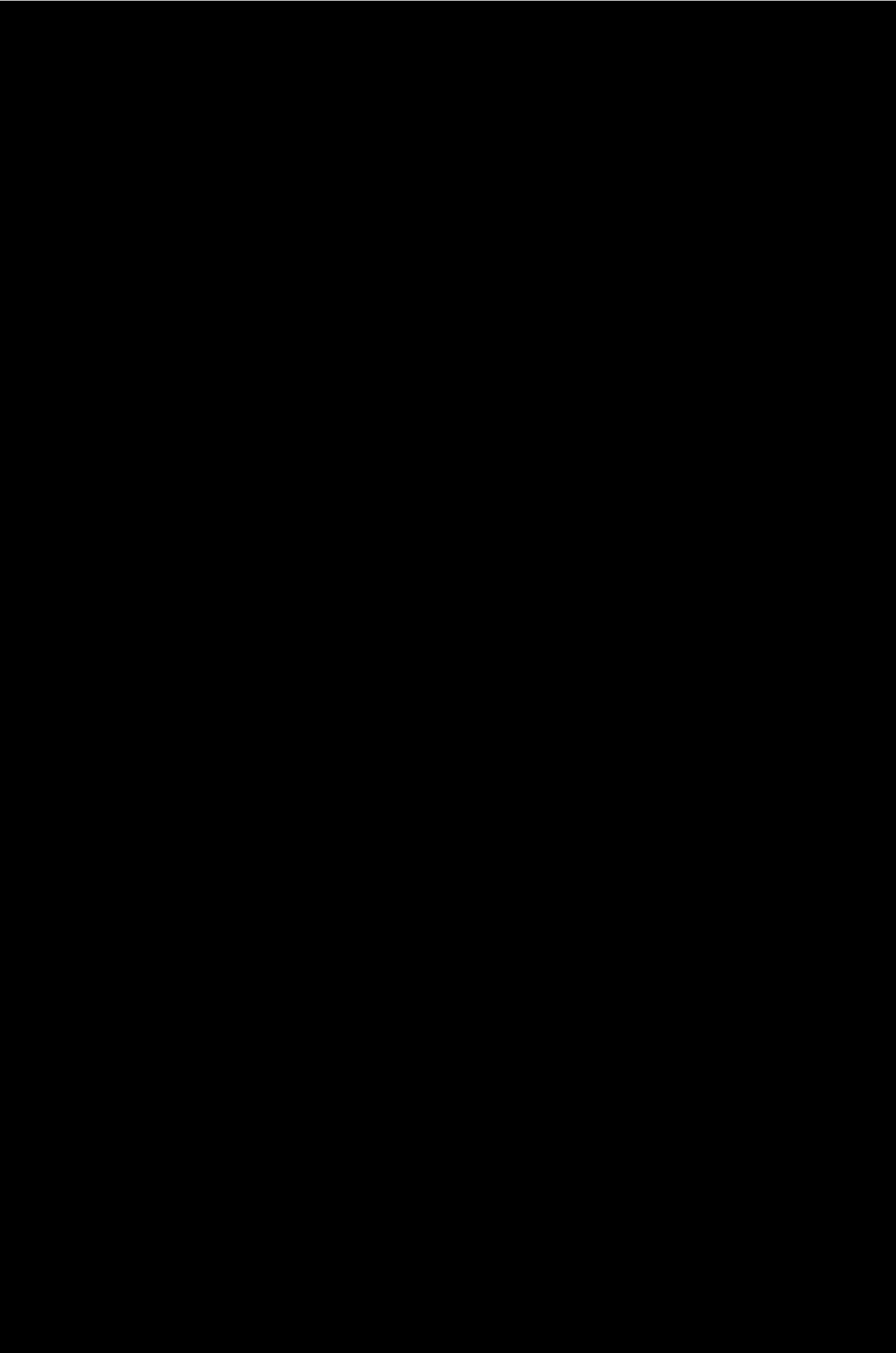




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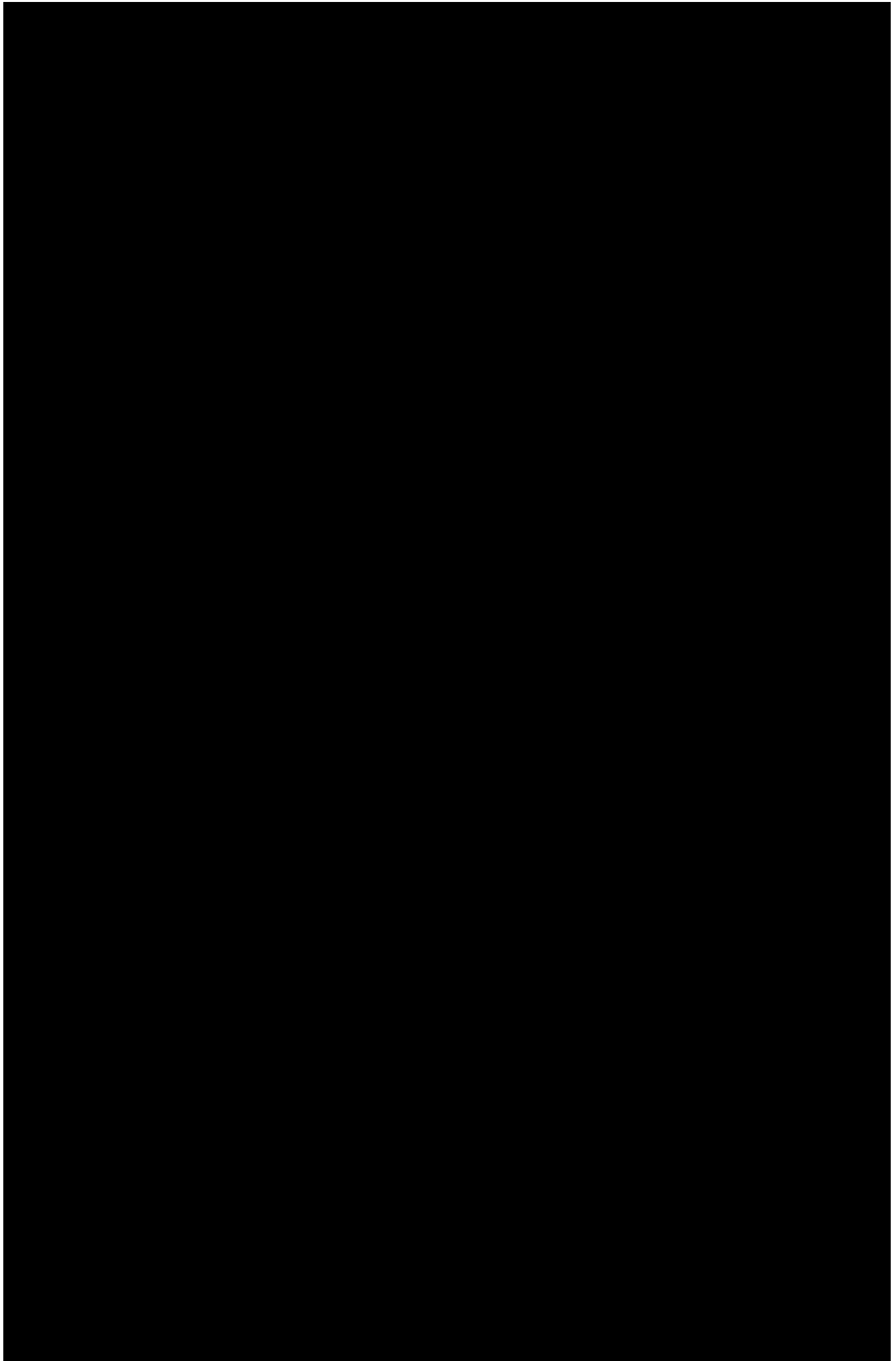
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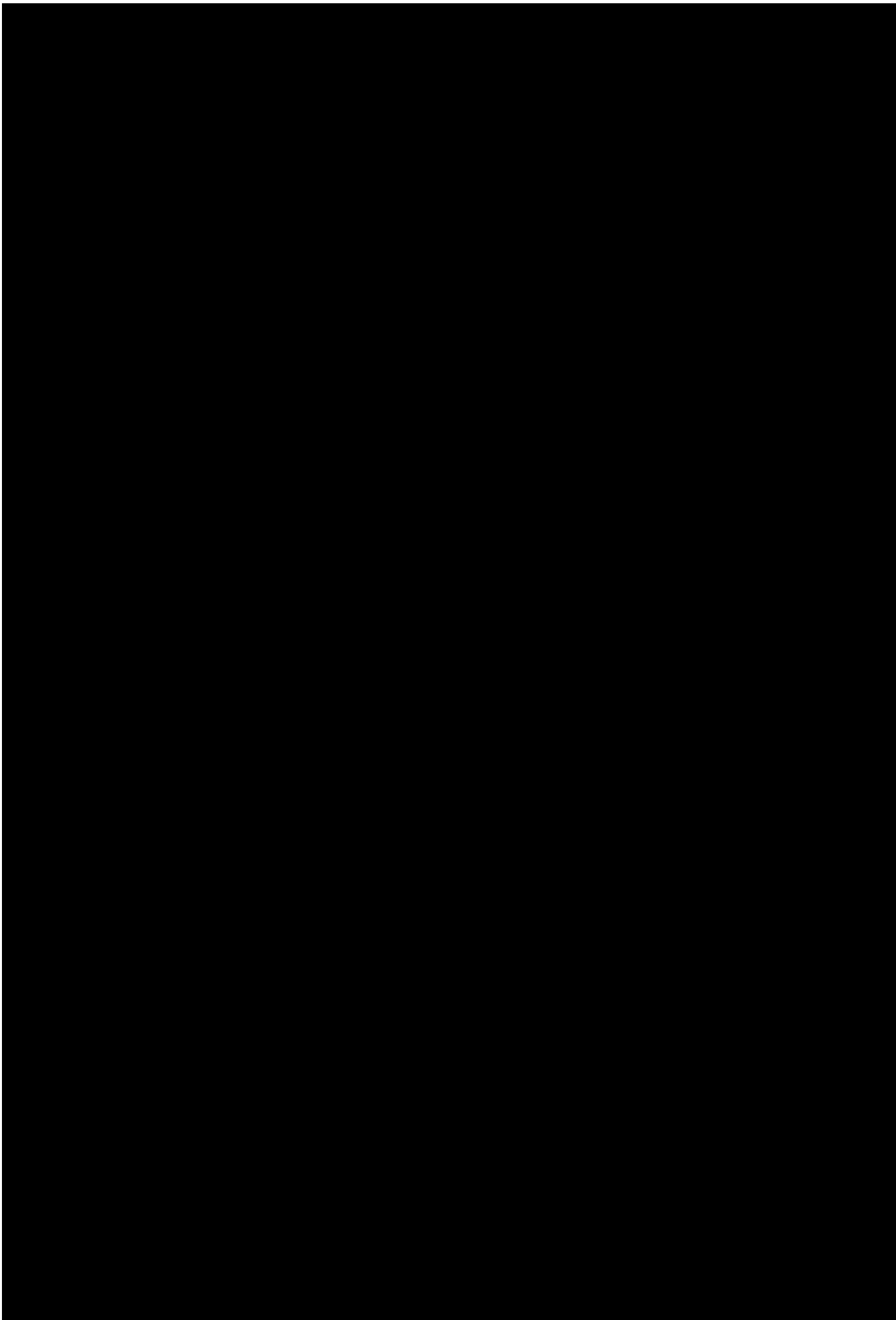




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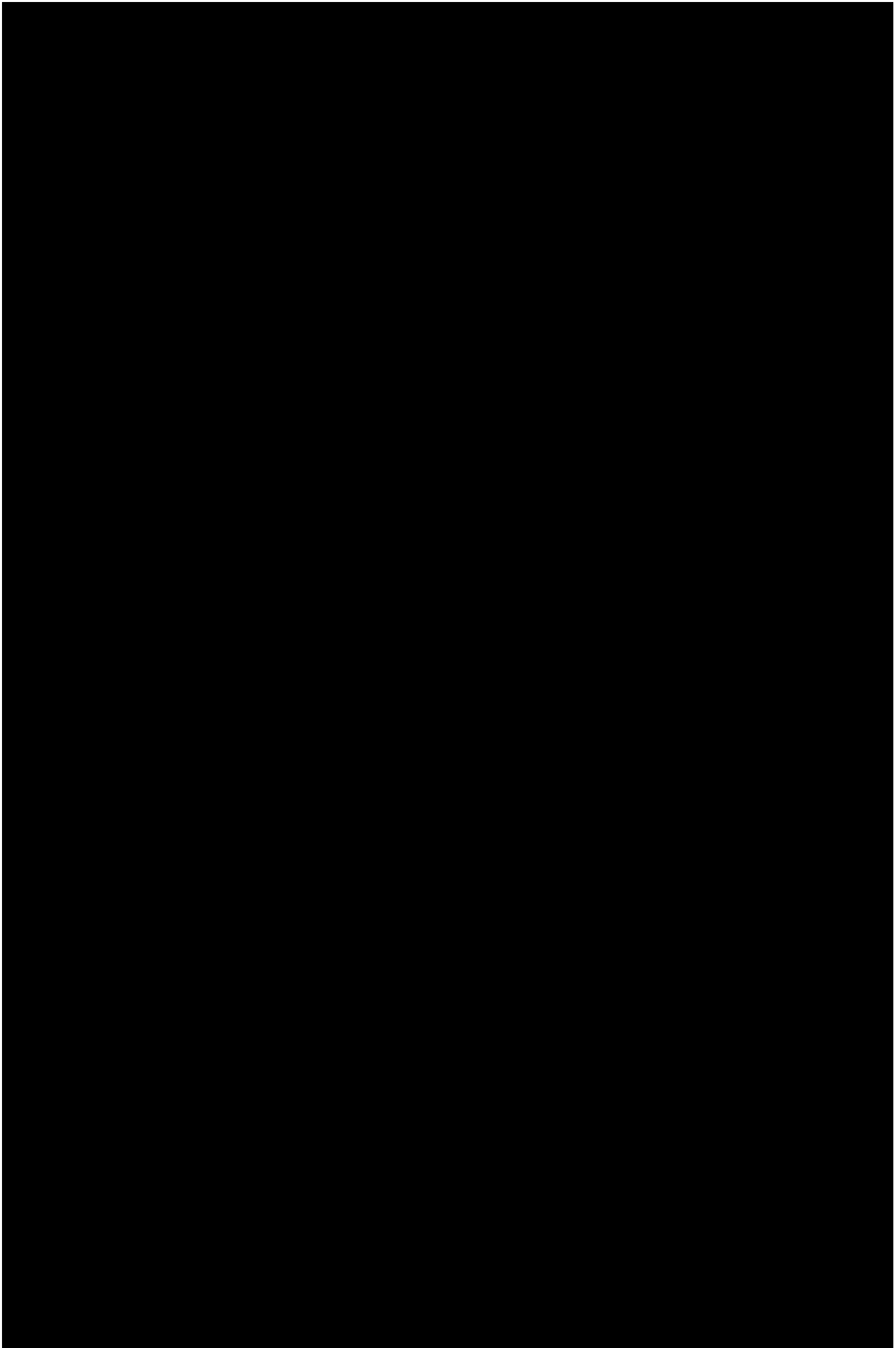
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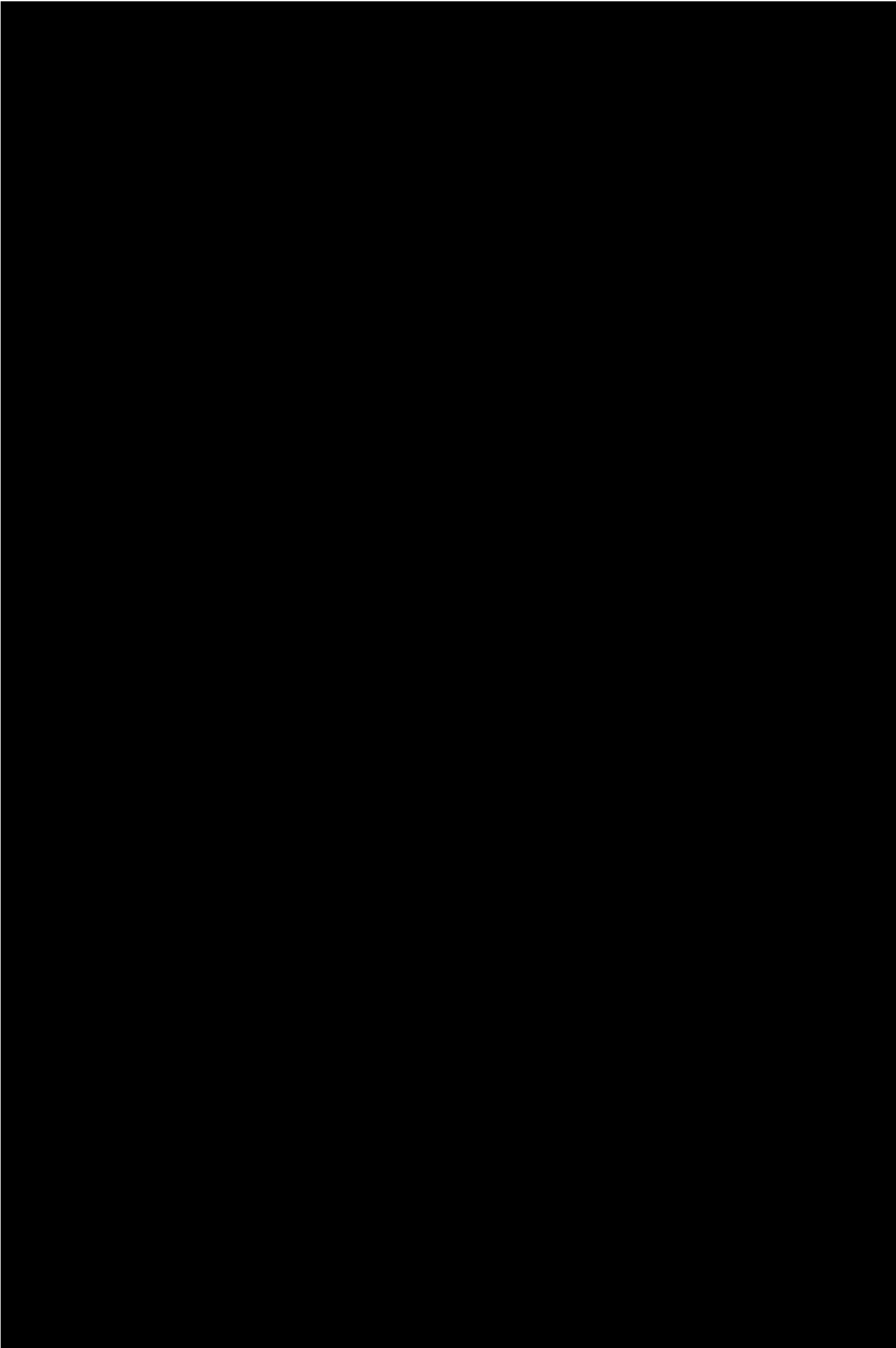




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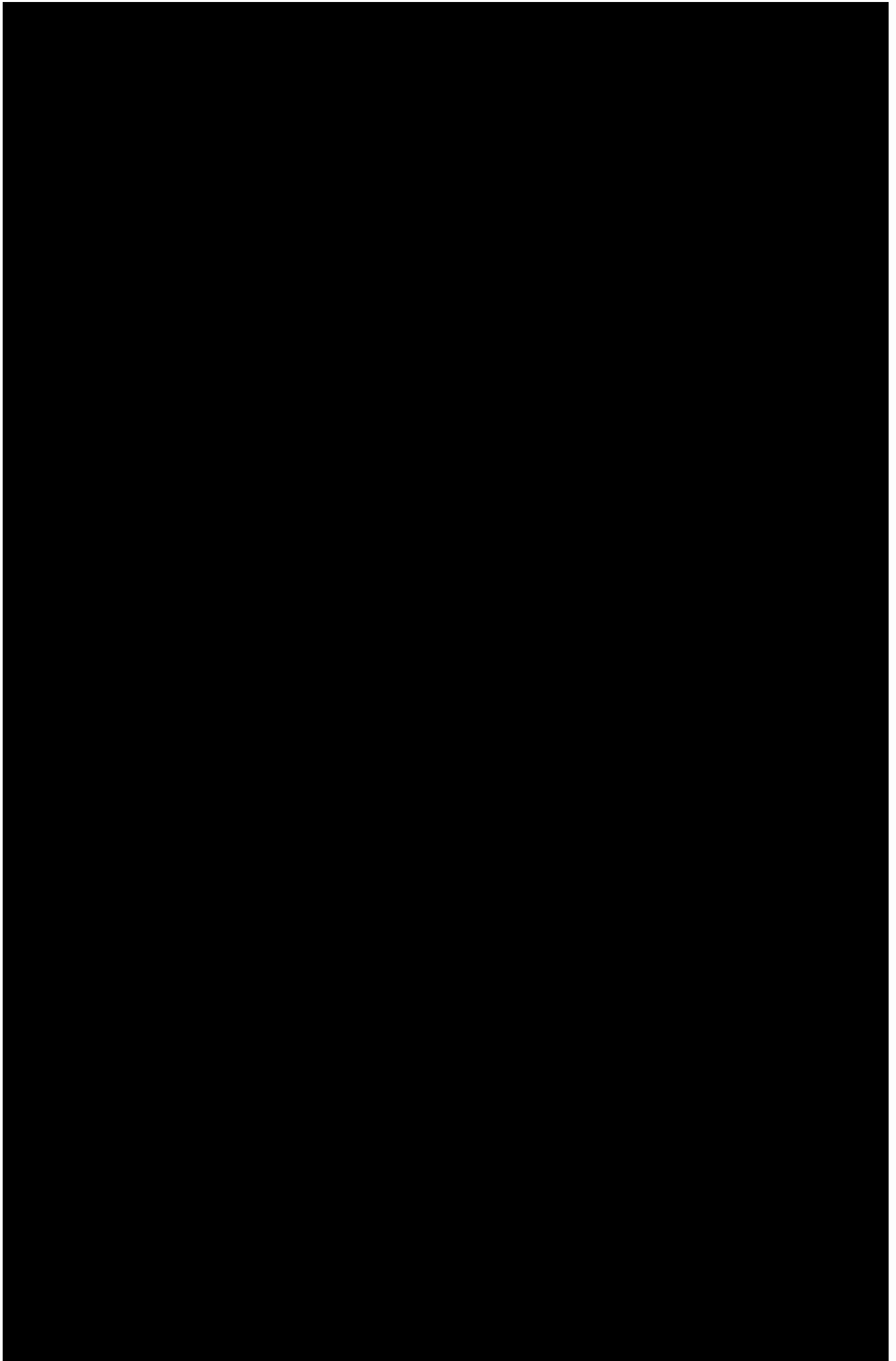


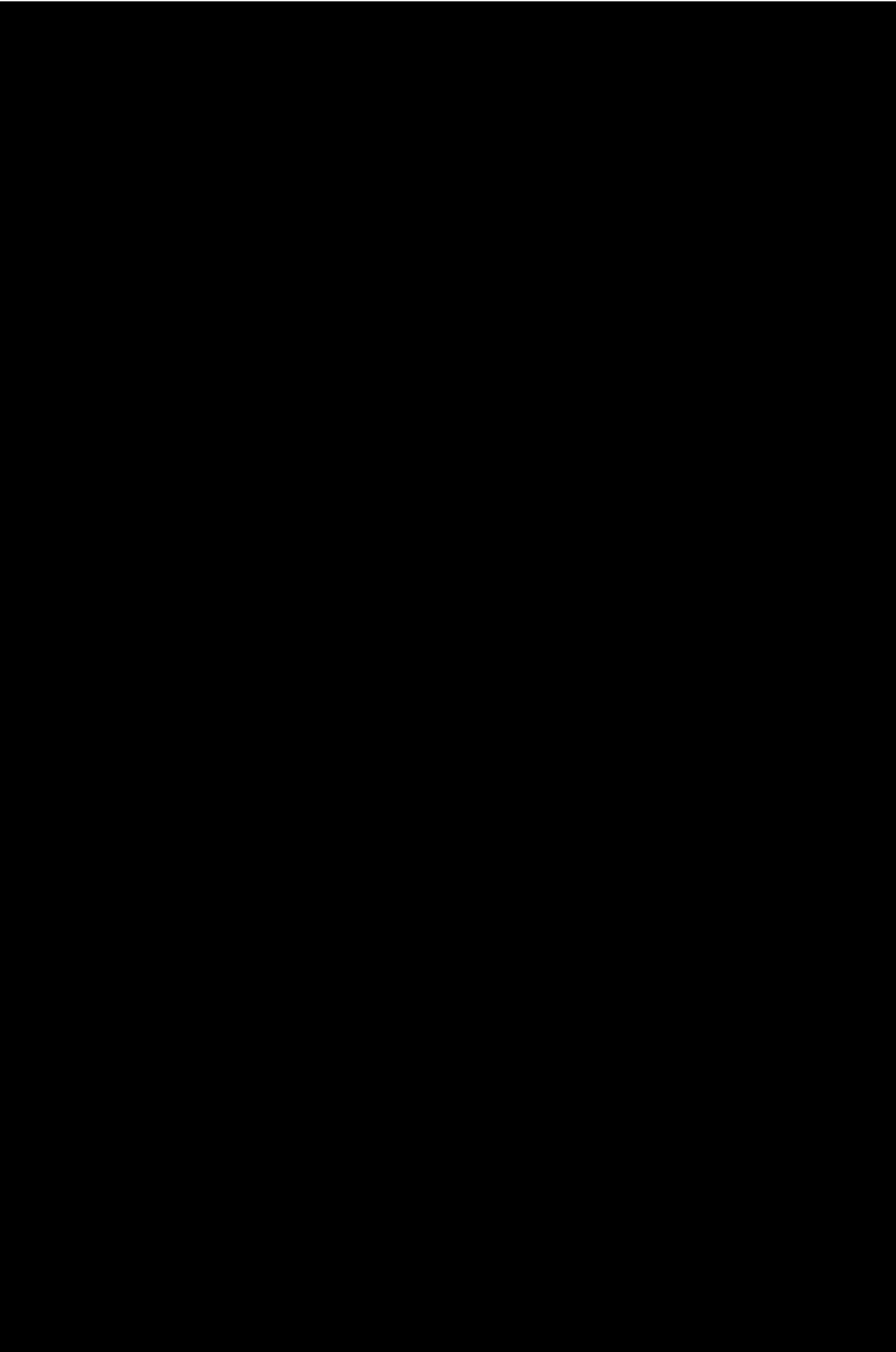


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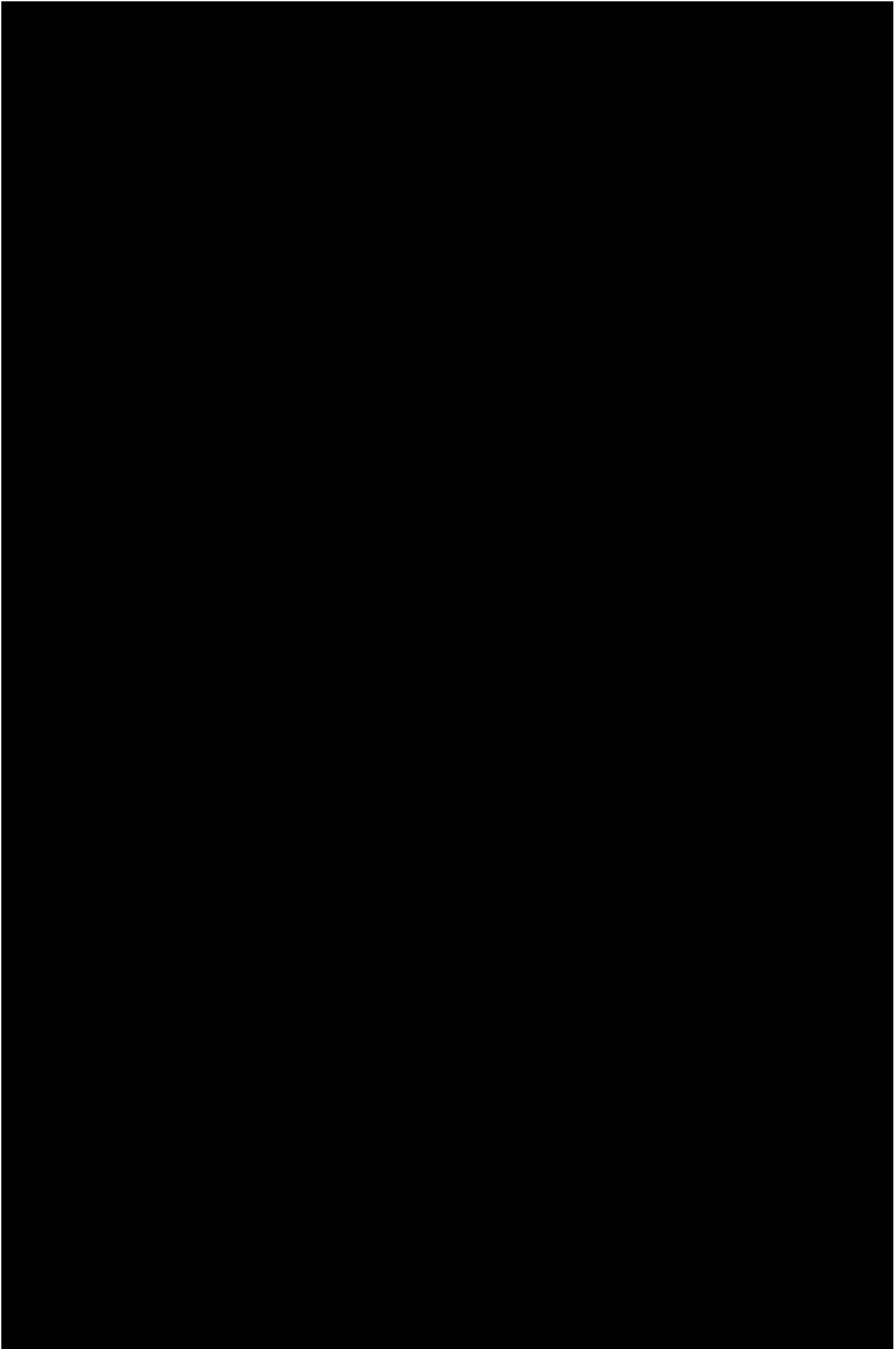






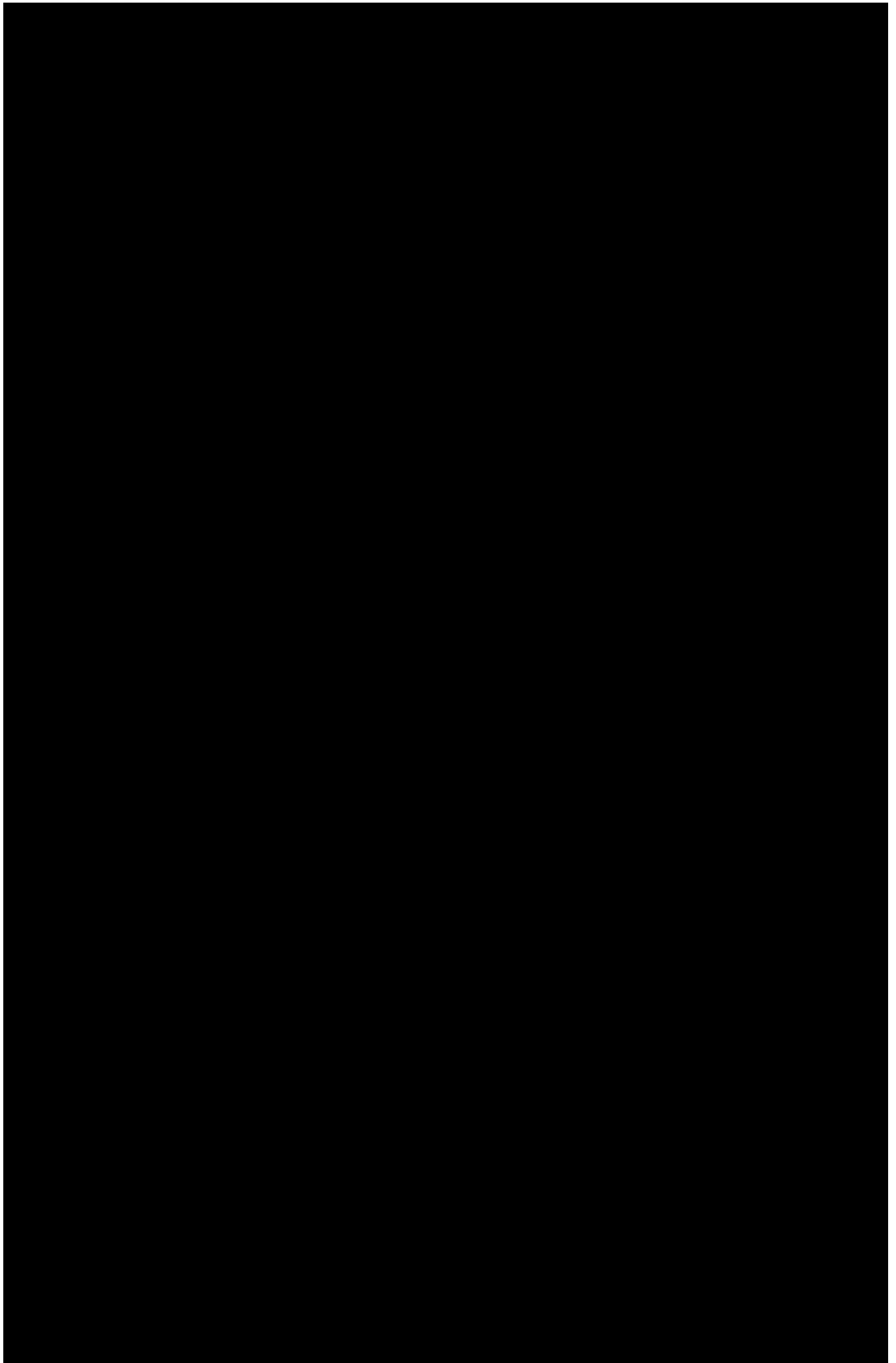
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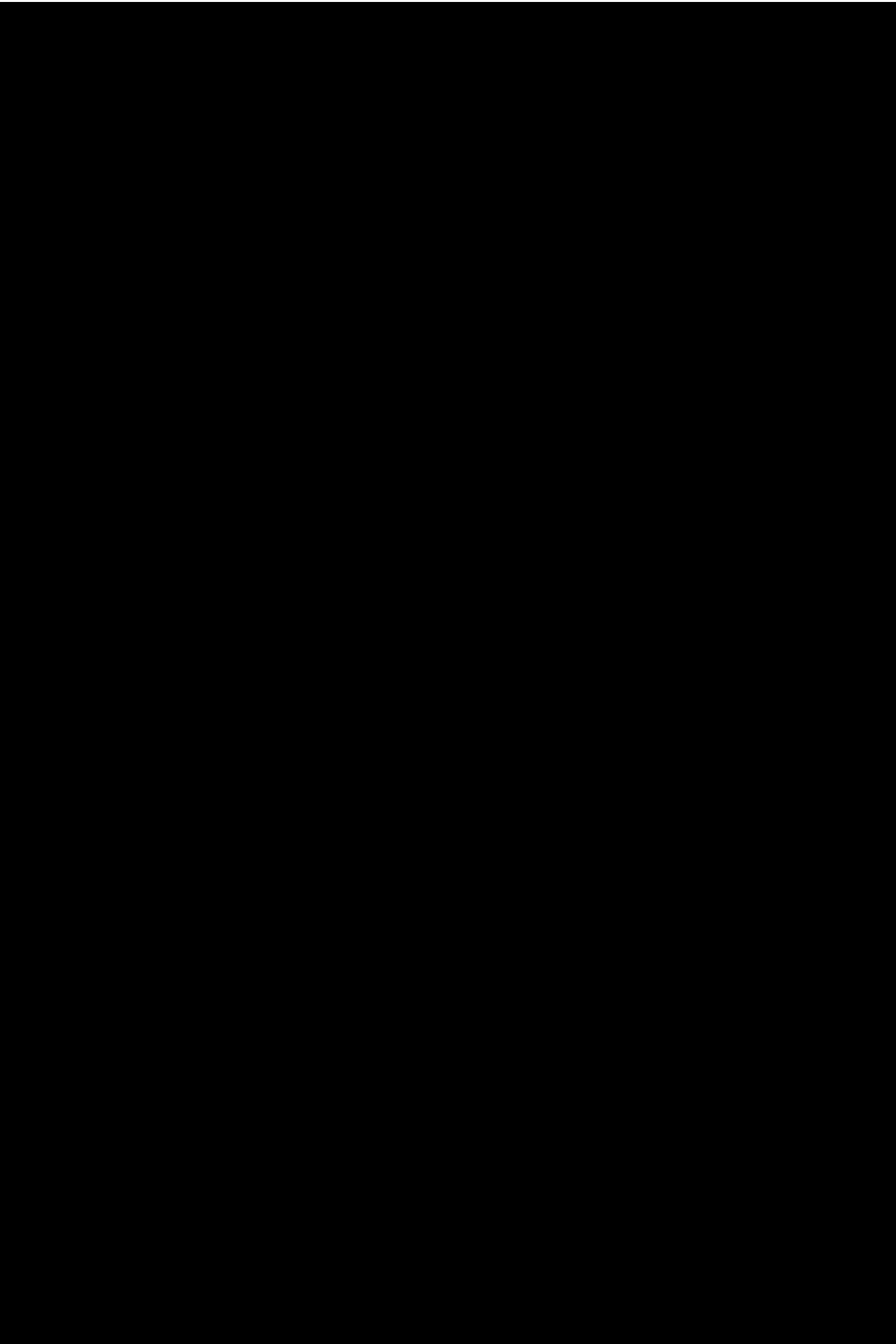
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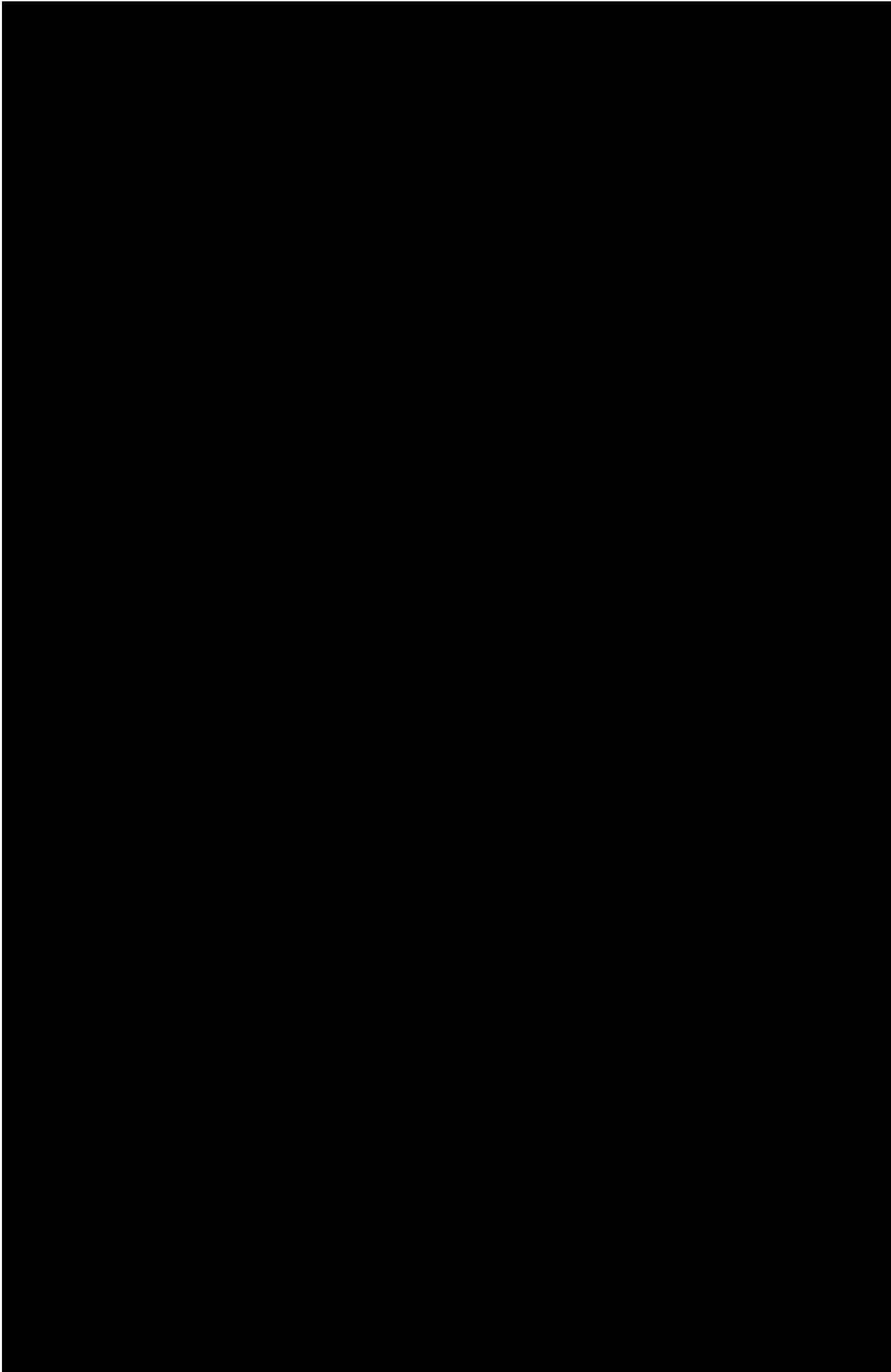
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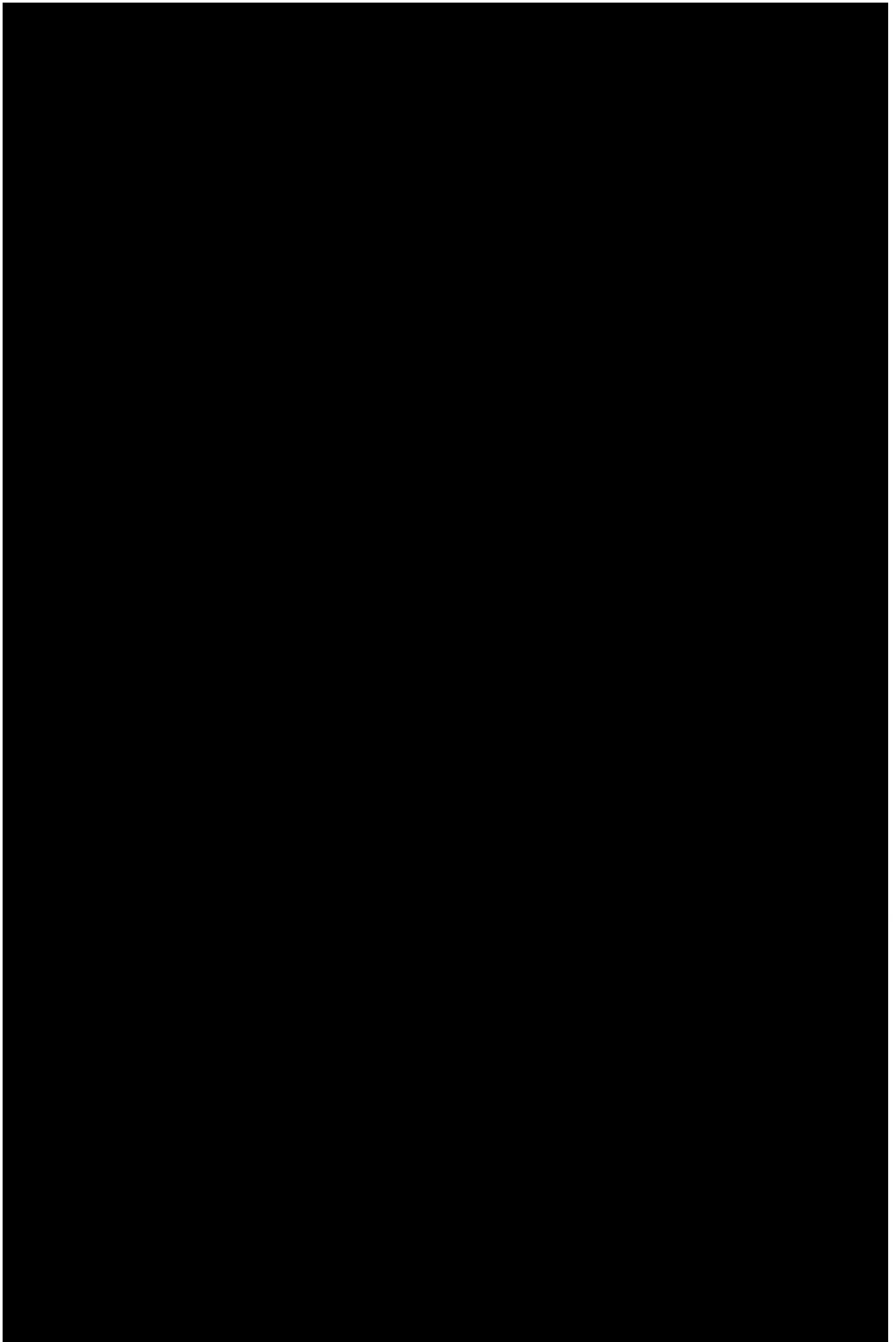




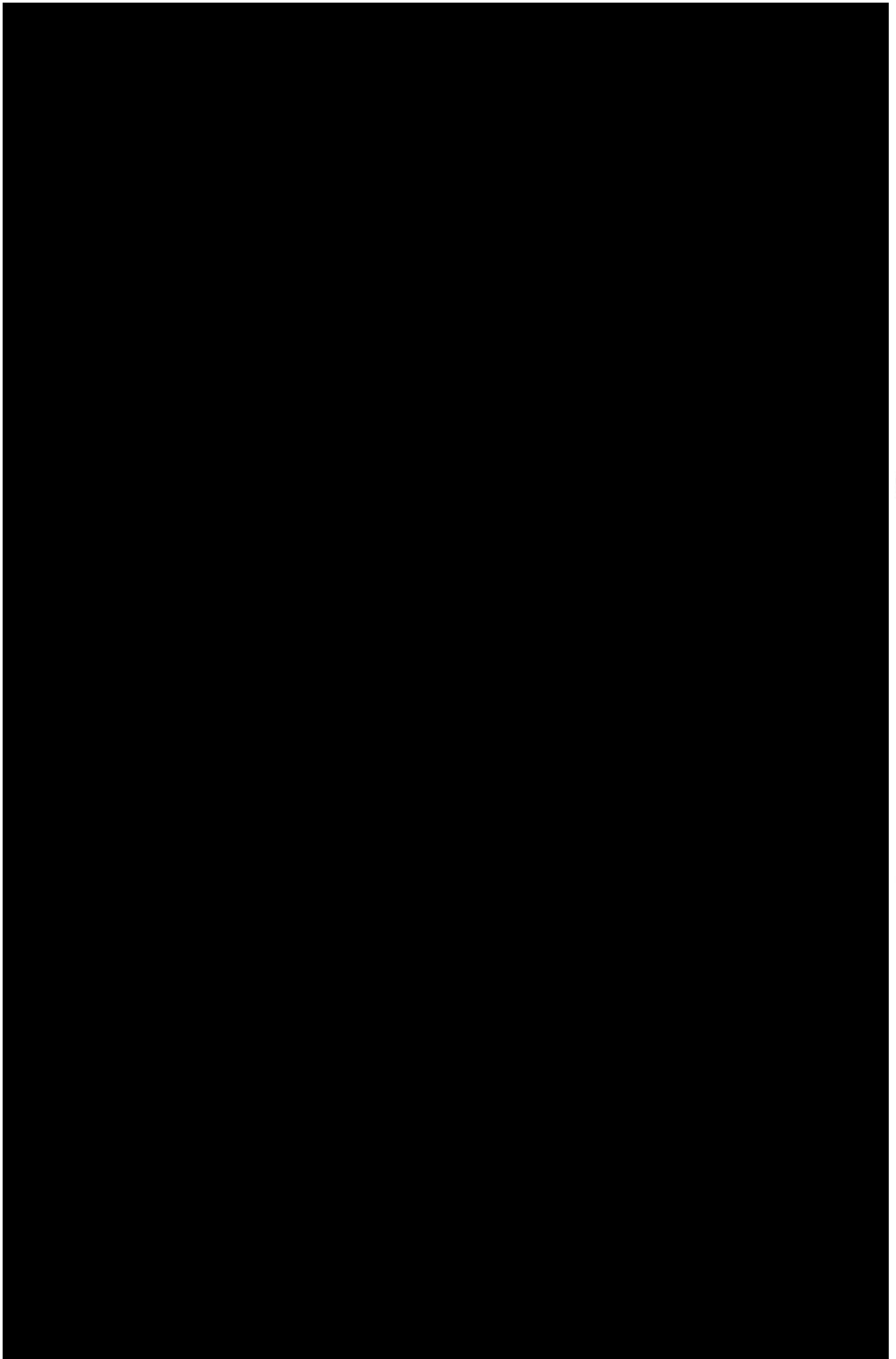
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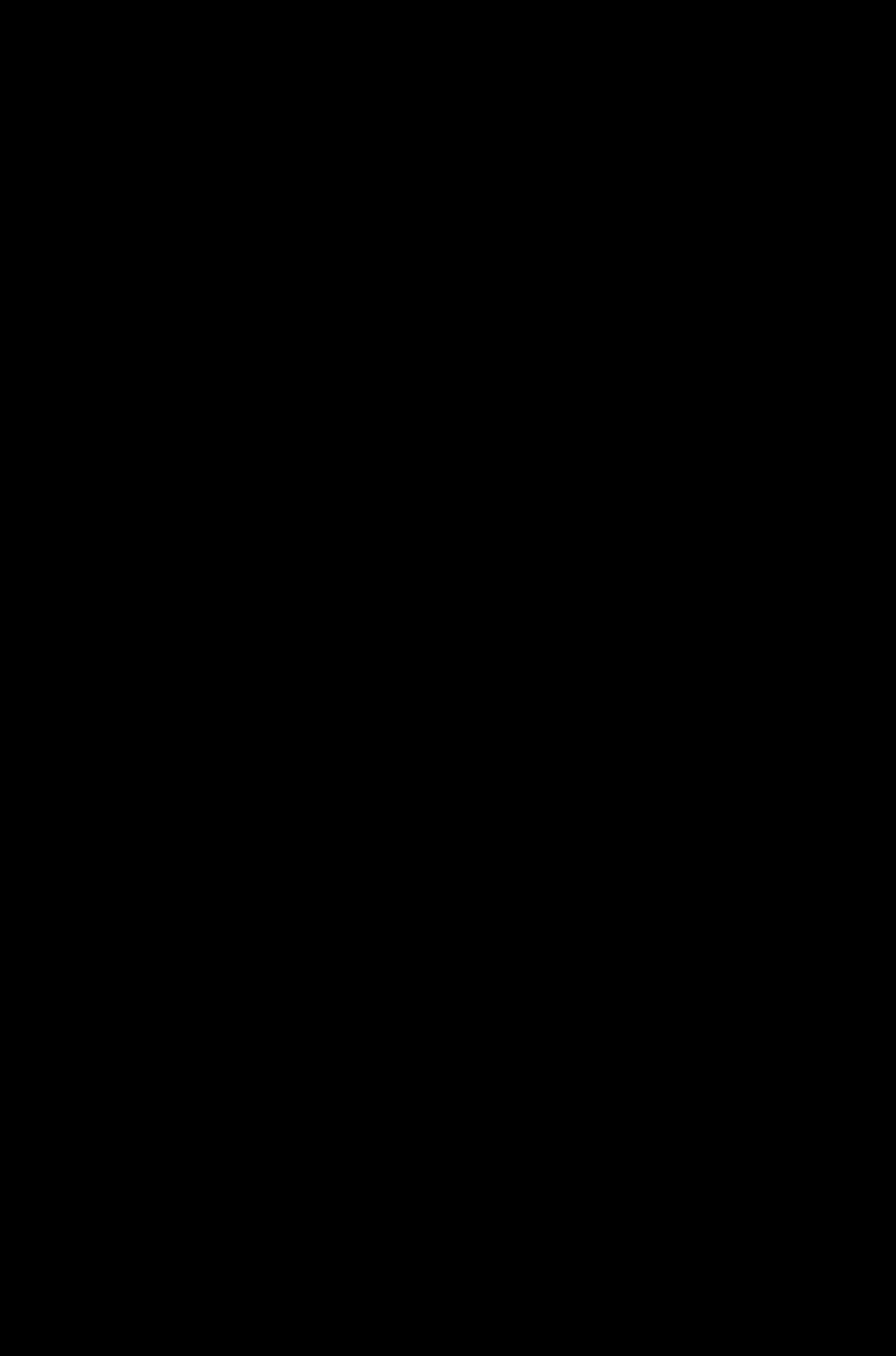
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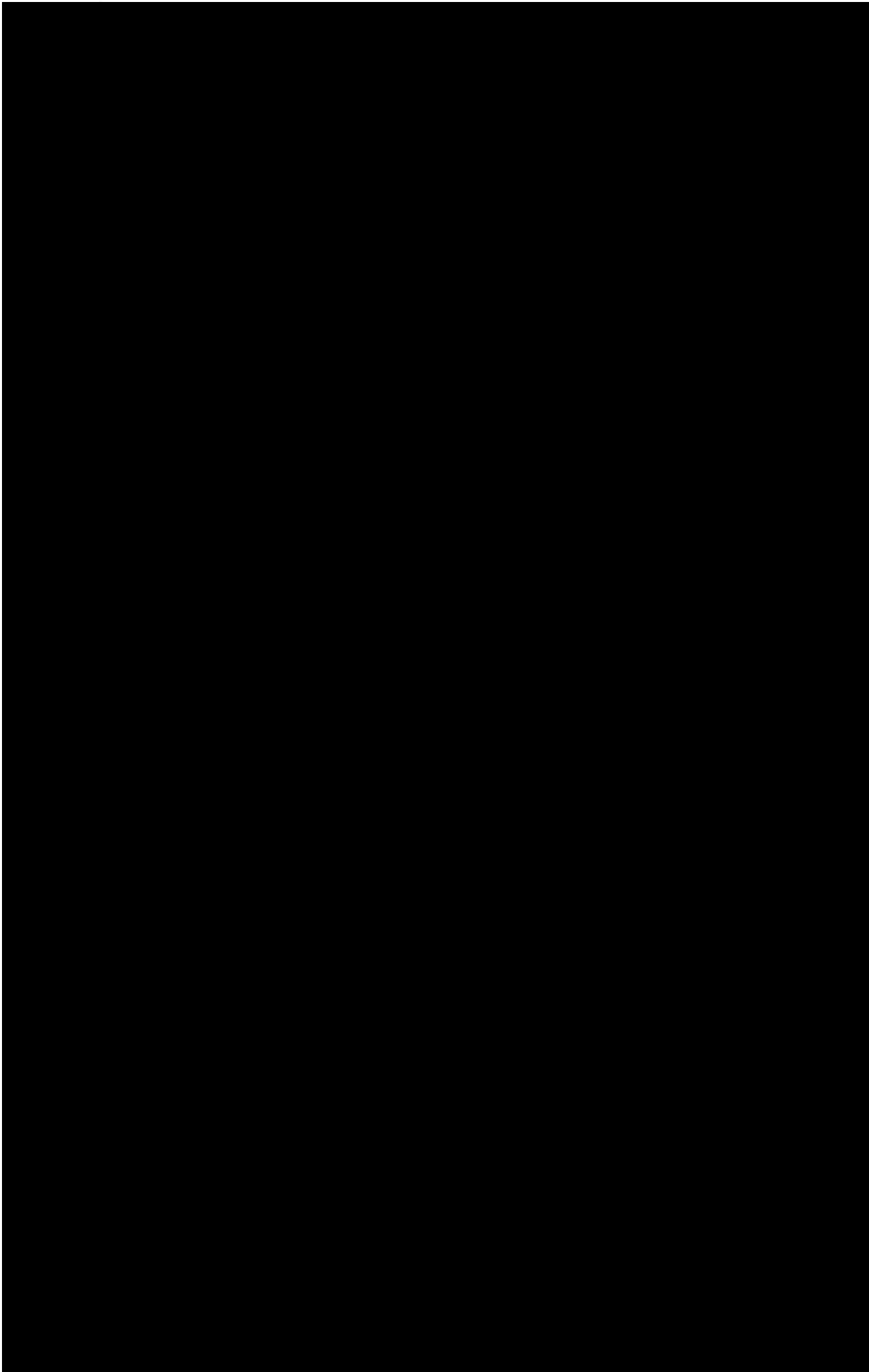


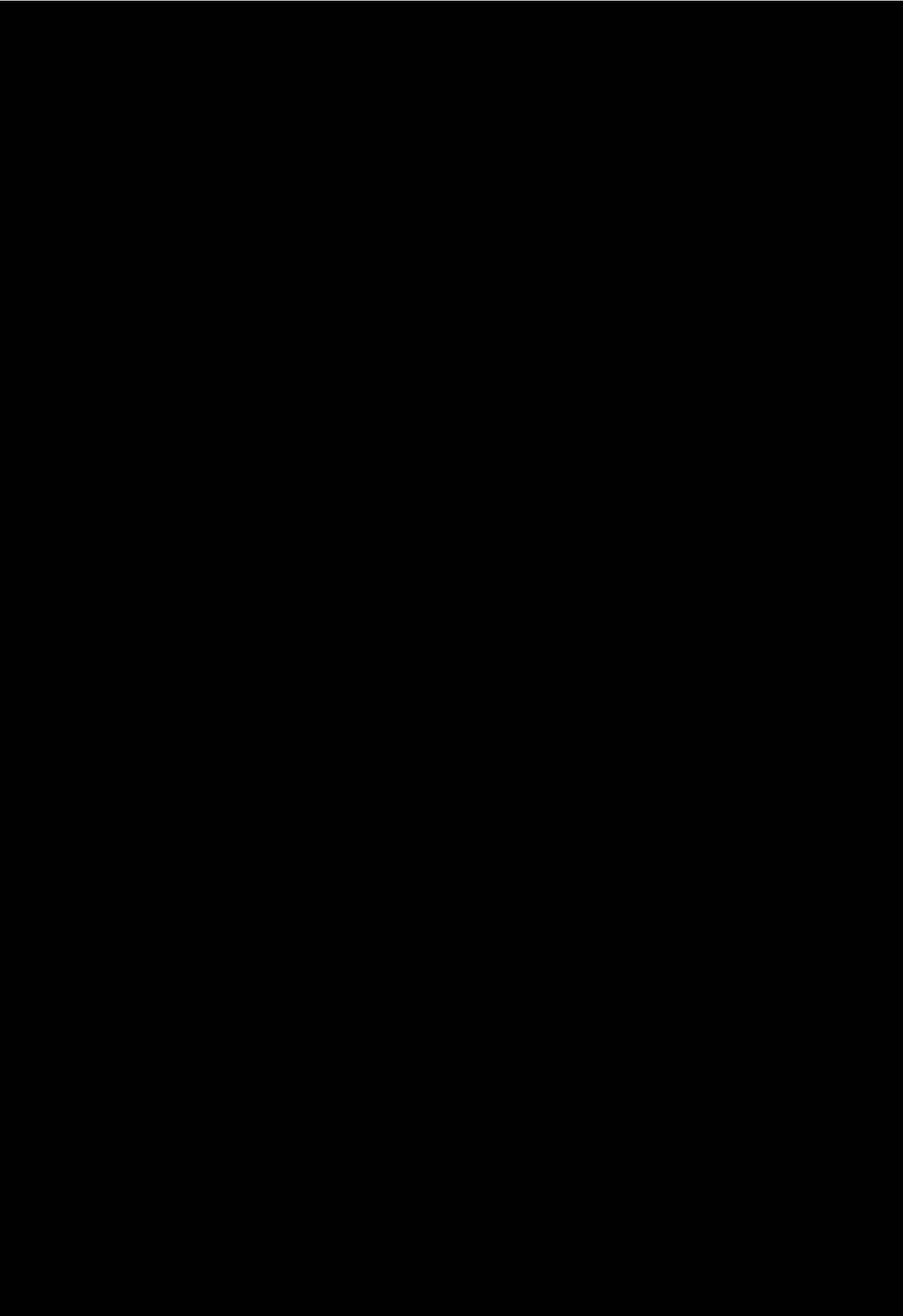




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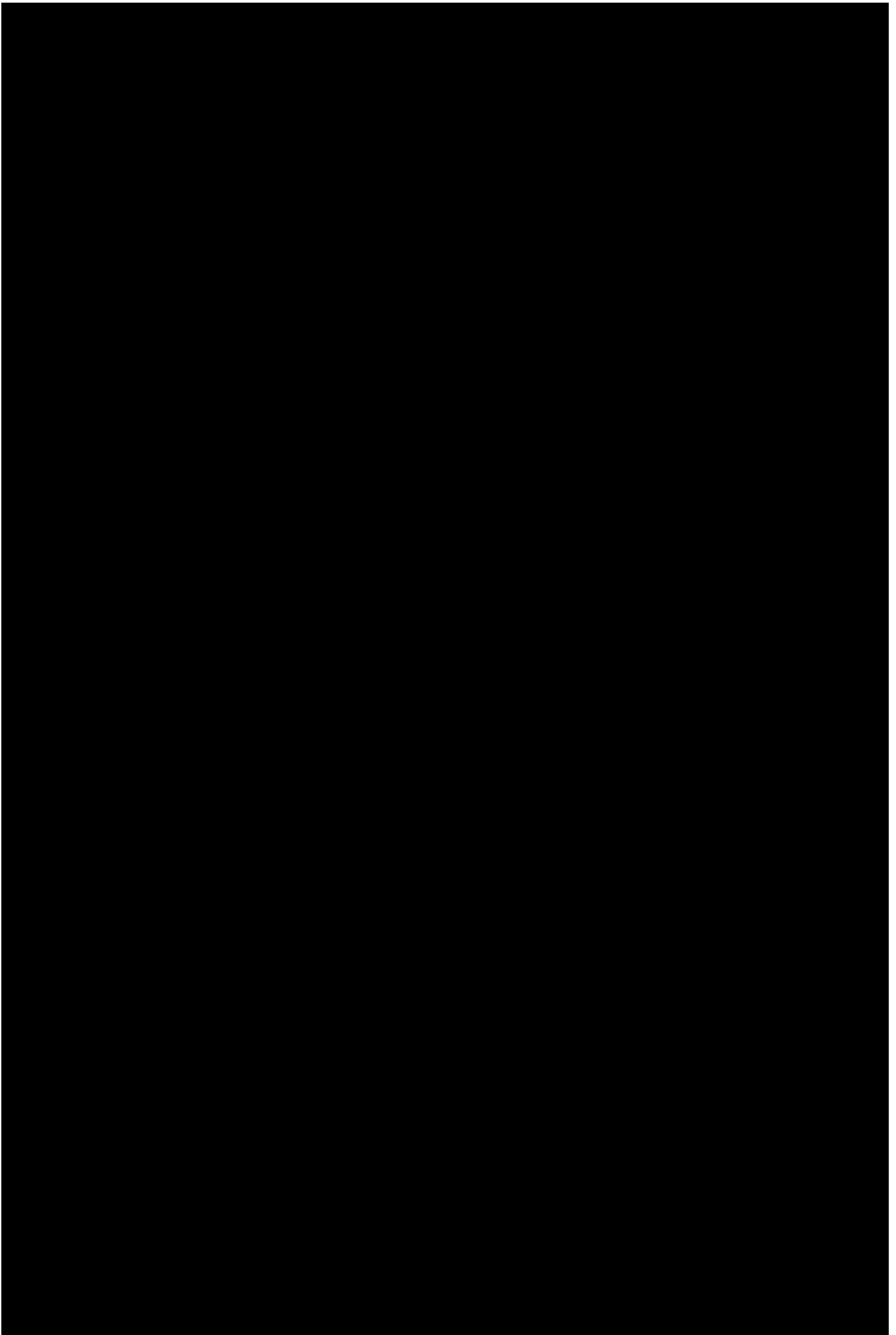
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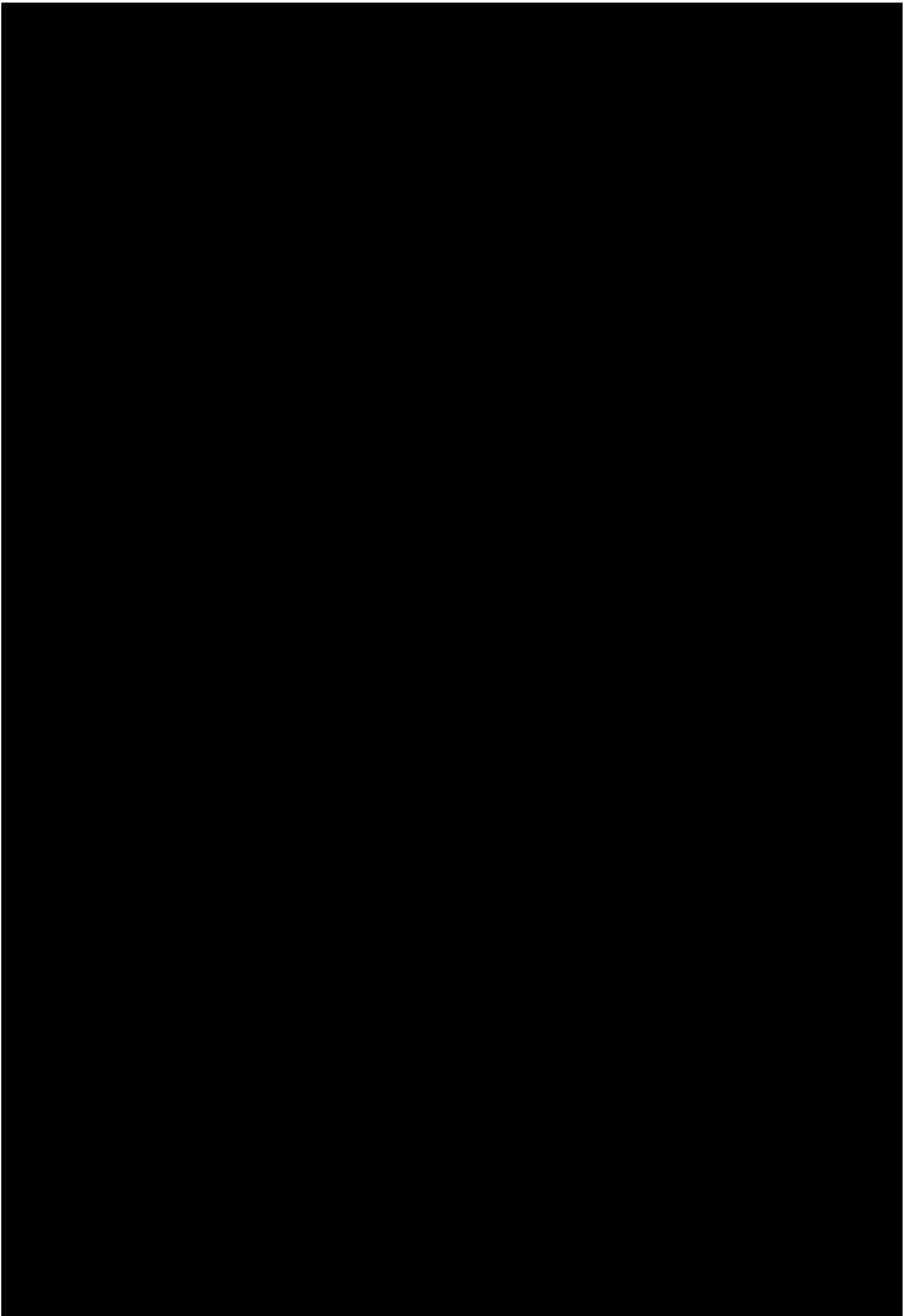


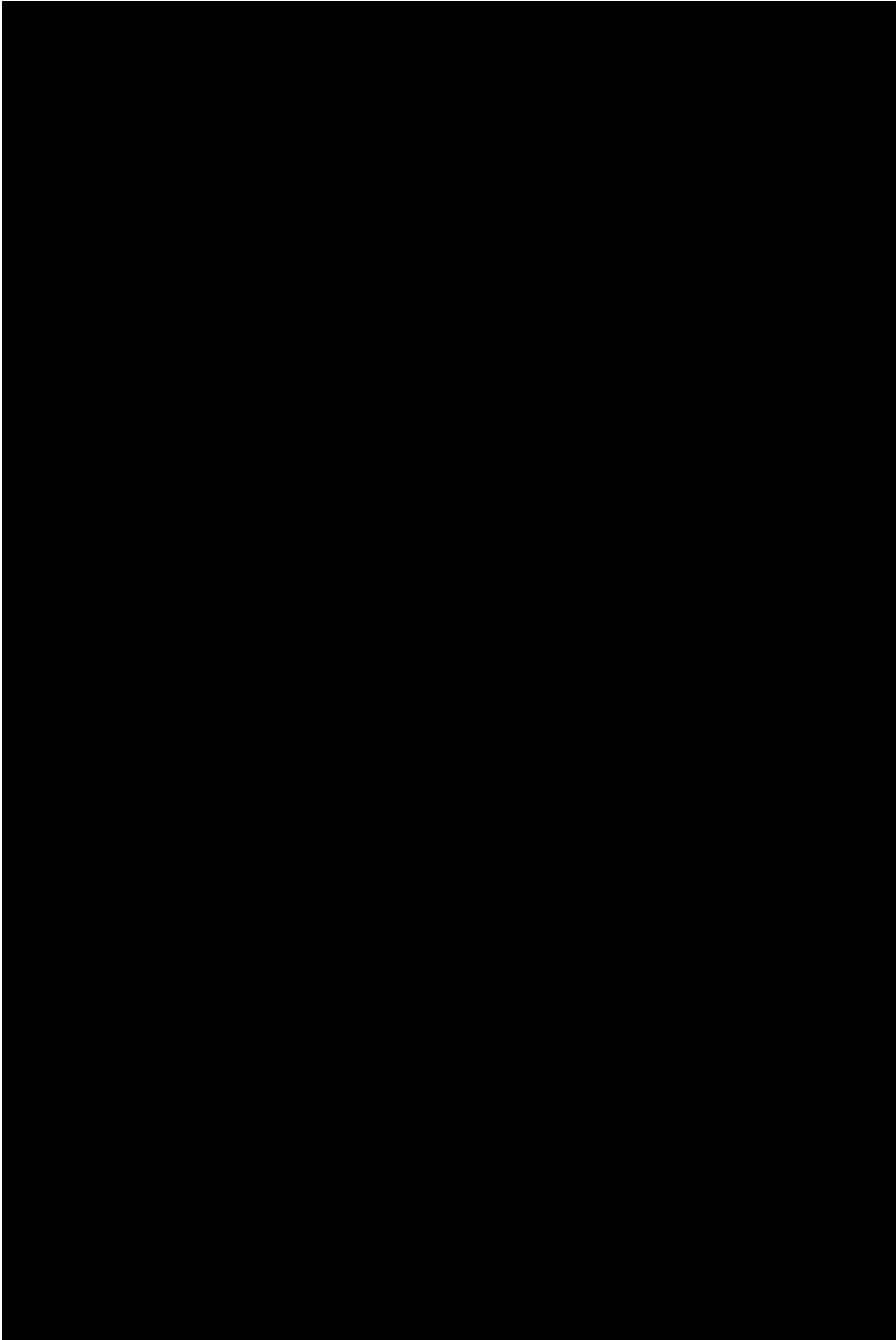


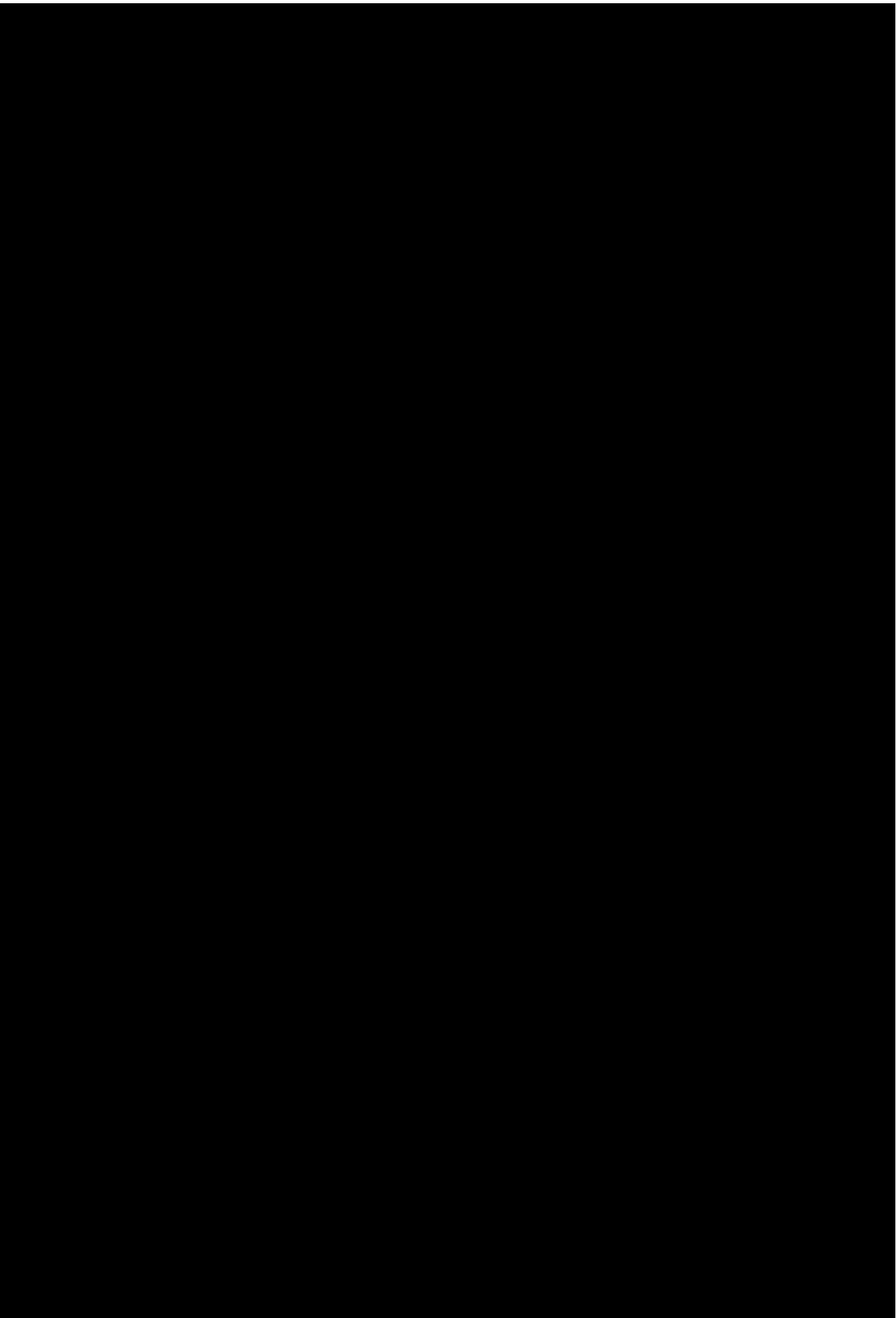
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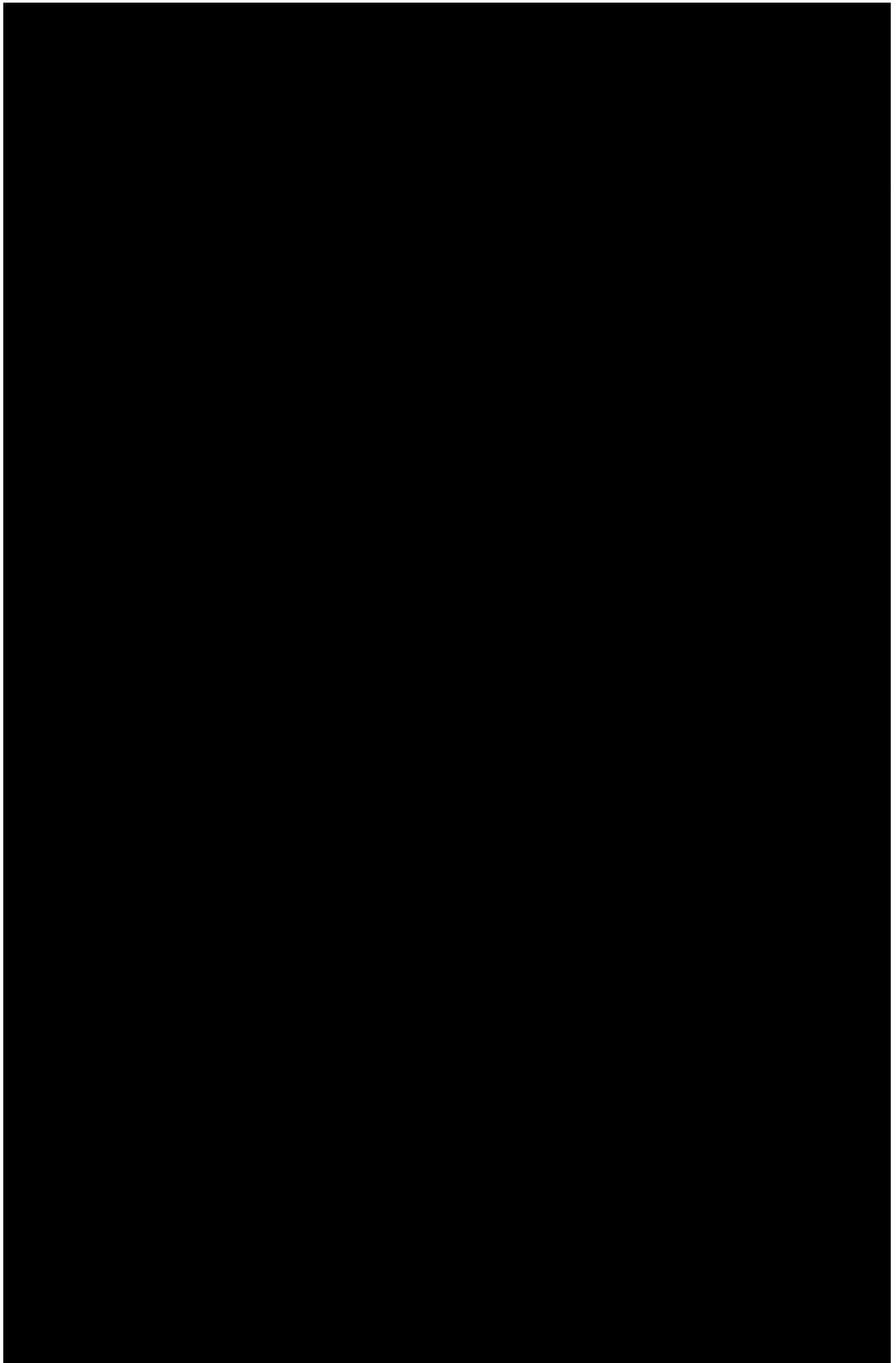


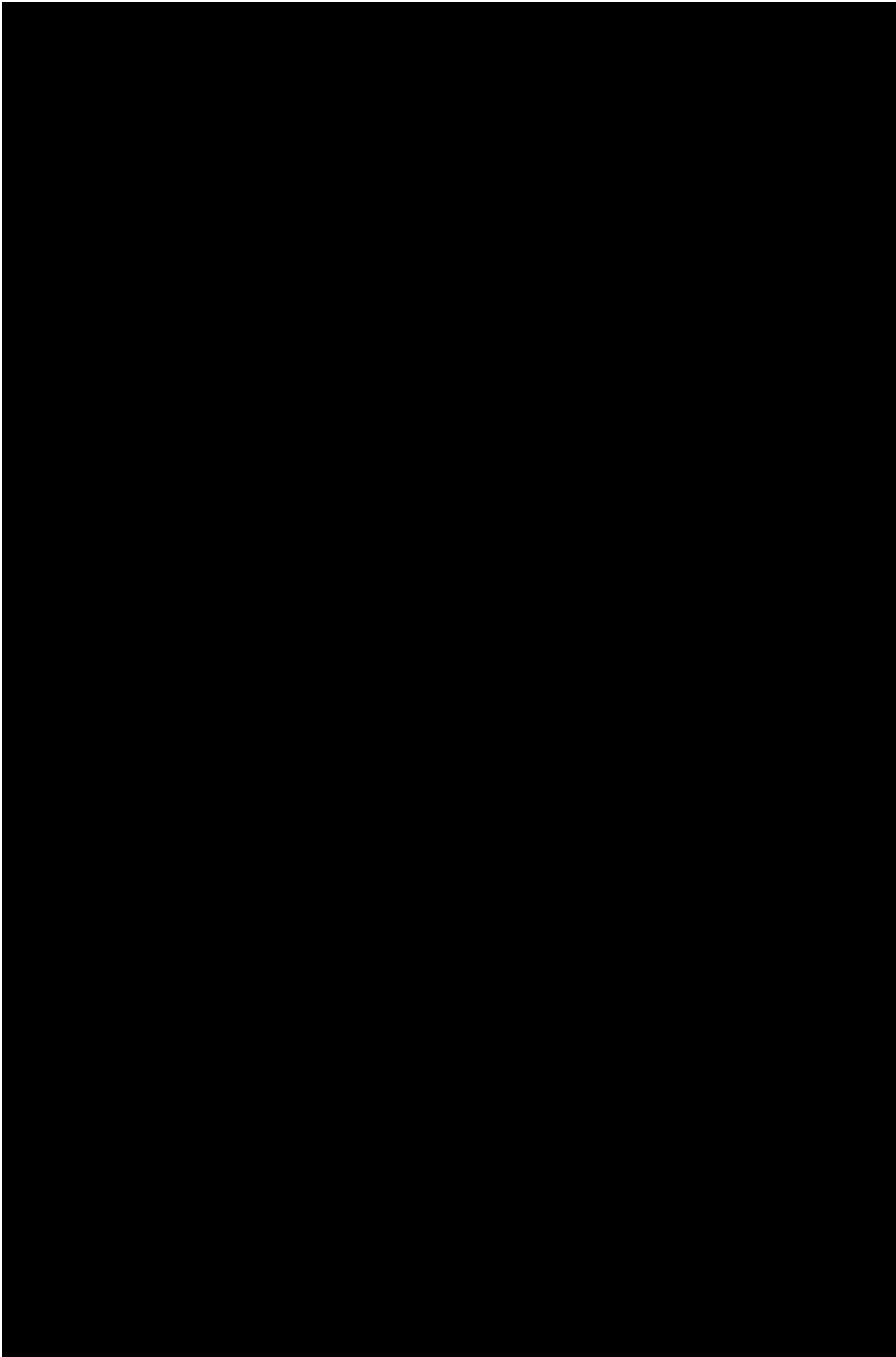


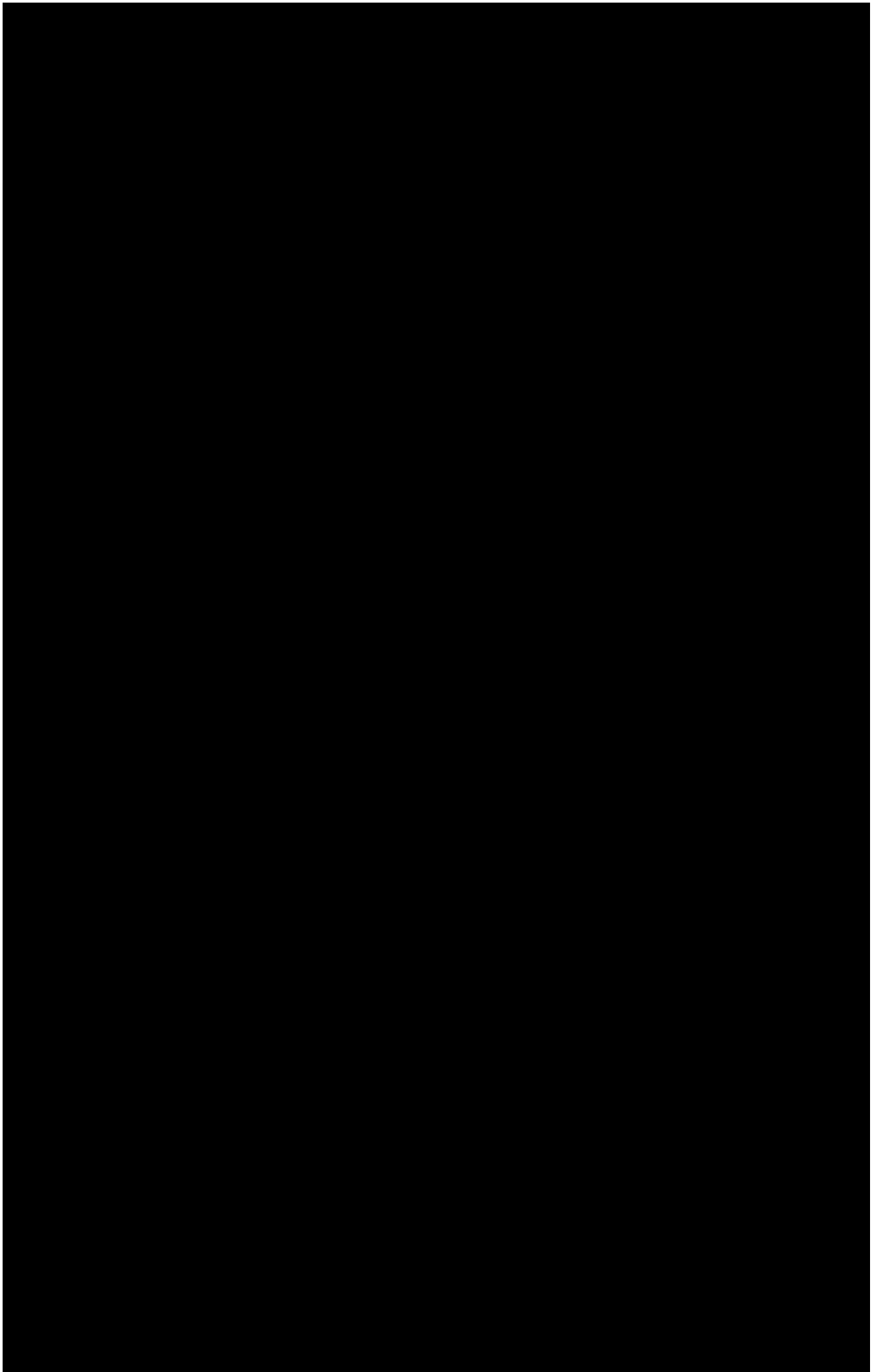
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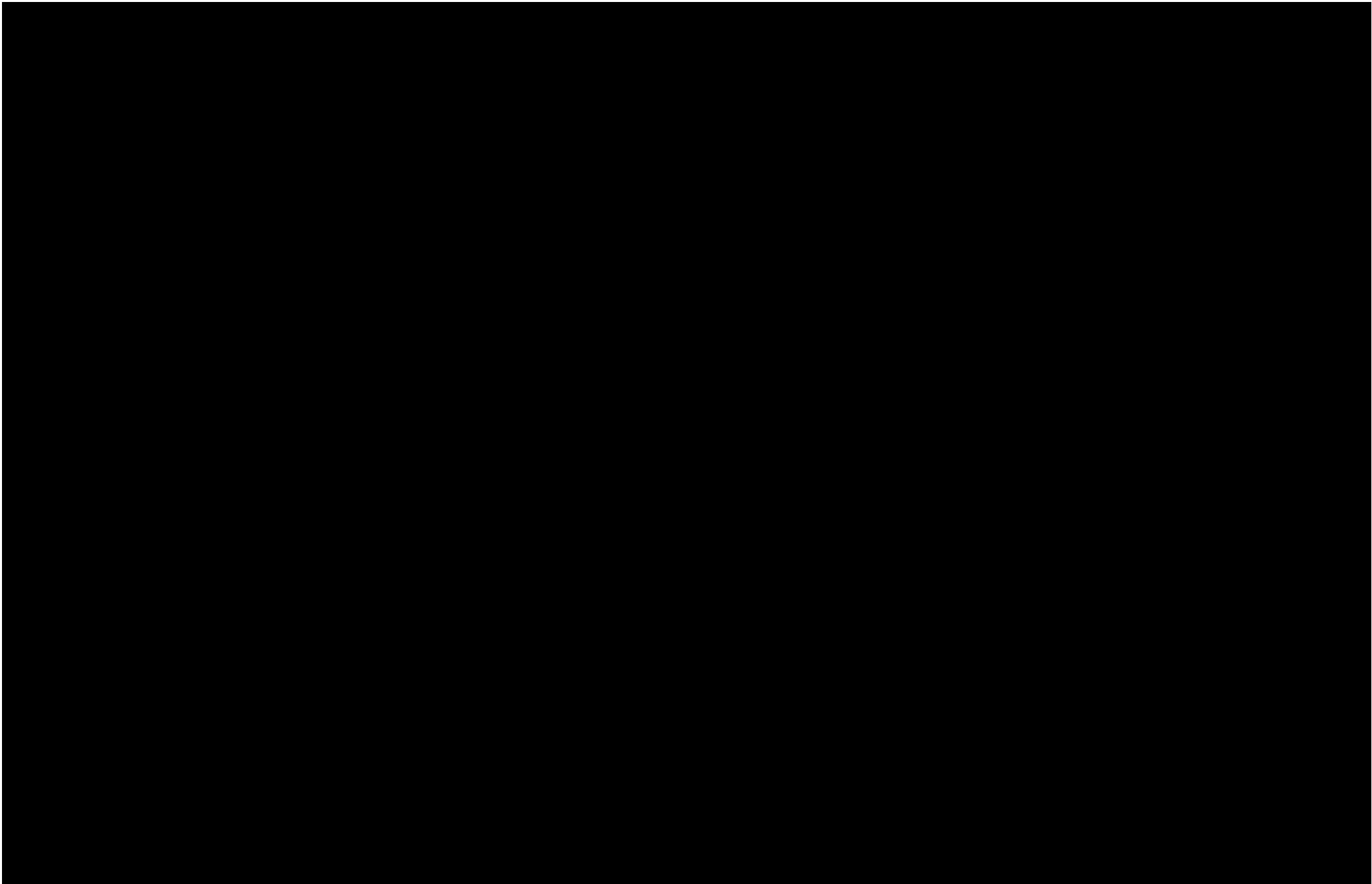


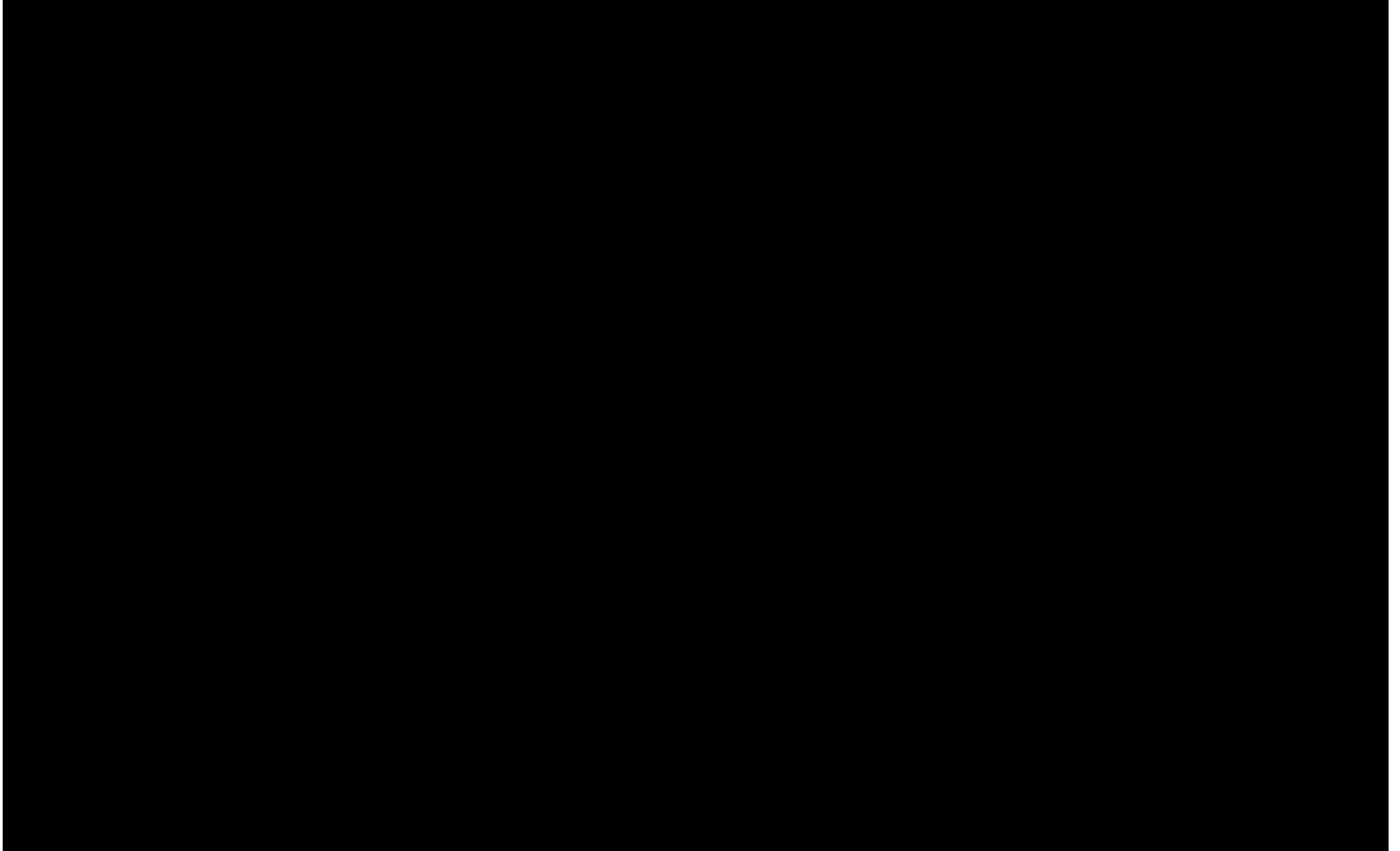


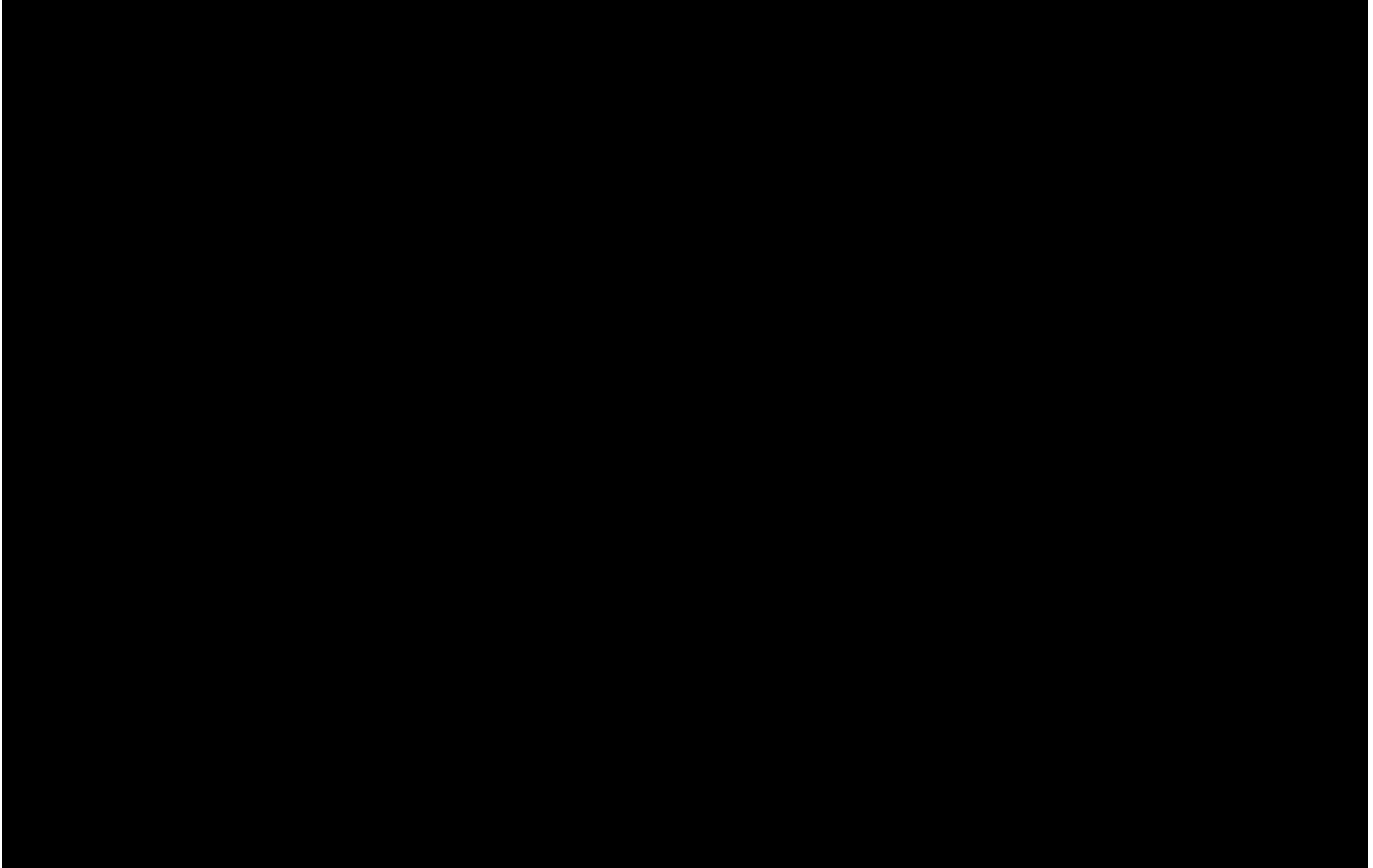
**SCHEDULE 35**

**Amendments to Schedule E7**

Schedule E7 is amended as set out in the attached mark-up.





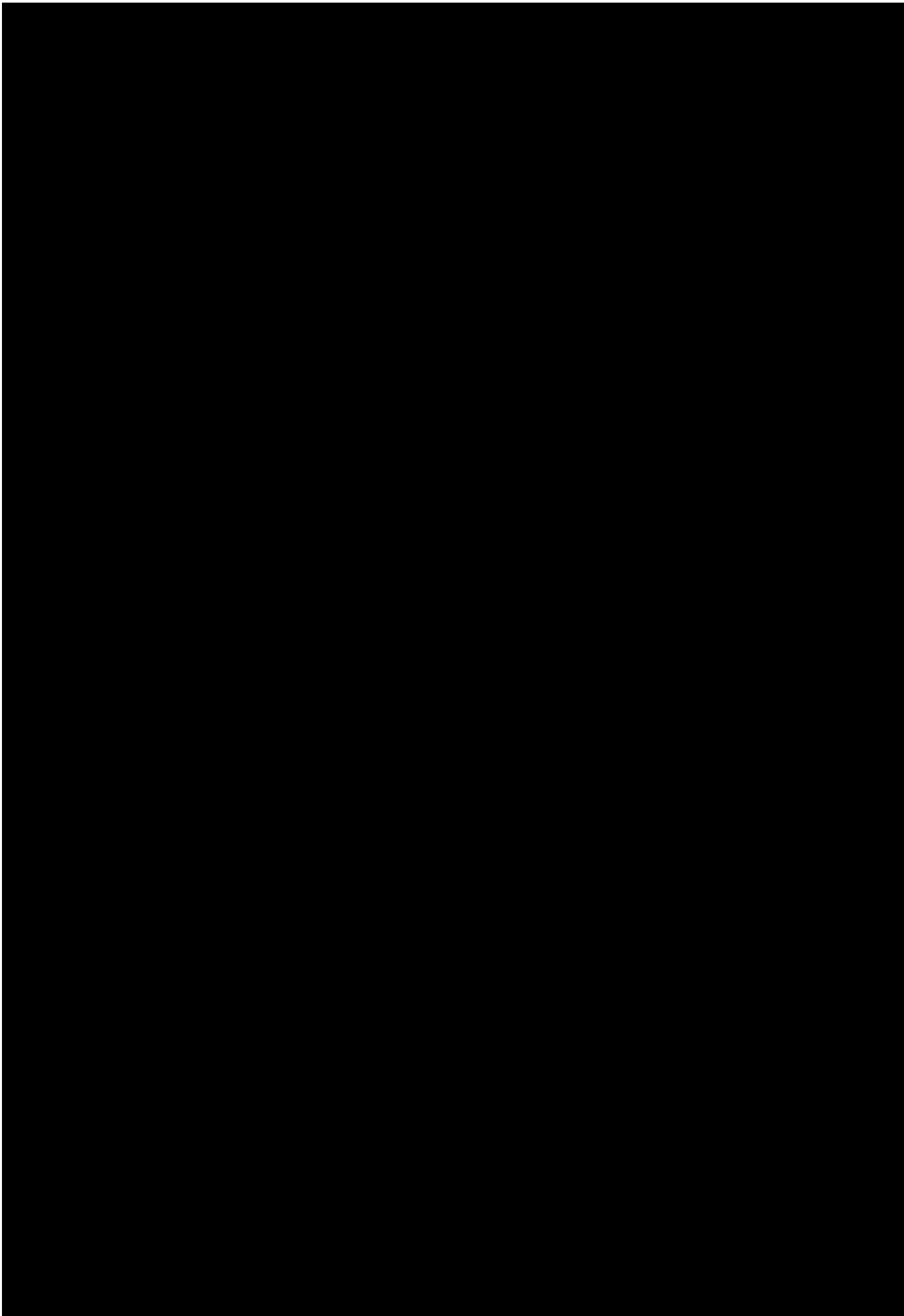


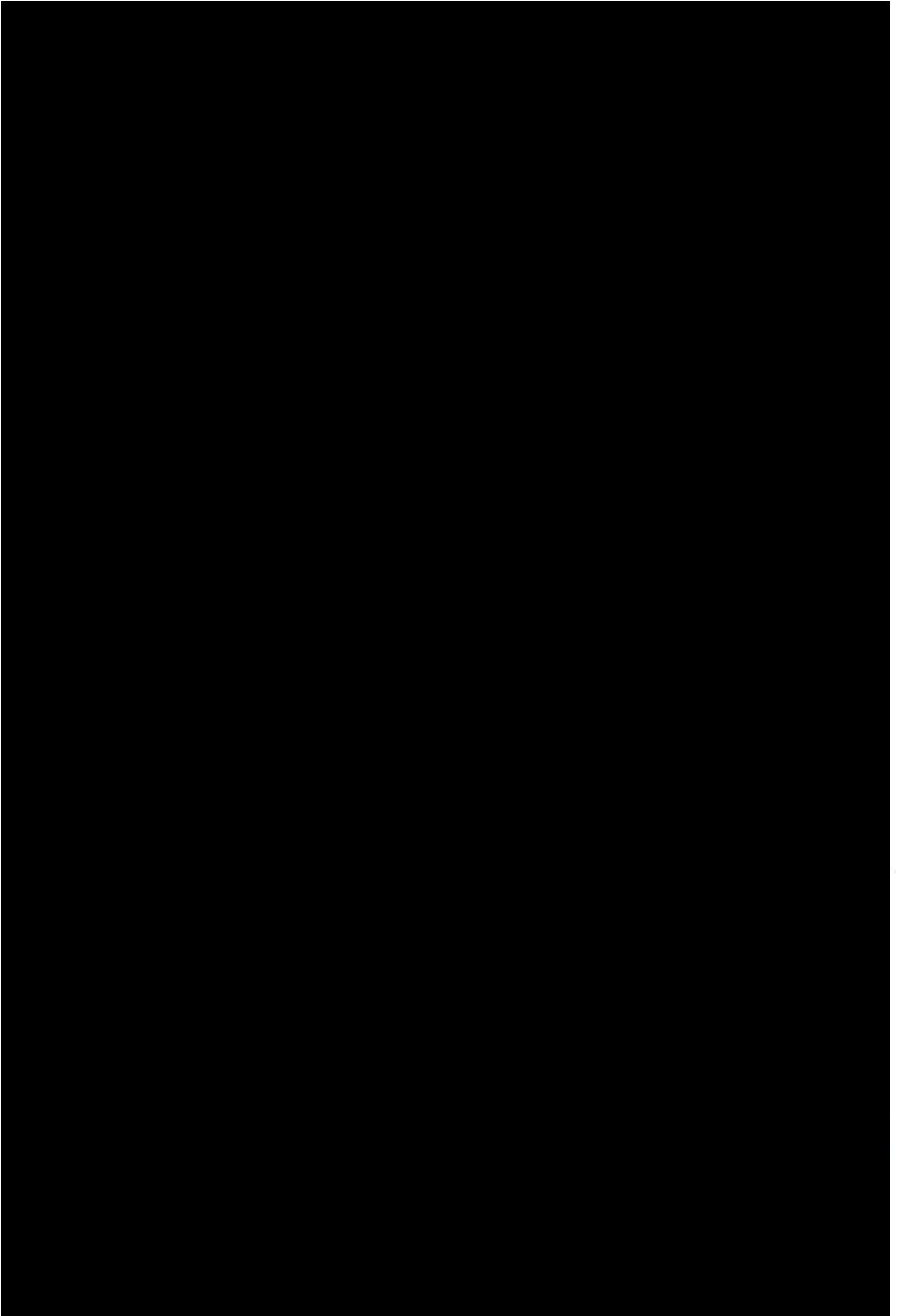
**SCHEDULE 36**

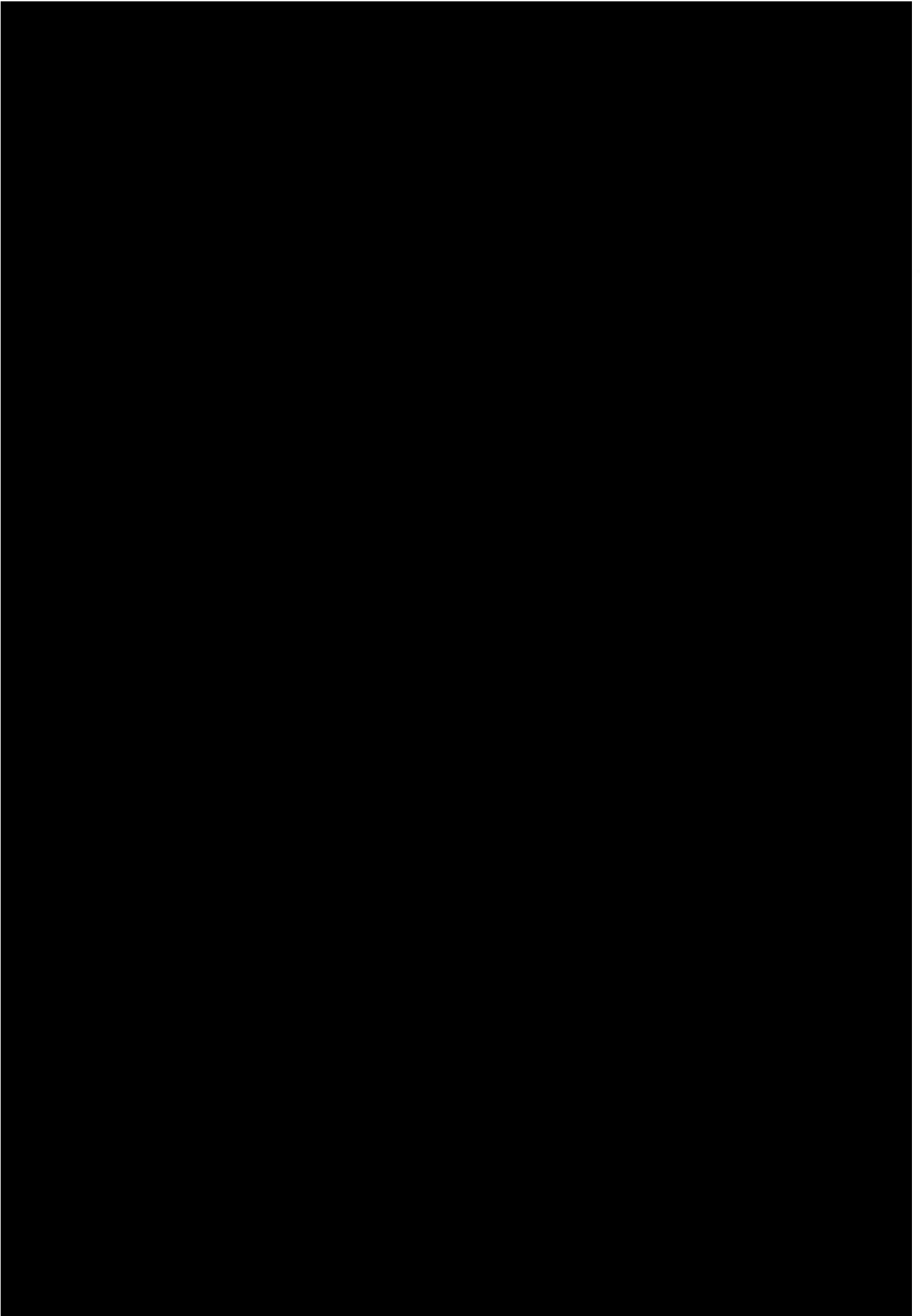
**Amendments to Schedule F1**

Schedule F1 is amended as set out in the attached mark-up.



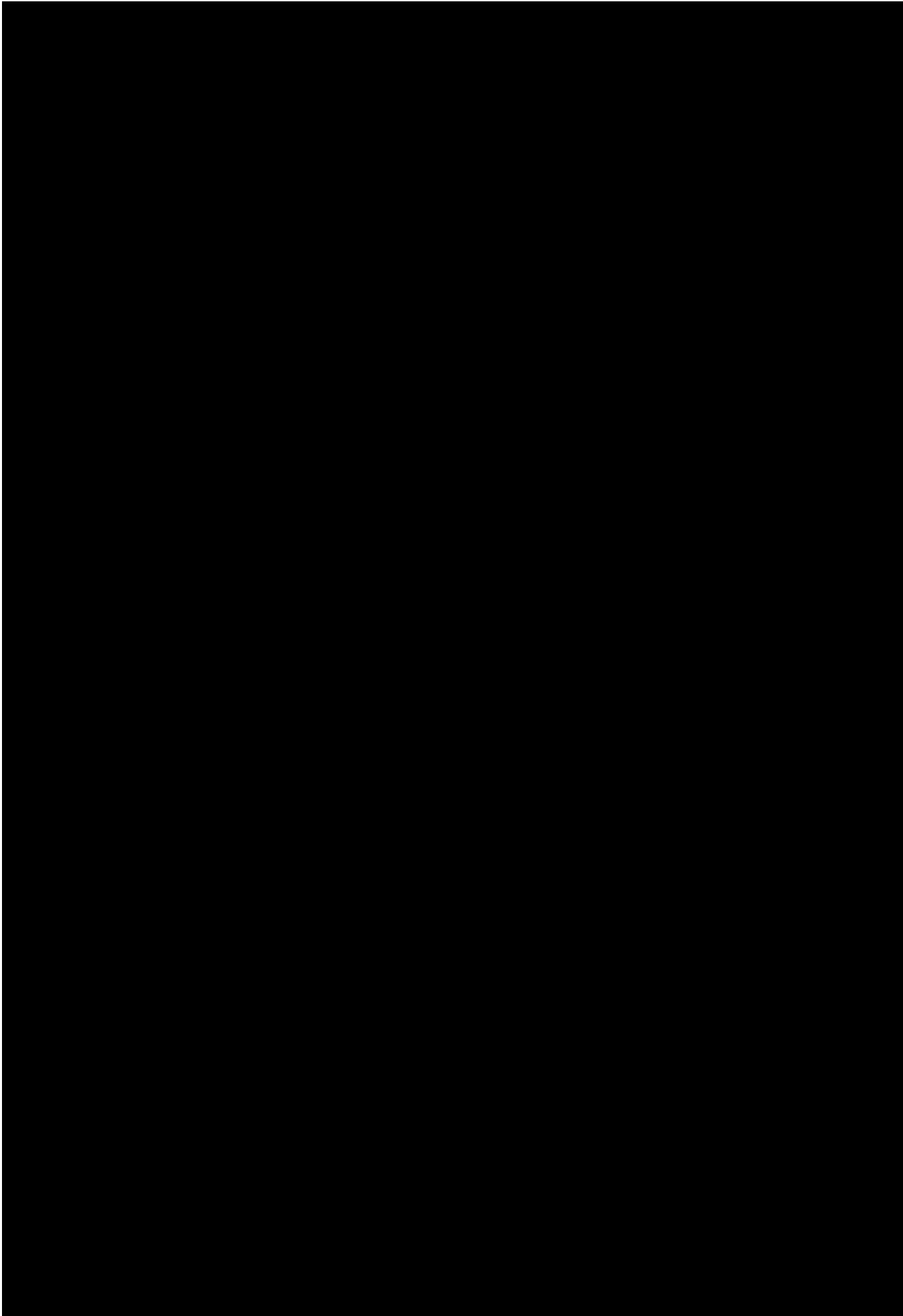


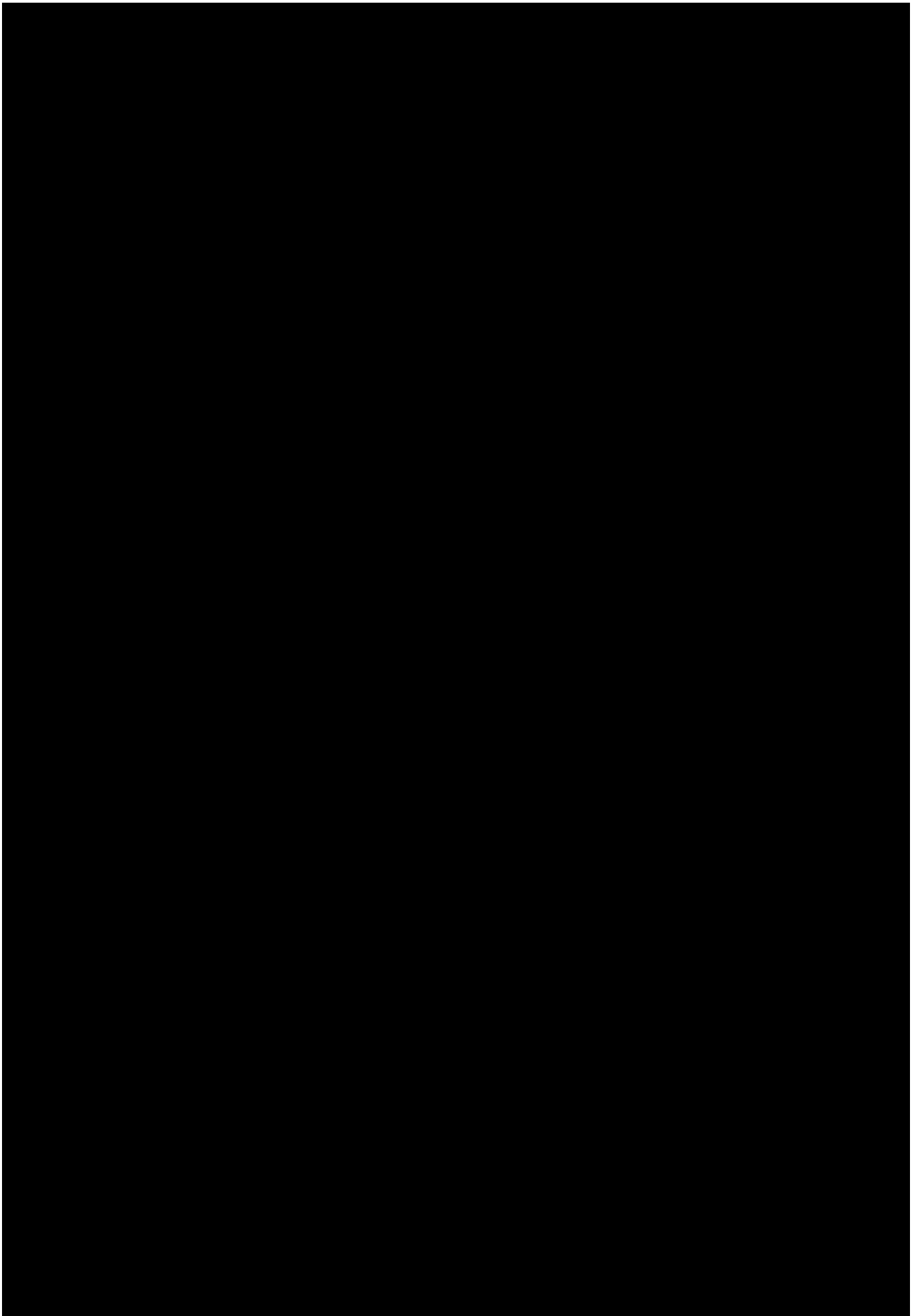




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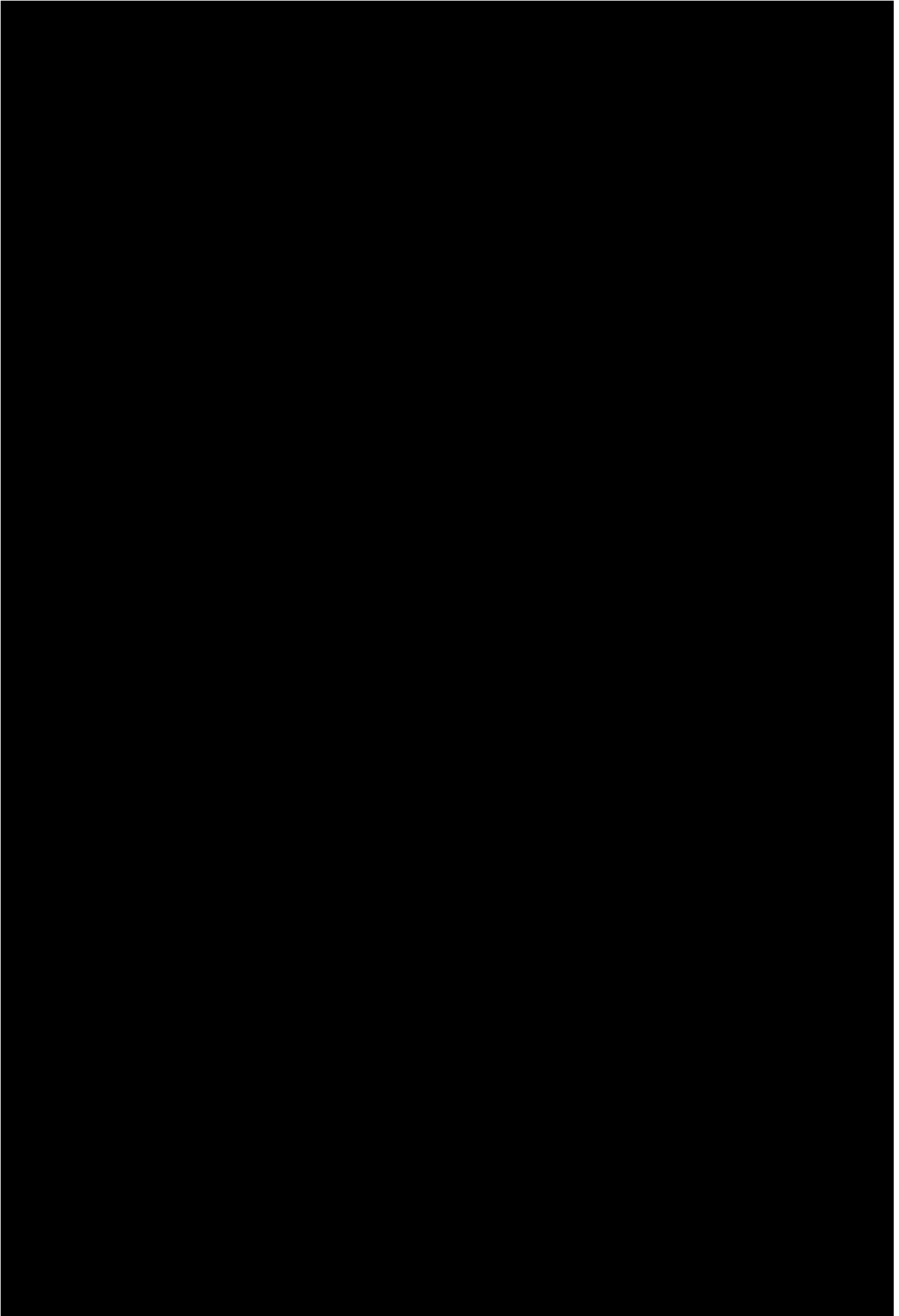
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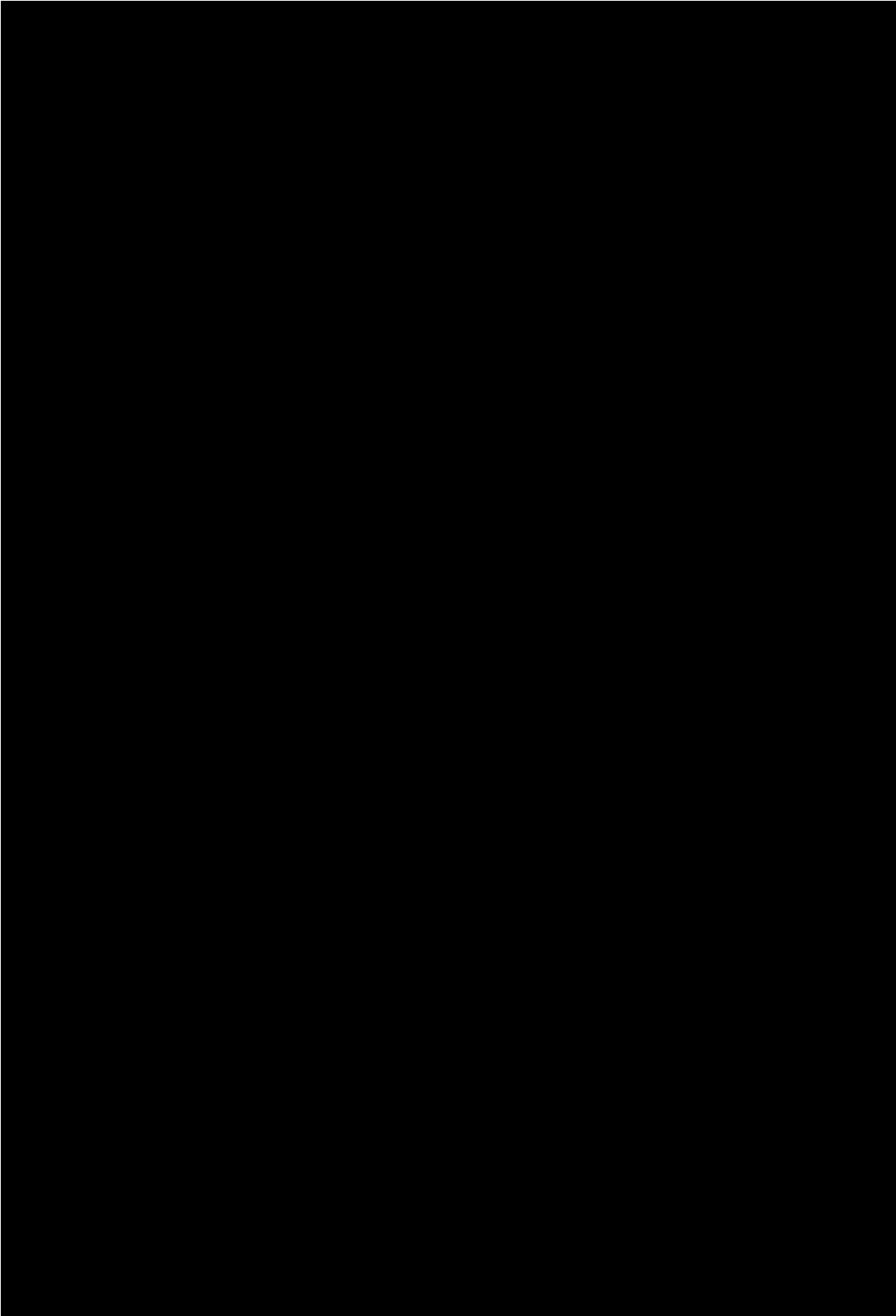




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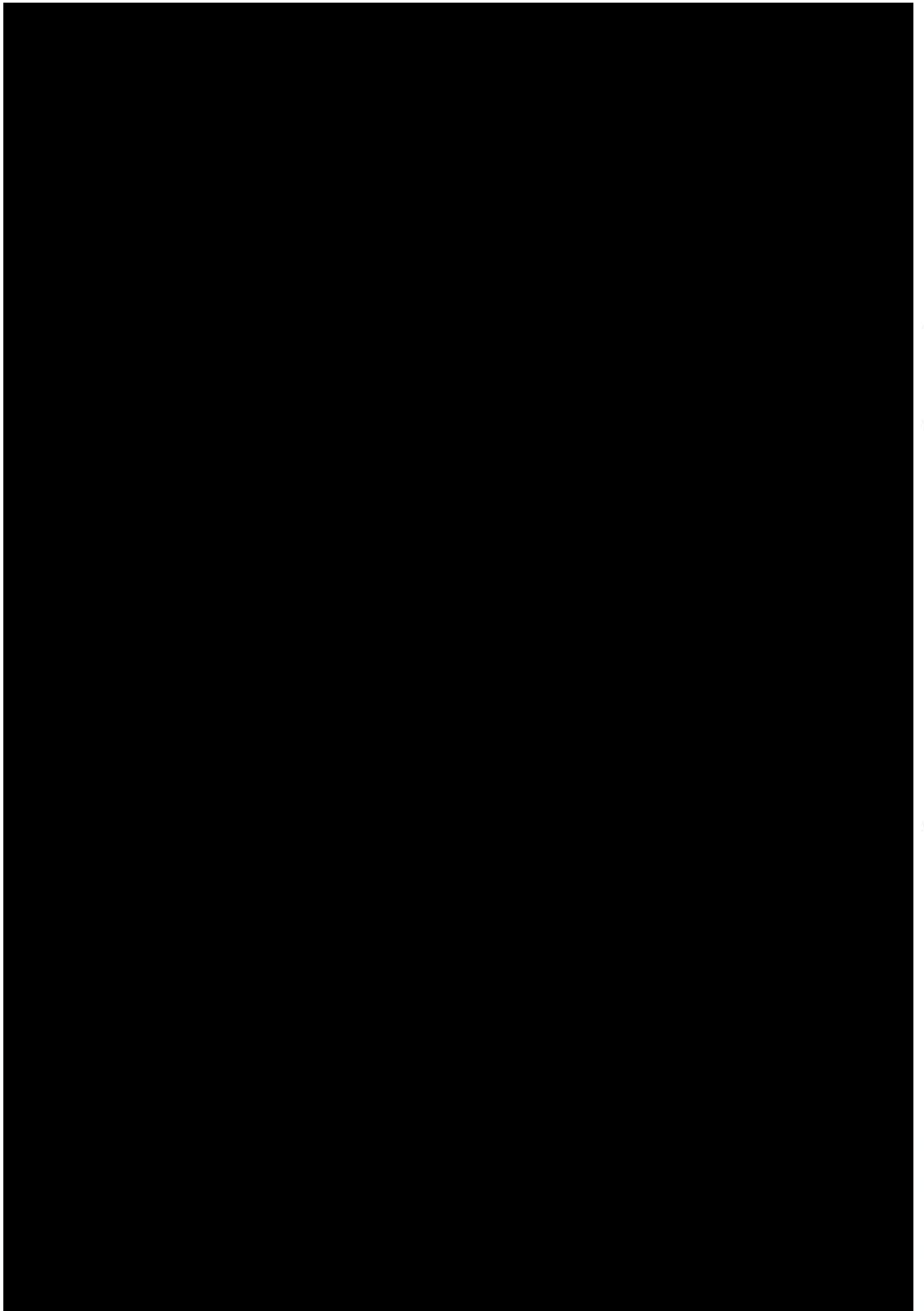
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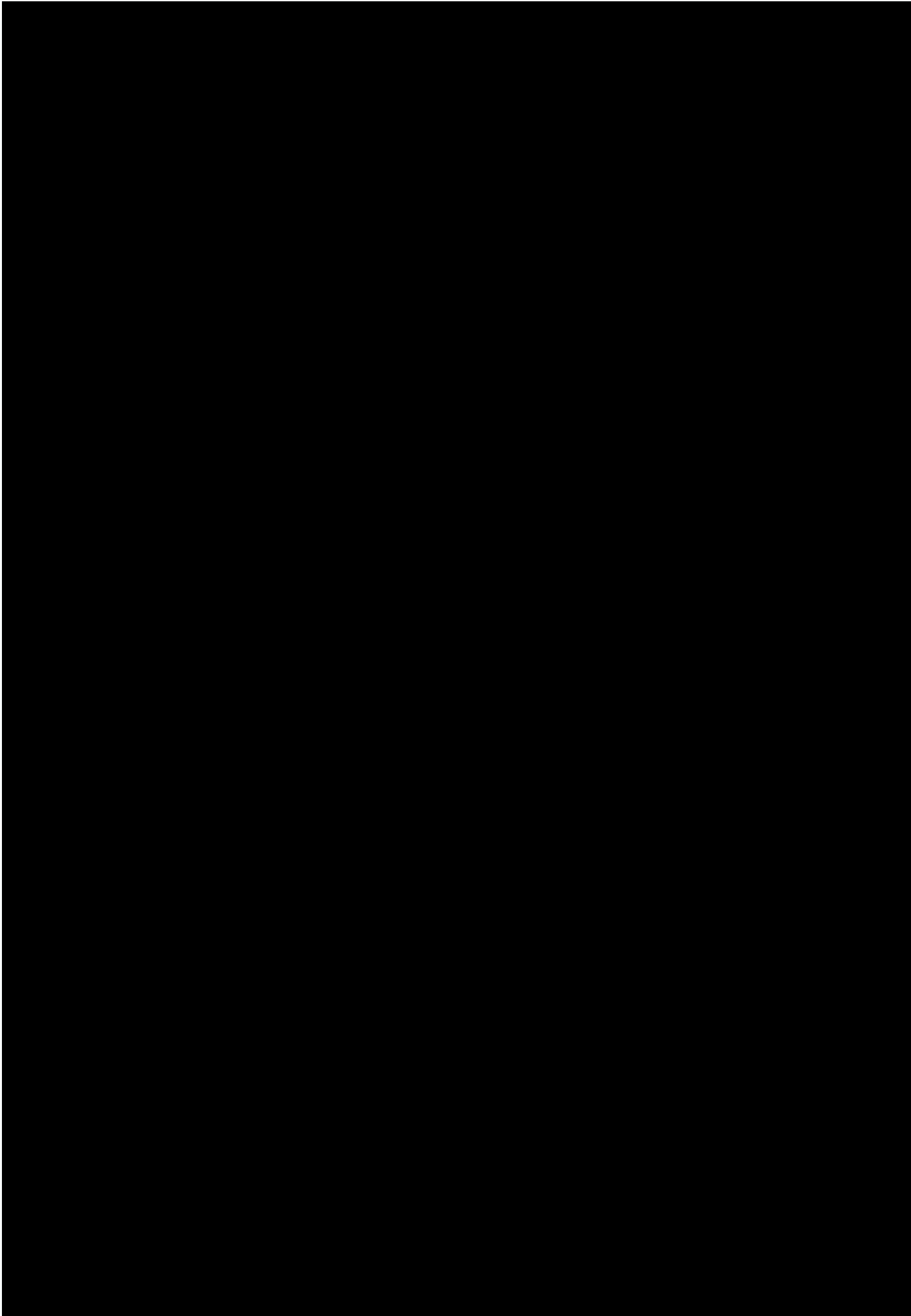


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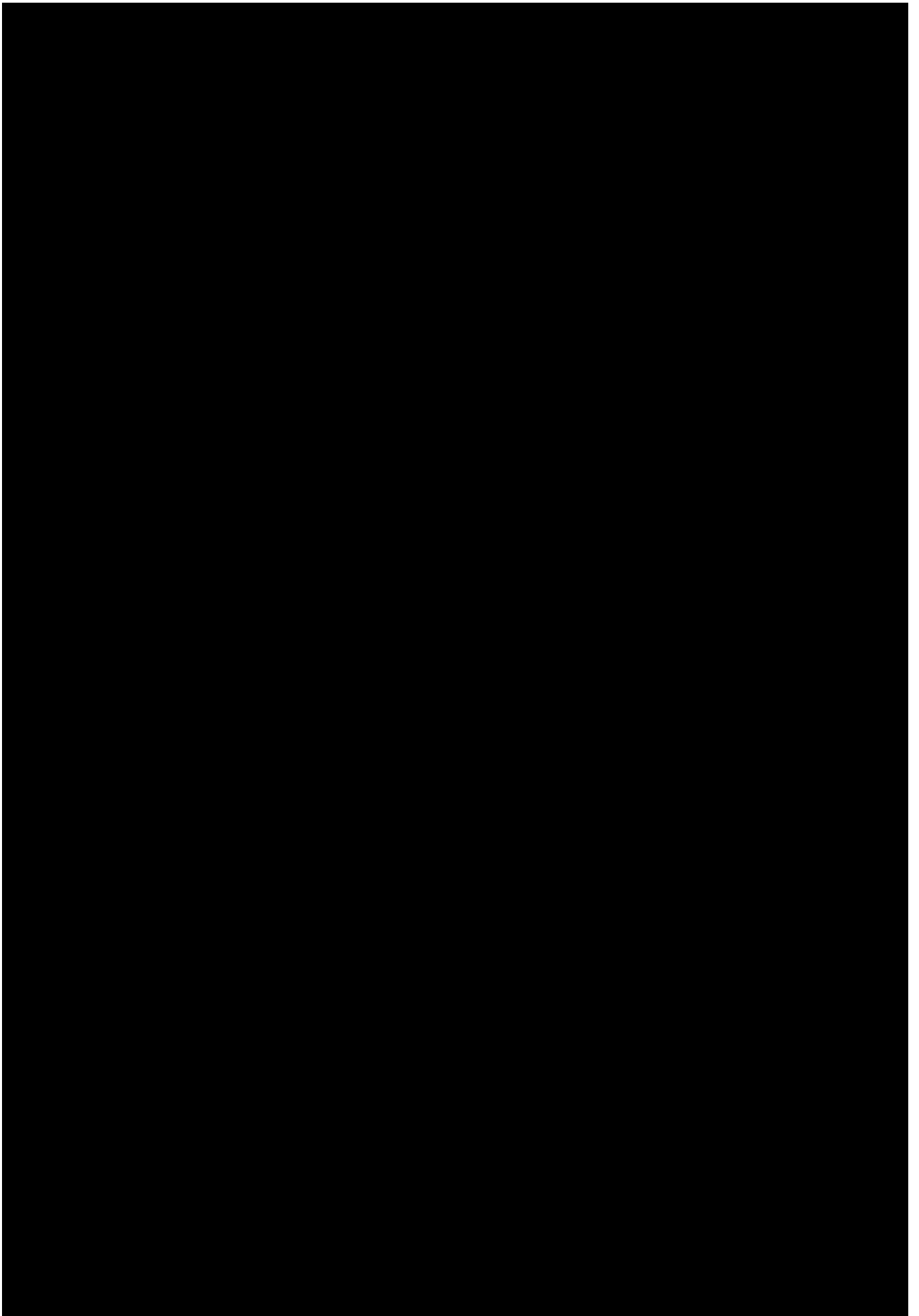
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**SCHEDULE 37**

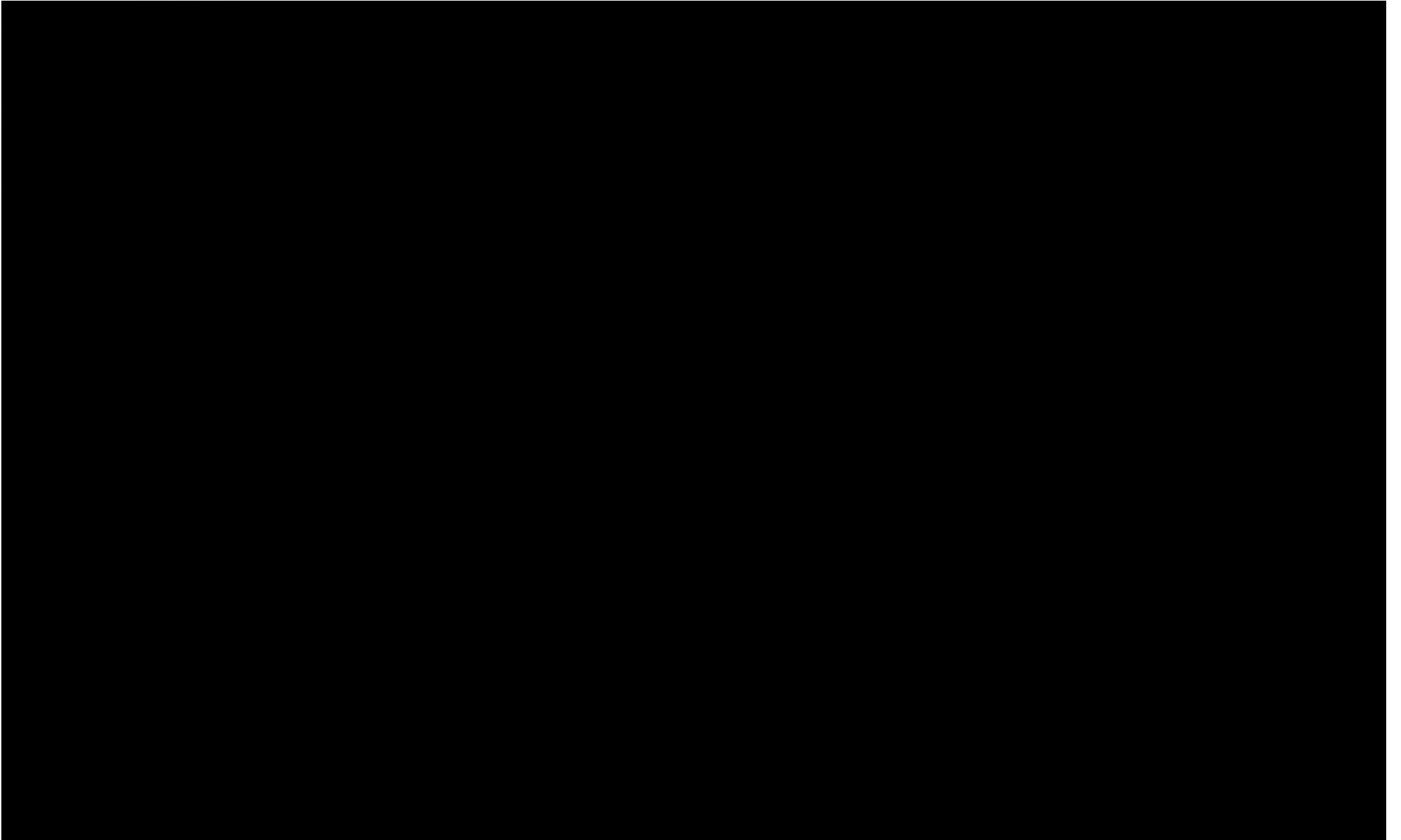
**Amendments to Schedule F2**

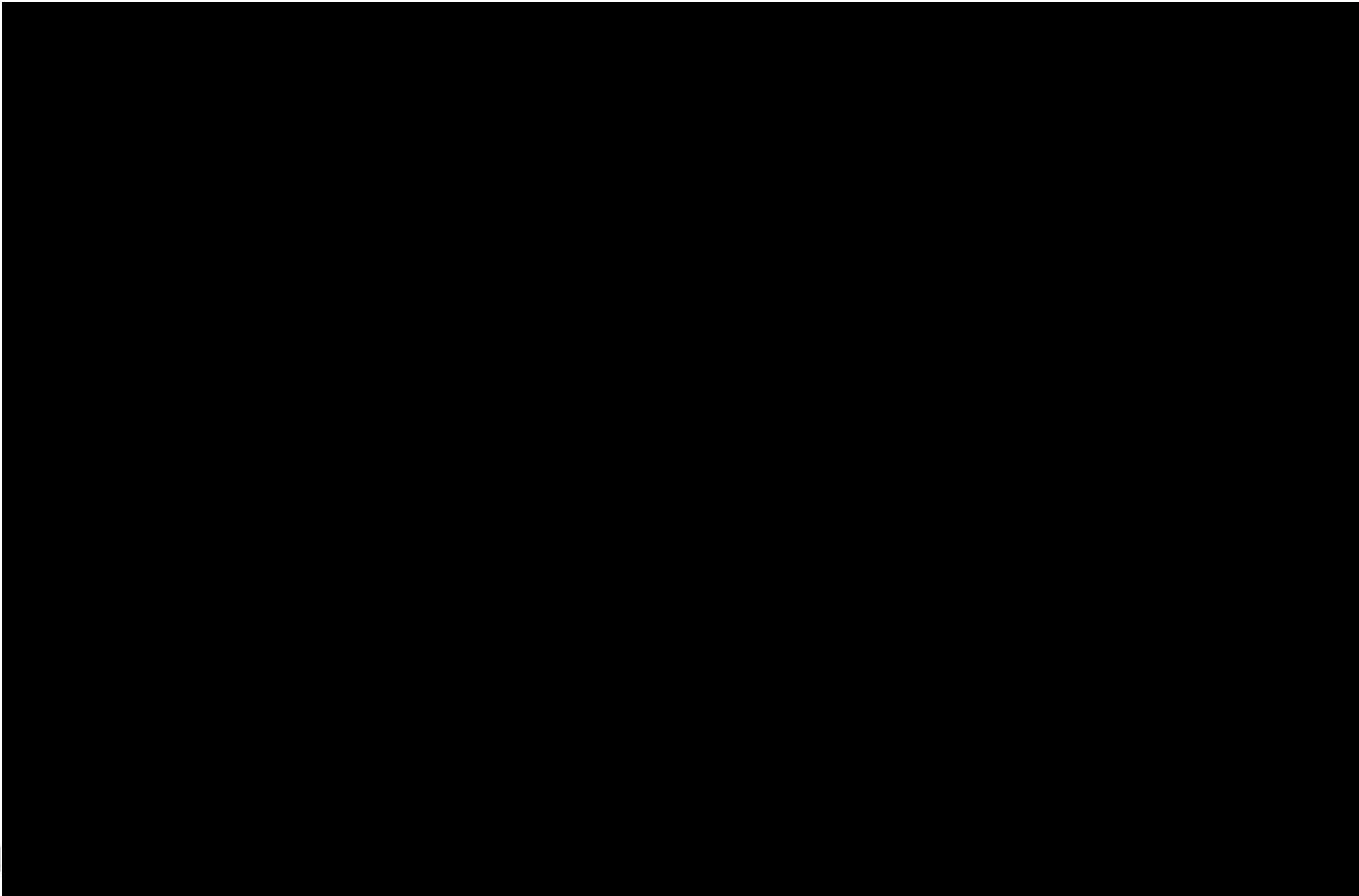
Schedule F2 is amended as set out in the attached mark-up.

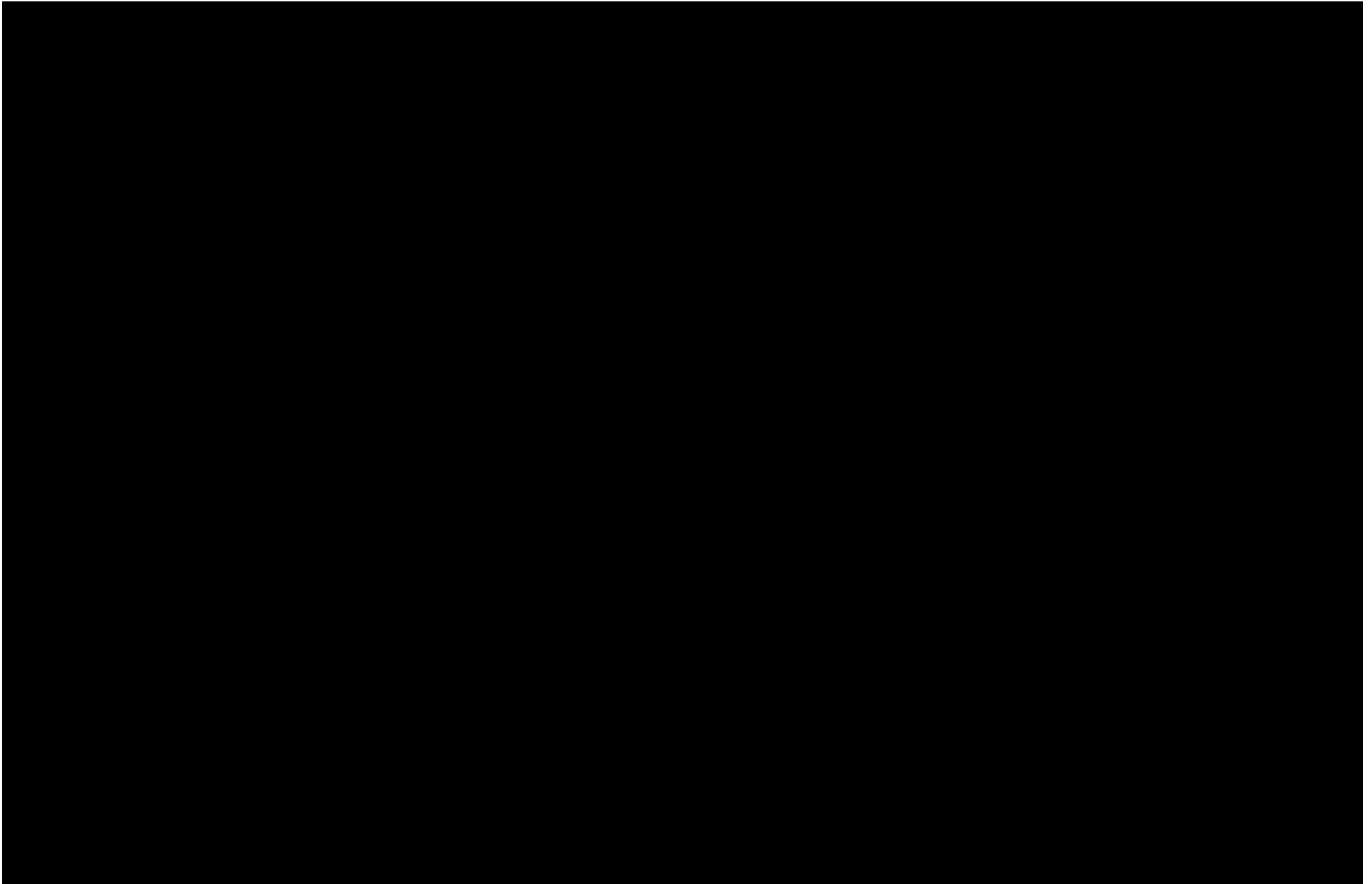


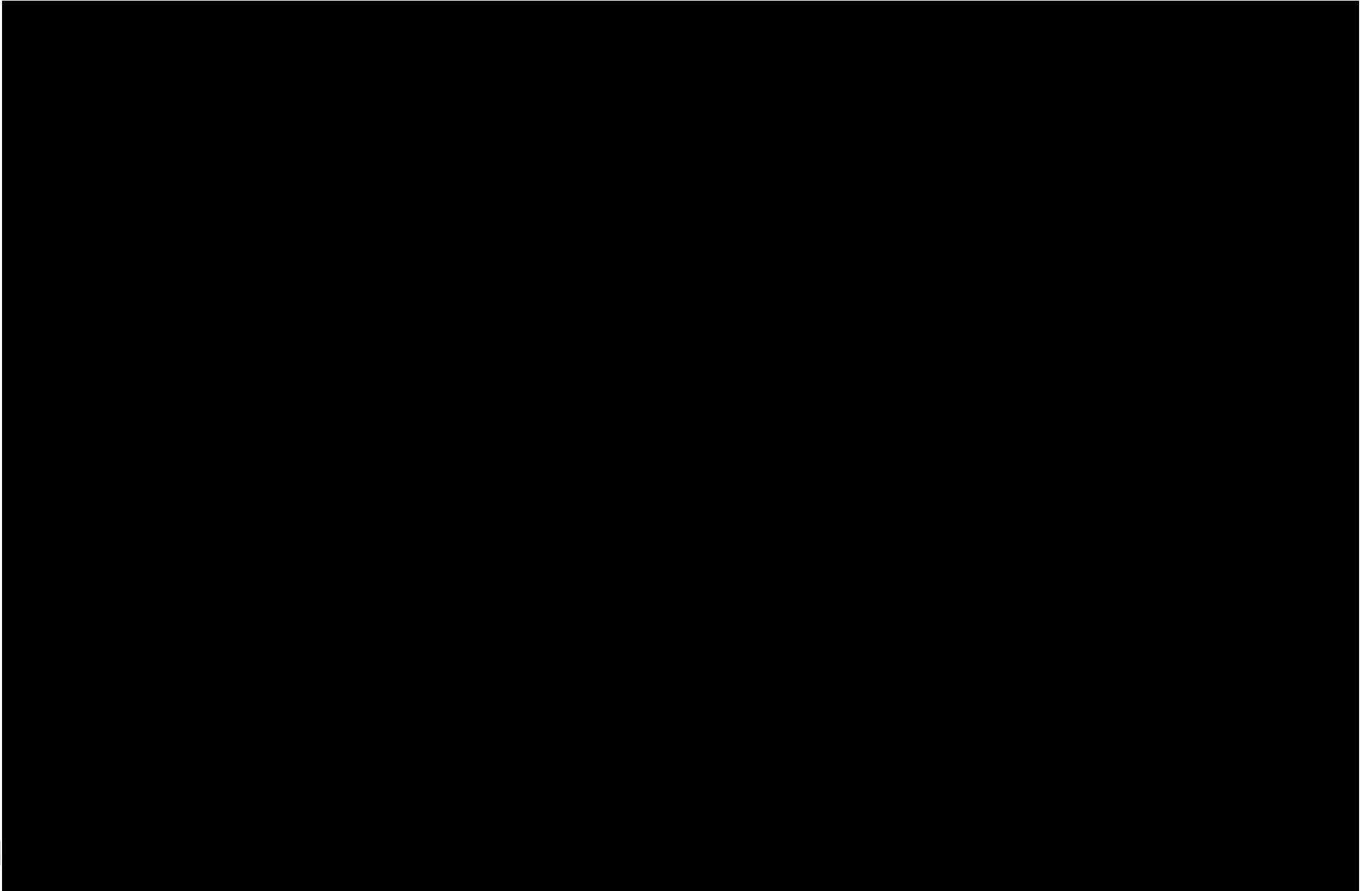
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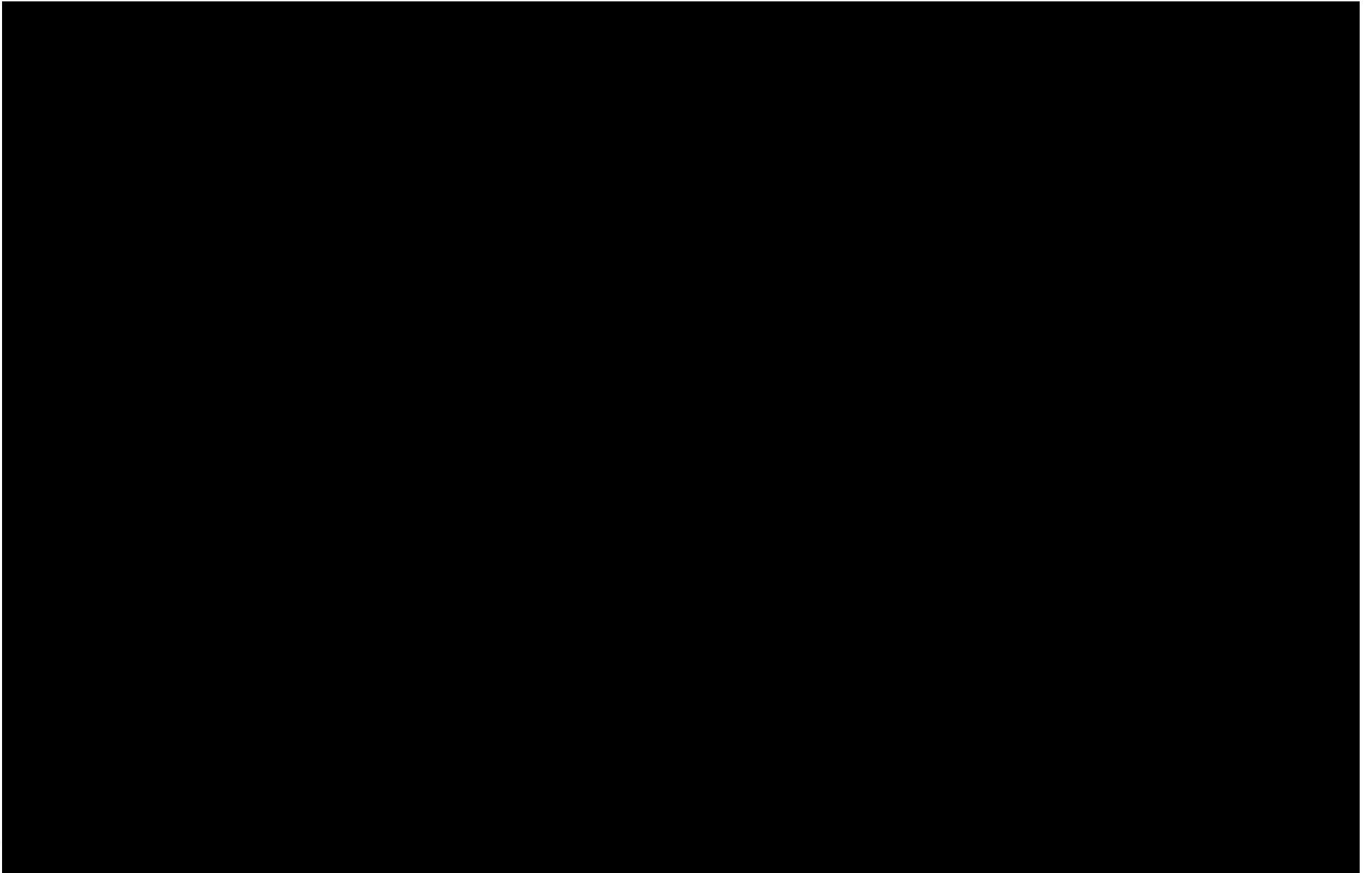
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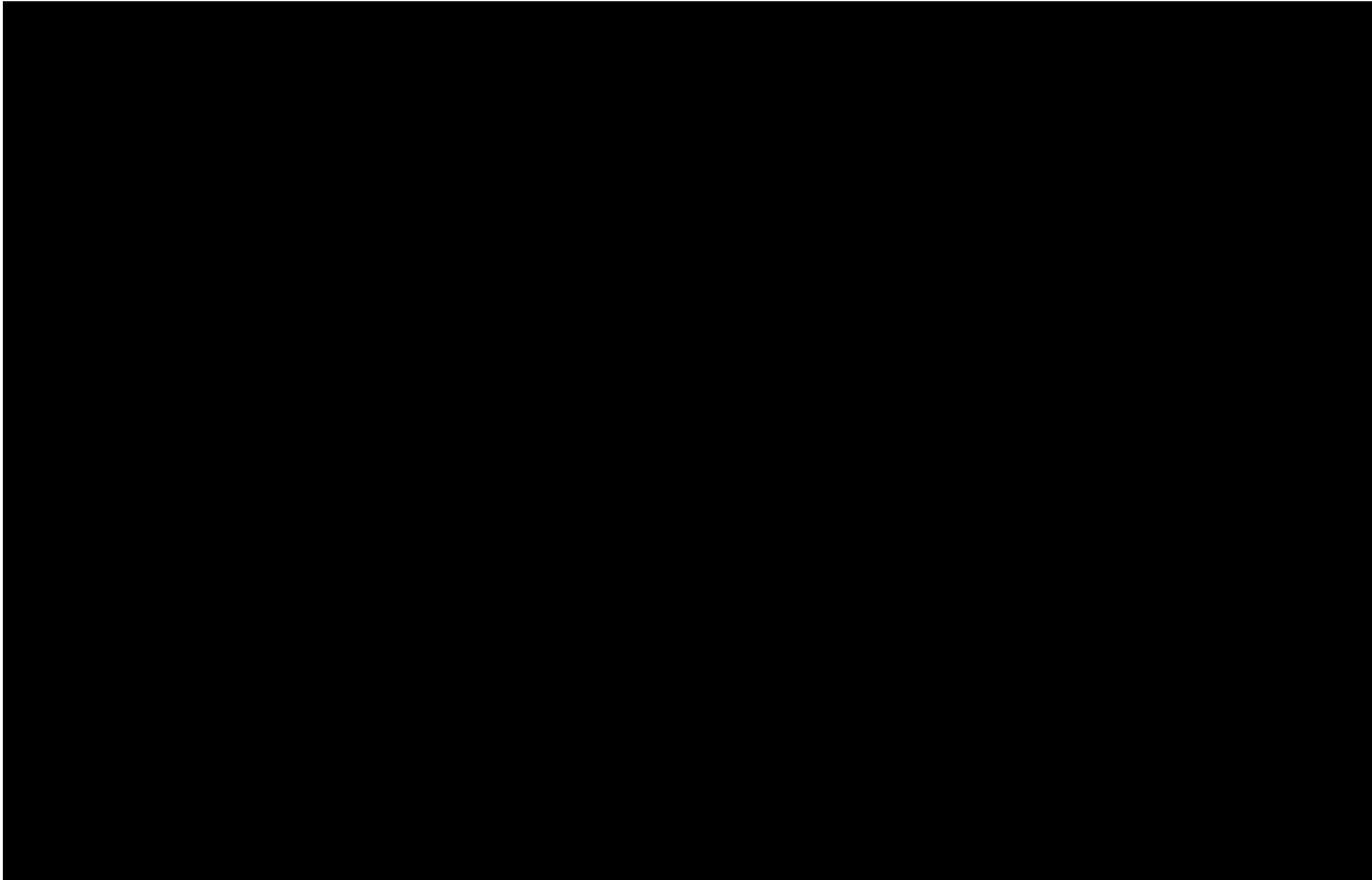


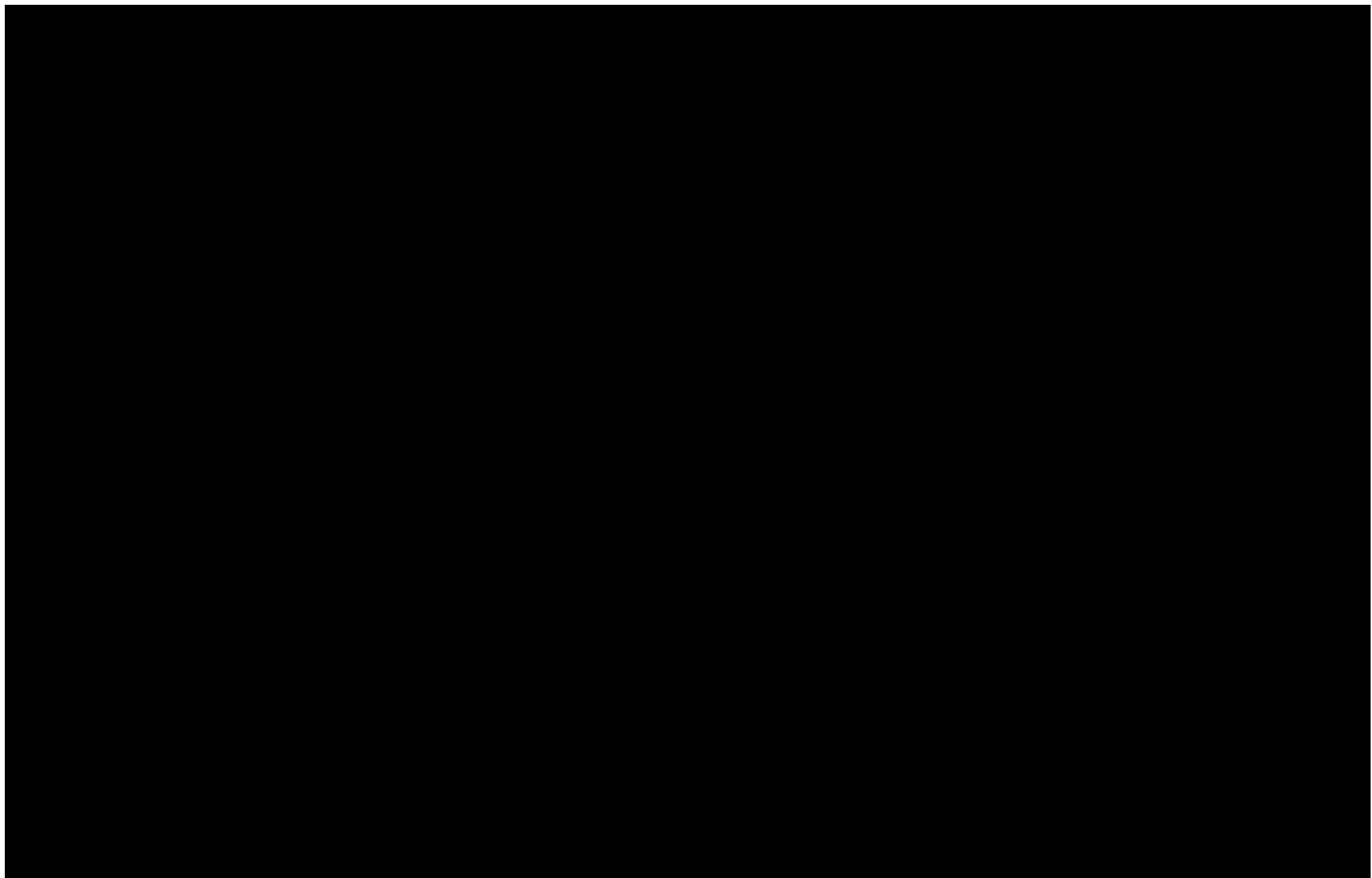


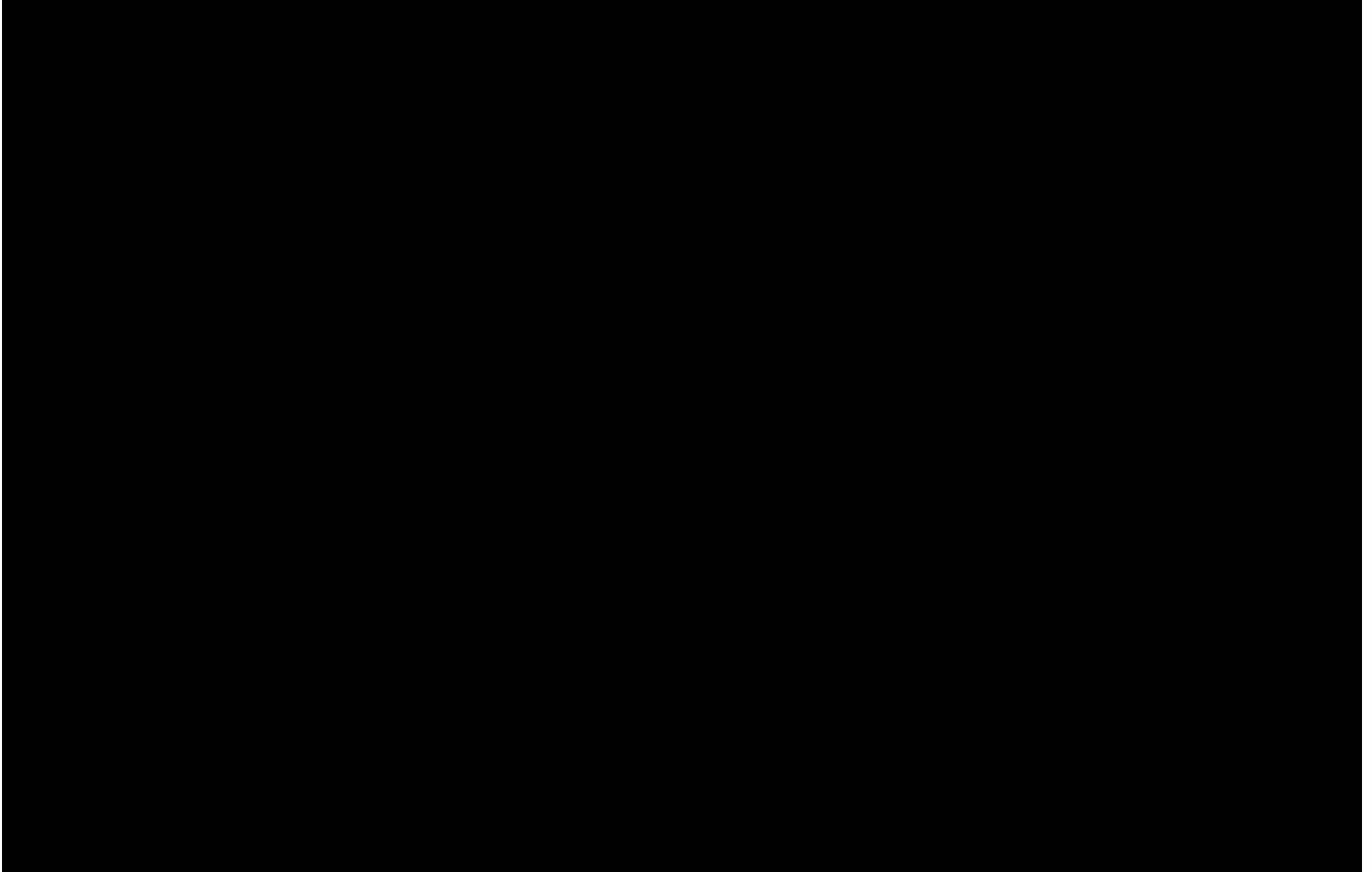


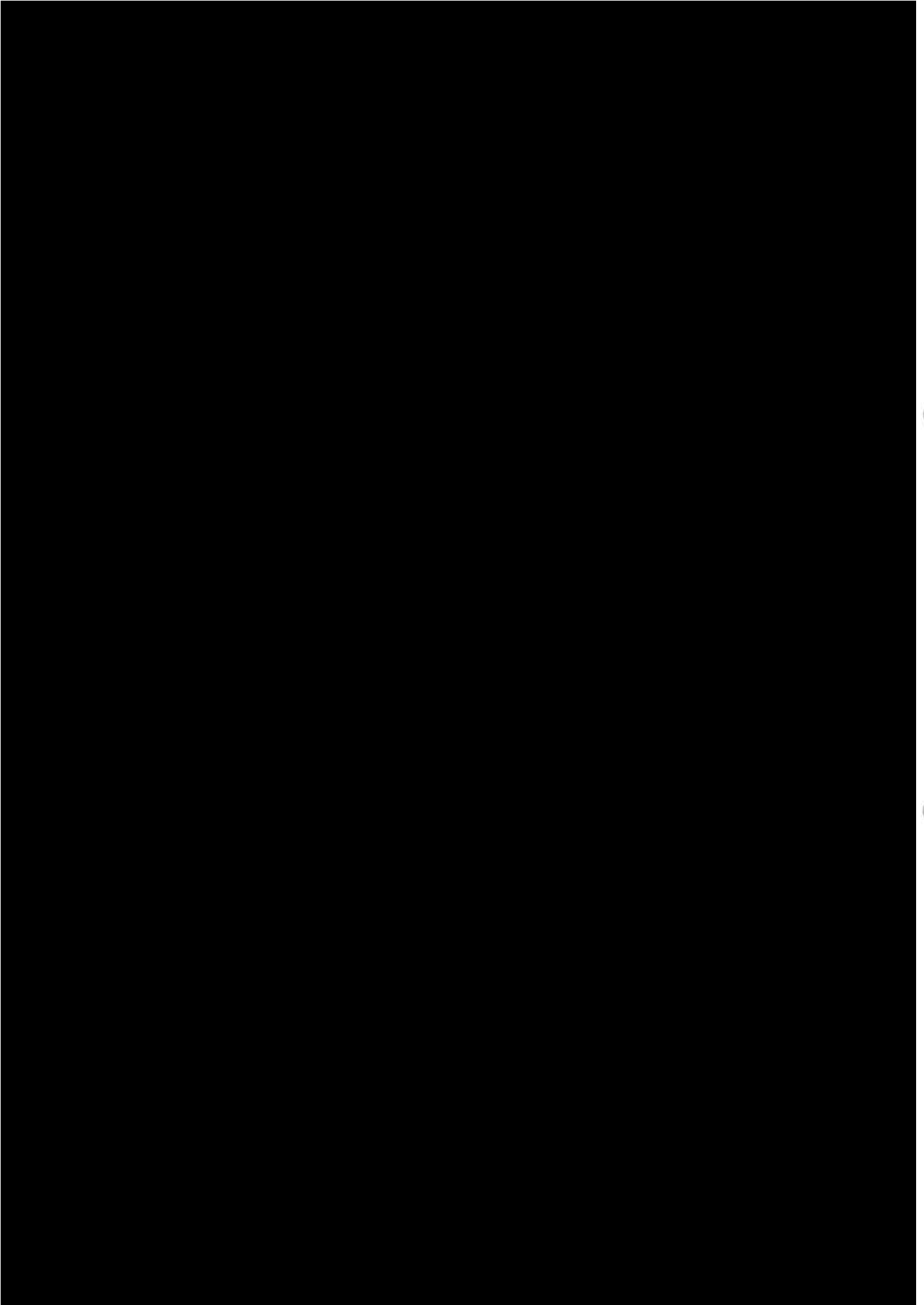


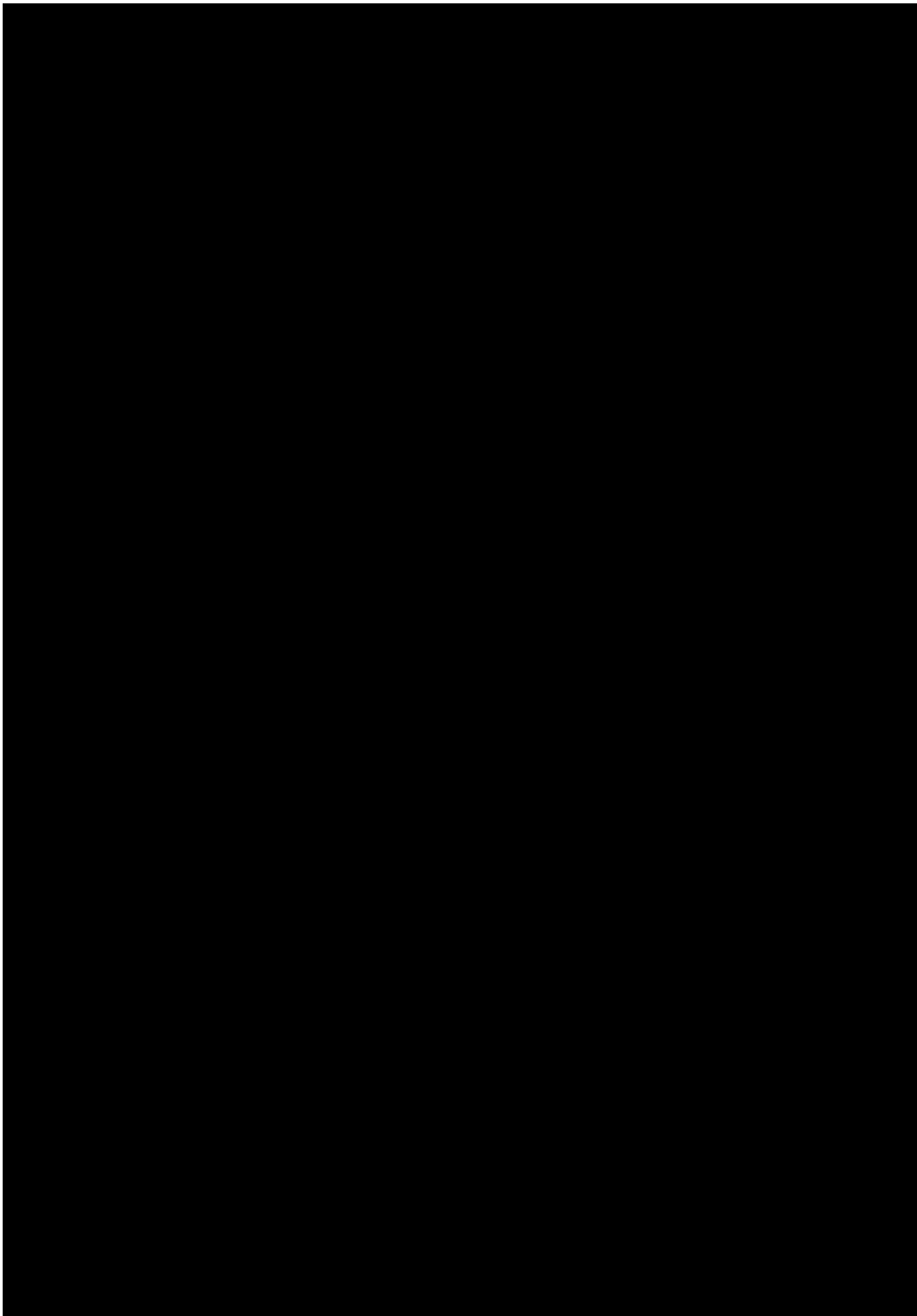


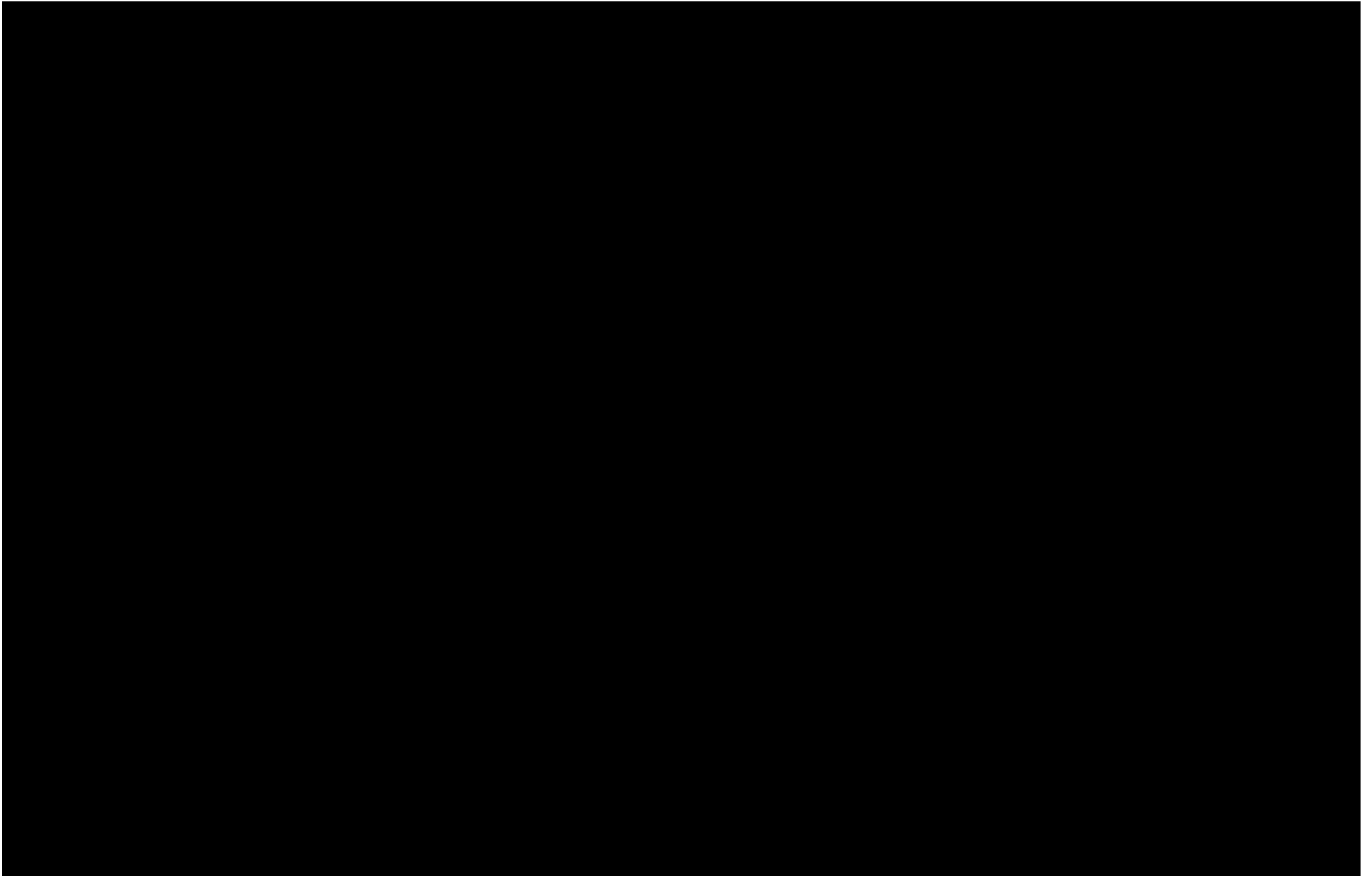


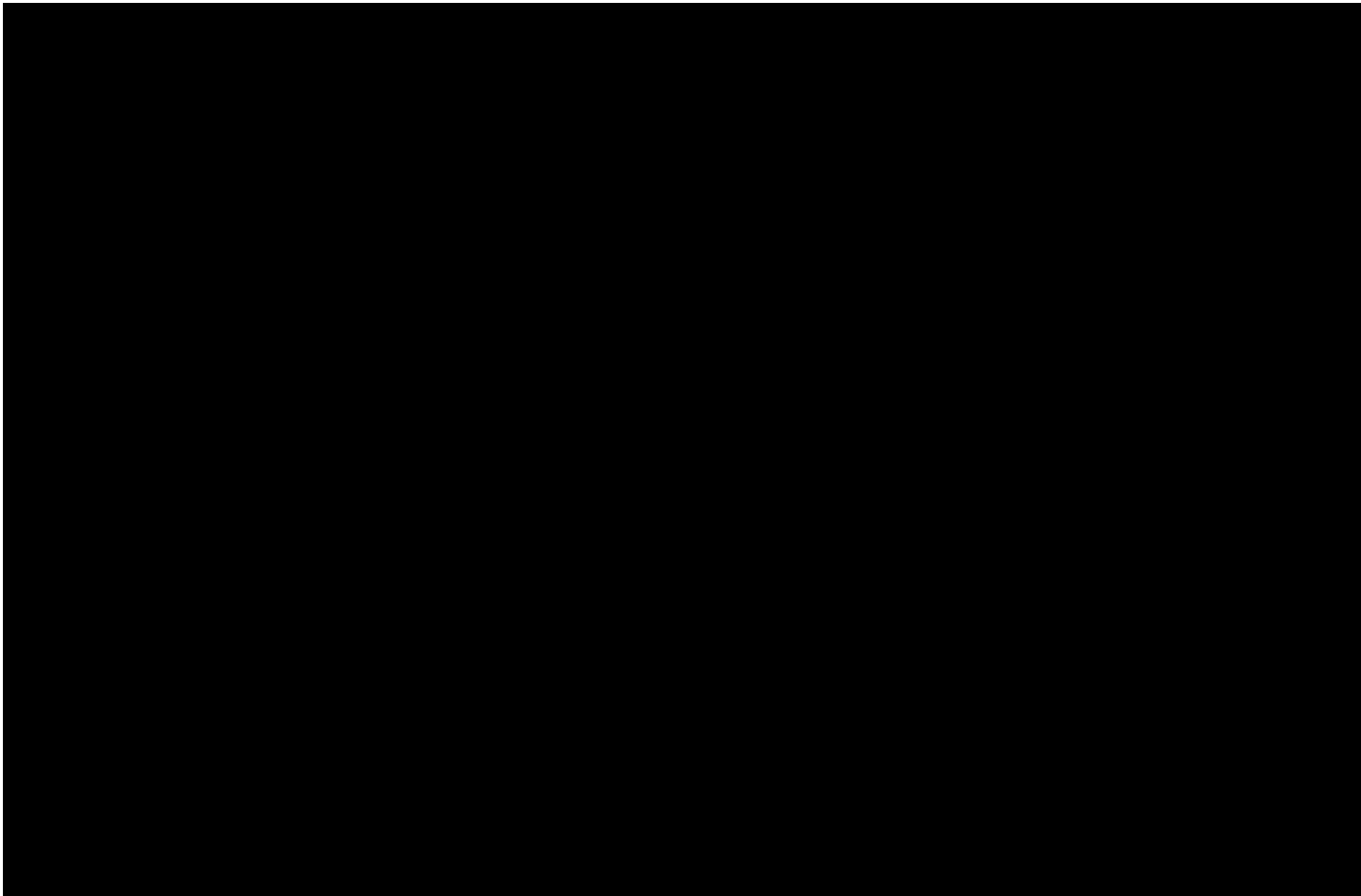


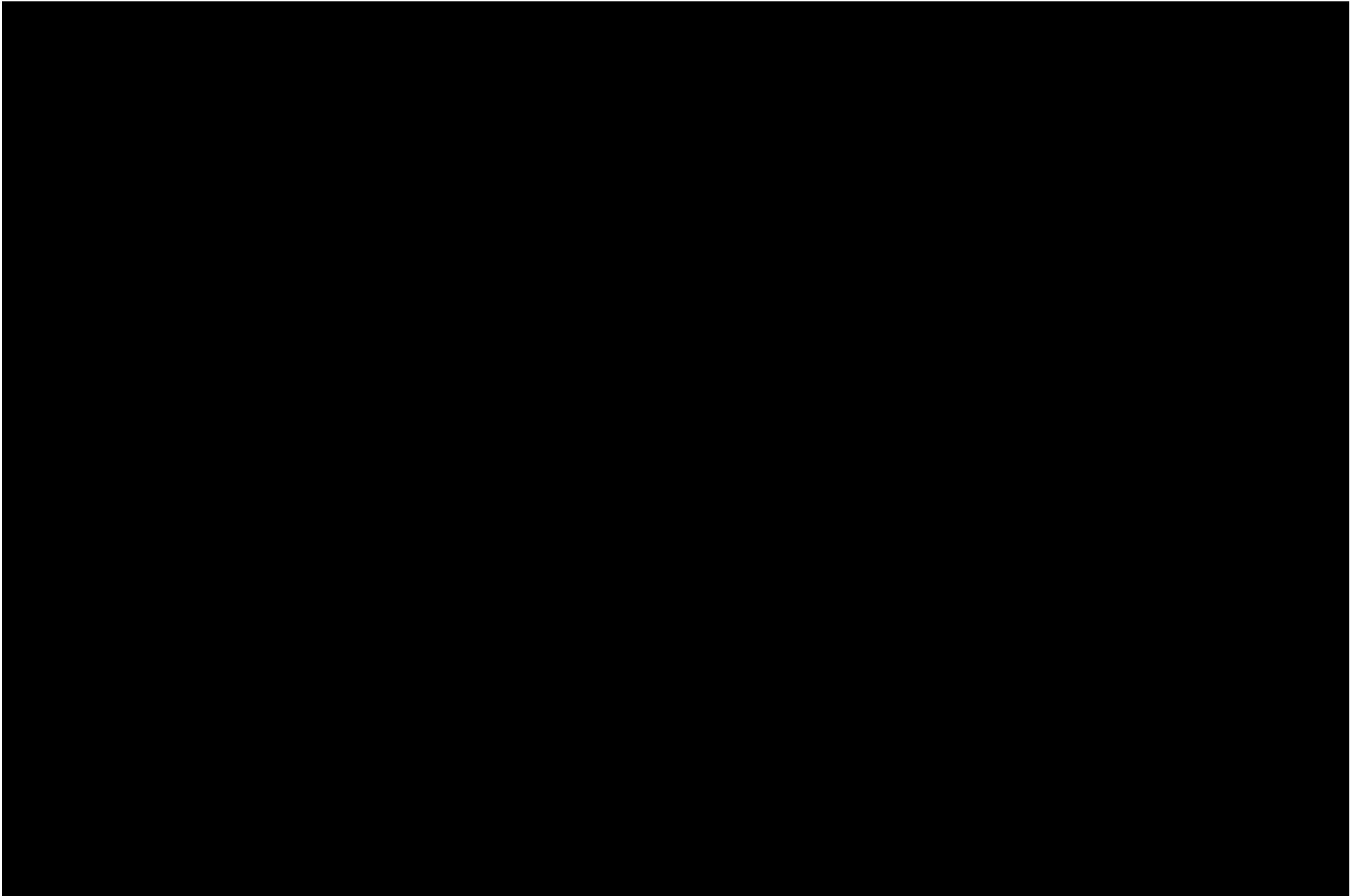




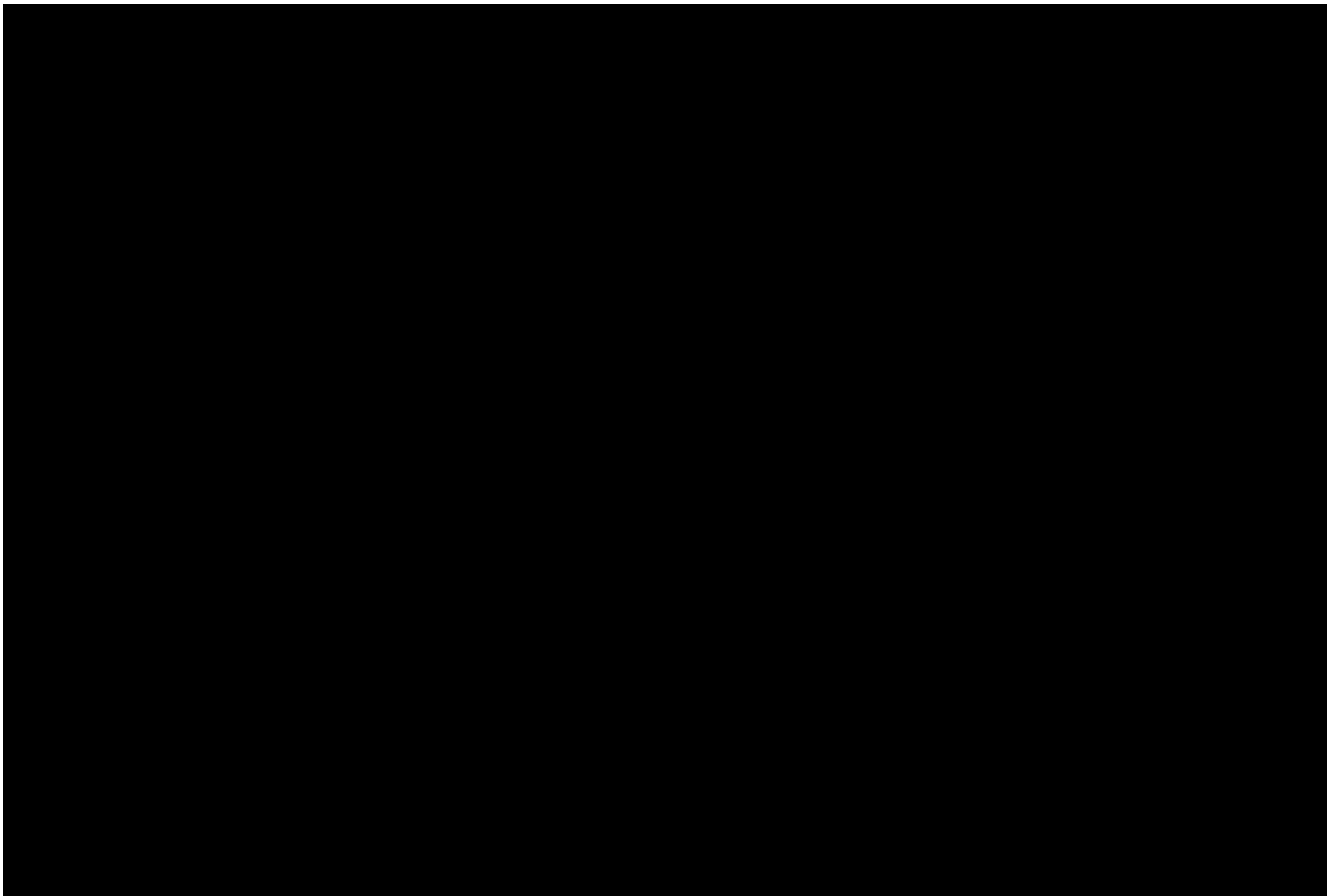


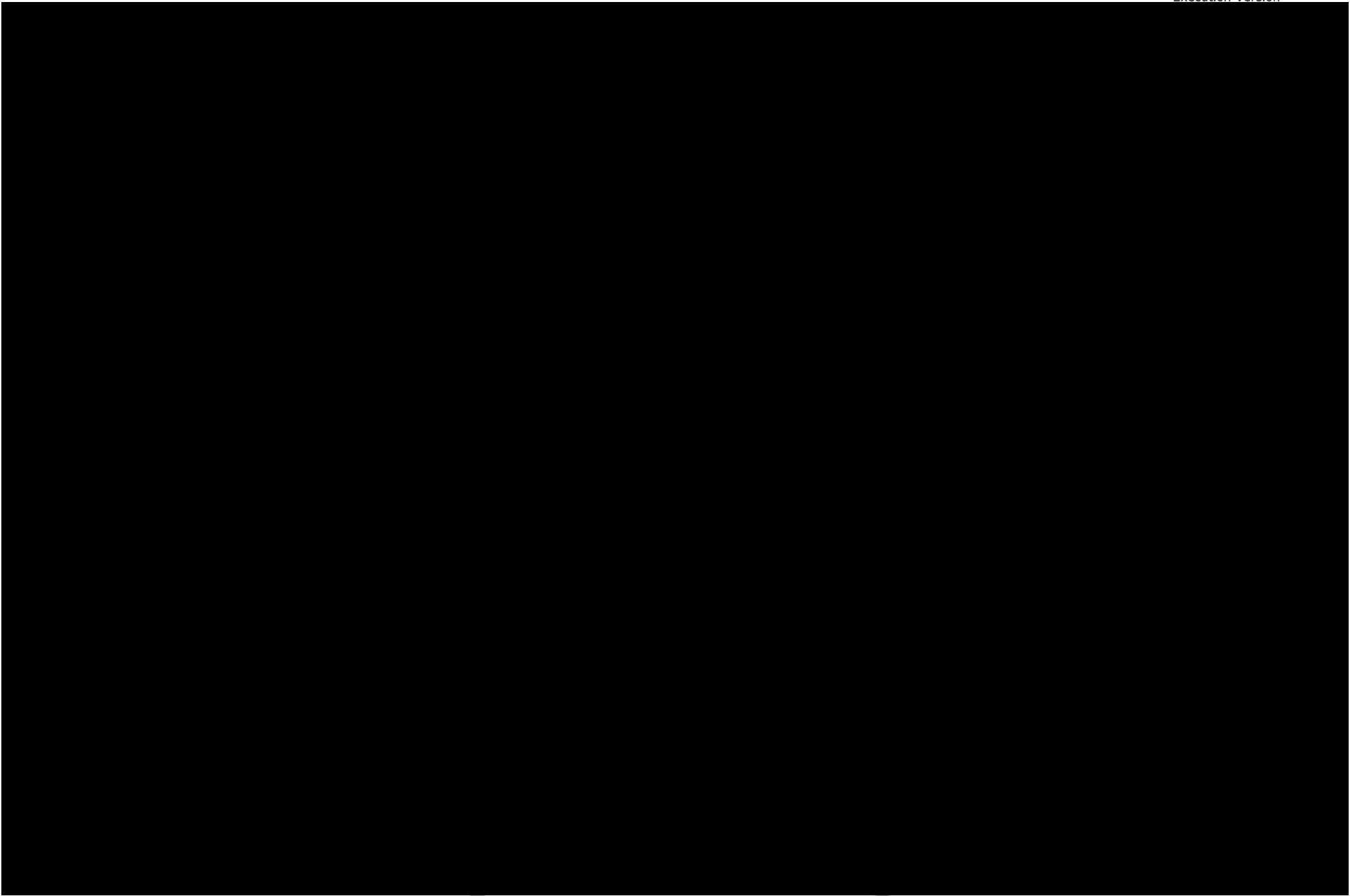


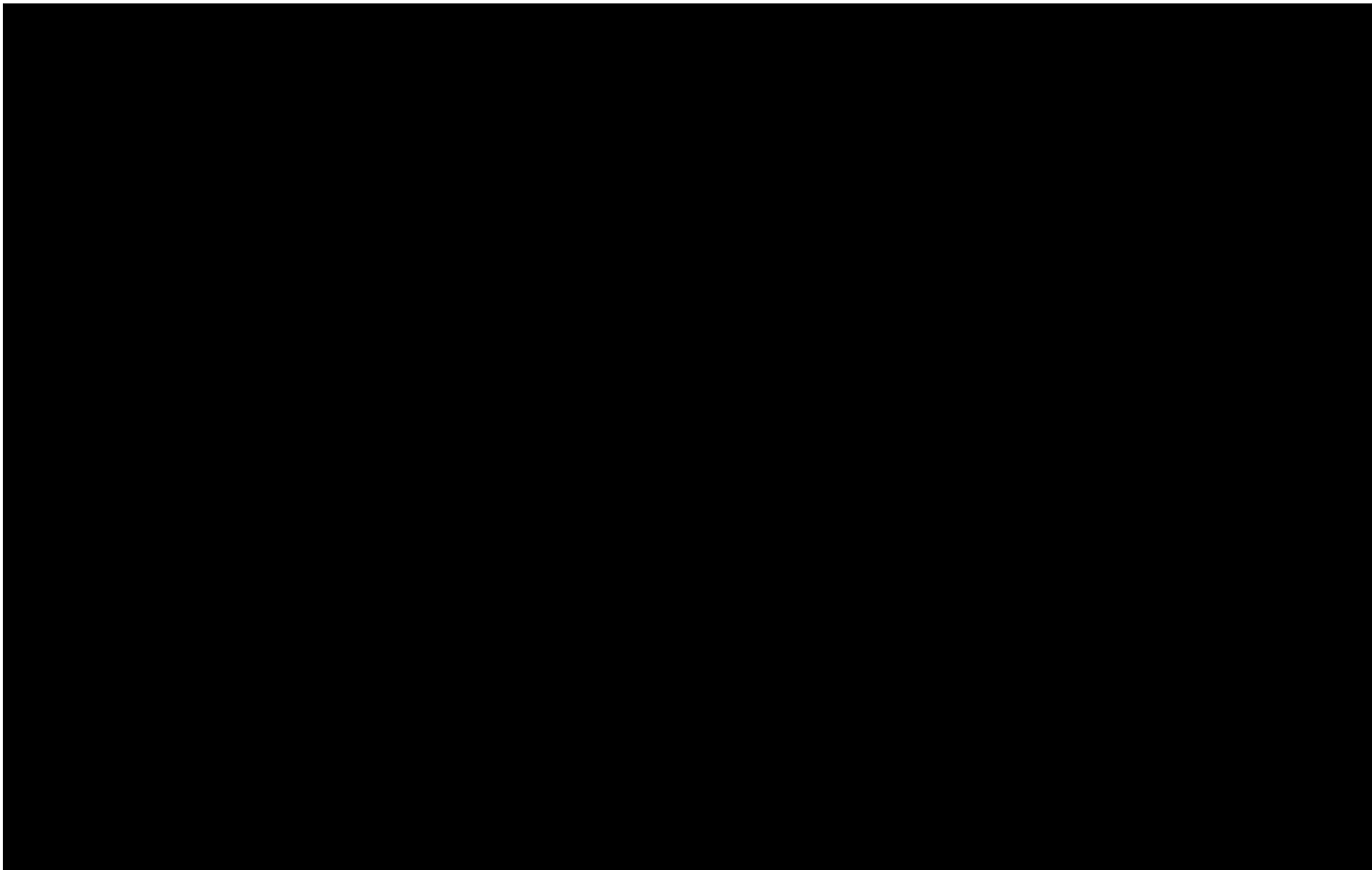


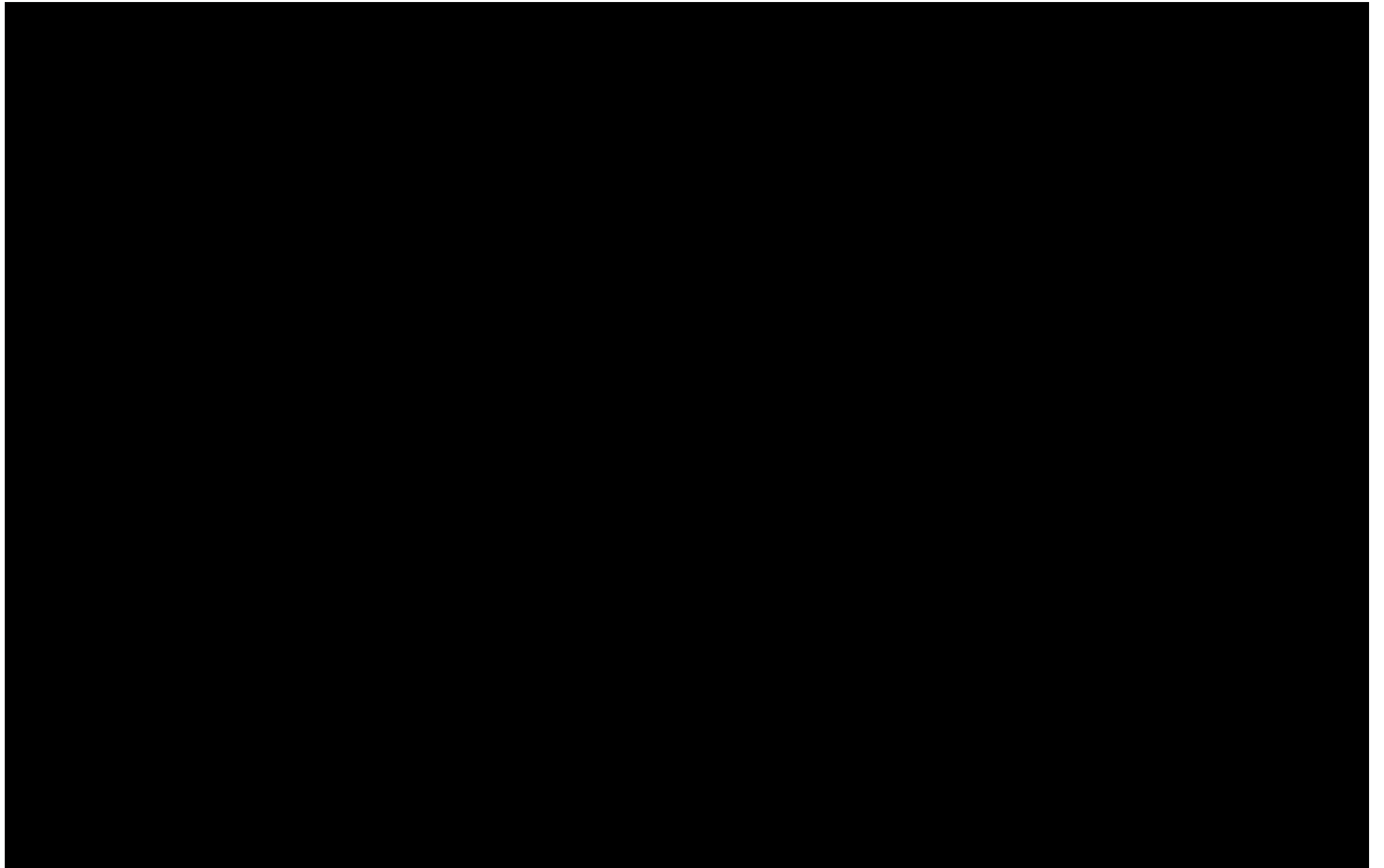


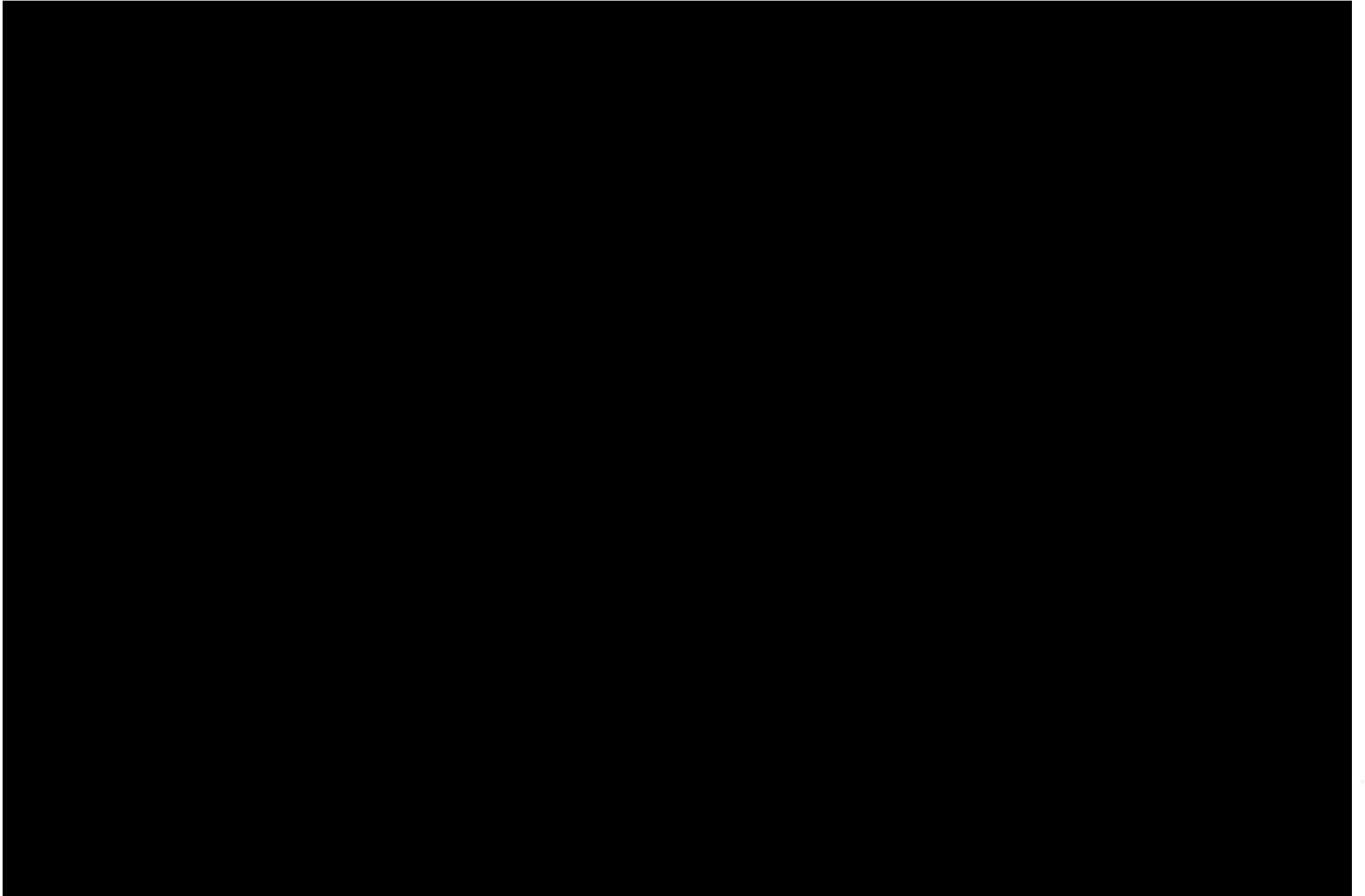


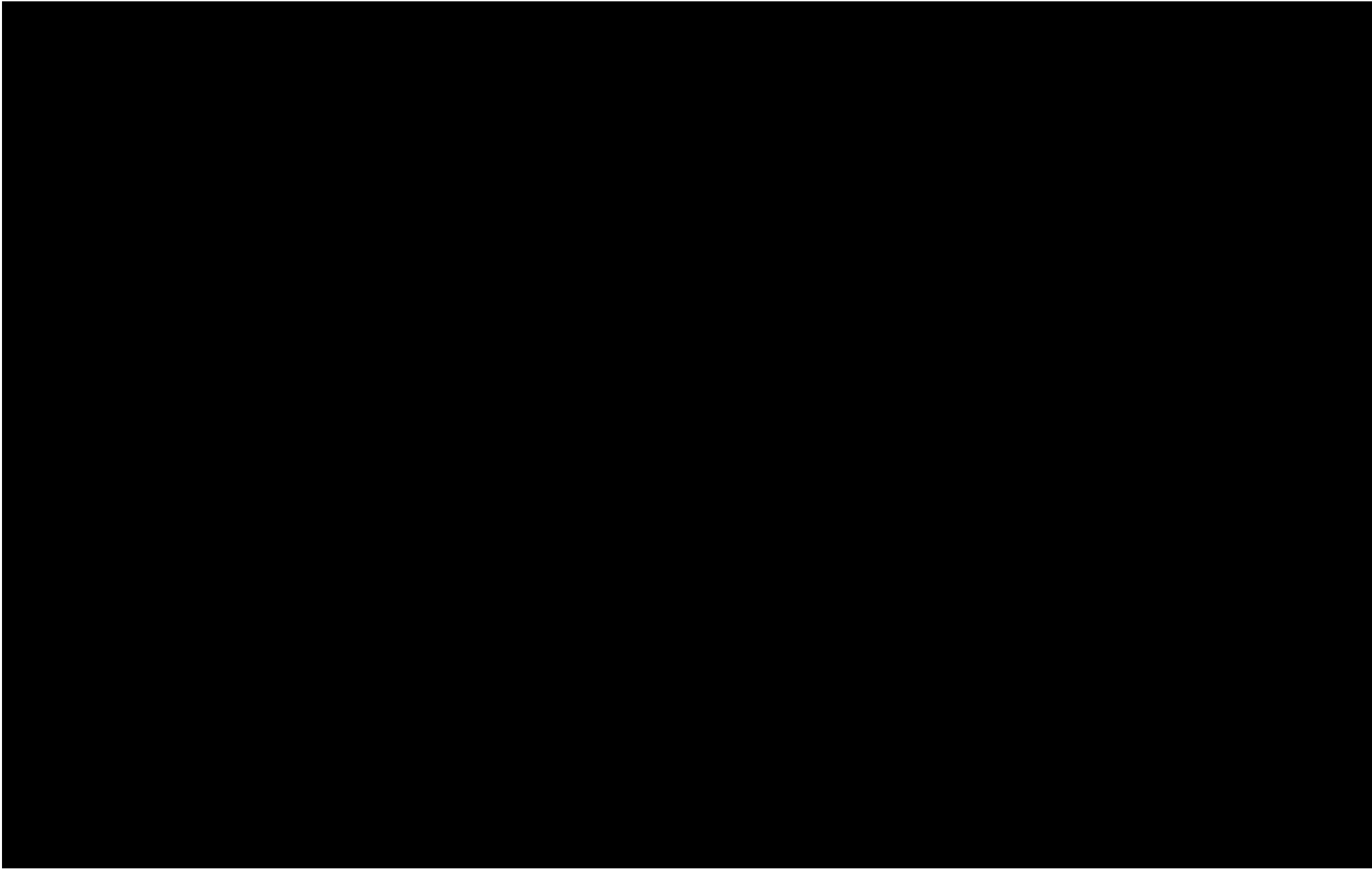


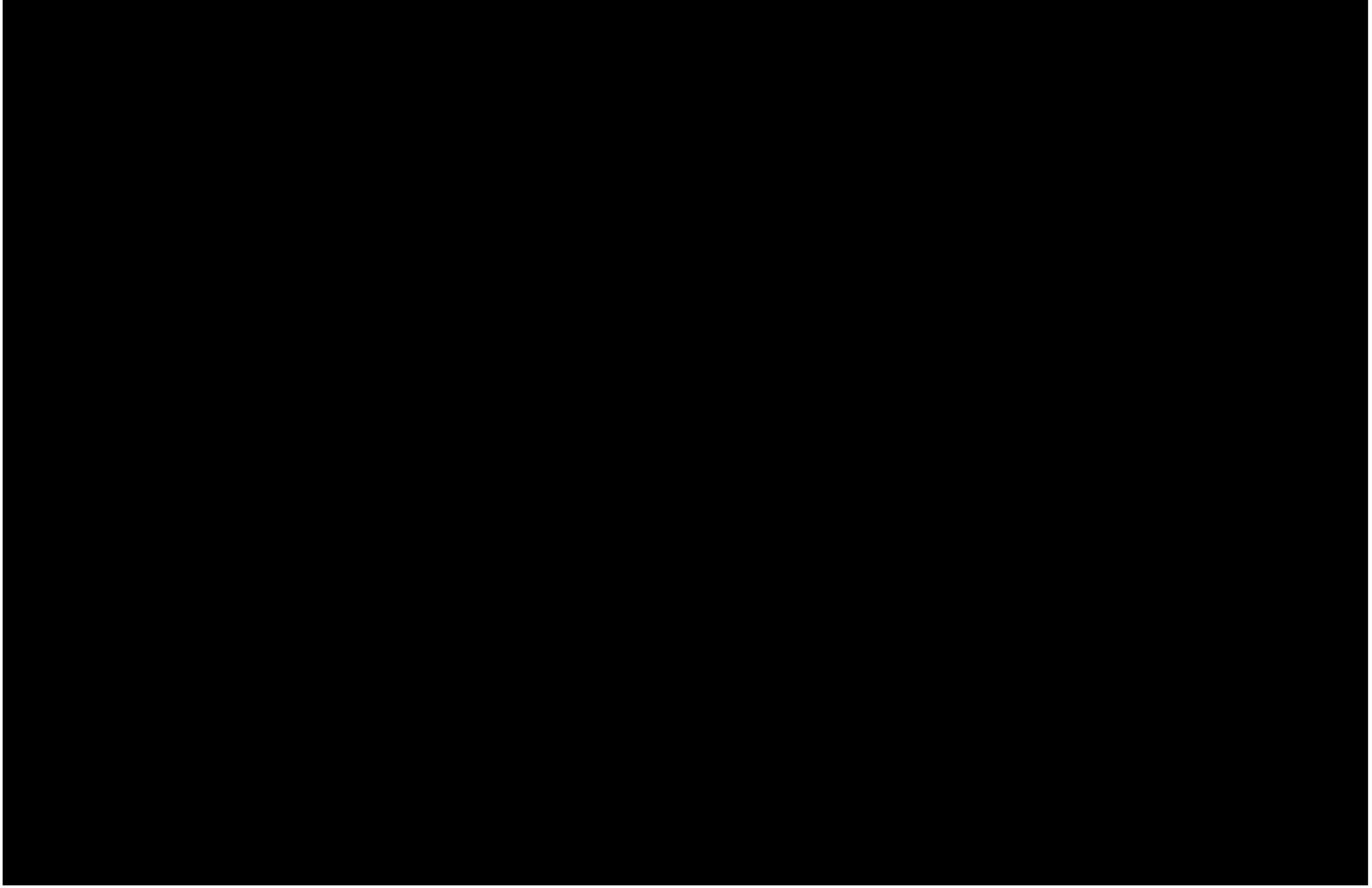


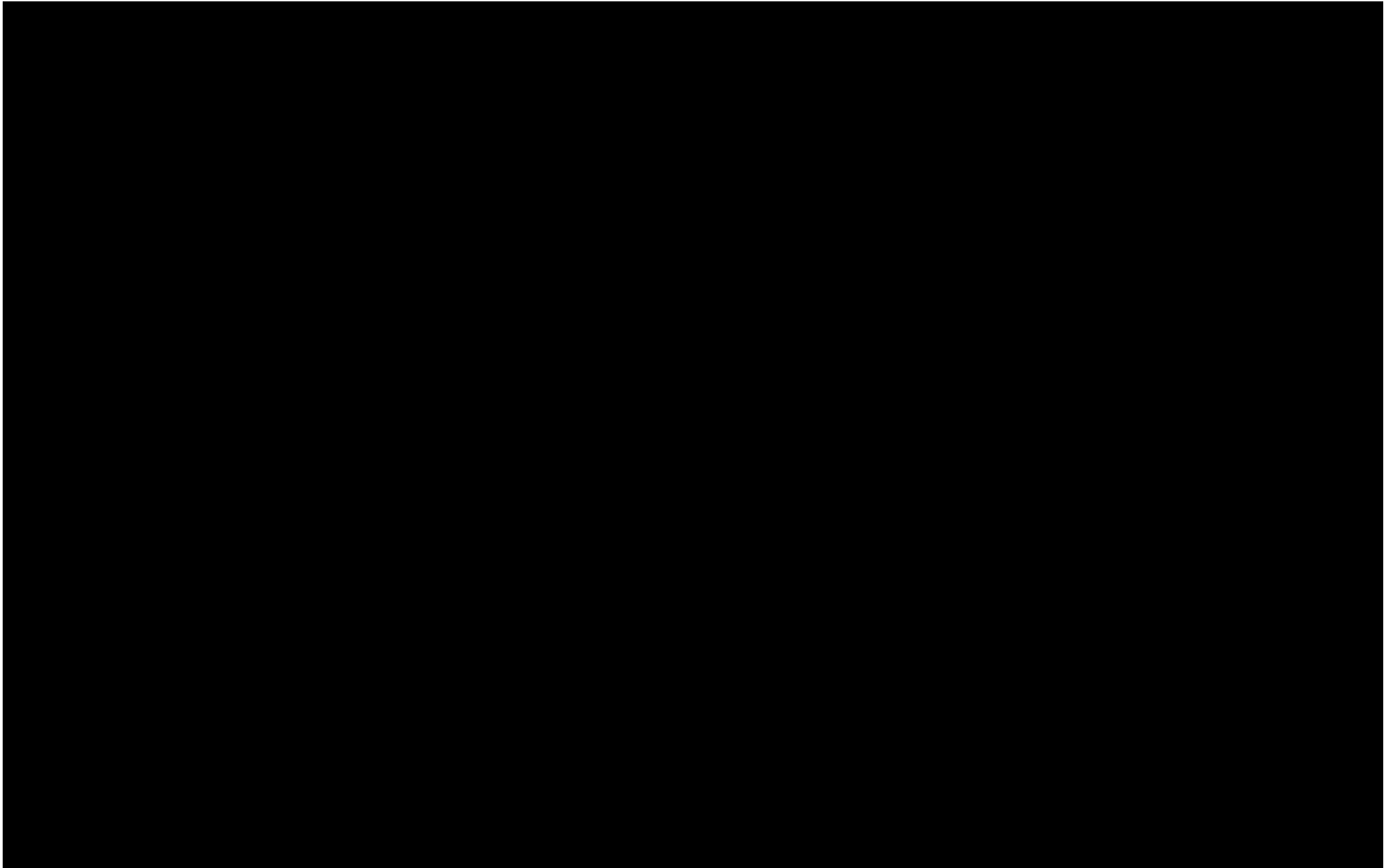




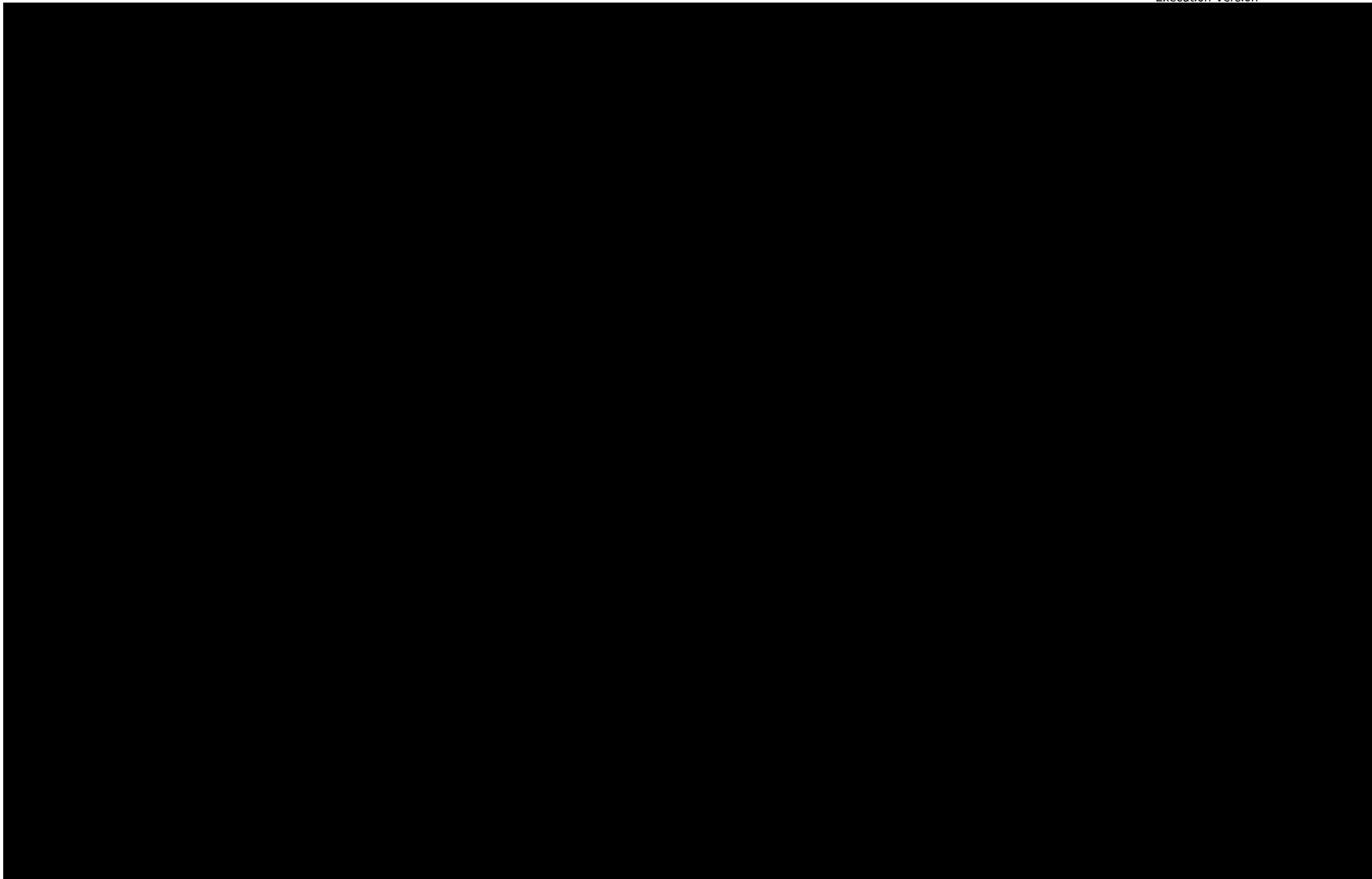


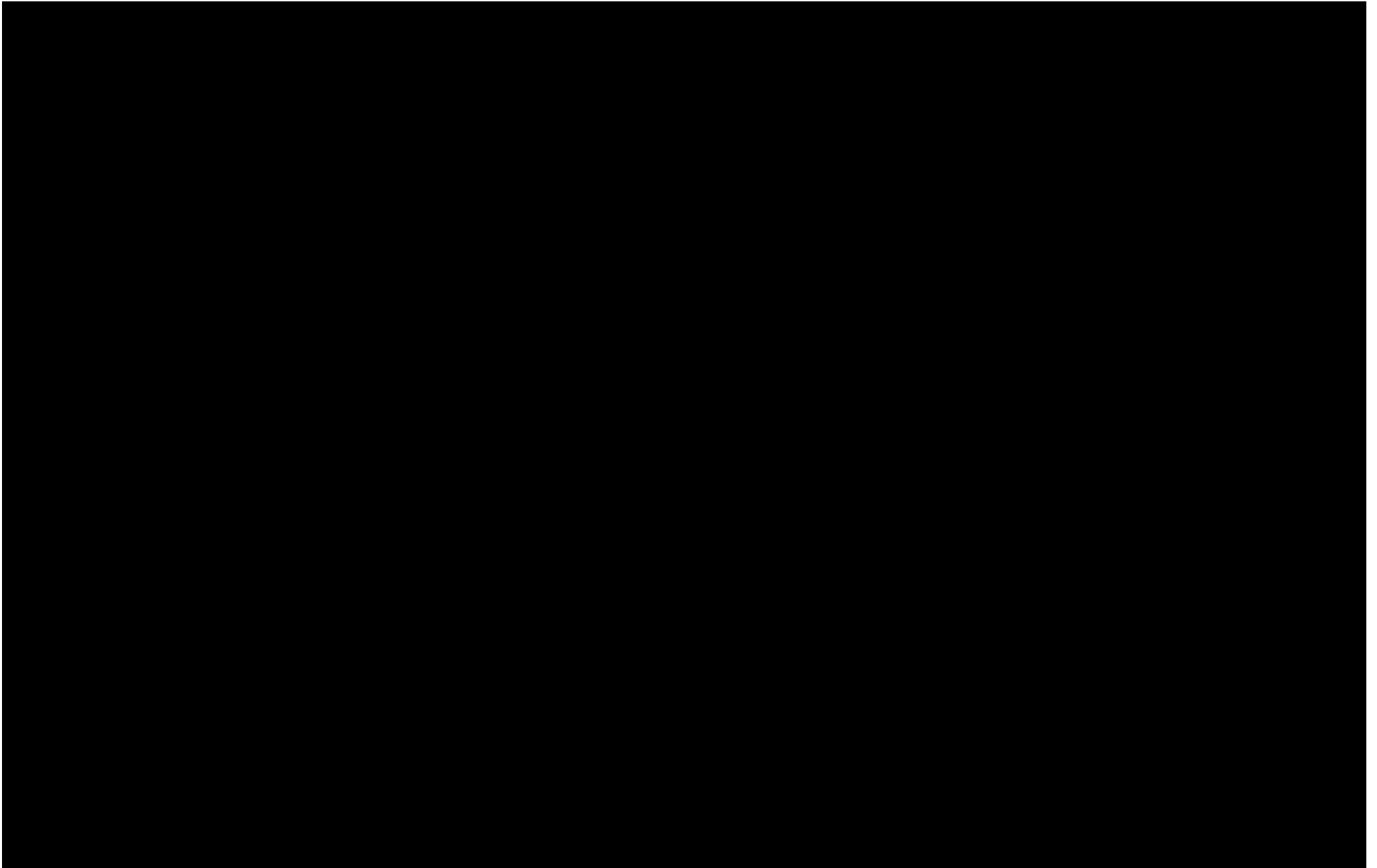


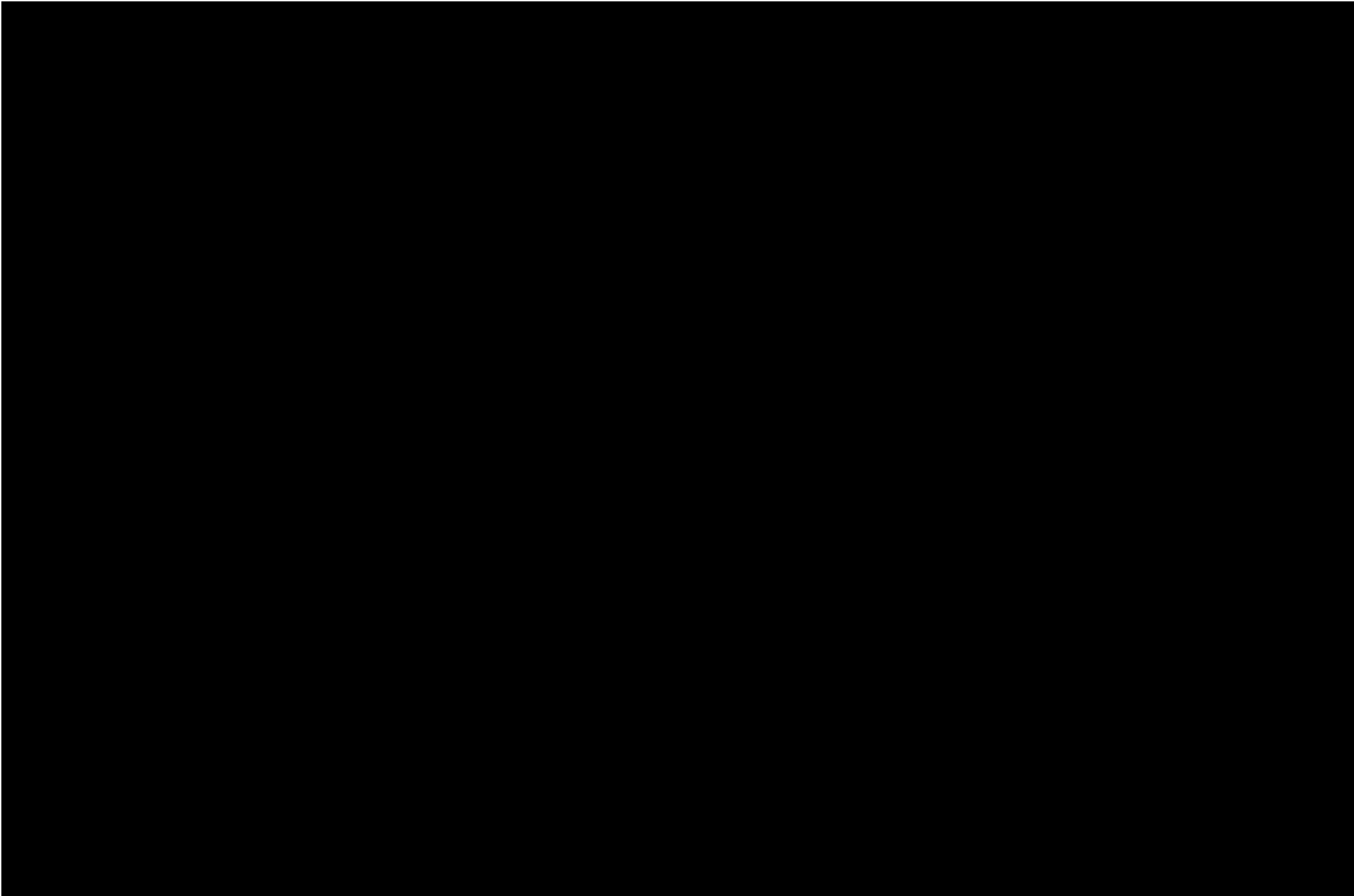


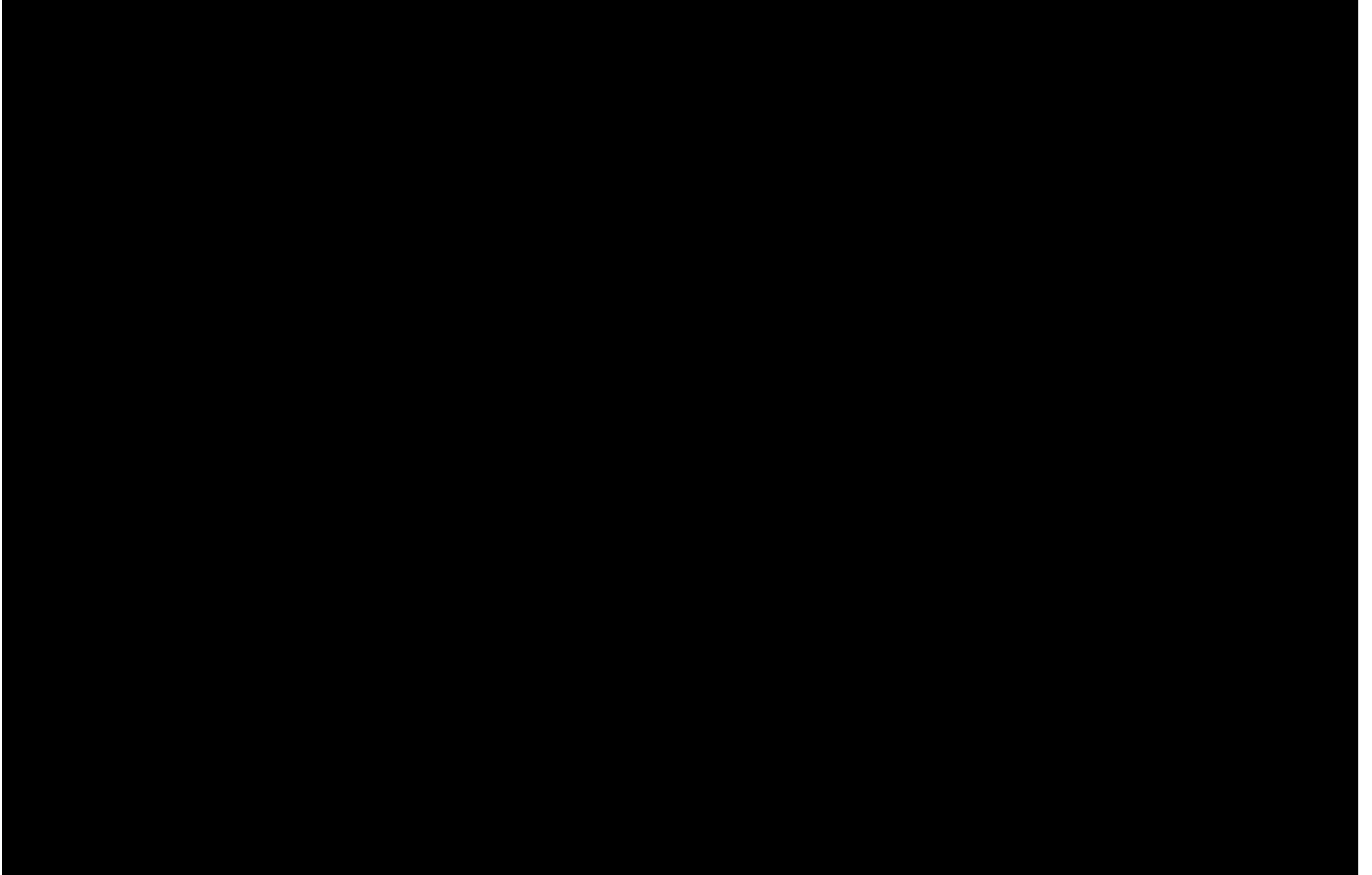


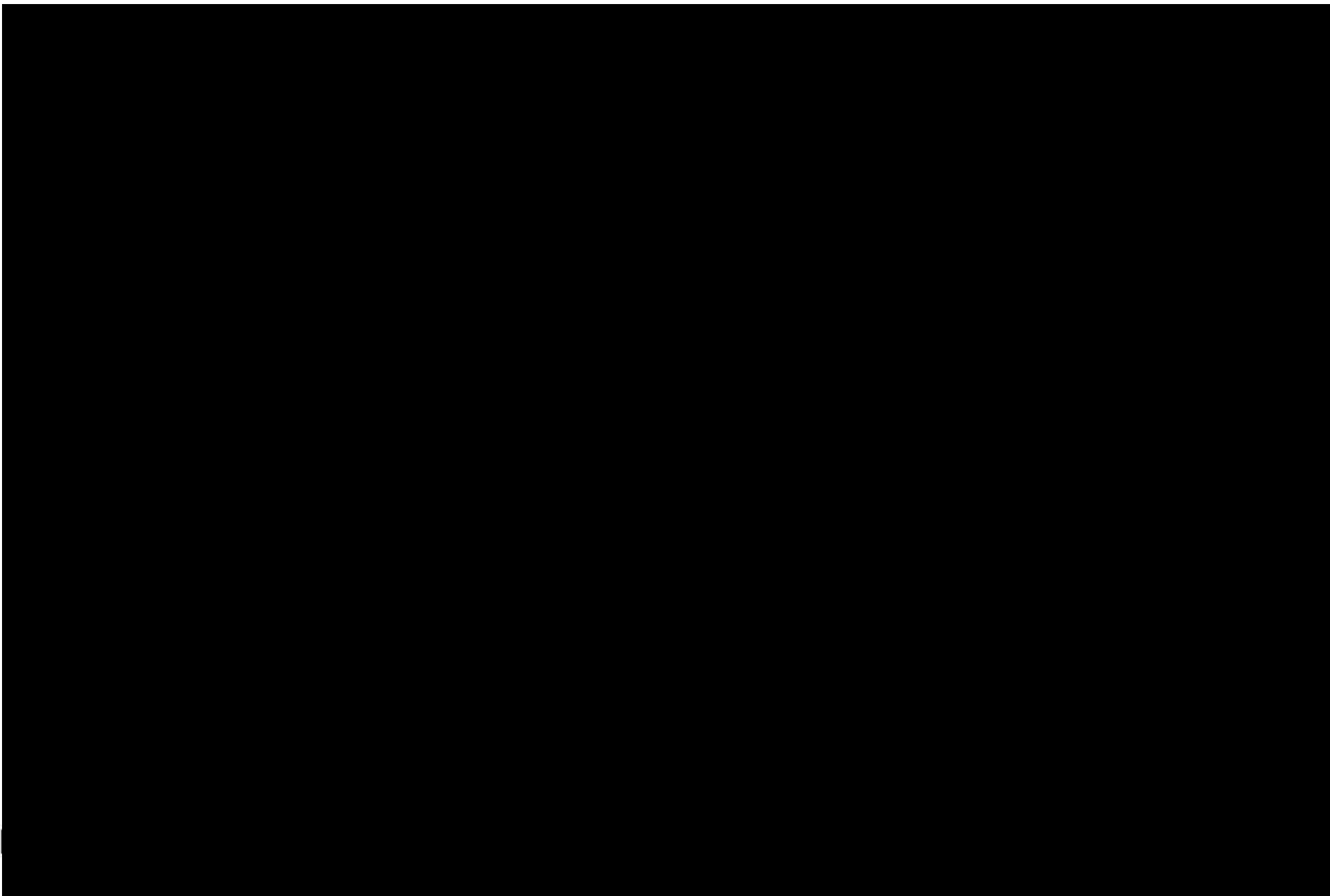












**SCHEDULE 38**

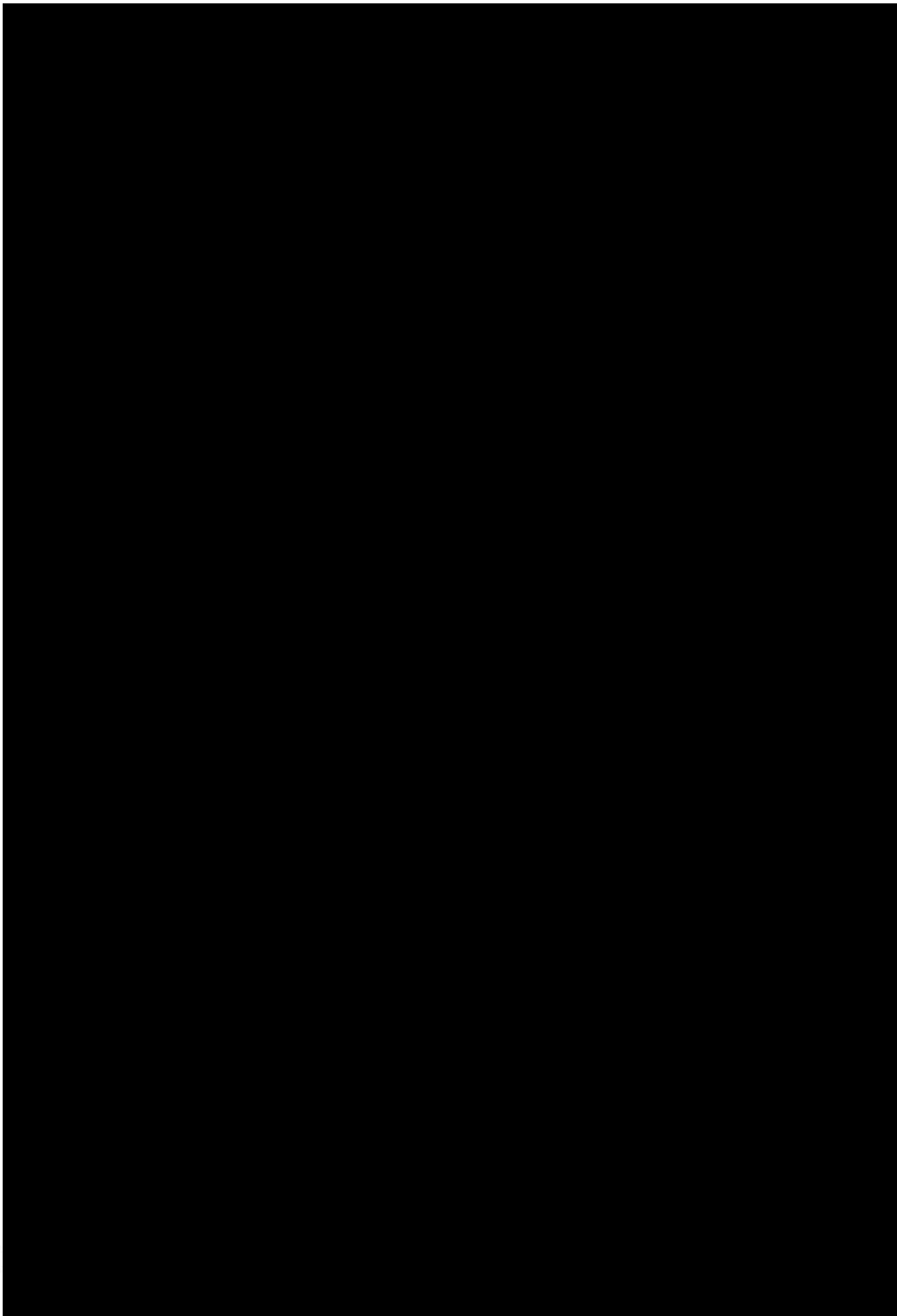
**Amendments to Schedule F6**

Schedule F6 is amended as set out in the attached mark-up.

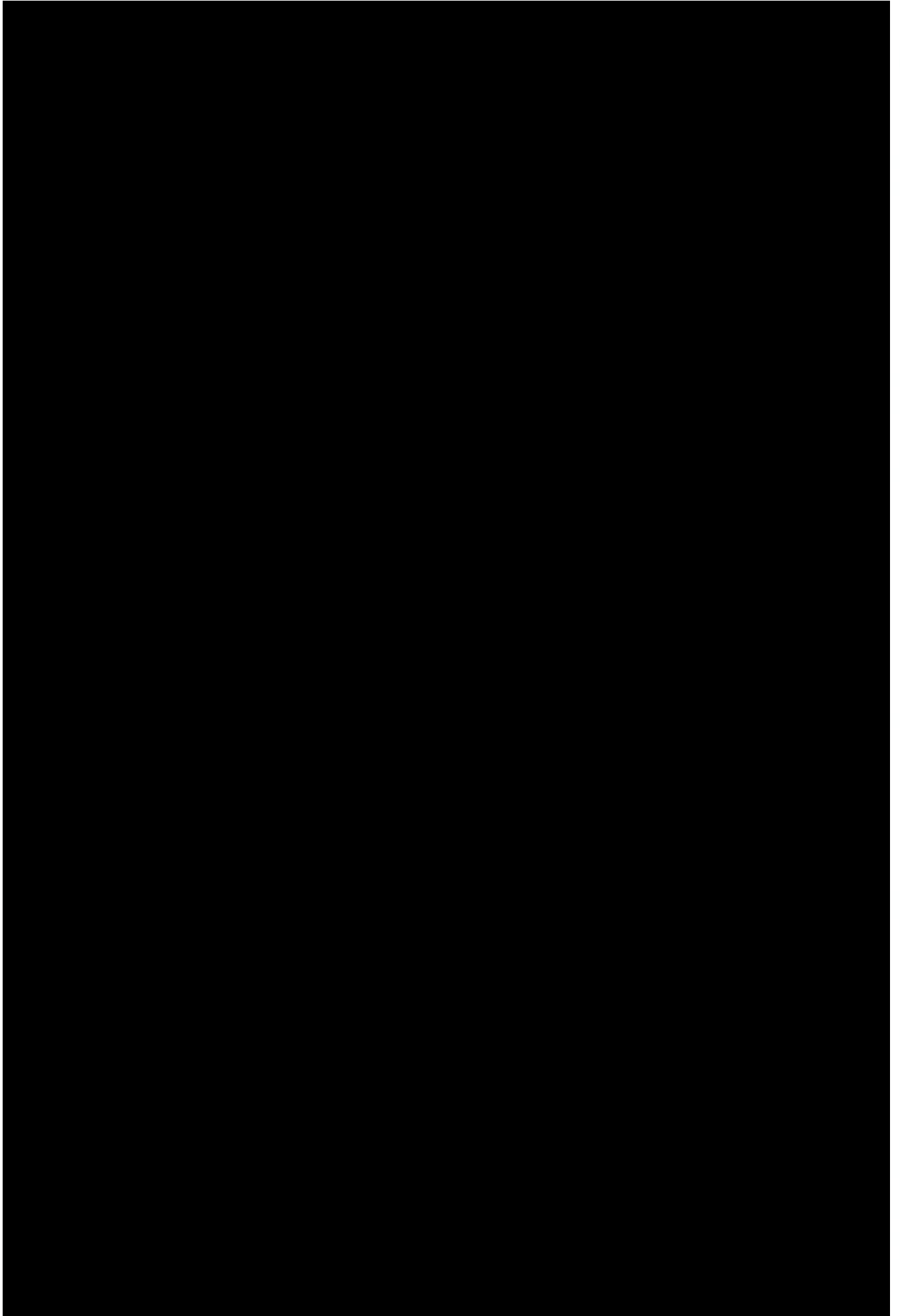


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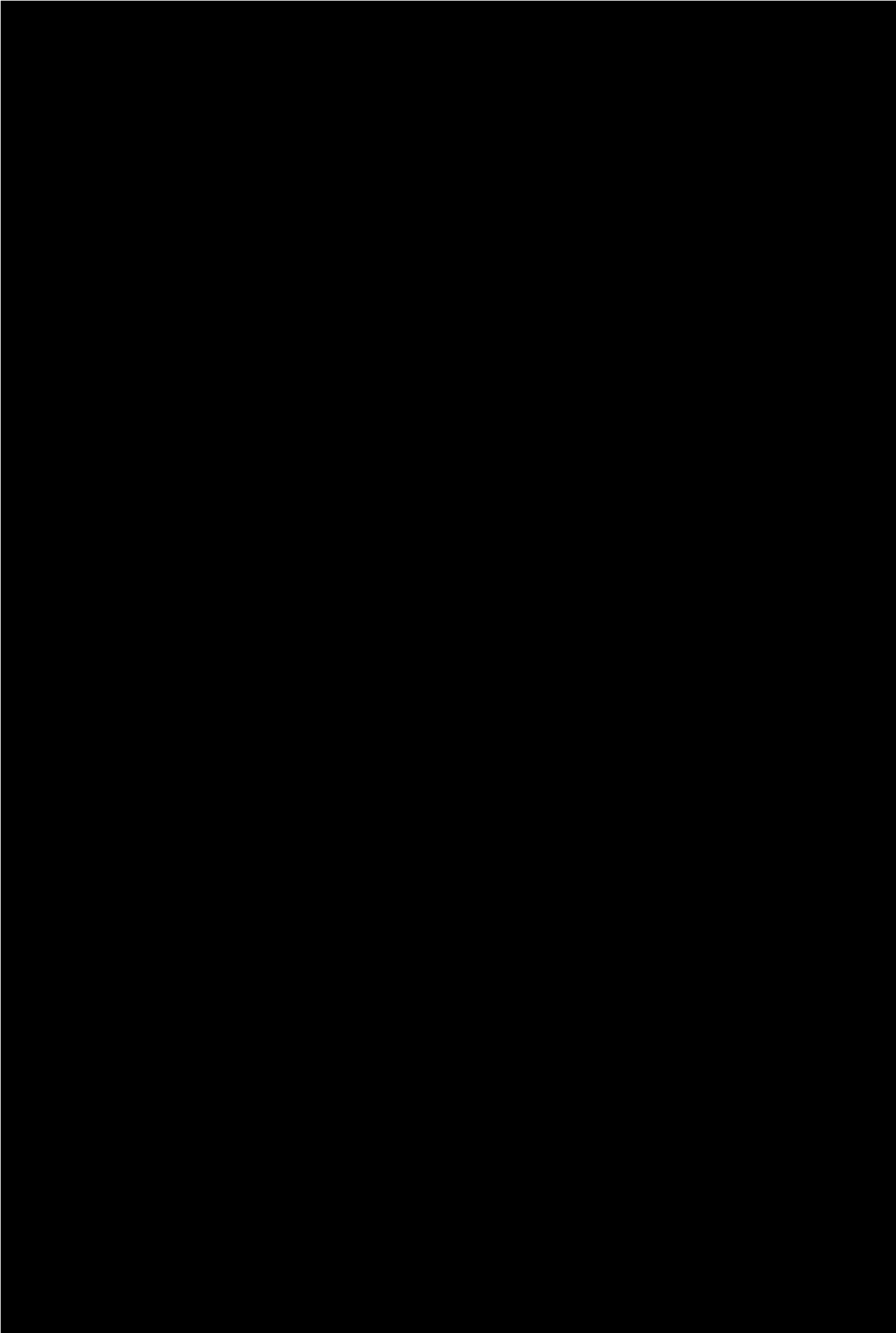


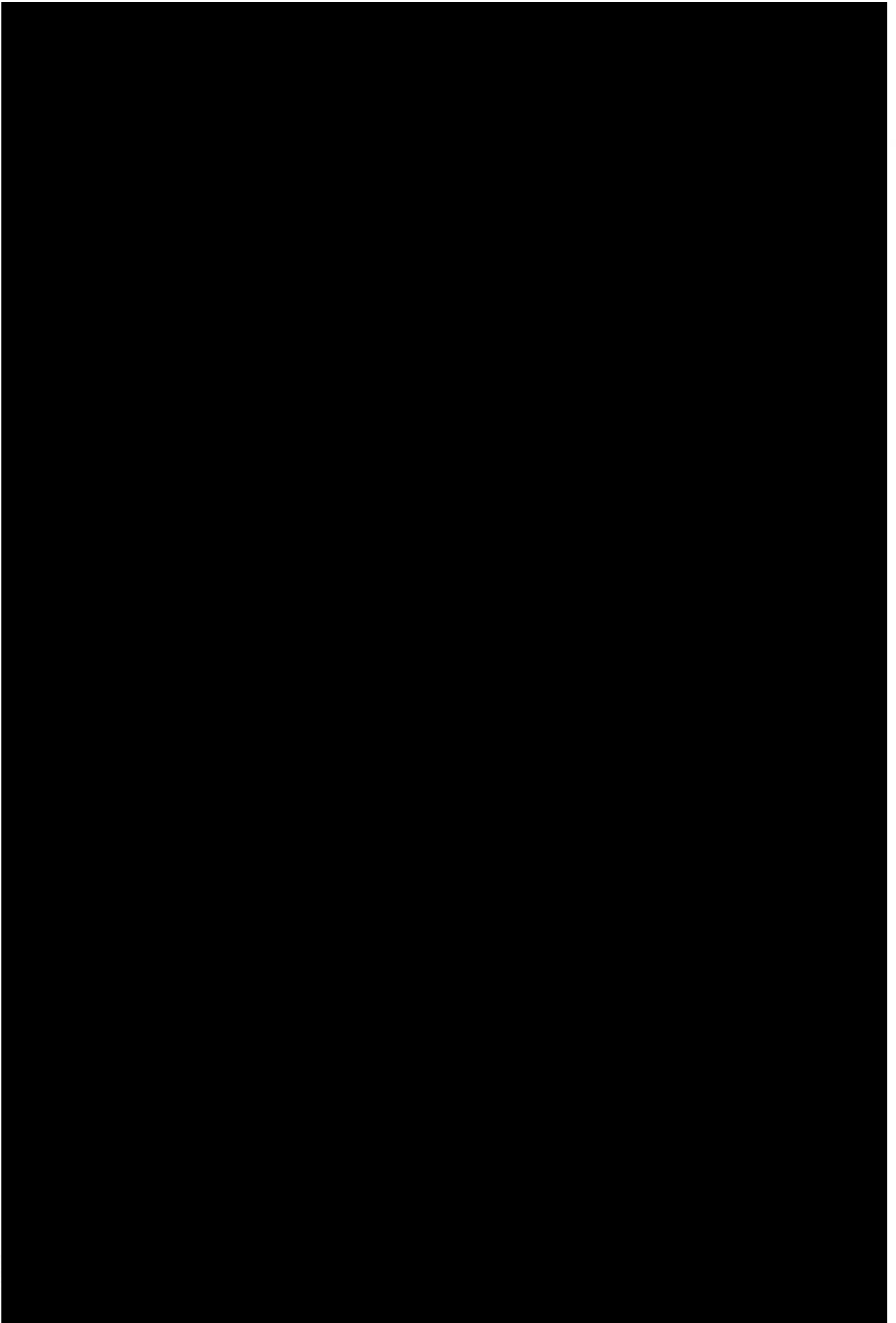


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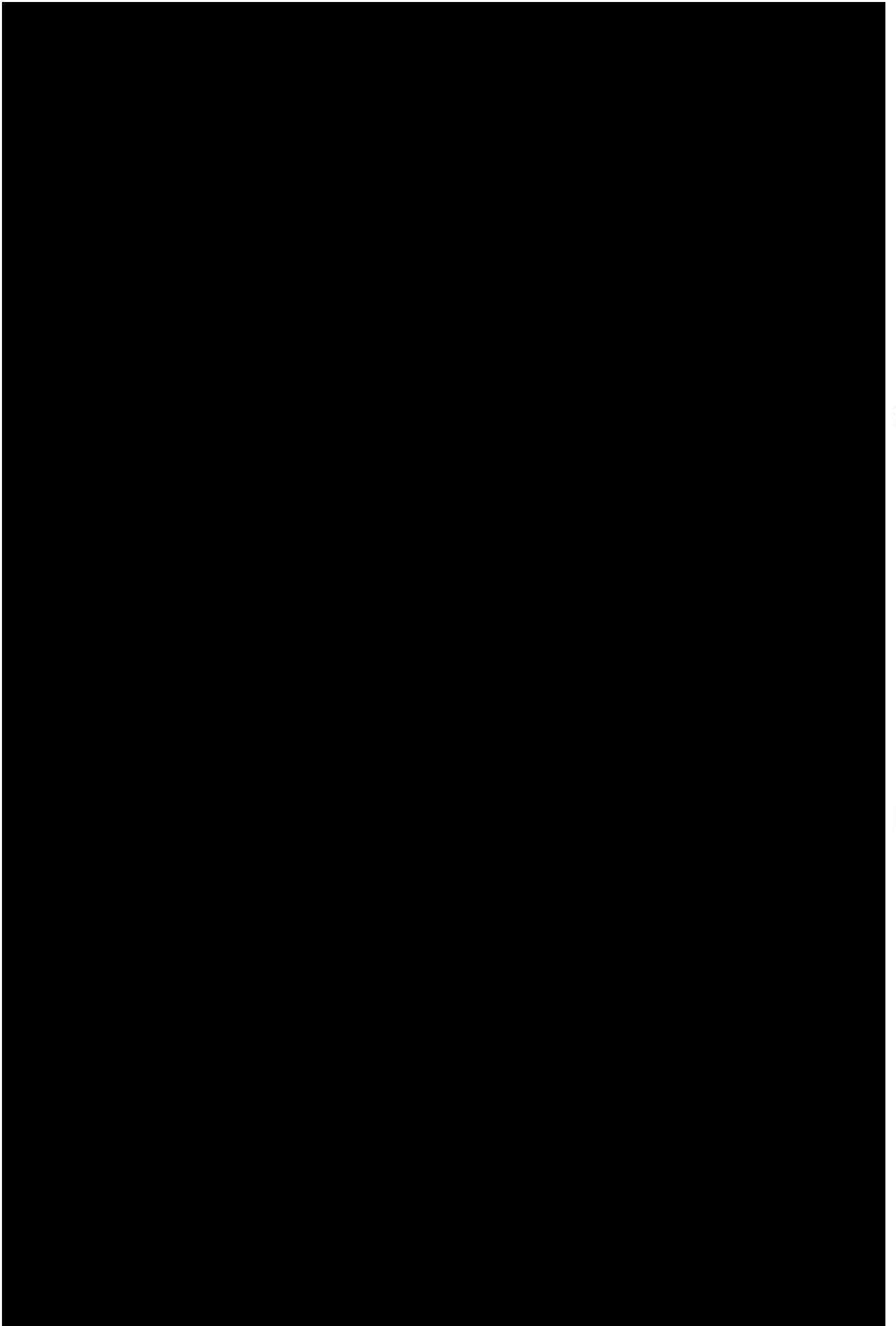


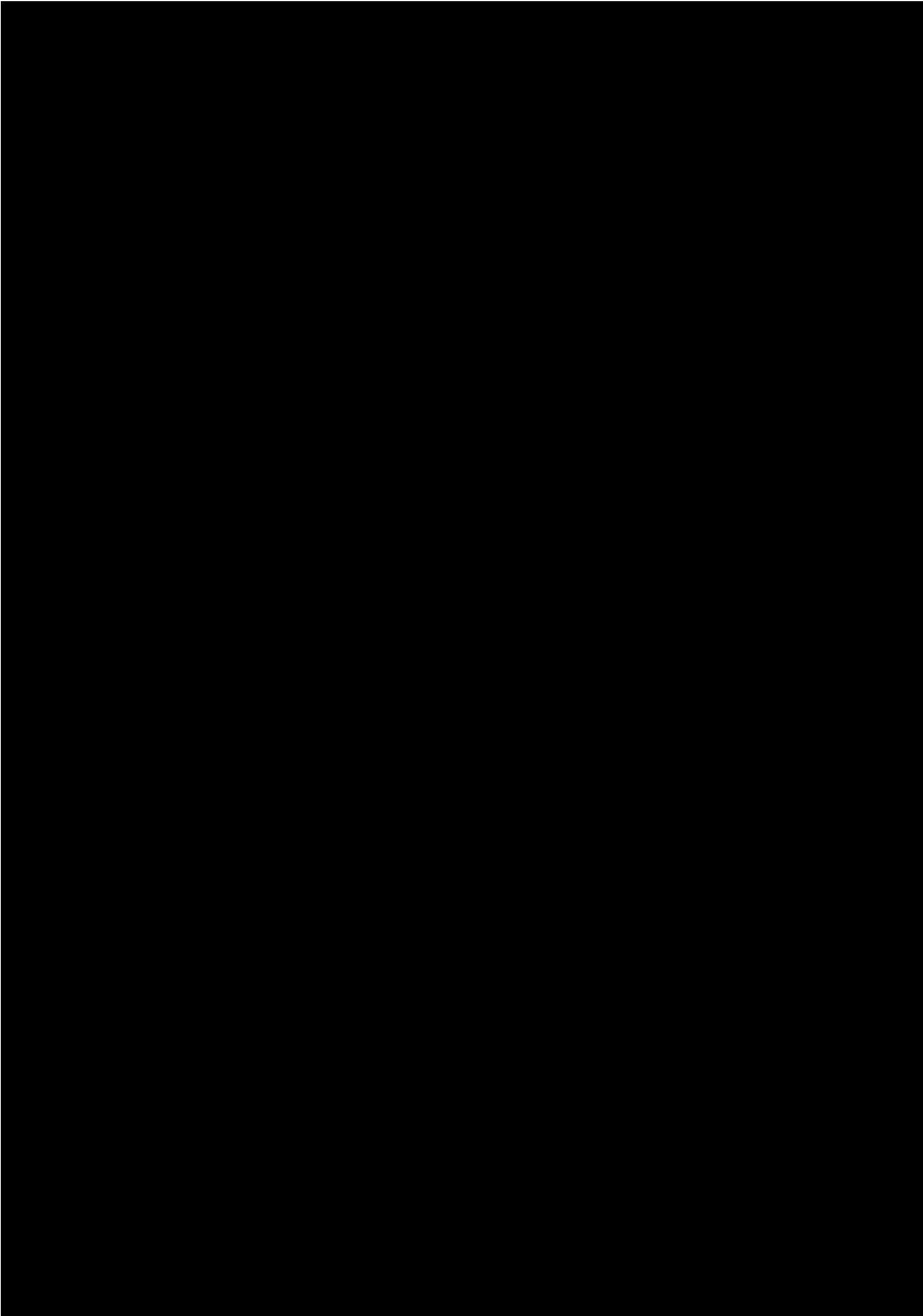


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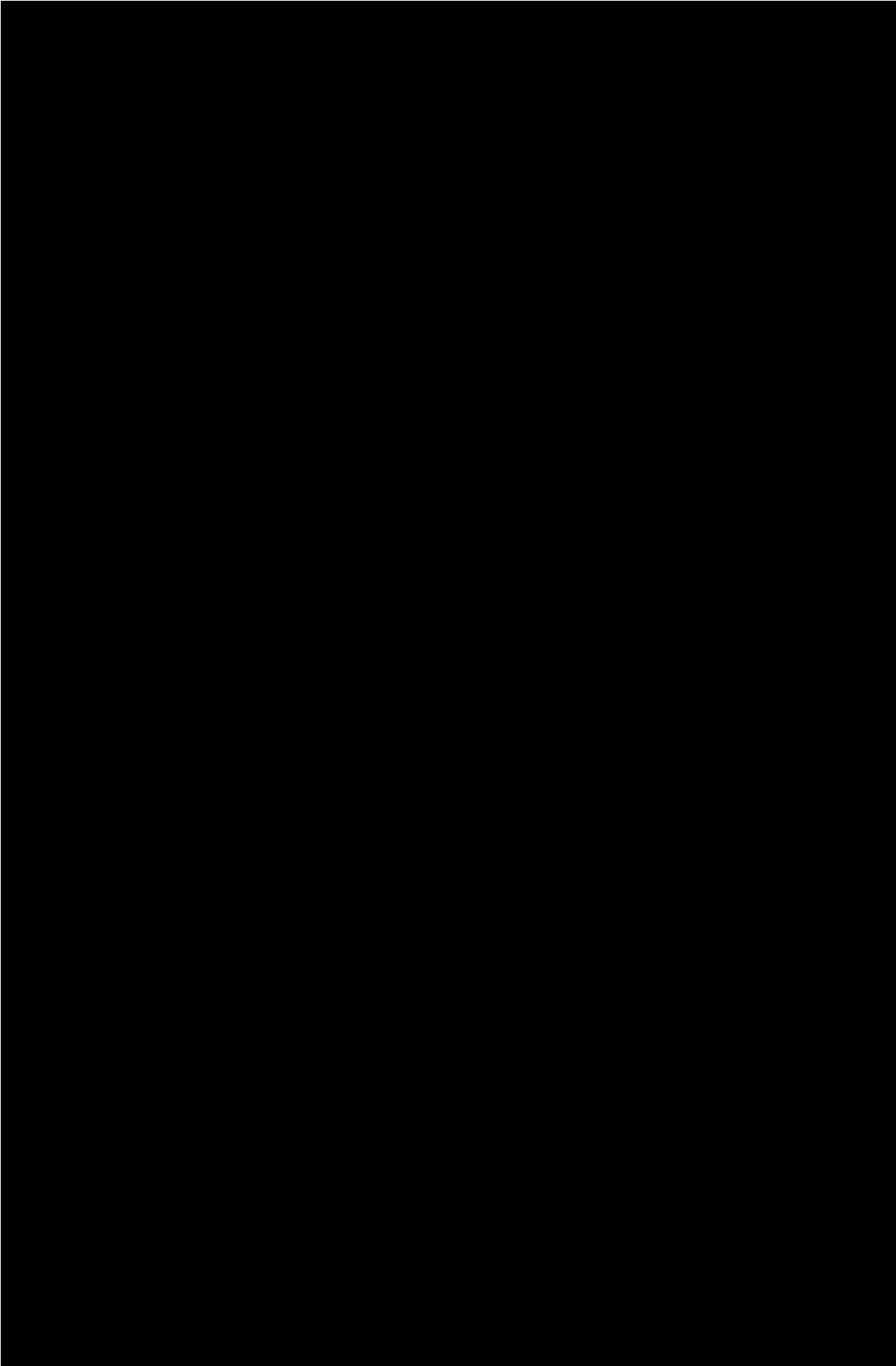
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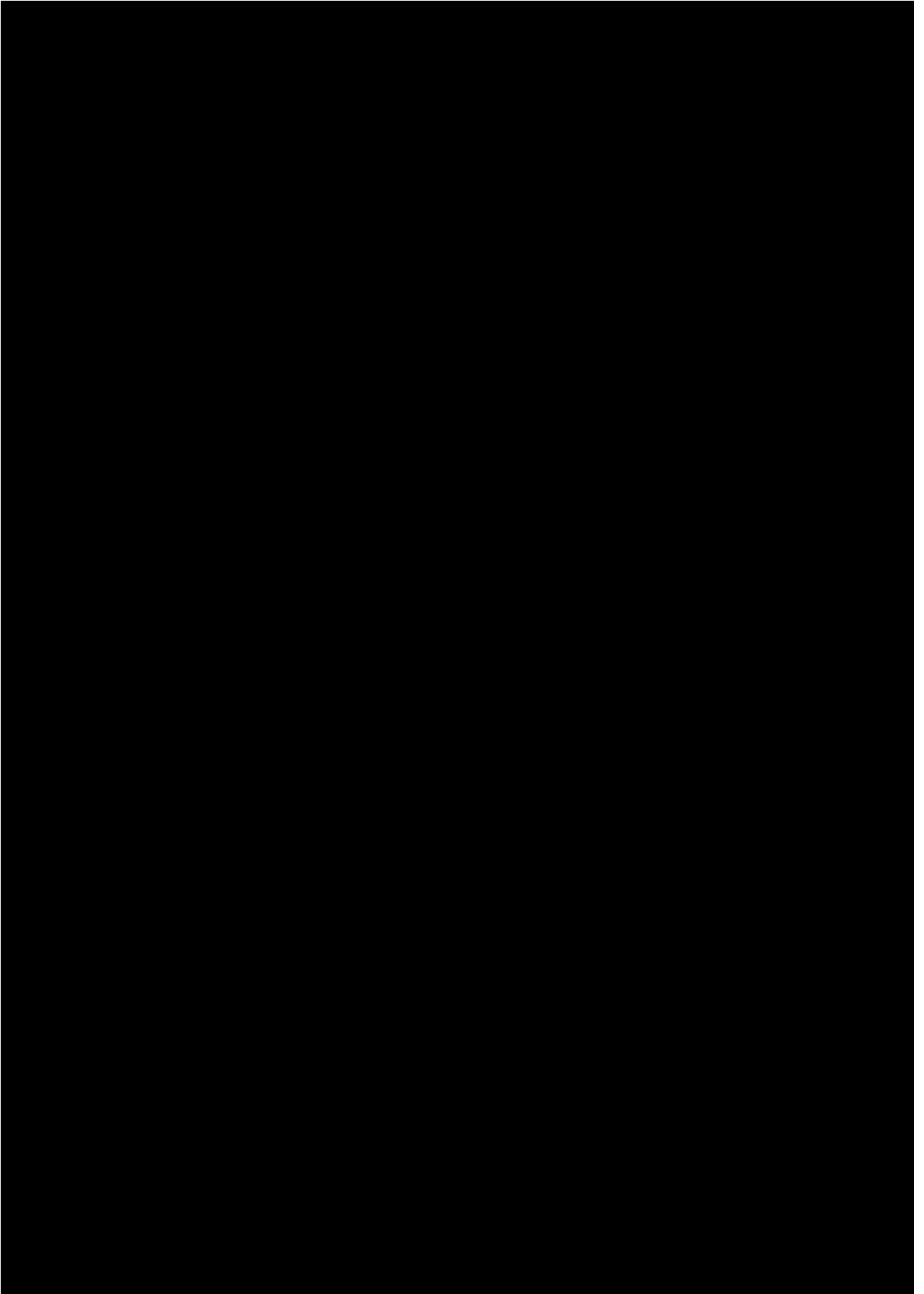




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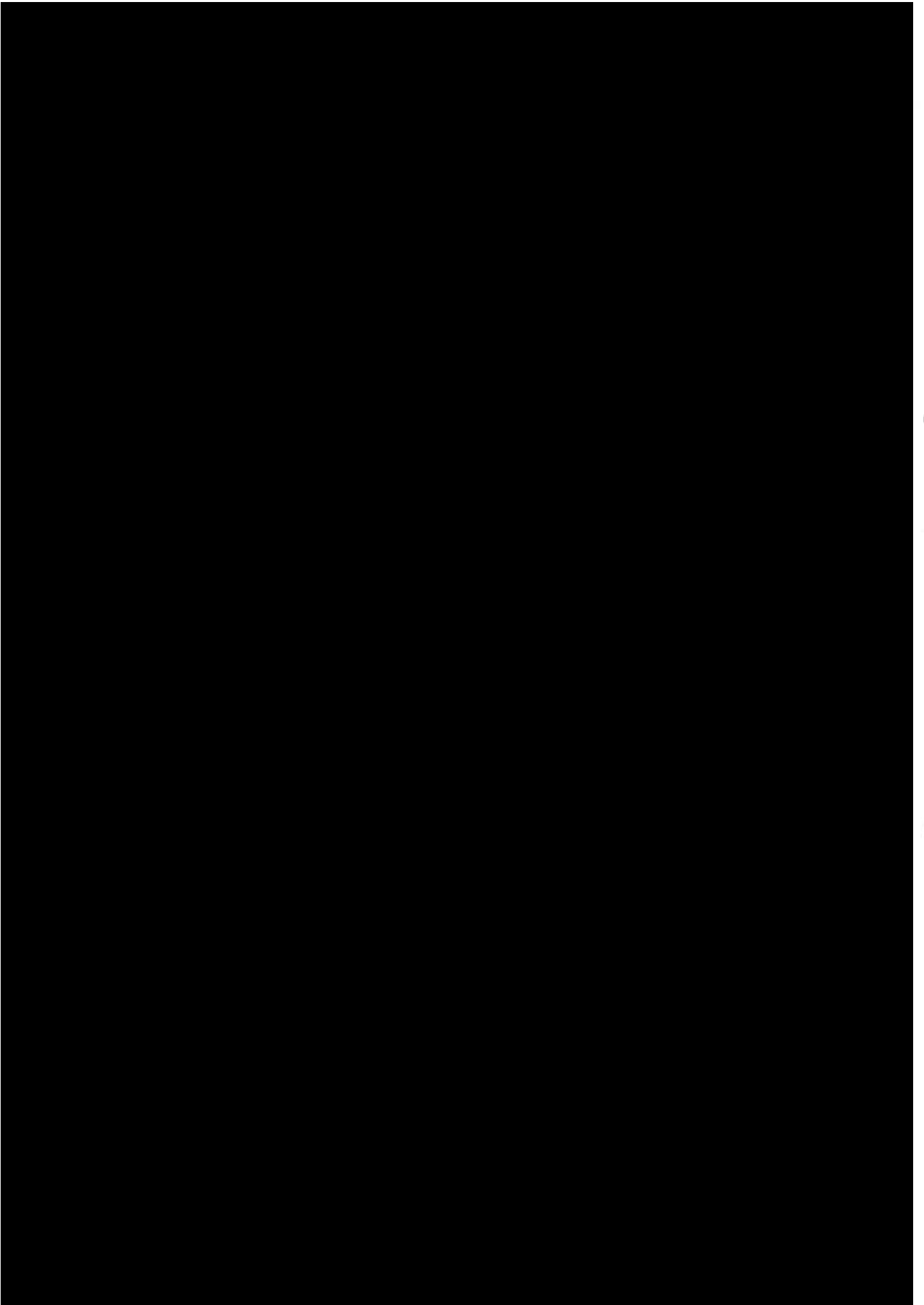
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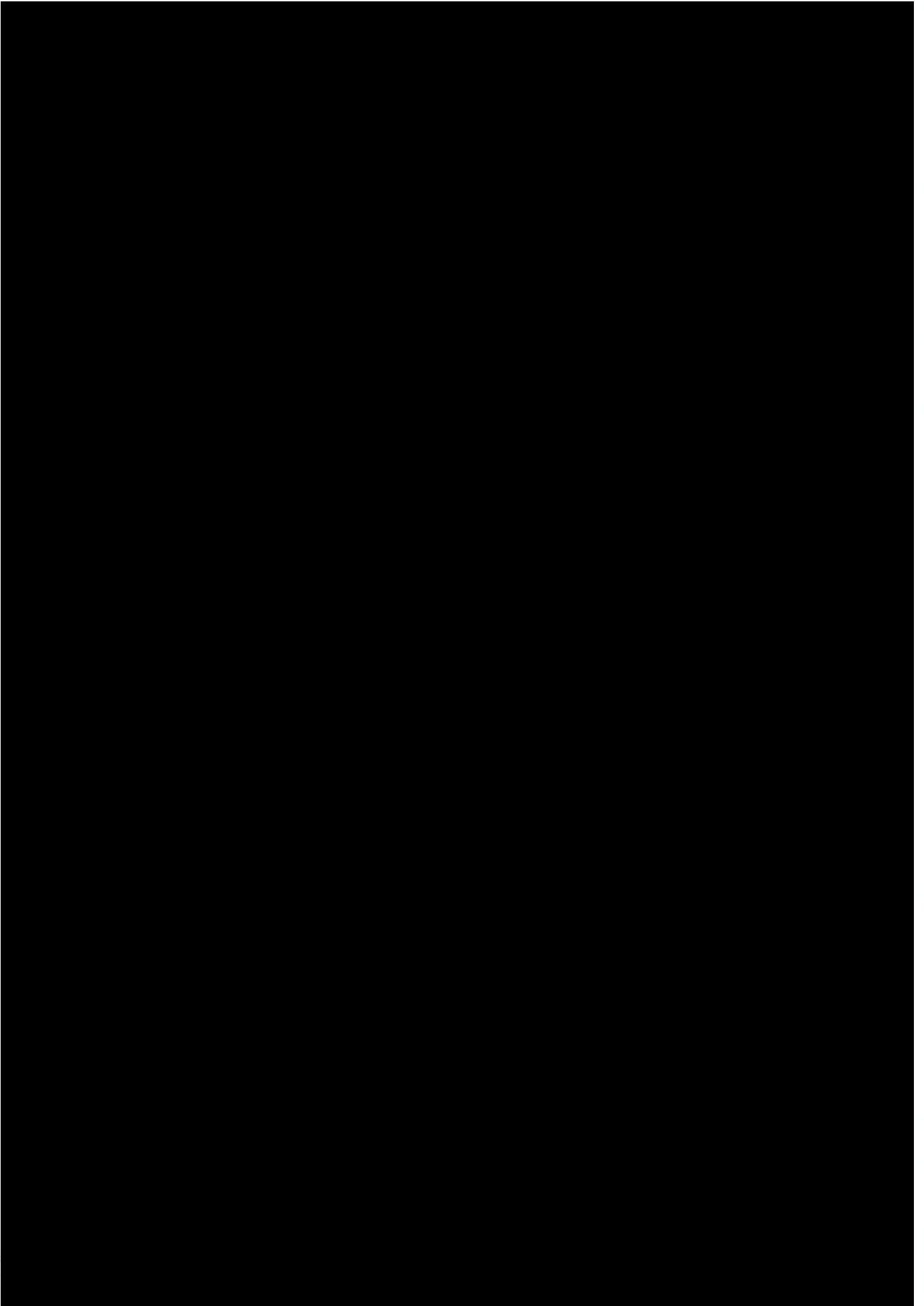


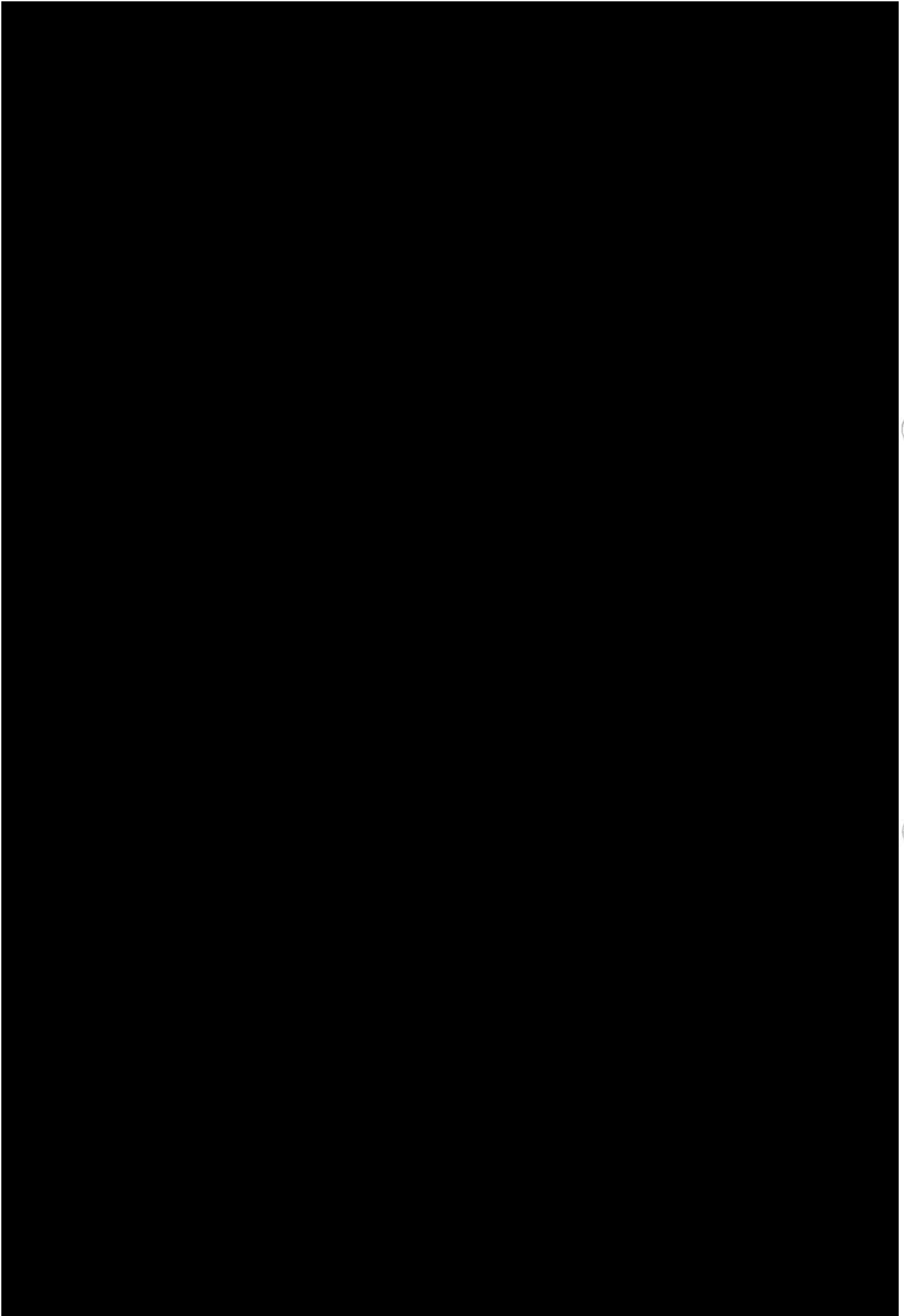
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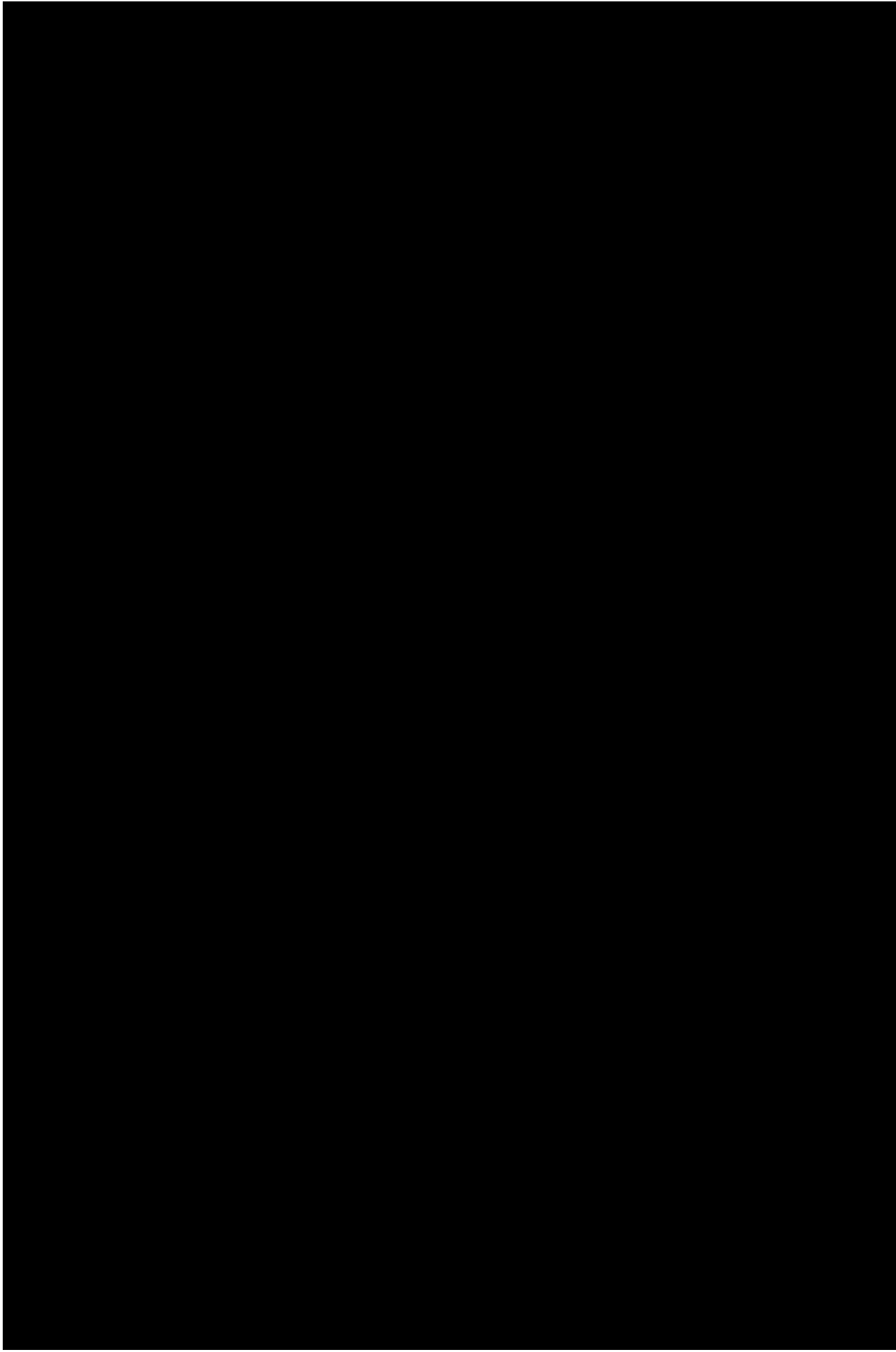
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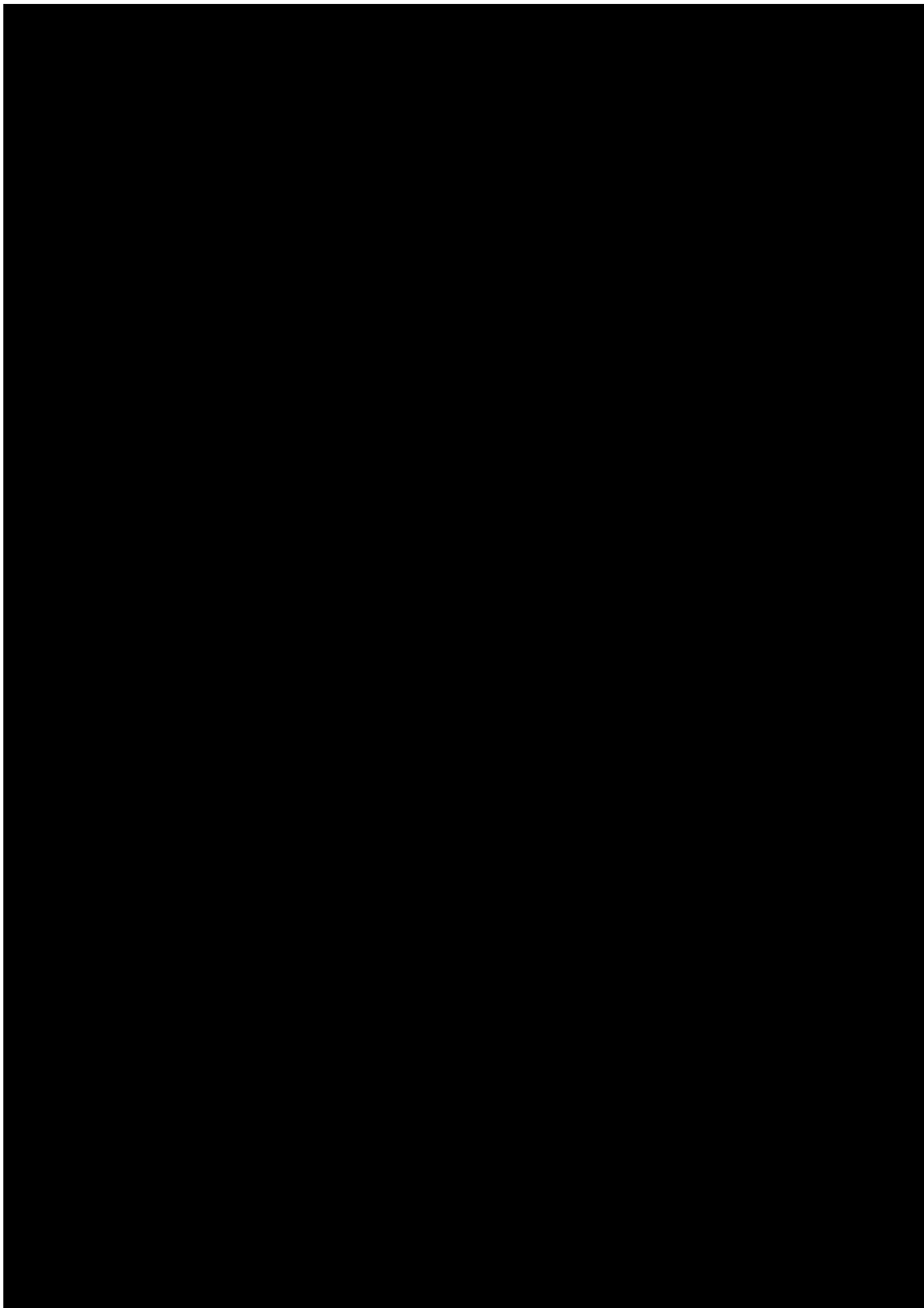
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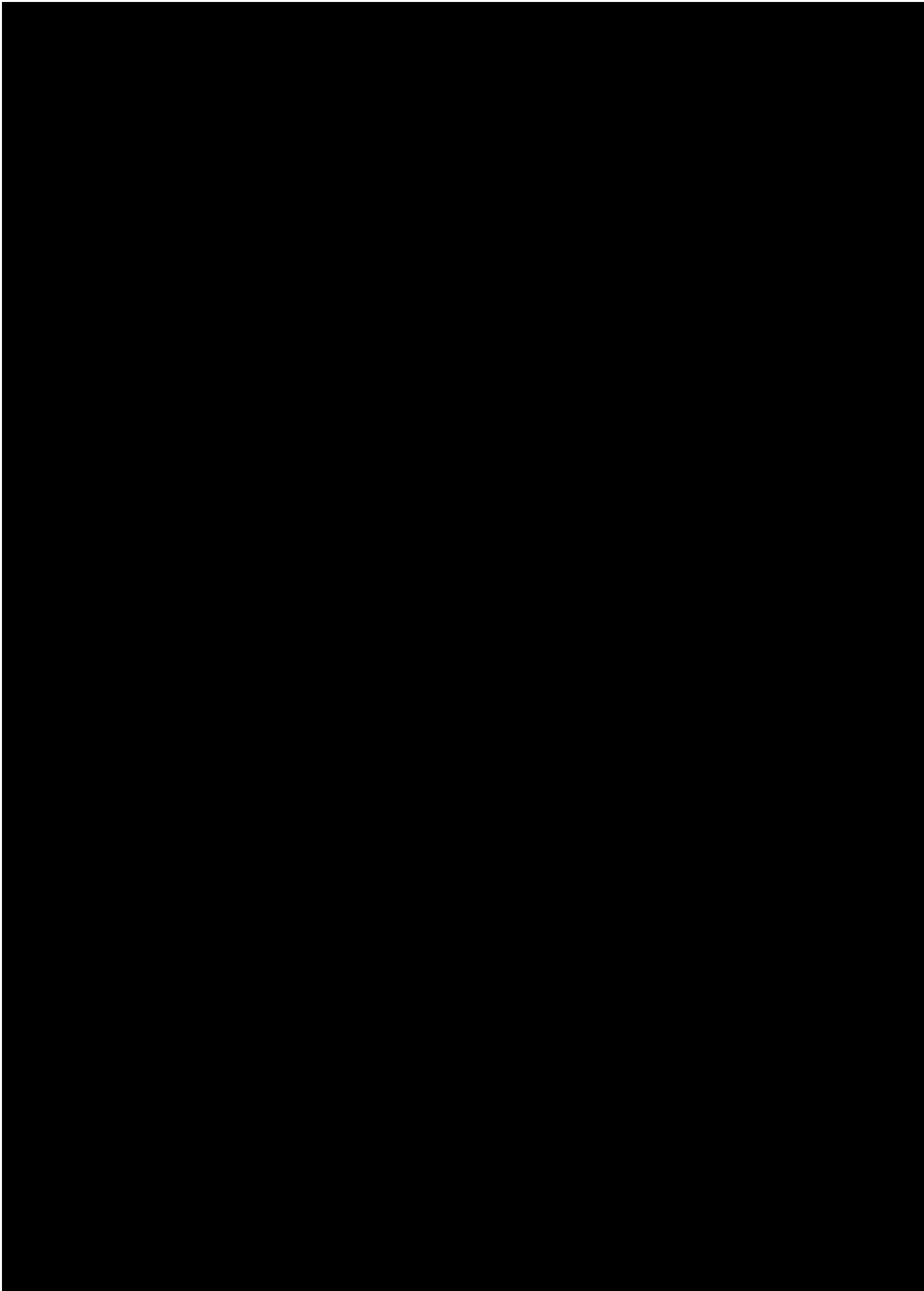
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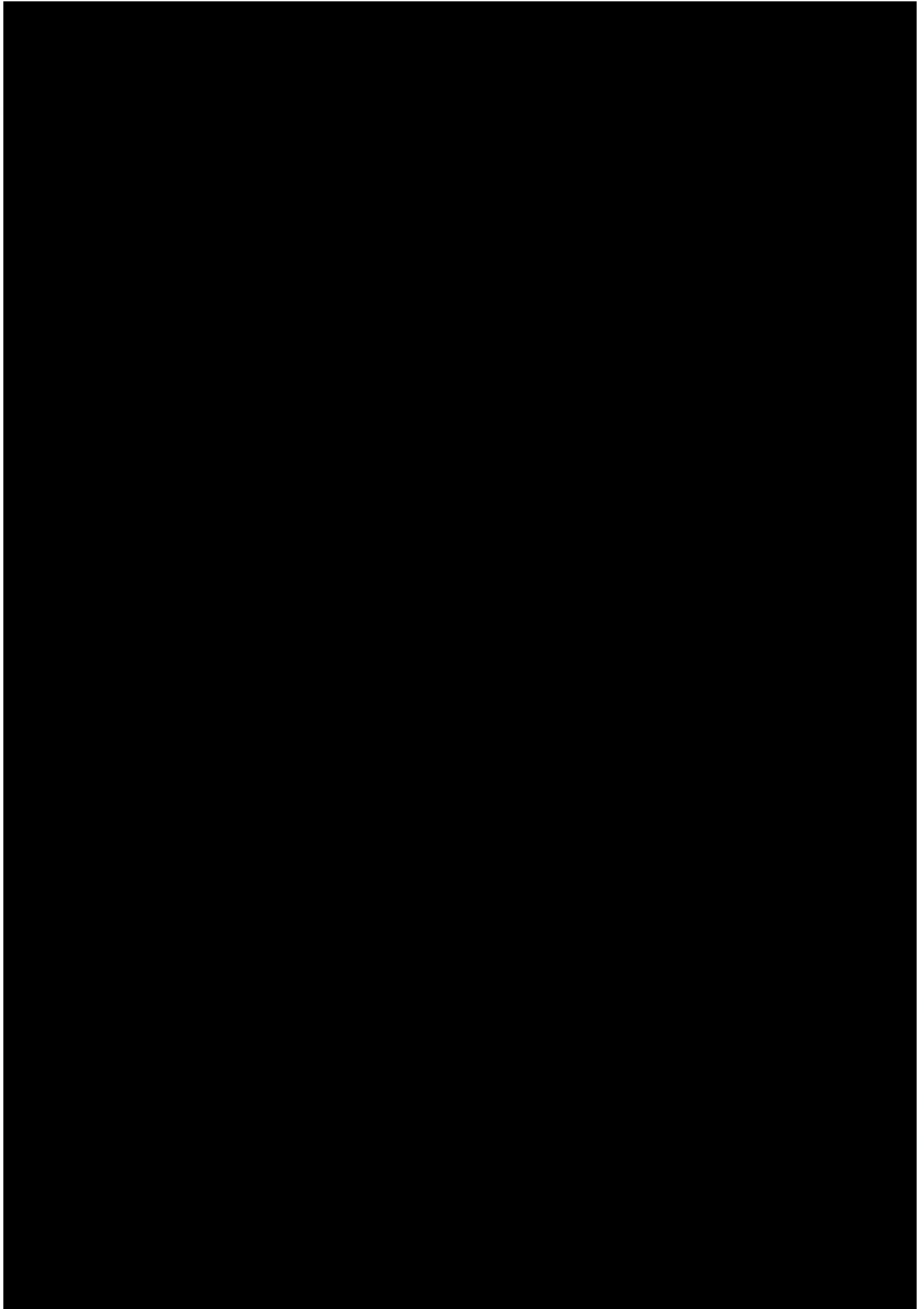
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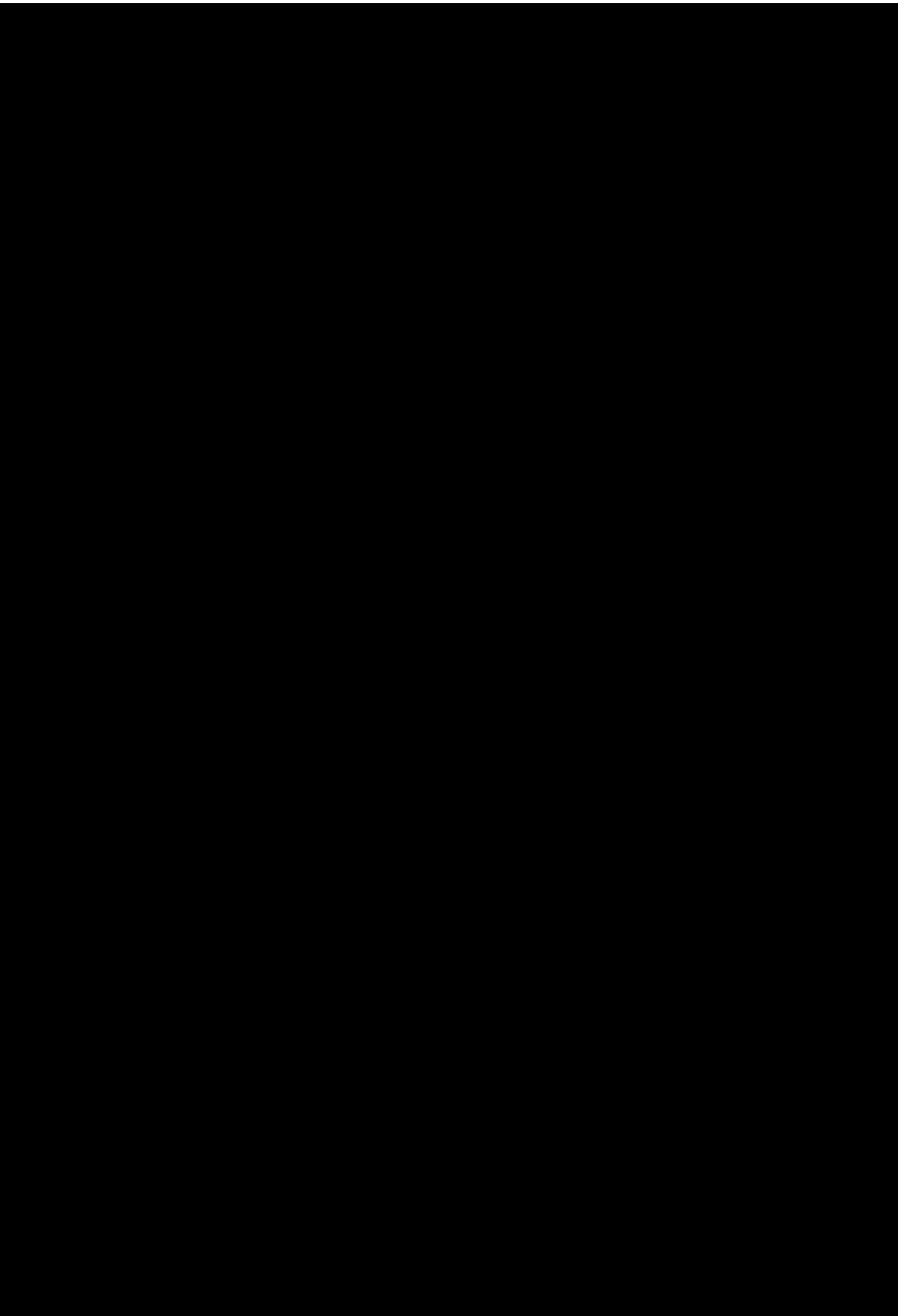
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**SCHEDULE 39**

**Amendments to Schedule F7**

Schedule F7 is amended as set out in the attached mark-up.

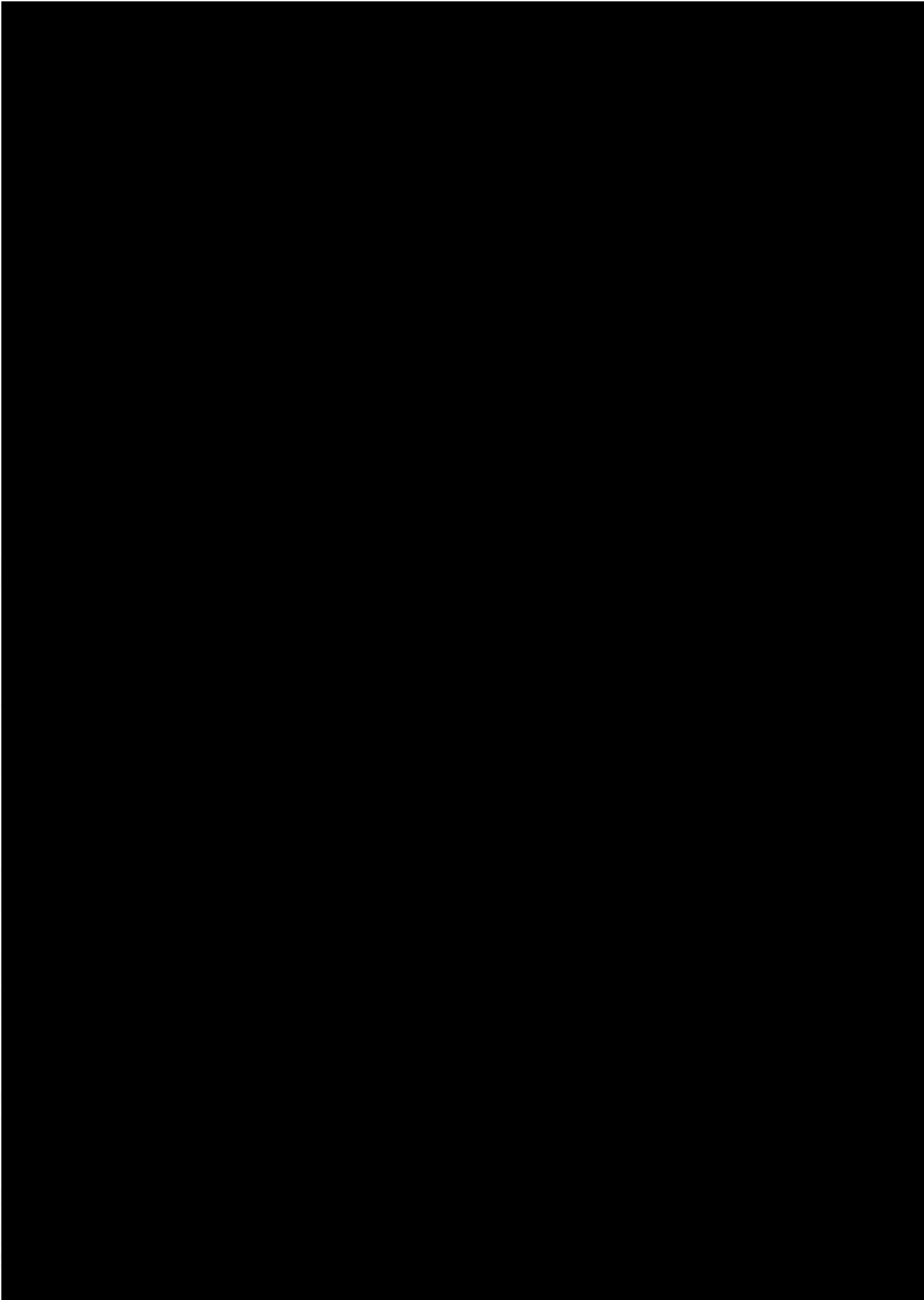


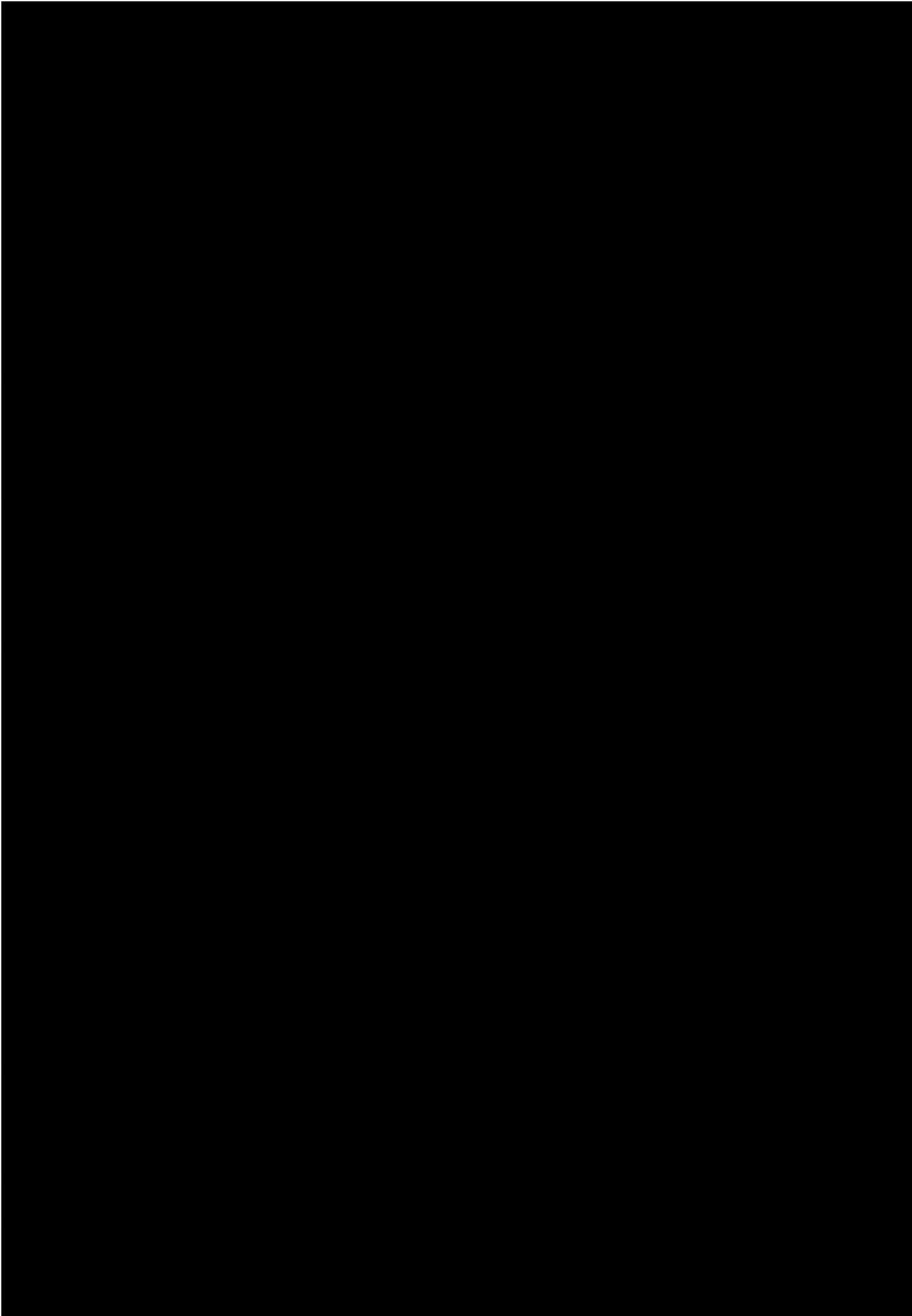
## SCHEDULE F7. – COST PLAN REQUIREMENTS

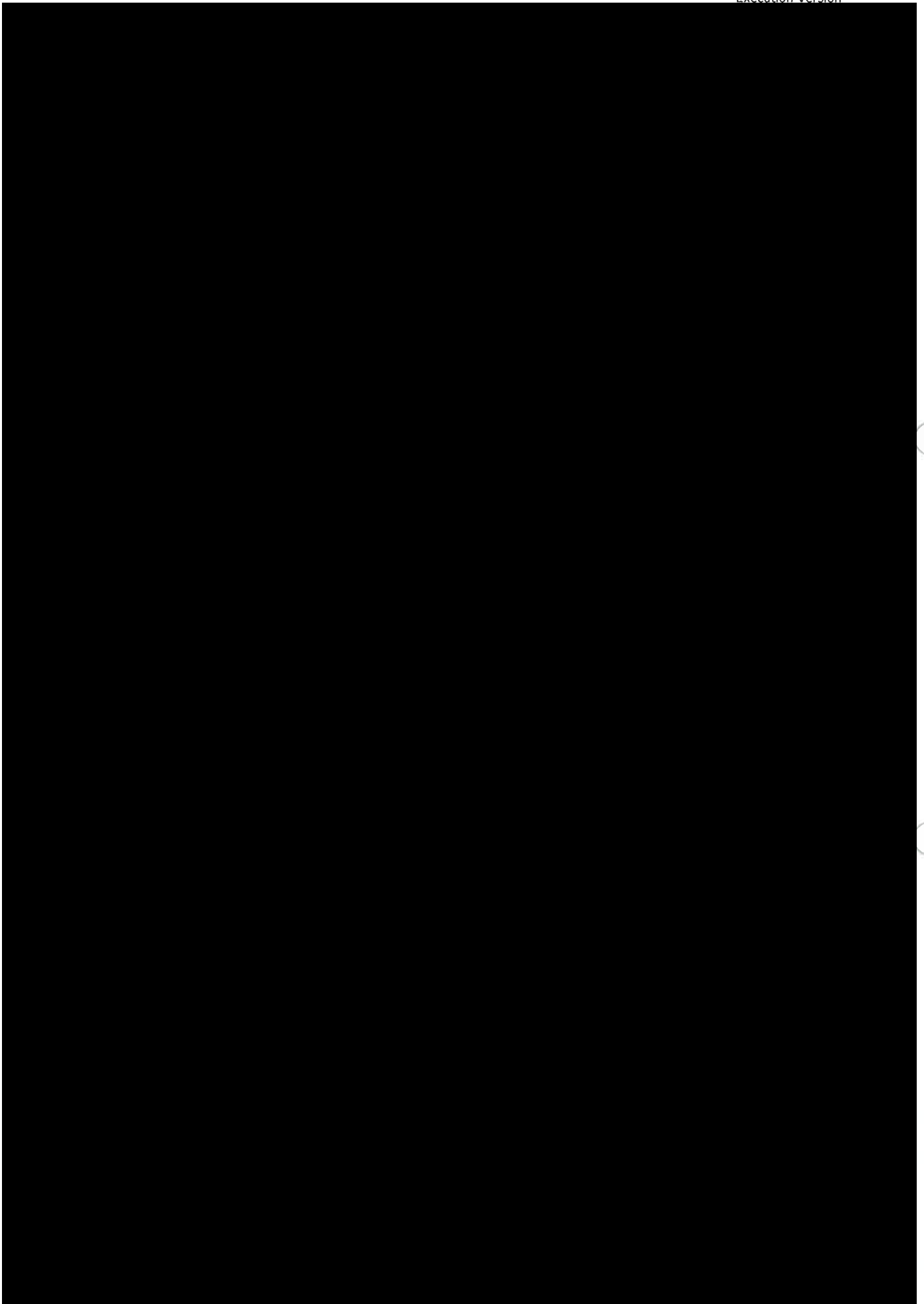
(Clauses 1.1 and 10.16~~(e)~~)

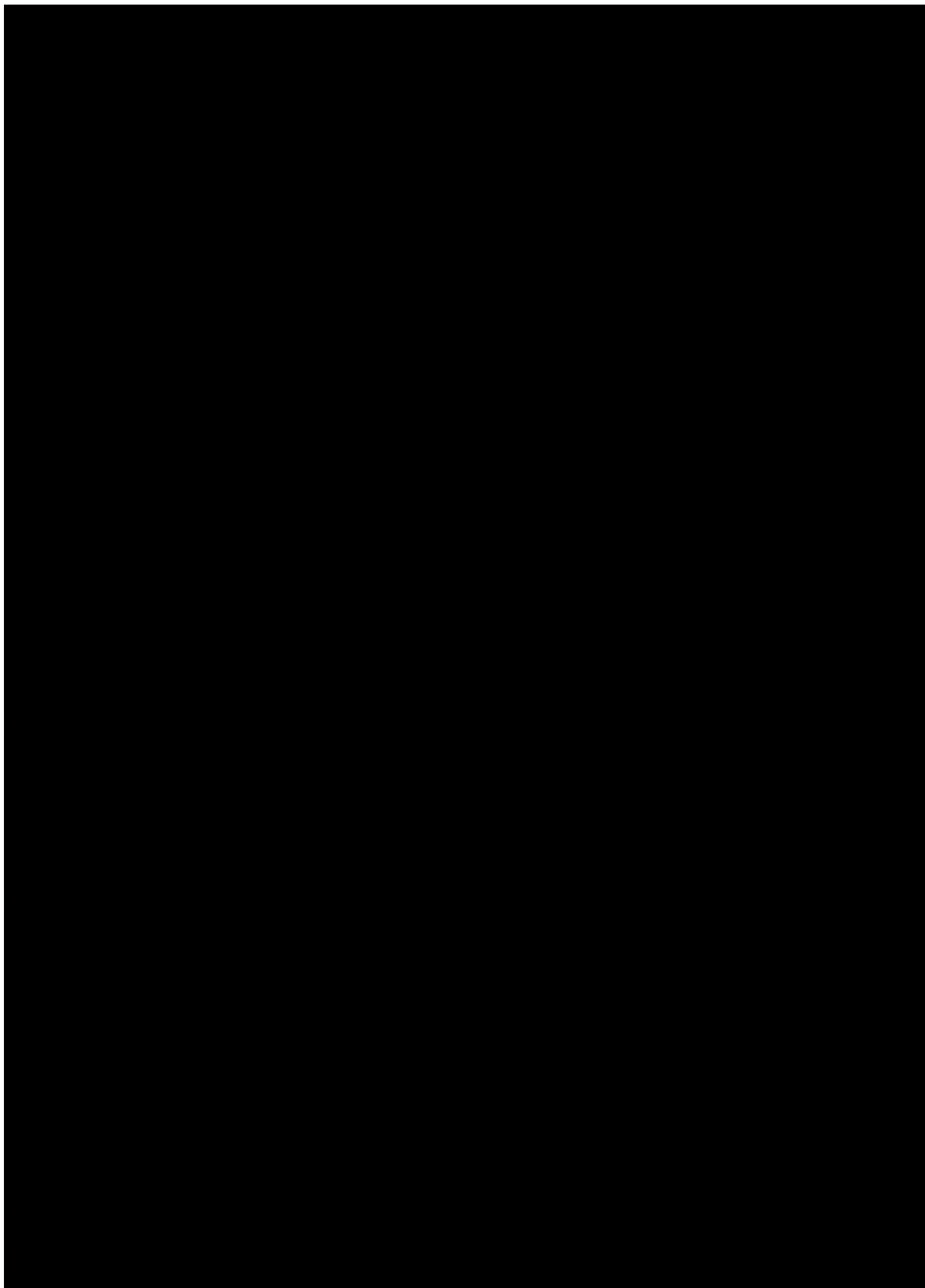
The Cost Plan must:

- ~~(a) be prepared in accordance with AIQS Australian Cost Management Manual 2000 Volume 1, Appendix A1;~~
- ~~(b) be developed using a Microsoft Excel spreadsheet, or other format as approved by the Principal's Representative;~~
- ~~(c) provide the initial and current approved Target Cost by cost breakdown structure (at a summary and detailed level) which is aligned to the work breakdown structure used in the SSJ Contractor's Program and the subcontract packaging strategy (and consistent with the Sydney Metro 'Control Accounts Cost Breakdown' structure as incorporated in the Information Documents);~~
- ~~(d) incorporate an assessment of contingency based on the [REDACTED] that the cost will not be exceeded to complete the SSJ Contractor's Activities;~~
- ~~(e) detail all approved adjustments to the initial Target Cost;~~
- ~~(f) detail the cost to date, forecast cost to complete, forecast cost at completion and monthly variance for each cost code within the cost breakdown structure;~~
- ~~(g) for all Reimbursable Work, provide the unit, quantity and rate and total cost information by cost code; and~~
- ~~(h) be submitted to the Principal's Representative in accordance with this Contract, in its native electronic file format (unsecured and in the original form), including the costs incurred in the previous month.~~





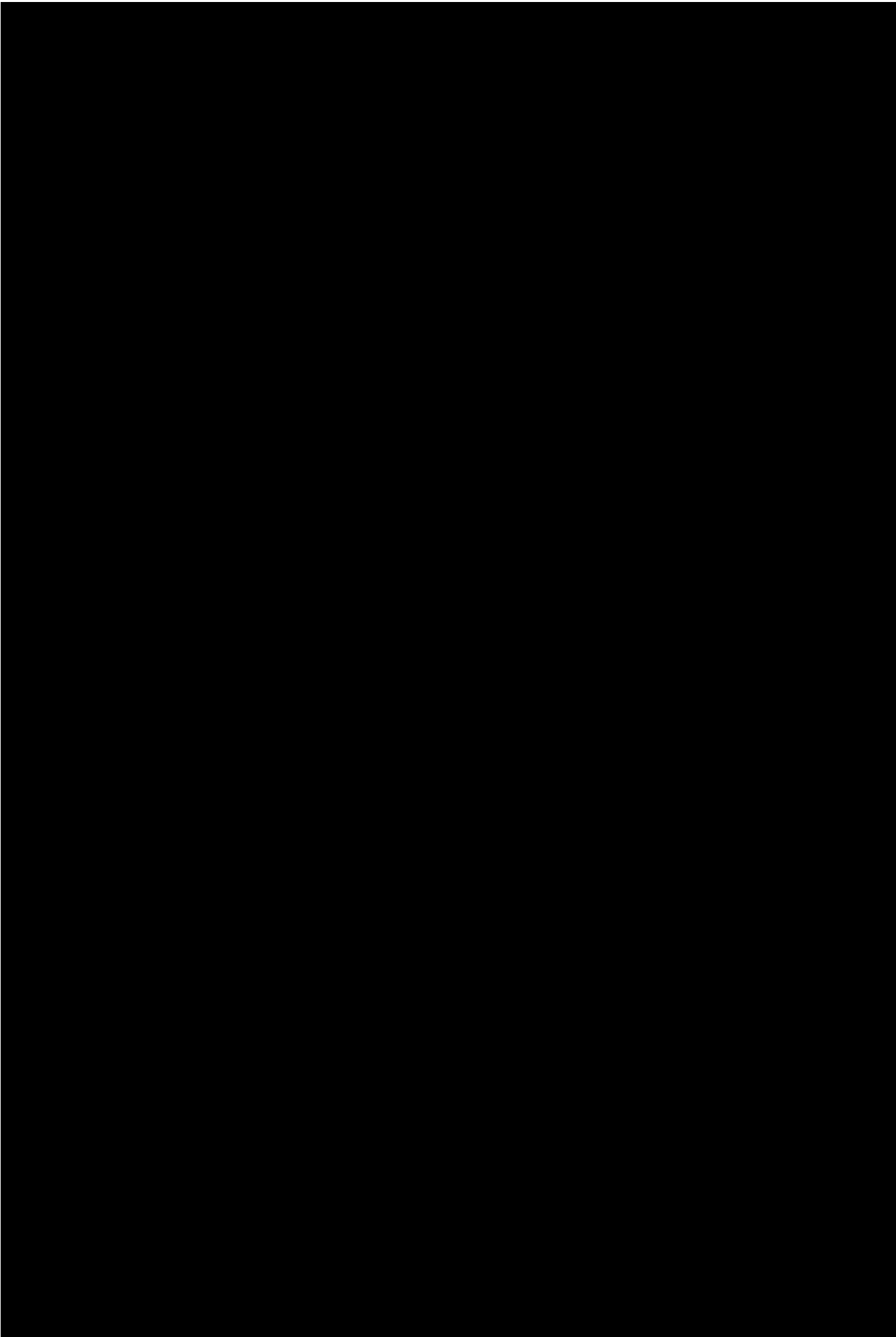




**SCHEDULE 40**

**New Schedule F8**

New Schedule F8 is incorporated in the Principal Document as set out in the attached.



**SCHEDULE 41**

**Amendments to Schedule G1**

New electronic files are incorporated in the Principal Document as set out in the attached electronic files.