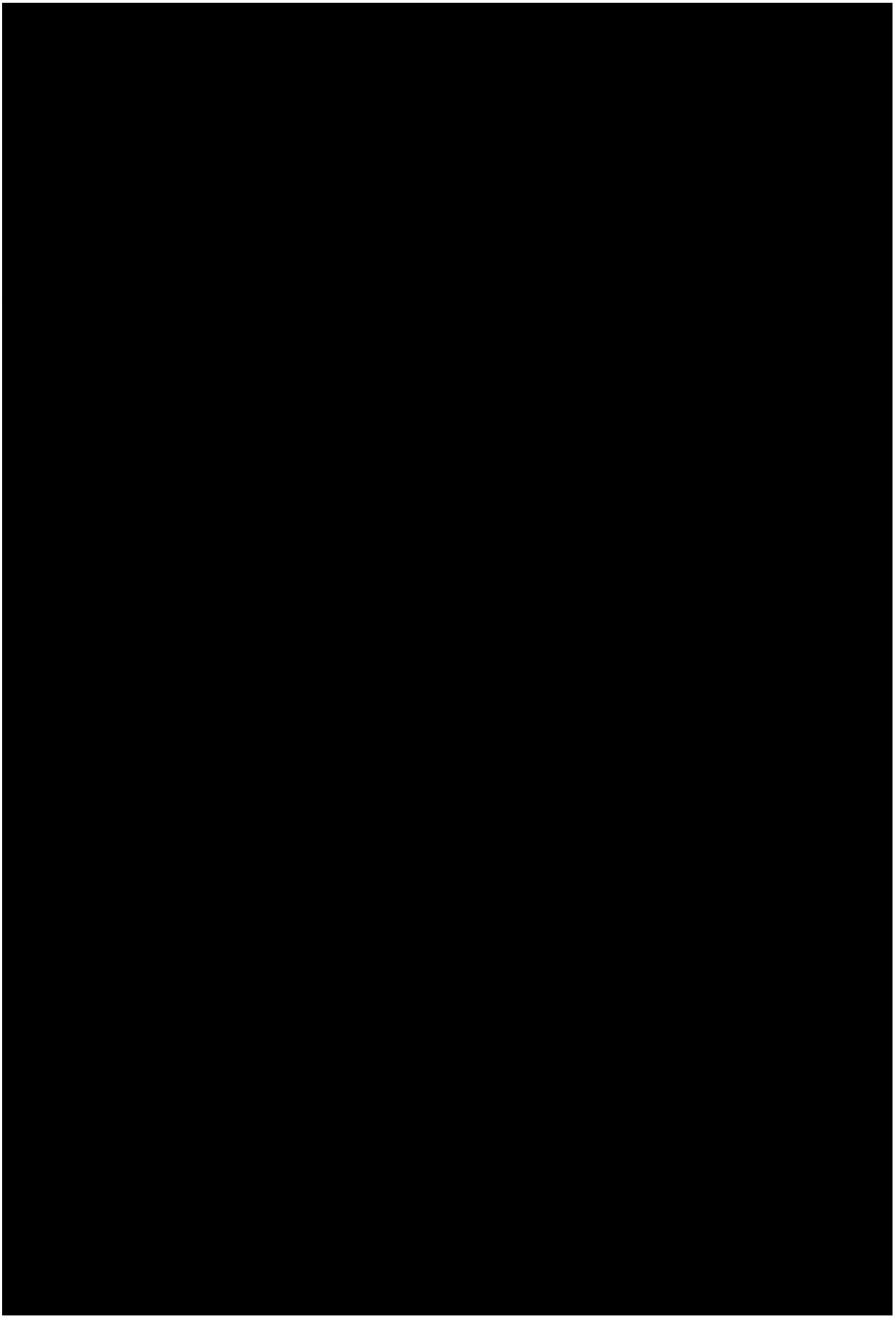
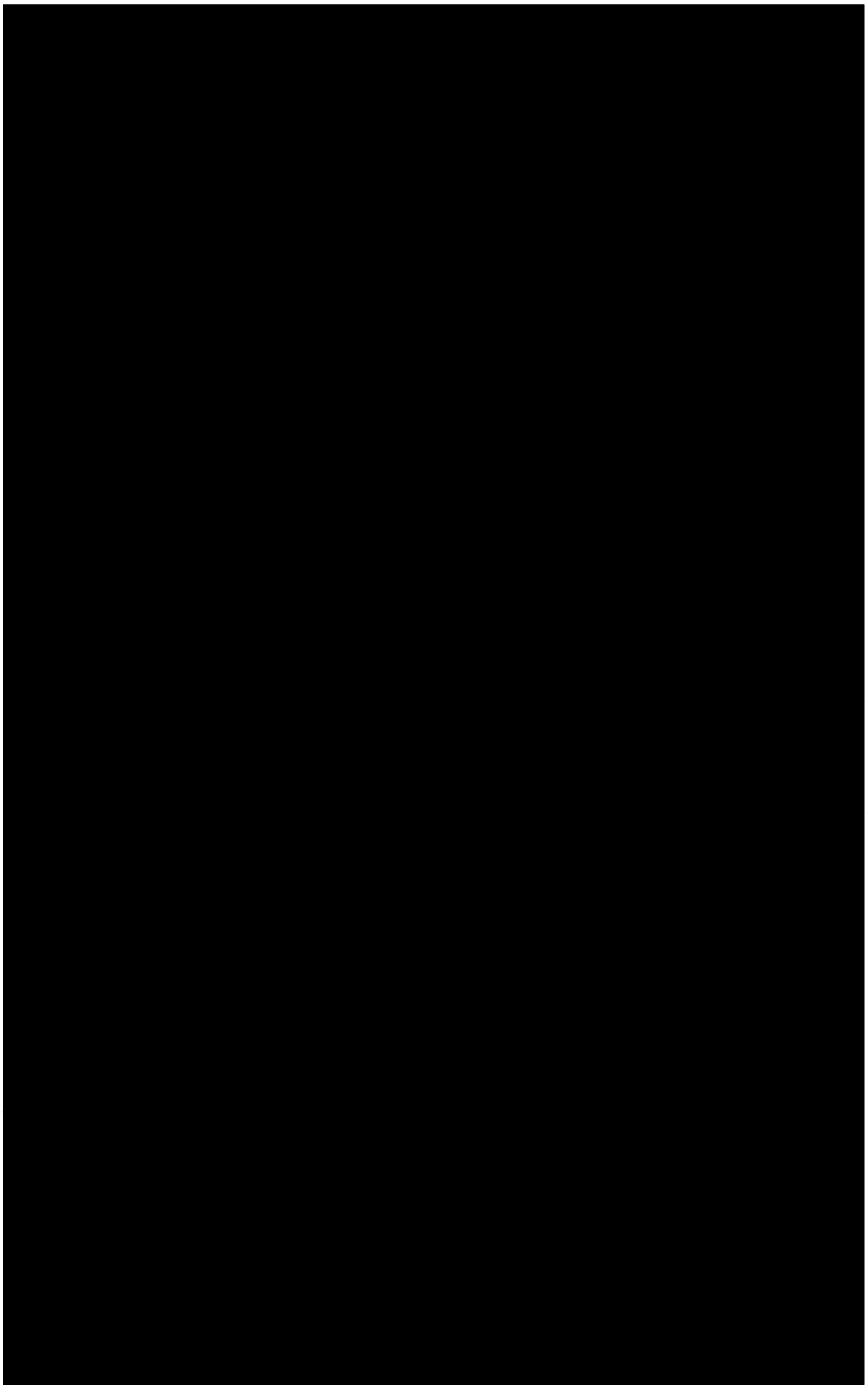
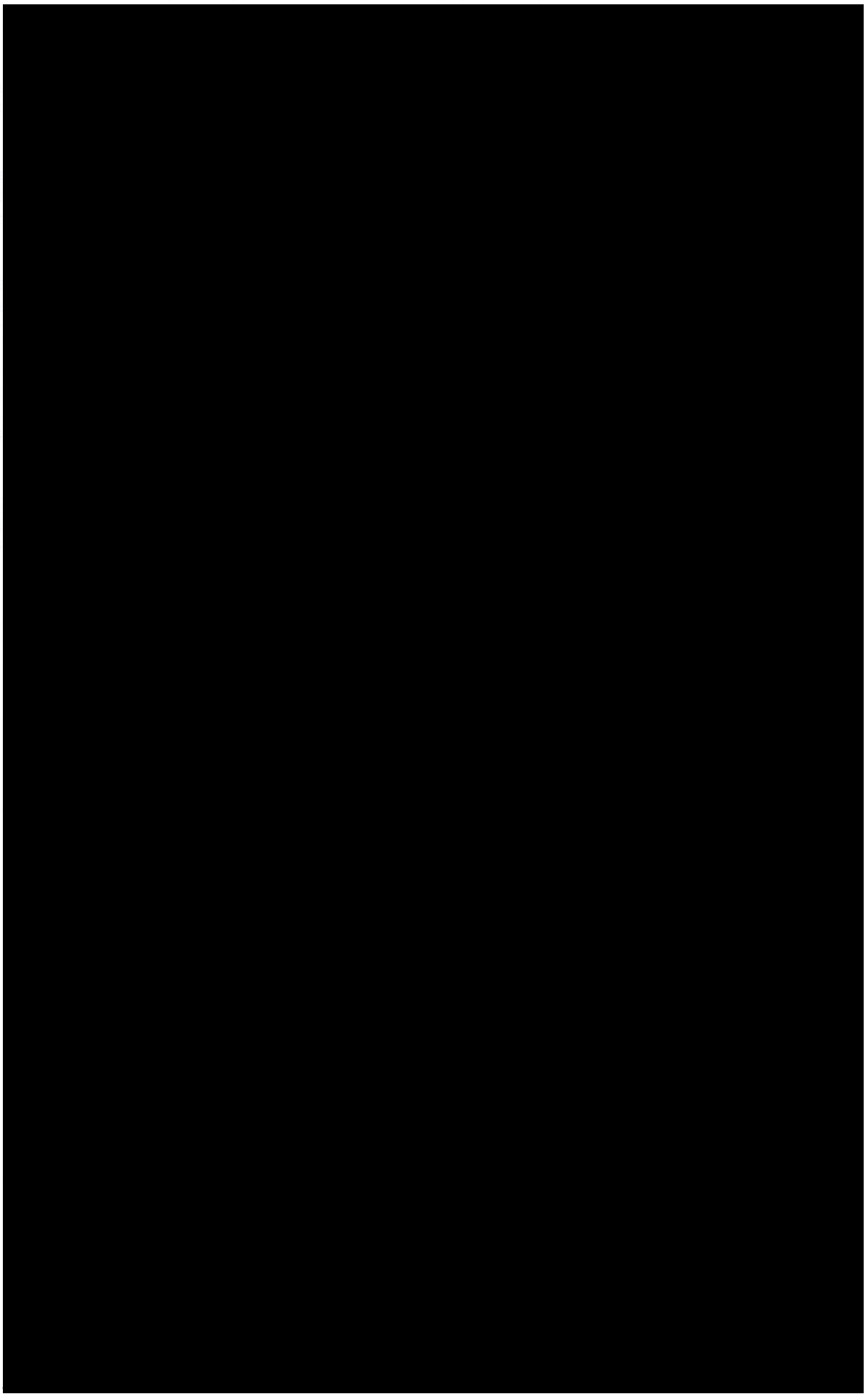
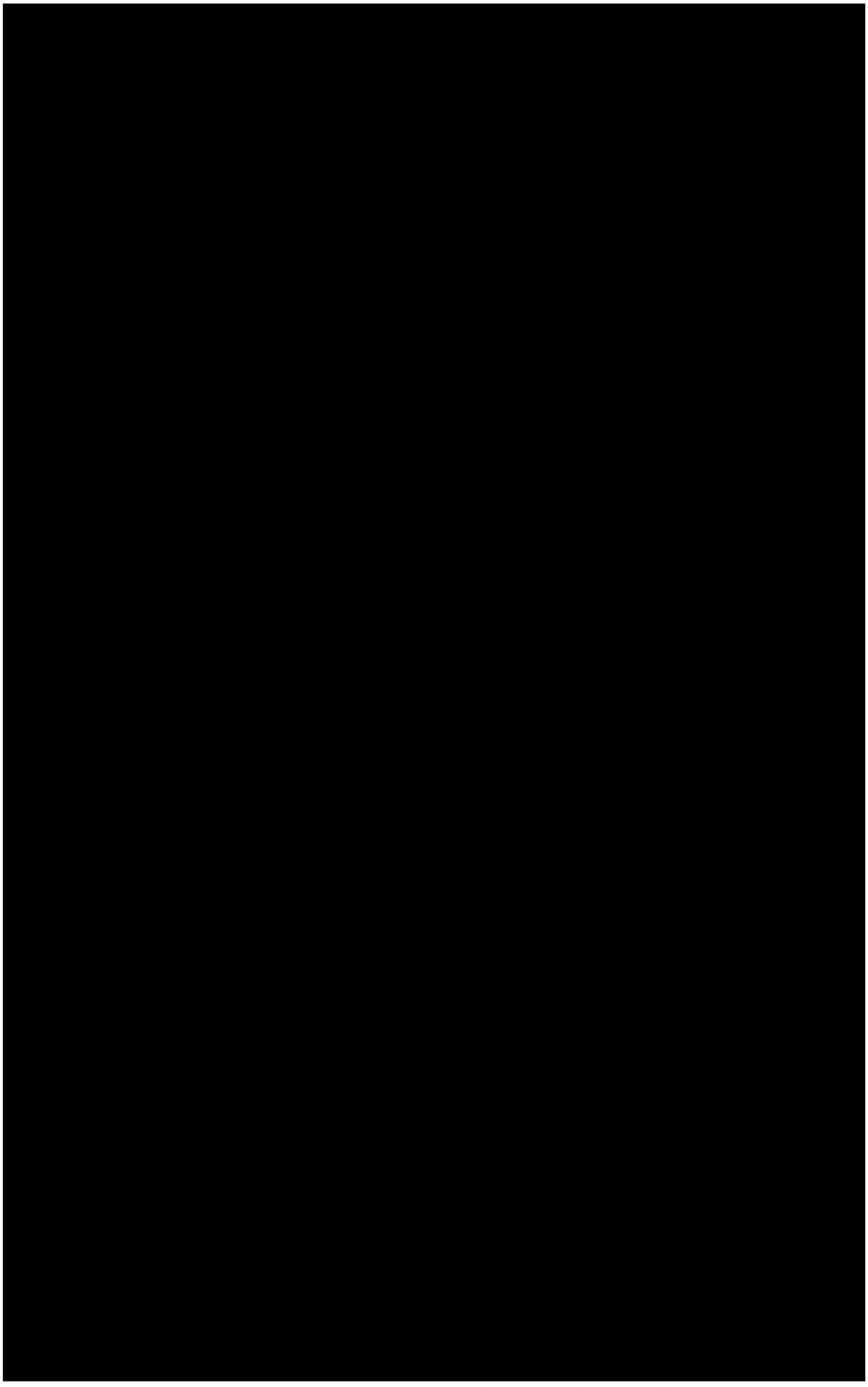
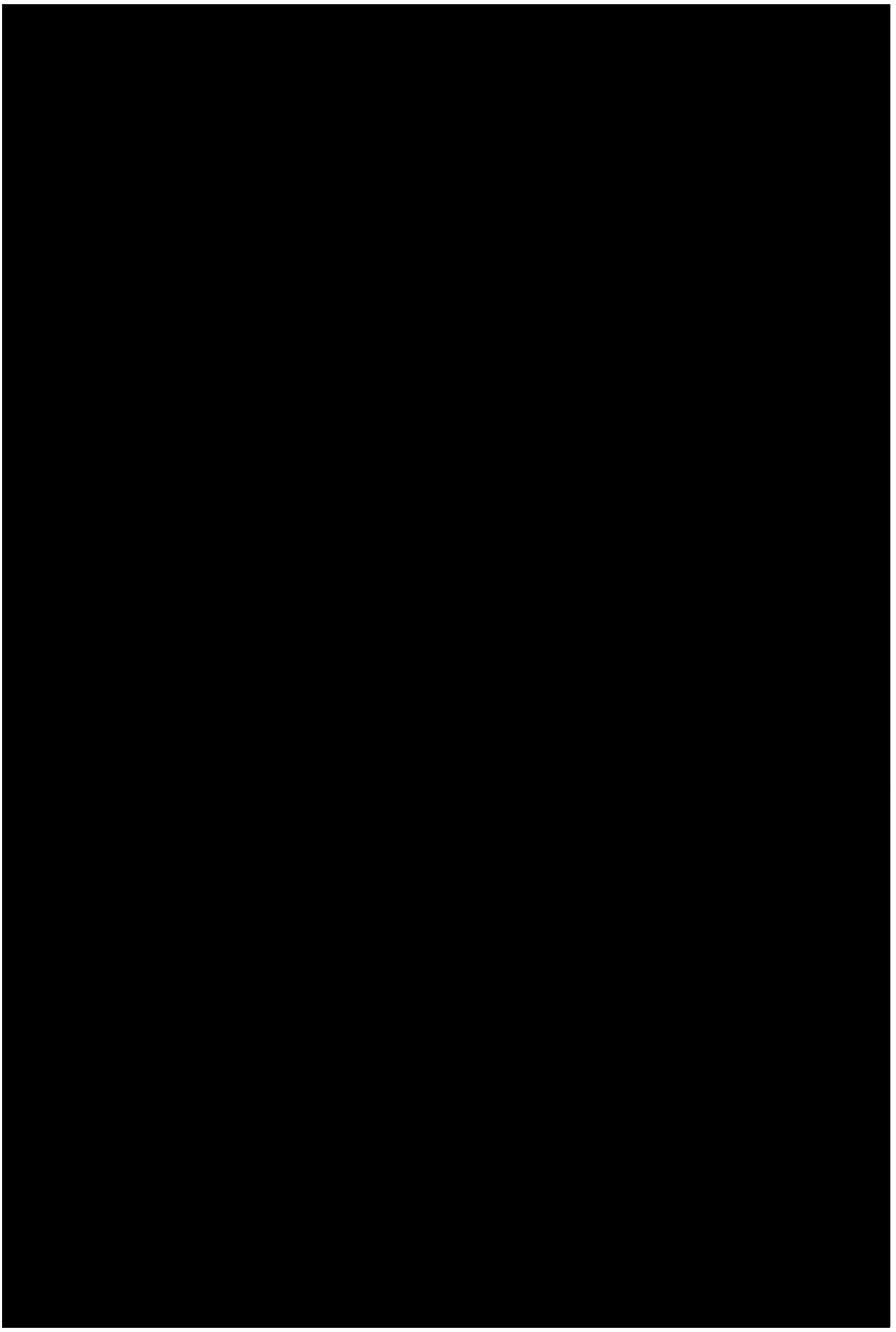
SCHEDULE E1. – SITE , WORKSITES AND RELATED DRAWINGS

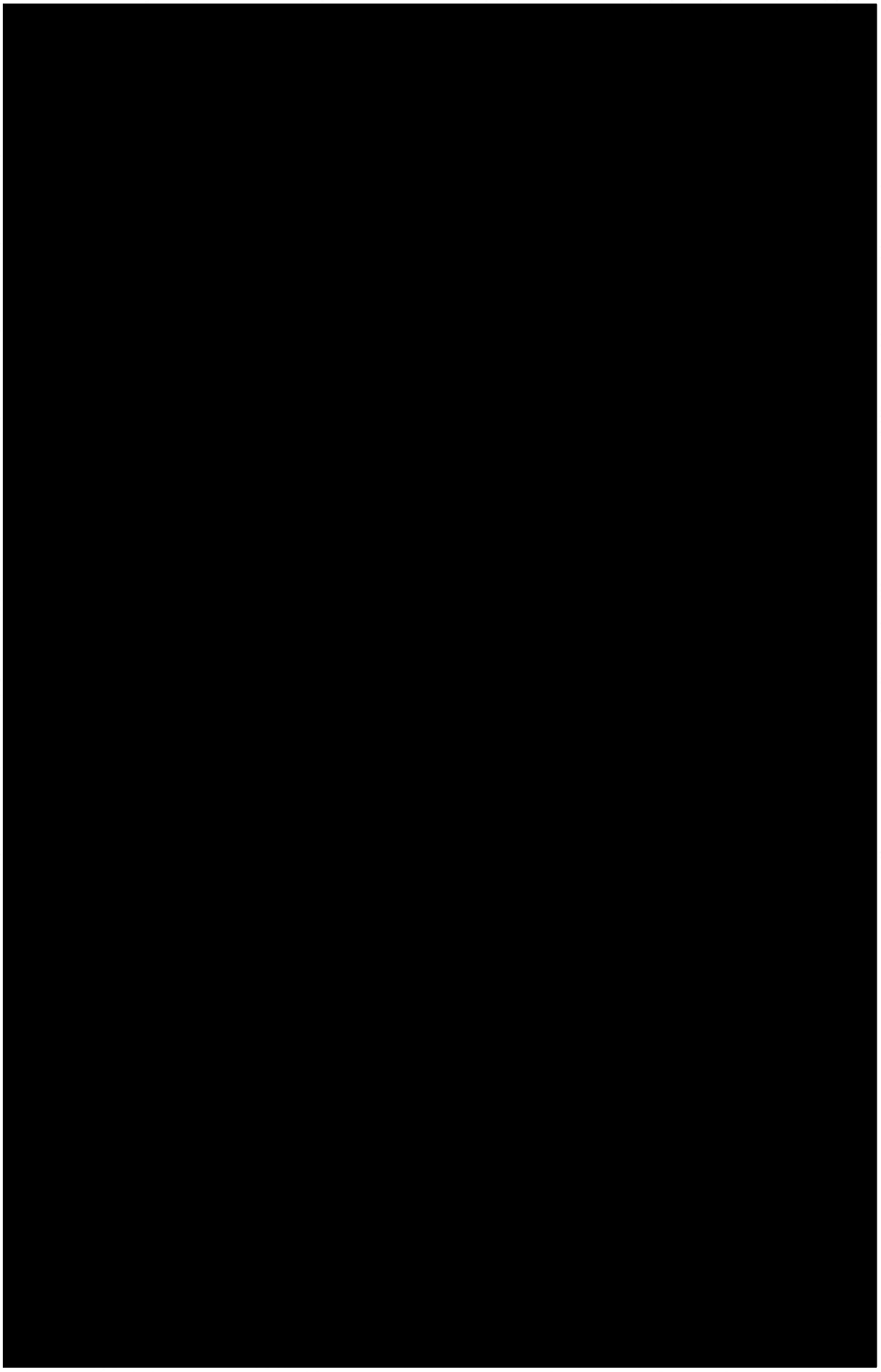


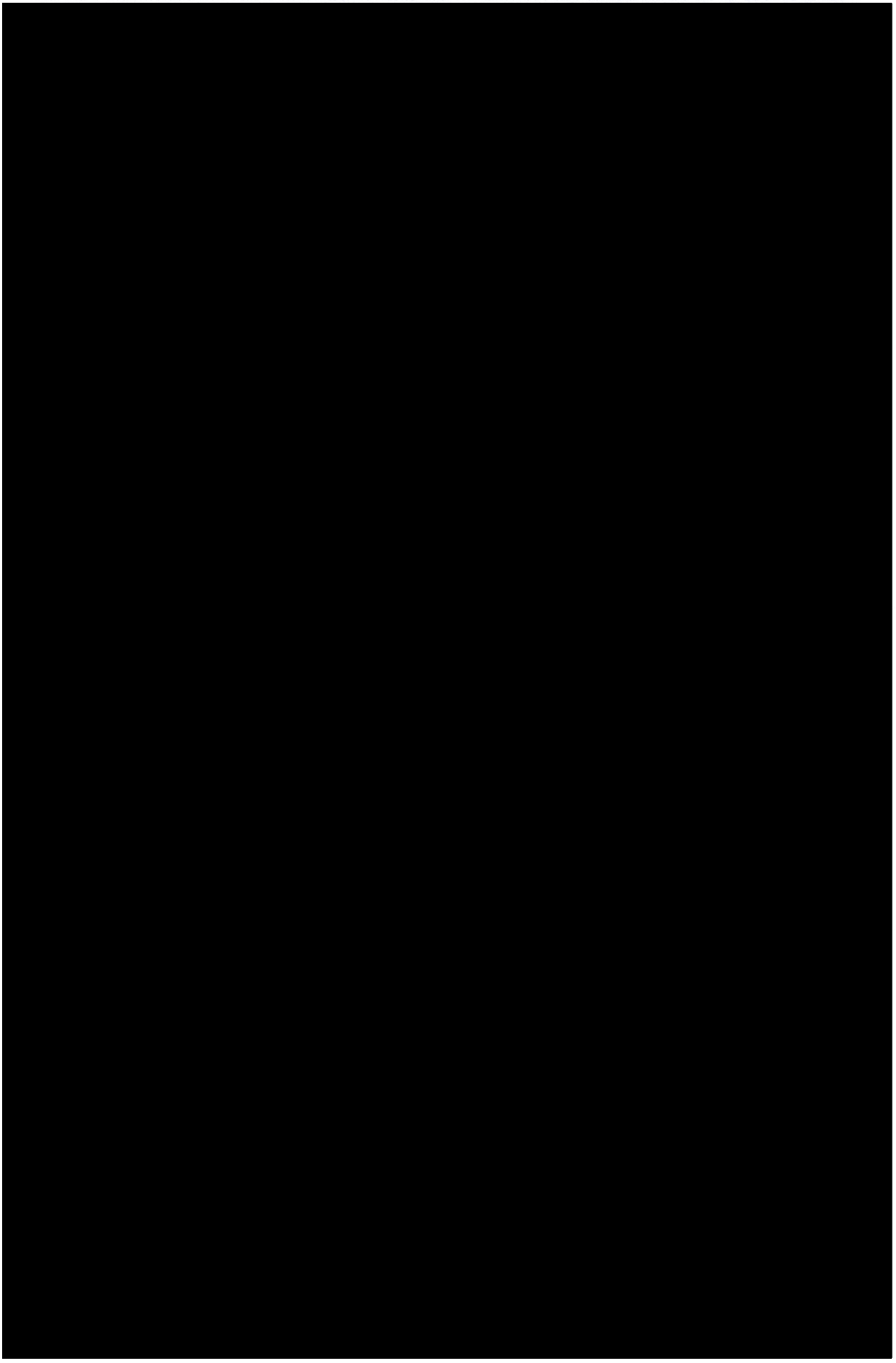


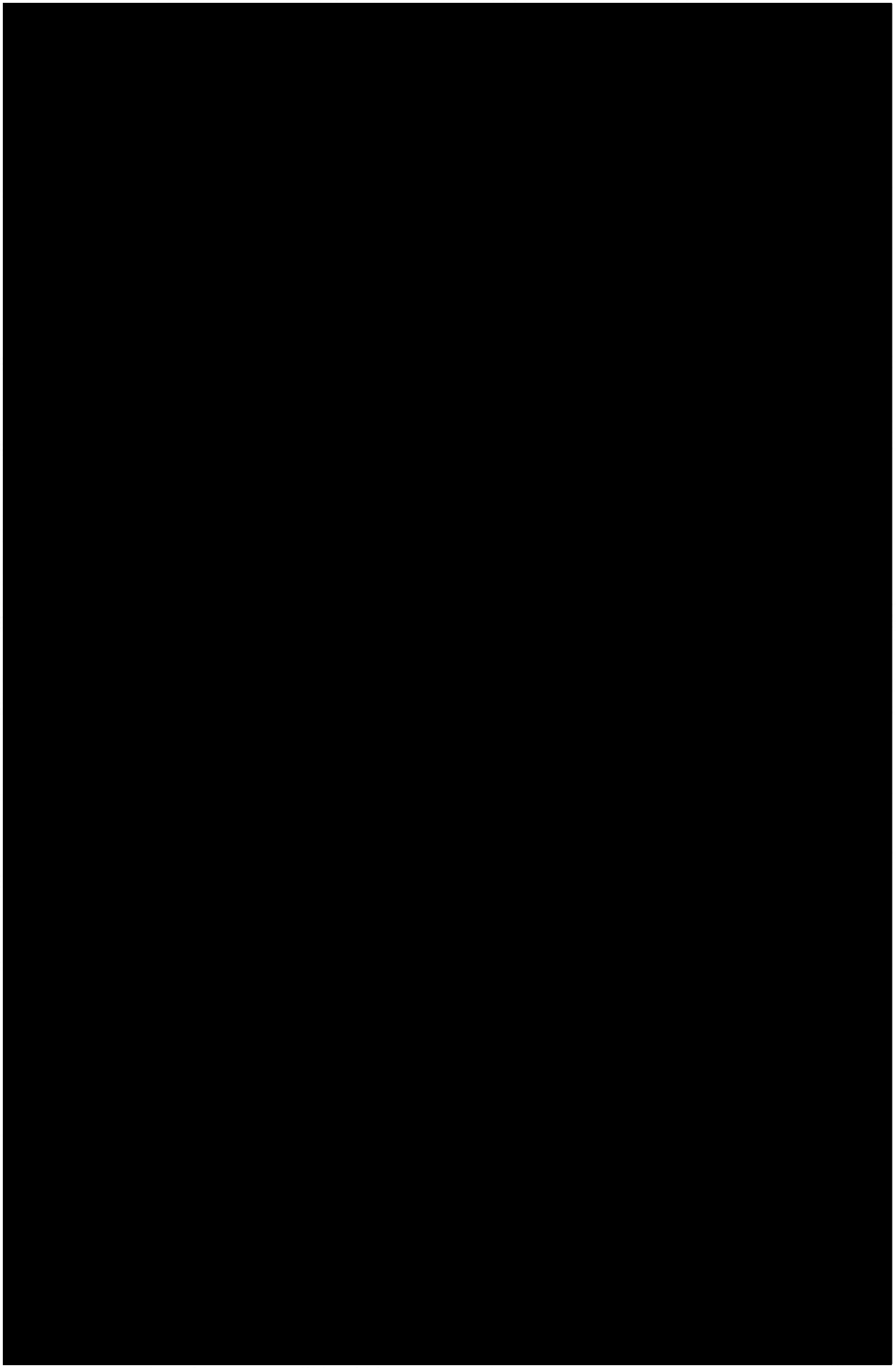


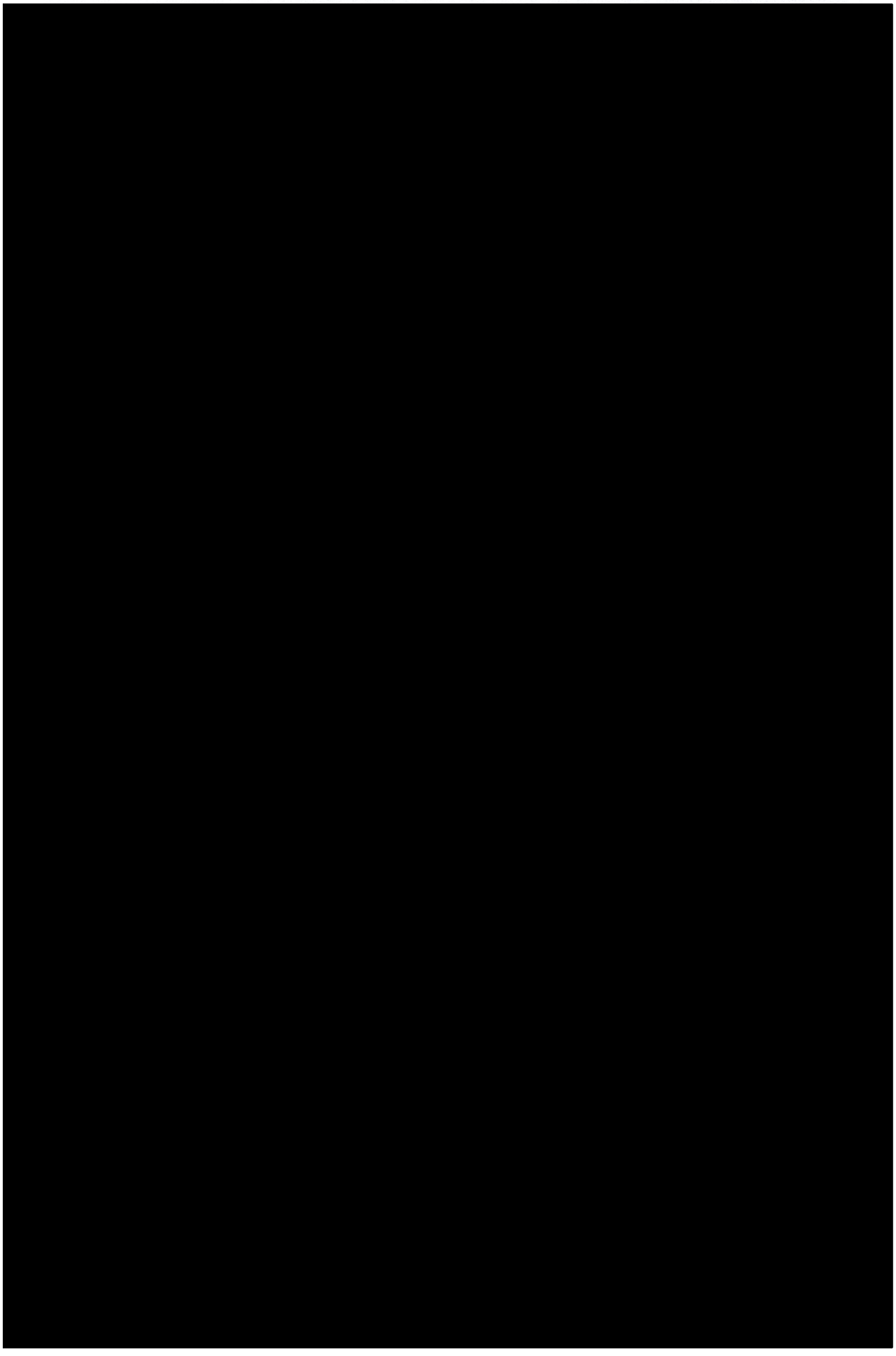


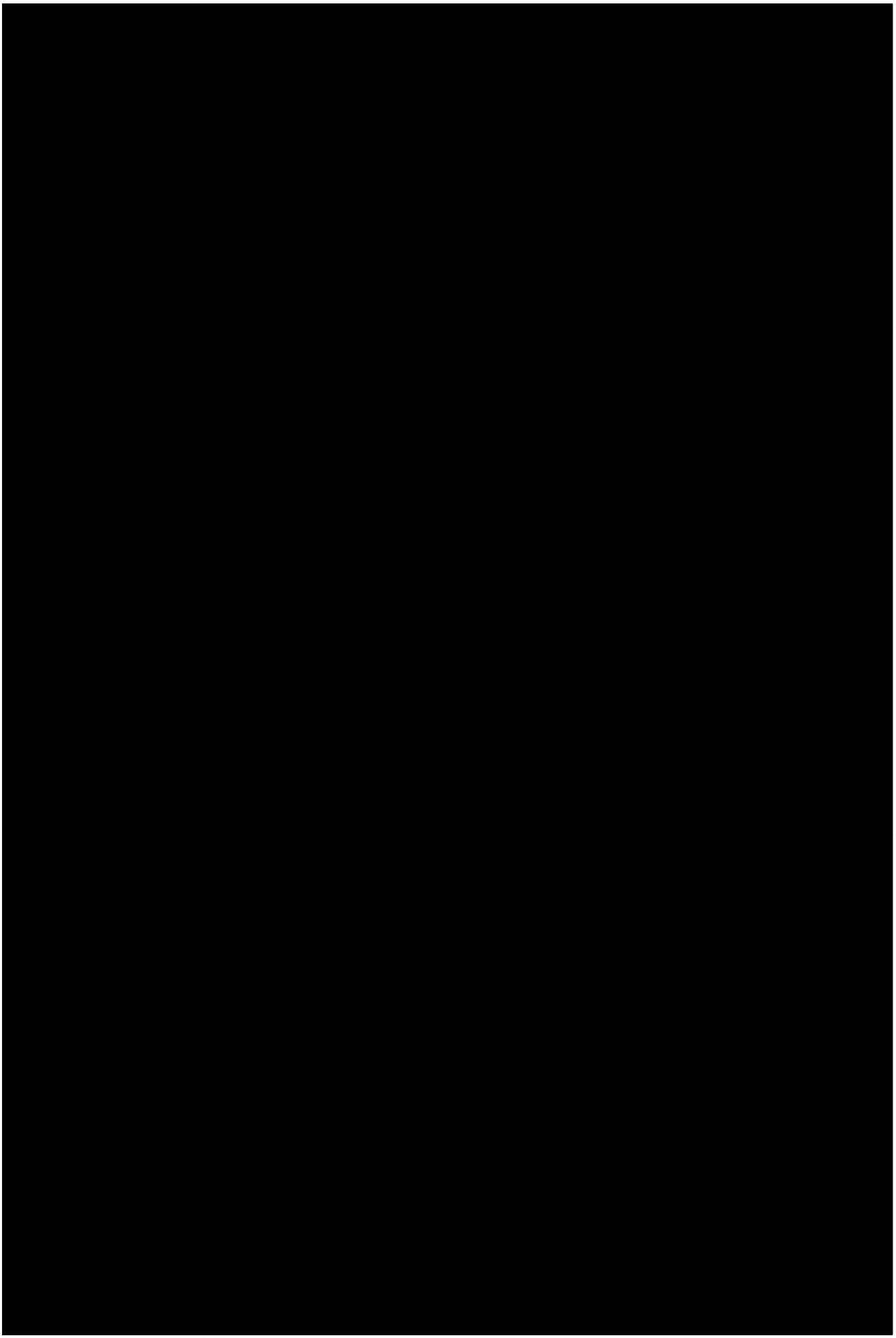


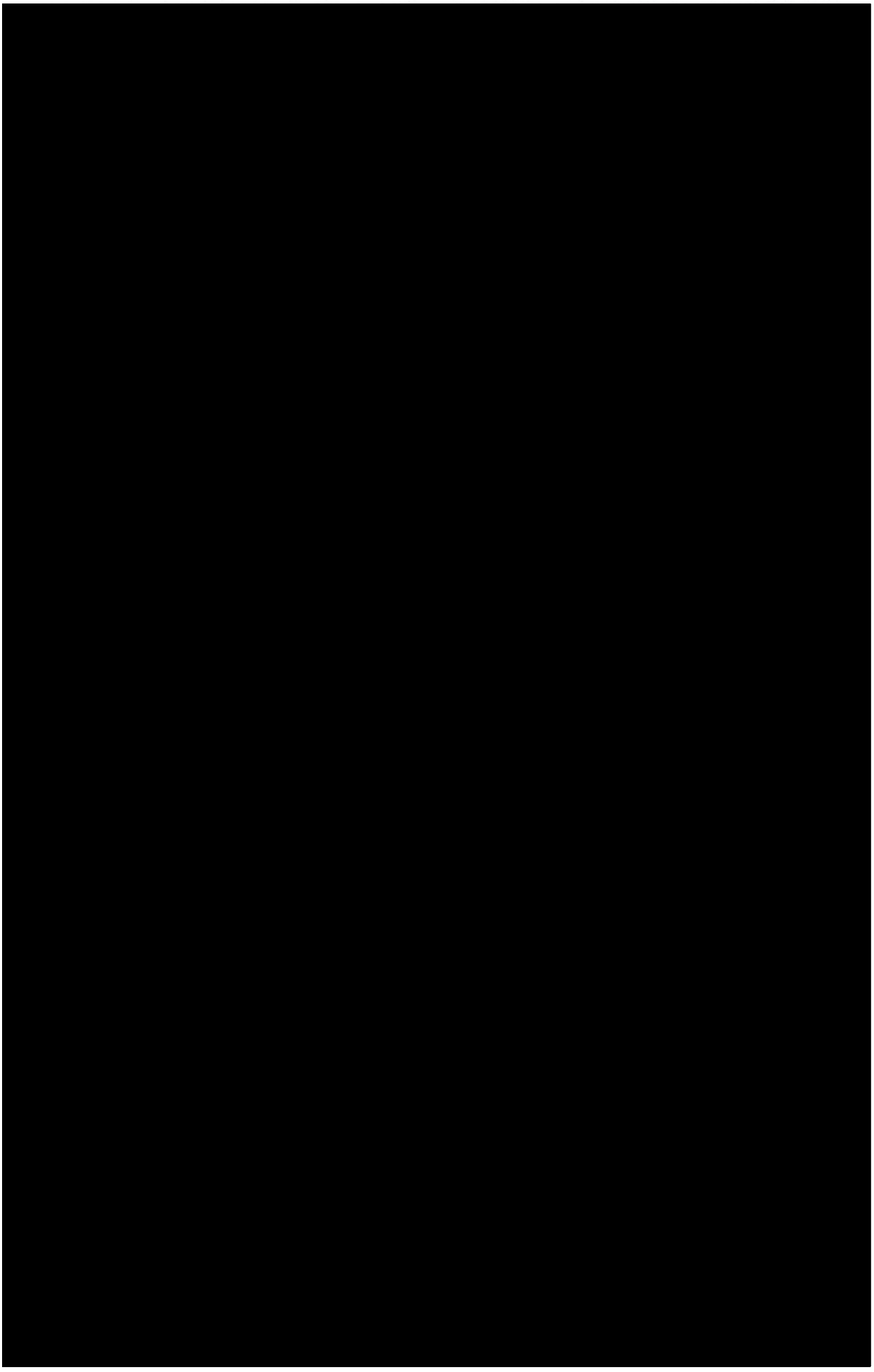


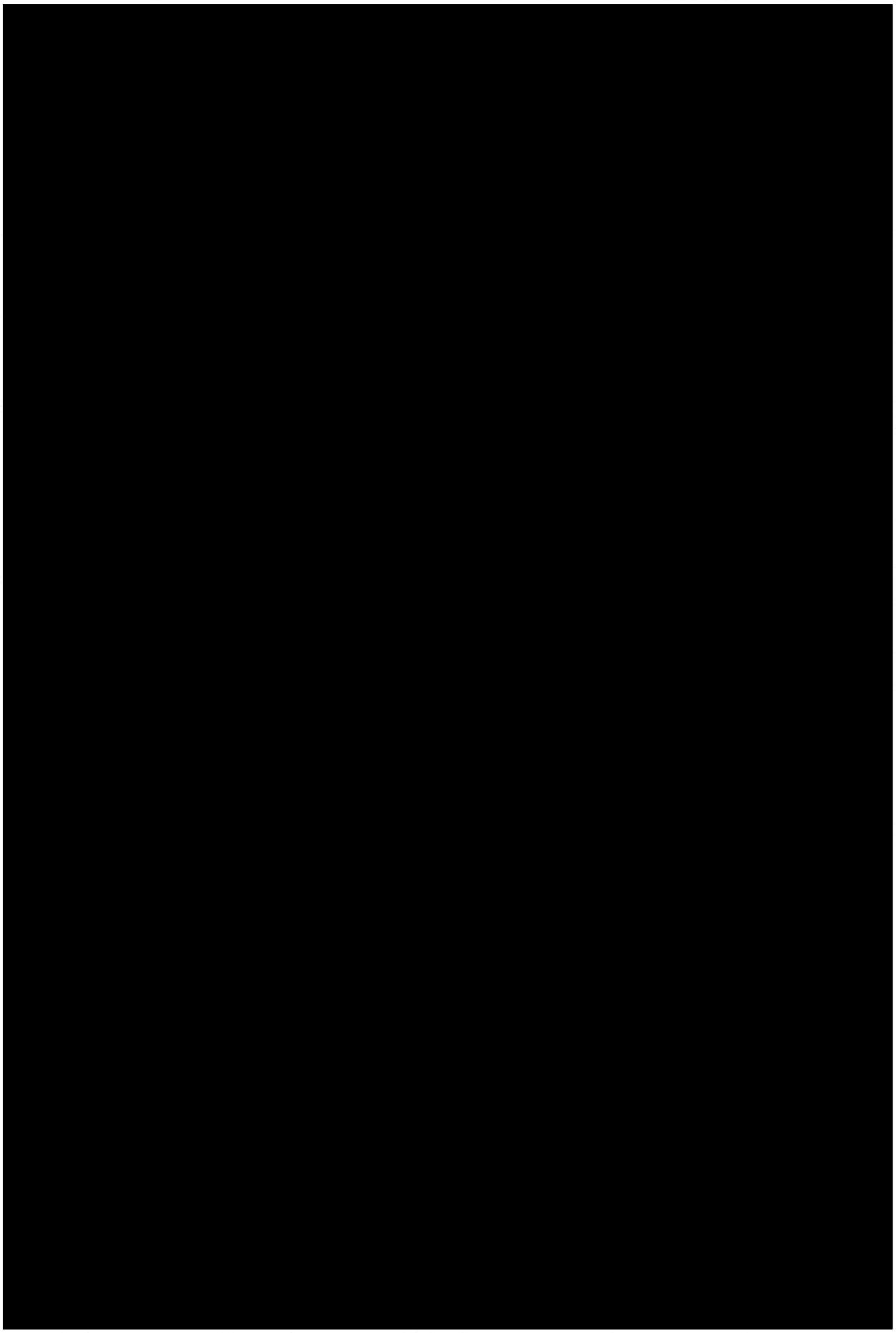


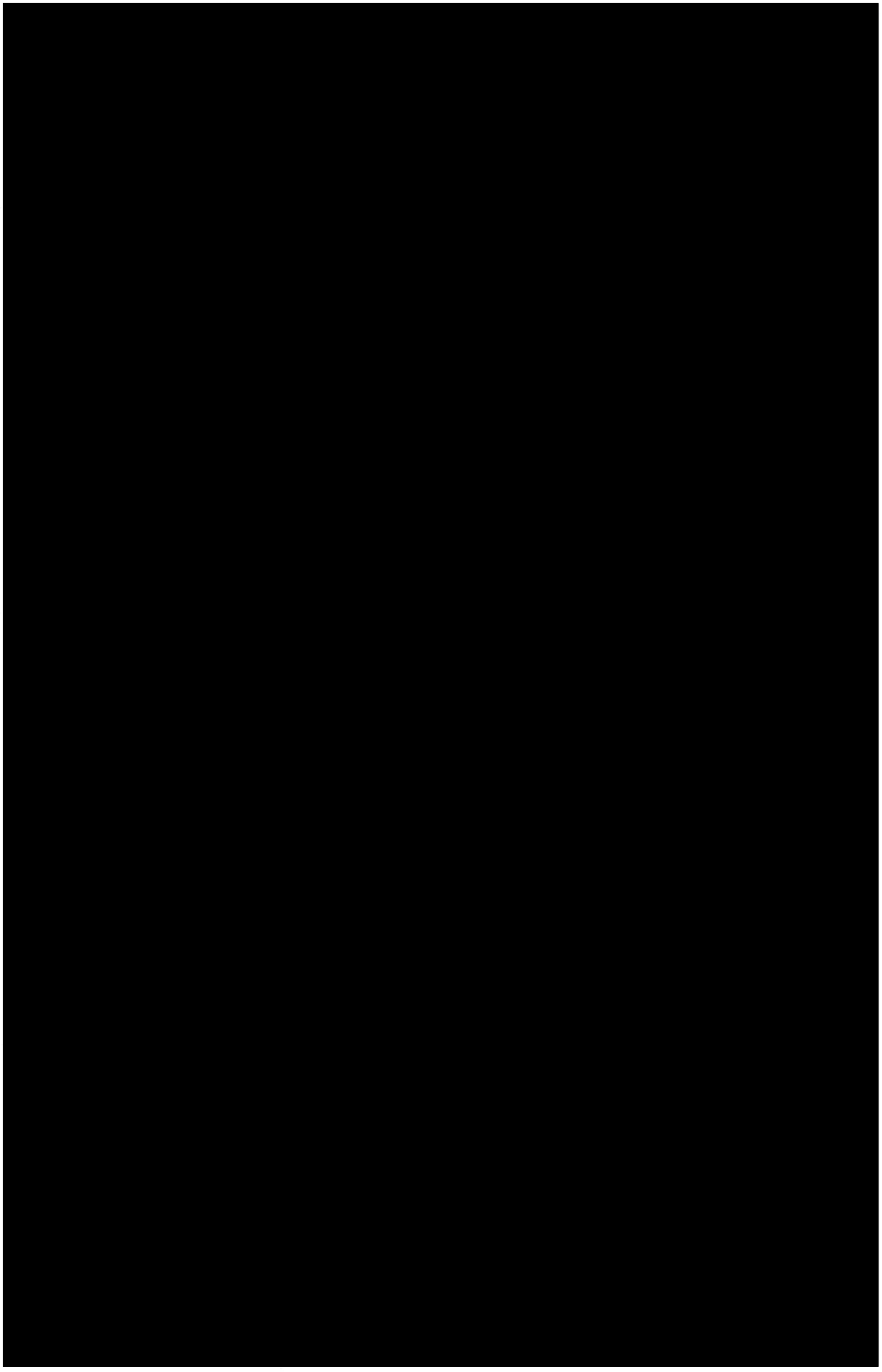


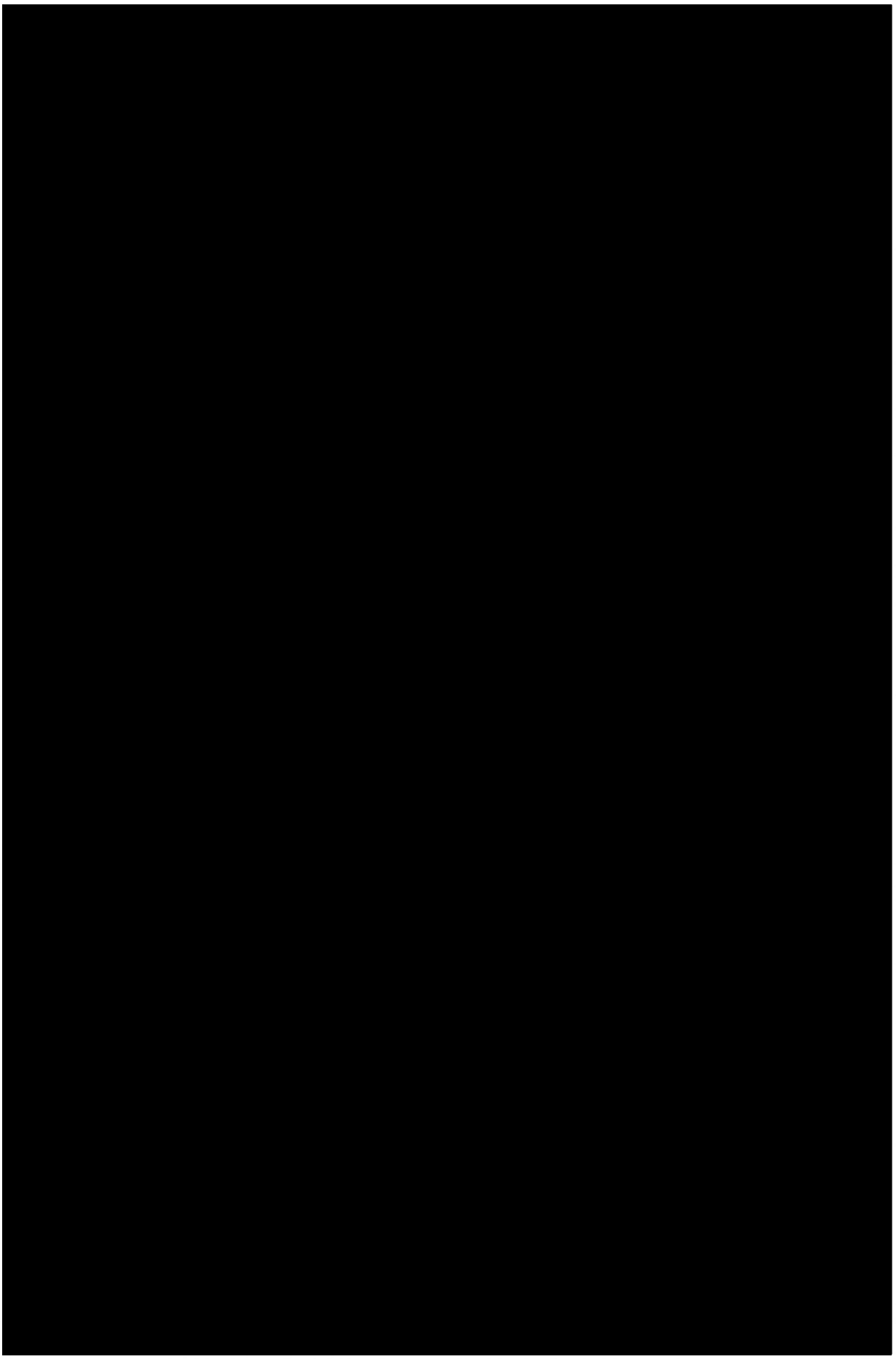


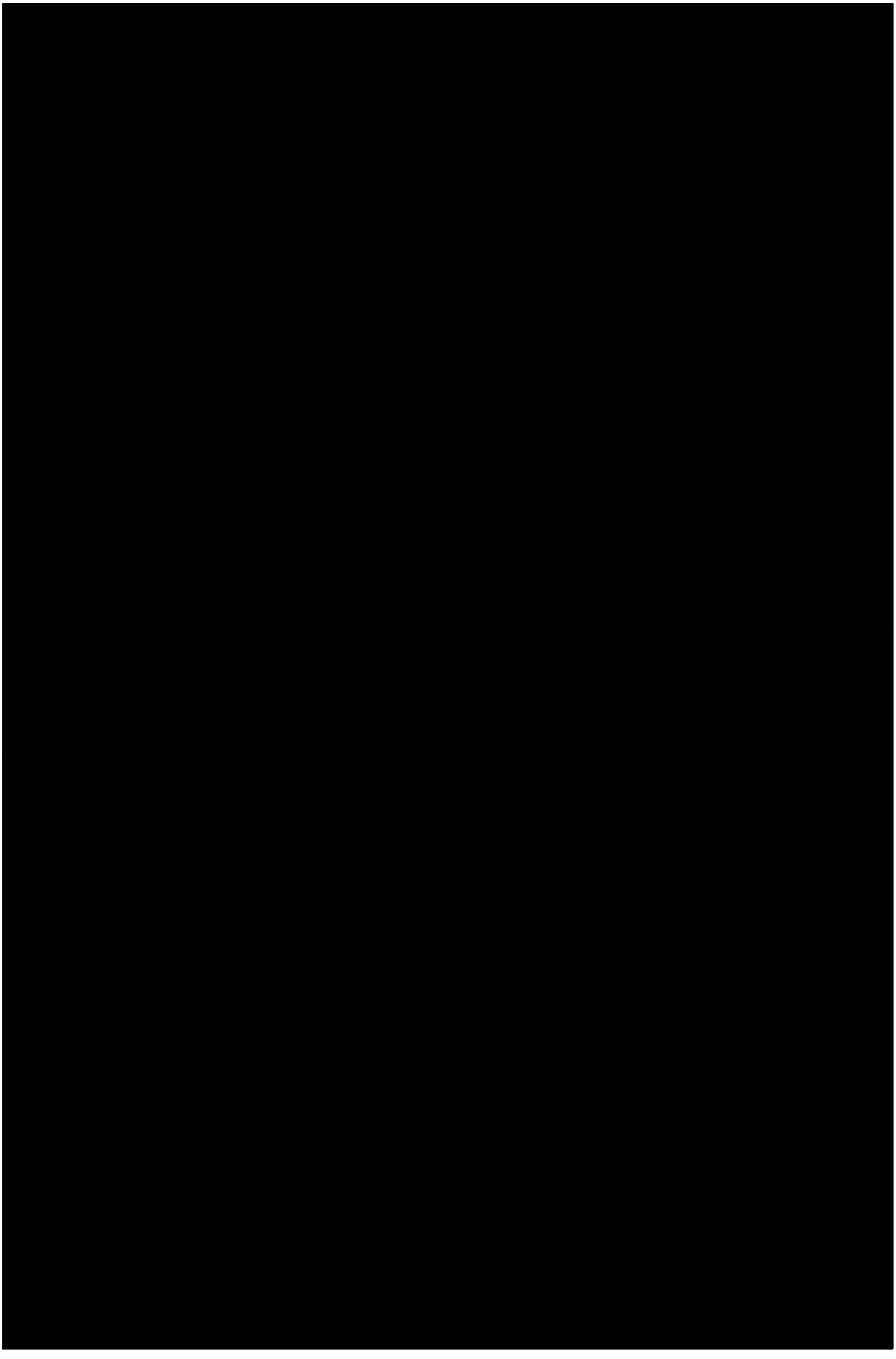


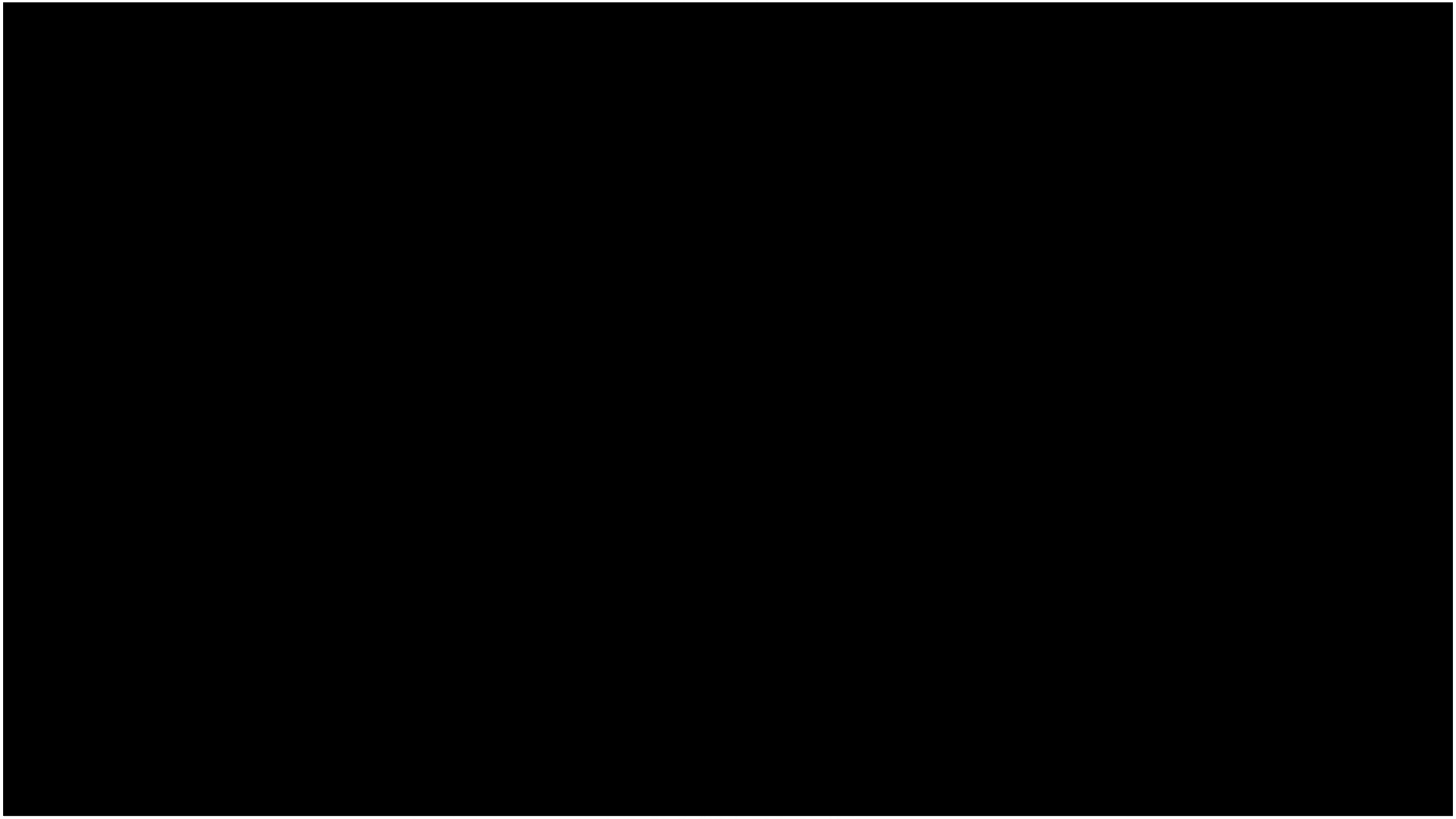


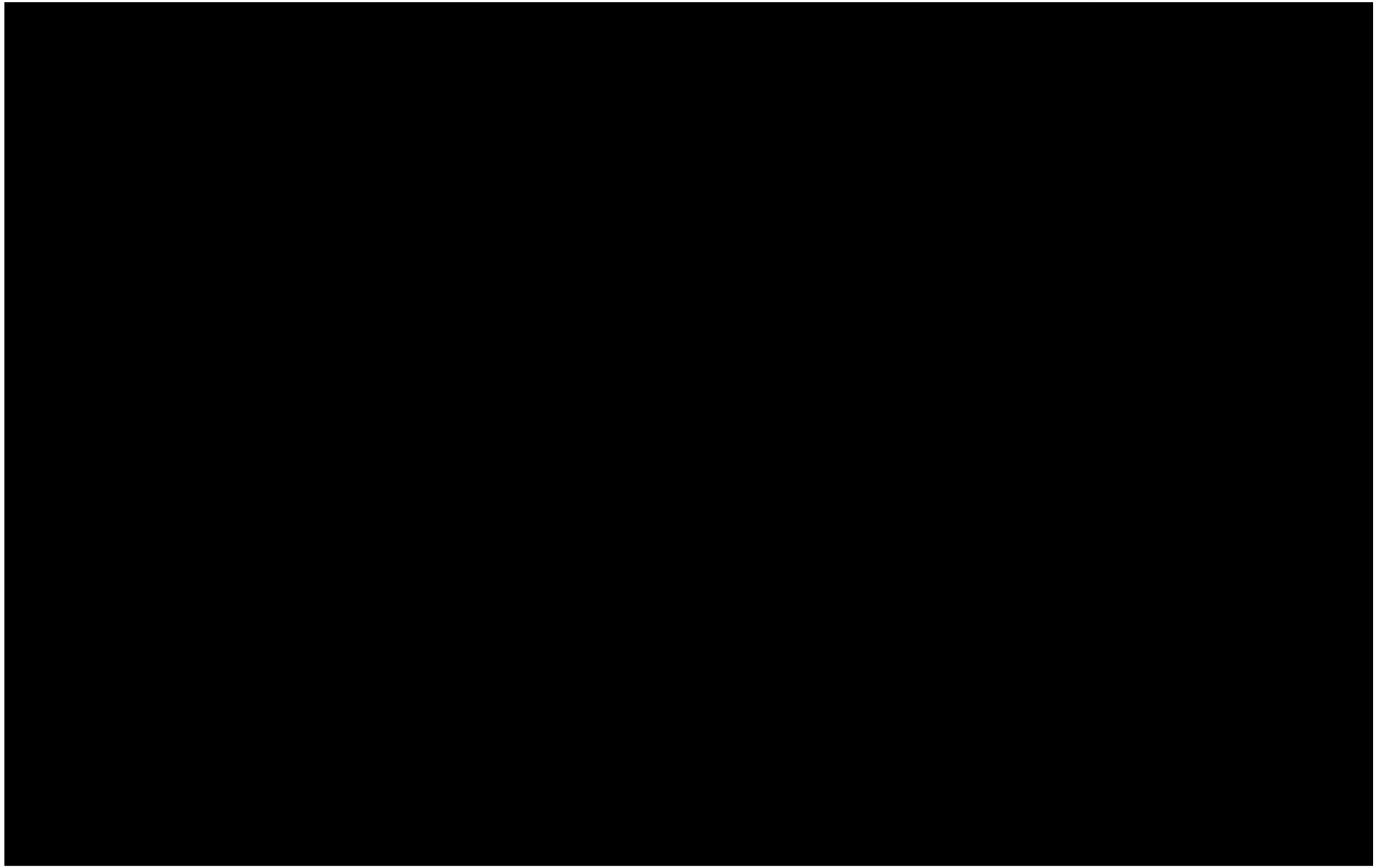


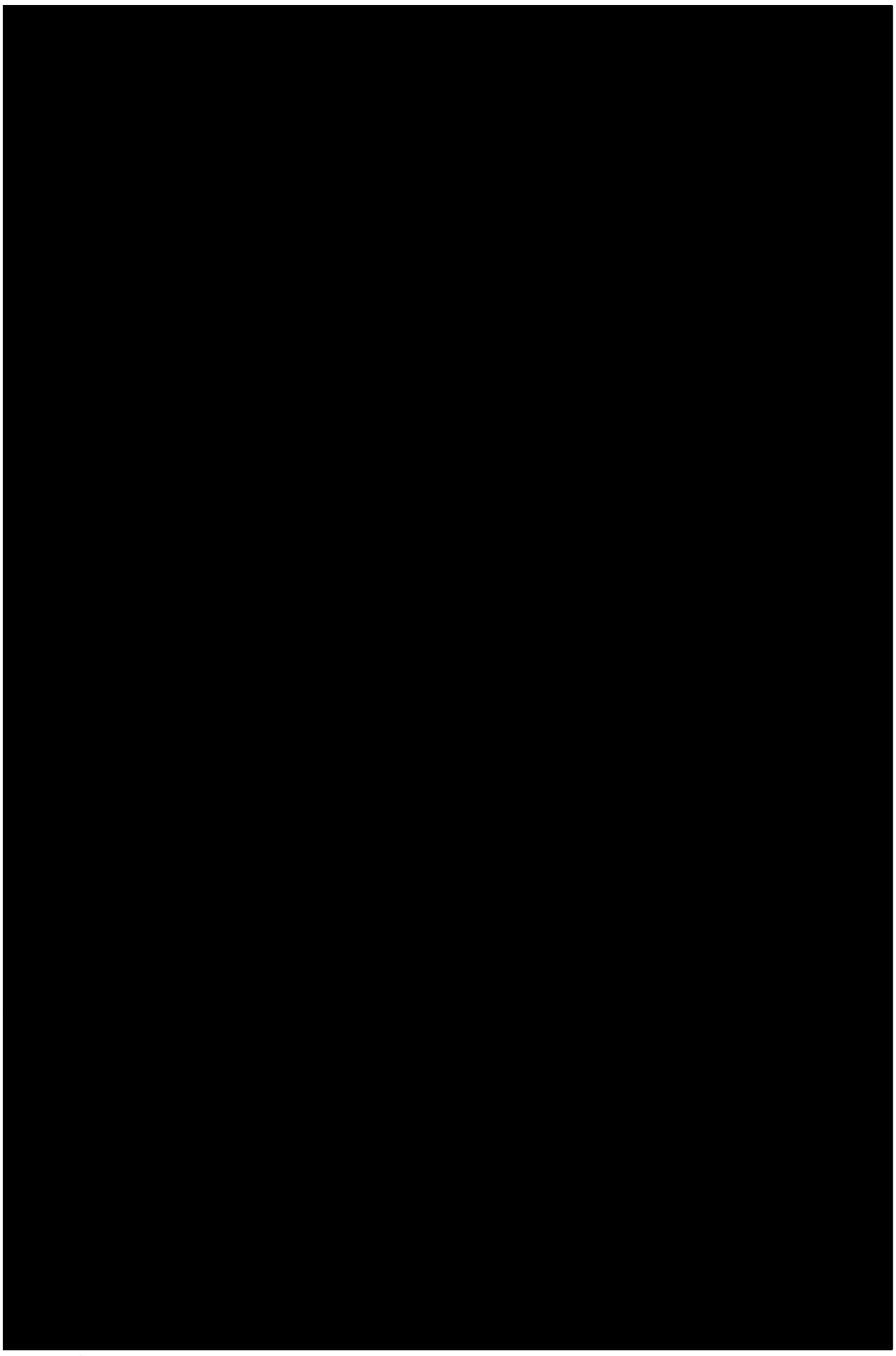


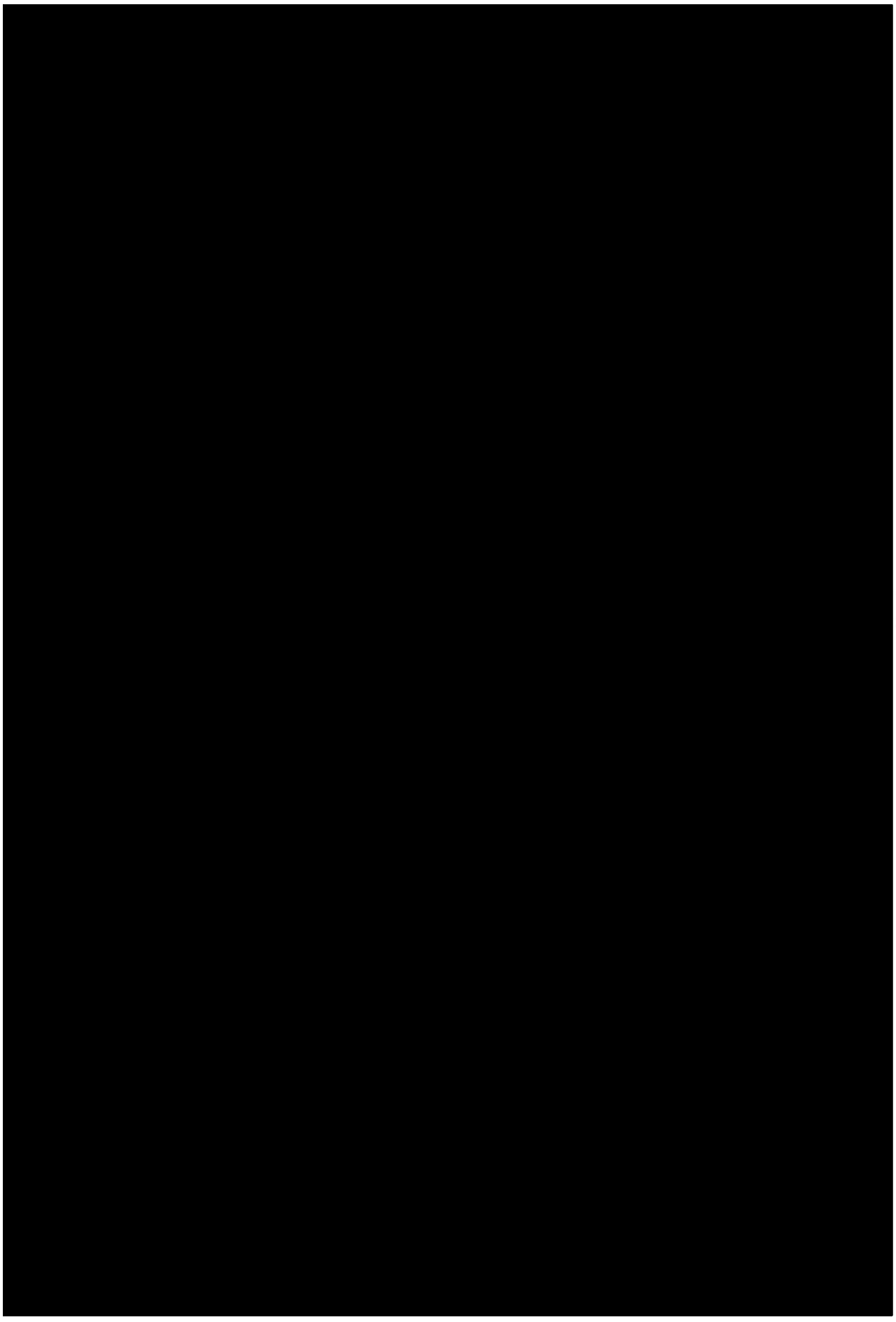


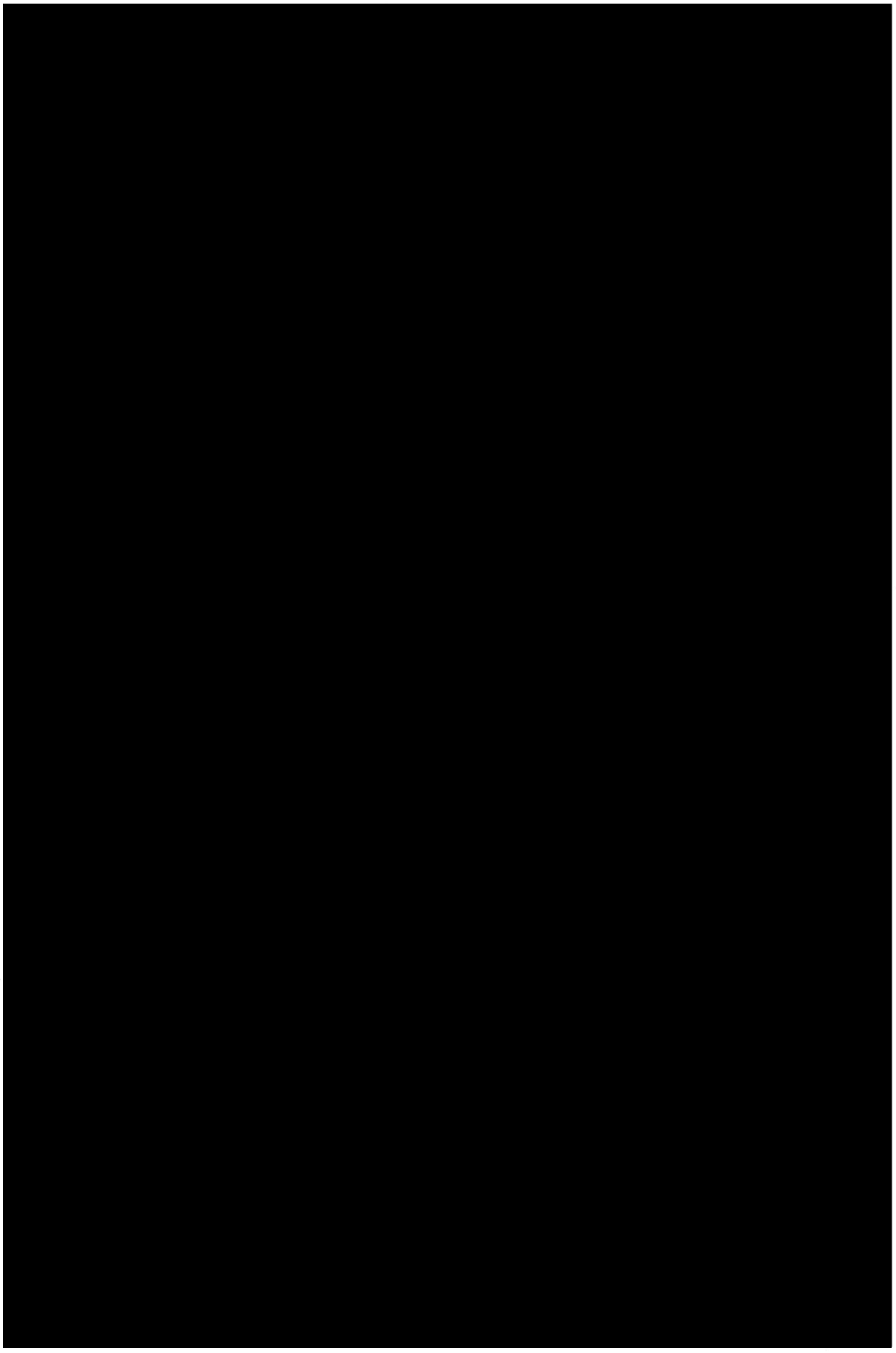


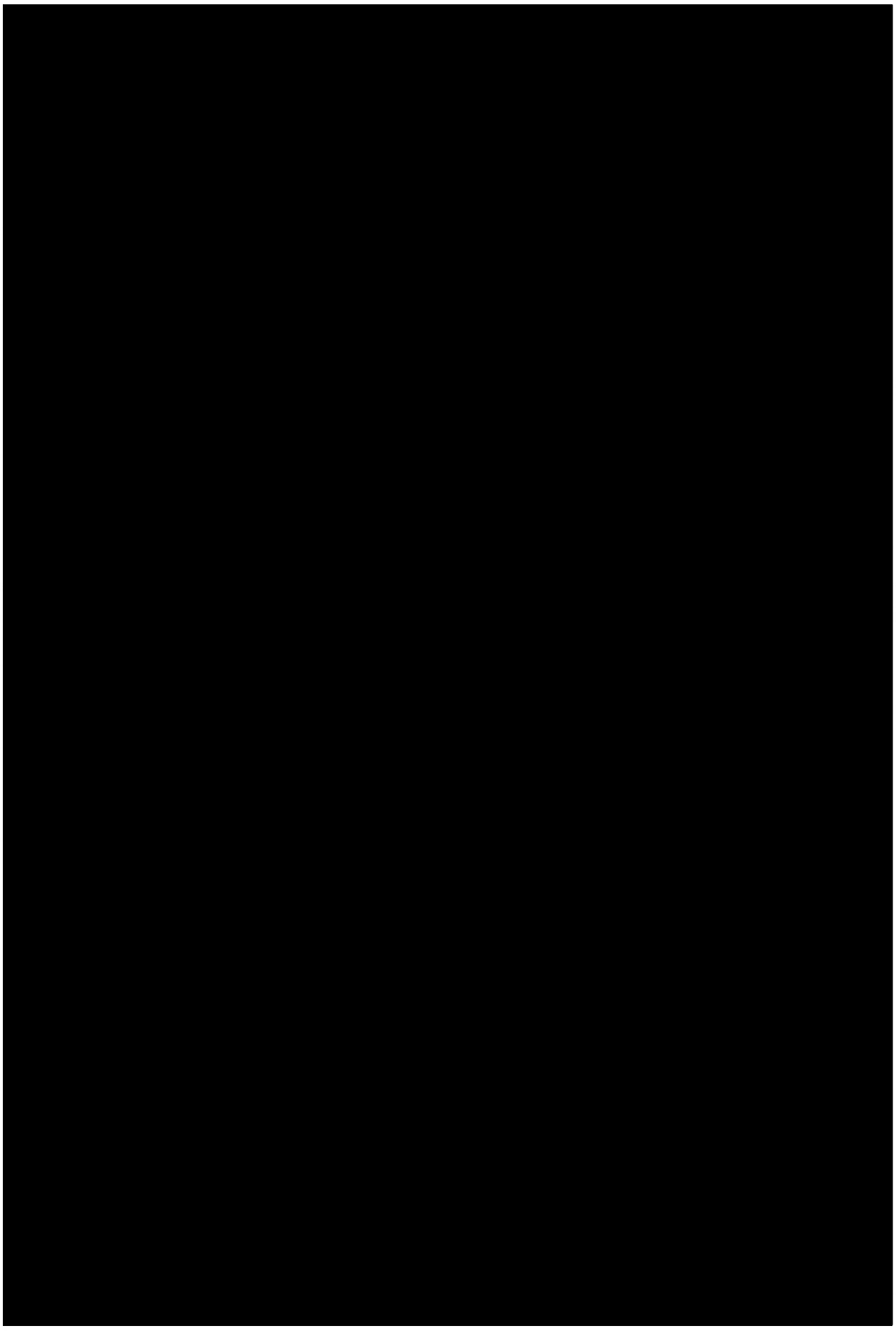


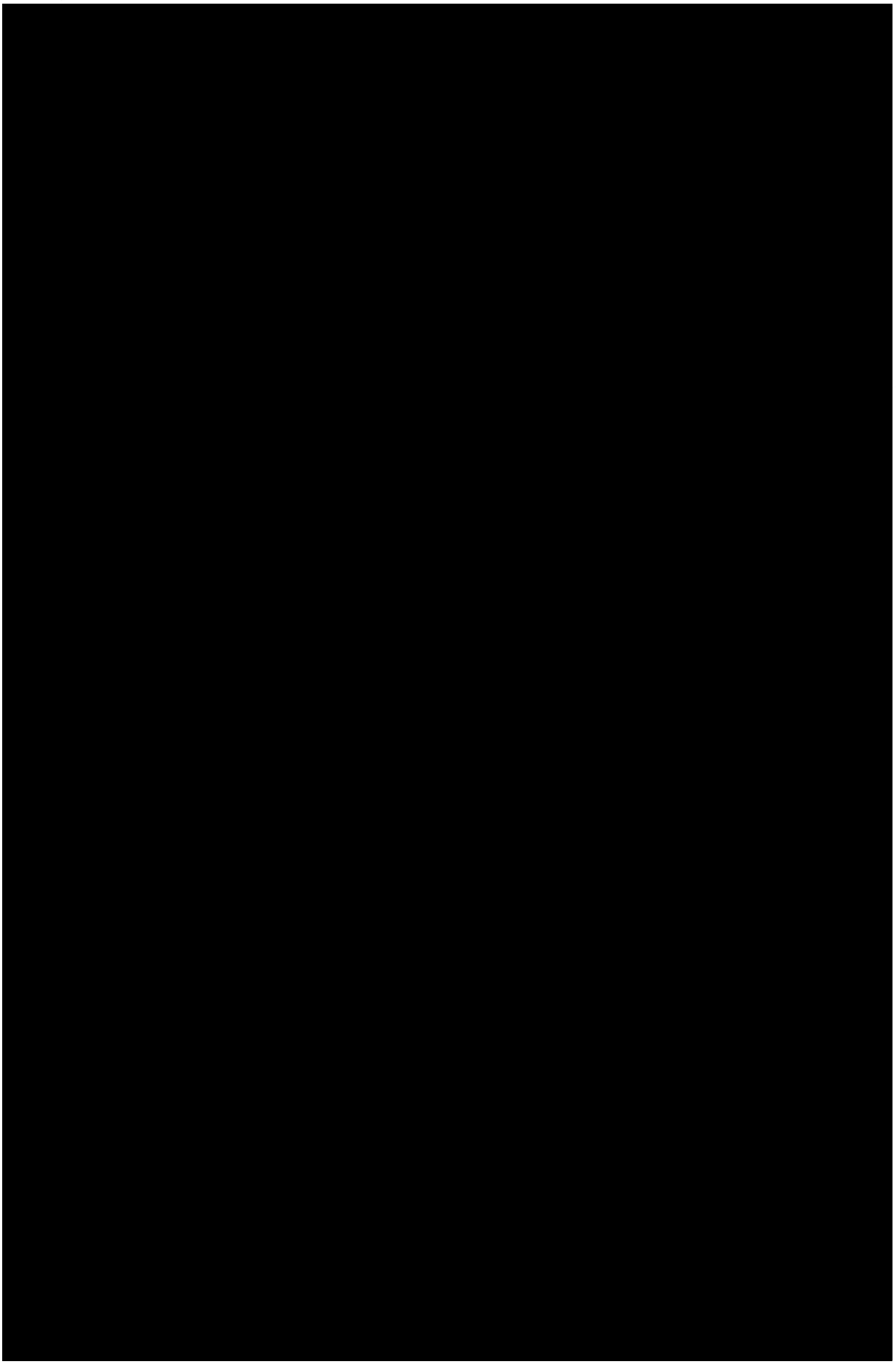


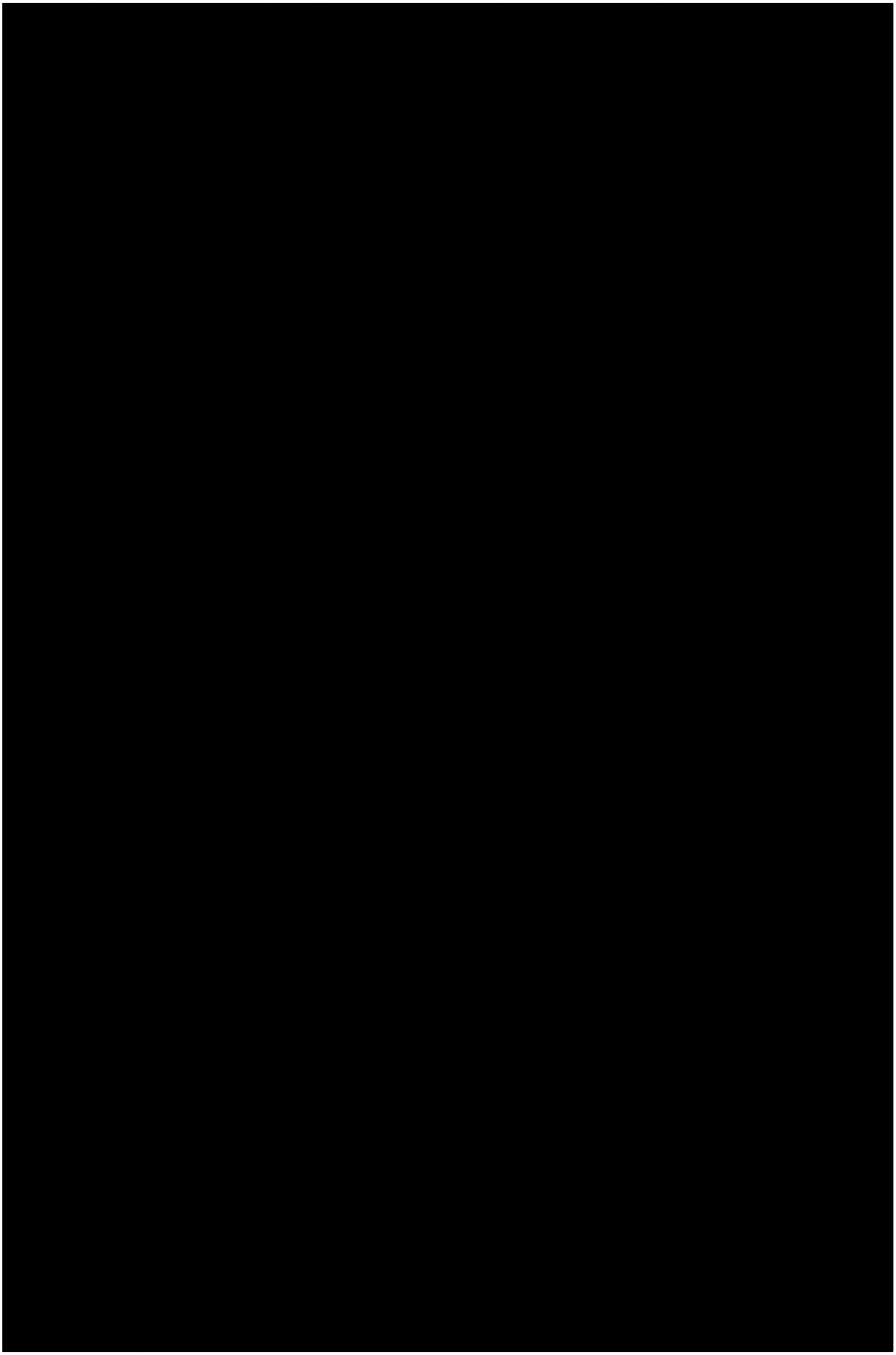


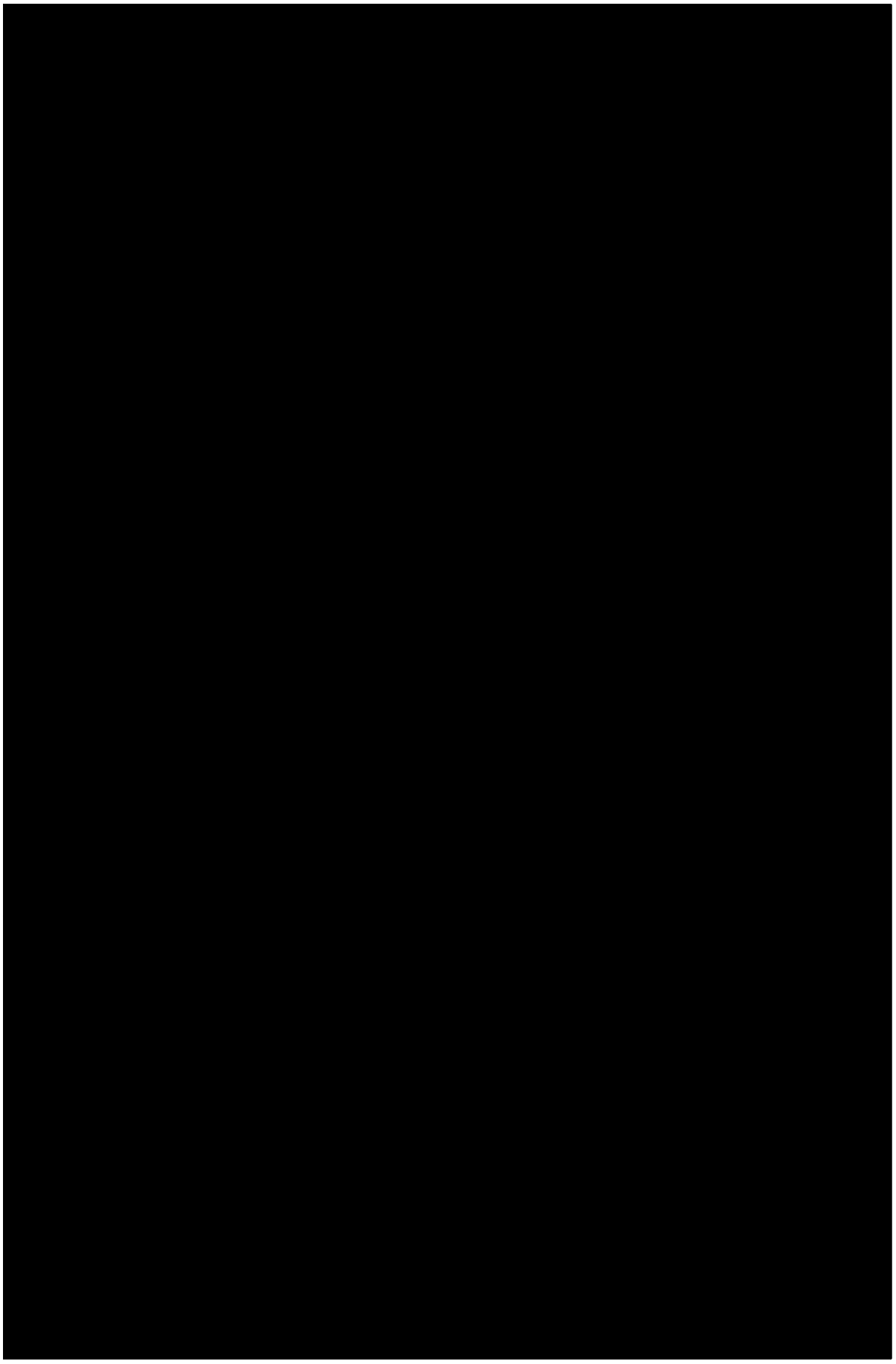


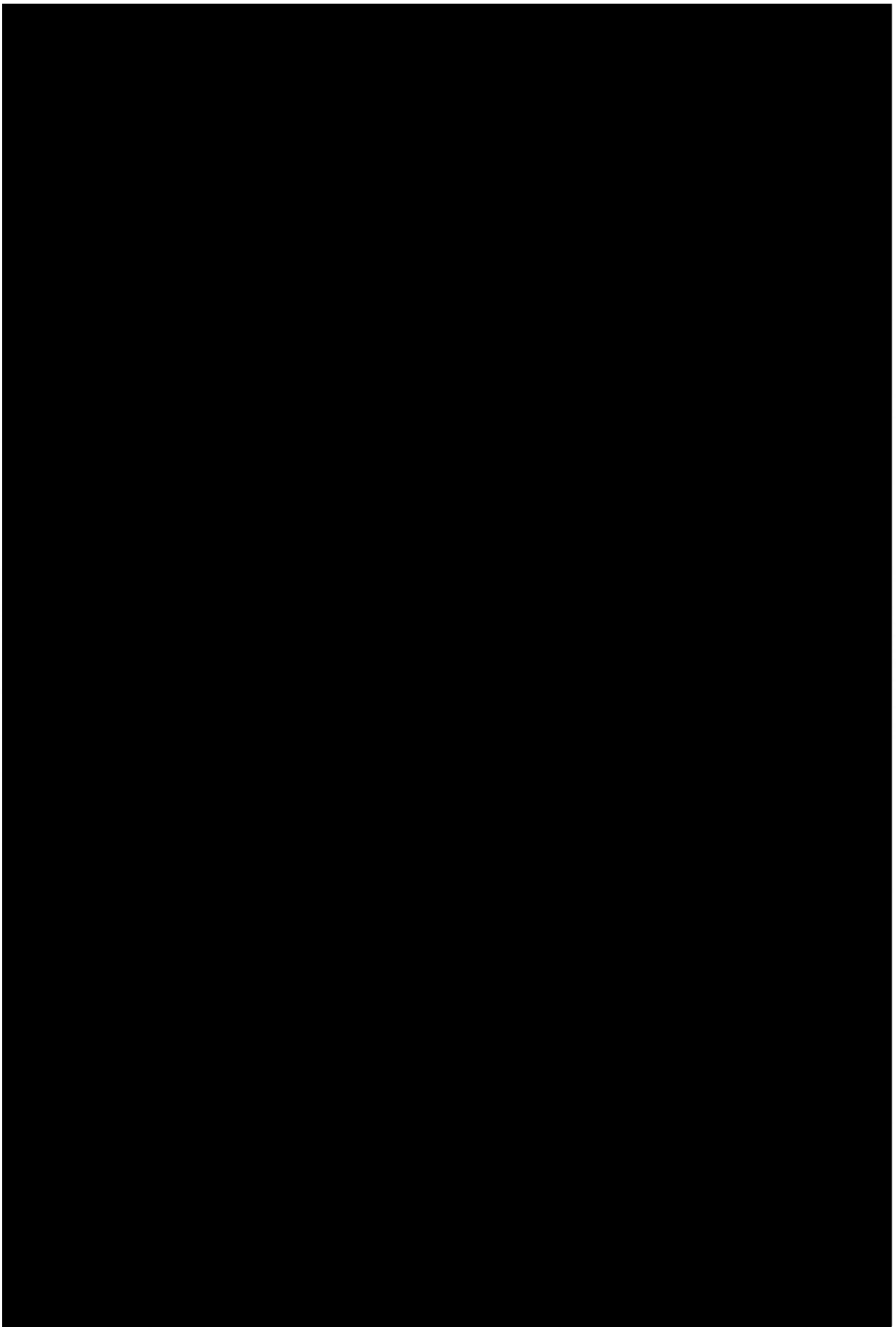


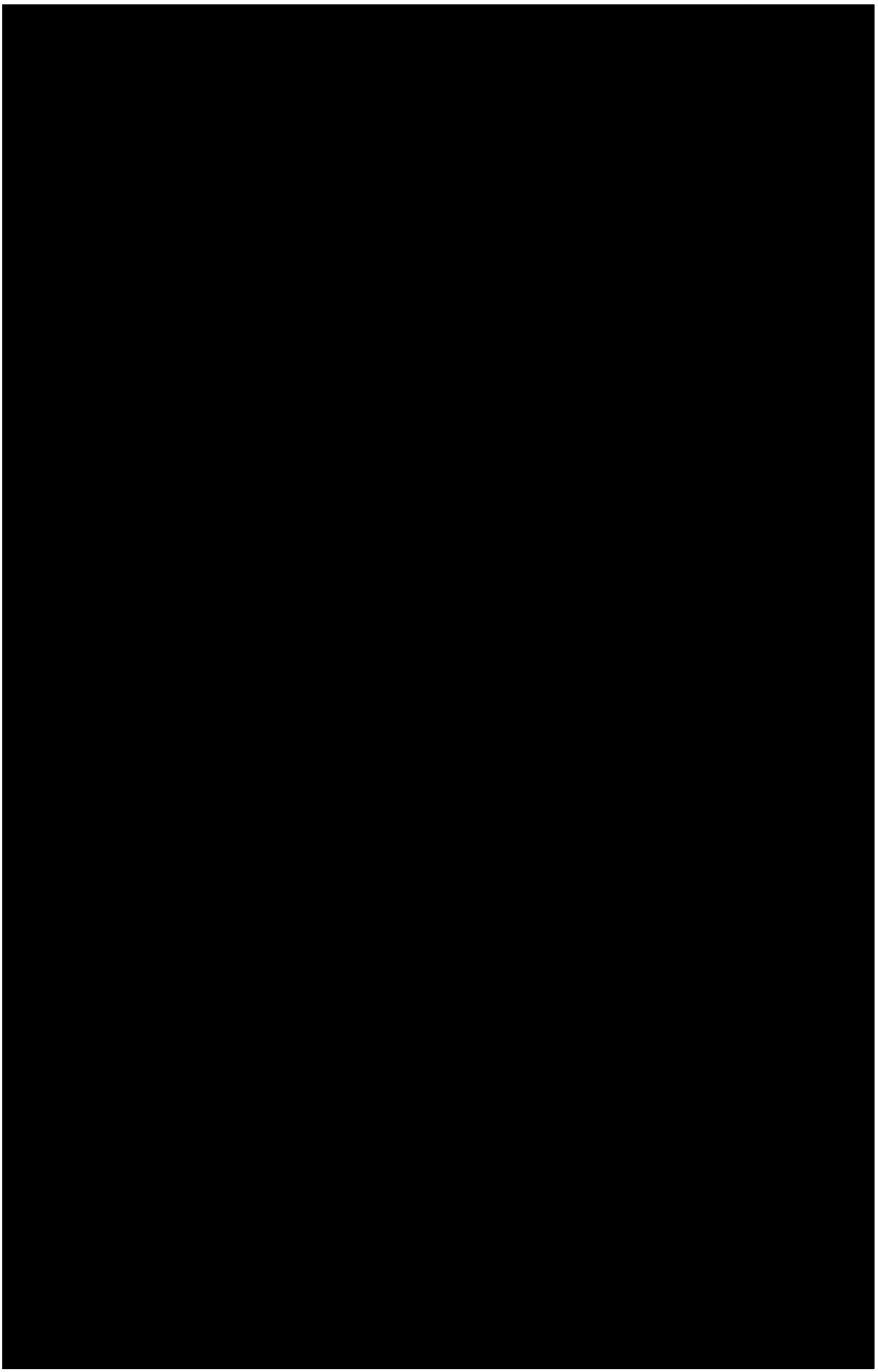


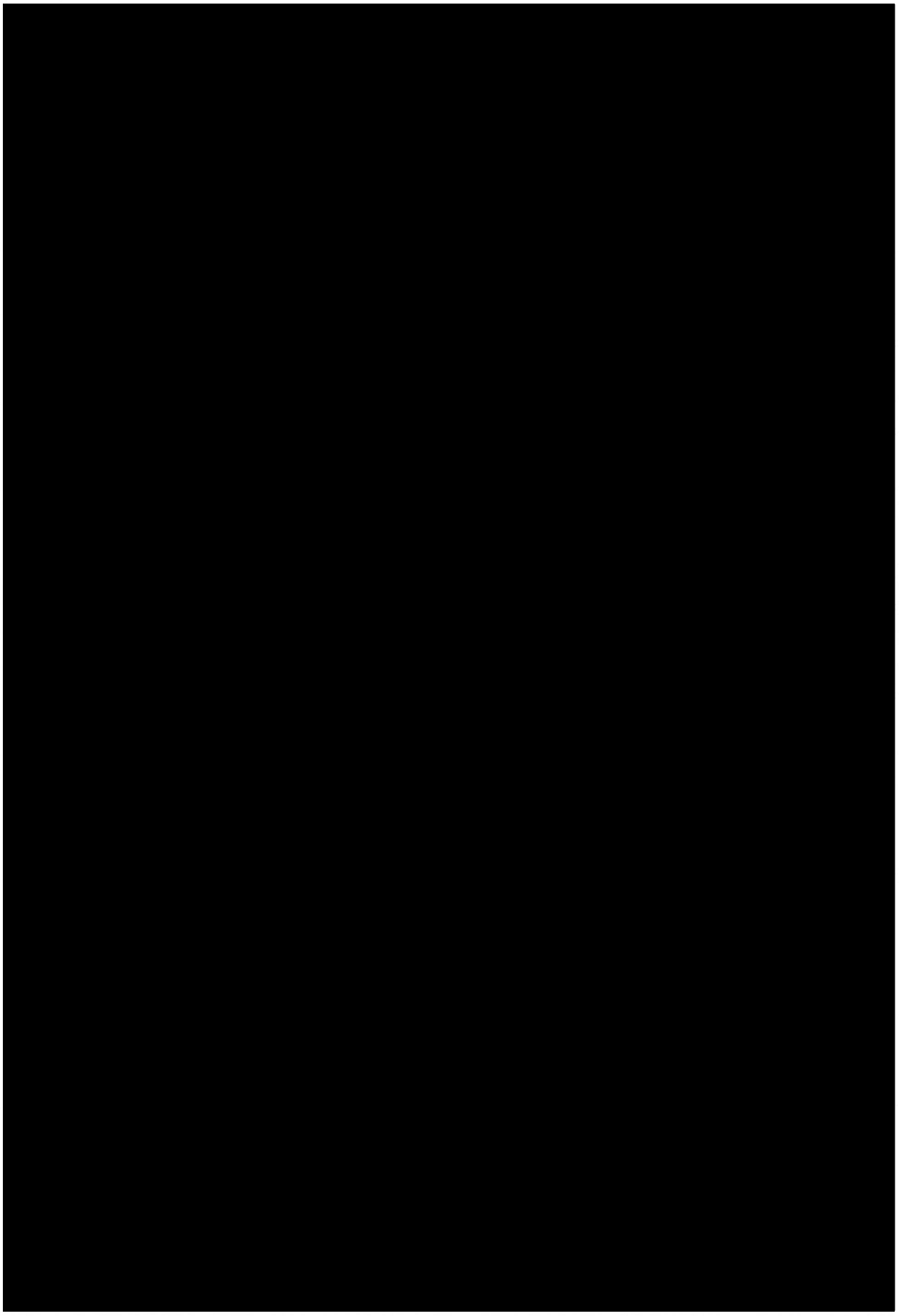


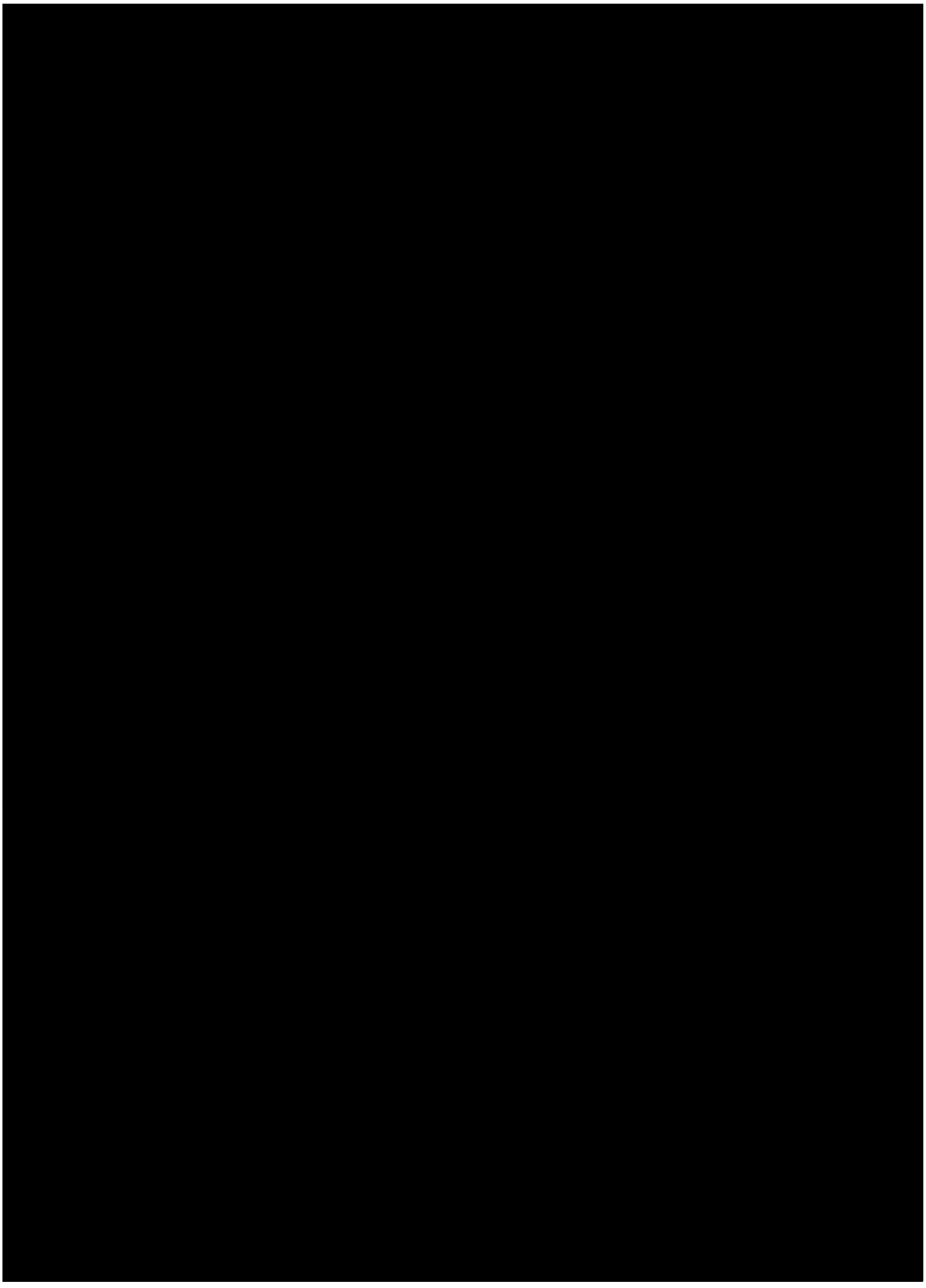


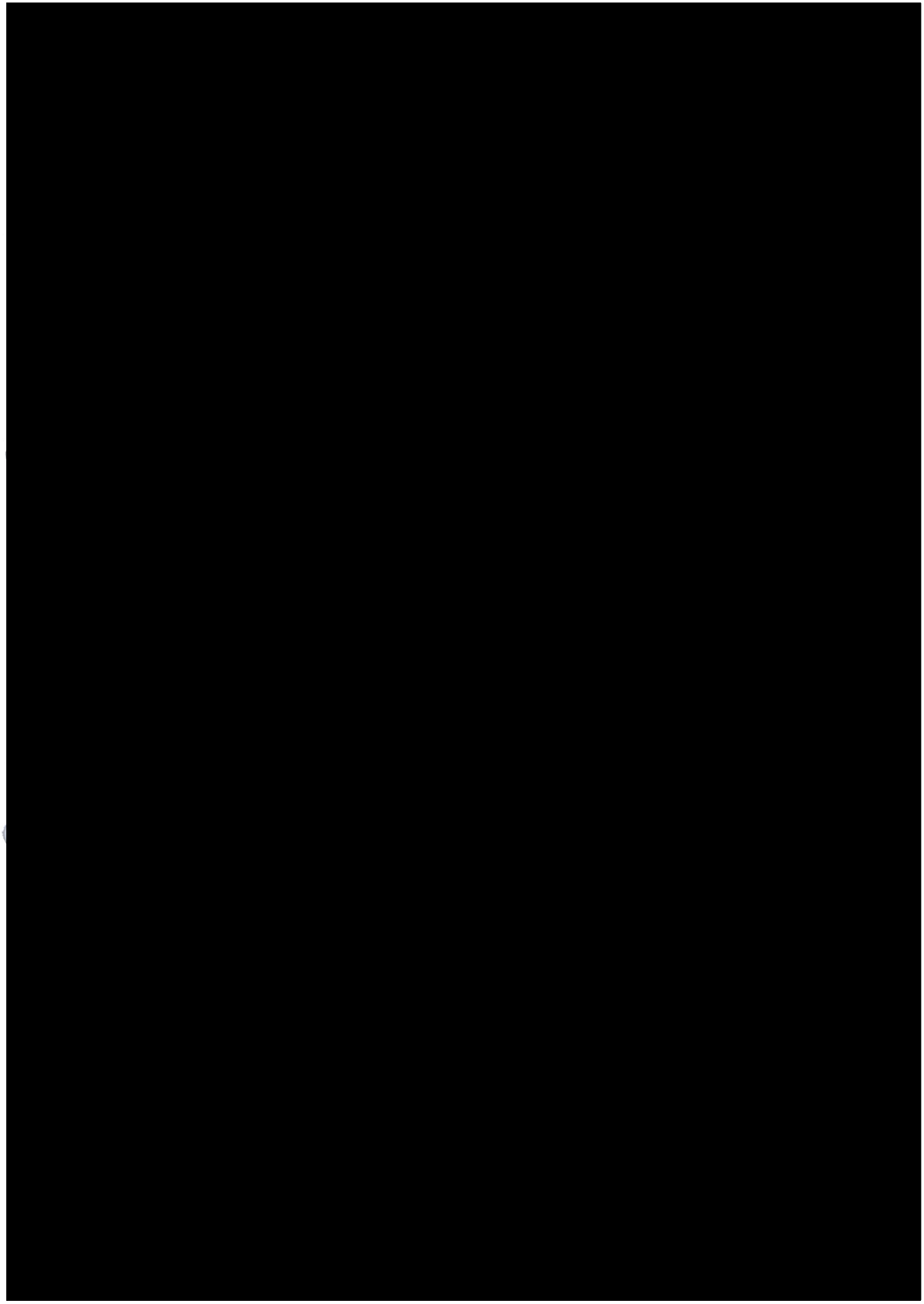


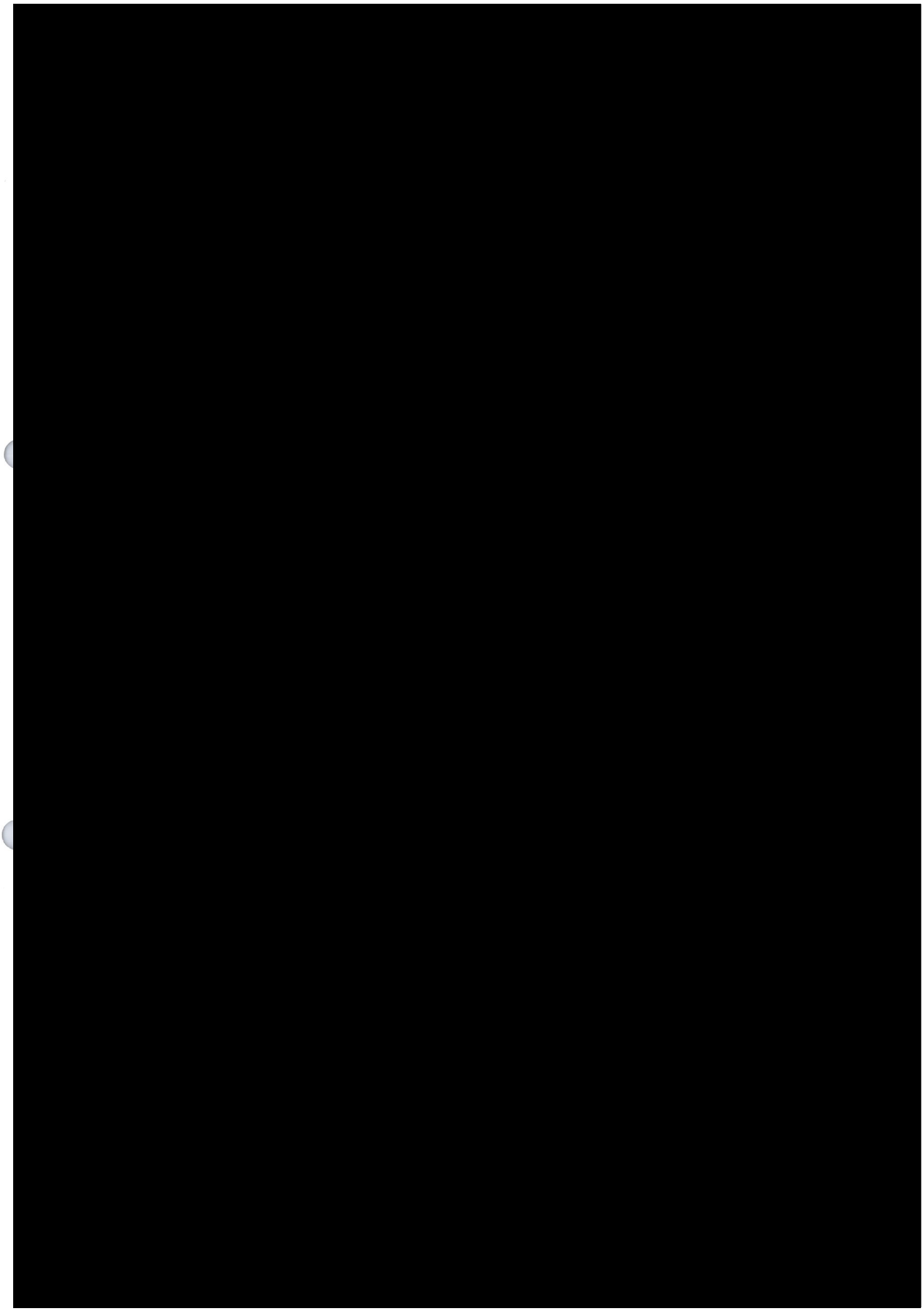


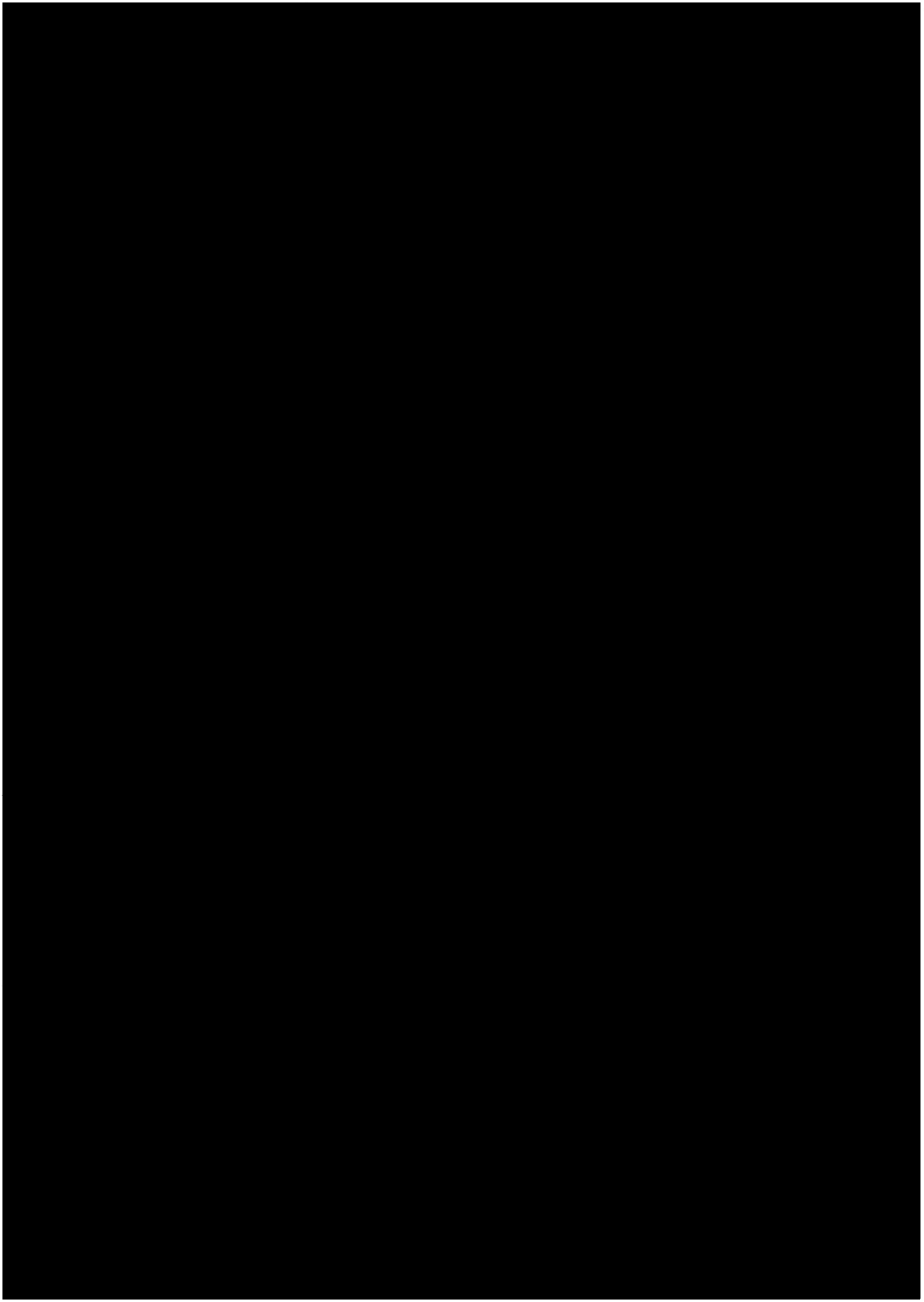


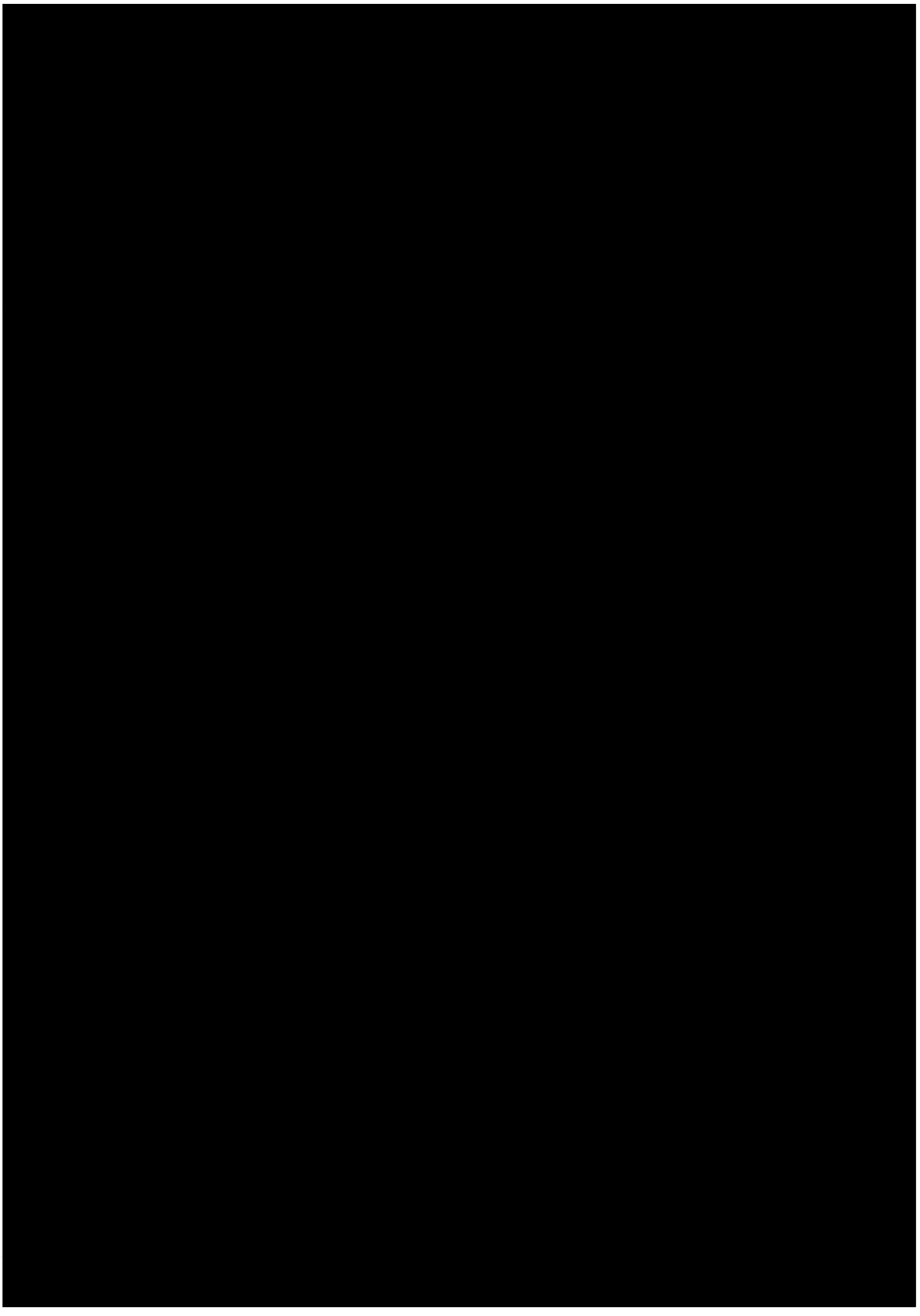


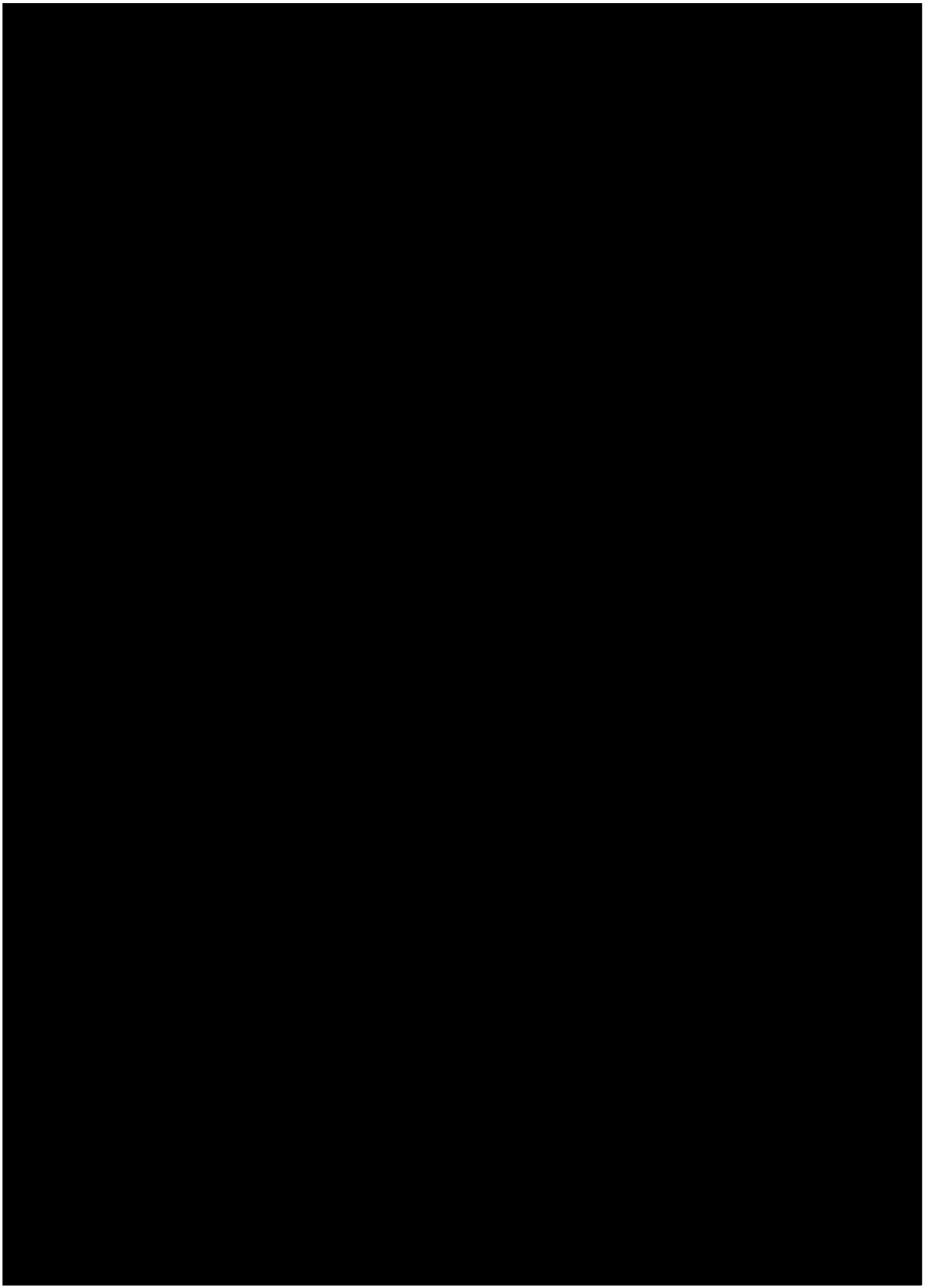


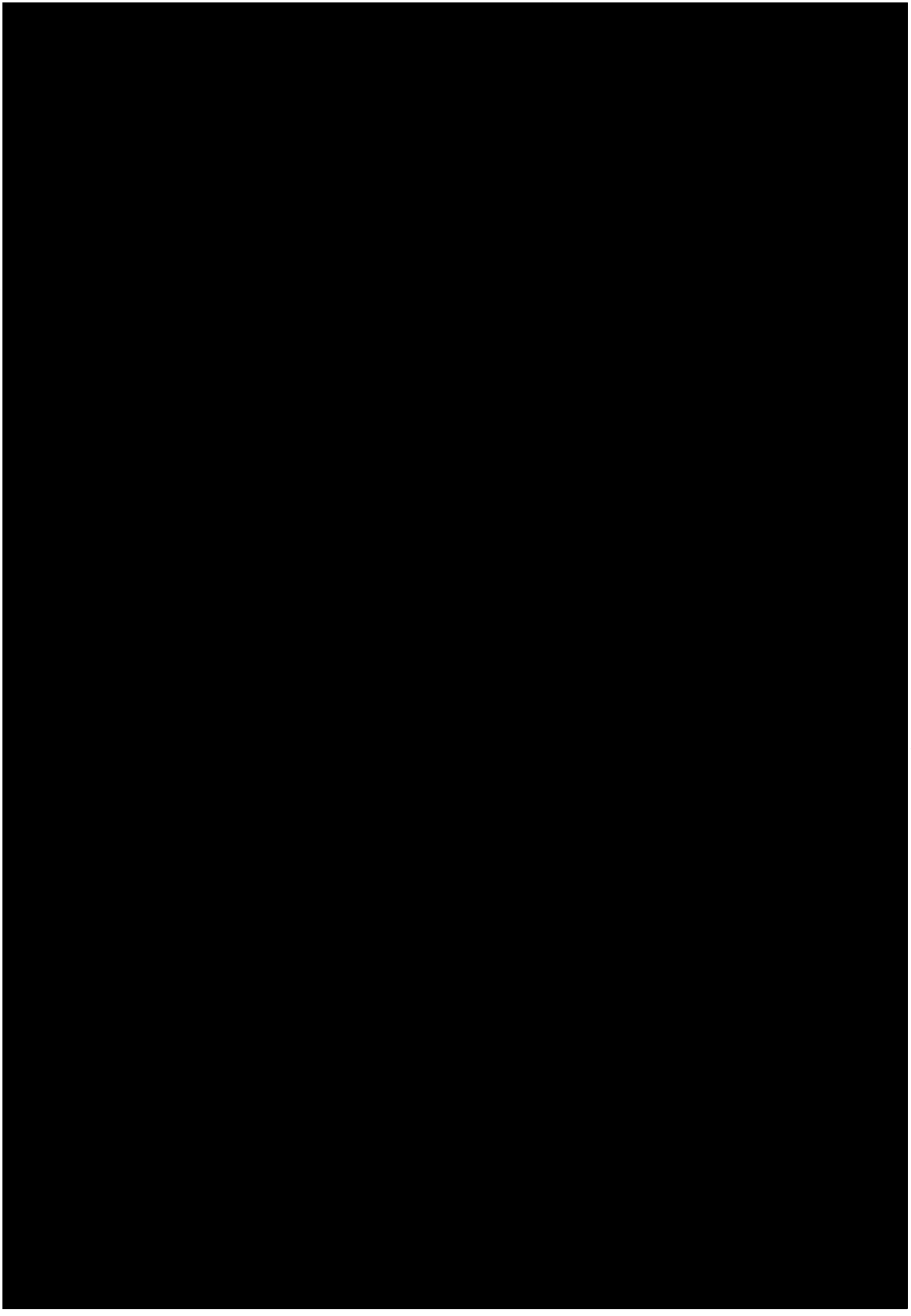


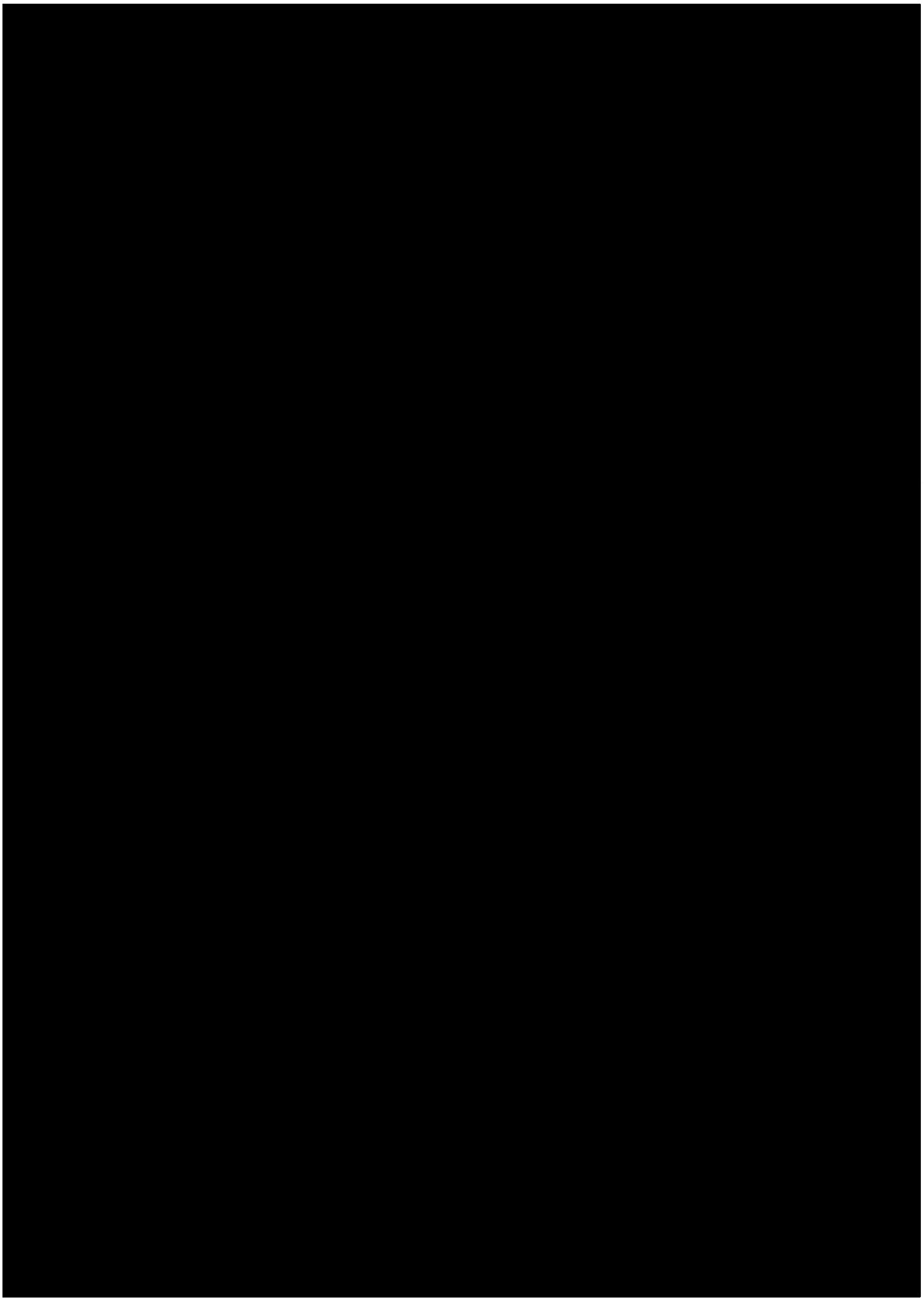


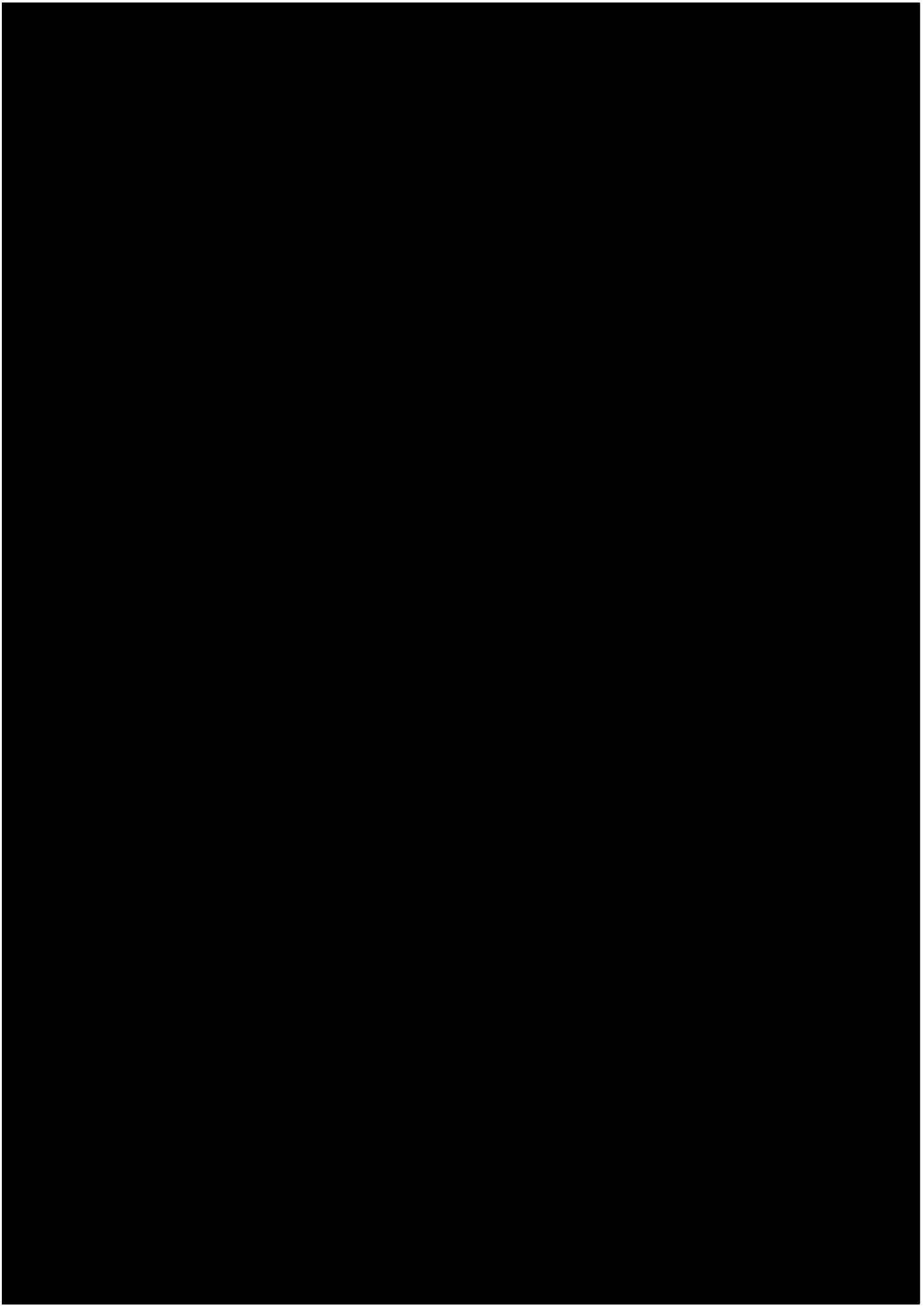


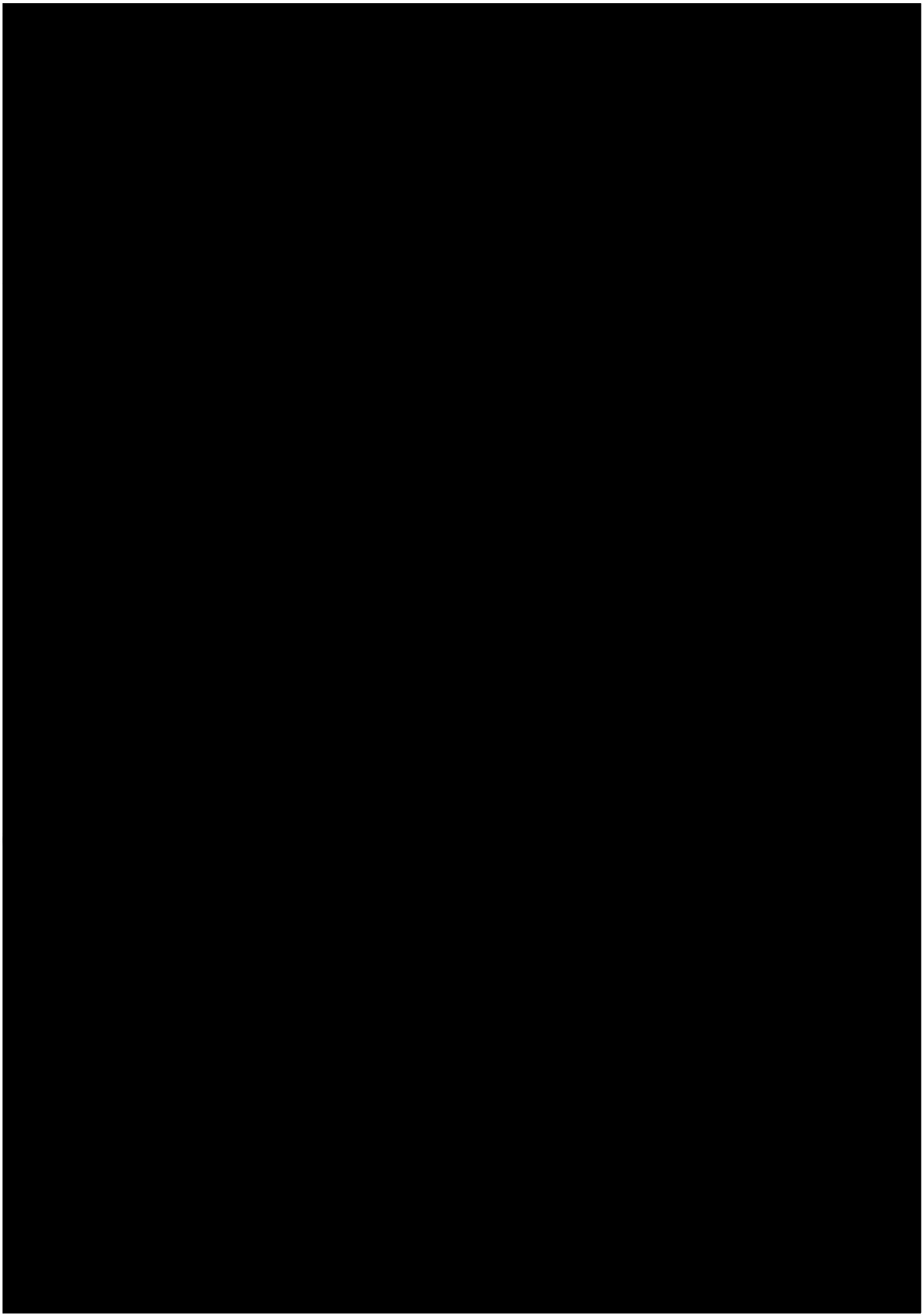


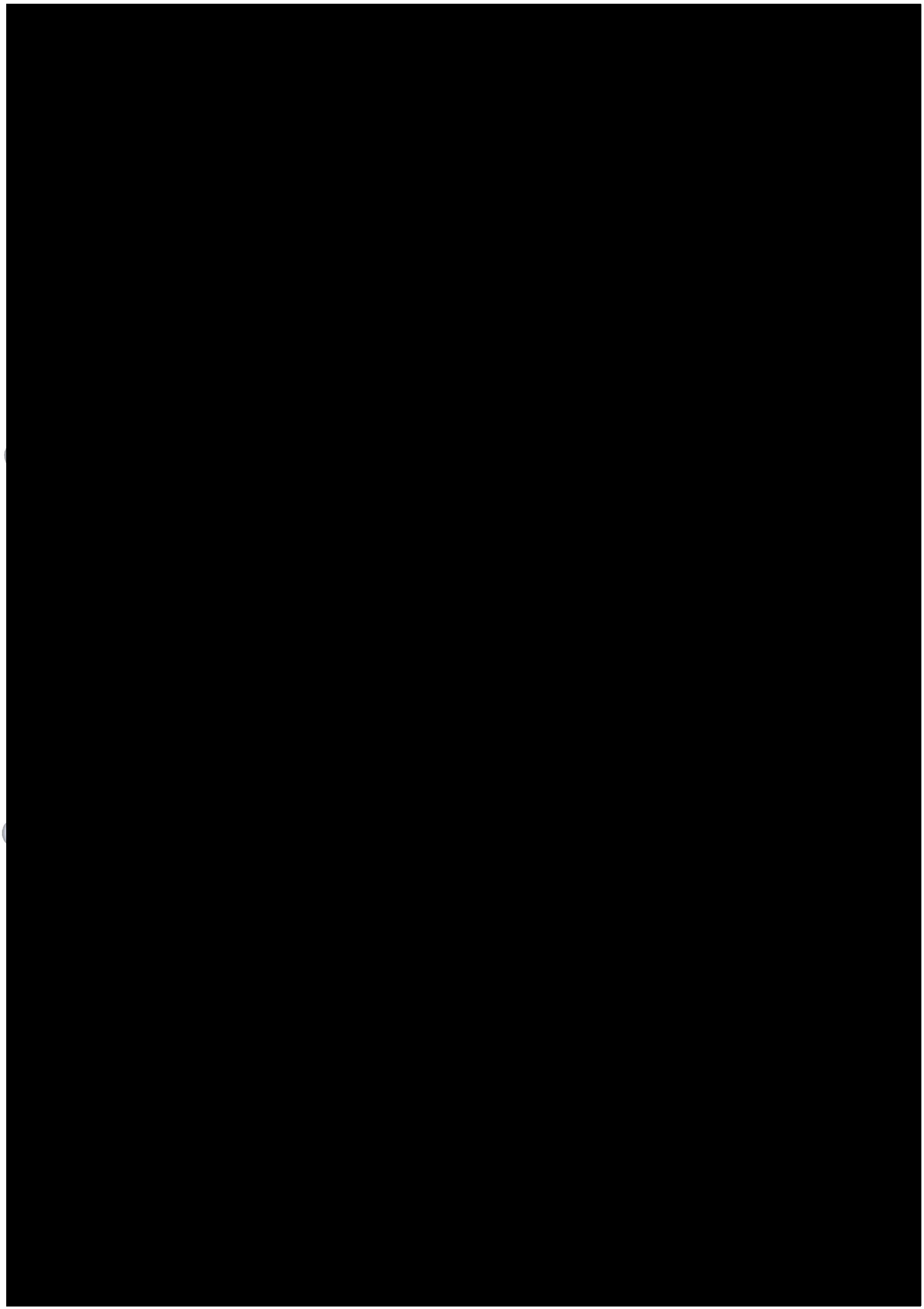


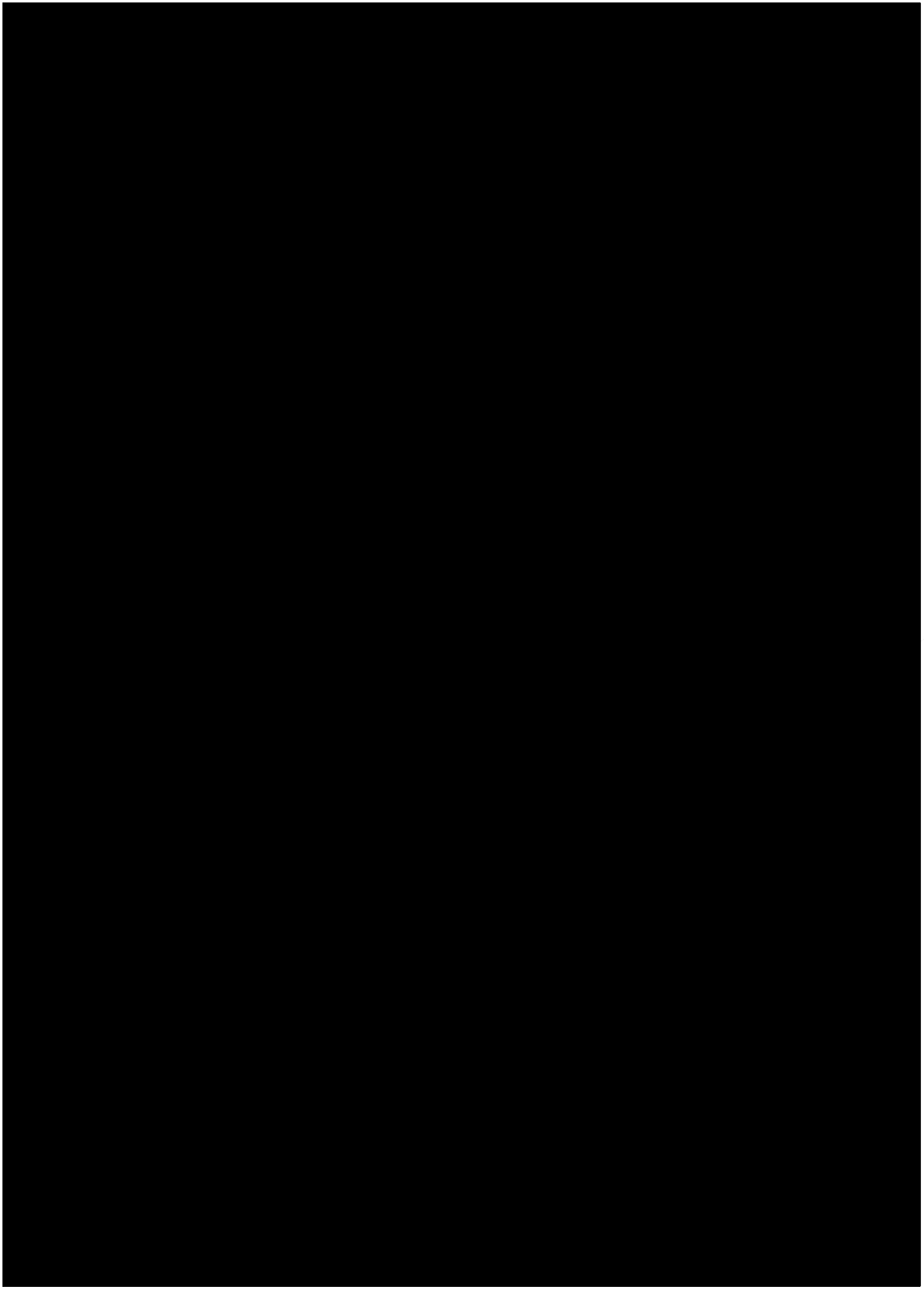












SCHEDULE E3. –PLANNING APPROVAL

(Clauses 1.1 and 6.2)

1. OBLIGATIONS IN RESPECT OF PLANNING APPROVAL

(a) The CSM Contractor must, in performing the CSM Contractor's Activities comply with all of the obligations, conditions and requirements of the Project Planning Approvals, 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 CSM Contractor's obligation in respect of that obligation, condition or requirement.

(b) Nothing in this Schedule E3 in any way limits, affects or relieves the CSM Contractor from complying with any obligation set out elsewhere in the Contract

(c) The CSM Contractor may apply to have any part of any of the Project Planning Approvals modified. The CSM Contractor acknowledges and agrees that it is solely responsible for any such modification application.

2. THE PRINCIPAL'S OBLIGATIONS IN RESPECT OF PROJECT PLANNING APPROVAL (CHATSWOOD TO SYDENHAM)

(a) Terms which have a defined meaning in the Project Planning Approval (Chatswood to Sydenham) have the same meaning where used in this section 2.

(b) In relation to the conditions in schedule 2 of the Project Planning Approval (Chatswood to Sydenham) the Principal will:

(i) be responsible for A1 to the extent specified in this clause 2;

(ii) be responsible for A2 to the extent specified in clause 2(c);

(iii) be responsible for A3 in relation to all works other than the Project Works and the CSM 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 CSM Contractor's Activities;

(vi) be responsible for A7 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, the CSM 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 Contractor, to the Secretary;

(vii) be responsible for A8 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(viii) be responsible for A9 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, the CSM 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 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 CSM Contractor's Activities;

(xi) in relation to A12, if it is proposed to construct and operate the CSSI in stages, prepare a Staging Report that complies with A13 and submit it to the Secretary;

(xii) be responsible for A14 in relation to all works other than the Project Works and the CSM Contractor's Activities. If A14 is relevant to the Project Works or the CSM Contractor's Activities, the Principal will provide a copy of the Staging Report to the CSM Contractor and notify any impact on the Project Works or the CSM Contractor's Activities;

(xiii) be responsible for A15 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xiv) be responsible for A16 to A20 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xv) be responsible for A21;

(xvi) in relation to A22, engage, nominate, and seek approval from the Secretary of a suitably qualified and experienced ER. The Principal will be the single point of contact with the Secretary and provide the CSM Contractor with the date the submission for approval is made, or any other timeframe relevant to this condition;

(xvii) be responsible for A23 in relation to all works other than the Project Works and the CSM Contractor's Activities. The Principal will notify the CSM Contractor when the approval of the Secretary is given;

(xviii) in relation to A25, engage, nominate, and seek approval from the Secretary of a suitably qualified and experienced Acoustics Adviser (AA). The Principal will be the single point of contact with the Secretary and notify the CSM 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 CSM Contractor's Activities;

(xix) be responsible for A26 in relation to all works other than the Project Works and the CSM Contractor's Activities. The Principal will notify the CSM Contractor when the approval of the Secretary is given;

(xx) be responsible for A28;

(xxi) be responsible for A29. The Principal will notify the CSM 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 CSM Contractor's Activities;

(xxii) be responsible for A30, except that the CSM Contractor must:

(A) provide the Principal with all the information, documents, details and data relating to the CSM Contractor's Activities to enable the Principal to comply with this condition; and

(B) participate in any activities necessary under the Compliance Tracking Program;

(xxiii) be responsible for A31, except that the CSM Contractor must provide the Principal with all the information, documents, details and data relating to the CSM 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 CSM Contractor any other timeframe relevant to this condition agreed with the Secretary;

(xxiv) be responsible for A32;

(xxv) be responsible for A33. The Principal has prepared the Pre-Construction Compliance Report and submitted it to the Secretary;

(xxvi) be responsible for A34, except that the CSM Contractor must provide the Principal with all the information, documents, details and data relating to the CSM Contractor's Activities to enable the Principal to comply with this condition;

(xxvii) be responsible for A35 and A36, except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to CSM Contractor's Activities that are required by the Principal to prepare the "Pre-Operation Compliance Reports";

(xxviii) be responsible for A37 to A40, except that the CSM Contractor must:

(A) provide the Principal with all the information, documents, details and data relating to the CSM 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 CSM Contractor of the date of submission;

(xxix) be responsible for A41 to A44, except that the CSM Contractor must provide the Principal with all the information, documents, details and data relating to the CSM Contractor's Activities to enable the Principal to comply with these conditions;

(xxx) be responsible for B1 and B2 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxi) be responsible for B3 in relation to all works other than the Project Works and the CSM Contractor's Activities. The CSM Contractor must provide its Community Communication Strategy to the Principal and the Principal will submit the CSM Contractor's Community Communication Strategy to the Secretary for approval and advise the CSM Contractor when the approval of the Secretary is given;

(xxxii) be responsible for B4 in relation to all works other than the Project Works and the CSM Contractor's Activities. The Principal will notify the CSM Contractor when the approval of the Secretary is given or of any other timeframe agreed with the Secretary;

(xxxiii) be responsible for B5 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxiv) be responsible for B6 to B8 in relation to the preparation of the Complaints Management System, except that the CSM Contractor must provide the

Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required by the Principal to prepare the "Complaints Management System";

(xxxv) be responsible for B9 to B12, except that the CSM Contractor must ensure that the telephone number, postal address and email address required under condition B9(a), (b) and (c) is placed on site hoarding at each construction site before commencement of construction in accordance with condition B10;

(xxxvi) be responsible for B13, except that except that the CSM Contractor must:

(A) provide the Principal and the Community Complaints Commissioner with all information, documents, details and data relating to the CSM 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;

(xxxvii) be responsible for B14, except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to comply with this condition B14;

(xxxviii) be responsible for B15, except that the CSM Contractor must:

(A) establish and maintain a new website, or dedicated pages within an existing website, and comply with condition B15 in relation to CSM Contractor 's Activities;

(B) agree with the Principal on the extent of documentation to be posted on CSM Contractor's website considering privacy and confidentiality in relation to information, documents, details and data provided by the CSM Contractor;

(C) comply with level AA accessibility requirements in the Web Content Accessibility Guidelines (WCAG 2.0); and

(D) provide the Principal with all information, documents, details and data relating to CSM Contractor's Activities that are required for the Principal to comply with condition B15;

(xxxix) be responsible for C1 in relation to all works other than the Project Works and the CSM Contractor's Activities. The CSM Contractor's CEMP must comply with C2;

(xl) be responsible for C3 in relation to all works other than the Project Works and the CSM Contractor's Activities. The CSM Contractor's CEMP sub-plans must comply with C4;

(xli) be responsible for C5 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, where an agency(ies) request(s) is not included the CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to provide the Secretary with justification as to why;

(xlii) be responsible for C6, except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to comply with this condition;

(xliii) 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;

(xliv) be responsible for C8 in relation to all works other than the Project Works and the CSM Contractor's Activities. The Principal will notify the CSM Contractor when the approval of the Secretary is given;

(xlv) be responsible for C9 in relation to all works other than the Project Works and the CSM Contractor's Activities. The CSM Contractor's Construction Monitoring Program must comply with C10;

(xlvi) be responsible for C11 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xlvii) be responsible for C12 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xlviii) be responsible for C13 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, the 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 CSM Contractor of the date the Construction Monitoring Programs have been submitted to the Secretary;

(xlix) be responsible for C14 in relation to all works other than the Project Works and the CSM Contractor's Activities. The Principal will notify the CSM Contractor when the approval of the Secretary is given for the CSM Contractor's Construction Monitoring Programs;

(l) be responsible for C15 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(li) be responsible for C16 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, The Principal will submit the Construction Monitoring Reports to the Secretary as required by this condition. The 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;

(lii) be responsible for C17 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(liii) be responsible for D1 to D14;

(liv) be responsible for E1 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lv) be responsible for E2 to E5 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lvi) be responsible for E6, except that the CSM Contractor must produce a Tree Report for trees impacted or removed by the CSM Contractor's Activities and make provision for their replacement in accordance with Condition E6. The CSM 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;

(lvii) be responsible for E7;

(lviii) be responsible for E8 to E10 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lix) be responsible for E11 and E12;

(lx) be responsible for E13, except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to comply with this condition;

(lxi) be responsible for E14. The CSM Contractor must provide safe access reasonably required to enable the Principal to comply with this condition;

(lxii) in relation to E15, in conjunction with the Heritage Division and local councils, identify which items are to be salvaged and suitable repository locations. The Principal will advise the CSM Contractor of items to be salvaged, by the CSM Contractor and the location where salvaged items are to be delivered by the CSM Contractor, at the Principal's cost;

(lxiii) be responsible for E16, except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to CSM Contractor's Activities that are necessary for the Principal to prepare the "Salvage Report" under condition E16. The CSM Contractor must consider and implement the "Salvage Report" through the Design Documentation and the CSM Contractor's Activities;

(lxiv) be responsible for E17 and E18 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxv) be responsible for E19. The CSM Contractor must implement the procedure in relation to the Project Works and the CSM Contractor's Activities;

(lxvi) be responsible for E20 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities the principal will make all notifications to the Secretary. The CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to comply with its retained obligation;

(lxvii) be responsible for E21 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxviii) be responsible for E22;

(lxix) be responsible for E23 to E26 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxx) be responsible for E27, except that the Contractor must implement the Principal's Exhumation Management Plan;

(lxxi) be responsible for E28 to E31 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxii) be responsible for E32;

(lxxiii) be responsible for E33 to E46 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxiv) be responsible for E47 in relation to preparation and submission of the Out of Hours Work Protocol. The CSM Contractor must comply with the approved Out of Hours Work Protocol. The Out of Hours Work Protocol is contained in Attachment 1 to this Schedule E3;

(lxxv) be responsible for E48 to E52 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxvi) be responsible for E53 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, if the CSM Contractor prepares Blast Management Strategy, the CSM Contractor must submit it to the Principal. The Principal will submit it to the Secretary and notify the CSM Contractor when it has been submitted;

(lxxvii) be responsible for E54 to E56 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxviii) be responsible for E57;

(lxxix) be responsible for E58 to E61 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxx) be responsible for E62 except that the CSM 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 CSM 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 Attachment 2 to this Schedule E3;

(lxxxi) be responsible for E63 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, the CSM Contractor must submit the results of monitoring to the Principal. The Principal will submit it to the Secretary on request;

(lxxxii) be responsible for E64 to E67 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxxiii) be responsible for E68 in relation to all works other than the Project Works and the CSM Contractor's Activities. In relation to the Project Works and the CSM Contractor's Activities, if the CSM Contractor prepares a Site Audit Statement and Site Audit Report, the CSM Contractor must submit them to the Principal. The Principal will submit them to the Secretary;

(lxxxiv) be responsible for E69 to E71 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxxv) be responsible for E72. The CSM Contractor must implement the Sustainability Strategy in relation to the Project Works and the CSM

Contractor's Activities The Sustainability Strategy is contained in Attachment 3 to this Schedule E3;

(lxxxvi) be responsible for E73 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxxvii) be responsible for E74;

(lxxxviii) be responsible for E75 and E76 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxxxix) establish the Transport and Transport Liaison Groups required under E77;

(xc) be responsible for E78 to E80 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xci) be responsible for E81. The CSM Contractor must comply with the CTMF in relation to the Project Works and the CSM Contractor's Activities The CTMF is contained in Attachment 4 to this Schedule E3;

(xcii) be responsible for E82 and E83 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xciii) be responsible for E84;

(xciv) be responsible for E85 to E93 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xcv) be responsible for E94 and E95;

(xcvi) be responsible for E96 and E97 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xcvii) be responsible for E98;

(xcviii) be responsible for E99 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xcix) be responsible for E100;

(c) be responsible for E101 and E102 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(ci) be responsible for E103;

(cii) be responsible for E104 to E108 in relation to all works other than the Project Works and the CSM Contractor's Activities; and

(ciii) be responsible for E109.

(c) 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 CSM Contractor's Activities;

(ii) be responsible for T7 in relation to all works other than the Project Works and the CSM 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 to T9 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(iv) be responsible for T10 except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to comply with this condition in a timely manner to suit the CSM Contractor's Activities. The CSM Contractor must provide appropriate wayfinding and Customer information to notify Customers of bus stops relocated as a result of the Project Works or CSM Contractor's Activities;

(v) be responsible for T11 to T13 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(vi) be responsible for T14 to T18;

(vii) be responsible for T19 to T26 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(viii) be responsible for T27 and T28;

(ix) be responsible for OpT1;

(x) be responsible for OpT2 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xi) be responsible for OpT3;

(xii) be responsible for OpT4 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xiii) be responsible for OpT5 to OpT7;

(xiv) be responsible for NV1 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xv) be responsible for NV2;

(xvi) be responsible for NV3 to NV5 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xvii) 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 CSM 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 CSM Contractor's Activities;

(xviii) be responsible for NV7 to NV9 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xix) be responsible for NV10 and NV11;

(xx) be responsible for OpNV1 to OpNV2;

(xxi) be responsible for OpNV3 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxii) be responsible for OpNV4 and OpNV5;

(xxiii) be responsible for LP1 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxiv) be responsible for BI1 to BI3 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxv) be responsible for NAH1 and NAH2 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxvi) be responsible for NAH3 except for implementing the Exhumation Policy and Guideline in relation to the Project Works and the CSM Contractor's Activities;

(xxvii) be responsible for NAH4 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxviii) be responsible for NAH5 and NAH6;

(xxix) be responsible for NAH7 to NAH9 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxx) be responsible for NAH10;

(xxxi) be responsible for NAH11 to NAH13 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxii) be responsible for NAH14 to NAH17;

(xxxiii) be responsible for NAH18 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxiv) be responsible for NAH19 to NAH21;

(xxxv) be responsible for AH1 to AH7 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxvi) be responsible for LV1 to LV6 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxvii) be responsible for LV7 to LV9;

(xxxviii) be responsible for LV10 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xxxix) be responsible for LV11 and LV19;

(xl) be responsible for GWG1 and GWG2 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xli) be responsible for SCW1 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xlii) be responsible for SCW2;

(xliii) be responsible for SCW3 and SCW4 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xliv) be responsible for SCW5 to SCW7;

(xlv) be responsible for SO1;

(xlvi) be responsible for SO2 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xlvii) be responsible for B1 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(xlviii) be responsible for B2;

(xlix) be responsible for B3 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(l) be responsible for B4;

(li) be responsible for FH1 to FH3;

(lii) be responsible for FH4 and FH5 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(liii) be responsible for FH6 to FH8;

(liv) be responsible for FH9 and FH10 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lv) be responsible for AQ1 to AQ9 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lvi) be responsible for HR1 to HR3 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lvii) be responsible for HR4 and HR5;

(lviii) be responsible for WM1 to WM4 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lix) be responsible for WM5;

(lx) be responsible for SUS1 to SUS6 in relation to all works other than the Project Works and the CSM Contractor's Activities;

(lxi) be responsible for SUS7 to SUS10; and

(lxii) be responsible for CU1 except that the CSM Contractor must provide the Principal with all information, documents, details and data relating to the CSM Contractor's Activities that are required to enable the Principal to comply with this condition.

3. **THE PRINCIPAL'S OBLIGATIONS IN RESPECT OF PROJECT PLANNING APPROVAL (CHATSWOOD TO SYDENHAM) – CENTRAL WALK MODIFICATION**

CSSI 7400 MOD 1 – VICTORIA CROSS AND ARTARMON SUBSTATION (DETERMINED 18 OCTOBER 2017)

CSSI 7400 MOD 4 – SYDENHAM STATION AND METRO FACILITY SOUTH (DETERMINED 13 DECEMBER 2017)

CSSI 7400 MOD 2 – CENTRAL WALK (DETERMINED 21 DECEMBER 2017)

(a) Terms which have a defined meaning in the Project Planning Approval (Chatswood to Sydenham) have the same meaning where used in this section 3. Reference to an item number in this section 3 is a reference to the items set out in schedule 2 of the Project Planning Approval (Chatswood to Sydenham) as modified for Central Walk.

(b) In relation to the conditions in schedule 2 of the Project Planning Approval (Chatswood to Sydenham) as modified for Central Walk, the Principal will:

(i) be responsible for item 1 (modification to condition A1) to the extent specified in section 2(b)(ii) and section 3 of this Schedule E3;

(ii) be responsible for item 2 (amendment to condition E13) to the extent set out in section 2(b)(lxi);

(iii) be responsible for item 3 (amendment to condition E16) to the extent set out in section 2(b)(lxiii);

(iv) be responsible for item 4 (amendment to condition E17) to the extent set out in section 2(b)(liv);

(v) be responsible for item 5 (amendment to condition E21(a)) to the extent set out in section 2(b)(lxvii);

(vi) be responsible for item 6 (amendment to condition E46) to the extent set out in section 2(b)(lxxiii)and

(vii) be responsible for item 7 (amendment to condition E48(c)) to the extent set out in section 2(b)(lxxv).

Attachment 1 - Out of Hours Work Protocol

Integrated Management System

City and Southwest Chatswood to Sydenham Out of Hours Work Protocol

SM ES-PW-317

Sydney Metro Integrated Management System (IMS)

Applicable to:	Sydney Metro City & Southwest
Document Owner:	[redacted]
System Owner:	[redacted]
Status:	Final
Version:	2.0
Date of issue:	14 July 2017
Review date:	14 July 2018

Table of Contents

1. Introduction

This protocol outlines the process for preparing, assessing, managing and approving work on the Chatswood to Sydenham portion of the City & Southwest project that is undertaken outside of standard construction hours (i.e. Out of Hours).

1.1. Purpose

This protocol has been developed to comply with Condition E47 Out of Hours Work Protocol of the City & Southwest Chatswood to Sydenham planning approval. This condition (and other conditions that relate to Out of Hours work) is addressed in accordance with Table 1.

Table 1: Chatswood to Sydenham Out of Hours Work Planning Approval Conditions

Condition Number	Condition	Where this condition is addressed
A27(g)i.	The approved AA must in conjunction with the ER... consider requests for out of hours construction activities and determine whether to endorse the proposed activities in accordance with Condition E47.	Section 3.1.2.4 and Figure 1.
E36	Construction, except as allowed by Condition E48 (excluding cut and cover tunnelling), must only be undertaken during the following standard construction hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; (b) 8:00am to 1:00pm Saturdays; and (c) at no time on Sundays or public holidays.	Section 2.
E37	The Proponent must identify all receivers at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Central likely to experience internal noise levels greater than $L_{eq(15\ minute)}$ 60 dB(A) inclusive of a 5 dB penalty, if rock breaking or any other annoying activity likely to result in regenerated (ground-borne) noise or a perceptible level of vibration is planned (including works associated with utility adjustments), between 7am – 8pm.	Construction Noise and Vibration Impact Statements.
E38	The Proponent must consult with all receivers identified in accordance with Condition E37 with the objective of determining appropriate hours of respite so that construction noise (including ground-borne noise), does not exceed internal noise levels of: (a) $L_{eq(15\ minute)}$ 60 dB(A) inclusive of a 5 dB penalty if rock breaking or any other annoying activity likely to result in ground-borne noise or a perceptible level of vibration is planned between 7am – 8pm for more than 50 percent of the time; and (b) $L_{eq(15\ minute)}$ 55 dB(A) inclusive of a 5 dB penalty if rock breaking or any other annoying activity likely to result in ground-borne noise or a perceptible level of vibration is planned between 7am – 8pm for more than 25 percent of the time, unless an agreement is reached with those receivers. This condition does not apply to noise associated with the cutting surface of a TBM [Tunnel Boring Machine] as it passes under receivers. *Note this condition requires that noise levels be less than $L_{eq(15\ minute)}$ 60 dB(A) for at least 6.5 hours between 7am and 8pm, of which at least 3.25 hours must be below $L_{aeq(15\ minute)}$ 55 dB(A). Noise equal to or above $L_{eq(15\ minutes)}$ 60 dB(A) is allowed for the remaining 6.5 hours between 7am and 8pm.*	Construction Noise and Vibration Management Plans and each OOH application as relevant (supported by a Construction Noise and Vibration Impact Statement or other type of quantitative impact assessment).

Condition Number	Condition	Where this condition is addressed
E41	The Proponent must ensure that residential receivers, located in non-residential zones, likely to experience an internal noise level exceeding $L_{eq(15\ minute)}$ 60 dB between 8pm and 9pm or $L_{eq(15\ minute)}$ 45 dB between 9pm and 7am (inclusive of a 5 dB penalty if rock breaking or any other annoying activity likely to result in regenerated noise, or a perceptible level of vibration is planned (including works associated with utility adjustments)) must be offered additional mitigation in accordance with the *Sydney Metro City and South West Noise and Vibration Strategy* referenced in Condition E32.	Construction Noise and Vibration Management Plans and each OOH application as relevant (supported by a Construction Noise and Vibration Impact Statement or other type of quantitative impact assessment).
E42	The Proponent must ensure that residential receivers in residential zones likely to experience an internal noise level of $L_{eq(15\ minute)}$ 45 dB or greater between 8pm and 7am (inclusive of a 5 dB penalty if rock breaking or any other annoying activity likely to result in ground-borne noise, or a perceptible level of vibration is planned (including works associated with utility adjustments)) must be offered additional mitigation in accordance with the *Sydney Metro City and South West Noise and Vibration Strategy* referenced in Condition E32.	Construction Noise and Vibration Management Plans and each OOH application as relevant (supported by a Construction Noise and Vibration Impact Statement or other type of quantitative impact assessment).

Condition Number	Condition	Where this condition is addressed
E44	Notwithstanding Condition E36 construction associated with the CSSI [Critical State Significant Infrastructure] may be undertaken outside the hours specified under those conditions in the following circumstances: (a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (c) where different construction hours are permitted or required under an EPL in force in respect of the construction; or (d) construction that causes $L_{Aeq(15\ minute)}$ noise levels: i. no more than 5 dB(A) above the rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009), and ii. no more than the noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive land uses, and iii. continuous or impulsive vibration values, measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.2 of *Assessing Vibration: a technical guideline* (DEC, 2006), and iv. intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of *Assessing Vibration: a technical guideline* (DEC, 2006); or (e) where a negotiated agreement has been reached with a substantial majority of sensitive receivers who are within the vicinity of and may be potentially affected by the particular construction, and the noise management levels and/or limits for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Secretary at least one (1) week before the works commencing; or (f) construction approved through an **Out of Hours Work Protocol** referred to in Condition E47, provided the relevant council, local residents and other affected stakeholders and sensitive receivers are informed of the timing and duration at least five (5) days and no more than 14 days before the commencement of the works.	Sections 1.5.3, 2, 3.1, 3.2.1 and 3.3.
E45	On becoming aware of the need for emergency construction in accordance with Condition E44(b), the Proponent must notify the AA, the ER and the EPA (if an EPL applies) of the need for those activities or work. The Proponent must also use best endeavours to notify all affected sensitive receivers of the likely impact and duration of those works.	Section 3.3 and Figure 2.
E46	Notwithstanding Conditions E44 and E48, rock breaking and other particularly annoying activities are not permitted outside of standard construction hours, except at Central, unless the noise management level derived from the *Interim Construction Noise Guideline* can be achieved at sensitive receivers.	Section 2 and each OOH application as relevant (supported by a Construction Noise and Vibration Impact Statement or other type of quantitative impact assessment).

Condition Number	Condition	Where this condition is addressed
E47	An **Out of Hours Work Protocol** for the assessment, management and approval of work outside of standard construction hours, as defined in Condition E36 of this approval, must be prepared in consultation with the EPA [NSW Environment Protection Authority] and submitted to the Secretary [of the NSW Department of Planning and Environment] for approval before construction commences for works not subject to an EPL [Environment Protection Licence]. The protocol must include: (a) the identification of low and high risk construction activities; (b) a risk assessment process in which the AA [Acoustic Advisor] reviews all proposed out of hours activities and identifies their risk levels; (c) a process for the endorsement of out of hours activities by the AA and approval by the ER [Environmental Representative] for construction activities deemed to be of: i. low environmental risk; or ii. high risk where all construction works cease by 9pm. All other high risk out of hours construction must be submitted to the Secretary for approval unless otherwise approved through an EPL. The protocol must detail standard assessment, mitigation and notification requirements for high and low risk out of hours works, and detail a standard protocol for referring applications to the Secretary.	This document; particularly Sections 1.2, 3.1.2.3 and 3.1.2.4, Figure 1 and the Out of Hours Work Application Forms.
E48	Notwithstanding Condition E36 of this approval and subject to Condition E47, the following activities may be undertaken 24 hours per day, seven (7) days per week: (a) tunnelling and associated support activities (excluding cut and cover tunnelling); (b) excavation within an acoustic enclosure; (c) excavation at Central without an acoustic enclosure; (d) station and tunnel fit out; and (e) haulage and delivery of spoil and materials.	Section 2 and each OOH application as relevant (supported by a Construction Noise and Vibration Impact Statement or other type of quantitative impact assessment).

1.2. Protocol Consultation, Endorsement and Approval

In accordance with Condition E47 of the Chatswood to Sydenham planning approval, this protocol must be prepared in consultation with the NSW Environment Protection Authority (EPA) and approved by the Secretary of the NSW Department of Planning and Environment (the Secretary).

The protocol is also required to receive endorsement from the Environmental Representative and the Acoustic Advisor in accordance with Conditions A24(d) and A27(d) respectively, prior to submission to the Secretary.

1.2.1. Consultation

A draft version of this protocol was provided to the EPA for consultation and comment on 7 March 2017. Given that the protocol (and Condition E47) is aimed at addressing work that is 'not subject to an EPL', the EPA responded on 21 March 2017 to state that "the EPA does not have comments on this protocol".

In the event that the protocol is revised to address work that is subject to an Environment Protection Licence (EPL), TfNSW will re-consult with the EPA.

1.2.2. Endorsement

Both the Environmental Representative and the Acoustic Advisor have reviewed and left comments on drafts of this protocol. All comments have been satisfactorily addressed in this final OOH Work Protocol.

Appendix A provides endorsements of this OOH Work Protocol from the Environmental Representative and the Acoustic Advisor.

1.2.3. Approval

Appendix B provides approval of this OOH Work Protocol by the Secretary.

Construction activities on the Chatswood to Sydenham portion of the City & Southwest project will not be undertaken outside of standard construction hours for works that are not subject to an EPL until this protocol has been approved by the Secretary. Following approval from the Secretary, all works on the Chatswood to Sydenham portion of the City & Southwest project that are not subject to an EPL (irrespective of whether the works are defined as 'construction' in accordance with the Chatswood to Sydenham planning approval) will be subject to this protocol.

1.3. Accountabilities

The Principal Manager, Sustainability, Environment & Planning, City & Southwest is accountable for this protocol. Accountability includes authorising the document, monitoring its effectiveness and performing a formal document review.

Roles reporting to the Principal Manager are accountable for ensuring the requirements of this document are implemented within their area of responsibility. The roles that are accountable for specific projects/programs are accountable for ensuring associated contractors comply with the requirements of this document.

1.4. Definitions and Acronyms

All terminology in this Protocol is taken to mean the generally accepted or dictionary definition, unless stated otherwise in accordance with the Definitions section of the Chatswood to Sydenham planning approval or the *Sydney Metro Integrated Management System Glossary*.

Acronyms and terminology specifically used throughout this Protocol are listed below.

	Definitions
AA	Acoustics Advisor
BMP	Business Management Plan
CEMF	Construction Environmental Management Framework (for the City & Southwest project)
CNVIS	Construction Noise and Vibration Impact Statement
CNVS	Construction Noise and Vibration Strategy (for the City & Southwest project)
CSSI	Critical State Significant Infrastructure
EPA	Environment Protection Authority (of New South Wales)
EPL	Environment Protection Licence
ER	Environmental Representative
ICNG	*Interim Construction Noise Guideline* (DECC, 2009)
OOH	Out of Hours (i.e. outside of the standard construction hours stipulated in planning approval conditions)
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
Secretary	The Secretary of the New South Wales Department of Planning and Environment
SPIR	Submissions and Preferred Infrastructure Report

1.5. Governance

This OOH Work Protocol should be used in conjunction with the Sydney Metro *Construction Environment Management Framework*, the *City & Southwest Construction Noise and Vibration Strategy* and any applicable Environment Protection Licences. These documents establish minimum requirements for managing noise and vibration impacts on the City & Southwest project.

1.5.1. Construction Environment Management Framework

The Chatswood to Sydenham Submissions and Preferred Infrastructure Report (SPIR) contains the *Sydney Metro Construction Environmental Management Framework* (CEMF) as Appendix B. The CEMF represents Sydney Metro's minimum requirements for environmental management and specifies a standard framework that each contractor must establish and document in their Construction Environmental Management Plan and sub-plans. These requirements include those relating to construction noise and vibration management as specified in Chapter 9.

1.5.2. Construction Noise and Vibration Strategy

Sydney Metro has developed a *Construction Noise and Vibration Strategy* (CNVS) for the City & Southwest project. The strategy:

- Establishes a framework for managing construction noise and vibration impacts and adopting appropriate mitigation measures (including minimum requirements),
- Forms Appendix C of the Chatswood to Sydenham SPIR,
- Forms part of the contract requirements that contractors must comply with, and
- Sets minimum requirements for all OOH work, including the need for and development of Construction Noise and Vibration Impact Statements.

1.5.2.1. Construction Noise and Vibration Impact Statements

A Construction Noise and Vibration Impact Statement (CNVIS) is a report that assesses and documents the anticipated noise and vibration impacts at sensitive receivers of proposed construction activities. In accordance with Condition E33 of the Chatswood to Sydenham planning approval, a CNVIS is to be prepared for each construction site before construction noise and vibration impacts commence and include specific mitigation measures identified through consultation with affected sensitive receivers.

1.5.3. Environment Protection Licence

An Environment Protection Licence (EPL) is a regulatory approval issued to strategically control the localised, cumulative and acute impacts of pollution. The NSW Environment Protection Authority (EPA) is responsible for issuing EPLs for 'scheduled activities' under the *Protection of the Environment Operations (POEO) Act 1997* (NSW).

Some aspects of the City & Southwest construction and operation works will constitute 'scheduled activities' under the POEO Act and therefore need to be subject to an EPL. City & Southwest contractors are required to obtain and comply with any EPLs as applicable to their scope of works.

The process for approving OOH work outside of those already permitted in accordance with an EPL, is governed by the conditions of the EPL. In order for these types of OOH work to be approved, an application to vary the EPL is to be prepared and submitted to the EPA for approval. The application is to be in accordance with the CNVS and EPL requirements.

OOH work that is subject to an EPL do not require approval in accordance with Condition E47 of the Chatswood to Sydenham planning approval (i.e. this protocol).

1.6. Roles and Responsibilities

1.6.1. TfNSW Place Manager

A TfNSW Place Manager will be allocated to each site on the Chatswood to Sydenham portion of the City & Southwest project. The Place Manager is responsible for ensuring that all project communication requirements with the surrounding community are being complied with.

1.6.2. TfNSW Environment Manager

A TfNSW Environment Manager will be allocated to each contract package on the Chatswood to Sydenham portion of the City & Southwest project. The Environment Manager is responsible for ensuring that all environmental management requirements associated with their contract package are being complied with.

1.6.3. Independent Environmental Representative

Condition A22 of the Chatswood to Sydenham planning approval requires an Environmental Representative (ER) to be appointed to the project to represent the NSW Department of Planning and Environment. The ER is to act as the Secretary's independent point of contact for all environmental and planning approval compliance matters. Refer to Condition A24 of the Chatswood to Sydenham planning approval for a comprehensive list of the ER's responsibilities.

Sections 3.1.2.3 and 3.1.2.4 include descriptions of the ER's responsibilities with respect to reviewing and approving OOH work.

1.6.4. Acoustic Advisor

Condition A25 of the Chatswood to Sydenham planning approval requires an Acoustic Advisor (AA) to be appointed to the project. The AA is to act as the Secretary's independent point of contact for all noise and vibration matters on the project. Refer to Conditions A25 and A27 for a comprehensive description of the AA's responsibilities.

Sections 3.1.2.3 and 3.1.2.4 include descriptions of the AA's responsibilities with respect to reviewing, identifying risk level, endorsing and deferring OOH work.

2. Standard Hours

Condition E36 of the Chatswood to Sydenham planning approval defines standard construction hours as:

(a) 7:00am to 6:00pm Mondays to Fridays, inclusive;

(b) 8:00am to 1:00pm Saturdays; and

(c) at no time on Sundays or public holidays.

These hours are consistent with:

- The EPA's *Interim Construction Noise Guideline* (ICNG) 2009 'recommended standard hours' for construction in NSW, and
- The *City & Southwest Construction Noise and Vibration Strategy* (CNVS) 'standard daytime construction hours' (which were adopted by TfNSW as recommended by the ICNG).

Unless undertaken in accordance with Conditions E44, E46 or E48 of the Chatswood to Sydenham planning approval, construction is only permitted to be undertaken during standard construction hours.

If OOH work is to be undertaken in accordance with one or more of these conditions at the Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street or Central sites, the work must also comply with the specific requirements of Conditions E37 and E38 of the Chatswood to Sydenham planning approval. It should be noted however that the intent of Conditions E37 and E38 is to support certain types of work at these sites between 7am and 8pm. This should be considered when identifying risk levels for OOH work applications (refer to Section 3.1.2.3).

3. OOH Work

Out of hours (OOH) work is defined as any work that is undertaken outside of standard construction hours.

Some OOH work is permitted to be undertaken on the City & Southwest project in accordance with Conditions E44, E46 and E48 of the Chatswood to Sydenham planning approval. These works include:

- Delivery of materials as required by an authority for safety reasons,
- Emergency works,
- Works that are subject to different construction hours as permitted (or required) under an EPL,
- Low noise impact works,
- Works that are subject to a negotiated agreement with the substantial majority of affected sensitive receivers,
- Works undertaken in accordance with an Out of Hours Work Protocol approval and are the subject of a notification to the relevant council, local residents and other affected stakeholders and receivers at least five days prior to the works commencing and no more than 14 days prior to the works commencing.
- Rock breaking and other particularly annoying activities at the Central Station Site or, provided that the noise management level can be achieved at sensitive receivers, at any other site,
- 24 hour construction works in accordance with Condition E48, comprising:
    - Tunnelling and associated support activities (excluding cut and cover tunnelling),
    - Excavation within an acoustic enclosure,
    - Excavation at the Central Station Site without an acoustic enclosure,
    - Station and tunnel fit out, and
    - Haulage and delivery of spoil and materials,

In accordance with Condition E47 of the Chatswood to Sydenham planning approval and with the exception of OOH work that is subject to an EPL, all OOH work requires endorsement by the AA and approval by either the ER, or in the case of 'high risk' works undertaken after 9pm, the Secretary. This includes all work subject to Conditions E37, E38 and E48 of the Chatswood to Sydenham planning approval. The requirements of these conditions are to be specifically addressed in each OOH application (refer to Section 3.1.2) as relevant.

3.1. OOH Work Approval Process

Figure 1 provides the OOH work approval process for the Chatswood to Sydenham portion of the City & Southwest project. This includes a requirement to prepare an application that covers the assessment of noise and vibration impacts, mitigation measures (including community notification requirements), review and approval for all proposed OOH work.

All OOH work applications that are not subject to an EPL will be submitted to the TfNSW Place Manager, TfNSW Environment Manager, AA and ER for review and comment. These reviews will take into consideration a range of aspects, including reviewer experience and expert understanding, local knowledge of the area, current understanding of sensitive receiver requirements and other relevant documents (for example, the applicable Business Management Plan detailing predicted impacts to affected businesses, key issues and appropriate mitigation measures for implementation). This review process is further explained in section 3.1.2.3.

3.1.1. OOH Work subject to an EPL

For OOH work that is subject to an EPL, the EPL conditions will dictate the approval process. As a minimum however, for proposed OOH work that is not approved in the EPL and a variation is required, the contractor is expected to:

- Prepare an application to the EPA in accordance with the CNVS and EPL requirements,
- Submit the revised application to the EPA for approval and submit the application to the TfNSW Place Manager, TfNSW Environment Manager, AA and ER for information,
- Notify TfNSW, the AA and ER upon receiving EPA approval, and
- Ensure any required community notifications have been issued (by either TfNSW or the contractor directly) at least seven days prior to the works commencing.

3.1.2. OOH Work not subject to an EPL

For OOH work that is not subject to an EPL, the approval process is dictated by the requirements of Condition E47 of the Chatswood to Sydenham planning approval.

Contractors are required to prepare an OOH application using:

- A form consistent with the Sydney Metro *City & Southwest OOH Work Application Form* for proposed OOH work that is within the scope of a CNVIS, or
- A form consistent with the Sydney Metro *OOH Work Application Form* for proposed OOH work that is not within the scope of a CNVIS (or is within the scope of a CNVIS that is yet to be prepared).

Both of these forms require a noise and vibration impact assessment to be undertaken and contain a consolidated and conservative version of Table 14 from the CNVS. This facilitates simpler consideration of applicable additional noise and vibration mitigation measures to implement. The forms also require demonstration of how additional noise and vibration mitigation measures have been considered for implementation (including community notifications) in accordance with the CNVS.

3.1.2.1. OOH Work within the Scope of a CNVIS

The majority of OOH applications subject to this protocol are anticipated to be undertaken within the scope of a CNVIS.

For proposed OOH work that is within the scope of a CNVIS, the OOH application will outline the associated noise and vibration impacts of the proposed OOH work, based on the outcomes of the CNVIS. The applicable sections of the CNVIS are required to be appended to the OOH application.

The associated noise and vibration impacts will guide the consideration of standard and additional mitigation measures to implement, in accordance with the CNVS.

3.1.2.2. OOH Work not within the scope of a CNVIS

In some circumstances, OOH work may be required that is not within the scope of a CNVIS. Examples of these situations include OOH works that:

- Are not defined as 'construction' under the Chatswood to Sydenham planning approval,
- Are not confined to a 'construction site' (e.g. power supply works, in-tunnel works, etc.), and
- Were not anticipated in a CNVIS at the time it was prepared.

For proposed OOH work that is not within the scope of a CNVIS (or is within the scope of a CNVIS that is yet to be prepared), the noise and vibration impacts of the proposed OOH work will generally have less certainty than those that are within the scope of a CNVIS. Therefore, greater due diligence is required in completing the OOH application form.

To ensure an adequate level of due diligence is applied to reviewing proposed OOH work that is not within the scope of a CNVIS, a form consistent with the generic Sydney Metro *OOH Work Application Form* is to be used. This form has been developed by TfNSW to ensure consistency with the *Interim Construction Noise Guideline* (DECC, 2009) and requires applicants to:

- Provide justification for the works to be undertaken OOH,
- Adequately assess the noise and vibration impacts at nearest sensitive receivers,
- Consider standard and additional noise and vibration mitigation measures to implement in accordance with the CNVS, and
- Request formal review, endorsement and approval for the proposed OOH work prior to their commencement.

Furthermore, the Sydney Metro *OOH Work Application Form* requires a preliminary quantitative noise assessment to be undertaken in accordance with the *Interim Construction Noise Guideline* (ICNG) as a minimum. For assessments indicating that noise exceedance levels are greater than 10 dBA for more than 10 occasions at the same sensitive receiver, the need to undertake a detailed quantitative noise assessment will be considered by TfNSW, the contractor, the AA and the ER collectively. The term 'occasion' is defined in the *OOH Work Application Form*.

3.1.2.3. Review, TfNSW Endorsement and Identification of Risk Level

Review

Once the contractor has prepared an OOH work application, the application is submitted to the TfNSW Place Manager, TfNSW Environment Manager, AA and ER for review. Following their reviews, TfNSW, the AA and the ER may provide comments on the application, which need to be adequately addressed by the contractor in a resubmitted application to the satisfaction of the comment provider(s).

Prior to the TfNSW Principal Manager (Stakeholder & Community Liaison) indicating their endorsement (or otherwise) on the application, reference will be made to the applicable Business Management Plan (BMP) in accordance with Condition E64 of the Chatswood to Sydenham planning approval. The BMP will:

- Identify business stakeholders that may be affected by the project works and the issues specific to each business,
- Detail the strategies and activities to be used to facilitate open communication and engagement with businesses,
- Explain mitigation measures for identified business-related impacts, and
- Define roles and tools to enable TfNSW Place Managers to implement the BMP.

TfNSW Endorsement and Identification of Default Risk Level

Following endorsement from the TfNSW Principal Manager (Stakeholder & Community Liaison), the AA is required to identify a risk level for the proposed OOH work in accordance with Condition E47 of the Chatswood to Sydenham planning approval. This risk level will be categorised as either 'Low risk' or 'High risk'.

As a default risk level, the AA will identify OOH work as 'high risk' if all of the following three criteria apply:

- The type and sensitivity of the affected noise sensitive receivers is categorised as either Moderate Impact receivers (e.g. standard residential / typical density) or High Impact receivers (e.g. elderly / high density / persistent complainers / residents experiencing construction noise fatigue), and
- The predicted noise level of the OOH work has a likelihood for potential sleep disturbance (i.e. Rating Background Level + 15 dB or more), and
- The type of and intensity of noise emitted from the OOH work is categorised as High Impact (e.g. prolonged high noise and/or vibration intensive activities).

These criteria are based on Section 6.4 General Assessment Procedure of the CNVS.

For non-residential receivers the AA may consider OOH work as 'high risk' if undertaken during trading hours and in close proximity to their place of business (for example, during Saturday afternoon trading hours). Since each non-residential receiver has different business needs, it is imperative that the AA discusses each OOH work application with the TfNSW Place Manager to better understand how the proposed OOH works would impact the business.

Modification of Default Risk Level

Using the default risk level as a 'starting point', the AA will consider all other relevant factors in order to identify a final risk level. These relevant factors include:

- Those identified on Pages 24 and 25 in Section 6.4 of the CNVS (noting that the reference to 'impact levels' is independent of the 'risk rating' identified by the AA for the purposes of complying with Condition E47(c) of the Chatswood to Sydenham planning approval),
- Those listed in Table 2, and
- Any other factors the AA considers relevant in its professional opinion.

These factors may be cause for the AA to modify the default risk rating from either 'high risk' to 'low risk', or 'low risk' to 'high risk', as the AA deems appropriate in its professional opinion.

Table 2: Risk Level Considerations

	Risk Level Considerations
Predicted Noise Exceedance	Degree of predicted noise level exceedance above the Rating Background Level or Noise Management Level as appropriate
Specific Scope of Work	Works that are not subject to Conditions E37 and E38
5 dBA Penalty	If 5 dBA penalty is required in accordance with Conditions E37, E38, E41 and E42
Certainty	Rating background levels, noise management levels or predicted noise impacts are not well understood
Past Experience	Nature of works are new, in a new location or have not been undertaken by the contractor on the project already
Negotiated Agreement with Sensitive Receivers	No negotiated agreement with sensitive receivers has been obtained in accordance with Condition E44(e)
Potential Sleep Disturbance	Likely to generate potential sleep disturbance (RBL + 15dB or greater)
Non-Residential Receivers	Impacted non-residential receivers operate during same period of proposed OOH works
Special Events	The timing and location of special events in the area of the proposed OOH works may be scheduled at the same time or immediately before or after the special event (e.g. festivals, public gatherings, etc.)
TfNSW Place Manager Feedback	Feedback from the Place Manager for the area will provide the AA an understanding of the types and requirements of surrounding sensitive receivers.
Sensitive Receivers	Moderate impact sensitive receivers (e.g. standard residential, medium density receivers) or high impact sensitive receivers (e.g. residential home for the elderly, high density unit blocks, persistent complainers, residents deemed to have 'construction noise fatigue')
High Impact Works	Prolonged high noise or vibration intensive activities
Other Impacts	Impacts other than noise and vibration impacts are likely to be generated (e.g. lighting, traffic, etc.)

Once the AA has identified a final risk level for the OOH work application, the AA indicates the risk level on the application (including any risk identification commentary), as well as whether the application includes works after 9pm, and signs and dates the application.

3.1.2.4. Endorsement and Approval

Figure 1 includes a process for the endorsement and approval of OOH work.

Following the identification of risk level by the AA, the AA endorses the OOH work application and provides any conditions or comments. If the AA identifies that the OOH work application is high risk and includes works after 9pm, the application is forwarded to the ER for endorsement only. Following the ER's endorsement, the application is then formally submitted by TfNSW via email to the Secretary for approval in accordance with Condition E47 of the Chatswood to Sydenham planning approval. For all other applications, the ER indicates their approval (or otherwise) on the application, including any conditions or comments, and forwards directly to TfNSW, the contractor and AA.

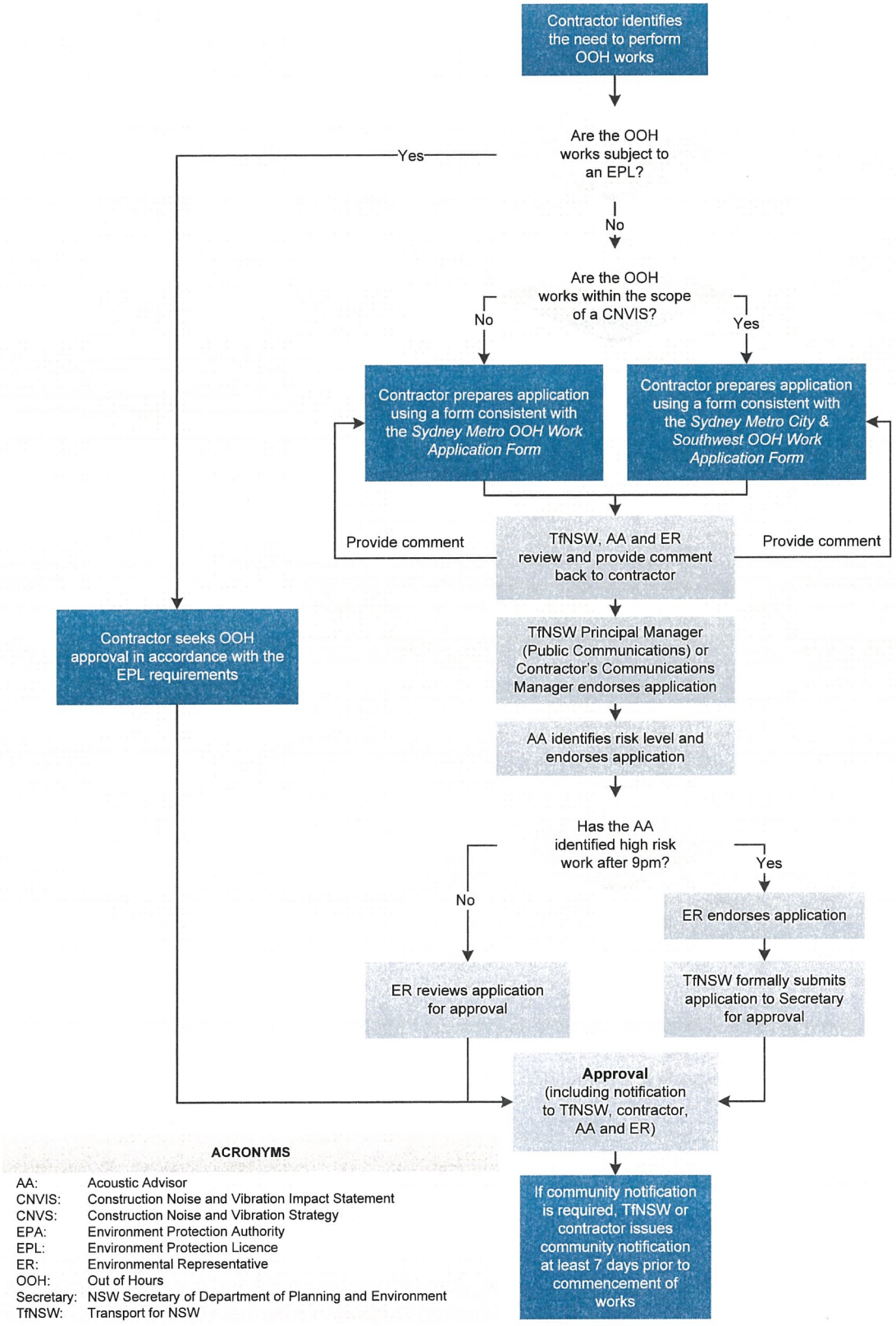


Figure 1: OOH Work Approval Process

3.2. Community Notifications

Community notifications can be used as a mitigation measure for receivers of noise and vibration impacts from OOH work.

Community notifications usually comprise of letterbox-dropped or hand-distributed notification letters to identified stakeholders prior to the commencement of works. Communities are more likely to understand and accept the impacts from noise and vibration if they are provided with honest detailed information and commitments on mitigation measures to be implemented that are adhered to by the project prior to the works commencing.

Community notification requirements are included in the CNVS and outlined in the *Community Communications Strategy* for the City & Southwest project in accordance with Condition B1 of the Chatswood to Sydenham planning approval.

Community notification is an example of an additional mitigation measure that may be considered for implementation in accordance with the CNVS and the additional mitigation measure tables contained in the OOH Work Application Forms. In the event that community notification is required as a mitigation measure prior to OOH work commencing, community notification is to be undertaken at least seven days prior to the works commencing.

3.2.1. Negotiated Agreements with Sensitive Receivers

Occasionally, a negotiated agreement for particular OOH work will be formed with the potentially affected sensitive receivers in accordance with Condition E44(e) of the Chatswood to Sydenham planning approval. These negotiated agreements would be undertaken and documented by either the contractor or TfNSW as part of an OOH application.

The negotiated agreement needs to reach a minimum 65% acceptance rate of those sensitive receivers that are contactable. 'Contactable' is defined as having received correspondence (either verbal or written) from receivers within a two week timeframe. The CNVIS process and the TfNSW Place Manager will advise of potentially affected sensitive receivers to be contacted.

Upon ER approval of any OOH applications containing negotiated agreements, TfNSW will forward the negotiated agreement documentation to the Secretary for information at least one week prior to the OOH work commencing. In the event that community notification is required as a mitigation measure prior to the OOH work commencing, this would be undertaken at the same time (i.e. at least seven days prior to the works commencing).

3.3. Emergency Works

Occasionally there may be a need to undertake emergency works outside of standard work hours. In this situation, the works are permitted to proceed without prior approval, provided that the works were:

- Unforeseen, and
- Required to avoid the loss of life, damage to property or prevent environmental harm.

Figure 2 outlines the emergency work process.

On becoming aware of the need to undertake emergency works in accordance with Condition E44(b) of the Chatswood to Sydenham planning approval, contractors must notify TfNSW, the AA, the ER and the EPA (if it is required under an EPL if relevant) of the need to undertake the works. This notification should be in the form of a written email or text message to TfNSW, the AA and the ER. The requirements for notifying the EPA will be dictated in the conditions of the EPL if relevant.

As a form of mitigation, community notification is to be undertaken within two hours of the commencement of emergency works. These notifications will generally be prepared by the contractor using a small hand-completed Sydney Metro card template for distribution to the immediate surrounding community. These cards will include the following details as a minimum:

- Scope,
- Location,
- Hours,
- Duration,
- Types of equipment to be used, and
- Likely impacts.

The day after any emergency works, the applicant is to provide a written emergency works report to TfNSW. The emergency works report is to include as a minimum:

- Date, time, duration and cause of the emergency,
- Description of emergency works undertaken,
- Mitigation measures implemented to address the impacts of the emergency works, and
- Actions/Measures taken or to be taken to prevent or mitigate recurrence of the emergency. If there are no appropriate actions/measures to be taken, explanation is to be provided as to why.

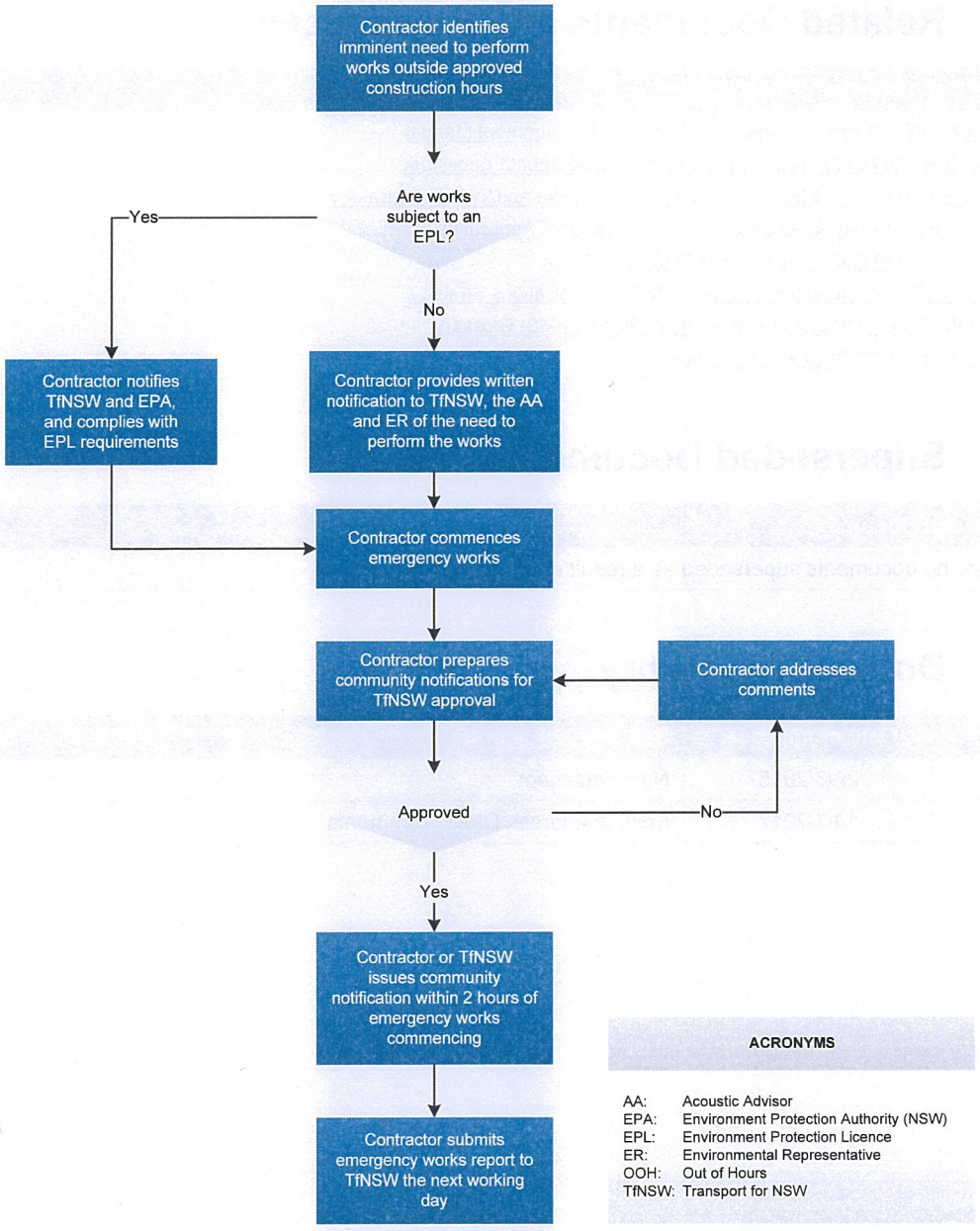


Figure 2: Emergency Work Process

4. Related Documents and References

Related Documents and References
• SM ES-MM-101 Environment & Sustainability Management Manual • SM ES-ST-204 Construction Environment Management Framework • SM ES-ST-210 City & Southwest Construction Noise and Vibration Strategy • SM ES-FT-443 City & Southwest Out of Hours Work Application Form • SM ES-FT-419 Out of Hours Work Application Form • SM SC-ST-202 Overarching Community Communications Strategy • SM QM-FT-435 Integrated Management System (IMS) Glossary • EPA Interim Construction Noise Guideline

5. Superseded Documents

Superseded Documents
There are no documents superseded as a result of this document.

6. Document History

Version	Date of approval	Summary of change
1.0	28/3/2015	New document
2.0	14/7/2017	Edits to address DP&E comments

Appendix A: OOH Work Protocol Endorsements

HBI Healthy Buildings International Pty Ltd
A.C.N. 003 270 693 A.B.N. 39 003 270 693

Suite 2.06, Level 2
29-31 Solent Circuit
Baulkham Hills NSW 2153

Tel: 61 (02) 9659 5433
e-mail: hbi@hbi.com.au
Web: www.hbi.com.au

[redacted]

28 March 2017

Principal Manager,
Program Sustainability Environment & Planning
Sydney Metro
Transport for NSW
PO Box 588
NORTH RYDE BC NSW 1670

Ref:170108_OOHW Protocol

Dear [redacted]

RE: Endorsement of Sydney Metro City & Southwest Out of Hours Work Protocol

Thank you for providing the following document for Environmental Representative (ER) review and endorsement as required by the Condition of Approval A24 (d) of the Sydney Metro City & Southwest project (SSI – 15_7400 January 9 2017).

- Sydney Metro City & Southwest City & Southwest Out of Hours Work Protocol (SM ES-PW-317/1.0)

As an approved ER for the Sydney Metro City & Southwest project, I have reviewed and provided comment on these documents. As required under A27 (d), the Acoustic Advisor has also been involved in this process and has provided separate endorsement.

I now consider this Protocol appropriate for submission to the Secretary notwithstanding that the required Specific Out of hours Works Application Forms will continue to be developed, reviewed by Acoustic Advisor, endorsed by the ER, and submitted to the Secretary for approval as required.

Yours sincerely

[redacted]

Environmental Representative – Sydney Metro – City and South West

NSW GOVERNMENT | Transport for NSW

acoustic studio

ENDORSEMENT

CITY & SOUTHWEST ACOUSTIC ADVISOR (Interim)

Review of	**Out of Hours Work Protocol**	**Document reference:**	Sydney Metro City & Southwest City & Southwest Out of Hours Work Protocol Document number SM ES-PW-317, version 1.0, 28 March 2017
Prepared by:	[redacted]		
Date of issue:	28 March 2017		

As approved (interim) Acoustic Advisor for the Sydney Metro City & Southwest project, I have reviewed and provided comment on the Out of Hours Work Protocol, as required under A27 (d) of the project approval conditions.

I consider that this Protocol is appropriate for submission to the Secretary, noting that the required Specific Out of hours Works Application Forms will continue to be developed, including review by the Acoustic Advisor and endorsement by the ER.

[redacted]

[redacted] interim City & Southwest Acoustic Advisor

Appendix B: OOH Work Protocol Approval from the Secretary

NSW GOVERNMENT | Planning & Environment

[redacted]

[redacted]

Sydney Metro City & Southwest Chatswood to Sydenham (SSI 15_7400): Approval of the Out of Hours Work Protocol under condition E47.

[redacted]

Condition E47. Therefore, in accordance with Condition E47, I approve the Out of Hours Work Protocol (Rev 1.3 dated 4 July 2017).

Please note that under condition E47, all out of hours construction that is not subject to an EPL, that the Acoustic Advisor deems to be "High Risk", and that occurs after 9pm must be submitted to the Secretary for approval.

[redacted]

Attachment 2 - Terms of Reference for the Independent Property Impact Assessment Panel

All references to the "Foundation Contractor" in this Attachment 2 will be deemed to be references to the CSM Contractor for the purposes of this Contract.

sydney METRO | Integrated Management System

Terms of Reference
Sydney Metro City and Southwest
Independent Property Impact Assessment Panel
(the Panel or "IPIAP")

Sydney Metro Integrated Management System (IMS)

Applicable to:	Sydney Metro Program Office
Document Owner:	Strategic Environmental Advisor
Status:	Final
Version:	3.0
Date of issue:	21 February 2018
Review date:	
Security classification:	Open Access

Table of Contents

1. Purpose

Role of the Independent Property Impact Assessment Panel

1. To independently review and provide comment on the scope of works and template report for the property condition surveys being undertaken for the Project.
2. To resolve property damage disputes referred to it by TfNSW, or the Foundation Contractor and the affected property owner.
3. To independently review assessments undertaken pursuant to conditions ABC of the MCoA if a property damage claim is referred to the Panel
4. Review TfNSW, or the Foundation Contractor monitoring settlement data (pursuant to ABC) for certain periods as specified in accordance with ABC of the Minister's Conditions of Approval (MCoA)
5. Review TfNSW, or the Foundation Contractor ongoing settlement monitoring requirements as required under the MCoA

2. Scope

All Project Works performed on the Project until Contract Completion or as required by the Planning Approval.

3. Charter

The Panel has the following roles:

1. The Panel is required to review the geotechnical model and vibration and settlement monitoring program prepared by TfNSW, or the Foundation Contractor.
2. Either the affected property owner or the Foundation Contractor may refer unresolved disputes arising from potential and/or actual property impacts to the Panel for resolution. The Panel shall independently review any property damage claims referred to the Chair, seek to resolve the dispute and establish any ongoing settlement monitoring requirements as applicable. In so doing the Panel should determine if the damage is wholly or partly attributable to the works undertaken by those works defined under 'Scope' above (and not some other cause or occurrence).
3. The Panel will also detail its recommendations regarding responsibilities for the subject damage and whether TfNSW, or the Foundation Contractor are responsible for any specific rectification work.
4. At any time, any party may withdraw its complaint from this process if agreement is reached. The DRP is advisory and its recommendations are not binding.
5. The Panel shall issue an interim report to both parties for consideration. After receipt of all comments from the parties on the interim report, the Panel is to provide a copy of its final determination to TfNSW and the affected Property Owner.

6. The Meetings of the Panel with TfNSW's Contractors and the Property Owner to consider potential or actual impacts are to be non-adversarial and conducted without being bound to observe the rules of evidence.
7. The Panel may inspect the alleged building damage by arrangement with the Property Owner.
8. In addition to the Pre-Construction Condition Reports applicable to the property in dispute, the Panel may request records relating to the vibration monitoring and associated activity records relevant to the subject property
9. Any determination by the Panel would not be legally binding on the affected Property Owners. Any determination will be binding on TJHD.
10. In addition, TfNSW or its Contractors has determined that the Panel will review and, where relevant, provide comment on the scope of works for the Property condition surveys and the associated template report.

4. Membership

Composition of the Independent Property Impact Assessment Panel (the panel):

The panel below is proposed to DP&E:

Details of the Panel Chair and Members are contained in their CVs.

5. Limits of Role of Panel

The Panel will not get involved in issues of property valuation, compulsory acquisition, or any other similar matters dealt with under the *Land Acquisition (Just Terms) Compensation Act 1991.* The Panel can review any property condition surveys relevant to the unresolved property damage dispute referred to the Panel by TfNSW, or the Foundation Contractor or a Property Owner.

6. Invitees

Representatives from other agencies and organisation may be invited by the Chair to attend on an as needs basis depending on specific issues requiring discussion.

From time to time various technical and management officers of TfNSW may be invited by the Chair to attend as necessary.

Where a property damage claim is being discussed, the Chair may invite TfNSW, or the Foundation Contractor the affected property owner.

7. Convenor & Secretary

The Chair, with administrative support from TfNSW.

8. Confidentiality

All information presented to the Panel members, both written and oral, is to remain confidential. Material and/or information provided to the Panel or Panel correspondence or reports must not be released to third parties without the written consent of the Chair.

[redacted]

10. DP&E Referral

If the Panel is dissatisfied with the response from TfNSW, or the Foundation Contractor in obtaining requested information, the Panel can refer the matter to the Secretary for DP&E for resolution.

11. Frequency

The Panel shall meet:

1. Mid 2018 to brief the panel on the works and monitoring program.
2. When required to discuss management and monitoring plans
3. Quarterly after Project Works commence to review monitoring data.
4. Where a matter related to settlement monitoring requires urgent action.
5. At the Chair's discretion.

When required at strategic stakeholder meetings.

12. Meeting Venue

To be organised by TfNSW.

13. Inputs to Meeting

Three business days prior to meeting the following is to be disseminated to the Members:

- Agenda approved by Chair
- Meeting Notes of previous meeting including an updated Decisions/Actions Register
- Assessment performed by the Panel as required under the conditions (where applicable at the time of the meeting)
- Briefing Papers relevant to the Agenda
- The Project 6-month look-ahead program.

14. Outcomes of Meeting

Meeting Notes and updated Decisions/Actions Register shall be provided to the Panel Members within three business days. The Meeting Notes and Decisions/Actions Register will be maintained by the Chair, with administrative support from TfNSW.

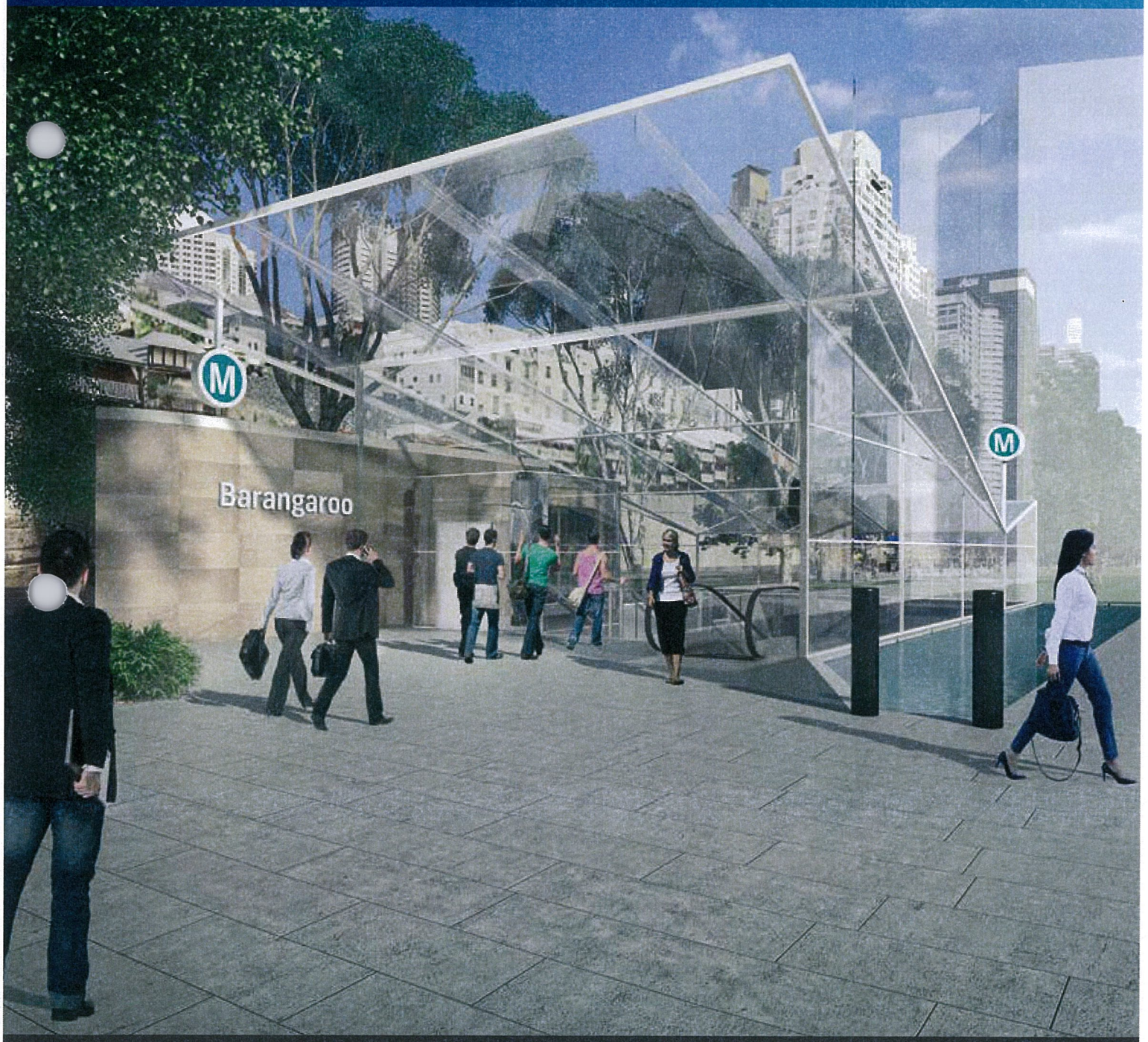
Attachment 3 - Sustainability Strategy

sydney METRO | city & southwest

Sustainability Strategy

2017–24

July 2017



NSW GOVERNMENT | Transport for NSW

NSW MAKING IT HAPPEN

CONTENTS

Cover: Artist's impression of Barangaroo Station
This page: Sydney's new metro train

FOREWORD

Sydney Metro is Australia's biggest public transport project – a new stand-alone railway that will deliver 31 metro stations and 66 kilometres of new metro rail, revolutionising the way Australia's biggest city travels.

The Sydney Metro City & Southwest project is the second stage of the Sydney Metro program, extending from Chatswood, under Sydney Harbour, through the central business district (CBD) and beyond to Bankstown. It includes seven new metro stations and the upgrade of all 11 existing stations between Sydenham and Bankstown.

At both a program and project level, we recognise the need to be environmentally and socially responsible. This includes reducing carbon emissions, managing resources, optimising land development potential, and promoting healthy communities.

Sustainability underpins the core project objectives for the City & Southwest project and is integrated across project targets and initiatives. This Sustainability Strategy is designed to engage with industry to develop ideas for additional opportunities to deliver the project sustainably.

Together we can build on the outstanding sustainability legacy of Stage 1 of Sydney Metro – the $8.3 billion Sydney Metro Northwest project – by incorporating lessons learned and exploring new opportunities that strive for leadership and innovation.

Transport for NSW is working hard to set new benchmarks in the delivery of major infrastructure projects and looks forward to sharing these achievements with our customers and key stakeholders.

Rodd Staples

PROGRAM DIRECTOR
SYDNEY METRO

Artist's impression of Martin Place Station

SUSTAINABILITY STRATEGY HIGHLIGHTS

Construction

During tunnelling activities, the **total excavated spoil** (2.4 million cubic metres) could fill **Darling Harbour twice**

100% clean spoil will be beneficially reused

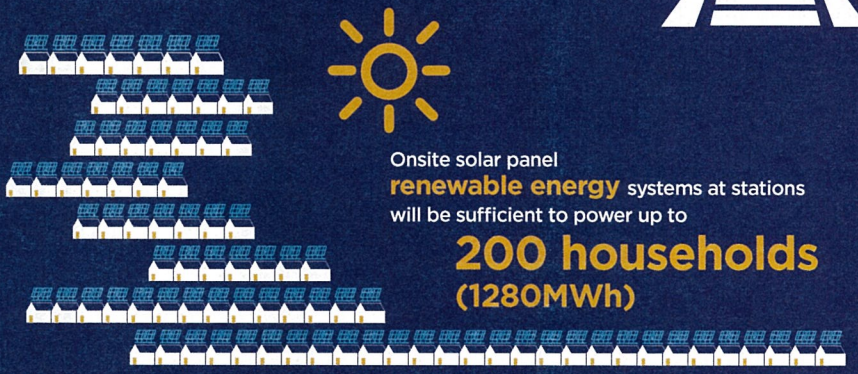
of construction and demolition waste will be recycled

25% reduction in Portland cement in concrete, saving the equilvalent carbon emissions of planting **784,000 trees**

Offsetting 25% of construction electricity will reduce carbon emissions by the equivalent of planting **225,800 trees**

Operations

100 households (20,000kL) of water usage per year will be saved through the Project's use of water efficient fixtures and rainwater harvesting



Onsite solar panel **renewable energy** systems at stations will be sufficient to power up to **200 households (1280MWh)**

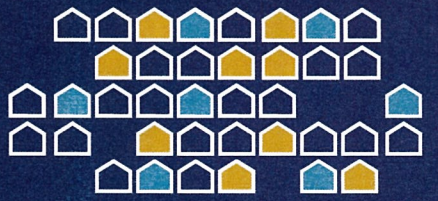
Improved pedestrian and cycling connections will make walking and cycling easier, resulting in health benefits to customers

Secure access and covered bicycle parking spaces will be provided

100% of **timber products** will be from reused, recycled or responsibly managed sources

100% of the **operational electricity** needs for the project will be offset (which is an estimated 221 Gigawatt hours a year). This will be the equivalent to the energy generated by 1.1 million solar panels (240 hectares solar plant) or 40 wind turbines

Station energy performance improvements (such as lighting systems and efficient glazing) will save the equivalent electricity consumption of approximately **610 households a year**



Accurate May 2017 (subject to change and pending confirmation in the detailed design process

17033 6/2017

1 INTRODUCTION

Sydney Metro has a clear vision for the Sydney Metro City & Southwest project (the Project) to demonstrate best-practice environmental, social and economic outcomes in delivery and operation.

Sustainability underpins the core project objectives and is integrated across all project stages.

This Sustainability Strategy document and appendices outlines performance targets, initiatives and outcomes which will be adopted across key policy areas in the design, construction and operation stages of the Project.

The targets are benchmarked against world best practice on similar infrastructure projects. Targets within this document will be embedded into contract documents to drive improvements and innovation.

The strategy articulates how the project team will maximise the delivery and operation of the Project's sustainability requirements.

The approach to addressing sustainability for the Project is built on that adopted for Sydney Metro Northwest, incorporating lessons learned, and responding to intervening drivers and location-specific opportunities and constraints.

For Sydney Metro, 'sustainability' means optimising environmental and social outcomes, transport service quality, and cost effectiveness.

Artist's impression of Barangaroo Station

2 PROJECT OVERVIEW

2.1 Project scope

The Sydney Metro City & Southwest project extends metro rail from the north west, under Sydney Harbour, through the CBD and south west to Bankstown. It is due to open in 2024 with seven new metro stations and 11 upgraded stations.

Sydney Metro City & Southwest has two components:

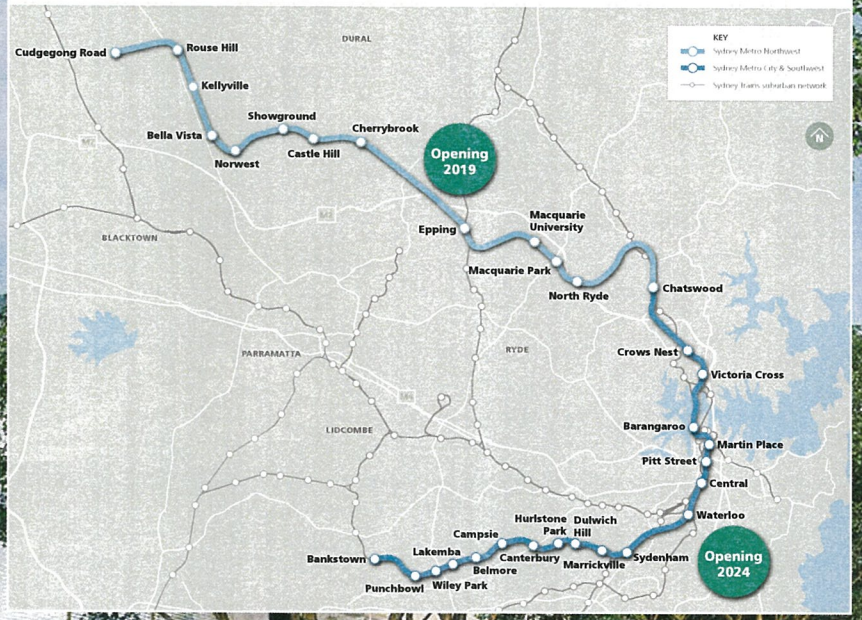
- Chatswood to Sydenham – new 15-kilometre twin tunnels from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham
- Sydenham to Bankstown upgrade – upgrade and conversion of the existing 13.5-kilometre railway from Sydenham Station to Bankstown Station to metro standards, including upgrading the 11 existing stations.

The Project will deliver seven new metro stations, at:

- Crows Nest
- Victoria Cross (North Sydney)
- Barangaroo
- Martin Place
- Pitt Street
- Central Station (new underground platforms)
- Waterloo.

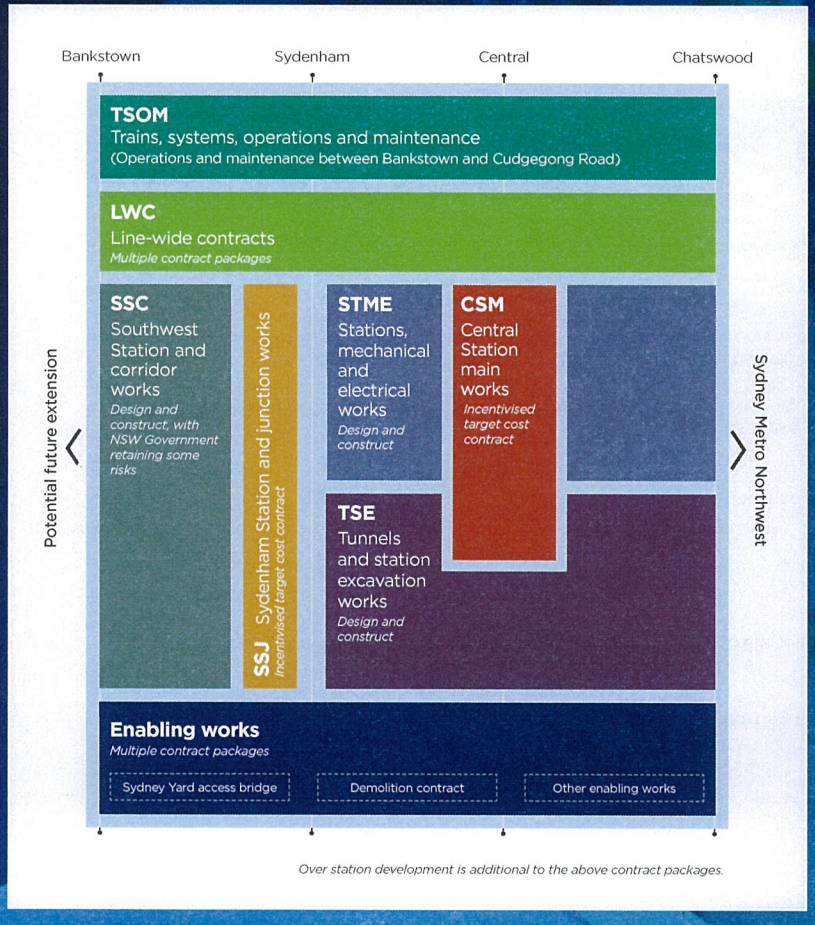
The Project will be delivered via a series of contract packages, as outlined in Figure 2.

Figure 1 The Sydney Metro network



Artist's impression of Crows Nest Station

Figure 2 Sydney Metro City & Southwest contract packages



Over station development is additional to the above contract packages.

2.2 Over Site Development and Rail Corridor Development

The Project also includes 'over site development' (OSD) at station and dive locations between Chatswood and Sydenham. Being located in dense urban areas and above high-capacity stations, the OSDs will be significant contributors to the urban landscape.

The OSDs will comprise;

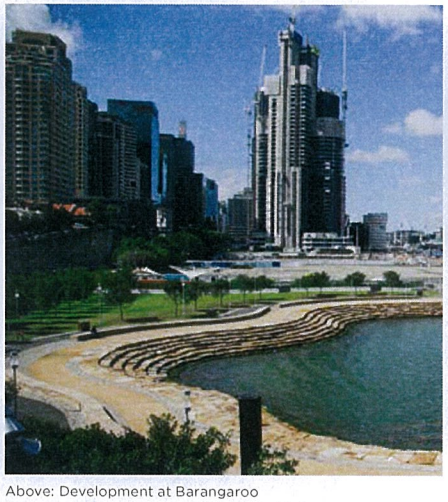
- multi-storey residential and commercial buildings
- development of integrated property developments in connection with metro stations
- development of surplus land which is no longer required after the construction phase.

Sydney Metro is completing preliminary planning for the OSD, securing planning approvals and developing concepts, for sale and development by others.

Transport for NSW (TfNSW) is also investigating the feasibility of rail corridor development (RCD), including the development of residual land in and adjacent to the rail corridor between Sydenham and Bankstown for a variety of uses, including mixed use, commercial and residential development.

Sydney Metro will be seeking best-practice sustainable design and governance outcomes (if included in the Project scope), including:

- achieving high benchmarks using Green Star Design and As Built ratings and Green Star Communities ratings where appropriate
- achieving high benchmarks using NABERS and BASIX ratings
- site specific responses to the Project's sustainability objectives
- investigation and inclusion of affordable housing where appropriate.



Sydney Metro will be seeking **best practice** sustainable design and governance outcomes

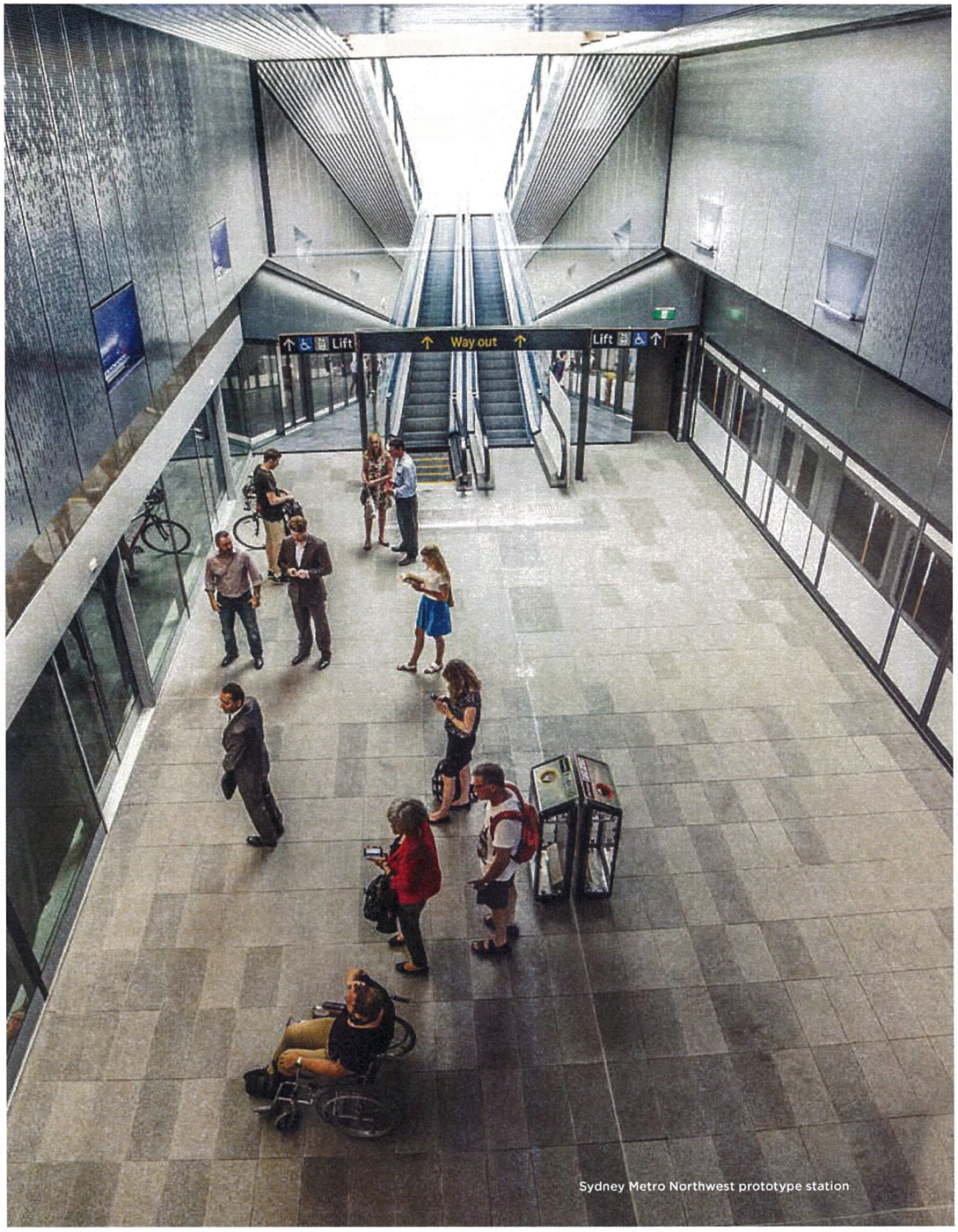
Above: Development at Barangaroo
Right: Artist's impression of Waterloo Station

2.3 Project benefits

Benefits of the Project include:

- Transport benefits:
  - Enabling the long-term growth of the Sydney rail network.
  - Caters for growth in demand, from an estimated 168,400 to 288,000 trips in the one-hour AM peak by 2036[1].
  - Increased accessibility and trip diversity.
  - Increased rail network capacity.
  - Improved network resilience.
  - Improved transport integration.
  - Providing demand relief for Sydney Trains lines (T1 North Shore Line; T1 Western Line; T2 Airport, Inner West and South Line; and T3 Bankstown Line).
  - Improved conditions for bus passengers and road users through supporting and managing growth.
  - Increased rail network reach and use.
  - Provides customers with significant travel time savings and increased reliability and comfort.
  - Enhanced safety features.
  - Improved bus services and improved pedestrian and cyclists access'.
- Sustainability benefits:
  - The Project is an enabler which will encourage greater urban infill rather than greenfield housing developments which results in infrastructure savings for the taxpayer.
  - By attracting more people to the medium and higher density dwellings there would be household cost savings for the consumption of utilities (electricity, gas and water) and transport.
  - Health benefits from sustainable living – the Project has the potential to result in a reduction in public health care costs as it will be enabling more customers to access public transport by walking and cycling[2].
- Broader city building benefits:
  - Peak additional employment during the construction period of 6200 workers[3]
  - approximately $8.5 million per annum additional value-add in 2036, from increased co-location and productivity of businesses and workers in the corridor[4]
  - Stimulating approximately 44,000 additional jobs in the Global Economic Corridor by 2036, providing greater access to and between employment opportunities, education and health precincts, retail and commercial centres and cultural and open spaces[5].

[1] Sydney Metro City & Southwest Business Case Summary, October 2016, page 26
[2] Sydney Rapid Transit Business Case, October 2014, page 7-41
[3] Sydney Metro City & Southwest Business Case Summary, October 2016, page 26
[4] Sydney Metro City & Southwest Business Case Summary, October 2016, page 26
[5] Sydney Metro City & Southwest Business Case Summary, October 2016, page 26



Sydney Metro Northwest prototype station

3 DEVELOPMENT OF THE SUSTAINABILITY STRATEGY

3.1 Defining 'sustainability' for Sydney Metro

There are many definitions for 'sustainability' or 'sustainable development'. The most commonly referred to definition is in the Bruntland Report, which defined 'sustainability' as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs'[6].

The NSW Government has defined 'sustainability' as 'Sustainability in the NSW public sector means addressing the needs of current and future generations through the integration of social justice, economic prosperity and environmental protection in ways that are transparent, accountable and fiscally responsible.'

TfNSW Environment and Sustainability Policy (August 2015) reflects a commitment to 'delivering transport services, projects, operations and programs in a manner that balances economic, environmental and social issues to ensure a sustainable transport system for NSW.'

For Sydney Metro, 'sustainability' means building a metro system for current and future generations, that optimises environmental and social sustainability outcomes, transport service quality and cost effectiveness.

[6] Bruntland, G. (ed.), 1987, Our Common Future: The World Commission on Environment and Development, Oxford University Press, Oxford

Artist's impression of Campsie Station

3.2 Purpose and scope of the strategy

The purpose of this Sustainability Strategy is to outline performance targets, initiatives and outcomes which will be adopted across key policy areas in the design, construction and operation stages of the Project. The intention is to review and update this strategy as required, as the Project progresses.

This strategy supersedes the initial sustainability strategy for the Project, which was finalised in November 2015 and provided a framework for integrating sustainability into early project planning, design and procurement of the Project.

There are many elements to the broader definition of sustainability. This Sustainability Strategy focuses on those areas identified in Figure 3.

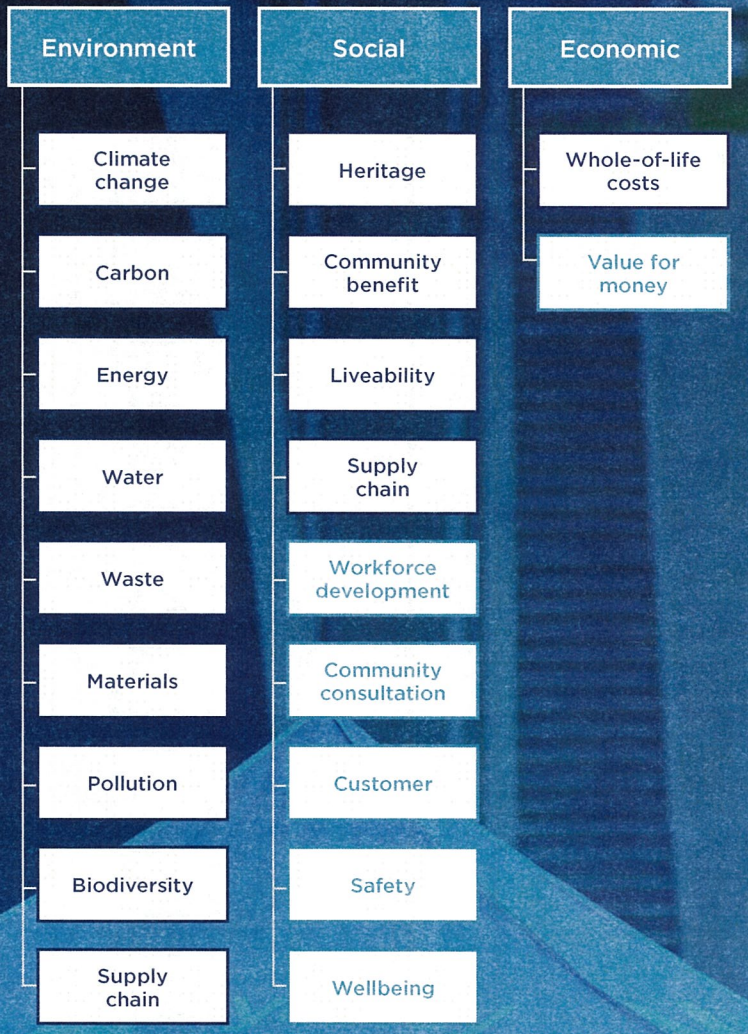
Appendix A outlines the Conditions of Approval (CoA), revised mitigation measures and revised environmental outcomes relating to sustainability for the Chatswood to Sydenham component, and where each item is addressed within this strategy to demonstrate compliance. This strategy will be reviewed as additional planning approvals are secured for the Project.

A separate sustainability strategy is being developed for the Over Site Development and Rail Corridor Development as described in Section 2.2.

This strategy outlines **performance targets, initiatives and outcomes** which will be adopted by the Project.

Above: Landscaping initiatives
Right: Public exhibition and community consultation, Sydney, May 2016

Figure 3 Sydney Metro sustainability elements

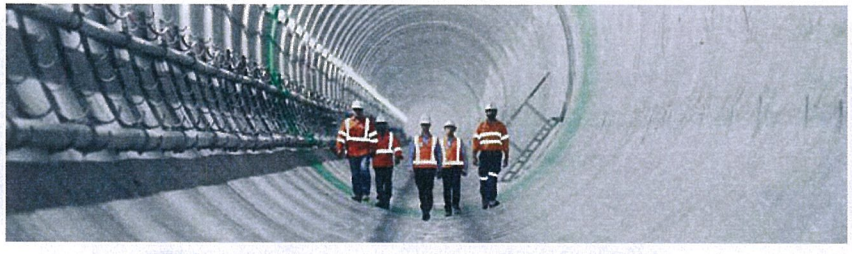


3.3 Development of this strategy

This strategy has been developed by:

- using the Sydney Metro Northwest sustainability strategy, policy and objectives as a starting point
- incorporating lessons learned in the implementation of the Sydney Metro Northwest strategy and early outputs of a review of the strategy which was completed in 2016 by Ernst & Young (see below)
- considering project-specific opportunities and constraints as environmental studies have been completed as part of ongoing assessments
- formulating an appropriate response to regulatory and other drivers
- benchmarking the sustainability performance and approaches taken on other recent large infrastructure projects in Australia and internationally.

The sustainability framework illustrated in Figure 4 outlines how the above components provide input (outlined in further detail in Appendix B) into the development of the Project's sustainability policy objectives, targets and initiatives that are detailed in Sections 3.4–3.7 and Appendices C–N of this Strategy.



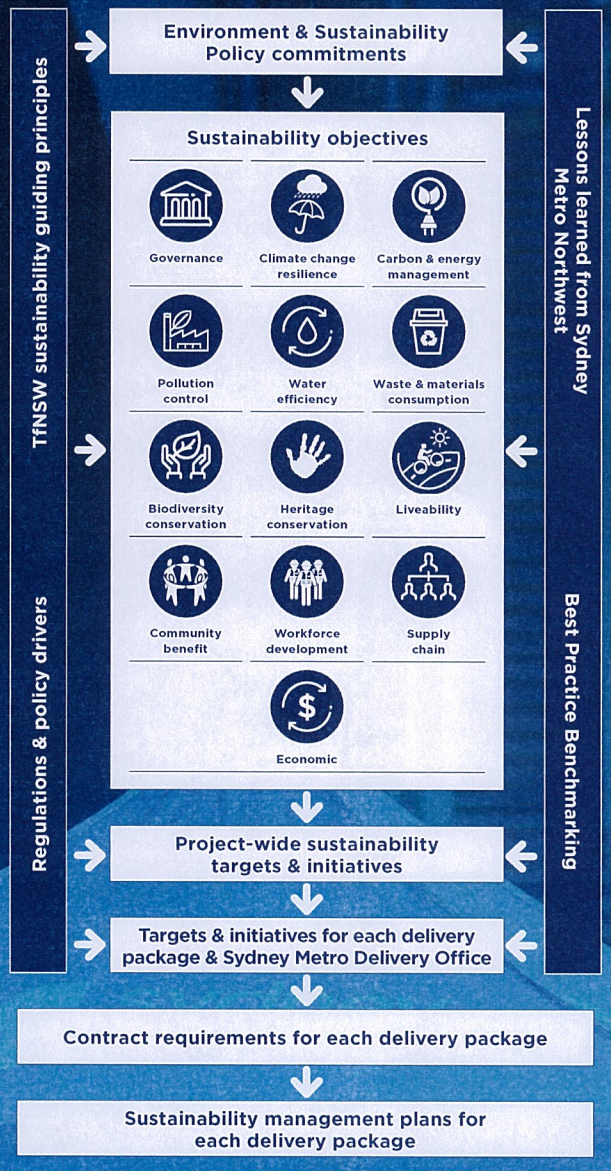
Ernst & Young (EY) has completed a review of the **Sydney Metro Northwest Sustainability Strategy** and performance to date against the objectives and targets set out in the strategy. Findings indicate that, of the 43 performance targets established for the Project:

- 85 per cent of the targets are either being met or on track to being met.
- 10 per cent of the targets are not being met, but the overall intent of the target is being met.
- 5 per cent of the targets are no longer applicable to the Project.

Based on the assessment, EY is of the view that 'the scope of the Sustainability Strategy... and the performance to date of the Sydney Metro Northwest project... are in keeping with international best practice for similar project.'

Above top: Construction workers in tunnel (Sydney Metro Northwest)
Above: Water-sensitive urban design, Victoria Park, Sydney

Figure 4 Sustainability framework



3.4 Sustainability policy

An Environment & Sustainability policy has been developed to articulate Sydney Metro's commitment to sustainable outcomes on the Project, and is included in Figure 5. The policy is based on that which was adopted for Sydney Metro Northwest, with some updates to capture the workforce development agenda for the Project. This policy will be reviewed by the project team every two years to ensure any new initiatives and developments are captured.

Figure 5 Transport for NSW Sydney Metro Environment & Sustainability Policy (April 2016)

NSW GOVERNMENT Transport for NSW | Environment & Sustainability Policy | sydney METRO

This Policy reflects a commitment in our delivery of the Sydney Metro program to:

- Align with, and support, Transport for NSW (TfNSW) Environment & Sustainability Policy.
- Optimise sustainability outcomes, transport service quality, and cost effectiveness.
- Develop effective and appropriate responses to the challenges of climate change, carbon management, resource and waste management, land use integration, customer and community expectation, and heritage and biodiversity conservation.
- Be environmentally responsible, by avoiding pollution, enhancing the natural environment and reducing the project ecological footprint, while complying with all applicable environmental laws, regulations and statutory obligations.
- Be socially responsible by delivering a workforce legacy which benefits individuals, communities, the project and industry, and is achieved through collaboration and partnerships.

To deliver on these commitments, the Sydney Metro team will:

Industry leadership

- Implement coordinated and transparent decision making, by engaging with stakeholders and suppliers, encouraging innovation and demonstrating sustainability leadership.
- Explore new benchmarks for the transport infrastructure sector by requiring high standards from our designers, contractors and suppliers, building on experience gained through development of Sydney Metro Northwest.

Community and customer

- Provide accessible, safe, pleasurable, and convenient access and transport service for all customers.
- Establish positive relationships with community and stakeholders to maximise opportunities to add value to local communities.

Land use integration and place making

- Create desirable places, promote liveability and cultural heritage, and optimise both community and economic benefit.
- Balance transit oriented development opportunities with stakeholder expectations.

Embedding environmental and social sustainability

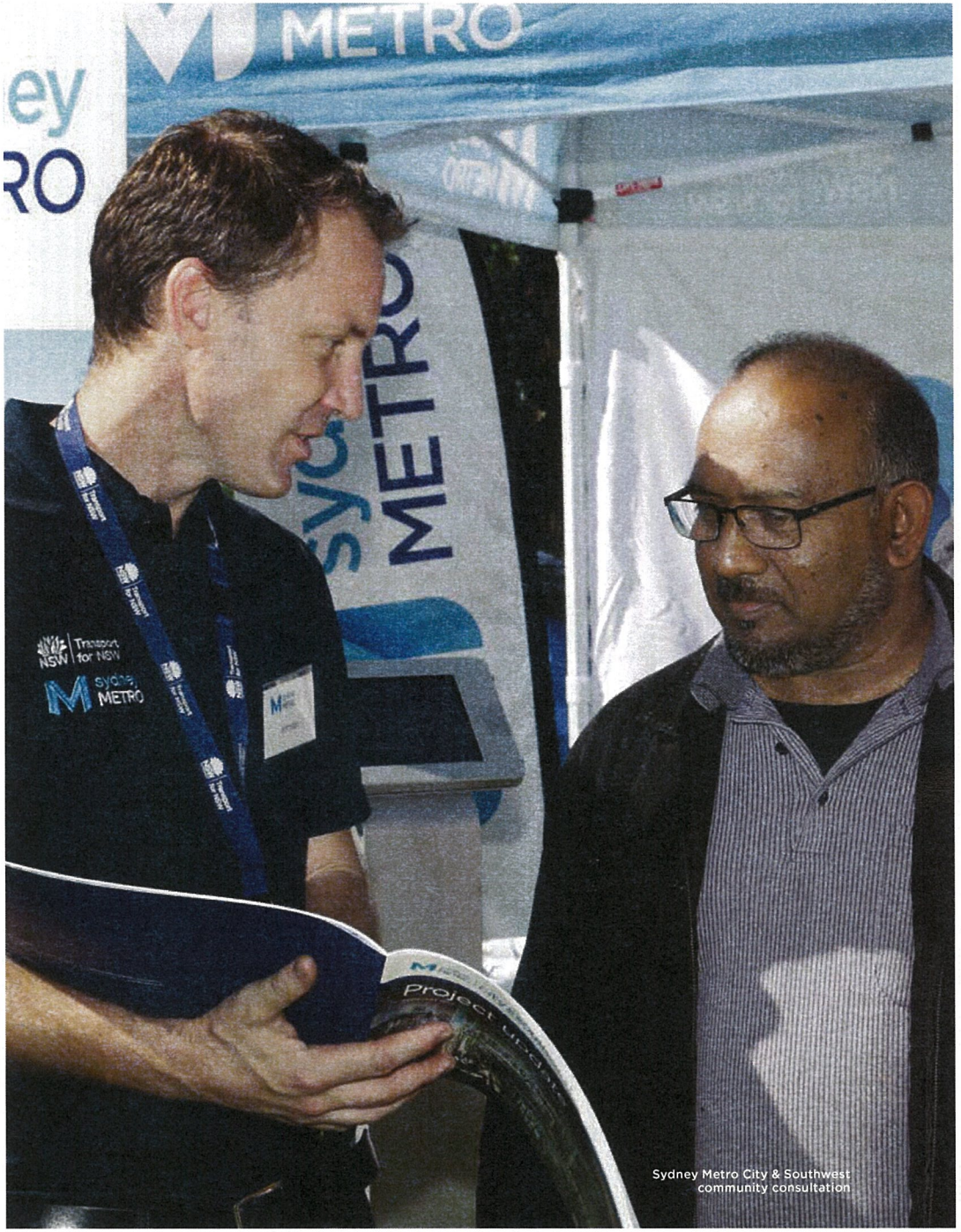
- Establish robust sustainability objectives and targets.
- Maintain an environmental management system that is integrated into all our project activities.
- Ensure thorough and open environmental assessment processes are developed and maintained.
- Develop and maintain an environmental management framework to embed best practice pollution management and sustainable outcomes during construction.
- Apply effective assurance processes to monitor performance against the project environment and sustainability objectives and identify appropriate reward or corrective action, as required.
- Apply environment and sustainability specific processes to the procurement of delivery activities.

Accountability

- Undertake public sustainability reporting.
- Hold employees and contractors accountable for proactively meeting their environmental and social sustainability responsibilities.
- Provide appropriate training and resources necessary to meet our responsibilities.

Rodd Staples
Program Director, Sydney Metro

 SM-ES-ST-209 Sydney Metro Environment and Sustainability Policy



Sydney Metro City & Southwest community consultation

3.5 Sustainability objectives

Sustainability objectives have been developed to incorporate the outcomes of a critical review of the sustainability objectives for Sydney Metro Northwest, consideration of the inputs detailed in Appendix B and consultation across Sydney Metro work streams. These objectives have been endorsed by the Sydney Metro Program Executive.

Table 1 Sustainability objectives

SUSTAINABILITY THEMES & OBJECTIVES	
Governance	› Demonstrate leadership by embedding sustainability objectives into decision making. › Demonstrate a high level of performance against objectives and appropriate benchmarks. › Be accountable and report publicly on performance.
Carbon & energy management	› Improve the shift toward lower carbon transport. › Reduce energy use and carbon emissions during construction. › Reduce energy use and carbon emissions during operations. › Support innovative and cost effective approaches to energy efficiency, low-carbon / renewable energy sources and energy procurement.
Environmental performance	› Reduce sources of pollution and optimise control at source to avoid environmental harm. › Comply with environmental obligations outlined in applicable project planning approvals.
Climate change resilience	› Infrastructure and operations will be resilient to the impacts of climate change.
Resources – water efficiency	› Minimise use of potable water. › Maximise opportunities for reuse of rainwater, stormwater, wastewater and groundwater.
Resources – waste & materials	› Minimise waste through the Project lifecycle. › Reduce materials consumption. › Consider embodied impacts in materials selection. › Maximise beneficial reuse of spoil.
Biodiversity conservation	› Protect and create biodiversity through appropriate planning, management and financial controls.
Heritage conservation	› Protect and promote heritage through appropriate design, planning, and management controls.
Liveability	› Promote improved public transport patronage by maximising connectivity and interchange capabilities. › Provide well-designed stations and precincts that are comfortable, accessible, safe and attractive.
Community benefit	› Make a positive contribution to community health and well-being. › Ensure community and local stakeholder engagement and involvement in the development of the Project. › Contribute to the delivery of legacy projects to benefit local communities. › Create opportunities for local business involvement during the delivery and operations phases. › Optimise community benefit of residual land development. › Minimise negative impacts on the community and local businesses during construction and operation.
Supply chain	› Influence contractors, subcontractors and materials suppliers to adopt sustainability objectives in their works and procurement.
Workforce development	› Increase opportunities for employment of local people, participation of local businesses, and participation of SME's. › Enable targeted and transferable skills development which resolves local and national skills shortages, supports industry to compete in home and global markets, and embeds a health and safety culture within all induction and training activities, promoting continuous improvement. › Increase workforce diversity and inclusion, targeting indigenous workers and businesses, female representation in non-traditional trades, and long term unemployed. › Inspire future talent and develop capacity in the sector, engaging young people via education and work experience, collaborating with higher education institutions to provide programs responding to rapid transit and other infrastructure requirement, and supporting vocational career development through apprenticeships and traineeships.
Economic	› Consider adopting a whole-of-life costing model to maximise sustainability benefits. › Optimise development opportunities for residual land. › Capture sustainability benefits in the business case for the project.

3.6 Sustainability targets and initiatives

Targets and initiatives have been developed to support the above sustainability objectives for the Project. Sustainability targets represent performance aspirations across the Project. It is acknowledged that future developments in the design or other changes to the Project may affect our ability to meet all targets. Performance against targets will be monitored and reported on a regular basis.

Sustainability initiatives are detailed in Appendices C–N for each theme respectively and will be further refined as part of the design process and included in the contract documents for all detailed design, construction and operations contracts.

Project contractors will be required to clearly identify how they will ensure that specific sustainability objectives, initiatives and targets are met. This approach will encourage industry to develop innovative value-for-money sustainability solutions.

Table 2 Sydney Metro City & Southwest sustainability targets

SUSTAINABILITY THEMES & TARGETS	
Governance	› A high level of attainment (minimum ISCA IS Rating of 65 'Excellent') for relevant infrastructure. › 5 Star Green Star ratings for relevant buildings. › Align with a high rating using the TfNSW Sustainable Design Guidelines.
Carbon & energy management	› Achieve at least a 20 per cent reduction in carbon emissions associated with construction, when compared to business as usual.* › Offset 25 per cent of the electricity needs for the construction phase of the project. › Achieve at least a 20 per cent reduction in carbon emissions associated with operations, when compared to business as usual.* › Maximise the capture and reuse of energy generated from braking trains. › Design buildings (stations and stabling buildings) to achieve at least a 15 per cent improvement over performance requirements set out in Section J of the National Construction Code. › Source 5-20 per cent of the low voltage electricity required at above ground stations from onsite renewable energy sources. › Offset 100 per cent of the electricity needs for the operational phase of the project.
Environmental performance	› Zero major pollution incidents. › New emission standards will be identified and applied to diesel equipment and vehicles during construction.
Climate change resilience	› Mitigate all extreme and high level risks. › Mitigate a minimum of 25 per cent of medium level risks (examples include increased flooding, increased temperatures, sea level rise, and increased storm events).
Resources – water efficiency	› Reduce water use by at least 10 per cent compared to business as usual.* › Source at least 33 per cent of the water used in construction from non-potable sources. › Source at least 33 per cent of the water used in operations from non-potable sources. › Implement rainwater harvesting and reuse systems at construction sites and above ground stations. › Source at least 60 per cent of the water used at above ground stations from harvested rainwater.
Resources – waste & materials	› Reduce the environmental footprint of materials used on the project by at least 15 per cent compared to business as usual.* › Use concrete which has an average Portland cement replacement level of more than 25 per cent. › 100 per cent beneficial reuse of usable spoil. › Recycle or reuse 90 per cent of recyclable construction and demolition waste. › Recycle or reuse 60 per cent of office waste during the construction phase. › Recycle or reuse 80 per cent of the waste generated during operations. › Recycle or reuse 65 per cent of office waste during operations. › 60 per cent of reinforcing steel is produced using energy-reducing processes in its manufacture. › Source 100 per cent reused, recycled timber or responsibly sourced timber.
Biodiversity conservation	› Minimise vegetation clearing. › Native landscaping targets to be established.
Heritage conservation	› Prepare a Heritage Strategy, including stakeholder engagement with relevant stakeholders. › Implement the Heritage Strategy during design and delivery, to conserve and activate. › Maximise opportunities for archaeological research and future interpretation of archaeological finds. › Opportunities for heritage interpretation identified and implemented at appropriate station precincts.
Liveability	› Station interchanges designed in accordance with the Interchange Access Plans and modal hierarchy › Stations and precincts designed in accordance with the Sydney Metro Design Guidelines › Maximise the provision of secure access and covered bicycle parking spaces, and safeguard for future expansion of bicycle parking
Community benefit	› Implement initiatives which will provide tangible benefits to local community groups during the construction period. › Implement initiatives which will provide tangible benefits to the broader local community beyond the construction period. › Identify key drivers for affordable housing and work with other lead agencies to identify opportunities and develop an appropriate response.
Supply chain	› All principal contractors develop and implement sustainable procurement strategies.
Workforce development	› Refer to the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy, which is a separate document to be read in conjunction with this strategy and outlines priorities, objectives and targets to address workforce development.

* Note: 'Business as usual' (BAU) is defined as that which is used in the applicable rating scheme for the respective target (e.g. ISCA Rating Tool, Green Star and TfNSW CERT).

Examples of design initiatives

Examples of sustainable design initiatives which are being considered for inclusion at new underground stations are illustrated in Figures 6, 7, and 8. These initiatives will continue to be evaluated throughout the detailed design process, and included where feasible.

Figure 6 Cross section highlighting sustainabiltiy opportunities

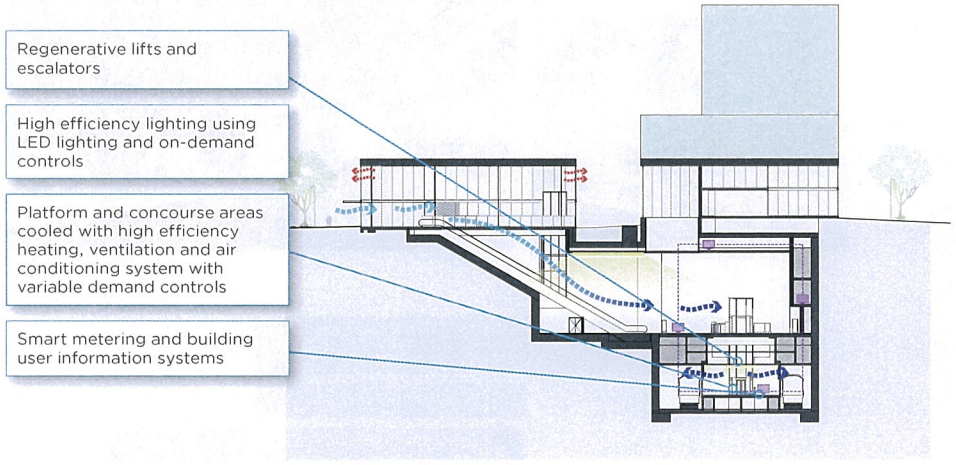


Figure 7 Long section highlighting sustainabiltiy opportunities

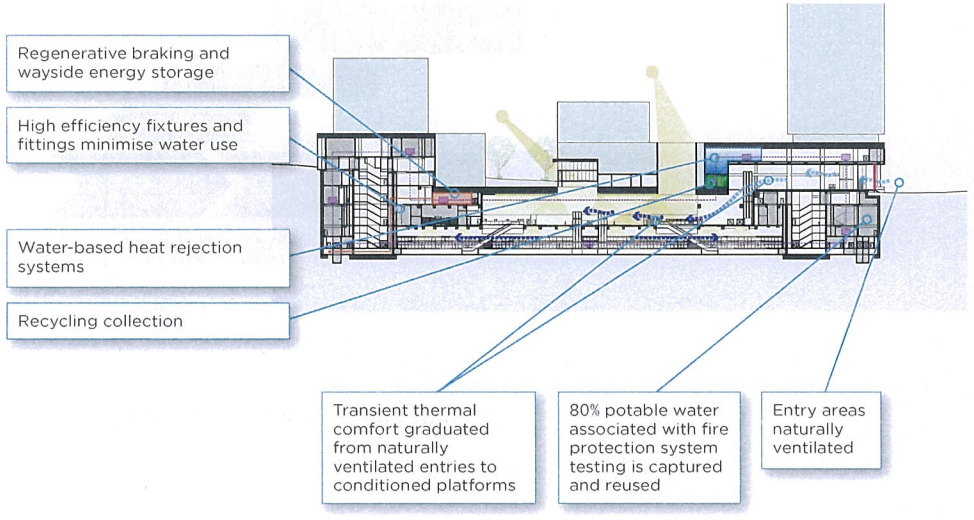
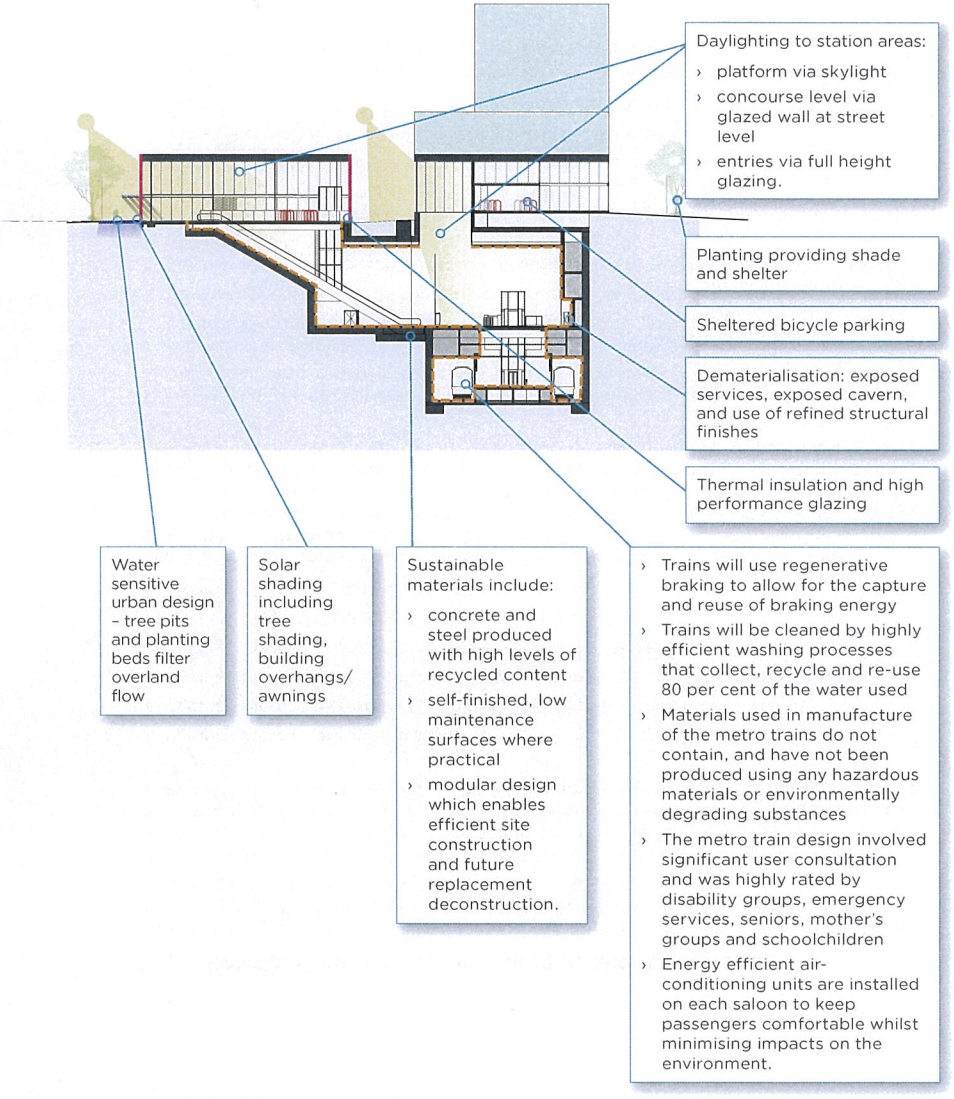


Figure 8 Cross section highlighting sustainabiltiy opportunities

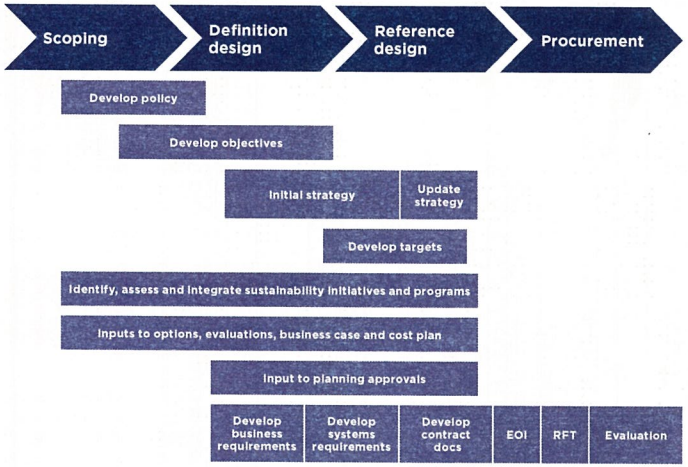


3.7 Strategy process and key activities

The overall process and key activities which have been undertaken to achieve the sustainability objectives, targets and initiatives for the Project components, through to the early procurement stage, are illustrated in Figure 9.

The next steps in implementation are described in Section 4.

Figure 9 Early implementation activities for individual project components of the City & Southwest Project



National Aborigines and Islanders Day Observance Committee (NAIDOC) Week celebrations at Sydney Metro Community Information Centre, Castle Hill, July 2016

3.8 Relationships with other strategies and frameworks

The Sydney Metro Integrated Performance Framework sets out a range of strategic program objectives for Sydney Metro. This Sustainability Strategy aligns with the strategic program objectives, as described in Appendix B

As previously outlined in Section 3.2 and Figure 3, there are some elements that while they form part of the broader definition of sustainability, are not the focus of this strategy. These elements are being delivered by other Sydney Metro teams and their respective objectives and initiatives are addressed in other strategies and plans, including:

- Sydney Metro Heritage Strategy
- Sydney Metro Overarching Community and Communications Strategy
- Sydney Metro City & Southwest Construction Noise and Vibration Strategy
- Sydney Metro Construction and Environmental Management Framework
- Sydney Metro Product Strategy
- Sydney Metro Program Safety Assurance Plan.

Workforce development has traditionally formed part of Sydney Metro's overall sustainability strategy's objectives and targets. These are now reflected in the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy (a separate document). The strategy sets a vision, objectives and initiatives relating to workforce development to reflect industry skills requirements, local demographics, regulatory drivers and wider government priorities around skill, employment, diversity and business growth.

Benefits from the implementation of the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy include:

- increased availability of skills and capacity, supporting Project delivery within a value-for-money approach
- socio-economic benefits for local communities and individuals
- development of intellectual capital through skilling, reskilling and upskilling local workers
- providing better employment options for local under-represented groups including Aboriginal people, young people and women
- increased collaboration with industry partners
- increased global competiveness of Australia's enterprises
- management of risks around providing local jobs as part of the project.

Further information on the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy is provided in Appendix O.

4 IMPLEMENTATION

4.1 Roles and responsibilities

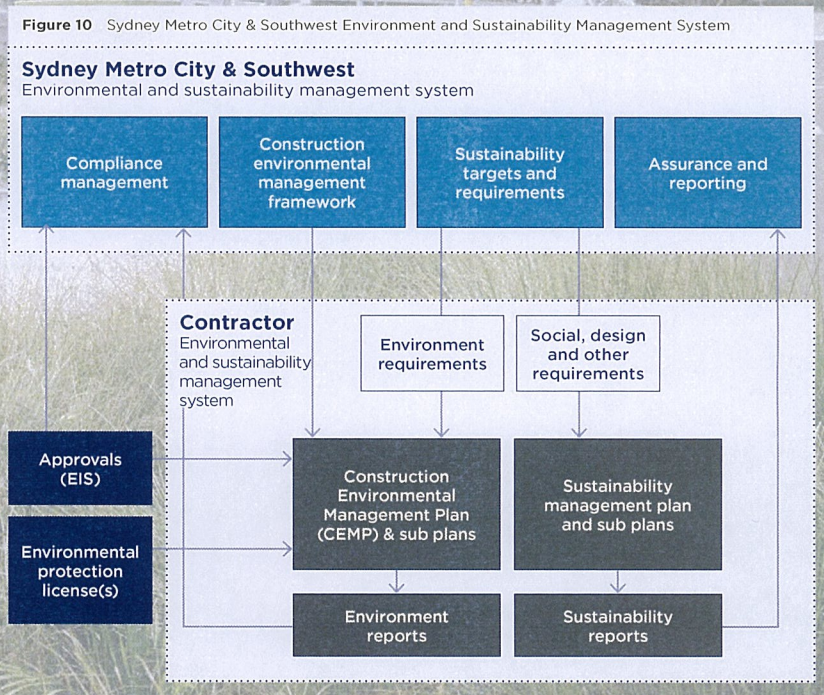
The responsibility for ensuring sustainability outcomes extends well beyond the Sydney Metro sustainability team to other work streams, functional groups, the Project Executive and contractors. Whether it is ownership of targets, or promotion of benefits and outcomes, sustainability is integrated across the team and is a shared responsibility.

4.2 Ensuring compliance – overarching management systems

The Environment & Sustainability Policy and Strategy has been integrated into the Environmental and Sustainability Management System (E&SMS), outlined in Figure 10. This figure also shows relationship between key documents within the Sydney Metro E&SMS and the Principal Contractor's E&SMS. Notably:

- the Construction Environment Management Plan (CEMP) and sub plans will capture the construction environmental requirements emerging from the EISs and subsequent planning approvals and this strategy
- the Sustainability Management Plans will capture governance and design requirements as well as social sustainability initiatives required by this strategy and contract requirements. These plans will vary in scope across different delivery packages
- progress against sustainability objectives and targets will be tracked through regular sustainability reporting over the delivery period. Future design changes may affect our ability to meet all targets. If a target has not been met, commentary will be provided.

Figure 10 Sydney Metro City & Southwest Environment and Sustainability Management System



Bioretention basin in commuter car park at Edmondson Park

Inside Sydney Metro's life-size train model

APPENDIX A
CONSISTENCY WITH RELEVANT PLANNING APPROVALS

The Chatswood to Sydenham Conditions of Approval (CoA), revised mitigation measures and revised environmental outcomes relating to sustainability and where they are addressed to demonstrate compliance are outlined in Tables A1 and A2.

Updated versions of this Strategy will reflect compliance with planning approvals which are obtained for other portions of the Project as they become available.

Table A1 Consistency with the Chatswood to Sydenham CoAs and revised mitigation measures and environmental outcomes

Ref	Condition/commitment	Where addressed in this Strategy
Condition of Approval – Infrastructure approval SSI 15_7400 (9 January 2017)		
E71	The proponent must seek to achieve a best practice level of performance for the CSSI using market leading sustainability ratings tools (including a minimum 'Design' and 'As built' rating score of 65 using the Infrastructure Sustainability Council of Australia infrastructure rating tool, or an equivalent level of performance using a demonstrated equivalent rating tool).	Table 2 – Governance theme and Appendix C
E72	The Proponent must prepare a Sustainability Strategy to be submitted to the Secretary within six (6) months of the date of this approval, or within another timeframe agreed with the Secretary, which must be implemented throughout design, construction and operation of the CSSI. The Sustainability Strategy must include:	This Strategy & Appendices
	(a) details of the sustainability objectives and targets for the design, delivery and operation of the CSSI	Section 3 and Appendices C–N
	(b) details of the sustainability initiatives which will be investigated and / or implemented (c) a description of how the strategy will be implemented for the CSSI.	Section 6 and Appendices C–N
E73	Opportunities to reduce operational greenhouse gas emissions must be investigated during detailed design. The sustainability initiatives identified must be implemented, reviewed and updated regularly throughout design development and construction, and annually during operation.	Table 2 – Carbon & Energy Management theme and Appendix D
E74	The Proponent must fully offset the greenhouse gas emissions associated with consumption of electricity during operation of the CSSI.	Table 2 – Carbon & Energy Management theme and Appendix D
E101	Before commencement of permanent built surface works and/ or landscaping, the Proponent must prepare Station Design and Precinct Plans (SDPP) for each station.....Each SDPP must include, but not be limited to: (a) identification of specific design objectives, principles and standards based on – ...v. sustainable design and maintenance...	This Strategy & Appendices outline applicable objectives, principles and standards, and will inform the SDPPs
Revised environmental mitigation measures – Sydney Metro Chatswood to Sydenham Submission and Preferred Infrastructure Report (October, 2016)		
Construction		
SUS1	Sustainability initiatives would be incorporated into the detailed design and construction of the project to support the achievement of the project sustainability objectives.	Appendix C
SUS2	A best-practice level of performance would be achieved using market leading sustainability rating tools during design and construction.	Table 2 – Governance theme and Appendix C
SUS3	A workforce development and industry participation strategy would be developed and implemented during construction.	Section 4
SUS4	Climate change risk treatments would be incorporated into the detailed design of the project including: › ensuring that adequate flood modelling is carried out and integrated with design. › testing the sensitivity of air-conditioning systems to increased temperatures, and identify potential additional capacity of air-conditioning systems that may be required within the life of the project, with a view to safeguarding space if required. › testing the sensitivity of ventilation systems to increased temperatures and provide adequate capacity.	Table 2 – Climate change resilience theme and Appendix F
SUS5	An iterative process of greenhouse gas assessments and design refinements would be carried out during detailed design and construction to identify opportunities to minimise greenhouse gas emissions. Performance would be measured in terms of a percentage reduction in greenhouse gas emissions from a defined reference footprint.	Table 2 – Carbon & Energy theme and Appendix D
SUS6	25 per cent of the greenhouse gas emissions associated with consumption of electricity during construction would be offset.	Table 2 – Carbon & Energy Management theme and Appendix D
WM2	100 per cent of spoil that can be reused would be beneficially reused in accordance with the project spoil reuse hierarchy.	Table 2 – Resources – Waste & Materials theme
WM3	A recycling target of at least 90 per cent would be adopted for the Project.	Table 2 – Resources – Waste & Materials theme and Appendix H
Operation		
SUS7	Sustainability initiatives would be incorporated into the operation of the Project to support the achievement of the project sustainability objectives.	Appendix C
SUS8	Periodic review of climate change risks would be carried out to ensure ongoing resilience to the impacts of climate change.	Appendix F
SUS9	A workforce development and industry participation strategy would be developed and implemented during operation.	Section 4
SUS10	100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation would be offset.	Table 2 – Carbon & Energy Management theme and Appendix D

Table A2 Consistency with the Chatswood to Sydenham EIS environmental performance outcomes

Relevant Secretary's environmental assessment requirements desired performance outcomes	Environmental performance outcome	Where addressed in this Strategy
Sustainability		
Sustainability The project reduces the NSW Government's operating costs and ensures the effective and efficient use of resources. Conservation of natural resources is maximised.	The project would be carried out in accordance with the Sydney Metro City & Southwest Environment and Sustainability Policy.	Section 3
	25 per cent of the greenhouse gas emissions associated with consumption of electricity during construction would be offset.	Table 2 – Carbon & Energy Management theme and Appendix D
	100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation would be offset.	Table 2 – Carbon Energy Management theme and Appendix D
Non-Aboriginal heritage		
Heritage The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places.	The project would be sympathetic to heritage items and, where feasible and reasonable, avoid and minimise impacts to non-Aboriginal heritage items and archaeology.	Table 2 – Heritage Conservation theme and Appendix J
The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	The design of the project would reflect the input of an independent heritage architect, relevant stakeholders and the design review panel.	Appendix J
Aboriginal heritage		
Heritage The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places.	The project would be sympathetic to heritage items and, where feasible and reasonable, avoid and minimise impacts to Aboriginal heritage items and archaeology.	Table 2 – Heritage Conservation theme and Appendix J
The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	The design of the project would reflect the input of an independent heritage architect, relevant stakeholders and the design review panel.	Appendix J
Social impacts and community facilities		
Socio-economic, land use and property The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities.	The project would avoid long-term impacts (during operation) on the availability and quality of public open space and community facilities.	Appendix L
The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.	The project, during operation, would help to improve access to local facilities, services and destinations, supporting opportunities for community interaction.	Table 2 – Community Benefit theme and Appendix L
Biodiversity		
Biodiversity The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity.	The biodiversity outcome would be consistent with the Framework for Biodiversity Assessment.	Appendix I
Offsets and/or supplementary measures are assured which are equivalent to any remaining impacts of project construction and operation.	The project would minimise impacts to biodiversity.	Table 2 – Biodiversity theme and Appendix I
Waste management		
All wastes generated during the construction and operation of the project are effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.	All waste would be assessed, classified, managed and disposed of in accordance with the NSW Waste Classification Guidelines.	Appendix H
	100 per cent of spoil that can be reused would be beneficially reused in accordance with the Project spoil reuse hierarchy.	Table 2 – Resources – Waste & Materials theme and Appendix H
	A recycling target of at least 90 per cent would be adopted for the construction of the project.	Table 2 – Resources – Waste & Materials theme and Appendix H

APPENDIX B
INPUTS TO THE SUSTAINABILITY FRAMEWORK

Regulations and policy drivers

The City & Southwest sustainability strategy responds to, and aligns with, a number of regulatory and project drivers, outlined in Table B1.

Table B1 Regulatory and Project drivers for the City & Southwest Sustainability Strategy

Driver	Description
Regulatory drivers	
Environmental Planning and Assessment Act 1979 (NSW)	The EP&A Act objectives encourage Ecological Sustainable Development (ESD). The EP&A Act recognises that ESD requires the effective integration of economic and environmental considerations into decision making processes. There are four main principles supporting the achievement of ESD: › precautionary principle › intergenerational equity › conservation of biological diversity and ecological integrity › improved valuation and pricing of environmental resources.
Transport Administration Act 1988 (NSW)	A common objective and service delivery priority of public transport agencies is 'To promote the delivery of transport services in an environmentally sustainable manner'.
The National Greenhouse and Energy Reporting Act 2007 (NGER)	The NGER Act outlines a mandatory national system for reporting greenhouse emissions, abatement actions and energy consumption. Under the NGER Act, the Project will have reporting obligations due to the anticipated energy demand.
Aboriginal Participation in Construction Guidelines (2007)	The Aboriginal Participation in Construction Guidelines (2007) (Guidelines) are 'aimed at supporting and encouraging more employment and business opportunities for Aboriginal people on government construction projects'. Under the Guidelines project specific Aboriginal participation targets and KPIs are set by Contractors. A plan must be prepared and progress monitored and reported on.
NSW 2021 – State Plan (2011)	NSW 2021 includes a number of targets to protect and restore priority land, vegetation and water habitats, protect local environments from pollution, increase renewable energy, minimise waste, encourage recycling and minimise impacts of climate change on local communities.
NSW Long Term Transport Master Plan (2012)	The Plan states that 'promoting sustainability and protecting the environment in our transport planning, decisions and projects' is a state-wide challenge that must be addressed. The Plan focuses on achieving the following environmental and sustainability objectives: › enhancing environmental and sustainability outcomes › minimising damage to our environment › adapting our transport infrastructure to be resilient (to climate change and natural disasters) › maintaining Sydney's air quality › reducing emissions and managing energy use.
Australia Jobs Act 2013	Industry to supply goods and services to the Project.
NSW Government Resource Efficiency Policy (2014)	The NSW Government Resource Efficiency Policy (2014) (Policy) aims to drive resource efficiency, with a focus on energy, water and waste, and reducing harmful air emissions. The Policy aims to ensure NSW Government agencies: › meet the challenge of rising costs for energy, water, clean air and waste management › use purchasing power to drive down the cost of resource-efficient technologies and services › show leadership by incorporating resource efficiency in decision-making. The policy includes specific measures, targets and minimum standards to drive resource efficiency.
NSW Waste Avoidance and Resource Recovery Strategy 2014–21 (2014)	The NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (2014) (Strategy) provides a framework for waste management and aligns with the NSW Government's waste reforms in NSW 2021. The Strategy includes the following six key result areas: avoid and reduce waste generation, increase recycling, divert more waste from landfill, manage problem wastes better (including asbestos), reduce litter, and reduce illegal dumping.
Aboriginal Participation in Construction Policy (2015)	The Policy aims to 'increase the employment and education opportunities for Aboriginal people within the construction industry'. Under the Policy a percentage of the total estimated value of the contract (termed 'targeted project spend') must be directed to Aboriginal related employment and education activities, procurement of goods or services from recognised Aboriginal businesses or other programs. An Aboriginal Participation Plan must be prepared and published shortly after contract award. A Participation Report must be prepared and published (once construction is 90 per cent complete) describing how the Plan was implemented.
NSW Strategic Business Case Gateway	Sustainability indicators form a key component of the Gateway Review System. The Gateway Review is a NSW Government process that assesses the progress of projects against the following seven criteria service (including sustainability) to inform the procurement process.
Other frameworks and policies	
Transport Environment and Sustainability Policy Framework (2013)	The Framework was developed to establish a collective and coordinated approach to deliver the NSW Government's environmental and sustainability agenda across the transport sector. The Framework includes objectives, targets, measures and action plans to deliver positive environmental outcomes. The Framework has been developed to align with the State Plan 2021 and Transport Master Plan. The TfNSW sustainability aspiration is 'to provide a world class sustainable transport system that meets customer expectations and optimises economic development for NSW' (TfNSW Framework, 2013). A number of TfNSW sustainability guiding principles are outlined and have been used to guide the development of the sustainability objectives for The Project.
Sydney's Cycling Future, Cycling for everyday transport (2013)	Outlines how the NSW Government will 'improve the bicycle network and make sure that the needs of bike riders are built into the planning of new transport and infrastructure projects.' Sydney's Cycling Future provides the strategic and policy context, articulating: › [ensuring] that the needs of bike riders are built into the planning of new transport and infrastructure projects › Deliver bicycle infrastructure through major transport and development projects.'

Driver	Description
Sydney's Walking Future, Connecting people and places (2013)	The goal of Sydney's Walking Future, Connecting people and places (2013) is to 'get people in Sydney walking more through actions that make it a more convenient, better connected and safer mode of transport.'
Sydney's Bus Future, Simpler, faster, better bus services (2013)	Sets out how essential improvements to the bus network will be implemented to meet changing customer needs, including being able to access major centres outside the Sydney CBD.
NSW Renewable Energy Action Plan (2013)	The REAP intends to position NSW as the clean energy State of Australia – attracting investment, building a clean energy knowledge industry and creating jobs, whilst reducing the State's contribution to greenhouse gas (GHG) emission.
NSW Procurement Policy Framework 2014	Sets out mandatory requirements and guidance on sustainable procurement practices for NSW government agencies.
TfNSW Environment & Sustainability Policy (2015)	TfNSW's commitment to delivering transport services, projects, operations and programs in a manner that balances economic, environmental and social issues to ensure a sustainable transport system for NSW.
NSW Premier's announcement – 1000 apprentices	June 2014 announcement that "Under the NSW Government's procurement process for major infrastructure projects, we will set minimum requirements for apprenticeships on a project-by-project basis and ensure bidders spell out how they will leave a lasting skills dividend for local communities...These actions will create at least 1,000 new apprenticeship positions during the delivery of our infrastructure program.."
TfNSW Diversity and Inclusion Policy	The policy embraces equal employment opportunity which is pivotal to addressing employment disadvantage for diverse groups including but not limited to: women, Aboriginal people, people with a disability and people from culturally and linguistically diverse backgrounds.
Infrastructure Skills Legacy Program & Demonstration pilot	The Program will support the Premier's state priority to create jobs, together with a focussed commitment to grow skills and jobs through infrastructure investment. Sydney Metro is in the final stages of signing a MoU with NSW Department of Industry, Skills and Regional Development to become a demonstration pilot project as part of the program. This will secure funding for accredited training across the Project.
NSW Procurement – PBD-2016-02 Construction apprenticeships	The Procurement directive ensures skills development goals are established for all relevant government construction projects. The NSW Procurement Board requires all NSW projects identify a target for the engagement of apprentices or trainees for every construction contract valued over $10 million.
NSW Procurement – Construction Skills Development Plan	NSW Procurement Board requires NSW Government agencies with a major construction program to publish and maintain a Construction Skills Development Plan. This plan will identify skills needs arising from the agency's forward construction program. The plan will also explain the strategies or programs that the agency is using to address skills shortages.

Driver	Description
Project drivers	
City & Southwest Environment & Sustainability Policy (April 2016)	Project commitment to sustainable outcomes.
NWRL Sustainability Strategy (2012)	Benchmark for Sydney Metro's approach to sustainability.
City & Southwest Business Requirements	Reflect the sustainability objectives for the Project.
Endorsed approach to workforce development	The workforce development objectives and approach to implementation, including investigating specific programs, was endorsed by the People and Teams Executive Subcommittee.

TfNSW sustainability guiding principles

TfNSW's Transport Environment and Sustainability Policy Framework (June 2013) outlines six guiding principles guide and support TfNSW's decision making to deliver improved sustainability performance. These were considered in the development of this Strategy and the Project's sustainability objectives and include:

- **Consider whole-of-life costing:** When comparing investment decisions, TfNSW will consider the potential future costs such as operating costs, environmental and social costs as well as the initial capital expenditure in the assessment of the best option. This will ensure the true cost of the asset over its life time is fully considered.
- **Integrated planning:** Transport will work with its partners to develop integrated transport services and infrastructure that meet the existing and future requirements of its customers.
- **Encourage innovation:** Transport will work with its partners to drive continual improvement in the environmental performance of transport infrastructure and services during the planning, design, building and operating. This will help to ensure we maintain best practice and deliver value for money.
- **Customer focus:** Transport will consider the needs and expectations of its customers in the planning, design, building and operation of transport services and infrastructure. The customer is at the centre of our decision making.
- **Engage our partners:** The successful delivery of transport services and infrastructure is dependent on the performance of TfNSW's partners. TfNSW aims to develop strong and trusted relationships with its partners to ensure transport services and infrastructure meets the expectations of its stakeholders – value for money, innovation and environmental performance.
- **Measure and report on performance:** To drive continual improve in transport services and infrastructure, Transport will measure and report its progress against the sustainability indicators and targets. It will report internally and to its external stakeholders on a regular basis.

Sydney Metro Integrated Performance Framework

Sydney Metro's mission is to deliver Sydney a connected metro service, providing more choice to customers and opportunities for our communities now and into the future. The Integrated Performance Framework (Figure B1) defines the overarching Sydney Metro strategic objectives.

This sustainability strategy supports the achievement of the following specific strategic objectives:

- A successful delivery
  - We will strive to exceed Government commitments and community expectations.
- A world class metro
  - We will establish vibrant and accessible hubs which unlock the potential of surrounding precincts, and make our global city more productive, connected, sustainable and liveable.
- A transformative legacy
  - We will use this once-in-a-generation investment to shape a legacy that makes a positive difference to people's lives.
  - We are game-changers, resetting the standard for infrastructure delivery and developing new and best-practice skills, technologies, and systems.

Figure B1 Integrated Performance Framework

Lessons learnt from Sydney Metro Northwest

Recommendations and lessons learnt from the implementation of the Sydney Metro Northwest sustainability strategy, targets and requirements which are relevant to strategic sustainability considerations are as follows:

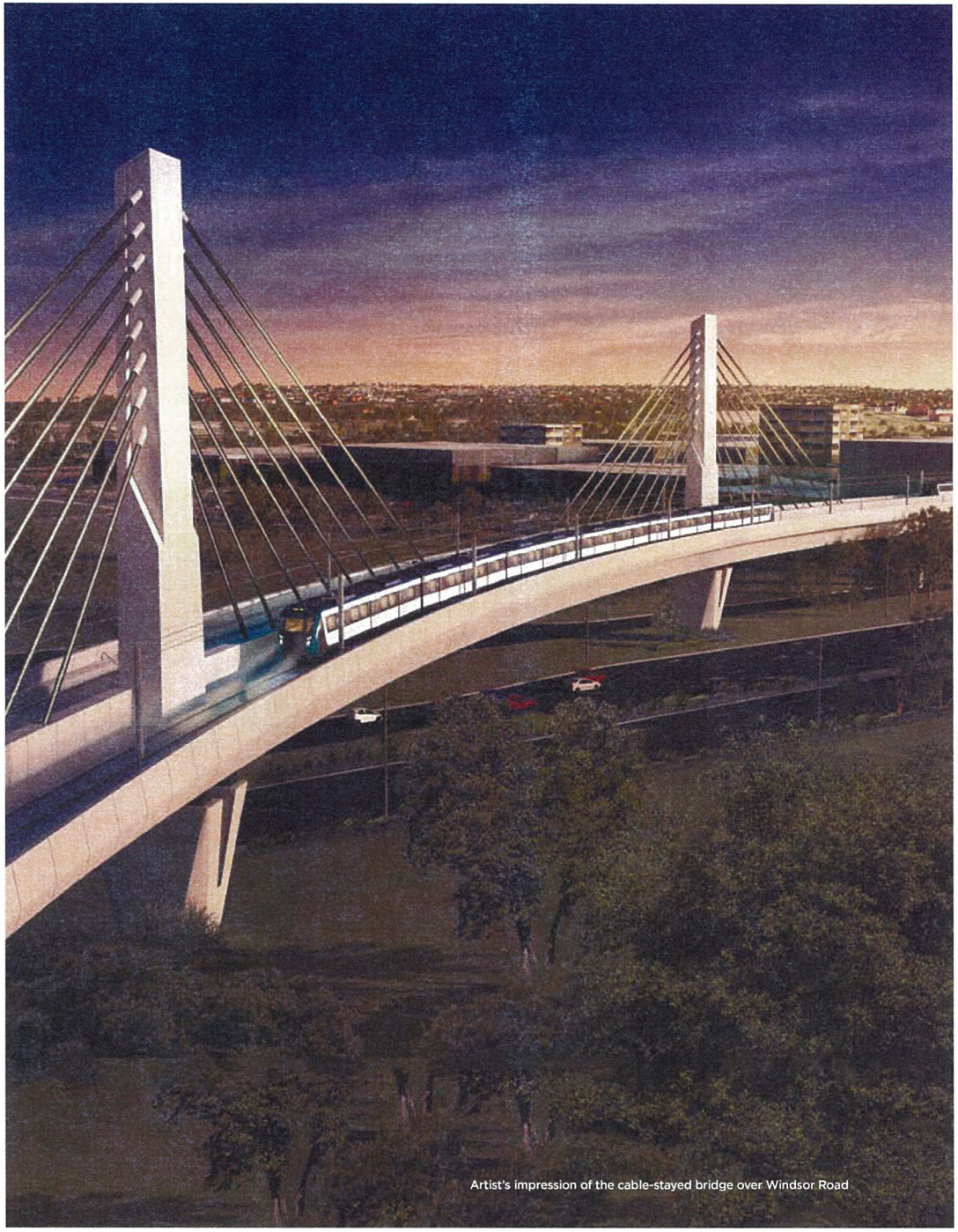
- the sustainability targets and contract requirements established for Sydney Metro Northwest are achievable and to date have been successfully delivered by Sydney Metro Northwest contractors
- rating tools have been useful in focussing contractor teams, and communicating performance to broader stakeholders
- dedicated contractor sustainability resources with appropriate qualifications and experience (rather than shared environmental management resources) will provide the best opportunity to achieve good outcomes
- adequate sustainability resourcing on the client side (within Sydney Metro, implementation groups, contract managers) and within the independent certifier, is an important consideration
- best outcomes are achieved when the contractor executive team is active in, and responsible for, getting results
- incentive payments can be a useful tools for achieving outcomes
- requiring contractors to comply with layers of ratings and contract requirements can lead to ambiguity and conflicts, and should be streamlined and simplified where possible
- contractors will not deliver against requirements or targets which are not measurable (e.g. 'enhance' community benefits)
- construction and operational targets should be separated for clarity
- additional focus is required in the procurement area. Sustainable outcomes will not be achieved if requirements are not passed down the supply chain
- human rights / ethical sourcing issues should be considered where equipment and materials are sourced from developing countries.

Additional lessons learned in the workforce development and industry participation area have been documented in that Strategy the Workforce Development and Industry Participation Strategy.

Best practice benchmarking

A Sustainability Benchmarking Report (February 2015) was developed to review recent and current best practice in the sustainable design of national and international rail and infrastructure projects. The following case studies were reviewed to inform the project team of industry best practice sustainability initiatives and performance targets:

- North West Rail Link – Sydney, Australia
- Sydney Port Botany Expansion, Habitat Restoration
- Sydney Inner West Light Rail – Greenway
- Sydney South West Rail Link Leppington Station – Green Walls
- Barangaroo South, Seawater Cooling
- Goulburn Valley Highway, Aboriginal Heritage
- Goulburn Valley Highway, Aboriginal Heritage
- Qld Northern Busway Alliance, Aboriginal Heritage
- Gold Coast Light Rail – Queensland, Australia
- Gateway WA – Perth, Australia
- Westgate Freeway, E-Crete (Geopolymer Concrete)
- South Morang Rail Extension Project, bike and pedestrian connectivity
- TriMet Portland – USA
- New York Metropolitan Transit Agency – USA
- Tarrant Regional Water District Line J – Texas, USA
- LA Metro, Trackside Energy Storage
- Hong Kong Metro, Trackside Energy Storage
- Leeds Northern Rail – Cyclepoint
- London Heathrow Airport, 'Pavegen' Footfall Energy Generation
- London Farringdon Station Redevelopment, Green Roof
- London Olympics 2012 Development – UK
- Network Rail – UK.



Artist's impression of the cable-stayed bridge over Windsor Road

APPENDIX C
GOVERNANCE

OBJECTIVES:

- Demonstrate leadership by embedding sustainability objectives into decision making.
- Demonstrate a high level of performance against objectives and appropriate benchmarks.
- Be accountable and report publicly on performance.

C1.1 Current position

Sydney Metro is committed to embedding good governance in all processes for the Project and providing the resources required to ensure effective implementation of those practices.

Sustainability governance activities include ensuring there are appropriate levels of resources and budget for key personnel to champion sustainability throughout the project team, embedding sustainability within decision-making frameworks and project management systems, engaging internal and external stakeholders, aligning the Project to achieve best-practice sustainability outcomes, implementing an assurance process to track and report against sustainability targets, and capturing and applying lessons learned from the Sydney Metro Northwest project to ensure continual improvement.

The main components of the sustainability governance framework are:

- **This strategy** lays the foundation for addressing social and environmental issues for City & Southwest by clearly articulating the objectives and targets for the Project.
- **The Environment & Sustainability policy** (April 2016) articulates Sydney Metro's position on sustainability and the environment of the Project and provides a point of reference for internal and external stakeholders.
- **Rating tools** applicable to the Project have been adopted where considered to drive best practice sustainability outcomes, whilst providing clarity to the project team, market recognition, and third party verified assurance. The priority has been to develop a streamlined outcomes-focussed approach to applying sustainability rating tools on the Project which minimises duplication and is tailored to the scope of each of the delivery contracts.
- Sydney Metro will develop an **assurance framework** and process to track and report against targets for the Project. The Sydney Metro Environment & Sustainability Management Manual, (which is part of the Integrated Management System for Sydney Metro), sets out roles and responsibilities, processes and procedures for driving sustainable outcomes, monitoring and reporting performance, and continual improvement.

C1.2 Future expectations

Sydney Metro will require delivery contractors to achieve ratings and/or adopt initiatives outlined in the following available sustainability rating tools:

- Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) rating scheme
- Green Building Council of Australia (GBCA) Green Star design and as built rating scheme
- TfNSW's Sustainable Design Guidelines (SDGs).

The application of rating tools to specific contracts is dependent on the scope and dollar value of each of the contract packages.

The IS rating scheme is most applicable to the infrastructure portions of the Project. Sydney Metro will register the Project under the 'Program' ratings system, and then have contractors seek ratings for their individual delivery packages (where specified in contracts). Sydney Metro Northwest civil works contractors were required to achieve an IS 65 ('Excellent') score. The tunnelling contractors achieved a score of 92, and the viaduct contractors are on track to also exceed the 65 benchmark.

The GBCA Green Star rating scheme is applicable to buildings. Sydney Metro will be using Green Star to drive sustainable design outcomes for new underground stations.

The TfNSW SDGs comprise a scoring system for sustainable design and construction of rail projects. The SDGs are currently being reviewed and updated by the TfNSW Infrastructure and Services Division, with a new version (Version 4) scheduled for release in mid-2017. To streamline ratings requirements, Sydney Metro will not require all contractors to achieve SDGs ratings. Instead, relevant elements of the emerging updated SDGs will be embedded into contracts where appropriate.

Where ratings are specified, contractors will be required to achieve a high level of attainment. The specific level has been tested by the Sydney Metro design team and reflects the optimum level of performance which maximises both sustainability outcomes and value for money.

Sydney Metro will establish appropriate resources, funding and systems within the project team to monitor and track achievement against sustainability performance targets, and review performance on a regular basis (annually at a minimum).

TARGETS:

- **A high level of attainment (minimum ISCA IS Rating of 65 'Excellent') for relevant infrastructure.**
- **5 Star Green Star ratings for relevant buildings.**
- **Align with a high rating using the TfNSW Sustainable Design Guidelines.**

Objective	Key example initiatives
Demonstrate a high level of performance against objectives and appropriate benchmarks	› Develop performance targets across all sustainability themes. › Achieve a best practice level of performance using market leading sustainability rating tools (ISCA, Green Star, SDGs or equivalent) during design, construction and operation.
Demonstrate leadership by embedding sustainability objectives into decision making	› Ensure the project decision making framework includes sustainability criteria (environment and community). › Implement incentives such as Key Performance Indicators and tender assessment criteria. › Develop industry partnering to promote sustainable development (e.g. with industry bodies, educational institutions and the community). › Promote innovation.
Be accountable and report publicly on performance	› Use an assurance framework and reporting system to assist Sydney Metro and contractors in reliably reporting against sustainability targets. › Monitor sustainability performance, and provide public sustainability reports.

Artist's impression of an underground station at Central Station

APPENDIX D
CARBON AND ENERGY MANAGEMENT

OBJECTIVES:

- Improve the shift toward lower carbon transport.
- Reduce energy use and carbon emissions during construction.
- Reduce energy use and carbon emissions during operations.
- Support innovative and cost effective approaches to energy efficiency, low-carbon/ renewable energy sources and energy procurement.

D1.1 Current position

Construction and operation of a new metro system is energy intensive and has the potential to result in the emission of significant quantities of greenhouse gases (GHG) associated with fuel and electricity use, and contribute to climate change. Sydney Metro will identify and implement best practice approaches to minimising and managing energy use and carbon emissions, which are economically feasible and environmentally responsible, including sourcing renewable energy for both construction and operational purposes.

Estimates of electricity consumption and GHG (or carbon) emissions associated with the Project are summarised in Table D1 as follows:

Table D1 Estimated electricity consumption and carbon emissions

Phase	Electricity consumption (GWh) (1)	Carbon emissions (kilotonnes CO_2-e) (1)
Construction	130	1,020
Operation	221	219

Notes: (1) These estimates were developed at the initial feasibility stage (May 2017), and are not yet complete. As such they should be considered indicative, and will be updated as the Project progresses. Due to data gaps, construction estimates are likely to be underestimated.

For context, construction phase emissions are anticipated to be equivalent to the emissions from approximately 81,600 households for one year (assuming household emissions of 12.5 tonnes CO_2e per year), and operations phase emissions will be equivalent to those from approximately 17,500 households.

The main contributors to construction-related emissions are:

› combustion of fuel in construction plant, equipment and vehicles and at construction sites – Scope 1 emissions[1]

› electricity consumption for the tunnel boring machines – Scope 2 emissions[2]

› embodied emissions in key construction materials, principally cement and steel – Scope 3 emissions[3].

[1] Scope 1 emissions, also called 'direct emissions' are emissions generated directly by a project.
[2] Scope 2 emissions, also referred to as "indirect emissions" are generated outside of a project's boundaries to provide energy to the project.
[3] Scope 3 emissions include all indirect emissions (not included in Scope 2) due to upstream or downstream activities.

The operations phase estimate includes GHG emissions associated with operational and maintenance activities over the life cycle of the Project including:

› metro trains

› station facilities

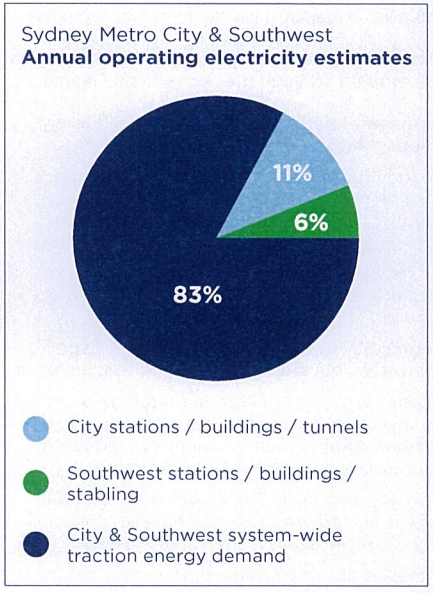
› signalling and communications

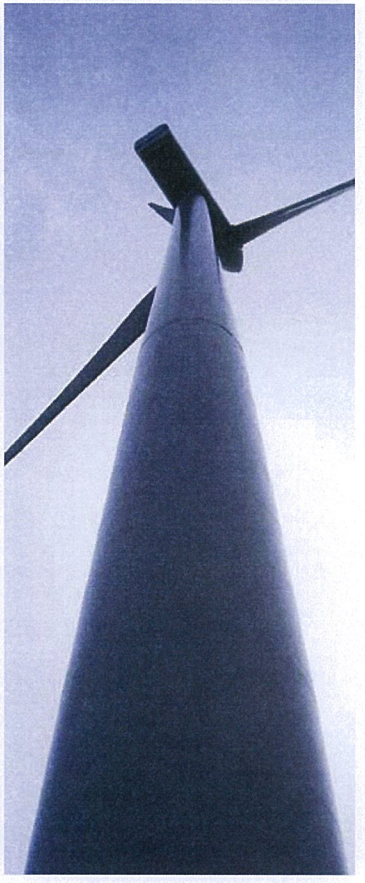
› tunnel ventilation

› water treatment plants.

The most significant contributor to operational GHG emissions is electricity consumption. At the initial feasibility stage, traction energy was estimated to represent approximately 83 per cent of the operational electricity consumption (refer to Figure D1.

Figure D1 Sydney Metro City & Southwest operational electricity consumption estimates

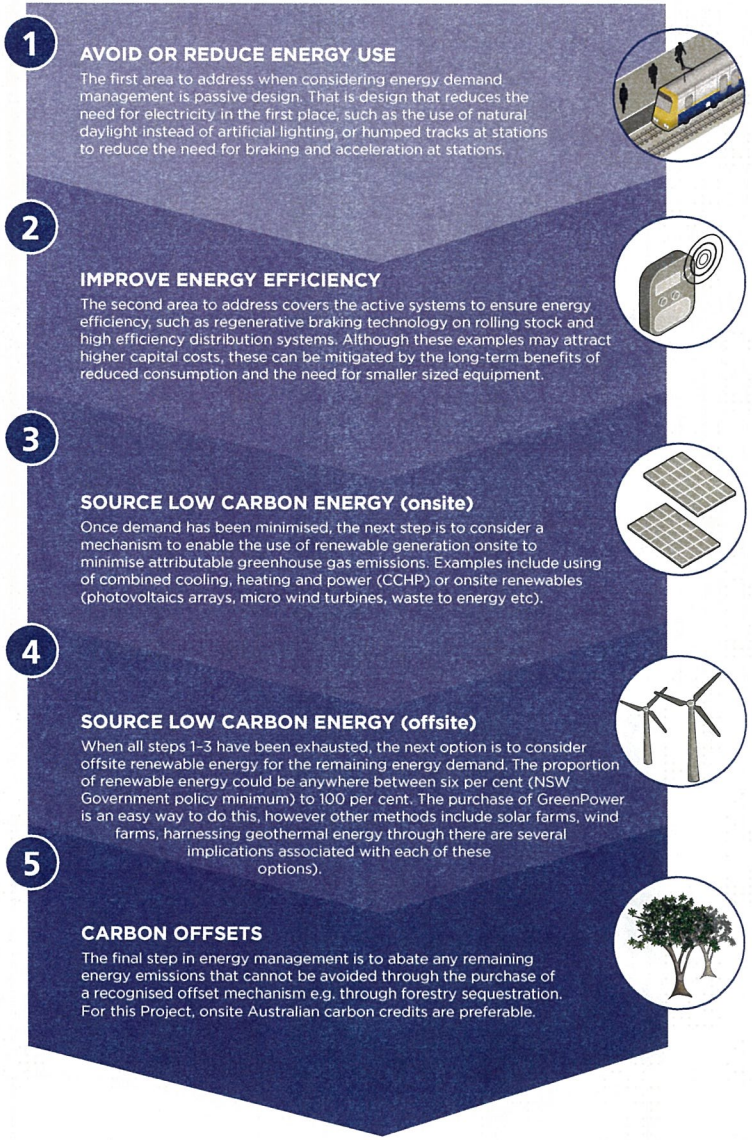




Wind turbine photo courtesy of Gavin Mills

In identifying and implementing energy efficiency and GHG reduction opportunities, Sydney Metro adopts the energy management hierarchy illustrated in Figure D2.

Figure D2 Energy management hierarchy



Design

Key energy efficiency and GHG reduction measures adopted at the initial feasibility stage of the Project include:

- Receptivity of the traction power system has been maximised – a minimum of 32 per cent of the net traction energy consumption per round trip can be reduced through regenerative braking.
- Space for wayside energy storage safeguarded.
- Energy efficient vertical transport, high performance thermal insulation and glazing, energy efficient heating, ventilation and air conditioning systems, LED lighting, smart metering and building user information systems at all stations.
- At city stations, transient thermal comfort is provided for in-line with station function, graduating from naturally ventilated entries to fully conditioned platforms. City stations maximise daylight penetration to concourse levels, complementing energy efficient lighting systems.
- Initial feasibility assessments indicate that a 15 per cent improvement on National Construction Code BCA Section J minimum energy performance requirements can be achieved.
- Solar shading provided where possible including tree shading, building overhangs/awnings, and external shading devices.
- Building integrated photovoltaics (PV) at above ground stations and Central Station to meet approximately 5 to 20 per cent of the annual electrical energy demand at southwest stations, and up to 20 per cent of the annual electricity demand at the new Central eastern concourse.
- Safeguarding for connection of the Sydney Metro Barangaroo Station to the Barangaroo Central chilled water network.

Technical and cost benefit analysis completed by the Project technical advisers has supported the development of energy and GHG reduction targets

Design phase initiatives will translate to energy savings during the operations phase.

Construction

Construction phase initiatives identified to be adopted during delivery include:

- using the TfNSW Carbon Estimate Reporting Tool (CERT) and relevant ISCA credits to set energy use and emission reduction targets
- using energy efficient construction practices, and temporary facilities
- offsetting 25 per cent of the electricity used during construction
- ensuring that major equipment is selected and operated for optimum energy efficiency, especially large equipment such as tunnel boring machines and road headers
- using modern vehicles, plant and equipment utilising technology that minimises carbon emissions, including hybrid technology where available
- encouraging workers to travel to and from construction sites using public transport
- prioritising local sourcing of materials where feasible.

Offset

During operation, Sydney Metro Northwest is committed to offset 100 per cent of the GHG emissions associated with operational electricity (approximately 134 GWh/year). This commitment is being progressed via the procurement of electricity from a new renewable energy project in NSW. Aside from significant GHG offsetting, this approach has the additional benefits of driving investment in renewable energy in NSW and delivering economic benefits to the local and state economies.

A similar commitment will be implemented for the Project.

D1.2 Future expectations

Sydney Metro will require delivery contractors to implement energy efficiency and carbon reduction initiatives in design and construction.

Further investigation of the following initiatives will be conducted in the next stage of the Project:

- wayside energy storage of energy generated from braking trains
- potential funding opportunities which may be available to facilitate energy efficiency upgrades (lighting, air conditioning, ventilation, lifts/escalators, power factor correction etc.) of southwest and Central stations which will be retained
- further analysis of costs and benefits of offsetting 100 per cent of carbon emissions associated with operation of the Project
- design development to fully integrate PV into new canopies at southwest stations and Central Station
- refinement of the incentive scheme to minimise electricity consumption during the operations phase
- opportunities for connection by Sydney Metro Barangaroo Station to the Barangaroo Central chilled water network.

TARGETS:

- **Achieve at least a 20 per cent reduction in carbon emissions associated with construction, when compared to business as usual.**
- **Offset 25 per cent of the electricity needs for the construction phase of the project.**
- **Achieve at least a 20 per cent reduction in carbon emissions associated with operations, when compared to business as usual.**
- **Maximise the capture and reuse of energy generated from braking trains.**
- **Design buildings (stations and stabling buildings) to achieve at least a 15 per cent improvement over performance requirements set out in Section J of the National Construction Code.**
- **Source 5–20 per cent of the low voltage electricity required at above ground stations from onsite renewable energy sources.**
- **Offset 100 per cent of the electricity needs for the operational phase of the project.**

Objective	Key example initiatives
Improve the shift toward lower carbon transport	› Optimise integration of the Project with the most sustainable access modes including walking, cycling and bus.
Reduce energy use and carbon emissions during construction	› Incorporate energy efficient construction equipment, methods, and practices. › Local sourcing of materials where feasible. › Use biodiesel and ethanol fuel. › Implement green travel plans. › Energy efficient site construction compounds. › Investigate and implement opportunities to use renewable energy (including small scale photovoltaics) during the construction phase. › Offset 25 per cent of the greenhouse gas emissions associated with consumption of electricity during construction.
Reduce energy use and carbon emissions during operations	› Maximise reuse of energy recovered from the train braking system (regenerative braking). › Maximise passive design features including daylight, natural ventilation, and passive cooling. › Energy efficient ventilation, air conditioning, pumps, escalators, lifts and appliances. › Efficient lighting and lighting control systems. › Target energy consumption at least 15 per cent lower than minimum compliance with the National Construction Code. › Integrate renewable energy (photovoltaics) into new station canopies along the southwest. › Continual improvements using metering, monitoring and reporting to drive efficiency. › Ongoing investigation and implementation of energy efficiency initiatives in line with evolving technology.
Support innovative and cost effective approaches to energy efficiency, low-carbon / renewable energy sources and energy procurement	› Utilise wayside energy storage, renewable energy, and district cooling systems where feasible. › Offset 100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation. › Explore funding opportunities for energy efficiency upgrades of Central and southwest stations.

Pedestrian and bicycle connections

APPENDIX E
ENVIRONMENTAL PERFORMANCE

OBJECTIVES:

- Reduce sources of pollution and optimise control at source to avoid environmental harm.
- Comply with environmental obligations outlined in applicable project planning approvals.

E1.1 Current position

As with any large infrastructure project, without appropriate management, the construction and operation of the Project has the potential to cause pollution impacts related to noise and vibration, air quality and water quality. Potential impacts include:

- noise and vibration impacts during construction
- noise and vibration impacts during operation
- dust and diesel emissions during construction
- internal air quality in buildings and stations during operation
- quality of discharge or stormwater runoff during construction and operation
- groundwater impacts during tunnelling
- accidental spills or incidents potentially impacting receiving waters, including Sydney Harbour
- light pollution impacts during construction and operations.

The Project's impacts are the subject of environmental impact statements as part of seeking planning approval for the Project. Measures required to prevent and mitigate impacts will be included as conditions of approval, and will be implemented on the Project.

Opportunities will be taken to improve stormwater quality and minimise runoff through the implementation of water sensitive urban design (WSUD). WSUD features have been integrated in design to date, and include allowance for planting of the onsite detention basin at the Northern Dive, and tree pits and planting beds to filter overland flow at stations. Water quality objectives have been established for WSUD features.

E1.2 Future expectations

Sydney Metro will proactively work with its contractors to maximise environmental protection and to minimise both environmental harm and disturbance to local communities and businesses. Contractors will be required to adhere to a Construction Environmental Management Framework and develop environmental management plans for the construction phase. Many of the contract packages will work under an Environmental Protection Licence regulated by the EPA, depending on the activities which are being conducted by the contractors.

Further opportunities will be explored to incorporate elements of WSUD into the design of the stations, their immediate environs and the above ground sections of the Project's alignment. Opportunities may include the implementation of grass or vegetated swales to capture stormwater drainage at all paved areas such as at-grade car parks and the stabling facility.

Sydney Metro will work with contractors to explore feasible methods of minimising emissions from diesel-fuelled construction equipment. In the first instance this will involve:

- contractors reporting on mobile non-road diesel plant and equipment engine conformity with relevant United States Environmental Protection Agency, European Union or equivalent emission standards and the fitting of any exhaust after-treatment devices
- encouraging contractors to identify new emission standards and apply these to diesel equipment and vehicles during construction

Contractors will also be required to minimise harmful emissions associated with finishes and fittings emissions, it is expected that all internal applications will have Volatile Organic Compounds (VOC) limits for paints, finishes, adhesives and sealants, and formaldehyde limits for all composite wood products.

TARGETS:

- **Zero major pollution incidents.**
- **New emission standards will be identified and applied to diesel equipment and vehicles during construction.**

Objective	Key example initiatives
Reduce sources of pollution and optimise control at source to avoid environmental harm	› Environmental Management Plans and Environmental Management Systems are in place prior to commencement of construction. › Early identification and management of existing soil and groundwater contamination which may be impacted by the Project. › Integrating water sensitive urban design solutions for storm water treatment. › Encouraging contractors to utilise equipment with pollution control devices to reduce emissions from mobile non-road diesel plant and equipment at source. › Including noise and air quality mitigation measures where appropriate. › Designing stations and temporary facilities to minimise light spill in accordance with standards. › VOC and formaldehyde limits for fittings and finishes.
Comply with environmental obligations outlined in applicable project planning approvals	› Compliance with planning approval conditions will be managed through the City & Southwest Compliance Tracking Program.

APPENDIX F
CLIMATE CHANGE RESILIENCE

OBJECTIVE:

- Infrastructure and operations will be resilient to the impacts of climate change.

F1.1 Current position

There is widespread scientific consensus that the effects of climate change will be significant. The CSIRO and NSW Office of Environment & Heritage (OEH) have undertaken considerable research into the predicted effects of climate change across Australia.

In order to reduce the vulnerability of the Project to climate change, a climate change risk assessment for the Project has been developed at the initial feasibility stage (August, 2016) and provides climate change projections, a climate change risk assessment and risk treatment measures (adaptation).

Climate change projections

Climate change projections used for the Project are presented in Table F1 and summarised below:

- Short term (2030) – project stages for this scenario include construction, operations and routine maintenance. By 2030 there will be approximately a 1.1°C increase in temperature, with increasing frequency of hot days over 35°C. Average rainfall may range from a 10 per cent decrease in spring to a 0.7 per cent increase in summer, with increased likelihood and intensity of extreme rainfall.
- Medium term (2060) – project stages for this scenario include operations, routine maintenance, major maintenance and replacement of assets and systems. By 2060, it is projected for there to be up to a 2.4 °C increase in temperature, with average rainfall ranging from an 11.3 per cent decrease in winter to 0.4 per cent decrease in summer.
- Long term (2090) – project stages for this scenario include operations, major maintenance and replacement of assets and systems. By 2090 up to 3.9°C increase in temperature, with increasing frequency of hot days over 35°C. Winter and spring rainfall patterns to vary widely, with increased likelihood and intensity of extreme rainfall.

Table F1 Summary of climate change projections

	Sydney Metro – City baseline (1986-2005)	Sydney Metro – Southwest baseline (1986-2005)	2030 (RCP8.5)	2060 (RCP8.5)	2090 (RPC8.5)
Temperature					
Annual	22.3	23.2	+1.2	+2.4	+3.9
Mean maximum temperatures (°C) – summer	26.1	27.8	+1.1	+2.0	+3.8
Mean minimum temperature (°C) – annual	14.4	12.0	+1.1	+2.4	+3.8
Days over 35°C – annual	3.5	8.9	+4	+11	Unknown
Rainfall					
Mean precipitation change (per cent) – annual	1335mm	1723mm	-6.1	-6.6	-7.9
Mean precipitation change (per cent) – spring	258mm	370mm	-9.7	-10.7	-18.5
Mean precipitation change (per cent) – summer	389mm	525mm	0.0	-0.4	3.6
Mean precipitation change (per cent) – autumn	387mm	507mm	-6.8	-7.1	-7.4
Mean precipitation change (per cent) – winter	301mm	320mm	-9.9	-11.3	-15.1
Extreme rainfall events	Maximum 1 day rainfall – Projected to increase 2–22 per cent				
	20-year return level of maximum 1 day rainfall – Projected to increase 5–42 per cent				
Fire regimes					
Change in number of severe fire danger days per year	0.9	0.9	1.3	Not available	2.1
Severe wind					
Maximum daily wind speed	Not available	Not available	Not available	Not available	-6 per cent to 2.5 per cent
Sea conditions					
Sea level rise (m)	0	0	0.14	Not available	0.66
Sea surface temperature (°C)	Not available	Not available	1.0	Not available	3.1
Evapotranspiration[1]			**2030 increase on baseline**	**2070 increase on baseline**	**2090 increase on baseline**
Evapotranspiration	Not available	Not available	+3 per cent	+9 per cent	Not available

	Sydney Metro – City baseline (1986-2005)	Sydney Metro – Southwest baseline (1986-2005)	2030 (RCP8.5)	2060 (RCP8.5)	2090 (RPC8.5)
Extreme Events[1]					
Hail	2050 medium emissions scenario – Average recurrence intervals of hail storm events 40mm hail or greater: Increase to 1.2 years from 1.4 years 60mm hail or greater: Increase to 5 years from 8 years 80mm hail or greater: Increase to 19 years from 28 years 100mm hail or greater: Increase to 28 years from 51 years				
Lightning	For every 1°C of temperature increase: Lightning strikes in the USA will increase by about 12 per cent (+/– 5 per cent), resulting in about 50 per cent more strikes by 2100.				

[1] Sydney Trains 2015

Note 1: Modelling for the Intergovernmental Panel on Climate Change's Fifth Assessment Report (AR5) used Representative Concentration Pathways (RCPs) to define different projections. The RCPs are labelled according to the radiative forcing values (relative to pre-industrial levels) which could be experienced in 2100 based on different atmospheric concentrations of greenhouse gases

Note 2: Climate modelling does not typically model extreme storm projections directly – instead these events are inferred from other results.

Source: Sydney Metro – City & Southwest – Technical Services Climate Resilience Report – Reference Design, Rev B, 19 August 2016 (NWRLSRP-PBA-SRT-SU-REP-000013).

Climate change risk assessment during design

Sydney Metro have used the above projections and undertaken a climate change risk assessment. The purpose of the risk assessment is to identify risks which could be addressed in the early design phase, as well as identify initiatives that can be developed in subsequent design and delivery phases of the Project and captured through contract requirements.

Overall, the results of the climate change risk assessment to date can be summarised as follows:

- No extreme, unacceptable level risks, or high, undesirable level risks identified.
- A total of 23 medium, tolerable risks identified for the Project.
- Medium level risks relate to:
  - increased rainfall, extreme events and flooding affecting station entries, interchange, precincts, station surrounds, tunnel drainage, canopies and track drainage
  - increasing daily and annual temperatures, resulting in equipment (such as tunnel ventilation and air conditioning equipment) being unable to meet the design criteria
  - sea level rise and increase in extreme events including high tides and wind waves.
  - changed rainfall patterns and groundwater levels, impacting portals, dives and embankments
  - storm events including hail storms.
- The results of the climate change risk assessment indicate that at the early design stage, the Project is largely resilient to the impacts of climate change, but highlights the need to identify adaptation opportunities during subsequent design phases.
- All risks have been integrated into the project-wide risk register.

Aerial view over Barangaroo

Key activities which have been undertaken to enhance resilience to climate change at this stage include:

- testing the sensitivity of air-conditioning systems for increased temperatures, identifying potential additional capacity that may be required within the life of the Project, and safeguarding space within the stations if required
- testing the sensitivity of ventilation systems for increased temperatures, to ensure they provide adequate capacity
- utilising flood modelling which includes an allowance to cater for predicted changes in rainfall intensity with climate change.

Climate change risk assessment during construction

At this stage, short term climate change risks identified during the construction phase of the Project relate to increased intensity and frequency of extreme rainfall events and increased temperatures, including:

- increases in the number of days where personnel are unable to work due to stop work thresholds resulting in delays in program and lost days
- an inundation of any excavations during construction
- flooding roads, congestion, and increased risk of road incidents during construction, affecting workers and/or equipment accessing sites resulting in delays in program and lost days
- increases in the number of precautionary shut down periods during extreme storm events
- increases in damage and delays to equipment
- an increasing load on temporary water treatment devices, and erosion control devices, increasing flooding events and affecting water quality treatment levels achieved
- increases in dust issues.

Increase in peak energy demand across the network and causing brownouts or power failure in temporary power supply and mains power supply.

F1.2 Future expectations

Sydney Metro will:

- Ensure key climate change resilience initiatives are included as requirements in contracts, relating to:
  - adopting conservatively high flood levels for station entries, portals, underground access points, precincts, interchanges and critical equipment and infrastructure
  - adopting a 10 per cent uplift in rainfall intensity in drainage design
  - raising station entries and fire stairs entries at Barangaroo Station to account for projected sea level rise estimates
  - designing for higher ambient temperatures for tunnel ventilation and air conditioning equipment
  - requiring sensitivity testing for climate change scenarios during detailed design stages.
- Include contractual requirements for contractors to identify climate change risks and implement climate change initiatives to ensure detailed design and construction activities are resilient to climate change, based on the latest climate change projections.
- Ensure contractors implement all necessary adaptation measures that comprehensively address risks and implement reassures to mitigate all extreme and high climate change risks medium level risks where feasible.
- Ensure contractors conduct an ongoing review of projections and update of the risk assessment and risk mitigation actions during the operations phase.
- Maintain a watching brief on future predictions including the NSW OEH's ongoing work and the Engineers Australia Australian Rainfall & Runoff review.

TARGETS:

- **Mitigate all extreme and high level risks.**
- **Mitigate a minimum of 25 per cent of medium level risks (examples include increased flooding, increased temperatures, sea level rise, and increased storm events).**

Objective	Key example initiatives
Infrastructure and operations will be resilient to the impacts of climate change	› Contractors and operators will be required to undertake updated climate risk assessments. › Identify and implement adaptation measures to mitigate extreme and high level climate change risks, and address medium level climate change risks on the Project. › Identify sites vulnerable to flooding, mitigate impacts where feasible. › Sensitivity testing of ventilation and air conditioning equipment. › Reviewing emergency procedures (severe weather plan), to address climate change impacts. › Protecting sensitive construction equipment from the effects of extreme climate and weather.

APPENDIX G
RESOURCES – WATER EFFICIENCY

OBJECTIVES:

- Minimise use of potable water.
- Maximise opportunities for reuse of rainwater, stormwater, wastewater and groundwater.

Potable (drinking water quality) and non-potable water will be required for the construction and operation of the Project.

G1.1 Current position

A preliminary water balance study has been completed to estimate the quantities, types and potential sources of water that will be required for the Project and identify the best opportunities to:

- Use non-potable water (where available) instead of potable water.
- Minimise the quantities of both potable and non-potable water which will be consumed.

Initial outputs of the analysis of non-potable and potable water requirements show that, across the Southwest stations, total water demand is equal to about 5,500kL per year during operation. A minimum of 60 per cent of non-potable water demand will be met by onsite rainwater harvesting and reuse, equal to a saving of approximately 3,300kL per year. Non-potable water can potentially be used at stations for flushing, cooling, irrigation and cleaning.

Based on advice provided by the technical advisers, the following design features have been included to source and use non-potable water during operations:

- Safeguarding for potential future connection of Barangaroo Station to the local recycled water network.
- Provision of rainwater harvesting and reuse systems at aboveground stations. Rainwater harvesting tanks have been included in aboveground station designs, sized to provide approximately 60 per cent of the water needed at stations.
- Connection to the recycled water system at Central Station.

Initiatives to reduce the quantity of water used include the specification of water efficiency standards for equipment, fittings and fixtures, water metering to track water use, use of landscape species which do not require significant quantities of water beyond the establishment phase, and water sensitive urban design features.

In the construction phase, the main opportunities to minimise potable water use will relate to:

- use of recycled water (e.g. water from concrete production operations) which meets water quality requirements in the concrete
- treatment and reuse of water used in some construction processes (e.g. spoil conveyors, equipment wash-down)
- specifying water efficiency requirements for equipment in temporary site facilities.

Technical analysis completed by designers has highlighted potential additional water savings opportunities associated with eliminating the need to steam-cure concrete, and connecting construction sites and tunnel segment production facilities to reliable sources of recycled water, where these are available.

Water conservation and recycling targets have been established based on technical analysis completed by designers, benchmarking, and experience on the Sydney Metro Northwest project.

G1.2 Future expectations

As the Project progresses, Sydney Metro will:

- Complete technical and feasibility analysis of connections to district systems, and the use of non-potable water in concrete.
- Embed water efficiency and water harvesting and reuse requirements in contracts.
- Include water reduction targets and recycled water targets in contracts.

TARGETS:

- **Reduce water use by at least 10 per cent compared to business as usual.**
- **Source at least 33 per cent of the water used in construction from non-potable sources.**
- **Source at least 33 per cent of the water used in operations from non-potable sources.**
- **Implement rainwater harvesting and reuse systems at construction sites and above ground stations.**
- **Source at least 60 per cent of the water used at above ground stations from harvested rainwater.**

Objective	Key example initiatives
Minimise use of potable water	› Estimate and monitor potable water usage, and implement design and construction initiatives to minimise water use. › Include water-efficient features, equipment and appliances in the design of stations and at construction sites. › Avoid use of potable water for non-potable purposes if non-potable water is available.
Maximise opportunities for reuse of rainwater, stormwater, wastewater and groundwater	› Prior to the commencement of construction undertake a water balance to inform feasibility for reuse initiatives. › Identify opportunities for treatment of water for reuse on the Project, including water from tunnelling works, concrete batching, casting facilities. › Connect to district recycled water networks where available › Use non-potable water in concrete › Harvest and reuse rainwater at permanent and temporary facilities where feasible.

Water sensitive urban design at Station

APPENDIX H
RESOURCES – MATERIALS AND WASTE

OBJECTIVES:

- Minimise waste through the project lifecycle.
- Reduce materials consumption.
- Consider embodied impacts in materials selection.
- Maximise beneficial reuse of spoil.

H1.1 Current position

The Project is aiming to minimise the environmental footprint of materials consumed through minimising the quantity of material required, selecting materials with lower embodied impacts, using recycled materials or materials sourced from environmentally accredited bodies where possible and recovering materials from waste throughout its construction and operation.

Materials

The main materials used on the Project are concrete and steel. Technical analysis has been completed by designers to identify materials and construction methods that could be applied to reduce the environmental impacts of the Project, improve durability and improve construction efficiencies. The following opportunities were identified as feasible for implementation and/or further consideration:

- reducing embodied energy and carbon through optimisation of concrete mix designs and replacing Portland cement with supplementary cementitious materials
- energy reduction and improved durability through appropriate concrete technology to eliminate the requirement for steam curing of concrete segments
- reducing impact on increasingly scarce virgin sand supplies by the reuse of tunnel spoil and the use of crushed rock fines for concrete production
- use of ultra-high performance concrete .
- use of geopolymer concrete
- sourcing of steel and steel products suppliers and fabricators which are registered under certification schemes.

Initiatives which have been considered during the initial feasibility stage include:

- refining materials volumes through design
- integrating modular and prefabricated design and construction techniques
- specifying self-finished, low maintenance surfaces where practical
- reducing materiality and use of refined structural finishes
- proposing use of high performance concrete at stations, particularly for columns where minimal spatial impact is required
- developing recommended maximum Portland cement content for different concrete strengths, and recommended supplementary cementitious materials ratios in concrete for various concrete thicknesses.

Responsible materials sourcing opportunities, similar to those required for Sydney Metro Northwest have been identified in consultation with TfNSW counterparts.

Waste recycling/reuse

General solid waste and construction and demolition waste will make up the majority of the wastes generated during the delivery phase of the Project. Sydney Metro has established waste recycling/reuse targets for recyclable construction and demolition waste and construction site office waste.

Contractors will be encouraged to look into opportunities to recycle or reuse some general solid waste streams, and maximise recycling/reuse of building fit out waste.

Operational waste recycling targets have also been established based on feedback obtained on the Sydney Metro Northwest project.

Spoil reuse

Approximately 2.4 million cubic metres of spoil, comprising mainly sandstone and shale will be generated by the Project. As was the case for the Northwest project, contractors will be required to divert all clean reusable spoil from landfill, and reuse 100 per cent of usable spoil from excavated tunnels and station caverns, in accordance with the spoil management hierarchy outlined in Table H1.

Table H1 Spoil hierarchy for the Project

Preference		Reuse option
Highest	Within the Project	› Reuse in Project fill embankments and mounds within short haulage distance of source. › Restoration of any pre-existing contaminated sites within the Project boundaries. › Reuse as a feed product in construction materials (e.g. concrete).
	Environmental works	› Reuse in coastal protection works such as beach nourishment and land raising. › Reuse in flood mitigation works and other restoration works
Lowest	Other development projects	› Reuse for fill embankments and mounds on projects within an economic transport distance from site. › Reuse for land reclamation or remediation works. › Manufacturing with sand in concrete or shale in bricks/tiles.
	Land restoration	› Reuse to fill dis-used facilities, e.g. mines and quarries, to enable either future development or ecological rehabilitation.
	Landfill management	› Reuse to cap completed landfill cells. › Reuse in daily covering of landfill waste.

H1.2 Future expectations

Sydney Metro will:

- Require contractors to consider environmental impact of materials in design and procurement by undertaking life cycle impact assessments.
- Require contractors to meet the concrete and steel sourcing targets, water recycling targets and spoil reuse targets, which have been tested through design and best practice benchmarking, and market sounding.
- Continue to work with TfNSW counterparts to investigate opportunities to minimise truck movements associated with spoil transportation by exploring rail and barging options.

TARGETS:

- Reduce the environmental footprint of materials used on the project by at least 15 per cent compared to business as usual.
- Use concrete which has an average Portland cement replacement level of more than 25 per cent.
- 100 per cent beneficial reuse of usable spoil.
- Recycle or reuse 90 per cent of recyclable construction and demolition waste.
- Recycle or reuse 60 per cent of office waste during the construction phase.
- Recycle or reuse 80 per cent of the waste generated during operations.
- Recycle or reuse 65 per cent of office waste during operations.
- 60 per cent of reinforcing steel is produced using energy-reducing processes in its manufacture.
- Source 100 per cent reused, recycled or responsibly sourced timber.

Objective	Key example initiatives
Minimise waste through the project lifecycle	› Maximise recycling of construction and demolition waste by adopting waste recycling targets (90 per cent). › Enable recycling of waste materials from office facilities and customers. › Use modular, refabricated and precast structural and finishing materials to minimise waste during construction and maintenance.
Reduce materials consumption	› Design optimisation to minimise volumes of excavation, concrete and steel. › Dematerialisation of components and finishes. › Maximise reuse of existing materials, buildings, facades, and structures.
Consider embodied impacts in materials selection	› Minimise the embodied impacts of materials, including high impact materials such as steel and concrete used in the Project, through the selection of low carbon alternatives and considering durability and local sourcing.
Maximise beneficial reuse of spoil	› Beneficial reuse of 100 per cent of usable spoil from excavated tunnels and station caverns, in accordance with a spoil management hierarchy.

Some of the 100,000 concrete segments used to line the tunnels along Sydney Metro Northwest, June 2015

APPENDIX I
BIODIVERSITY CONSERVATION

OBJECTIVE:

- Protect and create biodiversity through appropriate planning, management and financial controls.

I1.1 Current position

The Project has the potential for a negative impact on biodiversity through:

- the clearing of native and non-native vegetation and habitat (including potential microbat and grey-headed flying fox habitat)
- unintended impacts on marine ecosystems in Sydney Harbour via the introduction of marine pests.

Mitigation measures have been identified through the EIS process, and will be implemented in accordance with planning approval conditions. Mitigation measures include redesigning elements of the project to avoid and minimise impacts, and the development and implementation of a biodiversity offset strategy. Biodiversity impacts are not anticipated to be significant.

The Project presents opportunities for biodiversity enhancement, such as prioritising the selection of native species when proposing landscaping options in the vicinity of stations.

I1.2 Future expectations

Sydney Metro will:

- Ensure contractors comply with mitigation measures detailed in planning approvals to minimise biodiversity impacts.
- Develop and implement a biodiversity offset strategy.
- Develop and implement a landscaping strategy to enhance biodiversity through the use of native species where possible. Targets for inclusion of native species will be established as part of the strategy.

TARGETS:

- **Minimise vegetation clearing.**
- **Native landscaping targets to be established.**

Objective	Key example initiatives
Protect and create biodiversity through appropriate planning and management	› Contract documents will contain biodiversity conservation compliance requirements. › Minimise vegetation removal. › Select native species for landscaping. › Contractors to implement clearing protocols where required. › Marine pest prevention and management completed in accordance with planning approvals.

Flowering gum tree

APPENDIX J
HERITAGE CONSERVATION

OBJECTIVE:

- Project and promote heritage through appropiate design, planning, and management controls.

J1.1 Current position

The Project has the potential to impact on Aboriginal and non-Aboriginal heritage values as a result of extensive excavation works, demolition of buildings, and modifications to stations. Heritage conservation is a key consideration throughout the design and construction of the Project and ongoing measures are being considered to ensure the historical knowledge captured can be shared with the community through various interpretation strategies.

Design development

Heritage conservation is a key objective influencing the Project's progressive design development, and the design team has considered the heritage and local value of sites when determining the alignment, station designs and other surface features.

The delivery phase

Some key heritage items identified long the Sydney Metro City route includes:

- St Leonards Centre
- MLC Building
- Blues Point
- Millers Point Conservation Area (including the Hickson Road wall)
- Martin Place Railway Station
- Bennelong stormwater channel
- properties along Pitt Street
- Central Station.

Heritage assessment work is ongoing for the portion between Sydenham and Bankstown; the assessment will consider how upgrades to stations will impact station heritage features.

During the delivery phase of the project, the project team will be focussed on ensuring those heritage items adjacent to the Project (that will not be directly impacted) are protected through construction measures and initiatives.

Where there is the potential to directly impact on items, archaeological work is planned to ensure heritage items are relocated (in agreement with appropriate bodies) or reinstated following the construction period. Archaeological Assessment Research Design (AARD) reports for non-Aboriginal heritage and Aboriginal Cultural Heritage Assessment Report's (ACHAR) for Aboriginal heritage have been developed for applicable components of the Project to ensure the archaeological aspect has been appropriately addressed. These reports will be finalised in conjunction with key stakeholders before work commences.

Interpretive initiatives

An important aspect the project team has considered in relation to heritage conservation is safeguarding the archaeological knowledge captured throughout the Project's development. A Heritage Interpretation Strategy (HIS) has been prepared for the Project and outlines a range of interpretive initiatives that considers key historic themes prominent along the Project's route, and aims to effectively communicate the history and heritage values associated with the Sydney Metro. Possible initiatives include signs and historic images in station concourses, large scale graphics and text on station platforms and passageways, design elements in interface areas, and online exhibition or digital publication.

Consultation

A cross-government Heritage Working Group has been established and comprises representatives from the Sydney Metro Delivery Office, NSW Department of Planning & Environment, Heritage Division, Sydney Trains and the City of Sydney. The purpose of the Heritage Working Group is to discuss and hold sessions on key heritage issues for the Project such as the process for consideration of heritage during the design and design responses, constraints and opportunities that have influenced station locations, ongoing design development in relation to heritage and archaeology.

J1.2 Future expectations

Sydney Metro's team of heritage architects and specialists will continue the development of a Heritage Strategy and heritage assessments for the Central and southwest stations, to inform heritage investigations, station and precinct design, and heritage interpretation plans as the Project progresses.

Interpretive material describing heritage values will be implemented and maintained. Interpretive material will convey the history, themes and stories in an engaging and interesting way so that significant previous layers of each station precinct's development are able to be appreciated.

Ongoing consultation with key heritage stakeholders and oversight by the Heritage Working Group and the Design Review Panel for the Project will be central to the success of the heritage protection and interpretation program.

TARGETS:

- **Prepare a Heritage Strategy, including stakeholder engagement with relevant stakeholders.**
- **Implement the Heritage Strategy during design and delivery, to conserve and activate.**
- **Maximise opportunities for archaeological research and future interpretation of archaeological finds.**
- **Opportunities for heritage interpretation identified and implemented at appropriate station precincts.**

Objective	Key example initiatives
Protect and promote local heritage through appropriate design, planning, and management controls	› Engage a well-resourced team of heritage specialists. › Tender documents will contain heritage conservation compliance requirements. › Identify opportunities to enhance heritage values via interpretation, and implement heritage interpretation at those locations. › Develop partnerships with relevant stakeholders to identify and utilise heritage places to promote local heritage values.

APPENDIX K
LIVEABILITY

OBJECTIVES:

- Promote improved public transport patronage by maximising connectivity and interchange capabilities.
- Provide well designed stations and precincts that are comfortable, accessible, safe and attractive.

K1.1 Current position

The Project will increase the rail network catchment through the provision of:

- new stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, and Waterloo as well as new underground platforms at Central Station
- more direct connections to high-capacity Sydney CBD stations at Martin Place and Pitt Street
- additional interchange capacity at Central, Martin Place, Sydenham and Bankstown, improving network connectivity and increasing demand of rail services.

By increasing the catchment of the rail network, frequency of services, interchange with other modes and connections to key destinations, the Project is expected to increase accessibility, trip diversity and utilisation of the network during both peak and non-peak periods. This would facilitate a greater mode shift to rail from car, particularly during non-peak periods where travel service consumers will have greater choice.

The Project will facilitate a diverse range of trips, providing not only a fast journey to work but also encouraging trips for other purposes such as access within the Sydney CBD, local or business trips, access to universities and educational institutions, service and recreational uses.

Connectivity and interchange capabilities for the Project are being driven through the development and implementation of integrated multi-modal Interchange Access Plans for each station. The plans will outline principles and requirements for access and interchange at the Project's stations to help customers access the stations and improve their door-to-door journey. The plans will fold in key elements of modal access including walking and cycling, bus, taxis, kiss-and-ride, park-and-ride, and station access and interchange requirements, with reference to the following modal interchange hierarchy (refer to Figure K1).

The NSW Government Architect's Office is working to establish a 'Green Grid' of open space across Sydney and has identified the Bankstown rail corridor as providing an opportunity to connect green spaces and provide active transport linkages. As a first step, Sydney Metro is undertaking design to ensure that proposed works along the Bankstown line safeguard for future development of the active transport corridor (i.e. do not preclude its future development) and is investigating the cost and feasibility of delivering portions of the active transport corridor.

Figure K1 Modal hierarchy

Specific requirements for secure access and covered bicycle parking have been identified for each station. Work is ongoing to maximise the provision of secure access and covered bicycle parking spaces, and conduct space-proofing to safeguard for future additional parking spaces across the project.

Proposed arrangements for the retention of existing commuter car parking at the southwest stations, and provision of any additional parking are still being developed.

Sydney Metro has developed preliminary design guidelines in order to guide the design development process, and articulate expectations in terms of customer-focussed design, design quality, accessibility and safety. The development of the design guidelines has taken into consideration considered relevant local councils' urban design strategies and initiatives.

The preliminary design guidelines cover:

- the interface between stations and their surrounding locality including:
  - station entries
  - transport interchange facilities (bicycle facilities, bus stops, kiss and ride, taxi ranks and connections to existing rail, ferry and light rail transport)
  - landscaping and other public domain elements.
- rail corridor works including the tunnel dive structures, rail cuttings and embankments
- station and service buildings, including underground stations.

Design principles include:

- achieving an enjoyable customer experience
- being part of a fully integrated transport system
- being a catalyst for positive change
- being responsive to distinct contexts and communities
- delivering an enduring and sustainable legacy for Sydney.

The design guidelines include sustainable design aspirations.

K1.2 Future expectations

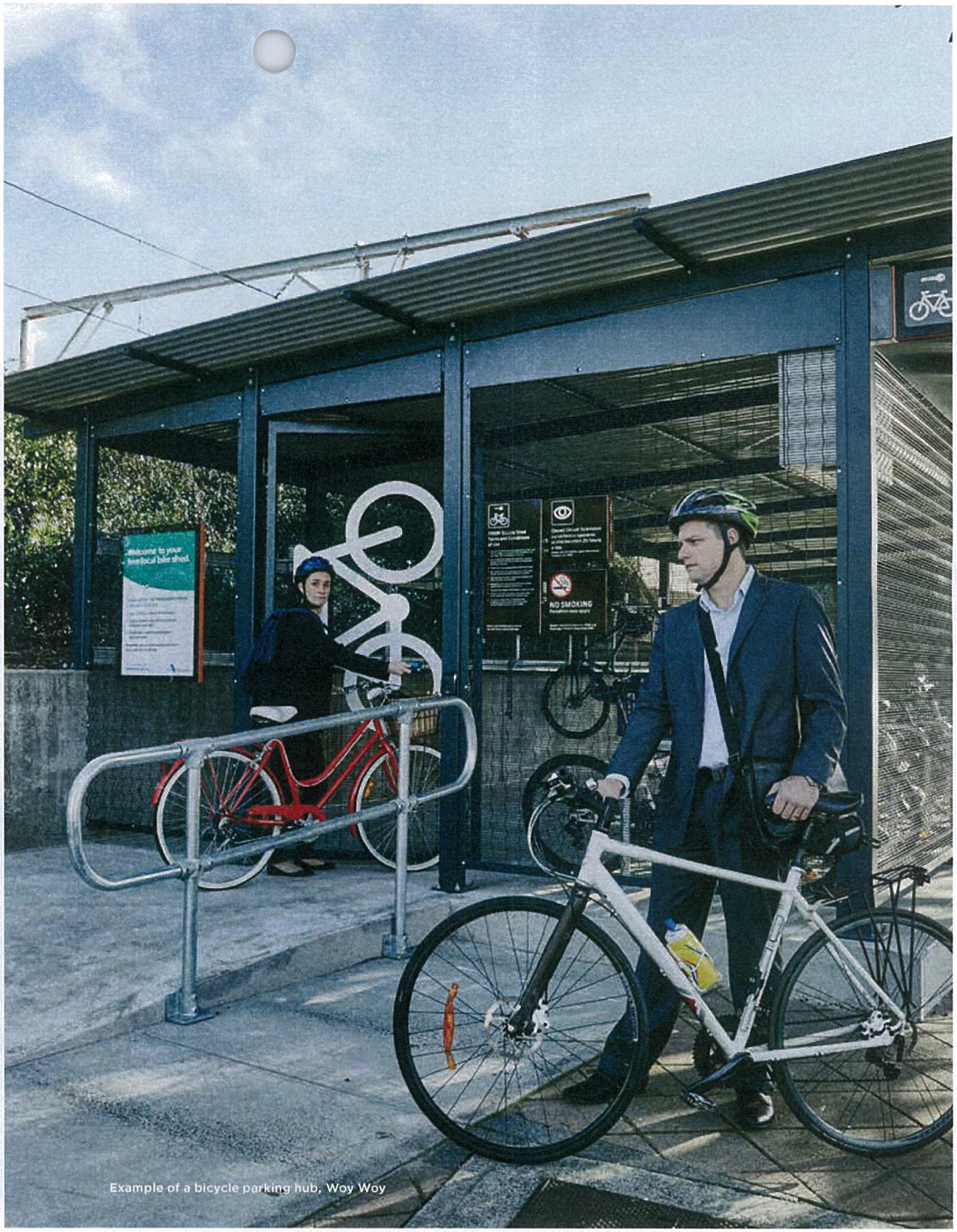
As the Project progresses, Sydney Metro will:

- Develop updated design guidelines to inform the detailed design of stations, interchanges and precincts, expanding on existing guidance and addressing issues such as shade and shelter and minimising urban heat island effects.
- Finalise Interchange Access Plans for all stations.
- Ensure that design and delivery of the Project is conducted in accordance with the design guidelines and the Interchange Access Plans.
- Depending on the car parking policy which is adopted, investigate opportunities to work with local stakeholders to jointly deliver space for car sharing schemes, where appropriate.
- Investigate the implementation of the Bankstown line active transport corridor.
- Ensure the delivery of portions of the active transport corridor as part of the Project.

TARGETS:

- **Station interchanges designed in accordance with the Interchange Access Plans and modal hierarchy.**
- **Stations and precincts designed in accordance with the Sydney Metro Design Guidelines.**
- **Maximise the provision of secure access and covered bicycle parking spaces, and safeguard for future expansion of bicycle parking.**

Objective	Key example initiatives
Promote improved public transport patronage by leveraging connectivity and interchange capabilities	› Ensure efficient transfer of customers accessing Sydney Metro from bicycle, bus, rail and passenger drop off. › Integrating the surrounding active transport network into the interchange environment and working with stakeholders to fill in missing links in the active transport network. › Provide secure access and weather protected bicycle parking spaces at station interchanges.
Provide comfortable accessible, safe and attractive stations and precincts	› Design in accordance with best practice urban design principles. › Incorporate Crime Prevention Through Environmental Design principles in design to deter crime. › Design to minimise urban heat island.



Example of a bicycle parking hub, Woy Woy

APPENDIX L
COMMUNITY BENEFIT

OBJECTIVES:

- Make a positive contribution to community health and well-being.
- Ensure community and local stakeholder engagement and involvement in the development of the project.
- Contribute to the delivery of legacy projects to benefit local communities.
- Create opportunities for local business involvement during the delivery and operations phases.
- Optimise community benefit of residual land development.
- Minimise negative impacts on the community and local businesses during construction and operation.

L1.1 Current position

The Project undertook early consultation along the Project corridor in June 2015. The aim was to collect stakeholder and community feedback on the Project with a focus on preferred station locations, tunnel versus track work and information about the rail line route.

Meetings were held with key stakeholders, including local government, New South Wales and Australian Government departments, peak bodies and industry associations.

Community and stakeholder engagement for the Project is the responsibility of the Stakeholder and Community functional group, which implements a program of consultation and other activities to:

- ensure community and local stakeholder engagement and involvement in the development of the Project
- represent the community's interests within Sydney Metro
- ensure the community is well informed of potential impacts during construction and operation.

The Project will facilitate new commercial and/or residential development opportunities above four new underground metro stations at Crows Nest, North Sydney, Martin Place and Pitt Street; at two sites which will have been utilised for construction (Chatswood and Sydenham); and on residual land at a number of locations along the existing Bankstown rail line.

There is a potential opportunity to make a provision within new developments for affordable housing and/or affordable commercial premises which would benefit the local community. Relevant policy drivers for affordable housing include, but are not limited to: A Plan for Growing Sydney; State Infrastructure Strategy (2014); City of Sydney Sustainable Sydney targets for housing (2013); SEPP Affordable Rental Housing, and the North Sydney Affordable Housing Strategy, and the Greater Sydney Commission Draft District Plans (2016).

A specialist consultant is providing advice to Sydney Metro which will inform an appropriate response to these affordability drivers.

L1.2 Future expectations

The Sydney Metro sustainability team will consult and collaborate with the Stakeholder and Community and the Workforce Development teams to scope and develop an appropriate community benefit program. Key activities will include:

- reviewing the outcomes of early community consultation
- reviewing research programs which have been implemented on other similar projects (for example, Crossrail developed community improvement plans at key locations)
- understanding community priorities and needs around each station and construction site
- determining whether any of these needs could be met or facilitated by the Project
- identifying potential sources of additional funding which may be available
- identifying opportunities for involvement of local businesses and social enterprises in the delivery of the Project
- assessing the feasibility of opportunities
- developing a strategy to minimise impacts on the homeless community which may be affected by Project works.

It is expected that contractors working in and around local communities will play their part in working with those communities to minimise impacts and build good will. Contractors will be required to implement initiatives in the local areas which benefit the local community. Example of initiatives could include fundraising, projects benefiting community groups, education, and public projects.

The affordable housing feasibility analysis will be progressed, and local community and stakeholder consultation activities will be ongoing. Feasibility investigations for the proposed Bankstown line active transport corridor will also be progressed.

TARGETS:

- **Implement initiatives which will provide tangible benefits to local community groups during the construction period.**
- **Implement initiatives which will provide tangible benefits to the broader local community beyond the construction period.**
- **Identify key drivers for affordable housing and work with other lead agencies to identify opportunities and develop an appropriate response.**

Objective	Key example initiatives
Make a positive contribution to community health and well-being	› Establish and achieve targets for identifying and completing projects which benefit local communities and make a positive contribution to community health and well-being. › Integrate station entries into public spaces and facilitate uses which benefit local communities.
Engage and involve the community and local stakeholders in the development of the project	› Seek input from the community and stakeholders throughout the planning, design and delivery stages of the Project.
Contribute to the delivery of legacy projects to benefit local communities	› Investigate and implement feasible opportunities to use residual land to benefit local communities.
Create opportunities for local business involvement during construction and operation	› Opportunities for local business involvement will be investigated.

APPENDIX M
SUPPLY CHAIN

OBJECTIVE:

- Influence contractors, subcontractors and materials suppliers to adopt sustainability objectives in their works and procurement.

M1.1 Current position

A sustainable procurement strategy has been developed and implemented on Sydney Metro Northwest. The procurement strategy is based on best practice policy and frameworks including BS8903 Sustainable Procurement Best Practice Guidance and Code, and informed by benchmarking on availability and costs of sustainably-sourced materials. The strategy is designed to apply to principal contractors, their sub-contractors and their suppliers.

The strategy comprises five main elements:

- Policy
  - Objectives clearly articulated and documented with tenderers and project team
  - Strategy includes targets.
  - Sustainability knowledge building and training.
- People
  - Sustainability skill sets required in integrated teams during tender process.
  - Tenderers to demonstrate sustainability resources in organisation charts.
- Procurement process
  - Build in procedures and penalties into the contract.
  - Embed sustainability in assessment criteria and provide rationale.
  - Embed sustainability objectives into every aspect of the process from planning through the tender process to measurement of results.
- Engaging suppliers
  - Ethical sourcing.
  - Suppliers to demonstrate supply chain and diversity policies.
  - Demonstrated continual improvement of sustainability profile.
- Measurement and results
  - Encourage innovation and invite tenderers to set new benchmarks.
  - Award system to recognise excellence in sustainability.
  - Contract monitoring.
  - Independent auditing.

These same sustainable procurement principles are being applied to the Project. To improve supply chain outcomes, Sydney Metro is also:

- Aligning procurement requirements for contractors with ISCA IS Rating Tool "Pro" credits which set out performance requirements standards for demonstrating commitment to sustainable procurement, identifying suppliers, evaluation and contract award, and managing supplier performance.
- Requiring contractors to ensure high impact suppliers are provided with sustainability training.
- Ensuring contractors undertake due diligence when sourcing materials or equipment from developing countries to ensure environmental and human rights standards are not contravened in the manufacture and supply of those materials.
- Maintaining a watching brief on the development of the new ISO 20400 Standard: Sustainable Procurement – guidance.

Initiatives aimed at improving participation of local businesses and SME's in the Project supply chain are addressed in the Workforce Development and Industry Participation Strategy.

M1.2 Future expectations

Sydney Metro will:

- Require contractors to develop and implement sustainable procurement policies and strategies based on BS BS8903 and ISCA guidance, undertake supplier training and due diligence when sourcing from developing countries.
- Identify any improvements to the sustainable procurement process as a consequence of ISO 20400.

TARGET:

- **All principal contractors develop and implement sustainable procurement strategies.**

Objective	Key example initiatives
Influence contractors, subcontractors and materials suppliers to adopt these objectives in their works and procurement	› Principal contractors, develop and implement sustainable procurement strategies. › Sustainability requirements passed down to subcontractors and their suppliers. › Sustainability training provided to high impact suppliers. › Due diligence conducted to ensure supply of materials and equipment from developing countries has not contravened environmental or human rights standards.

APPENDIX N
ECONOMIC

OBJECTIVES:

- Consider adopting a whole-of-life costing model to maximise sustainability benefits.
- Optimise development opportunities for residual land.
- Capture sustainability benefits in the business case for the project.

N1.1 Current position

An economic appraisal was completed for the Project to understand the economic benefits and costs of the Project. The economic appraisal considered a range of potential benefits, including benefits to:

- continuing rail customers – comprising travel time, reliability, train de-crowding, station de-crowding and amenity
- new and lost rail users – same as continuing rail users but the 'rule-of-half' was applied to benefits
- continuing bus users and road users – road decongestion due to higher rail mode share
- residual value – the remaining asset life at the end of the appraisal period
- wider economic impacts – productivity impacts from agglomeration and worker accessibility
- land use change impacts – productivity impacts and externalities from higher density land use.

The Project would provide a substantial increase in capacity for the Sydney rail network and enable the future development of a broader metro network.

Whole-of-life costs for a project include the costs of construction, operation, maintenance, renewal, disposal and replacement; plus where relevant non-construction costs (such as land), asset income (but not revenue) and externalities, such as the cost of carbon emissions.

Whole-of-life costing is being adopted:

- at a project-wide level, where the business case for the Project takes into account whole-of-life costs
- in assessing project options, where evaluations consider capital and operating costs
- in cost-benefit analysis for sustainability/energy efficiency initiatives, where the environmental cost of carbon emissions (an effective carbon price) is accounted for.

N1.2. Future expectations

As the Project progresses, Sydney Metro will:

- Continue to make decisions based on whole-of-life considerations.
- Continue to consider environmental and social costs and benefits of sustainability initiatives, where appropriate.
- Consider environmental and social costs and benefits in the detailed analysis which will be completed as part of investigating the commitment to obtain 100 per cent of operational energy from a renewable energy project, where savings in health costs associated with improved air quality will be taken into account.

Objective	Key example initiatives
Consider adopting a 'whole of life' costing model to maximise sustainability benefits.	› Include consideration of whole-of-life costs and benefits in optioneering and decision making.
Optimise development opportunities for residual land.	› Optimise over station development.
Capture sustainability benefits in the business case for the project.	› Ensure social and environmental benefits of improved access to transport and employment are documented in the business case, and ongoing benefits realisation work.

APPENDIX O
WORKFORCE DEVELOPMENT AND INDUSTRY PARTICIPATION STRATEGY – OVERVIEW

O1.1 Scope of Workforce Development and Industry Participation Strategy

Workforce development forms part of Sydney Metro social sustainability commitments and encompasses Aboriginal and Industry Participation. While workforce development has traditionally formed part of the overall sustainability strategy's objectives and targets, these are now reflected in the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy (a separate document). The strategy sets a vision, objectives and initiatives relating to workforce development to reflect industry skills requirements, local demographics, regulatory drivers and wider government priorities around skill, employment, diversity and business growth.

Sydney Metro is leading and driving the NSW Government's approach to growing skills and jobs through infrastructure investment. This will lead to increased workforce capability and capacity, mitigate skills shortages and gaps, improve productivity and provide local sustainable employment.

Benefits outlined in the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy include:

- increased availability of skills and capacity, supporting project delivery within a value for money approach
- socio-economic benefits for local communities and individuals
- development of intellectual capital through skilling, reskilling and upskilling local workers
- providing better employment options for local under-represented groups including Aboriginal people, young people and women
- increased collaboration with industry partners
- increased global competiveness of Australia's enterprises
- management of risks around providing local jobs as part of the project.

Collaboration is essential to the successful delivery of Sydney Metro workforce objectives. The Skills and Employment Advisory Group (SEAG), a strategic stakeholder forum, has been established to support the delivery of the WFD strategy, associated programs and initiatives. Members include both state and Commonwealth government, Sydney Metro and our delivery partners.

O1.2 Project and regulation drivers

The Workforce Development and Industry Participation strategy is driven by project and regulatory drivers, and associated regional and skills issues. NSW is delivering a record Infrastructure Program. The pipeline of infrastructure investment planned for the next decade provides an opportunity to grow and develop the industry as a whole and its workforce However, it will also include the simultaneous delivery of major projects competing for the same skills. This is further compounded by strong private sector investment that will place unprecedented demand on a limited supply of skilled workers.

Infrastructure skills provide dual benefits. They are a commodity in their own right, at home and in overseas markets. Infrastructure is also an enabling industry, supporting other priority sectors to maximise competitive advantage. The development of infrastructure skills capacity and capability is critical to wider Australian growth.

The Workforce Development and Industry Participation program is leading and support new and existing policy and legislation. The strategy will respond to the following government priorities and legislation:

- Infrastructure Skills Legacy Program and Demonstration pilot – The Program will support the Premier's State Priority to create jobs, together with a focussed commitment to grow skills and jobs through infrastructure investment. It aims to deliver major skills dividends from its infrastructure program by establishing minimum training and employment targets on major NSW infrastructure projects. Sydney Metro is a demonstration pilot project as part of the program.
- NSW State Priorities:
  - Increase the proportion of people completing apprenticeships and traineeships to 65 per cent by 2019.
  - 150,000 new jobs by 2019.
- Australian Jobs *Act 2013*.
- NSW Aboriginal Participation in Construction Policy (APIC).
- NSW Procurement – PBD-2016-02 Construction apprenticeships:
- NSW Procurement – Construction Skills Development Plan
- TfNSW Diversity and Inclusion Policy.

01.3 Sydney Metro's approach

Sydney Metro's priorities and objectives reflect industry skills requirements, local demographics, regulatory drivers and wider government priorities around skills, employment, diversity and business growth. These priorities and objectives have been translated into contractual requirements across all of the Project's contract packages.

Sydney Metro is also developing a number of Workforce and Industry Participation programs to respond and drive key priorities and objectives. Contractors will be encouraged to participate in programs relevant to their activities:

- Apprentice and Trainee Scheme
- Careers Program
- Skills Development Programs:
  - Sydney Metro Orientation Training
  - Sydney Metro Industry Curriculum
  - Sydney Metro Workforce Upskilling Programs
- Diversity and Inclusion Programs
- Industry Participation Program
- Job Brokerage
- NSW Infrastructure Skills Centre Facilities.

Please refer to the Sydney Metro City & Southwest Workforce Development and Industry Participation Strategy for further information.

Apprentices of the Infrastructure Skills Legacy Program, 2016

sydney METRO | city & southwest

sydneymetro.info

www.facebook.com/sydneymetro

Information in this document has been prepared in good faith and is correct at the time of printing, July 2017.

17032 7/2017

SCHEDULE E4 – REQUIREMENTS OF THIRD PARTY AGREEMENTS

(Clauses 3.6 and 20.18)

1. NO LIMITATION ON CONTRACT

Nothing in this Schedule E4 limits the Principal's rights or affects the CSM Contractor's rights and obligations under any clause of this Contract.

2. GLOBAL SIA

(a) The CSM 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 CSM 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 CSM 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 CSM 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, to the extent it relates to the CSM Contractor's Activities, 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 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 CSM Contractor will, do something or comply with an obligation, the CSM Contractor must, in performing the CSM 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 CSM 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 CSM Contractor must, in carrying out the CSM 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 CSM 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 and to the extent that the acknowledgement, release or warranty, indemnity or covenant relates to the CSM Contractor's Activities, the CSM 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 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 CSM 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 CSM Contractor agrees that the Principal similarly makes no representation to the CSM 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 CSM Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.

(h) The CSM 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 CSM Contractor's Activities:

(i) provided that the CSM 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 CSM Contractor:

(i) bears the full risk of:

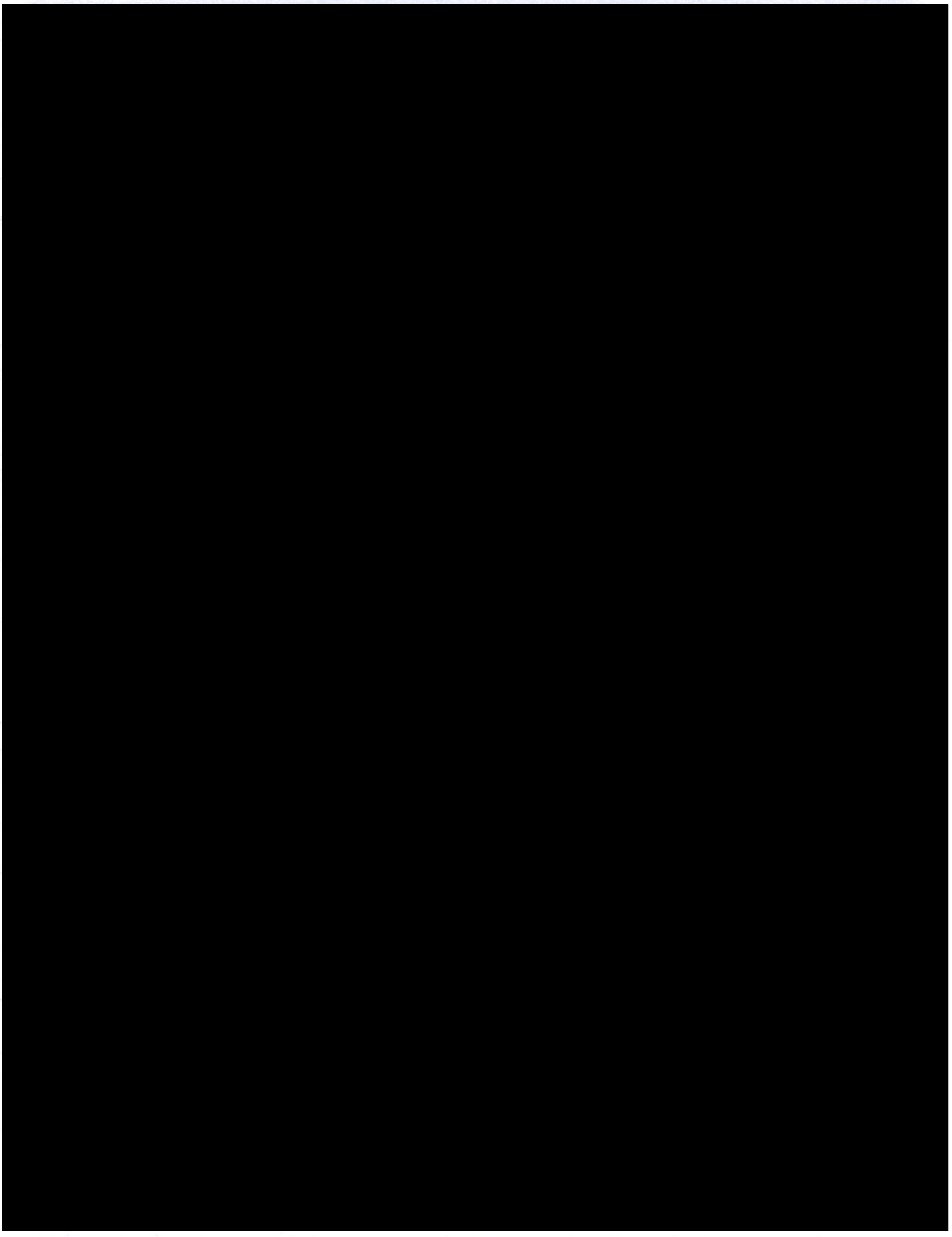
(A) it complying with the obligations under this Schedule E4; and

(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 15 of the Contract) 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

(B) any acts or omissions of Sydney Trains or its employees, agents, contractors or officers.



3. SYDNEY TRAINS TRANSITION AGREEMENT

(a) The CSM Contractor:

(i) acknowledges that the Principal will enter into the following agreements with Rail Corporation New South Wales and Sydney Trains:

(A) the "Sydney Metro City & Southwest Sydney Trains Transition Agreement"; and

(B) the "Scope of Works and Access Schedule for Central Station Main Works" in accordance with clause 23 of the Sydney Trains Transition Agreement (CSM 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 CSM 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 CSM Contractor under this Schedule E4; and

(ii) must, in performing, the CSM 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 CSM 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 CSM 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, to the extent it relates to the CSM Contractor's Activities, 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 CSM Contractor will, do something or comply with an obligation, the CSM Contractor must, in performing the CSM 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 CSM 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 CSM Contractor's Activities and nothing in this clause 3 of this Schedule

E4 imposes obligations on the CSM Contractor in relation to any Foundation Infrastructure Works Contract or SSJ Contract other than the CSM 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 CSM 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 9.4(c) and 9.11(d) of this Contract,

must submit the documentation directly to Sydney Trains.

(e) The CSM Contractor must, in carrying out the CSM 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 CSM 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 and to the extent that the acknowledgement, release or warranty, indemnity or covenant relates to the CSM Contractor's Activities, the CSM 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 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 CSM 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 CSM Contractor agrees that the Principal similarly makes no representation to the CSM 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 CSM Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.

(i) The CSM 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 CSM Contractor's Activities:

(i) provided that the CSM 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 CSM 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 15 of the Contract) arising out of or in any way in connection with:

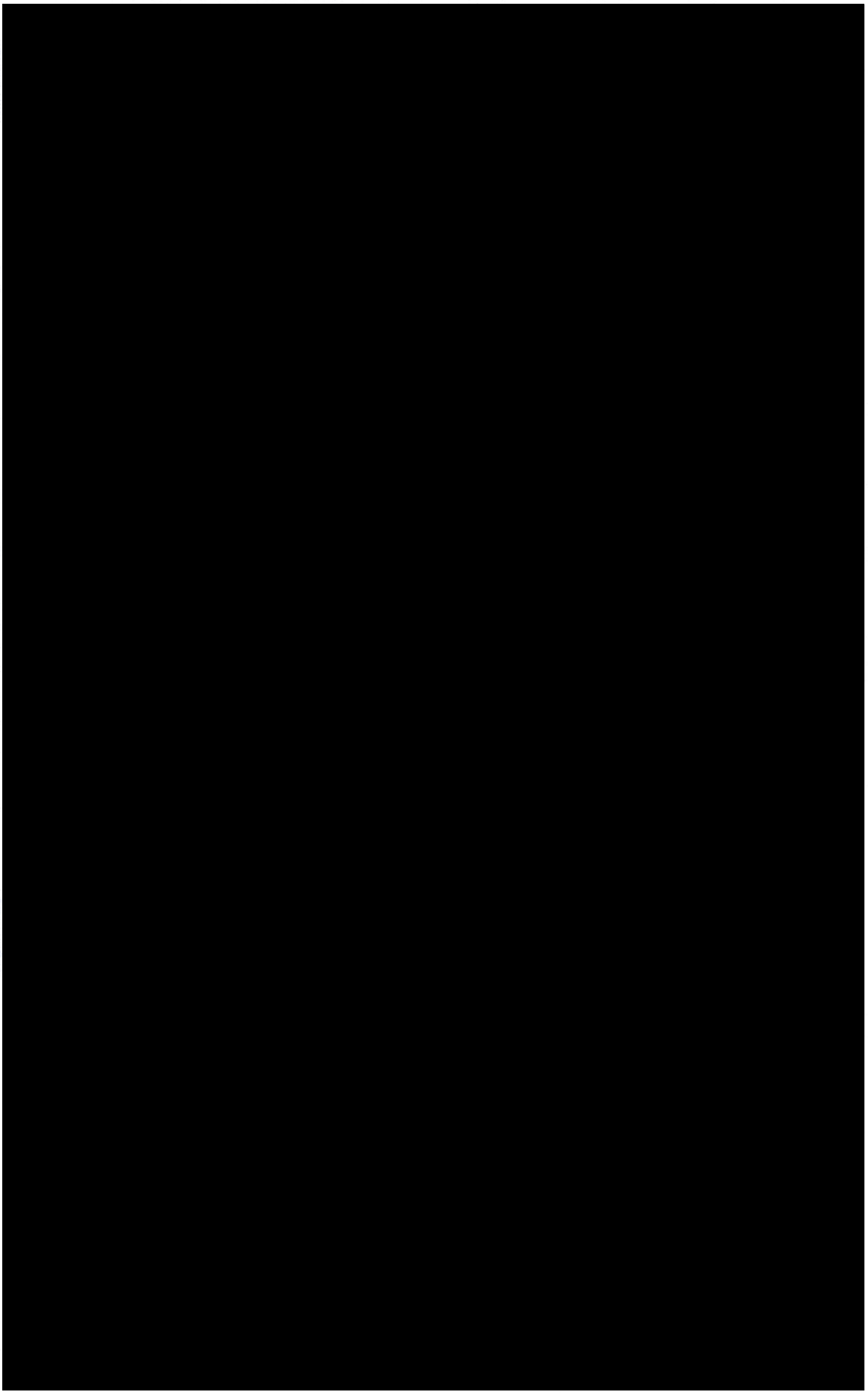
(A) the risks referred to in clause 3(j)(i) of this Schedule E4; or

(B) any acts or omissions of Sydney Trains or its employees, agents, contractors or officers.

(k) The CSM Contractor acknowledges that the conditions of access and use of all or part of certain Worksites defined in Schedule E1 are also subject to, and governed by, the terms of the Sydney Trains Transition Agreement (including Annexure A (Track Possessions), Annexure B (Metro Lease Terms and Conditions) and Annexure C (Sydney Trains Access Conditions)). If there is any inconsistency between the CSM Contractor's obligations in respect of the conditions of access and use of those Worksites under this Schedule E4 and under Schedule E1, the CSM Contractor must comply with and discharge the most onerous obligation.

(l) 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.

Sydney Trains Transition Agreement



CSM Scope of Works and Access Schedule

4. Works Authorisation Deed Sydney Metro City & Southwest – Sydney Yard Access Bridge

(a) The CSM Contractor:

(i) acknowledges that the Principal has entered into the Works Authorisation Deed Sydney Metro City & Southwest – Sydney Yard Access Bridge (**SYAB WAD**) with Roads and Maritime Services; and

(ii) must, in performing, the CSM 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 SYAB WAD as if it were named as the Principal in the SYAB WAD so as to ensure that the Principal is able to fully meet those obligations under the SYAB 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 CSM 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 CSM 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, to the extent it relates to the CSM Contractor's Activities, 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 SYAB WAD unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).

(b) Where the SYAB WAD provides that the Principal must ensure that the CSM Contractor will, do something or comply with an obligation, the CSM Contractor must, in performing the CSM 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.

(c) Where the SYAB WAD provides for the Principal to provide a document, notice or information to RMS, the CSM 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 SYAB WAD.

(d) The CSM Contractor must, in carrying out the CSM 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 SYAB WAD or other requirements of RMS;

(ii) ensure that no act or omission of the CSM Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to RMS under the SYAB WAD or otherwise at law; and

(iii) otherwise act consistently with the terms of the SYAB WAD.

(e) Whenever, pursuant to the terms of the SYAB WAD, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to RMS under any clause of the SYAB WAD then, subject to what is provided in this Schedule E4 and the other terms of this Contract and to the extent that the acknowledgement, release or warranty, indemnity or covenant relates to the CSM Contractor's Activities, the CSM 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 as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the SYAB 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 CSM Contractor acknowledges that to the extent that the SYAB WAD contains a provision pursuant to which RMS is stated to make no representation as to a state of affairs, the CSM Contractor agrees that the Principal similarly makes no representation to the CSM Contractor in respect of that state of affairs in the same way as if the relevant terms of the SYAB WAD were set out fully in this Contract.

(g) Nothing in the SYAB WAD or this Schedule E4 limits the Principal's rights or the CSM Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.

(h) The CSM 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 SYAB WAD to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the CSM Contractor's Activities:

(i) provided that the CSM 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 CSM 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 for payment under clause 15 of the Contract) arising out of or in any way in connection with:

(A) the risks referred to in clause 4(i)(i) of this Schedule E4; or

(B) any acts or omissions of RMS or its employees, agents, contractors or officers.

(j) The CSM Contractor acknowledges that the conditions of access and use of all or part of certain Worksites defined in Schedule E1 may also be subject to, and governed by, the terms of the SYAB WAD. If there is any inconsistency between the CSM Contractor's obligations in respect of the conditions of access and use of those Worksites under this Schedule E4 and under Schedule E1, the CSM Contractor must comply with and discharge the most onerous obligation.

(k) Unless otherwise stated, terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the SYAB WAD.

SYAB WAD

[redacted]

5. ADJOINING PROPERTY OWNER AGREEMENT

(a) The CSM Contractor:

(i) must, in performing, the CSM 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 each Adjoining Property Owner Agreement as if it were named as the Principal in each Adjoining Property Owner Agreement so as to ensure that the Principal is able to fully meet those obligations under each Adjoining Property Owner 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 CSM 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 CSM Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 5(a)(i)(A) of this Schedule E4;

(ii) must, to the extent it relates to the CSM Contractor's Activities, 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;

(iii) may only exercise the Principal's discretions or rights under any Adjoining Property Owner Agreement:

(A) in accordance with this clause 5 of Schedule E4; or

(B) otherwise with the Principal's prior written consent (which must not be unreasonably withheld or delayed); and

(iv) may, subject to clause 5(a)(i), exercise the Principal's right to obtain access to an Adjoining Property under an Adjoining Property Owner Agreement, and all other rights under an Adjoining Property Owner Agreement, for the purpose of carrying out the CSM Contractor's Activities.

(b) Where an Adjoining Property Owner Agreement provides that:

(i) the Principal must; or

(ii) the Principal must ensure that the CSM Contractor will,

do something or comply with an obligation, the CSM Contractor must, when it is obliged to act, in performing the CSM Contractor's Activities, do that thing or comply with that obligation.

(c) Where an Adjoining Property Owner Agreement provides for the Principal to provide a document, notice or information to an Adjoining Owner, the CSM Contractor must:

(i) subject to clause 5(c)(ii), provide such document, notice or information to the Principal within a reasonable time sufficient for the Principal to review, comment on and approve the document, notice or information before the CSM Contractor provides the document, notice or information to an Adjoining Owner; and

(ii) for the purpose of clauses 3.2(a), 3.2(b), 4.2(a) and 5.2(a) of the Adjoining Property Owner Agreement, submit the documentation directly to the Adjoining Owner with a copy to the Principal.

(d) The CSM Contractor must, in carrying out the CSM Contractor's Activities:

(i) comply with any reasonable directions of the Principal's Representative in relation to compliance with the conditions and requirements of each Adjoining Property Owner Agreement or other requirements of each Adjoining Owner;

(ii) ensure that no act or omission of the CSM Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to any Adjoining Owner under any Adjoining Property Owner Agreement or otherwise at law; and

(iii) otherwise act consistently with the terms of each Adjoining Property Owner Agreement.

(e) Whenever, pursuant to the terms of an Adjoining Property Owner Agreement, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to an Adjoining Owner under any clause of an Adjoining Property Owner Agreement then, subject to what is provided in this Schedule E4 and the other terms of this deed, the CSM 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 as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under each Adjoining Property Owner 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 deed.

(f) The CSM Contractor acknowledges that to the extent that an Adjoining Property Owner Agreement contains a provision pursuant to which an Adjoining Owner is stated to make no representation as to a state of affairs, the CSM Contractor agrees that the Principal similarly makes no representation to the CSM Contractor in respect of that state of affairs in the same way as if the relevant terms of each Adjoining Property Owner Agreement were set out fully in this deed.

(g) Nothing in any Adjoining Property Owner Agreement or this Schedule E4 limits the Principal's rights or the CSM Contractor's obligations in relation to Construction Completion of any Portion or the rectification of Defects under this deed.

(h) The CSM Contractor must indemnify the Principal from and against any claim by any Adjoining Owner or third party or any liability of the Principal to any Adjoining Owner or third party arising out of or in any way in connection with any Adjoining Property Owner Agreement to the extent that the liability or claim is caused by, or arises out of, or in any way in connection with, the CSM Contractor's Activities:

(i) provided that the CSM 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 or any other term of this deed,

but to the extent the liability under an indemnity under the Adjoining Property Owner Agreement is for Consequential Loss arising from loss of use or access to real or personal property, the indemnity is limited to the extent the CSM Contractor is entitled to be indemnified under a policy of insurance placed under clause 19 of the Contract or would have been entitled to be indemnified but for any wrongful act or omission of the CSM Contractor or its Associates.

(i) The CSM Contractor will only be liable to the Principal for any liability arising out of clause 20 of an Adjoining Property Owner Agreement:

(i) to the extent that the Principal incurs a liability to an Adjoining Owner arising out of or in connection with a breach of contract by, a negligent act or omission of, or injury, death or damage caused by, the CSM Contractor or its Associates; or

(ii) where the CSM Contractor would otherwise be liable to the Principal pursuant to a provision of this deed in respect of the matter.

(j) The CSM Contractor:

(i) bears the full risk of:

(A) it complying with the obligations under this Schedule E4; and

(B) any acts or omissions of any Adjoining Owner or its employees, agents, contractors, officers or persons legally entitled and authorised to occupy any part of any Adjoining Property; and

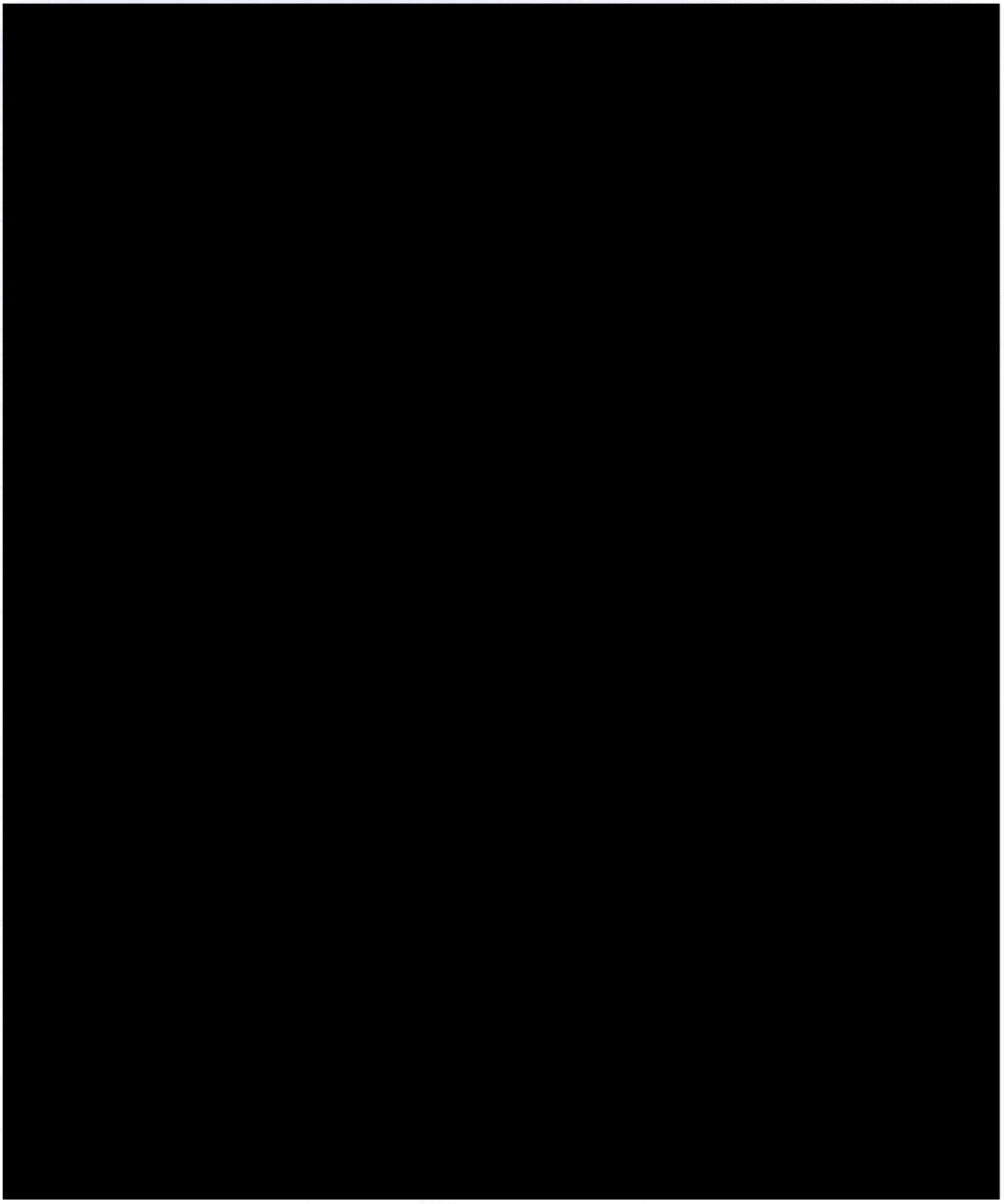
(ii) will not be entitled to make, and the Principal will not be liable upon, any Claim (other than for payment under clause 15 of the Contract) arising out of or in any way in connection with:

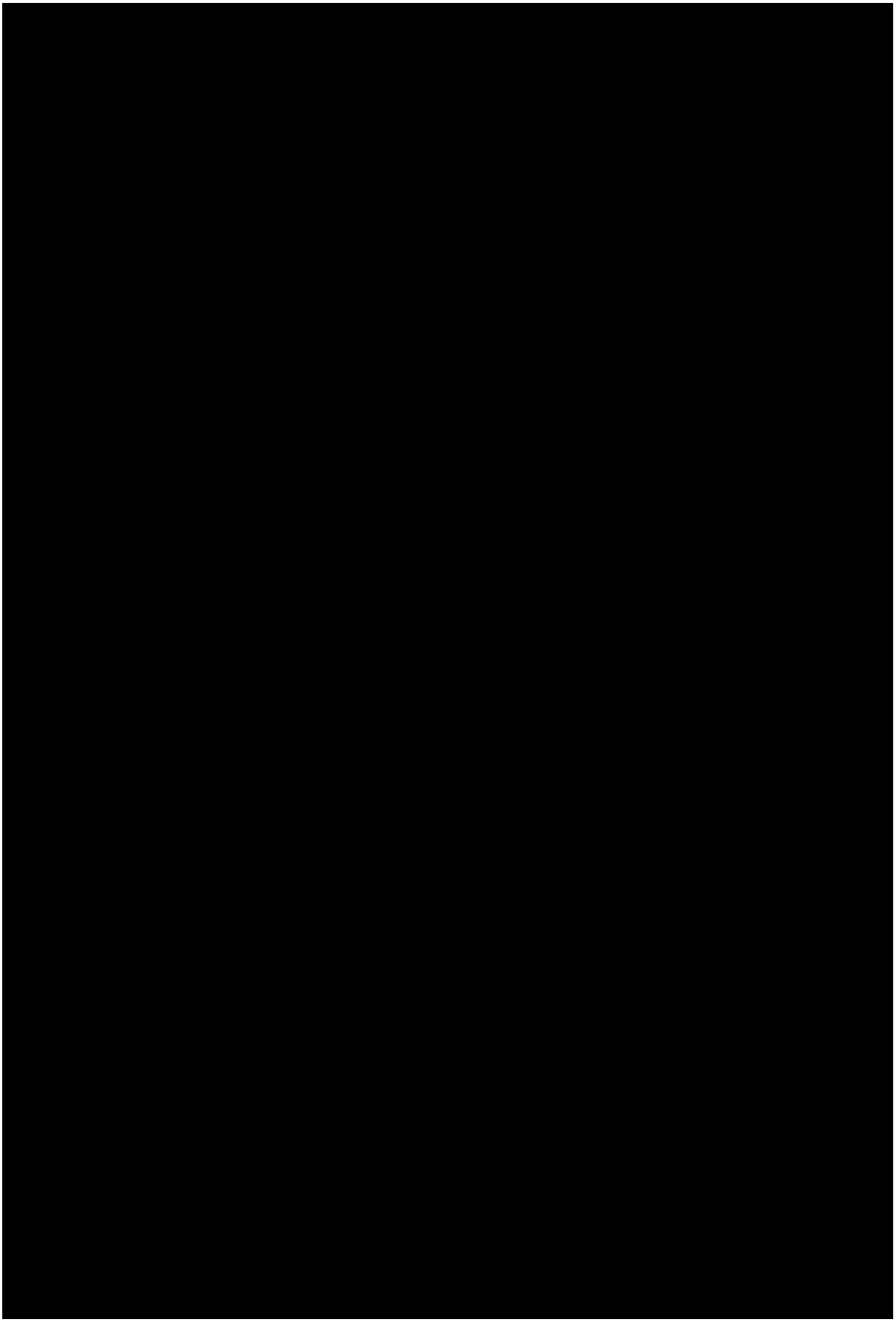
(A) the risks referred to in clause 5(j)(i) of this Schedule E4; or

(B) any acts or omissions of any Adjoining Owner or its employees, agents, contractors, officers or persons legally entitled and authorised to occupy any part of any Adjoining Property.

(k) The CSM Contractor acknowledges that the conditions of access and use of all or part of certain Worksites defined in Schedule E1 may also be subject to, and governed by, the terms of an Adjoining Property Owner Agreement. If there is any inconsistency between the CSM Contractor's obligations in respect of the conditions of access and use of those Worksites under this Schedule E4 and under Schedule E1, the CSM Contractor must comply with and discharge the most onerous obligation.

Adjoining Property Owner Agreement





6. Licence for Access with State Transit Authority

(a) The CSM Contractor acknowledges that the Principal has entered into a licence for access with State Transit Authority of NSW (**STA**) entitled "Licence for Access with STA" dated 23 December 2016 and amended on 15 December 2017 (**Licence for Access with State Transit Authority**).

(b) The CSM Contractor:

(i) must, in performing, the CSM 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 Licence for Access with State Transit Authority as if it were named as the Principal in the Licence for Access with State Transit Authority so as to ensure that the Principal is able to fully meet those obligations under the Licence for Access with State Transit Authority 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 CSM 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 CSM Contractor in this Schedule E4 that are additional to or more stringent or onerous than the conditions and requirements described in clause 6(b)(i)(A) of this Schedule E4;

(ii) must, to the extent it relates to the CSM Contractor's Activities, 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

(iii) may not exercise any of the Principal's discretions or rights under the Licence for Access with State Transit Authority unless it has obtained the Principal's prior written consent (which must not be unreasonably withheld or delayed).

(c) Where the Licence for Access with State Transit Authority provides that the Principal must ensure that the CSM Contractor will, do something or comply with an obligation, the CSM Contractor must, in performing the CSM Contractor's Activities, do that thing or comply with, satisfy, carry out and fulfil that obligation in accordance with clause 6(b)(i) as if it was stated to be an obligation of the Principal.

(d) Where the Licence for Access with State Transit Authority provides for the Principal to provide a document, notice or information to STA, the CSM Contractor:

(i) subject to clause 6(d)(iii) of this Schedule E4, must not provide any such document, notice or information directly to STA; 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 STA within the time period required by the Licence for Access with State Transit Authority; and

(iii) for the purposes of clauses 9.4(c) and 9.11(d) of this Contract, must submit the documentation directly to Licence for Access with State Transit Authority.

(e) The CSM Contractor must, in carrying out the CSM 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 Licence for Access with State Transit Authority or other requirements of STA;

(ii) ensure that no act or omission of the CSM Contractor constitutes, causes or contributes to any breach by the Principal of its obligations to STA under the Licence for Access with State Transit Authority or otherwise at law; and

(iii) otherwise act consistently with the terms of the Licence for Access with State Transit Authority.

(f) Whenever, pursuant to the terms of the Licence for Access with State Transit Authority, the Principal makes an acknowledgement or gives a release or warranty, indemnity, or covenant to STA under any clause of the Licence for Access with State Transit Authority then, subject to what is provided in this Schedule E4 and the other terms of this Contract and to the extent that the acknowledgement, release or warranty, indemnity or covenant relates to the CSM Contractor's Activities, the CSM 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 as the acknowledgement, release or warranty, indemnity, or covenant made or given by the Principal under the Licence for Access with State Transit Authority 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 CSM Contractor acknowledges that to the extent that the Licence for Access with State Transit Authority contains a provision pursuant to which STA is stated to make no representation as to a state of affairs, the CSM Contractor agrees that the Principal similarly makes no representation to the CSM Contractor in respect of that state of affairs in the same way as if the relevant terms of the Licence for Access with State Transit Authority were set out fully in this Contract.

(h) Nothing in the Licence for Access with State Transit Authority or this Schedule E4 limits the Principal's rights or the CSM Contractor's obligations in relation to Construction Completion, Completion or the rectification of Defects under this Contract.

(i) The CSM Contractor must indemnify the Principal from and against any claim by STA against the Principal or any Liability of the Principal to Sydney Council arising out of or in any way in connection with the Licence for Access with State Transit Authority to the extent that the Liability or claim is caused by, or arises out of, or in any way in connection with, the CSM Contractor's Activities:

(i) provided that the CSM 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 CSM Contractor:

(i) bears the full risk of:

(A) it complying with the obligations under this Schedule E4; and

(B) any acts or omissions of STA 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 of the Contract) arising out of or in any way in connection with:

(A) the risks referred to in clause 6(j)(i)of this Schedule E4; or

(B) any acts or omissions of STA or its employees, agents, contractors or officers.

(k) The CSM Contractor acknowledges that the conditions of access and use of all or part of certain Worksites defined in Schedule E1 may also be subject to, and governed by, the terms of the Licence for Access with State Transit Authority. If there is any inconsistency between the CSM Contractor's obligations in respect of the conditions of access and use of those Worksites under this Schedule E4 and under Schedule E1, the CSM Contractor must comply with and discharge the most onerous obligation.

(l) Terms used in the table below that are capitalised but are not defined in this Contract have the same meaning as in the Licence for Access with State Transit Authority.

Licence for Access with State Transit Authority

[redacted]

[redacted]

7. COMMON DISPUTES

(a) In this clause 7 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(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 CSM Contractor in a Claim by the CSM Contractor under this deed;

(iii) CSM 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) CSM 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 6 of Schedule E4; and

(ii) notify the CSM Contractor in writing of its decision within 20 Business Days of the Common Dispute arising,

in which case clauses 7(d) to 7(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 19.1 to 19.14 will not apply to the resolution of the Common Dispute that is the subject of the Principal's notice; and

(ii) the CSM Contractor acknowledges and agrees that the purpose of this clause 6 of Schedule E4 is:

(A) to provide the CSM Contractor with comparable remedies and entitlements in respect of Common Disputes, and to limit the CSM 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 CSM Contractor's entitlement to receive compensation from the Principal, and the Principal's liability to pay compensation to the CSM 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 CSM Contractor under this Contract in respect of a Common Dispute, the CSM 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 CSM 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 CSM 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 referrable to the CSM Contractor, including any liability, Claim or loss of the CSM 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 CSM 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(f)(i) of this Schedule E4, make on behalf of the CSM Contractor whatever representations in respect of the Common Dispute that the CSM Contractor reasonably requests; and

(iii) provide:

(A) regular updates to the CSM Contractor; and

(B) whatever information and documents the CSM Contractor reasonably requests,

as to the progress of the Common Dispute.

(g) The Principal's Liability to the CSM Contractor in respect of the subject matter of the Common Dispute:

(i) is satisfied by payment to the CSM Contractor in accordance with this clause 6 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 6 of this Schedule E4 with respect to recovery of the Principal's and the CSM Contractor's entitlements from the Third Party; and

(B) all appeals from such determination have been exhausted.

(h) The CSM 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 CSM Contractor consents to the Common Dispute being heard together with (or consolidated with) that alternative dispute resolution process; and

(B) litigation, the CSM Contractor consents to the Common Dispute being consolidated with (or heard together with) that litigation; and

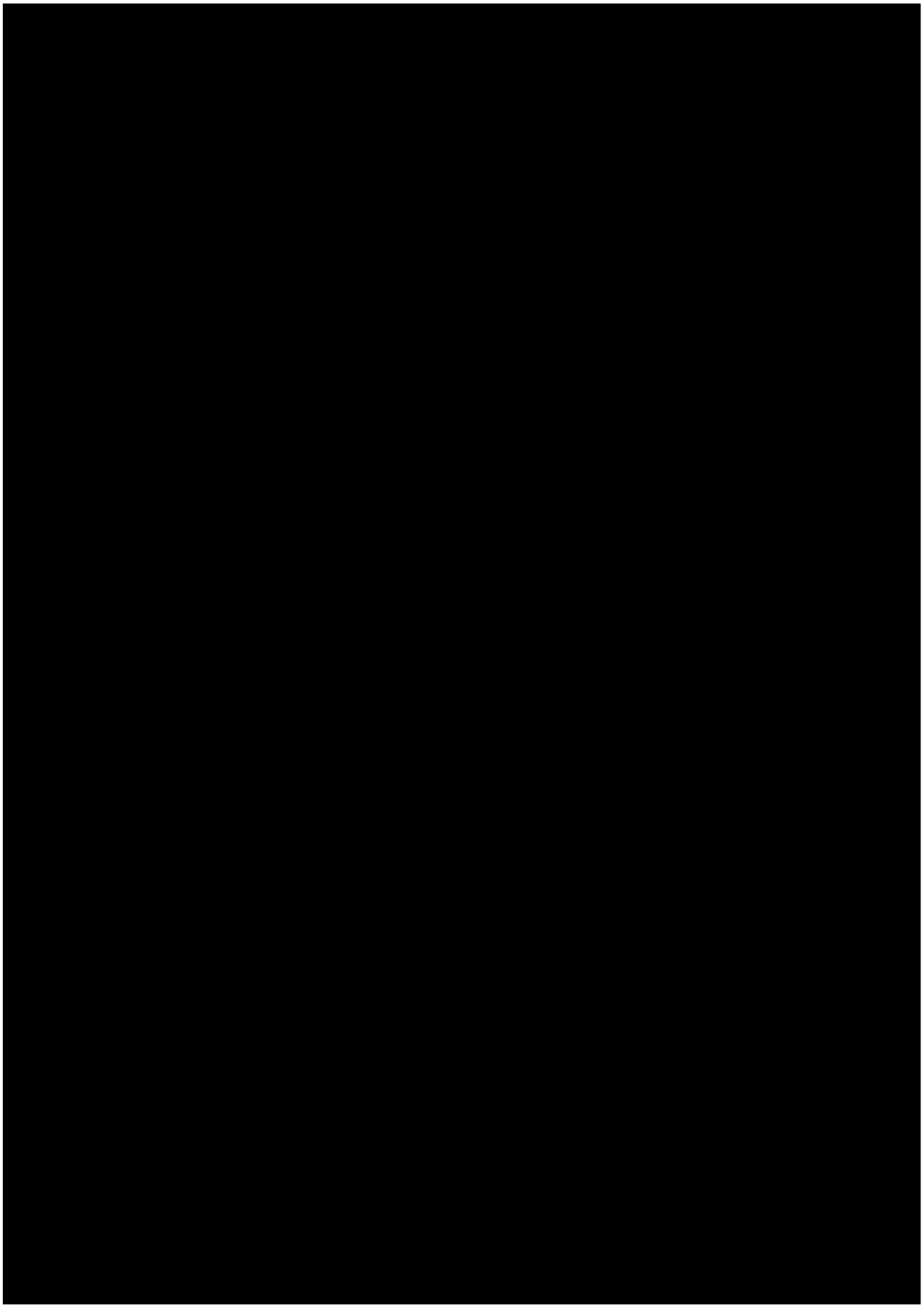
(iii) to be bound by the outcome of the Common Dispute resolution process to the extent it affects the CSM Contractor's rights and obligations under this Contract.

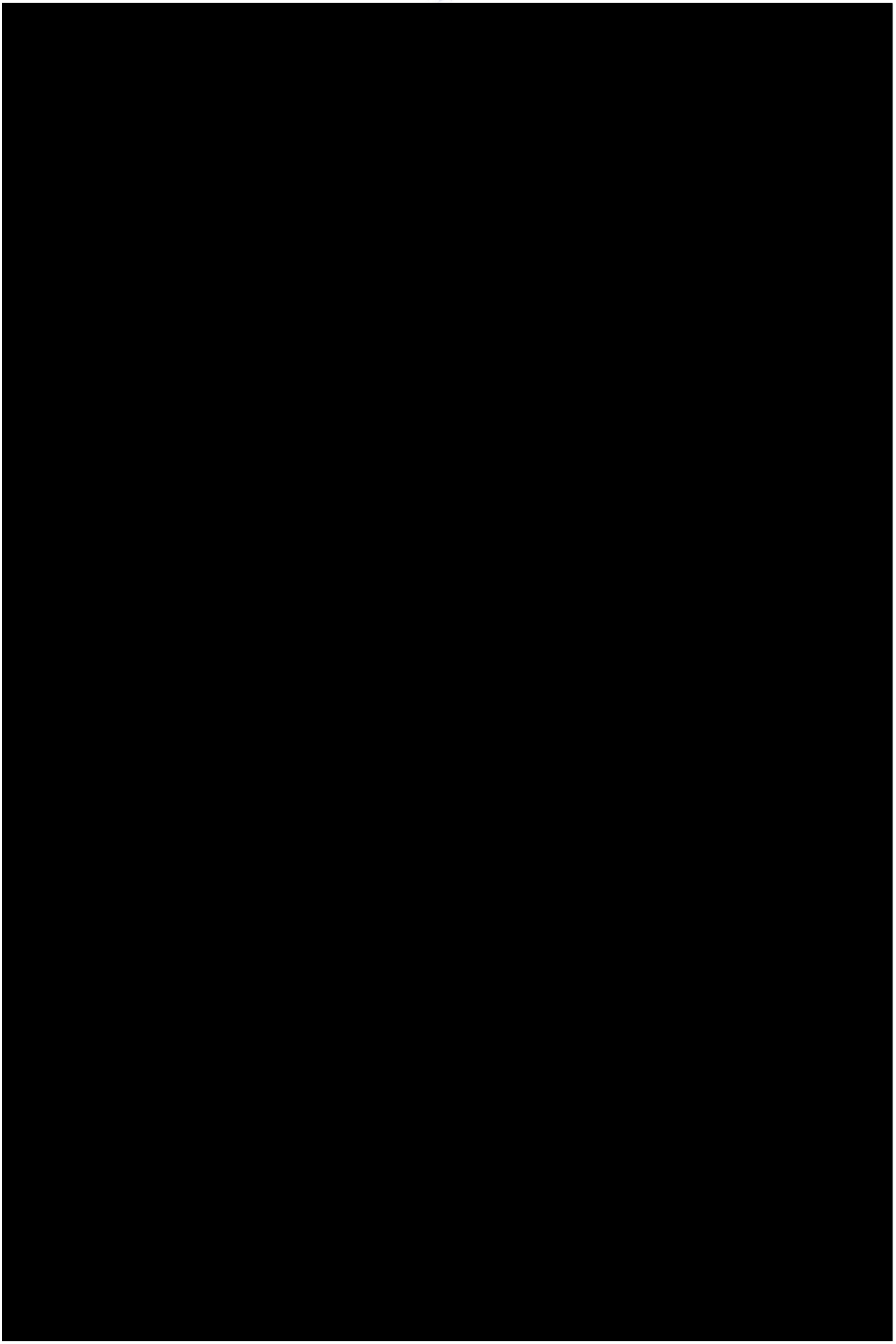
(i) The CSM Contractor's entitlement to a remedy in respect of a Common Dispute will not be reduced to the extent to which the Principal's entitlements under a Third Party Agreement are reduced or extinguished due to the Principal's breach or failure to comply with the Third Party Agreement or other act or omission (in each case to the extent not caused by the CSM Contractor).

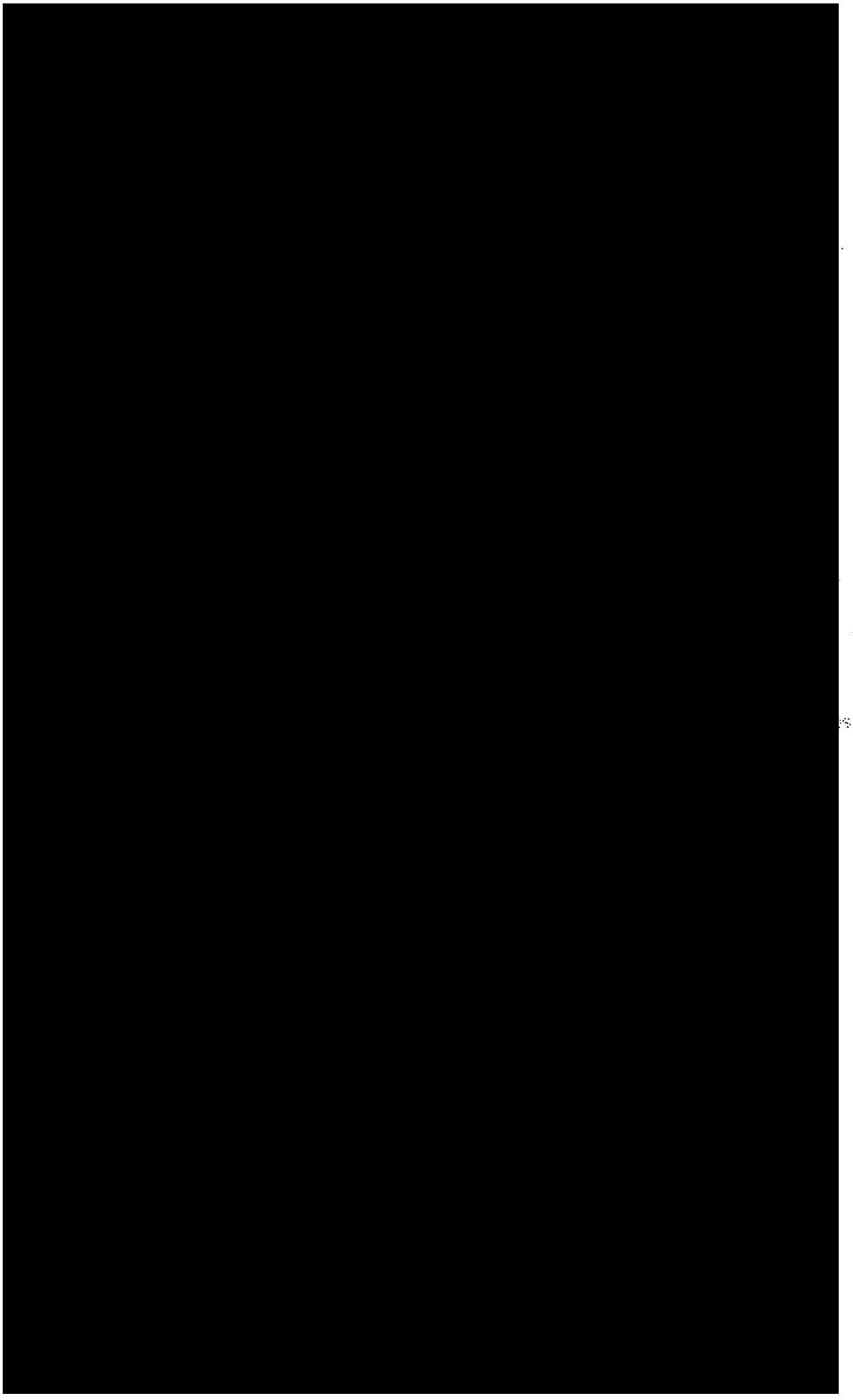
(j) To the extent the CSM Contractor has recovered compensation in respect of a Common Dispute under another provision of this Contract, then the CSM Contractor is not entitled to the same compensation under this clause 7 of Schedule E4.

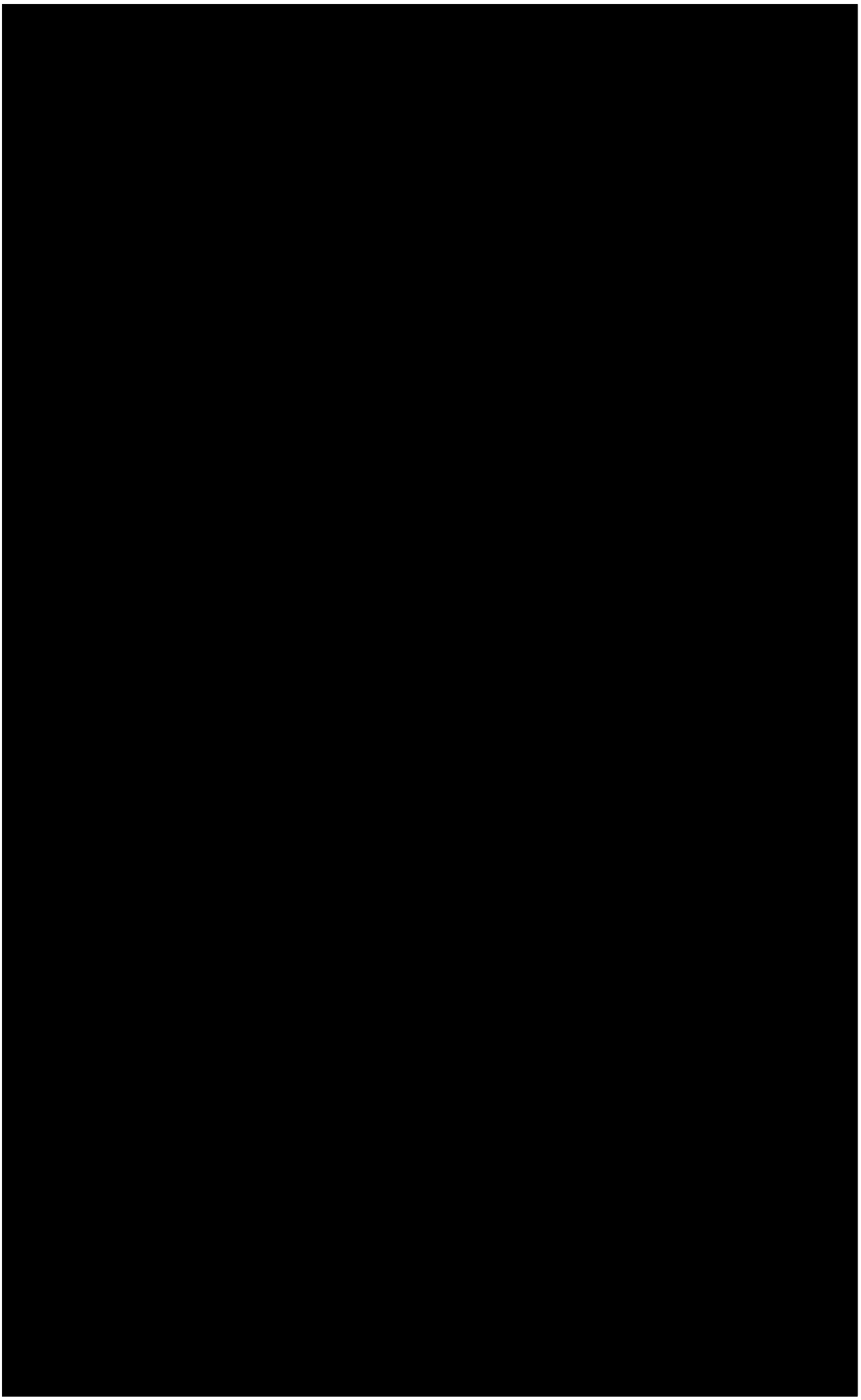
(k) Any payment to which the CSM Contractor is entitled under this clause 7 of Schedule E4 in respect of a Common Dispute shall be paid by the Principal to the CSM Contractor within 20 Business Days from the date of the settlement or final determination (with all rights of appeal having been exhausted) of the Common Dispute under or in connection with the Third Party Agreement.

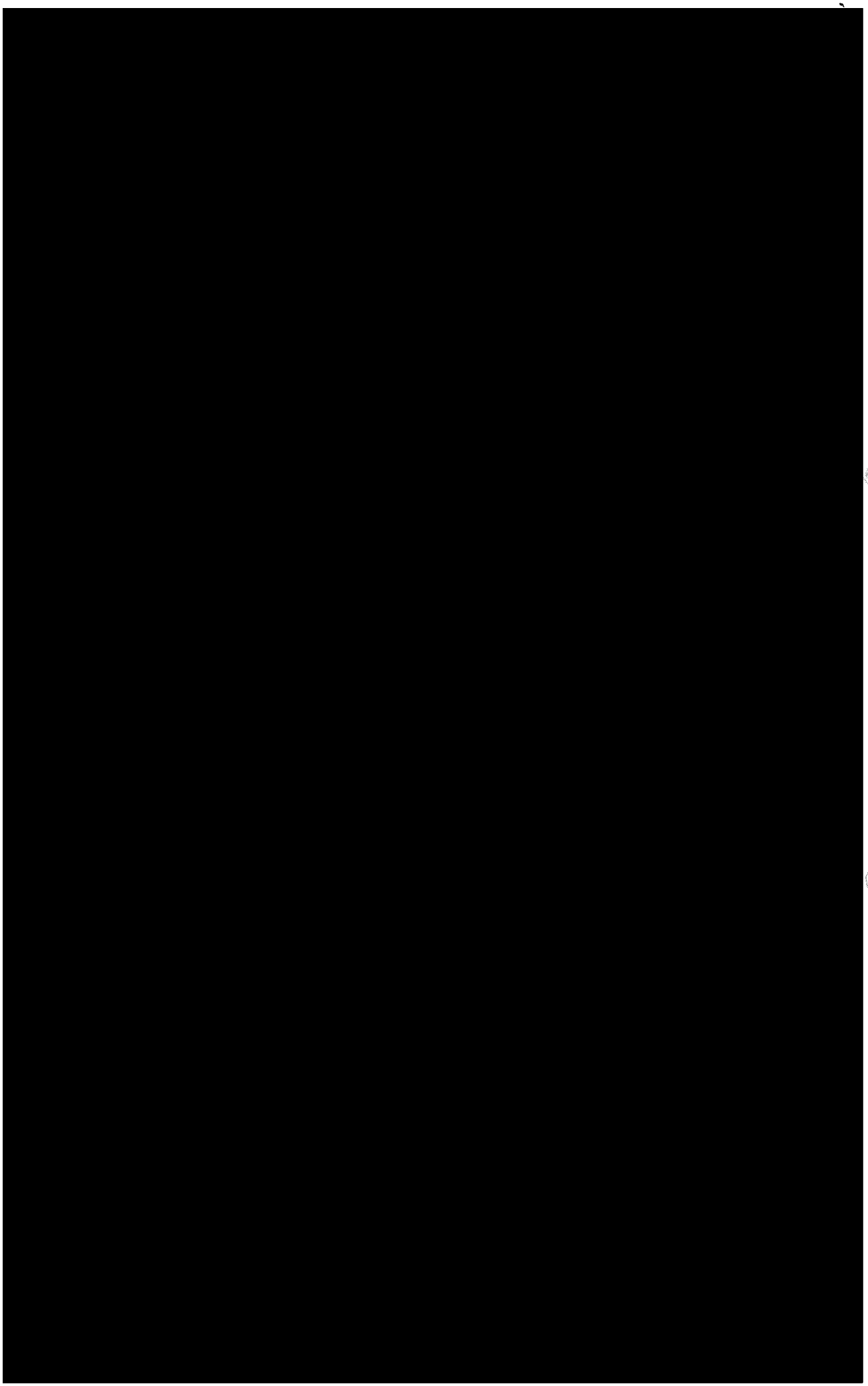
SCHEDULE E5. – THIRD PARTY AGREEMENTS

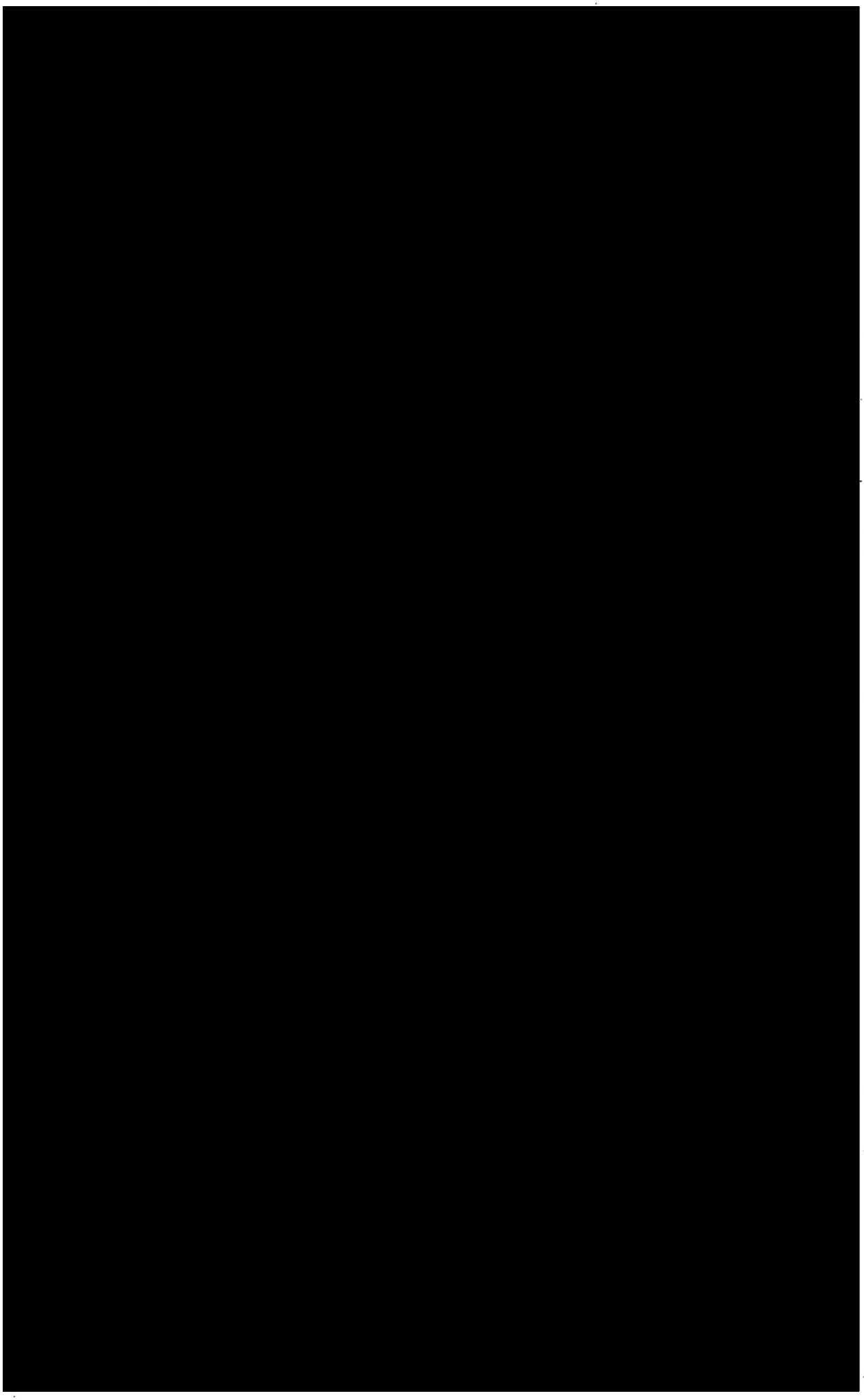


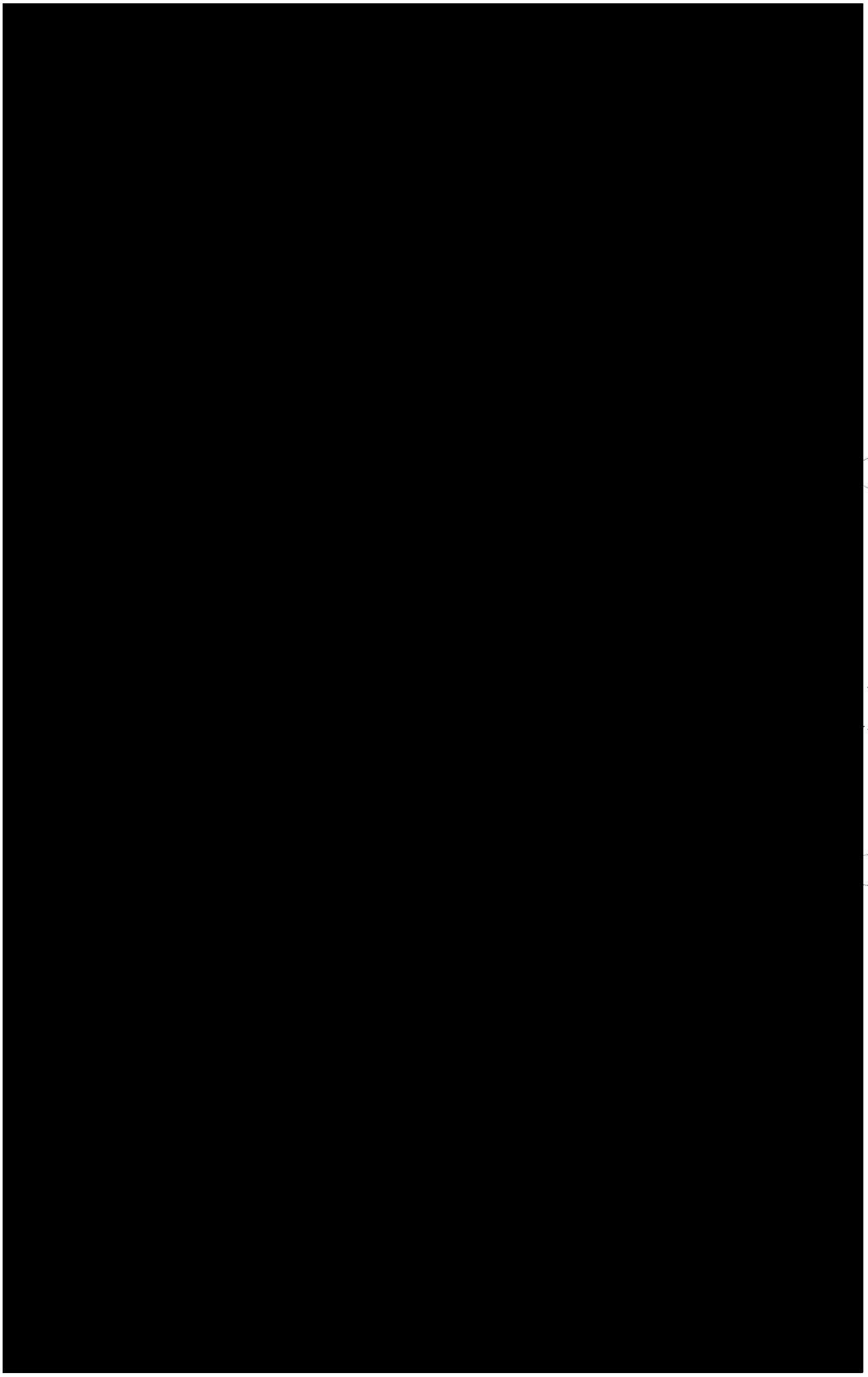


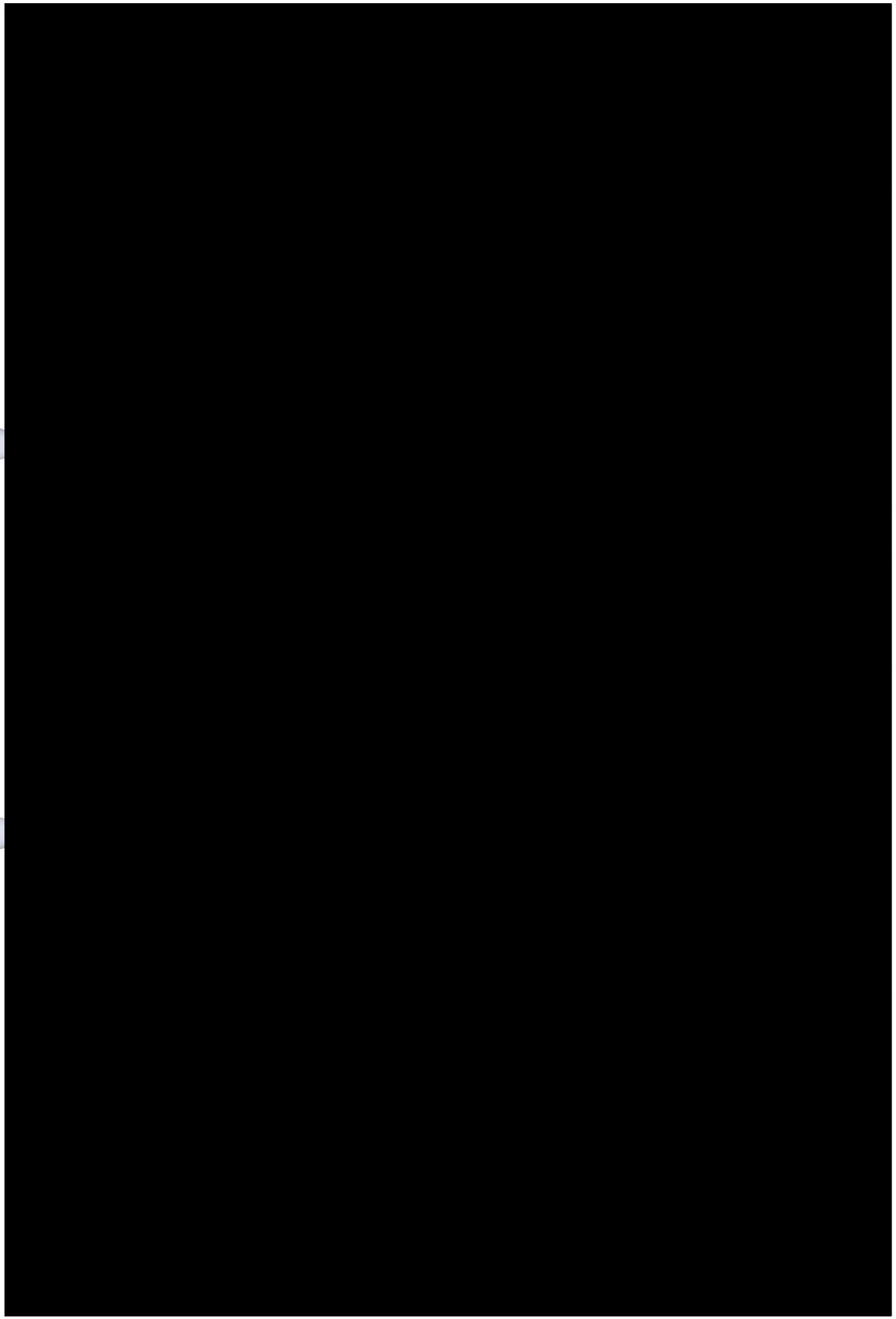


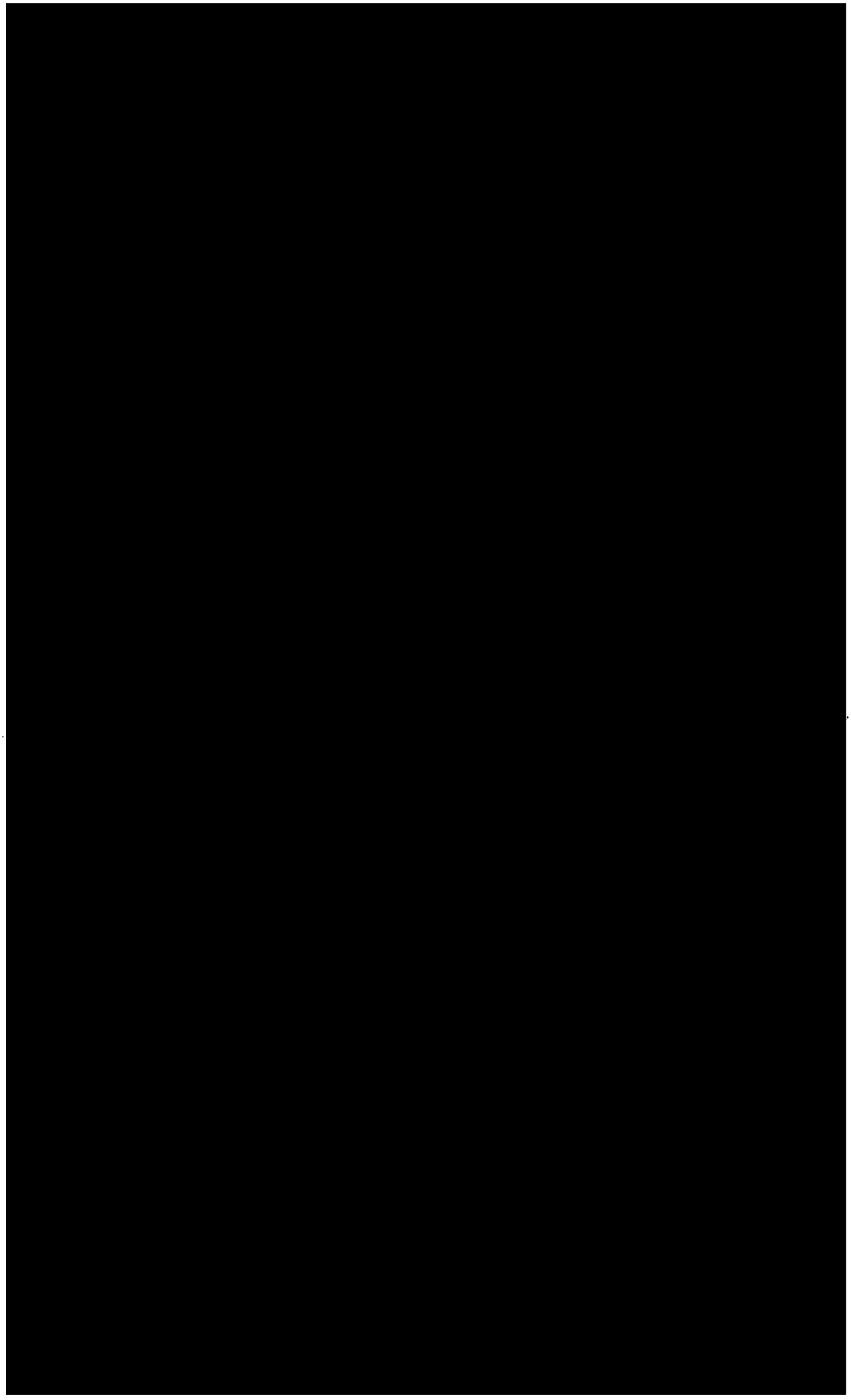


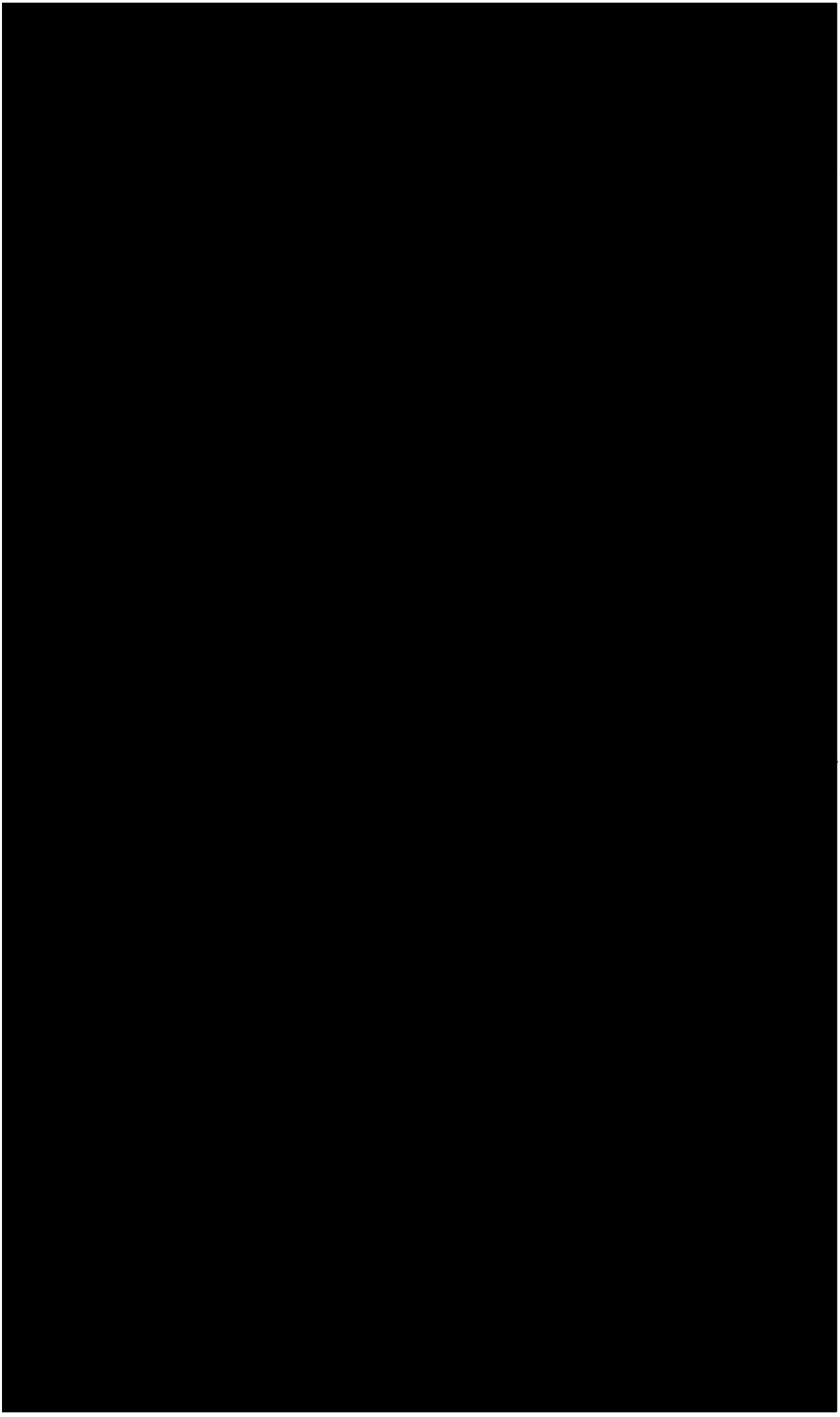


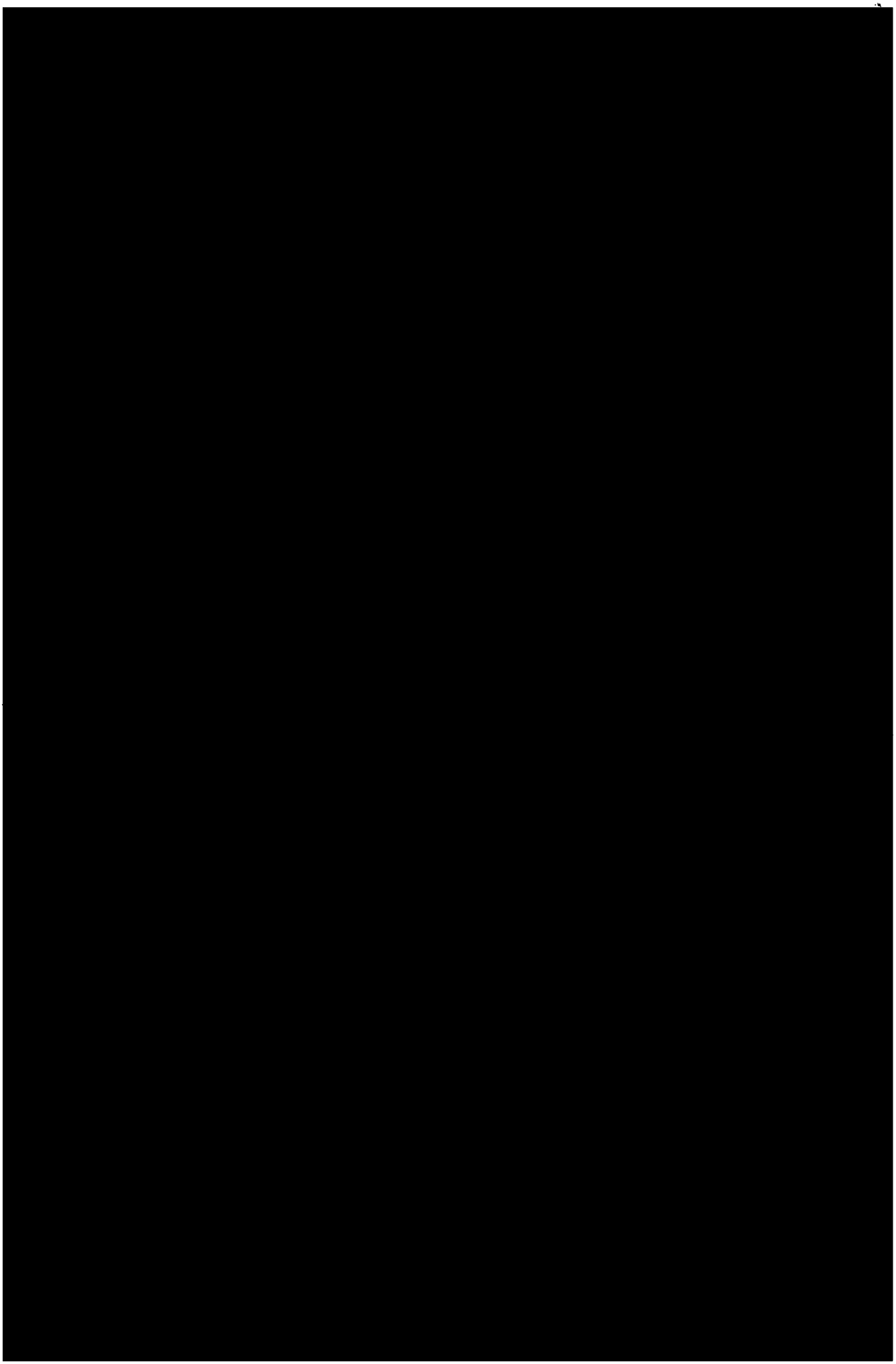


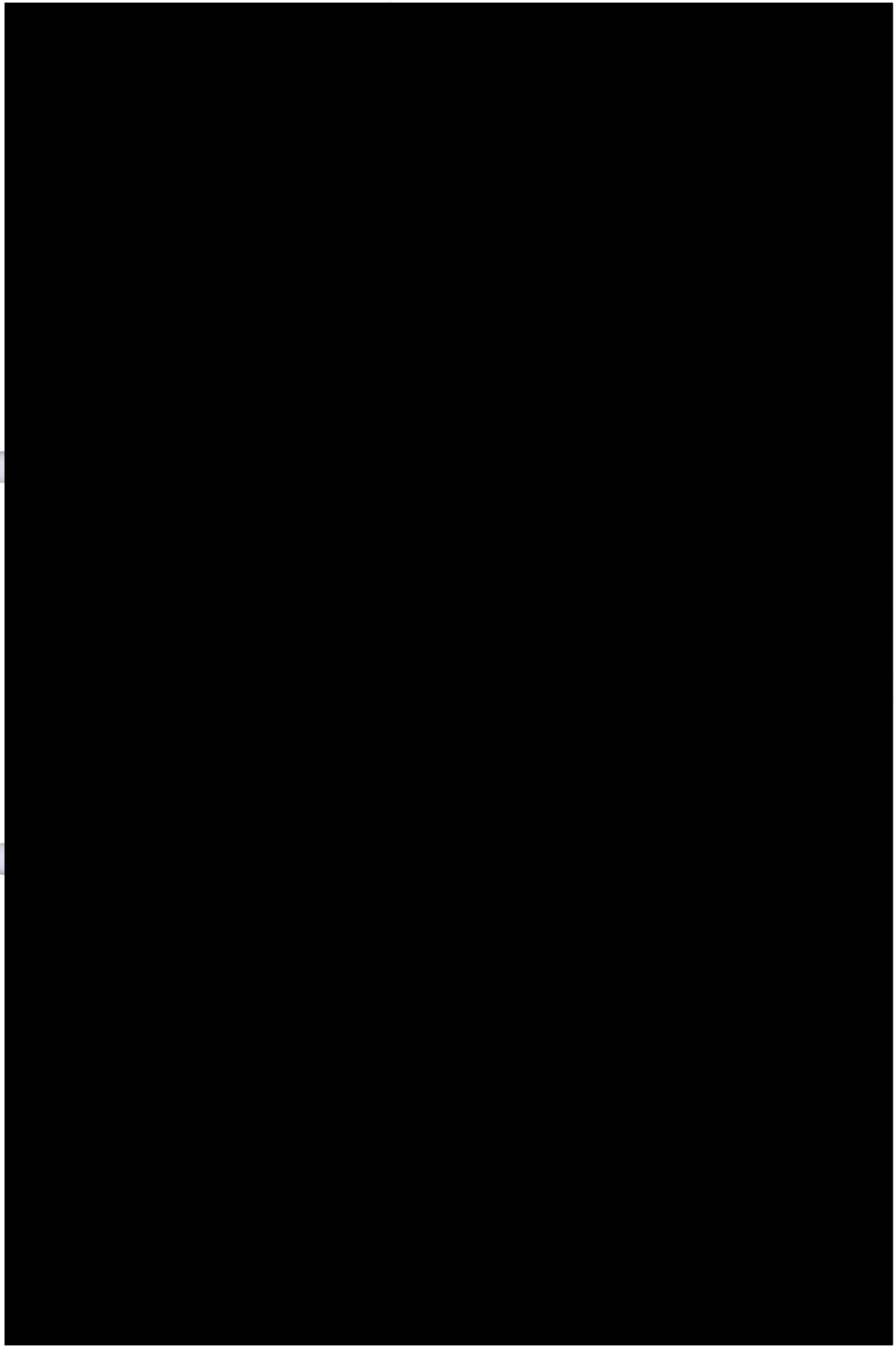


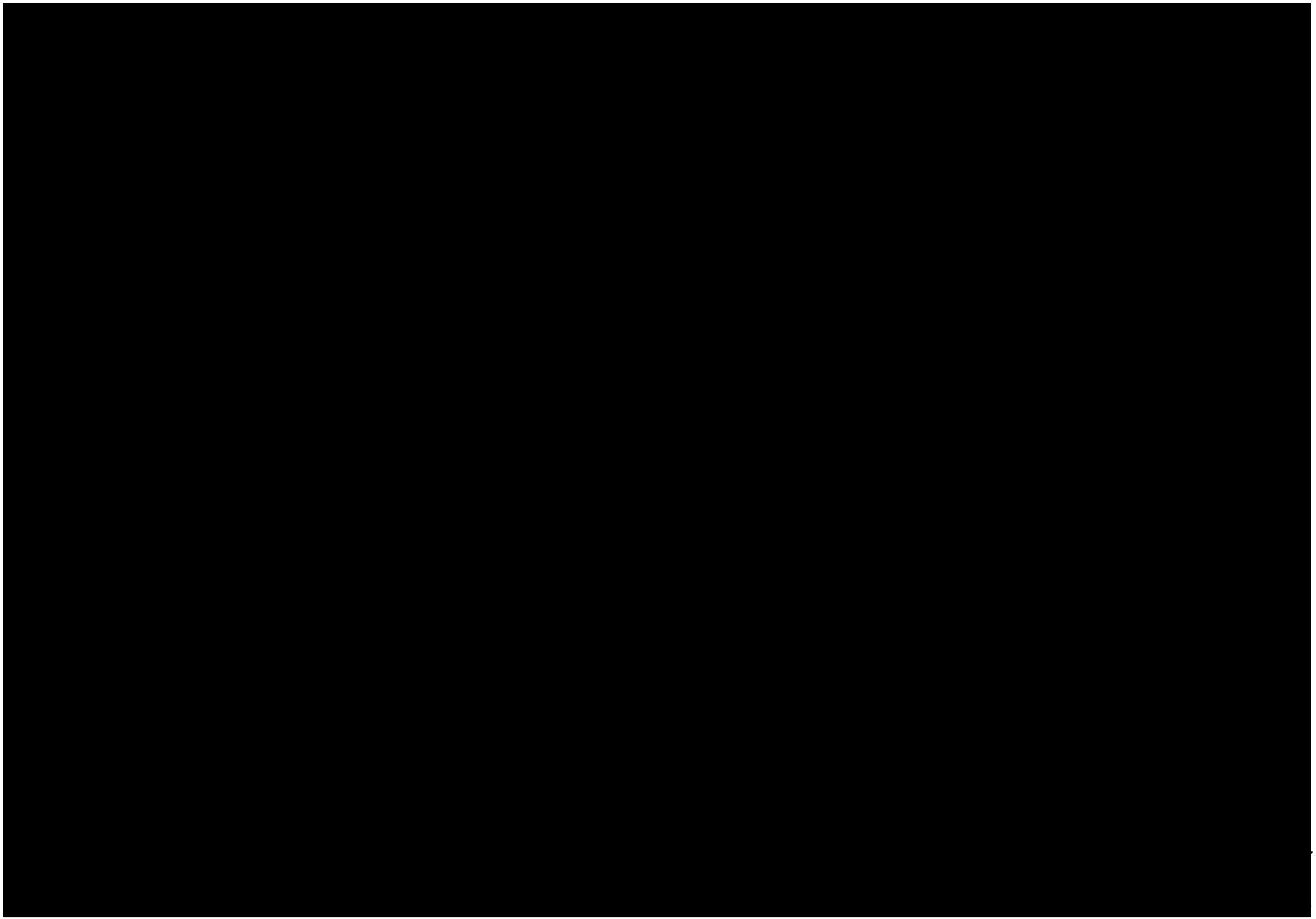


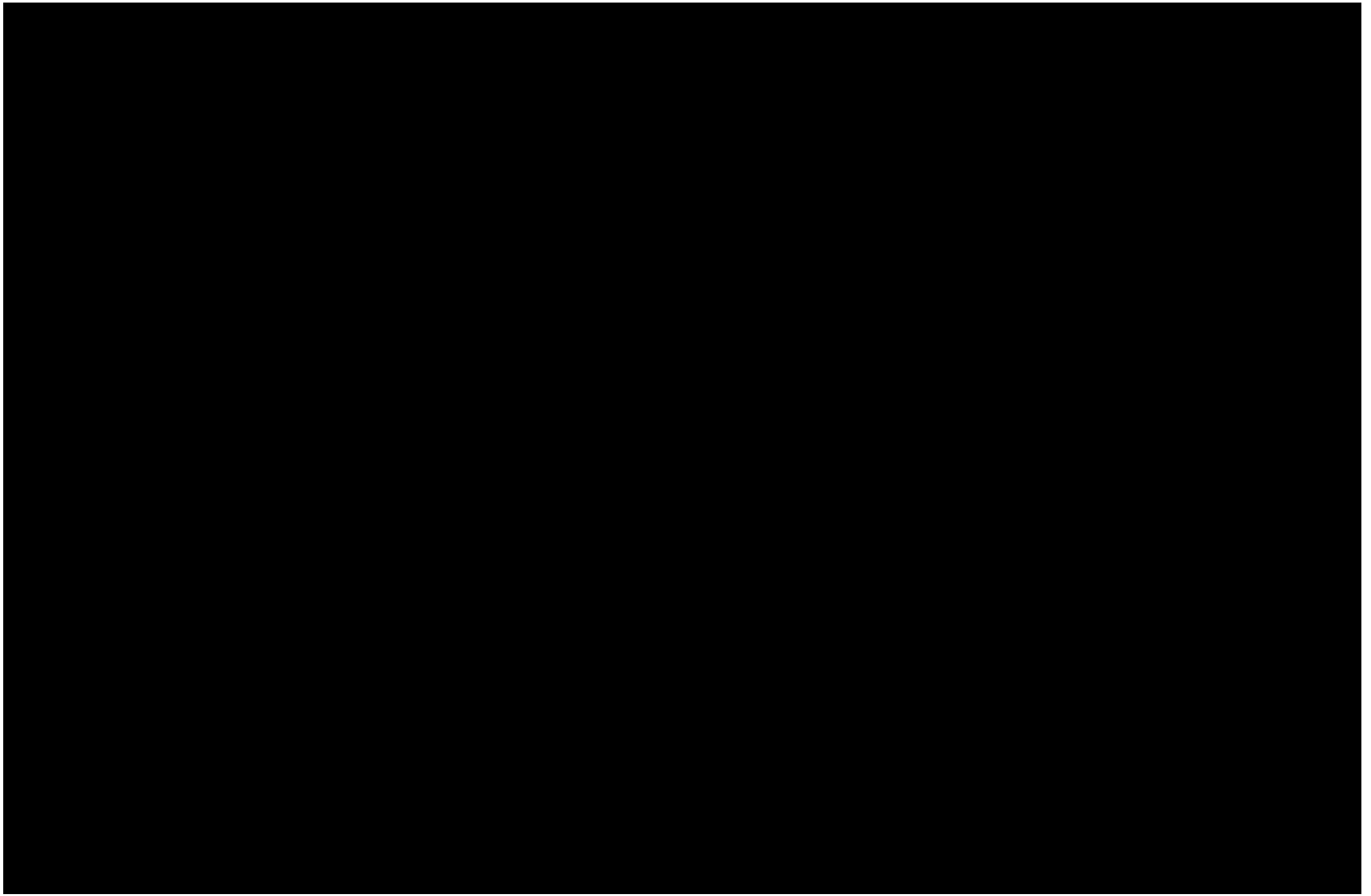


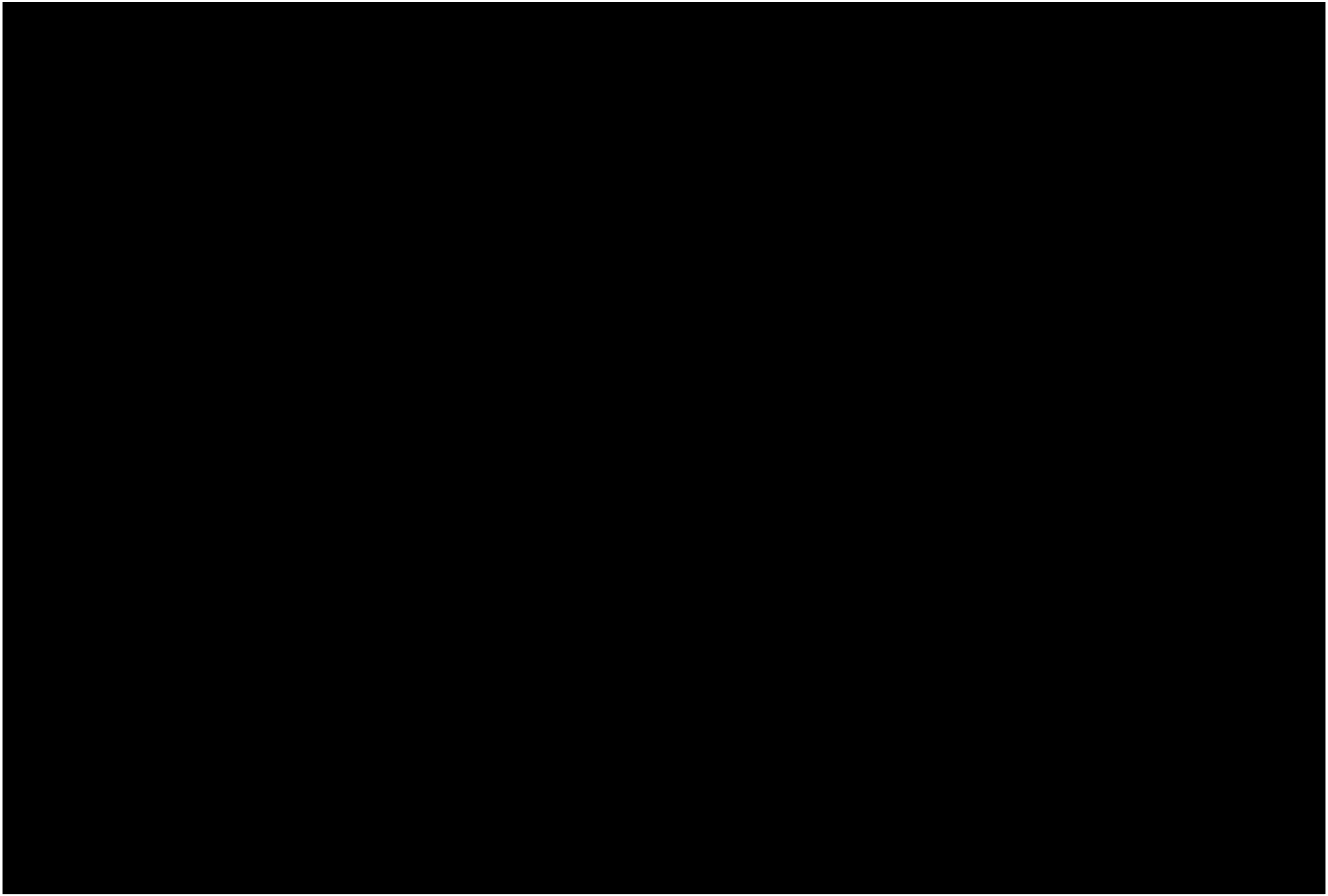


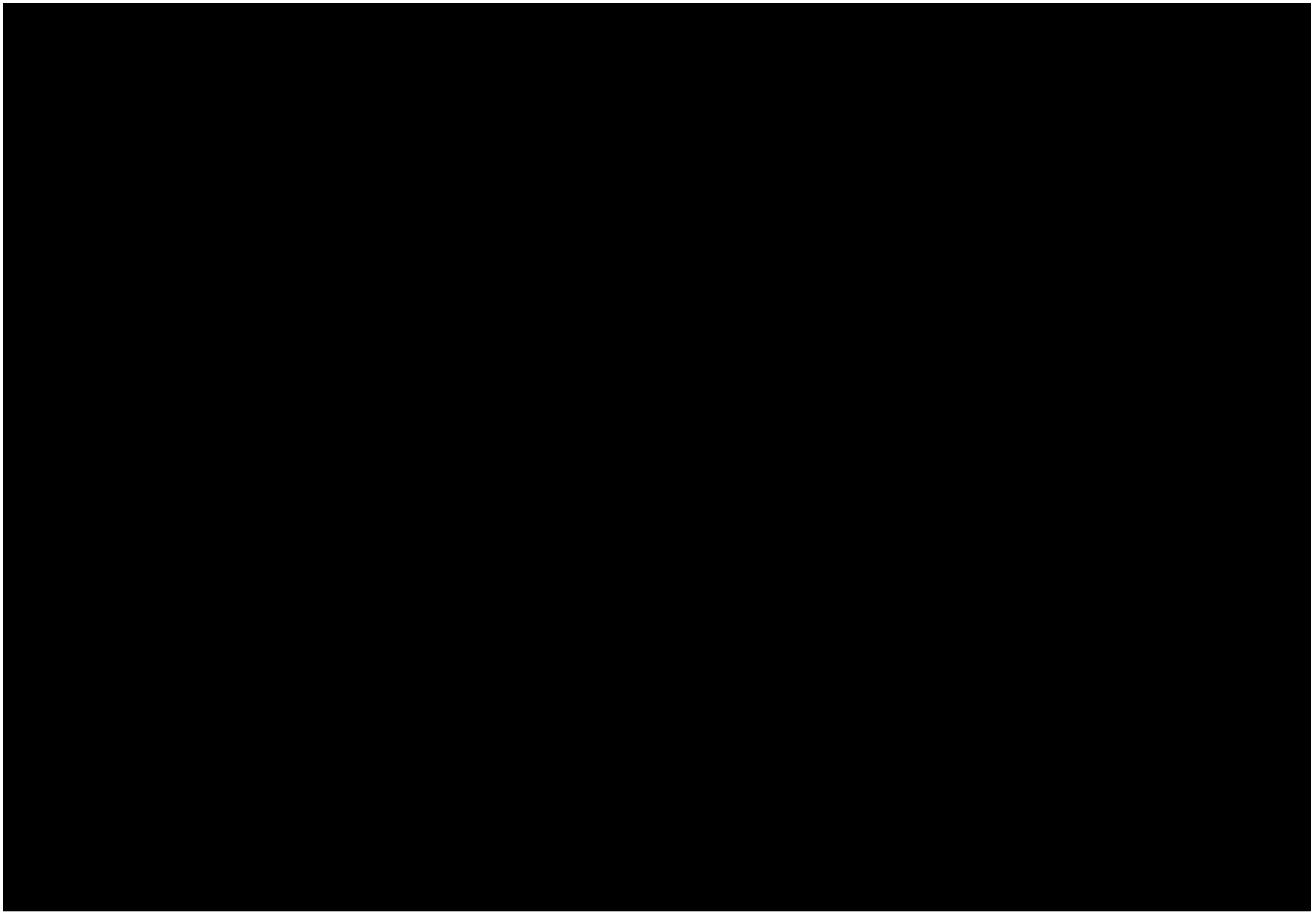


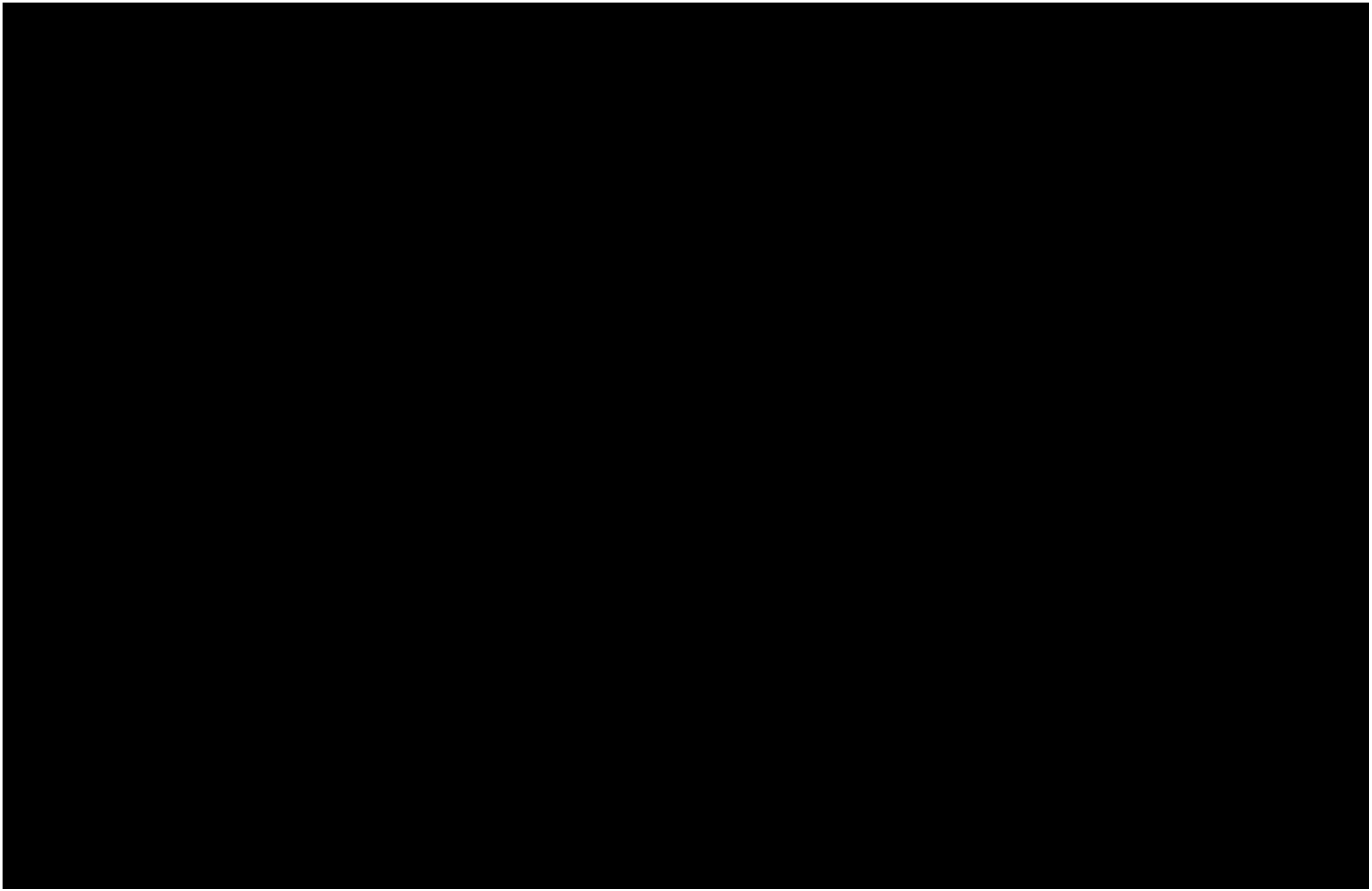


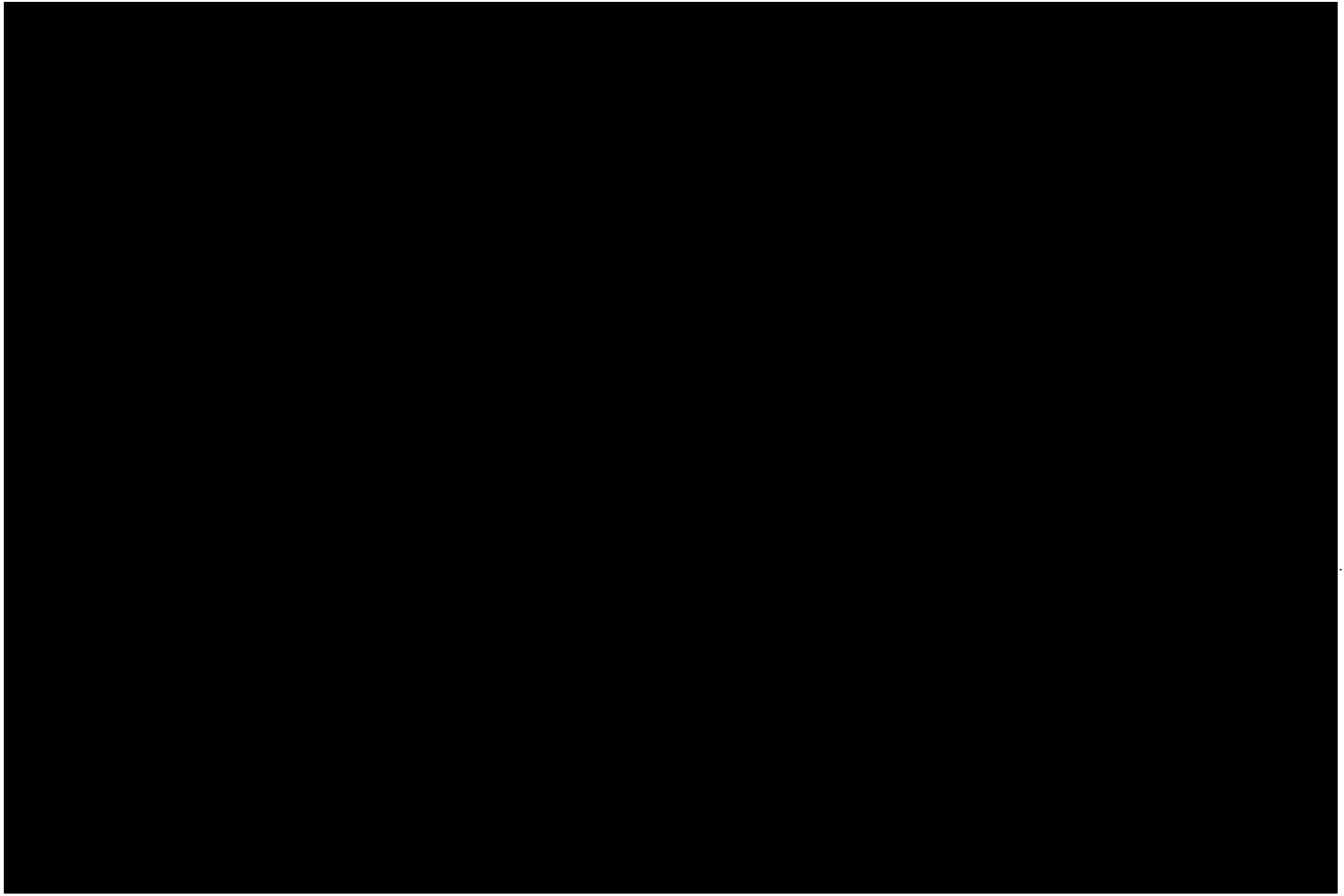


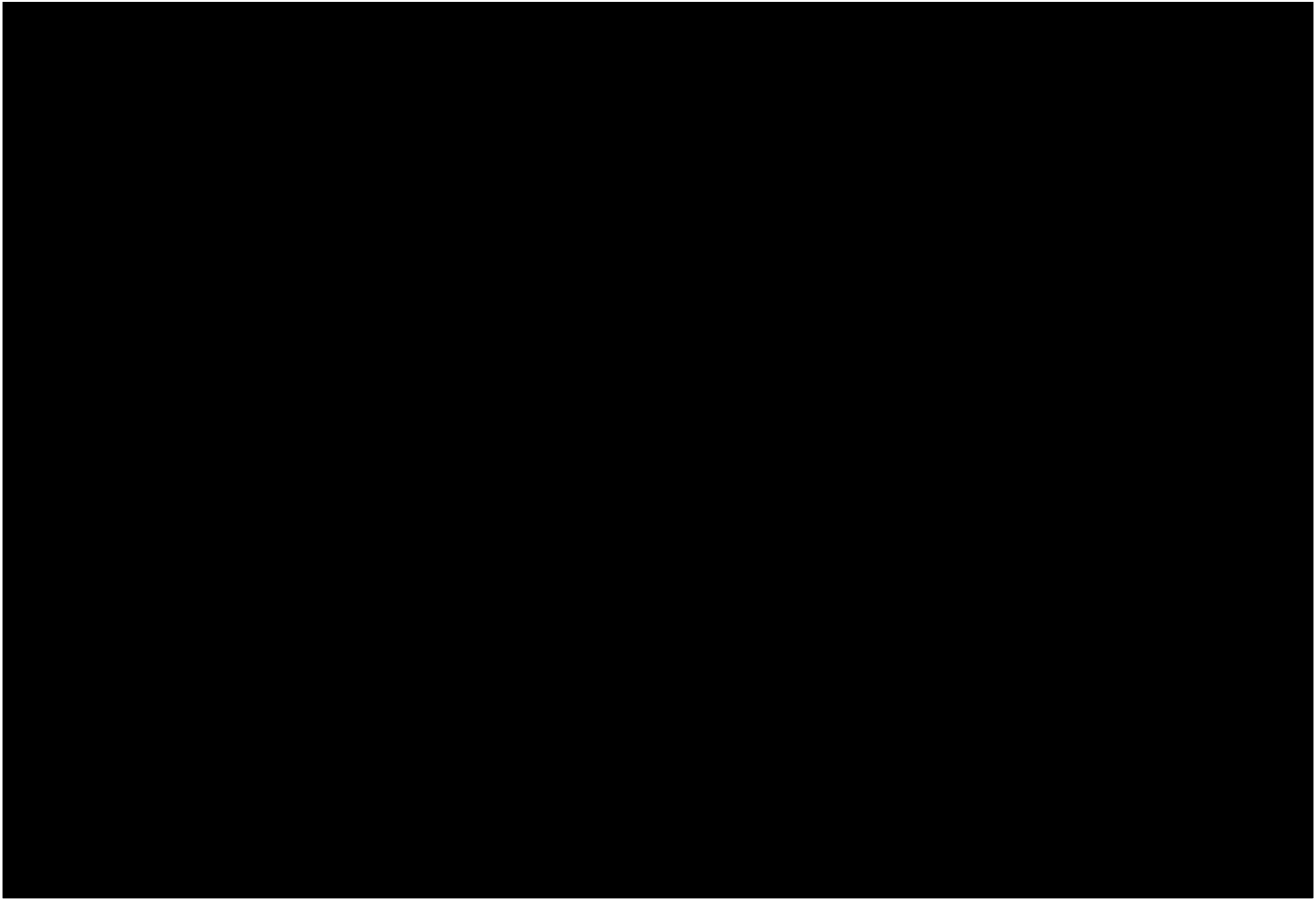


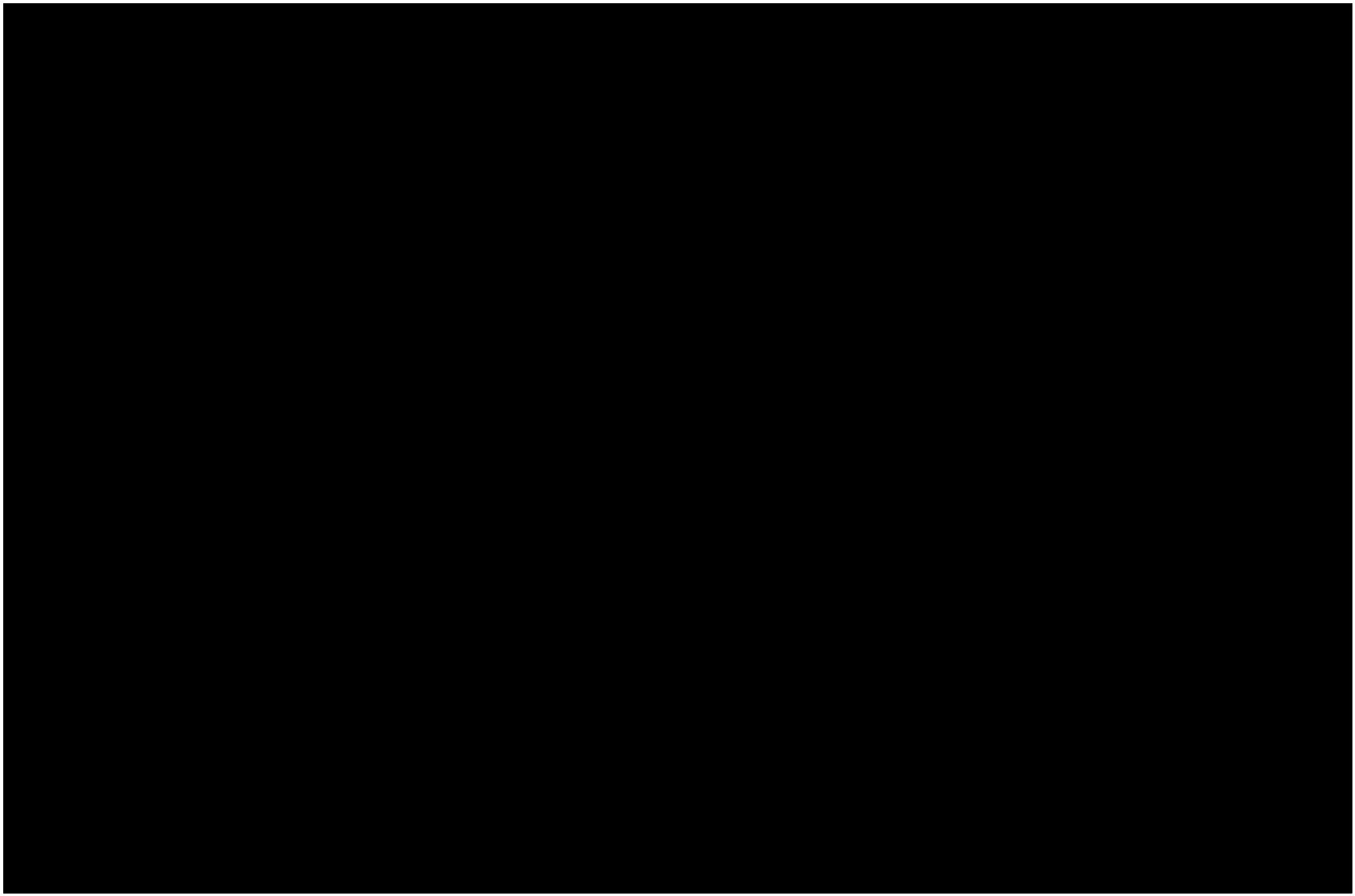


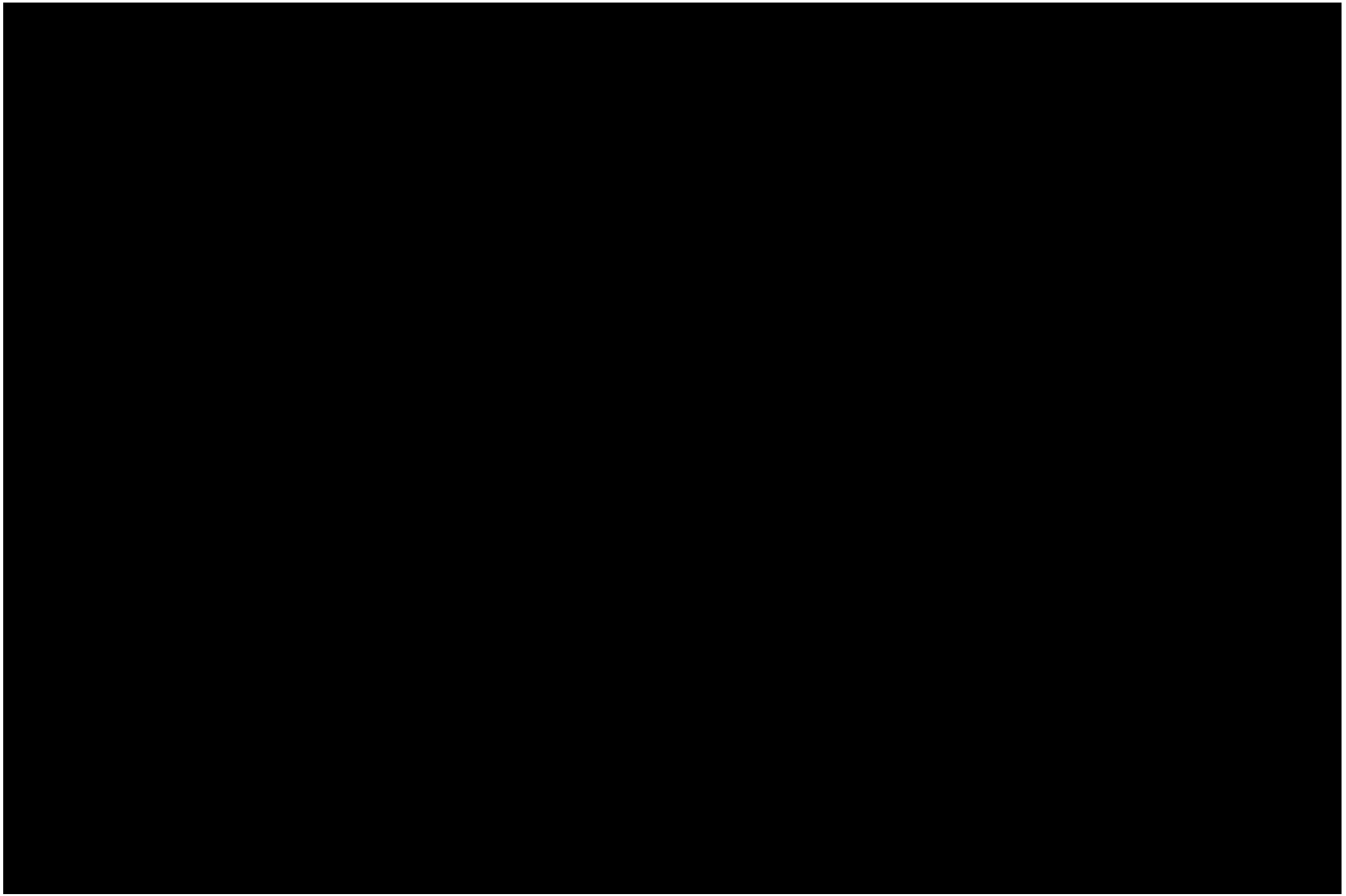


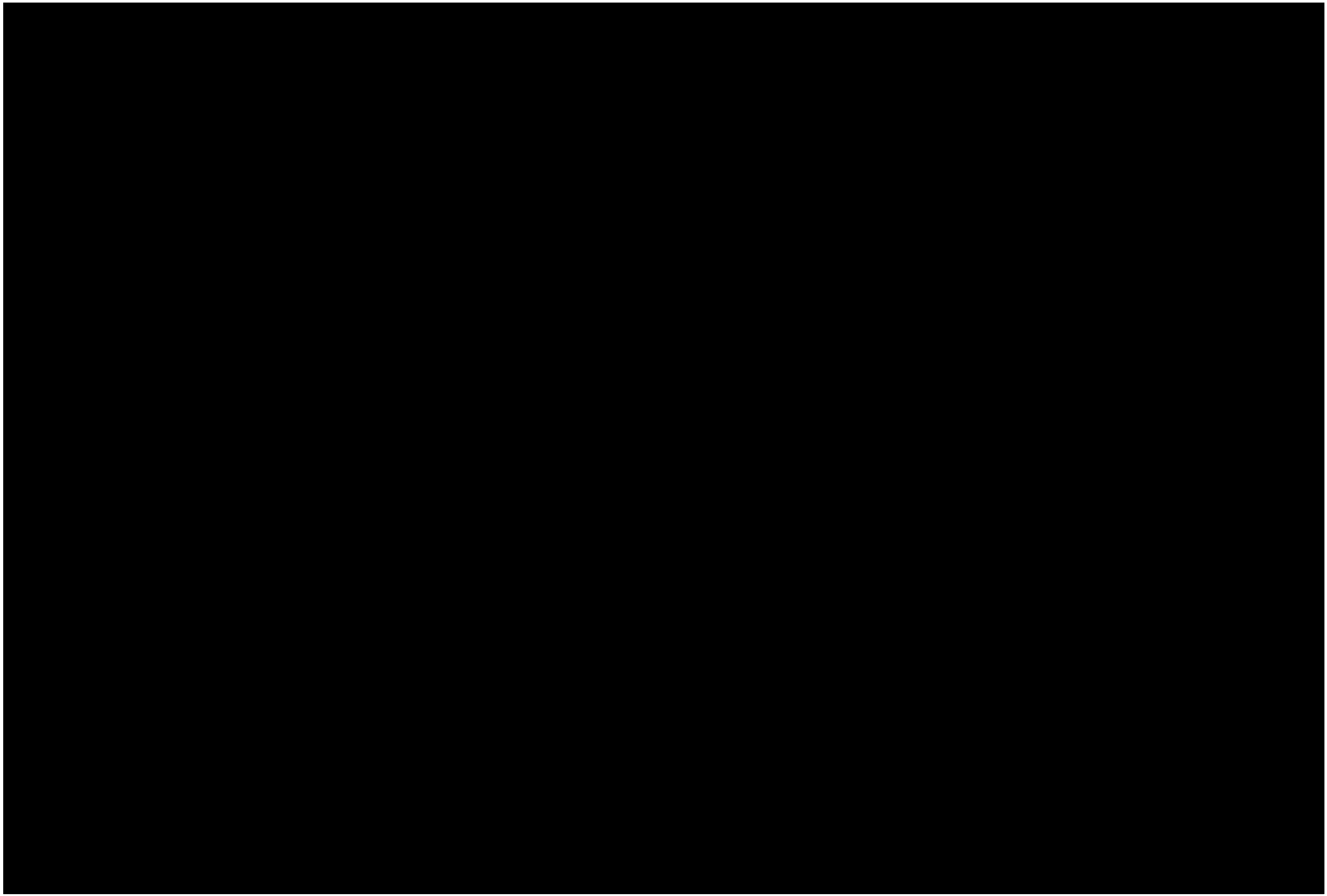


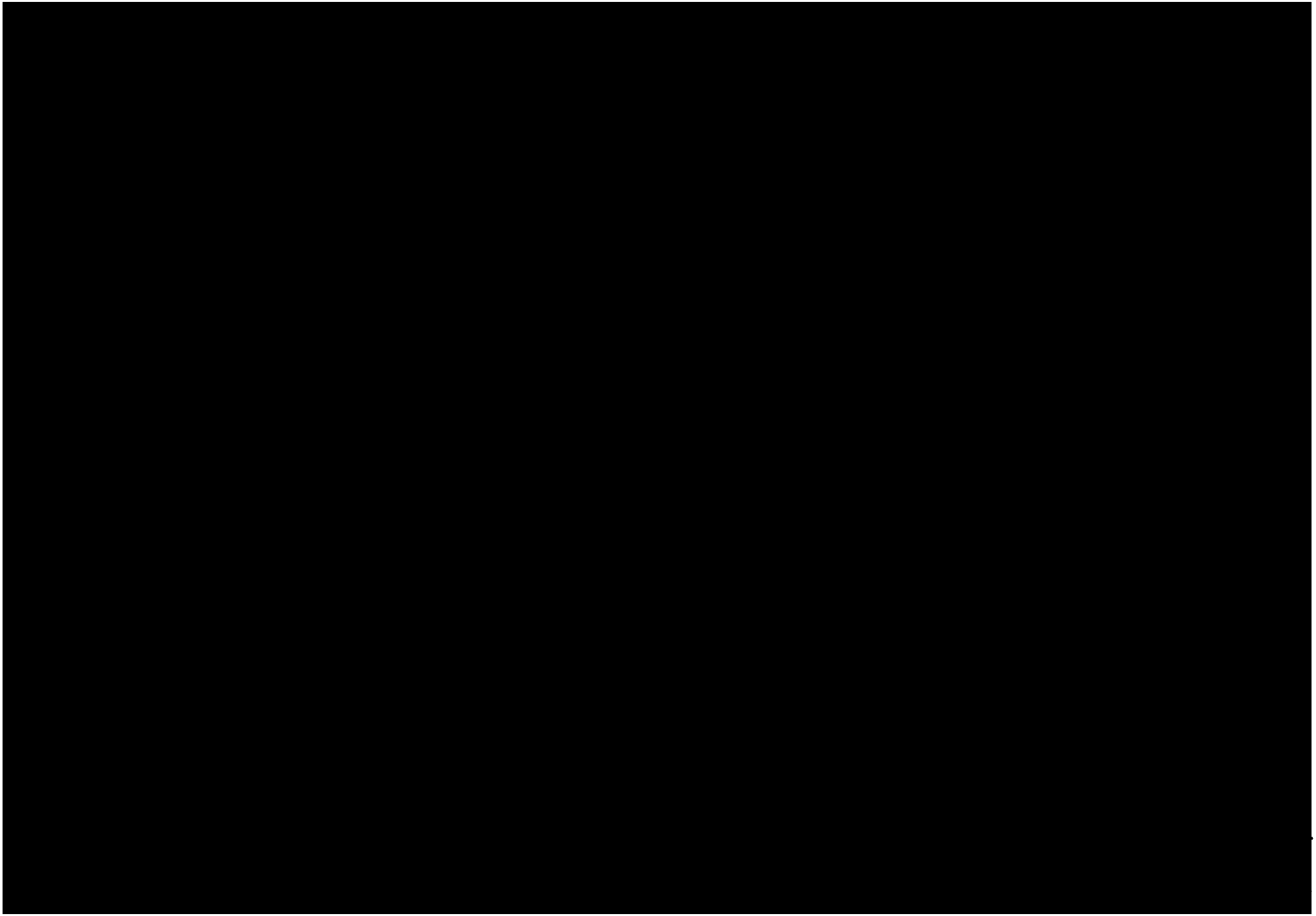


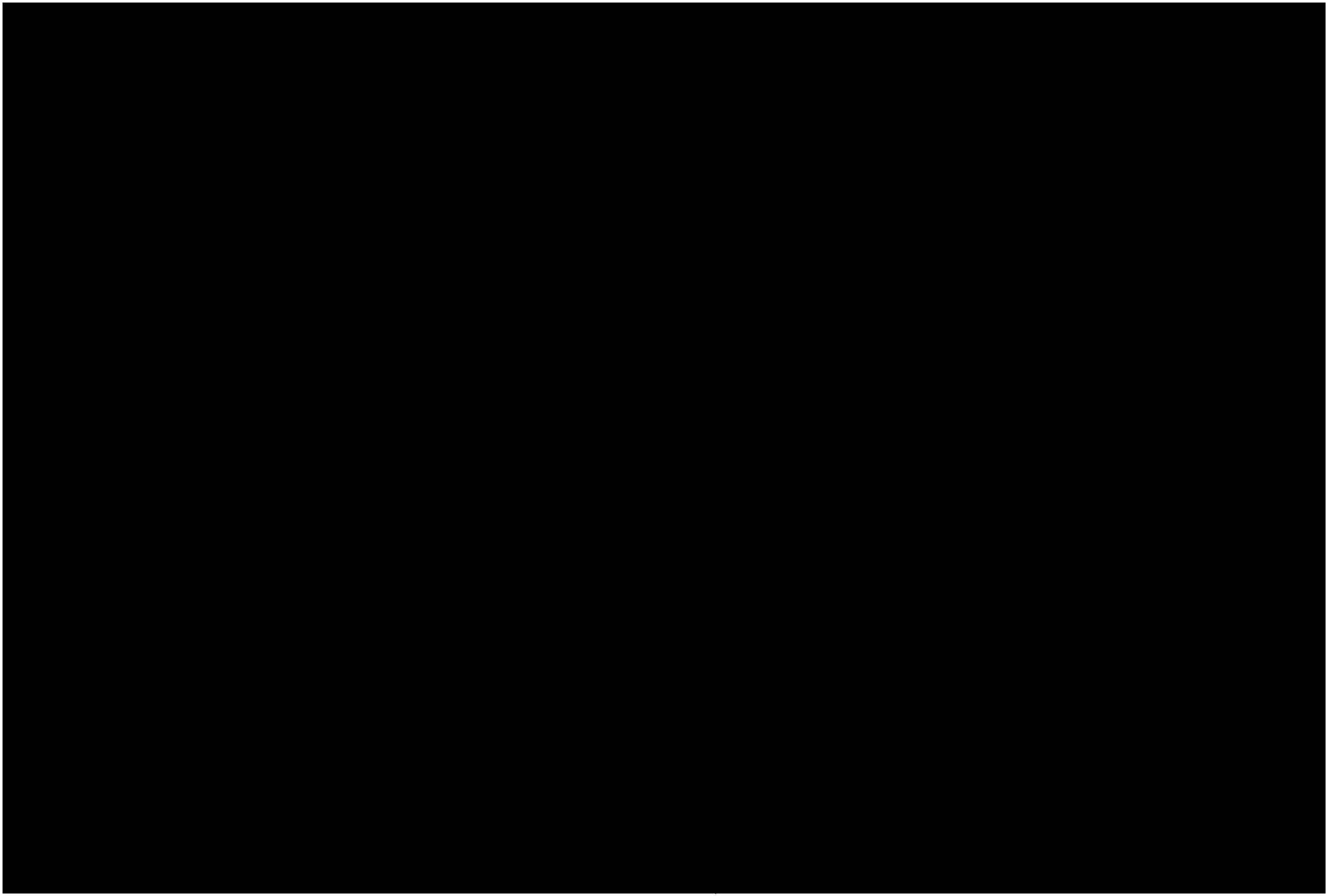


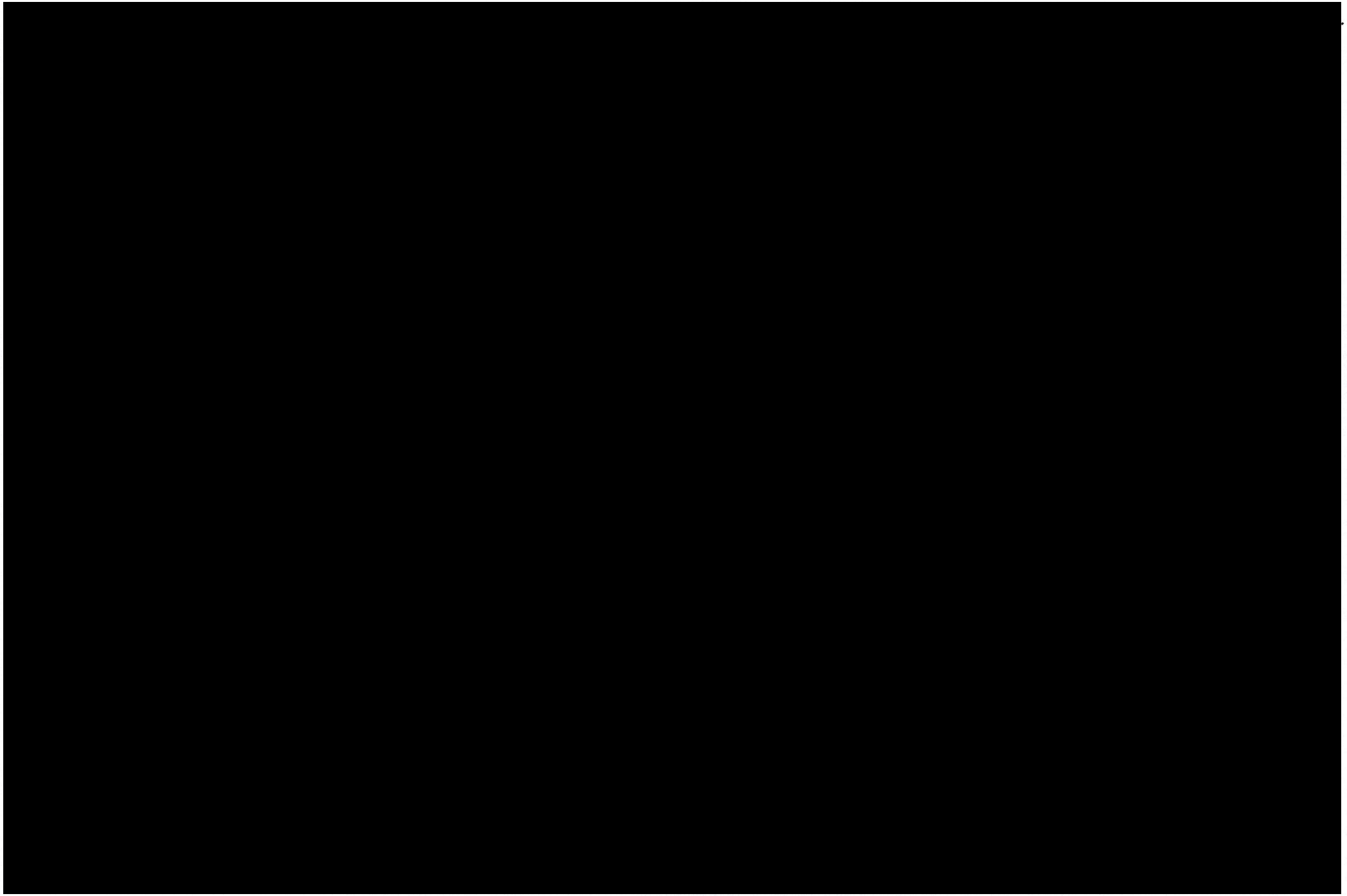


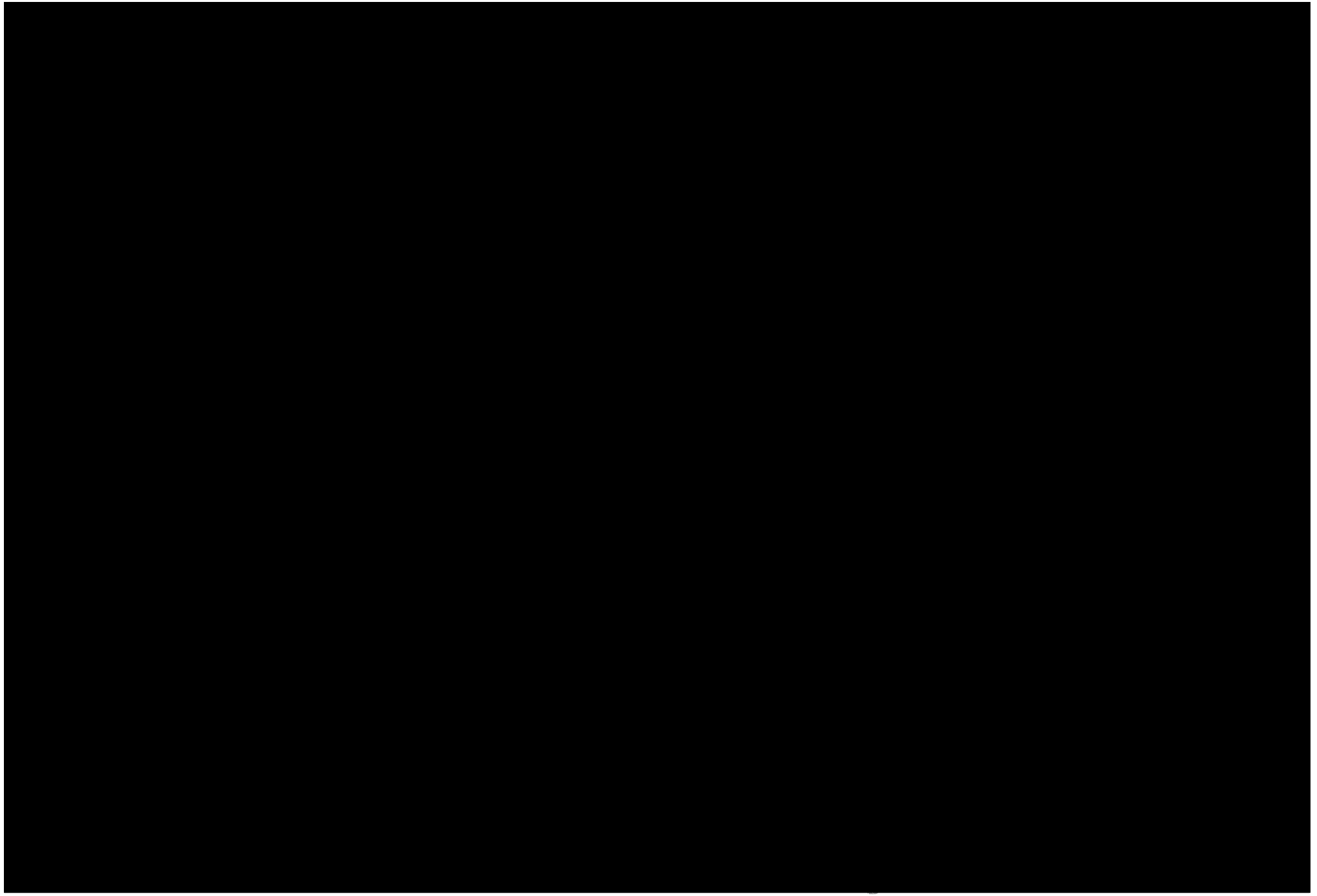


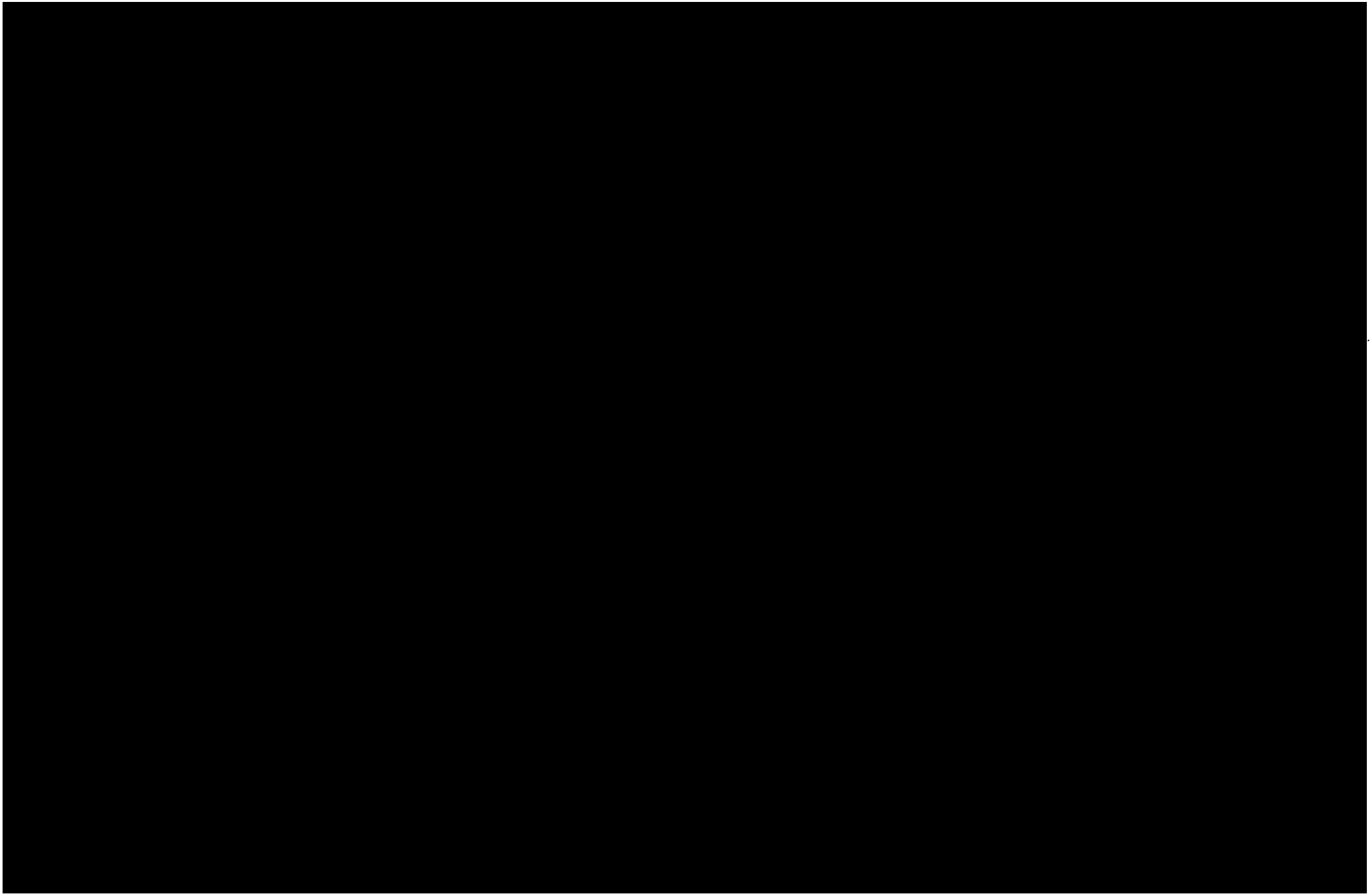


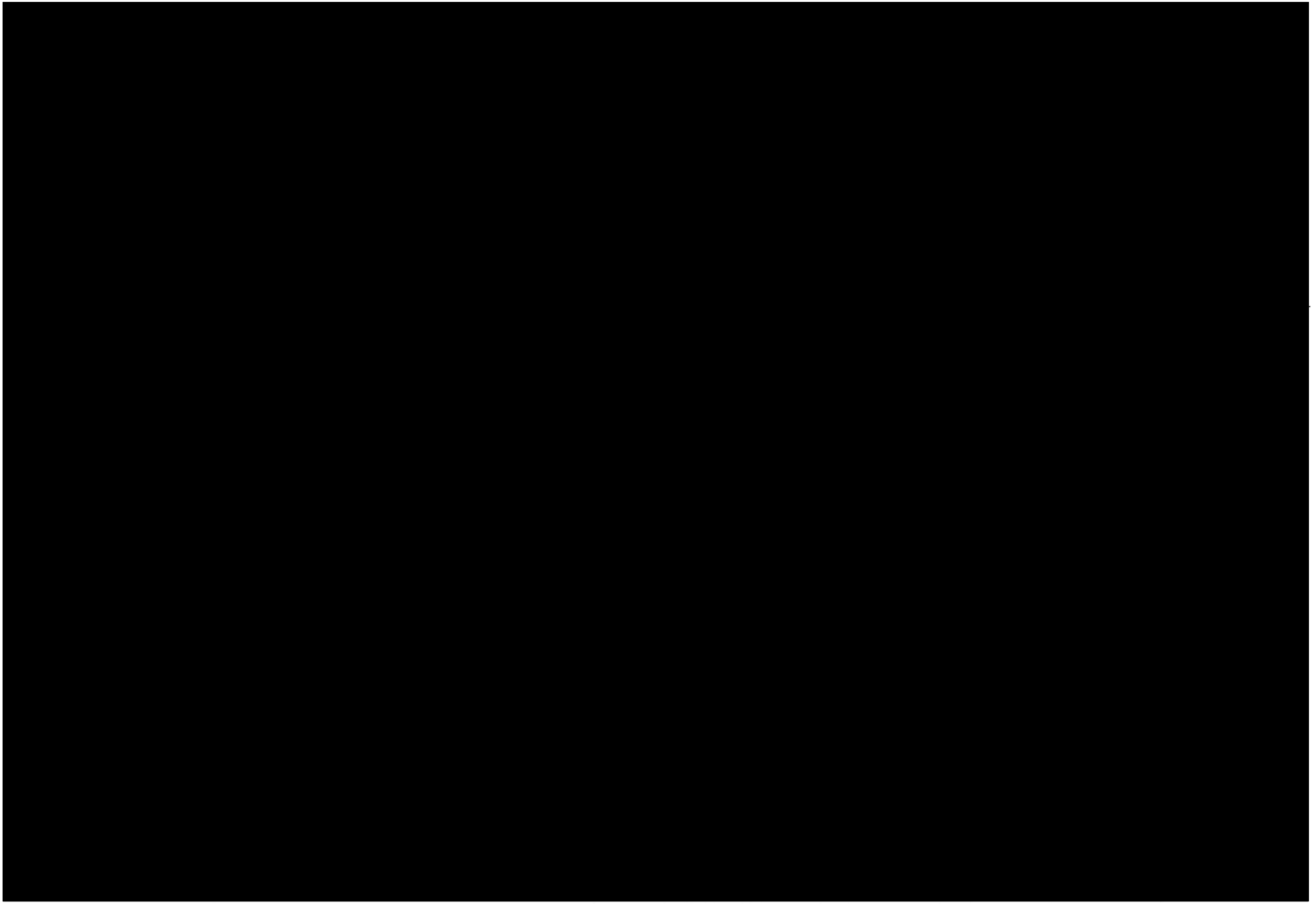


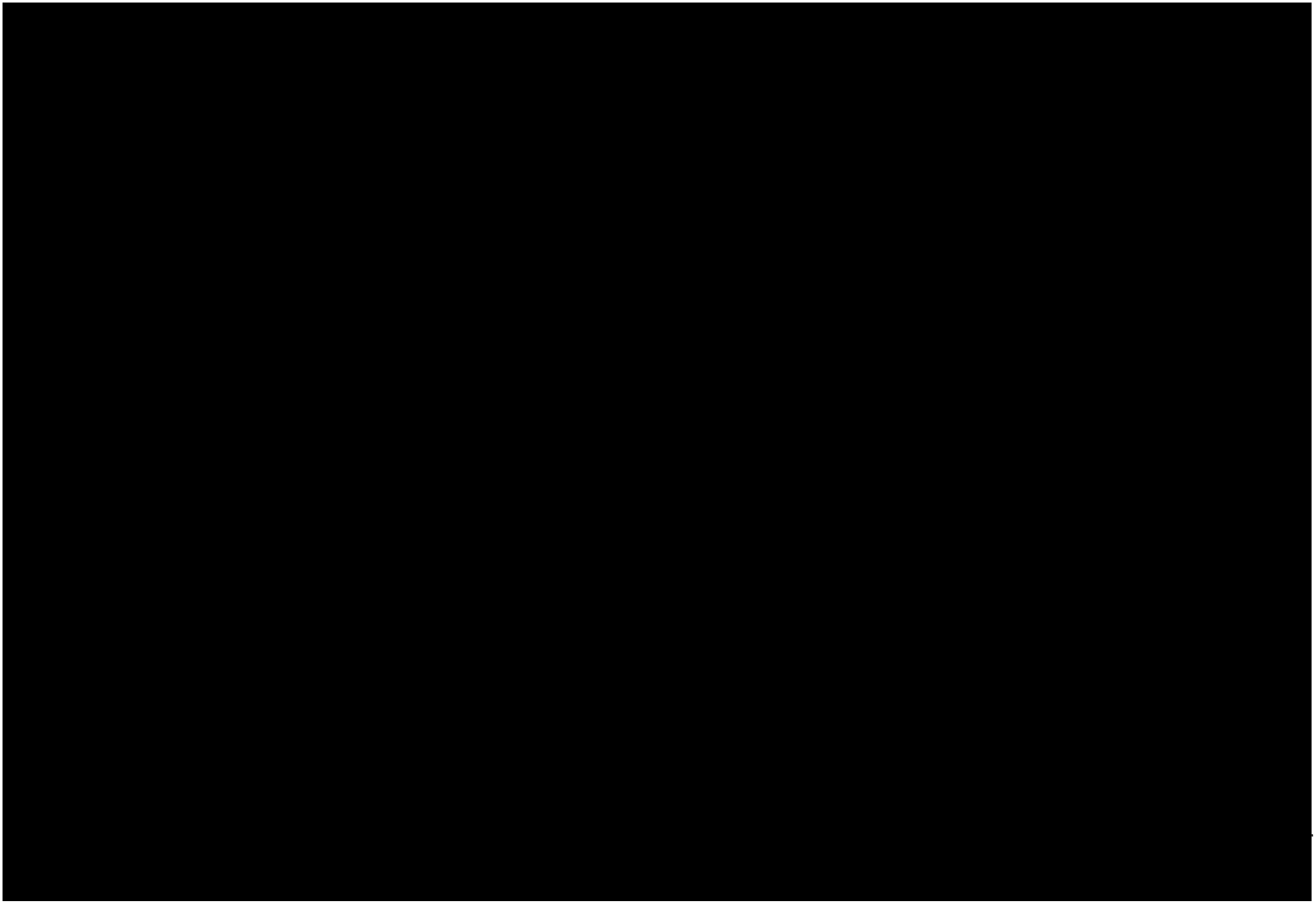


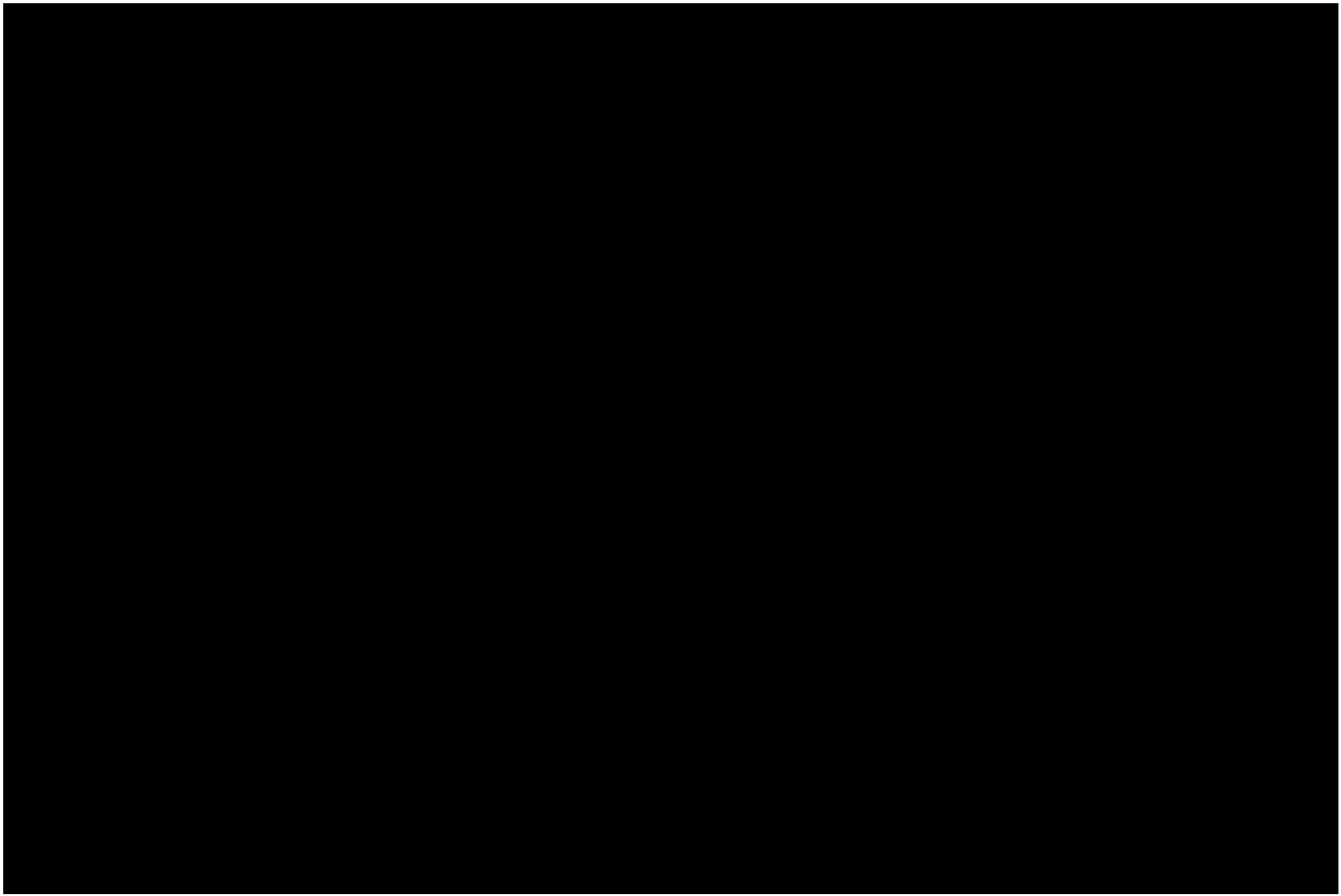


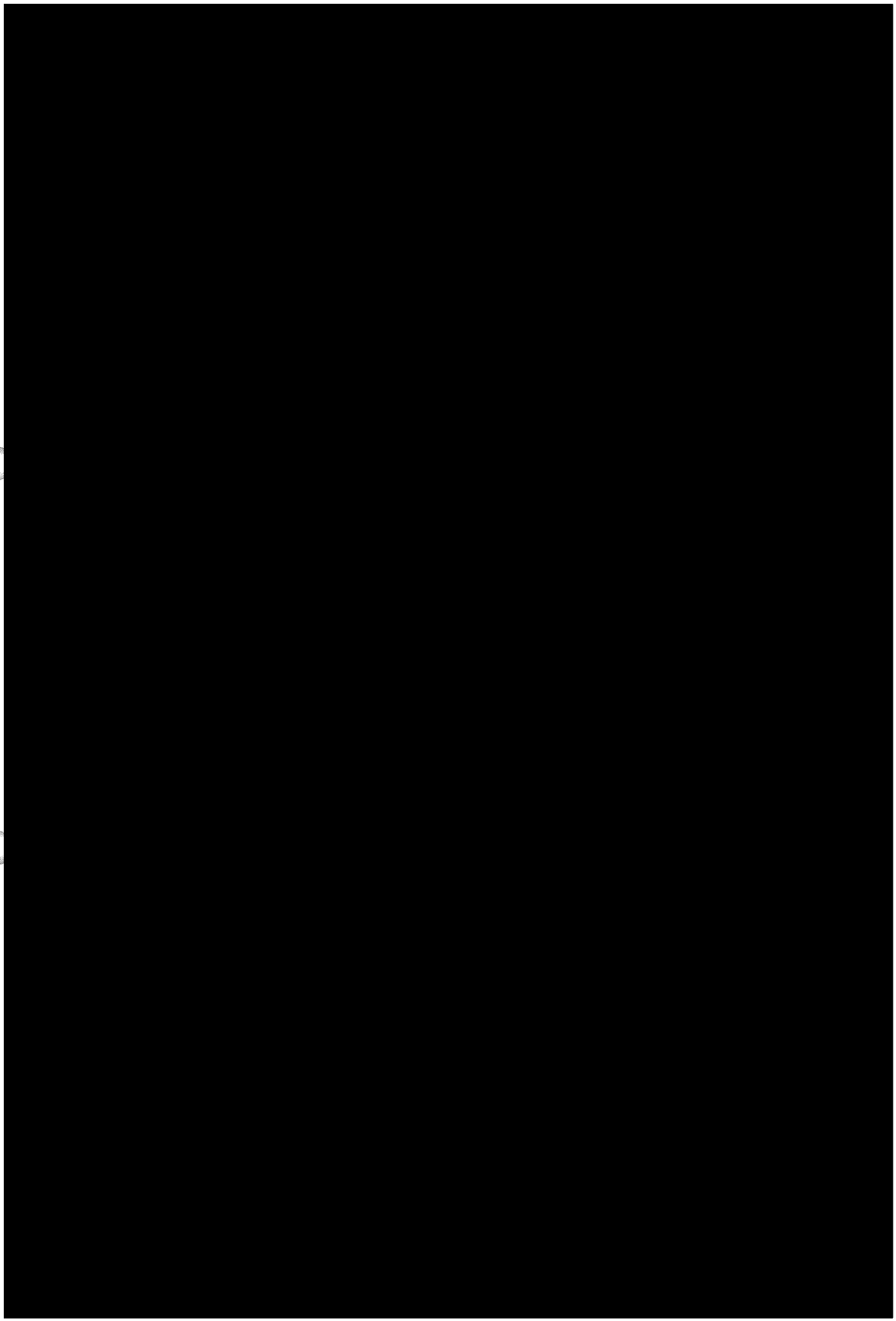


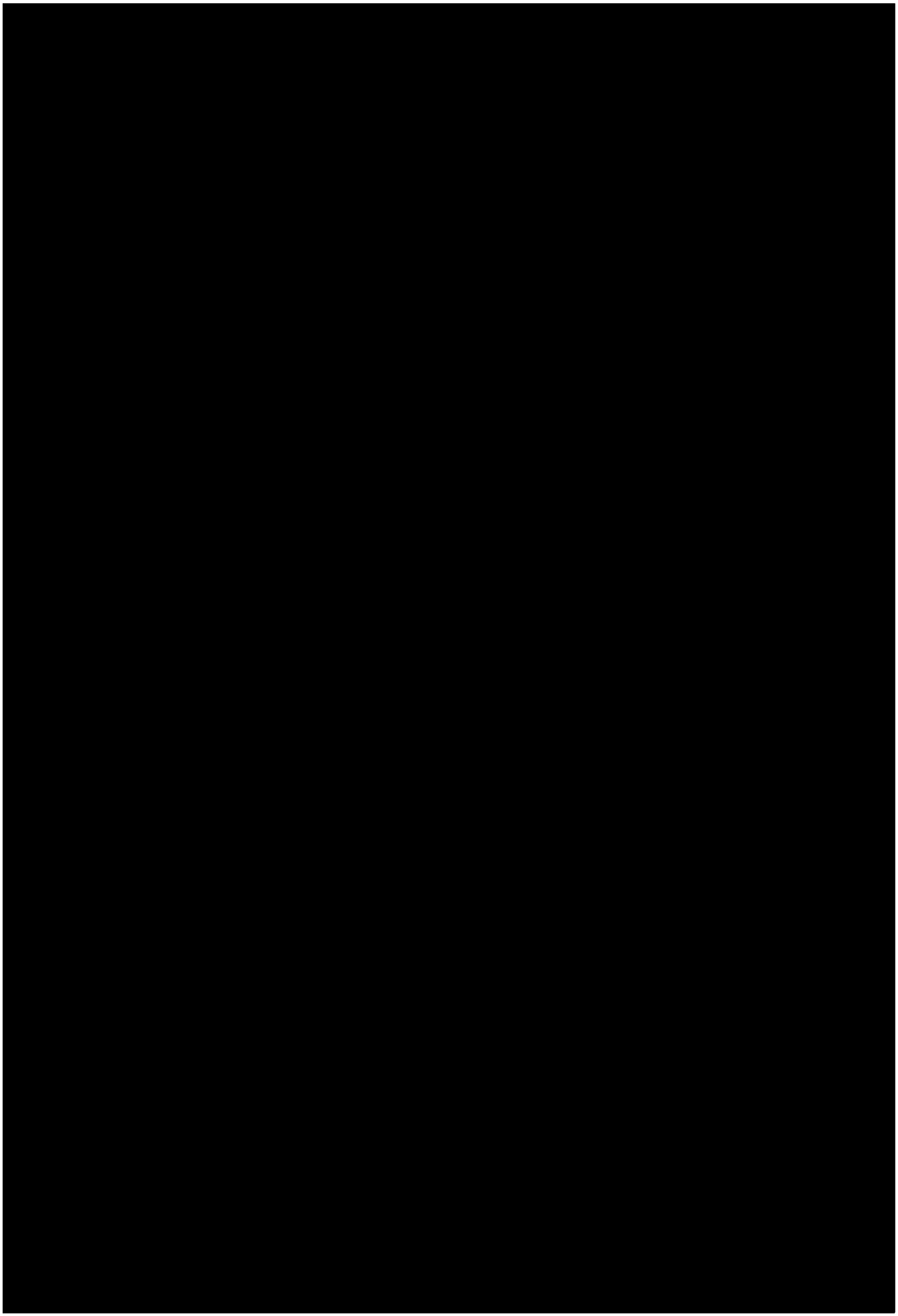


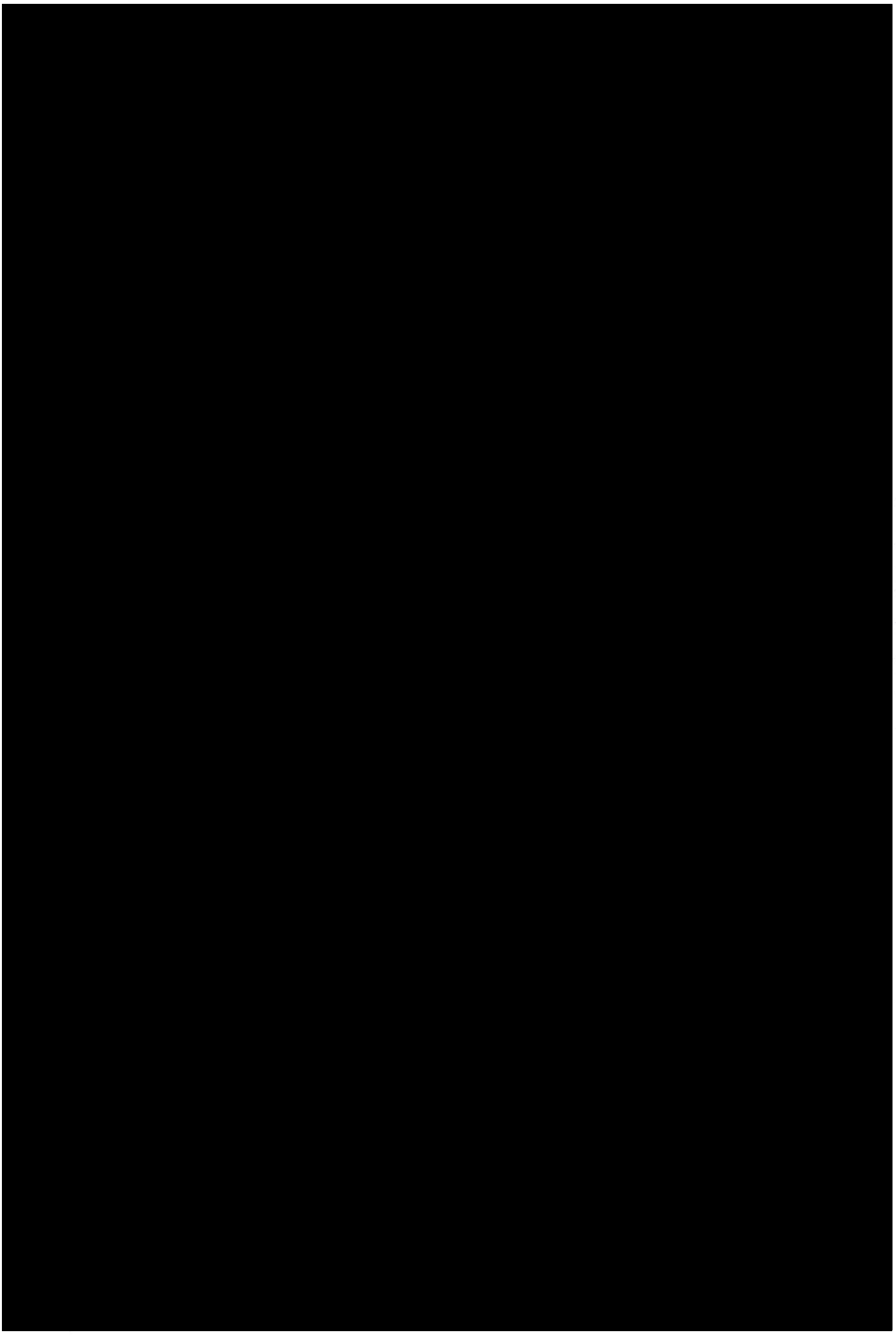


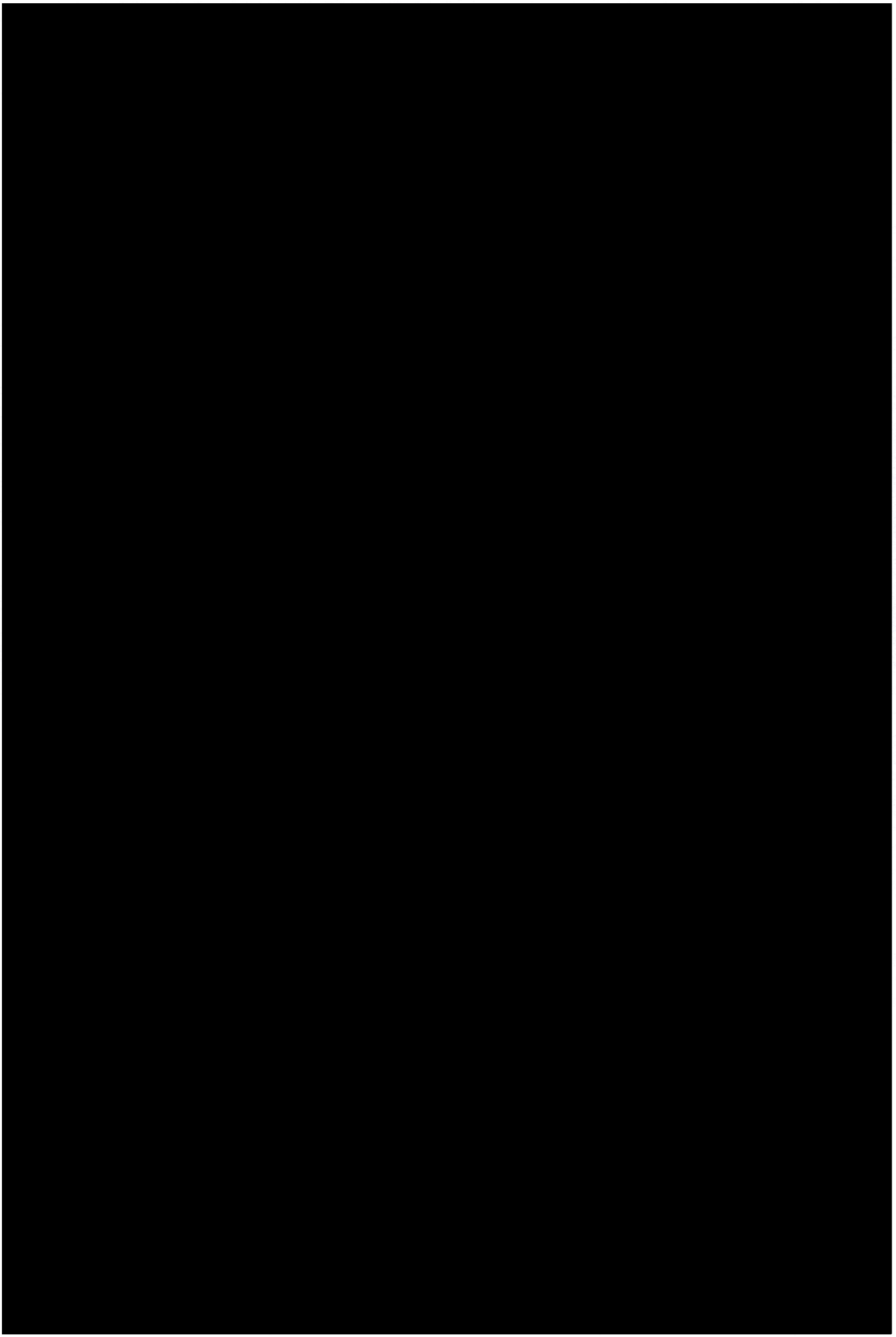


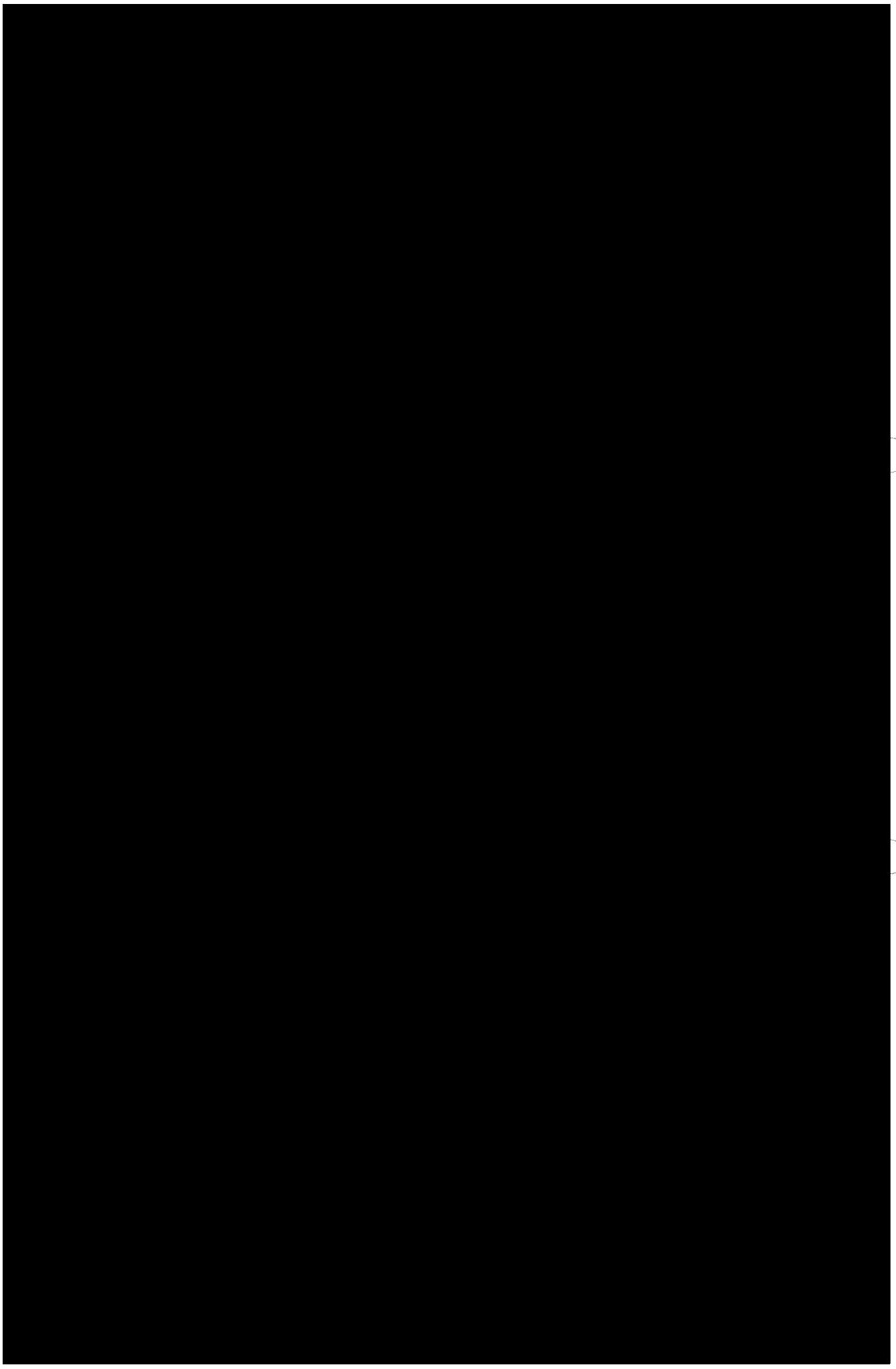


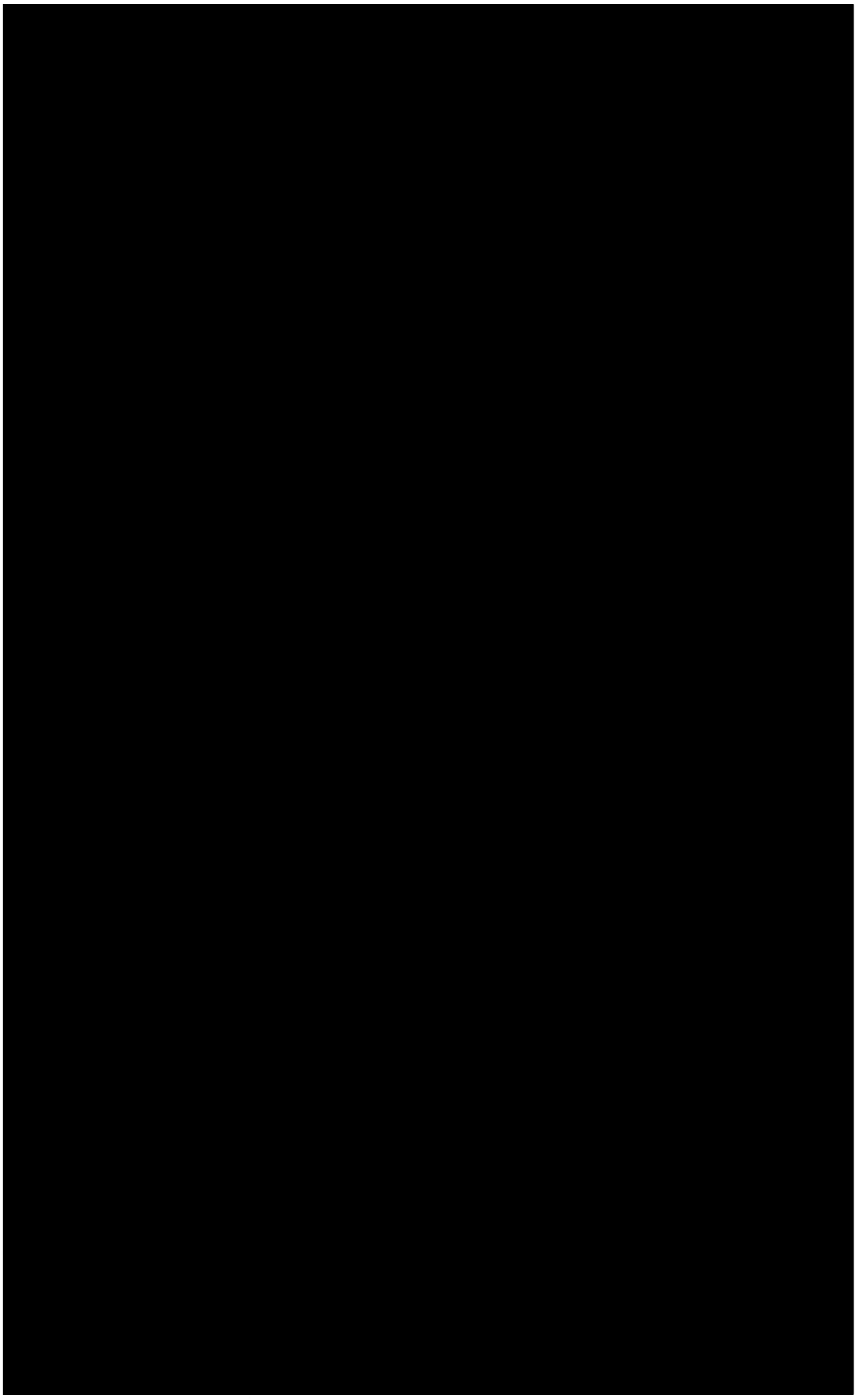


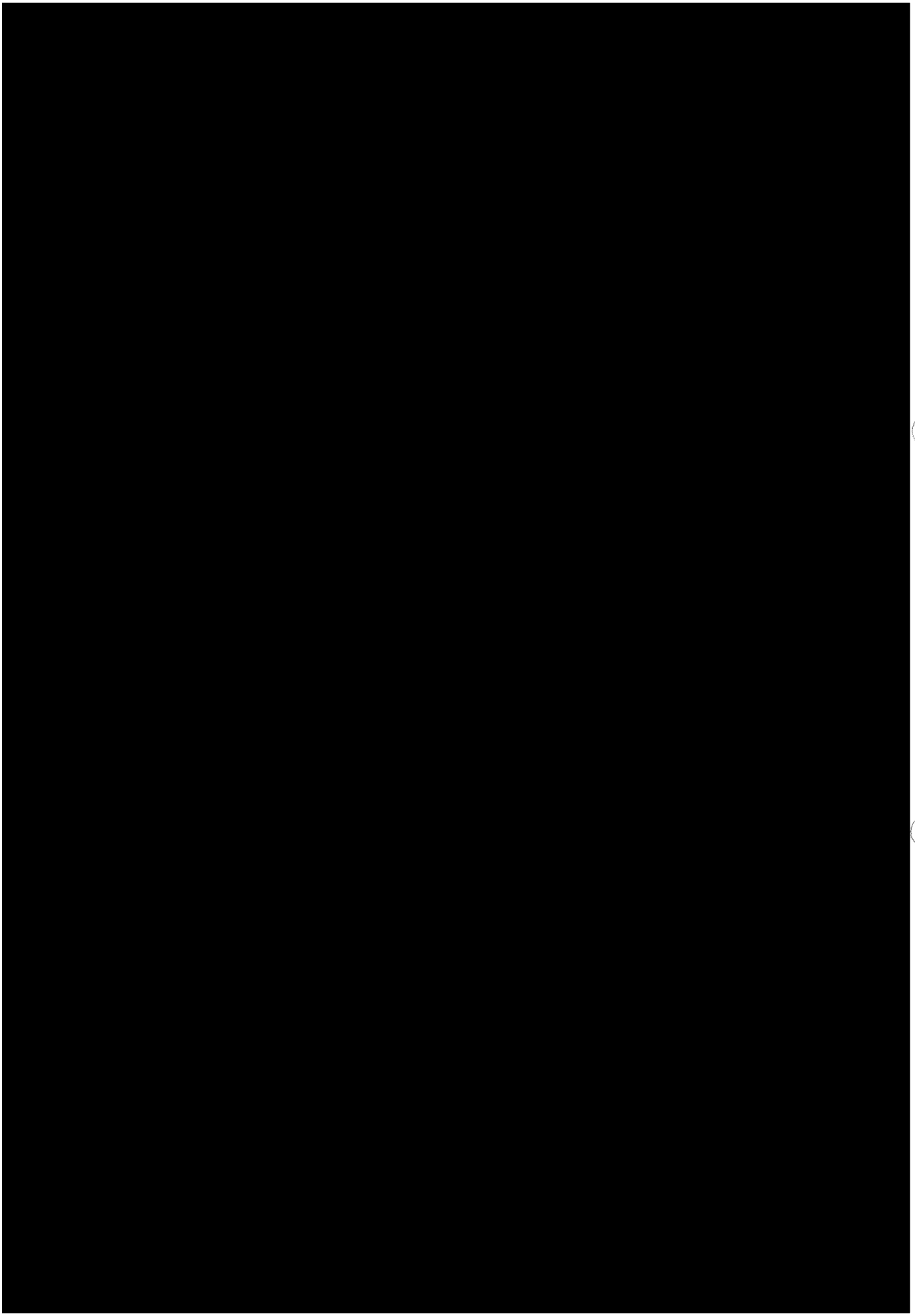


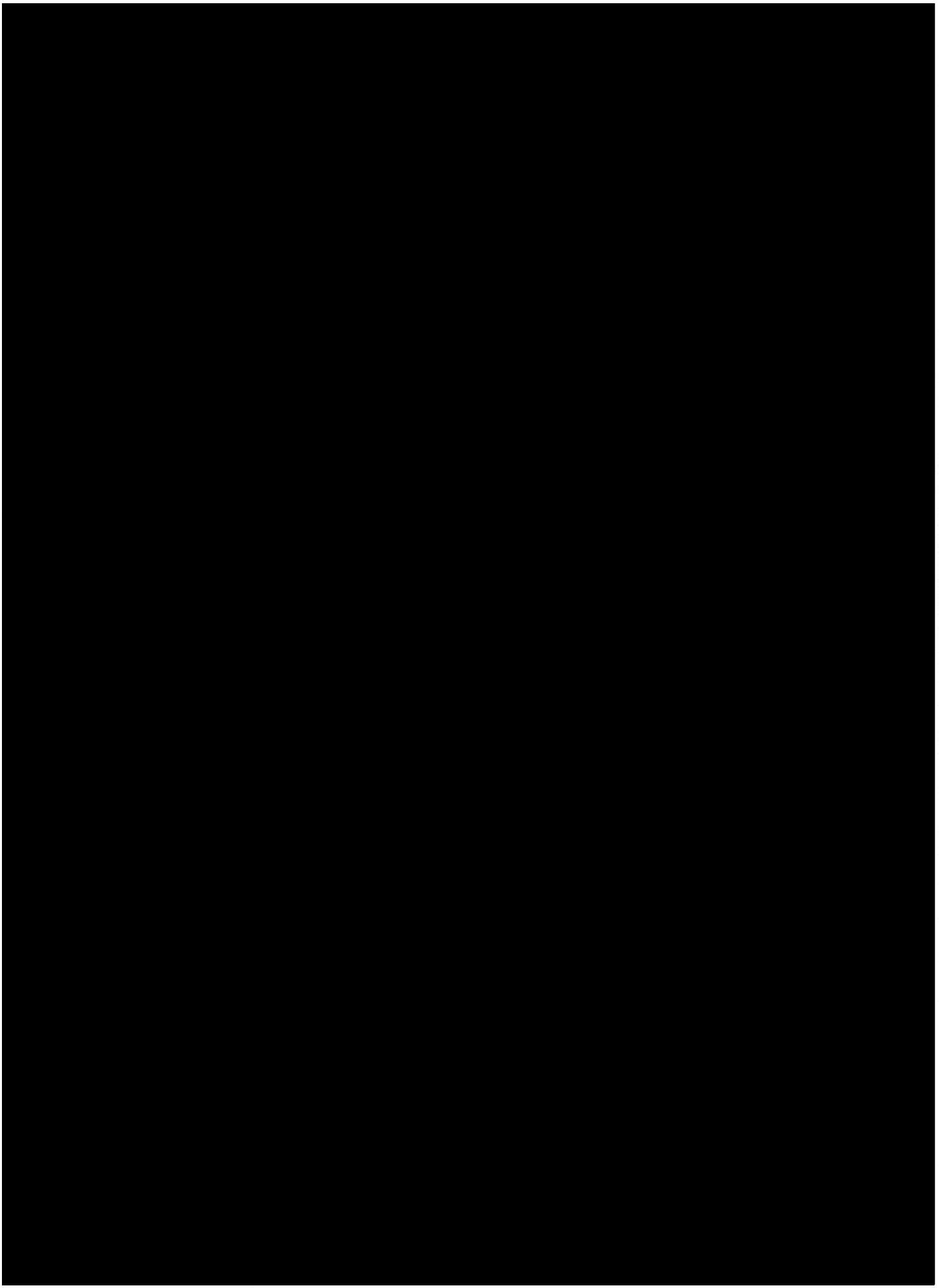


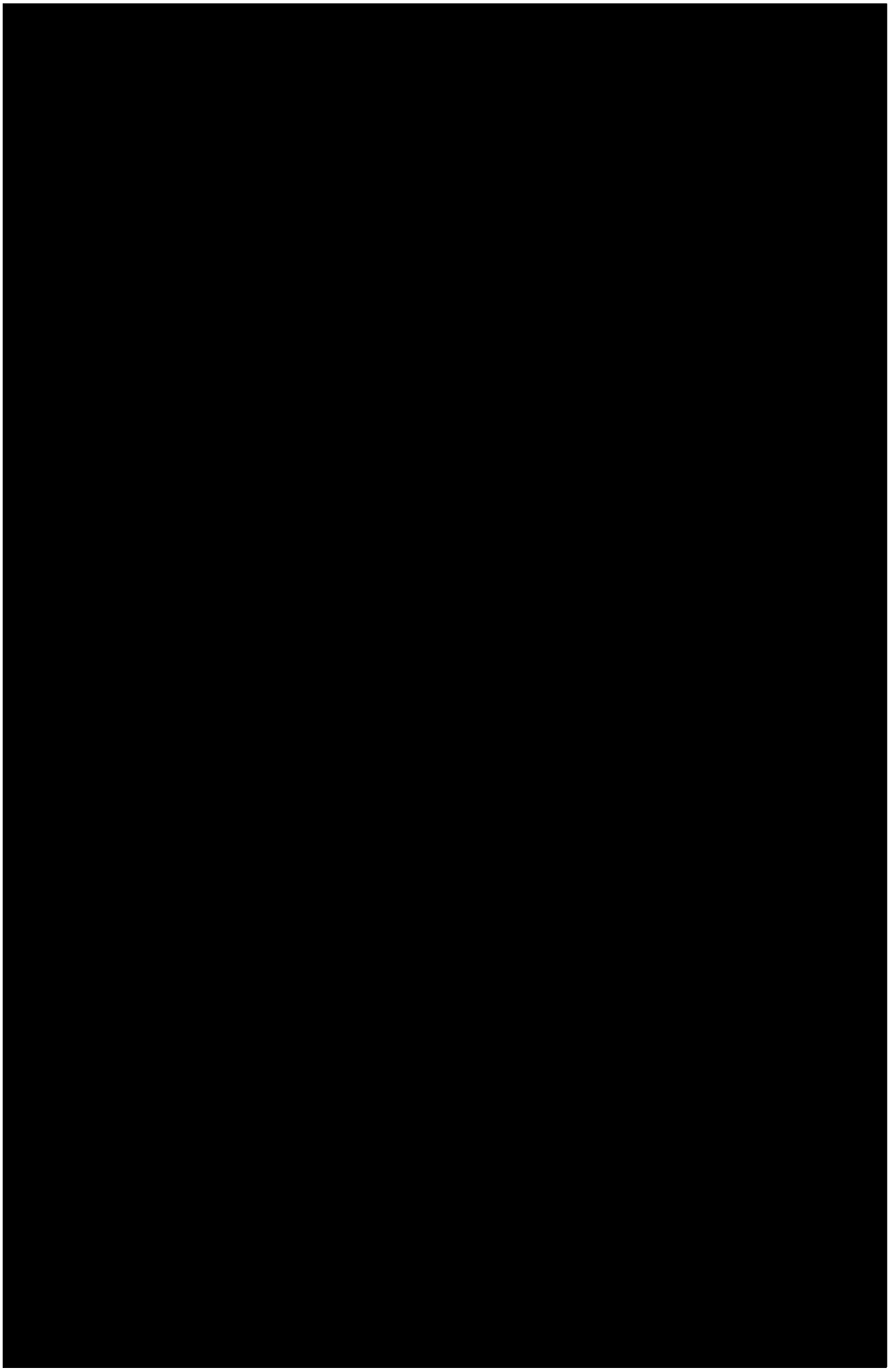


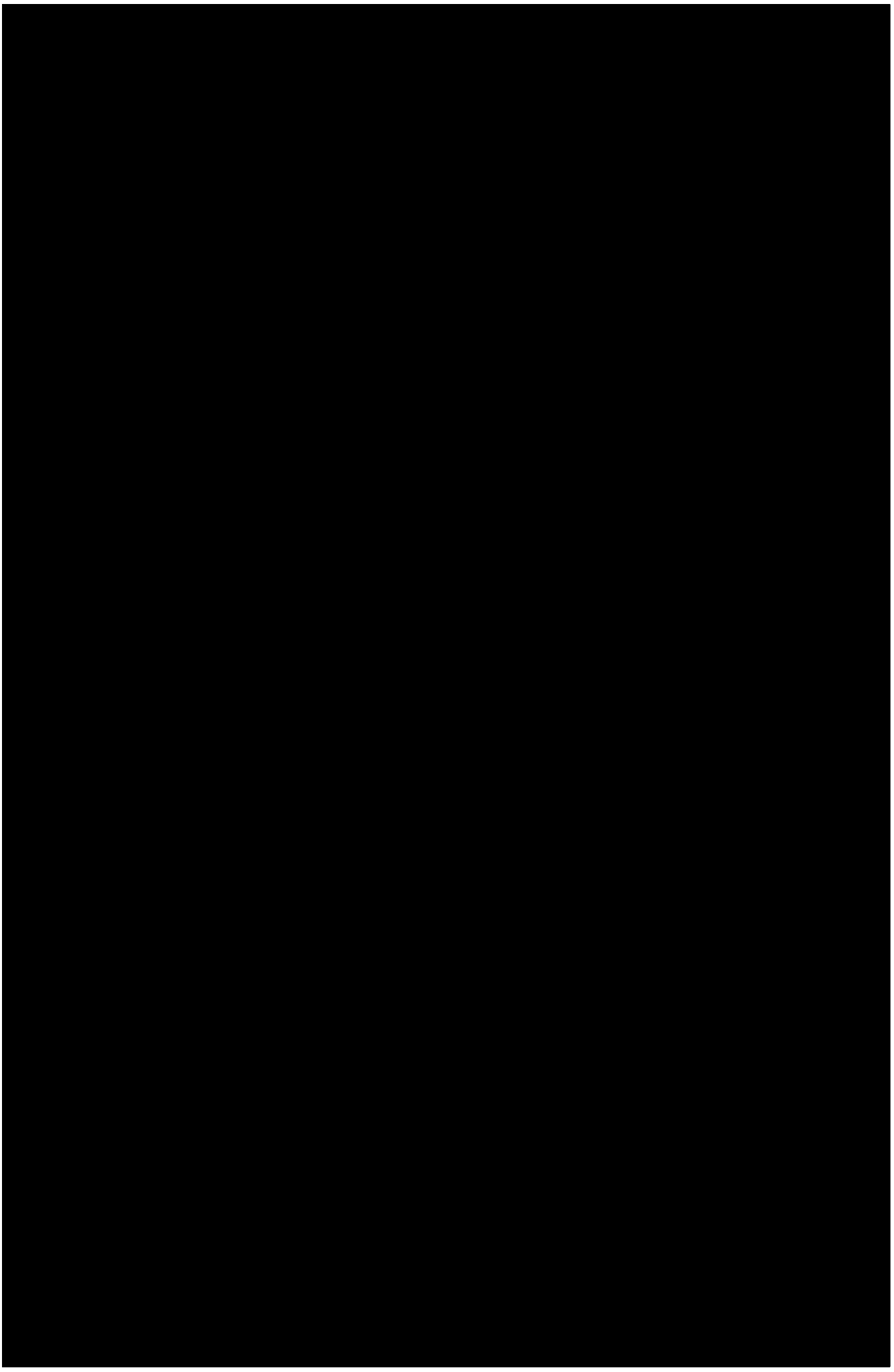


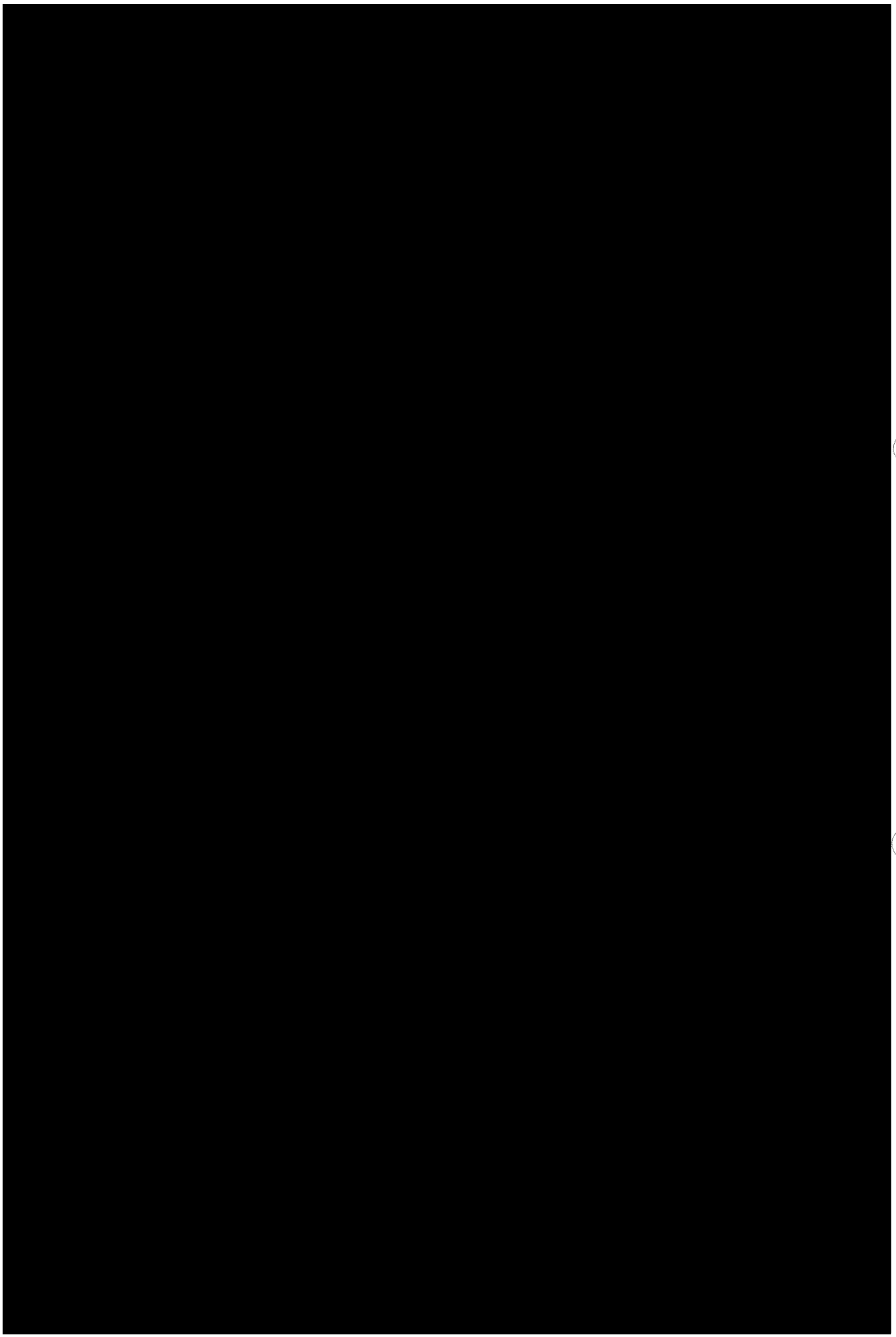


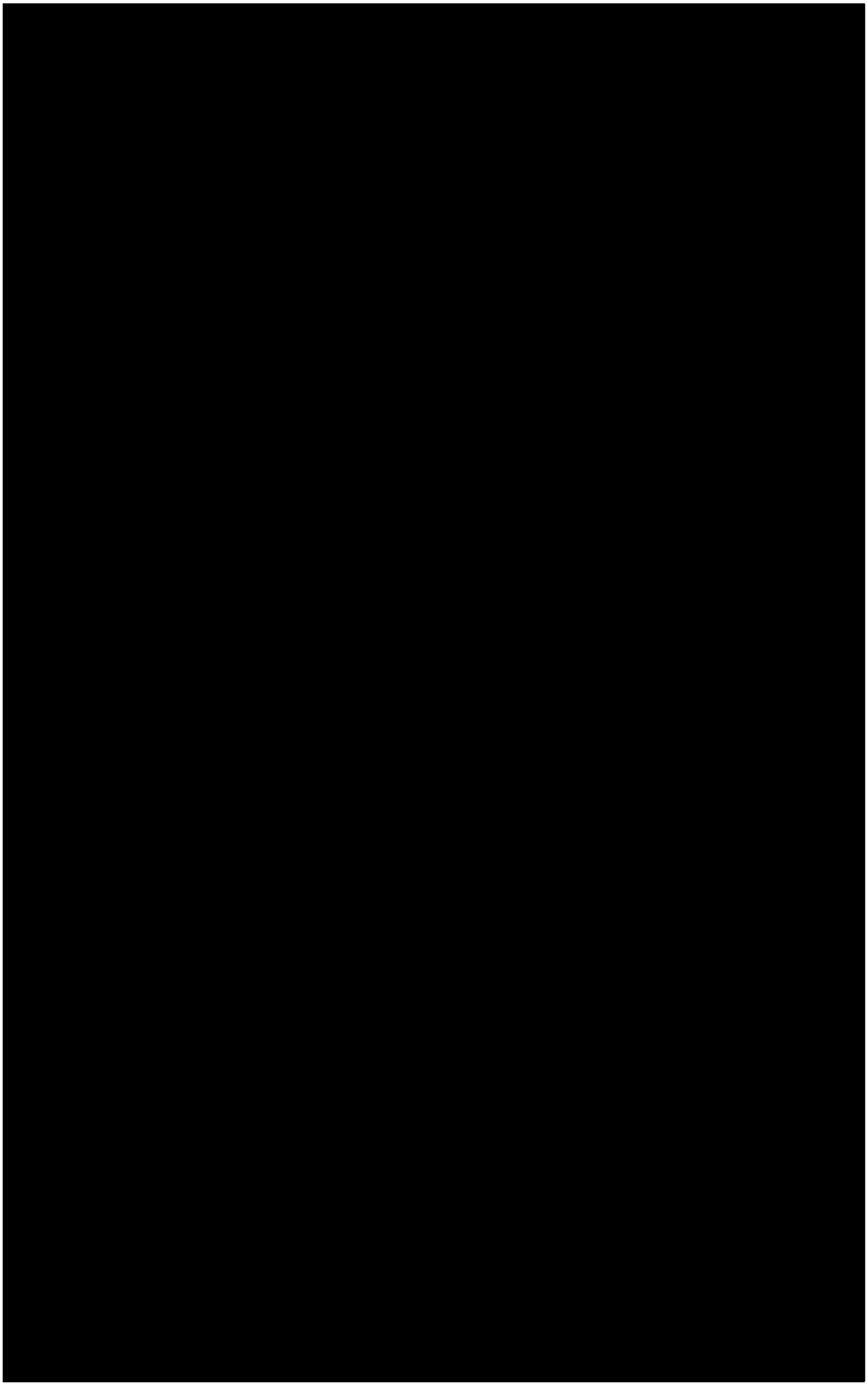


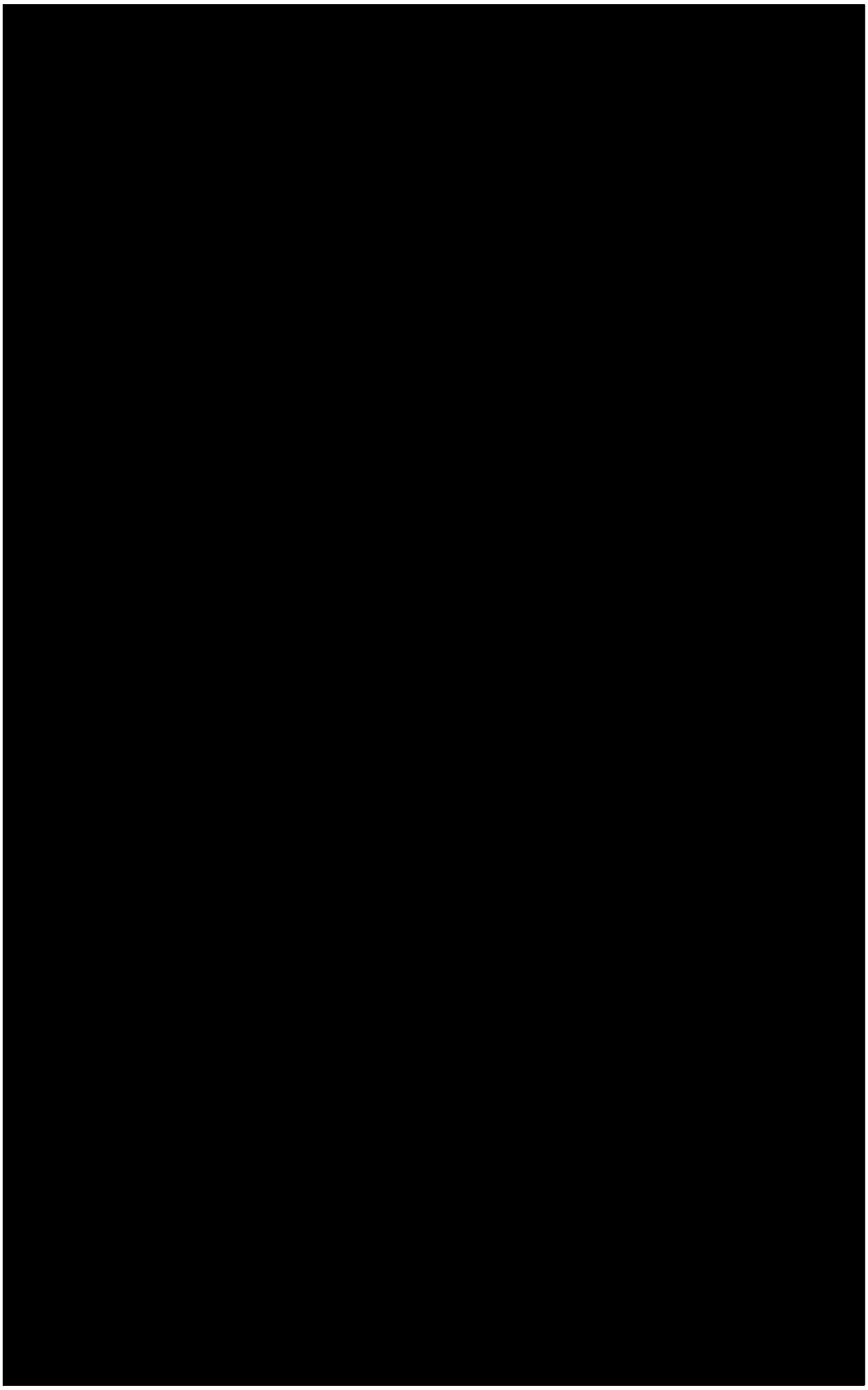


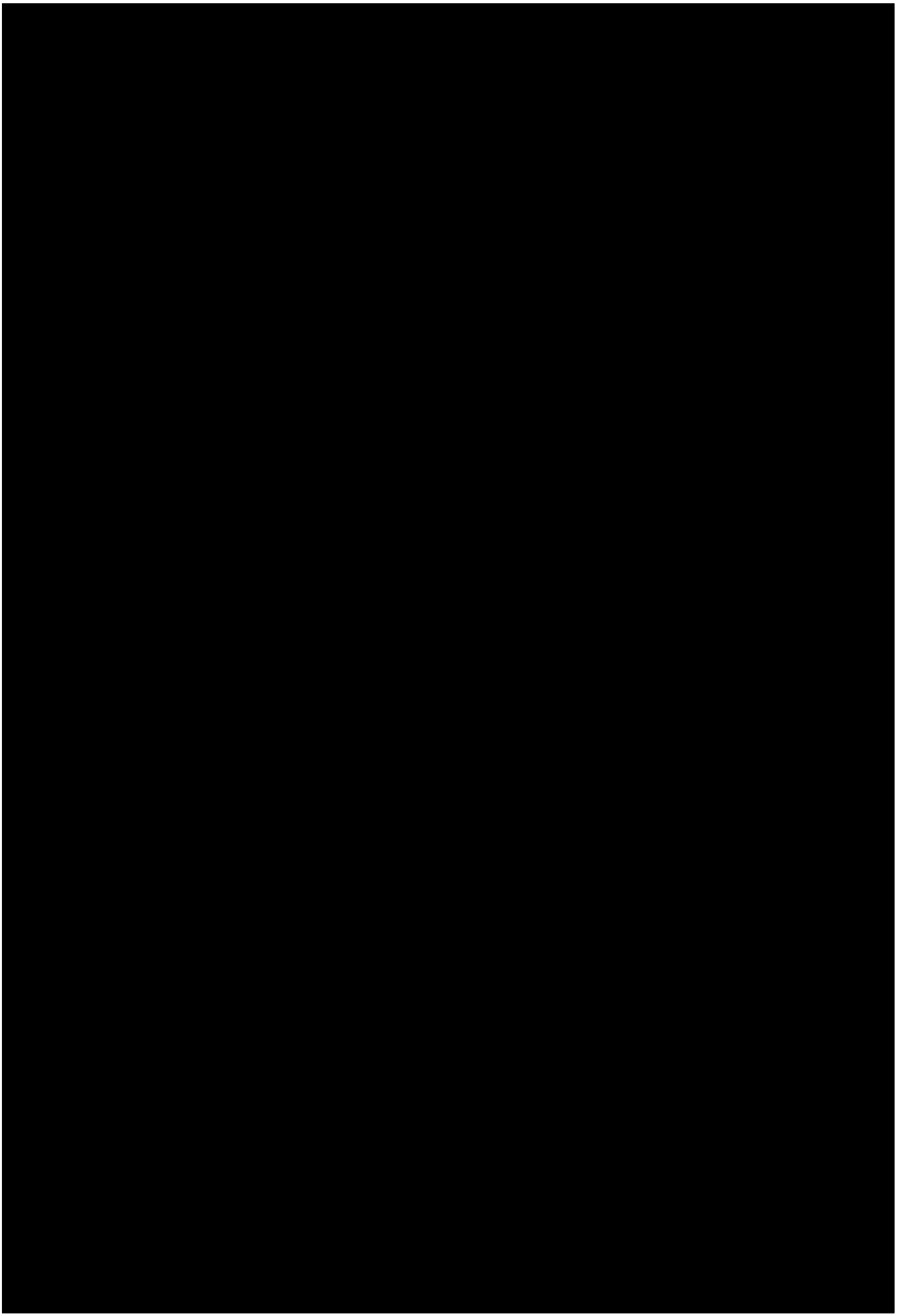


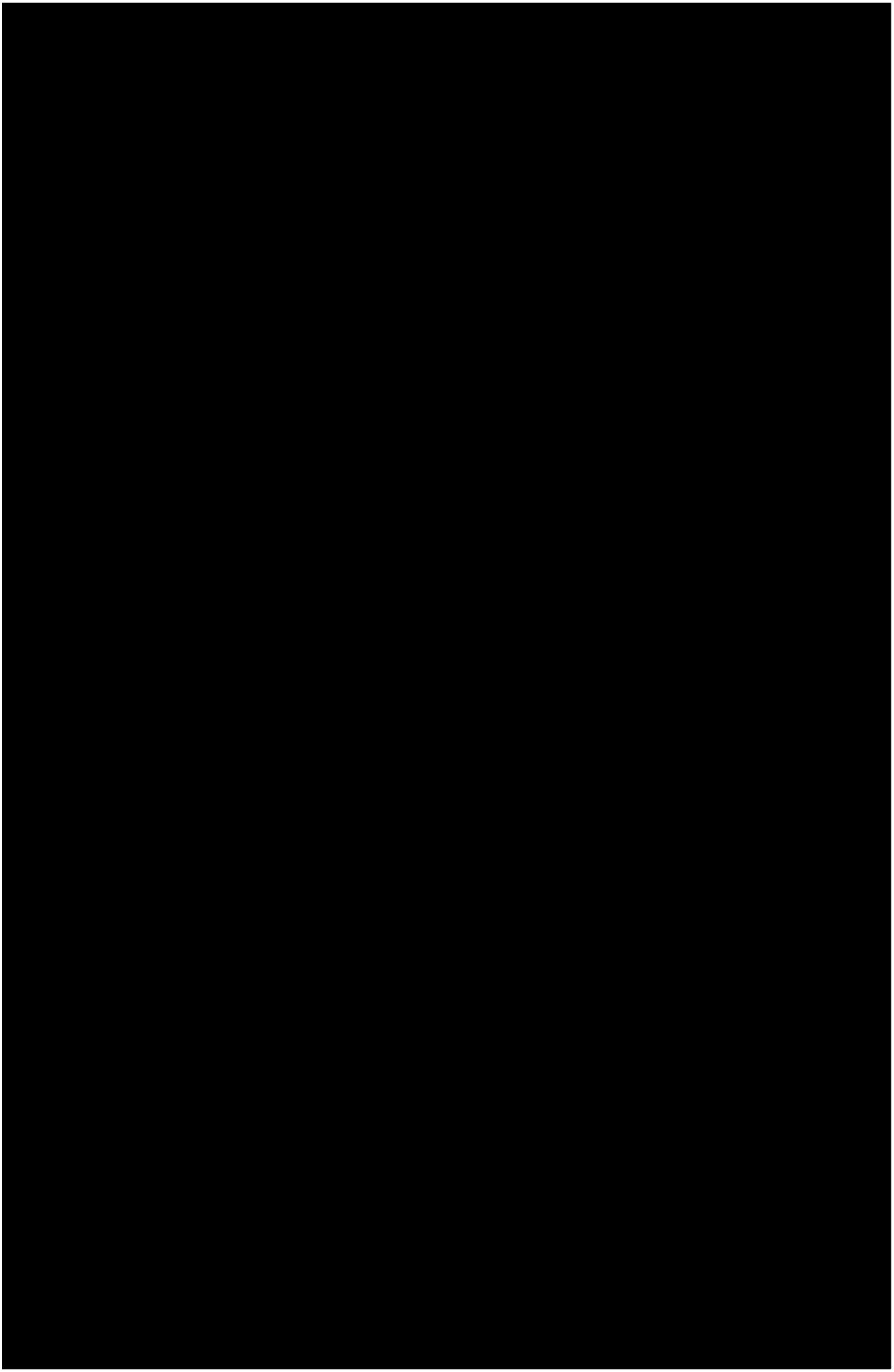


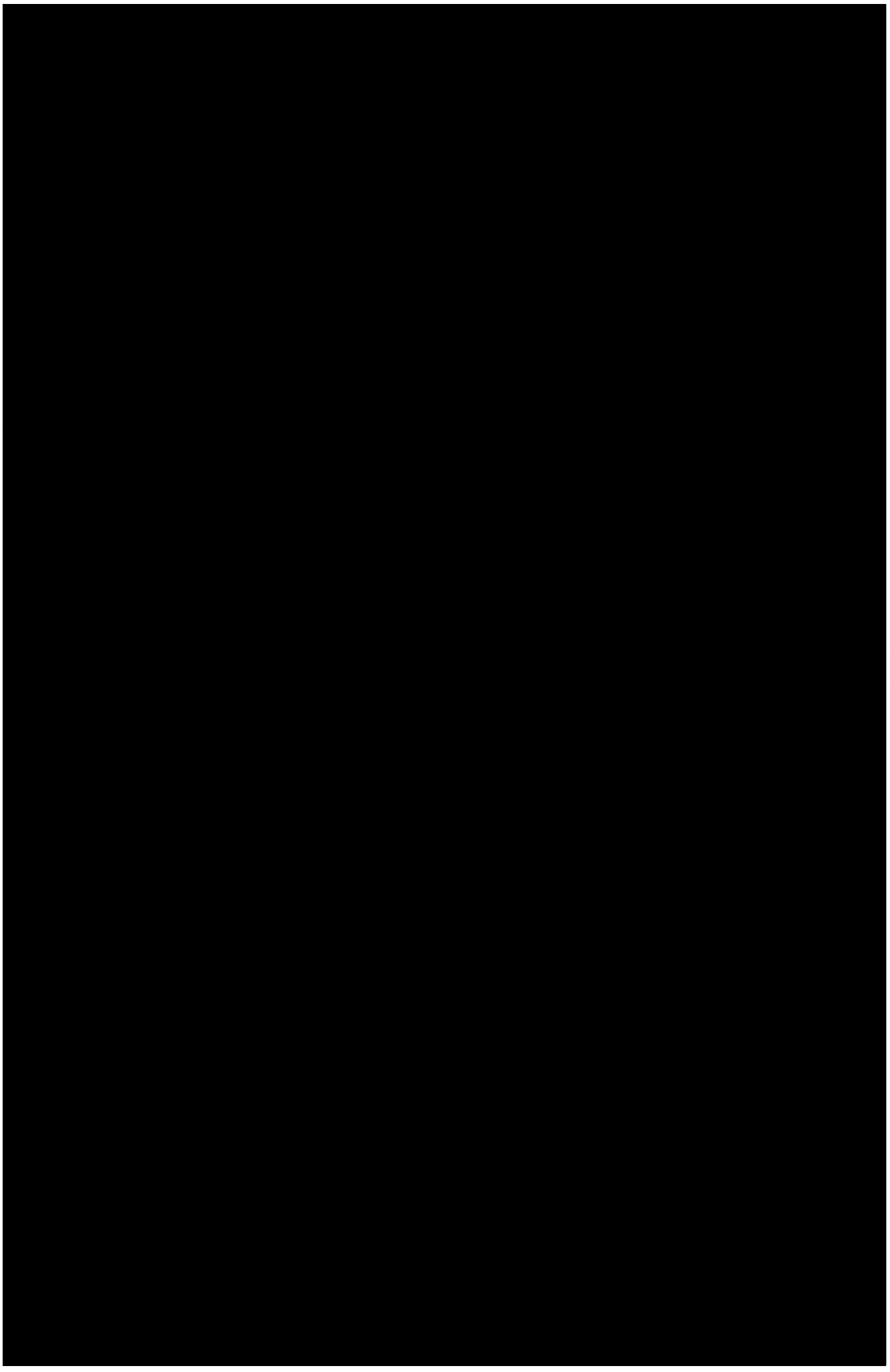


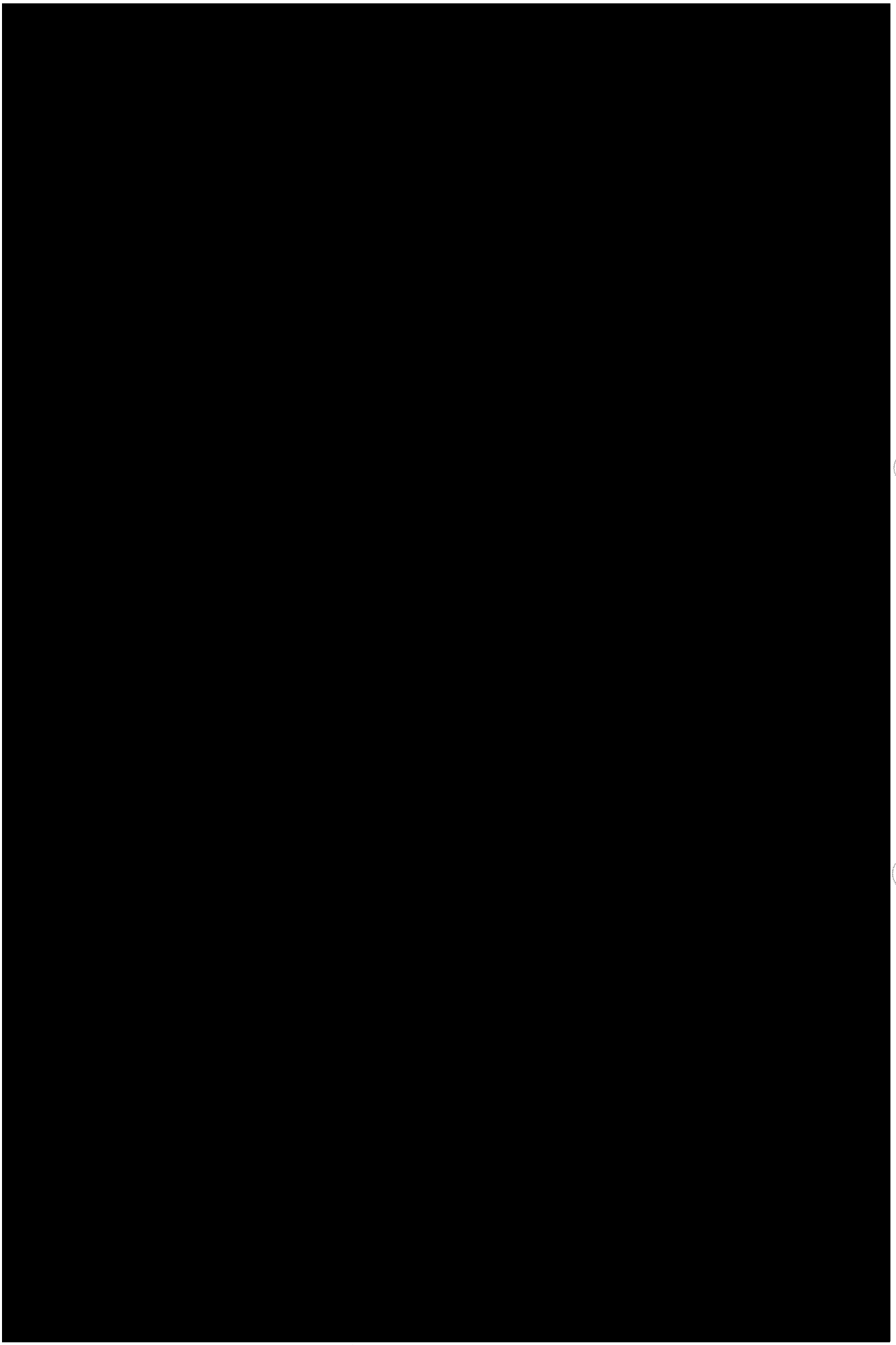


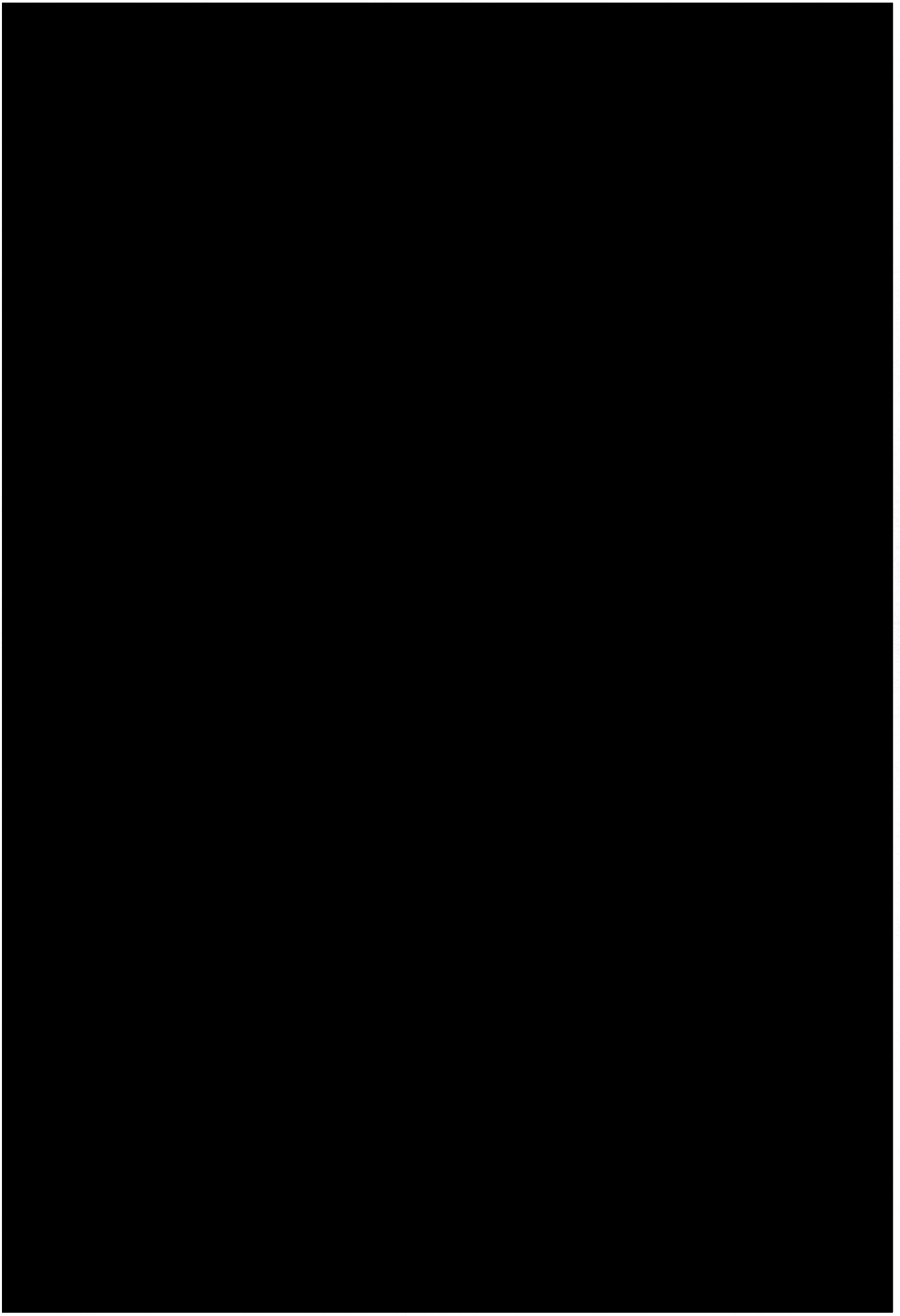


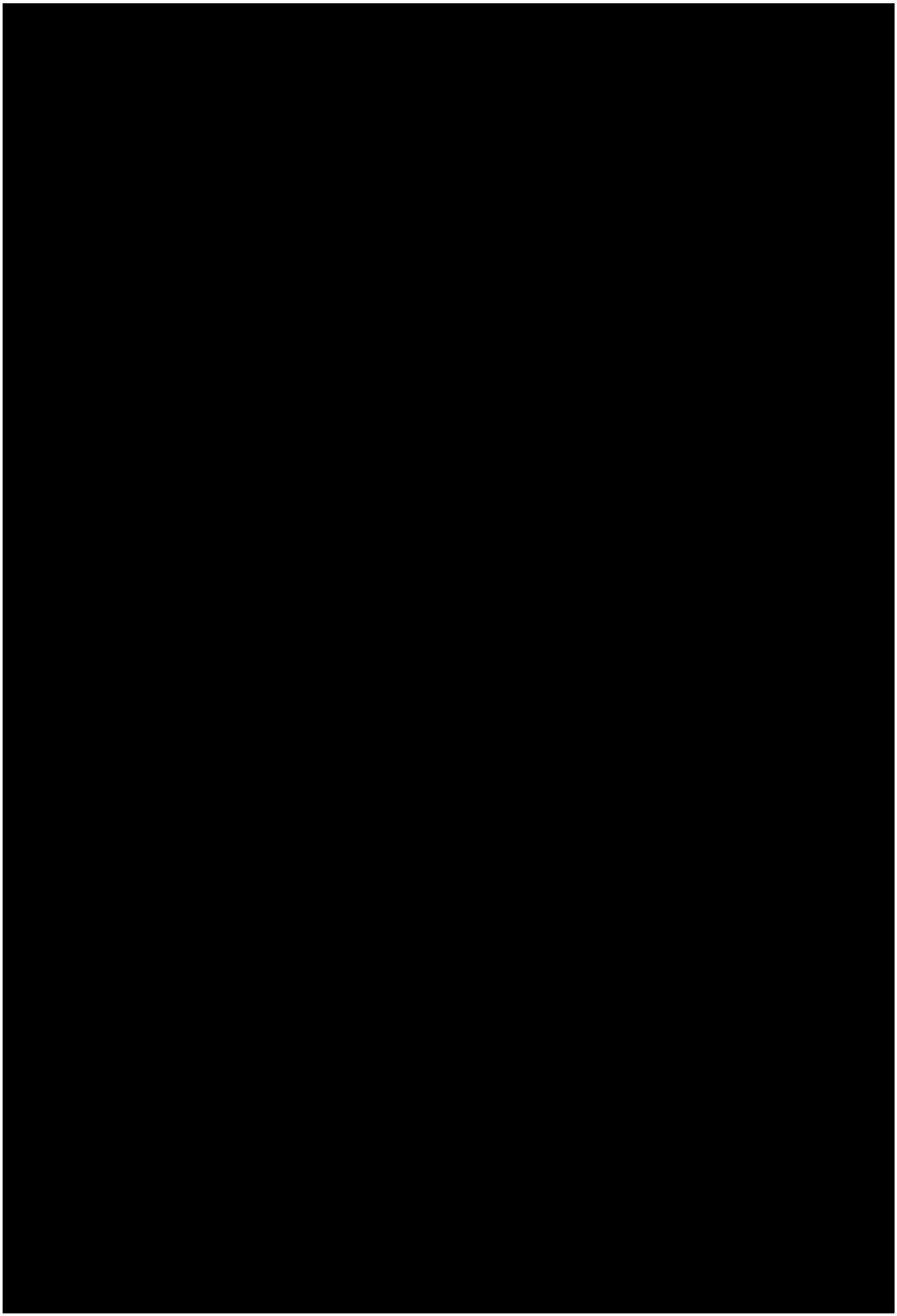


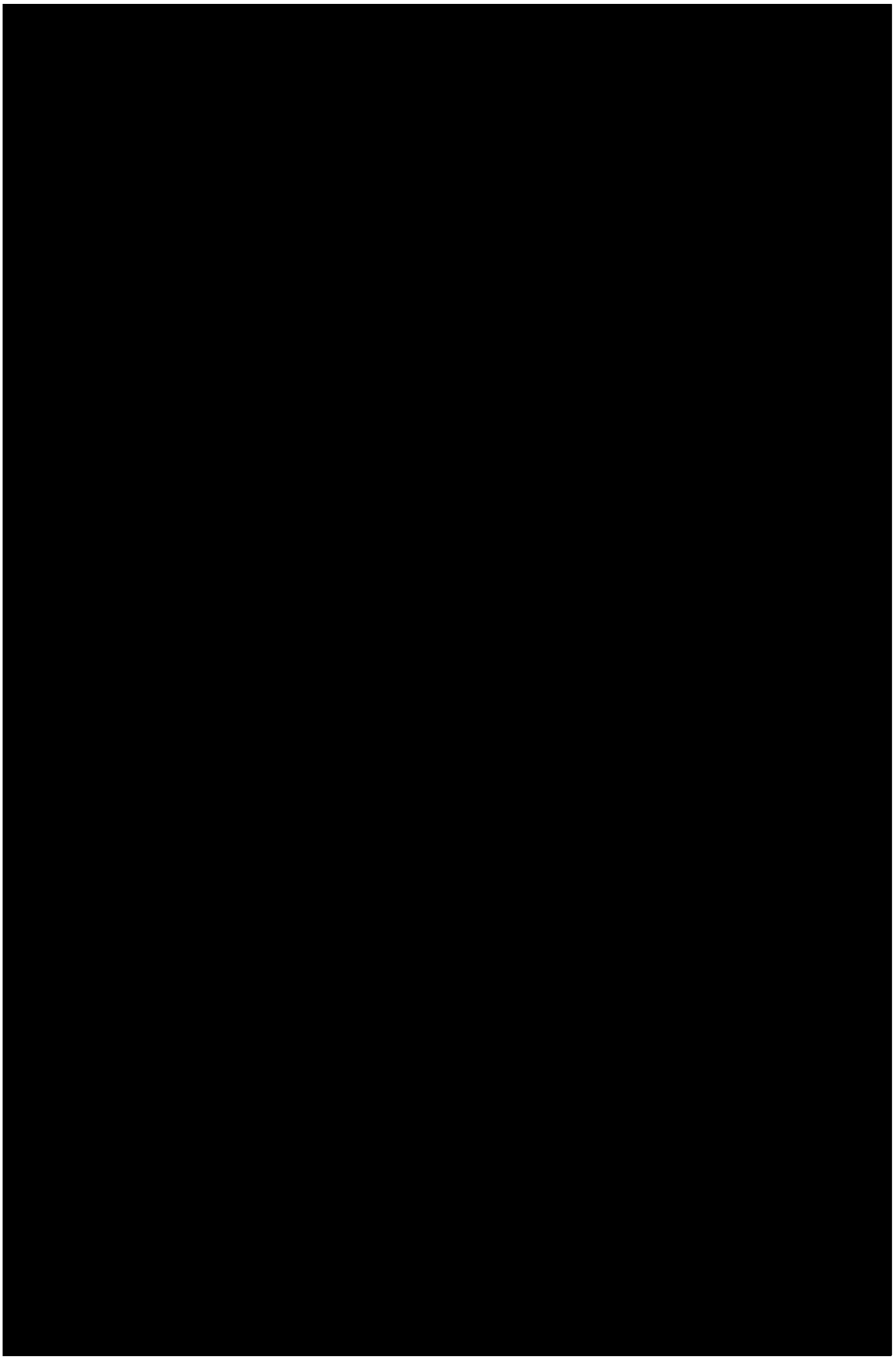


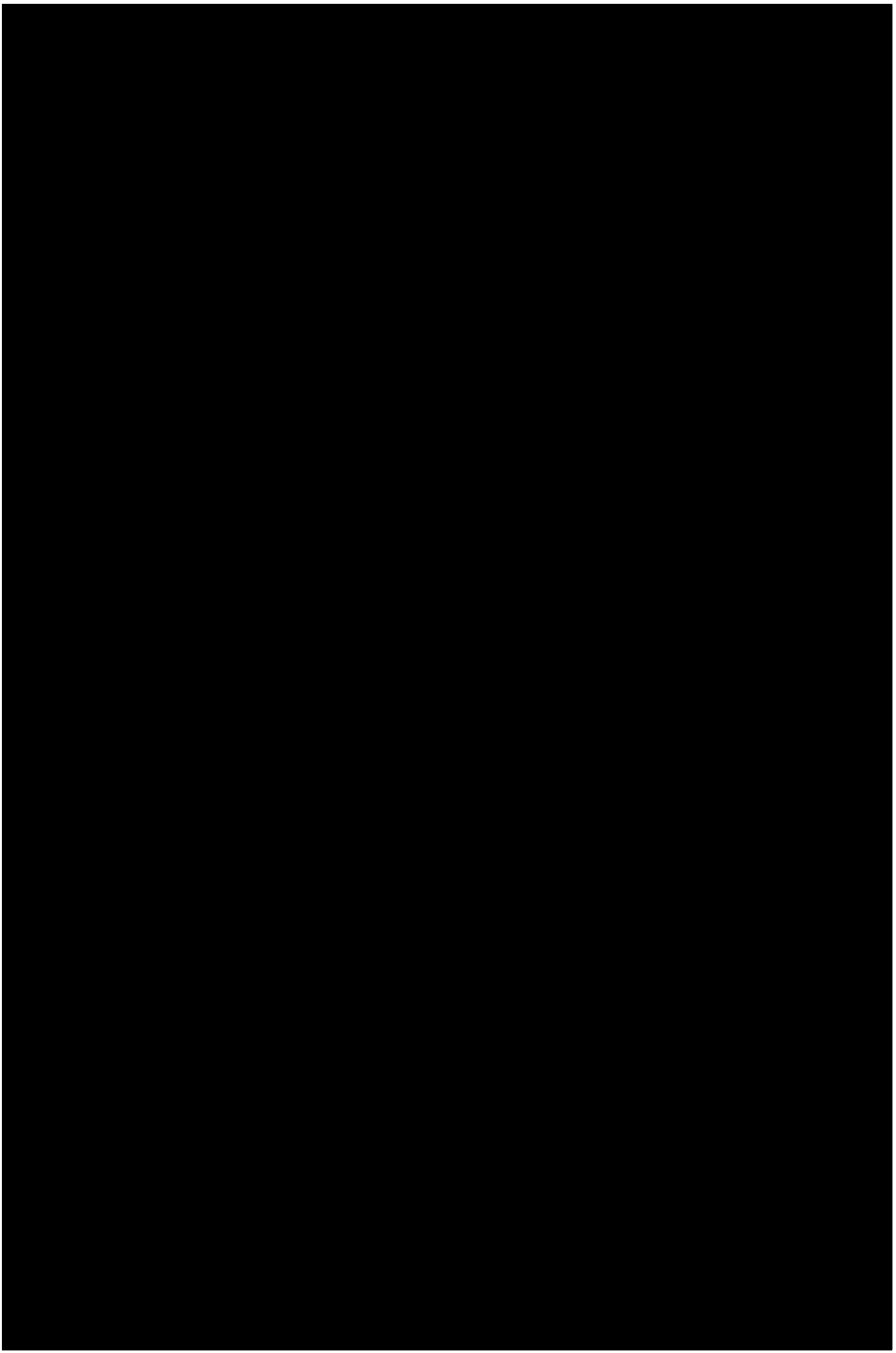


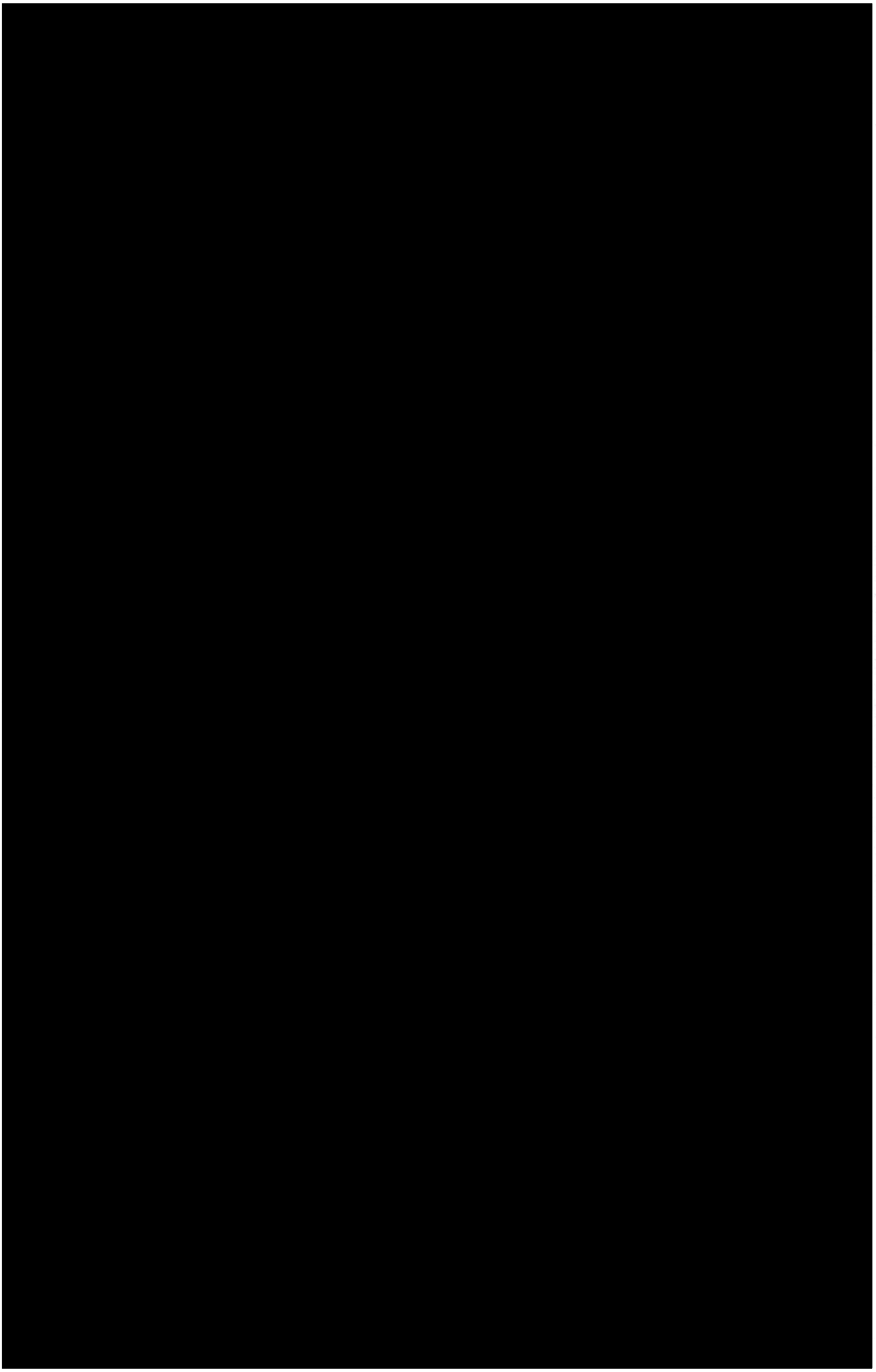


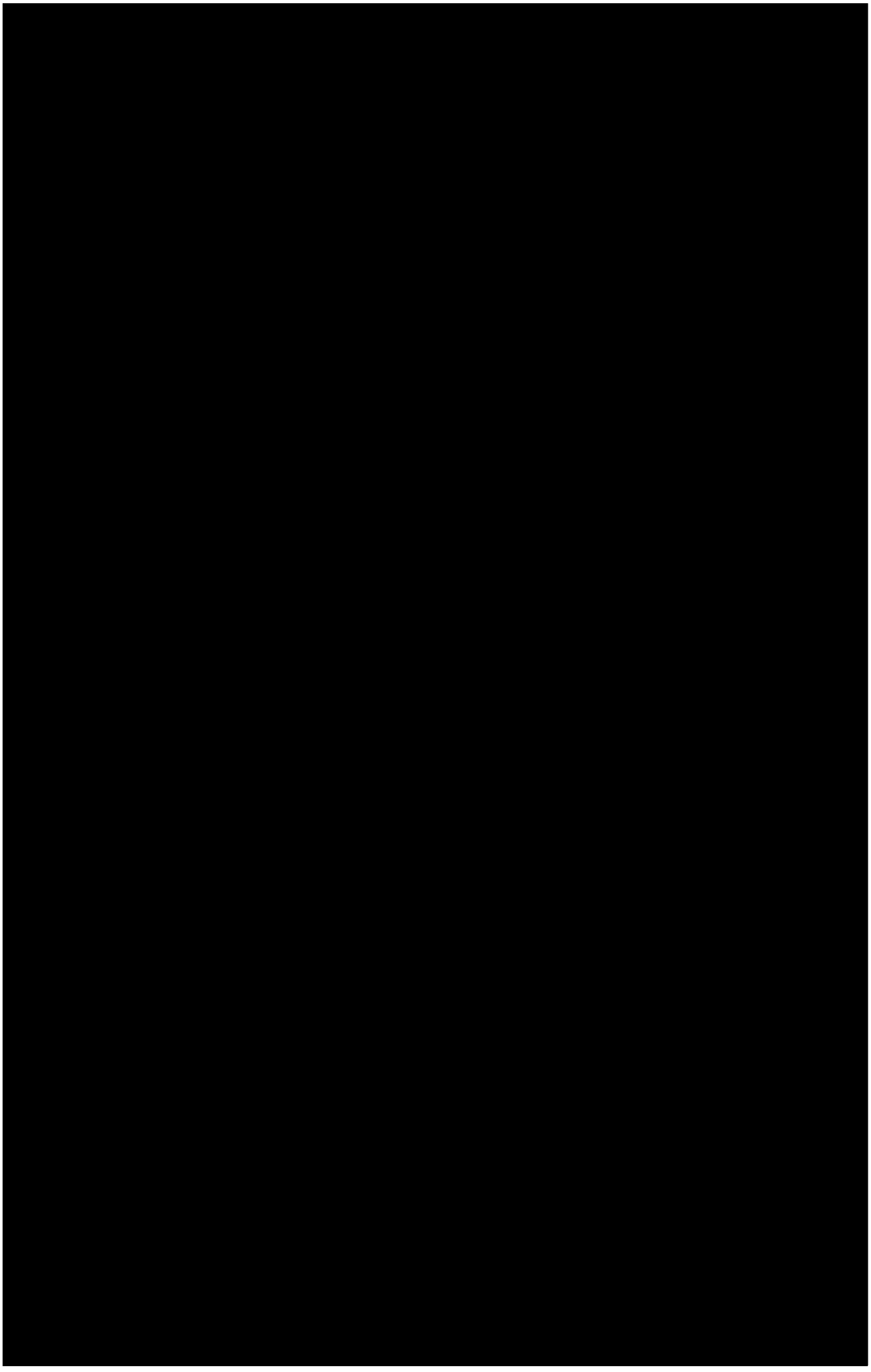


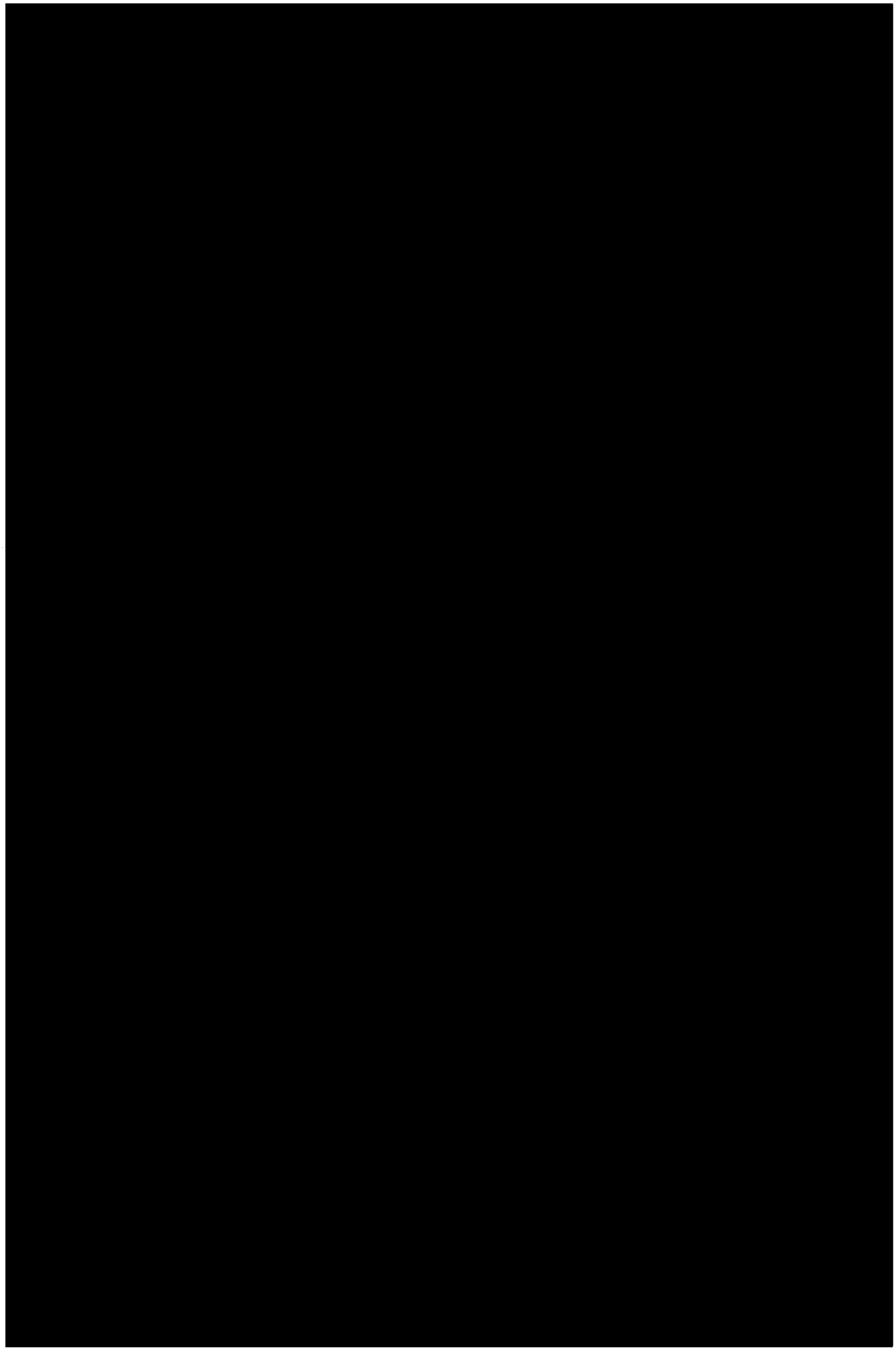


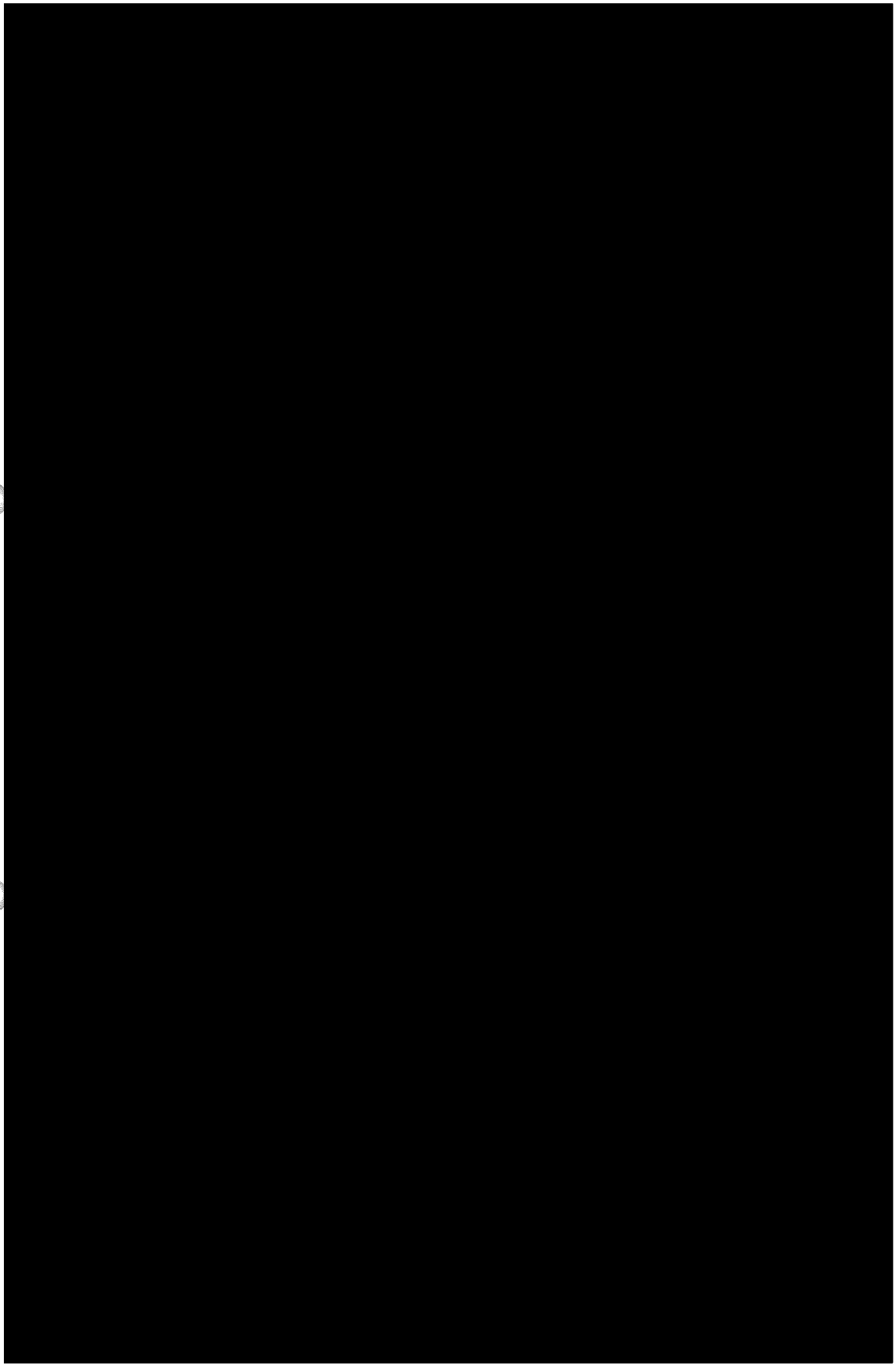


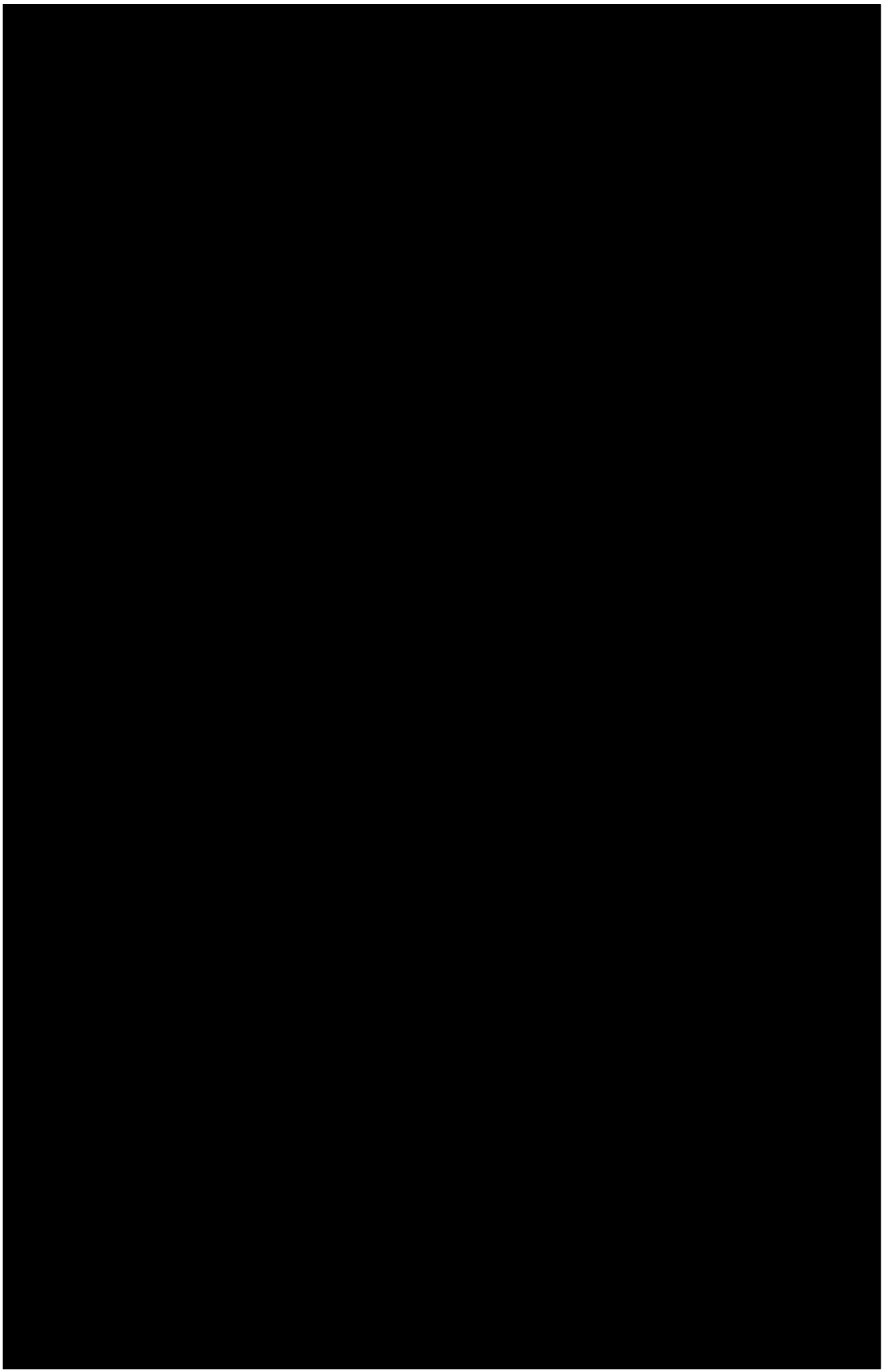


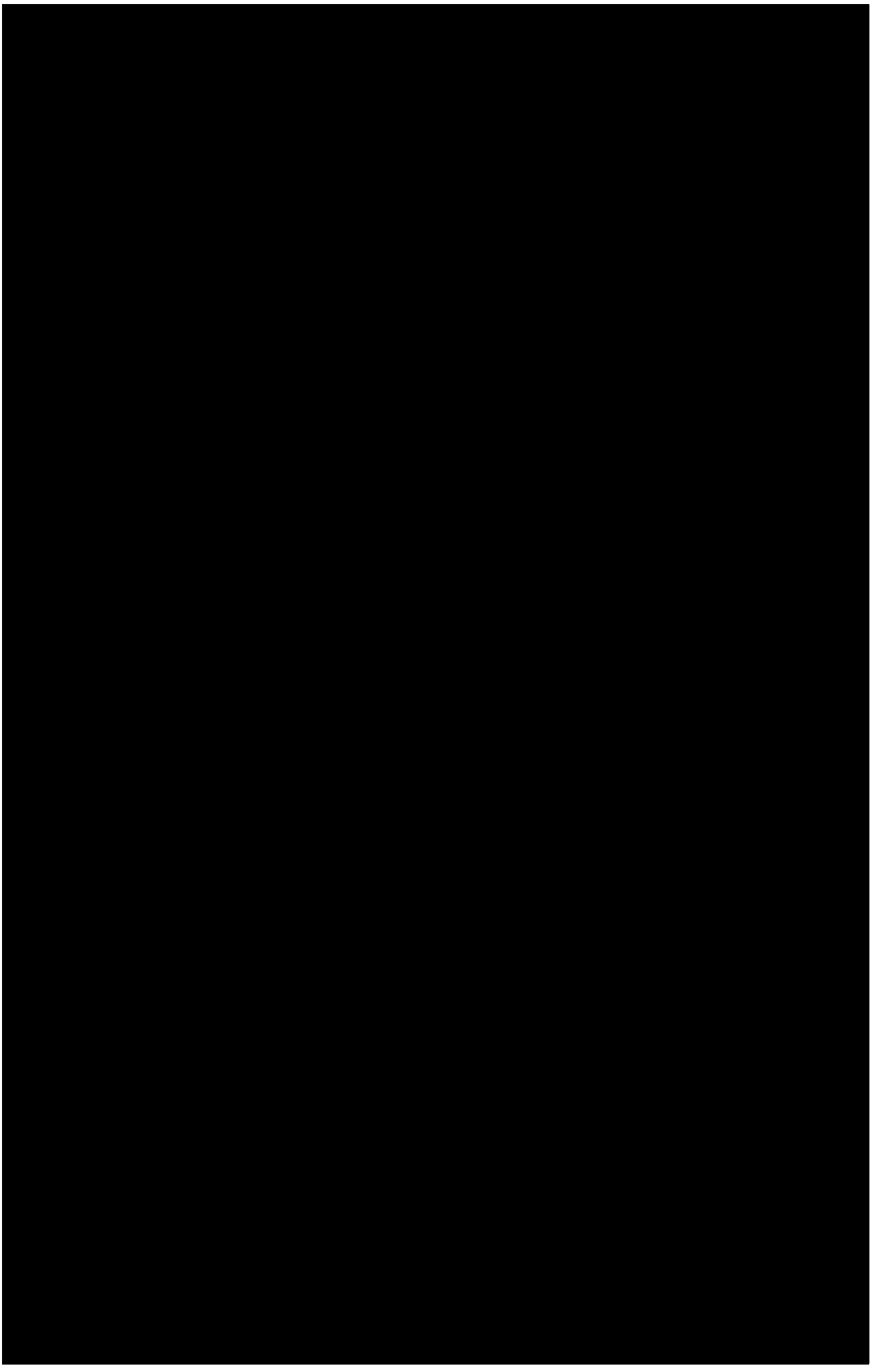


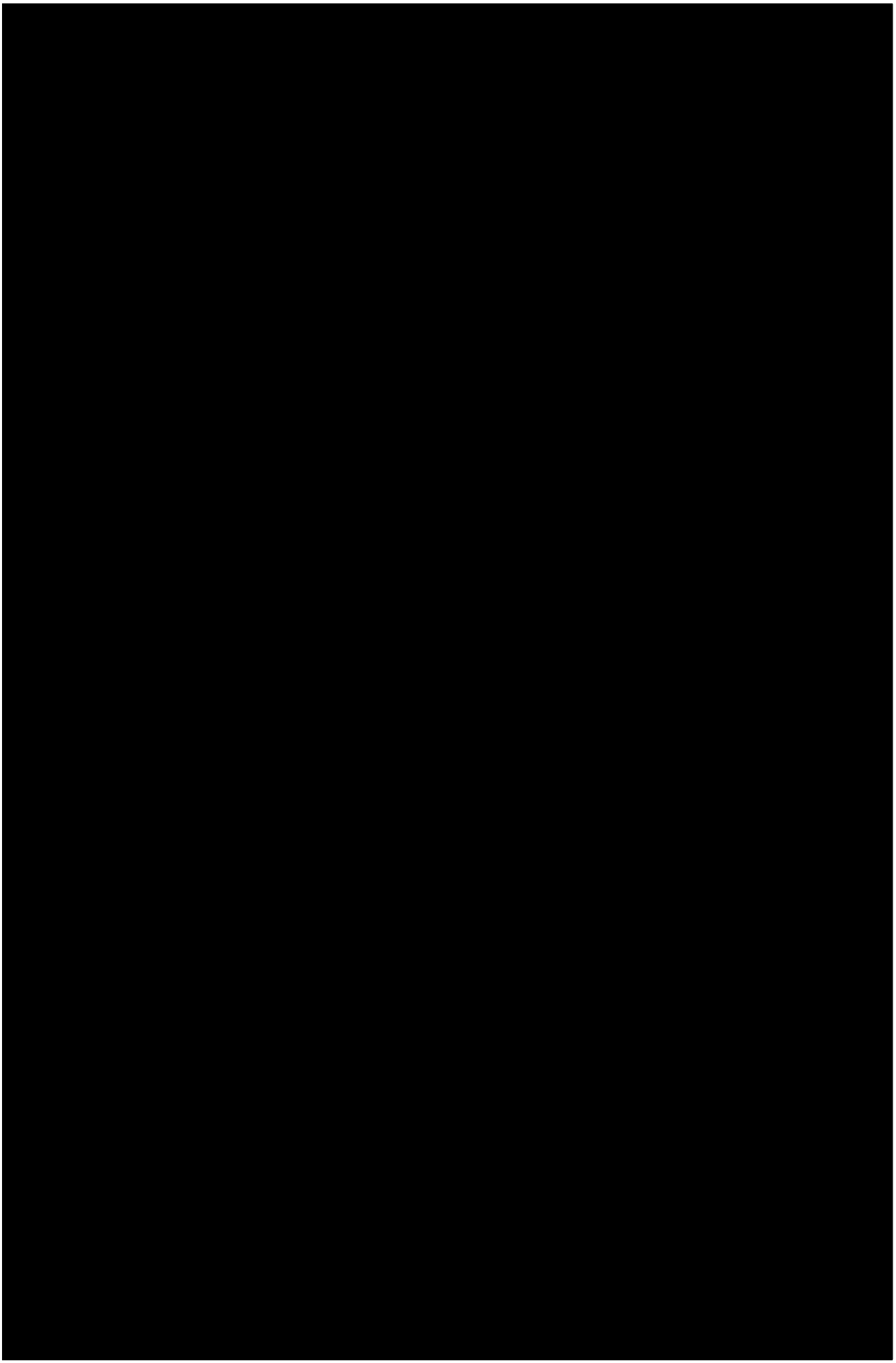


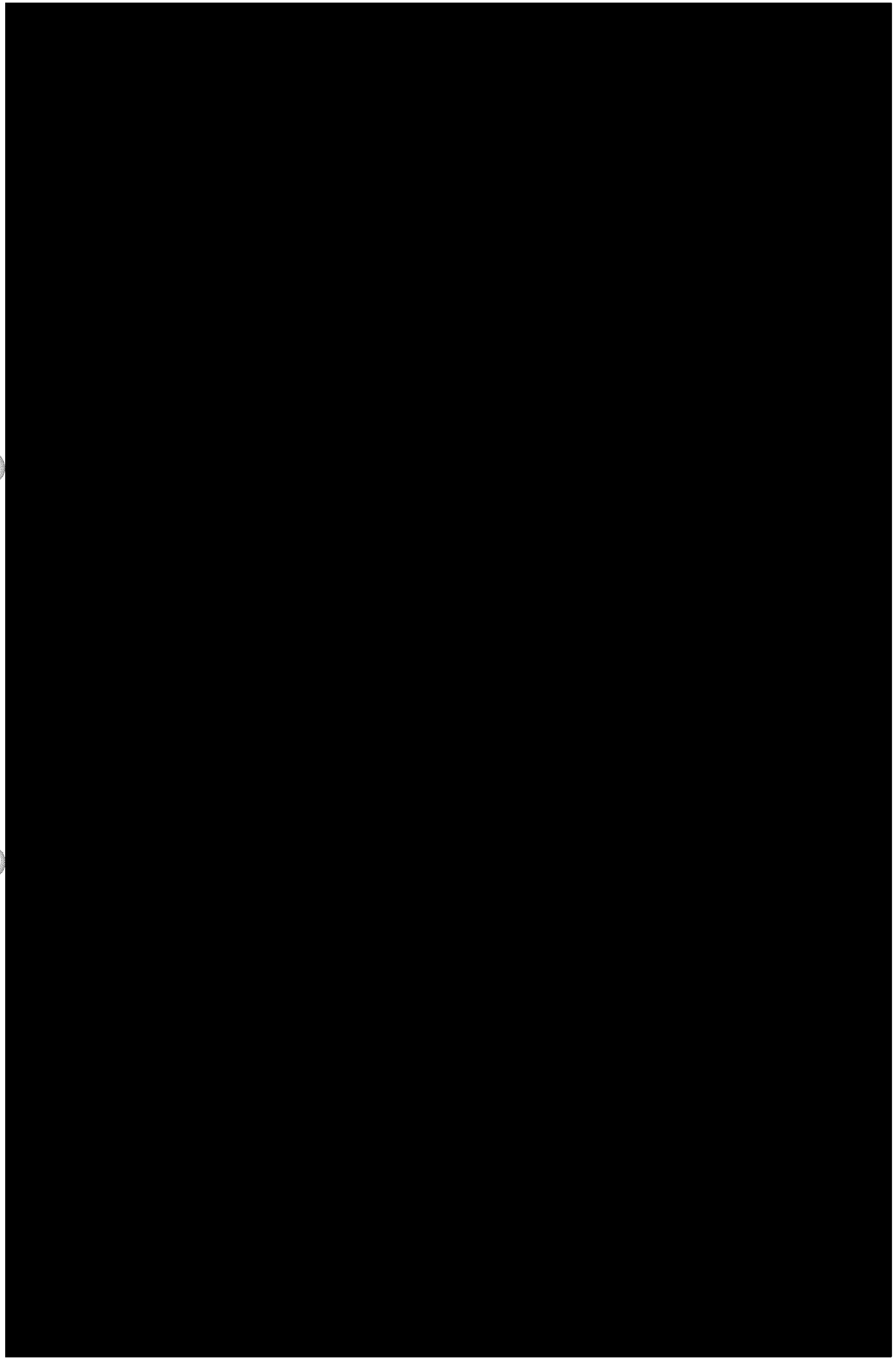


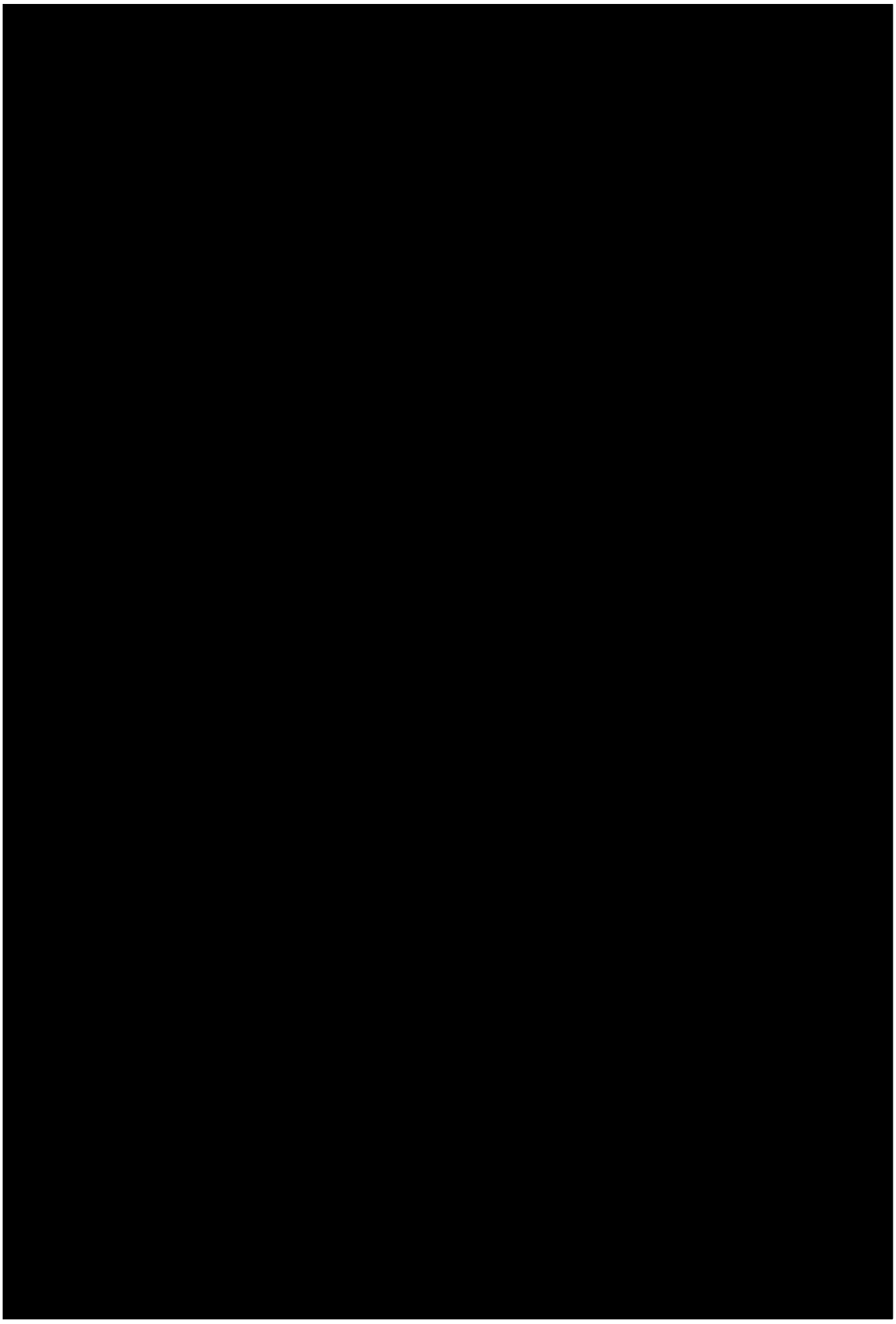


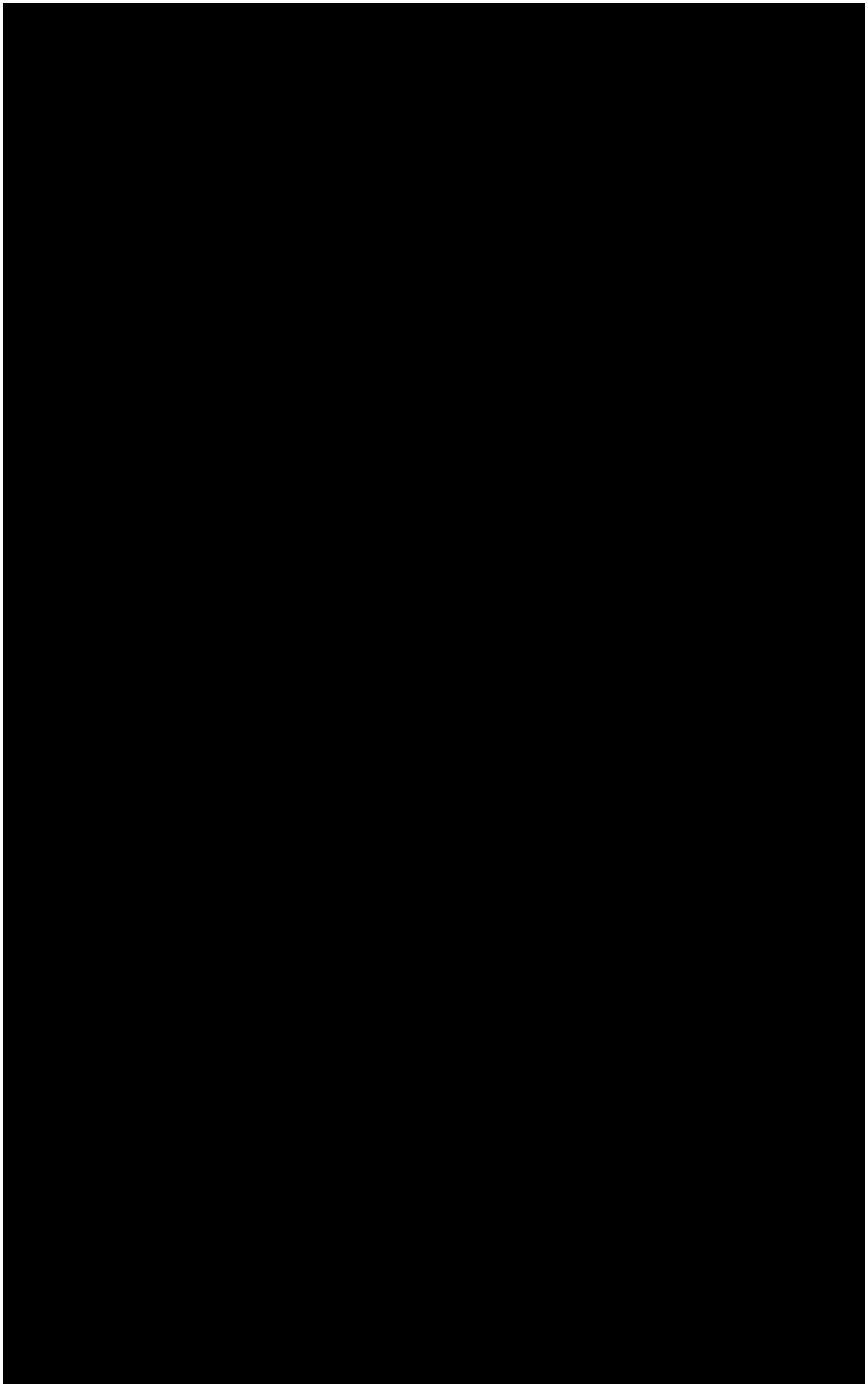


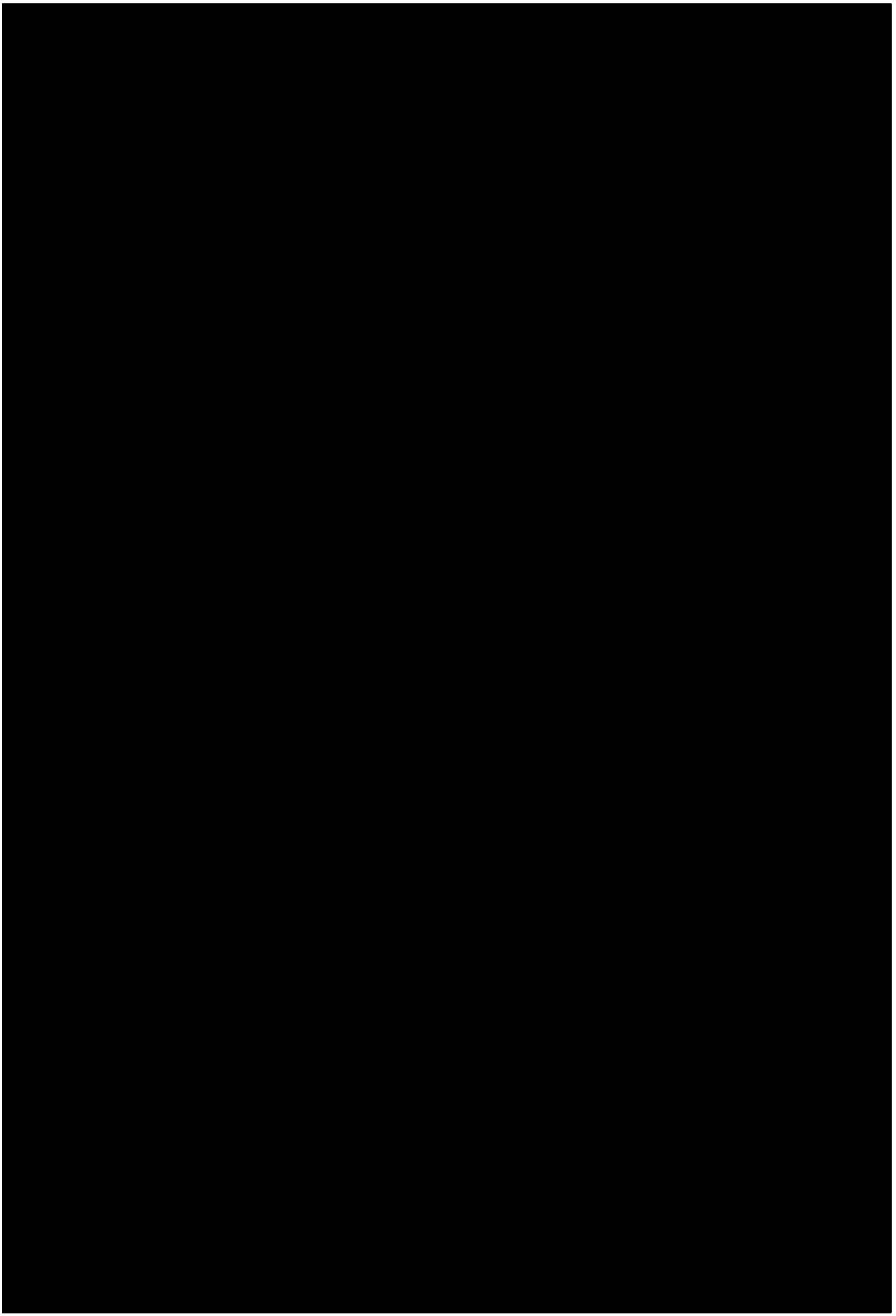


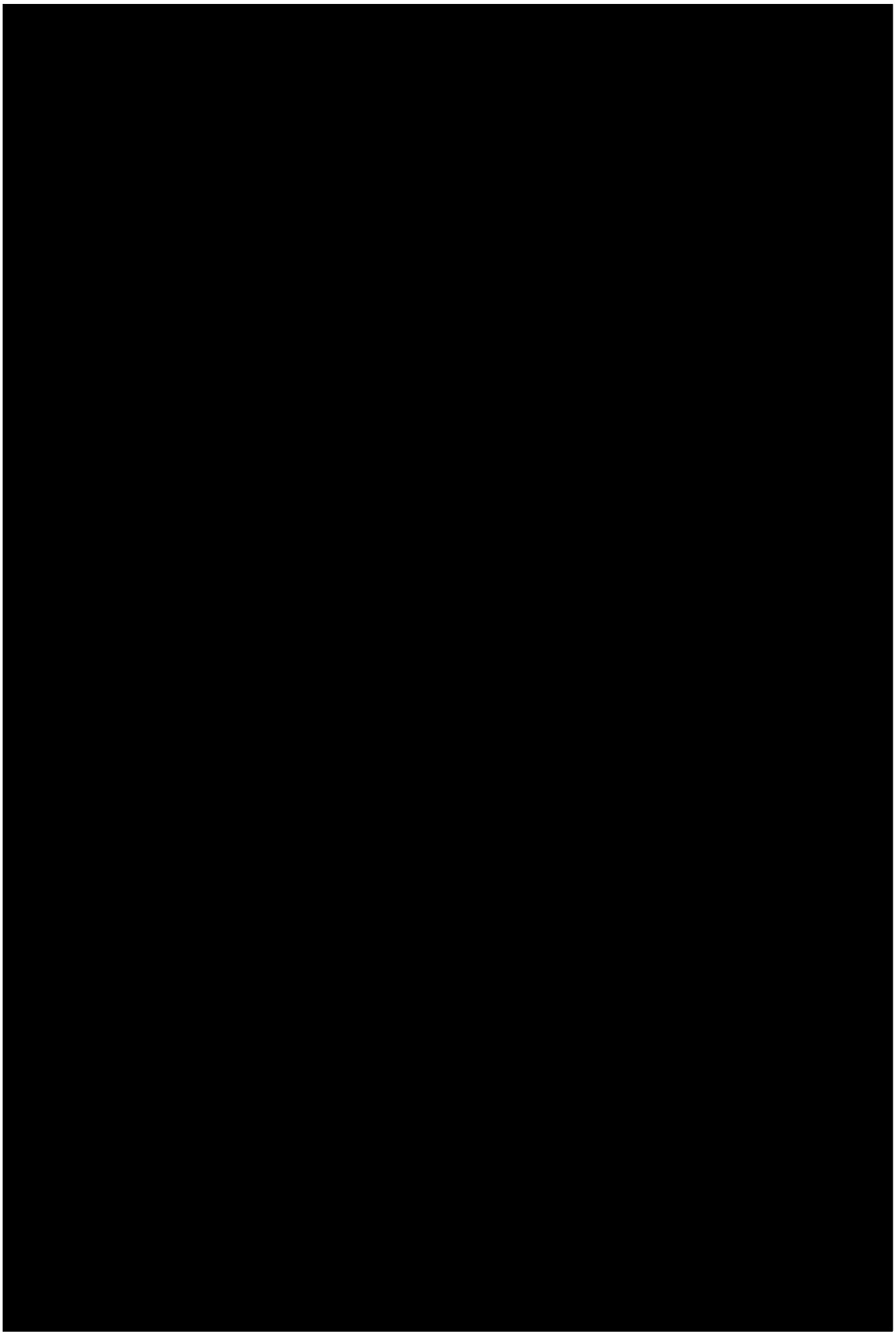


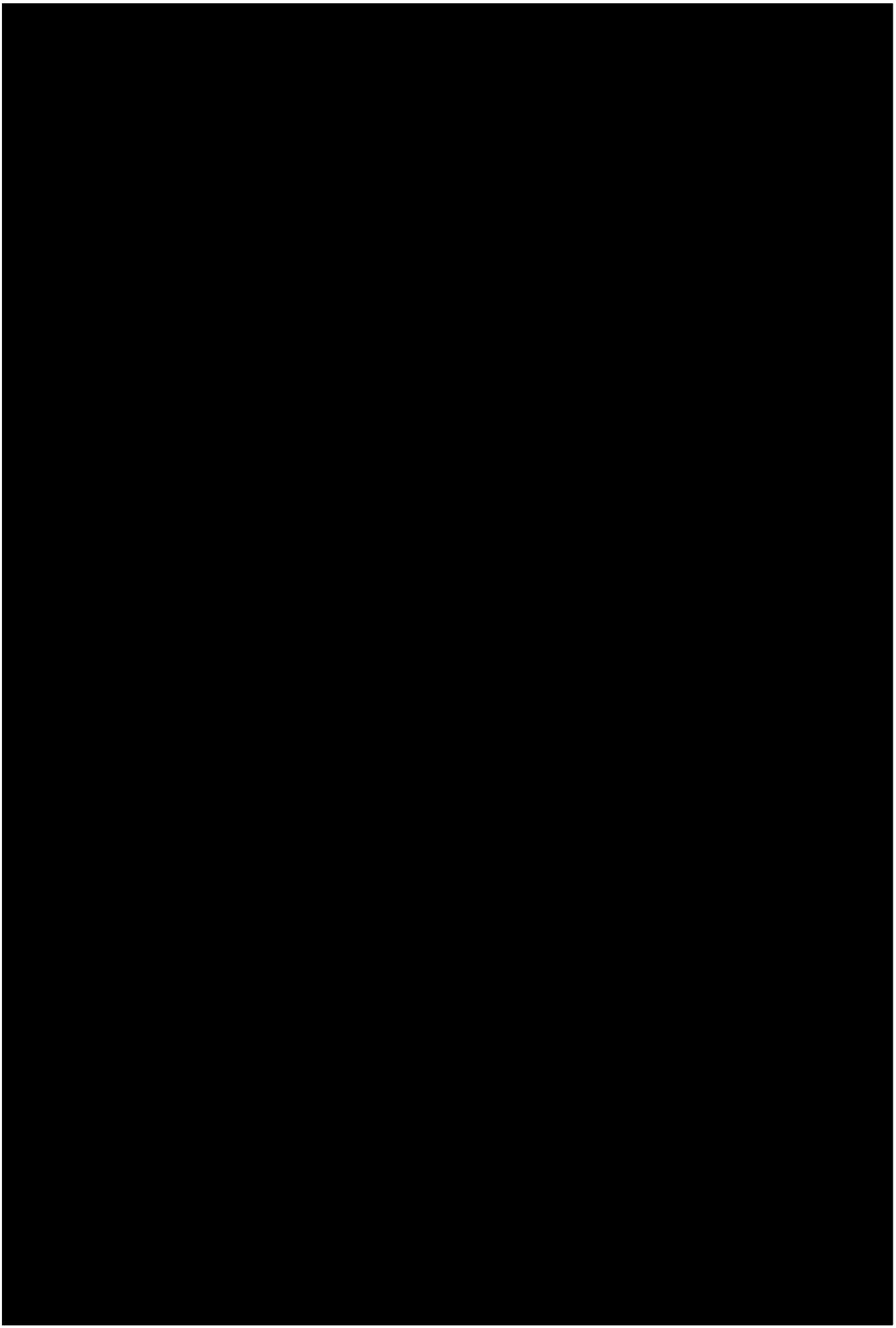


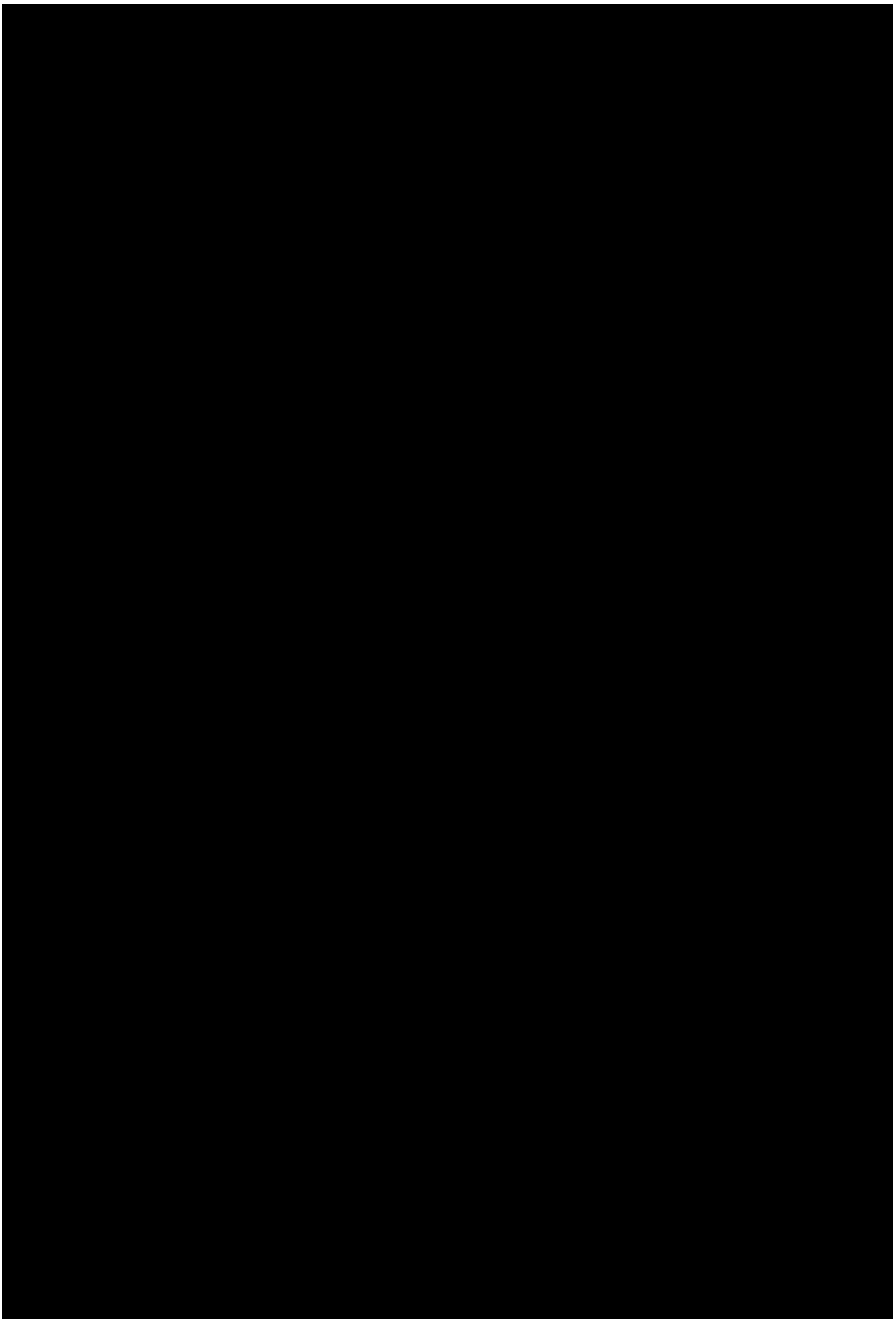


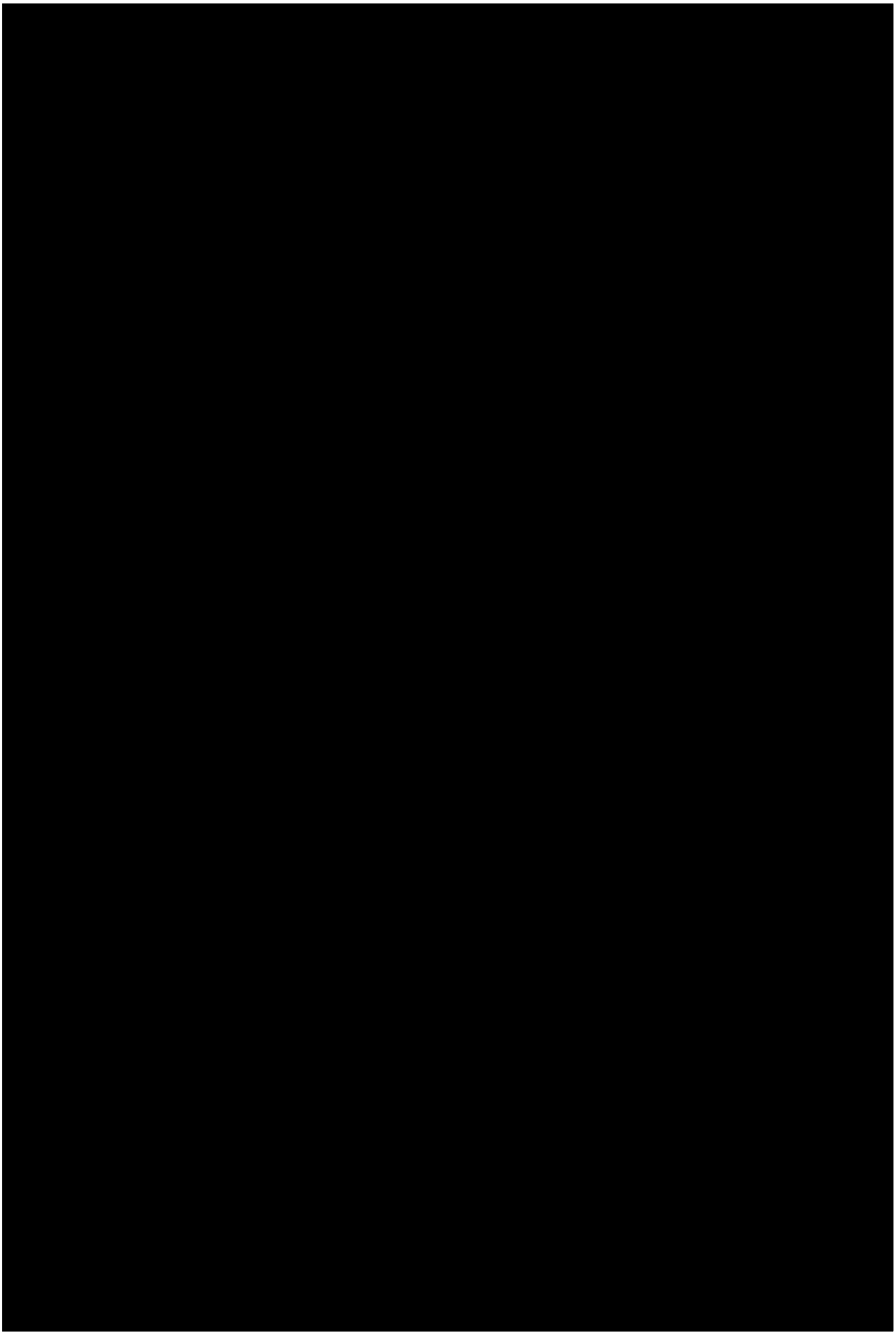


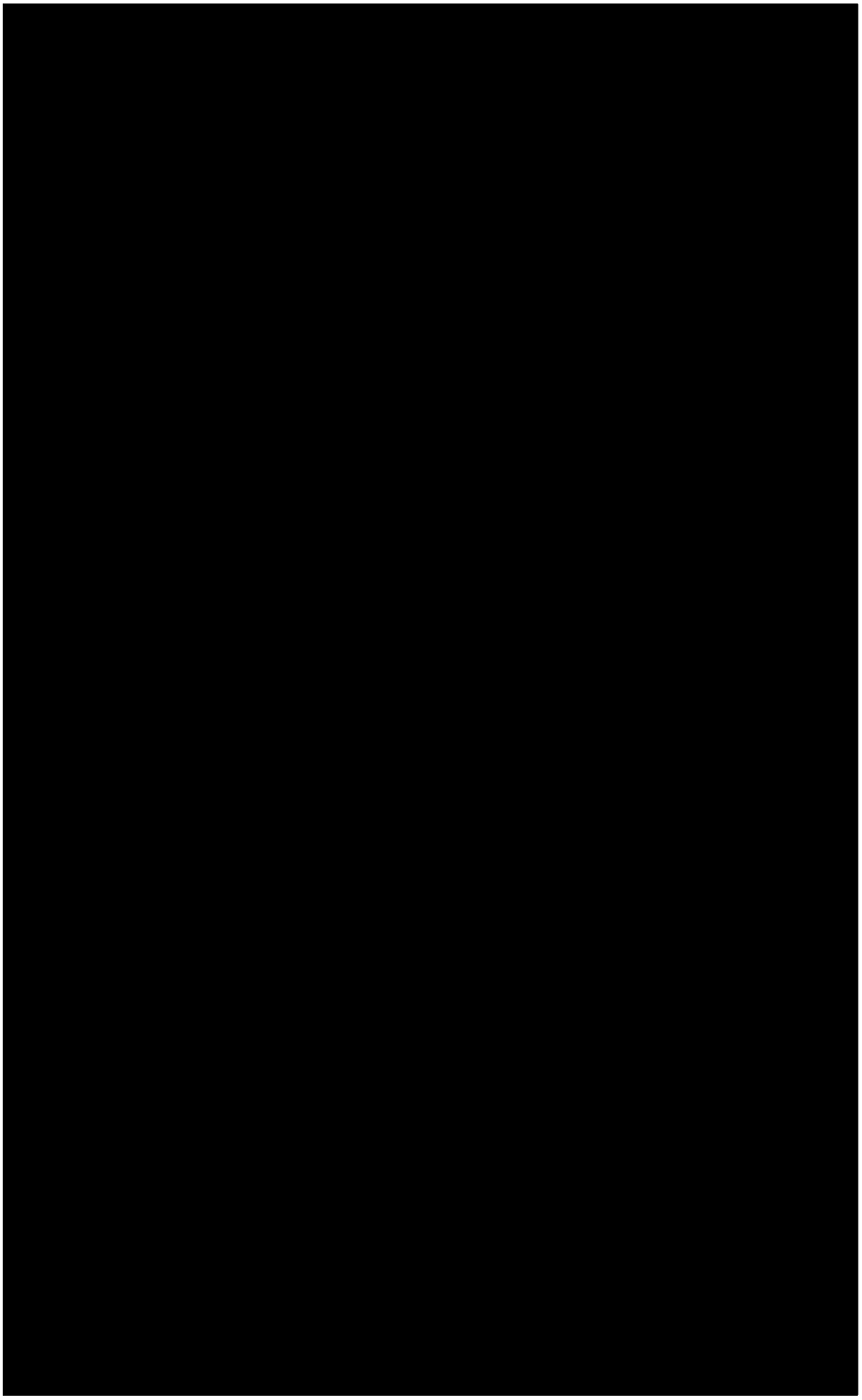


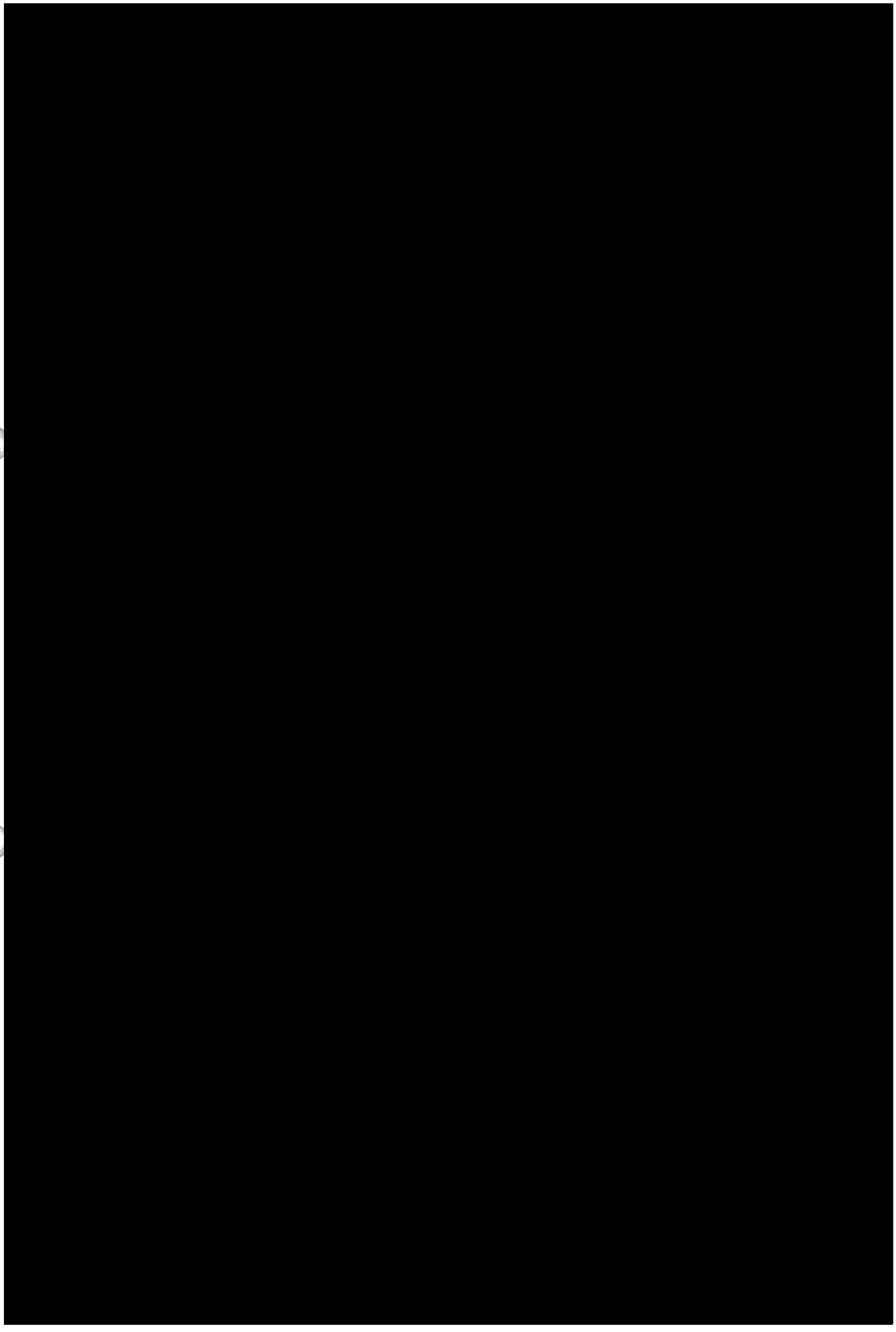


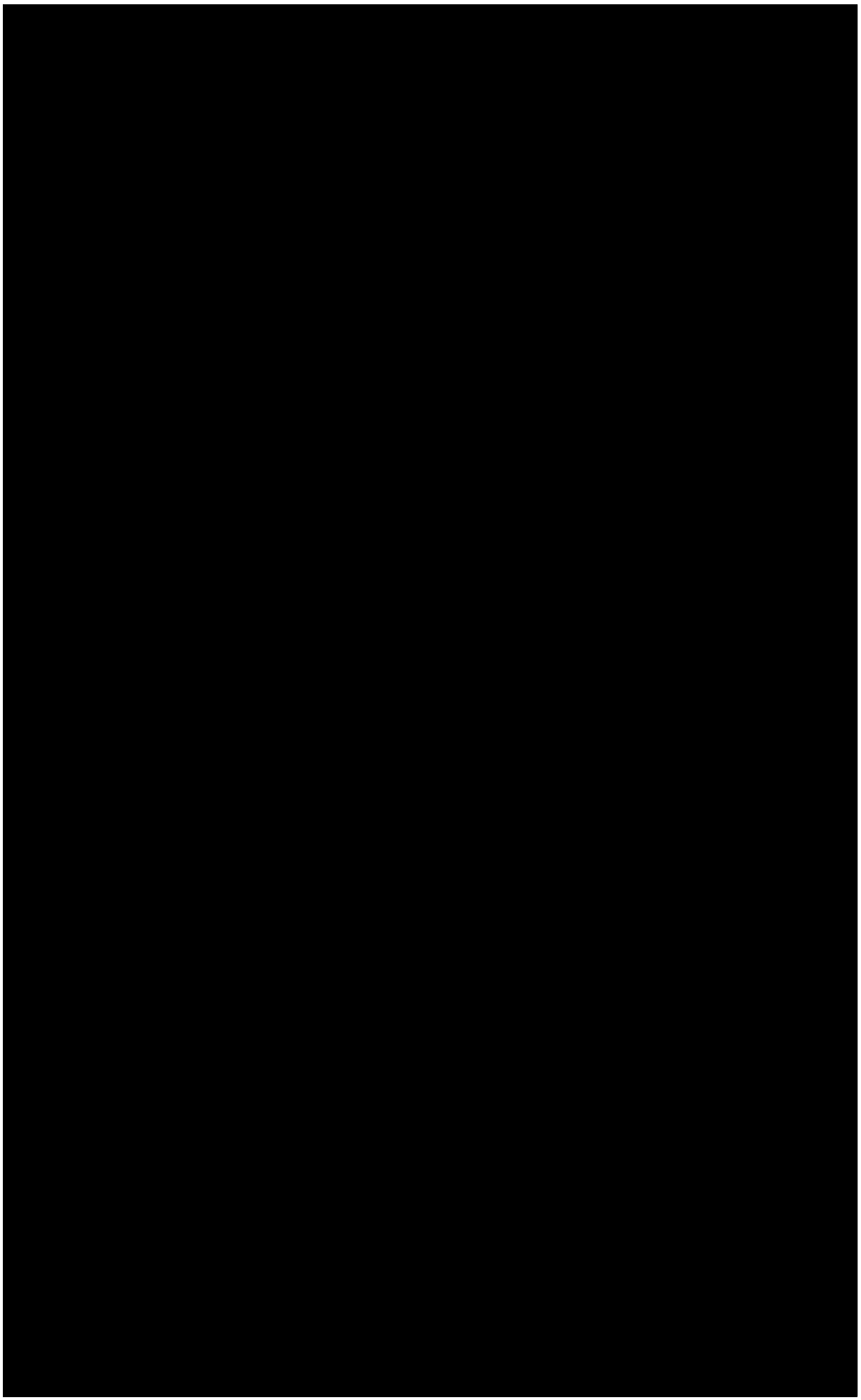


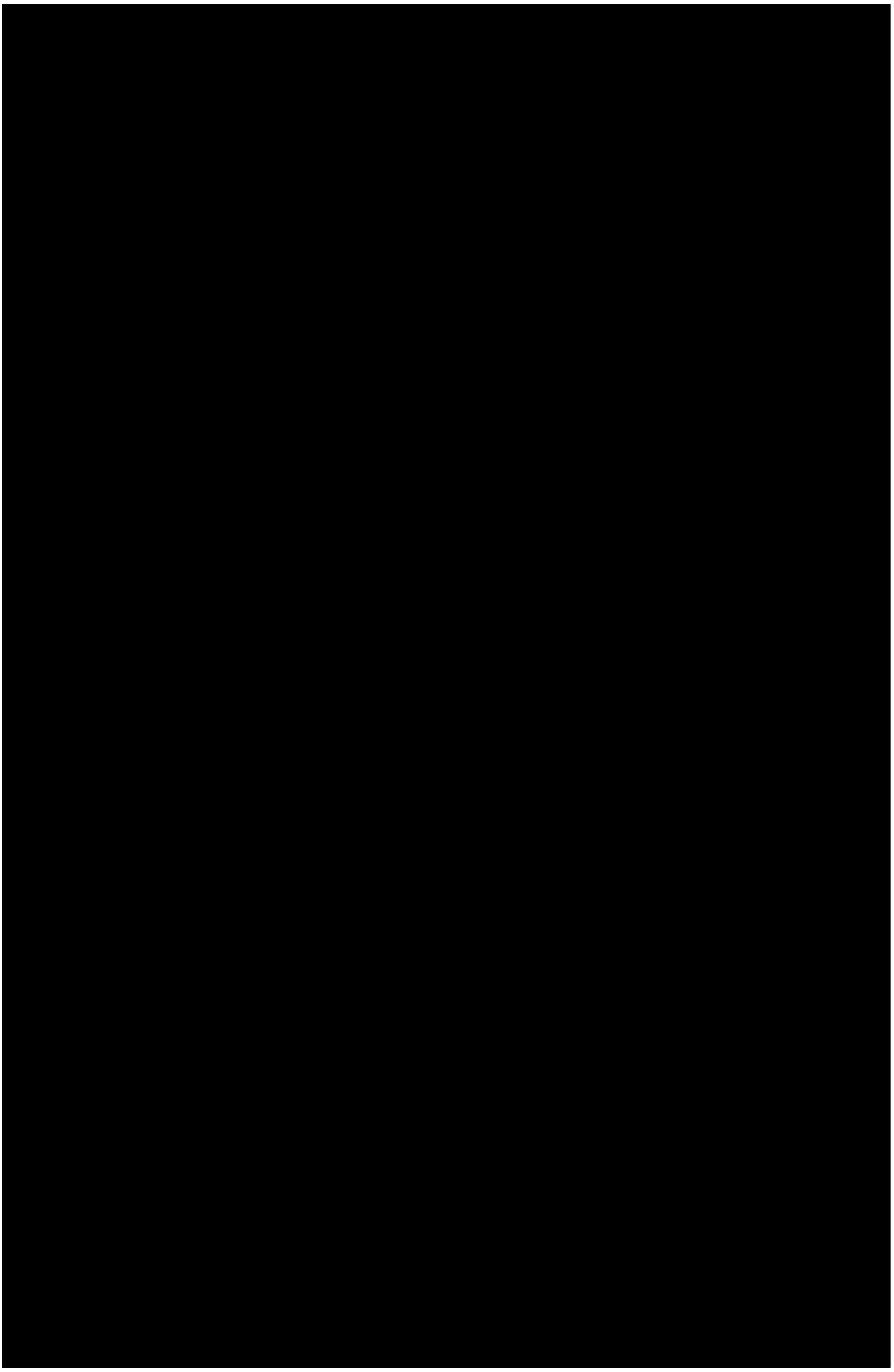


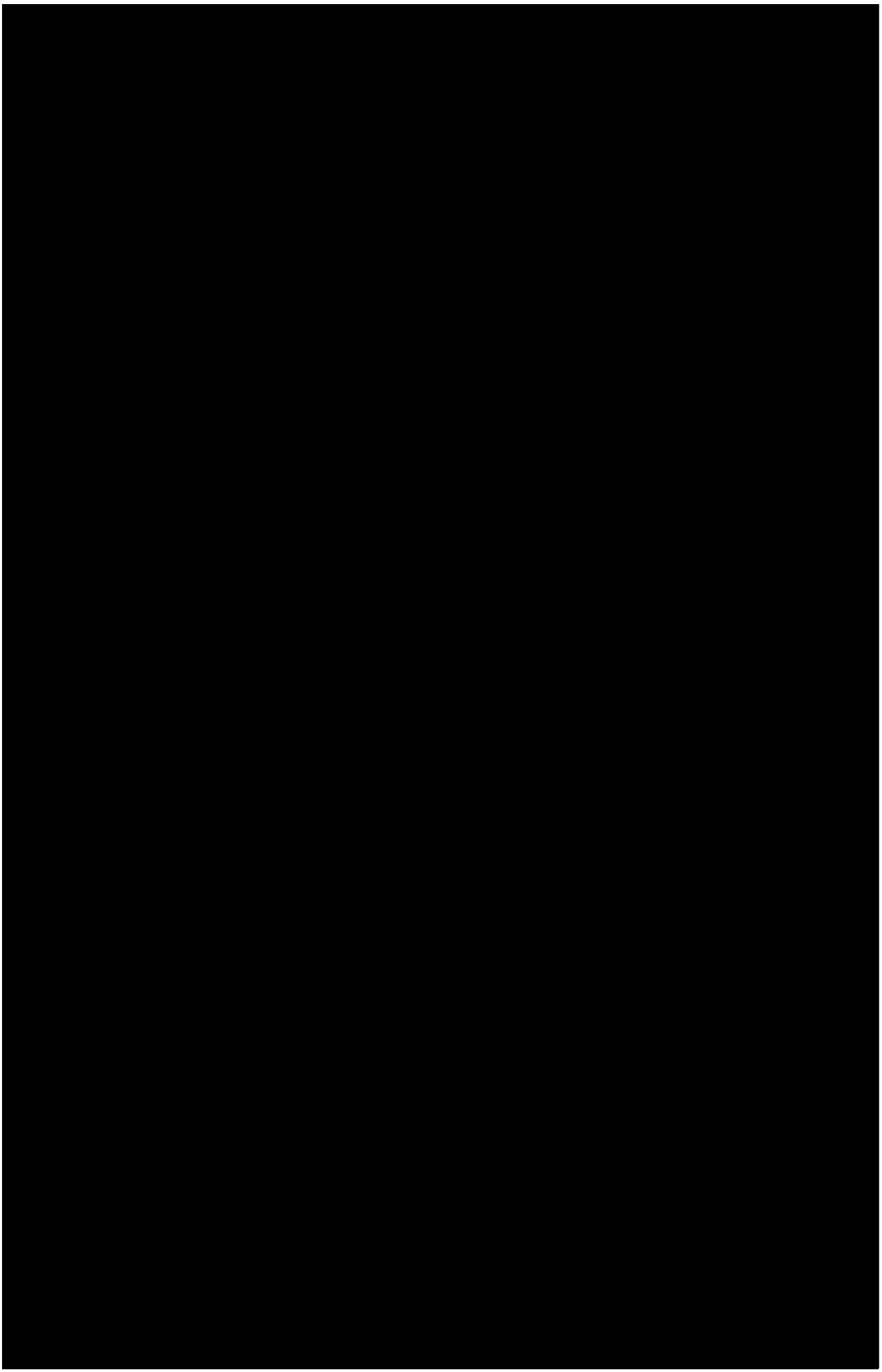


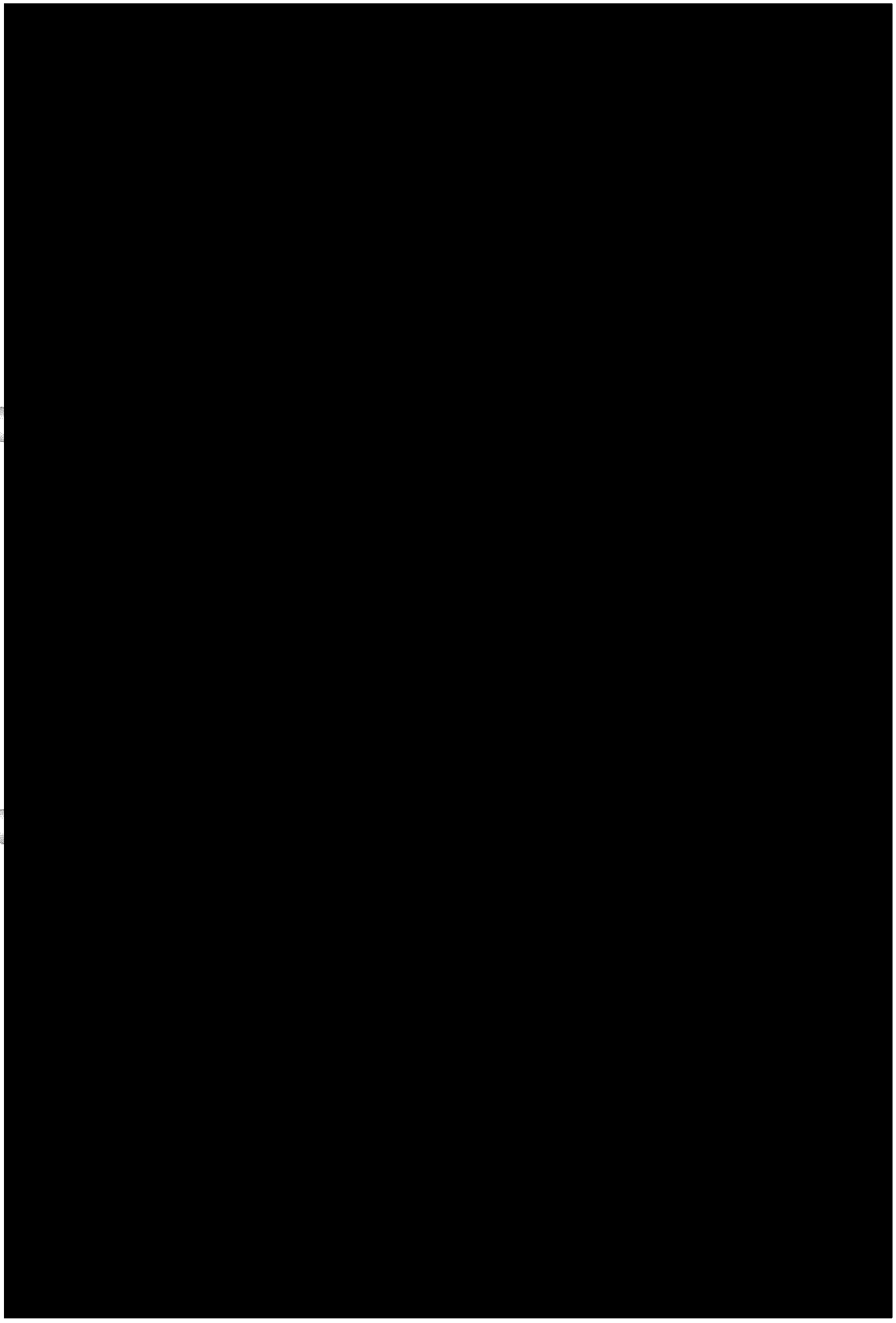


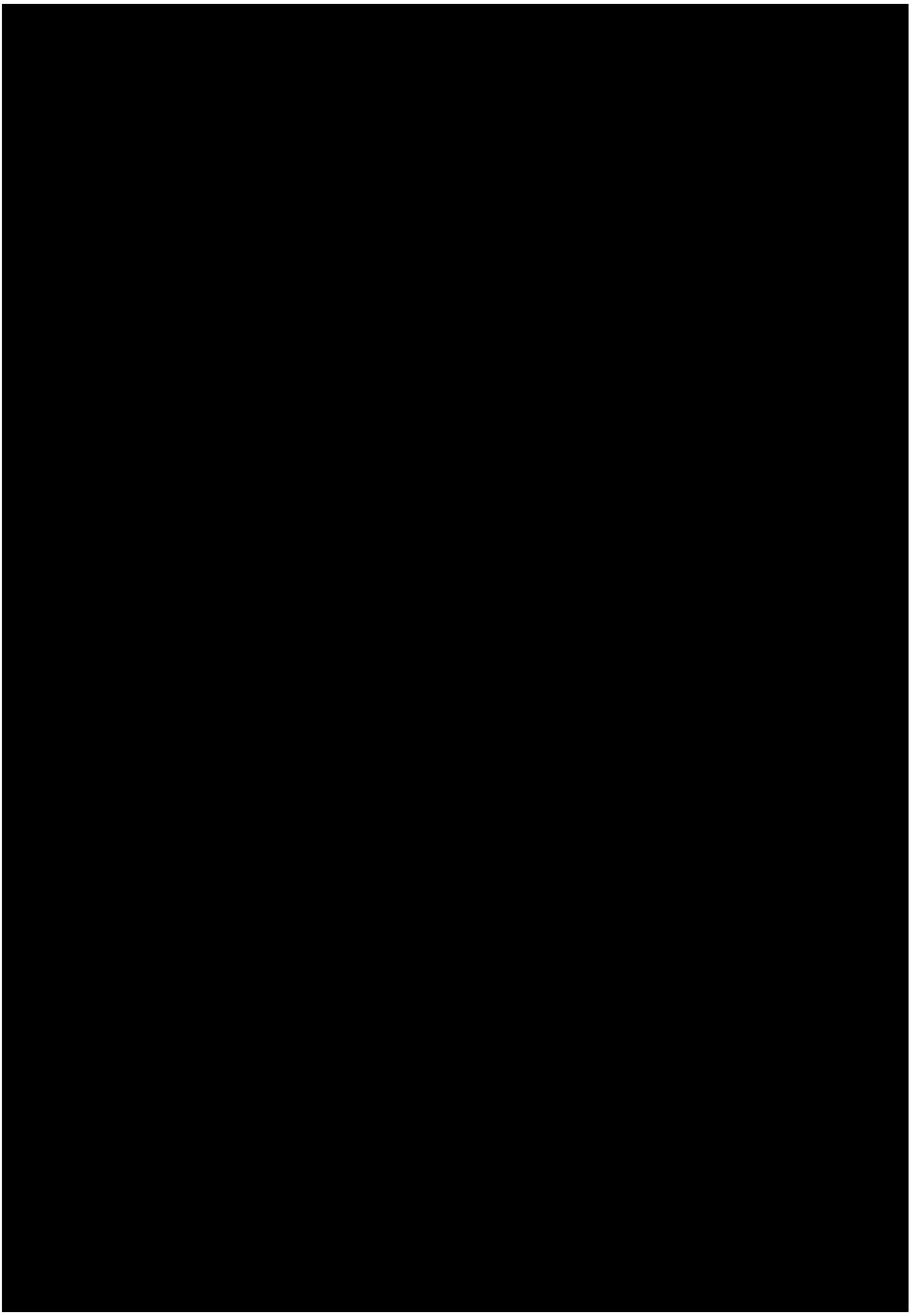


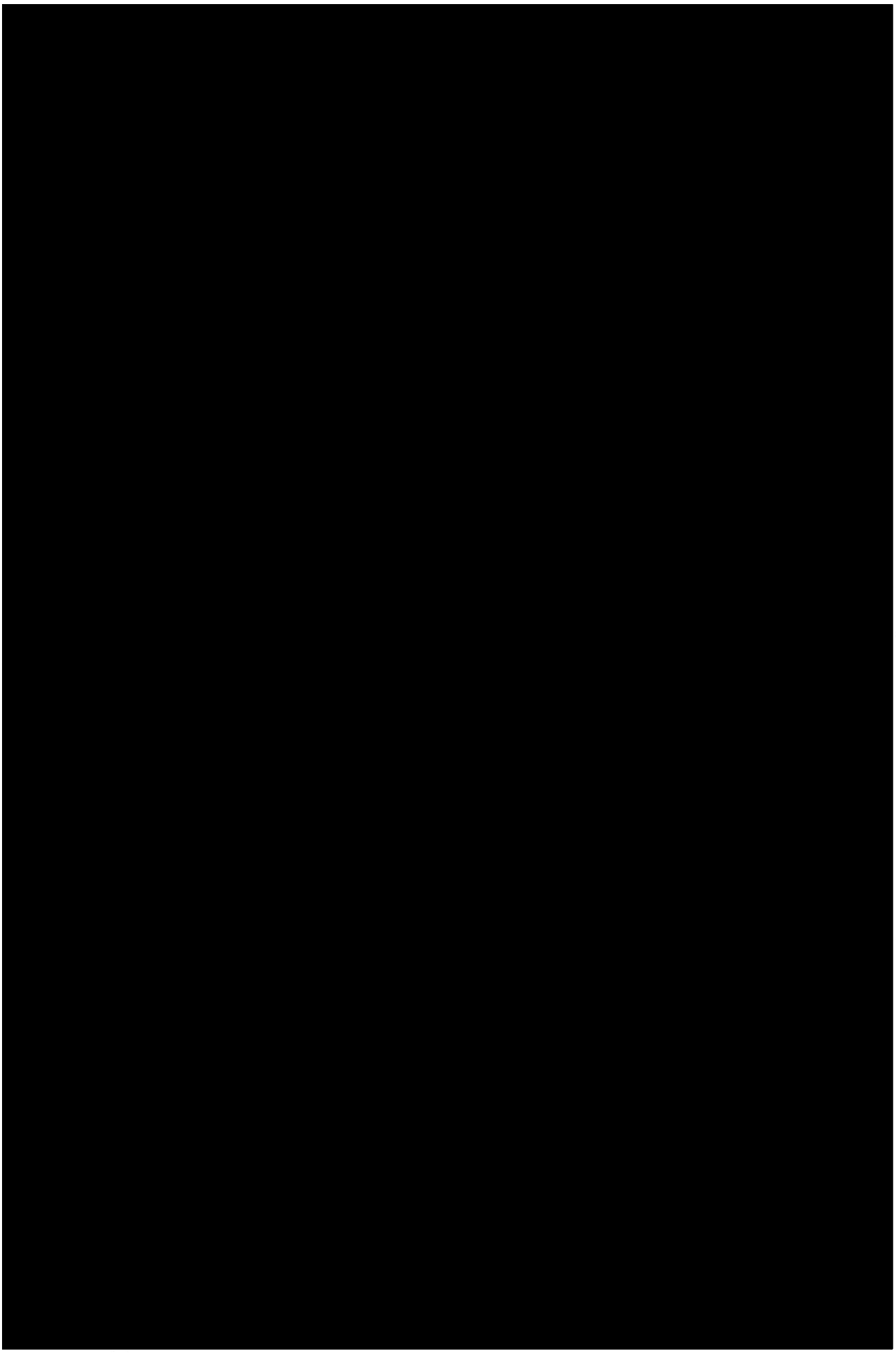


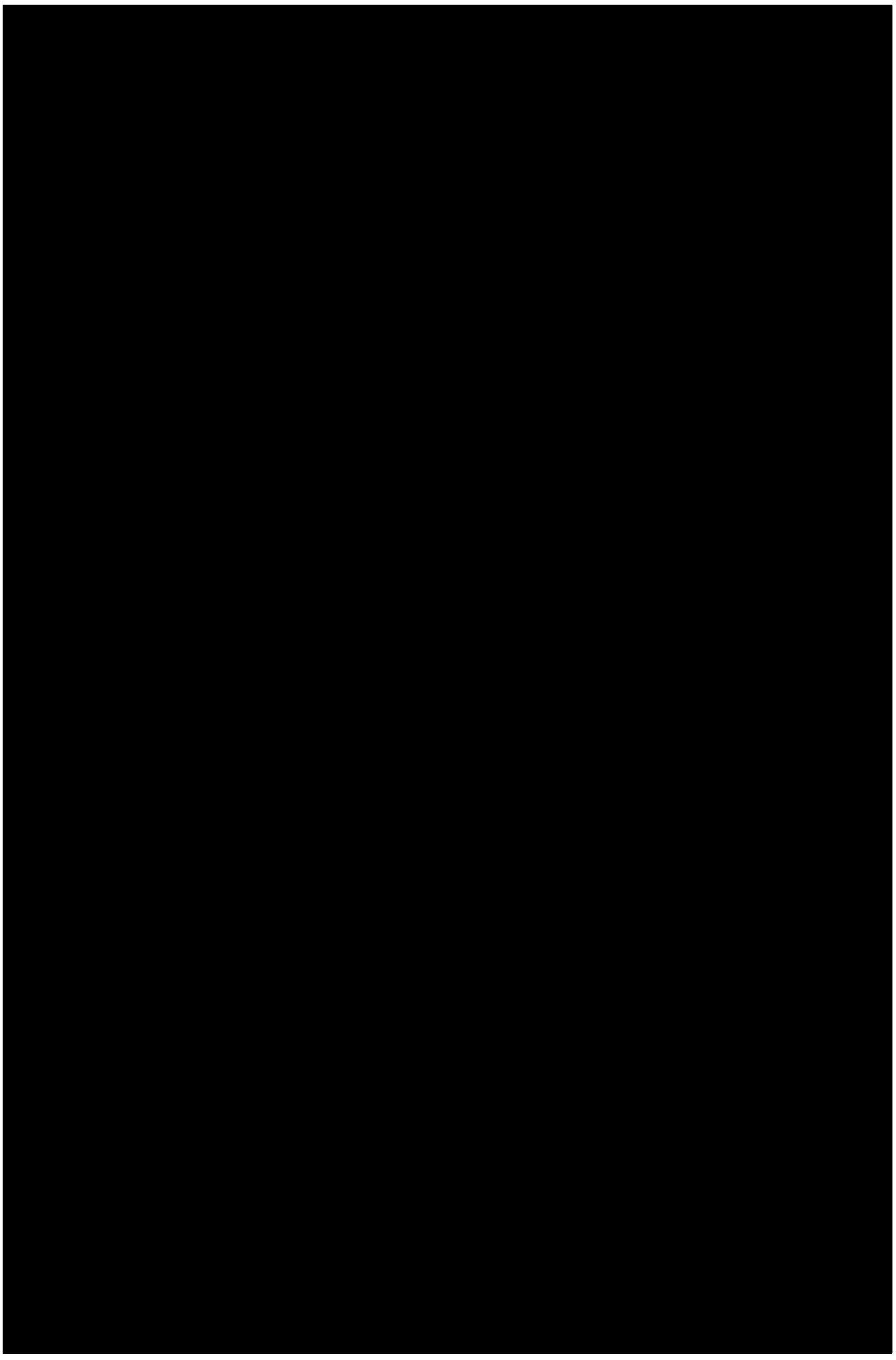


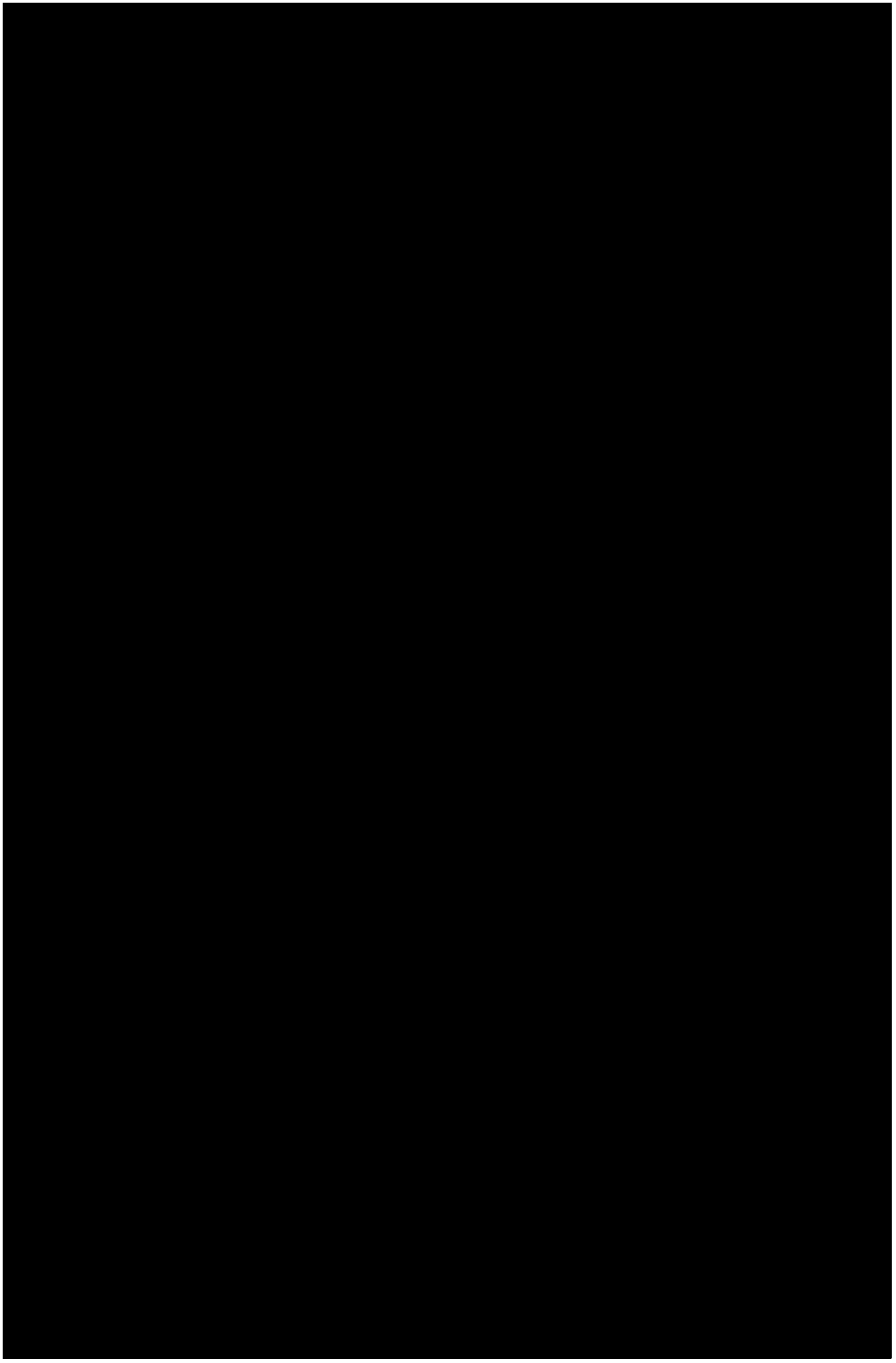


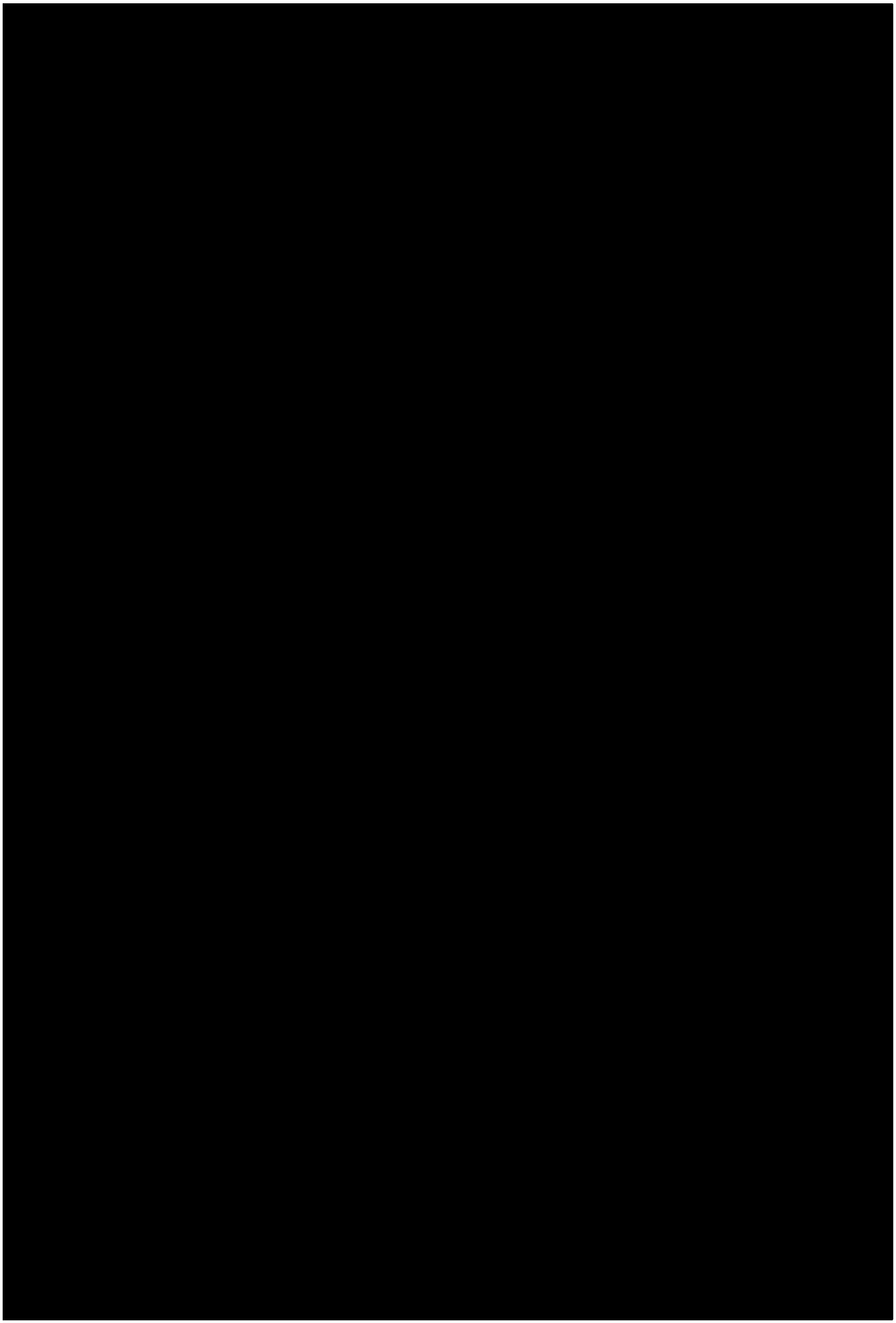


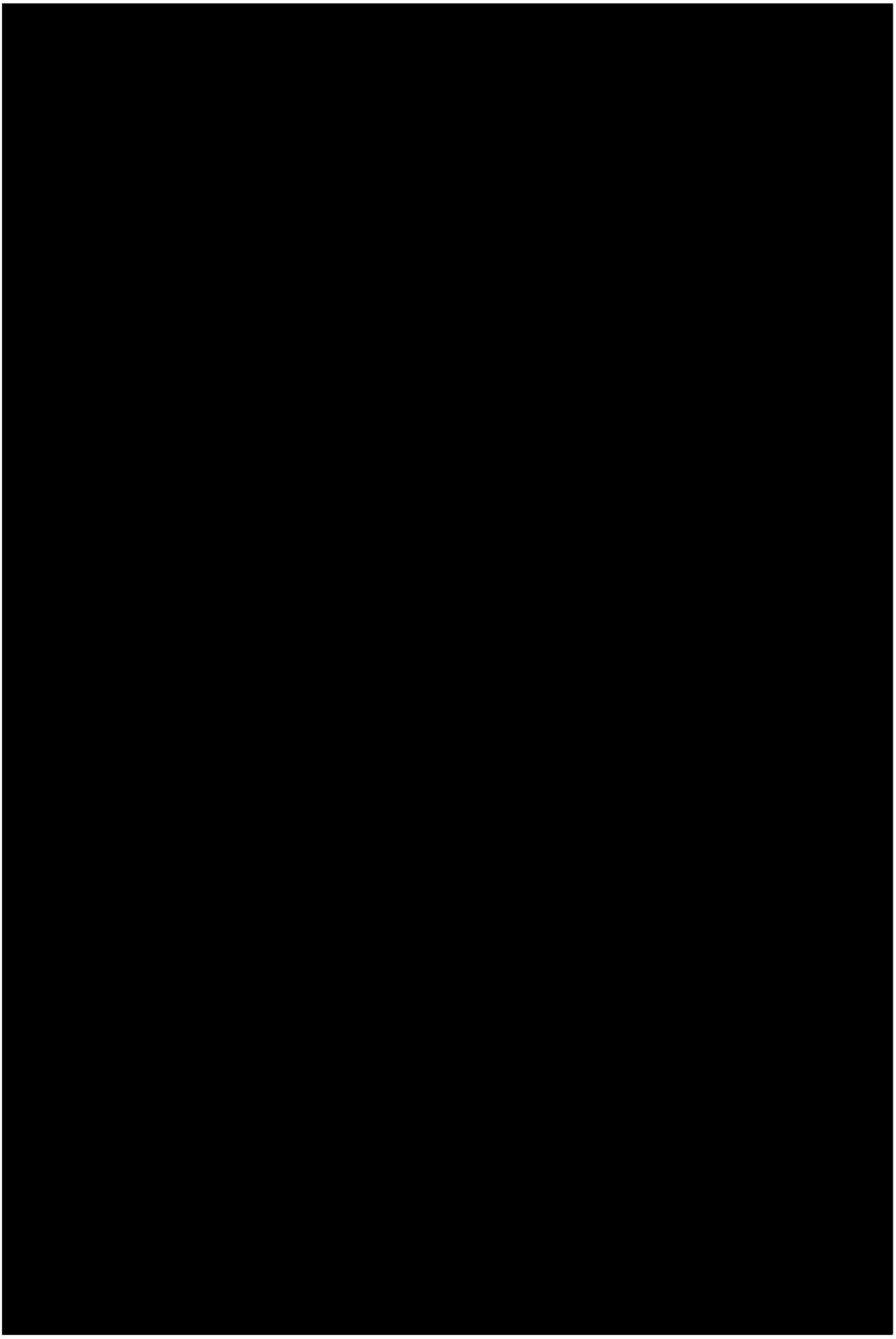


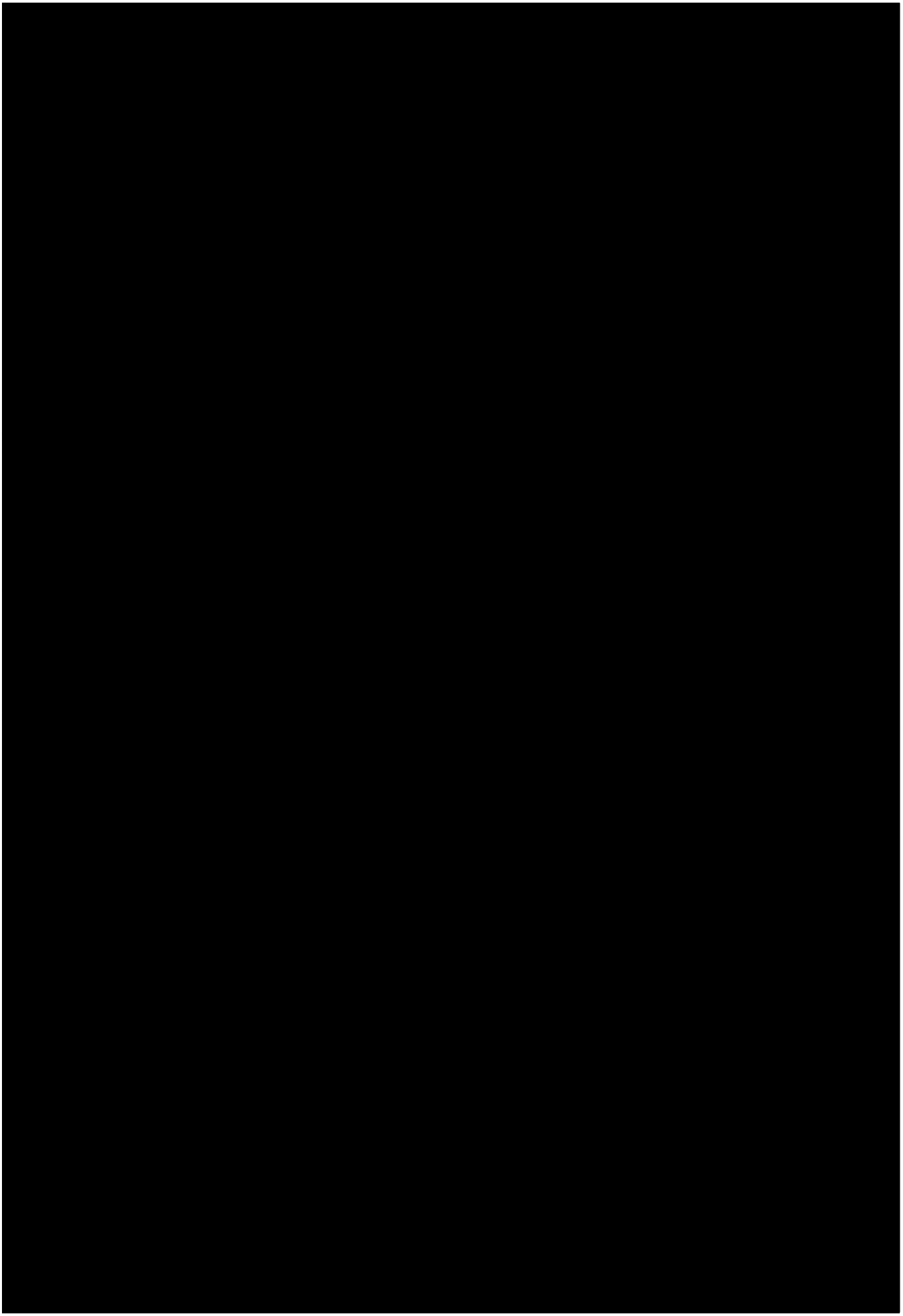


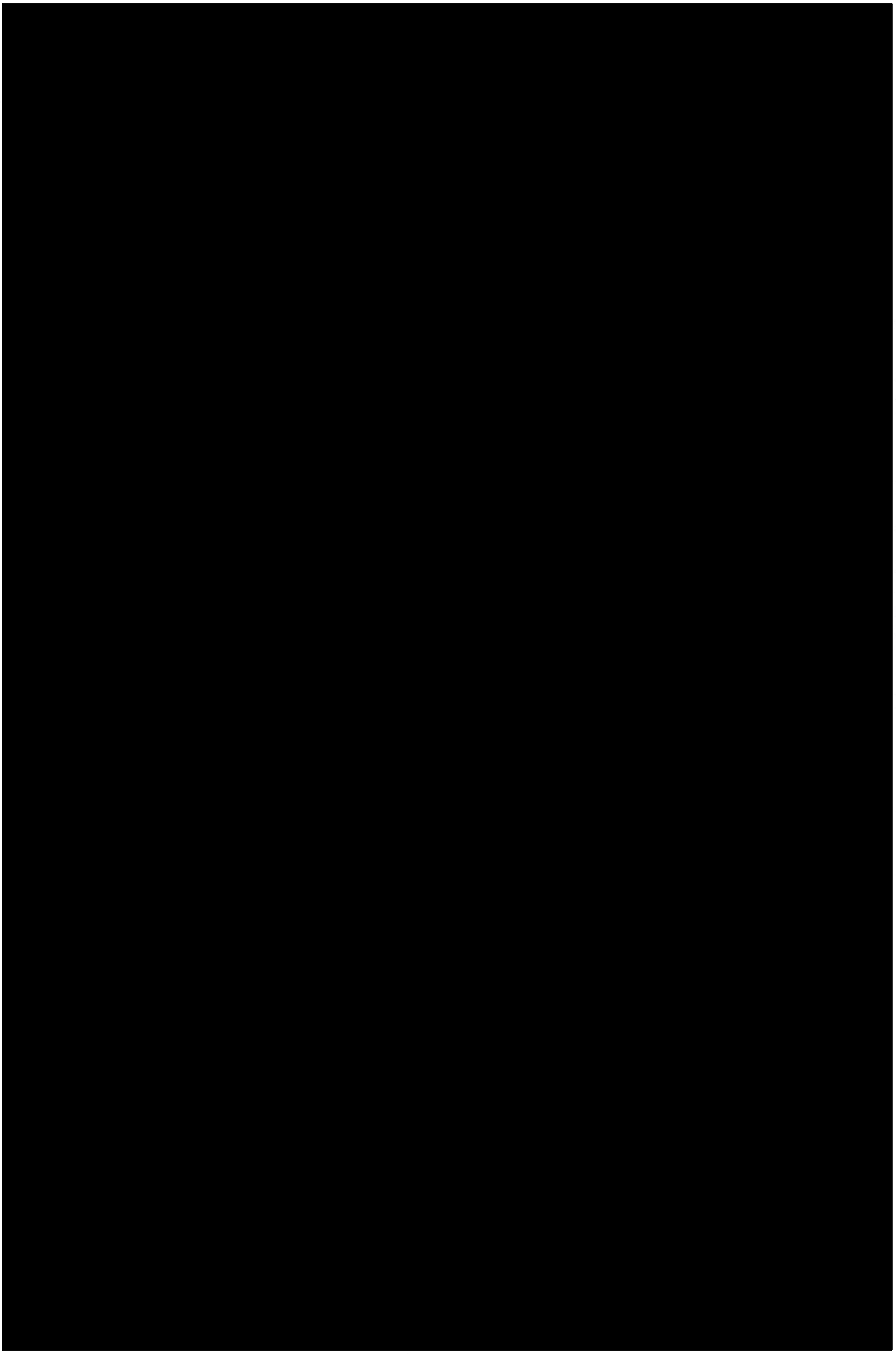


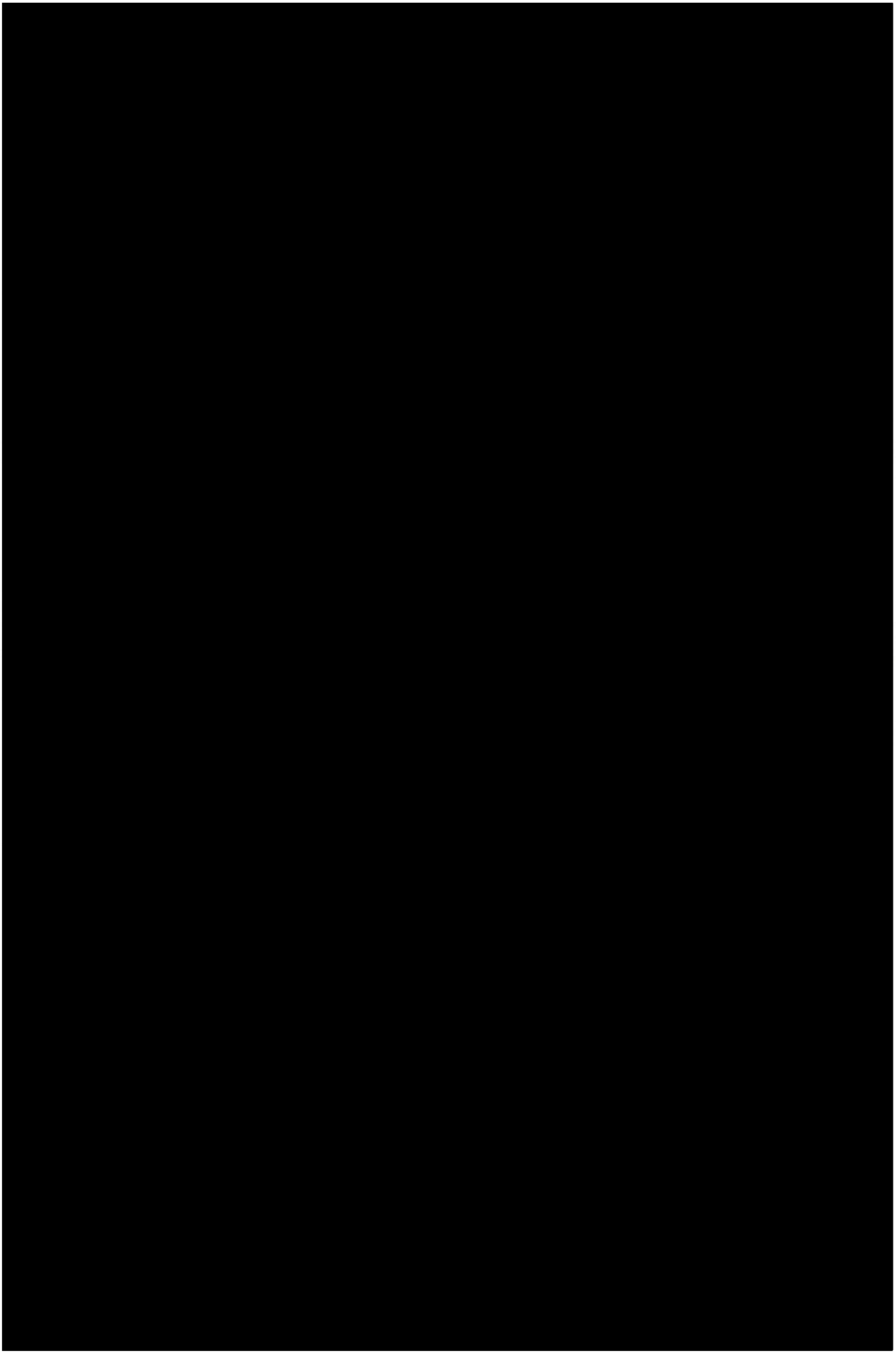


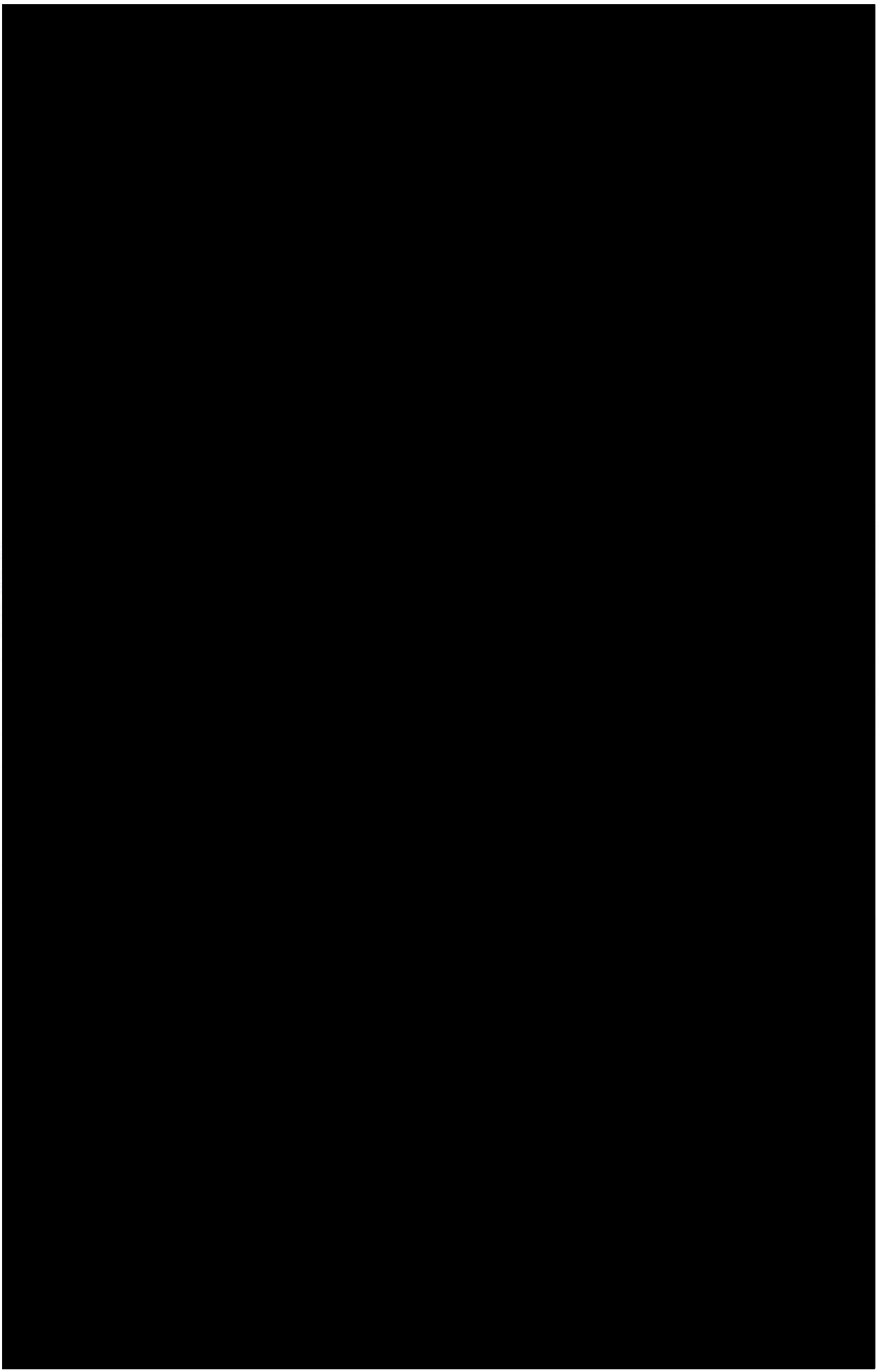


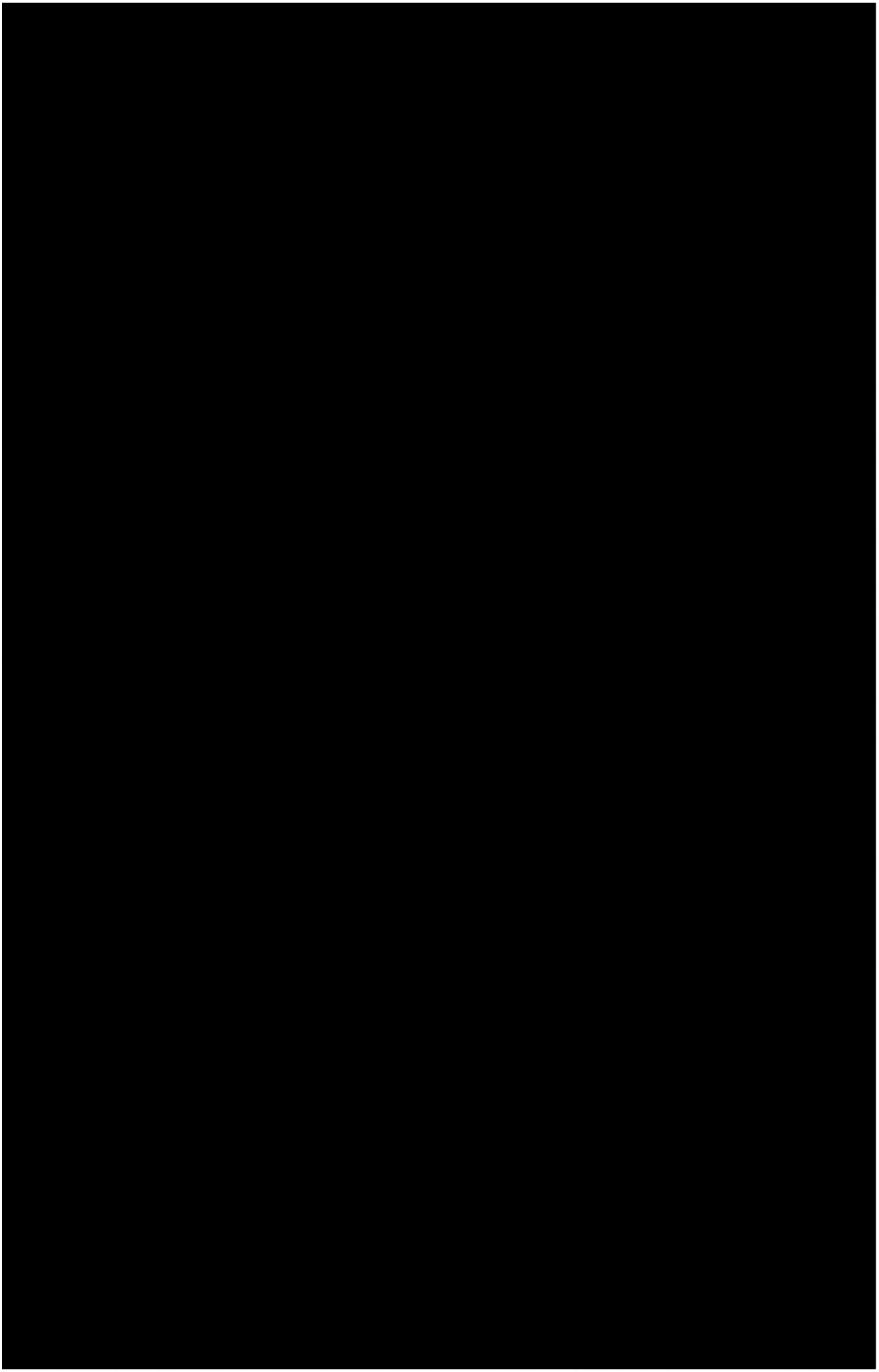


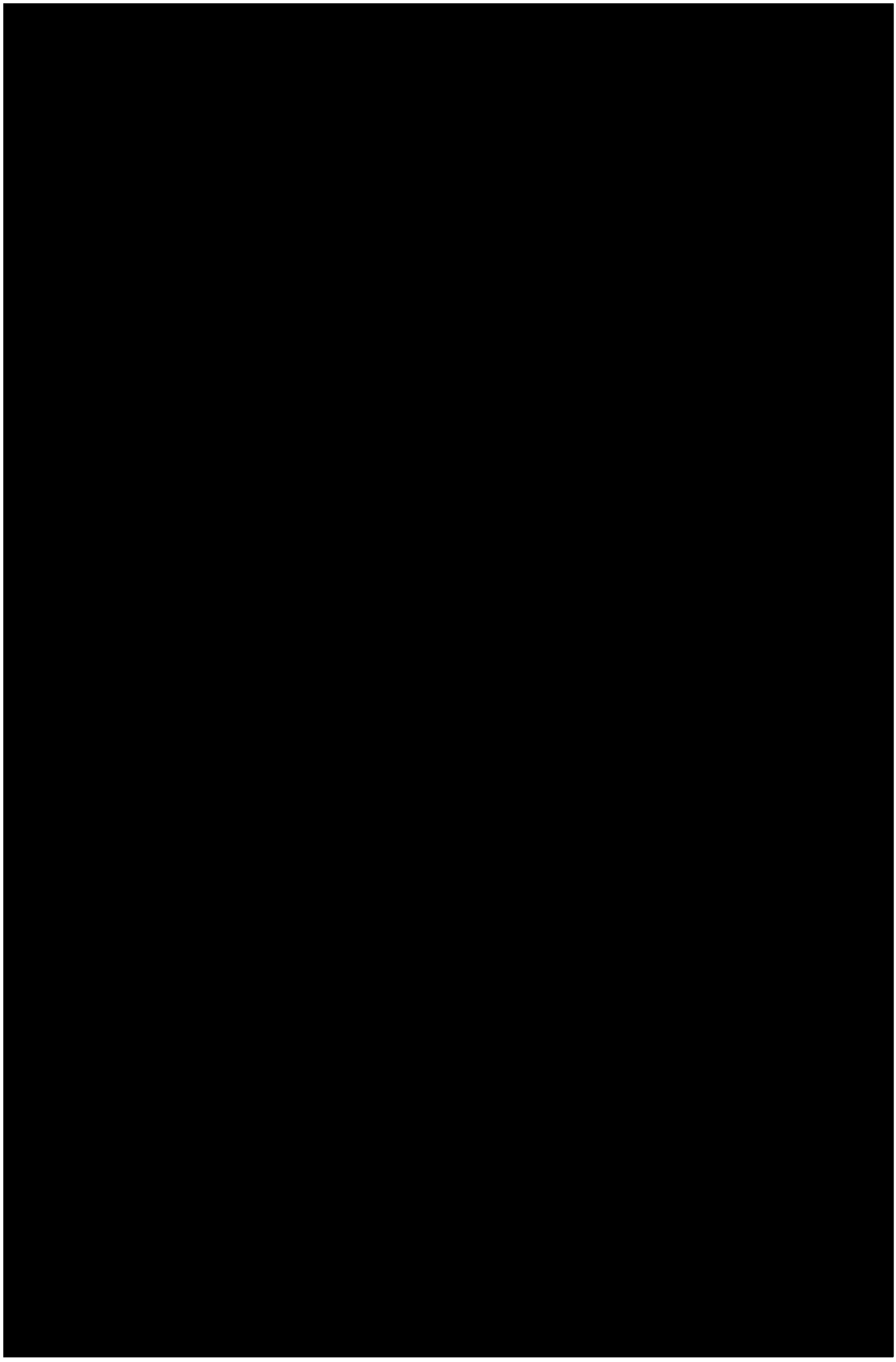


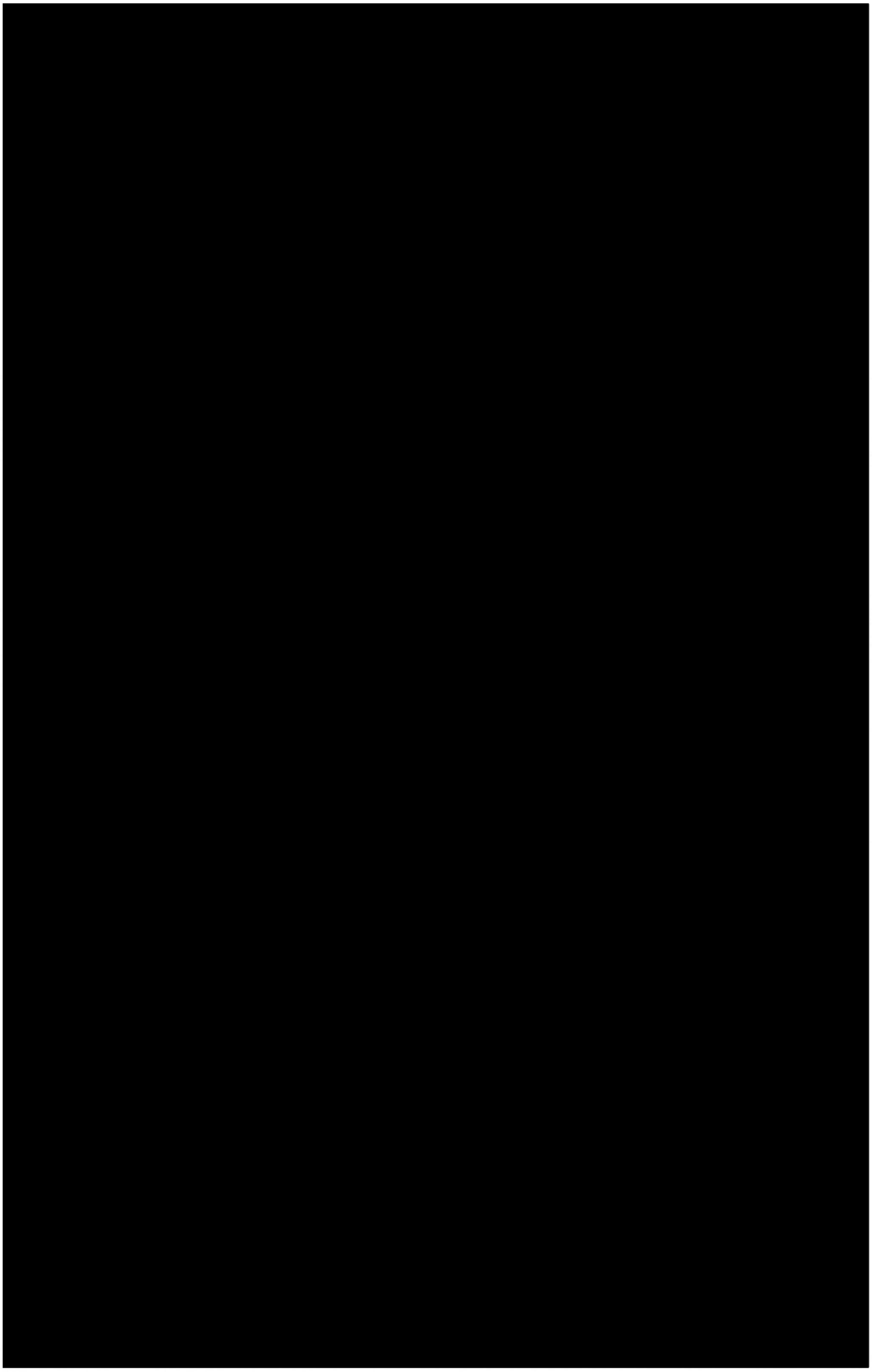


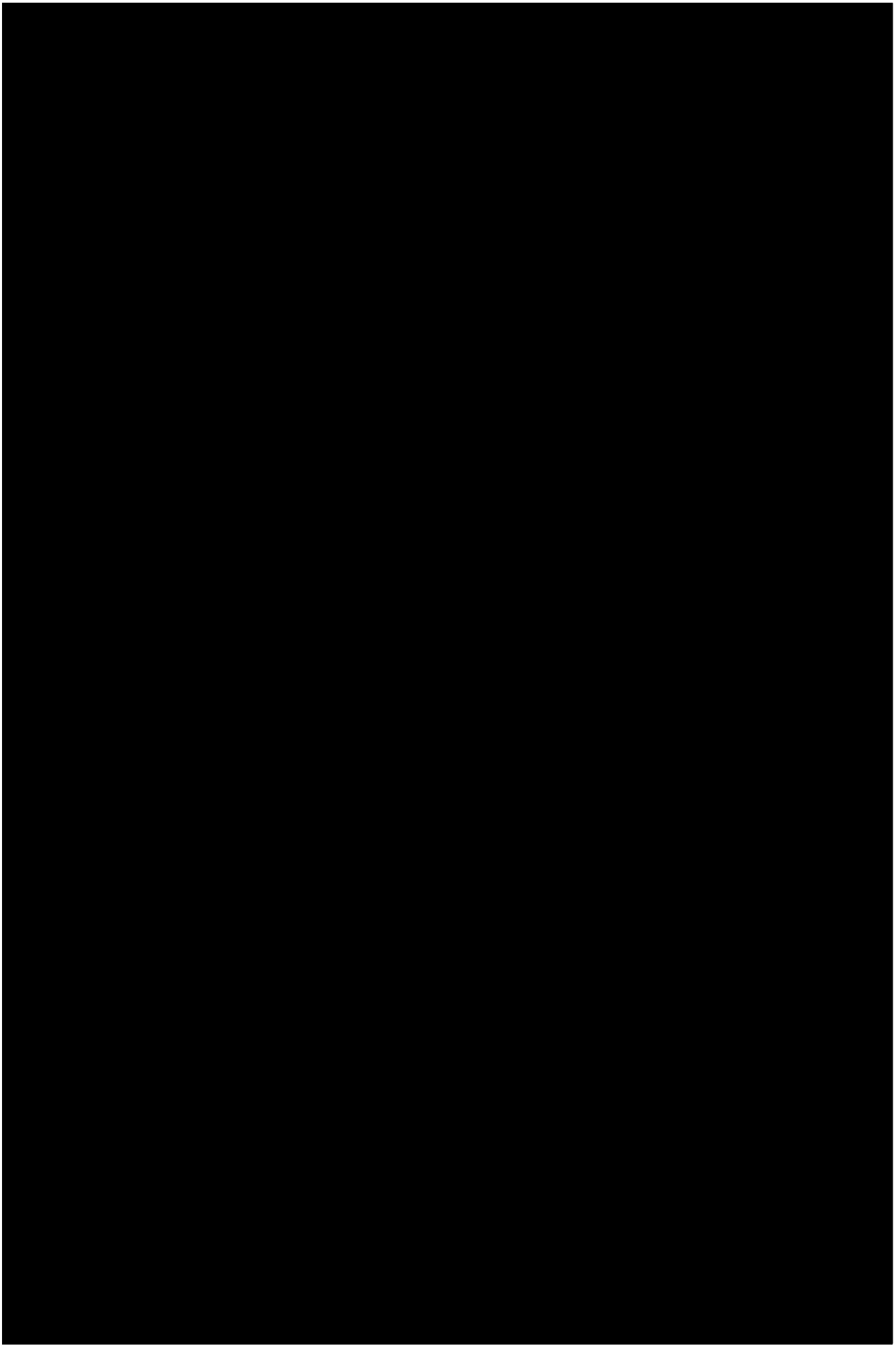


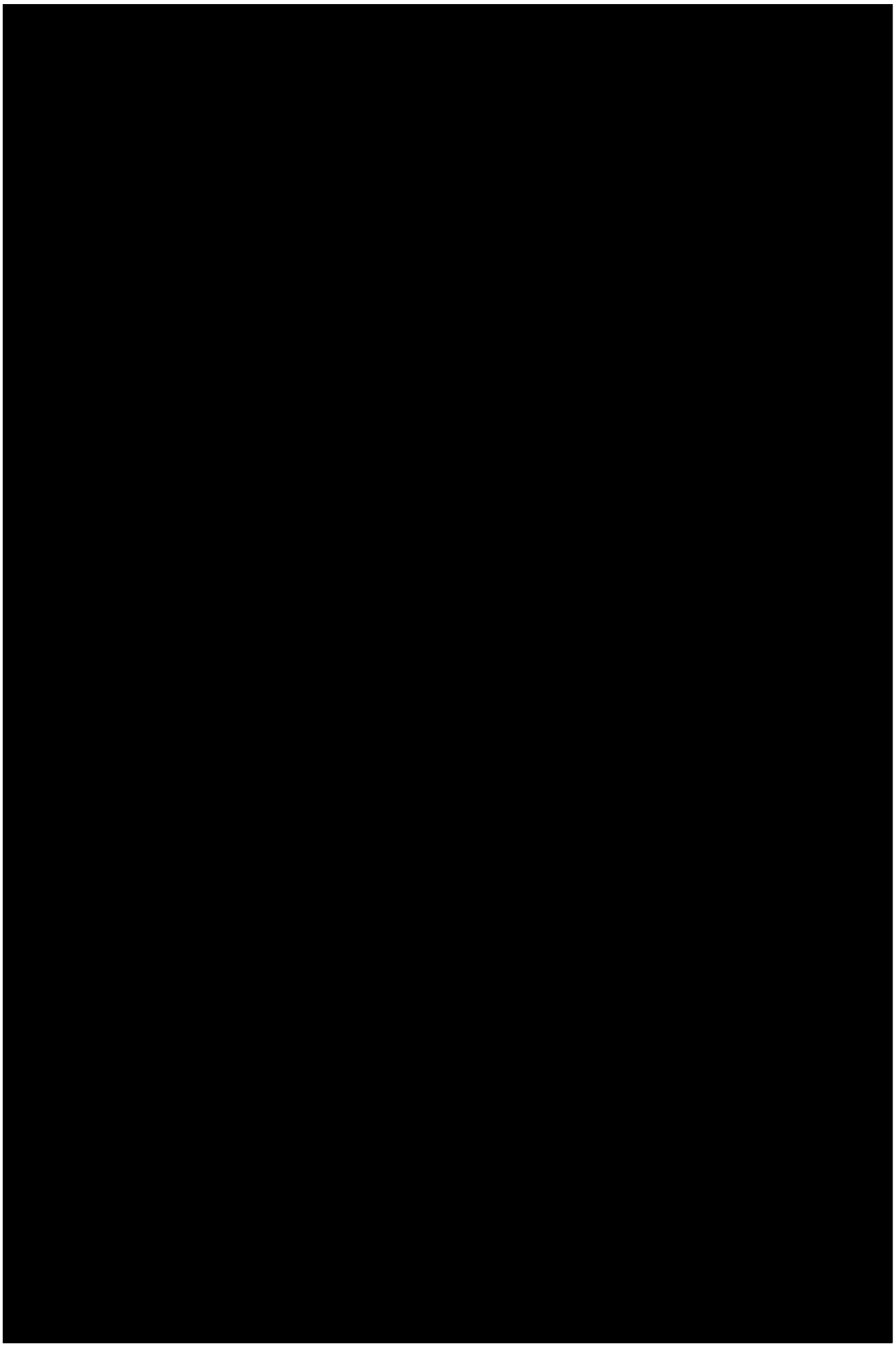


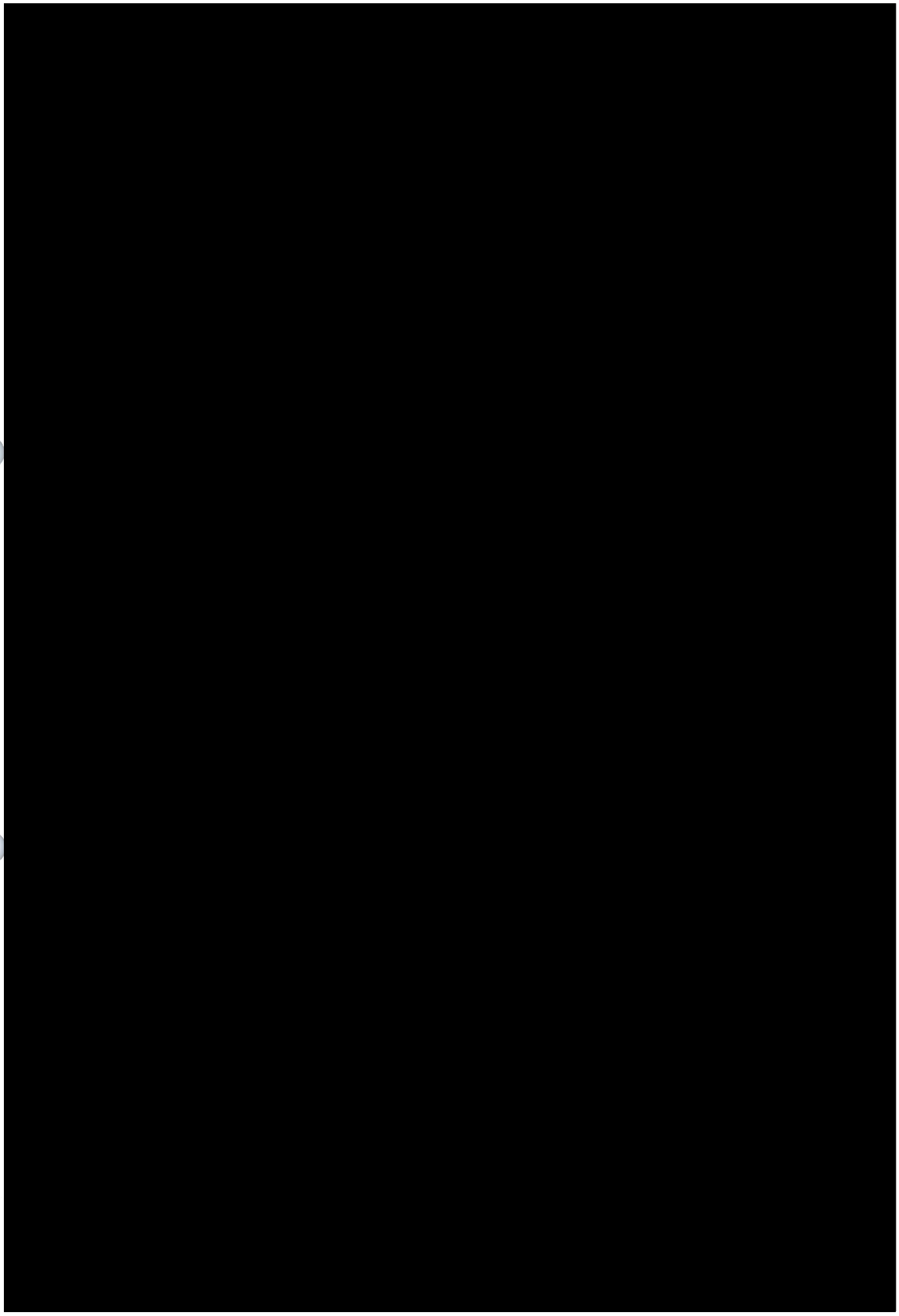


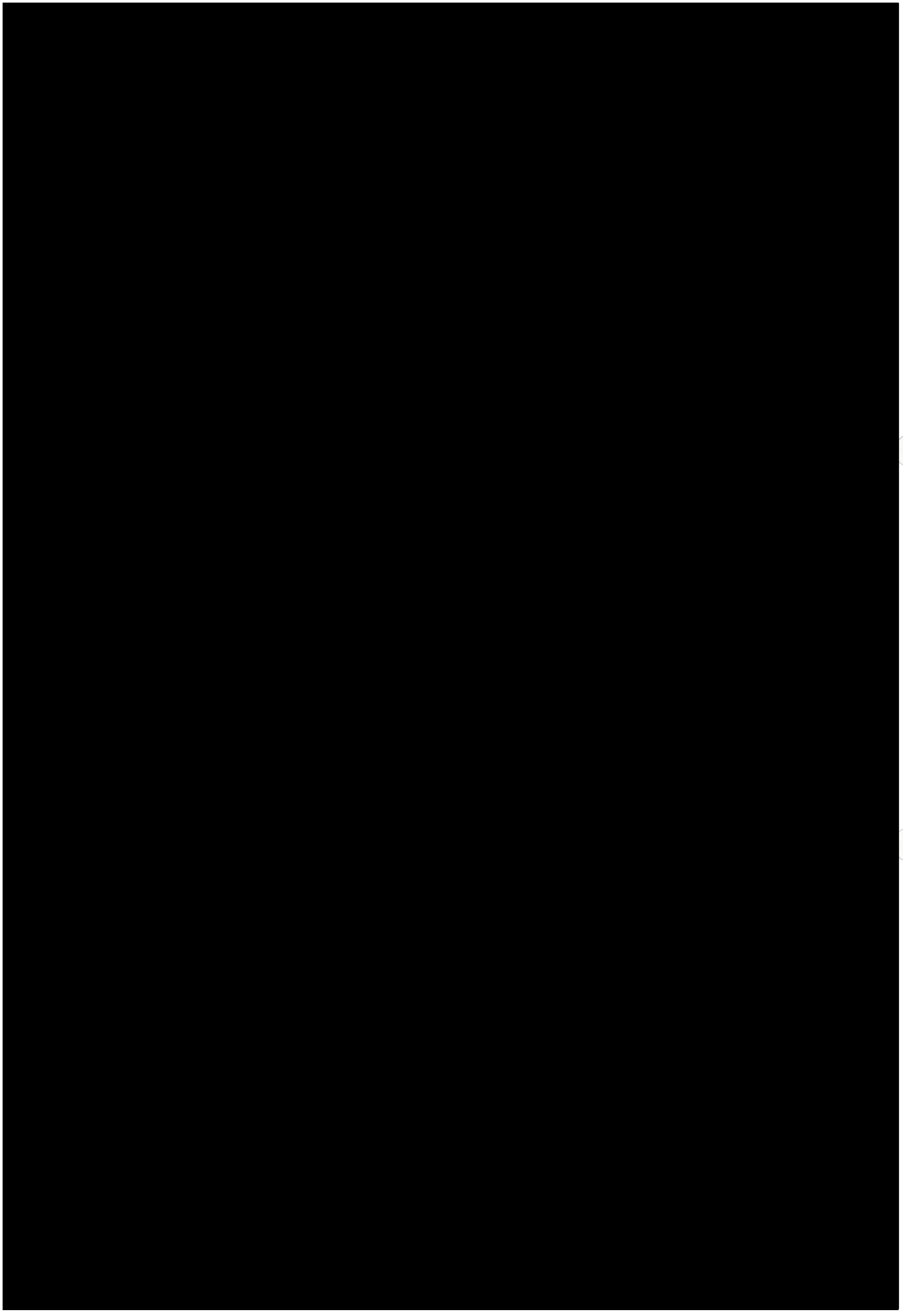


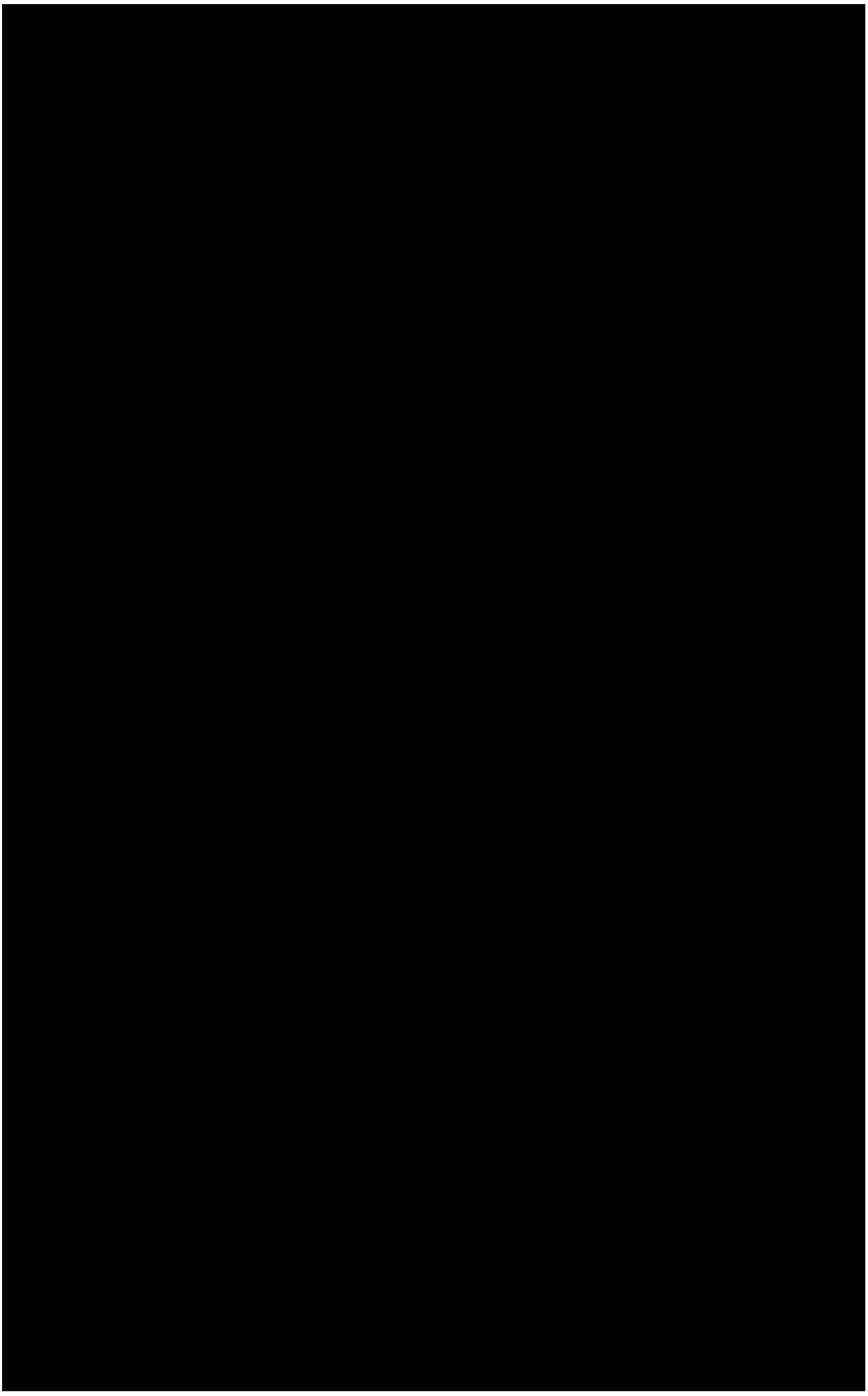


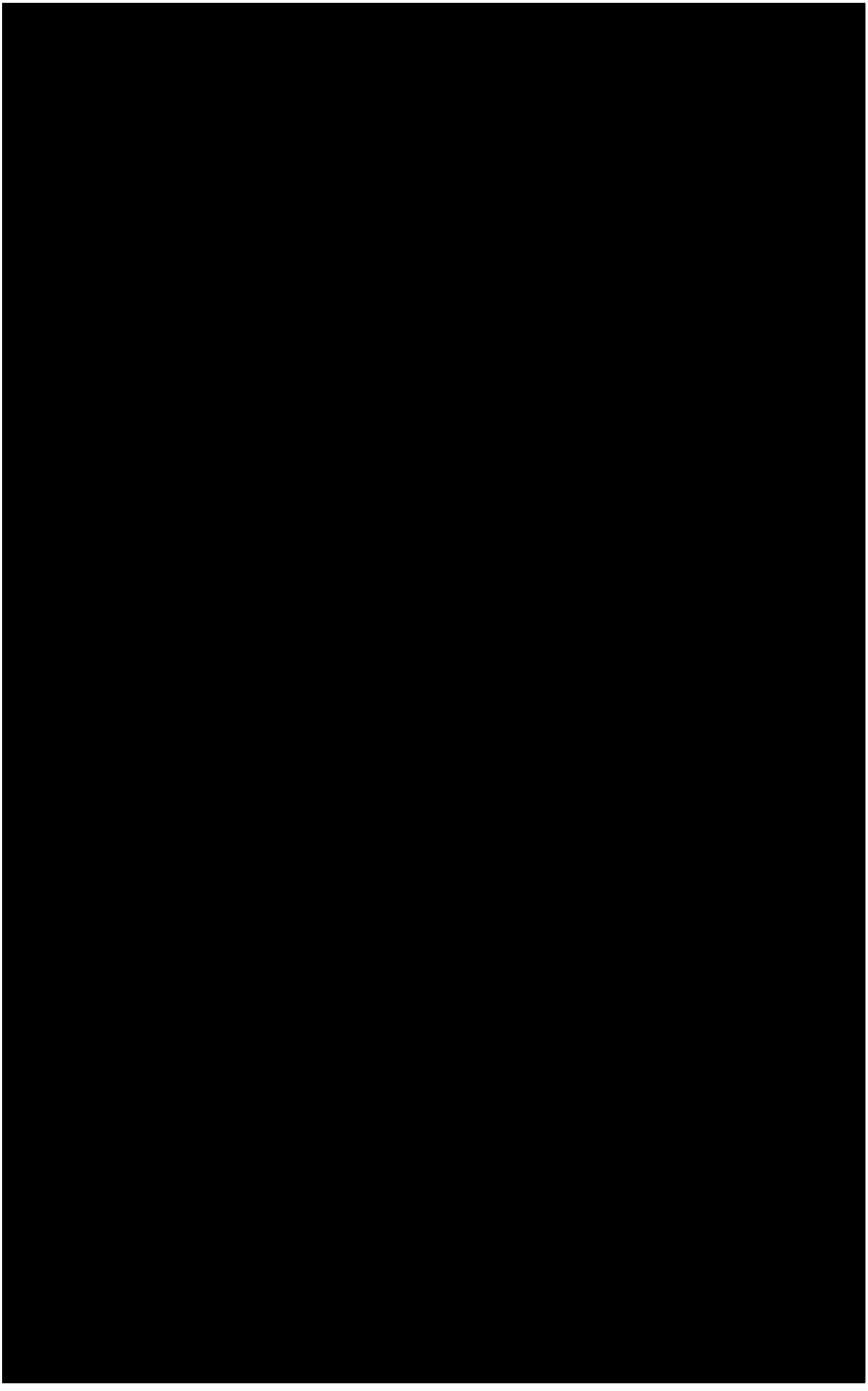


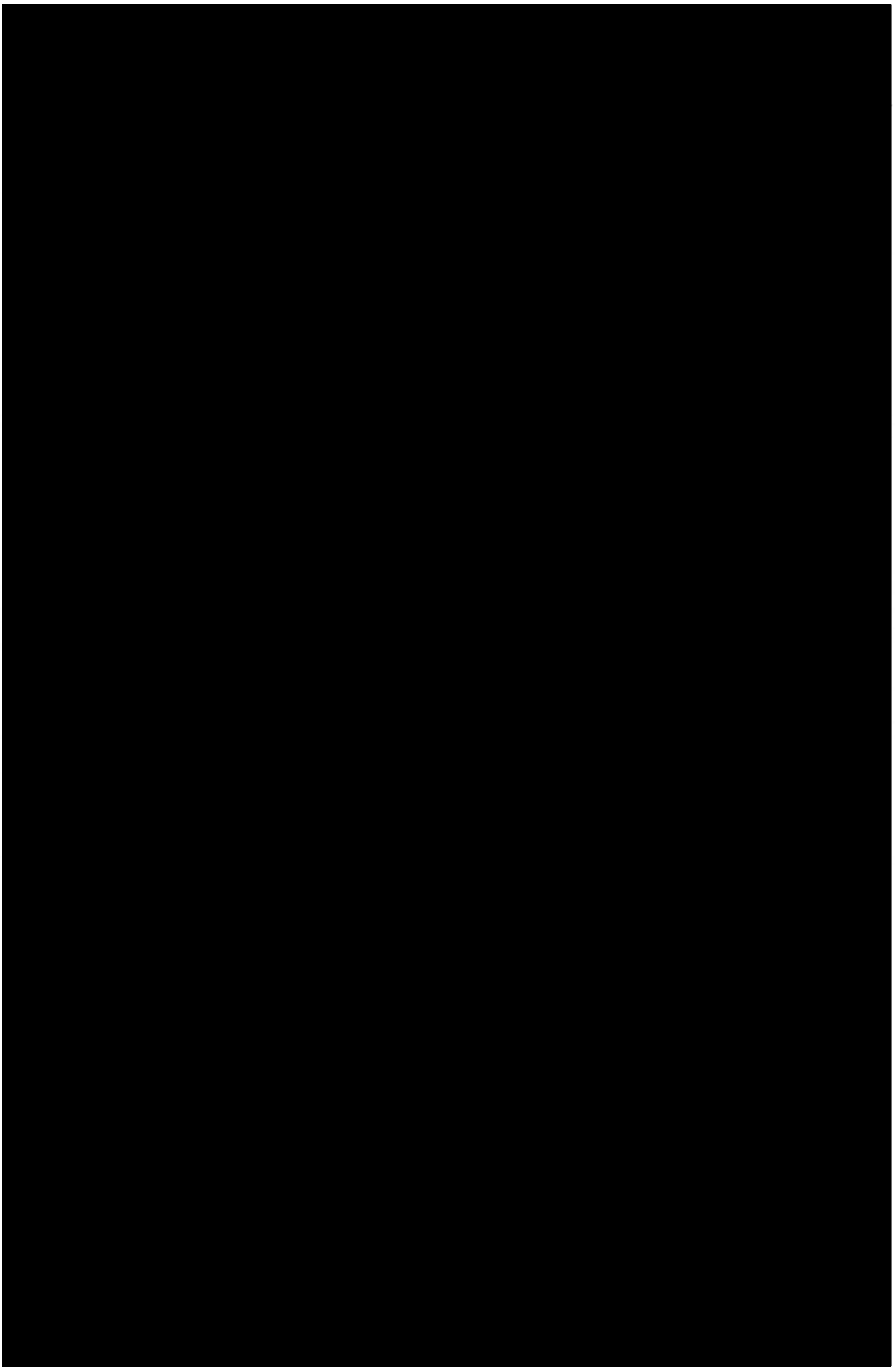


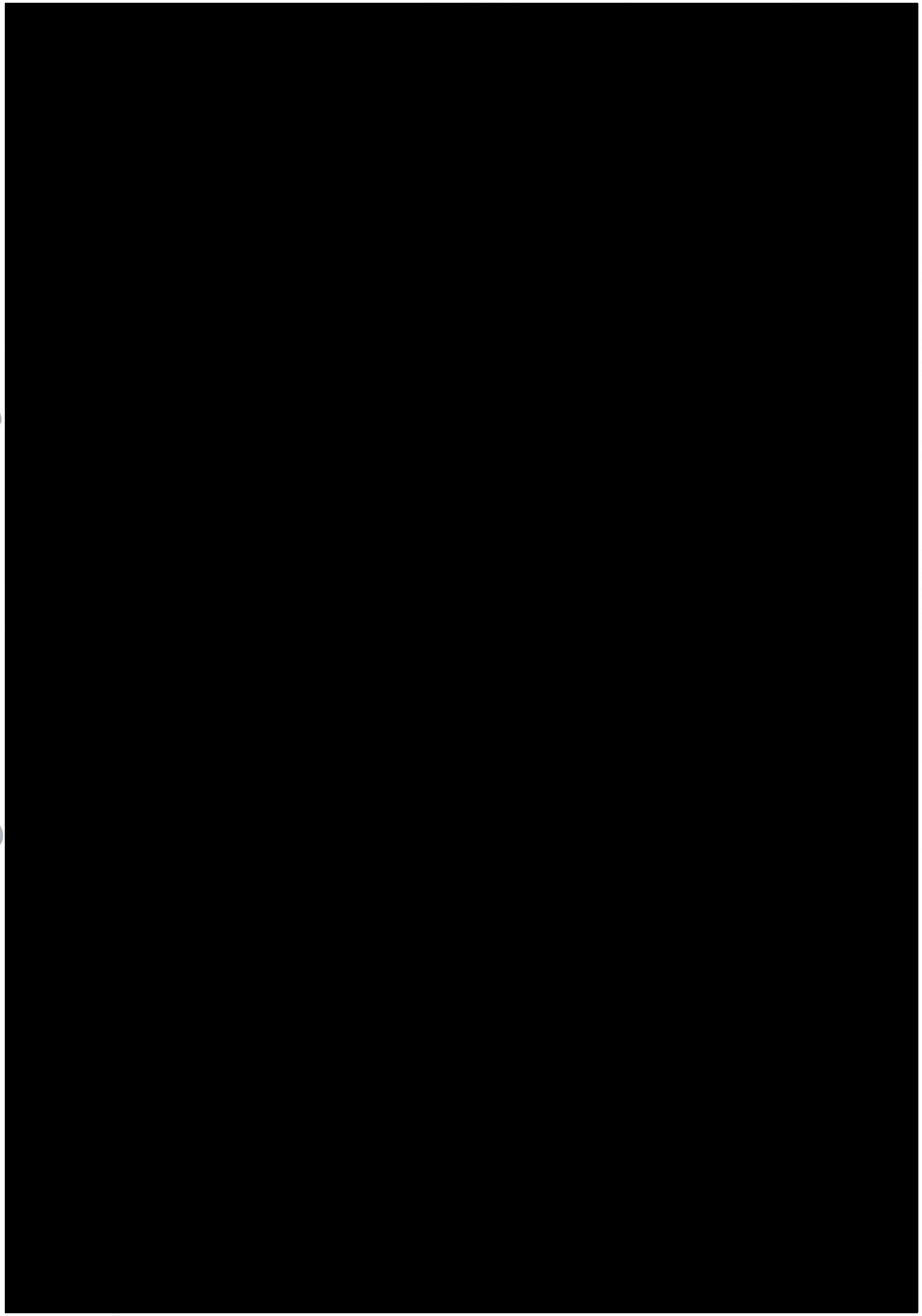


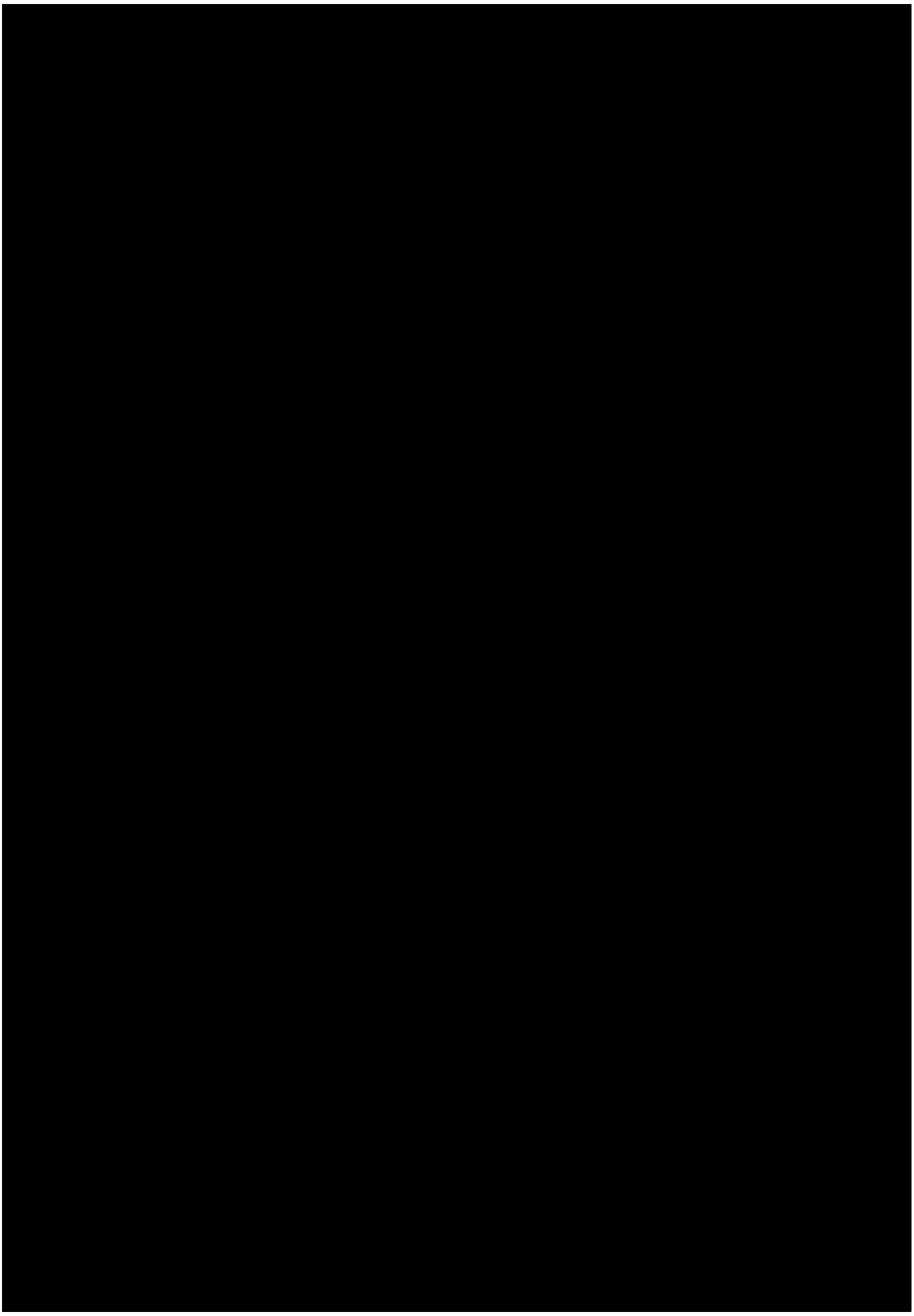


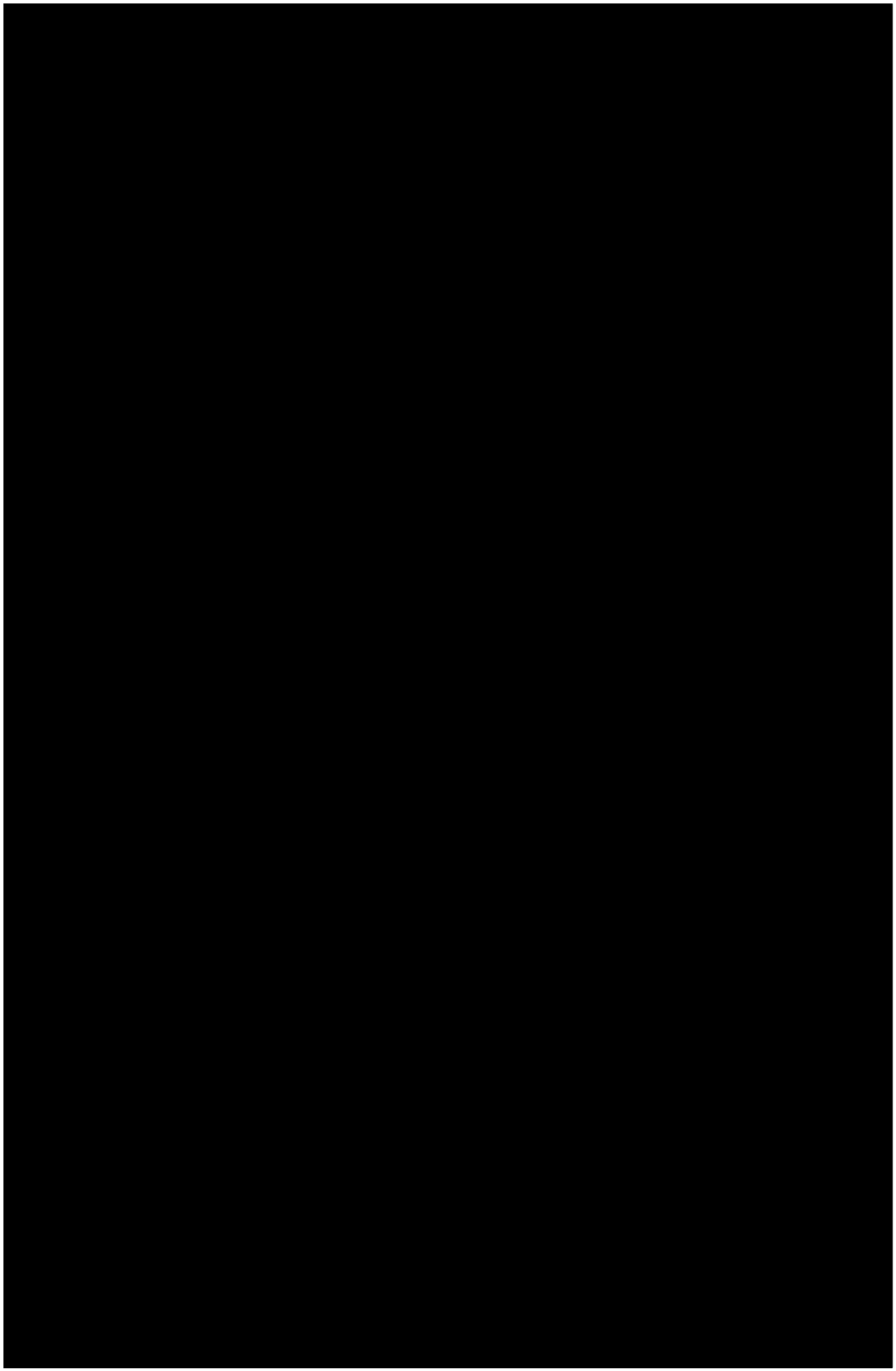


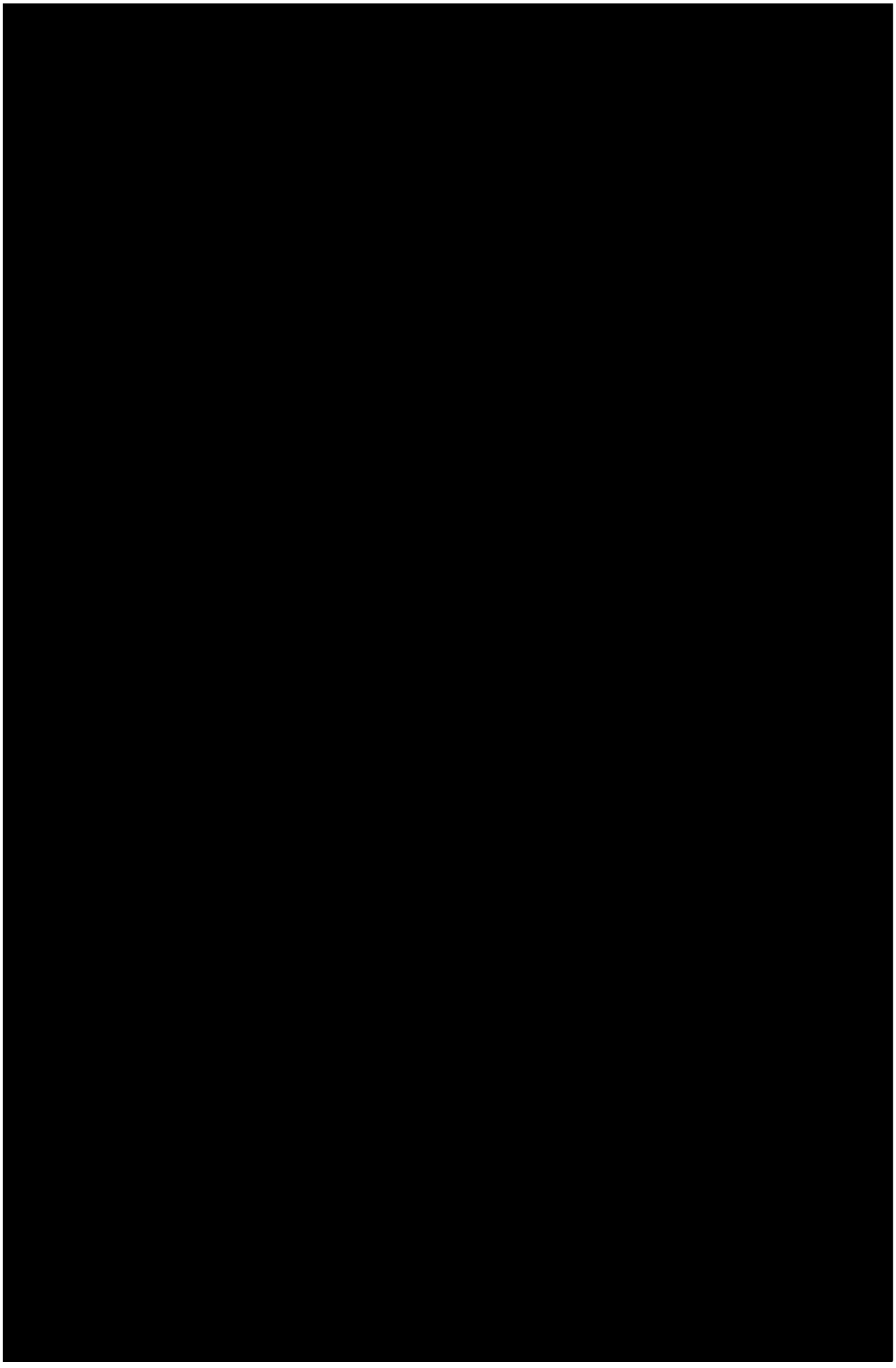


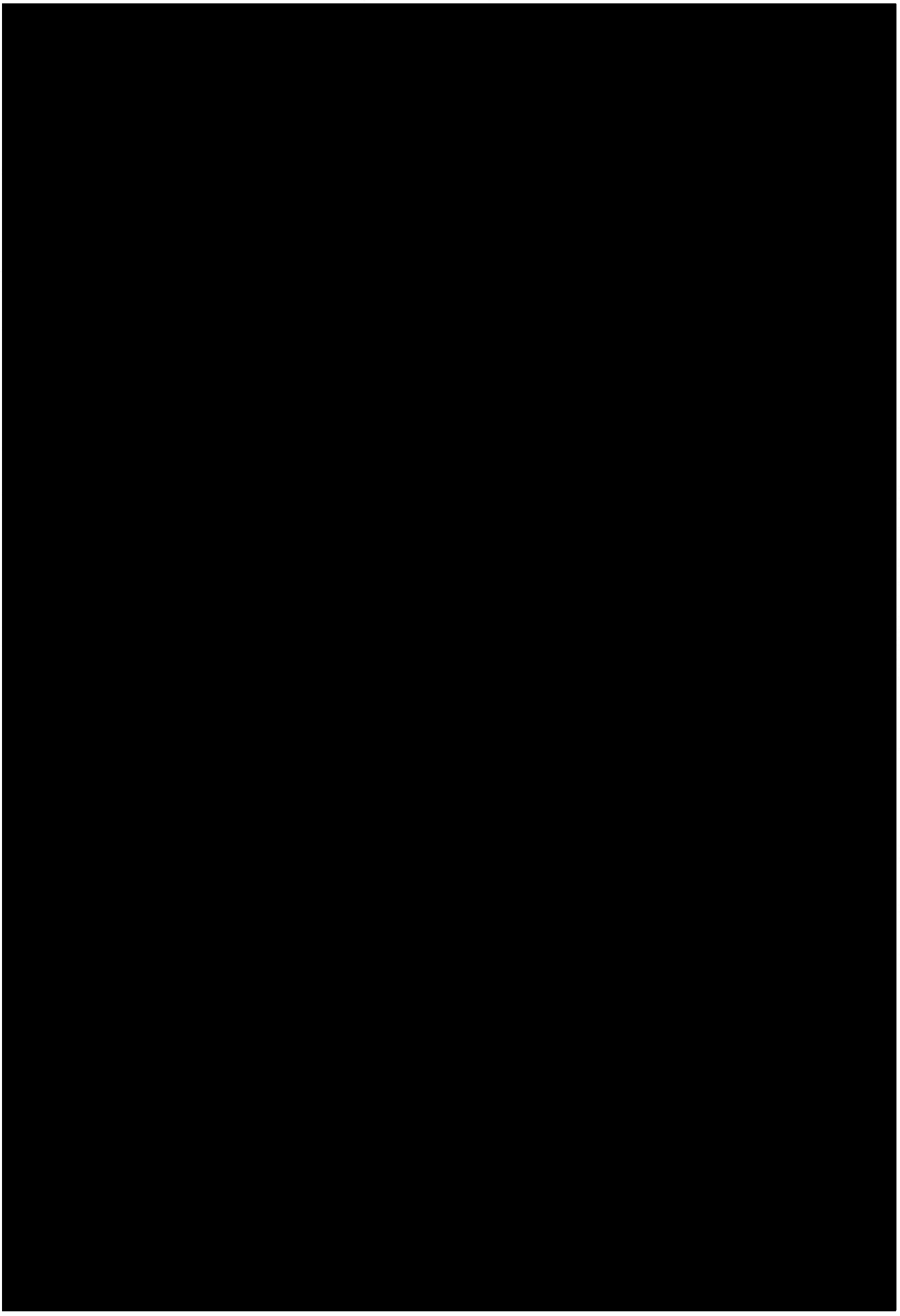


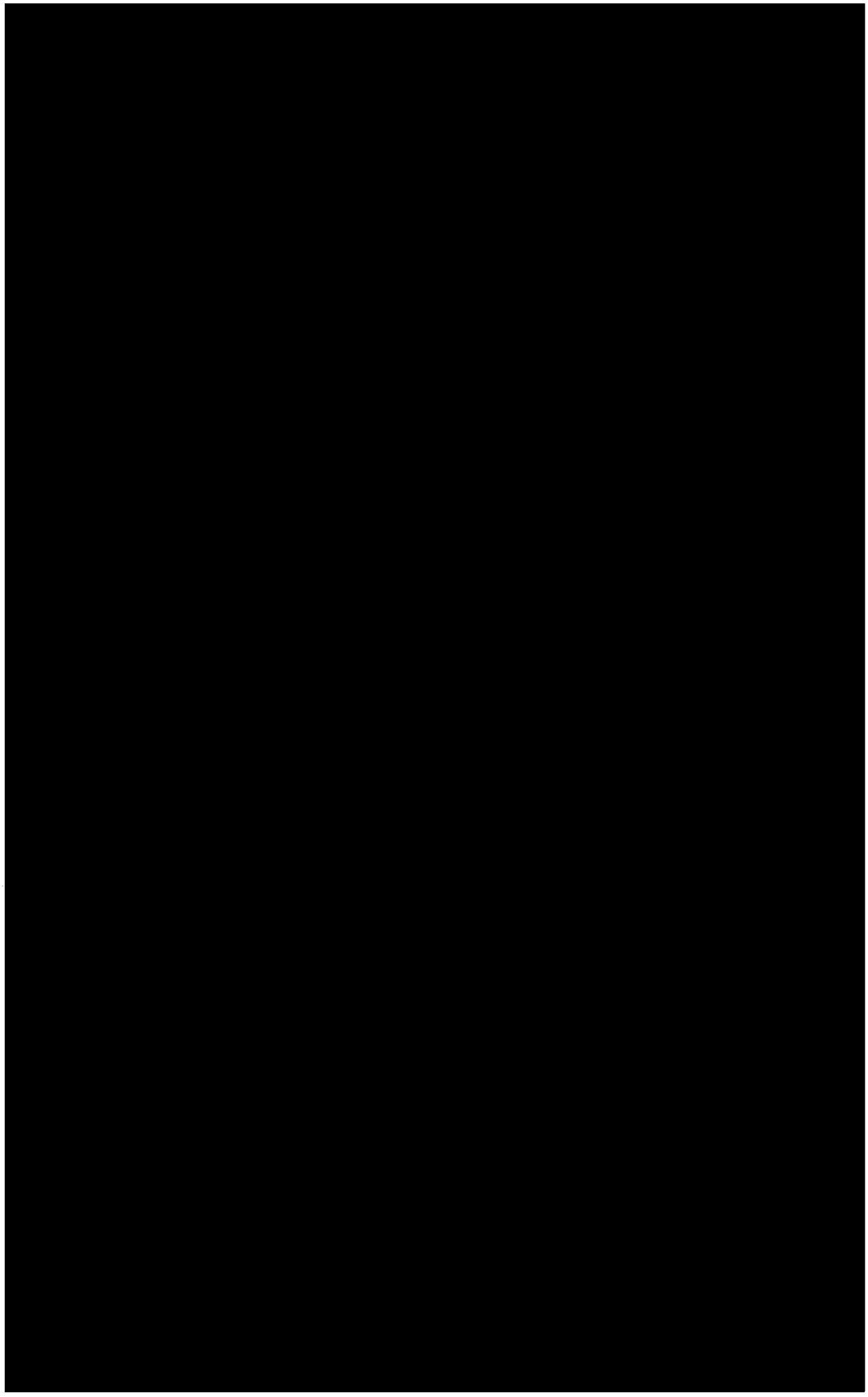


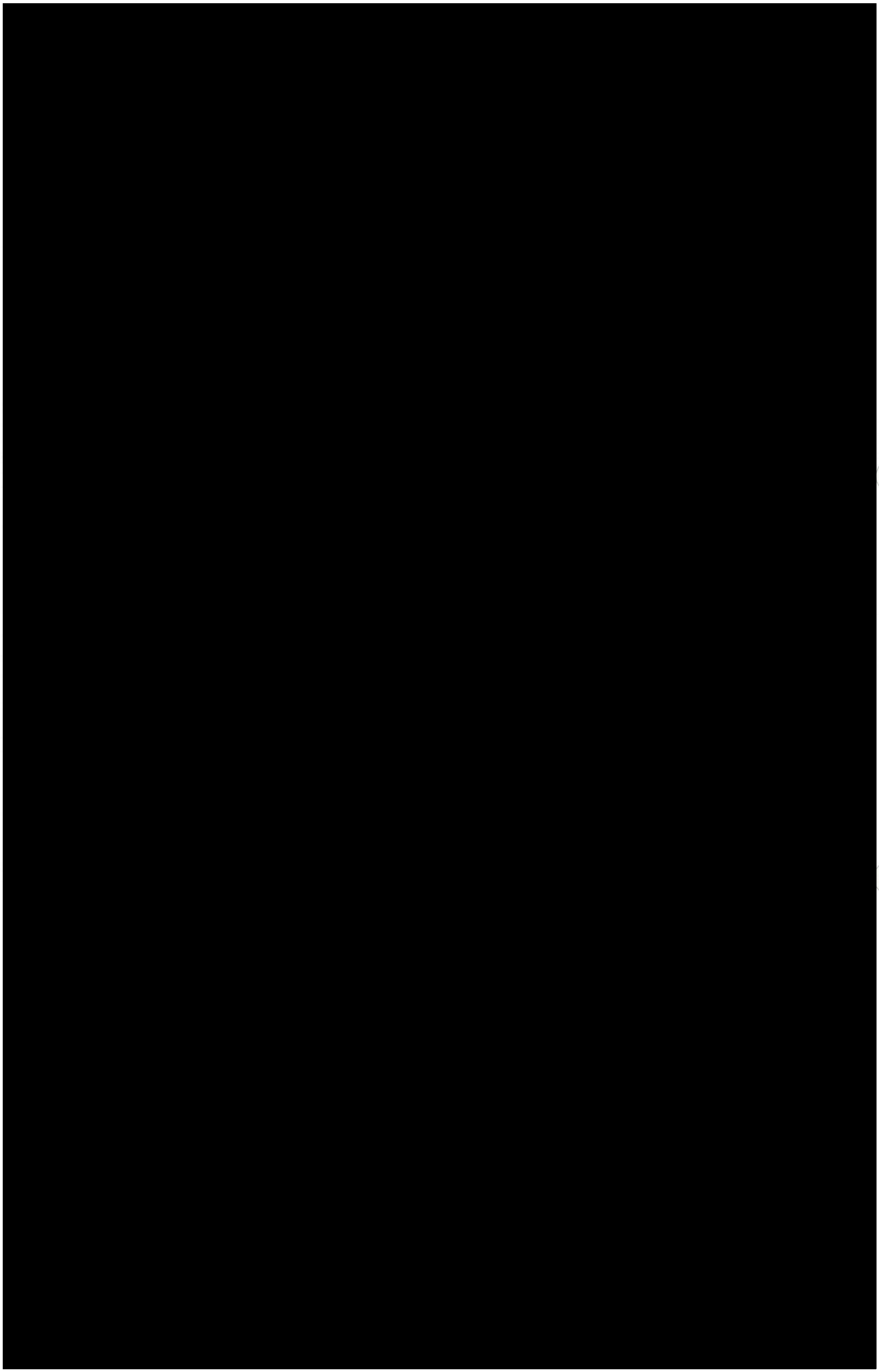


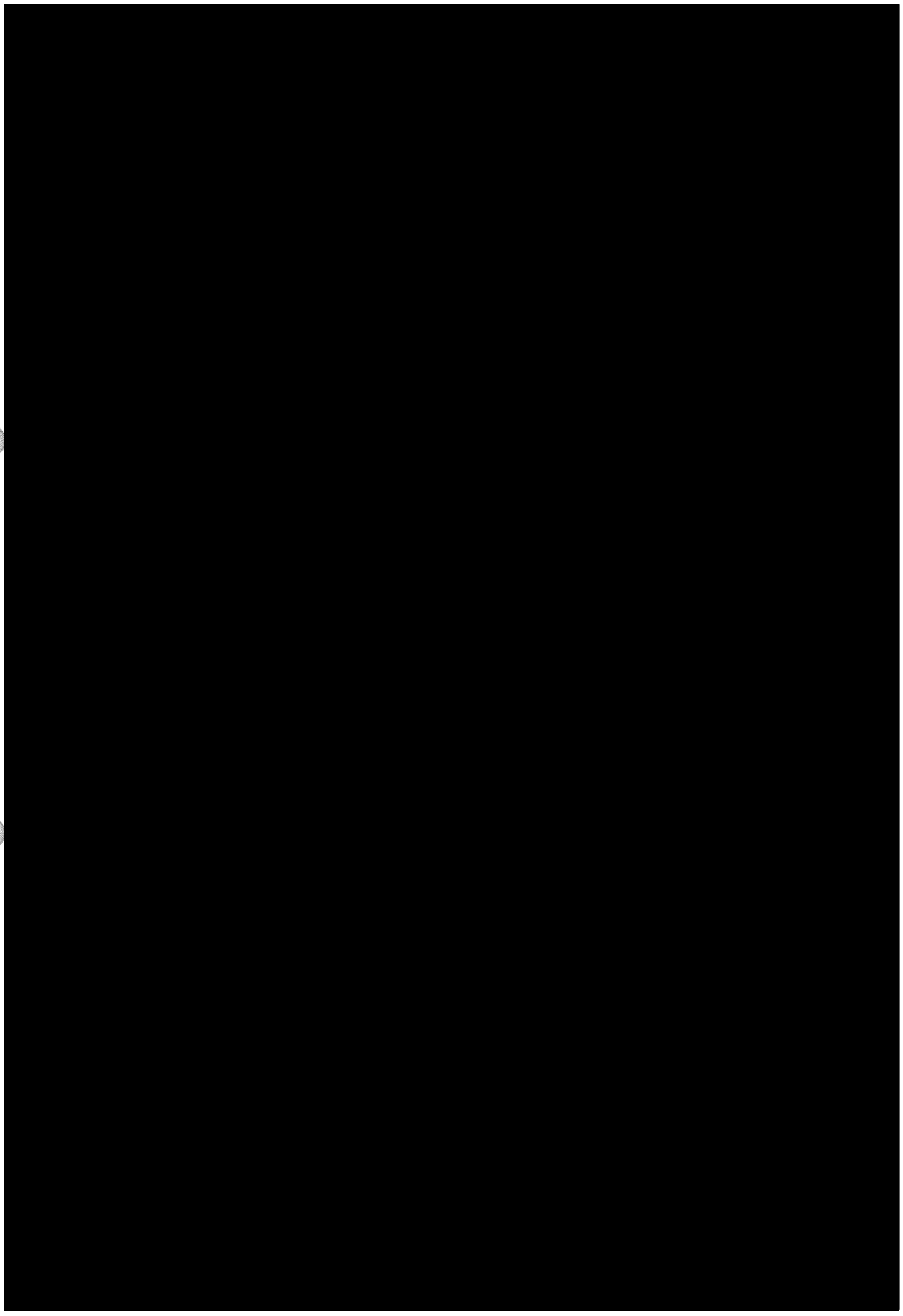


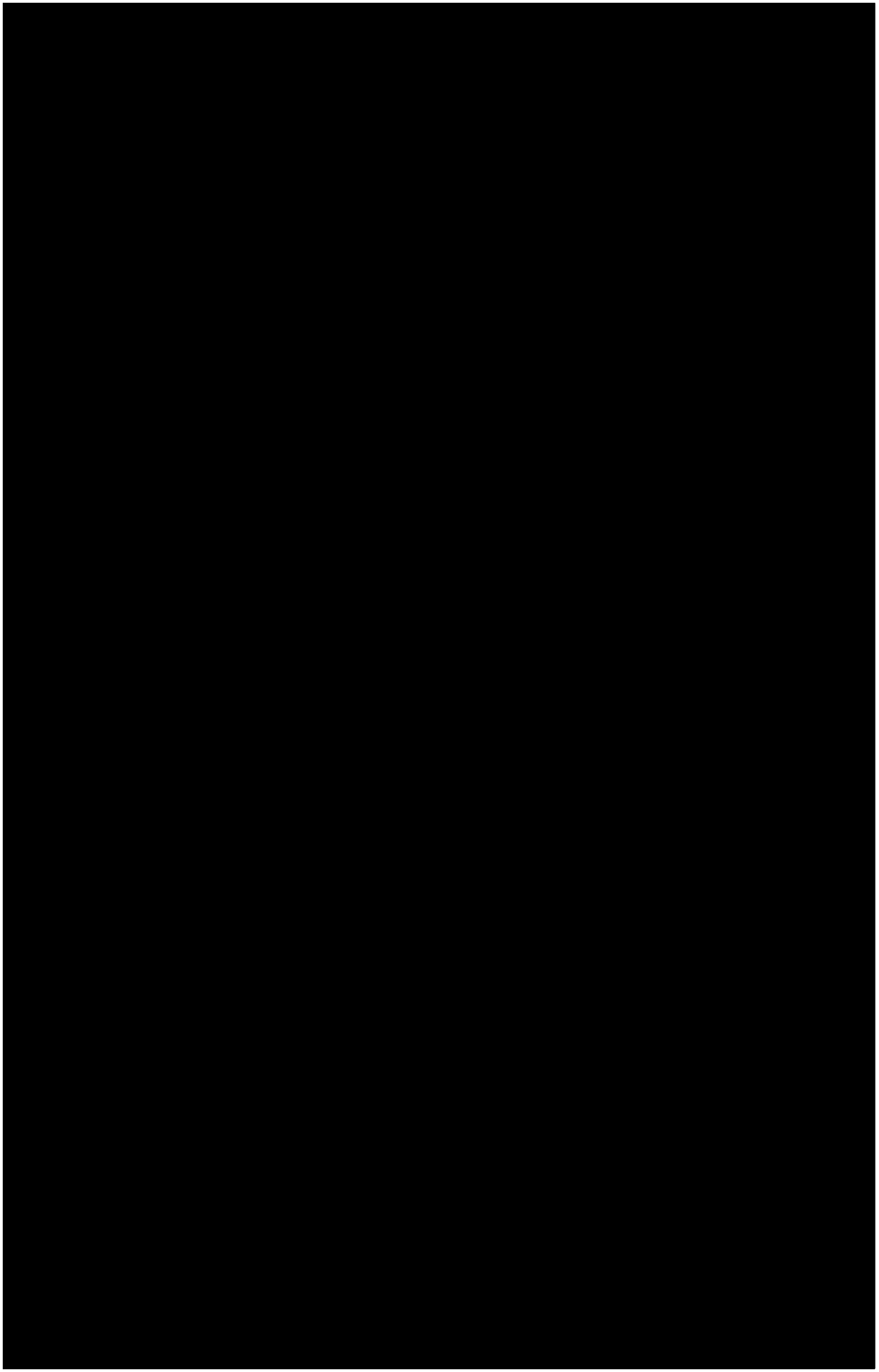


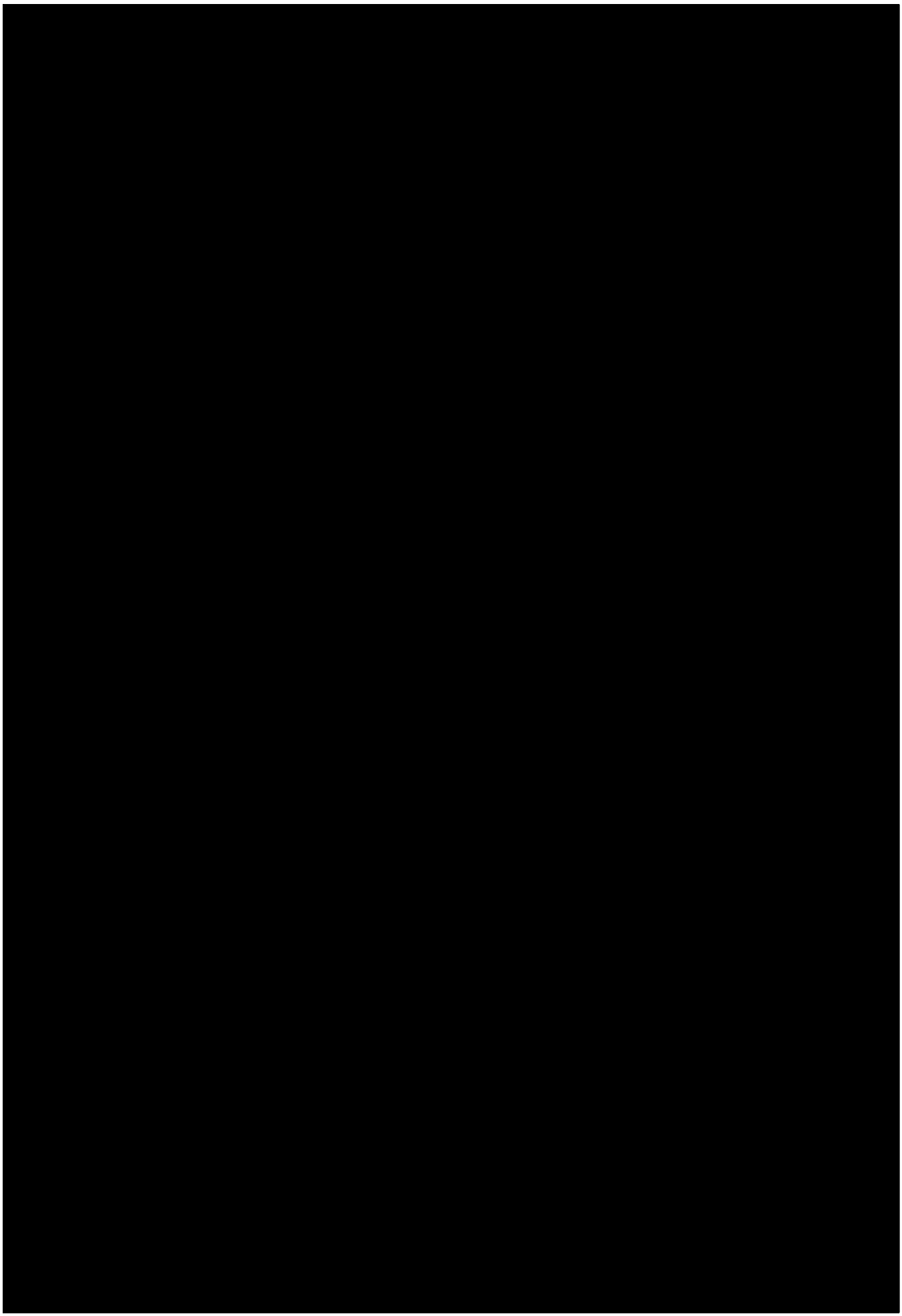


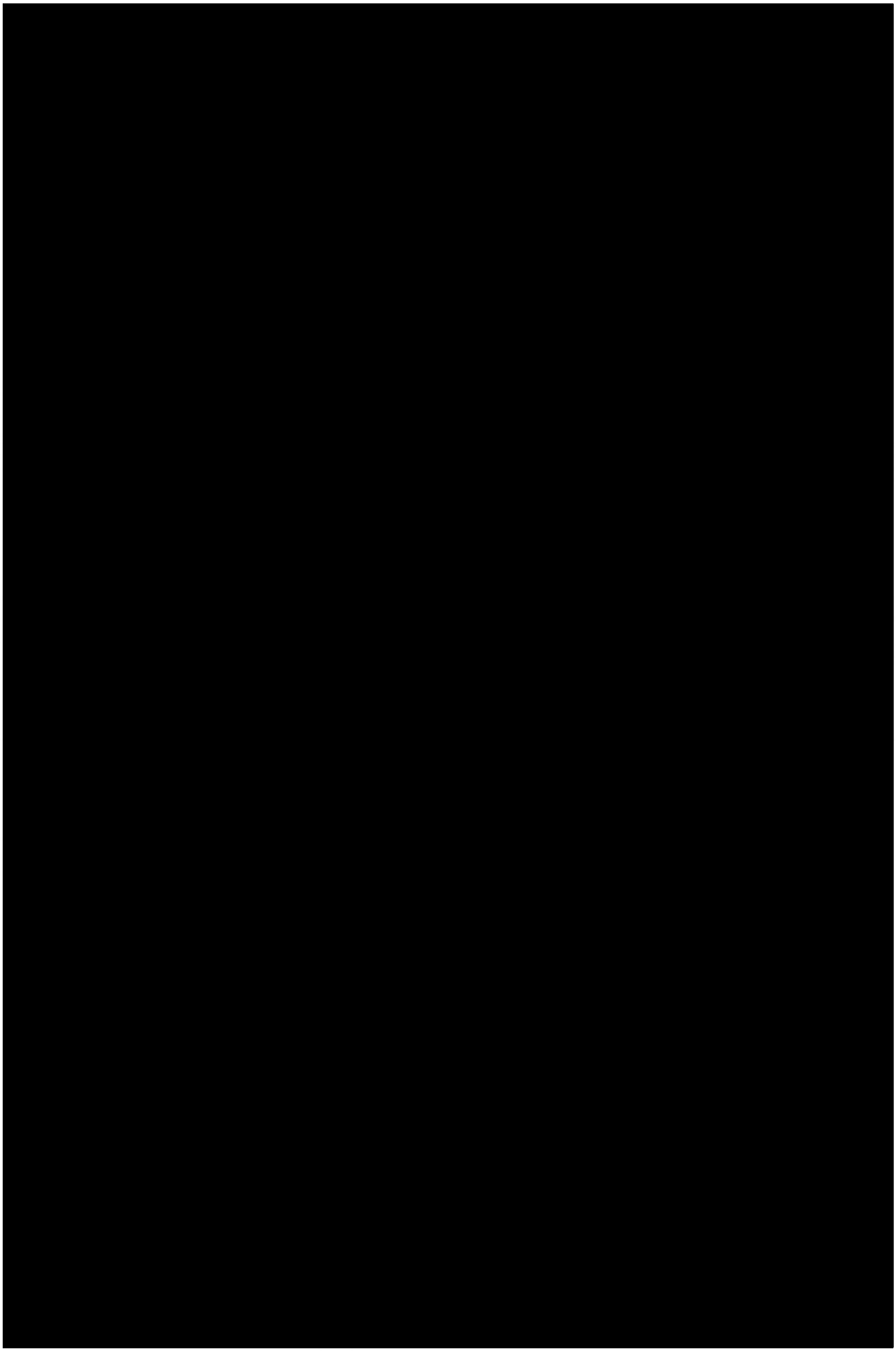


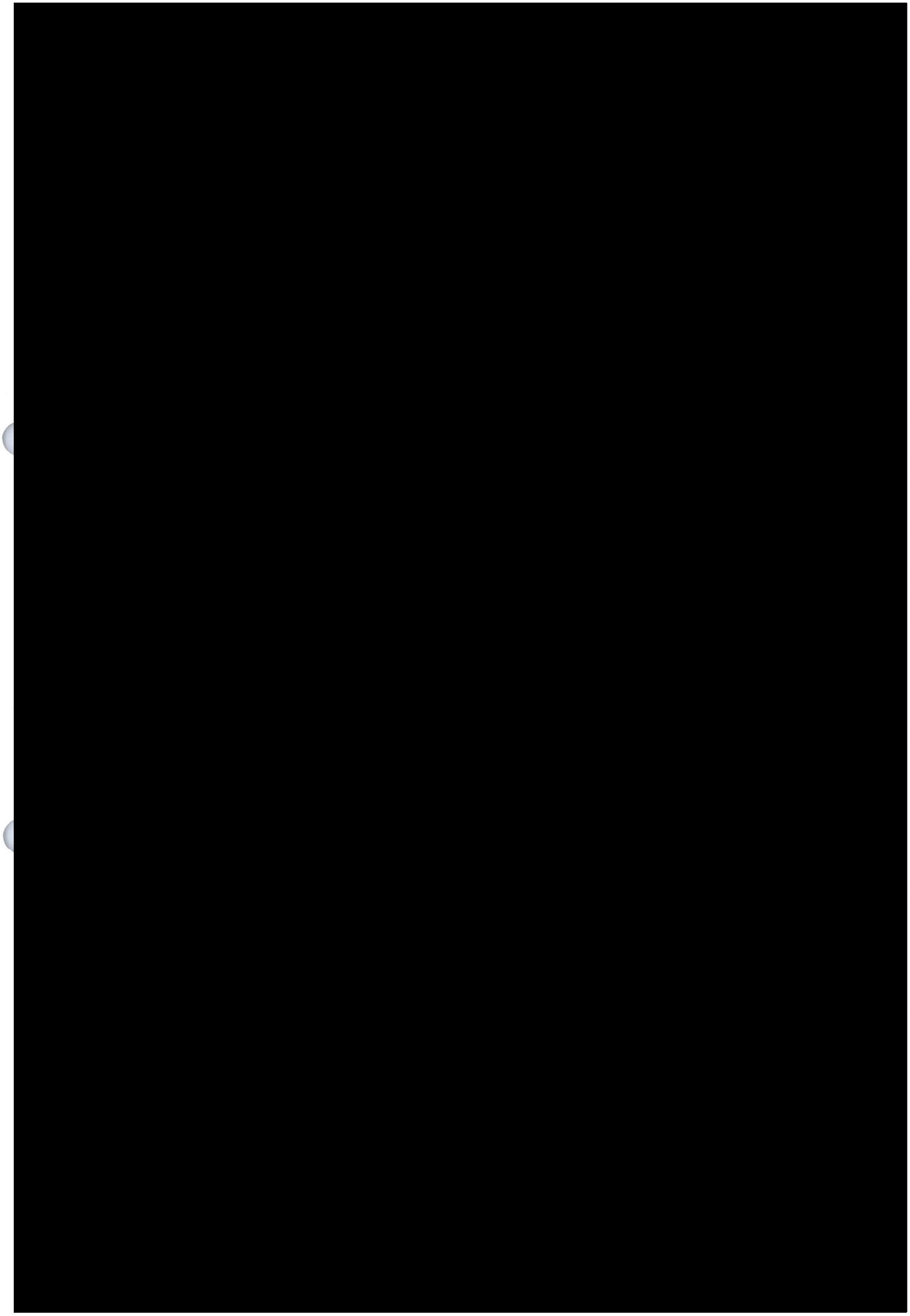


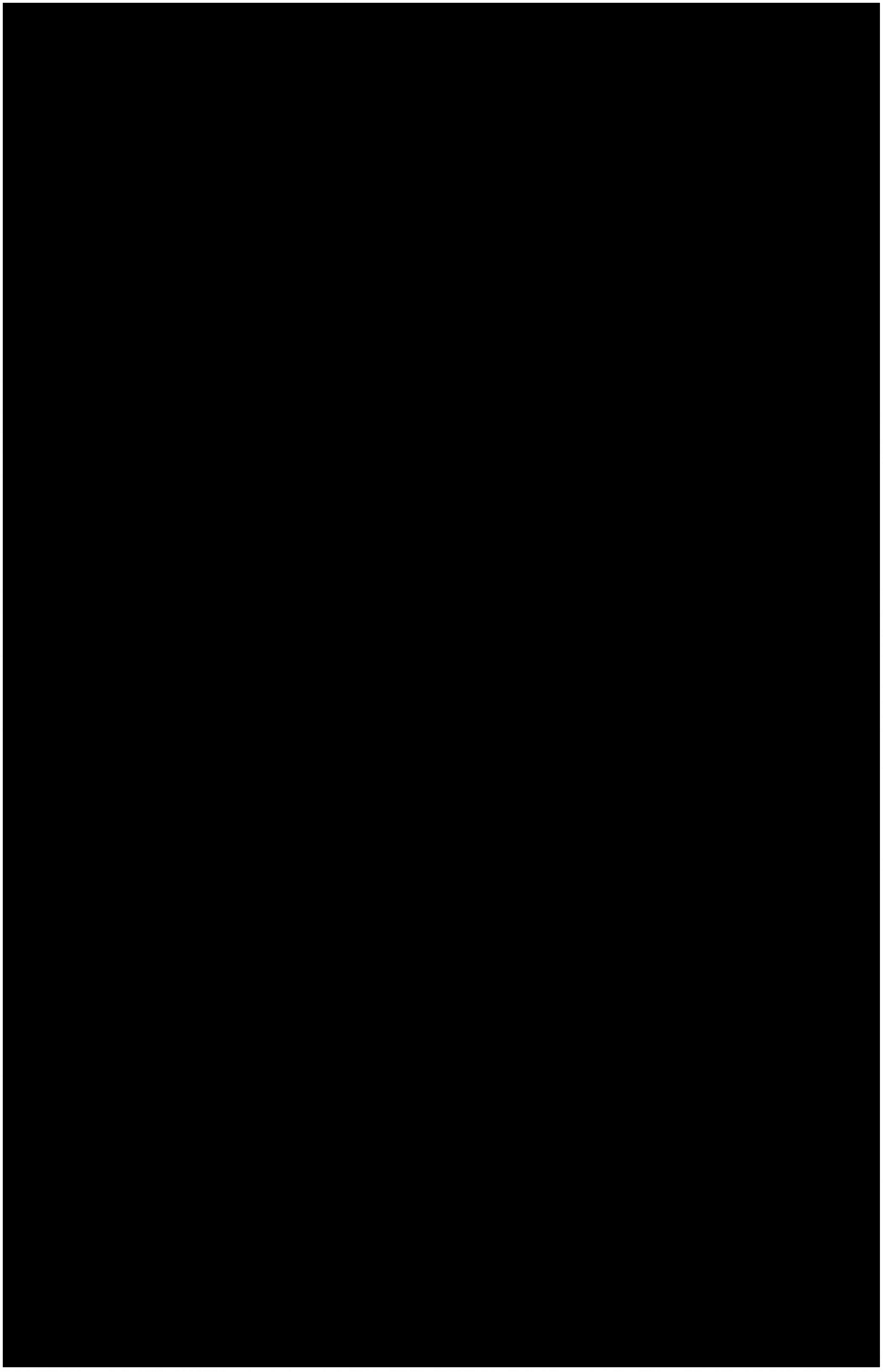


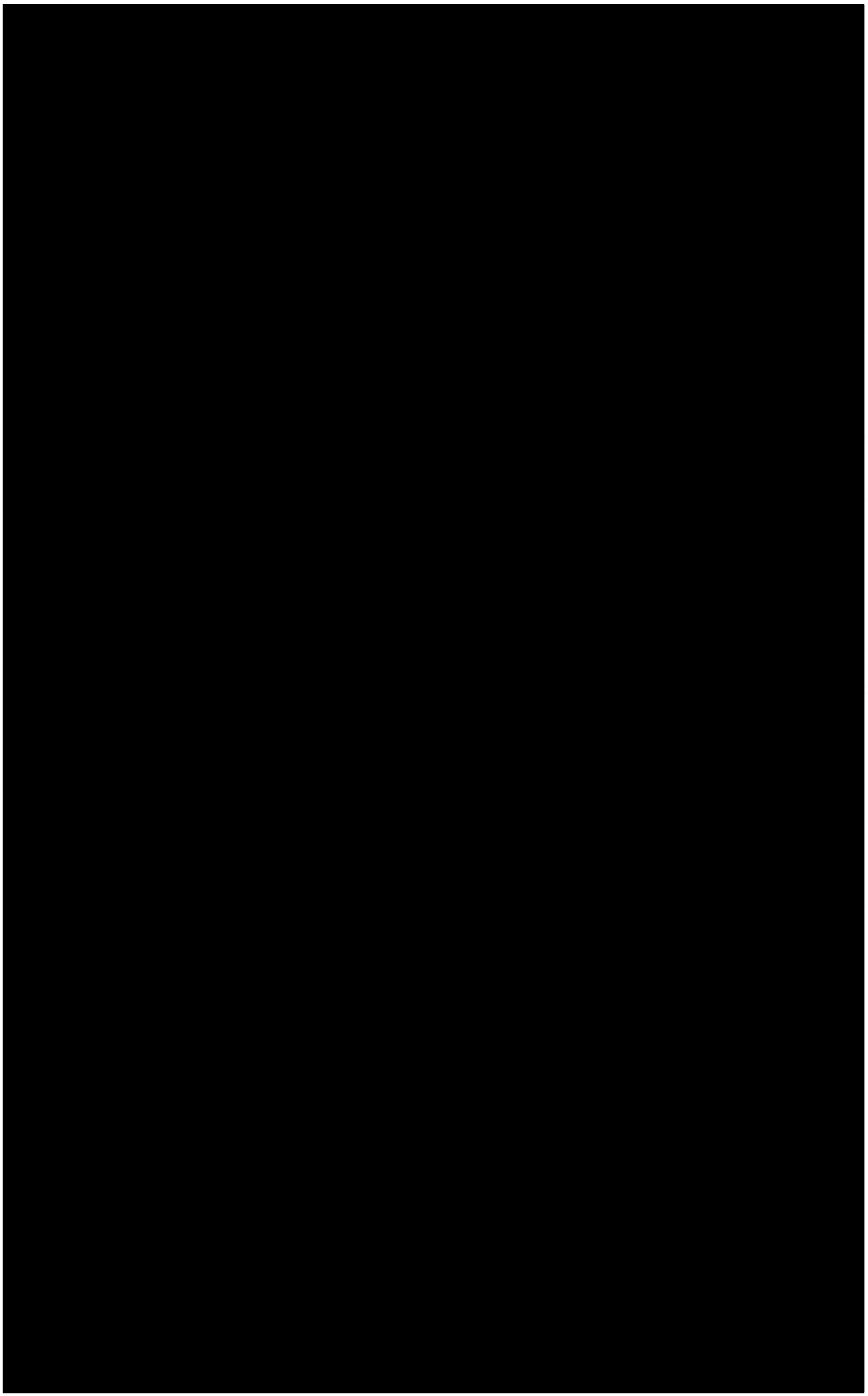


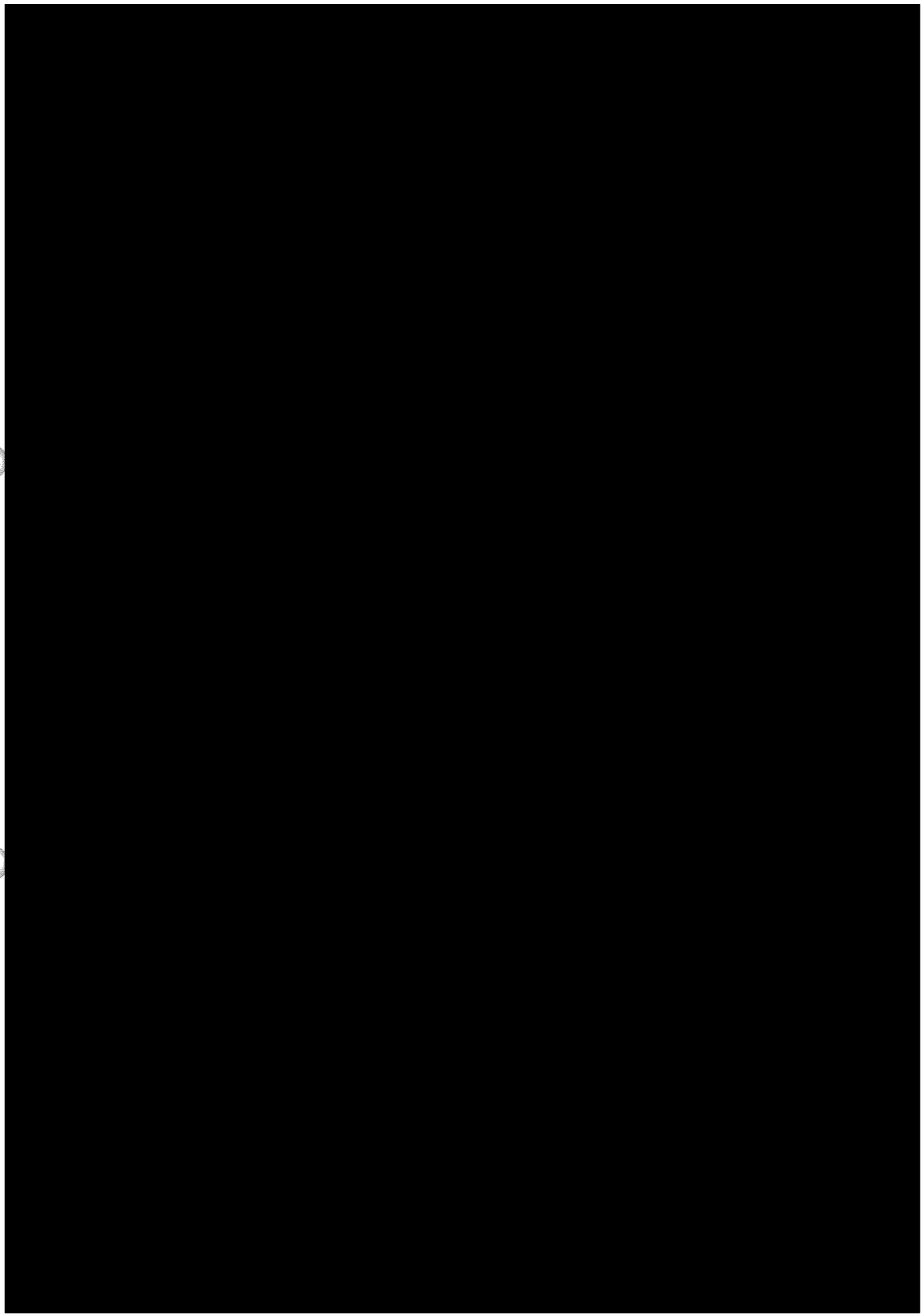


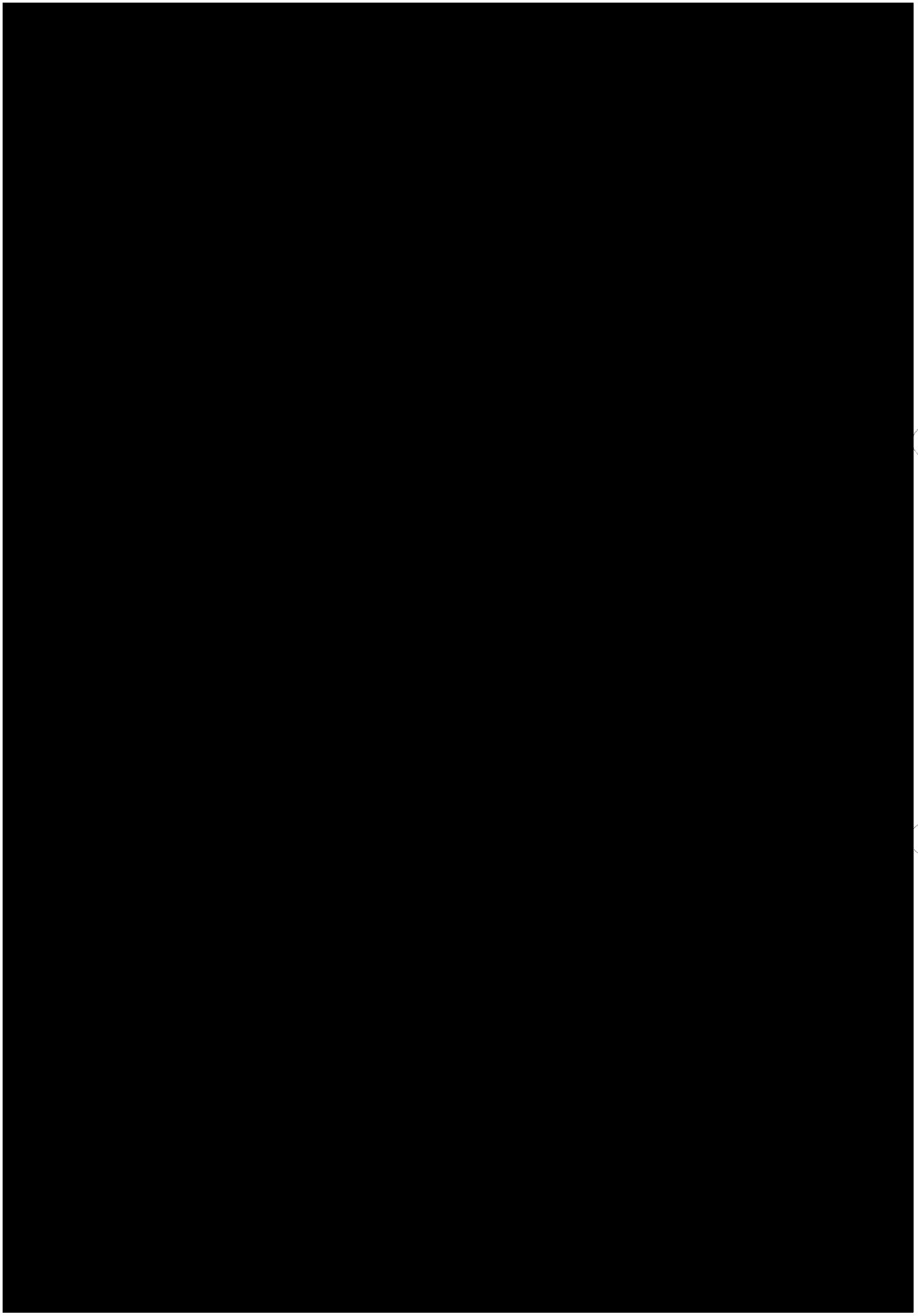


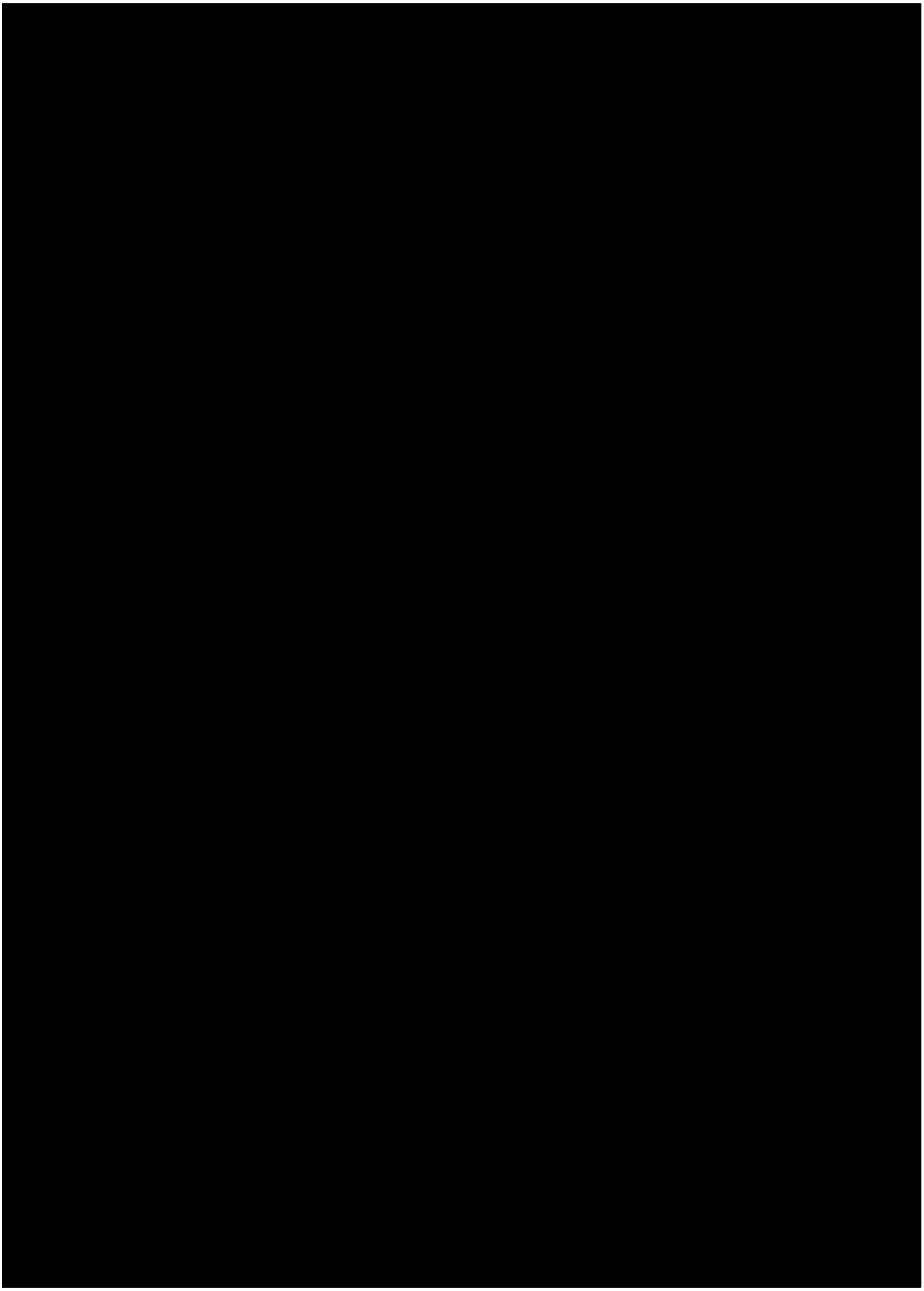


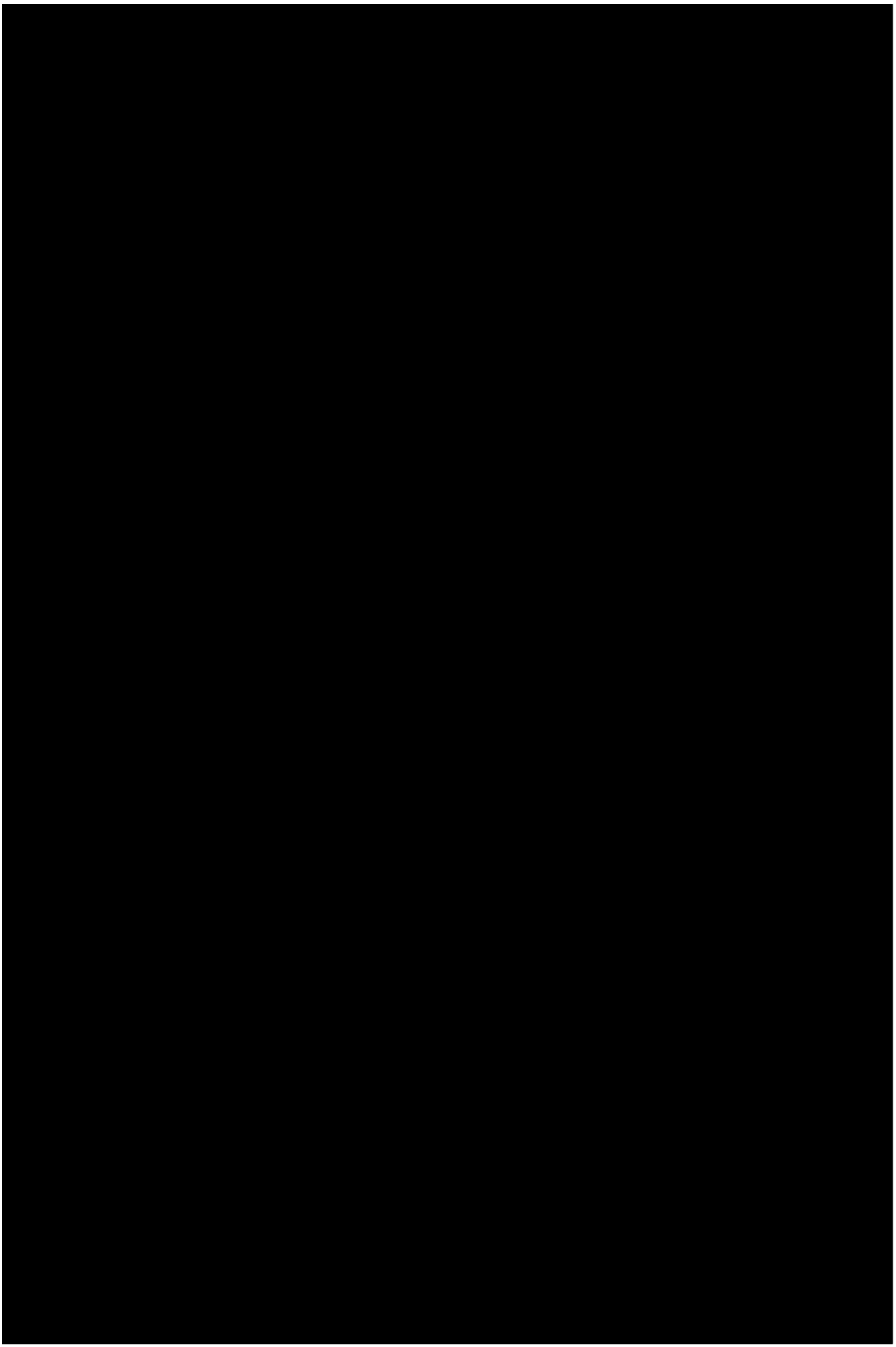


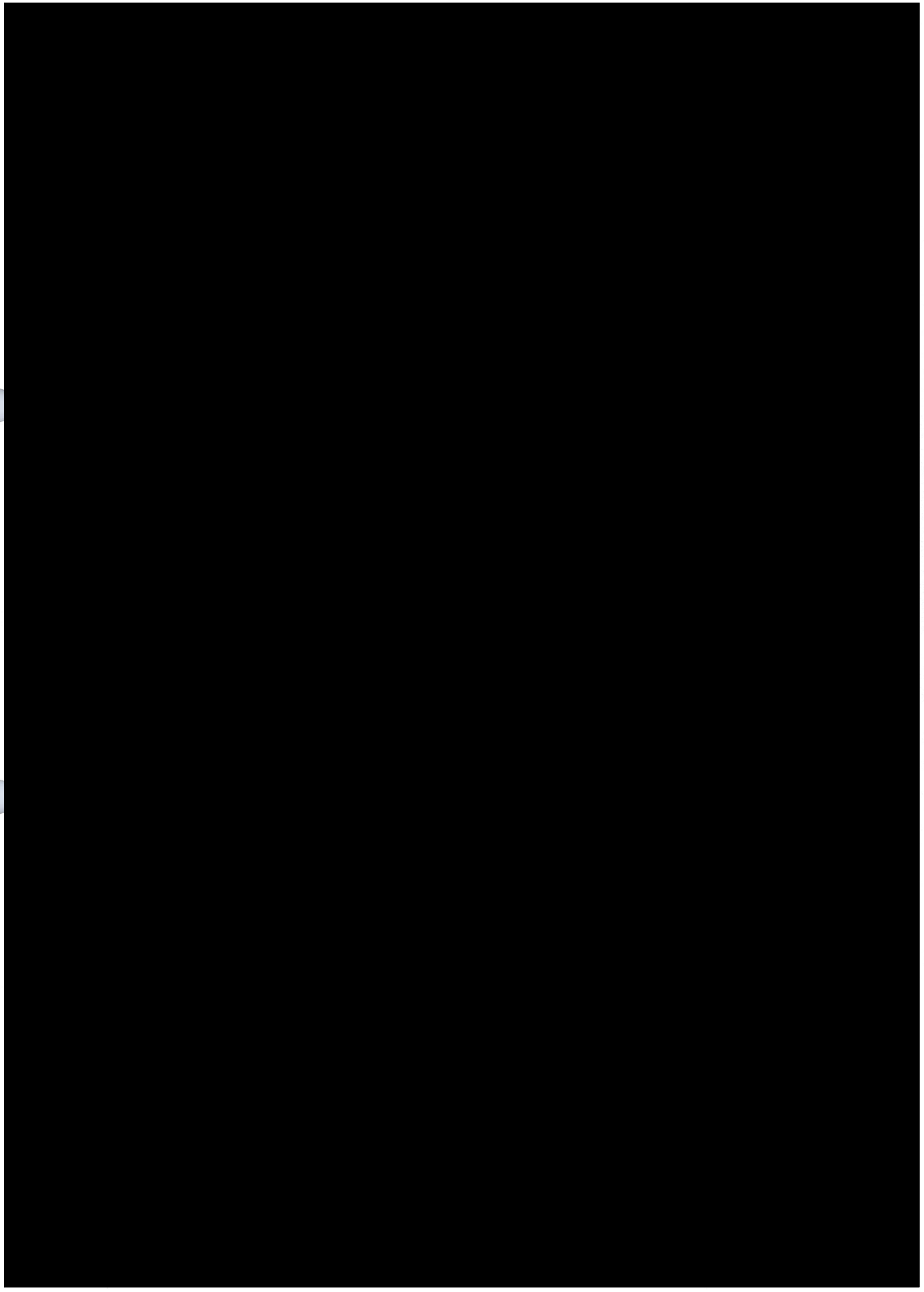


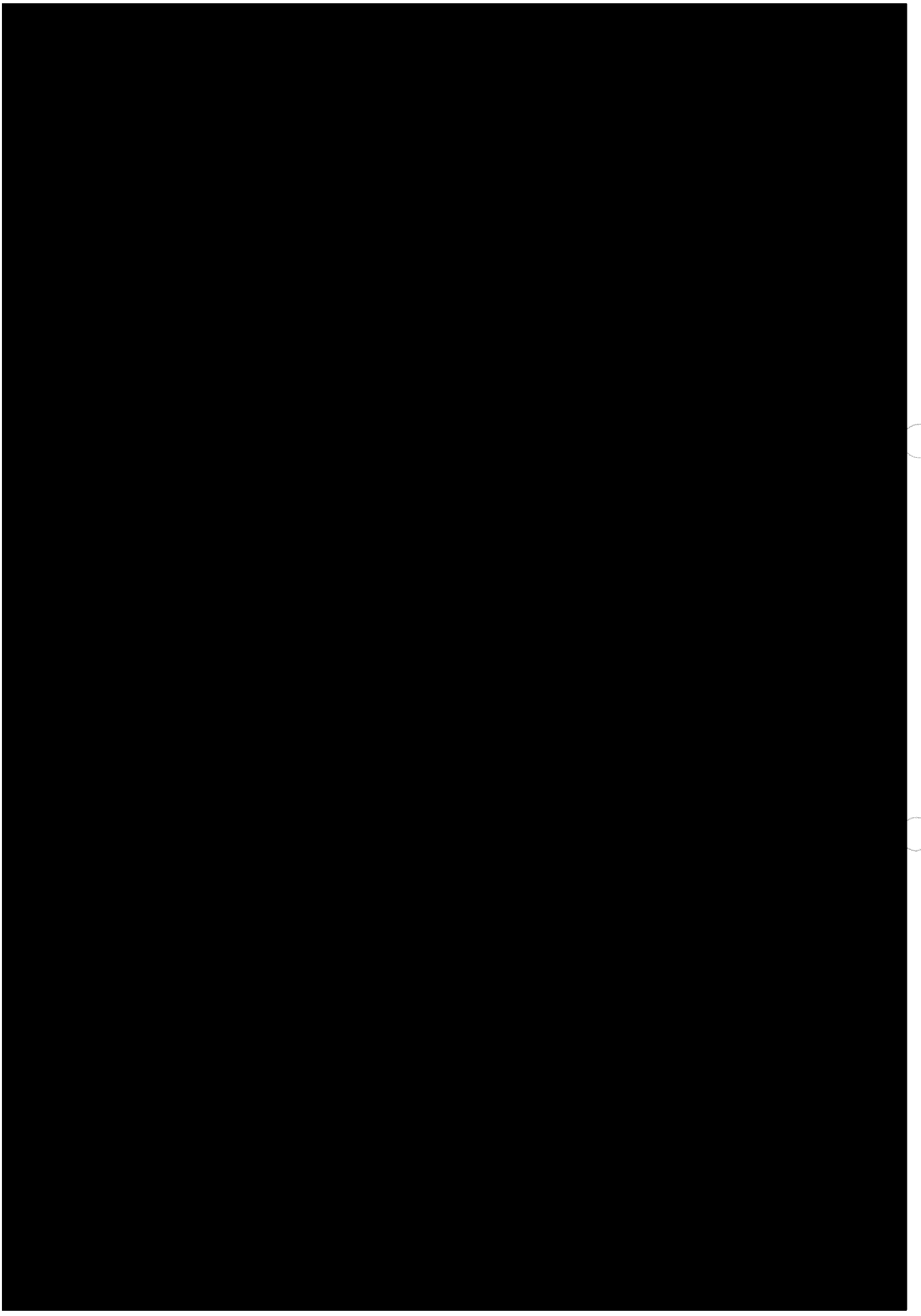


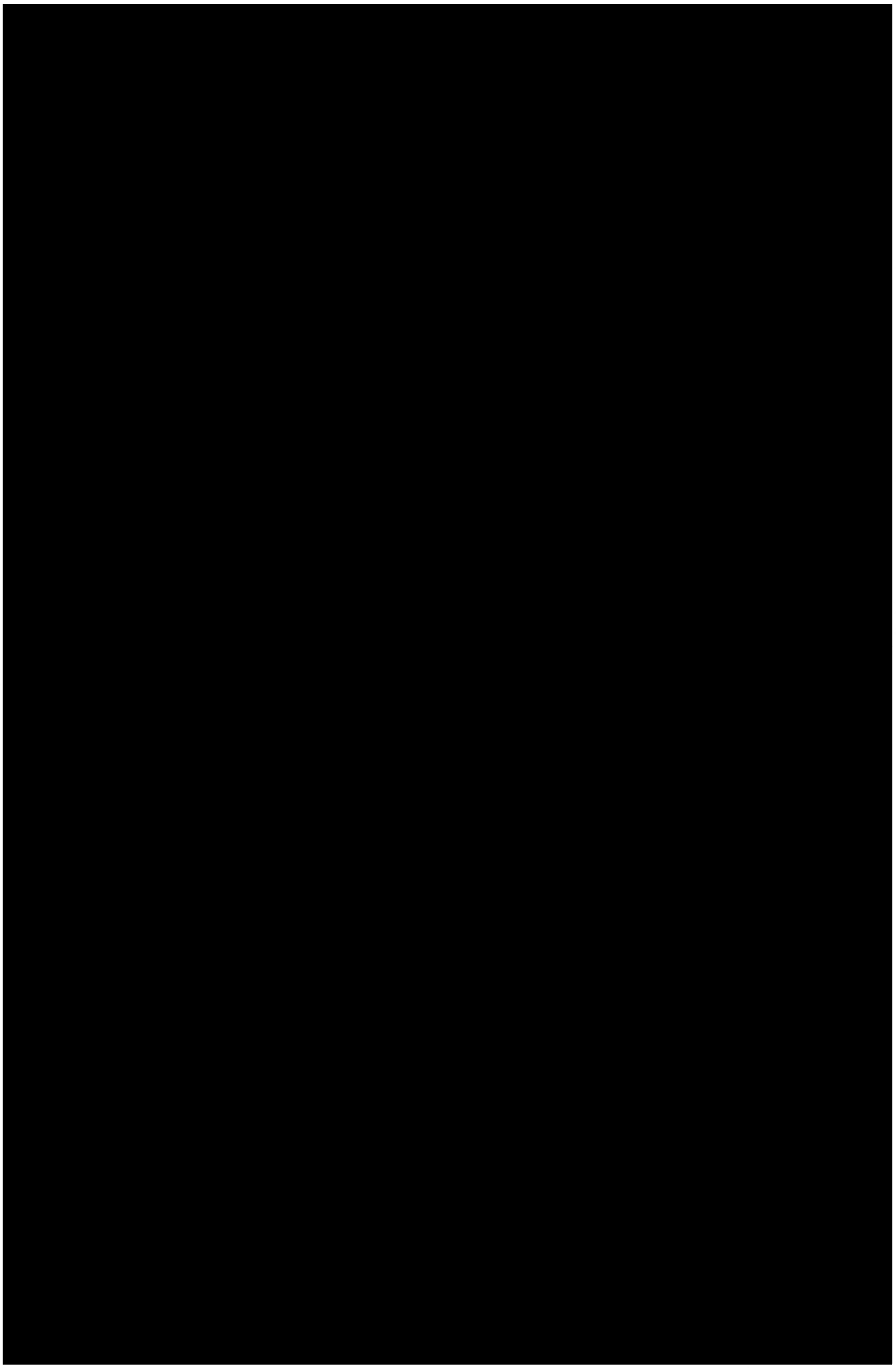


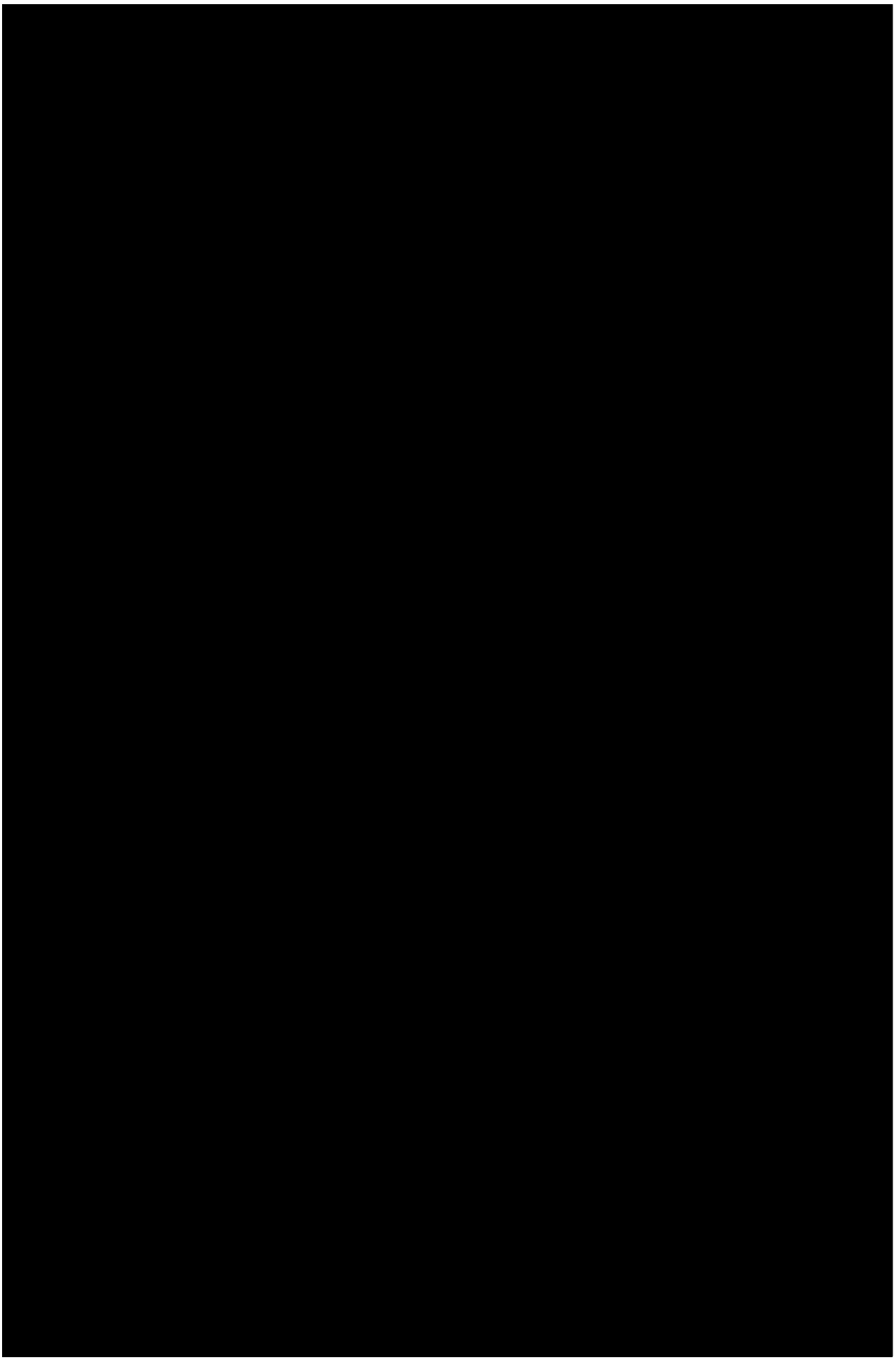


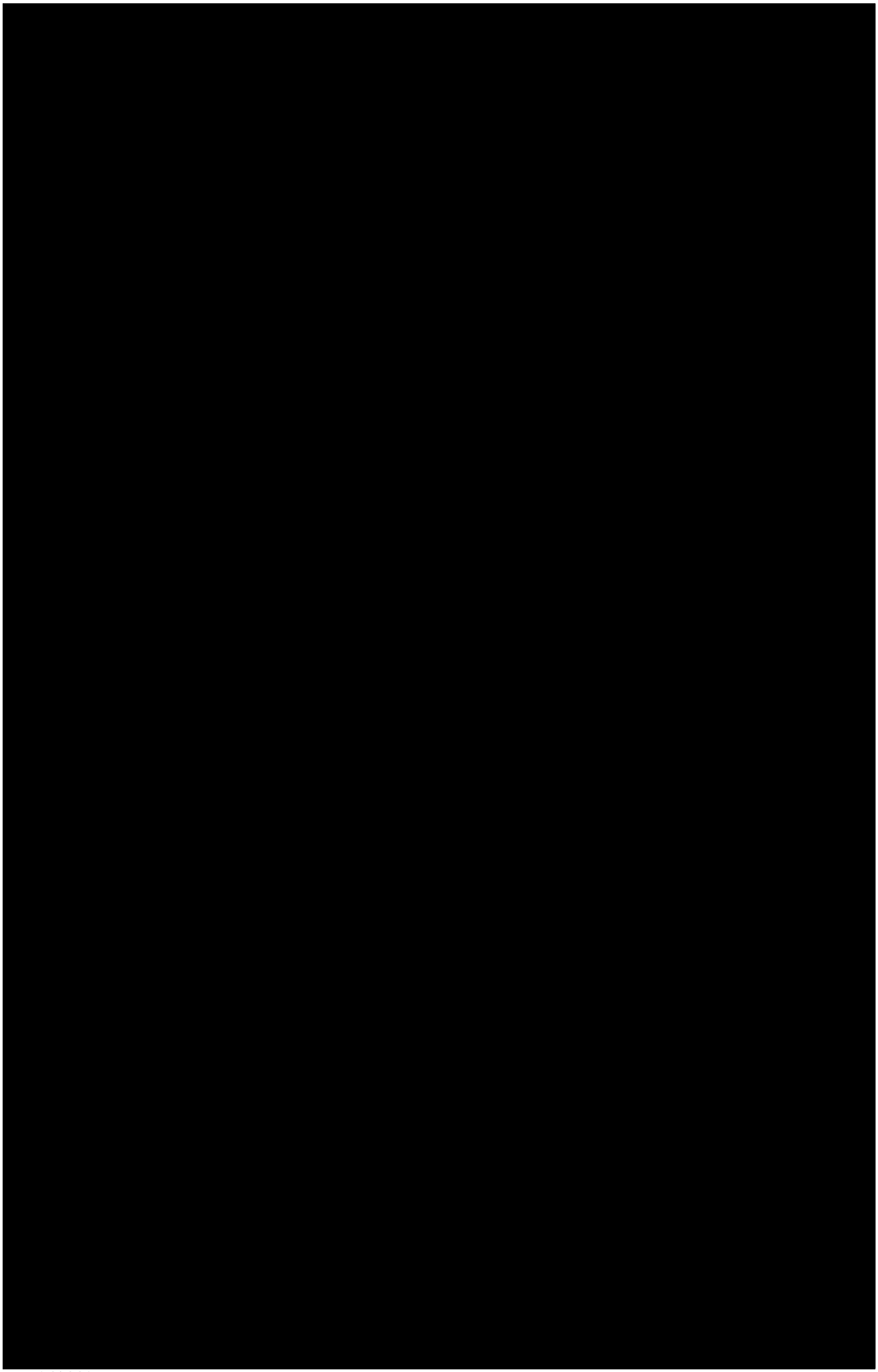


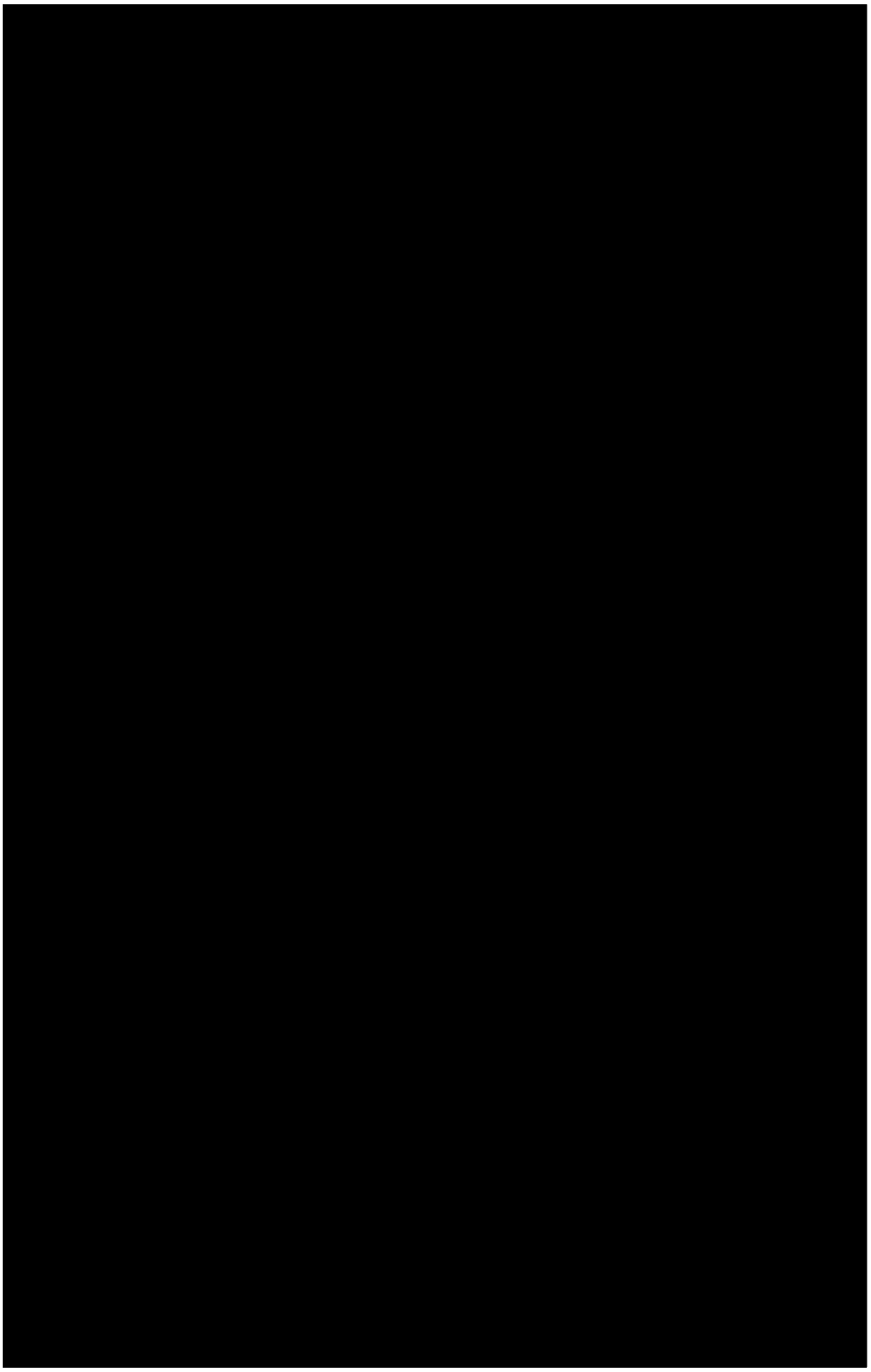


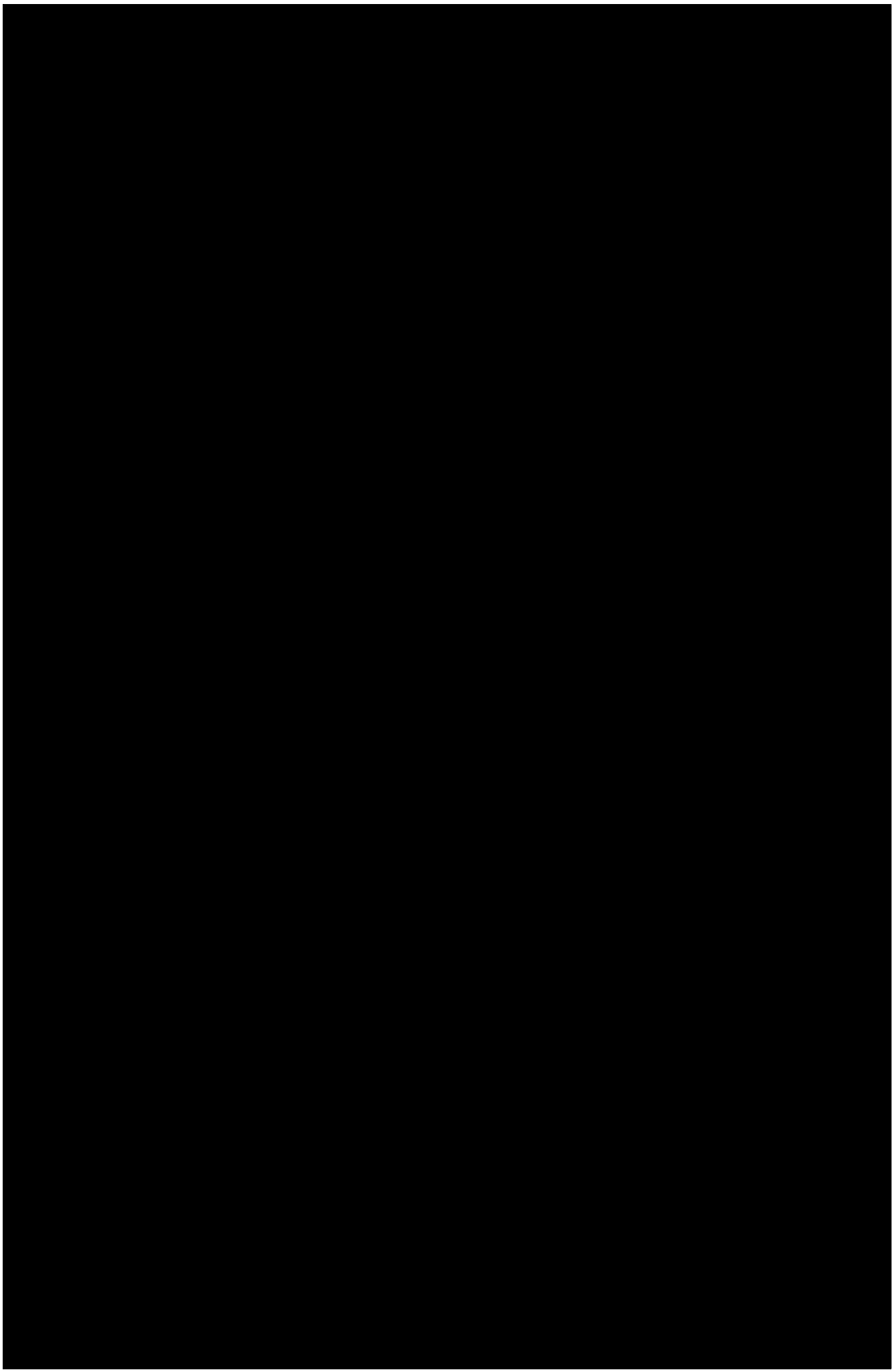


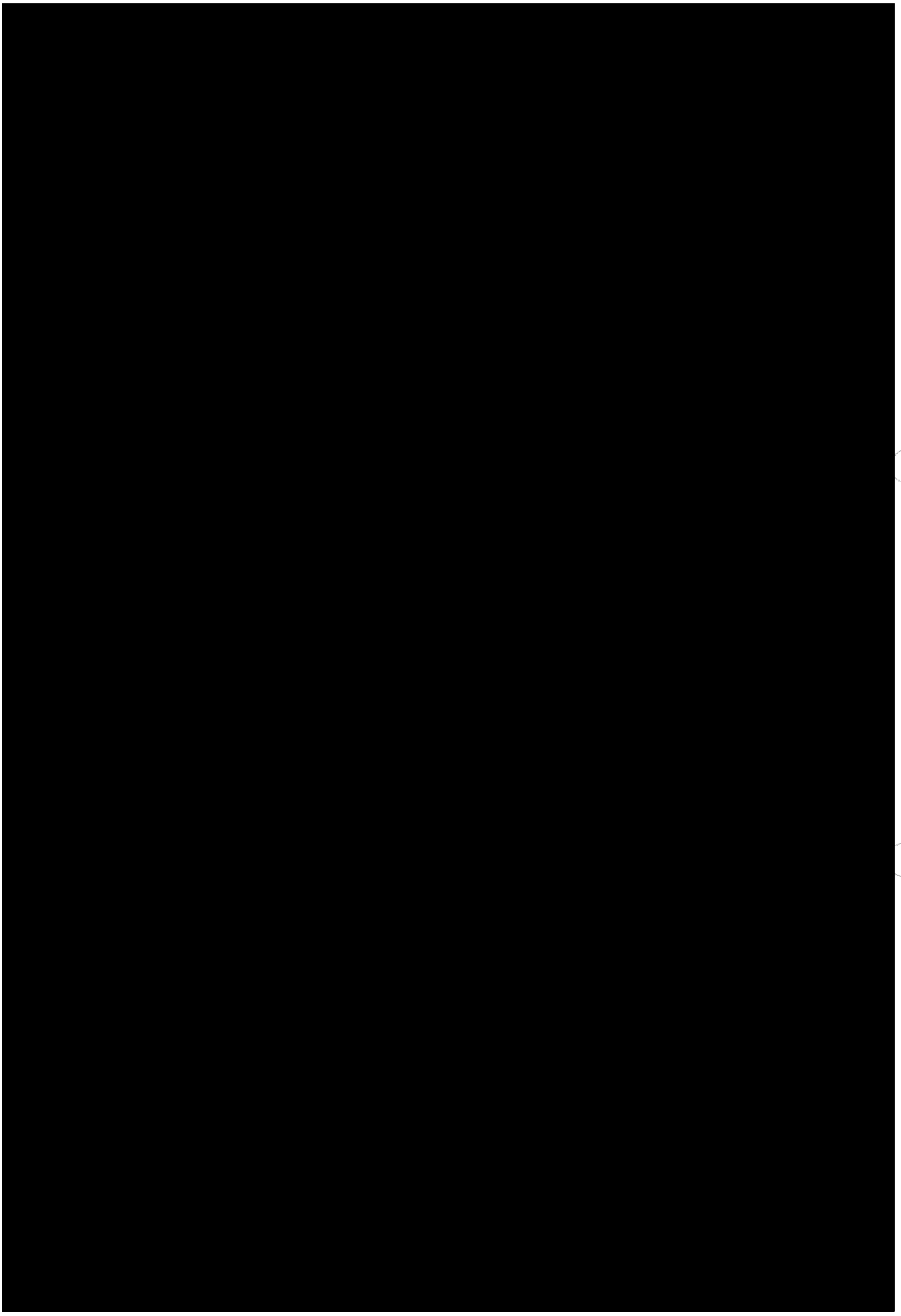


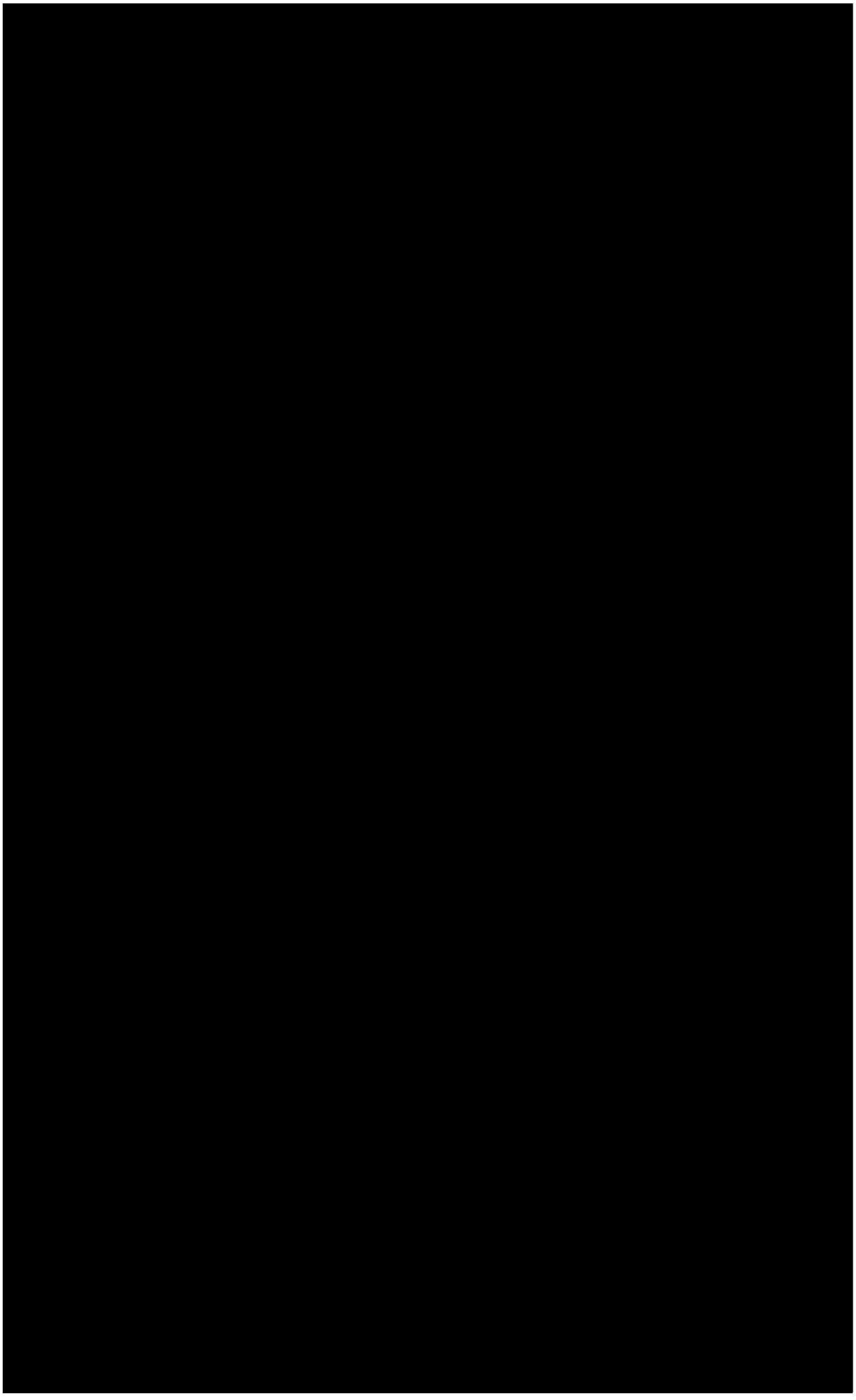


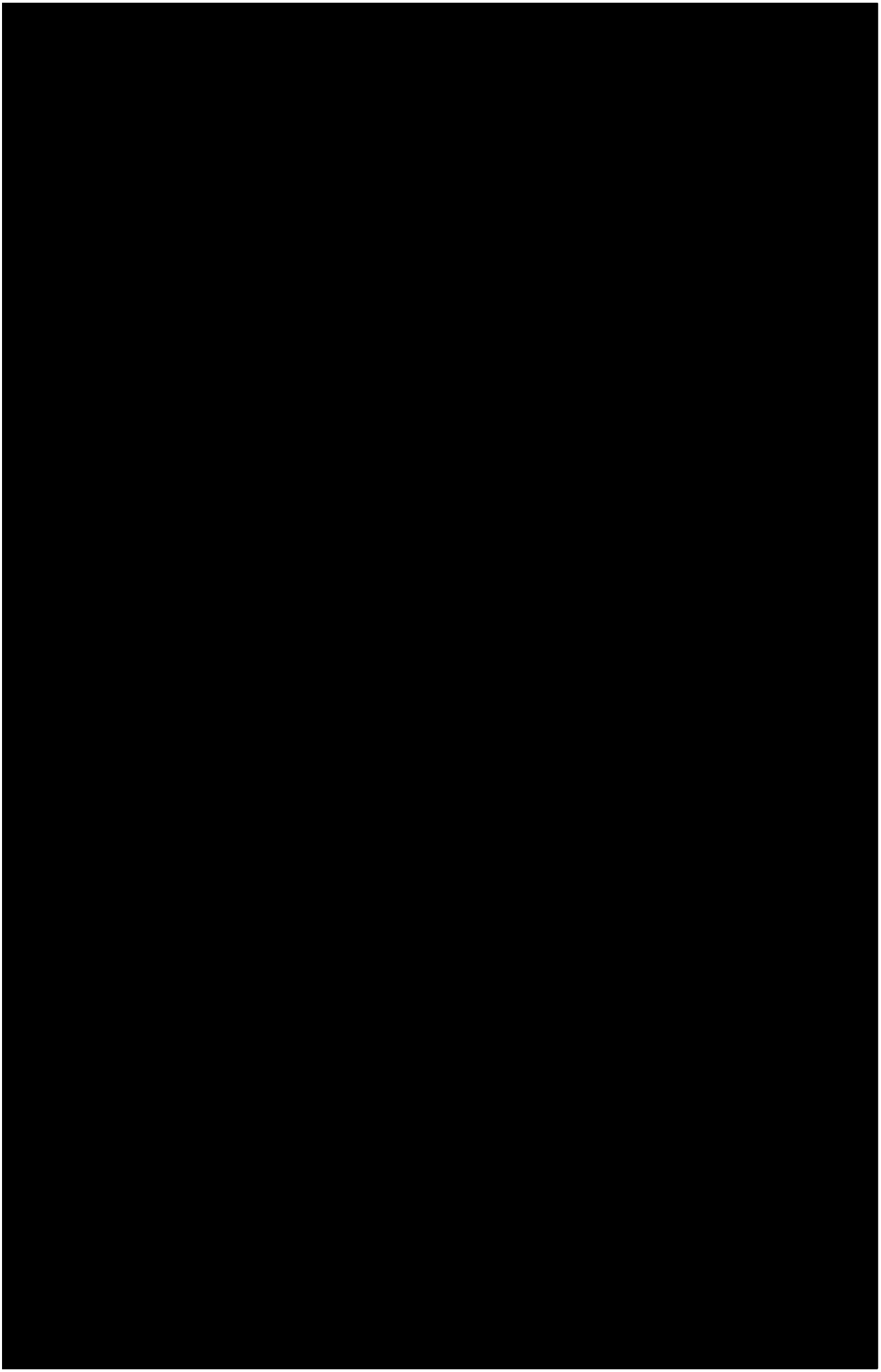


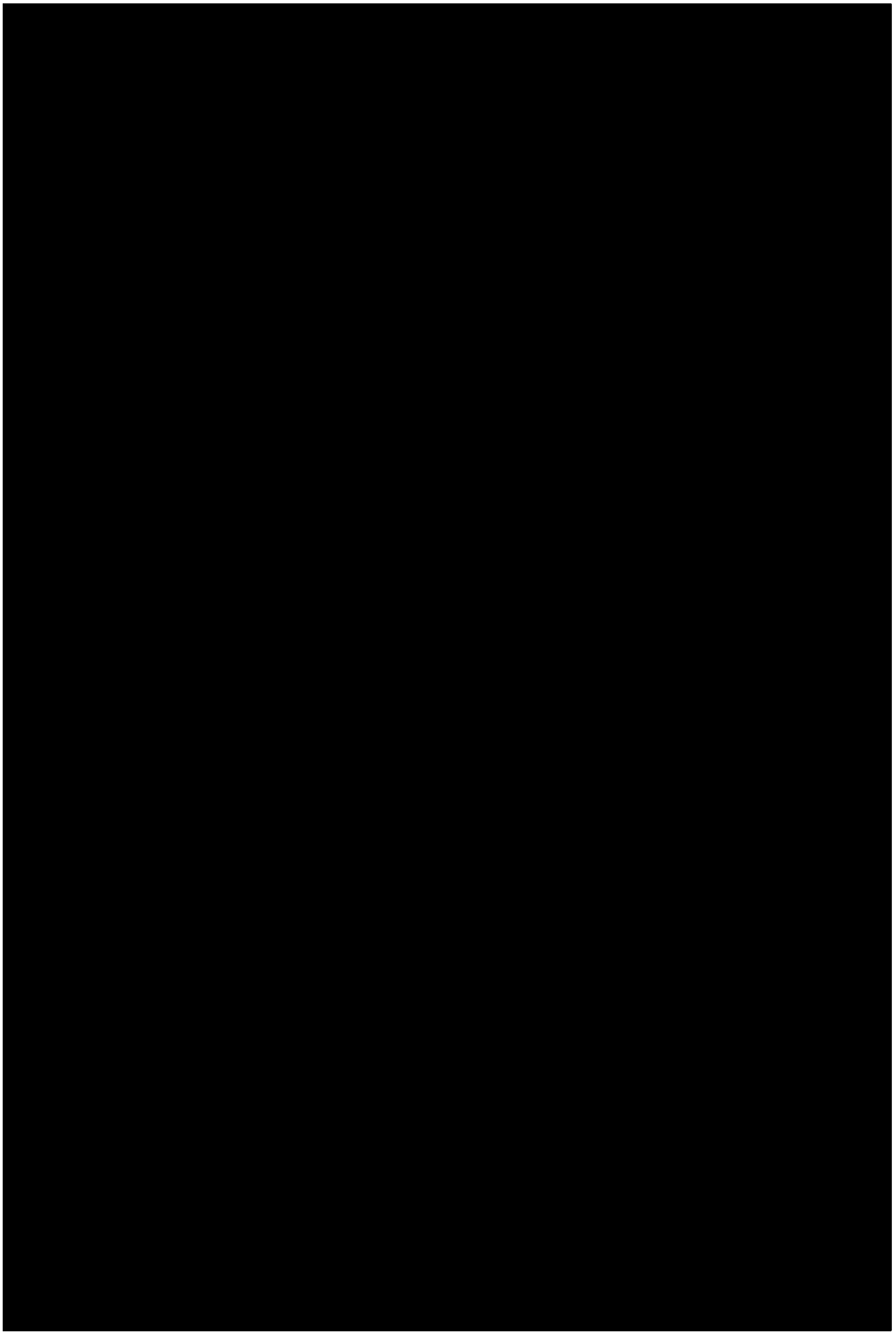


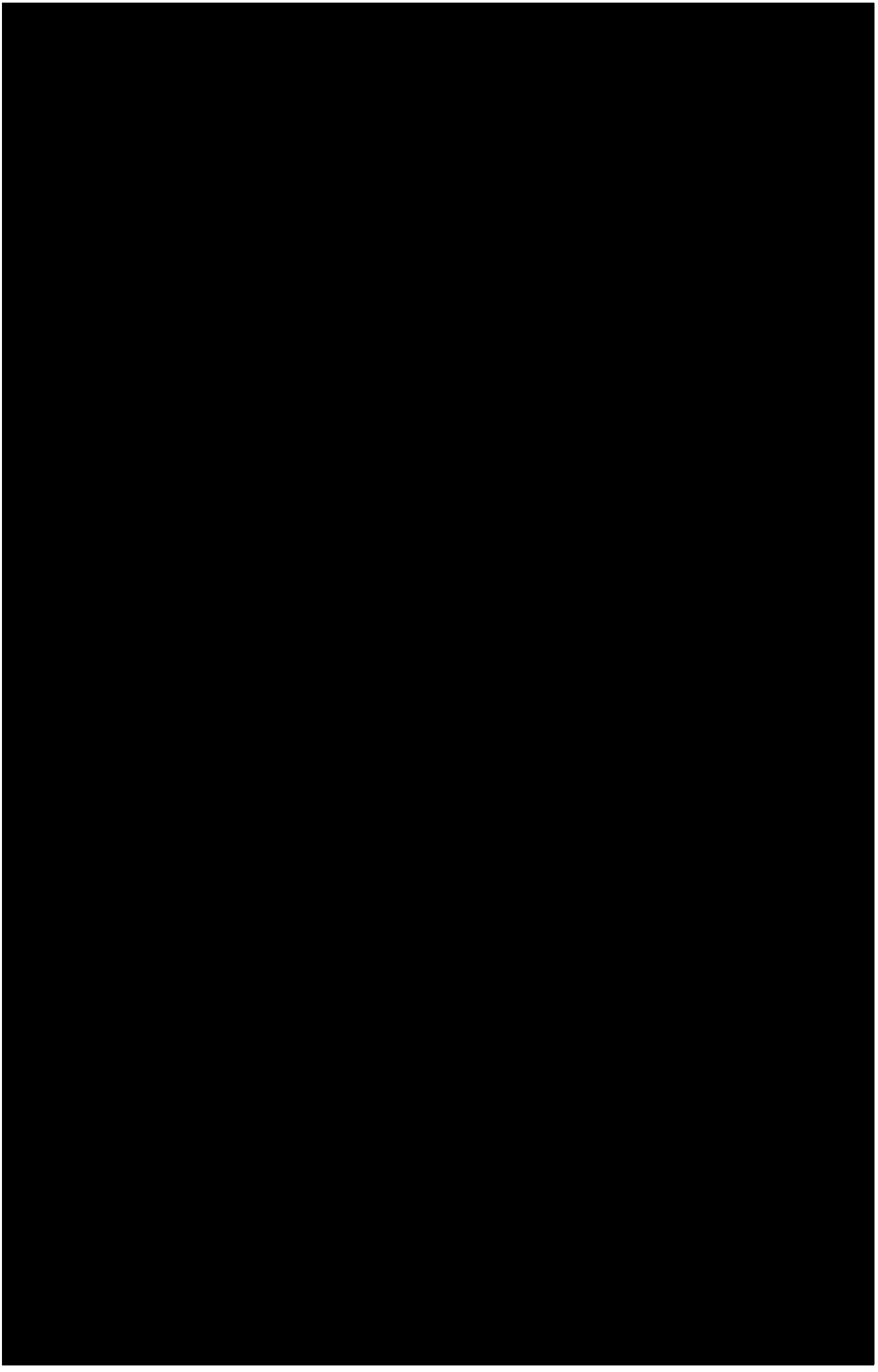


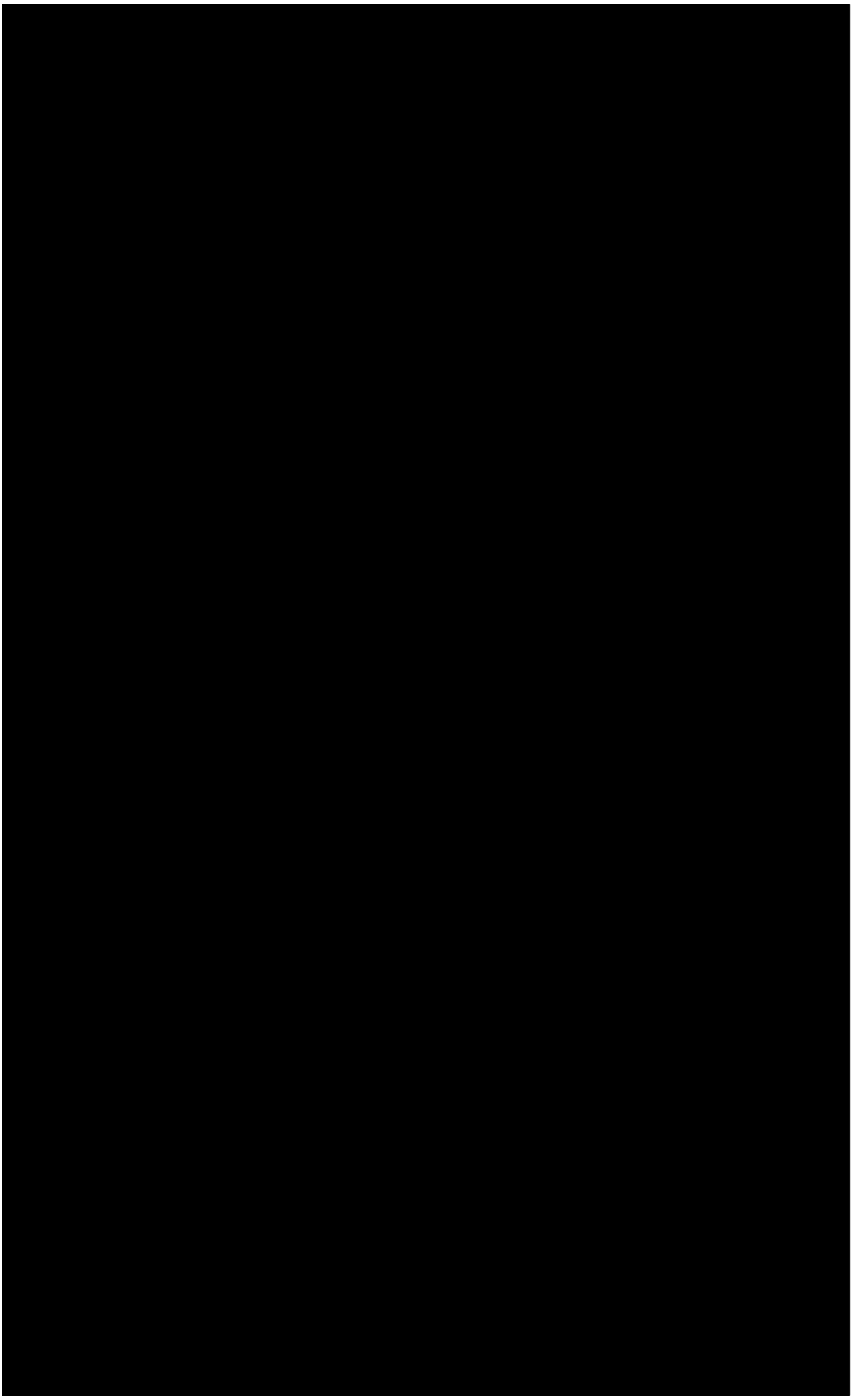


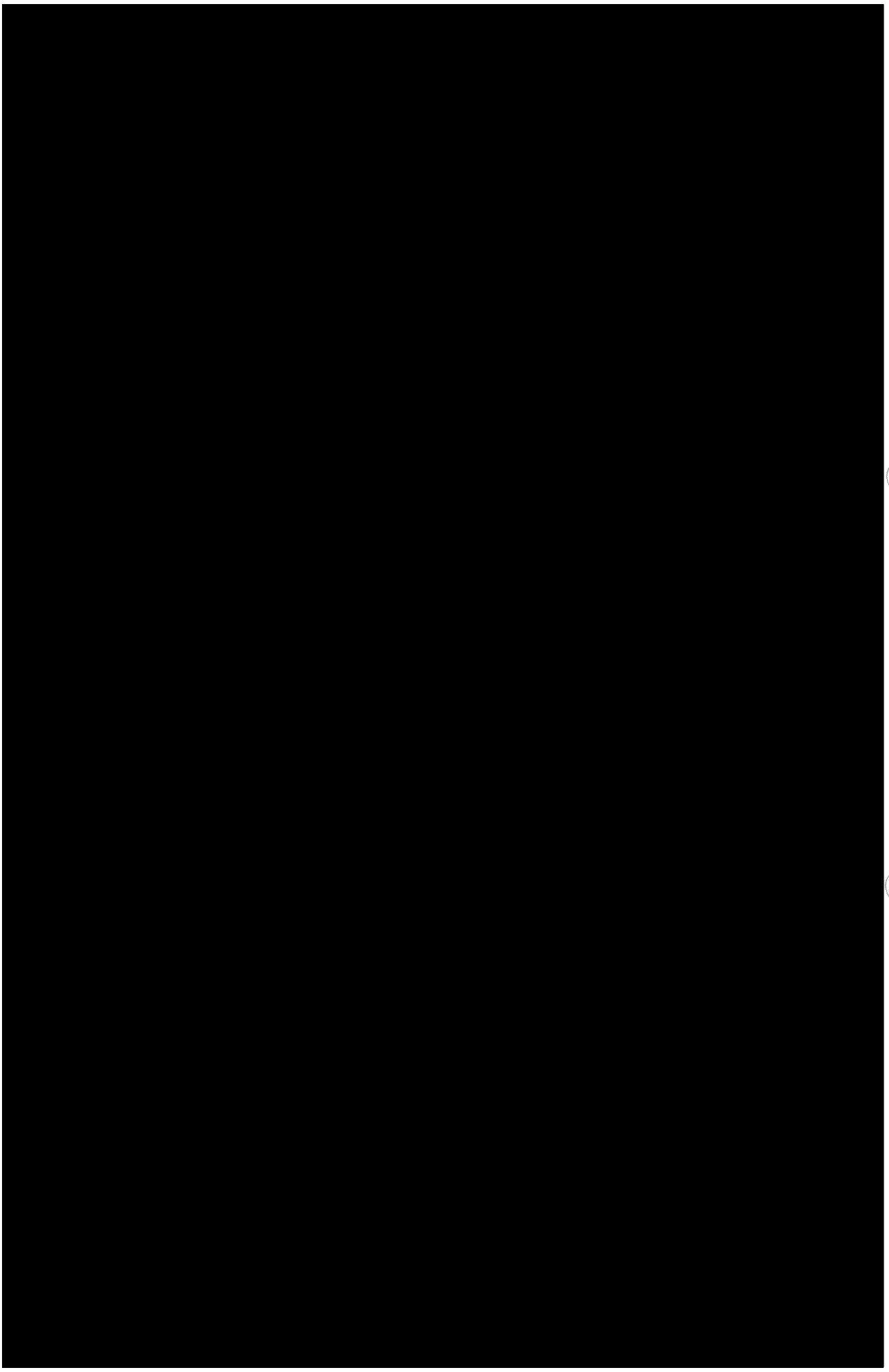


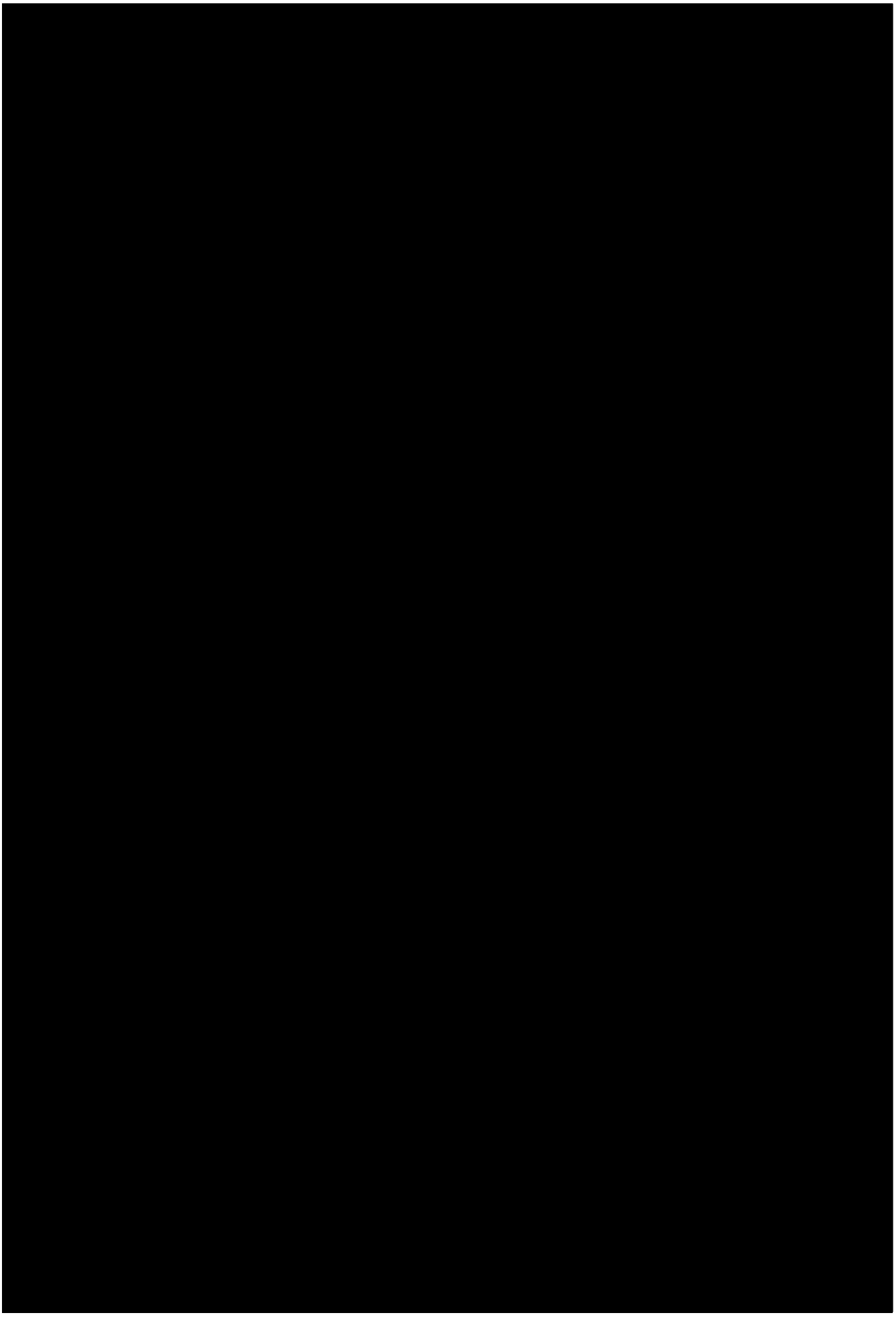


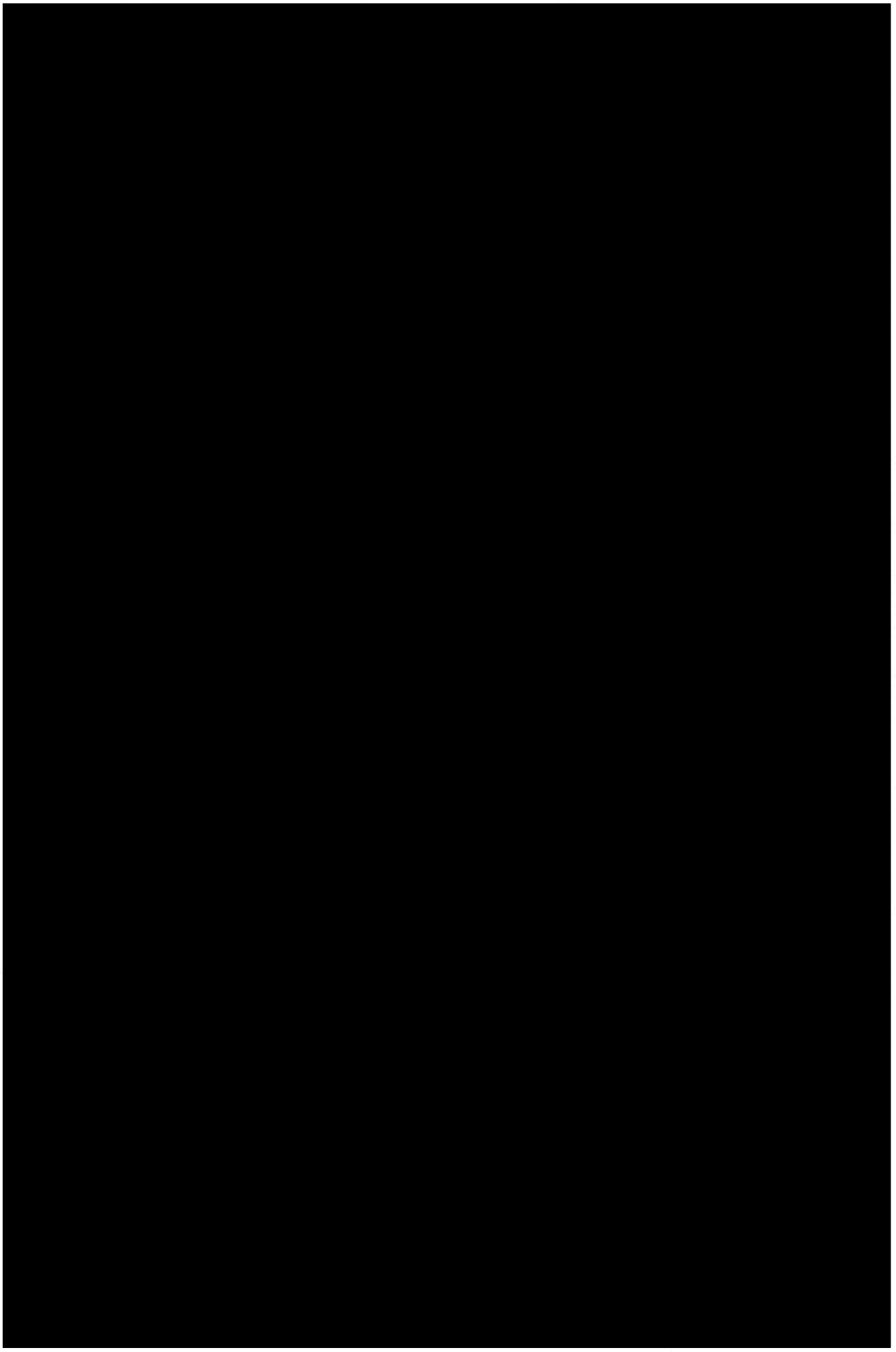


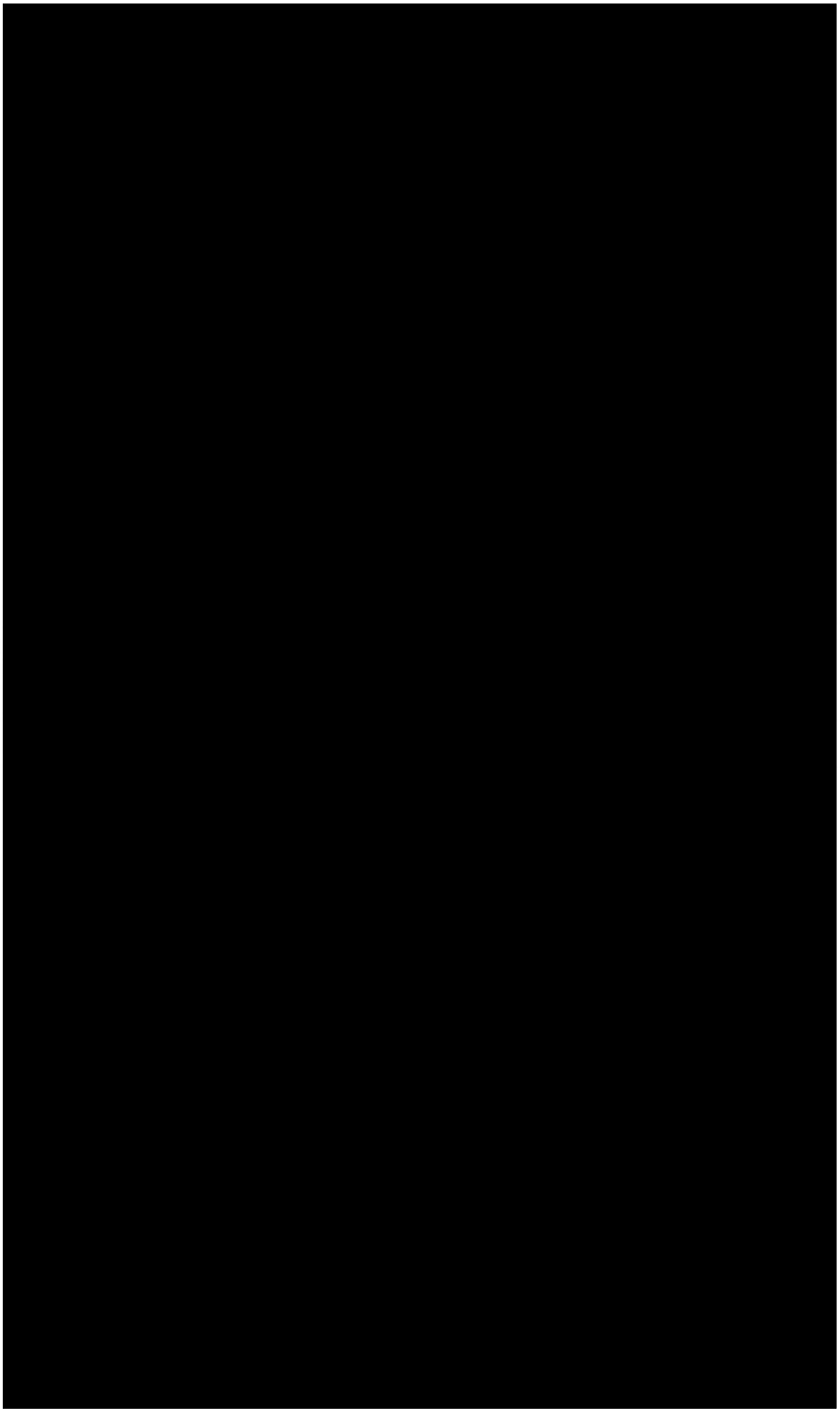


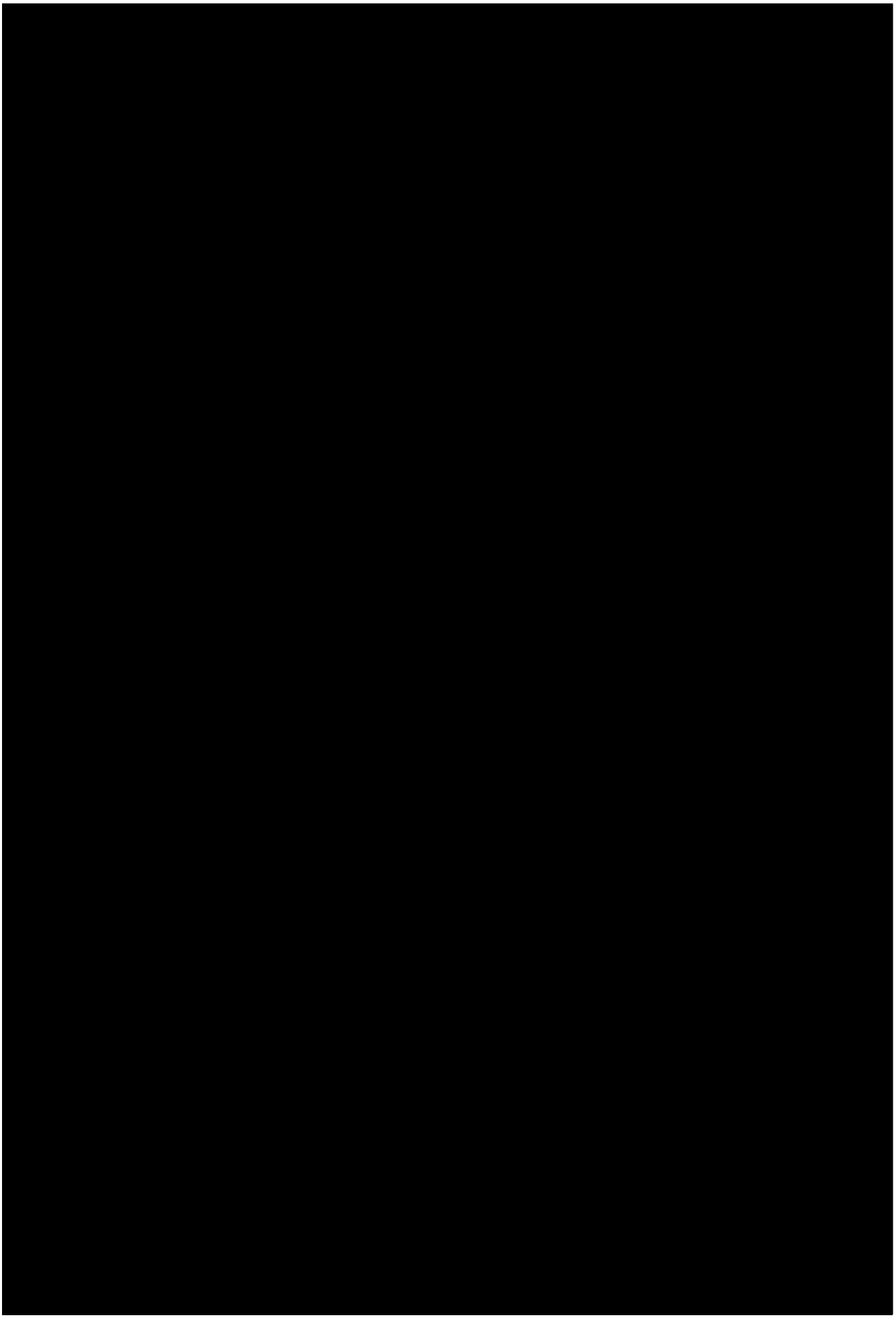


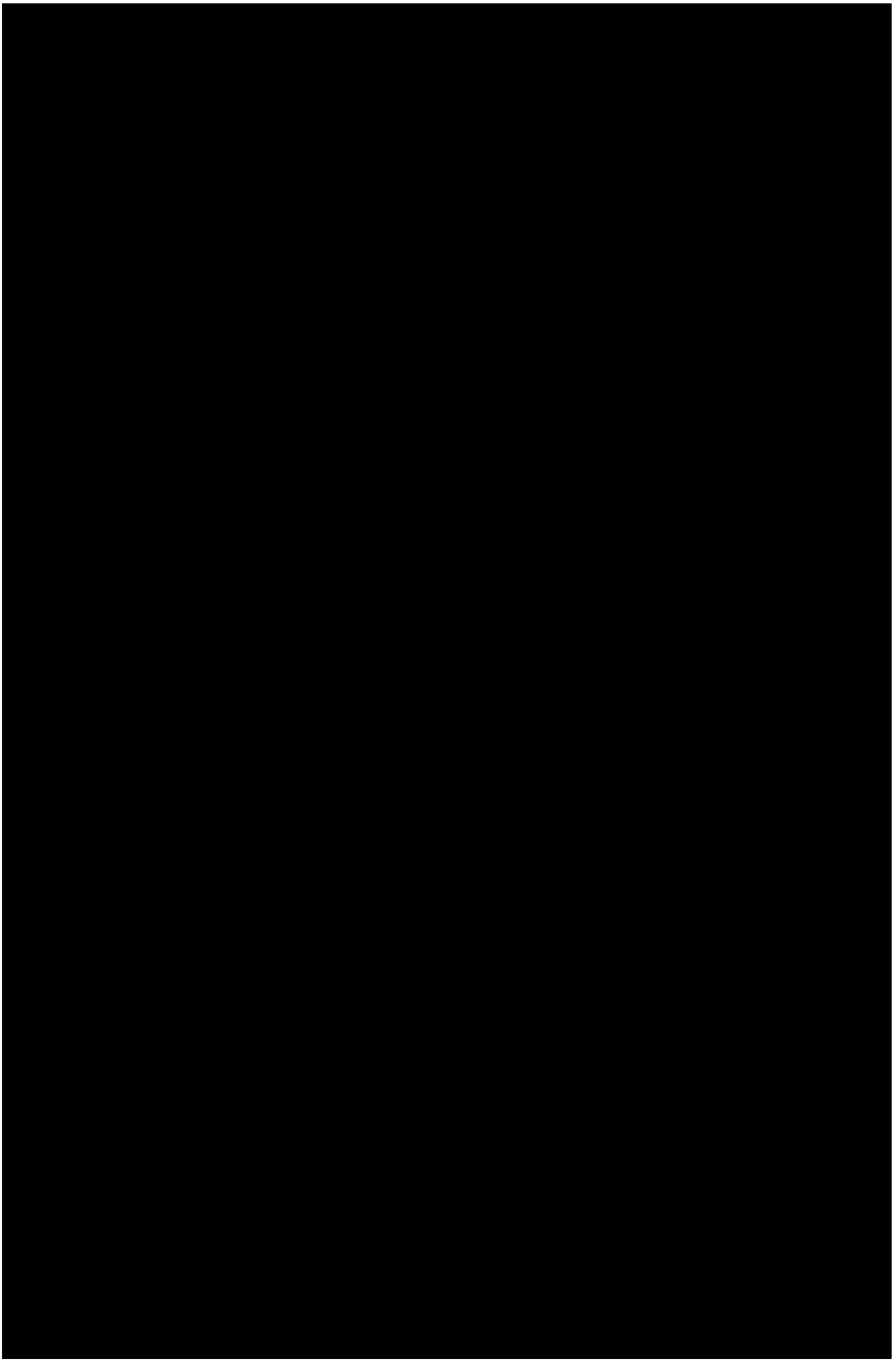


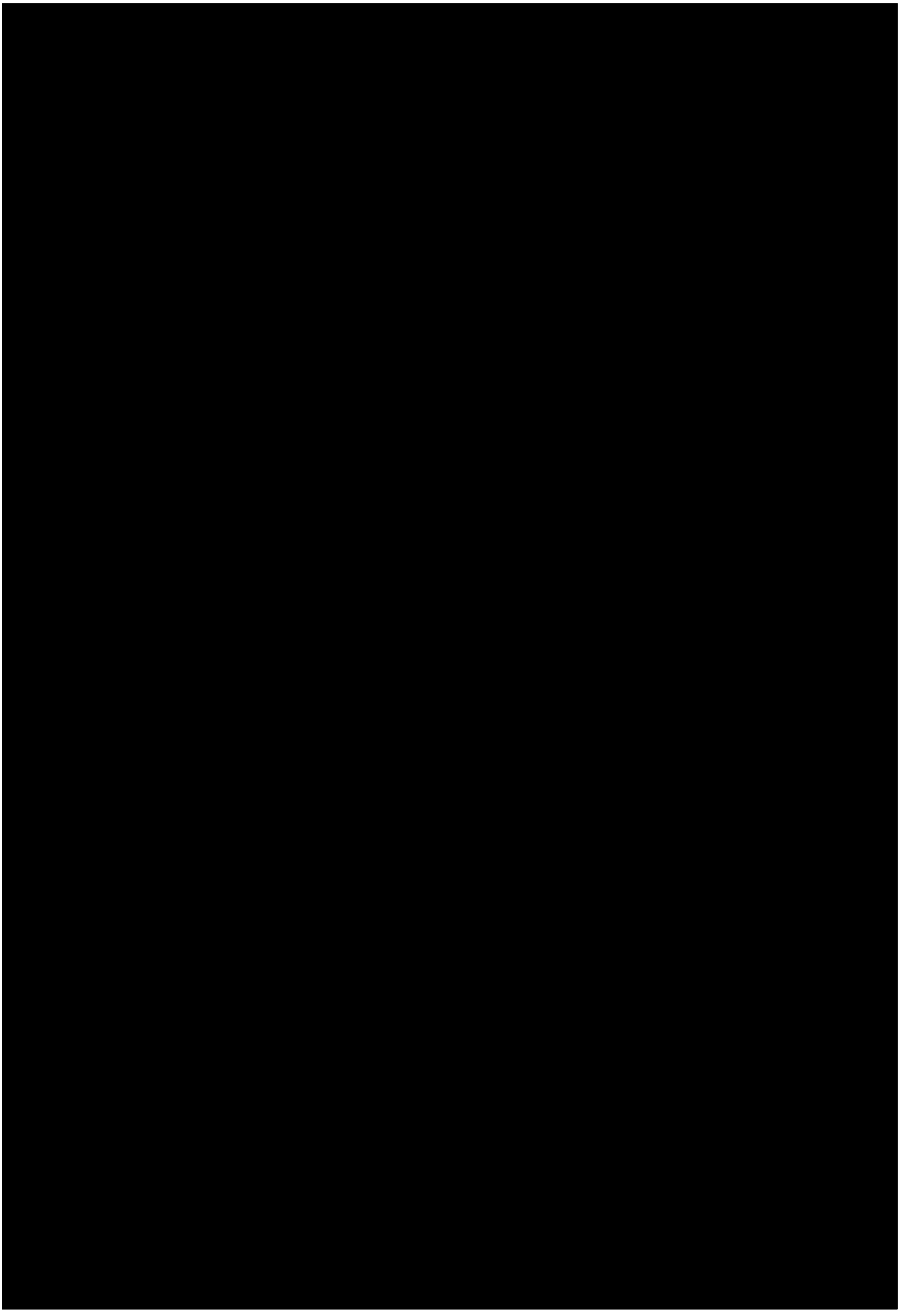






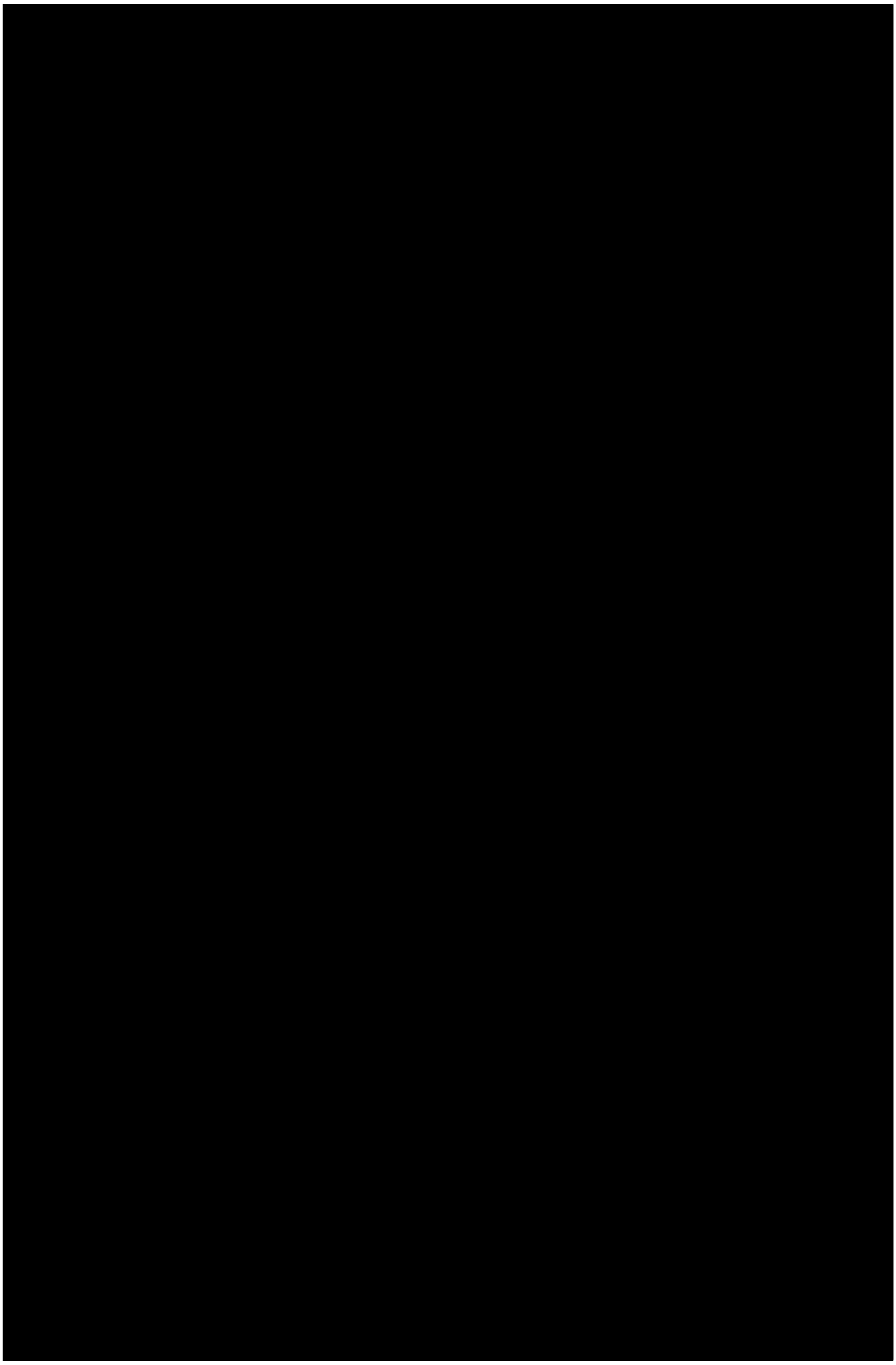


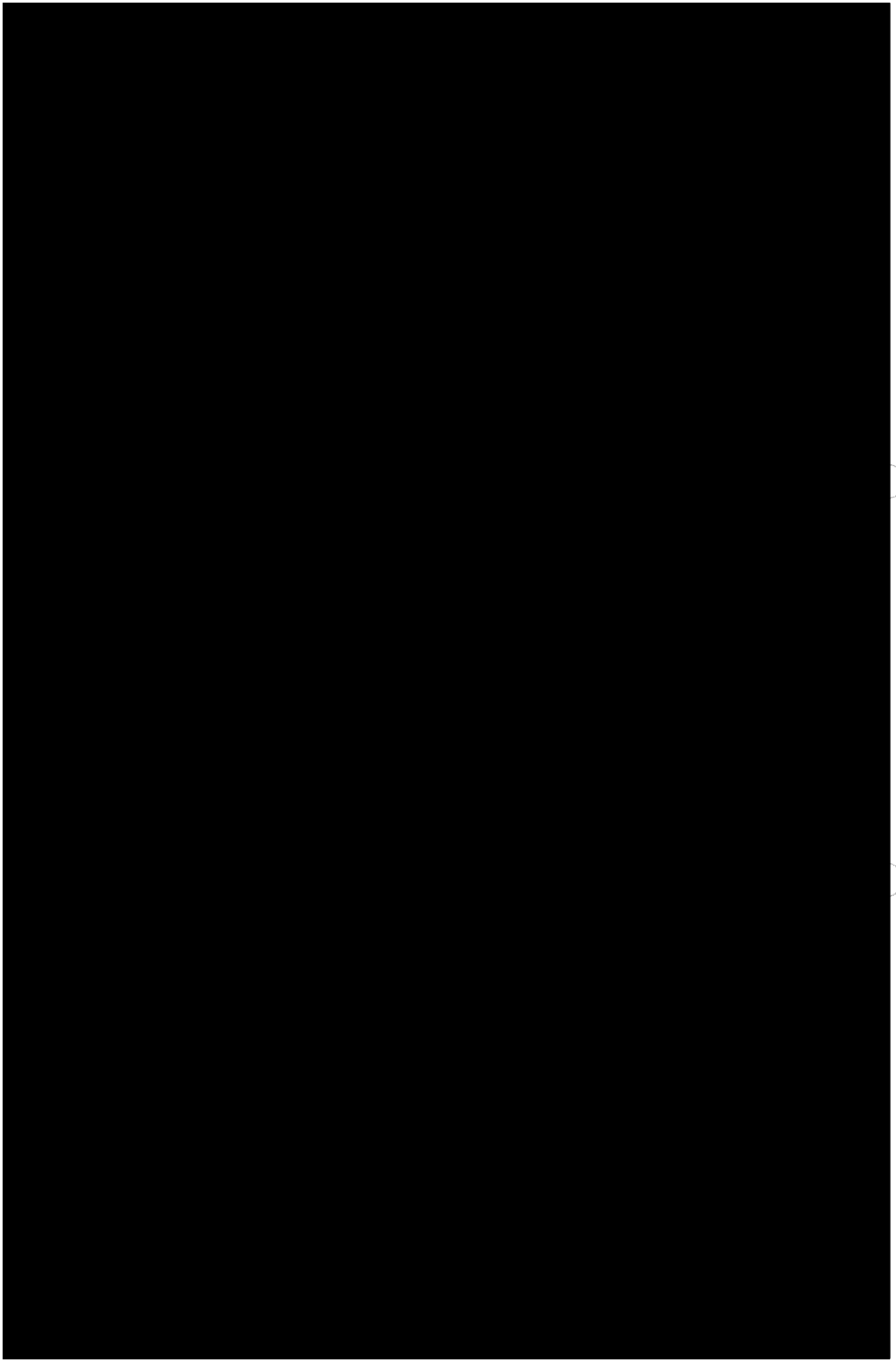


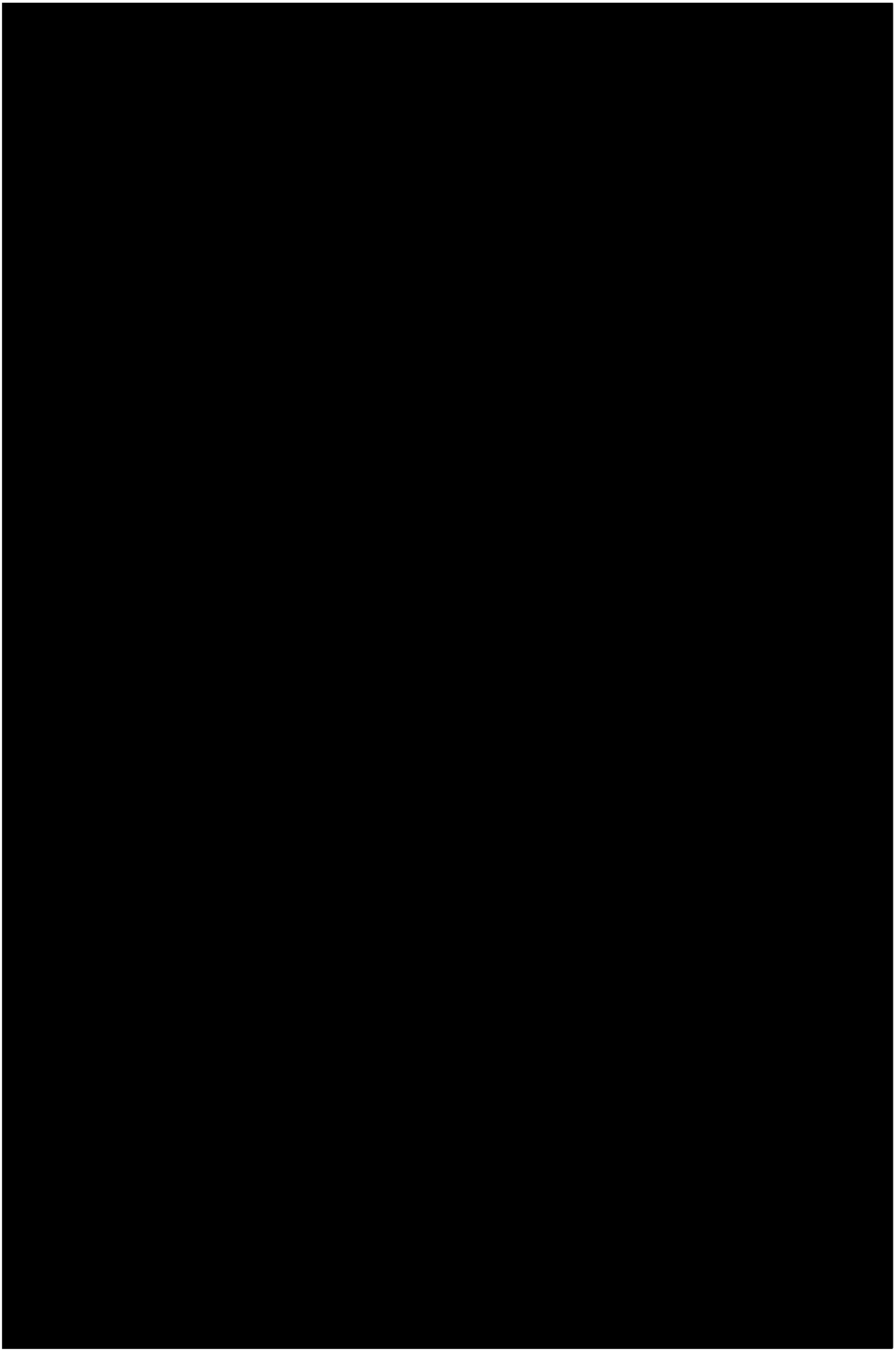


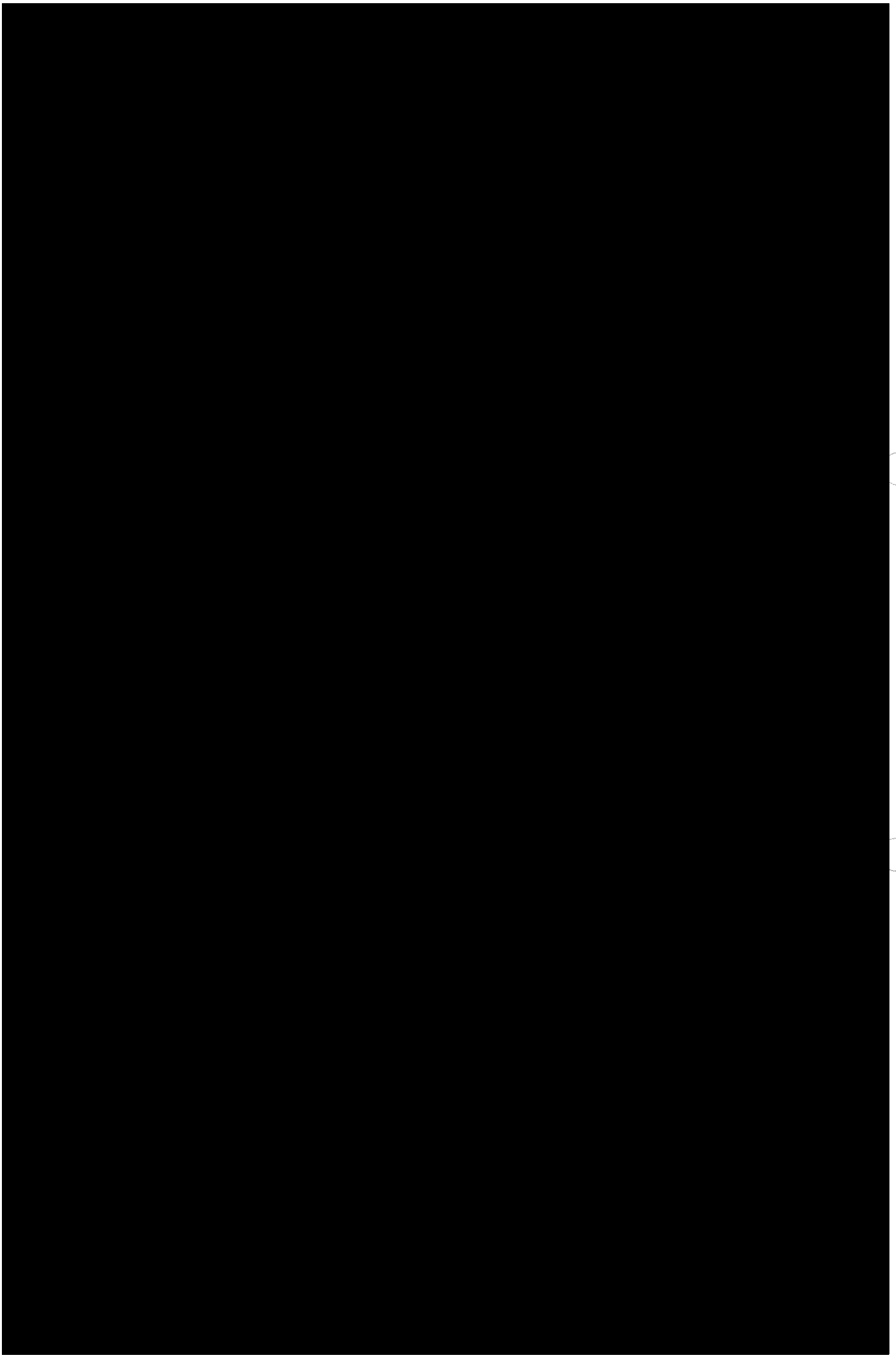
22. Additional Terms See Annexure G

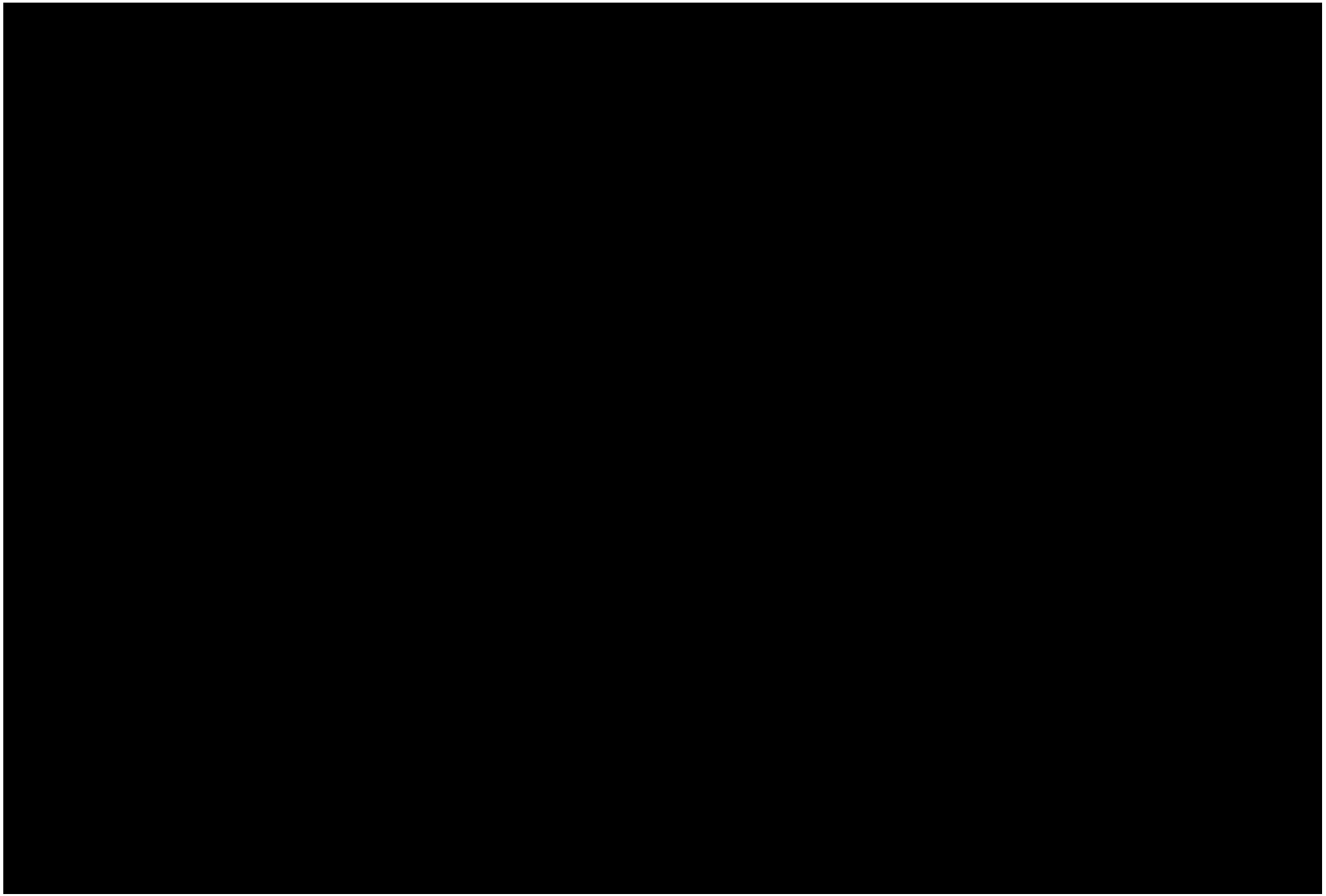
[redacted]

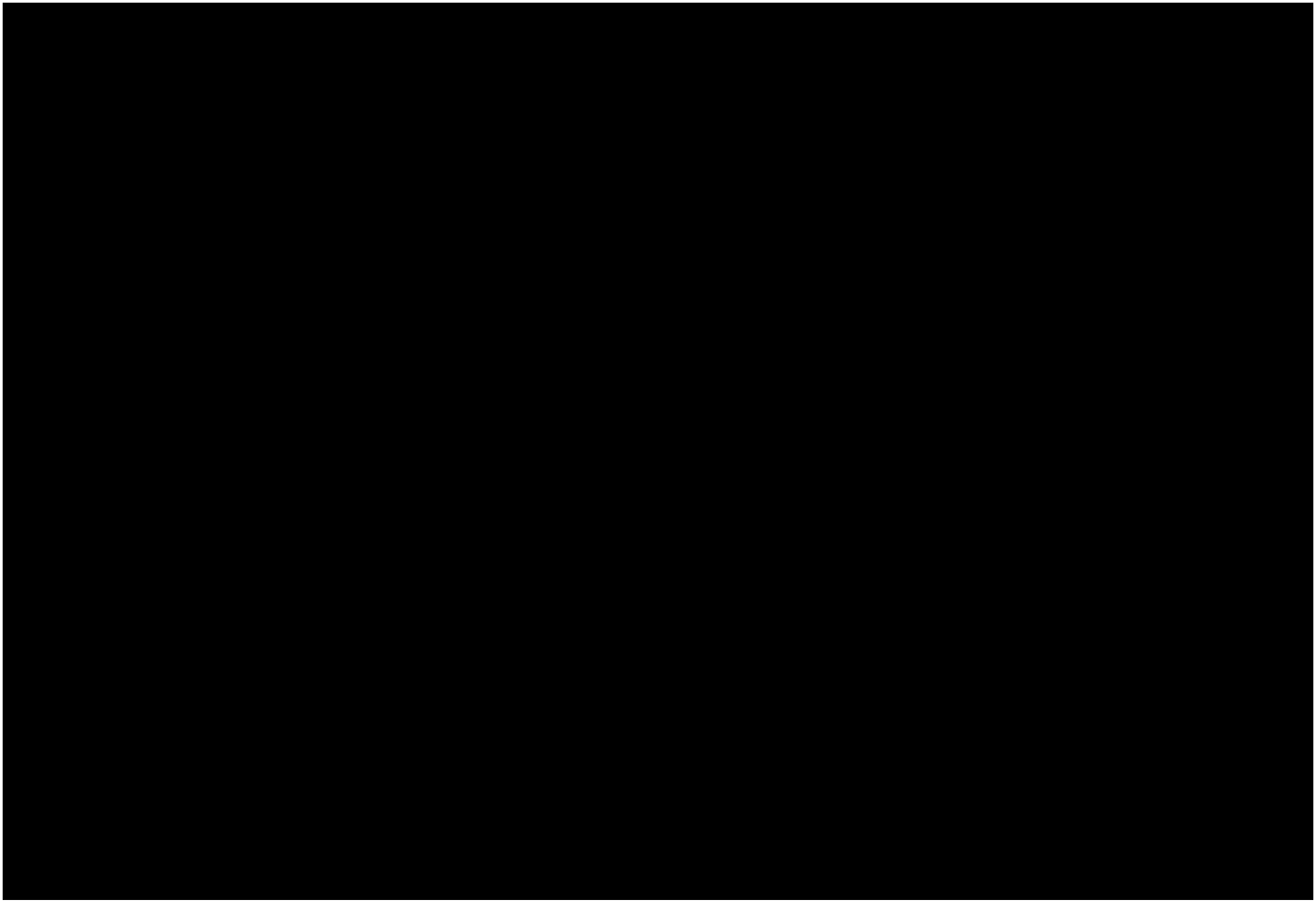


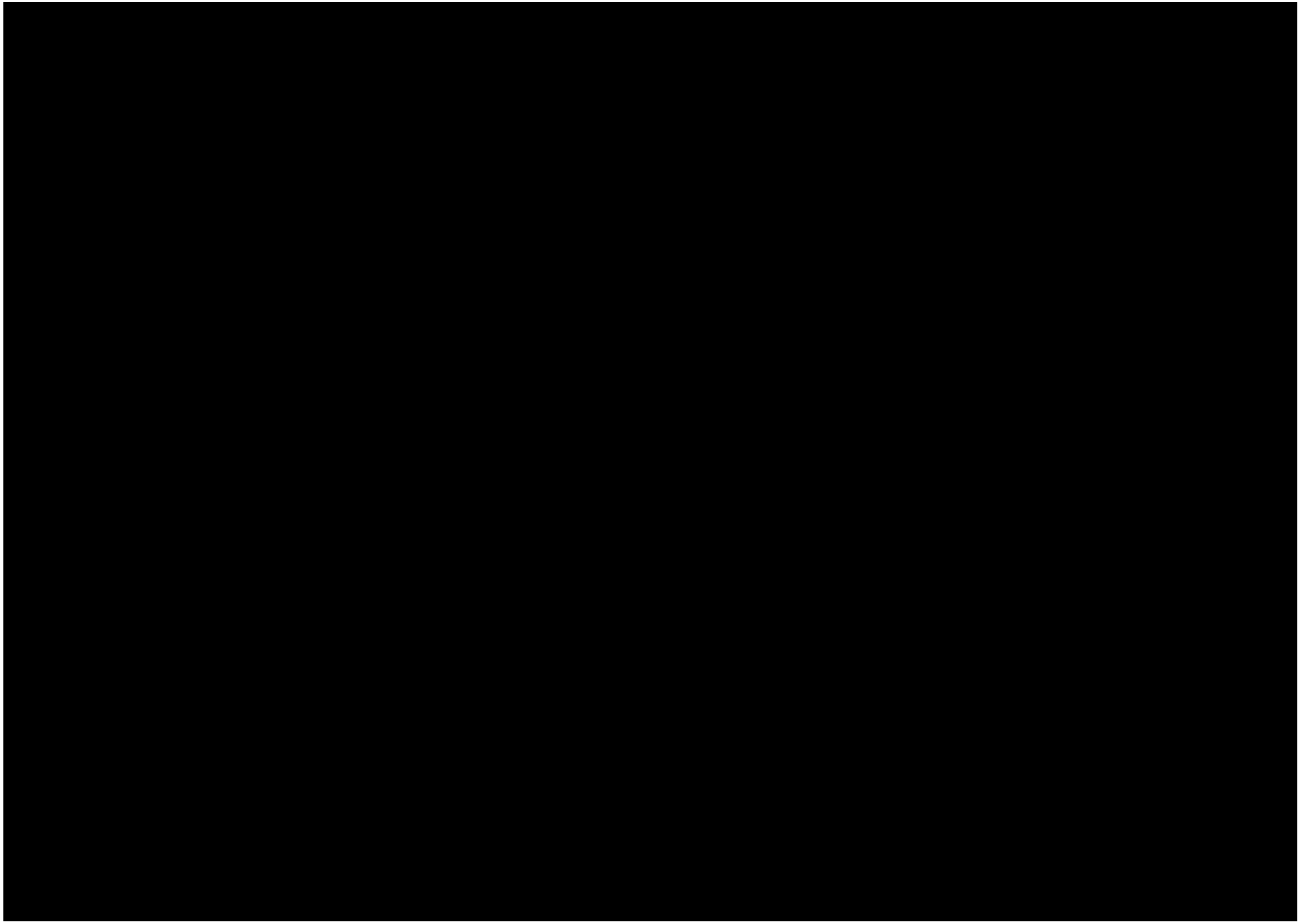


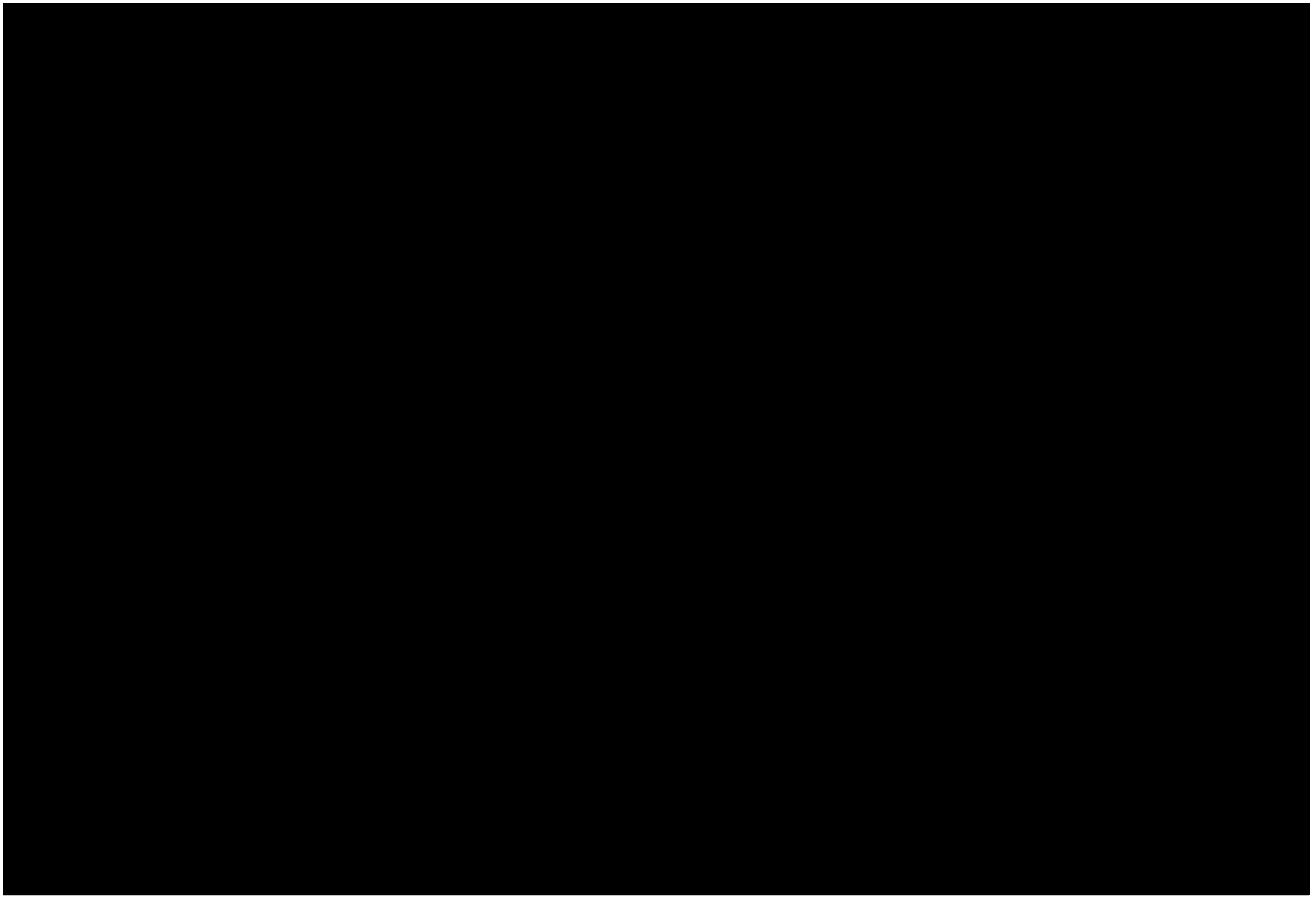


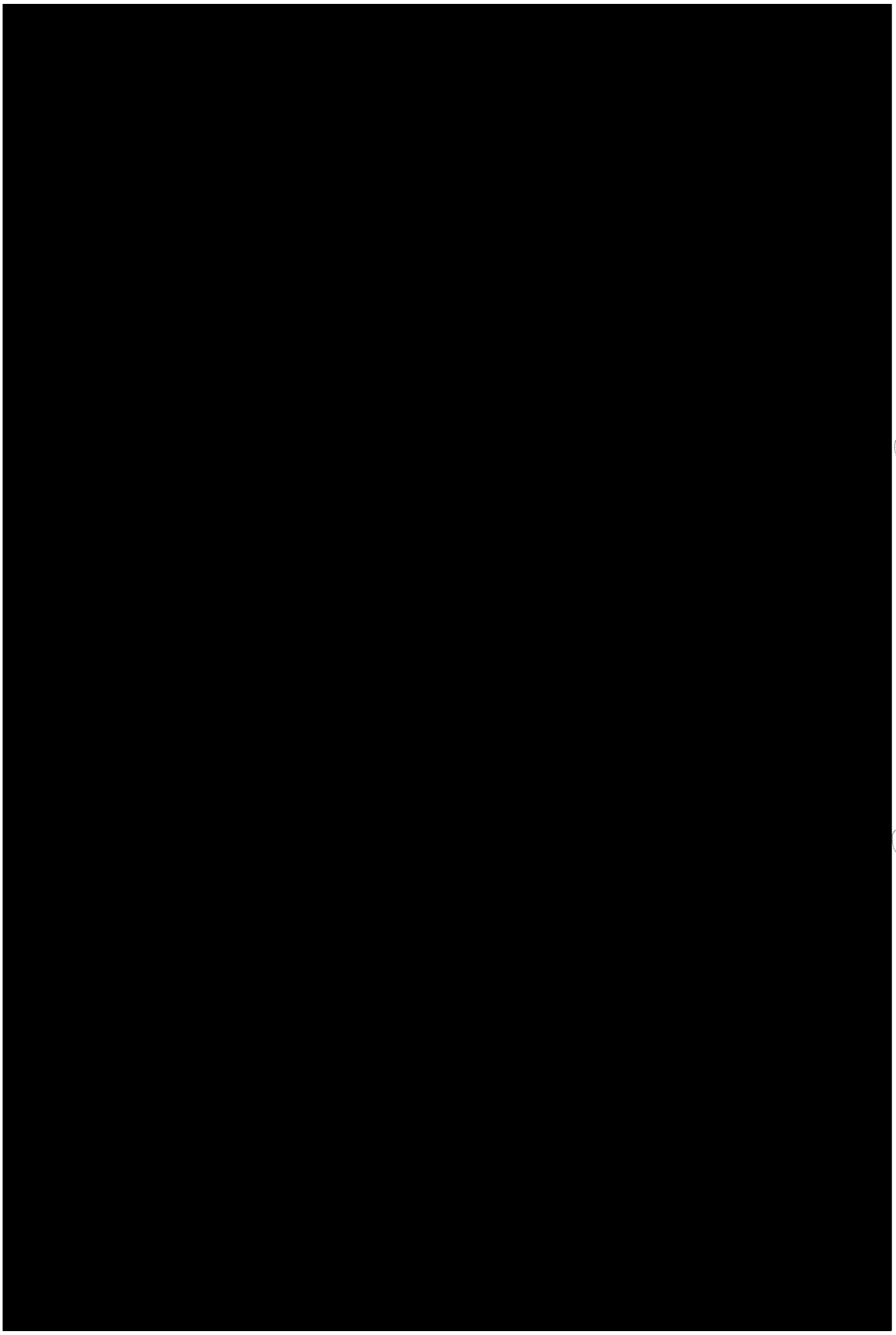


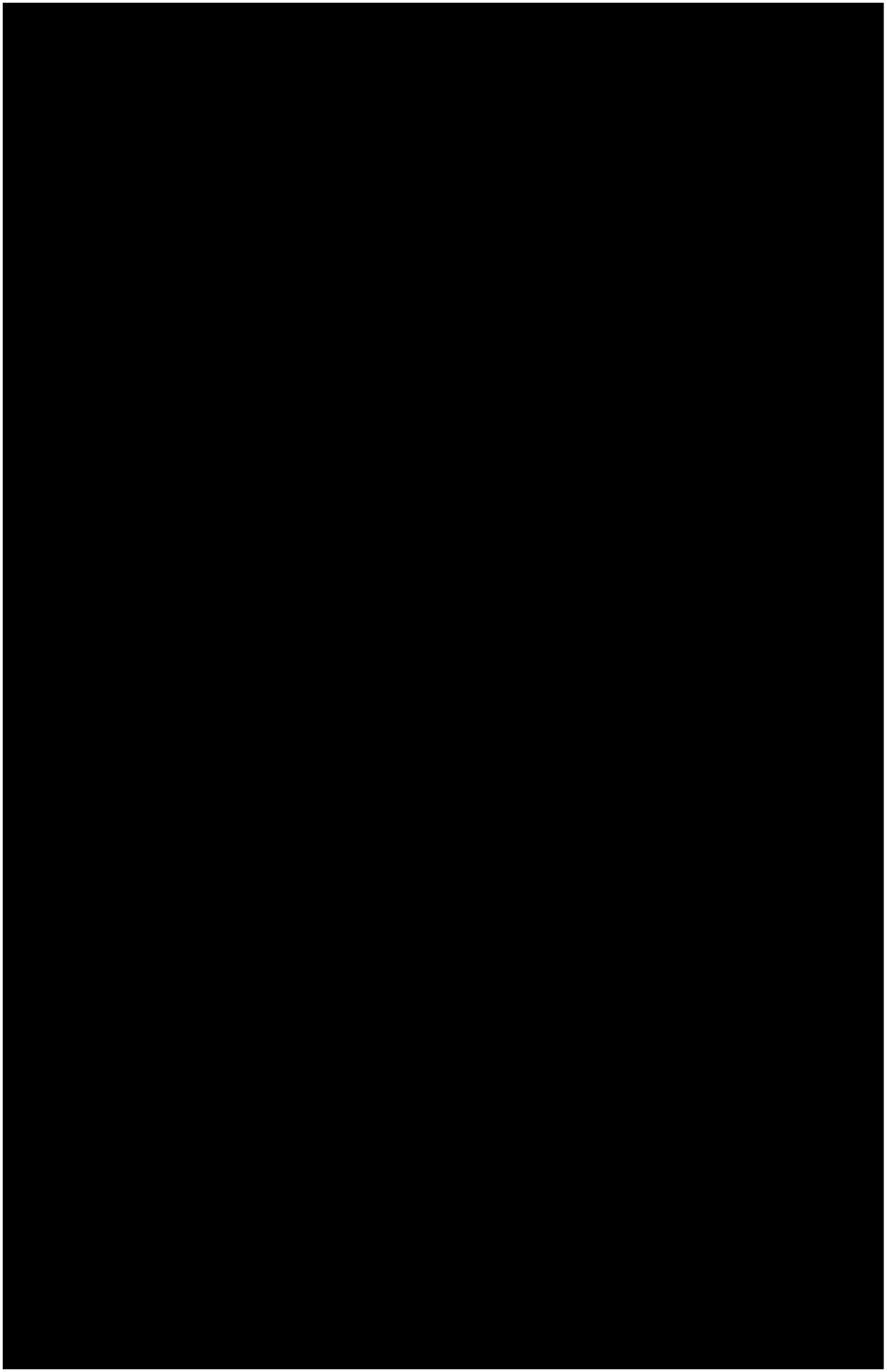


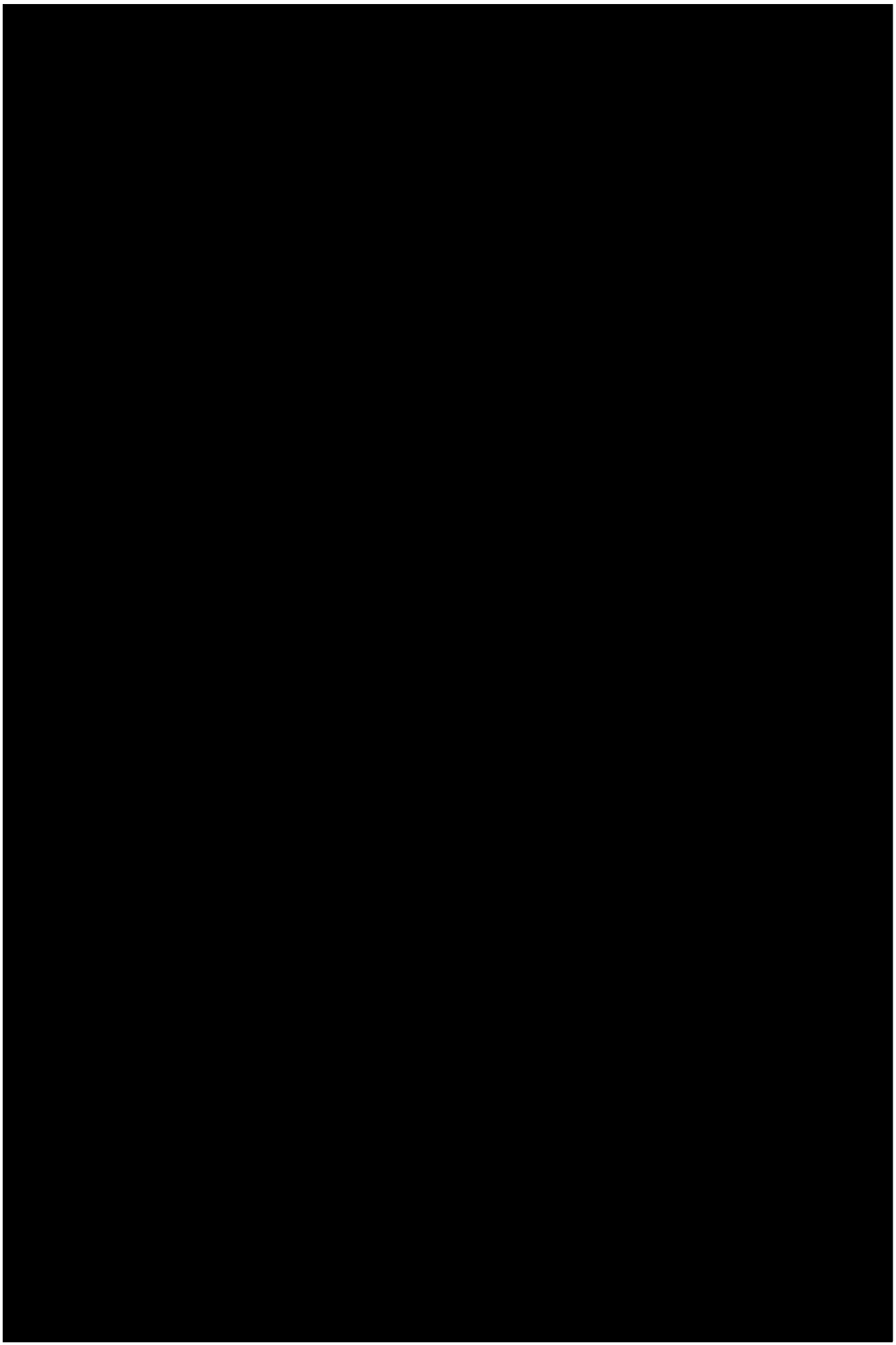


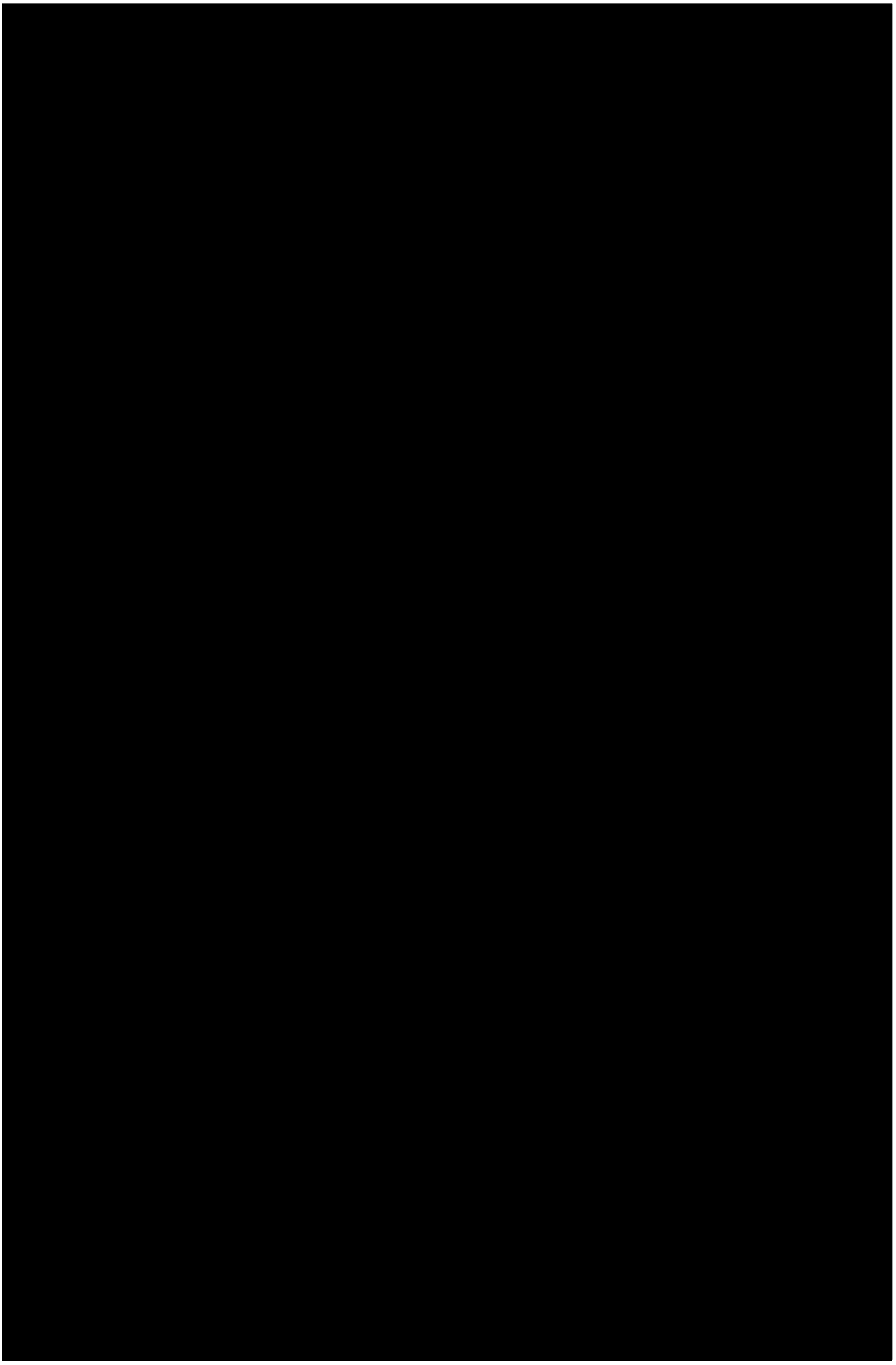


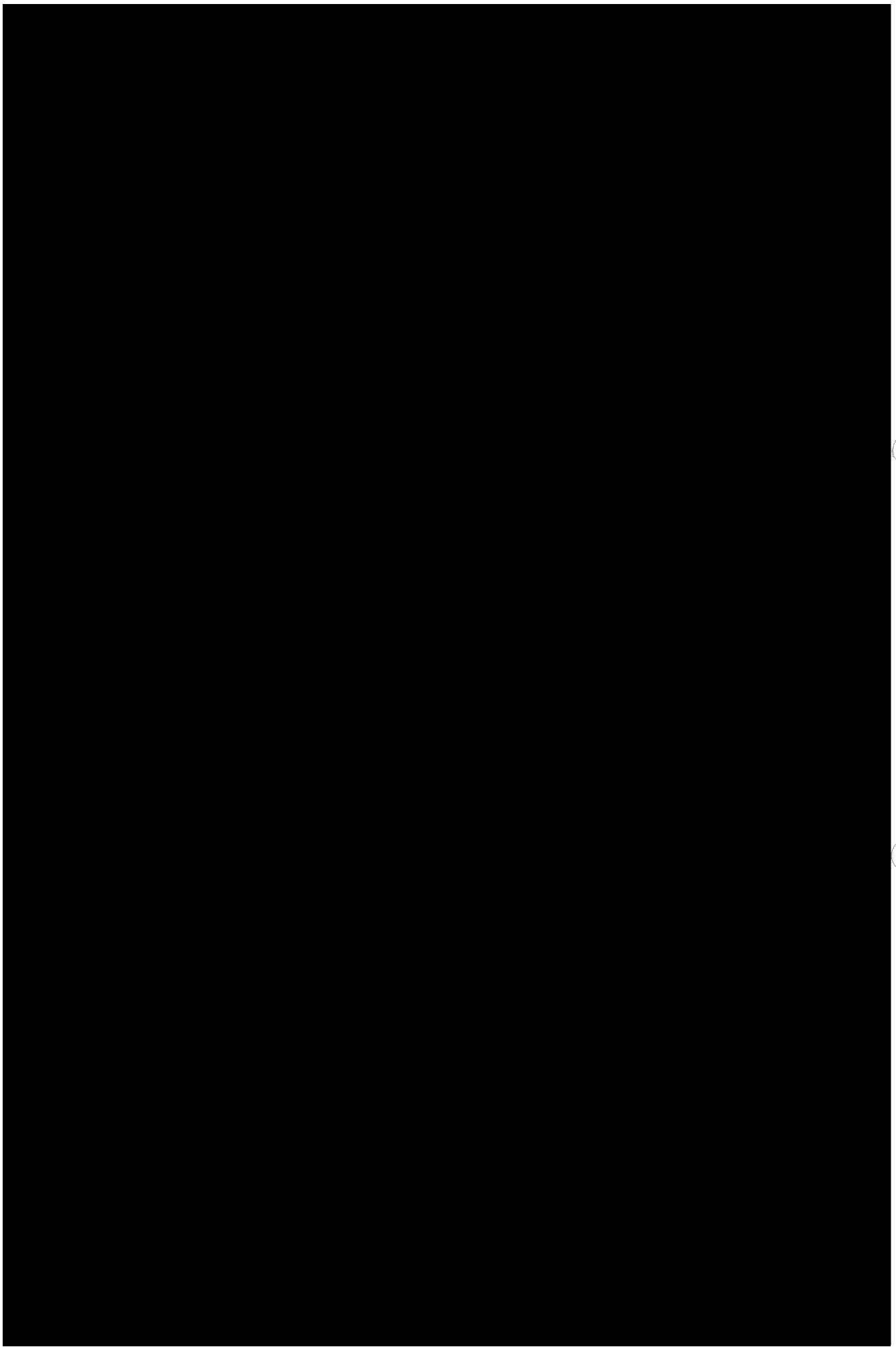


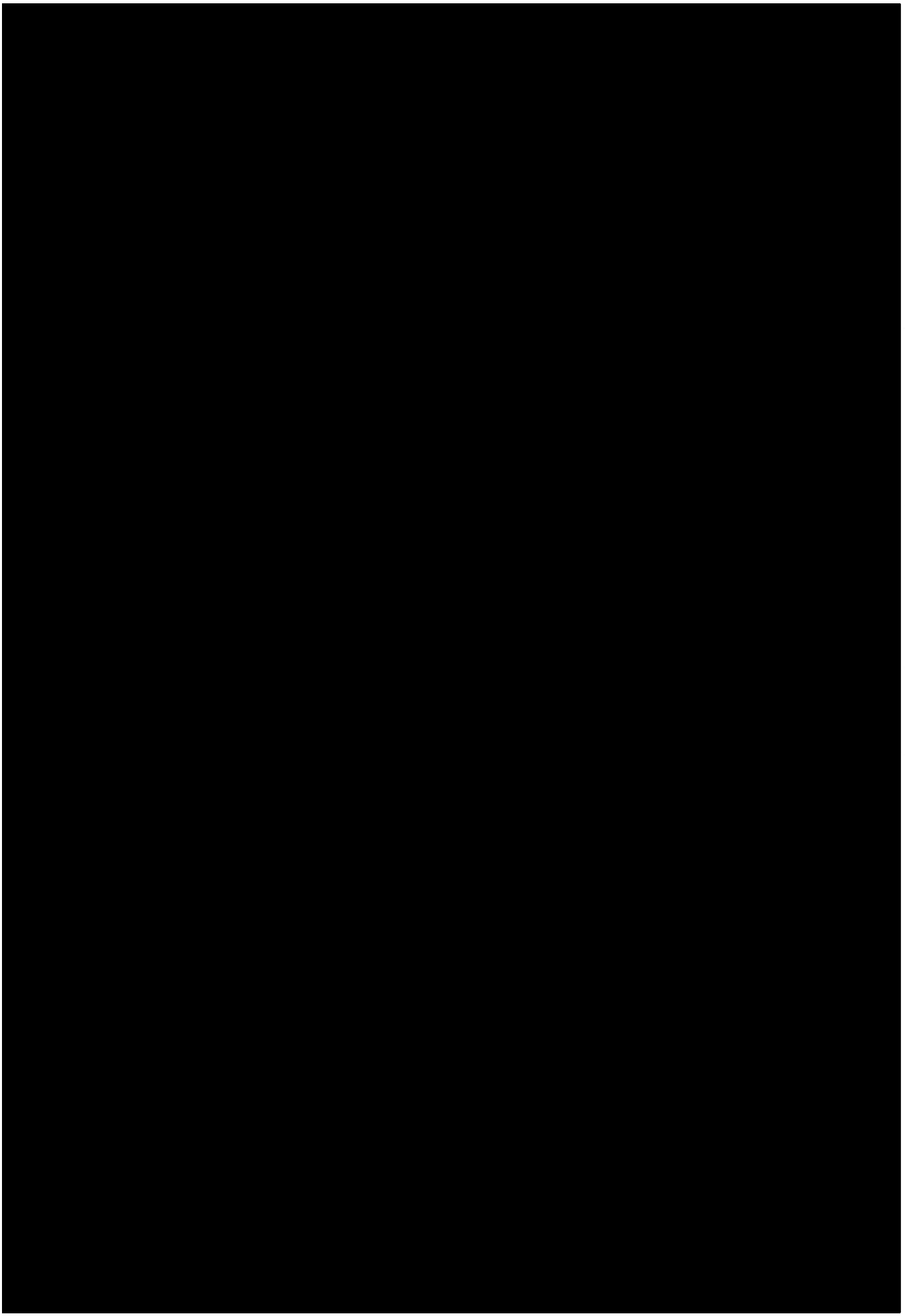


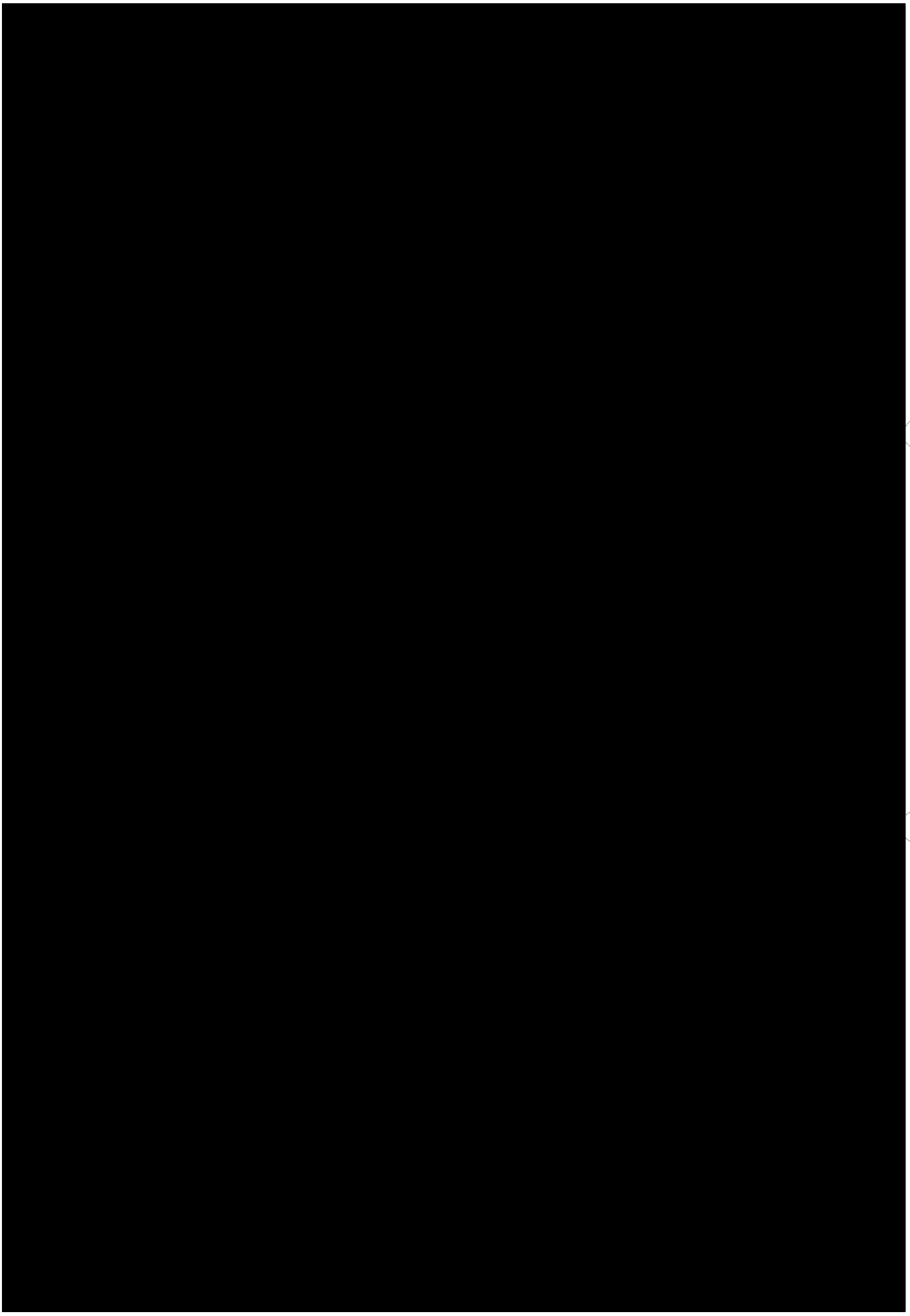


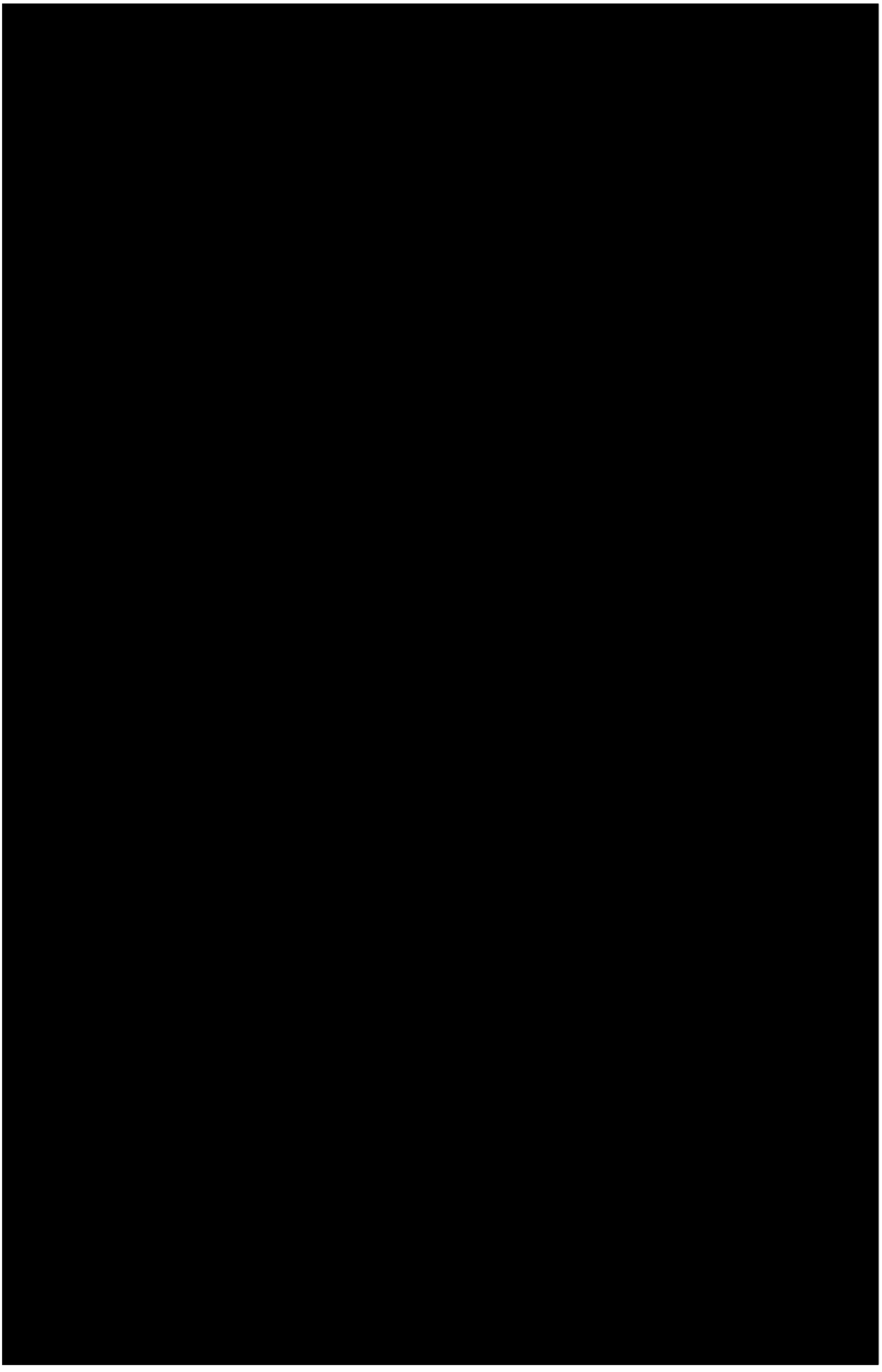


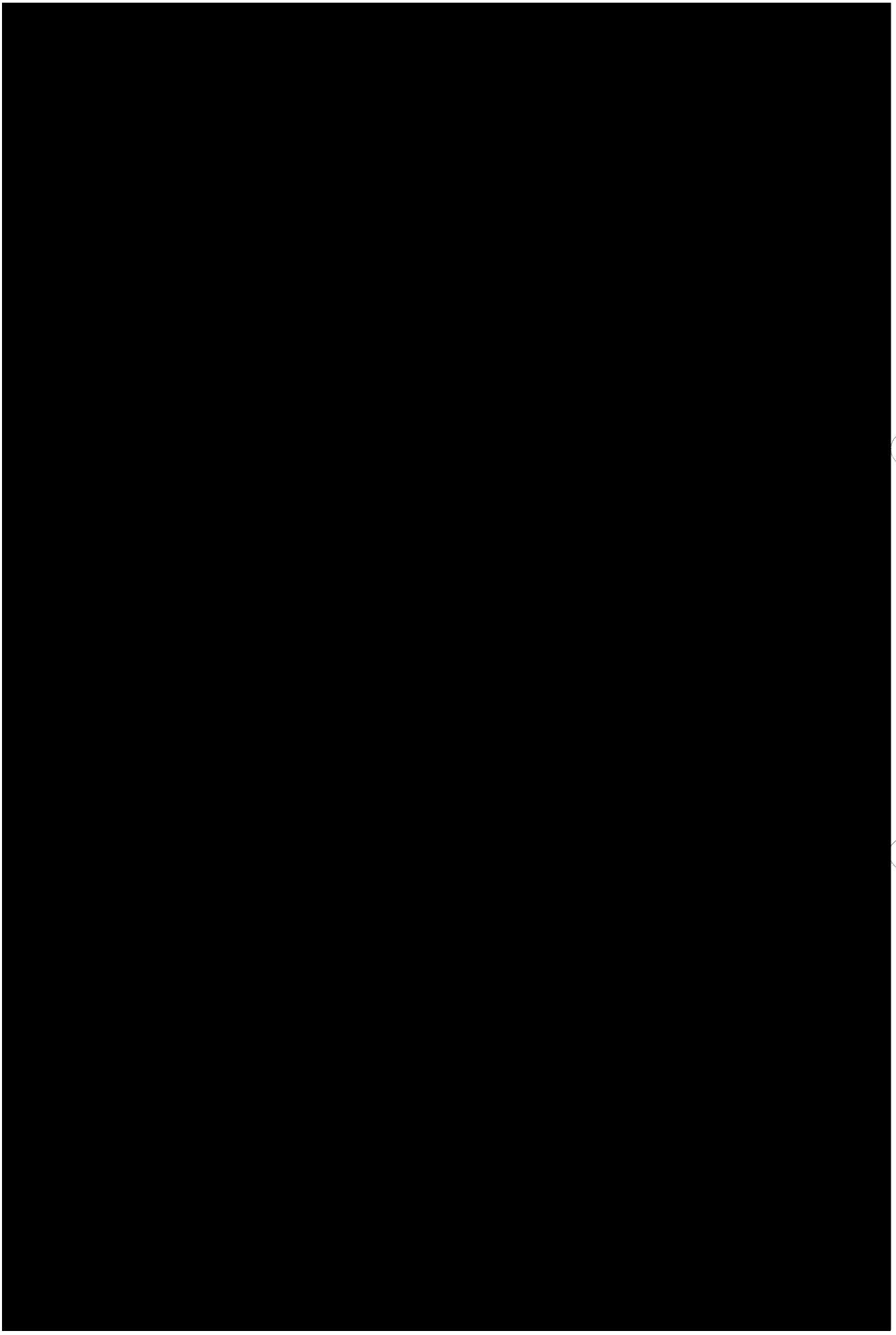


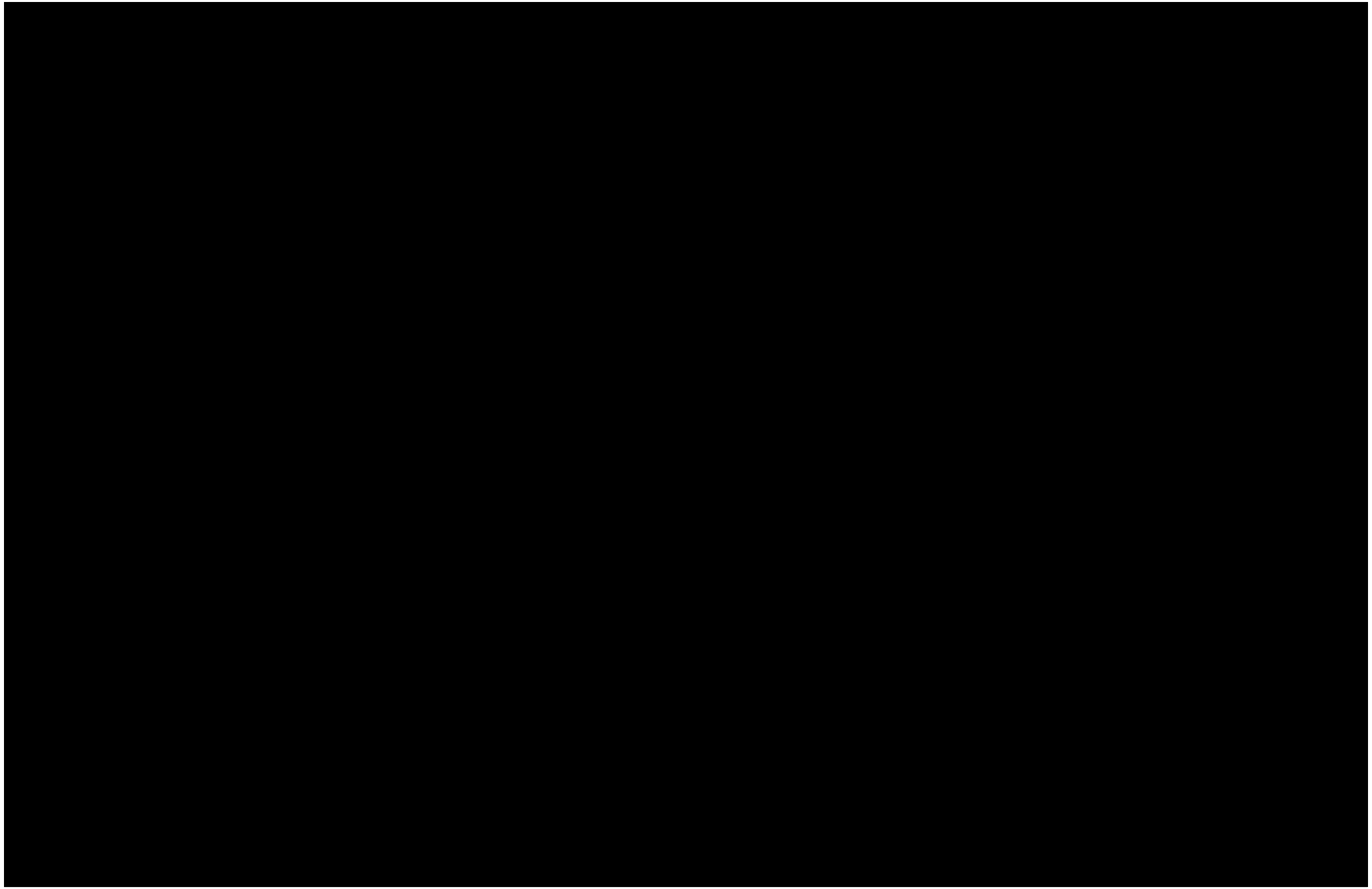


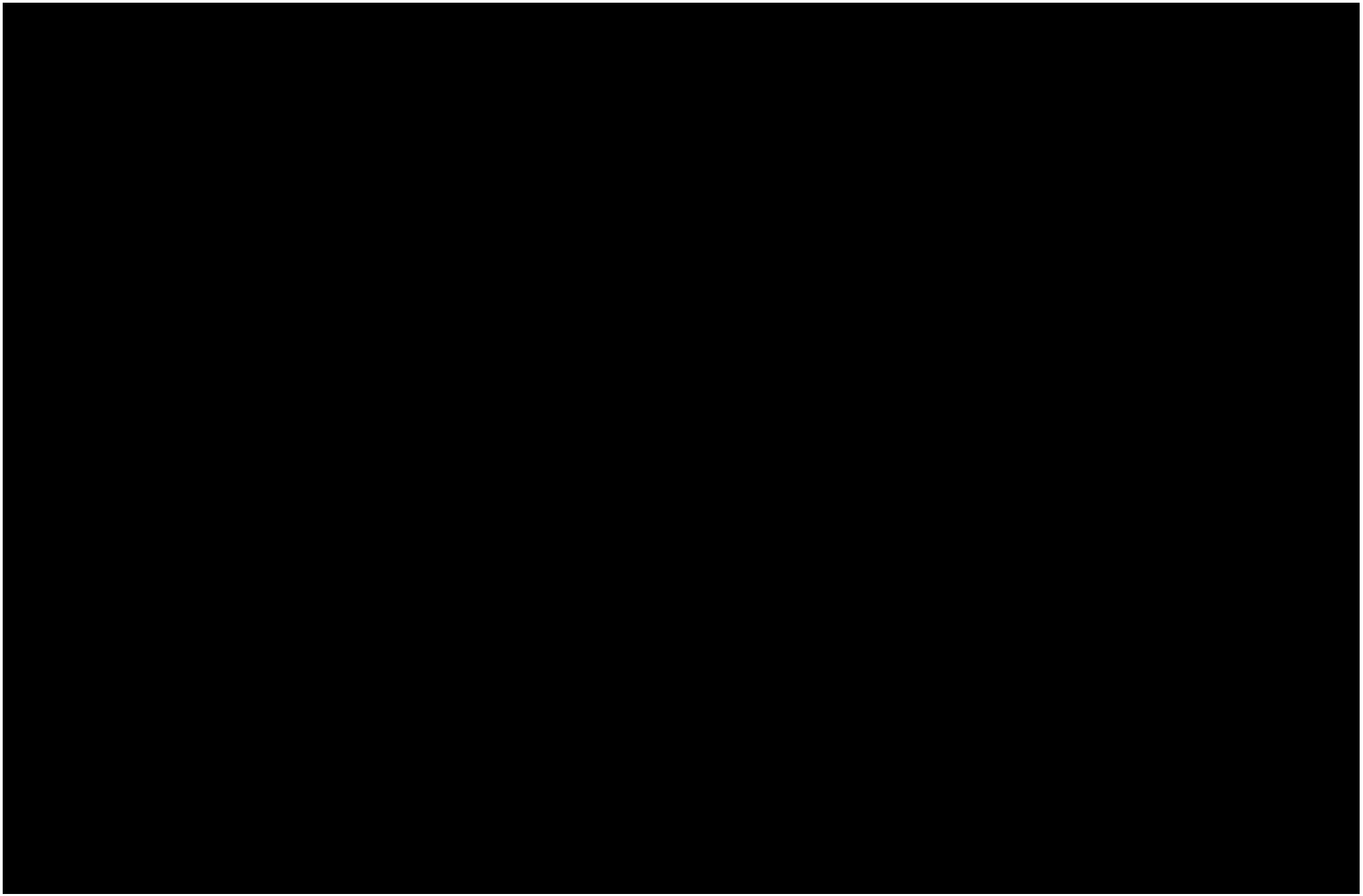


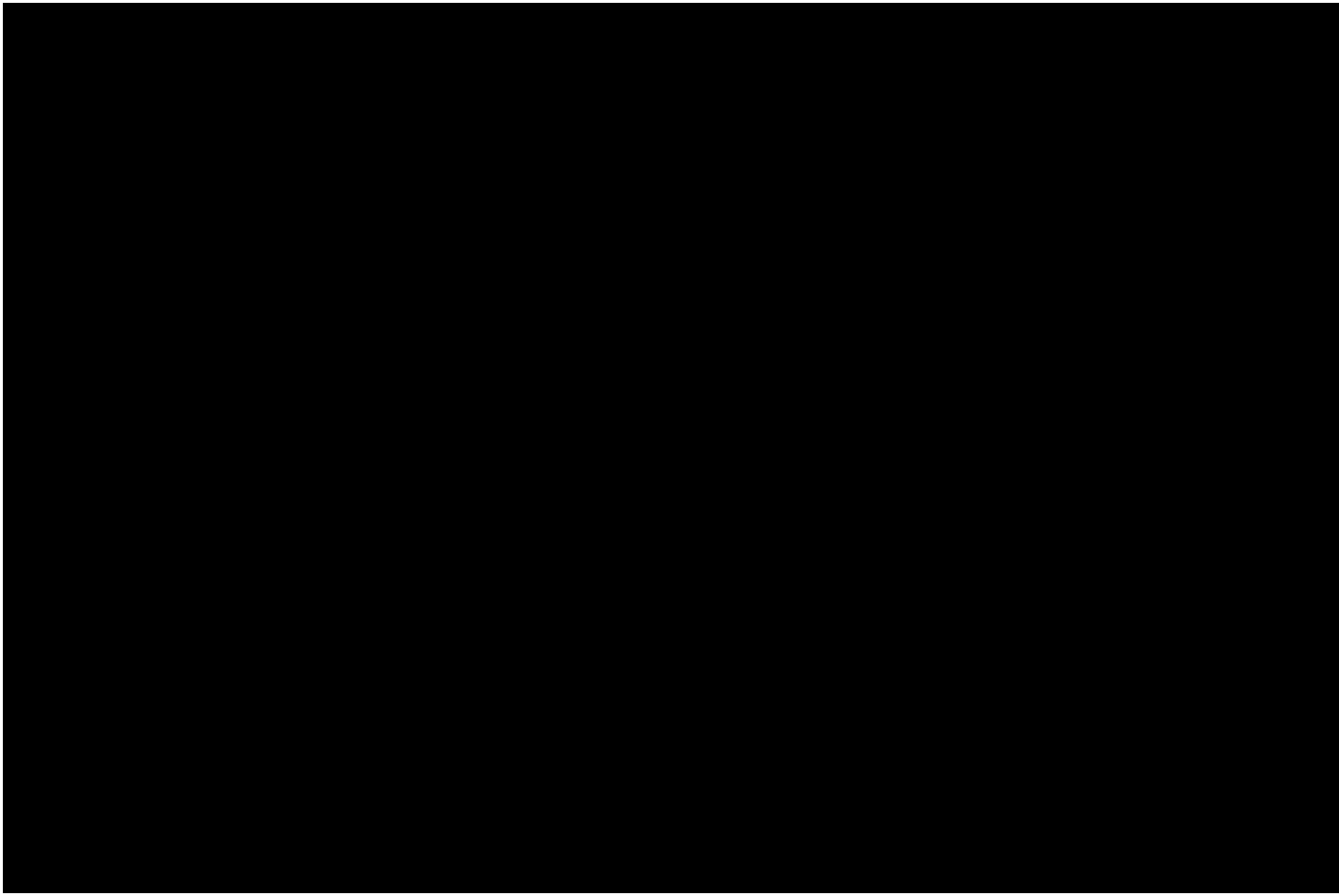


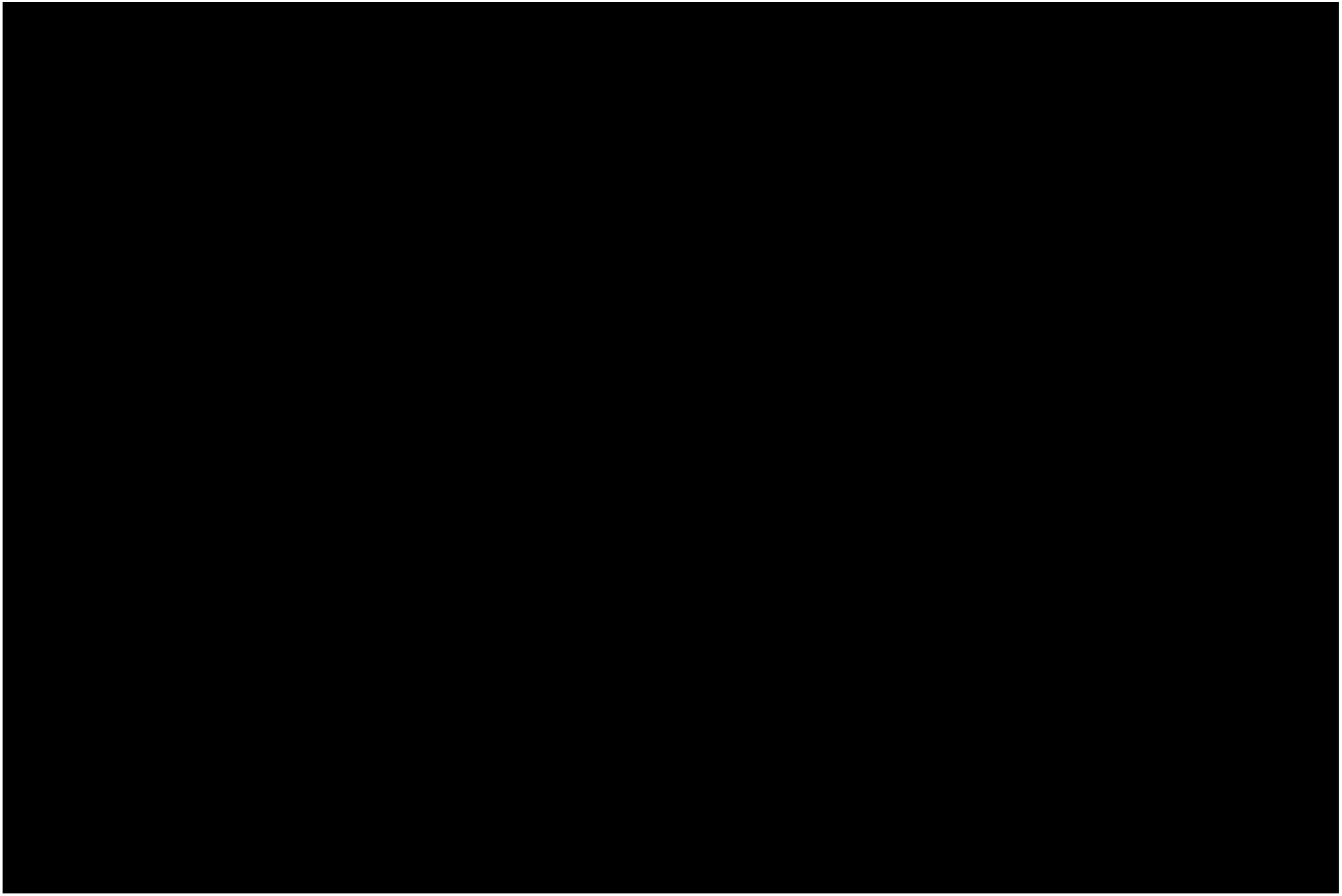


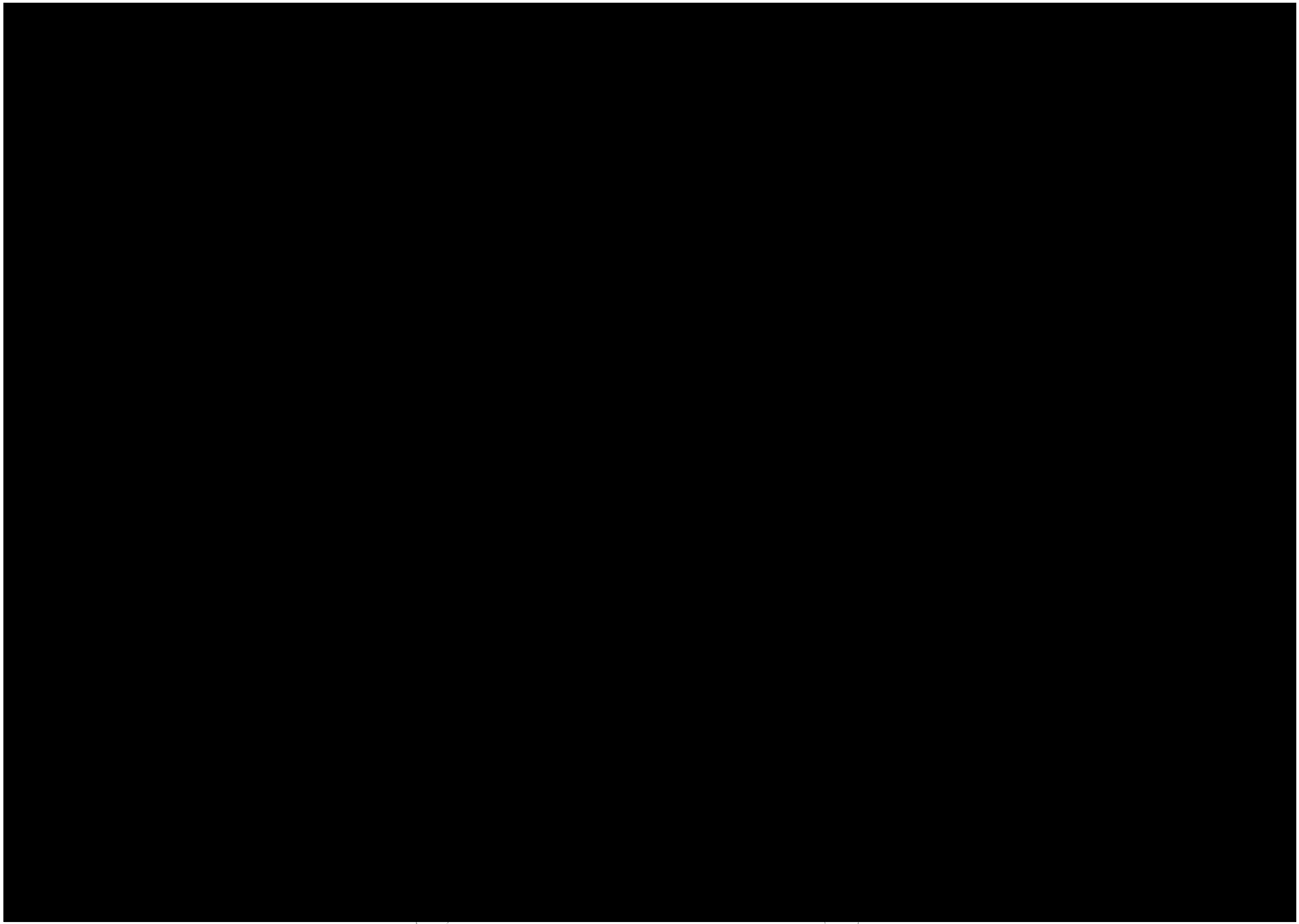


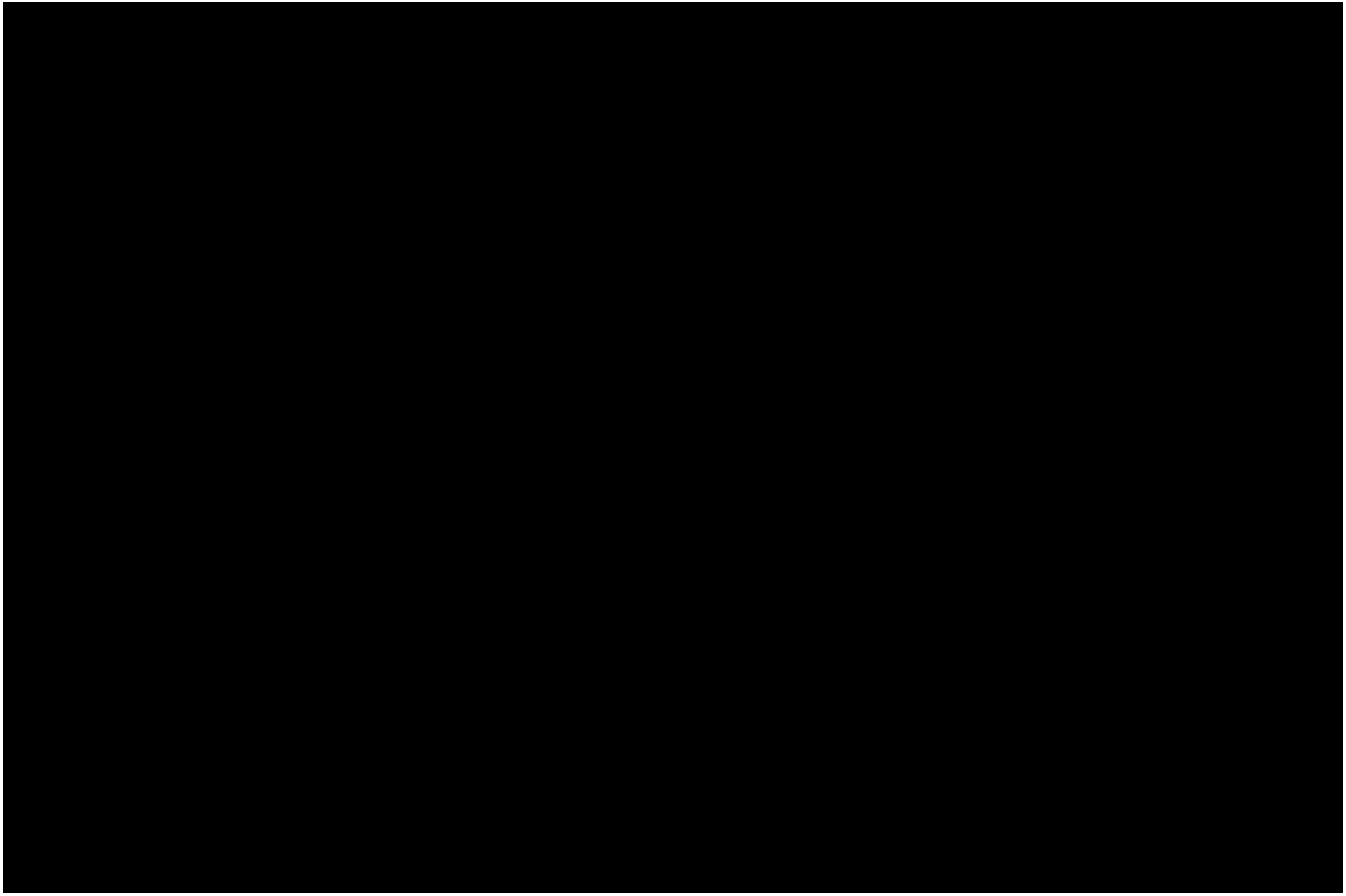


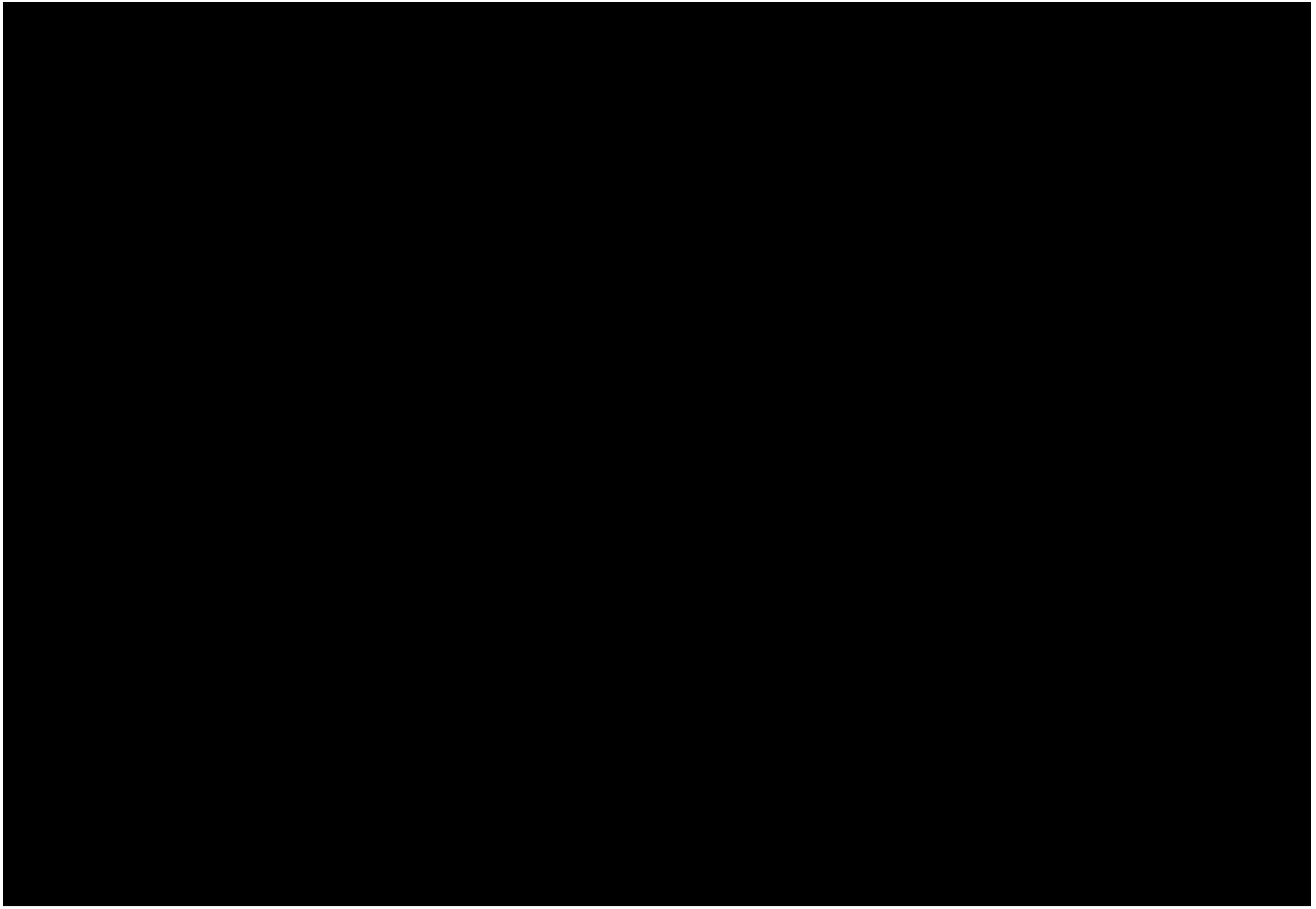


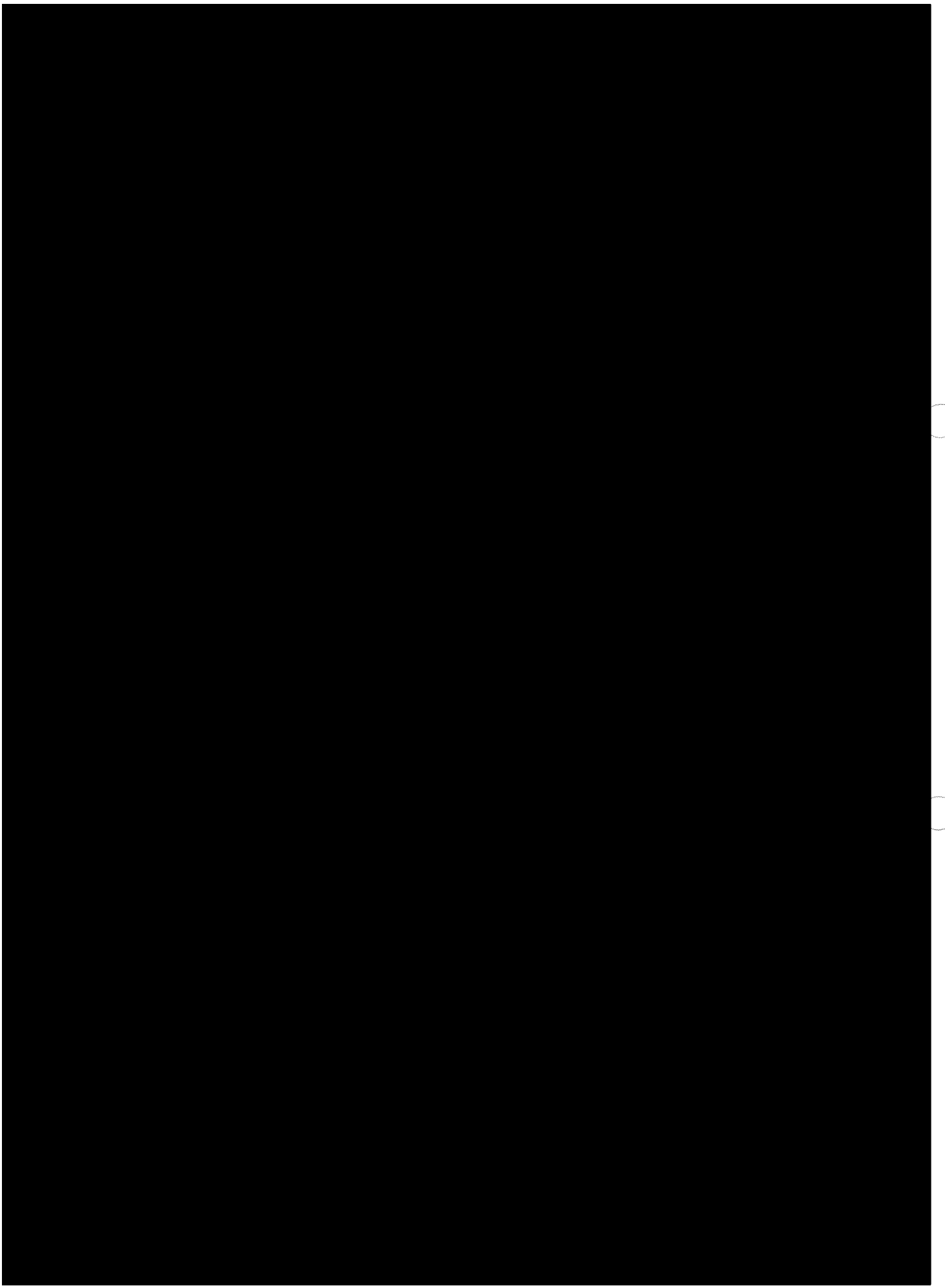


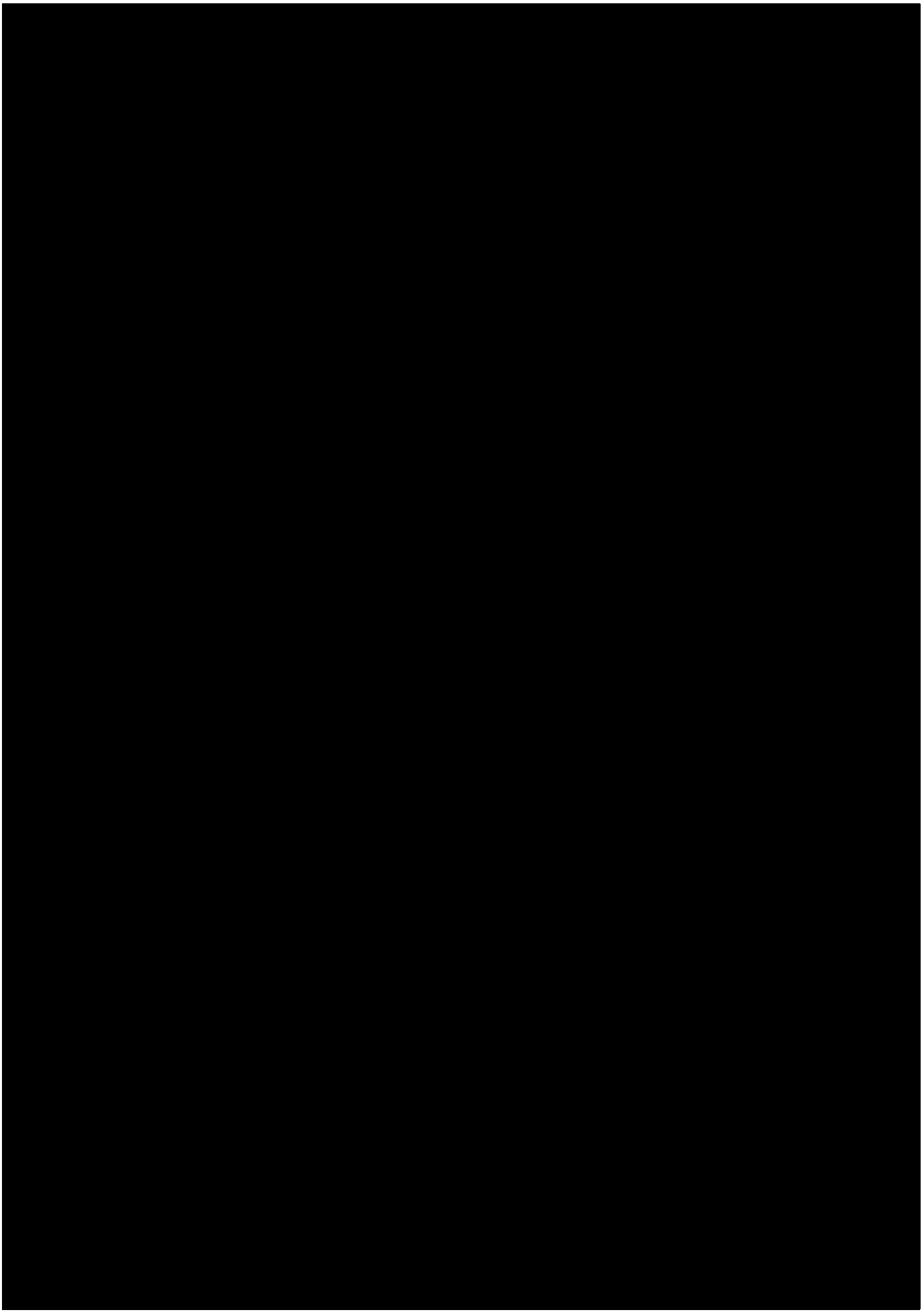


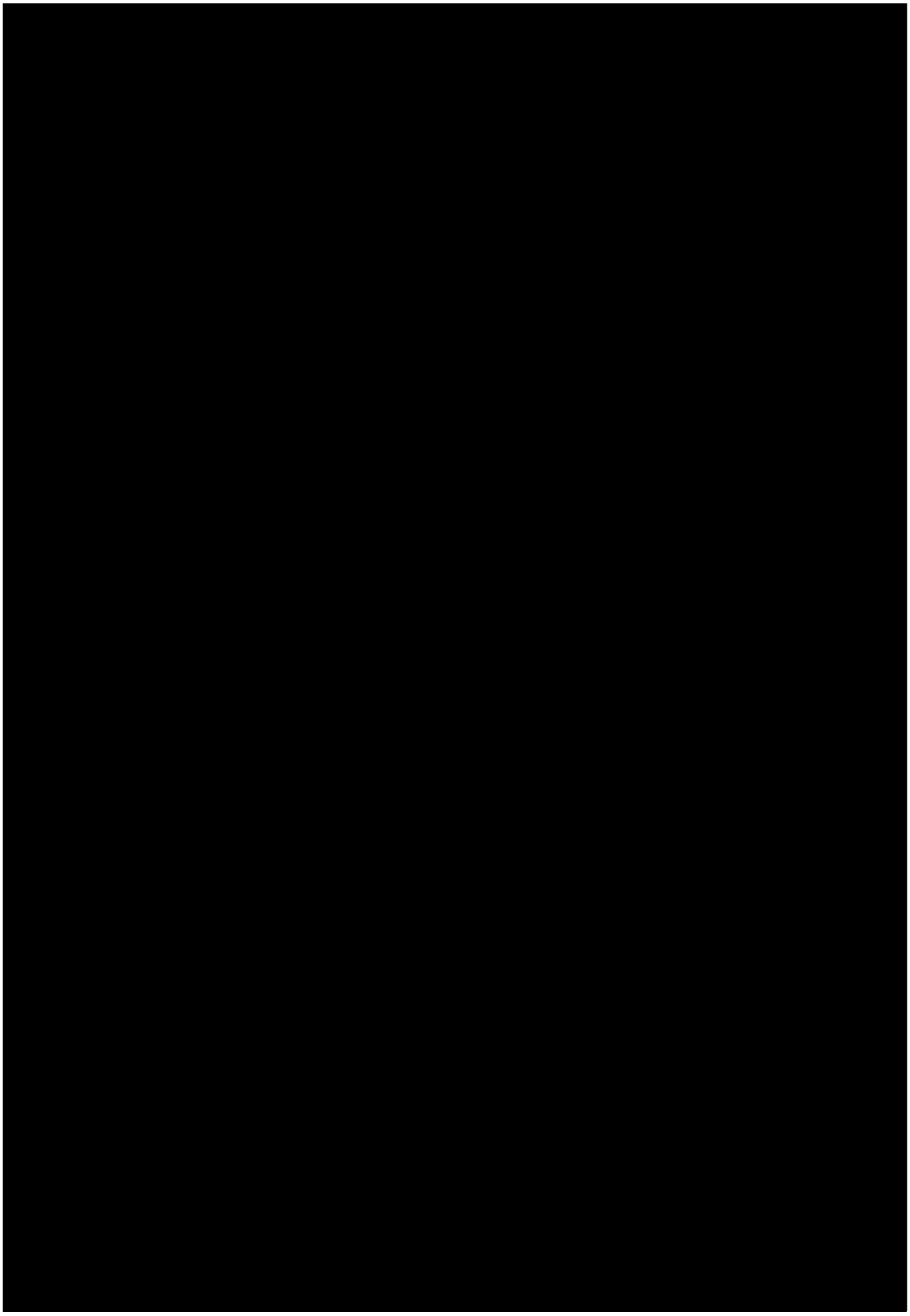


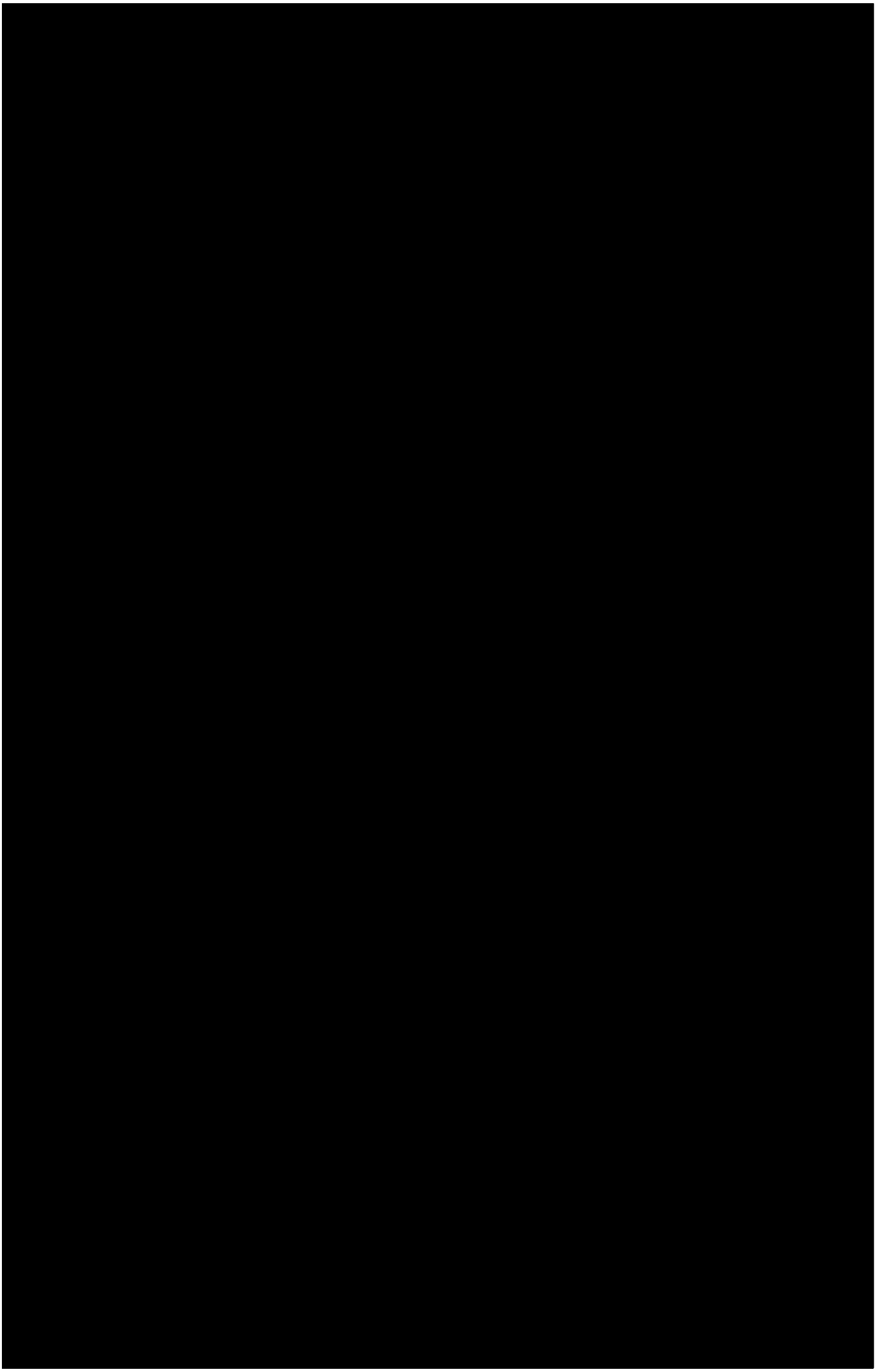


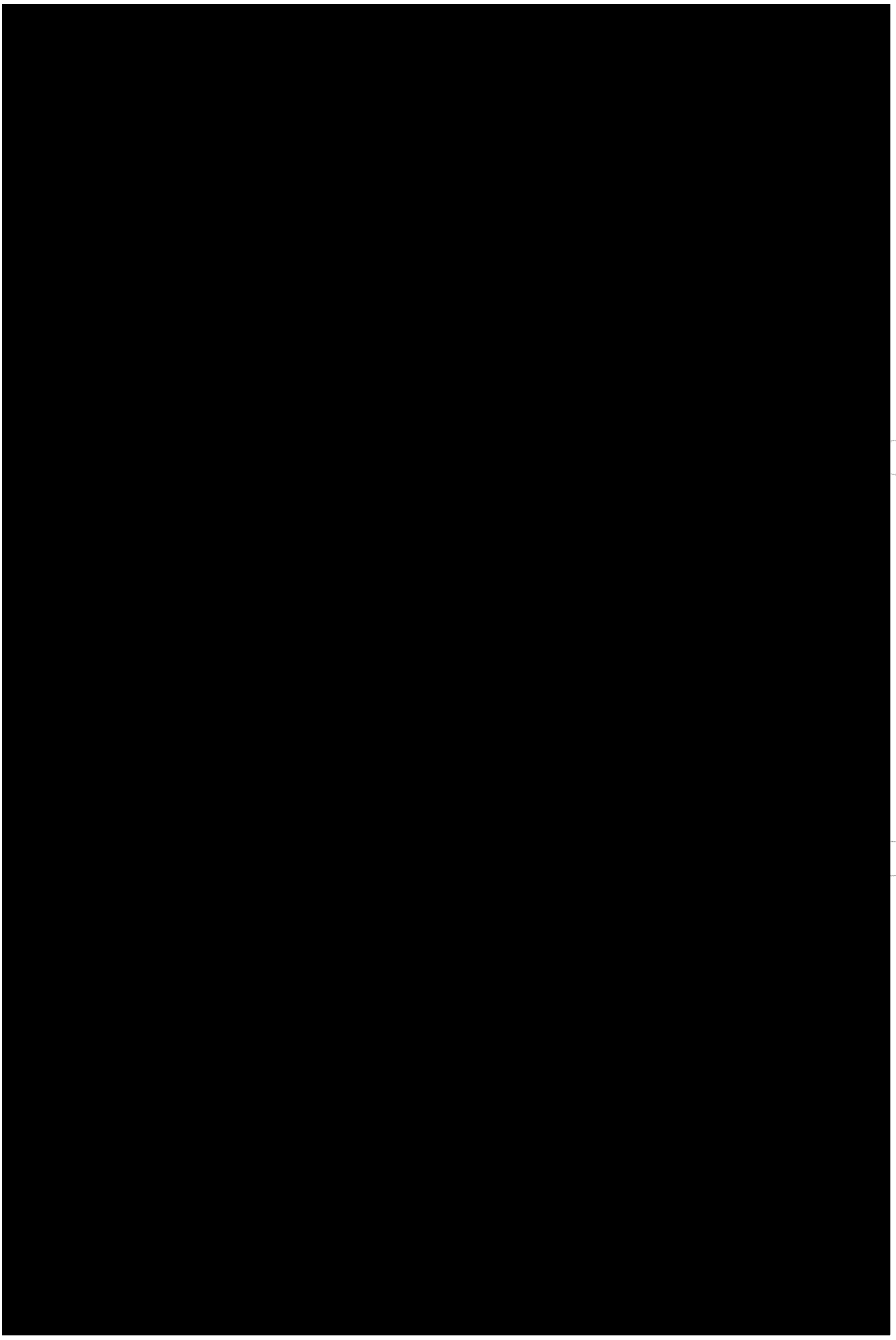


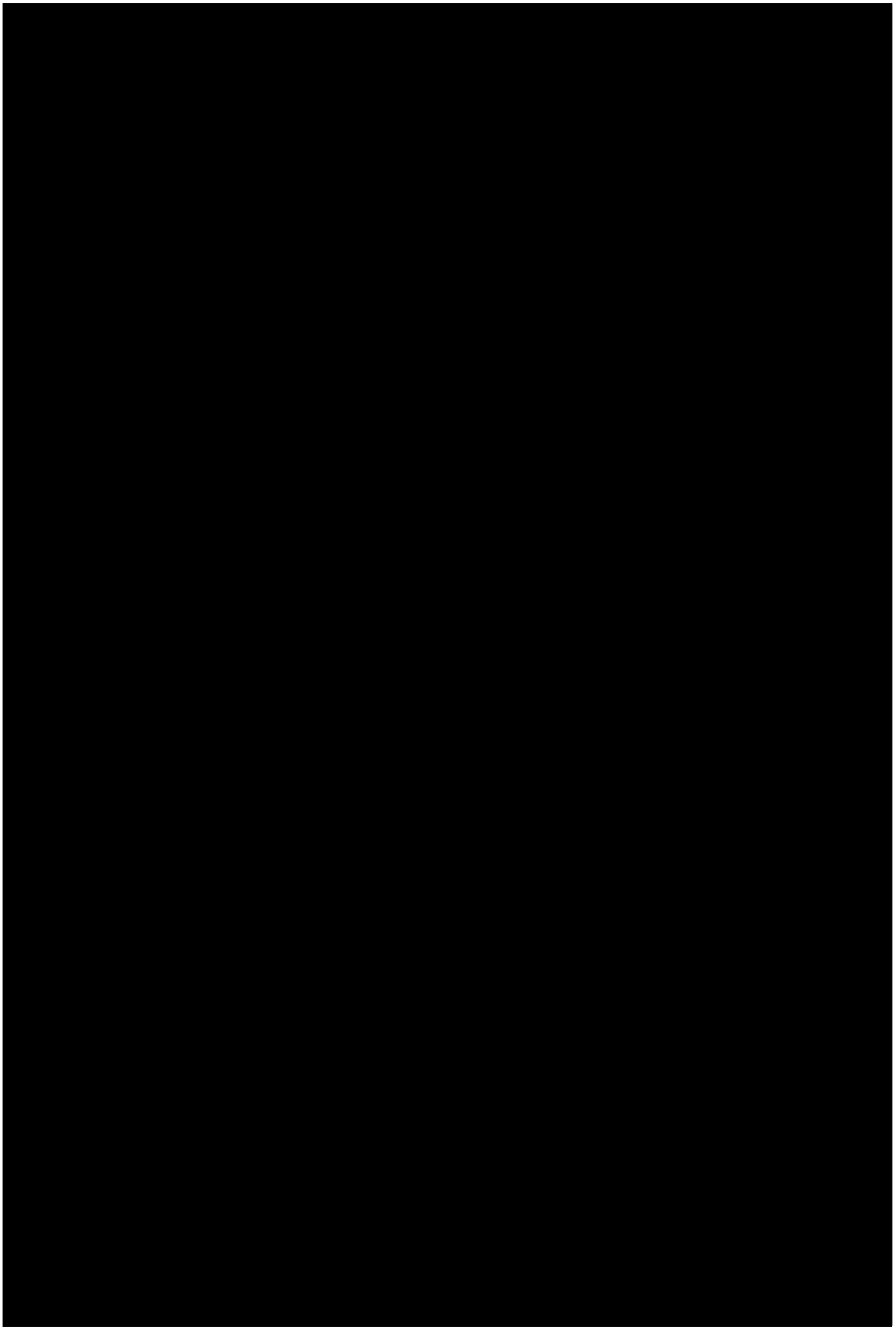


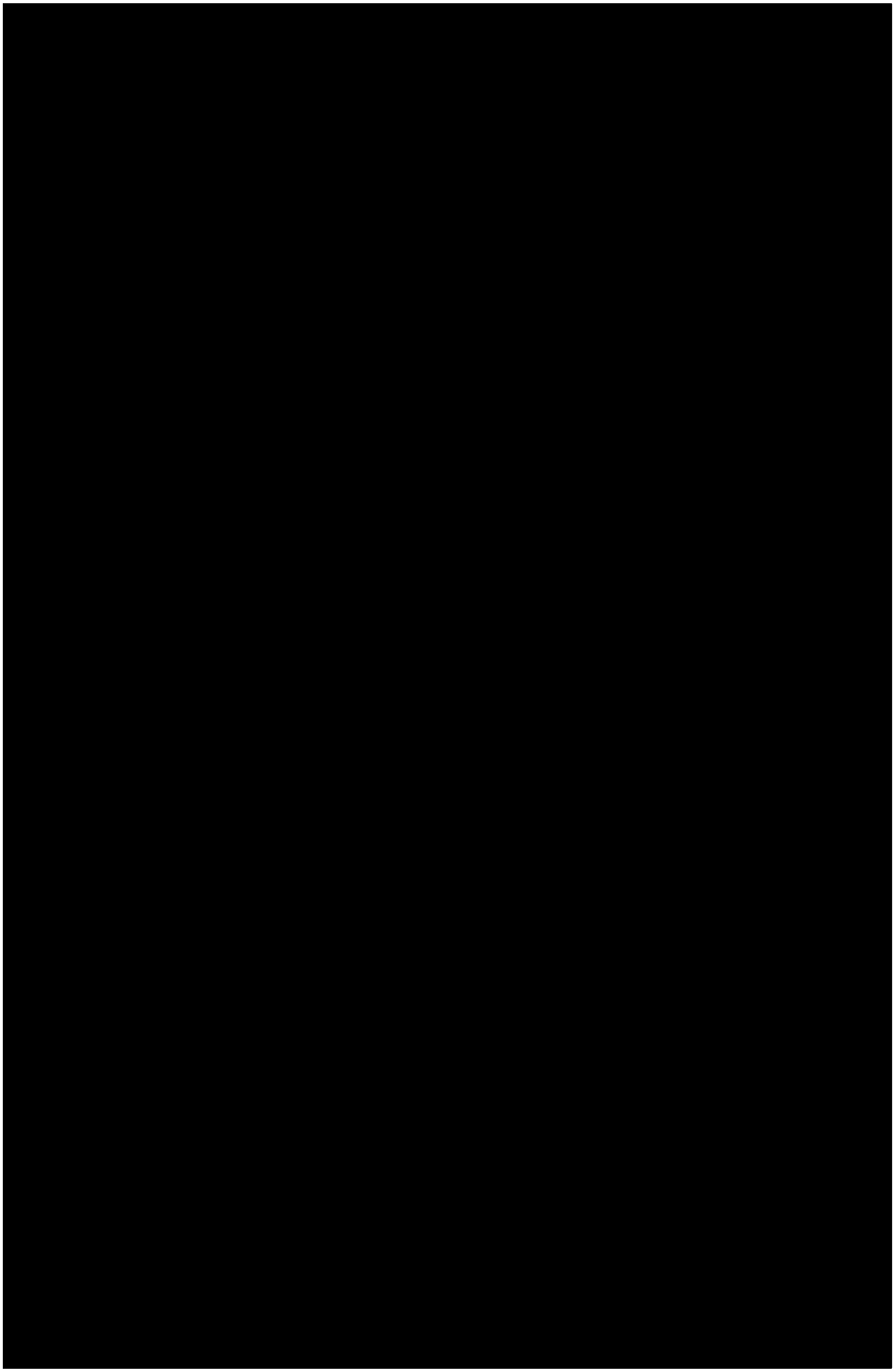


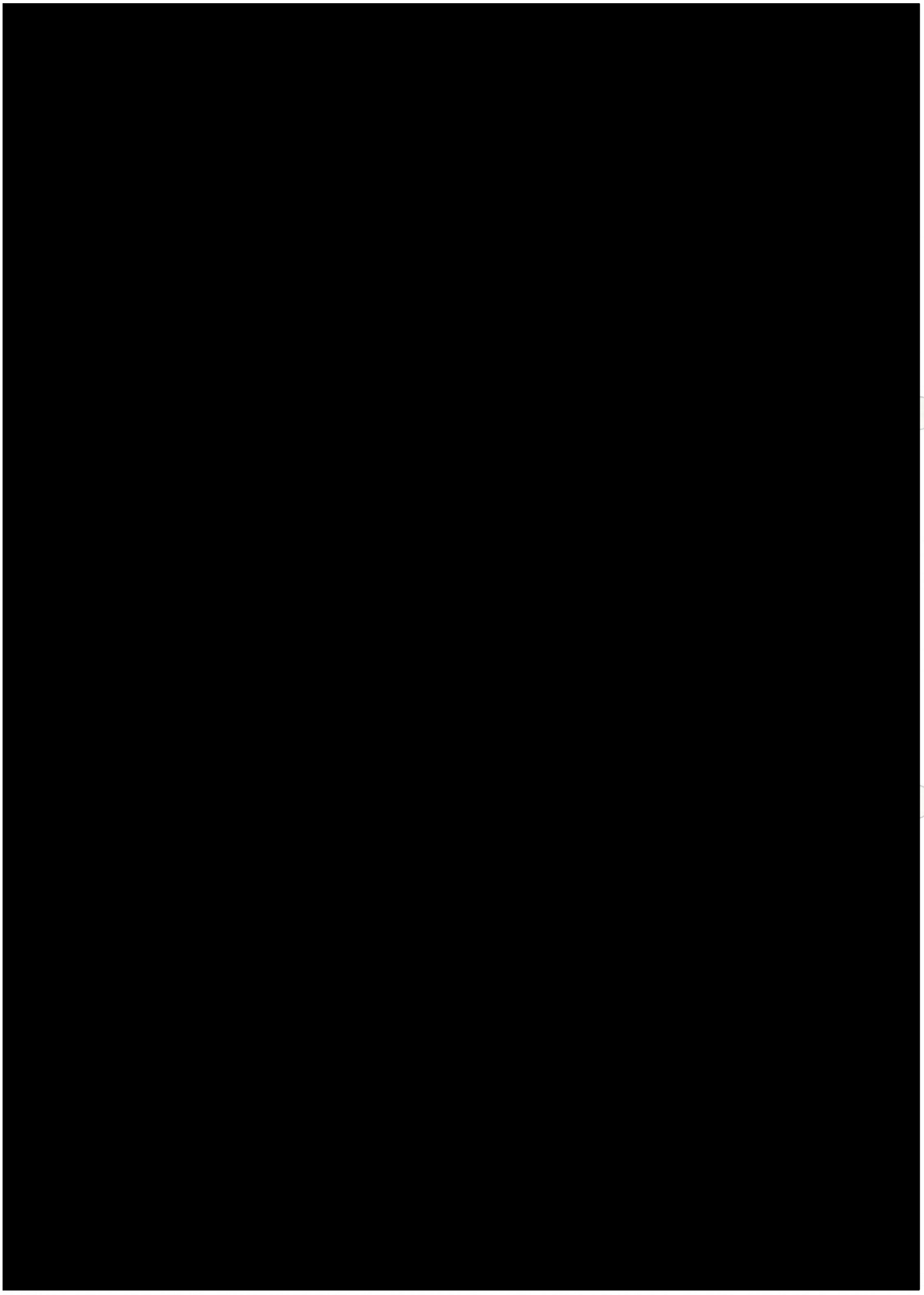


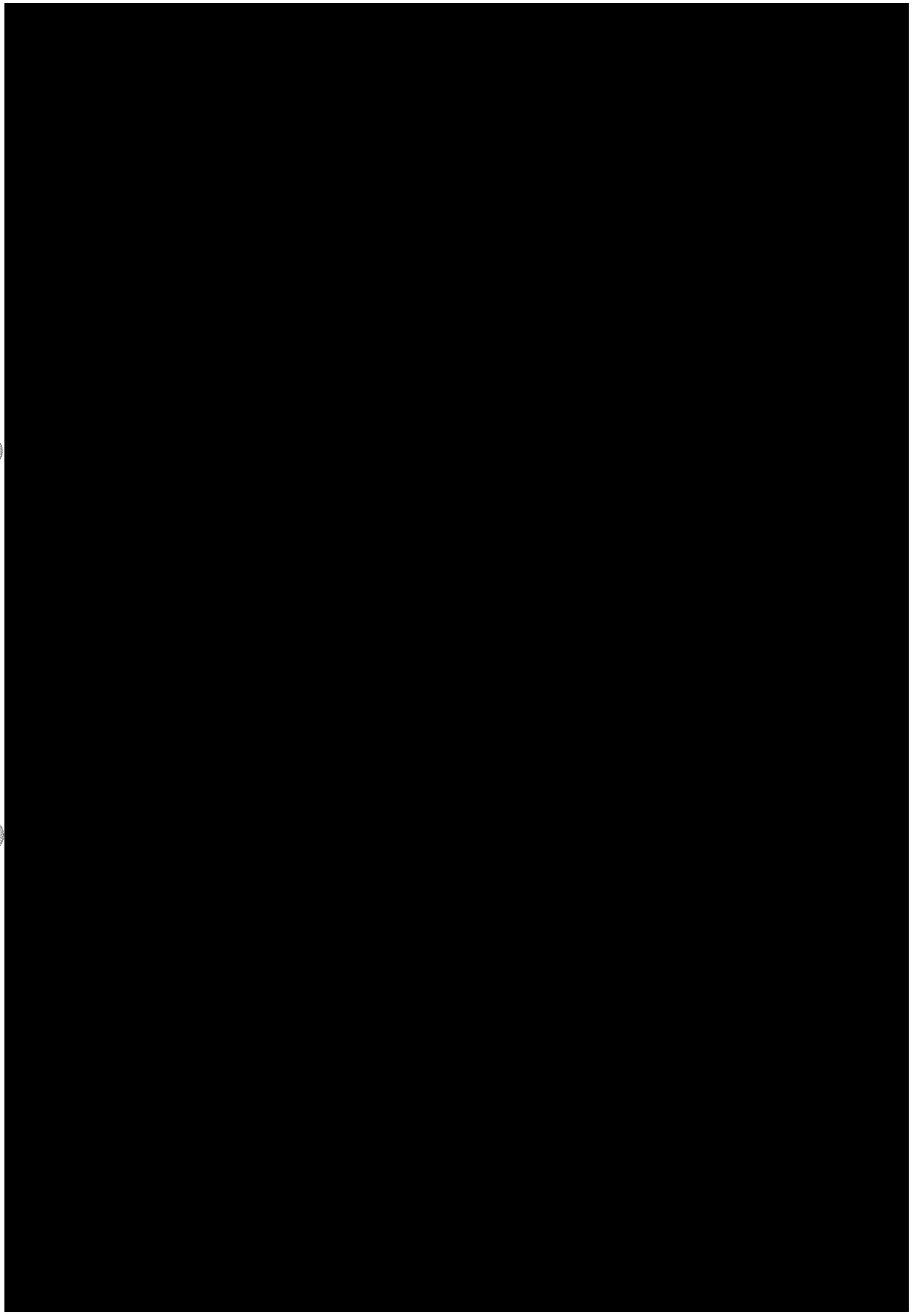


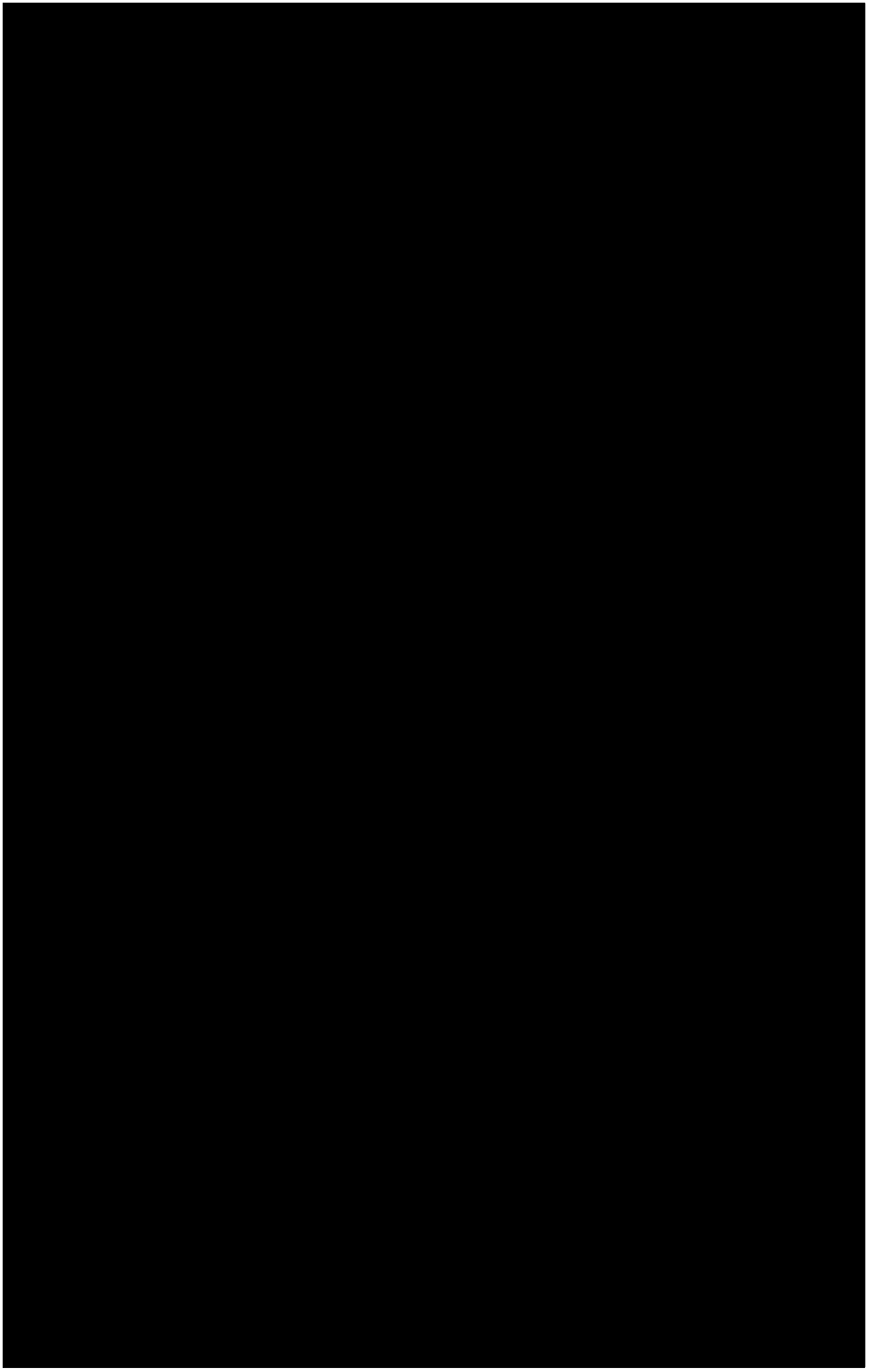


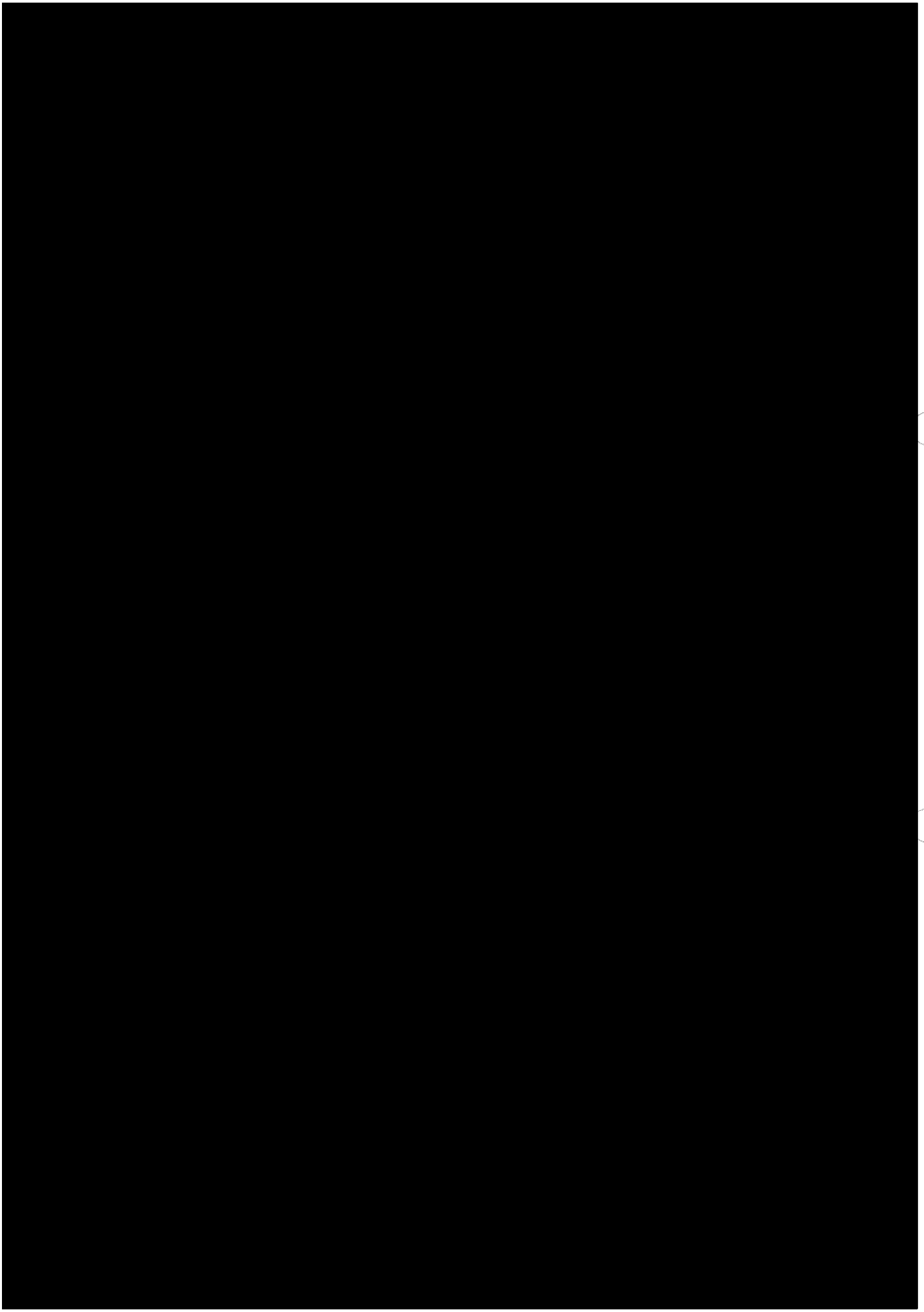


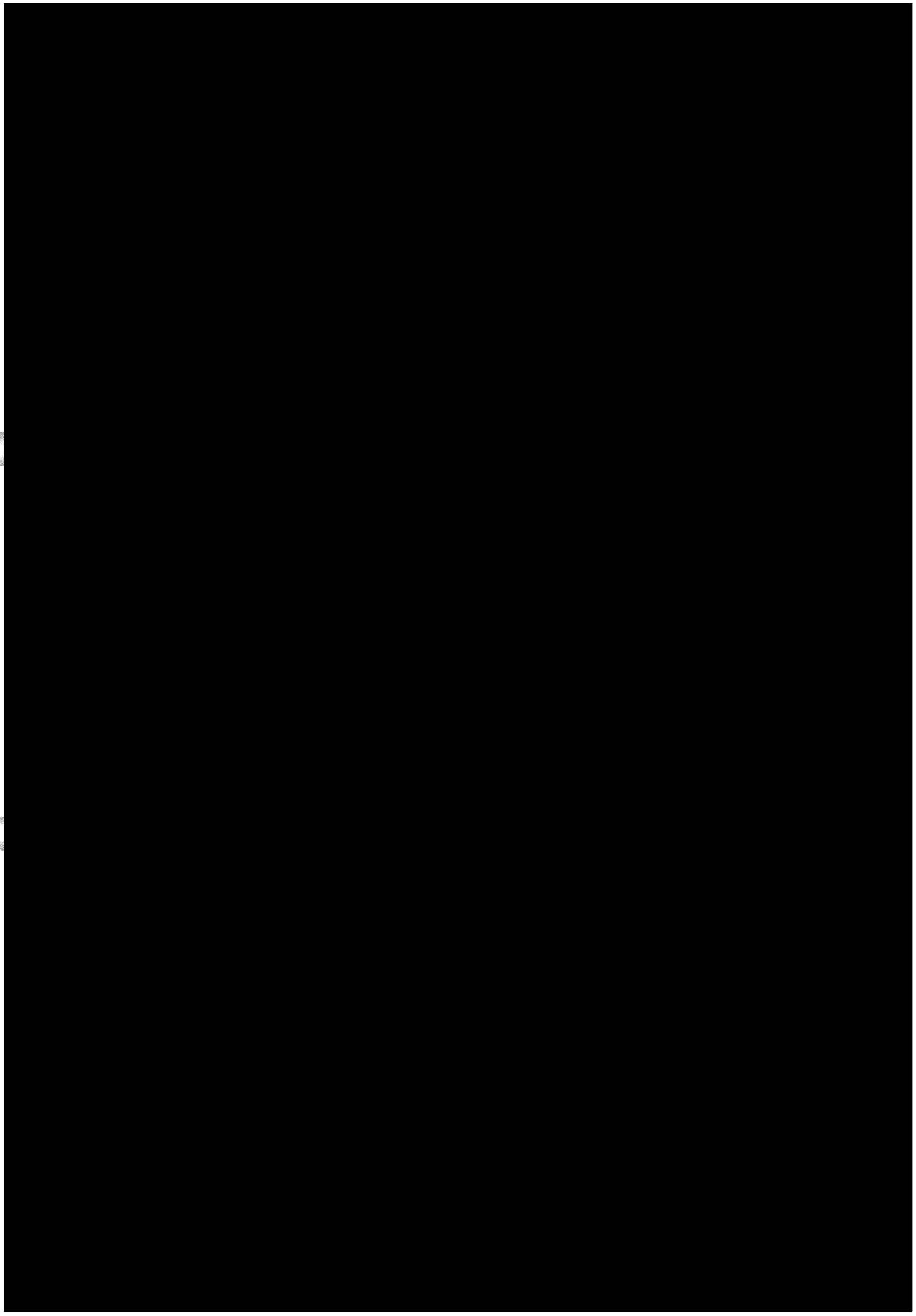


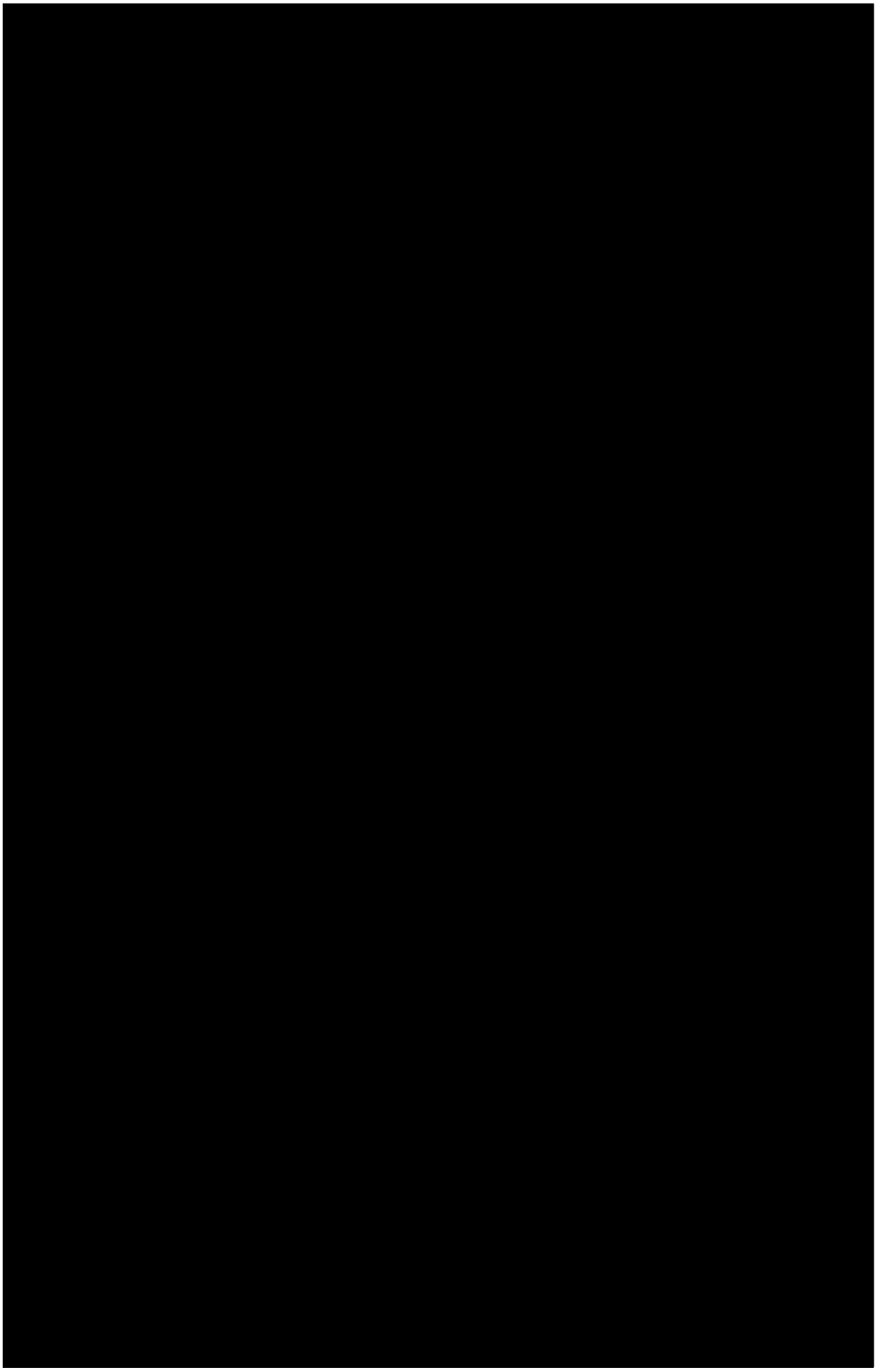


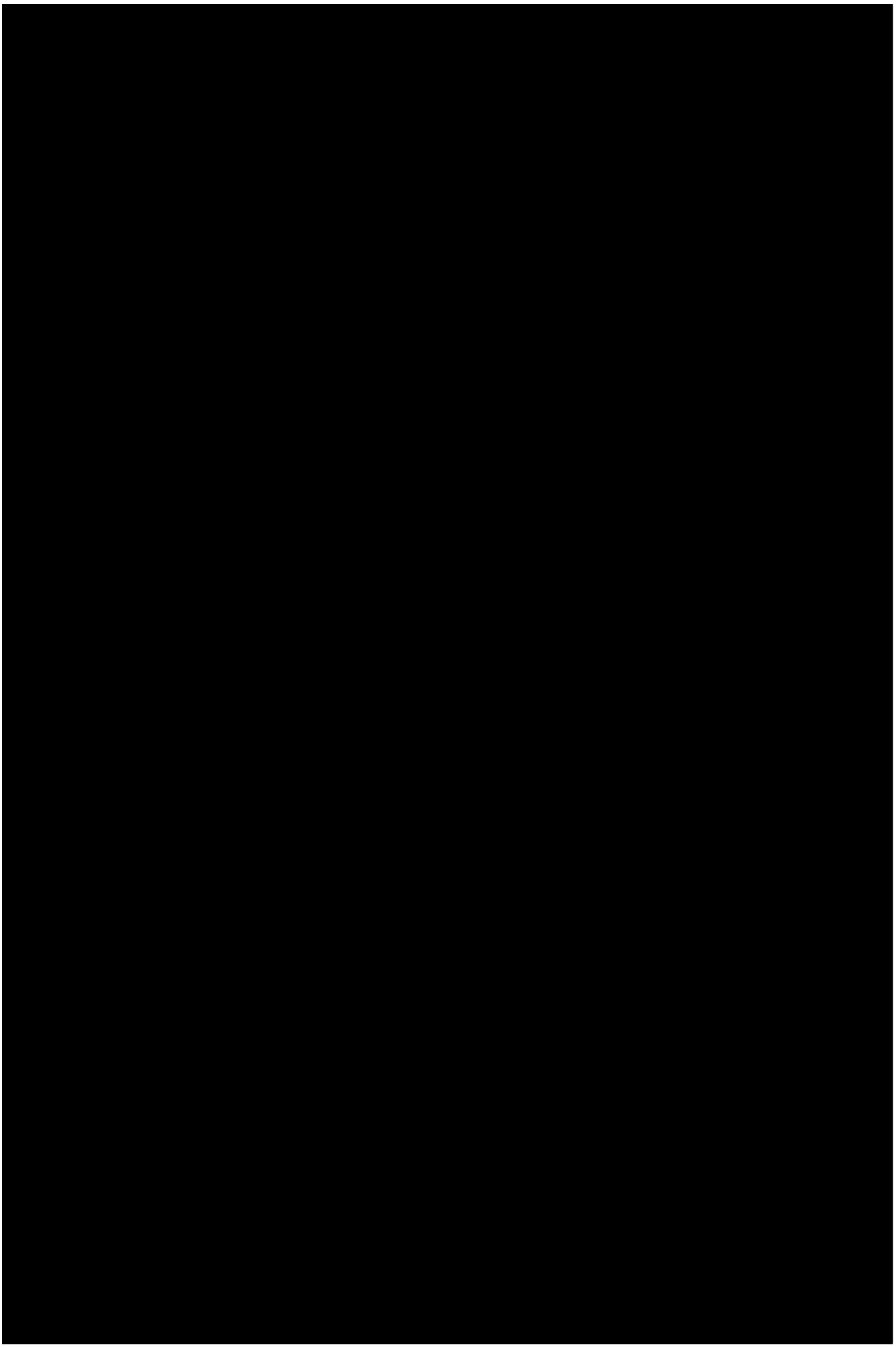


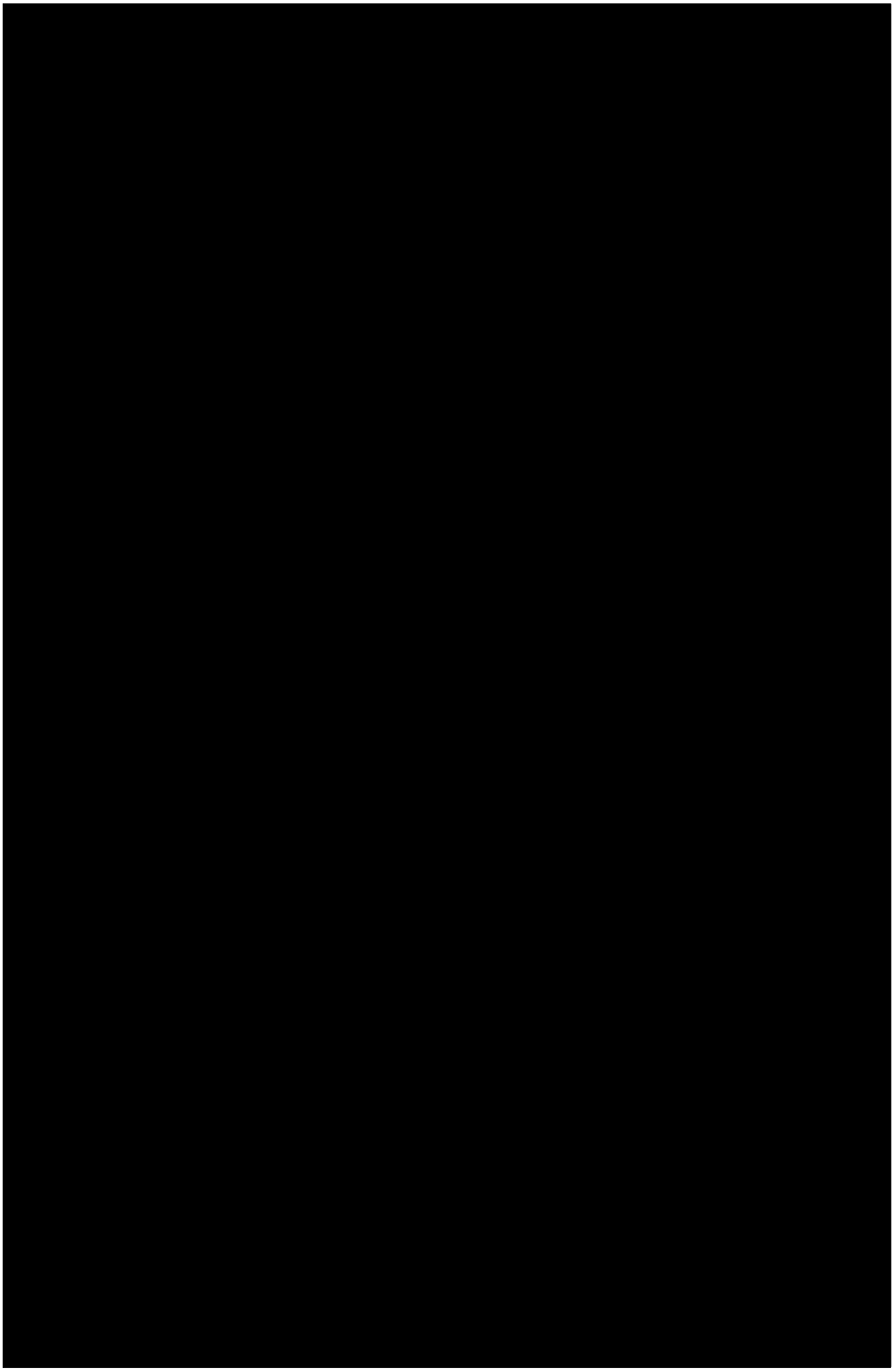


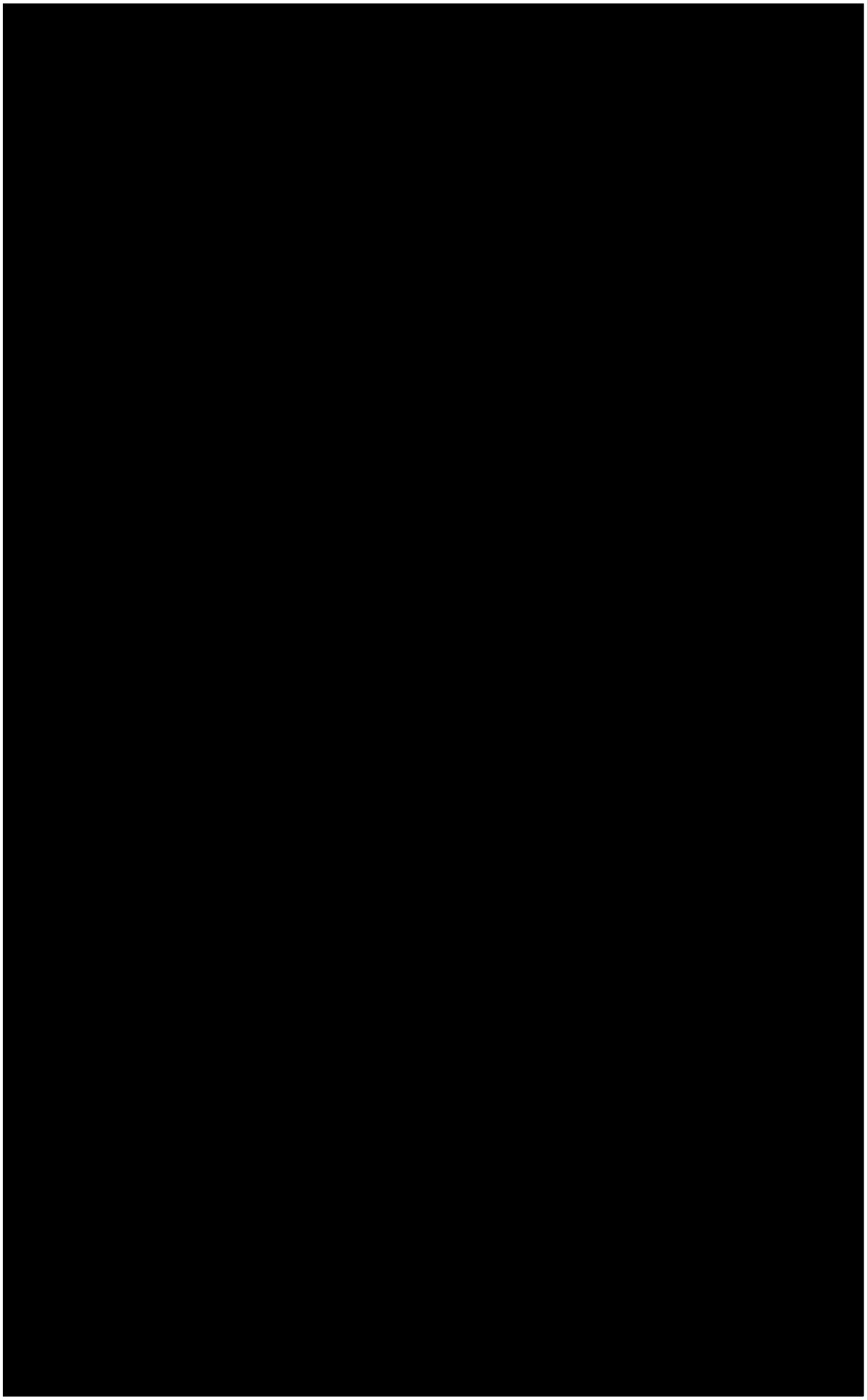


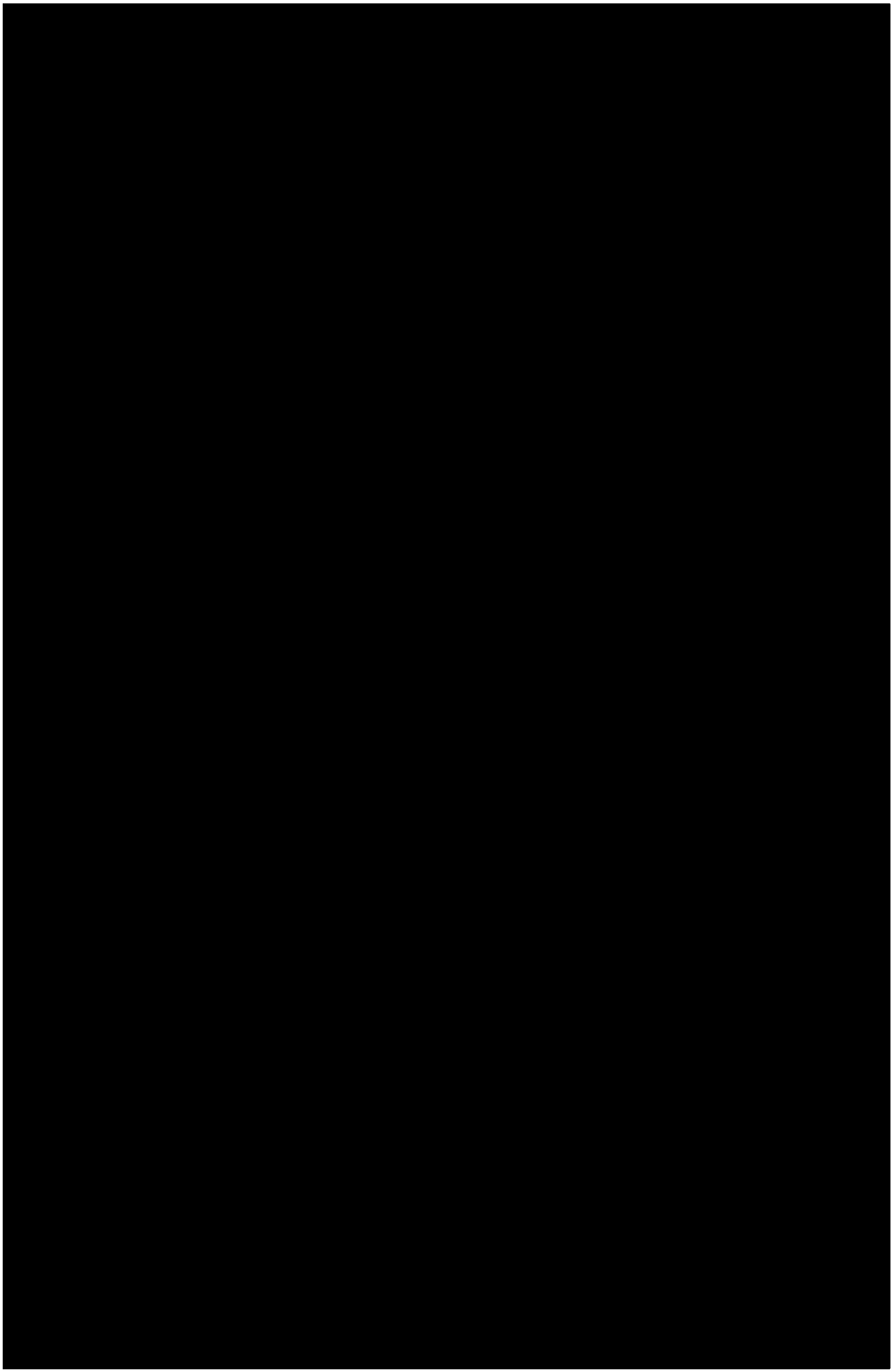


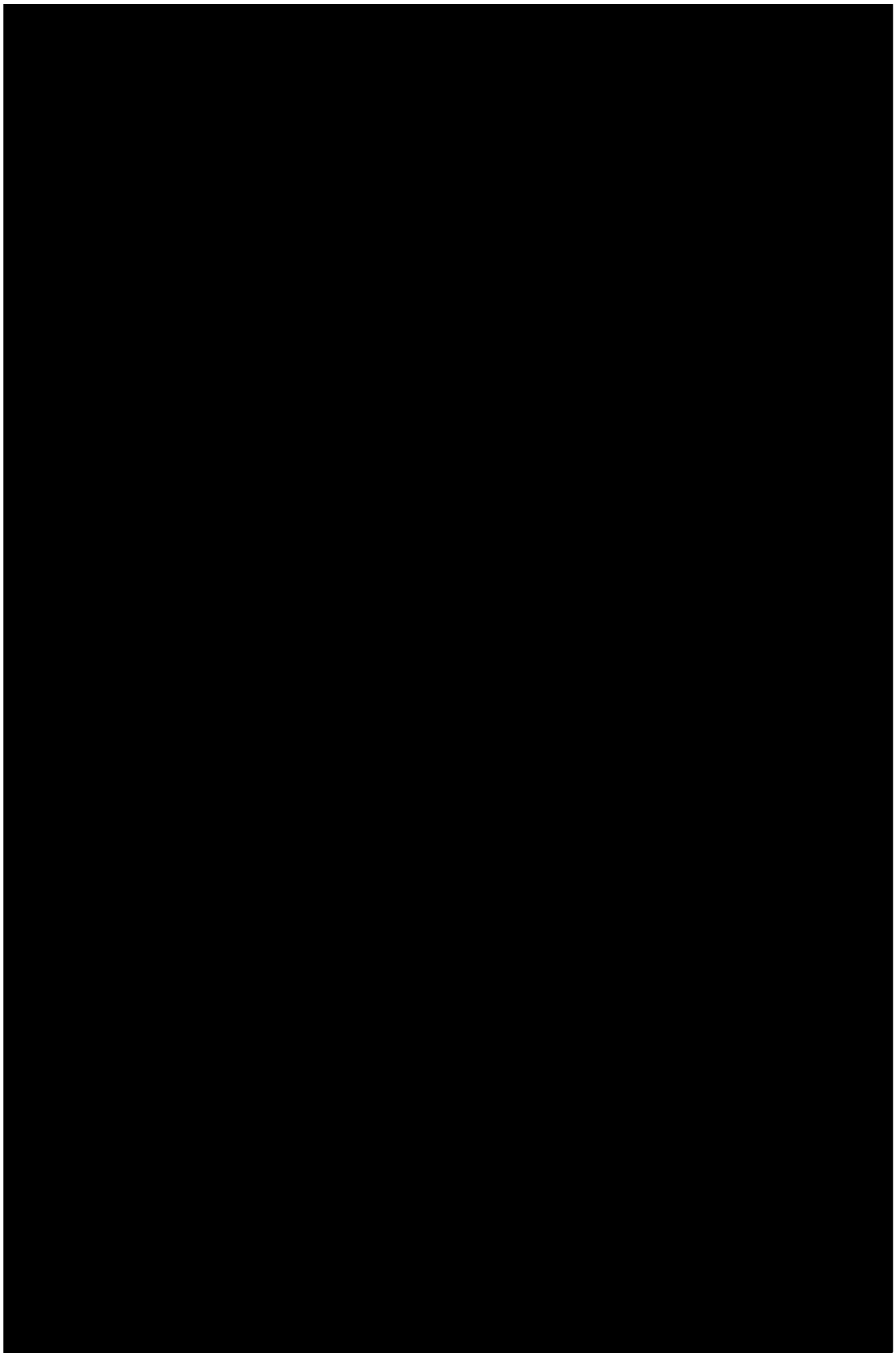


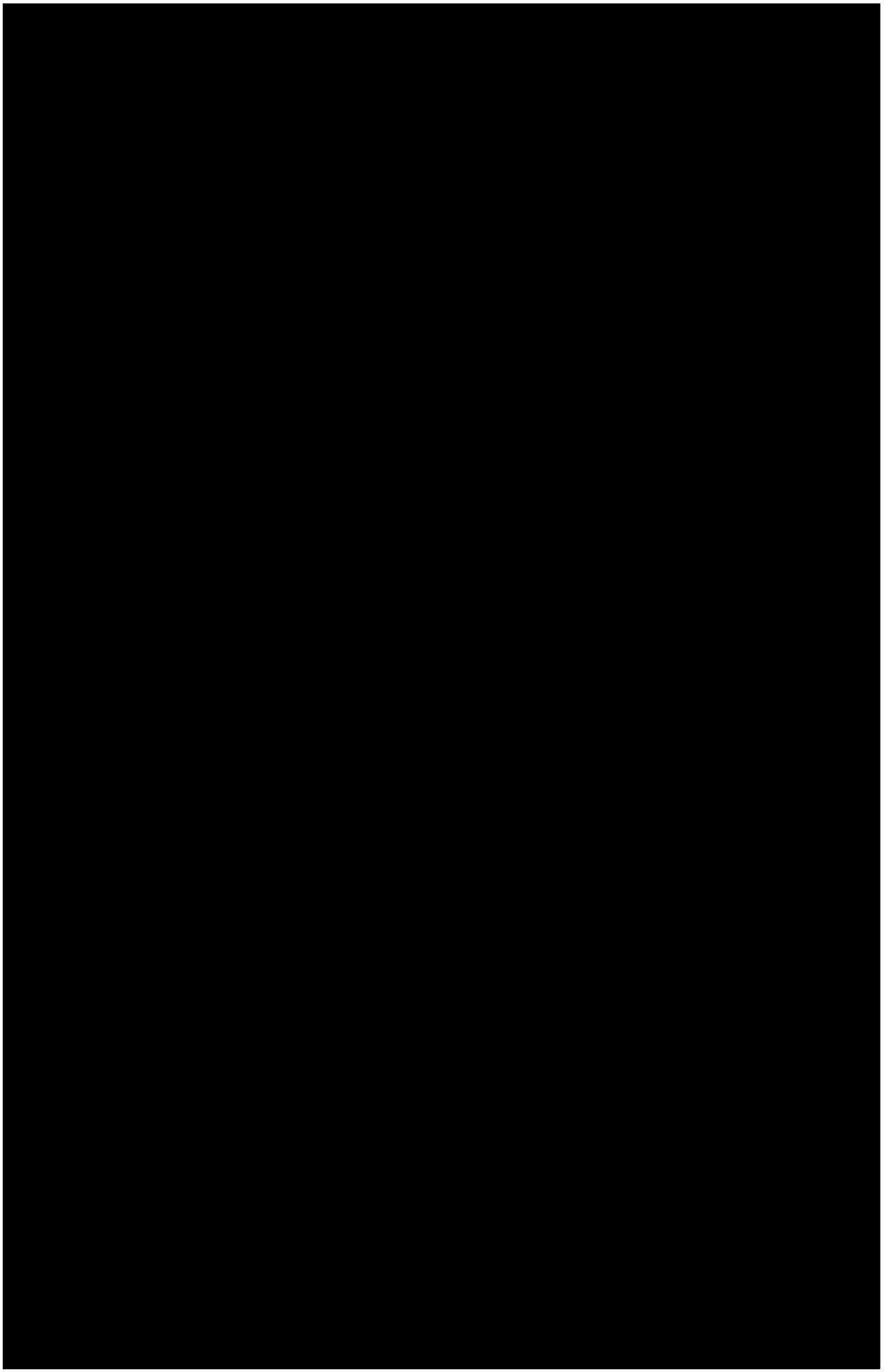


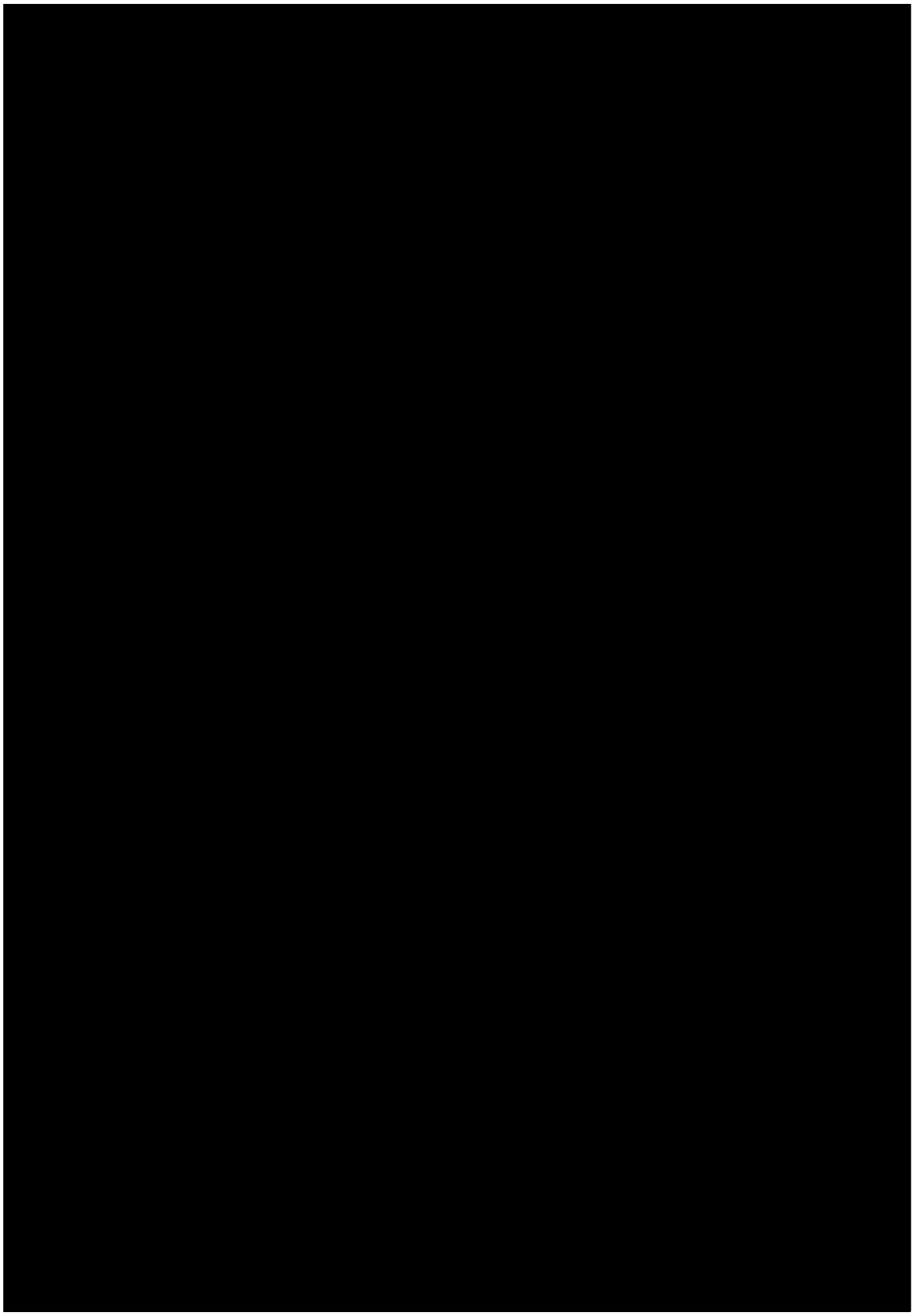


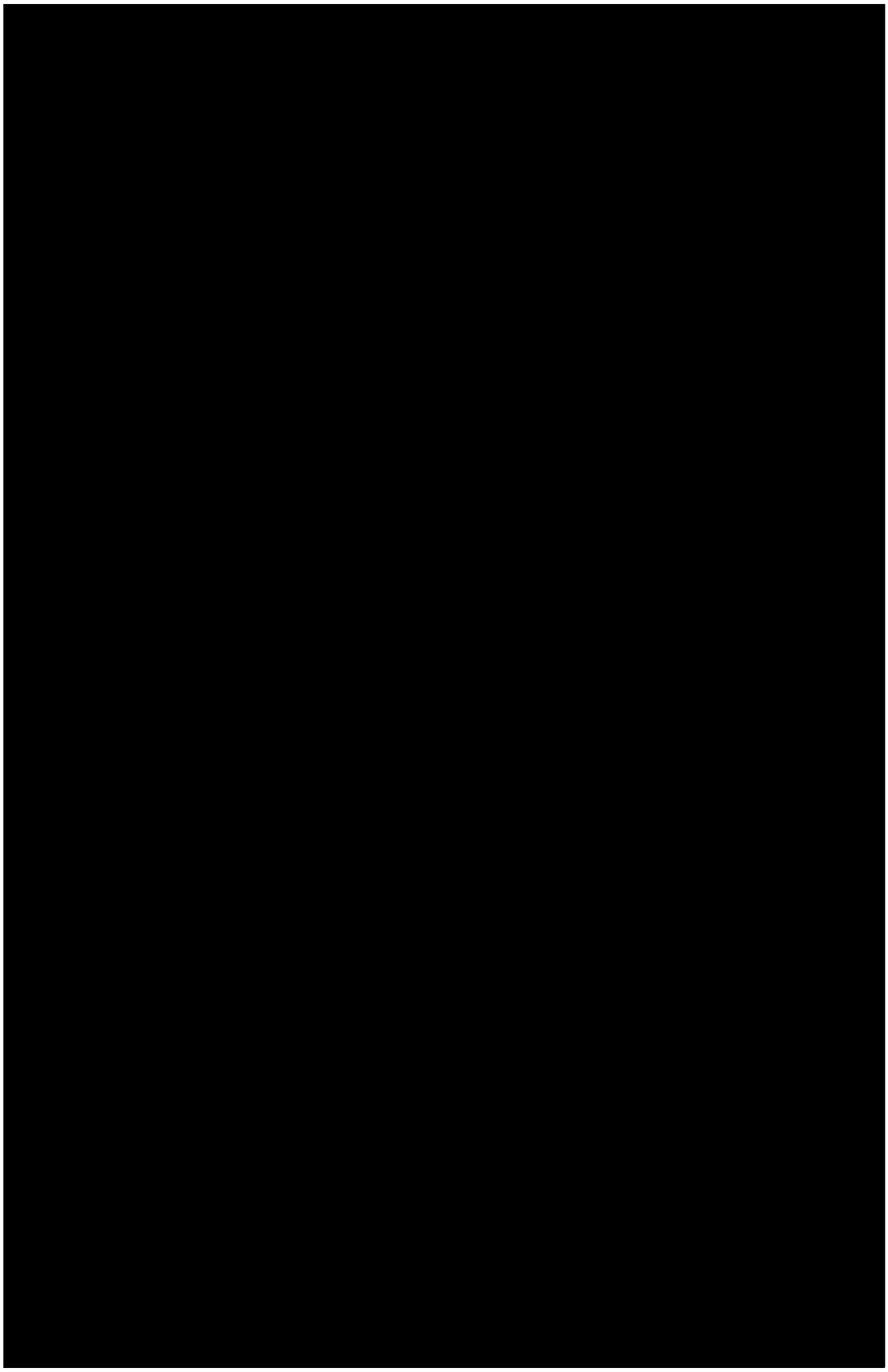


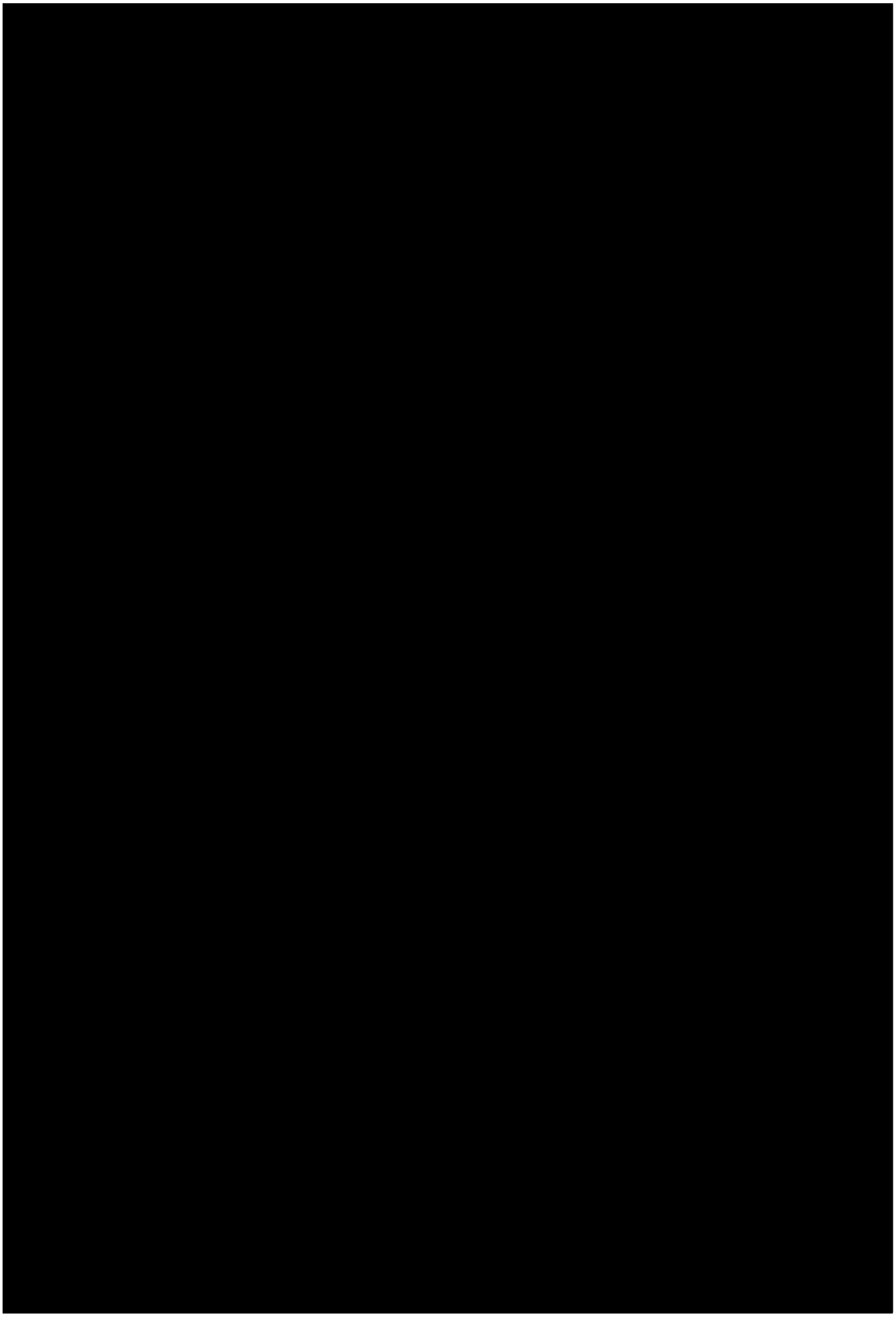


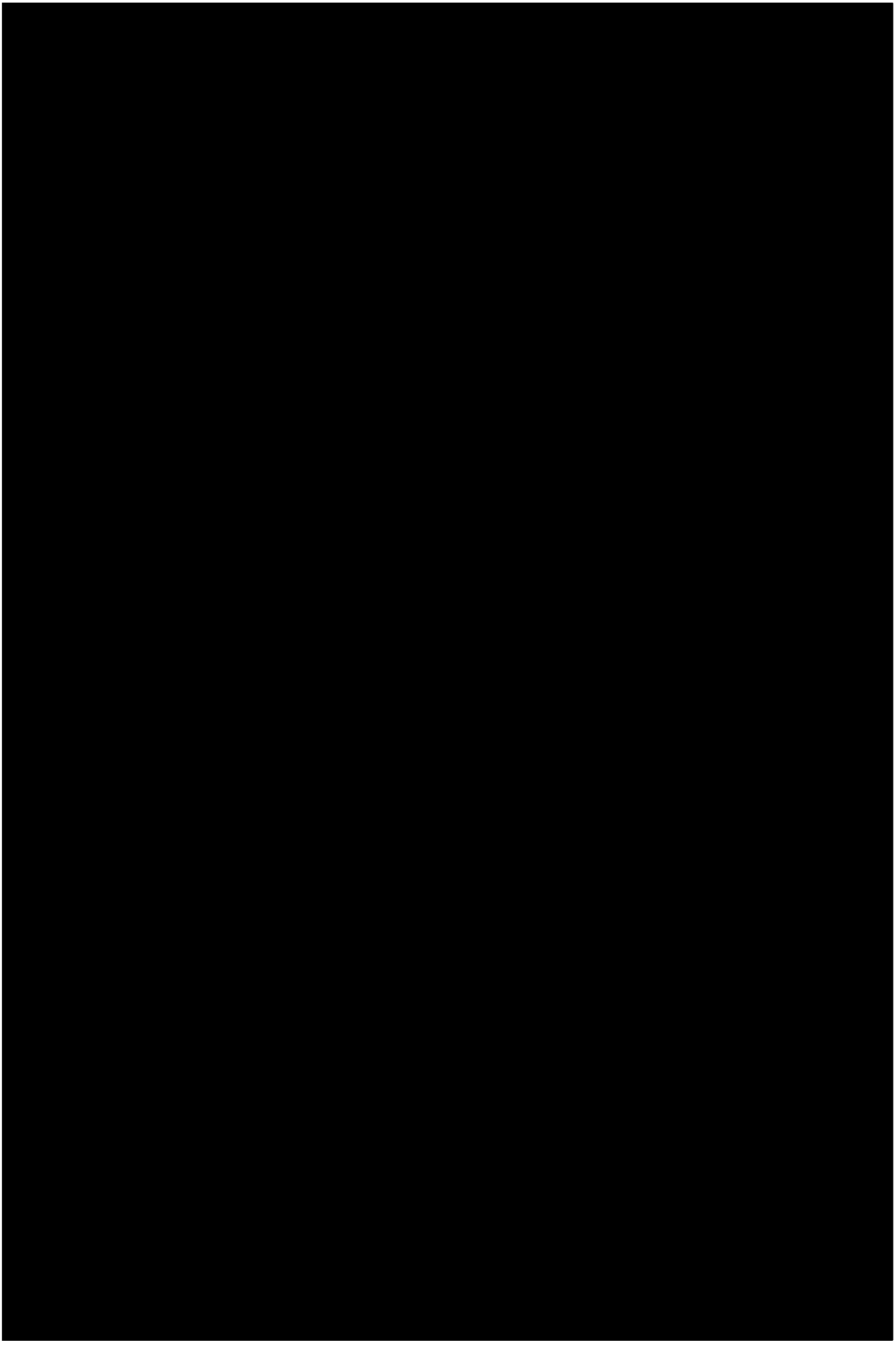


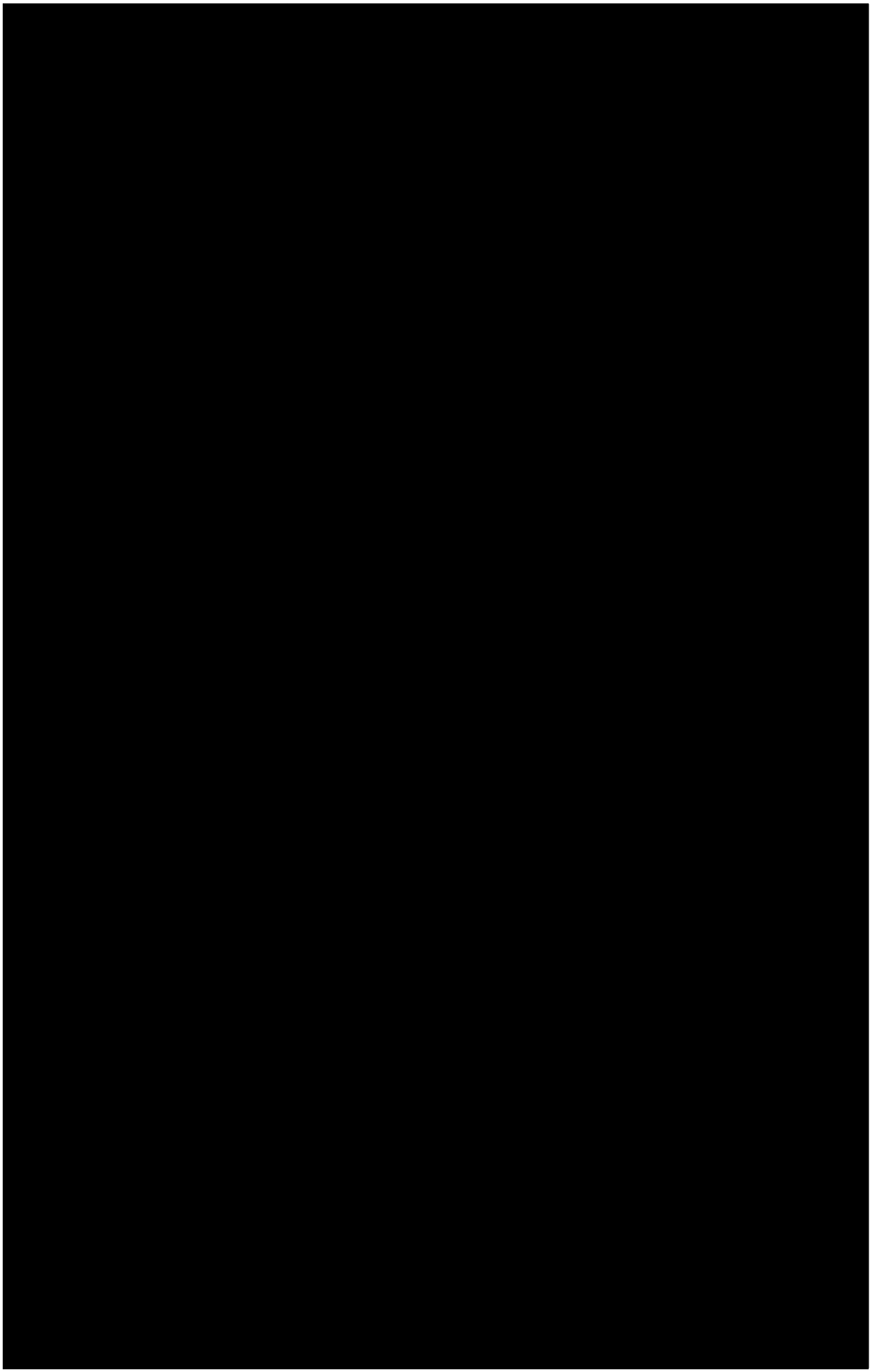


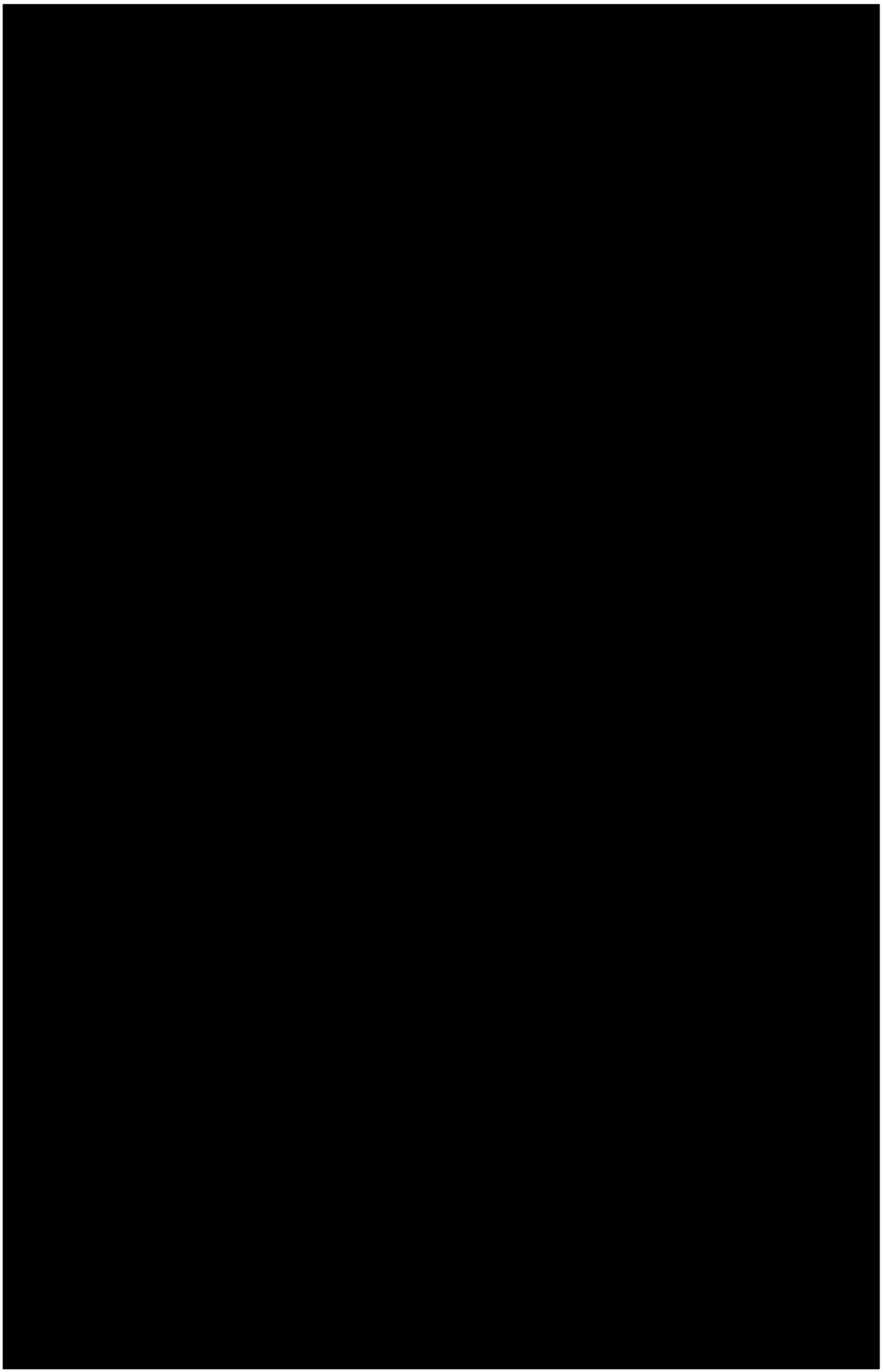


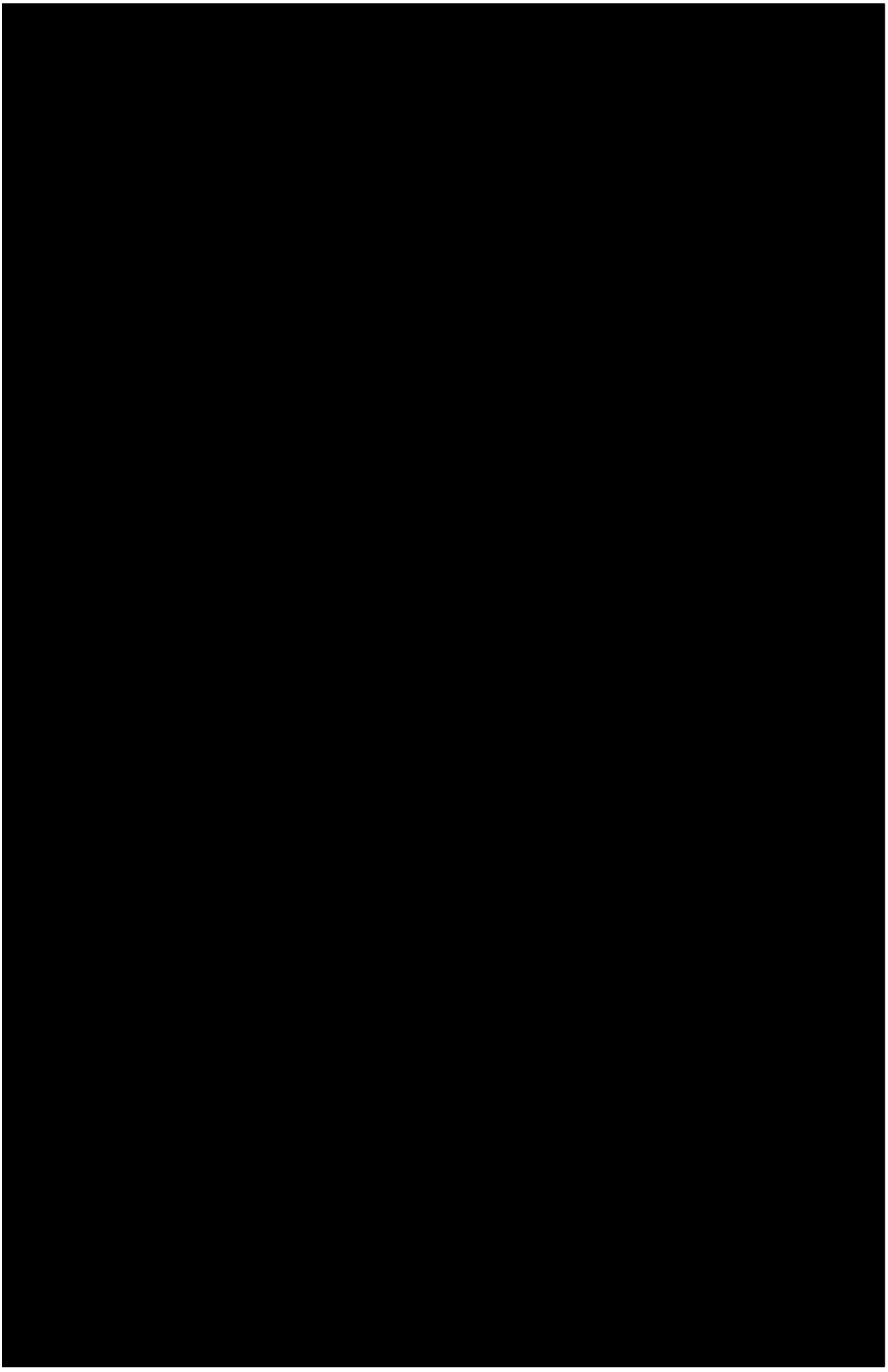


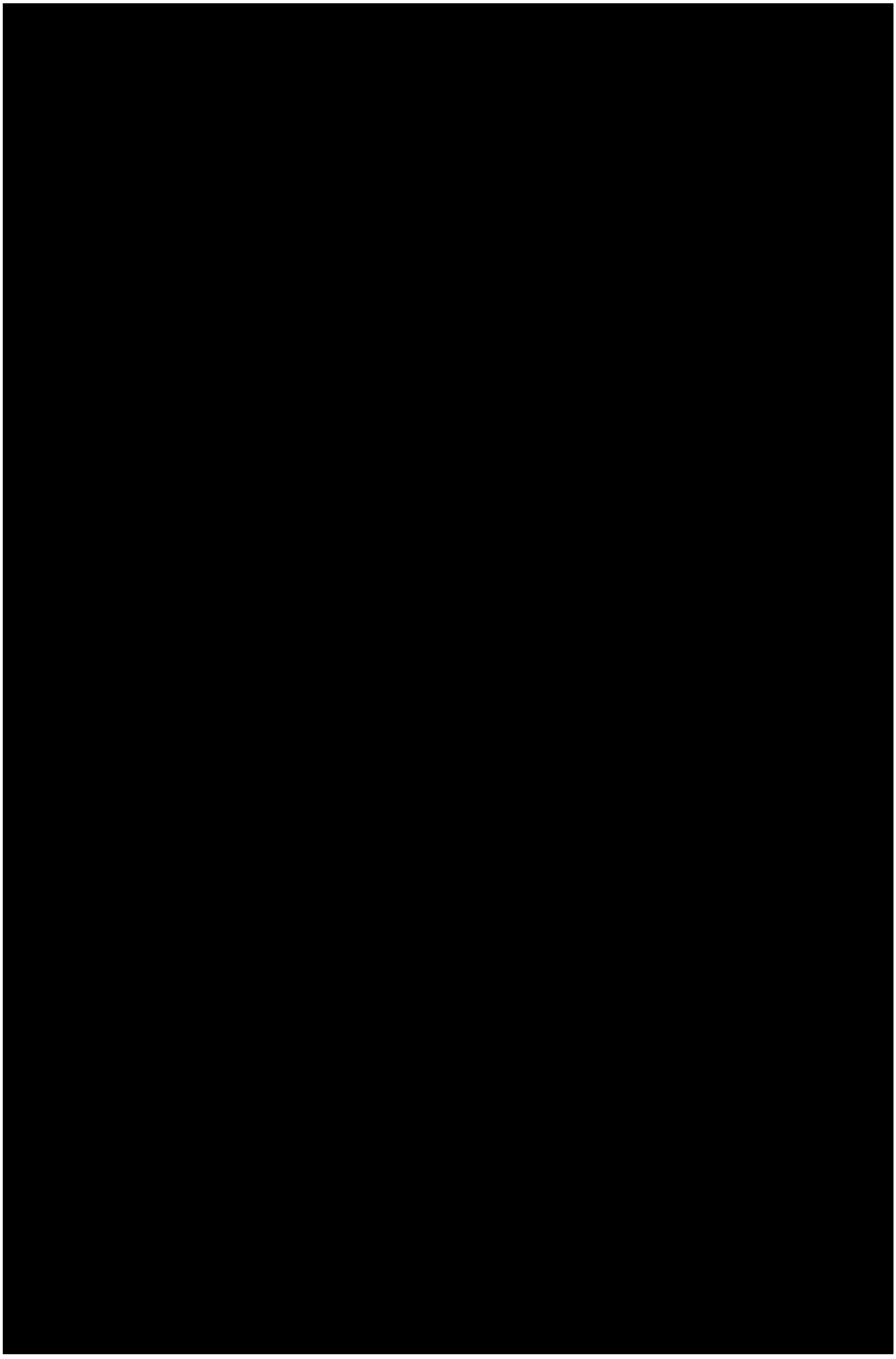


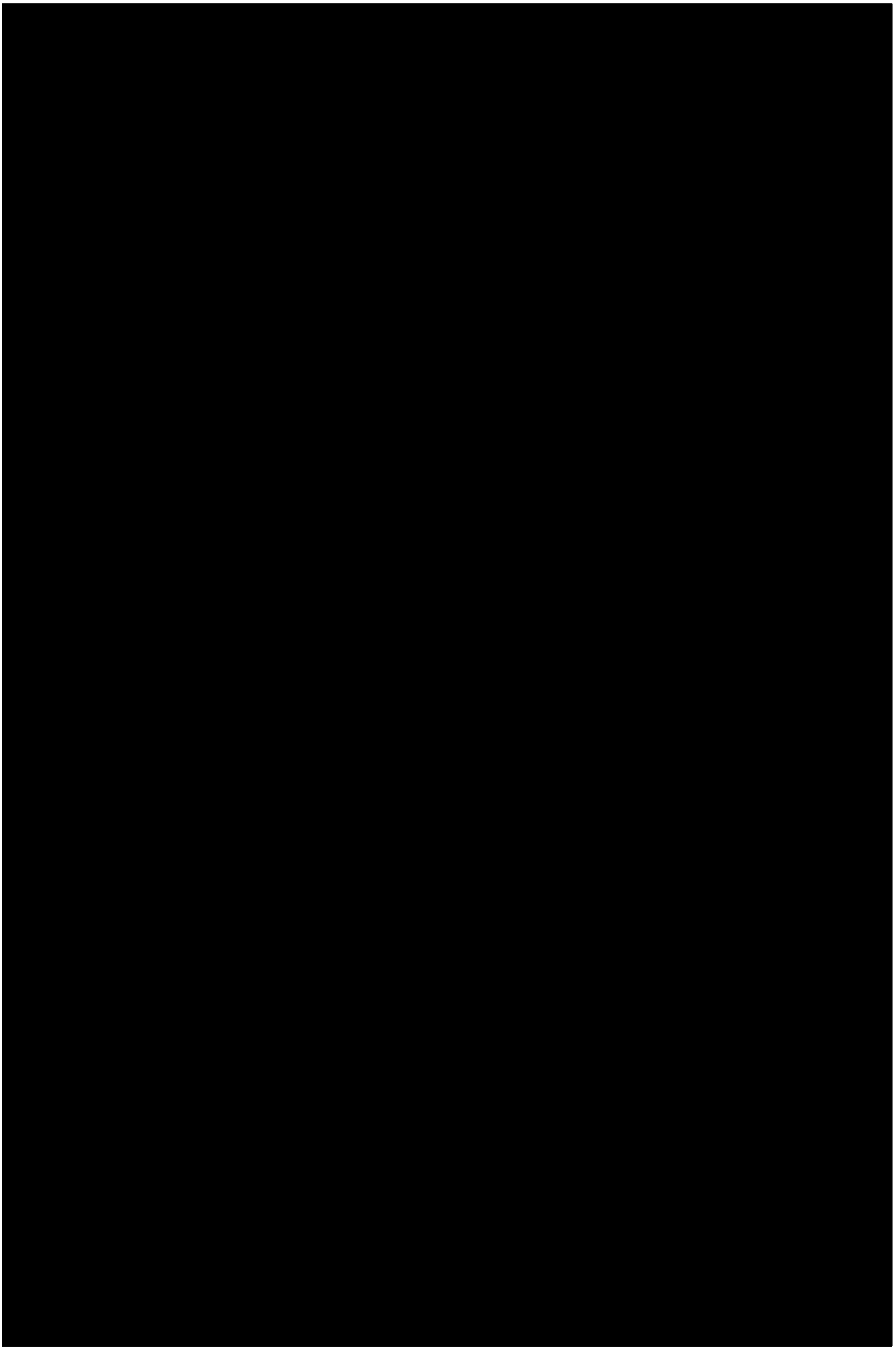


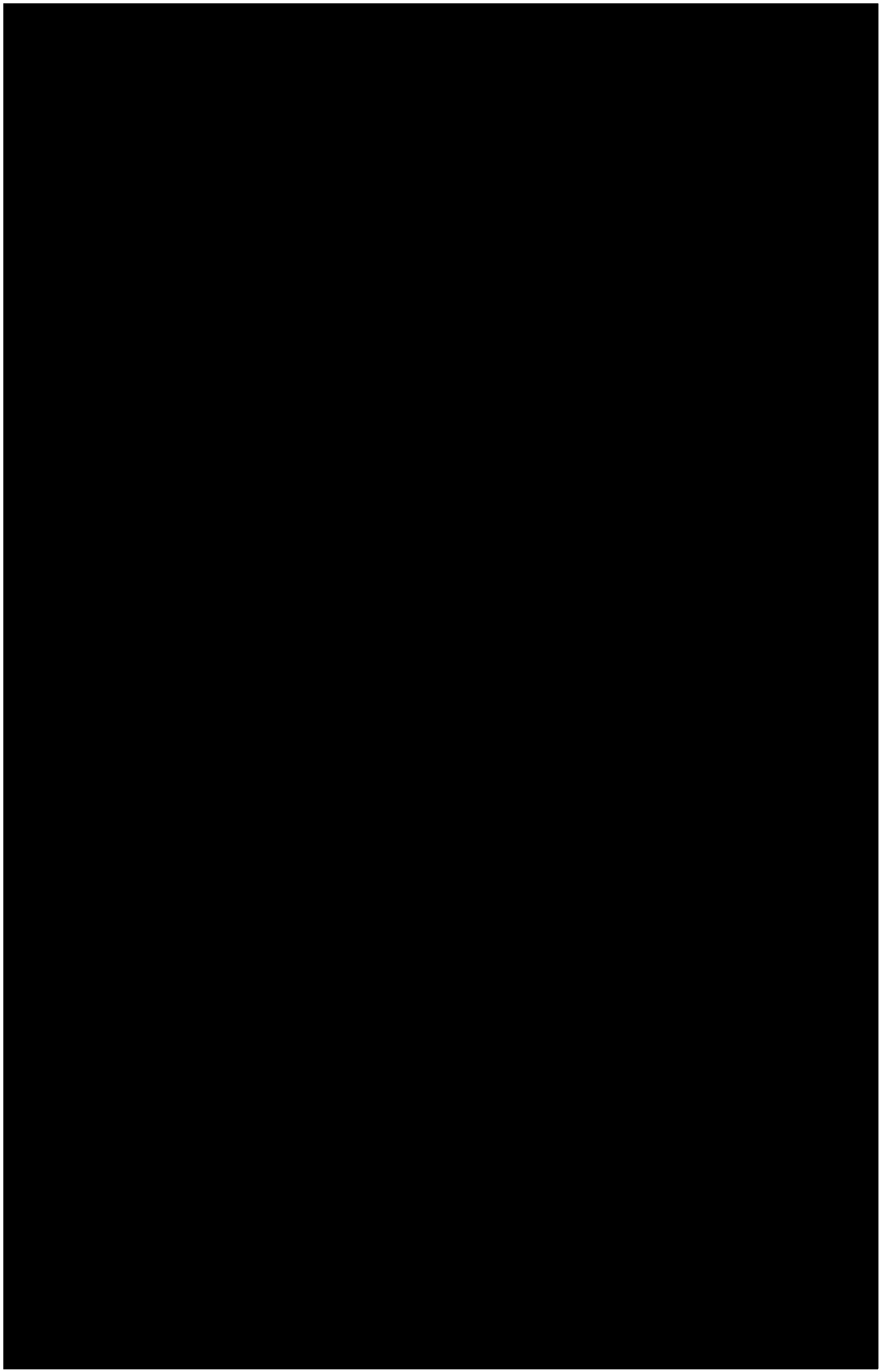


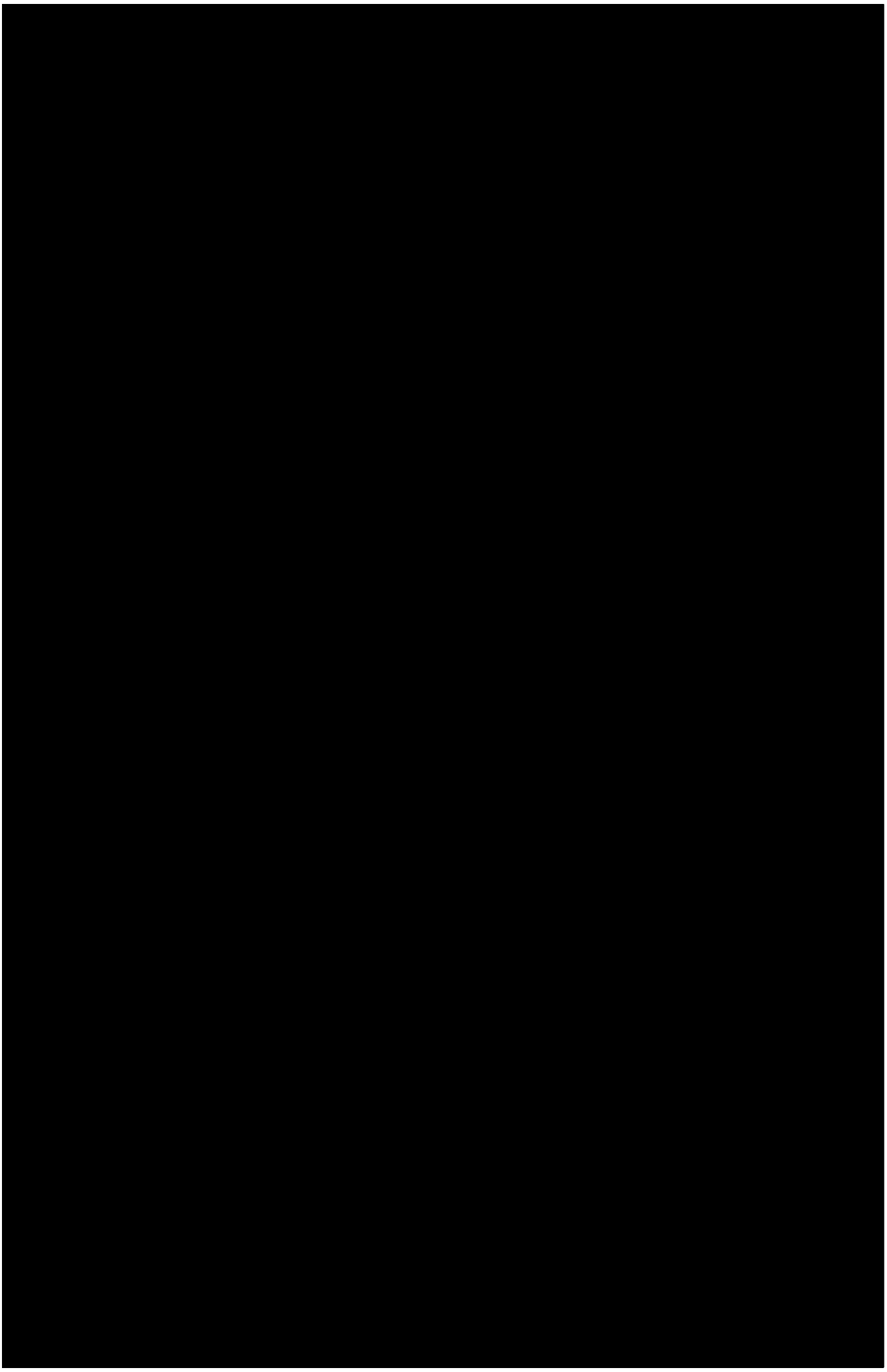


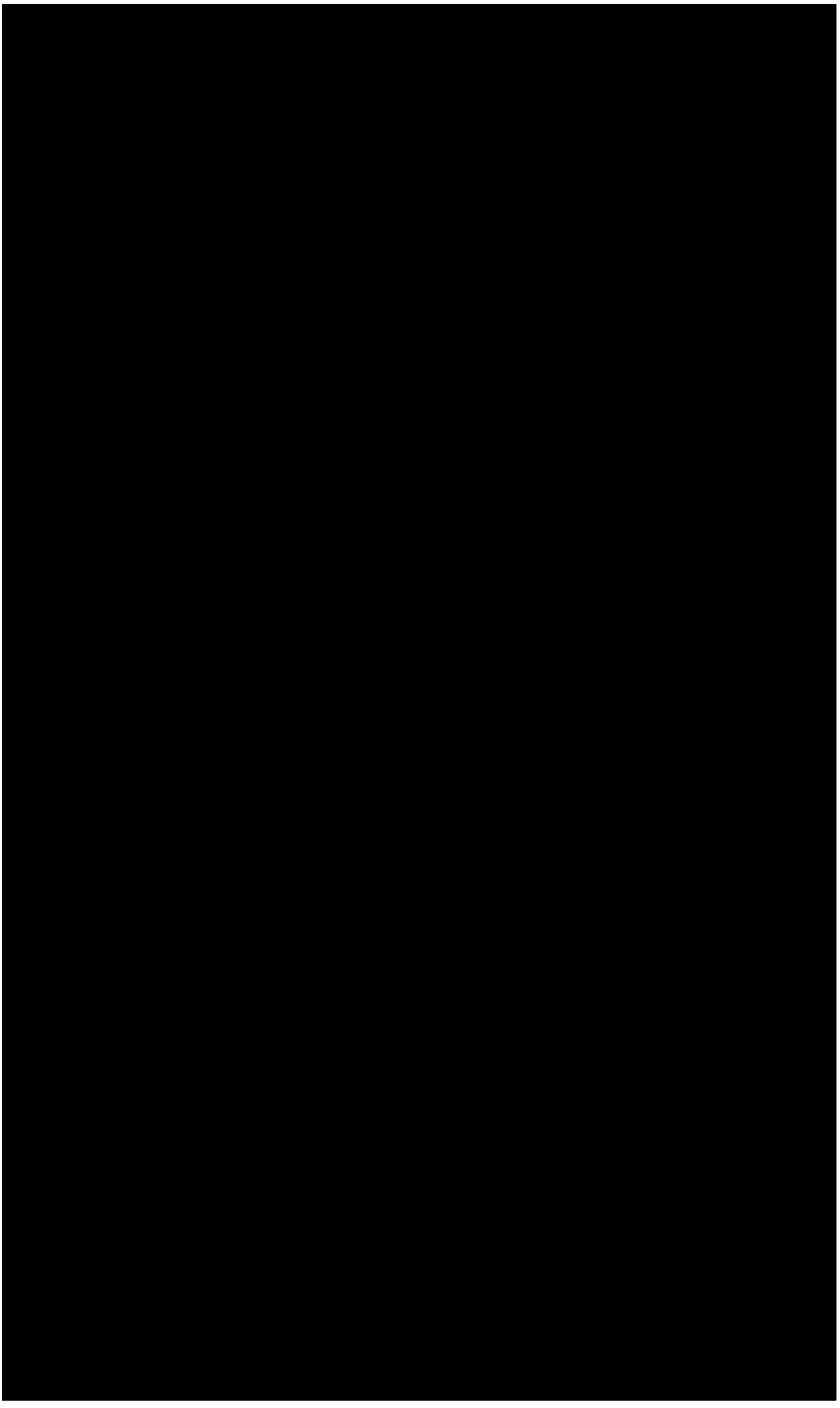


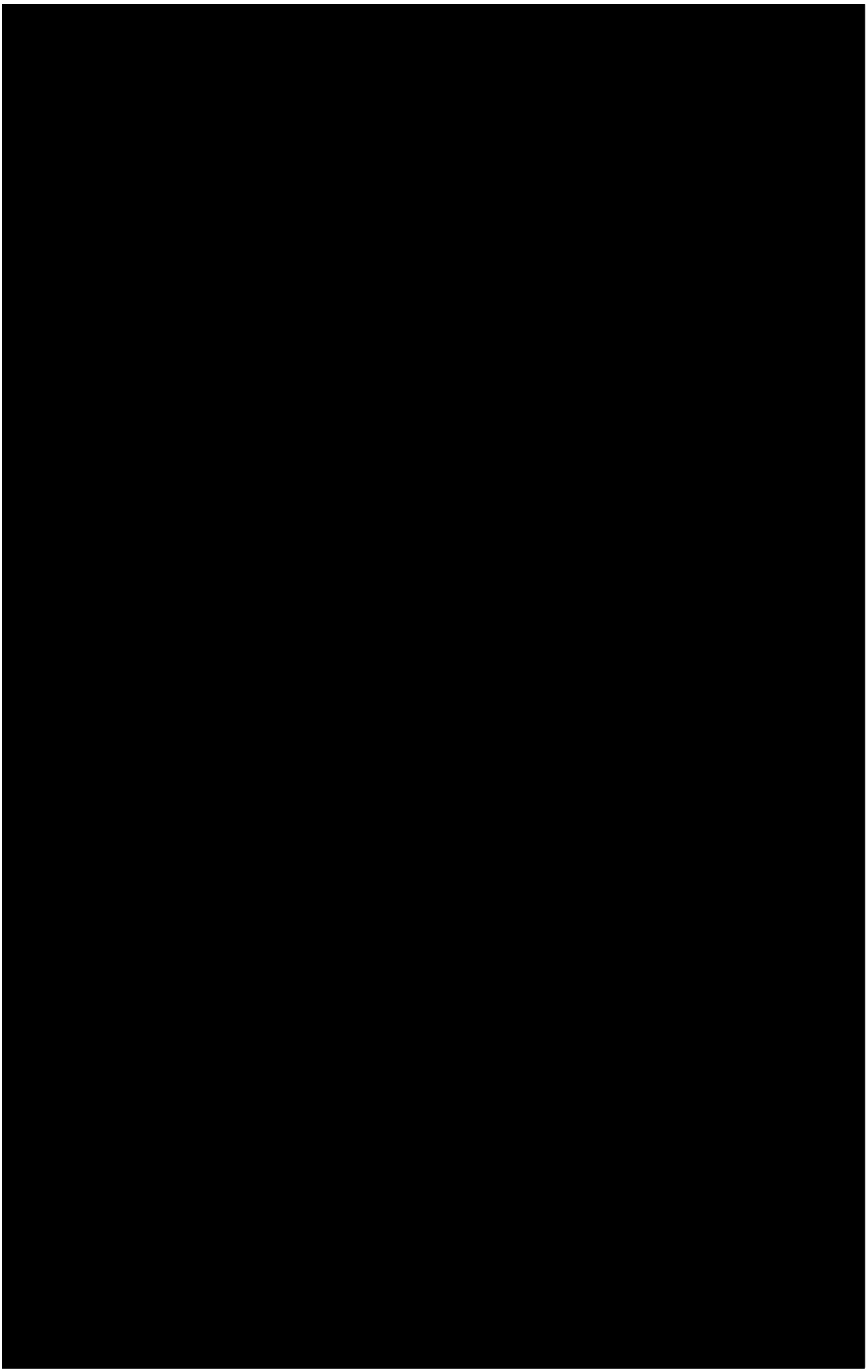


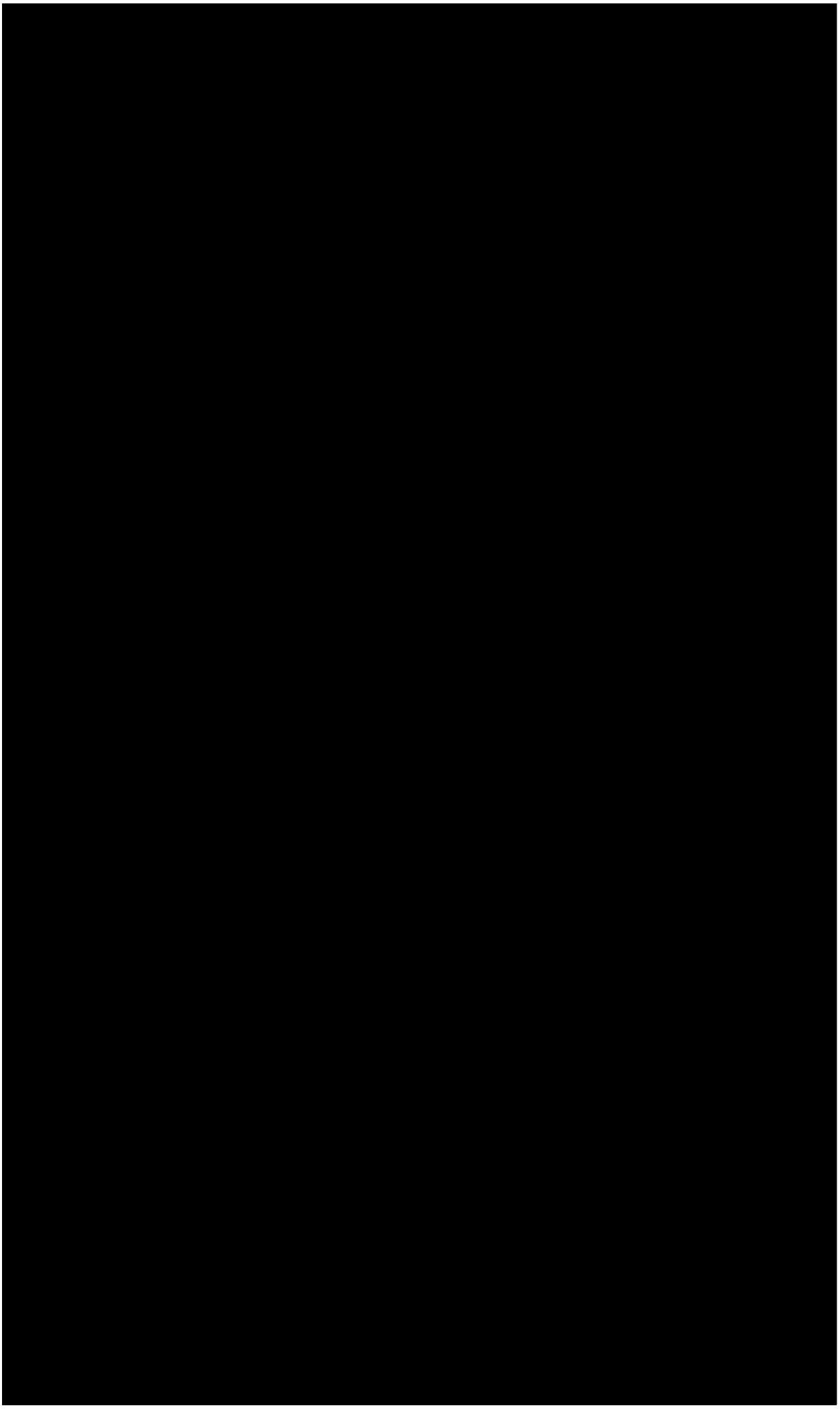


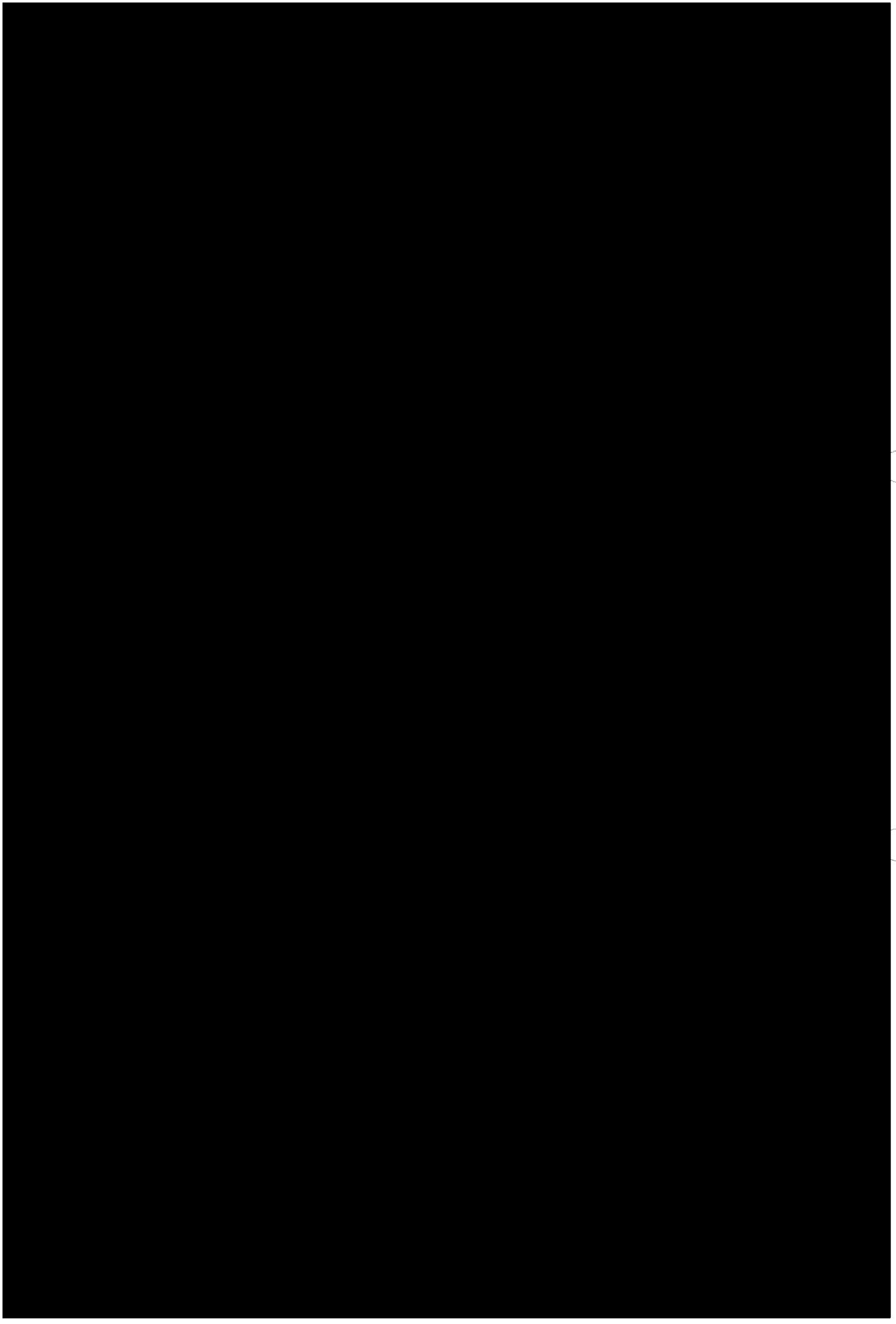


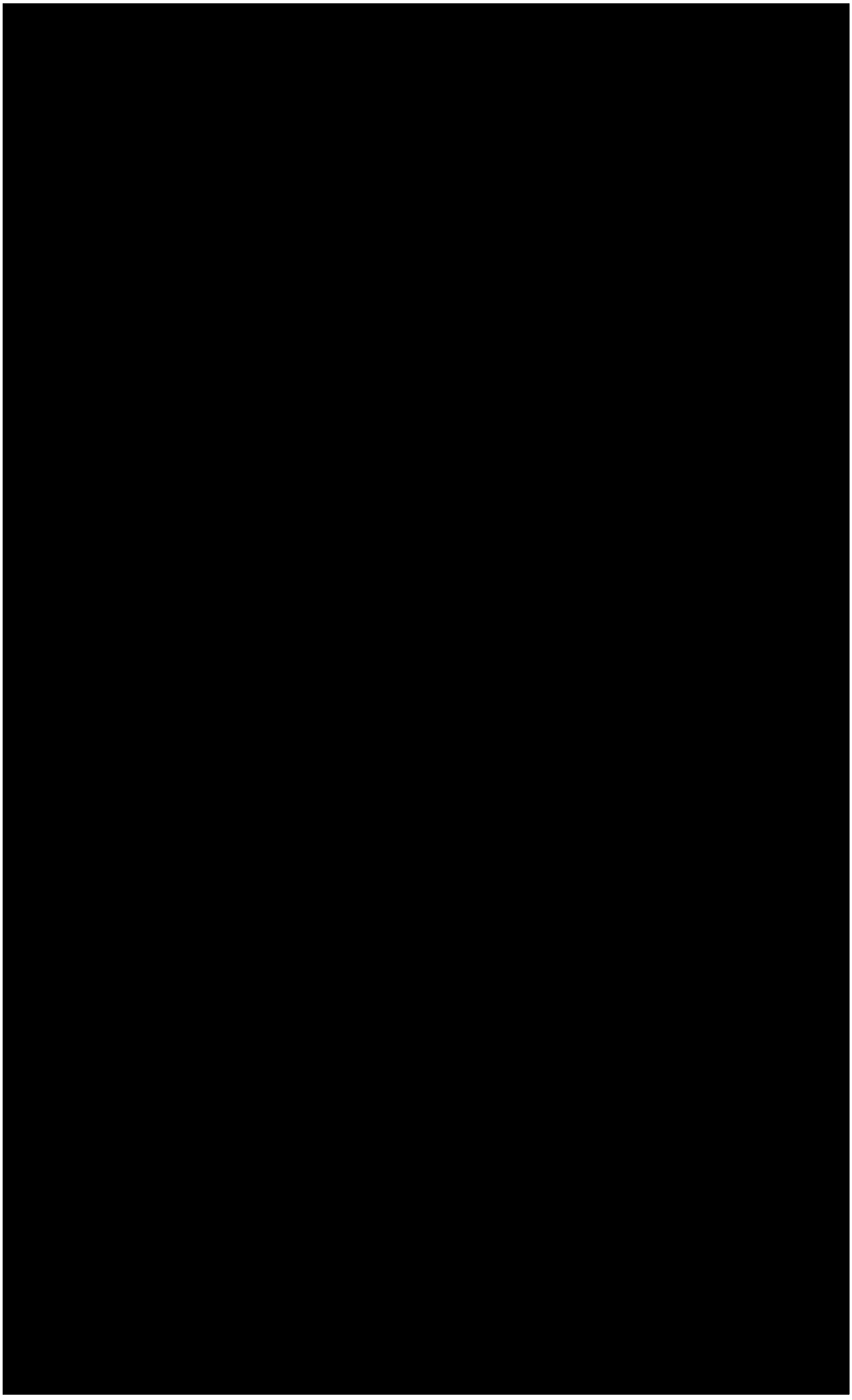


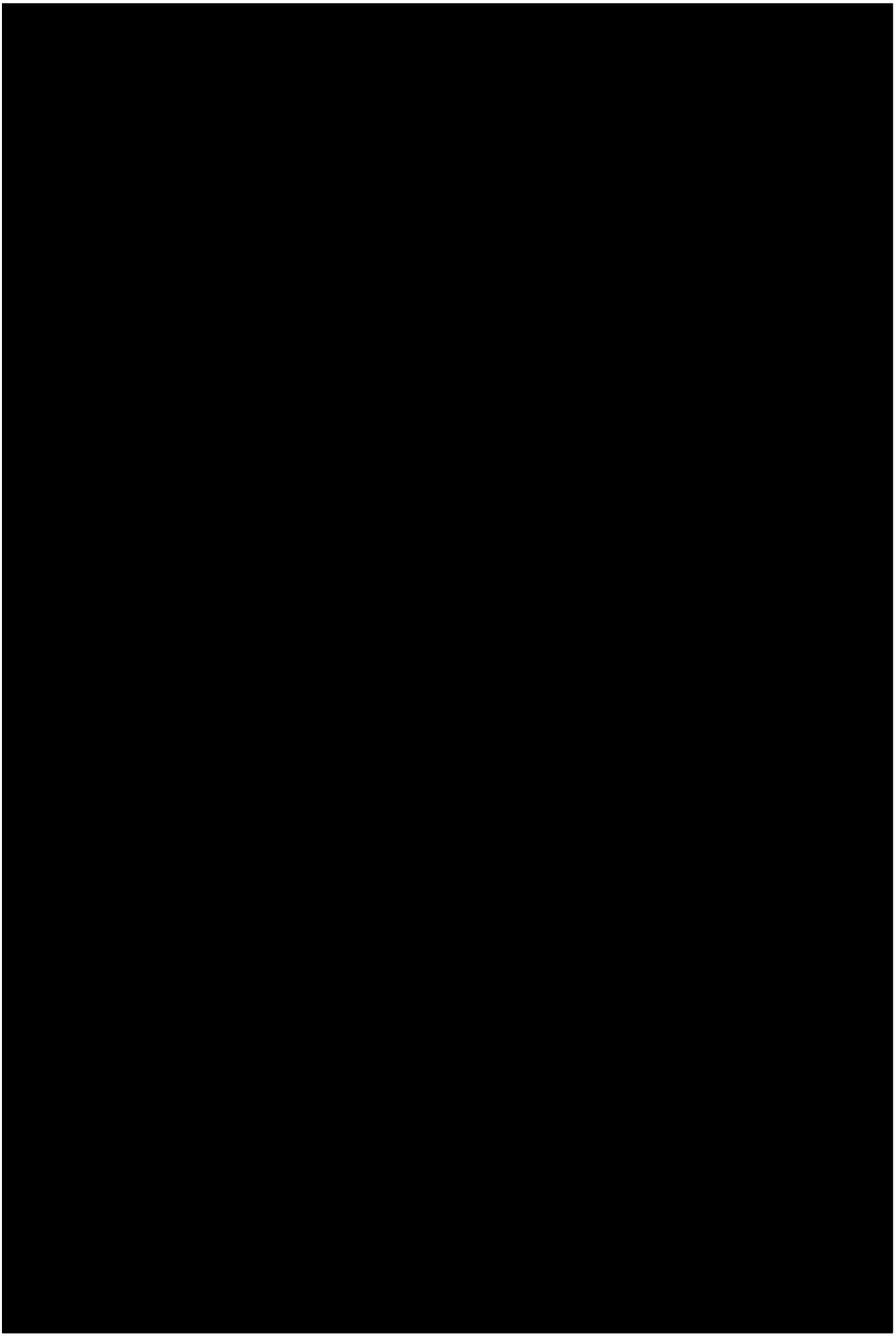


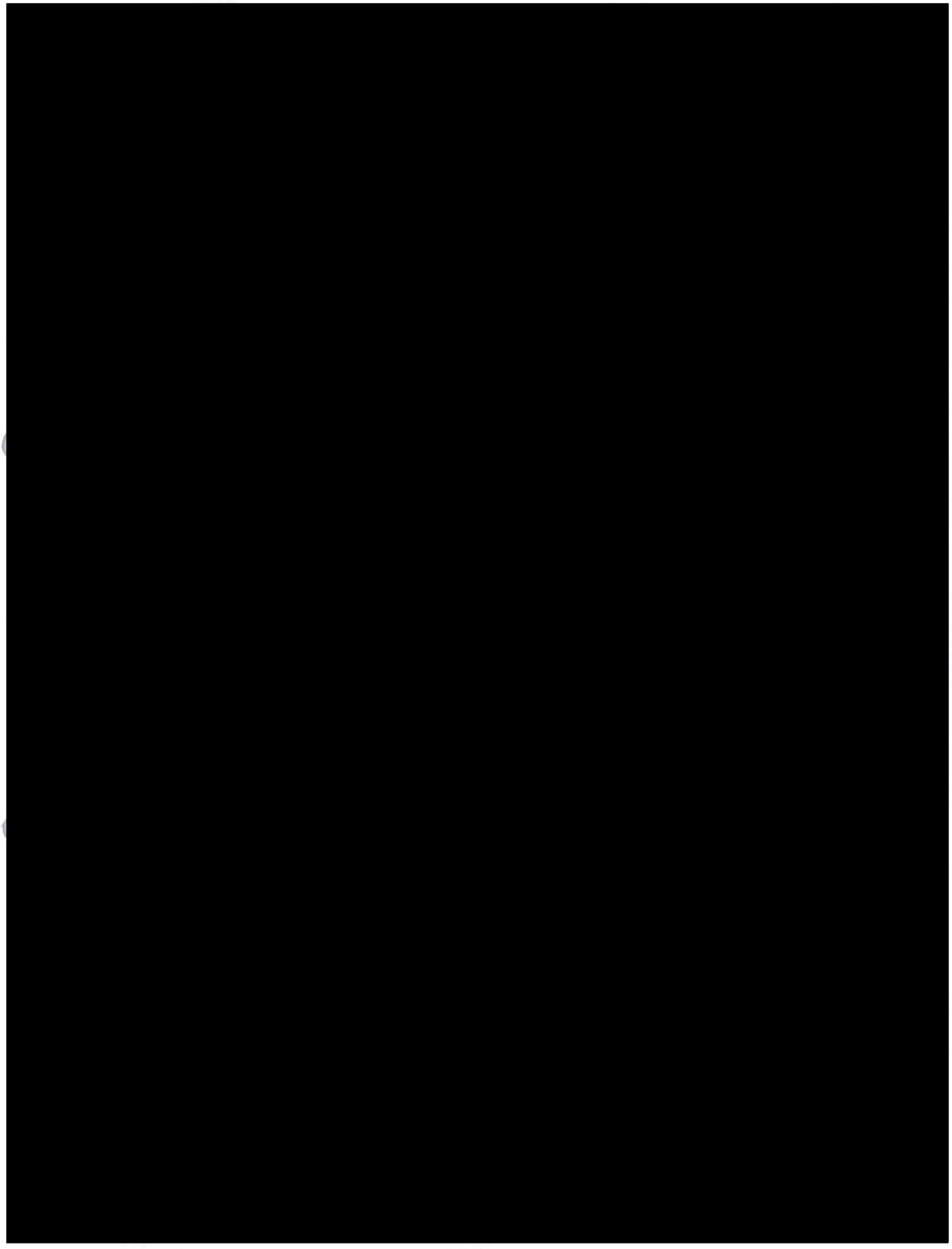


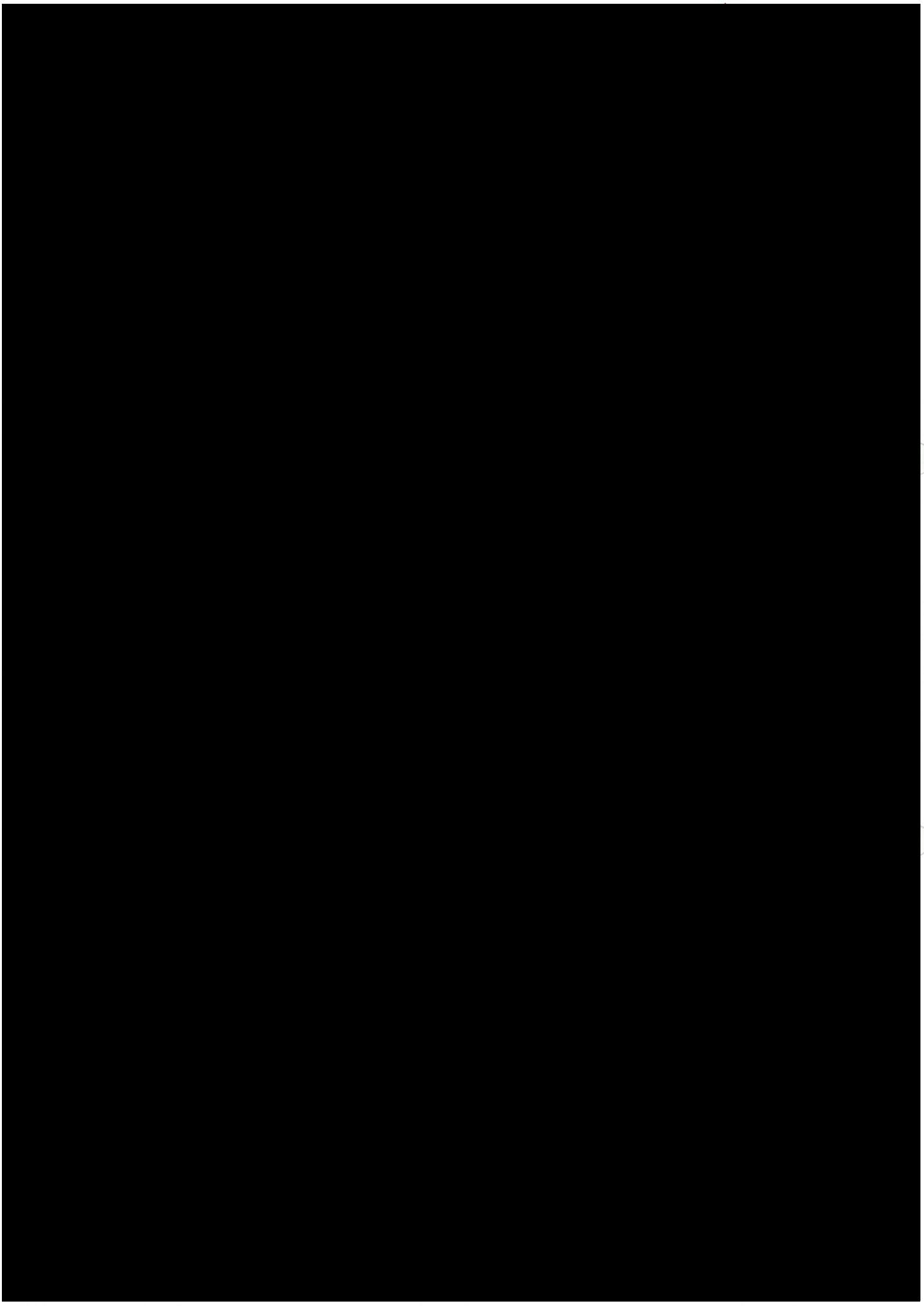


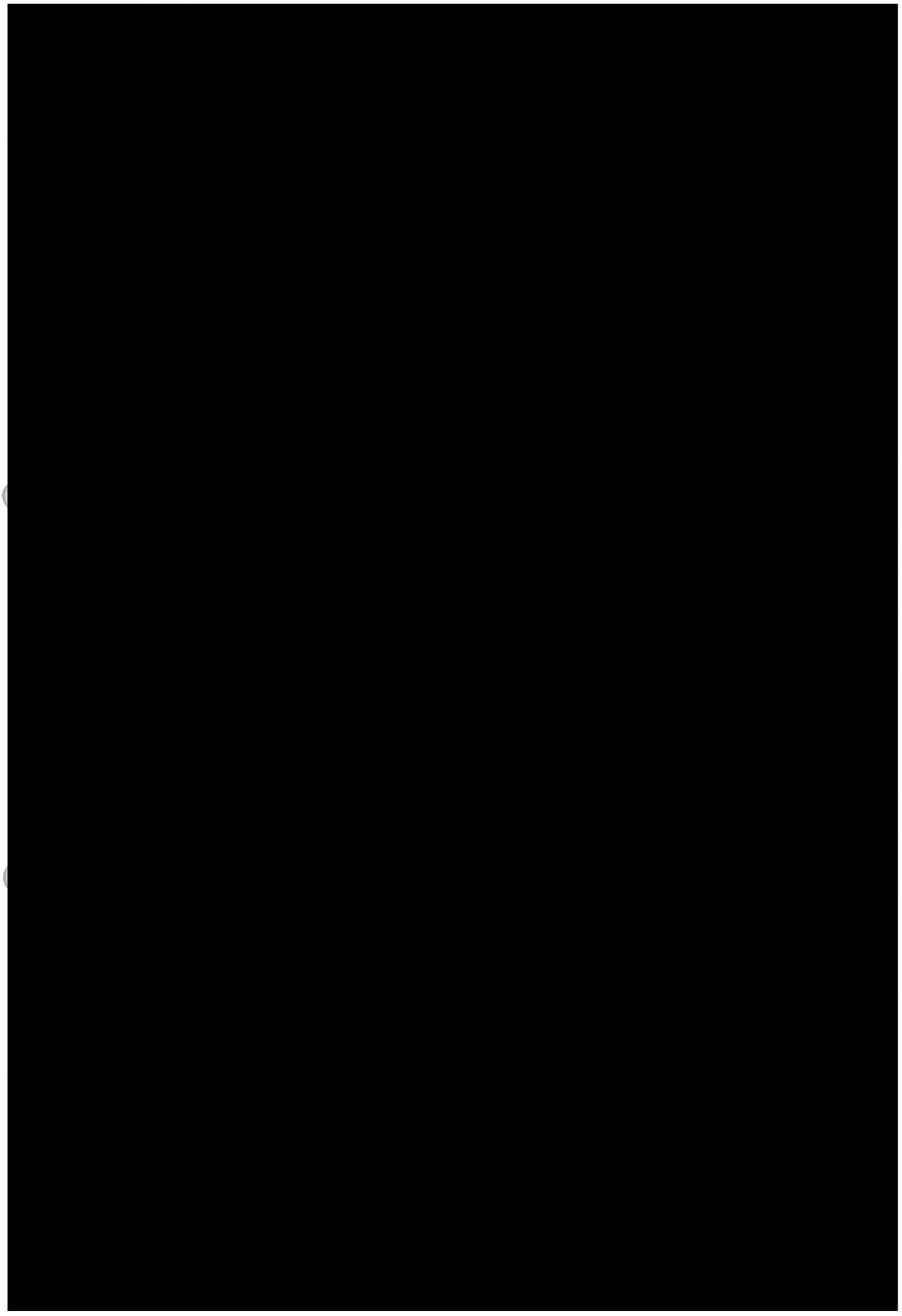


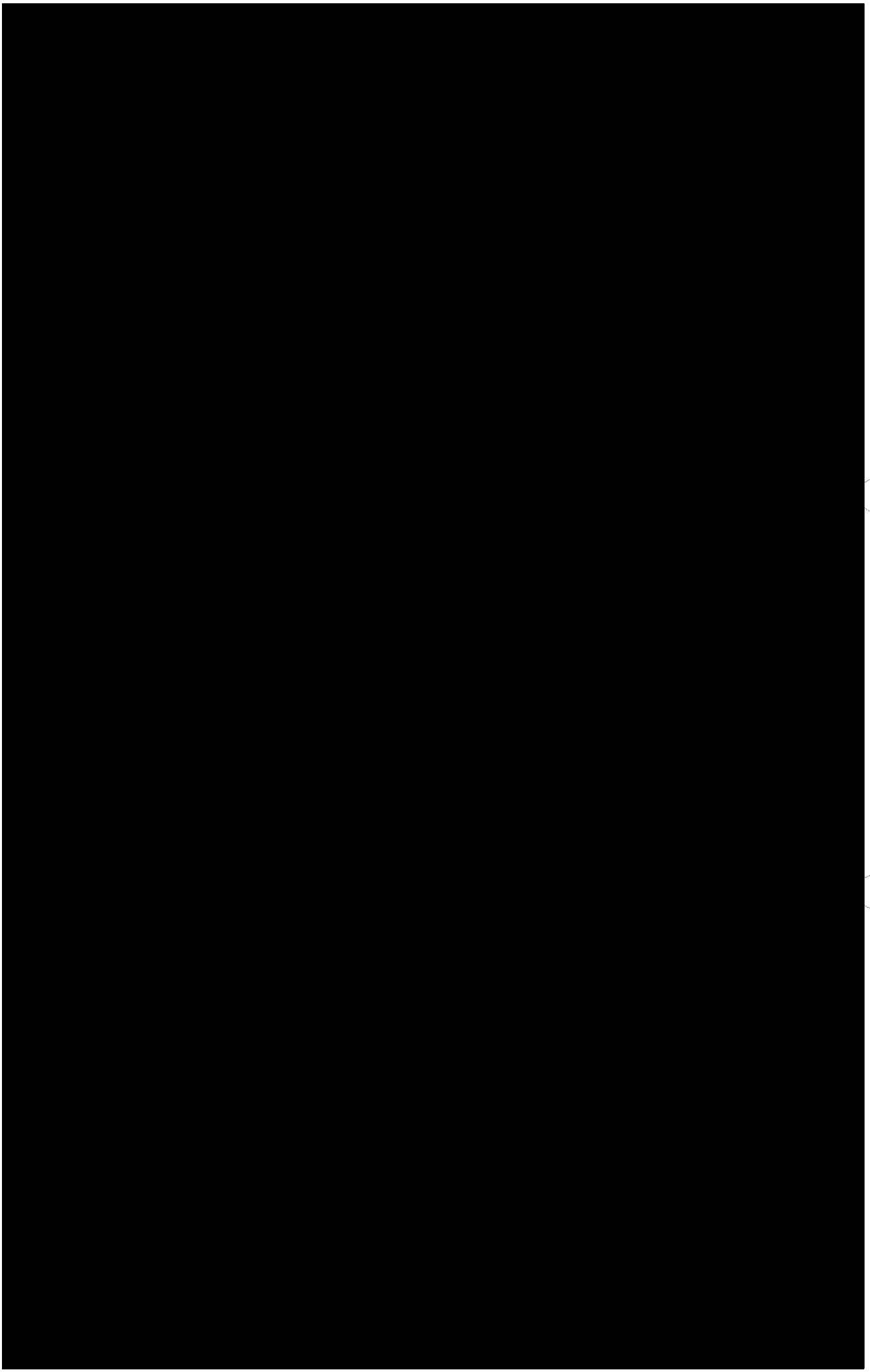




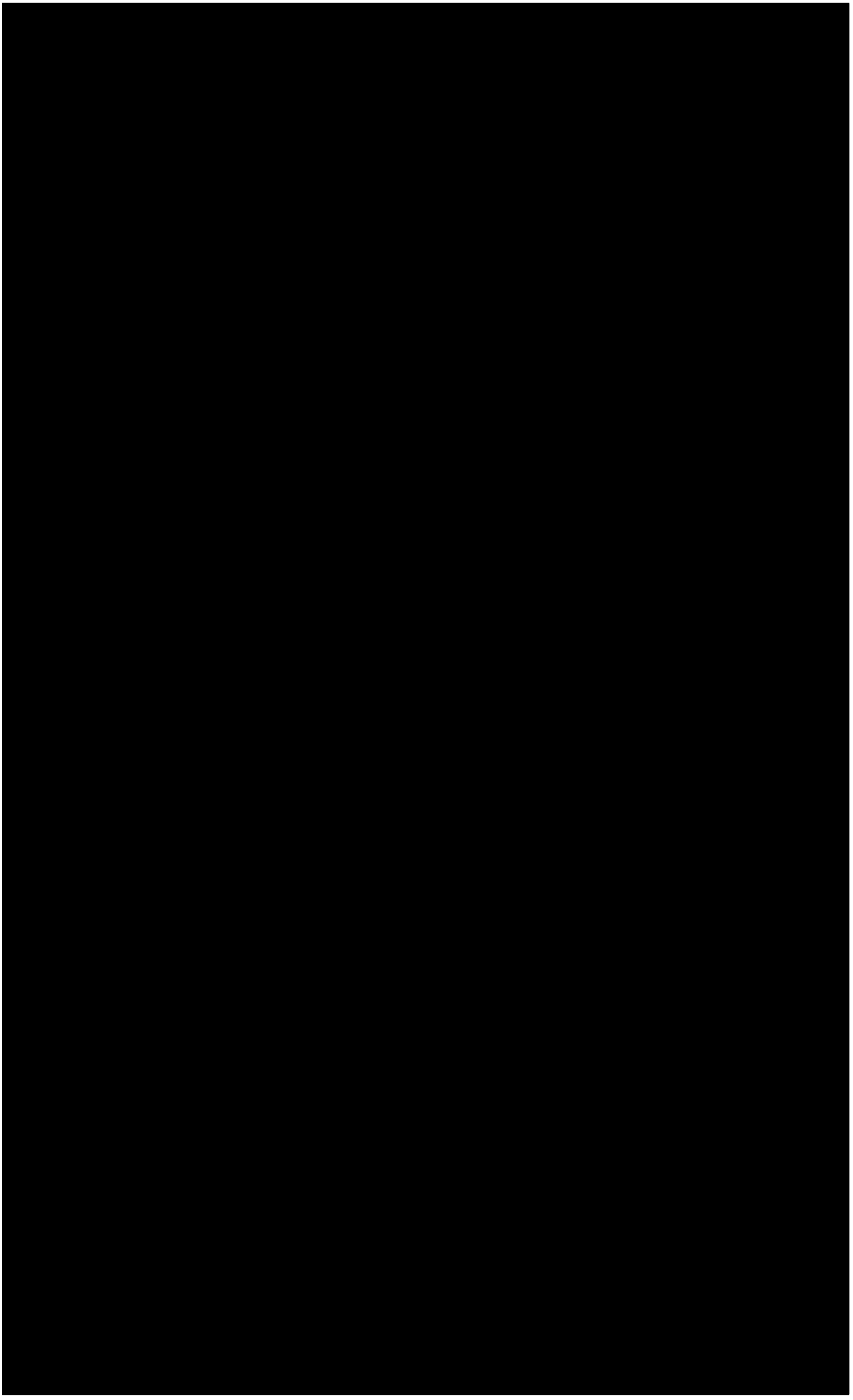


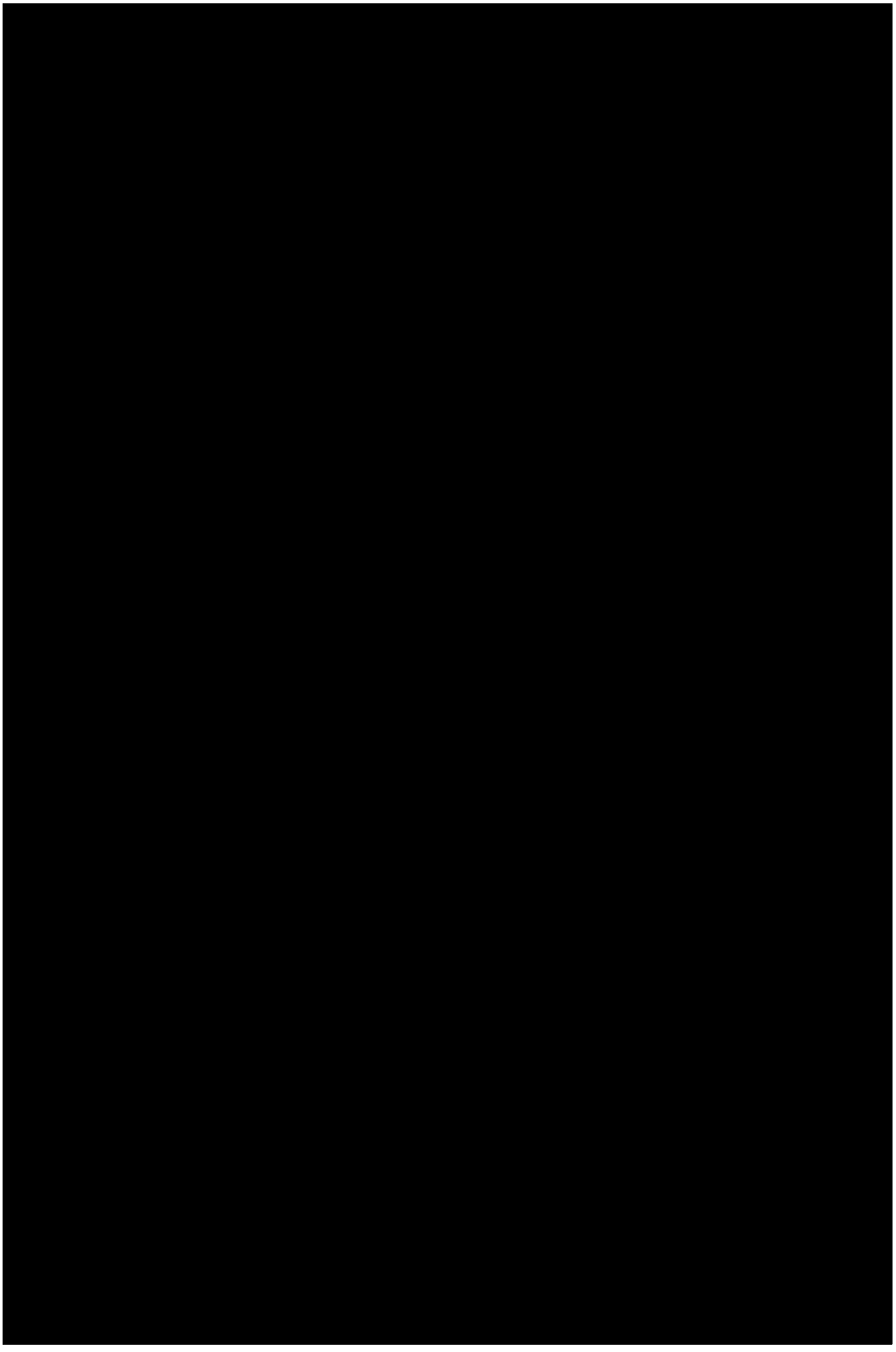


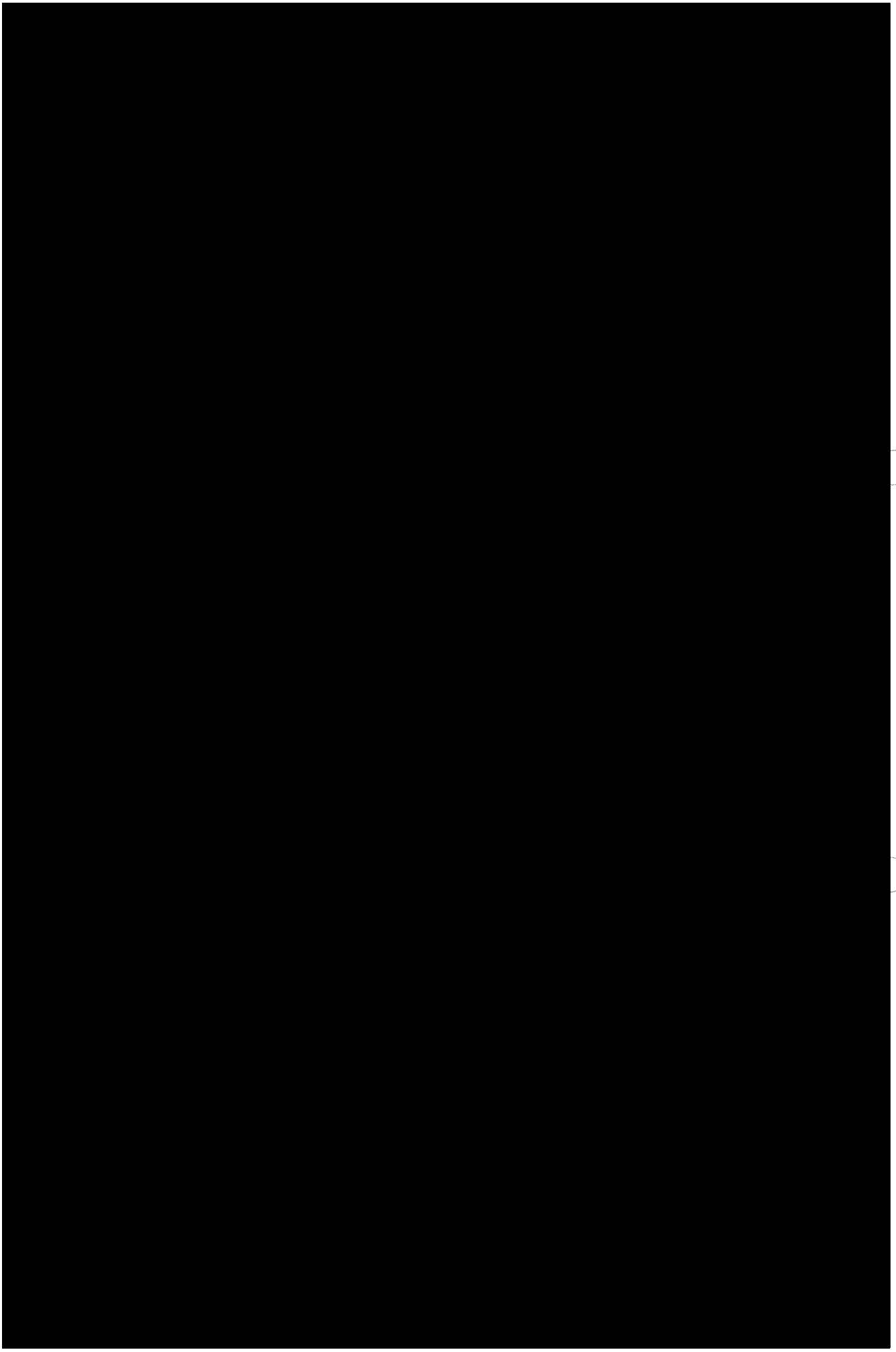


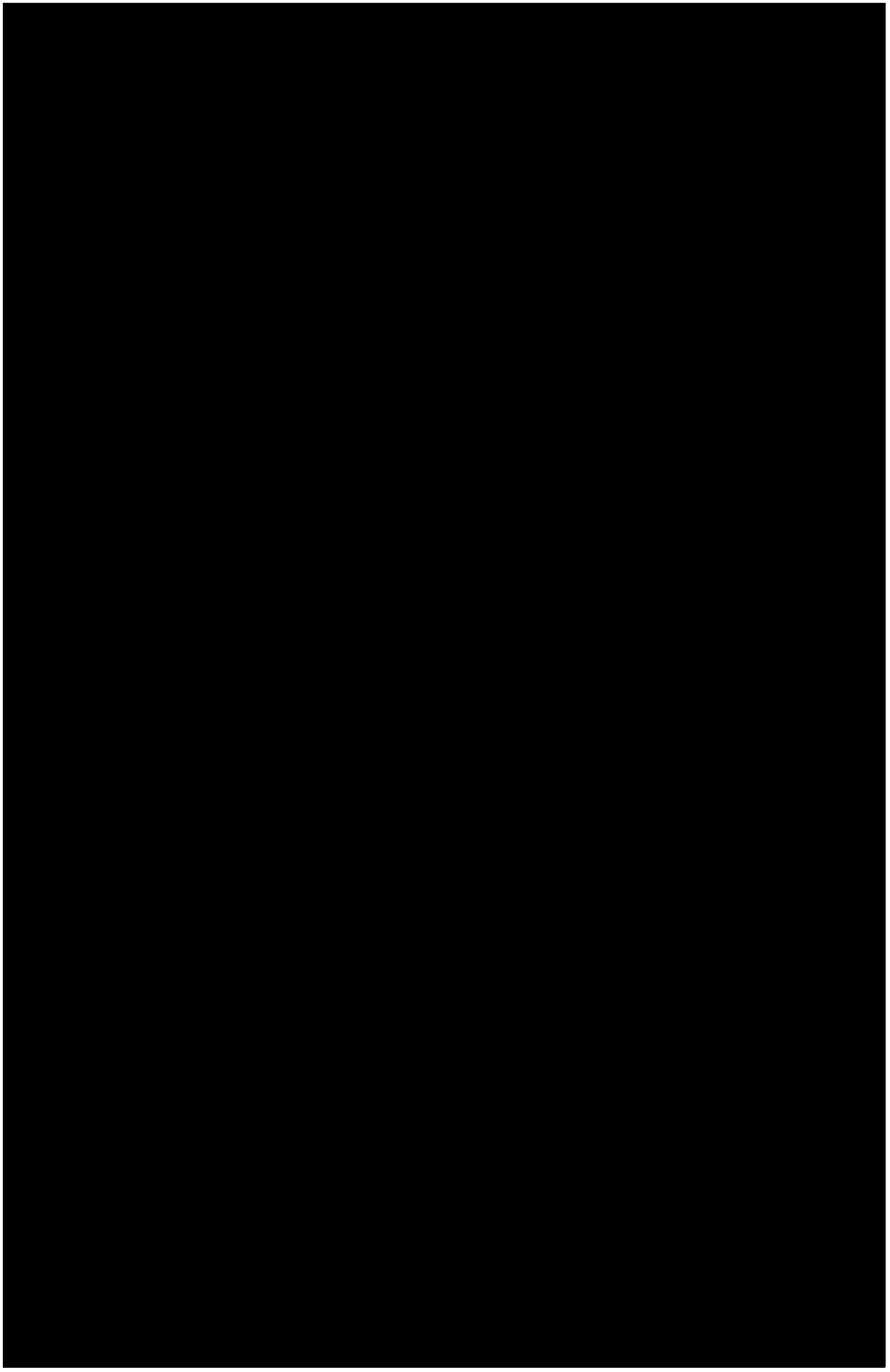


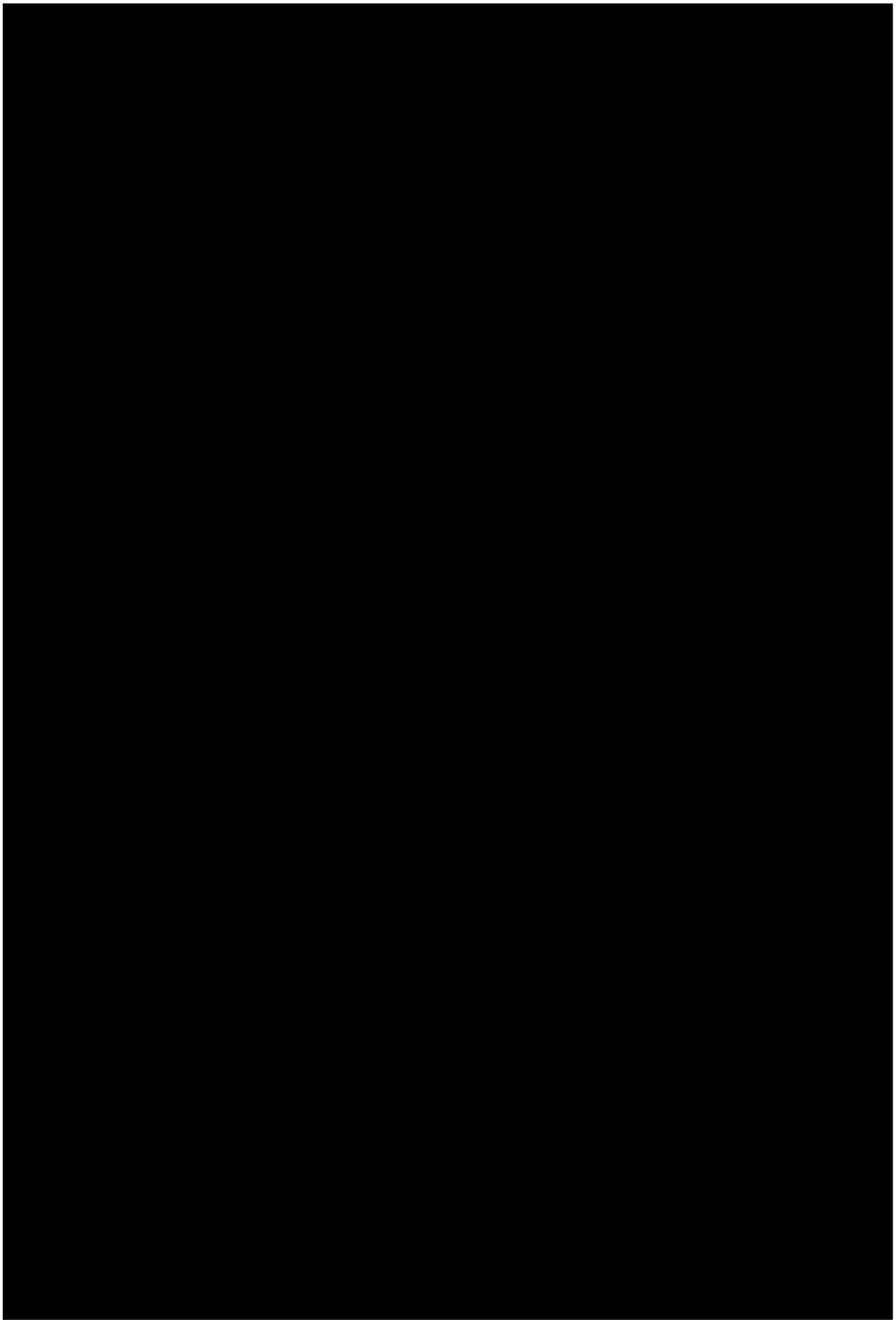
[redacted]

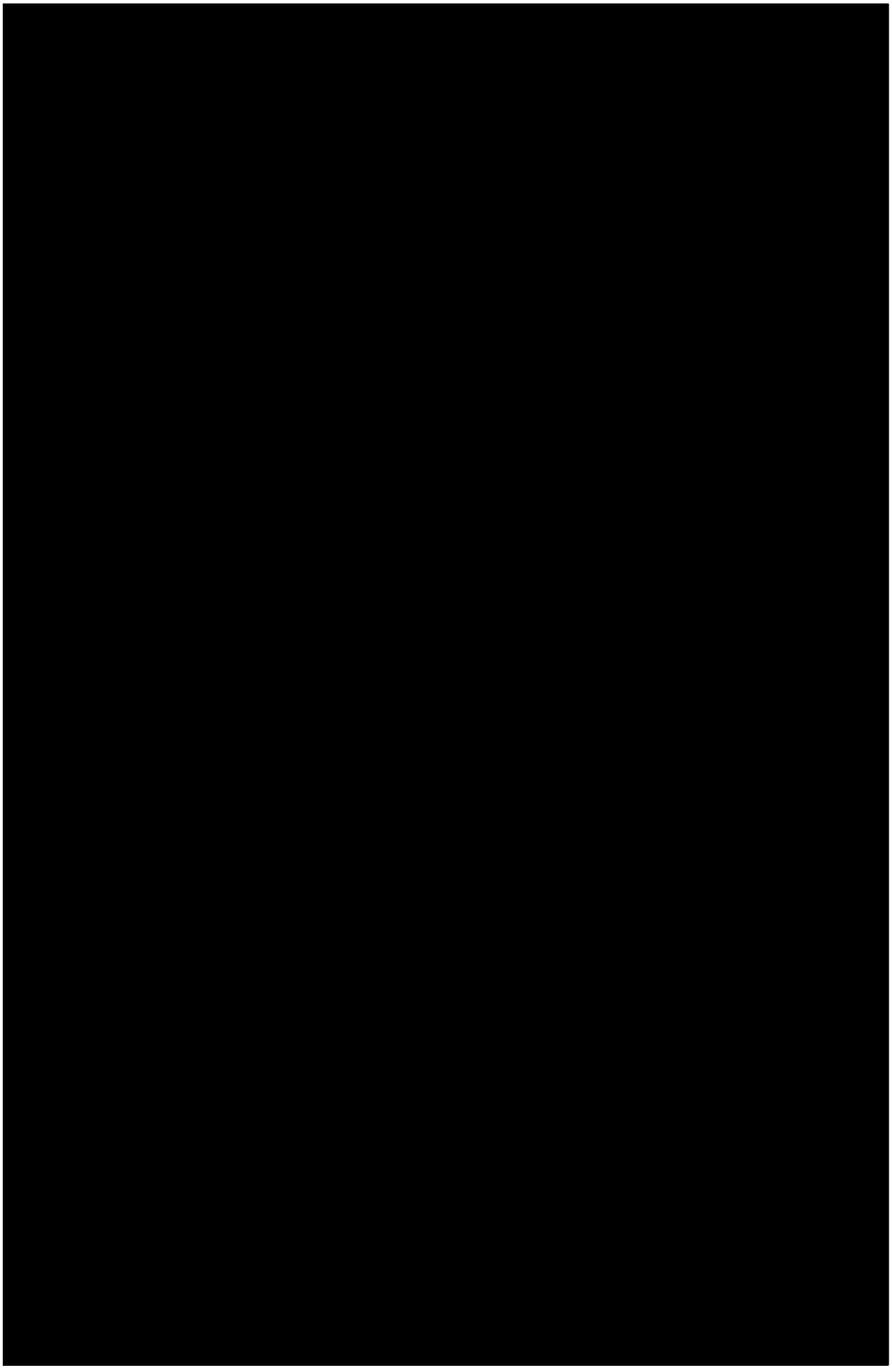


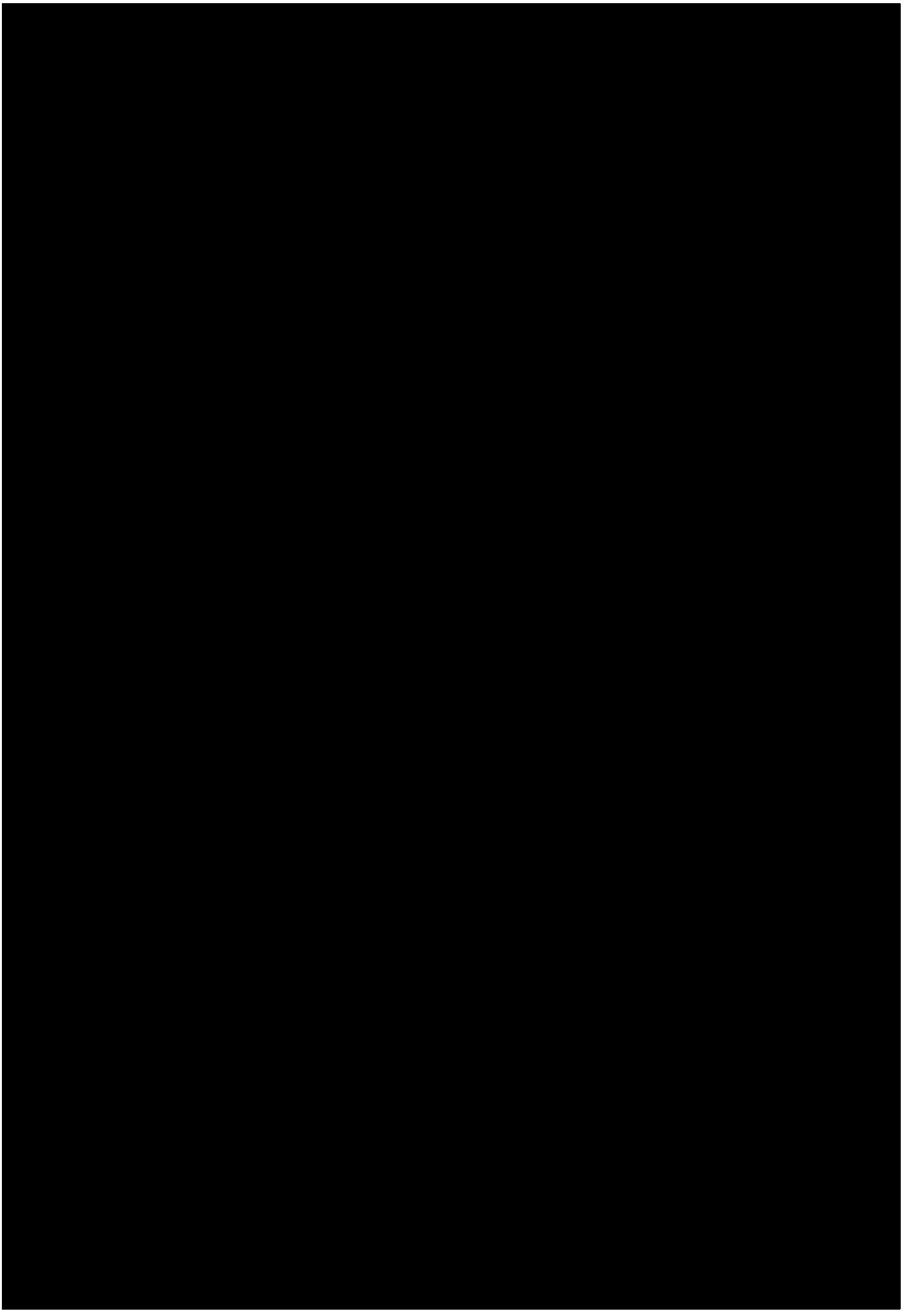


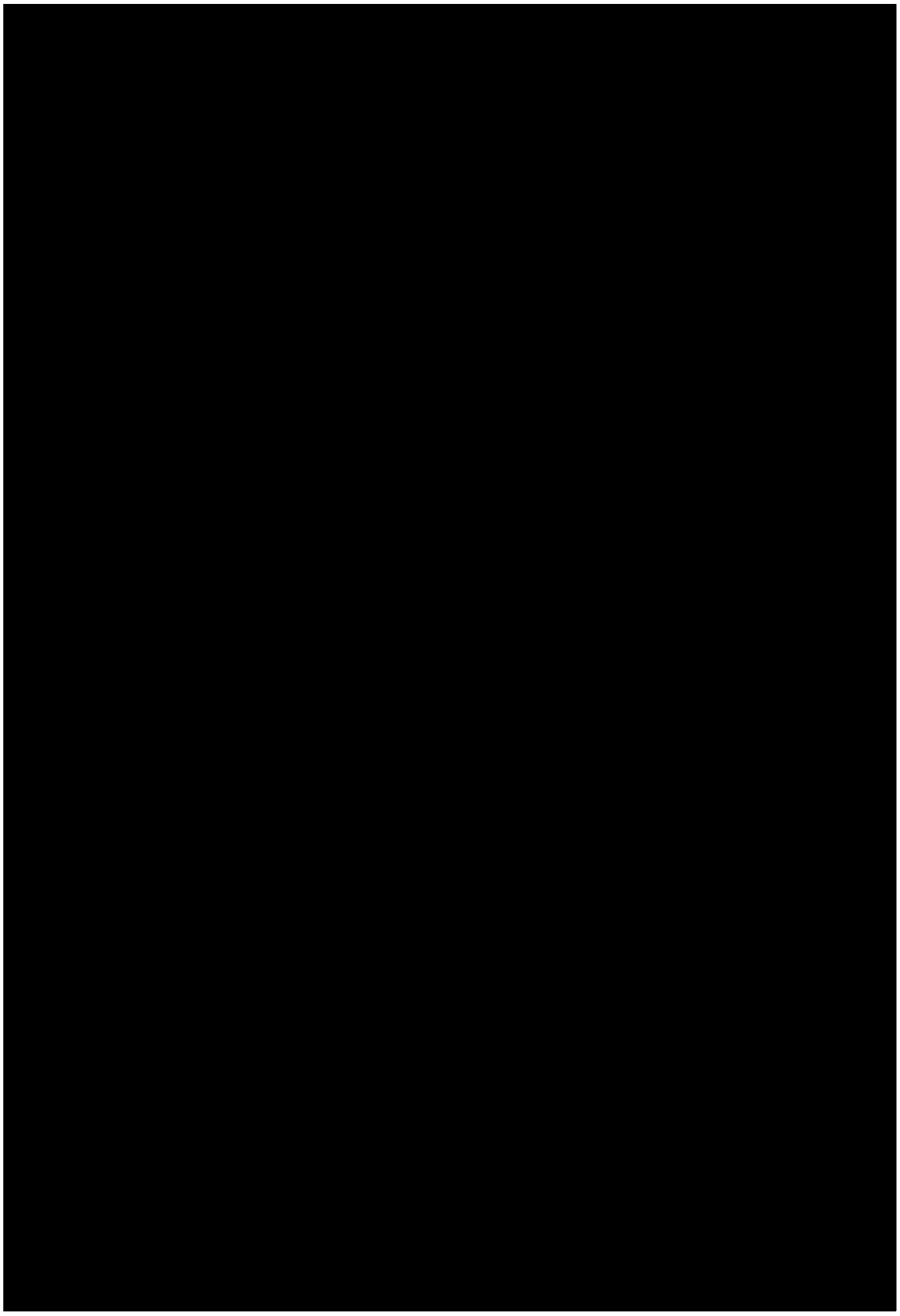


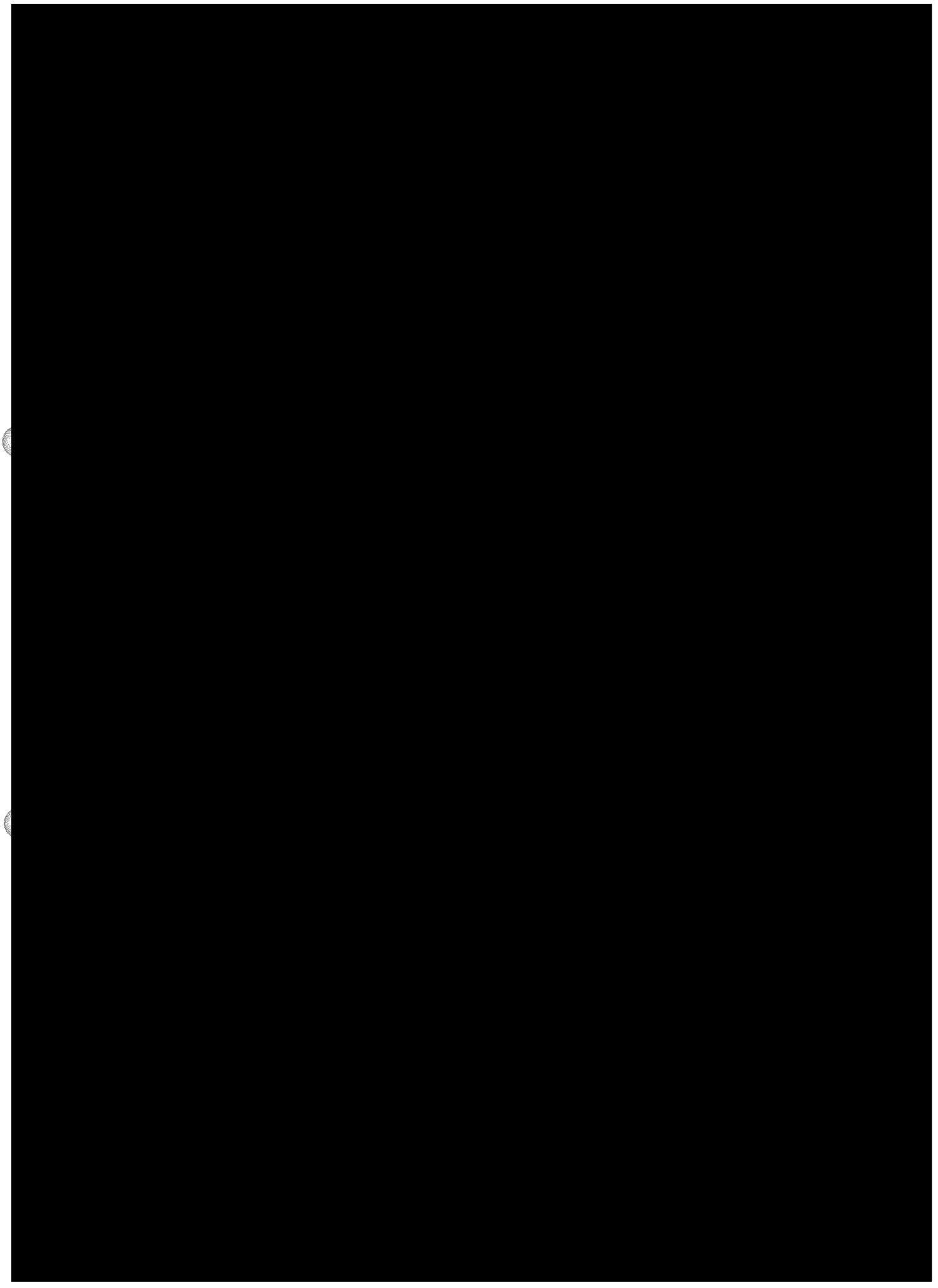


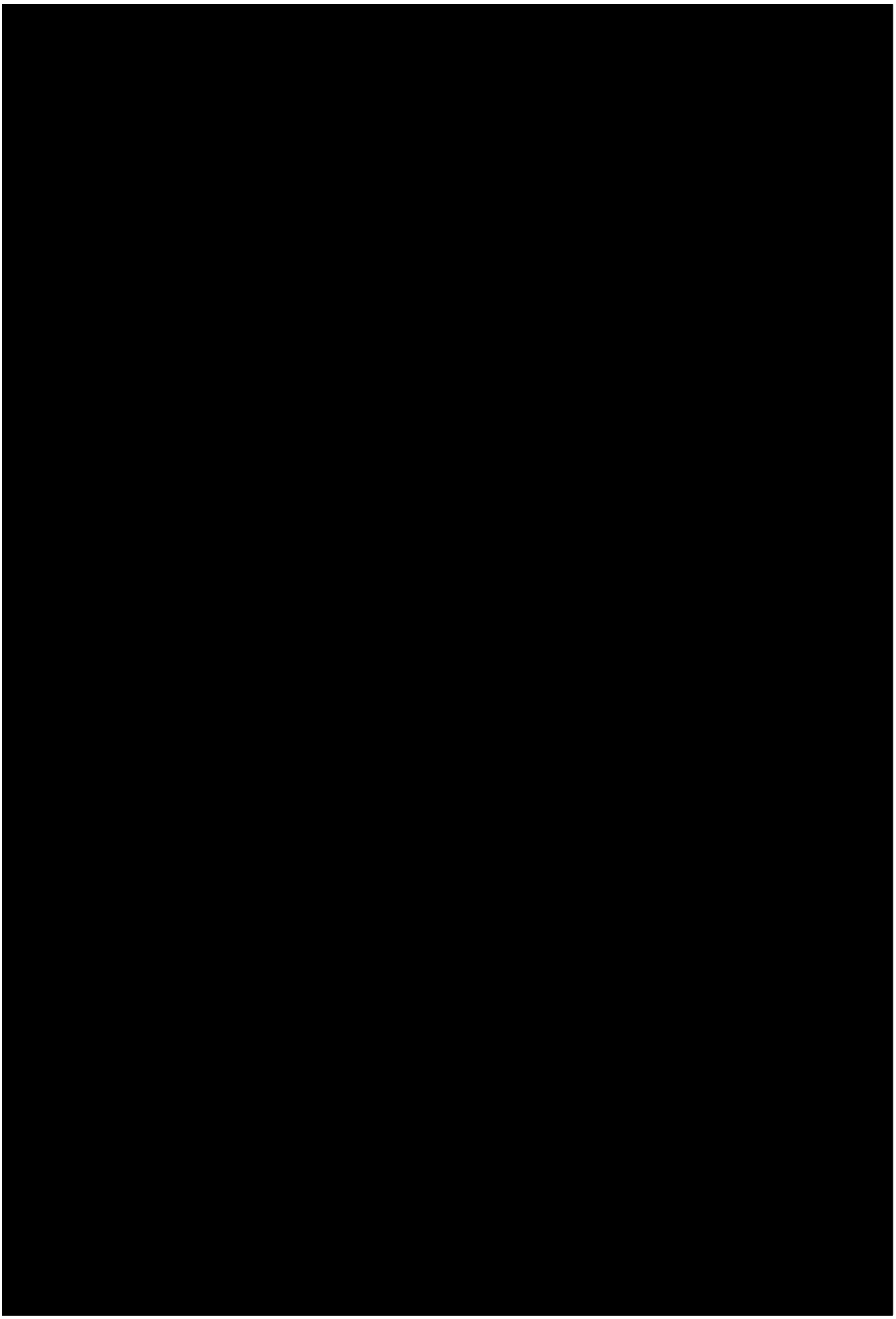


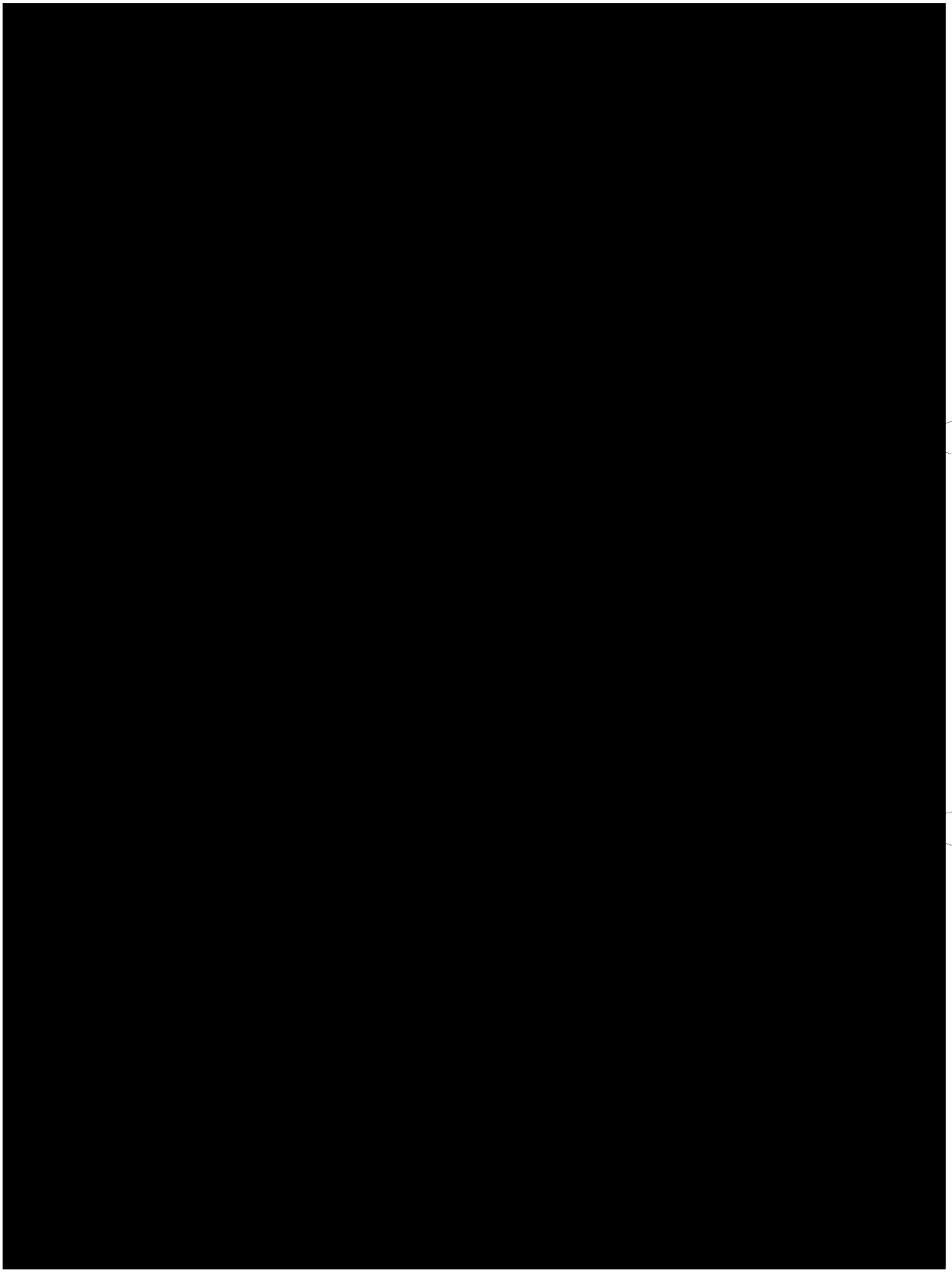


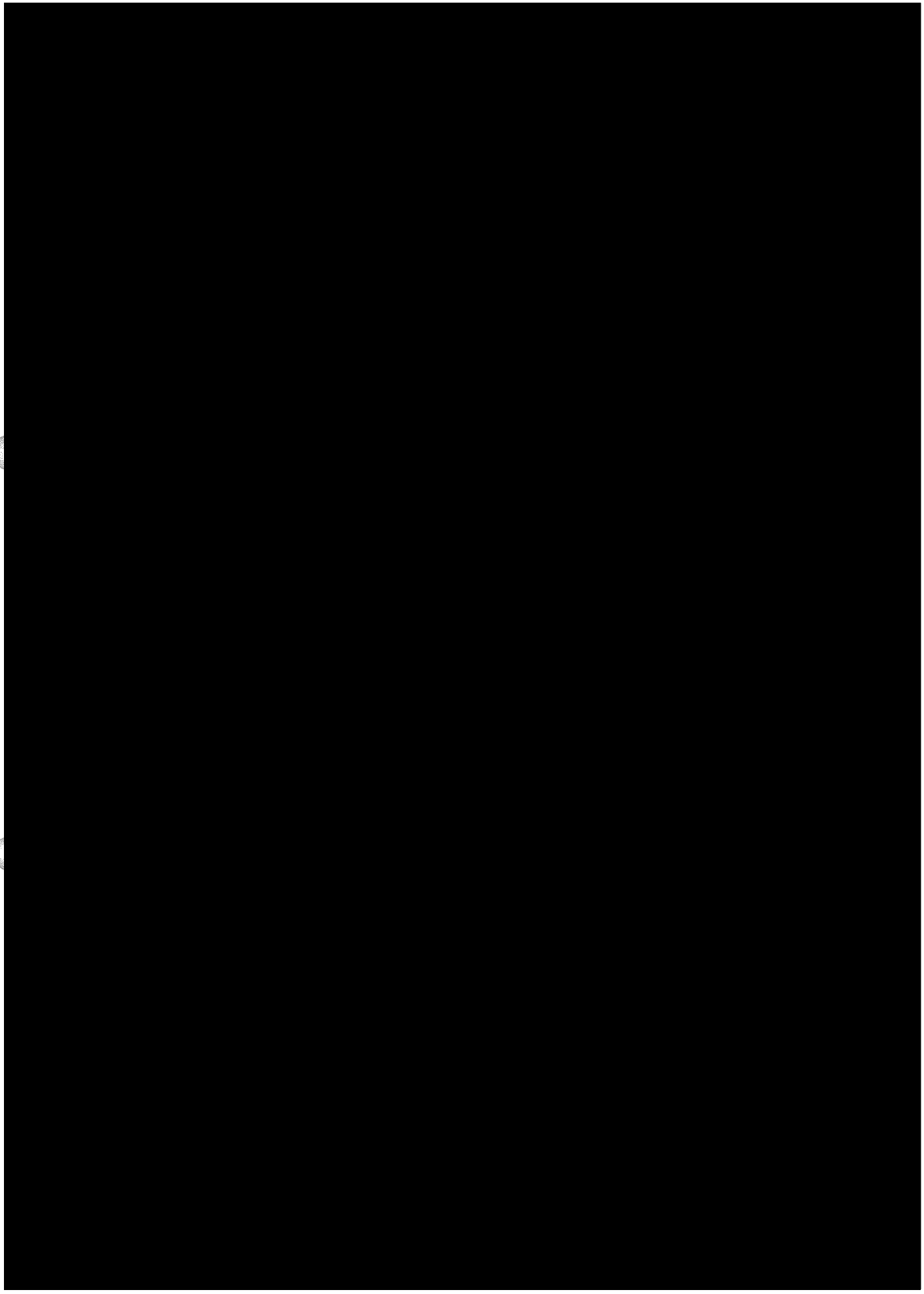


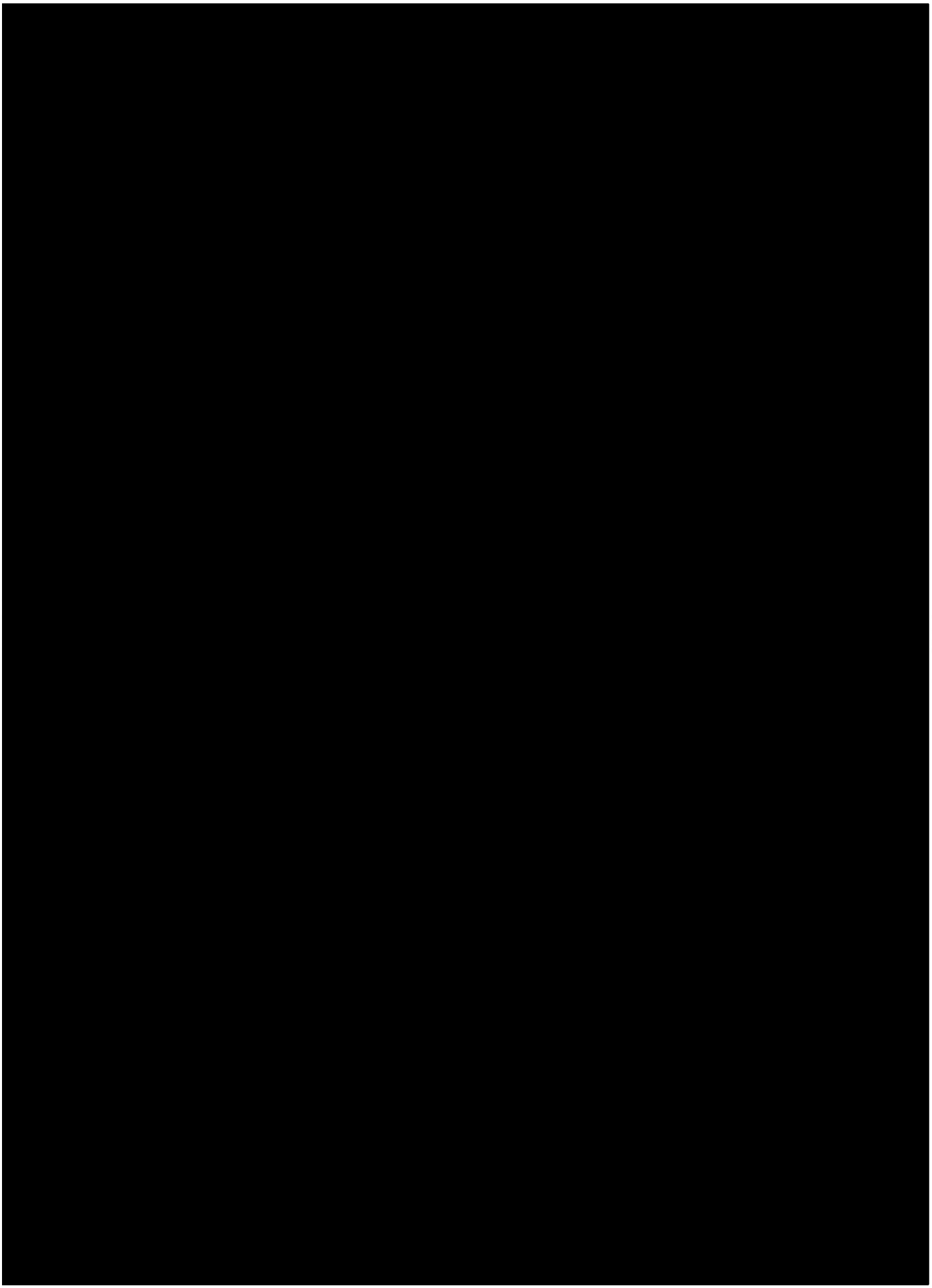


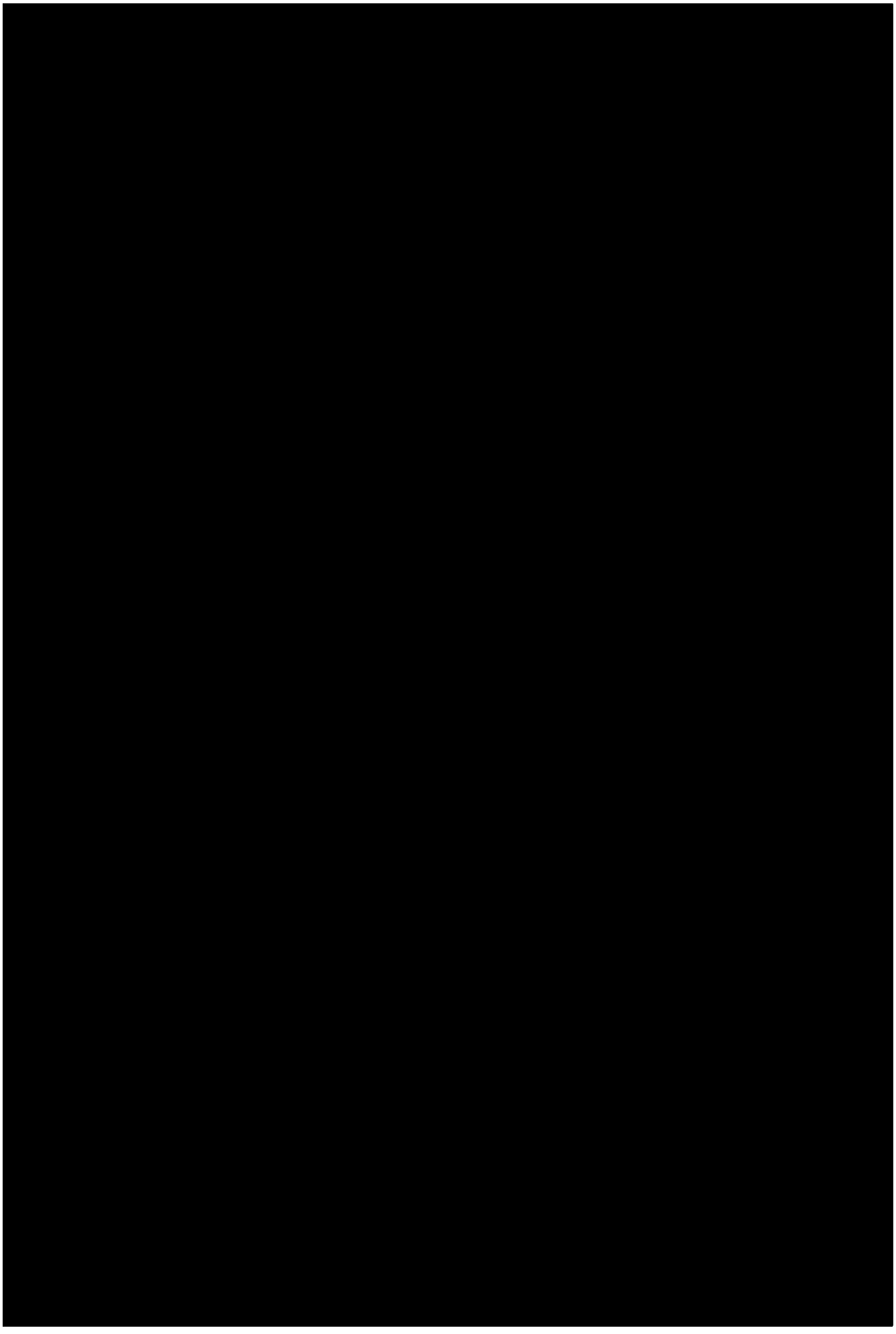


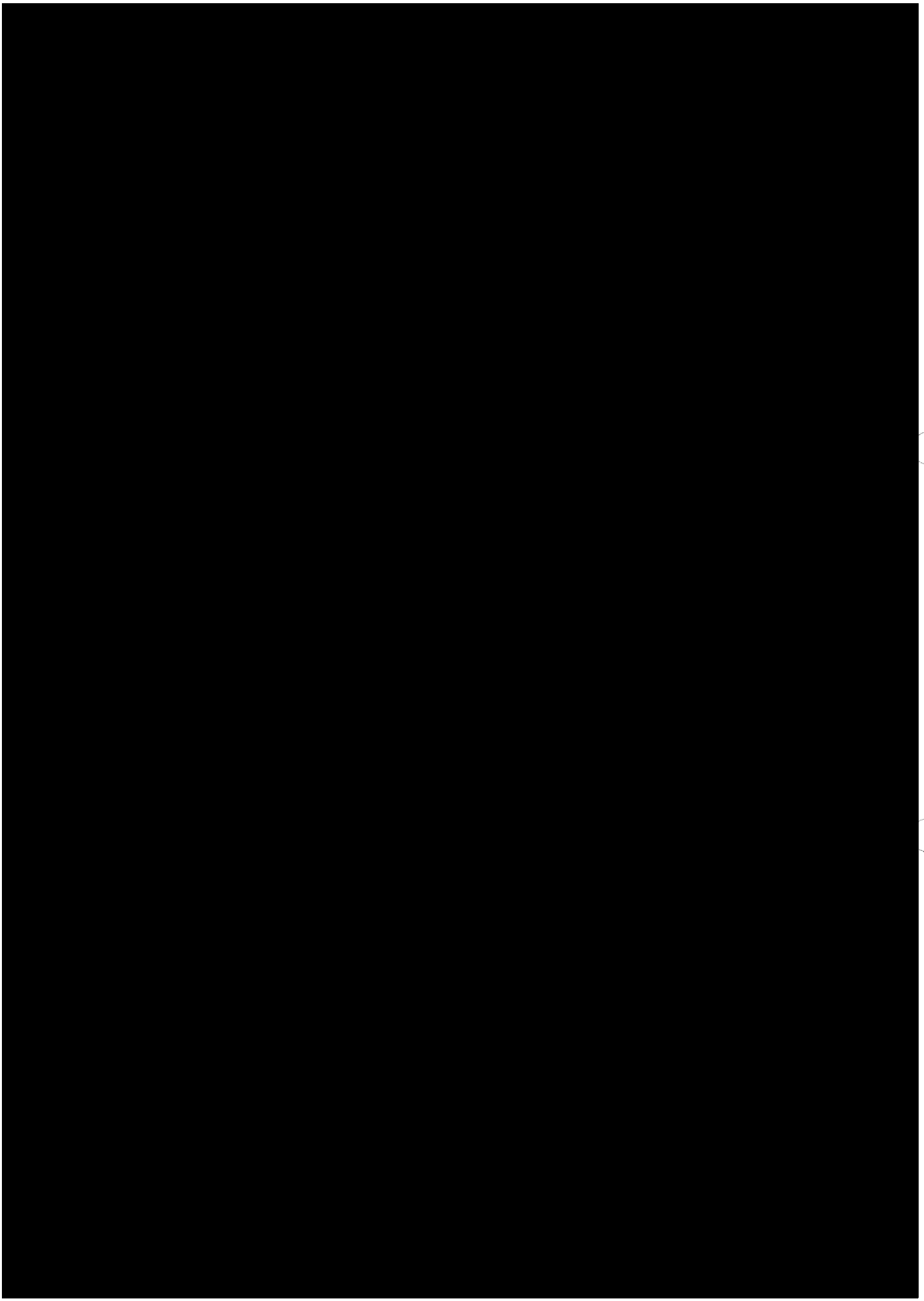


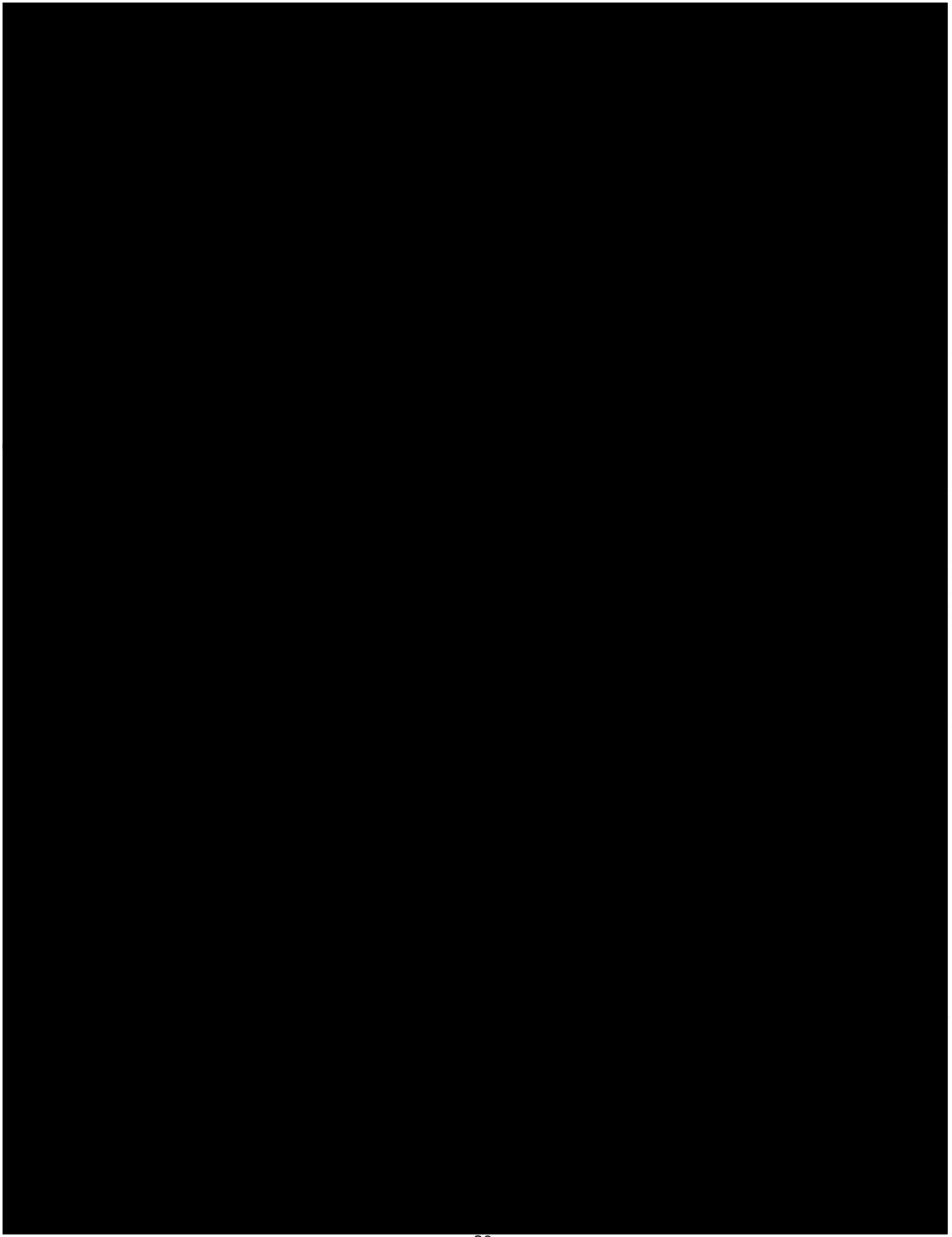


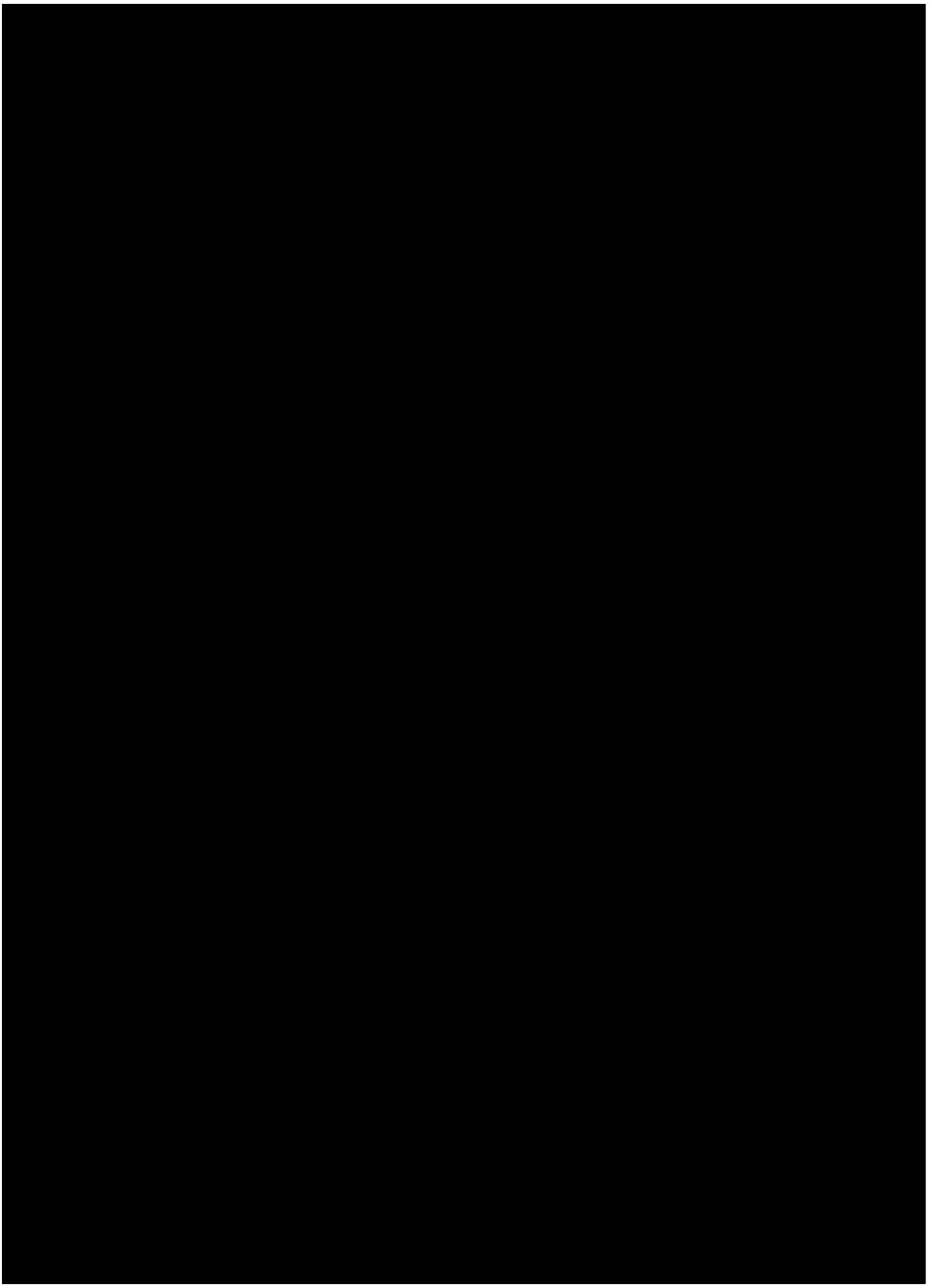


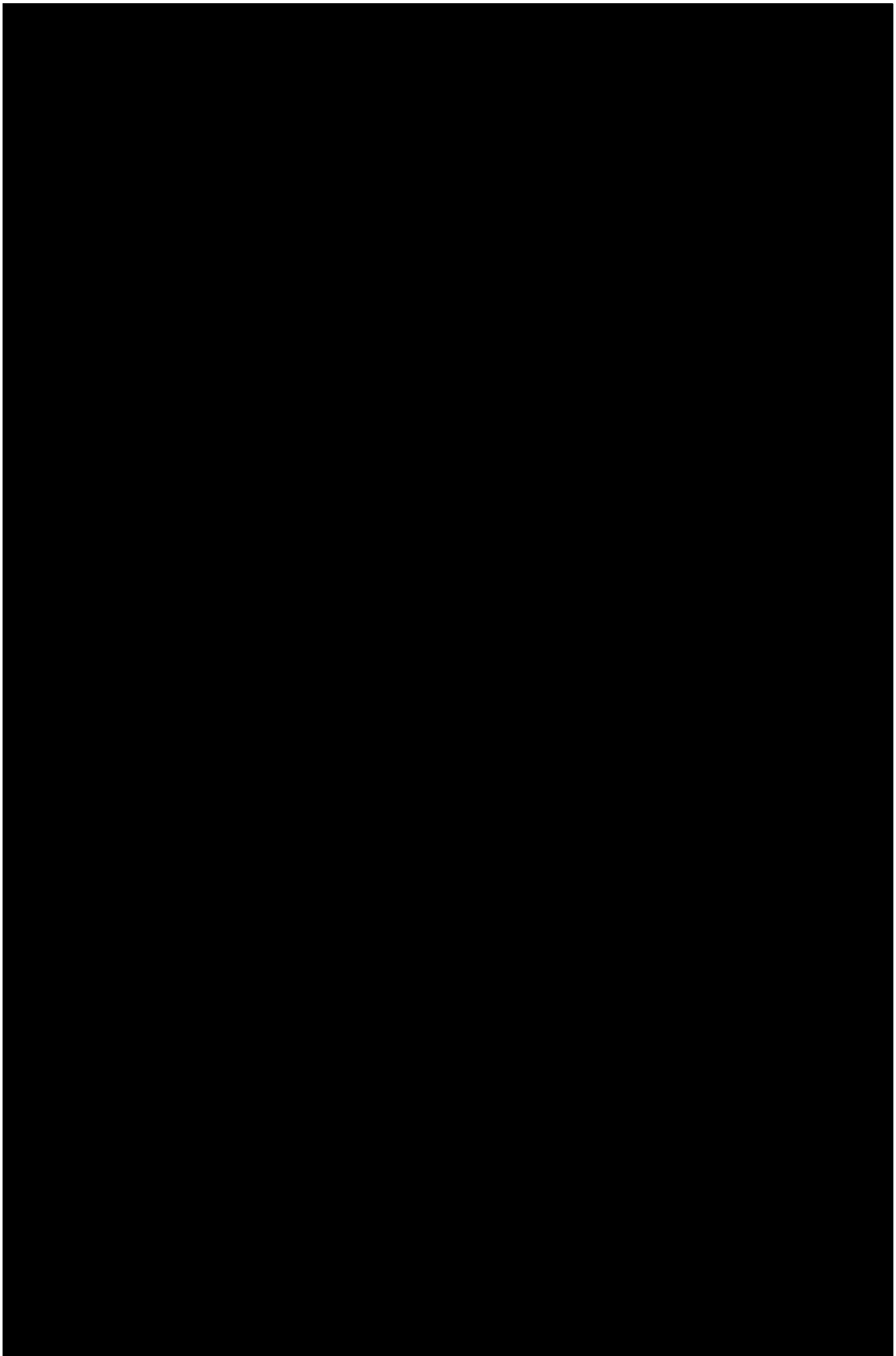


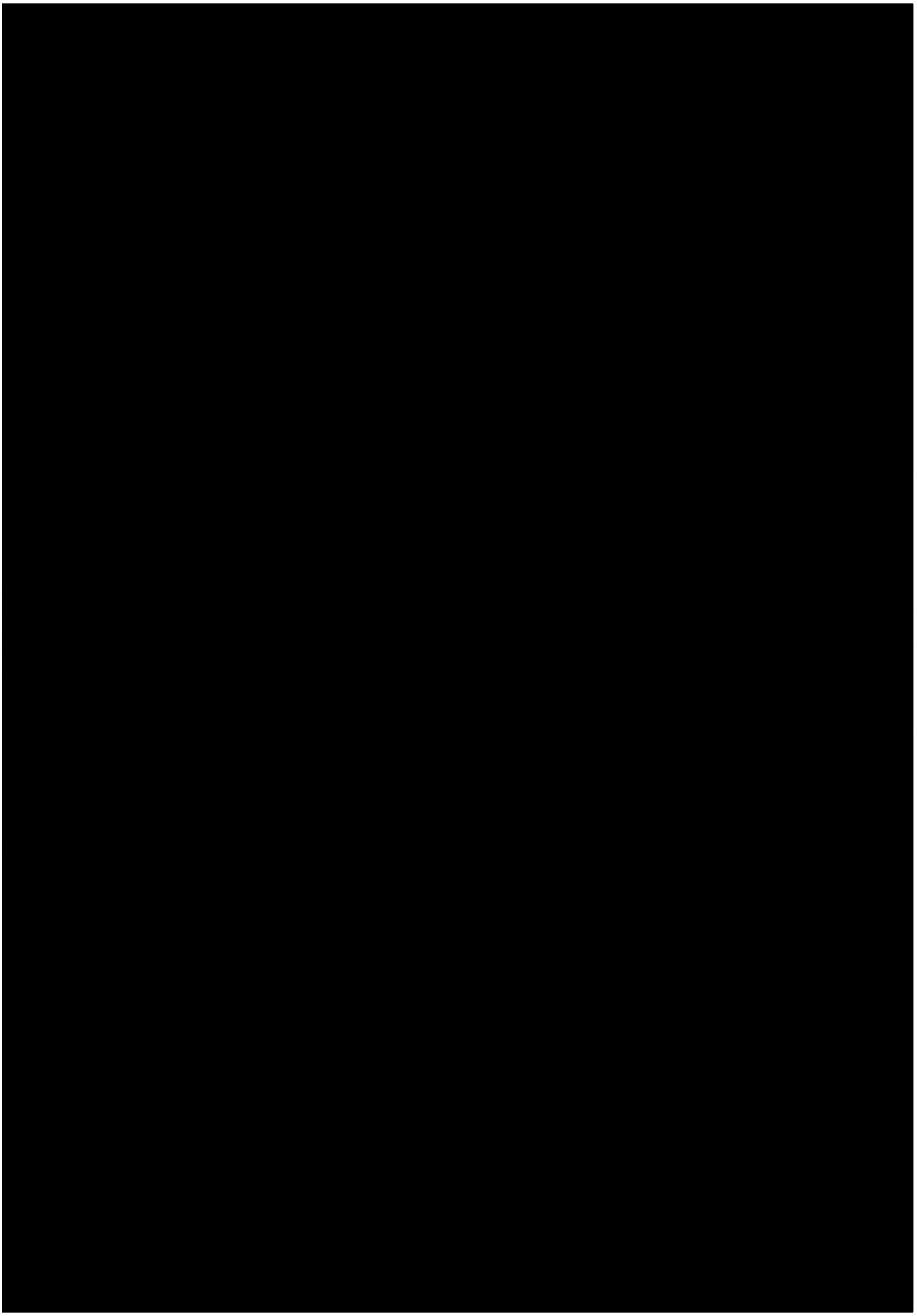


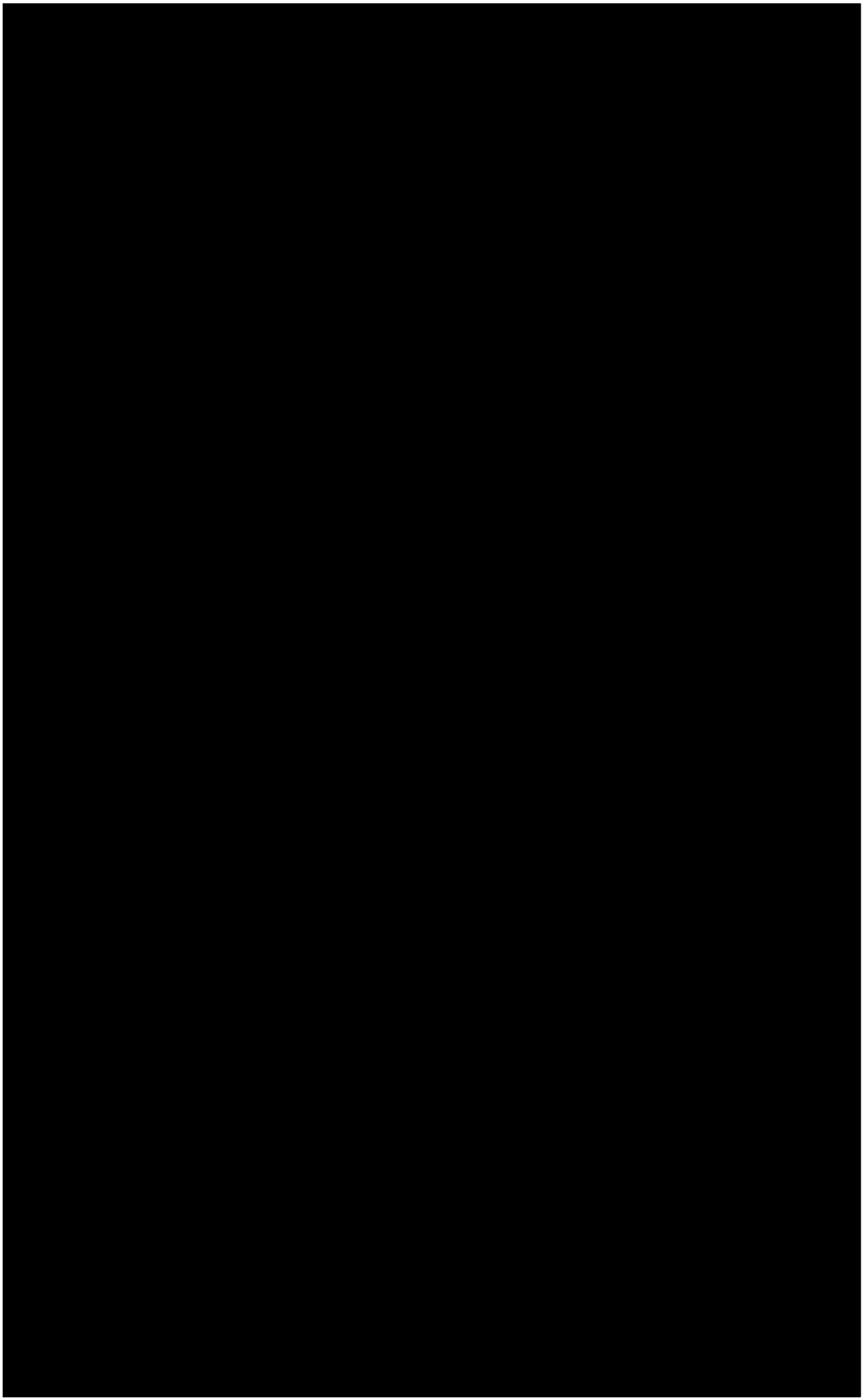


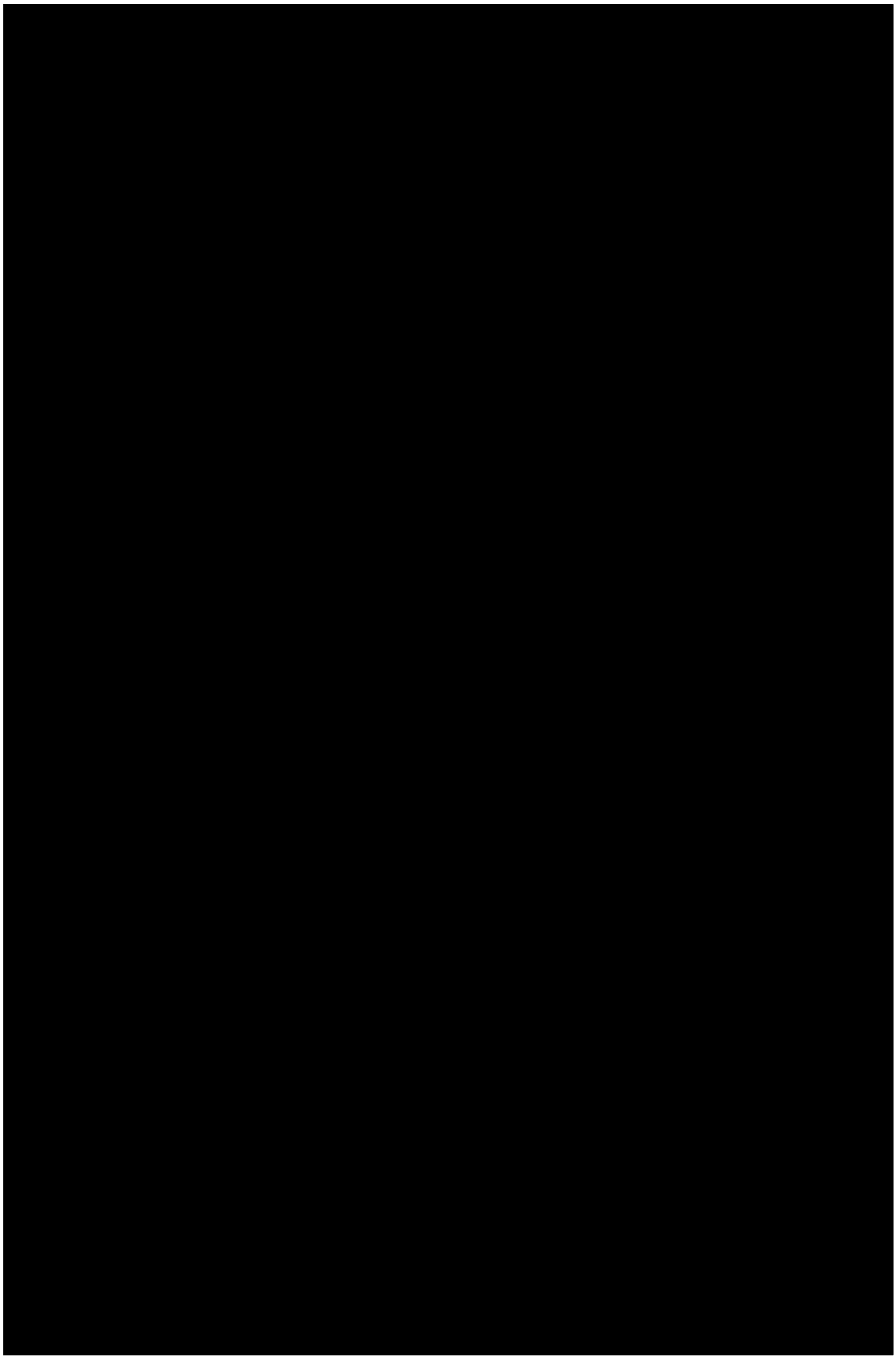


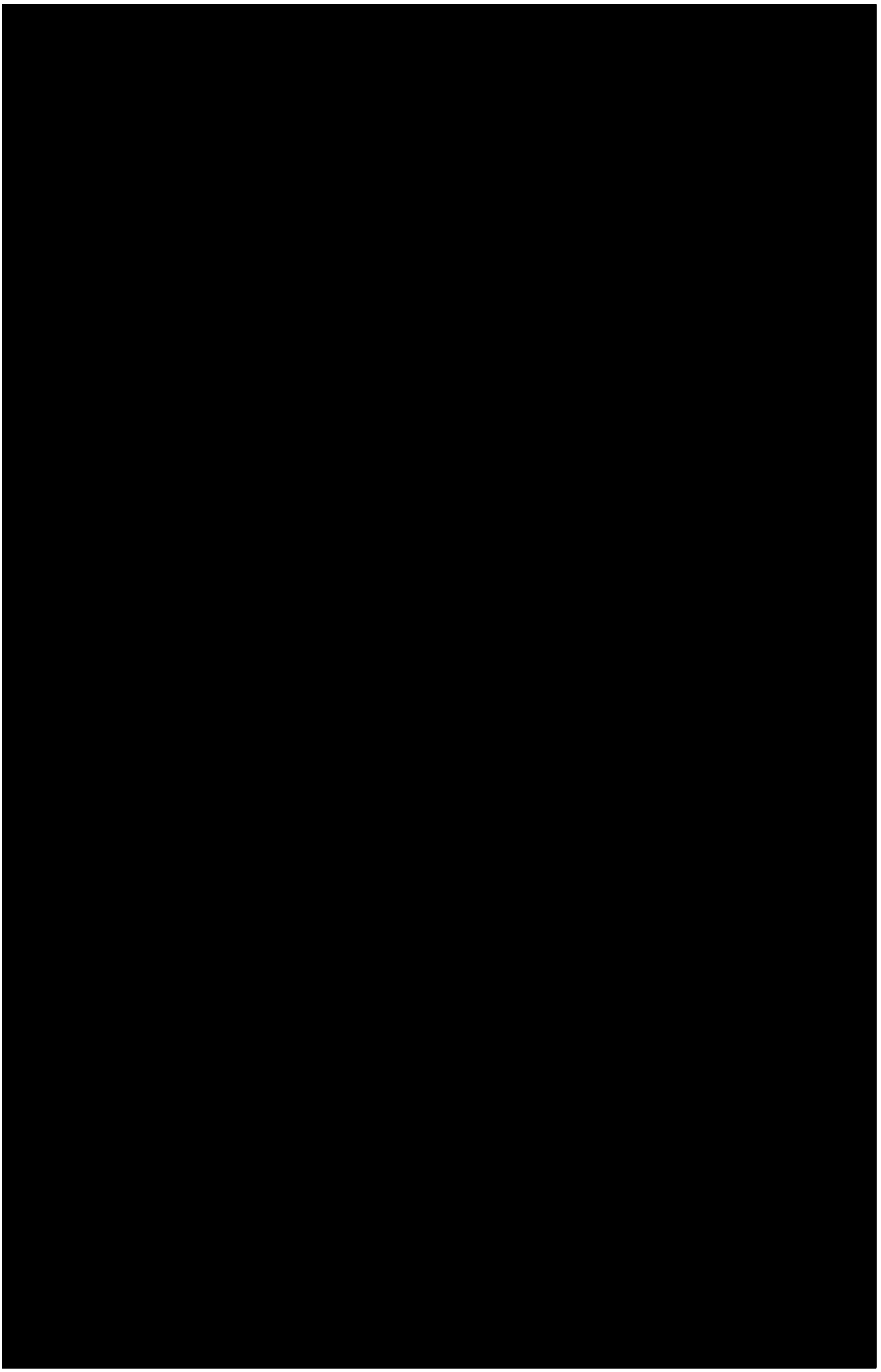


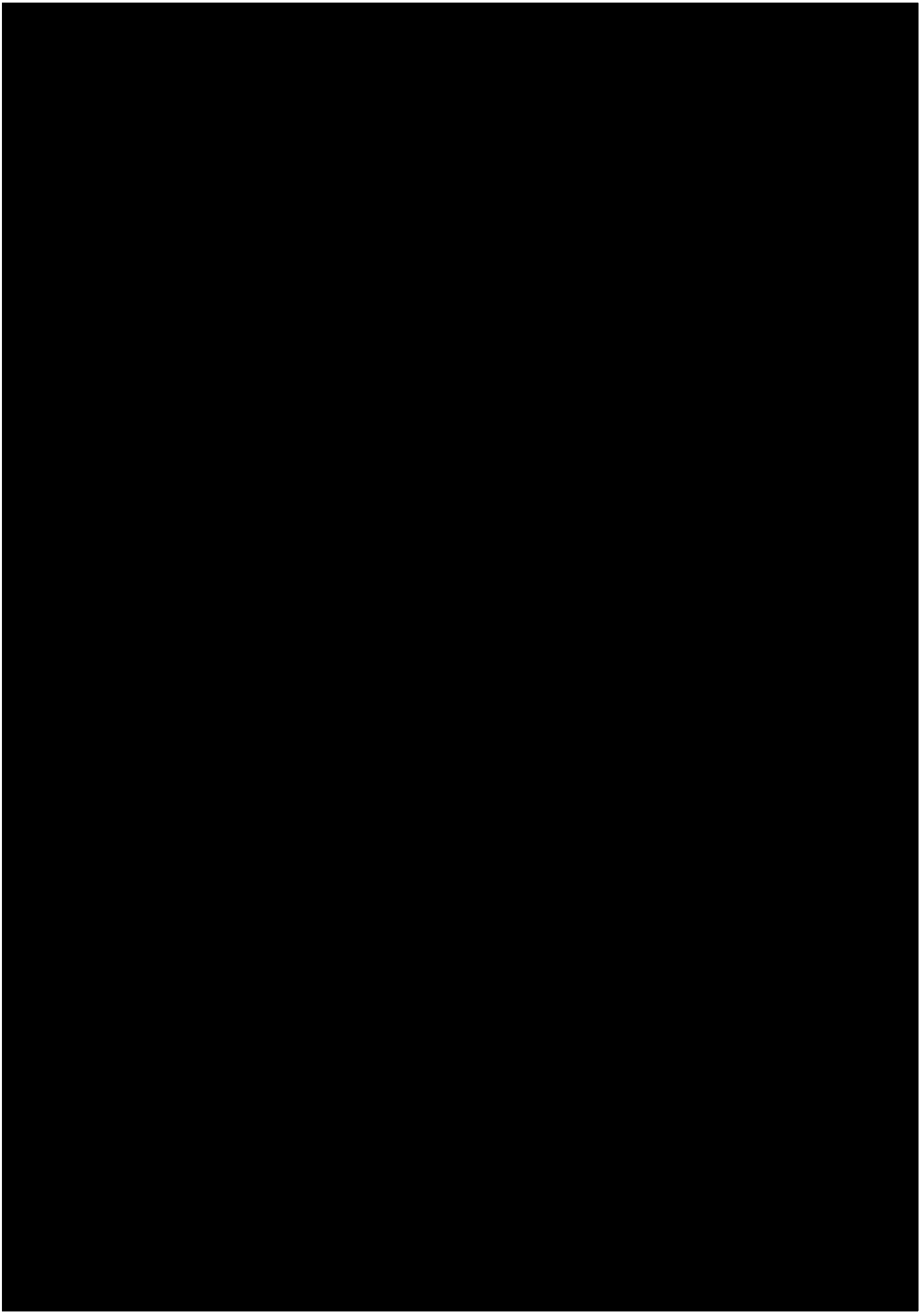


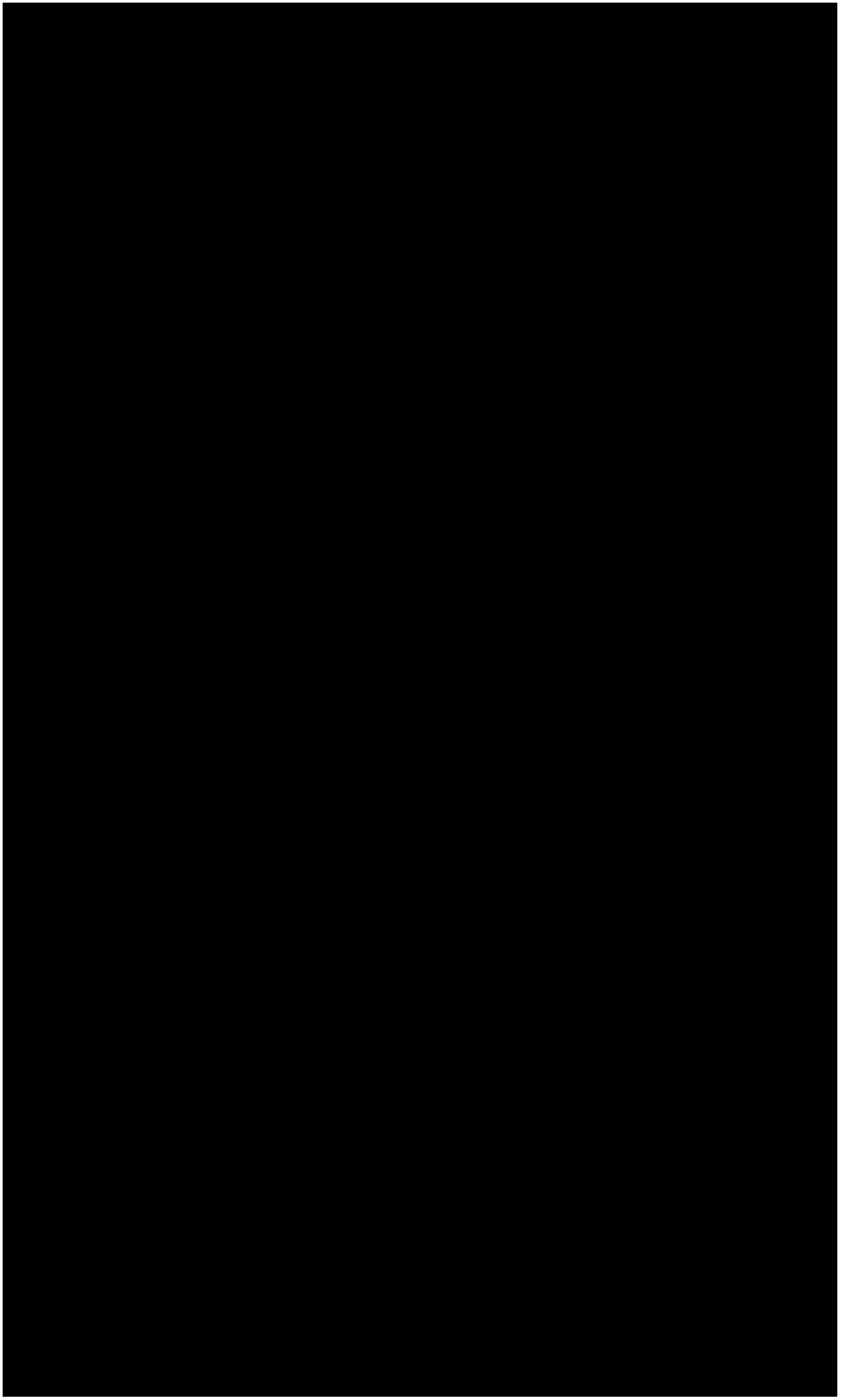


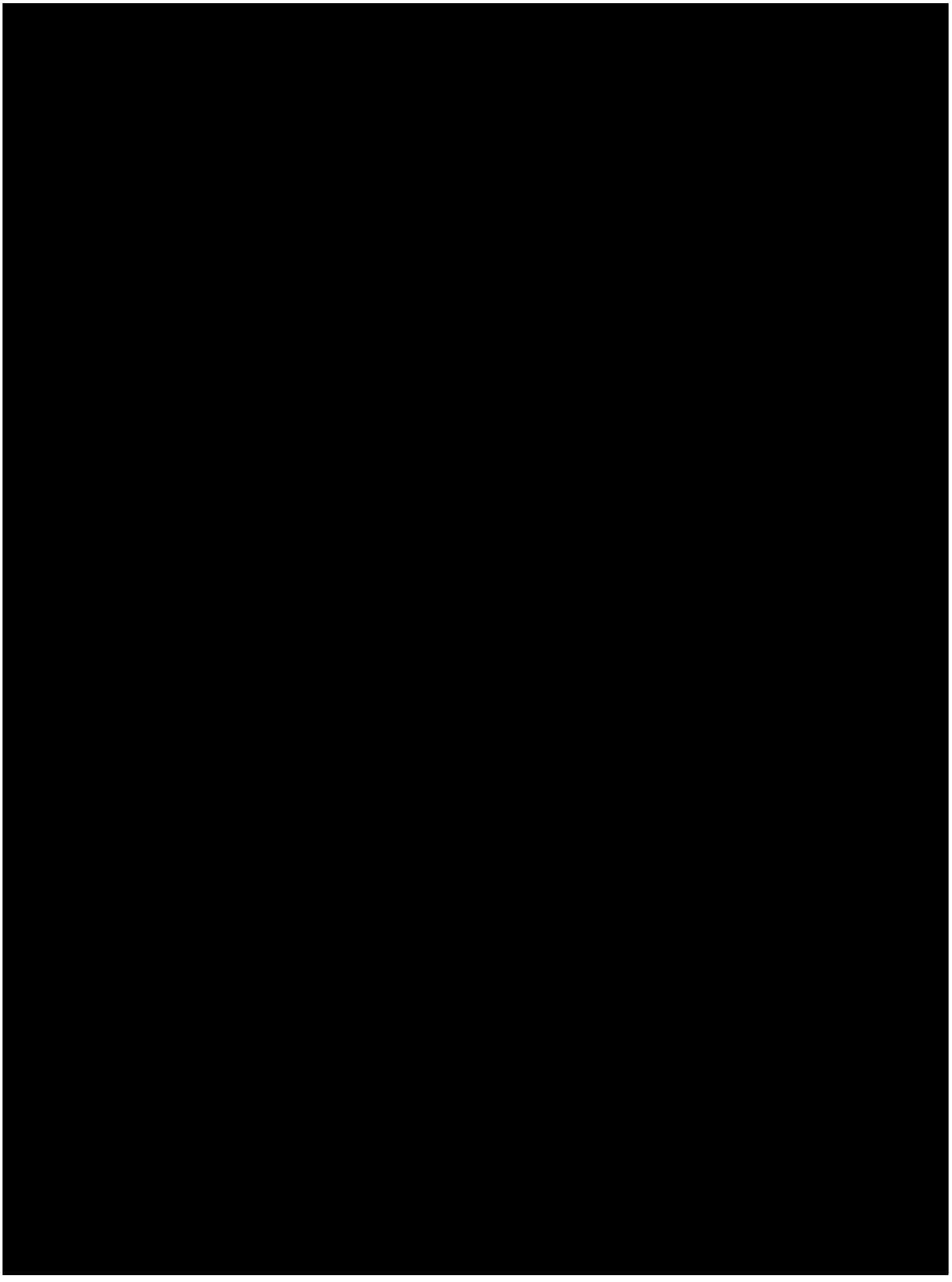


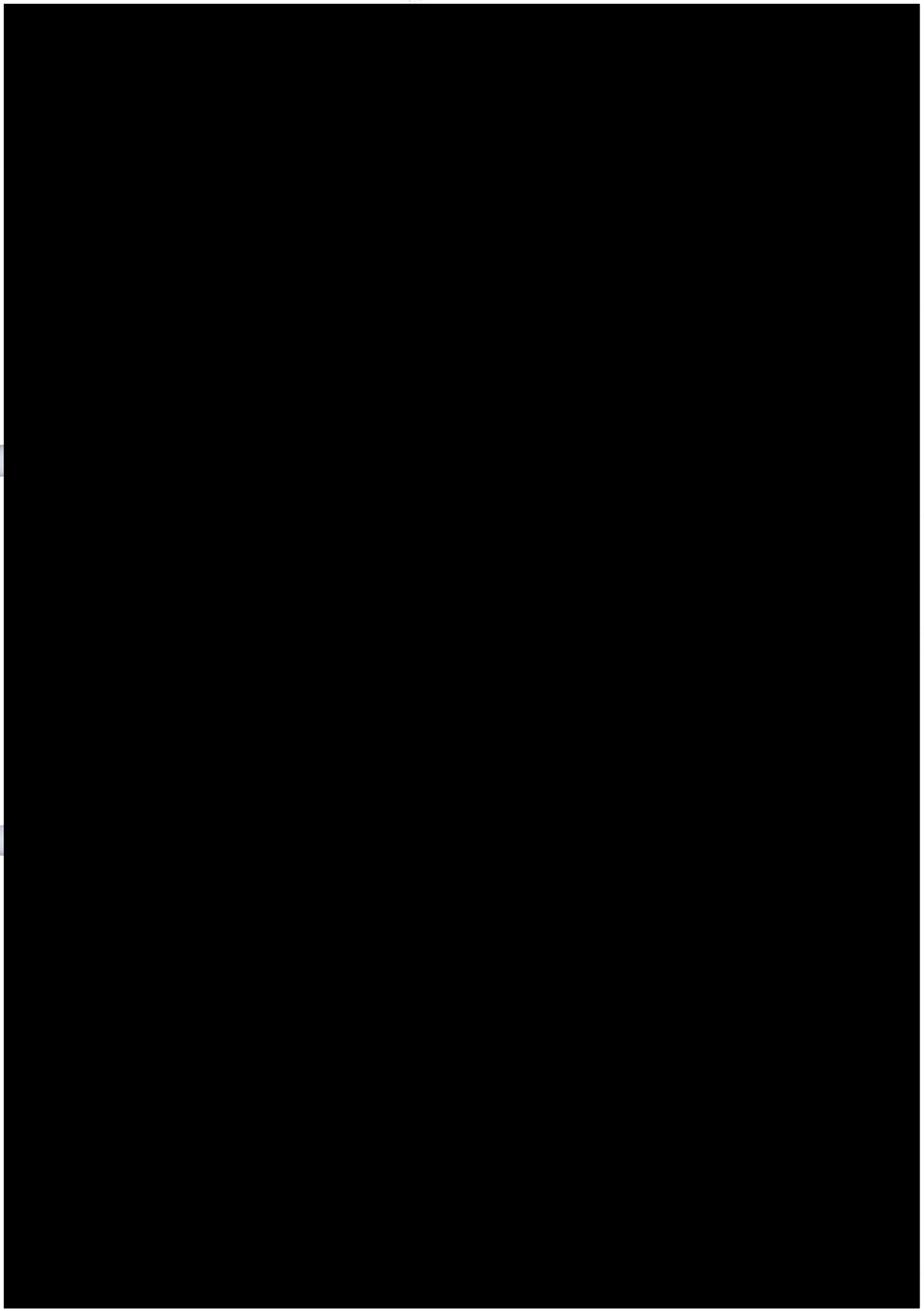


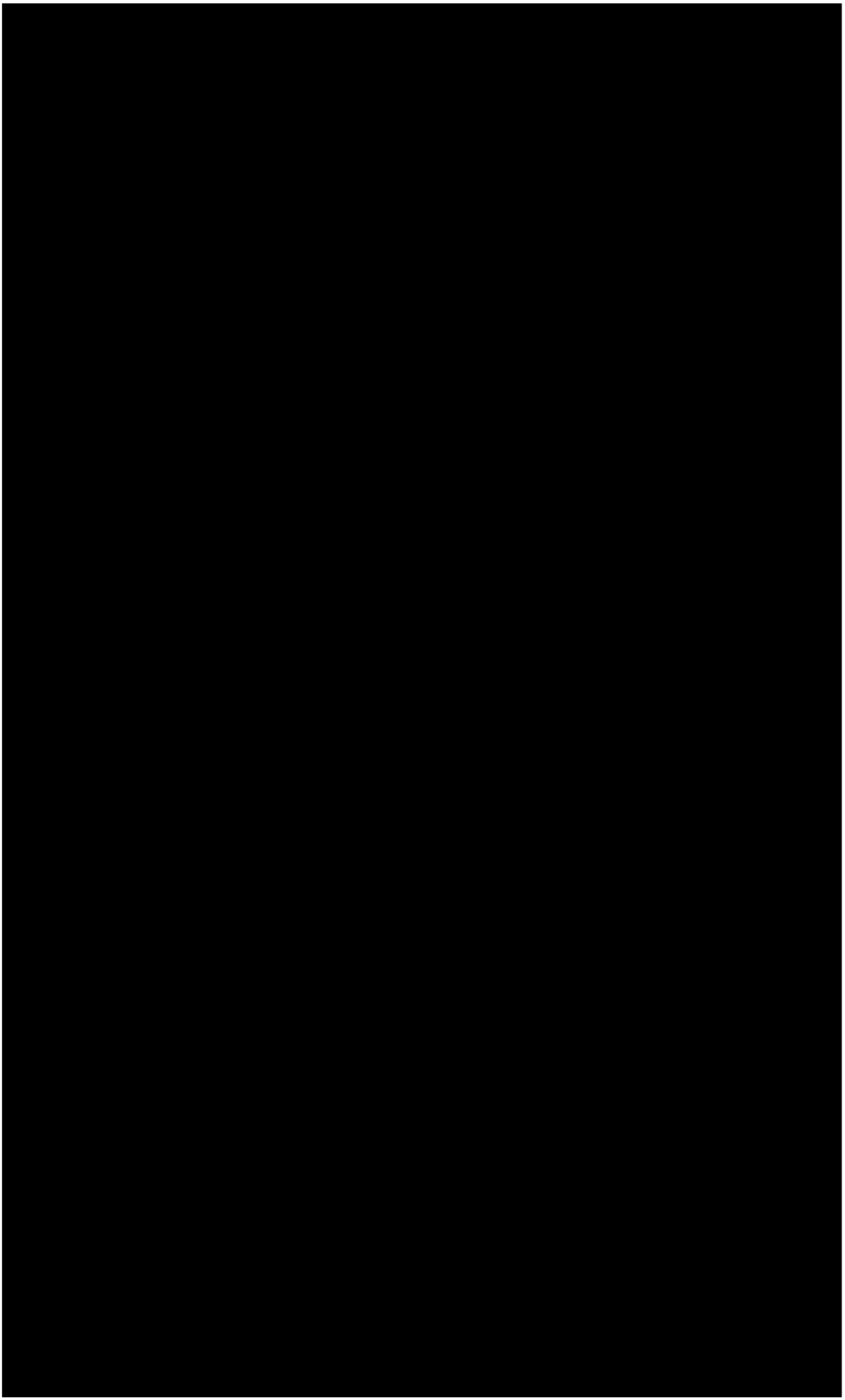


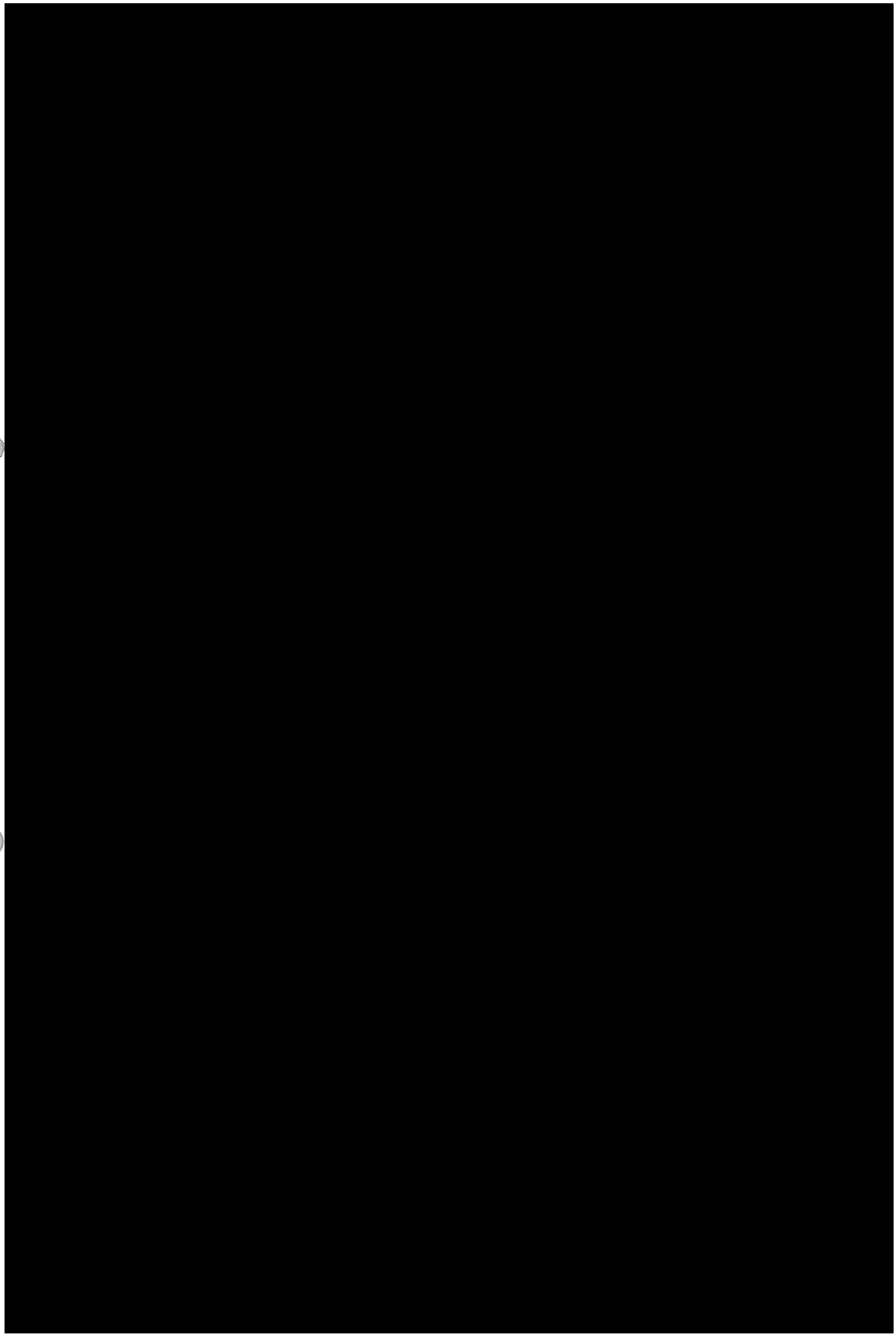


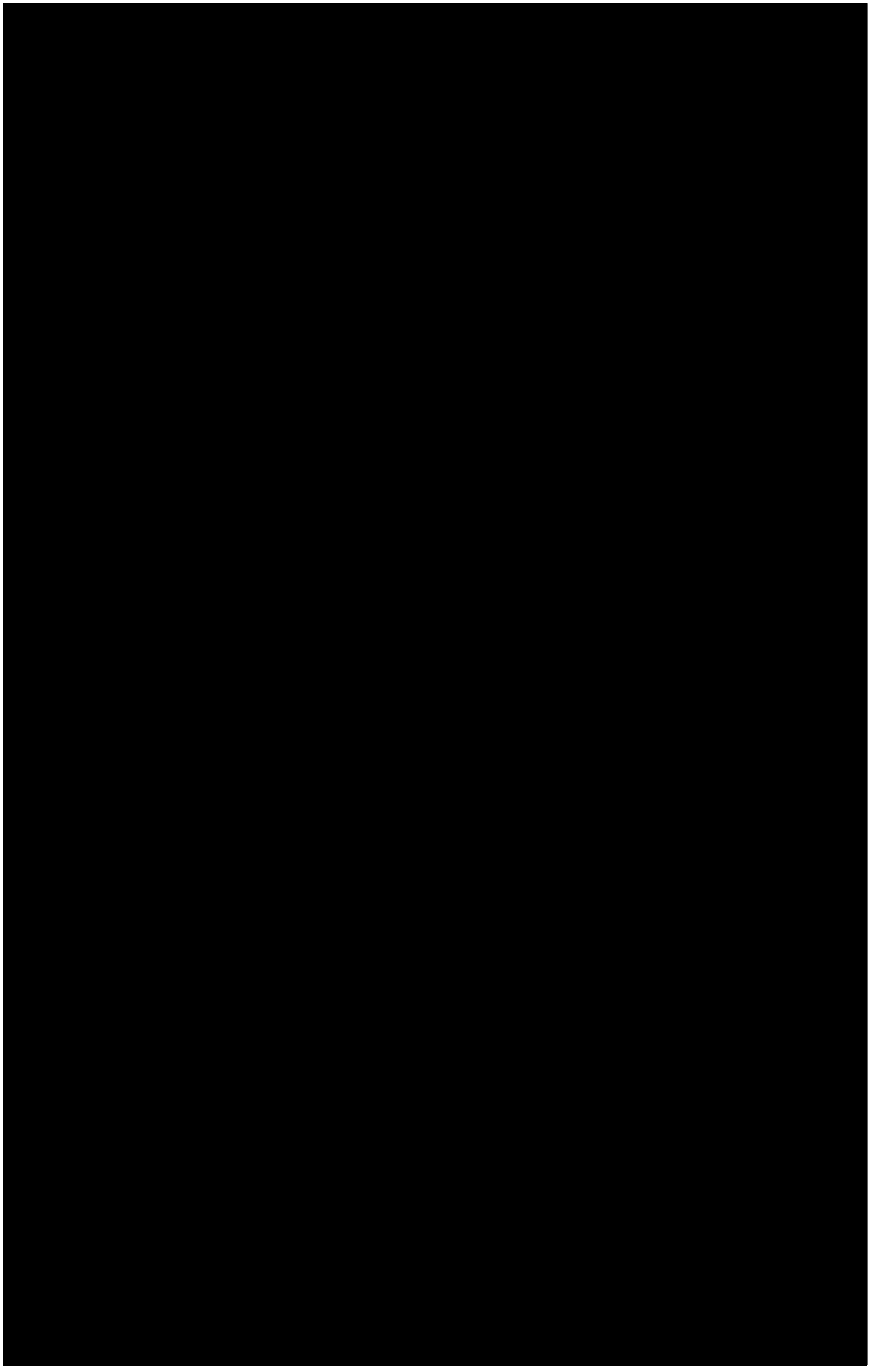


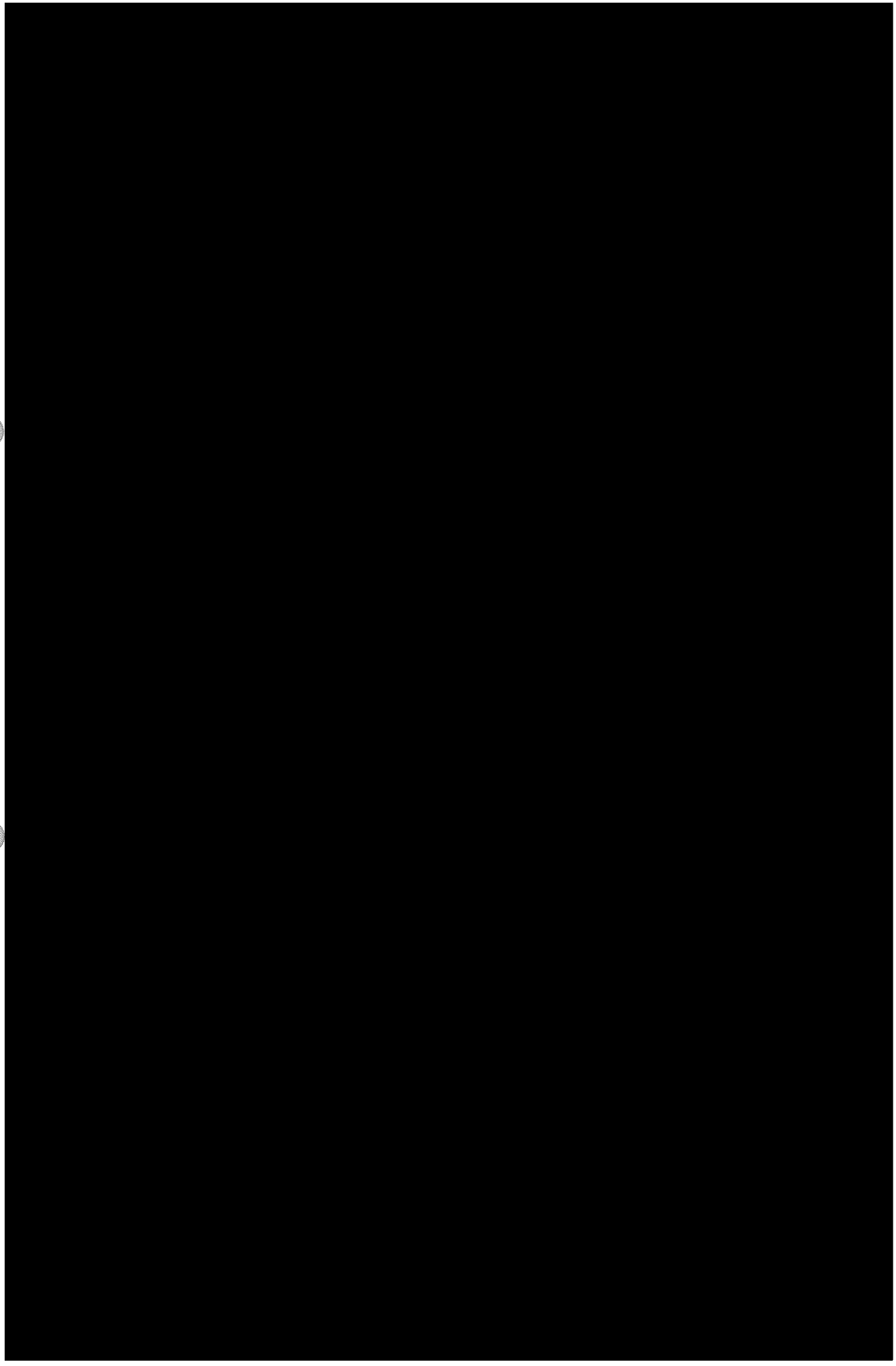


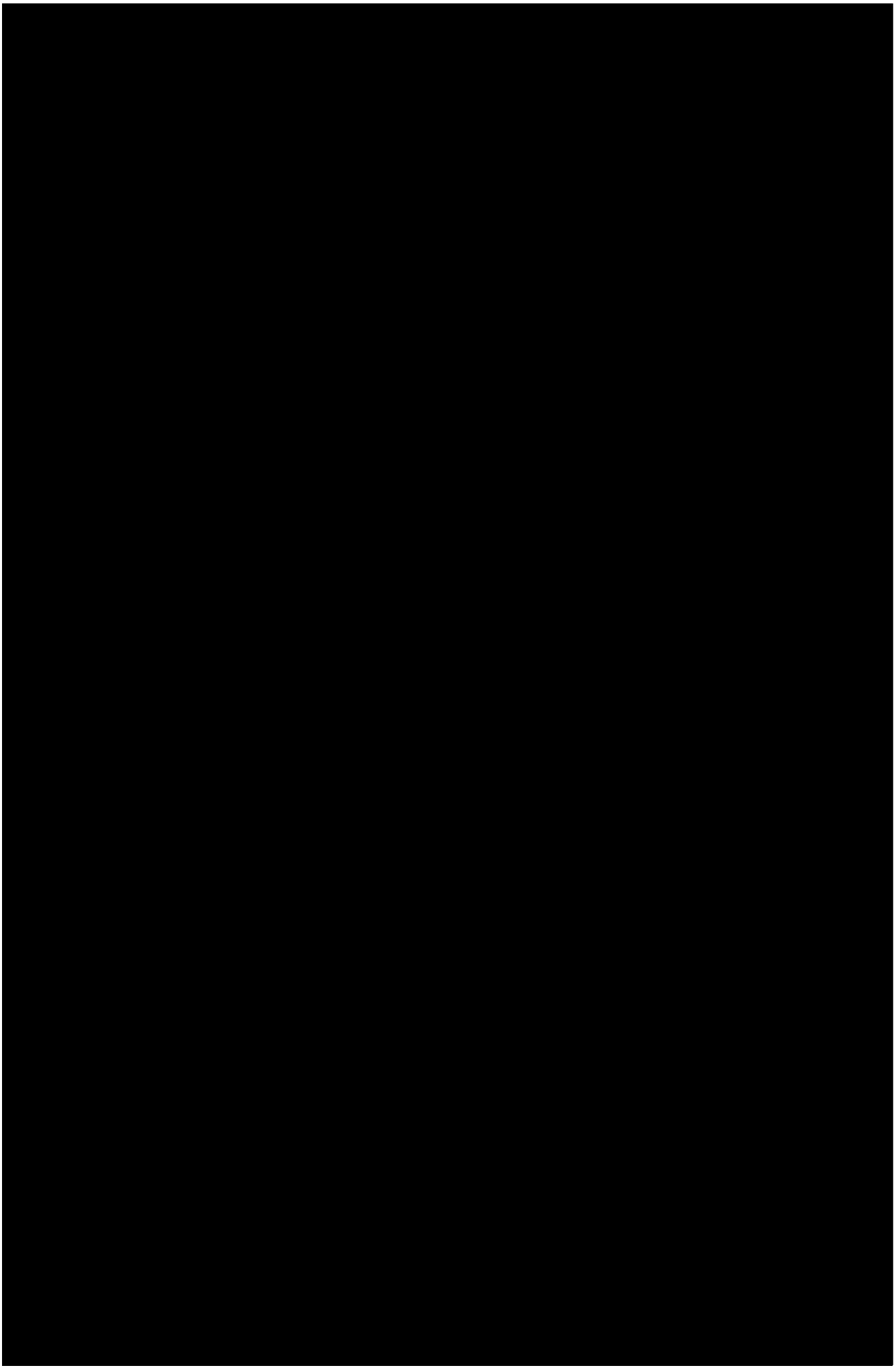


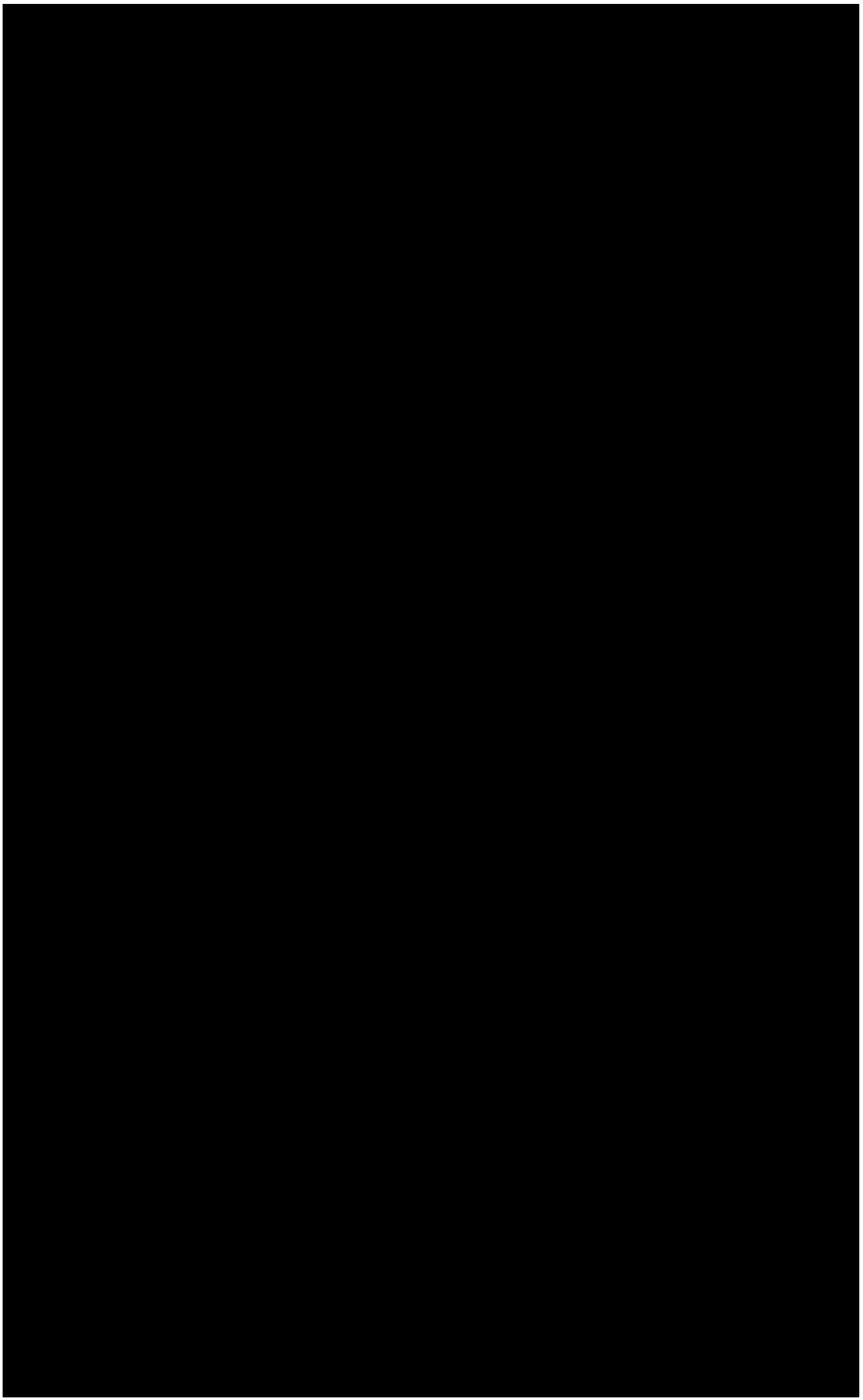


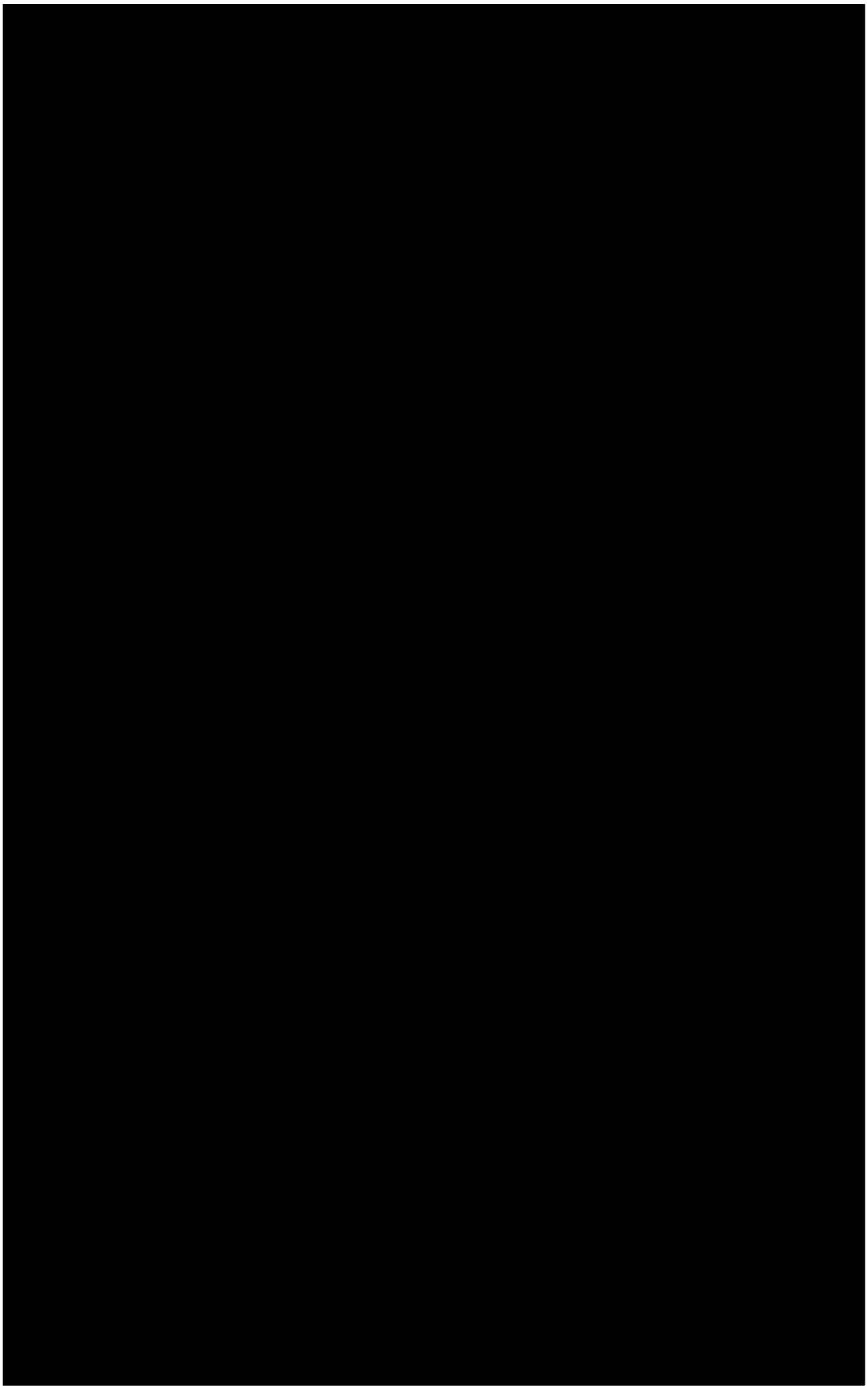


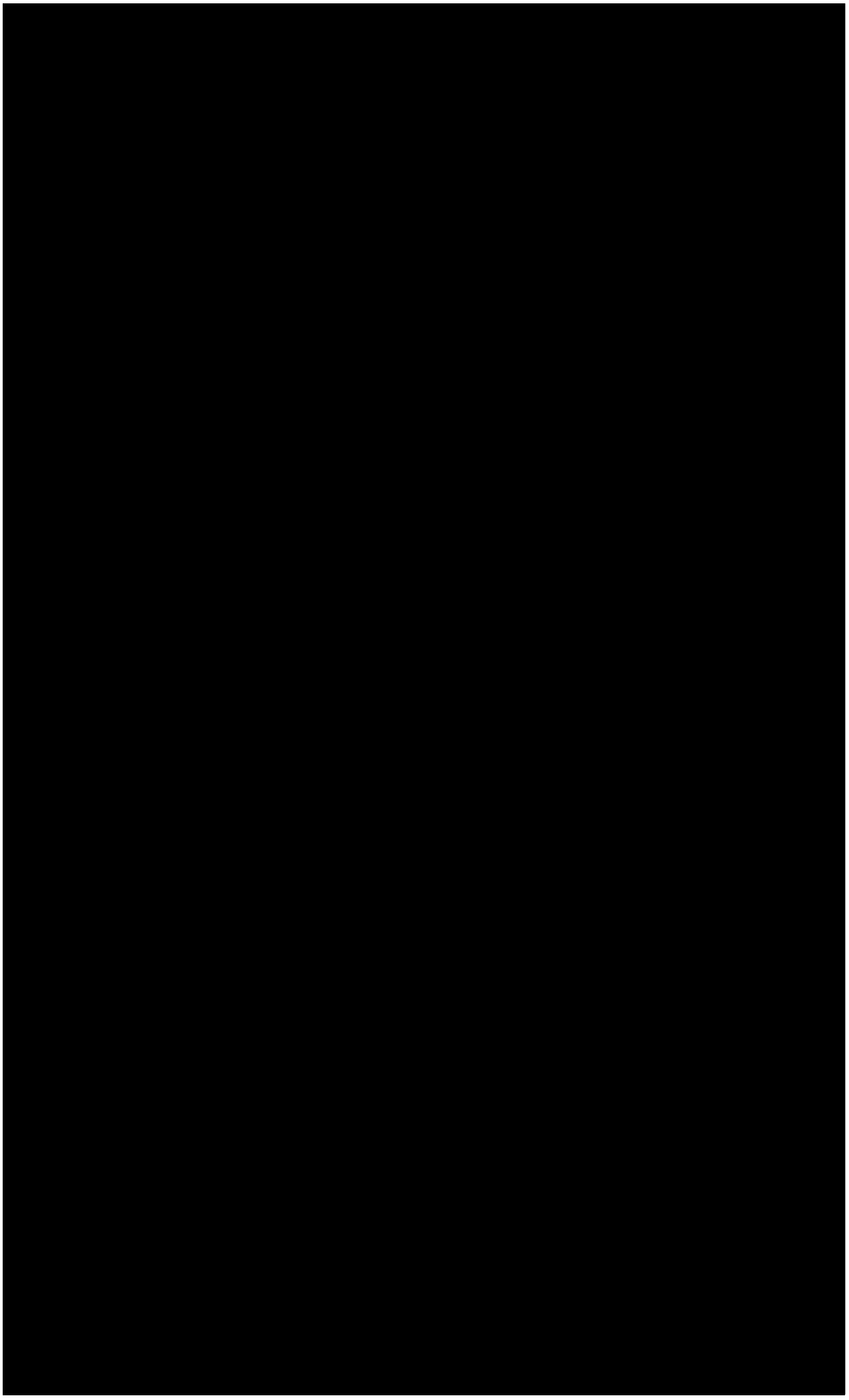


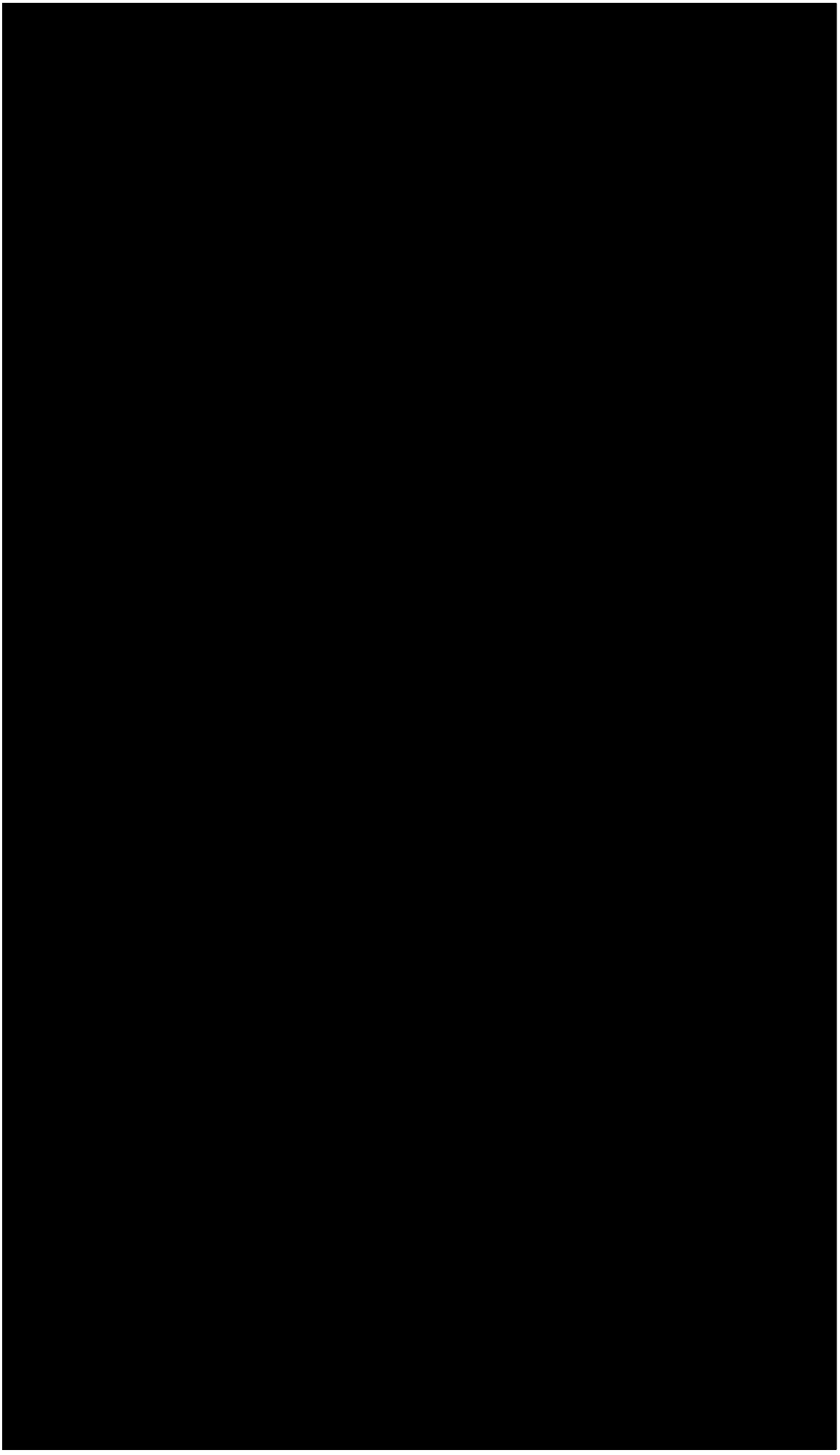


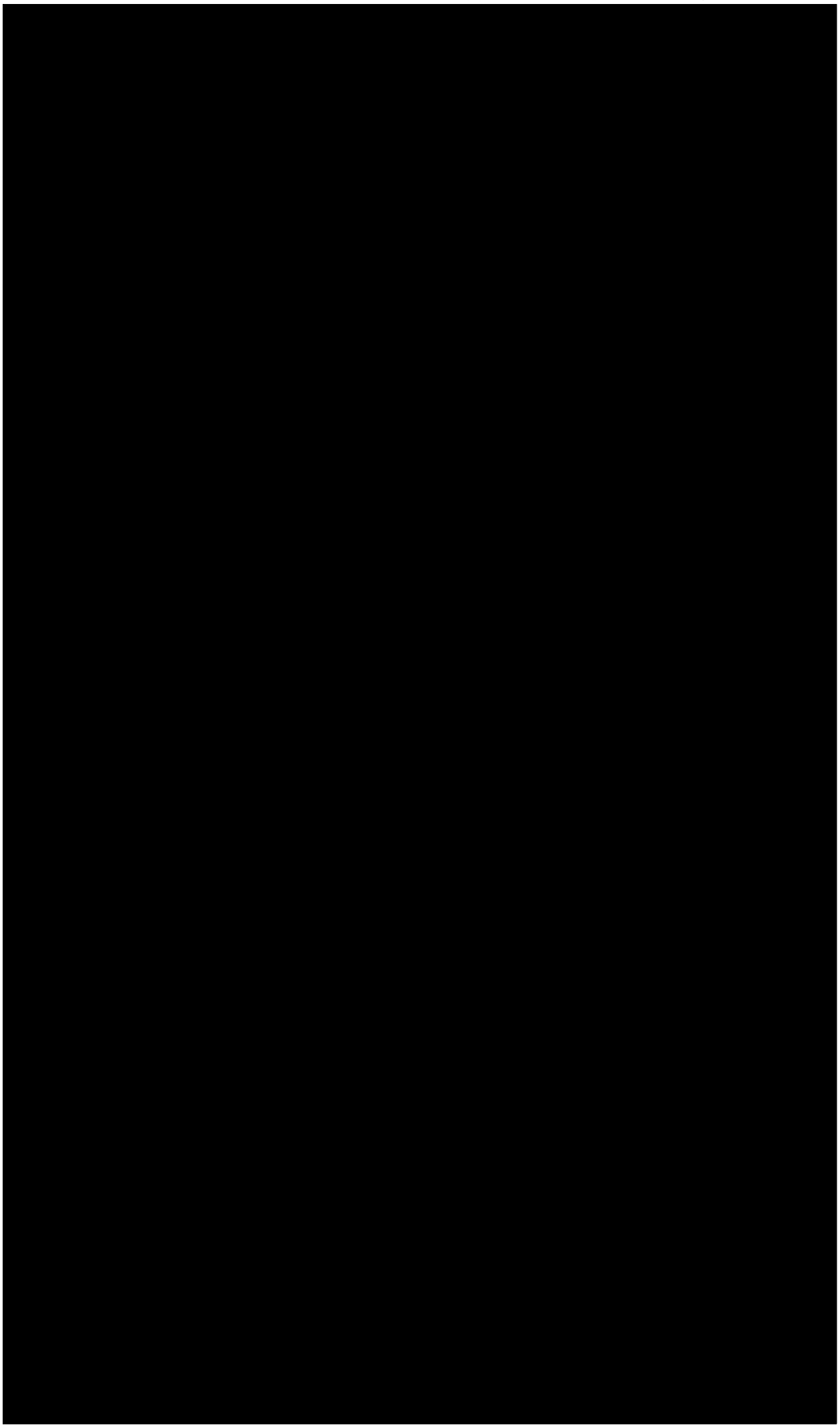


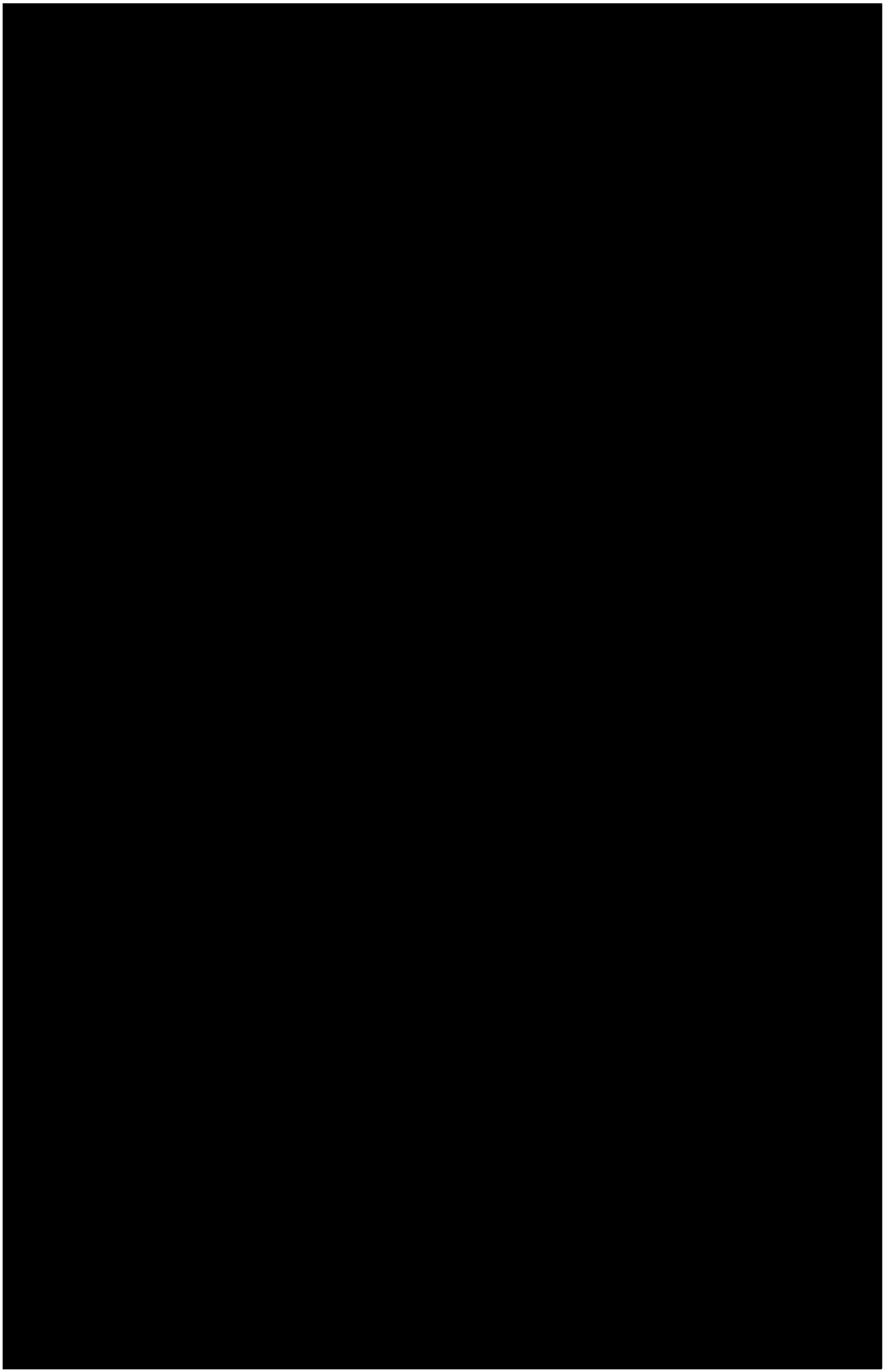


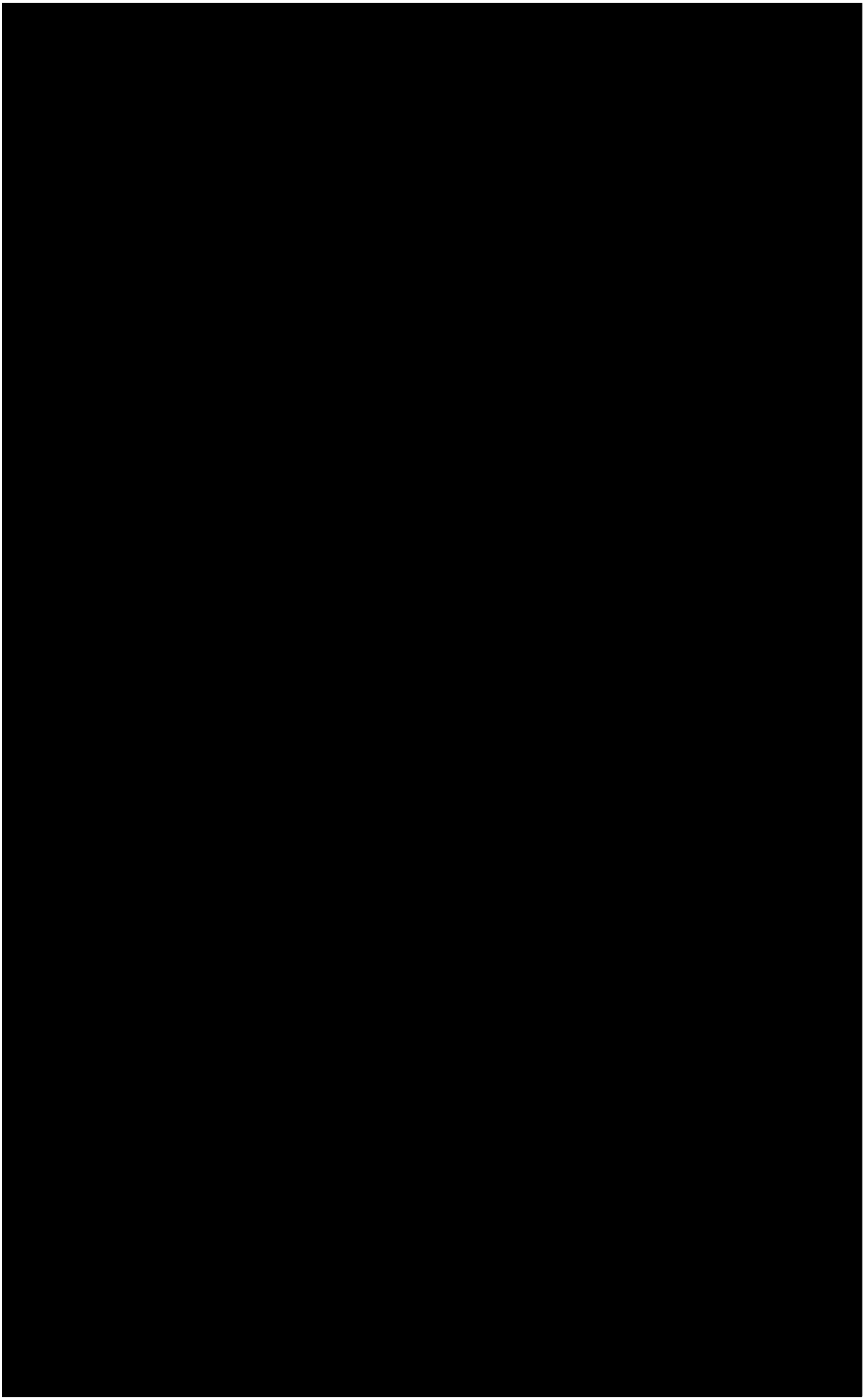


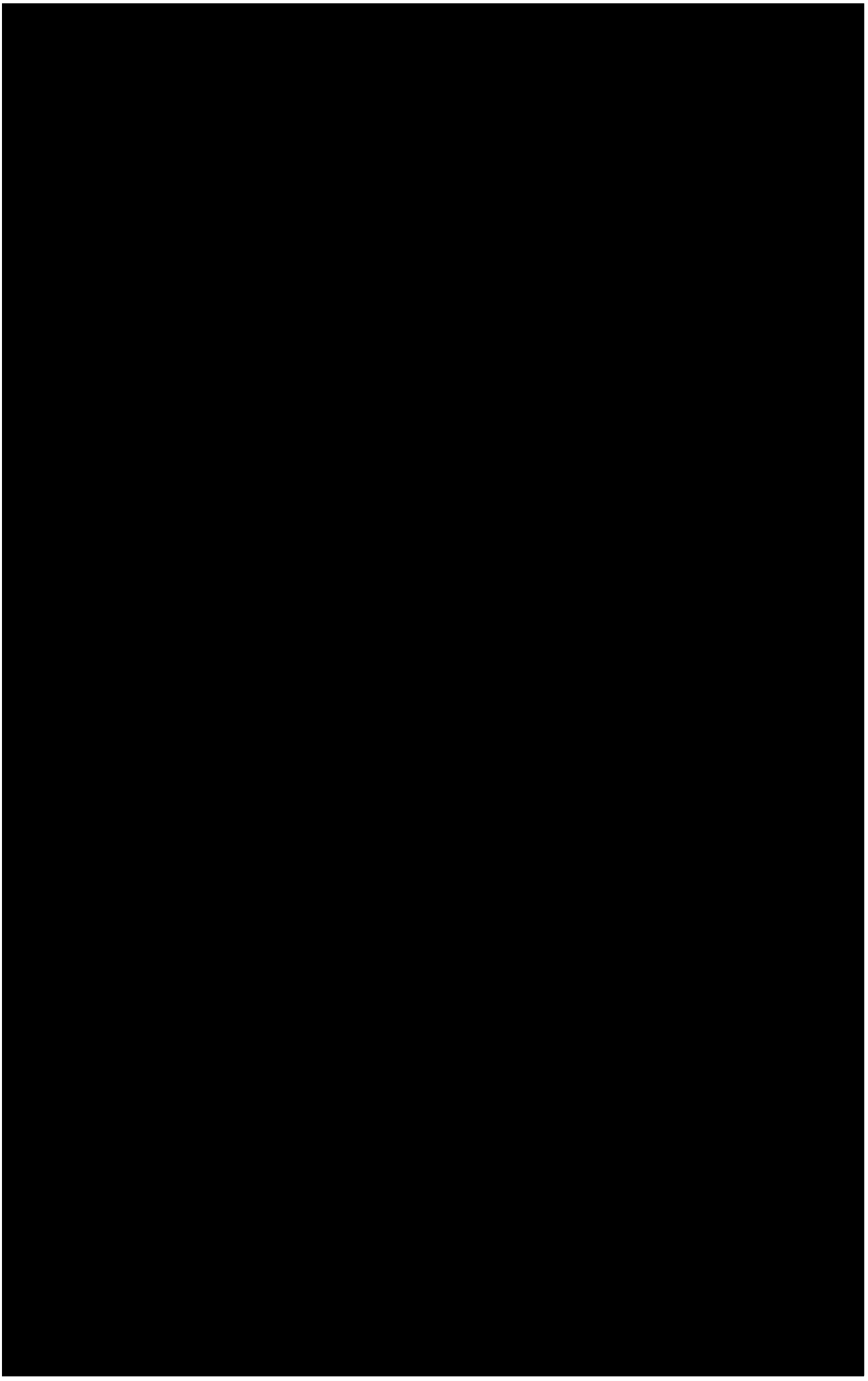


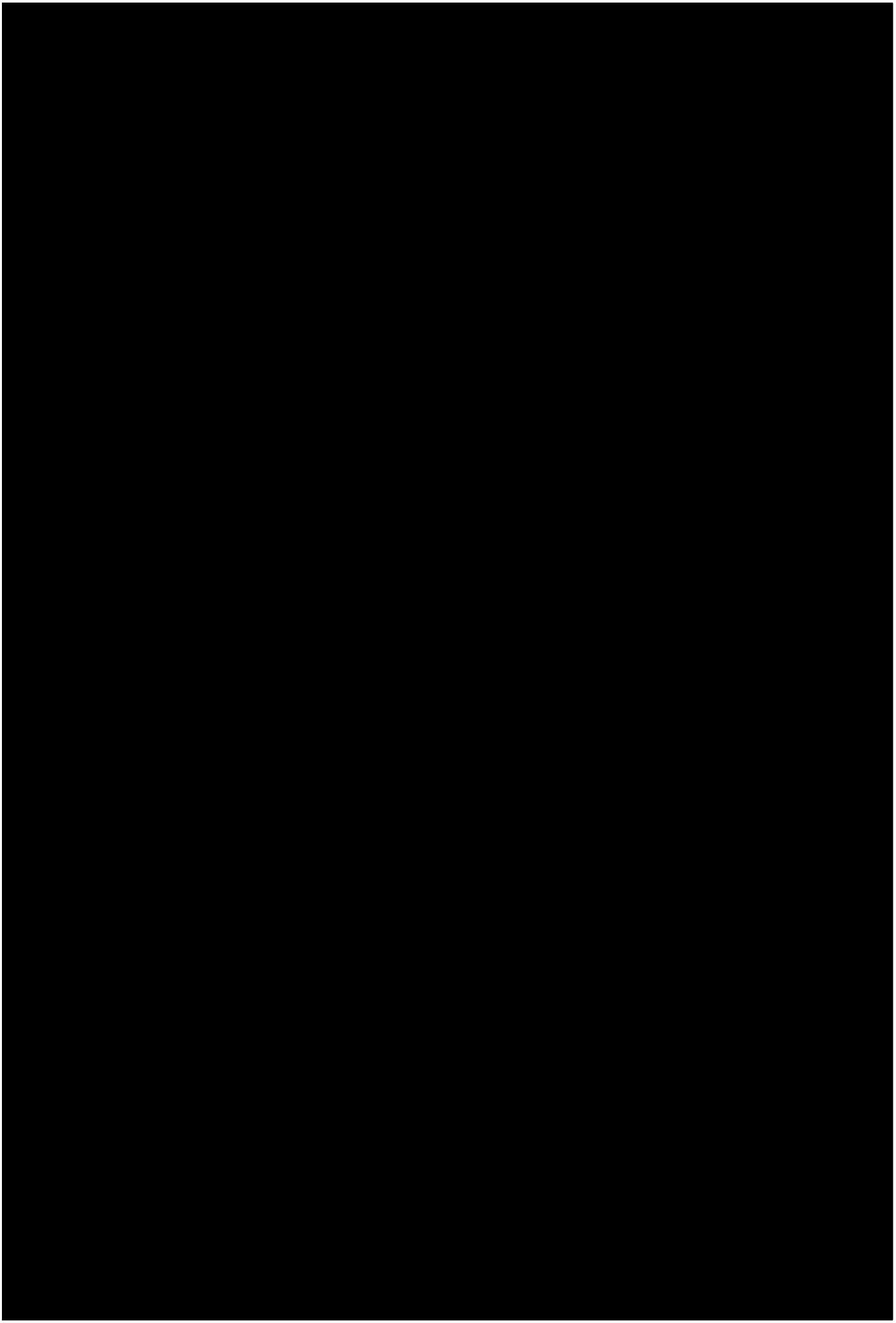


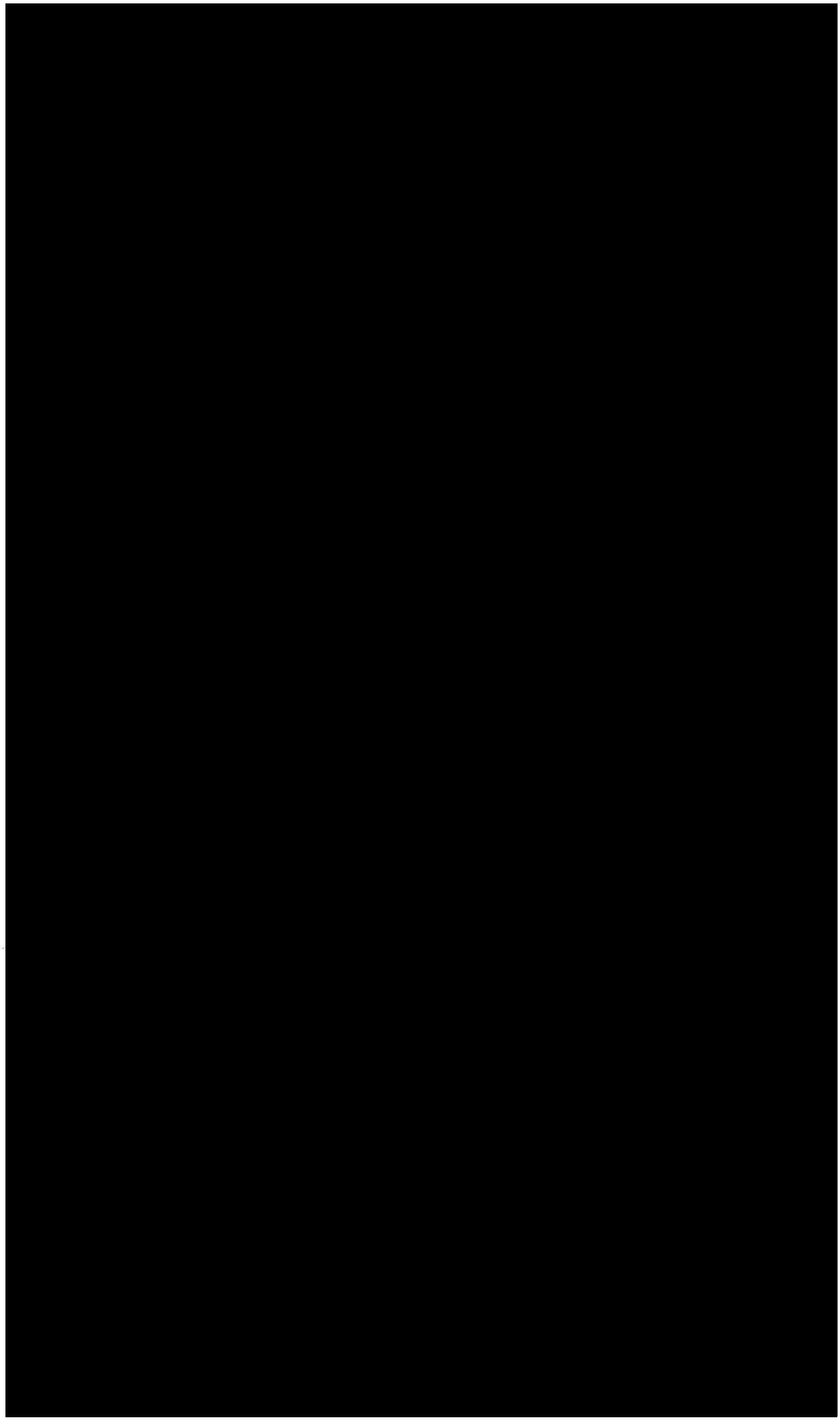


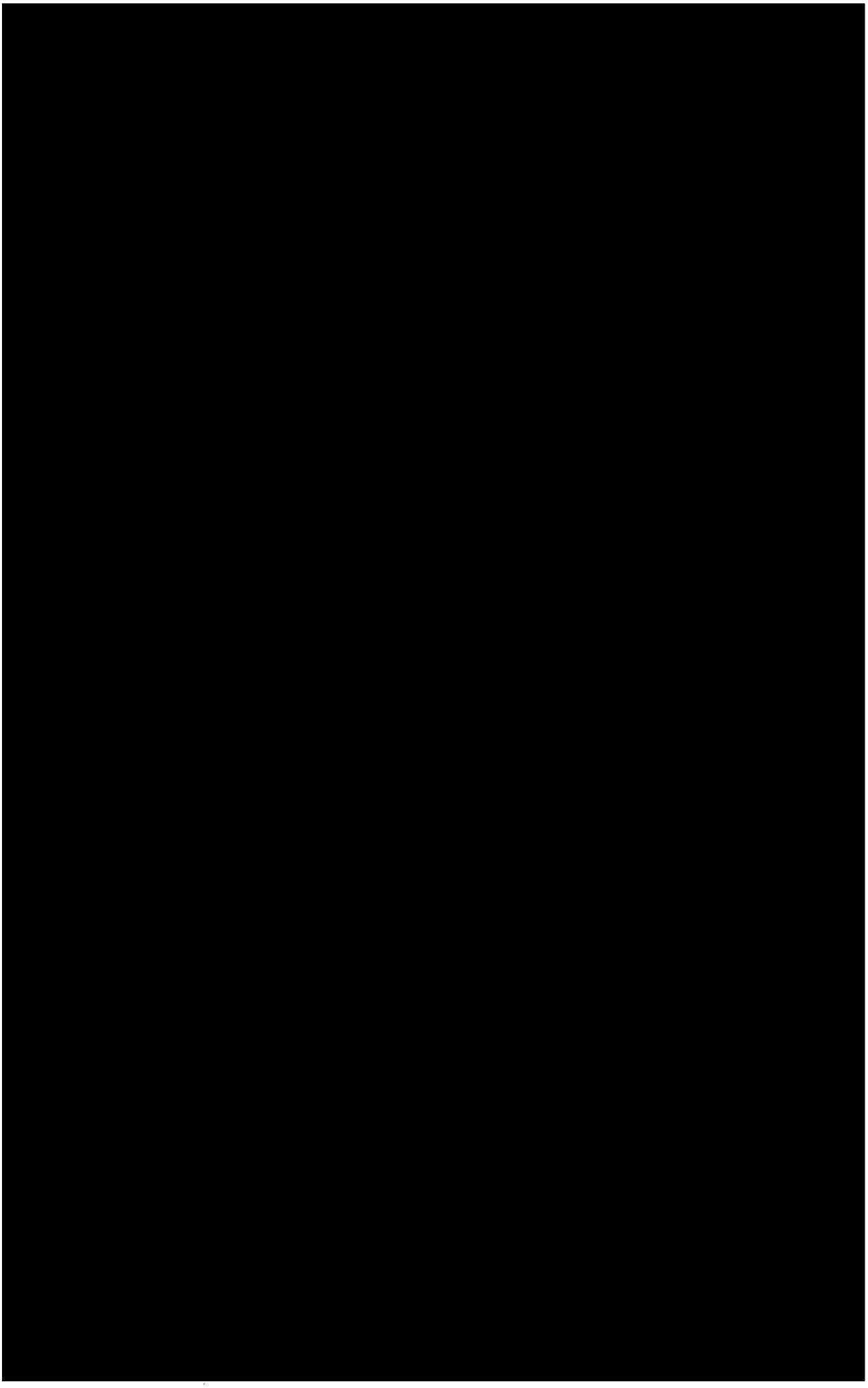


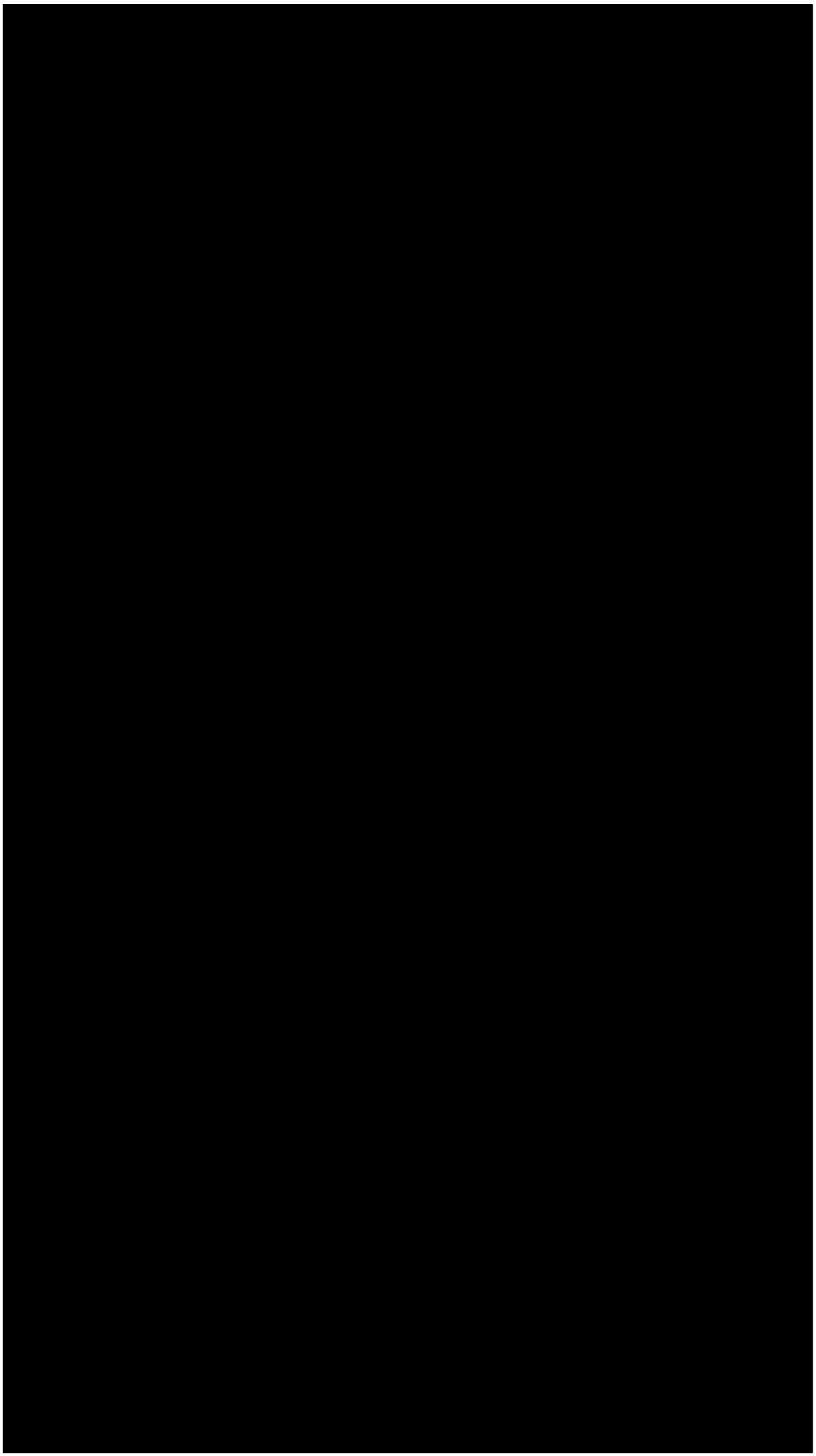


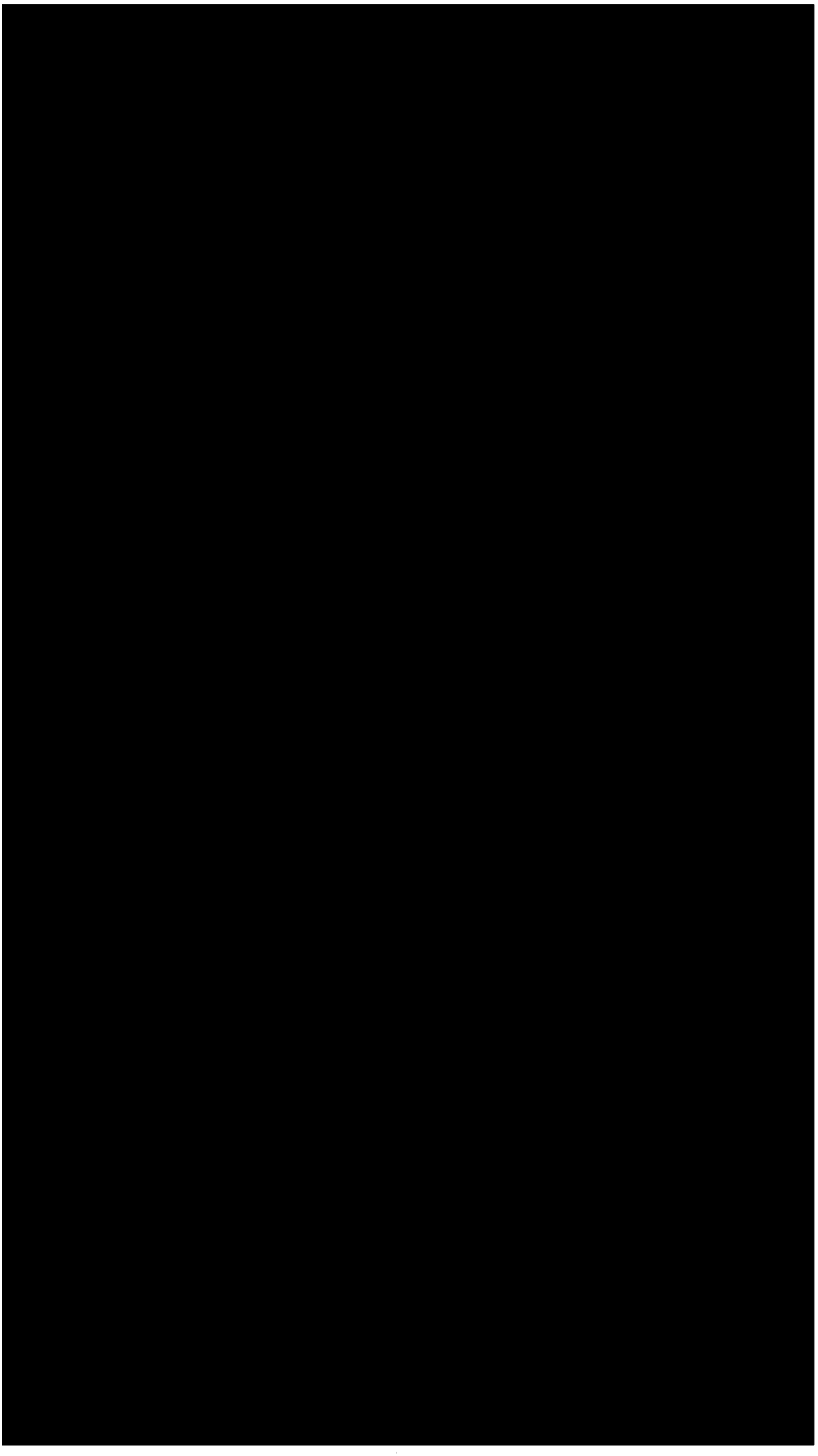


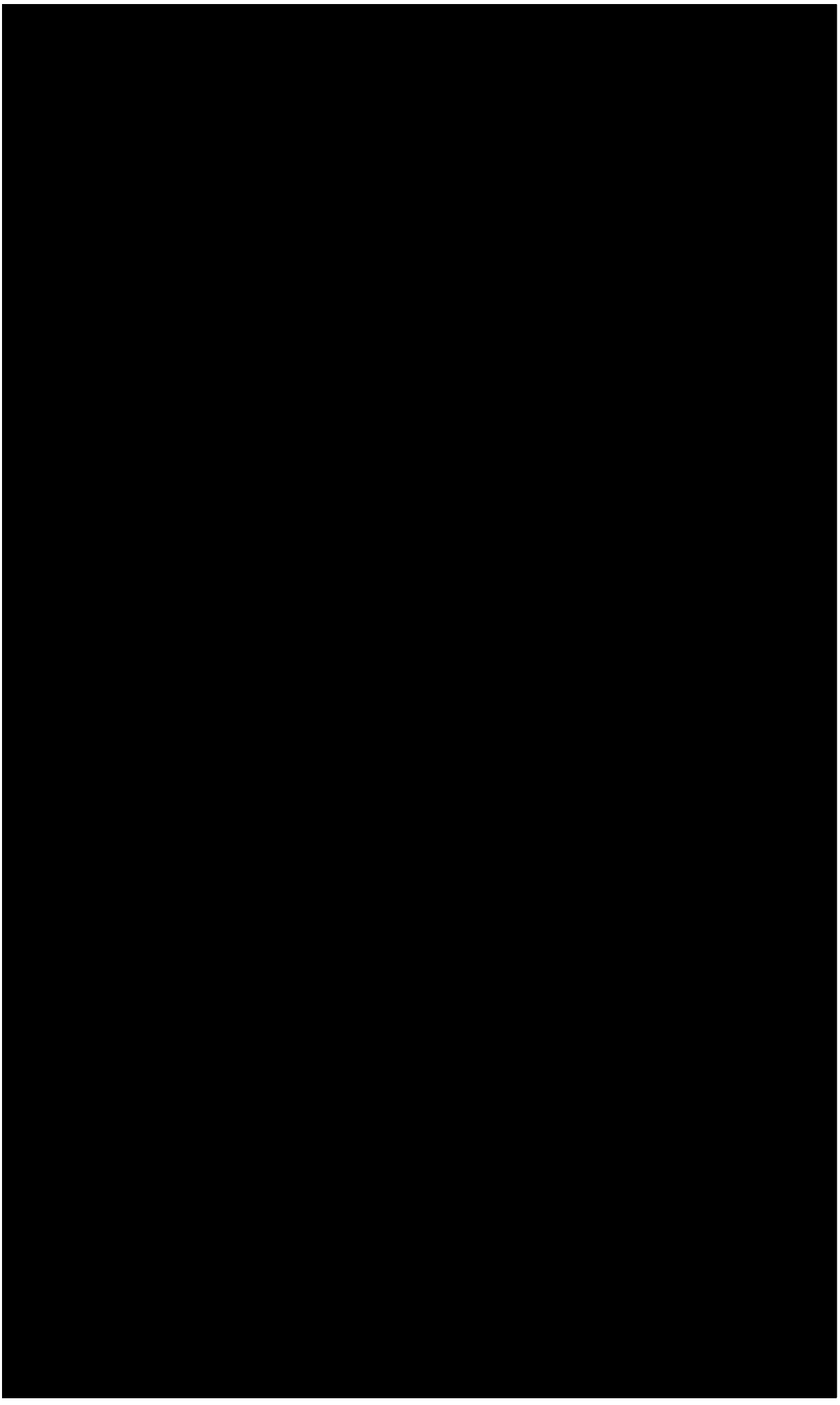


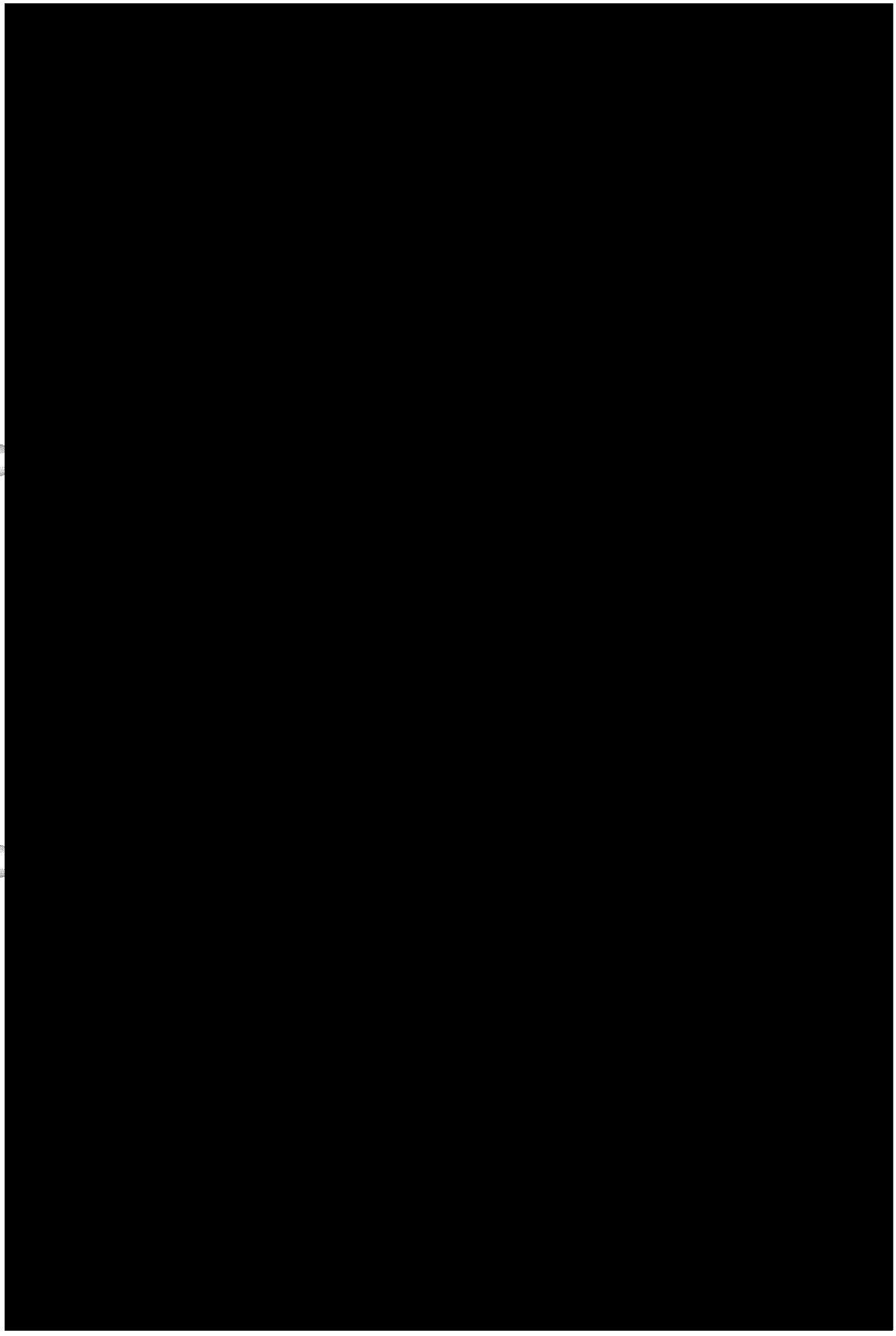


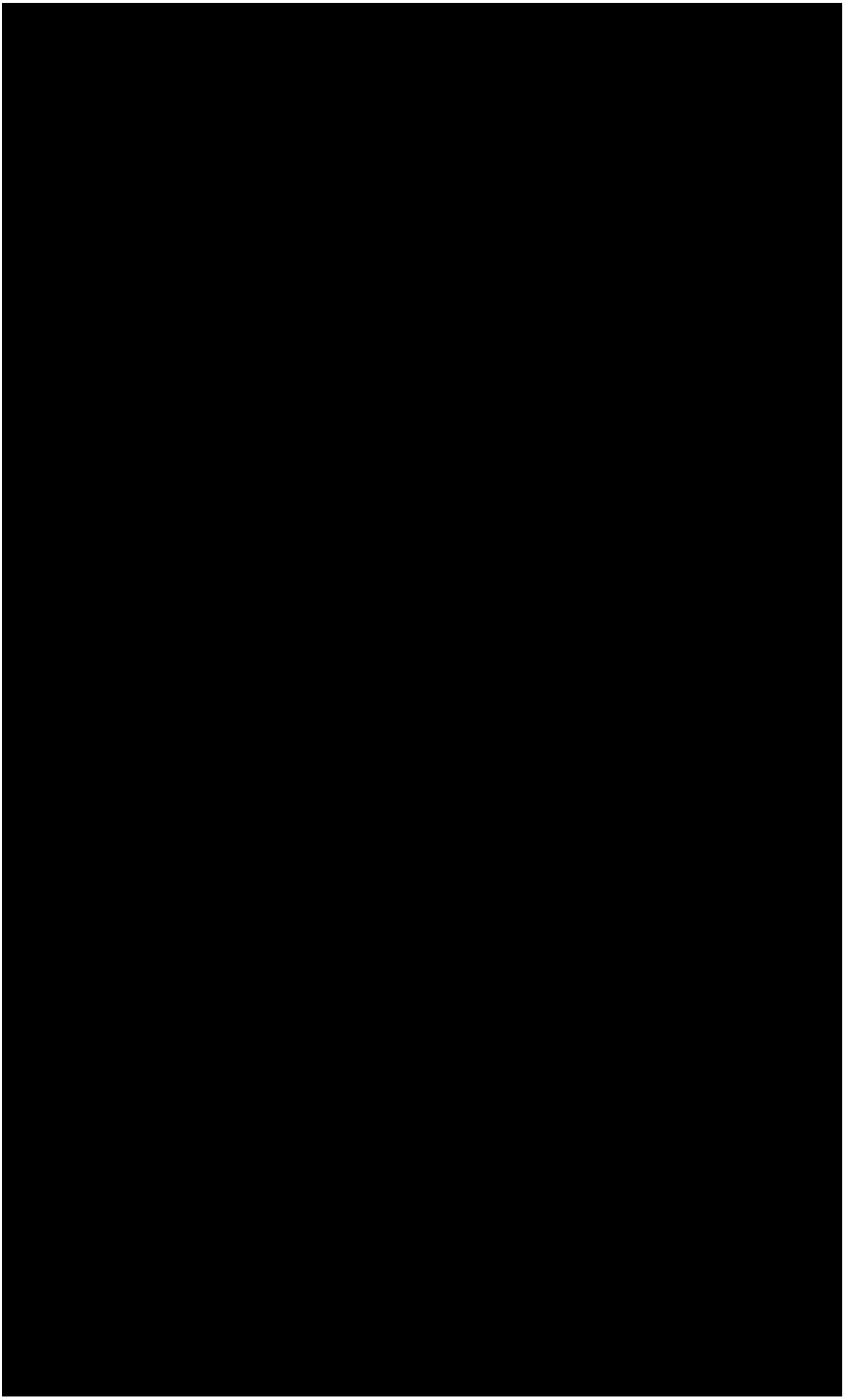


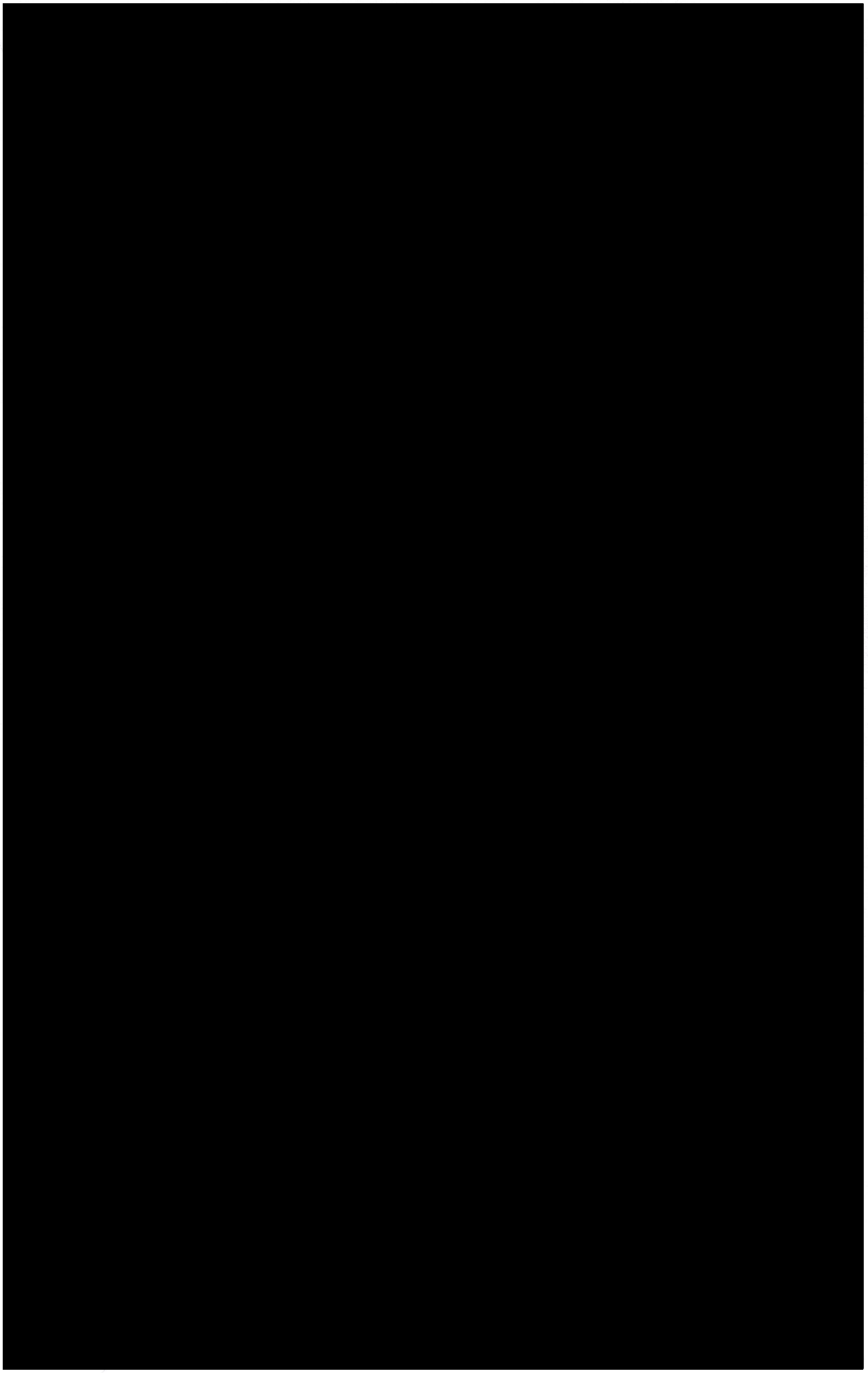


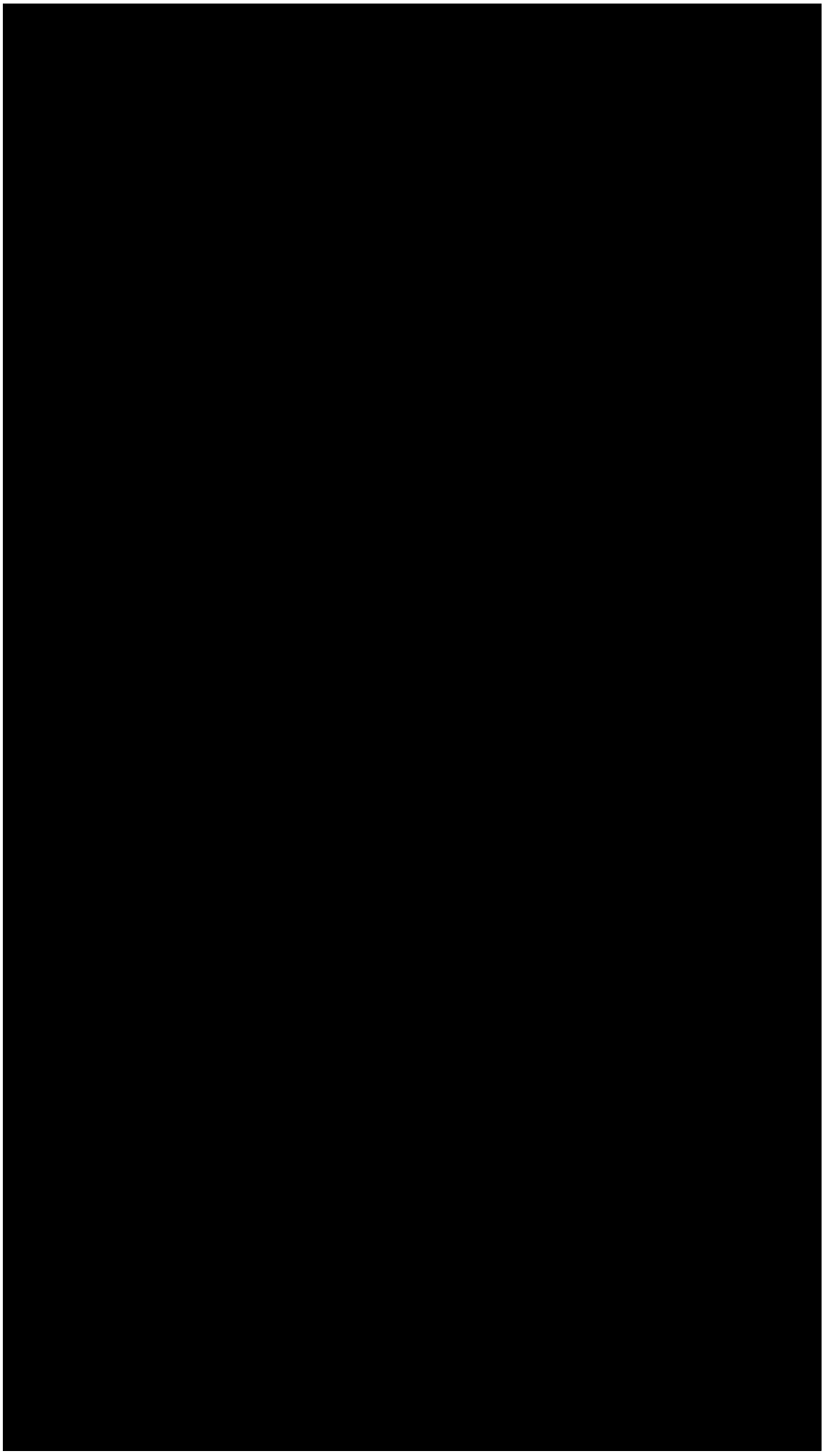


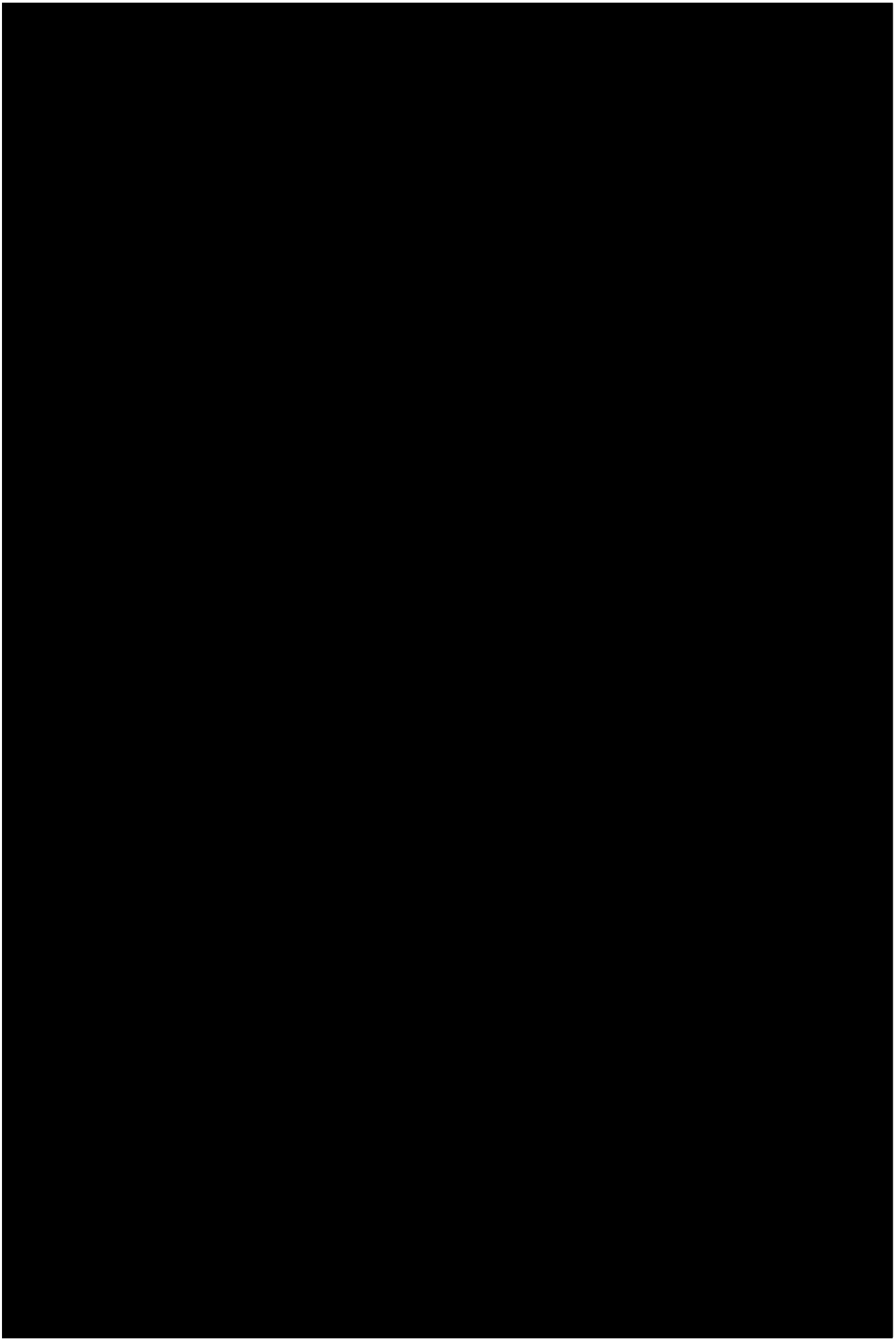


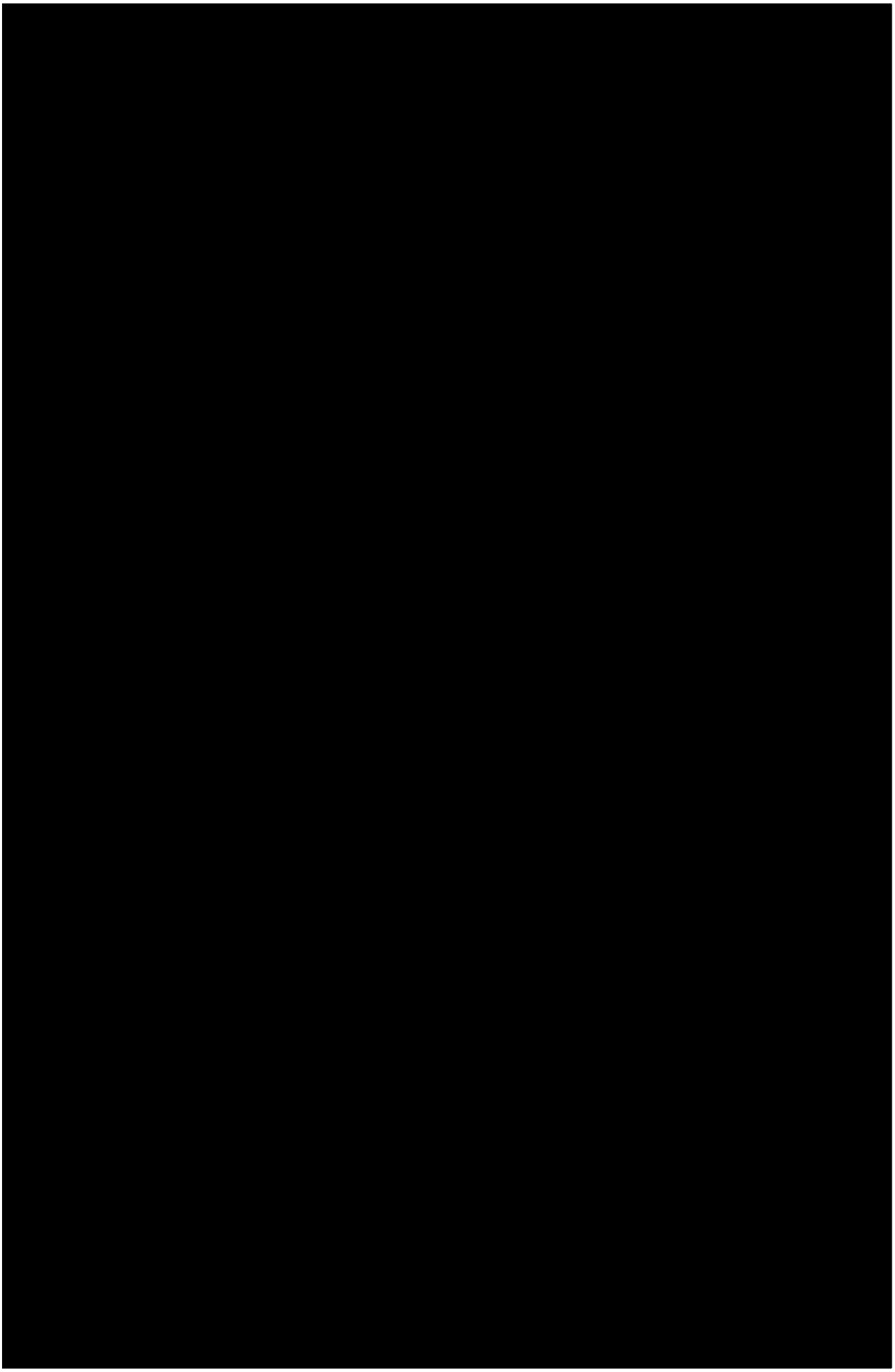


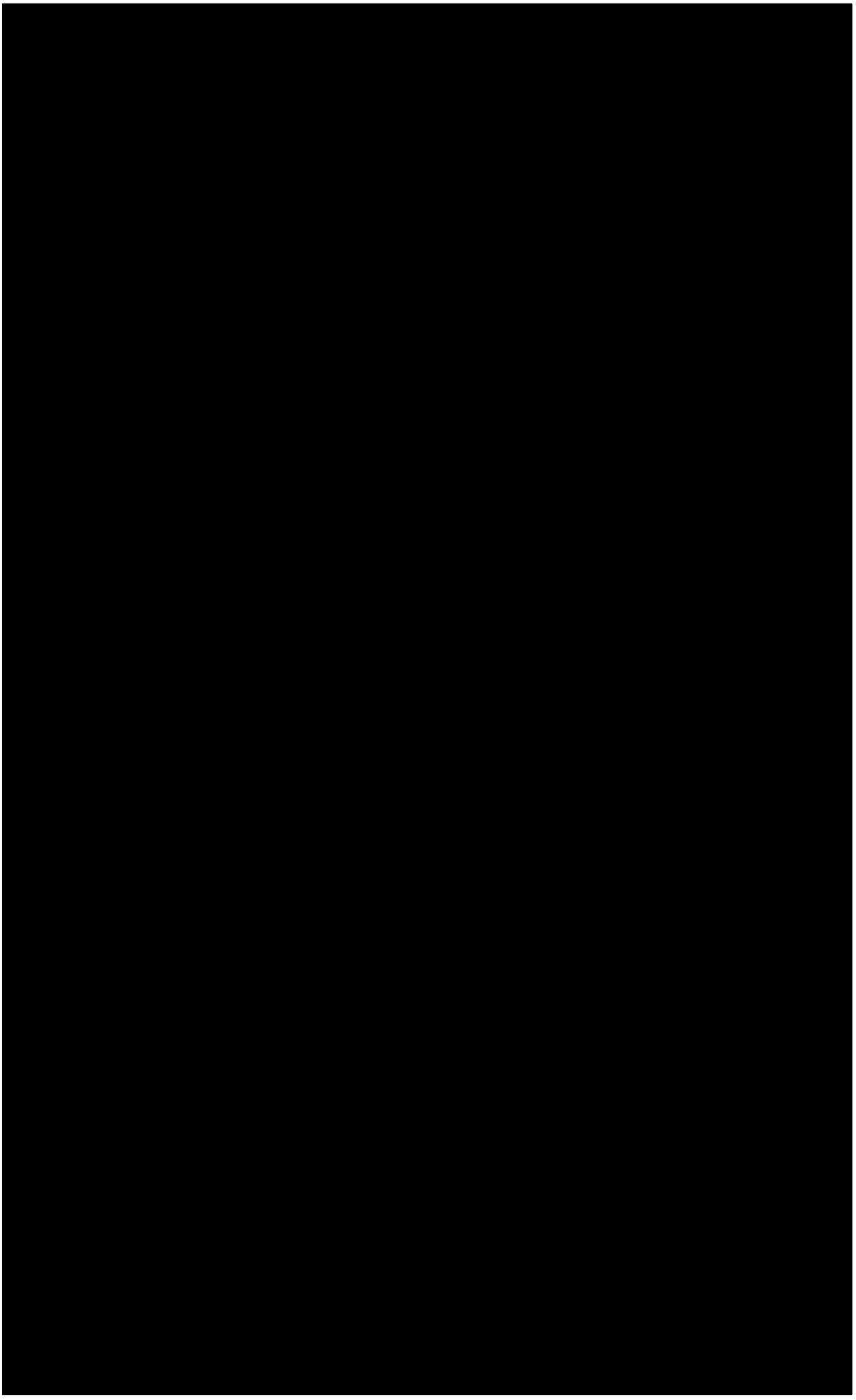


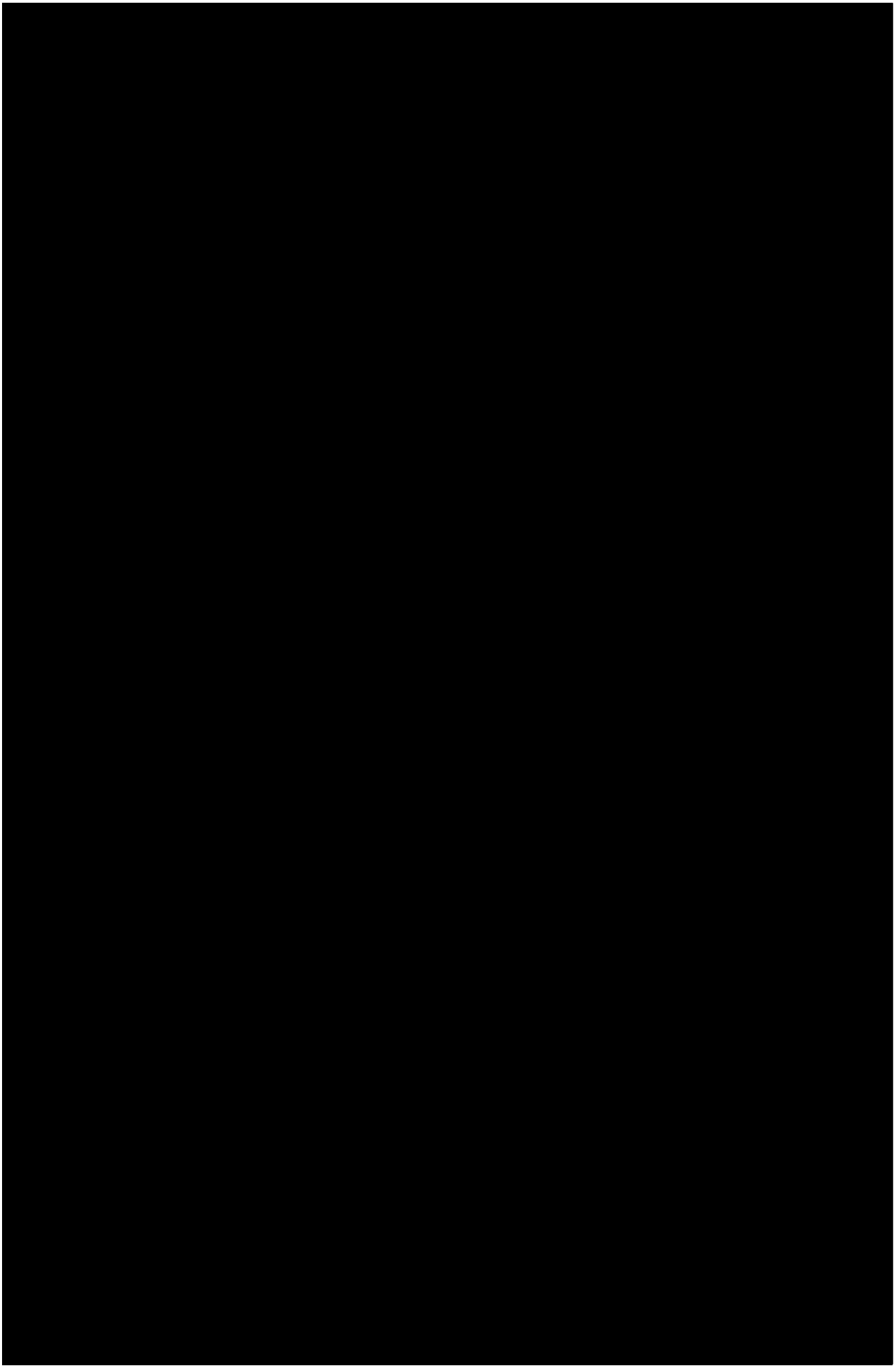


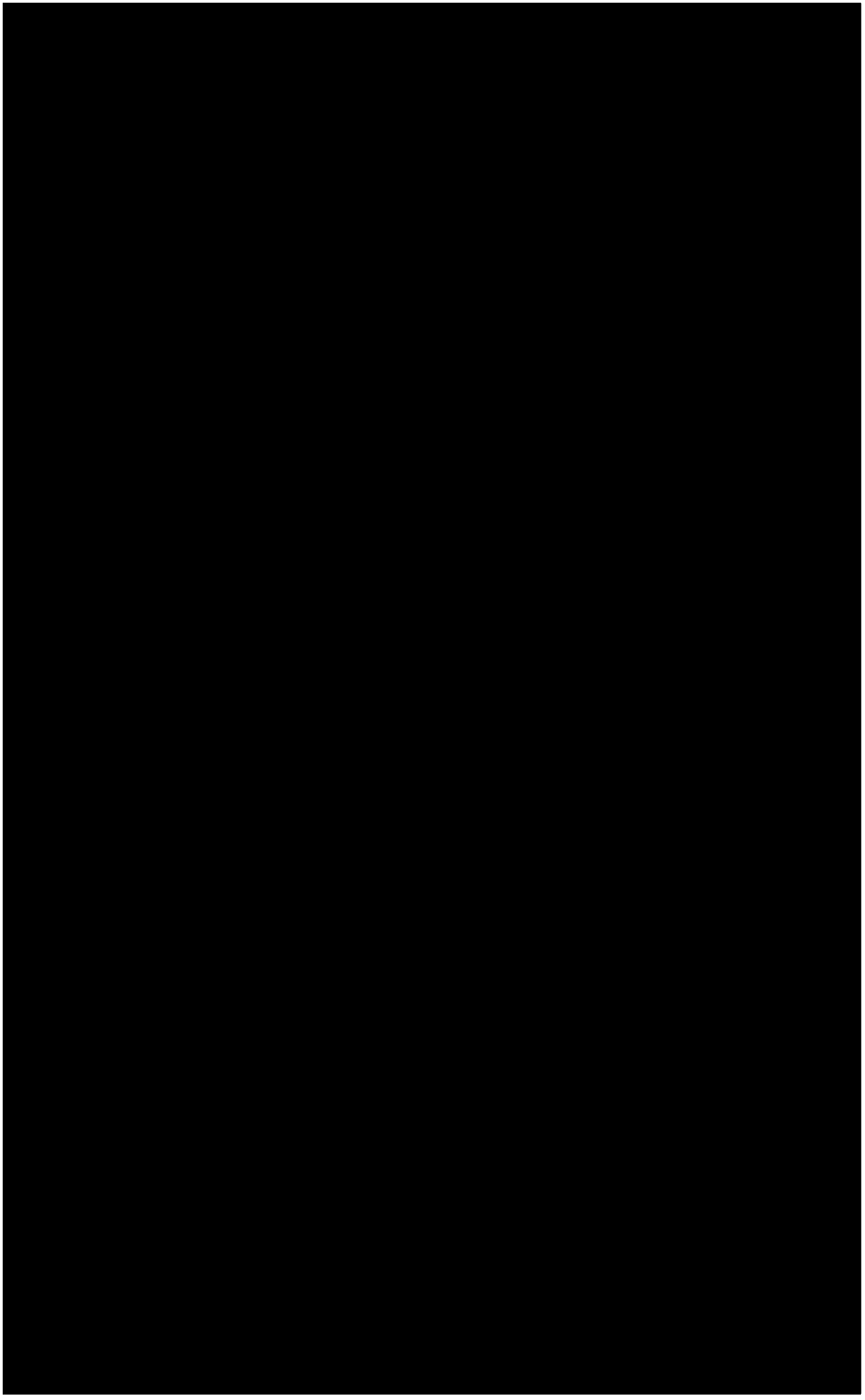


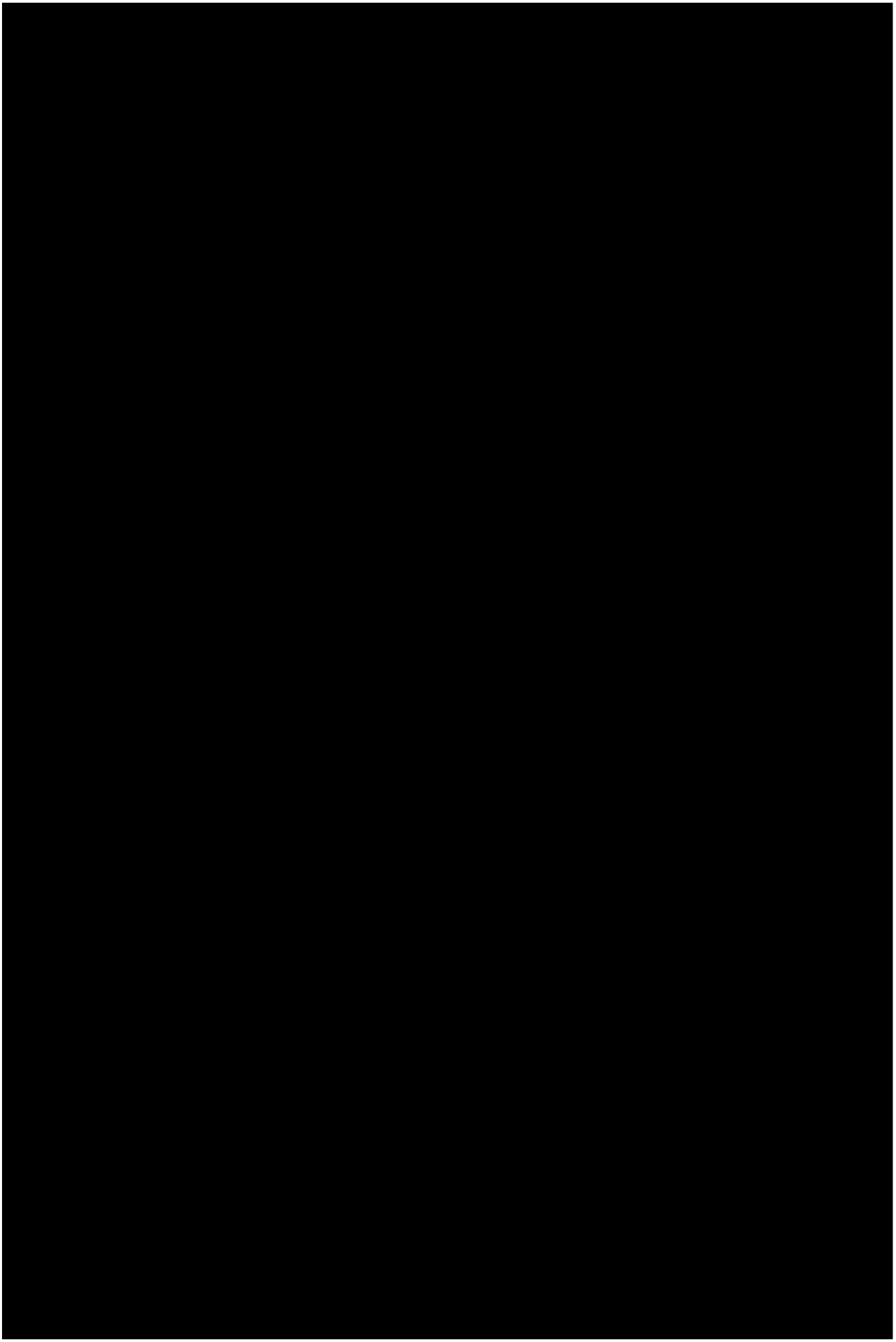


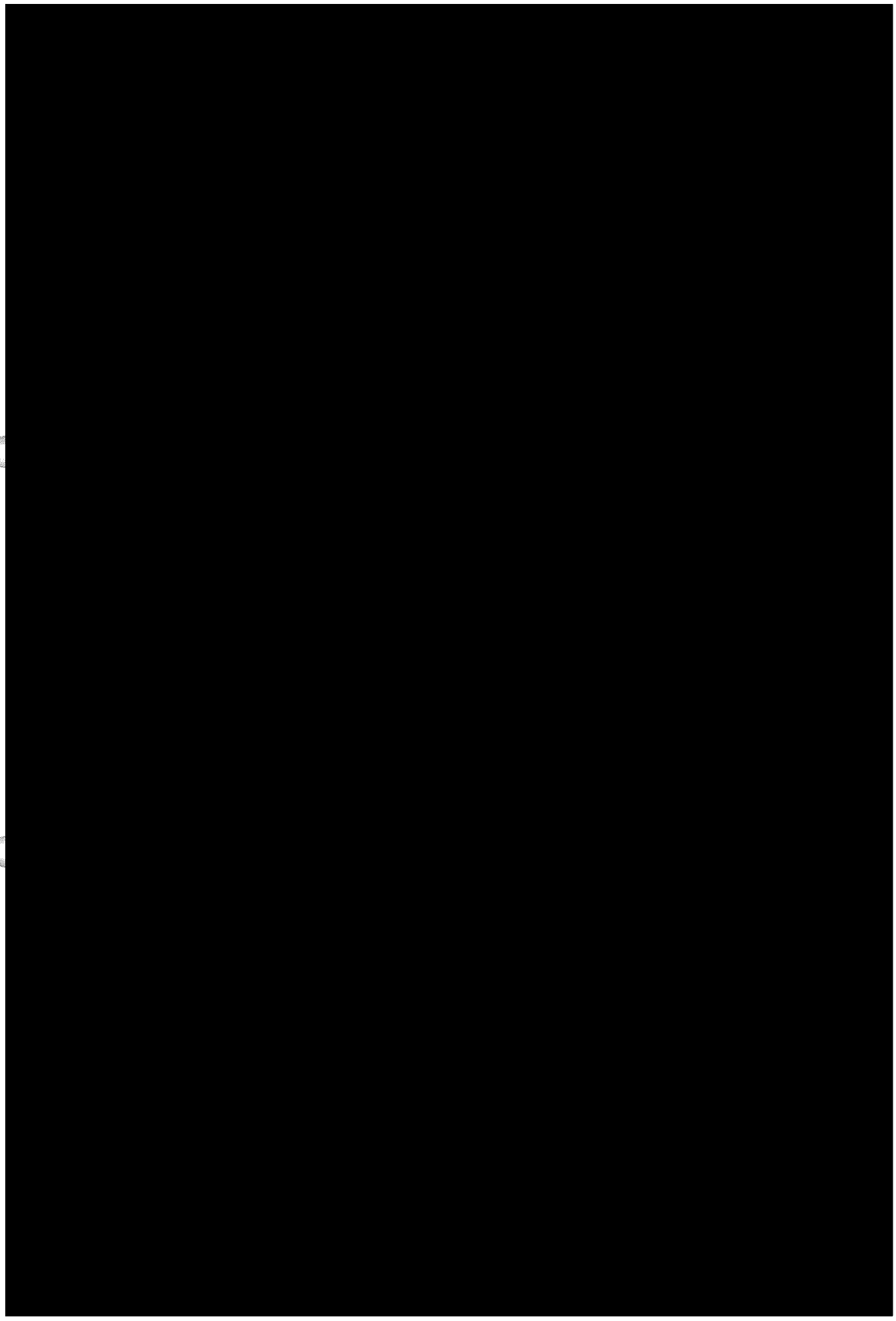


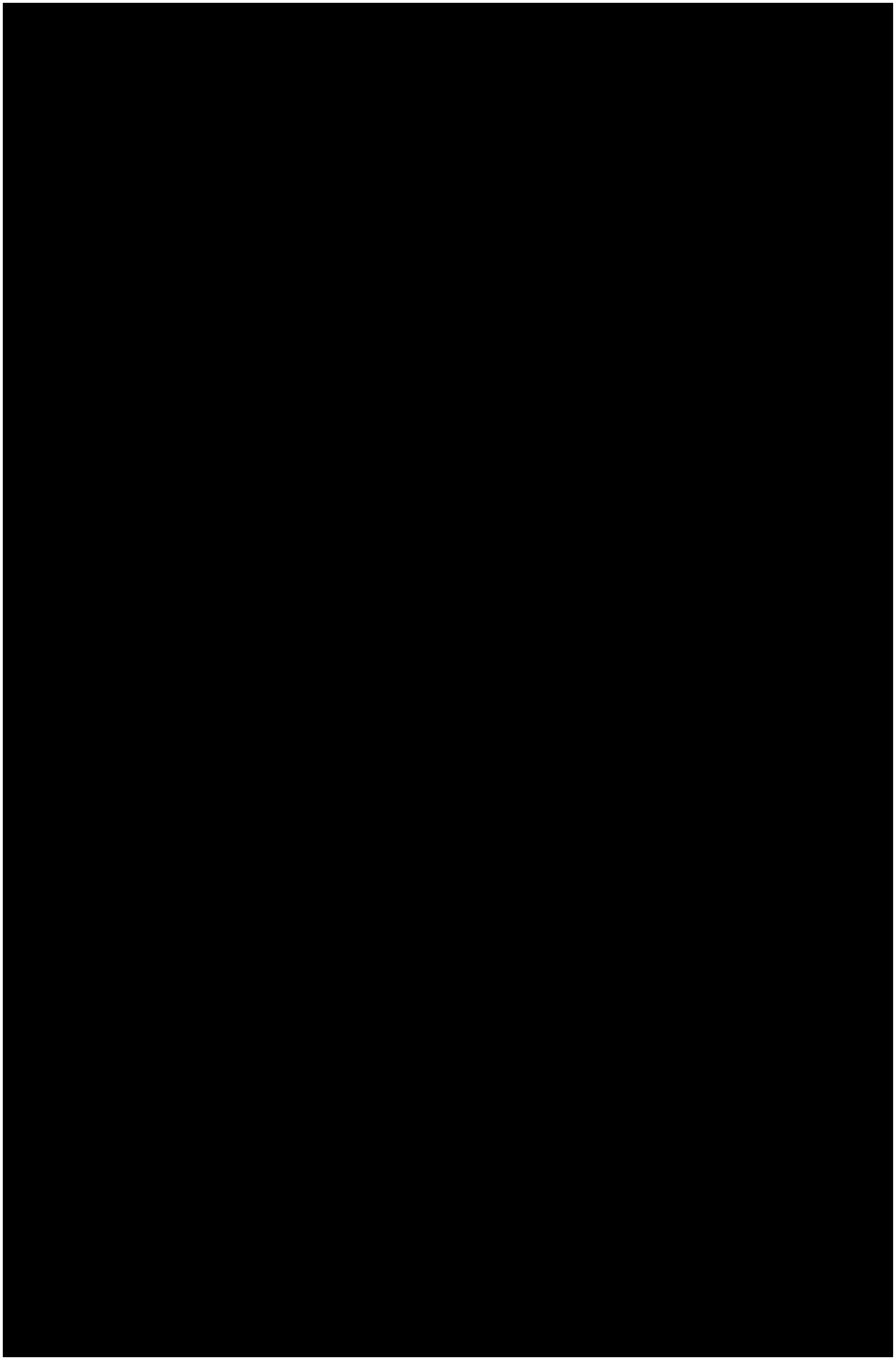


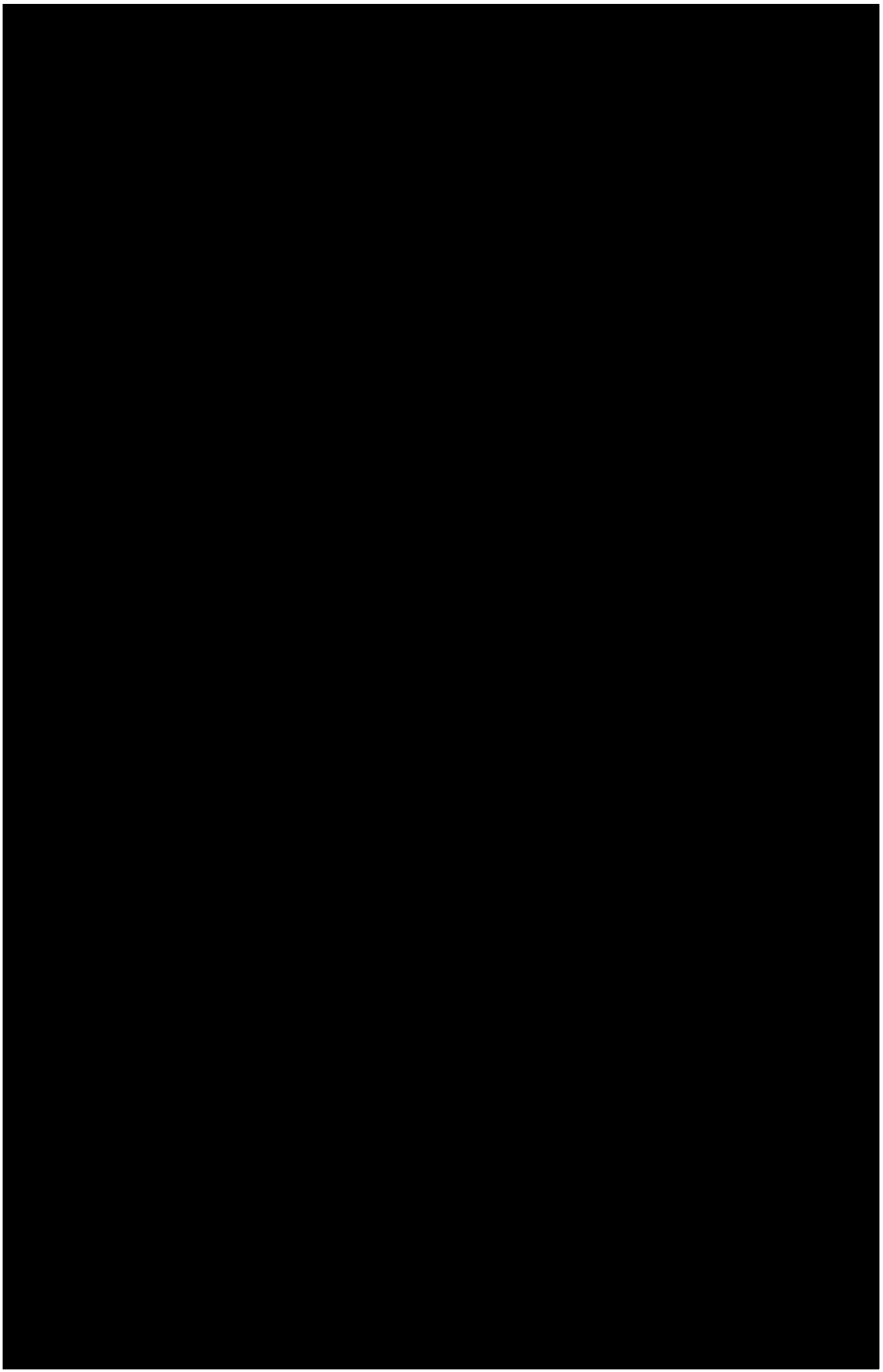


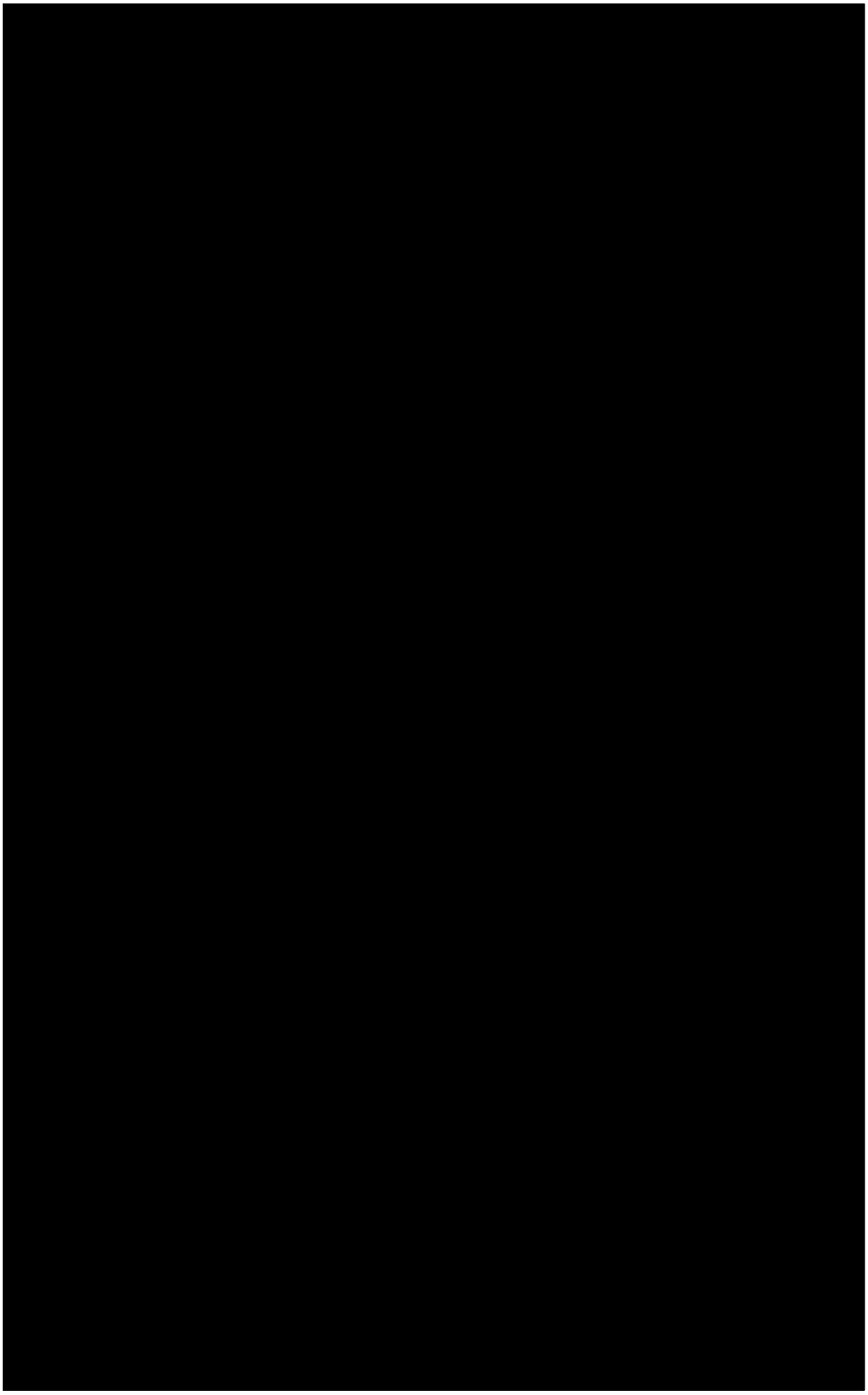


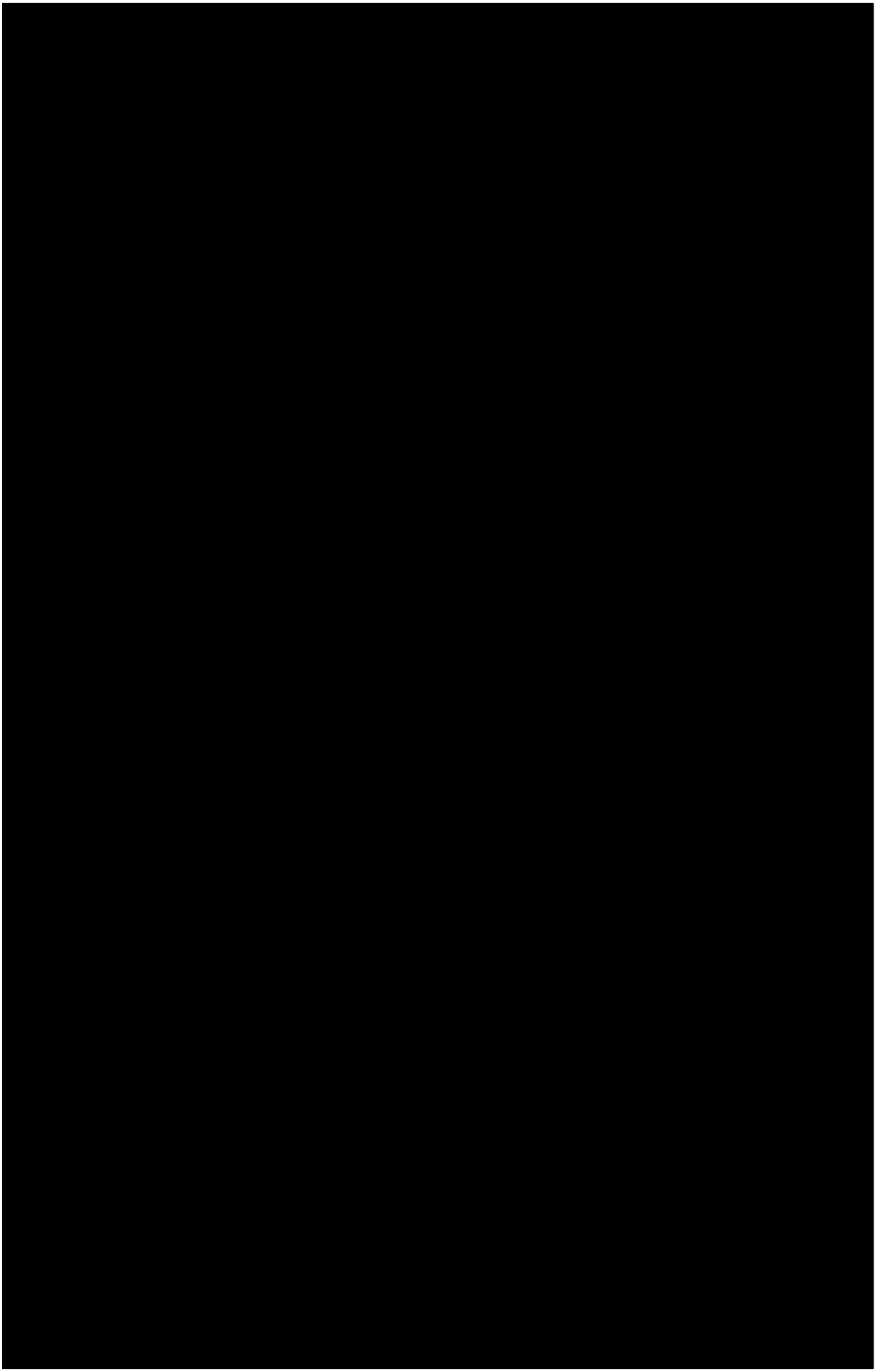


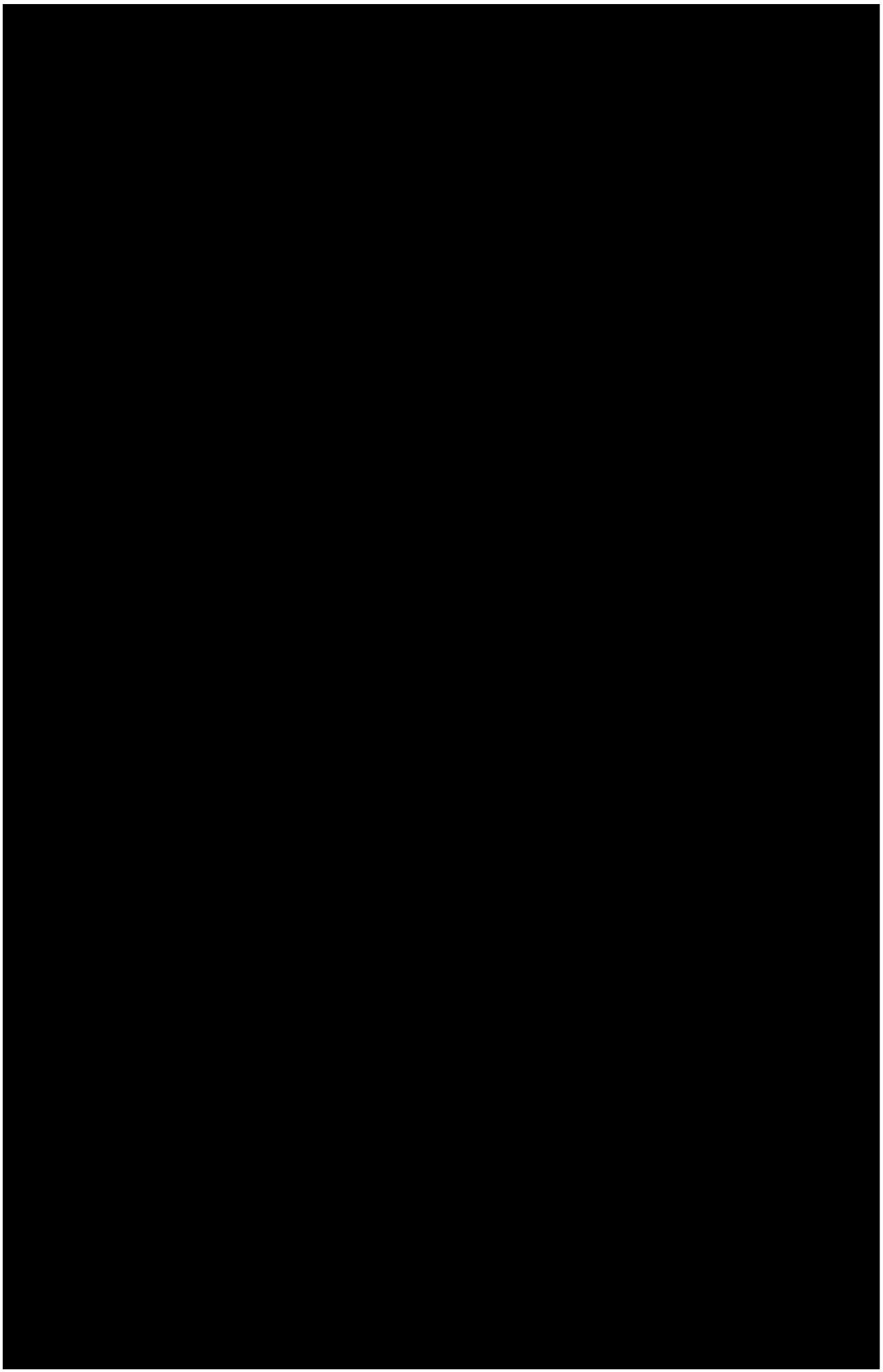


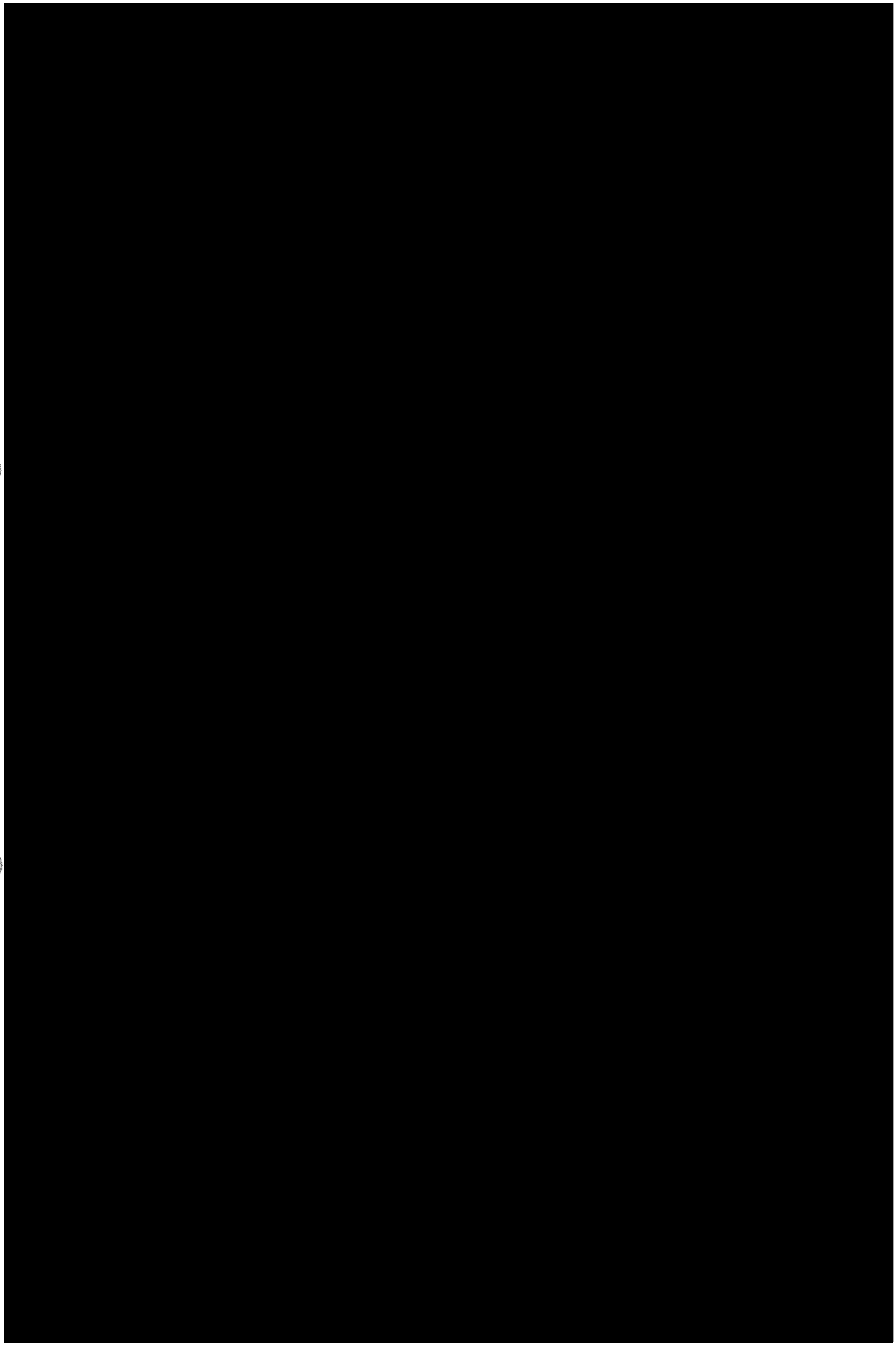


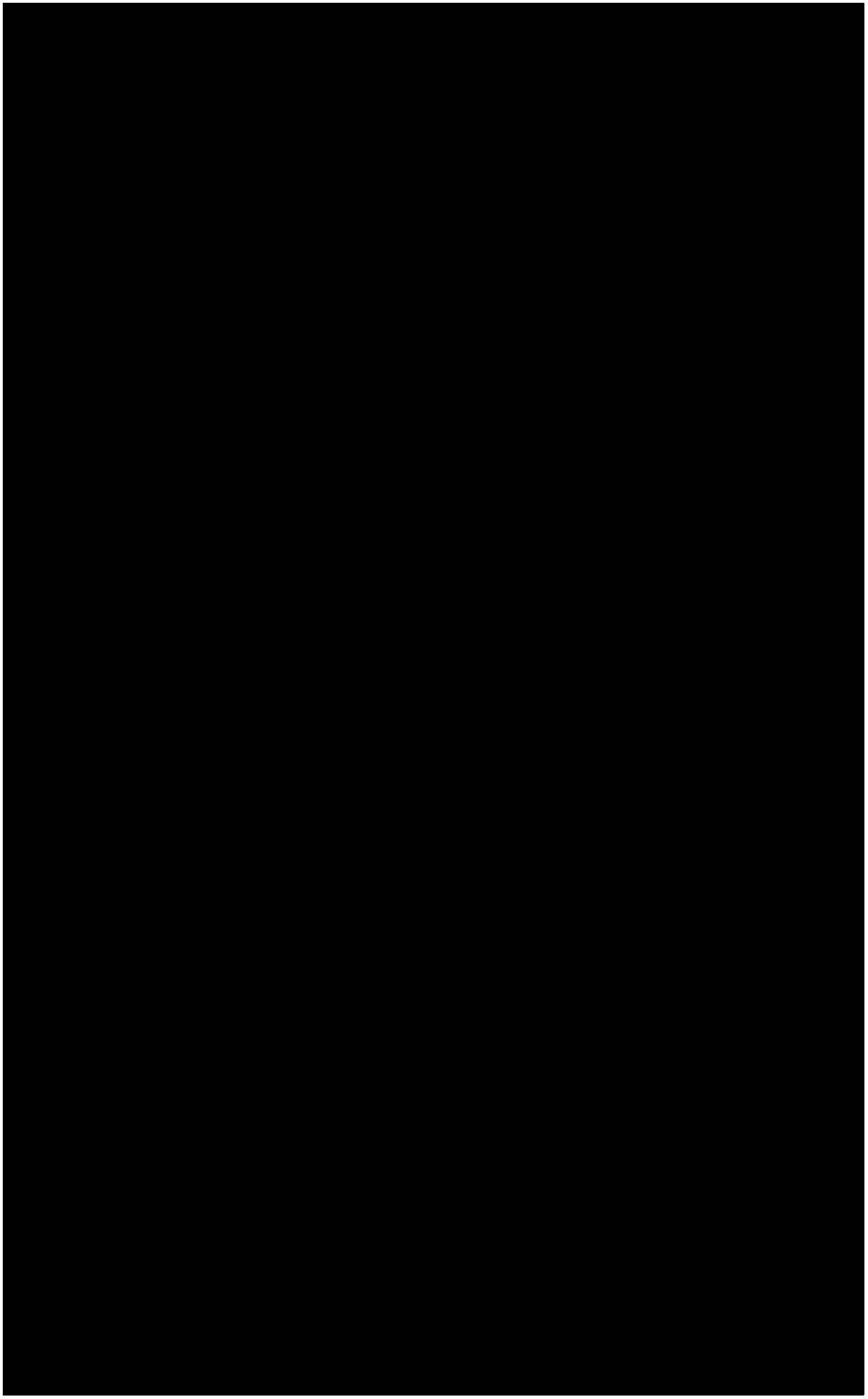


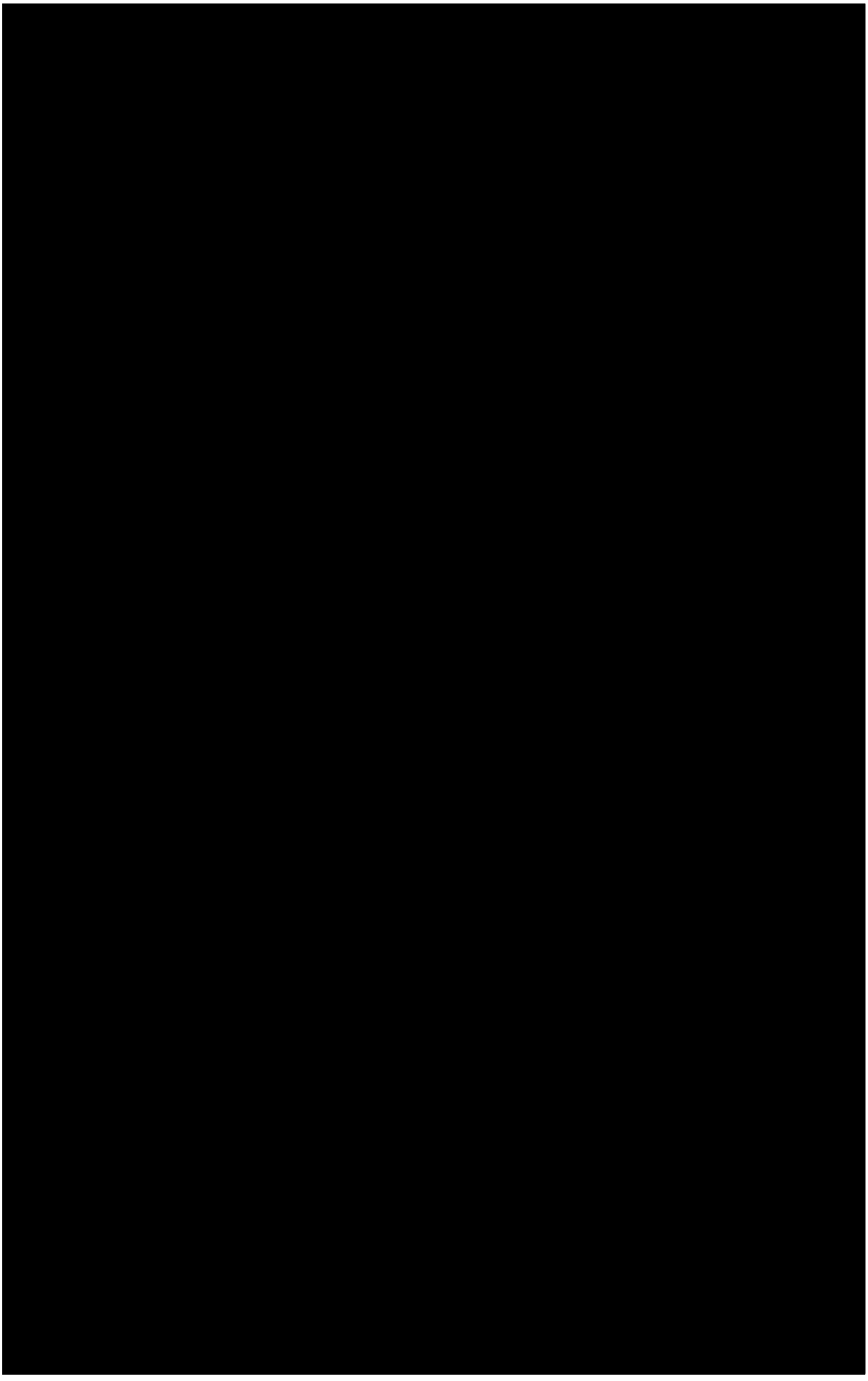


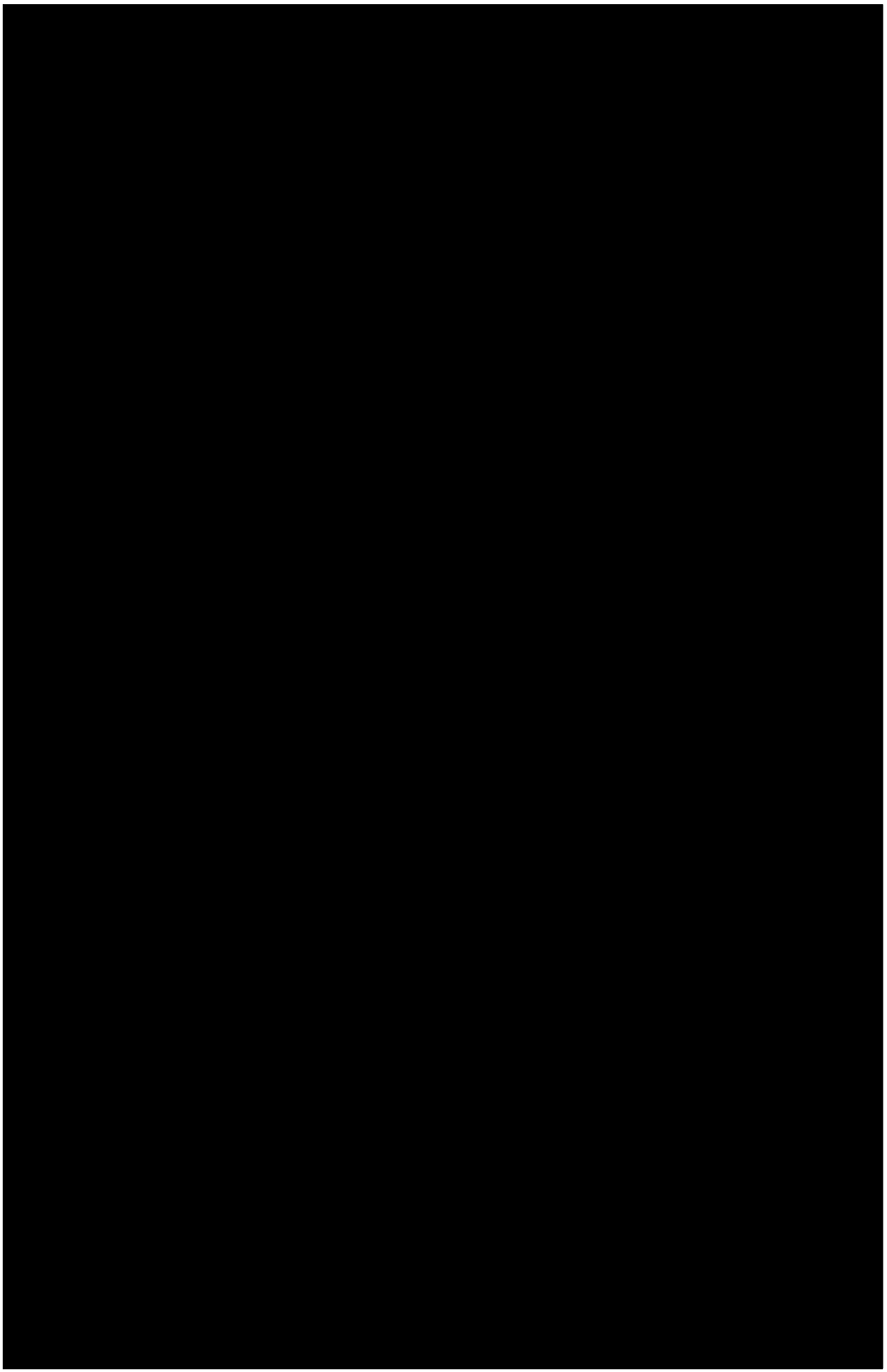


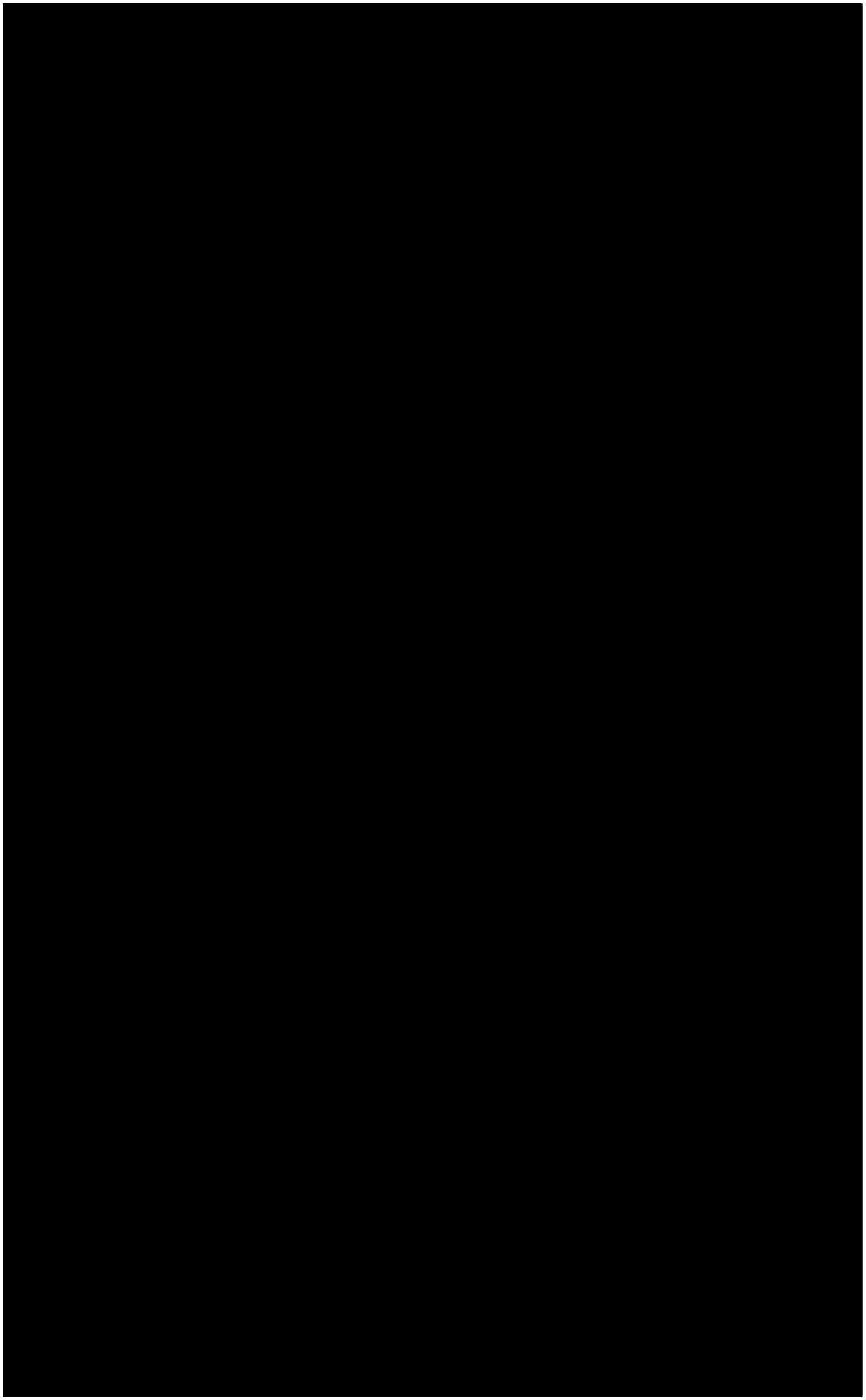


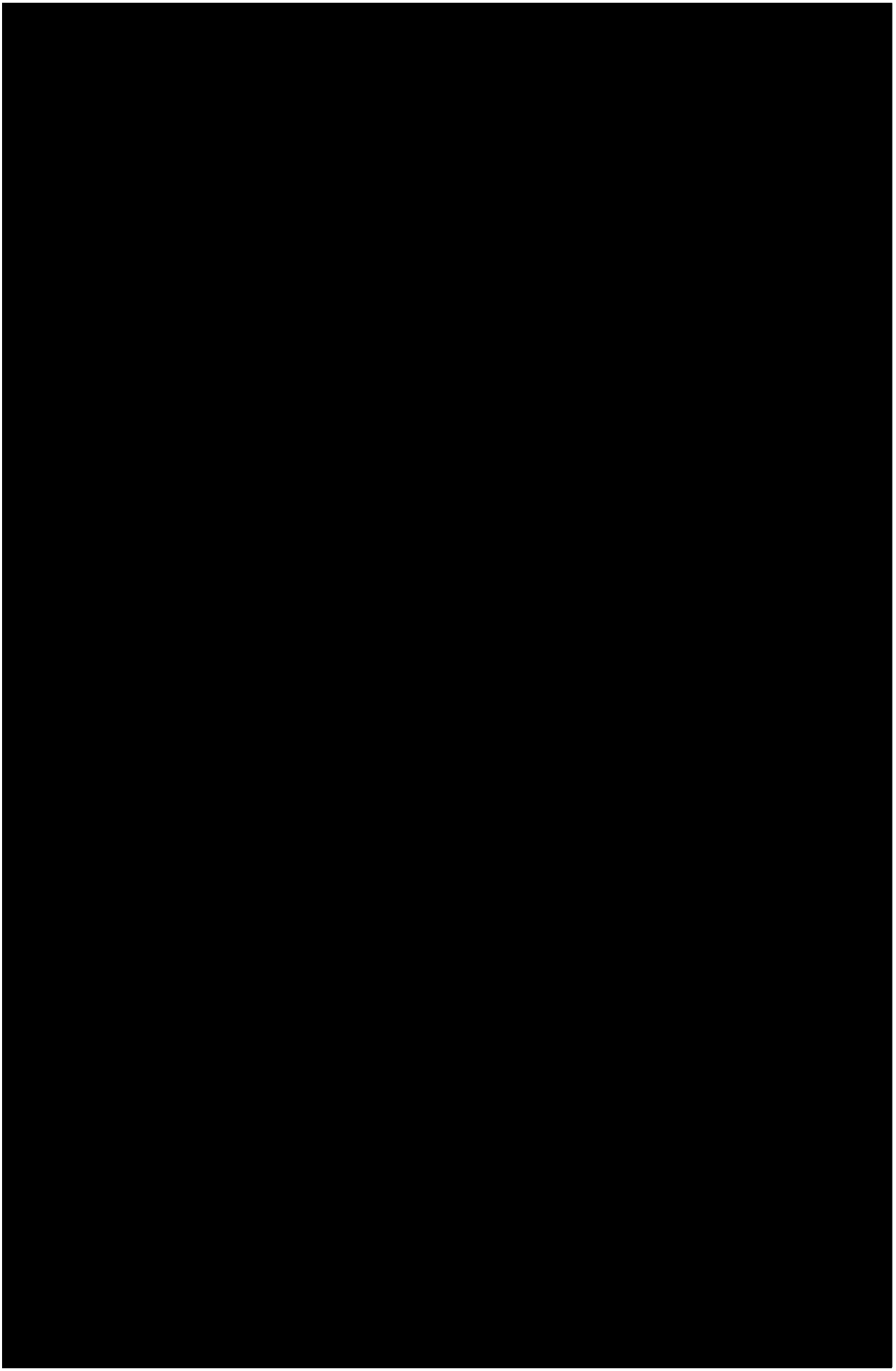


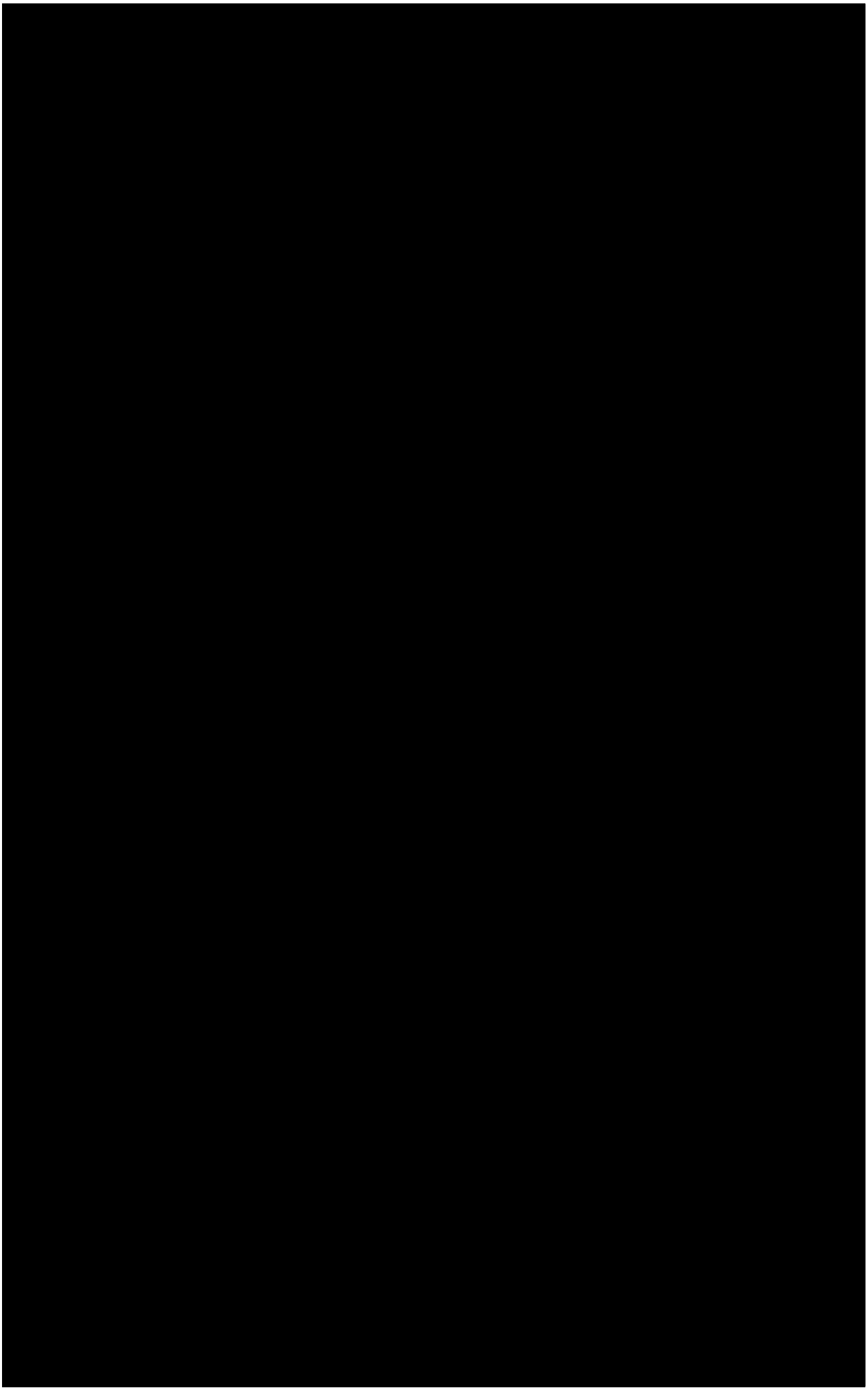


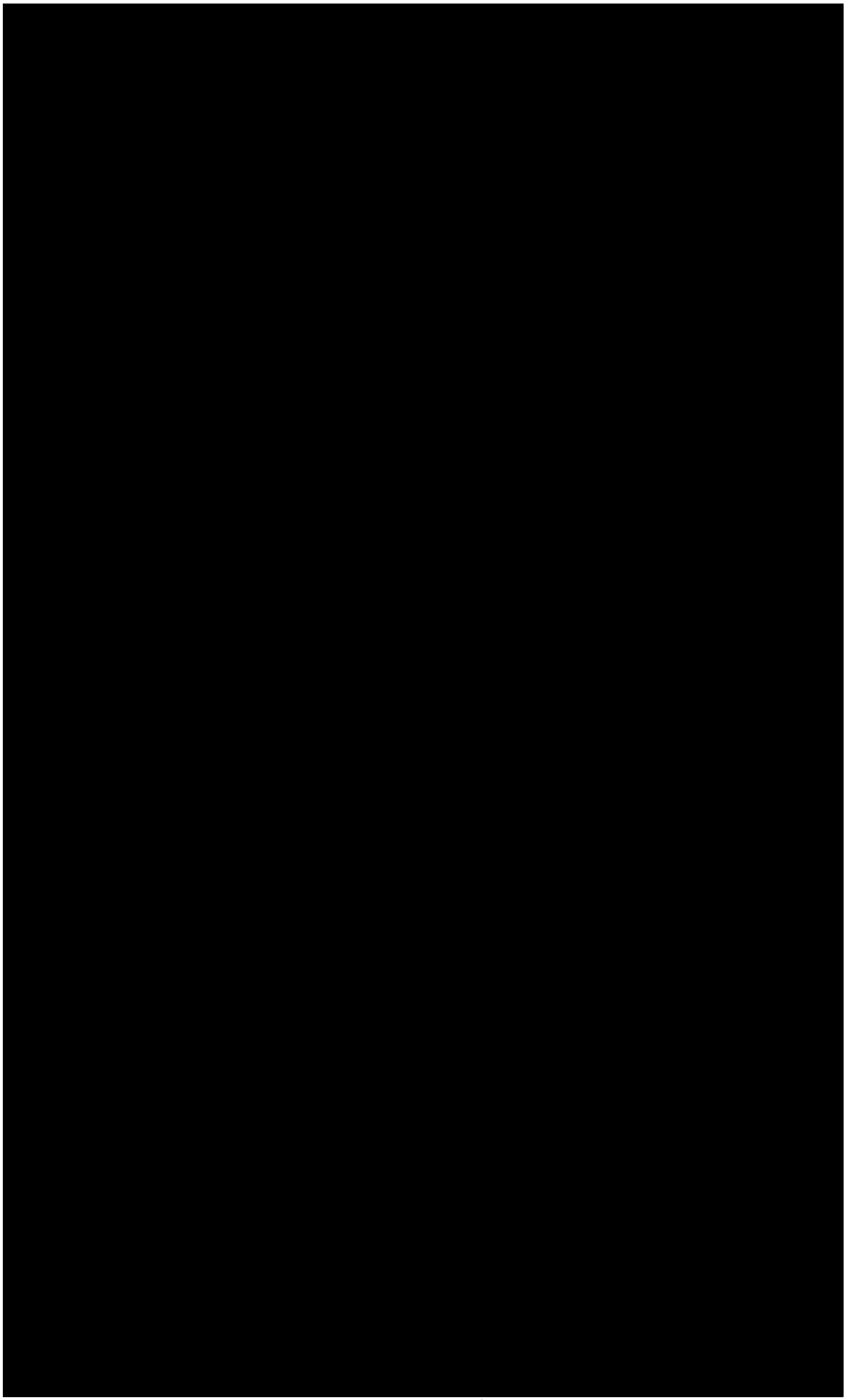


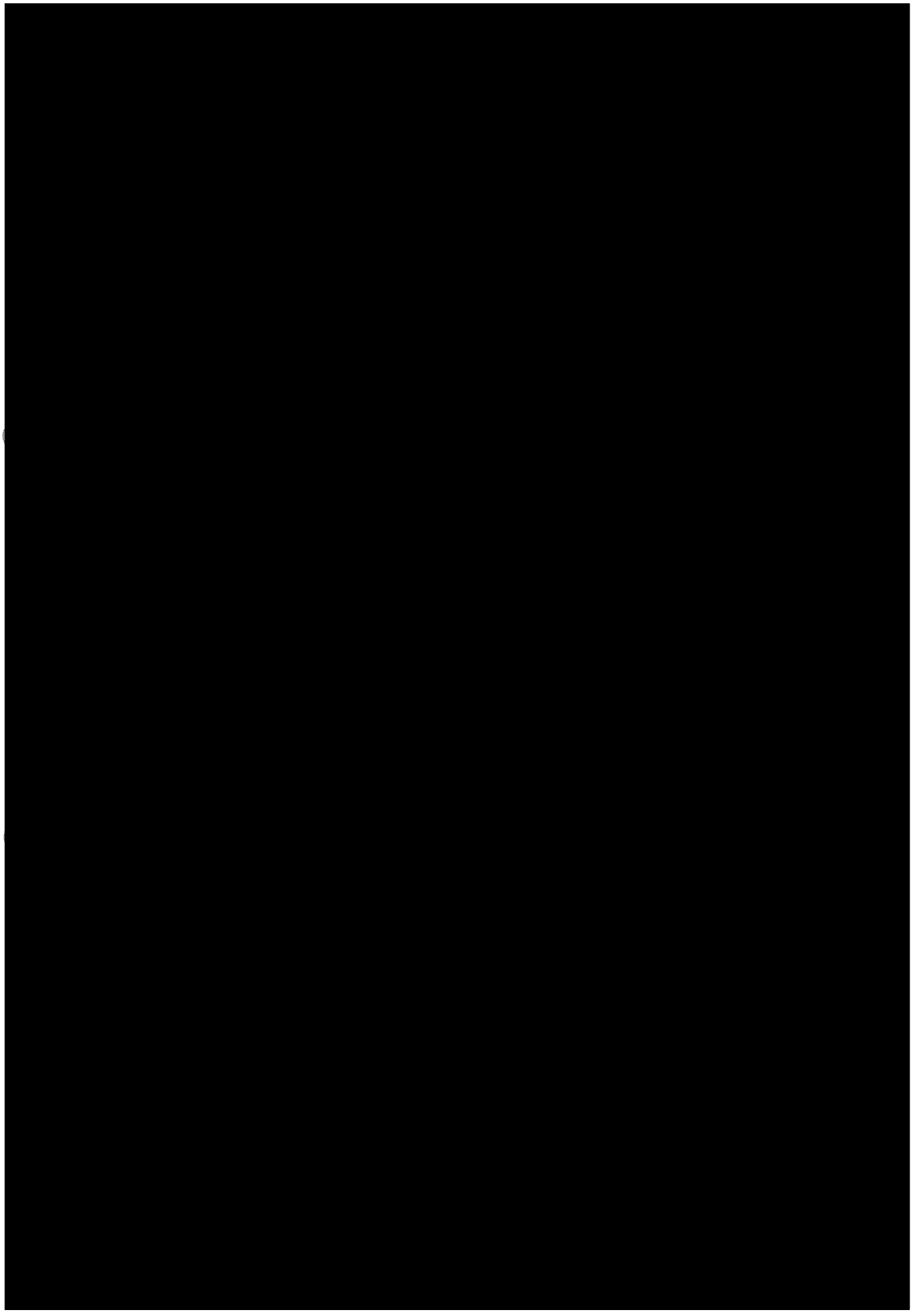


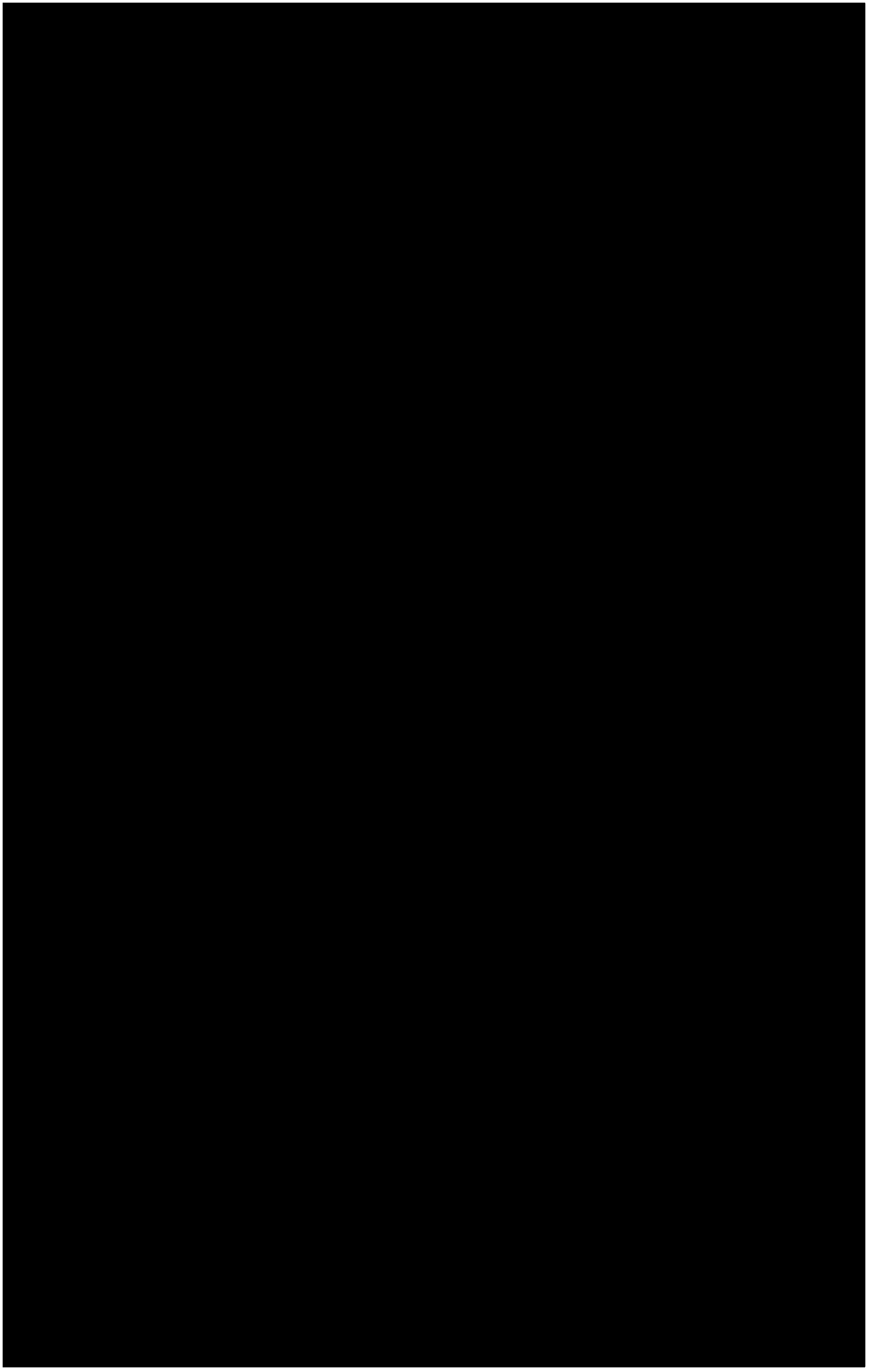


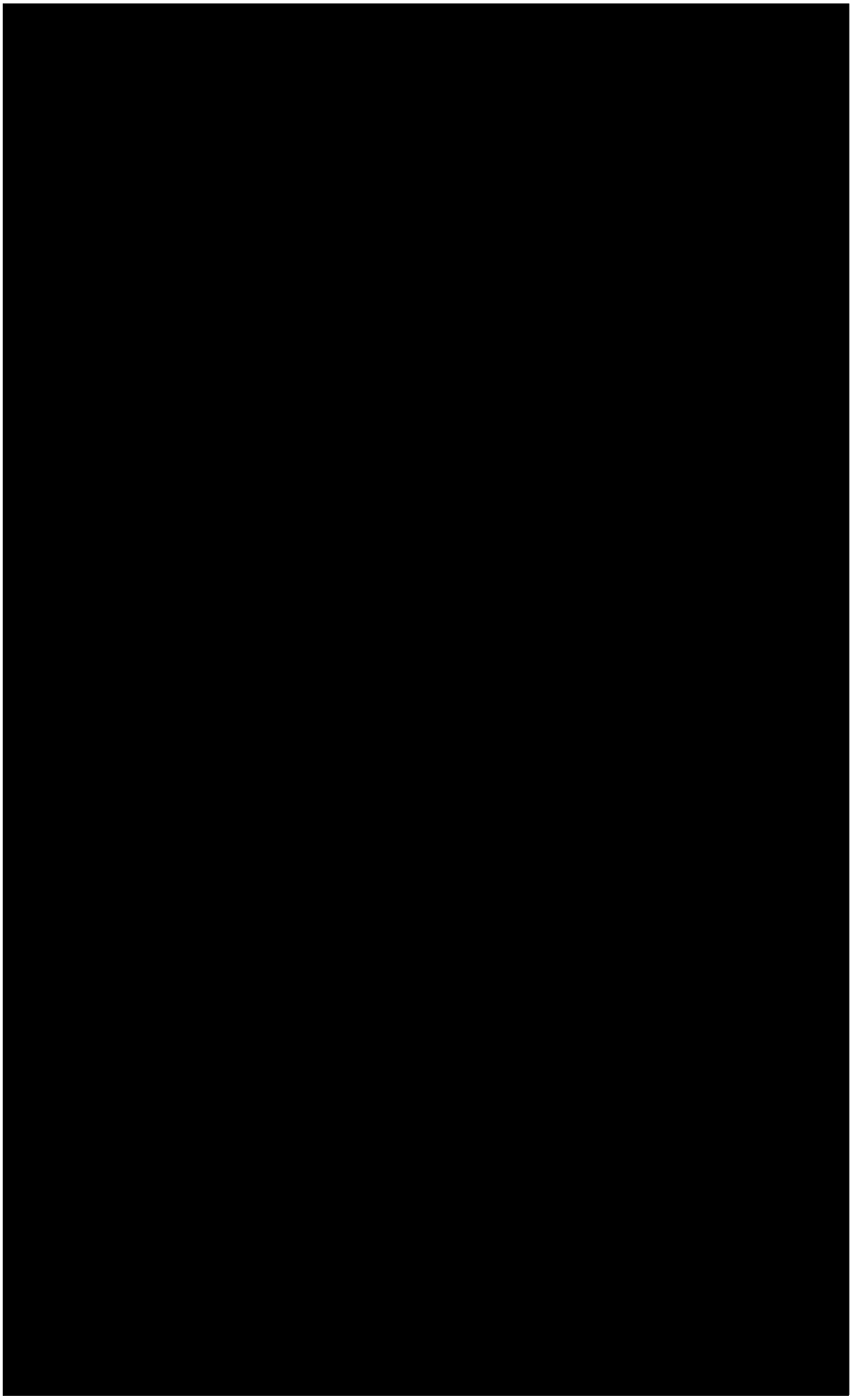


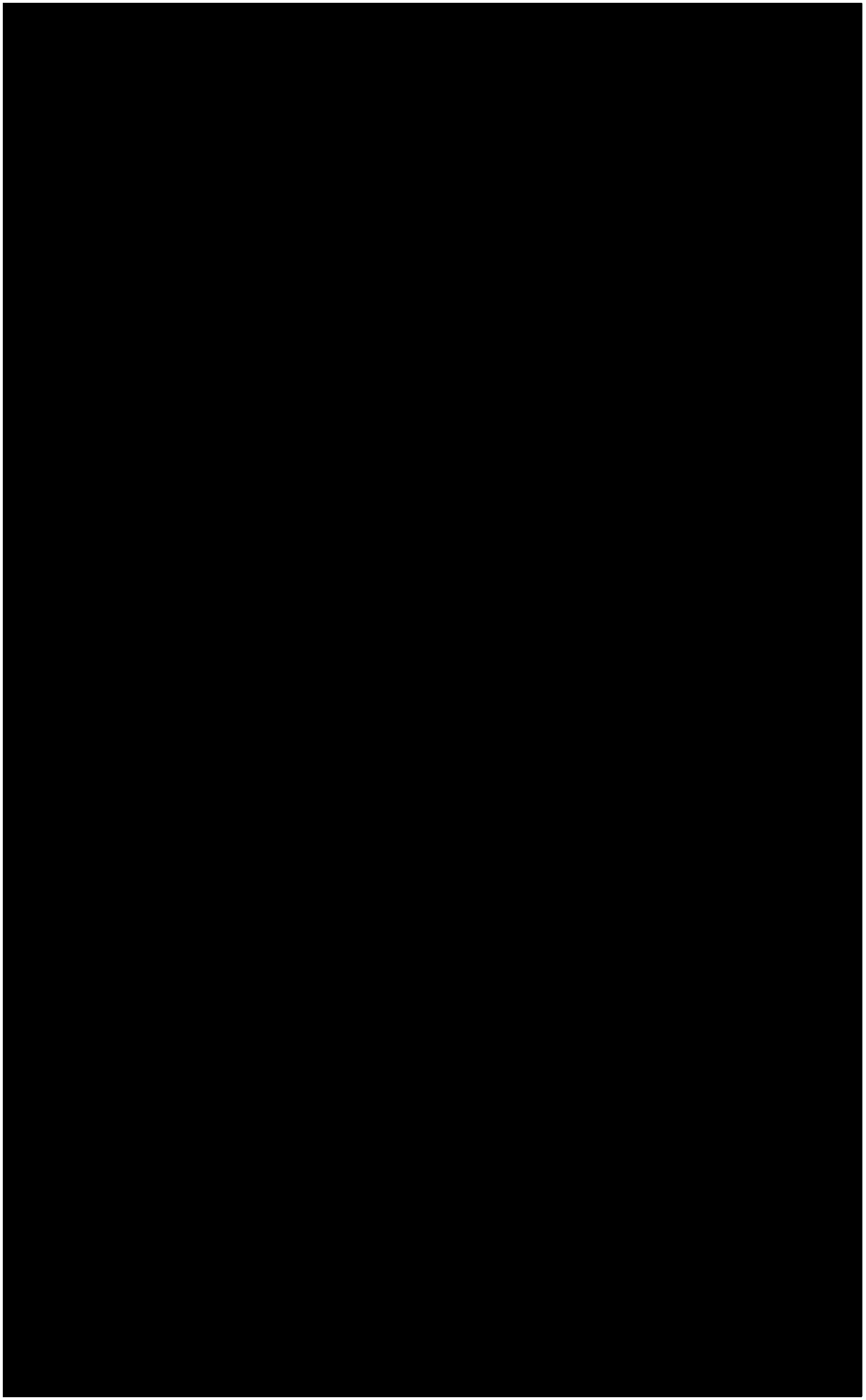


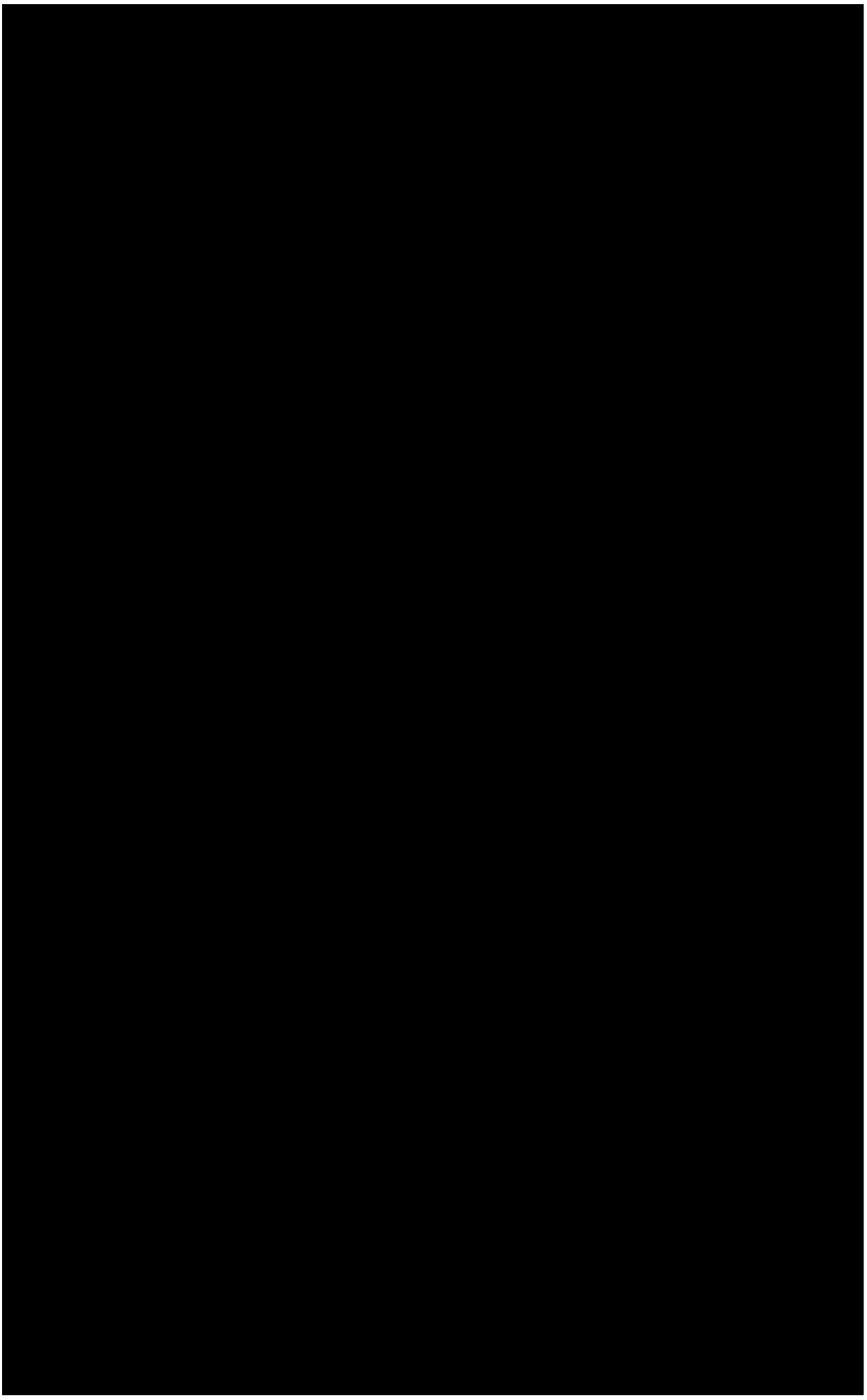


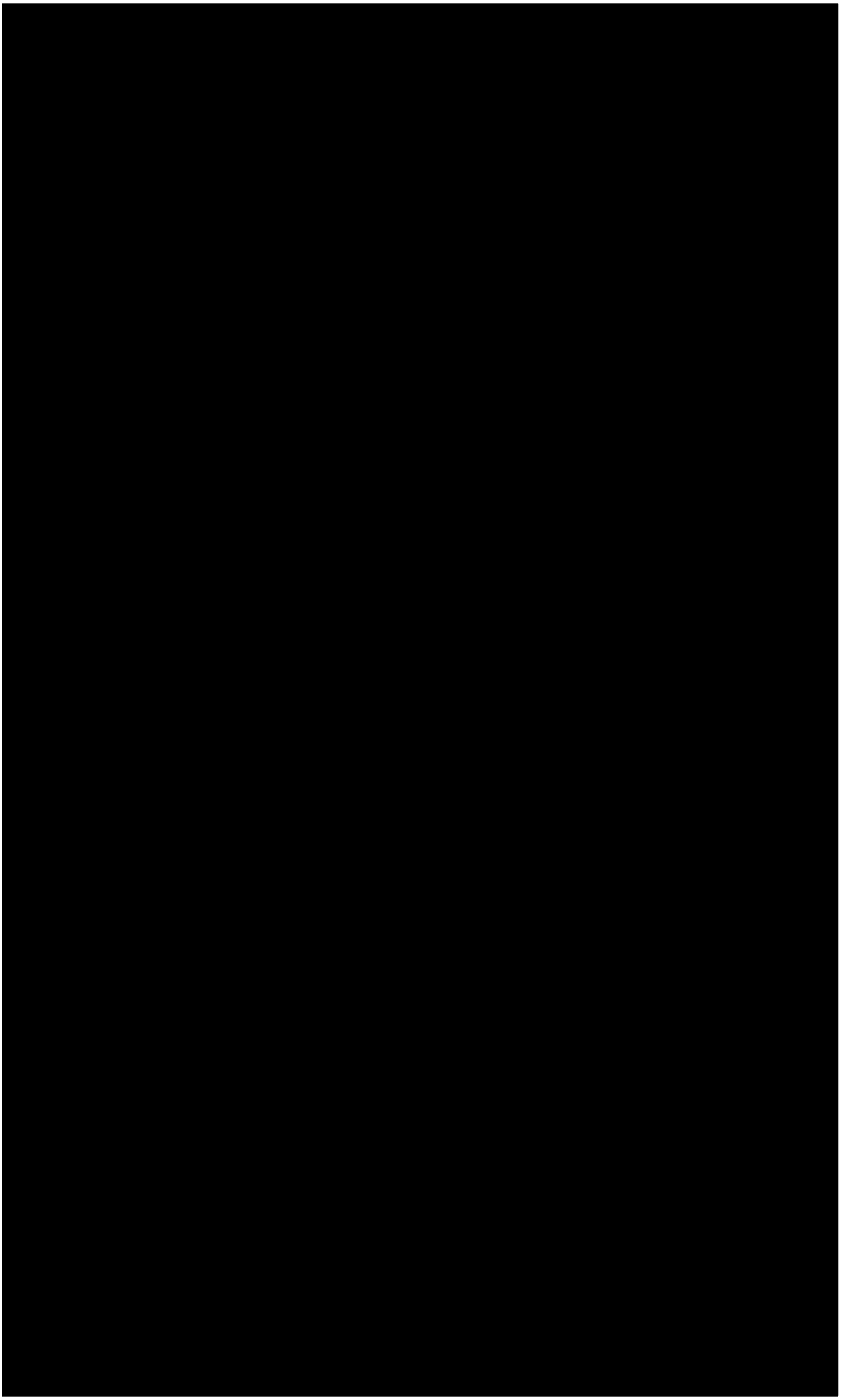


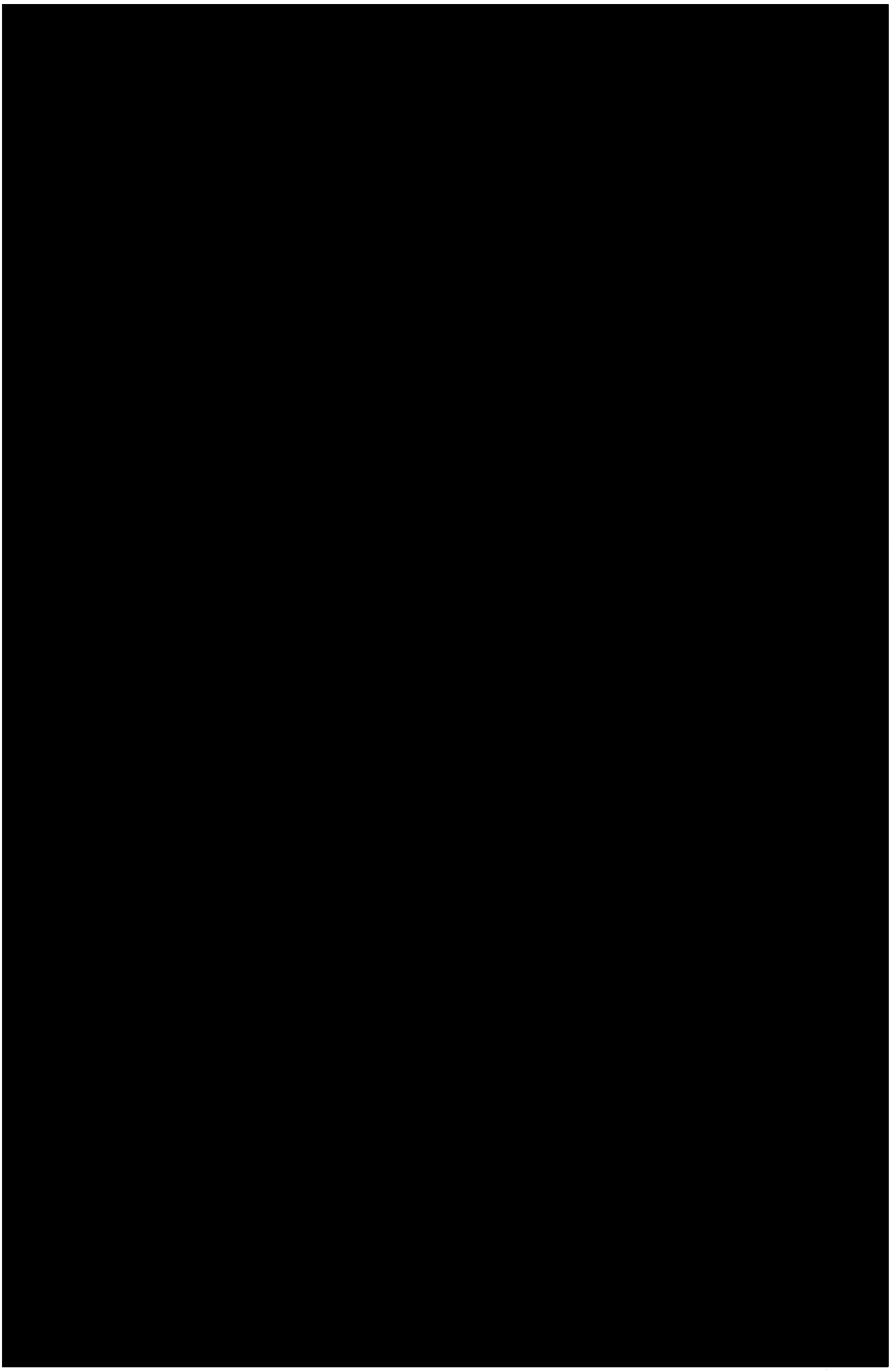


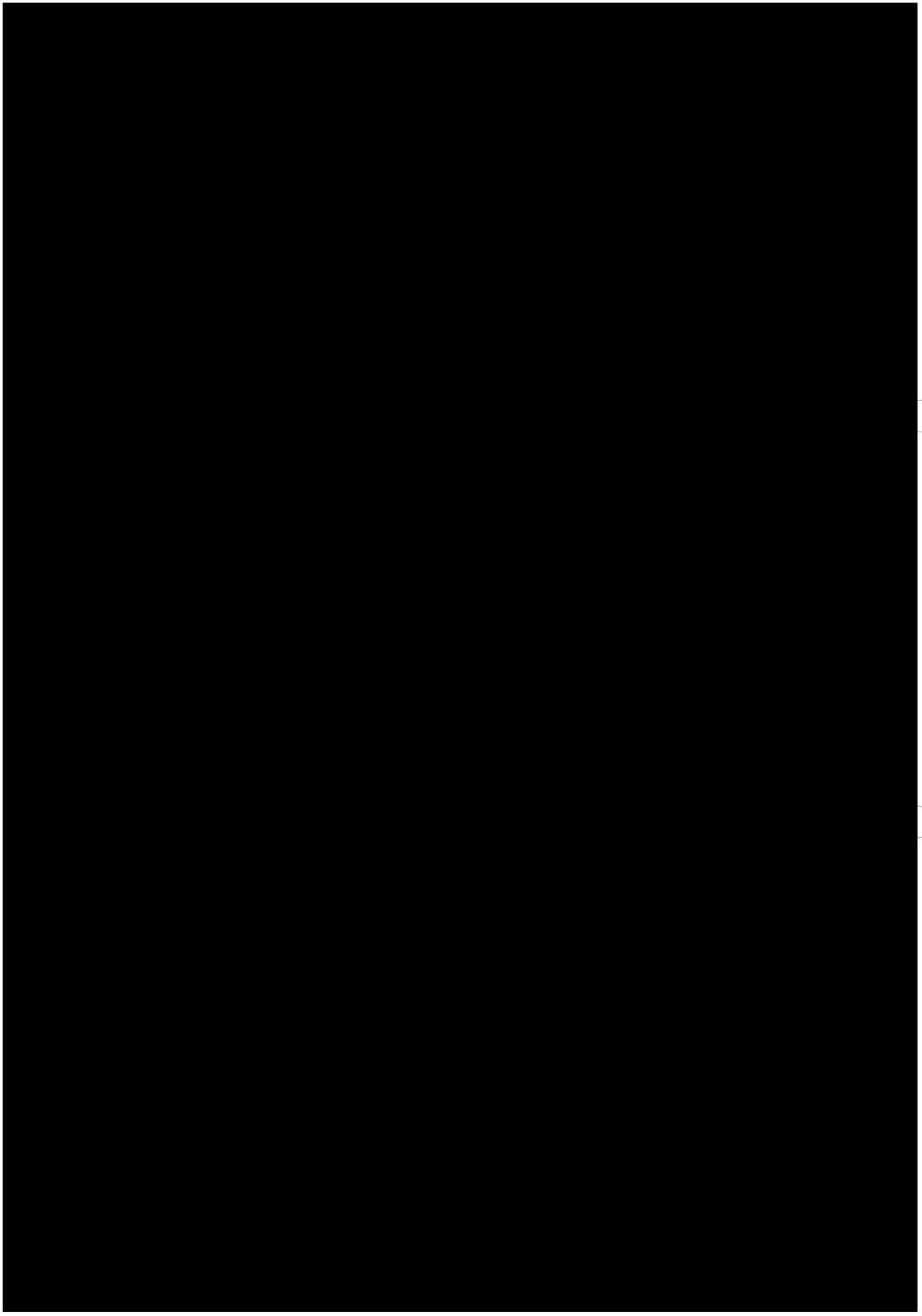


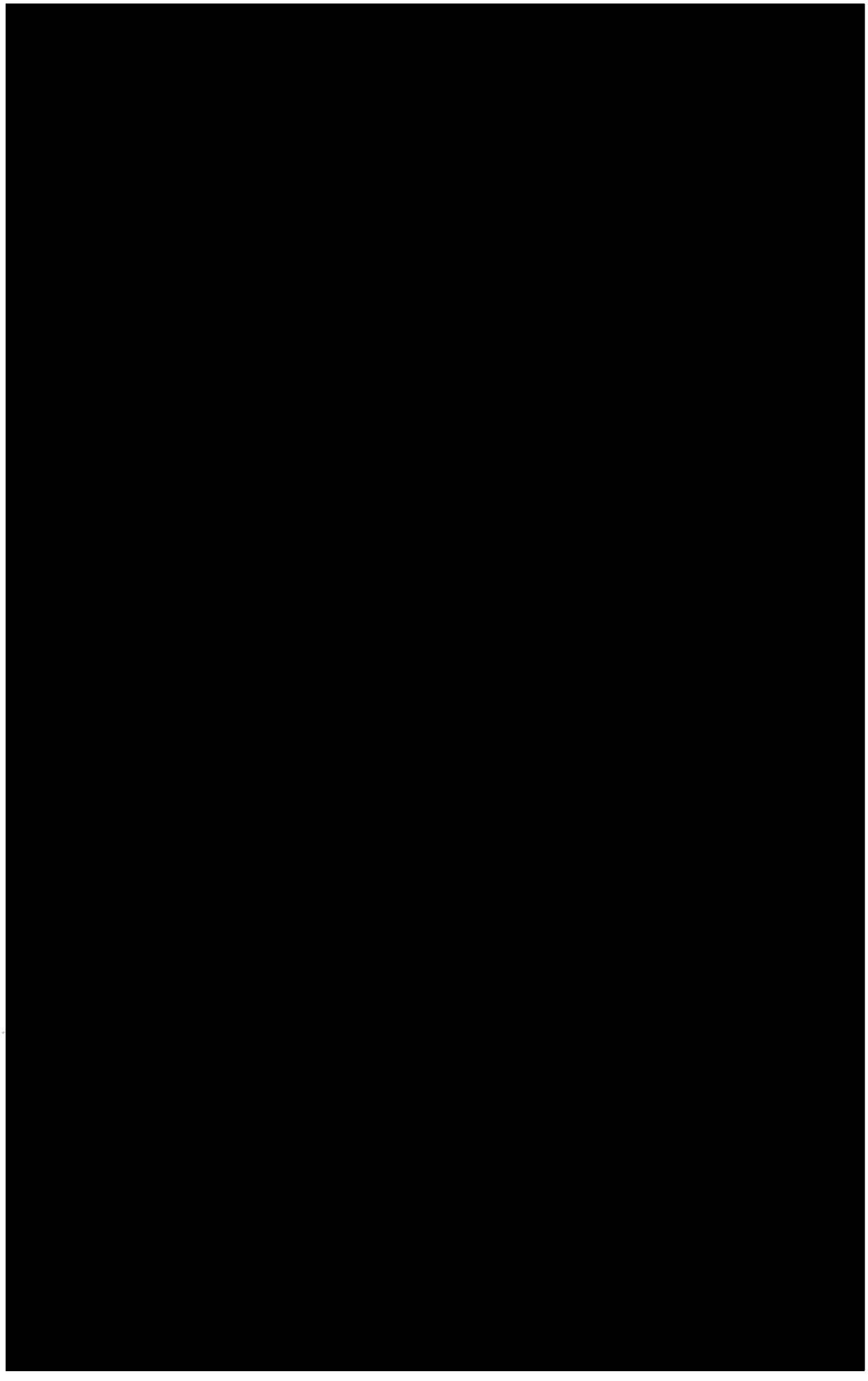


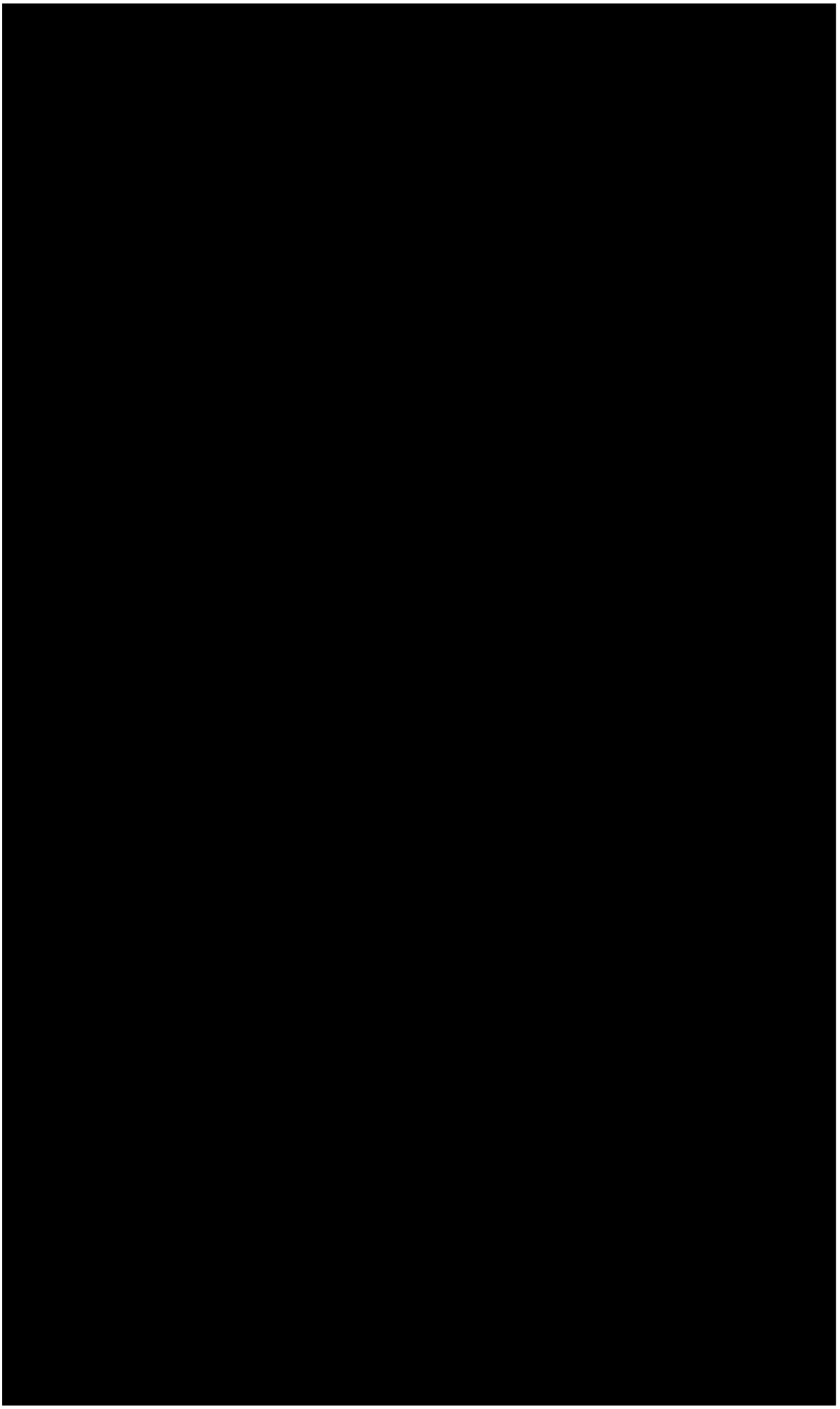


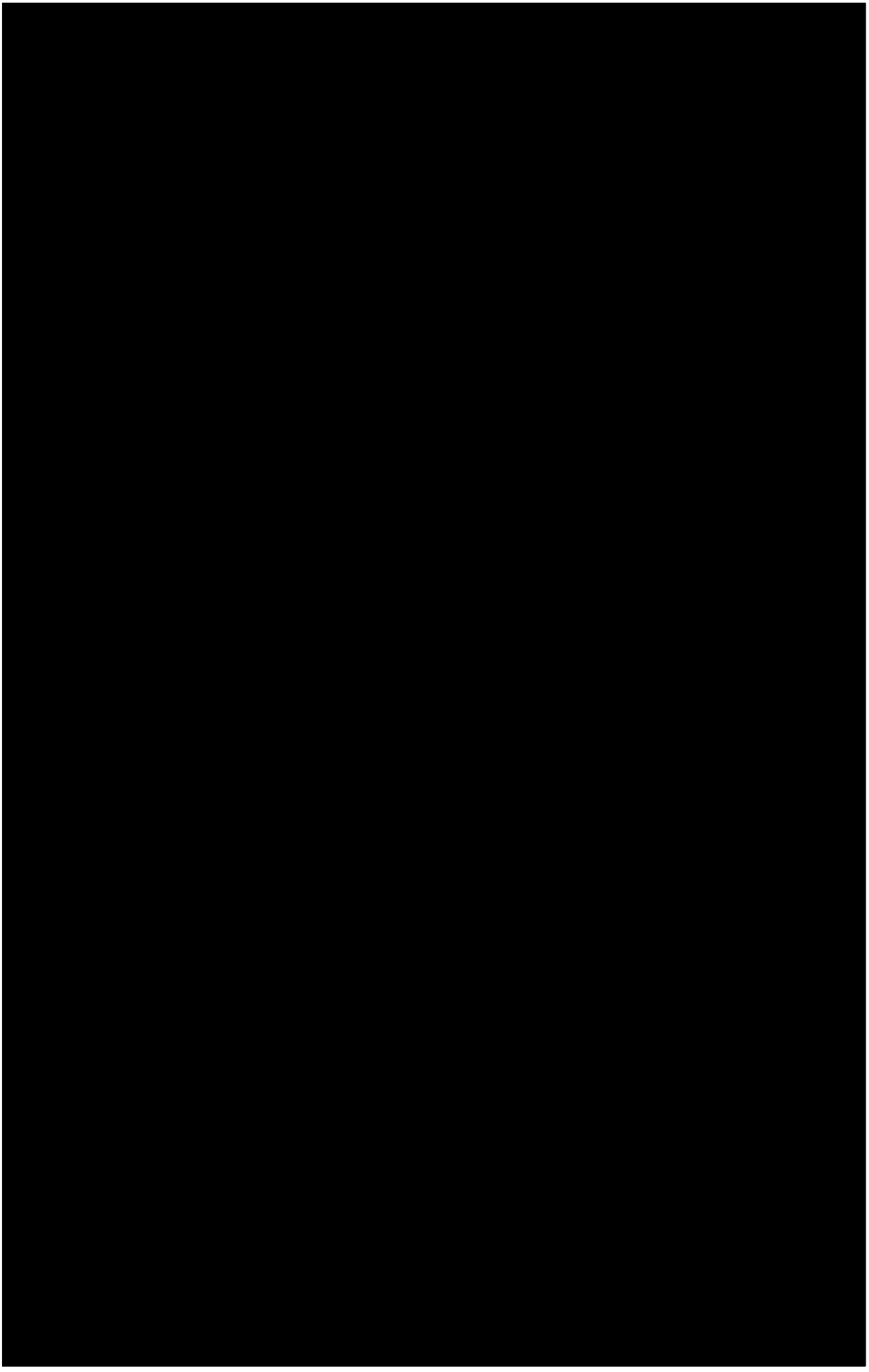


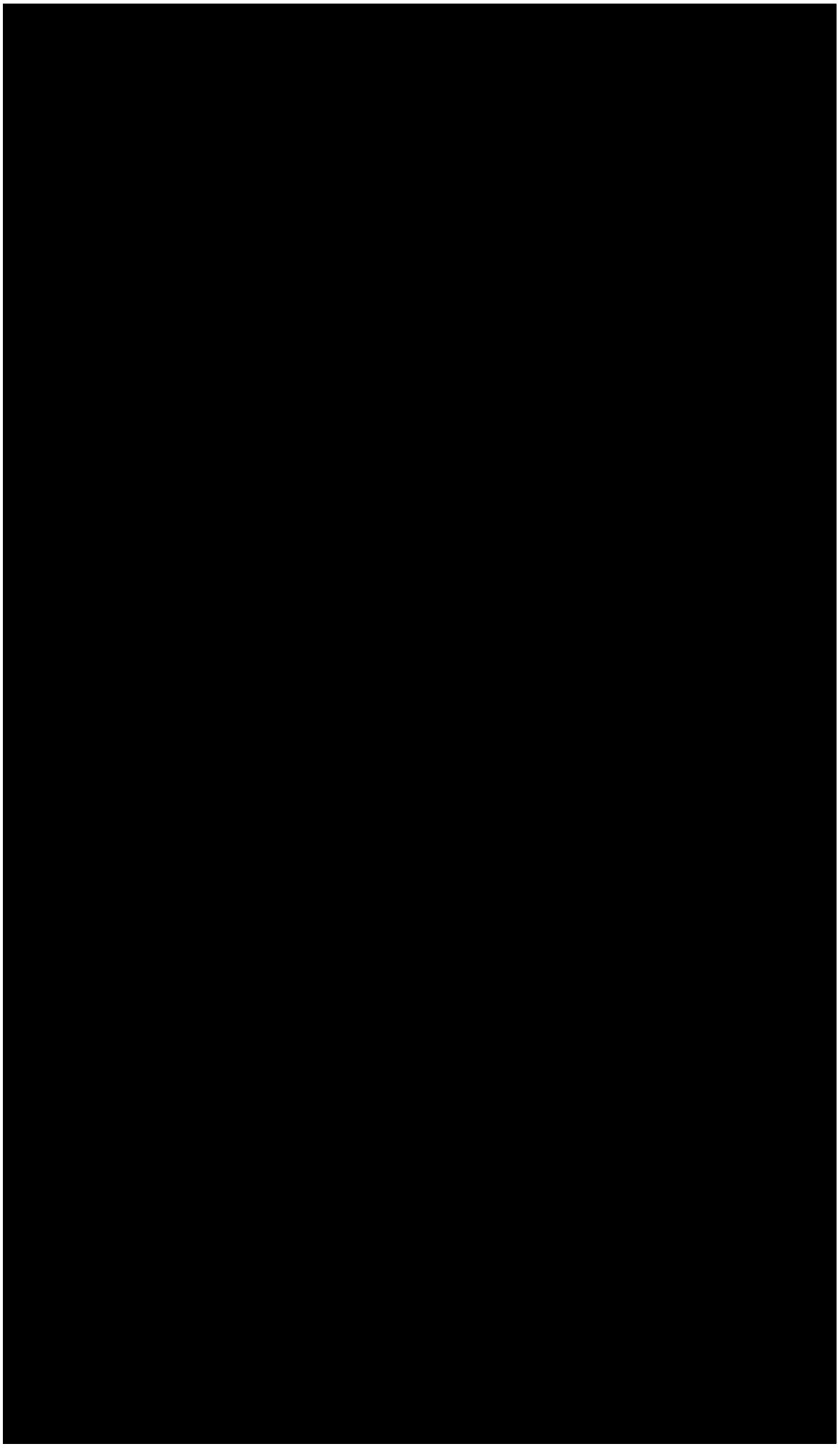


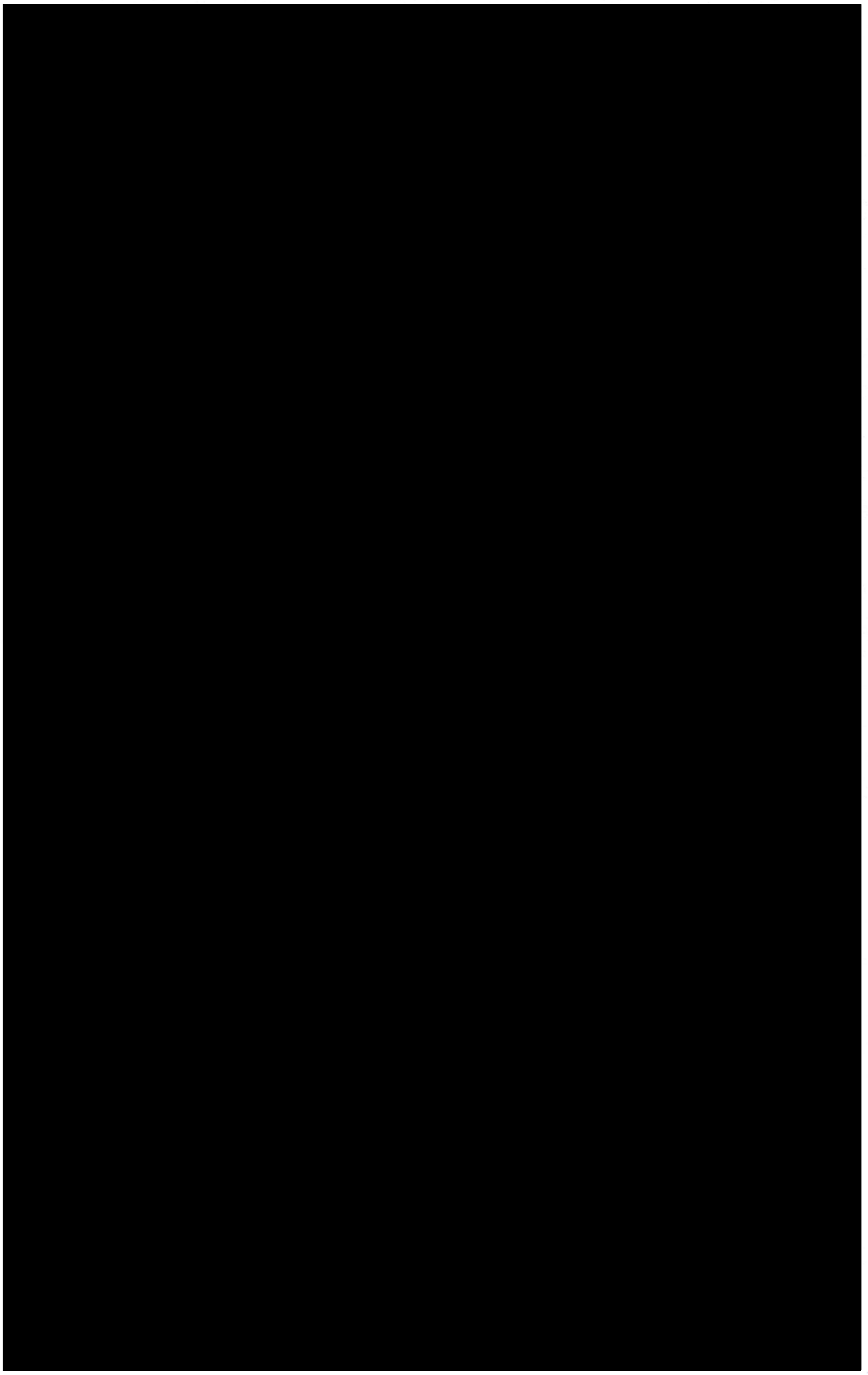


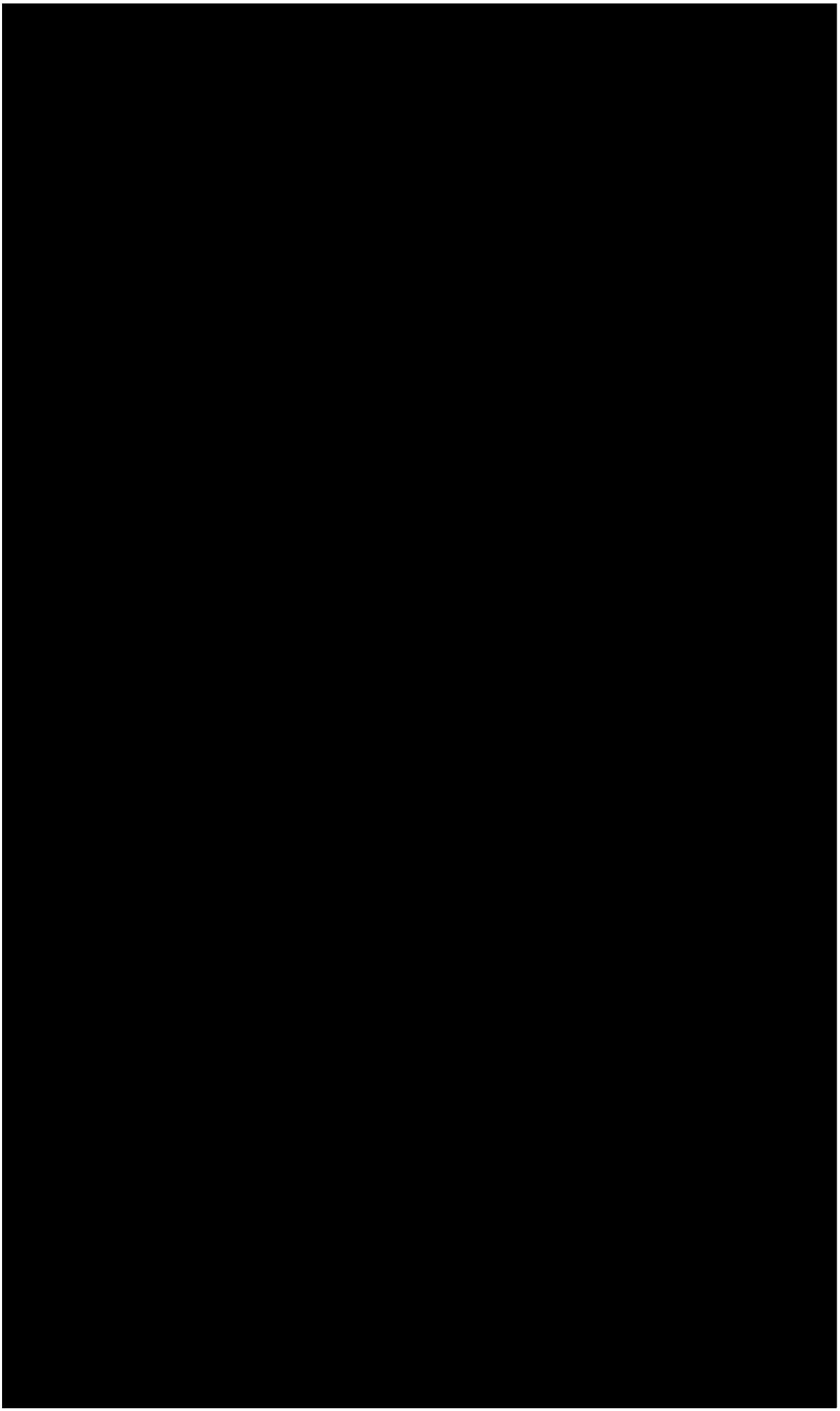


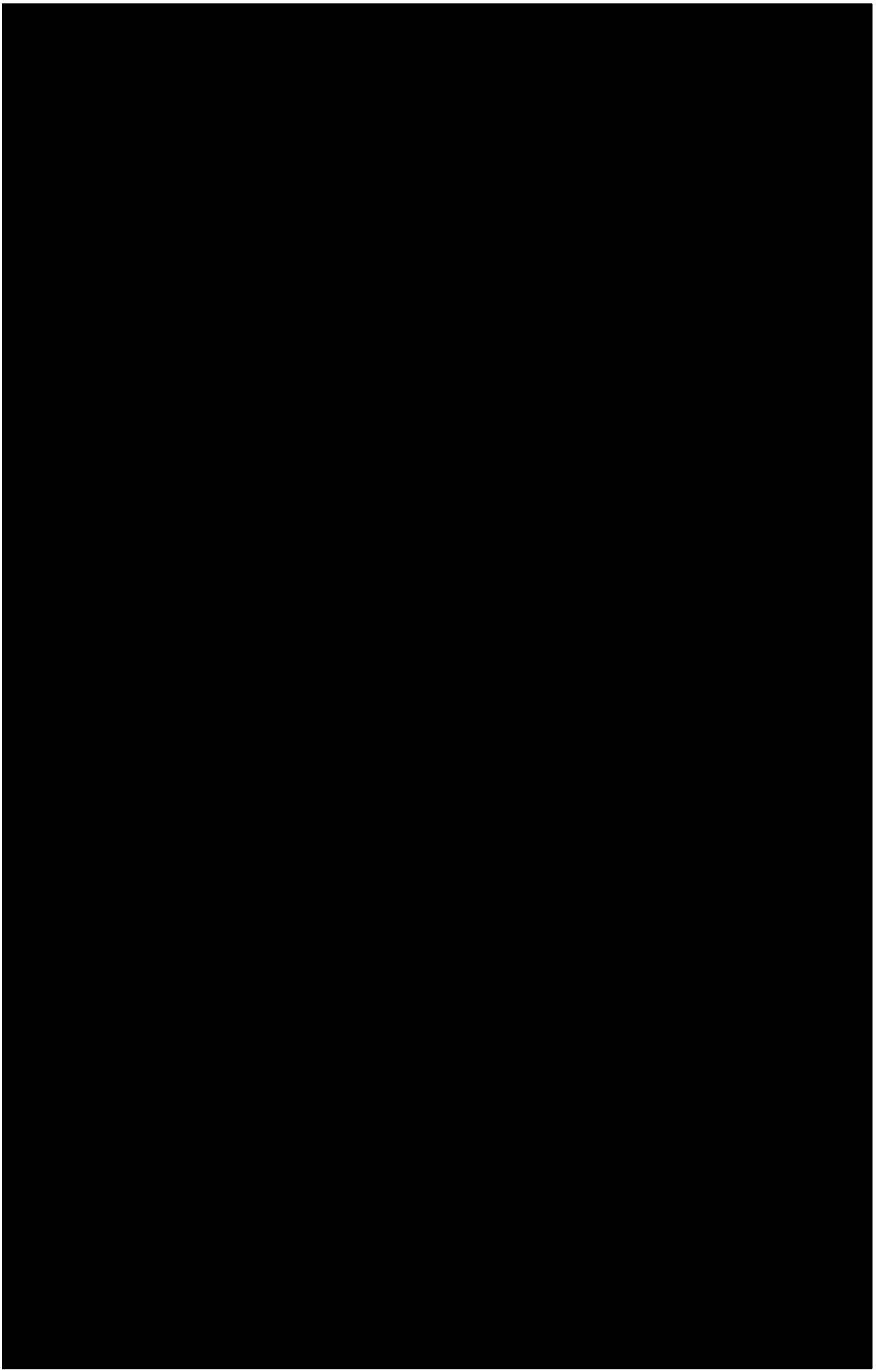


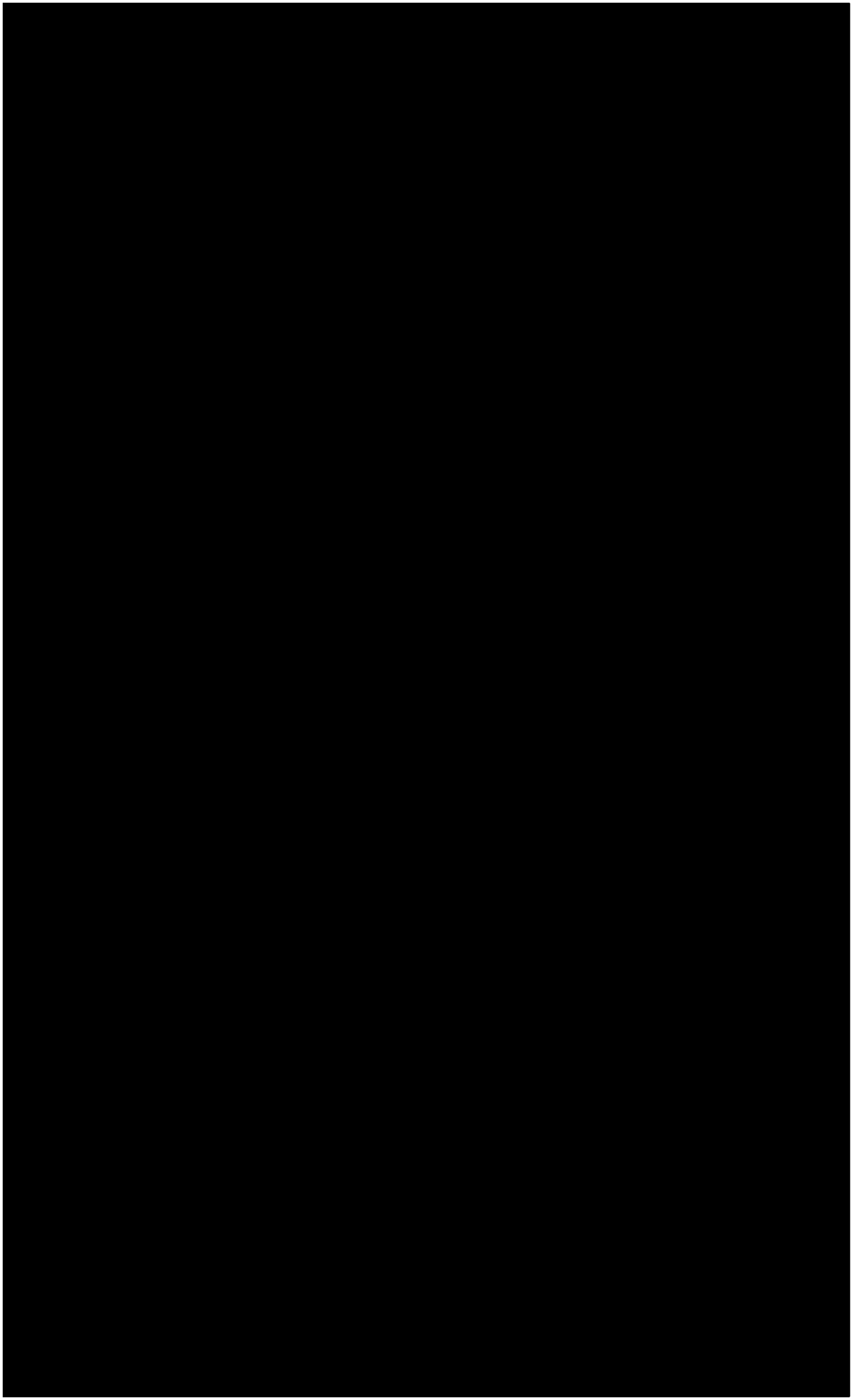


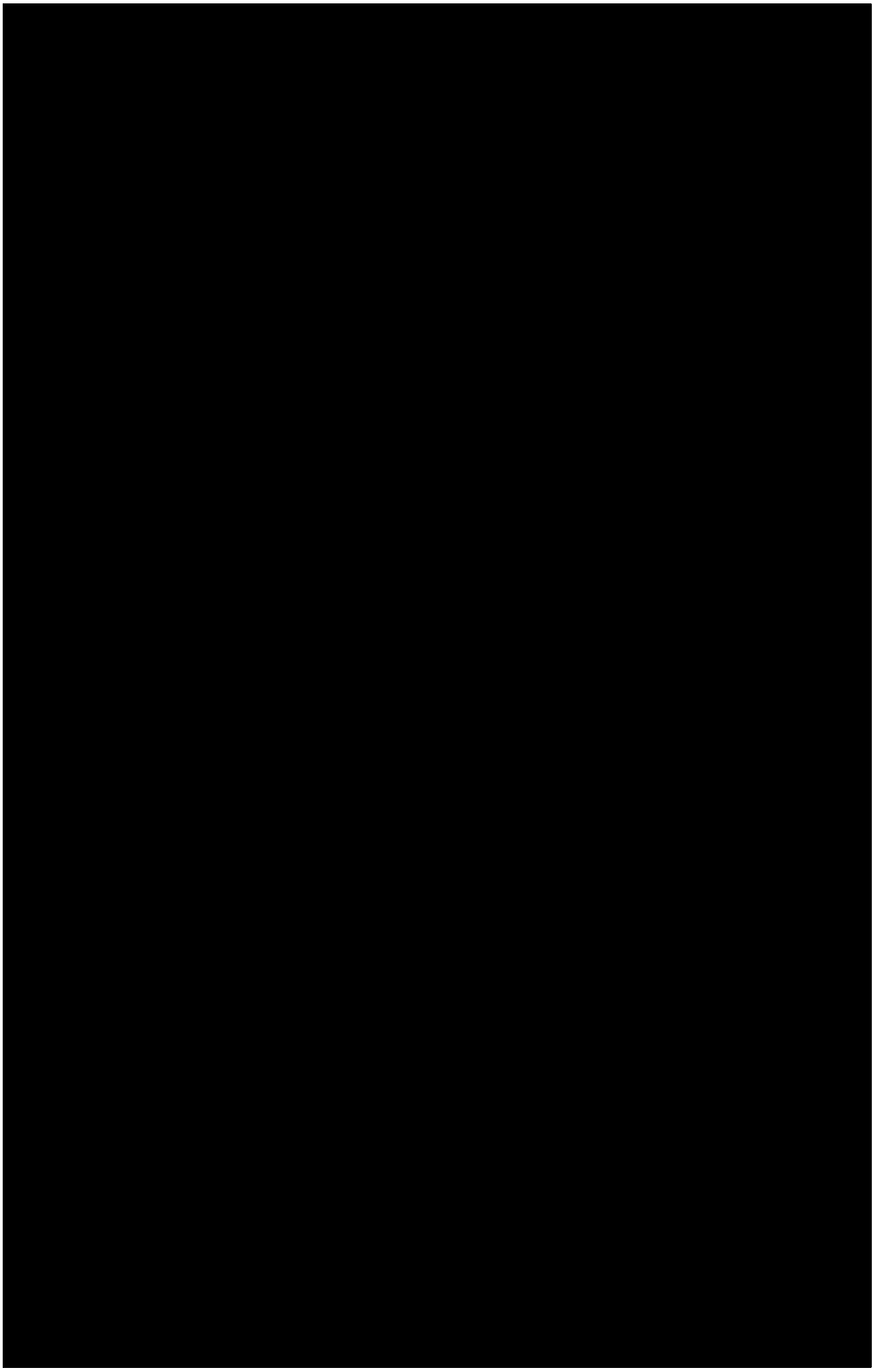


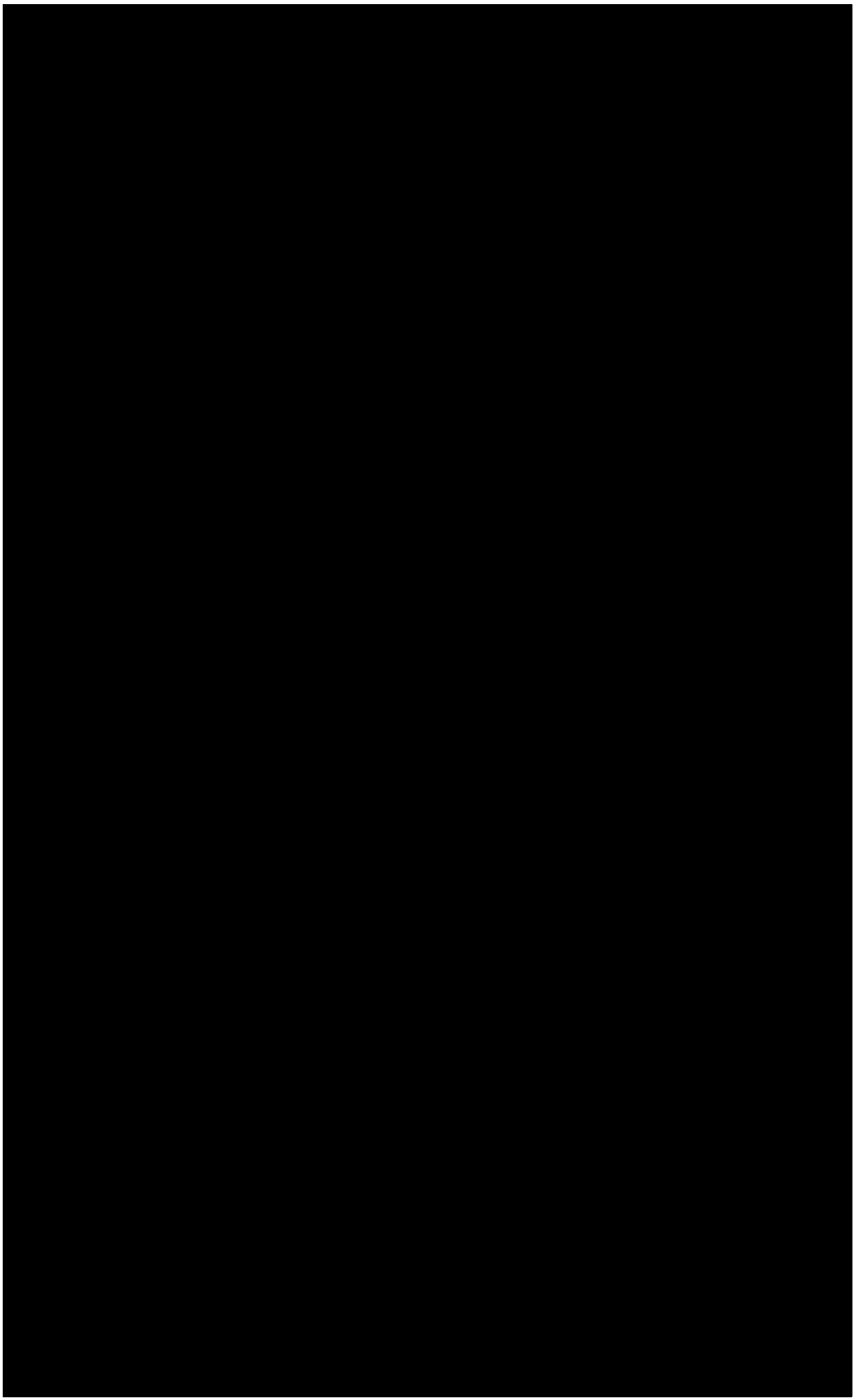


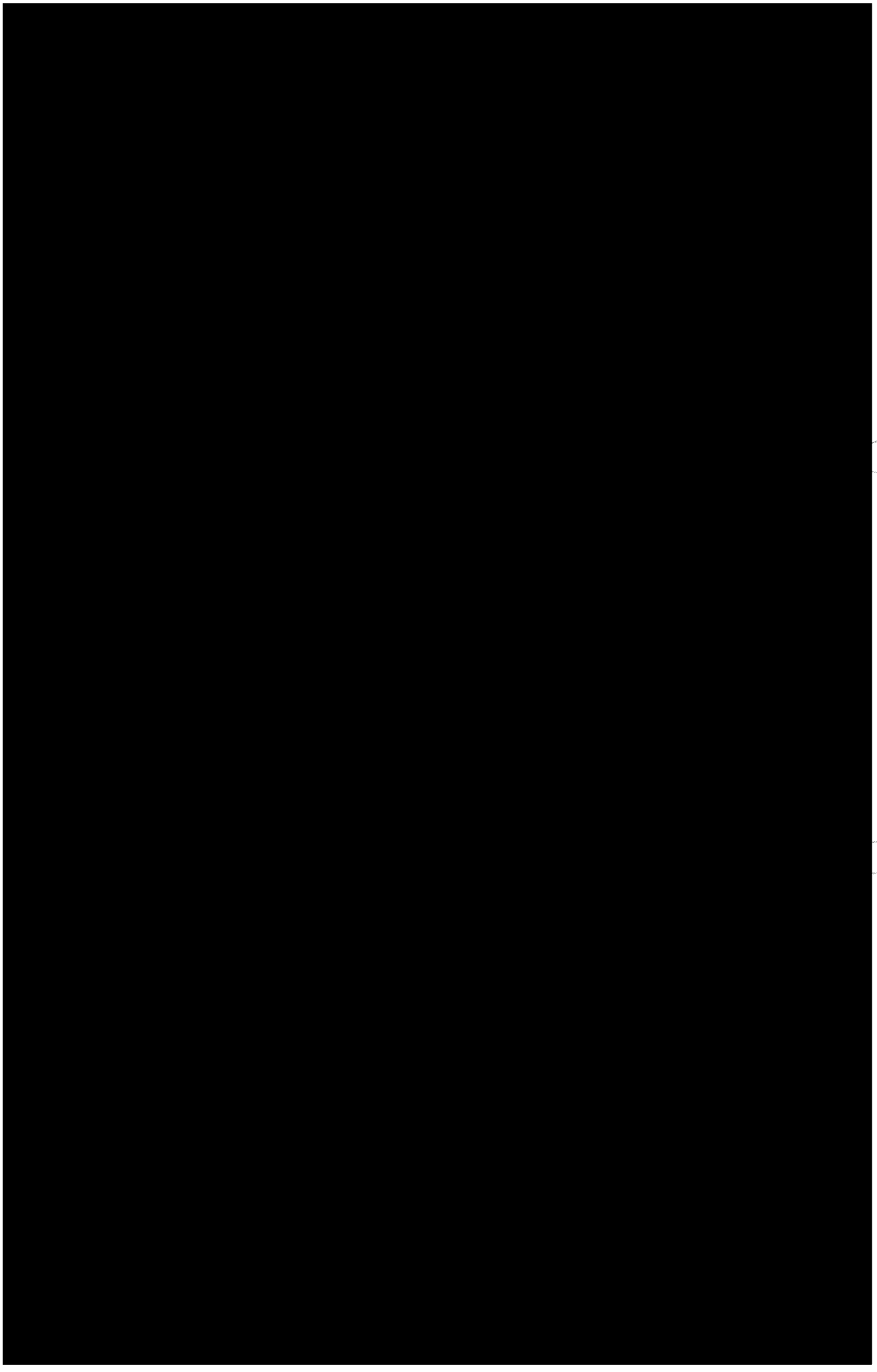


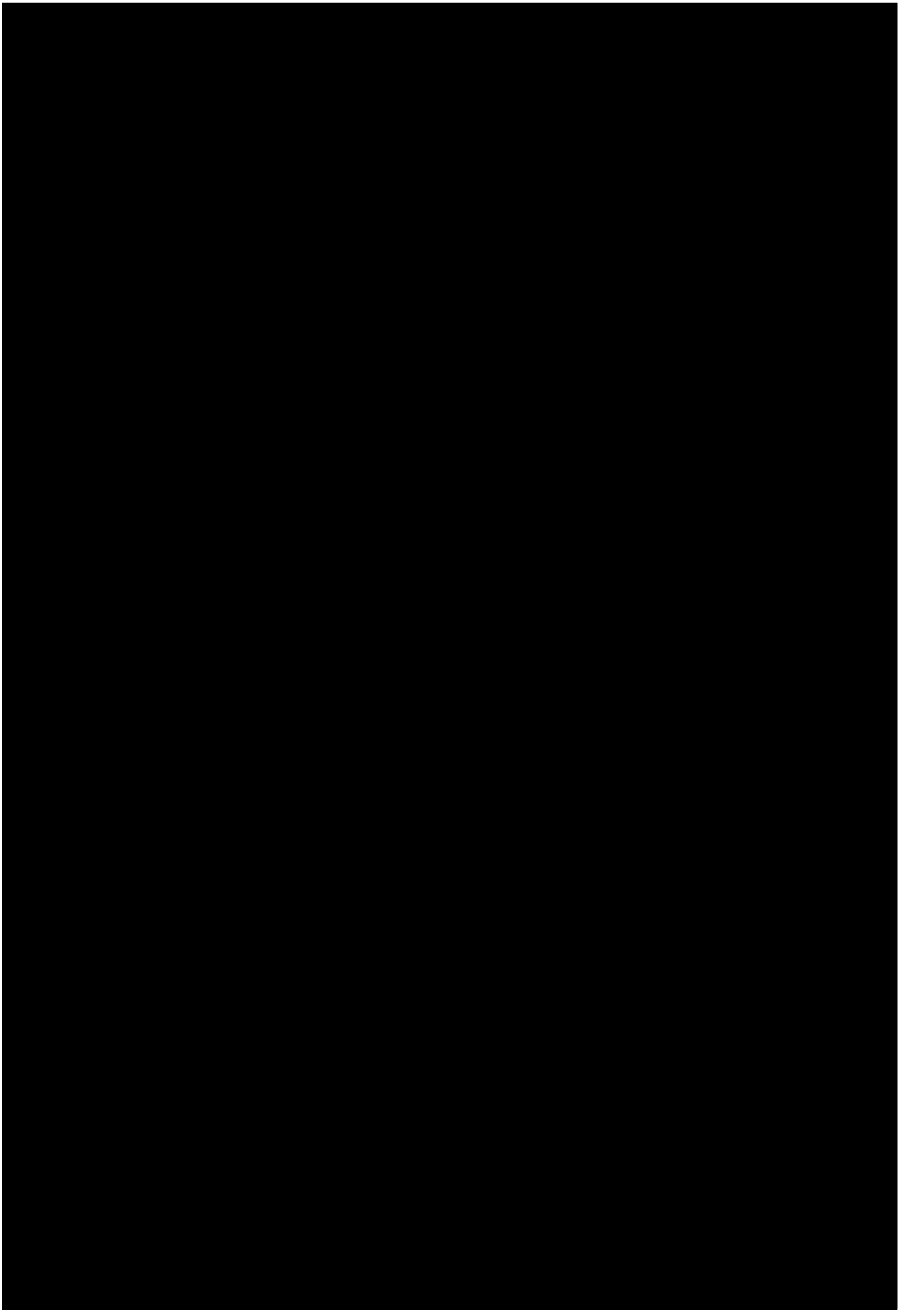


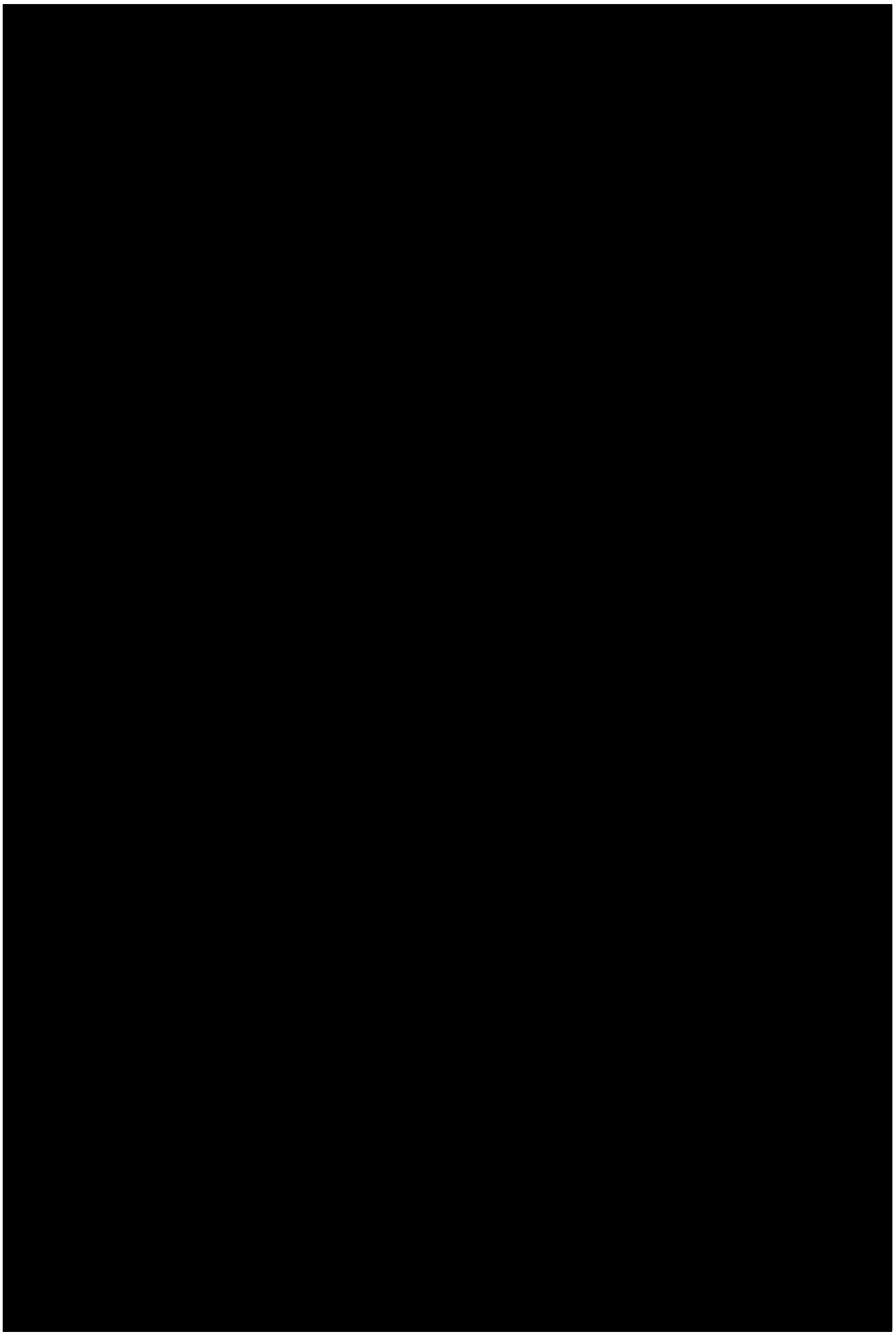


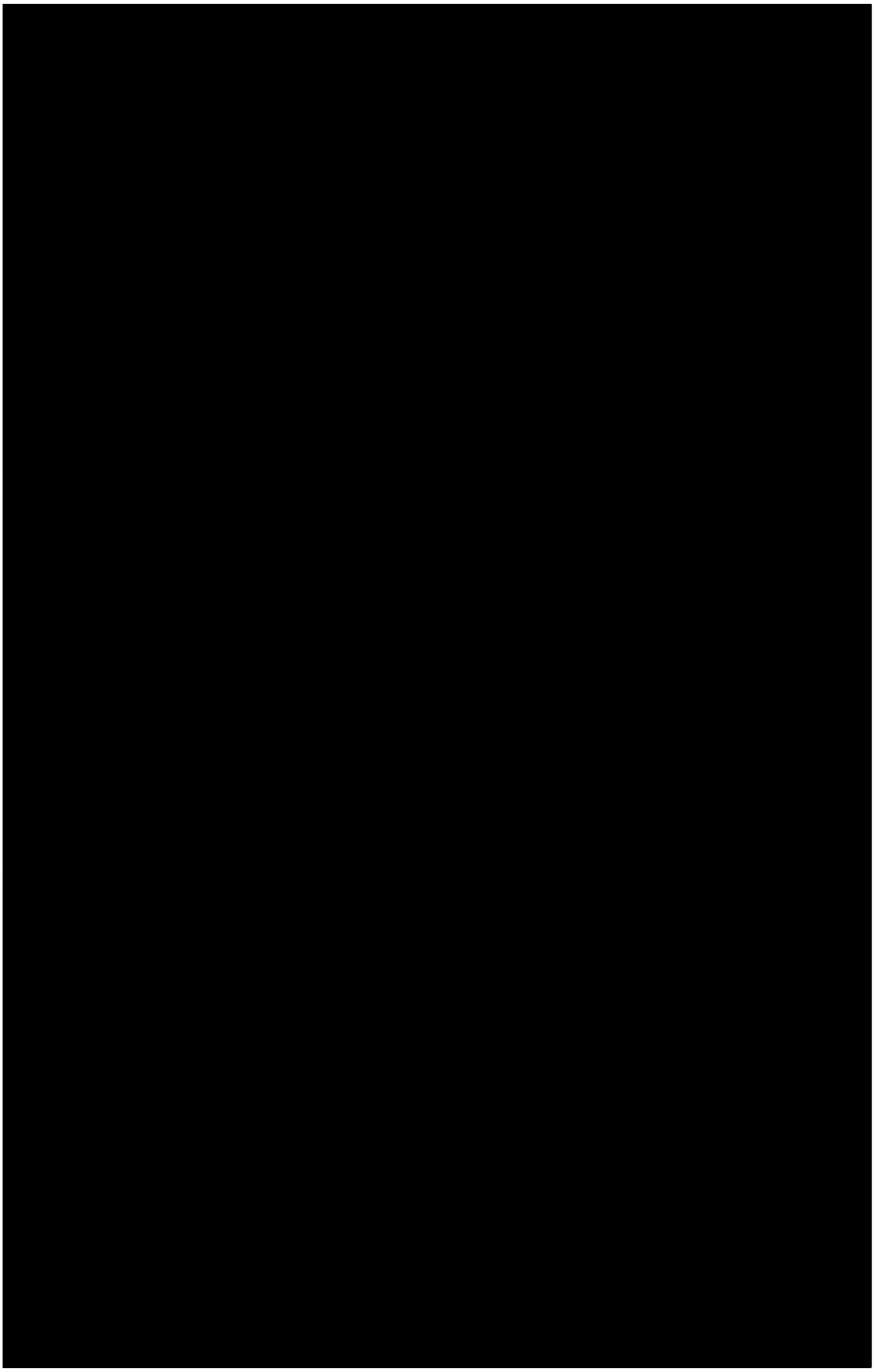


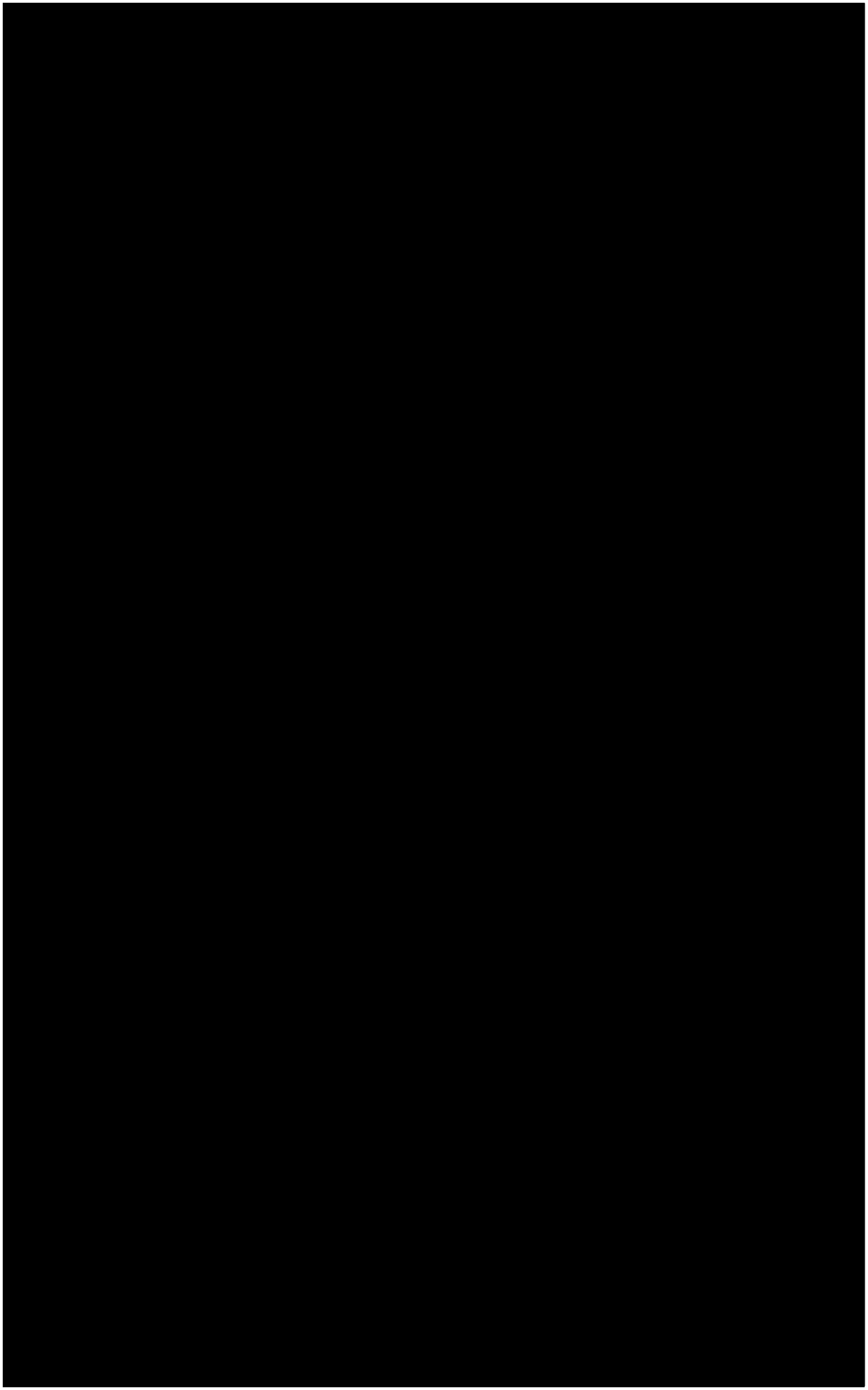


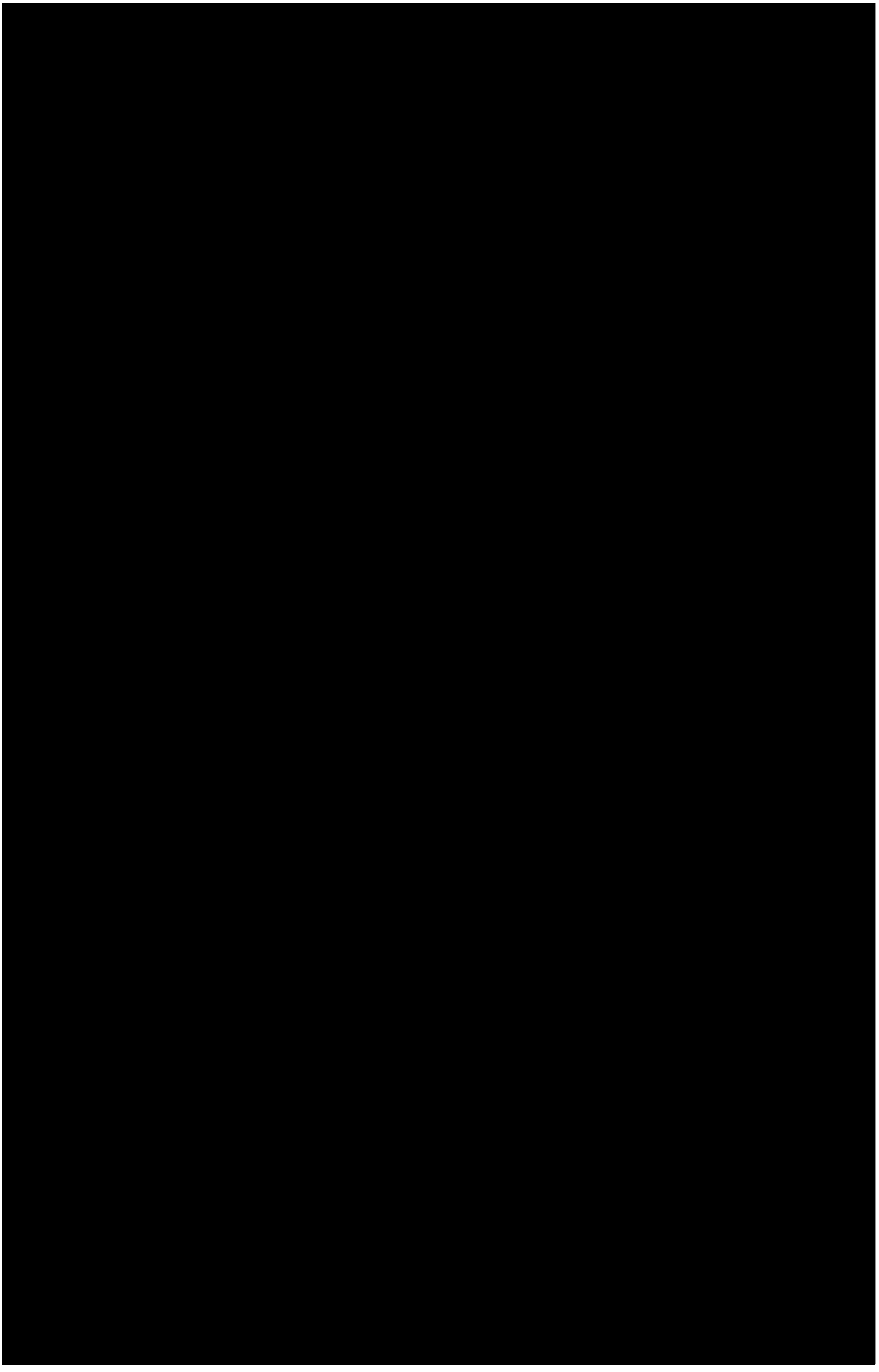


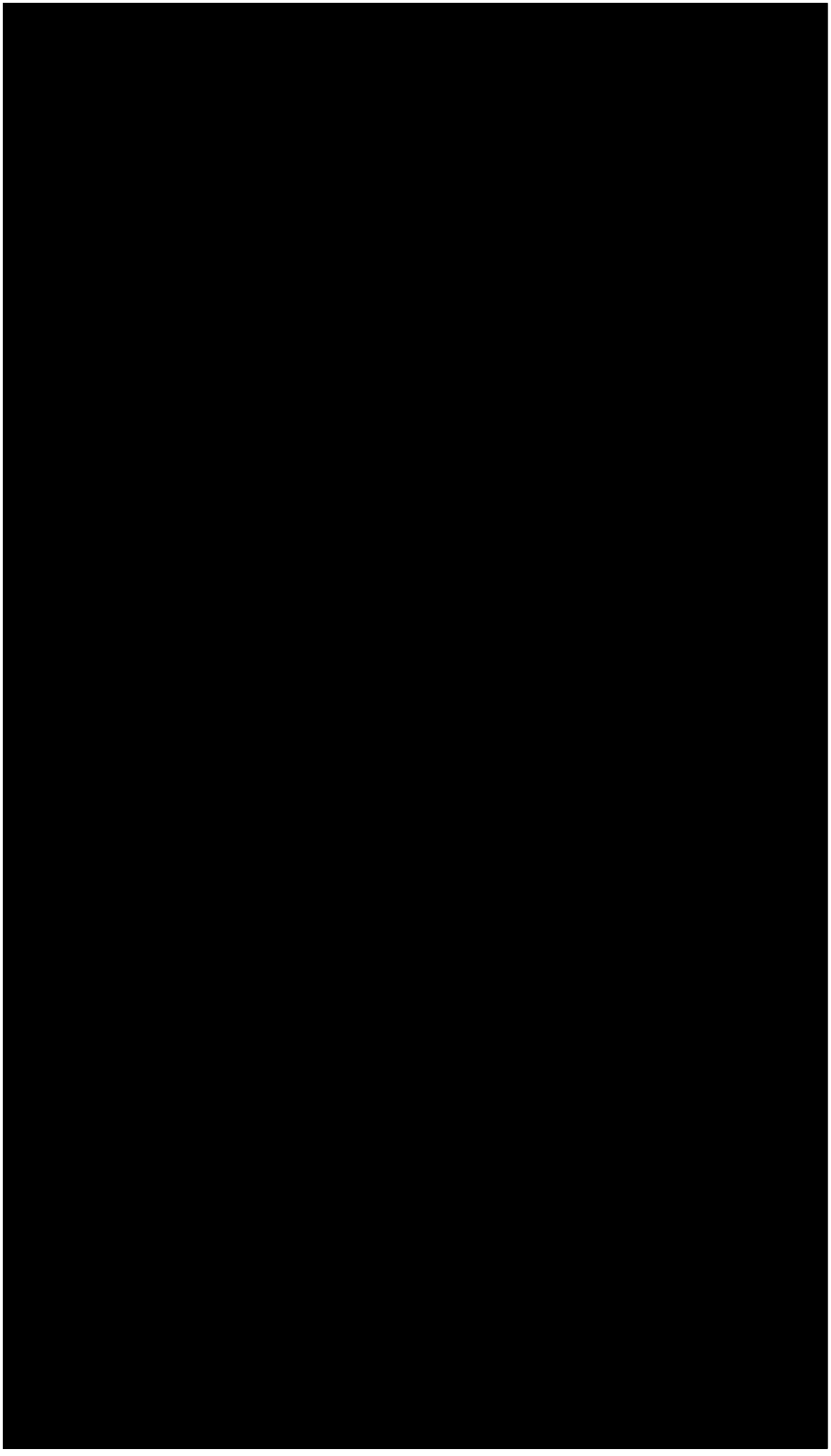


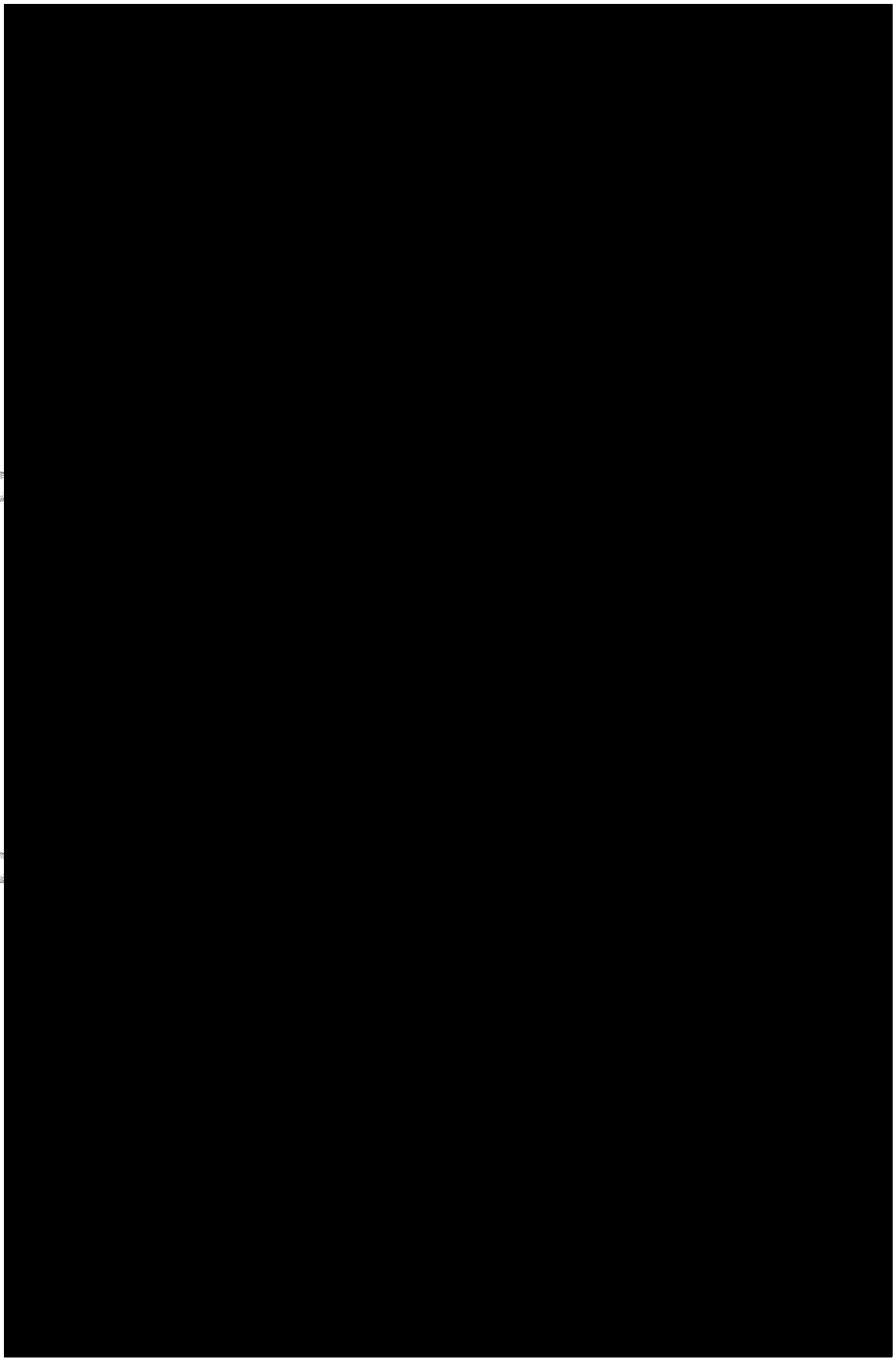


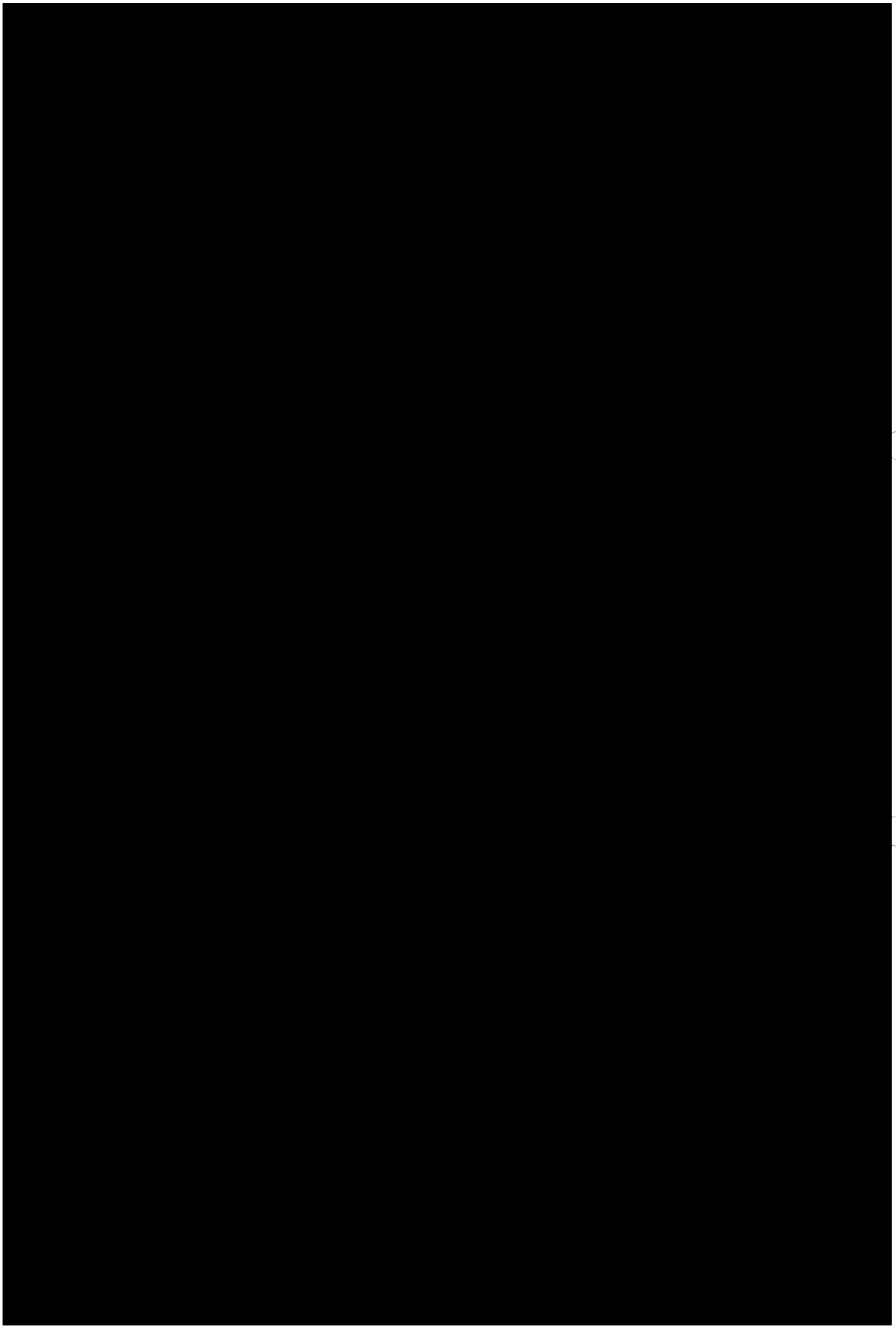


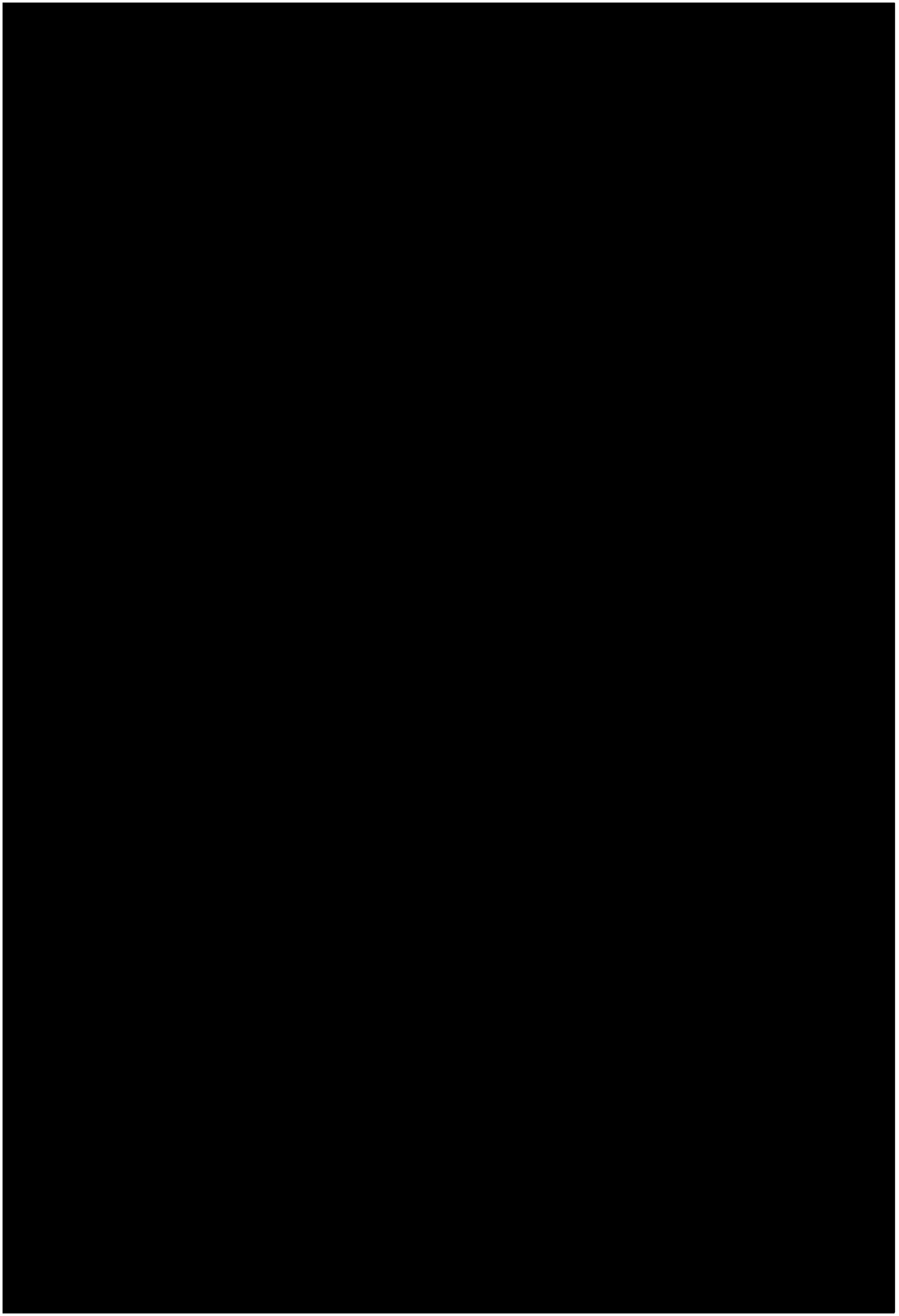


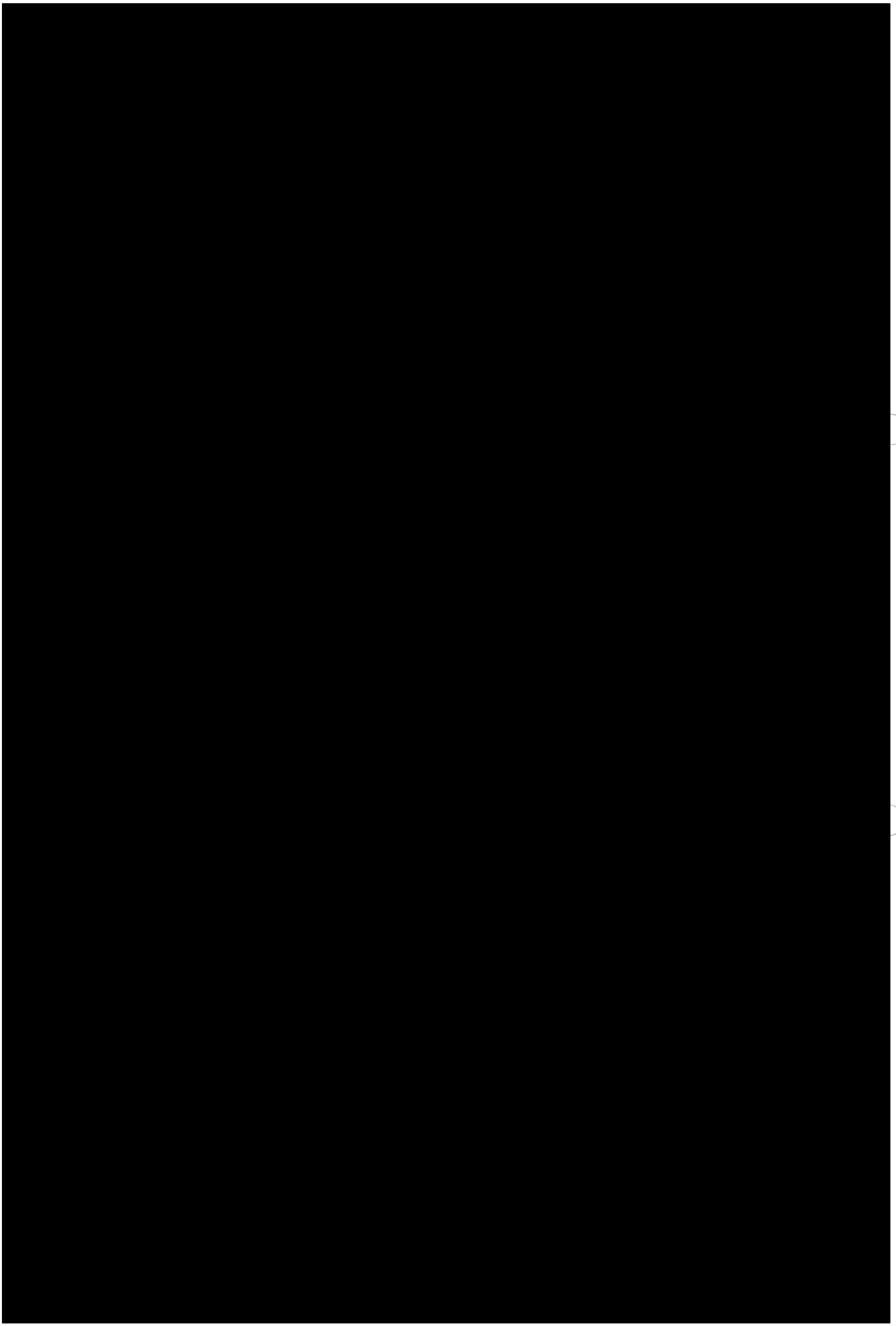


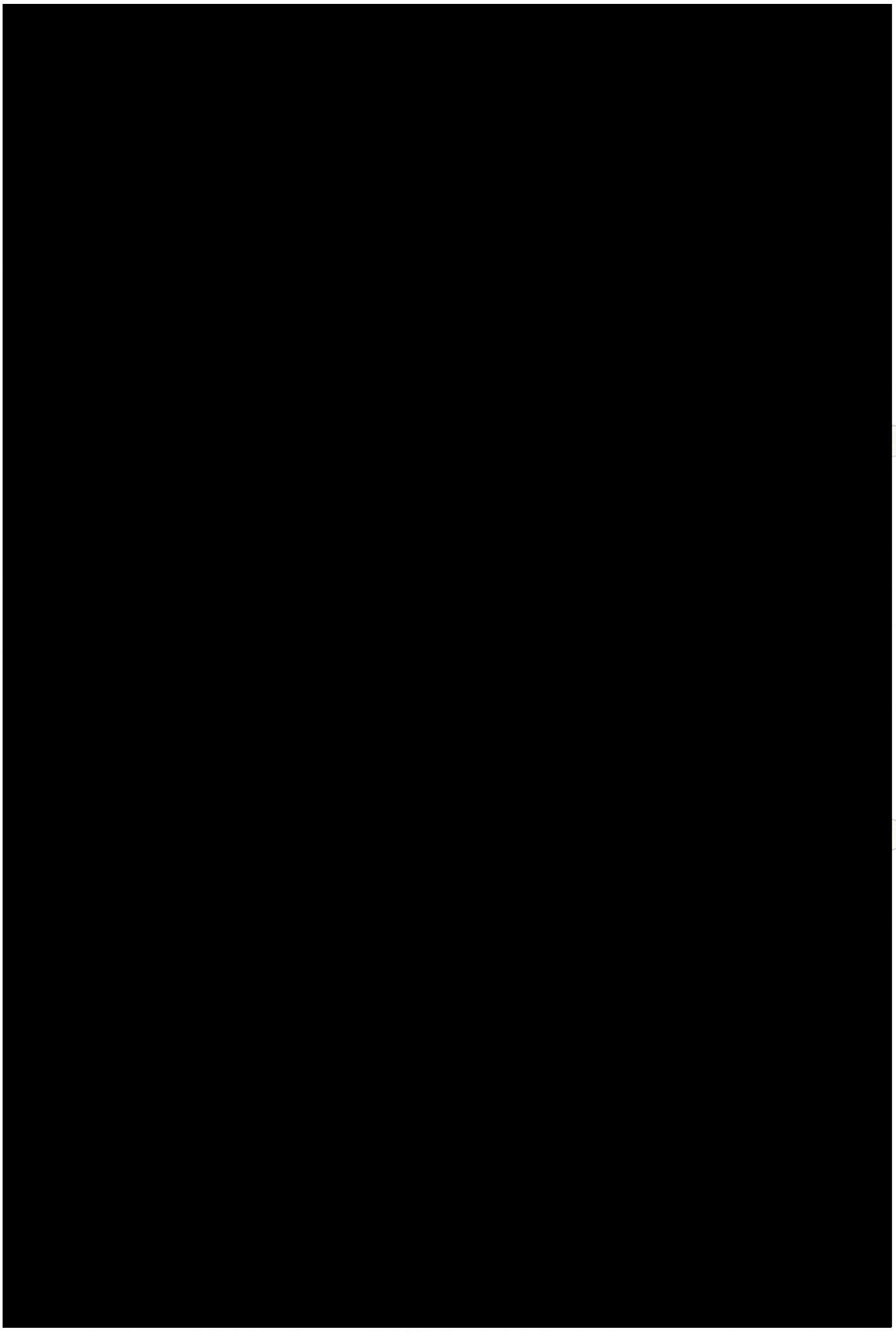


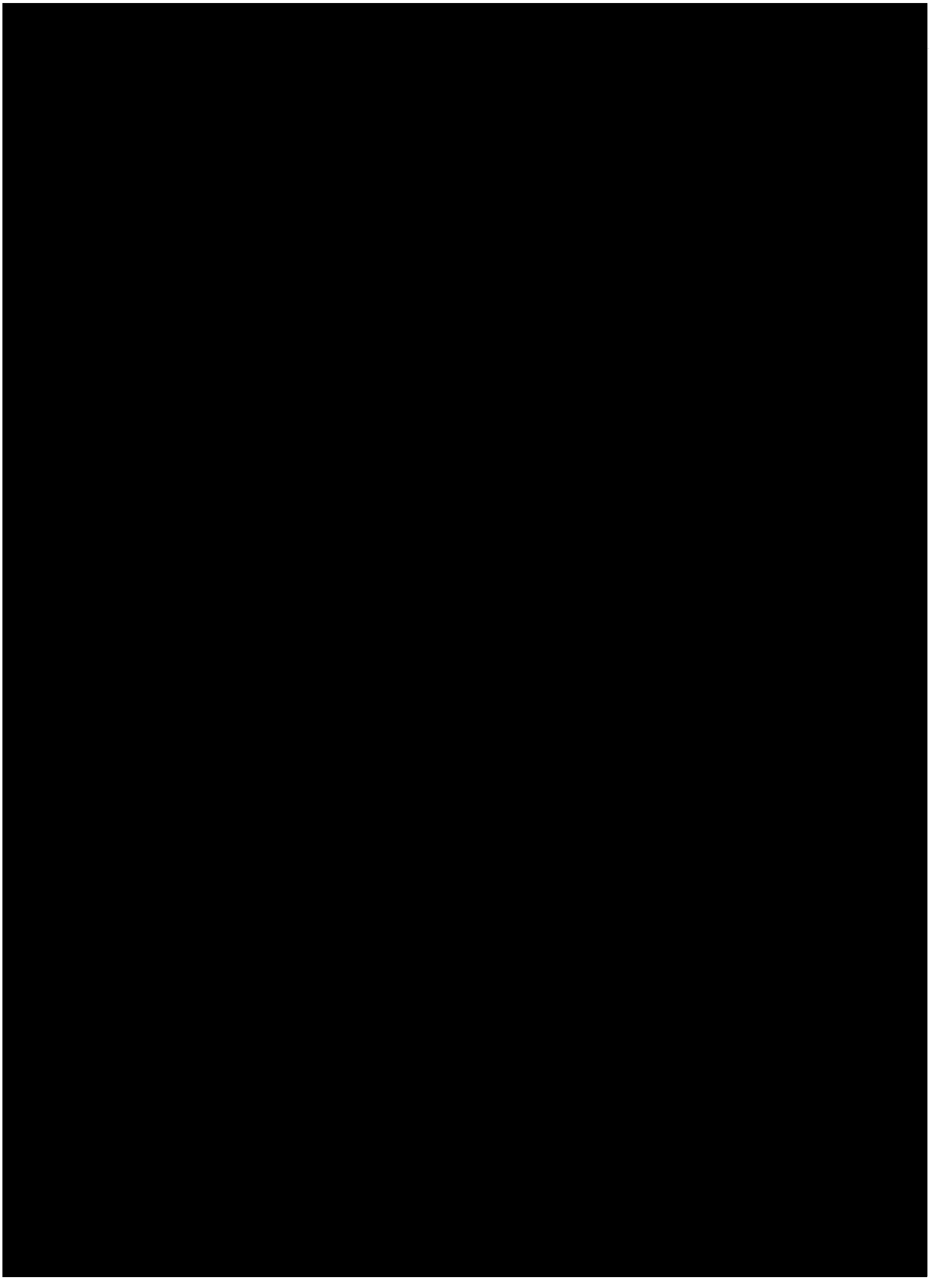












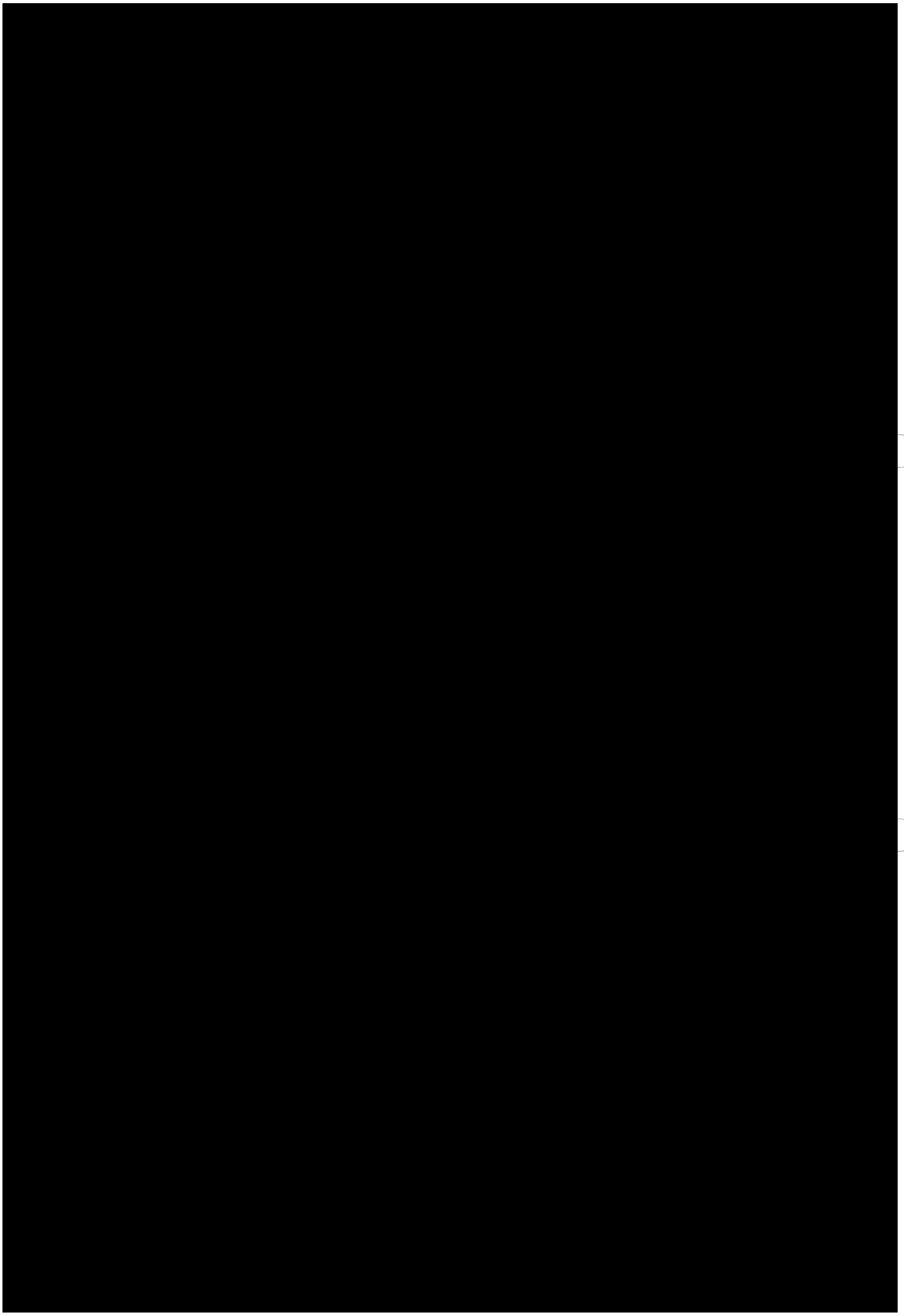
SCHEDULE E6. – CSM CONTRACTOR'S INITIAL PROGRAM

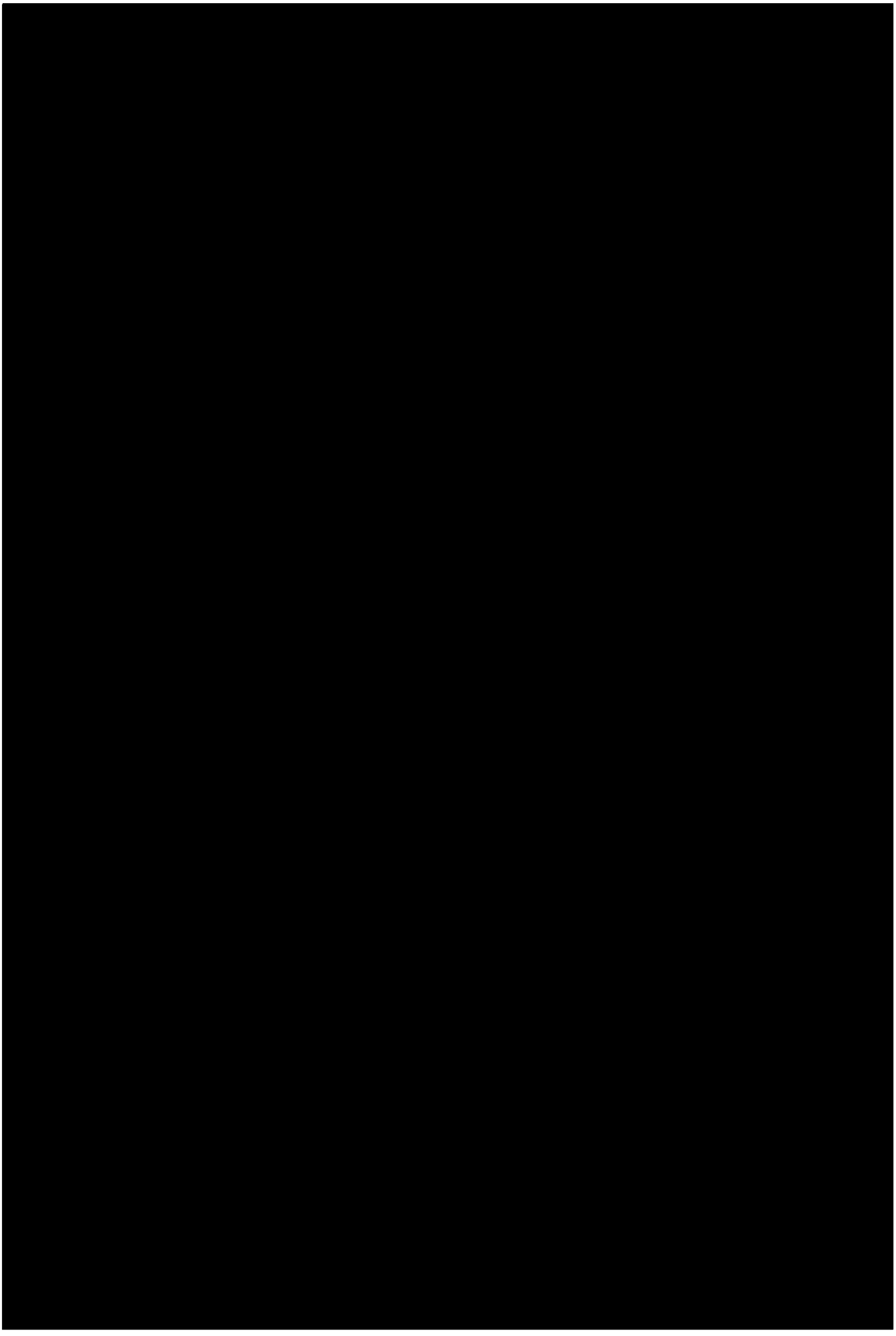
(Clauses 1.1 and 14.2(a))

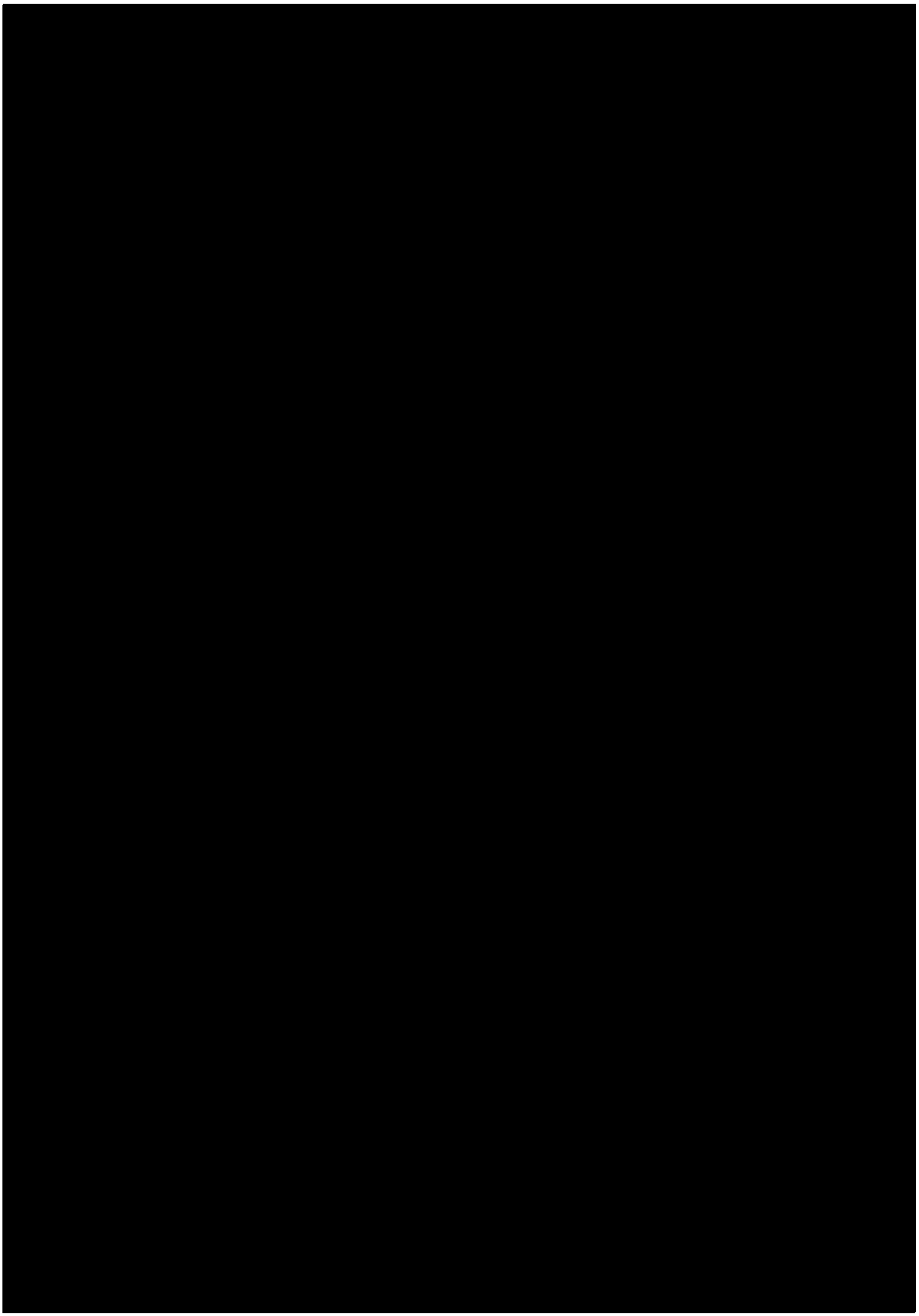
The CSM Contractor's Initial Program is contained as an electronic file in Schedule G1 to this Contract.

SCHEDULE E7. – ADJOINING PROPERTY EASEMENTS

(Clauses 1.1, 3.7(b)(i) and 3.8(a)(ii))





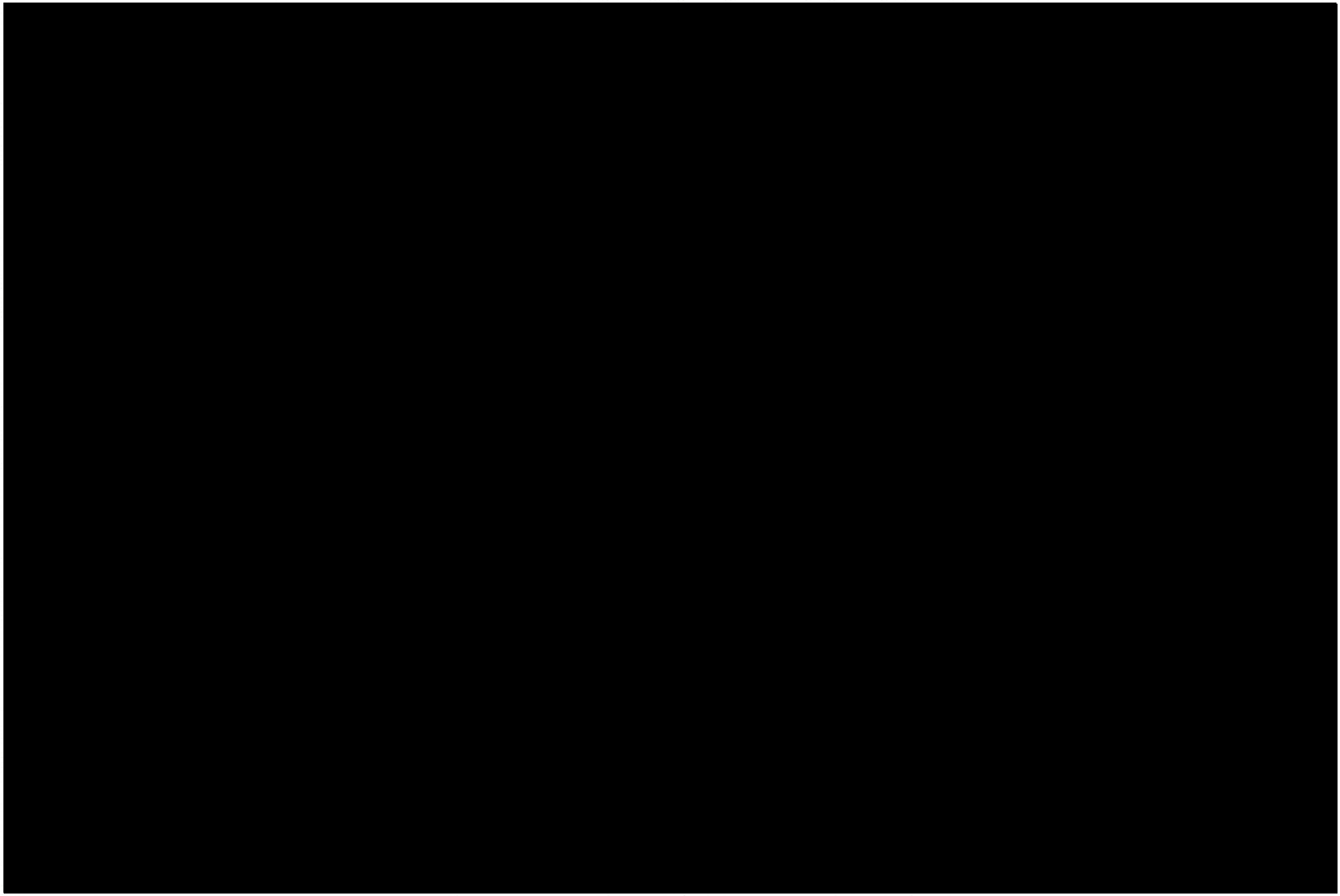


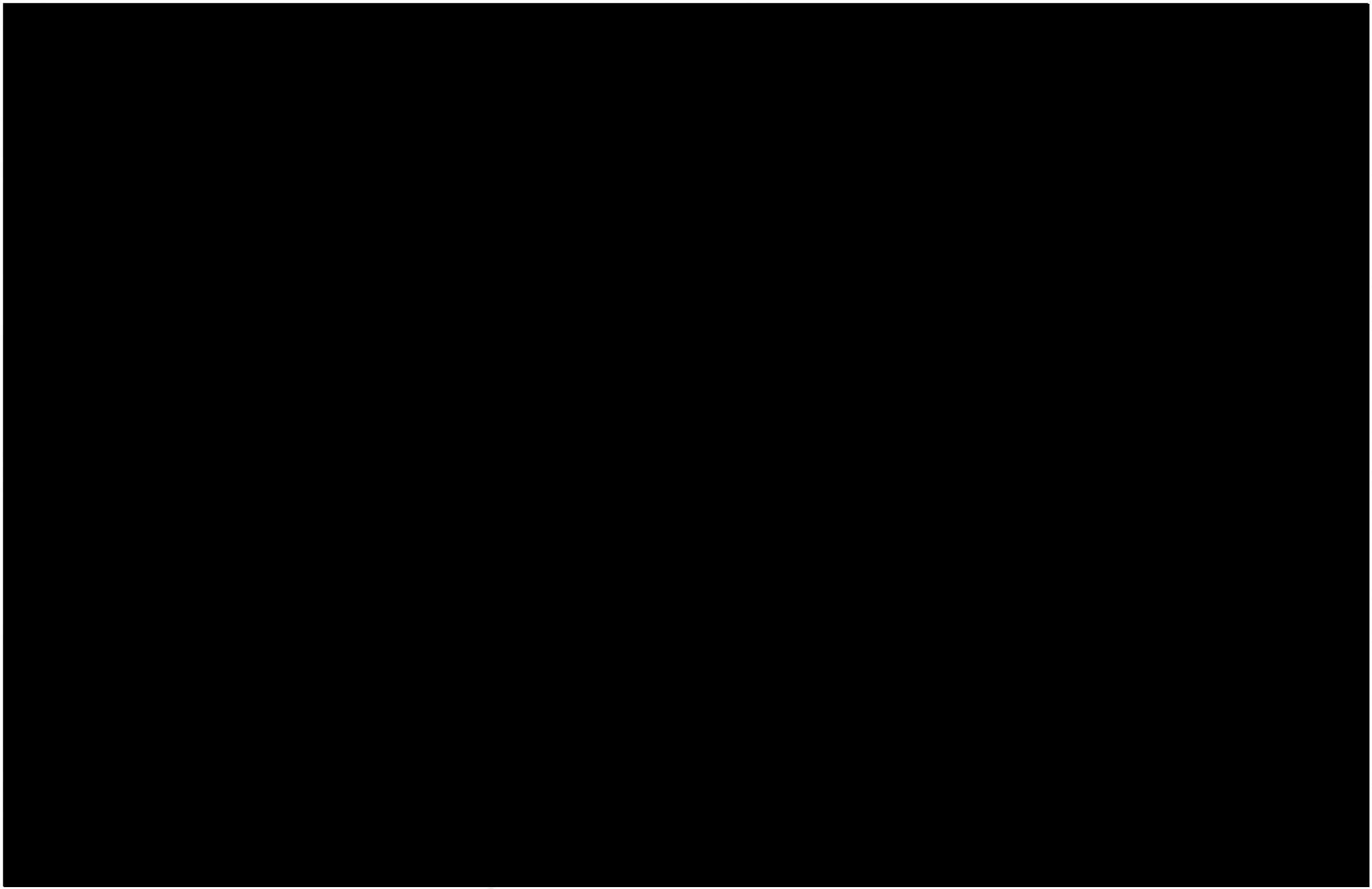
SCHEDULE E8. - ADJOINING PROPERTIES

(Clauses 1.1 and 3.7)

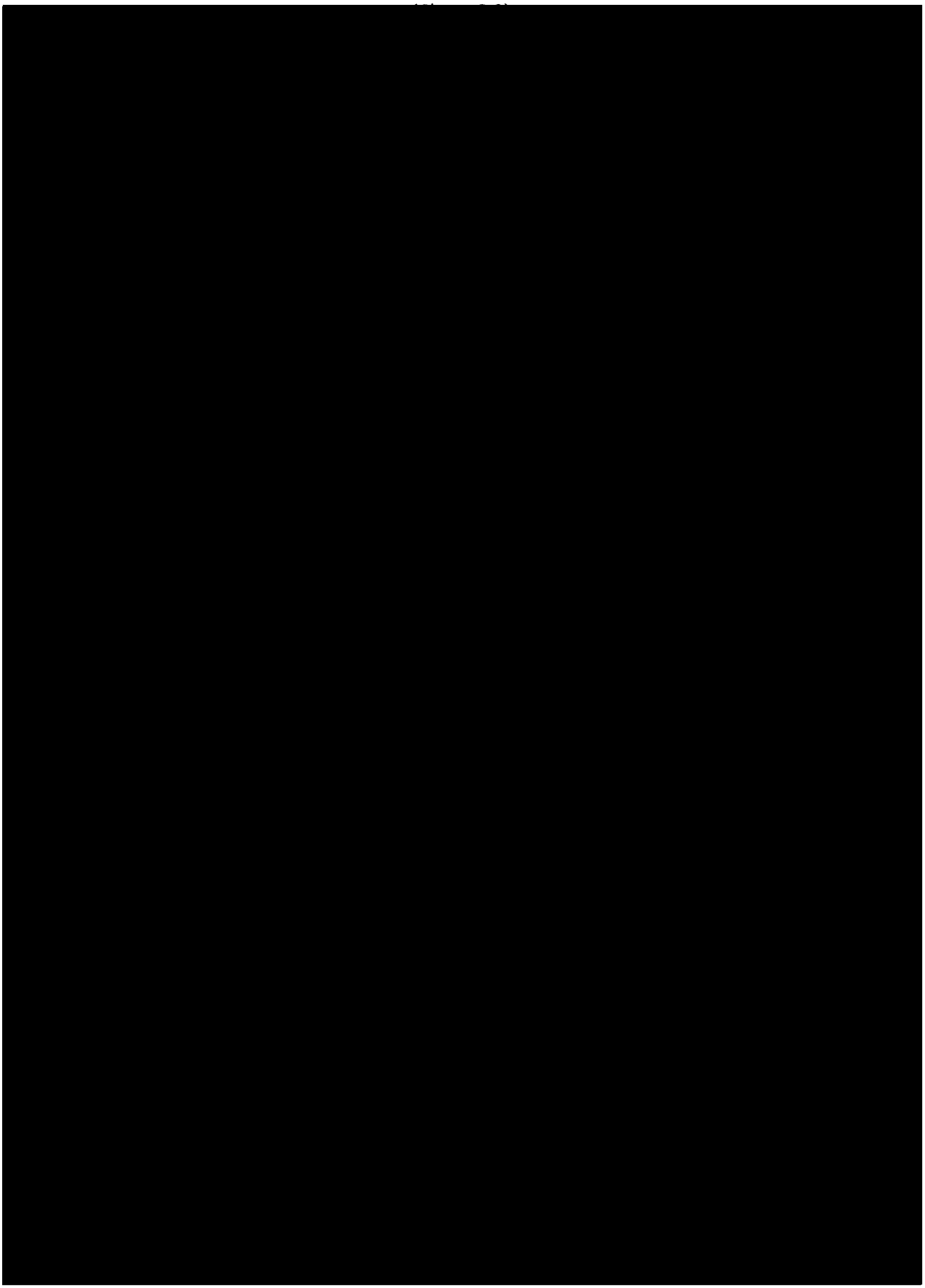
PART 2

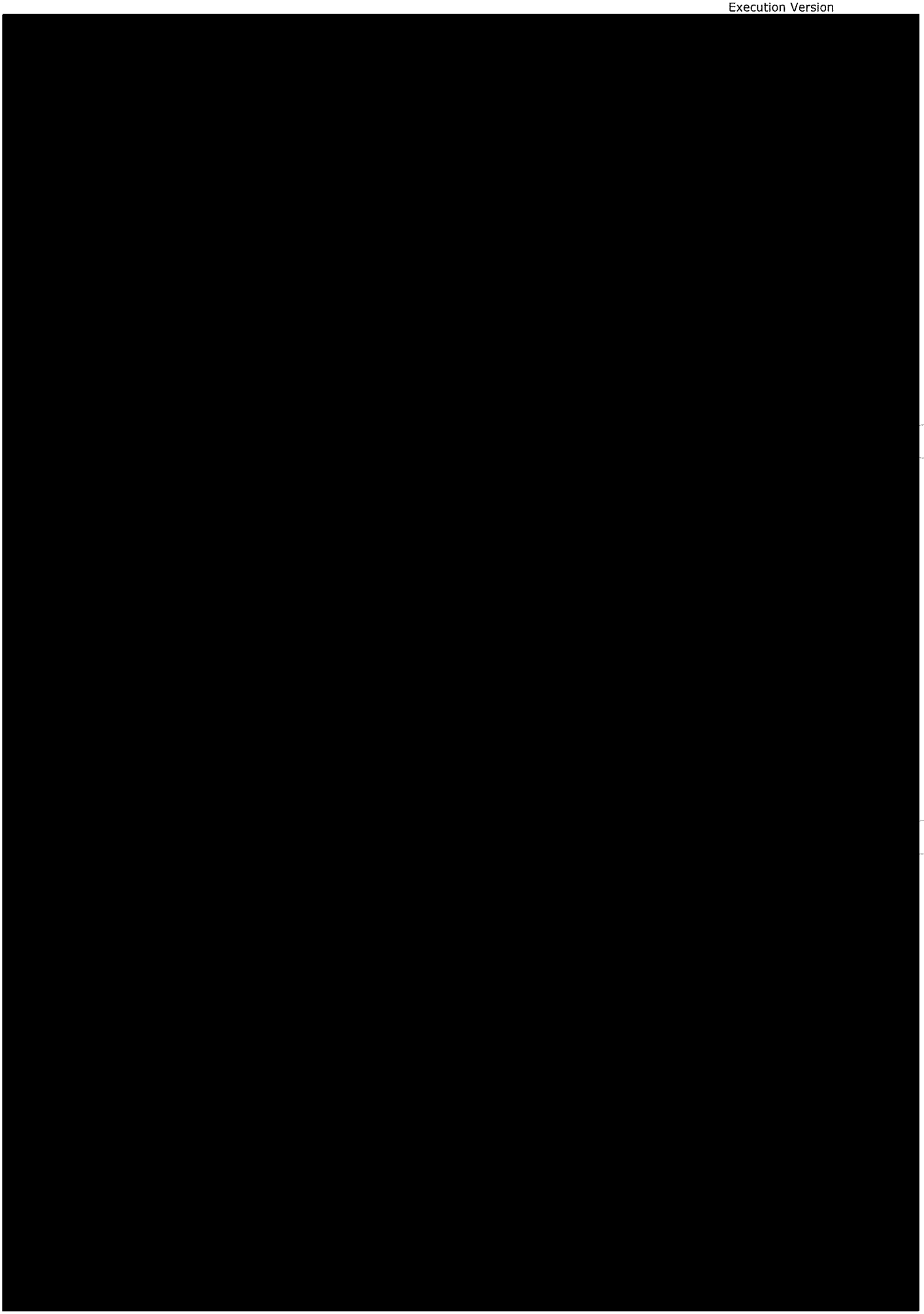
The plans in this Part 2 do not show any height and depth limits. The parties acknowledge that the zones to be acquired will be limited in height and depth and in particular all crane access zones will be located in the airspace of the Adjoining Properties and the rock anchor zones will be located beneath the surface of the Adjoining Properties.

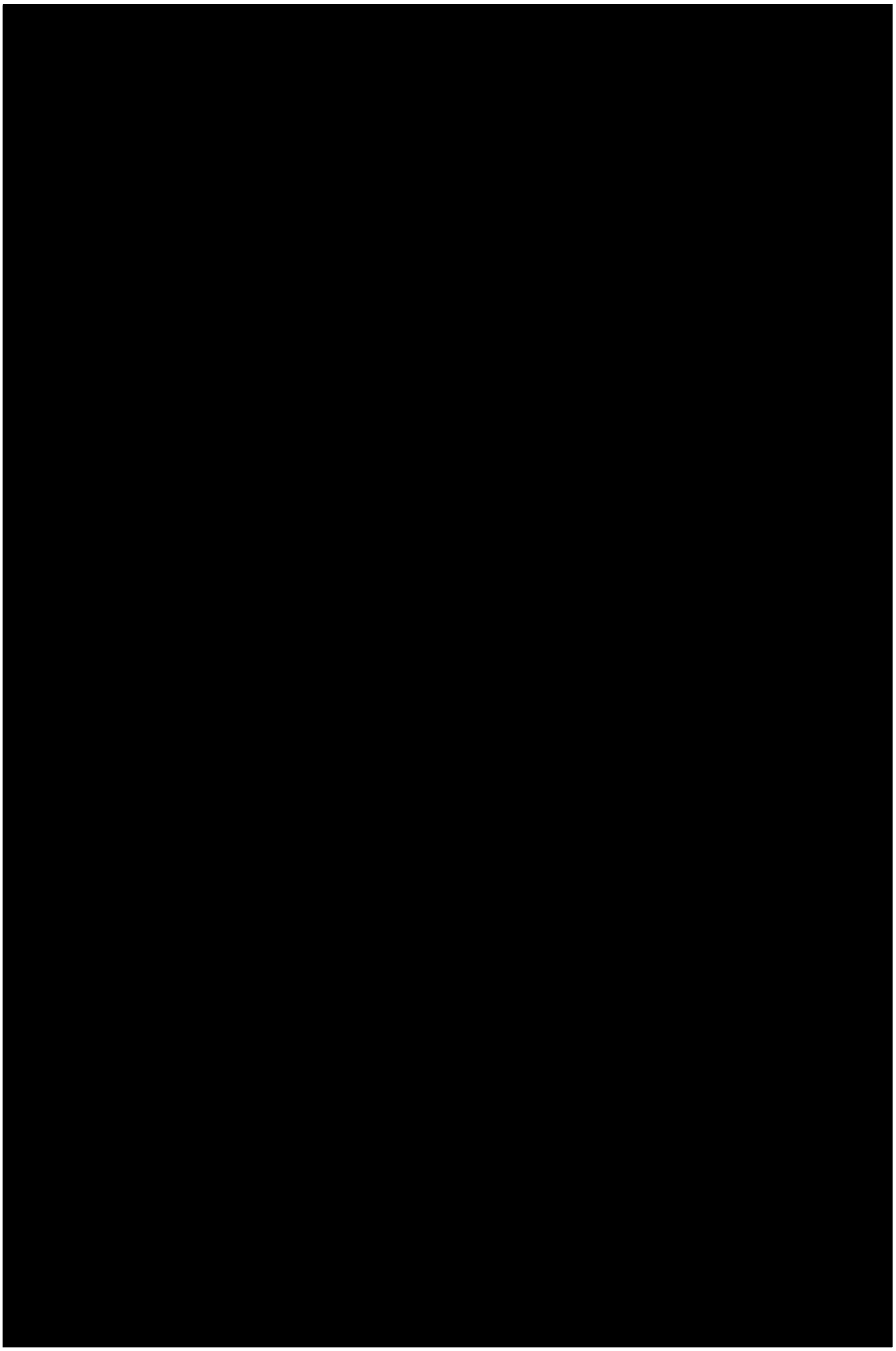




SCHEDULE E9. – REQUIREMENTS OF ADJOINING PROPERTY EASEMENTS







SCHEDULE E10

LIFTS AND ESCALATORS – DSI CONTRACT TERMS SHEET

[redacted]