List of redactions

The following table lists the basis for all redactions in the contract under section 32 of the *Government Information (Public Access) Act 2009*.

There is no intention to release any of the material redacted in this contract at a later date.

Page number(s) of redaction	Basis for redaction
61	Commercial-in-confidence
89	Commercial-in-confidence
91	Commercial-in-confidence
108-118	Not part of disclosable contract
132	Commercial-in-confidence
171-172	Commercial-in-confidence
196-202	Security
205-206	Security
209	Security
211-214	Security
240-483	Security
497-785	Security
794-892	Commercial-in-confidence
893-894	Commercial-in-confidence
896	Commercial-in-confidence
931-955	Commercial-in-confidence
956	Not part of disclosable contract
958-975	Commercial-in-confidence

PROCURE IT FRAMEWORK

VERSION 3.1

PART 2: CUSTOMER CONTRACT

TABLE OF CONTENTS

1. Recitals

PROCURE IT FRAMEWORK

1.1 The New South Wales Department of Finance and Services administers the *Procure IT Framework*.

1.2 The NSW Procurement Board ('the Board') is established under section 164 of the Public Works and Procurement Act 1912 (NSW) ('PWP Act'). The Board may pursuant to section 174 (1) of the PWP Act ,establish a scheme under which a Government Agency accredited by the Board may procure goods and services for that agency or for other government agencies, subject to any terms and conditions of its accreditation.

1.3 The Contract Authority is the head of a Government Agency, which may procure goods and services for that agency or for other government agencies consistent with any applicable policies and directions of the Board, the terms of its accreditation (if any) by the Board, and the principles of probity and fairness.

1.4 The relevant Contract Authority is responsible for the administration of the Head Agreement on behalf of Eligible Customers and has authority to act on behalf of these entities in this respect.

1.5 The *Procure IT Framework* is designed so that Products and Services can be acquired:

(a) as a result of a panel arrangement where an entity acts as the Contract Authority and establishes a master purchasing arrangement where one or more Contractors agree to offer certain Products and/or Services to Eligible Customers at pre-agreed Prices and on pre agreed core terms and conditions, for a defined Term (**Panel Arrangement**); or

(b) using an alternate procurement process that does not involve a Panel Arrangement (**Non-Panel Arrangement**).

PANEL ARRANGEMENT

1.6 Where the *Procure IT Framework* is used for a Panel Arrangement, the Contract Authority will undertake a procurement process and the successful Contractors will sign the Head Agreement and go onto the panel. The Head Agreement requires that all Eligible Customers who acquire Products and Services under the Panel Arrangement acquire the Products and Services using the form of Customer Contract that is set out in the *Procure IT Framework*.

1.7 The Head Agreement describes the relationship between the Contract Authority and the Contractor for the administration of the Panel Arrangement, including the Products and Services that can be acquired under the Panel Arrangement, how those Products and Services can be updated during the Term, the Pricing for the Products and Services, which entities are entitled to acquire Products and Services under the Panel Arrangement, which Approved Agents can be used by the Contractor to supply the Products and Services, the Term of the Panel Arrangement, the minimum insurance requirements and any Performance Guarantee that might apply to Customer Contracts entered into under the Head Agreement, as well as the general terms and conditions applicable to the relationship. .

NON-PANEL ARRANGEMENT

1.8 Where there is no Panel Arrangement, a Customer may acquire Products or Services from the Contractor under a Customer Contract, and the terms and conditions of the Head Agreement are not to be used.

CUSTOMER CONTRACT

1.9 The Customer Contract describes the relationship between the Customer and the Contractor for the supply of the Products and Services that are described in the Customer Contract. Where the Customer Contract is made under a Head Agreement:

(a) the Products and Services that can be acquired, the Prices at which they can be sold, and the degree to which the terms and conditions can be varied are limited by the terms of the Head Agreement; and

(b) the Customer is entitled to the benefits of any arrangements that have been made by the Contract Authority under the Head Agreement in respect to insurance and any Performance Guarantee.

1.10 The Parties agree to perform their obligations in accordance with the terms and conditions of this Customer Contract.

DICTIONARY

1.11 The *Procure IT Framework* includes the Dictionary, which defines key terms and concepts.

2. Scope of Contract

PRODUCTS AND SERVICES

2.1 Where the Customer Contract is made under a Head Agreement, the Customer must acquire Products and/or Services, at the Prices, which must not exceed the amounts set out in Annexure 3 to the Head Agreement.

2.2 Where the Customer Contract is not made under a Head Agreement, the Customer must acquire the Products and/or Services stated in the Order Documents in accordance with the Customer Contract.

PRICING

2.3 The amounts set out in Annexure 3 to the Head Agreement are the maximum amounts payable by a Customer for the Products or Services acquired during the Term of the Head Agreement, subject to any increase made in accordance with any price variation mechanism stated in Annexure 3 to the Head Agreement. Nothing in this clause 2.3 prevents:

(a) the Contractor from charging a Customer for any item, service, expense or other thing which is permitted to be charged for under a Customer Contract; or

(b) the Contractor and the Customer agreeing Prices which will apply to a Customer Contract which are lower than the amounts stated in Annexure 3 to the Head Agreement.

CONTRACT PERIOD

2.4 The Customer Contract commences on the Commencement Date and will expire at the end of the Contract Period stated in Item 10 of the General Order Form. The Customer may extend the Contract Period on the same terms and conditions for the period stated in Item 10 in the General Order Form, by giving the Contractor written notice at least 30 days prior to the end of the Contract Period.

NOMINEE PURCHASER

2.5 If an Eligible Customer requires a Nominee Purchaser to enter into a Customer Contract on its behalf, the Contractor may not refuse to enter into that Customer Contract solely on the basis that the Customer Contract will be signed by the Nominee Purchaser as agent for the Eligible Customer and will not be signed by the Eligible Customer itself, provided that the Nominee Purchaser:

(a) provides its current registration number as given by the Contract Authority or Eligible Customer;

(b) provides its nominating Eligible Customer's Australian Business Number; and

(c) provides the Contractor with the written authorisation from the Contract Authority or Eligible Customer that confirms the Nominee Purchaser's rights to purchase Products and/or Services as agent for the Eligible Customer.

3. Formation of Customer Contract

FORMATION

3.1 A Customer Contract is entered into under a Head Agreement only where the Head Agreement is cross referenced in Item 7 of the General Order Form.

3.2 Where the Customer Contract is entered into,(and there is either a Head Agreement or the Customer is not the Contract Authority) the Contractor and the Customer:

(a) agree that the Contract Authority may enforce the Customer Contract as agent for the Customer, even though the Contract Authority is not a party to the Customer Contract in its own right and in such circumstances, the applicable limitations and exclusions of liability in respect of the relevant claim will be those set out in clause 18 below, rather than those set out in clause 12 of the Head Agreement; and

(b) may seek to include any Additional Conditions that vary any of the terms and conditions of the Customer Contract including the Protected Clauses, provided that the Customer first obtains the written approval of the Director General, NSW Department of Finance and Services and the Contractor has received a copy of such written approval.

3.3 A Customer Contract between the Contractor and Customer is created upon:

(a) the Parties completing and agreeing the Order Details and any Additional Conditions; and

(b) the Customer and the Contractor signing the General Order Form.

3.4 The Parties must, at a minimum, include in the Order Documents details of the Parties (stated in Item 1 and Item 4 of the General Order Form), Item 7 (if the Customer Contract is placed under a Head Agreement), the relevant Modules that are to be included in Item 8, the Contract Period in Item 10, the Products and Services (stated in Item 11 of the General Order Form or in the relevant Module Order Form), Price (or such details as are required to calculate the Price including those stated in Item 11 of the General Order Form or in the relevant Module Order Form), delivery details (including those stated in Item 12 of the General Order Form), the Contract Specifications (as stated in Item 13 of the General Order Form) and any details from the Module Order Forms that are required to describe the Products or Services.

3.5 The Parties may use a shortened version of the General Order Form (in hard or electronic format) which omits Items that the Parties agree are not required for the Customer Contract, provided that:

(a) the minimum Order Details stated in clause 3.4 are included in that form, as well as any other Order Details that the Parties may agree to include;

(b) the structure and form of the General Order Form is consistent with Schedule 1 (even if some Items are omitted. Where Items are omitted subsequent Items that are included must retain their current Item number or heading so that the references in the Procure IT Framework remain accurate);

(c) the document readily identifiable as a General Order Form that comprises part of this Customer Contract and:

(i) uses the heading:

"General Order Form. Schedule 1 to the Customer Contract (which is Part 2 of the *Procure IT Framework*)"

(ii) and includes the phrase;

"This General Order Form is part of the Customer Contract and incorporates all Parts, terms and conditions and other documents listed in clause 3.8 of Part 2 as if repeated in full in this General Order Form."

and

(d) the shortened document is signed by both Parties.

3.6 The Parties may use an electronic form of any Order Document, provided that an electronic form of the relevant Order Document is lawful.

3.7 To the extent that an Item in the Order Documents has not been completed or is omitted, that Item will be deemed not applicable.

3.8 The Customer Contract comprises:

(a) any Modules that are stated as forming part of the Customer Contract in Item 8 of the General Order Form and the corresponding Module Order Forms;

(b) any Schedules that are stated as forming part of the Customer Contract in Item 9 of the General Order Form other than Schedule 1 (General Order Form), Schedule 2 (Agreement Documents), Schedule 3 (Service Level Agreement) or Schedule 12 (PIPP);

(c) any Additional Conditions in Schedule 1 (if applicable);

(d) the other provisions of Schedule 1;

(e) these clauses 1 to 26;

(f) Part 3, the Dictionary;

(g) any PIPP agreed by the Parties based on Schedule 12 (PIPP);

(h) any Service Level Agreement agreed by the Parties based on Schedule 3 (Service Level Agreement);

(i) all other Order Documents;

(j) Annexure 3 to the Head Agreement (if applicable); and

(k) the Agreement Documents (if any).

3.9 To the extent that there is any conflict between any of the documents that comprise the Customer Contract, the conflict shall be resolved by giving priority to the documents in the order in which they appear in clause 3.8 (with an item higher in the list having priority over a lower item).

3.10 For clarity:

(a) the terms and conditions of use of NSWBuy or any other electronic purchasing system used by the Customer are not part of the Customer Contract;

(b) if the Customer uses any document that has any terms and conditions on it as the basis of a General Order Form (including a purchase order) then any terms and conditions that are on that document (whether pre-printed, automatically generated or otherwise) but are not in the form and structure of the General Order Form, are expressly excluded from the Customer Contract. Any Additional Conditions must be inserted as Item 43 (Additional Conditions) of a General Order Form.

COMPLIANCE WITH CONSUMER LAWS

3.11 To the extent that the provisions of the *Competition and Consumer Act* 2010 (Cth) (**CCA**) apply to goods or services supplied under this Customer Contract, then the provisions of this Customer Contract are subject to the provisions of the CCA.

3.12 To the extent that there is a failure to comply with a guarantee under sections 54 to 59 in schedule 2 of the CCA in respect of goods which are not goods of a kind that are ordinarily acquired for personal, domestic or household use or consumption, then to the extent permitted by law, the Contractor's liability is limited to one or more of the following, at the election of the Contractor:

(a) the replacement of the goods or the supply of equivalent goods;

(b) the repair of the goods;

(c) the payment of the cost of replacing the goods or of acquiring equivalent goods;

(d) the payment of the cost of having the goods repaired.

3.13 To the extent that there is a failure to comply with a guarantee in respect of the supply of services under sections 60 to 62 in schedule 2 of the CCA, then to the extent permitted by law, the Contractor's liability is limited to one or more of the following, at the election of the Contractor:

(a) supplying the services again; or

(b) payment of the cost of having the services supplied again.

4. Relationship

4.1 The Contractor agrees that it will not be taken to be and must not represent that it is the employee, partner, officer and/or agent of the Customer.

5. Deliverable Specific Issues

DELIVERY

5.1 The Contractor must deliver any Deliverables to the Site between the hours stated in Item 12 of the General Order Form as otherwise agreed in writing.

5.2 The Contract Price is inclusive of any additional or separate delivery costs, unless otherwise stated in the Order Documents including Item 11 of the General Order Form.

5.3 The Parties must perform their obligations in accordance with any Service Level Agreement. Either Party may periodically review the Service Level Agreement and may recommend or request a change to a Service Level Agreement. Any change to a Service Level Agreement must be implemented as a Change Request in accordance with the procedures stated in Schedule 4 – Variation Procedures.

DOCUMENTATION

5.4 The Contractor must provide the User Documentation and any Bespoke User Documentation to the Customer in either hard copy or electronic format. If the User Documentation is provided in hard copy format:

(a) the Contractor must make available, at no additional cost to the Customer, at least one copy of the User Documentation and such related material as the Contractor usually makes available free to its other customers, upon supply of the Product or Service to the Customer, or at the time(s) stated in the PIPP; and

(b) additional copies of the User Documentation must, if requested by the Customer, be provided by the Contractor at the Price stated in Item 15 of the General Order Form, or if the Price is not stated in the Order Documents, at the Contractor's then current commercial price.

5.5 The Contractor must ensure that any User Documentation and Bespoke User Documentation:

(a) is of a reasonable standard in terms of its presentation, accuracy and scope;

(b) provides an explanation of functions, capacity and operations of the relevant Product, Service or Deliverable;

(c) in the case of User Documentation only, is the most current and up-to-date version available; and

(d) is in the English language.

5.6 Where the Customer identifies any Defect in the User Documentation or Bespoke User Documentation within 30 days of the date of supply of the User Documentation or Bespoke User Documentation to the Customer, the Contractor must amend the defective User Documentation or Bespoke User Documentation and must promptly supply to the Customer the amended User Documentation or Bespoke User Documentation (or the relevant part) at no additional cost to the Customer.

5.7 The Contractor grants the Customer a right to use the User Documentation in connection with the authorised use of the Product or Service including for training purposes. Where the User Documentation is only provided in an electronic format the Customer may print ad hoc pages of the User Documentation. The Customer must not otherwise copy or adapt (including incorporating parts of the User Documentation into other Documents) without the Contractor's prior written consent (not to be unreasonably withheld).

NORMAL USE

5.8 For the purposes of the CCA, the Deliverables provided under this Customer Contract are ordinarily supplied for the use in connection with processing internal data for business applications which:

(a) do not require very high levels of availability or completely error free use;

(b) are not used for a Prescribed Use;

(c) are not for resale.

If the Parties agree that the Deliverables can be used for any other purpose that other purpose must be set out on the Order Documents.

PRODUCT SAFETY

5.9 If the Contractor determines that a Deliverable requires an engineering change that is classified by the supplier or manufacturer as being mandatory in order to ensure product safety then:

(a) the Contractor will, at its own cost, provide a 'user installable part' which the Customer must promptly install; or

(b) the Customer will allow the Contractor to Install the engineering change, at the Contractor's own cost.

5.10 The Customer agrees that:

(a) the Contractor may maintain such information (including Personal Information) as may be required to assist the Contractor in complying with its obligations under the CCA or other law in respect of product safety, including product recall; and

(b) it will promptly give the Contractor Notice in Writing of any information that the Contractor may need in order for the Contractor to provide any notice relating to product safety that it may be required to provide under the CCA or other law.

6. Delivery Management

PROJECT MANAGEMENT

6.1 Where the Customer Contract is made under a Head Agreement, the Customer shall have the right to appoint a representative of the Contract Authority to act as the Customer's agent for the purpose of exercising any of the Customer's rights arising out of, or in connection with, the Customer Contract.

6.2 The following clauses 6.3 to 6.9 apply if and to the extent stated in the Order Documents.

MANAGEMENT COMMITTEE

6.3 If it is stated on the General Order Form that a management committee is to be established, the Parties must agree and establish a management committee and a process for the conduct of the management committee's business by the date stated in the Order Documents.

6.4 The management committee must consist of the Party's project managers or officers, or such other persons as stated in the Order Documents including Item 16 of the General Order Form.

6.5 All members of the management committee must be authorised and properly qualified, informed and instructed to enable the management committee to properly assess progress under the Customer Contract.

6.6 The management committee must:

(a) review and monitor progress under the Customer Contract; and

(b) carry out any other functions stated in Item 16 of the General Order Form.

6.7 Unless agreed otherwise, the members of the management committee or their authorised delegates must meet weekly at the Customer's offices at an agreed time.

6.8 At least 1 Business Day prior to a management committee meeting, the Contractor's project manager must submit to the Customer's project manager a report of progress under the Customer Contract including:

(a) details (including dates) of Deliverables and Milestones commenced, completed or Accepted;

(b) details of any delays or issues arising from the project, including any known reasons for the delay or issue arising, and plans for the management of such delays and issues;

(c) a review of any:

(i) minutes and actions from the last meeting;

(ii) issues log;

(iii) risk management plan, which must be prepared and maintained in accordance with AS/NZS ISO 31000 Risk Management Standard or equivalent, unless agreed otherwise in writing;

(iv) details of any outstanding invoices and any payments that are about to become due;

(d) draft updates of relevant parts of the Contract Specifications;

(e) any new Change Requests or Contract Variations (if applicable); and

(f) details of the progress of any draft Change Requests or Contract Variations (if applicable).

6.9 If the Customer disagrees with the details recorded in the report, then the Customer must, within 2 Business Days of receipt of the report, make a written endorsement on the report recording its version of the details. The amended report must be provided to the Contractor within 1 Business Day of the Customer updating the report.

PERFORMANCE REVIEWS

6.10 If it is stated in Item 17 of the General Order Form that the Parties must conduct a service and performance review of the Contractor's performance of the Customer Contract, then the Parties must conduct such reviews at the intervals and in accordance with the other requirements, including any obligations under any Service Level Agreement, stated in the Order Documents.

6.11 All reviews must be undertaken by representatives of both Parties who have the authority, responsibility and relevant expertise in financial and operational matters appropriate to the nature of the review. Where the Customer Contract is made under a Head Agreement, either Party may request the involvement of the Contract Authority in any review.

SITE SPECIFICATIONS

6.12 Where it is stated in Item 18 of the General Order Form that a Site Specification is required, the Contractor must inspect the Site and provide the Customer with a Site Specification for the Customer's approval.

6.13 The Contractor must make any amendment to the Site Specification that is reasonably required by the Customer, providing such amendments are requested prior to the delivery of the Deliverables. Where the Contractor reasonably believes that the required amendment will materially affect the Contractor's ability to perform its obligations under the Customer Contract, it will notify the Customer and the Parties will discuss in good faith whether any Change Request is required to deal with such required amendment.

IMPLEMENTATION PLANNING STUDY

6.14 Where it is stated in Item 19 of the General Order Form that the Contractor must provide an implementation planning study, the Contractor must complete the implementation planning study in accordance with the requirements in Item 19 of the General Order Form.

6.15 Any implementation planning study must meet the objectives stated in Item 19 of the General Order Form which may include:

(a) the Contractor's assessment of the scope and complexity of the project;

(b) the required Deliverables;

(c) the resources required (including any resources to be made available by the Customer); and

(d) the development of a PIPP or a Service Level Agreement.

6.16 The Contractor must deliver the implementation planning study to the Customer by the date stated in Item 19 of the General Order Form, and unless it is stated in the Order Documents that it is to undergo Acceptance Tests in accordance with clause 10.1(b), the AAD for the implementation planning study is determined in accordance with clause 10.1(a).

PROJECT SCHEDULE

6.17 The Parties must perform their obligations at the times and in the manner stated in the PIPP as stated in Item 20 of the General Order Form.

CHANGE CONTROL

6.18 Either Party may recommend or request a change to the PIPP or any other part of the Customer Contract. Any change to the PIPP or any other part of the Customer Contract must be implemented as a Change Request in accordance with the variation procedures stated in Schedule 4 – Variation Procedures, subject to clauses 26.1 to 26.2.

STAGED IMPLEMENTATION

6.19 The Parties agree to perform the Customer Contract in accordance with the Stages stated in the PIPP.

6.20 The Customer must give written notice to the Contractor within 10 Business Days (or such longer period stated in Item 20 of the General Order Form) of the end of each Stage as to whether it wishes the Contractor to commence the following Stage.

6.21 The Contractor must not commence any work on Stage two or any subsequent Stage until it receives written notice from the Customer to proceed with the work in that Stage. The signing of the Customer Contract is deemed to be sufficient notification to proceed with work in Stage one.

6.22 Nothing in the Customer Contract shall be construed as obliging the Customer to give the written notice referred to in clause 6.21 in respect of Stage two or any other subsequent Stage.

6.23 The Customer's liability to the Contractor for not proceeding to a subsequent Stage shall be limited to those costs that have been stated in the Order Documents.

EXTENSION OF TIME

6.24 Each Party must do all it reasonably can to promptly inform the other of anything that it becomes aware of which is likely to affect the cost, quality or timing of delivery of the Deliverables, and the Parties must then investigate how to avoid or minimise any adverse effect on the Customer Contract.

6.25 The Customer may consent to a request for extension of time provided that the Contractor provides the Customer with a plan indicating in detail the steps the Contractor proposes to take to minimise the impact of any delay.

6.26 The Contractor may be entitled to a reasonable extension in time and any damages, costs or expenses (calculated using the rates set out in the Customer Contract, or if none, are stated at the Contractor's then current commercial rates) that arise out, of or in connection with a delay or increase in costs which has occurred because of:

(a) the Customer's failure to perform its obligations in accordance with the Customer Contract;

(b) the act or omission of any person who is identified in the Order Documents as being organised by, or under the direction of, the Customer;

(c) any change to access to the Customer's Site (including denial or suspension of access under clause 7.3) unless the change to access is due to an adverse finding arising out of an investigation into the conduct of the Contractor or its Personnel or a breach of clause 7.2; or

(d) any change to any of the Customer's secrecy or security requirements provided that the Contractor will mitigate any expenses incurred or delay caused as a result of complying with such changed requirements.

6.27 The Contractor must submit a Change Request to the Customer in respect of the relevant extension of time or change to any amount payable by the Customer in accordance with Schedule 4 – Variation Procedures within 5 Business Days of becoming aware of the relevant delay under clause 6.26.

LIQUIDATED DAMAGES

6.28 Where the Parties have agreed in Item 21 of the General Order Form that liquidated damages will be payable for the late completion of an LD Obligation, clauses 6.29 to 6.34 apply.

6.29 Where the Contractor has not completed an LD Obligation by the Due Date, or if the Due Date has been varied by a Change Request or otherwise in accordance with the Customer

Contract, such varied Due Date, the Contractor must pay liquidated damages stated in Item 21 of the General Order Form to the Customer unless the late completion of the LD Obligation is:

(a) caused by an Event;

(b) caused by the Customer or its Personnel;

(c) caused by the act or omission of any person who is identified in the Order Documents as being organised by, or under the direction of, the Customer; or

(d) permitted because an extension of time for completion of the LD Obligation has been granted by the Customer in accordance with the Customer Contract.

6.30 The Customer must promptly give the Contractor Notice in Writing setting out the grounds on which the Customer claims that liquidated damages are payable.

6.31 Each Party acknowledges that the liquidated damages stated in Item 21 of the General Order Form are a genuine pre-estimate of the loss, damage or expense that the Customer will suffer during the period in which liquidated damages are payable under clause 6.32 as a result of the Contractor not completing the LD Obligation by the Due Date.

6.32 The Contractor must pay any liquidated damages that are due from the Due Date until the earlier of:

(a) the date that the Contractor successfully completes the LD Obligation in relation to which the liquidated damages have been applied; or

(b) the date on which the maximum number of days for which liquidated damages are payable as stated in Item 21 of the General Order Form have elapsed (the **Longstop Date**).

6.33 Liquidated damages paid under clause 6.32:

(a) are the Customer's sole and exclusive financial remedy for the Customer's loss, damage and expense that the Customer suffers during the period in which liquidated damages are payable under clause 6.32 out of or in connection with the Contractor not completing the LD Obligation by the Due Date, subject only to the Customer's rights under clause 6.34; but

(b) do not relieve the Contractor from any other liability or from meeting any other obligation under the Customer Contract.

6.34 The Customer may, at any time during the period in which liquidated damages are payable under clause 6.32, issue a Notice in Writing of a Substantial Breach in respect of the Contractor not completing the LD Obligation by the Due Date specifying a period during which the Contractor is required to remedy that Substantial Breach, such period to be the greater of:

(a) 10 Business Days;

(b) the period during which liquidated damages are payable for that Substantial Breach; or

(c) such longer period stated in the Notice in Writing,

(d) and if the Contractor has not remedied that Substantial Breach (by completing the LD Obligation) by the end of such period, the Customer may terminate the Customer Contract immediately by Notice in Writing to the Contractor.

6.35 The Parties agree that where the Contractor has not successfully completed the LD Obligation in relation to which the liquidated damages have been applied by the Longstop Date, the payment of liquidated damages by the Contractor under clause 6.32 is without prejudice to the Customer's right to claim damages at large in respect of loss, damage and expense that arises after the Longstop Date out of or in connection with the Contractor not completing the LD Obligation by the Longstop Date.

CUSTOMER SUPPLIED ITEMS (CSI)

6.36 The Customer must provide and maintain the CSI at the times and in accordance with the requirements stated in the Order Documents including Item 22 of the General Order Form.

6.37 The Customer must enforce any agreement with a third party under which products or services of that third party are being provided to the Contractor as CSI (**Third Party CSI**), including support and maintenance contracts, to the extent that the relevant third party's failure to provide or resolve any issues with the Third Party CSI materially impacts the Contractor's ability to perform its obligations under the relevant Customer Contract.

6.38 The Contractor must:

(a) not use any CSI other than for the purposes of the Customer Contract without the prior written consent of the Customer;

(b) not part with possession of any CSI unless the Customer has provided its prior written consent, nor create or allow the creation of any lien, charge or mortgage over any CSI;

(c) take all reasonable care of all CSI including accounting for, preserving, installing or handling the CSI in accordance with the Order Documents;

(d) not modify any CSI without the prior written consent of the Customer;

(e) promptly inform the Customer of any loss, destruction or damage to any CSI; and

(f) comply with any reasonable instruction of the Customer for preserving, forwarding or disposal of any damaged CSI; and

(g) pay the costs, if any, stated in Item 22 of the General Order Form, for CSI.

6.39 If the CSI is no longer required for the purposes of the Customer Contract, it must be returned to the Customer or destroyed at the Customer's request as soon as practicable, unless other arrangements are agreed.

6.40 Provided the Contractor complies with its obligations under clauses 6.38(c) to 6.38(f), the Customer must repair or replace CSI within a reasonable time of becoming aware that the CSI does not comply with the requirements stated in the Order Documents.

CUSTOMER ASSISTANCE

6.41 During the Contract Period, the Customer must:

(a) make available to the Contractor all relevant instructions, information, data, documents, specifications, plans, drawings and other materials as specified in Item 22 of the General Order Form or as otherwise agreed in writing with the Contractor; and

(b) answer reasonable queries made by the Contractor relating to the Customer's requirements in connection with the Customer Contract.

ESCROW

6.42 If stated in Item 23 of the General Order Form, the Contractor must arrange:

(a) for itself, the Customer and an escrow agent approved by the Customer to enter into an Escrow Agreement in relation to the Escrow Materials; or

(b) for the Customer to become a party to an escrow arrangement which already covers the Escrow Materials which the Customer regards as a satisfactory arrangement.

6.43 Any escrow arrangements to which the Customer becomes a Party under clause 6.42 must endure for at least the period stated in Item 23 of the General Order Form unless otherwise agreed. The Parties will bear the costs connected with such escrow arrangements in the proportions agreed by them in the Escrow Agreement.

6.44 The Contractor must consult with and comply with the reasonable directions of the Customer in any negotiations with the escrow agent arising under clauses 6.42.

BUSINESS CONTINGENCY

6.45 If stated in Item 24 of the General Order Form that a Business Contingency Plan is required, the Contractor must, within the time stated in Item 24 of the General Order Form or as otherwise agreed in writing, prepare a Business Contingency Plan for the approval of the Customer.

6.46 The Business Contingency Plan must include the details stated in Item 24 of the General Order Form or as otherwise agreed in writing. The Contractor must provide the Customer with a copy of the approved Business Contingency Plan.

6.47 The Business Contingency Plan must be reviewed, updated and tested by the Contractor at the intervals stated in Item 24 of the General Order Form.

6.48 If there is an interruption to the Customer's business that is contemplated by the Business Contingency Plan the Contractor must perform the obligations in the Business Contingency Plan. The Customer must provide the Contractor with any assistance reasonably required by the Contractor to create and perform the Business Contingency Plan.

7. Access

ACCESS TO CUSTOMER'S SITE

7.1 Without prejudice to the Contractor's obligations under clauses 6.12 and 6.13, the Customer must prepare and maintain the Site:

(a) to enable the supply of the Deliverables; and

(b) in accordance with the Site Specification that is approved under clauses 6.12 to 6.13, or as otherwise stated in Item 18 of the General Order Form.

7.2 Where the Customer provides the Contractor with access to the Customer's Site, the Contractor:

(a) must ensure that its Personnel comply with the reasonable requirements and directions of the Customer with regard to conduct, behaviour, safety and security; and

(b) is liable for any damage to the extent that such damage is caused by the negligent act or omission of its Personnel on the Customer's Site.

7.3 The Customer may temporarily deny or suspend access to the Customer's Site in its discretion.

7.4 The Contractor must comply, and must ensure that its Personnel comply, with the secrecy and security requirements of the Customer as stated in Item 25 of the General Order Form, or of which the Customer subsequently provides the Contractor by written notice.

8. Personnel

PERSONNEL - GENERAL

8.1 Neither Party may, without the prior written consent of the other Party, engage, employ or induce or cause a third party to induce the other Party's Personnel engaged in the performance of the Customer Contract to enter into a contract for service or a contract of employment with it.

8.2 The restriction in clause 8.1 shall apply during the Contract Period and for a period of six months after the end of the Contract Period.

8.3 A general solicitation for employment which is placed in good faith such as a newspaper advertisement shall not constitute a breach of clause 8.1.

8.4 The Parties agree that the restrictions in clauses 8.1 to 8.3 are necessary to protect the legitimate interests of each Party.

8.5 The Customer must make available its Personnel to work with the Contractor as stated in the Order Documents including Item 26 of the General Order Form. The Parties will identify such Personnel and their roles in the Order Documents.

8.6 The Customer must use reasonable efforts to ensure that its Personnel who are made available to work with the Contractor have the requisite authority, qualifications, competencies, skills and experience to perform their tasks.

8.7 The Contractor must ensure a safe system of work for any of the Customer's Personnel who the Customer makes available to perform work under the control and direction of the Contractor at the Contractor's premises.

SPECIFIED PERSONNEL

8.8 The identity and roles of any Specified Personnel must be stated in Item 27 of the General Order Form.

8.9 If Specified Personnel are unable or not suitable in the reasonable opinion of the Customer to undertake the work assigned to them the Contractor must provide replacement personnel acceptable (on reasonable grounds) to the Customer at no additional charge as soon as is practicable.

APPROVED AGENTS AND SUBCONTRACTORS

8.10 The Contractor may supply Deliverables to the Customer through Approved Agents.

8.11 If a Customer Contract is entered into between the Customer and an Approved Agent, the Contractor is deemed to have entered into a Customer Contract with the Customer.

8.12 The Contractor must ensure that its Approved Agents supply the Deliverables only in accordance with the terms of the Customer Contract under which the Approved Agent is to supply the Deliverables.

8.13 If requested in writing by the Customer, the Contractor must arrange for its Approved Agents to execute a Deed Poll substantially in the form of Schedule 6 – Deed Poll.

8.14 The Contractor must not subcontract the performance or supply of any Services under the Customer Contract without obtaining the prior written consent of the Customer which will not be unreasonably withheld or delayed and which may be given on such conditions as the Customer thinks fit.

8.15 Where the Customer believes that any Subcontractor is in material breach of its obligations to the Contractor, or its performance of obligations or services is unsatisfactory, so that the Contractor is likely to be in material breach of the Customer Contract as a result, the Customer may:

(a) provide Notice in Writing to the Contractor setting out the details of its concerns;

(b) meet with the Contractor within 3 Business Days of the Contractor's receipt of the Notice in Writing to discuss the concerns; and

(c) if, following the discussions with the Contractor, the Customer is satisfied that the Contractor will be in material breach of the Customer Contract as a result of the performance of the Subcontractor, the Customer may give Notice in Writing that it is withdrawing its consent to allow the Subcontractor to continue to work in connection with the Customer Contract and require the Contractor to procure that the Subcontractor promptly ceases performing any work in connection with the Customer Contract subject to any contrary requirements of the Customer in respect of effecting an orderly transition notified to the Contractor, and in such circumstances, the Contractor agrees that the Customer will have no liability whatsoever to the Contractor for any loss suffered by the Contractor arising out of any termination of, or the continuation of, the relevant subcontract.

8.16 The Contractor:

(a) must ensure that each Subcontractor is aware of all the terms and conditions of the Customer Contract that are relevant to the Subcontractor's performance of its work;

(b) is not relieved of its liabilities and obligations arising out of, or in connection with, a Customer Contract by subcontracting any work; and

(c) must ensure that the Subcontractor ceases work upon receipt of a Notice in Writing from the Customer of withdrawal of the consent given under clause 8.15(c).

8.17 If stated in Item 28 of the General Order Form, the Contractor must obtain from the Subcontractor a signed statutory declaration substantially in the form of Schedule 7 – Statutory Declaration by Subcontractor.

9. General Warranties

CONTRACTOR WARRANTIES

9.1 The Contractor warrants to the Customer that:

(a) as at the Commencement Date, the Contractor is properly constituted and has the right and authority to enter into the Customer Contract;

(b) to the best of its knowledge and belief there is no Conflict of Interest of the Contractor or its Personnel as at the Commencement Date, and during the Contract Period the

Contractor will use its reasonable efforts not to permit a Conflict of Interest of the Contractor or its Personnel to arise in the performance of its obligations;

(c) the information provided to the Customer in terms of the structure, viability, reliability, insurance cover, capacity, experience and expertise of the Contractor and its Personnel, was to the best of the Contractor's knowledge and belief correct when it was provided to the Customer;

(d) as at the Commencement Date, to the best of its knowledge and belief the Contractor has all the necessary licences, approvals and consents necessary to perform its obligations under the Customer Contract;

(e) it will not maliciously or negligently introduce any Virus into the Customer's systems during the Contract Period;

(f) that to the best of its knowledge and belief, the Contractor has the necessary Intellectual Property Rights and has procured the necessary consents in relation to Moral Rights, to grant the Customer the rights to use and/or own (if applicable) the Deliverables (other than any open source software) in accordance with the Customer Contract;

(g) it will perform its obligations in accordance with:

(i) the Statutory Requirements,

(ii) any other laws that are stated in Item 30 of the General Order Form;

(iii) the Worst Forms of Child Labour Convention,1999 (ILO Convention 182) ensuring that the Deliverables have not been produced using "worst forms of child labour" as defined; and

(iv) the codes, policies, guidelines and standards listed in Item 9 of the Head Agreement Details and Item 30 of the General Order Form;

(h) it will maintain the quality standard accreditation stated in Item 29 of the General Order Form during the Contract Period; and

(i) it is responsible for the acts and omission of its Personnel as if they were its own acts and omissions.

9.2 All licences, approvals and consents obtained by the Contractor in relation to the Customer Contract must be obtained at the Contractor's cost.

CUSTOMER WARRANTIES

9.3 The Customer warrants to the Contractor that:

(a) it has complied with all laws and policies, including procurement policies in awarding the Customer Contract to the Contractor;

(b) it will provide the Contractor and its Personnel with a safe place to work;

(c) it will supply any CSI in accordance with the requirements stated in the Order Documents;

(d) it is responsible for the acts and omission of its Personnel as if they were its own acts and omissions;

(e) it will not maliciously or negligently introduce any Virus into the Contractor's systems during the Contract Period;

(f) that to the best of its knowledge and belief, the Customer has the necessary Intellectual Property Rights and has procured the necessary consents in relation to Moral Rights, to grant the Contractor and its Personnel the rights to use any CSI for the purpose of performing its obligations under the Customer Contract;

(g) where there is more than one Eligible Customer being represented by the Customer, the Customer acts with full authority and as the sole representative of all the Eligible Customers; and

(h) it will perform its obligations in accordance with:

(i) the Statutory Requirements,

(ii) any other laws that are stated in the Order Documents including Item 31 of the General Order Form;

(iii) the Worst Forms of Child Labour Convention,1999 (ILO Convention 182) ensuring that the Deliverables have not been produced using "worst forms of child labour" as defined; and

(iv) the codes, policies, guidelines and standards listed in the Order Documents including Item 31 of the General Order Form.

MUTUAL WARRANTIES

9.4 Each Party warrants to the other Party that during the Contract Period it will:

(a) co-operate with the other Party and its respective Personnel to ensure timely progress and fulfilment of the Customer Contract, provided that nothing in this clause 9.4 requires the disclosure of a Party's Confidential Information or granting of any Intellectual Property Rights;

(b) act reasonably and in good faith with respect to matters that arise out of, or in connection with, the Customer Contract;

(c) work together in a collaborative manner;

(d) to the extent that is reasonably possible, perform its obligations so as to avoid hindering the performance of the other Party;

(e) hold meetings (including meetings relating to planning, review and issue resolution) as necessary and report to the other Party on a regular basis to ensure the other Party is fully informed of the progress of work required under the Customer Contract; and

(f) perform its obligations and responsibilities by the dates stated in the Customer Contract.

10. Acceptance

ACCEPTANCE

10.1 The Actual Acceptance Date (**AAD**) for a Deliverable occurs:

(a) unless it is stated in Item 32 of the General Order Form that the Deliverable is required to undergo Acceptance Testing, 2 Business Days or such other period that is stated in Item 32 of the General Order Form following the delivery of the Deliverable as required in the Order Documents; or

(b) where it is stated in Item 32 of the General Order Form that the Deliverable is required to undergo Acceptance Tests, on the sooner of:

(i) the date the Customer issues a certificate of acceptance; or

(ii) on the date the Customer issues a notice that it conditionally accepts the Deliverable in accordance with clauses 10.10(b) or 10.12(c); or

(iii) on the last day of the Acceptance Test Notification Period where acceptance is deemed to have occurred in accordance with clause 10.13.

ACCEPTANCE TESTING

10.2 Where it is stated in Item 32 of the General Order Form that the Deliverable is required to undergo Acceptance Tests, Acceptance Tests must be conducted in relation to the Deliverable and the following provisions in clauses 10.2 to 10.16 will apply.

CONDUCTING ACCEPTANCE TESTS

10.3 Acceptance Testing must be completed in accordance with the requirements of the Order Documents including Item 32 of the General Order Form, or if the details of the Acceptance Tests are not stated in the Order Documents, then at least 20 Business Days before the relevant Deliverable is due to be delivered (or such other period as the Parties may agree) the Parties must agree:

(a) the identification of the Deliverables or part of the Deliverable to be tested;

(b) the allocation of each Party's responsibilities in relation to testing, including the Party responsible for conducting the Acceptance Tests;

(c) which Party is to provide the test environment, including hardware, software, power, consumables and other resources and when the environment and resources must be ready for use;

(d) the methodology and process for conducting the Acceptance Tests;

(e) the scheduling of Acceptance Tests, including the Acceptance Test Period and the Acceptance Test Notification Period;

(f) the Acceptance Criteria. The Acceptance Criteria should only test whether the Deliverable meets the Contract Specifications and other requirements of the Customer Contract and should not include any other criteria unless the Parties otherwise agree in writing; and

(g) the Acceptance Test Data. The Customer is responsible for ensuring that the Acceptance Test Data is representative of the data that will be used by the Deliverable in the Customer's business or production environment.

(h) Where the details of the Acceptance Tests are not stated in the Order Documents, the Contractor shall, not less than 60 Business Days before the relevant Deliverable is due to be delivered (or such other period as the Parties may agree), notify the Customer that details of the Acceptance Tests (including those in (a) to (g) above have not yet been agreed and must be agreed at least 20 Business Days before the relevant Deliverable is due to be delivered (or such other period as the Parties may agree). Any failure of the Parties to agree any matter relating to the Acceptance Tests will be dealt with in accordance with clause 24 below, and the 20 Business Days requirement referred to above will not apply.

10.4 The Customer must provide the Contractor with the Acceptance Test Data at least 14 Business Days prior to the start of the Acceptance Test Period.

10.5 Where the Contractor is conducting the Acceptance Tests, the Customer's representative must be available during Business Hours on each day during the Acceptance Test Period to give any assistance and/or information reasonably requested by the Contractor.

10.6 Each Party must provide all reasonable cooperation and assistance to enable the performance of any Acceptance Test.

10.7 The Parties are entitled to observe and, to the extent reasonable, participate in the performance of any Acceptance Test.

10.8 The Party conducting the Acceptance Test must provide the other Party within the Acceptance Test Notification Period a written test notification specifying:

(a) a written summary of the Acceptance Test;

(b) the results achieved from that Acceptance Test; and

(c) a Defects List (if there are any Defects).

ACCEPTANCE TEST OUTCOMES

10.9 Where at the end of the Acceptance Test Period the Acceptance Tests demonstrate that the Deliverable meets the Contract Specifications and other requirements under the Customer Contract, the Customer must issue a certificate of acceptance to the Contractor within the Acceptance Test Notification Period.

10.10 Where at the end of the Acceptance Test Period the Acceptance Tests demonstrate that the Deliverable does not meet the Contract Specifications and other requirements under the Customer Contract then, if the Defects are only Minor the Customer must give the Contractor written notice within the Acceptance Test Notification Period that the Customer either:

(a) waives the requirement for the Acceptance Test to be satisfactorily completed;

(b) conditionally accepts the Deliverable, subject to the Contractor agreeing, at its own expense, to deliver a Workaround or to otherwise rectify any item on the Defects List within the Warranty Period in a manner that is acceptable to the Customer; or

(c) accepts the Deliverable subject to an agreed reduction in the Contract Price.

10.11 Where the Customer conditionally accepts the Deliverable in accordance with clause 10.10(b) then:

(a) the AAD occurs on the date that the Customer gives written notice that it conditionally accepts the Deliverable; and

(b) the Customer may use the Deliverable in a business or production environment from the AAD.

10.12 Where at the end of the Acceptance Test Period the Acceptance Tests demonstrate that the Deliverable fails to meet the Contract Specifications and other requirements under the Customer Contract because the Defects are more than Minor Defects, then the Customer must give the Contractor written notice within the Acceptance Test Notification Period that the Customer either:

(a) waives the requirement for the Acceptance Test to be satisfactorily completed;

(b) requires that the Contractor remedy the Defects on the Defects List, in which case the Contractor must remedy the Defects on the Defects List at its own expense within a reasonable period of time, and re-submit the Deliverable to further Acceptance Testing using the process in clauses 10.2 to 10.16 (except that the Acceptance Testing is restricted to testing the items that were on the Defects List and any necessary regression testing), at the Contractor's expense;

(c) conditionally accepts the Deliverable, subject to the Contractor agreeing, at its own expense, to deliver a Workaround or to otherwise rectify any item on the Defects List within the Warranty Period in a manner that is acceptable to the Customer;

(d) accepts the Deliverable subject to an agreed reduction in the Contract Price; or

(e) subject to the Customer having provided the Contractor with one opportunity to re-submit the Deliverable for further Acceptance Testing, the Customer may, without limiting any other remedy, reject the Deliverable and require the removal of the Deliverable and any materials associated with the rejected Deliverable and require the restoration of anything affected by the Deliverable to its pre Customer Contract state, at the Contractor's expense.

10.13 The Deliverables are deemed accepted if:

(a) the Customer does not notify the Contractor within the Acceptance Test Notification Period that the Deliverable is rejected or conditionally accepted;

(b) where the Customer is to perform the Acceptance Tests, the Customer fails to perform any Acceptance Test within the Acceptance Test Period for any reason, except for any delay resulting from any action of the Contractor unless otherwise agreed;

(c) the Customer gives written notice that it waives the requirement for the Deliverable to pass the Acceptance Tests;

(d) the Parties agree that the Deliverable is accepted based on an agreement to a reduction in the Contract Price; or

(e) the Customer uses the Deliverable for its business purposes and/or in a production environment without the prior written consent of the Contractor.

10.14 Where the Acceptance Test relates to a Deliverable that is a Document, it is not a failure to provide the Document in accordance with the Contract Specifications and the other requirements of the Customer Contract where the Customer requests a change to:

(a) any opinion expressed in the Document, provided that the opinion expressed in the Document is the professional opinion held by the Contractor;

(b) the style, formatting or layout of the Document, unless the style, formatting or layout is part of the Contract Specifications; or

(c) semantics.

10.15 The Warranty Period (if any) of a Deliverable commences on the AAD of that Deliverable.

10.16 In the event of power failure, air-conditioning failure or other cause outside the control of the Contractor:

(a) the Customer must approve an extension of the Acceptance Test Period to accommodate any delays caused directly as a result of those circumstances; and

(b) the Contractor must ensure that the Deliverable is ready to resume or recommence Acceptance Tests when conditions are again satisfactory and stable.

11. Payment and Invoicing

PAYMENT

11.1 In consideration for the Contractor providing a Deliverable in accordance with the Customer Contract, the Customer must pay the Contractor the Contract Price in the amounts and at the times stated in the Order Documents (including the PIPP) and/or Item 14 of the General Order Form. If the time for payment is not stated in the Order Documents and/or Item 14 of the General Order Form, then the Contract Price is due:

(a) on AAD for Products;

(b) monthly in arrears for Recurring Services, other than Services provided under Modules 2 and 5;

(c) annually in advance for Services provided under Modules 2 and/or 5.

11.2 The Prices are fixed for the Contract Period, unless otherwise stated in the Order Documents including Item 14 of the General Order Form.

11.3 A Customer may pay any amount due under the Customer Contract by credit/debit card or electronic facility stated in Item 33 of the General Order Form. The Contractor may only charge a fee for payment by credit/debit card where the fee is stated in Item 33 of the General Order Form.

11.4 If the Contractor refuses, neglects or fails to perform an obligation to provide a Deliverable in accordance with the Customer Contract, the Customer may withhold the payment associated with that failure until the Contractor performs the relevant obligation in accordance with the Customer Contract unless the Customer Contract entitles the Customer to some alternative specific financial remedy for such refusal, neglect or failure, for example liquidated damages or services credits, but not a general right to damages.

11.5 The Customer may retain a proportion of the payment for any Milestones in the amount and for the period stated in a PIPP for the due and proper performance and completion of the Contractor's delivery obligations under the Customer Contract incurred prior to the end of the Warranty Period or a period otherwise stated in the PIPP.

11.6 The Customer must upon the completion of the Contractor's delivery obligations in accordance with the Customer Contract (incurred prior to the end of the Warranty Period or a period otherwise nominated in the PIPP) pay to the Contractor any amount retained under clause 11.5.

INVOICING

11.7 The Parties agree that, subject to clauses 11.8 to 11.11, the Customer must pay the Contractor for the Deliverables within 30 days (or such other period agreed in the Order Documents including Item 14 and Item 20 of the General Order Form) of receipt of a Correctly Rendered Invoice. For the avoidance of doubt, no amount is payable by the Customer under a Customer Contract until a Correctly Rendered Invoice is received.

11.8 The Contractor must provide any further details in regard to an invoice that are reasonably requested by the Customer.

11.9 The Contractor must send any invoices for any amount due to the person at the address stated in Item 14 of the General Order Form.

11.10 The making of a payment is not an acknowledgment that the Deliverables have been supplied or accepted in accordance with the Customer Contract.

11.11 If the Customer disputes an invoiced amount the Customer must:

(a) provide the Contractor with written notice stating the amount it believes is due for payment and setting out the reasons for not paying the balance, such written notice to be given within 10 Business Days from the date of receipt of the invoice; and

(b) pay the amount it believes is due for payment by the date that payment must be made under the Customer Contract.

12. Taxes

12.1 Subject to clauses 12.2 and 12.3, the Contractor is liable for all Taxes imposed or levied in connection with the Contractor's performance of its obligations under the Customer Contract.

12.2 The Customer must pay any GST that is payable in respect of any Taxable Supply made under the Customer Contract in addition to the amount payable (exclusive of GST) for the Taxable Supply. GST is payable at the same time as the amount payable for the Taxable Supply to which it relates.

12.3 If there is any abolition or reduction, increase or introduction of any Tax, the Price that is payable for the Deliverable, or any other cost or expense that is payable under the Customer Contract must be varied so that the Contractor's net dollar margin for the Deliverable, cost or expense remains the same.

12.4 Any reference in the Customer Contract to a cost or expense to be reimbursed by one Party to another Party includes any GST payable in connection with a Taxable Supply to which that cost or expense relates, less the amount of any input tax credit that the Party requiring the reimbursement is entitled to claim.

13. Intellectual Property Rights

OWNERSHIP

13.1 All Intellectual Property Rights in:

(a) any Existing Material remain vested in the person that owns the Intellectual Property Rights at the Commencement Date (**Owner**); and

(b) any adaptation, translation or derivative of that Existing Material, vests in, or, is hereby transferred or assigned to the Owner, immediately upon creation.

CONTRACTOR OWNED NEW MATERIAL

13.2 The provisions of clauses 13.3 to 13.5 apply to New Material, unless clause 13.10 applies.

13.3 All Intellectual Property Rights in any New Material vests in, or, is hereby transferred or assigned to, the Contractor, immediately upon creation.

13.4 On the AAD of a Deliverable that incorporates the relevant New Material, the Contractor grants the Customer a non-exclusive, perpetual, irrevocable, royalty free, transferable licence to use, copy, adapt, translate, reproduce and in any way exploit that New Material in connection with, or for the operation, modification, support and/or use of, the Deliverable in which it is incorporated, subject to the restrictions set out in clause 13.5.

13.5 The licence to New Material in clause 13.4:

(a) does not permit the Customer to disclose the New Material to any other person, except as stated in clauses 13.5(c) to (e);

(b) does not permit the Customer to manufacture, sell, license, transfer, commercialise or otherwise exploit any of the New Material or any Existing Material except as stated in clauses 13.5(c) to (e);

(c) permits the Customer to sublicense any of the rights in clause 13.4 without additional charge to any Division of the Government Service as defined under the *Public Sector Employment and Management Act* 2002 (NSW), a NSW Public Sector Service (as defined under the *Public Sector Employment and Management Act* 2002 (NSW), a NSW Government Agency (as defined in the *Interpretation Act* 1987 (NSW), and any Public Health Organisation as defined under the *Health Services Act* 1997 (NSW), where the Customer is a Division of the Government Service as defined under the *Public Sector Employment and Management Act* 2002 (NSW), a NSW Public Sector Service (as defined under the *Public Sector Employment and Management Act* 2002 (NSW), a NSW Government Agency (as defined in the *Interpretation Act* 1987 (NSW), or a Public Health Organisation as defined under the *Health Services Act* 1997 (NSW);

(d) permits the Customer's subcontractors to access the New Material, without additional charge, for the internal purposes of the Customer provided that, unless otherwise required by the Contractor, the Customer's subcontractor first signs an agreement or undertaking in a form reasonably acceptable to the Contractor that protects the use and disclosure of the New Material in the same manner as stated in the Customer Contract; and

(e) permits the Customer to sublicense any of the rights in clause 13.4 without additional charge, (on one or more occasions) on a limited time basis to a contractor that is providing outsource services to the Customer that includes the operation of the New Material, provided that:

(i) the New Material is used solely for the internal business purposes of the Customer for the period of the outsource arrangement and the sublicense automatically terminates at the end of the period of the outsource arrangement; and

(ii) unless otherwise required by the Contractor, the contractor first signs an agreement or undertaking in a form reasonably acceptable to the Contractor that protects the use and disclosure of the New Material in the same manner as stated in the Customer Contract.

EXISTING MATERIAL

13.6 On the AAD of a Deliverable that incorporates the Contractor's Existing Material, the Contractor grants the Customer a non-exclusive licence:

(a) if that Existing Material is Licensed Software; to that Existing Material on the terms and conditions of the license of that Licensed Software under the relevant Module;

(b) if that Existing Material is an adaptation, translation or derivative of Licensed Software; to that Existing Material on the same terms and conditions as the licence for the Licensed Software stated in clause 13.7(a);

(c) if that Existing Material is a tool, object library or similar routine that is not included in the Existing Materials stated in clauses 13.7(a) or 13.7(b); to use, reproduce and adapt that Existing Material for the Customer's own internal use in connection with, or for the operation, modification, support and/or use of, that Deliverable; and

(d) if that Existing Material is a Document Deliverable and any adaptation, translation or derivative of that Existing Material; to use that Existing Material for the Customer's internal use.

13.7 On the AAD of a Deliverable that incorporates Existing Material that is owned by a third party, including third party software, the Customer is granted a non-exclusive licence to that third party Existing Material to:

(a) use, reproduce and adapt that third party Existing Material on the terms and conditions, and for the fees, stated in Item 34 of the General Order Form; or

(b) if no terms and conditions or fees are stated in Item 34 of the General Order Form; to use, reproduce and adapt that third party Existing Material for the Customer's own internal use in connection with, or for the operation, modification, support and/or use of, that Deliverable.

13.8 Where the Contractor uses a methodology in providing any Deliverable, the Contractor grants the Customer a non-exclusive licence to use that methodology during the Contract Period solely for the purposes of receiving the benefit of the Services under the Customer Contract or assisting the Contractor perform its obligations under the Customer Contract.

13.9 The Contractor may charge for any license to use any of its Existing Material, such fees to be stated in Item 34 of the General Order Form.

CUSTOMER OWNED NEW MATERIAL

13.10 If it is stated on the General Order Form that this clause applies to some or all of the New Materials and subject to clauses 13.12 and 13.13, upon the AAD of the relevant Deliverable that incorporates the New Material:

(a) any Intellectual Property Rights in the New Material vests in, or is hereby transferred or assigned by the Contractor to, the Customer; and

(b) the Customer grants the Contractor a non-exclusive, perpetual, irrevocable, royalty free, transferrable licence to the New Material to use, copy, adapt, translate, manufacture and in any other way exploit the Intellectual Property Rights in that New Material.

CUSTOMER MATERIAL

13.11 The Customer grants the Contractor a non-exclusive, non-transferable licence for the Contract Period for the Contractor and its Personnel to use the Customer's Materials to the extent necessary for the Contractor to perform its obligations under the Customer Contract.

KNOW HOW ETC

13.12 Subject to the restrictions on the disclosure of confidential information:

(a) the Contractor will retain all right, title and interest in and to all know-how, Intellectual Property Rights, methodologies, processes, technologies, algorithms, software, development tools or forms, templates or output used in performing its obligations under the Customer Contract which are based on trade secrets or proprietary information of the Contractor; and

(b) the Contractor will be free to use the ideas, concepts, methodologies, processes and know-how that are used, developed or created in the course of performing the obligations under the Customer Contract and may be retained by the Contractor's Personnel in intangible form.

OPEN SOURCE LICENCE

13.13 Nothing in this clause 13 affects the Intellectual Property Rights in any open source software. Any Intellectual Property Rights in any open source licence are subject to the terms of the open source licence under which it is provided.

14. Confidentiality

14.1 Except to the extent necessary to comply with any Statutory Requirement or government policy relating to the public disclosure of Confidential Information, neither Party will make public, disclose or use any Confidential Information of the other Party except in accordance with the Customer Contract, unless the other Party gives its prior written consent.

14.2 Each Party may disclose the Confidential Information of the other Party:

(a) to the Contract Authority;

(b) the Director General, NSW Department of Finance and Services and to its Personnel;

(c) to its Personnel where the disclosure is essential to enable them to carry out their duties in connection with the Customer Contract or any Head Agreement; or

(d) to its Personnel, Related Companies and their directors, officers, employees, agents, contractors, lawyers, accountants, insurers, financiers and other professional advisers where the disclosure is in connection with advising on, reporting on, or facilitating the Party's performance under, the Customer Contract or any Head Agreement; or

(e) if the receiving Party is required to disclose by law, order of a court or tribunal of competent jurisdiction or the listing rules of an applicable securities exchange.

14.3 Each Party must ensure that any Confidential Information of the other Party is used solely for the purposes permitted under clause 14.2.

14.4 The Customer may at any time require the Contractor to arrange for its Subcontractors to execute without delay a Deed of Confidentiality between the Customer and the Subcontractor substantially in the form of Schedule 8 – Deed of Confidentiality.

15. Privacy

15.1 The Contractor must:

(a) use, access, retain or disclose Personal Information obtained in connection with the Customer Contract only for the purpose for which the Personal Information was acquired;

(b) not do any act or engage in any practice that would breach an IPP, or which if done or engaged in by the Customer, would be a breach of that IPP;

(c) comply with, carry out and discharge the obligations contained in the IPPs as if it were the Customer carrying out and discharging those obligations;

(d) notify the Customer immediately upon becoming aware of a breach or possible breach of any of the obligations in this clause 15.1, whether by the Contractor, its Approved Agents or their Personnel;

(e) notify any individual that makes a complaint to the Contractor regarding the Contractor's acts or practices in relation to such individual's Personal Information, that the complaint may be investigated by the Privacy Commissioner;

(f) comply with all reasonable directions of the Customer in relation to the care and protection of Personal Information held in connection with the Customer Contract and take all reasonable measures to ensure that such information is protected against loss, unauthorised access or use, modification or disclosure and other misuse;

(g) ensure that any of the Contractor's Personnel who are required to deal with the Personal Information for the purposes of the Customer Contract are made aware of the obligations of the Contractor under this clause 15.1; and

(h) ensure that any agreement with any Approved Agent or Subcontractor who may be fulfilling a requirement in relation to the Customer Contract which includes the handling of Personal Information, contains the same or equivalent obligations to this clause 15.1 which are enforceable by the Contractor against the Approved Agent or the Subcontractor, as applicable.

16. Insurance

16.1 The Contractor must hold and maintain, or be an insured under, one or more insurance policies, that provide the following cover:

(a) public liability insurance with an indemnity of at least $10,000,000 in respect of each claim for the period of cover;

(b) product liability insurance with an indemnity of at least $10,000,000 for the total aggregate liability for all claims for the period of cover; and

(c) workers' compensation insurance in accordance with applicable legislation.

The Contractor must maintain the coverage required under this clause 16.1 during the Contract Period.

16.2 Where the Customer Contract is entered into under a Head Agreement, the Contractor must also hold and maintain, or be an insured under, one or more insurance policies that have been agreed by the Contractor and the Contract Authority under the Head Agreement. Details of these insurances are stated in Item 7 of the General Order Form.

16.3 If the Customer Contract is for the provision of Services, the Contractor must hold and maintain, or be an insured under, one or more insurance policies that include professional indemnity or errors and omissions insurance that provide indemnity cover of at least the amount of $1,000,000 in respect of the total aggregate liability for all claims for the period of cover. The Contractor must maintain the coverage required under this clause 16.3 during the Contract Period and until the date that is 4 years from the last day of the Contract Period.

16.4 The insurance policies in clauses 16.1(a), 16.1(b) and 16.3 must include cover for the Contractor's liability for the acts and omissions of the Contractor's subcontractors to the same extent as if they were the acts and omissions of the Contractor.

16.5 All policies of insurance must be entered into with an insurer which has a rating of A- or better by AM Best or an equivalent rating organisation at the date when cover is commenced, or for workers' compensation insurance the insurer (including any self-insurance) must be authorised by law.

16.6 The Contractor must within 30 days of the start of the Contract Period or of a request in writing from the Customer provide the Customer with a certificate of currency issued by its insurer or insurance broker (or other form of evidence acceptable to the Customer) confirming that all the insurance policies required by the Customer Contract are current and that the insurance has the required limits of cover. Where the Contractor is insured under a Related Company's insurance policy, the certificate of currency must also show that the insurance policy includes the Contractor as an insured.

16.7 The Contractor agrees to hold, maintain or be an insured under, any additional insurance stated in Item 36 of the General Order Form.

16.8 Where the Contractor does not wish to hold and maintain, or be an insured under, insurance required by clauses 16.1 to 16.5, or does not wish to enter into one or more of those insurance policies with an insurer of the type required by clause 16.5, the Contractor may make application to the Customer to be exempted from the provisions of clauses 16.1 to 16.6. Such application must be supported by such documentation as may be required by the Customer, (including the Contractor's financial records (limited to publicly available financial records where a Contractor or any of its Related Companies is publicly traded)). The Customer may accept, conditionally accept or reject the Contractor's application. The Customer must provide the Contractor with written notice within 30 days of receipt of the Contractor's application of the Customer determination under this clause 16.8, and in absence of receipt of such written notice, the Contractor's application is deemed accepted by the Customer.

16.9 Where the Customer Contract is entered into under a Head Agreement:

(a) the Customer cannot grant the Contractor consent to be exempt from any insurance requirements required under the Head Agreement;

(b) if the Contractor has obtained the Contract Authority's and the Director General's, NSW Department of Finance and Services consent to be exempt from the any insurance requirements under any Head Agreement, then the Customer must accept the Contractor's application for an application for any similar exemption under the Customer Contract.

16.10 The effecting of insurance does not limit or expand the liabilities or obligations of the Contractor under the other provisions of the Customer Contract.

17. Guarantees

PERFORMANCE GUARANTEES

17.1 Where the Customer Contract is entered into under a Head Agreement and the Contractor has provided a Performance Guarantee under that Head Agreement:

(a) the Contractor agrees that the Customer has the benefit of that Performance Guarantee provided that the Customer is a Government Agency;

(b) where the Customer is an Eligible non-Government Body, the Eligible non-Government Body cannot take the benefit of the Performance Guarantee provided to the Contract Authority under that Head Agreement, but the Eligible non-Government Body may separately agree with the Contractor that the Contractor is to provide a Performance Guarantee for the benefit of the Eligible non-Government Body under the Customer Contract in accordance with clause 17.2.

17.2 Where:

(a) the Customer Contract is not entered into under a Head Agreement; or

(b) the Customer Contract is entered into under a Head Agreement but the Contractor has not provided a Performance Guarantee under that Head Agreement,

and it is agreed in Item 37 of the General Order Form (provided that in the case of (b) above, the Contractor will notify the Contract Authority that the relevant Customer has requested a Performance Guarantee and the Contract Authority has given its written approval that a Performance Guarantee be provided for that Customer), the Contractor must arrange for a guarantor approved in writing by the Customer to enter into an agreement with the Customer substantially in the form of the agreement stated in Schedule 9 – Performance Guarantee, or such other document reasonably acceptable to the Customer. Where the guarantor is not domiciled in Australia the Customer may not refuse to accept an alternative form of guarantee solely on the basis that the jurisdiction and law of the guarantee is the jurisdiction and law of the country of the guarantor. This Performance Guarantee must be provided to the Customer within 30 days of the Commencement Date, or such other period stated in Item 37 of the General Order Form.

17.3 Any Performance Guarantee that is issued in favour of a Customer that is a Government Agency and clause 17.2(b) applies, can only be enforced by the Contract Authority acting on behalf of the Customer.

FINANCIAL SECURITY

17.4 If reasonably required by the Customer and agreed in Item 38 of the General Order Form, the Contractor must provide a Financial Security in the amount stated in Item 38 of the General Order Form substantially in the form of the agreement stated in Schedule 10 – Financial Security, or in the standard form that is usually provided by the issuing entity. The Contractor must, following such a request, ensure that the Financial Security is provided within 14 days of the Commencement Date, or such other period as agreed in Item 38 of the General Order Form.

17.5 The Financial Security will be held as security for the due and proper performance and completion of all the obligations of the Contractor under the Customer Contract.

17.6 The Financial Security must be issued by an Australian domiciled bank, insurance company or other financial institution (**Issuer**) acceptable to the Customer.

17.7 If the Contractor fails to properly perform and complete its obligations under the Customer Contract, and the Customer suffers loss or damage arising from, or in connection with, such failure by the Contractor, the Customer may deduct its loss or damage (in so far as those losses and damages may be payable by the Contractor taking into account the terms and

conditions of the Customer Contract, including the provisions of clause 18) from the Financial Security.

17.8 The Contractor agrees that the Customer will have no liability for any loss or damage suffered or incurred by the Contractor where the Customer exercises its rights in accordance with clause 17.7 in good faith.

17.9 Upon performance of part of the Customer Contract in accordance with its terms, the Contractor may request the Customer to consent to the discharge of the Financial Security provided under the Customer Contract and the substitution of another Financial Security in substantially the same form but for a lesser maximum aggregate sum. The Customer must not unreasonably withhold its consent to the substitution where the part performance of the Customer Contract has proportionately reduced the risk for which the Financial Security was originally provided.

17.10 The Financial Security will end on the sooner of:

(a) the date when payment is made by the Issuer up to the maximum amount required under the Financial Security;

(b) one year from the date that the last Deliverable under the Customer Contract is scheduled to pass its Acceptance Tests, or if no Acceptance Tests were required, the date that is scheduled to be 180 days from the date of delivery of the last Deliverable or performance of the last Service under the Customer Contract;

(c) the date the Customer and Contractor agree in writing to release the Issuer;

(d) the date the Customer notifies the Issuer that the Financial Security is no longer required.

17.11 The Customer must reimburse the Contractor for any reasonable costs it incurs, including the fees payable to the Issuer, in connection with providing the Financial Security. These costs and fees must be reimbursed to the Contractor within 30 days of the Contractor providing a Correctly Rendered Invoice for the costs and fees.

18. Liability

18.1 To the extent permitted by law, and subject to clauses 18.2 to 18.7, the Contractor's liability in contract (including under an indemnity), tort (including negligence), breach of statutory duty or otherwise in respect of any loss, damage or expense arising out, of or in connection with, the Customer Contract shall not exceed in aggregate for all claims that arise out, of or in connection with, the Customer Contract, the greater of:

(a) $100,000; or

(b) in respect of claims that arise from:

(i) a Non-Recurring Service or Product; two times the Contract Value for the Non-Recurring Service or Product;

(ii) a Short Term Recurring Service; the Contract Value for the Short Term Recurring Service; or

(iii) a Recurring Service other than a Short Term Recurring Service;

(A) if the claim arose after the Recurring Services had been provided for 12 months; the amount paid or unpaid but due and outstanding, for

the Recurring Service for the 12 months prior to the date that the claim first arose; or

(B) if the claim arose prior to the Contractor providing 12 months of Recurring Services; the amount that is 12 times the average monthly amount that was paid or unpaid but due and outstanding for the Recurring Service prior to the date on which the claim first arose.

18.2 In all cases, any refund of monies, payment of liquidated damages, or payment of any fees, rebates, credits, damages, losses, expenses, (including third party costs incurred and paid by the Contractor if a third party is engaged by the Customer to remedy a breach by the Contractor in accordance with the Customer Contract), liabilities or any other amounts that are stated as being payable by the Contractor in respect of any breach of the Customer Contract or under an indemnity, are included in determining whether the limitation of liability has been reached.

18.3 If the Customer Contract is for the supply of any Deliverables:

(a) where the Contract Price under the Customer Contract is greater than $20,000,000; or

(b) where the Customer Contract is for Deliverables that are to be used for a Prescribed Use,

the Parties must discuss and agree an alternative cap of liability in Item 39 of the General Order Form.

18.4 Notwithstanding any other clause in the Customer Contract, neither Party is liable to the other Party for any Consequential Loss (including under an indemnity).

18.5 Notwithstanding any other clause in the Customer Contract, the Contractor has no financial cap on its legal liability where that liability arises from:

(a) bodily injury (including sickness and death), including to the extent that the legal liability is covered by the indemnity in clause 19.1(b);

(b) loss of, or damage to, tangible property, including to the extent that the legal liability is covered by the indemnity in clause 19.1(b);

(c) breach of the Contractor's obligation of confidence under or pursuant to clause 14;

(d) the Contractor's indemnity in respect of breach of privacy obligations as stated in clause 19.1(a); or

(e) the Contractor's indemnity for IP Claims as stated in clause 19.1(c).

18.6 The liability of a Party (**Party A)** for any damage incurred by another Party (**Party B**) will be reduced proportionately to the extent that:

(a) any negligent or malicious act or omission of Party B or its Personnel; or

(b) any failure by Party B or its Personnel to comply with its obligations and responsibilities under the Customer Contract,

contributed to the damage, regardless of whether legal proceedings are brought by Party A for negligence or breach of contract.

18.7 The Parties must use their reasonable efforts to mitigate any loss arising out of or in connection with the Customer Contract.

19. Indemnities

CONTRACTOR INDEMNITY

19.1 The Contractor must indemnify and hold harmless the Customer, its officers and employees against any loss or expense which any of them pays, suffers, incurs or is liable for (including legal costs on a solicitor and client basis) to the extent it:

(a) arises out of or in connection with the Contractor's breach of any privacy obligations under or pursuant to clause 15.1;

(b) is the result of a claim against the Customer, its officers or employees made by a third party arising out of or in connection with a malicious or negligent act or omission of the Contractor, its directors, officers, employees, agents and subcontractors in the performance of the Contractor's obligations to the Customer under the Customer Contract; or

(c) is the result of a claim against the Customer, its officers or employees made by a third party that the use of the Deliverable in accordance with the Customer Contract infringes any Intellectual Property Rights, including the Moral Rights, of the third party claimant, that are enforceable in Australia (**IP Claim**).

19.2 The Customer must promptly, and in any event within 5 Business Days of being notified of a claim for which it is seeking an indemnity under clause 19.1(b) or 19.1(c), provide the Contractor with Notice in Writing of the details of the claim. The Customer must (unless there is any government policy that prohibits the Contractor from handling the process for the settlement of the claim) permit the Contractor, at the Contractor's expense, to handle the process for the settlement of such claim and, as permitted by law, to control and direct any litigation that may follow a claim under clause 19.1(b) or 19.1(c) (including selecting solicitors and counsel), subject to the Contractor agreeing to comply at all times with the government policy relevant to the conduct of the litigation.

19.3 If the Customer does not permit the Contractor to handle the process for the settlement of such claim under clause 19.2 and, as permitted by law, to control and direct any litigation that may follow a claim under clause 19.1(b) or 19.1(c), then the Customer must promptly and fully defend the claim (whilst complying with government policy), and not settle the claim without the Contractor's prior written consent, such consent not to be unreasonably withheld. The Customer must keep the Contractor fully informed throughout the period of the claim, including providing copies of all relevant documents.

19.4 The Customer must, upon the Contractor confirming its obligations under the indemnity in clause 19.1, provide the Contractor with reasonable assistance in defending, settling or otherwise conducting the negotiations or litigation, at the Contractor's expense, including providing all relevant documents, permitting its Personnel to testify for the Contractor if requested by the Contractor and using any defence that might be available to the person being indemnified.

19.5 Notwithstanding clause 19.1(c), the Contractor is not required to indemnify the Customer, its officers and employees to the extent that the IP Claim is caused by:

(a) any open source software that forms part of the Deliverable;

(b) the combination, operation or use of the Deliverable with any other product, equipment business method, software or data;

(c) any Intellectual Property Rights including Moral Rights, material or thing provided by any person other than the Contractor or its Personnel, including any Customer Supplied Items;

(d) any modification of the Deliverable by any person other than the Contractor or its agents;

(e) the Contractor following the designs, specifications or instructions provided by the Customer or other person on the Customer's behalf; or

(f) the continued use of the Deliverable after the Contractor has provided the Customer a new software version, patch or correction, or a replacement part or other correction that would have overcome the infringement.

19.6 Without prejudice to the Customer's rights under clause 19.1(c), if there is an IP Claim then the Contractor may, with the consent of the Customer, at the Contractor's expense, either:

(a) obtain for the Customer the right to the continued use of the Deliverable in accordance with the Customer Contract;

(b) replace or modify the Deliverable so that the alleged infringement ceases and the replaced or modified Deliverable provides the Customer with substantially similar functionality and performance as required in the Contract Specifications; or

(c) if, in the opinion of the Contractor, neither 19.6(a) nor 19.6(b) is reasonably commercially available and the Customer is not subject to the benefits of the legislation in clause 19.10, the Contractor may terminate the Customer Contract, and will be liable for damages to the Customer for such termination.

19.7 Notwithstanding clause 19.1, the Contractor is not required to indemnify the Customer under clause 19.1(b) or 19.1(c) (as applicable), its officers and employees:

(a) if the third party making a claim under clause 19.1(b) or the IP Claim (as applicable) is the Contract Authority or any other Eligible Customer who is obtaining the benefit of, or being provided with, the Product, Service or Deliverable under the Customer Contract; or

(b) where the third party claim under clause 19.1(b) or the IP Claim arises from, or in connection with, the supply of any Product, Service or Deliverable (or the supply of any item based on any Product, Service or Deliverable) to the third party, whether the supply was made by the Customer or any person who has, directly or indirectly, acquired the Product, Service or Deliverable or item based on the Product, Service or Deliverable from the Customer.

19.8 The Contractor's liability in respect of the indemnity provided under:

(a) clauses 19.1(a), is subject to clauses 18.4, 18.6 and 18.7;

(b) clause 19.1(b), is subject to clauses 18.1 to 18.7;

(c) clause 19.1(c), is subject to clauses 18.4, 18.6 and 18.7.

19.9 The Customer must give the Contractor 10 Business Days' Notice in Writing of an intention to claim a liability, loss or expense in accordance with clause 19.1(a) including in that notice an explanation of how that liability or expense was assessed and the Contractor's proposed share of that liability.

19.10 For the purposes of clause 19.1(c) an infringement of Intellectual Property Rights includes unauthorised acts which would, but for the operation of the Patents Act (Cth) 1990 s.163, the Designs Act (Cth) 2003 ss 96, 100, the Copyright Act (Cth) 1968 s.183 and the Circuits Layout Act 1989 (Cth) s.25, constitute an infringement.

20. Conflict of Interest

20.1 The Contractor must:

(a) provide the Customer with Notice in Writing upon becoming aware of the existence or possibility of a Conflict of Interest that arises in the performance of its obligations under the Customer Contract; and

(b) comply with any direction given by Customer in relation to managing that Conflict of Interest.

21. Performance Management

REPORTING

21.1 The Contractor must provide to the Customer the reports stated in the Order Documents including Item 40 of the General Order Form in the time frame and format agreed in the Order Documents or as reasonably required by the Customer.

22. Government Policy

POLICY

22.1 If there is a Head Agreement and the Contractor was required to provide a competitive quote prior to entering into this Customer Contract, the Contractor must comply with the NSW Government policy known as the "Small and Medium Enterprises ('SME') Policy Framework". The Contractor acknowledges that it has read clause 16 of the Head Agreement which sets out the requirements of the Contractor imposed by the "Small and Medium Enterprises ('SME') Policy Framework " and agrees to comply with those requirements in respect of the competitive quote.

22.2 If there is no Head Agreement and the Customer Contract is a standalone Customer Contract then if the Contractor was required to provide a competitive quote prior to entering into this Customer Contract the Contractor must, during the Contract Period, comply with the NSW Government policy known as "Small and Medium Enterprises ('SME') Policy Framework " in respect of the competitive quote. The Contractor acknowledges that it has read the"Small and Medium Enterprises ('SME') Policy Framework at http://www.procurepoint.nsw.gov.au/procurement-reform/about-nsw-procurement-reform/small-and-medium-enterprises-policy-framework which sets out the requirements of the Contractor imposed by the Small and Medium Enterprises ('SME') Policy Framework.

22.3 The Contractor must comply with the NSW Department of Finance and Services (DFS) Business Ethics Statement (http://www.services.nsw.gov.au/about-us/business-ethics)

23. Contract Administration

REPRESENTATIVES

23.1 Each Party may nominate an employee who is its Authorised Representative in Item 3 or Item 6 of the General Order Form.

23.2 Each Party warrants to the other Party that its Authorised Representative has the authority to provide such consents and approvals as are required for the purposes of this Customer Contract and to issue instructions and directions as necessary for the purposes of this Customer Contract, on behalf of that Party.

NOTICE OF CHANGE OF CONTROL

23.3 The Contractor must promptly provide the Customer with Notice in Writing of any Change in Control, other than a Change of Control that is a solvent re-organisation with shares being transferred between Related Companies.

RECORD KEEPING

23.4 The Contractor must keep financial records and other information relevant to the performance of the Customer Contract including as are required to comply with any applicable Statutory Requirement. The Contractor must give the Customer access to and copies of such records and information (excluding information relating to profit margins) within a reasonable time of a written request from the Customer.

NOTICES

23.5 Any Notice in Writing must be sent to the receiving Party's Service Address addressed to the Party's nominee for receipt of notices, or if no such position is nominated, it must be addressed to the Authorised Representative. A Notice in Writing must not be sent by email.

23.6 Any Notice in Writing is regarded as given and received:

(a) if sent by mail; 3 Business Days after it is posted; and

(b) if sent by fax; at 9.00 am on the Business Day following the day when the addressee actually receives it in full and in legible form.

24. Dispute Resolution

24.1 The Parties agree to resolve any conflicts or issues between them that arise during the Contract Period out of, or in connection with, the Customer Contract in accordance with clause 24.

24.2 If a dispute arises out of, or in connection with the Customer Contract during the Contract Period, then, subject to clause 24.13, the aggrieved Party must submit a Notice in Writing to the other Party of the issue, and if the issue relates to an allegation of breach of contract or any damages the notice must include details of the breach, including the relevant clauses of the agreement which are alleged to have been breached, and (if applicable) the damages claimed and how the damages are calculated (**Issue Notice**). The Issue Notice must be submitted within a reasonable time of the Party becoming aware of the issue. If the Party submitting the Issue Notice is the Contractor, then where the Customer Contract is made under a Head Agreement, the Contractor must send a copy of the Issue Notice to the Contract Authority.

24.3 If a Party submits an Issue Notice under clause 24.2, each Party must nominate in writing, within 7 days, a senior executive who will attempt to resolve the dispute. The nominated senior executives will promptly meet at a time and place that is mutually convenient with the objective of resolving the issue. The nominated senior executives may invite other personnel to attend the mutually convenient conference subject to a list of additional invited personnel being provided to the other nominated senior executive at least 24 hours prior to the conference.

24.4 If the Parties are able to agree upon a resolution to the dispute, the terms of the agreement are to be documented and signed by both nominated senior executives. Such an agreement will be binding on both Parties.

24.5 Each Party will bear its own costs under clauses 24.2 to 24.4.

24.6 If the dispute is not resolved within 21 days of the date that the Issue Notice was received by the other Party, either Party may then refer the dispute to expert determination in accordance with clauses 24.7 to 24.8.

24.7 The Party that requires that the dispute is resolved by expert determination must submit a Notice in Writing to the other Party specifying the issue to be decided by expert determination, and if the issue relates to an allegation of breach of contract or any damages the notice must include details of the breach, including the relevant clauses of the agreement which are alleged to have been breached, and (if applicable) the damages claimed and how the damages are calculated (**Referral Notice**).

24.8 If the dispute is to be resolved by expert determination the Parties will be bound by the provisions and procedures contained in Schedule 11 – Dispute Resolution Procedures, unless agreed otherwise in writing.

24.9 If a Referral Notice has not been submitted within 20 Business Days of becoming entitled under clause 24.6 then the issue is barred from expert determination or any other action or proceedings, subject to clause 24.13. The Customer and the Contractor may, in writing, agree to extend this 20 Business Days period for the purposes of continuing to negotiate a resolution of a particular dispute for up to another 20 Business Days.

24.10 Notwithstanding the existence of a dispute each Party must continue to perform its obligations under the Customer Contract during the period of the attempt to resolve this issue under clauses 24.2 to 24.8.

24.11 Unless the Parties otherwise agree in writing, clauses 24.7 to 24.8 do not apply to disputes for which:

(a) either Party's claim exceeds $250,000 or the amount stated in Item 41 of the General Order Form;

(b) includes any dispute that involves a party claiming that a statutory guarantee under the CCA is involved in the dispute; or

(c) relates to an issue of the type stated in Item 41 of the General Order Form.

In this case if the dispute is not resolved within 15 Business Days of the date that the Issue Notice was received by the other Party, either Party may commence any other form of resolution, including court proceedings.

24.12 The amount specified in Item 41 of the General Order Form shall include the total amount being claimed by both Parties including the amount of any cross claim but excludes any set offs, interest and legal costs. If the Parties are unable to agree on the total amount being claimed each Party shall submit a claim to the other Party detailing the nature of the claim, the relevant term of the Customer Contract which has been breached and how it calculated the amount of its claim. Where only one Party is submitting a claim the other Party shall be entitled to submit its estimate of the amount of the claim to the other Party. If the calculations of each Party differ from one another the amount in dispute for the purposes of Item 41 of the General Order Form shall be calculated by totaling the value of all the claims or estimated amount of the claims together and dividing that amount by the total number of claims and estimated claims.

24.13 The provisions of clauses 24.2 to 24.12 do not apply where a party seeks urgent interlocutory relief or where a Party has terminated the Customer Contract for a Substantial Breach or Fundamental Breach of the Agreement.

25. Termination

25.1 If the Customer Contract is made under a Head Agreement then termination or expiry of the Head Agreement does not affect the Customer Contract, unless the context necessarily requires it.

TERMINATION FOR CAUSE BY THE CUSTOMER

25.2 The Customer may terminate the Customer Contract immediately by providing the Contractor Notice in Writing if:

(a) the Contractor suffers an Insolvency Event; or

(b) the Contractor has committed a Substantial Breach and the Contractor has not either:

(i) rectified that Substantial Breach within 14 days (or such longer period as stated in the Notice in Writing) of receipt of a Notice in Writing specifying the details of the breach; or

(ii) proposed steps that are reasonably acceptable to the Customer that it will take to remedy the Substantial Breach and a timeframe within which the Contractor will take them which are reasonably acceptable to the Customer.

(c) the Contractor fails to comply with the NSW Department of Finance and Services (DFS) Business Ethics Statement (http://www.services.nsw.gov.au/about-us/business-ethics) including failure to:

(i) comply with applicable NSW Government Code of Practice and DFS's procurement policies and procedures,

(ii) provide accurate and reliable advice and information when required,

(iii) declare actual or perceived conflicts of interest as soon as the Contractor become aware of the conflict,

(iv) act ethically, fairly and honestly in all dealings with DFS, the Contract Authority or the Customer,

(v) take all reasonable measures to prevent the disclosure of Confidential Information of DFS, the Contract Authority and the Customer,

(vi) assist DFS, the Contract Authority or the Customer to prevent unethical practices in the business relationship,

or engaging in any form of collusive or unethical practices, including offering staff of DFS, the Contract Authority or the Customer inducements or incentives designed to improperly influence the conduct of their duties.

TERMINATION FOR CONVENIENCE BY THE CUSTOMER

25.3 The Customer may by Notice in Writing at any time terminate the Customer Contract for convenience, such termination to be effective immediately unless stated otherwise on the Notice In Writing. The Contractor must immediately comply with any directions given in the Notice in Writing and must do everything that is reasonably practical to mitigate its losses arising in consequence of termination of the Customer Contract under this clause 25.3.

25.4 If the Customer exercises its right under clause 25.3, the Customer must:

(a) indemnify the Contractor against any liabilities or expenses, which are reasonably and properly incurred by the Contractor to the extent that those liabilities or expenses were

incurred as a result of termination of the Customer Contract in accordance with clause 25.3; and

(b) pay any amount that is stated in the Order Documents including Item 42 of the General Order Form.

25.5 Once the Customer has paid the amounts in clause 25.4 no further compensation is payable for any termination under clause 25.3.

TERMINATION FOR CAUSE BY THE CONTRACTOR

25.6 The Contractor may terminate the Customer Contract immediately by providing the Customer Notice in Writing if the Customer has:

(a) not paid any amount that has not been disputed by the Customer in accordance with clause 11.11 by the date that payment was due to be made; and

(i) the Contractor has provided written notice of this failure; and

(ii) the Customer has failed to pay that undisputed amount within 28 days of receipt of the written notice of failure;

(b) committed a Fundamental Breach of the Customer Contract and the Customer has not rectified that Fundamental Breach within 28 days (or such longer period as stated in the Notice in Writing) of receipt of a Notice in Writing from the Contractor specifying the details of the breach;

(c) committed, in respect of its:

(i) privacy obligations under the Customer Contract:

(A) more than one Unremedied Breach; or

(B) more than one breach which is incapable of remedy and, after the first such breach, the Customer has failed to take reasonable appropriate action to mitigate against the recurrence of such a breach;

(ii) obligations of confidentiality under the Customer Contract

(A) more than one Unremedied Breach; or

(B) more than one breach which is incapable of remedy and, after the first such breach, the Customer has failed to take reasonable appropriate action to mitigate against the recurrence of such a breach; or

(iii) obligations as to the Contractor's Intellectual Property Rights under the Customer Contract:

(A) more than one Unremedied Breach; or

(B) more than one breach which is incapable of remedy and, after the first such breach, the Customer has failed to take reasonable appropriate action to mitigate against the recurrence of such a breach;

where, for the purposes of this clause 25.6(c), "**Unremedied Breach**" means a breach which is capable of remedy and which has not been rectified within 28 days (or such longer period as stated in the Notice in Writing) of receipt of a Notice in Writing from the Contractor specifying the details of the breach; or

(d) suffered an Insolvency Event.

CONSEQUENCES OF TERMINATION

25.7 In the event of termination under clause 25.2, the Customer may obtain from any other source a reasonably similar alternative to the Deliverable in which case the Contractor shall, subject to clause 18, be liable to the Customer for any reasonable expenses incurred and any losses sustained (including any price difference between the Deliverable and the similar alternative) by the Customer.

25.8 If the Customer Contract:

(a) is terminated by the Customer for cause or it expires, then the Customer may provide the Contractor with written notice requiring the Contractor at its expense to remove Deliverables or to dismantle or remove work from the Customer's premises by a date stated in that notice;

(b) is terminated by the Contractor for cause, then the Contractor may provide the Customer with written notice requiring the Customer to return any Deliverables that have not been paid for in full, and the Customer must return those Deliverables at its expense by the date stated in that notice; and

(c) such termination or expiry is without prejudice to any right of action or remedy that has accrued or may accrue to either Party.

26. General

VARIATION

26.1 Subject to any other rights given under this Customer Contract to vary its terms and the following provisions of clause 26.2, neither a Change Request nor a Contract Variation shall be valid unless agreed in writing and signed by both the Customer and the Contractor.

26.2 Where the Customer Contract is entered into, the Customer must obtain the written approval of the Director General, NSW Department of Finance and Services prior to agreeing to a variation of any term or condition including a variation to any of the Protected Clauses. In such circumstances, the Contractor must obtain a copy of such written approval from the Customer before entering into the relevant Change Request that varies a term or condition including a Protected Clause.

ASSIGNMENT AND NOVATION

26.3 The Contractor must not assign in whole or in part or novate the Customer Contract without obtaining the prior written consent of the Customer, which consent may be withheld in its discretion.

26.4 The Contractor acknowledges that the Customer may conduct financial and other inquiries or checks on the entity proposing to take over the Customer Contract before determining whether or not to give consent to the assignment or novation.

26.5 The Customer at its own cost, may assign or novate, the Customer Contract, where by operation of statute the Customer is reconstituted into a new legal entity, to that new legal entity. If the assignment or novation changes the scope of the obligations or Deliverables to be provided by a Contractor under a Customer Contract, a Change Request (or Contract Variation, if applicable) must be effected, which will include a variation to the Price to reflect any increased costs that are incurred by the Contractor, or increased benefits that are gained by the Customer (as newly defined), as a result.

26.6 The Customer may, at its own cost, assign or novate the Customer Contract to any other Eligible Customer with the prior written consent of the Contractor, such consent not to be unreasonably delayed or withheld.

WAIVER

26.7 A waiver in respect of a breach of a provision of the Customer Contract by a Party shall not be taken to be a waiver in respect of any other breach. The failure of either Party to enforce any provision of the Customer Contract will not be interpreted as a waiver of that provision.

MATERIAL ADVERSE EVENTS

26.8 The Contractor must provide the Customer with Notice in Writing immediately upon becoming aware of the existence or possibility of a Material Adverse Event.

UNFORESEEN EVENTS

26.9 A Party is excused from performing its obligations to the extent it is prevented by an Event, except an Event that is the subject of a Business Contingency Plan. The Contractor must immediately notify the Customer of the occurrence of the Event when the Contractor becomes aware of it or when the Contractor ought reasonably to be aware of it.

26.10 Each Party must make all reasonable efforts to minimise the effects of the Event. If the affected Party is prevented from performing its obligations under the Customer Contract by the Event for 60 days or such other period agreed in writing, then the other Party may in its discretion immediately terminate the Customer Contract by giving Notice in Writing of termination to the other Party.

26.11 Where the Customer Contract is terminated by the Customer in accordance with clause 26.10:

(a) the Contractor is entitled to payment for work performed in accordance with the Customer Contract up to the date of termination; and

(b) the Parties must otherwise bear their own costs and will be under no further liability to perform the Customer Contract.

SEVERABILITY

26.12 If any part of the Customer Contract is void or voidable, then that part is severed from the Customer Contract without affecting the continued operation of the remainder of the Customer Contract.

ENTIRE AGREEMENT

26.13 To the extent permitted by law:

(a) the Customer Contract constitutes the entire understanding and agreement between the Contractor and the Customer in relation to its subject matter. Any prior representation, arrangement, agreement or undertaking given or received by either Party is superseded and shall have no effect;

(b) the warranties stated in the Customer Contract are the sole warranties provided by the Parties; and

(c) neither Party makes any other warranty, including any implied warranties of merchantability and of fitness for a particular purpose.

RIGHTS ARE CUMULATIVE

26.14 Subject to clause 6.33, the rights and remedies provided under the Customer Contract are cumulative and not exclusive of any rights or remedies provided by law or any other right or remedy.

SURVIVAL

26.15 The provisions of clauses 3.11 to 3.13, 6.42 to 6.44, 8.1 to 8.4, 13.4 to 13.8, 13.12, 13.13, 14.1 to 14.3, 15, 16.3, 18, 19, 25.7, 25.8, 26.15 and 26.17 and any other clause which naturally should survive termination or expiry of the Customer Contract shall survive termination or expiry of the Customer Contract.

COUNTERPARTS

26.16 If there are a number of counterparts of the Customer Contract, the counterparts taken together constitute one and the same instrument.

APPLICABLE LAW

26.17 The laws of the New South Wales govern the Customer Contract and the Parties submit to the exclusive jurisdiction of the courts of New South Wales.

SIGNED AS AN AGREEMENT

Signed for and on behalf of [insert name of Customer]

By [insert name of Customer's Representative] but not so as to incur personal liability

Signature of Customer Representative

Print name

Date

Signed for and on behalf of [insert Contractor's name and ACN/ABN]

Signature of Authorised Signatory

Print name

Date

Schedule 1: General Order Form

CUSTOMER

Item 1 Name of Customer

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Formation (clause 3.4)	
Specify the Customer's full legal name:	Sydney Trains (ABN 38 284 779 682)

Item 2 Service Address

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Formation (clause 3.4)	
Specify the Customer's service/delivery address:	Level 20, 477 Pitt Street, Sydney NSW 2000

Item 3 Customer's Representative

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Representatives (clause 23.1)	
Specify an employee who is the Customer's Authorised Representative:	Mark Pigot

CONTRACTOR

Item 4 Name of Contractor

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Formation (clause 3.4)	
Specify the Contractor's full legal name:	Quintiq Pty Ltd (ABN 85 128 925 039)

Item 5 Service Address

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Formation (clause 3.4)	
Specify the Contractor's service/delivery address:	Level 8, 417 St Kilda Road, Melbourne VIC 3004

Item 6 Contractor's Representative

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Representatives (clause 23.1)	
Specify an employee who is the Contractor's Authorised Representative:	Paul Shepherd Director

Item 7 Head Agreement

This Item 7 must be completed when the Customer Contract is entered into under a Head Agreement.

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Formation (clause 3.1)	
Specify the Head Agreement number:	Not applicable.
Specify the Head Agreement title:	Not applicable.
Specify the Term of the Head Agreement: Start Date: End Date: If the Term of the Head Agreement has expired the Customer must obtain the Contract Authority's approval to enter into a further Customer Contract, and this approval should be attached to this General Order Form.	Not applicable.
Insurance (clause 16.2)	Not applicable.
Specify the insurances required under the Head Agreement:	Not applicable.
The default insurance requirement under the Head Agreement is public liability insurance with an indemnity of at least $10,000,000 in respect of each claim for the period of cover. Specify any higher limit of cover that is required by the Head Agreement:	Not applicable.
The default insurance requirement under the Head Agreement is product liability insurance with an indemnity of at least $10,000,000 for the total aggregate liability for all claims for the period of cover. Specify any higher limit that is required by the Head Agreement:	Not applicable.
Specify if professional indemnity/errors and omissions insurance was required under the Head Agreement. If so, the default insurance requirement is for a limit of cover of $1,000,000 in respect of the total aggregate liability for all claims for the period of cover. Specify any higher limit that is required by the Head Agreement:	Not applicable.
Workers' compensation insurance in accordance with applicable legislation:	Not applicable.

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Specify any other type of insurance required under the Head Agreement and the specified amount:	Not applicable.
Performance Guarantee (clause 17.1)	Not applicable.
Specify if the Contractor was required to provide a Performance Guarantee under the Head Agreement:	Not applicable.

Item 8 Modules that form part of the Customer Contract

Formation (clause 3.8(a))

Indicate, by marking with an X, the Modules that apply

Module 1 – Hardware Acquisition and Installation	☐	Module 11 – Telecommunications Services	☐
Module 2 – Hardware Maintenance and Support Services	☐	Module 12 – Managed Services	☐
Module 3 – Licensed Software	☒	Module 13 – Systems Integration	☐
Module 4 – Development Services	☐	Module 14 –Hosting Services	☐
Module 5 – Software Support Services	☒	Module 15 Satellite Services	☐
Module 6 – Contractor Services	☐		☐
Module 7 – Professional Services	☒		☐
Module 8 – Training Services	☐		☐
Module 9 – Data Migration	☐		☐
Module 10 – X as a Service	☐		

Item 9 Schedules that form part of the Customer Contract in addition to the General Order Form

Formation (clause 3.8(b))

Indicate, by marking with an X, the Schedules that apply

Schedule 1 – General Order Form	Applies	Schedule 7 – Statutory Declaration - Subcontractor	☒
Schedule 2 – Agreement Documents	☒	Schedule 8 – Deed of Confidentiality	☒
Schedule 3 – Service Level Agreement	☐	Schedule 9 – Performance Guarantee	☒
Schedule 4 – Variation Procedures	☒	Schedule 10 – Financial Security	☒
Schedule 5 – Escrow Agreement	☒	Schedule 11 – Dispute Resolution Procedures	☒
Schedule 6 – Deed Poll – Approved Agents	☐	Schedule 12 – Project Implementation and Payment Plan	☒

Item 10 Contract Period

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Contract Period (Clause 2.4)	
Specify the Commencement Date if it is not the date when the Customer and the Contractor sign the Customer Contract:	The date the last party executes the Customer Contract and the General Order Form.
Specify the end of the Contract Period:	The Contract Period will commence on the Commencement Date and end on the date on which the Contractor has discharged all of its obligations under this Customer Contract. For the avoidance of doubt, the perpetual licence will survive the Contract Period.
Specify any period of extension of the Contract Period in days/weeks/years:	Not applicable.

Item 11 Common Details

Formation (clause 3.4)			
Product and/or Service	**Price per Unit**	**Quantity**	**Extended Price**
As described in the PIPP set out in Annexure B to the Customer Contract, as updated or varied by the Parties from time to time (**PIPP**).	As specified in the PIPP.	As specified in the PIPP.	As specified in the PIPP.
		Sub-Total:	As specified in the PIPP.
		Delivery Charges:	As specified in the PIPP.
		Any Other Charges:	As specified in the PIPP.
		GST:	As specified in the PIPP.
This is the Contract Price (plus GST)		**Total Amount:**	As specified in the PIPP.

Item 12 Delivery Address

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Delivery (clause 5.1)	
Specify the address of the Site where delivery is to be made:	As specified in the PIPP.
Specify any delivery instructions:	As specified in the PIPP.
Specify the hours during which delivery may be made to the Site:	As specified in the PIPP.

Item 13 Contract Specifications

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Formation (clause 3.4)	
If the Contract Specifications are the User Documentation leave this Item blank. If the Contract Specifications comprise other documents, list those documents in order of priority:	The Contract Specifications consist of: (a) the requirements for the Deliverables set out in the PIPP; (b) any requirements for the Deliverables set out in the Additional Conditions specified in Annexure A to this Customer Contract (**Additional Conditions**); (c) any documents included and / or referenced in Schedule 2 – Agreement Documents; (d) any other requirement or specification agreed between the Parties in writing; and (e) any documents incorporated by reference, or referred to, in any of the documents detailed above.

Item 14 Payment

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Payment (clauses 11.1 and 11.2)	
Invoicing (clause 11.7 and 11.9)	
Specify the Customer's officer to receive invoices:	Stefano Bianchini.
Specify address to which invoices should be sent:	Level 13, 477 Pitt Street, Sydney NSW 2000.
Specify the number of days from receipt of a Correctly Rendered Invoice that the Customer must make payment. If this Item is not completed, the Customer must pay the Contractor within 30 days from receipt of a Correctly Rendered Invoice.	The default period of 30 days unless otherwise specified in the PIPP.
Specify when the Contract Price must be paid: E.g. if the earlier Price is to be paid on delivery, insert "The Contract Price is due on delivery". If payment is to be made on more than one occasion then consider using a PIPP under Item 20.	As specified in the PIPP.
Specify whether the Contract Price is fixed: E.g. does the unit Price per item vary for inflation or other factors? If so, specify the calculation for Price variations:	The Contract Price is fixed.

Item 15 User Documentation

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
User Documentation (clause 5.4(b))	
Specify the Price of any additional copies of the User Documentation:	Nil.

Item 16 Management Committee

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Management Committee (clause 6.4)	
List the name/s of the Contractor's project manager, officers or other relevant persons who will sit on the management committee:	As specified in the PIPP.
Management Committee (clause 6.6)	
Specify the function to be performed by the management committee:	The additional functions of the management committee and the times at which the management committee must meet, are specified in the PIPP.
List the name/s of the Customer's project manager, officers or other relevant persons who will sit on the management committee:	The Customer's representatives are as specified in the PIPP. The initial Customer's representatives on the Management Committee are: (a) Mark Pigot; (b) Stefano Bianchini; (c) Bob Allum; and (d) Reuben Bowd (as legal adviser as required).
Management Committee (clause 6.8)	
Specify the details, including the contents of the progress report to be submitted to the Customer's project manager:	As specified in the PIPP.
Specify any other details:	As specified in the PIPP.

Item 17 Performance Review Procedures

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Performance Reviews (clause 6.10)	
Specify if a service and performance review/s of the Contractor's performance of the Customer Contract is to apply:	No service and performance review/s of the Contractor's performance apply.
Specify any specific time intervals for service and performance reviews:	Not applicable.

Item 18 Site Preparation and Maintenance

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Site Specifications (clause 6.12)	
Specify if a Site Specification is required:	No. A Site Specification is not required.
Access to Customer's Site (clause	

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
7.1(b))	
Specify any other requirements in relation to the Site access:	None.
Specify any requirements for the preparation and maintenance of the Site:	None.

Item 19 Implementation Planning Study

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Implementation Planning Study (clause 6.14)	
Specify if the Contractor must provide an implementation planning study:	No. An Implementation Planning Study is not required.
Specify the implementation planning study objectives and time for provision of study:	Not applicable.
Date for delivery of the implementation planning study to the Customer:	Not applicable.
Specify if the implementation planning study need to undergo Acceptance Tests in accordance with clause 10.1(b):	Not applicable.

Item 20 Project Implementation and Payment Plan (PIPP) and Staged Implementation

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Project Schedule (clause 6.17)	
Invoicing (clause 11.7)	
Specify if a PIPP has been created. If so, identify the document in this Item and attach as an Annex to this General Order Form: E.g. the PIPP is in a document “PIPP v1_1 27/10/11” and Annexure 1 to the Customer Contract.	Yes. The PIPP is set out in Annexure B to the Customer Contract.
Staged Implementation (clause 6.20)	
Specify if there is to be Staged Implementation: If so, details of the Deliverables that comprise each Stage must be stated in the PIPP together with the period during which the Customer must give written notice to move to the next Stage (if greater than 10 Business Days):	As specified in the PIPP.

Item 21 Liquidated Damages

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Liquidated Damages (clause 6.28 to 6.34)	
Specify if Liquidated Damages (LDs) will apply:	No. Liquidated damages will not apply.
Specify the Milestones which are LD Obligations:	Not applicable.
Specify the Due Date for completion of each LD Obligation:	Not applicable.
Specify the calculation and amount of LDs for each LD obligation:	Not applicable.
Specify the maximum number of days LDs are to be paid for each LD obligation:	Not applicable.

Item 22 Customer Supplied Items (CSI) and Customer Assistance

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Customer Supplied Items (CSI) (clause 6.36)	
Specify each CSI to be provided by the Customer: CSI may be: office access, desks etc (specify location, standards, times of access); Hardware or software (specify equipment, capacity, versions of software and dates of availability); VPN access or other remote access (specify capacity and hours available). [Note: details of any Customer Personnel should be specified in Item 26].	As specified in the PIPP.
Specify if any CSI must be covered by support and maintenance contracts including the period of cover, the Contractors rights of access to any third party support help desk, the hours and service levels to which support and maintenance must be available to the Contractor:	No.
Specify the times when each CSI is to be provided:	As specified in the PIPP.
Specify any requirements to attach to any CSI:	Not applicable.

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
E.g. any standards that the CSI must meet.	
Specify if the Contractor must conduct any verification checks of CSI's to ensure they are satisfactory:	As specified in the PIPP.
If so, specify the verification check process for each CSI: Include: • a process to manage satisfactory and unsatisfactory verification checks; • a process to manage 'reissued' CSI's: • a process to manage repeat CSI verification checks: • a process to manage 'draft' or 'incomplete' and 'updated' CSI's; • a process to manage rejected CSI's: • a process to manage previously satisfactory CSI which becomes defective: • a list of required verification check forms and/or registers and a corresponding data entry process: • a list of Customer and Contractor nominee/s for responsibility to undertake verification checks:	As specified in the PIPP.
Specify any amount payable by the Contractor to the Customer for any item of CSI:	Nil.
Customer Assistance (clause 6.41)	
Specify the instructions, information, data, documents, specifications, plans, drawings and other materials that must be provided by the Customer to the Contractor:	As specified in the PIPP.

Item 23 Escrow

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Escrow (clause 6.42)	
Specify if an escrow arrangement is required:	Yes, escrow is required.
Specify the parties to the escrow arrangement:	Quintiq IP B.V. Sydney Trains ABN 38 284 779 682 Assurex Escrow Pty Limited ABN 64 008 611 578
Specify the time for the escrow arrangement to endure:	An initial period of 1 year which is automatically extended for 1 year terms until terminated in accordance with its terms.

Item 24 Business Contingency Plan

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Business Contingency (clause 6.45)	
Specify if a Business Contingency Plan is required:	No. A Business Contingency Plan is not required.
Specify when the Business Contingency Plan is required:	Not applicable.
Specify any information to be included in the Business Contingency Plan including the business contingency services required and the period of the services:	Not applicable.
Specify the periods that the Business Contingency Plan must be reviewed, updated by the Contractor:	Not applicable.
Specify the time periods that the Contractor is to test the operability of the Business Contingency Plan:	Not applicable.

Item 25 Secrecy and Security

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Access to Customer's Site (clause 7.4)	
Specify any secrecy or security requirements that the Contractor and its Personnel must comply with: E.g. insert a reference to any document that includes a security requirement.	The Contractor must comply with, and must ensure that each of the Contractor's Personnel comply with: (a) the Customer's confidentiality and system security policy and procedures and execute a deed of confidentiality in a form acceptable to the Customer; (b) the Customer's Code of Conduct; (c) the Customer's internet usage policy and procedures; (d) the Customer's site access sign-in process specified by the Customer when accessing a Site; (e) the Customer's site access sign-out process when leaving a Site; and (f) all other reasonable requirements specified by the Customer.

Item 26 Customer's Personnel

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Personnel General (clause 8.5)	
Specify the Customer's Personnel who will be available to work with the Contractor and their roles and responsibilities: Also specify the times and duration of their involvement as well as their authority levels:	As specified in the PIPP.

Item 27 Specified Personnel

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Specified Personnel (clause 8.8)	
Specify the identity and roles and responsibilities of any of the Contractor's Specified Personnel:	Details of the Contractor's Specified Personnel are specified in the PIPP.

Item 28 Subcontractors

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Agents and Subcontractors (clause 8.17)	
Specify which subcontractors are required to provide a Statutory Declaration by Subcontractor, substantially in the form of Schedule 7:	The Contractor must obtain a statutory declaration for the Subcontractor where required by the Customer or otherwise where that statutory declaration is a condition of the Customer's approval of a subcontract under clause 8.14.

Item 29 Quality Standard Accreditation

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Contractor Warranties (clause 9.1(h))	
Specify any quality standard accreditation arrangements the Contractor must hold during the Contract Period:	The Contractor shall achieve accreditation for any standards specified in the PIPP.

Item 30 Contractor's Compliance with Standards, Codes and Laws

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Contractor Warranties (clause 9.1(g))	
Specify any laws (other than Statutory Requirements) the Contractor is to comply with:	Any statute, regulation, by-law, ordinance or subordinate legislation in force from time to time in any jurisdiction other than Australia (including any industry codes of conduct) that are applicable to the Deliverables, the Customer or the Contractor.
Specify any codes, policies, guidelines or standards the Contractor is to comply with:	The Customer's policies, standards and procedures as notified to the Contractor from time to time.

Item 31 Customer's Compliance with Standards, Codes and Laws

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Customer Warranties (clause 9.3(h))	
Specify any laws (other than Statutory Requirements) the Customer is to comply with:	Not applicable.
Specify any codes, policies, guidelines or	None.

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
standards the Customer is to comply with:	

Item 32 Acceptance Testing

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Part 3 Dictionary (clauses 1.2 to 1.4)	
Acceptance Test Notification Period is the period from the end of the Acceptance Test Period, within which the Customer must provide to the Contractor written notice of the result of the Acceptance Test. Specify this period: If no period is specified, the period is 2 Business Days:	Not applicable.
Acceptance Test Data is the data that is provided by the Customer, and agreed by the Contractor that reflects the data the Customer will use in the Deliverable, that is to be used for Acceptance Testing. Specify the Acceptance Test Data:	Not applicable.
Acceptance Test Period is the period for the performance of any Acceptance Tests for any Deliverable. Specify this period: If no period is specified, the period is 10 Business Days from the date of delivery of the Deliverable to the Customer.	Not applicable.
Acceptance (clause 10.1)	
For each Deliverable, specify whether each Deliverable is to undergo Acceptance Testing: If not, the Deliverable will be Accepted under clause 10.1(a).	No Deliverables will be subject to Acceptance Testing.
If a Deliverable is not to undergo Acceptance Tests, specify the period required following delivery of the Deliverable as required by the Order Documents when the Actual Acceptance Date (AAD) for a Deliverable occurs: If no period is specified, then the period is 2 Business Days.	For Deliverables that are Documents, as specified in clause 7.3 of the Additional Conditions. For all other Deliverables, 10 Business Days after those Deliverables were supplied.
Conducting Acceptance Tests (clause 10.3)	
For each Deliverable that is to undergo Acceptance Tests, specify details of the Acceptance Testing requirements:	Not applicable.
Specify the identification of the Deliverables or part of the Deliverables to be tested:	Not applicable.
Specify the allocation of each Party's responsibilities in relation to testing, including the Party responsible for	Not applicable.

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
conducting the Acceptance Tests:	
Specify which Party is to provide the test environment, including hardware, software, power, consumables and other resources and when the environment and resources must be ready for use:	Not applicable.
Specify the methodology and process for conducting Acceptance Tests:	Not applicable.
Specify the scheduling of Acceptance Tests including the Acceptance Test Period and the Acceptance Test Notification Period:	Not applicable.
Specify the Acceptance Criteria used to test whether the Deliverable meets the Contract Specification and other requirements of the Customer Contract:	Not applicable.
Specify the Acceptance Test Data required:	Not applicable.
If an Acceptance Test document has been created that addresses the above points it can be attached to the General Order Form by identifying the document here:	Not applicable.

Item 33 Credit/Debit Card

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Payment (clause 11.3)	
Specify any credit/ debit card or electronic facility that the Customer may use to pay the Contractor:	As specified in the PIPP.
Specify any fee that is applicable for payment by credit/debit card	None.

Item 34 Intellectual Property

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Existing Material (clauses 13.7 and 13.9)	
Specify any terms and condition applicable for granting a license for Existing Material owned by a third party:	The licence granted under clause 13.7 must be granted on terms which are the same as the terms of the additional licence rights specified in clause 14.2 of the Additional Conditions.
Specify any fees to be charged for any license to use any of Contractor's Existing Materials:	Nil.
Customer Owned New Material (clause 13.10)	
Specify if clause 13.10 applies, and if so, to which items of New Material:	Clause 13.10 applies to all New Material.

Item 35 Confidentiality

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Confidentiality (clause 14.1)	
Specify if the Contractor must arrange for its Subcontractors to execute a Deed of Confidentiality substantially in the form of Schedule 8 – Deed of Confidentiality:	Yes. The Contractor must arrange for its Subcontractors to execute a Deed of Confidentiality substantially in the form of Schedule 8.

Item 36 Insurance Requirements

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Insurance (clause 16.7)	
Level of indemnity of public liability insurance in respect of each claim for the period of cover. The default requirement in the Customer Contract is $10,000,000 [Only specify if a higher limit of cover that is required by the Customer Contract:]	The level of public liability insurance is $20,000,000.00 in respect of each claim.
Level of indemnity of product liability insurance for the total aggregate liability for all claims for the period of cover. The default requirement in the Customer Contract is $10,000,000 [Only specify if any higher limit of cover that is required by the Customer Contract:]	At least $20,000,000.00 for the total aggregate liability for all claims and in the annual aggregate.
If Services are being provided under the Customer Contract the default level of indemnity of professional indemnity insurance for the total aggregate liability for all claims for the period of cover is $1,000,000 [Only specify is a higher limit that is required by the Customer Contract:]	At least $10,000,000 for the total aggregate liability for all claims.
Specify any additional insurance that the Contractor is to hold, including the type of insurance, the term of the insurance and the amount of the insurance:	(a) Workers compensation insurance **Cover:** Liability for death of or injury (including occupations disease) to all workers performing the Services and Deliverables as required by *Workers Compensation Act 1987* (NSW). **Extension:** To be extended to cover the Principal's statutory liability to such workers, where permitted by *Workers Compensation Act 1987* (NSW). **Period required:** Before commencing the Services and Deliverables until the Contract Period expires. (b) Motor vehicle insurance – third party property **Cover:** All motor vehicles, trailers and mobile plant (whether registered or unregistered) used in connection with the Project. **Period required:** Before commencing the Services until the Service Term expires and, after that, whenever Services are performed.

Item 37 Performance Guarantee

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Performance Guarantee (clause 17.2)	
Specify if the Contractor must arrange for a guarantor to enter into a Performance Guarantee:	Yes. The Contractor must provide a Performance Guarantee from Dassault Systemes S.E. A European Company (Societas Europaea, SE) with registered office 10, rue Marcel Dassault, 78140 VELIZY-VILLACOUBLAY. The Performance Guarantee will be in the form set out in Schedule 9 of the General Order Form.
Specify the date by which the Performance Guarantee must be provided to the Customer. If no date is specified the Contractor must provide the Performance Guarantee to the Customer within 30 days of the Commencement Date.	Within 45 Business Days after the Commencement Date.

Item 38 Financial Security

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Financial Security (clause 17.4)	
Specify if the Contractor must provide a Financial Security: If so, specify the amount of the Financial Security:	Yes. the Contractor must provide a Financial Security to the value of [redacted] The Financial Security will be in the form of Schedule 10 to this Customer Contract. The Customer must give notice to the Guarantor under clause 3(b) of the Financial Security if either of the following occur: (a) the date on which a guarantor provides a new financial security on behalf of the Contractor in favour of the Customer of an amount at least to the value listed above; or (b) 12 months after expiry of the Customer Contract. In the event that the Financial Security reaches expiry without having been called in full by the Customer and has not been replaced by a new financial security and the Contractor is still providing Services, the Contractor must provide a replacement guarantee on equivalent terms to at least the amount listed above.
Specify the date by which the Financial Security must be provided to the Customer: If no date is specified, the Contractor must provide the Financial Security within 14 days of the Commencement Date.	Within 45 Business Days after the Commencement Date.

Item 39 Limitation of Liability

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Limitation of Liability (clause 18)	
If the Parties cannot agree the amount that is legally payable under the Customer Contract for the: • Non-Recurring Service or	The Parties have agreed the Contract Value. This is set out in the PIPP.

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Product; and/or • Short Term Recurring Service (as applicable) insert the amount that the Parties agree is the best estimate of the Contract Value for the relevant item (the Estimated Contract Price). Note: It may be necessary to separately identity the amounts payable under a single Customer Contract into separate amounts that are attributable to each of the different types of Product/ Service. **(See the definition of Contract Value in Part 3)**	
If Services are being provided under any of the following Modules: Module 6 – IT Personnel; Module 7 – Professional Services; Module 8 – Data Management; Module 11 – Web Services; Module 16 - Project Management Services; Module 17 - Change Management Services; Module 18 - Knowledge Transfer Services; or Module 20 - Whole of Government Requirements specify whether the Parties regard the relevant Services as being: • the supply of a service of the same type on a periodic basis, and so are to be classified as Recurring Services for the purpose of the limitation of liability; or • provided in respect of a specific project where the Contractor has been engaged by a Customer to produce, create or deliver a specified outcome or solution that may be subject to Acceptance Testing, in which case the Services are to be classified as Non-Recurring Services for the purpose of the limitation of liability. **(See definition of Non-Recurring Services and Recurring Services in Part 3)**	The Services are Non-Recurring Services and Products and accordingly the Contractor's liability is limited to 2 times the Contract Value (as specified in the PIPP) for those Non-Recurring Services and Products in accordance with clause 18.1(b)(i) of the Customer Contract.
Specify the alternative cap of liability (clause 18.3):	Not applicable.

Item 40 Performance Management Reports

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Reporting (clause 21.1)	
Specify the reports required, (if any), the time for provision and the agreed format:	As specified in the PIPP.

Item 41 Dispute Resolution

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Dispute Resolution (clause 24.11)	
Specify the threshold amount in AU$ for issues to be resolved by expert determination under clauses 24.7 to 24.8.	$50,000.00
Specify type of issue/s not to be determined by expert determination under clauses 24.7 to 24.8.	Subject to clause 24.11(a), all disputes arising out of or in connection with the Customer Contract are to be determined by expert determination under clauses 24.7 to 24.8.

Item 42 Termination for Convenience

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Termination for Convenience by the Customer (clause 25.4)	
Specify whether an amount is payable under clause 25.4(b) if the Customer exercises its right of termination for convenience under clause 25.3:	Clause 17.1 of the Additional Conditions will apply to any costs that are recoverable under clause 25.4(b).

Item 43 Additional Conditions

Details to be included from the Customer Contract	Order Details agreed by the Contractor and the Customer
Specify any Additional Conditions: Note: where the Customer Contract is made under a Head Agreement the Customer must obtain the Contract Authority's and the Director General's NSW Department of Finance and Services consent where an Additional Condition varies a Protected Clause.	Yes. The Additional Conditions are set out in Annexure A to the Customer Contract.

This General Order Form is part of the Customer Contract and incorporates all Parts, terms and conditions and other documents listed in clause 3.8 of Part 2 as if repeated in full in this General Order Form.

SIGNED AS AN AGREEMENT

Signed for and on behalf of Sydney Trains (ABN 38 284 779 682)

By [*to be inserted by the Customer*] but not so as to incur personal liability

Signature of Customer Representative

Print name

Date

Signed for and on behalf of Quintiq Pty Ltd (ABN 85 128 925 039)

Signature of Authorised Signatory

Print name

Date

ANNEXURE A – ADDITIONAL CONDITIONS

ANNEXURE A TO THE CUSTOMER CONTRACT ADDITIONAL CONDITIONS

PART A: SPECIFIC VARIATIONS TO PROCUREIT

1. Specific Variations to Part 2: Customer Contract

1.1 On and from the Commencement Date, Part 2 of ProcureIT Version 3.1 'Customer Contract' is varied as follows:

(a) In clause 11.8 add the following sentence '*Each invoice must be accompanied by a completed and signed Subcontractor's Statement in the form set out in Attachment E of the Additional Conditions*;

(b) in clause 13.10 the word 'AAD' is deleted and replaced with '*creation*';

(c) in clause 18.4, the words 'Notwithstanding any other clause in the Customer Contract,' are deleted and replaced with '*Subject to the exceptions set out in clause 18.5 and any other exceptions set out in the Additional Conditions,*';

(d) in clause 19.8, the references to clause '18.4' are deleted;

(e) the following words are inserted at the beginning of clause 25.4(a), 'if the Order Documents do not state an amount that is payable on termination,'; and

(f) in clause 25.4(a) the word '; and' is deleted and replaced with '; or'.

2. Specific Variations to Module 3 – Licensed Software

2.1 On and from the Commencement Date, Module 3 of ProcureIT Version 3.1 'Licensed Software' is varied as follows:

(a) clause 2.1 is deleted and replaced with the following:

'***2.1*** *The Contractor grants to the Customer a non-exclusive License to exercise the rights specified in the Class of License stated in the Module Order Form in relation to the Licensed Software.*';

(b) a new clause 2.1A is inserted as follows:

'***2.1A*** *If the Module Order Form specifies that the Licensed Software may only be used on Designated Equipment, the Customer must only use that Licensed Software on that Designated Equipment.';*

(c) clauses 5.1 and 5.2 are deleted and replaced with the following:

'***5.1*** *This Customer Contract overrides the terms of any Open Source Licence, and all open source software will be Licensed Software and subject to the Licence in this Module 3.*

'***5.2*** *Not used.*';

(d) in clause 8.1 the words 'when operating on the Designated Equipment' are deleted;

(e) in clause 8.2 the words '*subject to clauses 8.1, 8.3 and 8.4,*' are inserted after the words 'of the subject matter';

(f) clauses 8.2(c) and 8.2(e) are deleted and replaced with '*not used*';

(g) in clause 8.2(d) the words 'for the Designated System' are deleted and replaced with '*for the Designated Equipment or as specified in the Contract Specifications*'; and

(h) in clause 9.1(d) is deleted and replaced with the following:

'*(d) any Virus, denial of service attack or other malicious act that adversely affects all or part of the Licensed Software except to the extent that the Virus, denial of service attack or other malicious act:*

(i) was introduced or carried out by the Contractor or any of its Personnel; or

(ii) was introduced or occurred as a result of the Contractor's or any of its Personnel's negligence;

3. Specific Variations to Module 5 – Software Support Services

3.1 On and from the Commencement Date, Module 5 of ProcureIT Version 3.1 'Software Support Services' is varied as follows:

(a) clause 7.1(f) is deleted and replaced with the following:

'*(f) any Virus, denial of service attack or other malicious act that adversely affects all or part of the Supported Software except to the extent that the Virus, denial of service attack or other malicious act:*

(i) was introduced or carried out by the Contractor or any of its Personnel;

(ii) was introduced or occurred as a result of the Contractor's or any of its Personnel's negligence; or

(iii) was introduced or occurred as a result of the Contractor breaching any of its obligations under the Customer Contract;'.

4. Specific Variations to Module 7

4.1 On and from the Commencement Date, Module 7 of ProcureIT Version 3.1 'Professional Services' is varied as follows:

(a) in clause 6.1(a) the words 'in all material respects during the Warranty Period' are deleted;

(b) clauses 6.2(c), 6.2(e) and 6.2(g) are deleted and replaced with 'Not used' and clauses 6.2(d) and 6.2(f) are renumbered 6.2(a) and 6.2(b) respectively;

(c) in clause 6.2(d) the word 'or' is inserted at the end of that clause; and

(d) in clause 6.4:

(i) the words ‘from the Commencement Date until the end of the Warranty Period in relation to the Professional Services that’ in the first and second lines are deleted; and

(ii) the words ‘in all material respects’ in the last line are deleted.

PART B: OTHER ADDITIONAL CONDITIONS

5. Definitions

5.1 In these additional conditions:

“**Agreed Price and Payment Schedule**” has the meaning set out in Attachment D;

“**Application**” means each of the following:

(a) DTTS;

(b) IMS; and

(c) CIMS,

as the context requires.

“Business Change” means:

(a) any Divestiture; or

(b) any Restructure of the Customer, or any consolidation (including the performance of common functions) of the Customer or any part of the Customer with any other entity, including a State-owned corporation.

“Customer Data” means:

(a) data, information and other materials provided to, or generated by, the Contractor relating to the Customer or any other Agency or any of their operations, facilities, customers, Personnel, assets and programs (**Raw Data**); and

(b) data, information and other materials in any format whatever generated, stored, processed, retrieved, printed or produced by or on behalf of the Contractor utilising the Raw Data.

“**CIMS**” means the customer information management system described in the RFP and the High-Level Design.

“**Customer Environment**” means the combination of hardware, software, systems and network infrastructure and services used by the Customer from time to time.

“**Divestiture**” means any sale or divestiture of all or part of the Customer, its business or other assets, in whatever form (including by way of an initial public offering of shares).

“**DTTS**” means the day of operations timetable system as described in the RFP and the High-Level Design.

“**Gold Support**” has the meaning given in Attachment A.

"**High-Level Design**" has the meaning given in Schedule 2 (Agreement Documents) of the Customer Contract..

"**IMS**" means the incident management system described in the RFP and the High-Level Design.

"**Interfacing Contractor**" means a person who supplies goods, services or other inputs with whom the Contractor must interface or interact to supply the Deliverables or otherwise as part of completing the project described in the PIPP, and includes the Key Contractors.

"**Key Contractor**" means each of the following:

(a) Ajilon Australia Pty Ltd (ABN 25 076 517 354);

(b) Thales Australia Limited (ABN 66 008 642 751);

(c) Frequentis Australasia Pty Ltd (ABN 25 107 550 489); and

(d) any other person specified as a 'key contractor' by the Customer from time to time.

"**Restructure**" means any restructure, dissolution, merger, transfer of any or all of its assets, Personnel, and liabilities, in respect of all or any part of the Customer's business or operations.

"**RFP**" means the request for proposals titled 'No WS178494 Rail Operations Centre (ROC) Technology Solution' dated 7 July 2014.

"**System**" means the rail operations centre technology solution comprising each of the Applications as described in the RFP and the High-Level Design.

"**Transition Services**" means any transition services that the Customer is required to supply relating to a Business Change.

6. Requirements for detailed design

REQUIREMENTS

6.1 The Contractor must:

(a) ensure the design Deliverables that it supplies under the Customer Contract:

(i) are consistent with, and are based on, the Requirements as defined in the PIPP; and

(ii) meet the other Contract Specifications;

(b) supply design Deliverables for DTTS which ensure that:

(i) DTTS meets all of the requirements specified for that Application in the RFP, the PIPP or any other component of the Contract Specifications;

(ii) DTTS integrates and interoperates with each other Application so that the System meets the requirements for the System specified in the RFP, the PIPP or any other component of the Contract Specifications; and

(iii) DTTS integrates and interoperates with the Customer Environment:

(A) as described in the RFP, the PIPP or any other component of the Contract Specifications; and

(B) without causing any outage, interruption or degradation of any component of the Customer Environment; and

(c) design DTTS in a manner that minimises the effort required to have DTTS modified or integrated with other software at a later date.

INTERFACES

6.2 To the extent that the Contractor is required to design any interfaces between:

(a) DTTS and the other Applications; or

(b) DTTS and the Customer Environment,

the Contractor must design those interfaces:

(c) in a way that will enable the interface to accommodate subsequent updates and new releases of the software to which the interface relates (including updates and new releases for DTTS); and

(d) so that those interfaces are capable of being used as the basis for interfaces between DTTS and other software.

METHODOLOGIES

6.3 The Contractor must supply the Deliverables using methodologies specified in the PIPP.

7. Approval of Documents

APPLICATION

7.1 The process in this clause 7 applies to all Deliverables that are Documents.

SUBMISSION

7.2 The Contractor must submit all Deliverables which are Documents for approval in accordance with this clause 7 by the applicable date for that Deliverable specified in the PIPP.

7.3 AAD for a Document will occur on the date on which that Document is approved in accordance with this clause 7.

APRROVAL

7.4 The Customer must, within 15 Business Days after a Document is submitted to the Customer (or any alternative timeframe agreed between the Parties in writing), review that Document and give the Contractor Notice in Writing specifying that:

(a) the Document meets the Contract Specifications and the Customer approves the Deliverable; or

(b) the Document does not meet the Contract Specifications and the Customer requires amendments to the Document, in which case the Customer must specify those amendments in the Notice in Writing.

7.5 If the Customer gives the Contractor a Notice in Writing requiring amendments to a Document under clause 7.4(b) of these Additional Conditions, the Contractor must, within 5 Business Days (or any alternative timeframe agreed between the Parties in writing), prepare a revised version of the Document which addresses all of the amendments required by the Customer.

7.6 The Parties must repeat the process in this clause 7 until the Customer approves each Document in accordance with clause 7.4(a) of these Additional Conditions or the Customer gives the Contractor a Notice in Writing in accordance with clause 7.7 of these Additional Conditions.

TERMINATION

7.7 If the Customer gives a Notice in Writing under clause 7.4(b) of these Additional Conditions 3 or more times for a Document, the Customer may terminate the Customer Contract to the extent it relates to that Deliverable and any related or dependent Deliverables supplied or to be supplied under the Customer Contract, with immediate or later effect, by giving the Contractor a Notice in Writing.

REFUND

7.8 Without prejudice to other rights of the Customer under the Customer Contract, if the Contractor does not achieve a Relevant Milestone by the date required in the PIPP (as updated from time to time) and the Predominant Cause of that failure is an act or omission of the Contractor and the Relevant Milestone is not otherwise accepted in accordance with clause 10 of the Customer Contract, and the Contractor and Customer have exhausted all reasonable efforts to reach an agreeable solution between the two parties or the Contractor has not otherwise remedied the failure resulting in non-acceptance of the Relevant Milestone (which efforts are not required to continue for more than 18 weeks following non-acceptance of the Relevant Milestone, then the Customer may terminate the Customer Contract in which case the Contractor must (subject to clause 7.9) refund all amounts paid for the Software Licences and Maintenance and Support, subject to the Customer returning all copies of the Licensed Software and within 30 Calendar Days after the Customer having certified in writing by an authorised representative of the Customer that the Licensed Software and all of Contractor's Existing Material in its possession have been destroyed or returned.

7.9 Where the failure to achieve the Relevant Milestone has not been solely caused by the Contractor, then the refund that the Contractor is required to make under clause 7.8 will be reduced proportionately to reflect the extent to which the Contractor caused or contributed to the failure.

7.10 During the 18 week period referred to in clause 7.8, the Contractor must continue to perform the Services and in particular must develop a remediation plan in conjunction with the Customer and actively work to remediate the failure.

7.11 For purposes of this clause 7:

(a) "**Predominant Cause**" of a failure or delay means the principal or most influential cause of the delay or the cause that has contributed the most to the delay; and

(b) "**Relevant Milestone**" means achieving AAD for all of the Deliverables in the PIPP by the date required in the Project Schedule (as amended by agreement in writing from time to time).

8. Background checks

CONTRACTOR CHECKS

8.1 If requested by the Customer, or otherwise required by a Customer policy specified in the Order Documents the Contractor must:

(a) conduct background checks on the Contractor's Personnel in the performance of the Customer Contract as and when required by the Customer or as specified in the applicable Customer policy; and

(b) not use any Personnel in the performance of the Customer Contract who do not meet the requirements specified by the Customer (acting reasonably) from time to time, including in an applicable Customer policy,

(**Customer Personnel Requirements**) unless otherwise directed by the Customer.

8.2 The Contractor must give the Customer the results of any background checks it conducts under clause 8.1 of these Additional Conditions within 2 Business Days of receipt.

CUSTOMER CHECKS

8.3 The Customer may at any time:

(a) carry out the background checks referred to in clause 8.1 of these Additional Conditions itself; and

(b) conduct such other investigations and background checks as the Customer considers appropriate,

(**Customer Checks**).

8.4 From time to time the Customer may (acting reasonably) request assistance relating to the Customer Checks. The Contractor must provide all assistance relating to the Customer Checks requested by the Customer promptly after the Contractor receives that request.

8.5 If a Customer Check shows that a member of the Contractor Personnel does not meet the Customer Personnel Requirements, the Customer must advise the Contractor as soon as possible.

CONSENT

8.6 The Contractor must obtain all necessary consent from Contractor Personnel to enable:

(a) the Contractor and the Customer to conduct the checks or investigations under clauses 8.1 and 8.2 of these Additional Conditions; and

(b) the Contractor to provide the results of its checks or investigations to the Customer.

8.7 If the Contractor is unable to obtain a consent required under clause 8.6 of these Additional Conditions from a person, then, unless the Customer agrees otherwise in writing, the Contractor must:

(a) not engage that person to perform, or remove that person from performing, the Contractor's obligations under the Customer Contract; and

(b) provide a replacement for that person who is acceptable to the Customer within 2 Business Days after the date on which it became aware of that issue.

REMOVAL AND REPLACEMENT

8.8 If:

(a) a check performed by the Contractor or a Customer Check performed by the Customer shows that a member of the Contractor Personnel does not meet the Customer Personnel Requirements; and

(b) that person is engaging in the supply of the Deliverables or the performance of the Contractor's obligations under the Customer Contract,

(**Relevant Person**) the Contractor must immediately:

(c) remove that Relevant Person from the supply of the Deliverables or the performance of the Contractor's obligations under the Customer Contract; and

(d) withdraw and remove all access that the Relevant Person has to the Customer Data, Customer Supplied Items, Customer software or systems or the Sites.

8.9 If the Contractor is required to remove a Relevant Person in accordance with clause 8.8 of these Additional Conditions, the Contractor must replace that Relevant Person:

(a) with a member of the Contractor Personnel who meets the requirements for the Contractor's Personnel specified in the Customer Contract; and

(b) if the Relevant Person is one of the Specified Personnel, with a member of the Contractor Personnel who is approved by the Customer in accordance with clause 8.9 of Part 2 of the Customer Contract.

TERMINATION

8.10 If the Contractor breaches this clause 8, the Customer may terminate the Customer Contract in its entirety or to the extent it relates to one or more Deliverables, with immediate or later effect, by giving the Contractor a Notice in Writing.

9. Personnel

SKILLS, EXPERIENCE

9.1 The Contractor must:

(a) only use Personnel who:

(i) are suitably qualified, skilled and experienced to supply the Deliverables; and

(ii) have received training on the applicable requirements for supplying the Deliverables, including compliance with all applicable Customer policies; and

(b) ensure that all Contractor Personnel involved in the supply of the Deliverables are fluent in, and communicate with the Customer in, English.

REPLACEMENT PERSONNEL

9.2 The Customer (acting reasonably) may at any time request the Contractor to replace any member of the Contractor Personnel stating the reasons for the requirement.

9.3 If the Customer makes a request under clause 9.2 of these Additional Conditions, the following procedures will apply:

(a) if the reason for the request is due to:

(i) a contravention of a Statutory Requirement, another law or Customer policy by that member of the Contractor Personnel;

(ii) a breach of the work health and safety obligations or other act or omission by that member of the Contractor Personnel that endangered the health or safety

of any person on a premises, Site, facility or other location owned, leased or operated by the Customer; or

(iii) serious misconduct by that member of the Contractor Personnel,

the Contractor must immediately remove that member of the Contractor Personnel from the supply of the Deliverables or the performance of the Contractor's obligations under the Customer Contract; or

(b) if for any other reason, the Contractor must:

(i) promptly meet with the Customer and discuss its concerns; and

(ii) if, after those discussions, the Contractor cannot demonstrate to the Customer's satisfaction (acting reasonably) that it is able to address the Customer's concerns in a reasonable timeframe, replace that member of the Contractor Personnel; and

(c) if the Contractor is required to replace a member of the Contractor Personnel in accordance with this clause 9.3, it must ensure that:

(i) where that replacement relates to Specified Personnel, the person is approved by the Customer in accordance with clause 8.9 of Part 2 of the Customer Contract;

(ii) to the extent possible, there is a sufficient handover between the original member of the Contractor Personnel and the replacement so that the replacement is fully aware of the Deliverables and the Customer's requirements in connection with the Customer Contract (at no cost to the Customer); and

(iii) it withdraws and removes all access that the member of the Contractor Personnel being replaced has to the Customer Data, CSI, Customer software or systems or the Sites on the date on which that member of the Contractor Personnel was removed.

9.4 If the Contractor breaches clause 9.3 of these Additional Conditions the Customer may terminate the Customer Contract in its entirety or to the extent it relates to one or more Deliverables, with immediate or later effect, by giving the Contractor a Notice in Writing.

10. Restrictions relating to locations of performance

10.1 The Contractor must not:

(a) supply any of the Deliverables from or at; or

(b) store, access, send, transfer or make accessible, any of the Customer Data at, to or from,

a location outside of New South Wales unless:

(c) that location is specified in the PIPP; or

(d) the Contractor has the prior written consent of the Customer (which the Customer may withhold or grant in its absolute discretion).

10.2 If the Customer provides the Contractor with consent under clause 10.1 of these Additional Conditions, the Contractor must comply with any conditions imposed by the Customer.

11. Service warranties

11.1 In addition to any other obligations of the Contractor under the Customer Contract, the Contractor warrants and represents that:

(a) all Deliverables which are Services will be supplied in a safe and efficient manner and to the best of the Contractor's skill and knowledge; and

(b) it has the necessary knowledge and resources to supply the Deliverables.

12. Fitness for purpose

12.1 In addition to any other Contract Specifications set out in the Customer Contract, the Contractor must ensure that each Deliverable is fit for the purposes as mutually agreed upon in the PIPP.

13. Defect rectification

BREACH OF SERVICE WARRANTY

13.1 If the Contractor breaches any warranty in relation to any of the Services, the Customer may (in addition to any other remedies it may have at law or under the Customer Contract) require the Contractor to supply the Services again at the Contractor's cost.

WARRANTY PERIOD

13.2 The Warranty Period for each Deliverable that is not a Service commences on AAD for that Deliverable and ends on the date which is 12 months after AAD.

DEFECTS

13.3 Subject to clause 13.4 of these Additional Conditions, without limiting any of the Customer's rights under law or the Customer Contract, if at any time during the Warranty Period for a Deliverable that is not a Service, the Contractor becomes aware of, or the Customer advises the Contractor of a Defect in that Deliverable, the Contractor:

(a) must do all things necessary to correct the Defect:

(i) in accordance with the timeframes specified in the Customer Contract; or

(ii) if no timeframe is specified in the Customer Contract, within 5 Business Days after the date on which the non-compliance is identified (or any alternative timeframe agreed between the Parties in writing); and

(b) warrants that the replacement or repaired Deliverable will comply with the applicable warranties in the Customer Contract.

13.4 Clause 13.3 of these Additional Conditions, does not apply to a Defect to the extent that any of the exceptions set out in clause 7.1 of Module 7 were the cause of that Defect.

REMEDIES FOR SUPPLIER FAILURE TO CORRECT DEFECTS

13.5 Without limiting any of the Customer's rights under law or the Customer Contract, if the Contractor does not correct a Defect in accordance with clause 13.3, the Customer may do any one or more of the following:

(a) require the Contractor to negotiate in good faith to agree a Change Request to the Customer Contract to provide a reduction in the Contract Price to reflect a diminution in value of the applicable Deliverable;

(b) engage another supplier to correct the Defect, in which case the Contractor must pay the costs and expenses suffered or incurred by the Customer in doing so within 30 days of a demand by the Customer to do so; or

(c) pursue any other remedy it may have at law or under the Customer Contract.

13.6 Without limiting other rights under the Customer Contract, this clause 13 does not apply to Licensed Software.

14. Additional licence rights

14.1 In addition to any other rights granted under the Customer Contract, if the Deliverables are, or incorporate, any of the Contractor's Existing Material, on and from the date on which they are supplied, the Contractor grants the Customer a non-exclusive, irrevocable, royalty-free licence**:**

(a) to use, reproduce, modify and adapt the Contractor's Existing Material for its internal business purposes; and

(b) to grant access to such Deliverables to its Interfacing Contractors, excluding Contractor's direct competitors, to use, reproduce, adapt and modify such Deliverables for the Customers internal business purposes, including to supply services and deliverables to the Customer. Access grant shall be subject to confidentiality obligations of Interfacing Contractors no less stringent than those set out in the Customer Contract. In any case, the Customer shall remain liable and responsible for compliance of Interfacing Contractors with the Customer Contract.

14.2 In addition to any other rights granted under the Customer Contract, if the Deliverables are, or incorporate, any third party's Existing Material:

(a) on and from the date on which they are supplied, the Contractor grants the Customer a non-exclusive, irrevocable, royalty-free licence:

(i) to use, reproduce and adapt the Contractor's Existing Material for its internal business purposes; and

(ii) to sublicence any other person to use, reproduce and adapt the third party's Existing Material for the Customers internal business purposes including to supply services and deliverables to the Customer; and

(b) no additional fees, charges, terms or conditions to those specified in the Customer Contract will apply to that third party's Existing Material.

14.3 The Contractor warrants that it has all rights, licences, consents and other approvals necessary to grant the licences in clauses 14.1 and 14.2 of these Additional Conditions.

14.4 This clause 14 does not apply to the Licensed Software.

15. Civil Liability Act and Liability

15.1 The Parties exclude the operation of Part 4 of the *Civil Liability Act 2002* (NSW).

15.2 Clauses 18.1 and 18.4 of Part 2 of the Customer Contract do not apply to the Contractor's liability for a breach of, or under, any of clauses 14.3 or 22.4 of these Additional Conditions.

16. Cross-termination

16.1 The Customer may terminate the Customer Contract in its entirety or to the extent it relates to one or more Deliverables, with immediate or later effect, by giving the Contractor Notice in Writing if the Customer gives a termination notice for another Customer Contract with an Interfacing Contractor other than for convenience.

17. Costs relating to a termination for convenience

17.1 If the Customer terminates the Customer Contract under clause 25.3 of Part 2 of the Customer Contract, and the Contractor is entitled to recover liabilities, costs or expenses under clause 25.4 of Part 2 of the Customer Contract (Termination Costs), the Contractor may only do so to the extent that

(a) those Termination Costs are unavoidable and are directly, reasonably and necessarily incurred by the Contractor as a result of the termination;

(b) those Termination Costs have not already been recovered by the Contractor through under a Contract Document (including as part of the Contract Price);

(c) the Contractor substantiates that those costs have been or will be incurred to the Customer's satisfaction (acting reasonably);

(d) those costs relate exclusively to the Deliverables and would not have been incurred by the Contractor but for the termination; and

(e) the Contractor has not been able to mitigate those costs despite complying with its obligation under clause 25.3 of Part 2 of the Customer Contract.

18. Multi-sourcing and co-operation

MULTI-SOURCING AND CO-OPERATION OBLIGATIONS

18.1 The Contractor, must establish relationships and arrangements with all other Interfacing Contractors through which they:

(a) work together;

(b) co-ordinate their activities;

(c) co-operate fully and comprehensively with each other;

(d) interface their operations in a manner which is seamless;

(e) integrate the services they each supply;

(f) establish integrated processes which preserve their responsibility for the services they supply and ensure delivery of service level requirements; and

(g) agree the scope of obligations and interactions needed to minimise the need for the Authority to be involved in resolving service problems or managing their relationship,

(**Integration Outcomes**).

18.2 The Contractor must:

(a) provide the Customer and each Interfacing Contractor (as applicable) all co-operation and assistance requested by the Customer or an Interfacing Contractor (as applicable), including by:

(i) working with the Customer and Interfacing Contractors to facilitate the discharge of end-to-end service obligations and the meeting or exceeding of end-to-end service levels; and

(ii) providing the Customer and each Interfacing Contractor with access to materials and other resources; and

(b) do all other things necessary, to achieve the Integration Outcomes and to ensure that all services and deliverables (including the Deliverables) supplied to the Customer by the Contractor and each Interfacing Contractor, are supplied in a coordinated, effective and timely manner.

18.3 The Contractor acknowledges and agrees that:

(a) any disputes between the Contractor and an Interfacing Contractor (**IC Disputes**) are to be resolved as far as possible without the need for the Customer's intervention; and

(b) an IC Dispute must be reported to, and escalated to, the Customer in accordance with the process set out in the PIPP if it continues for more than 5 Business Days.

18.4 During the course of any IC Dispute, the Contractor must continue working with the Interfacing Contractors to maintain continuity of the Deliverables and the services and deliverables supplied by the Interfacing Contractor, regardless of responsibility.

SYSTEM INTEGRATOR

18.5 The Contractor acknowledges and agrees that the Customer will appoint another organisation as a system integrator who will be responsible for:

(a) preparing the overall detailed design for the System;

(b) co-ordinating the Deliverables from the Contractor; and

(c) if the Customer proceeds to implement and support the System, integrating the Applications to form the System and the Deliverables supplied by the Contractor and other Interfacing Contractors,

(**System Integrator**).

18.6 The Customer will appoint the System Integrator:

(a) as its agent to 'approve' or request amendments to Documents under clause 7 of these Additional Conditions; and

(b) to organise, coordinate, manage, check and validate the Customer Contract and the Contractor's performance under the Customer Contract.

18.7 The Customer may change the System Integrator from time to time by giving the Contractor a Notice in Writing. If the Customer does so:

(a) the old System Integrator will cease to become the System Integrator for the purposes of the Customer Contract; and

(b) the person specified as the 'system integrator' in the notice will become the System Integrator for the purposes of the Customer Contract,

on and from the date of the Notice in Writing.

18.8 The Contractor must:

(a) interact with the System Integrator; and

(b) treat and comply with, any request, notice, direction or instruction given by the System Integrator on behalf of the Customer which is in the scope of its appointment,

as if the System Integrator was the Customer.

18.9 The Contractor must supply the Deliverables in a manner which allows the System Integrator to discharge its role under its contract with the Customer.

18.10 If directed by the Customer, the Contractor must supply the Deliverables to the System Integrator.

CO-OPERATION AGREEMENT

18.11 From time to time the Customer may give the Contractor a Notice in Writing requesting that the Contractor enter into a co-operation agreement in a form to be negotiated between the other Interfacing Contractors, the Contractor and the Customer.

18.12 If the Customer makes a request under clause 18.11 of these Additional Conditions, the Contractor must, promptly after receiving the request (and in any event within 5 Business Days after receiving the request), commence negotiations with respect to a co-operation agreement.

19. Business Change

RIGHTS

19.1 The Contractor acknowledges and agrees that the Customer may by giving notice to the Contractor:

(a) use the Deliverables (including for the benefit of a Relevant Entity);

(b) sublicense or permit one or more persons to use any of the Deliverables;

(c) assign some or all of its rights under the Customer Contract to one or more persons;

(d) novate all or part of the Customer Contract to one or more persons; or

(e) require the Customer to supply one or more of the Deliverables directly to any other Relevant Entity,

for any one or more of the following purposes:

(f) providing the Transition Services to a Relevant Entity;

(g) facilitating or implementing a Business Change; and

(h) facilitating the provision of services:

(i) by the Customer to or for the benefit of one or more Relevant Entities; or

(ii) by one or more persons to, or for, the benefit of the Customer.

19.2 The Contractor consents to any novation or assignment notified to the Contractor in accordance with clause 19.1 of these Additional Conditions.

CONTRACTOR FACILITATION

19.3 The Contractor must, on request by the Customer, do all things reasonably necessary:

(a) to facilitate a Business Change; and

(b) to give effect to or implement any of the arrangements contemplated in clause 19.2 (including promptly executing all necessary documents and granting all necessary rights).

DISCLOSURE

19.4 In addition to any other rights that the Customer has under the Customer Contract, the Customer may disclose the terms of the Customer Contract and any Confidential Information of the Contractor:

(a) to any department or office of the State of New South Wales or other Agency;

(b) to any Relevant Entity or proposed Relevant Entity; or

(c) to any adviser or personnel of any such person specified in clauses 19.4(a) or 19.4(b) of these Additional Conditions.

20. Engagement and RFP

RFP

20.1 The Contractor acknowledges and agrees that:

(a) the RFP was for the design, implementation and support of the System;

(b) the Contractor submitted a response to the RFP relating to DTTS;

(c) despite the Parties entering into the Customer Contract for the detailed design component for the System, the Customer has not completed or awarded the other components of the RFP (**Other RFP Components**); and

(d) nothing in the Customer Contract affects, or makes any representation relating to, the Other RFP Components and the Customer may award part or all of the Other RFP Components to the Contractor, any other person or any combination of them.

20.2 The Customer excludes any and all liability to the Contractor relating to the outcome of the RFP (including if the RFP is awarded to another person).

20.3 The Contractor releases the Customer from any and all claims that the Contractor may have against the Customer relating to the RFP. The Customer may plead this clause 20.3 in bar to any proceedings commenced by the Contractor relating to the RFP.

IMPLEMENTATION AND SUPPORT

20.4 If the Contractor is selected as a preferred supplier to implement and support any component of the System, the Contractor must negotiate in good faith the terms of the contract under

which the Contractor will supply the applicable services and other deliverables (**Final Contract**) based on:

(a) ProcureIT v 3.1;

(b) the draft General Order Form contained in Attachment B;

(c) the ProcureIT v 3.1 template Order Forms for Modules 3, 4, 5, 7, 8 and 9;

(d) the draft Additional Conditions contained in Attachment C;

(e) Gold Support;

(f) the draft Service Level Agreement (provided by the Customer to the Contractor on or around 22 October 2014); and

(g) the Agreed Price and Payment Schedule,

as updated by the table set out in Attachment A to this Additional Conditions which specifies:

(h) the issues raised by the Contractor relating to the documents listed in this clause 20.4 as part of its overall response to the RFP; and

(i) the positions negotiated between the Contractor and the Customer relating to those issues as at the date of the Customer Contract.

20.5 The Contractor warrants and represents that:

(a) Attachment A to these Additional Conditions sets out all of the issues that the Contractor wishes to raise relating to documents listed in clause 20.4 of these Additional Conditions; and

(b) other than in respect of the draft Service Level Agreement (provided by the Customer to the Contractor on or around 22 October 2014) it will not seek to raise any further comments on those documents or alter the positions specified as ‘agreed’ or ‘closed’ in Attachment A, except to the extent necessary to respond to changes required by the Customer.

20.6 If:

(a) the Contractor is selected as a preferred supplier for some or all of the Other RFP Components; and

(b) the Final Contract is agreed and executed by the Parties,

then:

(c) that Final Contract will supersede the Customer Contract;

(d) the Customer Contract will be terminated to the extent that the Final Contract includes Deliverables that have been or are to be supplied under the Customer Contract;

(e) all Deliverables supplied under the Customer Contract and which are included in the scope of the Final Contract will be deemed to have been supplied under the Final Contract; and

(f) the terms of the Final Contract will apply to those Deliverables as if they had been supplied under the Final Contract.

20.7 If:

(a) the Contractor is selected as a preferred supplier to implement and support a component of the System; and

(b) the Final Contract is not executed by the Parties by 15 December 2016 or an alternative date that is agreed between the Parties in writing,

the Customer may, without any liability to the Contractor, terminate the Customer Contract in its entirety, with immediate or later effect, by giving a Notice in Writing to the Contractor.

21. GIPAA

21.1 The Contractor acknowledges that the Customer may be required to publish certain information concerning this Customer Contract in accordance with sections 27 to 35 of the *Government Information (Public Access) Act 2009* (NSW).

21.2 If the Contractor reasonably believes that any part of the Customer Contract contains information which is commercial-in-confidence or could reasonably be expected to affect public safety or security, then the Contractor must immediately advise the Customer in writing, identifying the provisions and providing reasons so that the Customer may consider seeking to exempt those provisions from publication.

21.3 Within three days of receiving a written request from the Customer, the Contractor must (at no cost to the Customer) provide the Customer with immediate access to information referred to in section 121(1) of the *Government Information (Public Access) Act 2009* (NSW) (but excluding information referred to in section 121(2) of the *Government Information (Public Access) Act 2009*) (NSW) contained in records held by the Contractor, in the format and using the medium, reasonably required by the Customer. This is a fundamental term of this Customer Contract.

22. Exchange of information between Agencies

22.1 The Customer may disclose, communicate or make available, any information concerning the Contractor or relating to the Customer Contract (including any Confidential Information of the Contractor) to one or more Agencies.

22.2 The Contractor acknowledges and agrees that:

(a) information about the Contractor from any source, including reports of performance, may be taken into account by Agencies (including the Customer) considering whether to offer the Contractor future opportunities for work; and

(b) the communication of such information to any NSW government agency is a communication falling within section 30 of the *Defamation Act 2005* (NSW).

22.3 The Contractor releases the Customer, all other Agencies and the State of New South Wales from and against any claim or cause of action it has or may have arising out of, or in relation to, any disclosure or any communications contemplated in this clause 22 (**Released Matters**). The Customer may plead this clause 22.3 in bar to any proceedings commenced by the Contractor relating to the Released Matters.

22.4 The Contractor indemnifies the Customer against any losses, liabilities, damages, costs and expenses that the Customer or any other Agencies or the State of New South Wales suffers or incurs relating to:

(a) any of the Released Matters; or

(b) any claim by any persons arising out of or relating to the Customer disclosing, or an Agency using, any information provided by the Contractor in accordance with this clause 22 of these Additional Conditions.

23. Sites

23.1 The Contractor must supply the Deliverables to or at the sites specified in the PIPP. Each of these sites will be a 'Site' for the purposes of the Customer Contract.

24. Destruction of information

24.1 The Contractor must, and must ensure that all of its Personnel, destroy or return:

(a) all Confidential Information of the Customer; and

(b) all other Customer Data (including any Personal Information),

that is in its, or any of its Personnel's possession or control:

(c) within 5 Business Days of a request from the Customer to do so; or

(d) on termination or expiry of the Customer Contract.

24.2 This clause 24 survives termination or expiry of the Customer Contract.

25. Liability to Agencies and the State of New South Wales

25.1 The Contractor acknowledges and agrees that the Customer holds the benefit of the Contractor's obligations, the Customer's rights and any release or indemnity under the Customer Contract as principal and on trust for each of RailCorp, Transport for NSW and NSW Trains (as if the obligation, right, release or indemnity had been expressed to be for the benefit of RailCorp, Transport for NSW and NSW Trains).

25.2 If any of RailCorp, Transport for NSW or NSW Trains suffers losses as a result of one or more acts or omissions of the Contractor or any of its Personnel relating to the performance, non-performance or termination of the Customer Contract, the Customer will be able to recover those losses from the Contractor:

(a) as if the losses were suffered or incurred by the Customer itself;

(b) to the extent that losses would have been capable of being recovered by the Customer had the Customer suffered those losses; and

(c) subject to the limitations and exclusions of liability set out in clause 18 of the Customer Contract.

26. Changes in Laws

(a) If the Contractor is required to comply with any Laws under the Customer Contract, the Contractor must comply with those Laws as they exist from time to time.

(b) The Contractor must comply with clause 26(a) at its own cost unless the change in Law affects only the rail industry. If the change in Law affects only the rail industry, the Contractor may submit a contract variation if the change in Law results in material

additional costs to the Contractor in the provision of the Services under the Customer Contract.

(c) "**Laws**" for purposes of this clause 26 include Statutory Requirements, statutes, regulations, by-laws, ordinances or subordinate legislation, standards and codes of conduct.

27. Marketing Clause

PRESS RELEASE

27.1 The Customer agrees to a joint press release being issued directly after the Commencement Date in which the Customer and the Contractor announce the entry into the Customer Contract, subject to the Customer's approval for the press release, such approval not to be unreasonably withheld.

CASE STUDY

27.2 The Contractor proposes to write a case study relating to this Customer Contract. The Customer agrees to collaborate in the review of that case study and to allow the publication of the case study subject to the Customer's approval, such approval not to be unreasonably withheld. Such a case study must not:

(a) take an inordinate time or resources of the Customer; or

(b) disclose any of the Customer's confidential or business information.

USE OF LOGO

27.3 The Customer agrees to the use of its logo by the Contractor for the sole purpose of the Contractor listing the Customer in commercial media such as the Contractor's website or brochures, provided that:

(a) the grant of this conditional permission to use in no way transfers to the Contractor any ownership rights or interest in the Customer's logo or name;

(b) the Customer consents to the use in each particular instance beforehand, such consent not to be unreasonably withheld; and

(c) any use or consent continues unless and until the Customer terminates or imposes any restrictions on such right, in which case the Contractor must cease such use or use the logo in accordance with any such conditions.

28. Escrow

28.1 For so long as the escrow agreement to be entered into under Item 23 of the General Order Form continues, the Customer may require the Contractor to provide to the Customer:

(a) a copy of any escrow audit report prepared by any service provider of the Contractor from time to time verifying the nature of any escrow materials held by the Contractor with any escrow agent (**Escrow Audit Report**); and

(b) a statutory declaration by a senior member of management within the Contractor or one of its Related Companies verifying that the escrow material held by the Contractor under the escrow agreement entered into with the Customer under Item 23 of the General Order Form is the same as the escrow material that is the subject of the Escrow Audit Report.

28.2 The Contractor must provide a copy of any Escrow Audit Report or any certificate required by the Customer under clause 28.1(b) within 30 days of being requested to do so by the Customer.

Attachment A – Commercial positions table

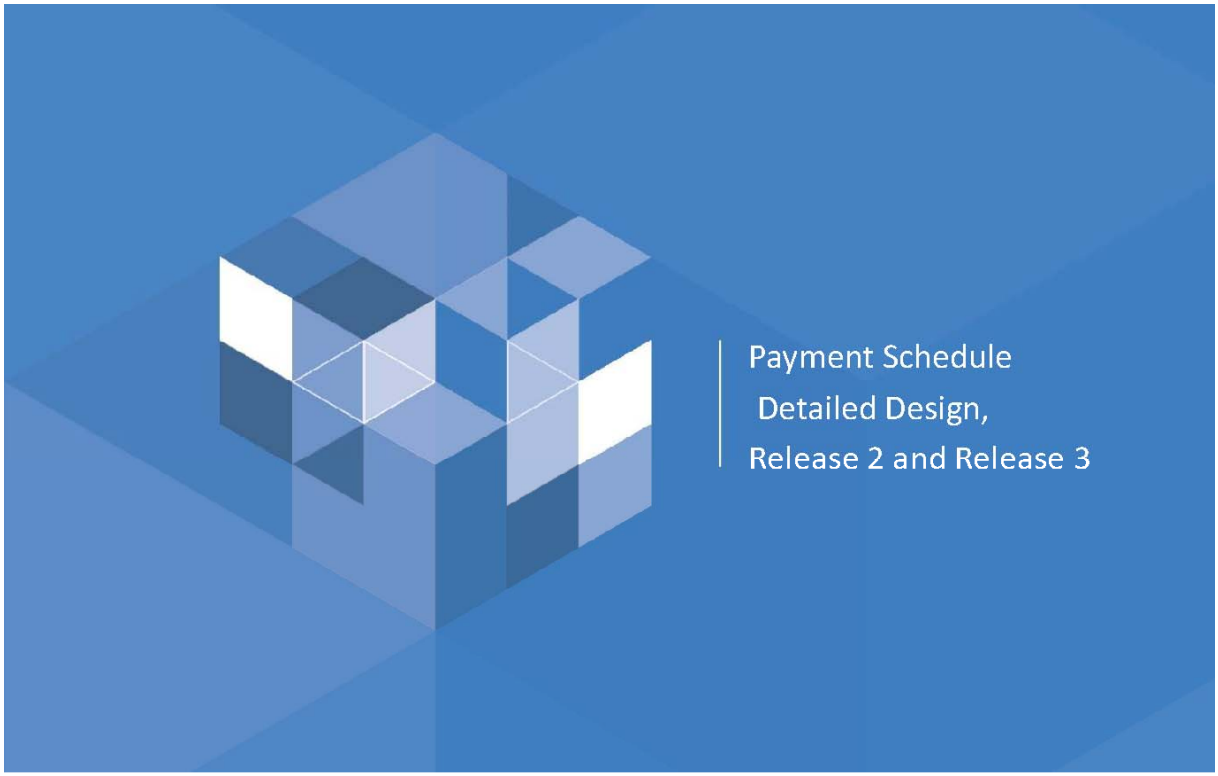
Attachment B – draft General Order Form

Attachment C – draft Additional Conditions

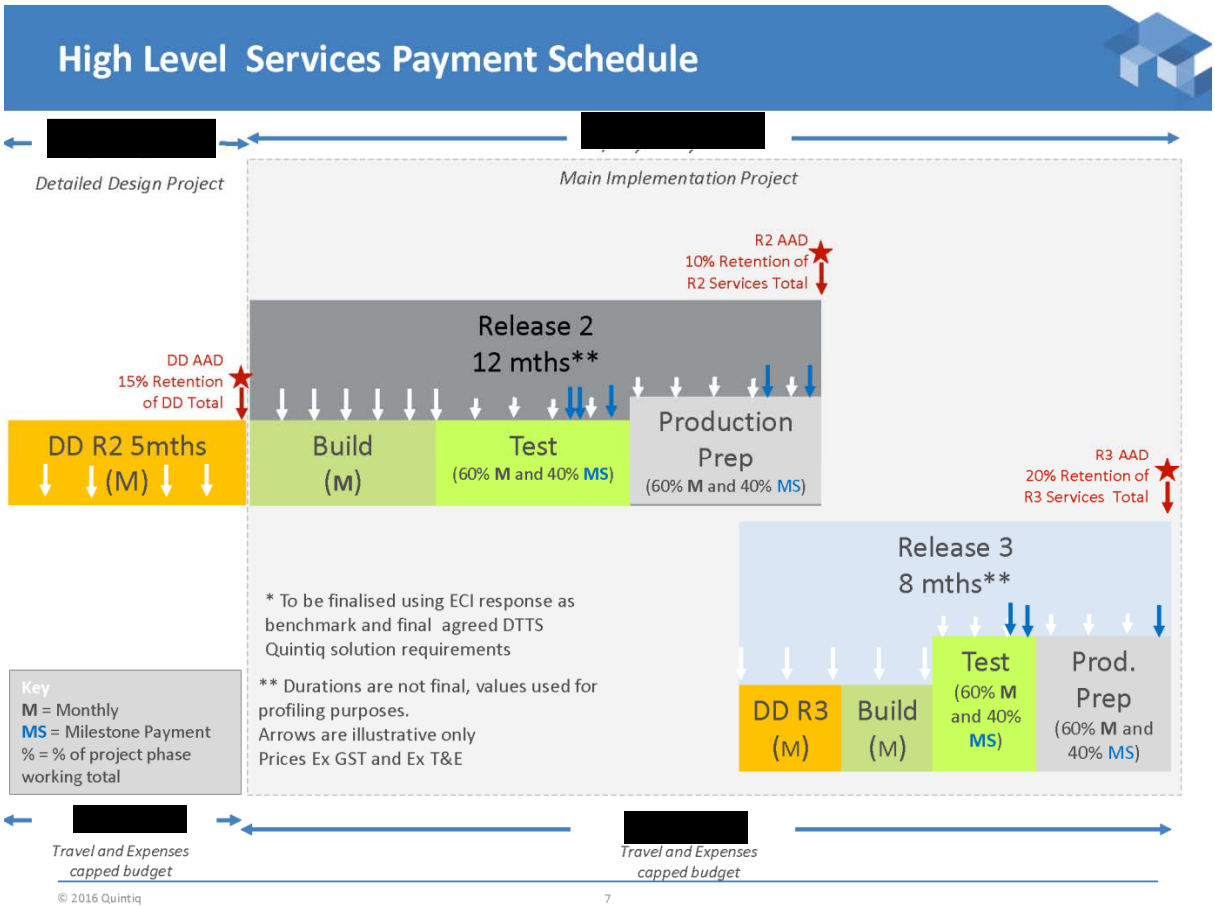
Attachment D – Agreed Price and Payment Schedule

Commercial Proposal – Accepted and Final

		CURRENT		PROPOSED	
Line No	Item	Pricing	Payment Due	Pricing	Payment Due
1	Software Licenses	[redacted]	On Signing	[redacted]	On Signing of Detailed Design
2	Detailed Design		Progress Monthly (current)		Progressive Monthly
3	Implementation Services		Progressive across Project Milestones		Progressive across Project Milestones
4	Maint Updates Only (12 months)		On Signing (18%)		On signing. 15.25% of License (reduced from 18%)
5	Maint Updates (8 months)		On expiry of above		On expiry of above 15.25% of License
6	Maint and Support Platinum Year 1		On expiry of above		20 Months after signing. Standard Gold Support without Service Credits at 21.5%
7	Maint and Support Platinum Year 2		On expiry of above		On expiry of above. Standard Gold Support without Service Credits at 21.5%
8	Maint and Support Platinum Year 3		On expiry of above		On expiry of above. Standard Gold Support without Service Credits at 21.5%
9	Maint and Support Platinum Year 4		On expiry of above		On expiry of above. Standard Gold Support without Service Credits at 21.5%
10	Maint and Support Platinum Year 5		On expiry of above		On expiry of above. Standard Gold Support without Service Credits at 21.5%
	PROJECT TOTAL				



QUINTIQ


High Level Services Payment Schedule
[redacted]
[redacted]
Detailed Design Project
Main Implementation Project
R2 AAD
10% Retention of
R2 Services Total
Release 2
12 mths**
DD AAD
15% Retention
of DD Total
DD R2 5mths
(M)
Build
(M)
Test
(60% M and 40% MS)
Production
Prep
(60% M and 40% MS)
R3 AAD
20% Retention of
R3 Services Total
Release 3
8 mths**
* To be finalised using ECI response as benchmark and final agreed DTTS Quintiq solution requirements
** Durations are not final, values used for profiling purposes.
Arrows are illustrative only
Prices Ex GST and Ex T&E
Key
M = Monthly
MS = Milestone Payment
% = % of project phase working total
DD R3
(M)
Build
(M)
Test
(60% M and 40% MS)
Prod.
Prep
(60% M and 40% MS)
[redacted]
[redacted]
Travel and Expenses capped budget
Travel and Expenses capped budget
© 2016 Quintiq
7

Notes related to High Level Payment Schedule

Amounts

- The price for the Detailed Design services is fixed at $1,200,000 + GST
- The price for the Main Implementation services for R2 and R3 is fixed at $6,323,320 + GST, baselined against the ECI response

Payments for Detailed Design , Release 2 and Release 3 projects services will comprise of a combination three types of payments

- Monthly progress payments
- Milestone Payments against agreed milestones
- Retention (balloon) payment at the end of Detailed Design, Release 2 and Release 3
- Calculations
  - Project services total = Retention amount + Progressive payments + Milestone payments
  - Retention Amount = a percentage of the Project services total for the project or release. In the case of Detailed Design =15%, Release 2 = 10%, Release 3 = 20%.
  - Project working total = Project services total – Retention amount
  - Progress payments will be monthly payments invoiced during a project phase. The total value may vary between 60% (when milestones occur in the same phase) and 100% (when there are no milestones in the phase) of the Project working total allocated to the phase. Payments will be evenly divided across the number of planned months in the phase.
  - Milestone payments will paid on sign off of the relevant agreed milestone. The total value may be split equally across a maximum of 3 milestones per phase, up to 40% of the Project working total allocated to the phase.
  - Project working total = Progress payments + Milestone payments

Travel and Expenses

- Travel and Expenses is capped in both the Detailed Design and across the Main Implementation as noted.

QUINTIQ

Attachment E – Sub-Contractor's Statement

subcontractors_statement_5483.pdf

New South Wales

SUBCONTRACTOR'S STATEMENT

REGARDING WORKER'S COMPENSATION, PAYROLL TAX AND REMUNERATION (Note1 – see back of form)

For the purposes of this Statement a "subcontractor" is a person (or other legal entity) that has entered into a contract with a "principal contractor" to carry out work.

This Statement must be signed by a "subcontractor" (or by a person who is authorised, or held out as being authorised, to sign the statement by the subcontractor) referred to in any of s175B *Workers Compensation Act 1987*, Schedule 2 Part 5 *Payroll Tax Act 2007*, and s127 *Industrial Relations Act 1996* where the "subcontractor" has employed or engaged workers or subcontractors during the period of the contract to which the form applies under the relevant Act(s). The signed Statement is to be submitted to the relevant principal contractor.

SUBCONTRACTOR'S STATEMENT (Refer to the back of this form for Notes, period of Statement retention, and Offences under various Acts.

Subcontractor: ..... ABN: .....
(Business name)

of .....
(Address of subcontractor)

has entered into a contract with ..... ABN:.....
(Business name of principal contractor) **(Note 2)**

Contract number/identifier .....
(Note 3)

This Statement applies for work between: ...../...../..... and ...../...../..... inclusive, (**Note 4)**

subject of the payment claim dated: ...../...../..... **(Note 5)**

I, ... a Director or a person authorised by the Subcontractor on whose behalf this declaration is made, hereby declare that I am in a position to know the truth of the matters which are contained in this Subcontractor's Statement and declare the following to the best of my knowledge and belief:

(a) The abovementioned Subcontractor has either employed or engaged workers or subcontractors during the above period of this contract. Tick | | if true and comply with **(b)** to **(g)** below, as applicable. If it is not the case that workers or subcontractors are involved or you are an exempt employer for workers compensation purposes tick | and only complete **(f)** and **(g)** below. You must tick one box. **(Note 6)**

(b) All workers compensation insurance premiums payable by the Subcontractor in respect of the work done under the contract have been paid. The Certificate of Currency for that insurance is attached and is dated ...../...../..... **(Note 7)**

(c) All remuneration payable to relevant employees for work under the contract for the above period has been paid. **(Note 8)**

(d) Where the Subcontractor is required to be registered as an employer under the *Payroll Tax Act 2007*, the Subcontractor has paid all payroll tax due in respect of employees who performed work under the contract, as required at the date of this Subcontractor's Statement. **(Note 9)**

(e) Where the Subcontractor is also a principal contractor in connection with the work, the Subcontractor has in its capacity of principal contractor been given a written Subcontractor's Statement by its subcontractor(s) in connection with that work for the period stated above. **(Note 10)**

(f) Signature ..... Full name.....

(g) Position/Title ..... Date ...../...../.....

NOTE: *Where required above, this Statement must be accompanied by the relevant Certificate of Currency to comply with section 175B of the Workers Compensation Act 1987.*

Notes

1. This form is prepared for the purpose of section 175B of the *Workers Compensation Act 1987*, Schedule 2 Part 5 *Payroll Tax Act 2007* and section 127 of the *Industrial Relation Act 1996*. If this form is completed in accordance with these provisions, a principal contractor is relieved of liability for workers compensation premiums, payroll tax and remuneration payable by the subcontractor.

   A principal contractor can be generally defined to include any person who has entered into a contract for the carrying out of work by another person (or other legal entity called ***the subcontractor***) and where employees of the subcontractor are engaged in carrying out the work which is in connection with the principal contractor's business.

2. For the purpose of this Subcontractor's Statement, a principal contractor is a person (or other legal entity), who has entered into a contract with another person (or other legal entity) referred to as the subcontractor, and employees/workers of that subcontractor will perform the work under contract. The work must be connected to the business undertaking of the principal contractor.

3. Provide the unique contract number, title, or other information that identifies the contract.

4. In order to meet the requirements of s127 *Industrial Relations Act 1996,* a statement in relation to remuneration must state the period to which the statement relates. For sequential Statements ensure that the dates provide continuous coverage.

   Section 127(6) of the *Industrial Relations Act 1996* defines remuneration *'as remuneration or other amounts payable to relevant employees by legislation, or under an industrial instrument, in connection with work done by the employees.'*

   Section 127(11) of the *Industrial Relations Act 1996* states *'to avoid doubt, this section extends to a principal contractor who is the owner or occupier of a building for the carrying out of work in connection with the building so long as the building is owned or occupied by the principal contractor in connection with a business undertaking of the principal contractor.'*

5. Provide the date of the most recent payment claim.

6. For Workers Compensation purposes an exempt employer is an employer who pays less than $7500 annually, who does not employ an apprentice or trainee and is not a member of a group.

7. In completing the Subcontractor's Statement, a subcontractor declares that workers compensation insurance premiums payable up to and including the date(s) on the Statement have been paid, and all premiums owing during the term of the contract will be paid.

8. In completing the Subcontractor's Statement, a subcontractor declares that all remuneration payable to relevant employees for work under the contract has been paid.

9. In completing the Subcontractor's Statement, a subcontractor declares that all payroll tax payable relating to the work undertaken has been paid.

10. It is important to note that a business could be both a subcontractor and a principal contractor, if a business 'in turn' engages subcontractors to carry out the work. If your business engages a subcontractor you are to also obtain Subcontractor's Statements from your subcontractors.

Statement Retention

The principal contractor receiving a Subcontractor's Statement must keep a copy of the Statement for the periods stated in the respective legislation. This is currently up to seven years.

Offences in respect of a false Statement

In terms of s127(8) of the Industrial Relations Act 1996, a person who gives the principal contractor a written statement knowing it to be false is guilty of an offence if:

(a) the person is the subcontractor;
(b) the person is authorised by the subcontractor to give the statement on behalf of the subcontractor; or
(c) the person holds out or represents that the person is authorised by the subcontractor to give the statement on behalf of the subcontractor.

In terms of s175B of the *Workers Compensation Act* and clause 18 of Schedule 2 of the Payroll *Tax Act 2007* a person who gives the principal contractor a written statement knowing it to be false is guilty of an offence.

Further Information

For more information, visit the WorkCover website www.workcover.nsw.gov.au, Office of State Revenue website www.osr.nsw.gov.au , or Office of Industrial Relations, Department of Commerce website www.commerce.nsw.gov.au . Copies of the *Workers Compensation Act 1987*, the *Payroll Tax Act 2007* and the *Industrial Relations Act 1996* can be found at www.legislation.nsw.gov.au.

ANNEXURE B – PIPP

Schedule 2 : Agreement Documents

Itemise all documentation (including any supplemental terms and conditions agreed to by the Customer, accepted tenders, offers or quotes from the Contractor, and any letter of acceptance or award issued by the Customer) between the Customer and the Contractor. All such documentation must be itemised in this Schedule 2 and listed below in descending date order (i.e. the latest document is listed first.)

In this Schedule 2, the following design documents are the High-Level Design:

(a) High Level Solution Design (PART A - Overview) v4.1.docx;

(b) High Level Solution Design (PART A - Overview) v4.1.pdf;

(c) High Level Solution Design (PART B – Systems Architecture) v4.0.docx;

(d) High Level Solution Design (PART B - Systems Architecture) v4.0.pdf;

(e) High Level Solution Design (PART C - Systems Product Detail) v4.1.docx;

(f) High Level Solution Design (PART C - Systems Product Detail) v4.1.pdf;

(g) HL Quintiq-Architecture-Design v3.0.docx;

(h) Quinitq Clarifications and Defects List_V3 (quintiq respose).xlsx;

(i) Sydney Trains ROC Non Functional Design v3.0.xlsx;

(j) Sydney Trains ROC Updated Capability and Gap Analysis v4.1.xlsx;

(k) Sydney Trains ROC Capability Gap and Traceability Analysis v3.0.xlsx; and

(l) ROC RAID-DRICASB Log v3.0.xlsx.

Document Name	**Version No. (where applicable)**	**Date**
High Level Solution Design Deliverables Acceptance Notice		
High Level Solution Design (PART C - Systems Product Detail) v4.1.pdf	v4.1	2/04/2015
Sydney Trains ROC Updated Capability and Gap Analysis v4.1.pdf	v4.1	2/04/2015
Sydney Trains ROC Updated Capability and Gap Analysis v4.1.xlsx	v4.1	2/04/2015
Ajilon Clarification and Defects List_V4.xlsx	v4.0	2/04/2015
Ajilon Defect and Clarification Sheet 27-3-15 with responses.xlsx		2/04/2015
High Level Solution Design (PART A - Overview) v4.1.docx	v4.1	2/04/2015
High Level Solution Design (PART A - Overview) v4.1.pdf	v4.1	2/04/2015
High Level Solution Design (PART C - Systems Product Detail) v4.1.docx	v4.1	2/04/2015
Quintiq Defect and Clarification Sheet 27-3-15 (quintiq response) v2.0.xlsx	v2.0	2/04/2015
Sydney Trains Implementation Strategy v3.0.docx	v3.0	2/04/2015
Sydney Trains ROC Capability Gap and Traceability Analysis v3.0.xlsx	v3.0	2/04/2015
HL Quintiq-Architecture-Design v3.0.docx	v3.0	2/04/2015

PIPP (Implementation and Maintenance Phase) - Quintiq excl pricing.docx		2/04/2015
Quinitq Clarifications and Defects List_V3 (quintiq respose).xlsx	v3.0	2/04/2015
Quintiq Defect and Clarification Sheet 27-3-15 (PMP_Impl).xlsx		2/04/2015
Clarifications_Defects Register.xlsx		20/03/2015
COMPARISON-High Level Solution Design (PART C - Systems Product Detail).docx		20/03/2015
COMPARISON-ROC System Integration Approach.docx		20/03/2015
COMPARISON-Sydney Trains ROC Implementation Strategy.docx		20/03/2015
PIPP SP4 Detailed Design Implementation v1.0 - without pricing.pdf	v1.0	20/03/2015
COMPARISON-High Level Solution Design (PART A - Overview).docx		20/03/2015
COMPARISON-High Level Solution Design (PART B - Systems Architecture).docx		20/03/2015
ROC SP4 Program of Work v1.0.mpp	v1.0	20/03/2015
ROC System Integration Approach v4.0.docx	v4.0	20/03/2015
ROC System Integration Approach v4.0.pdf	v4.0	20/03/2015
Sydney Trains ROC Implementation Strategy v4.0.docx	v4.0	20/03/2015
Sydney Trains ROC Implementation Strategy v4.0.pdf	v4.0	20/03/2015
Sydney Trains ROC Non Functional Design v4.0.pdf	v4.0	20/03/2015
Sydney Trains ROC Non Functional Design v4.0.xlsx	v4.0	20/03/2015
Sydney Trains ROC Updated Capability and Gap Analysis v4.0.pdf	v4.0	20/03/2015
Sydney Trains ROC Updated Capability and Gap Analysis v4.0.xlsx	v4.0	20/03/2015
Ajilon Clarification and Defects List v2.0.xlsx	v2.0	20/03/2015
Ajilon Project Plan v4.0.docx	v4.0	20/03/2015
Ajilon Project Plan v4.0.pdf	v4.0	20/03/2015
Ajilon submission overview.pdf		20/03/2015
High Level Solution Design (PART A - Overview) V4.0.docx	v4.0	20/03/2015
High Level Solution Design (PART A - Overview) V4.0.pdf	v4.0	20/03/2015
High Level Solution Design (PART B - Systems Architecture) v4.0.docx	v4.0	20/03/2015
High Level Solution Design (PART B - Systems Architecture) v4.0.pdf	v4.0	20/03/2015
High Level Solution Design (PART C - Systems Product Detail) v4.0.docx	v4.0	20/03/2015
High Level Solution Design (PART C - Systems Product Detail) v4.0.pdf	v4.0	20/03/2015
Sydney Trains ROC PMP v2.0.pdf	v2.0	20/03/2015
Sydney Trains ROC Schedule v1.0.mpp	v1.0	20/03/2015
Sydney Trains ROC Schedule v1.0.pdf	v1.0	20/03/2015
HL Quintiq-Architecture-Design v2.0.docx	v2.0	20/03/2015
HL Quintiq-Architecture-Design v2.0.pdf	v2.0	20/03/2015
HL Quintiq-Business-Analysis v2.0.docx	v2.0	20/03/2015
HL Quintiq-Business-Analysis v2.0.pdf	v2.0	20/03/2015
Quinitq Clarifications and Defects List - Quintiq responses v1.0.xlsx	v1.0	20/03/2015
RFP Release No 2 - 6 2 1 ProductCapabilities - Quintiq responses	v2.0	20/03/2015

v2.0.xlsx		
Sydney Trains Implementation Strategy v2.0.docx	v2.0	20/03/2015
Sydney Trains Implementation Strategy v2.0.pdf	v2.0	20/03/2015
Sydney Trains ROC Capability and Gap Analysis v2.0.xlsx	v2.0	20/03/2015
Sydney Trains ROC PMP v2.0.docx	v2.0	20/03/2015
_QUINTIQ-FREQUENTIS C Level undertaking 18 March 2015.pdf		20/03/2015
COMPARISON-Sydney Trains Implementation Strategy.docx		20/03/2015
PIPP (Implementation and Maintenance Phase) - Quintiq excl pricing.pdf		20/03/2015
COMPARISON-HL Quintiq-Architecture-Design.docx		20/03/2015
COMPARISON-HL Quintiq-Business-Analysis.docx		20/03/2015
High Level Solution Design (PART B - Systems Architecture) v3.0.docx	v3.0	9/03/2015
High Level Solution Design (PART C - Systems Product Detail) v3.0.docx	v3.0	9/03/2015
ROC RAID-DRICASB Log v3.0.xlsx	v3.0	9/03/2015
ROC System Integration Approach v3.0.docx	v3.0	9/03/2015
Sydney Trains ROC Implementation Strategy v3.0.docx	v3.0	9/03/2015
Sydney Trains ROC Non Functional Design v3.0.pdf	v3.0	9/03/2015
Sydney Trains ROC Non Functional Design v3.0.xlsx	v3.0	9/03/2015
Sydney Trains ROC Updated Capability and Gap Analysis v 3.0.pdf	v3.0	9/03/2015
Sydney Trains ROC Updated Capability and Gap Analysis v 3.0.xlsx	v3.0	9/03/2015
Ajilon Project Plan v3.0.docx	v3.0	9/03/2015
High Level Solution Design (PART A - Overview) V3.0.docx	v3.0	9/03/2015
Sydney Trains ROC PMP v1.0.docx	v1.0	9/03/2015
Sydney Trains ROC PMP v1.0.pdf	v1.0	9/03/2015
Updated DTTS NFR response v1.0.xlsx	v1.0	9/03/2015
HL Quintiq-Architecture-Design v1.0.docx	v1.0	9/03/2015
HL Quintiq-Architecture-Design v1.0.pdf	v1.0	9/03/2015
HL Quintiq-Business-Analysis v1.0.docx	v1.0	9/03/2015
HL Quintiq-Business-Analysis v1.0.pdf	v1.0	9/03/2015
Sydney Trains Implementation Strategy v1.0.docx	v1.0	9/03/2015
Sydney Trains Implementation Strategy v1.0.pdf	v1.0	9/03/2015
Sydney Trains post ECI Executive Summary F.pdf		9/03/2015
Sydney Trains ROC Capability and Gap Analysis.xlsx		9/03/2015
Rail Operations Centre (ROC) Technology Solution Request For Proposal No WS178494		7/07/2014

Schedule 3: Service Level Agreement

Not applicable.

Schedule 4: Variation Procedures

1. Procedures

1.1 Each request or recommendation for a change to the PIPP or any part of the Customer Contract must be submitted in a form substantially similar to the Change Request form attached to this Schedule.

1.2 For each draft Change Request submitted:

(a) the Customer must allocate it with a sequential number;

(b) the draft Change Request must be logged and its progress documented by recording its status from time to time by the Contractor as follows:

(i) requested;

(ii) under evaluation;

(iii) awaiting authorisation;

(iv) cancelled;

(v) pending;

(vi) approved/authorised;

(vii) expired;

(viii) in progress;

(ix) applied;

(x) delivered;

(xi) accepted.

1.3 The Party receiving the draft Change Request must within 5 Business Days of receipt (or such longer period set out in the Change Request):

(a) request further information;

(b) provide written notification to the other Party of its approval or rejection of the Change Request.

1.4 If the Customer submits a draft Change Request to the Contractor, and the Contractor believes that there is more than 1 Business Day's work involved in the evaluation of the Change Request, then prior to commencing work on evaluating the draft Change Request the Contractor may request that the Customer pays for the work involved to evaluate the draft Change Request. The Customer may then either revise the draft Change Request to require less than 1 Business Day's work to evaluate it, or agree to pay for the Contractor's work to evaluate the Change Request in an amount agreed by the Parties, or in absence of agreement, at the Contractor's then current commercial rates.

1.5 If the Customer Contract has been entered into under a Head Agreement, and the Change Request seeks to vary a Protected Clause and the Customer approves of the Change Request, the Customer must submit the Change Request to the Contract Authority and the Director General, NSW Department of Finance and Services, for approval immediately after it has notified the Contractor that it approves the Change Request.

2. Status

2.1 A Change Request is binding on the Parties only when both Parties have signed it. Once signed by both parties the Change Request updates the Customer Contract in accordance with the terms of the Change Request. The Contractor must not implement any draft Change Request until the Customer has signed the Change Request form.

3. Change Request Form

CHANGE REQUEST BRIEF DETAILS

Change Request Number		*Insert Change Request Number (supplied by the Customer)*
Date of Change Request		*Insert date of draft Change Request*
Originator of need for Change Request		*Customer or Contractor*
Proposed Implementation Date of Change		*Insert proposed date of implementation*
Date of expiry of validity of Change Request		*Insert validity expiry date. The Change Request is invalid after this date.*
Contractor's estimated time and cost of evaluation		*Insert estimated time and cost of evaluation*
Amount agreed to be paid to the Contractor for evaluating the draft Change Request, if any **(This applies only if the Customer is the Party that originated the need for a Change Request; and the Contractor estimates the cost of evaluating and drafting the Change Request exceeds 2 Business Days)**		*Insert amount to be paid to the Contractor for evaluating the draft Change Request*

CHANGE REQUEST HISTORY LOG

Change Request Version History			
Date	**Issue Version**	**Status/Reason for New Issue**	**Author**
Insert date	*Insert version*	*Insert status/reason*	*Insert author*

DETAILS OF CHANGE REQUEST

Summary

[Insert a summary of the changes, if required]

SCOPE

[Insert changes to the scope of Products to be provided and/or any Services, including any extensions to the Contract Period.]

EFFECT OF CHANGE ON CONTRACT SPECIFICATION

[Insert any changes to the Contract Specification]

EFFECT OF CHANGE ON PROJECT TIMETABLE

[Insert changes to the project timetable]

New PIPP (annexed)

[Annex new PIPP if required]

EFFECT OF CHANGE ON CHARGES AND TIMING OF PAYMENT

[Insert new charges and the timing of payment into the new PIPP]

CHANGES TO CSI

[Insert any changes to the CSI]

CHANGES TO CUSTOMER PERSONNEL

[Insert any changes to the Customer's Personnel]

CHANGES TO CUSTOMER ASSISTANCE

[Insert any changes to the Customer's Assistance]

PLAN FOR IMPLEMENTING THE CHANGE

[insert the plan for implementing the change – if any.]

THE RESPONSIBILITIES OF THE PARTIES FOR IMPLEMENTING THE CHANGE

[Insert the responsibilities of the respective Parties for implementing the change – if any.]

Responsibilities of the Contractor

[Insert the responsibilities of the Contractor for implementing the change – if any.]

Responsibilities of the Customer

[insert the responsibilities of the Customer for implementing the change – if any.]

EFFECT ON ACCEPTANCE TESTING OF ANY DELIVERABLE

[Insert if there will be any effect on the Acceptance Testing of any Deliverable – or alternatively insert None.]

EFFECT OF CHANGE ON PERFORMANCE OF ANY DELIVERABLE

[Insert if there will be any effect on performance of any Deliverable – or alternatively insert None.]

EFFECT ON USERS OF THE SYSTEM/SOLUTION

[Insert if there will be any effect on users of the system/solution – or alternatively insert None.]

EFFECT OF CHANGE ON DOCUMENTATION DELIVERABLES

Changes will be required to the following documents:

[Add any other documents which may be affected.]

EFFECT ON TRAINING

Insert if there will an effect on training or alternatively insert None.]

ANY OTHER MATTERS WHICH THE PARTIES CONSIDER IMPORTANT

[insert if there are any other matters.]

ASSUMPTIONS

The plan for implementing the changes outlined in this Change Request is based on the assumptions listed below:

[Insert any assumptions. If none then this section will be deleted].

If the assumptions are or become untrue, the Parties will address the effect of this through a subsequent Change Request.

LIST OF DOCUMENTS THAT FORM PART OF THIS CHANGE REQUEST

[Insert a list of the documents that form part of this Change Request]

CUSTOMER CONTRACT CLAUSES, SCHEDULES AFFECTED BY THE PROPOSAL ARE AS FOLLOWS:

[Insert amendments to clauses in the Customer Contract, relevant Schedules including Service Level Agreement]

Note that variations to any of the Protected Clauses require the Customer to obtain the Contract Authority's and the Director General, NSW Department of Finance and Services approval (clause 26.2))

AUTHORISATION

The Contractor must not commence work on the Change Request until is signed by both Parties. Once signed by both Parties, the Customer Contract is updated by this Change Request and any provisions of the Customer Contract that conflict with this Change Request are superseded.

SIGNED AS AN AGREEMENT

Signed for and on behalf of Sydney Trains (ABN 38 284 779 682)

By *[insert name of Customer's Representative*] but not so as to incur personal liability

Signature of Customer Representative

Print name

Date

Signed for and on behalf of Quintiq Pty Ltd (ABN 85 128 925 039)

Signature of Authorised Signatory

Print name

Date

Schedule 5: Escrow Deed

Assurex Escrow Agreement - final 9 Ju

Schedule 6 : Deed Poll – Approved Agents

Not applicable

Schedule 7: Statutory Declaration – Subcontractor

Oaths Act (NSW), 1900 Ninth Schedule

I, _____ do solemnly and sincerely declare that to the best of my knowledge and belief:

1. [TBA] (**Subcontractor**) has been selected as subcontractor to, [TBA] (**Contractor**) under an agreement between the Sydney Trains (ABN 38 284 779 682) (**Customer**) and the Contractor dated [*insert date of Customer Contract*].

2. The Subcontractor will offer to enter into an agreement with the Contractor in connection with the Customer Contract on terms that are not inconsistent with the terms of the Customer Contract in so far as those terms are relevant to the Subcontractor.

3. As at the date of this Statutory Declaration there are no reasons of which I am aware that would prevent the Subcontractor's agreement with the Contractor from being performed in a manner that would allow the satisfactory and timely performance of that subcontract.

And I make this solemn declaration, as to the matter aforesaid according to the law in this behalf made, and subject to the punishment by law provided for any wilfully false statement in any such declaration.

Declared at _____

the _____ day of _____ 20 _____

Before me, _____

Schedule 8: Deed of Confidentiality

Deed of Agreement dated the _____ day of _____ 20 _____

Between Sydney Trains (ABN 38 284 779 682) (**Customer**)

And [TBA] (**Subcontractor**)

RECITALS

(A) In the course of the Subcontractor assisting in the supply by the Contractor of certain Deliverables for the Customer under a subcontract agreement between the Subcontractor and the Contractor, the Subcontractor will have access to, and may become aware of, Confidential Information belonging to, or in the possession of, the Customer.

(B) Improper use or disclosure of the Confidential Information would severely damage the Customer's ability to perform its governmental/statutory functions and would severely damage the commercial interests of the Customer.

(C) The Customer requires, and the Subcontractor agrees, that it is necessary to take all reasonable steps (including the execution of this Deed) to ensure that the Customer's Confidential Information is kept confidential.

(D) This Deed sets out the terms on which the Subcontractor will have access to the Confidential Information.

WHAT IS AGREED

1. Recitals

The Parties acknowledge the truth and accuracy of the Recitals.

2. Interpretation

DEFINITIONS

2.1 In the interpretation of this Deed unless a contrary intention appears the following expressions will have the following meanings:

Agreement means the Customer Contract entered into under the *Procure IT Framework* between the Contractor and the Customer under which the Contractor will supply Deliverables to the Customer dated [insert date].

Business Day means any day that is not a Saturday, Sunday or a public holiday in New South Wales.

Confidential Information means information that:

(a) is by its nature confidential; or

(b) is communicated by the Customer to the Subcontractor as confidential; or

(c) the Subcontractor knows or ought to know is confidential; or

(d) relates to:

(i) the Products and Services;

(ii) the financial, the corporate and the commercial information of the Customer;

(iii) the affairs of a third party (provided the information is non-public); and

(iv) the strategies, practices and procedures of the State and any information in the Subcontractor's possession relating to the State public service,

but excludes any information which the Subcontractor can establish was:

(v) in the public domain, unless it came into the public domain due to a breach of confidentiality by the Subcontractor or another person;

(vi) independently developed by the Subcontractor; or

(vii) in the possession of the Subcontractor without breach of confidentiality by the confidant or other person.

Contractor means Quintiq Pty Ltd (ABN 85 128 925 039).

Deliverables means any product or service and any associated material offered for supply or provided by the Contractor in accordance in the Agreement.

Express Purpose means the Subcontractor performing the obligations under its subcontract agreement with the Contractor.

Intellectual Property Rights means all intellectual property rights including:

(a) copyright, patent, trademark, design, semi-conductor or circuit layout rights, registered design, trademarks or trade name and other protected rights, or related rights, existing worldwide; and

(b) any licence, consent, application or right, to use or grant the use of, or apply for the registration of, any of the rights referred to in (a),

but does not include the right to keep confidential information confidential, moral rights, business names, company names or domain names.

Notice means notice in writing given in accordance with this Deed.

State means the State of New South Wales.

GENERAL

2.2 Headings are for convenience only, and do not affect interpretation. The following rules also apply in interpreting this Deed, except where the context makes it clear that a rule is not intended to apply

2.3 A reference to:

(a) legislation (including subordinate legislation) is a reference to that legislation as amended, re-enacted or replaced ,and includes any subordinate legislation issued under it;

(b) a document or agreement, or a provision of a document or agreement, is a reference to that document, agreement or provision as amended, supplemented, replaced or novated;

(c) a person includes any type of entity or body of persons whether or not it is incorporated or has a separate legal entity;

(d) anything (including a right, obligation or concept) includes each part of it.

2.4 If this Deed expressly or impliedly binds more than one person then it shall bind each such person separately and all such persons jointly.

2.5 A singular word includes the plural, and vice versa.

2.6 A word which suggests one gender includes the other gender.

2.7 The words “include(s)” and “including” are not words of limitation.

2.8 If a word is defined, another part of speech of that word has a corresponding meaning.

3. Non disclosure

3.1 The Subcontractor must not disclose the Confidential Information to any person without the prior written consent of the Customer.

3.2 The Customer may grant or withhold its consent in its discretion.

3.3 If the Customer grants its consent, it may impose conditions on that consent, including a condition that the Subcontractor procures the execution of a Deed in these terms by the person to whom the Subcontractor proposes to disclose the Confidential Information.

3.4 If the Customer grants consent subject to conditions, the Subcontractor must comply with those conditions.

3.5 Despite clause 3.1, the Subcontractor may disclose the Confidential Information:

(a) to its directors, officers, employees and contractors;

(b) to the Contractor and its directors, officers, employees and the Contractor’s other contractors who are engaged in the supply of the Deliverables and their directors, officers, employees,

each referred to as **permitted recipients**, where such disclosure is essential to carrying out their duties in respect of the Express Purpose.

3.6 Despite clause 3.1, the Subcontractor may disclose the Confidential Information:

(a) to its lawyers, accountants, insurers, financiers and other professional advisers where the disclosure is in connection with advising on, reporting on, or facilitating the performance under this Deed; or

(b) if the Subcontractor is required to disclose by law, order of a court or tribunal of competent jurisdiction or the listing rules of an applicable securities exchange.

3.7 Before disclosing the Confidential Information to a permitted recipient, the Subcontractor will ensure that the permitted recipient is aware of the confidentiality requirements of this Deed and is advised that it is strictly forbidden from disclosing the Confidential Information or from using the confidential information other than as permitted by this Deed.

3.8 The Confidential Information must not be copied or reproduced by the Subcontractor or the permitted recipients without the expressed prior written permission of the Customer, except as for such copies as may be reasonably required for the Express Purpose.

3.9 If any person, being any director, officer, contractor or employee of the Subcontractor, who has had access to the Confidential Information in accordance with this clause 3 leaves the service or employ of the Subcontractor then the Subcontractor will procure that that person does not do or permit to be done anything which, if done or permitted to be done by the Subcontractor, would be a breach of the obligations of the Subcontractor under this Deed.

4. Restriction on use

4.1 The Subcontractor must use the Confidential Information only for the Express Purpose and must not without the prior written consent of the Customer use the Confidential Information for any purpose other than the Express Purpose.

4.2 The Subcontractor must, unless otherwise authorised by the prior written consent of the Customer:

(a) treat as confidential and secret all of the Confidential Information which the Subcontractor has already acquired or will acquire from the Customer;

(b) take proper and adequate precautions at all times and enforce such precautions to preserve the confidentiality of the Confidential Information and take all necessary action to prevent any person obtaining access to the Confidential Information other than in accordance with this Deed;

(c) not directly or indirectly use, disclose, publish or communicate or permit the use disclosure, publication or communication of the Confidential Information to any person other than in accordance with this Deed;

(d) not copy or disclose to any person in any manner any of the Confidential Information other than in accordance with this Deed; and

(e) ensure that the permitted recipients comply with the terms of this Deed and keep the Confidential Information confidential and not use or disclose the Confidential Information other than as permitted by this Deed.

5. Survival

5.1 This Deed will survive the termination or expiry of the Agreement for a period of 6 years.

6. Rights of the Customer

PRODUCTION OF DOCUMENTS

6.1 The Customer may demand the delivery up to the Customer of all documents in the possession or control of the Subcontractor containing the Confidential Information.

6.2 The Subcontractor must immediately comply with a demand under this clause 6.

6.3 If the Customer makes a demand under this clause 6, and documents containing the Confidential Information are beyond the Subcontractor's possession or control, then the Subcontractor must provide full particulars of the whereabouts of the documents containing the Confidential Information, and the identity of the person in whose possession or control they lie.

6.4 In this clause 6, "documents" includes any form of storage of information, whether visible to the eye or not.

LEGAL PROCEEDINGS

6.5 The Customer may take legal proceedings against the Subcontractor or third parties if there is any actual, threatened or suspected breach of this Deed, including proceedings for an injunction to restrain such breach.

7. Indemnity and release

7.1 The Subcontractor is liable for, and agrees to indemnify and keep indemnified the Customer in respect of, any claim, damage, loss, liability, cost, expense, or payment which the Customer suffers or incurs as a result of:

(a) a breach of this Deed (including a breach of this Deed which results in the infringement of the rights of any third party); or

(b) the disclosure or use of the Confidential Information by the Subcontractor or the permitted recipients other than in accordance with this Deed.

8. No exclusion of law or equity

This Deed does not exclude the operation of any principle of law or equity intended to protect and preserve the confidentiality of the Confidential Information.

9. Waiver

9.1 No waiver by the Customer of one breach of any obligation or provision of this Deed will operate as a waiver of another breach of any other obligation or provision of this Deed.

9.2 None of the provisions of this Deed will be taken to have been varied waived discharged or released by the Customer unless by its express consent in writing.

10. Remedies cumulative

CUMULATIVE

10.1 The rights and remedies provided under this Deed are cumulative and not exclusive of any other rights or remedies.

OTHER INSTRUMENTS

10.2 Subject to the other covenants of this Deed, the rights and obligations of the parties pursuant to this Deed are in addition to and do not derogate from any other right or obligation between the parties under any other Deed or agreement to which they are parties.

11. Variations and amendments

No term or provision of this Deed may be amended or varied unless reduced to writing and signed by the parties in the same manner as this instrument.

12. Applicable law

This Deed will be governed and construed in accordance with the laws of the State.

13. Notices

13.1 Notices must be sent to the other party at the address shown in this Deed, or the address last notified to the other party in writing, or in the case of the Subcontractor, at the Subcontractor's registered office.

13.2 All notices must be in writing and signed by the relevant party and must be given either by hand delivery, post or facsimile transmission.

13.3 If delivery or receipt of a notice is not made on a Business Day, then it will be taken to be made on the next Business Day.

EXECUTED AS A DEED

Signed, sealed and delivered by Sydney Trains (ABN 38 284 779 682)

By [*to be inserted by the Customer*] but not so as to incur personal liability

In the presence of: [insert name of witness]

Signature of Customer	**Signature of Witness**
Print name	**Print name**
Date	**Date**

Signed, sealed and delivered by [TBA]

By [*to be inserted by the Subcontractor*] but not so as to incur personal liability

In the presence of: [insert name of witness]

Signature of Subcontractor	**Signature of Witness**
Print name	**Print name**
Date	**Date**

Schedule 9: Performance Guarantee

Deed dated the _____ day of _____ 20 _____

Between Sydney Trains (ABN 38 284 779 682) (Customer)

_____

And Dassault Systemes S.E. A European Company (Societas Europaea,SE) with registered office of 10, rue Marcel Dassault, 78140 VELIZY-VILLACOUBLAY (Guarantor)

_____

Purpose Quintiq Pty Ltd (ABN 85 128 925 039) (Contractor) has agreed to offer to supply Products and Services to the Customer under a contract dated [*insert date of Customer Contract*] (Customer Contract).

DEFINITIONS

Business Day means any weekday that is not a public holiday in New South Wales.

Insolvency Event means where the Contractor:

(a) stops or suspends or threatens to stop or suspend payment of all or a class of its debts;

(b) is insolvent with the meaning of Section 95A of the *Corporations Act* 2001 (Cth);

(c) must be presumed by a court to be insolvent by reason of an event set out in Section 459C(2) of the *Corporations Act* 2001 (Cth);

(d) fails to comply with a statutory demand within the meaning of Section 459F(1) of the *Corporations Act* 2001 (Cth);

(e) has an administrator appointed or any step preliminary to the appointment of an administrator is taken;

(f) has a mortgagee enter into possession of any property of that Party;

(g) has a controller within the meaning of the Section 9 of the *Corporations Act* 2001 (Cth) or similar officer appointed to all or any of its property; or

(h) has proceedings commenced, a resolution passed or proposed in a notice of meeting, an application to, or order of, a court made or other steps taken against or in respect of it (other than frivolous or vexatious applications, proceedings, notices or steps) for its winding up, deregistration or dissolution or for it to enter an arrangement, compromise or composition with or assignment for the benefit of its creditors, a class of them or any of them.

Notice in Writing means a notice signed by a party's authorised representative or his/her delegate or agent.

BY THIS DEED

By this Deed, the Guarantor guarantees to the Customer the performance of the obligations undertaken by the Contractor under the Customer Contract on the following terms and conditions:

1. If the Contractor (unless relieved from the performance of the Customer Contract by the Customer or by statute or by a decision of a tribunal of competent jurisdiction) fails to execute and perform its undertakings under the Customer Contract, the Guarantor will, if required to do so by the Customer, complete or cause to be completed the undertakings contained in the Customer Contract.

2. Where the Guarantor consists of more than one legal person each of those persons agree to be bound jointly and severally by this Deed of Guarantee, and:

   (a) where the Customer Contract is made under a Head Agreement, the Contract Authority (acting as agent of the Customer); or

   (b) in all other cases, the Customer,

   may enforce this Deed of Guarantee against all or any of the persons who constitute the Guarantor. [*amend this clause as applicable*]

3. The Guarantor will not be discharged, released or excused from this Deed of Guarantee by an arrangement made between the Contractor and Customer with or without the consent of the Guarantor, or by any alteration, amendment or variation in the obligations assumed by the Contractor or by any forbearance whether as to payment, time, performance or otherwise.

4. The obligations of the Contractor will continue in force and effect until the completion of the undertakings of this Deed of Guarantee by the Guarantor.

5. The obligations and liabilities of the Guarantor under this Deed of Guarantee will not exceed:

   (a) the obligations and liabilities of the Contractor under the Customer Contract; and

   (b) $ [insert dollar amount].

6. Where the Contractor has failed to perform under the Customer Contract, the obligations of the Guarantor will continue even though the Contractor has been the subject of an Insolvency Event.

7. The rights and obligations under this Deed of Guarantee will continue until all obligations of the Contractor under the Customer Contract have been performed, observed and discharged.

8. A notice under this Deed of Guarantee must be a Notice in Writing.

9. The address for services of Notices in Writing under this Deed of Guarantee for a party is, in the case of the:

   Guarantor

   Physical address

   Postal address

   Fax number

   Contractor

   Physical address

   Postal address 10/14 Ashtan Place, Banyo QLD 4014

   Fax number

Customer

Physical address

Postal address Level 13, 477 Pitt Street, Sydney NSW 2000

Fax number

Or such other address as a party may notify to the other party in writing from time to time.

10. A Notice in Writing is deemed to be received if:

    (a) delivered by hand, when the party who sent the notice holds a receipt for the notice signed by a person employed at the physical address for service;

    (b) sent by post from and to an address within Australia, after 3 Business Days;

    (c) sent by post from or to an address outside Australia, after 10 Business Days;

    (d) sent by facsimile, at the time which the facsimile machine to which it has been sent records that the communication has been transmitted satisfactorily (or, if such time is outside normal business hours, at 9.00 am the next Business Day).

11. The laws of the New South Wales govern the this Deed of Guarantee and the parties submit to the exclusive jurisdiction of the courts of New South Wales.

EXECUTED BY THE PARTIES AS A DEED AT THE DATE STATED BELOW

Signed, sealed and delivered by Sydney Trains (ABN 38 284 779 682).

By [*insert name of Customer representative*]

In the presence of: [*insert name of witness not a party to this Deed*]]

Signature of Customer representative	**Signature of Customer's Witness**
Print Name	**Print Name**
Date	**Date**

Signed, sealed and delivered by Dassault Systemes S.E. A European Company (Societas Europaea,SE) with registered office of 10, rue Marcel Dassault, 78140 VELIZY-VILLACOUBLAY.

In the presence of: [*insert name of witness not a party to this Deed*]]

Signature of Guarantor representative	**Signature of Guarantor's Witness**
Print Name	**Print Name**
Date	**Date**

Schedule 10: Financial Security

Deed dated the _____ day of _____ 20 _____

Between (Customer)

Sydney Trains (ABN 38 284 779 682) of Level 20, 477 Pitt Street, Sydney, NSW 2000

And (Guarantor)

BNP Paribas (ABN 23 000 000 117) of 60 Castlereagh Street, Sydney, NSW 2000

DEFINITIONS

Business Day means any weekday that is not a public holiday in New South Wales.

BY THIS DEED:

1. Quintiq Pty Ltd (ABN 85 128 925 039) (Contractor) has agreed to supply Deliverables to the Customer under a contract dated [*insert date*] between Sydney Trains and Quintiq Pty Ltd (Customer Contract).

2. The Guarantor unconditionally agrees to pay to the Customer on demand without reference to the Contractor and separate from any notice given by the Contractor to the Guarantor not to pay same, any sum or sums which may from time to time be demanded in writing by the Customer to a maximum aggregate sum of [redacted]

3. The Guarantor's liability under this Financial Security will be a continuing liability until the sooner of:

(a) payment is made up to the maximum aggregate sum;

(b) the Customer notifies the Guarantor that this Financial Security is no longer required;

(c) 15 December 2018 (Expiry); or

(d) the date the Customer and Contractor agree in writing to release the Guarantor.

4. No provision of this Financial Security may be waived, amended, supplemented or otherwise modified except by written instrument signed by the Guarantor and the Customer.

5. The laws of New South Wales govern this Guarantee and the parties submit to the exclusive jurisdiction of the courts of New South Wales.

6. A notice or other communication is properly given or served if the party delivers it by hand, posts it or transmits a copy by facsimile to the address last advised by one of them to the other. Where the notice is given or served by facsimile, the sending party must confirm receipt by any other means.

7. The address for services of notice for a party is, in the case of the:

Guarantor

60 Castlereagh Street, Sydney, NSW 2000

Postal address: GPO Box 269, Sydney NSW 2001

Phone number: + 61 (0) 2 9619 6363

Fax number: + 61 (0) 2 9006 9054

Contractor

Level 8, 417 St Kilda Road, Melbourne 3004

Phone number +61 (0) 3 9207 5000

Fax number +61 (0) 3 9207 5099

Customer

Level 20, 477 Pitt Street, Sydney NSW 2000

Fax number: + 61 (0) 2 9219 1260

or such other address as a party may notify to the other party in writing from time to time.

8. A notice or other communication under this Financial Security is deemed to be received if:

(a) delivered by hand, when the party who sent the notice holds a receipt for the notice signed by a person employed at the physical address for service;

(b) sent by post from and to an address within Australia, after 3 Business Days;

(c) sent by post from or to an address outside Australia, after 10 Business Days; or

(d) sent by facsimile, at the time which the facsimile machine to which it has been sent records that the communication has been transmitted satisfactorily (or, if such time is outside normal business hours, at the time of resumption of normal business hours).

9. Any demand under this Financial Security must be received by the Guarantor on or before Expiry at the address indicated above.

10. Provided always that the Guarantor may at any time without being required so to do pay to the Customer the maximum aggregate sum less any amount or amounts it may previously have paid under this Financial Security and thereupon the liability of the Guarantor hereunder shall immediately cease.

EXECUTED BY THE PARTIES AS A DEED ON THE DATE STATED BELOW

Signed, sealed and delivered by

Sydney Trains ABN 38 284 779 682

By

In the presence of:

Signature of Customer representative

Print name

Date

Signature of Contract Witness

Print name

Date

The Common Seal of

BNP Paribas ABN 23 000 000 117

was affixed by

in the presence of

in the presence of

Signature of Director/Secretary

Print name

Date

Signature of Director/Secretary

Print name

Date

Schedule 11: Dispute Resolution Procedures

1. Expert Determination

1.1 If a Referral Notice is submitted under clause 24.7 of the Customer Contract, the expert is to be agreed between the Parties. If they cannot agree within 28 days of the Referral Notice, the expert is to be nominated on the application of either Party by the Chief Executive Officer, Australian Commercial Disputes Centre of NSW.

1.2 The expert nominated must be a person who is an experienced Australian legal practitioner or a person with practical experience in the technology that is the subject matter of the dispute, unless otherwise agreed. The expert must not be:

(a) an employee of the Parties;

(b) a person who has been connected with this Customer Contract or has a conflict of interest, as the case maybe; or

(c) a person who the Parties have not been able to agree on.

1.3 The expert may appoint any person that the expert believes will be able to provide the specialists skills that are necessary to make a determination, including an Australian legal practitioner. The expert must consult with both Parties prior to appointing such person.

1.4 When the person to be the expert has been agreed or nominated, the Customer, on behalf of both Parties, must engage the expert by letter of engagement (and provide a copy to the Contractor) setting out:

(a) the issue referred to the expert for determination;

(b) the expert's fees;

(c) the procedure for the determination set out in this Schedule; and

(d) any other matter which is relevant to the engagement.

2. Submissions

2.1 The procedure for submissions to the expert is as follows:

(a) The Party that has referred the issue to expert determination must make a submission in respect of the issue, within 30 Business Days after the date of the letter of engagement referred to in clause 1.4.

(b) The other Party must respond within 30 Business Days after receiving a copy of that submission. That response may include cross-claims.

(c) The Party referred to in clause 2.1(a) may reply to the response, but must do so within 20 Business Days after receiving the response, and must not raise new matters.

(d) The other Party may comment on the reply, but must do so within 20 Business Days after receiving the reply, and must not raise new matters.

(e) The expert must ignore any submission, response, reply, or comment not made within the time given in this clause 2.1, unless the Customer and the Contractor agree otherwise.

(f) The expert may request further information from either Party. The request must be in writing, with a time limit for the response. The expert must send a copy of the request and response to the other Party, and give the other Party a reasonable opportunity to comment on the response.

(g) All submissions, responses, replies, requests and comments must be in writing. If a Party gives information to the expert, it must at the same time give a copy to the other Party.

3. Conference

3.1 The expert must arrange at least one conference with both Parties. The request must be in writing, setting out the matters to be discussed.

3.2 Each Party is entitled to be represented at any preliminary conference before the expert by its legal representatives and other authorised representatives, with information and knowledge of the issues.

3.3 The expert is not bound by the rules of evidence and may receive information in any manner the expert sees fit, but must observe the requirements of procedural fairness. Consultation between the expert and a Party must only take place in the presence of the other Party, unless a Party fails to attend a conference or meeting which has been convened by the expert and of which prior notice has been given. Any Party providing information to the expert must provide that information to the other Party.

3.4 The Parties agree that such a conference is considered not to be a hearing that would give anything under this Schedule the character of arbitration.

3.5 In answer to any issue referred to the expert by a Party, the other Party can raise any defence, set-off or counter-claim.

4. Questions to be determined by the Expert

4.1 The expert must determine for each issue the following questions (to the extent that they are applicable to the issue):

(a) is there an event, act or omission that gives the claimant a right to compensation under the Customer Contract:

(i) for damages for breach of the Customer Contract, or

(ii) otherwise in law?

(b) if so:

(i) what is the event, act or omission?

(ii) on what date did the event, act or omission occur?

(iii) what is the legal right which gives rise to the liability to compensation?

(iv) is that right extinguished, barred or reduced by any provision of the Customer Contract, estoppel, waiver, accord and satisfaction, set-off, cross-claim, or other legal right?

(c) in the light of the answers to clause 4.1:

(i) What compensation, if any, is due from one Party to the other and when did it fall due?

(ii) What interest, if any, is due when the expert determines that compensation?

4.2 The expert must determine for each issue any other questions required by the Parties, having regard to the nature of the issue.

4.3 The Parties must share equally the fees of the expert, any other costs associated with the process, including room hire expenses, transcript expenses and the like and the fees of any person appointed by the expert under clause 1.3 for the determination, and bear their own expenses.

4.4 If the expert determines that one Party must pay the other an amount exceeding the amount specified in General Order Form (calculating the amount without including interest on it and after allowing for set-offs), then either Party may commence litigation, but only within 56 days after receiving the determination.

4.5 Unless a Party has a right to commence litigation or otherwise resolve the dispute under the Customer Contract:

(a) in the absence of a manifest error the Parties must treat each determination of the expert as final and binding and give effect to it; and

(b) if the expert determines that one Party owes the other money, that Party must pay the money within 20 Business Days.

5. Role of Expert

5.1 The expert must:

(a) act as an expert and not as an arbitrator, adjudicator or as expert witness;

(b) make its determination on the basis of the submissions of the Parties, including documents and witness statements, and the expert's own expertise;

(c) act impartially, free of bias and with no vested interest in the outcome of the dispute;

(d) adopt procedures for the Expert Determination suitable to the circumstances of the dispute so as to provide for an expeditious cost effective and fair means for the determination of the dispute; and

(e) issue a certificate in a form the expert considers appropriate, stating the expert's determination and giving reasons, within 45 Business Days after the receipt of the information in clause 2.1(d).

5.2 If a certificate issued by the expert contains a clerical mistake, an error arising from an accidental slip or omission, a material miscalculation of figures, a mistake in the description of any person, matter or thing, or a defect of form, then the expert must correct the certificate and give notice to the Parties of such correction.

6. Confidentiality

6.1 Each Party involved in the expert determination process, including the expert, the Parties, their advisors and representatives shall maintain the confidentiality of the expert determination process and may not use or disclose to anyone outside of the expert determination process,

the expert's determination, or any information received or obtained, in the course of the expert determination process, including the existence of that information, except to the extent:

(a) the Parties have otherwise agreed in writing;

(b) the information is already in the public domain;

(c) disclosure is required to a Party's insurers, auditors, accountants or other professional advisers;

(d) disclosure is required for the purposes of any legal proceedings relating to the dispute or the expert's determination; or

(e) disclosure is otherwise required by law.

Schedule 12: PIPP Detailed Design

1. Introduction

1.1. The Customer is establishing a new Rail Operations Centre (**ROC**).

1.2 The Customer wishes to implement new technologies at the ROC which will provide enhanced capability to improve key 'day of operations' processes (the **ROC Technology Solution**).

1.3 The ROC Technology Solution consists of the development of four new technology systems (or system capabilities). These systems include:

a) Day of Operations Timetable System (**DTTS**);

b) Incident Management System (**IMS**);

c) Customer Information Management System (**CIMS**); and

d) Operational Visual Display System (which will be tendered at a later date).

1.3A The Contractor has been selected as the contractor responsible for the Services and Deliverables specified in this PIPP in respect of section 1.3(a).

1.4 By implementing the ROC Technology Solution the Customer wishes to achieve the following objectives:

Objective	SMART Criteria
Reduced delay times and improved confidence in rail – Improved processes, systems and relationships between 'day of operations' functions resulting in faster identification and allocation of incidents, allowing faster incident resolution and service restoration.	**Reduced Initial Delay -** Improvements to the management of incidents will reduce the time taken to get "back on the move", reducing the duration of the initial delay of incidents by an average 15 % by 2018.
Increased operational performance and opportunity for timetable enhancements – Providing the capability to recover services more quickly following incidents and to sustain punctuality at higher timetable frequencies and with faster running times.	**Reduced Consequential Delay** – Improvements to the management of service disruption will reduce the contagion of perturbations of incidents and the time taken to get the service back to normal following the resolution of an incident. This will place less demands on timetable recovery margins. The program shall reduce the consequential delays caused both during and following the initial incident by 7% by 2018.
More accurate, timely, relevant and consistent customer information during delays – Improving the customers' ability to make decisions about their transport options.	**Reduced Customer Perceived Delay -** Improvements to the timeliness, relevance and consistency of customer information, particularly during disruption, will reduce the customer's perceived time of their journeys by 11% by 2018.

Better realising the benefits of future investments in rail capacity – Ability to realise ongoing network efficiency strategic initiatives including North West and South West Rail Links, new rolling stock, new signalling technologies, new network configuration and increased train service levels.	**Creation of a flexible, scalable network control function -** The ROC is sized to meet all future foreseeable colocations (i.e. all signalling control) with additional overflow area for migration and stage working during changes (e.g. parallel working, proof of concept, training etc.). The ROC design uses standardised desk configurations that are moveable. Increased use of modular equipment and technology streamlining further facilitates change. This intangible benefit is encapsulated in the ROC Infrastructure design requirements.
A new world class operating centre and culture – Transforming the way 'day of operations' activities are managed within Sydney Trains, fostering a new culture of collaboration and efficient coordination.	**Improved Business Environment -** The ROC will deliver closer collaboration, improved internal communication and the creation of a shared culture in an environment designed around key cultural goals. This intangible benefit will be measured through a Business Environment Scorecard and delivered as part of the Change Management Plan.
Improved customer service – Providing the capability to support and enable a new 'customer service model' that will improve customer service and business performance.	**Reduction in OPEX -** The implementation of a Customer Information Management System with enhanced capability for station staff. This will enable the new 'customer service model'.
Improved efficiency and sustainability – Providing opportunities for 'day of operations' role re-design and consolidation.	**Reduction in OPEX -** enabled by new systems, process improvements and colocation.

(together, the **ROC Technology Solution Objectives**).

1.5 To allow the Customer to better evaluate the Contractor's Solution for the ROC Technology Solution, the Customer wishes to engage the Contractor to undertake the Services and Deliverables specified in sections 4, 5, 7, 7A and 7B of this PIPP including, among other things, the Detailed Design (Release 2) Phase (the **"Project"**).

1.6 This PIPP sets out the scope of the Services and Deliverables that the Contractor will supply in respect of the Project.

1.7 The sequence of the ROC Technology Solution has been staged as follows:

a) the RFP which solicited the solution being proposed by the Contractor;

b) the High Level Solution Design Phase which assessed the veracity of the proposed solution and the capability of the Contractor. The Deliverables of the High Level Solution Design Agreement represent the core documents required by the Contractor to provide the Detailed Design Deliverables;

c) the Project which is undertaken during the Detailed Design Phase; and

d) subject to the Customer's acceptance of the Contractor's performance and related Deliverables under the Detailed Design Phase (including negotiation of a Final Contract that may encompass a number of the obligations of this Customer Contract) the Customer may,

at its sole discretion, notify the Contractor of its intention to transition to the Final Contract. In such situation, the Customer Contract will lapse concurrently to the commencement to the Final Contract in accordance with clause 20.6 of the Additional Conditions.

2. Overview of scope of work and Project delivery model

2.1 The Contractor must:

a) supply the Services and Deliverables described in this PIPP and any additional services and deliverables agreed by the parties as the responsibility of the Contractor;

b) perform all other services functions, activities, tasks and responsibilities not specially identified in this PIPP but which are:

i. reasonably related to the services or deliverables described in this PIPP; or

ii. reasonably required for the supply of the Deliverables described in this PIPP; and

c) complete the Project, and supply the Services and Deliverables in the following phases:

i. the Project Preparation Phase; and

ii. the Detailed Design (Release 2) Phase.

3. Definitions

Capitalised terms which are not defined in this document have the meaning given to them in the Order Form or otherwise in the Customer Contract. In this PIPP, unless the context requires otherwise:

Acceptance Criteria means the criteria set out in Appendix G.

CIMS has the same meaning given to that term in the Additional Conditions.

Contract Price has the meaning given to that term in section 12.1.1 of this PIPP.

Delivery Risks means the actual or potential problems, issues or risks that may adversely affect the Contractor's ability to perform its obligations relating to the Project or the ROC Technology Solution.

Detailed Design means the Contractor's design of its Solution that has been developed as a Deliverable under the Customer Contract including the suite of documents to be developed by the Contractor as part of the Detailed Design Phase and approved by the Customer. The design provided by the Contractor is based on the use of the Licensed Software and the Software Solution.

Detailed Design Phase means the phase of work that includes the Detailed Design (Release 1) Phase and work associated with Release 2 and Release 3.

Detailed Design (Release 2) Phase means the phase described in section 5 of this PIPP.

Dispute means any dispute or disagreement between the Contractor and an Other Contractor (or a dispute between Other Contractors) arising out of or in connection with the Project. A reference to a Dispute, where the Dispute is partly resolved, refers to the unresolved part of the Dispute.

DTBRS means the Detailed Technical Business Requirements Specification.

DTTS has the same meaning given to that term in the Additional Conditions.

Environment has the same meaning as 'Customer Environment' in the Additional Conditions.

Entry Criteria means for a phase, the criteria that must be met before the Contractor is entitled to commence the work for that phase, as set out in this PIPP.

Final Contract has the same meaning given to that term in the Additional Conditions.

Gold Support has the meaning given to that term in Attachment A of the Additional Conditions.

High-Level Design has the same meaning as the term in the Additional Conditions.

High Level Solution Design Agreement means the contract entered into between the Customer and the Contractor for the design services (which includes the High-Level Design) on or about 24 December 2014.

High Level Solution Design Documents means each document (including the High-Level Design) that is developed by the Contractor as part of the High Level Solution Design Phase and approved by the Customer as CSI.

High Level Solution Design Phase means the phase preceding the Detailed Design Phase.

Implementation & Maintenance Phase means the phase, if the Contractor is selected, for the implementation and maintenance of the Solution.

IMS has the same meaning given to that term in the Additional Conditions.

Initial Requirements means the requirements set out in Appendix A of this PIPP.

Industry Solution means the Contractor's standard preconfigured rail software solution.

Issues Register has the meaning given to that term in section 7B.4.1 of this PIPP.

Licensed Software means the Software licenced under Module 3.

Milestone Acceptance Form means the acceptance forms in the same or substantially the same form as Appendix E.

Personnel means, as applicable, any director, officer, employee, agent, contractor, sub-contractor or professional advisers engaged in, or in relation to, the performance or management of the Customer Contract.

Project has the same meaning given to that term in section 1.5 of this PIPP.

Project Preparation Phase means the phase described in section 4 of this PIPP.

Project Schedule means the schedule set out in Appendix C which sets out the delivery dates for the Services and Deliverables during the Detailed Design Phase.

Other Contractors has the same meaning as 'Interfacing Contractor' in the Additional Conditions.

Release 1 means the implementation of and integration of IMS into the Customer's legacy environment.

Release 2 means the implementation of and integration of CIMS and DTTS into the Customer's legacy environment.

Release 3 means the integration of IMS, CIMS and DTTS systems with one another in the Customer's environment.

Requirements means the Initial Requirements as updated by the Updated Requirements.

Requirements Variation has the meaning given to that term in section 7.2.1(a) of this PIPP.

RFP has the same meaning given to that term in the Additional Conditions.

Risk Management Plan means the plan described and set out in Appendix D of this PIPP.

ROC Technology Solution has the meaning given to that term in section 1.2 of this PIPP.

Software Solution means the Industry Solution as configured for DTTS.

Solution means the Licensed Software and the Software Solution.

System Integrator means Ajilon Australia Pty Ltd (ABN 25 076 517 354).

Updated Requirements means the outputs of Detailed Design including DTBRS which will be the baseline for the Implementation & Maintenance Phase.

4. Project Preparation Phase

4.1 Overview and purpose of Phase

4.1.1 The purpose of the Project Preparation Phase is to validate the Contractor's strategic intent and the Solution scope.

4.1.2 During the Project Preparation Phase, plans and schedules are prepared and Project resources committed.

4.1.3 The Contractor must ensure that:

a) all of the Services that it is obliged to supply under the Project Preparation Phase are supplied and completed; and

b) all Deliverables that it is obliged to supply under the Project Preparation Phase are approved by the System Integrator,

on or before relevant date(s) specified in the Project Schedule.

4.2 Entry Criteria

4.2.1 The Entry Criteria for the Project Preparation Phase is specified in the table below:

#	Criteria	Description
1.	Customer Contract execution	The Contractor and the Customer have executed the Customer Contract.
2.	Acceptance of High Level Solution Design	The Customer has accepted the Deliverables submitted under the High Level Solution Design Agreement or,

	Deliverables	where conditional acceptance was provided by the Customer, the Contractor has initiated remediation of the conditionally accepted Deliverables.
3.	Personnel	The Contractor provides details of the Contractor Personnel proposed for the Detailed Design (Release 2) Phase, as well as the Final Contract.

4.3 Services

4.3.1 The Contractor must supply the following Services as part of the Project Preparation Phase:

#	Description
1.	Prepare for Project kick-off, including: a. engaging the Personnel with the required skill sets to perform the Contractor's obligations under this PIPP; and b. collating and confirming the names and contact details of those Personnel with the Customer.
2.	All things necessary to prepare for the workshops to be conducted in the Detailed Design (Release 2) Phase, including: a. planning for the Detailed Design (Release 2) Phase workshops; b. assigning the Personnel with the required skill sets to facilitate the Detailed Design (Release 2) Phase workshops; c. requesting Customer Personnel based on required skill sets to attend Detailed Design (Release 2) Phase workshops; d. requesting that the Customer Personnel selected complete the required Quintiq E-Learnings for Initiation phase; and e. preparing materials to facilitate the Detailed Design (Release 2) Phase workshops.
3.	Assess (using a standard of a prudent contractor of services and deliverables similar to the Services and Deliverables to be supplied as part of the Project and the ROC Technology Solution) and identify: a. any issues; and b. risks that may arise during the course of the Project and the ROC Technology Solution.
4.	Review and update the Issues Register to accurately and comprehensively identify all of the issues and risks that the Customer has identified relating to the Project and the ROC Technology Solution.
5.	Provide the Other Contractors with all the necessary assistance reasonably requested by the Other Contractors during the Project Preparation Phase.
6.	Provide a list of technical requirements for Detailed Design (Release 2) Phase (e.g. remote access).
7.	Participate in the Customer's induction training or other courses as may be required, from time to time.
8	All things necessary to develop and supply the Deliverables described in section 4.4 of

	this PIPP.

4.3.2 The Contractor must supply the Services which are part of the Project Preparation Phase in accordance with, and on or before the relevant date(s) specified in the Project Schedule.

4.4 Deliverables

4.4.1 The Contractor must supply the following Deliverables as part of the Project Preparation Phase:

#	Deliverable	Description	Approver
1.	Detailed Design (Release 2) Phase workshops and planning documents	The following materials required to participate in the workshops required during the Detailed Design (Release 2) Phase. a. workshops and playback schedules; b. Project Schedule (including delivery dates for each Deliverable); c. pro forma workshop agenda; d. list of Contractor participants; and e. list of Customer participants roles.	The Customer (or its nominee)
2.	Templates and Standards	Agreement of Detailed Design documentation templates to be used by the Contractor.	The Customer (or its nominee)
3.	Not used.	Not used.	Not used.
4.	Personnel	The Customer must approve the list of Specified Personnel proposed for the Detailed Design (Release 2) Phase.	The Customer (or its nominee)
5	Resourcing Plan	The Contractor will provide a Resourcing Plan for both Detailed Design and Implementation & Support which will: a) Identify the processes used by the Contractor to engage resources for the Project. This includes internal as well as external resources; b) Detail the training required to enable proficiency in the use of the Licensed Software. This includes detailing the training program and accreditation process; c) Detail the process to ensure ongoing accreditation of resources; d) Detail the transitional arrangements to substitute Melbourne based resources with Sydney based resources (when available); and e) Detail indicative transition dates for	The Customer (or its nominee)

		substitution of Melbourne based resources with Sydney based resources.	

4.4.2 The Contractor must supply the Deliverables which are part of the Project Preparation Phase in accordance with, and on or before the relevant date(s) specified in the Project Schedule.

4.5 Customer approval

4.5.1 Subject to section 7.1.10, the Customer (or its nominee) must review a Deliverable submitted during the Project Preparation Phase in accordance with Additional Condition clause 5.

5. Detailed Design (Release 2) Phase

5.1 Overview and purpose of Detailed Design (Release 2) Phase

5.1.1 The purpose of the Detailed Design (Release 2) Phase is to document and confirm in the Detailed Design all of the Requirements (based on the Initial Requirements) and develop Detailed Design(s) for Release 2 of the ROC Technology Solution.

5.1.2 The Contractor must ensure that:

a) all of the Services that it is obliged to supply under the Detailed Design (Release 2) Phase are supplied and completed; and

b) all Deliverables that it is obliged to supply under the Detailed Design (Release 2) Phase are approved by the Customer (or its nominee),

on or before the relevant date(s) specified in the Project Schedule.

5.2 Entry Criteria

5.2.1 The Entry Criteria for the Detailed Design (Release 2) Phase is specified in the table below:

#	Criteria	Description
1.	Previous Phase Discharged	All Services that the Contractor is required to supply during the Project Preparation Phase have been supplied.
2.	Previous Phase Deliverables	The Customer has approved all Deliverables in the Project Preparation Phase.

5.3 Services

5.3.1 The Contractor must supply the following Services as part of the Detailed Design (Release 2) Phase:

#	Description
1.	Implement and perform all the Detailed Design (Release 2) Phase kick off activities in accordance with, and using the Project kick off materials developed by the Contractor as part of the Project Preparation Phase and approved by the Customer (or its nominee), including: a. liaising with the Customer to ensure that all of the requirements necessary to

	facilitate the meeting(s) are in place; b. ensure all required Contractor Personnel are present at the meeting(s); c. chairing and presenting the Project meeting(s) in accordance with the meeting objectives and agenda(s); d. developing agenda for socialisation with participants; and e. producing official minutes of meetings, including obtain participant approval of contents.
2.	Participate in all necessary workshops with the Customer, the System Integrator and all relevant Customer stakeholders: a. to clarify the Initial Requirements and validate those Initial Requirements; b. to identify any changes in those Initial Requirements; and c. to prepare the documents required as part of the Detailed Design (Release 2) Phase.
2A	Data Compilation The Contractor will nominate its standard data formats for the Software Solution, and then work with the Customer and/or the System Integrator to identify any modifications required for the Customer's organisation-specific variations to reach an agreed data solution and required data model within the Software Solution as follows: 1. The Contractor will document the Software Solution's interfaces required for four types of interface data: a. configuration data; b. configuration data sharing; c. transaction data; and d. reporting data. 2. The Contractor will document the Software Solution's interfaces required for import or data entry mechanisms, export or data extraction mechanisms and functionalities and the agreed format of data. 3. The Contractor will also contribute to defining impacted business processes as defined in the Deliverables. 4. The collection, transformation, cleansing and provision of configuration data in the agreed format is the responsibility of the Customer or the System Integrator.
3.	Review and analyse existing business processes, technology interfaces and requirements for the purpose of preparing the documents required as part of the Detailed Design (Release 2) Phase.
4.	Develop a Detailed Design for the ROC Technology Solution for Release 2.
5.	Conduct playback sessions with the Customer and all relevant Customer stakeholders to: a. summarise the key decisions made and Updated Requirements during the Detailed Design (Release 2) Phase and how the Contractor's configuration approach will result in the successful delivery of the Customer's Requirements; b. confirm that the Detailed Design will meet the Customer's Requirements; and c. confirm that the scope of the ROC Technology Solution Release 2 to be implemented is understood by all parties.

6.	Conduct a risk management workshop with the Customer, the System Integrator and all relevant Customer stakeholders to identify and agree on risks to the ROC Technology Solution Release 2.
7.	Provide the Other Contractors with all the necessary assistance reasonably requested by the Other Contractors during the Detailed Design (Release 2) Phase.
8.	Do all things necessary (using a standard of a prudent contractor of services and deliverables similar to the Services and Deliverables to be supplied as part of the Project) to enable the Other Contractors to carry out their services and deliverables so that the Contractor can develop and supply the Deliverables described in section 5.4.
9.	All other things necessary to develop and supply the Deliverables described in section 5.4 and as otherwise directed by the Customer.

5.3.2 The Contractor must supply the Services which are part of the Detailed Design (Release 2) Phase in accordance with, and on or before the relevant date(s) specified in the Project Schedule.

5.4 Deliverables

5.4.1 The Contractor is responsible for the following Deliverables with appropriate input from the System Integrator. Refer to Appendix F for allocation of accountabilities and responsibilities.

5.4.2 The Transformation and Change Deliverables (as specified in the table in section 5.4.4) are to be provided to the Customer during the Detailed Design (Release 2) Phase and must accord substantially with the guidance provided in the CSI document titled '*Transformation and Change Requirements v4.1*' provided to the Contractor during the High Level Solution Design Phase.

5.4.3 Where the Contractor must contribute to a Deliverable specified in section 5.4.4, the Contractor must work with, contribute to and provide all reasonable assistance requested by the System Integrator to complete the relevant Deliverable.

5.4.4 The Contractor must, in collaboration with the Other Contractors, supply the following Deliverables as part of the Detailed Design (Release 2) Phase:

#	Deliverable	Description	Approval
Technology Deliverables			
1.	Updated High Level Solution Design	Contribute to the updating of the High-Level Design Deliverable being developed by the System Integrator. The Updated High Level Solution Design must be updated to reflect the findings by the Contractor and System Integrator during the Detailed Design (Release 2) Phase and be based on the High Level Design submitted by the Contractor during the High Level Solution Design Phase.	The Customer (or its nominee)
2.	Release 2 Architecture Specification	Release 2 Architecture Specification must describe the Release 2 solution, including systems, platforms & technology required to deliver the functional & non-functional requirements.	The Customer (or its nominee)

		The document will (where required) expand on the High-Level Design and should contain the following: Introduction: a. Document Overview; b. Document Inputs; and c. Phase Scope; Systems architecture: a. High Level Conceptual Overview; b. Level 2 Business Processes; c. Application Usage View; d. System Integration View; e. Application Structure View; f. Information Architecture (including Reference data requirements); g. Infrastructure Usage View; h. Implementation and Deployment View; and i. Manual Integration. Rationale and justification for detailed design architectural approach: a. Rationale; b. Architecture Risks; c. Architecture Issues; d. Architecture Constraints; e. Architecture Assumptions; f. Architecture Decisions; and g. Architecture Dependencies.	
3.	Release 2 Functional Specification	The Release 2 Functional Specification defines the system's required capabilities, appearance and interaction with users. The functional specification will be used to validate the extent to which the Licensed Software and Software Solution meet the DTBRS that shall be developed by the Customer during Detailed Design. Functional specifications relate to the following: a. Function involving user interaction and its user interface; b. Function which is unattended processing such as batch processing; and c. Mapping between business requirements/capabilities and functional requirements for the different products.	The Customer (or its nominee)

4	Release 2 Non-Functional Design	The Release 2 Non-Functional Design developed during the High Level Solution Design Phase must be updated to reflect the findings by the Contractor during the Detailed Design (Release 2) Phase. The Release 2 Non-Functional Design addresses the non-functional requirements including, at a minimum: a. auditability; b. availability; c. interoperability; d. maintainability; e. manageability; f. performance; g. portability; h. reliability; i. reporting; j. scalability; k. security; and l. usability.	The Customer (or its nominee)
5.	Release 2 Integration Specification	The Release 2 Integration Specification describes the High Level integration points between the DTTS solution and other systems. A detailed interface specification for each interface will be created during the Build Phase. The following subjects are included in the Release 2 Integration Specification, one entry for each integration service: a) high level data flows between applications to support the business processes; b) data objects required by consumer – request; c) data objects available from consumer – response; and d) data object transformations required. The Release 2 Integration Specification will not be used to describe the Acceptance Criteria for interfaces and integration points with legacy and new applications. The detailed interface specification for each interface to be created by the System Integrator during the Build Phase will describe the relevant Acceptance Criteria for each interface.	The Customer (or its nominee)
6.	Project Communication	Contribute to the development of the Project Communications Plan for Release 2 being	The Customer

	Plan for Release 2	developed by the System Integrator. The Project Communications Plan for Release 2 clarifies the communication roles, responsibilities and governance to ensure that all Project stakeholders are engaged and informed about relevant project development. The Project Communications Plan for Release 2 outlines: a. what needs to be communicated and to whom; b. how often these exchanges should happen; and c. in what format and why they're necessary.	(or its nominee)
7.	Release 2 Data Management Plan	a) Contribute to the development of the Release 2 Data Management Plan which defines: the design, build, control and data management activities required to ensure data quality of all data (reference data, master data and transactional data) within DTTS, based on business rules provided by the Customer, and effective and efficient system integration of DTTS with other Customer systems; and b) a high-level approach to management of all data within DTTS which aligns with the approach outlined in the Solution Architecture Document.	The Customer (or its nominee)
8.	Release 2 Data Technical Analysis Outputs	Contribute to Release 2 Data Technical Analysis Outputs must include: a. Data Requirement Classifications (Master data, Migration Data, BI data); b. Data Migration Requirements and Rules; and c. Data quality definition (at data attribute levels). Contribute to Release 2 Data Technical Analysis Outputs also includes: 1. for each type of reference data and master data used by DTTS (as appropriate): a) the real-world object type represented by that data set; b) the recommended data maintenance method(s) in DTTS; c) the relevant SME(s), functional owner(s), source of requirement and/or Customer source from which the data may be obtained; d) whether DTTS can play the role of DMA source for that data; e) the volatility of that data; and f) data translations (if any) required to integrate with existing Customer systems.	The Customer (or its nominee)

		2. for each type of master or reference data requested by DTTS from other Customer systems: a) what data is required in the request and response messages; b) the business rules governing each message; and c) how those business rules are enforced. 3. for each type of transactional data flowing between DTTS and another system (in either direction): a) the source and target systems; b) the message type and message header type; c) any encryption, security or certification considerations; d) the methods used to handle non-compliant data in the source system; e) any record selection filters required; and f) any record level transformations required.	
9.	Updated Technology Implementation Strategy	Contribute to the development of the Technology Implementation Strategy being developed by the System Integrator. The Updated Technology Implementation Strategy shall be baselined against the Implementation Strategy developed in the High Level Solution Design Phase and as varied to reflect the Release 2 program agreed between the Parties. The Technology Implementation Strategy must be in the format approved by the Customer during the Project Preparation Phase specifying the implementation approach and method that will be implemented for the ROC Technology Solution, including, at a minimum: a. personnel & organisation; b. implementation approach, including: ○ releases; ○ system verification and validation; ○ system change management; ○ release & deployment management; and ○ change implementation; c. summary of impacted system components; d. preliminary requirements for 'go-live'; e. implementation plan (start criteria, phases, timelines, critical path milestones;	The Customer (or its nominee)

		f. verification instructions; g. roll back plan; h. post implementation support; i. post migration activities; and j. steps required to initiate/install a new system/process/function or decommission an old system/process/function.	
10.	Release 2 Technology Implementation Plan (Template)	The draft Release 2 Implementation Plan Template will be developed and agreed between the Parties. The plan will outline the plan for the roll out of the relevant components for Release 2. The final version of Release 2 Implementation Plan will be developed during the Build Phase and provides a detailed plan and schedule of activities to deploy the solution into the Environment. It must address training, development of, and installation of the product into the Environment, cutover and roll back. The final version must be provided 30 Business Days prior to anticipated deployment date for Release 2.	The Customer (or its nominee)
11.	Technology Test Strategy	Contribute to the development of the Technology Test Strategy being developed by the System Integrator. The Technology Test Strategy refers to the program test framework and must include the following: a. Introduction – Describing the purpose and objectives of the testing; b. Scope – What will be tested and what will not be tested; product risk analysis and traceability. Assumptions, test risks and constraints; c. Approach – How will the testing be carried out: Approach, test phases; test deliverables (plans, specifications, reports); releases; d. Environment(s) - Test Environment strategy including where the each testing phase will take place, environment management, release management; e. Test Management and Measurement – Describes how the testing will be managed and measured: what metrics to collect; Release Acceptance; acceptance criteria; defect management, test reporting, completion criteria; f. Roles and Responsibilities – Who will do the work? What work will they do? (This may include a number of organisations); g. Schedule – list of tasks and effort assigned to staff (when will the work be done and what is the	The Customer (or its nominee)

		effort required); h. Document Revision & History; and i. Approvals.	
12.	Updated Project Management Plan	Contribute to the development of the Updated Project Management Plan (UPMP) being developed by the System Integrator. The UPMP shall be based on the project management plan submitted by the Contractor during the High Level Solution Design Phase and updated to reflect the findings by the Contractor during the Detailed Design Phase. The UPMP must specify, as a minimum, the following: a. current project status; b. project overview; c. scope & deliverables; d. solution approach, including: I. architecture & phase approach; II. organisation Change management; and III. delivery approach; e. budget & schedule; f. dependencies; g. roles & responsibilities; h. project control; i. quality management; j. work breakdown structure (WBS) for Deliverables identified in section 7.4; and k. key risks & issues.	The Customer (or its nominee)
13.	RACI	Contribute to the RACI Deliverable being developed by the System Integrator. The RACI must detail the deliverables and respective obligations of the System Integrator, the Contractor, Other Contractors and the Customer. Note an initial draft of the Detailed Design document deliverables RACI is listed in section Appendix F.	The Customer (or its nominee)
14.	Agreed Final Contract	The Final Contract will incorporate certain detailed design activities. The Final Contract must be based on Procure IT v3.1 as amended by the Additional Conditions.	The Customer and Contractor
15.	Detailed Implementation	The Detailed Design, Implementation and Support PIPP is an enhanced version of the PIPP provided	The Customer

	& Maintenance Phase PIPP	by the Contractor during the High Level Solution Design Phase, amended as a consequence of findings during the Detailed Design (Release 2) Phase.	and Contractor
16.	Updated Release 2 Product Gap Analysis	The Updated Release 2 Product Gap Analysis shall be based on the Product Gap Analysis submitted by the Contractor during the High Level Solution Design Phase and updated to reflect the findings by the Contractor/Other Contractor (as applicable) during the Detailed Design (Release 2) Phase. The Updated Release 2 Product Gap Analysis Deliverable specifies the gaps between Release 2 detailed requirements and the detailed solution design and is designed to: a. track the functional gaps for the application; b. show traceability to the resolving application enhancements; c. show traceability to the resolving business workarounds; and d. if required, identify any gaps that will not be resolved, and present a forecast of the impact to the business.	The Customer (or its nominee)
17.	Release 2 System Test Plan	Contribute to the Release 2 System Test Plan being developed by the System Integrator. The Release 2 System Test Plan describes how the testing will be delivered for Release 2 System Test phase and must include: a. test plan identifier; b. references; c. introduction; d. test objectives; e. test items; f. software risk issues; g. features to be tested and traceability; h. features not to be tested and reasons; i. approach including the use of stubs, simulators etc; j. item pass/fail criteria (if different from strategy); k. suspension criteria and resumption requirements (if different from strategy); l. test deliverables; m. environmental needs; n. staffing and training needs (if different from strategy); o. responsibilities;	The Customer (or its nominee)

		p. schedule of tasks and assigned staff; q. planning risks and contingencies; r. approvals; and s. glossary.	
18.	Requirements Traceability Matrix updated for Release 2	Contribute to the Requirements Traceability Matrix Deliverable being developed by the System Integrator. The Requirements Traceability Matrix shows the status and decisions made regarding the business requirements/capabilities. The Requirements Traceability Matrix updated for Release 2 must include the following: a. an outline of the business requirements/capabilities; and b. an outline of the relationship between the business requirements/capabilities, functional requirements and test cases. Extracts of this information will be used as input into the creation of other deliverables such as the Functional Specifications, Product Gap Analysis, Integration Specifications, etc.	The Customer (or its nominee)
19.	Technology Environment Management Strategy	Contribute to the development of the Technology Environment Management Strategy Deliverable being developed by the System Integrator. The Technology Environment Management Strategy details the process for managing end to end environments. This document contains processes for: a. booking and reserving test systems; b. tracking environment changes; c. managing environment contention; d. Code/Defect management (Code promotion processes); e. environment scheduling; f. configuration tracking; g. Data Management (extracts, transforms loads); and h. managing interdependent projects.	The Customer (or its nominee)
19A	Detailed Support Proposal	The Customer will provide a specification detailing support requirements. The Contractor will document a detailed support proposal including a detailed description of services and service levels (based on the Customer's support requirements).	The Customer (or its nominee)

		This will be baselined against the Gold Support. For the purpose of this deliverable, this includes: a. Comparison Summary of Sydney Trains Service Requirements vs Qunitiq Gold SLMA Level (2) (undated); b. Global Maintenance and Support Program Dated 22 April 2016; c. Gold Support Attachment document (undated); d. Quintiq Support – Maintenance Levels. An Overview of Support and Maintenance Contracts White Paper dated July 2015; e. Quintiq Support Method White Paper dated 2015; f. RFQ Support_Model_Quintiq. Section 5.5.1 (undated); and g. Support Resolution Time Comparison Power Point Presentation (undated). The detailed support proposal will include pricing and details of service for each other tier of support (eg Bronze or Silver) and the recommended support offering for Release 2.	
Transformation and Change Deliverables			
20.	Operating Model	Contributing to the development of the Operating Model being developed by the System Integrator. The Operating Model must document and /or identify: a. best practice levels 2-4 process flows; and b. capability gaps in systems and processes. The process model will conform to best practice principles. The Operating Model must: a. use industry defined business process modelling methodology such as Business Process Model and Notation; b. conform to industry best practice; and c. be documented in an agreed format that can be imported into an application (preferably Holocentric) that supports the above business process modelling methodology as well as be capable of maintaining multiple versions of the model to support a staged implementation. Processes will be jointly developed through workshops with the Customer and its nominated Personnel (such as SMEs) as determined by the	The Customer (or its nominee)

		Customer. **Best Practice process flows Deliverable description:** The Best Practice process flows will describe the new Release 2 level 4 processes that will be required based on the out of the box software technology processes. Release 2 level 2 and level 3 processes impacted by the new level 4 processes will also be updated. Any processes not impacted by the new level 4 processes will remain unchanged. The Operating Model must address the following: a. Best Practice levels 2-4 process flows; b. validation against real life scenarios. **Capability gaps in systems and processes deliverable description:** Documentation of the gaps and/or variations in processes or capabilities between the current state process flows and the recommended Best Practice process flows to confirm the changes to processes and capabilities. The key focus of this deliverable will be on the level 4 gaps and/or variations in processes as dictated by the out of the box technology processes.	
21.	Draft recommended ROC organisational structure	Contribute to the development of the draft recommended ROC organisational structure. The draft recommended ROC organisation structure must conform to best practice. The Contractor draft recommended ROC organisational structure will detail and define roles, detail and define position purpose and high level description(s).	The Customer (or its nominee)
22.	Change Impact Analysis (Release 2)	Contribute to the development of the Change Impact Analysis being developed by the System Integrator. The Change Impact Analysis will describe the change impact on Release 2 related activities in the following dimensions (note updated assumptions section): a. Business process/workflow; the way and extent that change impacts the way work/business activities are conducted that enable the business to produce a value-added business outcome. b. Policies and procedures; the way and extent that change impacts the formal and informal guidelines for daily work activities. c. Communication; the way and extent that change impacts the information flow required within the	The Customer (or its nominee)

		organisation. d. Performance measures; the way and extent that change impacts the methods and tools required to measure performance and sustain change. e. Technology; the way and extent that change impacts the physical work environment including technology and information systems, overall layout, location and human factors. f. Organisational Structure; the way and extent that change impacts the structure of business units within the ROC. g. Roles and Responsibilities; the way and extent that change impacts the outputs and inputs and work responsibilities and/or accountabilities assigned to positions within the ROC scope. h. Skills and Knowledge; the way and extent that change impacts the knowledge, skills and abilities required of all positions within the ROC scope to effectively perform their jobs. i. Culture; the set of shared values, attitudes, goals and practices required to support the technology within the ROC. j. Behaviour; the way and extent that change impacts the behaviour required to be demonstrated to optimise the benefits introduced by new technology and processes within the ROC. A Change Impact Analysis will accompany the Release 2.	
23.	Release 2 Training Needs Analysis	Contribute to the development of the Release 2 Training Needs Analysis being developed by the System Integrator. The Release 2 Training Needs Analysis must detail the training requirements (role based) for the effective delivery and ongoing operation of the Release 2 solution. The Release 2 Training Needs Analysis must align to the Training Strategy provided by the Customer. Note that the associated training material will be developed during the Implementation & Maintenance Phase.	The Customer (or its nominee)
24	Training plan	The Contractor will provide an overview of train the trainer training to be provided during the Implementation phase.	The Customer (or its nominee)

5.4.5 The Contractor must supply the Deliverables which are part of the Detailed Design (Release 2) Phase in accordance with, and on or before the relevant date(s) specified in the Project Schedule.

6. Not used

7. Acceptance, Change Request and Assumptions

7.1 Acceptance

7.1.1 The Contractor must:

a) in collaboration with the Customer and Other Contractors (as required) participate in workshops and liaise with appropriate Personnel to ensure that all requirements are confirmed and understood; and

b) liaise with the Customer and Other Contractors (as required) to ensure that all Detailed Design (Release 2) Deliverables are fit for purpose and meet the agreed Acceptance Criteria.

7.1.2 Subject to section 7.1.10, the Deliverables to be provided by the Contractor to the Customer will be reviewed for accuracy and completeness in order to be accepted. The definition of completeness can be subjective, as some aspects of a Deliverable will be further refined as part of the Implementation & Maintenance Phase. The Deliverables must be approved as a pre-condition to the entering the Implementation & Maintenance Phase, unless otherwise waived by the Customer in its sole and absolute discretion.

7.1.3 Deliverables will be reviewed by the Customer (or the System Integrator acting as the Customer's nominee). Where the System Integrator deems that a Deliverable is accurate, suitably provides the required information and/or detail and accords with clause 7 of the Additional Conditions, the System Integrator will request the Customer's endorsement of that Deliverable. This endorsement will assist the System Integrator in finalising the acceptance of a Deliverable.

7.1.4 The following points are intended to clarify what approval/endorsement can be via email, or require a signature, see process swim-lane below for further detail:

a) Milestone Acceptance Forms must be signed in writing by the Contractor's Project Director and Customers Program Manager.

b) Deliverables must be approved by the System Integrator's Project Manager or the System Integrator's Project Director; notification by email of the approval is sufficient.

c) Deliverables must be endorsed by a Customer's delegate; notification by email of the endorsement is sufficient.

d) Contractor's Documents/Deliverables must be approved by a Customer's Program Delegate; email approval is sufficient.

e) the Contractor will track the status of Deliverables submitted for approval / endorsement and provide a weekly tracking sheet as part of the project status report.

f) The Customer will authorise a nominated delegate for each Product area that will have the authority to endorse/approve submitted Deliverables.

g) Upon each Deliverable submission, approval/endorsement is expected within the timeframes stipulated in clause 7.4 of the Additional Conditions or such other time as may be agreed between the Parties. A request for approval/endorsement extension of a Deliverable may be requested by the Customer to the Contractor in exceptional circumstances.

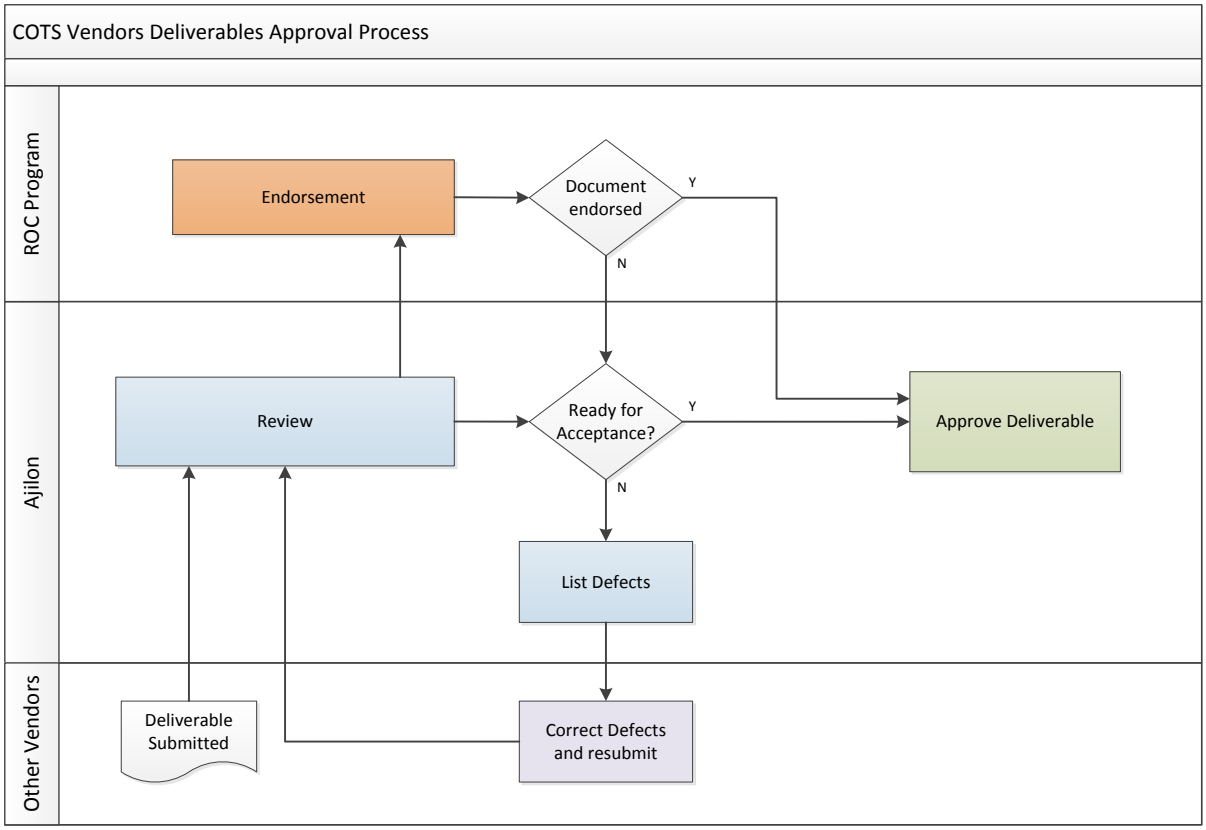
h) Deliverables not approved/endorsed by the System Integrator/Customer (as applicable) will be returned to the Contractor with a list of defects (tracked in a spreadsheet with reasonable detail) to be rectified to gain approval/endorsement by the System Integrator/Customer (as applicable).

i) The re-submission consists of rectified defects only and must be clearly identified as such.

j) The Deliverable is considered approved once the defects have been rectified and accepted.

The approval process flow is identified in the following diagram:

Contractor Deliverables:



7.1.5 The Contractor must supply the Deliverables which are part of the Detailed Design (Release 2) Phase in accordance with, and on or before the relevant date(s) specified in the Project Schedule.

7.1.6 The Contractor must ensure that the Solution described in the Detailed Design:

a) if implemented, meets the Requirements (to the extent that they relate to the Solution) ; and

b) does not negatively impact the performance or functionality of any part of the Customer's Environment (provided any information provided by the Customer in relation to the Customer's Environment is accurate), including the Customer's current solution.

7.1.7 Subject to section 7.1.10, the Customer (or its nominee) must review a Deliverable submitted during the Detailed Design (Release 2) Phase in accordance with clause 7 of the Additional Conditions.

7.1.8 [Not used]

7.1.9 For the purposes of the Customer Contract the 'Contract Specifications' for the Solution will be:

a) the Initial Requirements (as amended or updated in any documents supplied under the Detailed Design Phase and approved by the Customer);

b) the specifications, designs, any performance standards or other requirements for the Solution set out in any of the documents supplied by the Contractor in the Detailed Design Phase and approved by the Customer; and

c) any other the requirements relating to the Deliverables or the Solution as set out in this PIPP,

7.1.10 The Contractor agrees that any review, comment, approval, endorsement or election (including an election in respect of Detailed Design) or failure to review, comment, approve, endorse or elect on the part of the Customer (or its nominee) under the Customer Contract:

a) does not limit or affect the Services or Deliverables under this Customer Contract, including in respect of the Detailed Design;

b) does not limit or affect the provision of the Contractor's warranties or indemnities;

c) does not constitute any express or implied representation, election, waiver or acquiescence on the part of the Customer;

d) does not constitute deemed approval by the Customer to any amendment or Change Request to the Services or Deliverables; and

e) does not constitute grounds for an automatic extension of time or automatic adjustment to any payments.

7.2 Change Request

7.2.1 If:

a) during the Detailed Design Phase the Contractor identifies that the Customer's requirements for the Solution have materially changed from the Initial Requirements (**Requirements Variation**); and

b) that Requirements Variation changes the manner in which the Contractor is required to perform its obligations under this PIPP to such an extent that the Contractor will incur material additional costs in performing those obligations,

the Contractor is entitled to give the Customer a Change Request to adjust the Contract Price to take into account those additional costs.

7.2.2 If:

a) the Contractor is entitled to give the Customer a Change Request under section 7.2.1; and

b) the Contractor does not give the Customer that Change Request at the same time that the Contractor submits the Detailed Design,

the Contractor will not be entitled to give the Customer a Change Request for an increase in the Contract Price as a result of the Requirements Variation.

7.3 Not used

7.4 Summary Table of Deliverables and expected delivery dates

(Note: all timeframes regarding the provision of Deliverables will be agreed during the Detailed Design Phase and documented in the associated draft Project Schedule)

Deliverable ID	Deliverable Name	Format	Expected Delivery Date	Expected AAD
WBS 1	Updated High Level Solution Design	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 2	Release 2 Architecture Specification	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 3	Release 2 Functional Specification	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 4	Release 2 Non-Functional Design	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 5*	Resourcing Plan (*this is to be provided during the Project Preparation Phase)	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 5	Release 2 Integration Specification	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 6	Project Communication Plan for Release 2	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables as specified in the Project Schedule*.
WBS 7	Release 2 Data Management Plan	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 8	Release 2 Data Technical Analysis Outputs	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.

Deliverable ID	Deliverable Name	Format	Expected Delivery Date	Expected AAD
WBS 9	Updated Technology Implementation Strategy	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 10	Release 2 Technology Implementation Plan (template)	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 11	Technology Test Strategy	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 12	Updated Project Management Plan	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 13	RACI	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 14	Agreed Final Contract	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 15	Detailed Implementation & Maintenance Phase PIPP	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 16	Updated Release 2 Product Gap Analysis	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 17	Release 2 System Test Plan	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 18	Requirements Traceability Matrix updated for Release 2	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 19	Technology Environment Management	*Document*	*As specified in the draft Project*	*15 Business Days after delivery of the Deliverables specified as specified in*

Deliverable ID	Deliverable Name	Format	Expected Delivery Date	Expected AAD
	Strategy		*Schedule*	*the Project Schedule*.
WBS 19A	Detailed Support Proposal	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 20	Operating Model	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 21	Draft recommended ROC organisation structure	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 22	Change Impact Analysis (Release 2)	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 23	Release 2 Training Needs Analysis	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.
WBS 24	Training plan	*Document*	*As specified in the draft Project Schedule*	*15 Business Days after delivery of the Deliverables specified as specified in the Project Schedule*.

7.5 Contract Period

The Commencement Date is the date as stated in the General Order Form with a contract expiry as specified in Item 10 of the General Order Form or as terminated earlier in accordance with the terms of the Customer Contract.

7.6 Exclusions

7A. Implementation

7A.1 Where work performed (Site)

All the necessary work must be carried out at the Customer's site with the exception of requirements for meetings at the Contractor's location or when it is relevant for work to be performed at the Contractor's location.

Customer Data (not including personal information) required to be used for the purposes of Detailed Design may be stored, accessed, received or sent at or from the following Contractor offices in Melbourne, Australia and Kuala Lumpur, Malaysia.

7A.2 Implementation strategy

Not used.

7B. Project Management

7B.1 Advice and knowledge transfer

Subject to the exclusions in section 7.6, the Contractor must provide all reasonable support required by the Customer to provide the Customer Supplied Items and perform the Customer's obligations.

7B.2 Contractor assistance

If agreed to by all parties, the Contractor will support the Customer in conducting all necessary workshops with the Customer and Customer's stakeholders and subject matter experts, process owners and business analysts to verify:

a) that the Initial Requirements, or if amended the Requirements, are accurate and complete; and

b) the Contractor's proposed solution.

7B.3 Customer Assistance

The Customer will endeavour to make the necessary third party system provider representatives or internal subject matter experts available for relevant workshops to assist in the provision of third party system interface and data specifications in accordance with the agreed schedules.

7B.4 Risk management

7B.4.1 As part of the Customer's Risk Management Plan, the Customer will maintain a shared risk and issues register (referred to as the DRICA register) for the ROC Technology Solution which:

a) identifies and tracks actual and potential problems, issues and risks relating to the ROC Technology Solution which might adversely impact the successful completion of the ROC Technology Solution; and

b) includes Delivery Risks,

(**Issues Register**).

7B.4.2 The Customer must provide the Contractor a draft of the Issues Register within 5 Business Days of the Contract Date.

7B.4.3 As at the date the Contractor provides the a draft of the Issues Register under section 7B.4.2, the Contractor acknowledges that it has inspected the draft Issues Register provided by the Customer and to the best of its knowledge the Issues Register accurately and comprehensively defines all of the Delivery Risks.

7B.4.4 The Contractor must report to the Customer:

a) Any issues or risks (including any Delivery Risks) that it identifies that are not specified in the Issues Register immediately on becoming aware of those issues and risks; and

b) any change in the status of the Delivery Risks, immediately on becoming aware of that change in status.

7B.5 Cooperation with Other Contractors

7B.5.1 The Contractor must, at no additional cost to the Customer:

a) coordinate and cooperate with the Other Contractors in relation to the Project;

b) without assuming any liability for the contents of an Other Contractor's Detailed Design documents, provide assistance and cooperation reasonably required by the Other Contractors;

c) comply with requests of the Other Contractors to the extent relevant to the Contractor's Services or Deliverables;

d) not delay or interfere with the performance of the Other Contractors' Services or Deliverables in relation to the Project;

e) notify the Customer as soon as reasonably possible if it becomes aware of any delay to an Other Contractor's Services or Deliverables in relation to the Project; and

f) ensure that all information provided under this clause by the Contractor is accurate and to the extent possible, complete.

7B.6 Communication with Other Contractors

7B.6.1 The Contractor must not, without the Customer's prior written consent:

a) give an Other Contractor a direction or instruction which will or is likely to vary the Other Contractor's scope in relation to the Project;

b) give an Other Contractor a direction or instruction which will or is likely to change the amount payable by the Customer to the Other Contractor in relation to the Project;

c) give an Other Contractor a direction or instruction which will or is likely to delay the time that the Other Contractor is obliged to complete Services or Deliverables in relation to the Project;

d) accept directions or instructions from any Other Contractor in relation to the Services or the Deliverables; or

e) consent to any waiver, release, variation or reduction to or of any obligation of any Other Contractor in relation to the Services or the Deliverables.

7B.6.2 The Contractor must notify the Customer in writing as soon as reasonably possible after it becomes aware of any Dispute between the Contractor and an Other Contractor, or between Other Contractors, in connection with the Project.

7B.7 Disputes between the Contractor and Other Contractors

7B.7.1 The Contractor must use its reasonable endeavours and act in good faith to resolve a Dispute with an Other Contractor by discussion and negotiation without the Customer's involvement.

7B.7.2 Where the Contractor has notified the Customer under section 7B.6.2 or the Customer becomes aware of a Dispute and the Dispute remains unresolved for greater than 2 Business

Days, the Customer will make a direction with respect to the Dispute and the Contractor must comply with the direction.

7B.7.3 The Contractor acknowledges and agrees that the direction made by the Customer is final and binding.

7B.7.4 The Contractor must continue to comply with its obligations under the Customer Contract even if a Dispute exists.

7B.8 Reliance on Other Contractors' work

The Customer does not warrant the accuracy or correctness of any reports, plans, drawings, documents or information provided by Other Contractors in relation to the Project. The Customer has no liability to the Contractor as a result of the Contractor's reliance on unapproved such reports, plans, drawings, documents or information.

7B.9 Return obligations

The Contractor must return all Customer equipment and Customer Supplied Items provided to the Contractor for the purposes of the Project on or before the expiry of the Contract Period.

7B.10 Delivery Address

7B.10.1 The Contractor must deliver the Deliverables to the Customer at the location specified in Item 2 of the General Order Form.

7B.10.2 The Contractor must comply with all reasonable requests of the Customer when access the delivery address as well as any requirements specified in Item 25 of the General Order Form.

7B.11 Project management methodology

The Contractor will perform its services in accordance with the Contractor's Quintiq Project LifeCycle (QPLC) methodology as included in Appendix H. The Contractor's methodology must align with the System Integrator's project methodology to ensure the seamless delivery of the Project. Where the QPLC methodology has been modified to accommodate the System Integrator or the Customer's requirements, a mapping between the QPLC methodology outputs and the Customer's Deliverables must be provided. Where outputs and artefacts are produced to meet the QPLC methodology and these are not otherwise provided to the Customer, then the Contractor must, on request, provide the Customer with quality review reports of the outputs and artefacts produced by the Contractor in their process of following this methodology. This access may be in physical form (by sending copies of reports or statuses) or via access to the Contractor's relevant online systems that track quality and progress of the Deliverables.

8. Customer Supplied Items (CSI) and Customer obligations

8.1 CSIs and obligations

8.1.1 Detailed Design CSI's

Subject to section 8.2, the Customer will provide the following CSI items to the Contractor during the Project Preparation Phase:

a) Transformation and Change Requirements v4.1;

b) ROC Systems Assurance and Planning Framework documents which consist of:

i. Safety Change – Management Plan – 20150817 – v2.3;

ii. ROC Assurance and Governance Plan Rev 1.2;
iii. Requirements Integration Management Plant v 2.1;
iv. ROC – SIN – PL – 0003_v2.5 Configuration Management Plan – signed;
v. Infrastructure Assurance Plan v 1.0;
vi. Human Factor Integration Plan-HFIP_Sep15-Word_TRIM-DSYD2015-91257_ROC-SIN-PL-0001b; and

c) updated ROC program test management framework v2.0.

8.1.2 Previously supplied CSI

Subject to section 8.2, the Contractor acknowledges that the Customer has provided the following CSI items during the High Level Solution Design:

a) project scope (as documented in the architecture blueprint);

b) functional requirements (as provided in the RFP);

c) non-functional requirements (as provided in the RFP);

d) draft Implementation & Maintenance Phase PIPP;

e) system security requirements;

f) data management strategy;

g) project concept and review;

h) architecture blueprint;

i) systems impacted (existing);

j) interface specifications (where available);

k) technical policies and standards;

l) draft Procure IT (the Customer Contract and this PIPP);

m) ROC organisation structure;

n) ROC program high level roadmap;

o) draft ROC program test management framework;

p) current processes; and

q) concept of operations.

8.1.3 The Customer must:

a) ensure the members of its Personnel participating in the Project have the understanding of the business, and to-be processes, to be able to accurately articulate the requirements and the authority to make binding decisions about them;

b) provide the Contractor with appropriate access to all Customer facilities, and at all reasonable times, required by the Contractor for the completion of obligations relating to the Project, including providing the Contractor with all necessary identification material (badges, cards, etc.);

c) advise the Contractor of any change to architectural decisions relating to the Detailed Design that may impact on the Contractor's obligations under this PIPP;

d) assist in the management and timely co-operation of all third party suppliers of the Customer involved directly or indirectly in the Project as and when reasonably required for the Contractor to perform its obligations relating to the Project; and

e) make available Customer Personnel as and when reasonably required for the Contractor to perform its obligations under this PIPP.

8.2 CSI Facilities and Equipment

8.2.1 The Customer shall provide the following CSI, subject to the following conditions:

a) assigned desks with chairs for a team of 4 people for the duration of the Detailed Design Phase, located at the ROC Project location (currently level 13, 477 Pitt Street, Sydney, NSW 2000);
b) Customer laptop;
c) access to a meeting room, when required;
d) printer access;
e) 4x Internet access;
f) 2x Telephone; and
g) access to relevant Sharepoint site(s) and any other relevant digital information repository via the provided Customer laptop and secure cabling and some lockable cabinets.

8.3 CSI verification

8.3.1 Within a reasonable time following receipt from the Customer, the Contractor shall inspect each item of CSI for completeness, accuracy, and adequacy for the purpose it is provided, and as otherwise specified in the Order Documents.

8.3.2 In the event the Contractor determines following inspection, that any item of CSI is deficient in terms of accuracy, completeness, adequacy, or is otherwise unfit for the purpose it was provided, with a reasonable time after becoming aware of the deficiency the Contractor shall notify the Customer of the deficiency in writing, providing full details of the deficiency.

8.3.3 Within a reasonable time after receiving a notice of CSI deficiency from the Contractor, to the extent that it is reasonable for the Customer to do so, the Customer shall repair or replace the relevant CSI and reissue to the Contractor.

9. Personnel

9.1.1 The Contractor must ensure that each member of the Contractor's Personnel allocated to perform the roles in Appendix B perform the roles described in Appendix B.

9.1.2 Any of the Contractor's Personnel who fill the roles in Appendix B will be Specified Personnel for the purposes of the Customer Contract.

9.1.3 The Customer must establish the teams and provide the Personnel to fill the roles described in Appendix B.

9.1.4 Nothing in Appendix B affects the scope of the obligations of either party as described in sections 4 and 5 of this PIPP.

9.1.5 The Contractor must ensure that all of the Contractor's personnel who are Specified Personnel will hold the minimum certification set out in the table in Appendix B as and from the date of commencing work on the Project. This will be used as one indicator of whether a proposed person is a suitable replacement.

10. Subcontractors

10.1 The Contractor will engage and make available relevant Subcontractor personnel to support the Contractor in the Detailed Design Phase workshops with the Customer, except where the Customer has engaged the Subcontractor independently.

11. Approval by the Customer

11.1 Where the Customer must approve a Deliverable that is a Document, approval must be in accordance with clause 7 of the Additional Conditions and as per section 5.4 above.

11.2 The Customer's approval of the Deliverables constitutes acceptance as contemplated under the Customer Contract.

12. Payment Plan

12.1 Contract Price

12.1.1 The Contract Price for the Contractor to complete Detailed Design for Release 2 for the ROC Program is [redacted]

12.1.2 The Contract Price has been calculated based on the Deliverables specified in the table in section 12.1.3 below.

12.1.3 The Contractor is to be paid in accordance with the following progress payments. This is a fixed price for the delivery of the Services and Deliverables regardless of the time taken.

Deliverable	Price per Unit	Quantity	Extended Price
Software			
Licensed Software	[redacted]	1	[redacted]
Maintenance (12 months Updates Only) Residual maintenance fees will rollover to the implementation phase.	[redacted]	1	[redacted]
	Sub Total		[redacted]
Services			
Month 1	[redacted]	1	$ [redacted]
Month 2	[redacted]	1	$ [redacted]
Month 3	[redacted]	1	$ [redacted]
Month 4	[redacted]	1	$ [redacted]

Month 5	[redacted]	1	$ [redacted]
The remaining 15% of DD phase released on AAD of the final Deliverable	[redacted]	1	$ [redacted]
	Sub Total		**$ [redacted] (ex GST)**
		Sub-Total:	[redacted]
		Any Other Charges:	See travel budget below.
		GST:	[redacted]
This is the Contract Price (including GST)		**Total Amount:**	[redacted]

Travel Item	Comment
Airfares	Will be best available economy flight
Accommodation	Capped at [redacted] per night
Per Diem	Capped at $[redacted] per day
Taxi and Ground Transportation	As incurred
Maximum Travel Budget	[redacted]

Additional License Costs

In respect of the Licenced Software fee set out in the table above, the following additional licence costs and details apply.

Type	License	Qty	Price
Resource	Network Resources (stations)	1	[redacted]
Non Production Server	Non Production Environments	1	[redacted]
User	Users Fixed – Read/Write	not applicable	
User	Users Fixed – Read/Only	not applicable	
User	Users Floating - Read/Write	not applicable	
User	Users Floating – Read/Only	not applicable	

12.2 Payment

12.2.1 In respect of the Licensed Software and the related maintenance payment, the Contractor may issue a Correctly Rendered Invoice to the Customer at any time from the Commencement Date. This is a once off only cost covering perpetual use.

12.2.2 In respect of progress payments the Contractor must not issue a Correctly Rendered Invoice to the Customer prior to the progress payment dates specified in section 12.1.3.

12.2.3 In respect of amounts relating to travel items, the Contractor must issue a Correctly Rendered Invoice within 60 days of the amount being incurred.

12.2.4 The Customer will pay all undisputed amounts in a Correctly Rendered Invoice issued by the Contractor within 30 days of the invoice being issued to the Customer.

12.2.5 The Contractor acknowledges that despite section 12.2.4 the Customer is not liable to pay the fees or other amounts in respect of the Licensed Software and maintenance until the Performance Guarantee and Financial Security is provided to the Customer.

12.3 Termination for convenience

12.3.1 The Customer may by Notice in Writing at any time terminate the Customer Contract for convenience. In these circumstances the Contractor is entitled to the payments calculated in accordance with clause 17 of the Additional Conditions.

12.4 Liquidated Damages

12.4.1 Liquidated Damages will not be applicable for the Detailed Design Phase.

13. Governance

13.1 Authorised Representatives

13.1.1 For the purposes of the Customer Contract:

a) the Customer's Authorised Representative is Mark Pigot; and

b) the Contractor's Authorised Representative is Daniel Woodford.

13.2 Management committee

13.3.1 For the purposes of the Customer Contract the following are members of the management committee:

a) Mark Pigot;

b) Stefano Bianchini;

c) Bob Allum;

d) Reuben Bowd (as a legal adviser as required);

e) Dan Woodford;

f) Cameron Collie;

g) Peter Lawlor; and

h) Paul Shepherd.

13.3.2 The Parties warrant and represent that their respective management committee members are authorised and properly qualified, informed and instructed to enable the management committee to properly assess progress under the Customer Contract.

13.3 Management committee function

13.3.1 The function of the management committee is to:

a) review and monitor progress under the Customer Contract in accordance with the governance model to be provided by the Customer; and

b) carry out any other functions stated in Item 16 of the General Order Form.

13.4 Management committee meetings

The management committee must meet at least monthly during the Project at the times and locations specified by the Customer.

13.5 Management committee progress report

13.5.1 The Contractor must, at least 2 Business Days prior to a meeting pursuant to section 13.4, provide the Customer with a weekly progress report which at a minimum should include:

a) details (including dates) of Deliverables and Milestones (if any) commenced, completed or approved;

b) any delays or issues arising from the Project, including any known reasons for the delay or issue arising, and plans for the management of such delays and issues;

c) a review of any:

i. minutes and actions from the last meeting;

ii. risks and issues; and

iii. details of any outstanding invoices and any payments that are about to become due;

d) draft updates of relevant parts of the Contract Specifications;

e) any new Change Requests or Contract Variations (if applicable);

f) reviewing progress of any draft Change Requests or Contract Variations (if applicable); and

g) any other additional details the Contractor considers should be brought to the attention of the Customer.

Appendix A – Initial Requirements

High Level Solution Design (PART A - Ov

High Level Solution Design (PART B - Sys

High Level Solution Design (PART C - Sys

ROC System Integration Approach

Sydney Trains ROC Non Functional Desig

Sydney Trains ROC Updated Capability an

High Level Solution Design

Part A - Overview

Sydney Trains Rail Operations Centre

Version 4.1

31 March 2015

Description

This document provides the high level solution design of the ROC technical stream.

Audience

ROC Program Manager, ROC Program Members, Ajilon Consortium Members

Document Purpose

The High Level Solution Design PART A – Overview provides an overview of all components of the HLSD, including organisational change, solution architecture and design considerations of the individual ROC technology solution components.

Project Manager

David Hayward

Responsible Author

Stephen Prince

TemplateID

High Level Solution Design

Amendment and Approval Record

Please update these tables and sign where appropriate.

Document Revision History			
Date:	Version:	Description:	Revised by:
27/2/2015	2.0	Draft HLSD for Sydney Trains Review	Steve Prince
6/3/2015	3.0	Final QA	Penny Taylor
20/3/2015	4.0	Updated in response to ST feedback	Steve Prince
2015	4.1	Updated in response to ST feedback	Bruce McDonald

Approval / Signoff History				
Date:	Version:	Approved by:	Role:	Signature:

Distribution List	
Name:	Role:

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1 EXECUTIVE SUMMARY

Sydney Trains currently operate a large complex rail network. Together the Sydney Trains and NSW Trains networks consist of over 300 stations and over 1,000 route kilometres of distance, carrying over a million passenger journeys each weekday. On a typical weekday Sydney Trains operates over 2,300 Suburban services and NSW Trains around 500 Intercity and Regional train services. Current projections for the growth of the Sydney Trains network expect 2 million passenger journeys per day by 2021, with a doubling of freight rail across the network by 2031.

During normal operations Sydney Trains is able to manage the network with On Time Running (OTR) performance of approximately 94% of its services. The customers overall experience when using the Sydney Trains network though suffers during a service disruption due to a number of different factors including:

- Current manual processes and geographically disparate rail operations staff make managing a service disruption difficult. This leads to an increased time required to resolve services and an increase in the consequential effects of the initial delay
- Inaccurate and inconsistent information is presented to rail customers regarding train services during a disruption

With continued expansion of the rail network and growth in passenger numbers forecast to continue Sydney Trains has foreseen the need to change in order to maintain an acceptable level of operation into the future. With this in mind, the ROC Program has been commissioned with a vision that supports the strategies of Sydney Trains to transform the customer experience in line with their vision of “putting the customer at the heart of everything we do”.

The initiatives that make up the ROC program broadly fall into the following four categories:

- Infrastructure
- People
- Technology
- Processes

This HLSD is specifically aimed at addressing the implementation of the new ROC Technology including the implementation of the following three systems:

- Day of Operations Timetabling System (DTTS)
- Incident Management System (IMS)
- Customer Information Management System (CIMS)

The solutions proposed as part of this High Level Solution Design (HLSD) are based on class leading solutions by vendors with a proven track record of providing solutions that solve the problems experienced by Sydney Trains:

- The DTTS solution will be provided by Quintiq who are world leaders in the provision of Advanced Planning & Scheduling solutions to solve complex problems, and have experience in implementing rail solutions at DB Schenker, GVB Public Transport and NTV Italy.
- The IMS solution will be provided by Frequentis who will implement their Commercial off the Shelf (COTS) Rail Emergency Management (REM) product. This product has been successfully implemented for both the Austrian Federal Railways and Luxembourg National Railway Company.
- The recommended approach to CIMS is to leverage the TIBCO interfaces platform extending the use of existing Sydney Trains technology with additional TIBCO modules to provide an integrated customer information solution.

- Ajilon are bringing their systems integration and Australian railway operations experience where they have worked as the lead Systems Integrator on large scale complex multi-vendor rail improvement and expansion programs for companies such as BHPBilliton and Rio Tinto Iron Ore. One of the key benefits Ajilon brings as a specialist rail systems integrator is the ability to successfully help deliver change management and transformation activities across complex programs. This experience enables the early realisation of benefits with less disruption to the organisation and its staff reducing risk and implementation costs.

The DTTS solution will provide Train Controllers with an electronic system for managing day of operations activities. This is done by providing a view of all rail activities and their individual performance against the day of operations target plan. This will allow Train Controllers to efficiently respond to service disruptions with the DTTS able to quickly propose and evaluate a number of service response options. Once the optimal response plan is identified the Train Controller is able to implement the required transpositions in DTTS ensuring services are returned to normal operations as quickly as possible with minimal interruption to the customers and the overall on time performance of the rail network.

The IMS solution will provide a coordinated incident response and management capability that will allow a consistent approach to managing incident responses across the network regardless of their cause. The solution provides the ability for mobile field staff to record their activities and observations when responding to network incidents. The IMS solution also allows for centralised incident management and coordination. This provides a consistent and managed approach to incident resolution and ensures that incidents across the network are managed with minimal disruption to the customers, while at the same time providing an auditable record of actions undertaken during incident resolution.

The CIMS solution will provide a coordinated facility for managing consistent, accurate and timely messages across multiple communication channels to both Sydney Trains staff and external customers. This approach will present Sydney Trains staff with more accurate train service information allowing them to better respond to the needs of the rail customers. Additionally the system will provide the customer with reliable, up to date information regarding Sydney Trains services and allow the customer to efficiently and effectively manage their journey across the rail network, leading to an increase in the customer satisfaction with the services provided by Sydney Trains.

For the new systems to provide the expected benefits to both Sydney Trains and their customers, the different systems need to be brought together into an adaptive and dynamic integrated ROC solution. The successful integration of the different systems will enable a coordinated approach to managing the overall rail network and managing incidents, service disruptions and customer information. This level of integration will allow Sydney Trains to use the integrated ROC technology solution to leverage the other ROC program initiatives of Infrastructure, People and Processes and enable the provision of an overall solution that is able to manage the increasing levels of complexity and throughput that the network will experience in the future.

2 INTRODUCTION

2.1 Document Purpose

The High Level Solution Design (HLSD) provides a consolidated view of the proposed ROC technical solution. For improved readability this document has been broken into three separate documents:

- Part A – Overview of the ROC technology solution. This provides an overview of all components of the HLSD, including organisational change, solution architecture and design considerations of the individual ROC technology solution components.
- Part B – Systems Architecture definition. This spans all architecture domains (business, information, application, and technology) and also examines all relevant states of the architecture (baseline, interim state(s), and target).
- Part C – Systems Product Detail. This document includes the high level designs provided for the three different ROC technology solution components.

In addition to the above documents, the overall HLSD also comprises two additional related documents:

- Sydney Trains ROC Updated Capability And Gap Analysis
- Sydney Trains ROC Non Functional Design

2.2 Document Inputs

List the set of input document used to guide the content creation of this document

References		
#	Name	Location
[1]	1.3 Part A Concept of Operations, including Worksheet Appendix 2	Ajilon ROC SharePoint Site - Original RFT Documents
[2]	IMS-PCAR v1.0	Ajilon ROC SharePoint Site - New HLSD (CSI) Documents – Project Concept and Review PCAR
[3]	DTTS-PCAR v1.0	Ajilon ROC SharePoint Site - New HLSD (CSI) Documents – Project Concept and Review PCAR
[4]	CIMS-PCAR v1.0	Ajilon ROC SharePoint Site - New HLSD (CSI) Documents – Project Concept and Review PCAR

2.3 Problem Overview

Sydney Trains currently operate a large complex rail network servicing Sydney Trains customers, NSW Train customers as well as various freight and private operators. Together the Sydney Trains and NSW Trains networks consist of over 300 stations and over 1,000 route kilometres of distance, carrying over a million passenger journeys each weekday. On a typical weekday Sydney Trains operates over 2,300 Suburban services and NSW Trains around 500 Intercity and Regional train services. Current projections for the growth of the Sydney Trains network expect 2 million passenger journeys per day by 2021, with a doubling of freight rail across the network by 2031.

The Sydney Trains rail network currently experiencing On Time Running for approx. 94% of its train services. The ability to maintain or improve this level of service is hampered by current manual processes for managing trains and incidents across the network. This is also complicated by key roles

being geographically spread out across a number of different operations facilities. This combination of factors makes the day to day management of the rail network difficult, but also complicates the ability to manage a disruption to train services and return to normal operations. These problems will be exacerbated in the future as throughput and capacity across the rail network is significantly increased in the coming years.

The problems of managing the network during a service disruption ultimately impact the customers in a couple ways:

- The level of service presented to the customer during a service disruption is less than expected
- The customers are presented with inaccurate and often conflicting information regarding the train services

These problems combine to reduce the overall customer experience during their journey.

2.4 Opportunity Statement

- The ROC Program has been created to address these problems through a number of initiatives that are focused on allowing the business to change from having a train centric view of operations to having a customer centric view. The initiatives that make up the ROC program broadly fall into the following four categories:
- Infrastructure – This initiative is aimed at providing a consolidated ROC facility where all key day of operation resources will be able to reside.
- People – This initiative is aimed at bringing the day of operations staff together in the new ROC facility
- Technology – This initiative is aimed at providing three new best of breed solutions for Day of Operations Timetabling, Incident Management and the provision of Customer Information.
- Processes – This initiative is aimed at reviewing the current business processes to leverage the improved capability that the introduction of the new ROC solutions will provide

This HLSD is specifically aimed at addressing the implementation of the new ROC Technology.

2.5 Business Vision, Drivers & Goals

2.5.1 ROC Vision

The Concept of Operations document outlines the ROC vision, which is to support the strategies of TfNSW, Sydney Trains, and NSW Trains to transform the customer experience in line with their vision of “putting the customer at the heart of everything we do”. The following diagram is taken from the ROC Program Brief and shows the change in vision that the ROC Program is trying to enable.

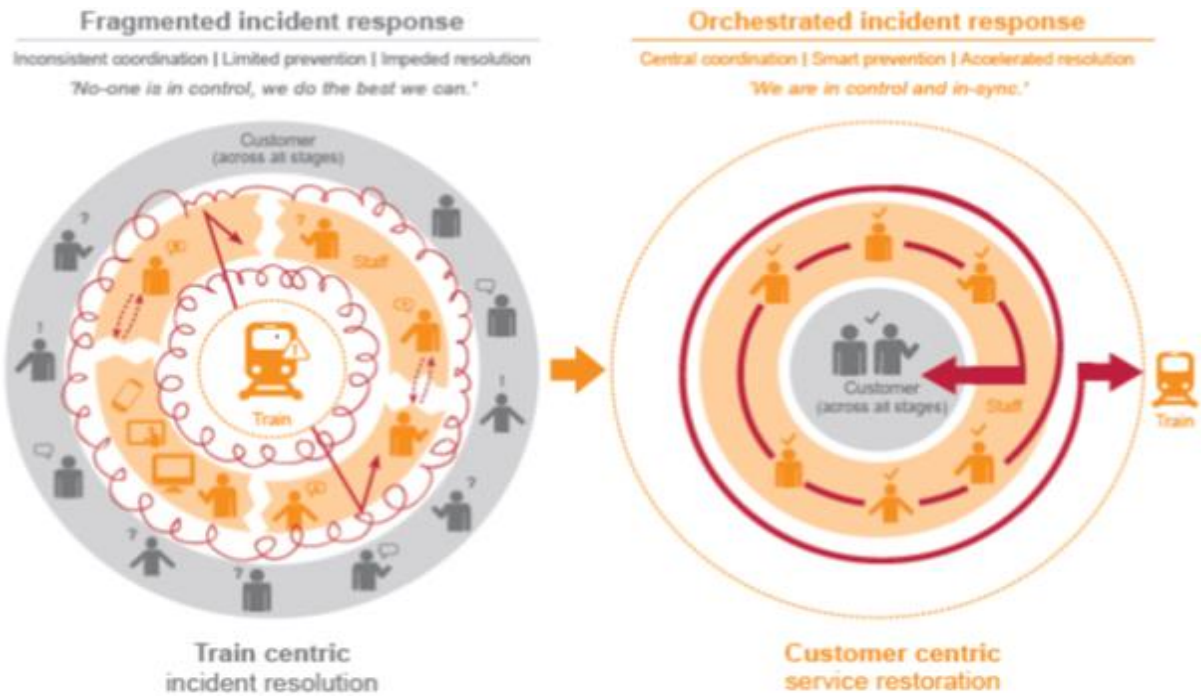


Figure 1: Train Centric v Customer Centric Operations

2.5.2 Business Benefits

The Sydney Trains ROC program has the strategic drivers of providing:

- Better customer experience
- Improved customer journey times

These strategic drivers will be met by the benefits that the overall ROC program is able to deliver. The delivery of the ROC technical stream (DTTS, IMS and CIMS) will be a key part of the overall benefits realisation.

The following diagram represents an overall ROC program benefits map and was provided as part of the ROC Vendor Brief. The benefits map shows a detailed relationship between the different initiatives of the overall ROC program showing the links between the strategic drivers, benefits, systems and functions that will enable the realisation of that benefit.

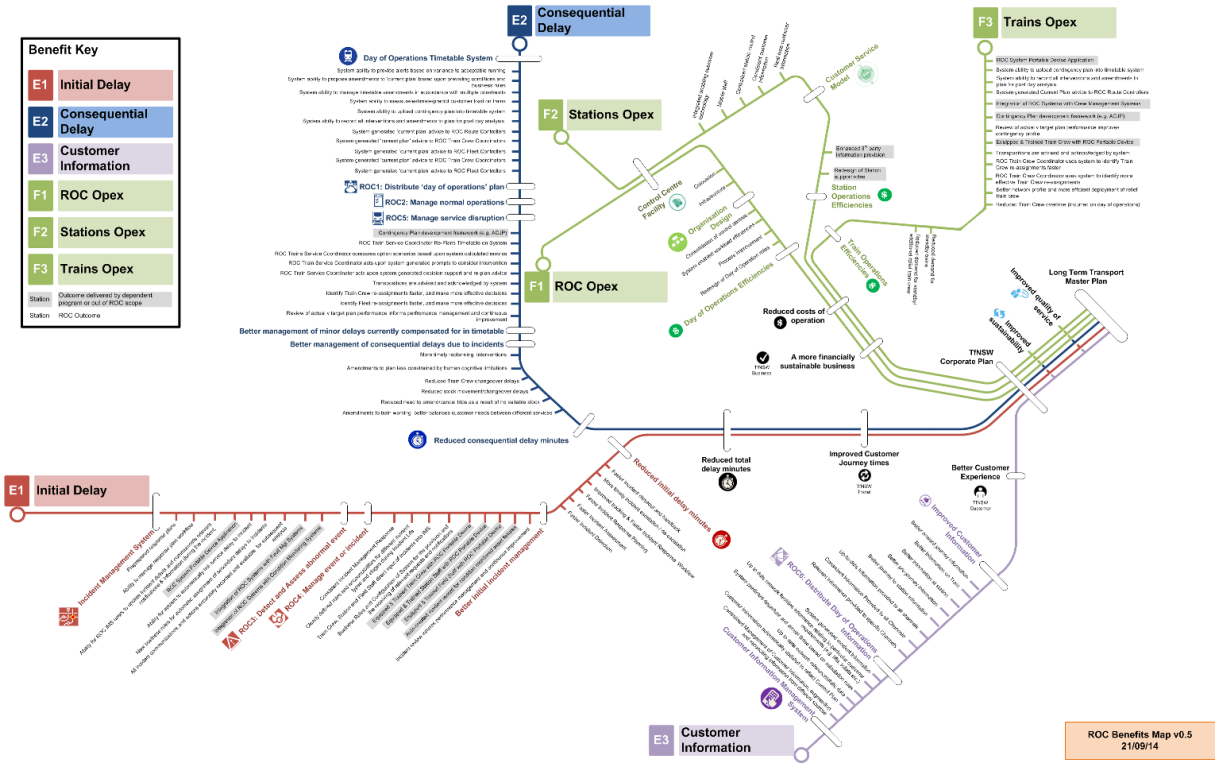


Figure 2: ROC Benefits Map

The overall ROC program is looking at undertaking significant organisation change through the introduction of new operations facilities along with the introduction of the ROC technical systems. This combination of infrastructure, organisation and systems change will provide Sydney Trains with opportunities for reduced costs of operations (as shown in the ROC benefits map) across the ROC, train services and station facilities. These have not been called out as direct benefits of the ROC technical stream due to the reliance on the other ROC initiatives. The table below is taken from the ROC Vendor Brief and summaries the relationship between the strategic drivers of the business and the benefits that the ROC technical program enables.

Strategic Driver	ROC Benefit	ROC Business Change	ROC System Enabler
Better customer experience	Improved timeliness, relevance and consistency of customer information reducing the negative experience of delays	ROC6	CIMS
Faster journey times	Reduced initial delays resulting from the direct impact of incidents	ROC3	IMS
		ROC4	
	Reduced consequential delays resulting from the knock-on effect of incidents	ROC1	DTTS
		ROC2	
		ROC5	

Table 1: ROC Strategic Drivers & Benefits

2.5.3 Secondary Benefits

The following table represents a summary of the second level benefits that the ROC technical program can deliver. These benefits have been taken from the ROC Benefits Map provided in the ROC Vendor Briefing.

Better Customer Experience	Initial Delay	Consequential Delay
Improved customer information	Reduced total delay minutes	Reduced total delay minutes
	Reduced initial delay minutes	Reduced consequential delay minutes
	Better incident management	Better management of consequential delays due to incidents
		Better management of minor delays currently compensated for in timetable

Table 2: ROC Second Level Benefits

2.6 Scope

2.6.1 In scope

The following items are deemed in scope for the HLSD Phase of the Sydney Trains Rail Operations Centre program:

- High level design for DTTS, IMS and CIMS based on the product capabilities provided during the RFP phase.
- Review of ROC level 1 and level 2 processes provided in the concept of operations document during RFP phase. This includes the definition of potential to-be level 2 processes and a gap analysis.
- Review of ROC roles provided in the concept of operations document during RFP phase. This includes the definition of potential ROC roles that would align with the high level designs for the DTTS, IMS and CIMS and includes the identification of potential opportunities for future role consolidation.
- Detail the application functionality required by the new ROC Systems (IMS, DTTS & CIMS) to support the potential to-be business processes.
- Detail the system integration required between new ROC Systems and existing Sydney Trains systems to support the business information flow between the to-be business processes.
- Detail any proposal for existing Sydney Trains systems changes, with costing and schedule to be determined during detailed design phase for consideration before build phase commences.
- Detail any relevant architecture risks, issues, assumptions, decisions and dependencies that are part of the systems architecture.
- Detail a gap analysis between current state and target state application components.
- Detail any interim states (I.e. transitional) proposed for staged rollout of application functionality.

The level of detail of the systems architecture will be dependent upon timeframes of the HLSD Phase. At a minimum the architecture will cover the new ROC systems (IMS, DTTS and CIMS) and touch points with relevant existing Sydney Trains systems (e.g. FARS, FMBS, Reliance Rail, ATRICS etc.).

The high level designs provided for the DTTS, IMS and CIMS are based on the provision of product capabilities that allows for a 2017 implementation of the solutions. As a minimum the product capabilities with a criticality of 'Essential' will be implemented. Where the vendor is able to, as part of the 2017 implementation, include functionality that addresses capabilities with a criticality of 'Important' or 'Desired', then these have been included in the high level designs.

2.6.2 Out of scope

The following items are deemed out of scope for the HLSD Phase of the Sydney Trains Rail Operations Centre project:

- Review of ROC Level 3 and 4 processes provided in the concept of operations document during RFP phase. These will be reviewed during the ROC project Detail Designed Phase.
- High Level Solution Design for business processes provided in a zip file "HTML ProcessWeb_141219 view of Current State Processes" during the HLSD phase.
- Detailed solution design, including functional specifications, interface specifications, detailed solution architecture. These will be addressed during to ROC project Detail Designed Phase.
- Decisions on decommissioning existing Sydney Trains systems. Where opportunities may exist to consolidate existing application functionality (e.g. TDM1 & TDTES functionality being reallocated to DTTS and/or ATRICS), then an approach to arriving at these decisions will be provided and costed for in the detailed design and implementation schedule (e.g. detailed analysis of the existing applications, architecture assessment of existing functionality and proposed allocation to alternative applications on the landscape, workshops to agree alloocation and seek cost and schedule estimates for configuration and/or customising applications with reallocated fuctionality etc.).
- Detailed technical design, including logical and physical technology models required to realise the systems architecture. This will be addressed during detailed design phase. The assumption is that infrastructure costs will be funded by the ROC project separately, and will be a third party deliverable. The coordination of the third parties will be considered within scope.
- High Level Solution Design relating to the ROC OVDS (Operational Visual Display System).

2.7 Differentiators

2.7.1 Differentiators

The solutions providers in this HLSD are based on class leading solutions provided by vendors with national and international experience in implementing their solutions for other rail providers. Because of this there are a number of features that these products provide that are key differentiators between the products offered by other vendors in this space.

Further detail regarding these opportunities can be found in the HLSD Part C Systems Product Detail document.

Differentiator	Details
Quintiq Differentiators	
Fully Integrated Planning	Quintiq holistic integrated planning approach provides a unique 'helicopter' view of the Sydney trains operational world.
Intelligent Decision Support	Quintiq offers 3 Tiers of Decision Support • Level 1 - Empowered Manual Decisions • Level 2 – Decision Assist Templates • Level 3 – Intelligent Decision Support
CIMS Differentiators	
Reusable Open Bus Approach	Through leveraging the different modules available through the TIBCO integration platform CIMS is able to offer a flexible approach to the overall CIMS solution

Table 3: ROC Solution – Differentiators

2.7.2 Opportunities

The HLSD process has identified a number of areas and opportunities that exist to extend the functionality of the different ROC solutions in order to provide further benefit to the organisation. These have not been included in the responses to the product capabilities (as they are out of scope of the current piece of work), but are summarised below to show the potential for further value add of the overall solution.

Further detail regarding these opportunities can be found in the HLSD Part C Systems Product Detail document.

Opportunity	Details
Quintiq Opportunities	
Import Crew & Fleet Updates	Additional opportunities exist to extend the integration of the DTTS with these systems through more complex workflow based mechanisms
Replanning DWTT-3	Sydney Trains has requested the ability for the train controllers to use DTTS to maintain possessions scheduled up to three days beyond the current day of operations, and to be able to change the timetable itself using the standard decisions used by train controllers on the day of operations.
GIS Mapping	Quintiq applications provide mapping capabilities out of the box using Quintiq's preferred GIS provider, PTV.
Network Schematics	The DTTS solution is able to provide easy access to read only network schematic views. These views could be made available to a range of users across Sydney Trains and replace some of the screens presented through the TLS application.
Frequentis Opportunities	
Communications Integration	Workshops with ROC program stakeholders have identified the opportunity to enhance communication interfaces provided between incident coordinators and mobile operations personnel.
User Interface Customisation	Workshops with ROC program stakeholders have identified the opportunity to enhance the ability for users to have further control over the customisation of the user interfaces.

Table 4: ROC Solution – Further Opportunities

2.8 Assumptions

2.8.1 Program Assumptions

The following is a list of the general assumptions for the ROC program:

Item	Assumption
1	Any information requested by Ajilon to Frequentis, Quintiq and Sydney Trains for the completion of the deliverables will be provided in a timely manner, within one working week of the request date. Any delays which impact the deliverable due date could result in change requests
2	All project deliverables subject to sign-offs are reviewed by the dates agreed by all parties.
3	Prior to the start of each stage the detailed planning, deliverables, resources and entry and exit criteria have been agreed by all parties
4	At the end of each stage the Project Board is required to sign off the stage prior to the commencement of the subsequent stage
5	The project stages, deliverables, start and end date are contingent on the necessary resources, software and hardware as necessary being in place from Sydney Trains by the agreed timelines
6	The project plan and associated services estimates are subject to the agreement of the Statement of Work/PIPP and other associated contracts
7	Any key Sydney Trains project dependencies must be completed within the agreed timeline
8	The Detailed Design Phase will revalidate the High Level Solution Design integration requirements and design with the selected CIMS vendor

Item	Assumption
9	Sydney Trains will work with vendors to ensure sufficient technical and business resources are allocated to the project as per the various functions described in the project schedule including testing of the solution
10	Resources that are assigned to this engagement by Sydney Trains are able to represent the needs of Sydney Trains for this engagement.
11	Sydney Trains will ensure that the correct/appropriate decision makers and SMEs will be available in detailed design workshops
12	Rescheduling of workshops by the Customer that result in delays to the project could result in change requests
13	The responsibilities for delivery of services and deliverables will be as listed in section 4 above.
14	Once additional dependent projects (as listed in section 6.5) are added to the project scope there could be additional effort incurred and a corresponding change request raised.
15	OCM Change management including all training materials will be managed by Sydney Trains with input from the appropriate teams as required
16	The integration testing will be performed outside the productive environment.
17	In case of missing systems to be integrated, simulation devices are provided and accepted as valid verification methods
18	The site and system environment for deploying the vendor solutions will be provided by Sydney Trains. This includes the provision of additional infrastructure such as email servers, SMS providers, voice mail providers, speech engine for creation of Voice Mail messages.
19	A test environment able to host all three ROC systems (IMS, DTTS and CIMS) is available and accessible.

Table 5: ROC Program Assumptions

2.8.2 Technical Assumptions

The following is a list of the technical assumptions for the ROC project:

Item	Assumption
1	Implementation of the new ROC systems (DTTS, IMS and CIMS) will leverage Out of the Box features as much as possible and minimise the need for configuration and customisation.
2	The target state architecture is based on the Level 1 and 2 To Be business processes as defined in the Concept of Operations. The results of the analysis for Level 3 and 4 business processes in the Detailed Design phase may require some refinements to the target state architecture.
3	All references to "interface" refer to interfaces between systems such as DTTS, IMS, CIMS and legacy systems, unless specified;
4	Sydney Trains will provide the necessary legacy interface specifications (if not already provided) for the ROC systems to interface with the legacy systems;
5	If a change is required to a legacy system (such as the ability to receive data or push data out): a. Sydney Trains will be responsible for the design, implementation, delivery and support of the change to the legacy systems; and b. Ajilon will be responsible for providing interface design specifications to Sydney Trains or the necessary vendors to ensure the changes made are compatible with the new ROC systems (DTTS, IMS and CIMS)
6	Any effort required outside of the interfaces specified in the High Level Solution Design document will be considered out of scope.
7	As a minimum Sydney Trains will manage and provide the necessary environments for the ROC Program, including (the test environment strategy will provide a definitive list): a. Development environment for each vendor as required b. SIT environment c. UAT environment
8	Sydney Trains will ensure the appropriate legacy systems are made available to the SIT and UAT environments for testing purposes.
9	The Ajilon consortium will be responsible for deploying and configuring the new ROC systems in the following environments: a. Development environment for each vendor b. SAT environment c. SIT environment d. UAT environment
10	Training will be conducted in a dedicated environment. This could either be a separate Training environment or one of the existing environments providing it will not disrupt development and testing activities.
11	The term "data migration" refers to the migration of master data for use by the new ROC systems (DTTS, IMS and CIMS) and not historical data.
12	Master data required for building the system's production configuration is available and structured and in a state to be loaded into vendor solutions without rework.
13	SMEs familiar with the data layout, it's meaning and purpose are available and support the data import process
14	The ST common BI reporting platform (Cognos BI suite) and underlying data sets stored in Oracle will be available for implementation of analytical reports specified for third party development as per the proposed BI reporting solution in the High Level Solution Design
15	All interfaces will be developed using TIBCO
16	Validating that the data within reports is correct is the responsibility of ST
17	Build and test of reports (outside of vendor out of the box reports) are the responsibility of

Item	Assumption
	ST
18	Build and test changes required to legacy systems are the responsibility of ST

Table 6: ROC Technical Assumptions

2.8.3 Vendor Assumptions

Refer HLSD Part C – Systems Product Detail document for any specific vendor assumptions:

2.8.4 Planning Assumptions

Please refer to the Ajilon Project Plan document for planning assumptions.

2.8.5 Architecture Assumptions

Please refer to the Ajilon HLSD Part B document for architecture assumptions.

2.9 Constraints

The following is a list of the general constraints for the ROC program:

Item	Constraint
1	Timeframes for the ROC solution have already been publicly communicated requiring the technology component of the solution needing to meet an already communicated timeframe. This will potentially limit the scope and implementation approach of the solution phases to meet the initial timeframes.
2	Resources may not continue to be available should there be a gap between the HLSD ECI stage and that of the main project commencing due to delays in approving the project budget. This could put immediate pressure on the project timeline.
3	The target state architecture has been built around the key ROC technologies selected by Sydney Trains: a. Day of Operations Timetabling System (DTTS) from Quintiq b. Incident Management System (IMS) from Frequentis
4	The target state architecture is based on the Level 1 and 2 To Be business processes defined in the Concept of Operations. The results of the analysis for Level 3 and 4 business processes in the Detailed Design phase may require some refinements to the target state architecture.

Table 7: ROC Program Constraints

2.9.1 Architecture Constraints

Please refer to the Ajilon HLSD Part B document for architecture constraints.

2.10 Dependencies

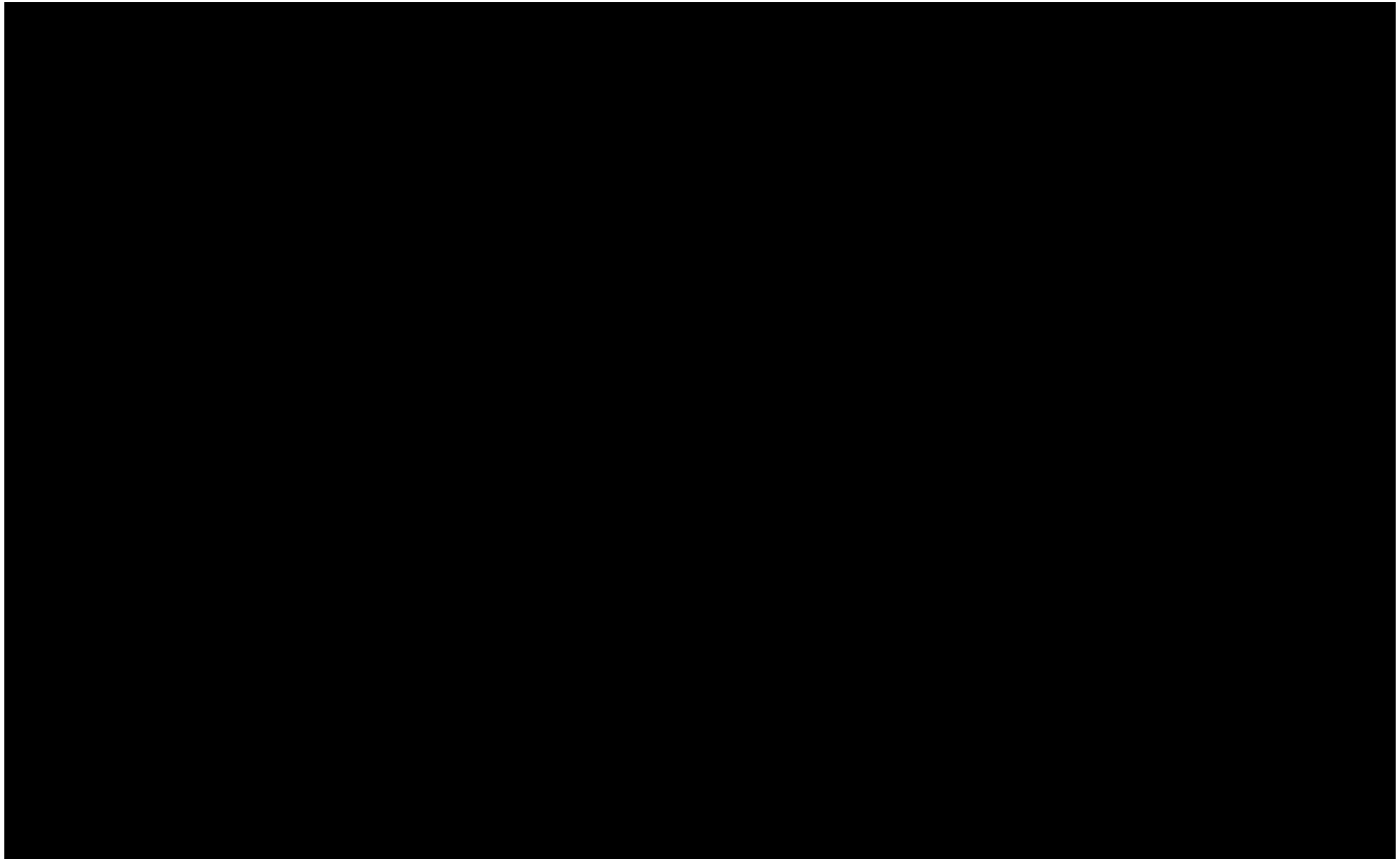
2.10.1 Architecture Dependencies

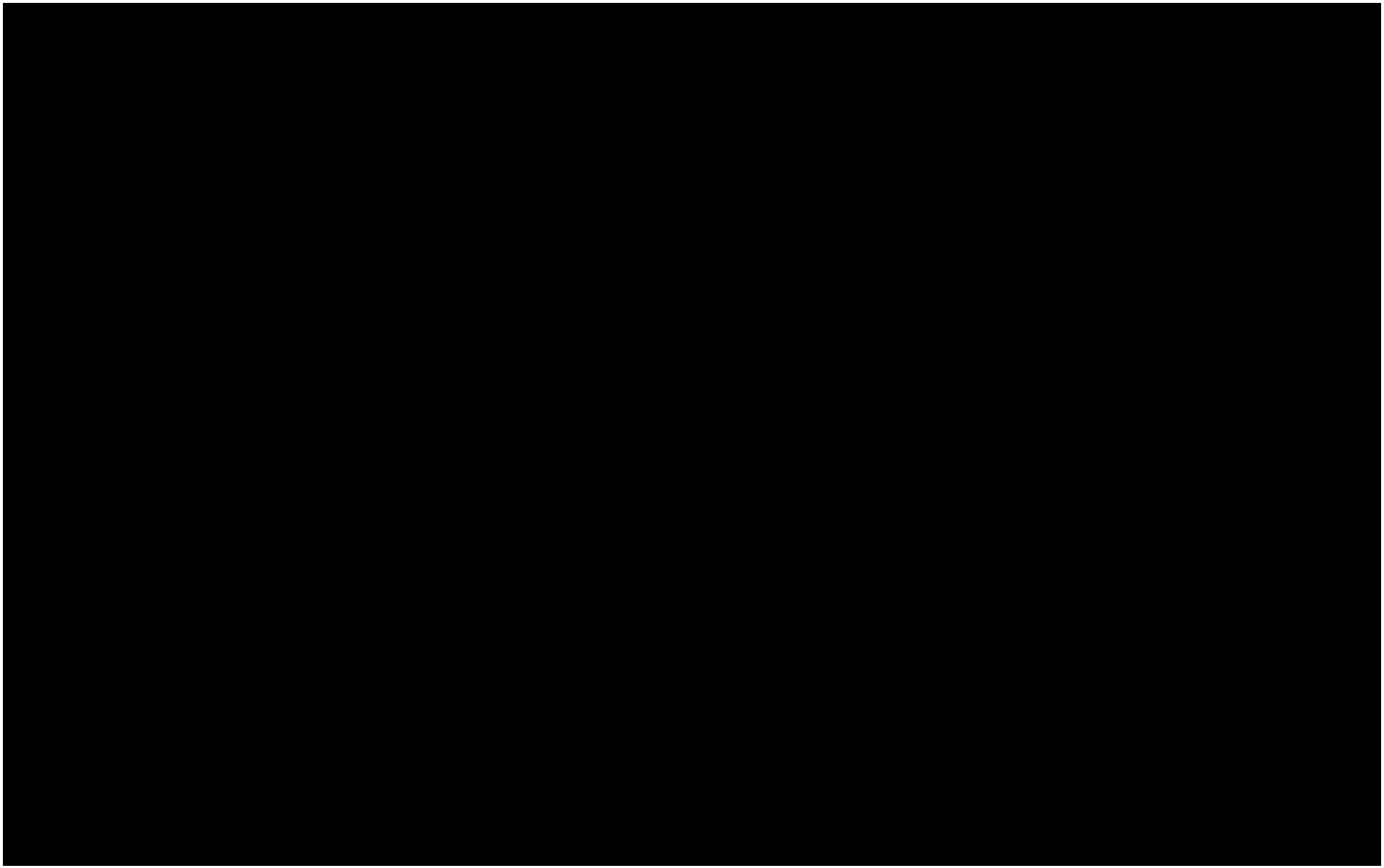
Please refer to the Ajilon HLSD Part B document for architecture dependencies.

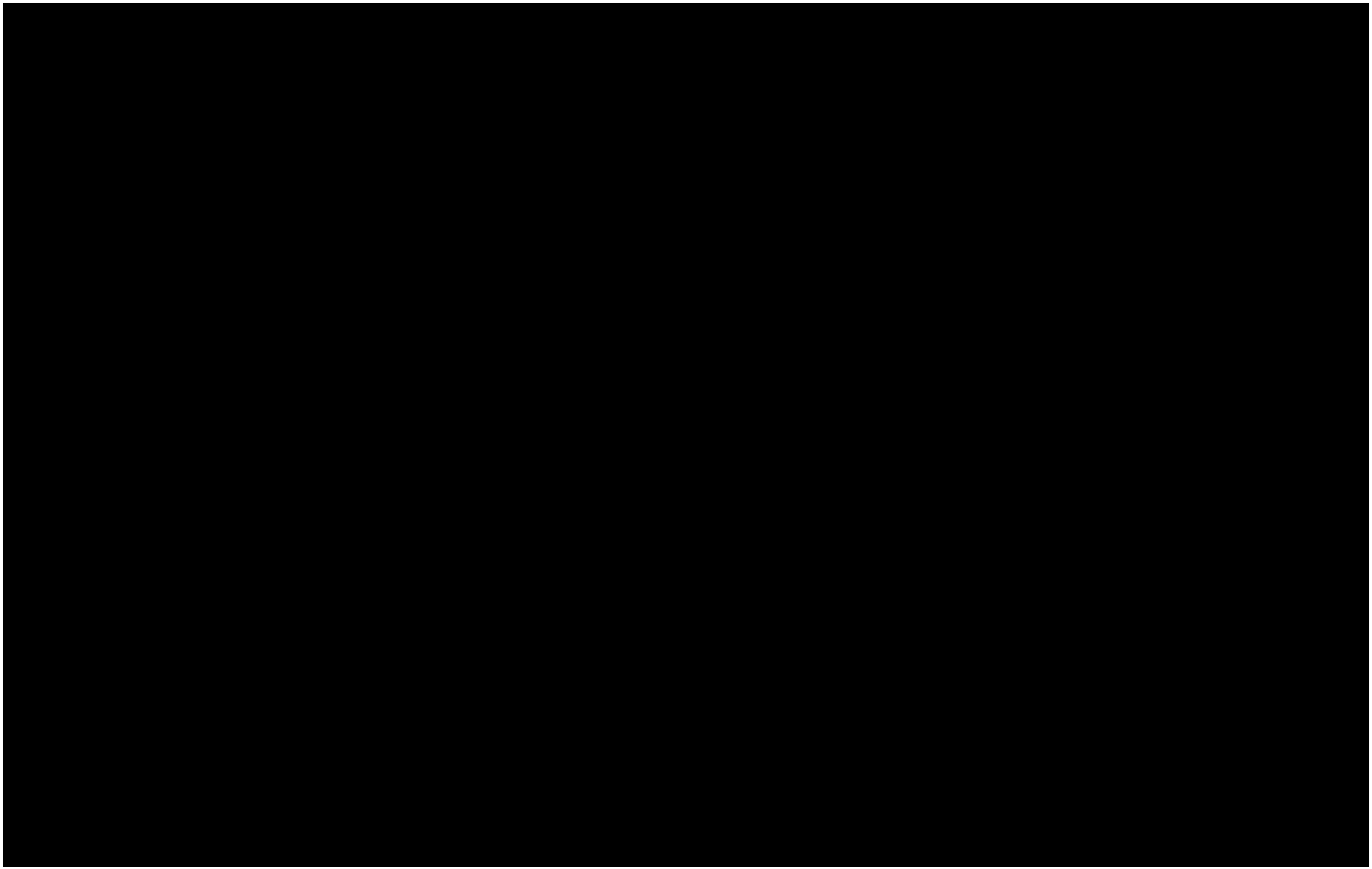
3 BUSINESS PROCESS

3.1 Business Roles

The following section outlines the proposed To-Be business roles that would support the ROC technical solution 2017 implementation. These roles have been identified through a combination of the ROC concept of operations document and engagement with Sydney Trains and the product vendors during the HLSD phase. Included in this analysis is the identification of opportunities for further role consolidation.







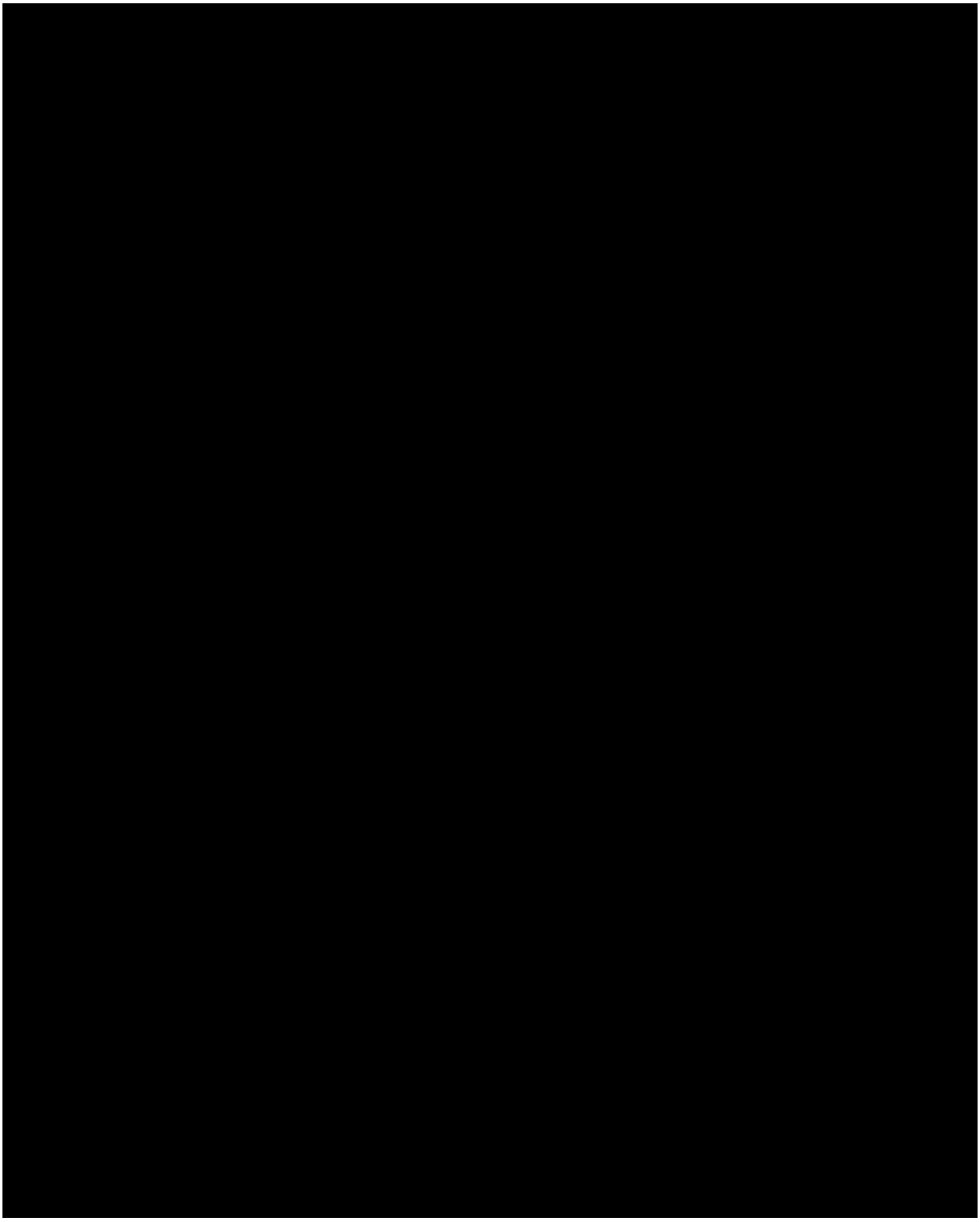
3.2 Business Processes

As part of analysing the current and future state ROC processes an impact assessment was performed for the current state business processes. The impact assessment reviewed each current state level 2 business process against the following criteria:

- Systems Impact
- Roles Impact
- Opportunity To Optimise
- Opportunity To Automate

The following table outlines the criteria used in the business process impact assessment.

The following provides a heat map based on the impact assessment of the ROC Program on the current state business processes. More detailed information on the process impacts is available in the Part B HLSD document.



The level 2 current state process impact assessment heat map has then been used to identify high level impacts to the current state level 1 processes.

Current State Level 1 Process	Overall Impact	Reasoning
ROC1 - PREPARE & PROVIDE DAY OF OPERATIONS PLAN	High	The overall impact is High because day of operations planning will be impacted by the introduction of the DTTS, this will impact planning and day of operation from T-3 through to the execution of the day of operations plan.
ROC2 - MONITOR & MANAGE NORMAL OPERATIONS	Low	The overall impact for this is Low because most roles within the level 2 processes will continue to use existing systems to monitor and manage infrastructure and equipment under their control. The exception to this is M&M-1 and M&M-2 which refer to the Train Controllers responsibilities
ROC3 - DETECT & ASSESS ABNORMAL SCENARIO	Medium	The overall impact is Medium, because most roles will continue to use existing systems to detect issues across the network. They will then use the IMS system to raise a notification for auctioning by the ROC Incident Coordinators
ROC4 - MANAGE EVENT OR INCIDENT	Medium	The overall impact is Medium because this process is specifically aimed at the use of the IMS to manage the incident. This will potentially have little direct impact on existing roles as incident management will be handled through the ROC Incident Coordinator roles
ROC5 - MANAGE SERVICE DISRUPTION	High	The overall impact of this process is High because of the introduction of the DTTS to manage the day of operations plan and identify and implement the appropriate response plan
ROC6 - DISTRIBUTE DAY OF OPERATIONS INFORMATION	High	The overall impact of this process is High because of the introduction of the CIMS solution to manage all communications to internal and external customers. This will impact the roles managing the communications, but also potentially the roles who then utilise that information

Table 10: Current State Level 1 Process Impact Assessment

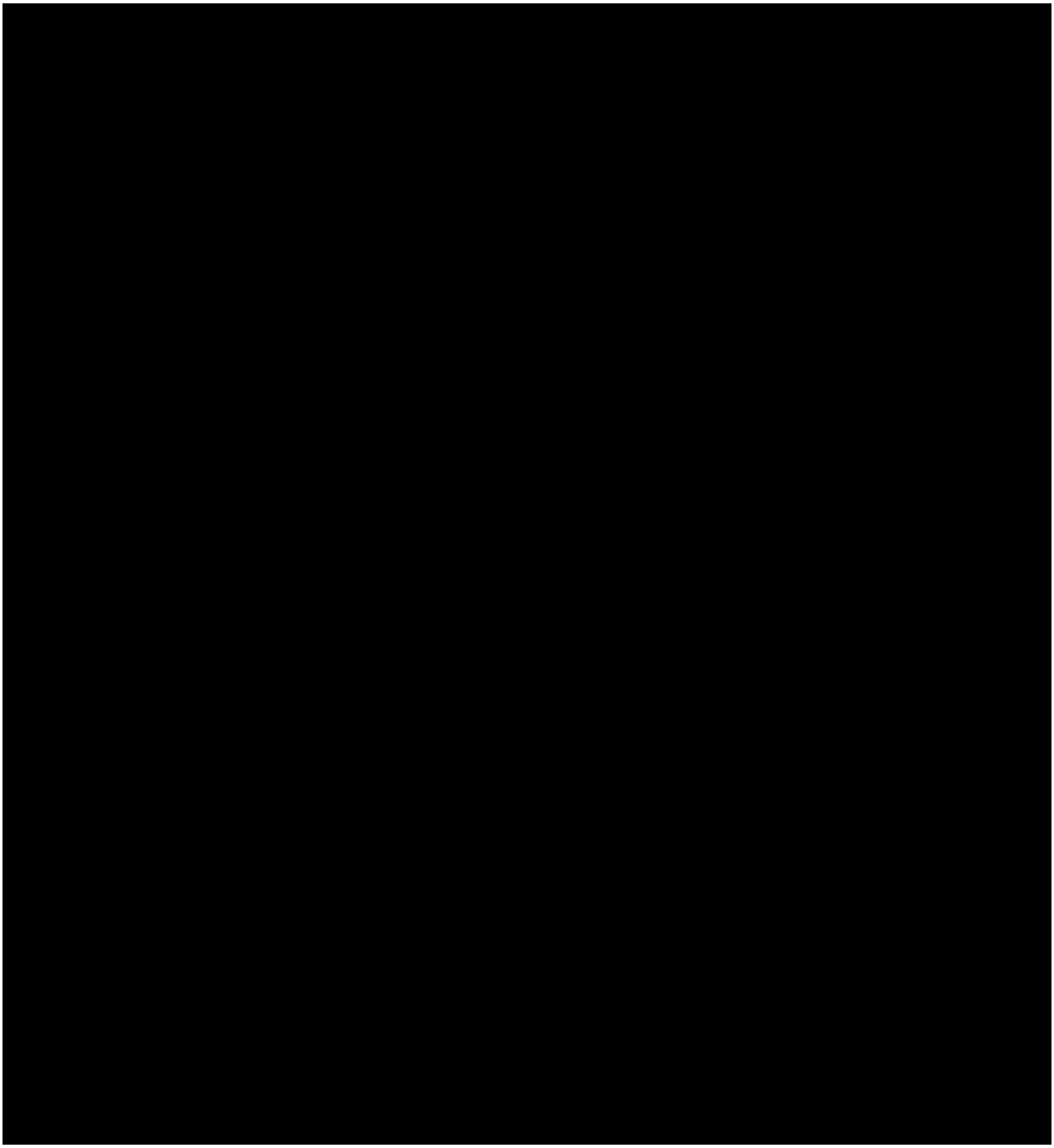
A set of architecture focused to-be business processes have been created to focus on the key architecture elements that are required to enable the successful implementation of the ROC technical solution. The business processes support the proposed systems and technology, and define the required system integration to allow business information flow between the processes. The approach used when defining the architecture to-be business processes involved the following four principles and drivers:

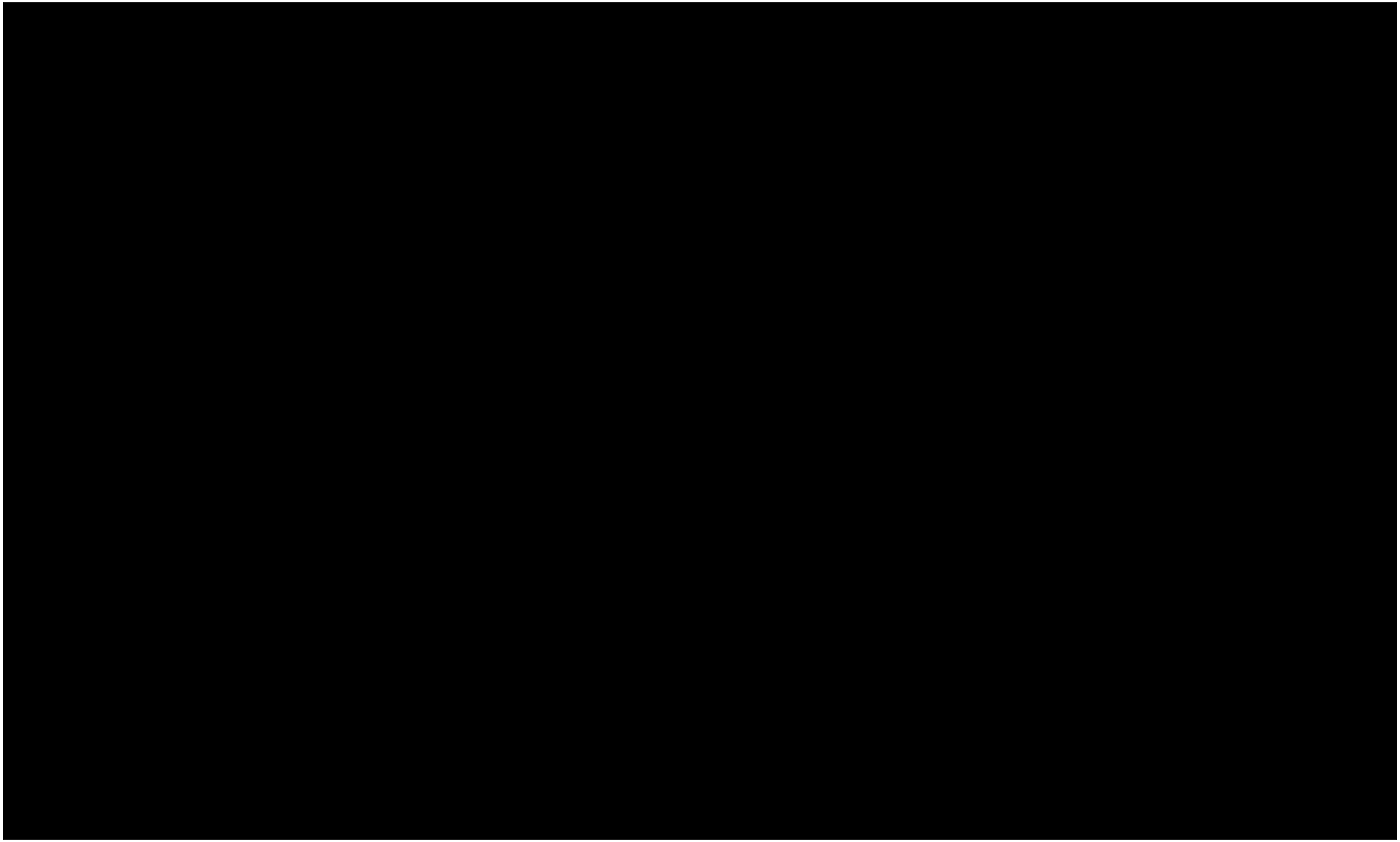
Principle	Business Processes Drivers
Processes	• Consistency of process breakdown (e.g. create, modify, publish) • Define processes that support process automation
Roles	• Define processes that align with future state roles
Systems	• Ensure business processes support data changes at different time horizons and update frequencies
Information	• Allow for business information that will be different while the process is largely the same

Table 11: Architecture To-Be Business Process Principles

Approach	Example
Expand	• ROC1 – Develop DWTT (from T-16 weeks to T-1 day)
Rollup	• ROC1 – Modify Day of Operations Time Table
Promote/Demote	• ROC6 – Acquire Customer Feedback
New Processes	• ROC1 – Publish Day of Operations Time Table

Table 12: Architecture To-Be Business Process Approach





4 SYSTEMS ARCHITECTURE

This section provides a summary of the information provided in the 'HLSD Part B – Systems Architecture' document. It is included here to provide an overview of the approach taken when defining the systems architecture. For specific detail regarding the architecture please refer to the related document.

4.1 Approach

The systems architecture of the ROC project was examined at a high-level in three of four perspectives, using the ArchiMate content framework to structure and visualise the analysis. The four perspectives are illustrated below, with colouring aligning to ArchiMate.

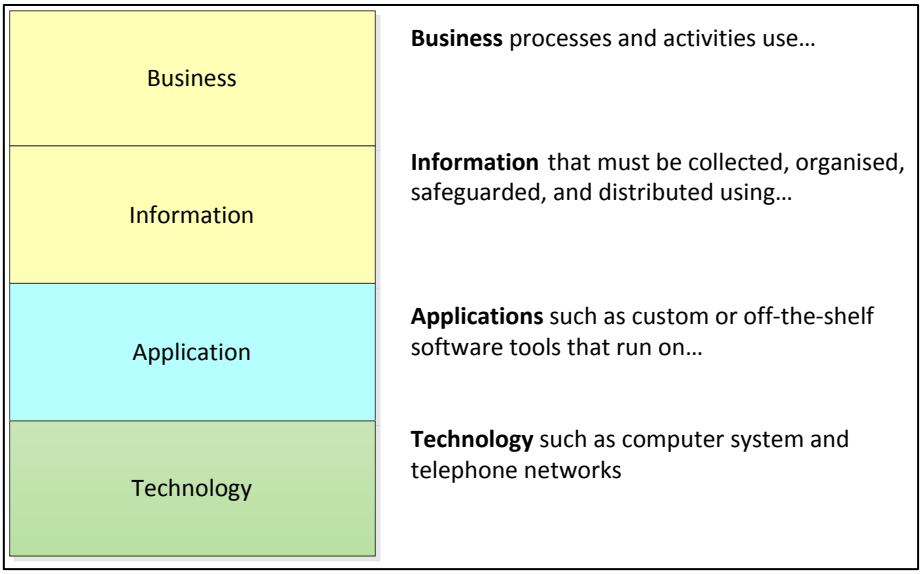


Figure 6: Architecture Layering

During the High Level Solution Design Phase engagement, the key focus points for the analysis and architecture were:

- Defining to-be business processes and business information that supported systems architecture analysis
- Defining the application services and functionality required to support these business processes
- Defining the automated integration required to enable the business information flow required within and between business processes
- Defining the gap analysis between the current application landscape (i.e. functionality of existing Sydney Trains systems and out-of-the box functionality of new ROC systems) and the target application landscape (i.e. what is required to be configured and/or customised for each application to be able to implement the proposed systems architecture).

The systems architecture was bounded by the identified new ROC systems and the ROC project scope. Additional opportunities that have been identified are called out, as have additional third party deliverables that will need to be defined and costed in order to implement the proposed systems architecture.

The systems architecture that has been developed as part of the HLSD Phase is targeted toward ensuring the Ajilon Consortium (comprising Ajilon, Frequentis and Quintiq) have an understanding of the required application functionality and system integrations to inform:

- The development of a schedule for subsequent project phases, and
- The development of a final submission to Sydney Trains to perform the duties of Systems Integrator and System Vendors.

4.2 High Level Conceptual View

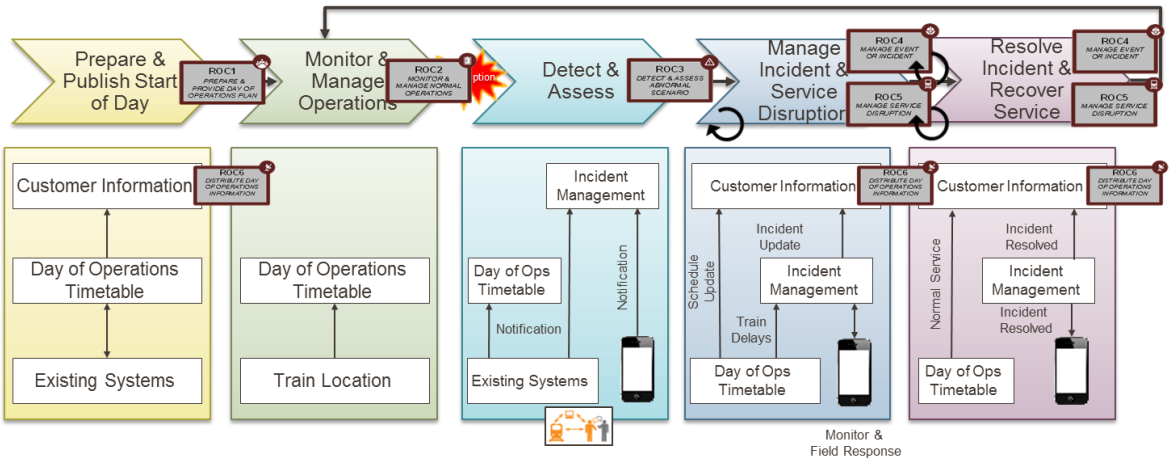


Figure 7: High Level Conceptual View

The ROC Program is introducing a standardised set of processes and 3 new support systems in a new consolidated operations centre. Existing systems will be augmented by:

A class leading day of operations timetable system (DTTS) for creating and publishing a single source of truth for the day of operations timetable, and for detecting, accessing and managing service disruptions to assist in maximising on time running and minimising train delays to customers

A centralised single-source of truth customer information management system (CIMS) for managing customer information to the various customer channels

A best of breed incident management system (IMS) for detecting and accessing events that may impact operations, and then managing and resolving operation incidents to minimise train delays to customers

The following diagram represents the high level information flow between the different potential to-be level 2 business processes. This diagram is used in the architecture documentation to provide additional context for the application usage views that have been created.

4.3 Application Usage

In the context of the ROC project HLSD systems architecture, the application usage view is used to define application services and functionality required to support level 2 business processes, and highlight business information flow required between systems.

4.3.1 Understanding Application Usage View

The diagrams used in this section utilise the ArchiMate notation to formally document the architecture, employing an approach to support the deliverables required for the HLSD Phase of the ROC Program.

The diagrams are a variant on the Application Usage viewpoint defined within ArchiMate. This viewpoint was selected as it:

Seeks to address concerns of consistency and completeness, and reduction of complexity
Is suggested for use in designing and deciding.

The ArchiMate language defines three main layers, depicted in separate colours, of which two are utilised in this diagram:

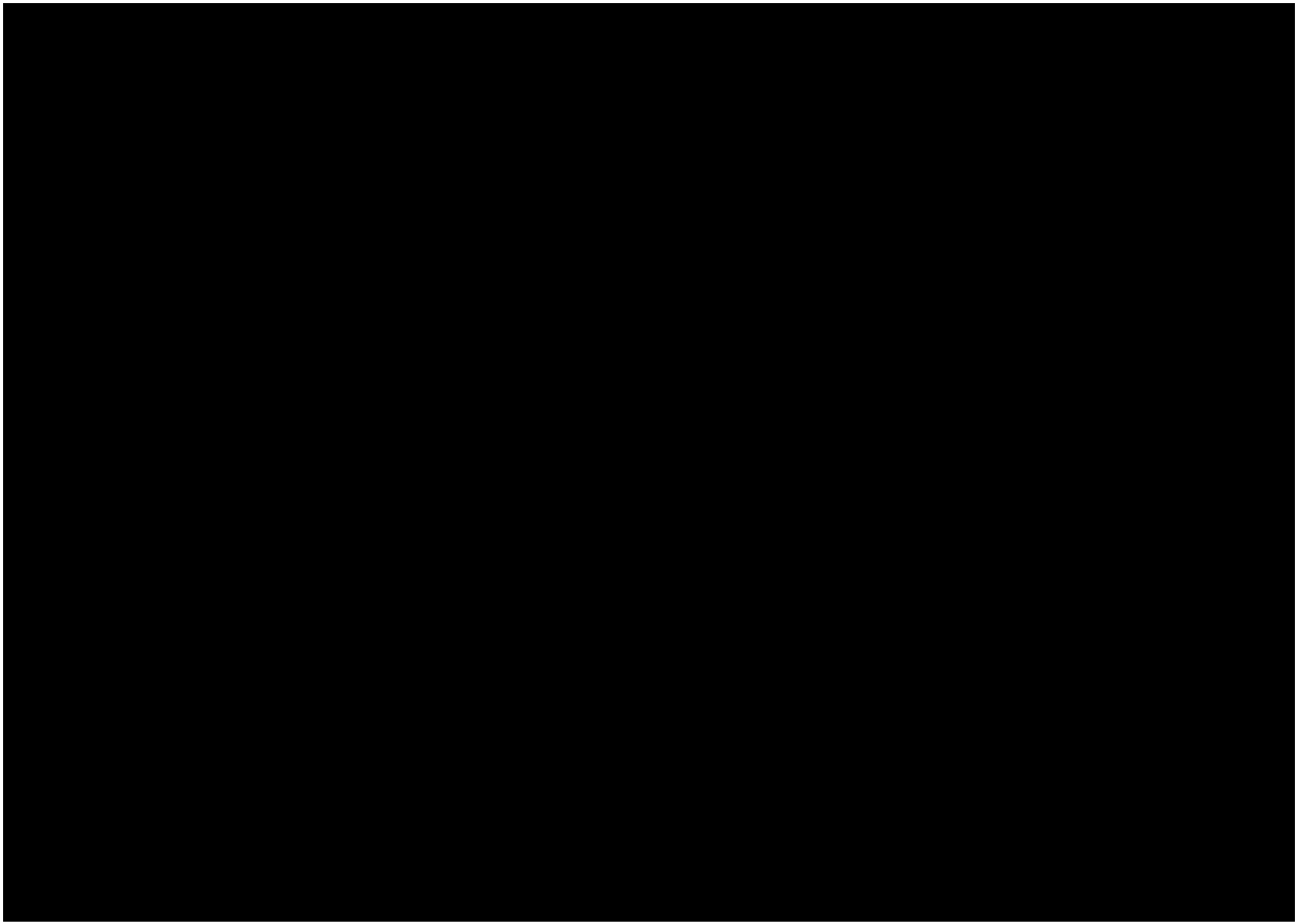
The Business Layer (yellow) will capture the key business roles, level 2 business processes, business information and business events.
The Application Layer (blue) will capture the key applications, the application services provided to support the business processes, and the communication required between applications to support business information flow that is triggered by business events.

4.4 Systems Integration

This provides the detail related to integration between systems. The system integration view build upon the application usage views, but focuses on the technical implementation of the business information flow between the applications. These views introduce the use of a common system integration platform, such as TIBCO. They highlight the various interfaces, transformations and functions that need to be built to achieve the technical system integration

Information on systems integration is linked through to the related application usage viewpoints to demonstrate that any proposed system integration is governed by a business process and triggered by a business event. In this way, it is anticipated that the business value of the proposed system integration can be appraised. The approach also allows the development of an application integration catalogue that contains the business context for the integration services that are provided within the Sydney Trains application landscape.

The proposed integration is dependent upon the existing Sydney Trains TIBCO technology infrastructure for realisation. The diagram below shows a conceptual overview of the set of system integrations being implemented by the ROC project.



Note: The system integration conceptual view only shows integration between systems where the flow of information is for operational reasons, and that interfaces required as part of setting up and managing master data have been excluded. For information on the required integrations please refer HLSD Part B section 3.6.1.

4.5 Application Structure

The application structure is based on the application usage views and system integration views defined in the earlier sections. For each application, the set of high level services, interfaces and functionality required to implement the proposed systems architecture is visualised. A gap analysis is also able to be provided against the current.

The application structure diagrams only show elements from the application layer, namely the key applications and the required application services, application functionality and application interfaces that need to be implemented to deliver the ROC Project requirements.

Note: Not all elements provided by an existing Sydney Trains application is documented, instead only the touch points with the new ROC systems (IMS, DTTS and CIMS) based on the proposed systems architecture.

4.6 Information Architecture

For the HLSD Phase of the ROC Program, the review of the Sydney Trains information architecture focussed on:

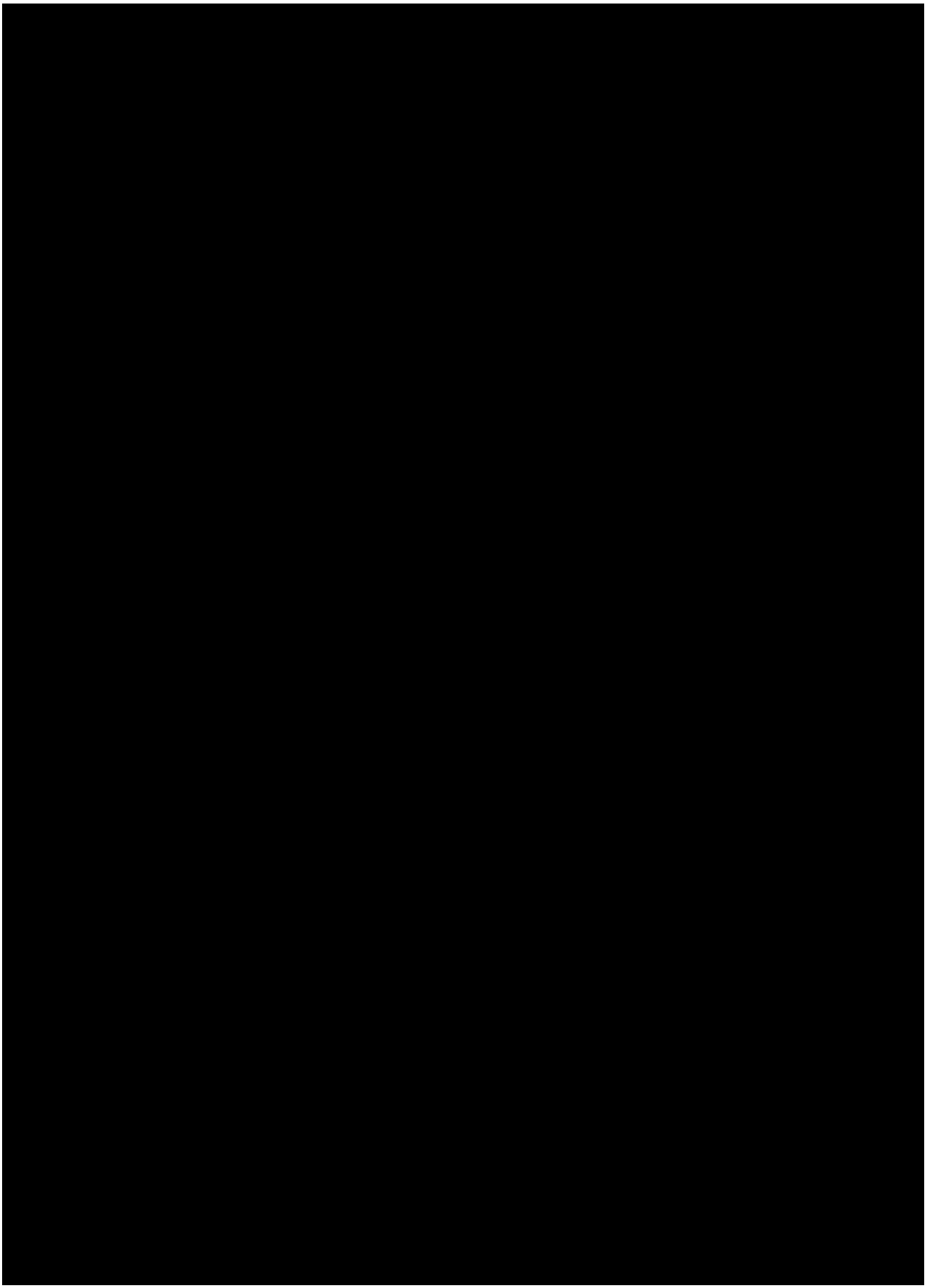
Identification of master data required for the new ROC systems and the source of truth systems
Identification of transaction data that flow into and out of the new ROC systems, and the producers and consumers of this data

Rather than application data, business information will be shown which is also used to link to the business processes and the system integrations.

The to-be state (target) is shown only, for the three new ROC Systems, namely IMS, DTTS and CIMS.

4.7 System Security Structure

4.7.1 Authentication and Authorization



4.7.5 External CIMS Channels

CIMS publishes several datasets via Application Programming Interfaces (API's) to the following external parties.

- Transport for NSW (TfNSW), Transport Management Centre (TMC)
- Mobile (external mobile client applications for example TripView)
- 3rd Party Operators (ARTC, Freight Operators)

Each of these channels requires additional security considerations. For all external channels access should be via HTTPS.

- External mobile applications are not under the control of Sydney Trains and will require some additional network and application configuration. During workshops it was identified that external mobile access to the CIMS data sets may be relayed via the TfNSW TIBCO instance. Not all data may be applicable for external clients. Incident information published to external mobile clients may need to be subsets of the incidents internal clients receive.

  External applications may need to authenticate each call to the server. This will allow poorly behaving mobile applications to be individually disconnected without affecting other applications. Additional protection can be provided in the TIBCO ESB by throttling external applications that access the poll based GTFS-R and SIRI-LITE API's so that they cannot drown the ESB in requests. This throttling ensures the ESB allocates a measured amount of resource to external parties and fails gracefully when the resource use is exceeded without affecting other services on the ESB.
- 3rd Party Operators may receive information only related to the rolling stock they have on the Sydney Trains Network. This may require some filtering for this channel.

5 DTTS SOLUTION

The following is a high level overview of the DTTS application. More detailed information is available in the HLSD Part C – Systems Product Detail document. For specific detail regarding the solution design please refer to the related document.

5.1 Overview

5.1.1 Business Goals

5.1.1.1 Goal 1 – Better Customer Experience

- Definition. Improved timeliness, relevance and consistency of customer information reducing the negative experience of delays
- Motivation. Inconsistent, slow and inaccurate information is regularly supplied to customers, resulting from a multiplicity of responsibility points and channels.

5.1.1.2 Goal 2 – Faster Customer Journey Times

- Definition. Reduced initial delays resulting from the direct impact of incidents, or reduced consequential delays resulting from the knock-on effects of incidents.
- Motivation. Poor incident management caused by poor communications, fragmented functions, unclear responsibilities and workflow, and knock-on effects due to difficulty in planning, amending, and forecasting the consequences of changes to timetable.

5.1.1.3 Goal 3 – Reduced Operational Costs

- Definition. More efficient service disruption management, lowering the cost of contingency resources; a more efficient station management model; reduced staff costs for those functions transitioning to the ROC.
- Motivation. There is a currently a high level of standby and additional relief staff to compensate for poor ability to manage disruption. There are inefficiencies in customer-facing activities as manual interventions are required at a range of points to correct inconsistencies and supplement automated processes. There is duplication of roles between control centres, and consequent inefficient processes and workarounds.

5.1.2 Planning Decisions

Decisions made by the Train Controller are made with two aims in mind:

1. To avoid a conflict with another service or network possession
2. To minimise customer impact over the train controller's planning horizon as calculated by DTTS and shown in the Decision Impact Measures panel.

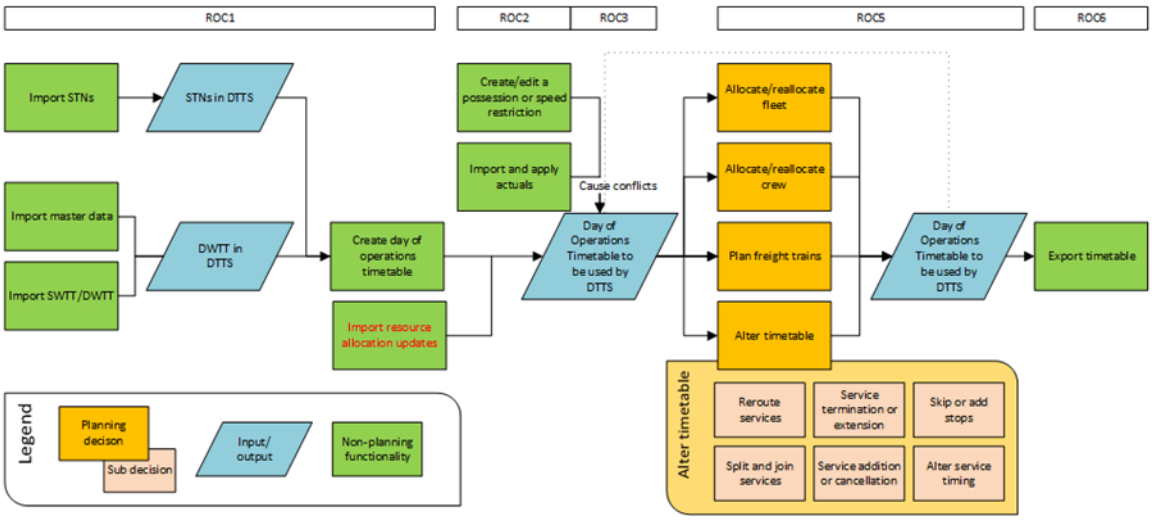


Figure 10: Inputs and outputs of TCO's planning decisions

5.1.2.1 Import master data

Master data will describe the network and infrastructure. This data is expected to be static in nature, and so will be held within DTTS, but will still be owned by other systems.

5.1.2.2 Import DWTT/SWTT

DTTS will import timetable data into its Integration dataset via TIBCO late in the day before day of operations. This will be combined with STNs to create the Day of Operations Timetable.

5.1.2.3 Import STNs

After the DWTT is imported by DTTS, further changes to the day of operations timetable will be made using Special Train Notices which will be manually entered into DTTS.

5.1.2.4 Create day of operations timetable

The Standard Working Timetable (SWTT) is aligned with the network geography and sectional run times, and converted into the DWTT by Sydney Trains systems. The DWTT is then imported into DTTS where it is converted into the Day of Operations Timetable and displayed along with Planned Possessions in the ETG and other visualisation tools.

Note: Sydney Trains has expressed an interest in enhanced functionality regarding the preparation of the DWTT beyond the next working day. Refer HLSD Part B – Systems Architecture and HLSD Part C – Systems Product Detail documents for further details.

5.1.2.5 Create/edit a possession or speed restriction

A Track Possession can be created in response to an incident on the track, or in response to a track maintenance request. Existing Possessions may be modified if an incident/maintenance task takes more or less time than scheduled.

A speed restriction will typically be created when a maintenance crew is doing track-side rather than on-track maintenance. It will typically be across a relatively short length of track, rather than an entire logical link.

5.1.2.6 Import and apply actuals

Actual train data is received in the form of arrivals, departures, and locations on the logical network.

Planned Possessions come from TRIMS and long term speed restrictions come from external systems such as RailTable or TPS. However on the day of operations Possessions and speed restrictions are received by the train controller and entered manually in DTTS. They then automatically appear on the ETG.

Delays for current and future services are then identified by adjusting the scheduled services and propagating the effects. The difference between the planned and forecast service times is visualised on the ETG

Conflicts caused by incoming actual data and propagated changes made by train controllers are also visible.

5.1.2.7 Alter timetable

Timetable alterations are any decisions that affect the customer's experience, such as adding delays, skipping stops, or re-routing a service, or adding/cancelling services (services can also be added for network balance purposes). Note: these decisions differ from swapping two services to avoid delays.

5.1.2.8 Allocate/reallocate fleet

Fleet allocation and reallocation occurs when the train consist scheduled to do a particular service changes. If the change is a swap between two consists that are in service, the change is handled entirely in DTTS.

If the change is the retirement of one consist and introduction of a replacement from the yard, the change will involve communication between train control (DTTS) and mechanical control/yard operations (FARS).

5.1.2.9 Allocate/reallocate crew

A crew is allocated to a Consist for a period of time. In the event that changes need to be made during the day, such as a crew member finishing early or changing trains, the changes are made in OpCrew then the train controllers are notified by phone/email and the corresponding change can be made in DTTS.

5.1.2.10 Plan freight trains

When a freight train requires passage through the Sydney Trains network it is assigned a path on the ETG. Freight trains are generally given lower priority than scheduled passenger services, so the assignment of a freight train to a path should not lead to timetable changes.

5.1.2.11 Export timetable

When a train controller publishes a change to the timetable, the updated timetable along with a changes list will be provided to the Sydney Trains enterprise service bus, TIBCO.

5.1.3 Decision Impact Matrix

To measure the quality of the decisions, we define the relationship between the Business Goals and the Planning/Scheduling Decisions: namely the Planning/Scheduling Decision Impact Measures (DIMs). The below DIMs are an initial proposal by Quintiq.

	Decision impact Measures			
Planning Decisions	**Passenger Punctuality**	**Passenger Comfort**	**Service Reliability**	**Overtime hours**
Adjust timetable	Faster customer journey	Better customer experience	Better customer experience	Operational costs
Allocate/reallocate fleet	Faster customer journey	Better customer experience	Better customer experience	Operational costs
Plan freight trains	Faster customer journey		Better customer experience	

Table 14: DTTS – Decision Impact Matrix

5.2 Product Capabilities

5.2.1 Network Schematic

The network schematic is a visualization tool to provide a graphical display of the network. While Quintiq does provide a network editing facility, it is expected that in the Sydney Trains solution, the network topology will be provided in read-only format from an external source.

The network schematic is used to:

1. Define subsections of the network to link to boards.
2. Define possessions or speed restrictions on the network
3. Define valid paths for routing trains
4. Define platforms associated to a station
5. Define timing points when calculating actual running times.

5.2.2 Electronic Train Graph

The electronic train graph is a visualization tool to display the usage of the network. This chapter will show how trains will be displayed on the ETG, while subsequent chapters define the key decisions and functions required to resolve conflicts.

The electronic train graph is required to:

1. Display the trains and network usage per control board
2. Display the trains running through the selected board and alert the user of any delays to the on time running's
3. Display planned or ad hoc possessions
4. Show actual vs. projected running
5. Alert the user of any platform, usage or possession conflicts

5.2.3 Platform Usage Gantt

The platform usage Gantt is a visualization tool to provide a graphical display the usage of platforms at a selected station. The network schematic is used to support the resolution of platform conflicts by providing visibility over which platforms will be used during different time periods.

5.2.4 Integrated planning view

All Quintiq solutions use a single instance of each object. The GUI components such as Gantt charts, maps, ETGs and lists, all references the same underlying objects. As a consequence, when a change is made to an object in one view, that change is instantly and automatically updated to the underlying object model and is then reflected in all other GUI components.

5.2.5 Propagation

The Quintiq DTTS model objects make extensive use of declarative attributes to store attributes such as the departure time from a station, or the travel time between stations.

Declarative attributes are calculated as a function of other attributes, which in turn may be declarative. The approach is analogous to formulas in a spreadsheet, and like in a spreadsheet, the result is an instantaneous updating of affected values when inputs change. This is known as propagation and is a key strength of Quintiq planning tools.

Because any planning change is automatically propagated downstream to all other objects and the GUI objects are fully integrated representations of the underlying objects, the planner can instantly see the downstream impact of any changes.

5.2.6 Decision support and optimisation

Quintiq offers 3 Tiers of Decision Support

5.2.6.1 Empowered Manual Decisions.

By utilizing the Quintiq propagator and rich graphical interface, the user can immediately see the impact on customers and the network of any decision before committing it to the live environment.

5.2.6.2 Decision Assist Templates.

Pre-defined template responses have been set up in DTTS to improve the speed with which train controllers can respond to common occurrences or situations.

5.2.6.3 Intelligent Decision Support

This capability is essential for dynamic day of operations systems where rapid response minimises the potential for a domino effect of ever expanding issues. Quintiq utilises the most advanced operational algorithms and optimisation technologies to provide ‘Intelligent’ suggestions and scores for Controllers to understand how to best deal with a disruption.

5.2.7 Validation and violation reporting

The integrated model and efficient propagation that are key strengths of Quintiq allow DTTS to rapidly evaluate and display the impact of a proposed solution. To assist the planner in identifying constraint violations in the proposed plan, DTTS provides a wide variety of options for displaying constraint violations in the GUI, including icons in tables, colour of boxes in Gantt charts, and line colour in the ETG.

5.2.8 Filtering data

To assist planners in making good decisions rapidly, it is essential that they are able to restrict their view to include only the relevant data. Quintiq supports rich filtering functionality as standard, allowing users to restrict data by date, value, or amount.

GUI objects such as Gantt charts can be linked to a list. When the list is filtered, the linked GUI object will also automatically be updated with the same filter.

5.2.9 User-configurable views

Quintiq provides as standard the capacity for users to define an unlimited number of standard views which can be used for different parts of their daily workflow. A view defines everything about the arrangement of all the Quintiq windows that are open, the forms that are open in each window, the columns that are visible and filters that are applied to lists in the forms.

5.2.10 View and functionality restrictions based on roles

As well as being created by individual users, views can also be created by administrators and made available as “read only” views to users or user groups, where “read only” means that the view can be opened by the users but cannot be edited.

5.2.11 Reporting

Quintiq DTTS can provide reports as forms in the application, or they can be exported in pdf format. The content of a report is easily customized using the open source BIRT (Business Intelligence Reporting Tools) reporting tools, which interfaces directly to DTTS.

6 IMS SOLUTION

The following is a high level overview of the IMS solution. More detailed information is available in the HLSD Part C – Systems Product Detail document. For specific detail regarding the solution design please refer to the related document.

6.1 Overview

The proposed solution is based on the Frequentis Rail Emergency Management (REM) product, which is a proven Commercial off the Shelf (COTS) product with minimal customisation required to fit the needs of Sydney Trains. References Use Cases from existing customers who operate the system within a productive environment have been provided and their operational experience shall be considered during the implementation and deployment of the system.

The existing (legacy) systems of the current Rail Management Centre (RMC) and existing control locations consist of several independent incident management systems with the purpose of handling incidents relating to operational, security, infrastructural and fleet based business units. The proposed solution shall be resilient enough to allow the utilisation of several of those use cases within a single incident management system. The scope of the implementation is to allow the ROC to succeed the existing operational incident management system IIMS and interface with the infrastructure incident management system (IFMS) and the security incident management system (SRS).

Future deployments post 2017 may consider the inclusion of chapters and workflows to allow infrastructure incidents, security incidents and SPAD incidents to be managed in the ROC IMS."

6.2 Background

The IMS solution was first implemented for one of the world most advanced railway operators ÖBB. Since then it has become the most complete rail incident management system available. From an operational perspective, IMS focuses on handling all types of incidents ranging from simple delays and technical issues to serious emergency situations.

IMS leads staff through these incidents and emergencies, instantly identifying internal and external actors, automating and speeding up the communication process, and detailing every communication and action taken in a single recording that satisfies all legal requirements.

- From a management perspective IMS
- ensures a safety management system compliant handling, documentation and reporting of incidents
- supports different levels of centralised event management
- speeds up communication and effectively reduces delays and
- provides one single lawful recording

6.3 Benefits

The proposed solution will provide Sydney Trains with the following key benefits:

1. Tailored incident handling based on use cases
2. Dynamic workflow chapters allow escalation of incidents
3. Enhanced adaptability and the reduction legacy systems improve the traceability and visibility of incidents in progress throughout several operational roles.
4. Simultaneous incident handling by more than one operator.

5. Integrated notifying mechanisms, allow faster responses to incidents
6. REM Mobile Clients for Mobile Operations Managers, providing immediate site- feedback to the ROC operator.

6.4 Product Capabilities

6.4.1 IMS Client

6.4.1.1 Incident Documentation

New incident records can either be generated manually or based on notifications from external systems like (WIMS, NIN, DTTS, and IMS Mobile). In the IMS Client, notifications are stored in the "Notification" tab.

To start handling an incident, basic incident attributes such as incident time, location and type of incident is required. The provided basic data determines the subsequent workflow of the incident.

6.4.1.2 Incident Overview

The Incident Overview is the main application window presented to a user upon successful login in or after closing an incident detail view. It displays all incidents records visible to the logged in user according to his role.

6.4.1.3 Incident Management Window

The incident management window allows the user to view and edit a specific incident record. The functional capabilities are divided into three central categories to support the user in,

- Capturing any relevant incident information for further processing
- Assessing the incident situation and,
- Information distribution, task assignment, tracking and resolution.

6.4.2 IMS Mobile

6.4.2.1 Incident Overview

The incident overview screen shows a list of all relevant incidents. By selecting an incident, more detailed incident information (incident time, train number, track, hazardous substances etc.) is displayed.

6.4.2.2 Live Documentation

IMS Mobile provides various features for live incident documentation on site. The user can take pictures or voice notes that are uploaded automatically. Furthermore, the "Staff on Track" feature is used to document which staff are on track or already have left.
The mobile incident documentation system records all mobile call activities, including unanswered calls.

6.4.2.3 Speed Dialling

IMS Mobile automatically identifies and displays all internal and external contacts relevant for an incident. As a consequence, the Mobile Operations Manager does not loose time searching for the required contacts and numbers. Setting up a call to a specific contact is done by the push of a fast dial

button. Unanswered calls are marked red whilst answered calls are marked green. All communications (included unanswered calls) are lawfully documented in the central IMS audit log and also available for the incident manager in the operations centre.

6.4.3 IMS Data Management Client

6.4.3.1 Configuration

The IMS Data Management Client allows configuration of all data required for the operation of IMS. This data includes amongst others:

- Workflow and Checklist Configuration
- Contacts and Contact Lists
- Informing Rules
- Responsibility Model

6.4.3.2 Data Staging

The IMS data staging mechanism allows configuration of data in advance of the date the data becomes effective.

All IMS configuration data can be assigned to a data version. After a data version has been quality checked, a date can be configured, determining when the changes become effective and are visible in the IMS Client.

The IMS data staging mechanism is especially important in order to reflect organisational changes in a timely manner.

6.4.4 IMS Workflow Management in Mission-Critical Environments

Challenges

Implementing workflows within mission critical environments confronts an organisation with unique challenges compared to conventional business workflows.
For example, during operational incident management, usually the exact type or scenario of an incident is initially not known in detail. An incident may look simple at first and evolve because the incident manager finds out that dangerous goods are involved or someone is injured. Similarly, an incident can look critical at first but turns out to be less critical.
Apart from that, incidents often do not clearly match an exact type or scenario but consist of aspects of several different types or scenarios.

Risks

Usual business workflow engines define very rigid workflow structures.
The flexibility is limited to predefined decision points. Once the user has selected a certain type of workflow the handling is limited to the aspects considered during workflow definition. Furthermore, in case the situation evolves and the type of the incident or the scenario changes, it is unclear how to handle this situation and how to deal with a partly completed workflow. There is no way of merging or changing workflows at runtime.

Mission Critical Workflow Checklists

IMS approaches the challenge of providing a framework for mission critical workflows from a different angle.
The activities required for a certain type of incident are defined as single tasks that are assigned to chapters within a checklist. The checklist for a different type of incident might partly require the same tasks or require additional ones. Additional tasks can be assigned to existing or additional chapters.

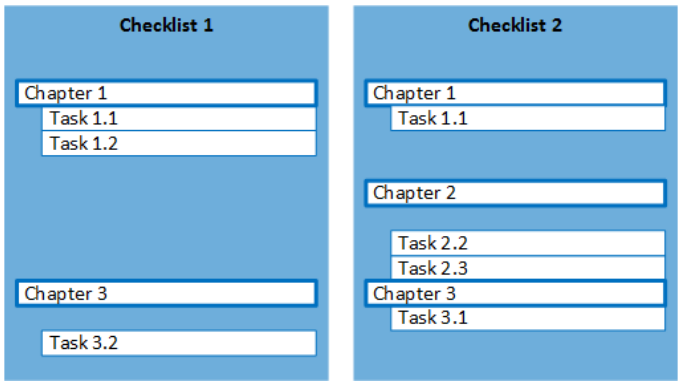


Figure 11: Different workflow checklists

As part of the checklist configuration, the responsible role or user for each task as well as the visibility to other roles / users are defined.
Typically, customers define an overall responsible for incident management in a certain area and/or for a certain topic ("incident coordinator") who oversees the whole incident checklist and monitors the progress, while other personnel are responsible for performing single tasks.
To support this concept, IMS has a special mechanism that allows several users to work simultaneously on the same incident and indicate changes to the other editing users. The biggest advantage of this concept is that it allows to merge several types of incidents to specific scenarios and to change scenarios while working on an incident.

6.4.4.1 Task Management

Based on the incident category, IMS will propose a preconfigured response plan that allows a comfortable task management for incident response and resolution measures.

The user can assign tasks to selected personnel or teams based on their area of responsibility, corresponding shift plans and the incident's category. Task assignment can be done over various communication channels or using IMS Mobile, also allowing the attachment of relevant support documentation (e.g. photos, circuit or floor plans etc.) to the message. Vice versa, on-site personnel can gather incident information using IMS Mobile, also allowing a file upload, for example to provide a photographic documentation of the incident location.

If the incident requires a deviation from the standard procedure of the proposed response plan, the incident manager can deactivate existing or add custom tasks.

While the management of tasks is usually an interaction between the incident manager and the response personnel or team, to support in situations with limited communication possibilities, the incident manager can also manually set or overwrite any task attributes or assign the task to a different contact.

6.4.5 IMS Working Position

The subsequent picture shows a typical layout of an IMS working position in a control room. IMS does not require a certain number of screens and can also be used on a single screen. However, Frequentis suggests to operate IMS on two screens, where one screen can be used for the incident overview list (primary application window) and one screen can be used for the incident management detail view (secondary application window). All IMS application windows can be flexibly arranged on the available screens.

The picture shows a fully equipped IMS working position, with an IMS Client, a Frequentis GSM-R dispatcher terminal and a standard telephone for business telephony.

For installation of the IMS Data Management Client, a standard single screen workstation or a notebook is recommended. There is no dispatcher terminal or telephone required.

The IMS Client can also be installed on a standard single screen workstation without dispatcher terminal or telephone. This simple setup is usually used for management users or other read only users that do not actively participate in the incident handling.

Figure 12: Sample IMS Working Position Layout

7 CIMS SOLUTION

The following is a high level overview of the CIMS solution. More detailed information is available in the HLSD Part C – Systems Product Detail document. For specific detail regarding the solution design please refer to the related document.

7.1 Overview

The Customer Information Management System (CIMS) provides a single source of truth for customer information and the co-ordinated distribution of planned service details as well as service disruption information over multiple channels. This is achieved by a combination of leveraging existing integration capability already installed and proven the Sydney Trains environment together with adding components for the same product stack to fill the functional gaps. The solution also provides the ability for users to interface with CIMS in order to administer the rules and data within CIMS system.

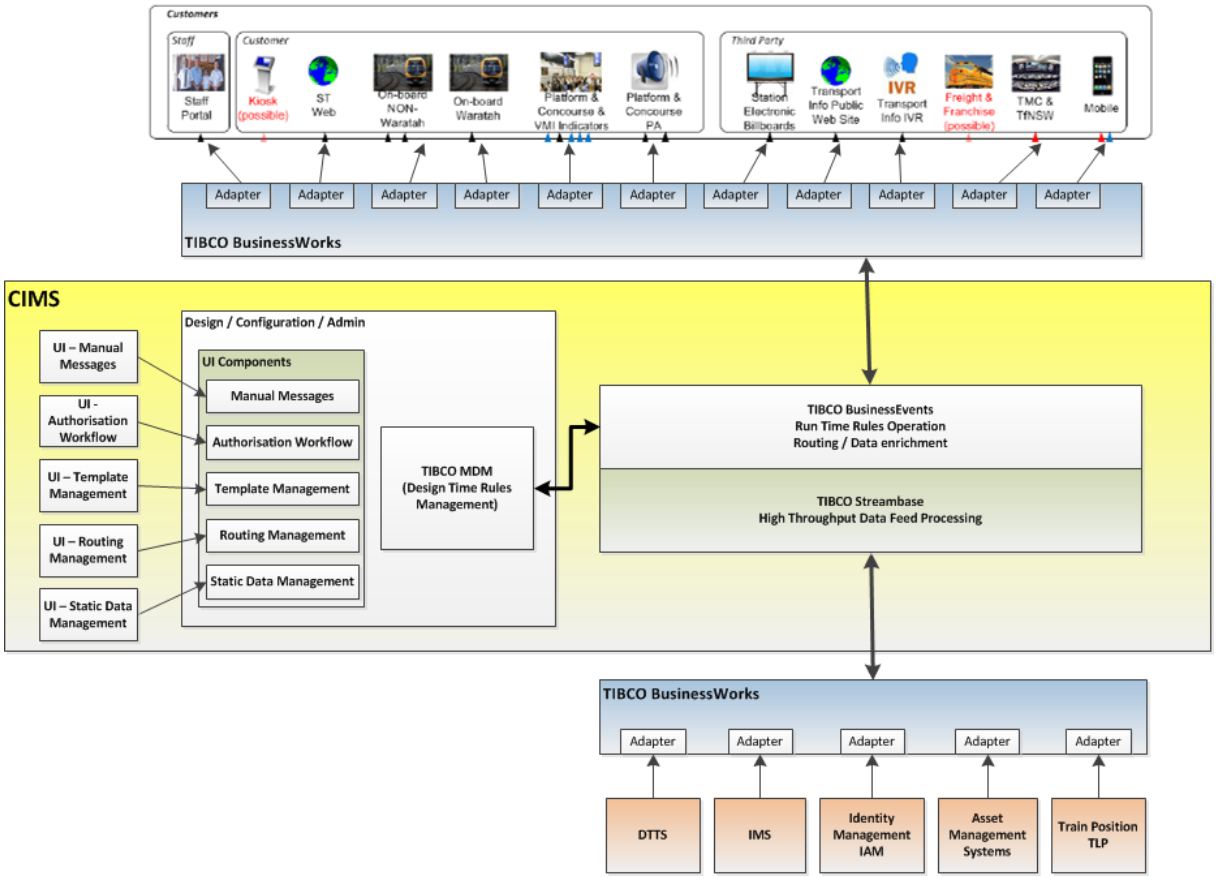


Figure 13: CIMS High Level Architecture Design

The interfaces shown in the high level architecture diagram only represent operational interfaces required and do not include any interfaces that may be required to setup and manage master data. For further information on interfaces please refer to HLSD Part C section 5.1.

The CIMS application is based on the use of standard TIBCO modules to deliver the overall solution. This approach extends the existing use of TIBCO Business Works for interface handling. The new TIBCO components required for the solution are:

- TIBCO Master Data Management (MDM)

- TIBCO Event Processing (Business Events)

Additionally a number of UI components are required to achieve the required functionality, these are:

- Static Data Management - This is for the information about the stations, trains and other fixed assets. The data is not expected to change frequently or very much
- Authorisation Workflow - This allows messages to be counter-signed by an authorised person before sending to the assigned channels
- Manual Message Interface - This allows a user, with the correct authorisation, to author a customised message and select the channels for distribution

7.2 Benefits

The CIMS solution decouples the operational systems from the customer information channels. This allows upgrades and new channels to be added without affecting existing communication channels. The implementation risk and cost is therefore reduced.

The TIBCO software is designed to perform under the load that we would expect from the operational systems and provide an efficient service to the customer channels. Using TIBCO provides an open-bus architecture approach for the CIMS, DTTS and IMS solutions. This enables easier sharing and re-use of information and interfaces between applications.

7.3 Product Capabilities

TIBCO's master data management (MDM) platform delivers the governance processes needed to construct and effectively maintain a centralized source of accurate intelligence, providing:

- Multi-Domain Platform
- Centralized Mgmt.
- Stickler for Quality
- Universal Connectivity
- Architected for Change

TIBCOs Events processing platform provides a complete platform providing the following key capabilities:

- Inference Rules
- State Machines
- Decision Tables
- Business Rules
- Process Orchestration
- Queries
- Event Stream Processing (TIBCO StreamBase)

Further development of the TIBCO product capabilities against the CIMS statement of requirements will be undertaken during the detailed design stage.

High Level Solution Design

Part B – Systems Architecture

Sydney Trains Rail Operations Centre

Version: 4.0
20 Mar 2015

Description

This document provides the high level solution design systems architecture of the ROC.

Audience

ROC Project Technology Workstream Members, Ajilon Consortium Members

Document Purpose

This document describes how the ROC project will be approached from a high level systems architecture perspective. The High Level Solution Design PART B – Systems Architecture is the deliverable container of the core architectural artefacts required to implement the technology solution that will support and enable the business transformation being undertaken by the ROC Program. The High Level Solution Design PART B – Systems Architecture spans a subset of the business, information, application, and technology architecture domains to demonstrate the holistic end-to-end technology implementation necessary to deliver business outcomes.

This document follows on from the High Level Solution Design PART A – Overview and further detail on vendor solutions relating to the new ROC Systems (IMS, DTTS and CIMS) is available in High Level Solution Design PART C – ROC Systems Product Detail

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TemplateID

High Level Solution Design

Amendment and Approval Record

Please update these tables and sign where appropriate.

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Date:	Version:	Description:	Revised by:
25-Feb-15	1.8	Draft submitted to Sydney Trains ROC project	
26-Feb-15	1.9	Further draft content added. Version to be used for document walkthrough and submitted to ST ROC project	
27-Feb-15	2.0	Draft submitted to Sydney Trains	
03-Mar-15	2.3	Rationalisation of interfaces to support costing, addressing early ST feedback from draft review, documenting assumptions etc	
05-Mar-15	2.4	Incorporating response to ST HLSD feedback	
06-Mar-15	2.7	Minor amendments following quality review	
20-Mar-15	4.0	Updated following clarifications & defects from ST review, and based on vendor responses to updated capability statements	

Approval / Signoff History				
Date:	Version:	Approved by:	Role:	Signature:

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Name:	Role:

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1 INTRODUCTION

1.1 Document Overview

This document is PART B of five key documents related to the high level solution design. This document is the systems architecture required to implement the technology solution that will support and enable the business transformation being undertaken by the ROC Program.

The High Level Solution Design PART B – Systems Architecture spans a subset of the business, information, application, and technology architecture domains to demonstrate the holistic end-to-end technology implementation deemed necessary to deliver the business outcomes of the ROC Program.

This document follows on from the High Level Solution Design PART A – Overview. Further detail on vendor product solutions relating to the new ROC Systems (IMS, DTTS and CIMS) is available in High Level Solution Design PART C –Systems Product Detail.

This document contains the following elements:

- A to-be systems architecture that highlights the core technology components (functionality and integration) required to support a holistic set of to-be business processes – the to-be business processes have been defied from a systems architecture perspective, and have been mapped back to the ROC as-is business processes for traceability.
- Gap Analysis between to-be state and current state Note: architecture elements covered will be dependent upon timeframes of the HLSD Phase.
- Relevant architecture risks, issues, assumptions, decisions and dependencies
- Any interim states for proposed staged rollouts of functionality

1.2 Document Inputs

Two main sets of documents where provided as input into creation of the HLSD document as part of the HLSD Phase. The first set formed part of RFT documents distributed in August 2014. The second set formed part of CSI documents distributed in December 2014. The key documents that guided the content creation of this document are tabled below. In addition, workshops were conducted during HLSD Phase, and the outcomes from these workshops also influenced this document content.

References		
#	Name	Location
[1]	1.3 Part A Concept of Operations, including Worksheet Appendix 2	Ajilon ROC SharePoint Site - Original RFT Documents
[2]	IMS-PCAR v1.0	Ajilon ROC SharePoint Site - New HLSD (CSI) Documents – Project Concept and Review PCAR
[3]	DTTS-PCAR v1.0	Ajilon ROC SharePoint Site - New HLSD (CSI) Documents – Project Concept and Review PCAR
[4]	CIMS-PCAR v1.0	Ajilon ROC SharePoint Site - New HLSD (CSI) Documents – Project Concept and Review PCAR
[5]	Ajilon Workshop Meeting Minutes	Ajilon ROC SharePoint Site – High Level Solution Design Phase – Workshops – Ajilon
[6]	Frequentis Workshop Meeting Minutes	Ajilon ROC SharePoint Site – High Level Solution Design Phase – Workshops – Frequentis

References		
[7]	Quintiq Workshop Meeting Minutes	Ajilon ROC SharePoint Site – High Level Solution Design Phase – Workshops – Quintiq
[8]	HLSD Feedback Session 04-Mar	Emails & Minutes

1.3 HLSD Phase Scope

1.3.1 In scope

The following items are deemed in scope for the HLSD Phase of the Sydney Trains Rail Operations Centre project and need to be considered in the Systems Architecture:

1. Detail the application functionality required by the new ROC Systems (IMS, DTTS & CIMS) to support the to-be business processes
2. Detail the system integration required between new ROC Systems and existing Sydney Trains systems to support the business information flow between the to-be business processes
3. Detail any proposal for existing Sydney Trains systems changes, with costing and schedule to be determined during detailed design phase for consideration before build phase commences
4. Detail any relevant architecture risks, issues, assumptions, decisions and dependencies that are part of the systems architecture
5. Detail a gap analysis between current state and target state application components.
6. Detail any interim states (aka transitional) proposed for staged rollout of application functionality

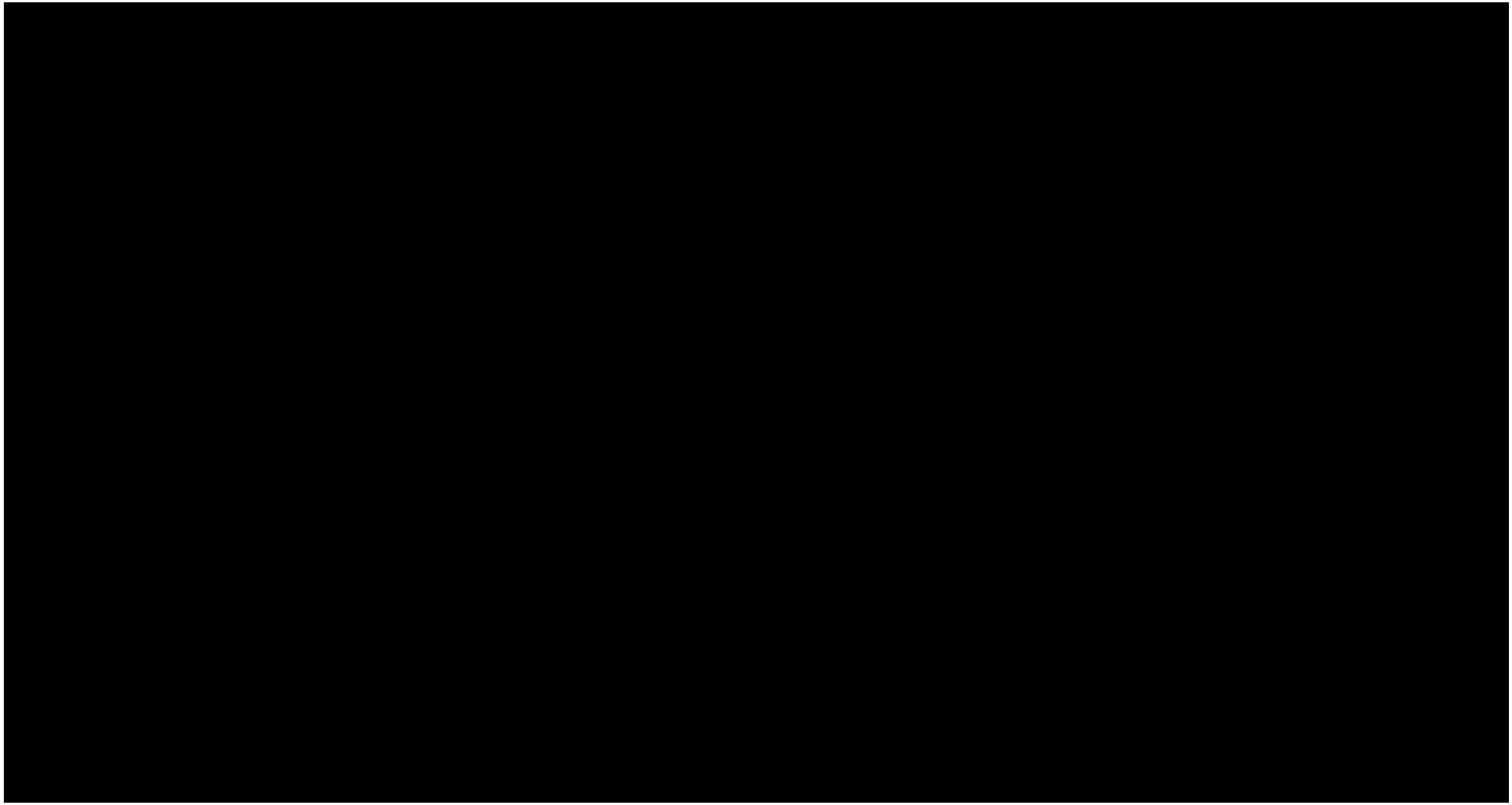
Note: The level of detail of the systems architecture will be dependent upon timeframes of the HLSD Phase. At a minimum the architecture will cover the new ROC systems (IMS, DTTS and CIMS) and touch points will associated existing Sydney Trains systems (e.g. FARS, FMBS, Reliance Rail, ATRICS etc.)

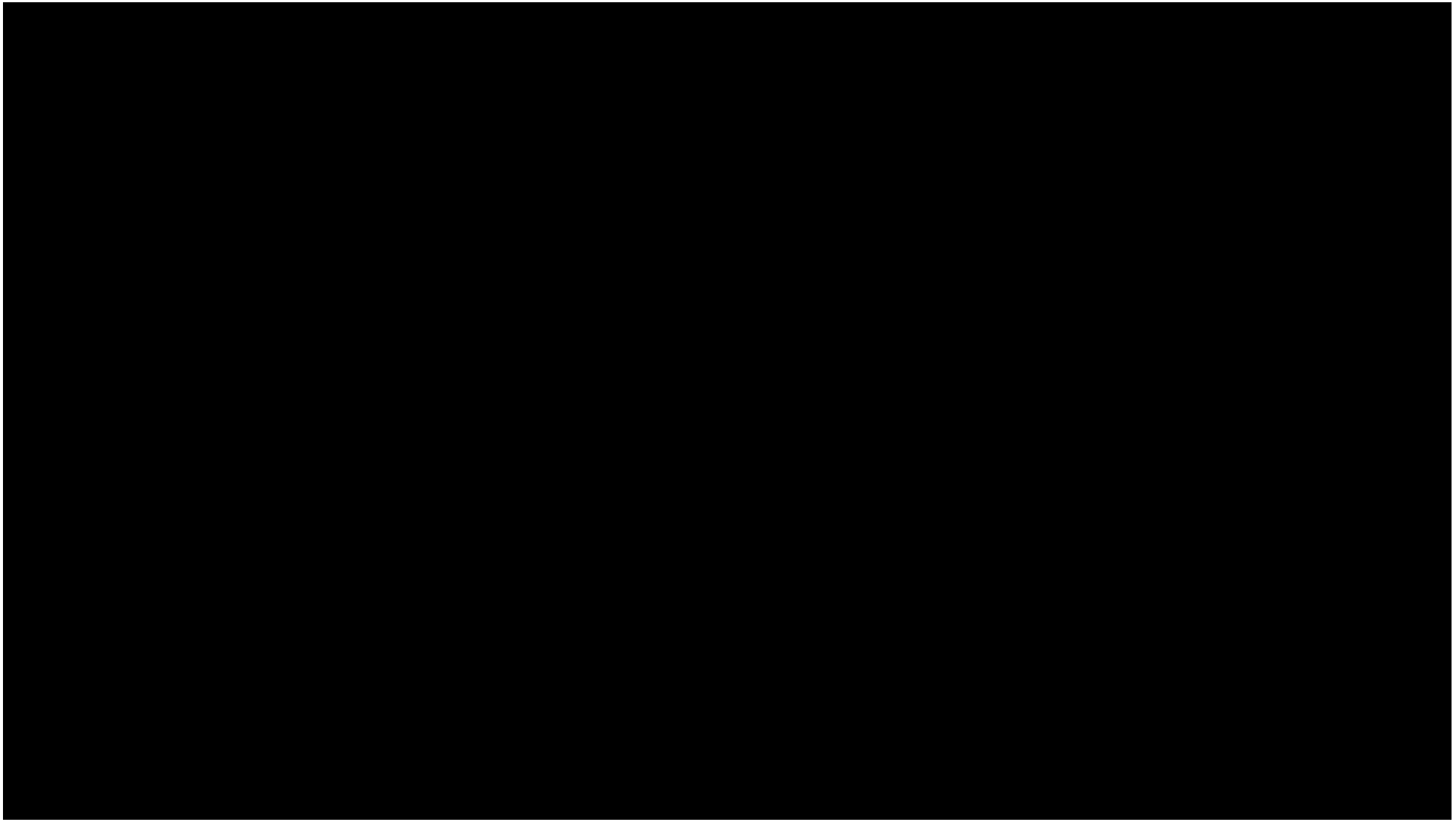
1.3.2 Out of scope

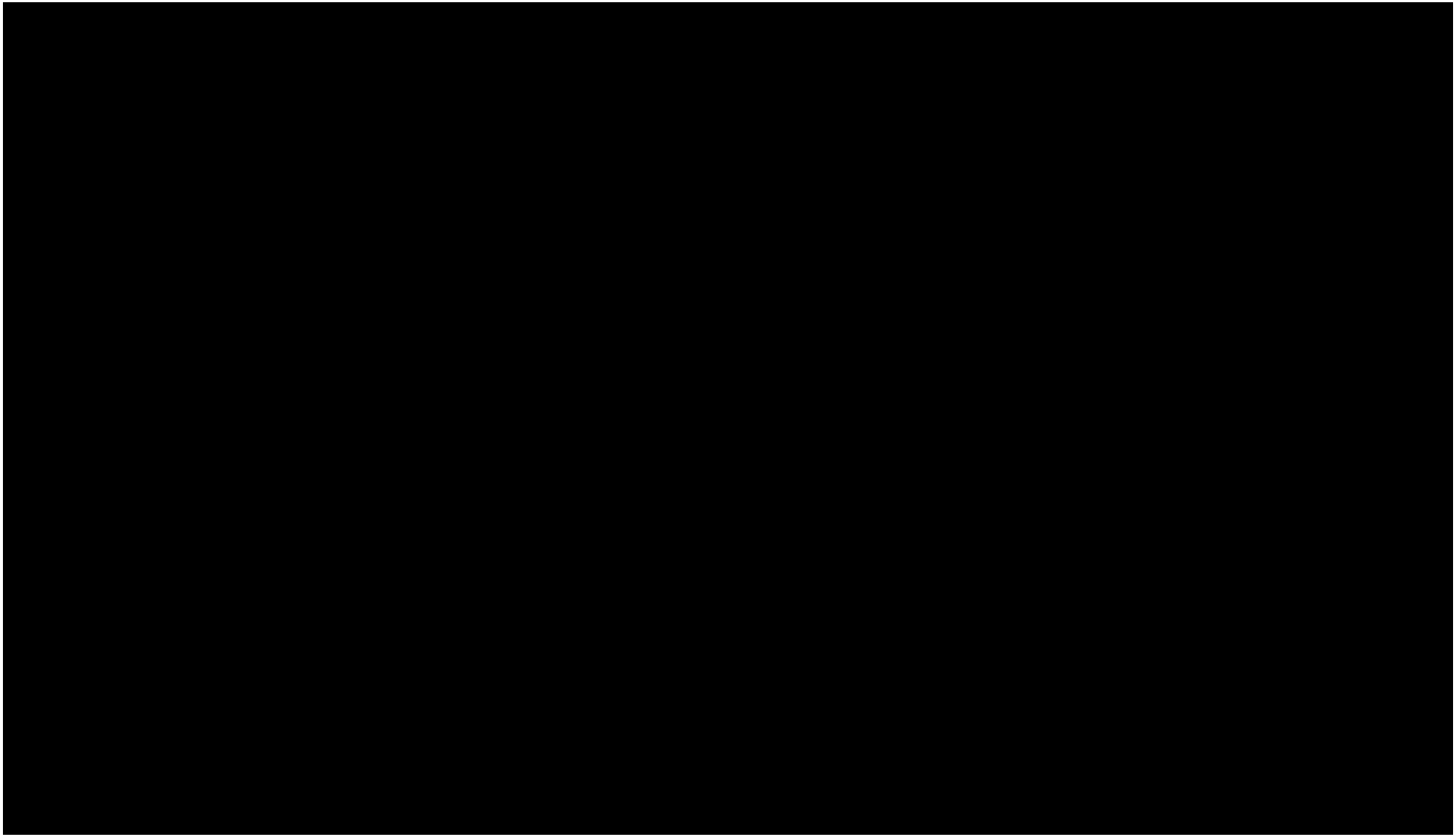
The following items are deemed out of scope for the HLSD Phase of the Sydney Trains Rail Operations Centre project and will not be considered in the Systems Architecture:

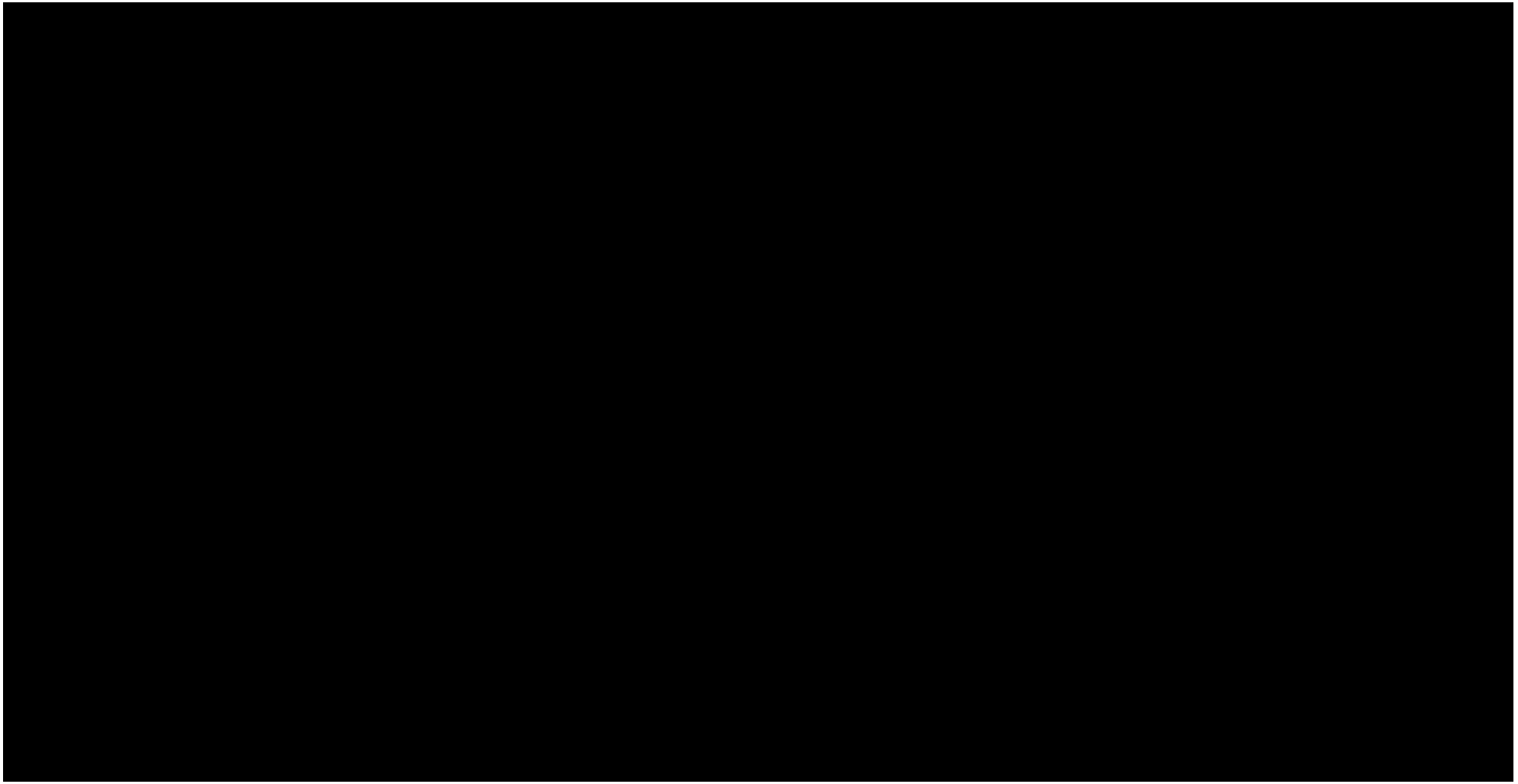
1. Detailed solution design, including functional specifications, interface specifications, detailed solution architecture. These will be addressed during to ROC project Detail Designed Phase
2. Decisions on decommissioning existing Sydney Trains systems. Where opportunities may exist to consolidate existing application functionality (e.g. TDM1 & TDTES functionality being reallocated to DTTS and/or ATRICS), then an approach to arriving at these decisions will be provided and costed for in the detailed design and implementation schedule (e.g. detailed analysis of the existing applications, architecture assessment of existing functionality and proposed allocation to alternative applications on the landscape, workshops to agree alloocation and seek cost and schedule estimates for configuration and/or customising applications with reallocated fuctionality etc.).
3. Detailed technical design, including logical and physical technology models required to realise the systems architecture. This will be addressed during detailed design phase. The assumption is that infrastructure costs will be funded by the ROC project separately, and will be a third party deliverable. The coordination of the third parties will be considered within scope.
4. High Level Solution Design relating to the ROC OVDS (Operational Visual Display System).

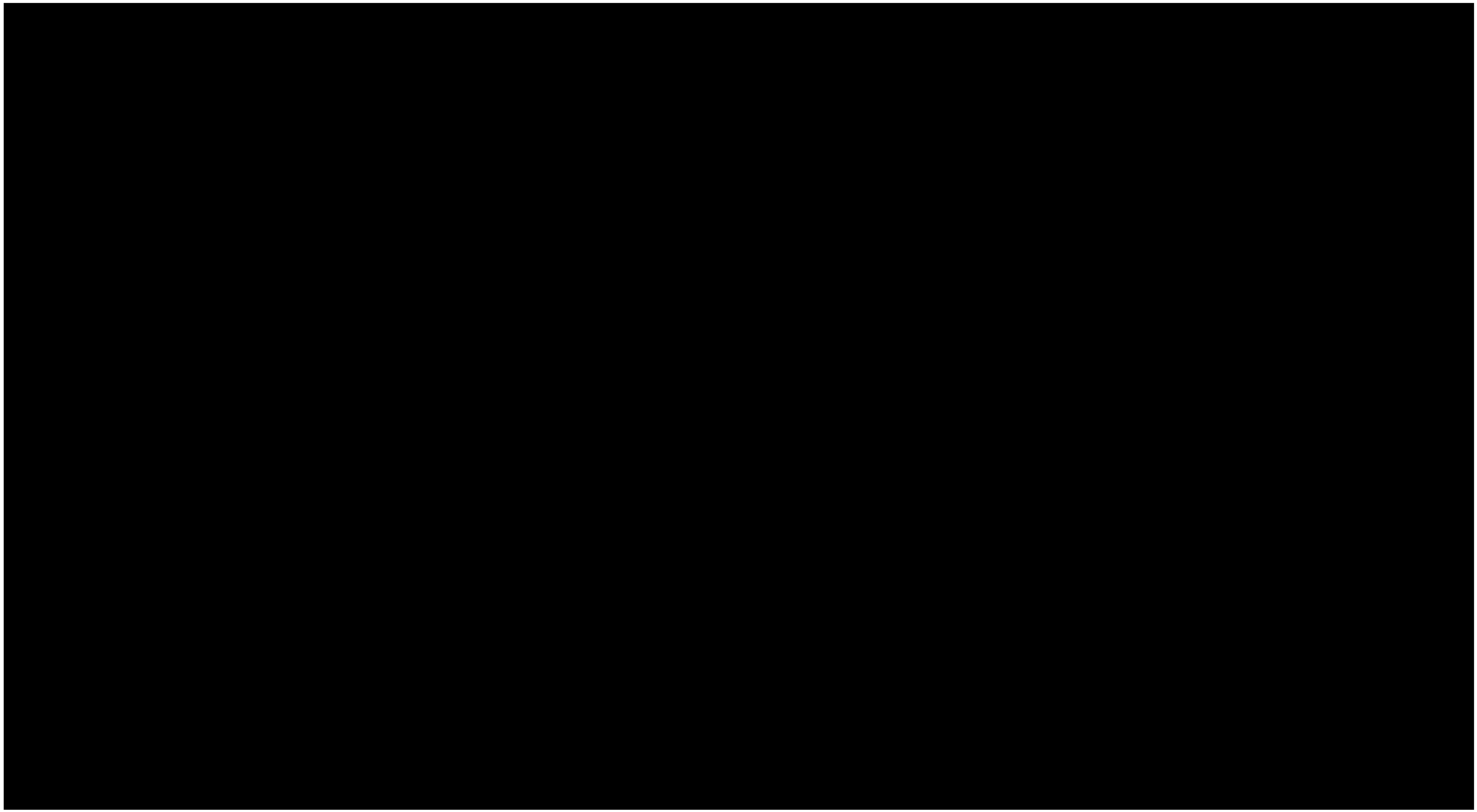
2 HLSD BUSINESS ROLES & PROCESS REVIEW

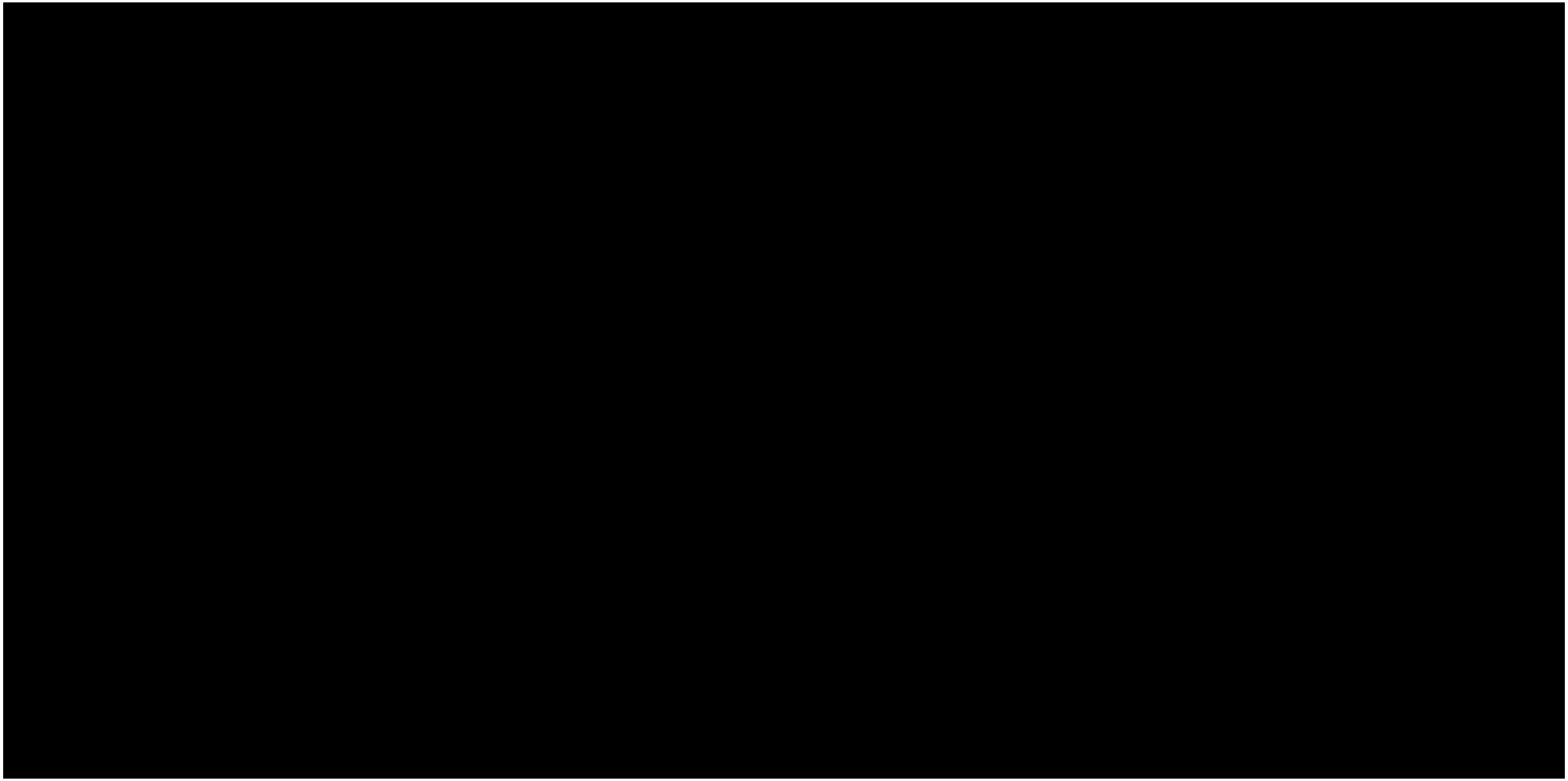


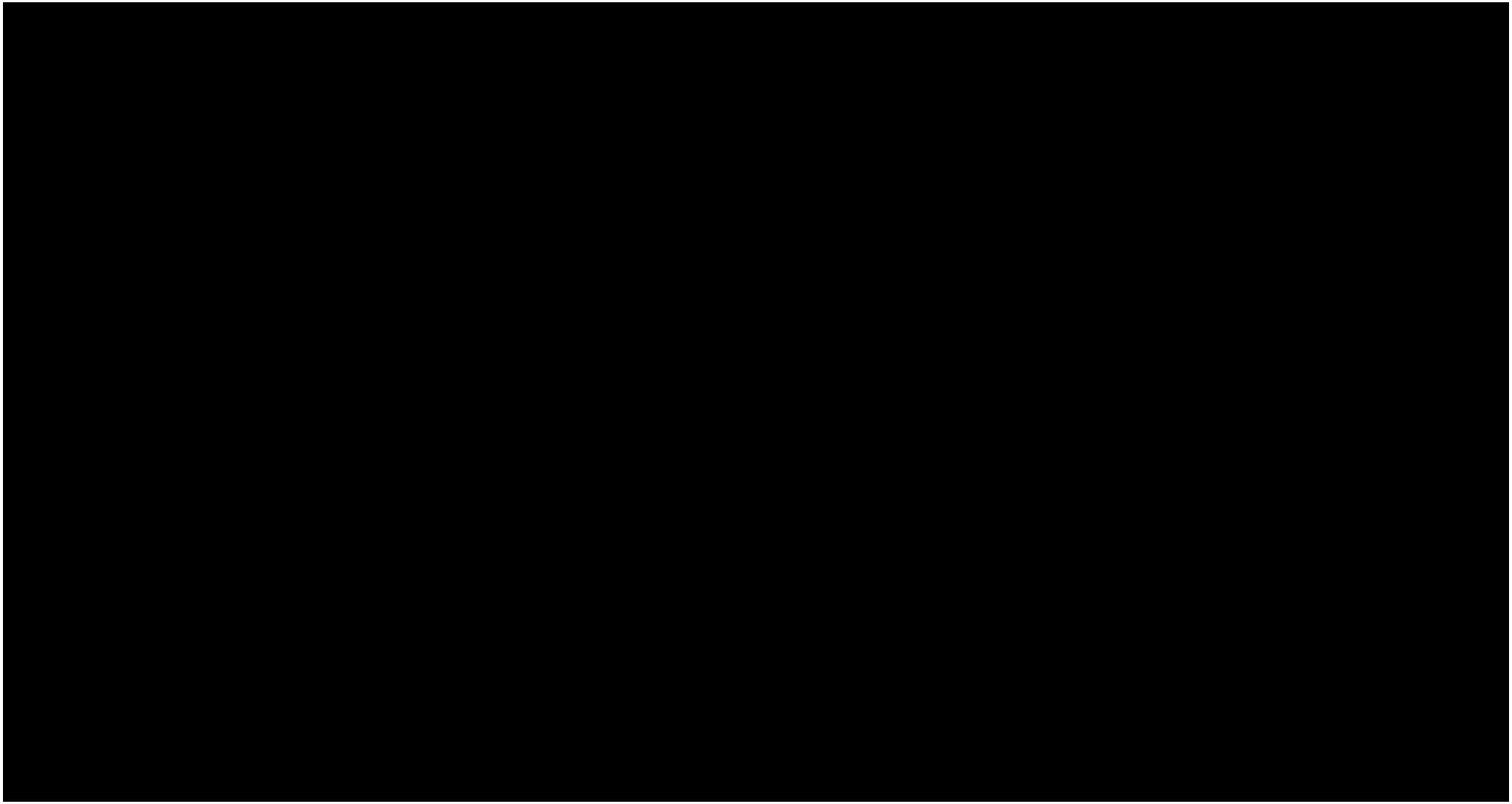


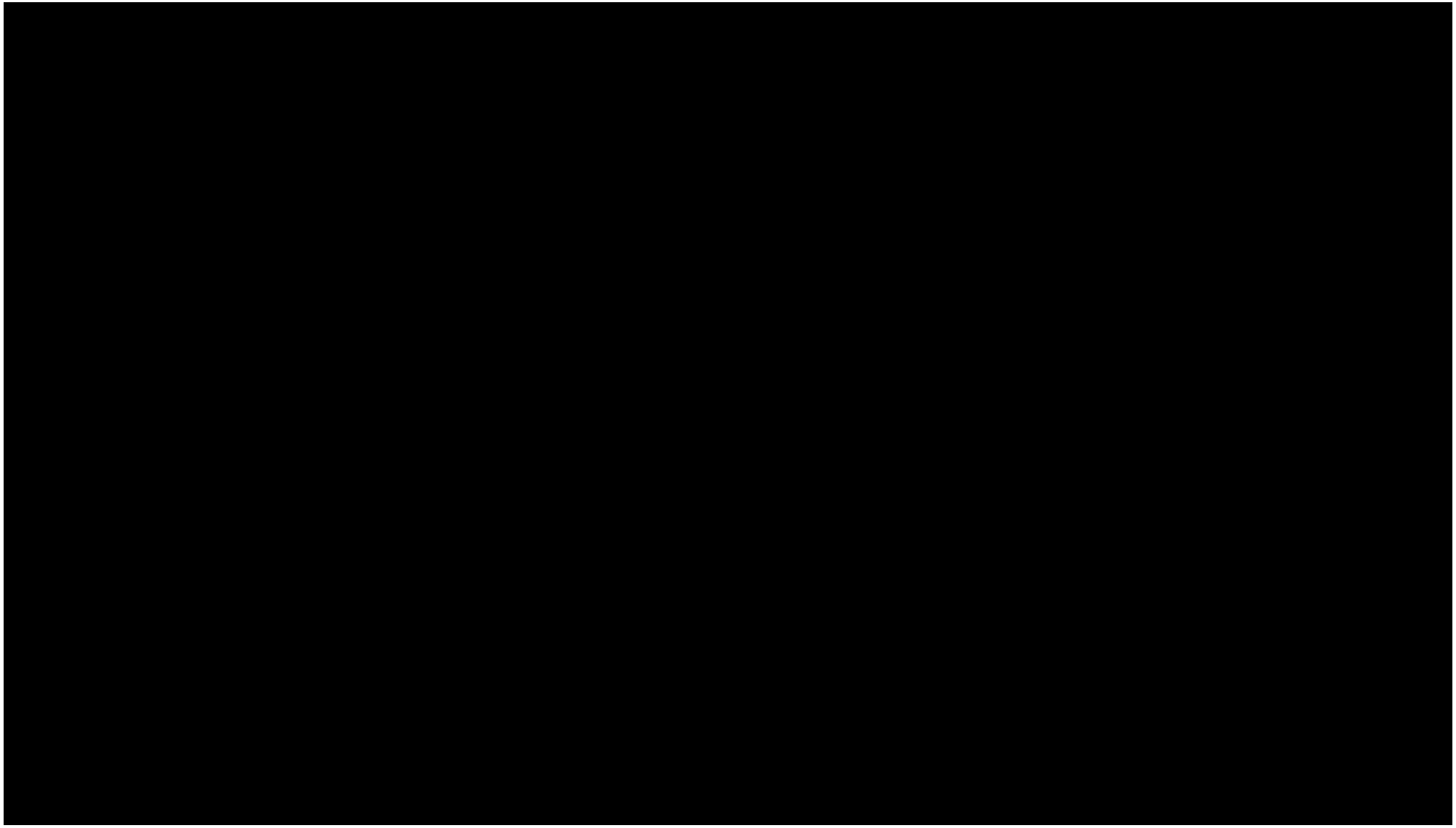


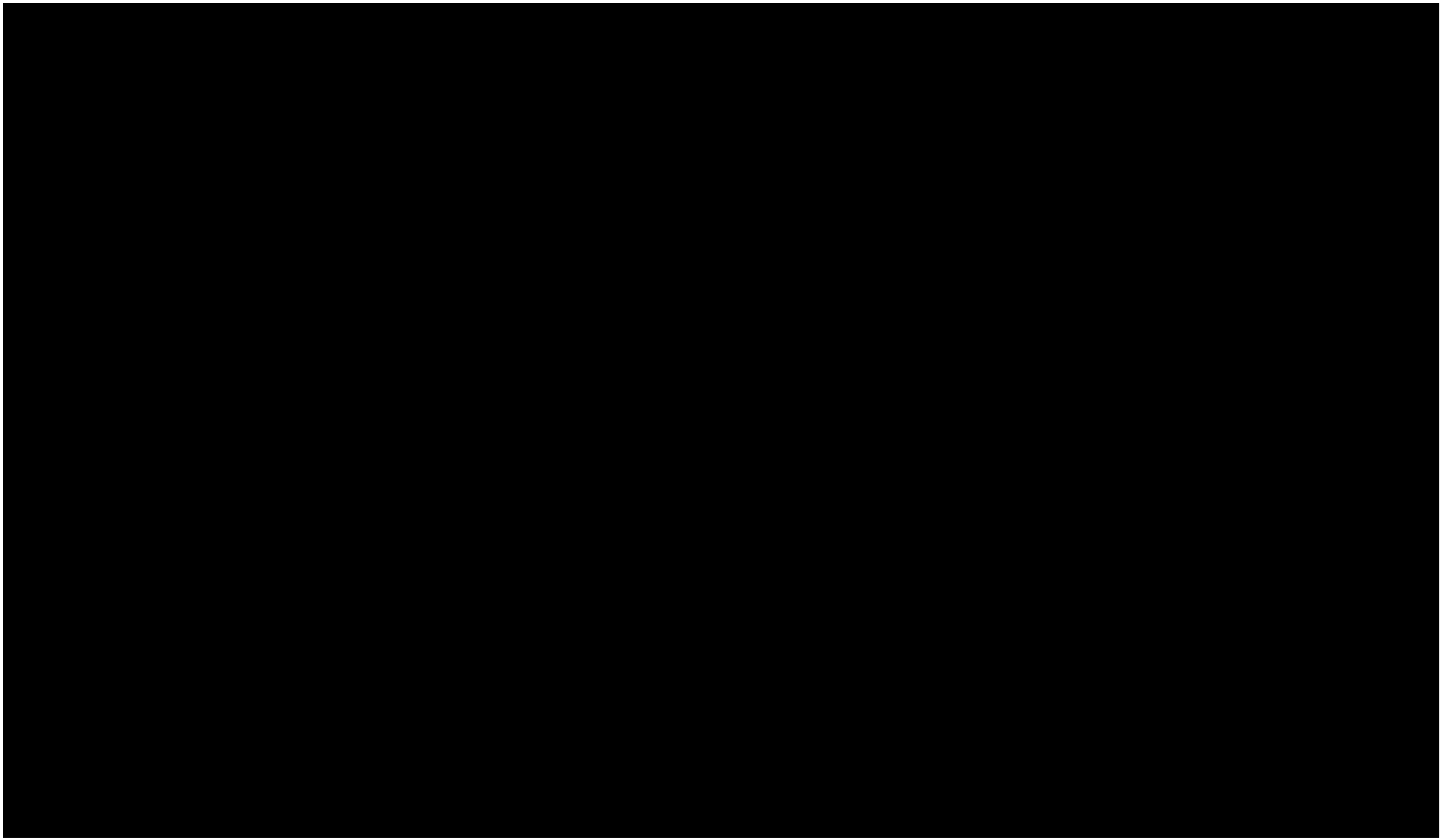


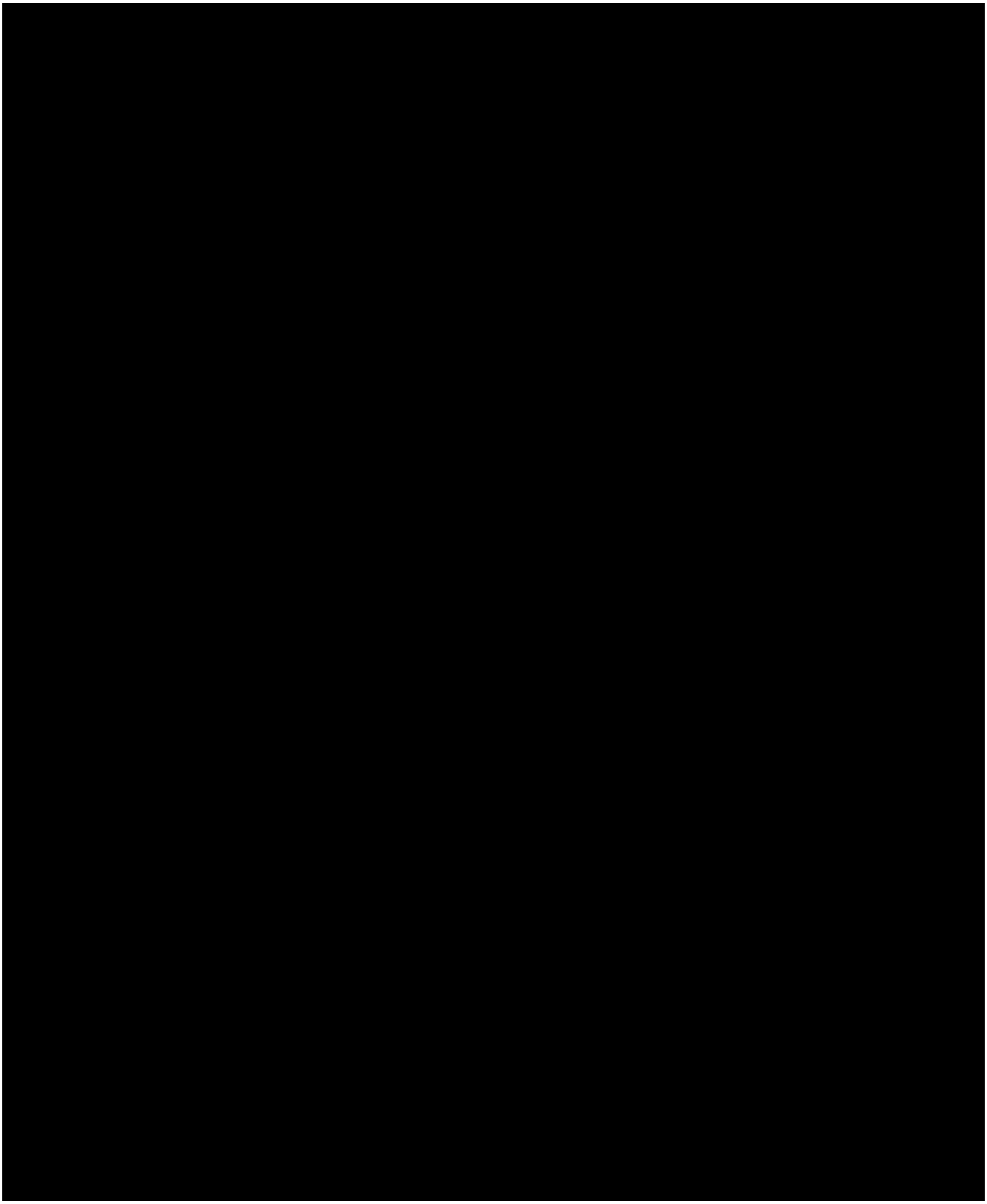


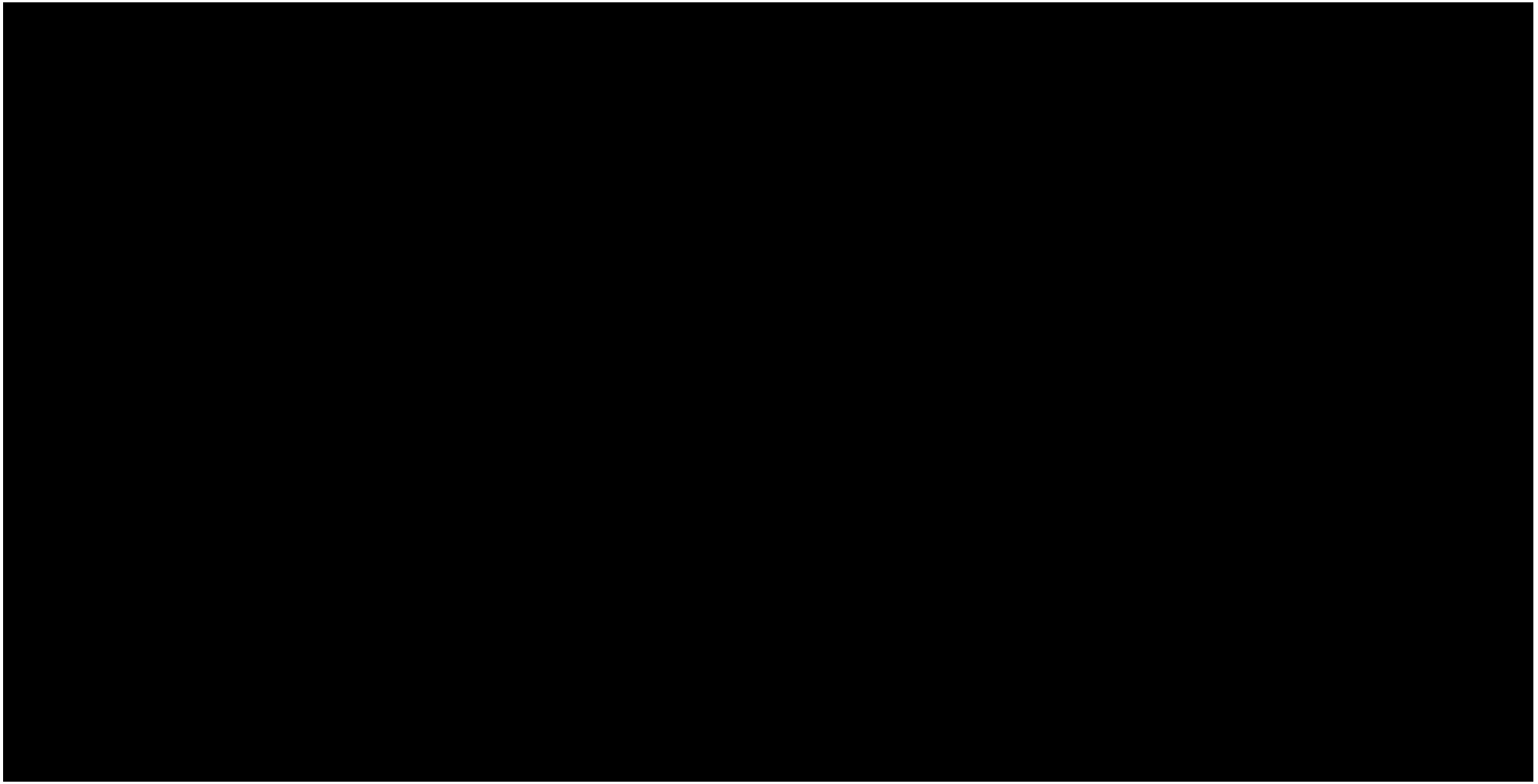


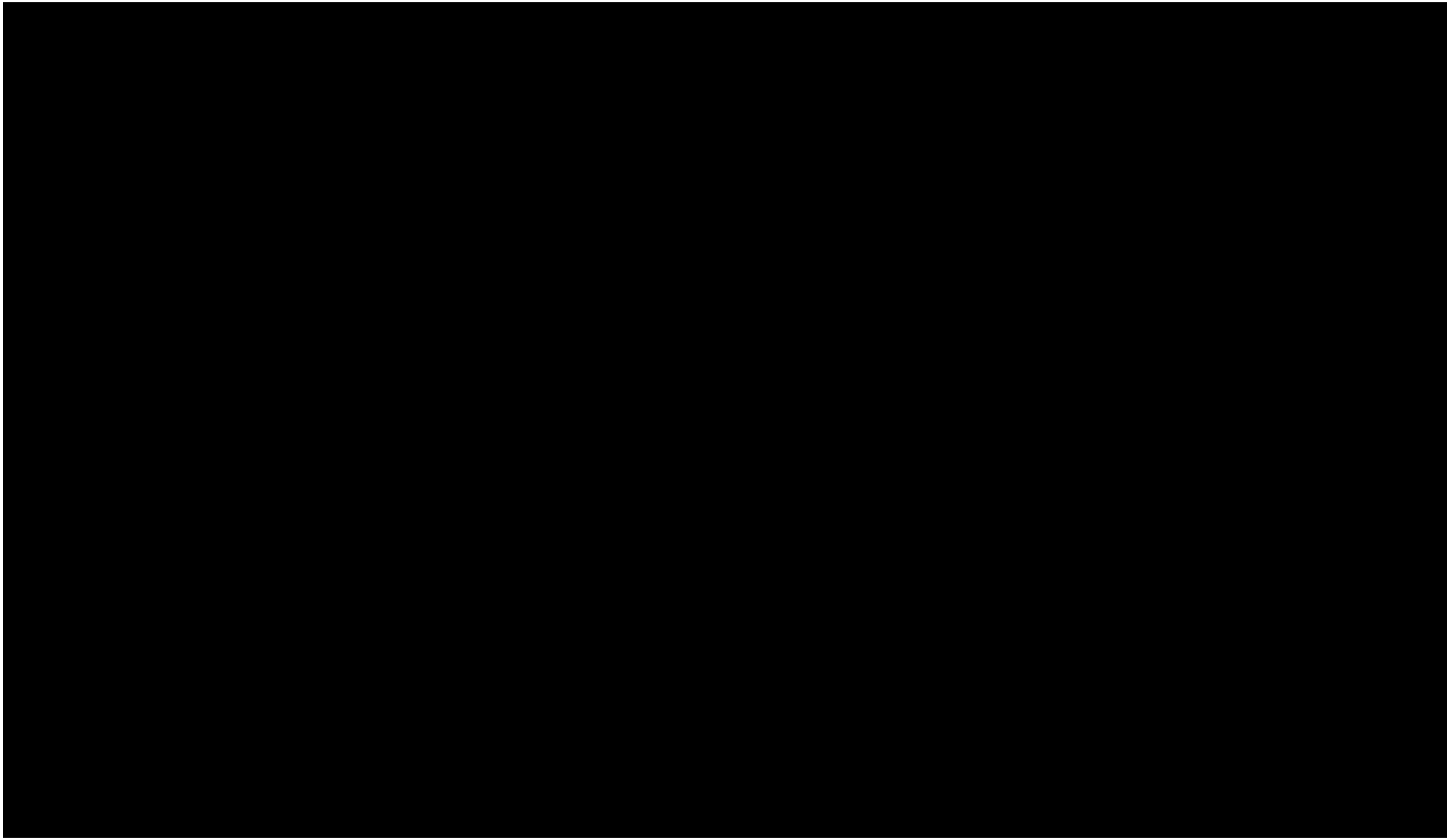


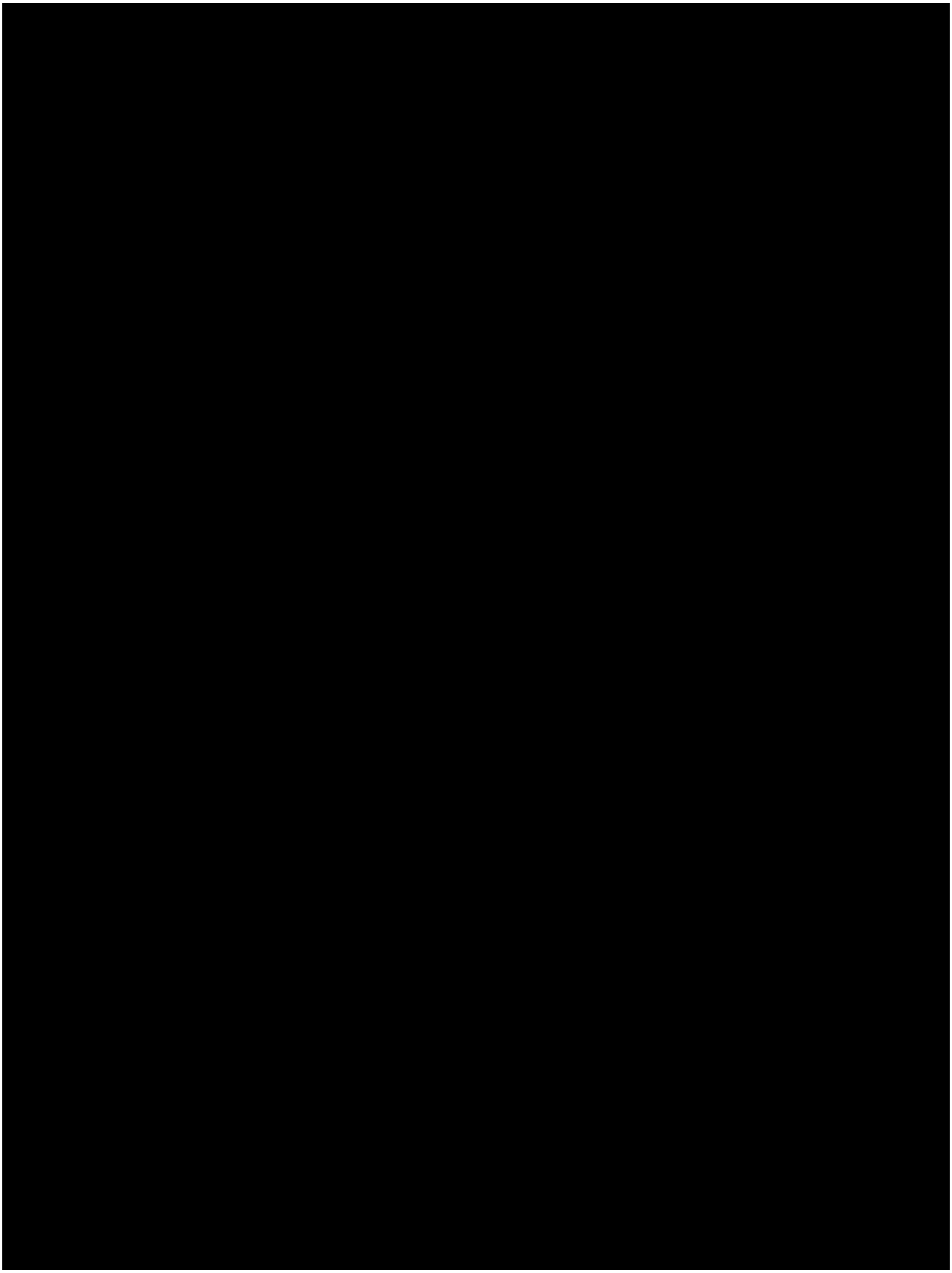


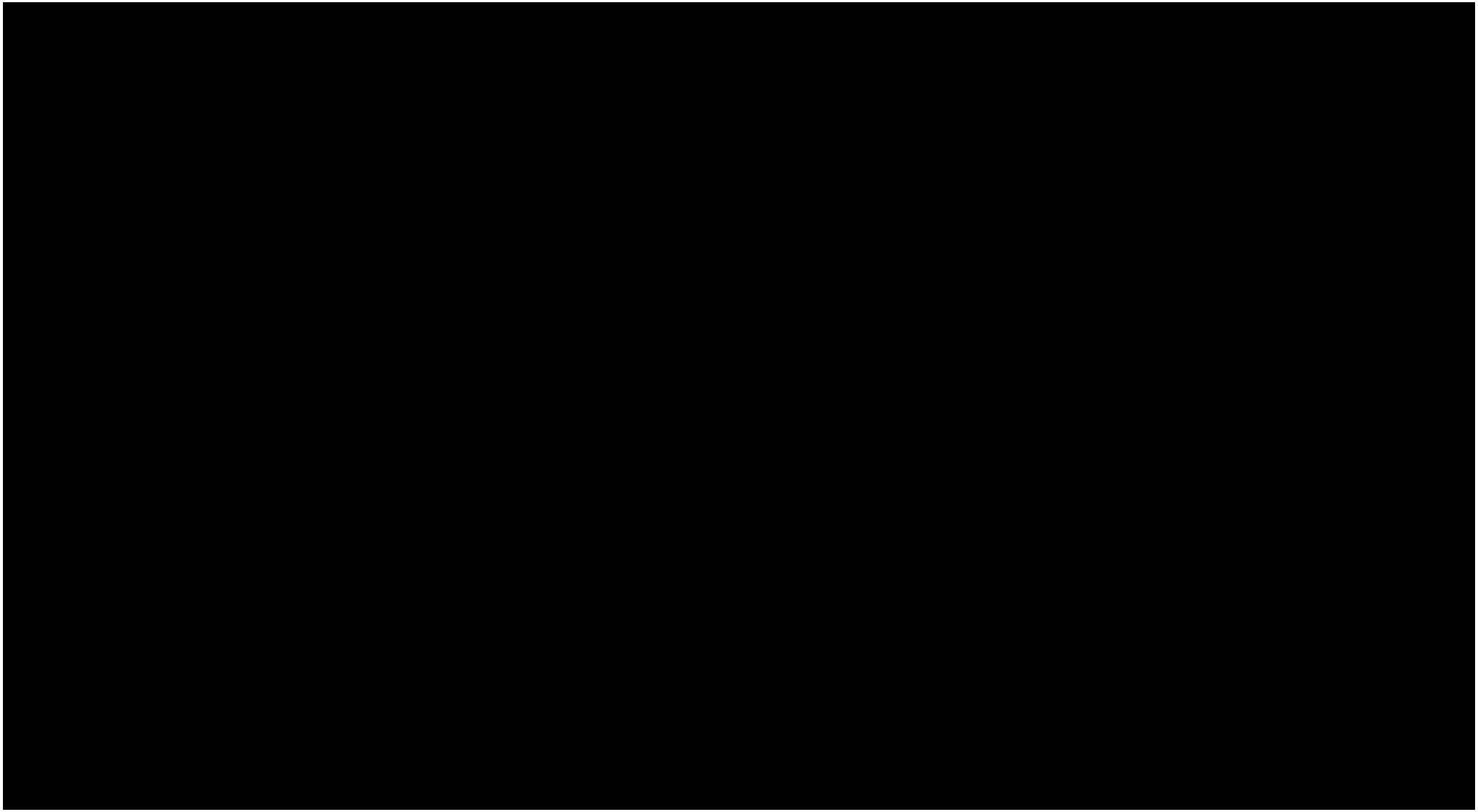


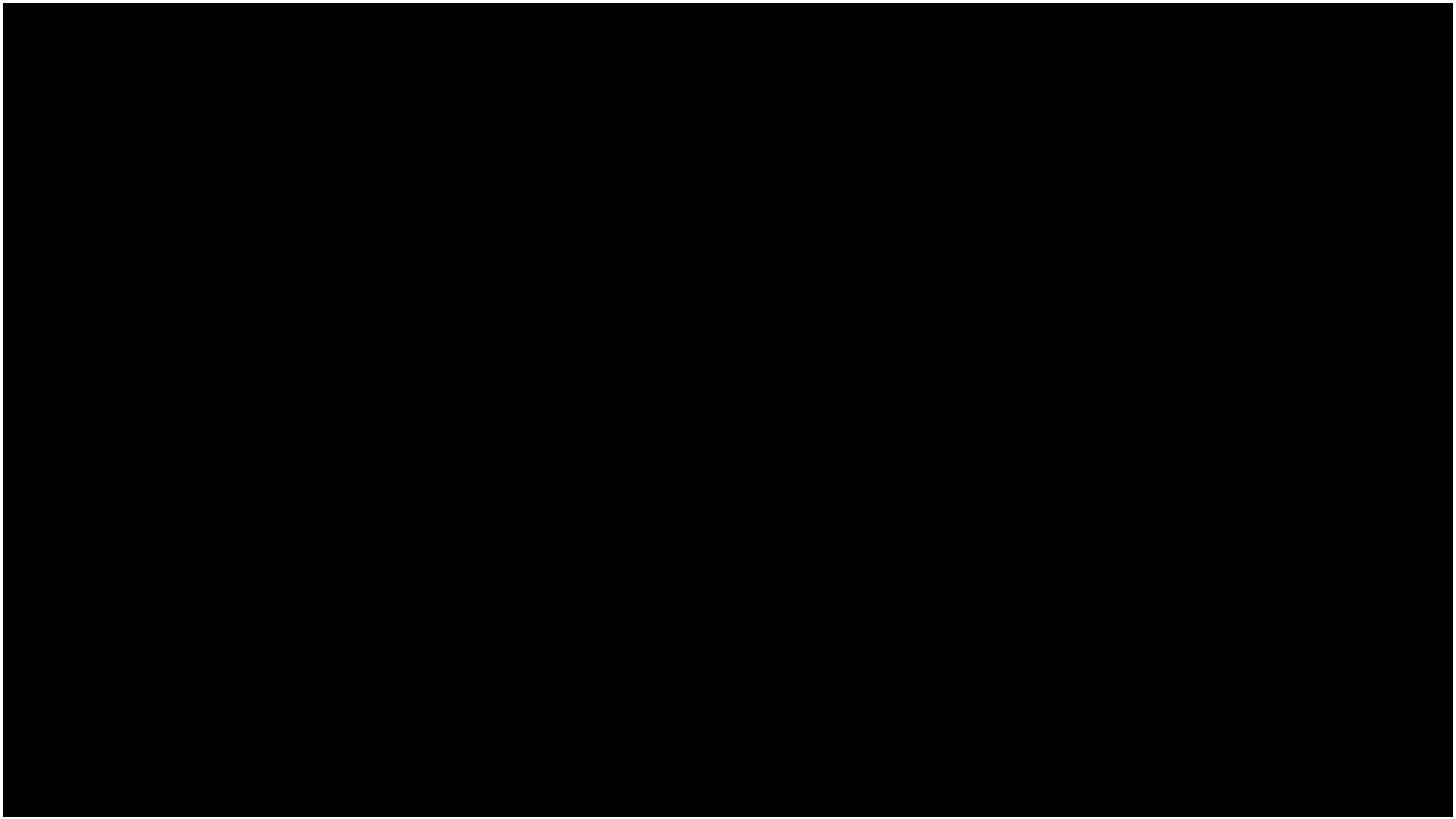


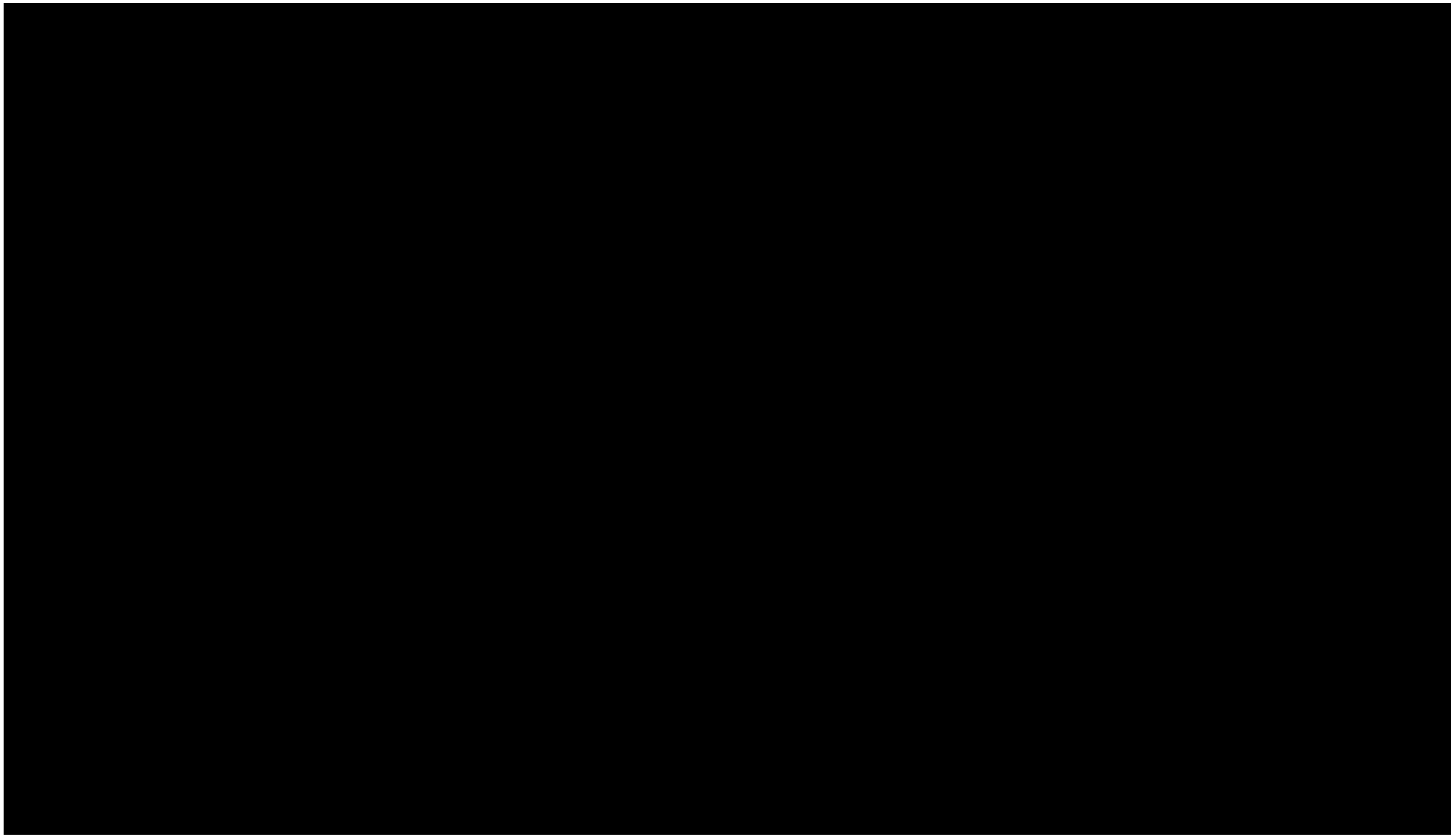


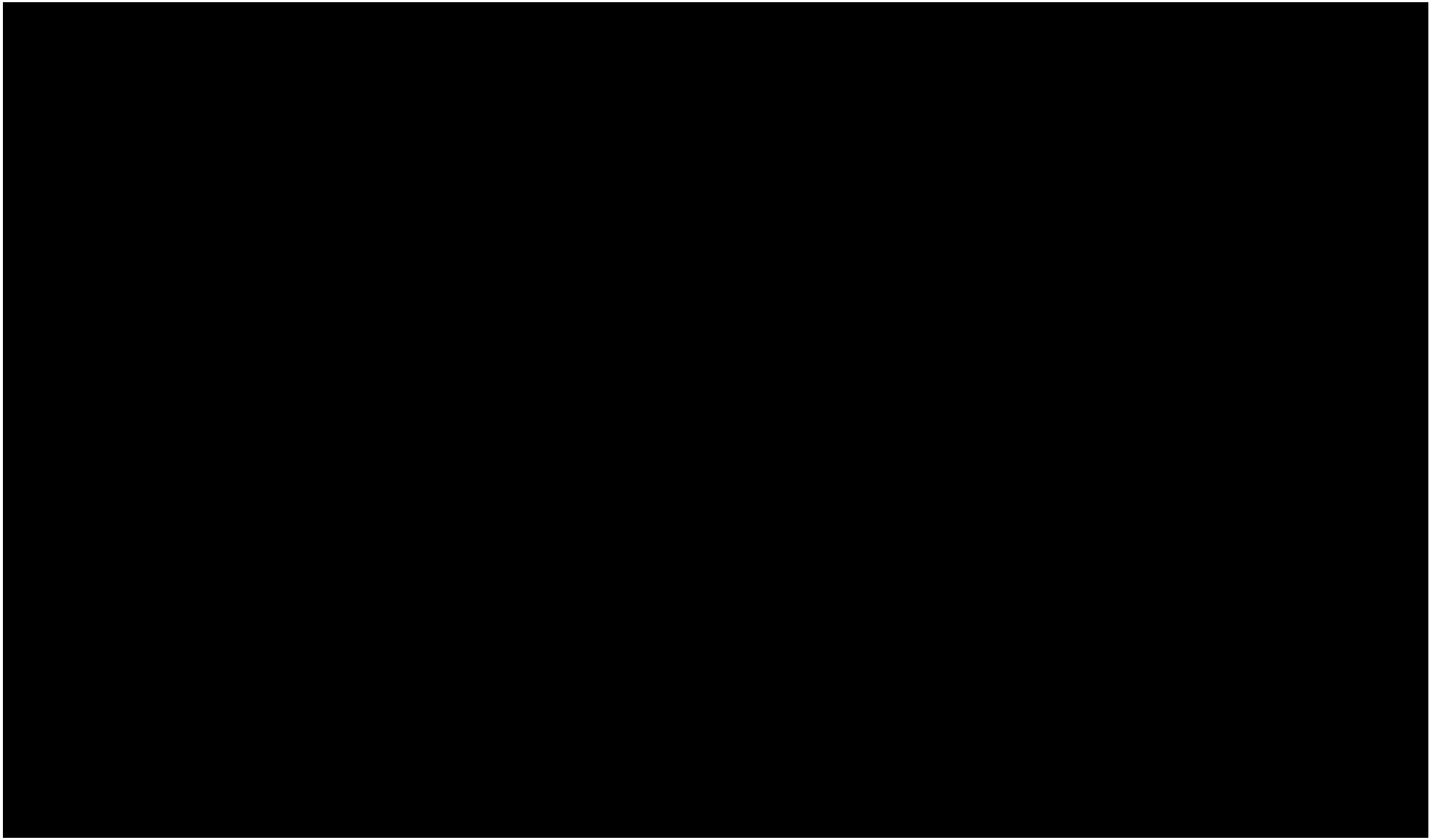


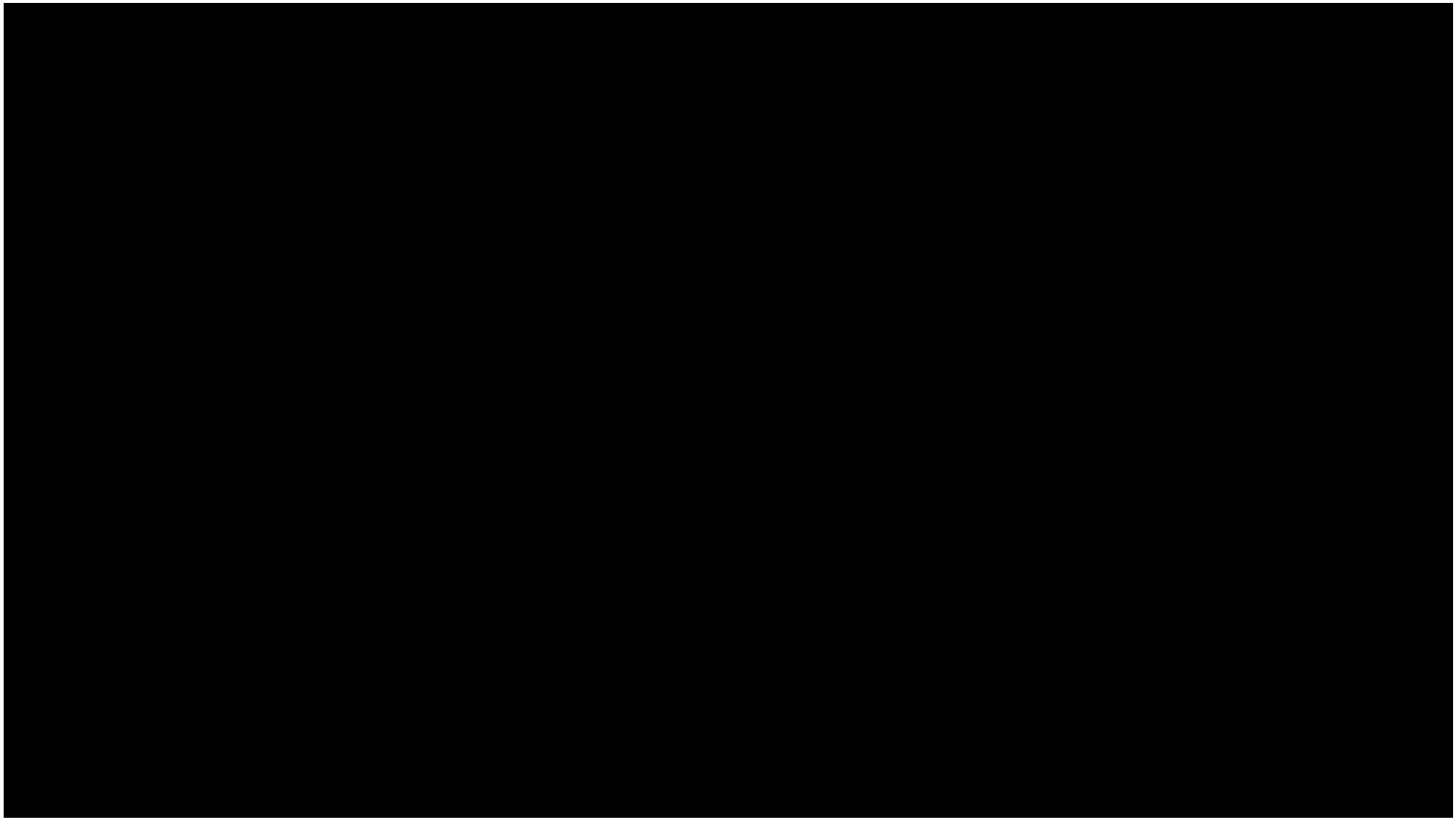


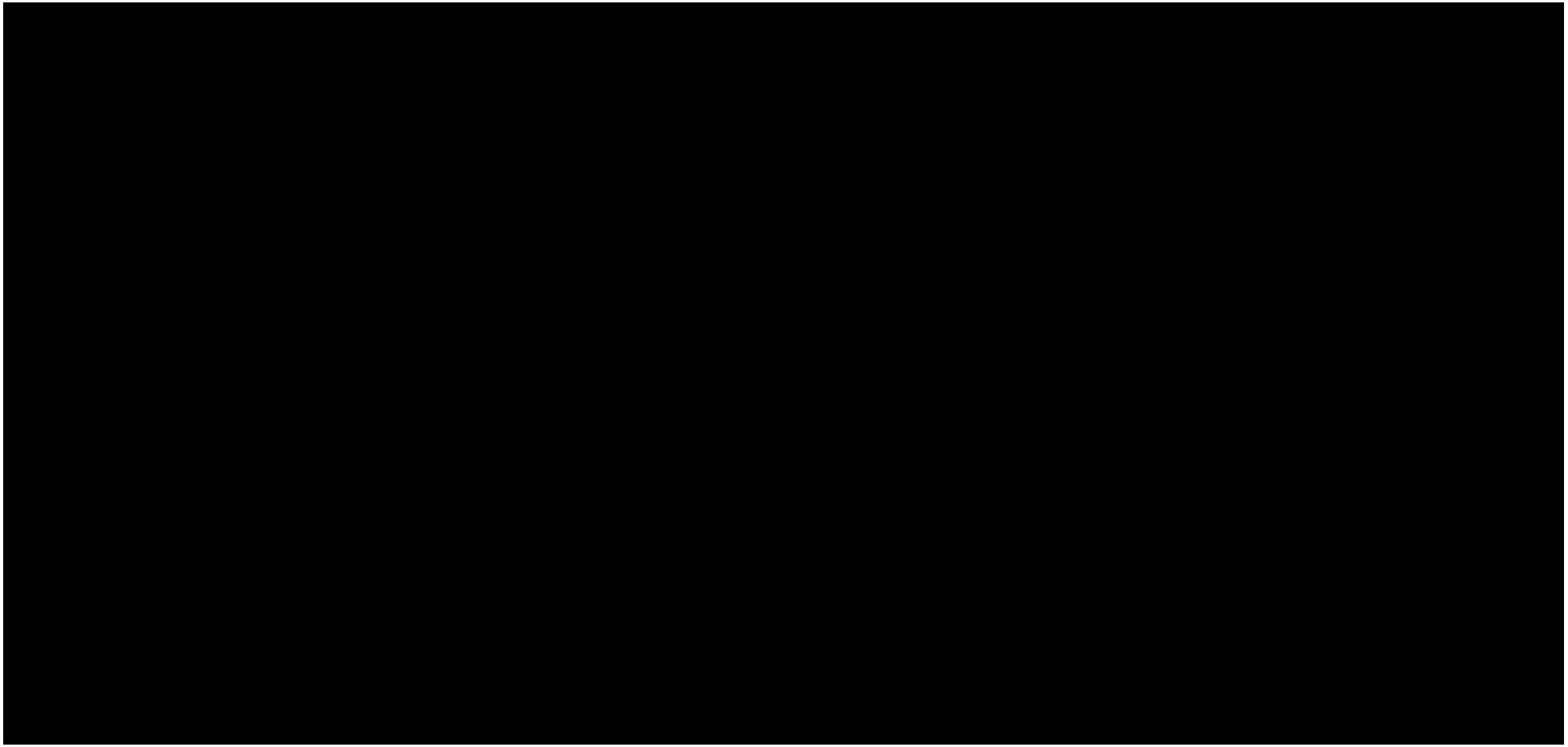


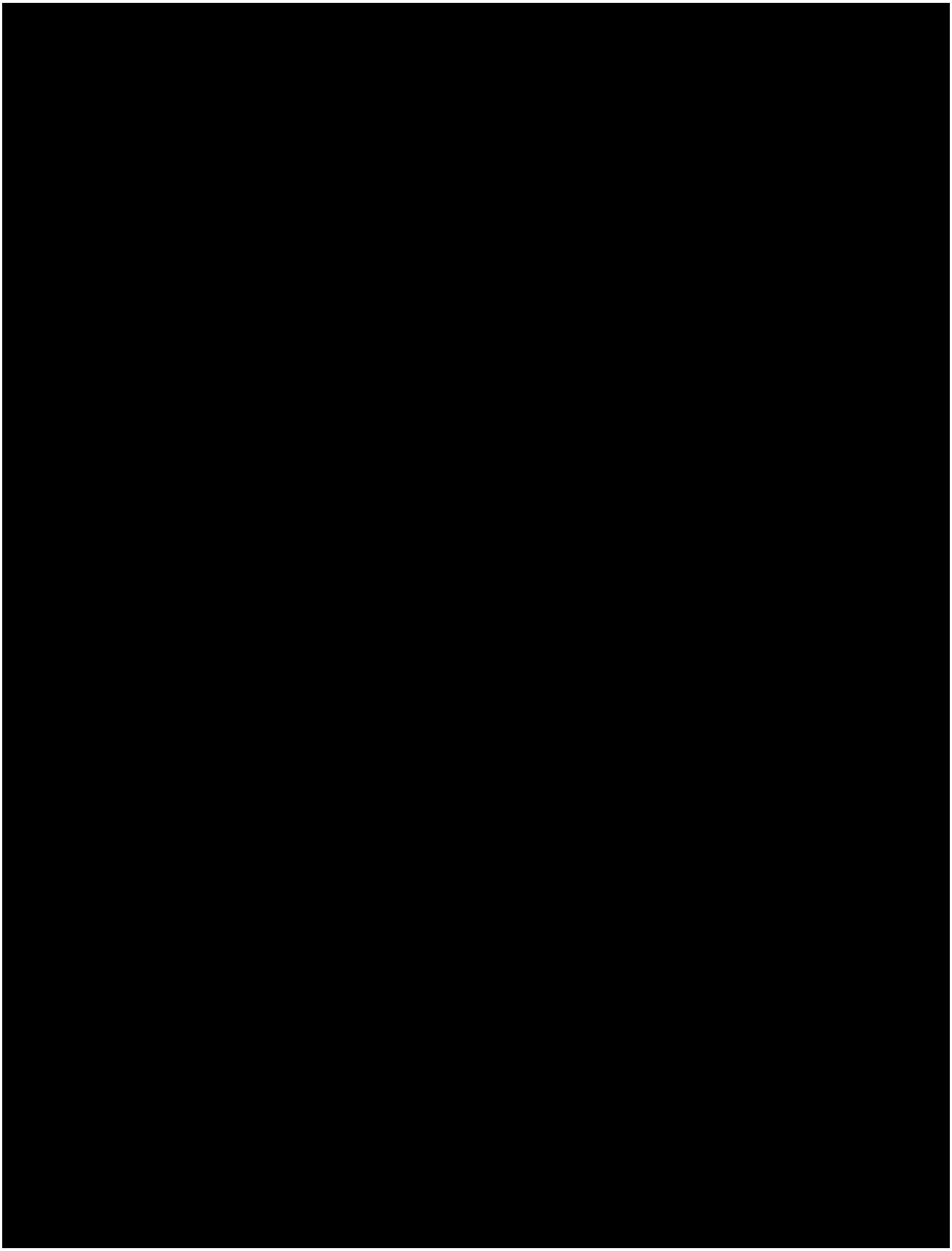


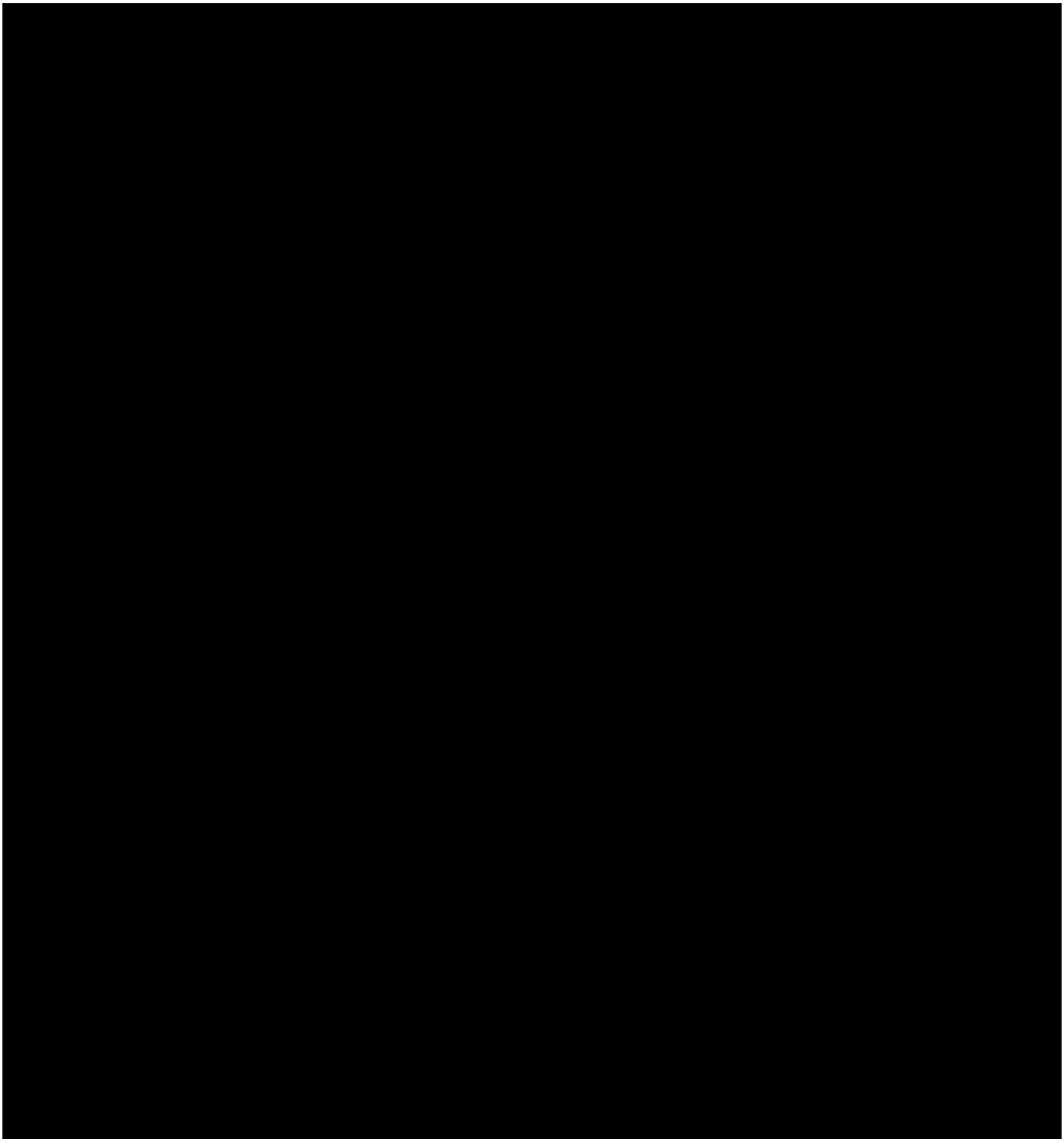


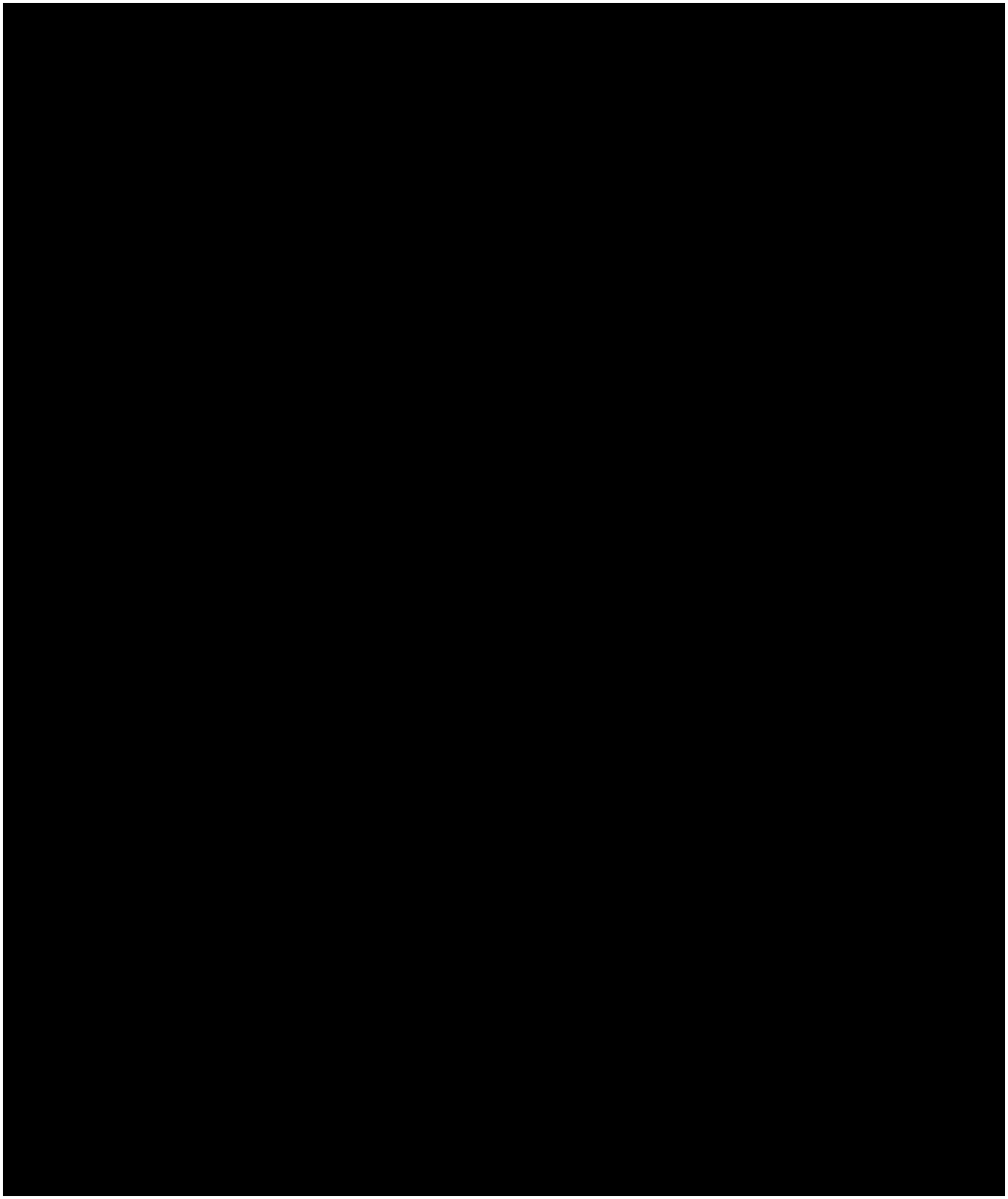


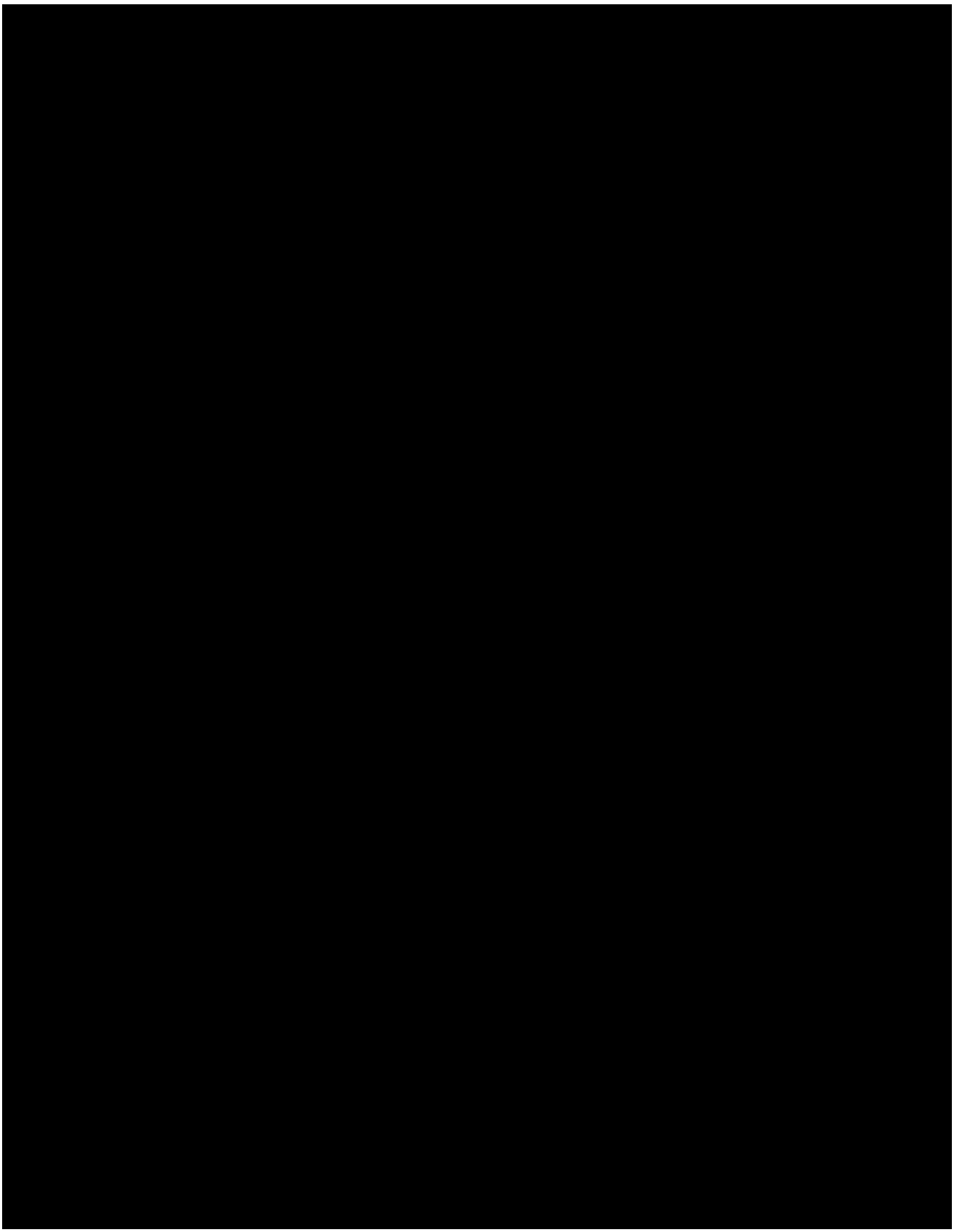


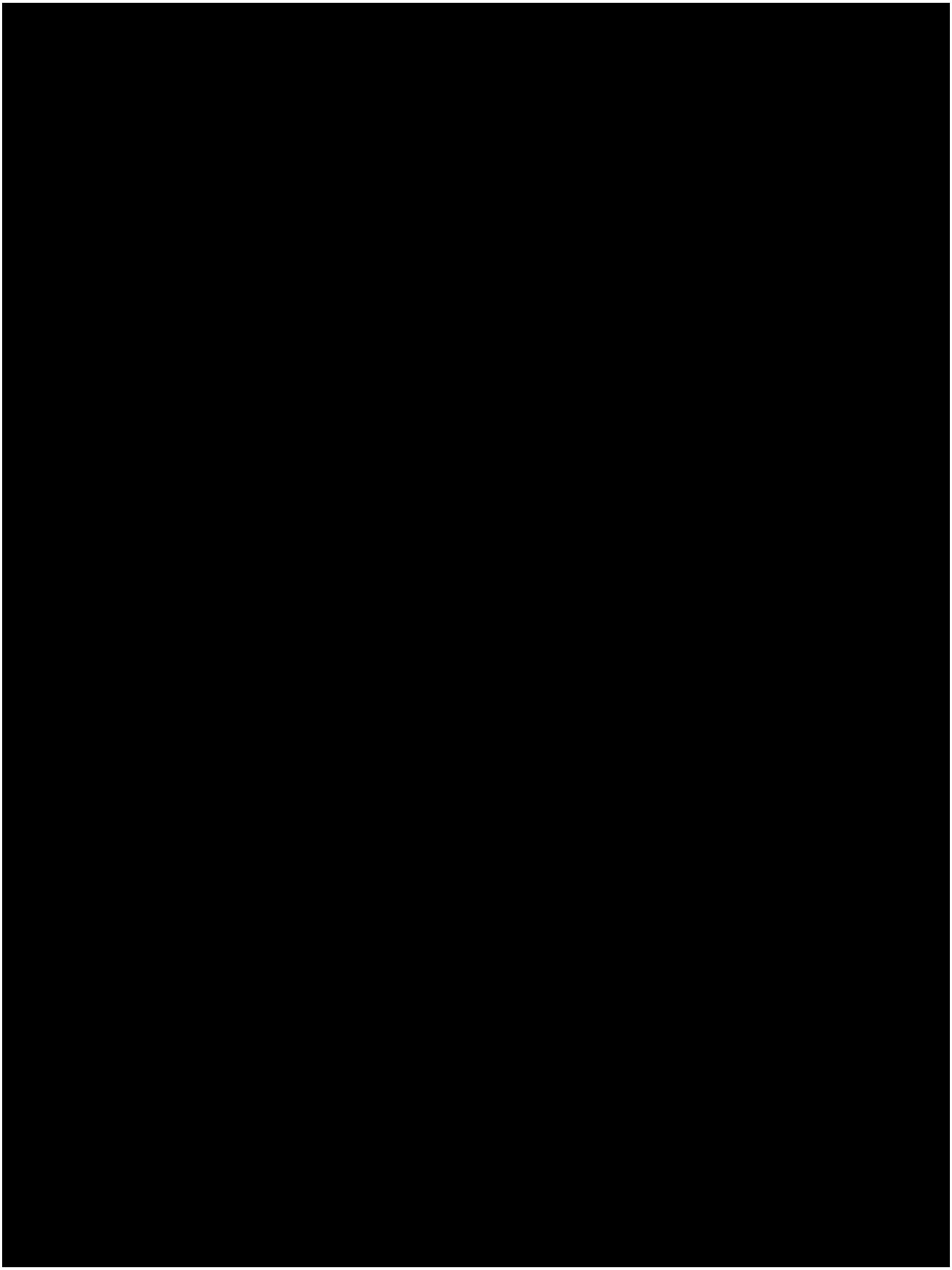


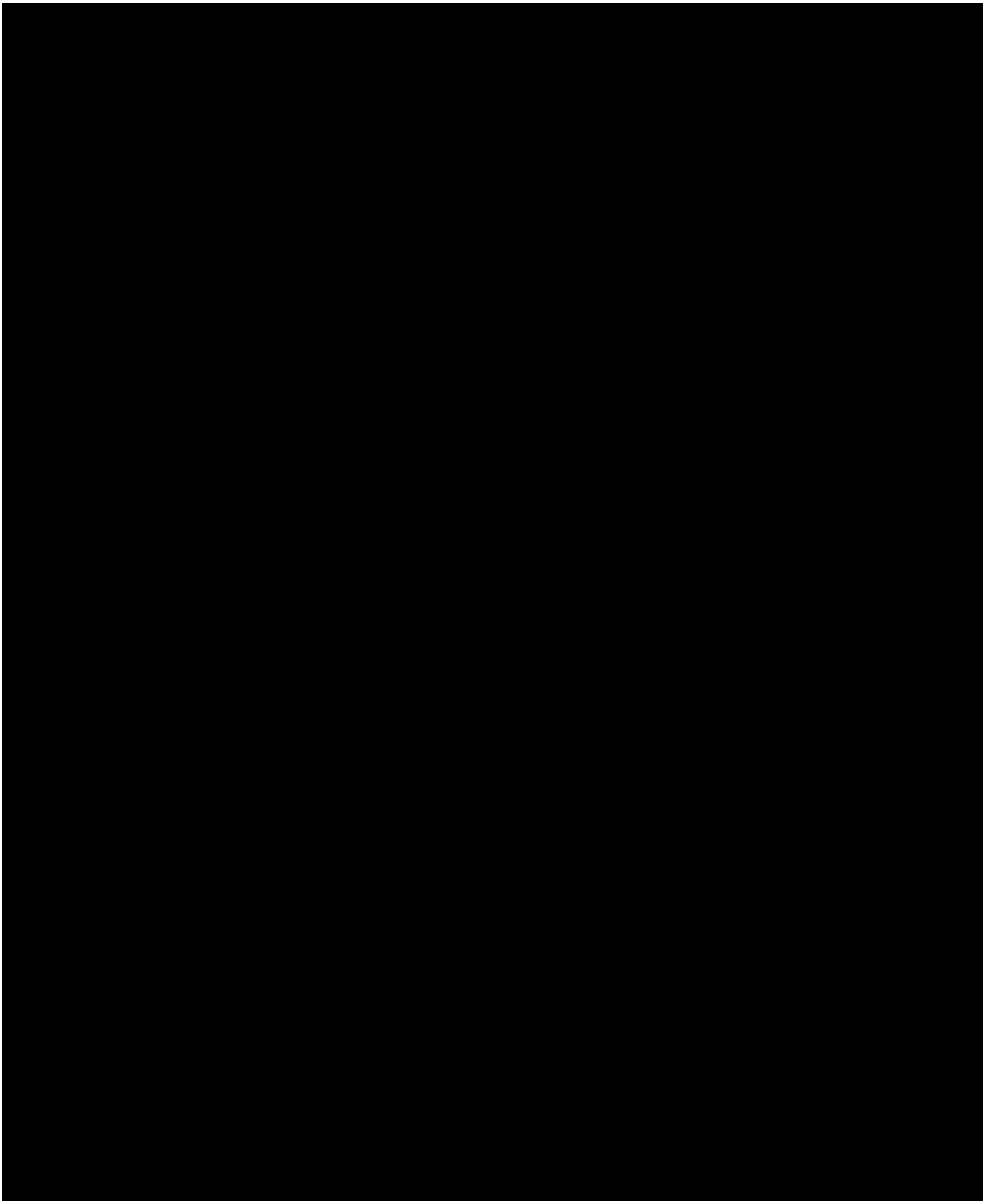


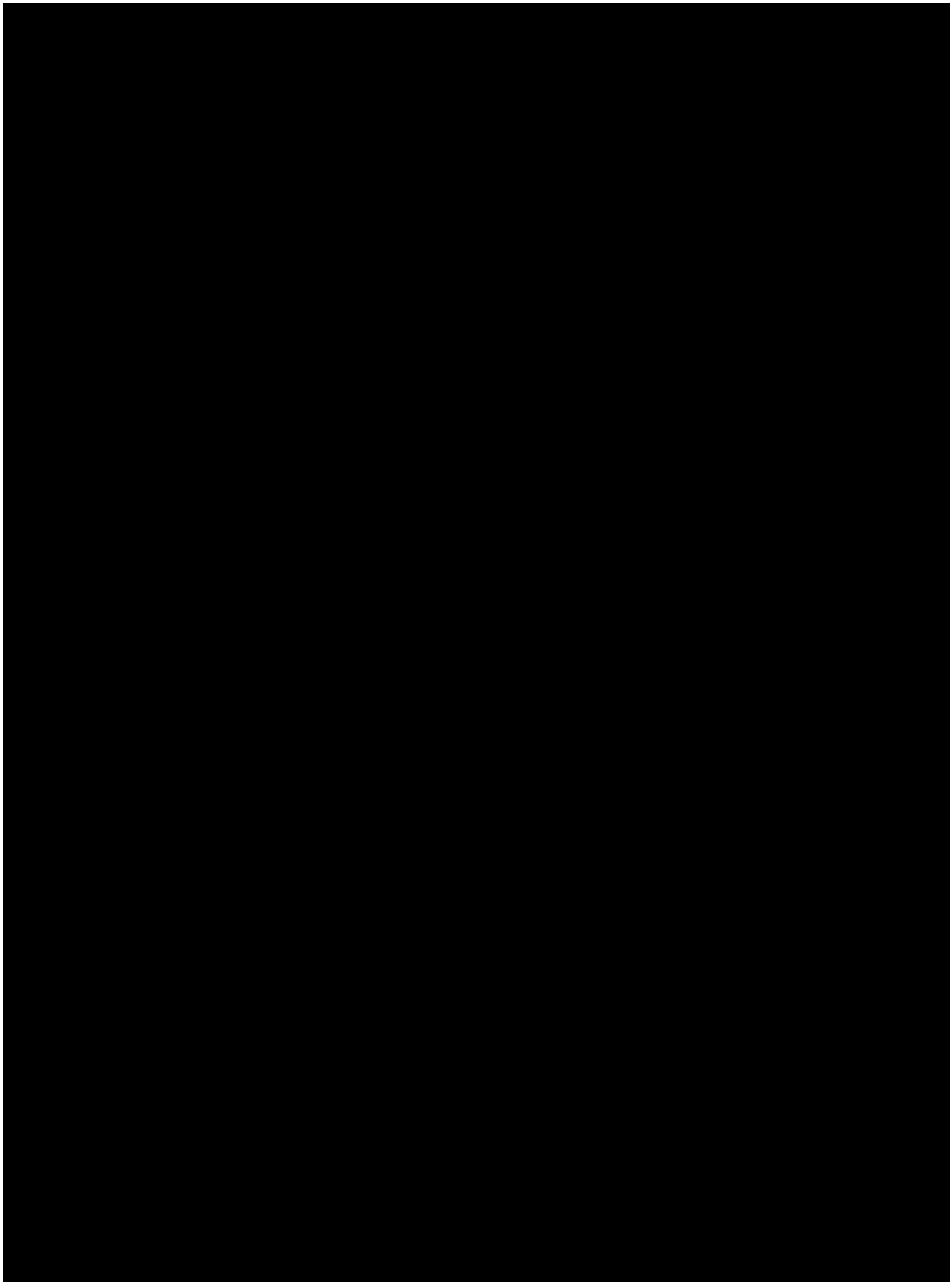


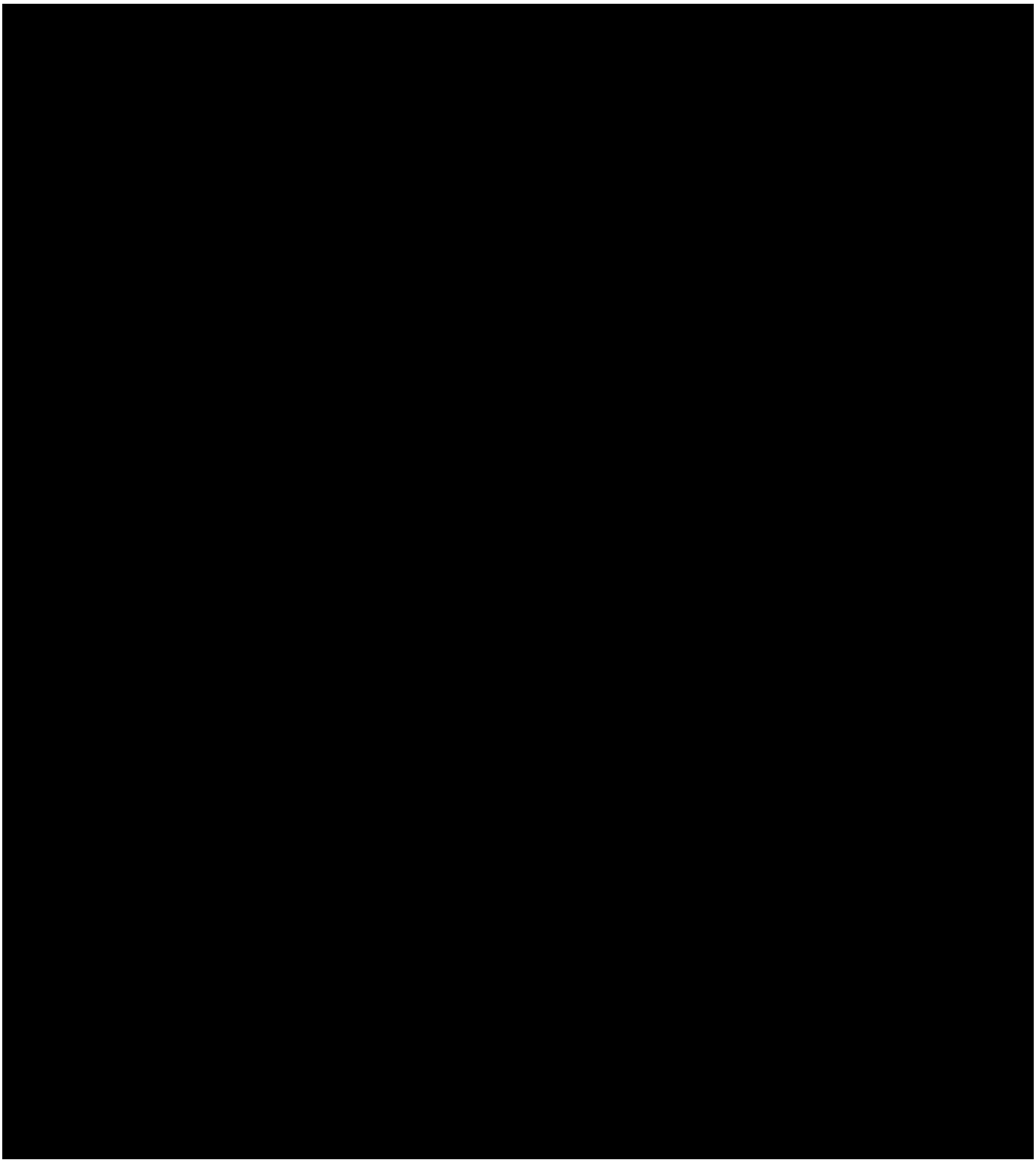


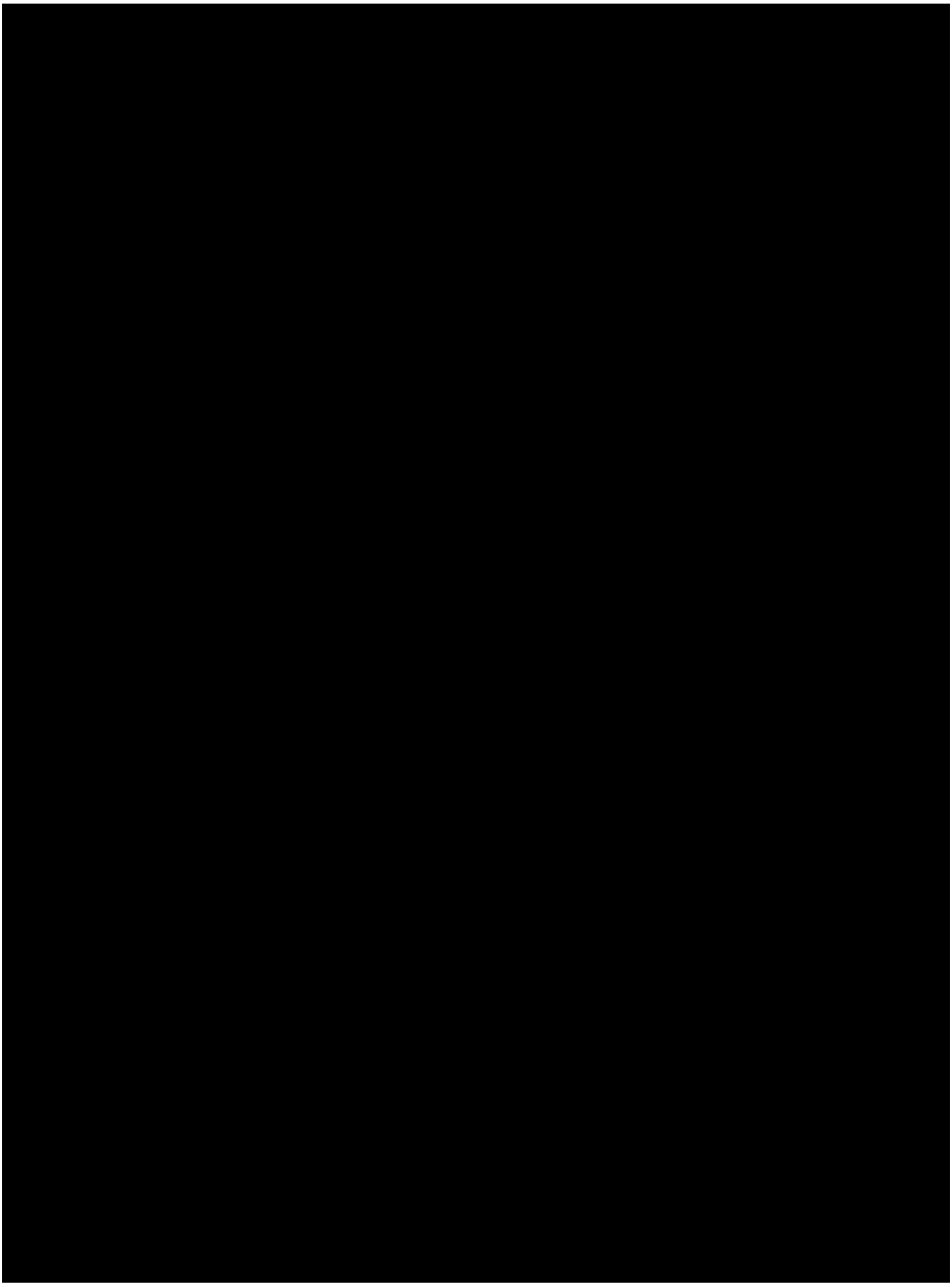


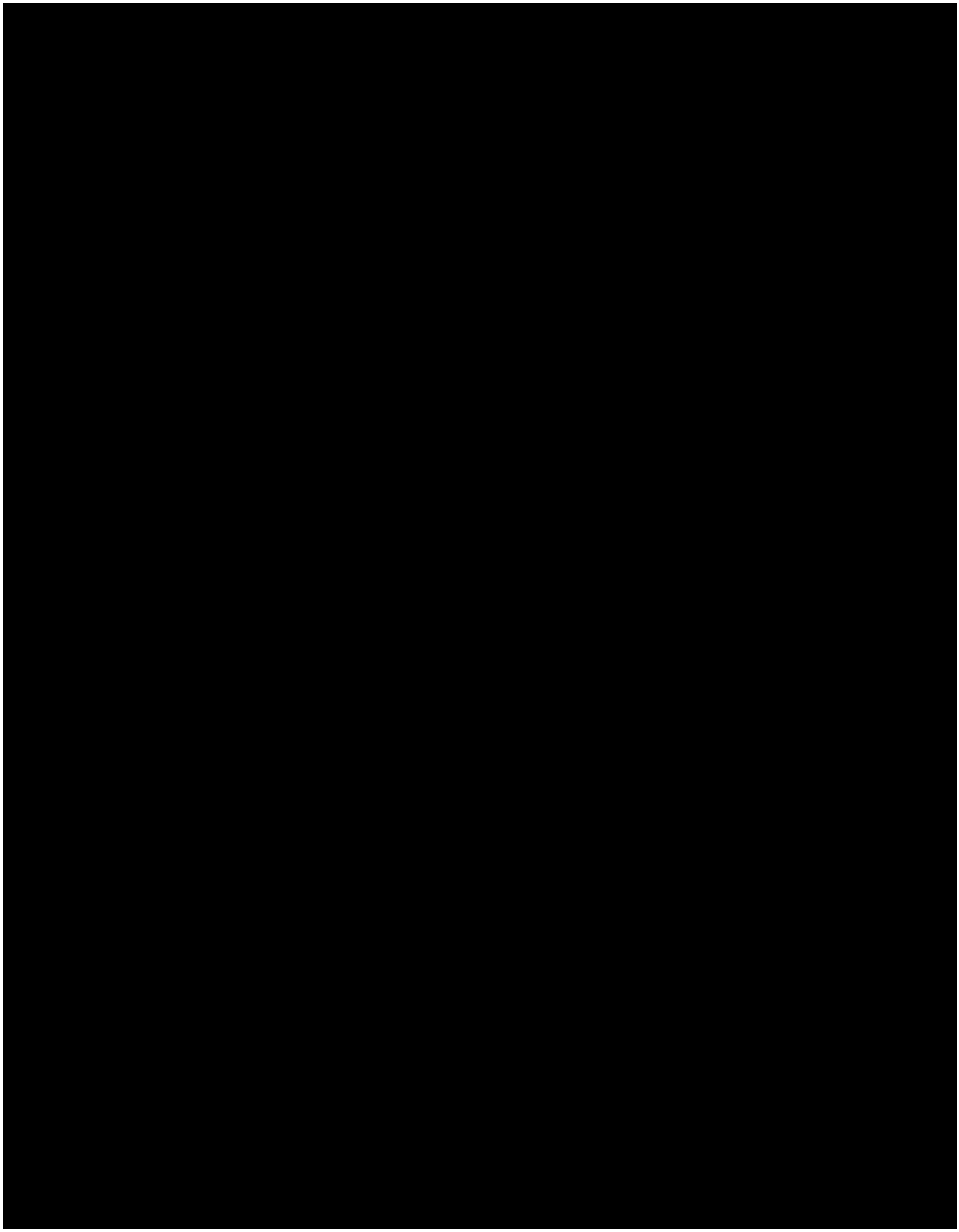


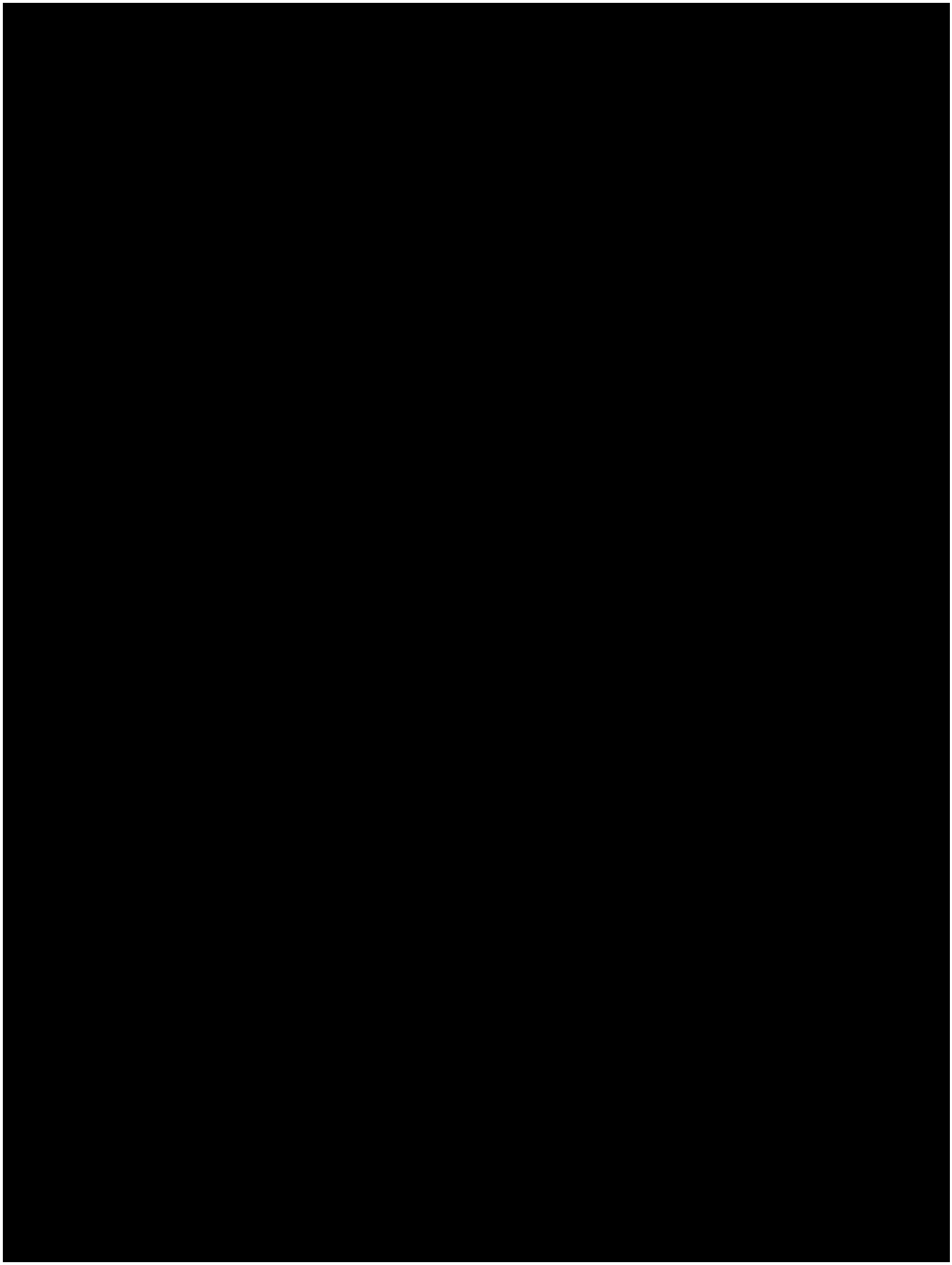


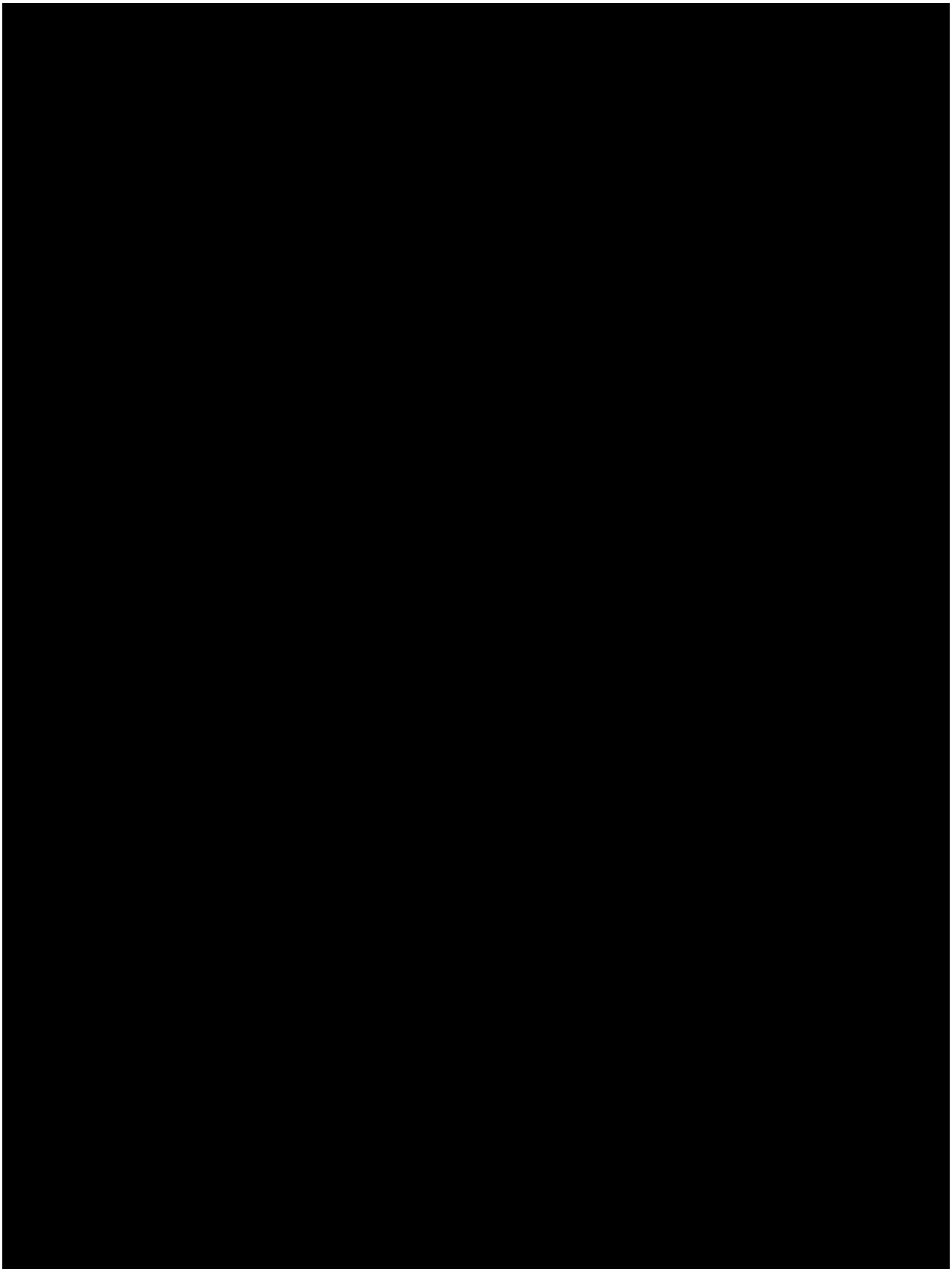


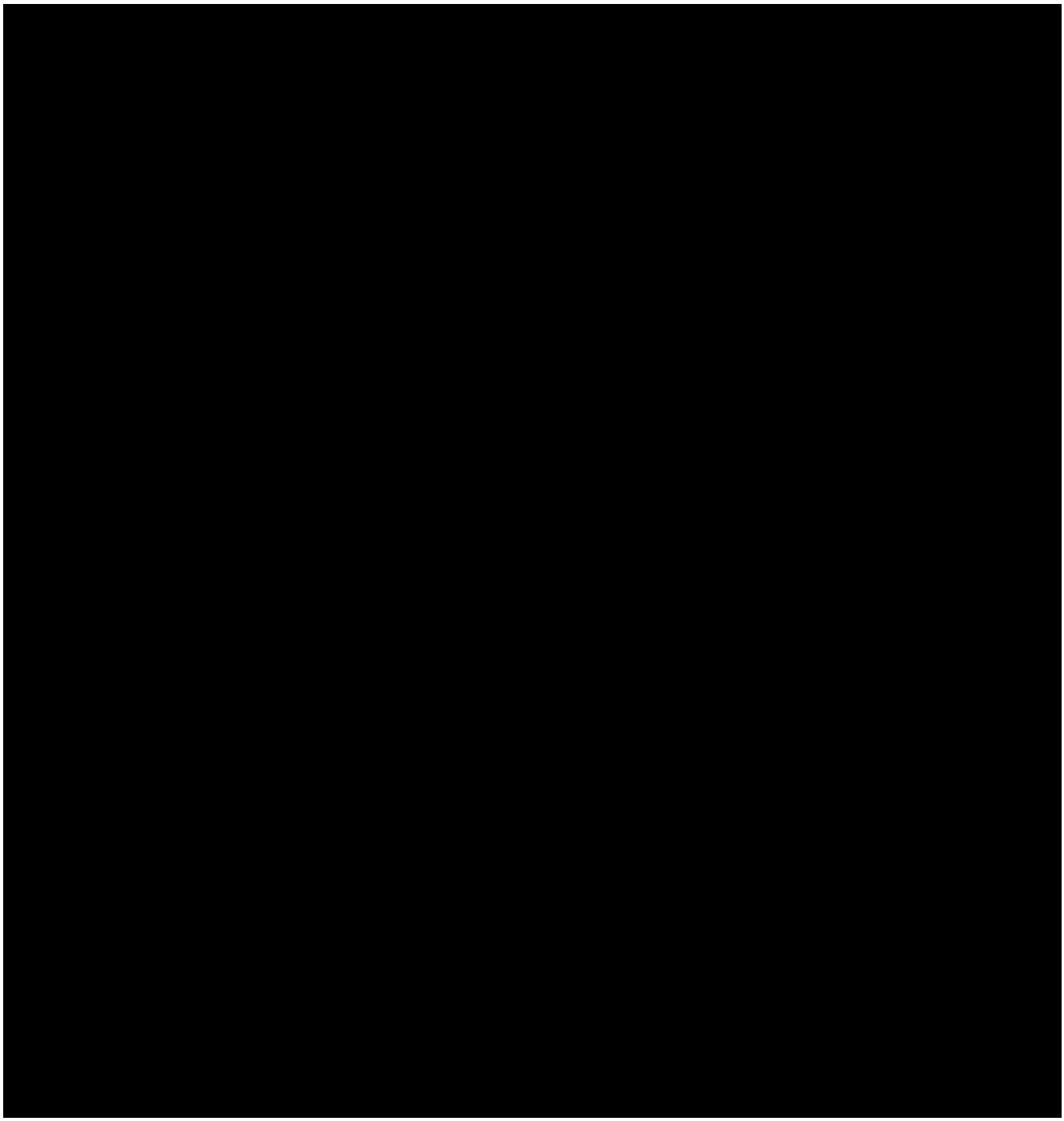


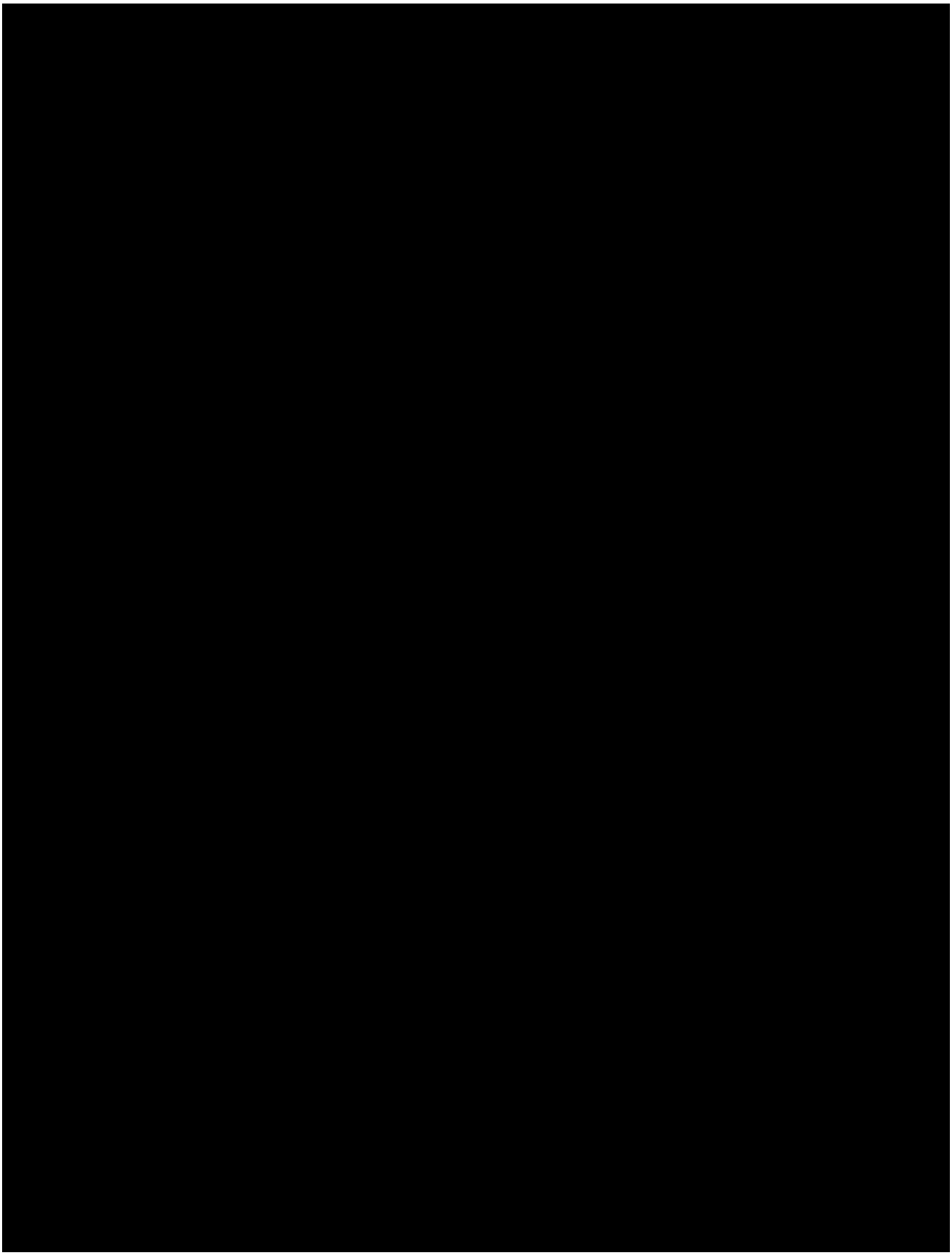


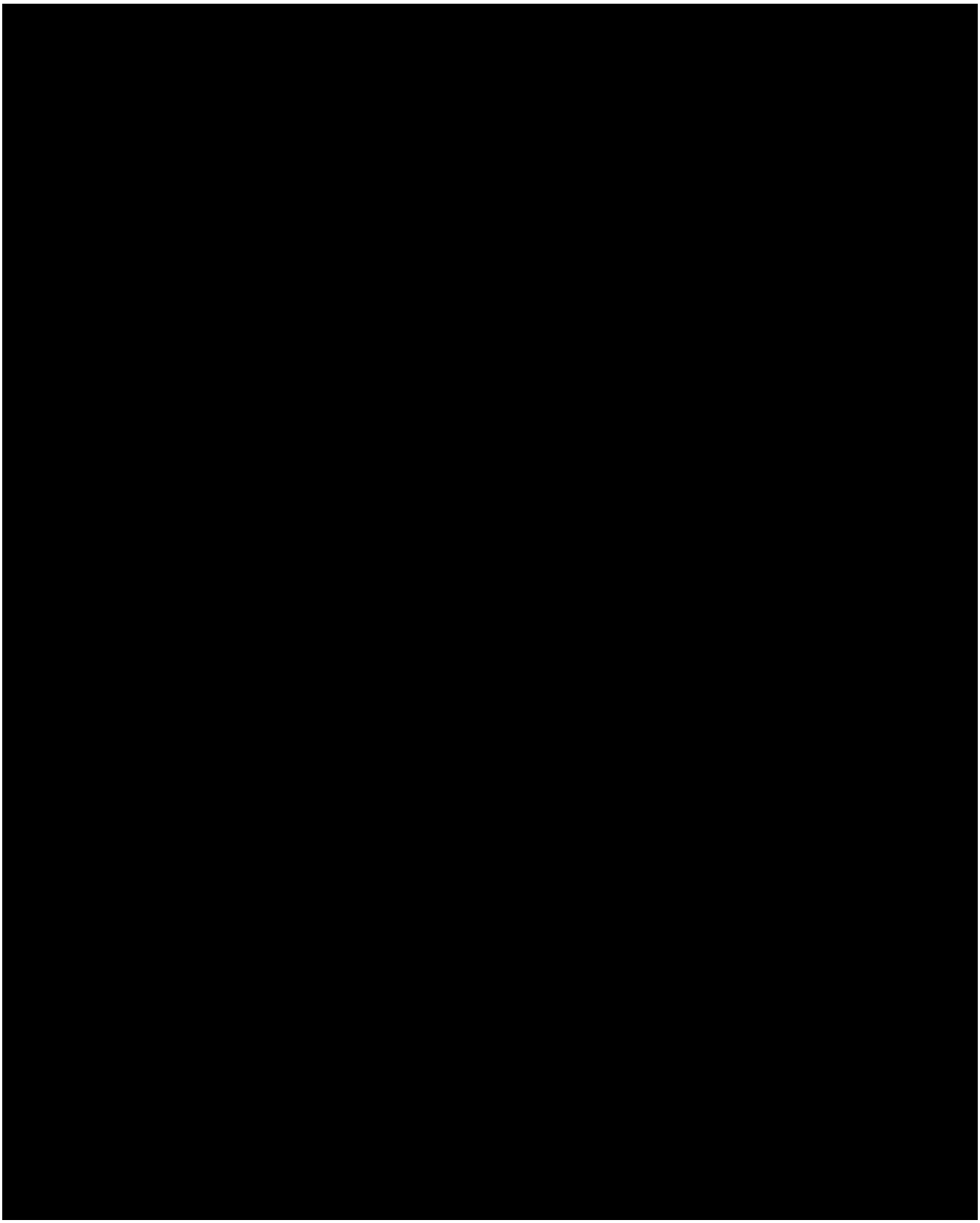


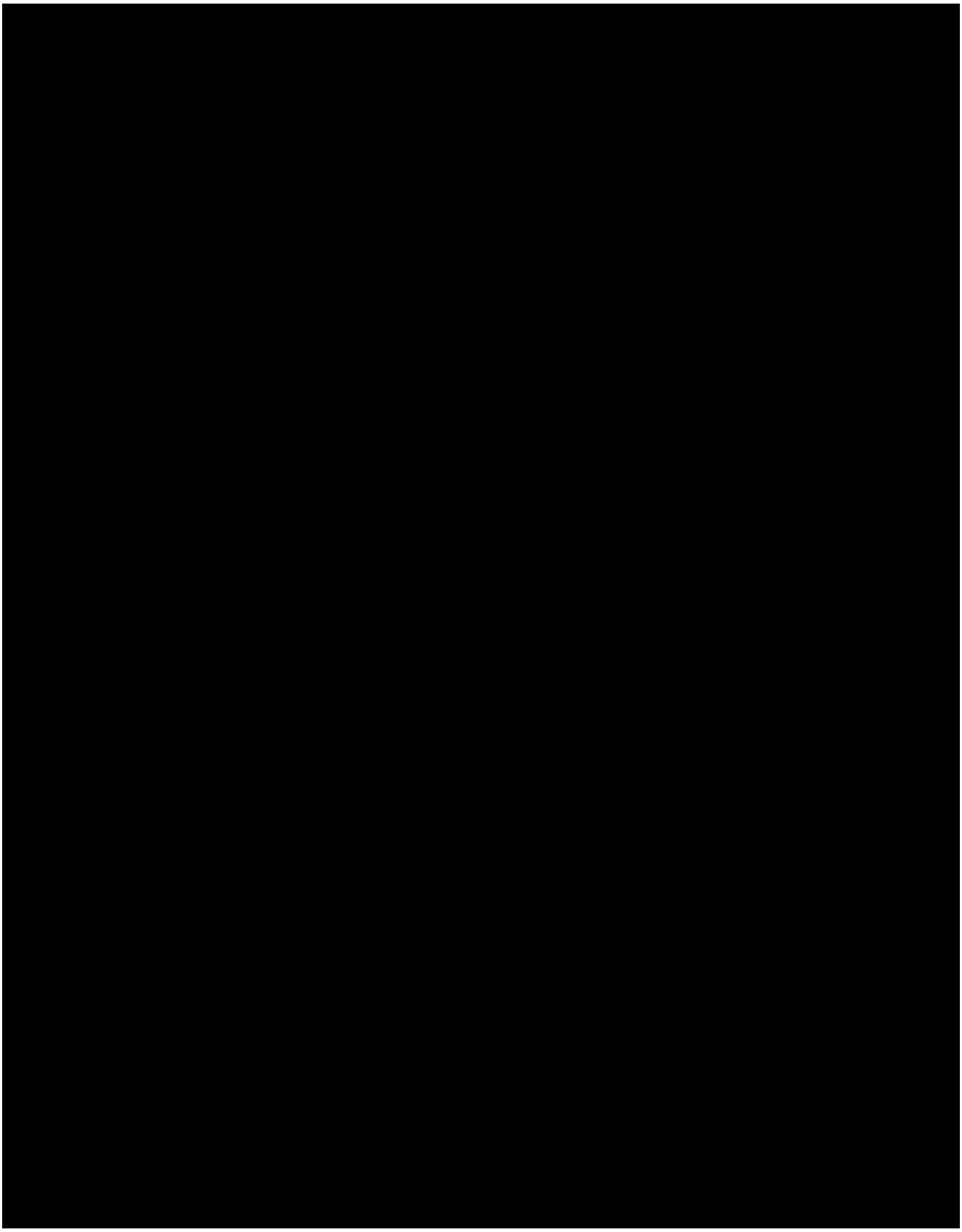


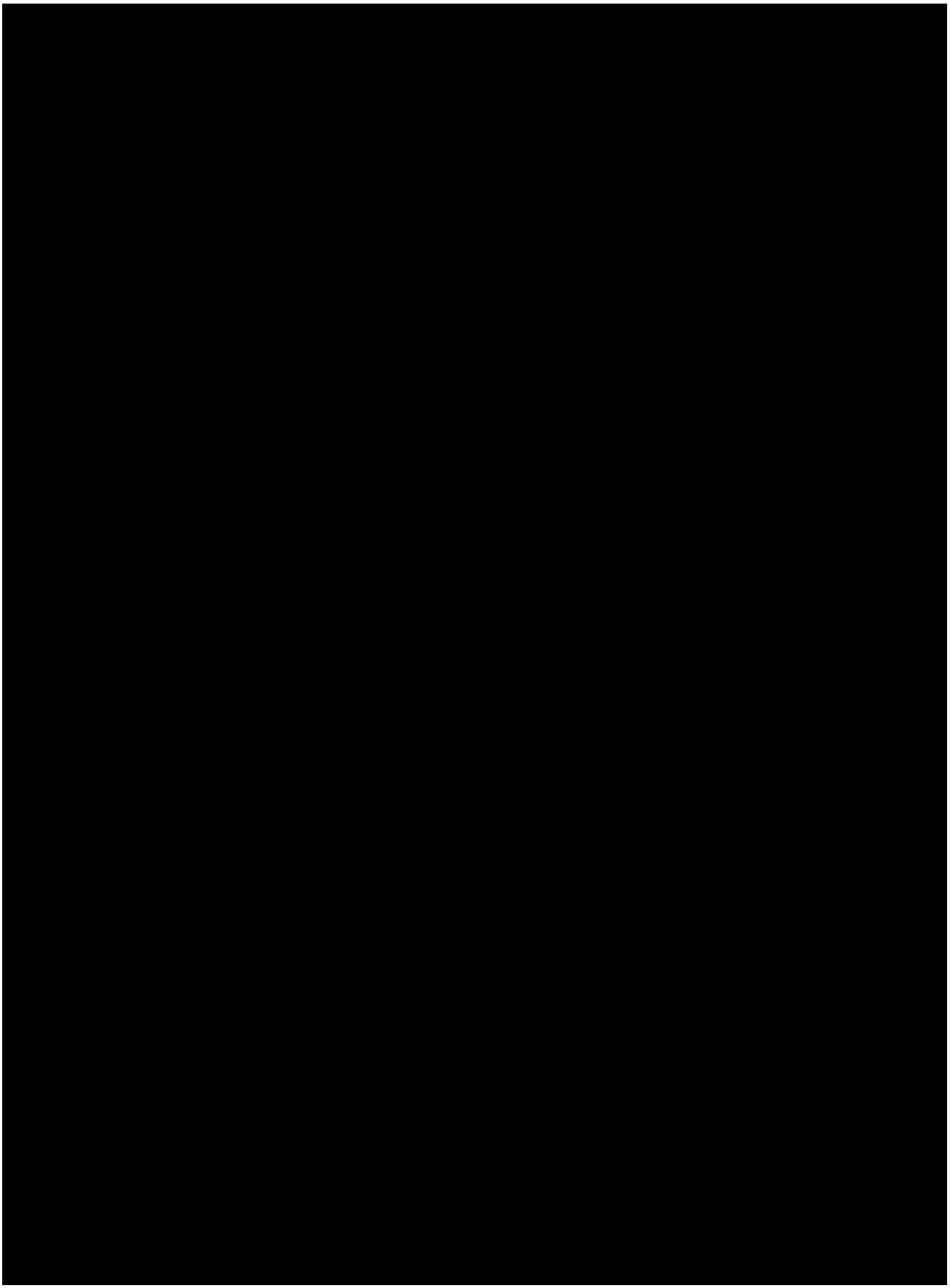


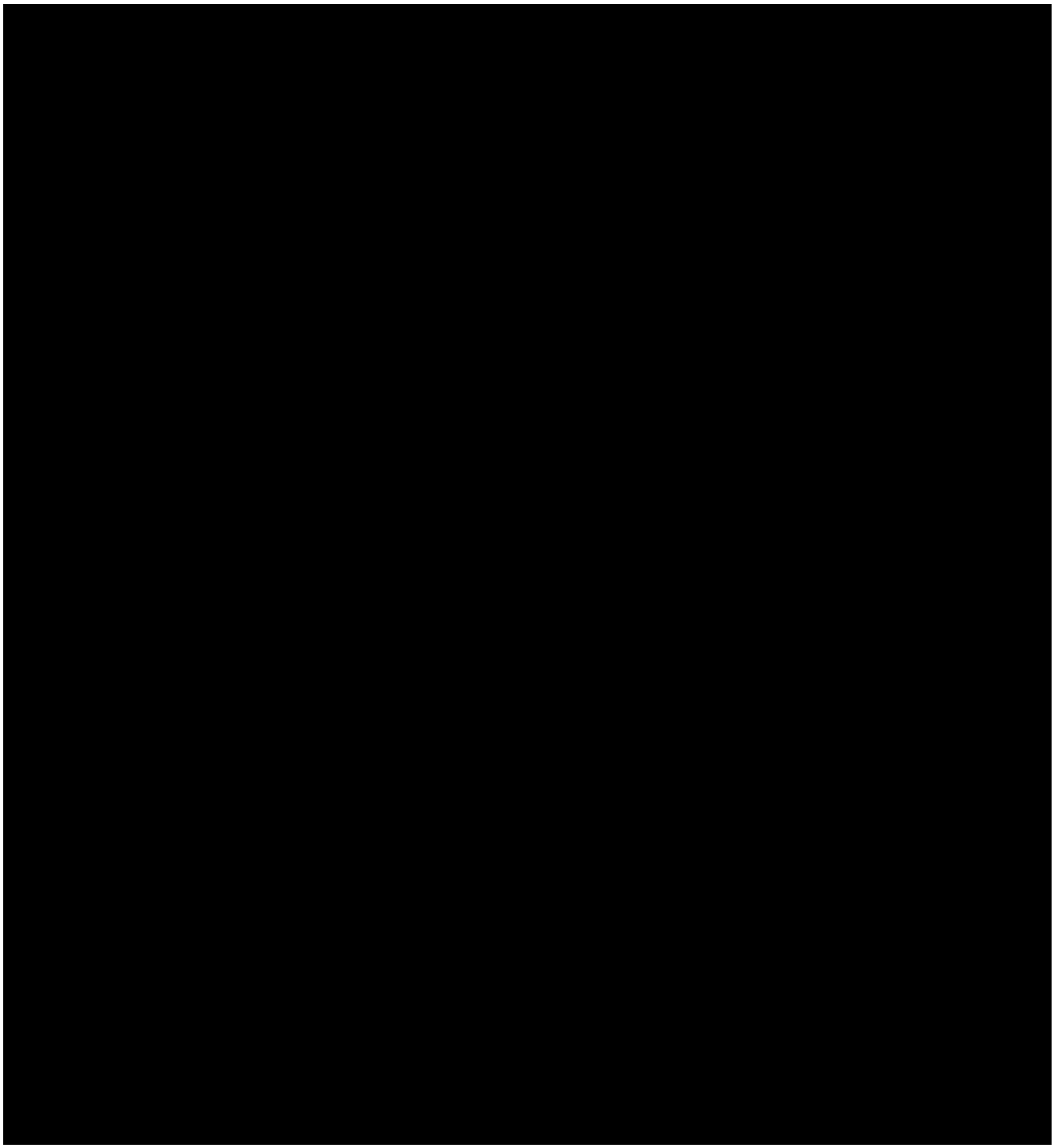


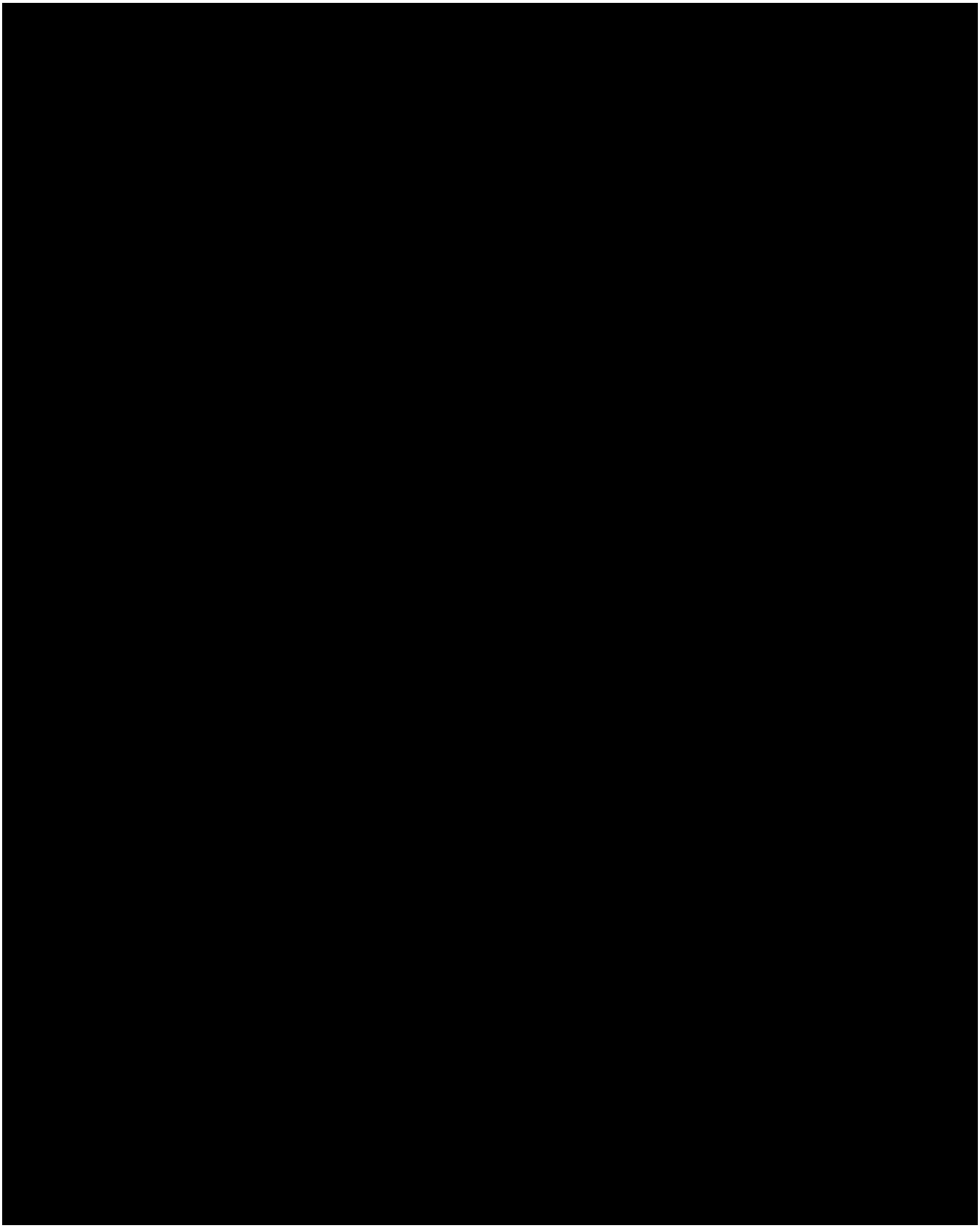


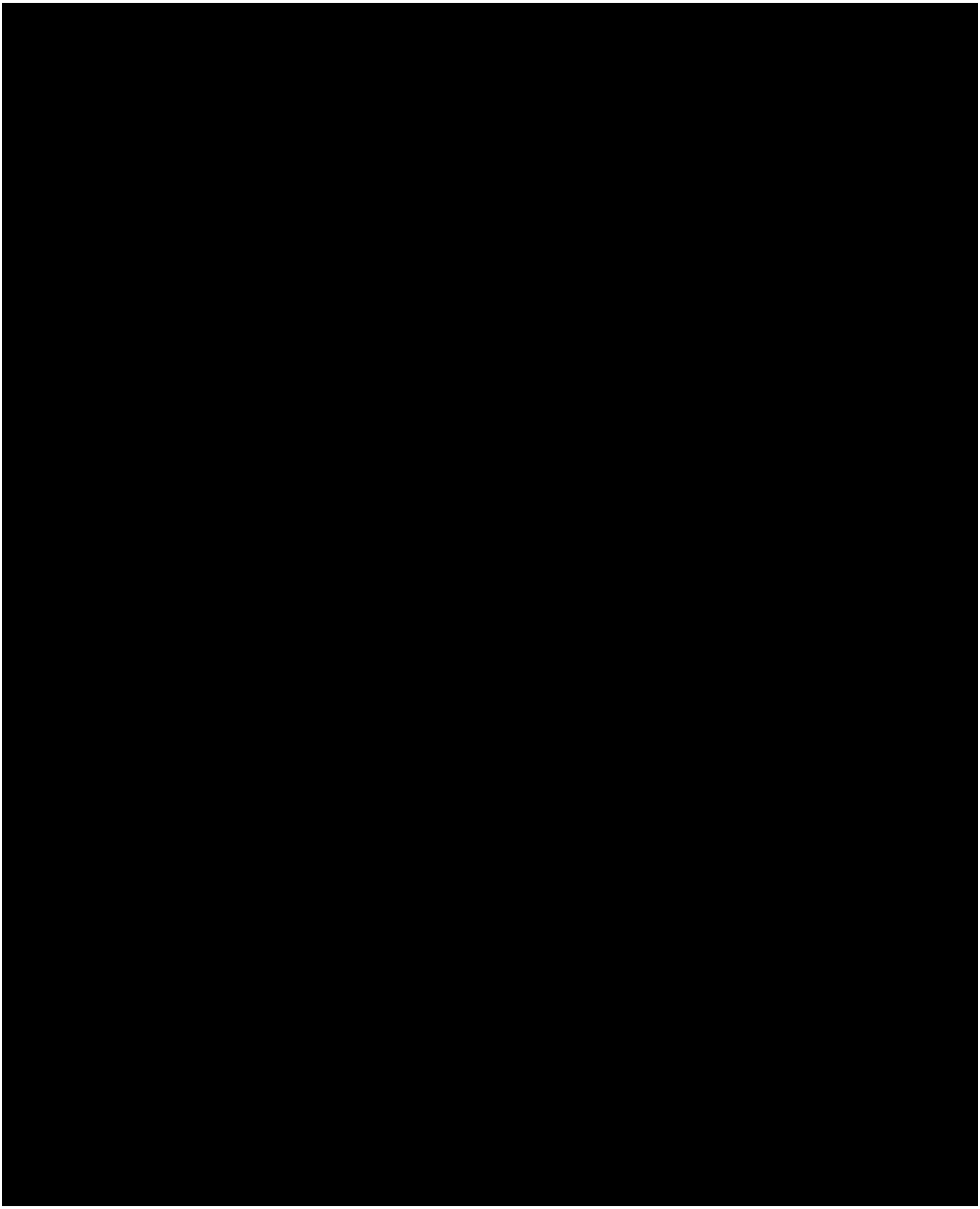


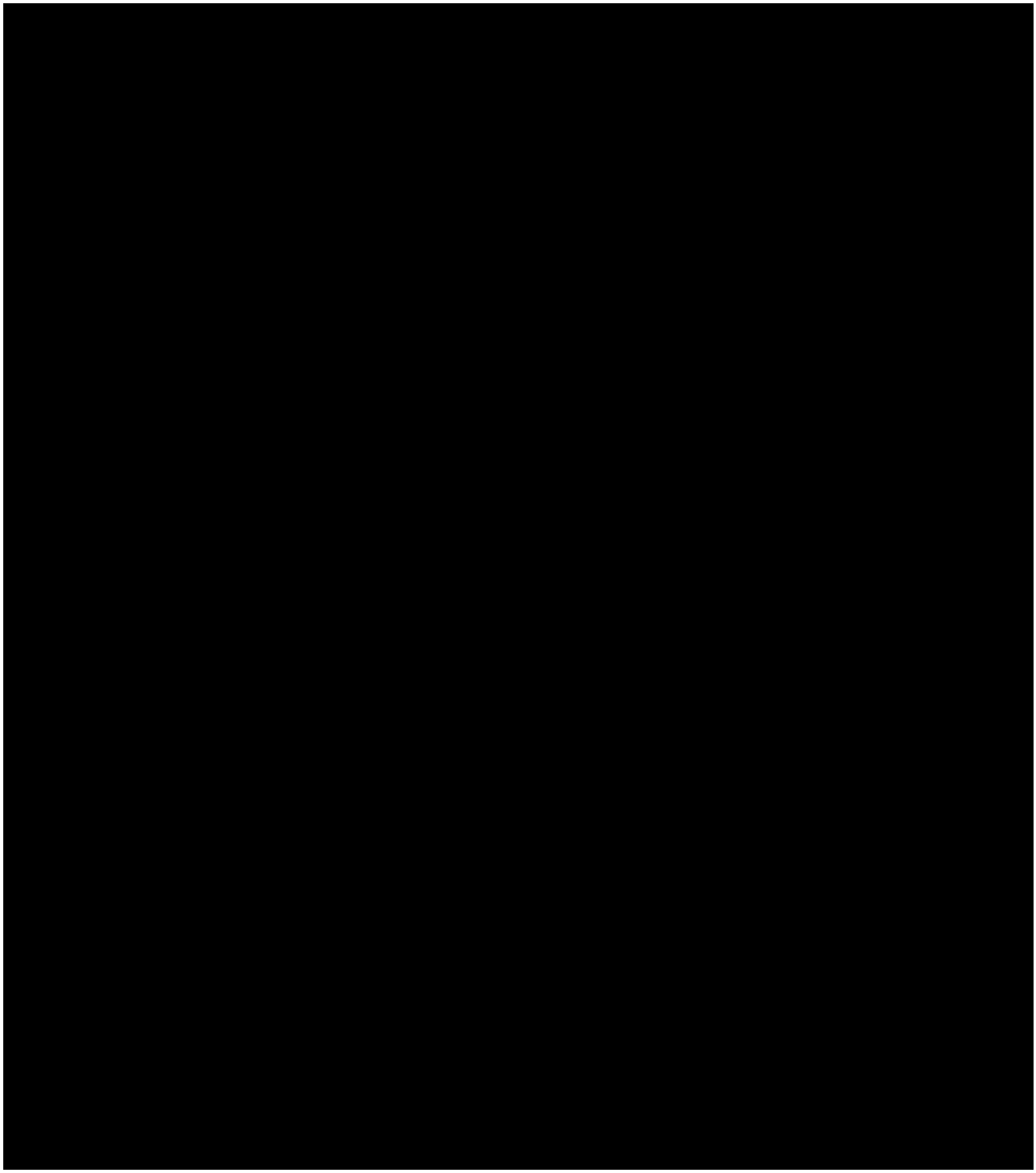


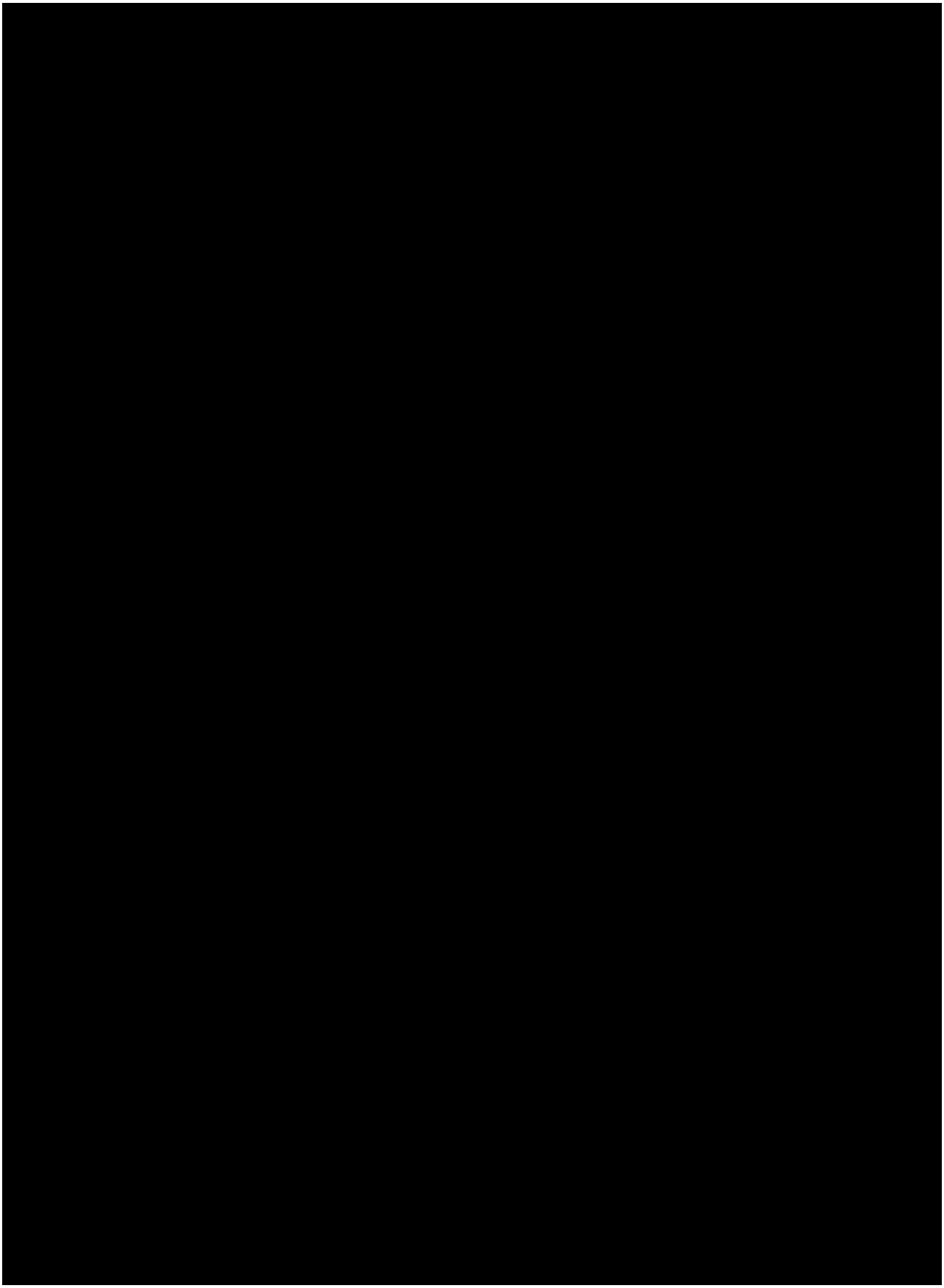


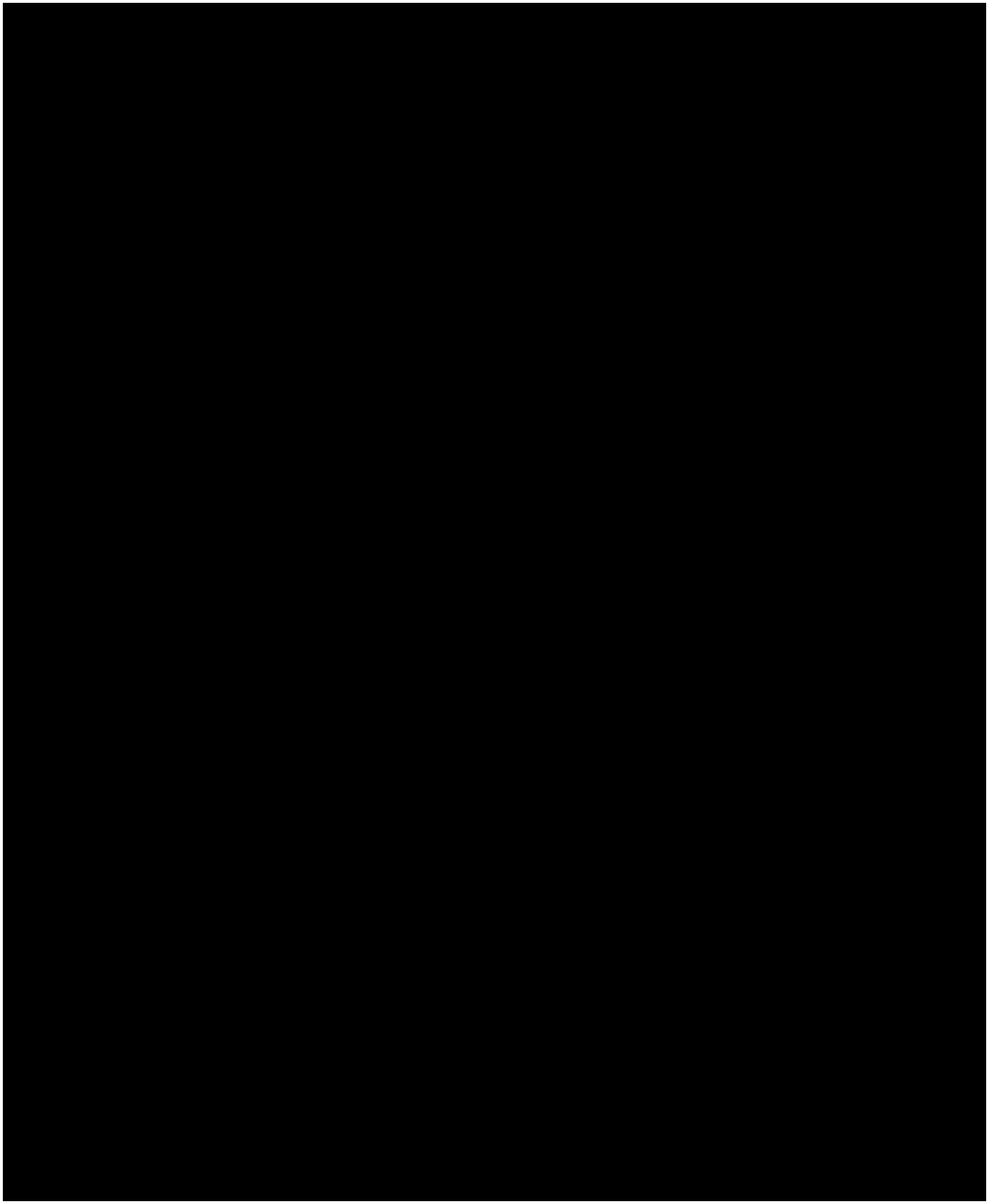


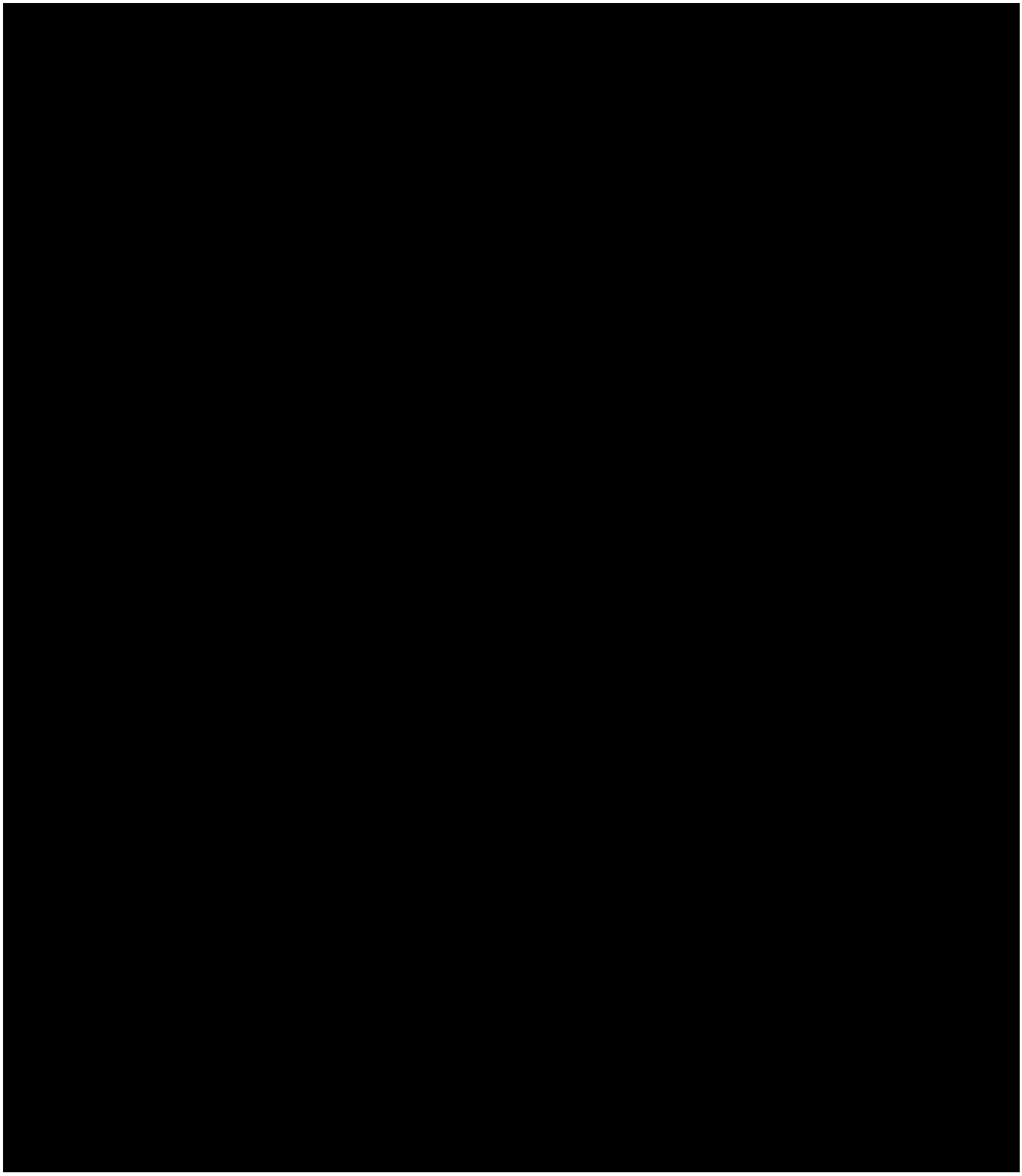


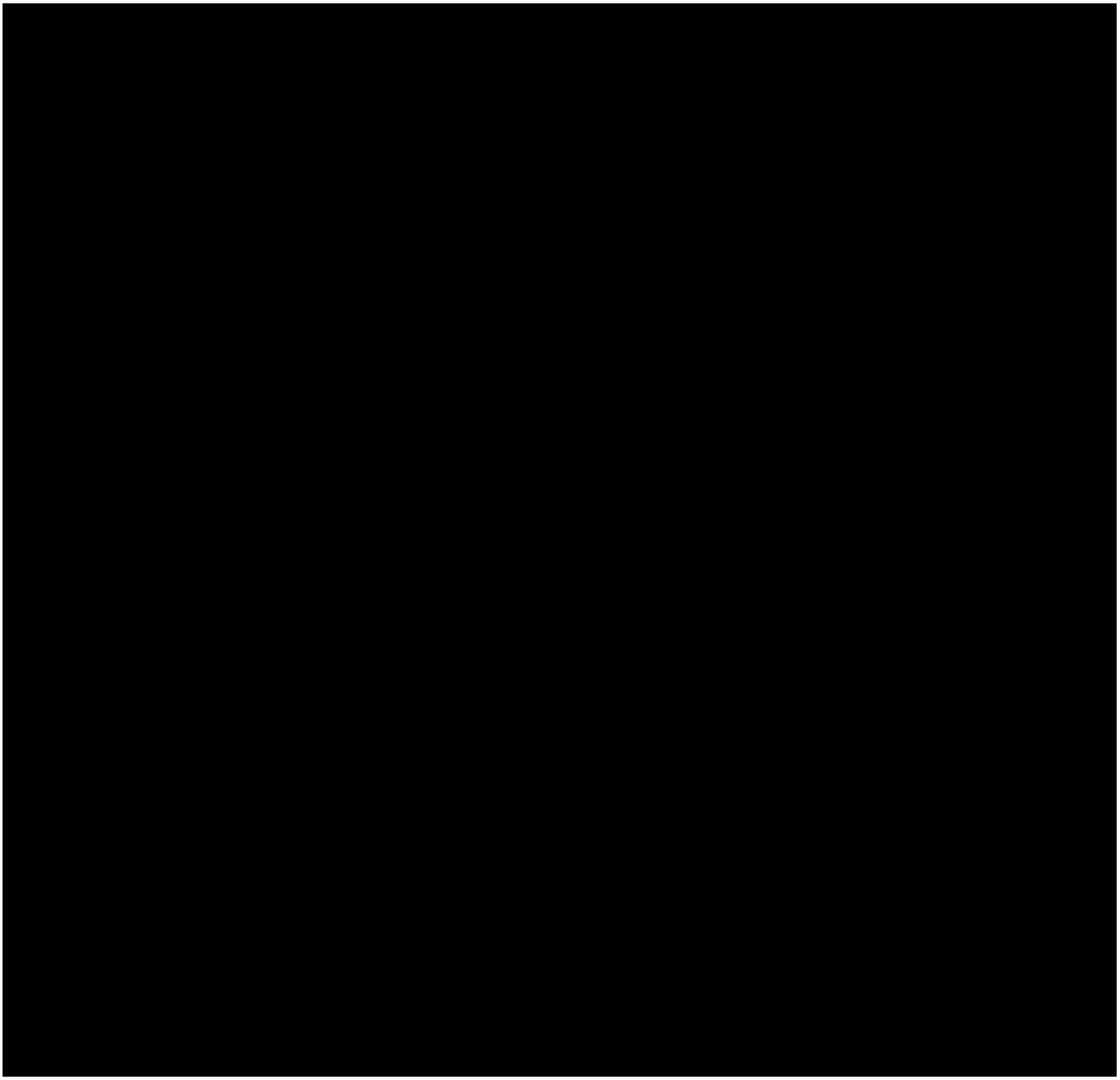


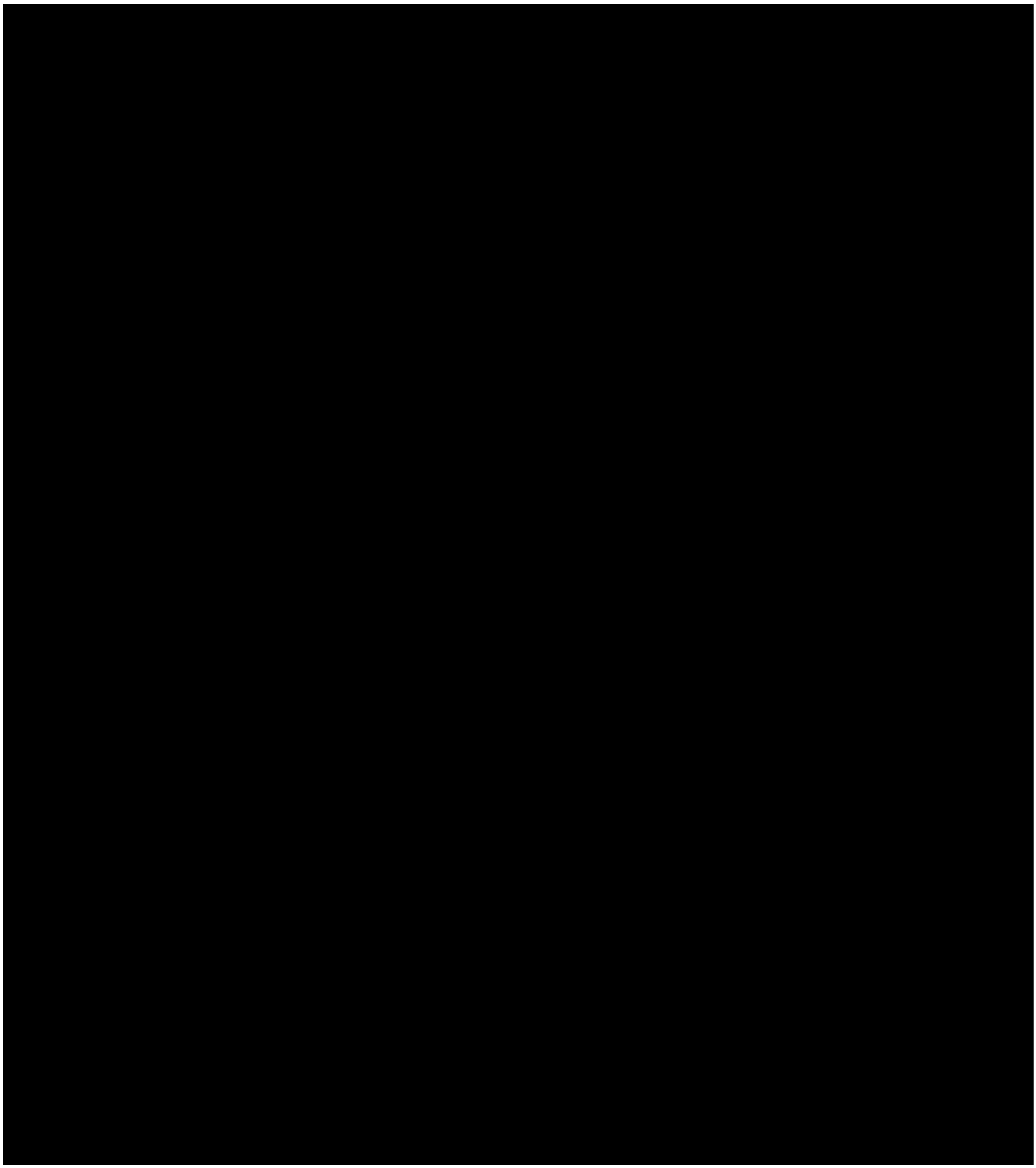


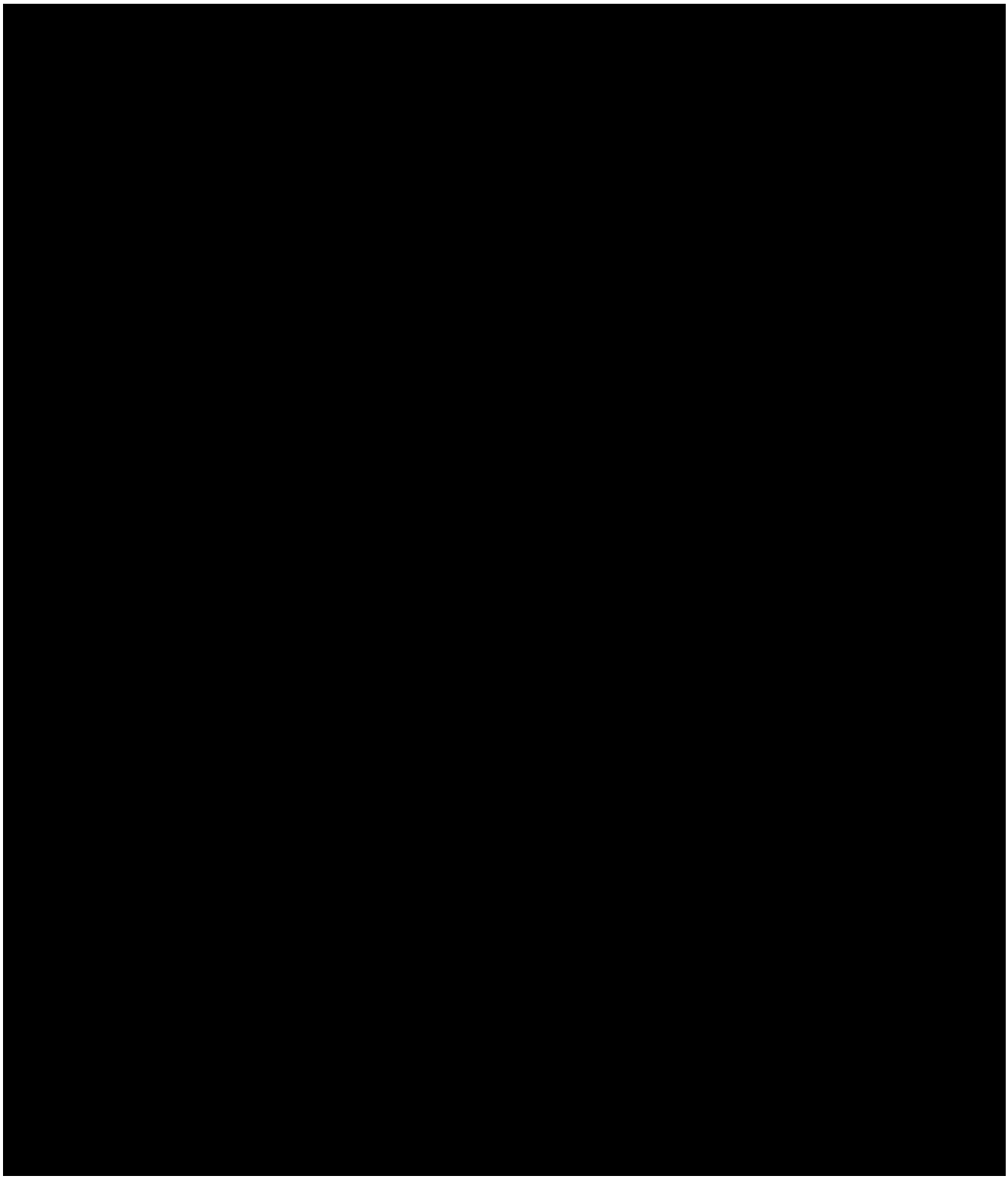


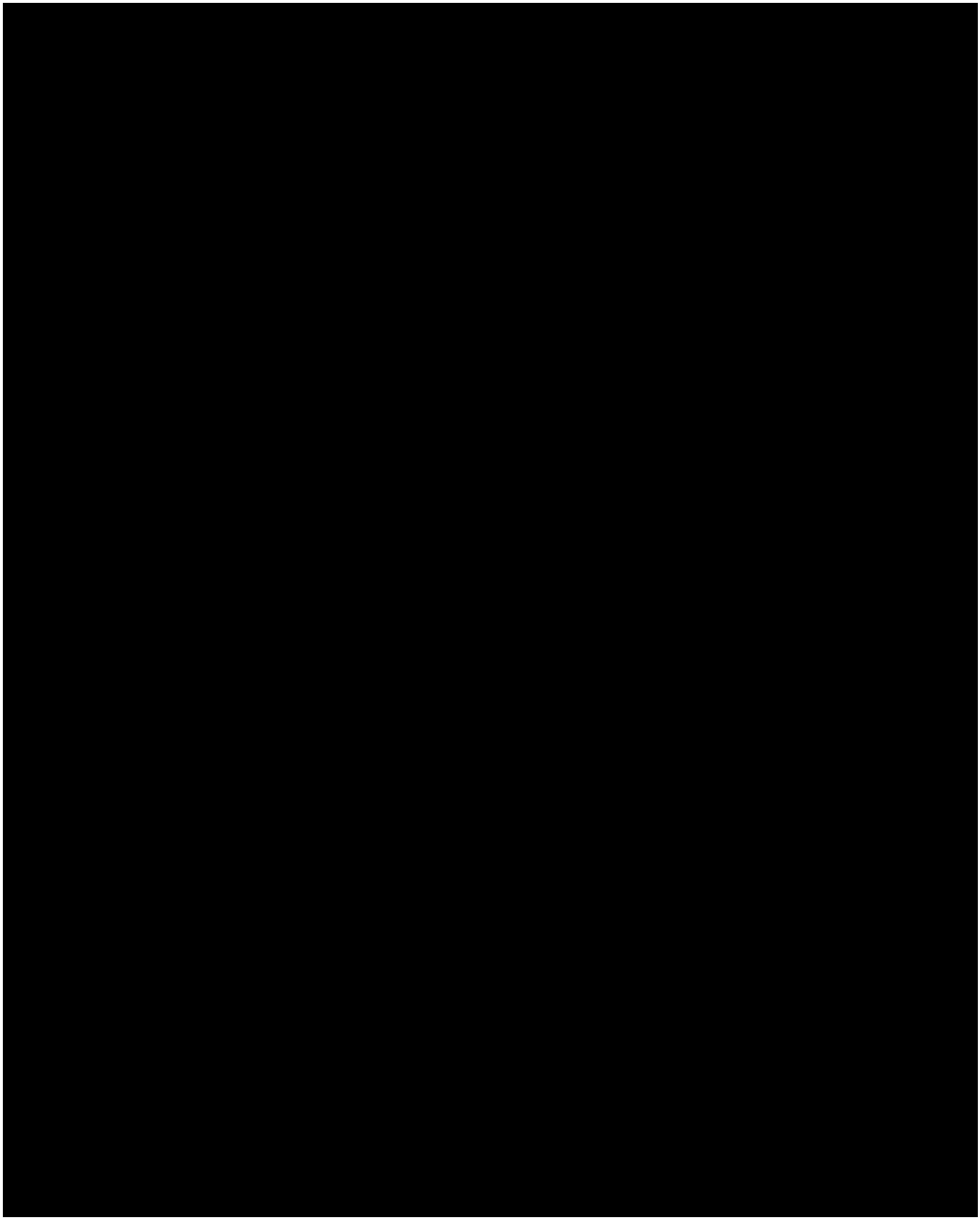


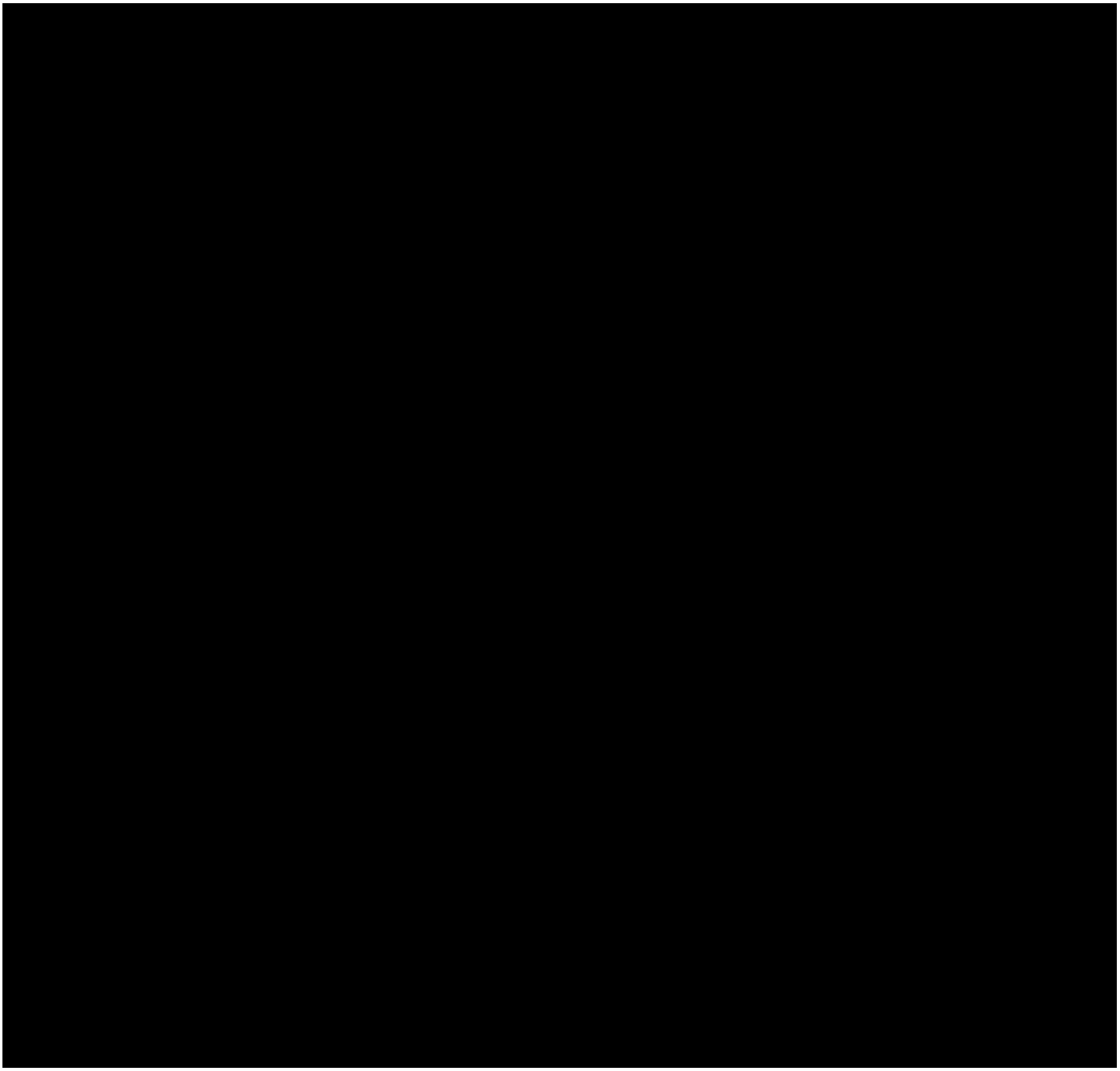


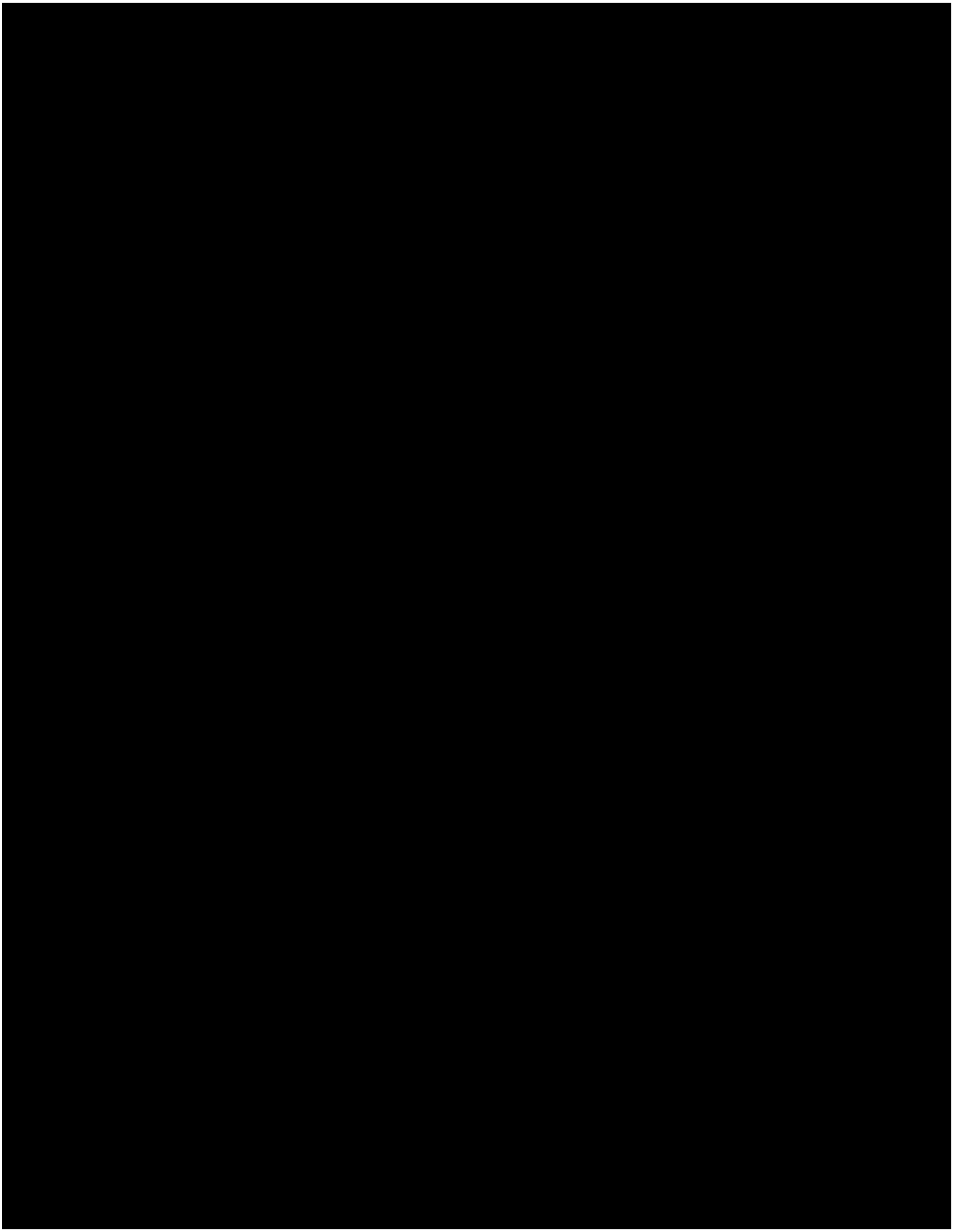


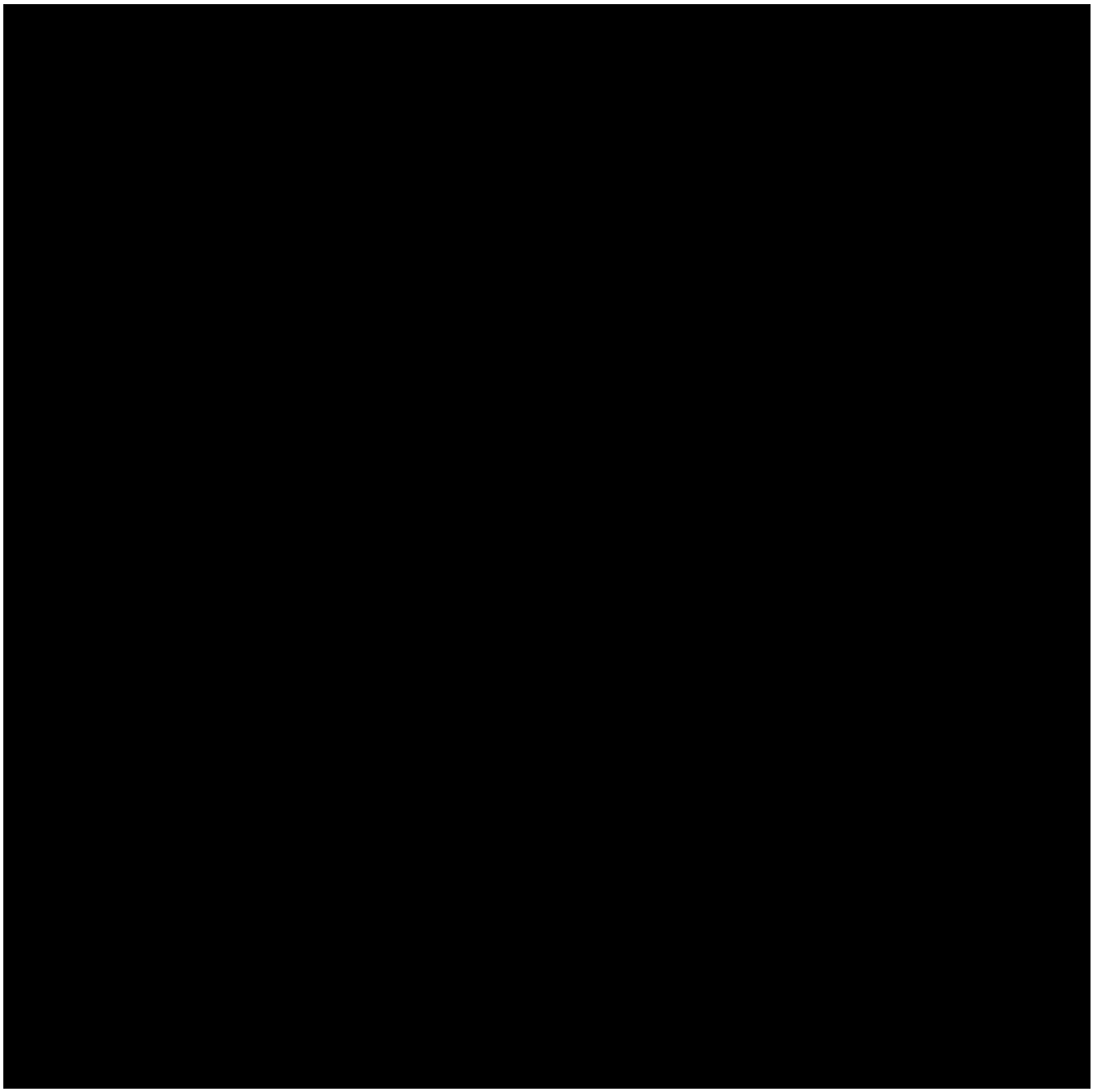


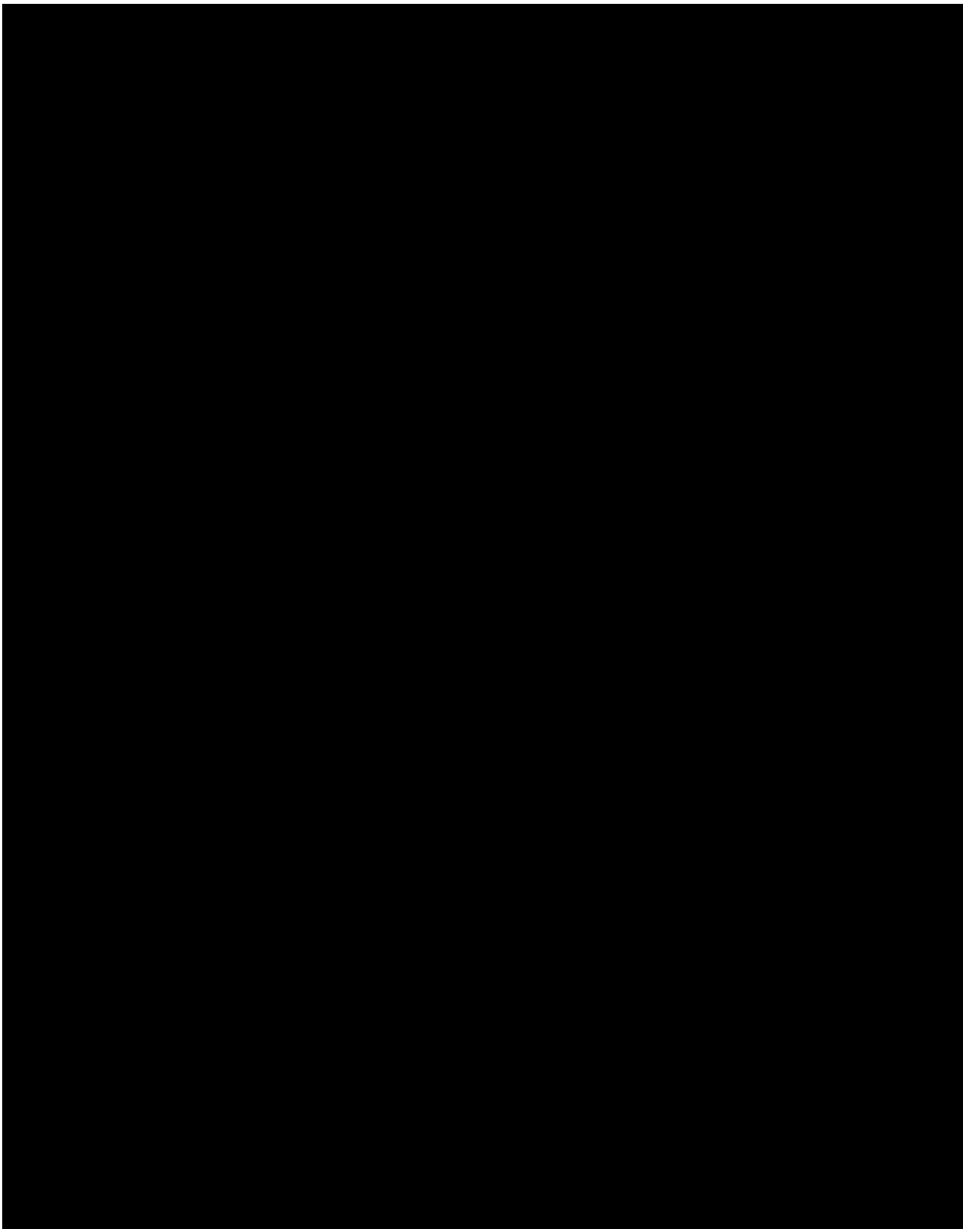


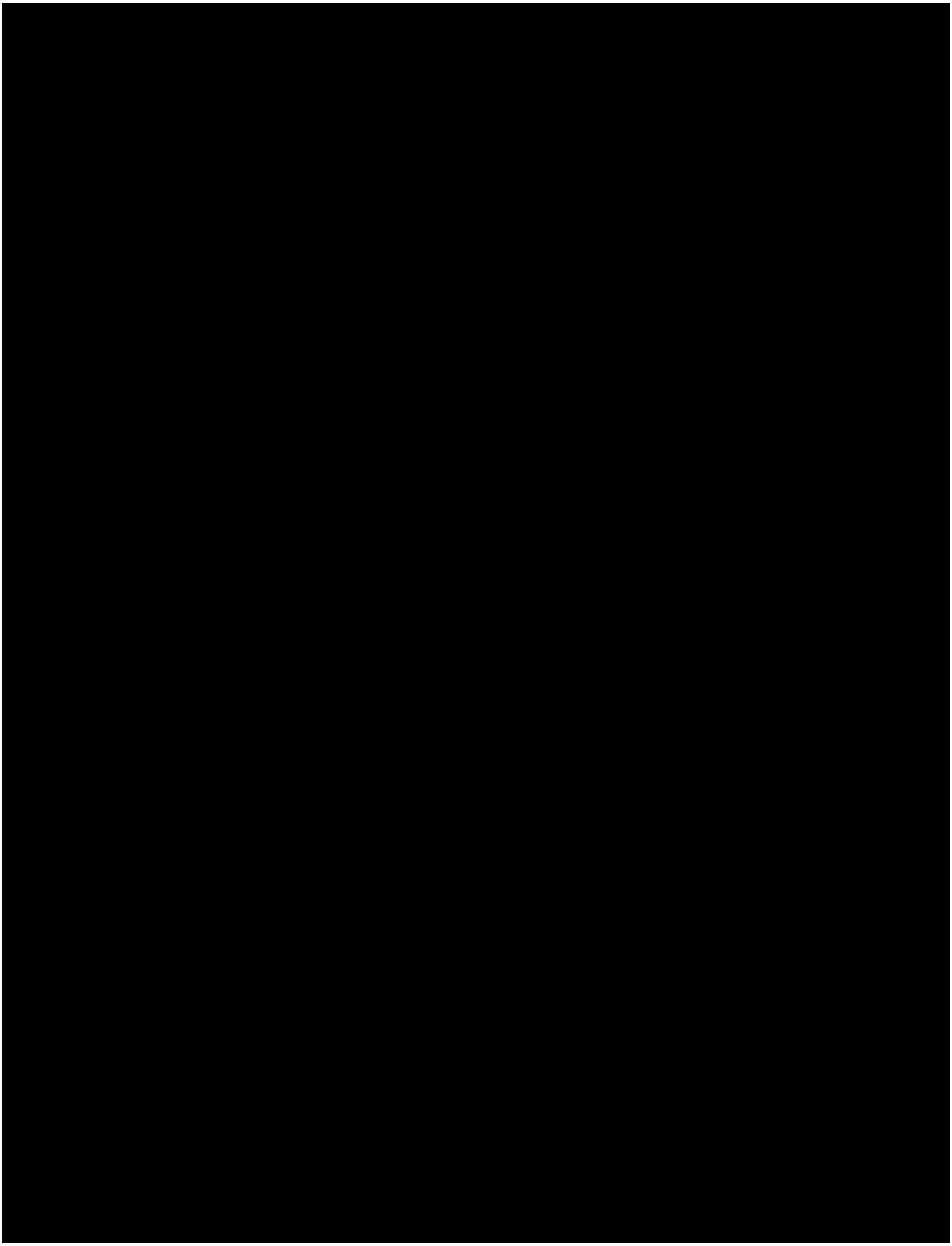


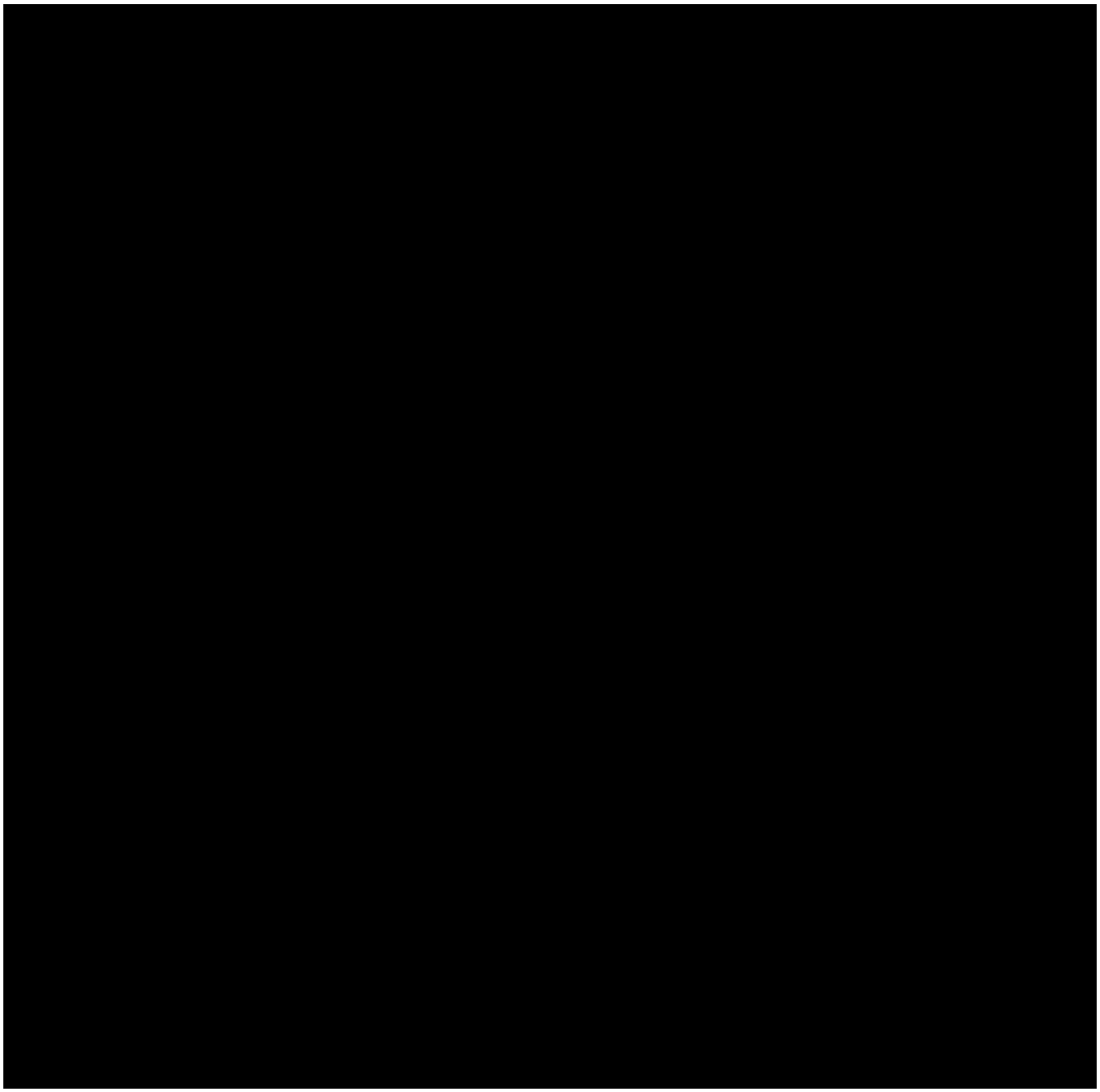


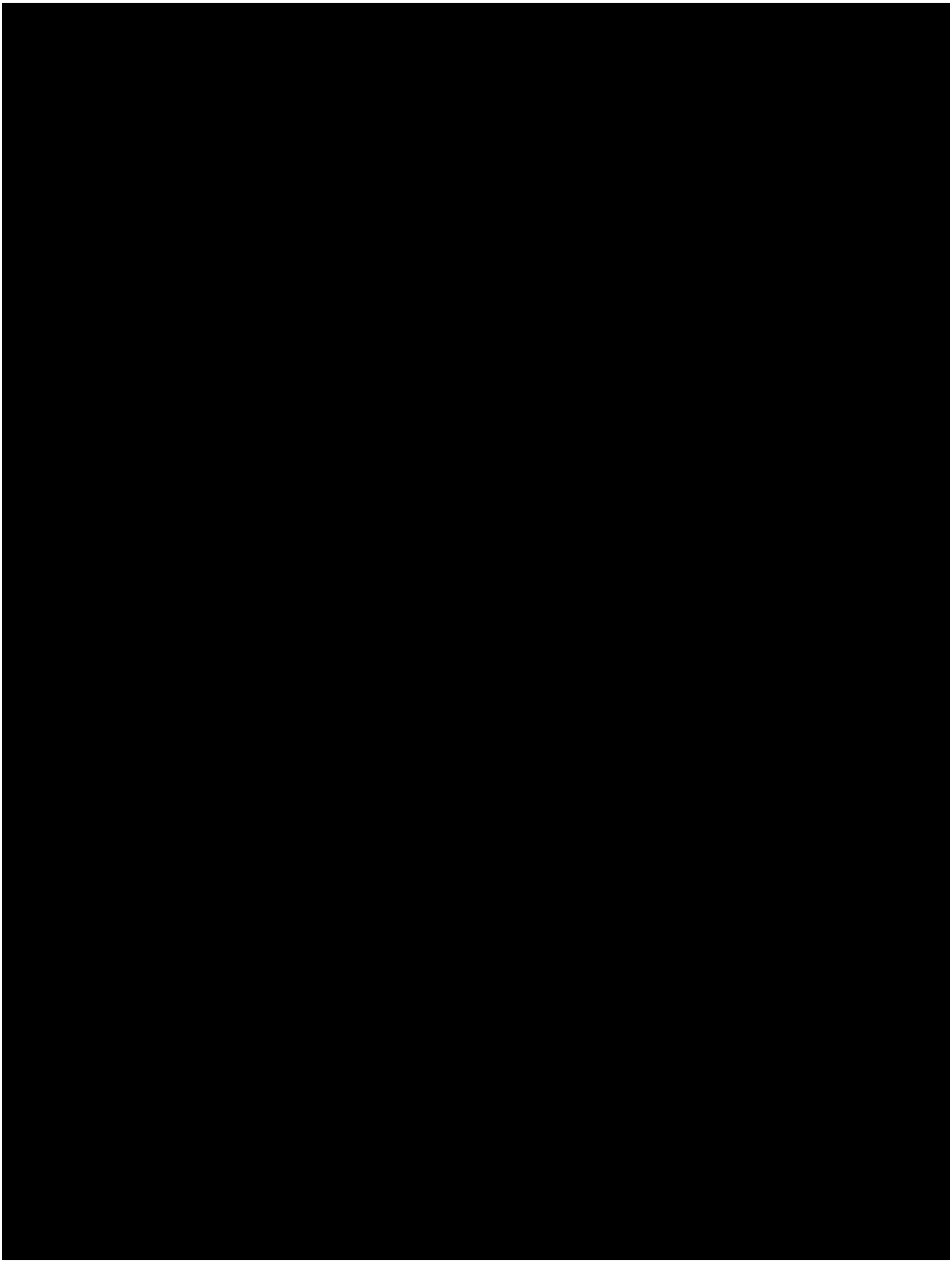


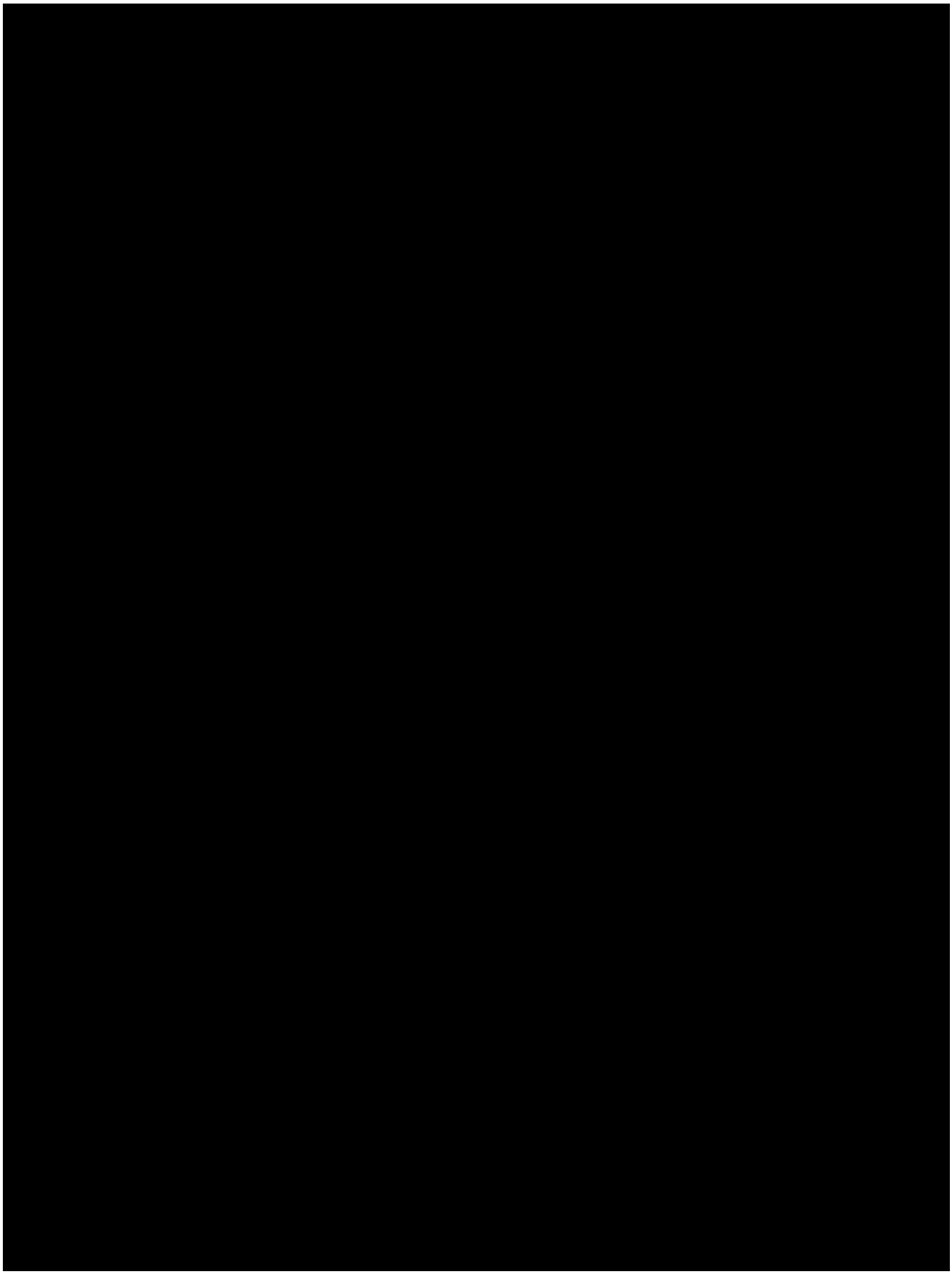


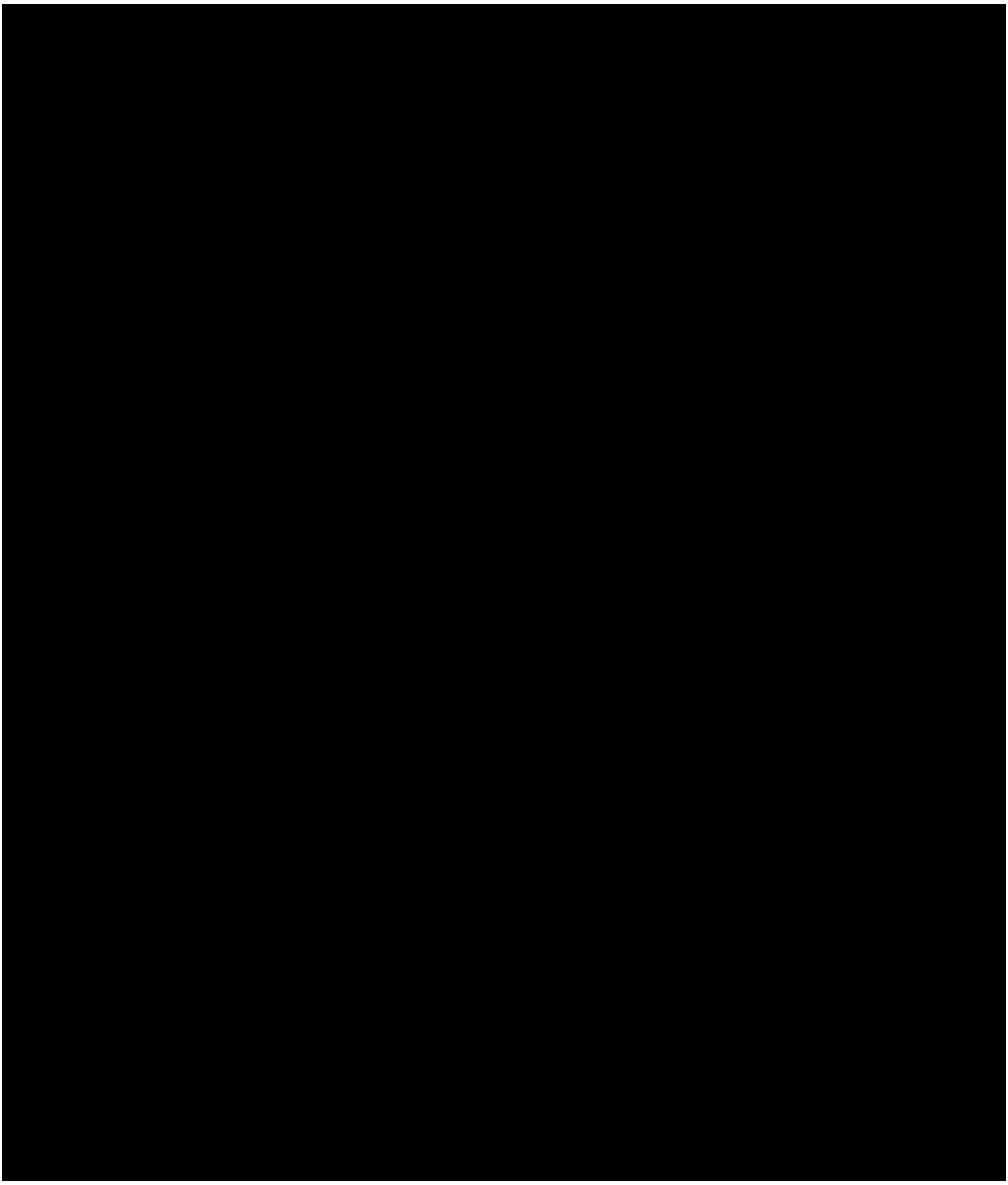


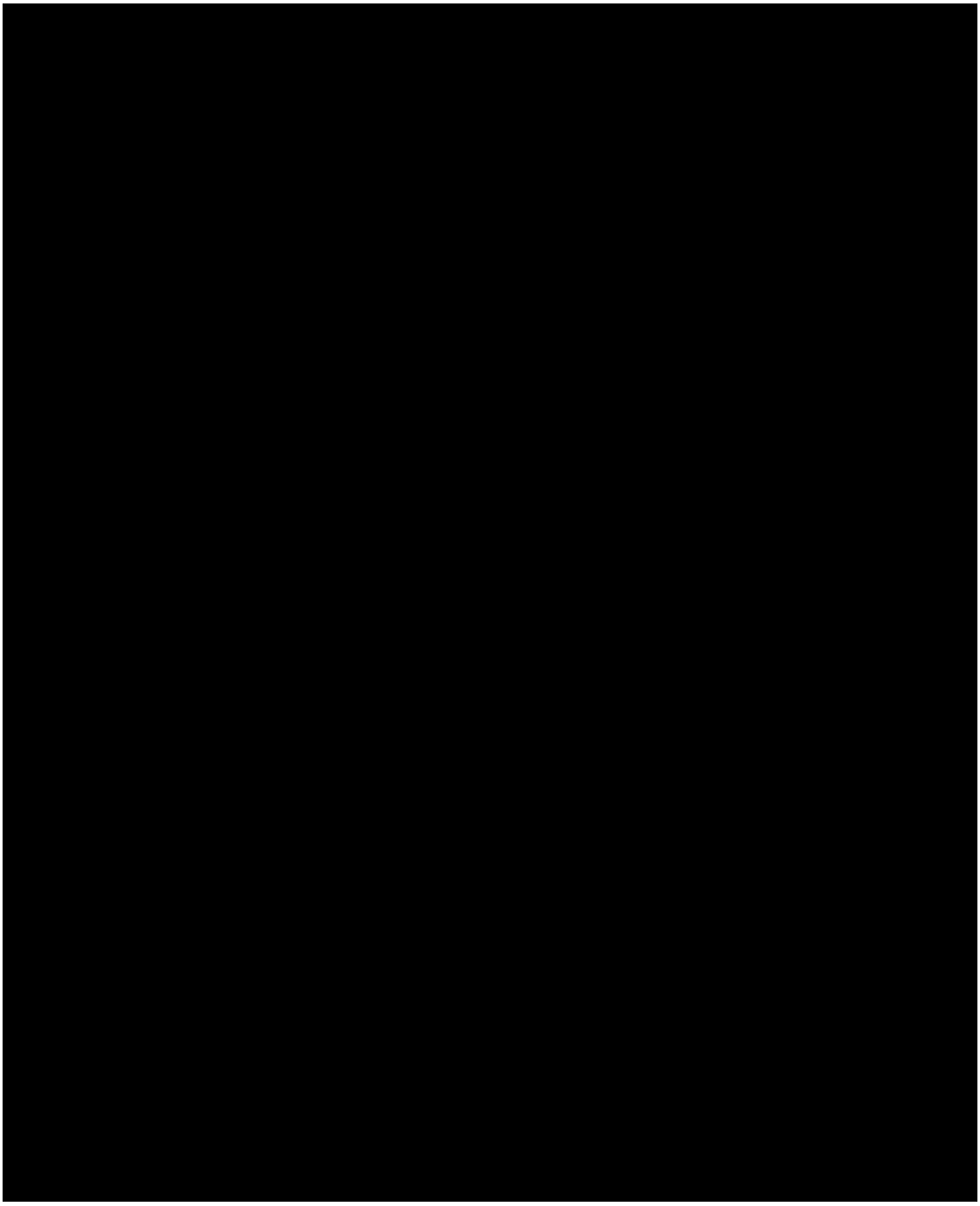


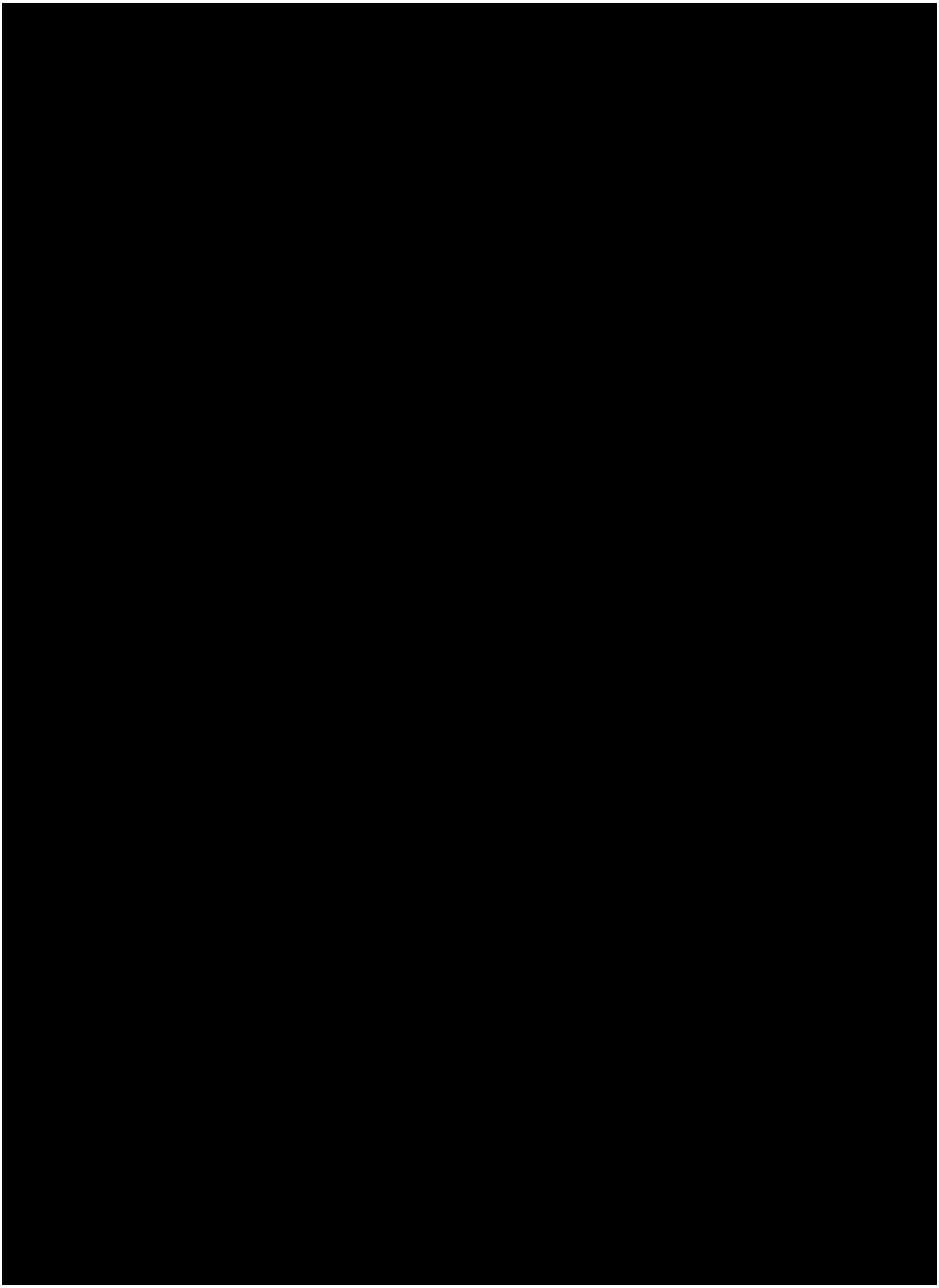


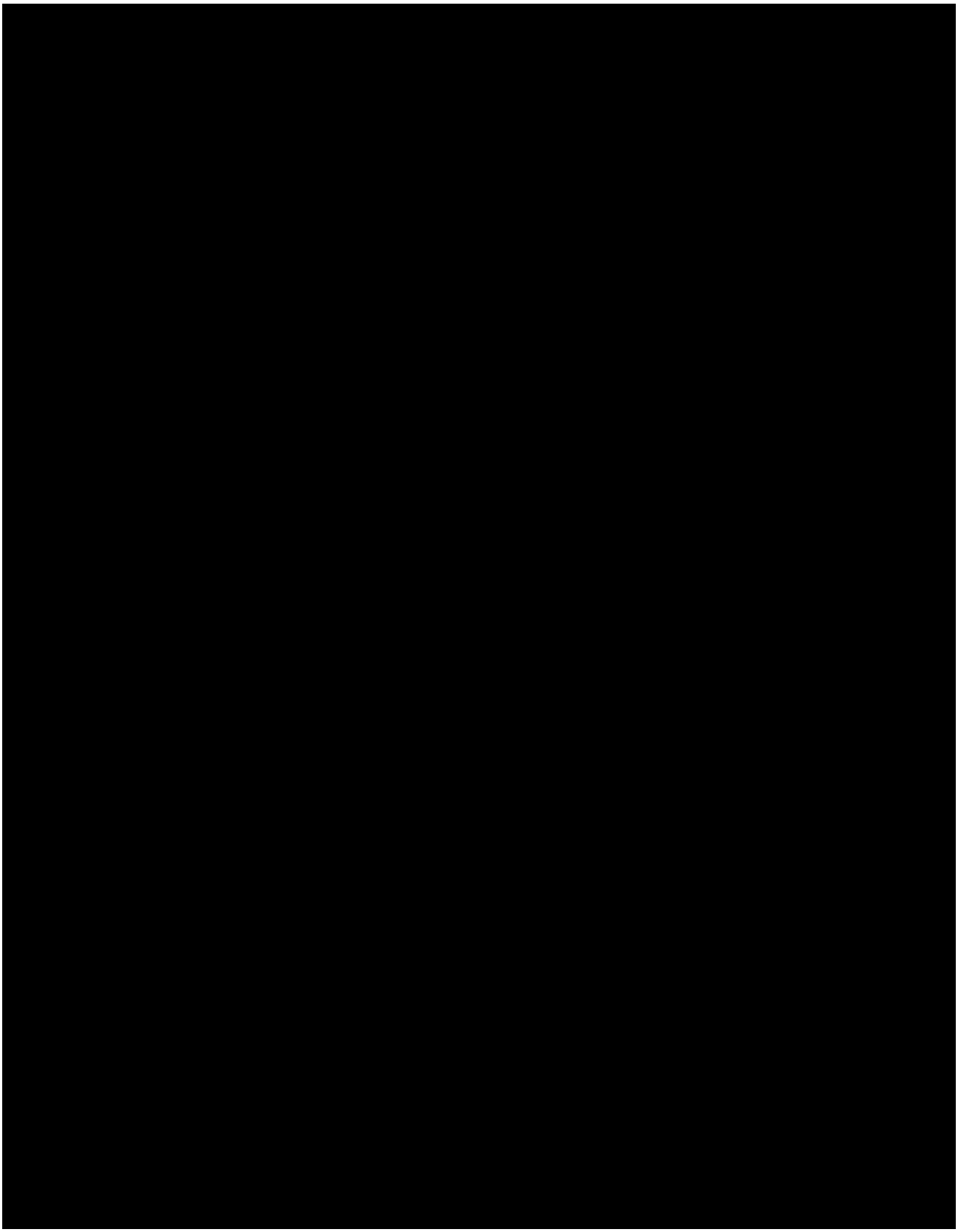


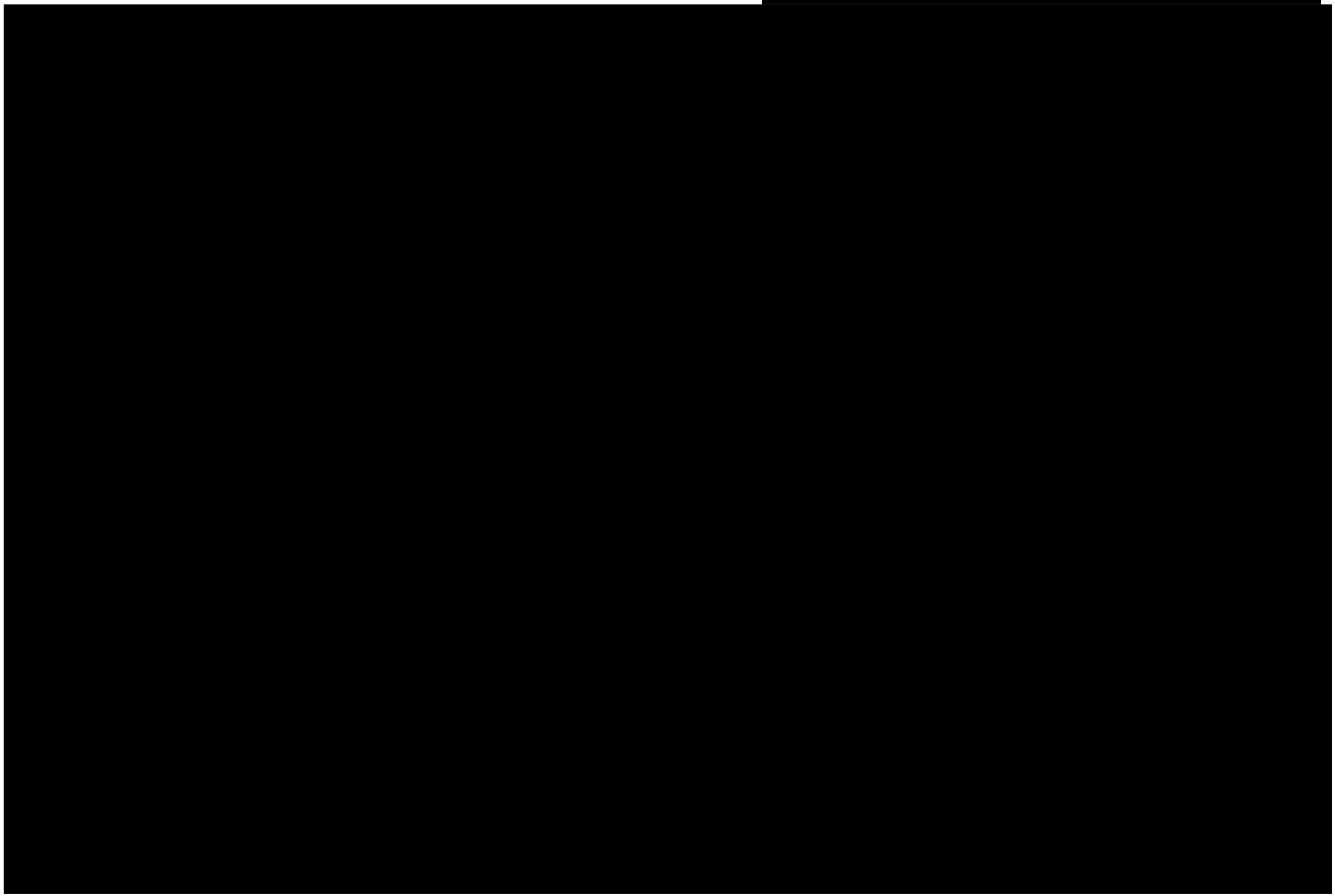


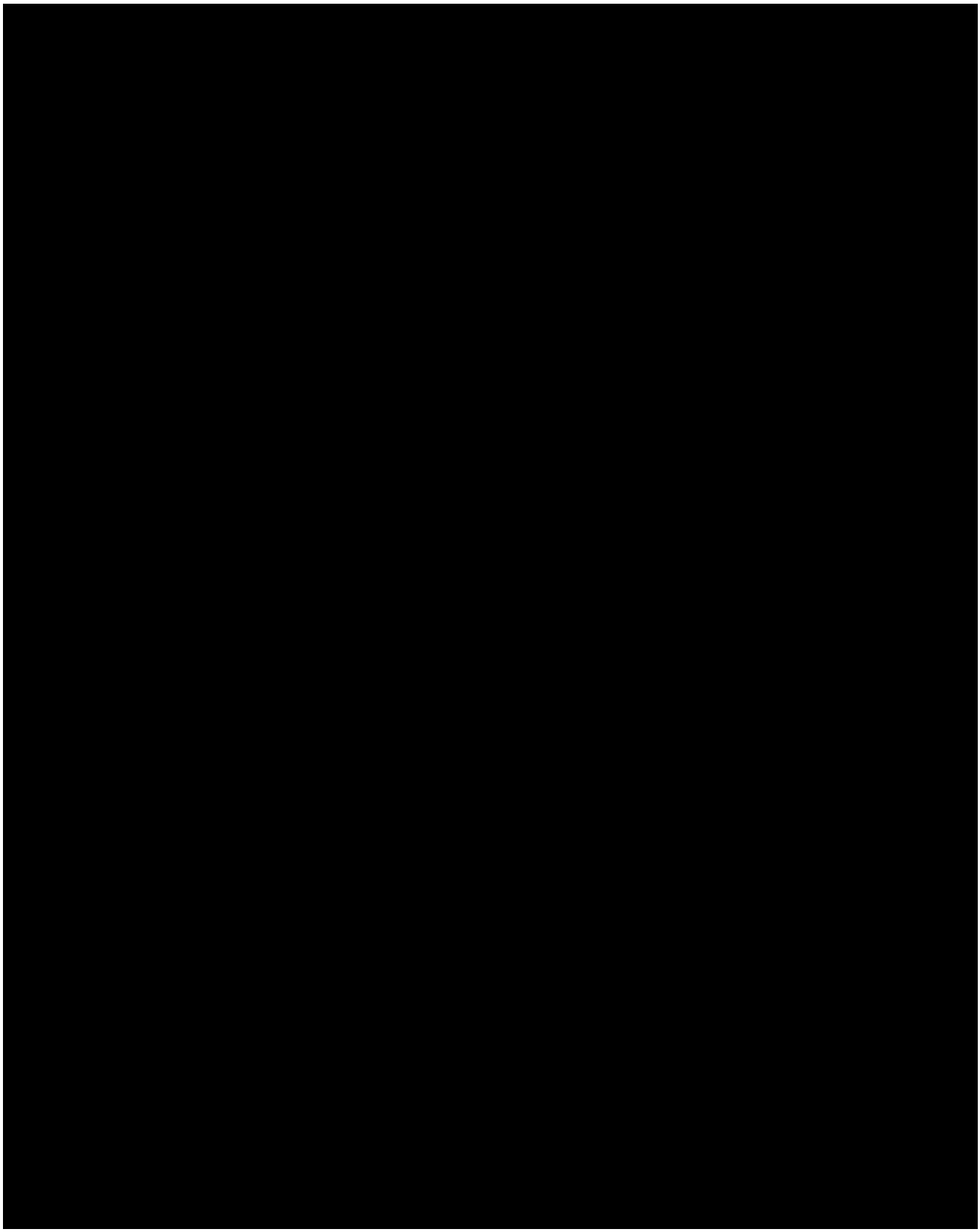


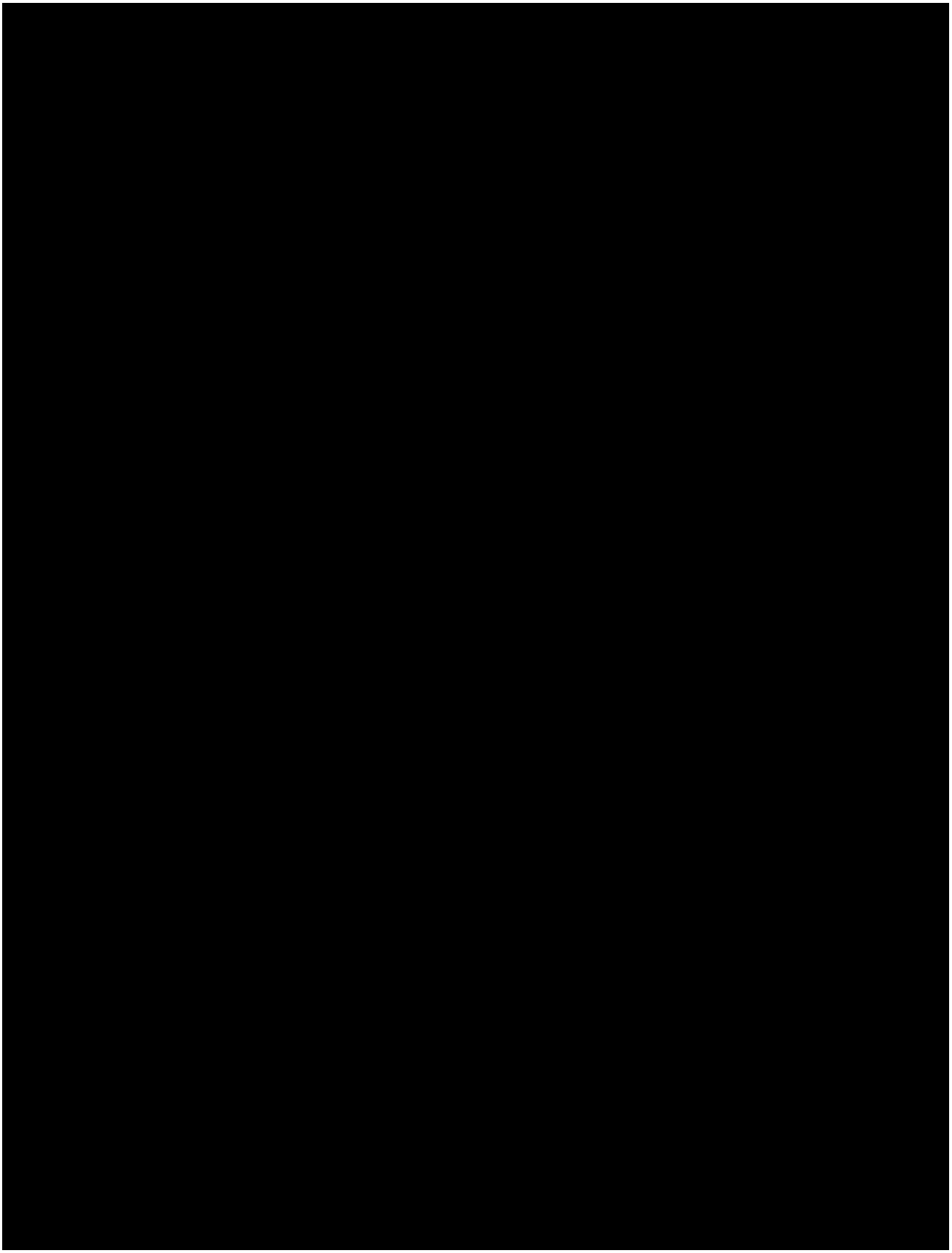


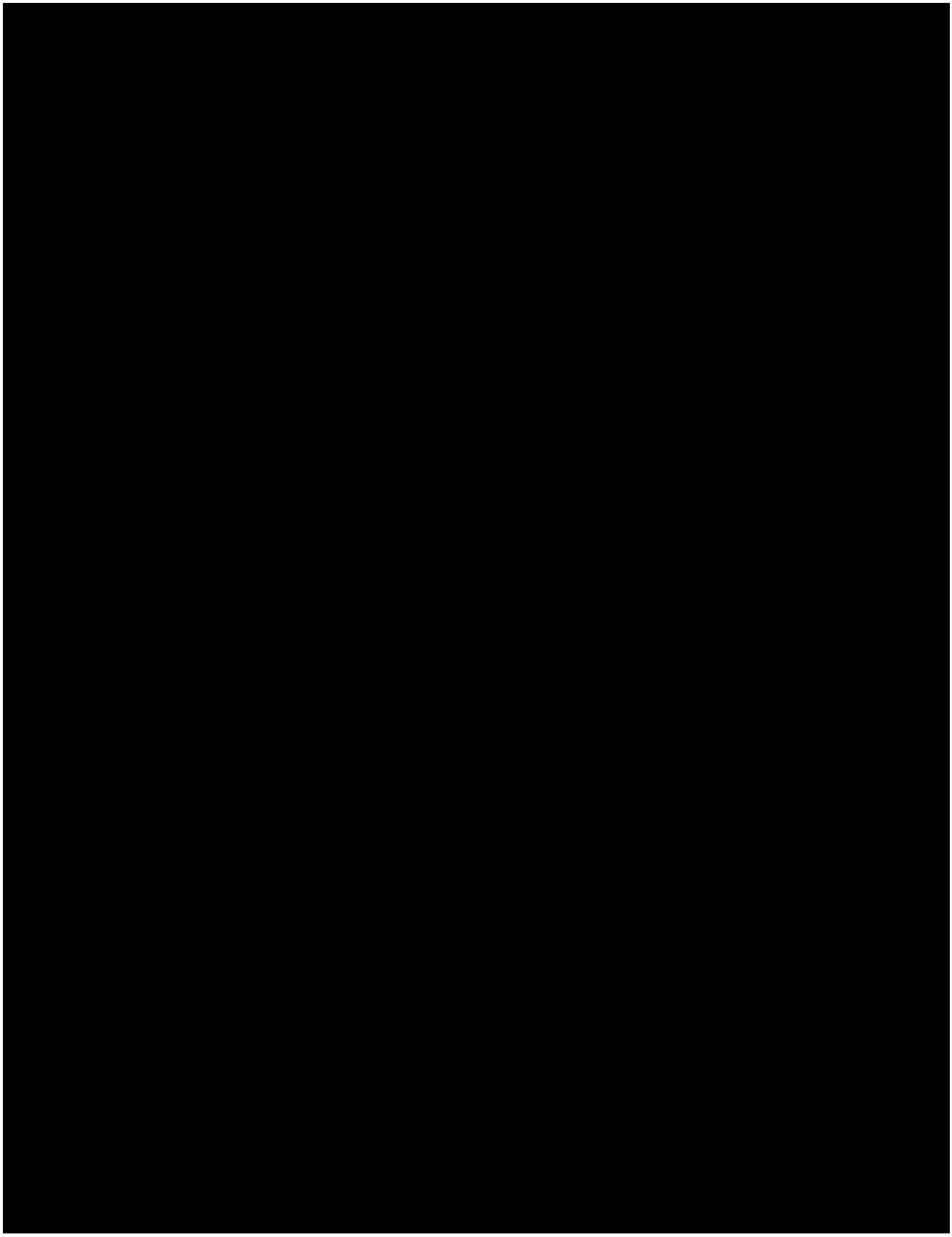


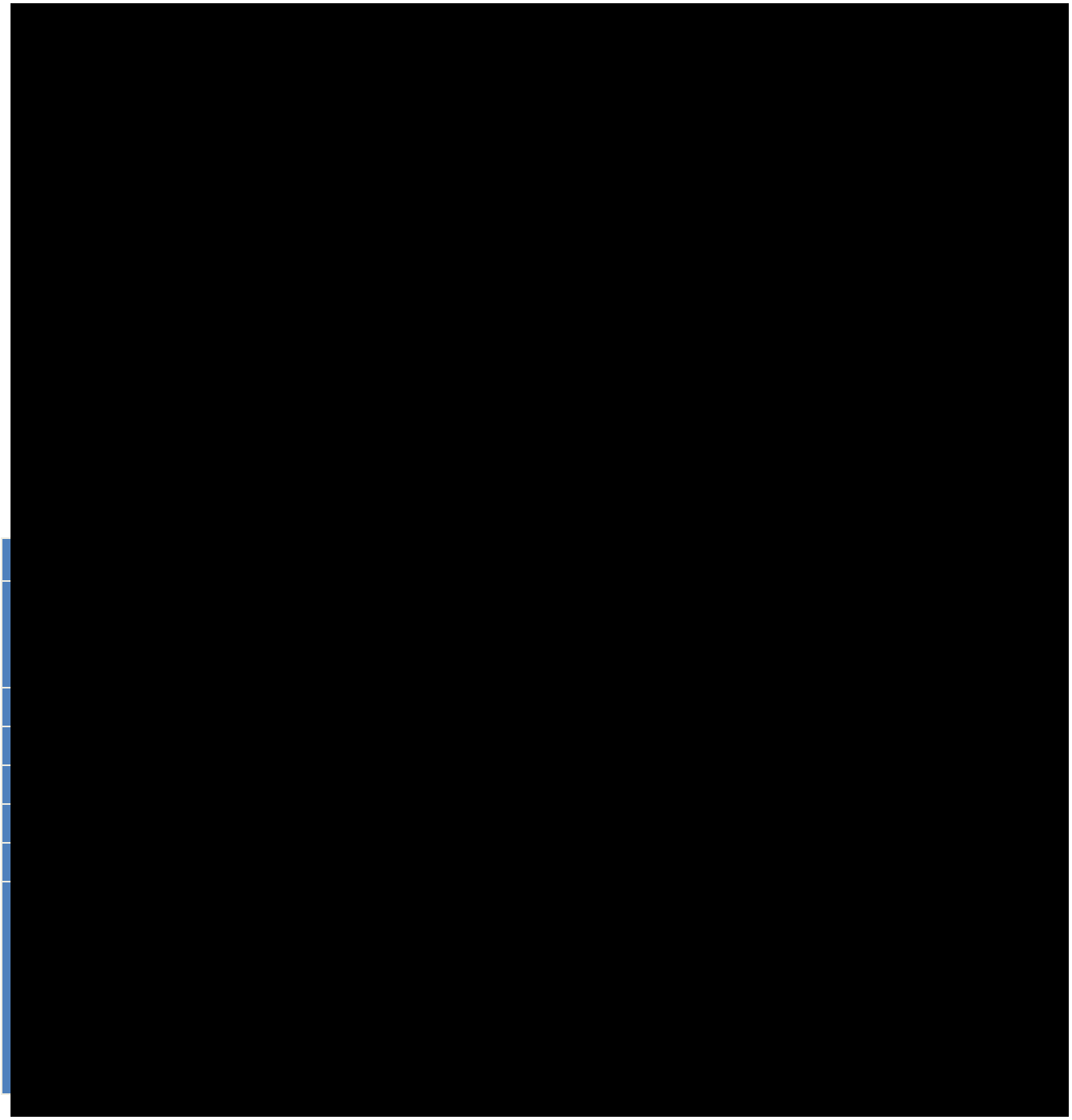


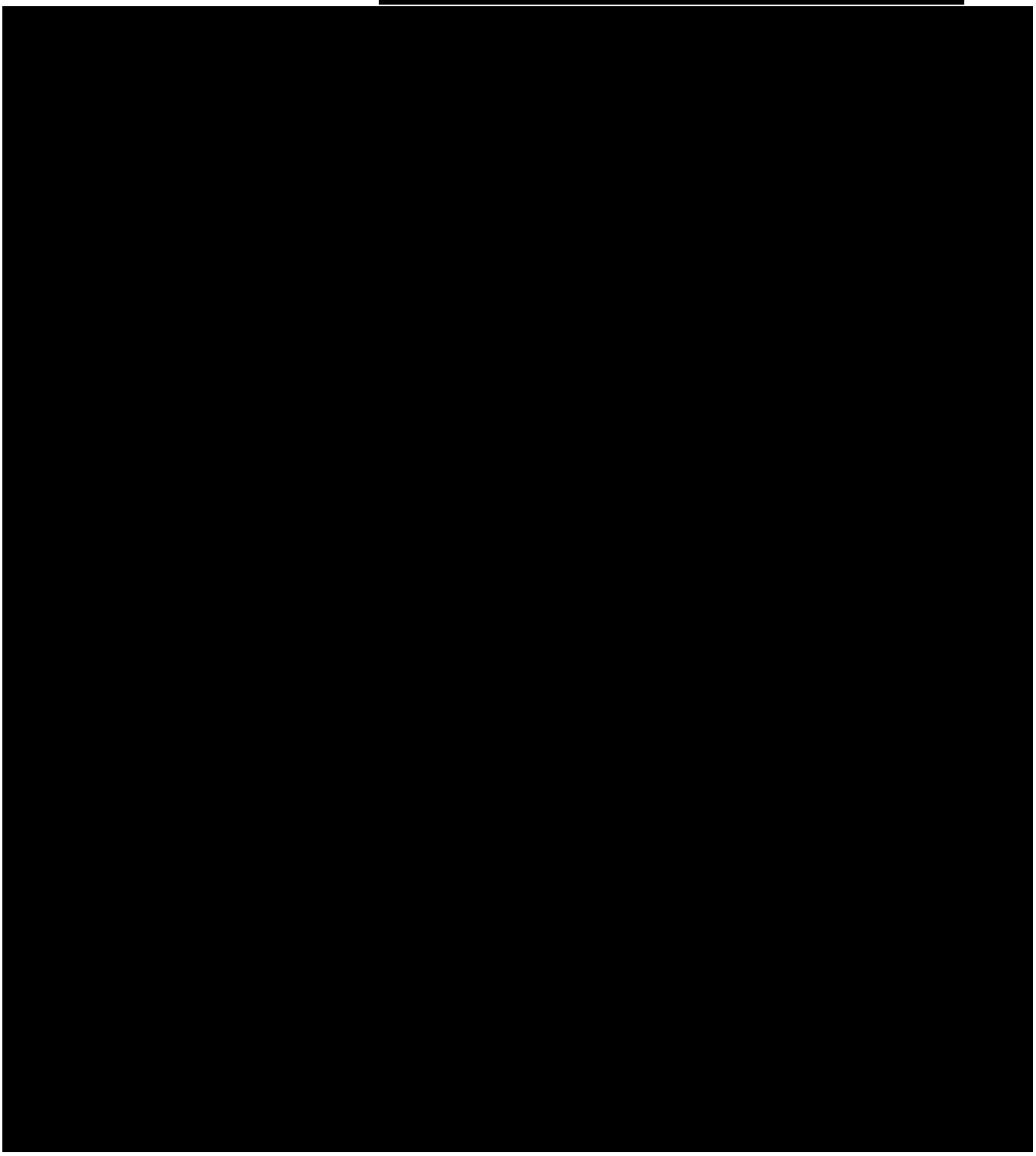


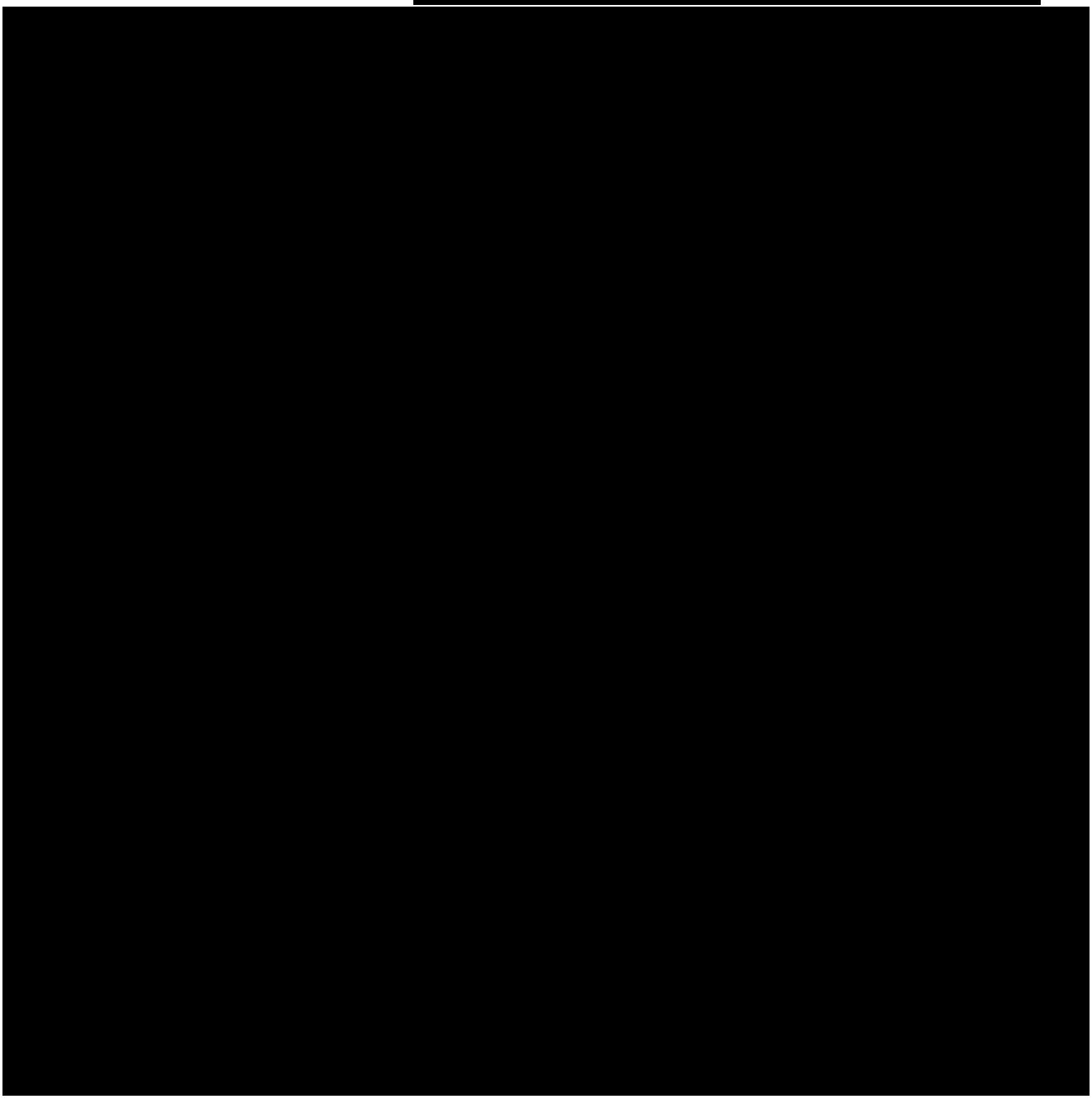


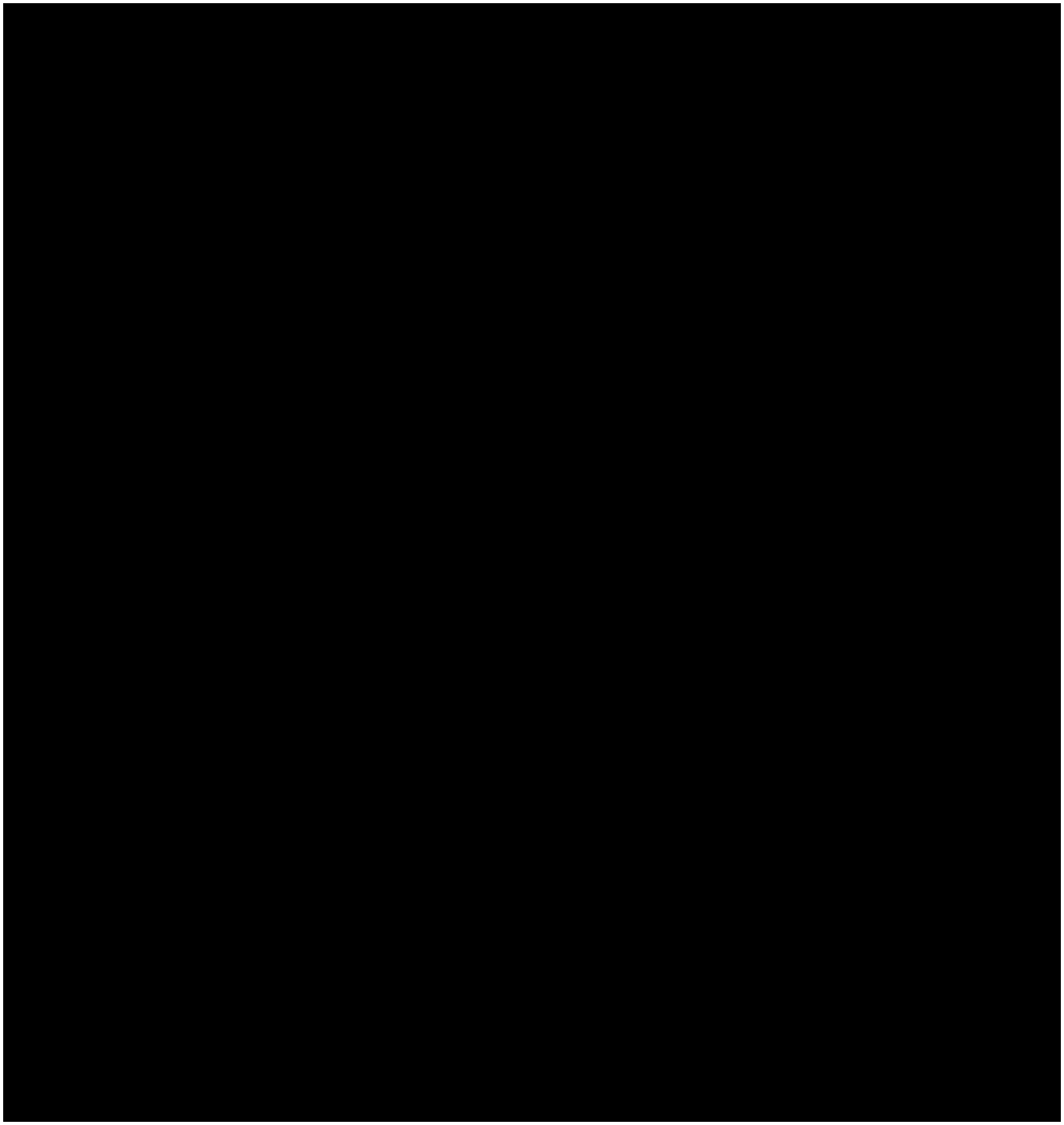


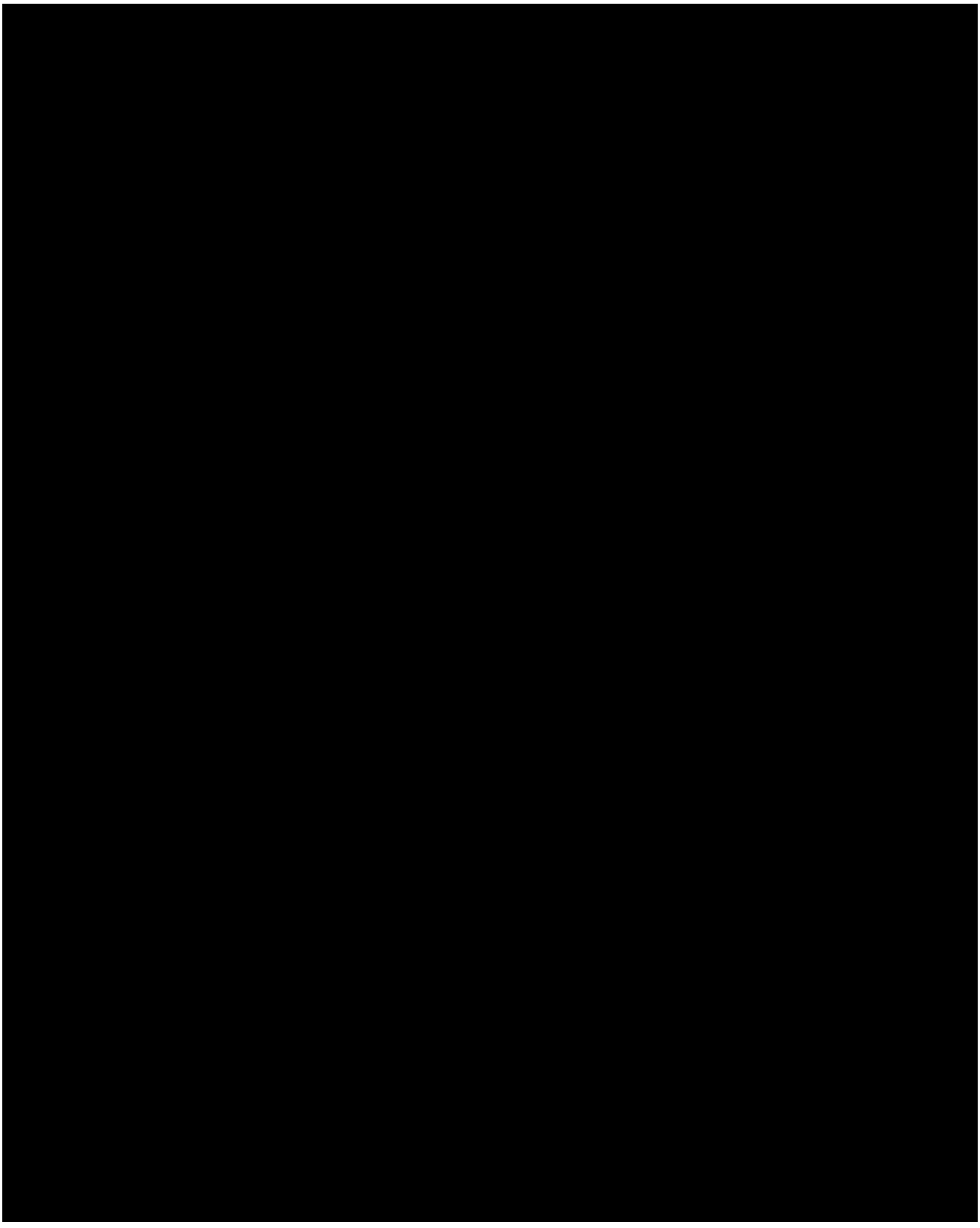


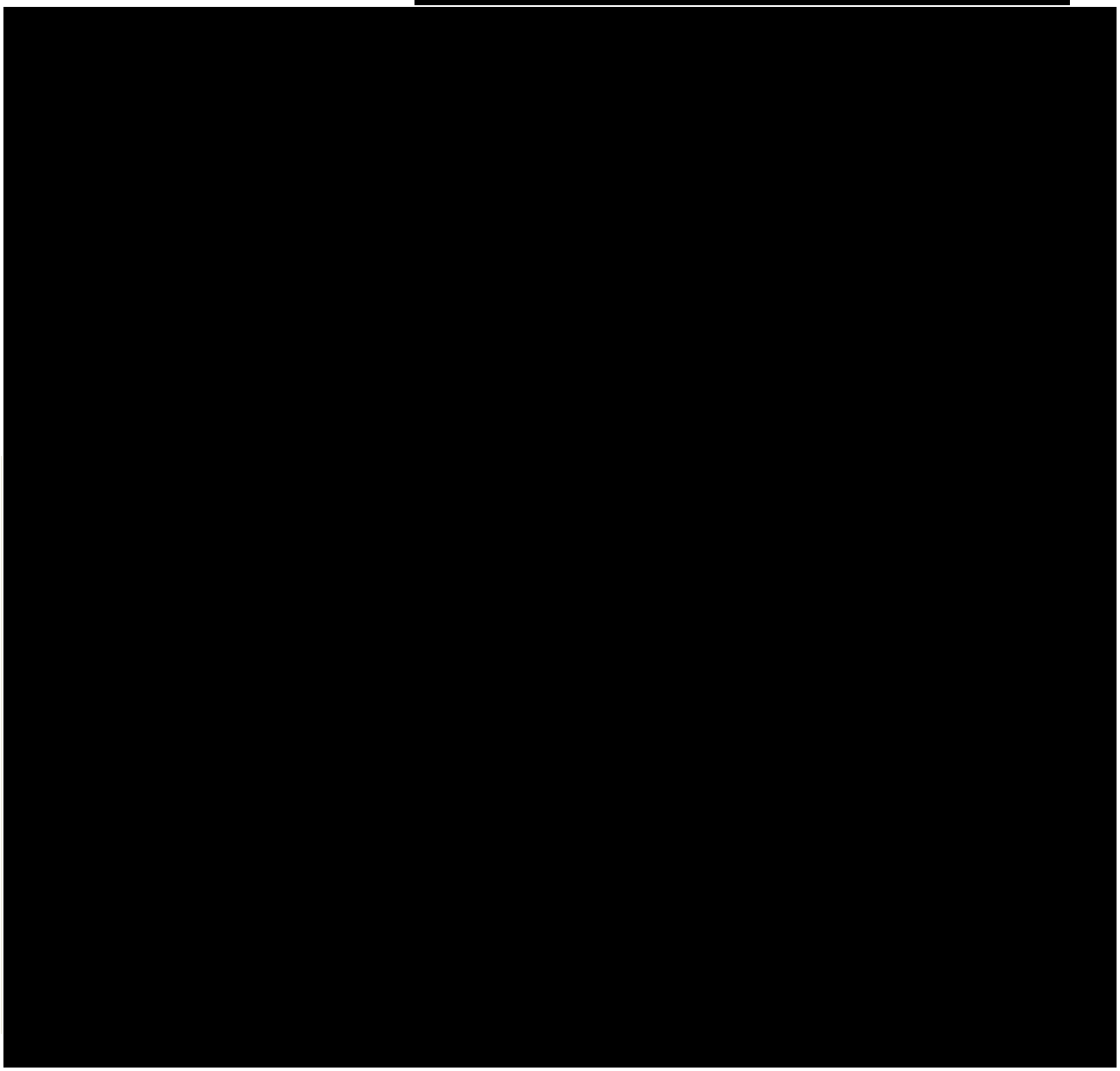


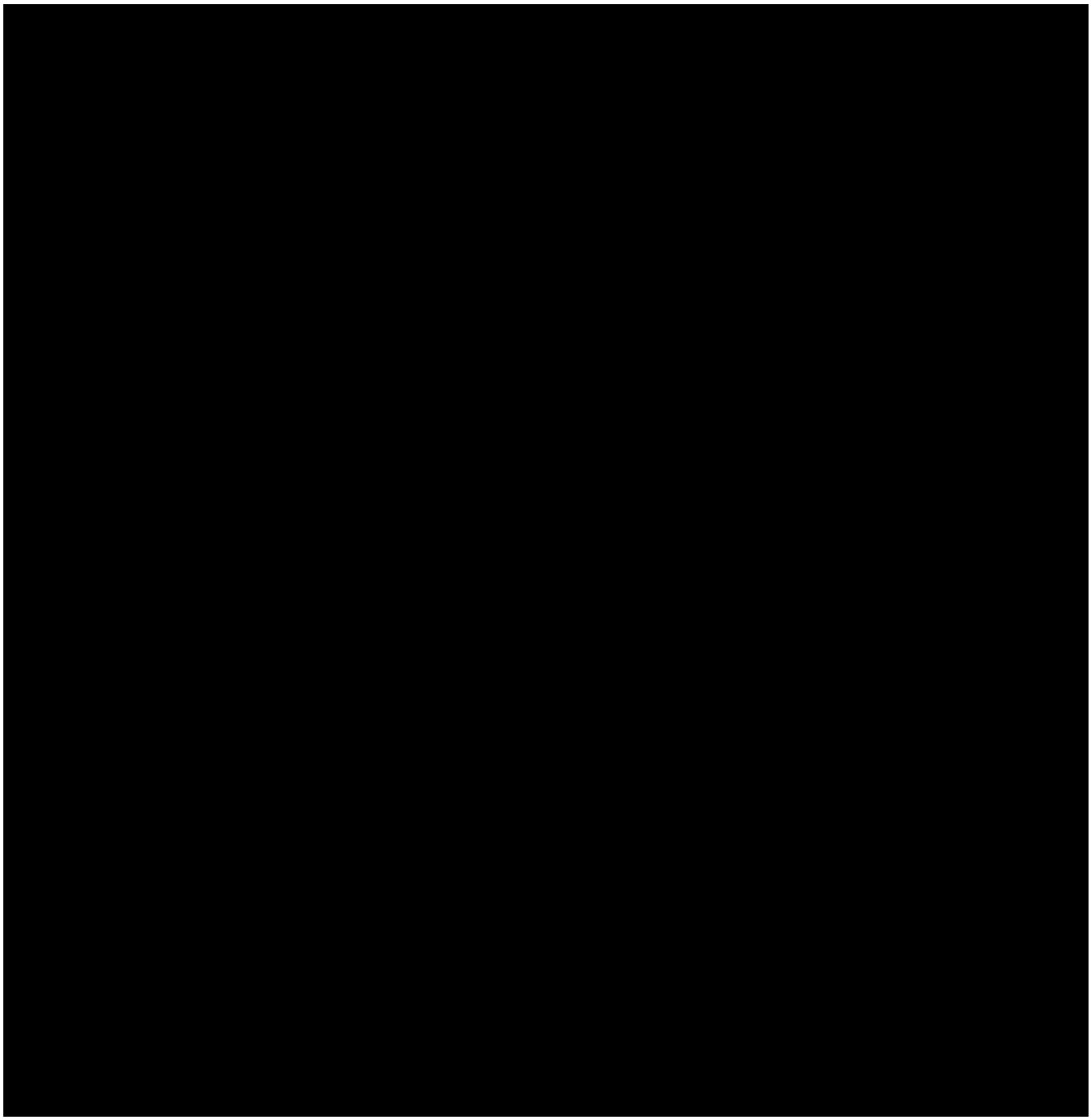


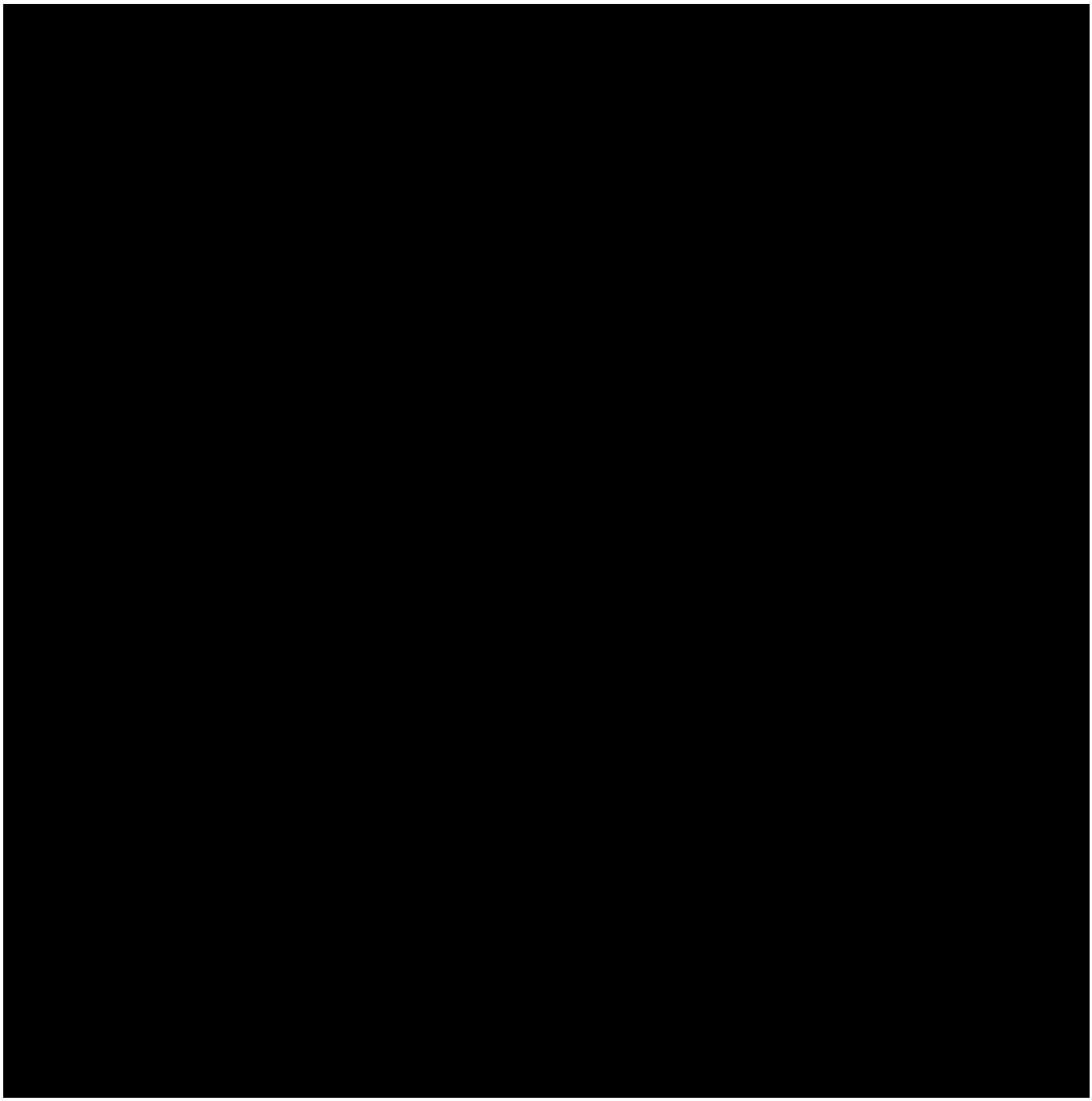


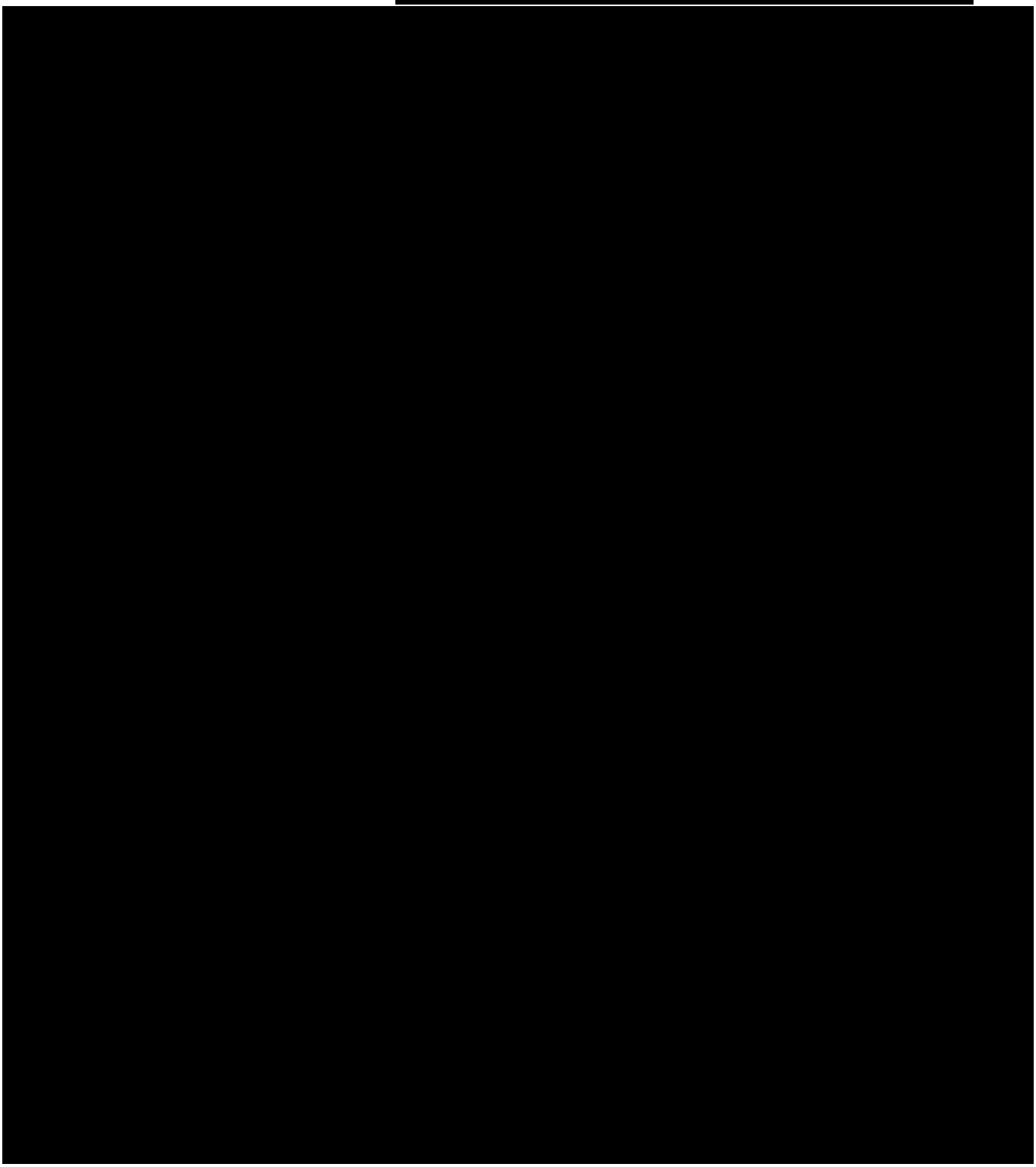


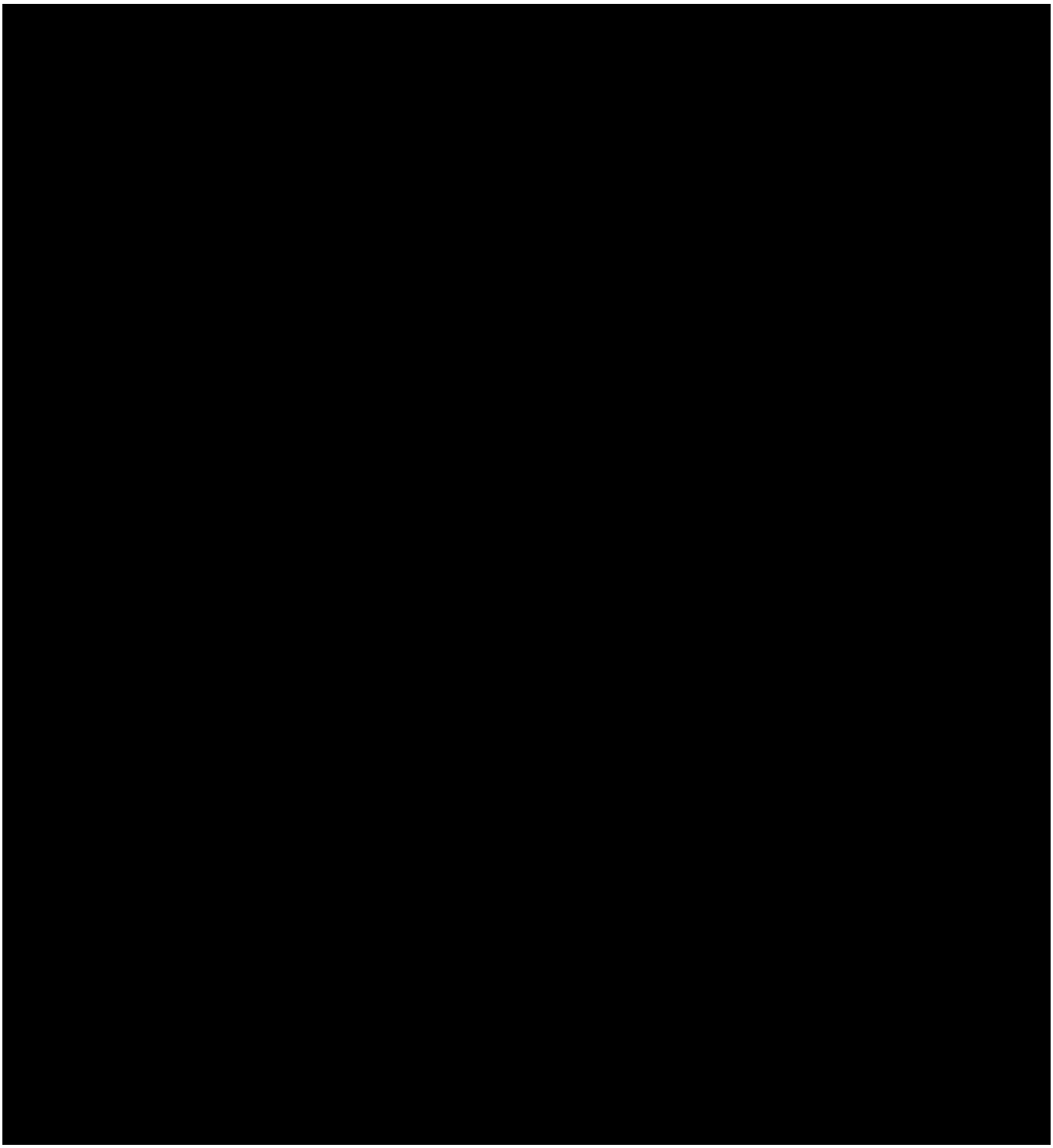


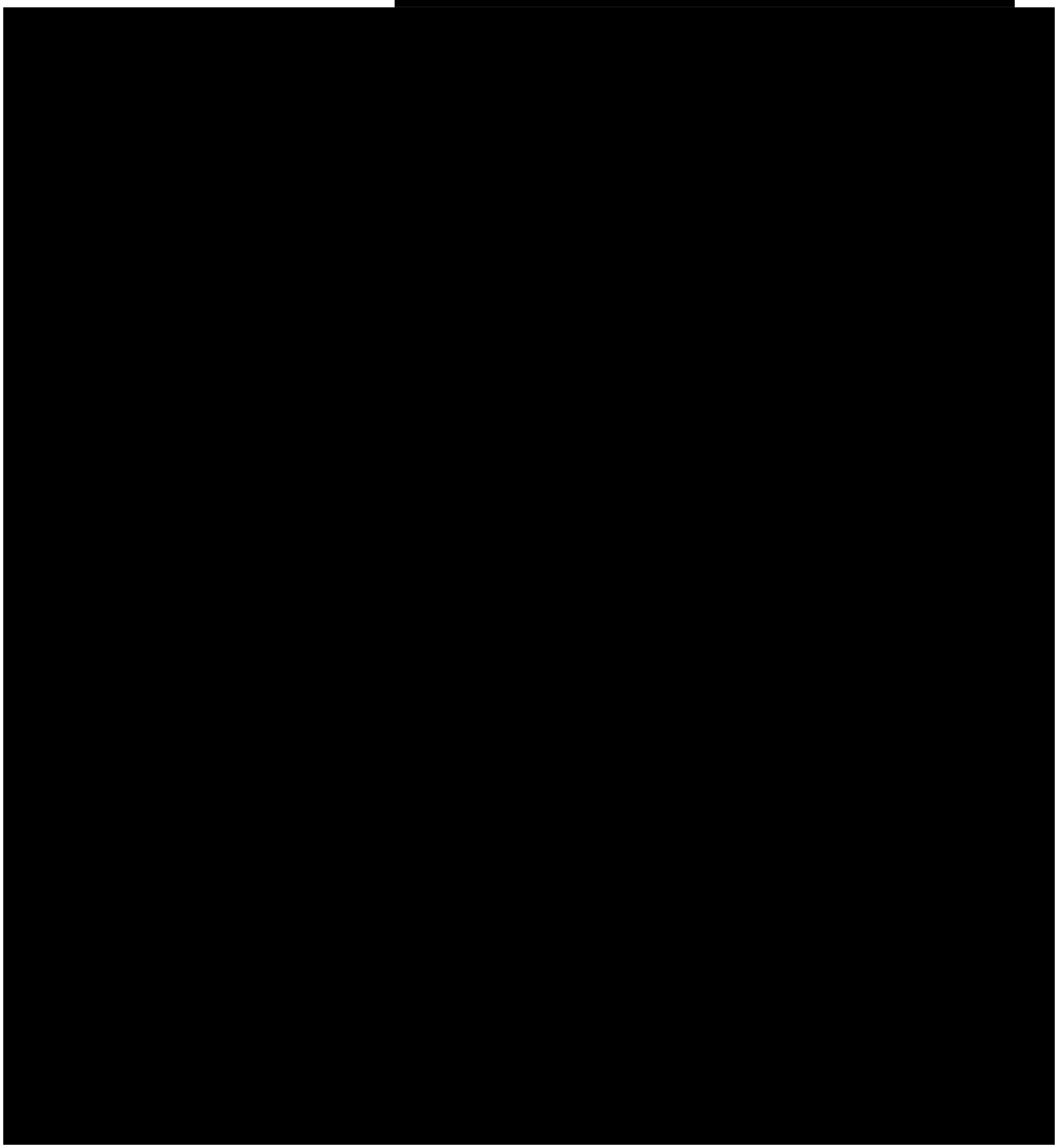


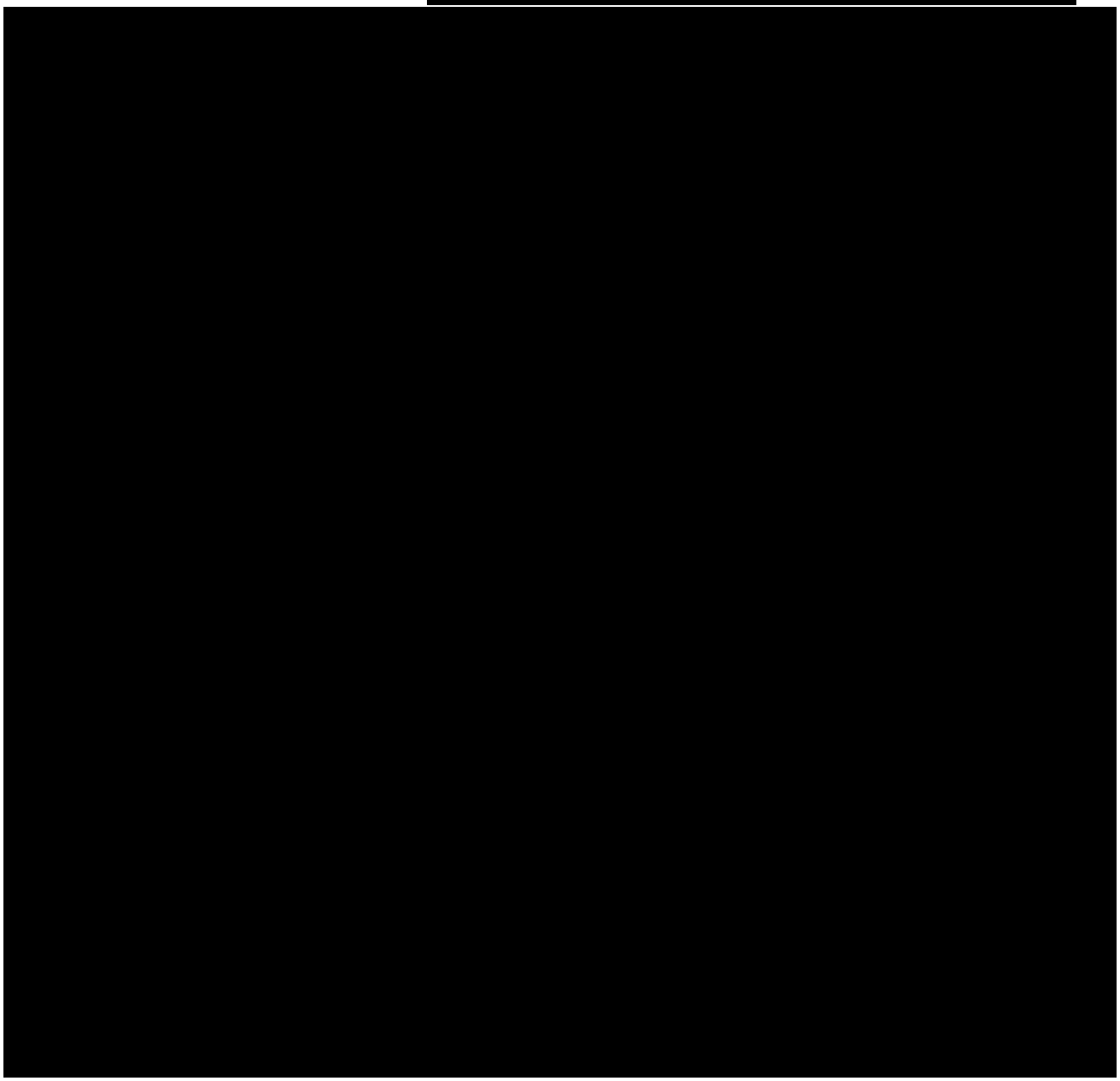


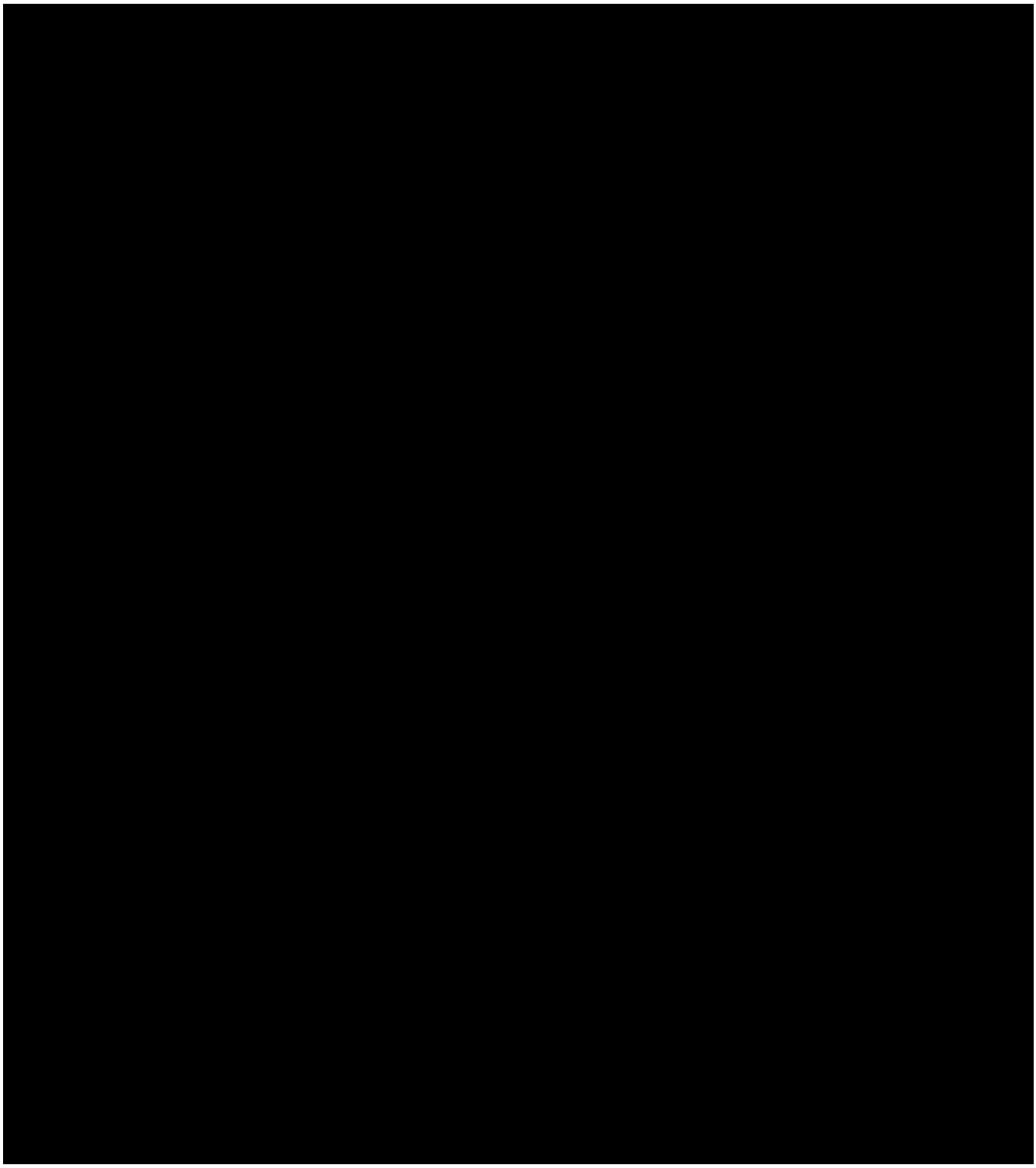


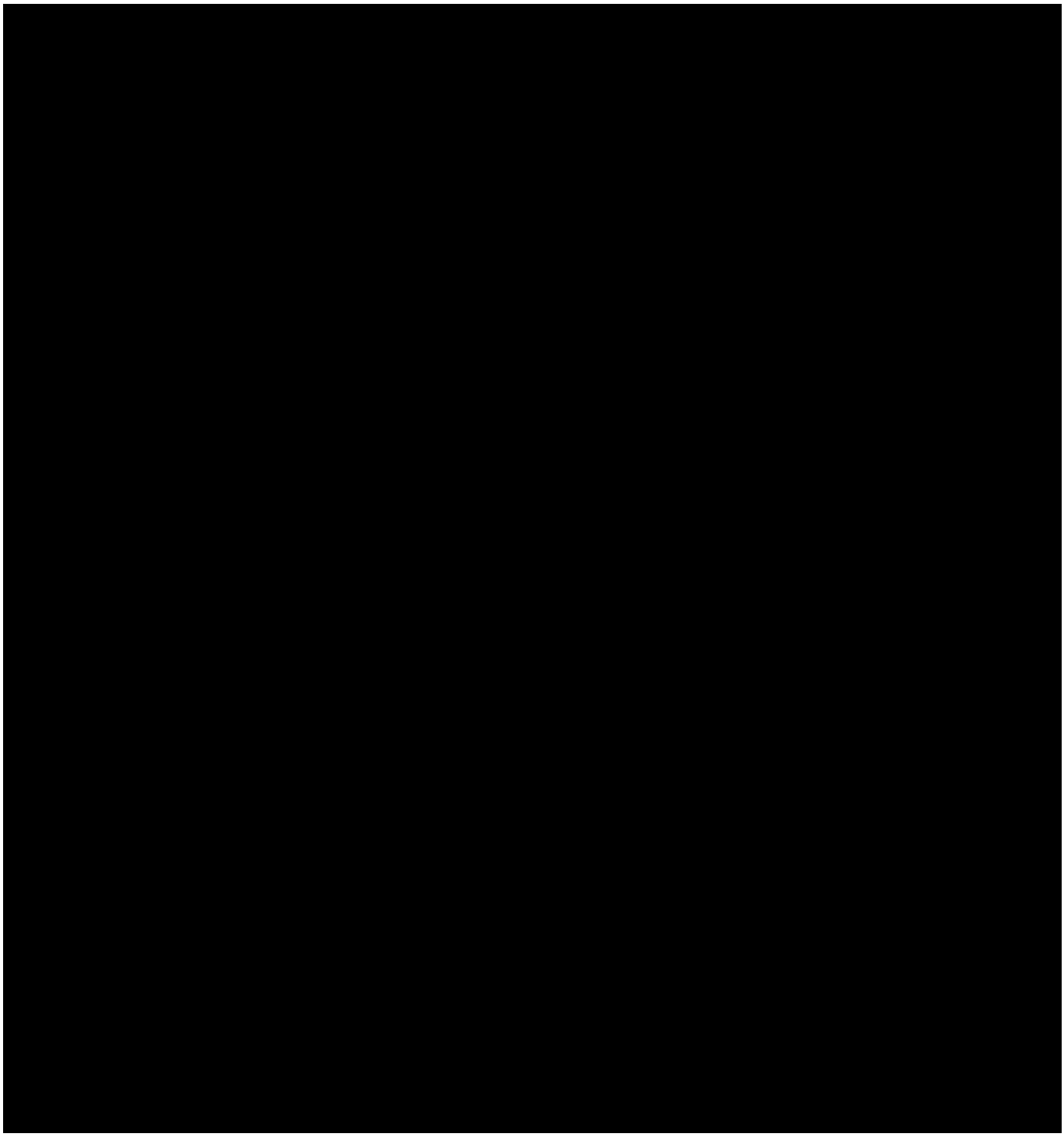


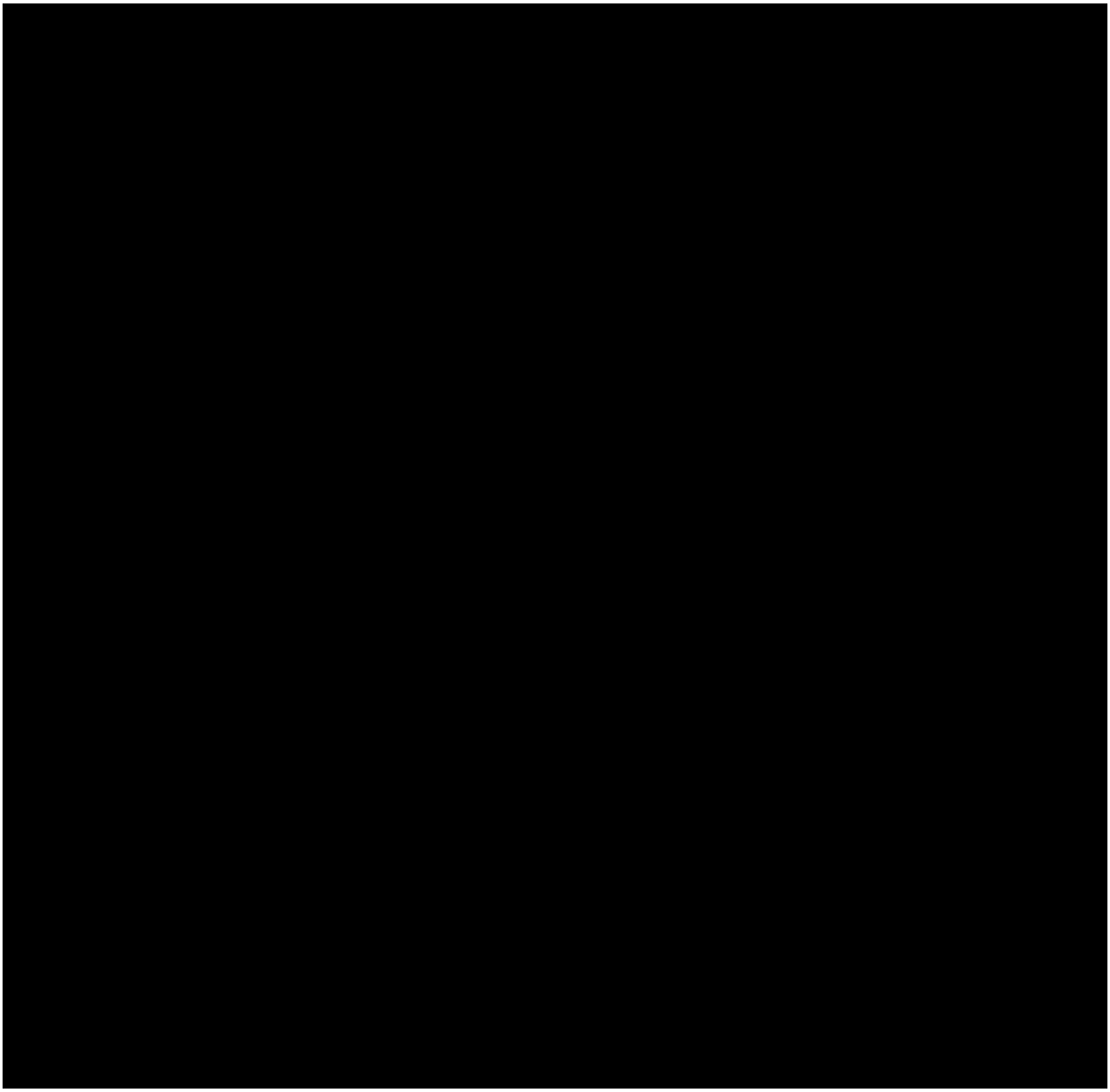


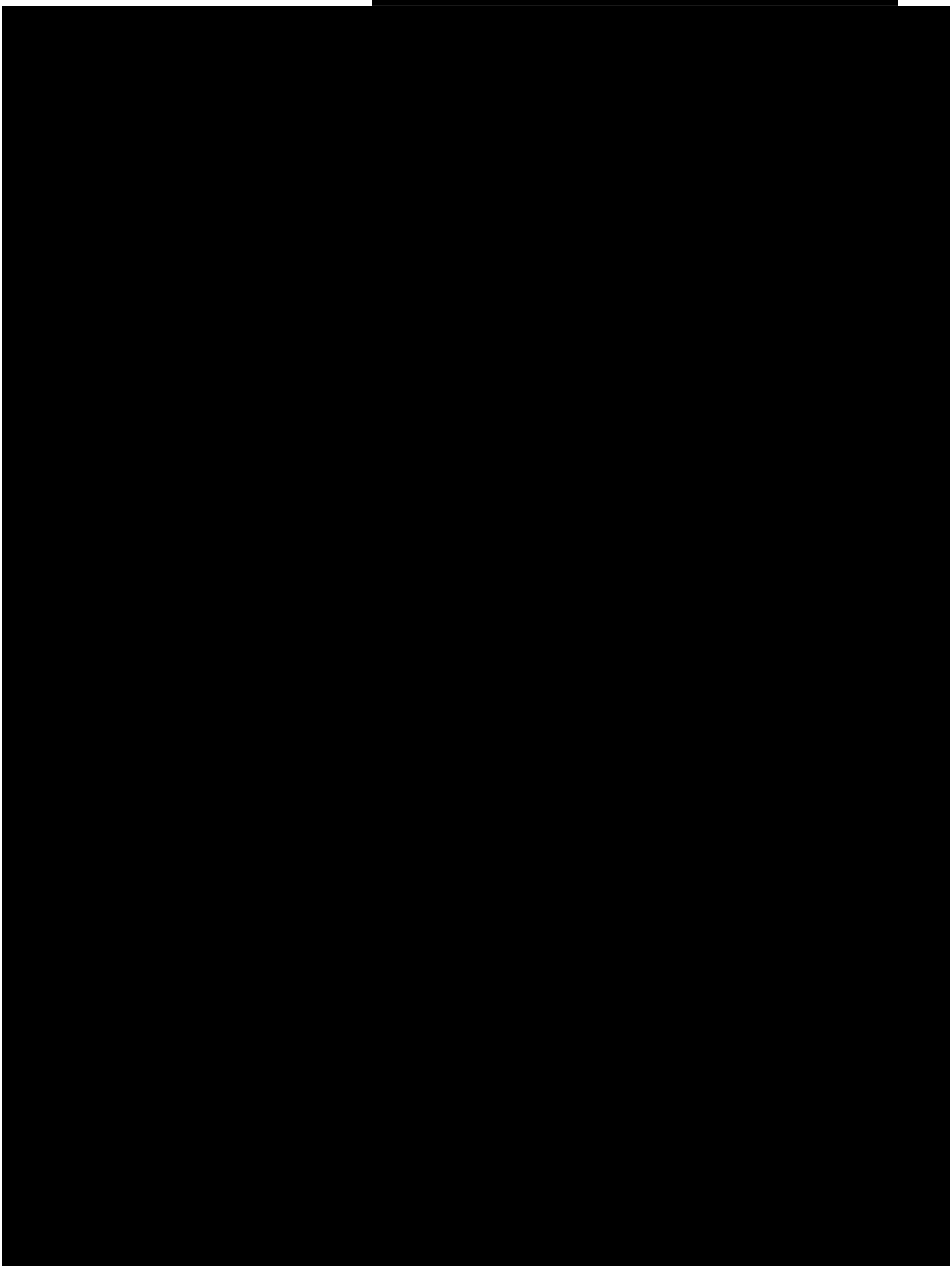


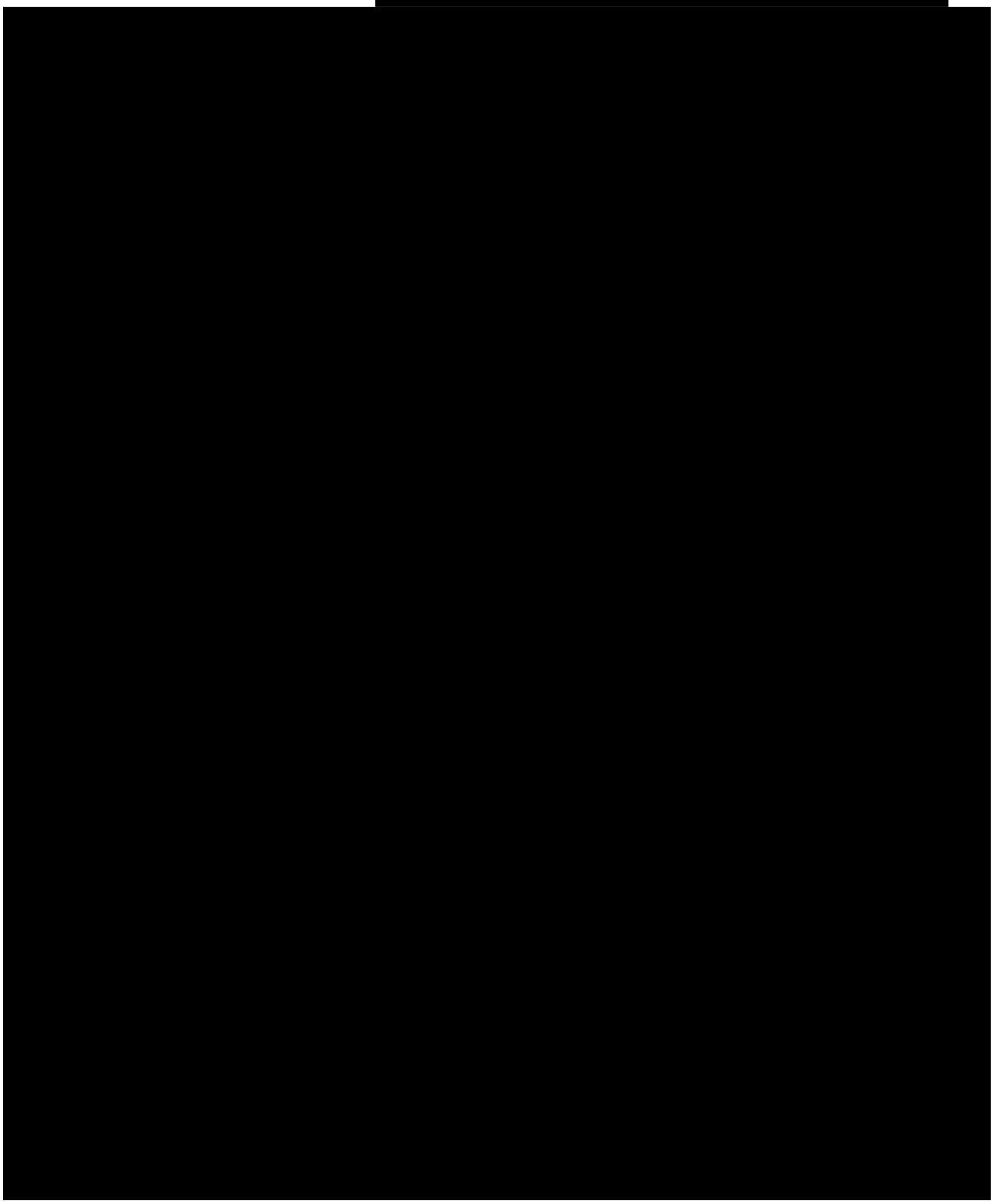


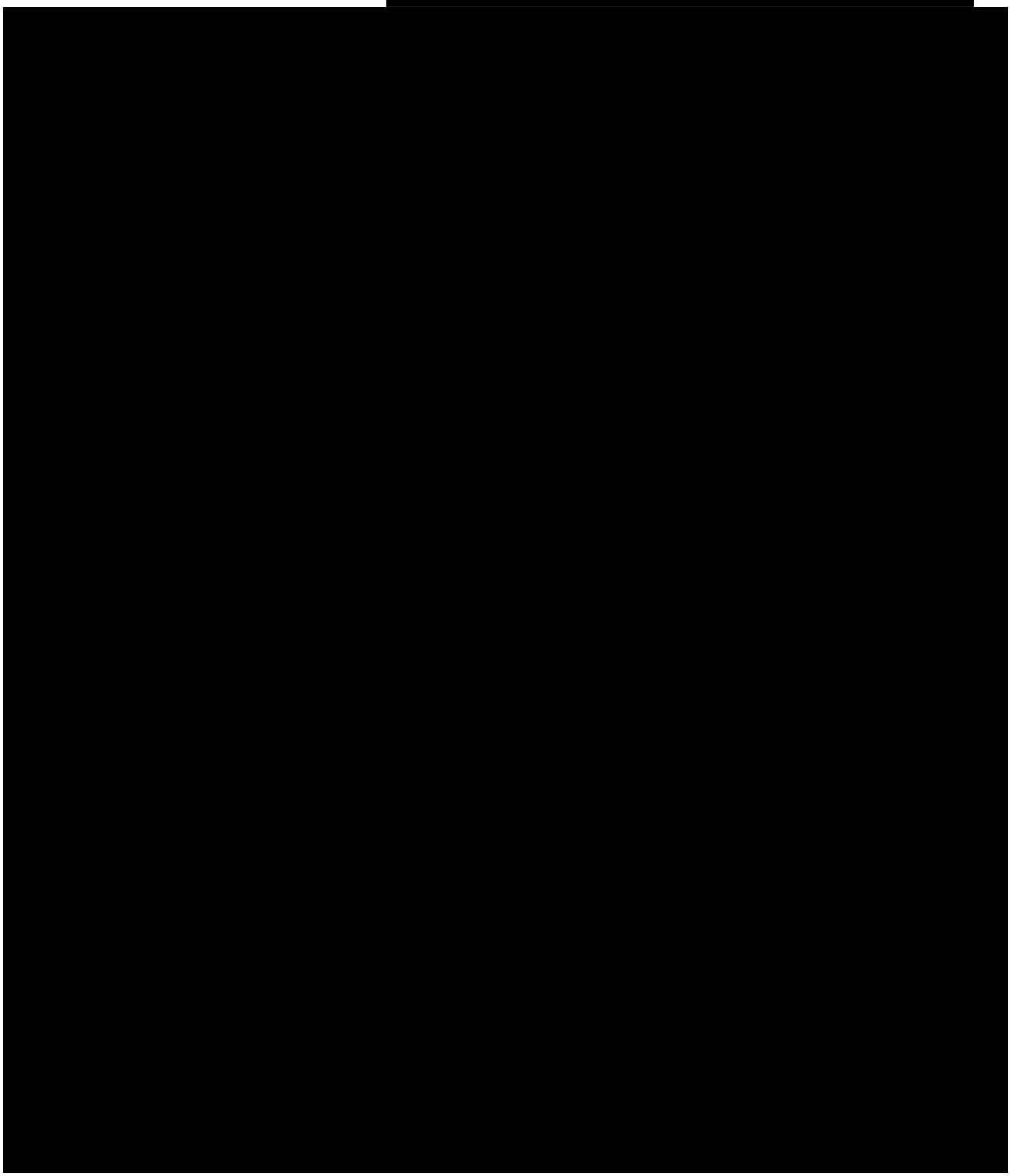


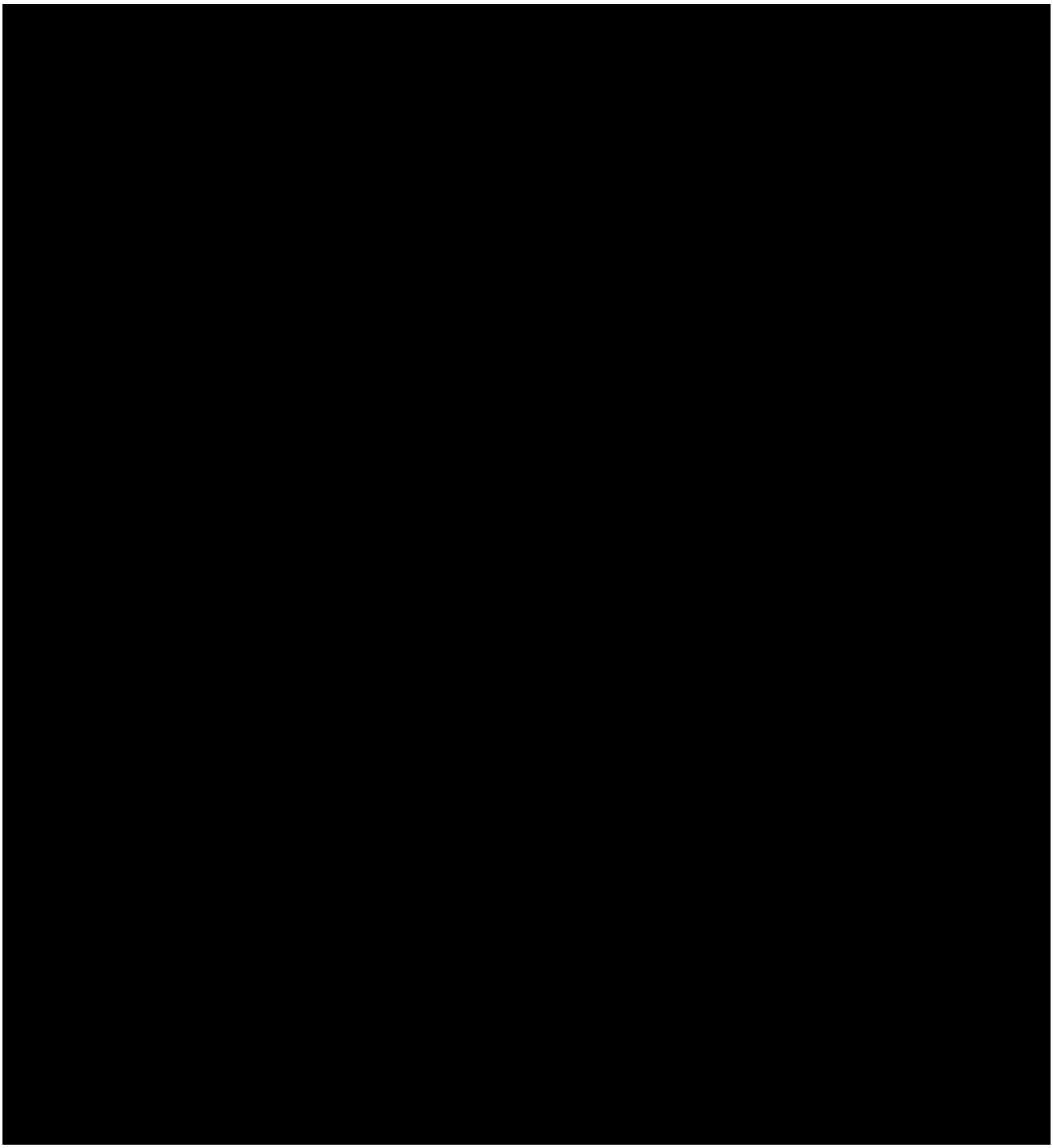


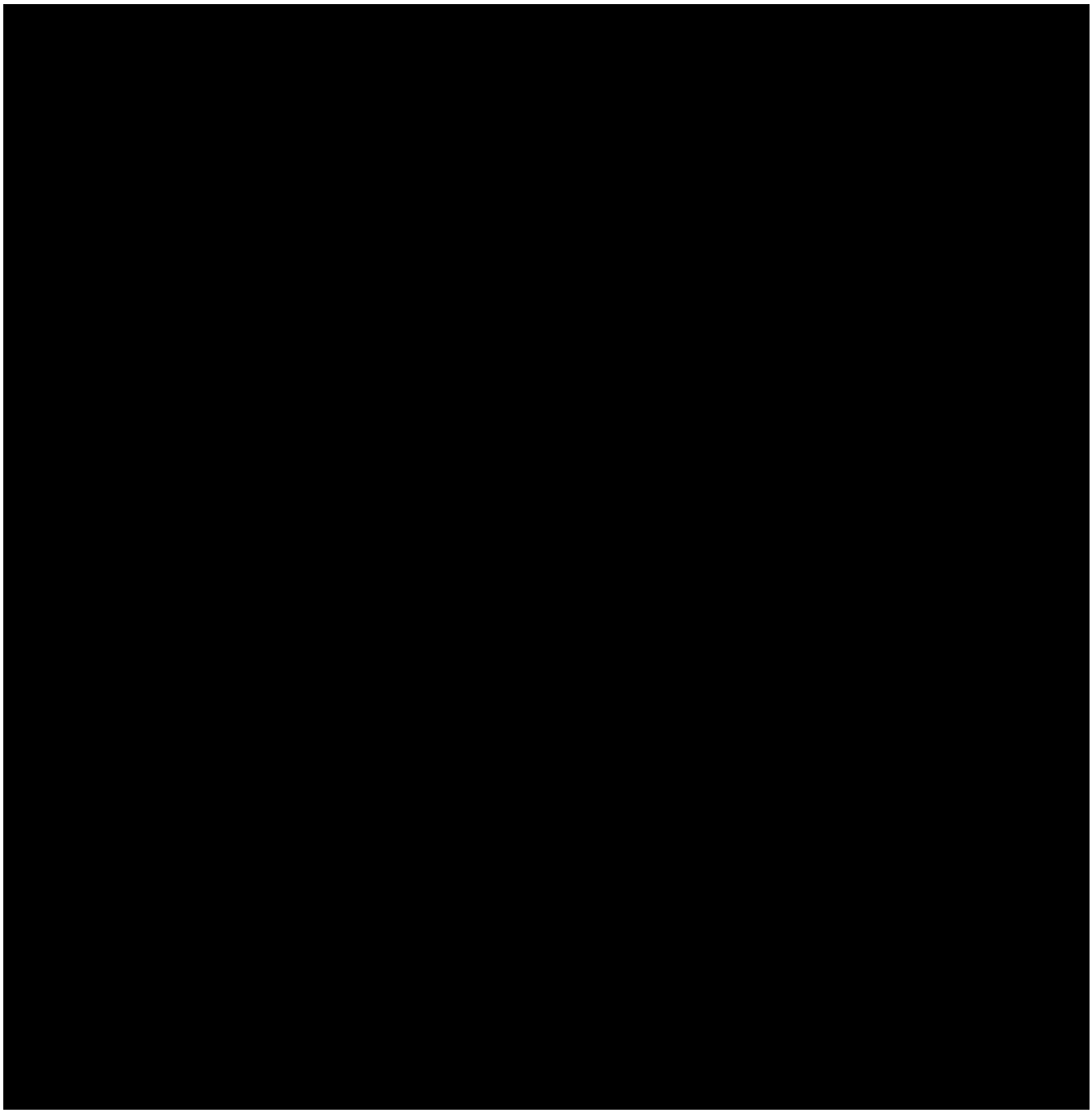


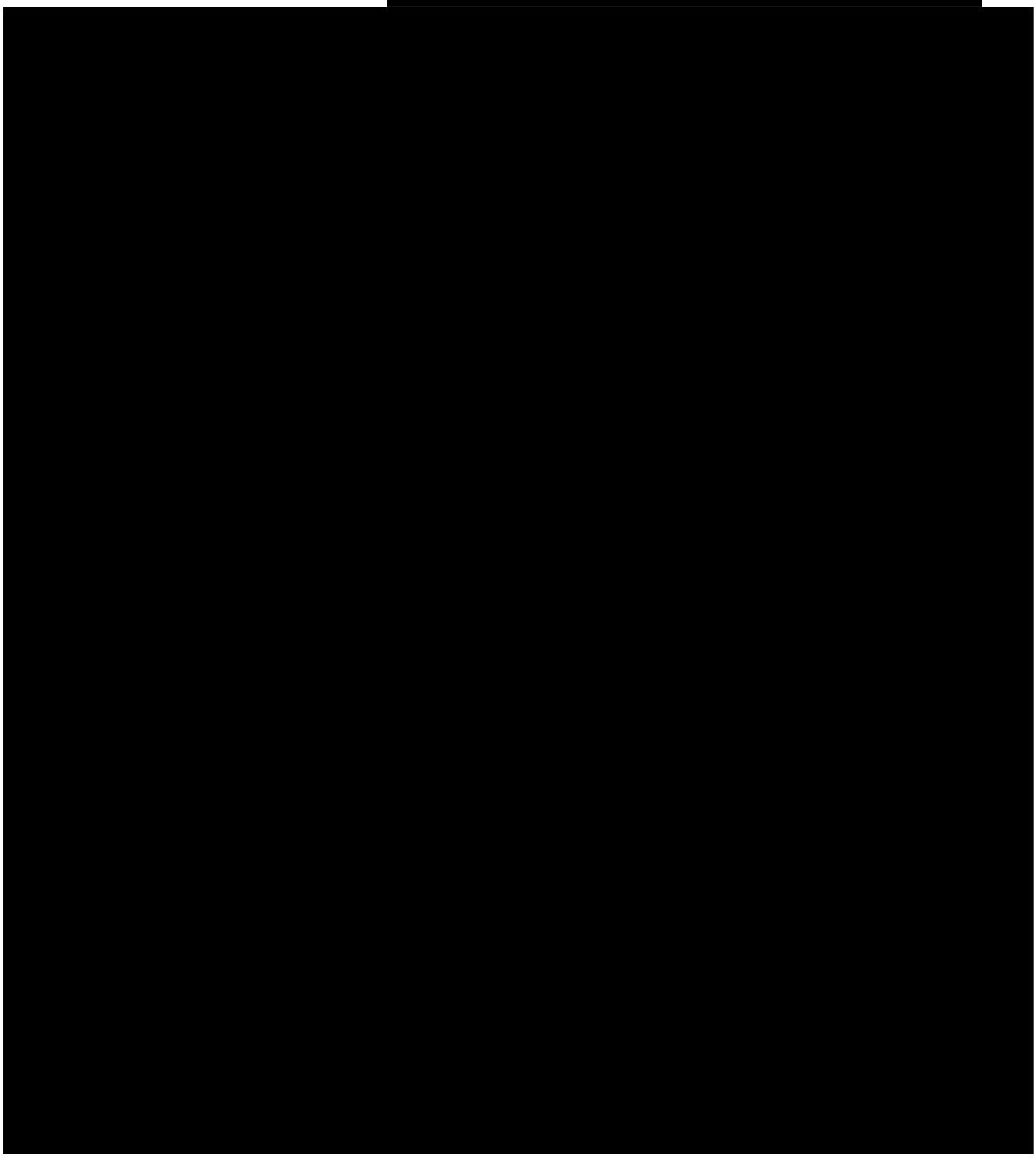


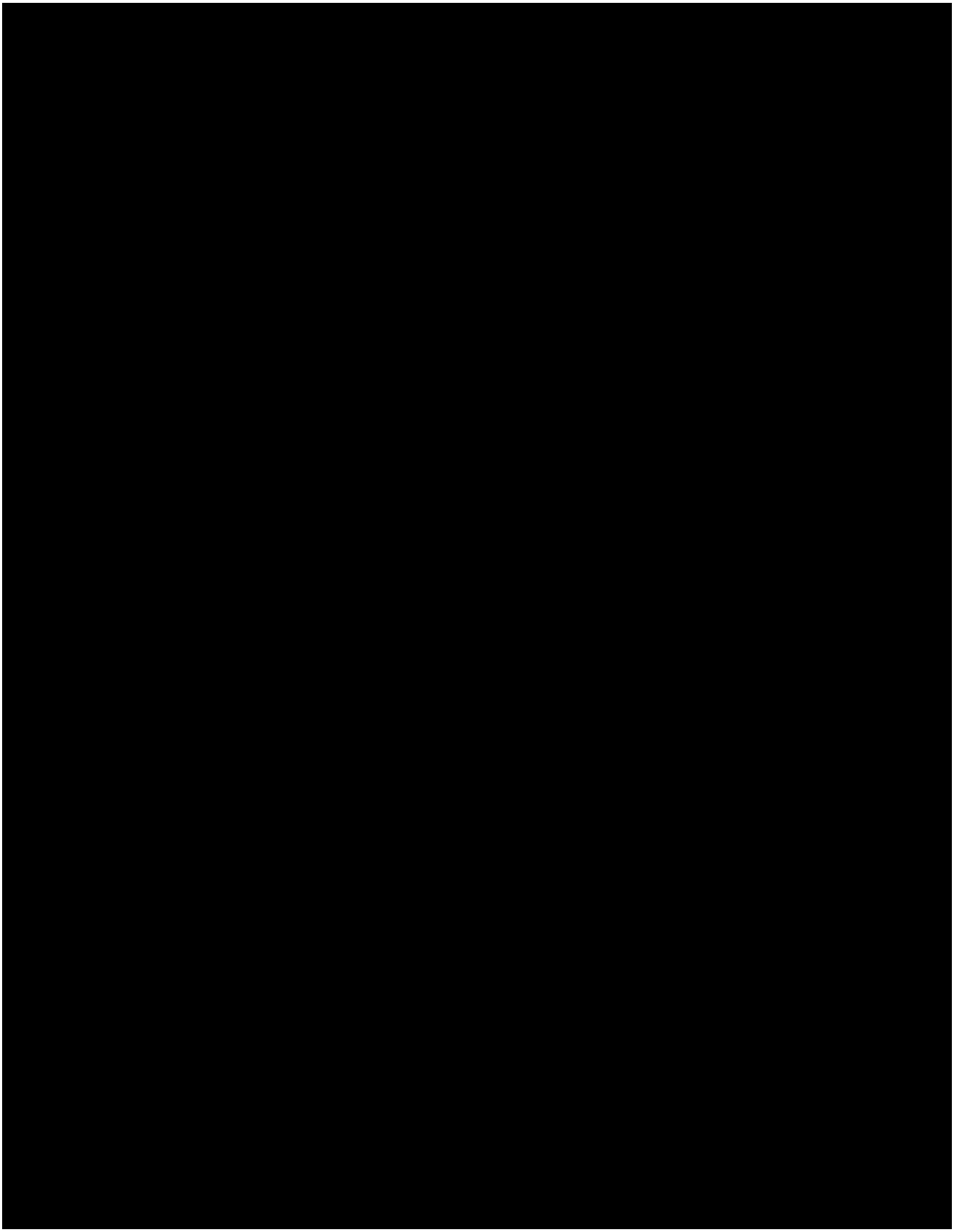


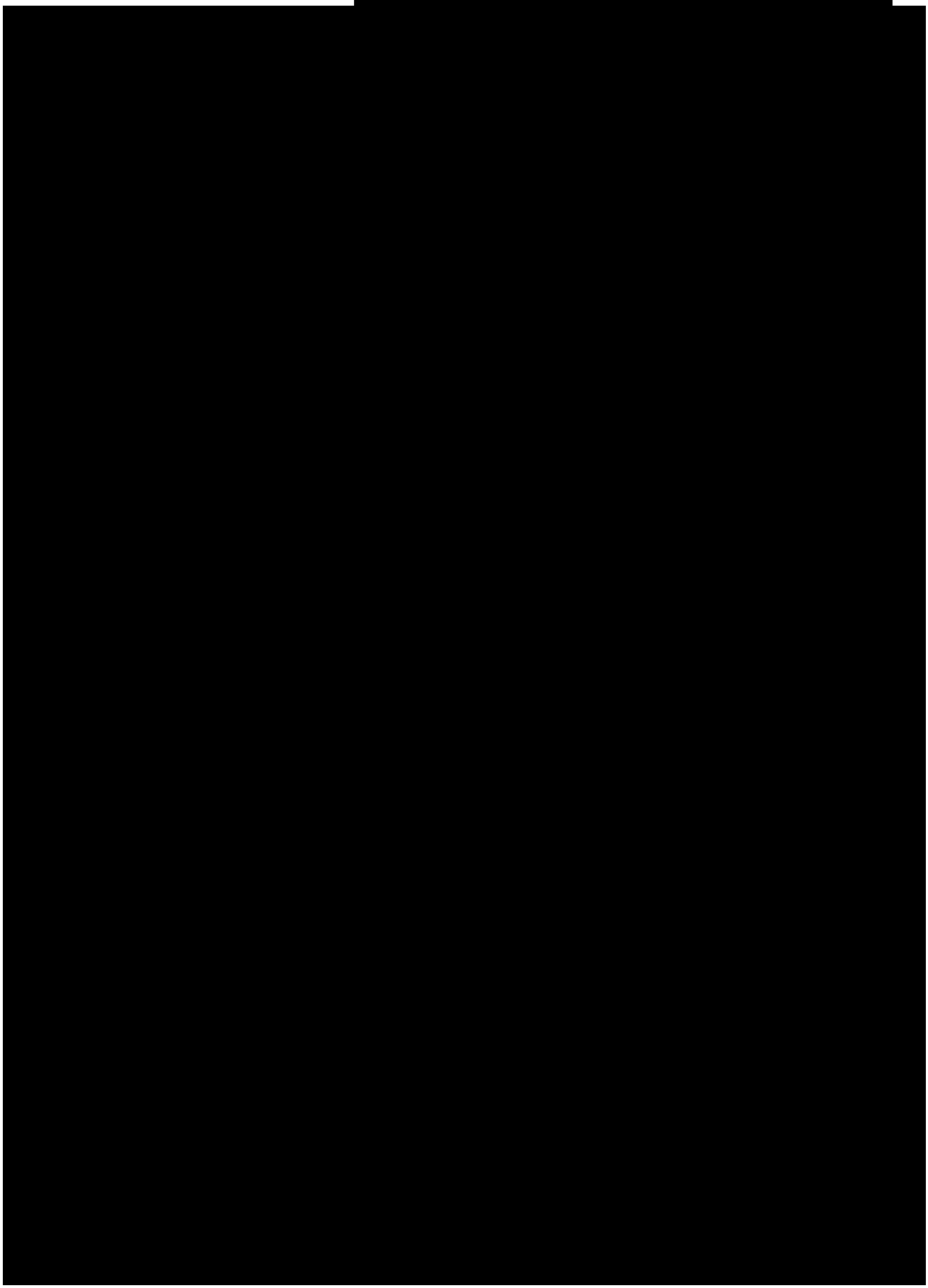


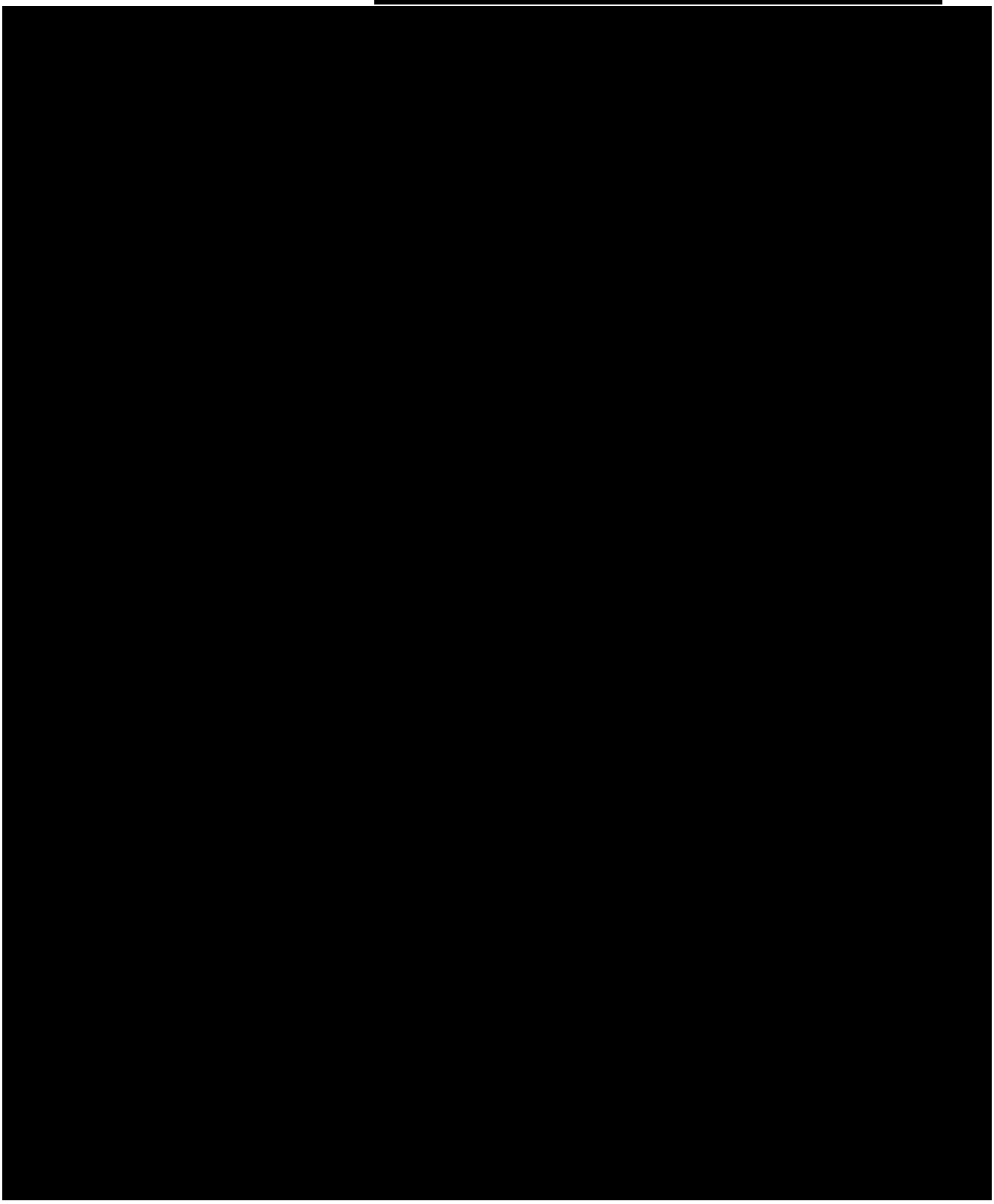


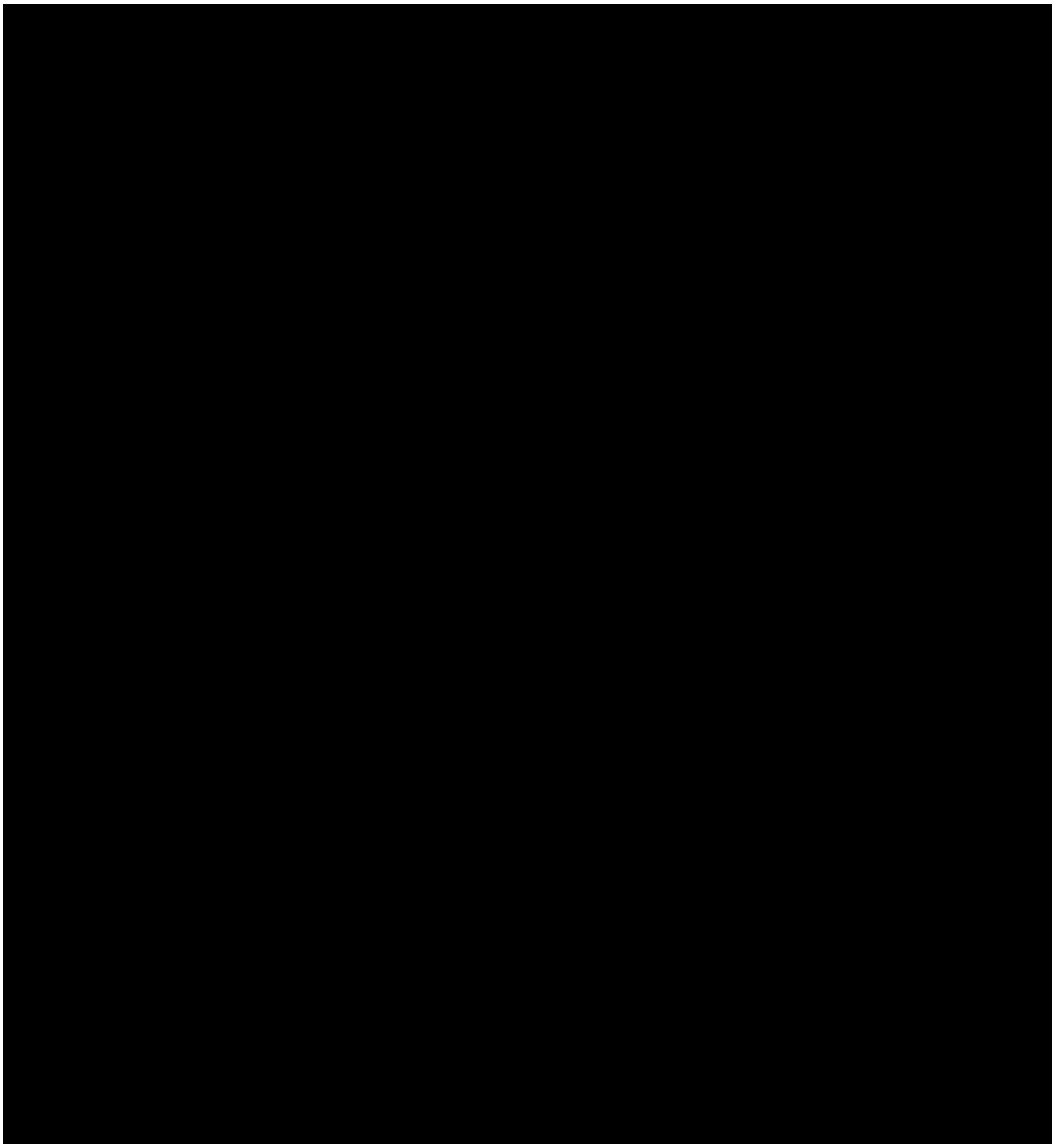


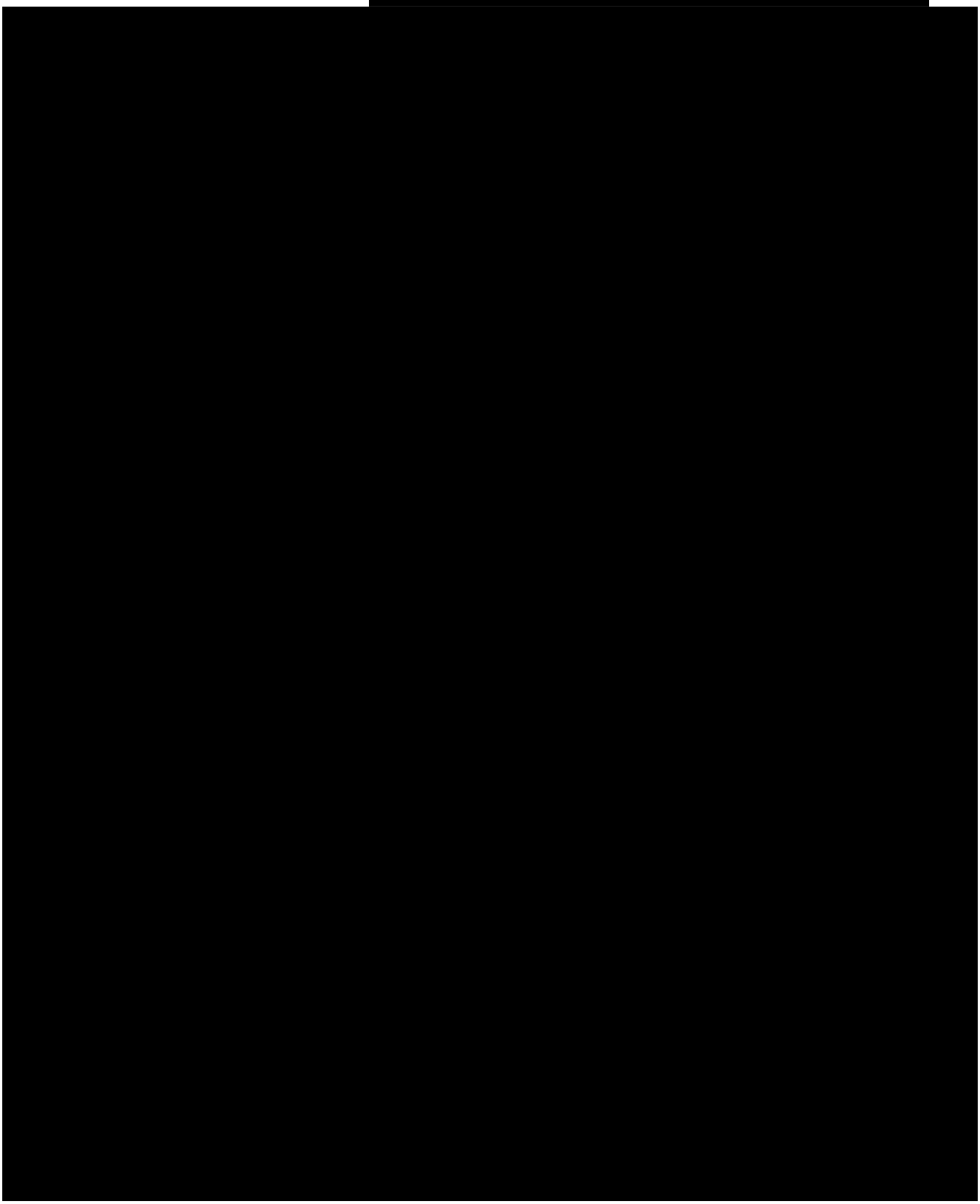


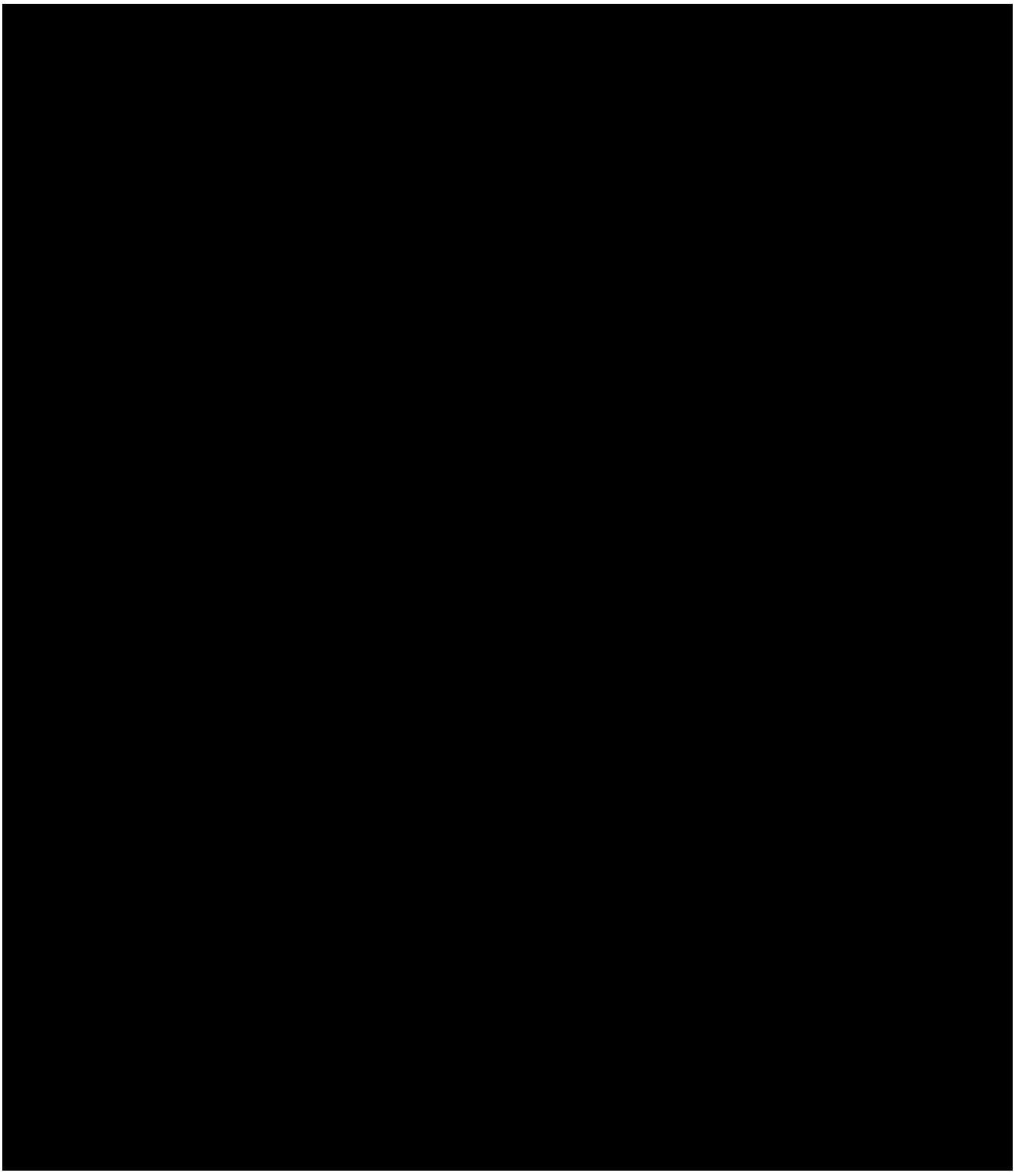


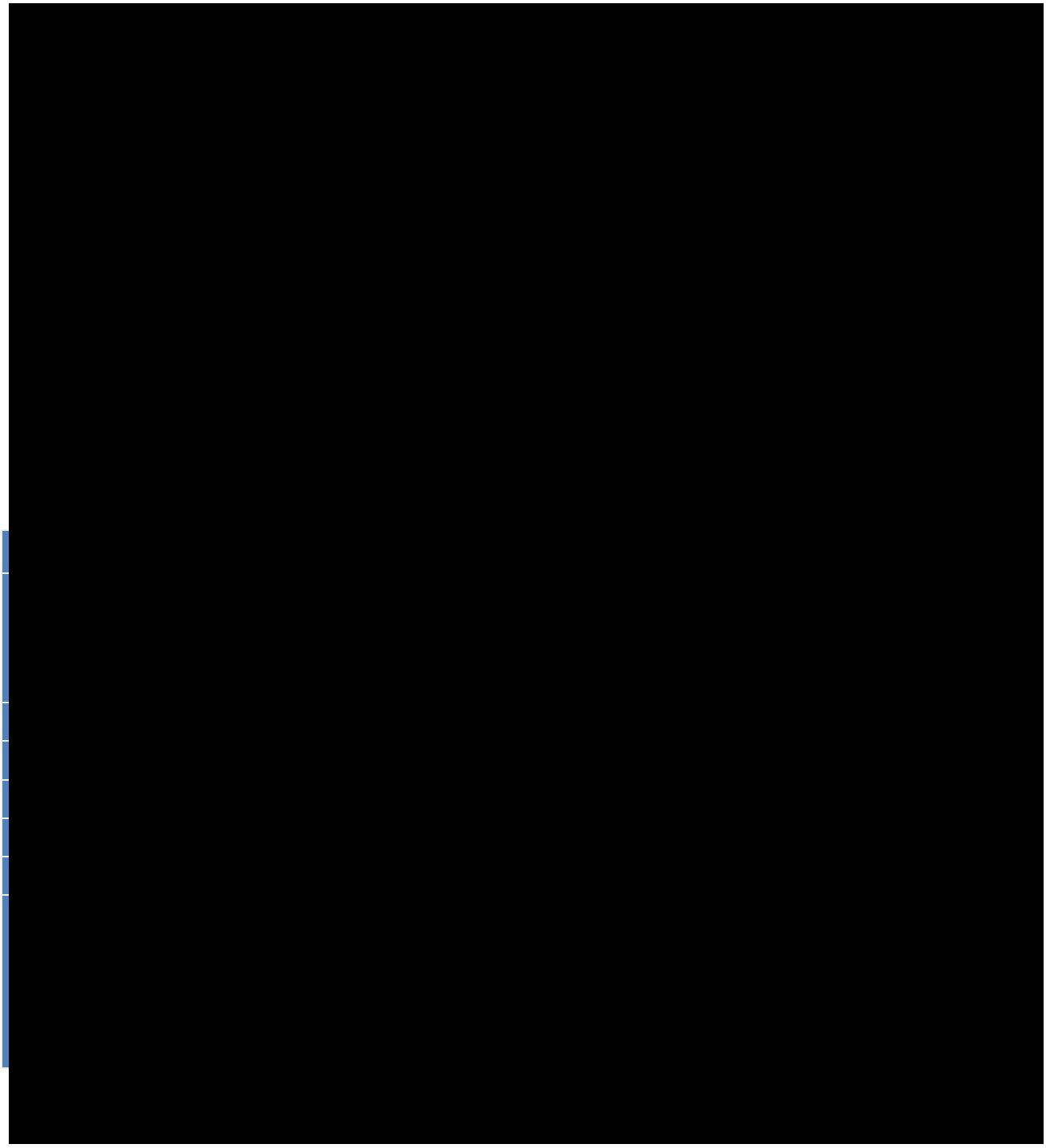


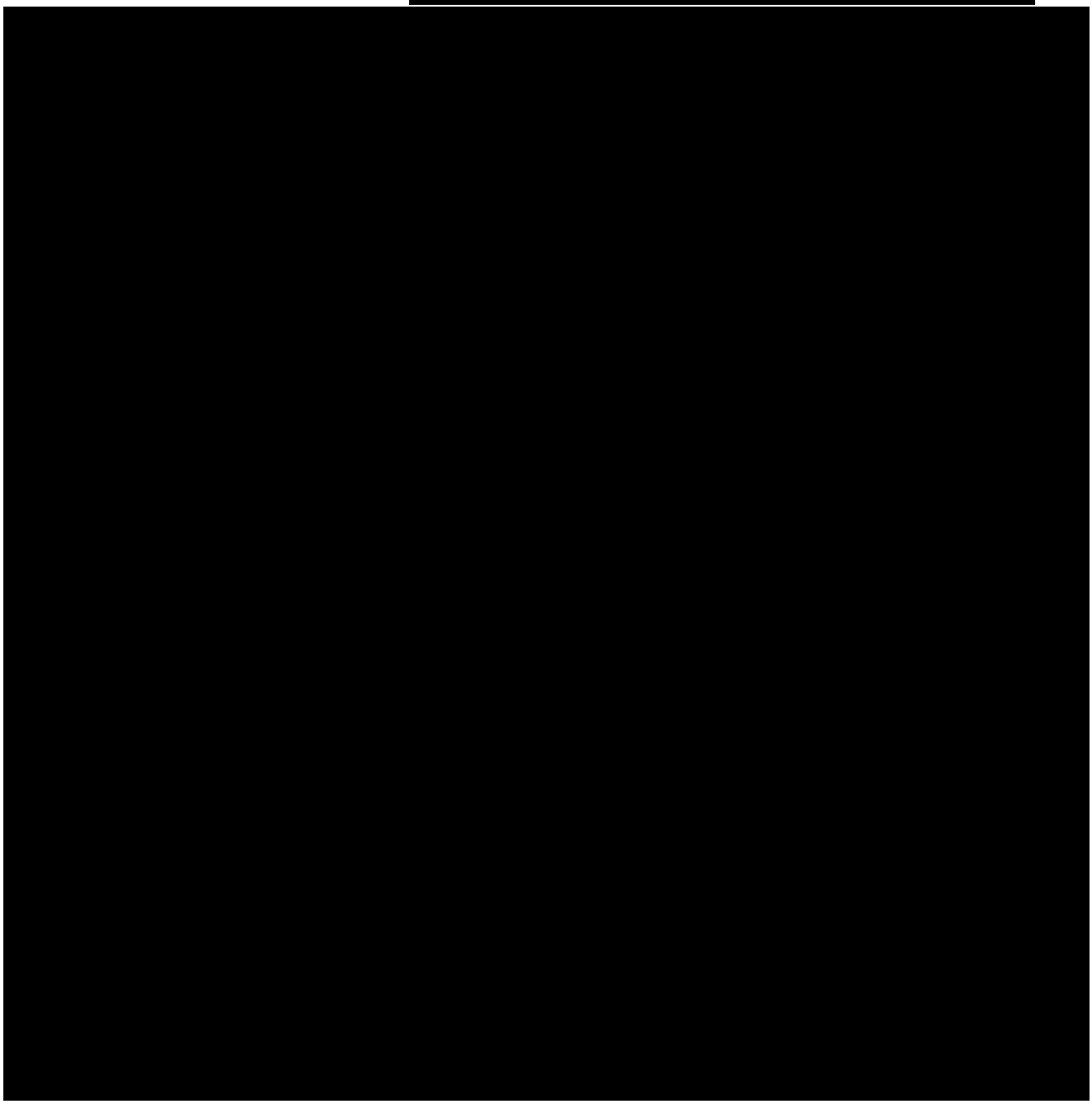


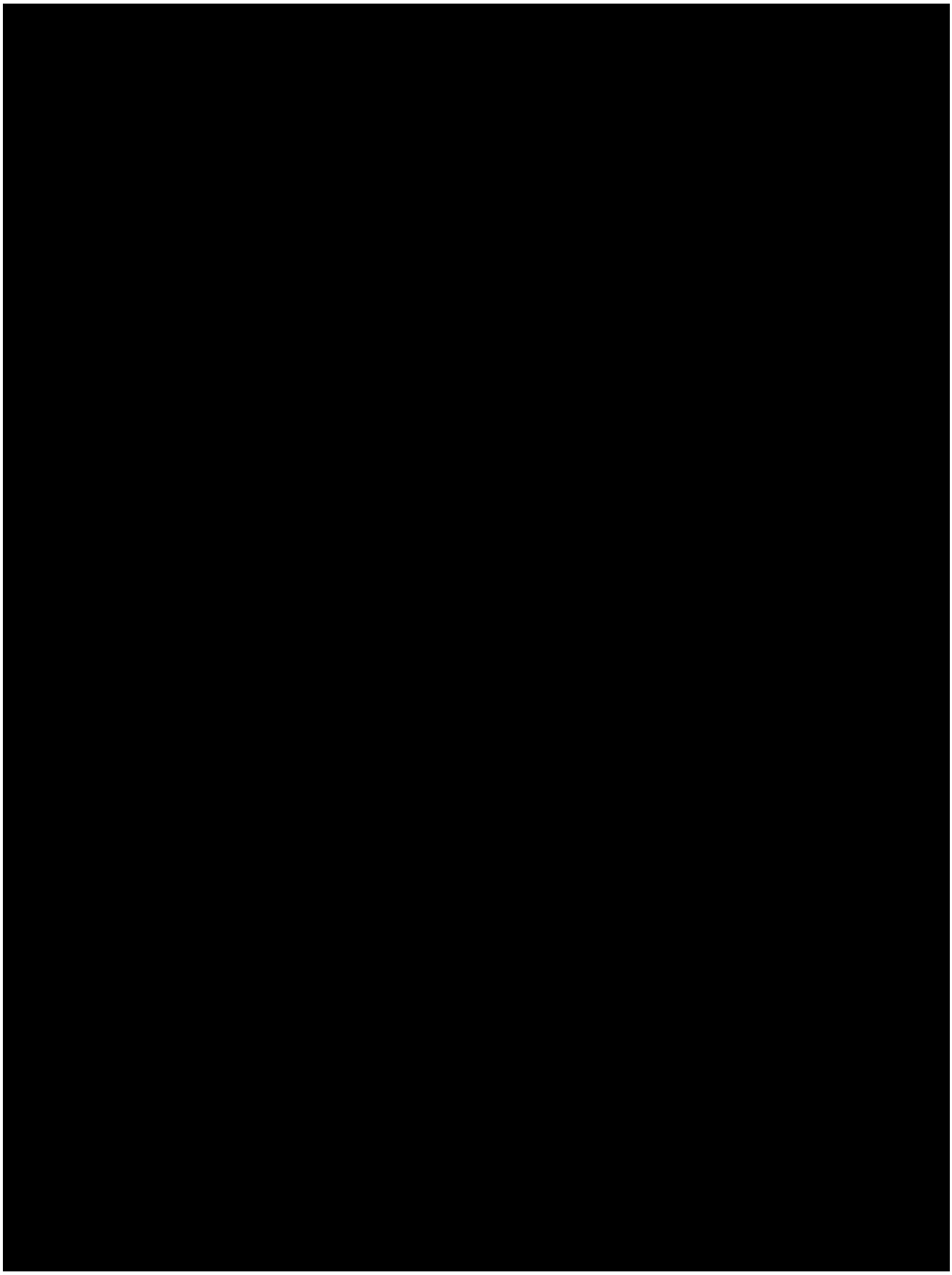


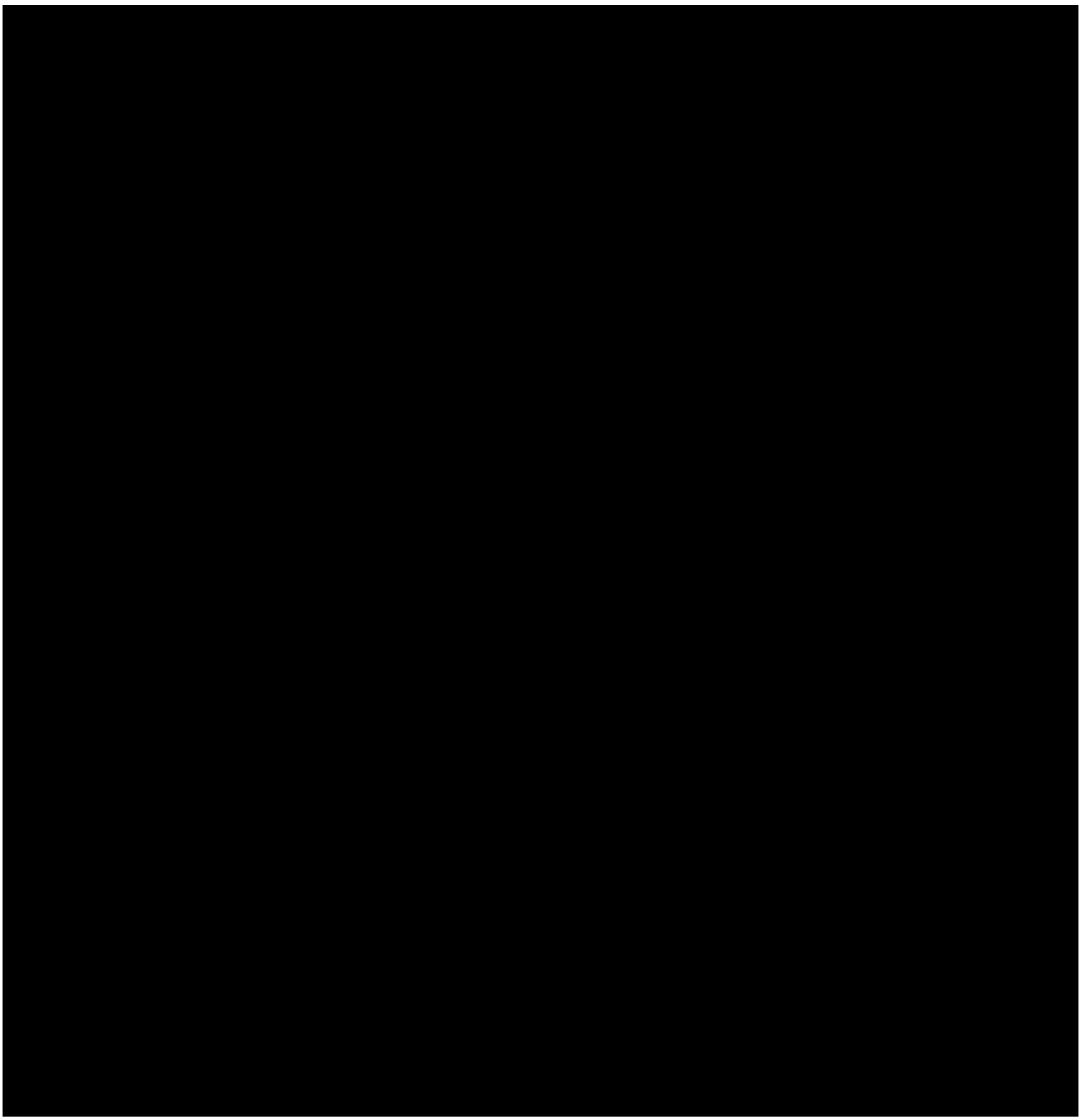


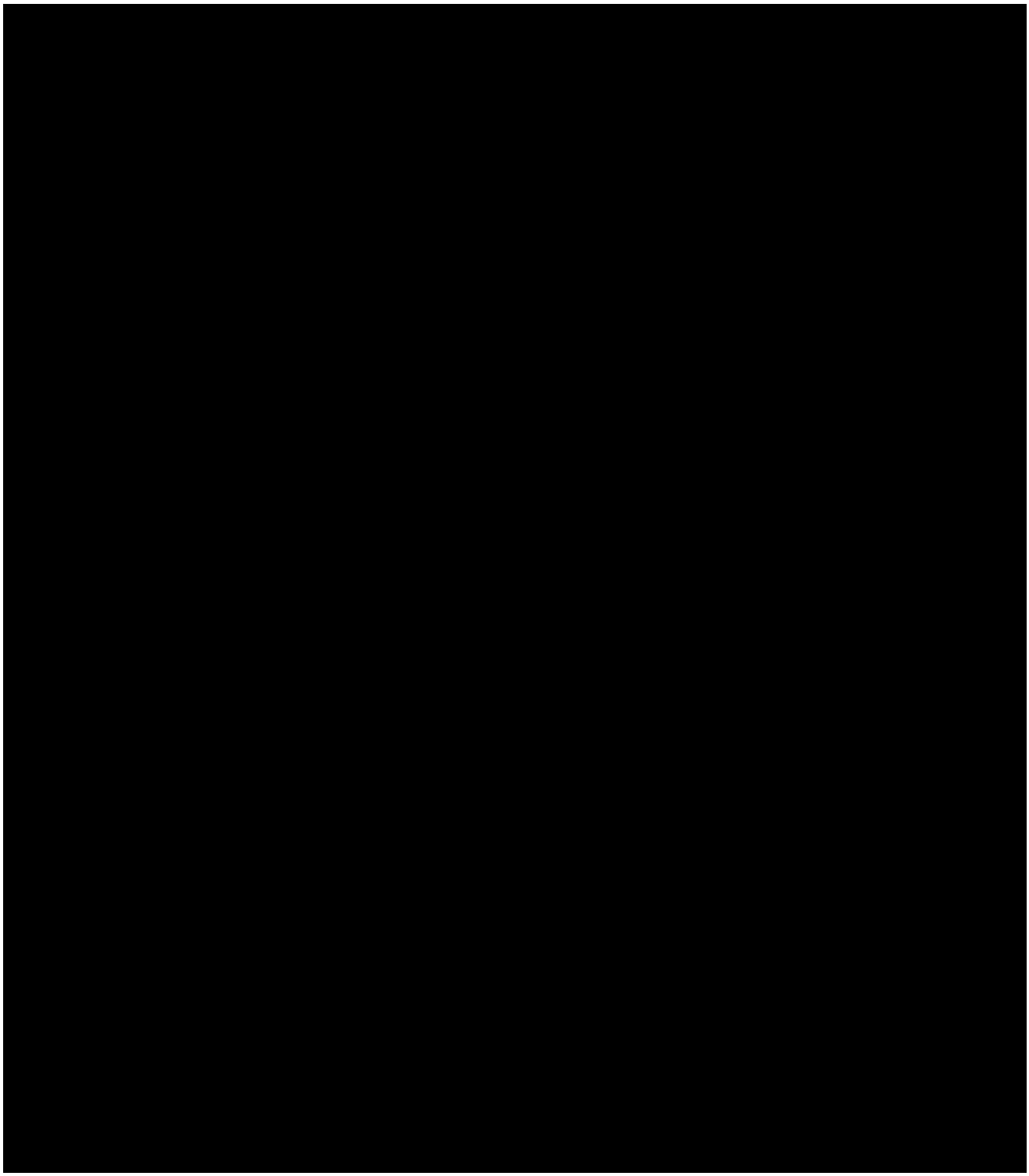


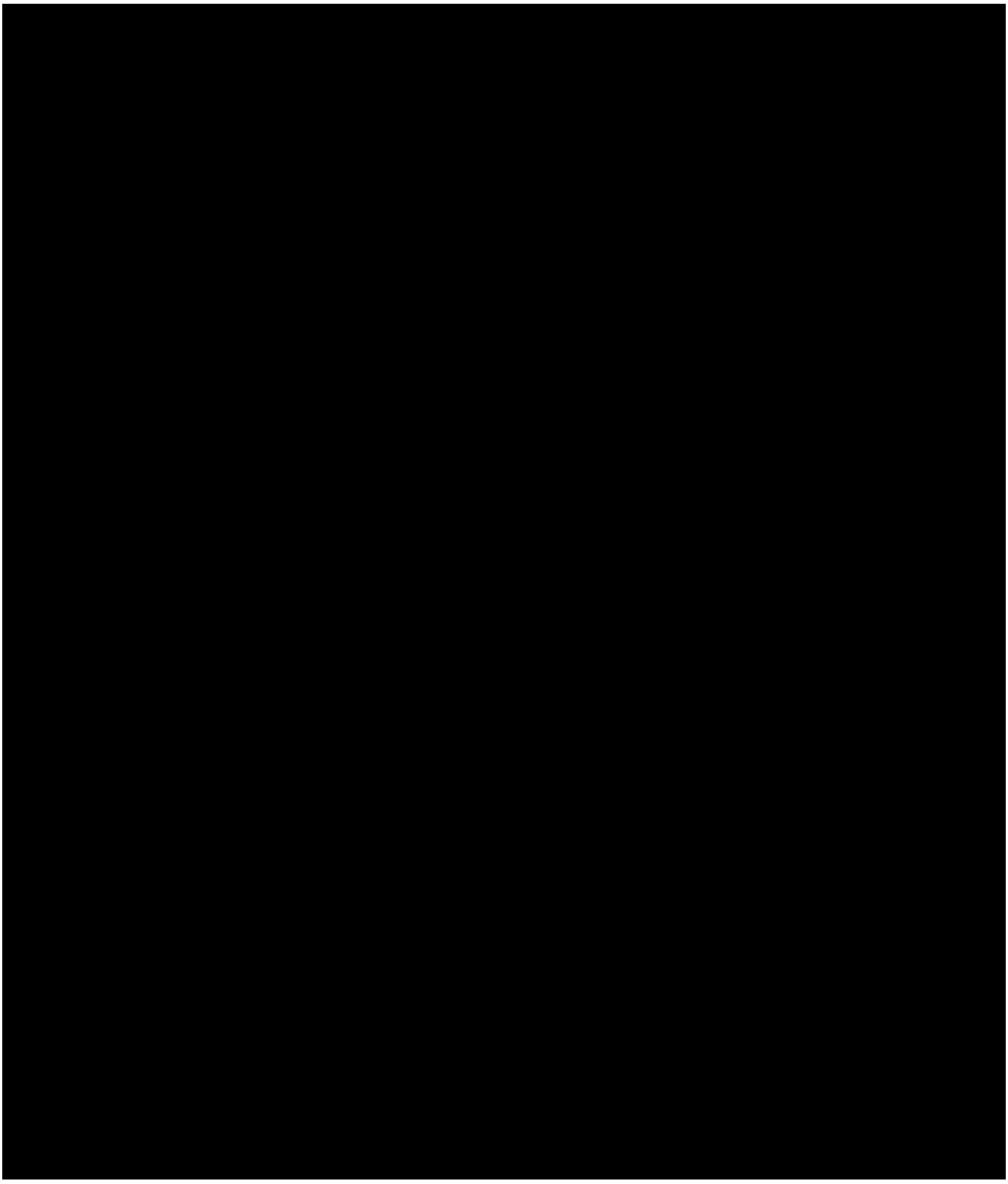


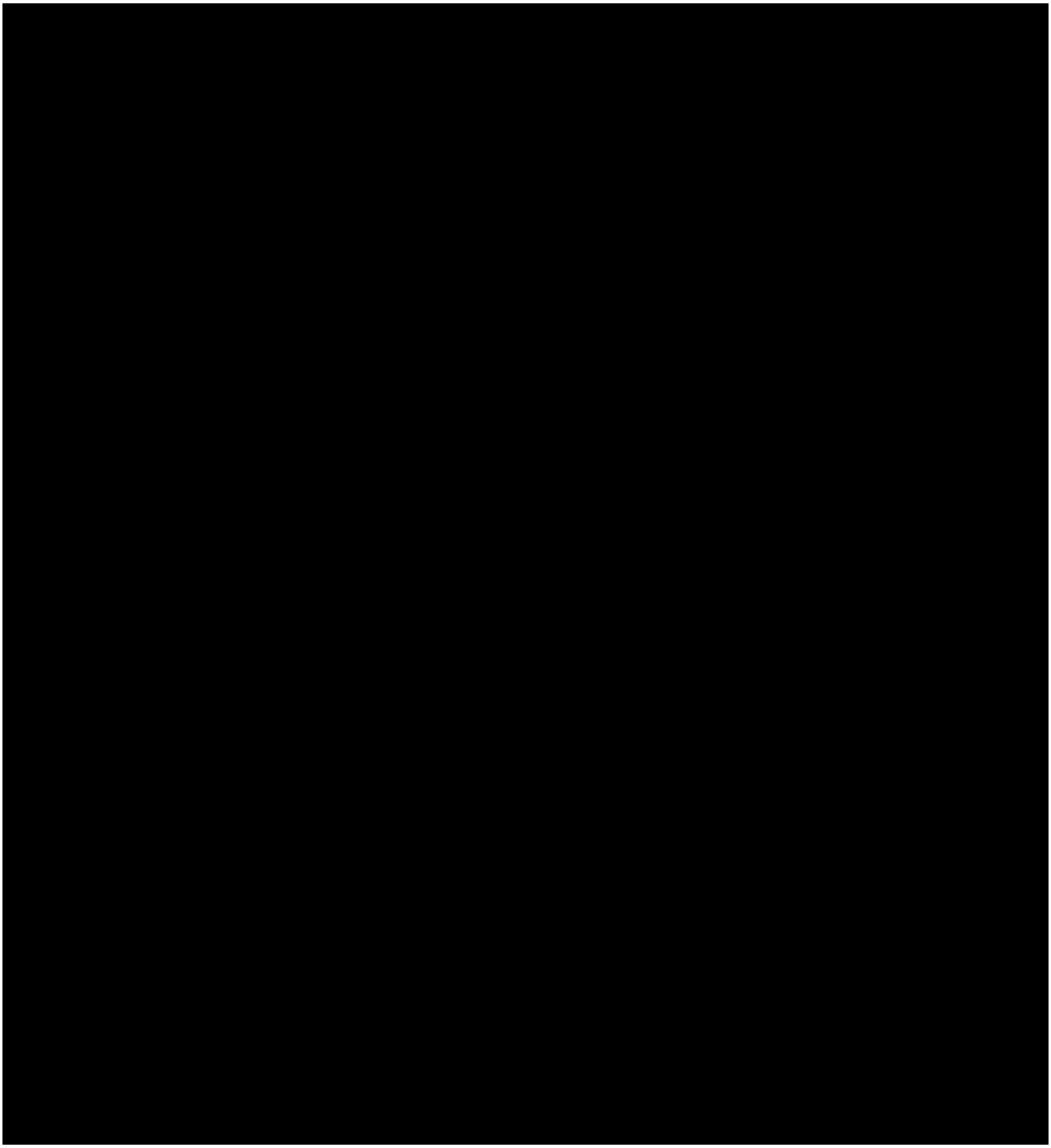


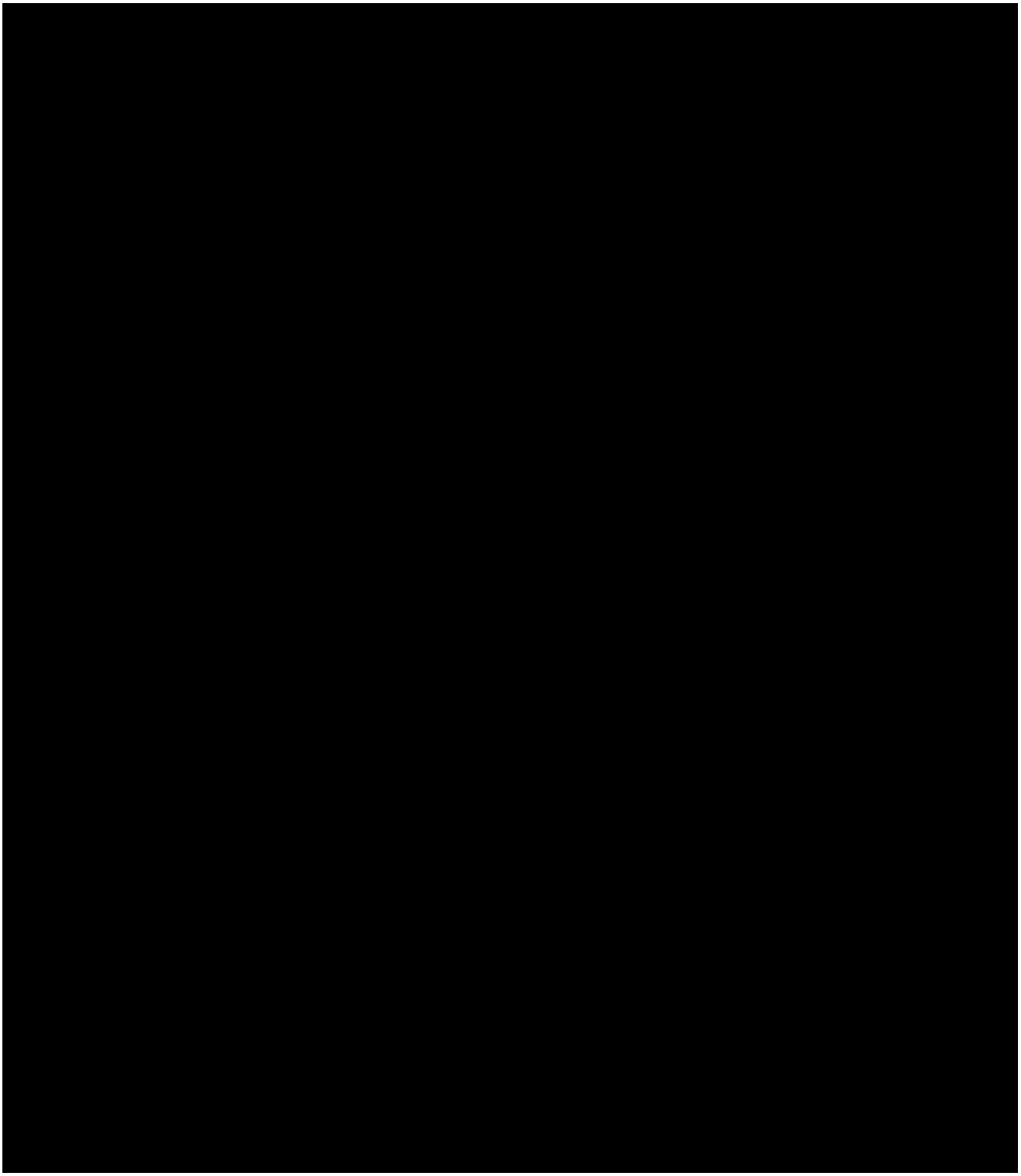


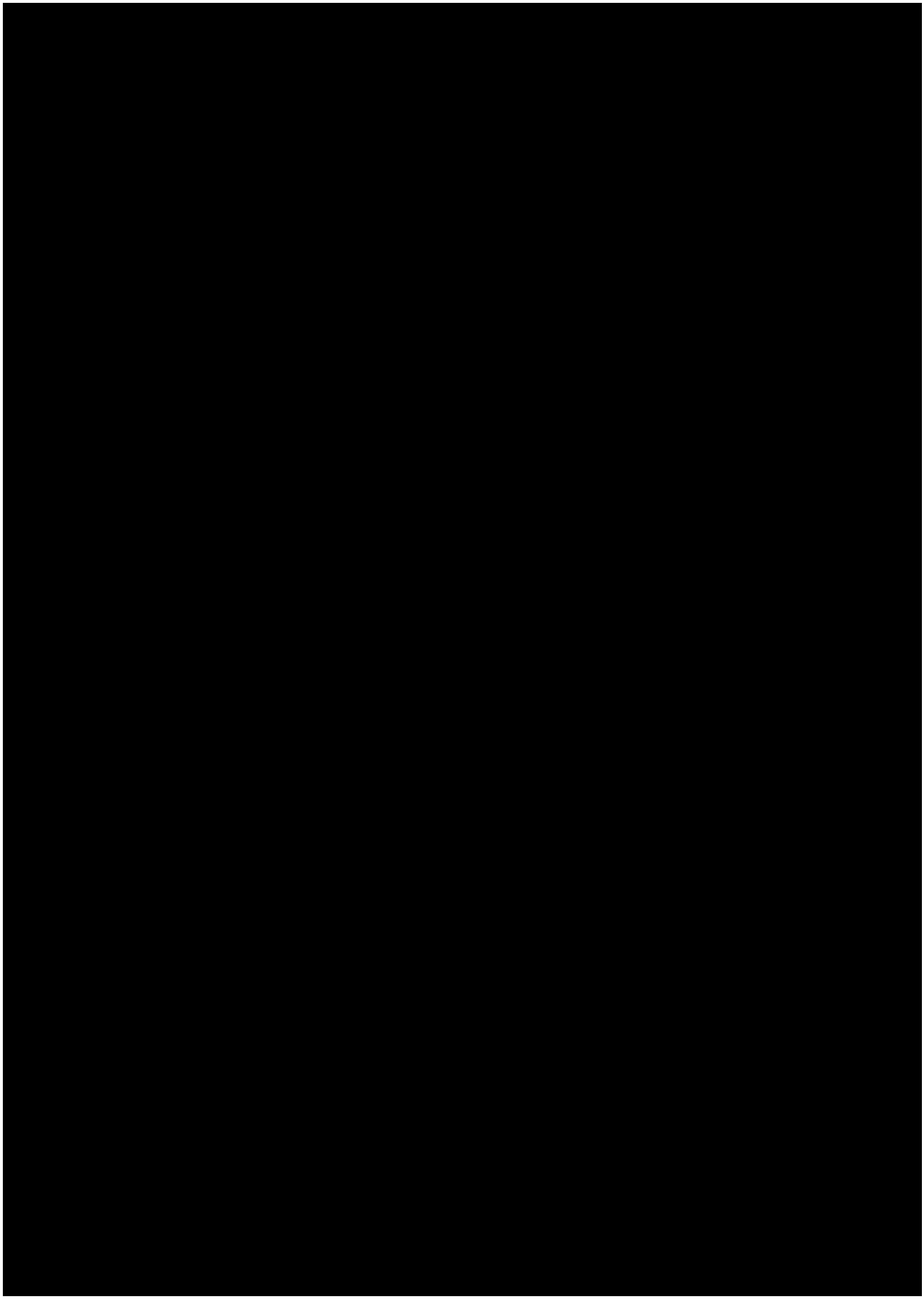


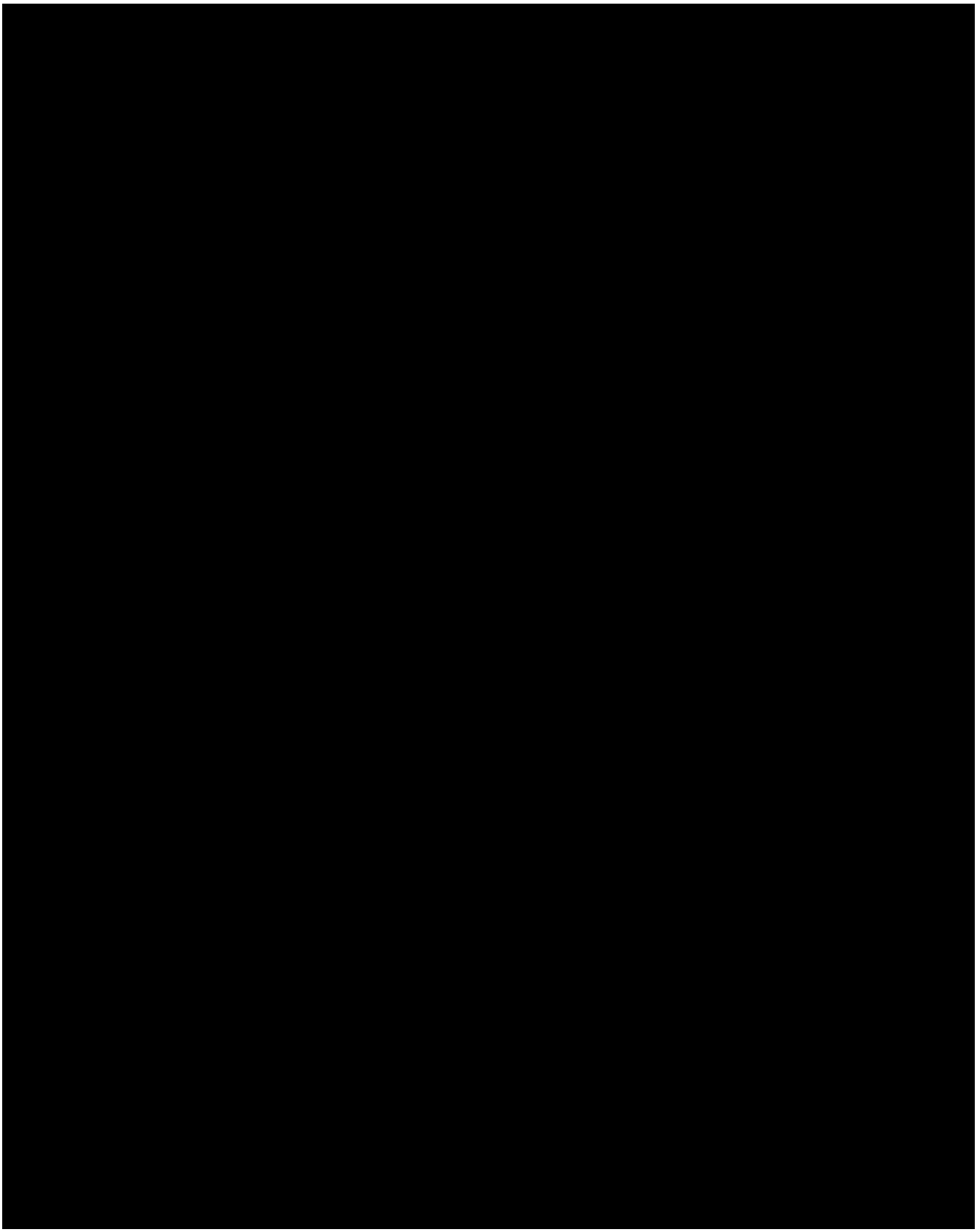


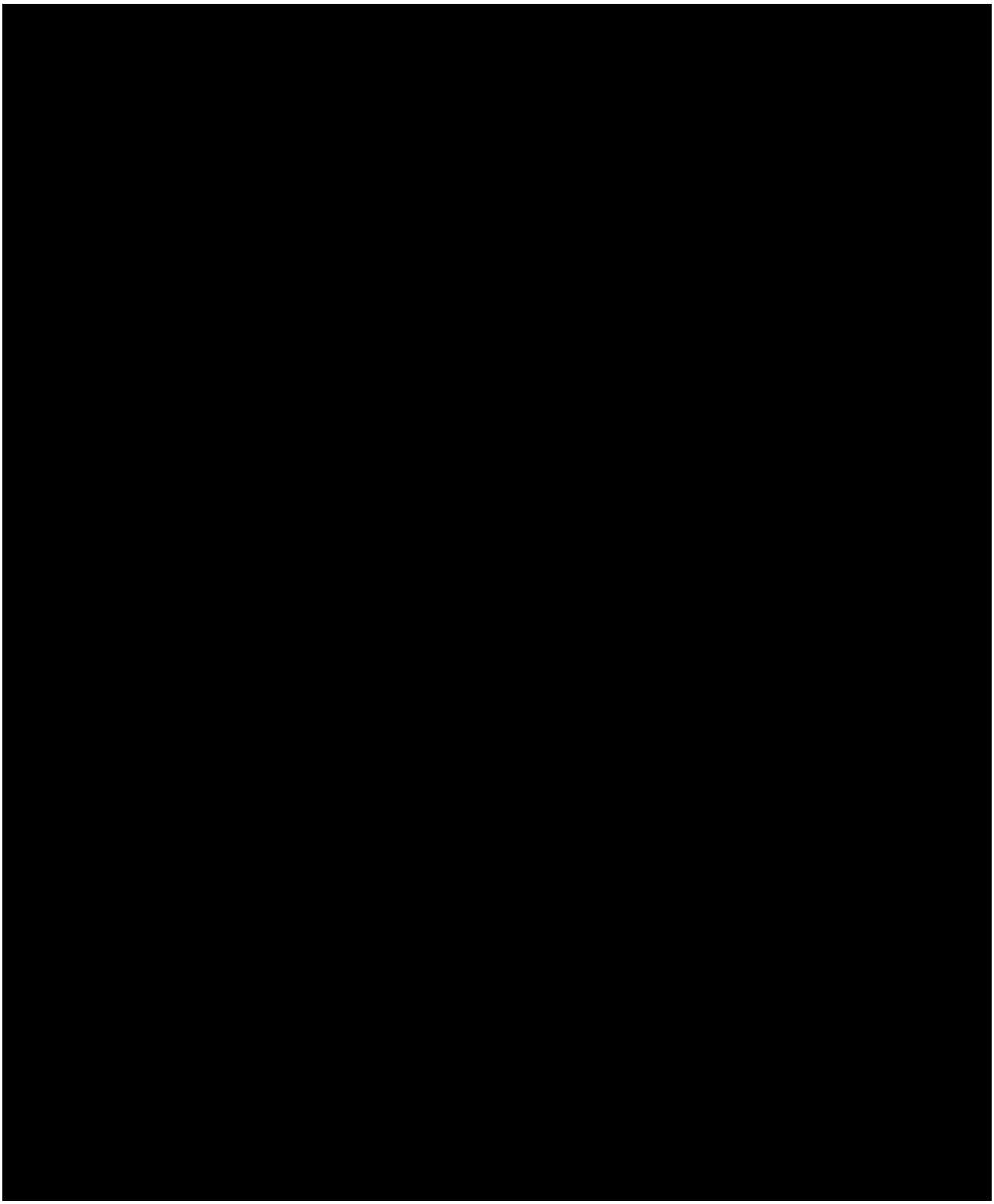


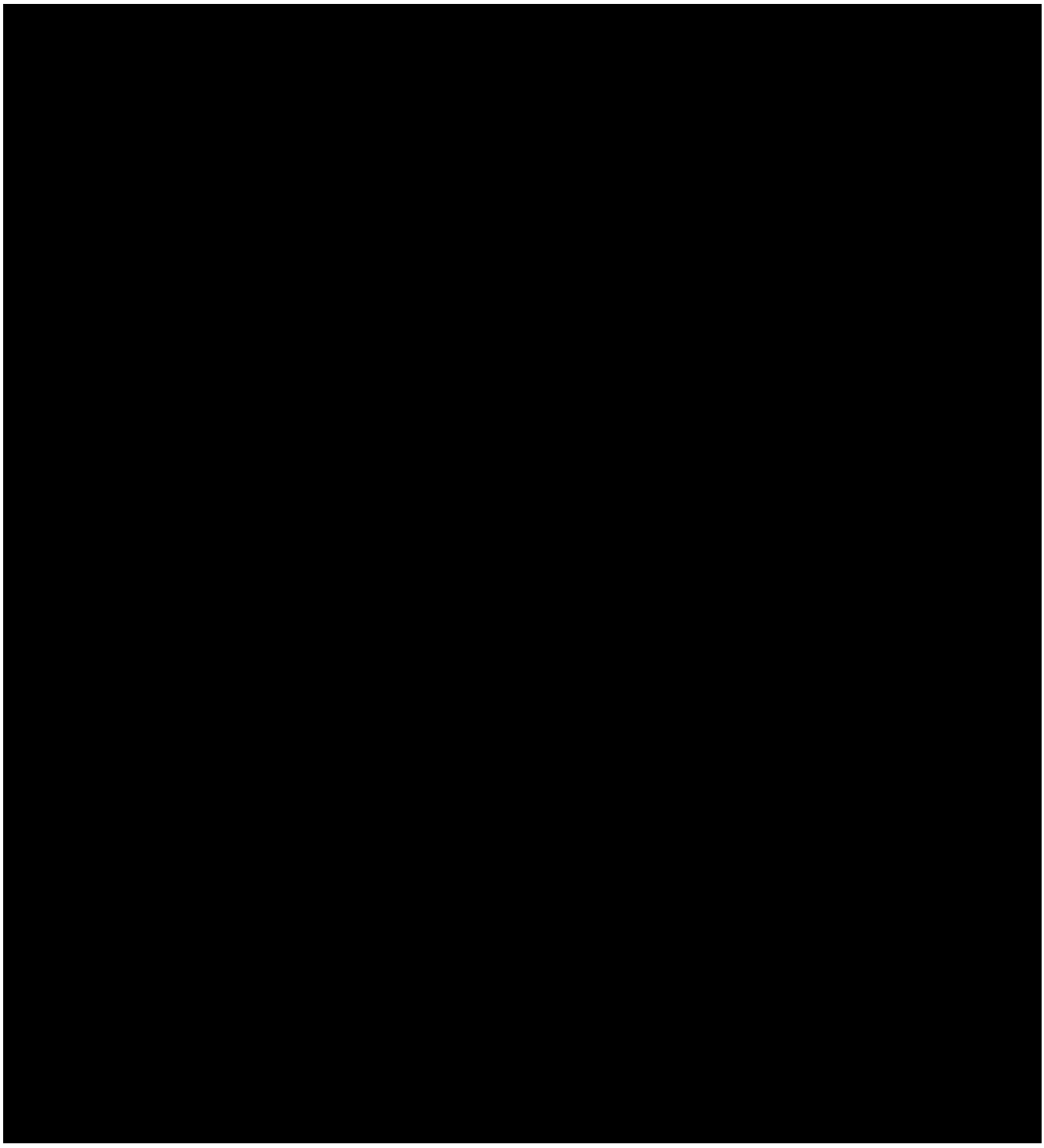


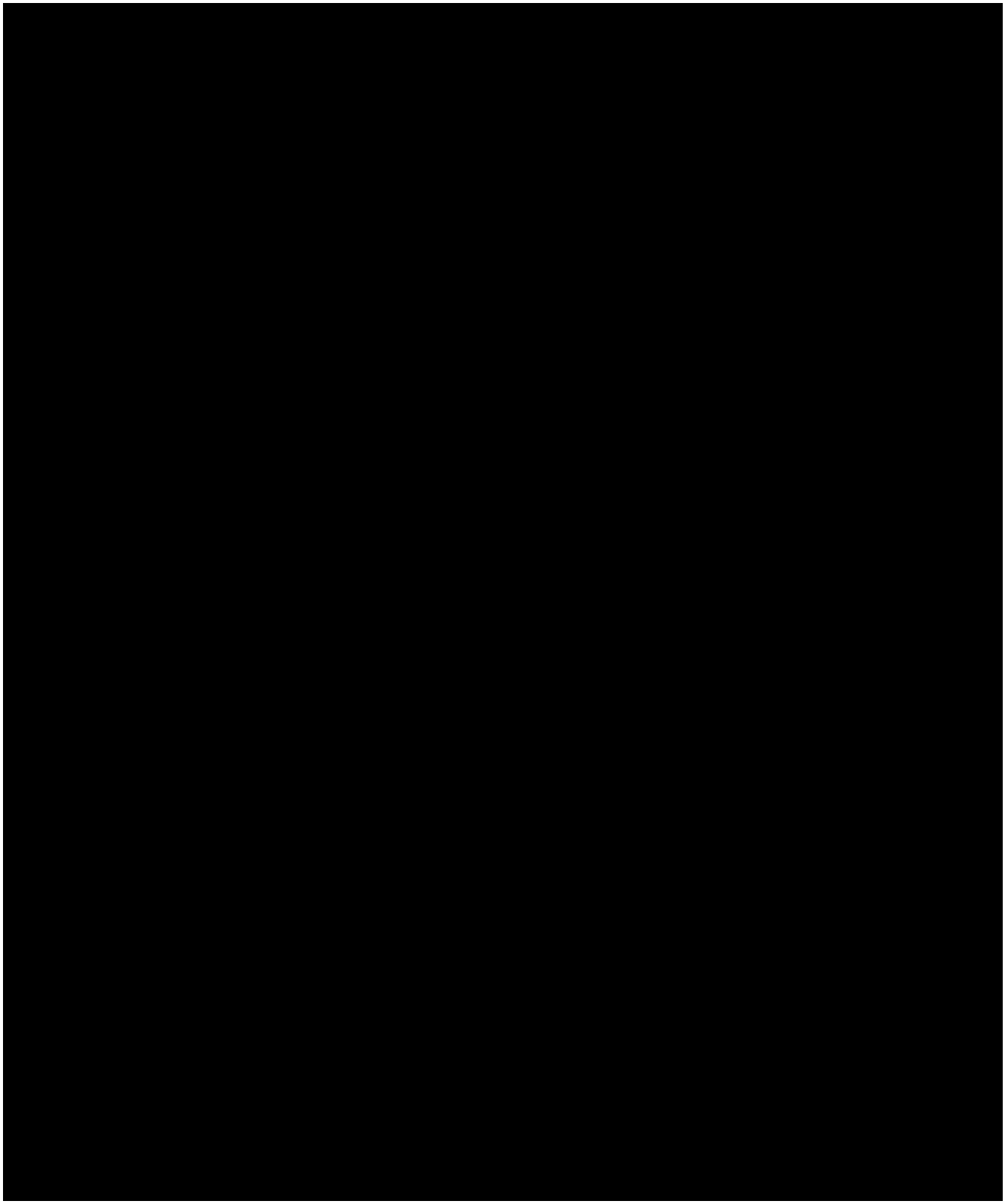


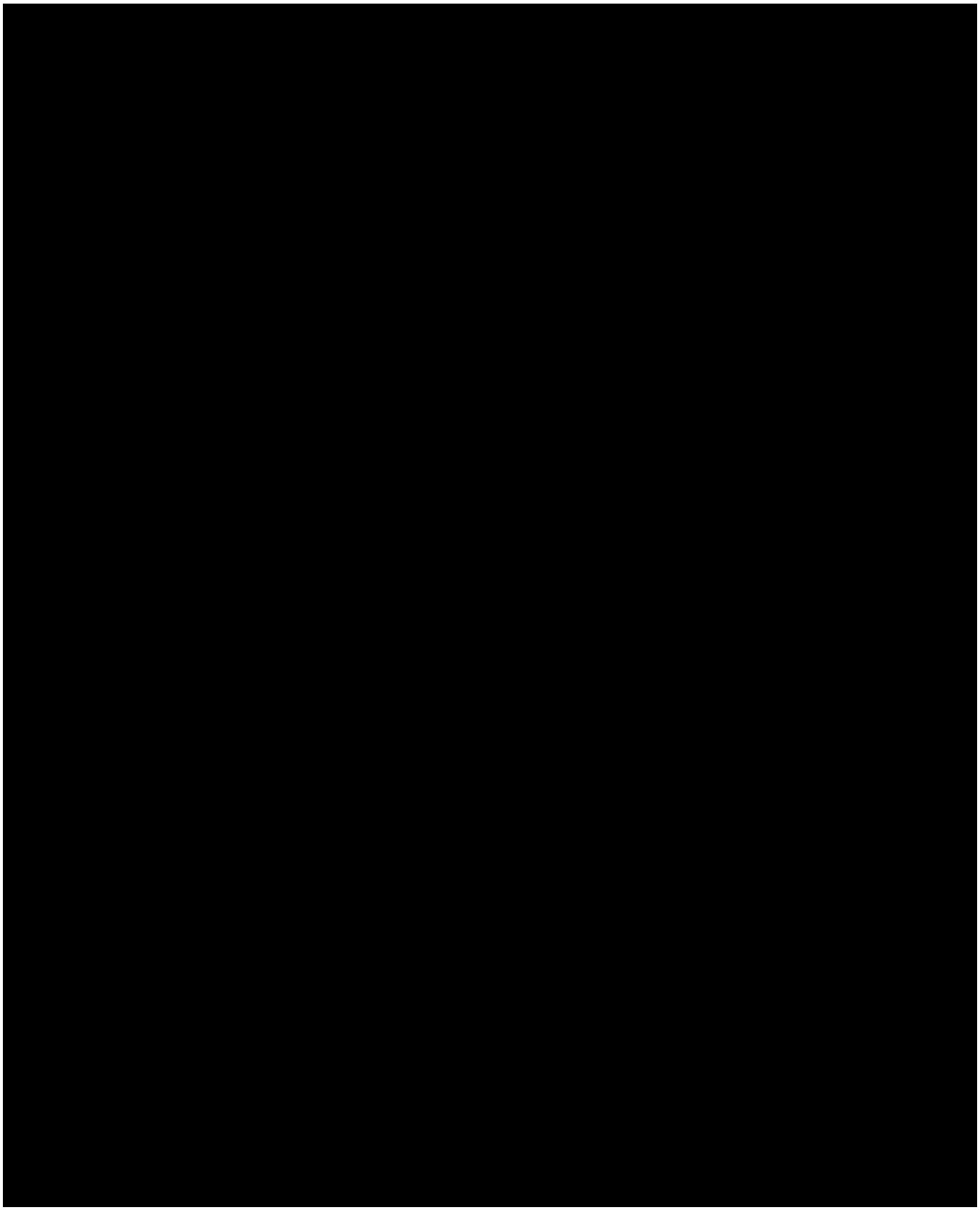


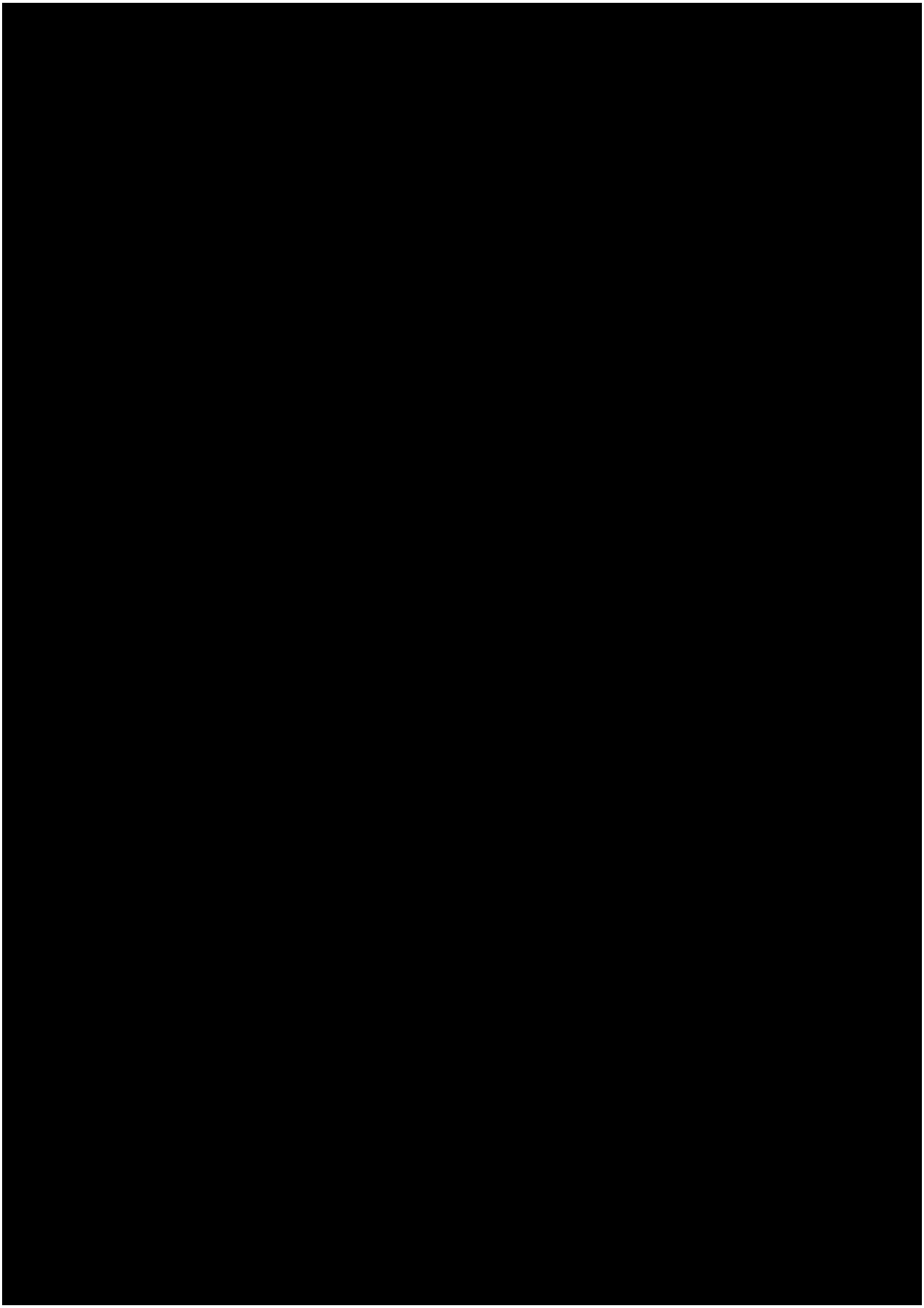


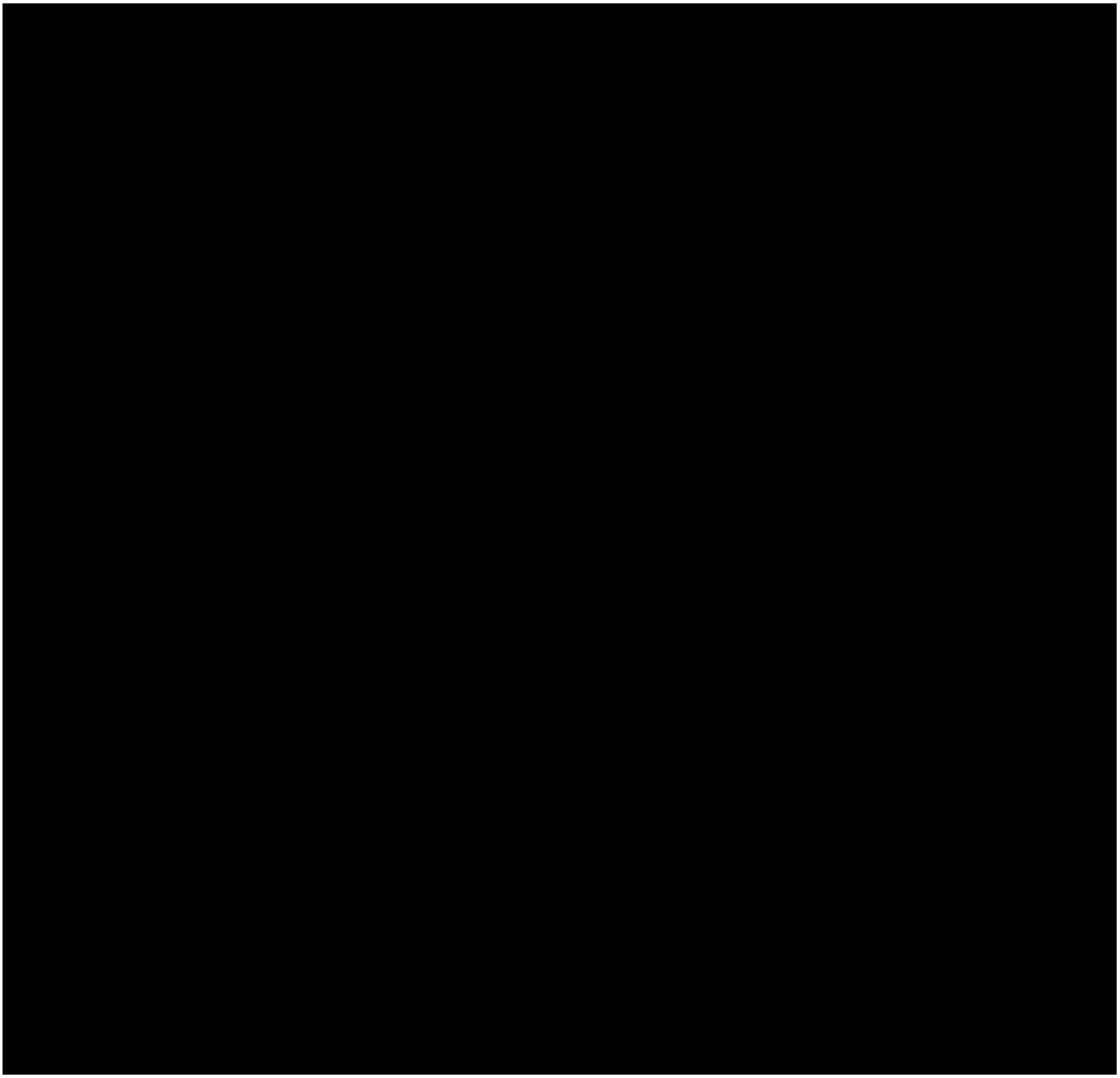


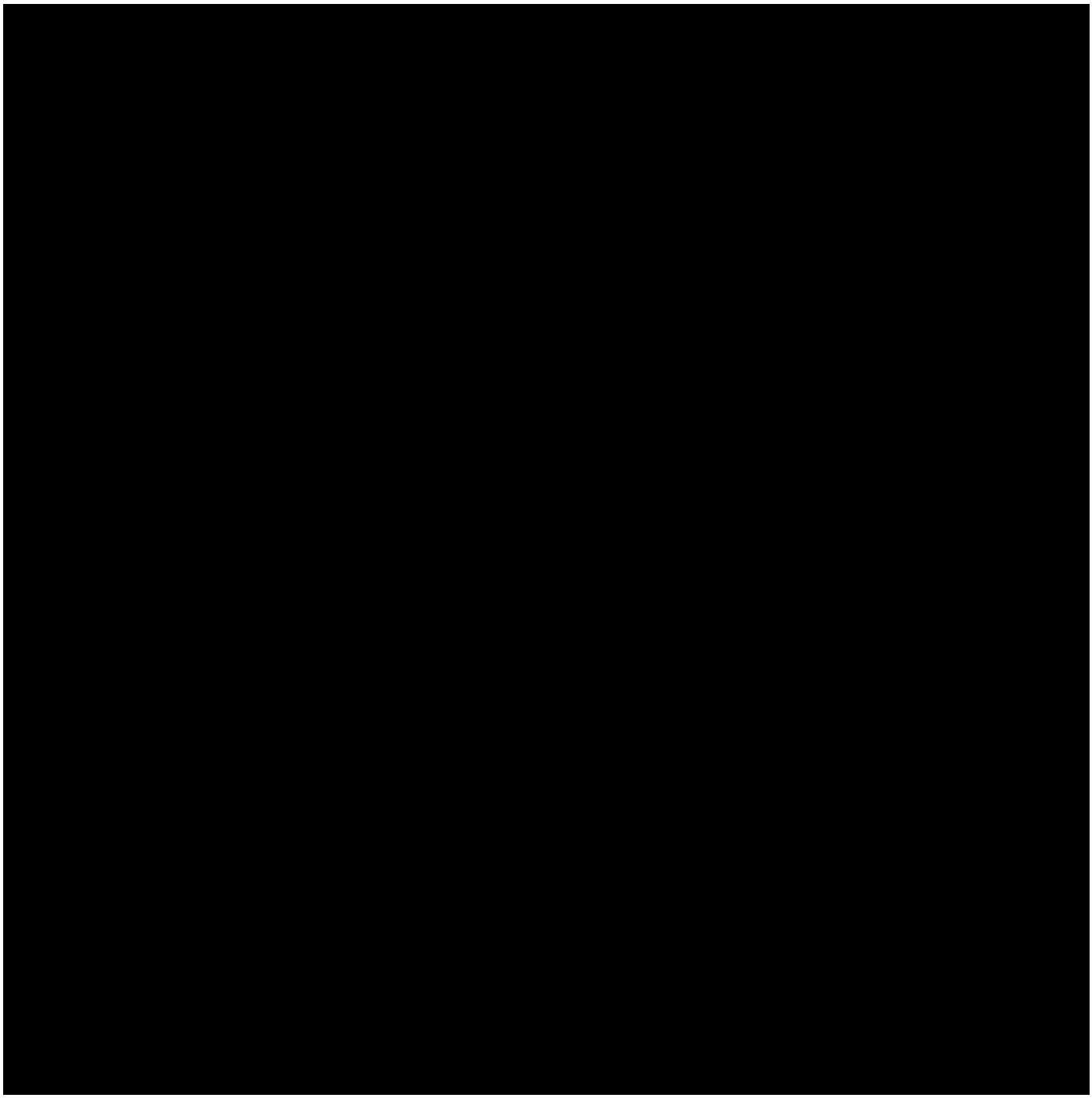


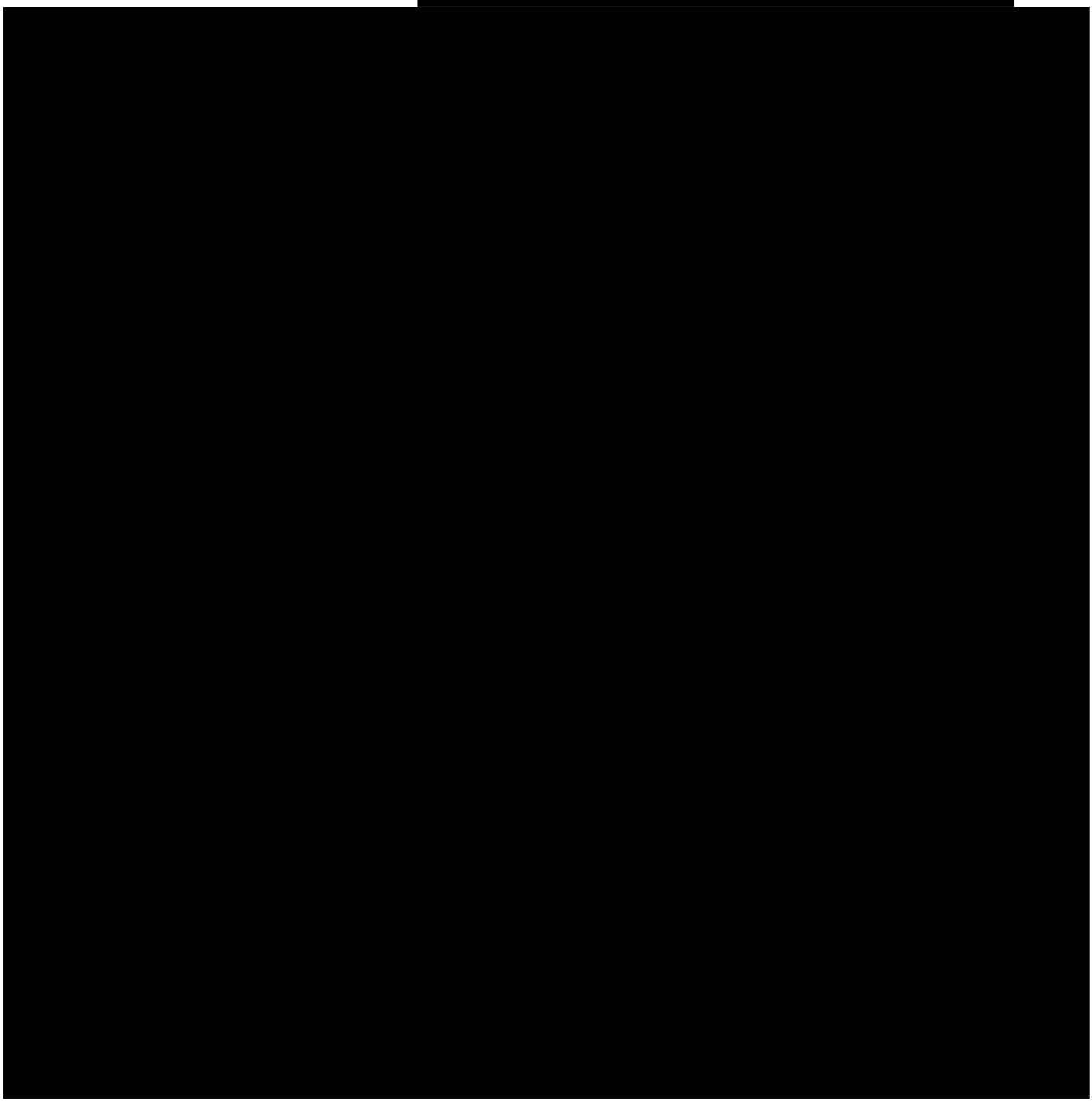


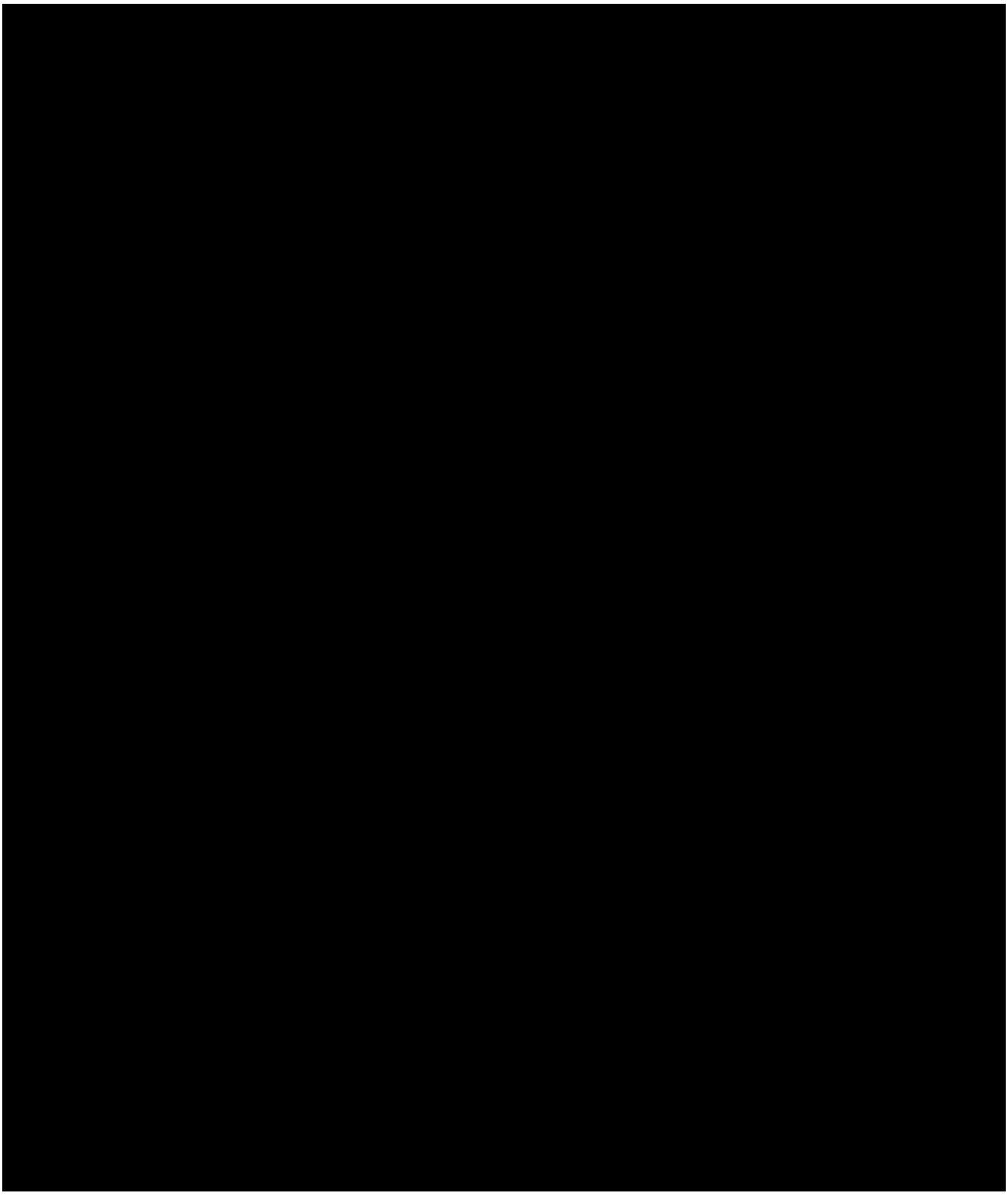


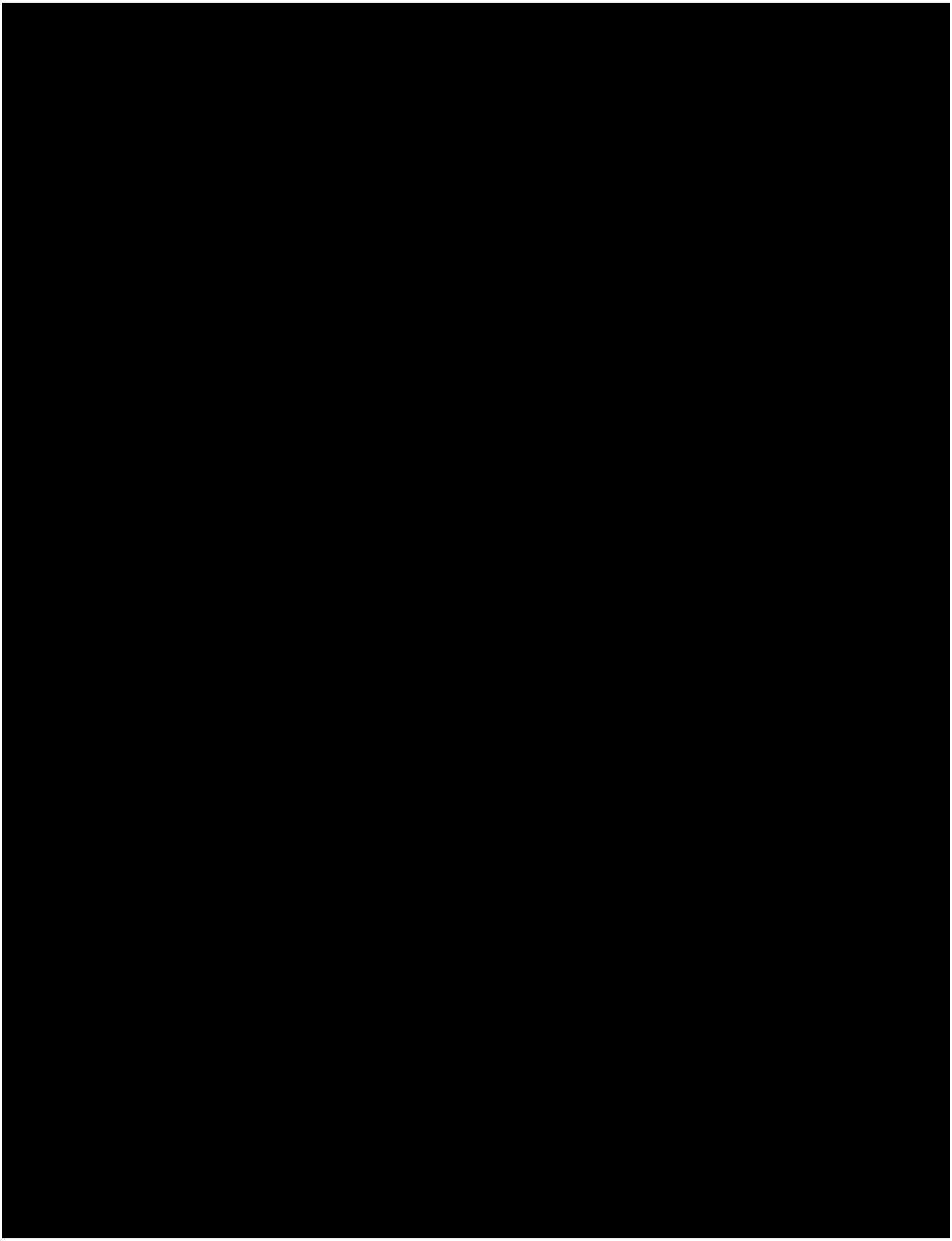


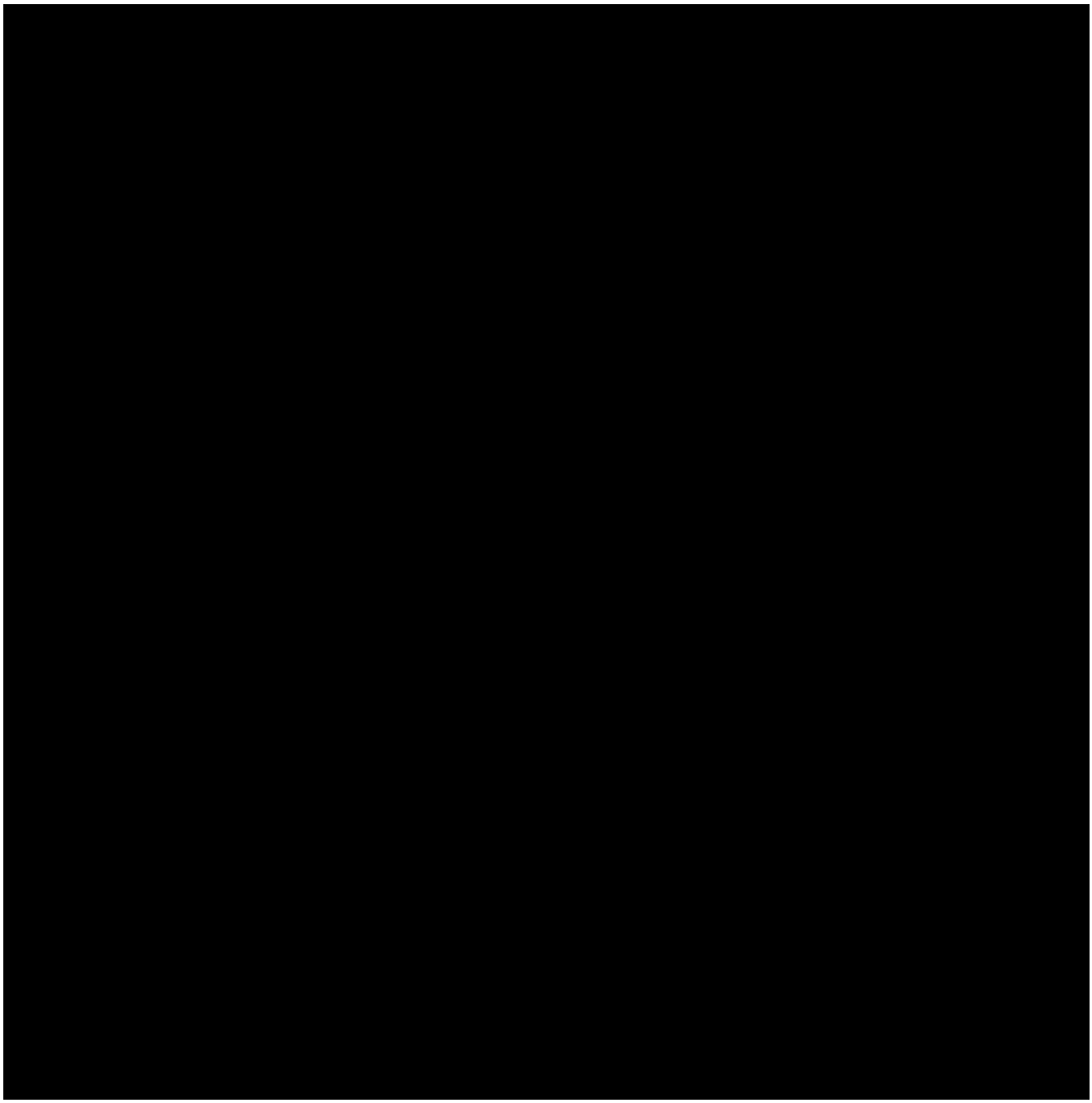


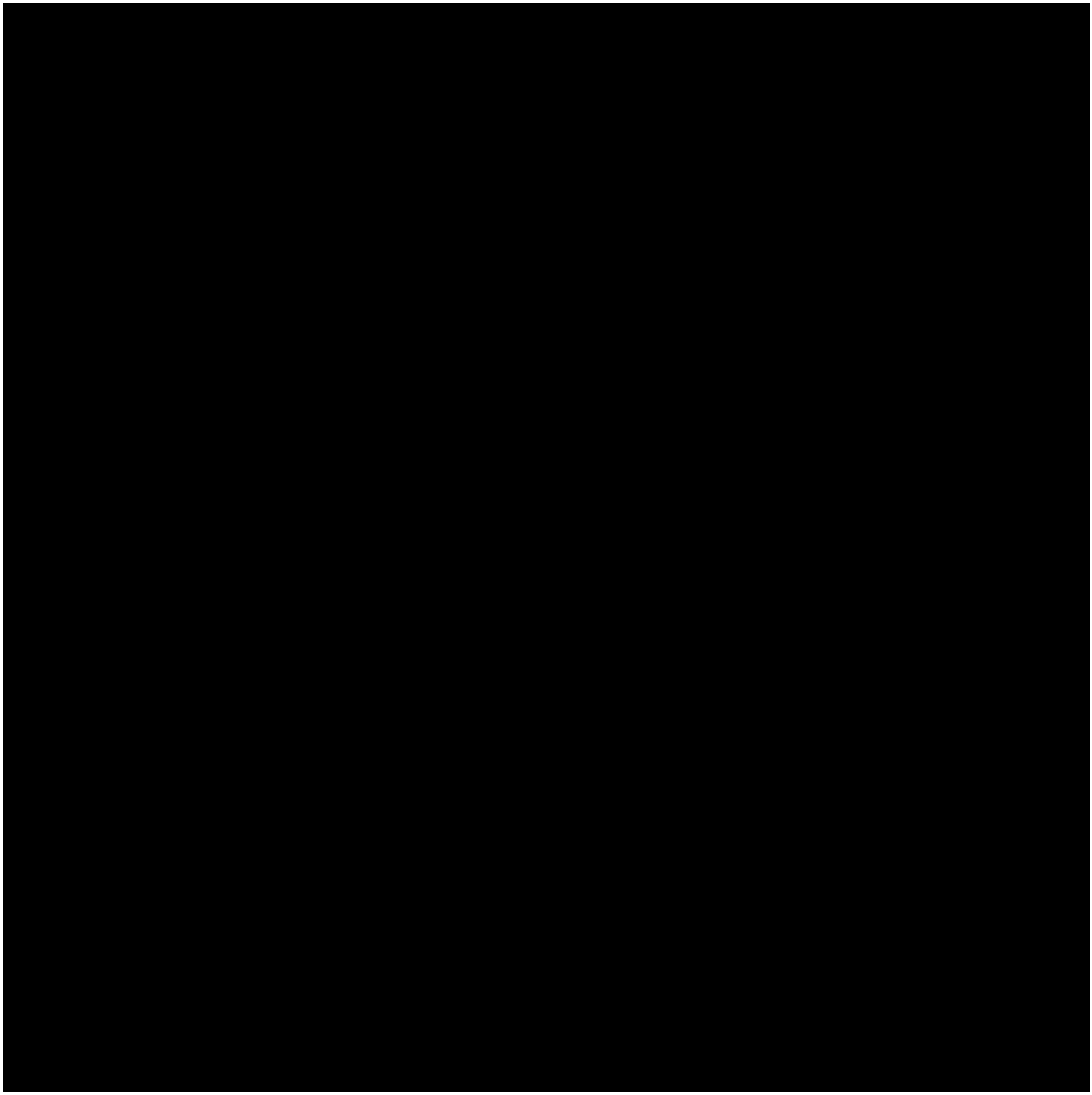


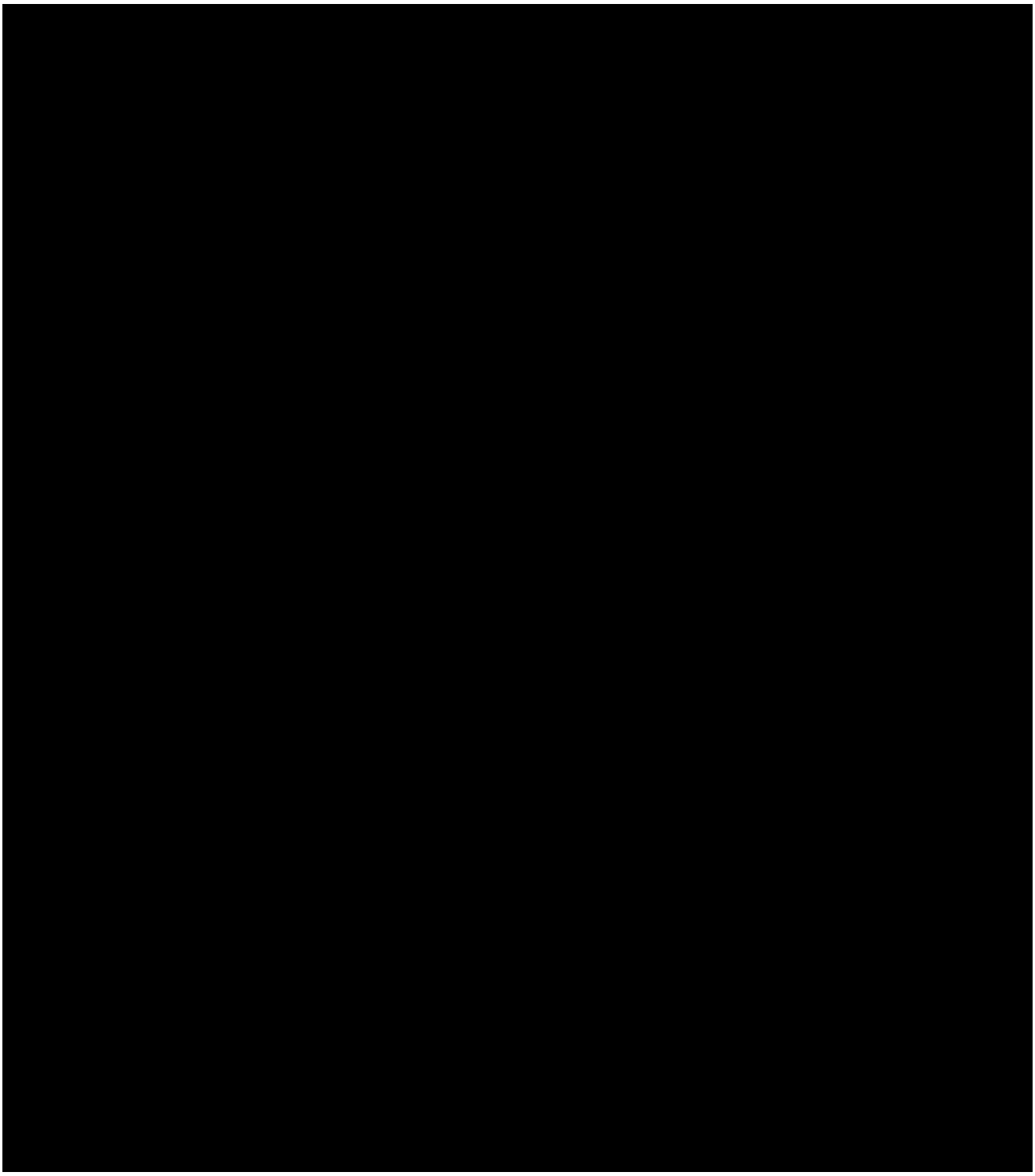


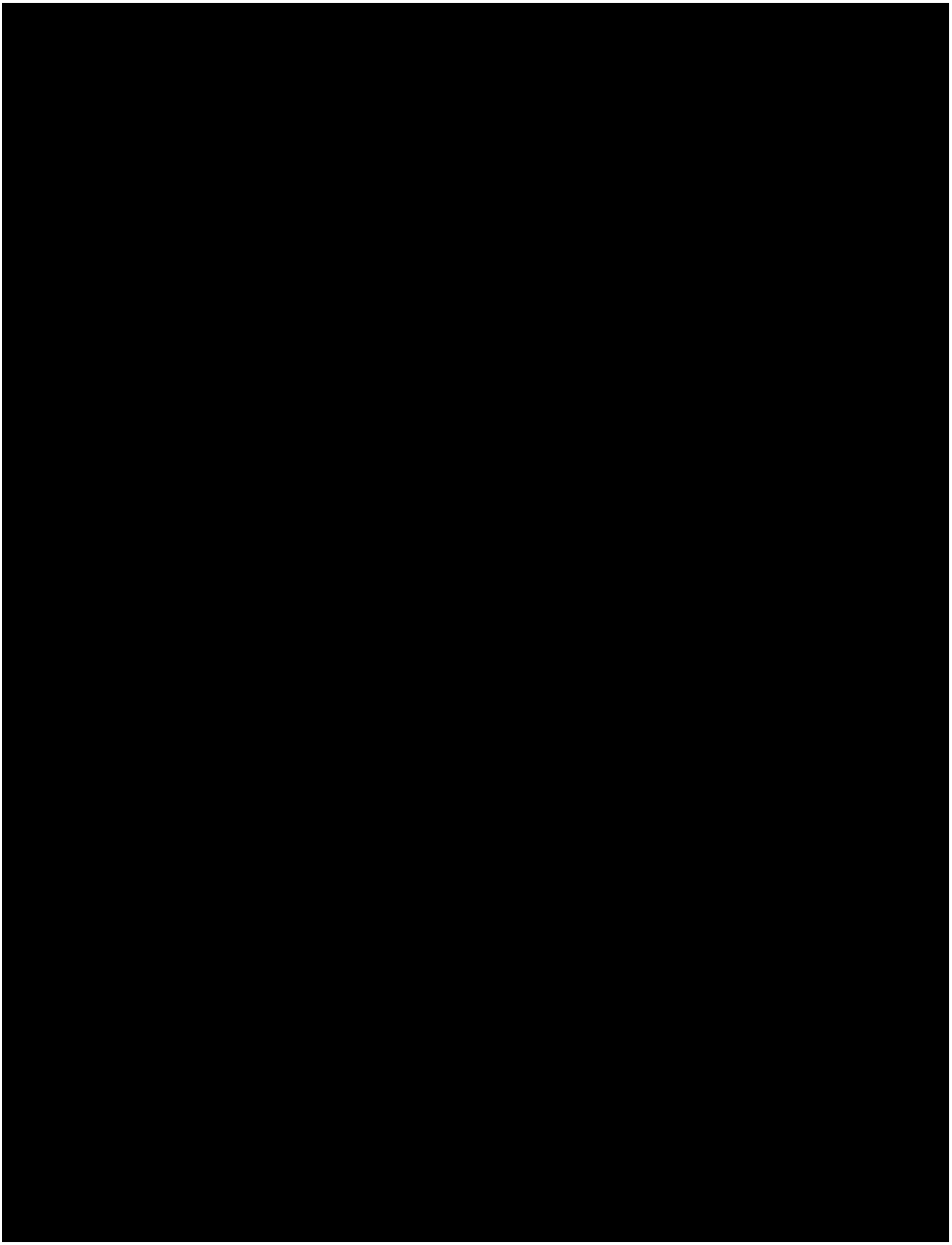


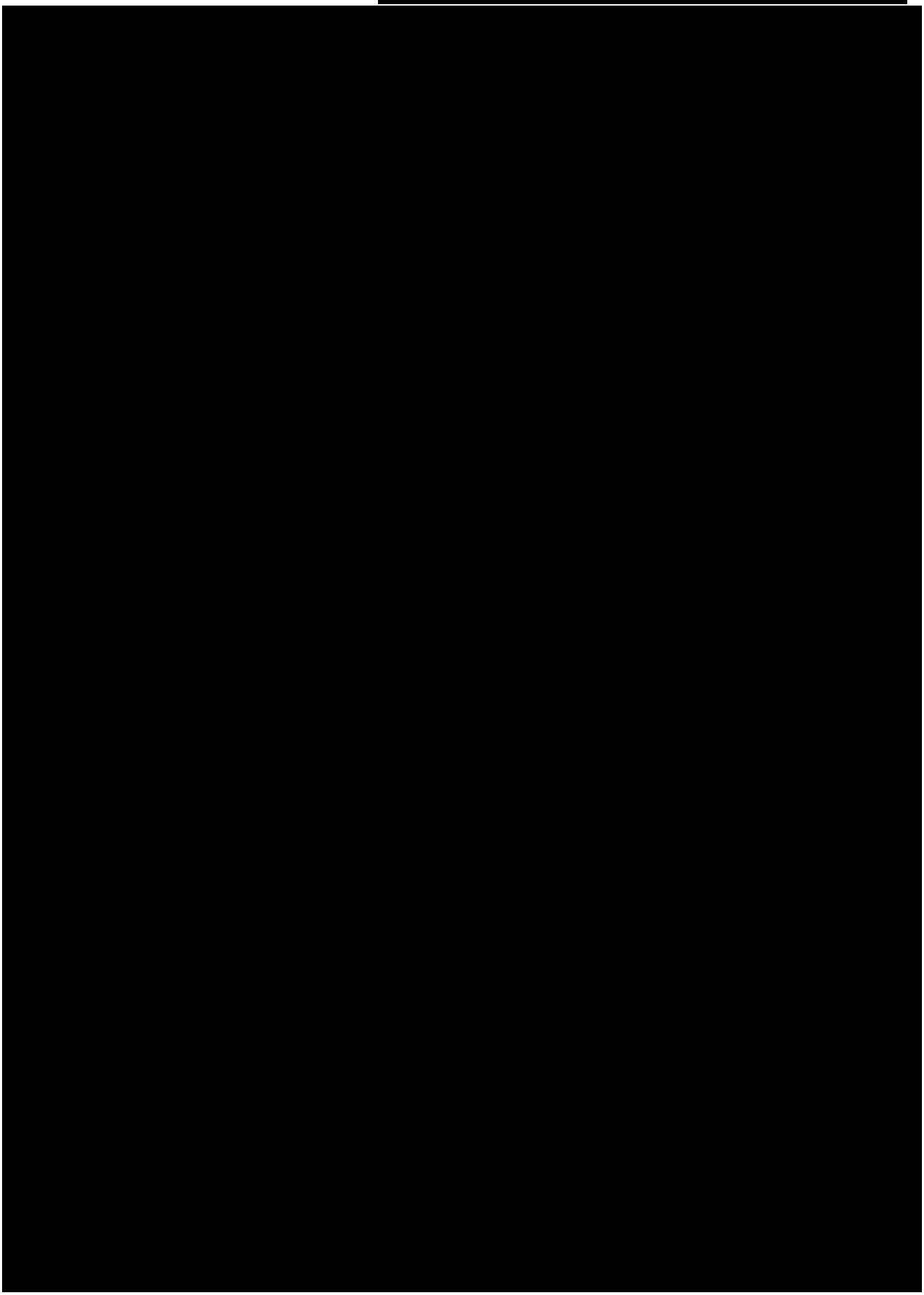


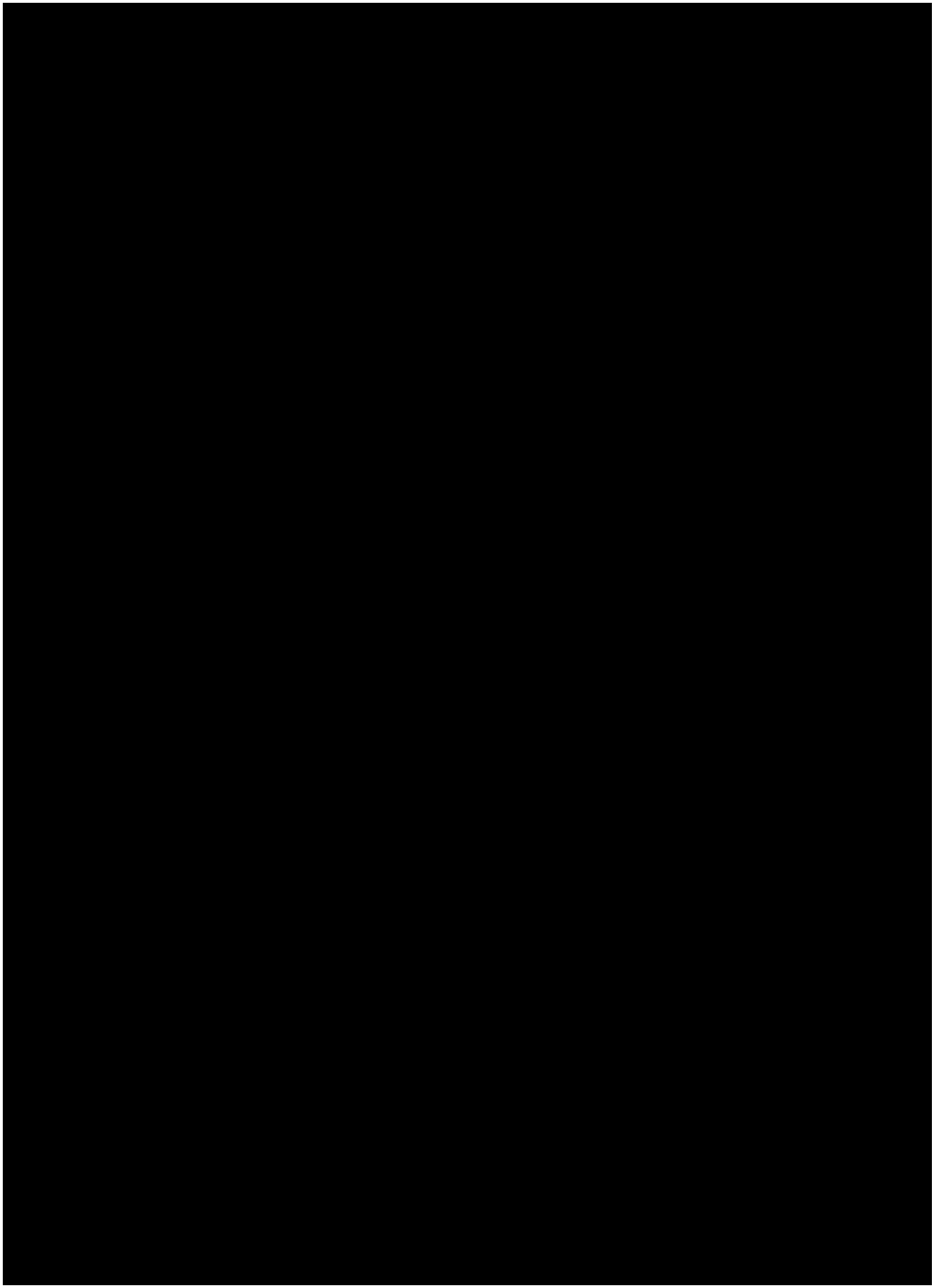


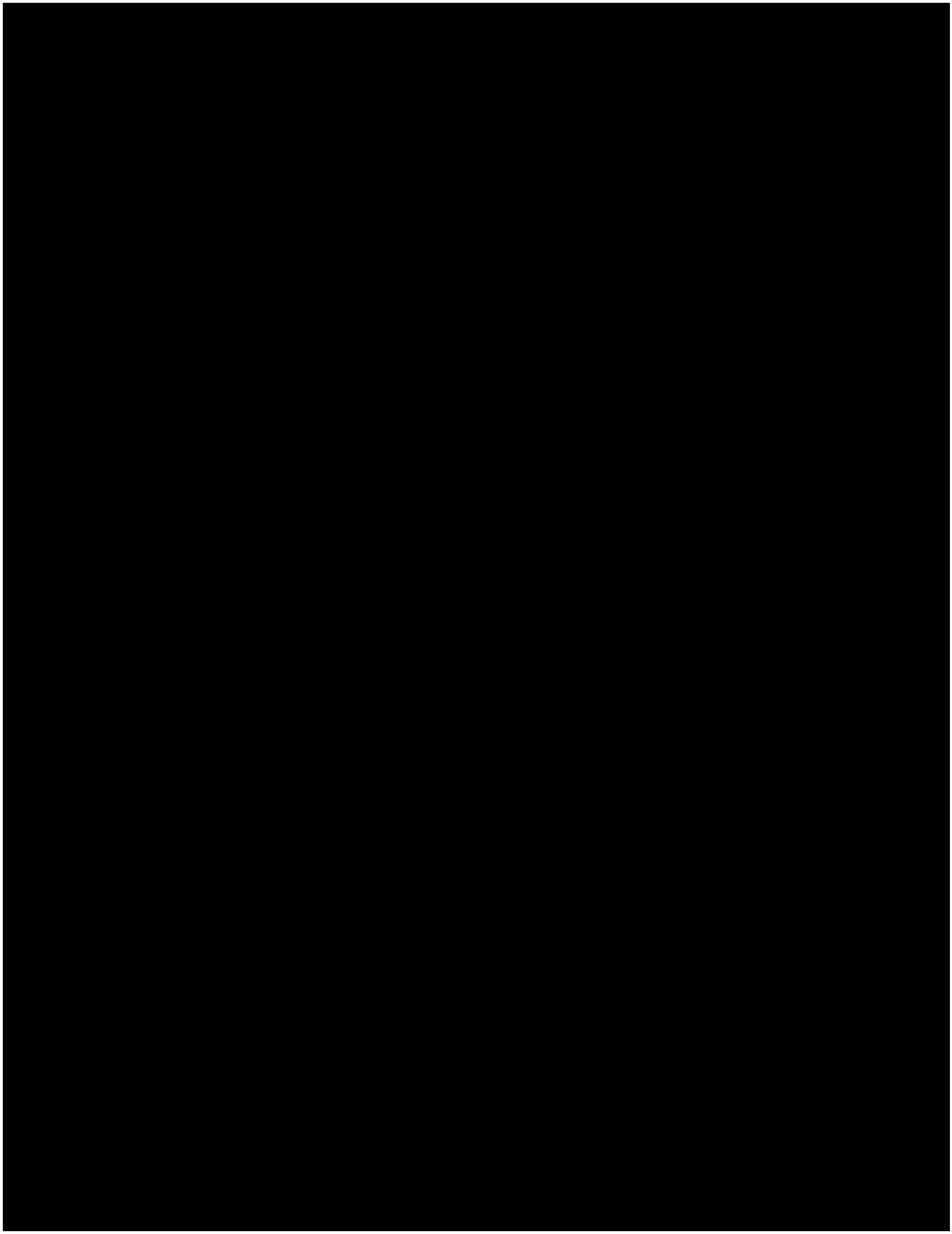


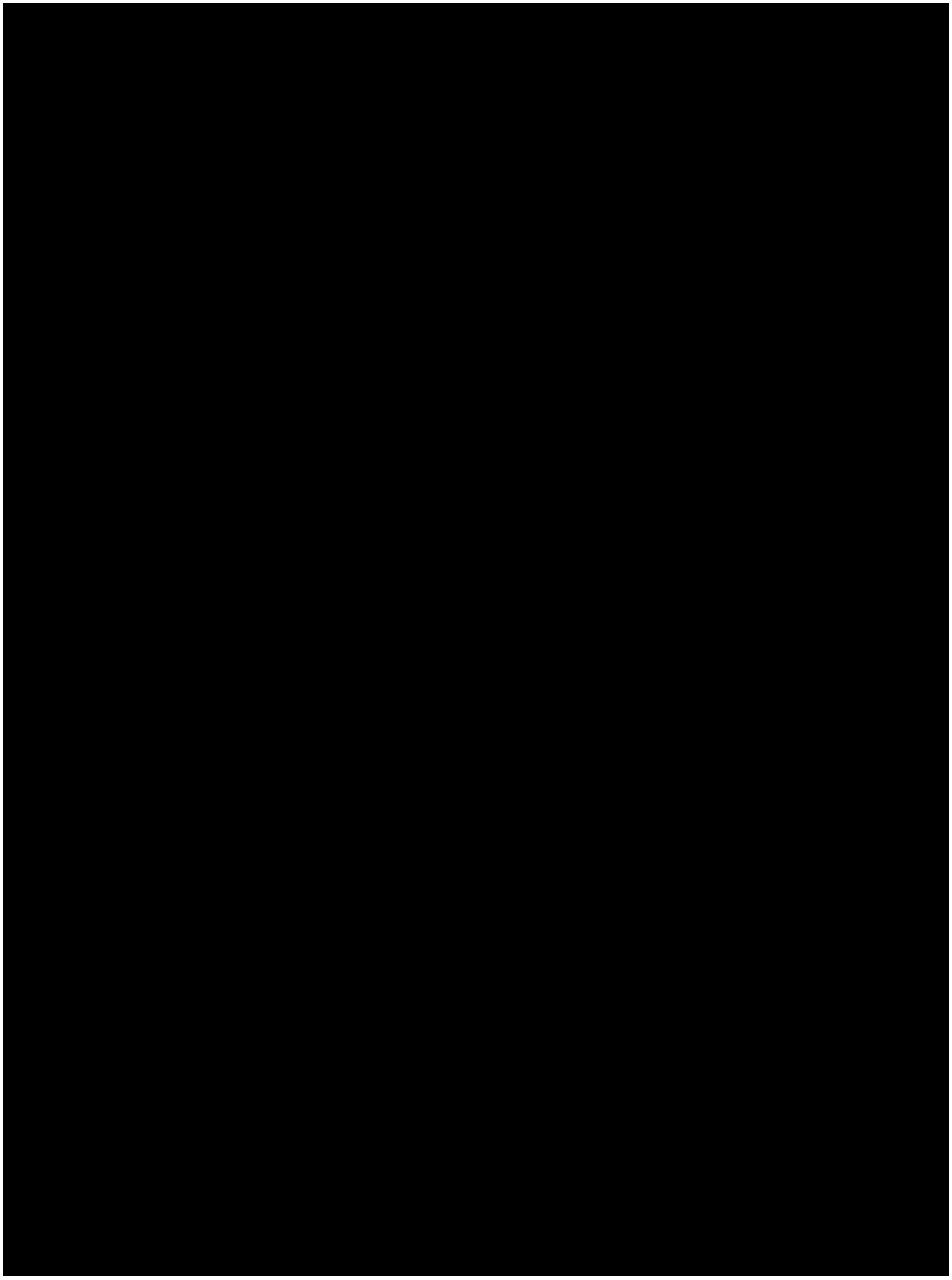


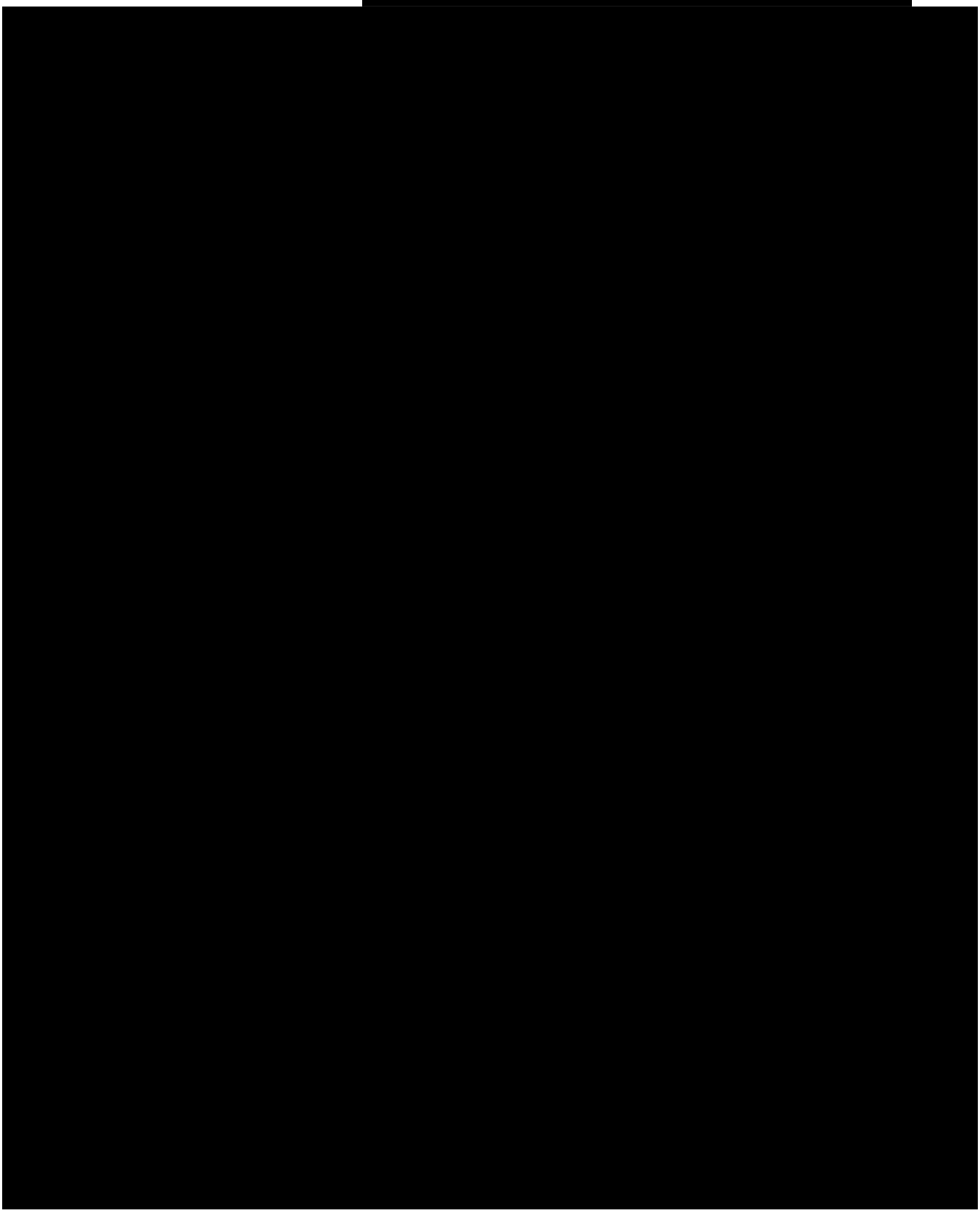


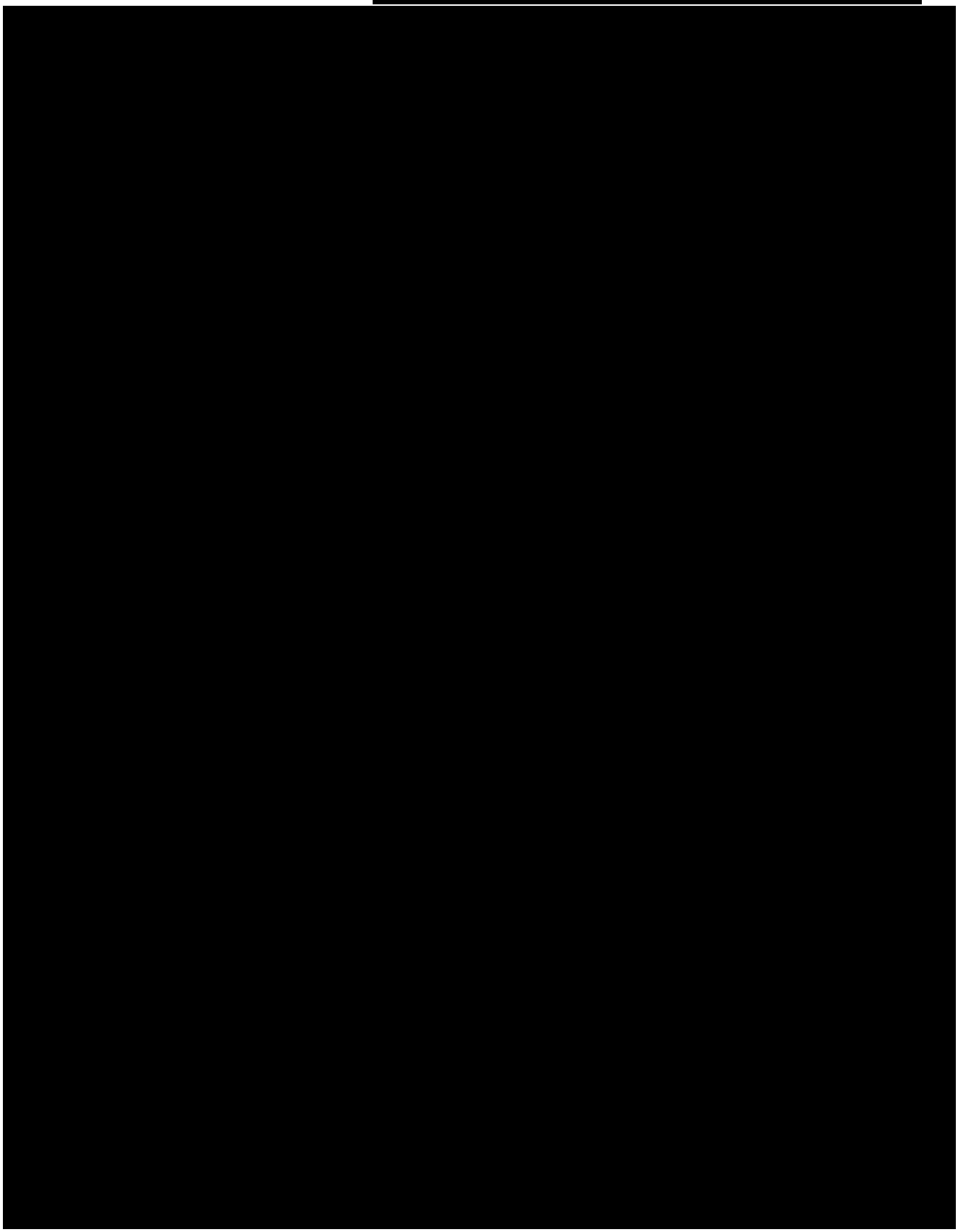


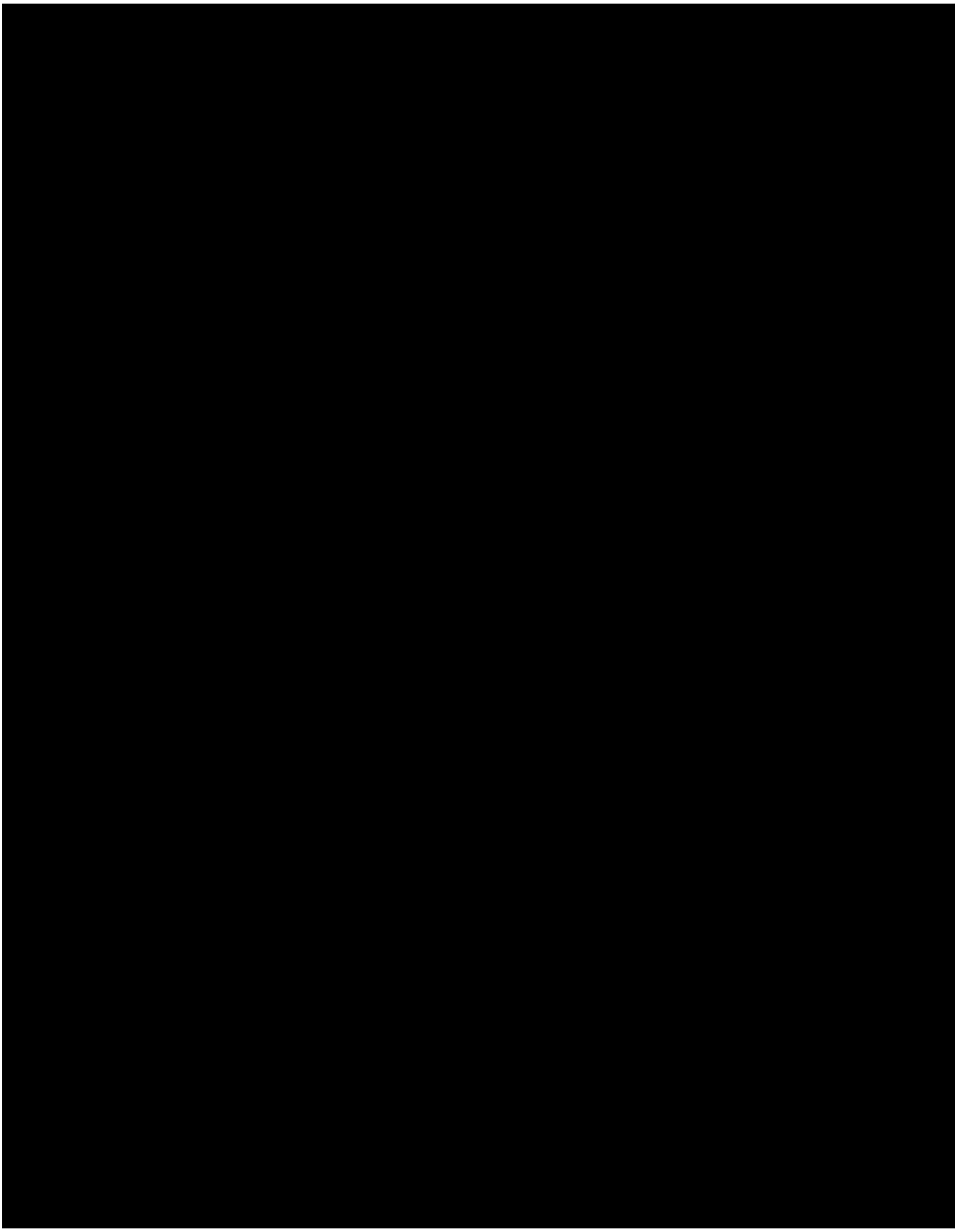


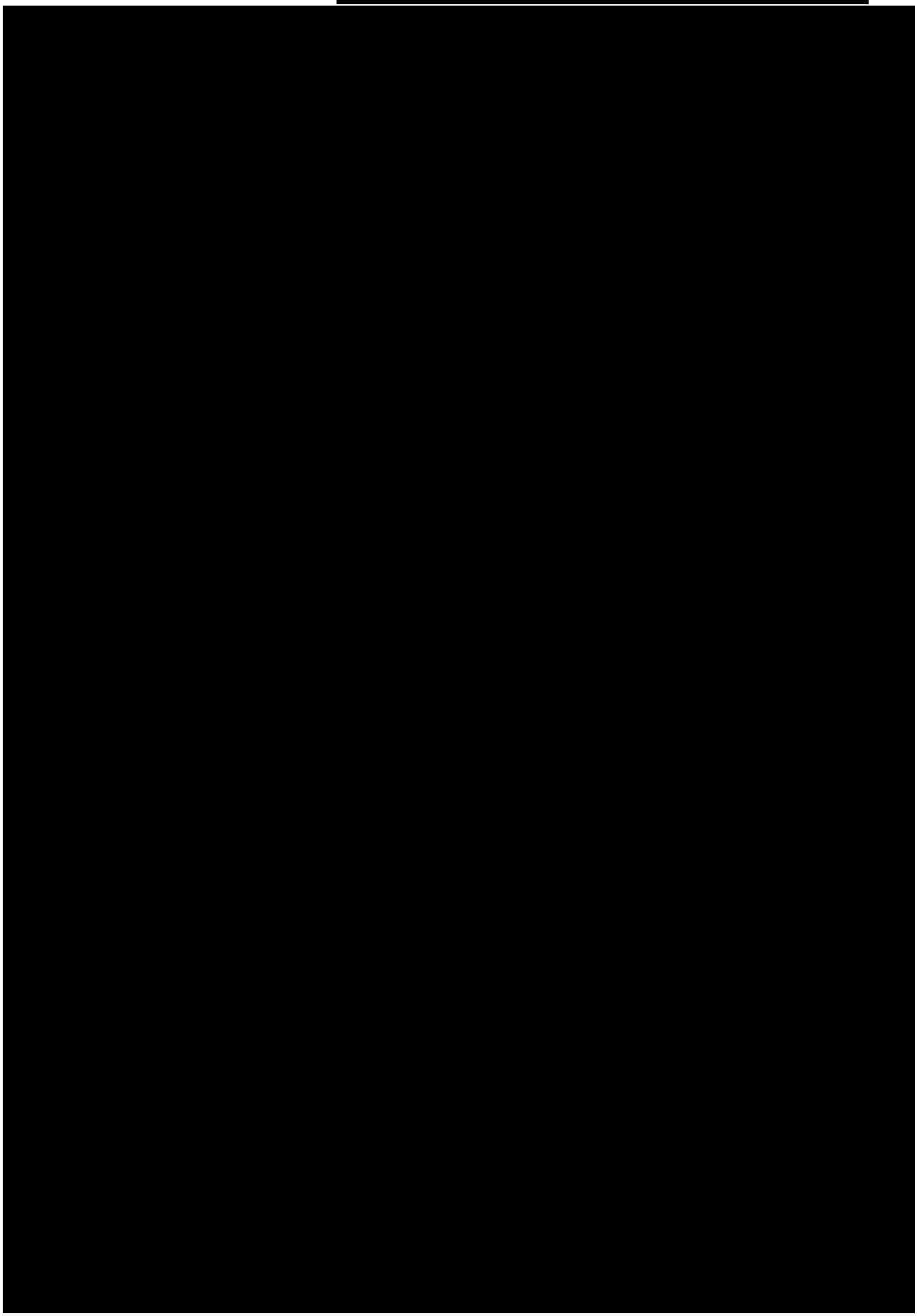


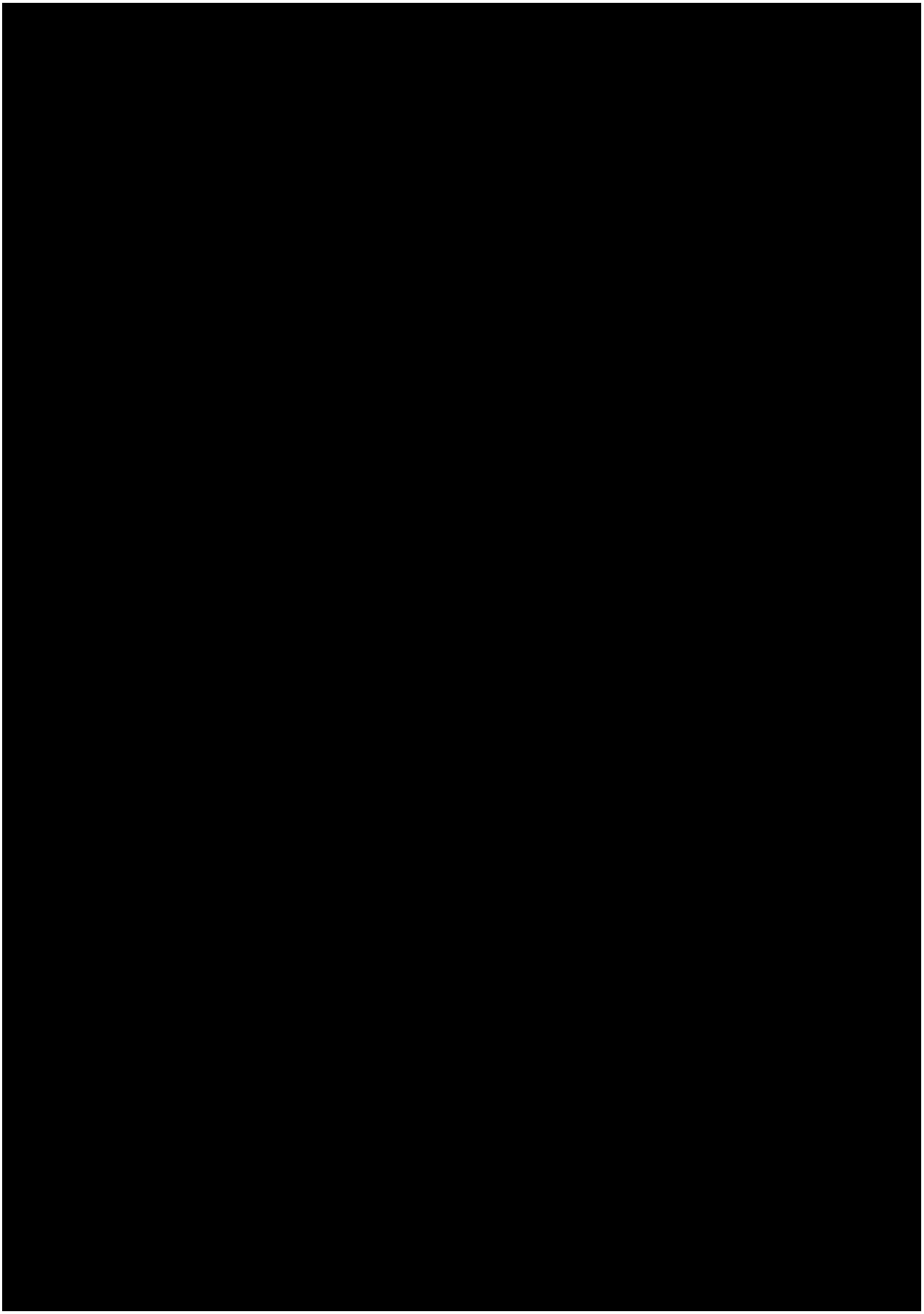


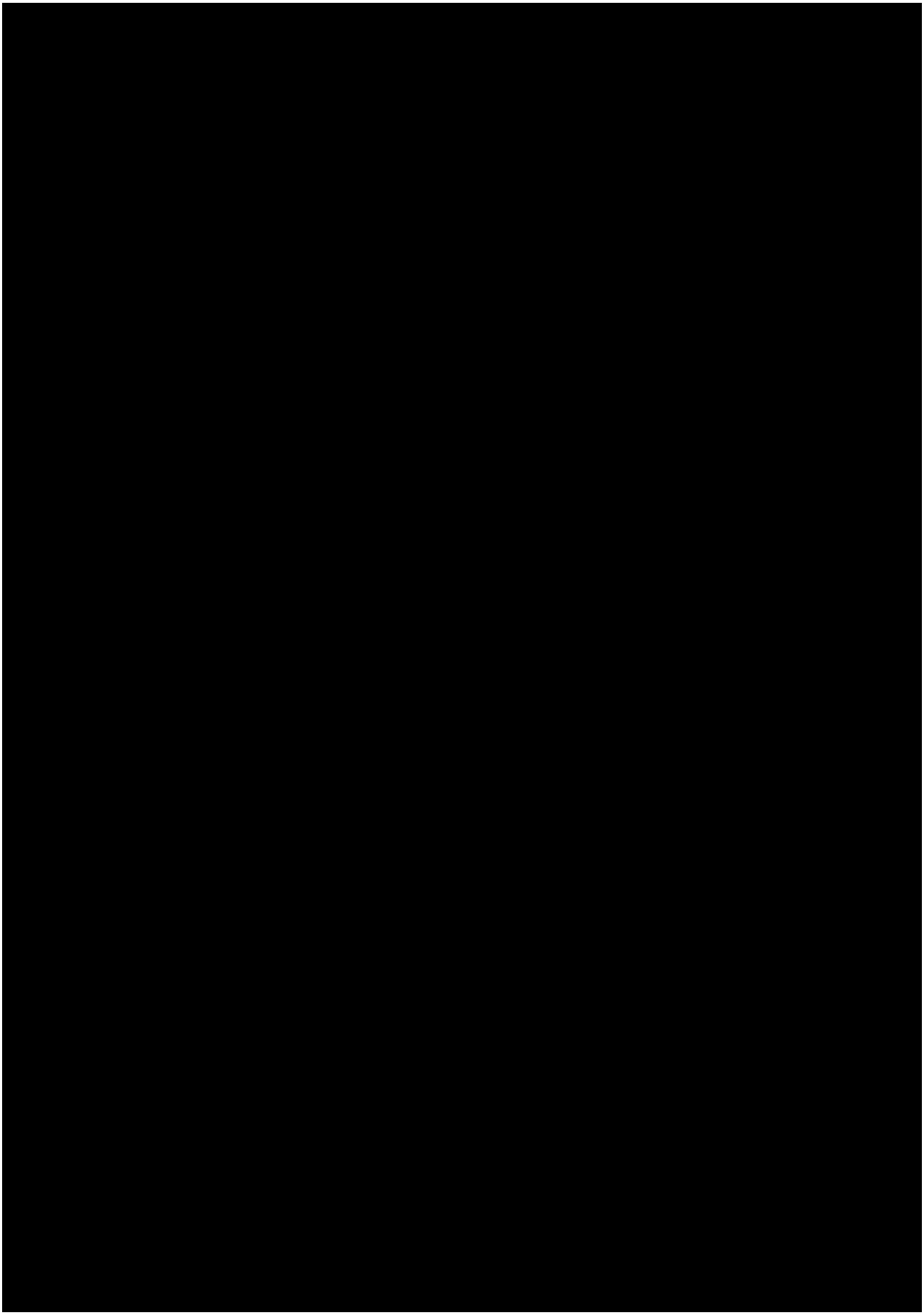


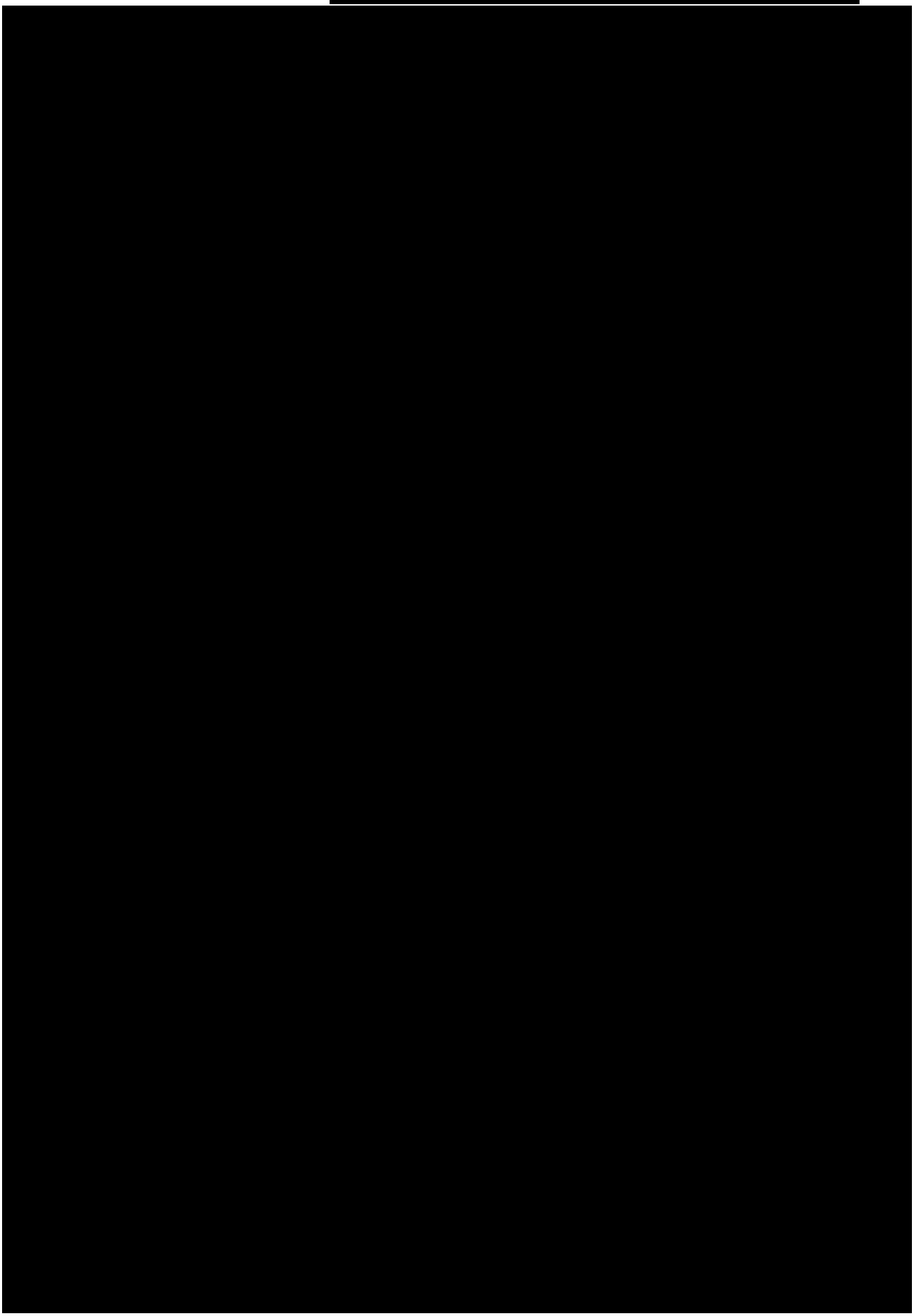


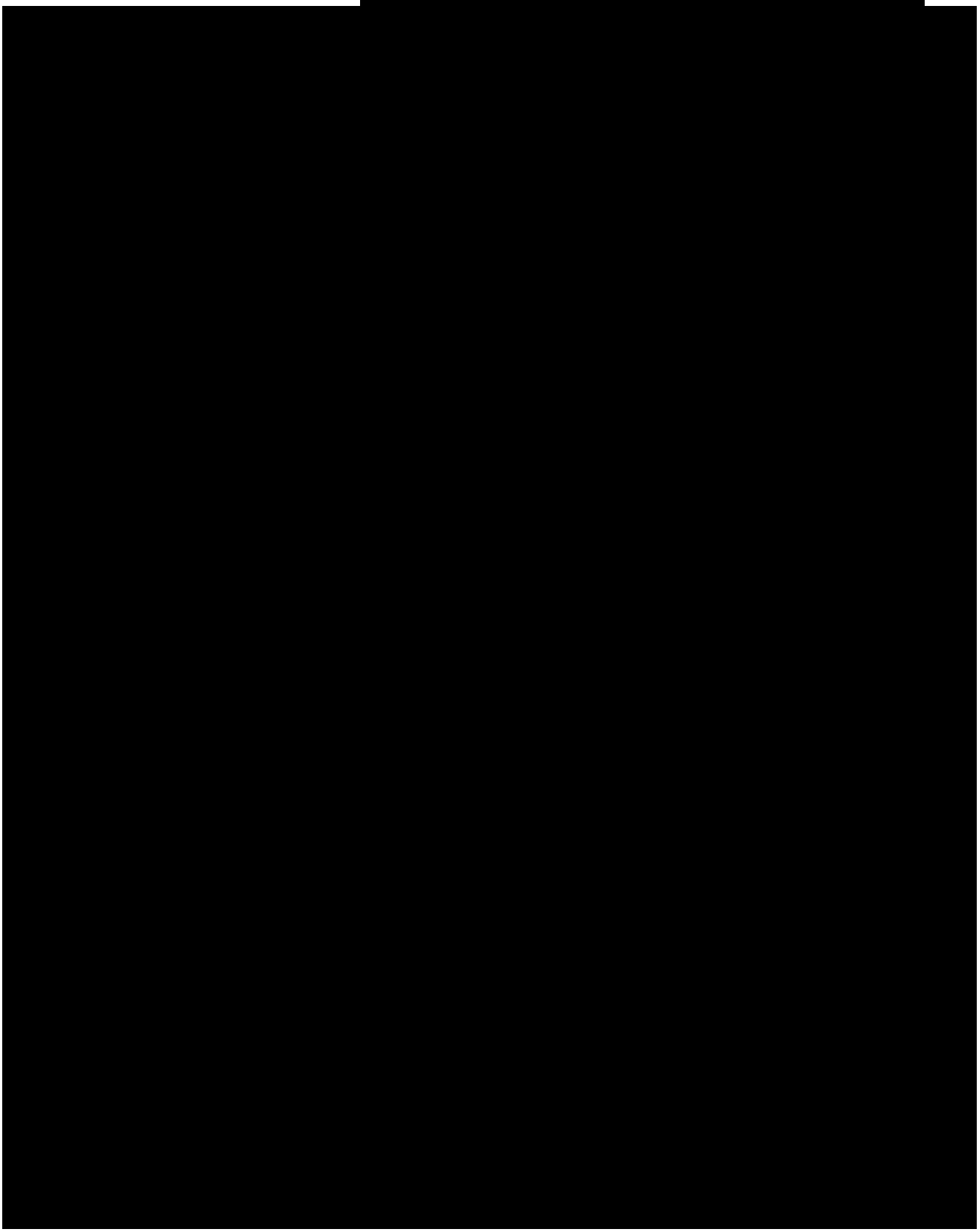


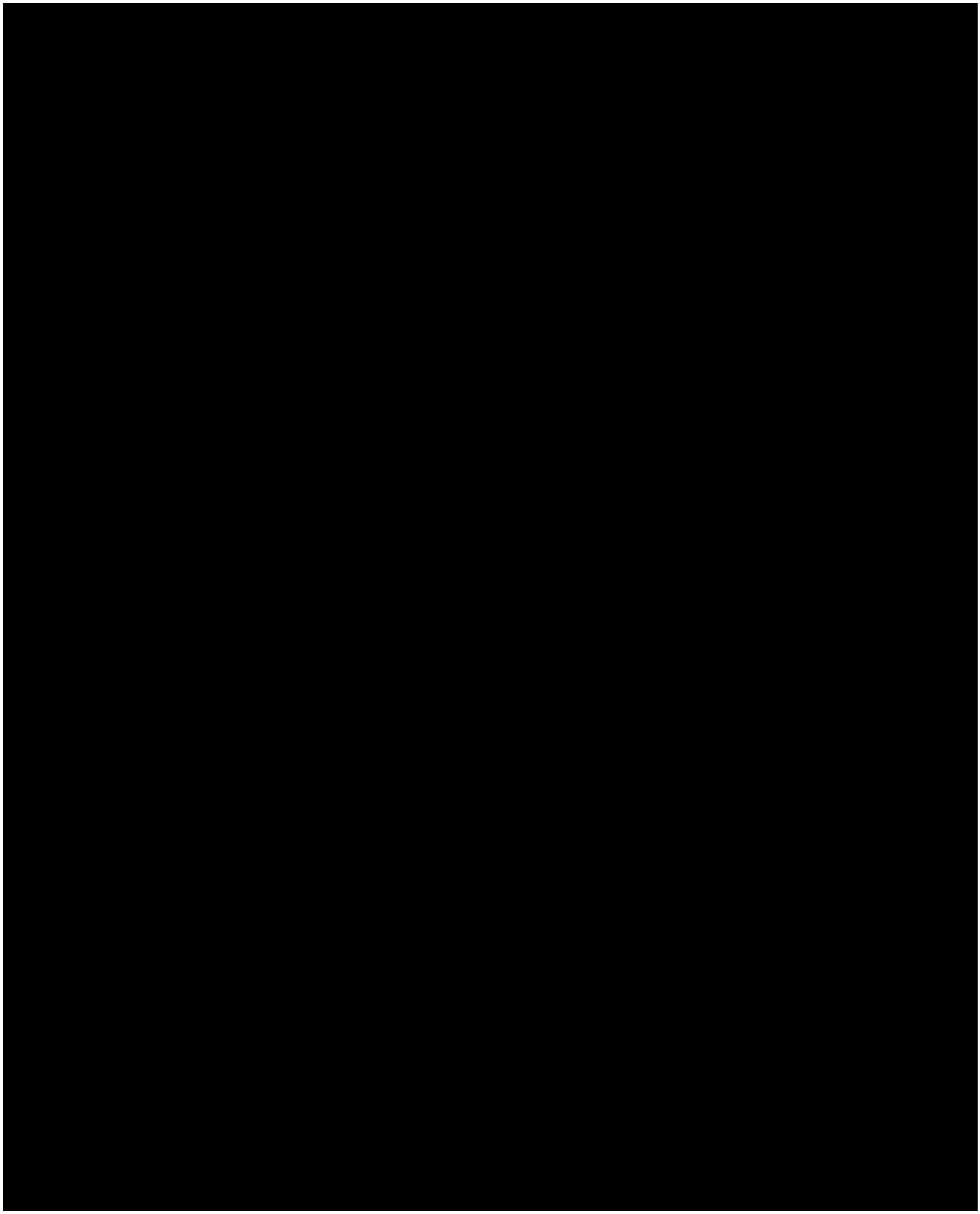


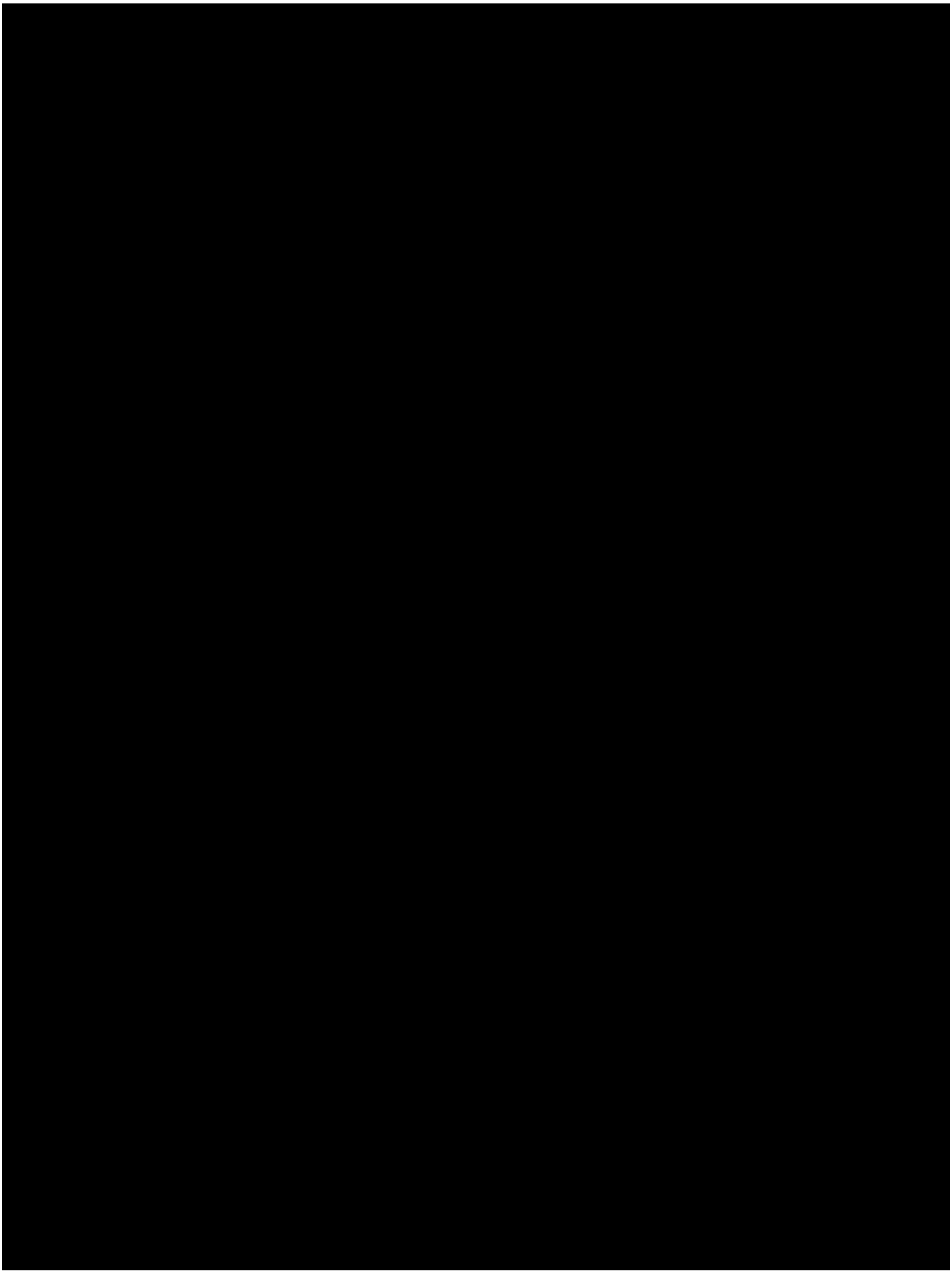


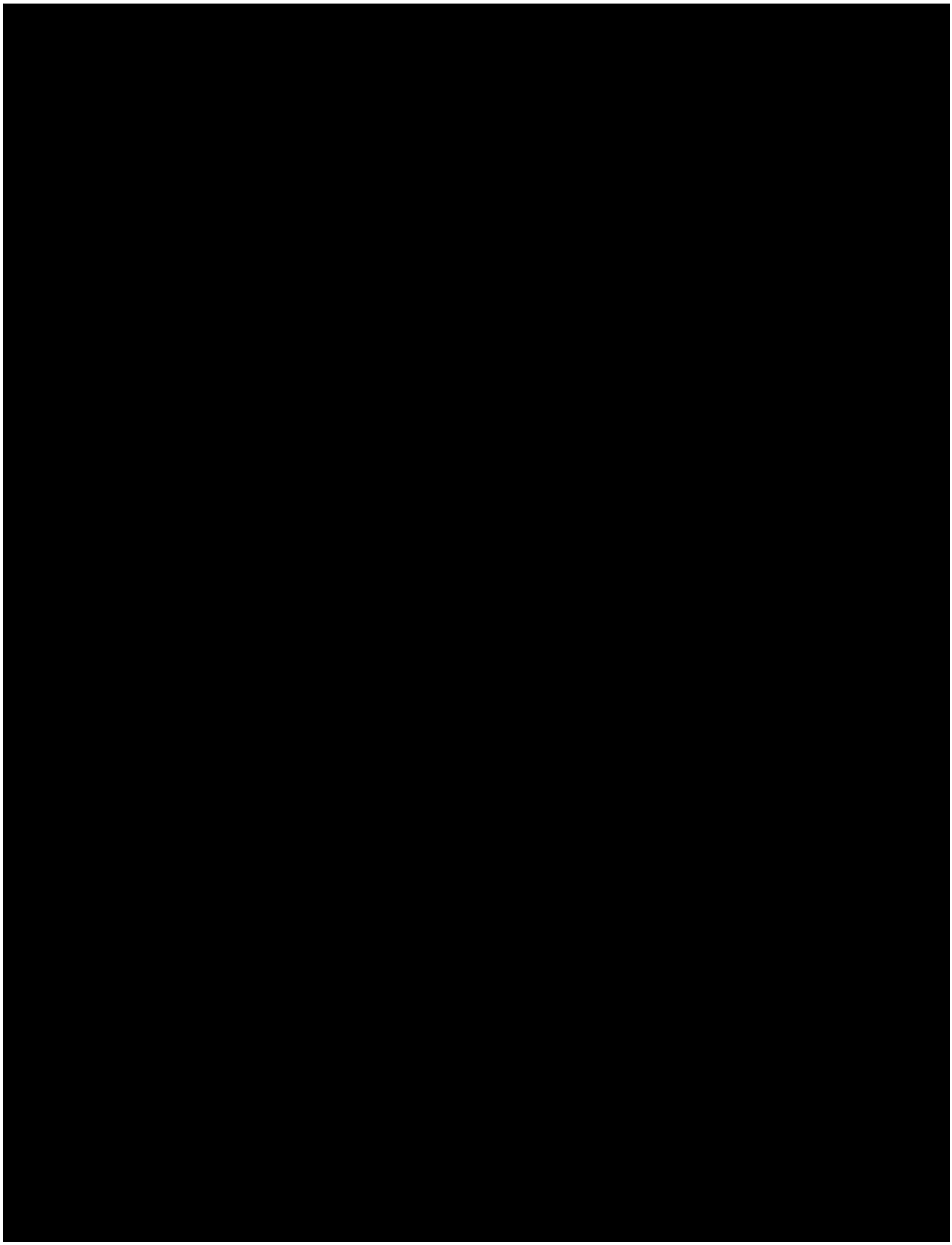


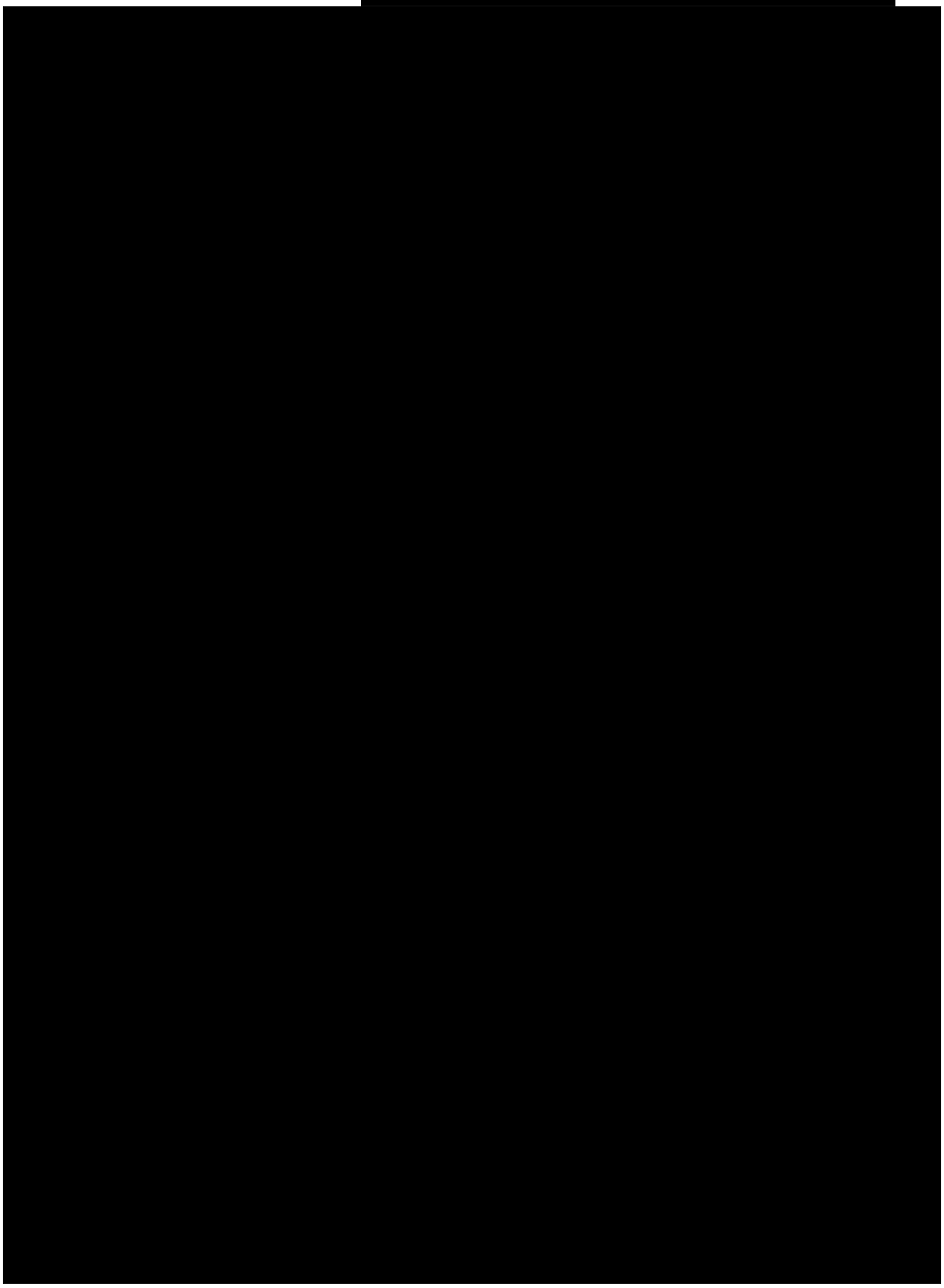


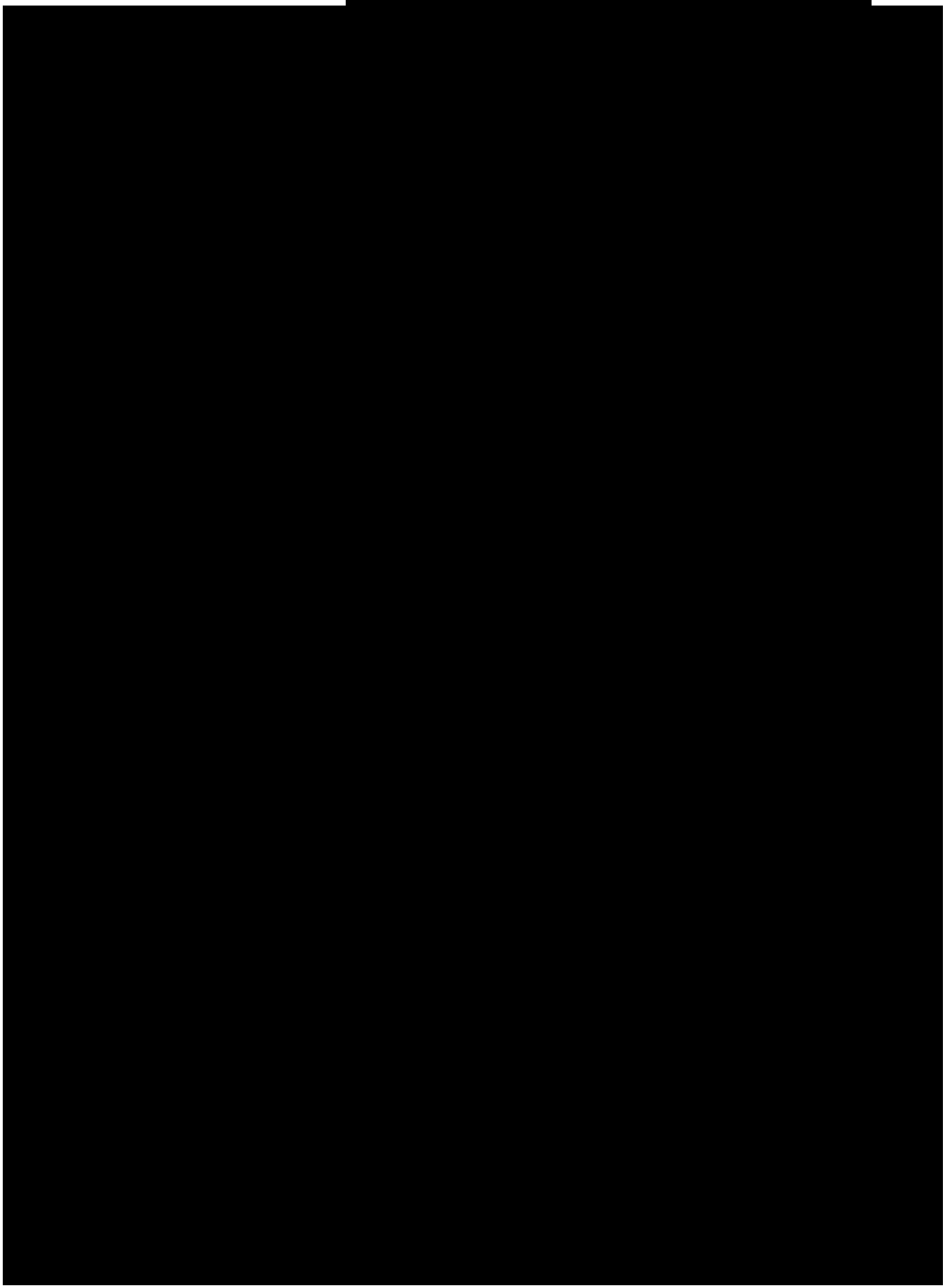


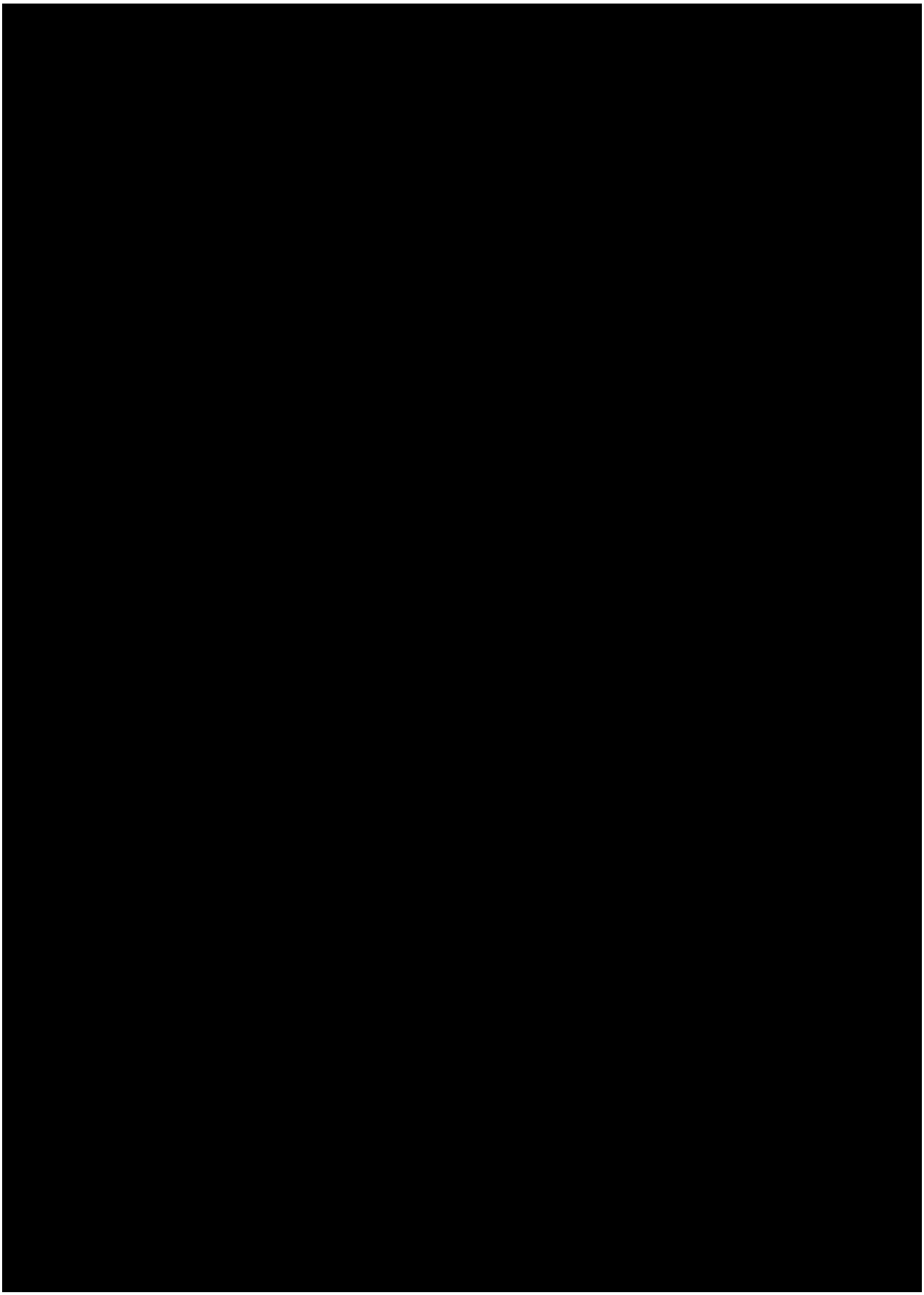


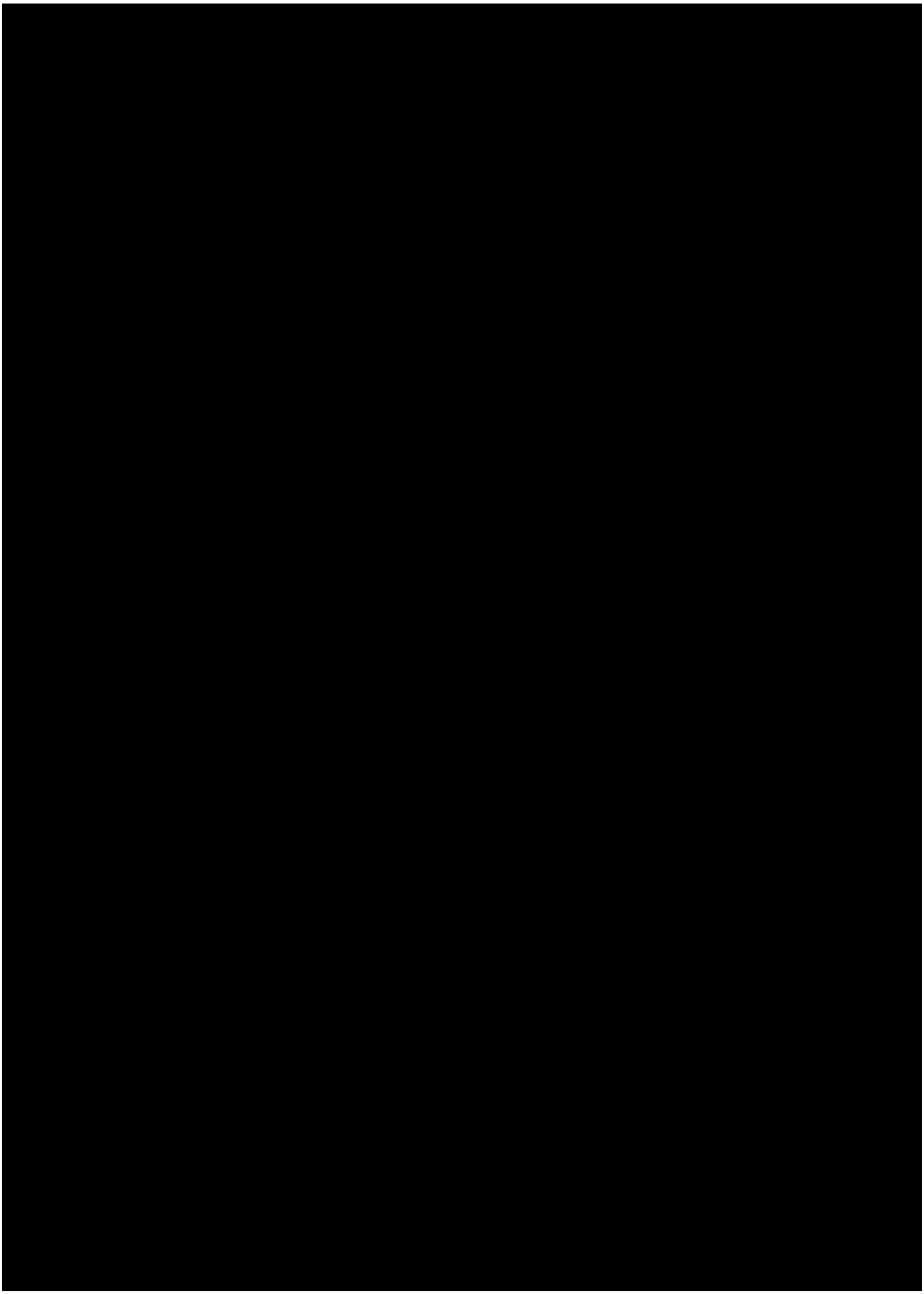


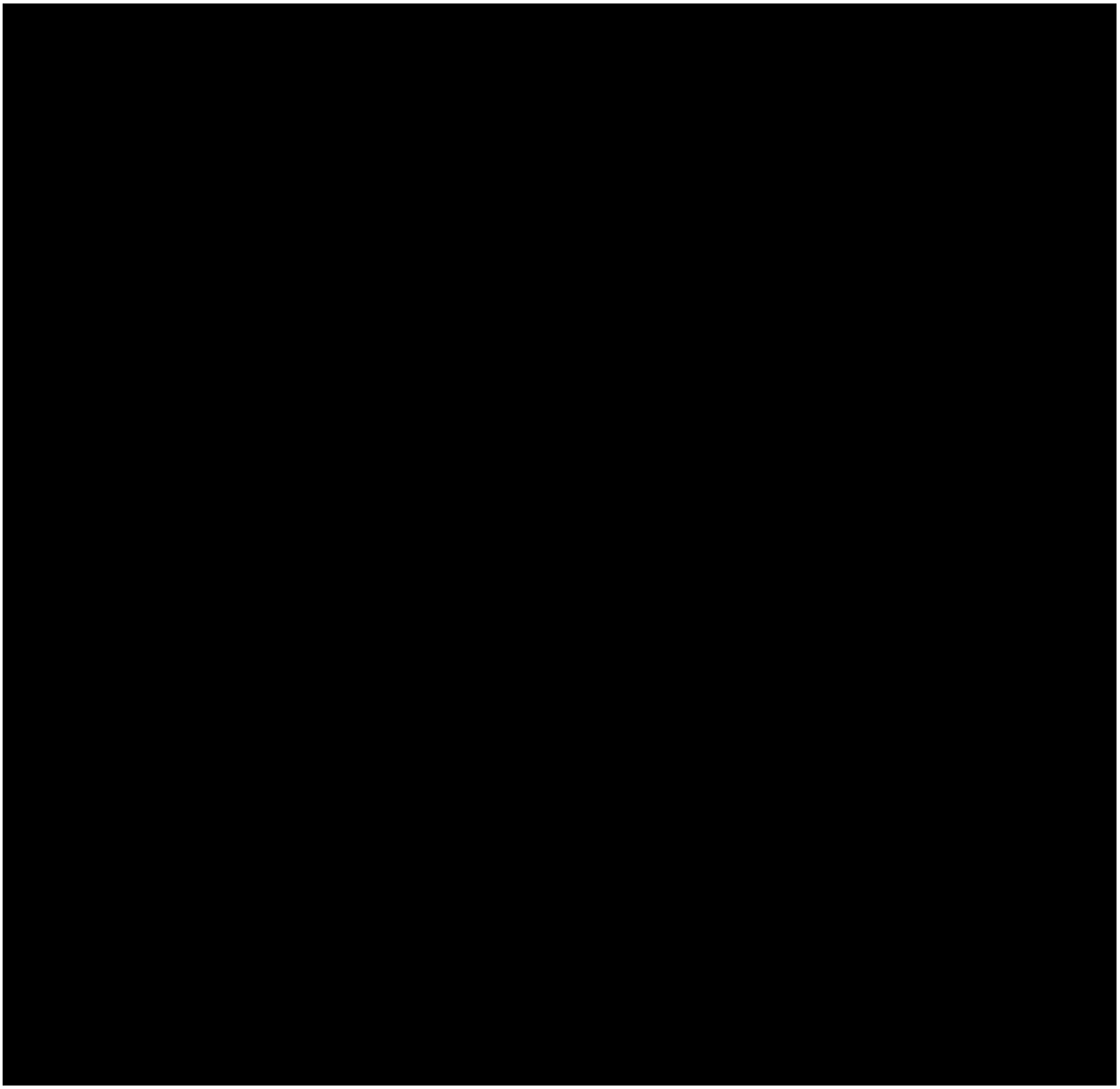


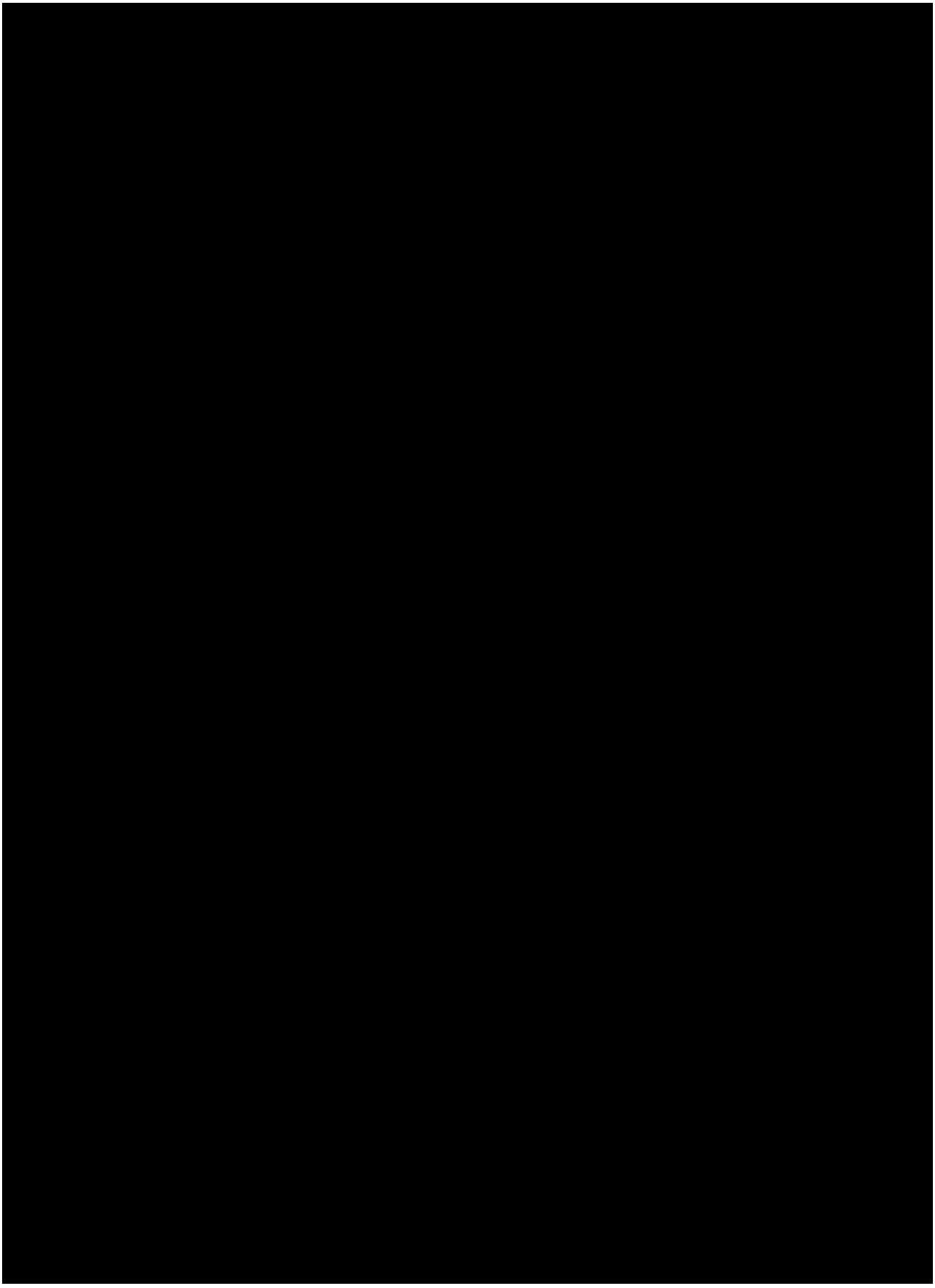


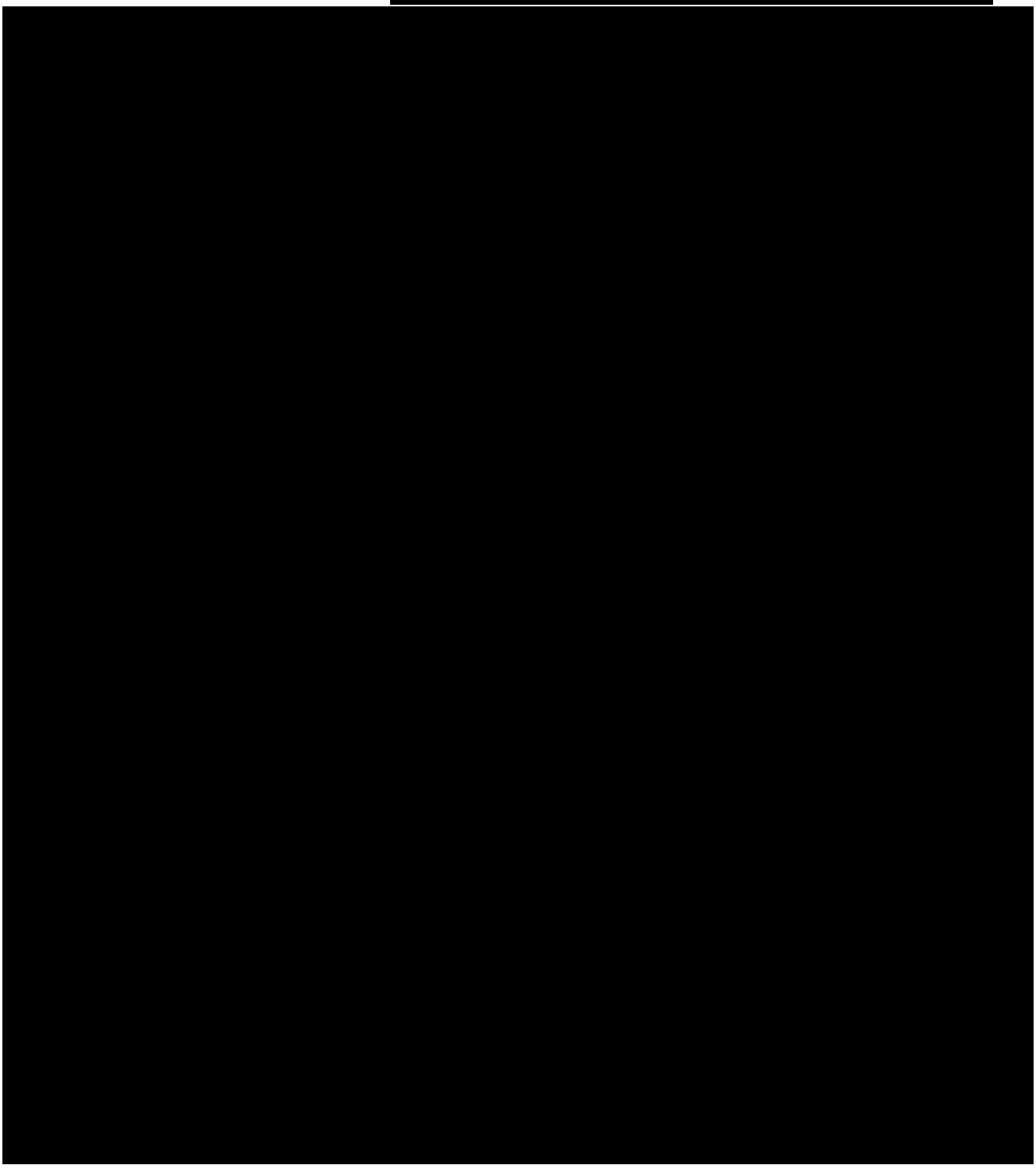


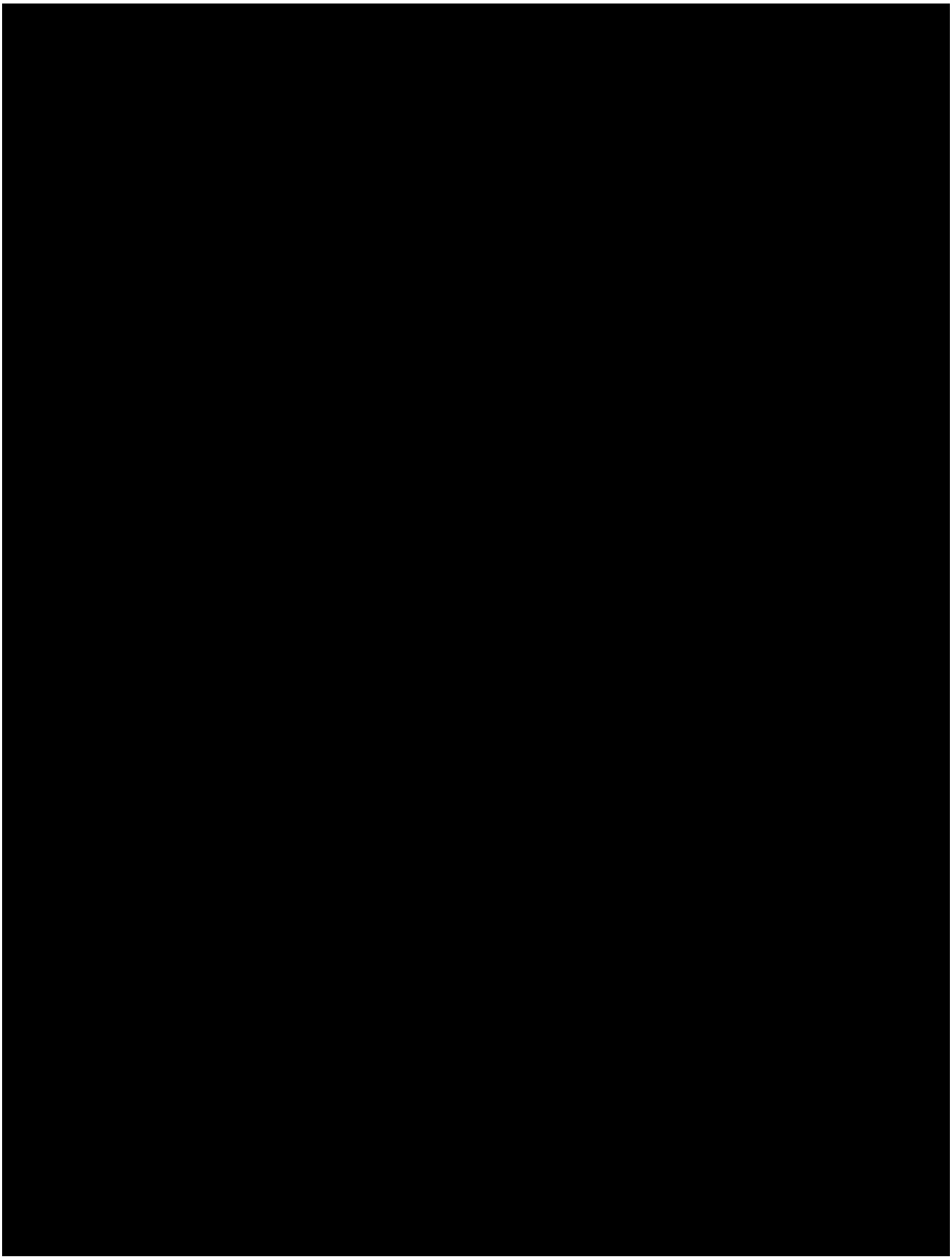


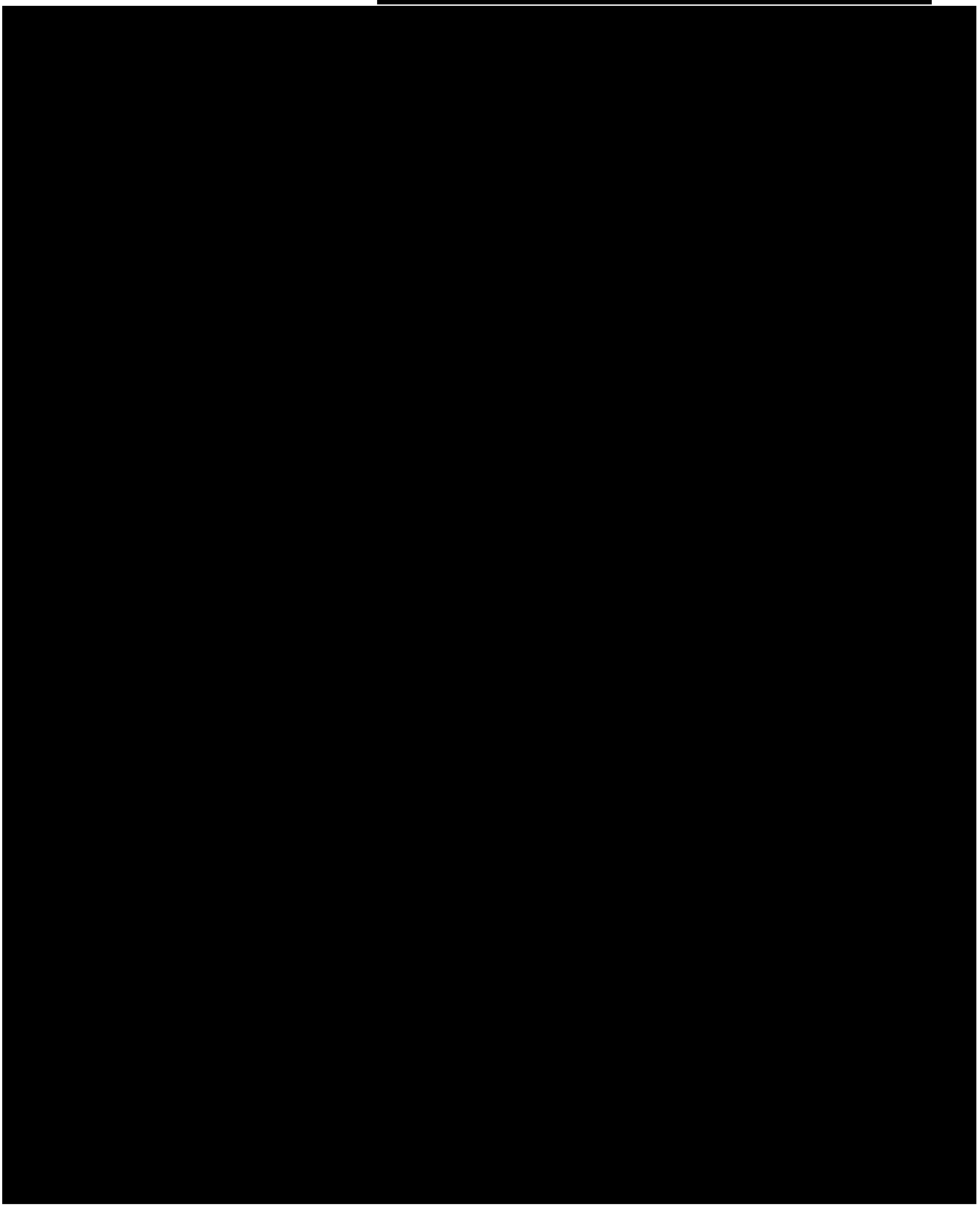


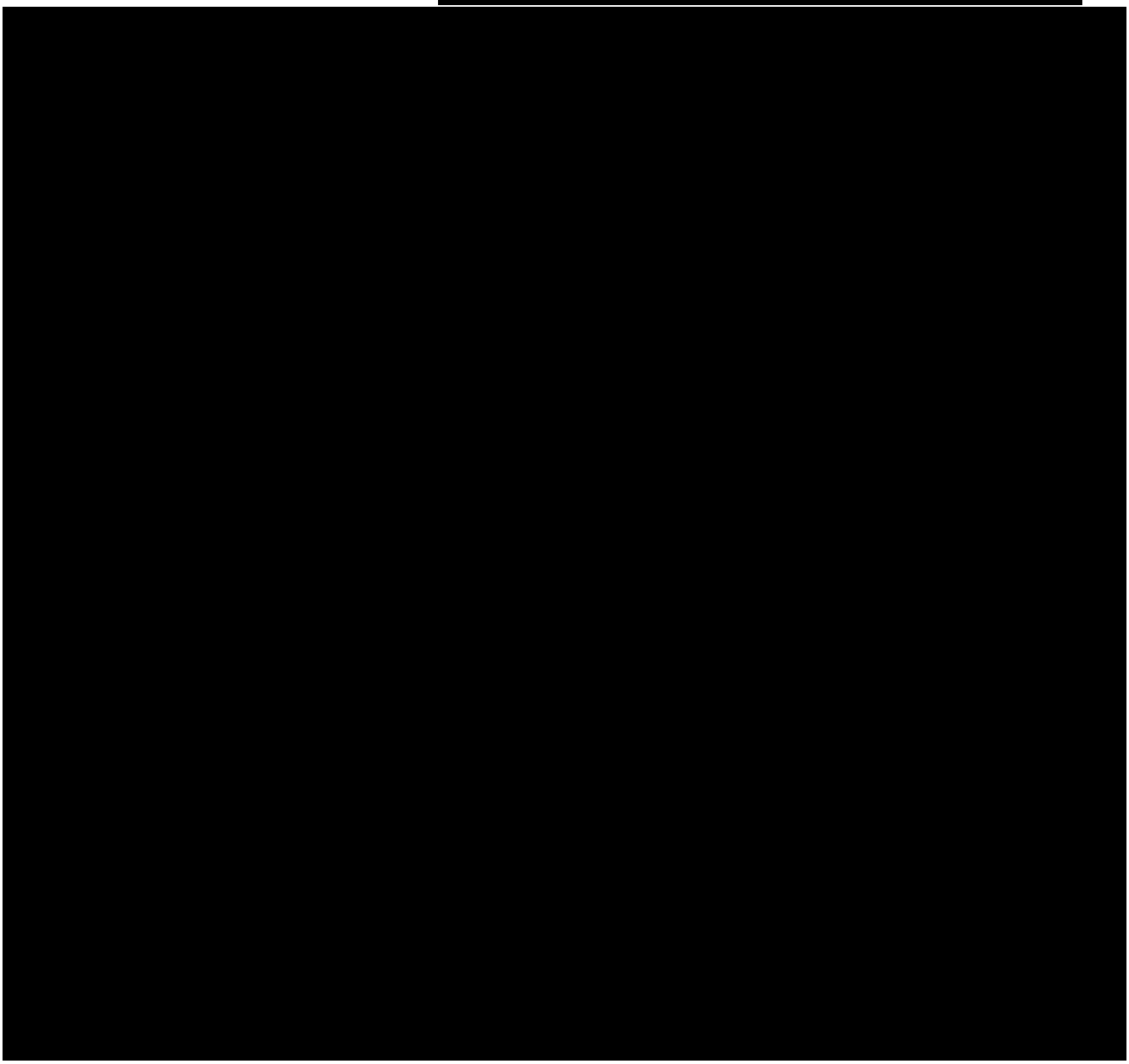


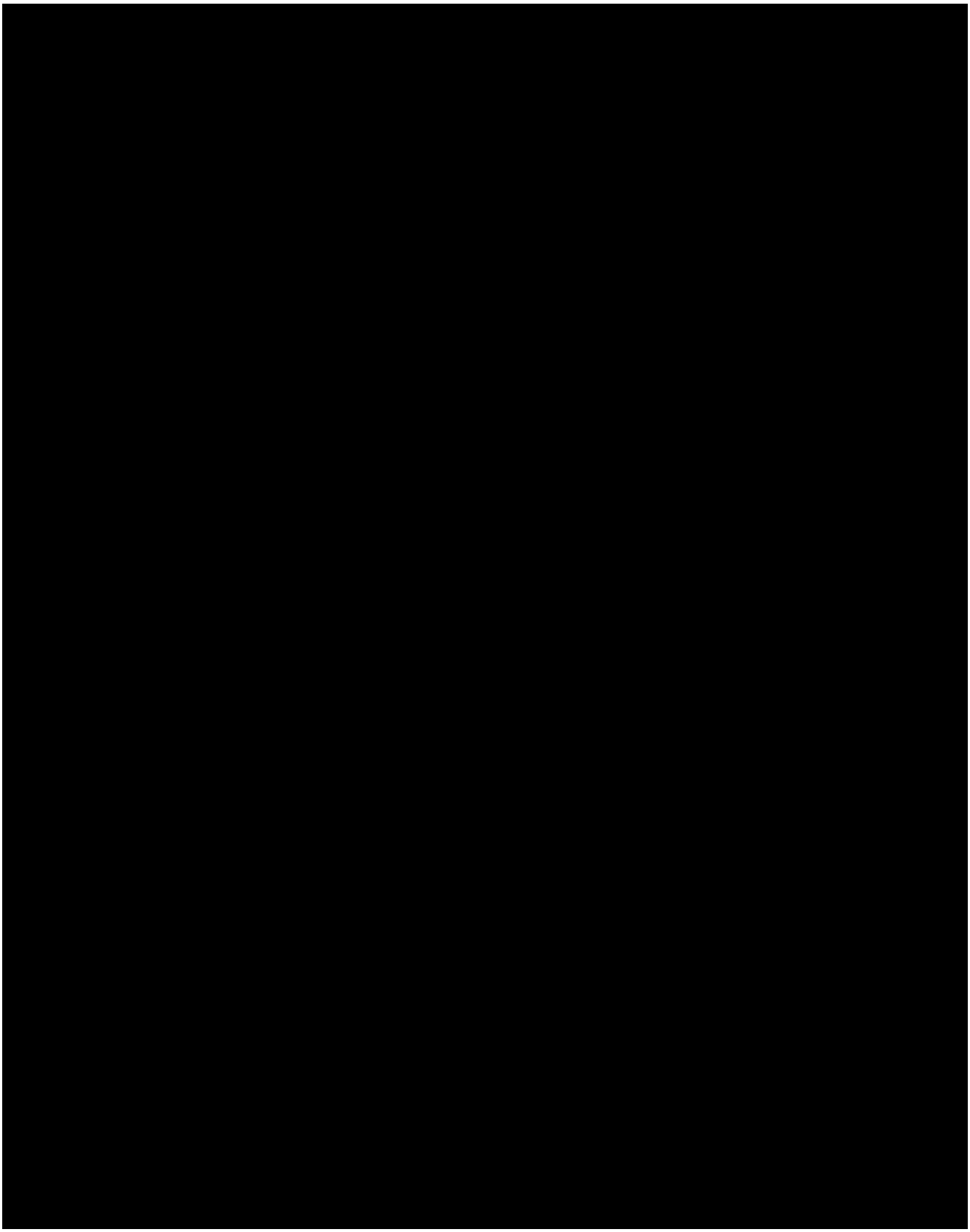


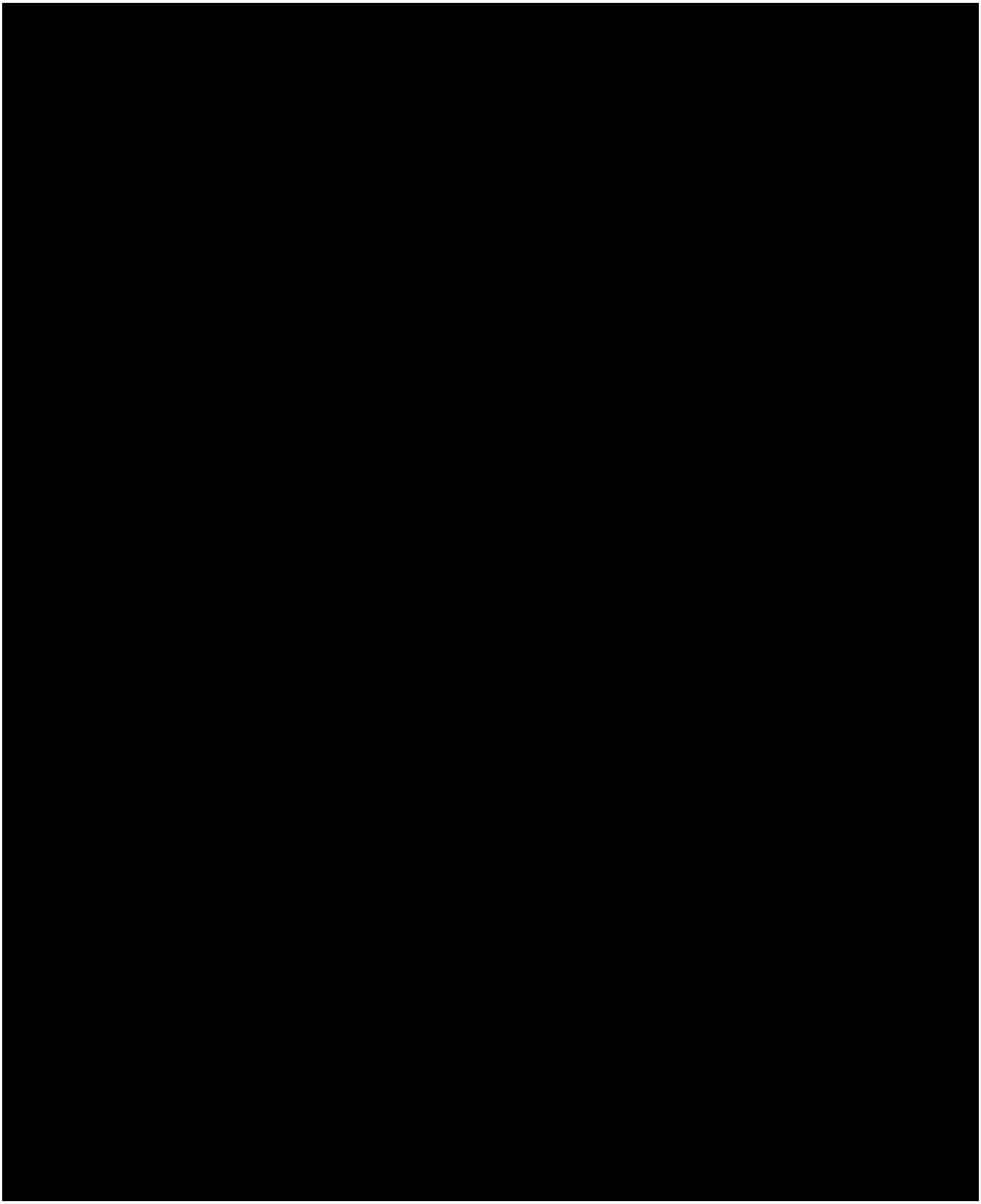


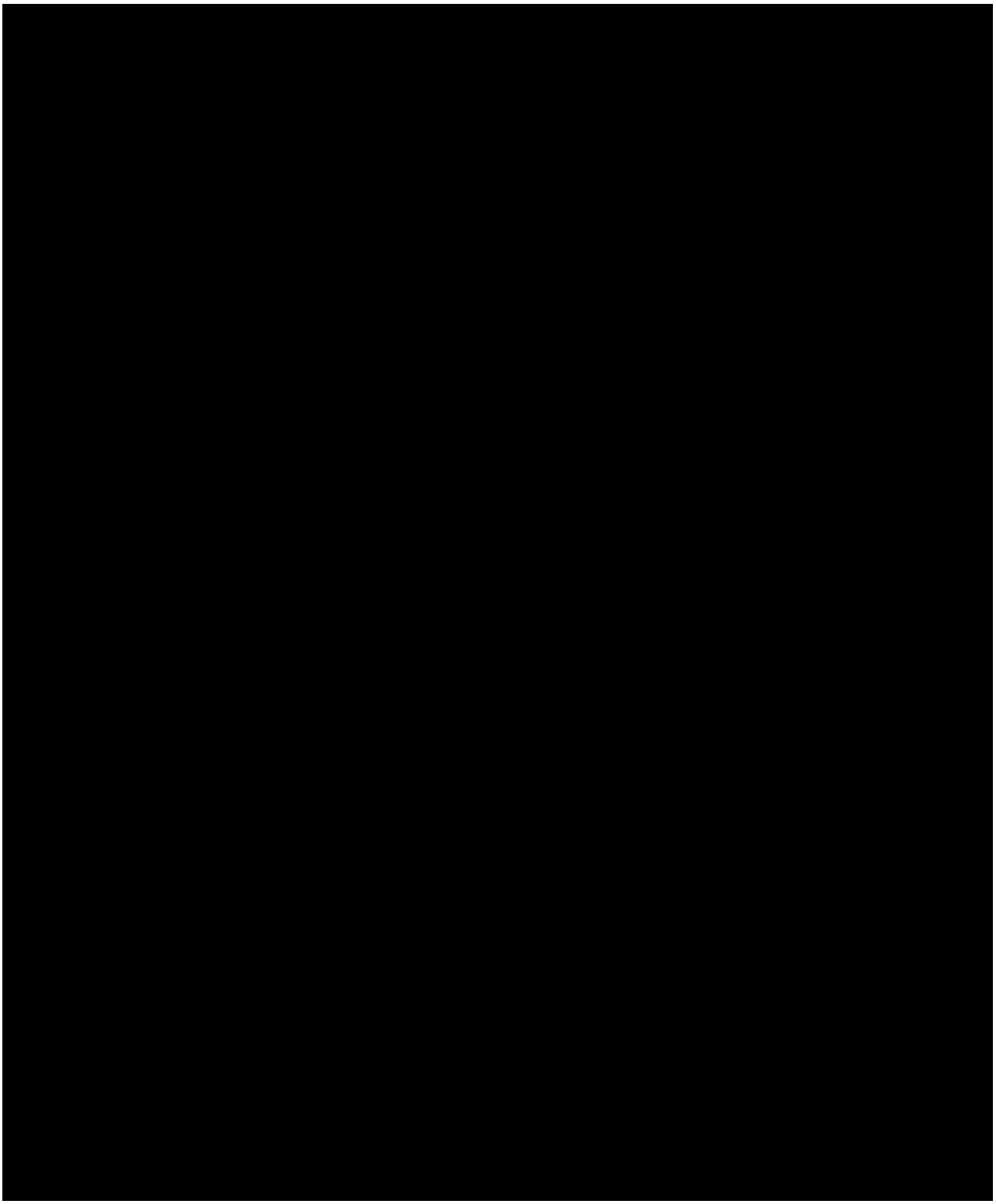


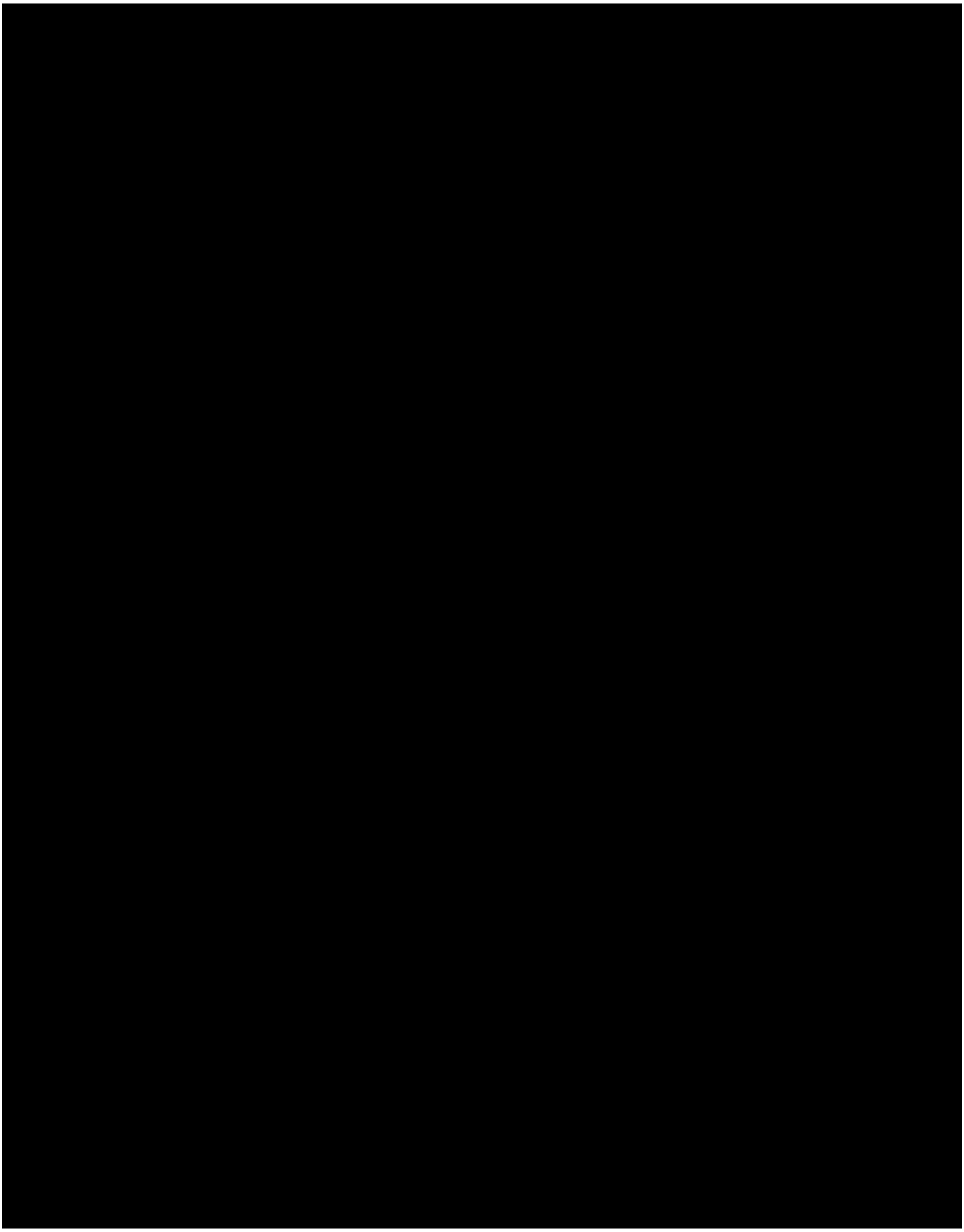


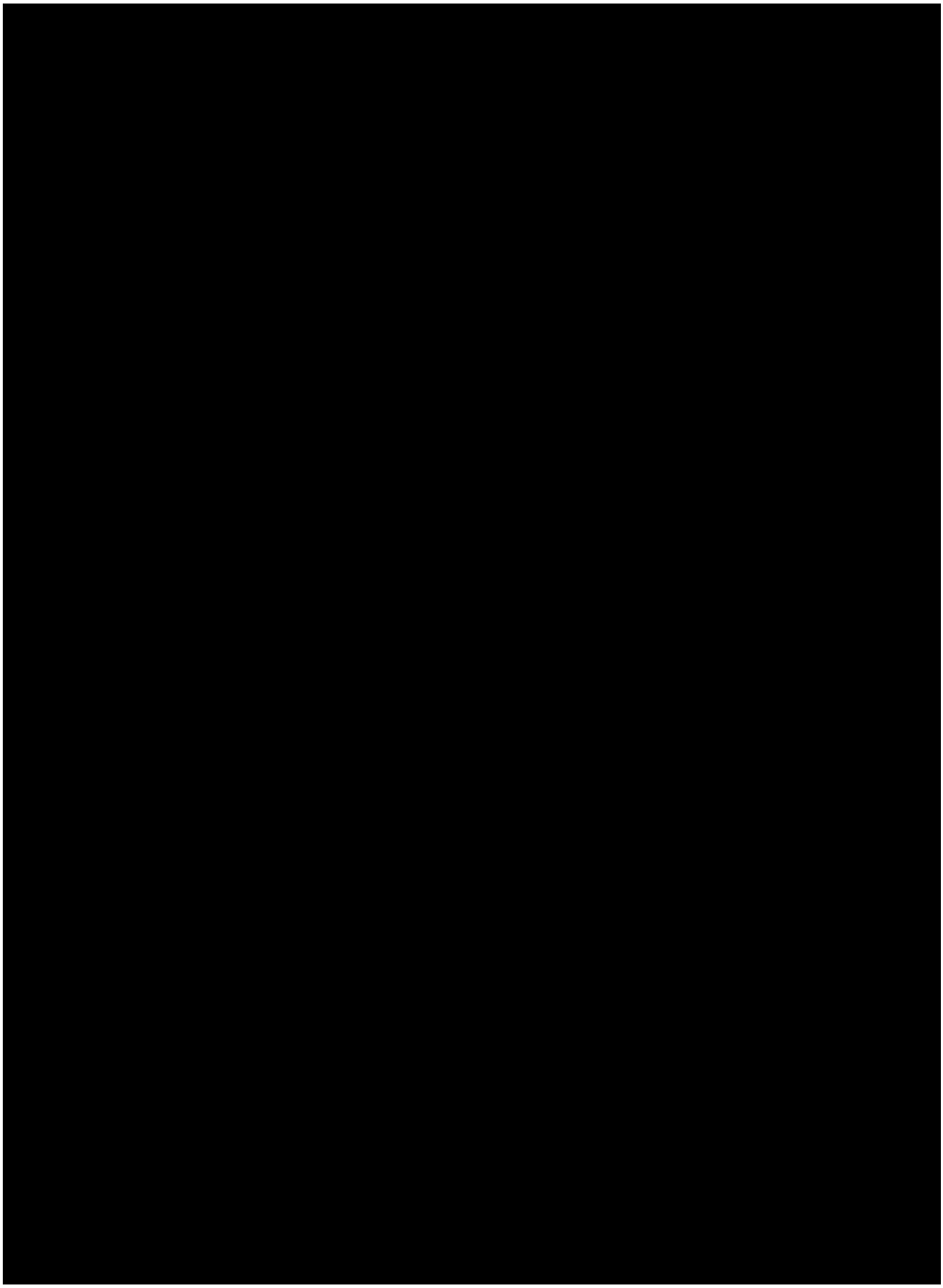


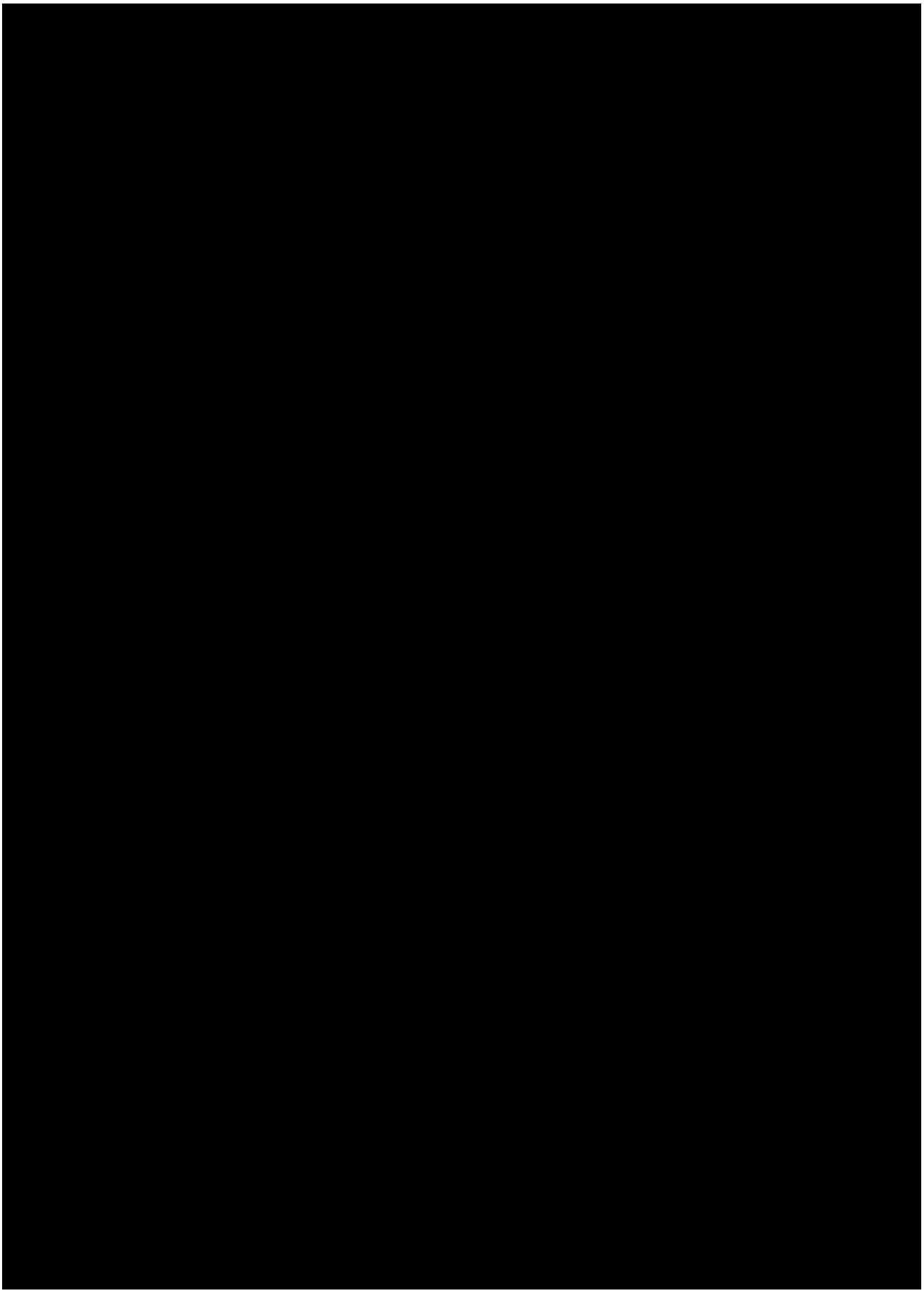


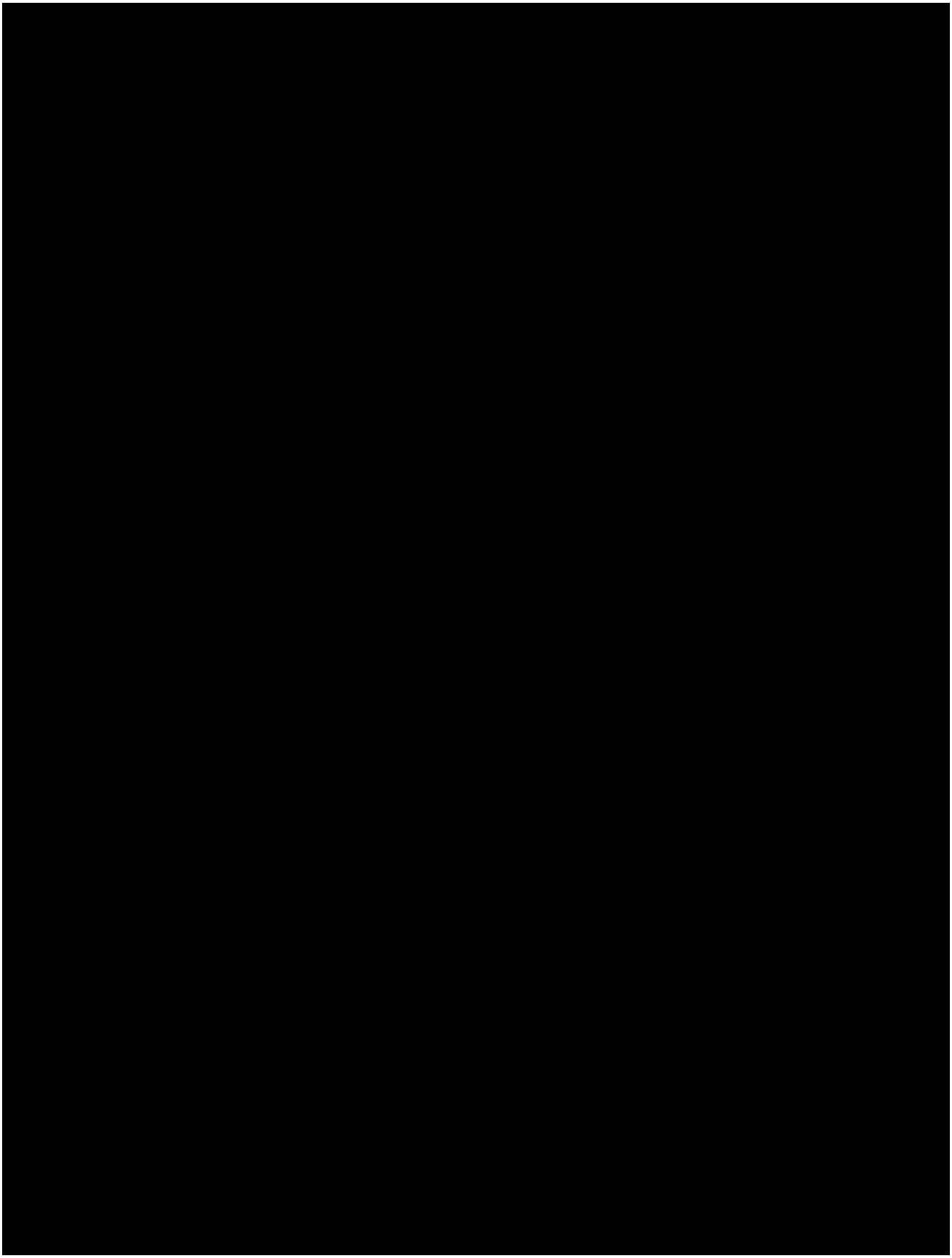


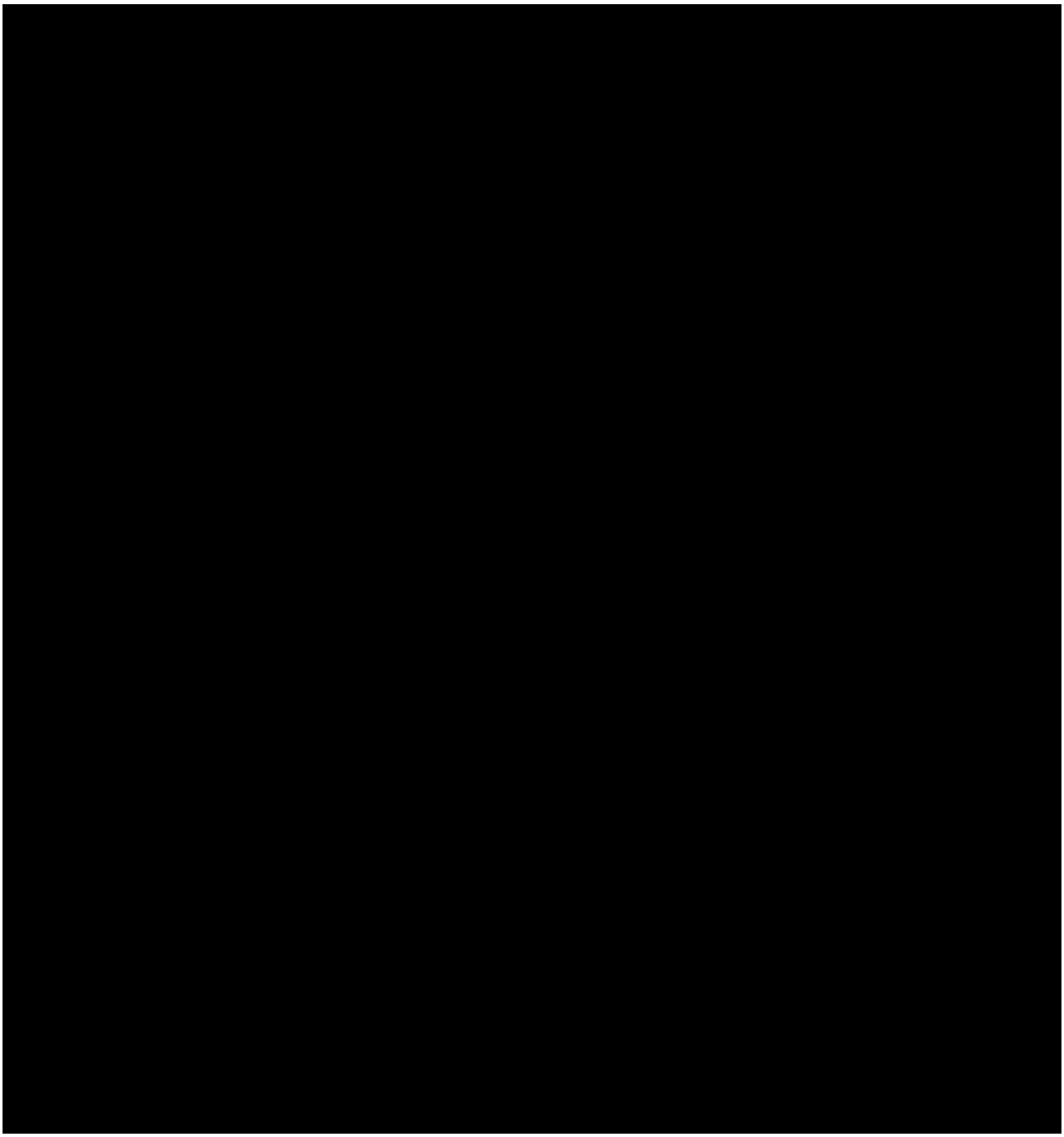


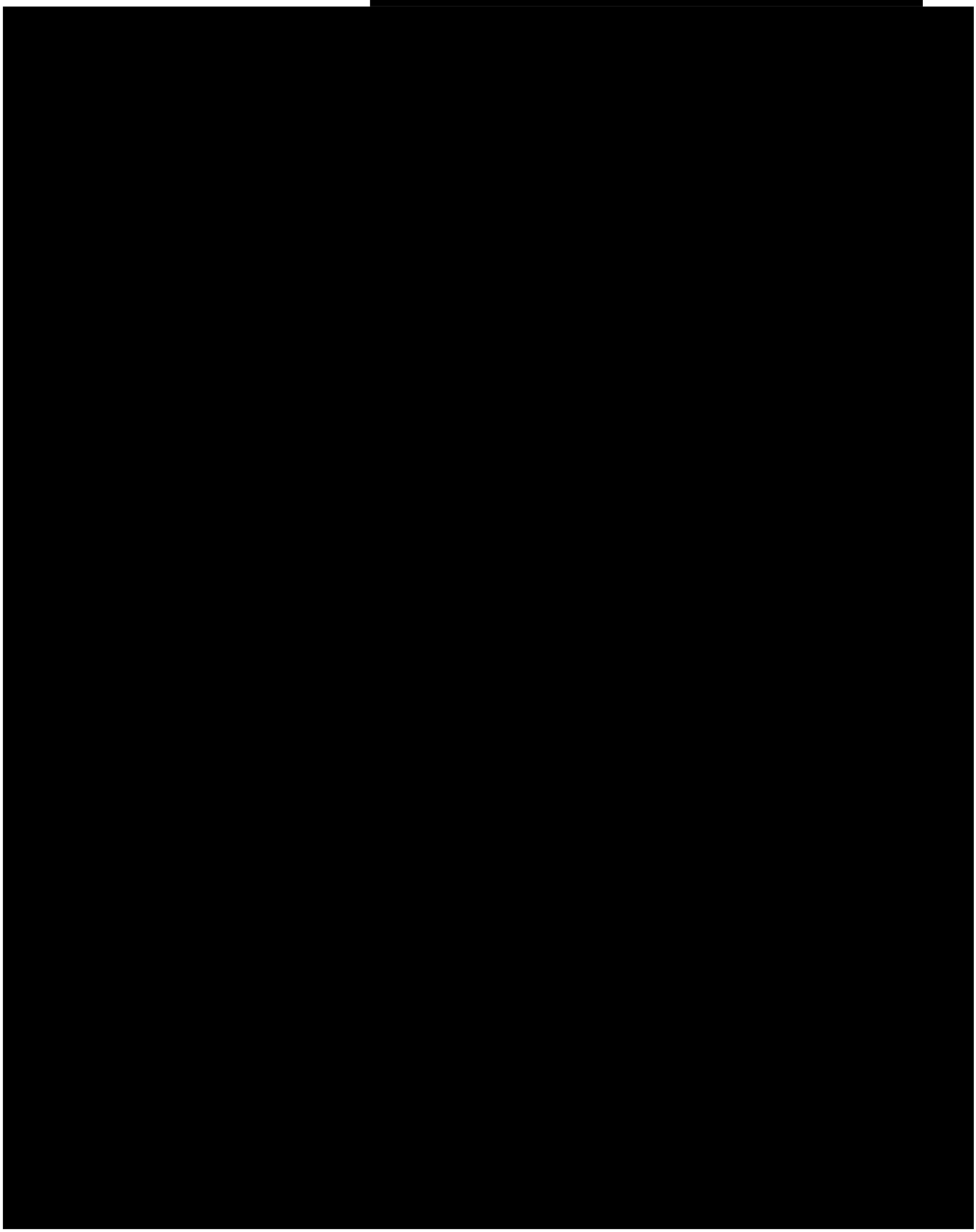


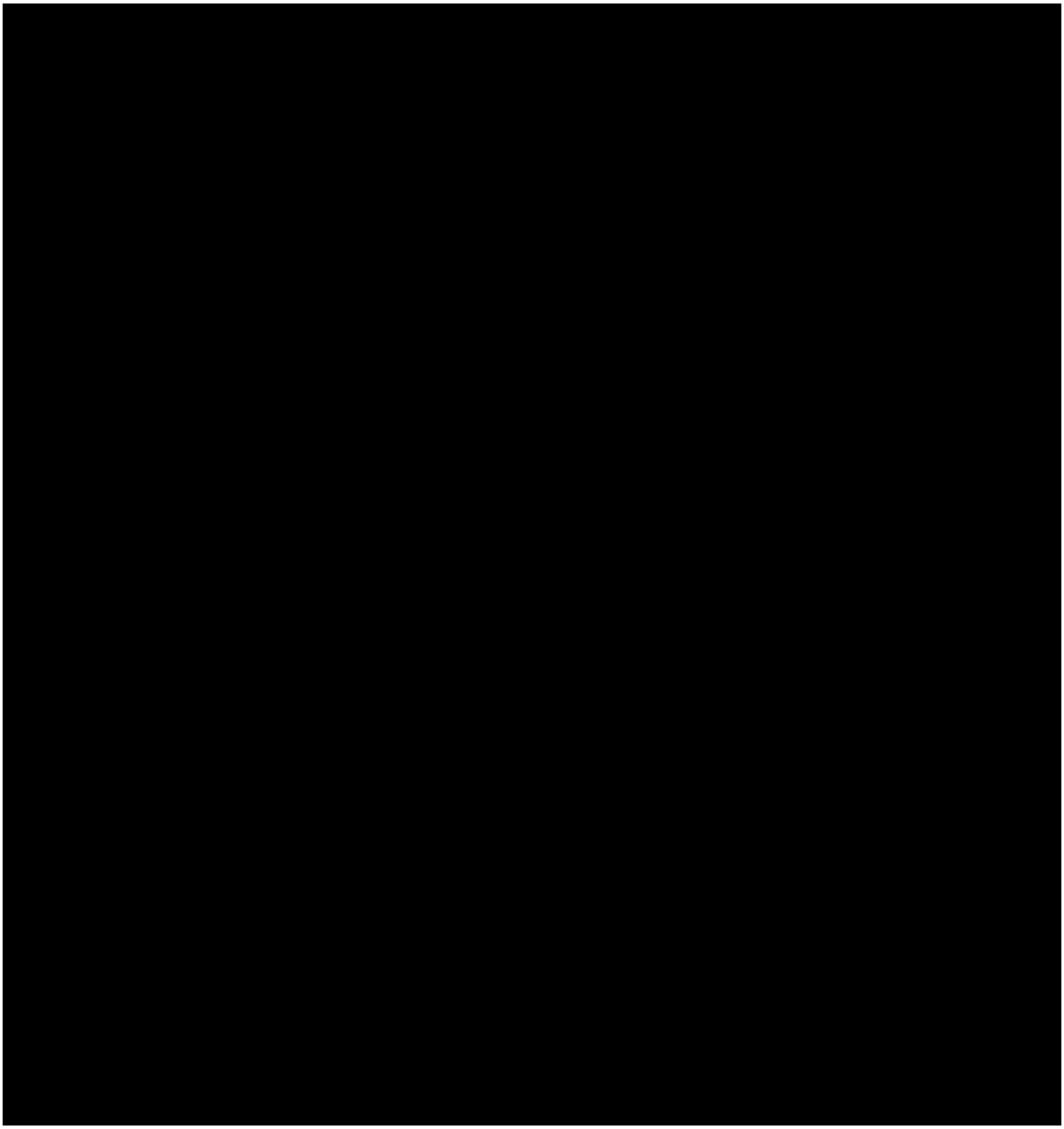


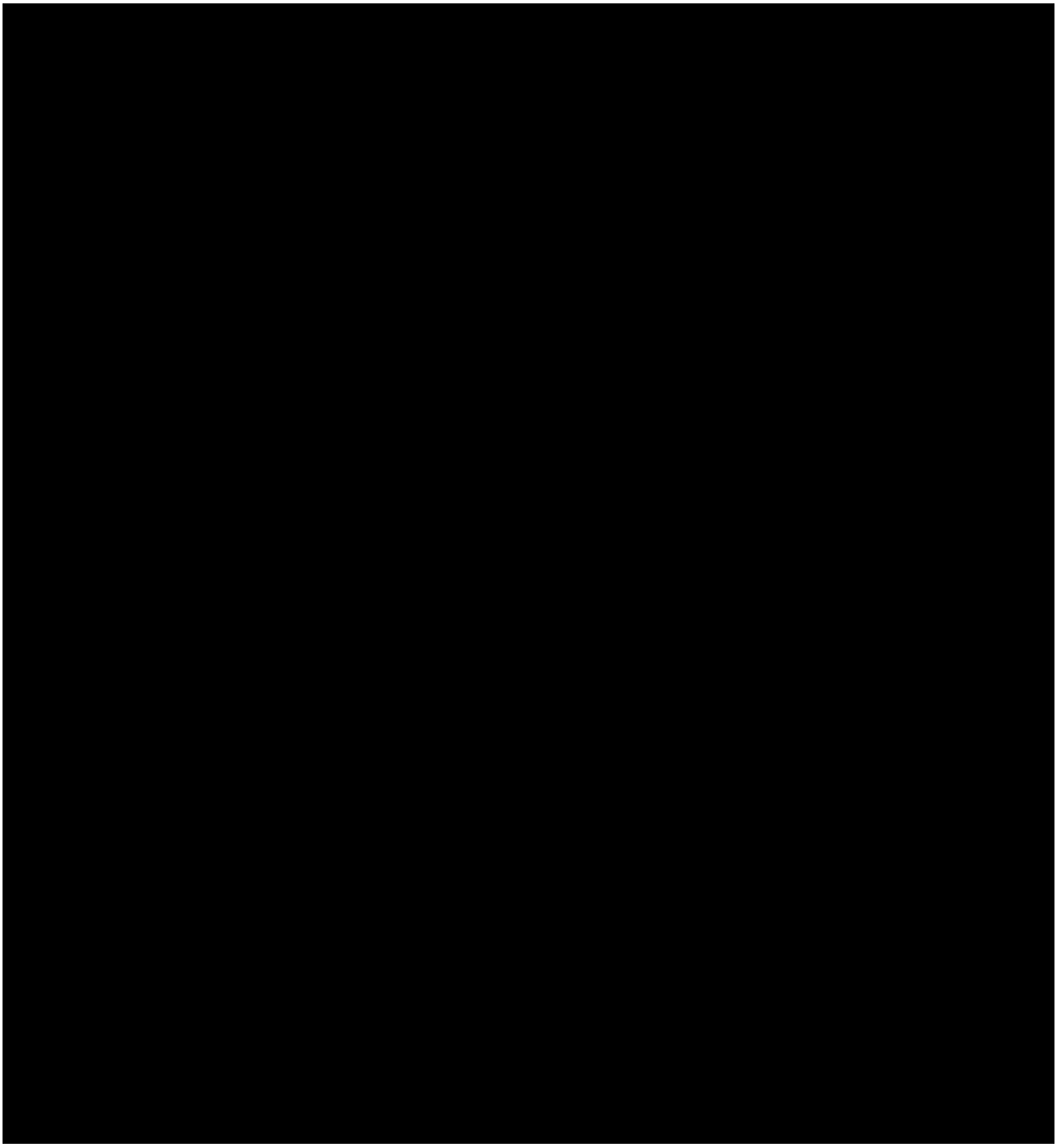


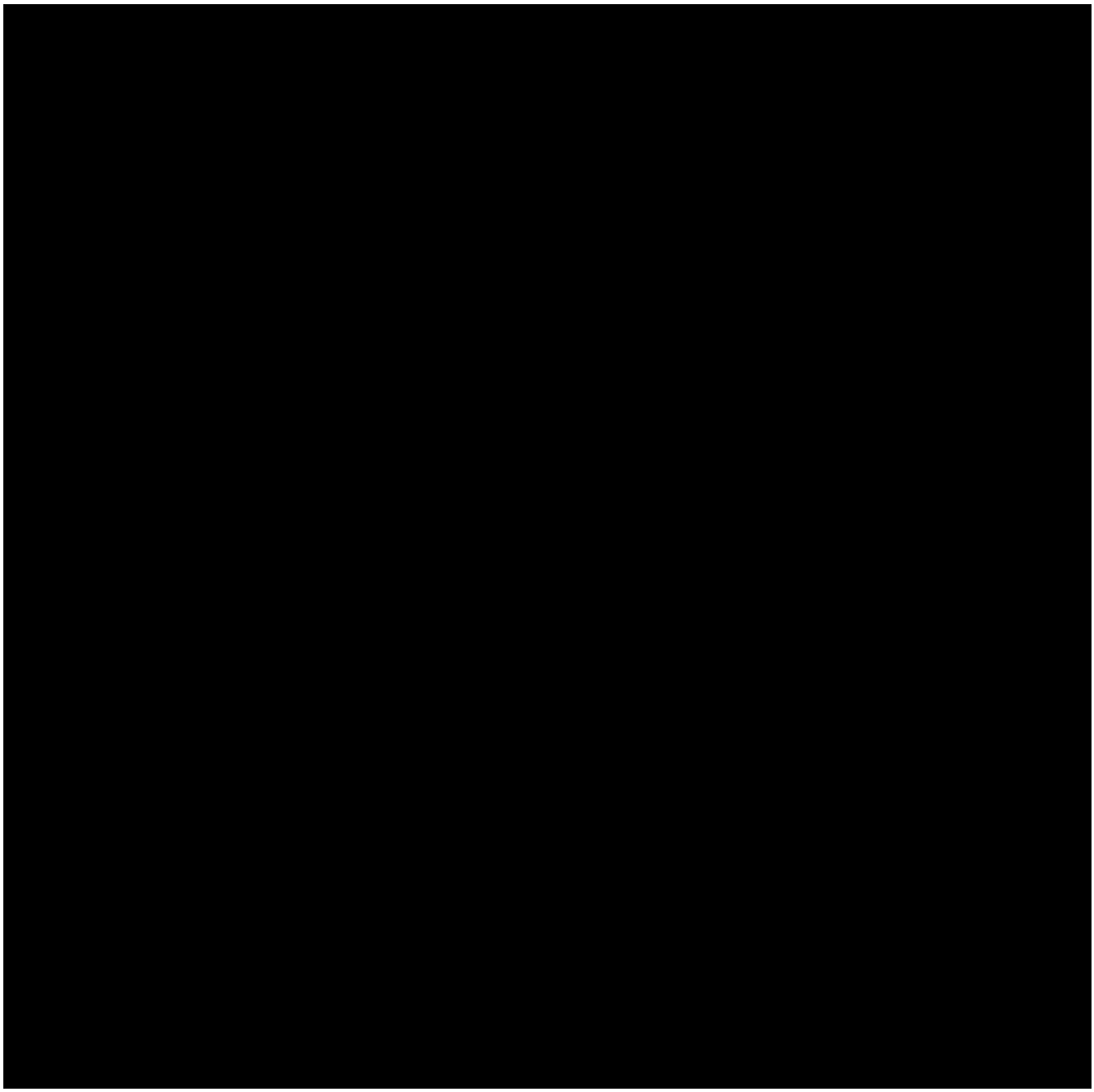


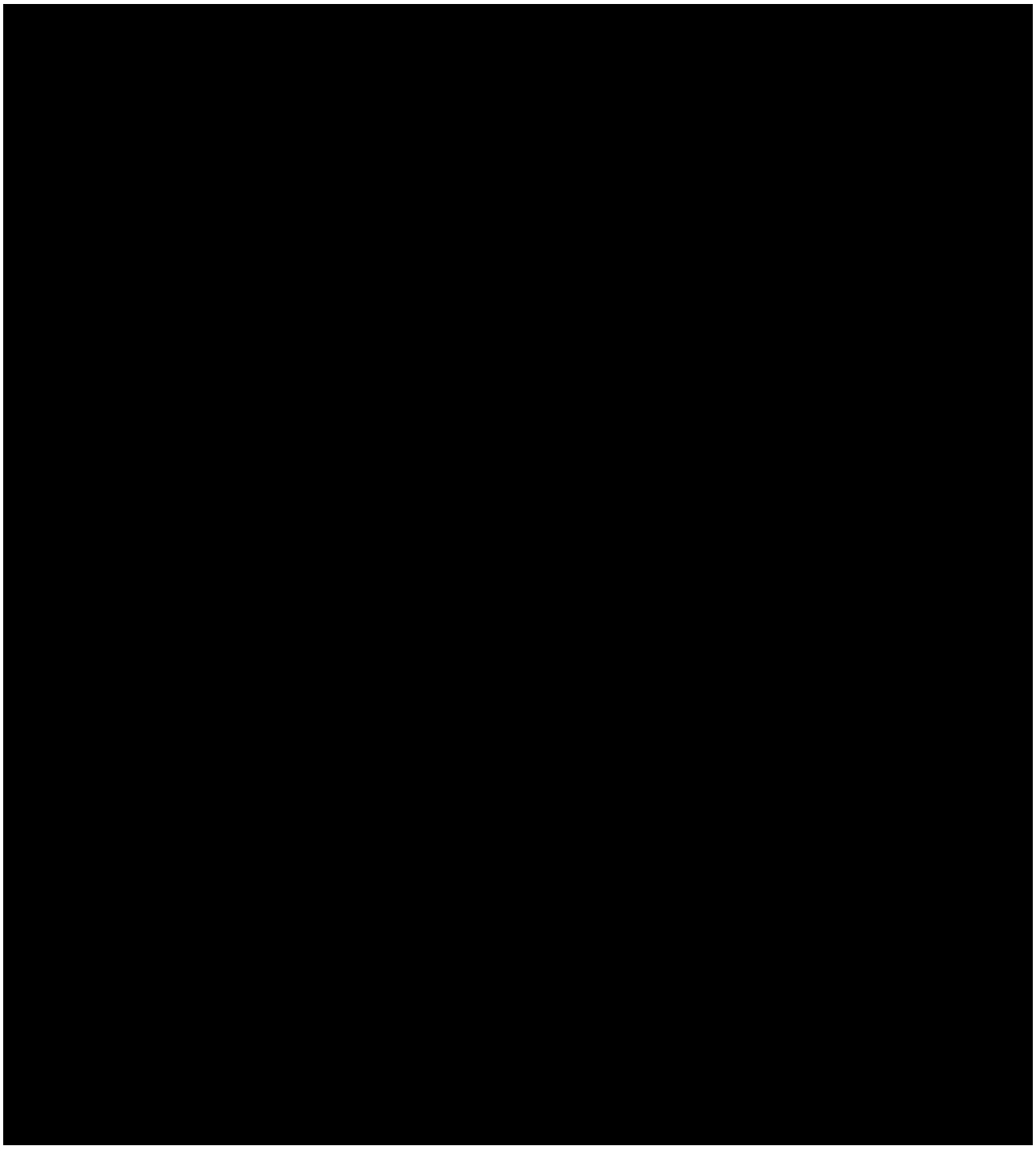


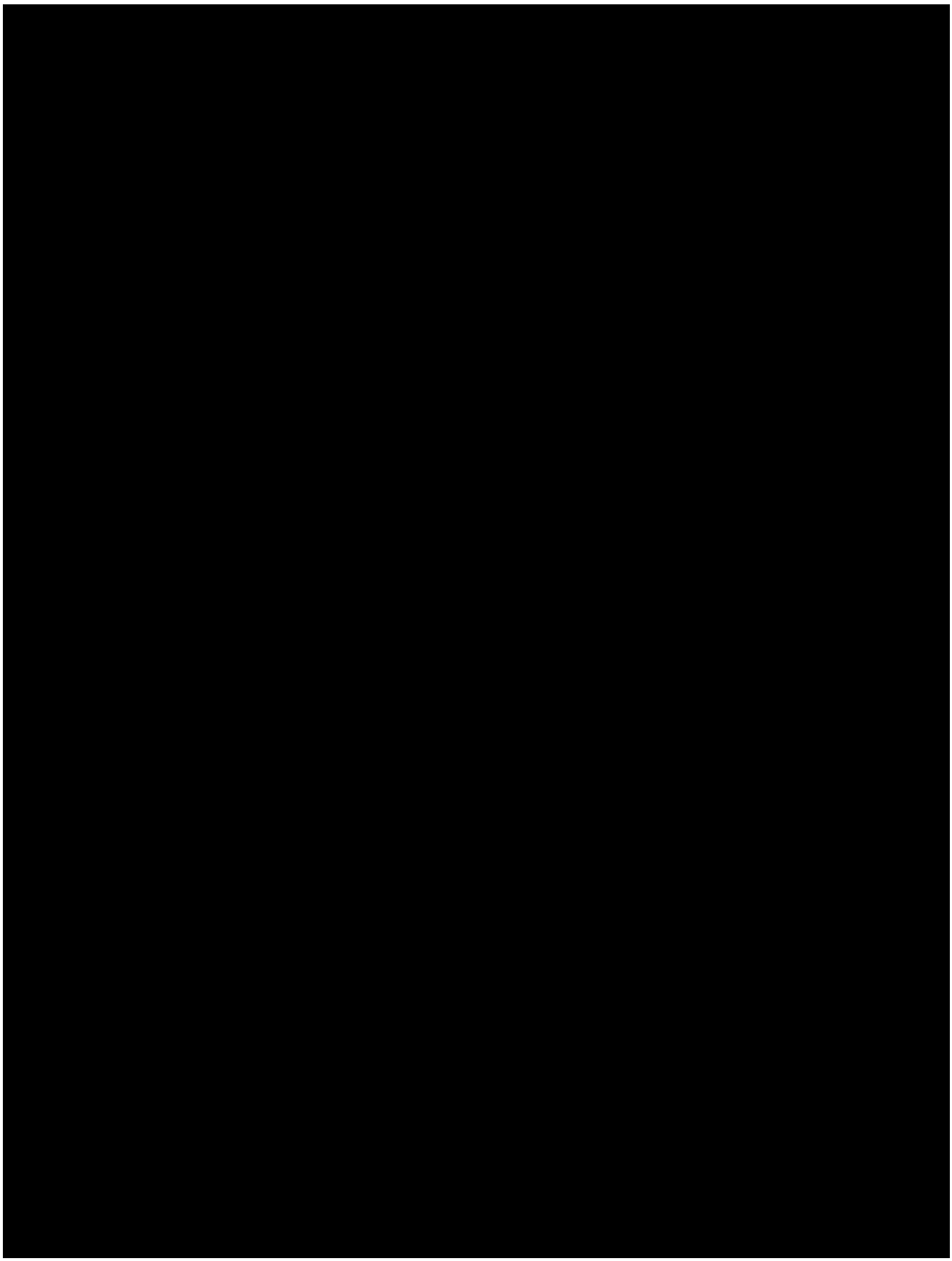


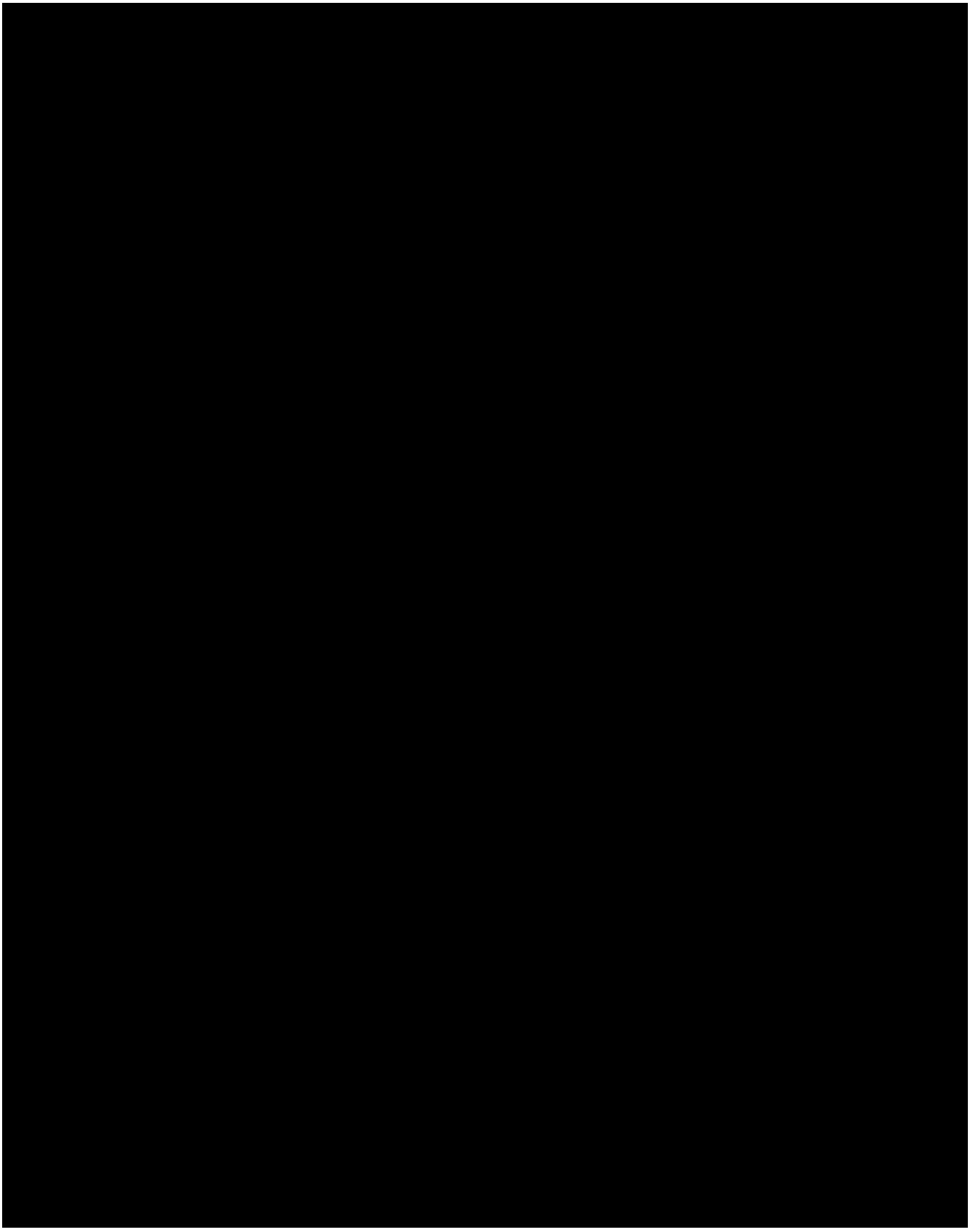


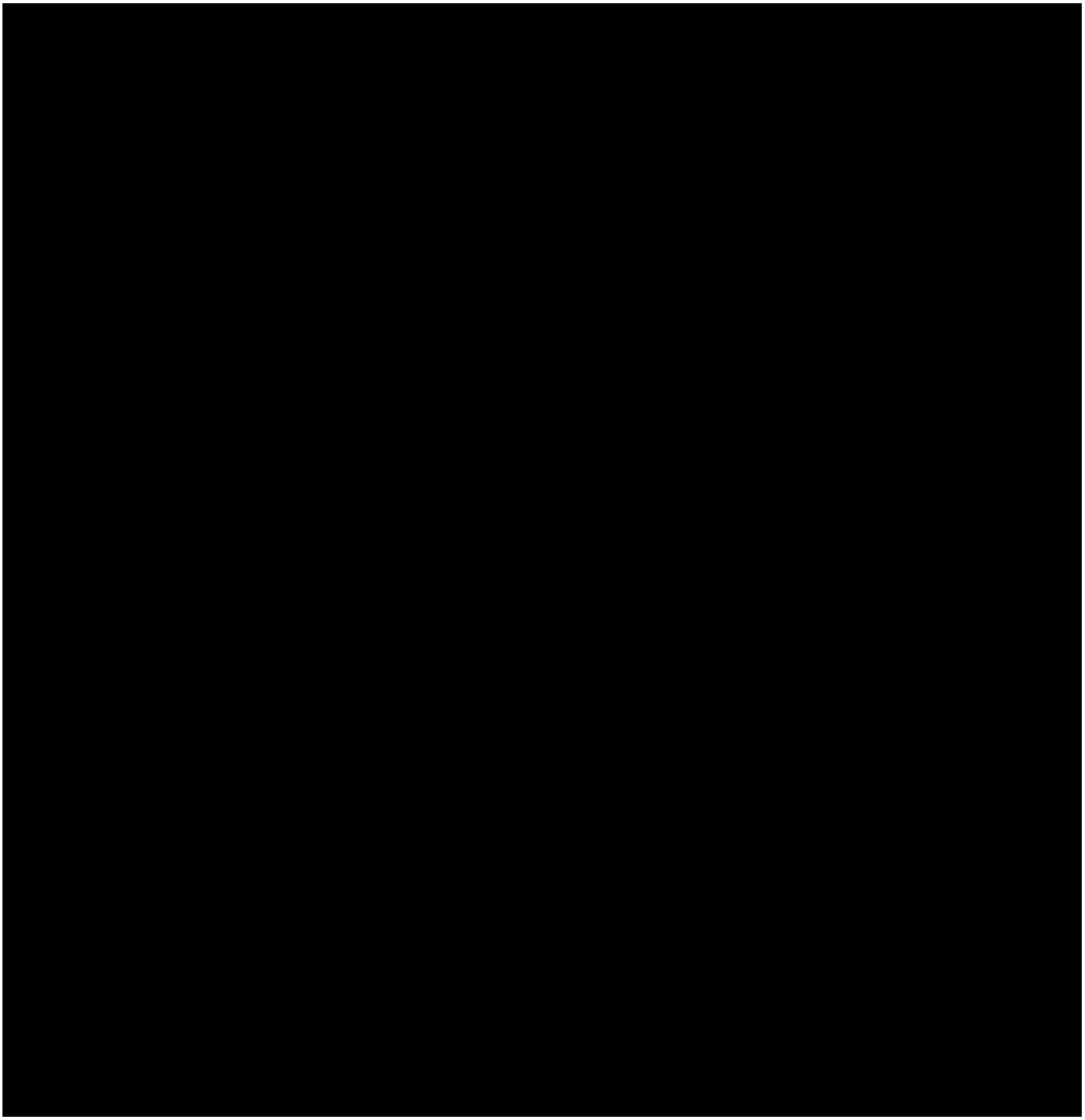


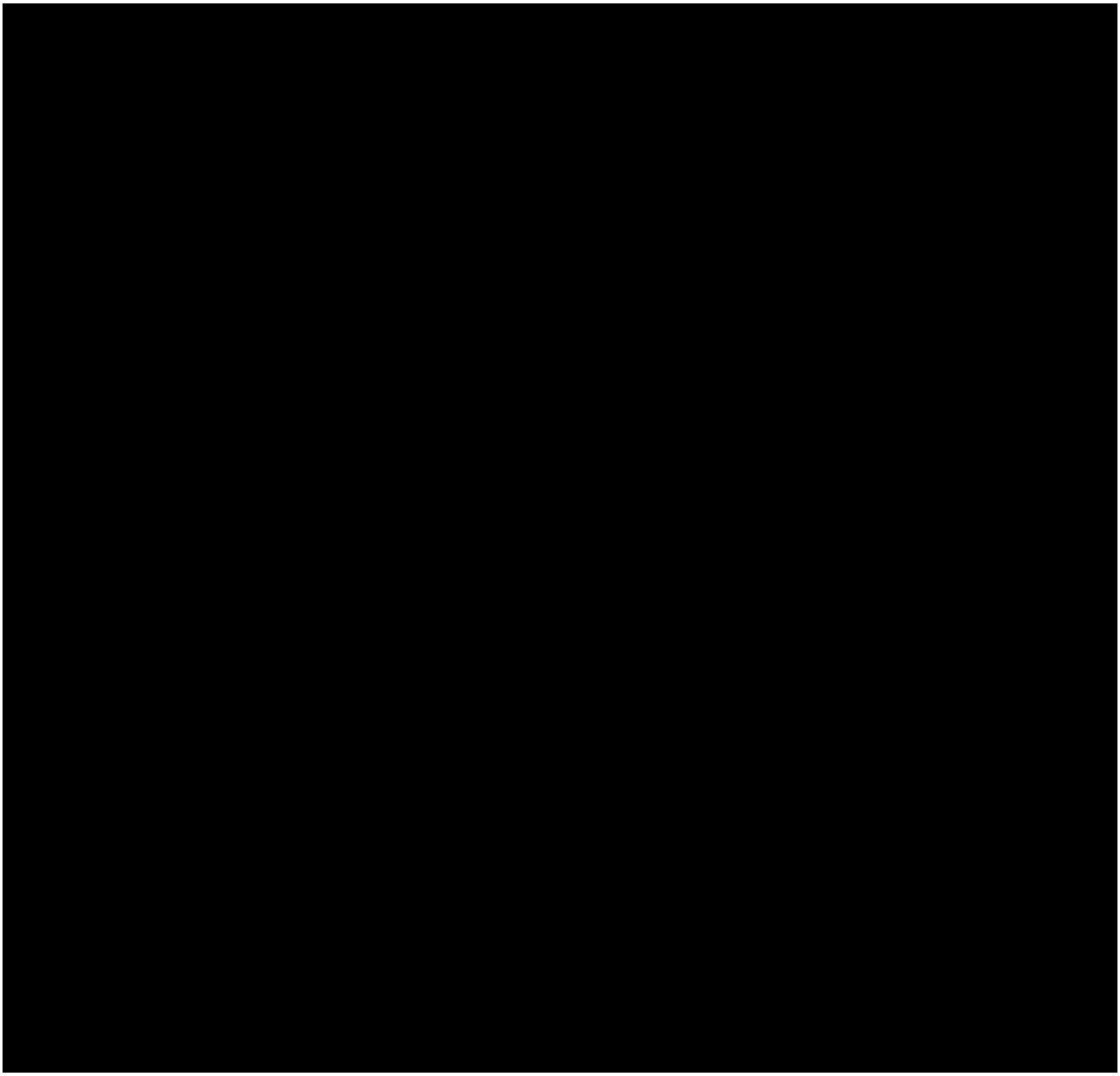


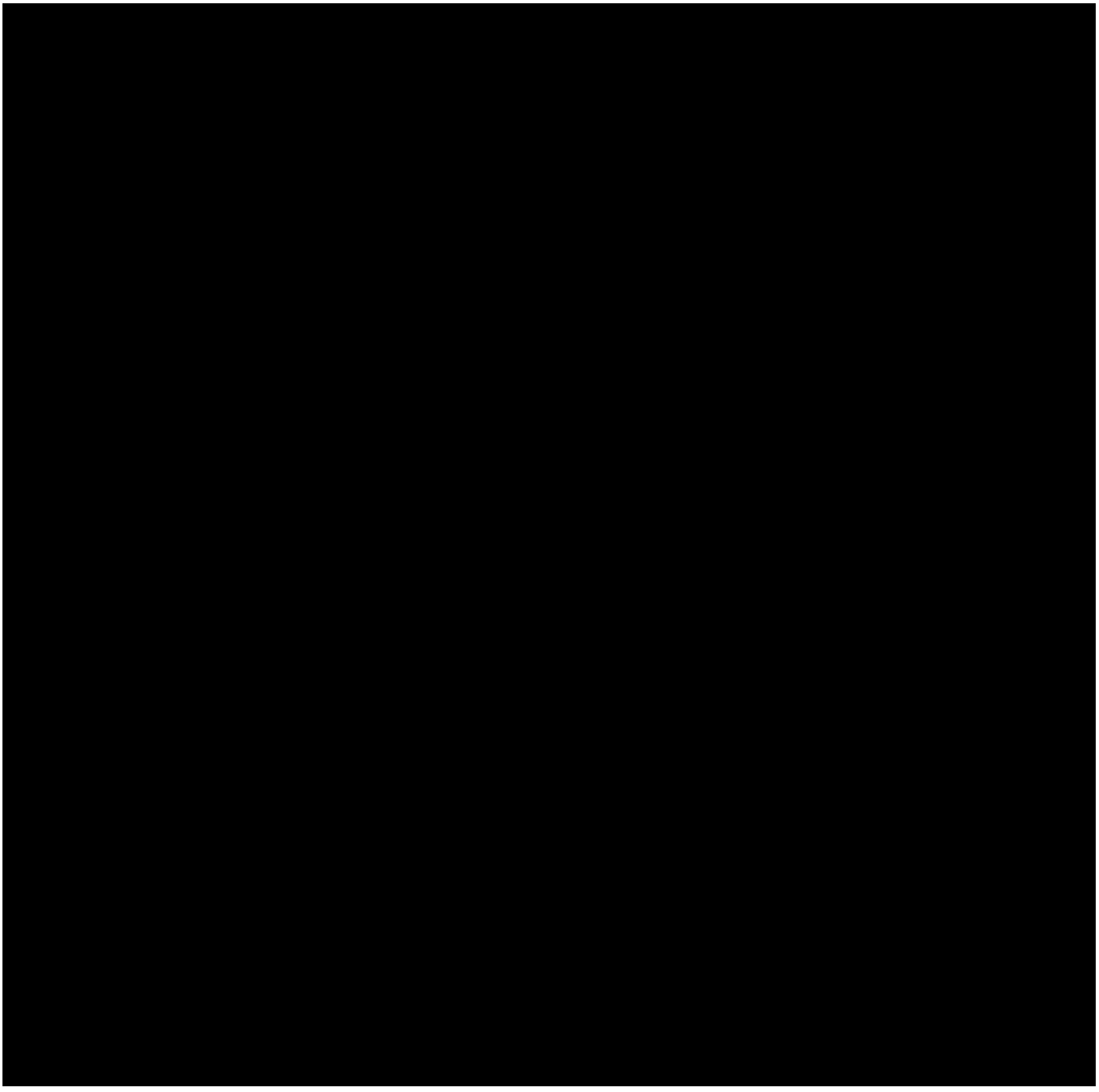


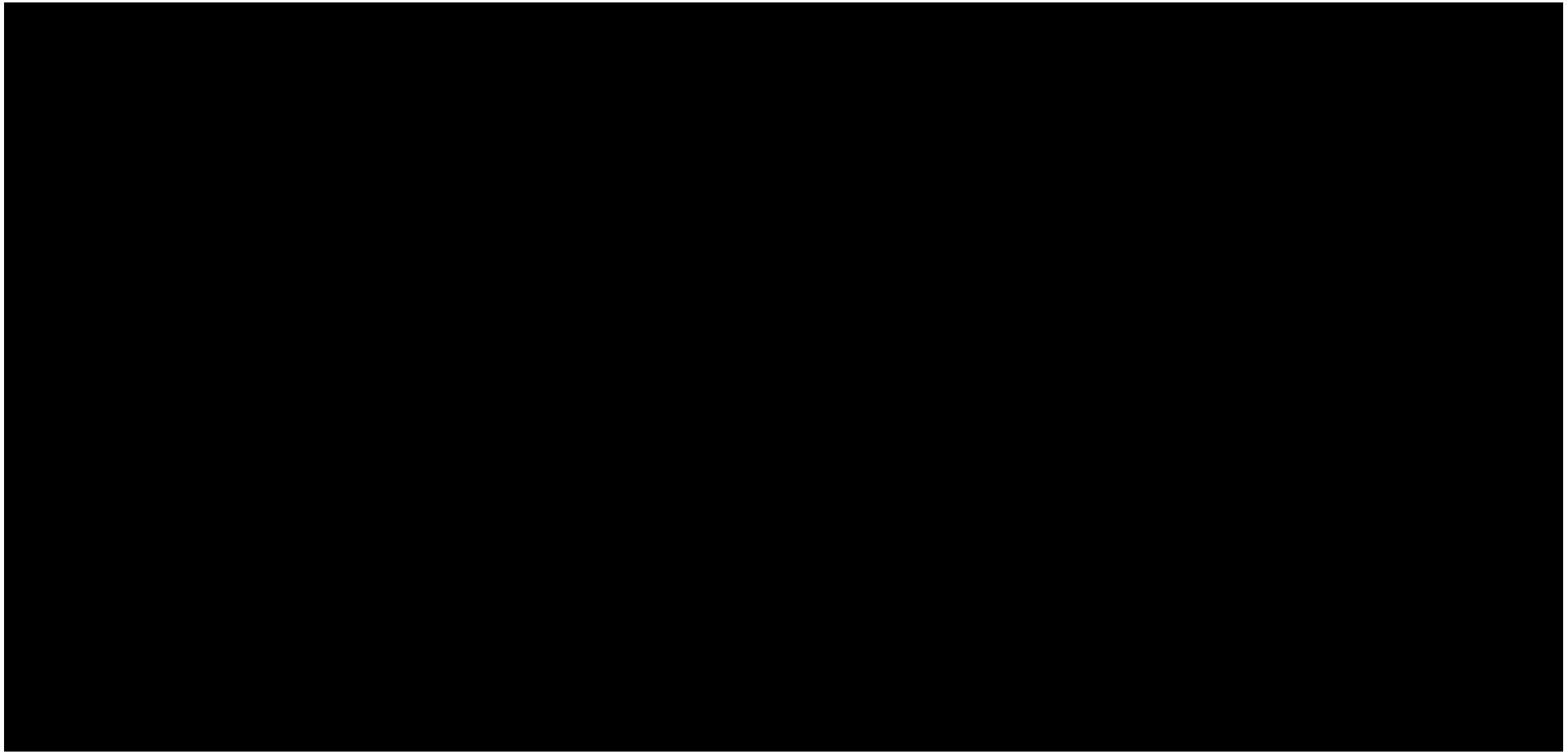


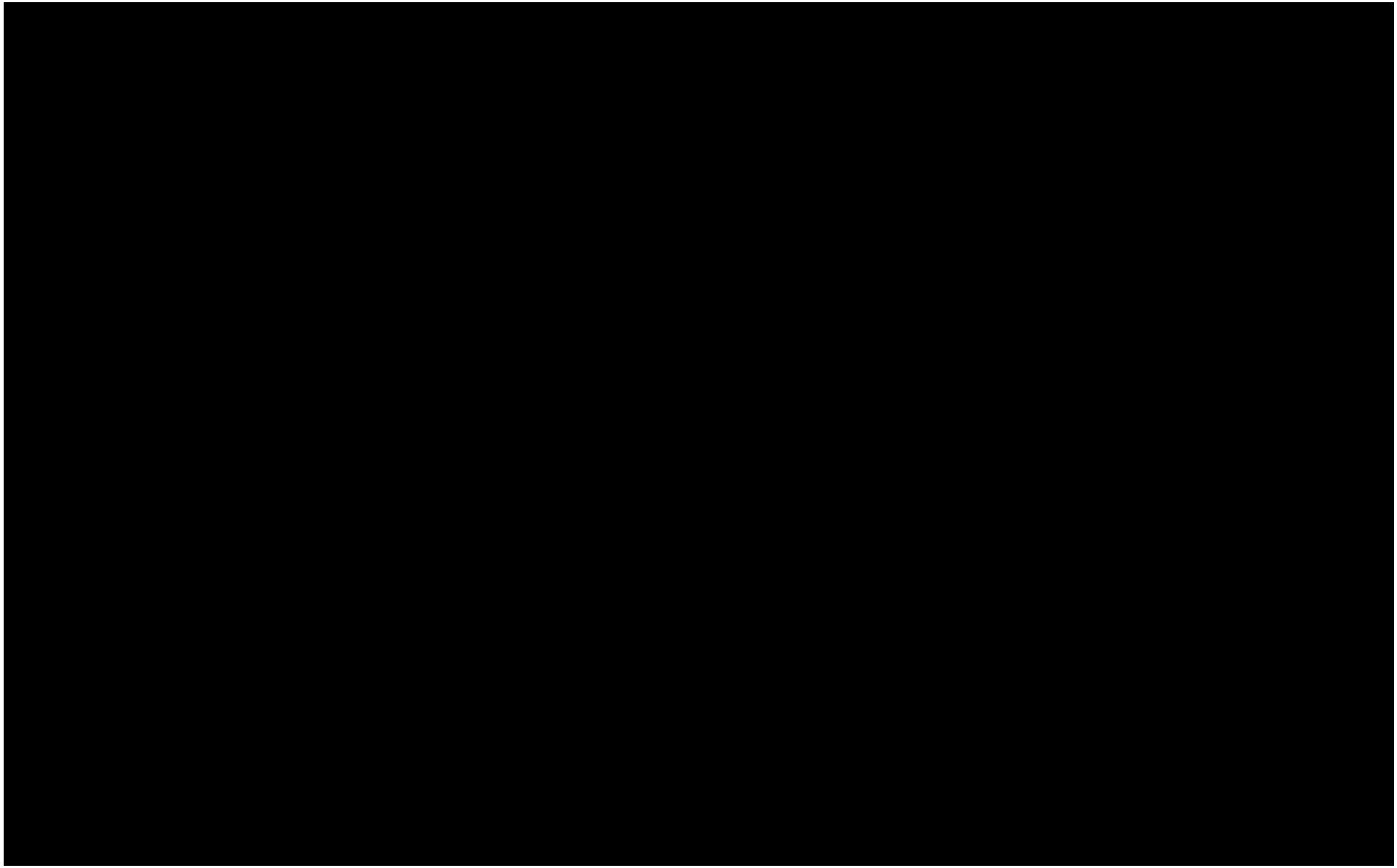


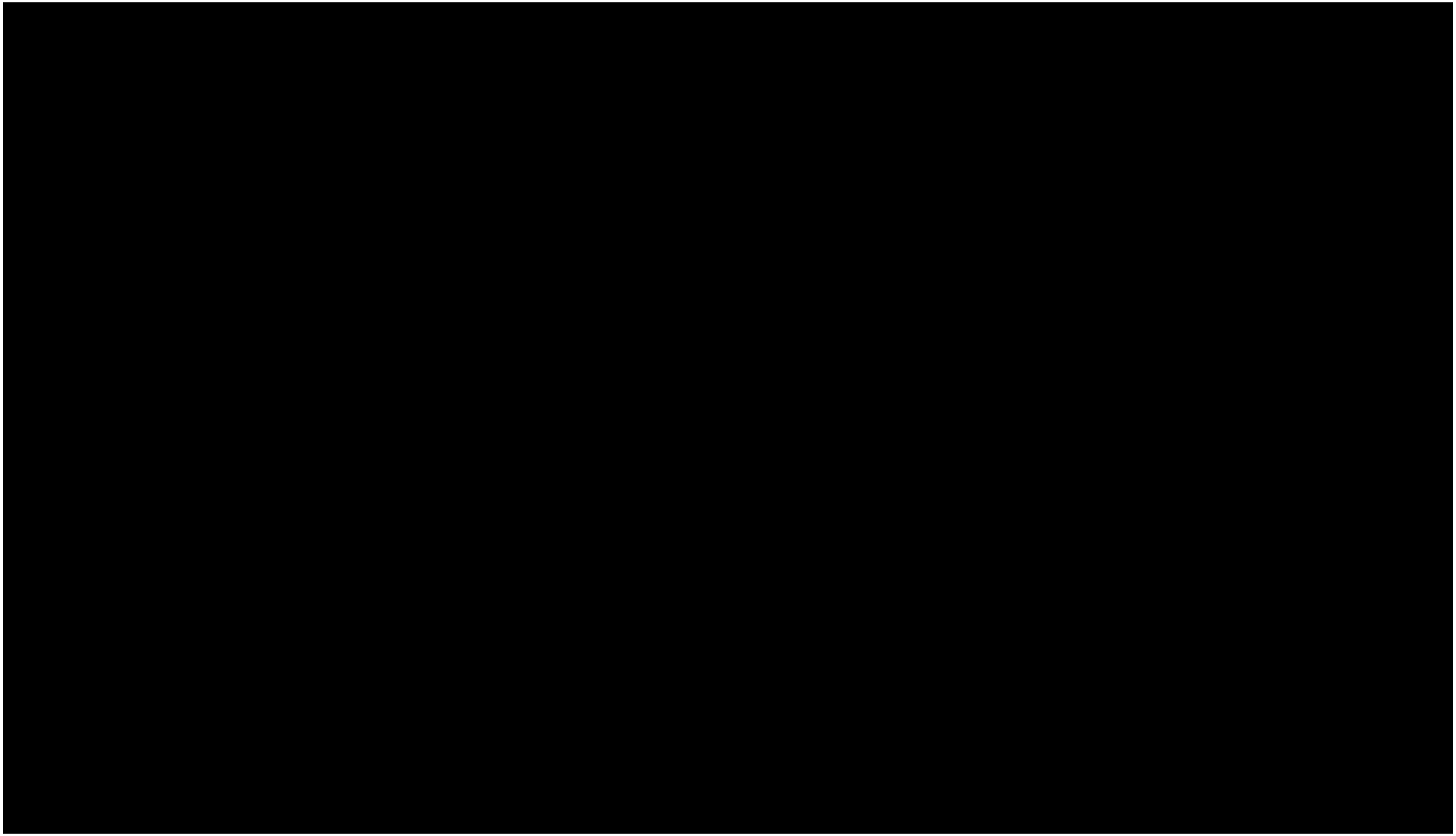


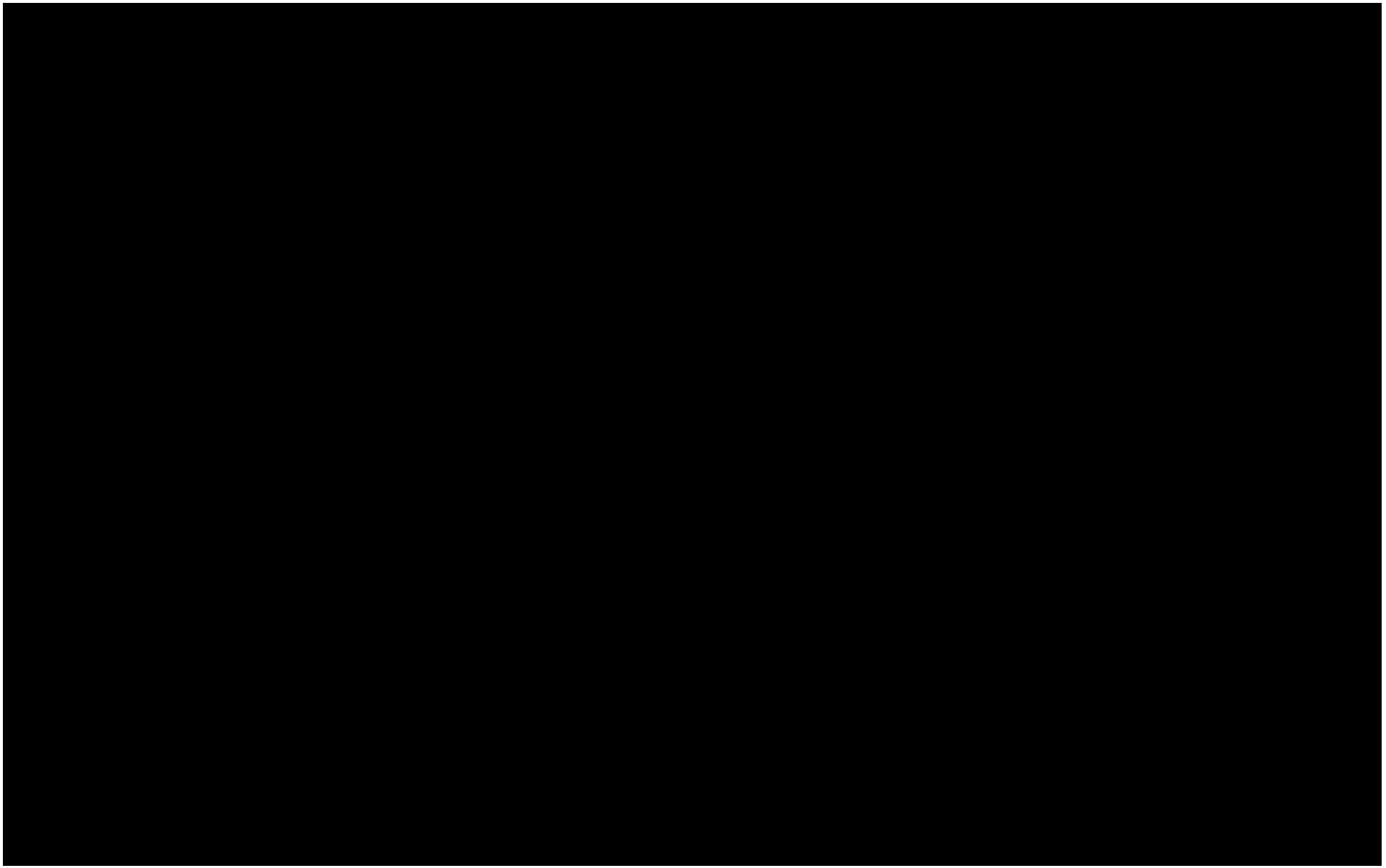


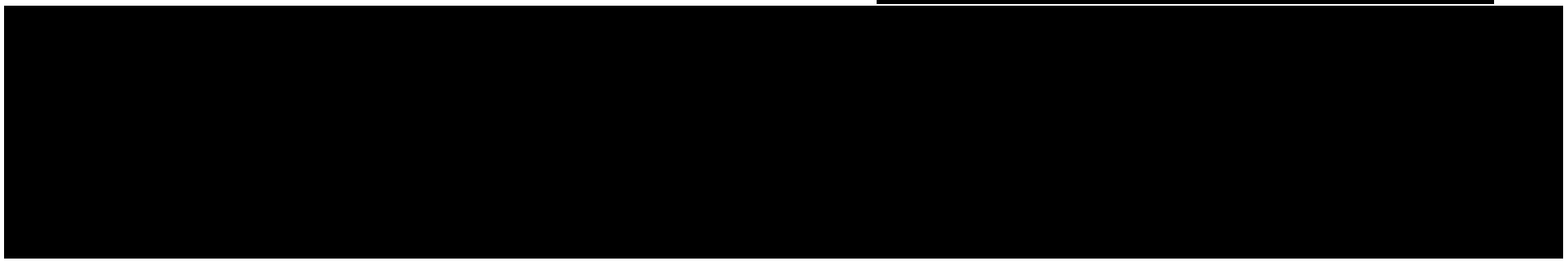


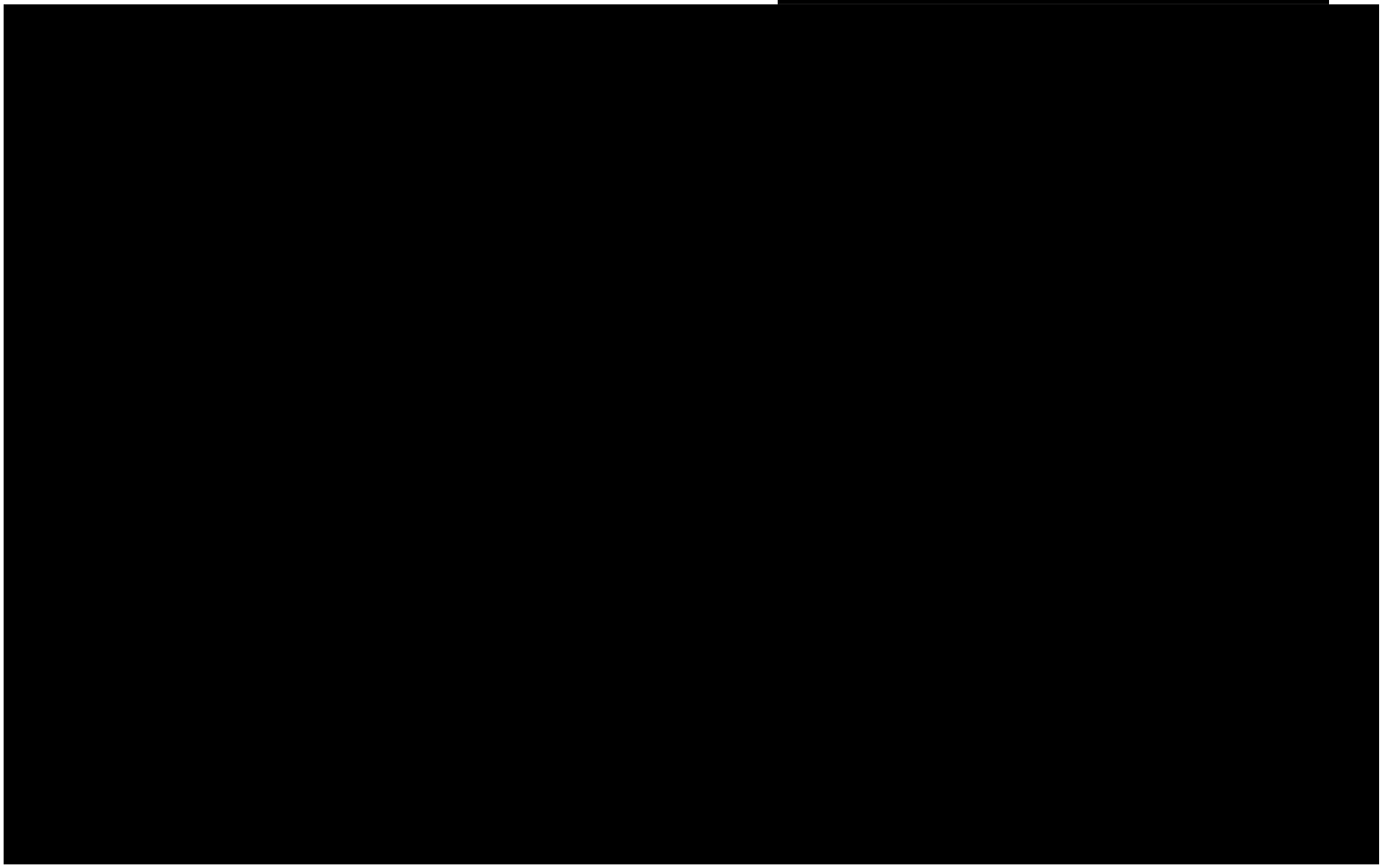


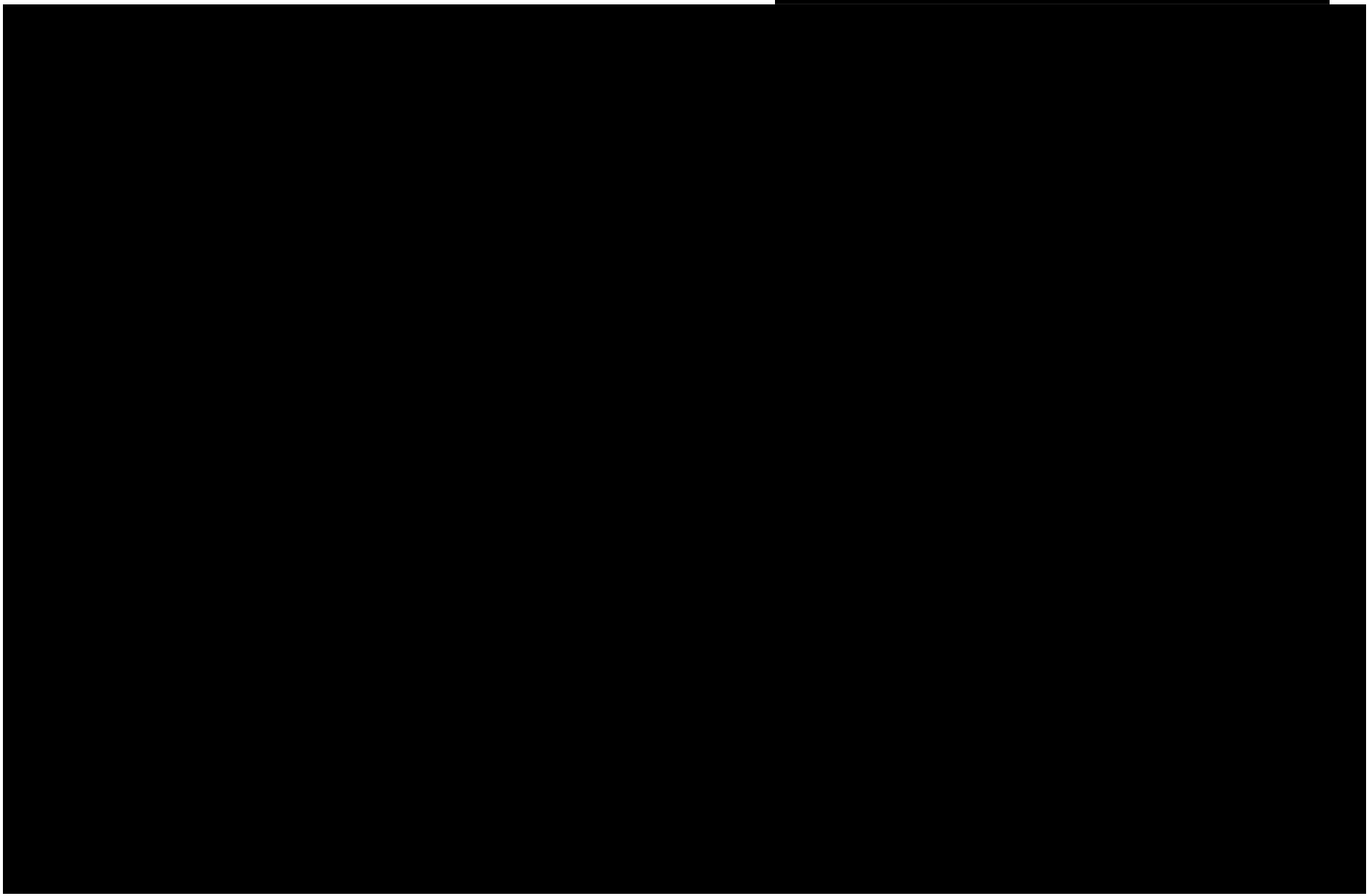


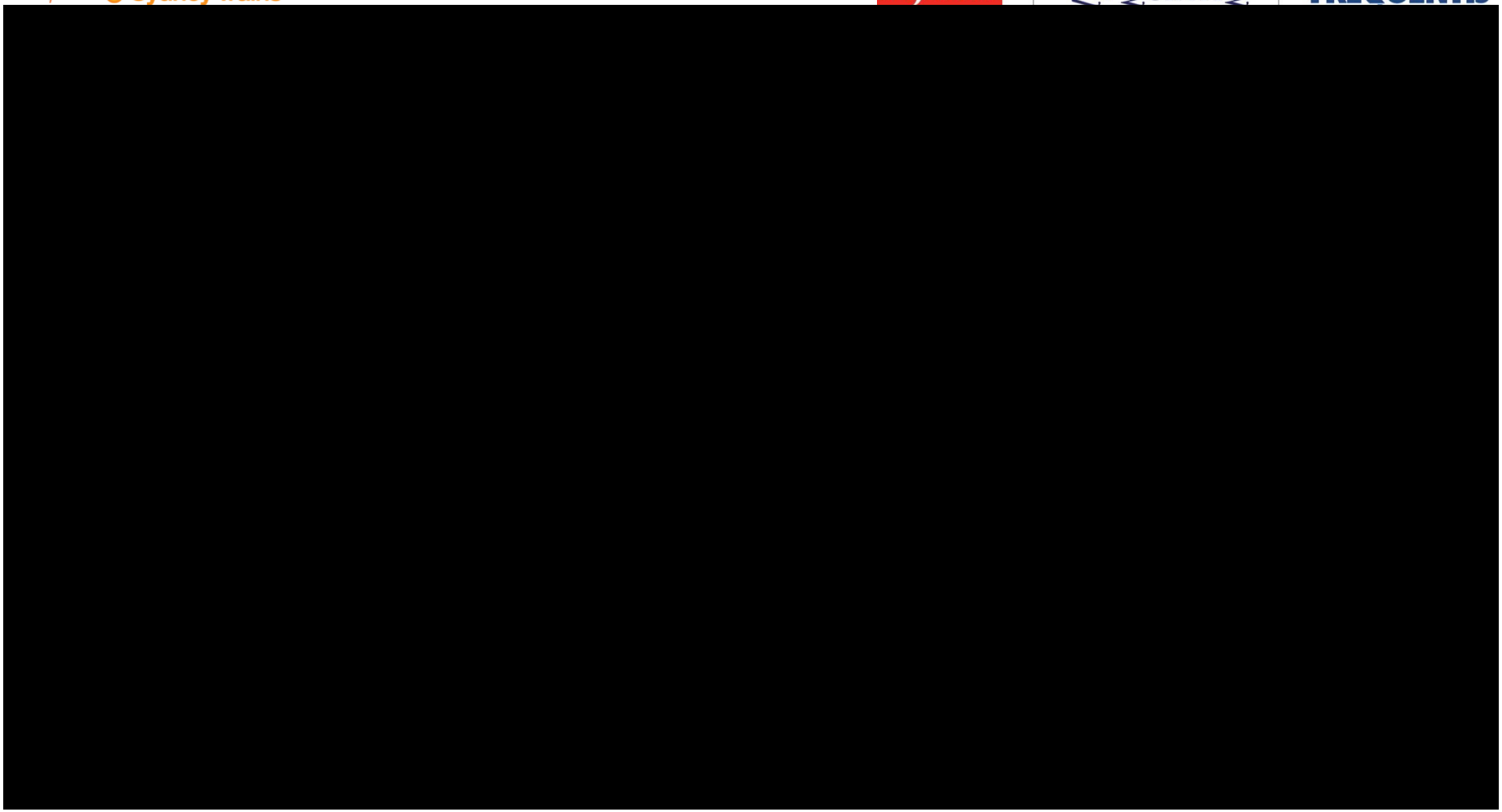


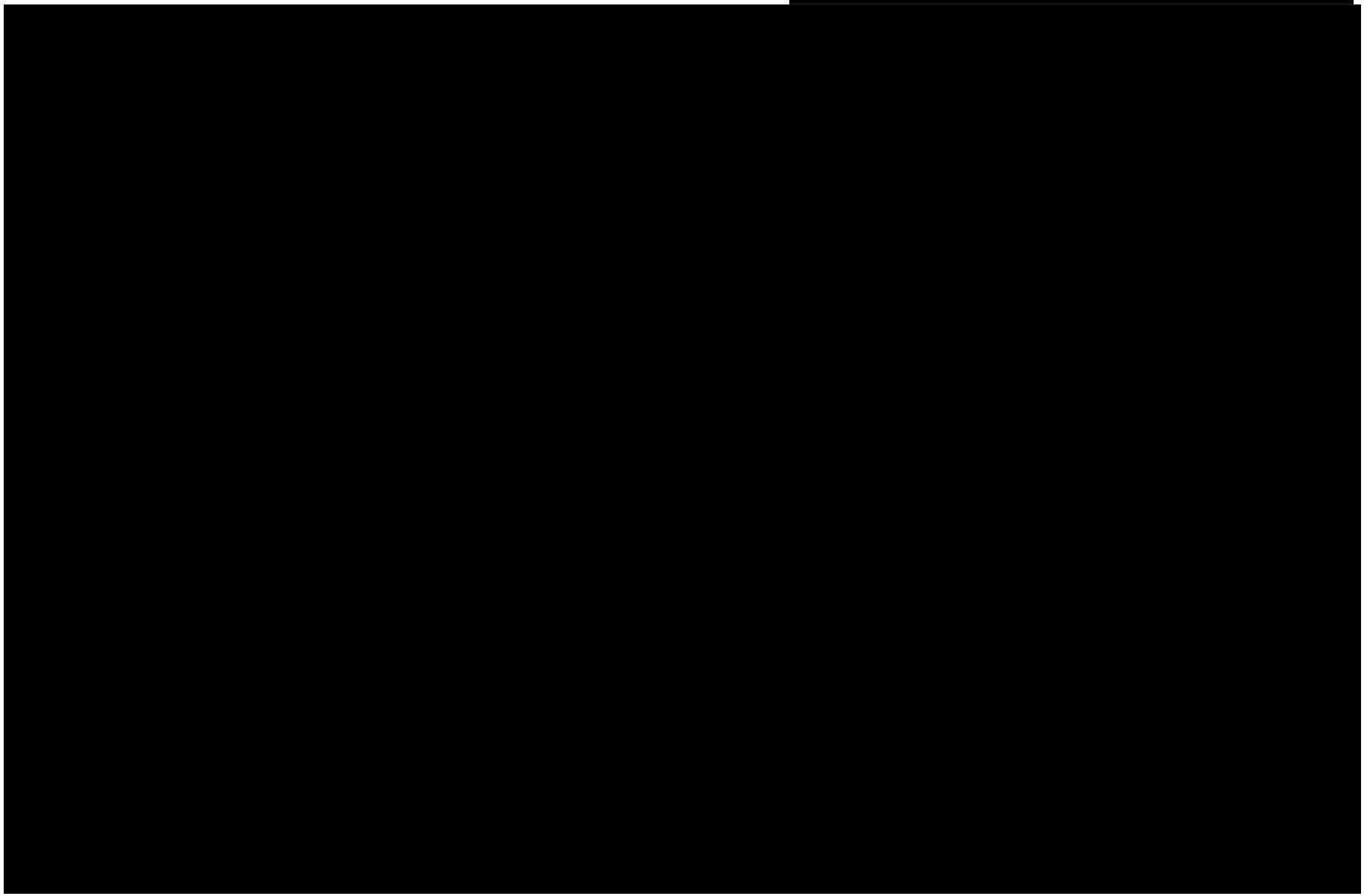


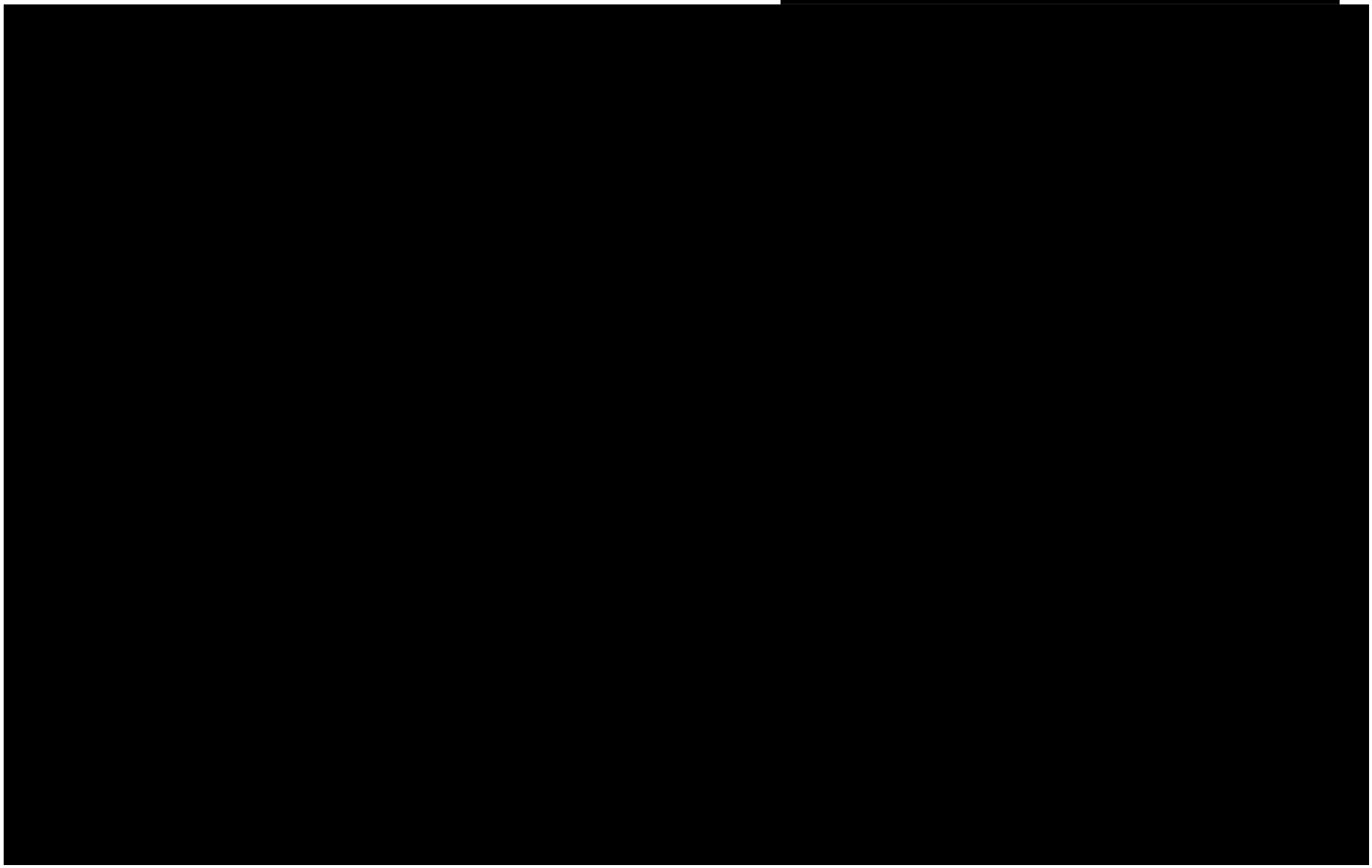


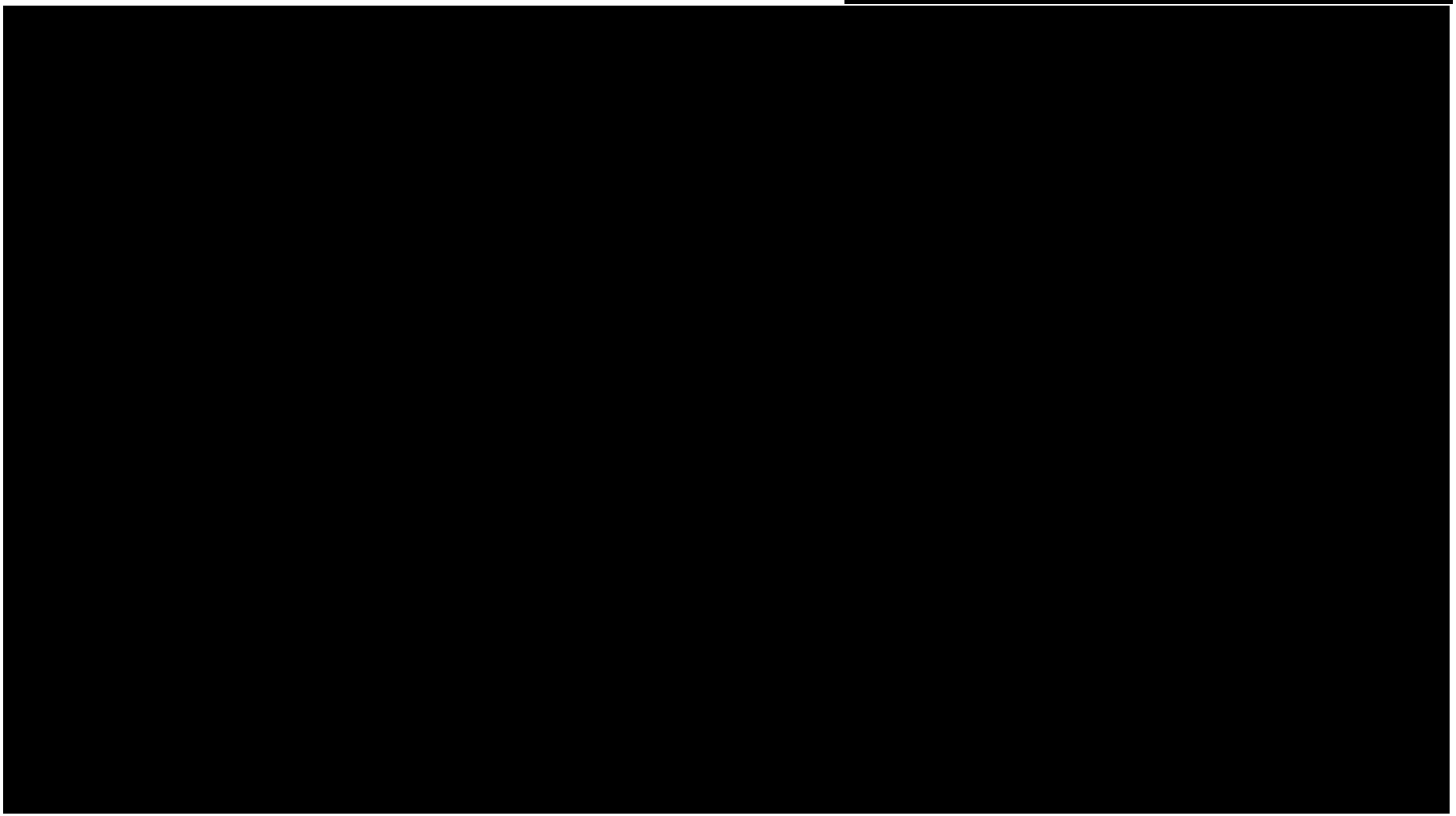


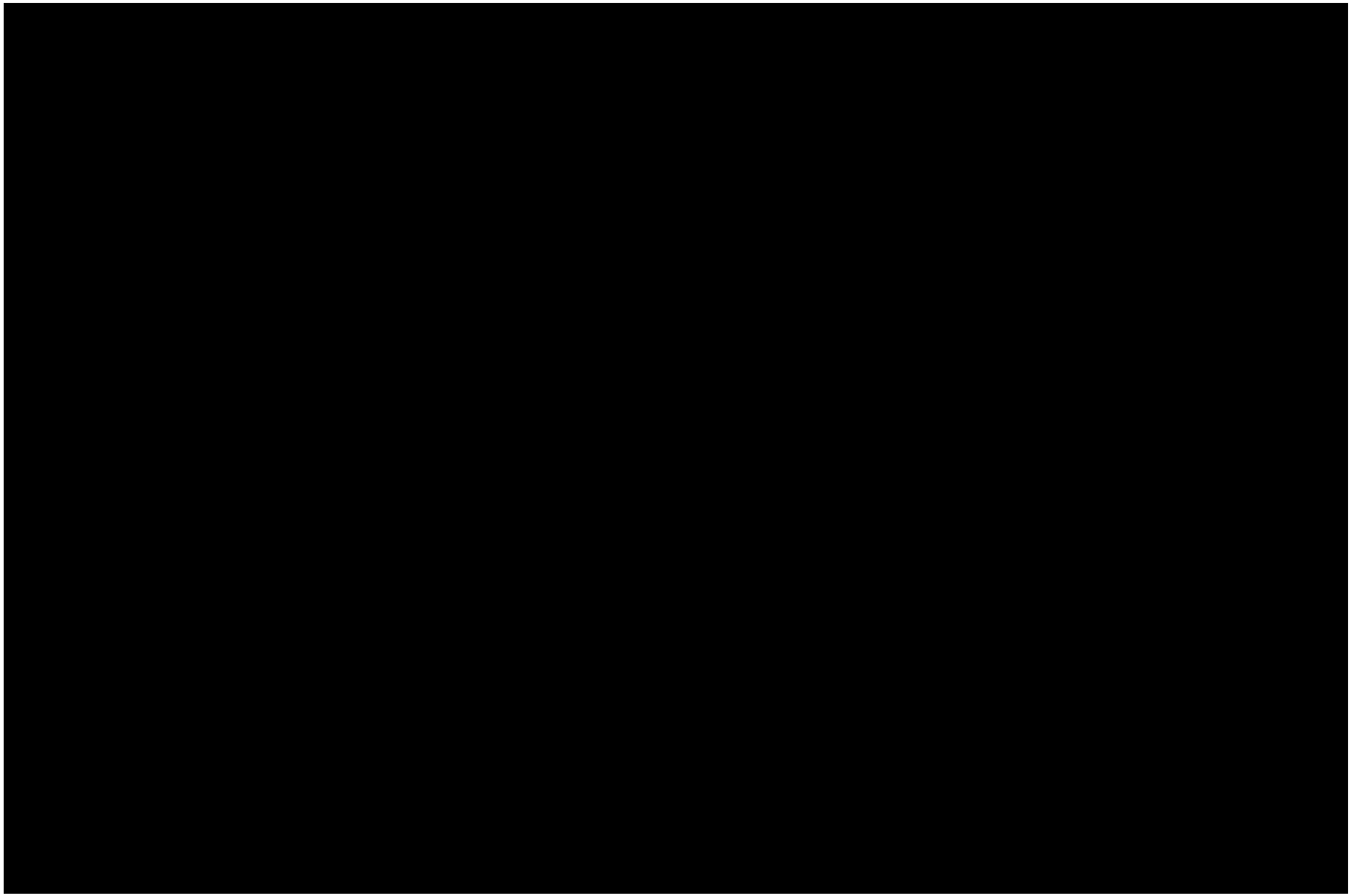


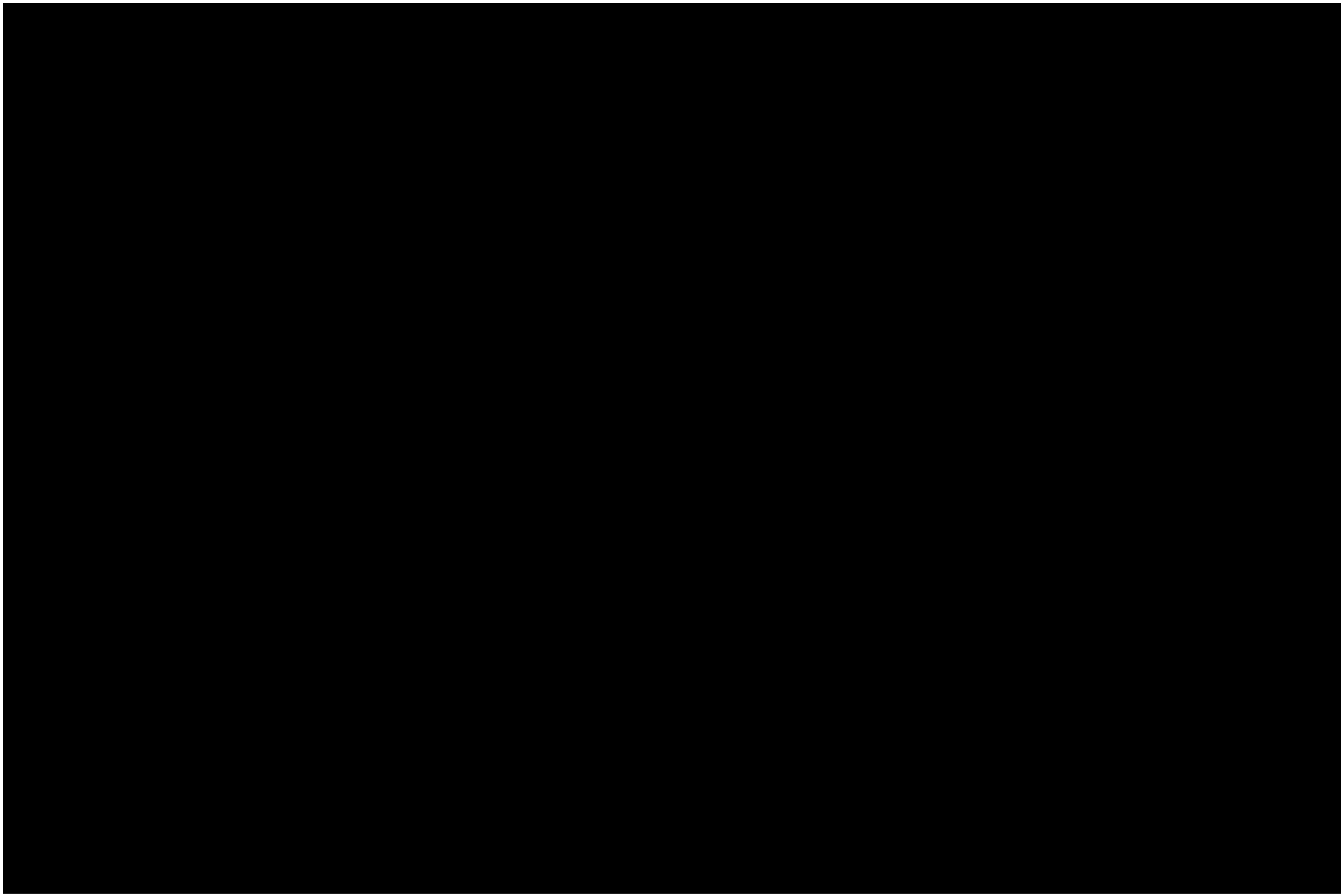


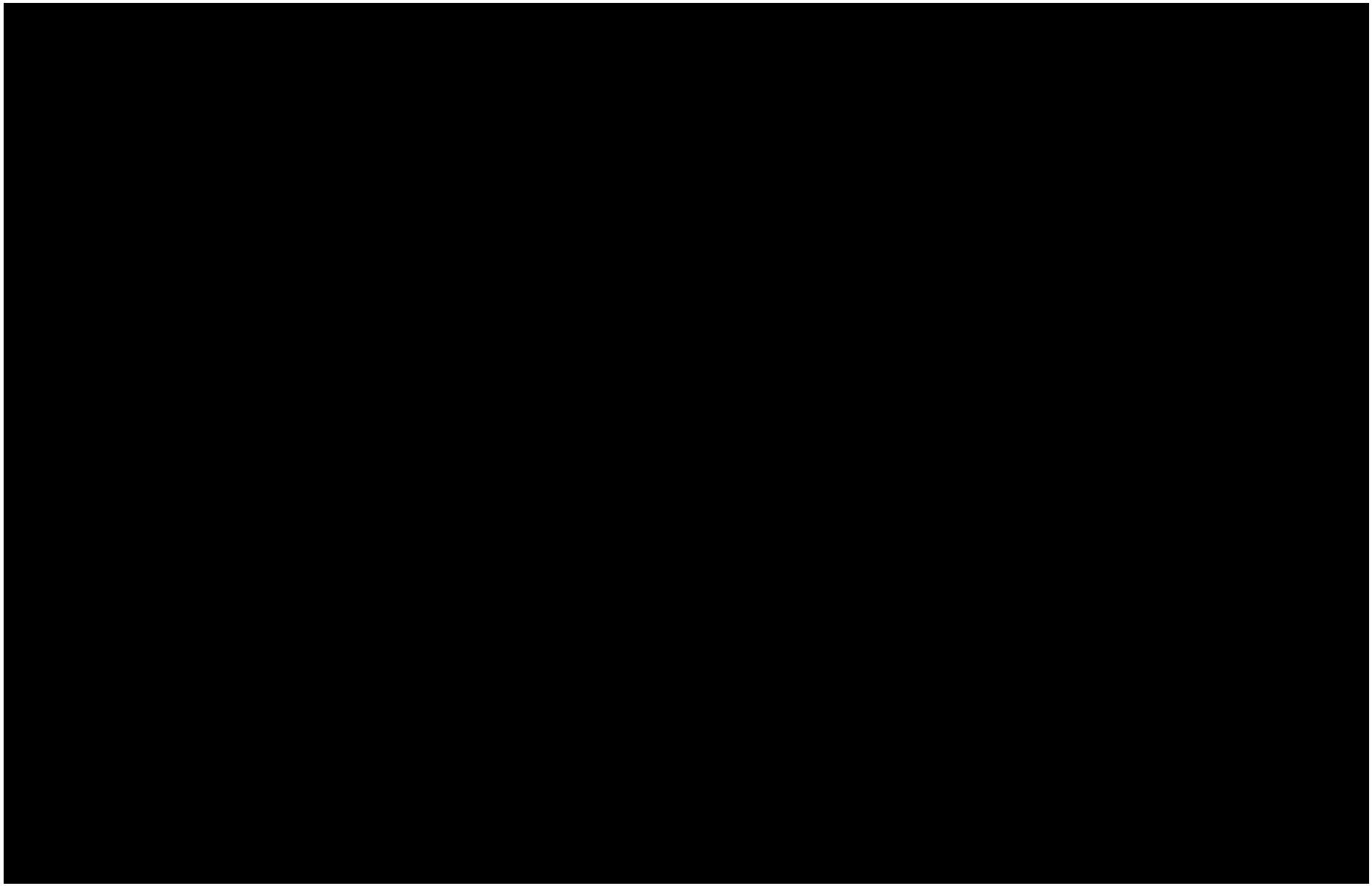


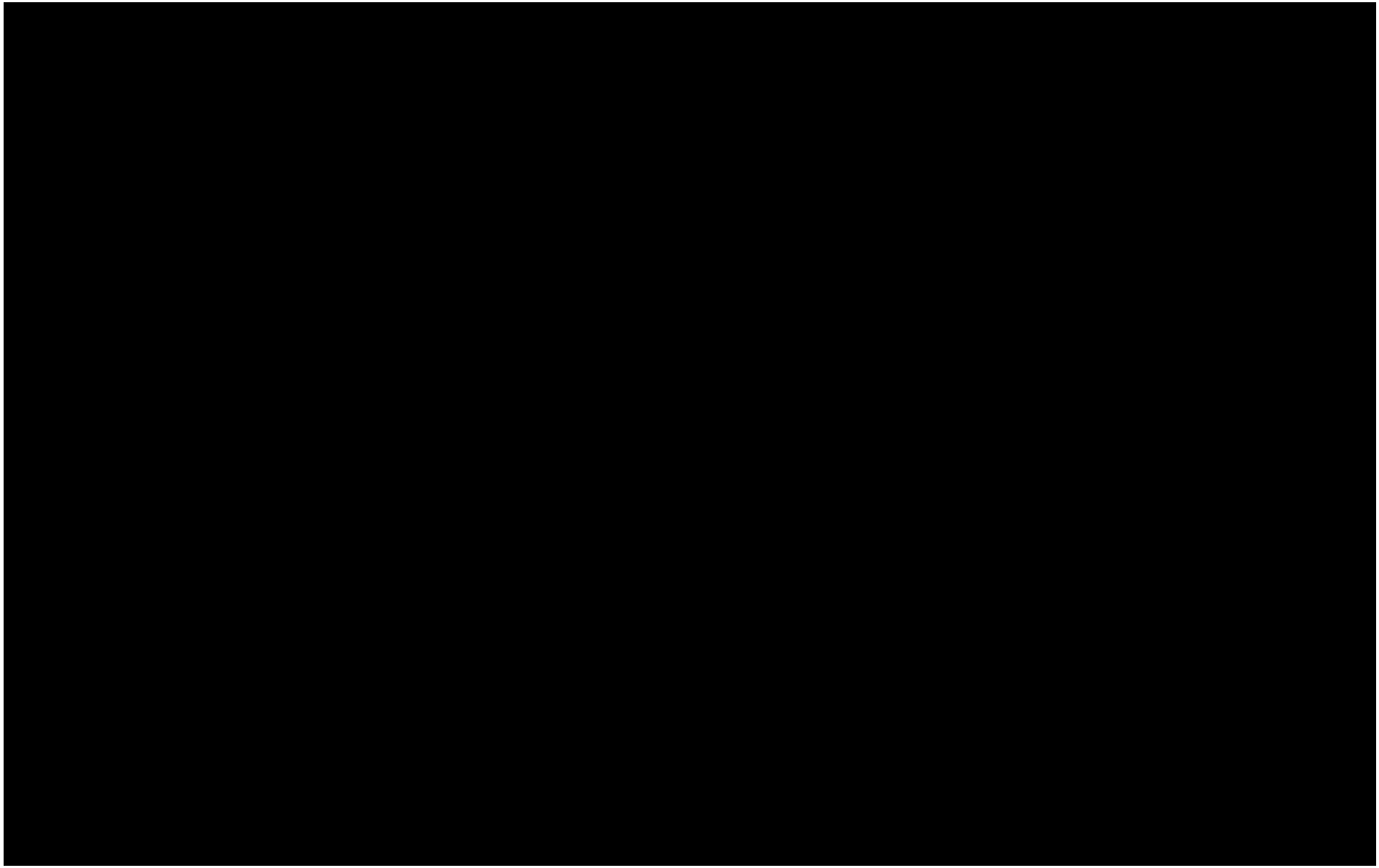


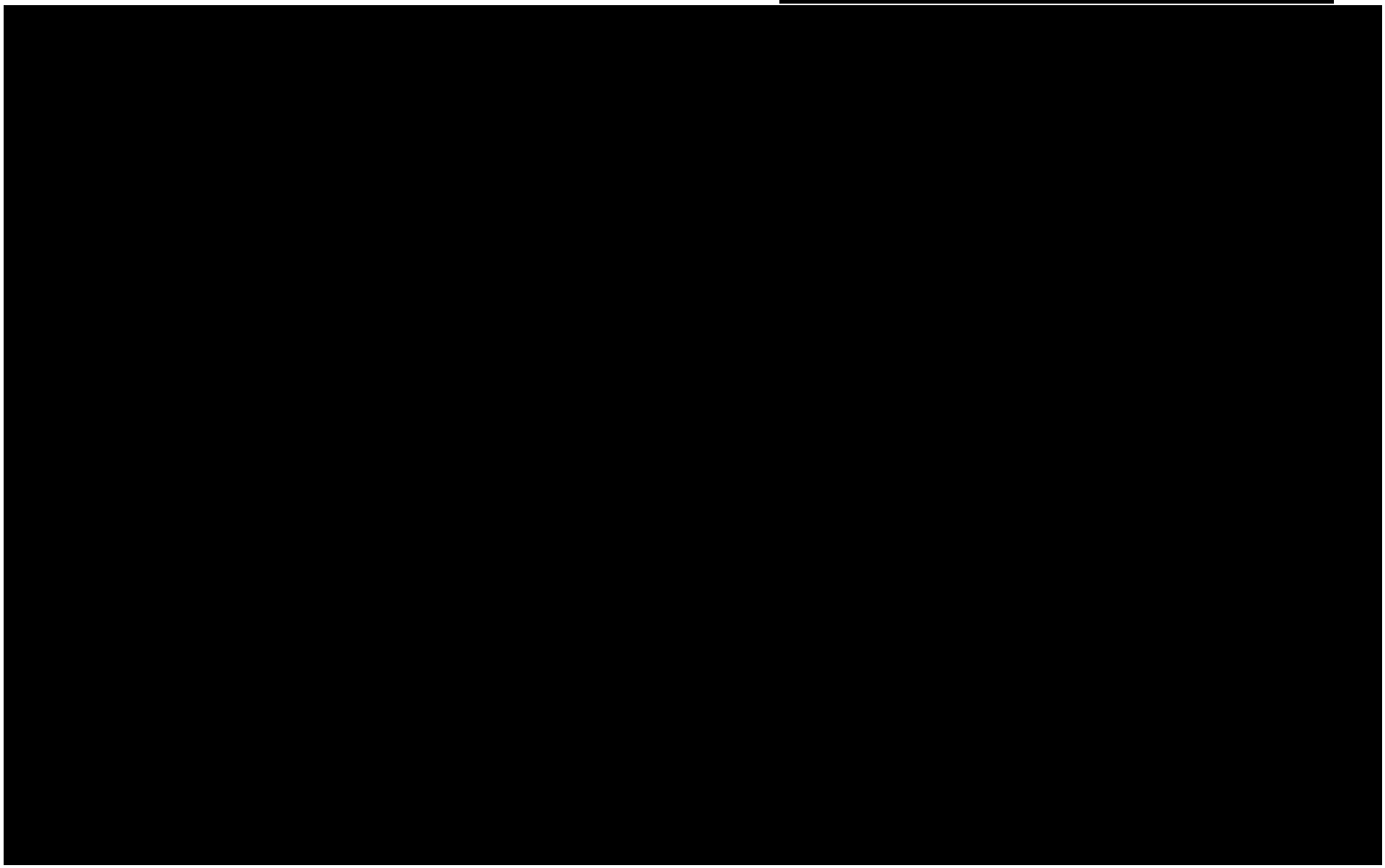


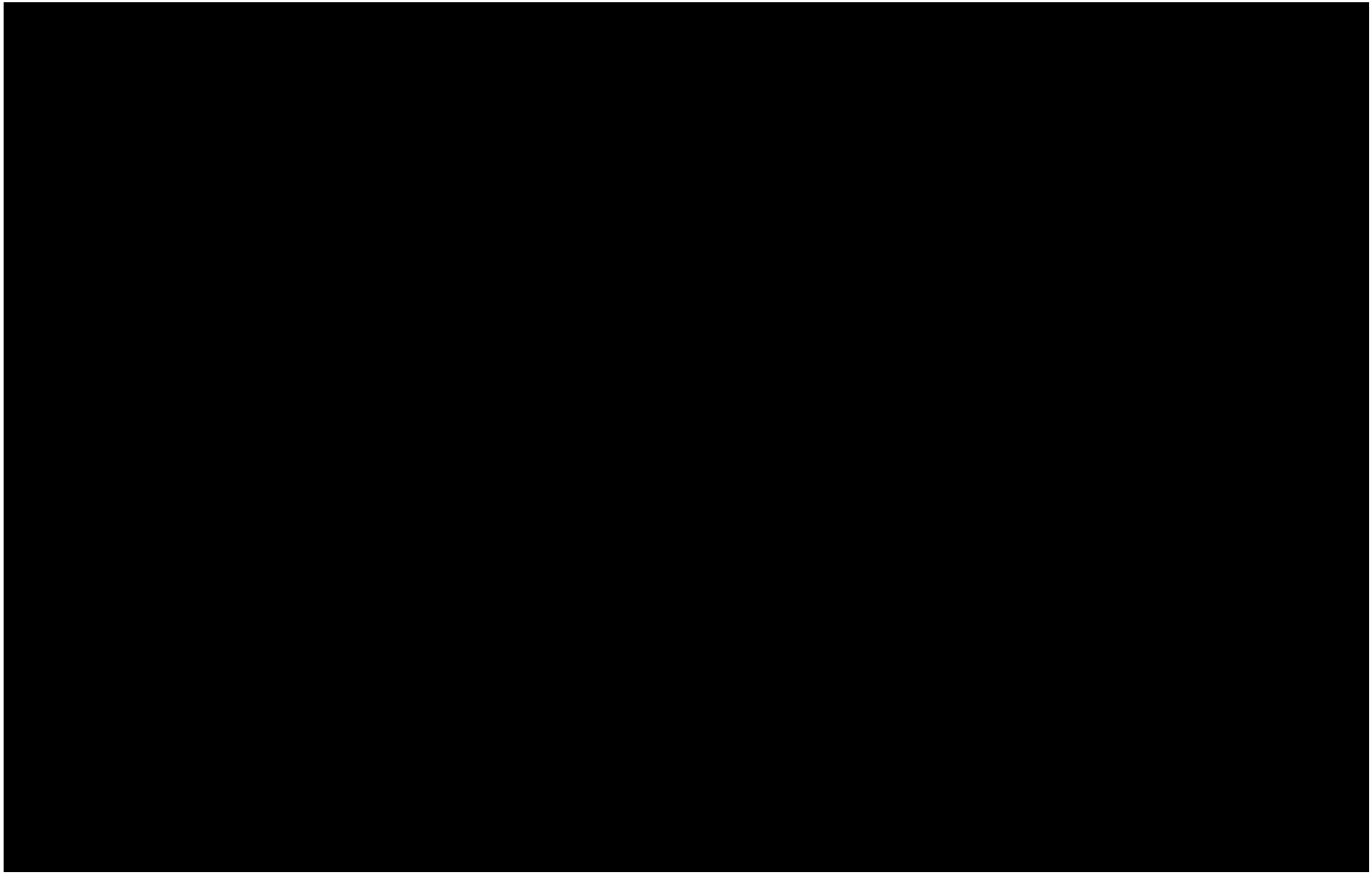


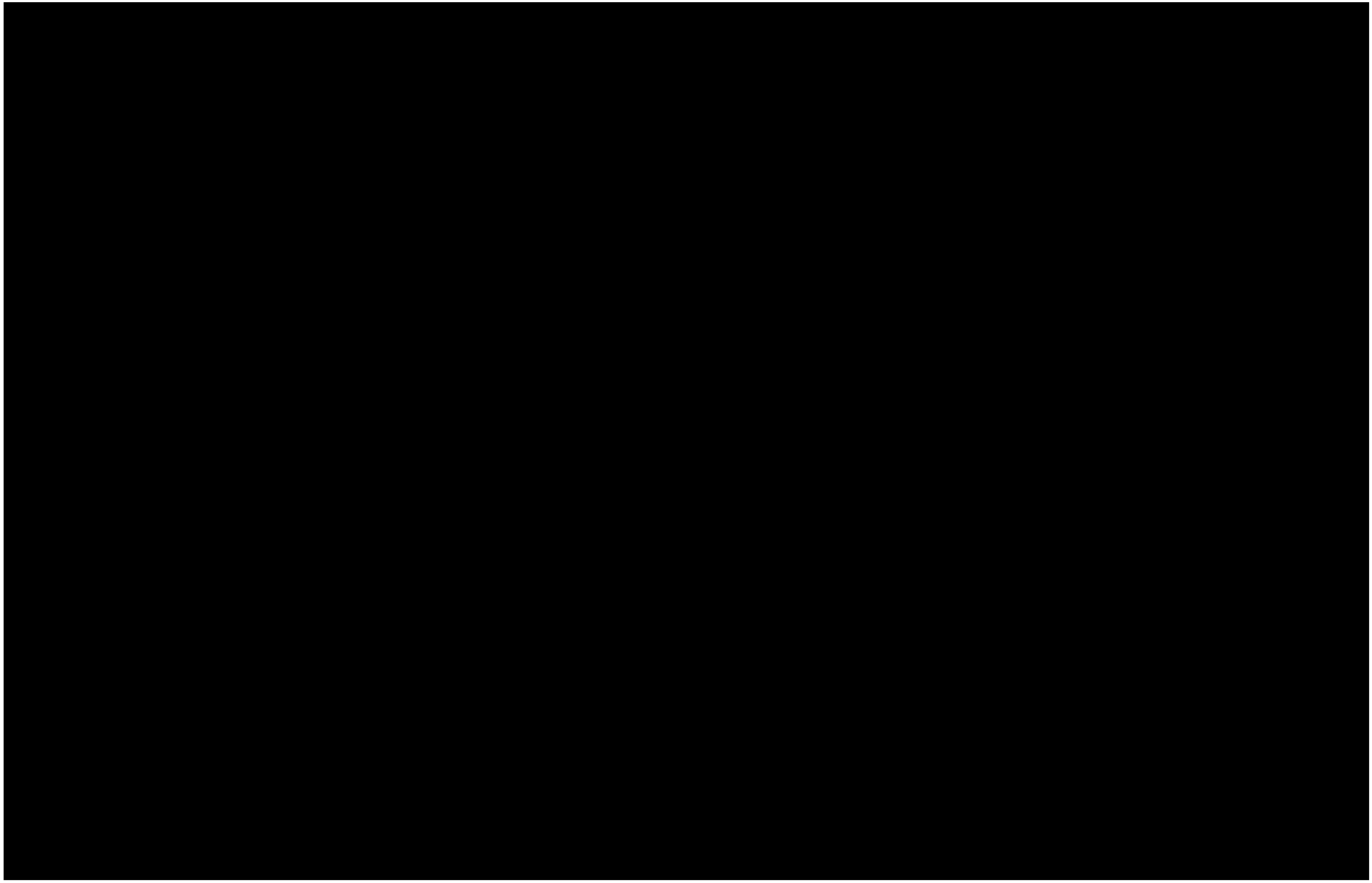


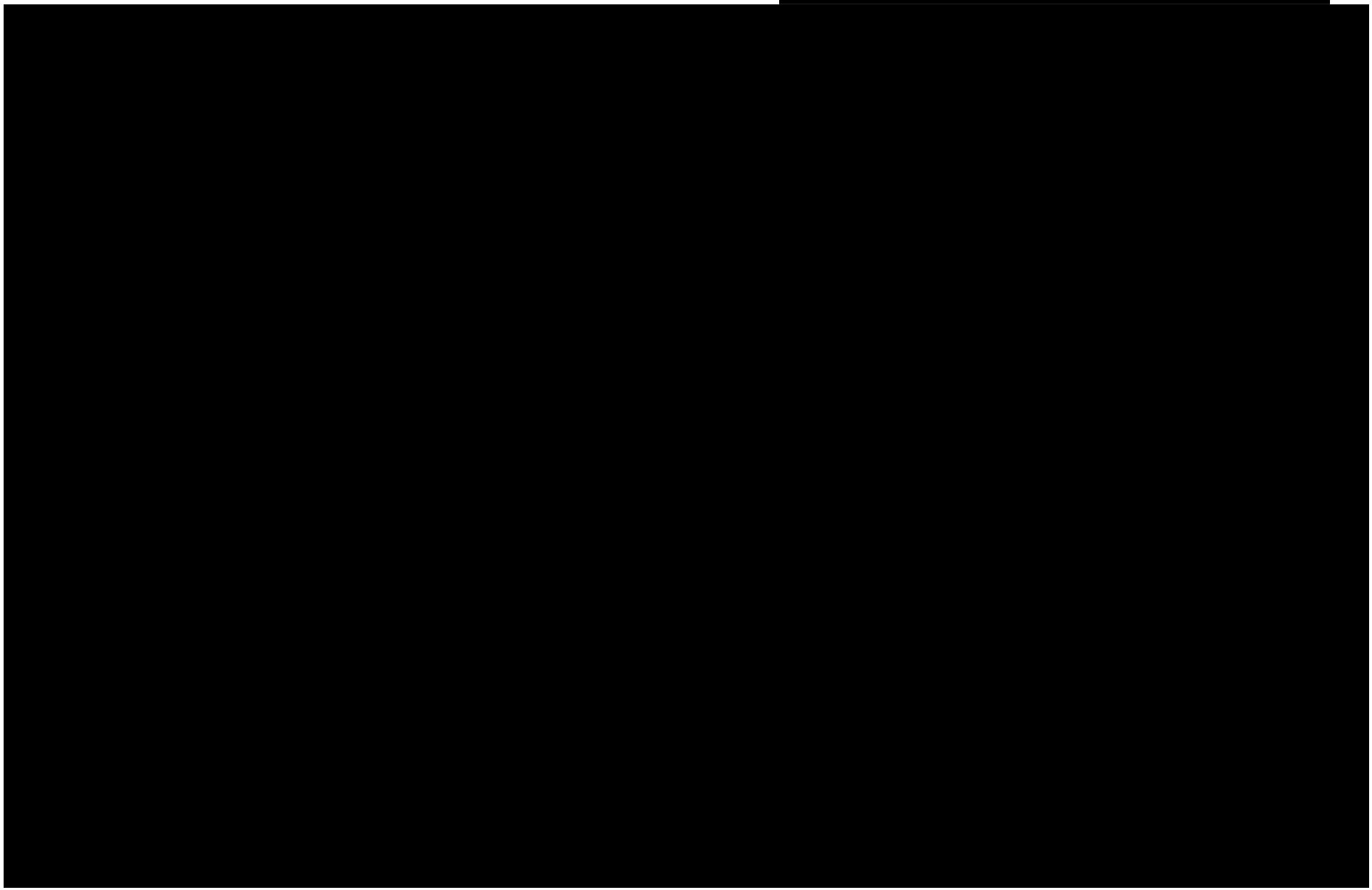


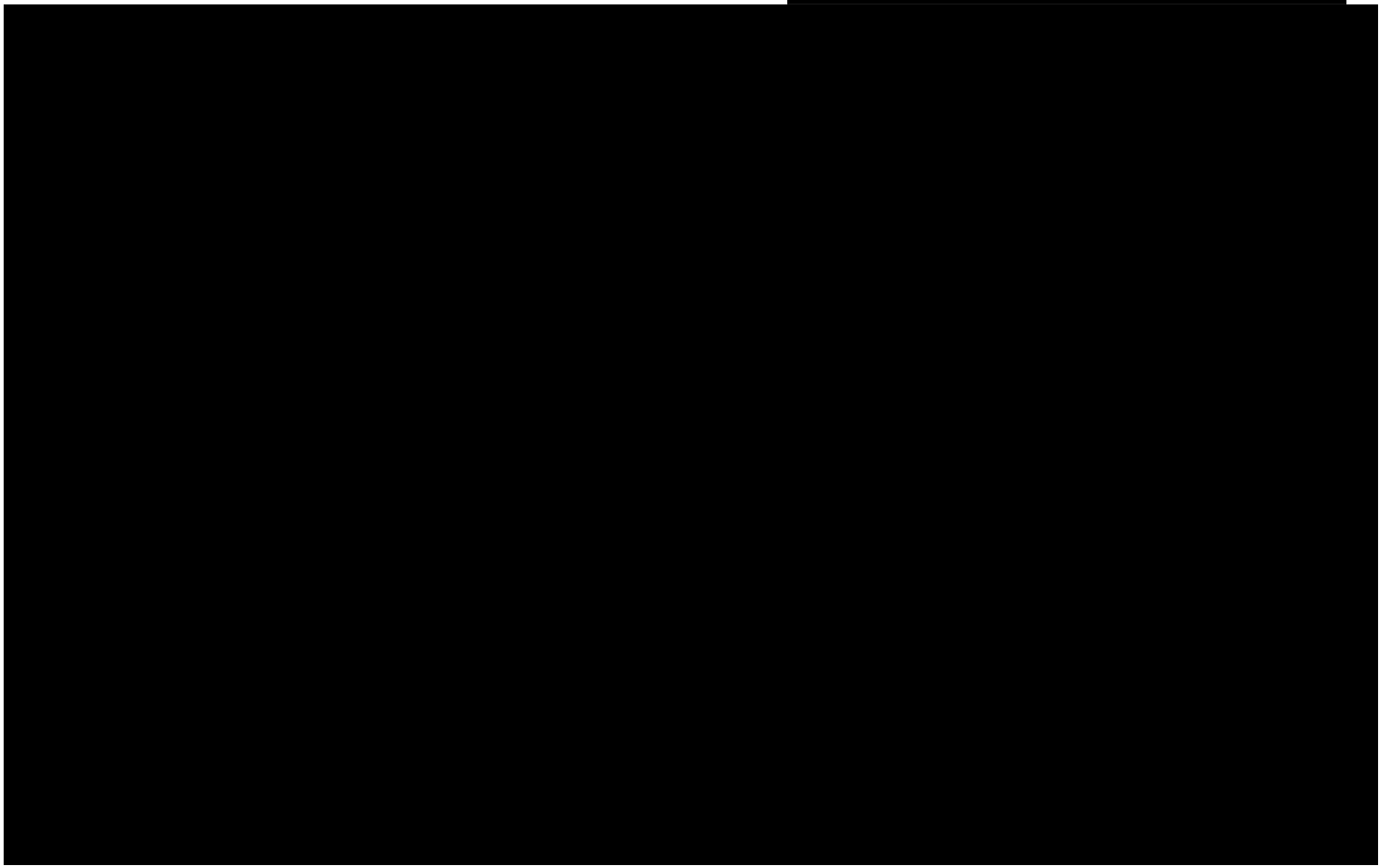


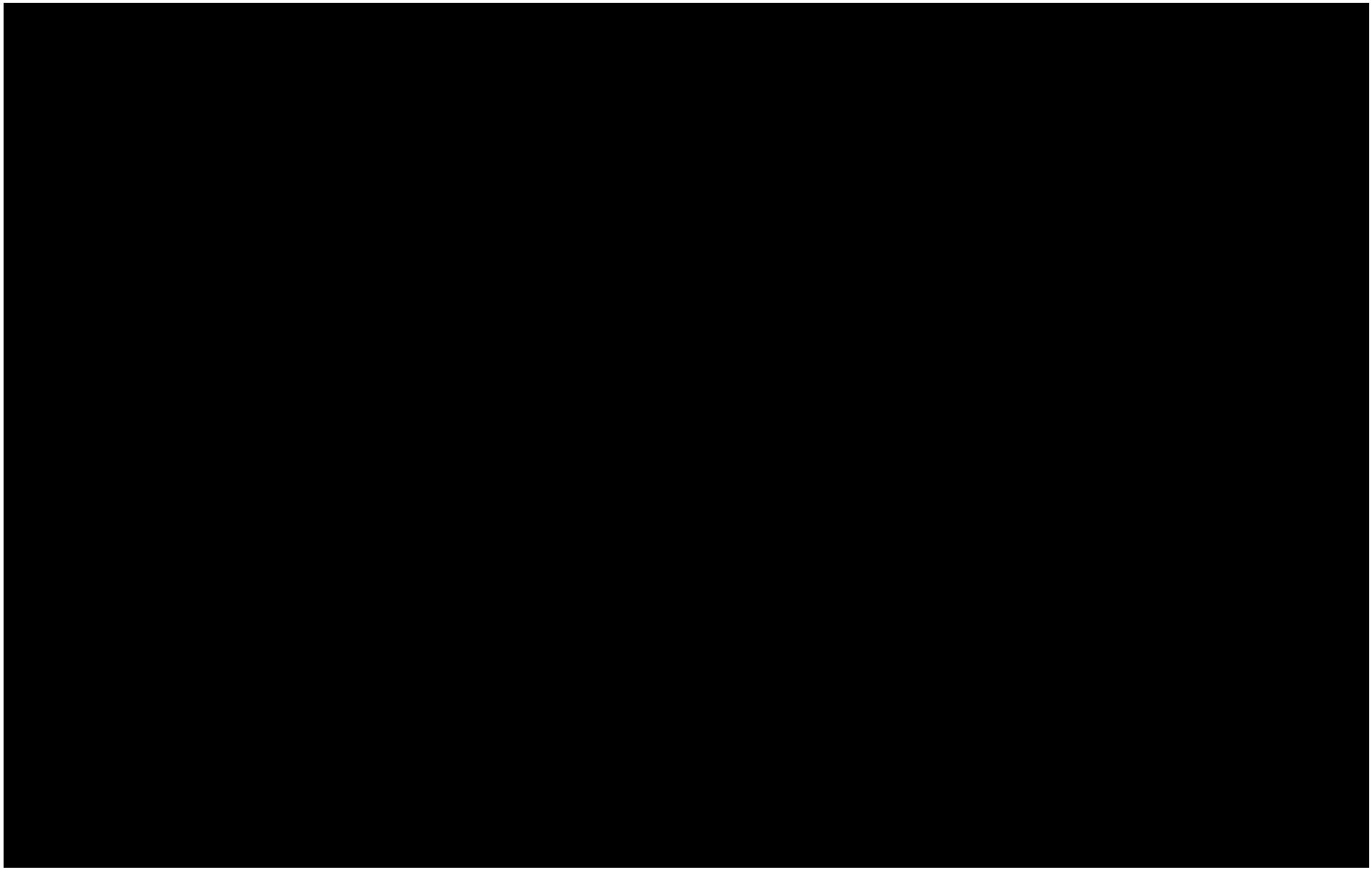


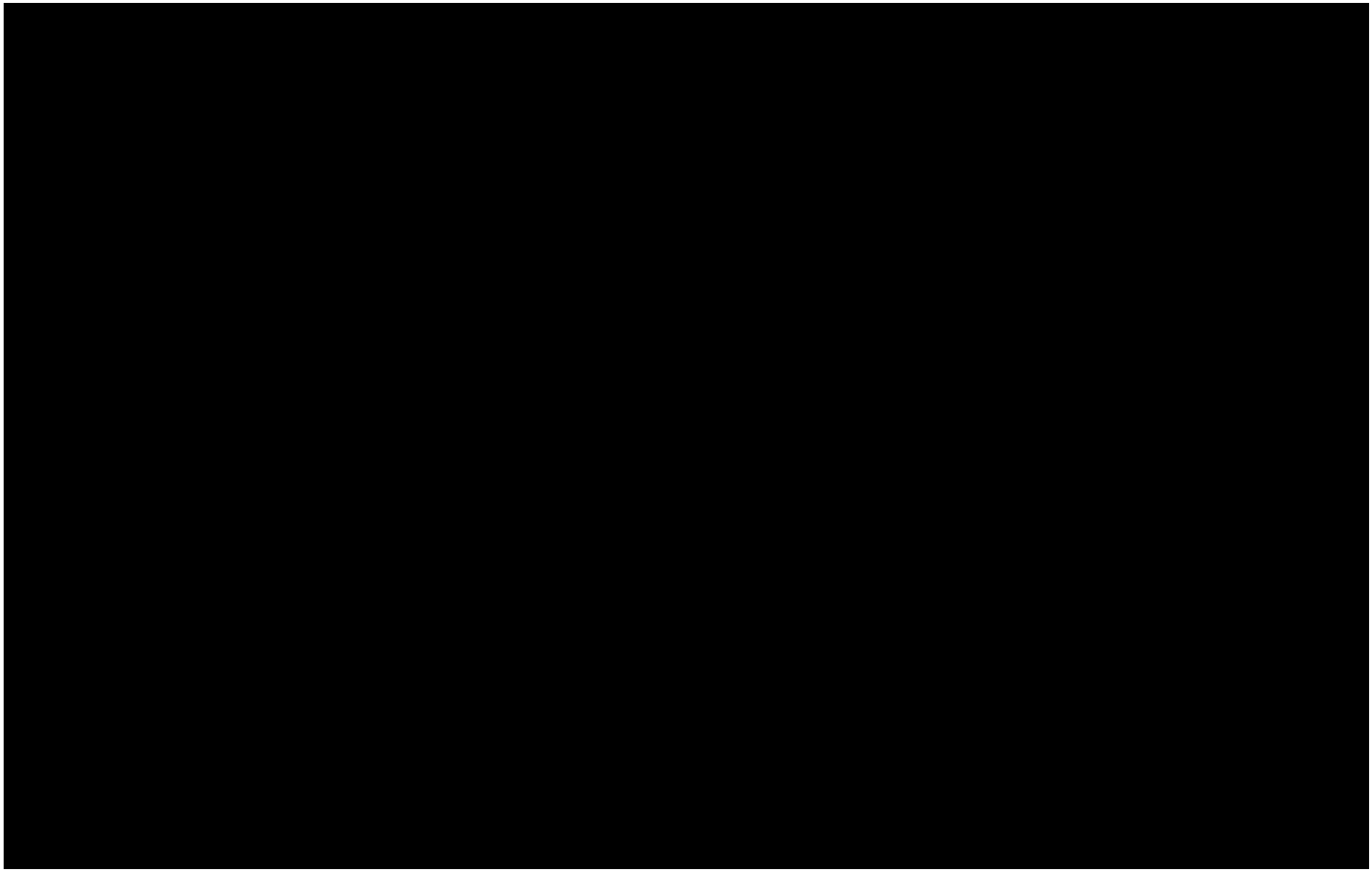


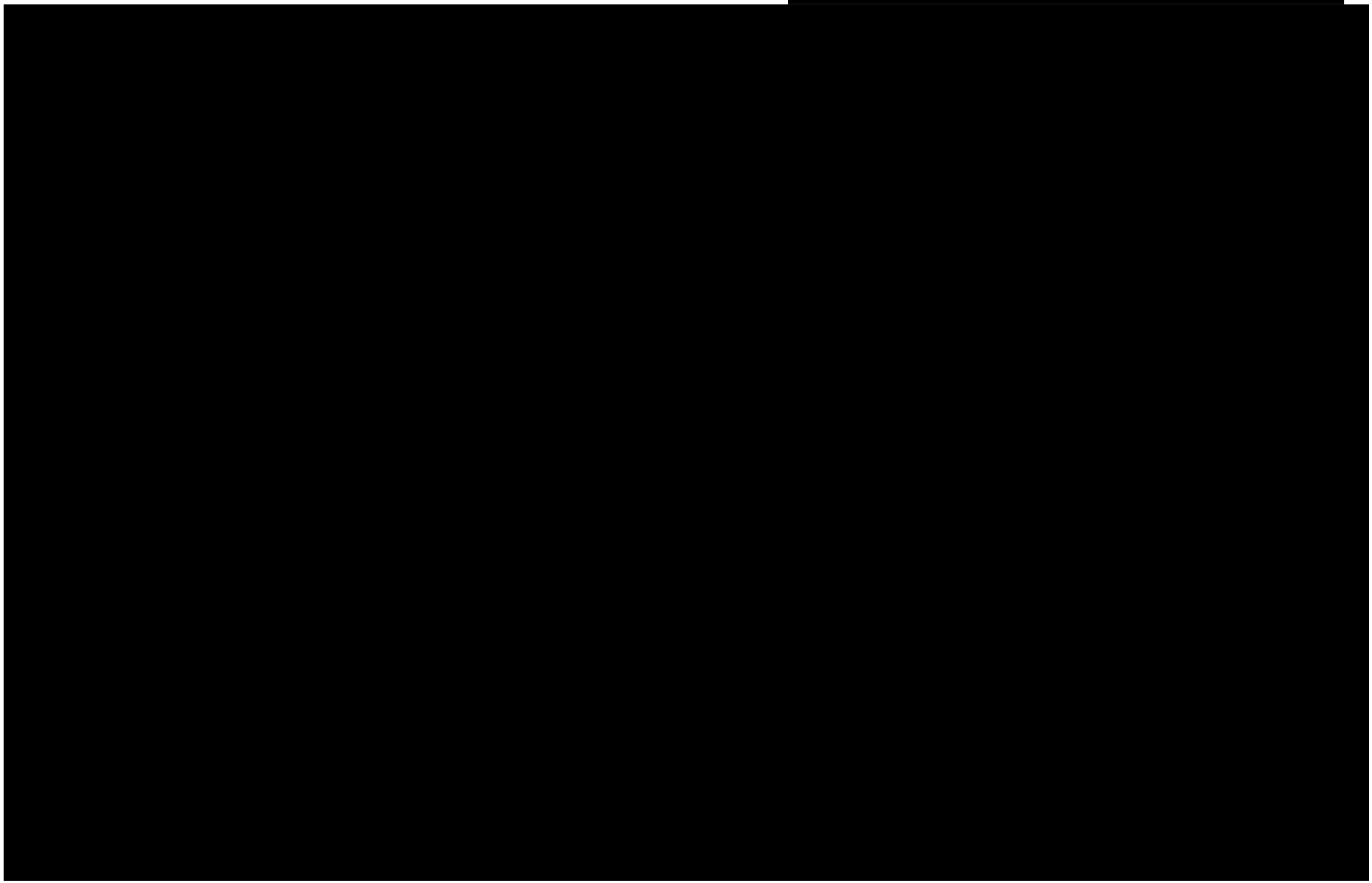


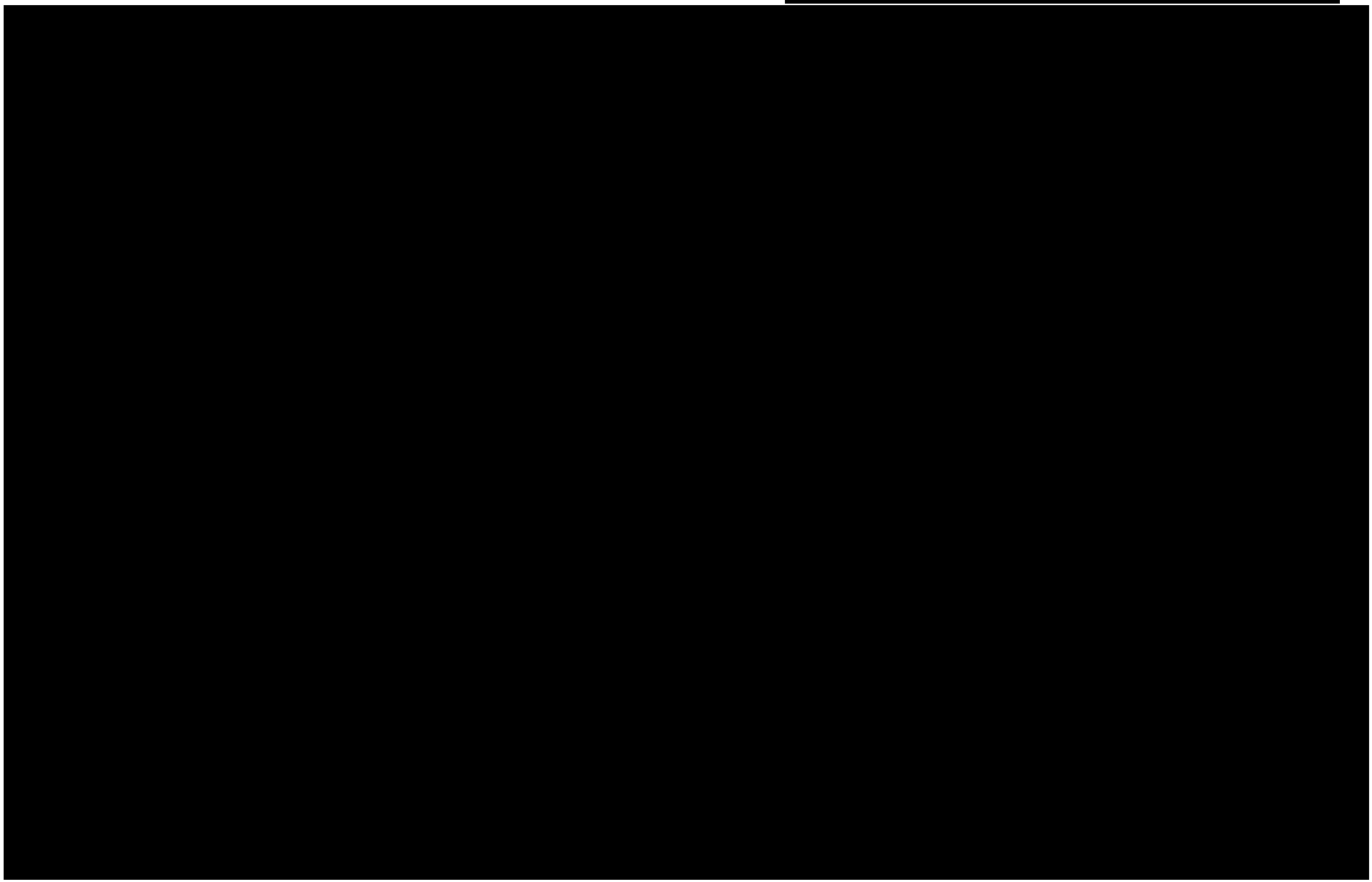


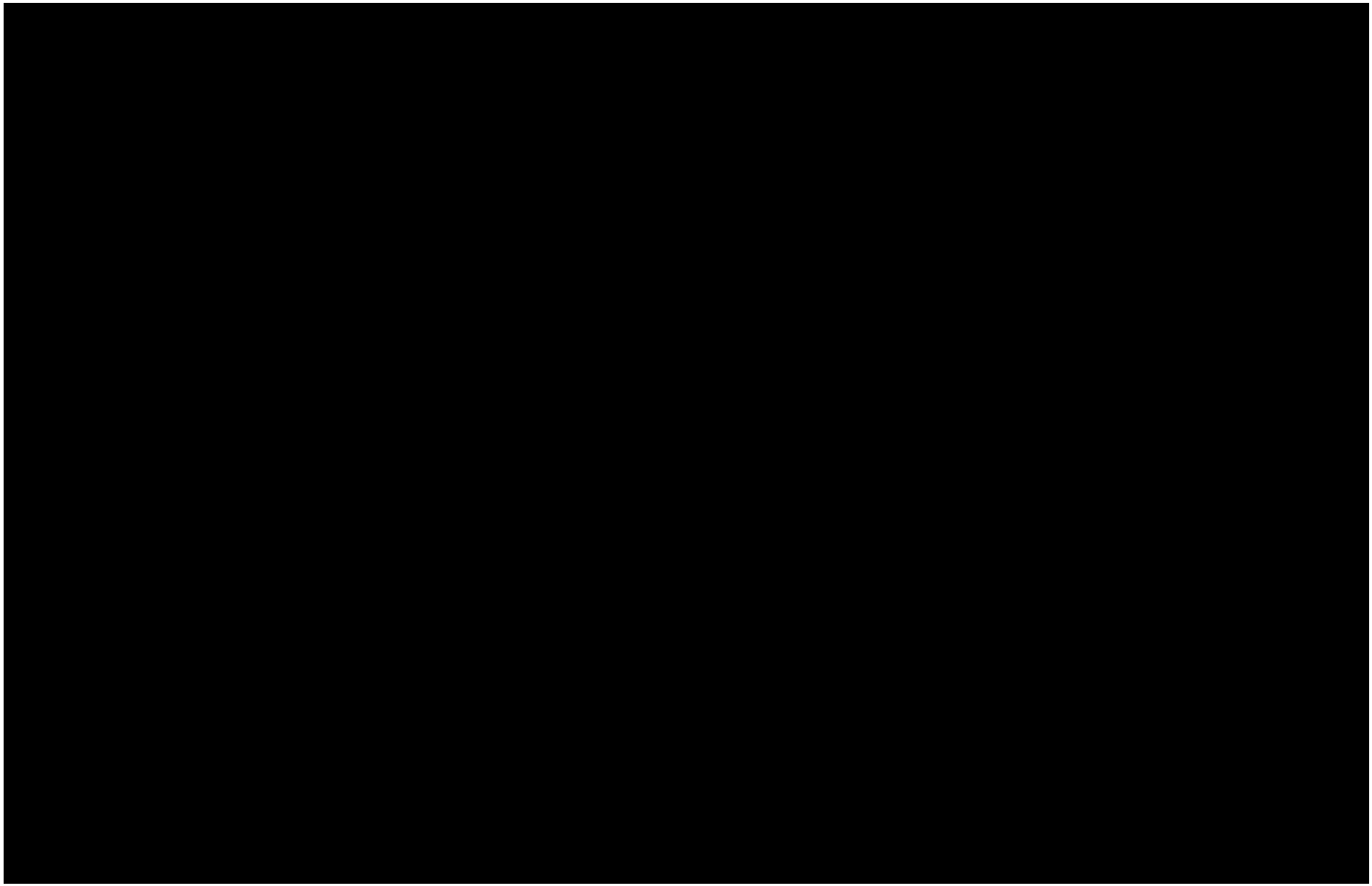


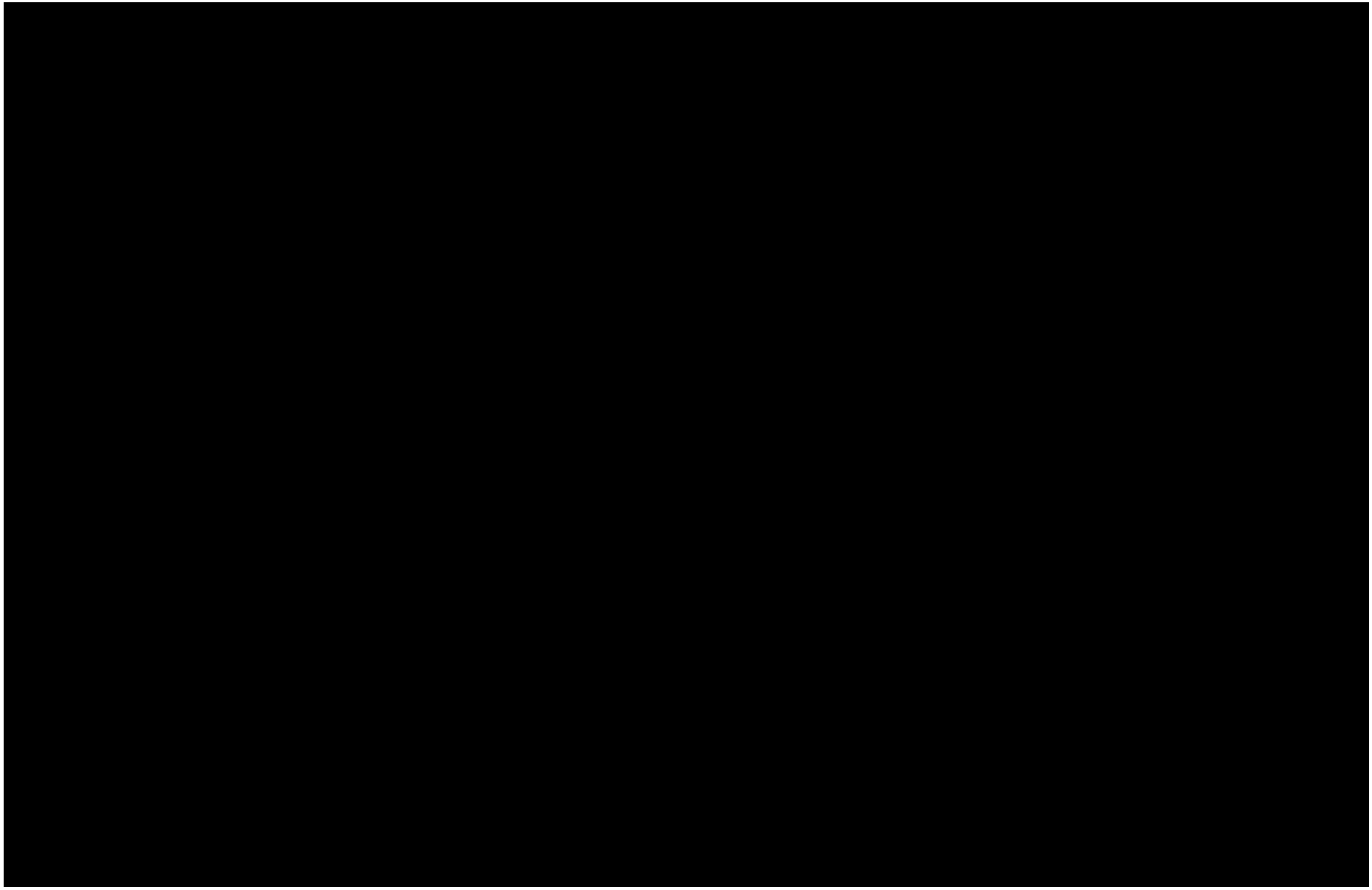


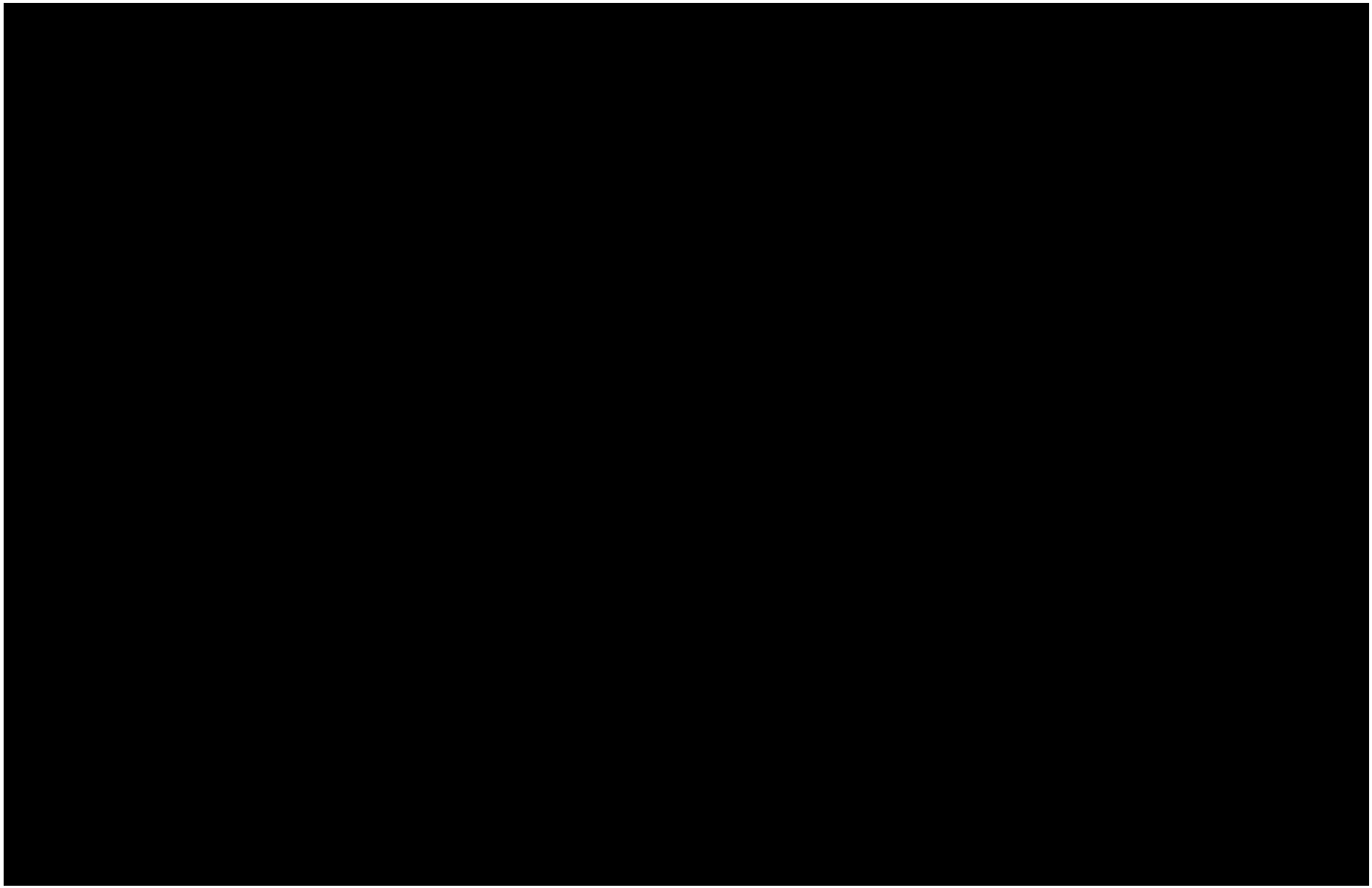


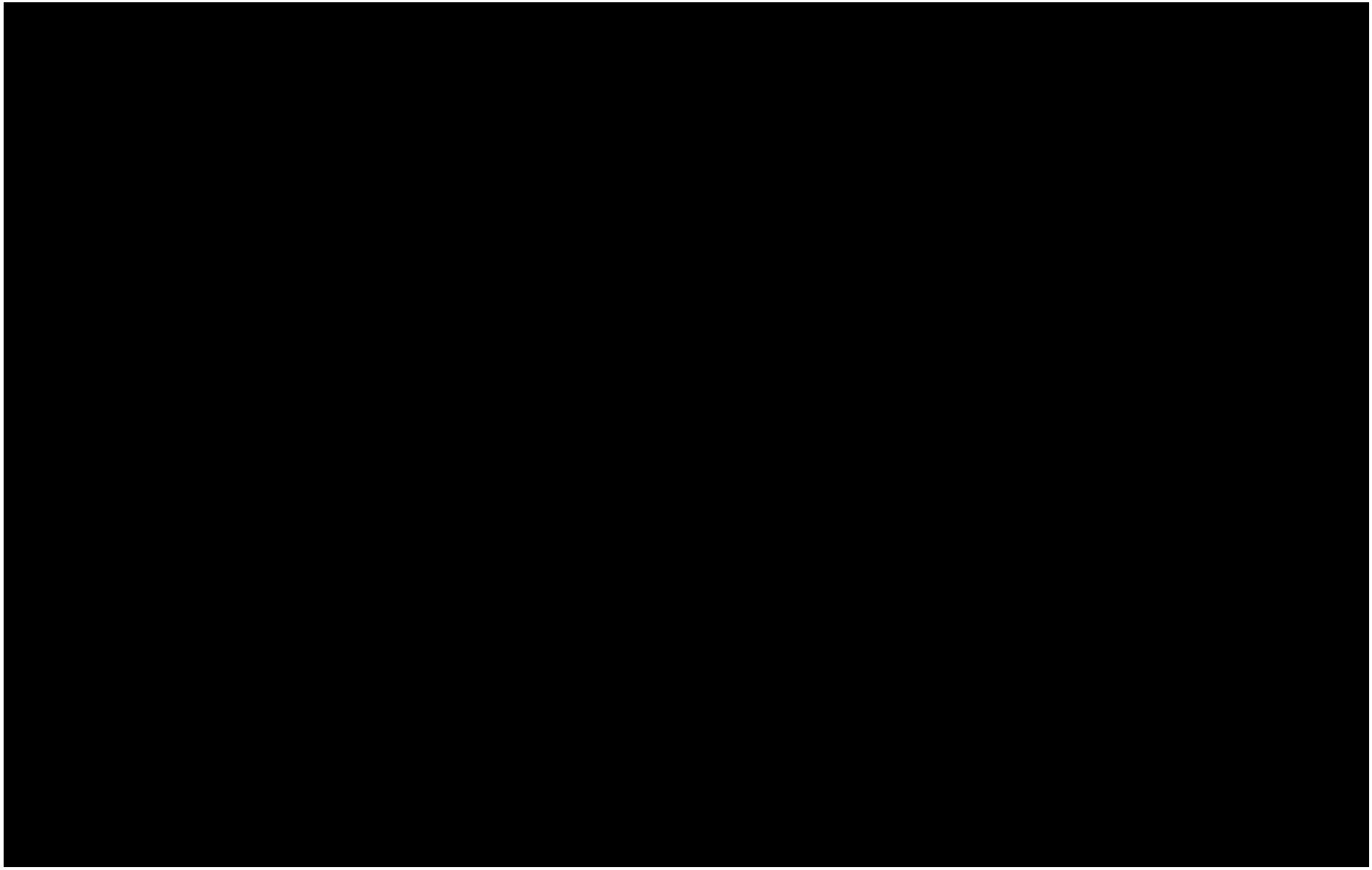


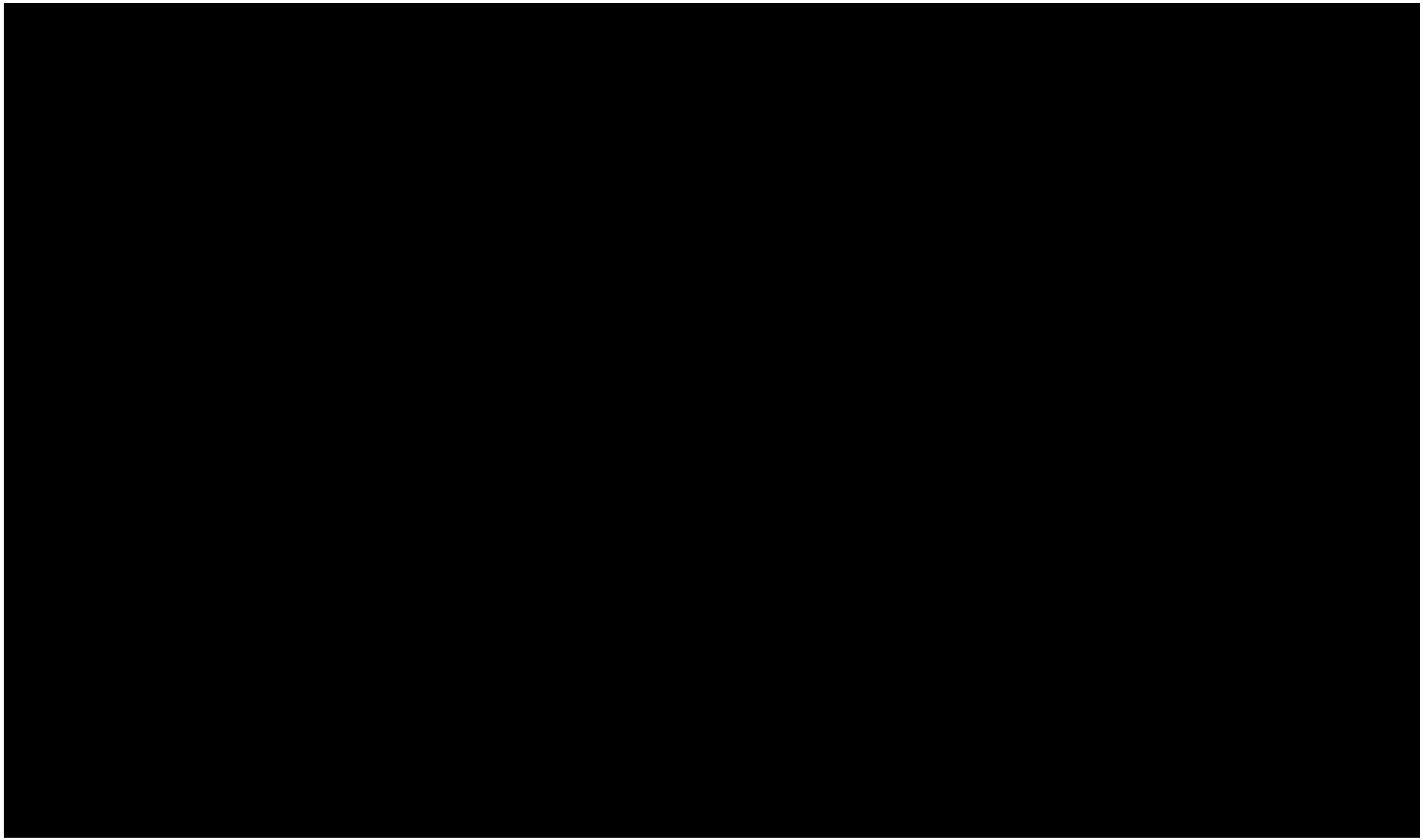


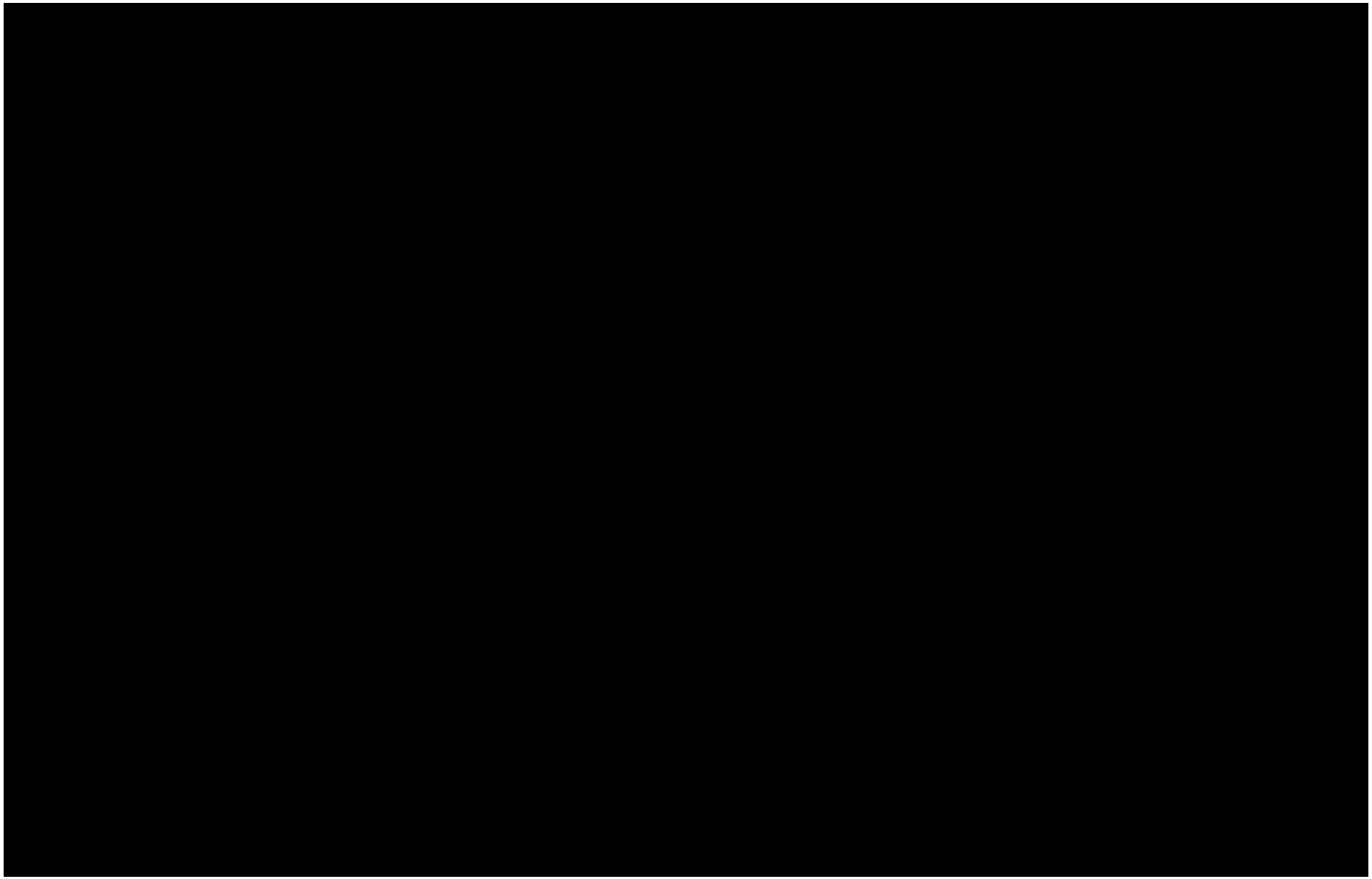


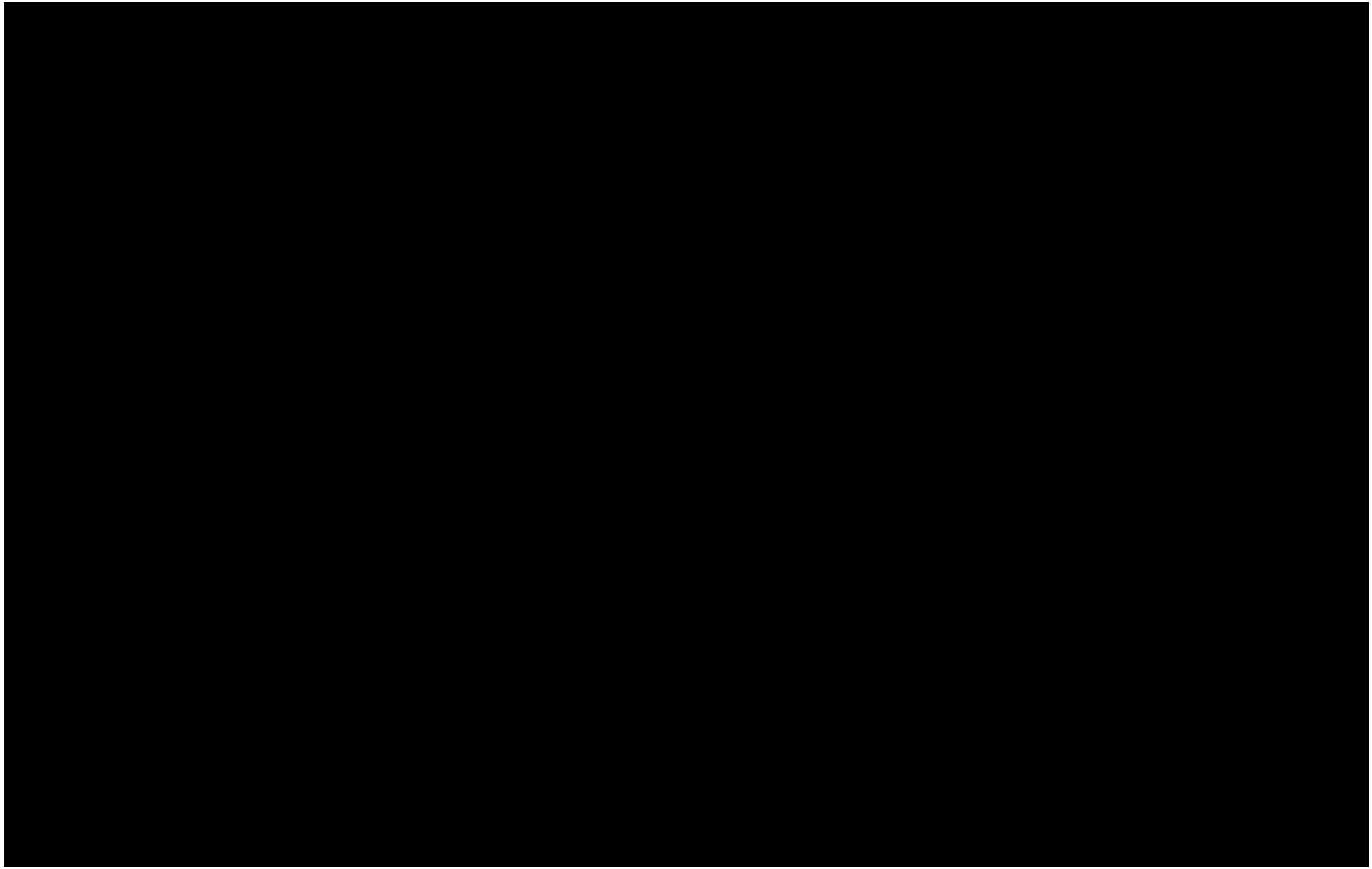


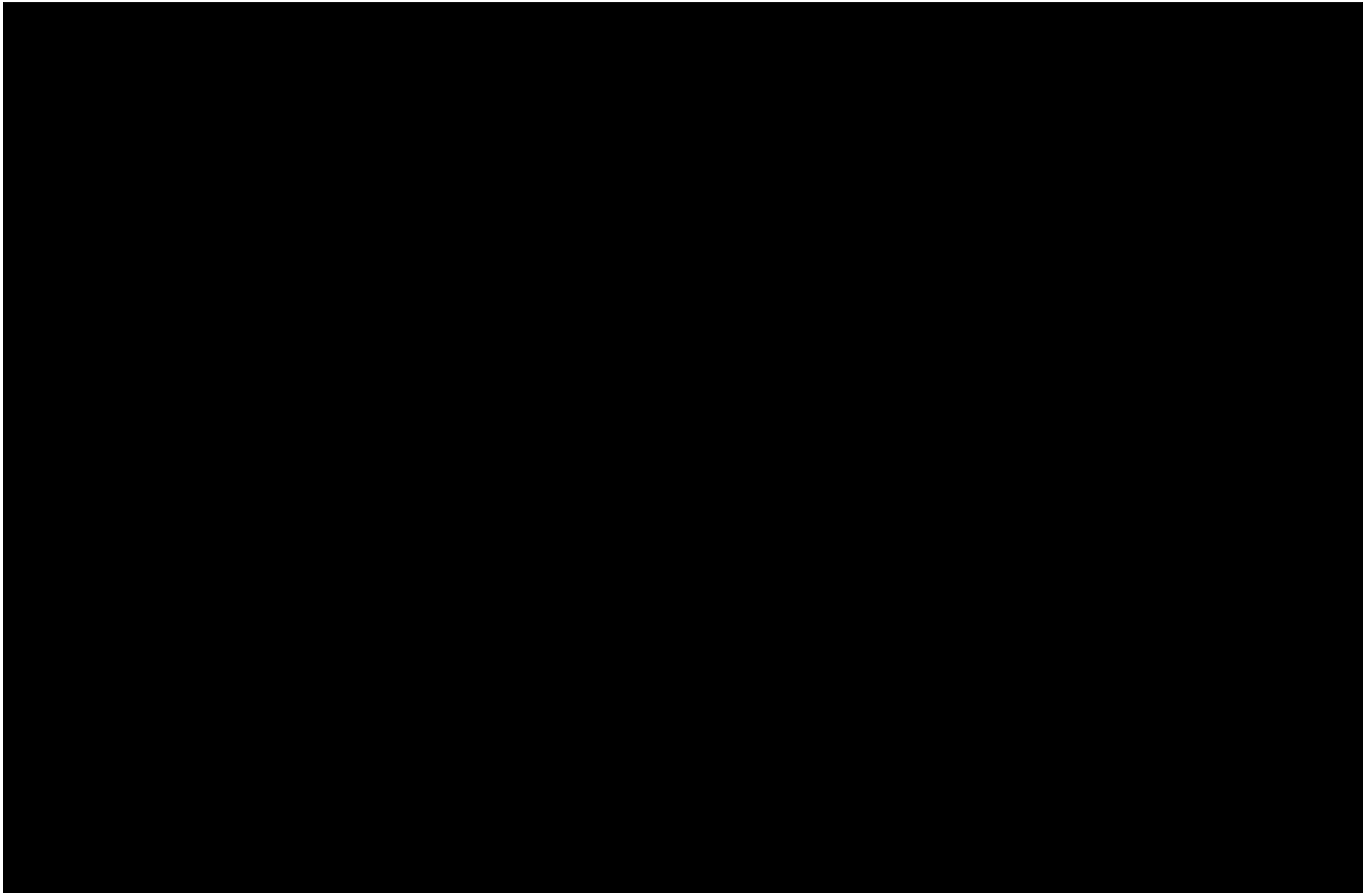


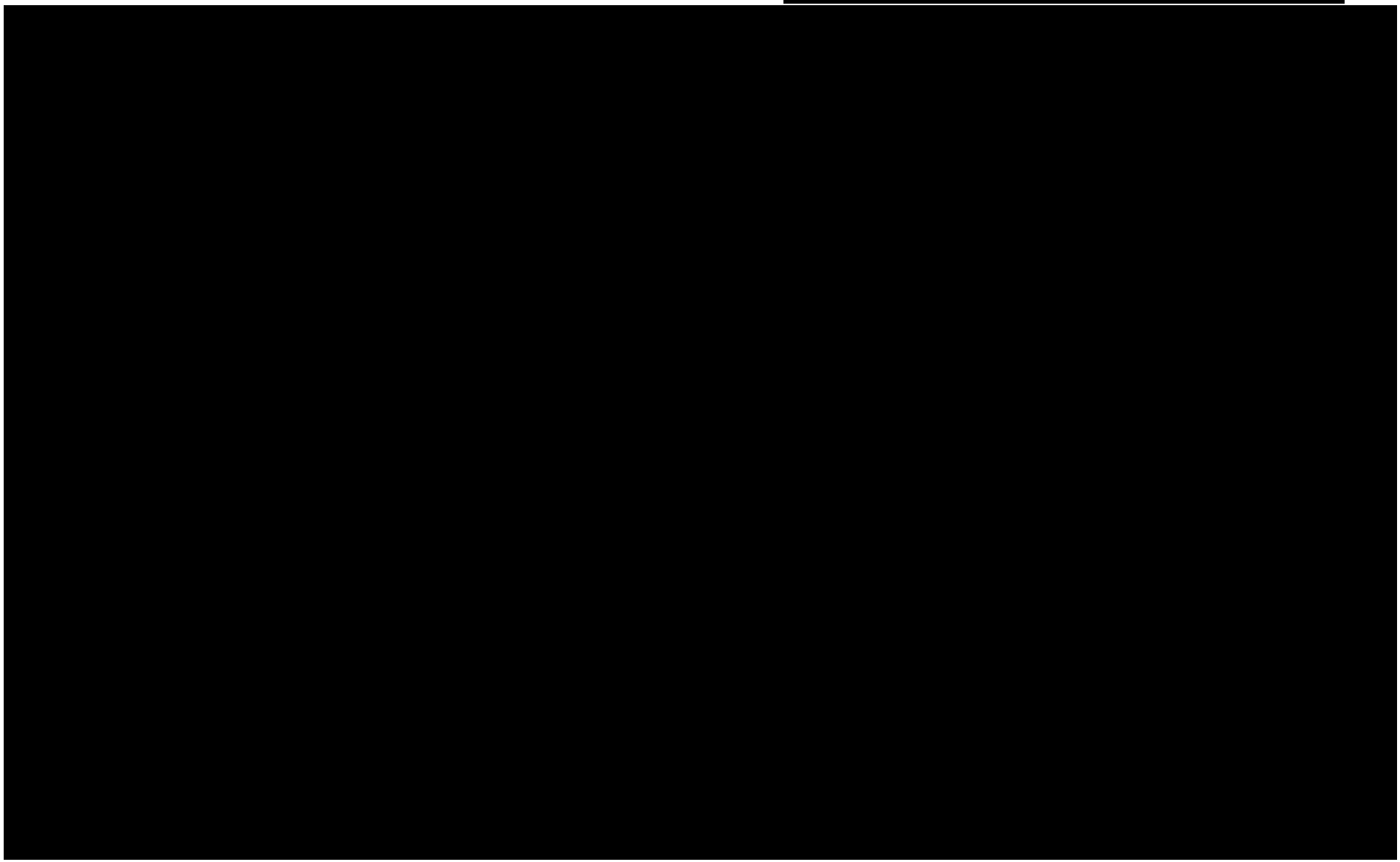












High Level Solution Design

Part C – Systems Product Detail

Sydney Trains Rail Operations Centre

Version: 4.1

30 March 2015

Description

This document provides the high level solution design for the system design of the DTTS, IMS and CIMS for the ROC.

Audience

Sydney Trains ROC Program Team, Ajilon Consortium Members

Document Purpose

This document describes how the ROC program's technology requirements will be addressed through the implementation of the Quintiq product (DTTS solution) and the Frequentis REM product (IMS solution). A solution is also identified for the CIMS component.

This document is preceded by:

High Level Solution Design PART A – Overview

High Level Solution Design PART B – Systems Architecture

Project Manager

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Quintiq: Richard Swiderski

Frequentis: Alistair McGill

Responsible Author

James Horton

TemplateID

High Level Solution Design

Amendment and Approval Record

Please update these tables and sign where appropriate.

Document Revision History			
Date:	Version:	Description:	Revised by:
27/02/2015	2.0	Draft submitted to Sydney Trains	Catherine Ohis
06/03/2015	3.0	Final QA	Catherine Ohis
13/03/2015	3.1	Minor updates to CIMS components	Catherine Ohis
20/03/2015	4.0	Incorporating Feedback from "*Ajilon Clarification and Defects List 0.1.xlsx*"	Catherine Ohis
30/03/2015	4.1	Minor updates	Catherine Ohis

Approval / Signoff History				
Date:	Version:	Approved by:	Role:	Signature:

Acceptance Criteria by Role	
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Distribution List	
Name:	Role:
Mike Fogg	
As determined by Mike Fogg	

TABLE OF CONTENTS

TABLE OF FIGURES

1 INTRODUCTION – PART C

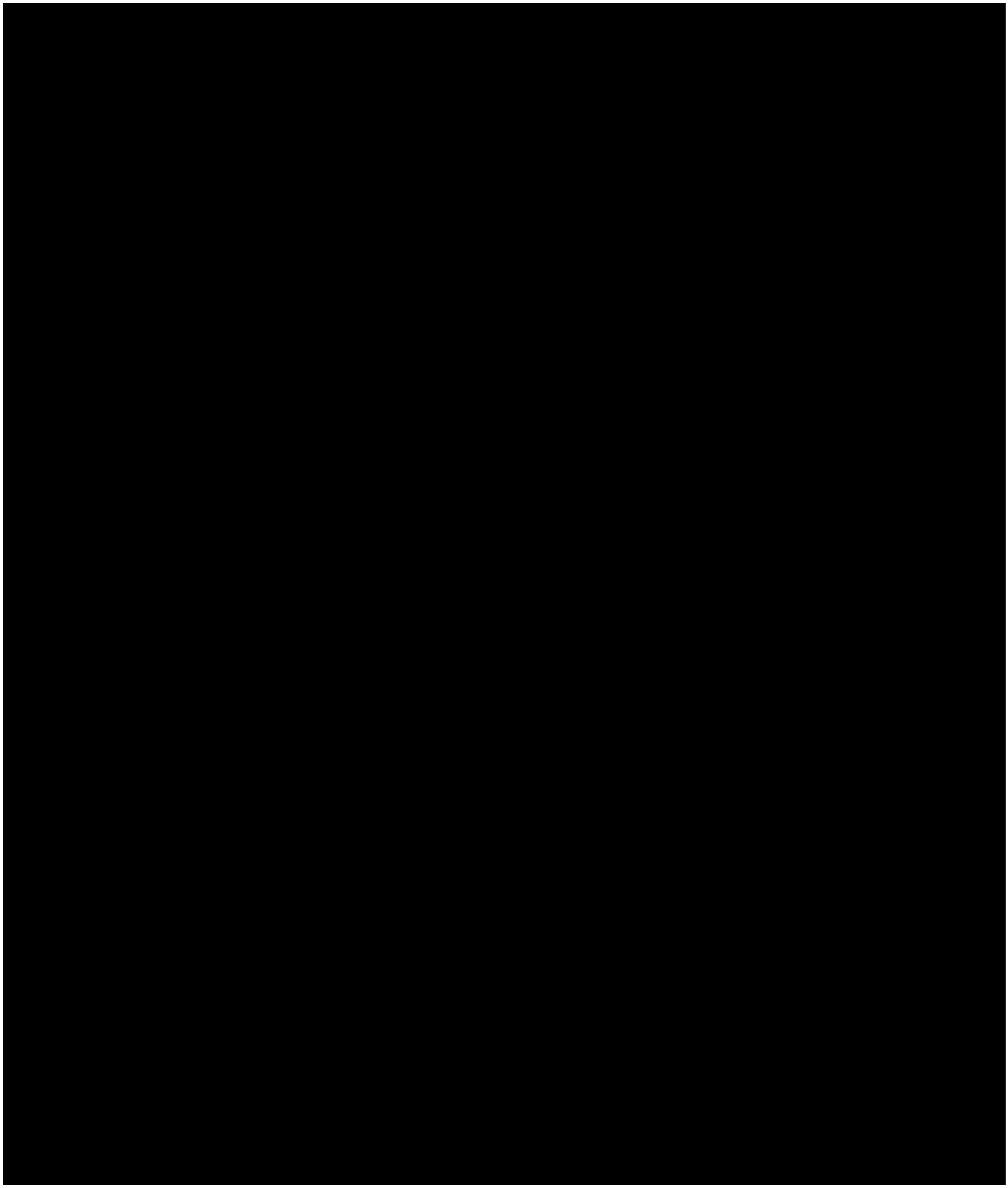
Part C of the High Level Solution Design suite of documents, provides further detail around the solutions for each of the following systems:

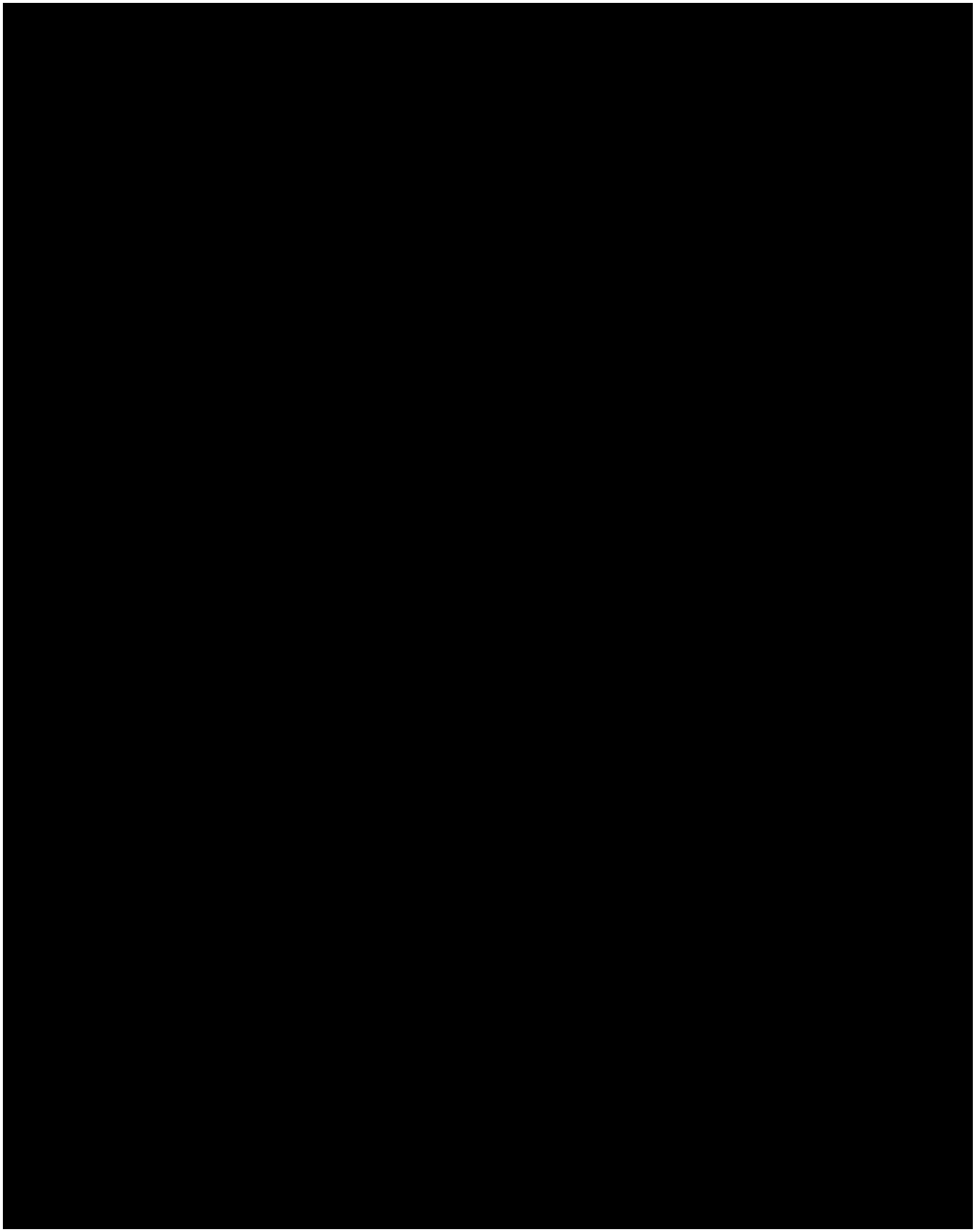
System		Chapter
DTTS	Day of Operations Train Timetabling System	Sections 2, 3
IMS	Incident Management System	Section 4
CIMS	Customer Information System	Section 5

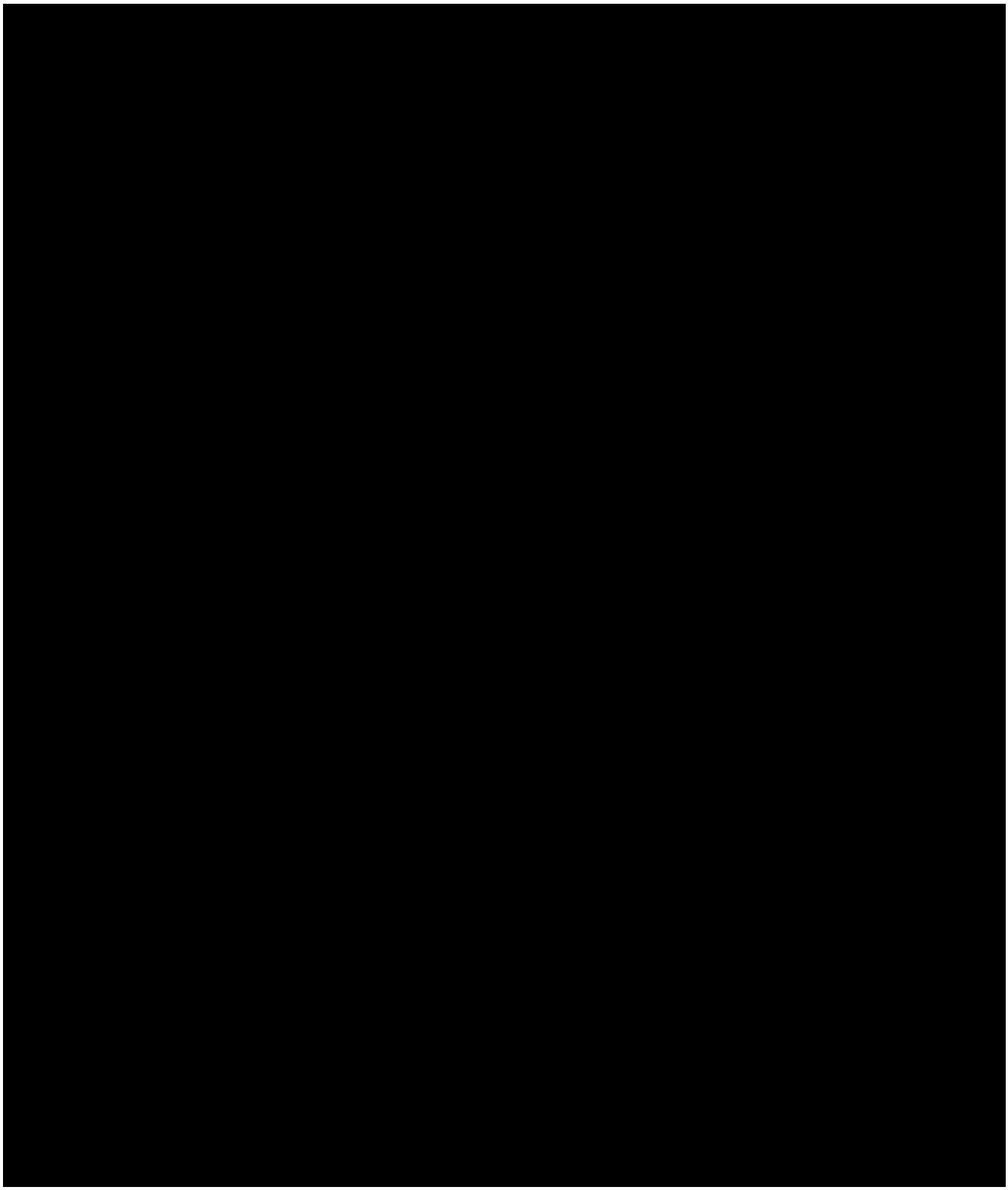
These sections are more internal looking, a white box view, to call out particular elements of the associated architecture that are not addressed in the high level solution design architecture definition in Part B of the High Level Solution Design documentation.

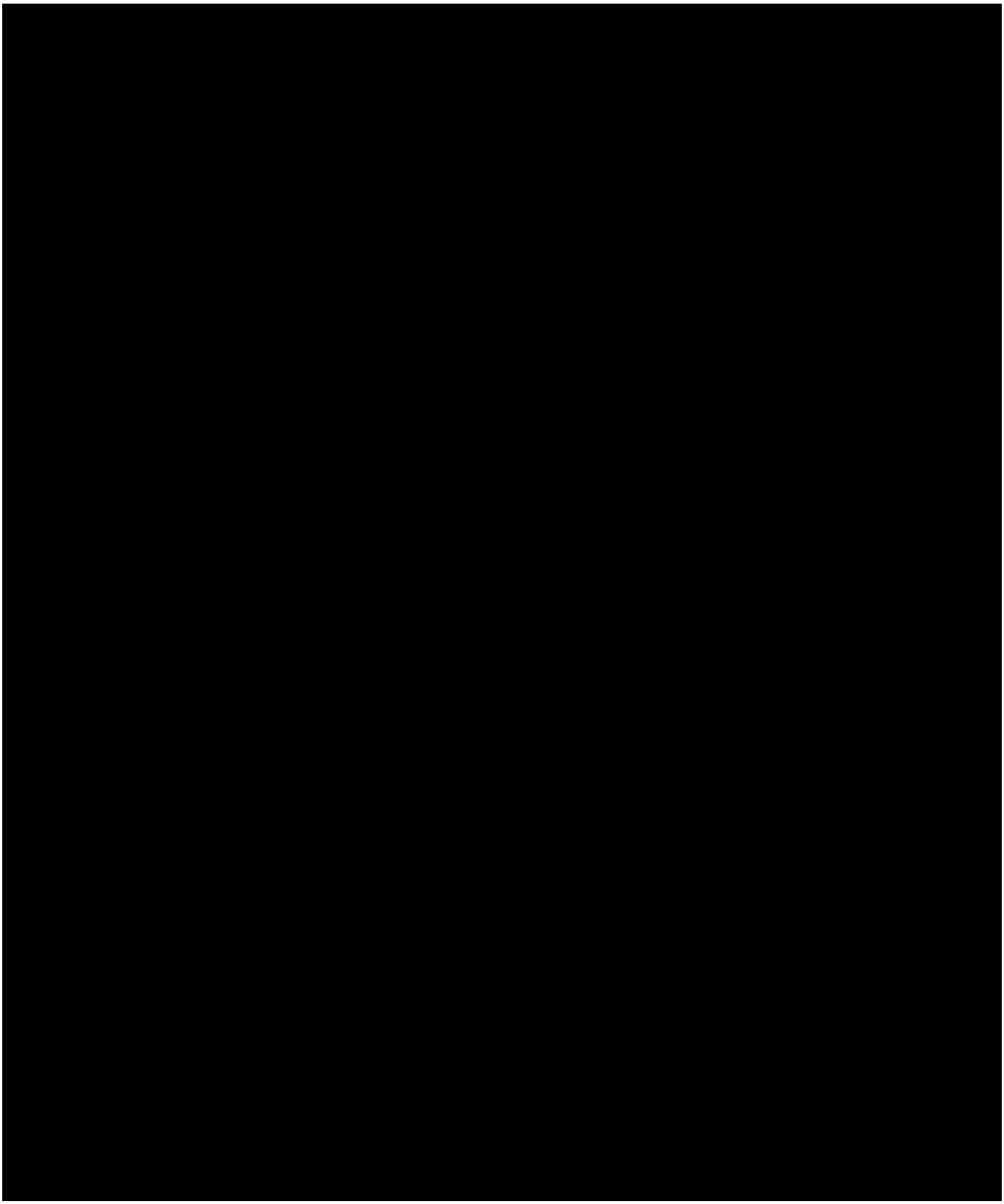
While it is not possible to provide accurate traceability to the requirements in this early High Level Solution Design phase, the Part B document does provide a general traceability to the original capabilities. The Detailed Design phase will provide the detail required to provide accurate requirement traceability.

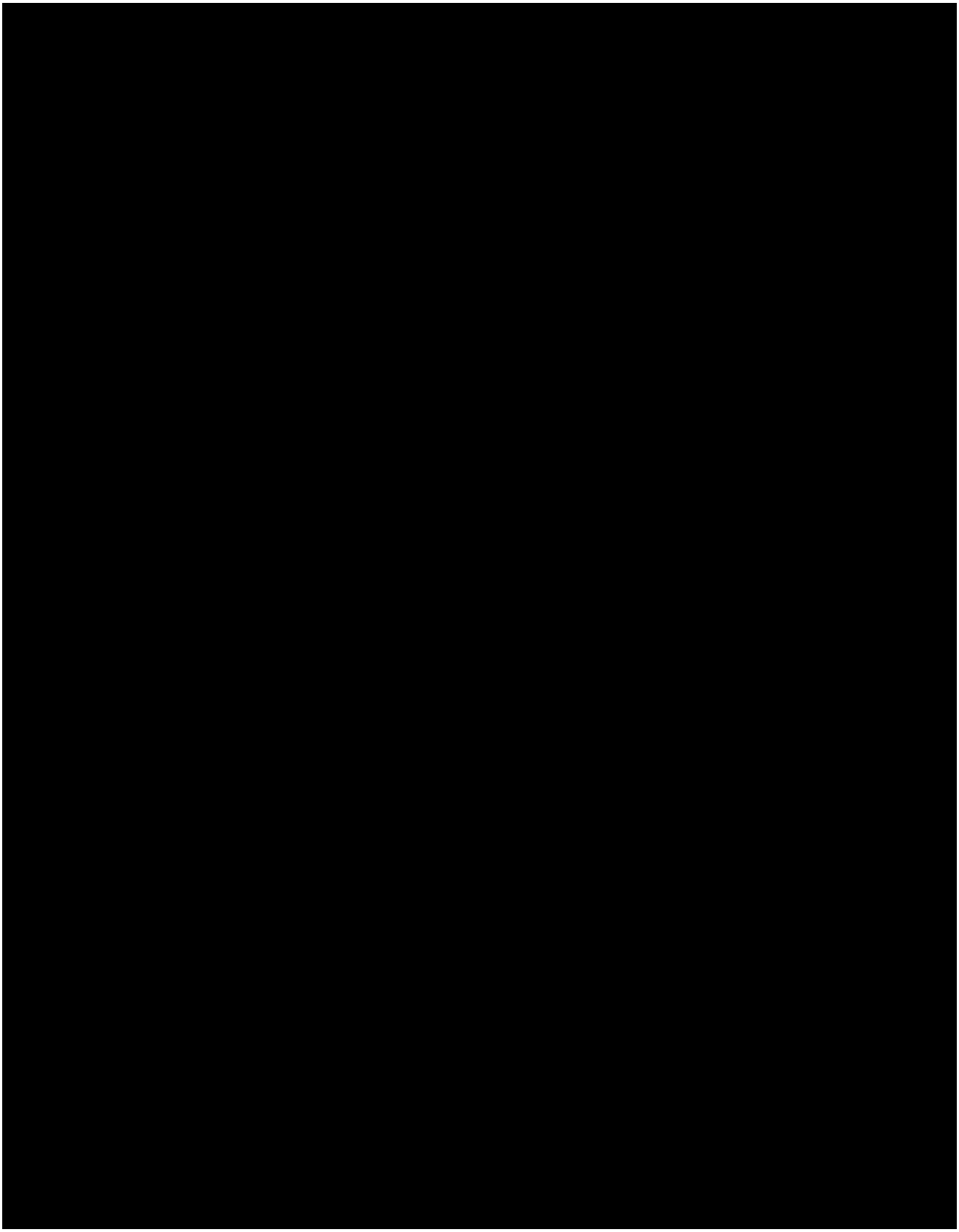
2 DAY OF OPERATIONS TRAIN TIMETABLIING SYSTEM (DTTS) SOLUTION DESIGN

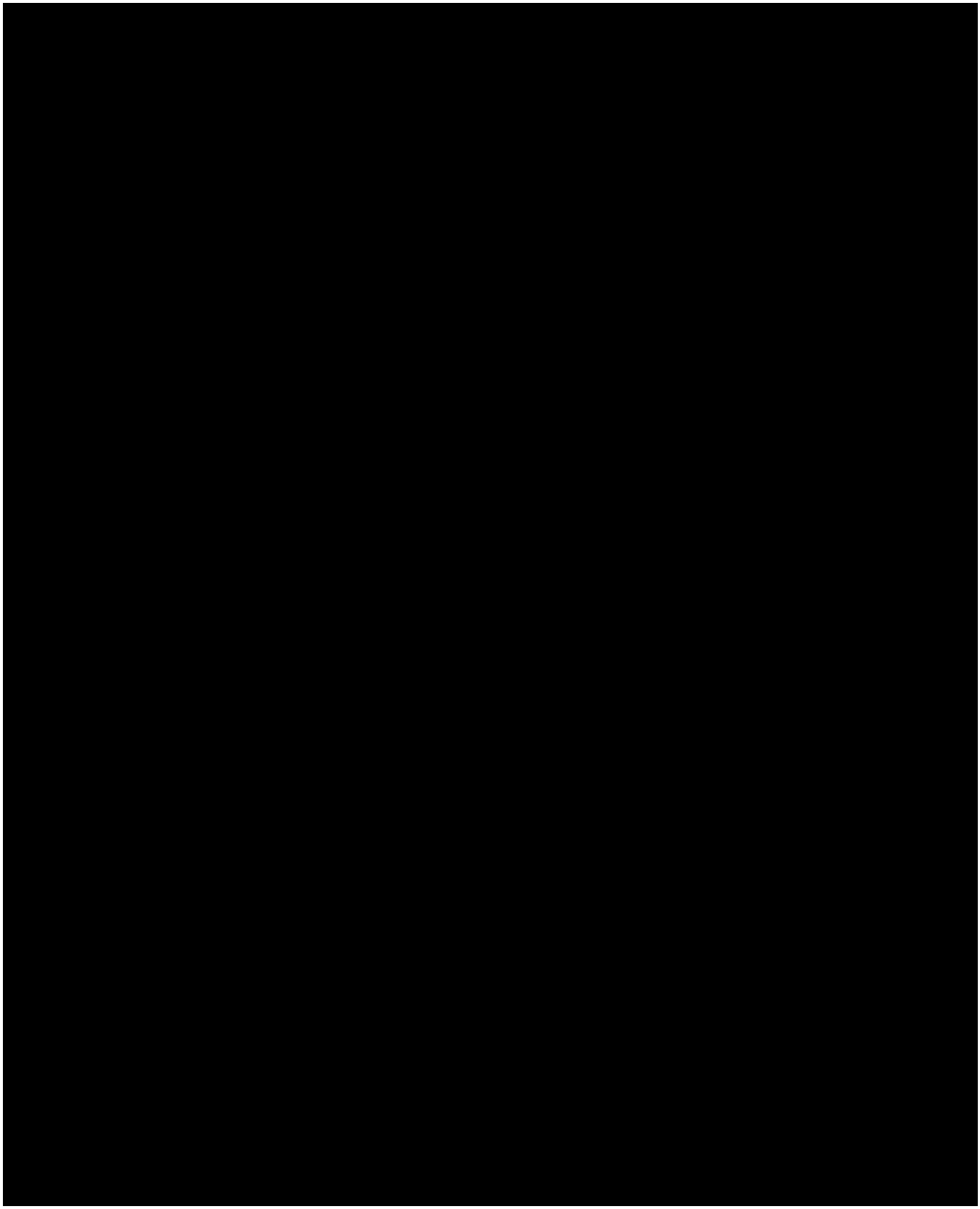


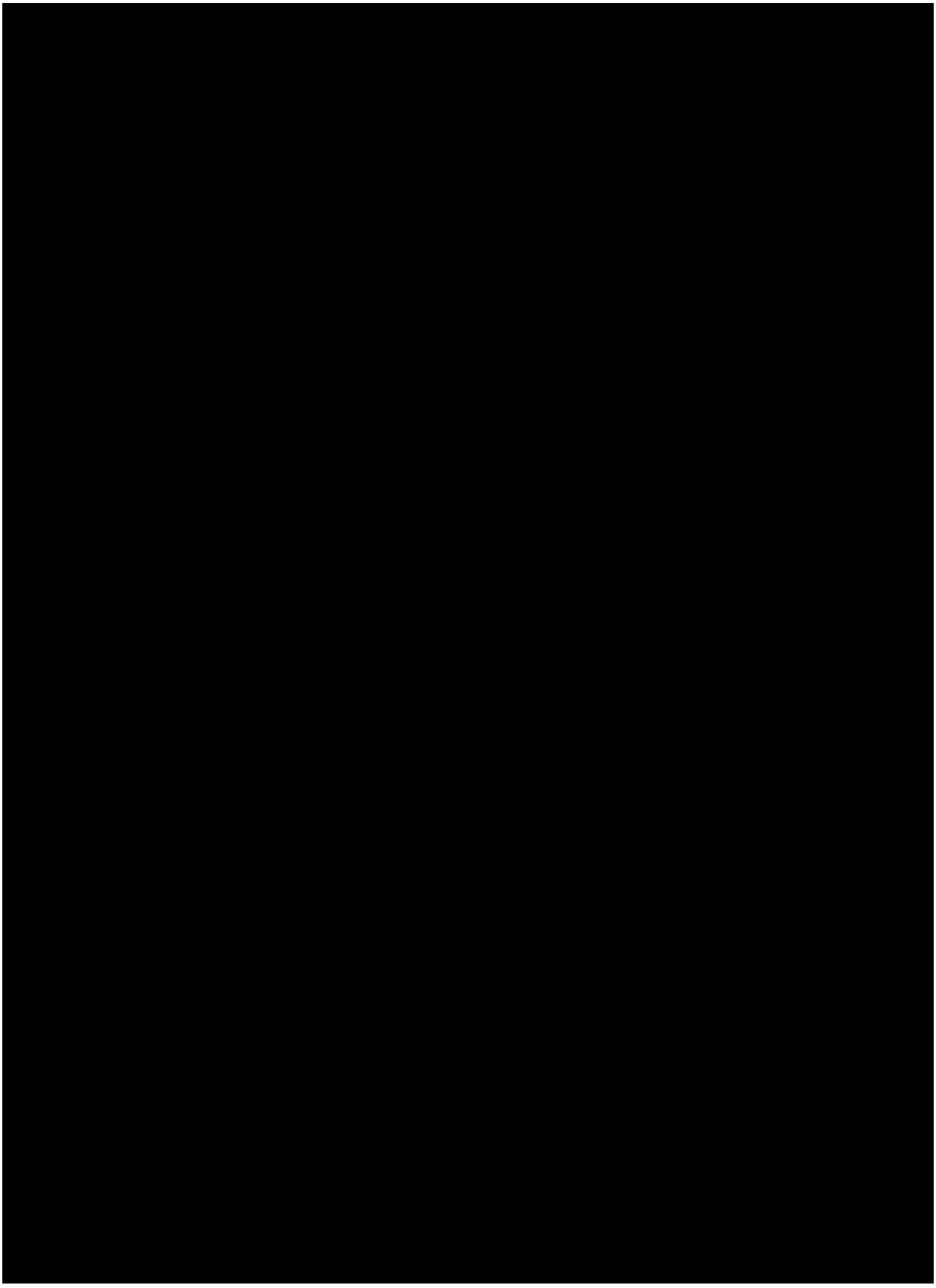


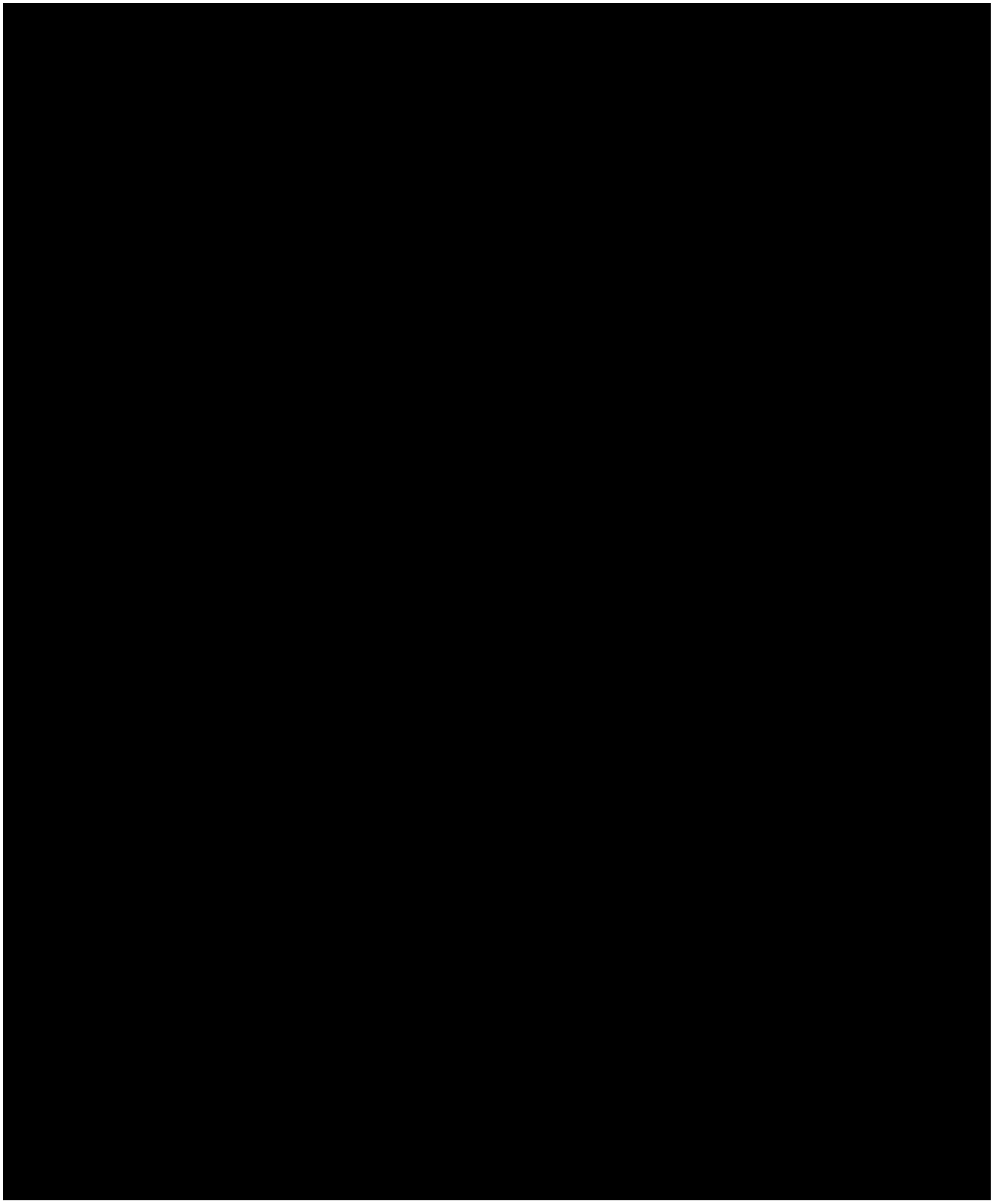


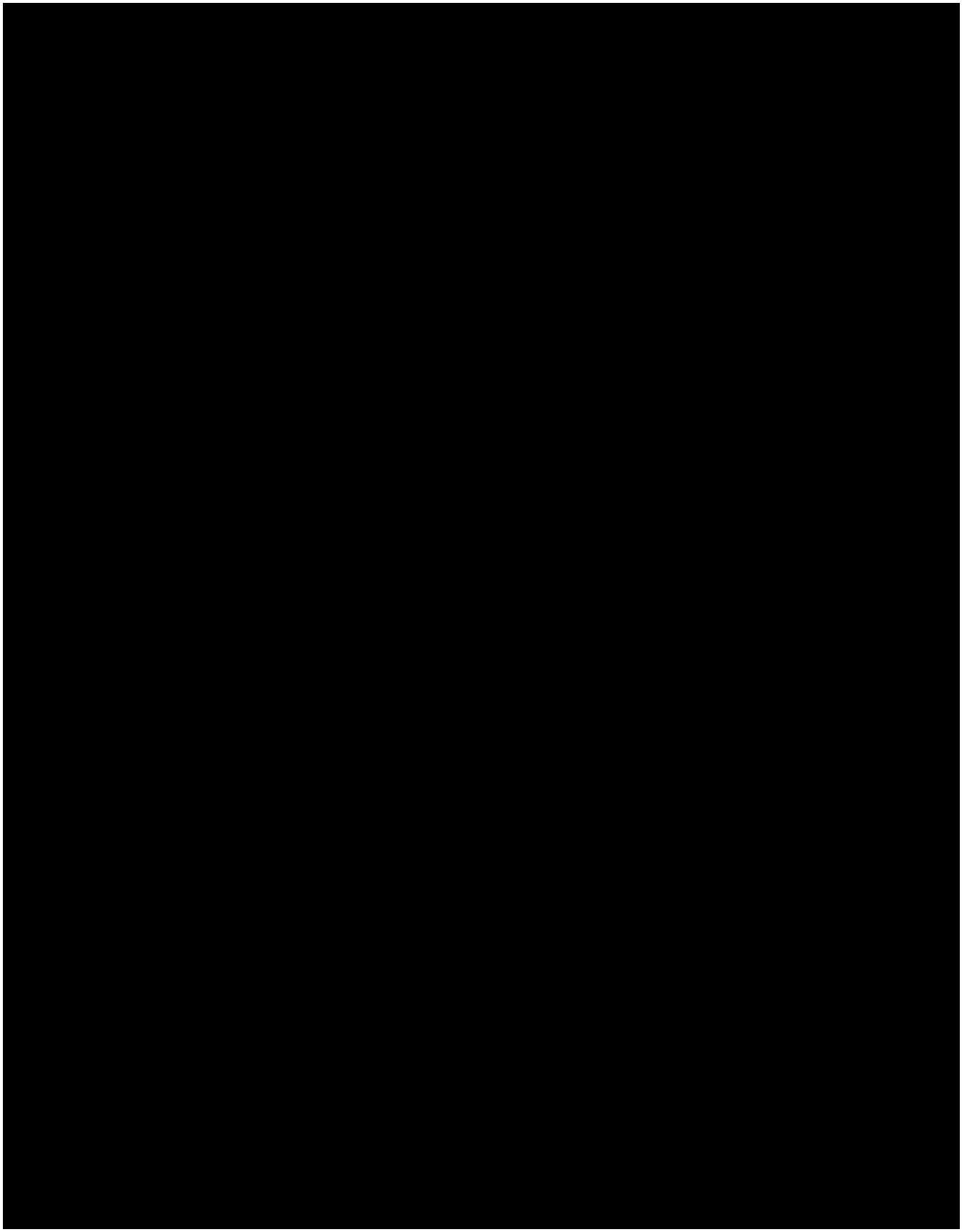


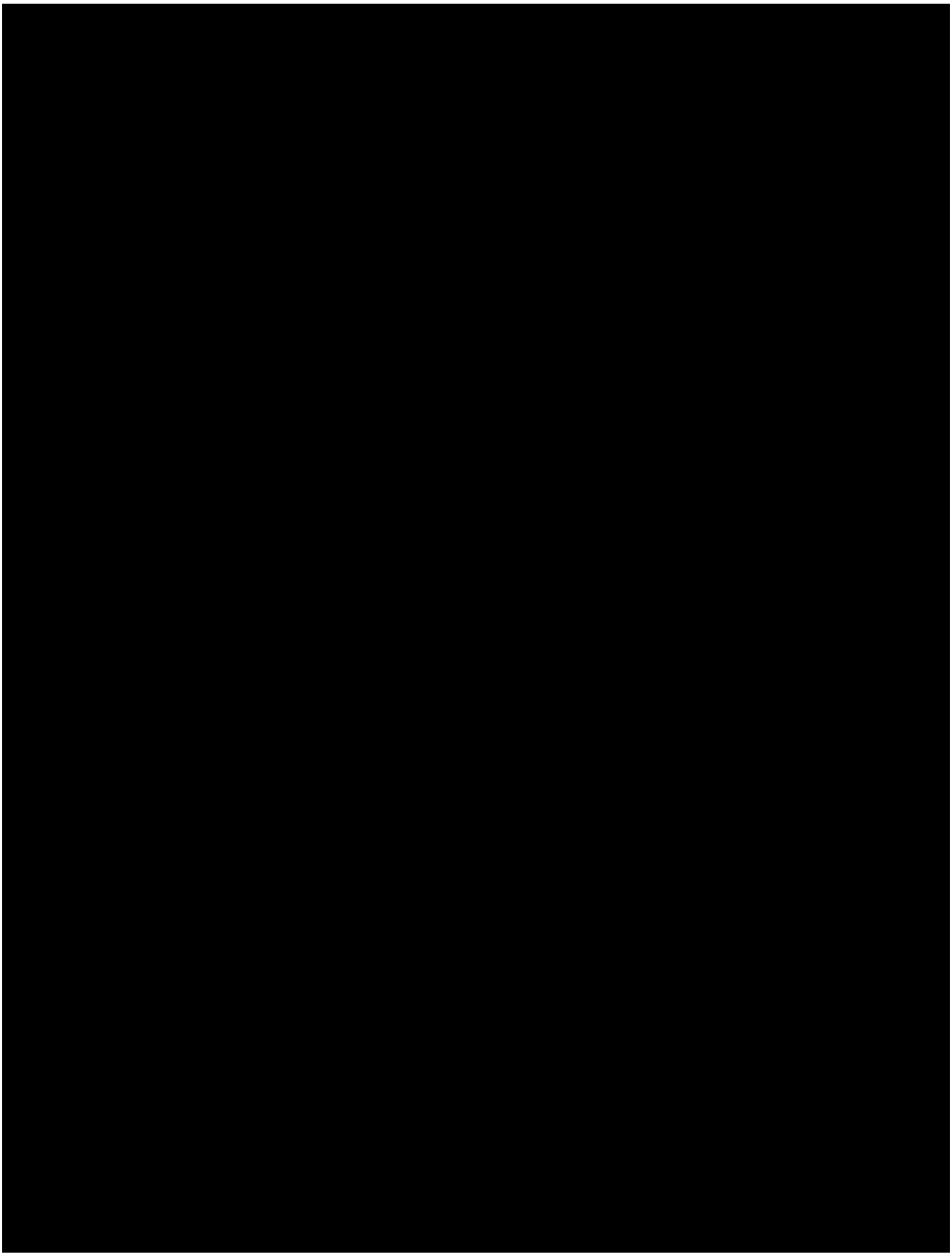


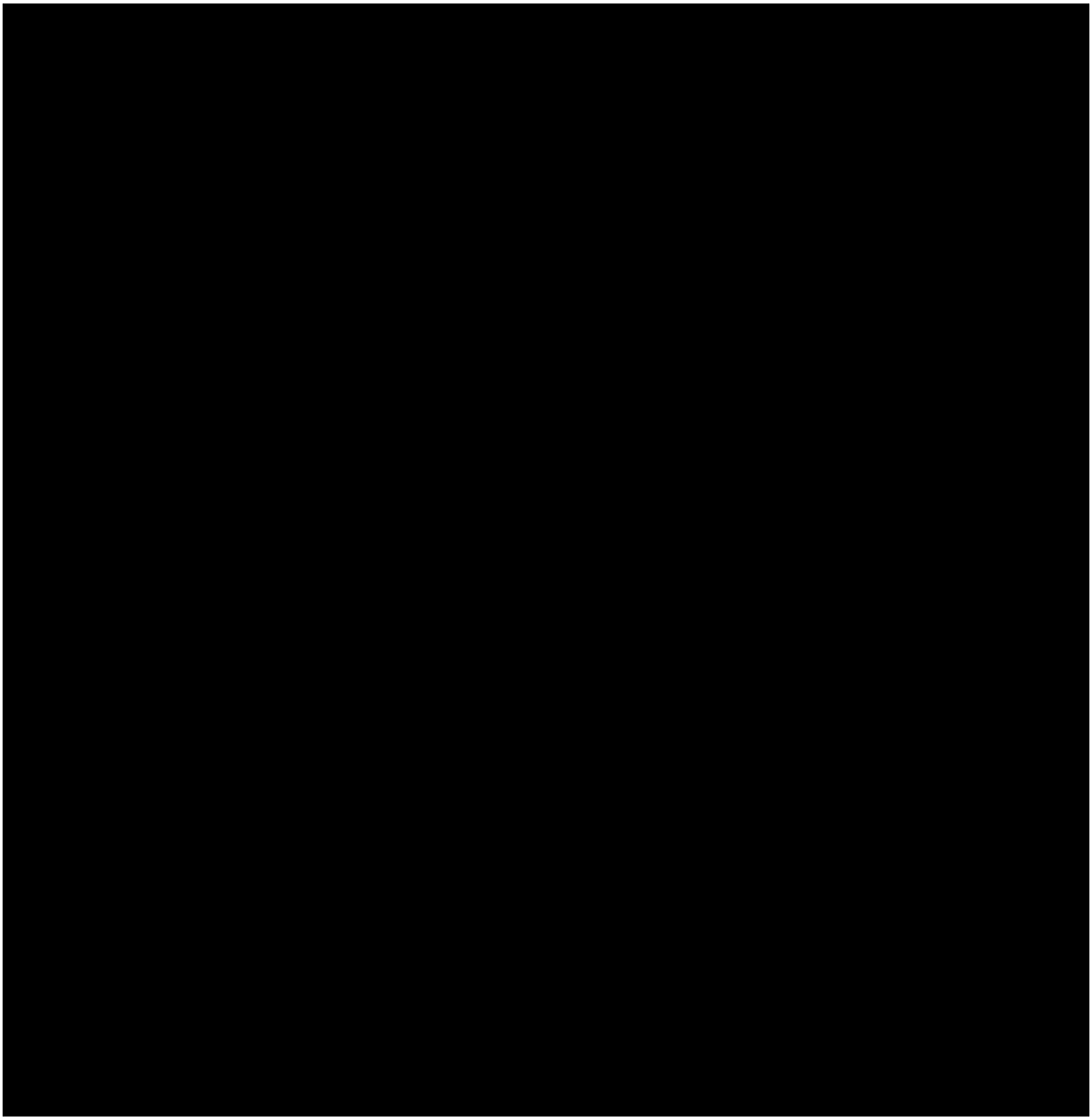


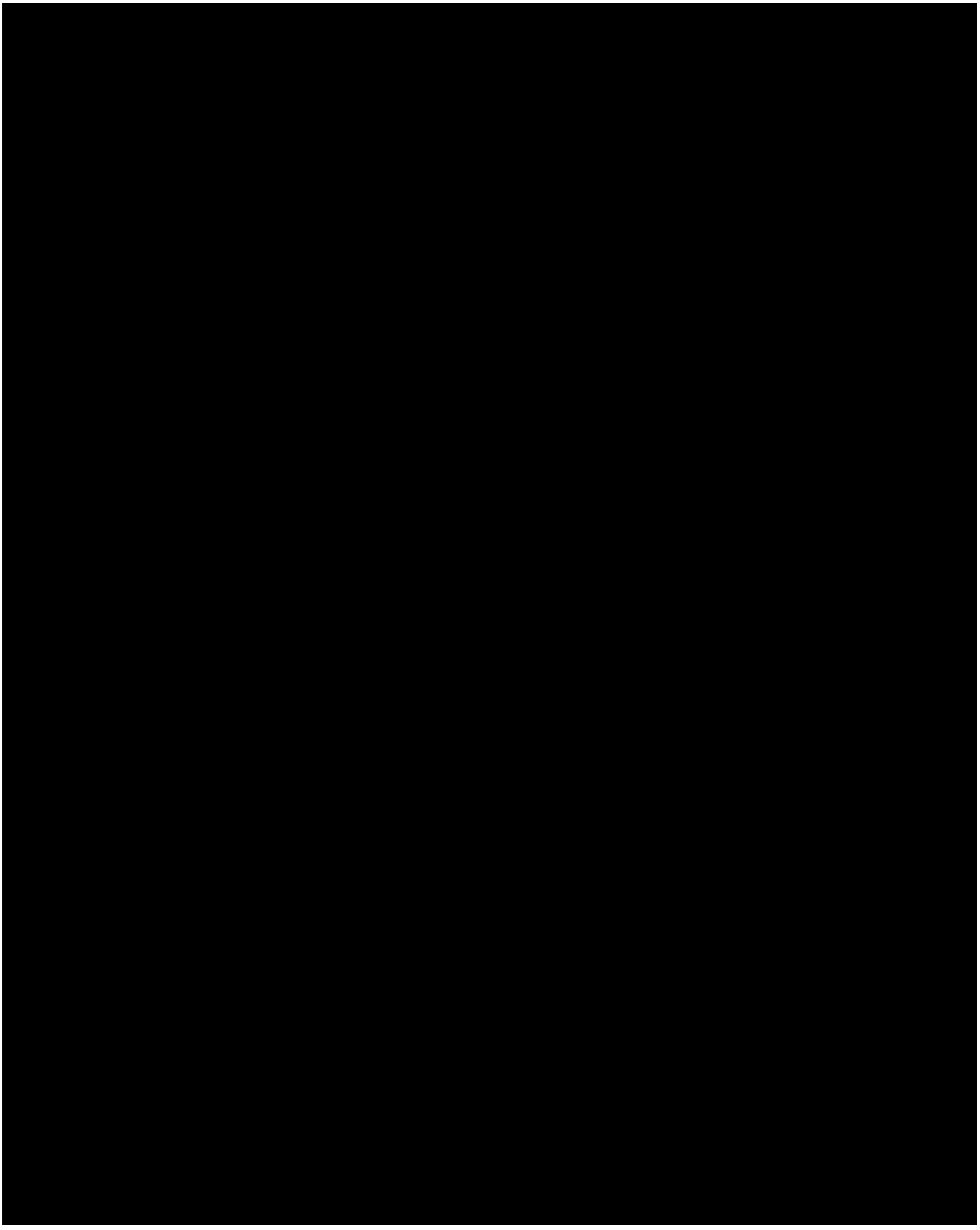


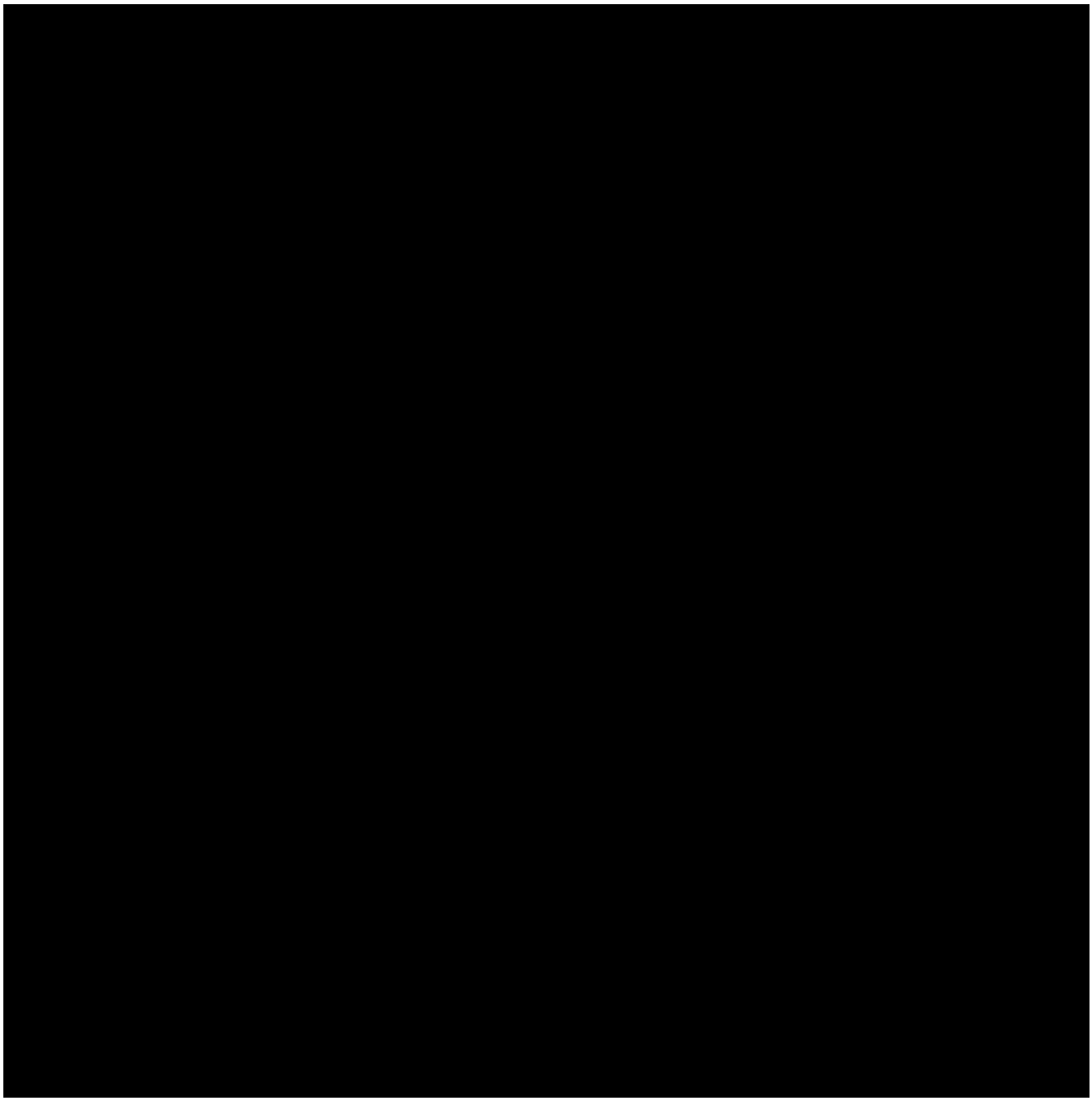


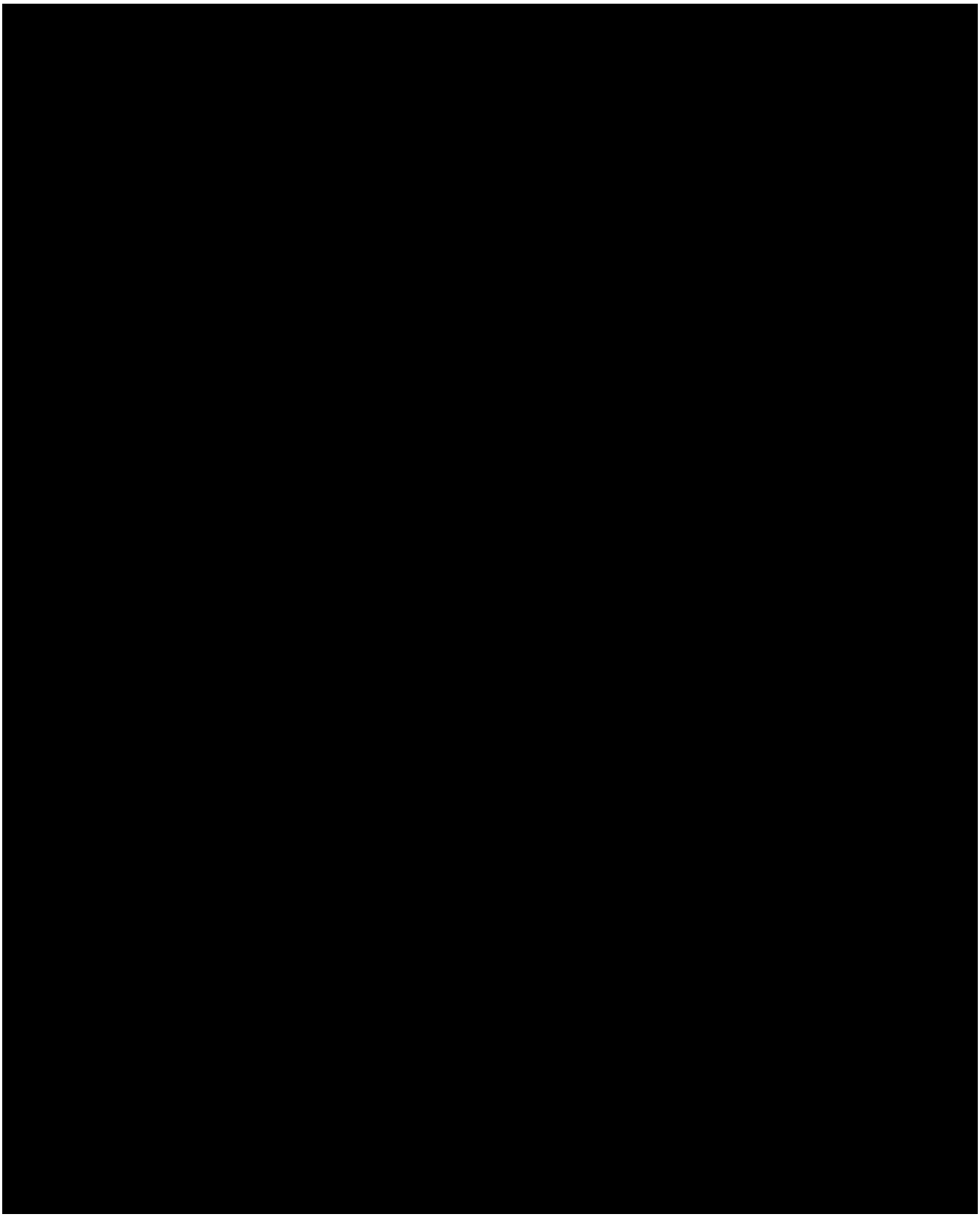


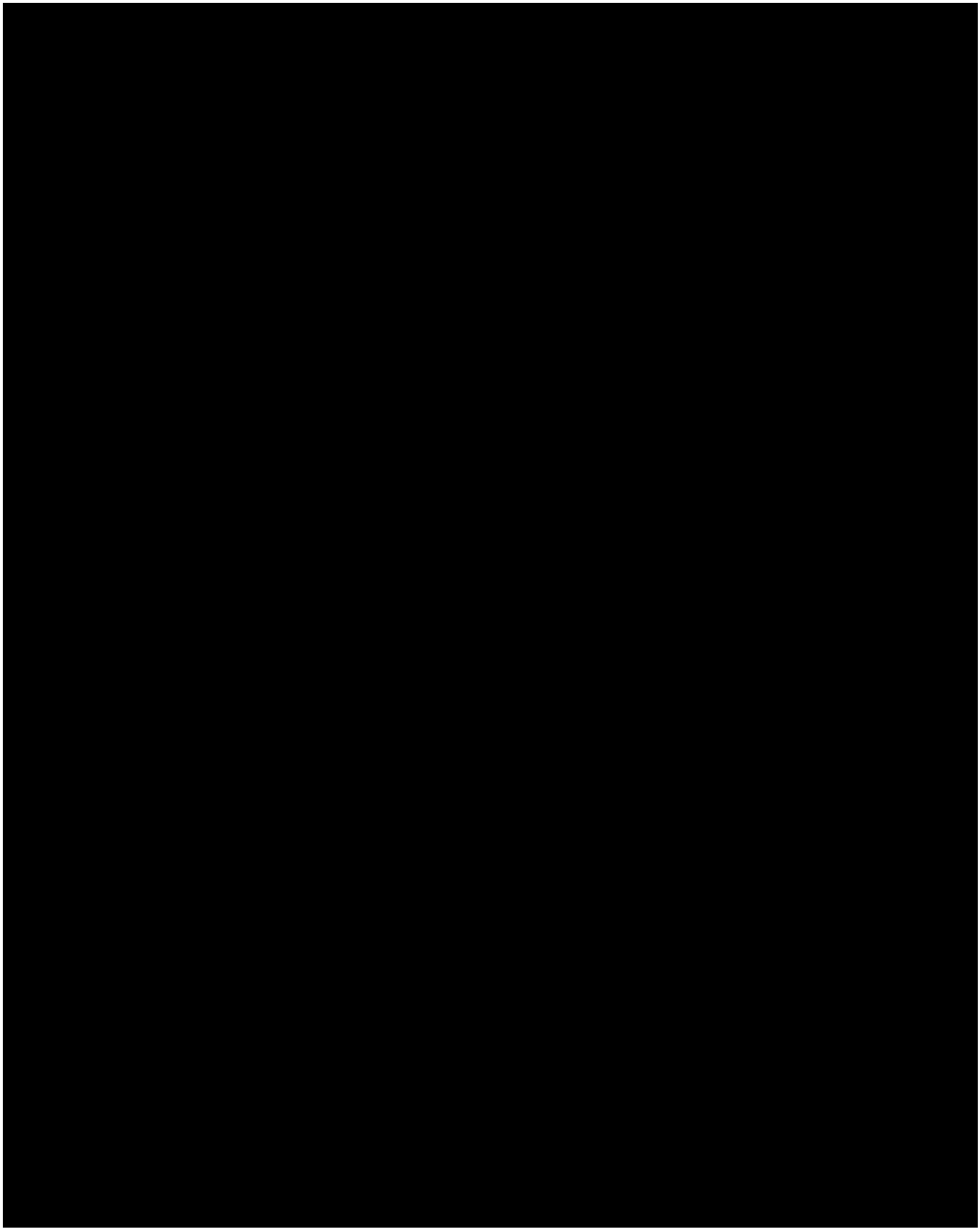


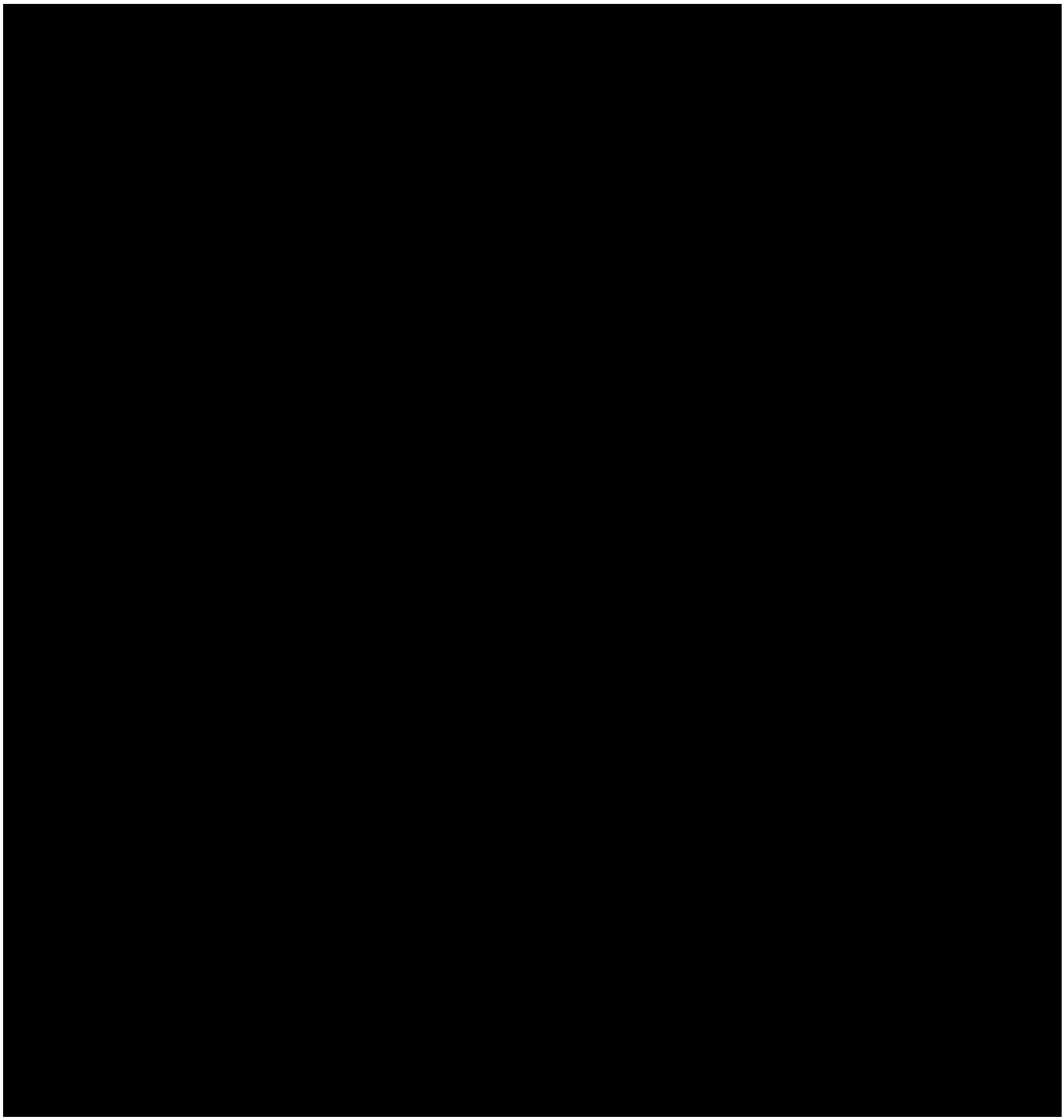


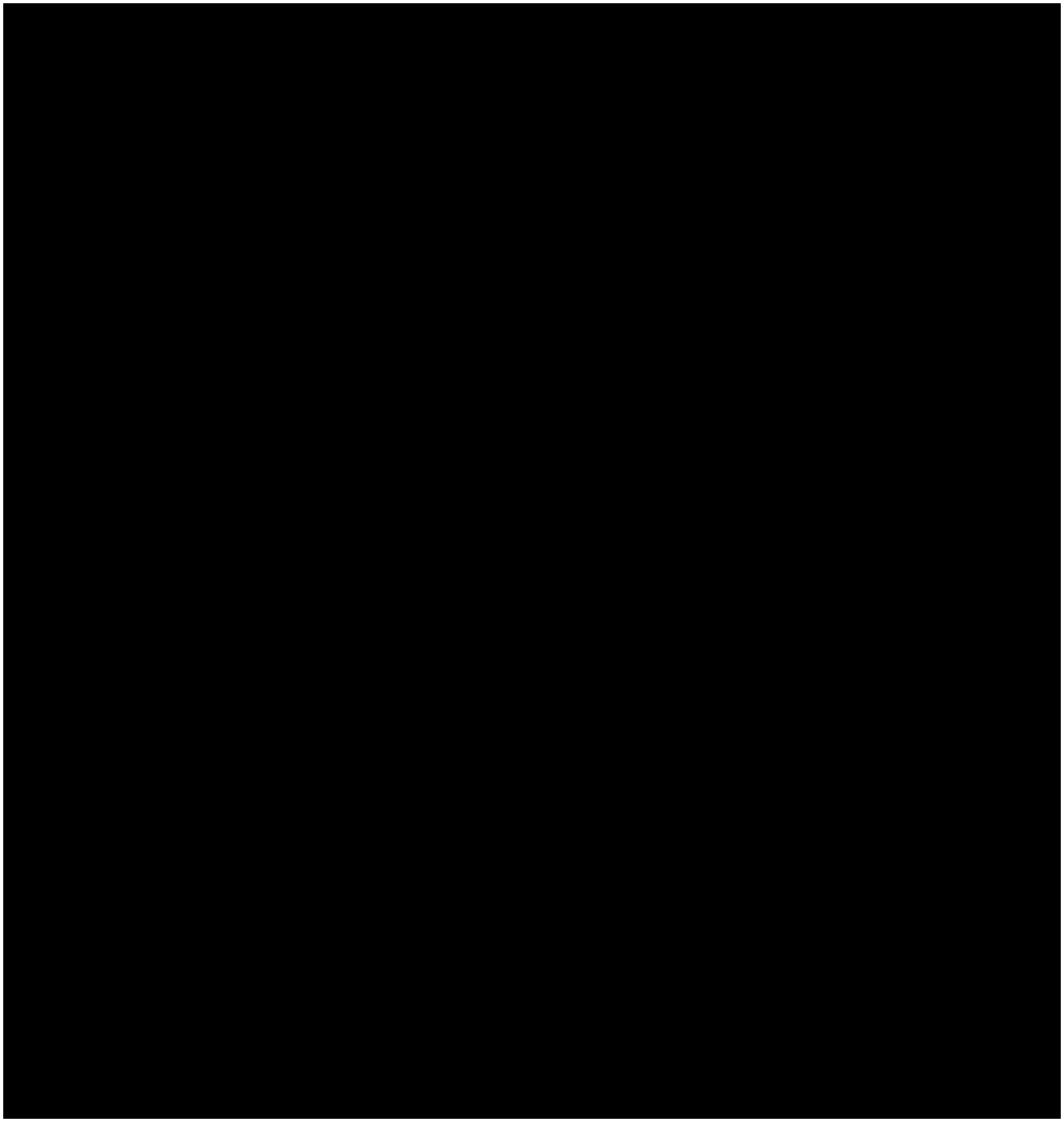


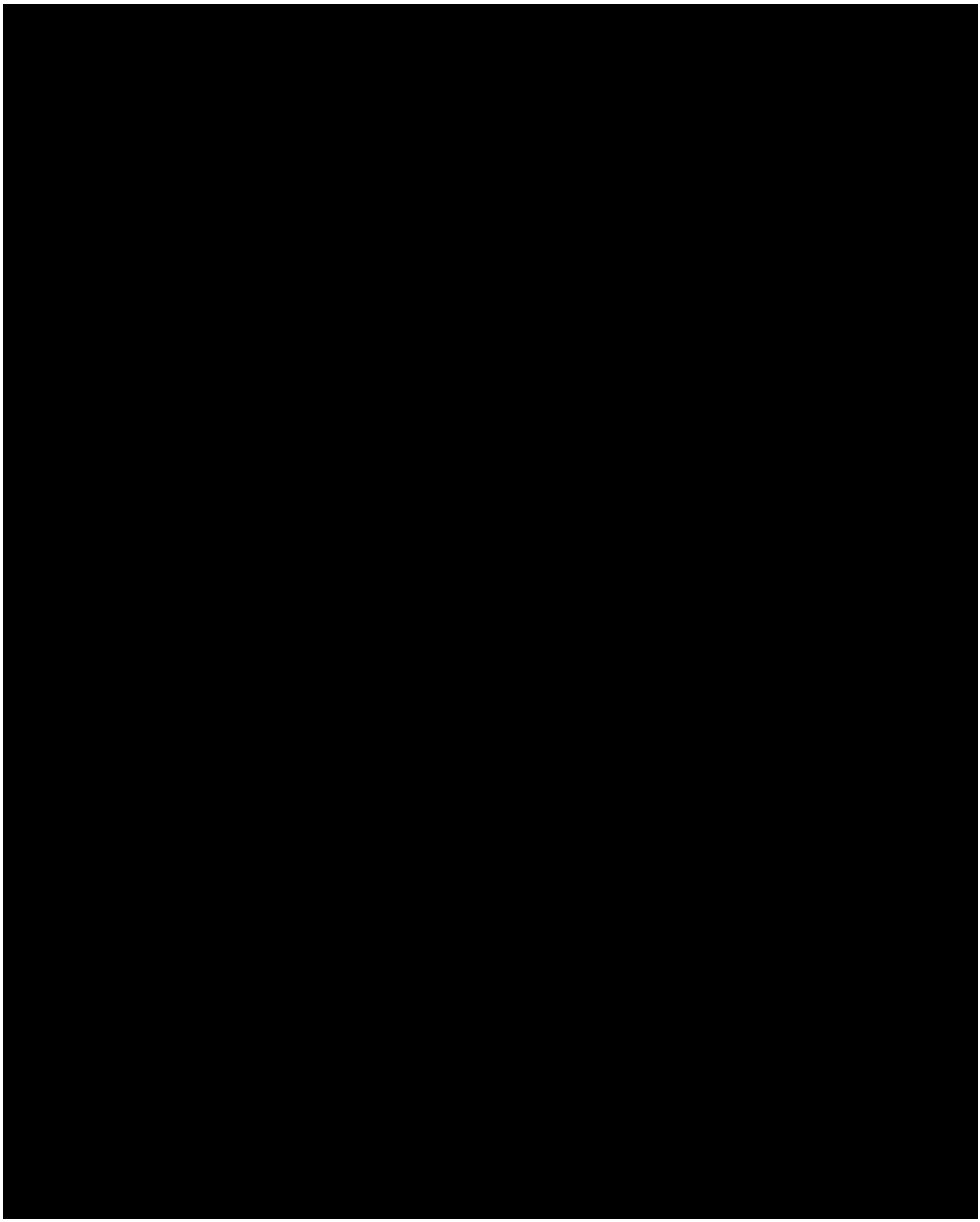


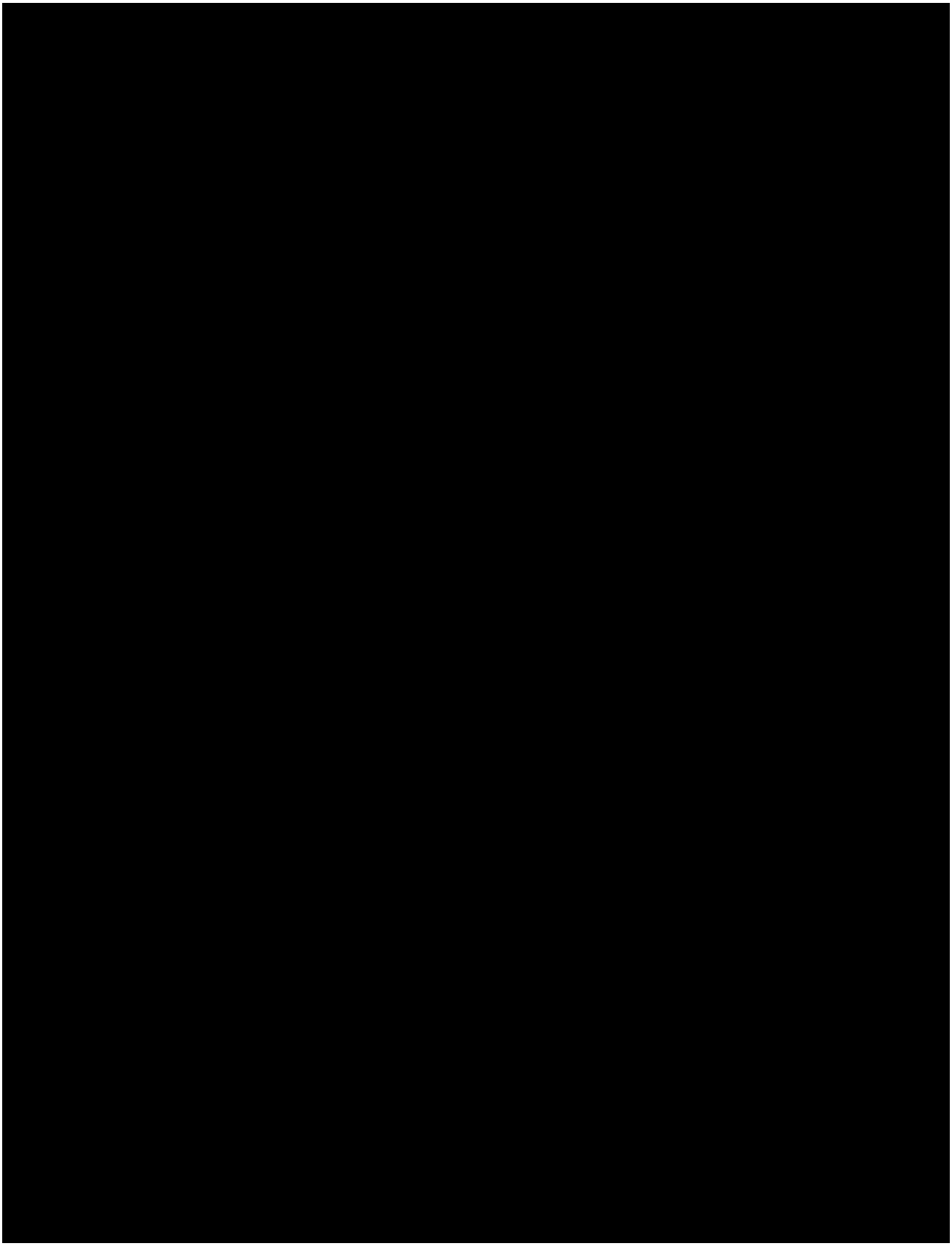


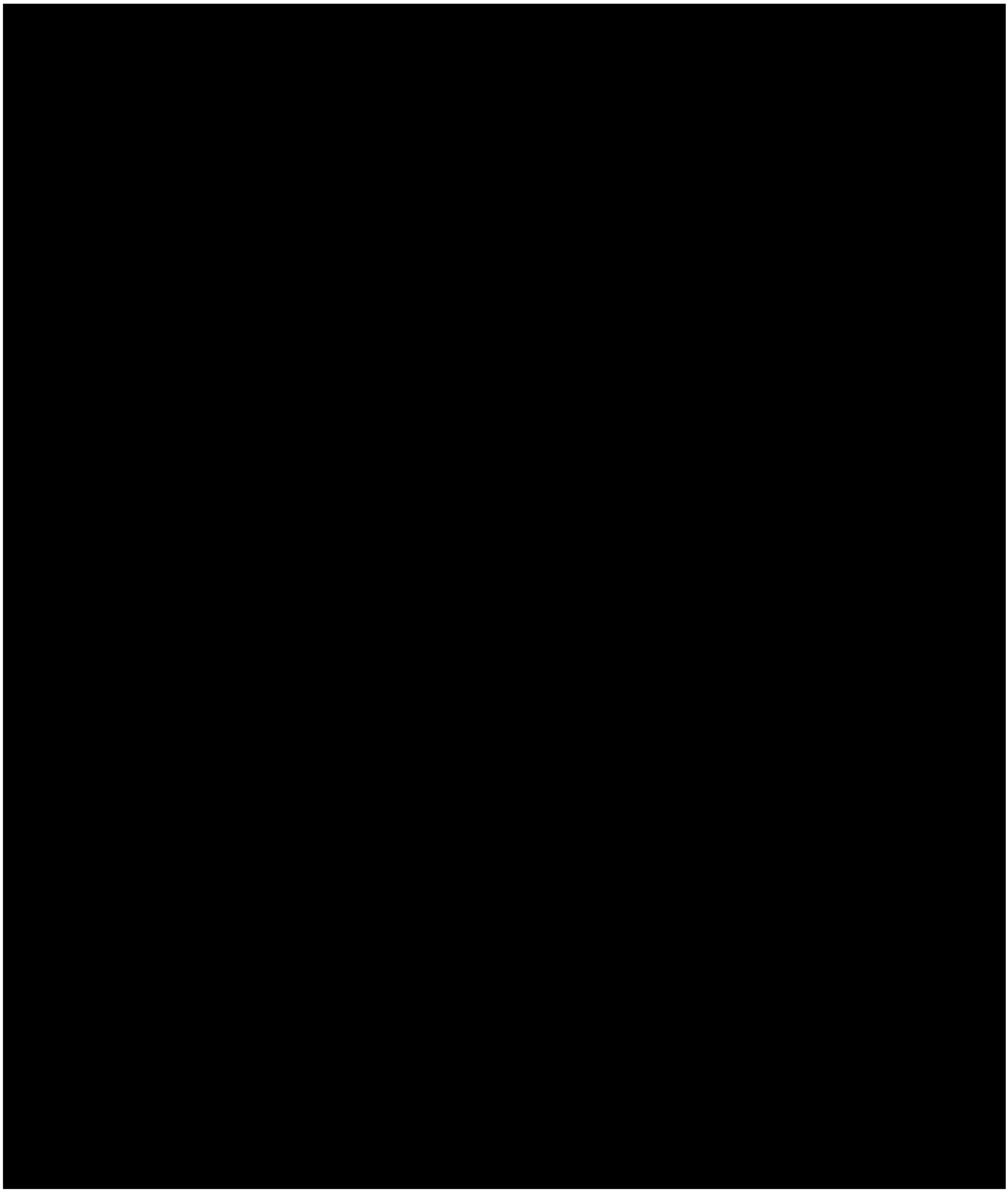


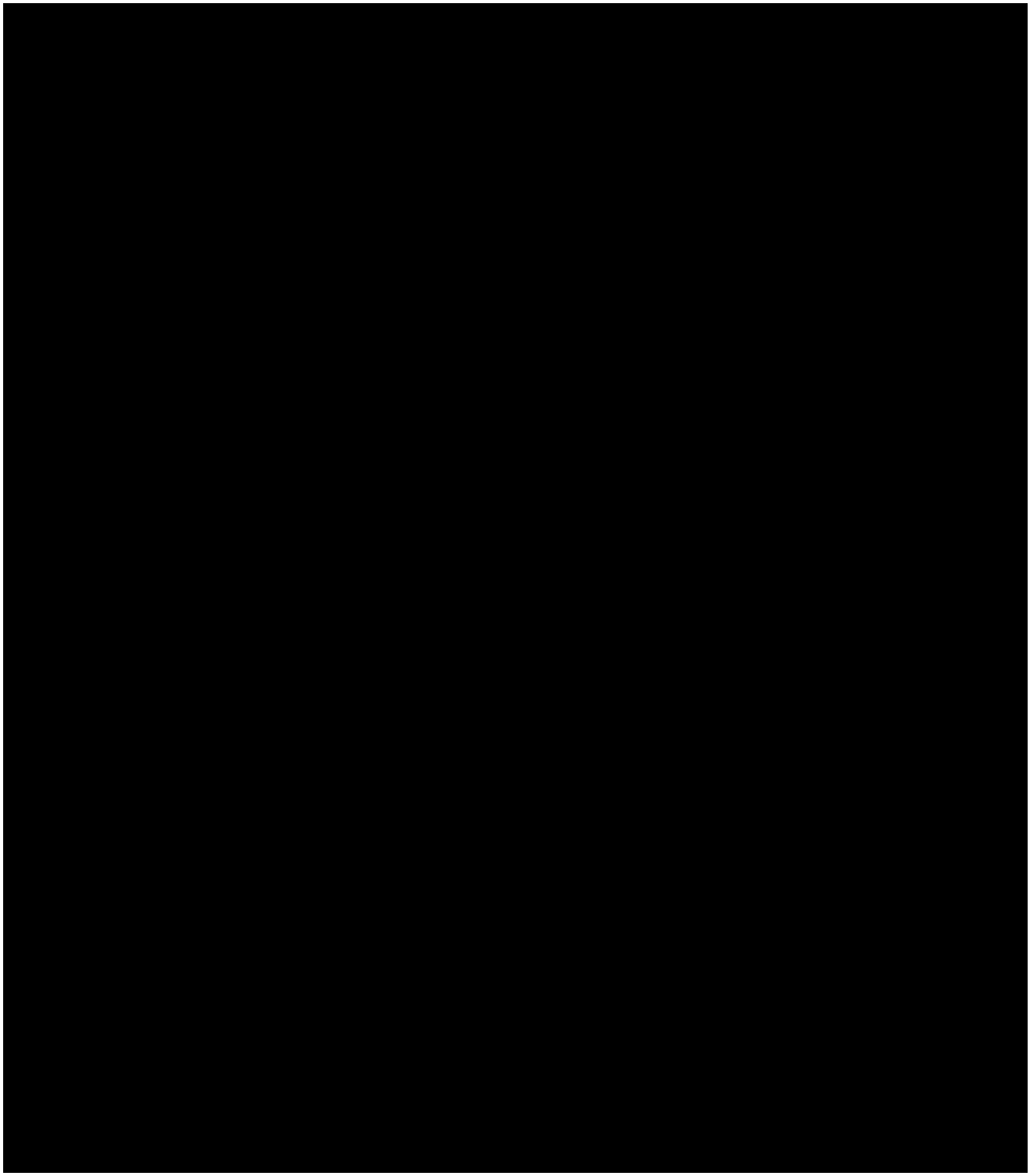


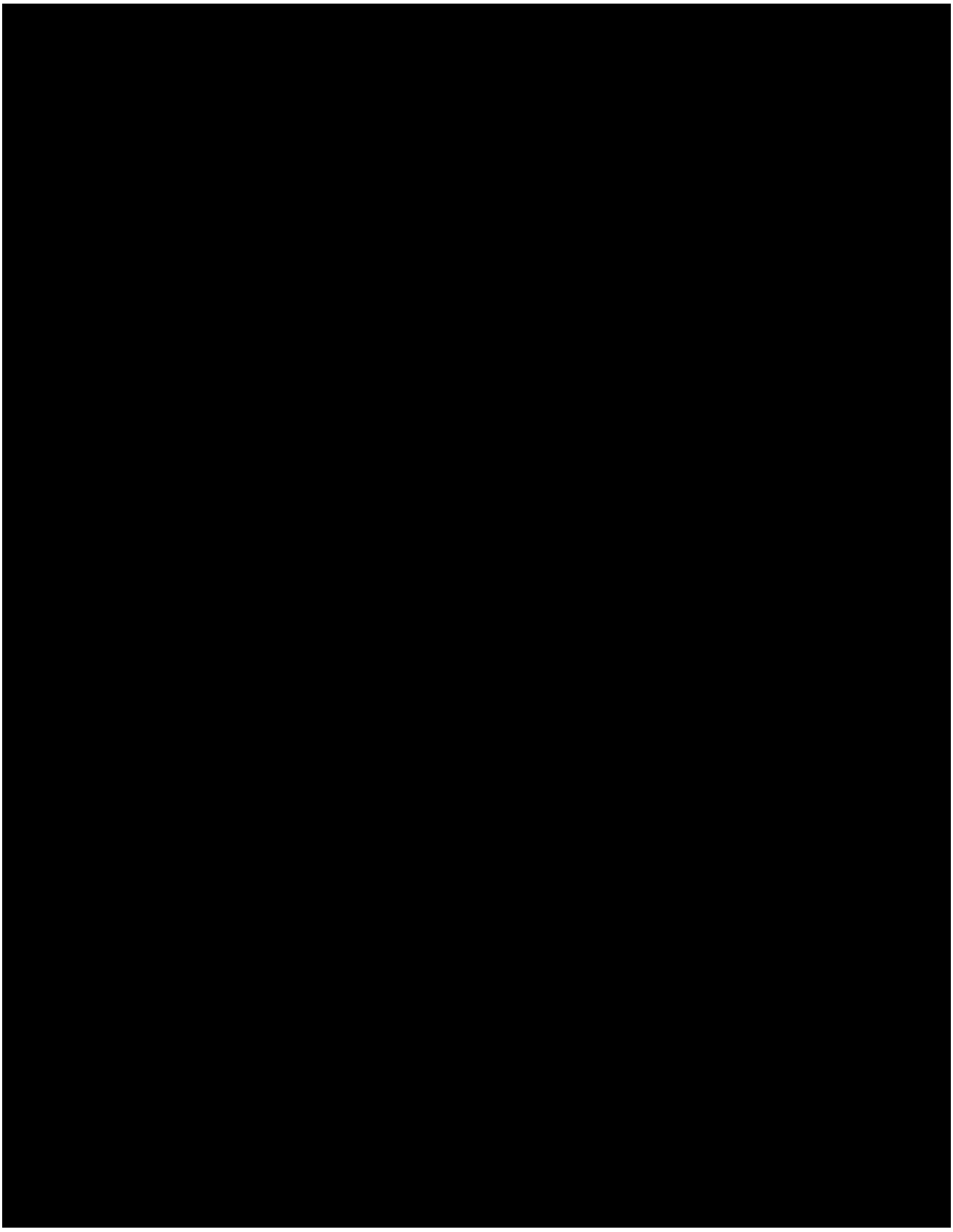


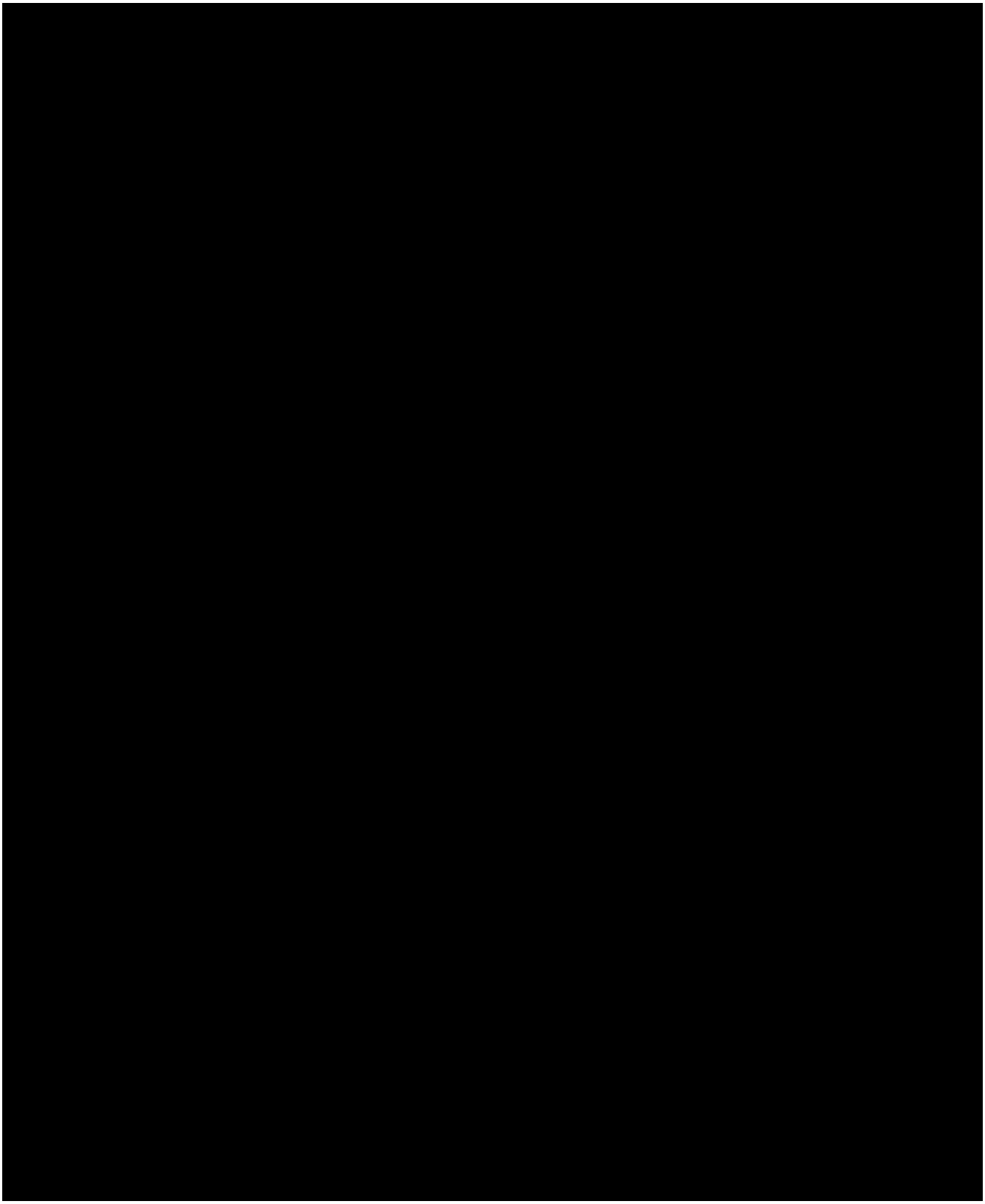


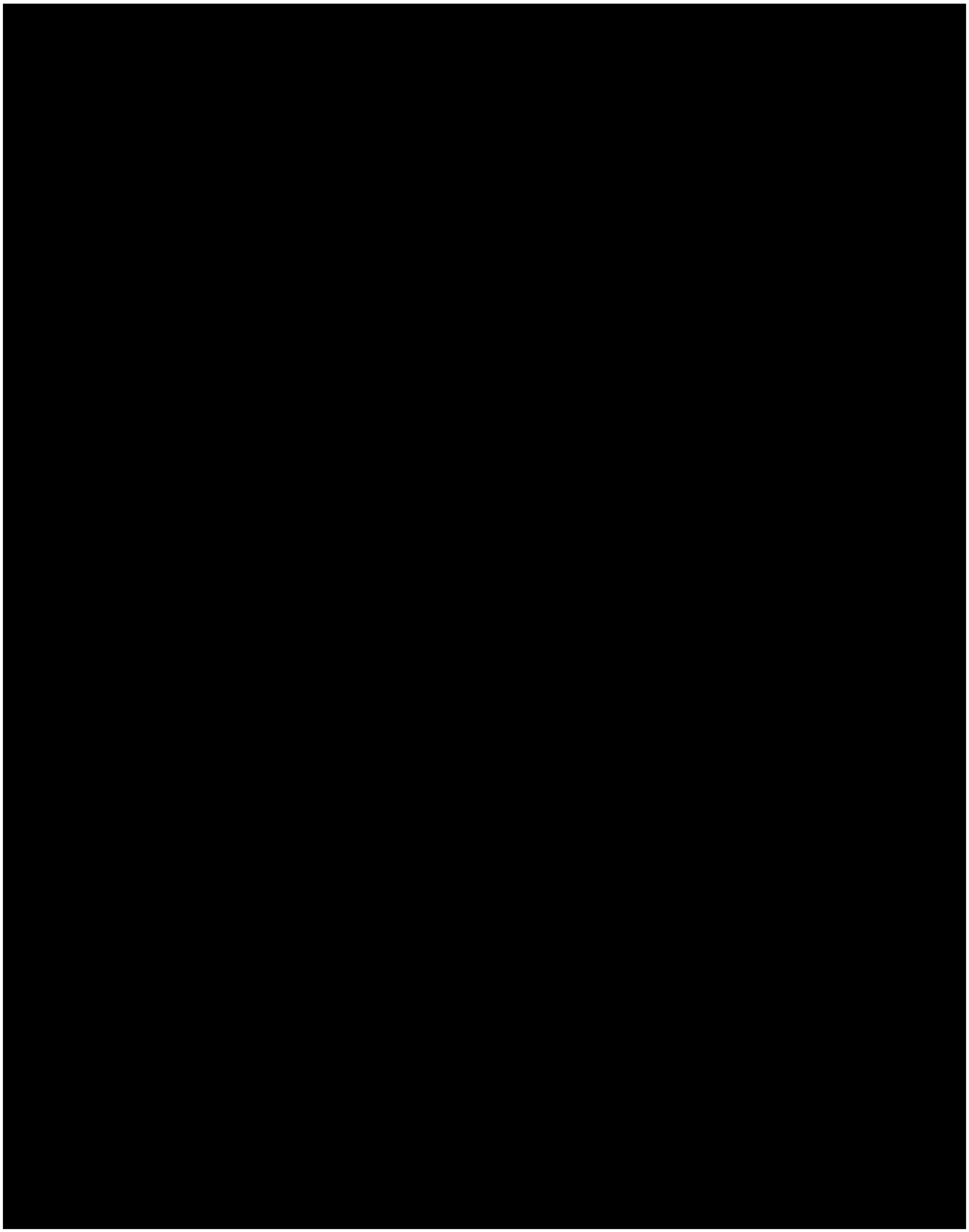


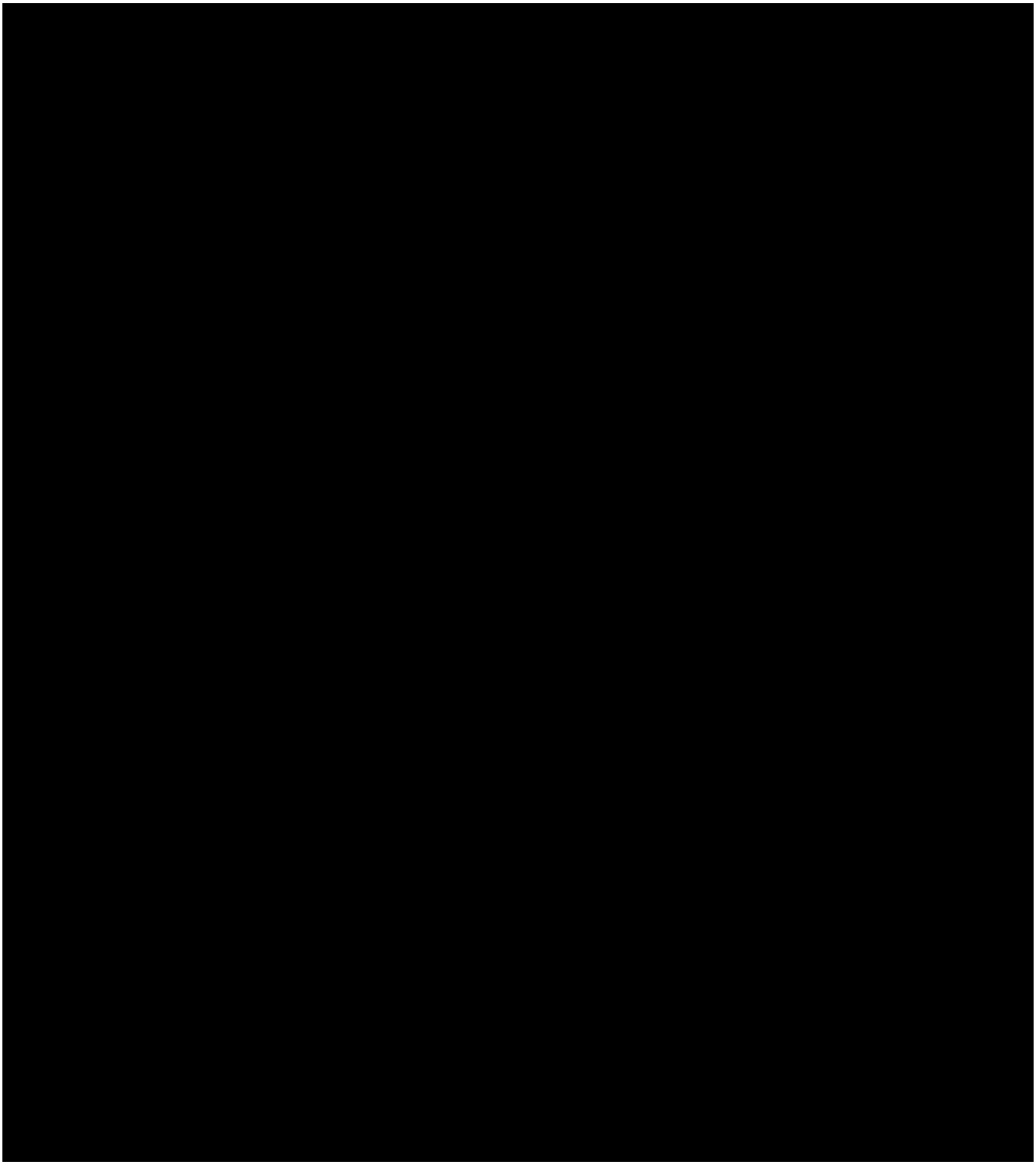


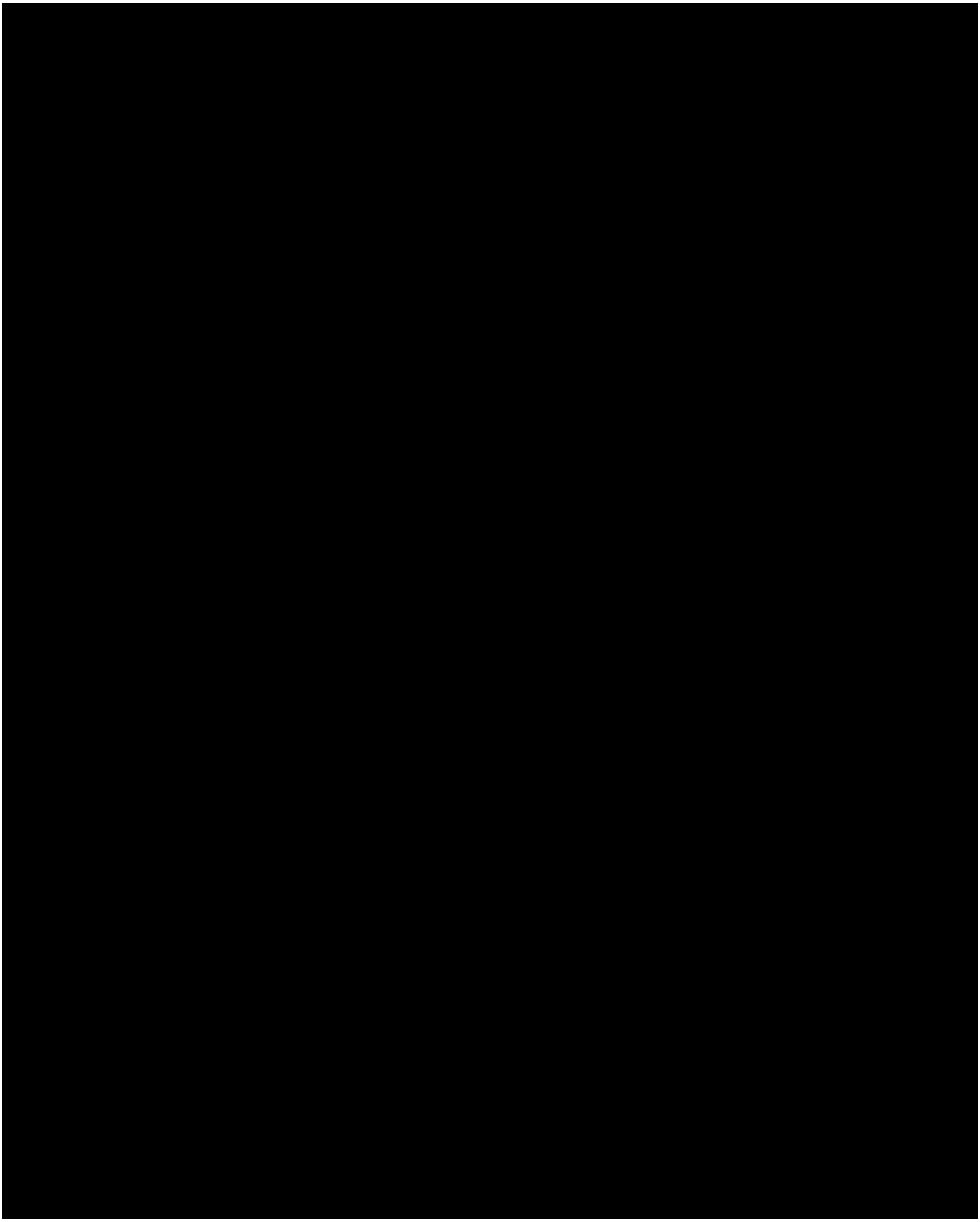


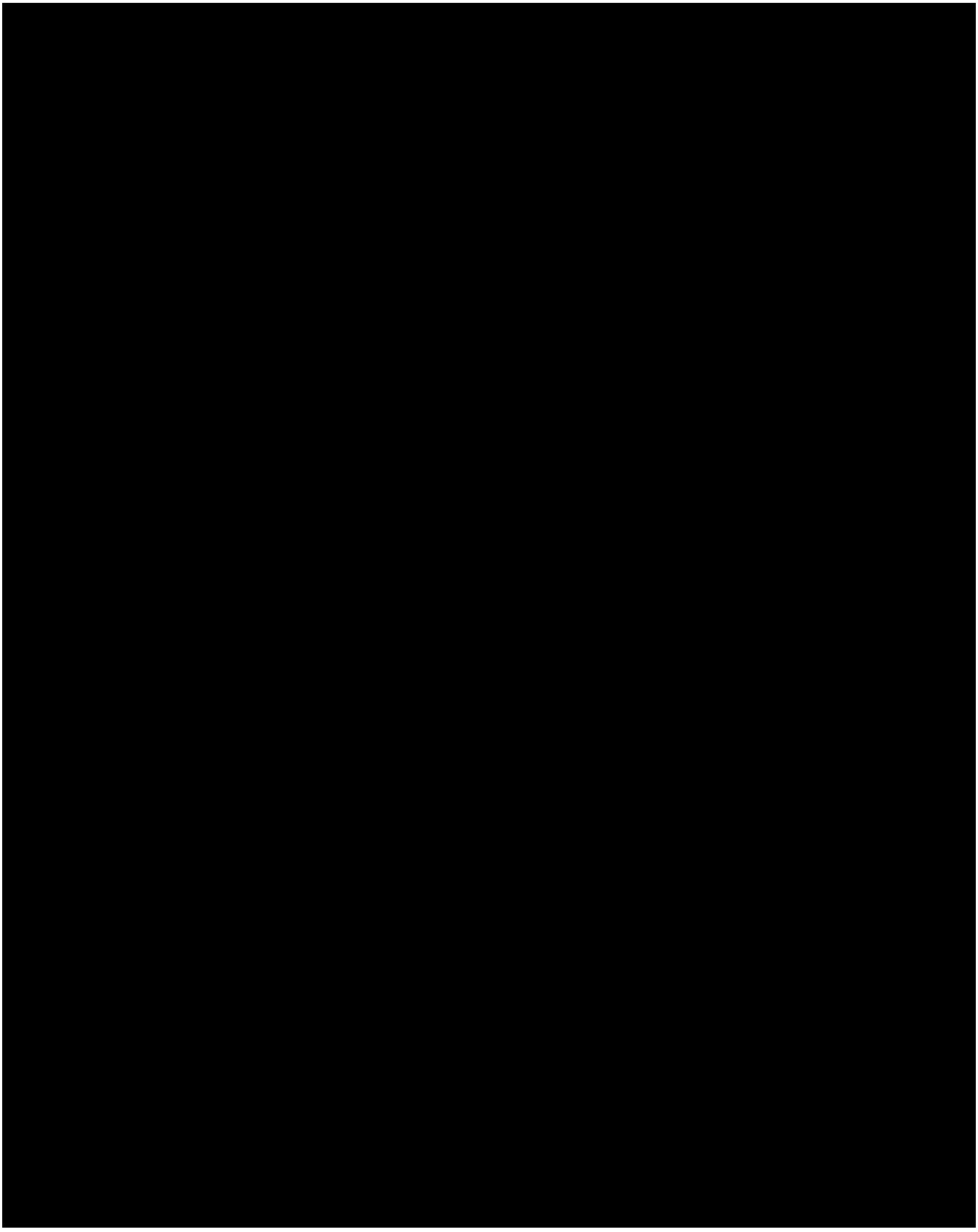


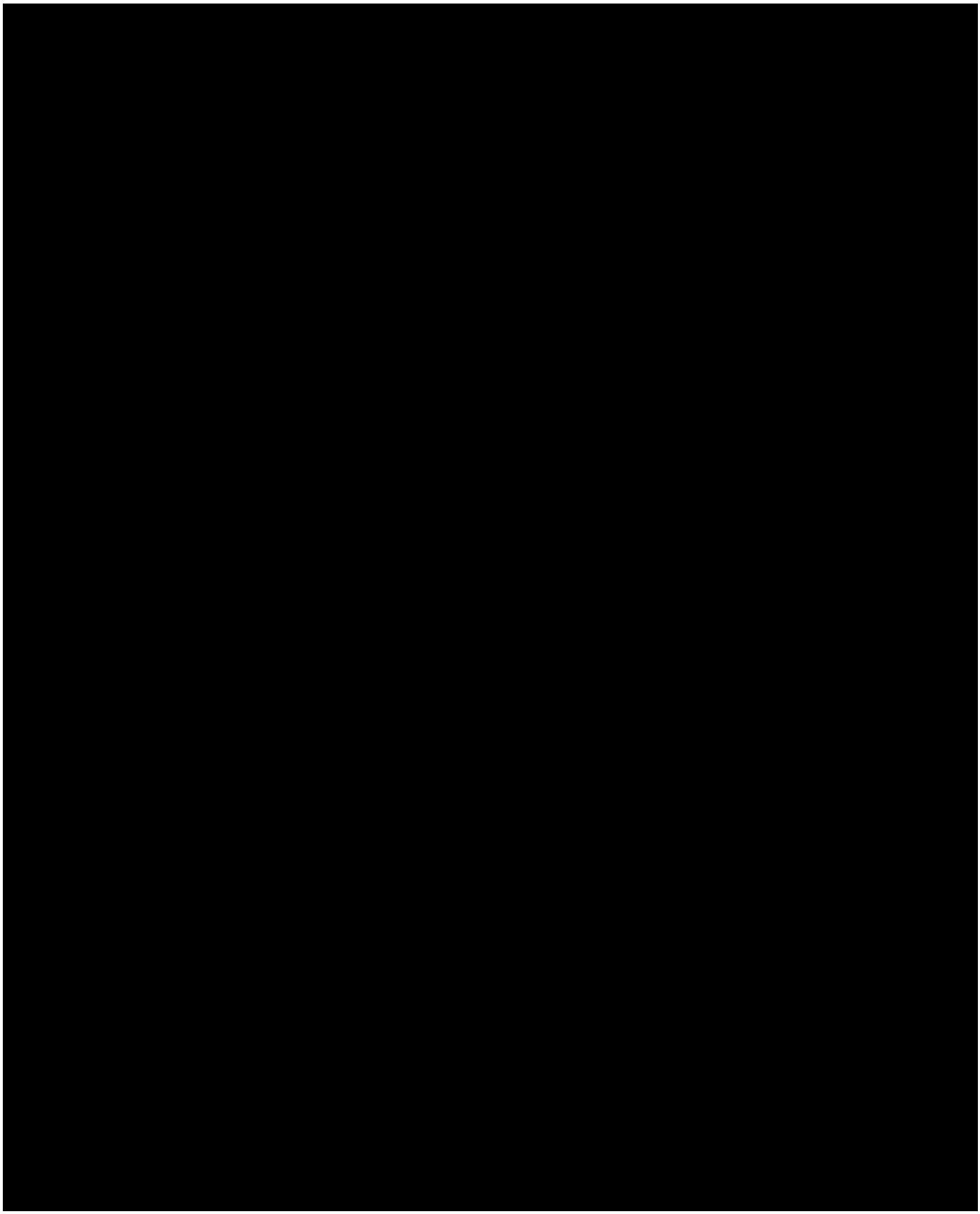


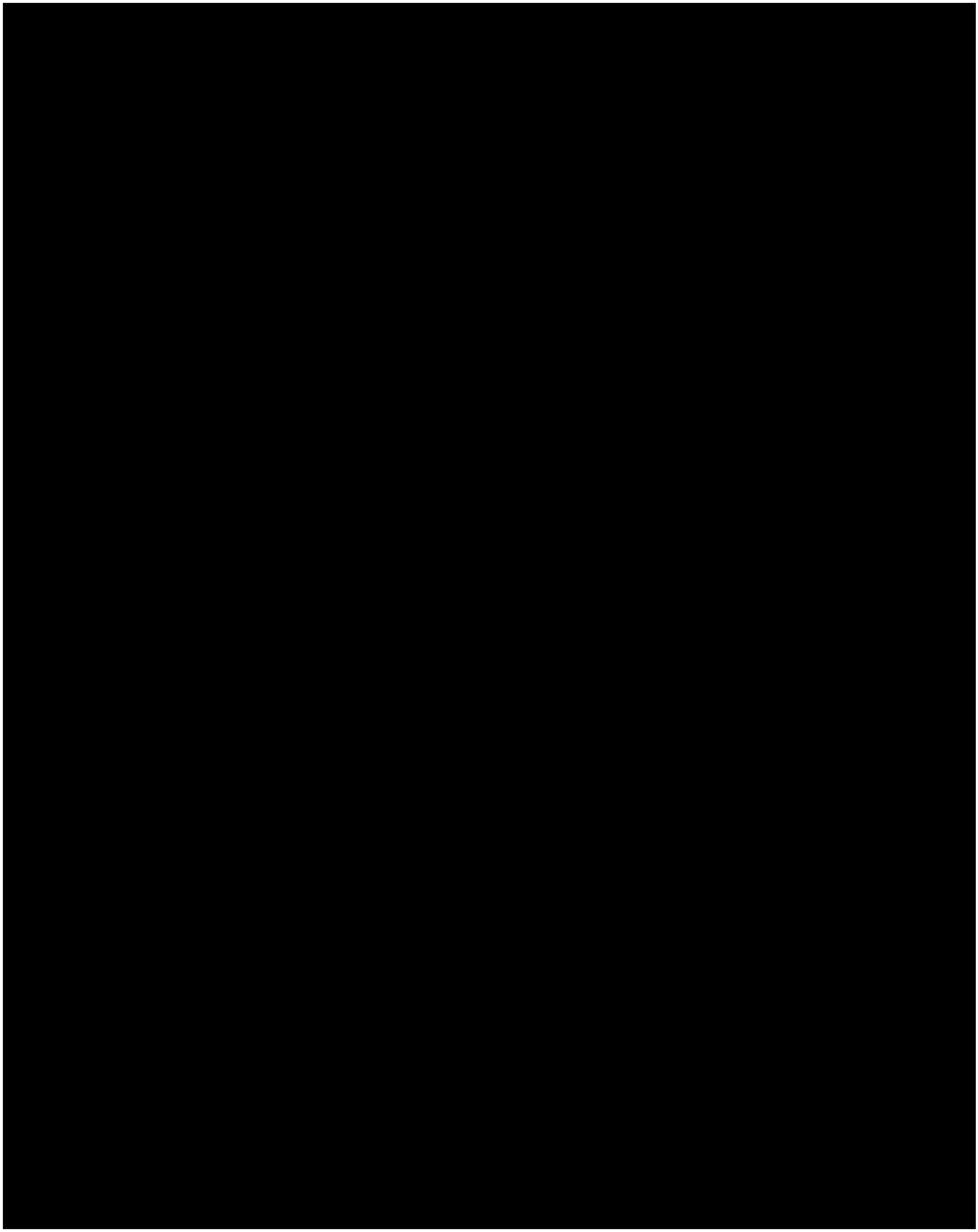


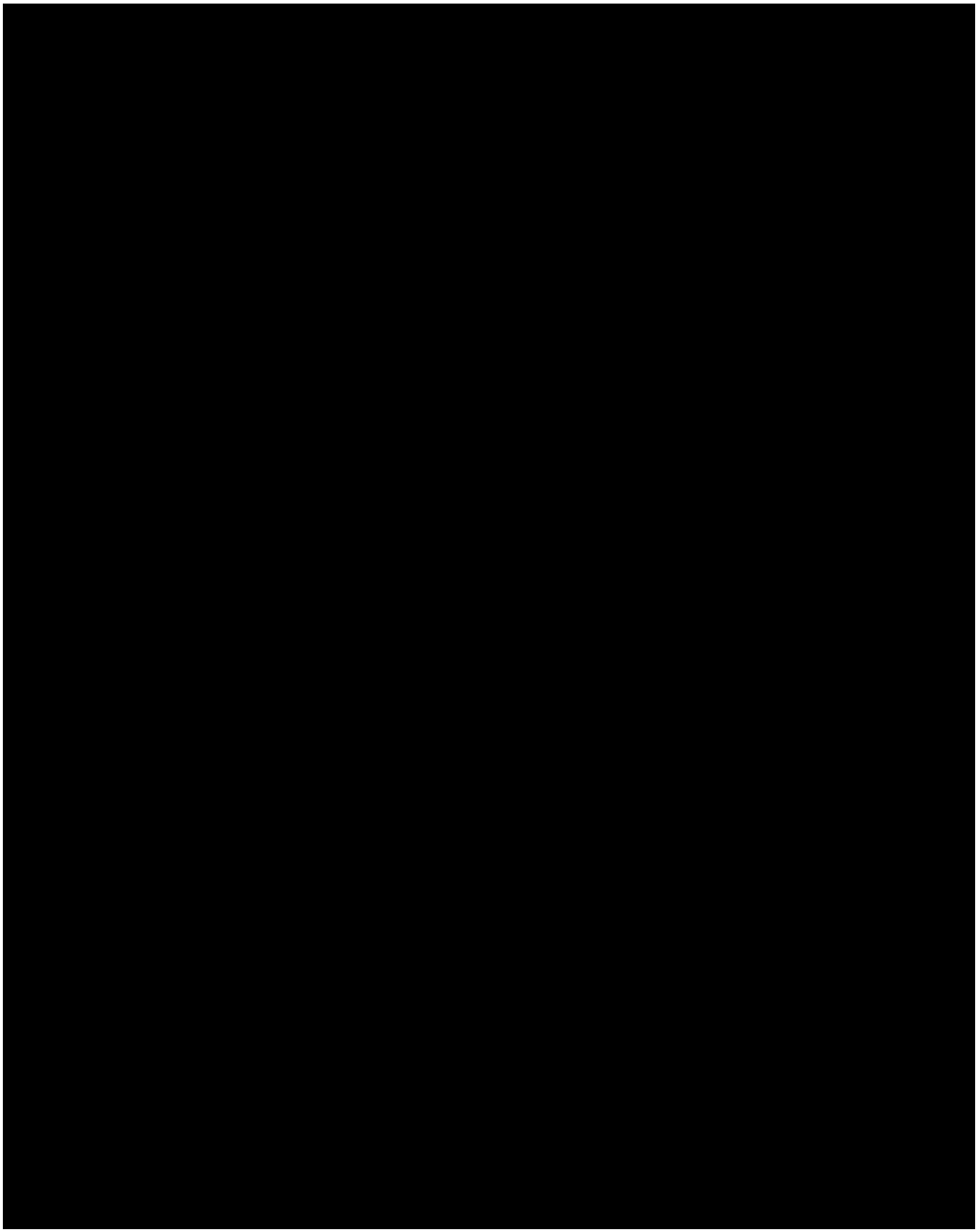


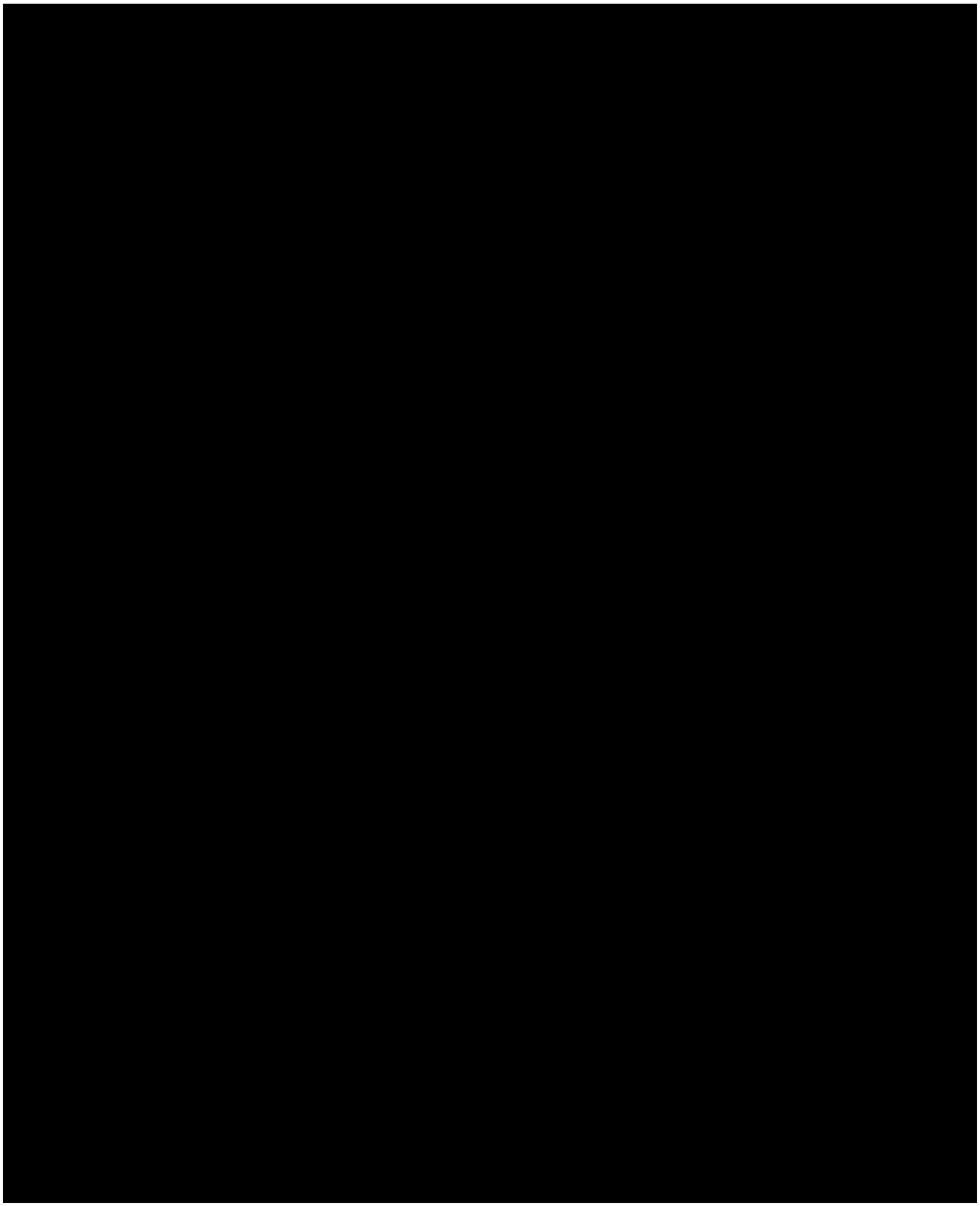


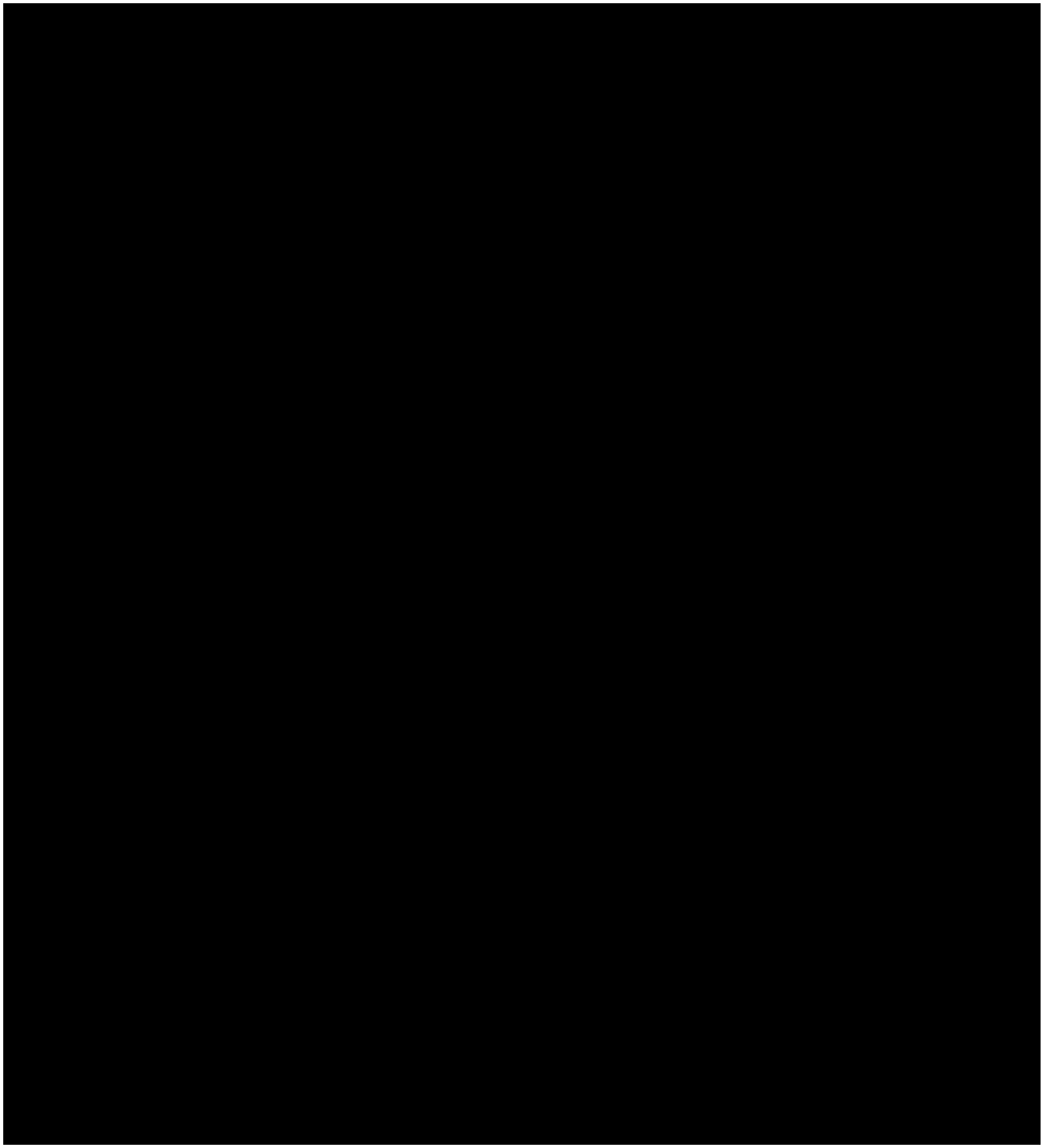


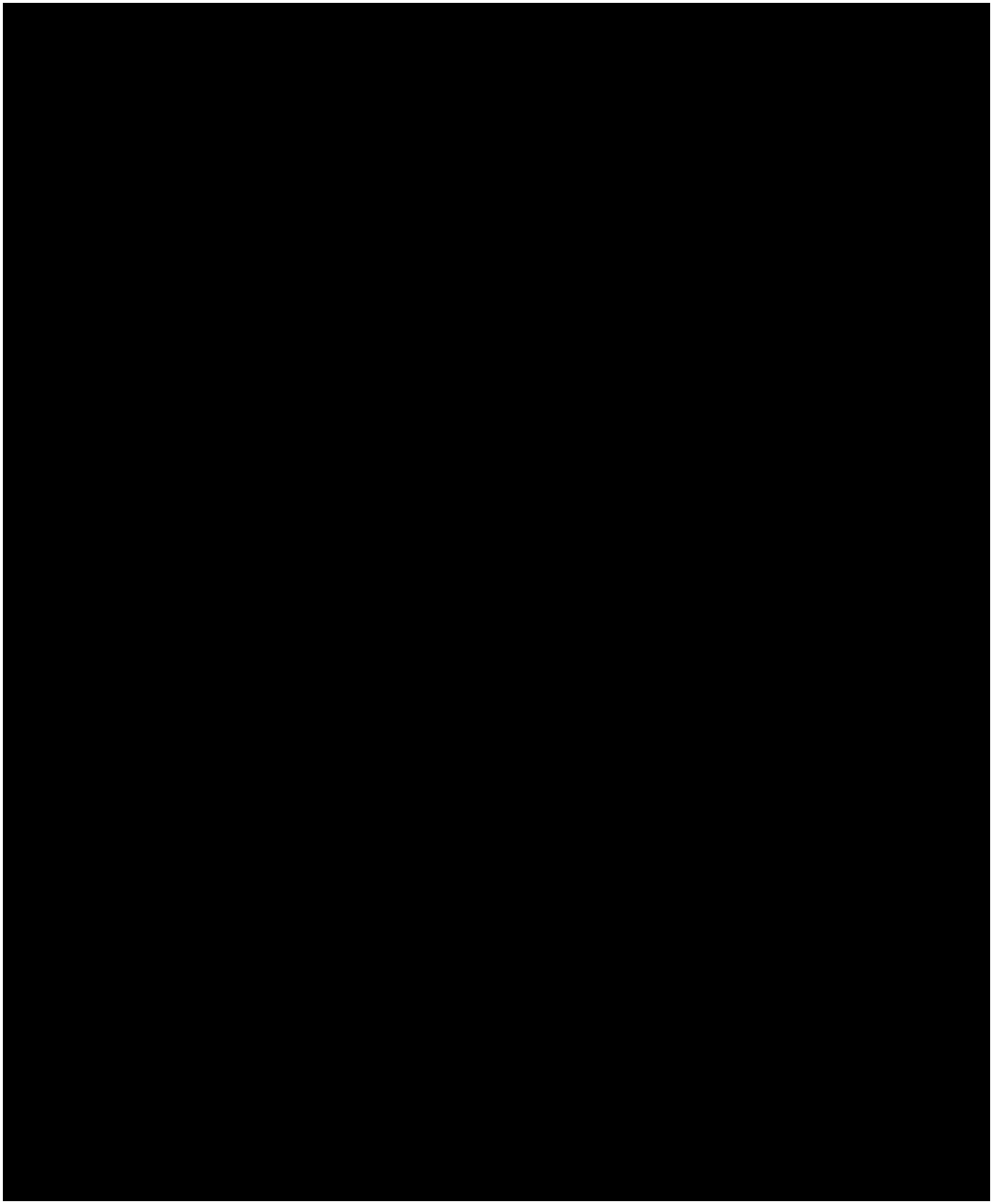


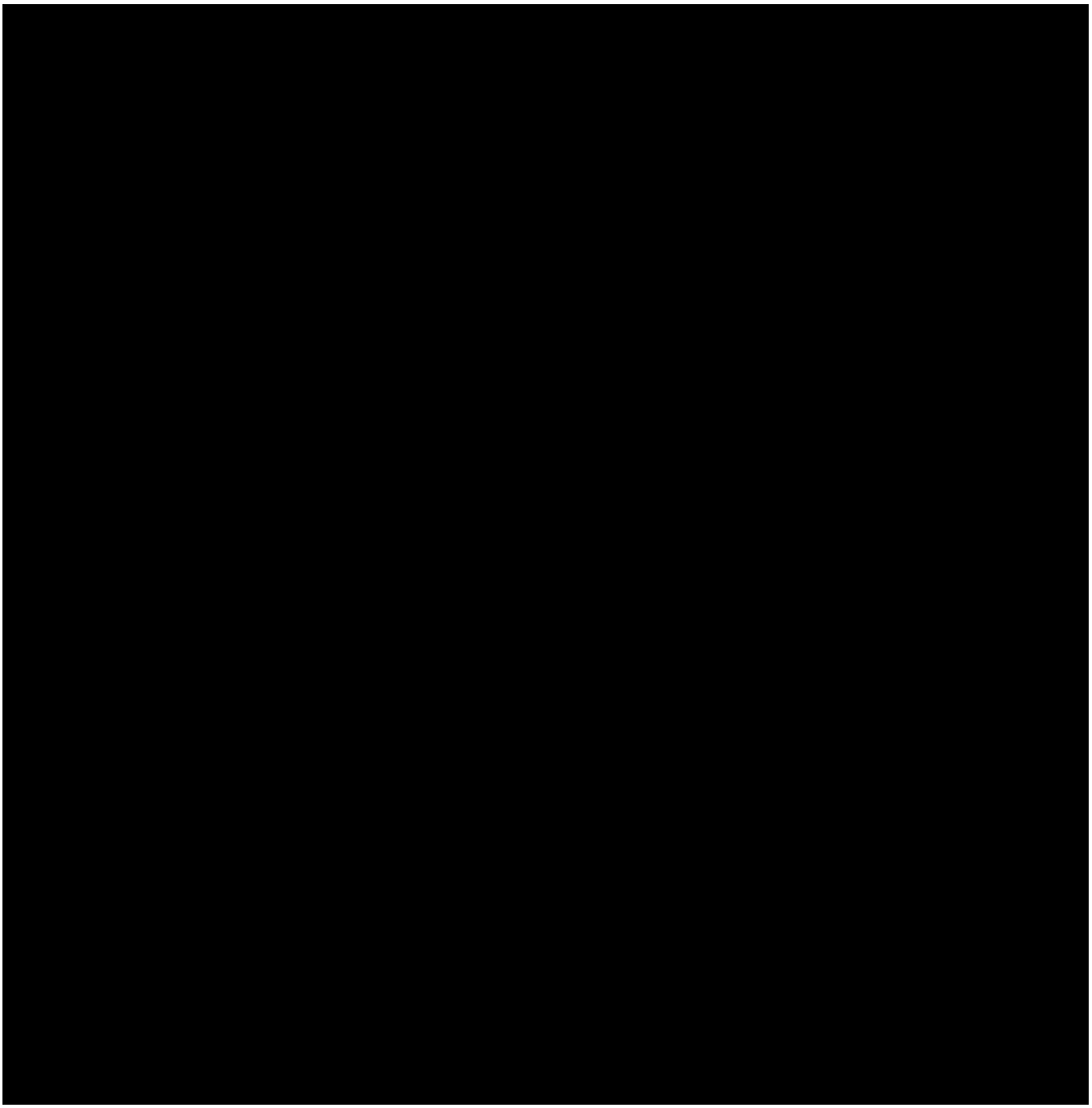


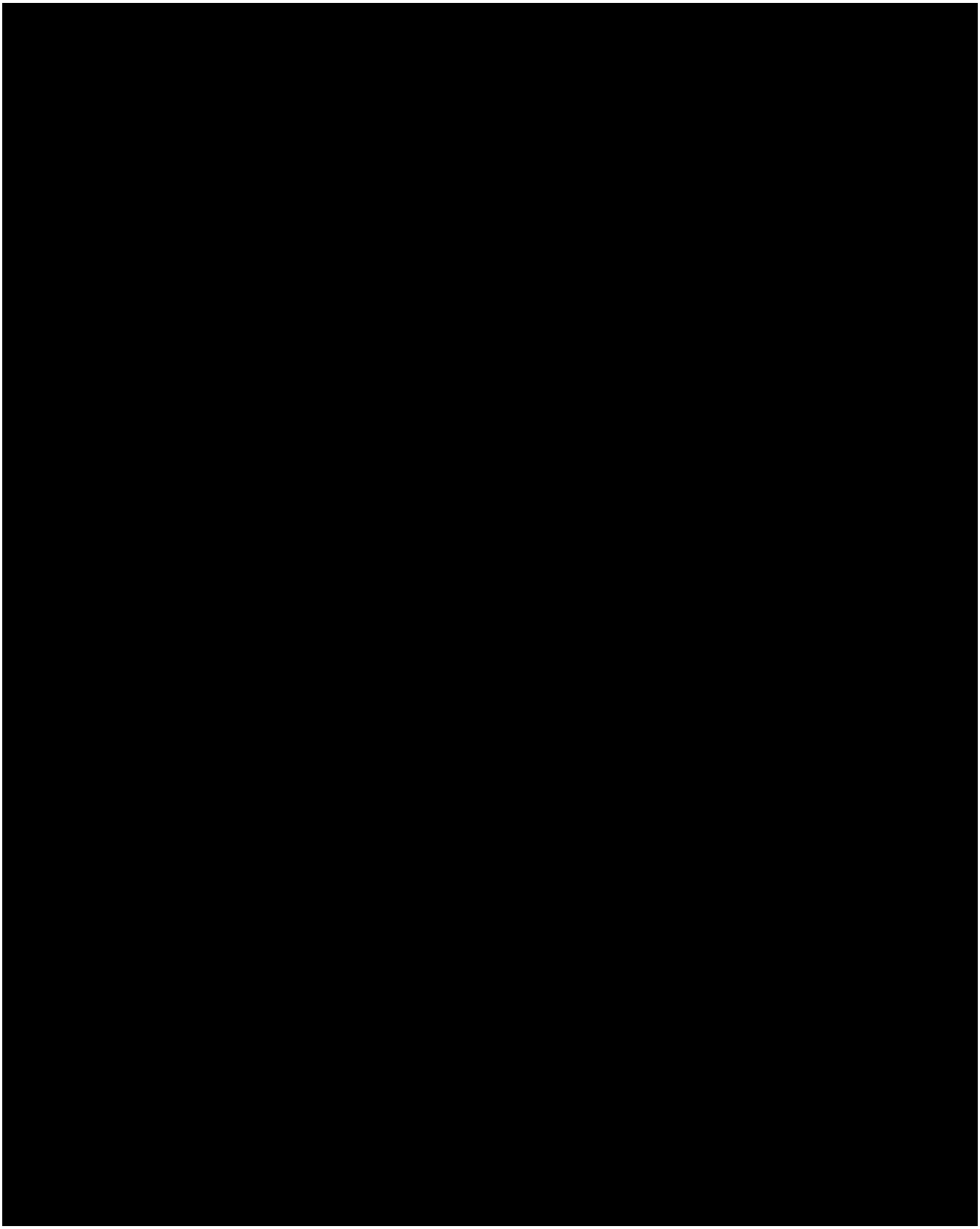


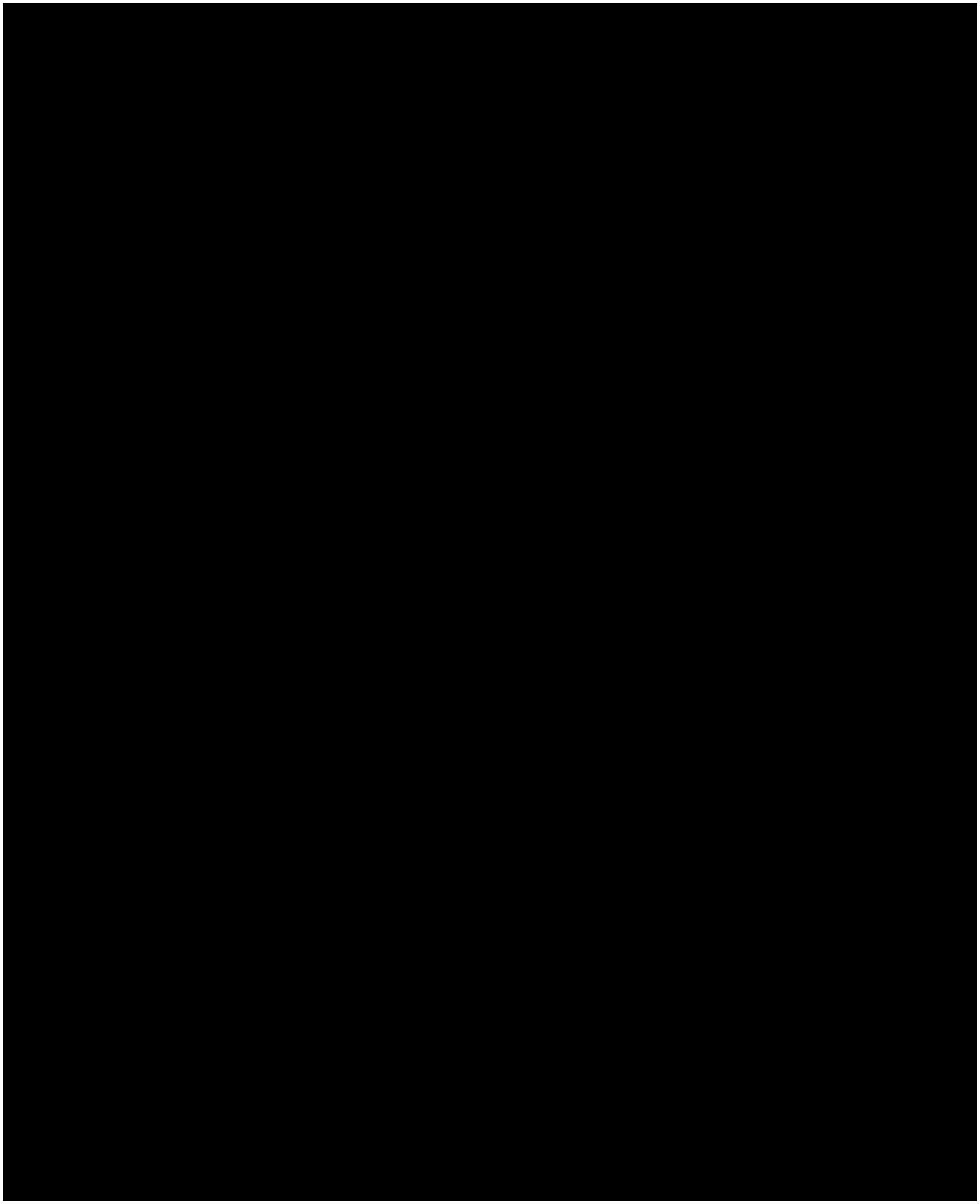


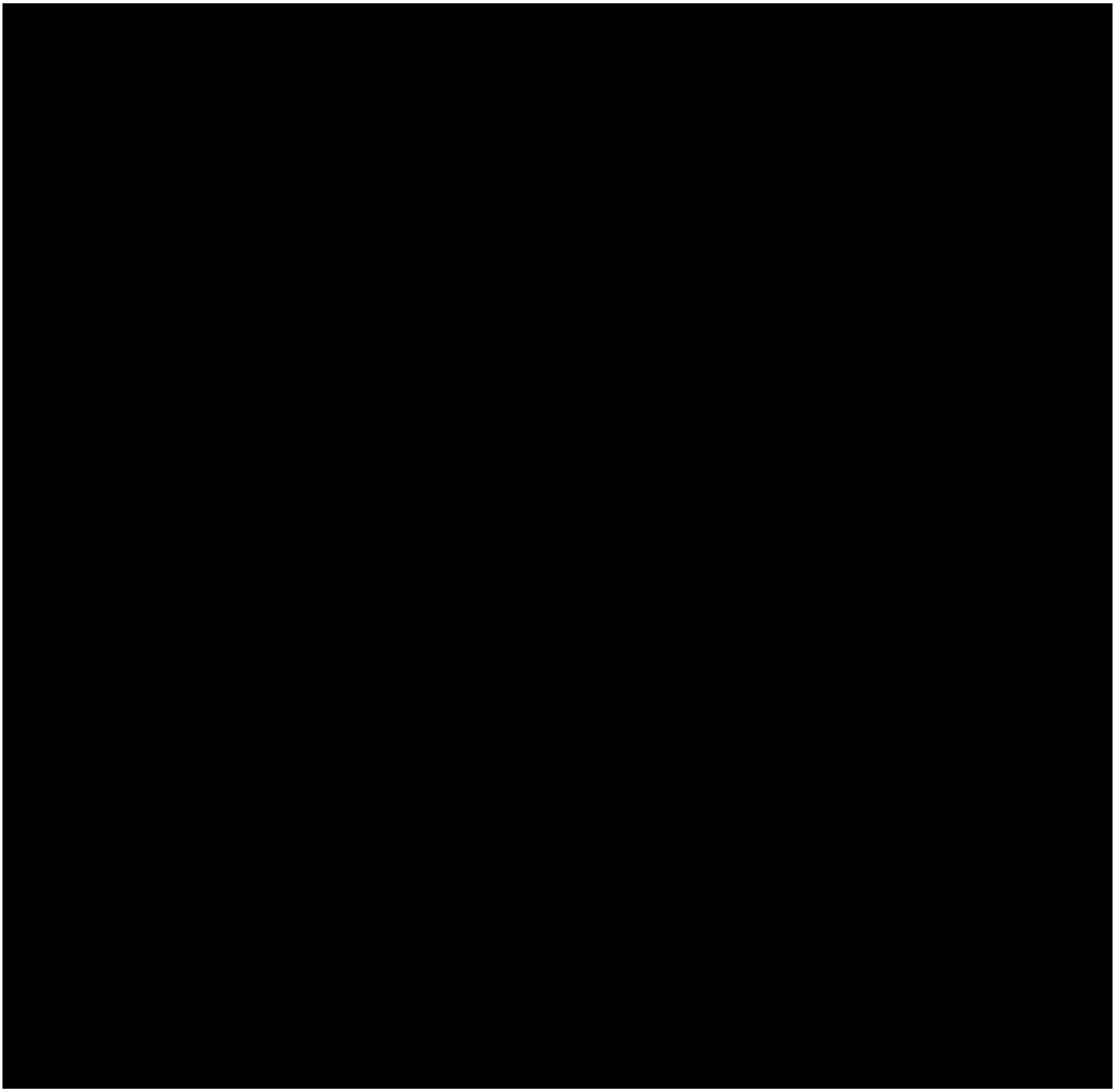


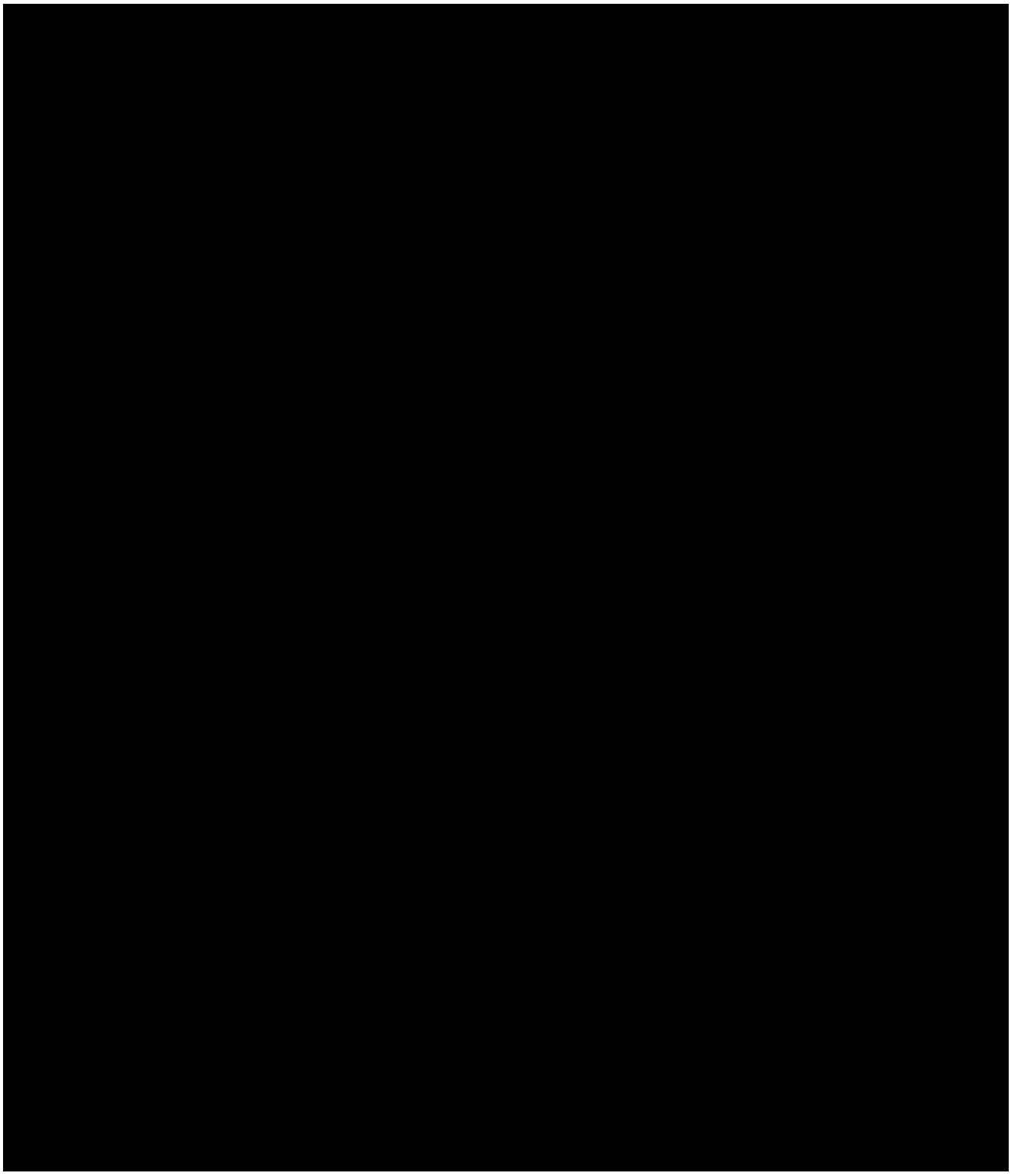


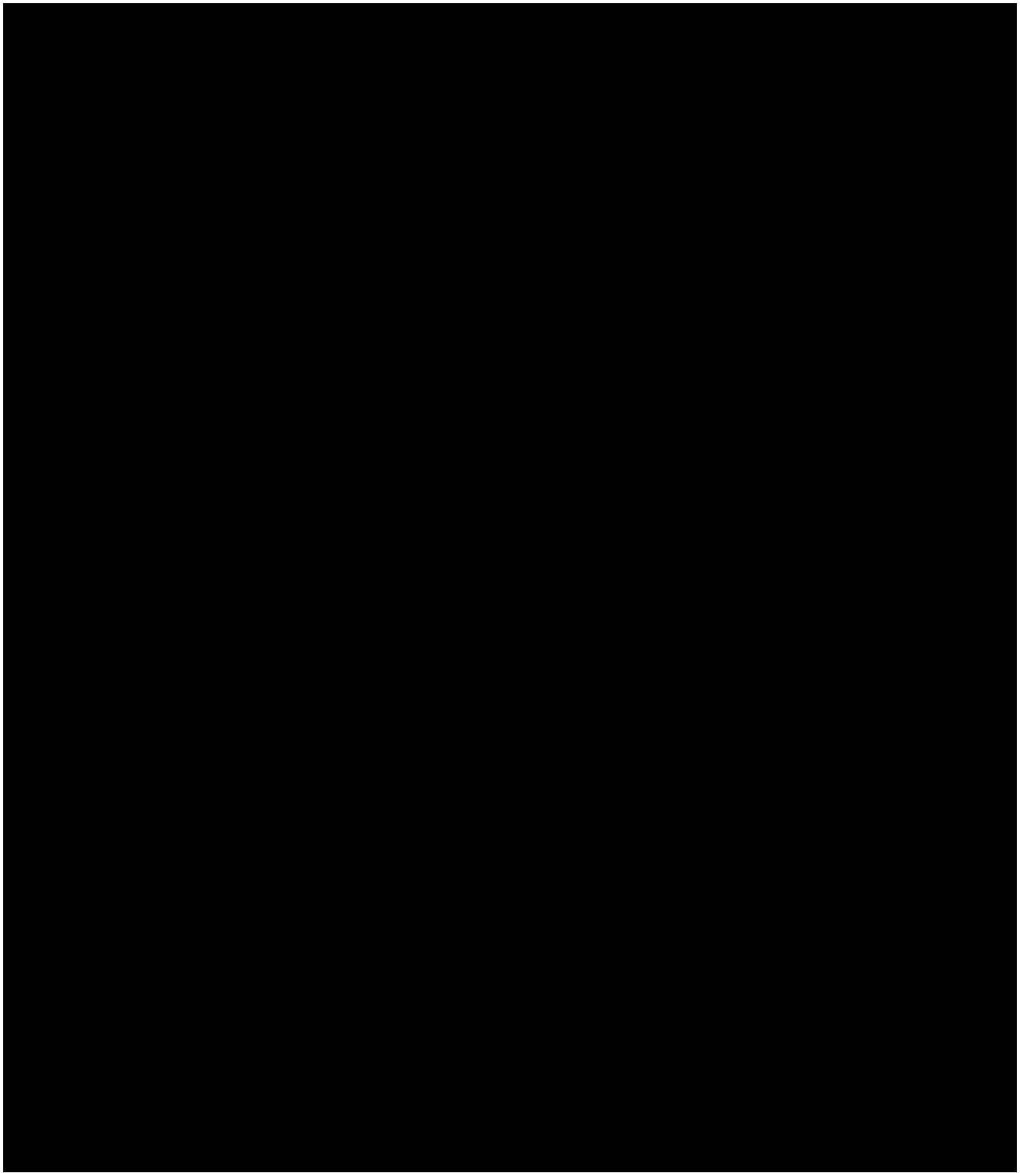


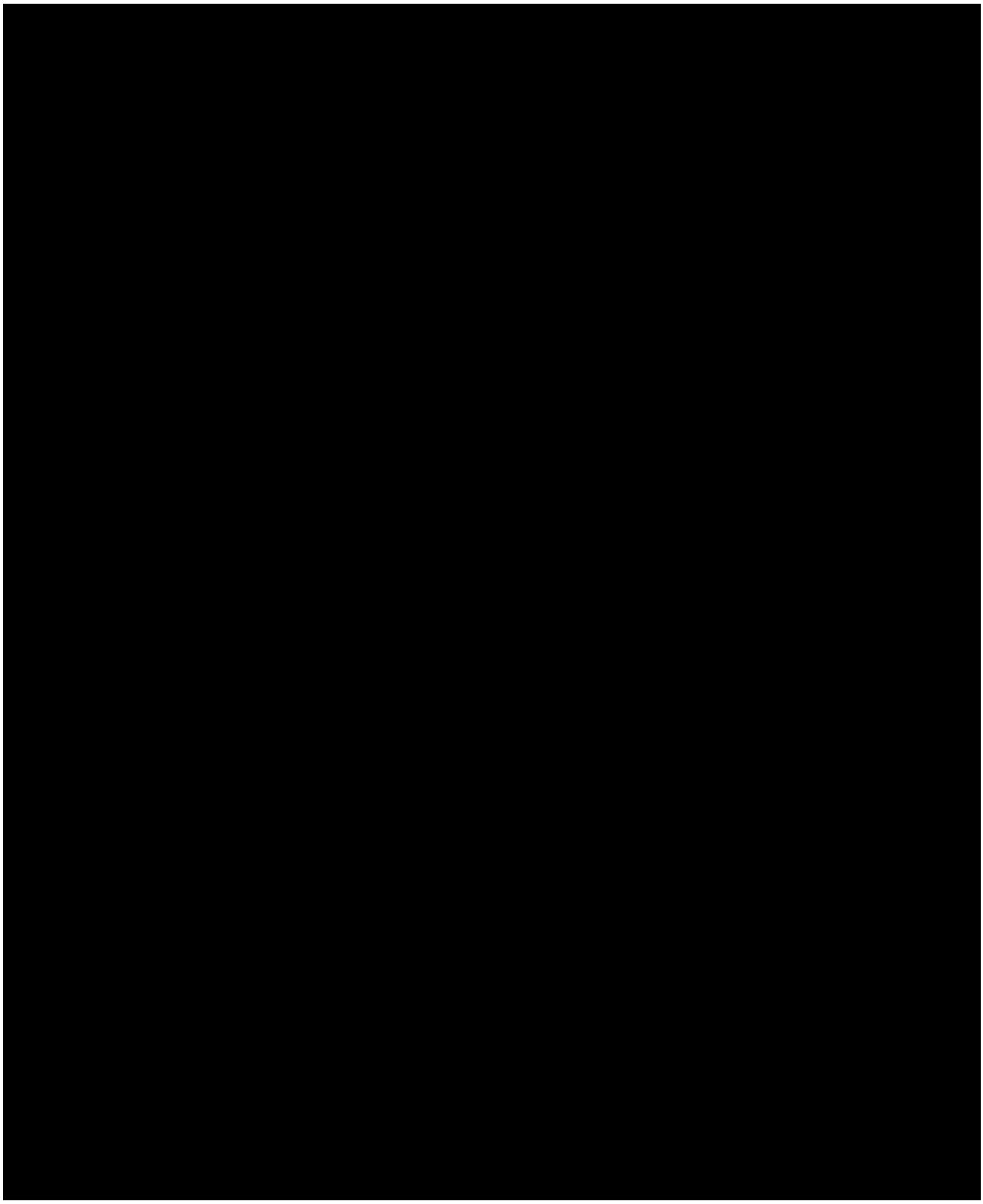


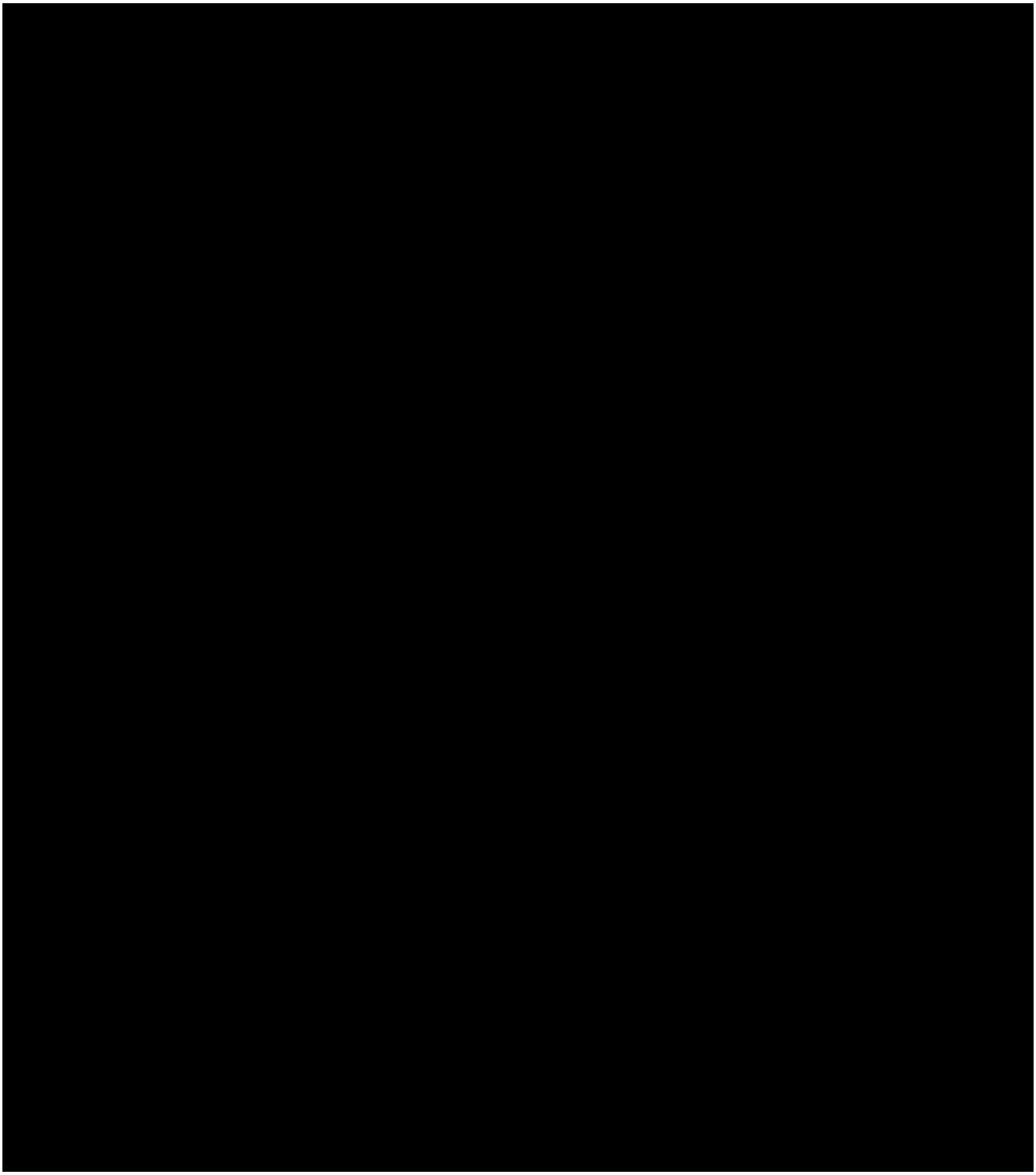


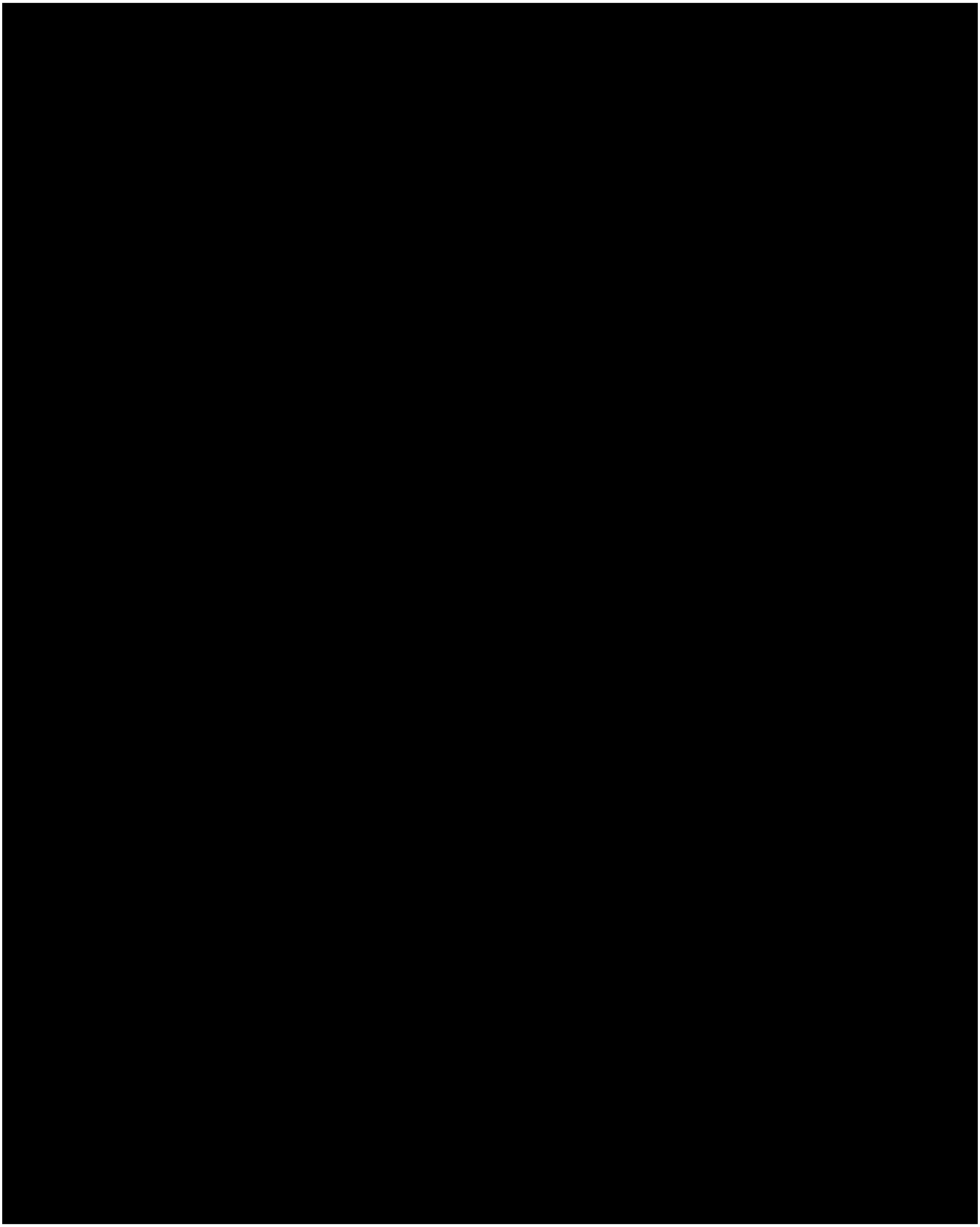


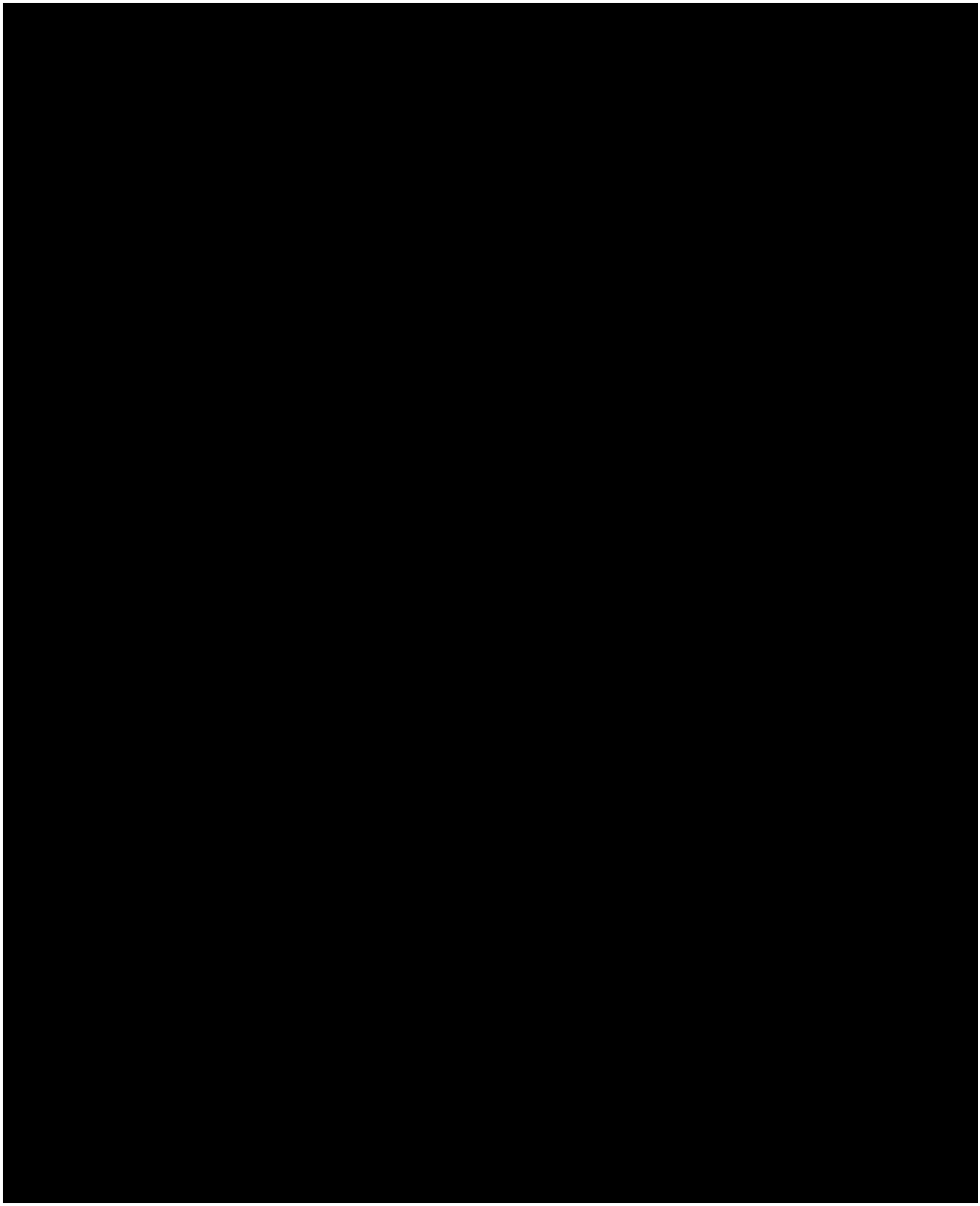


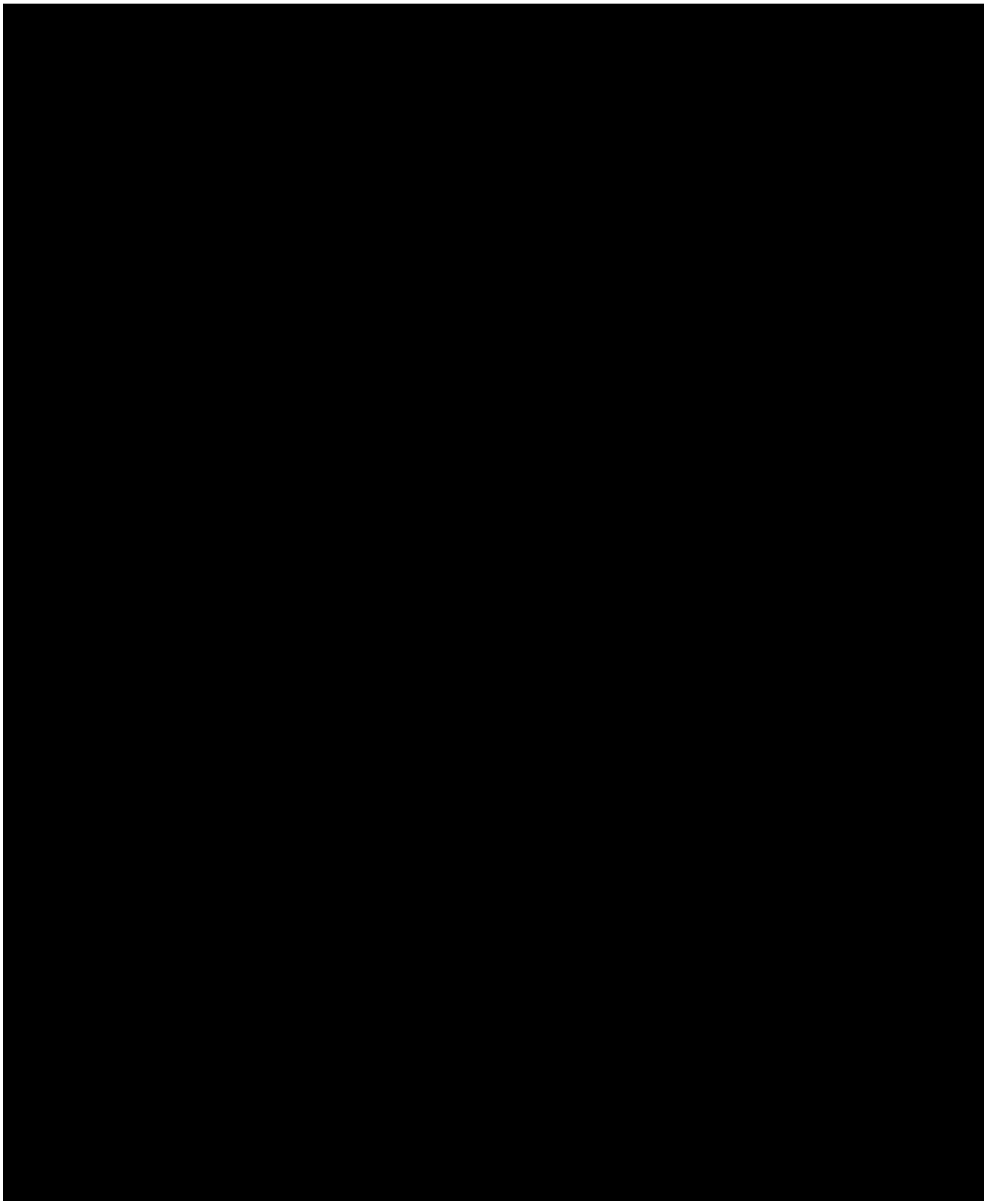


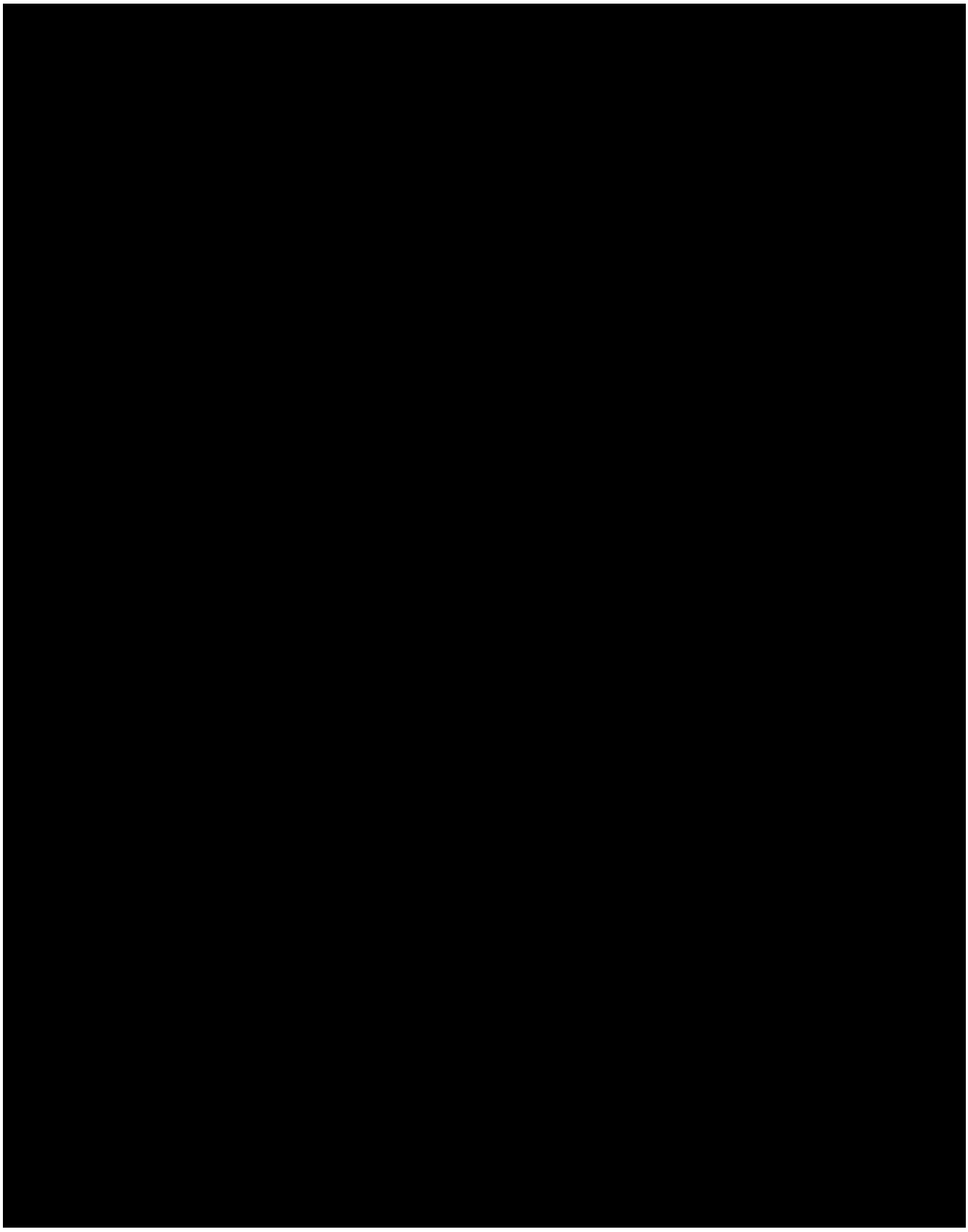


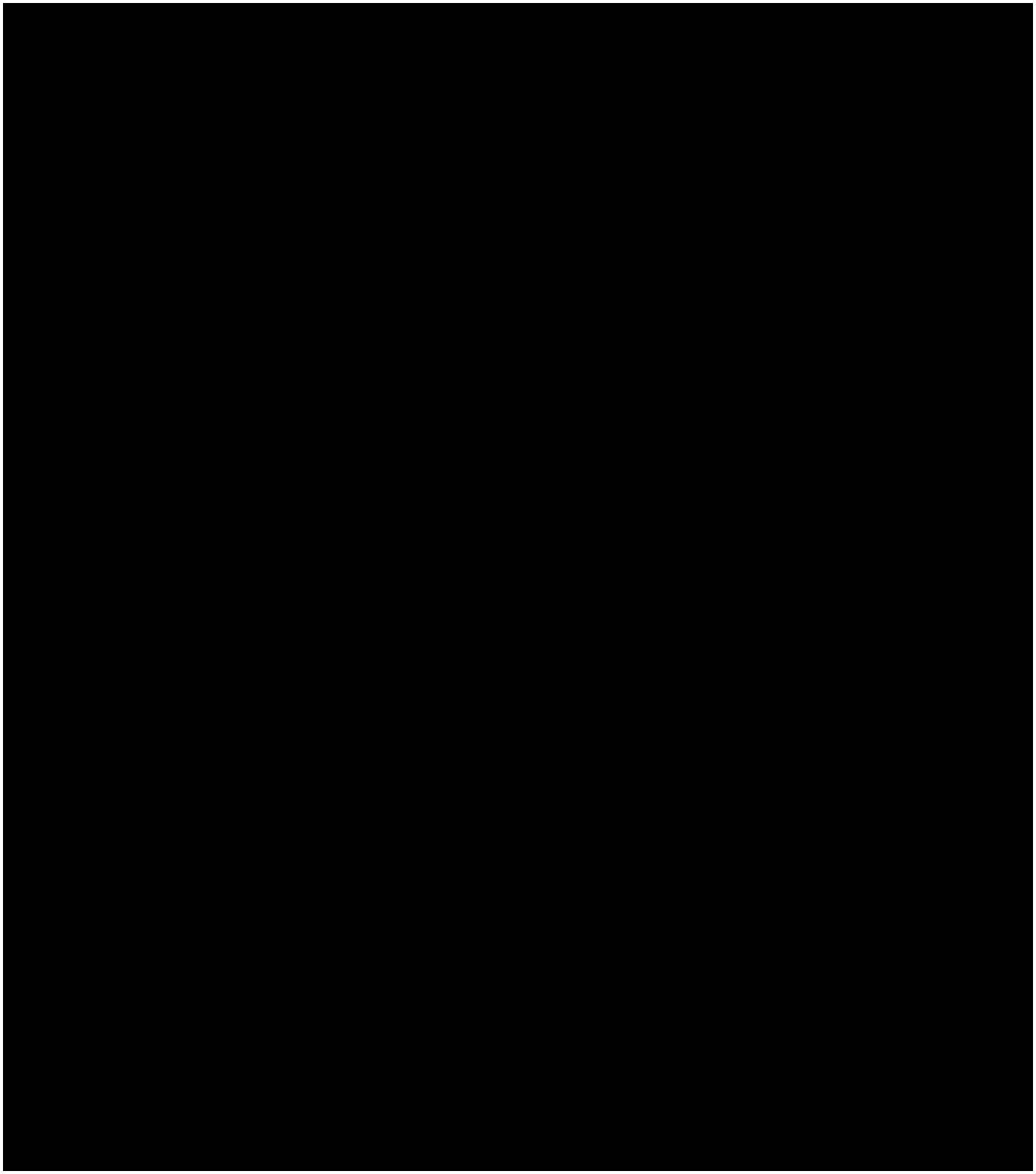


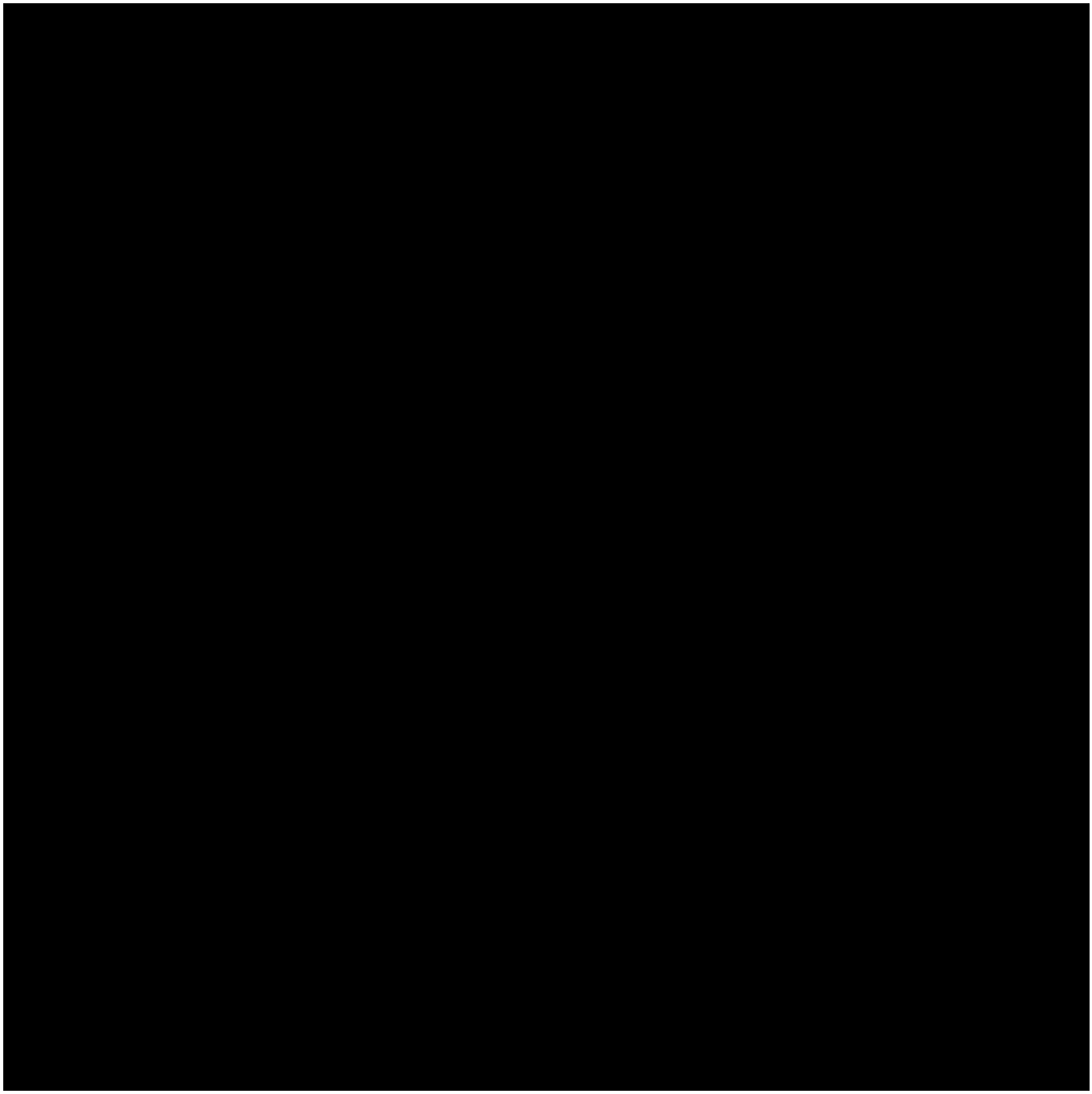


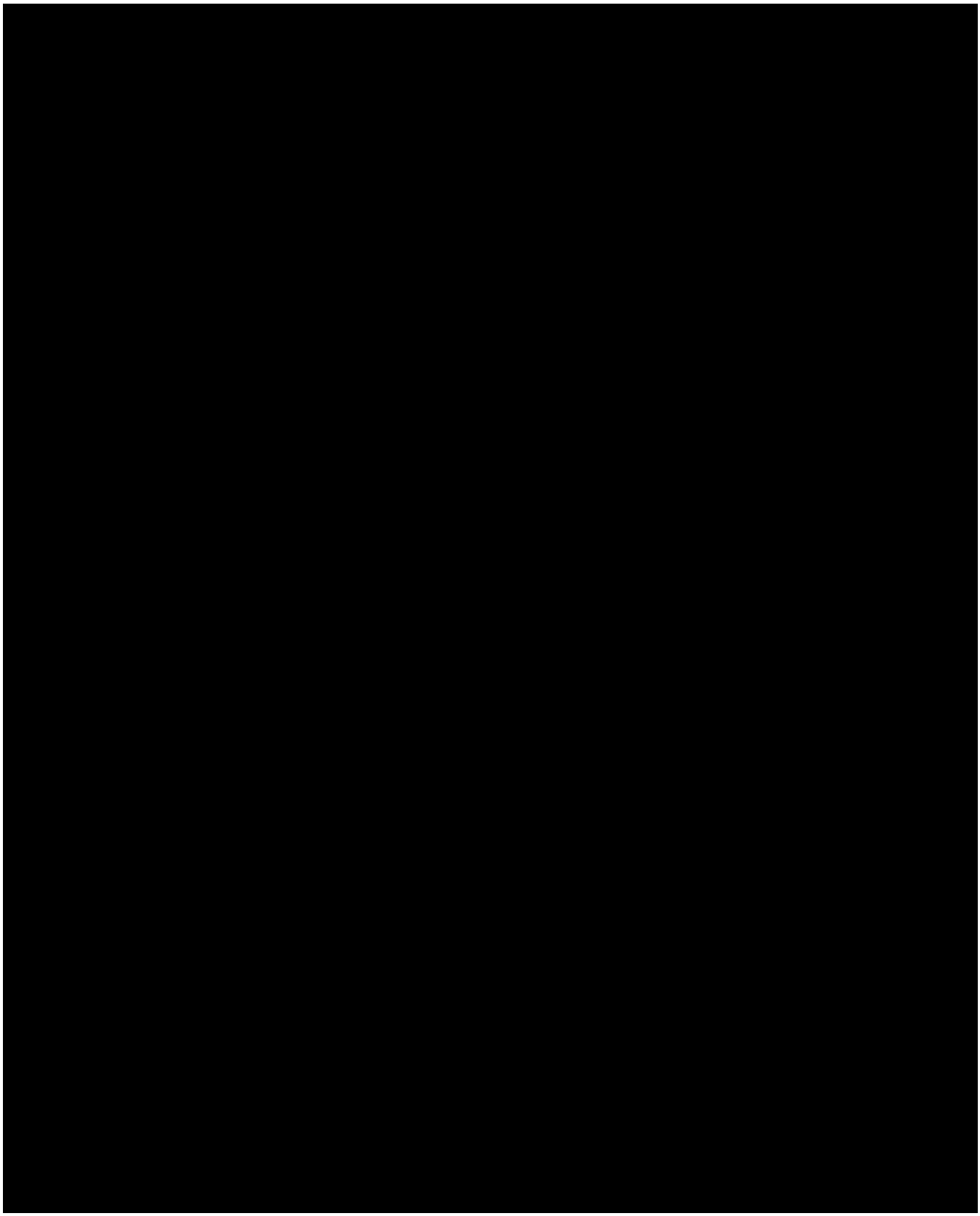


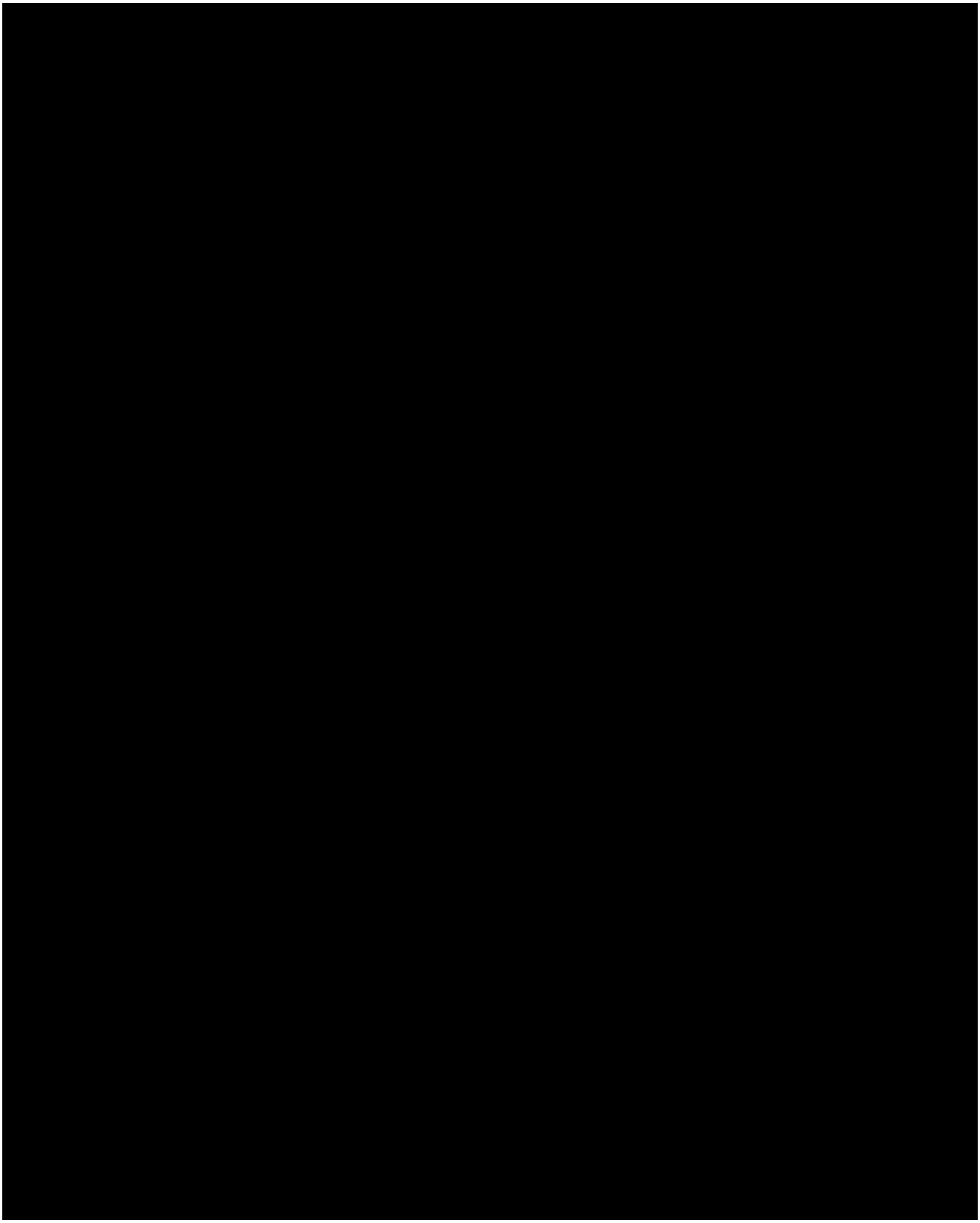


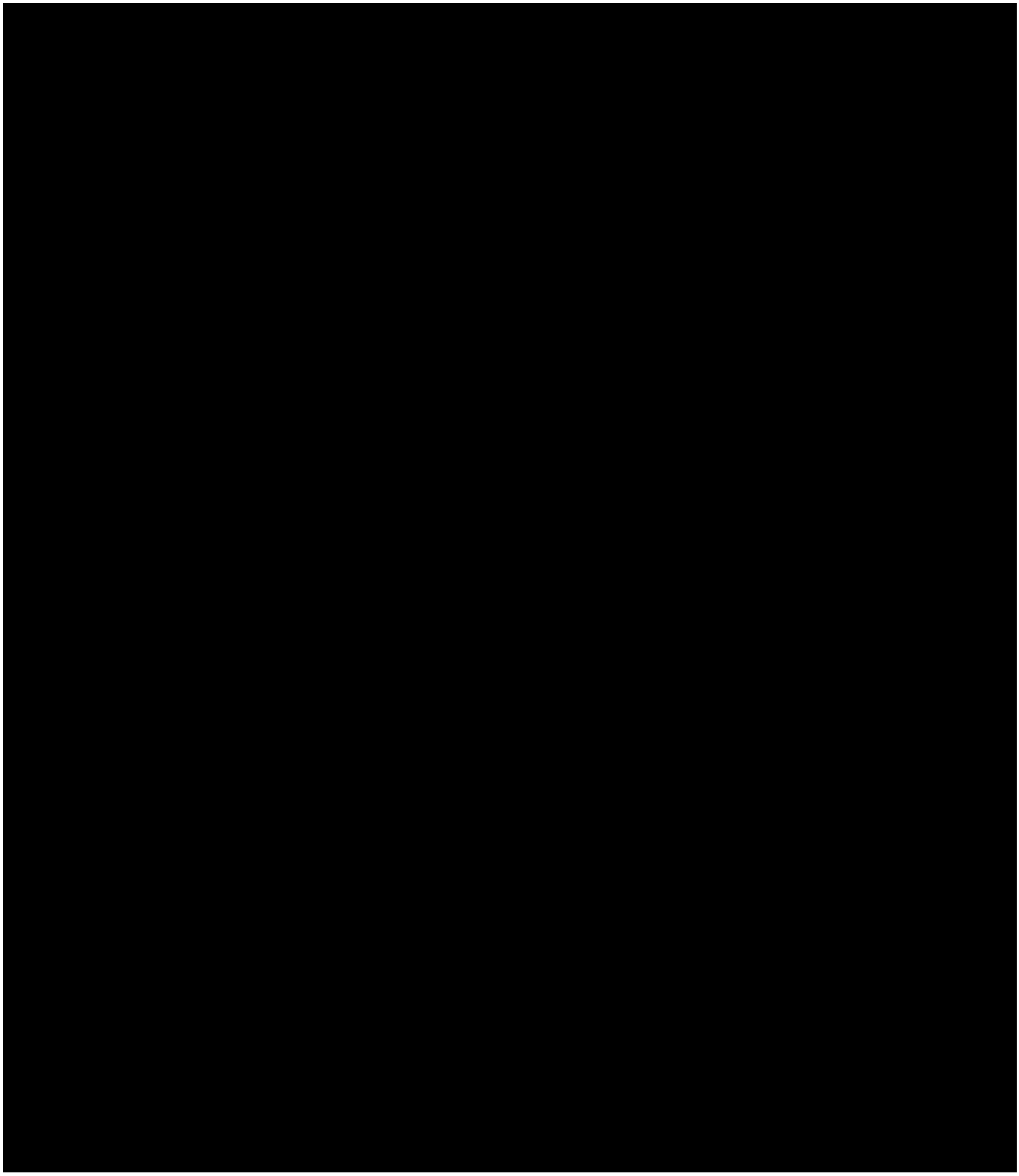


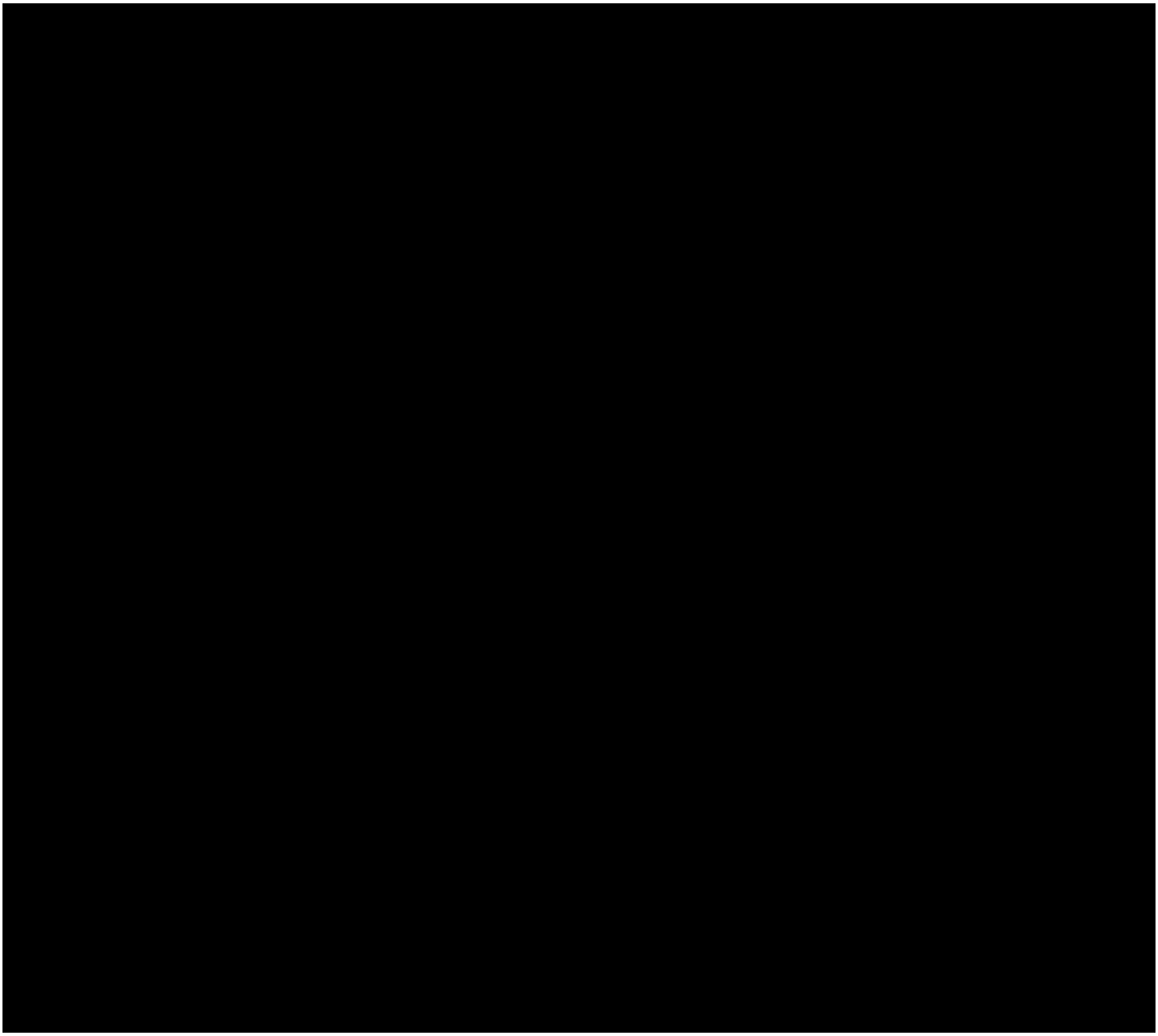


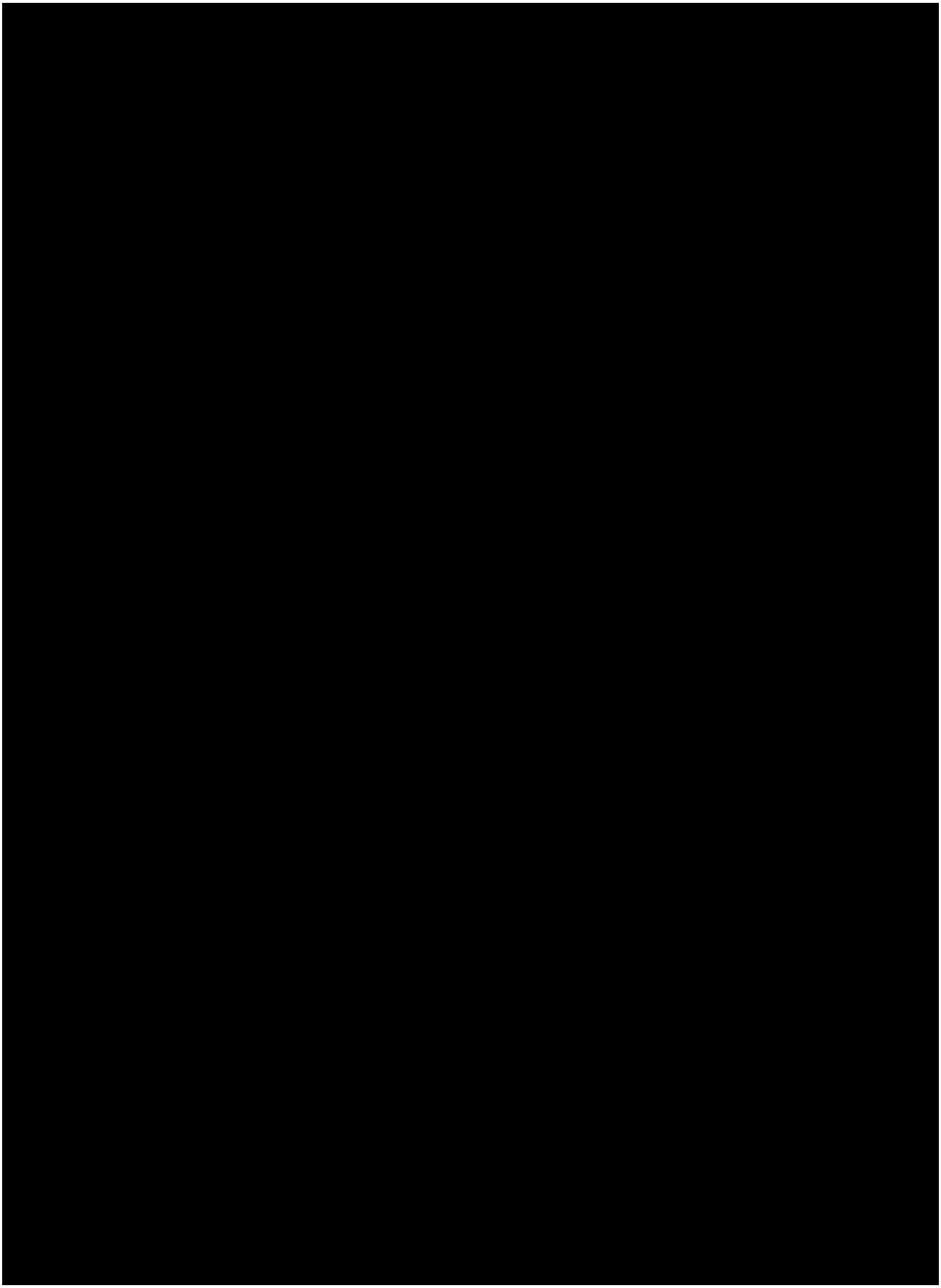


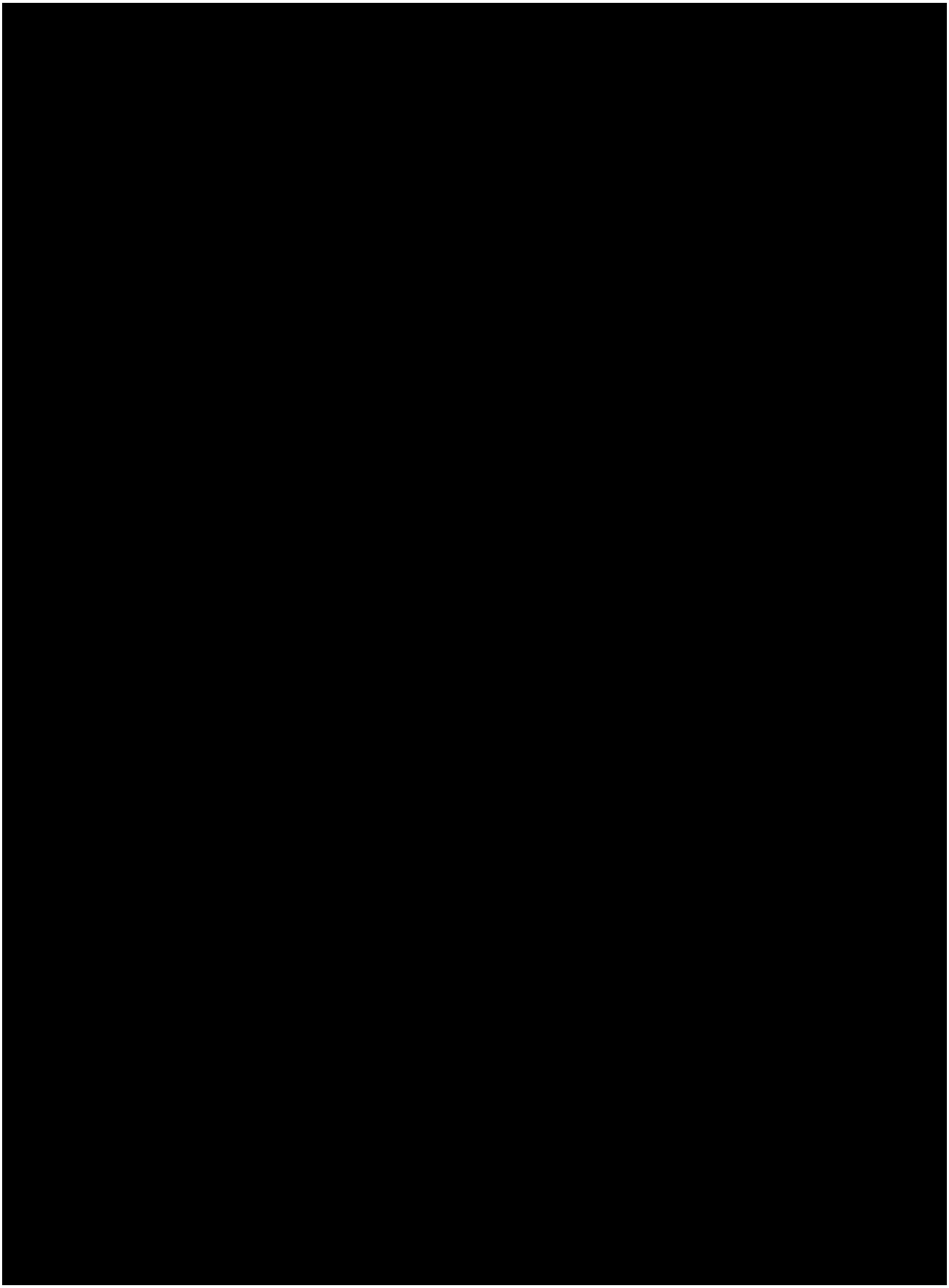


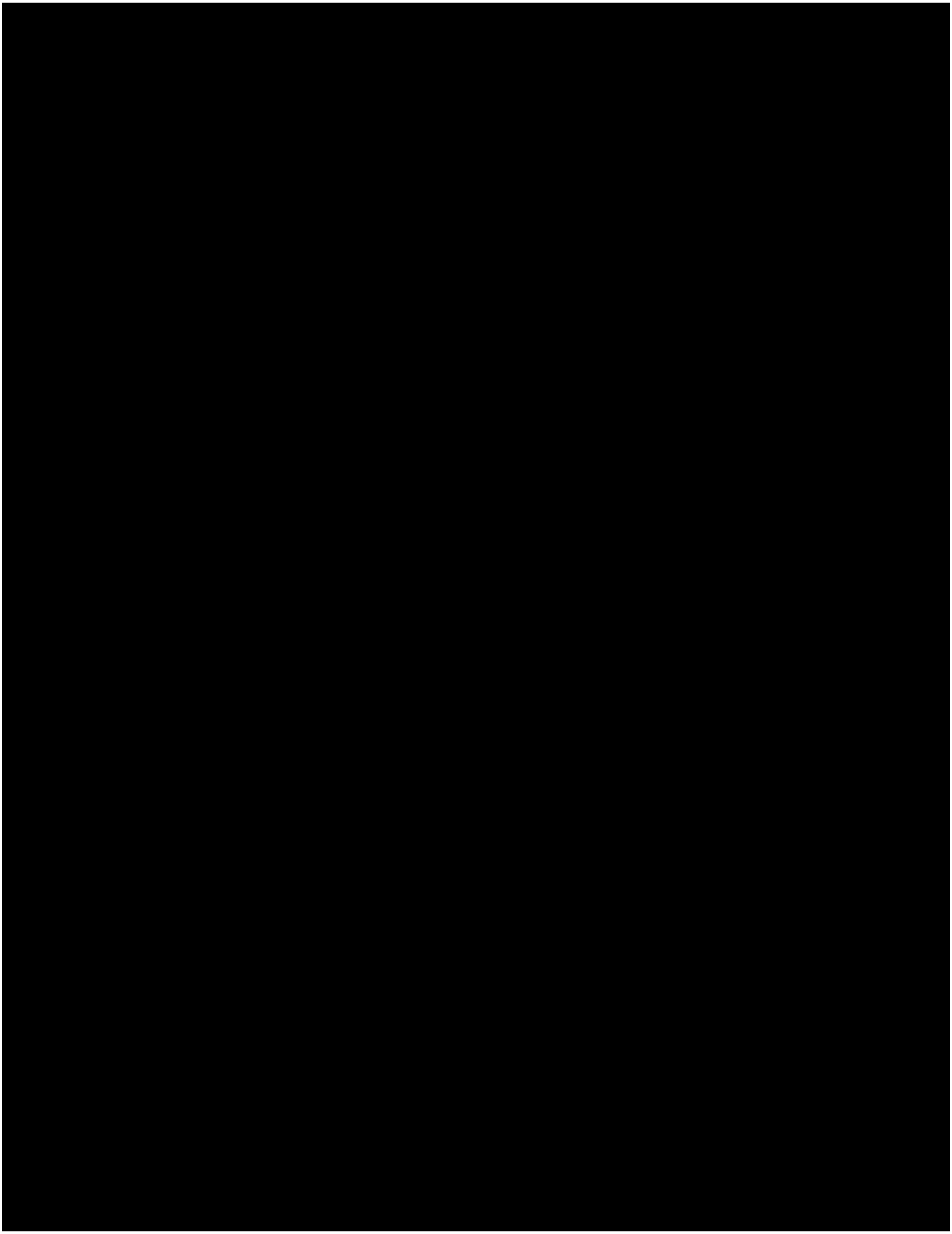


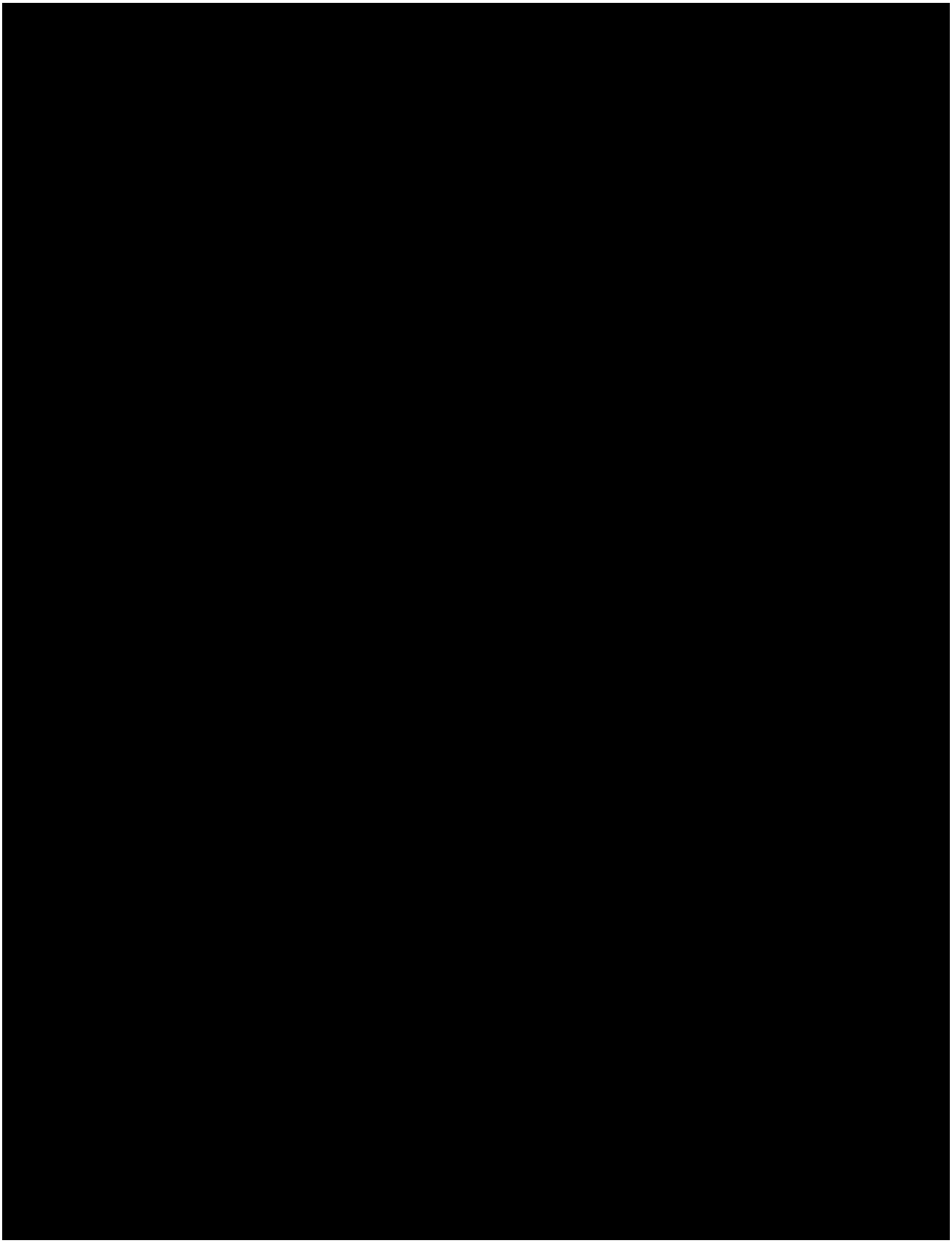


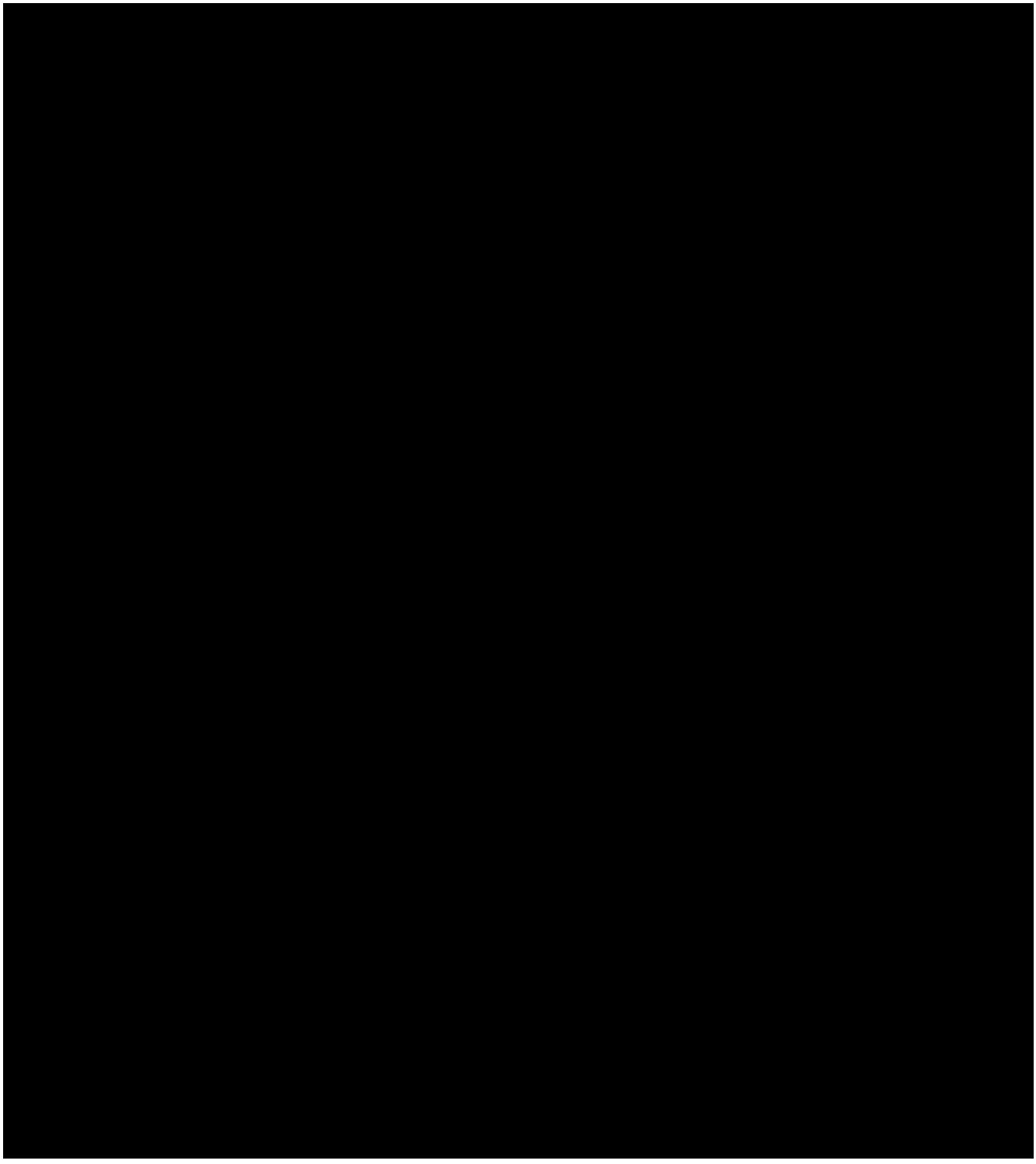


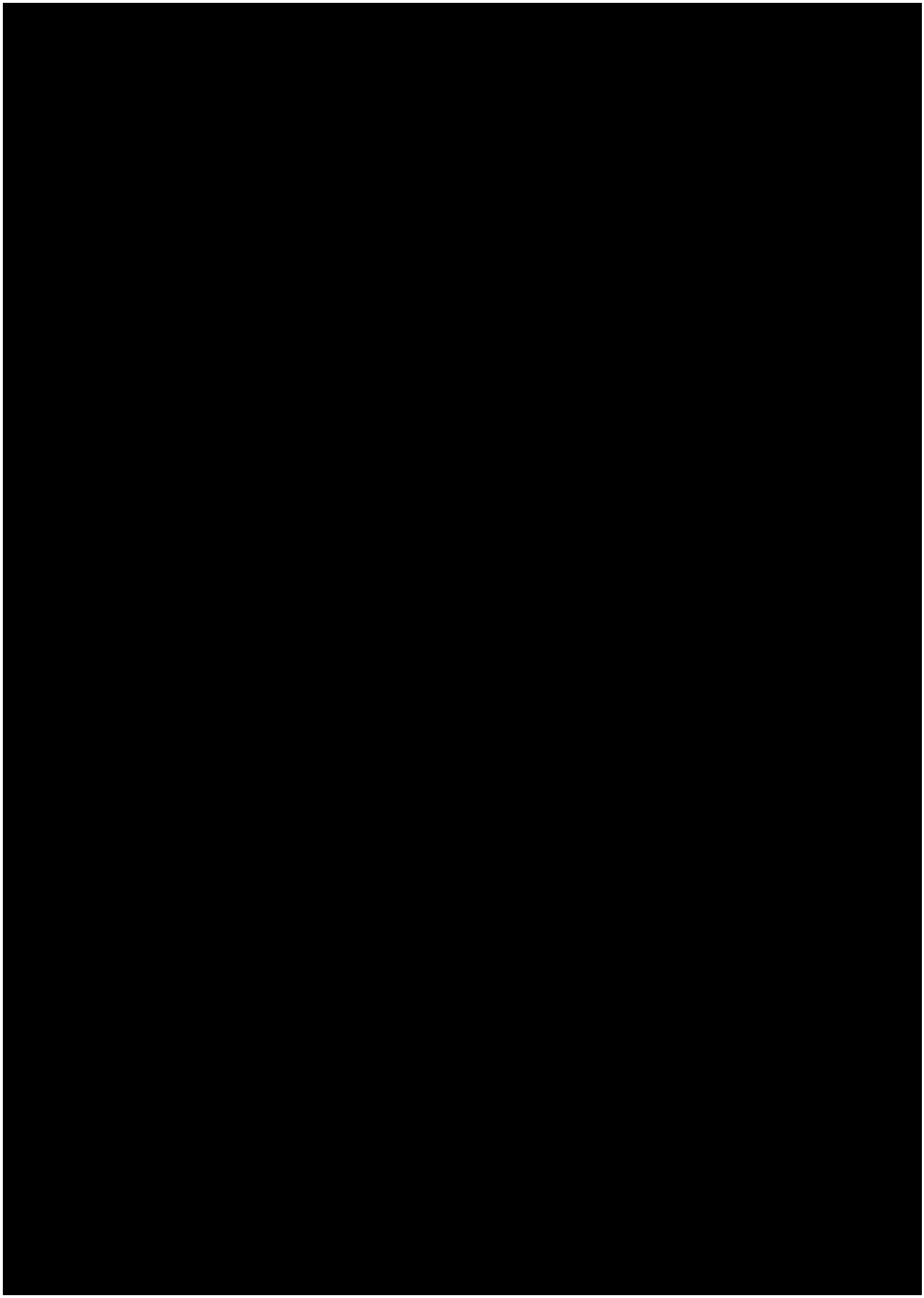


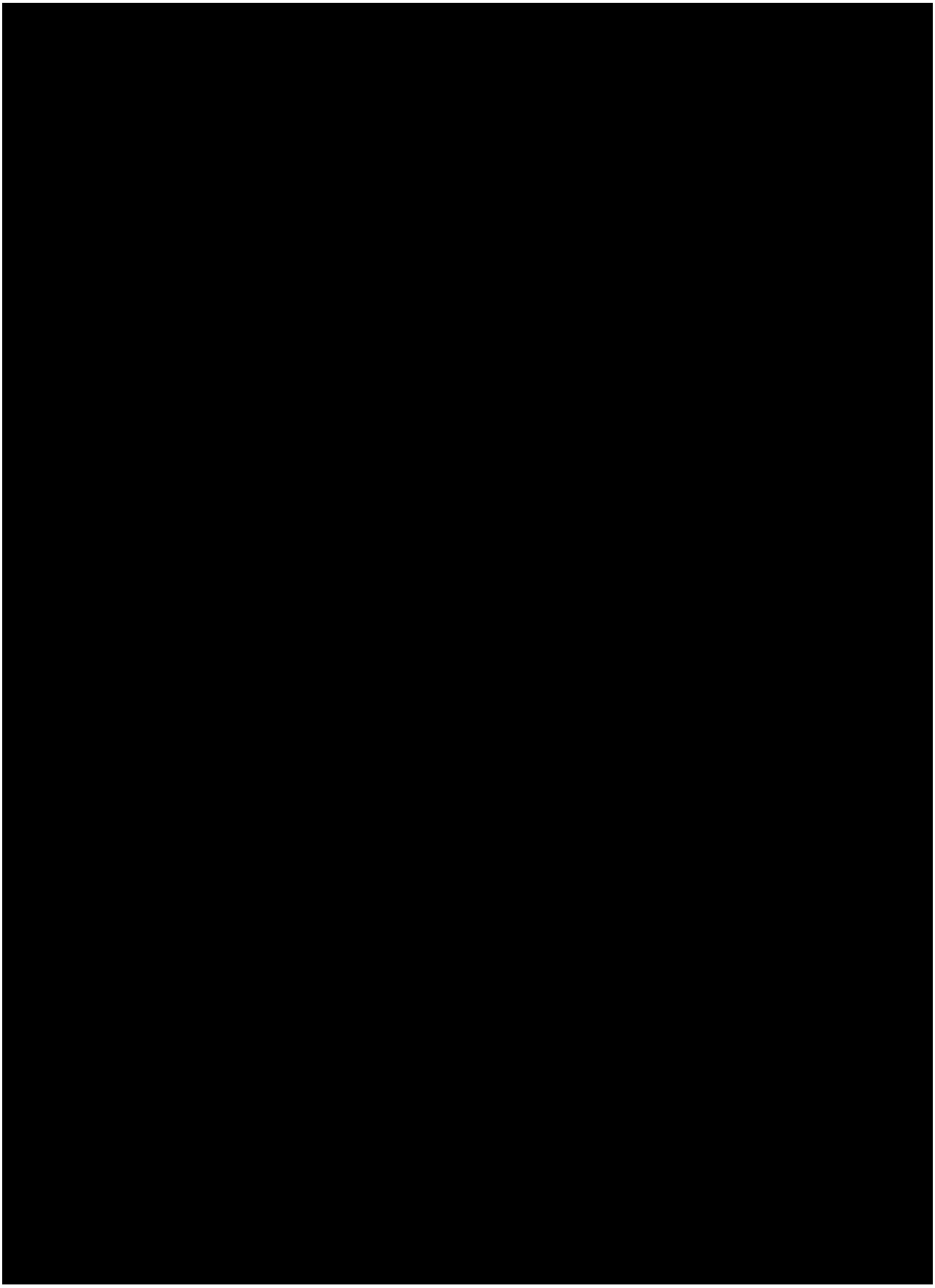


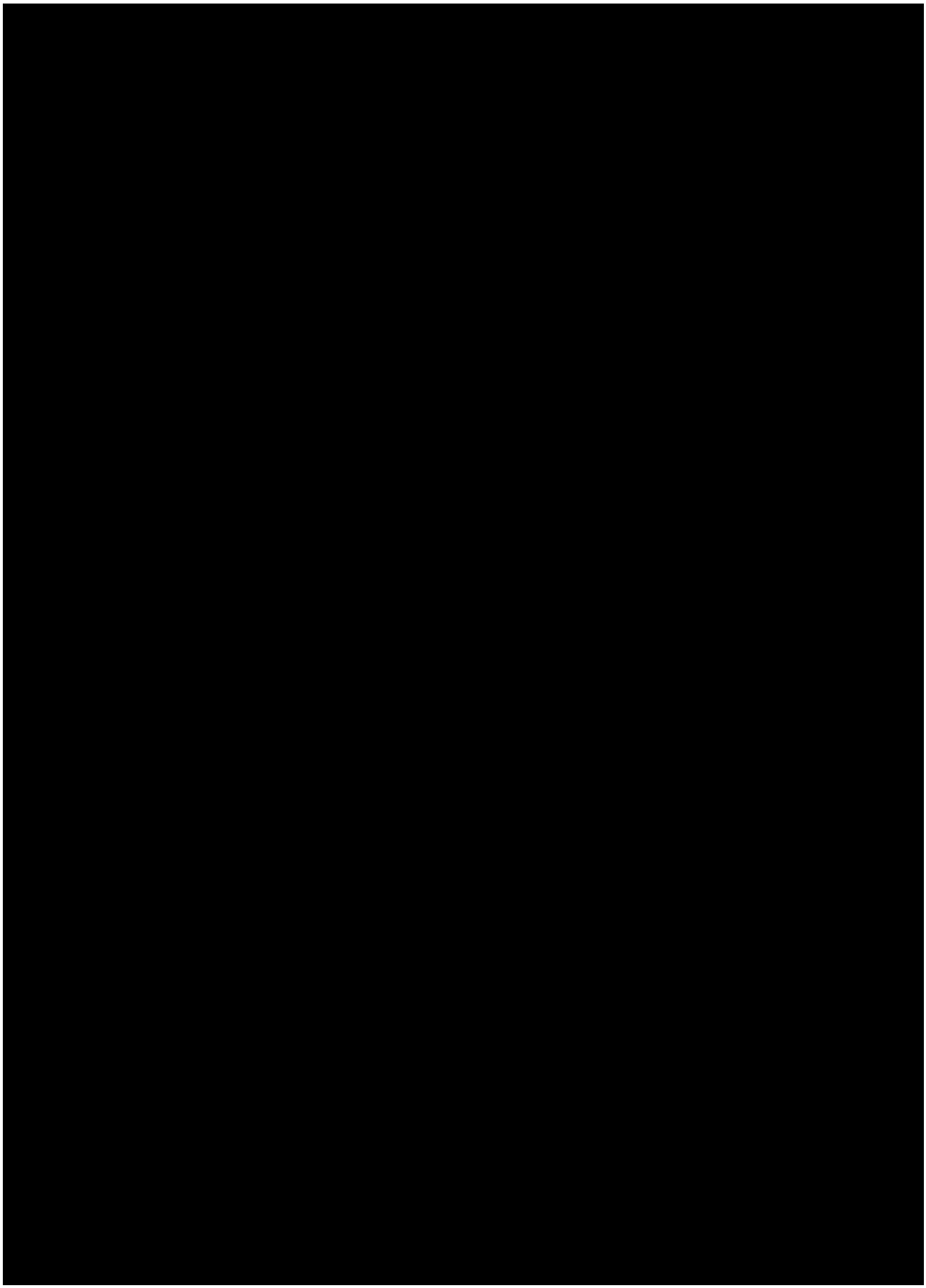


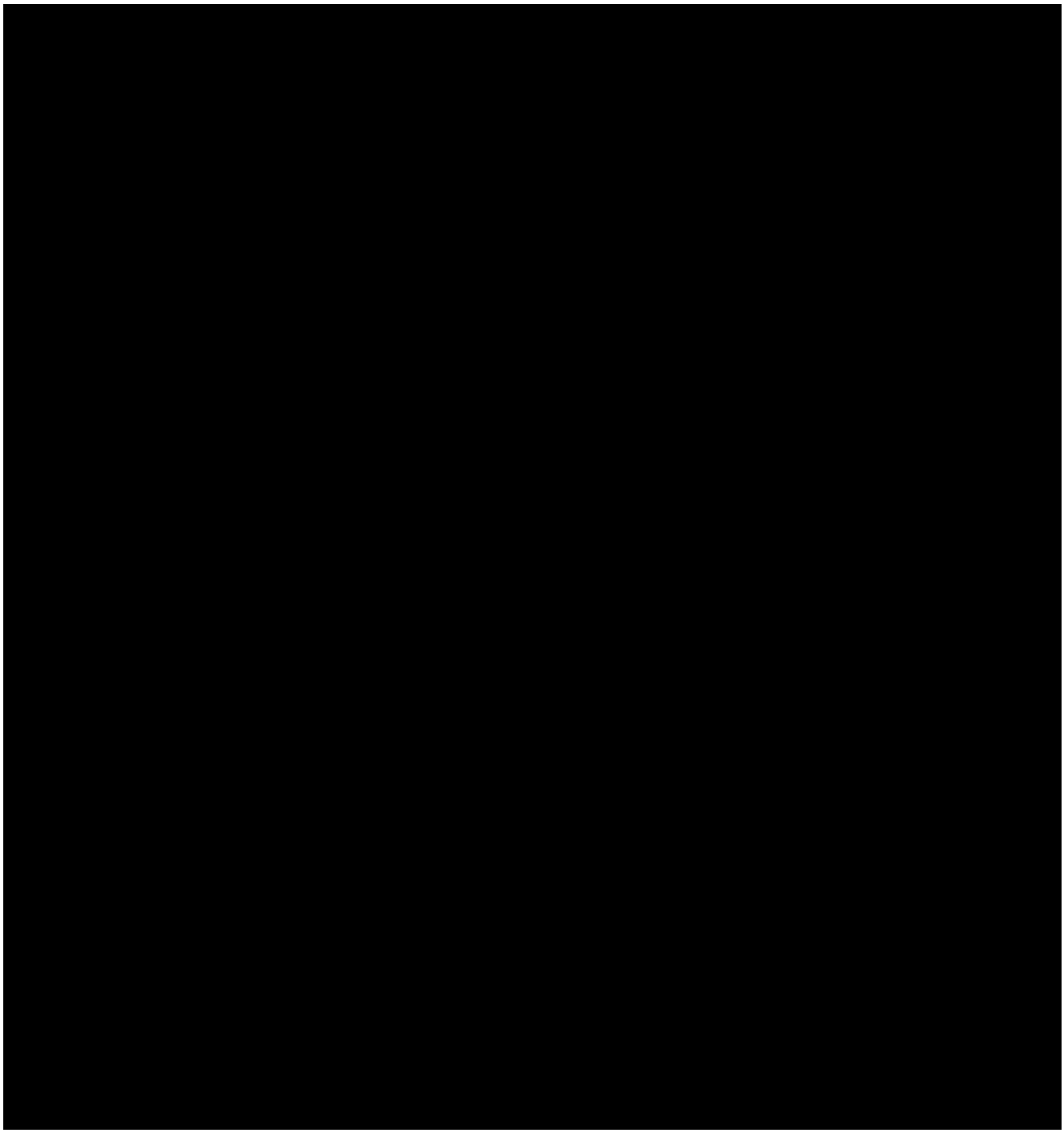


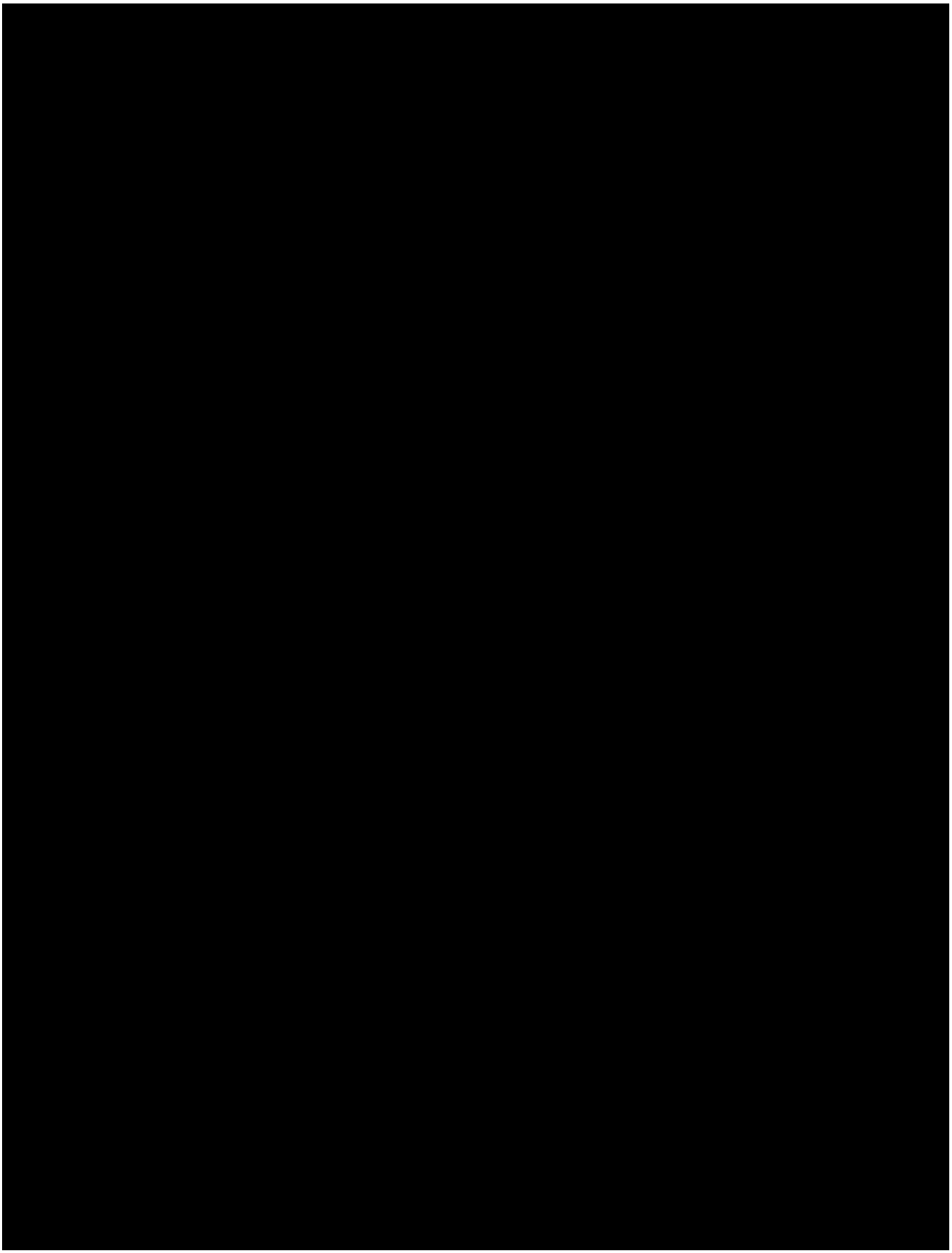


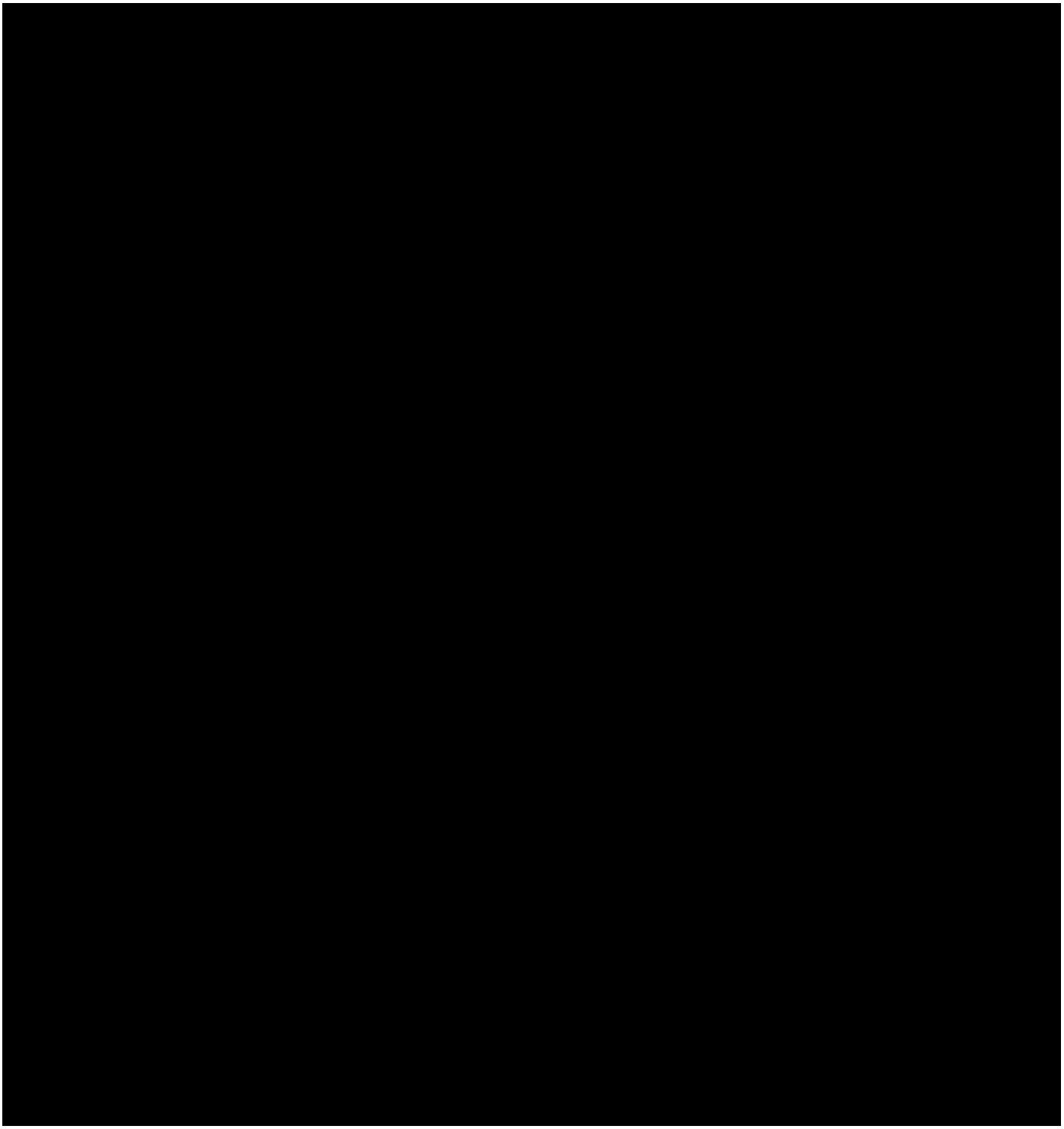


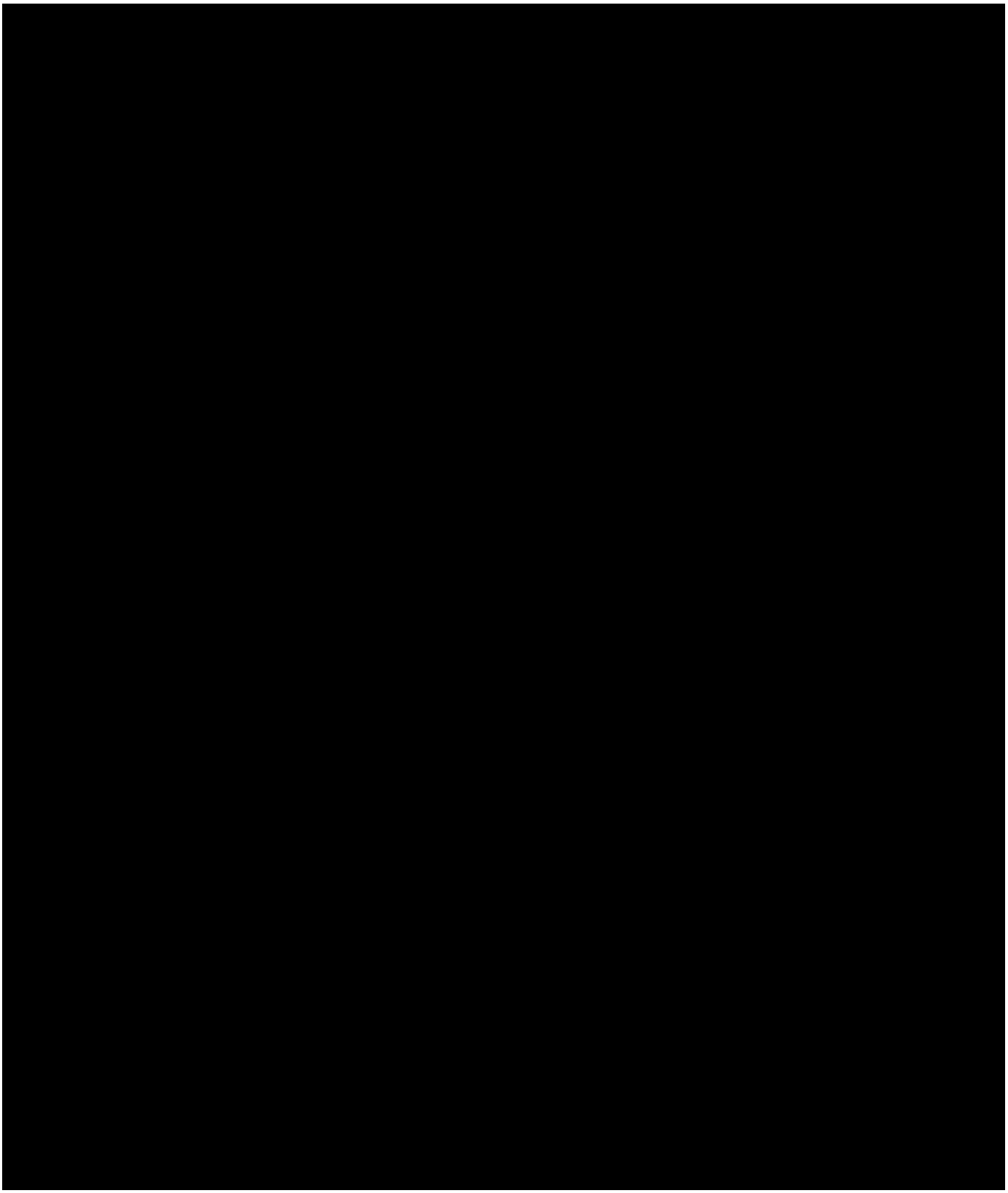


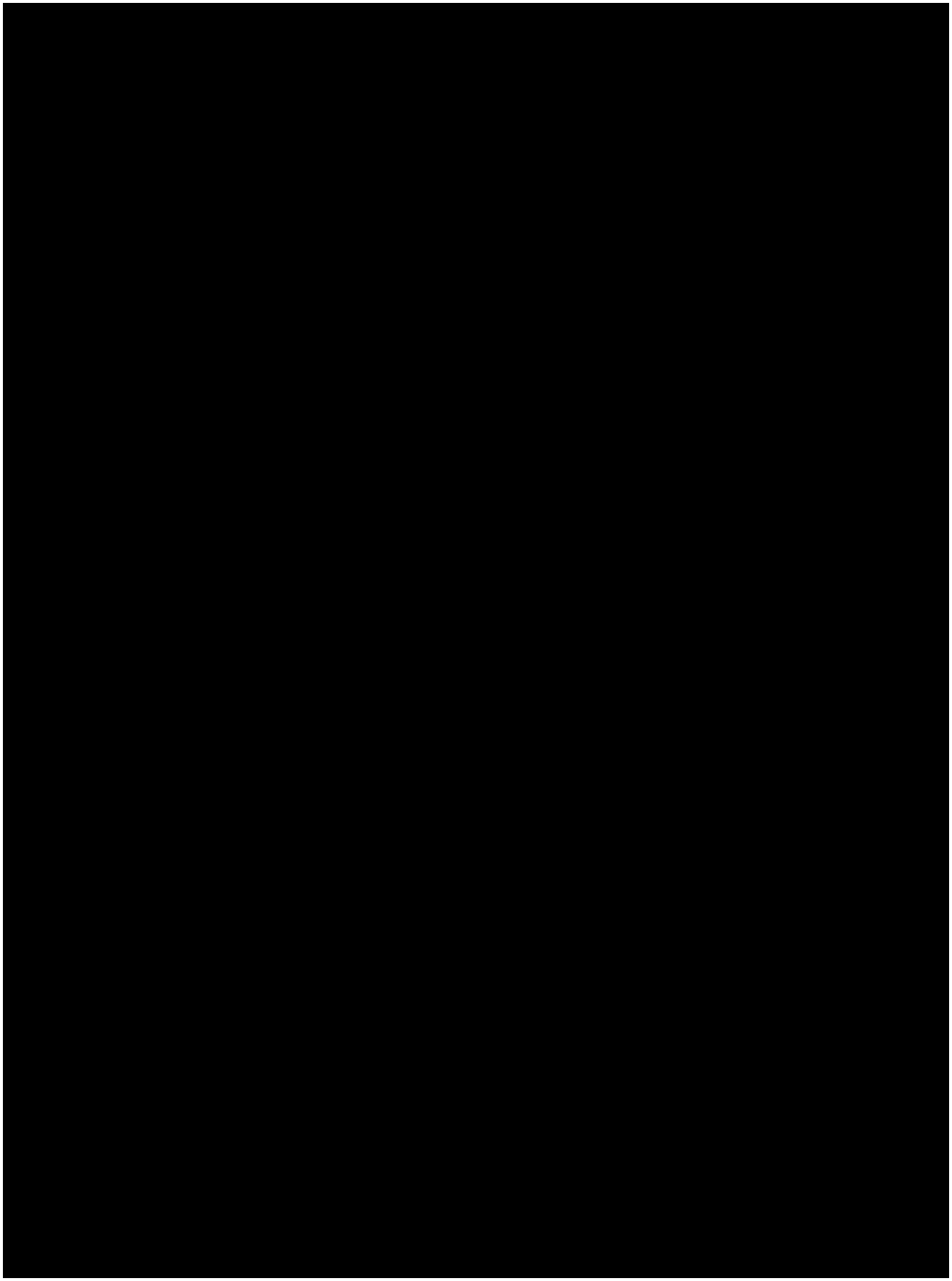


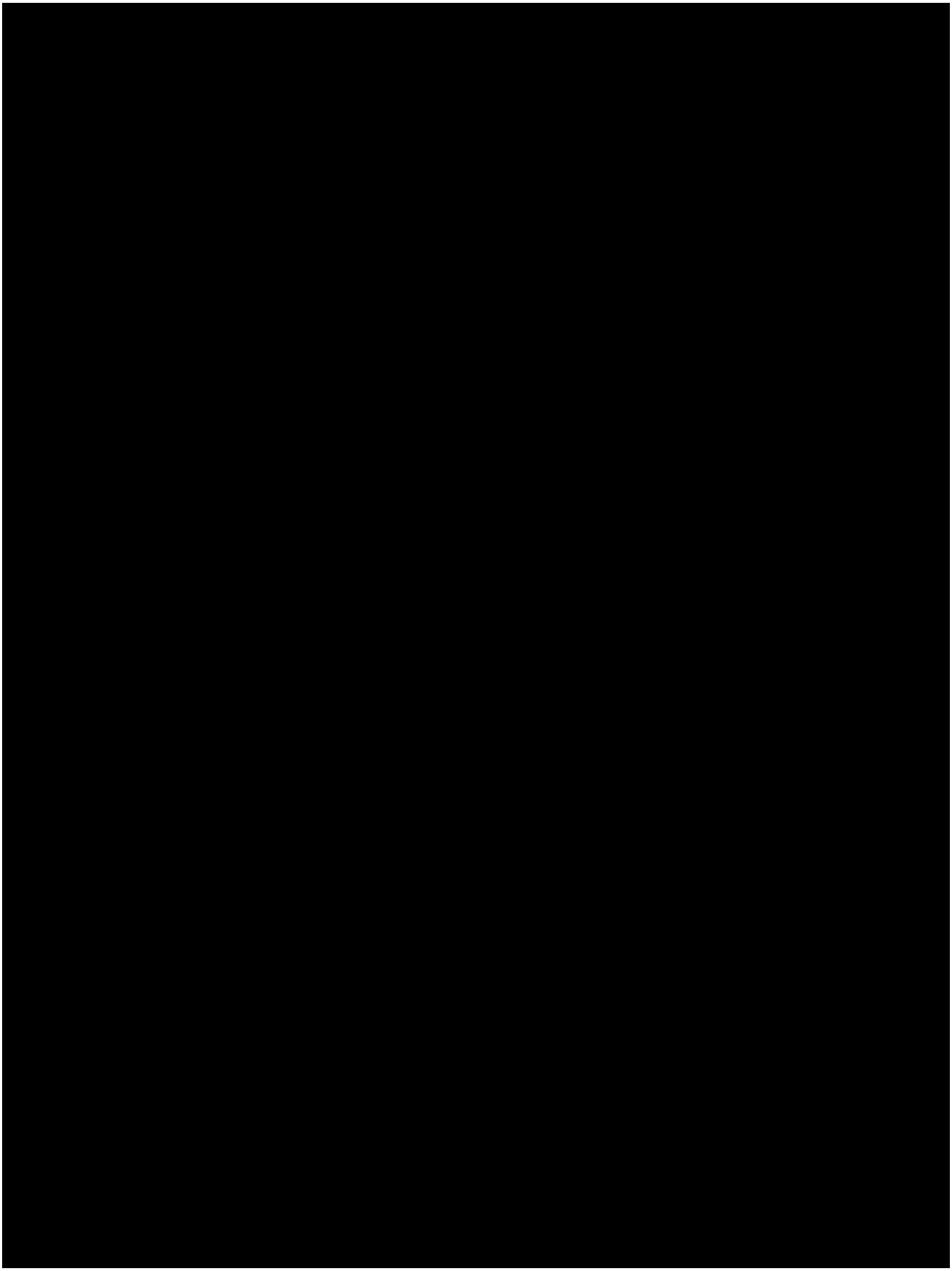


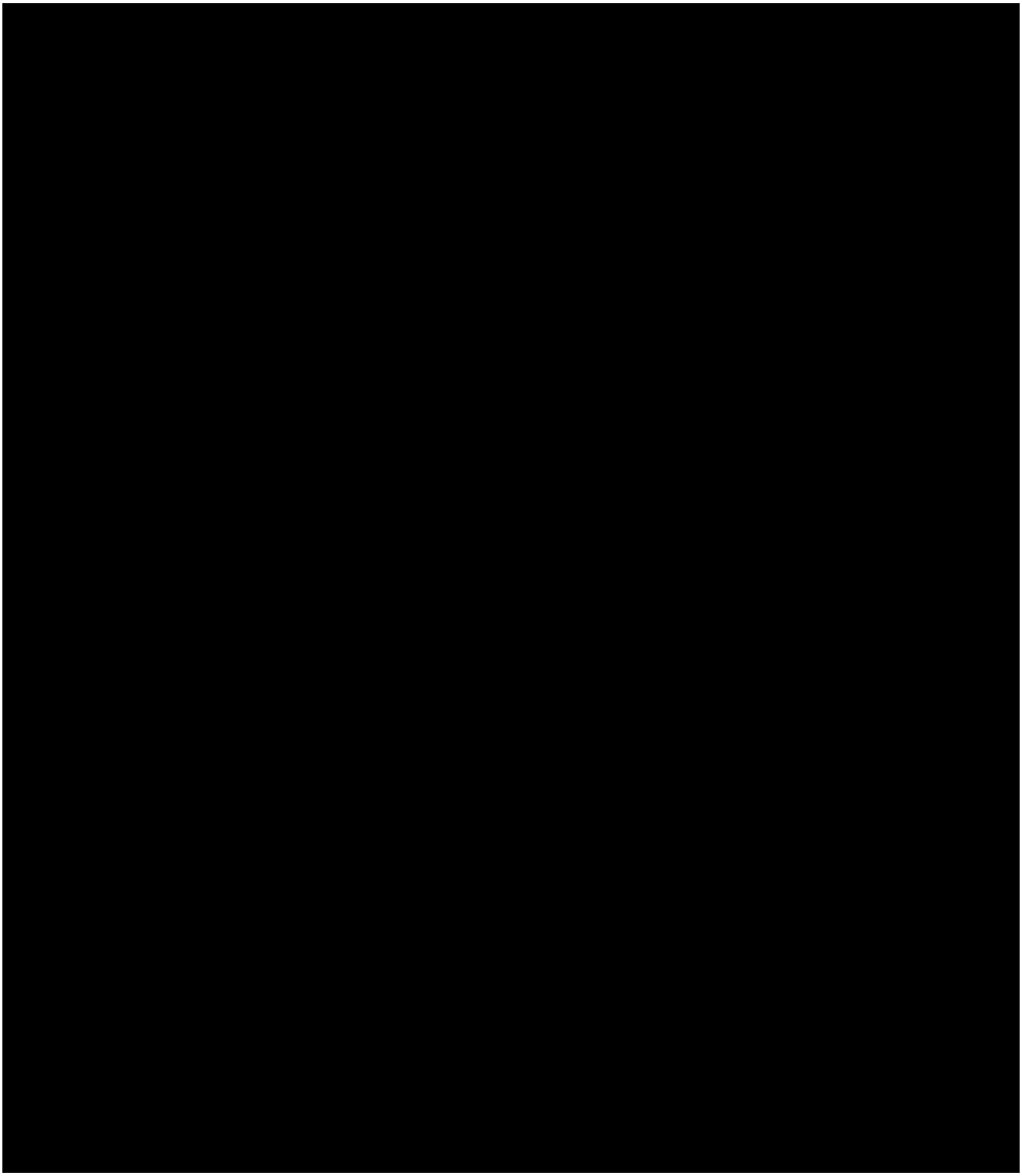


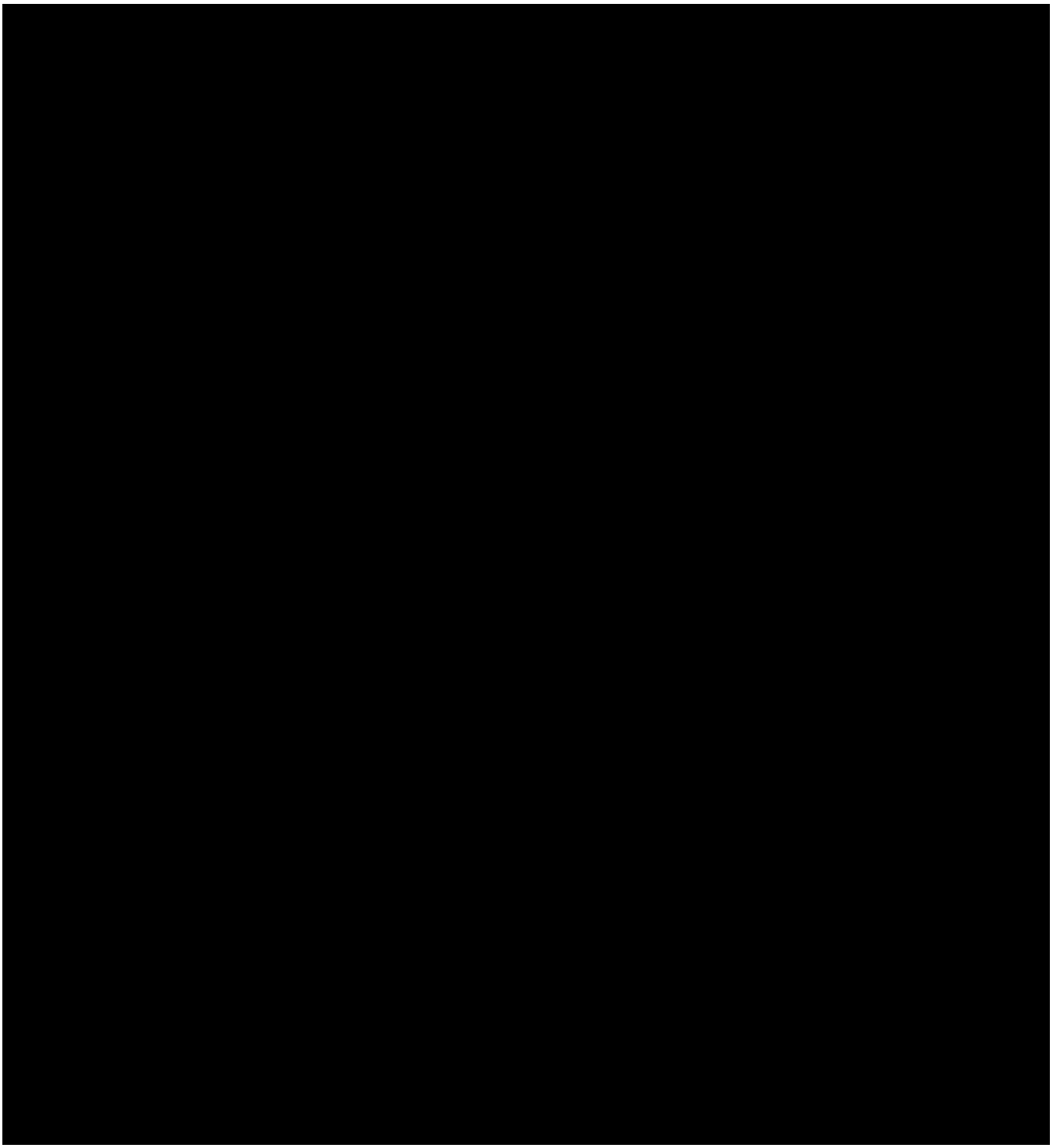


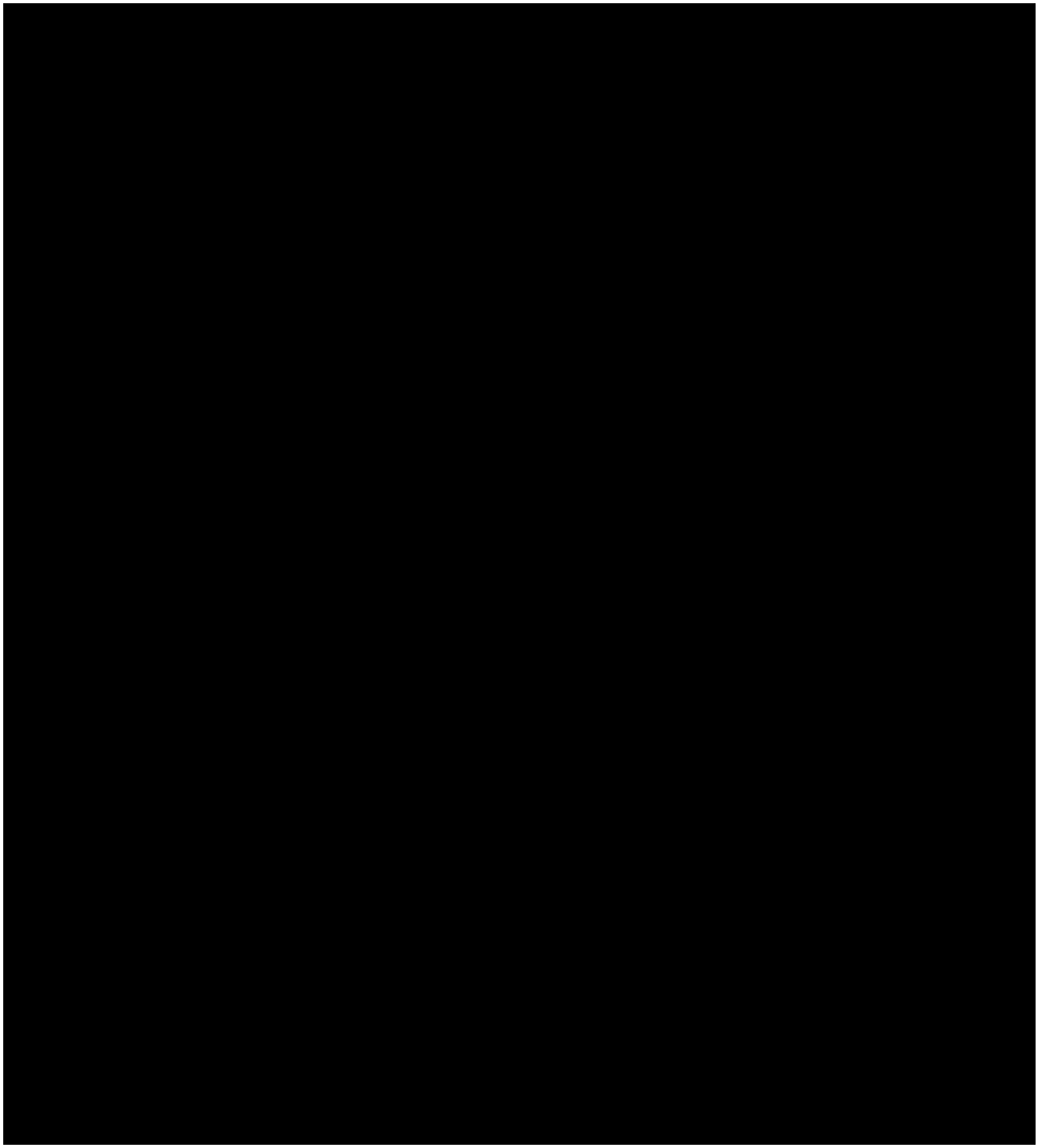


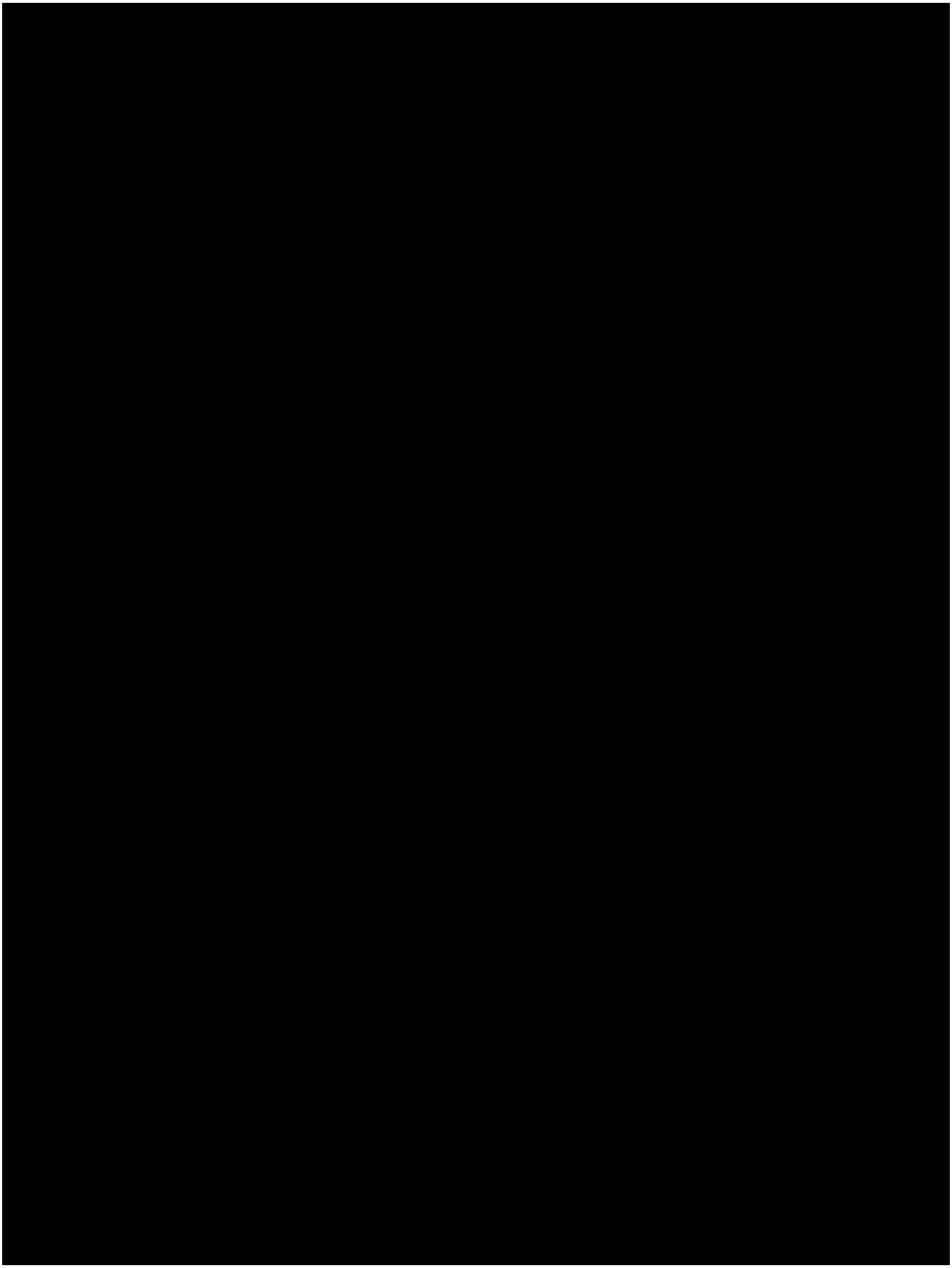


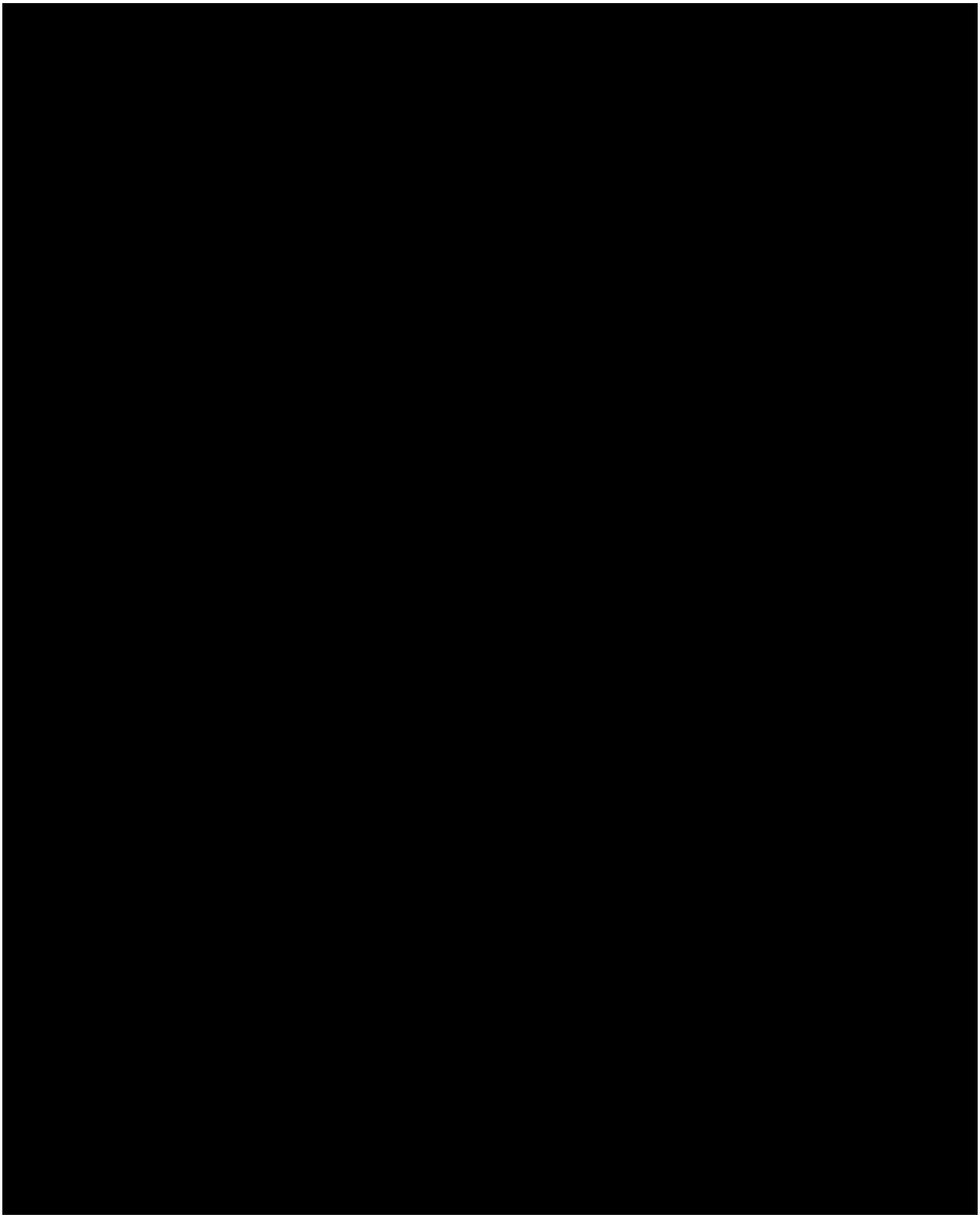


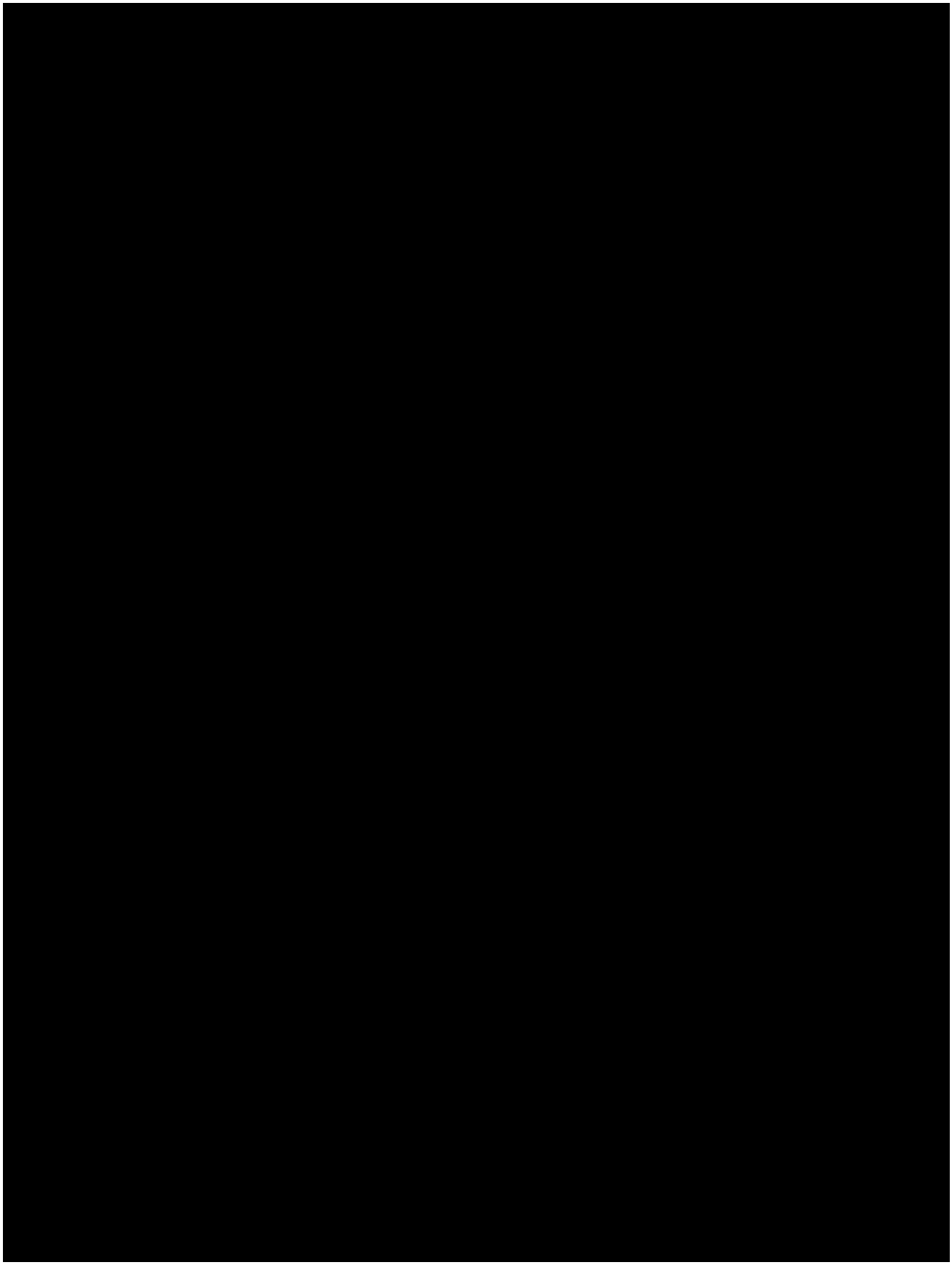


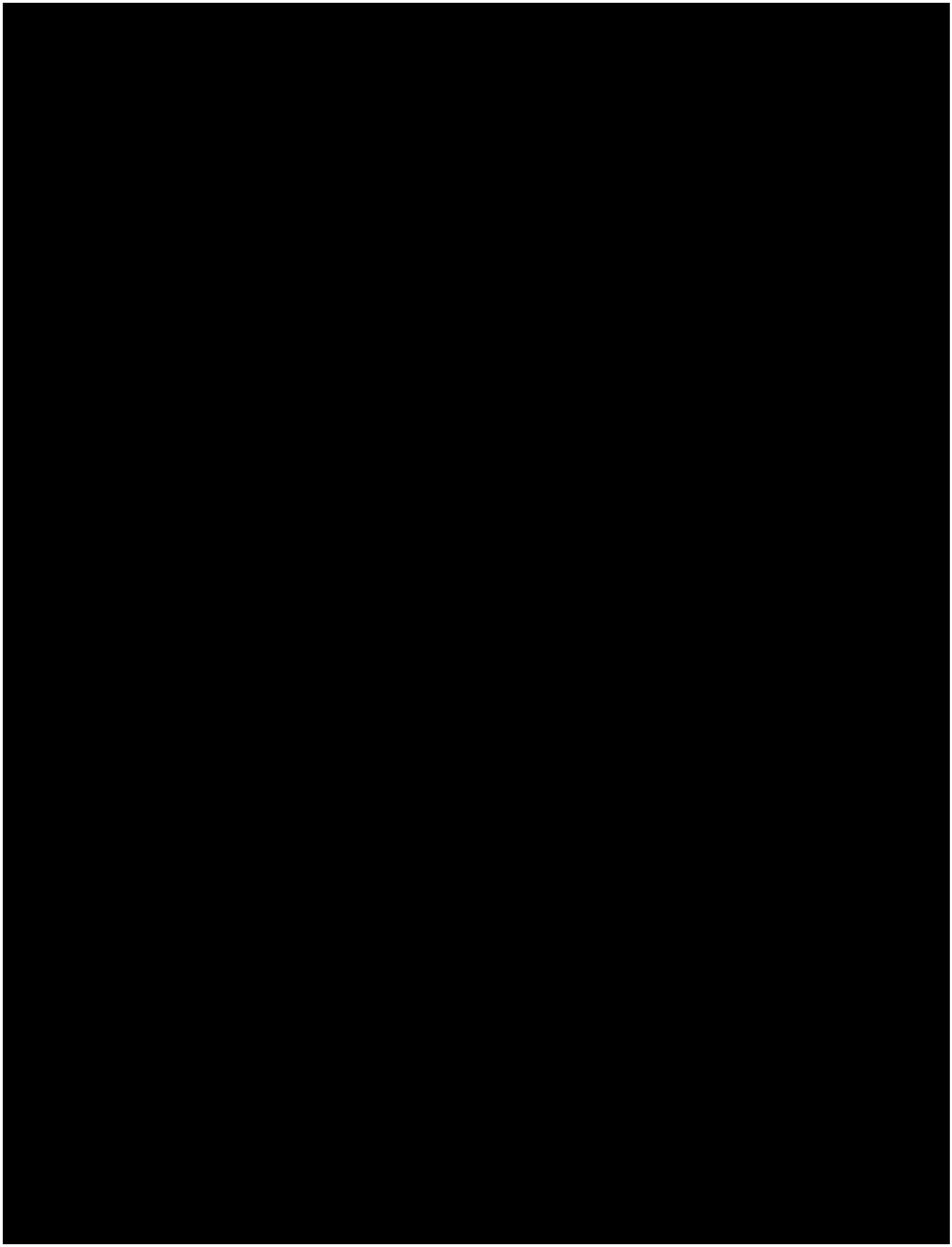


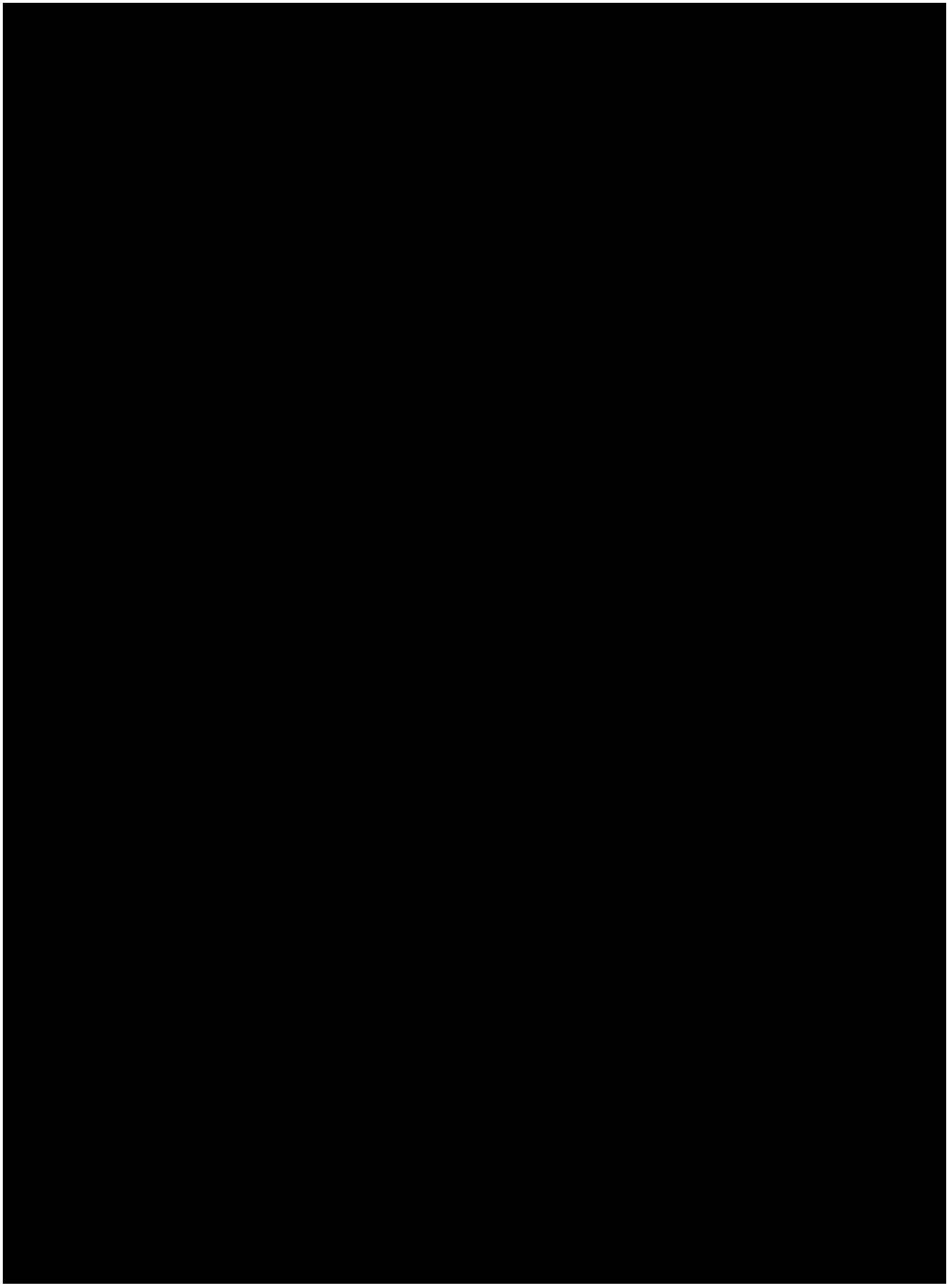


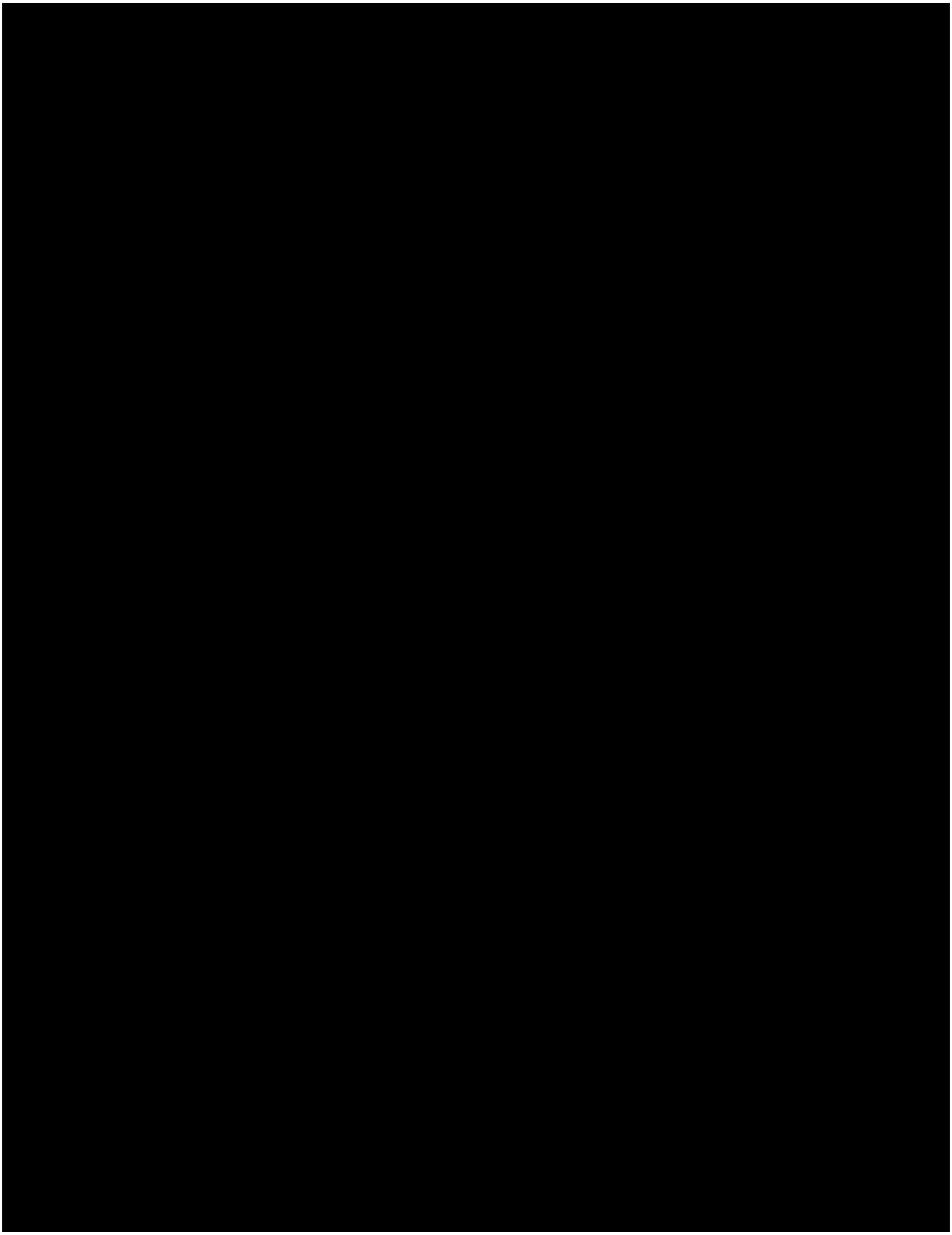


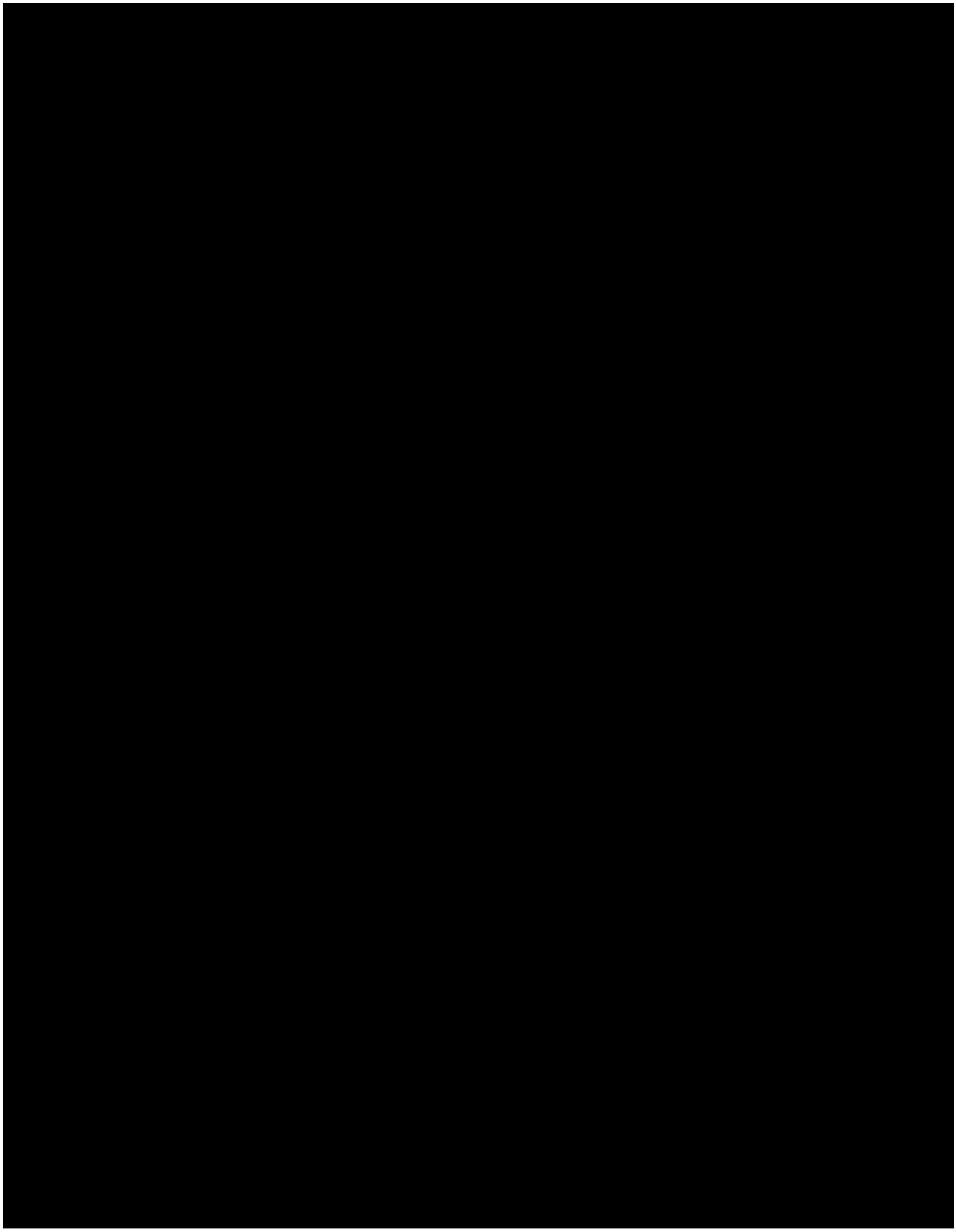


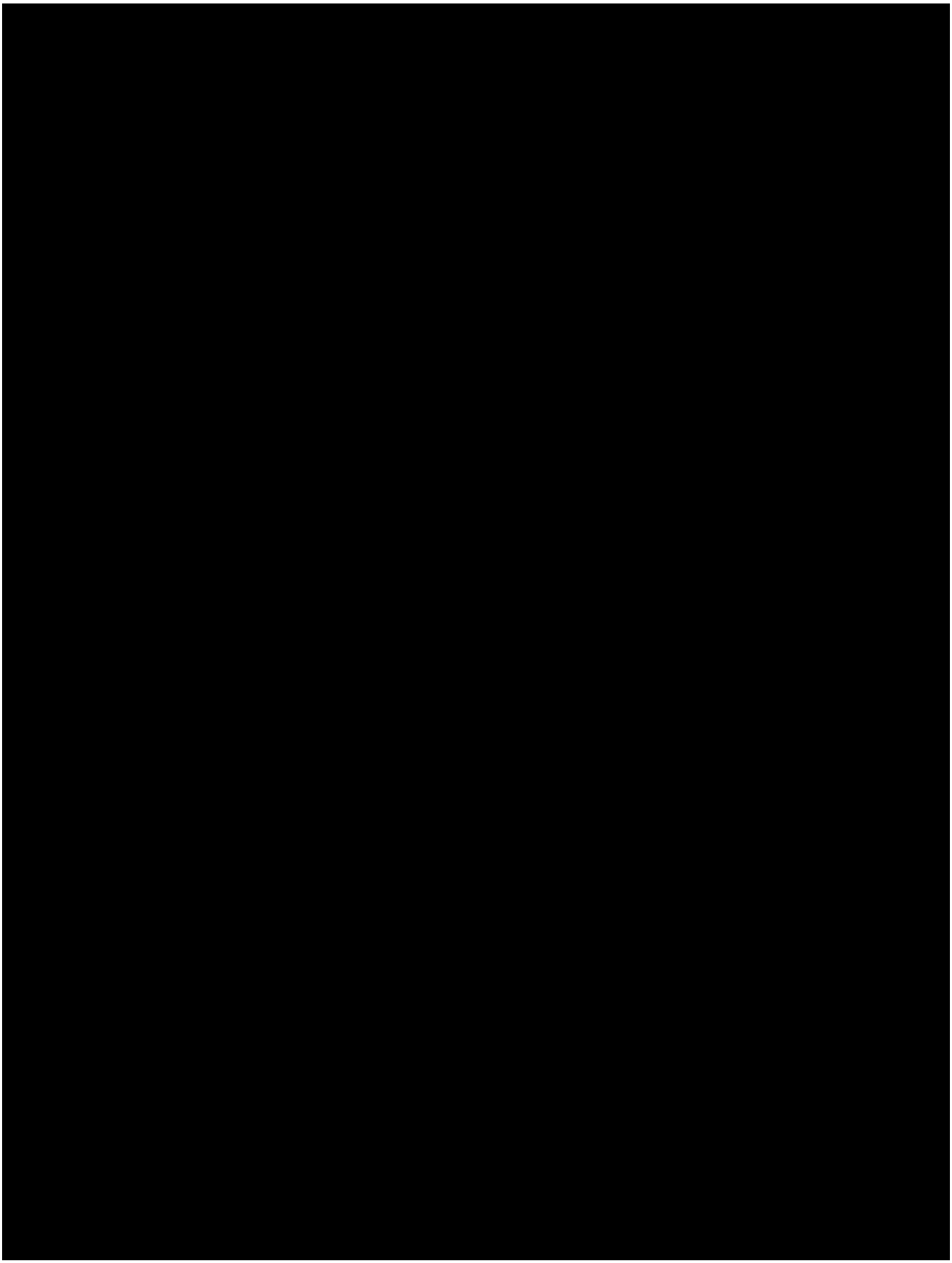


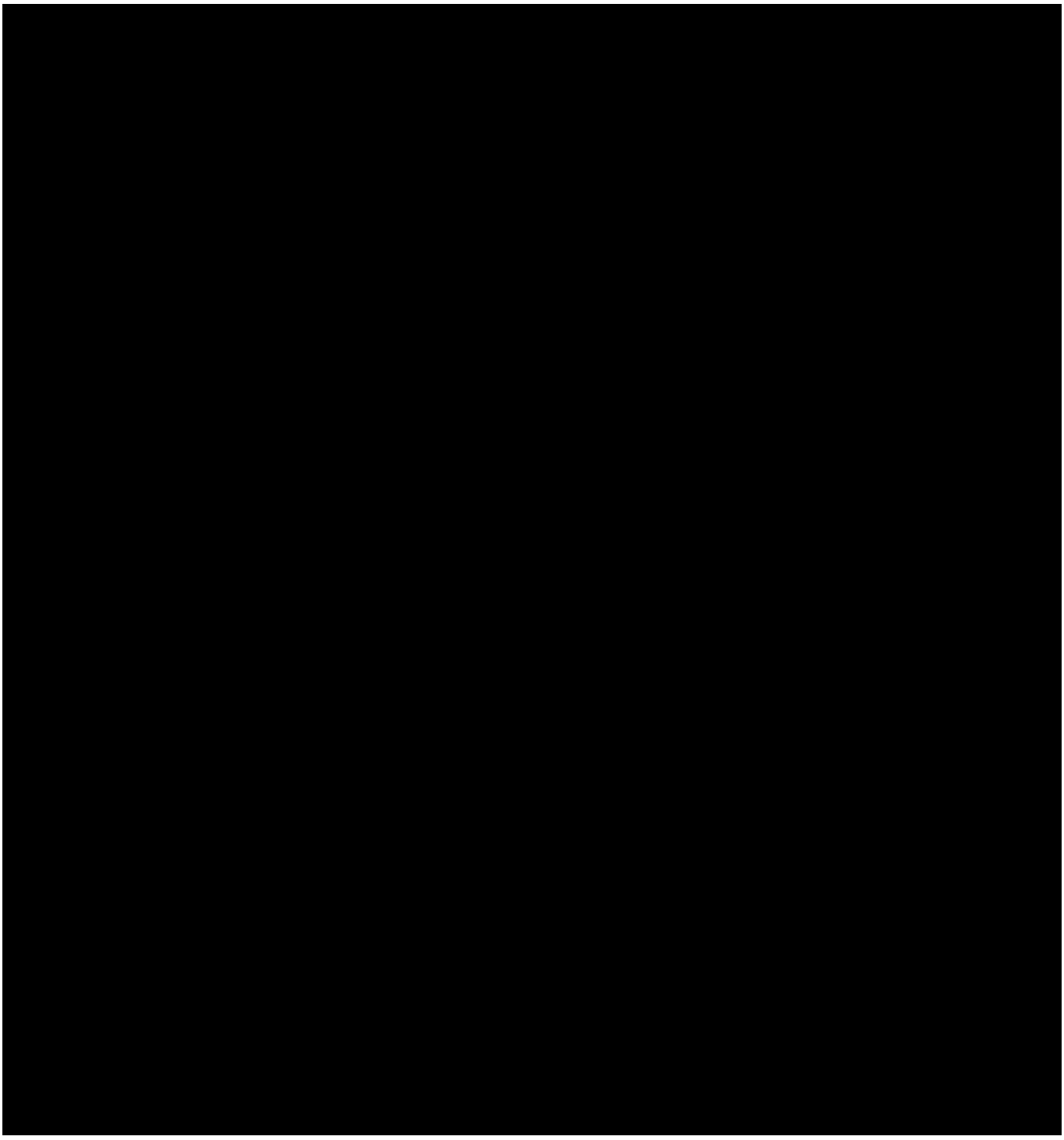


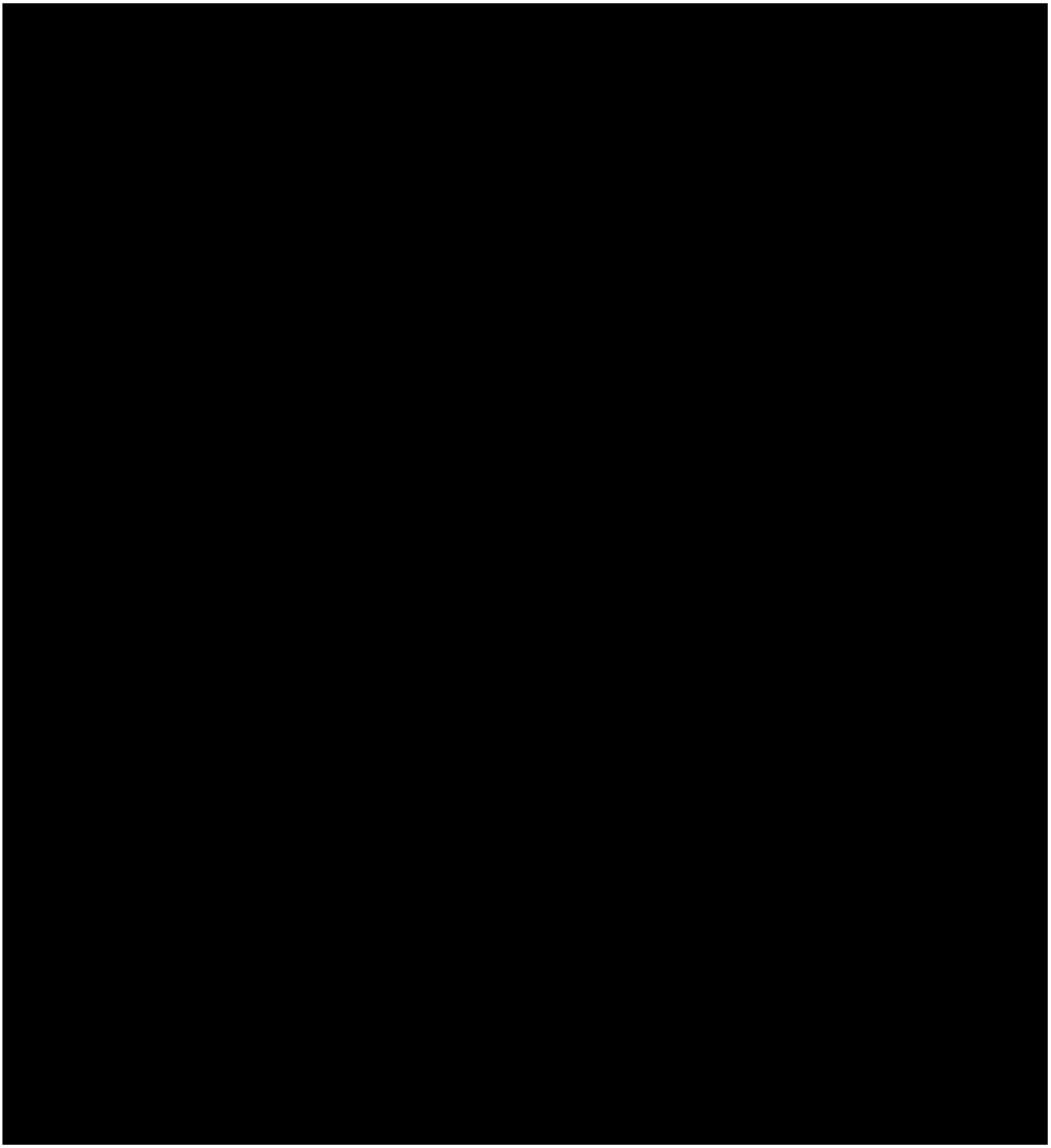


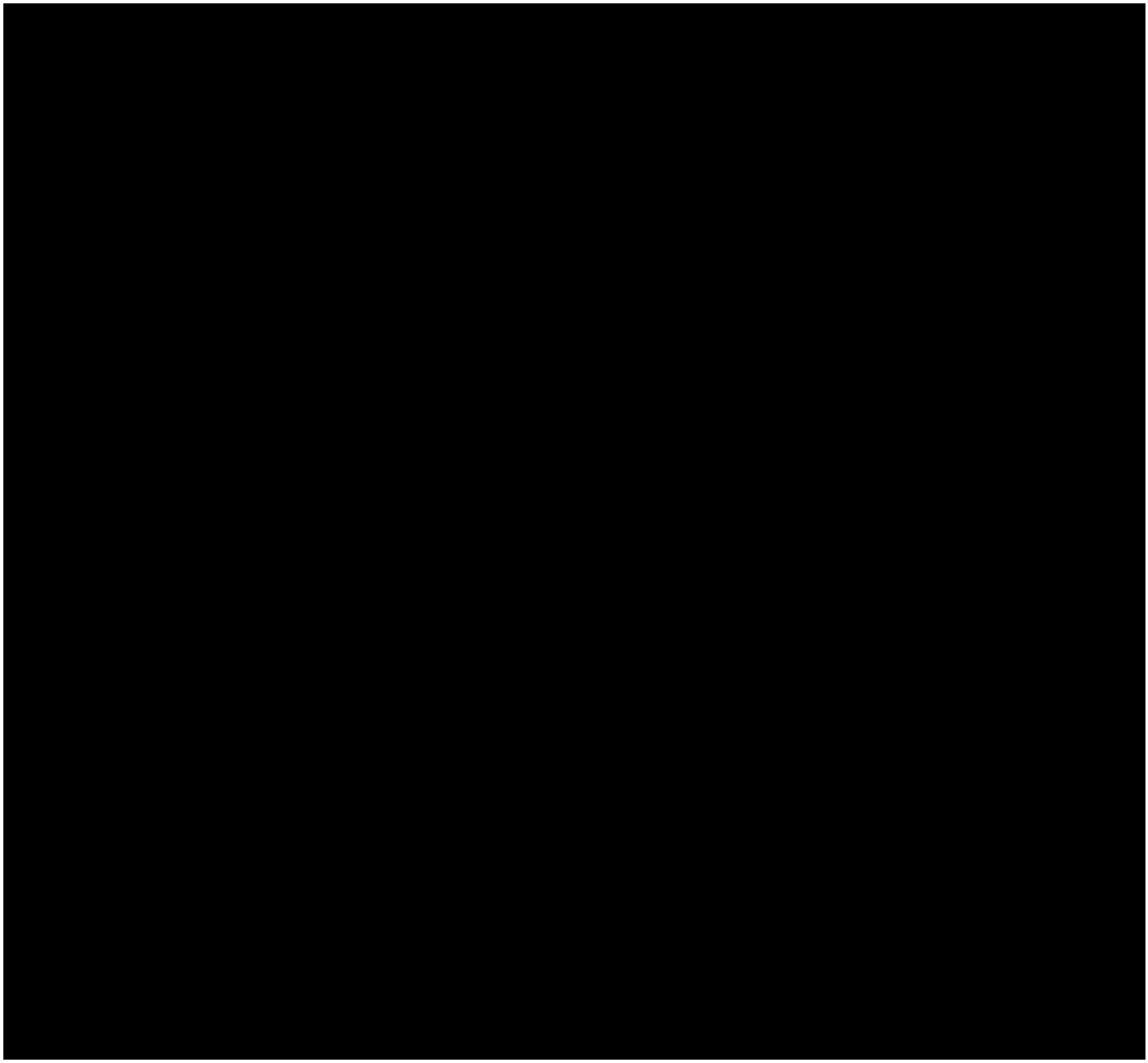


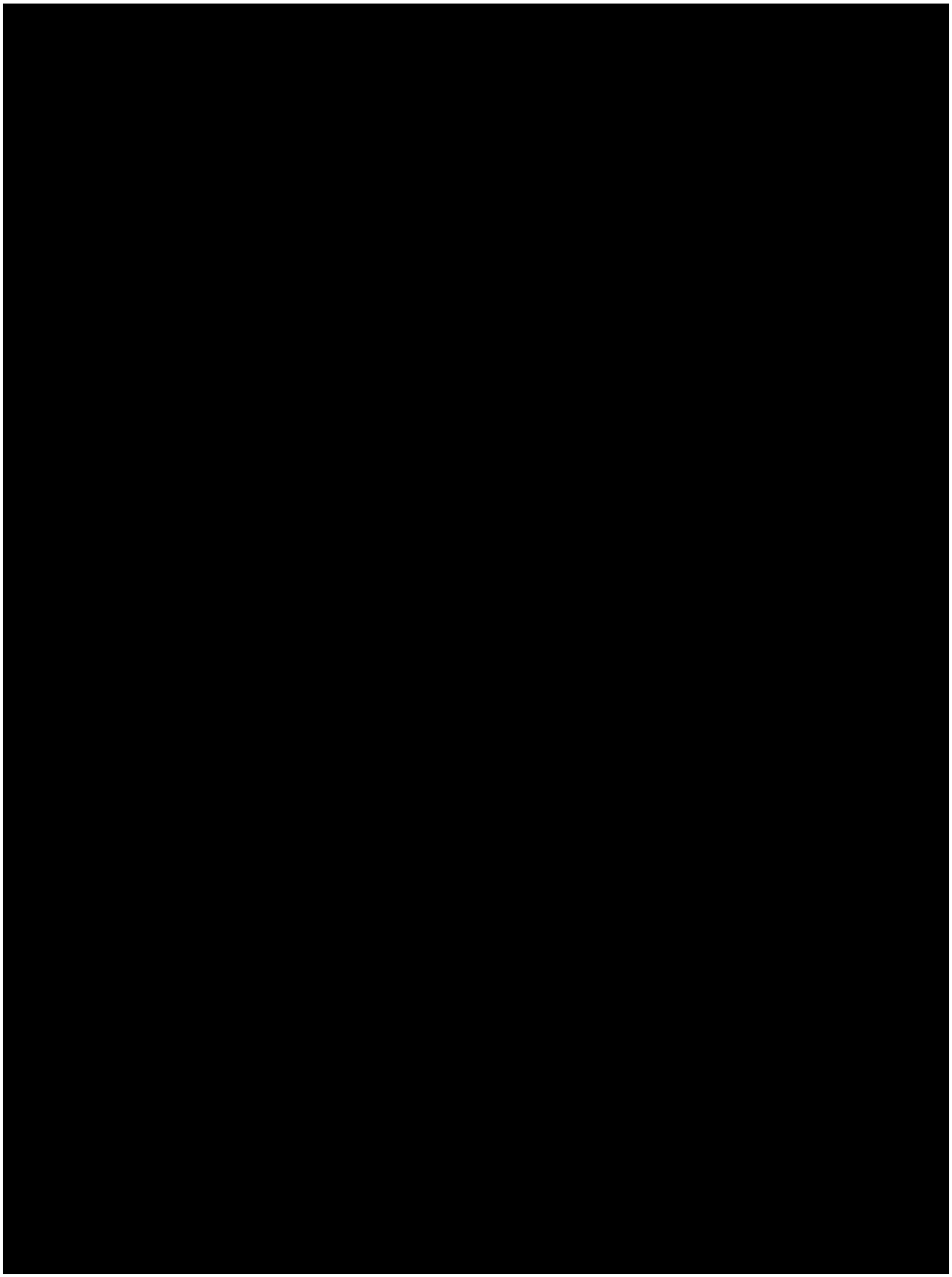


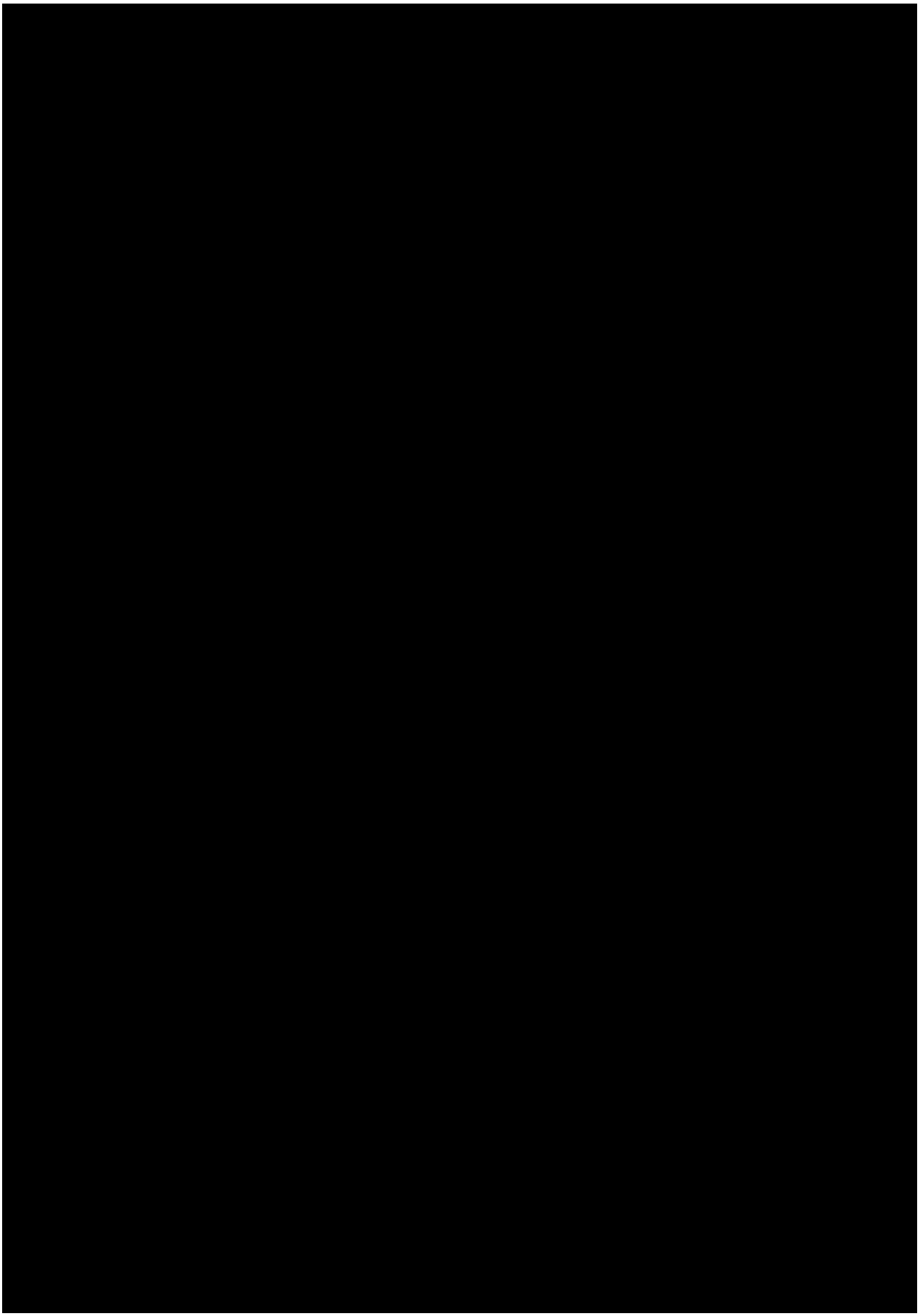


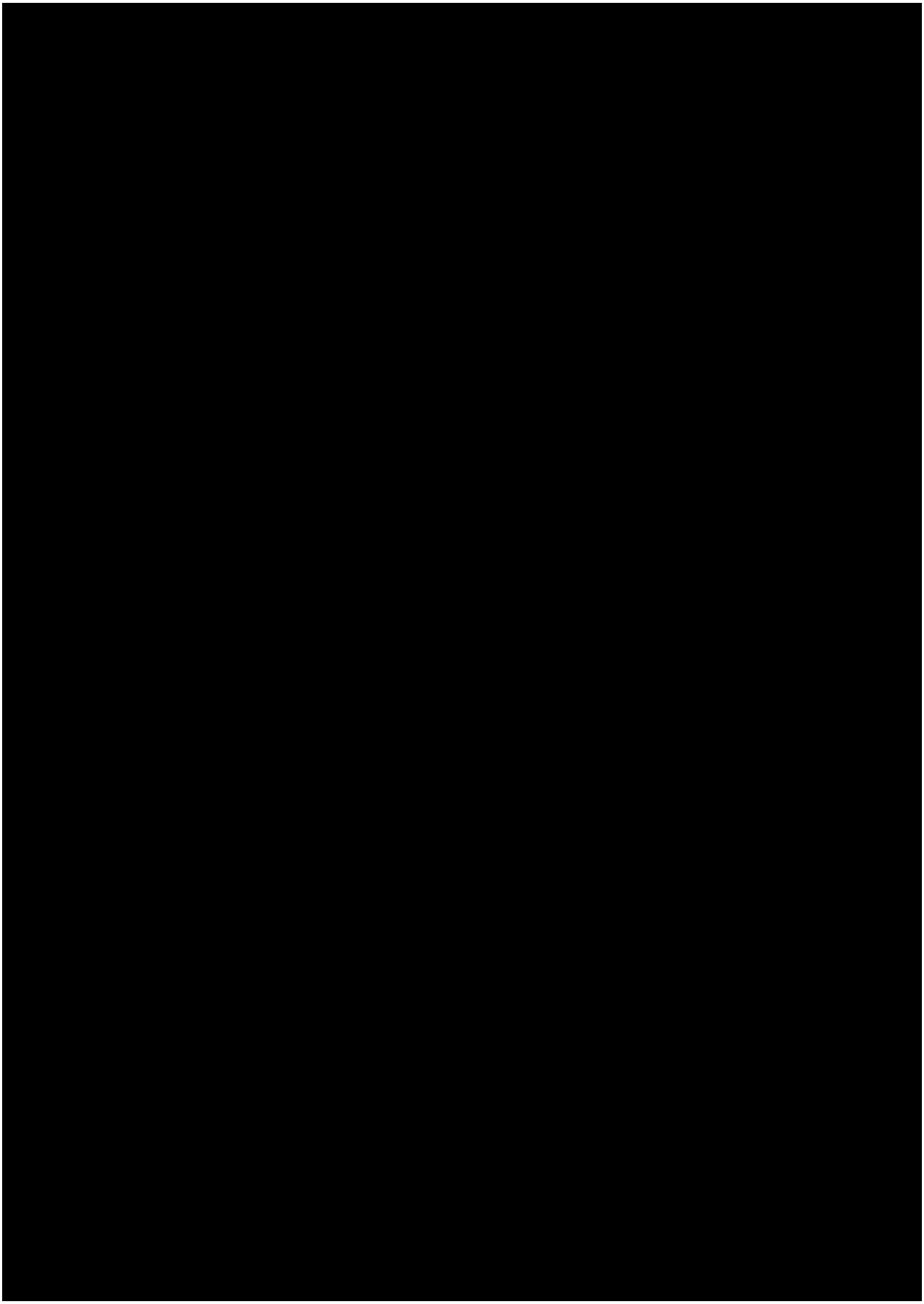


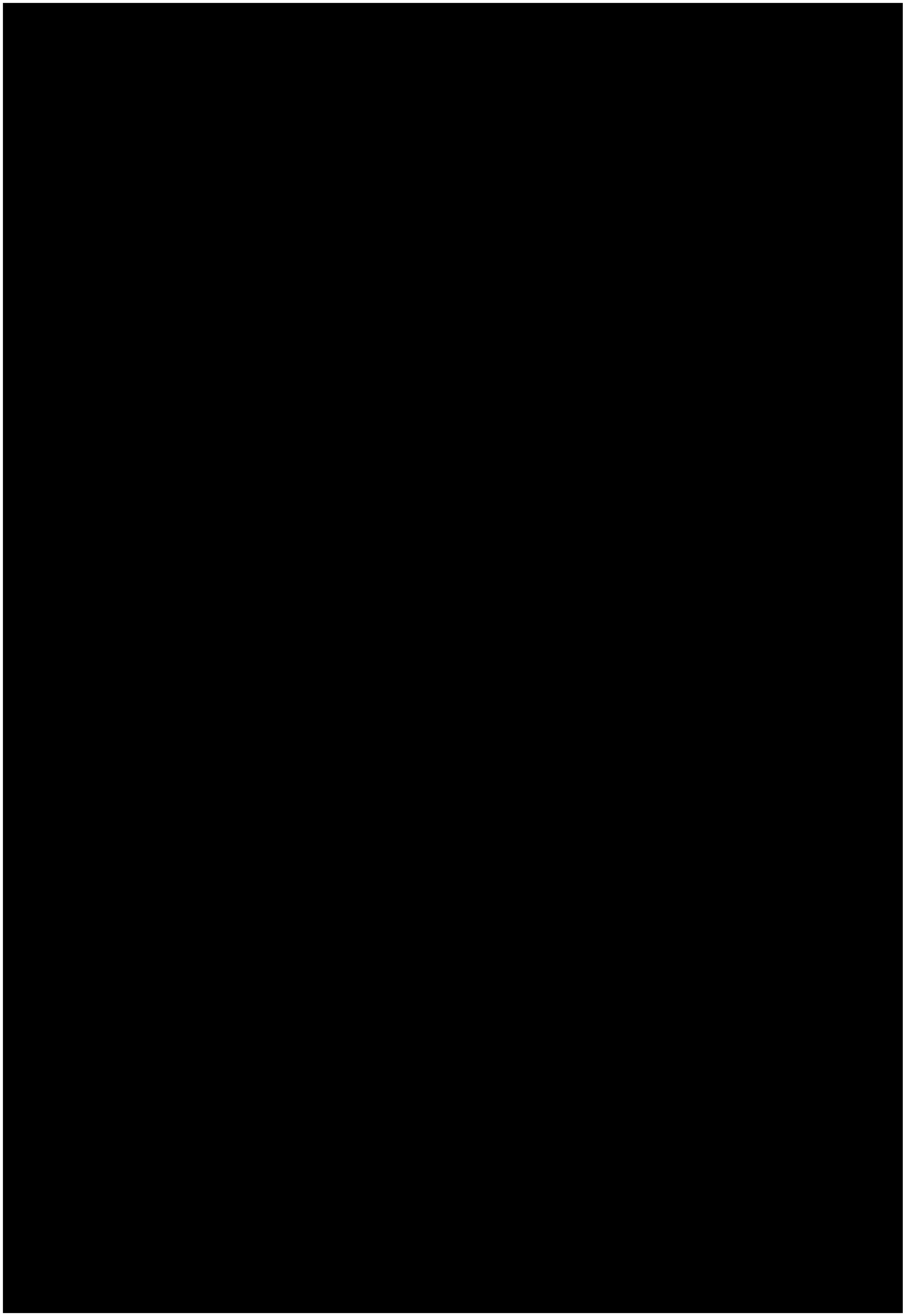


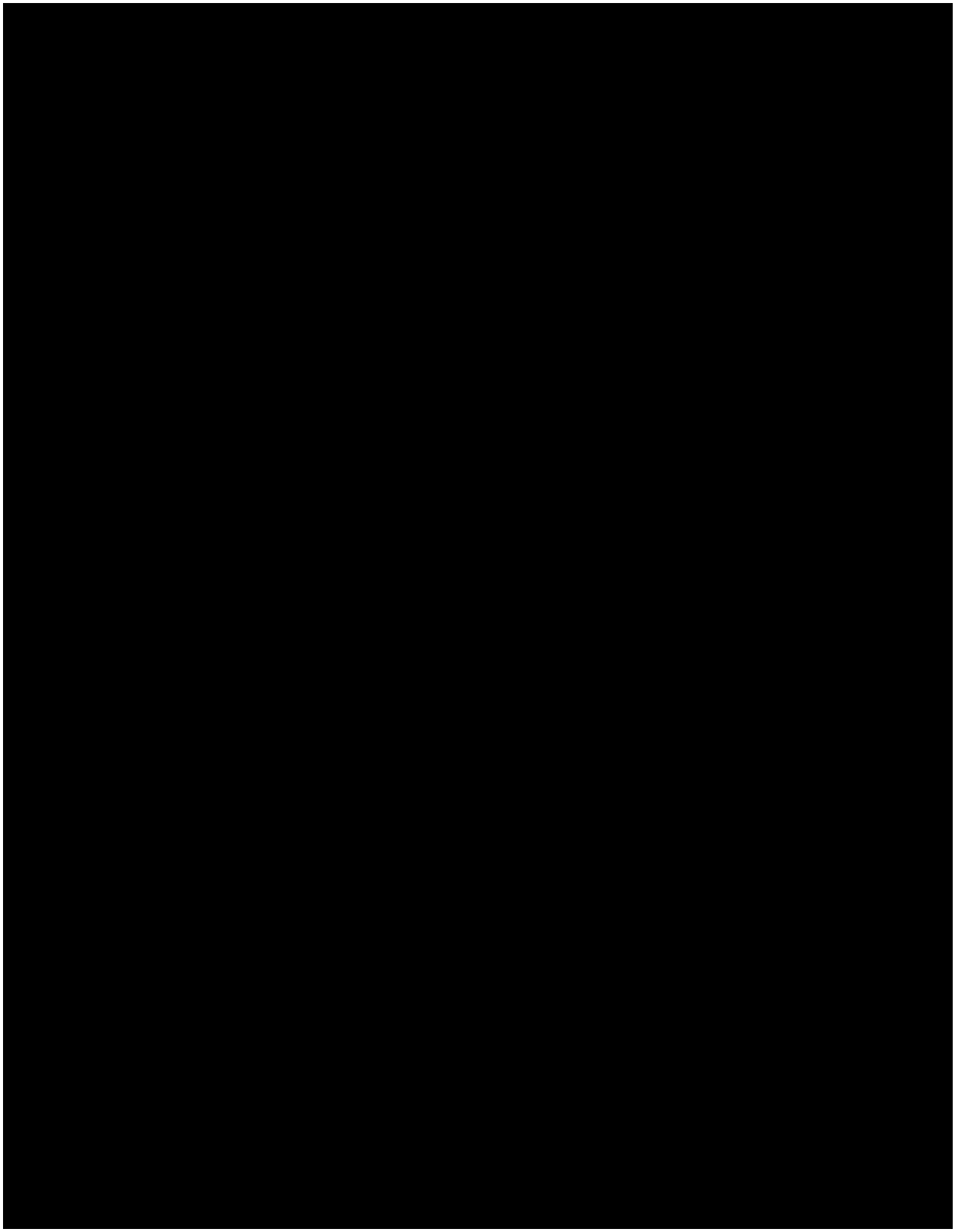


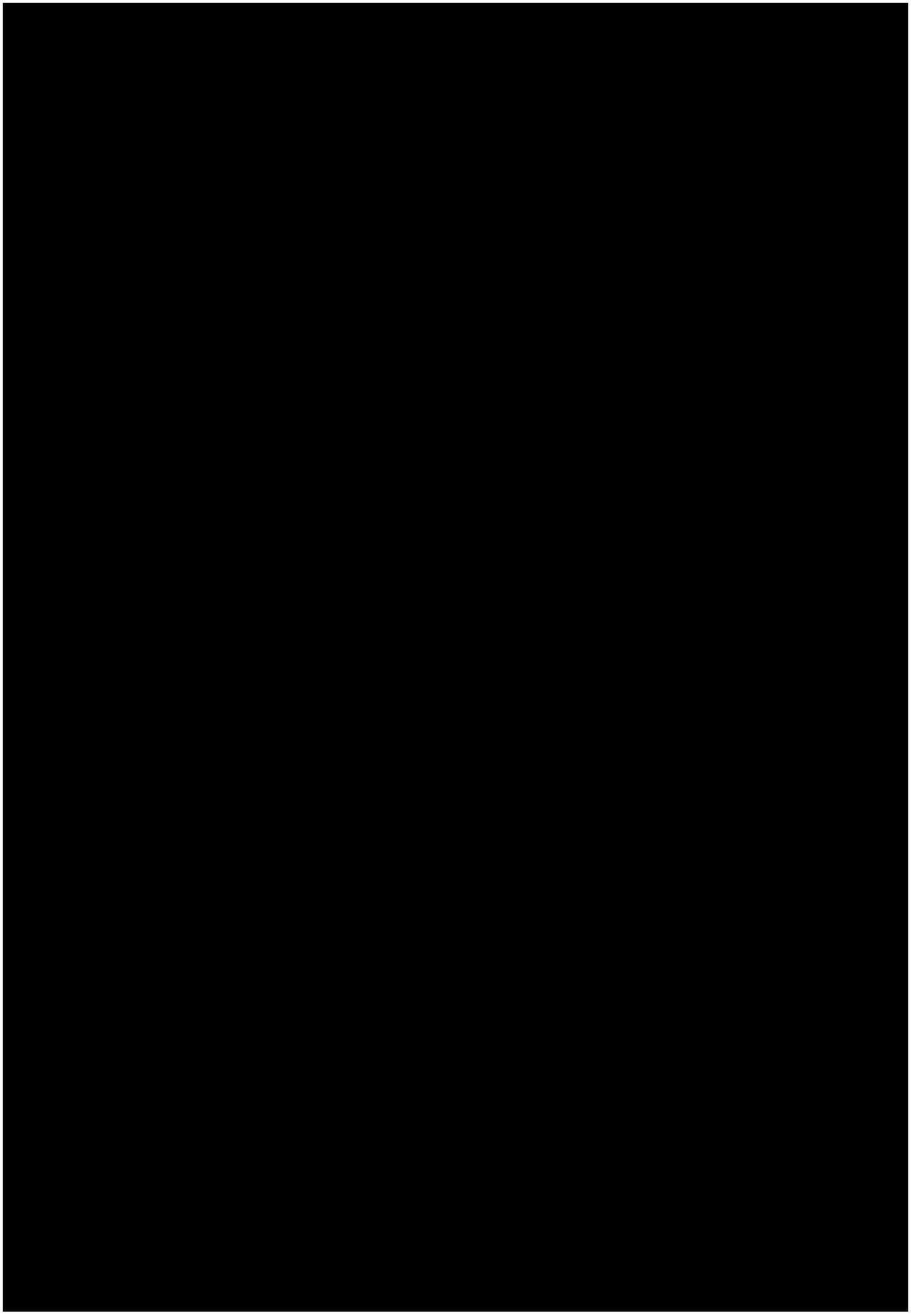


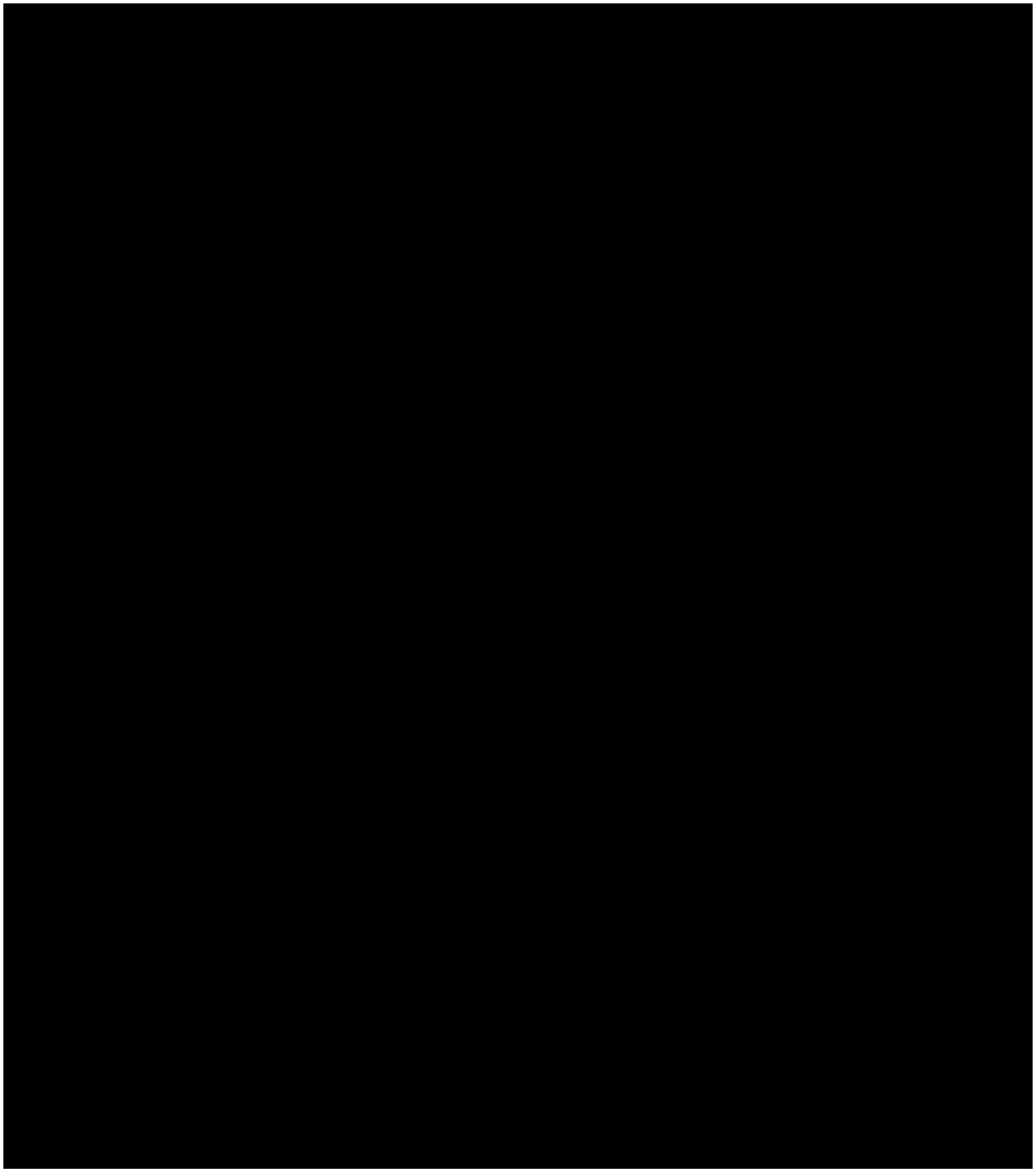


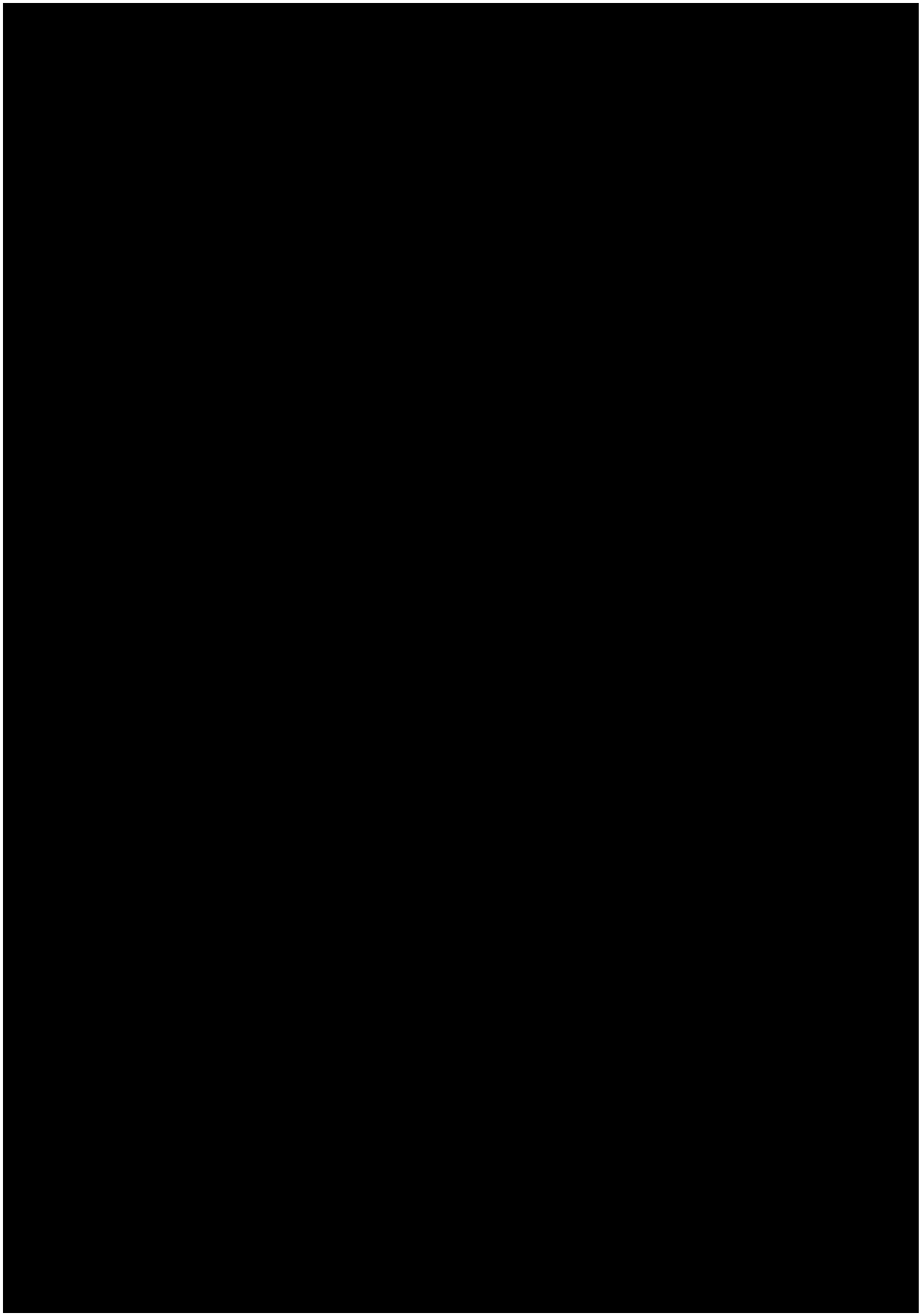


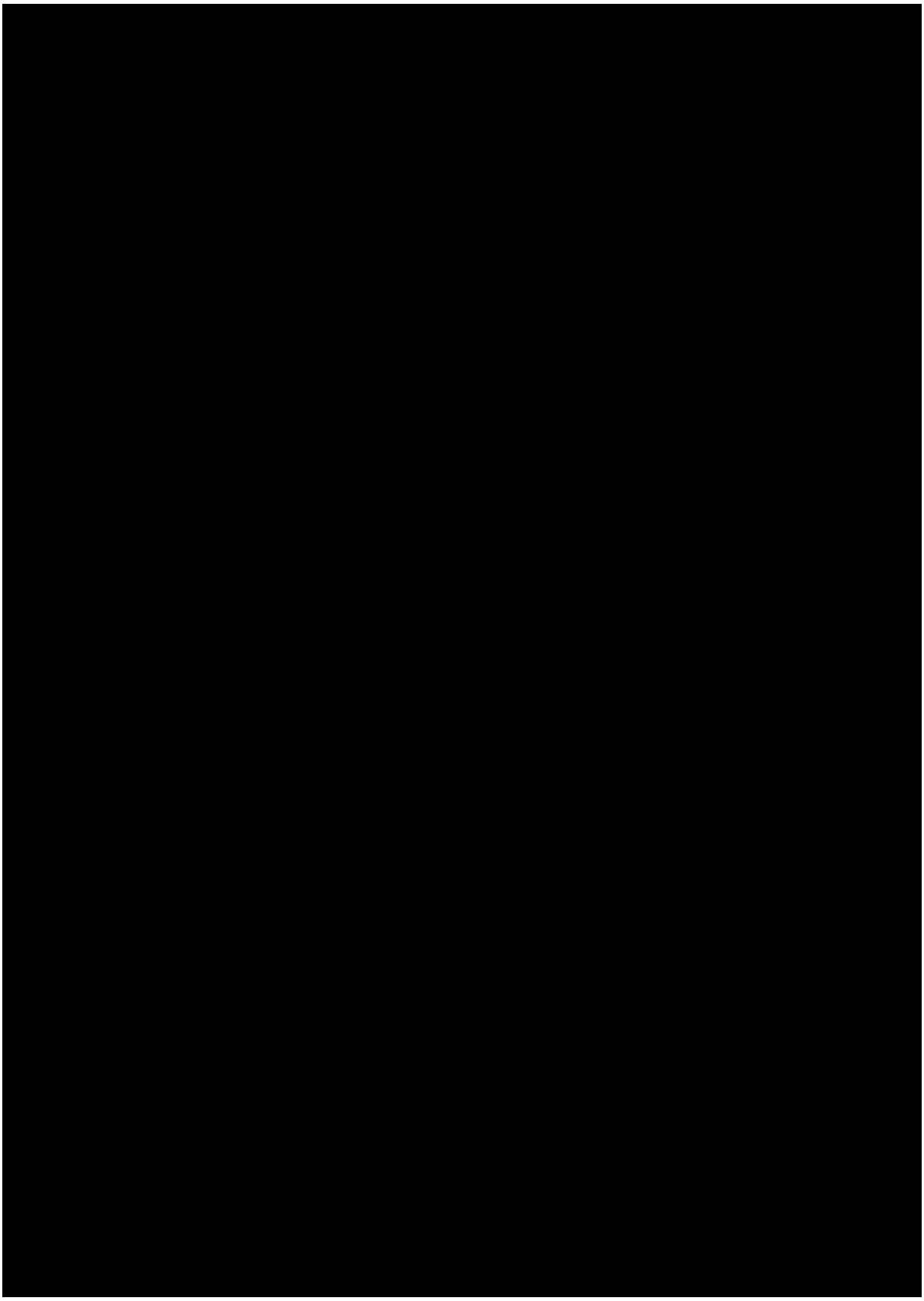


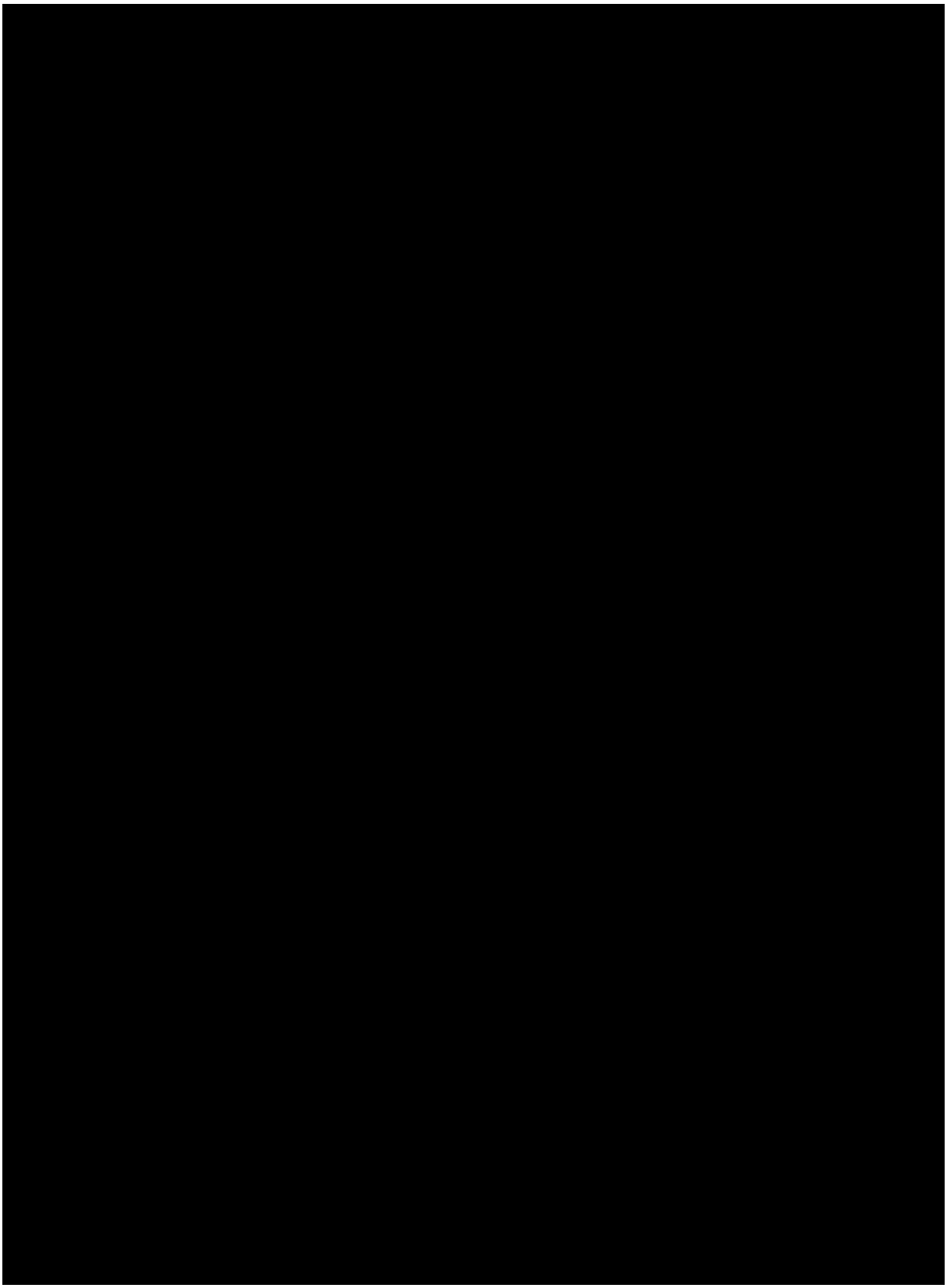


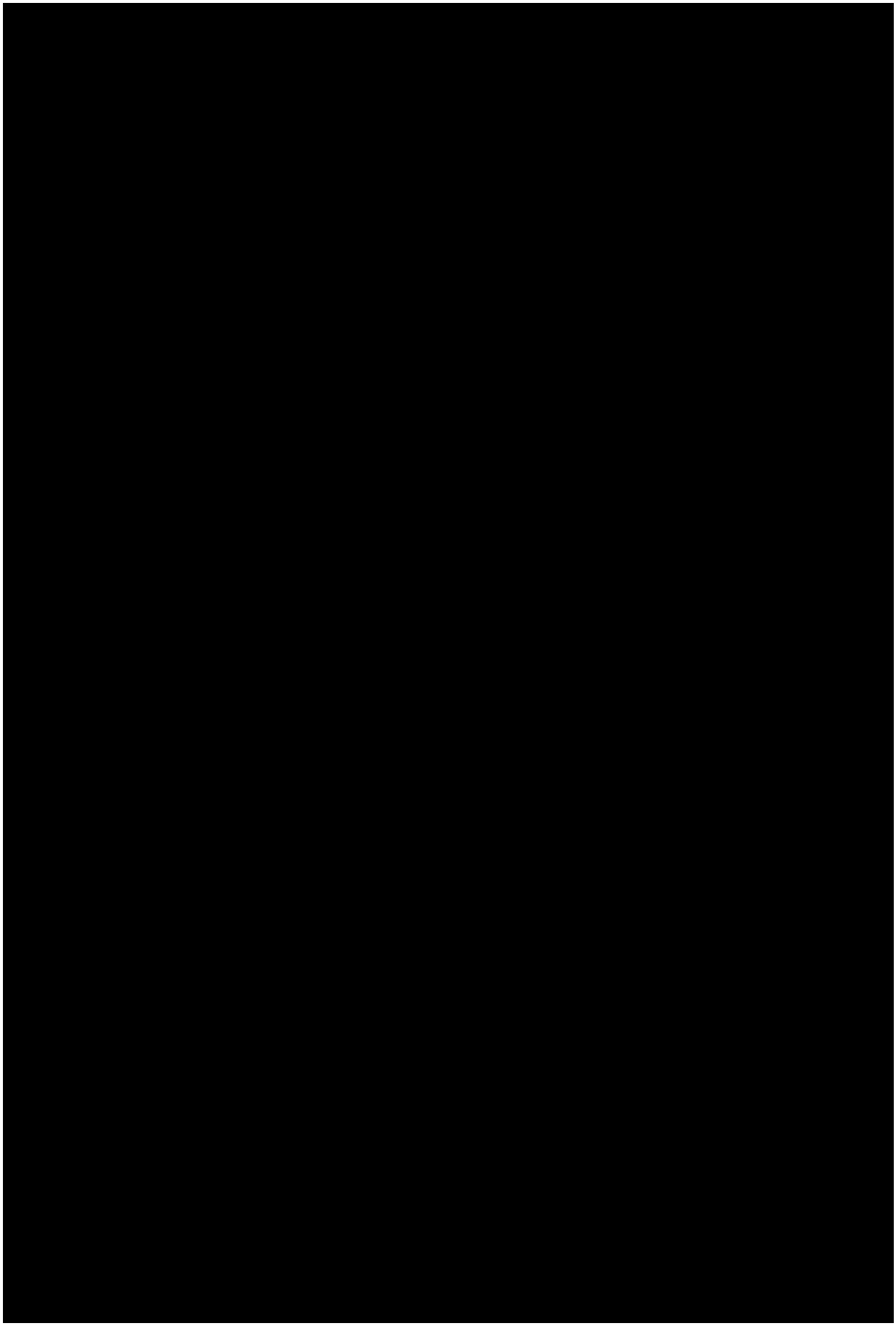


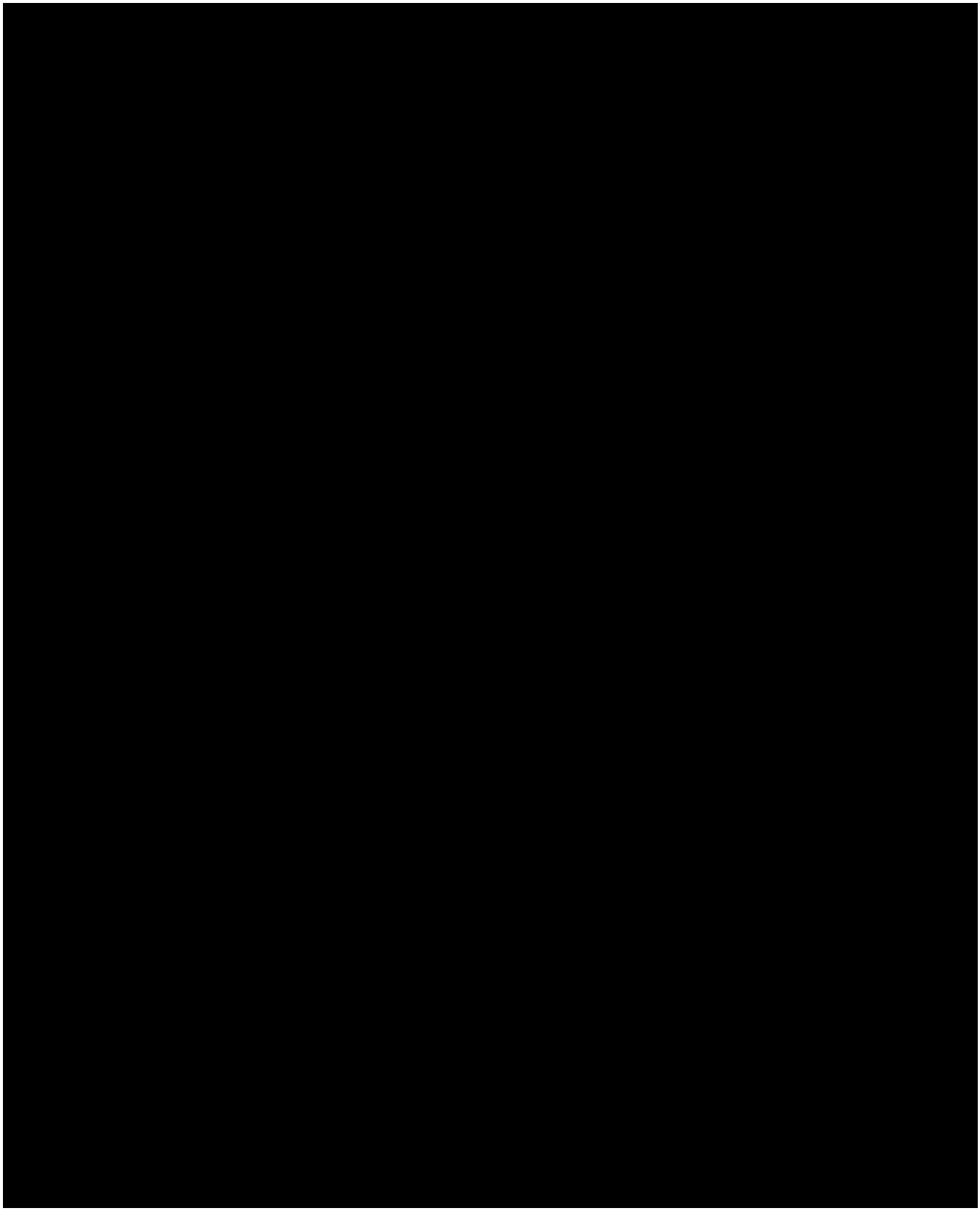


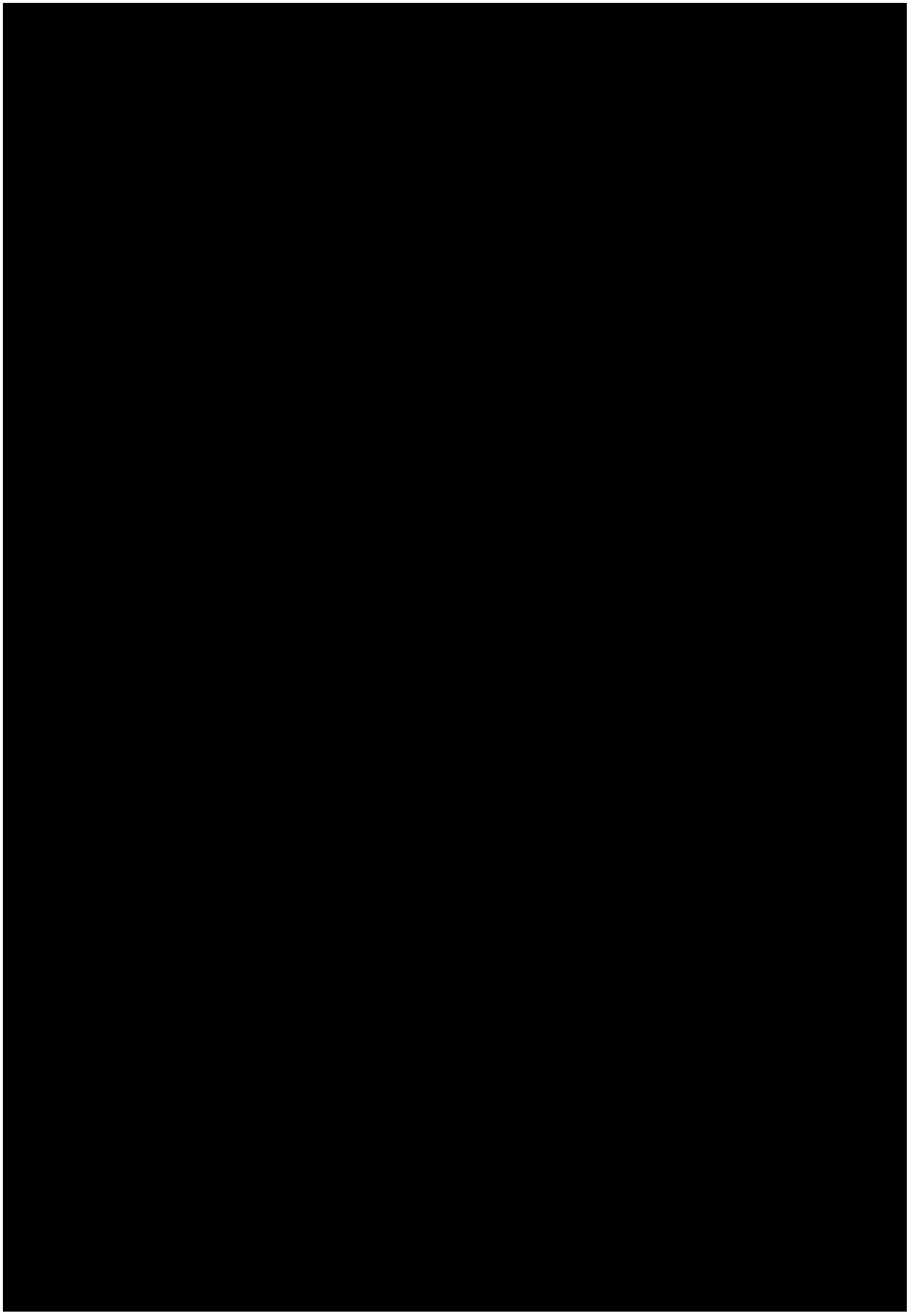


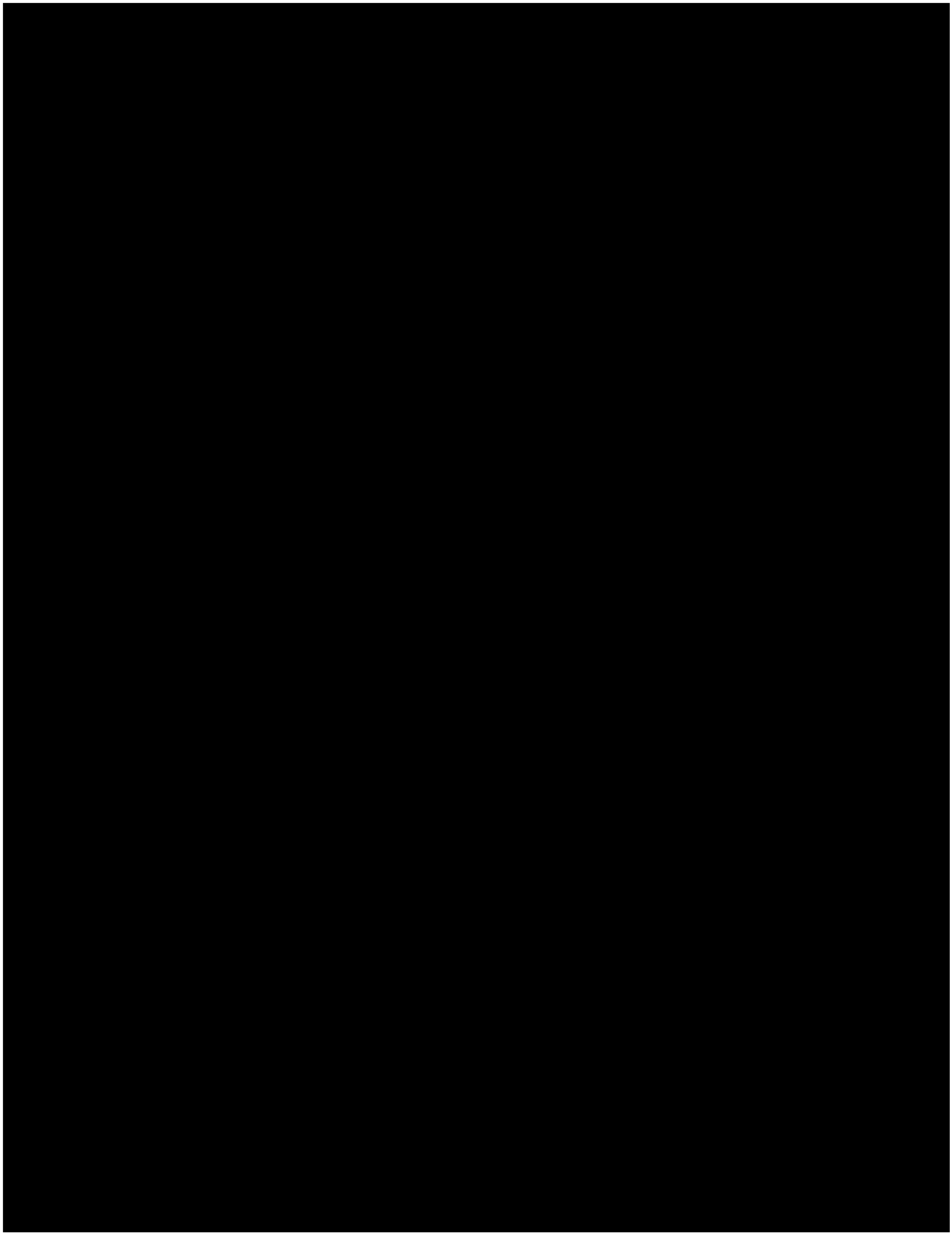


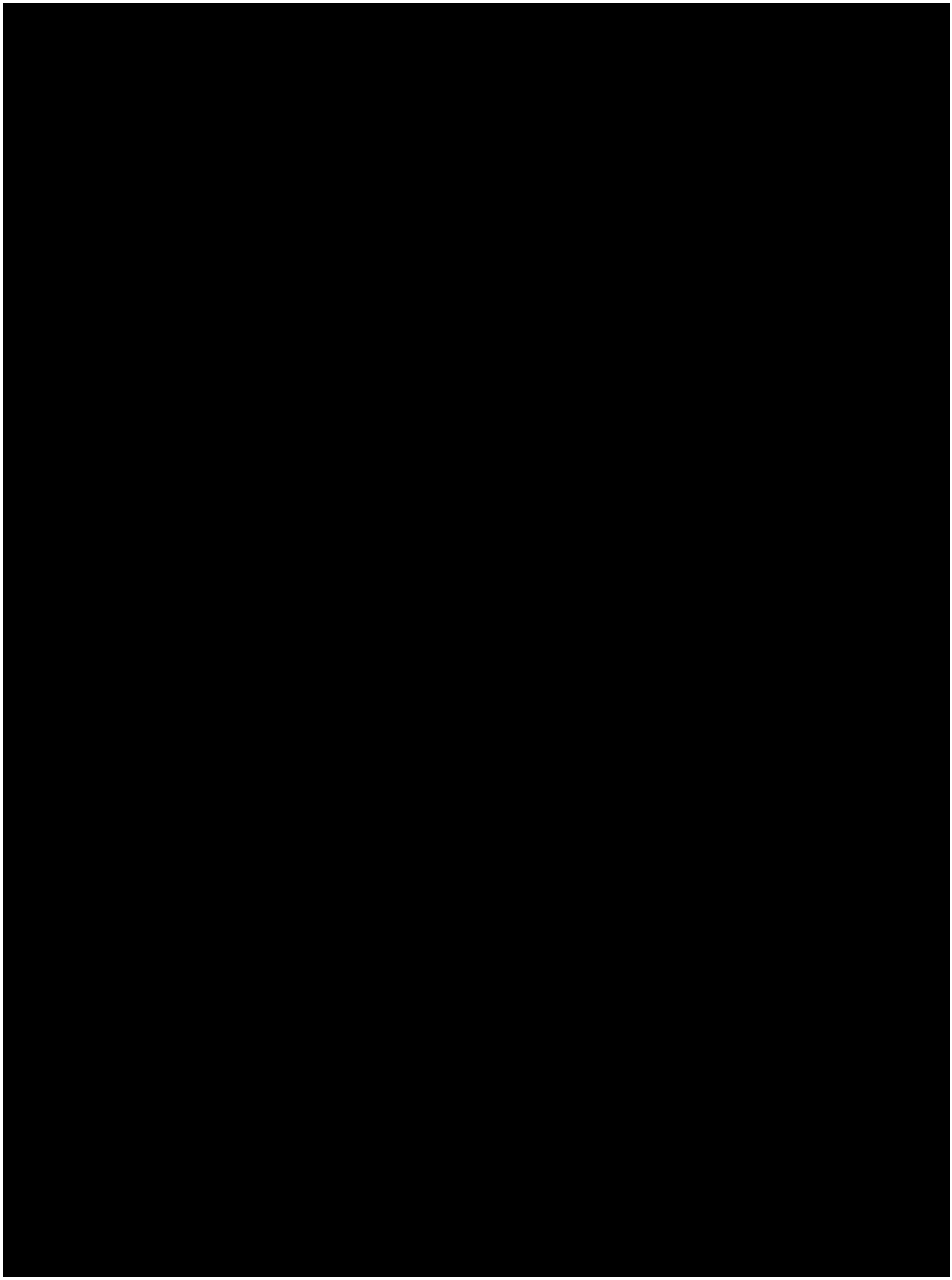


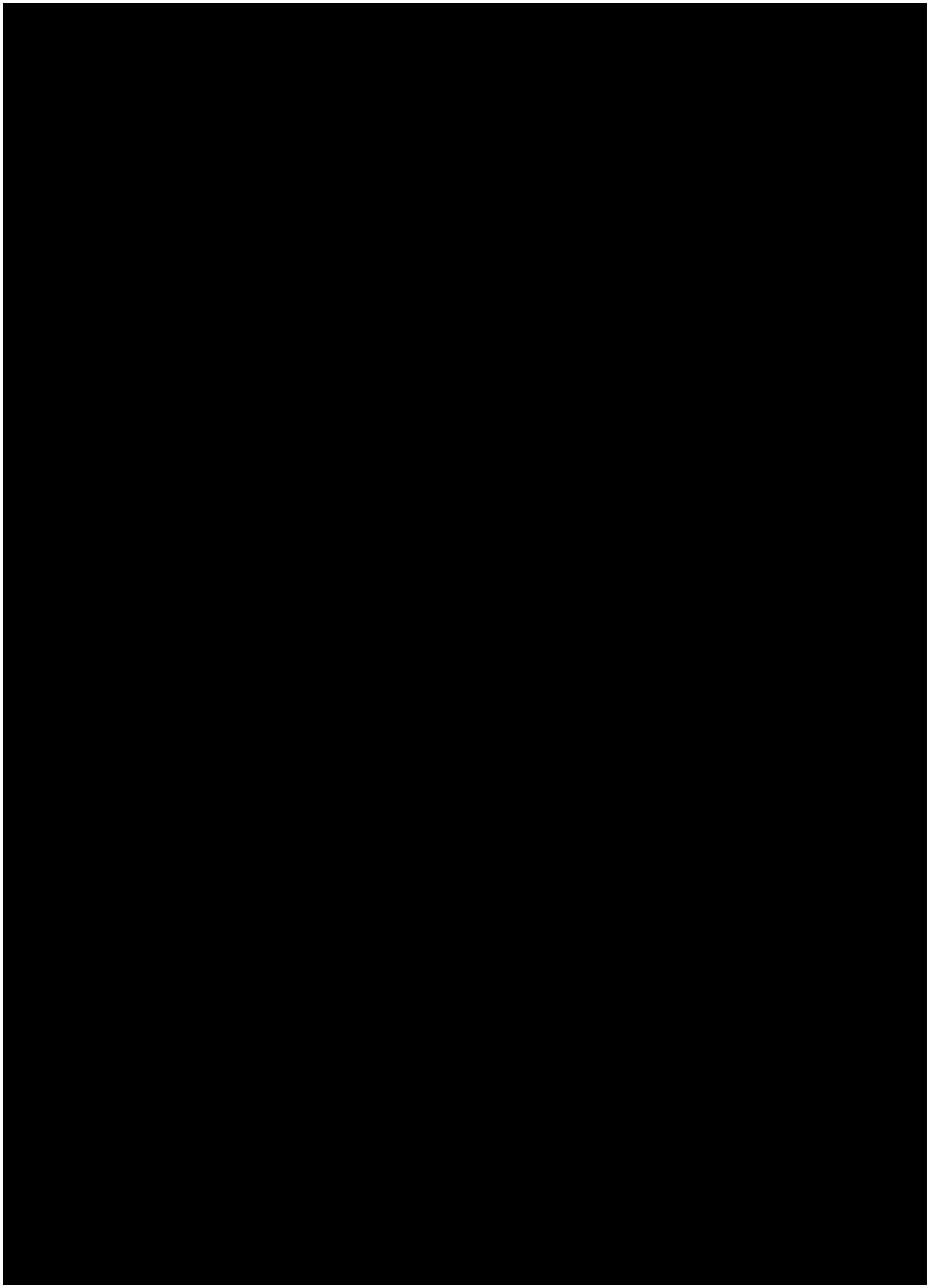


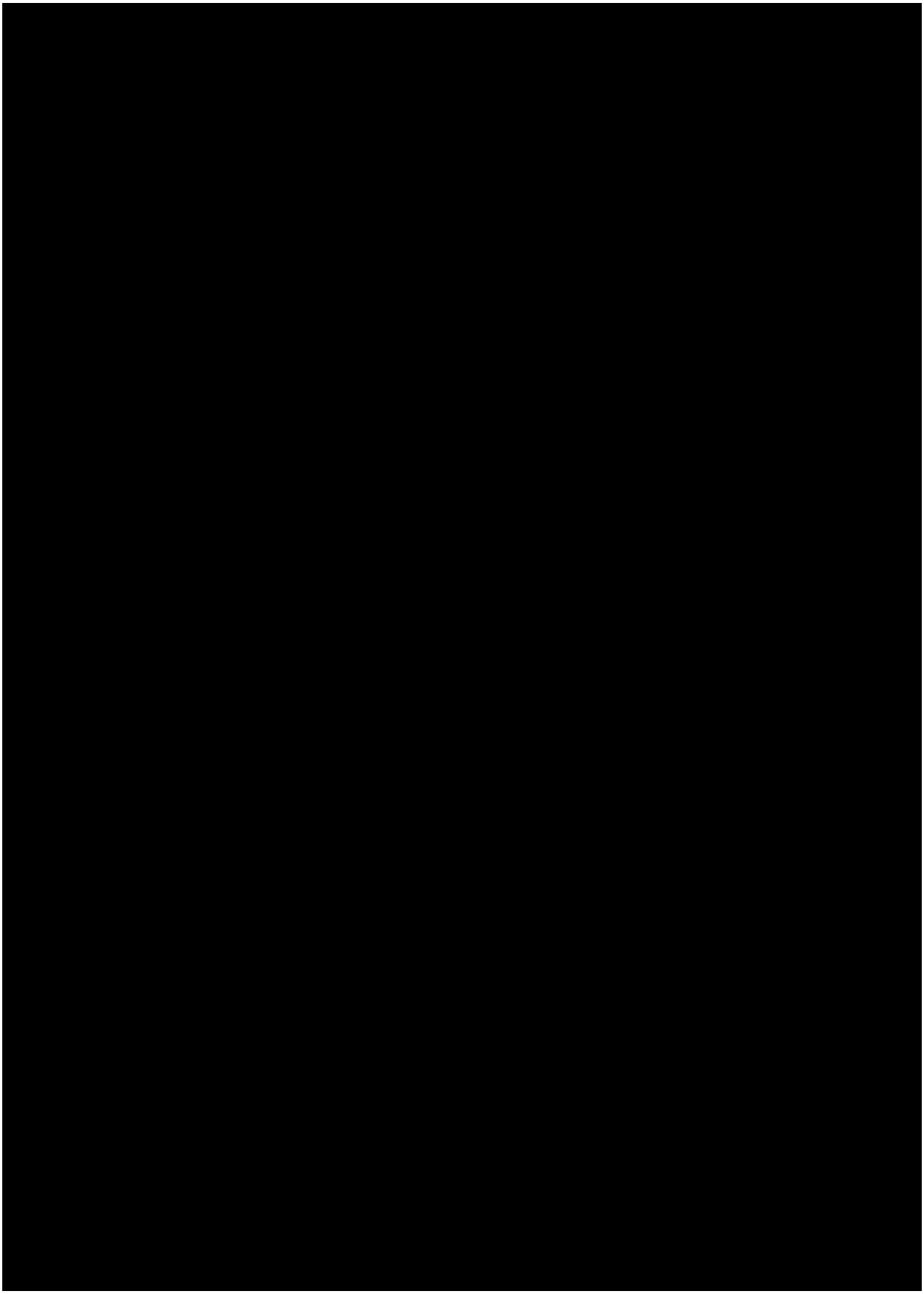


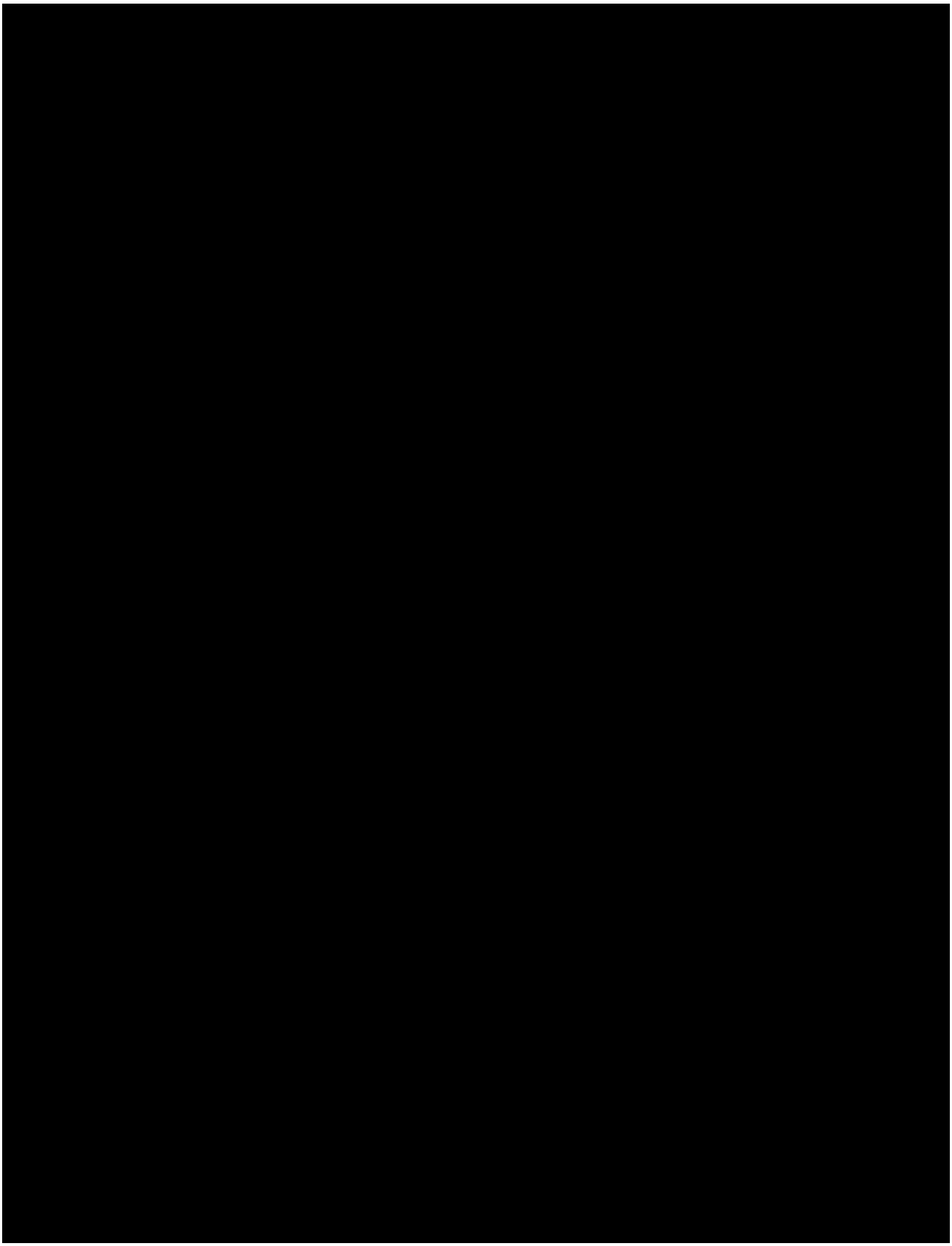


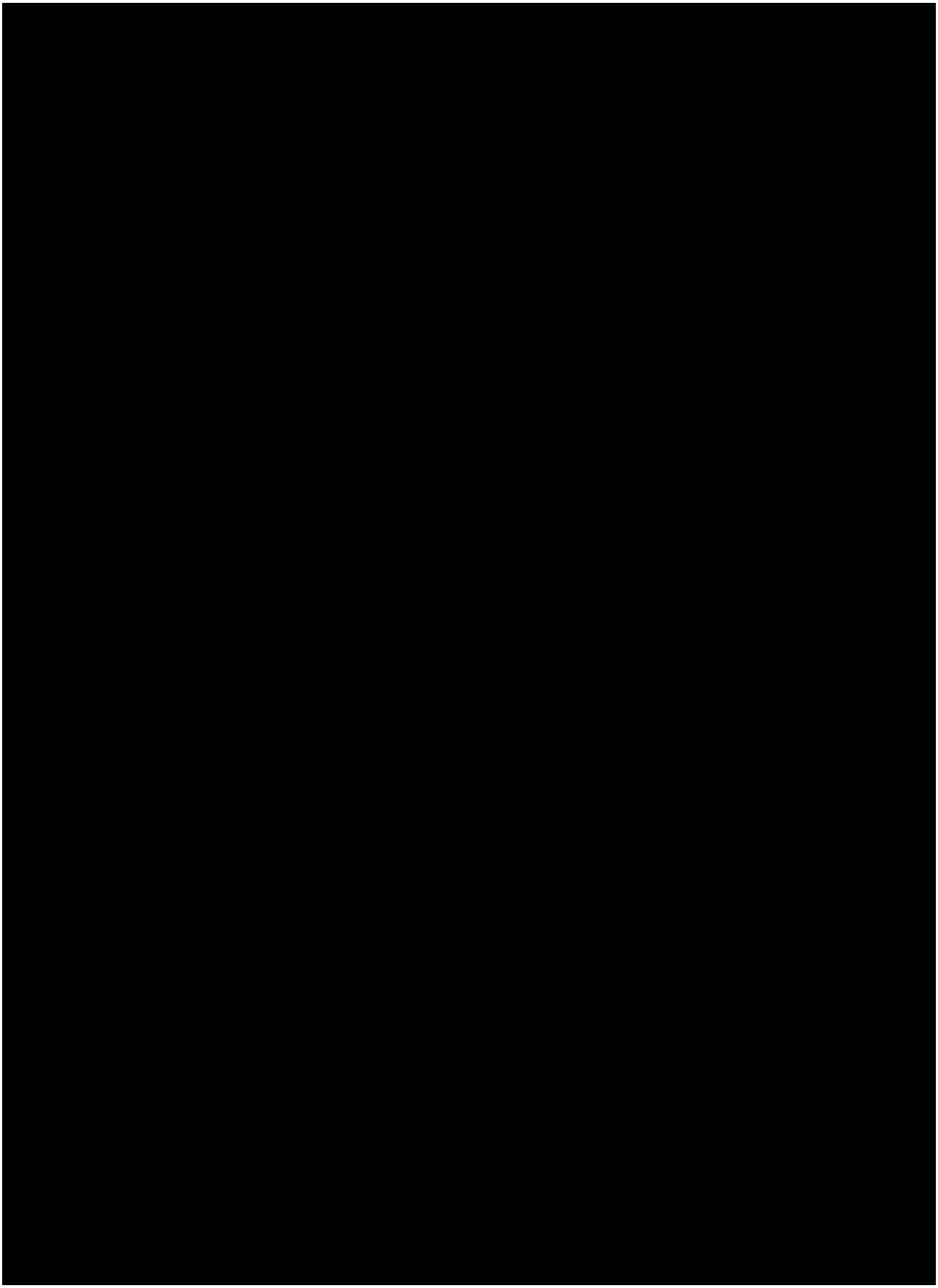


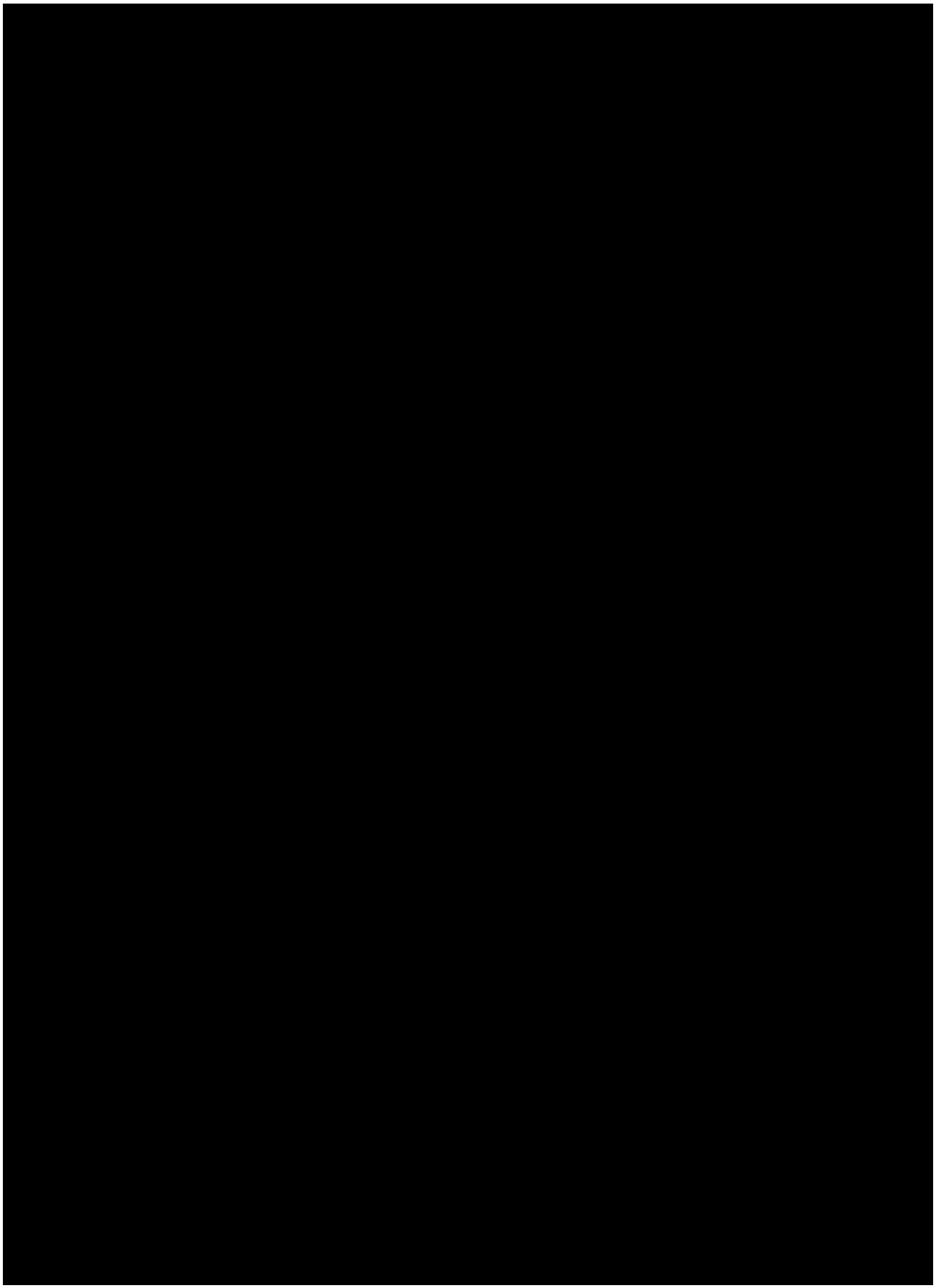


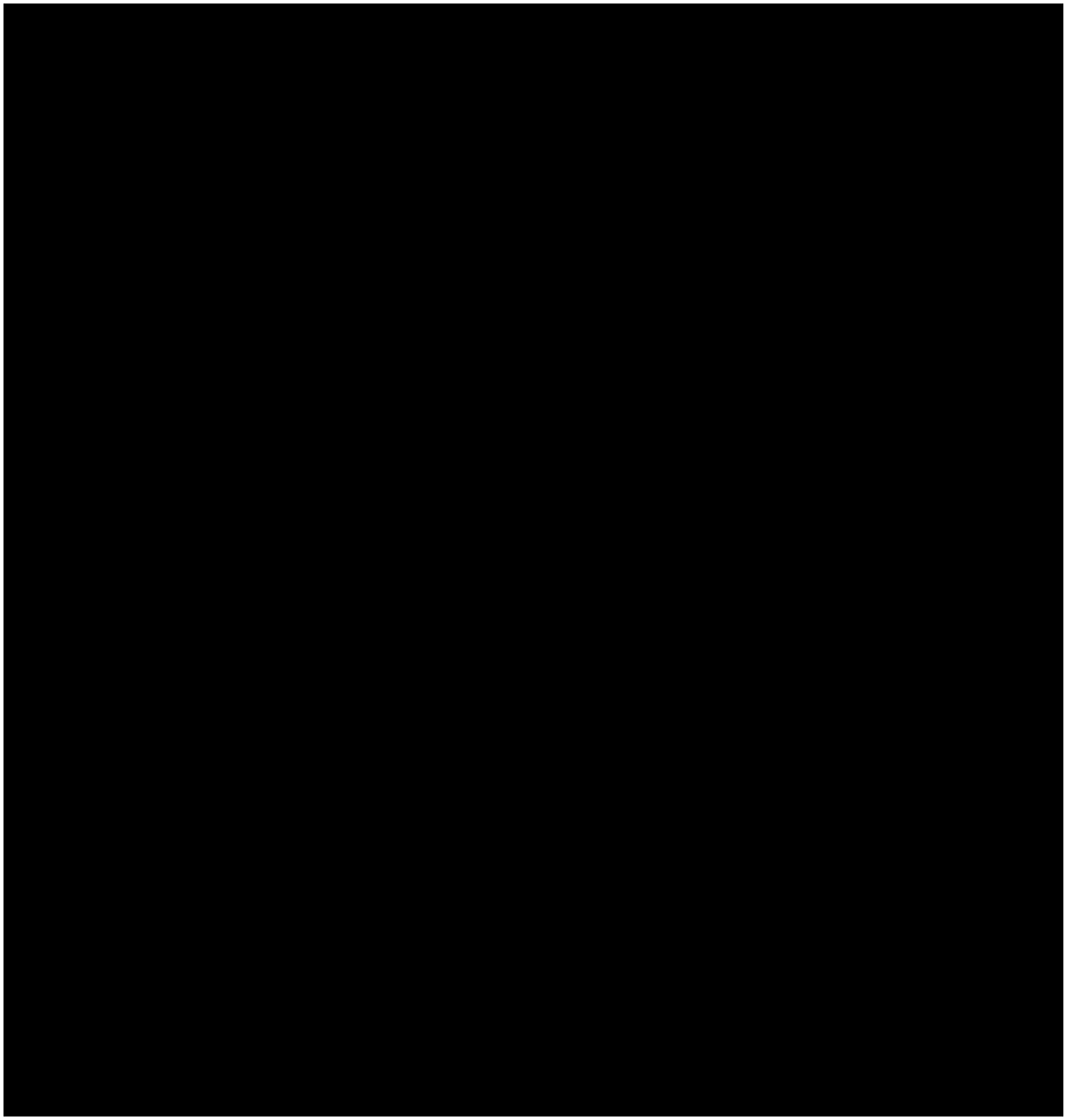


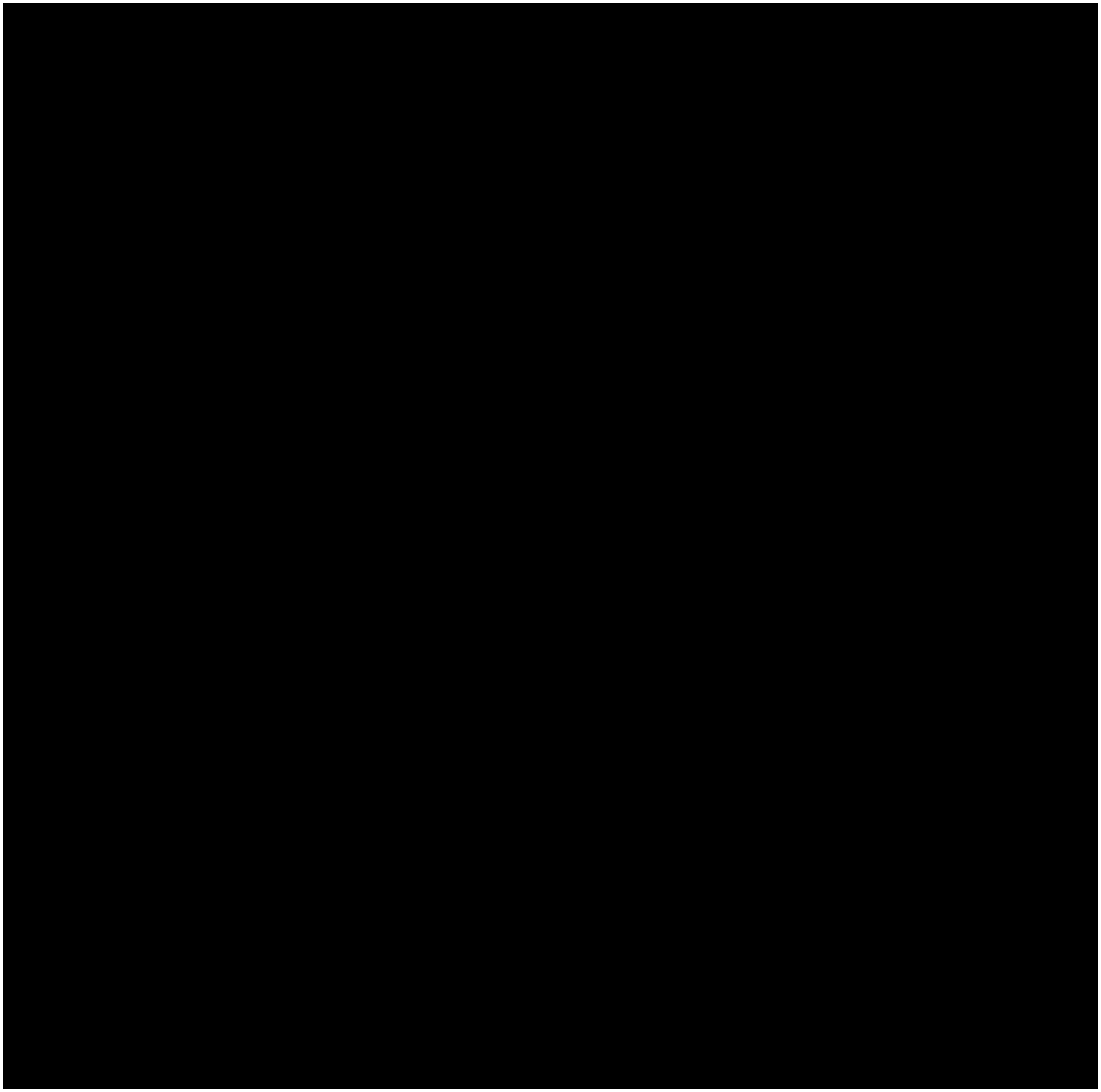


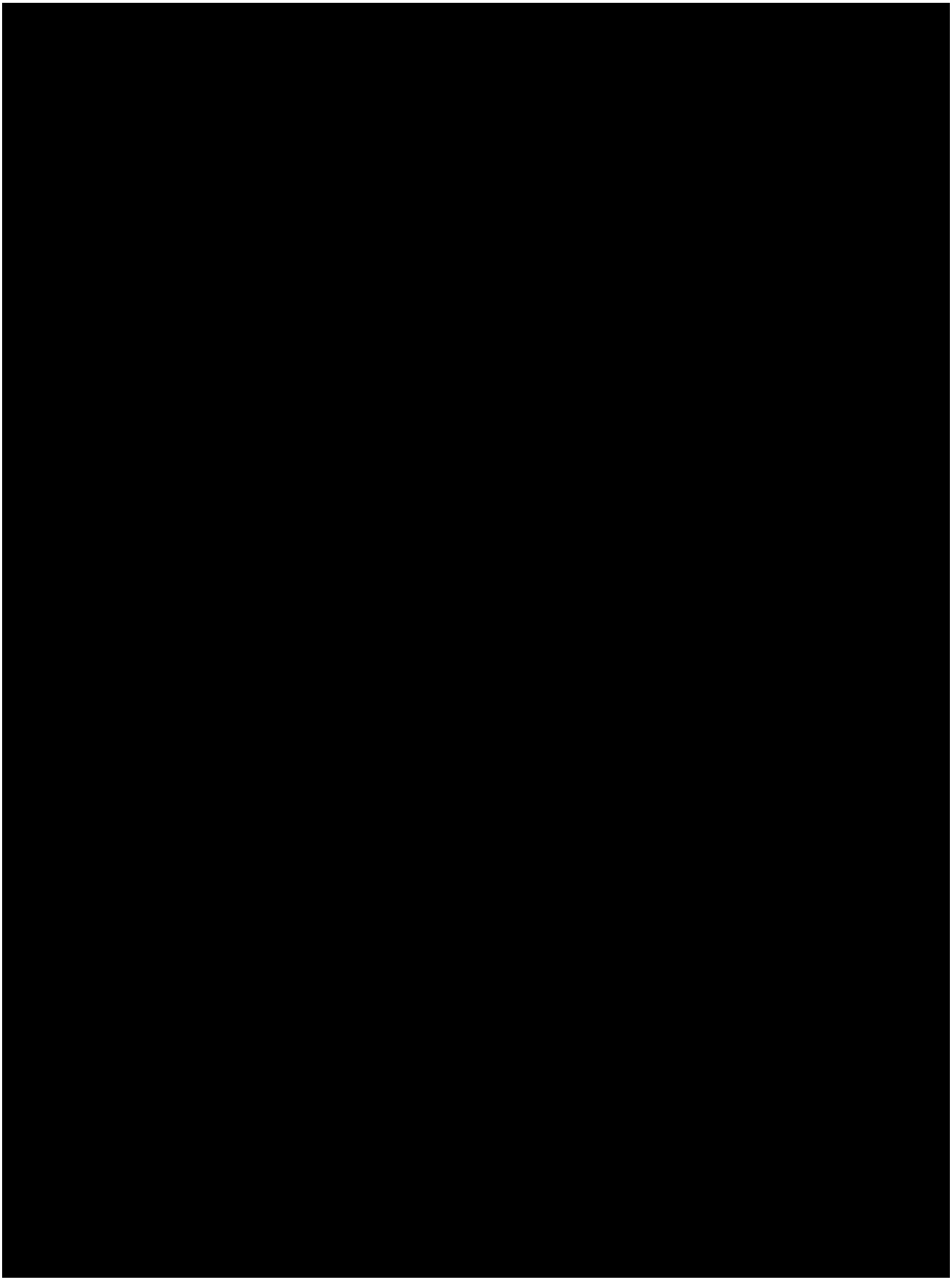


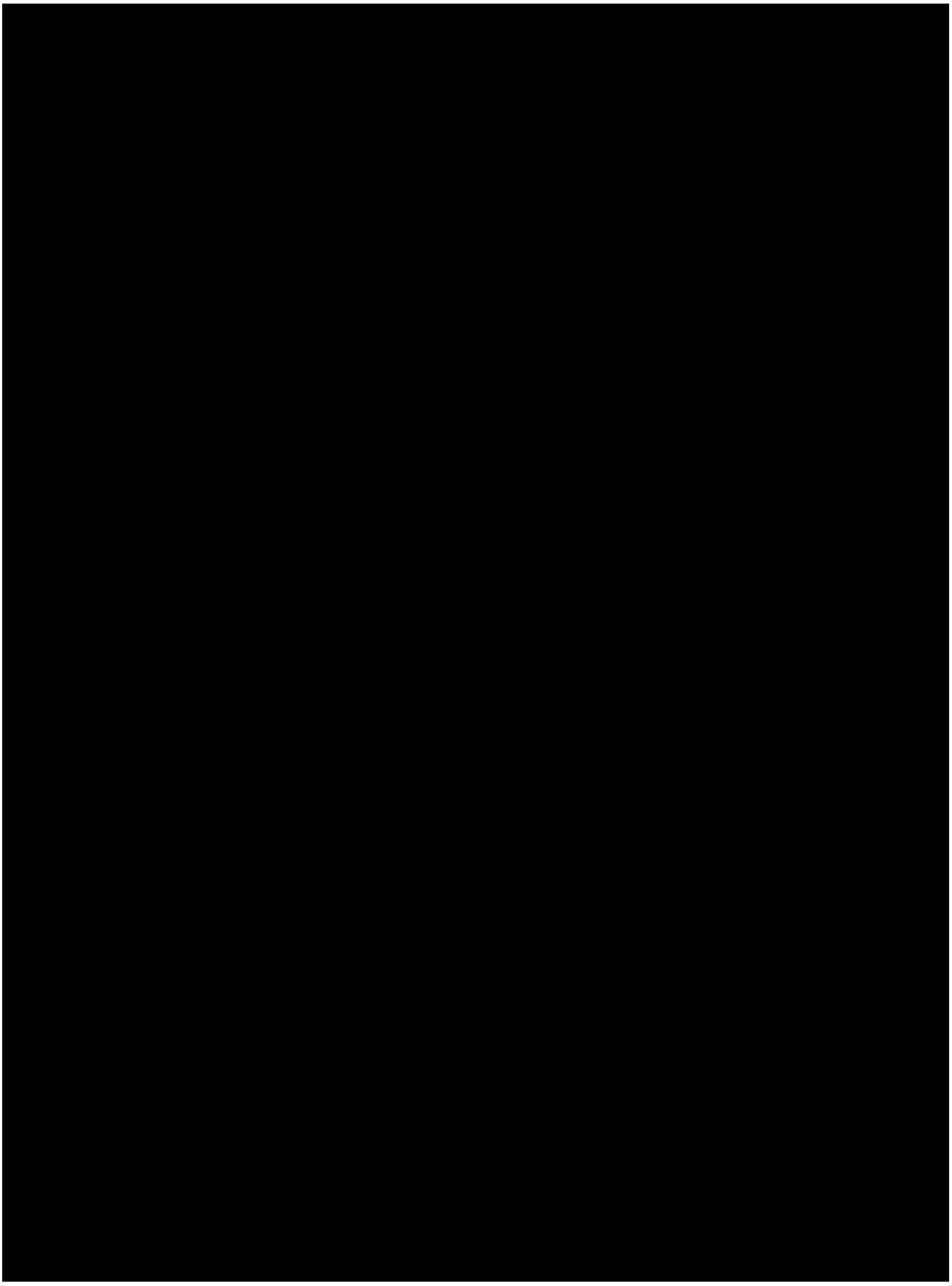


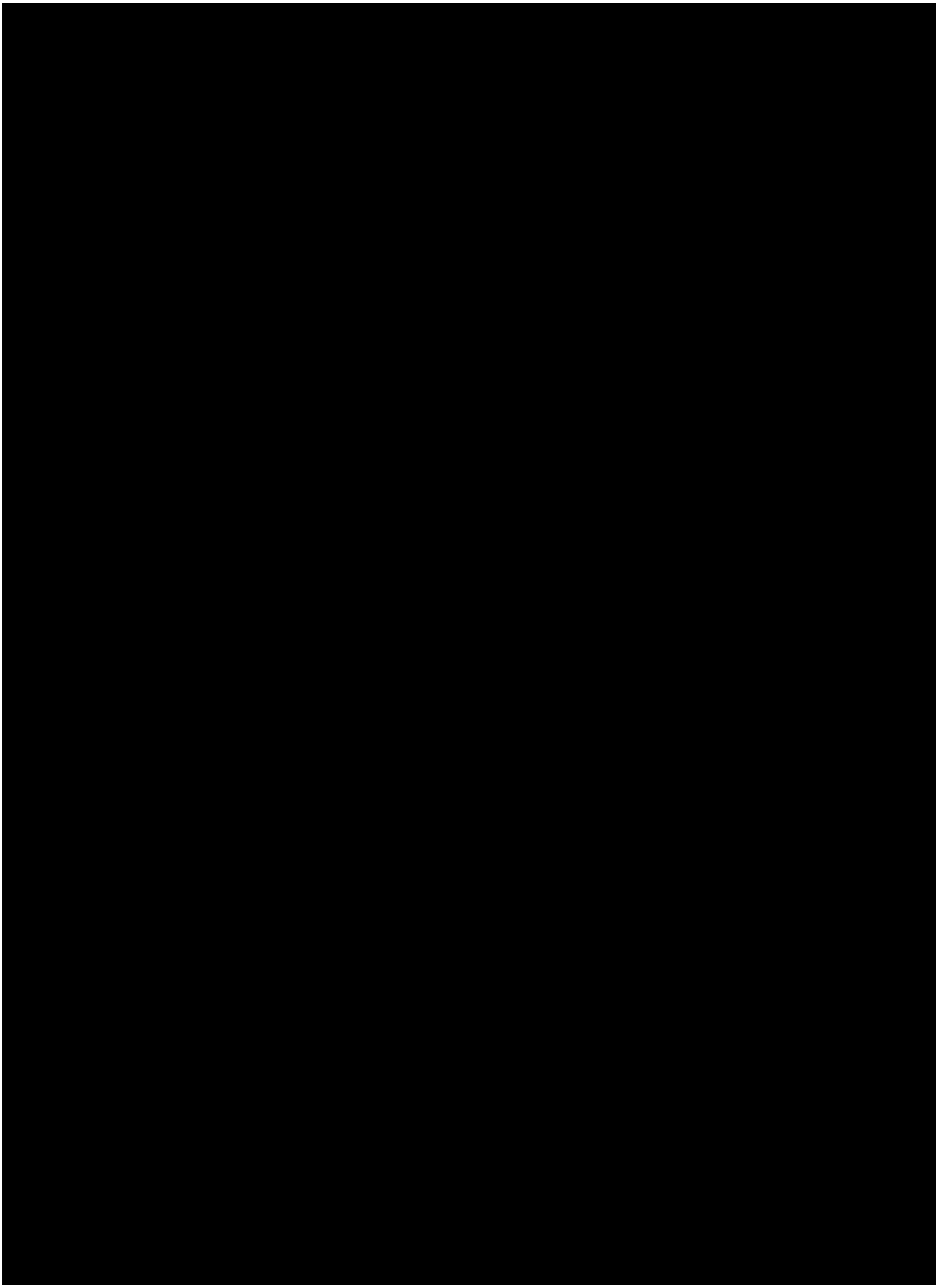


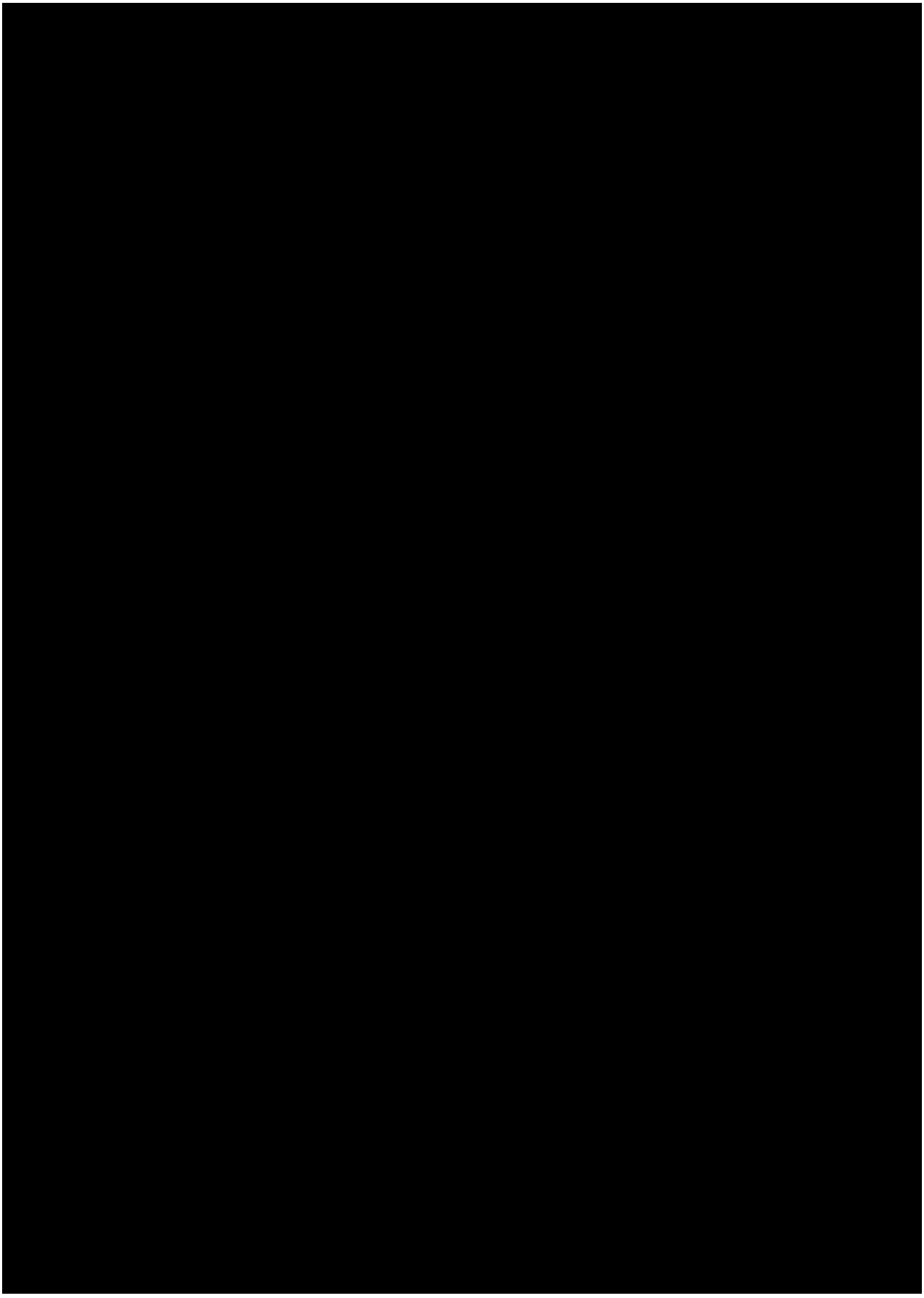


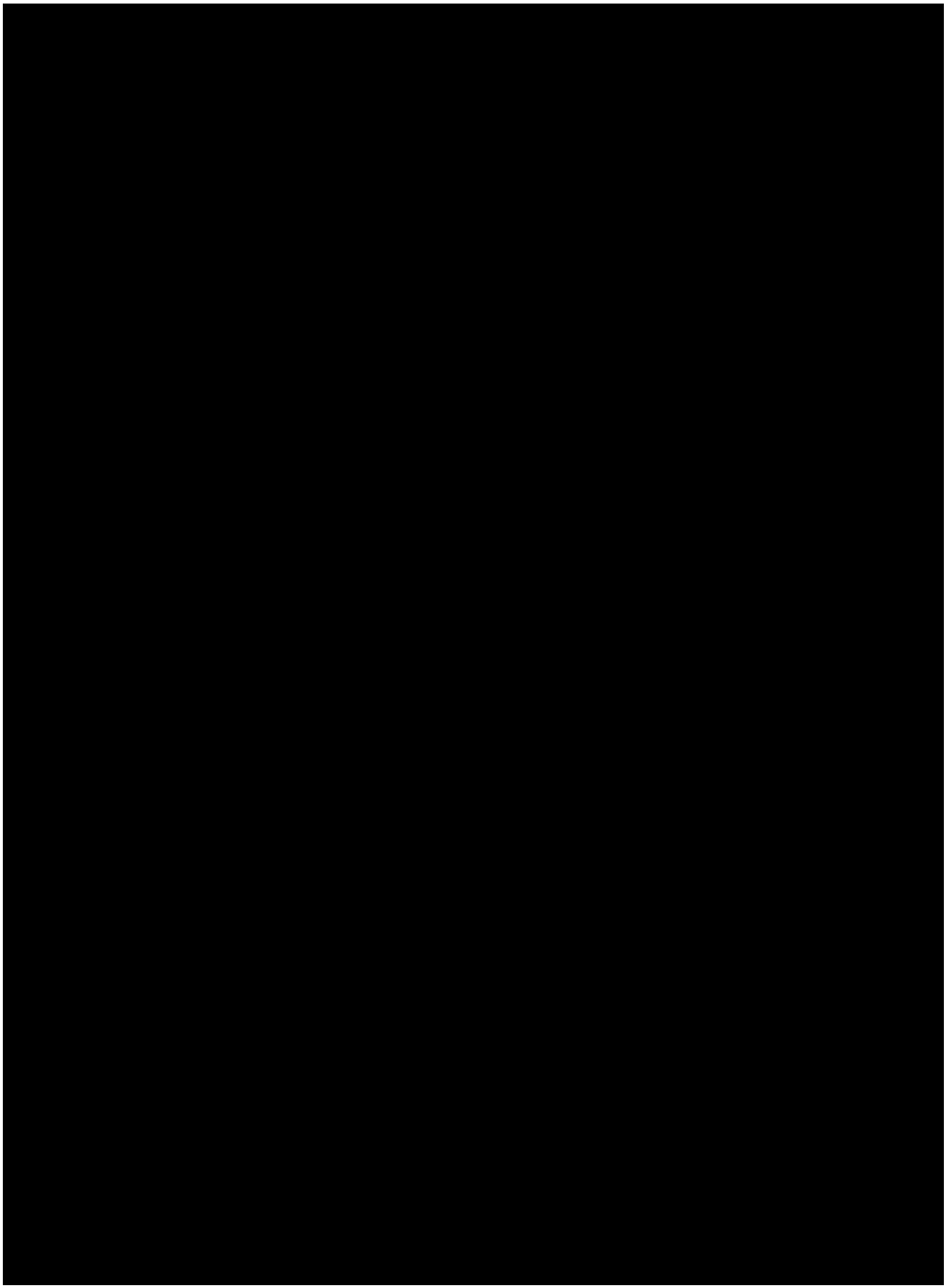


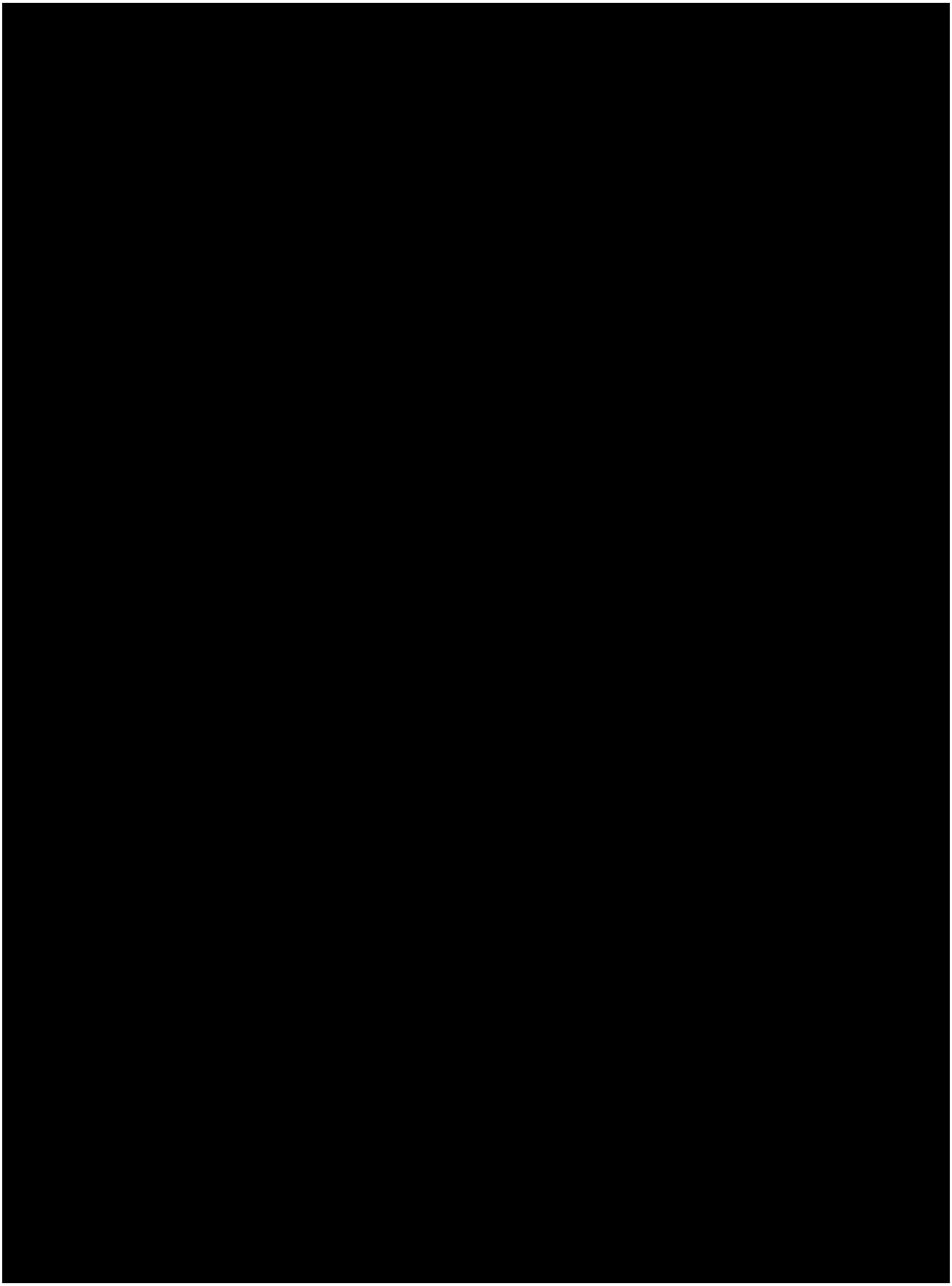


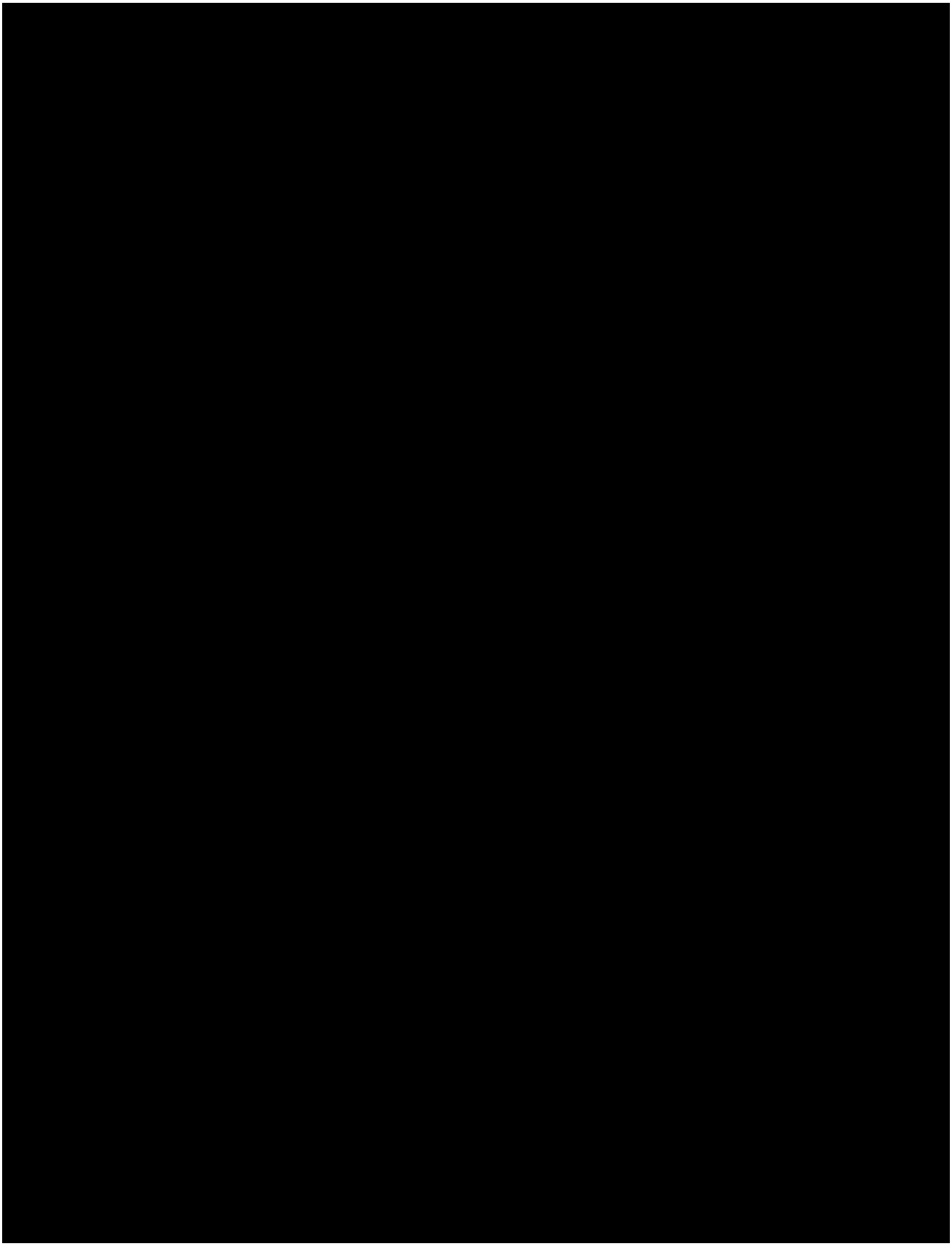


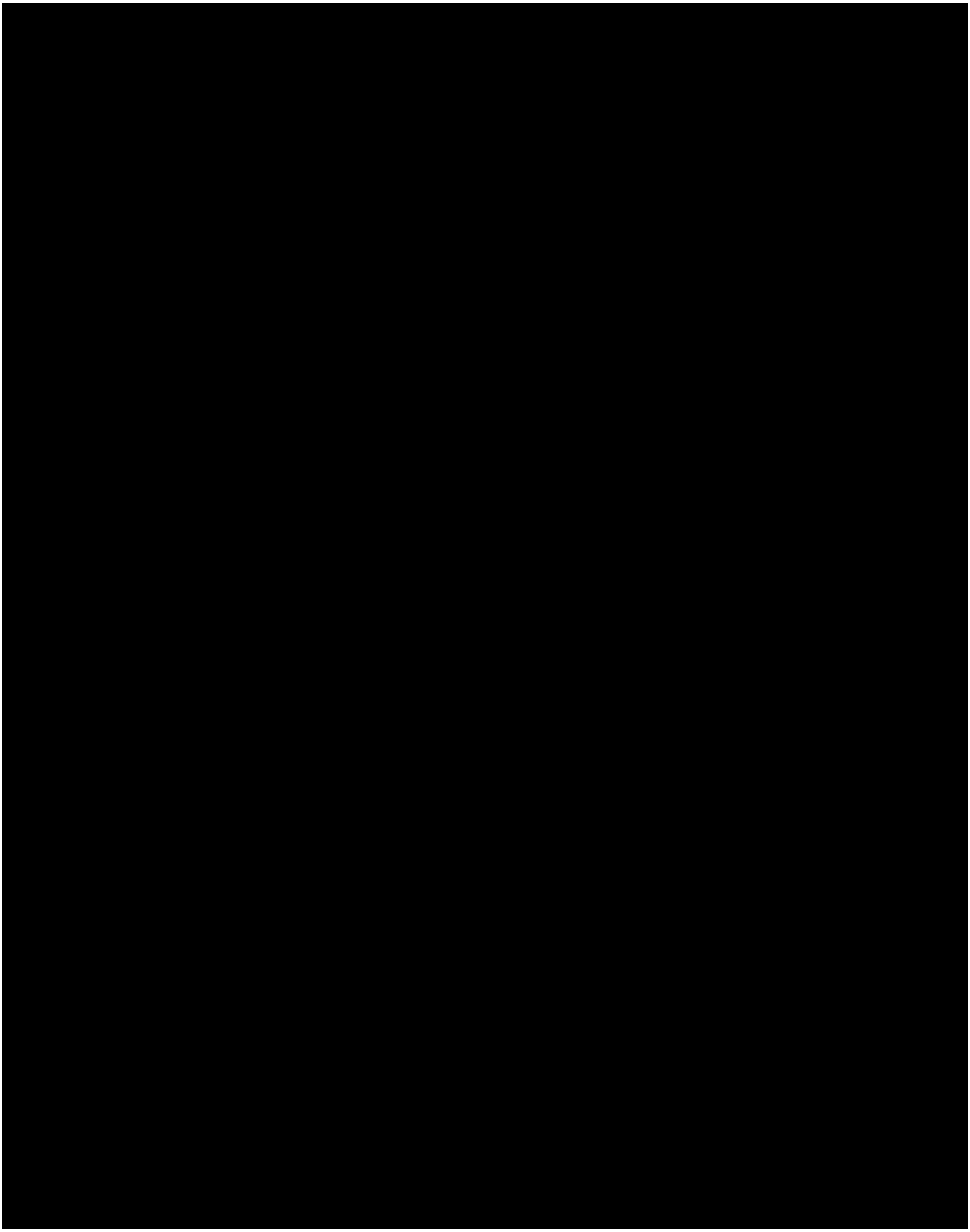


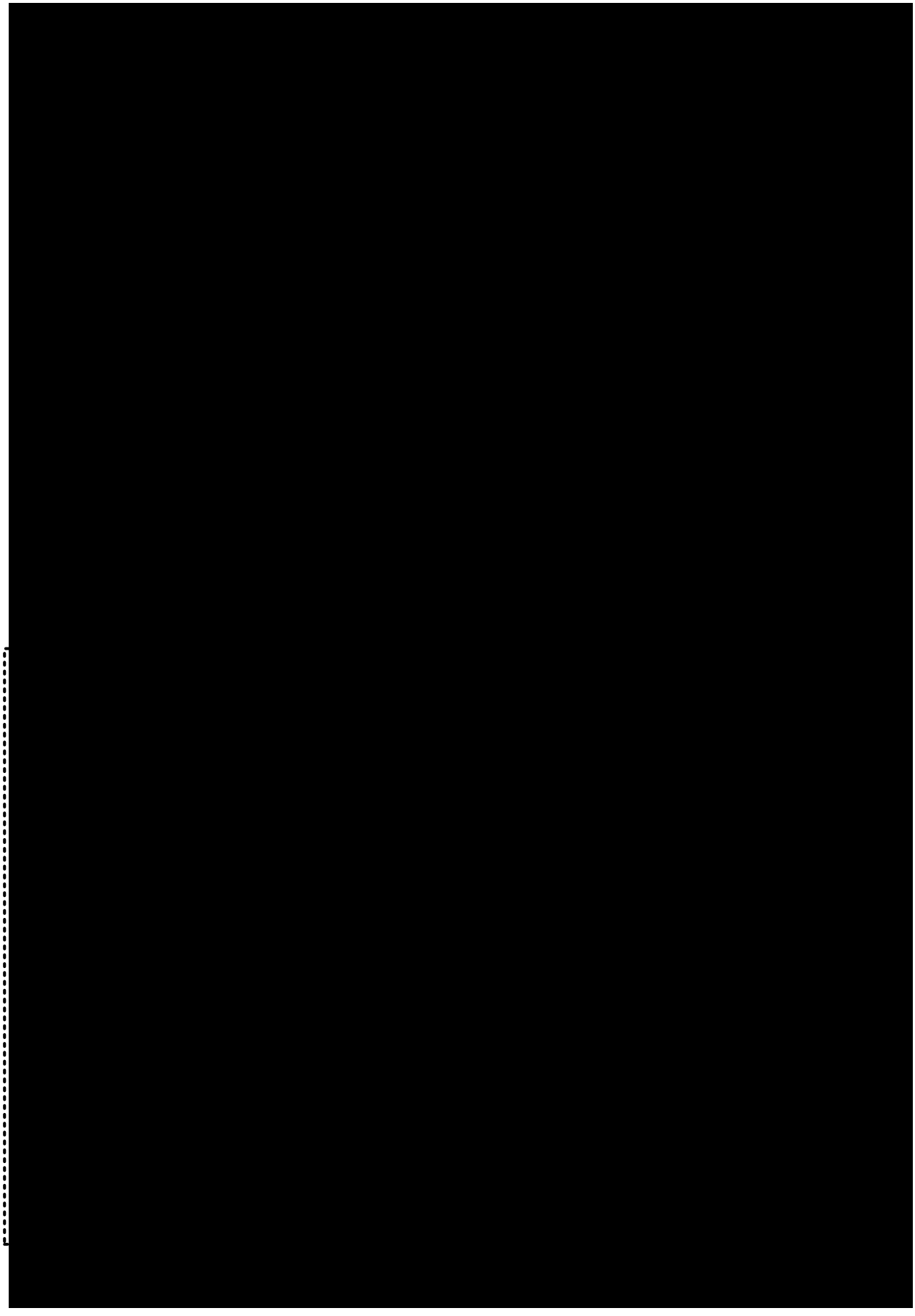


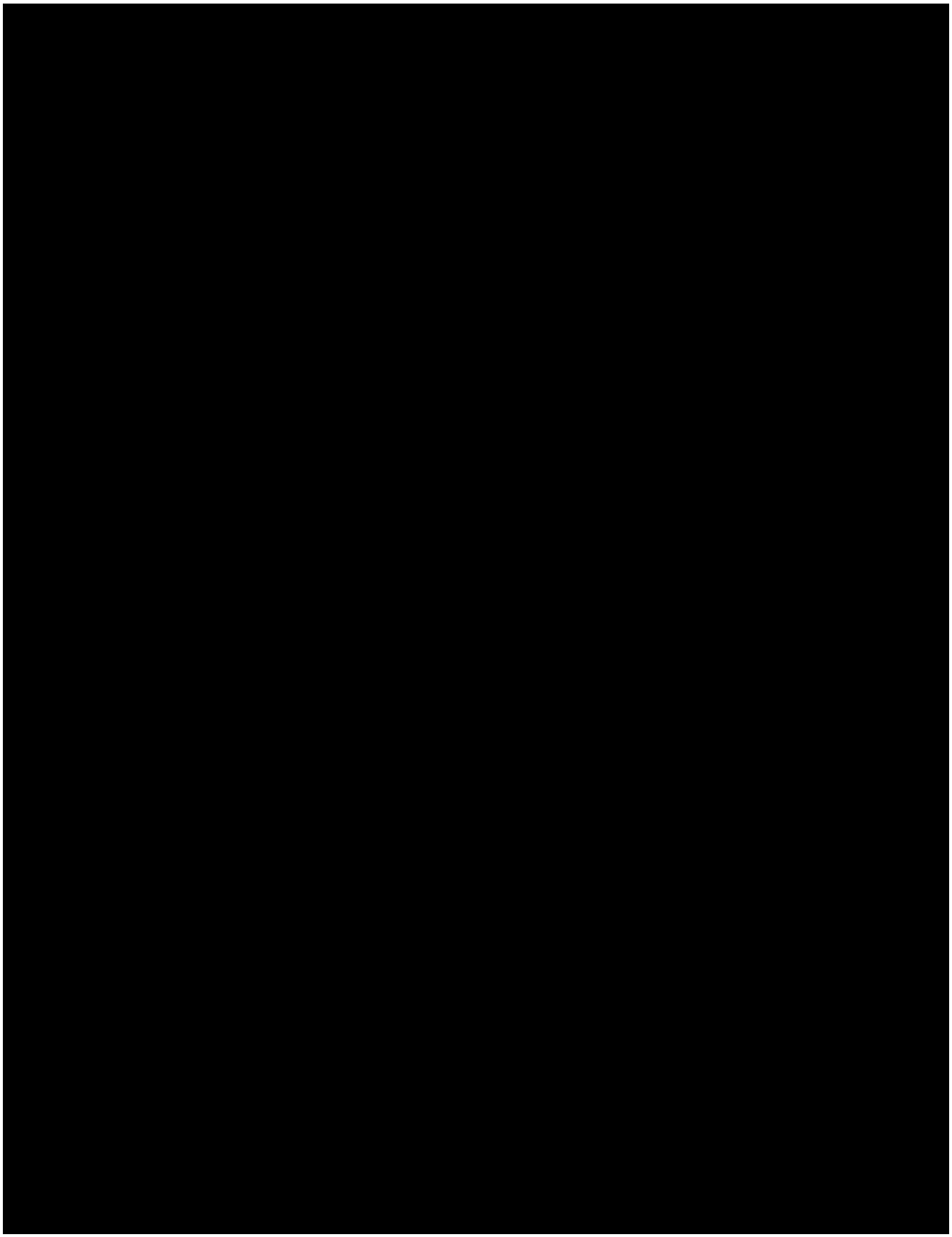


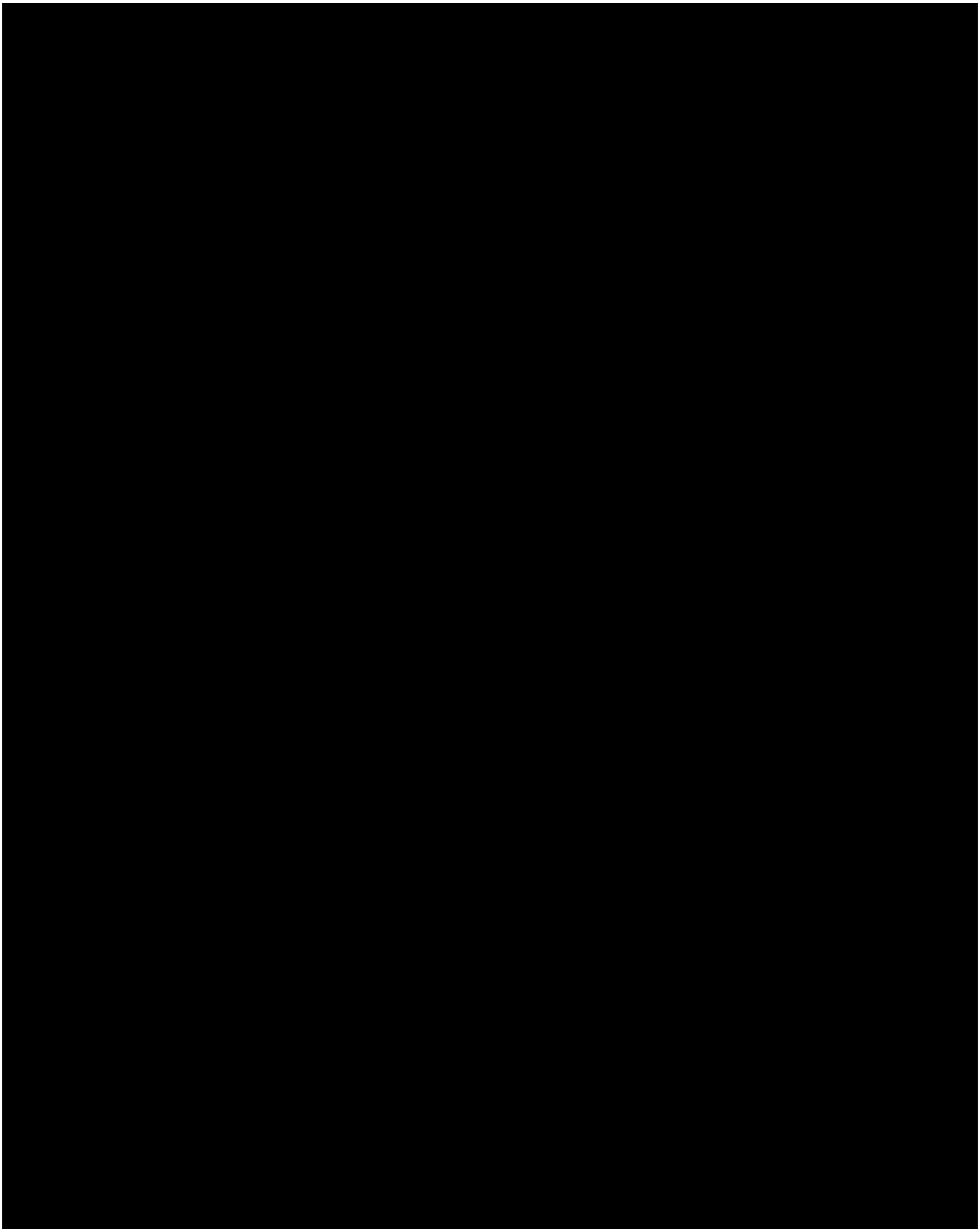


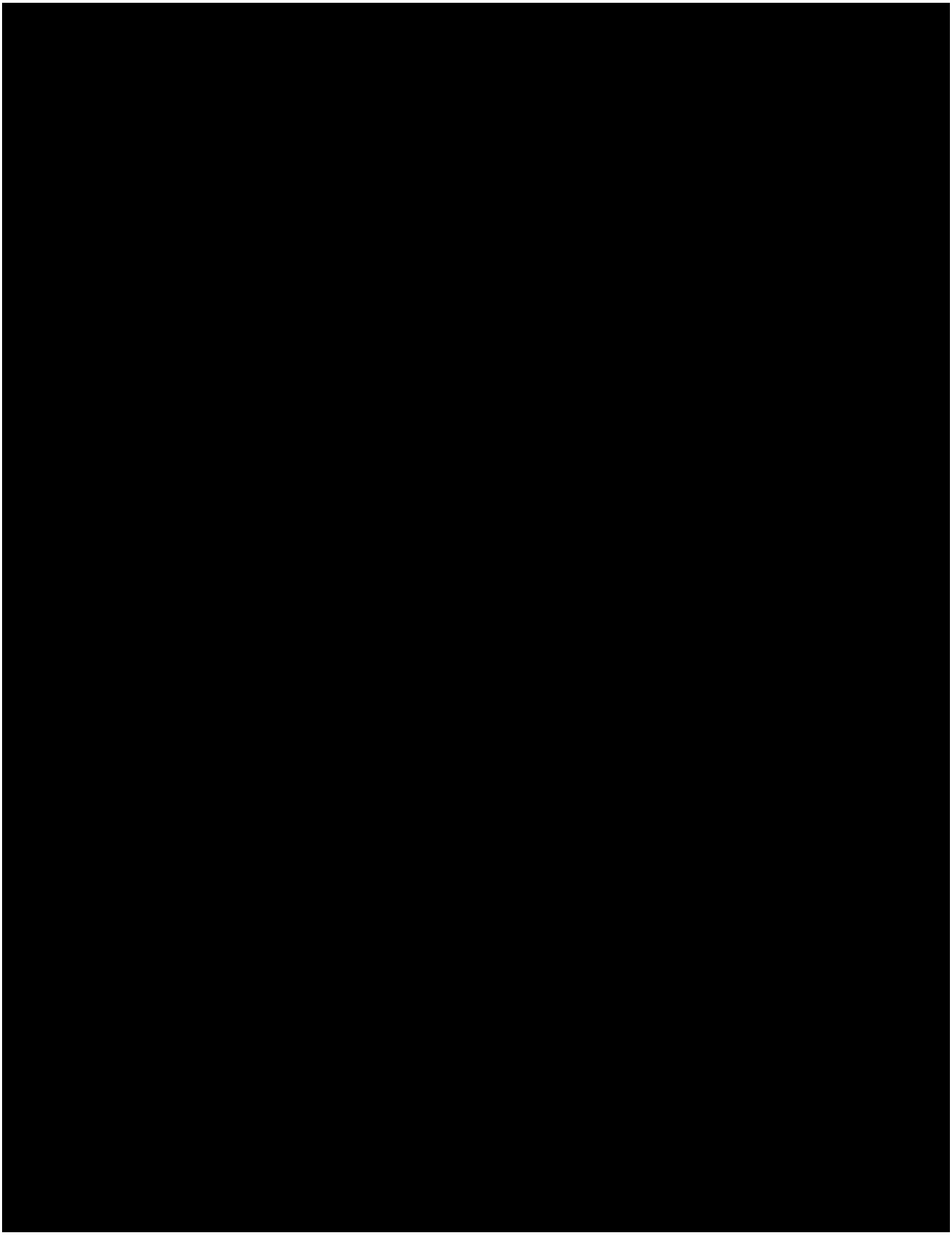


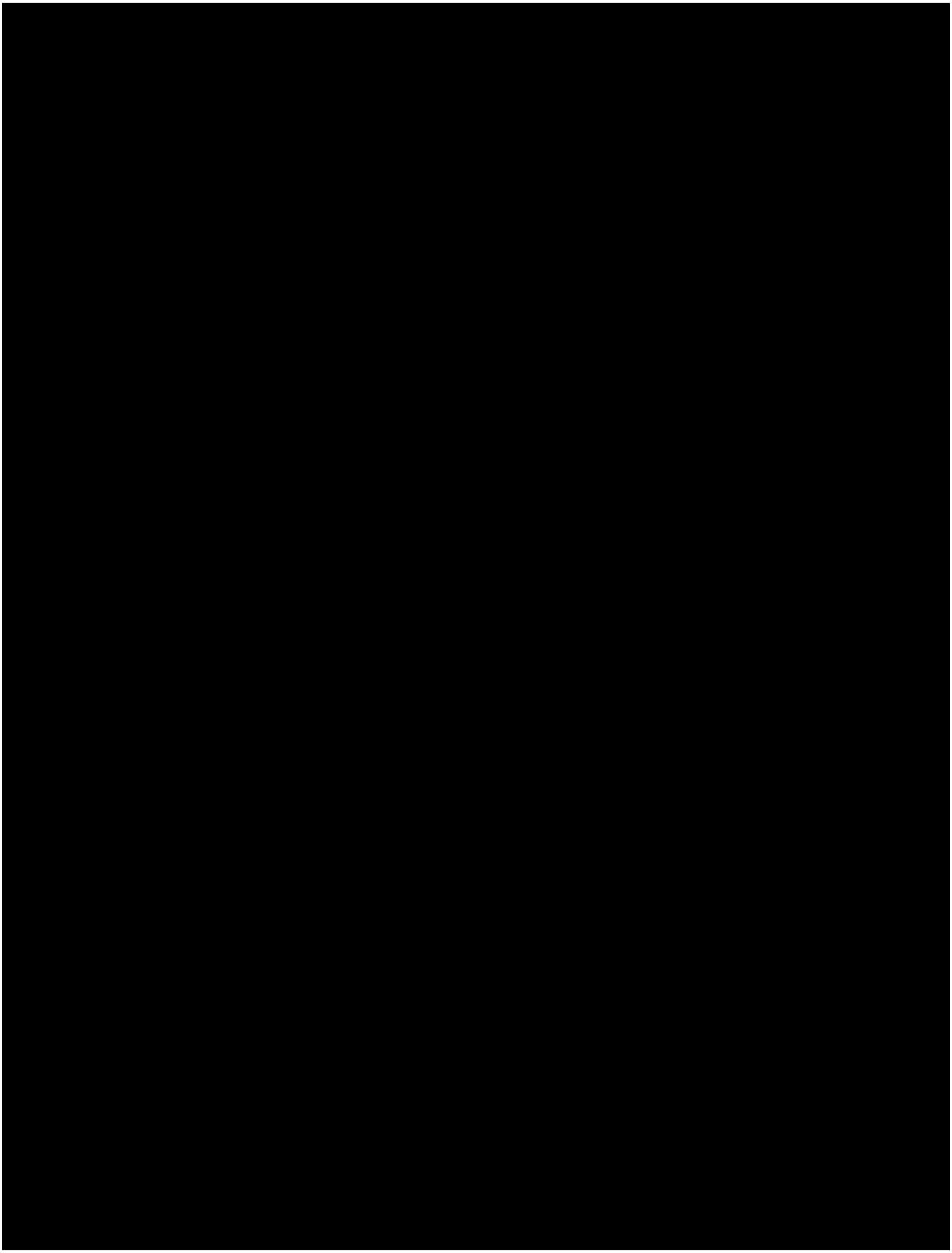


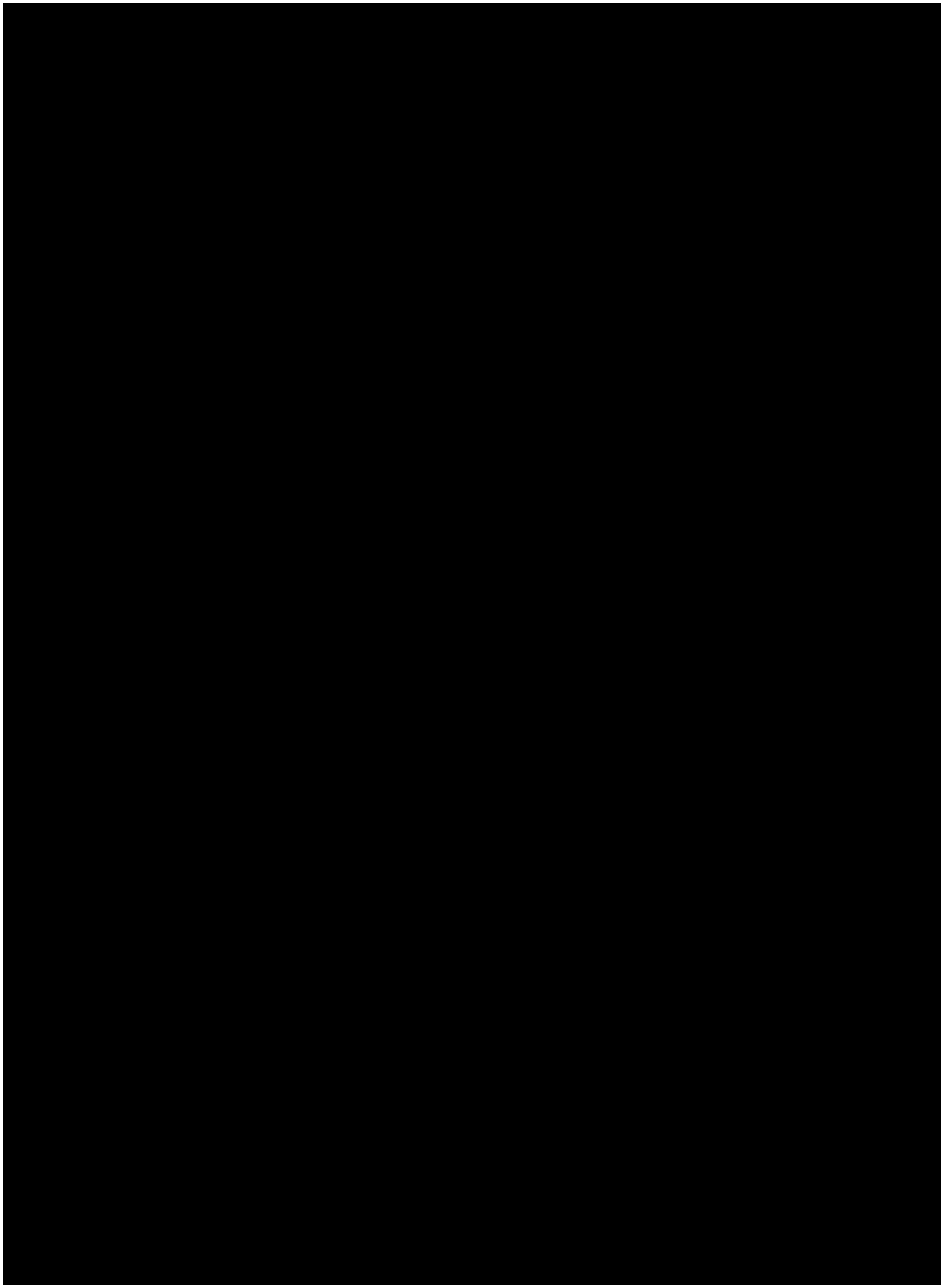


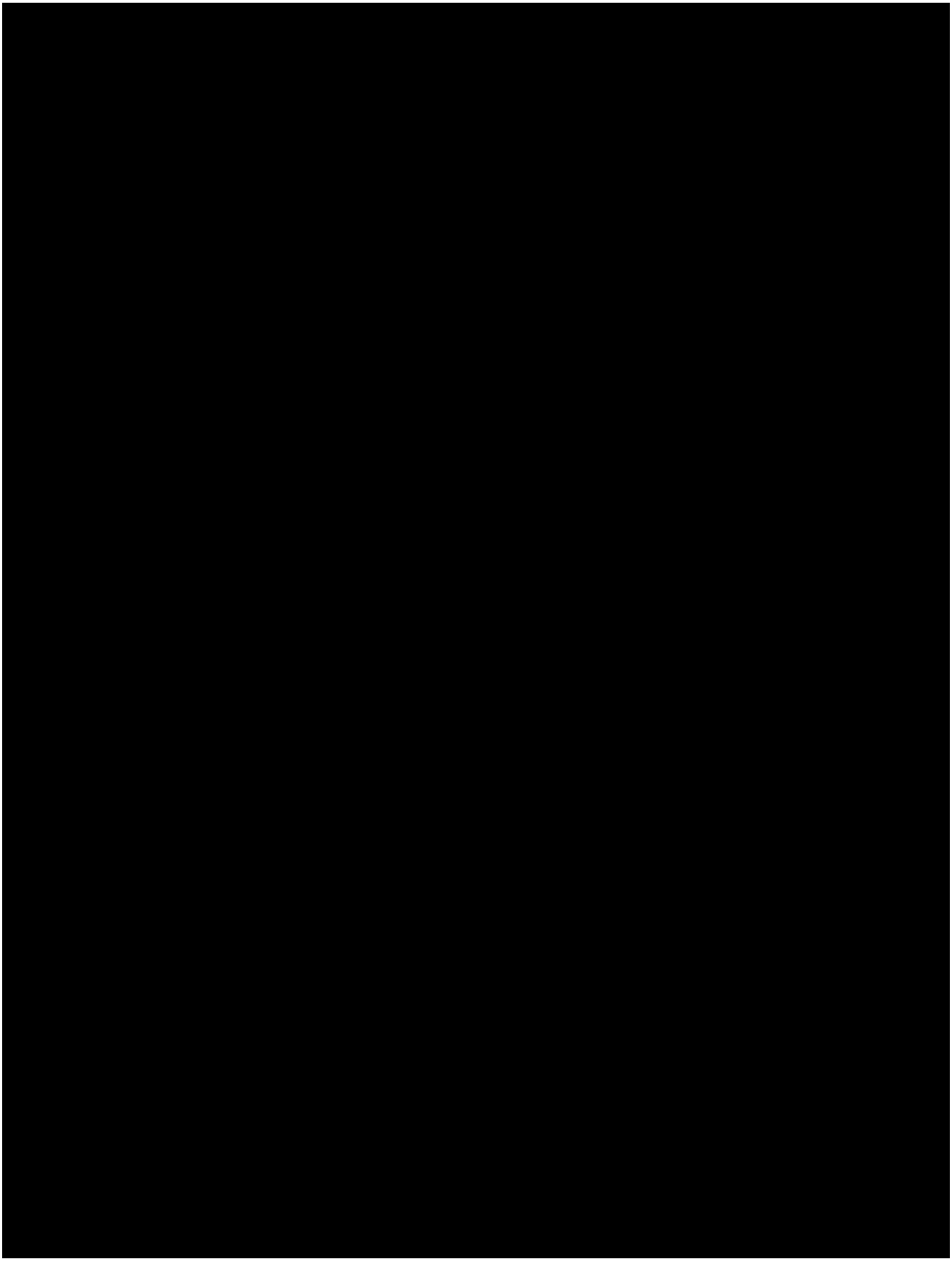


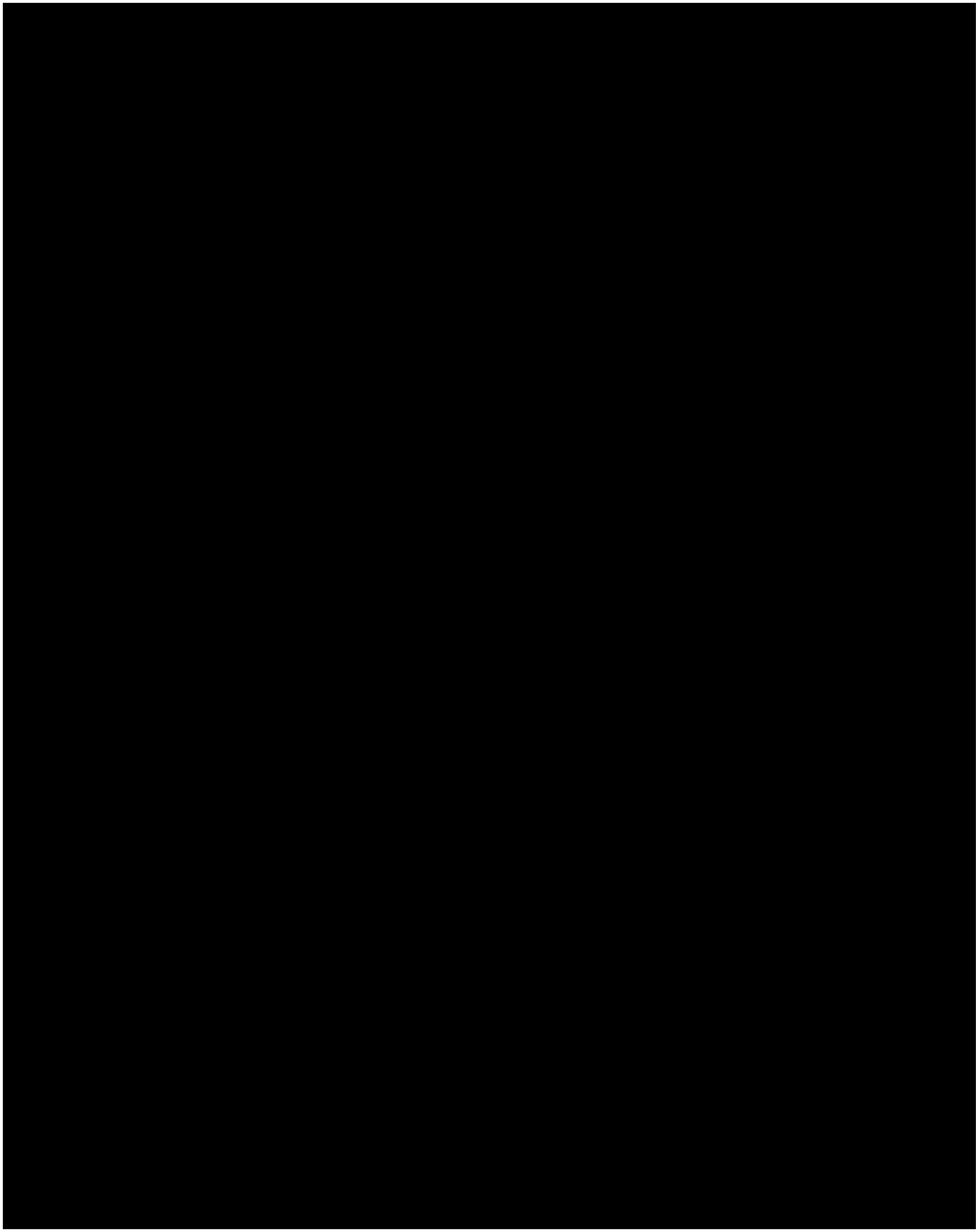


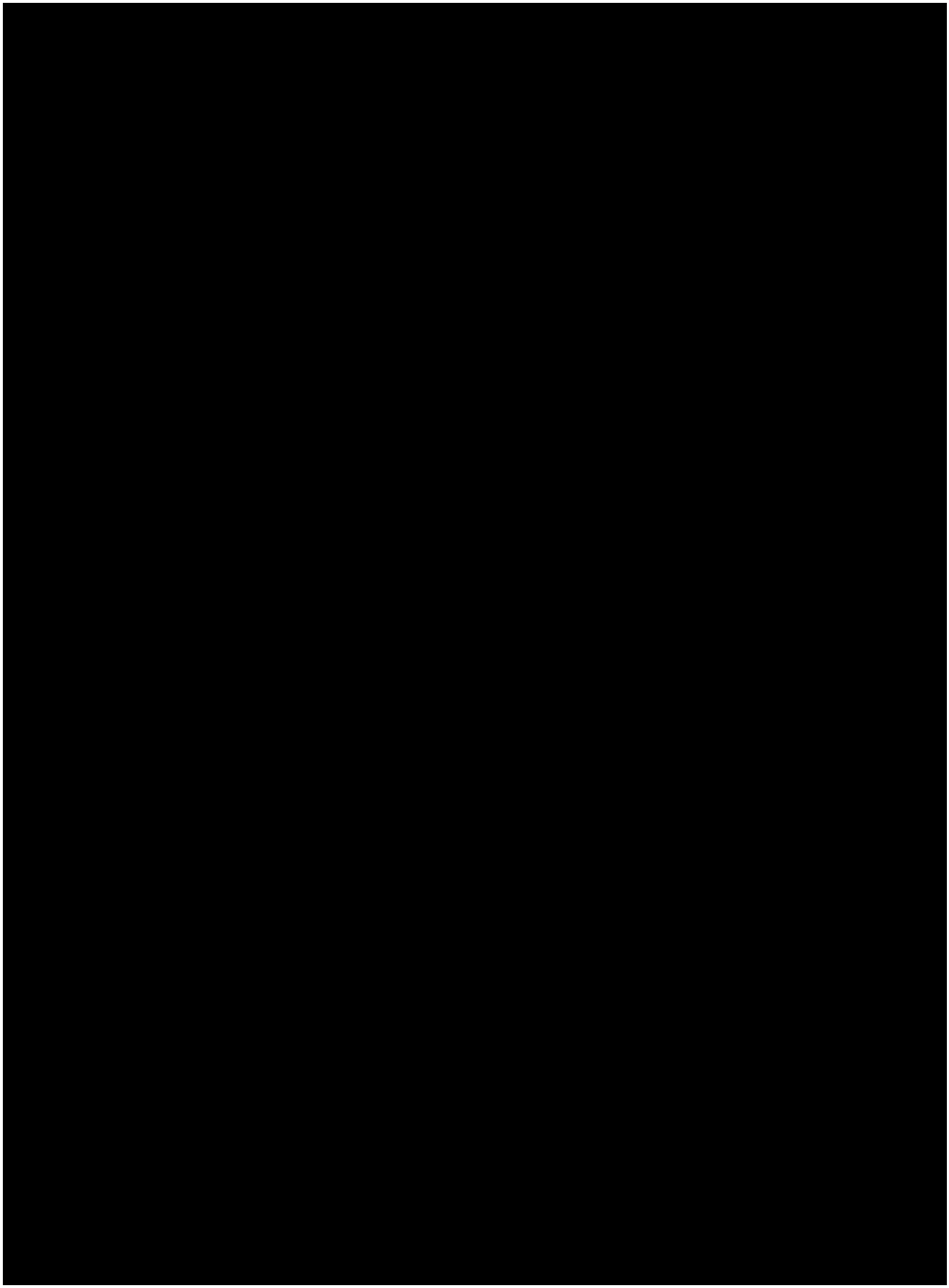


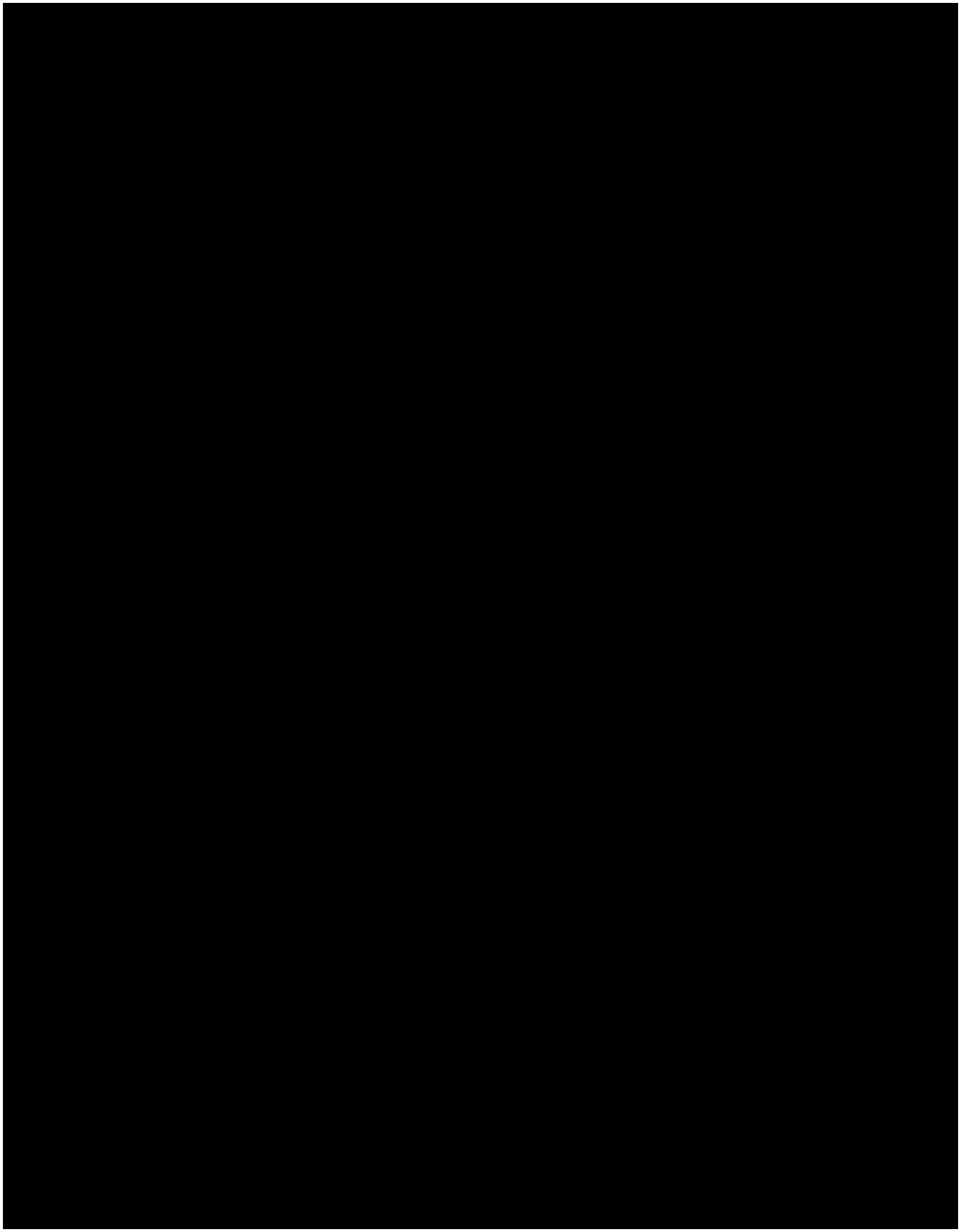


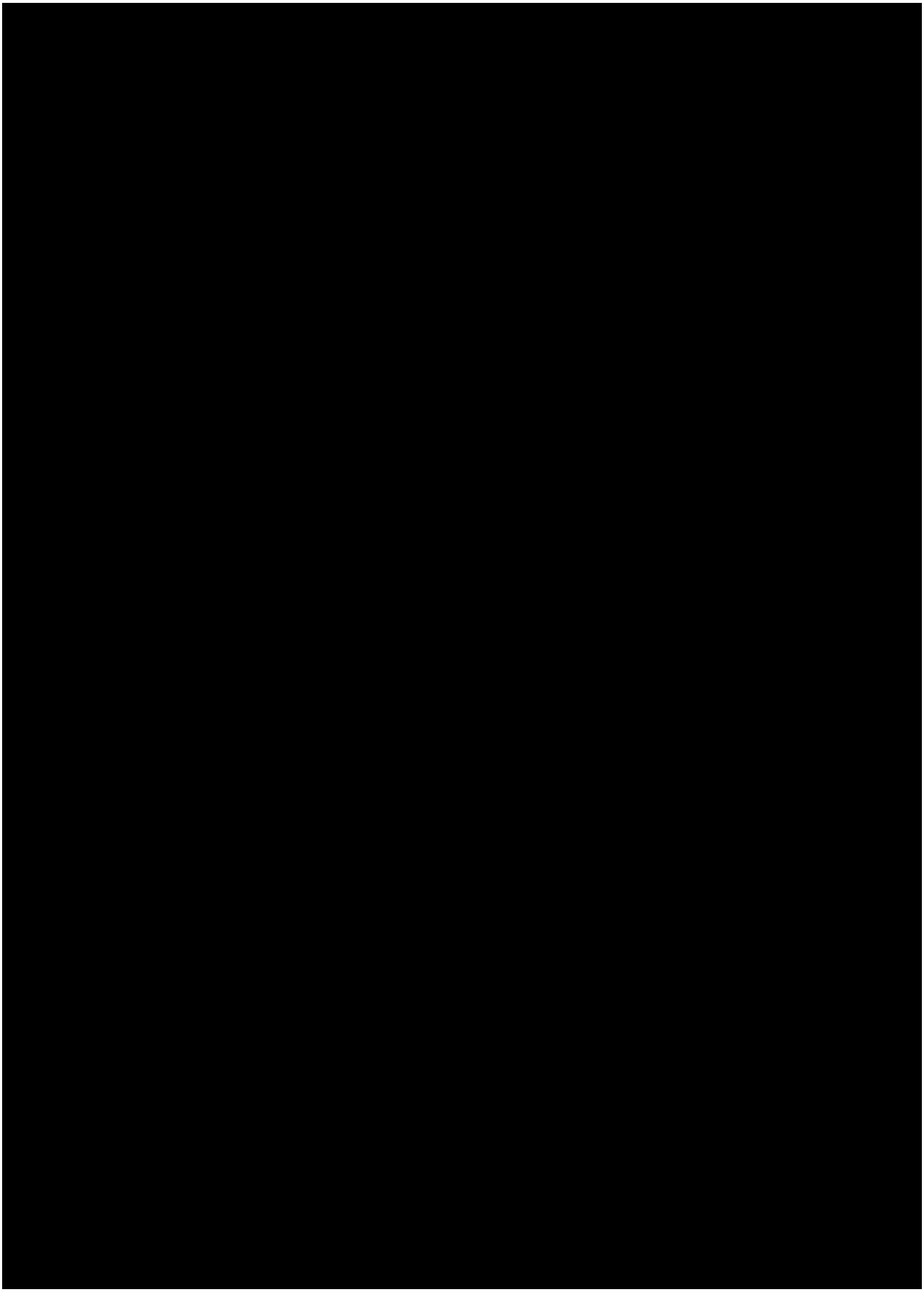


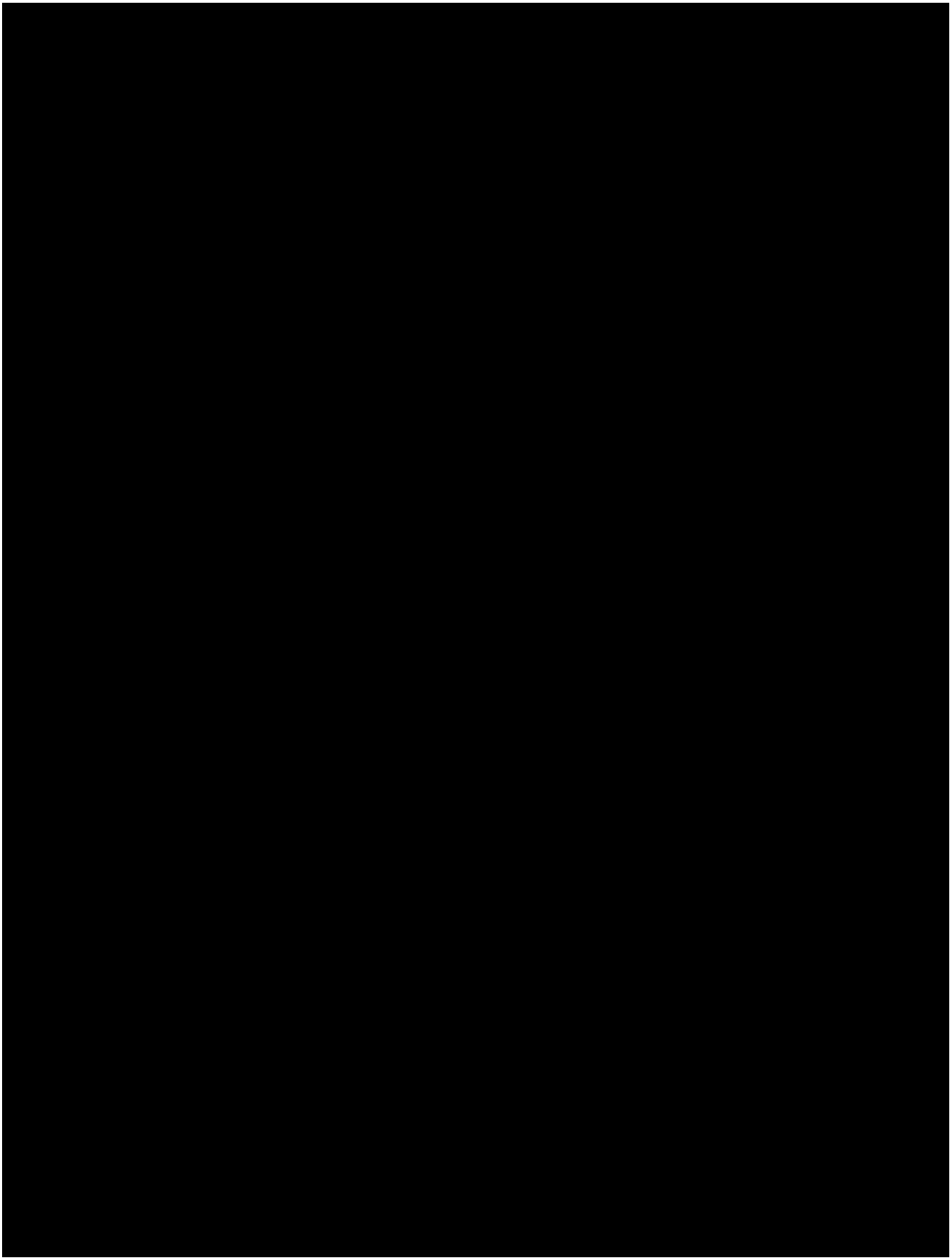


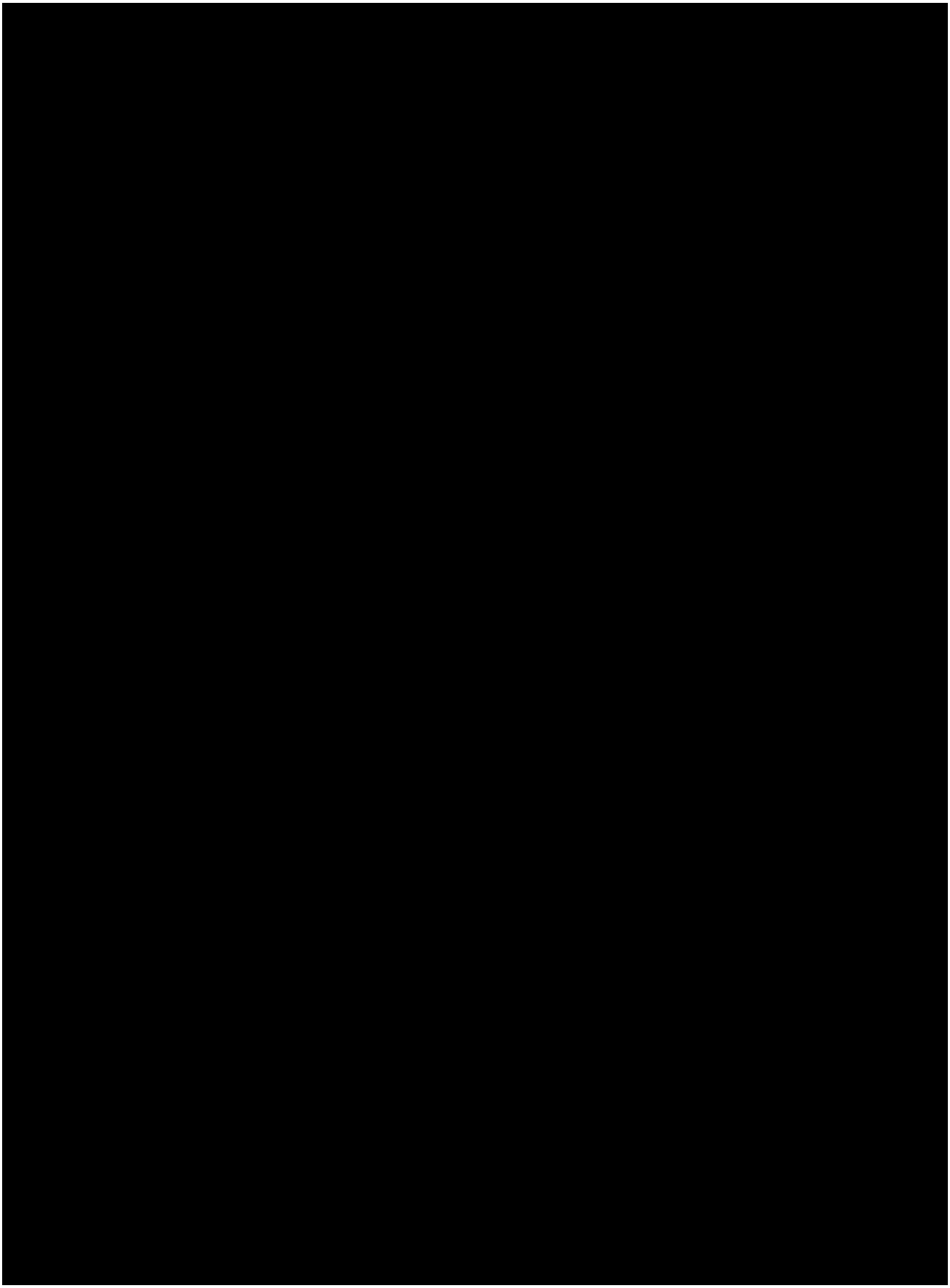


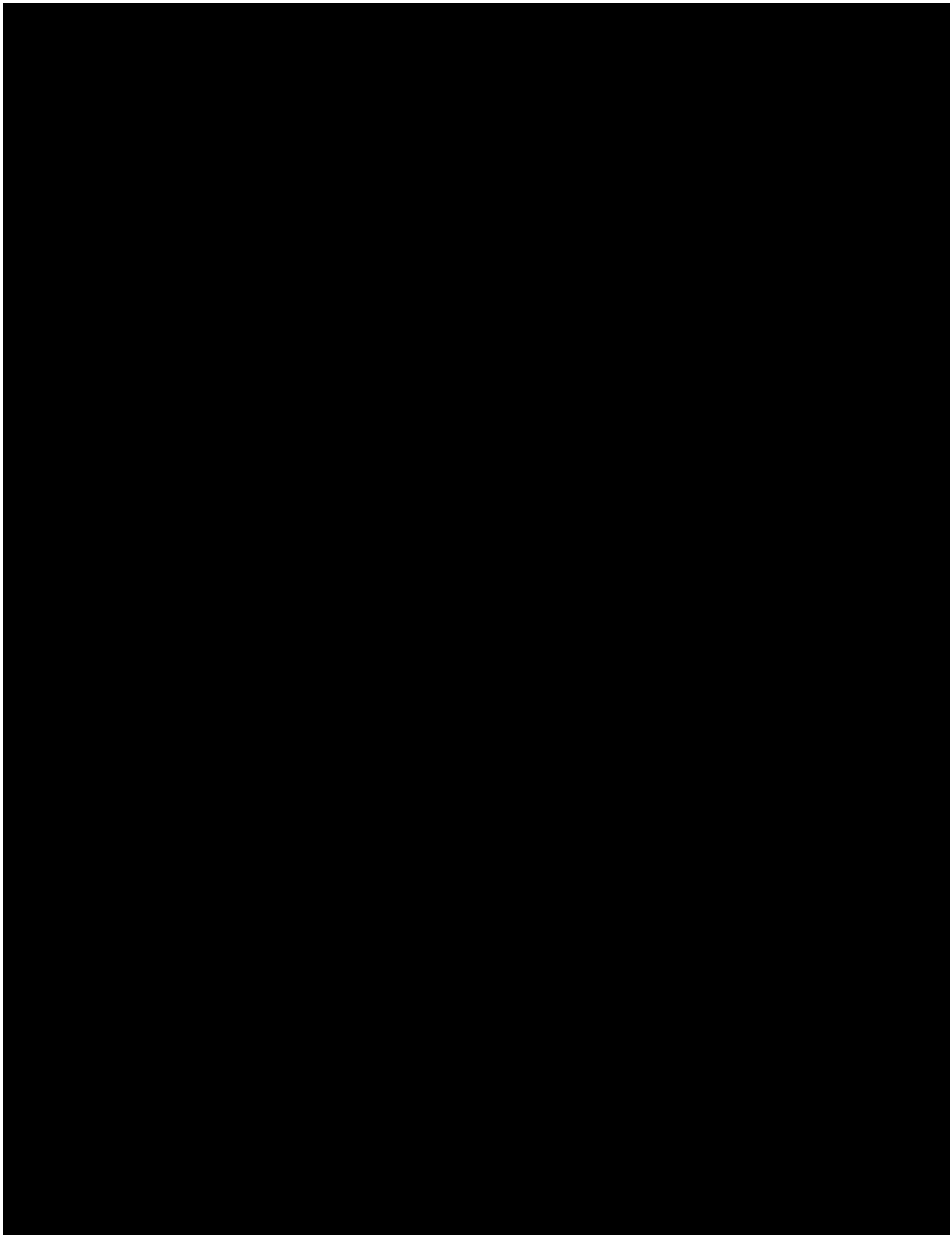


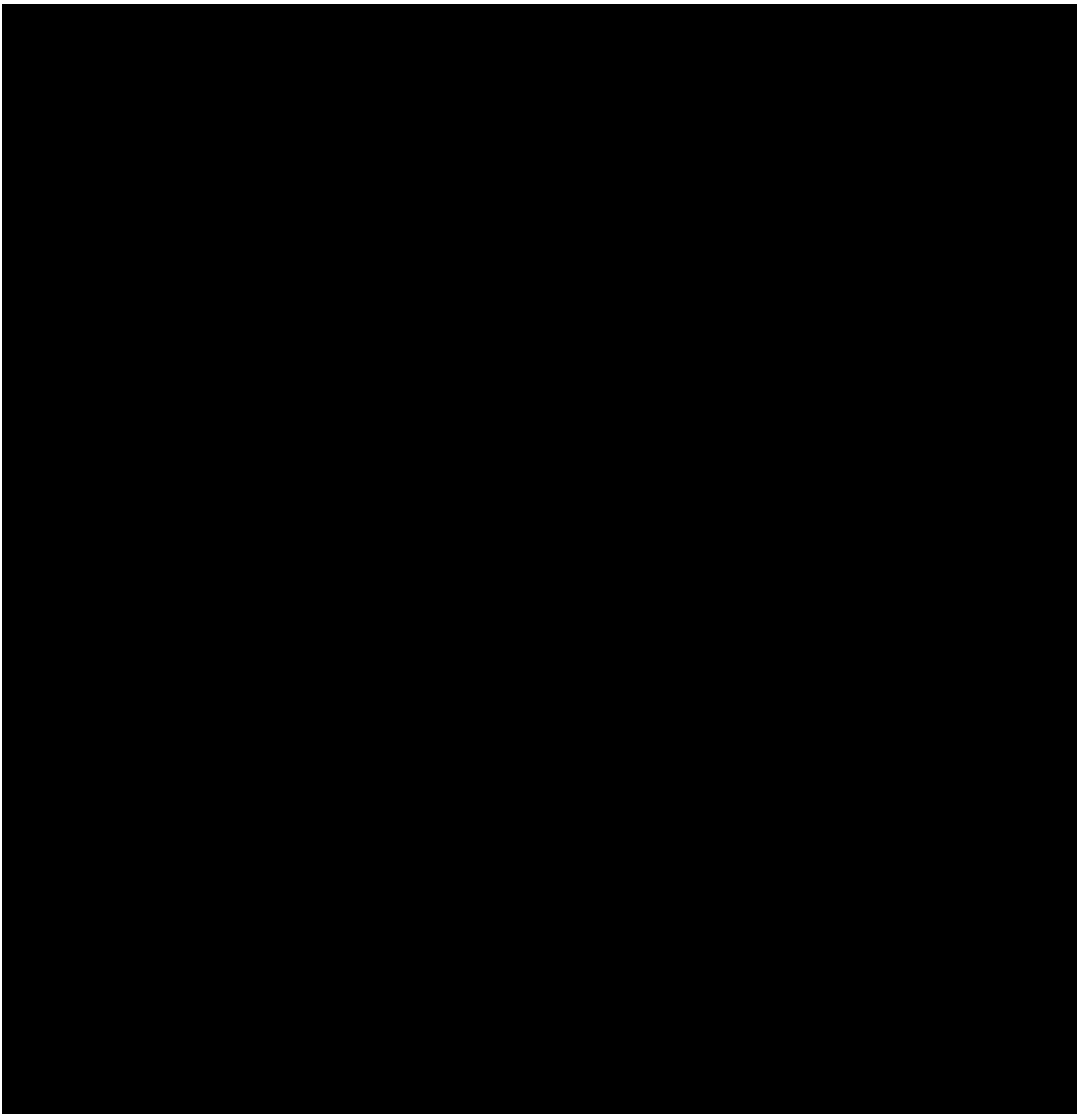


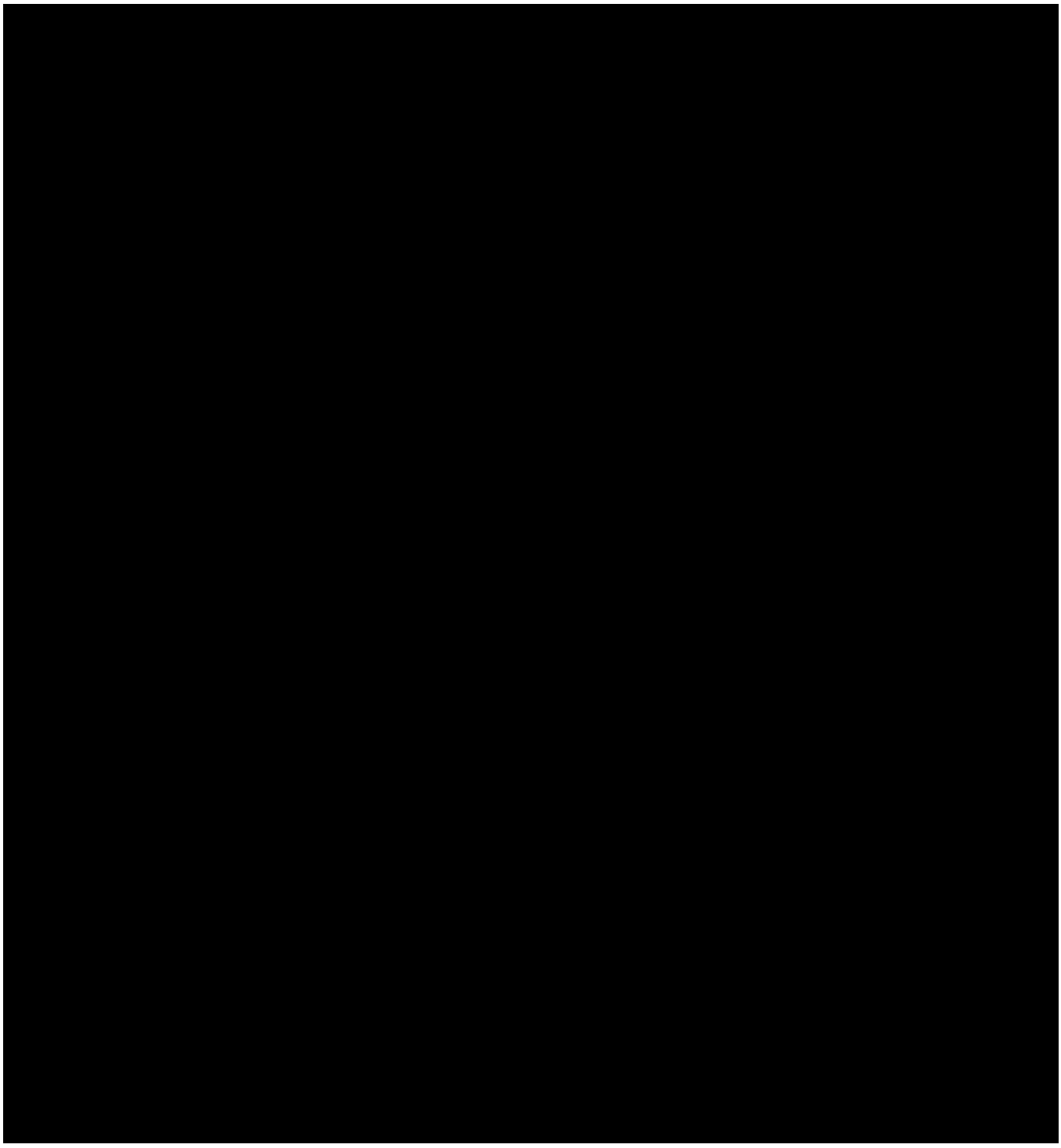


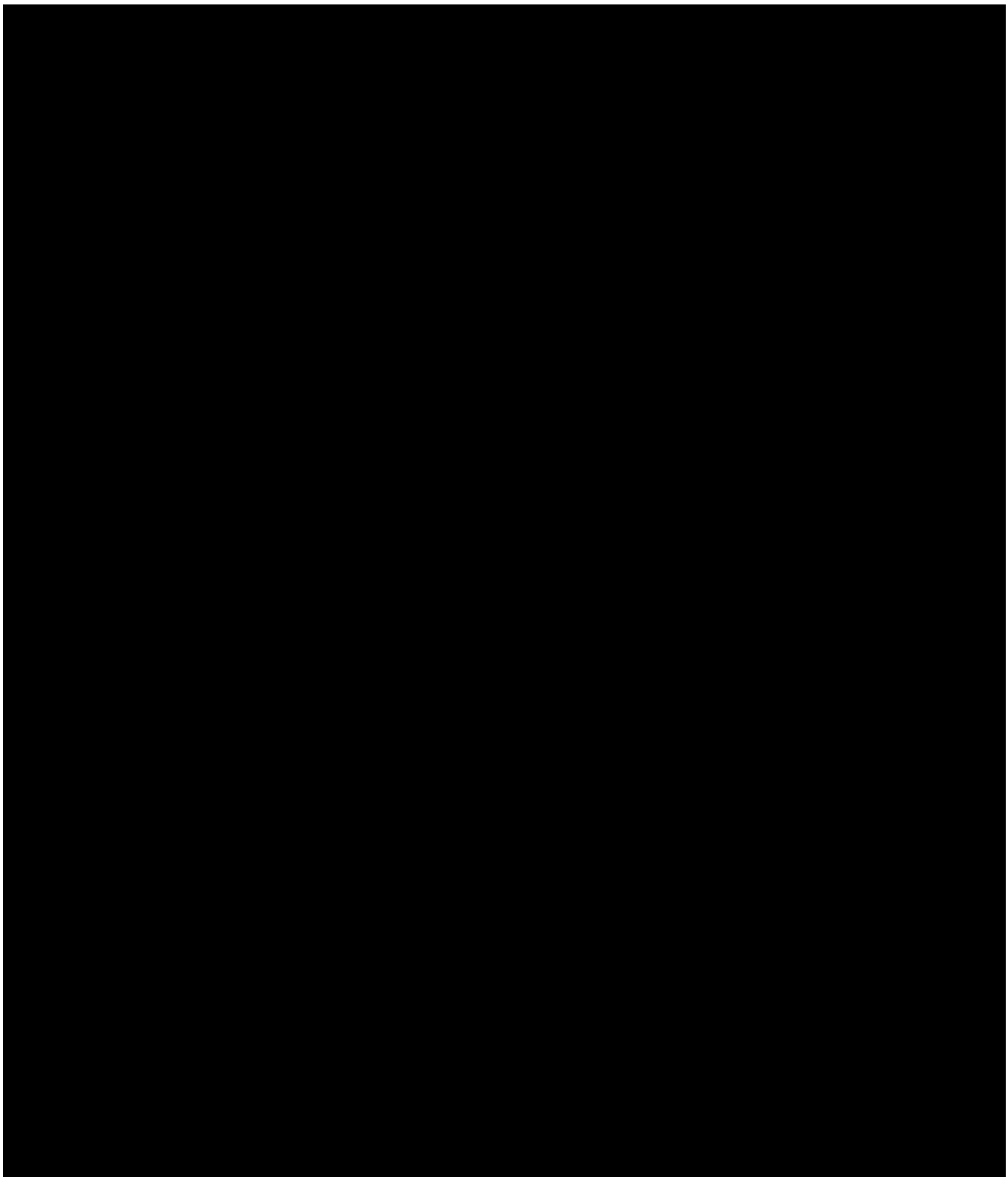


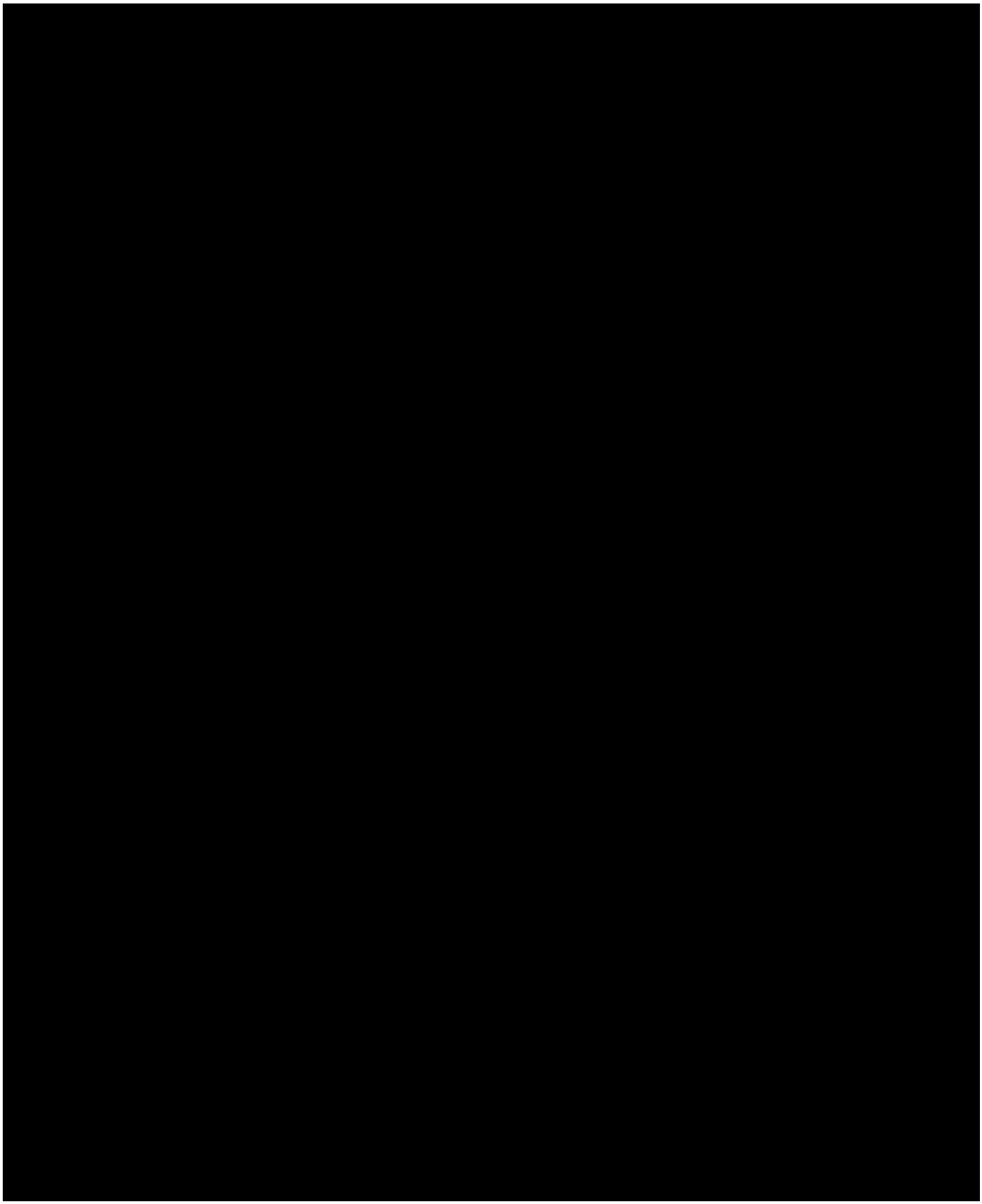




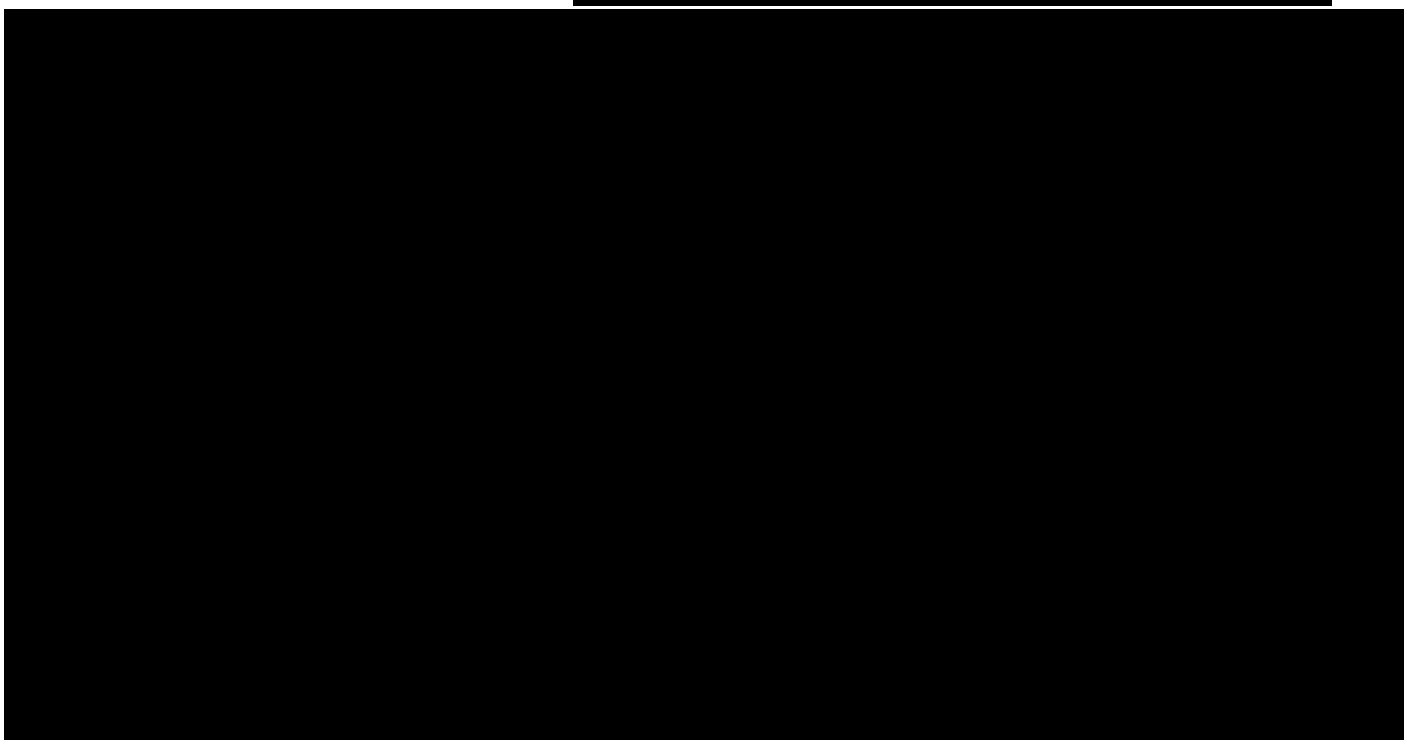


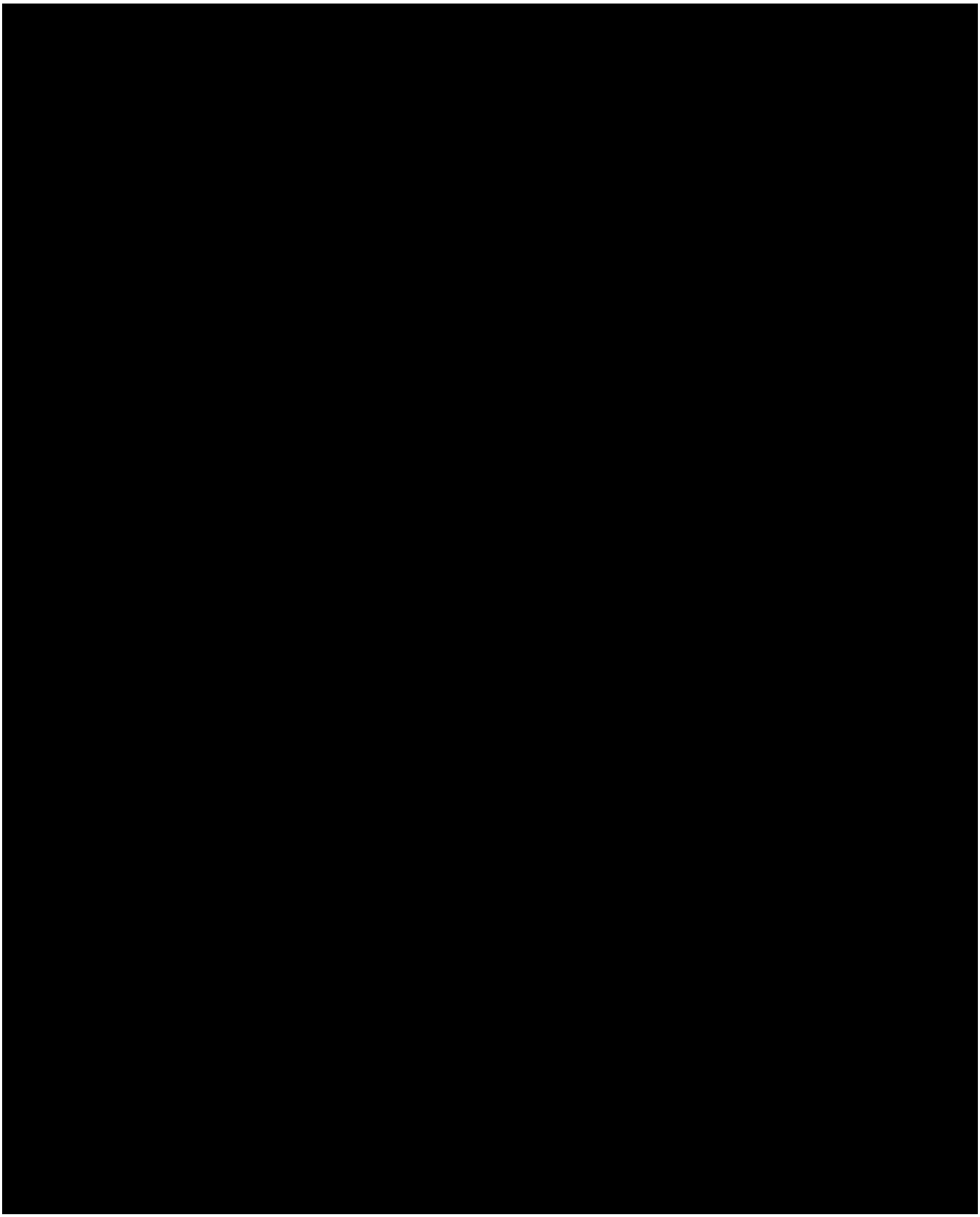


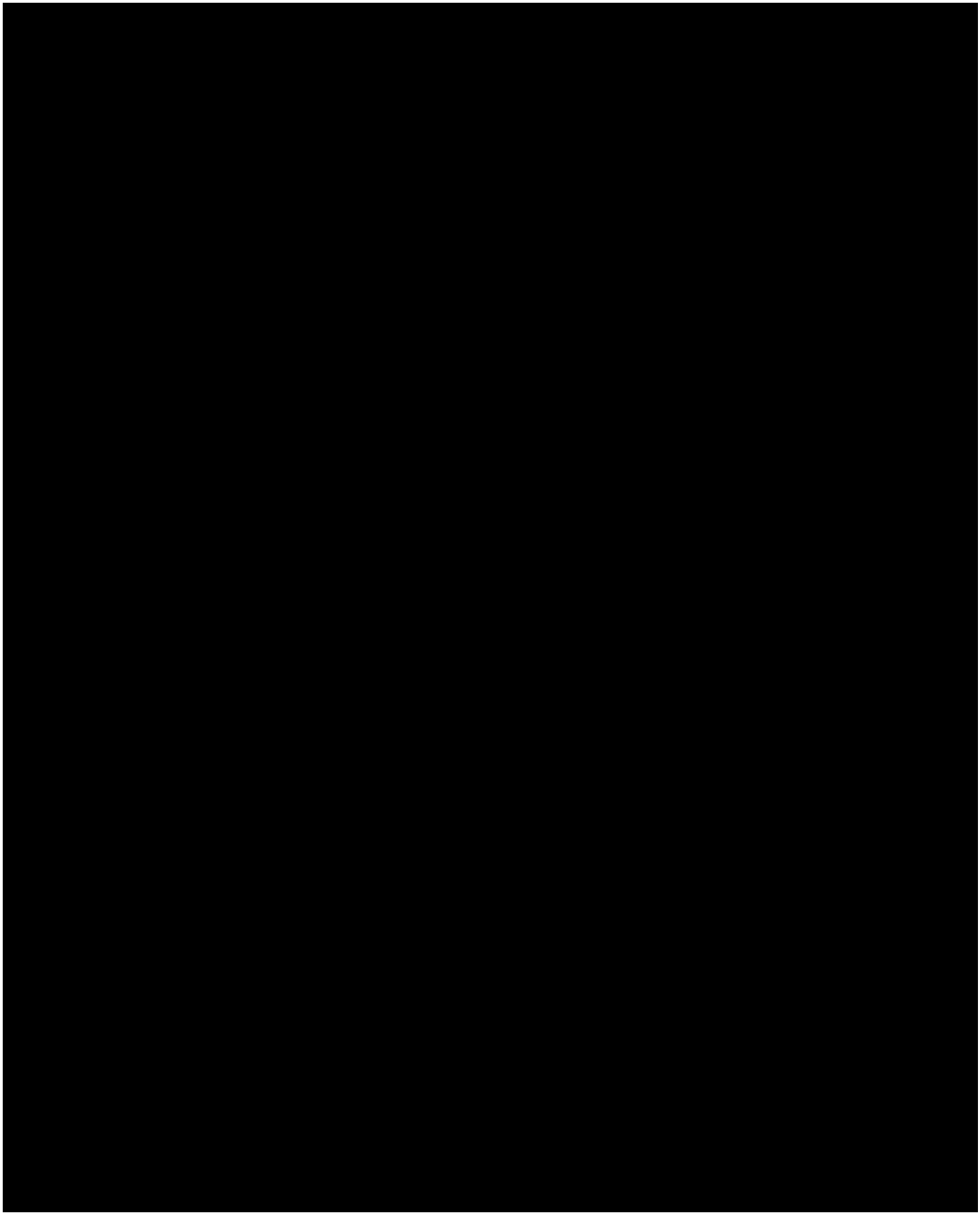


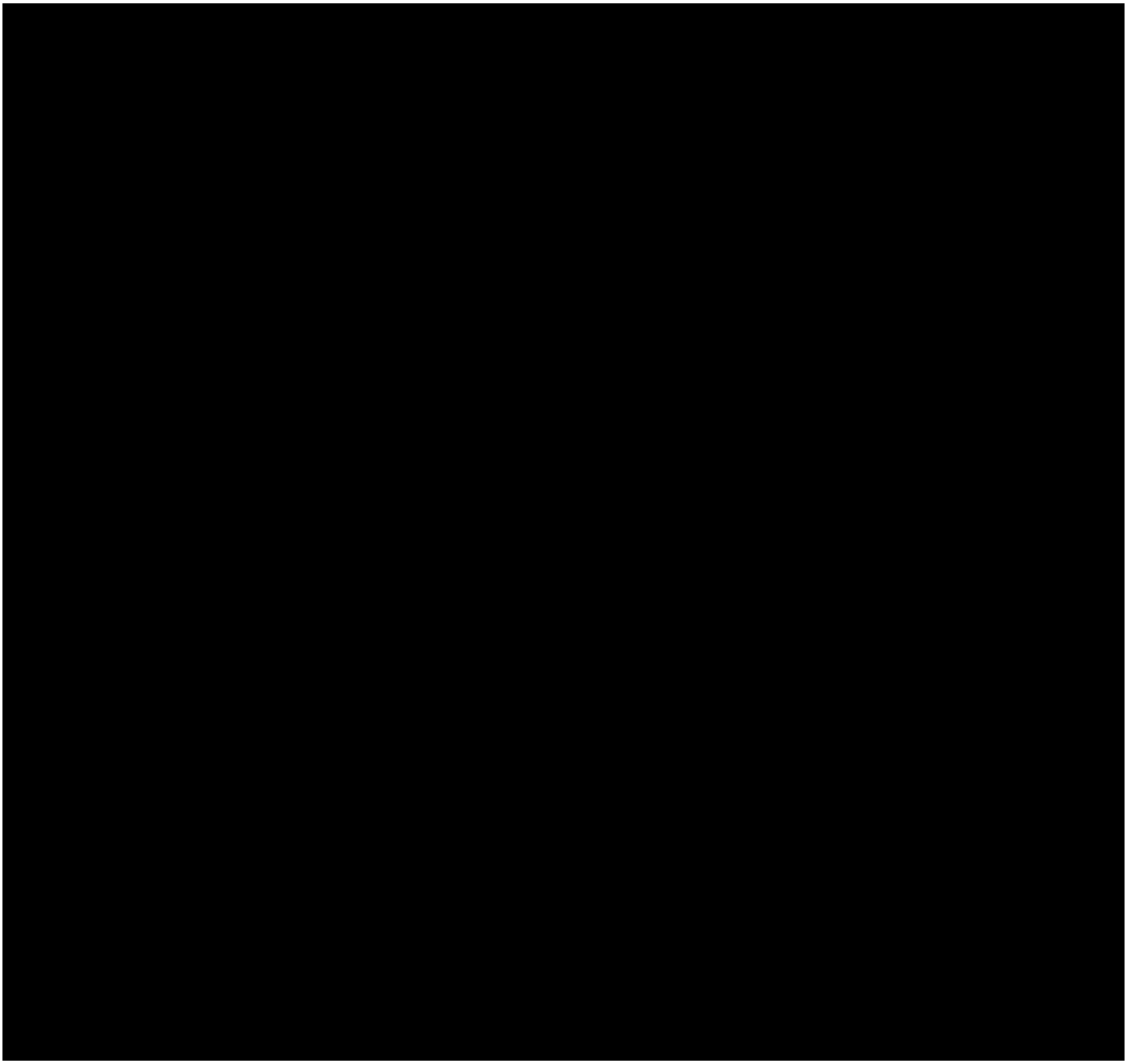


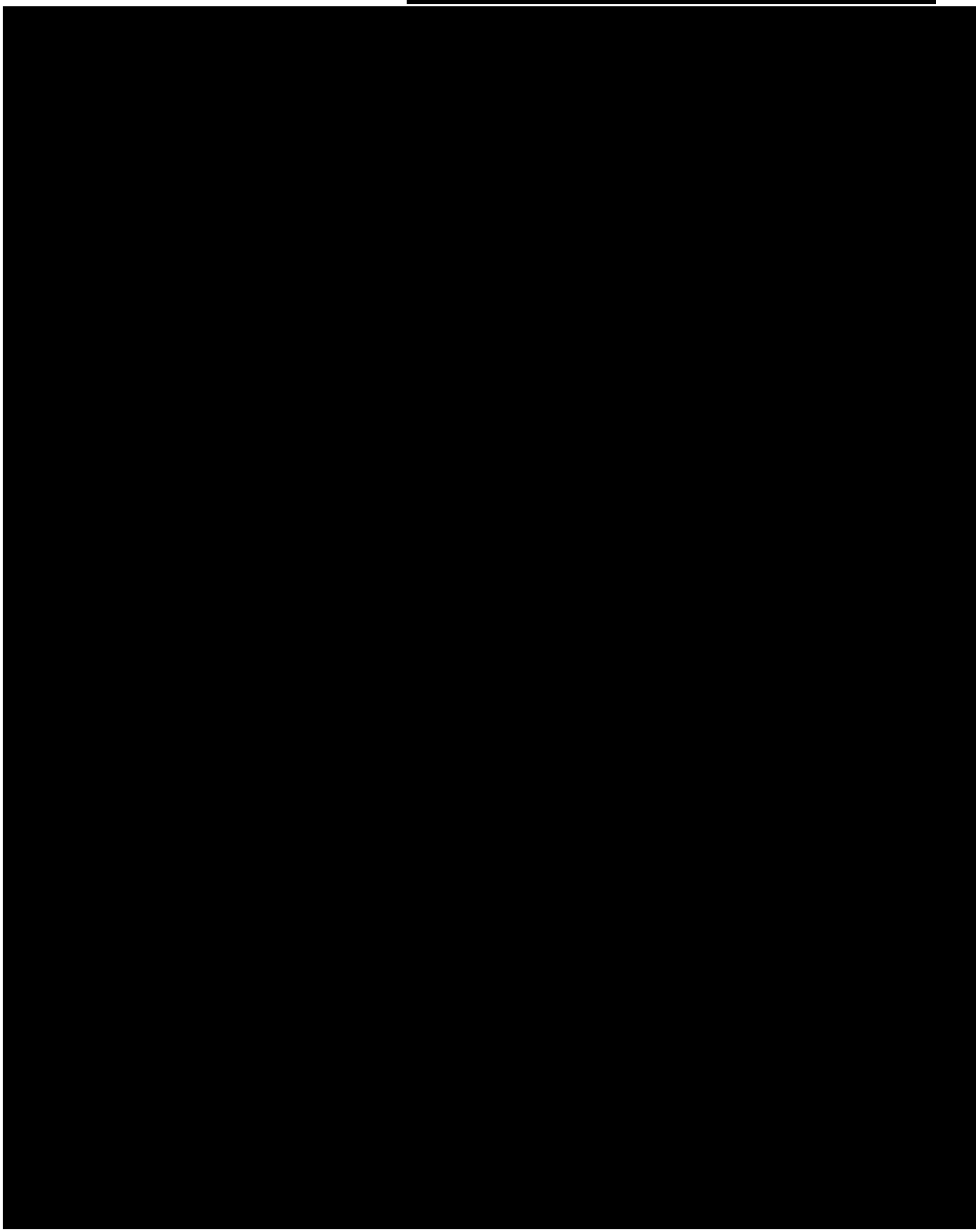
ROC Project roles











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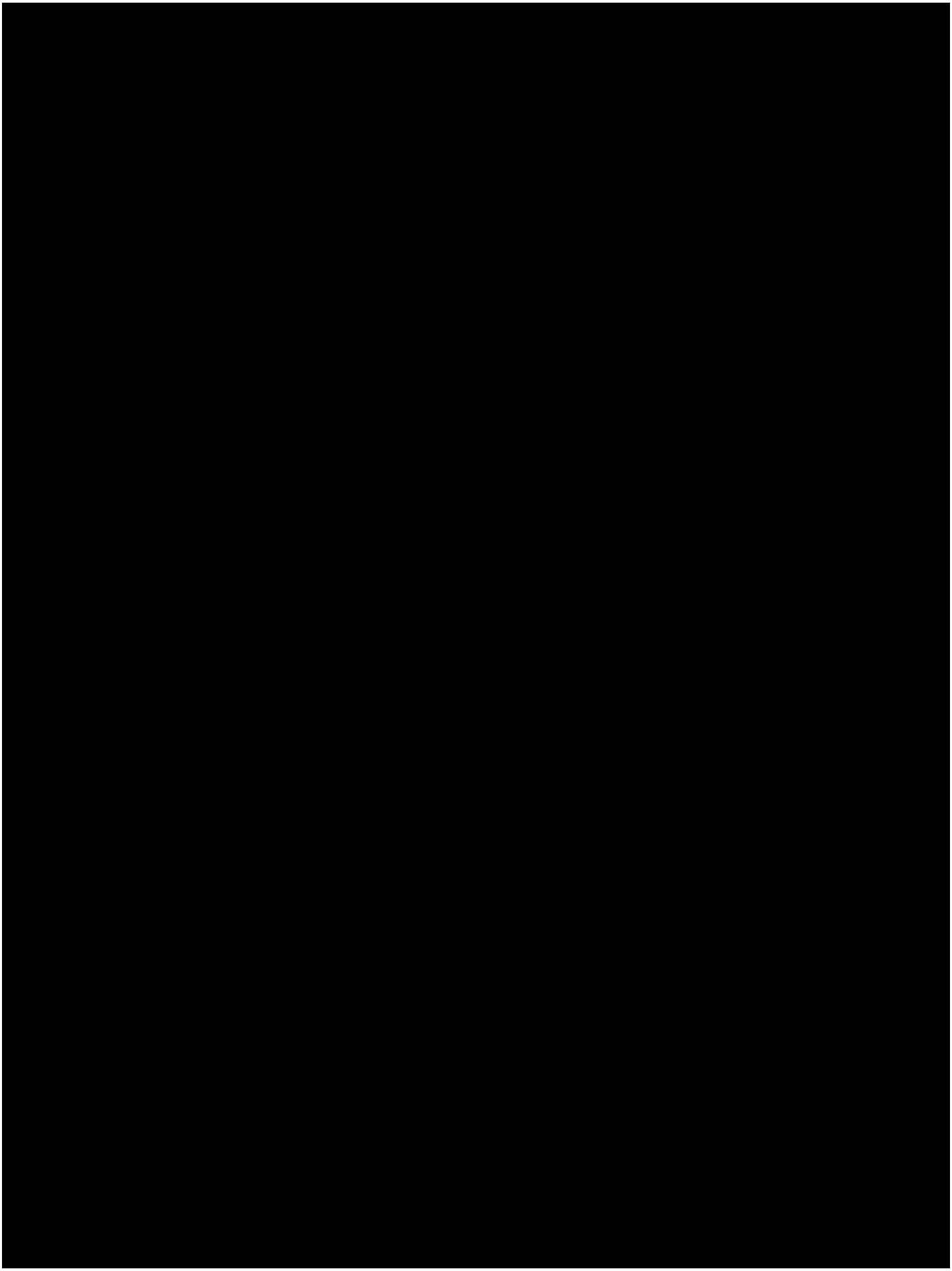
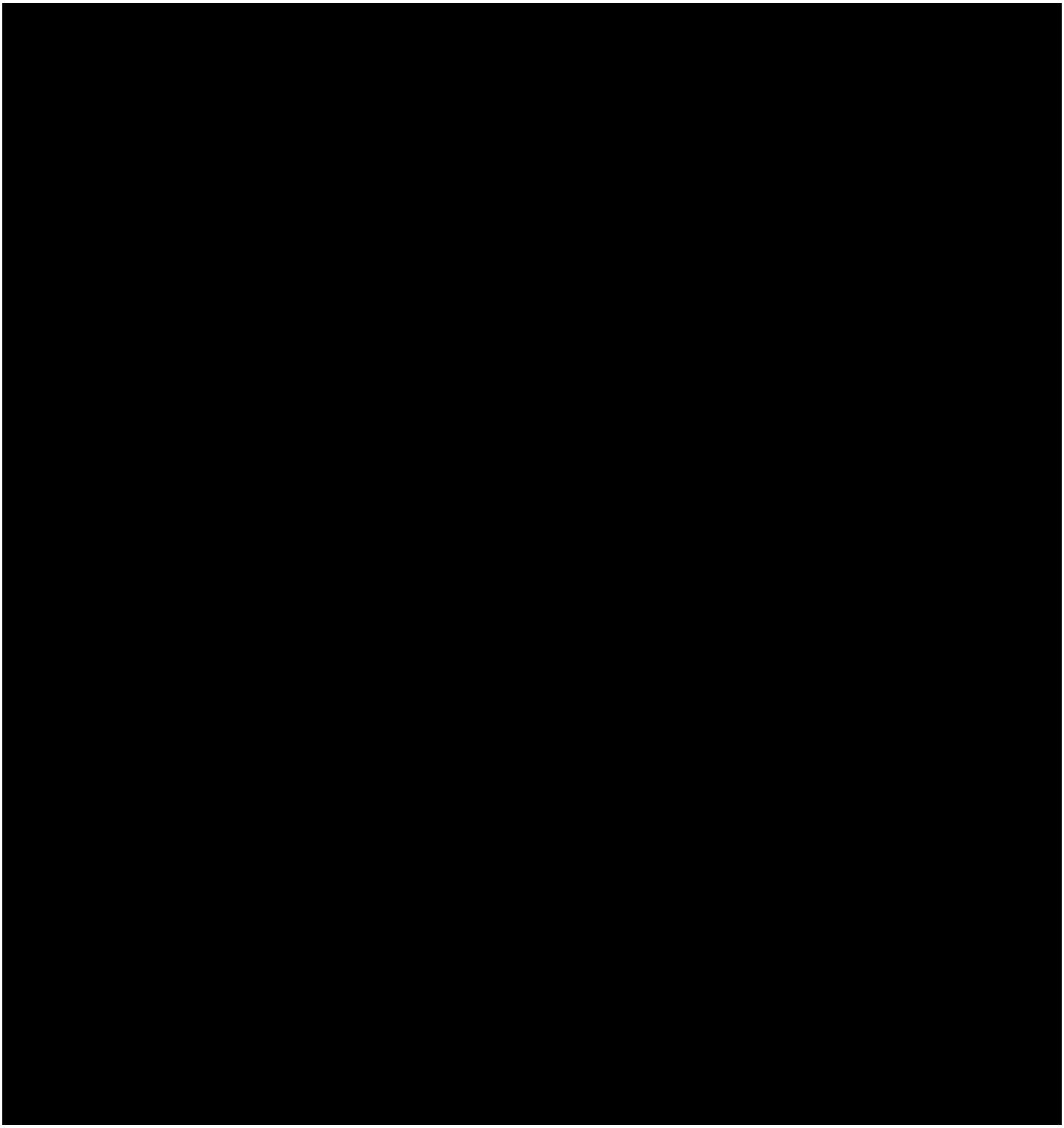
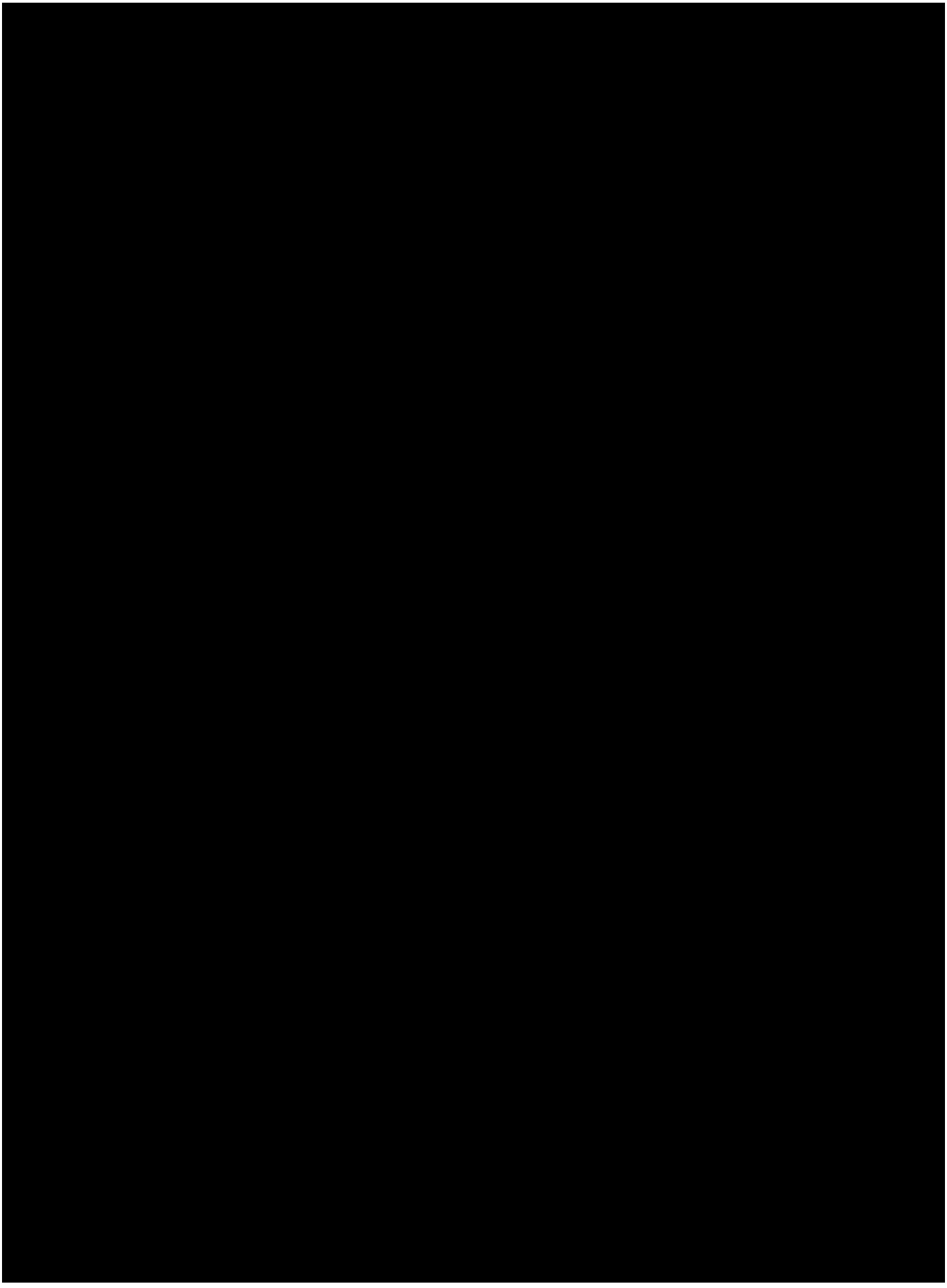
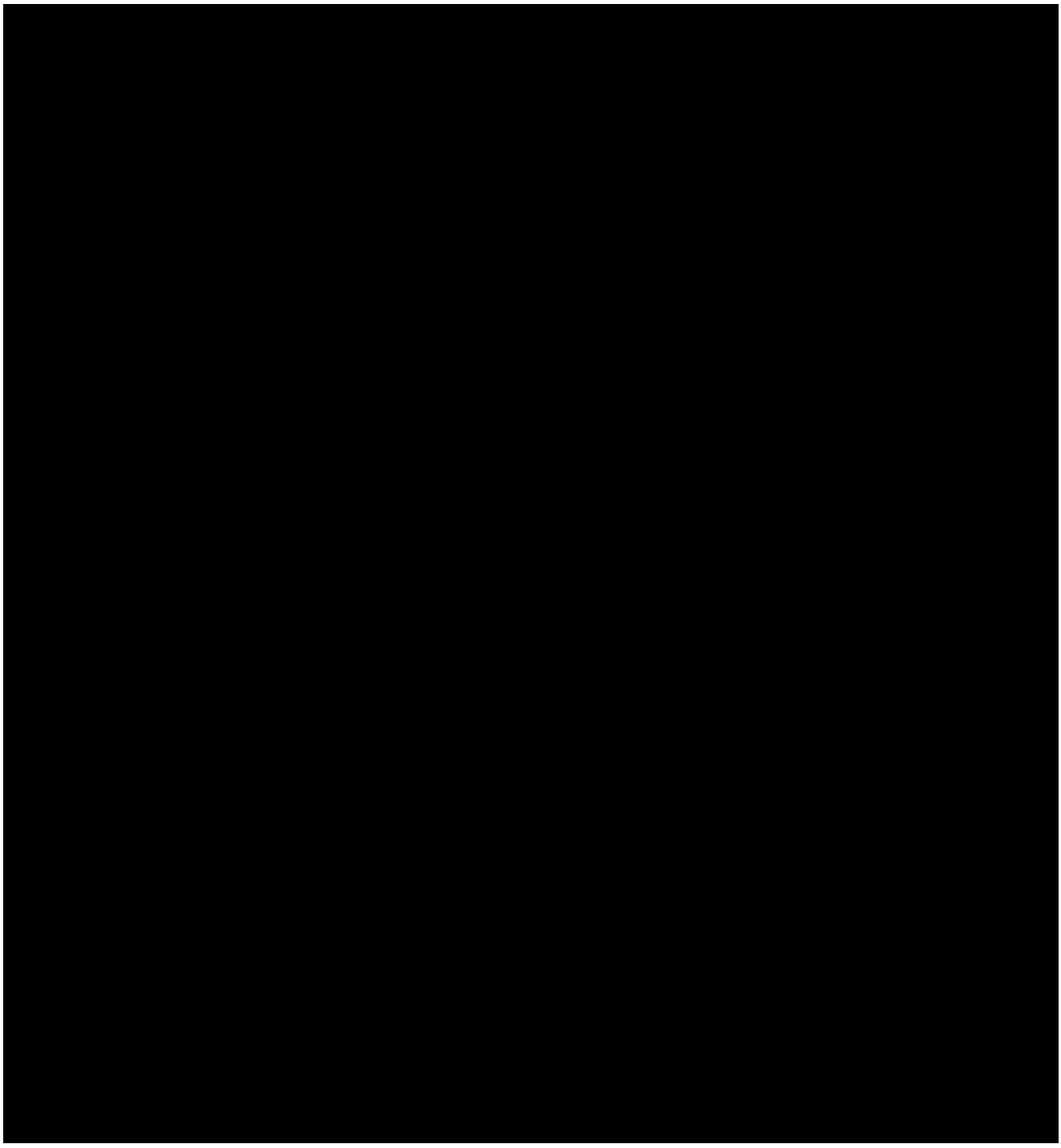
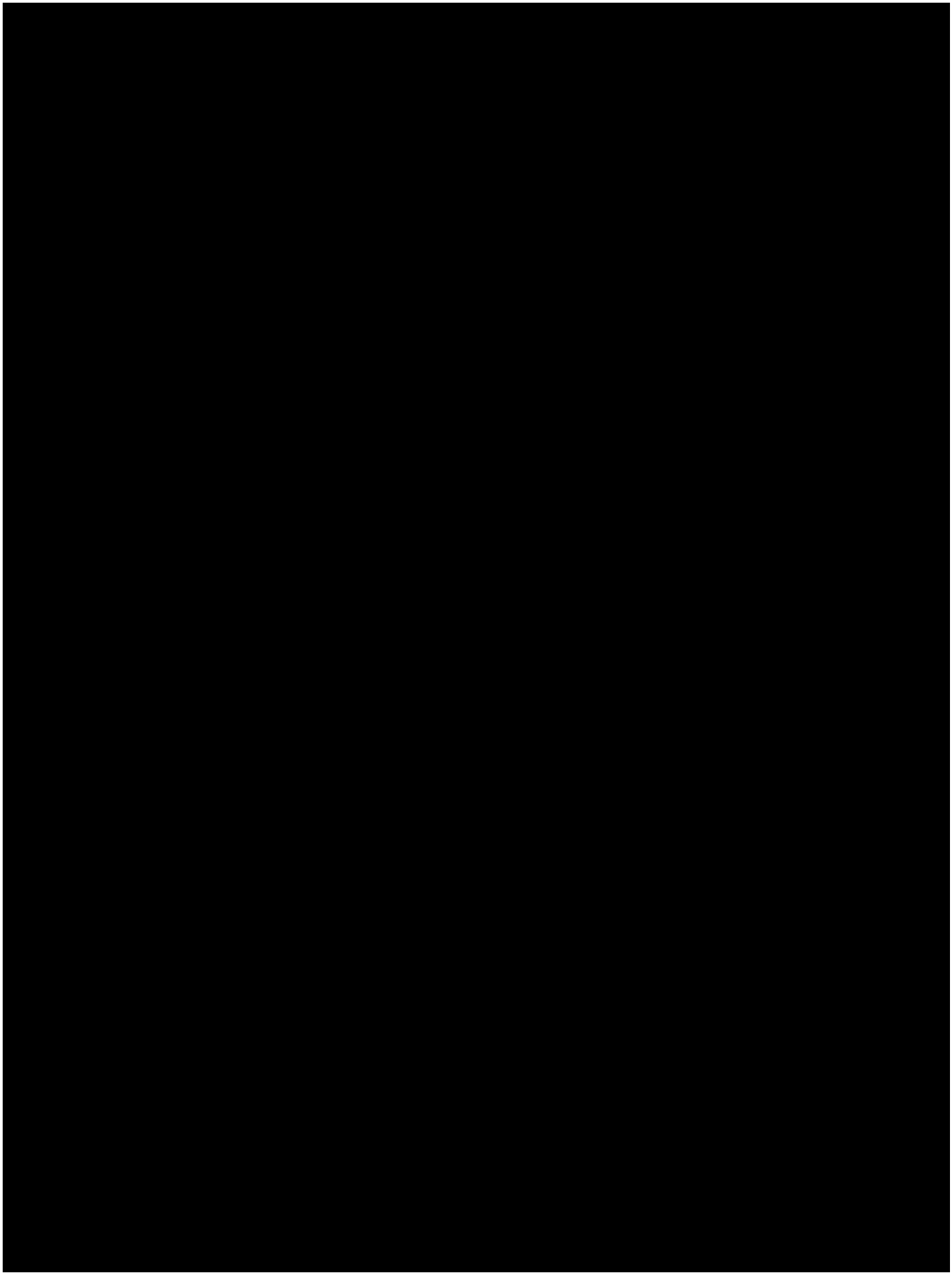


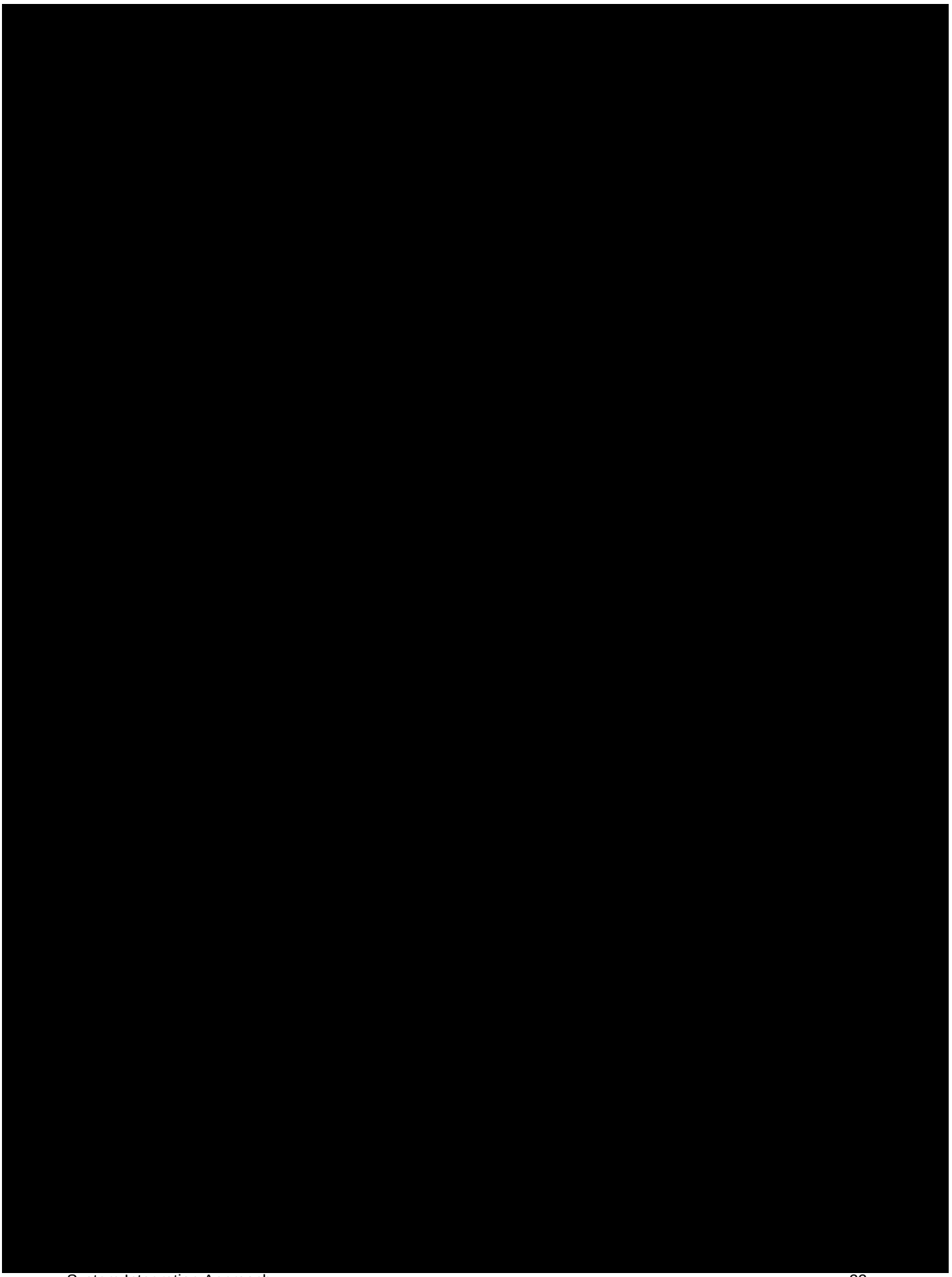


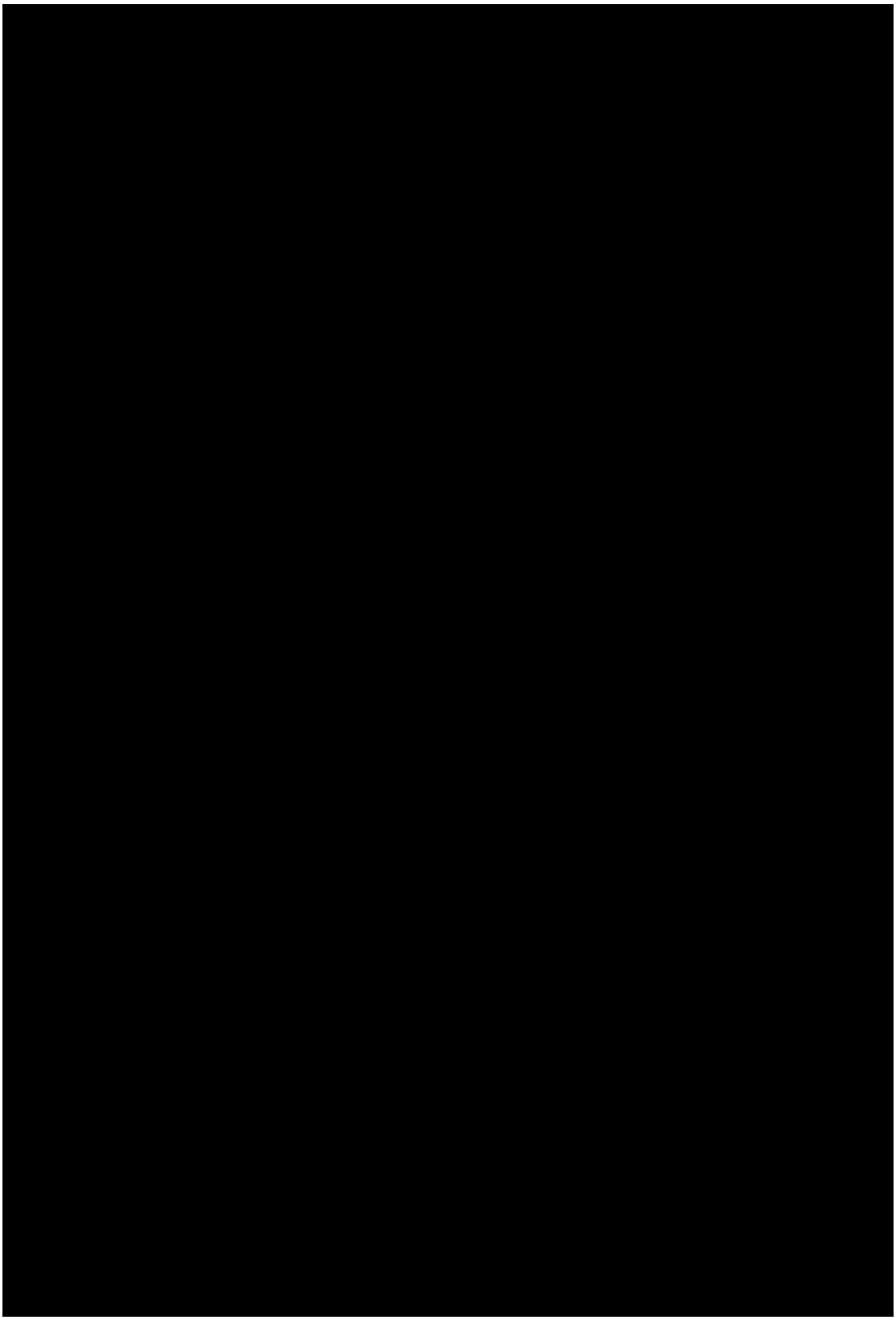
[2] This list should be updated as soon as possible (i.e. before approval) as the Interface Register tracks actual, scheduled and proposed interface details.











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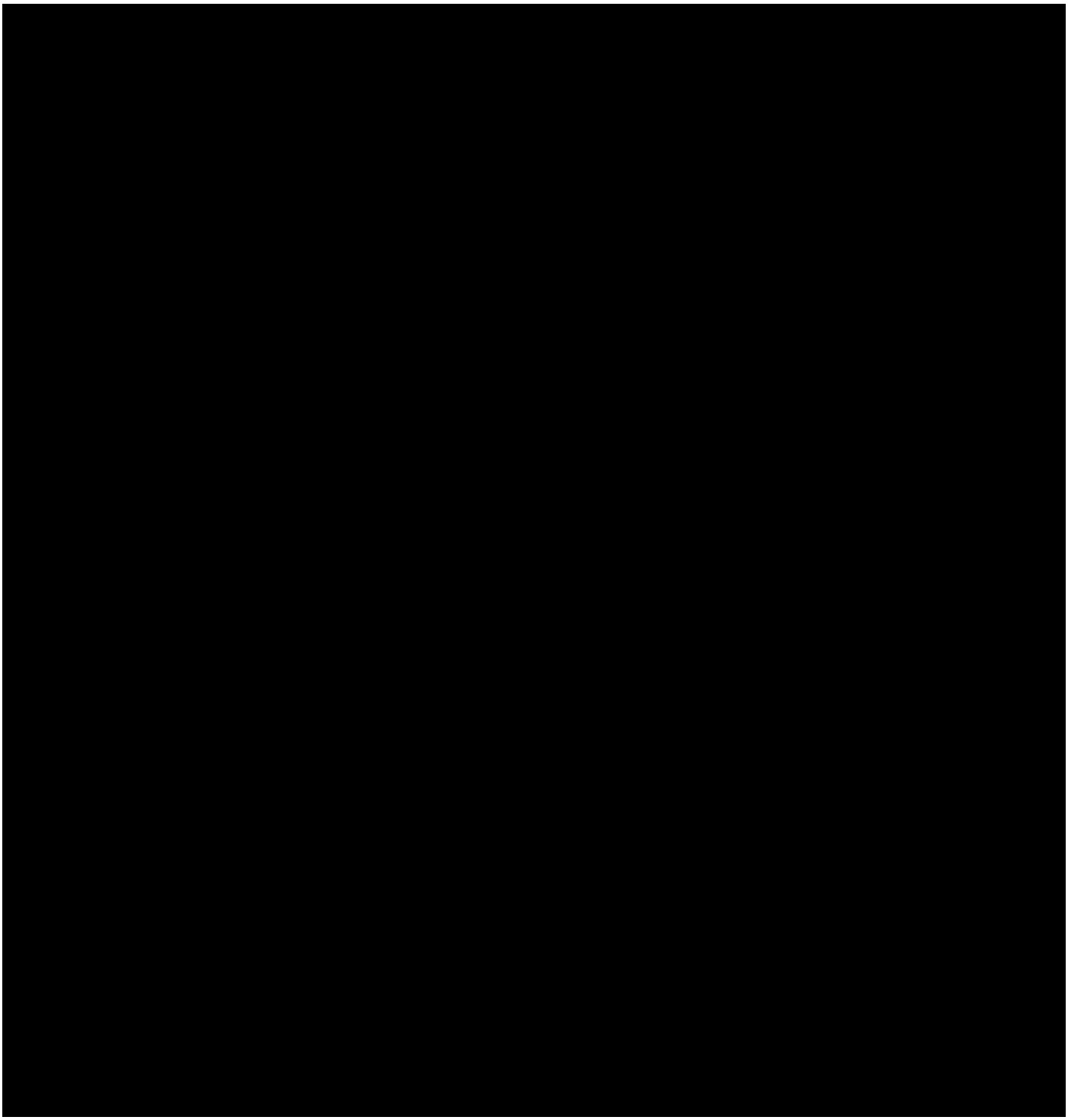

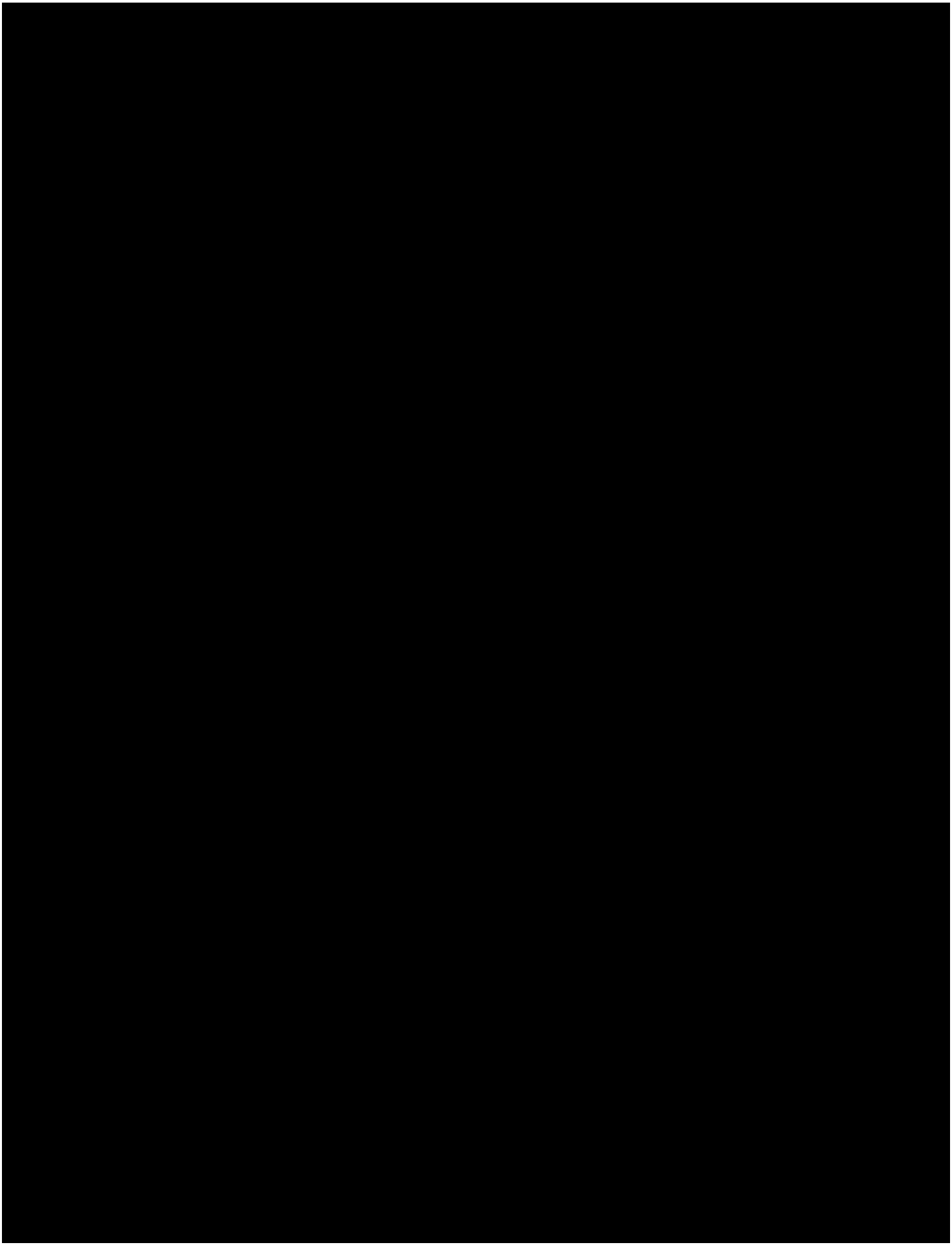

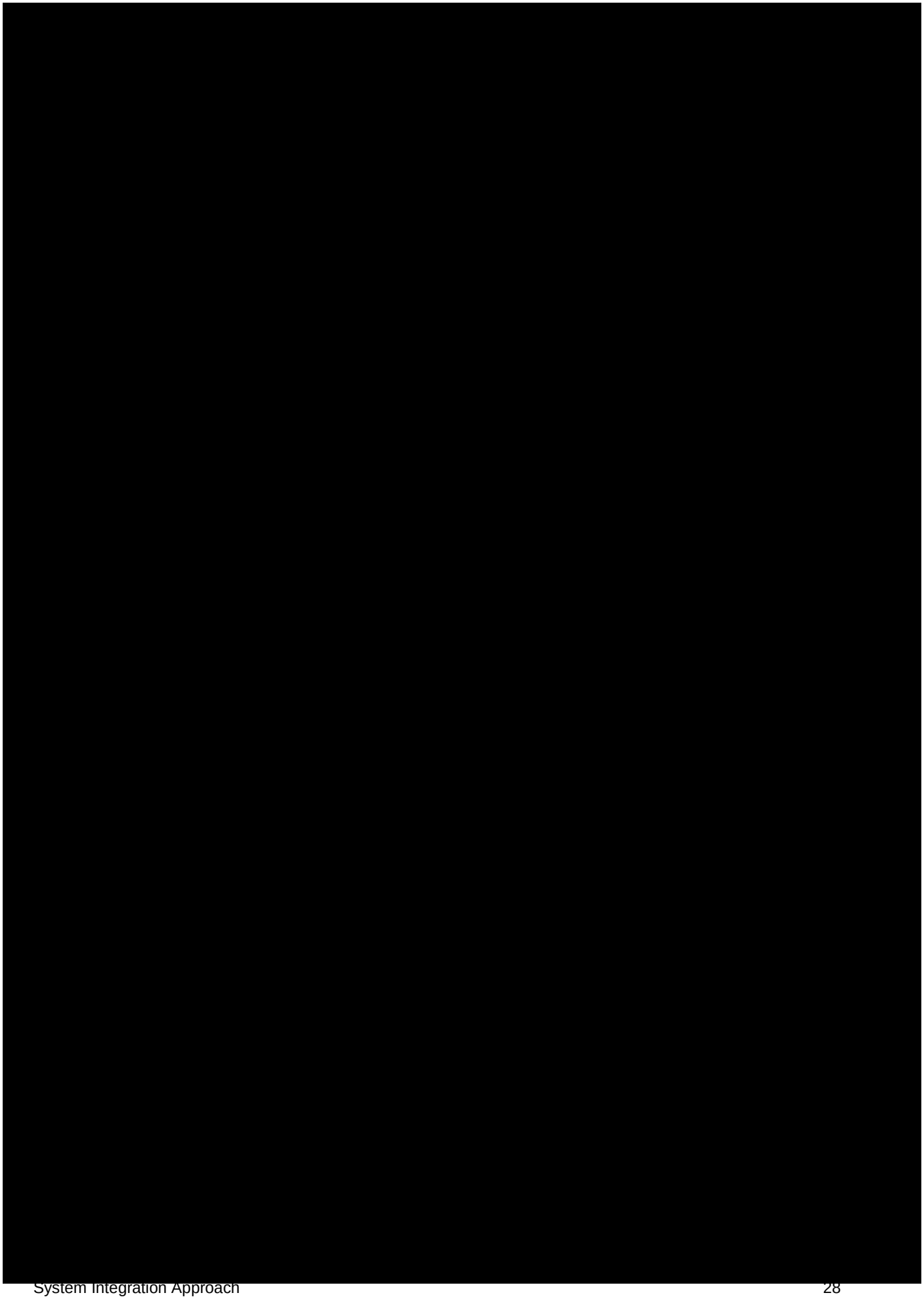

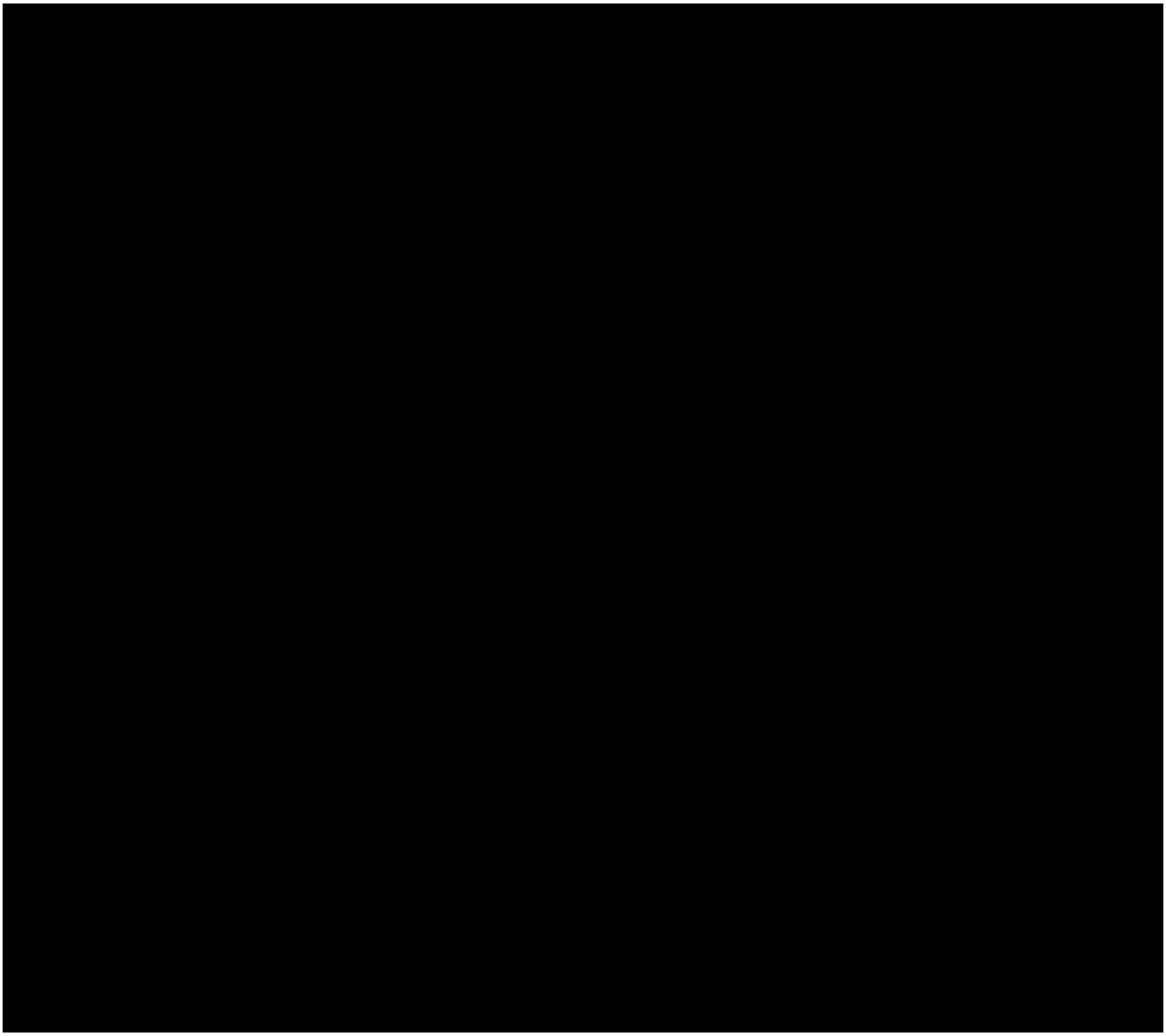

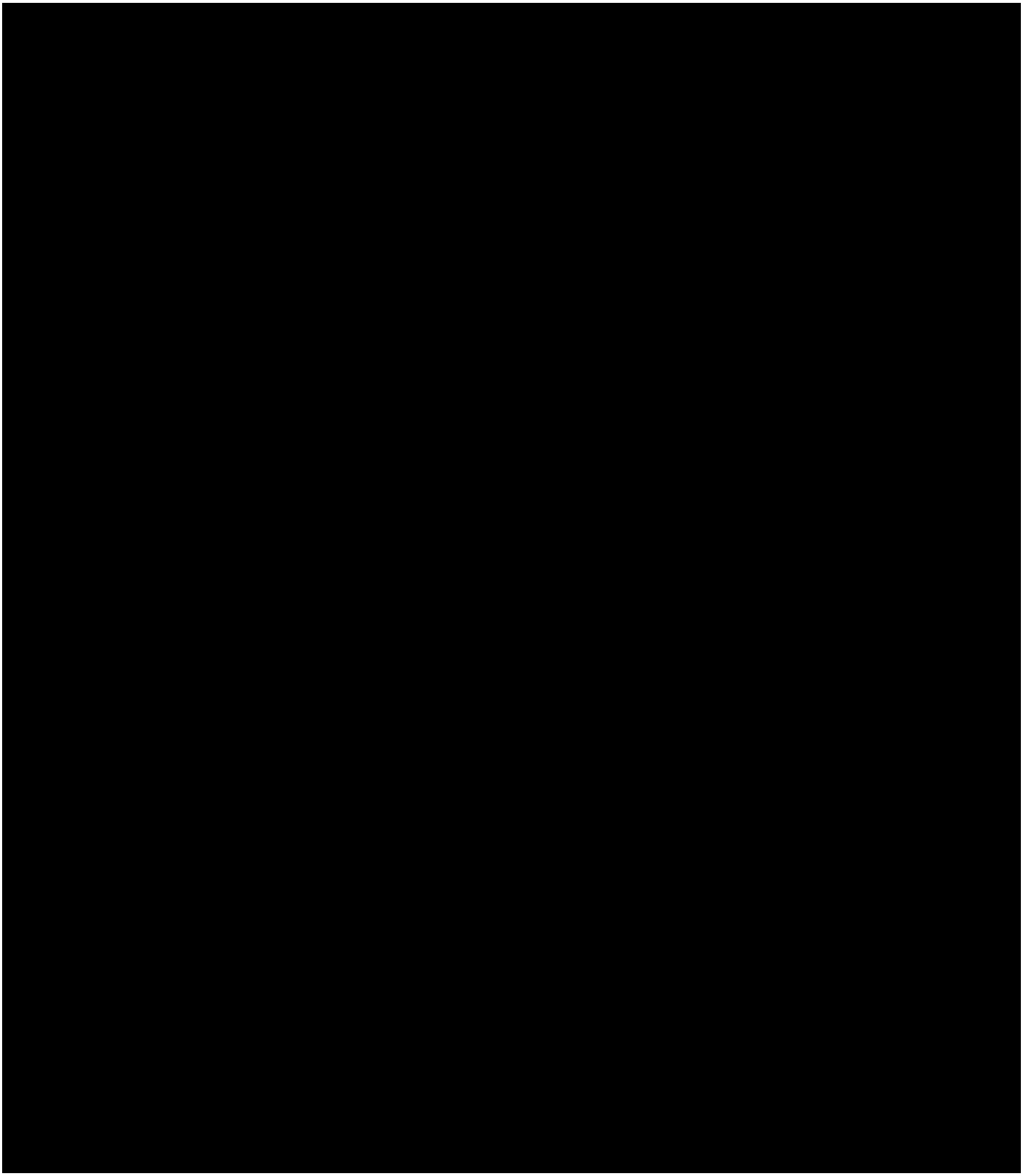

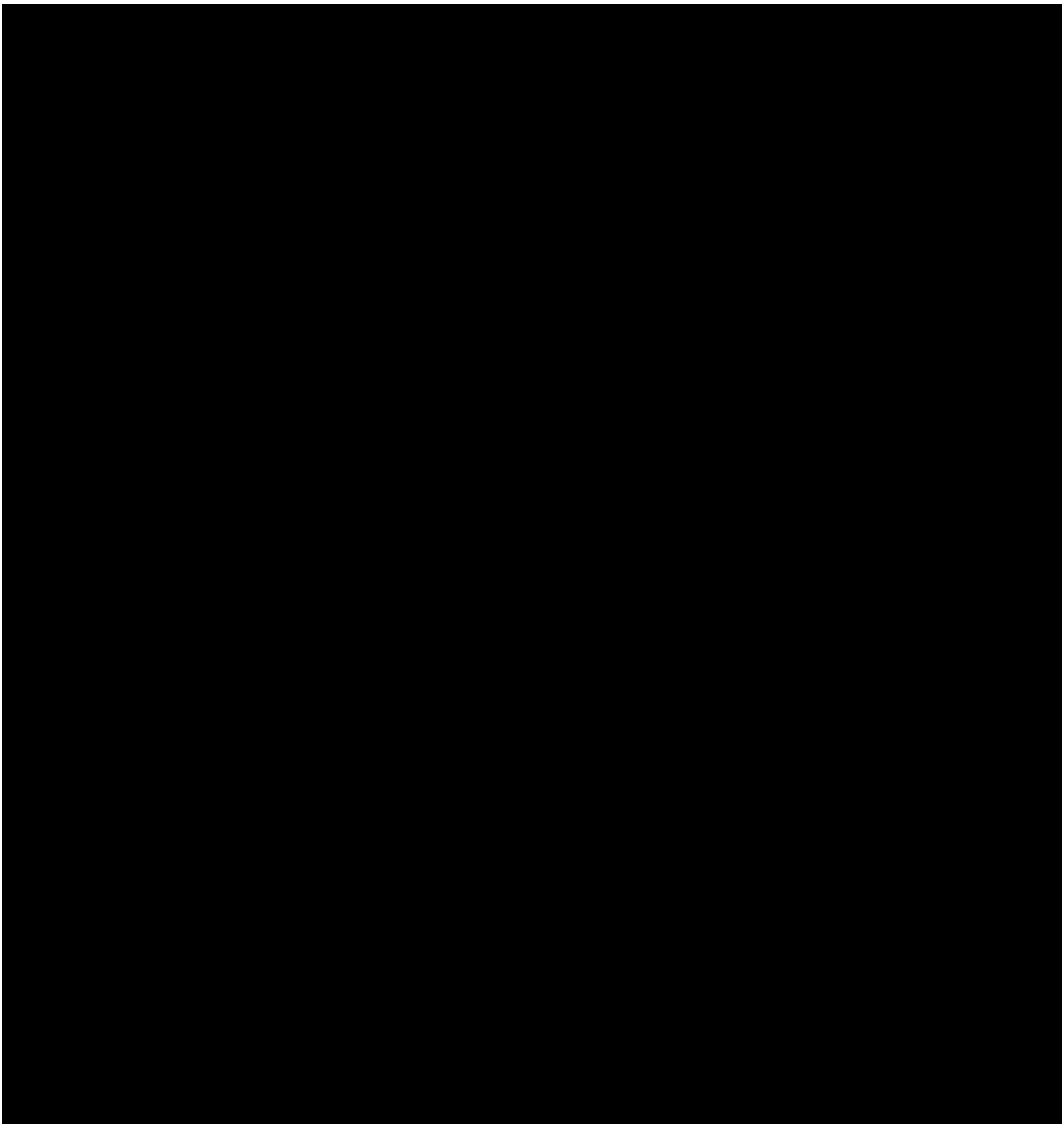

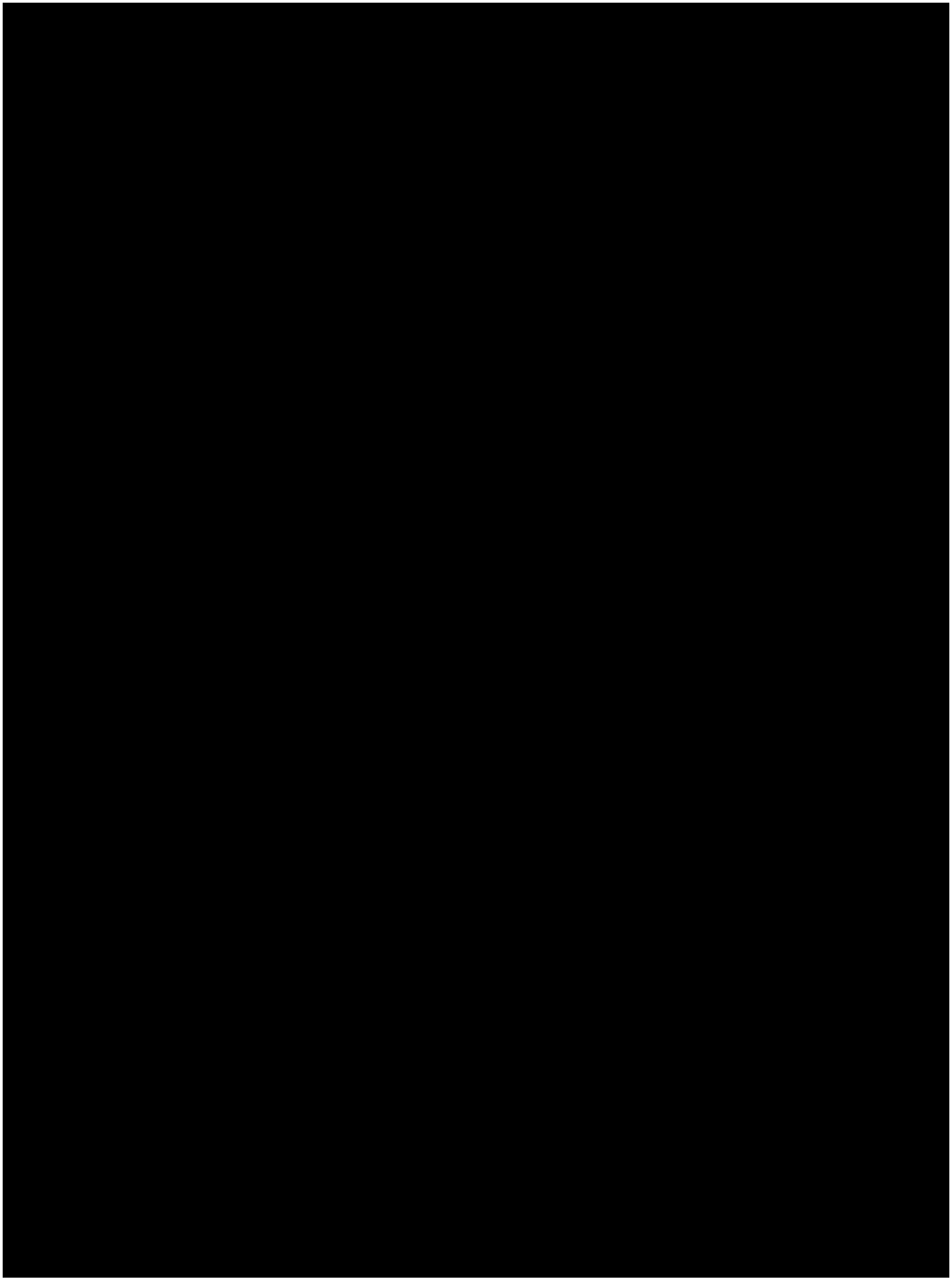

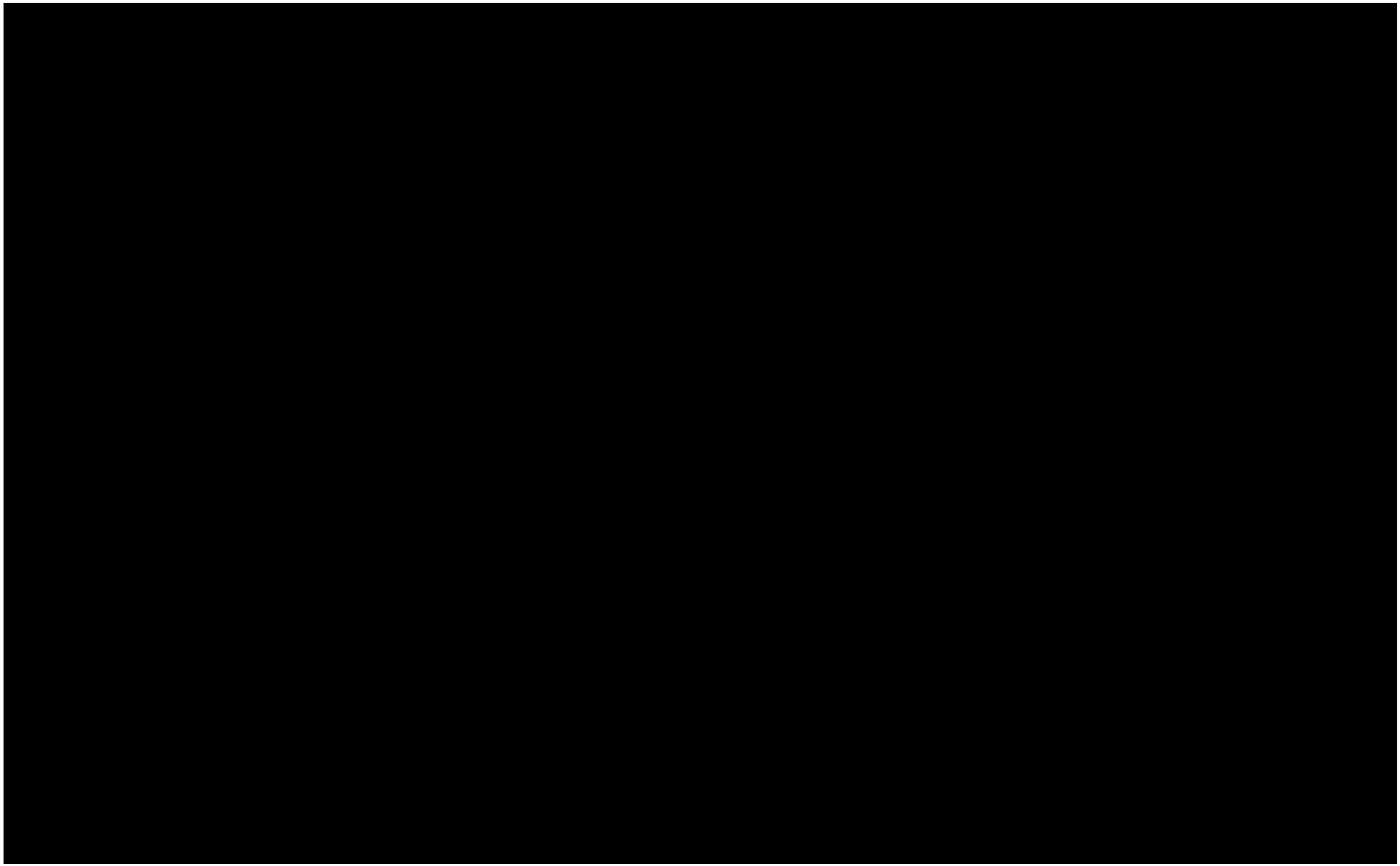

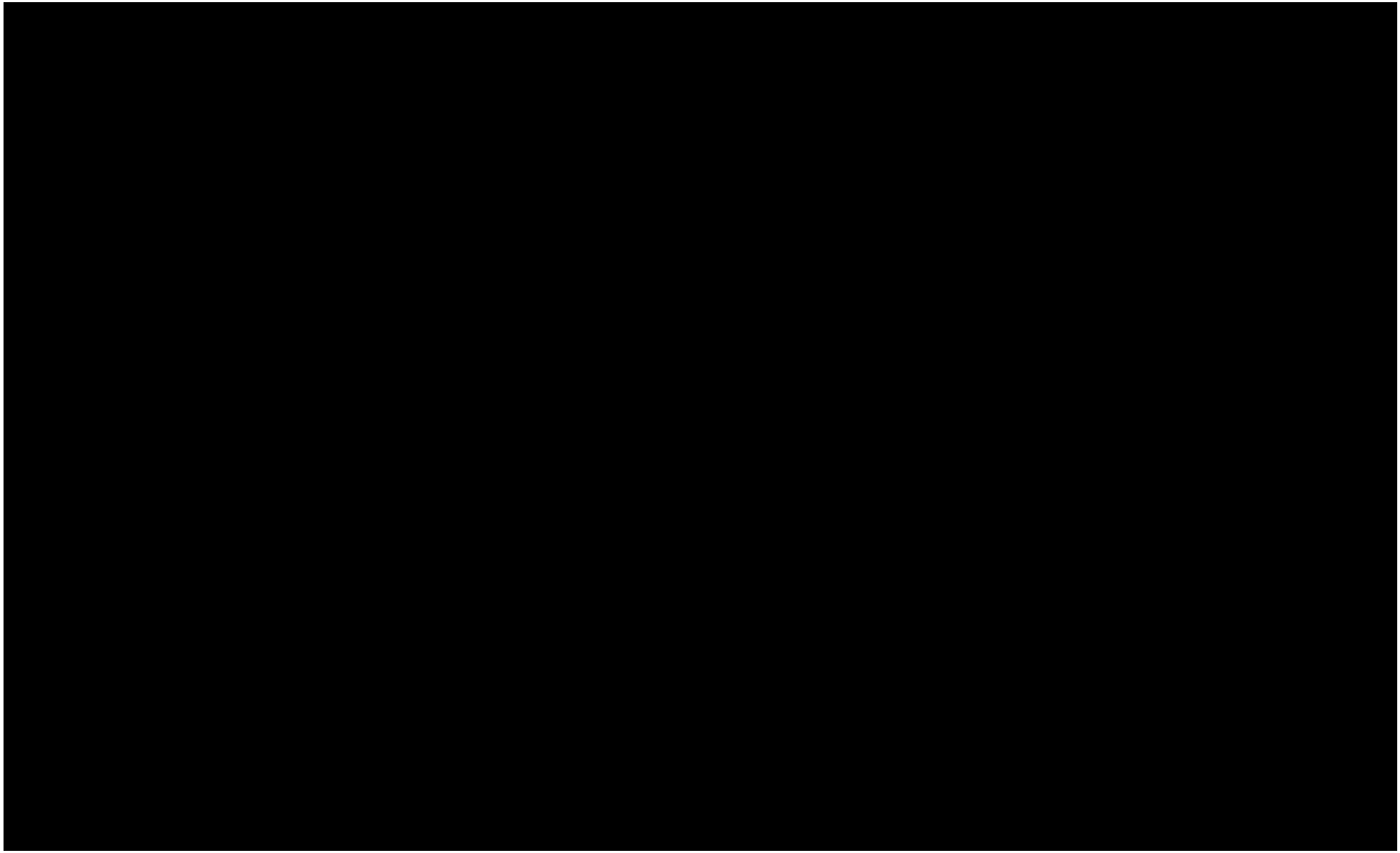

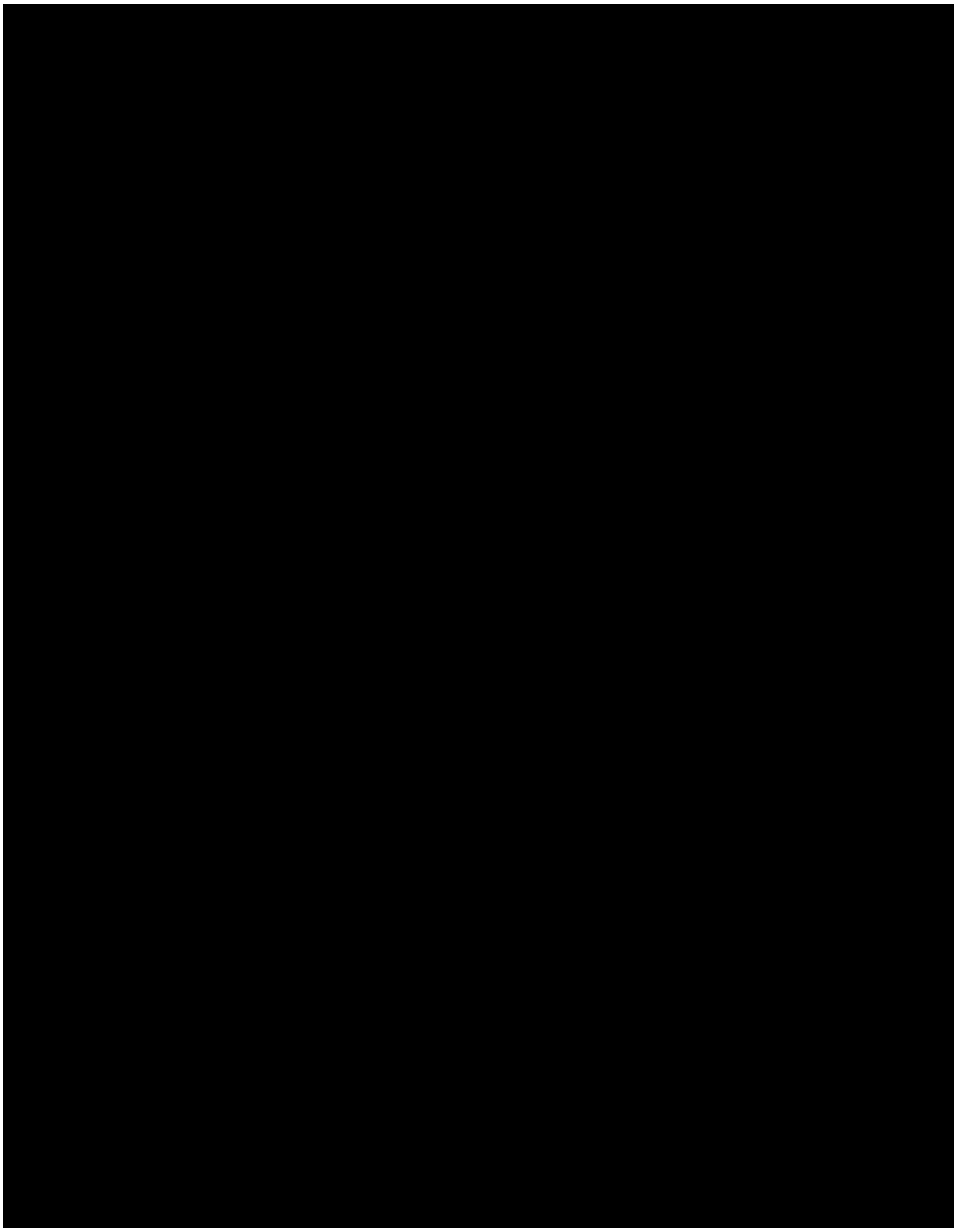

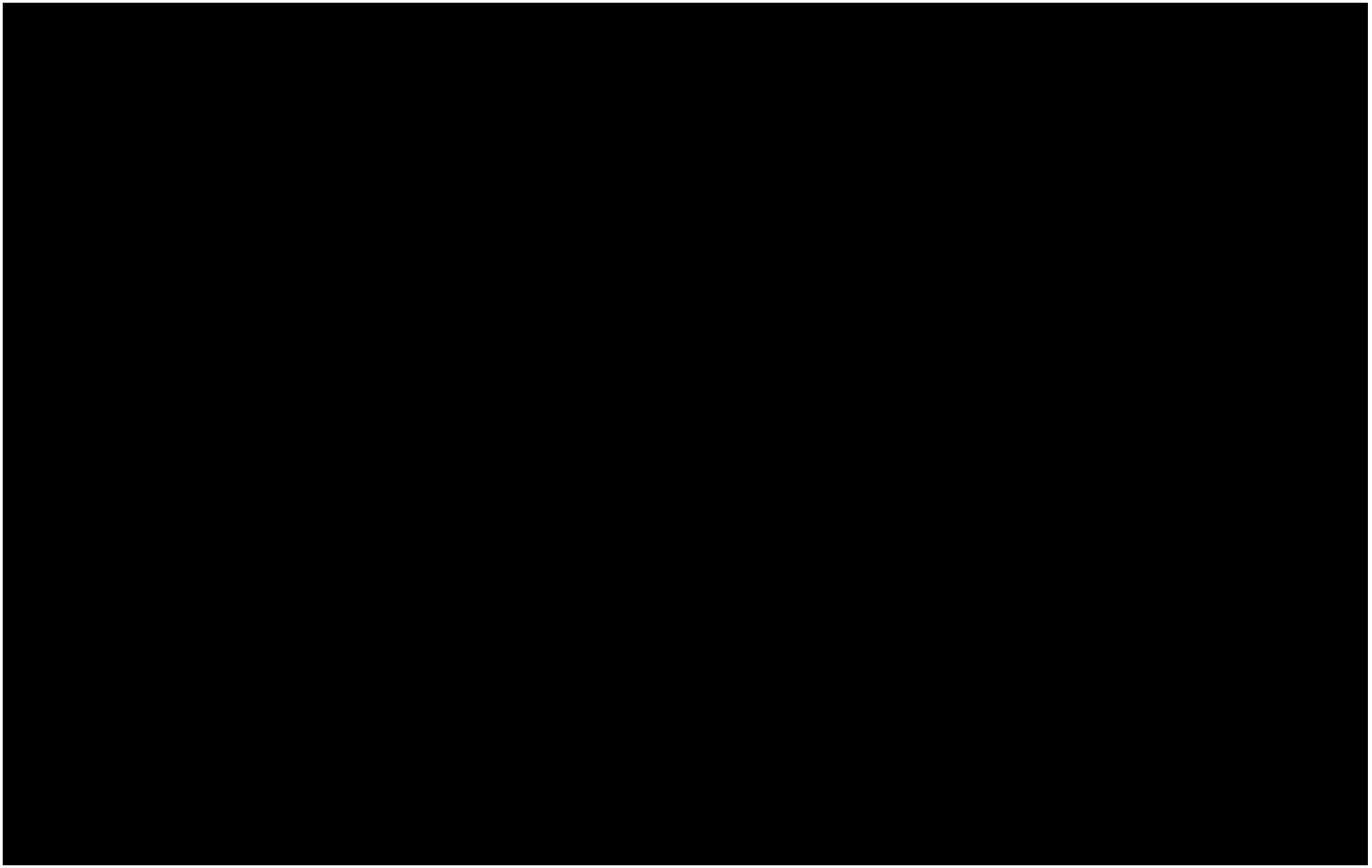

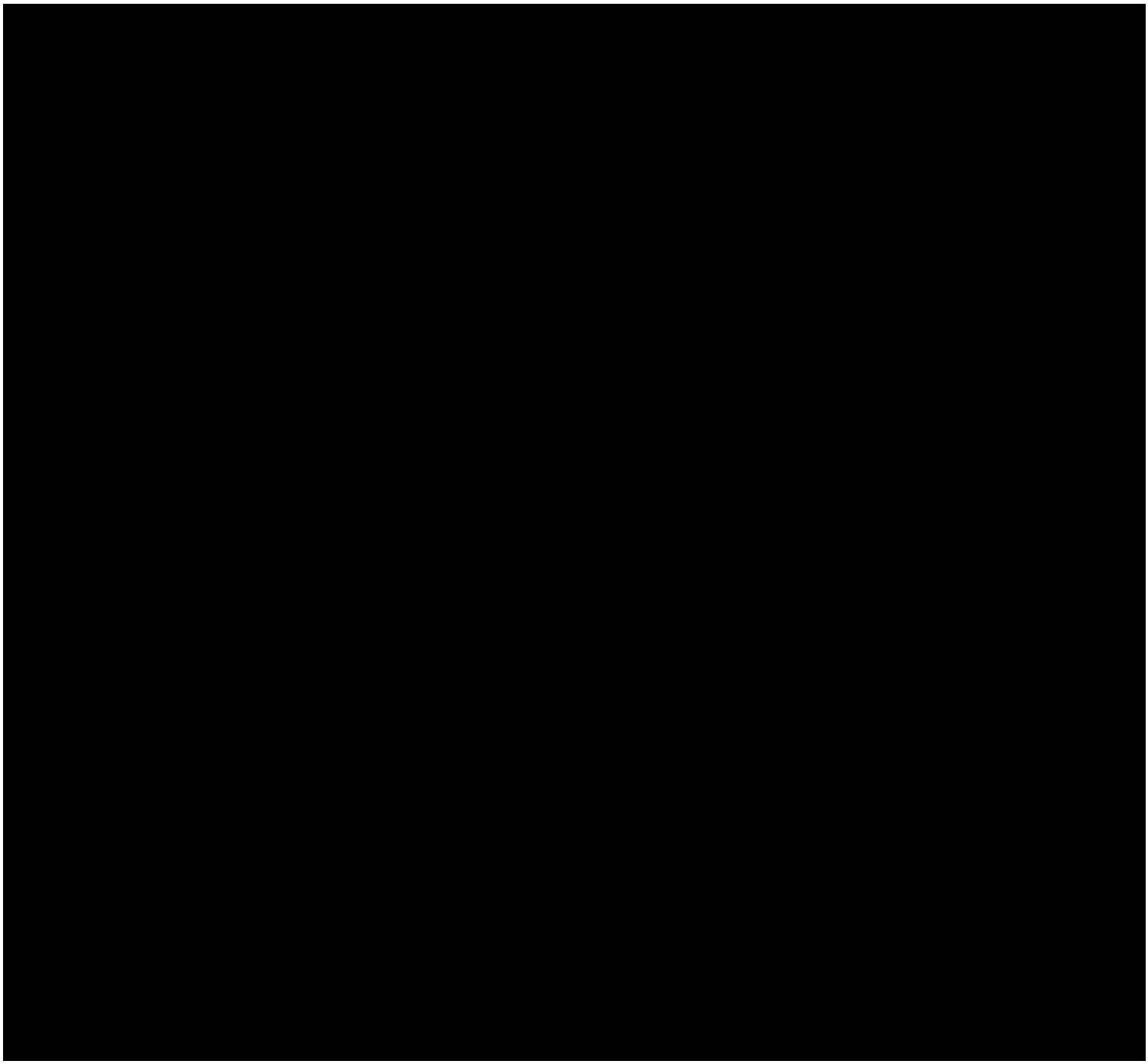

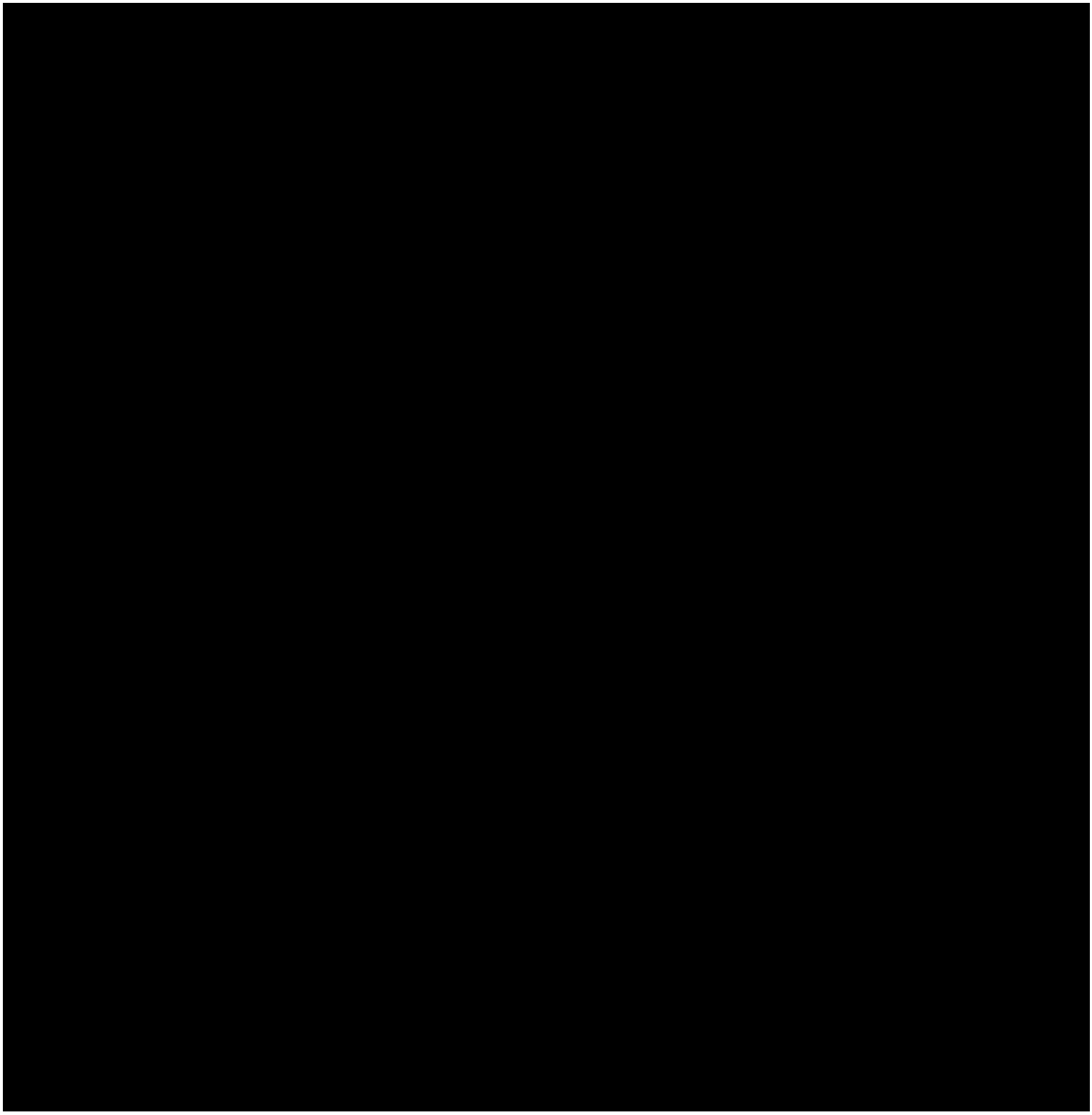

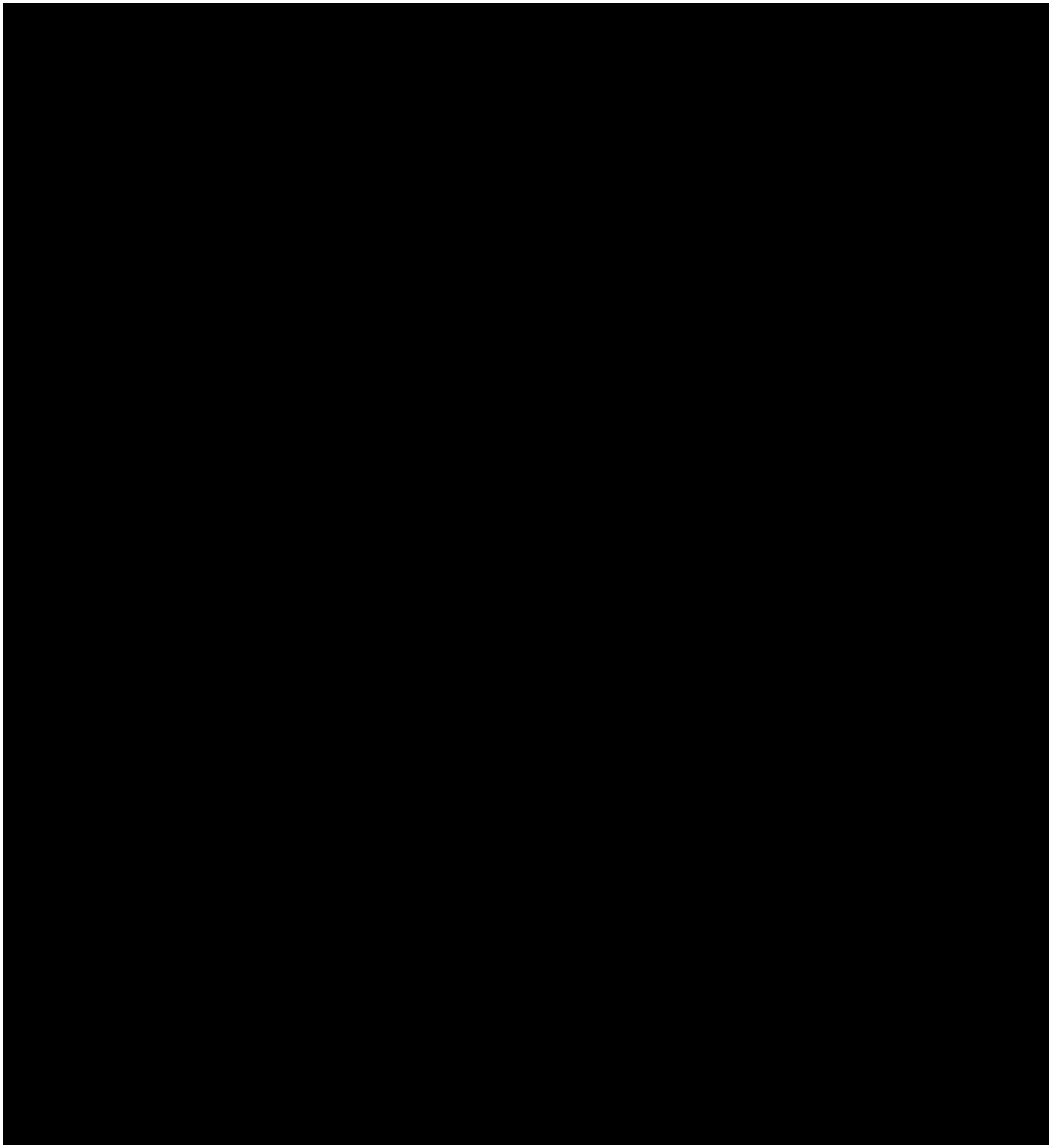

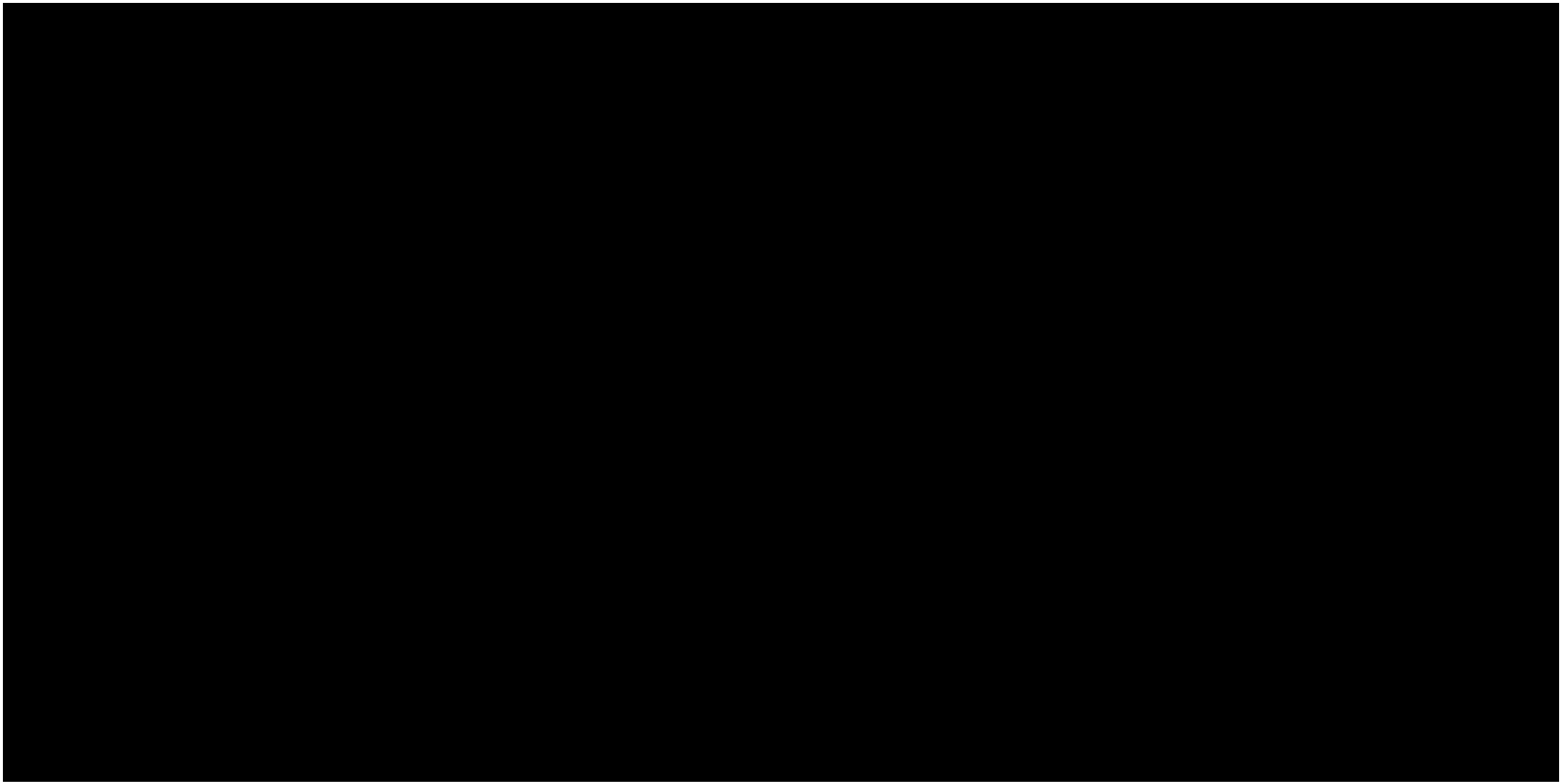

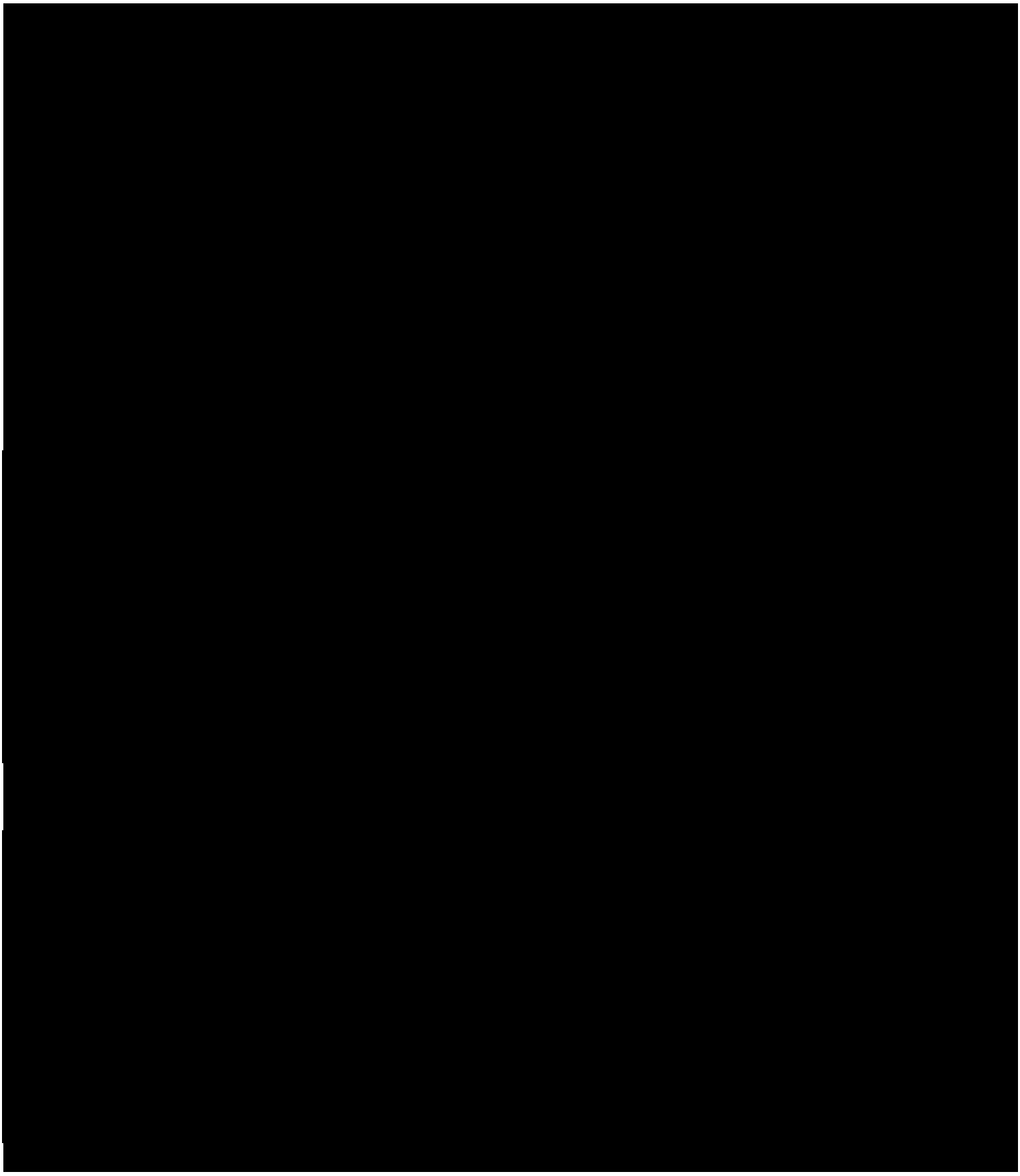

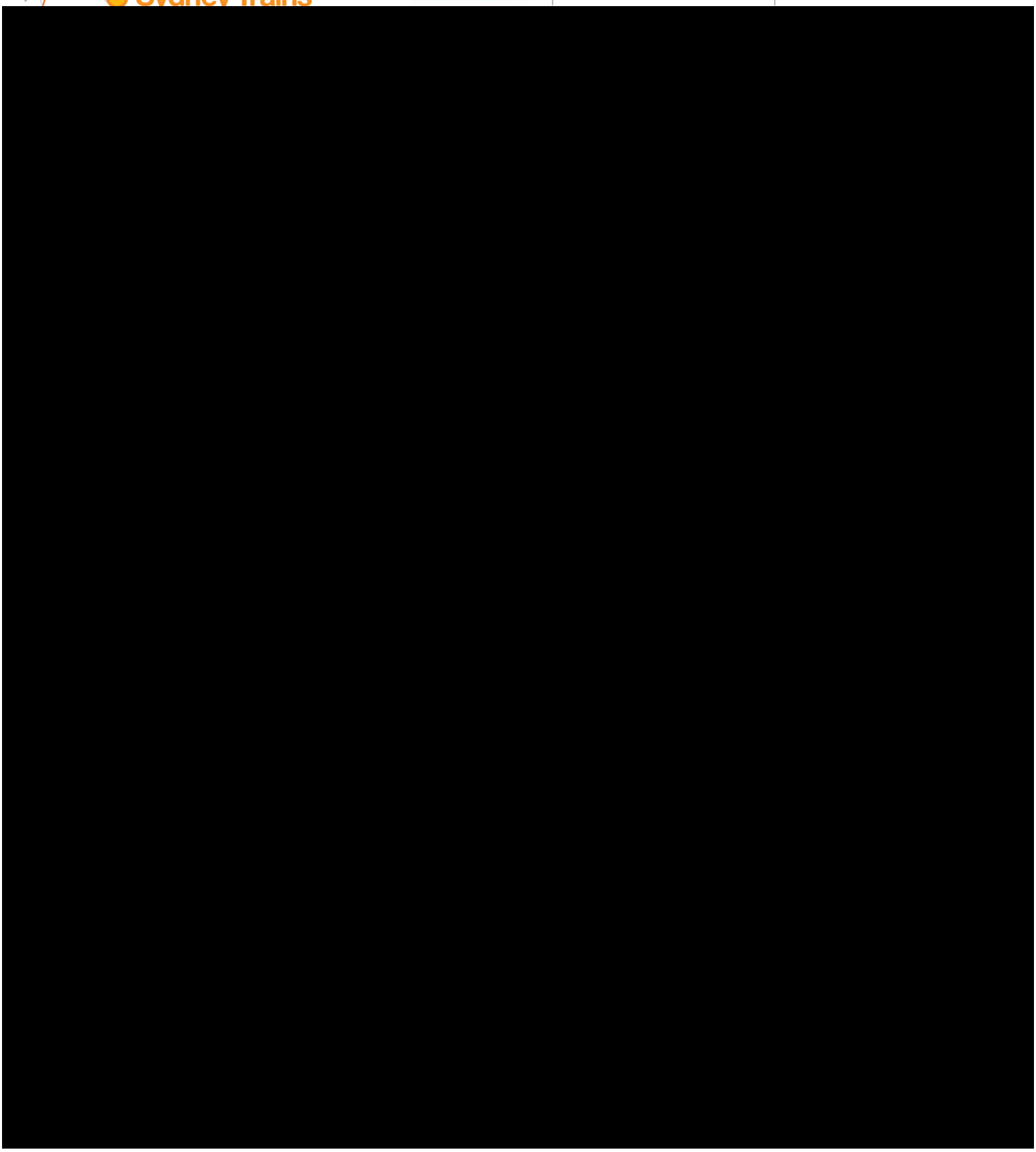

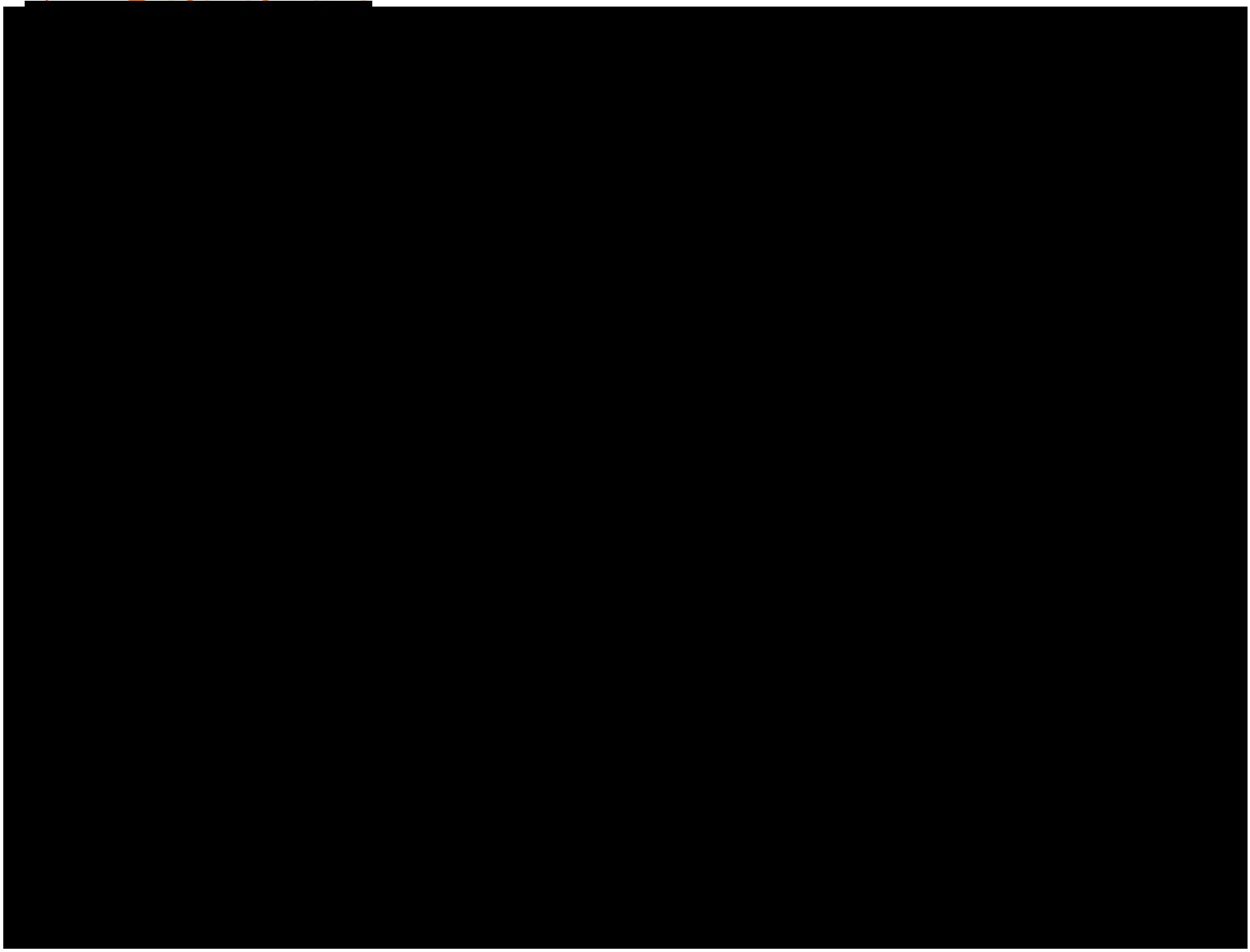

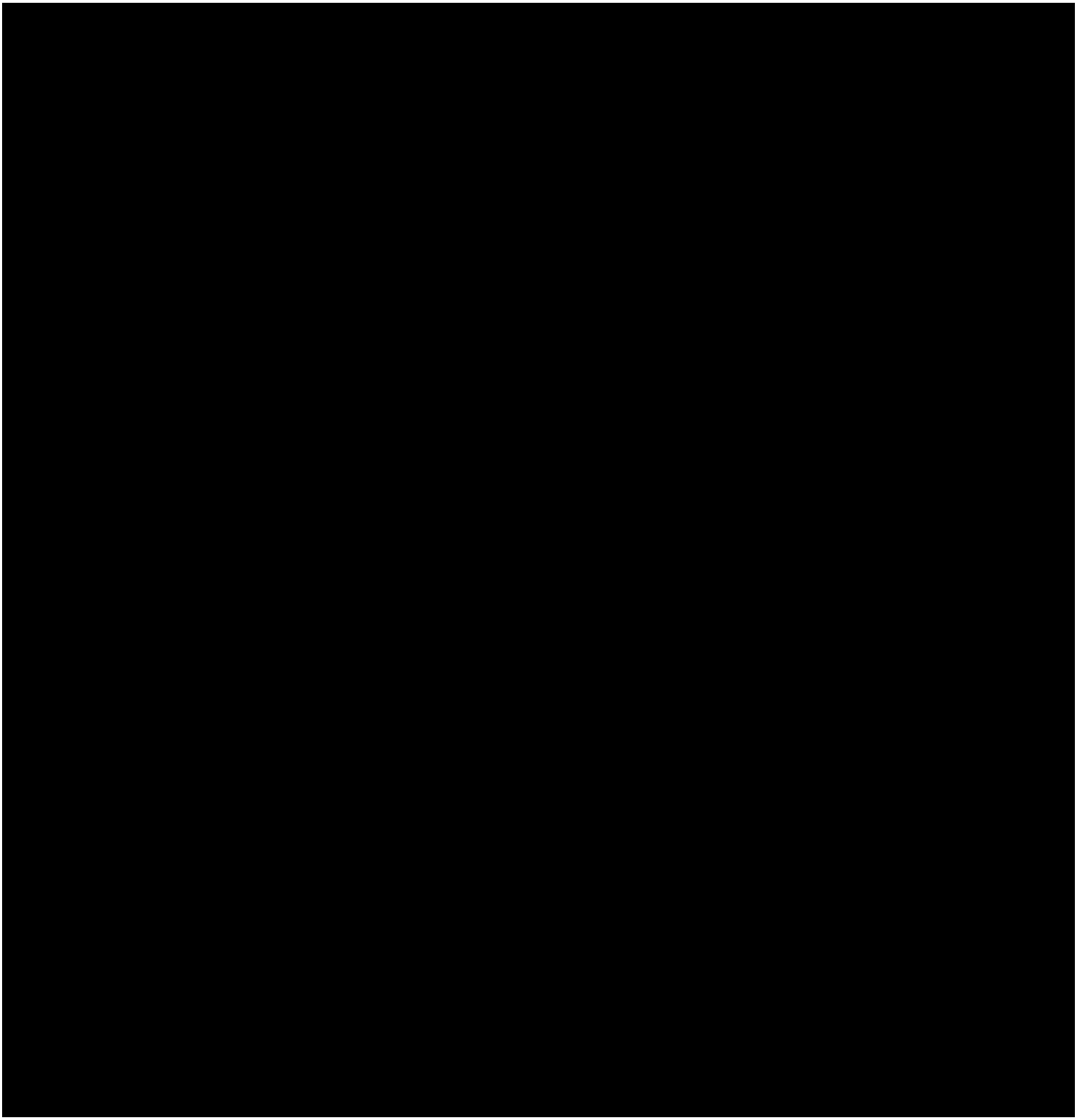

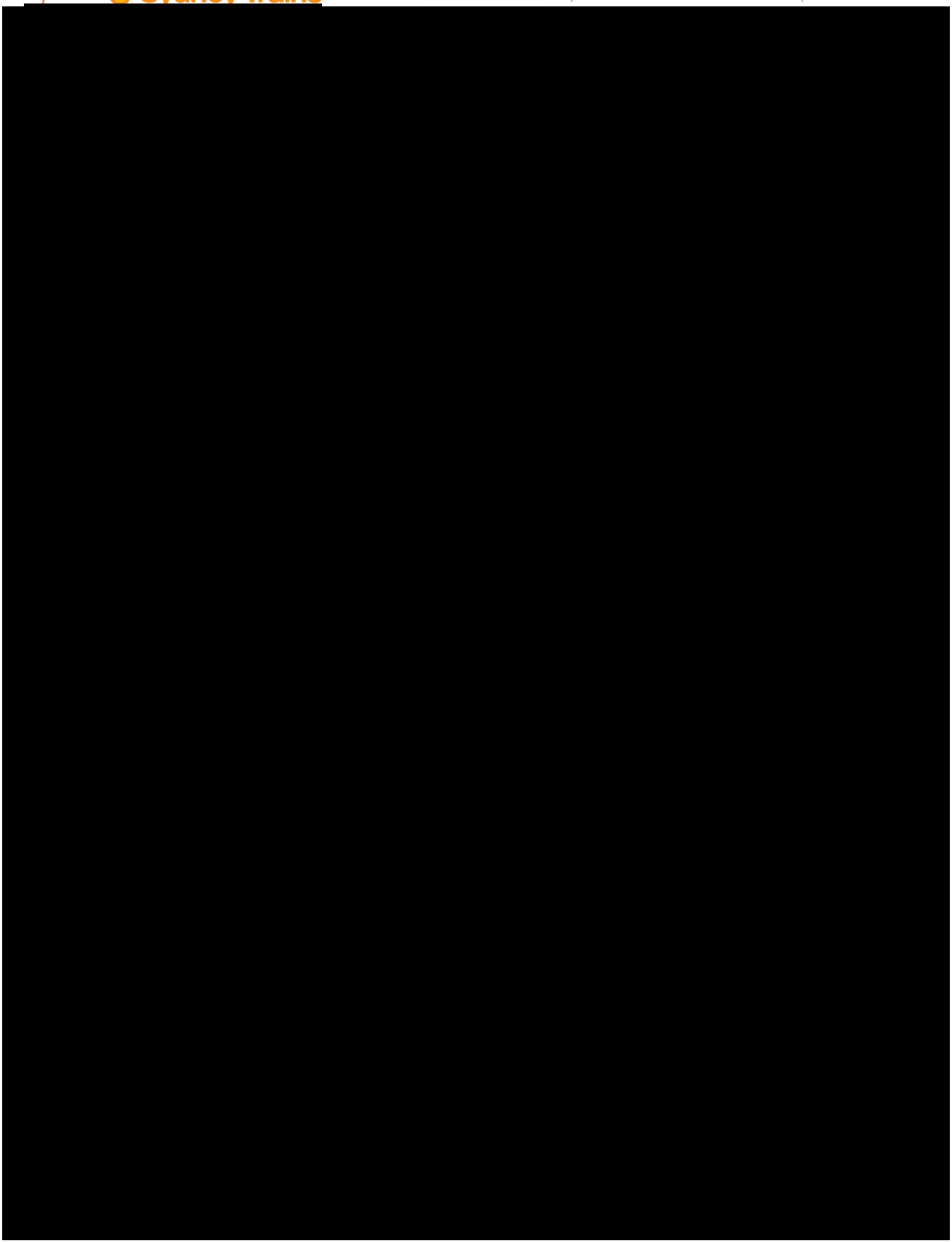

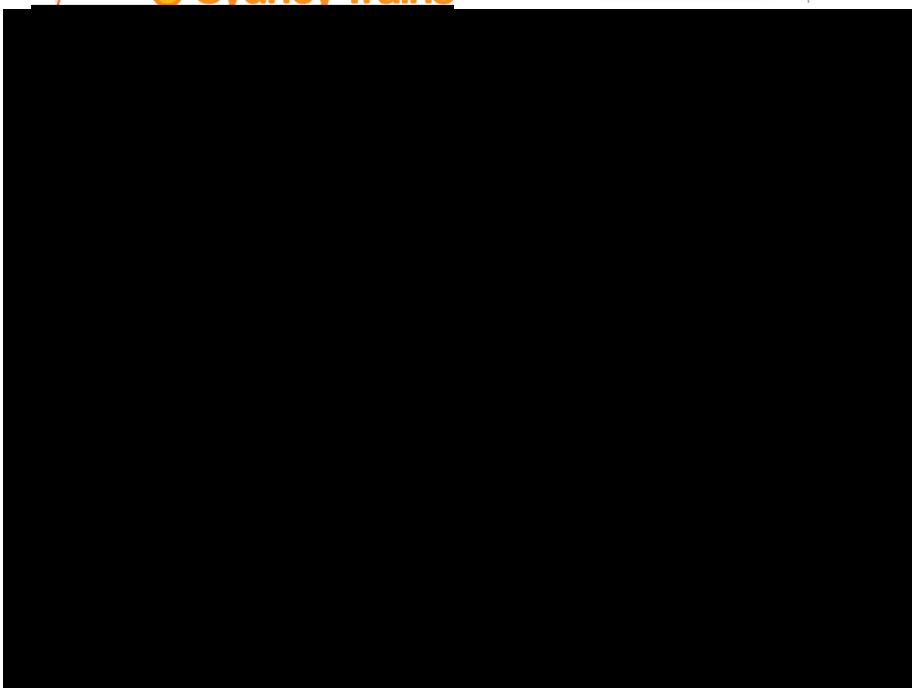

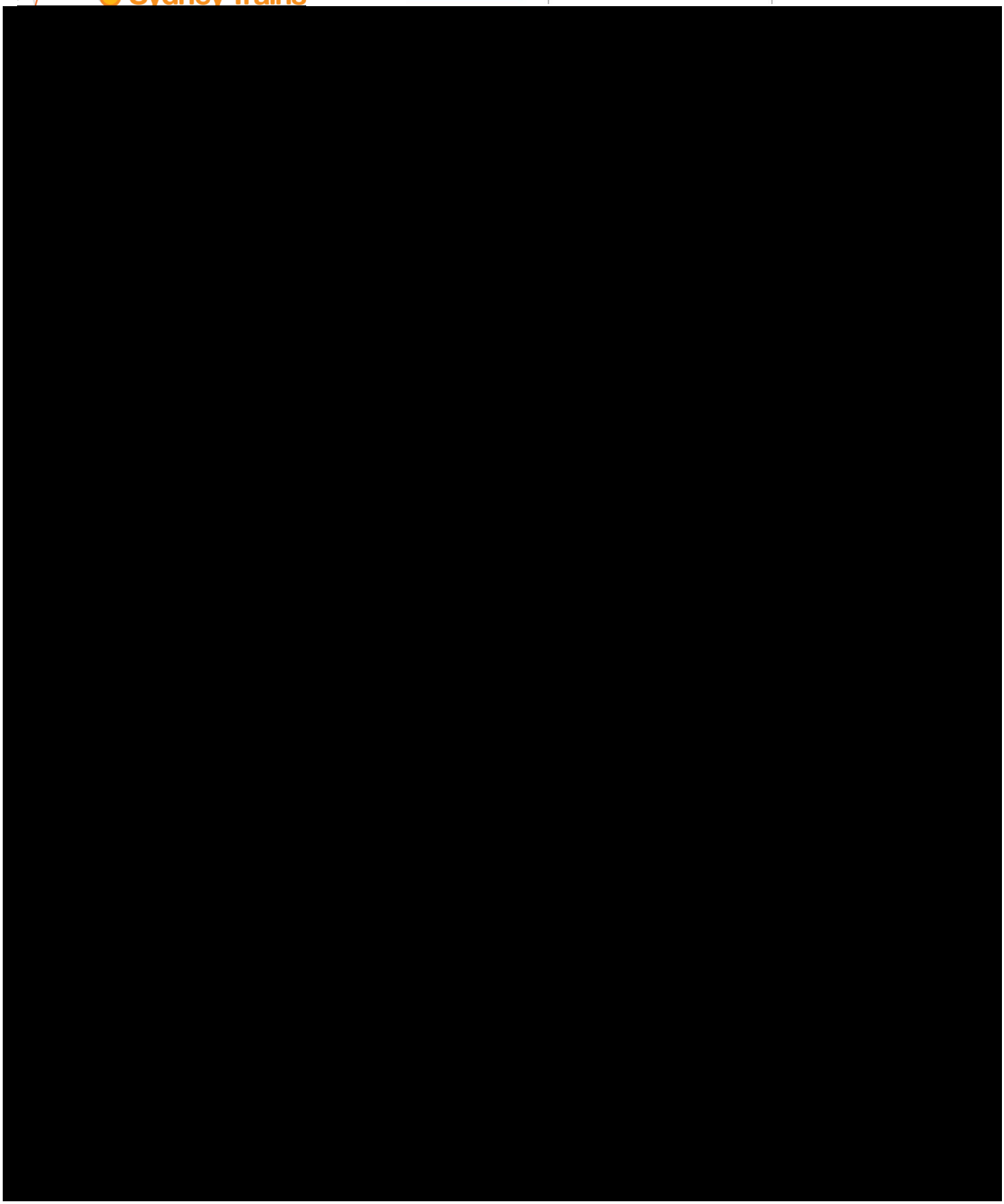

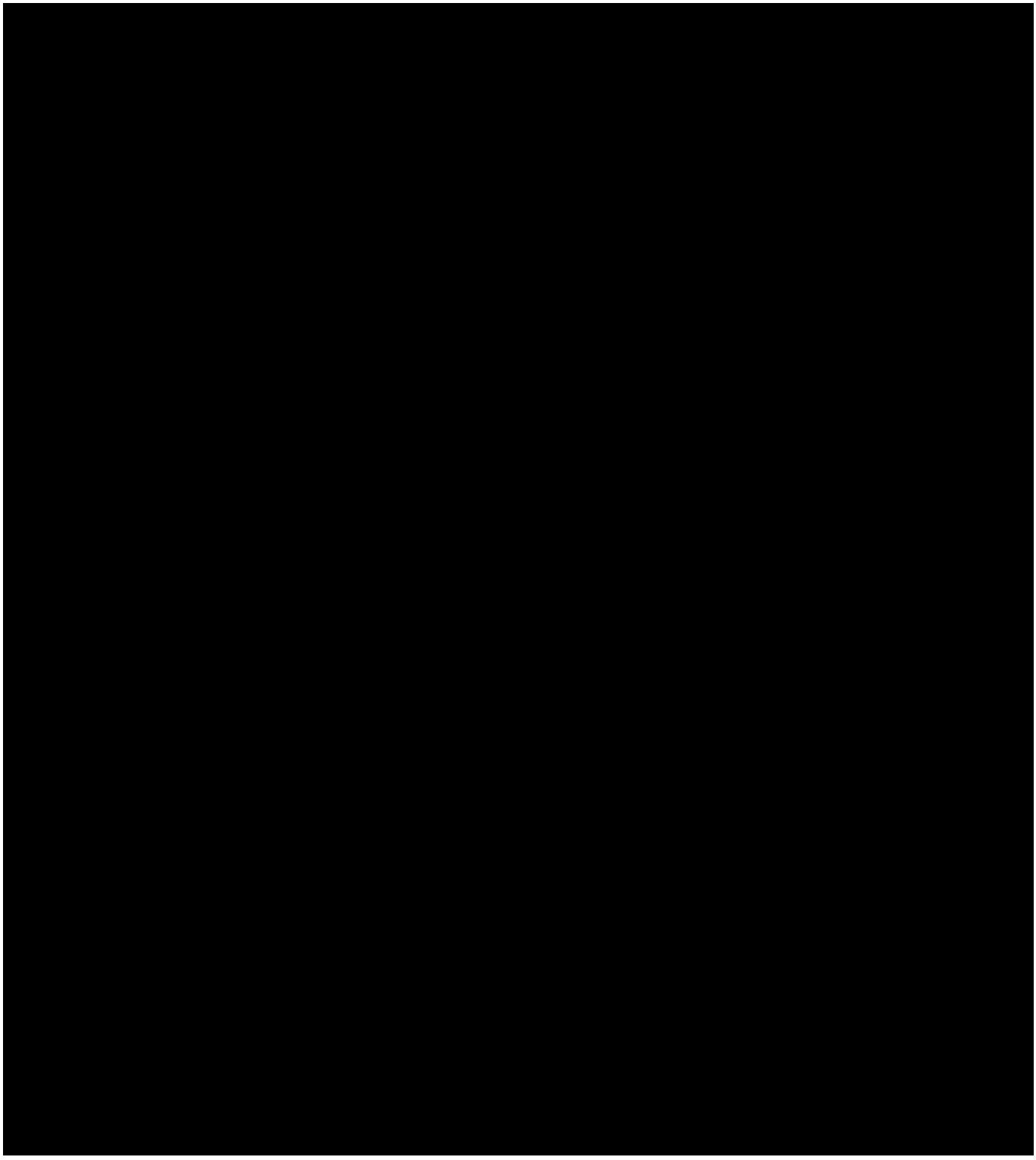

7. 3rd Party Solutions to Non-Functional Capabilities

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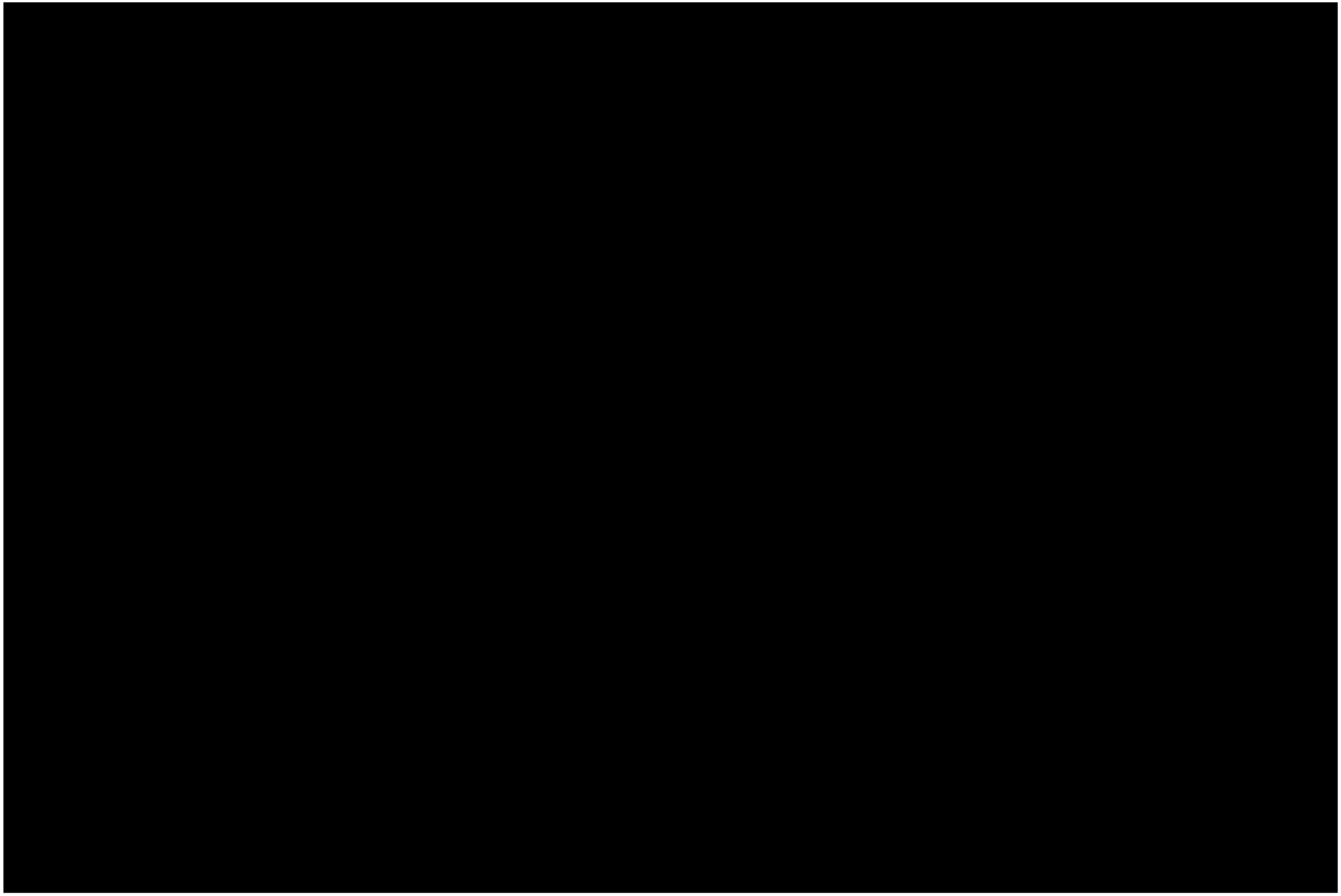

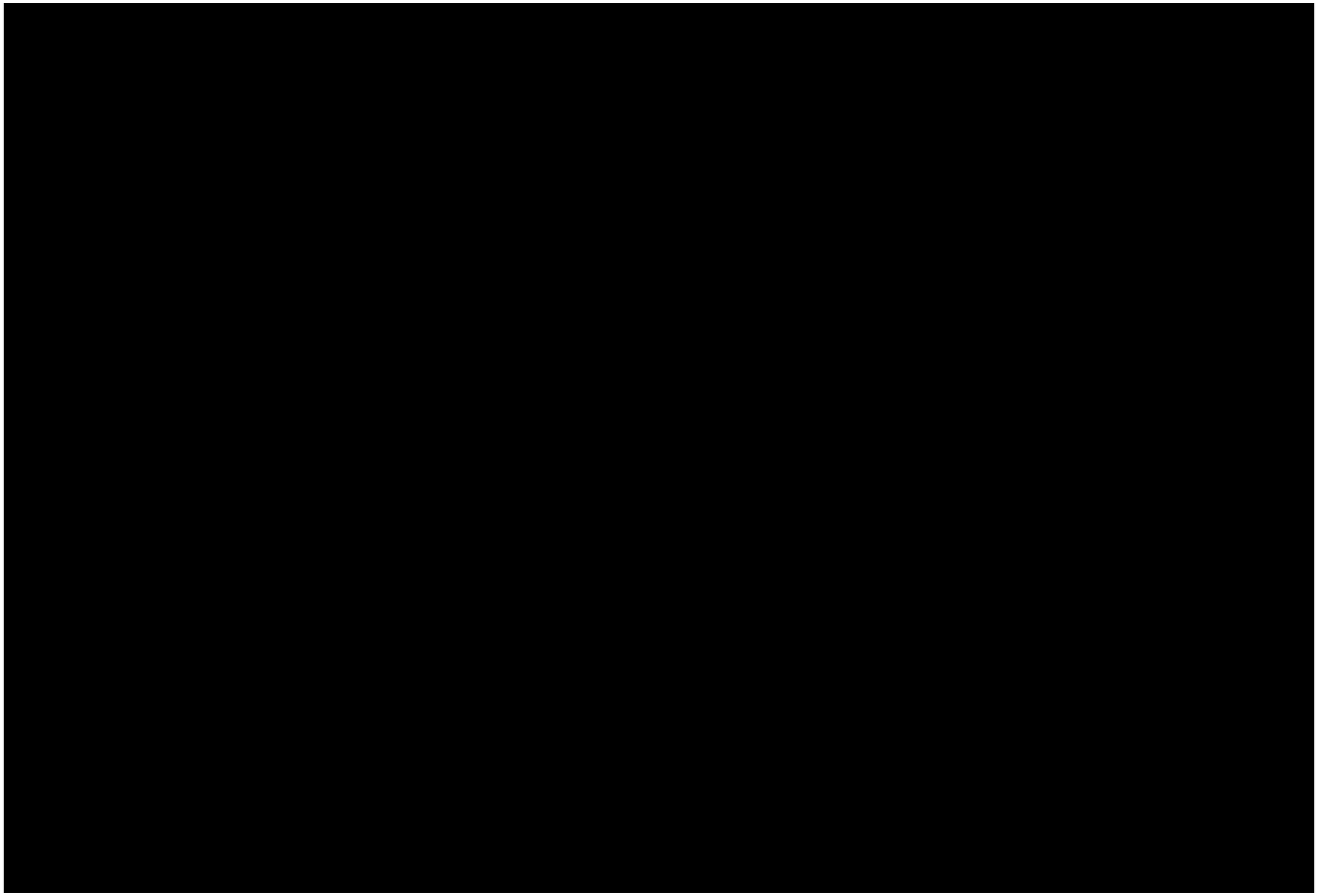

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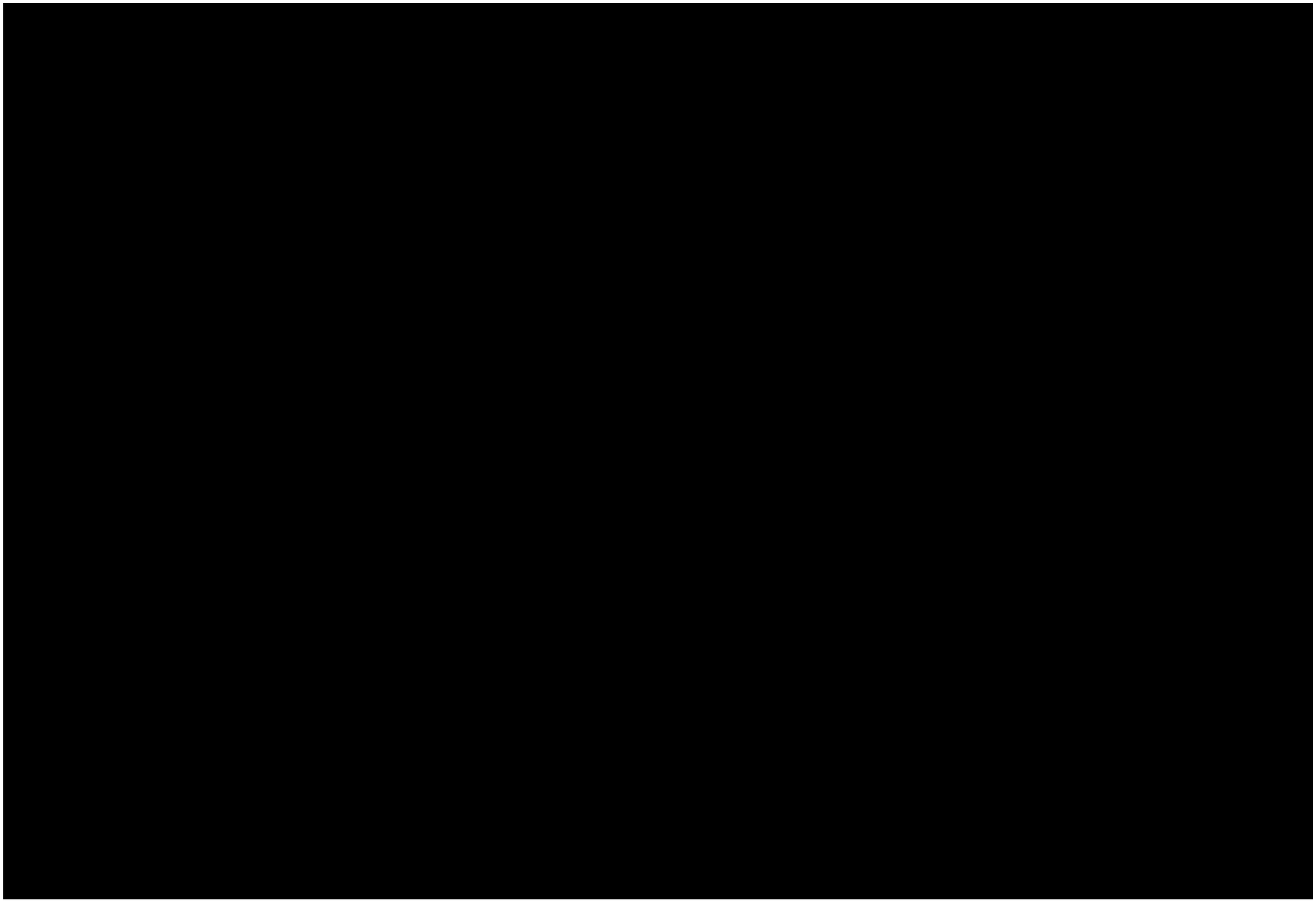

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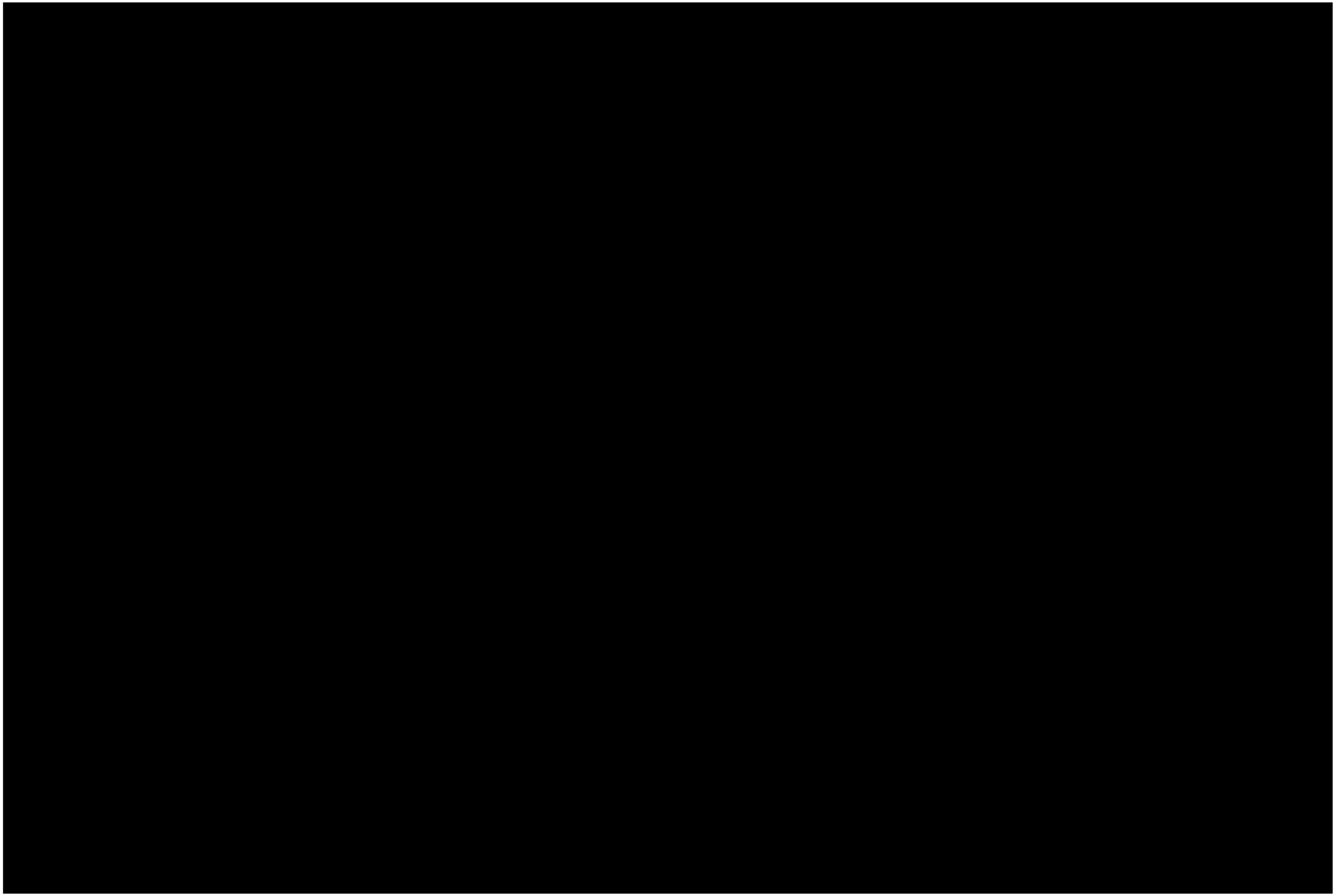

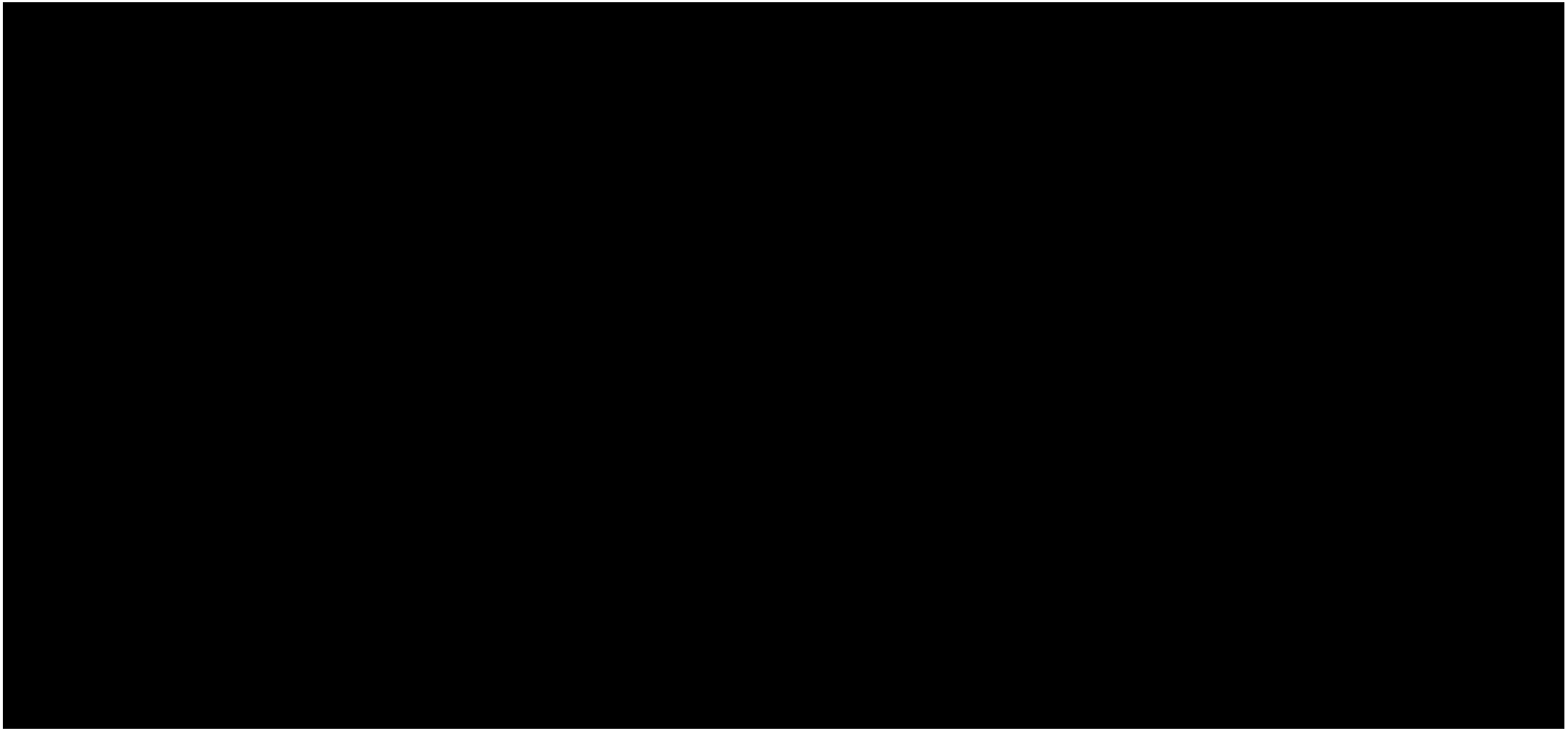

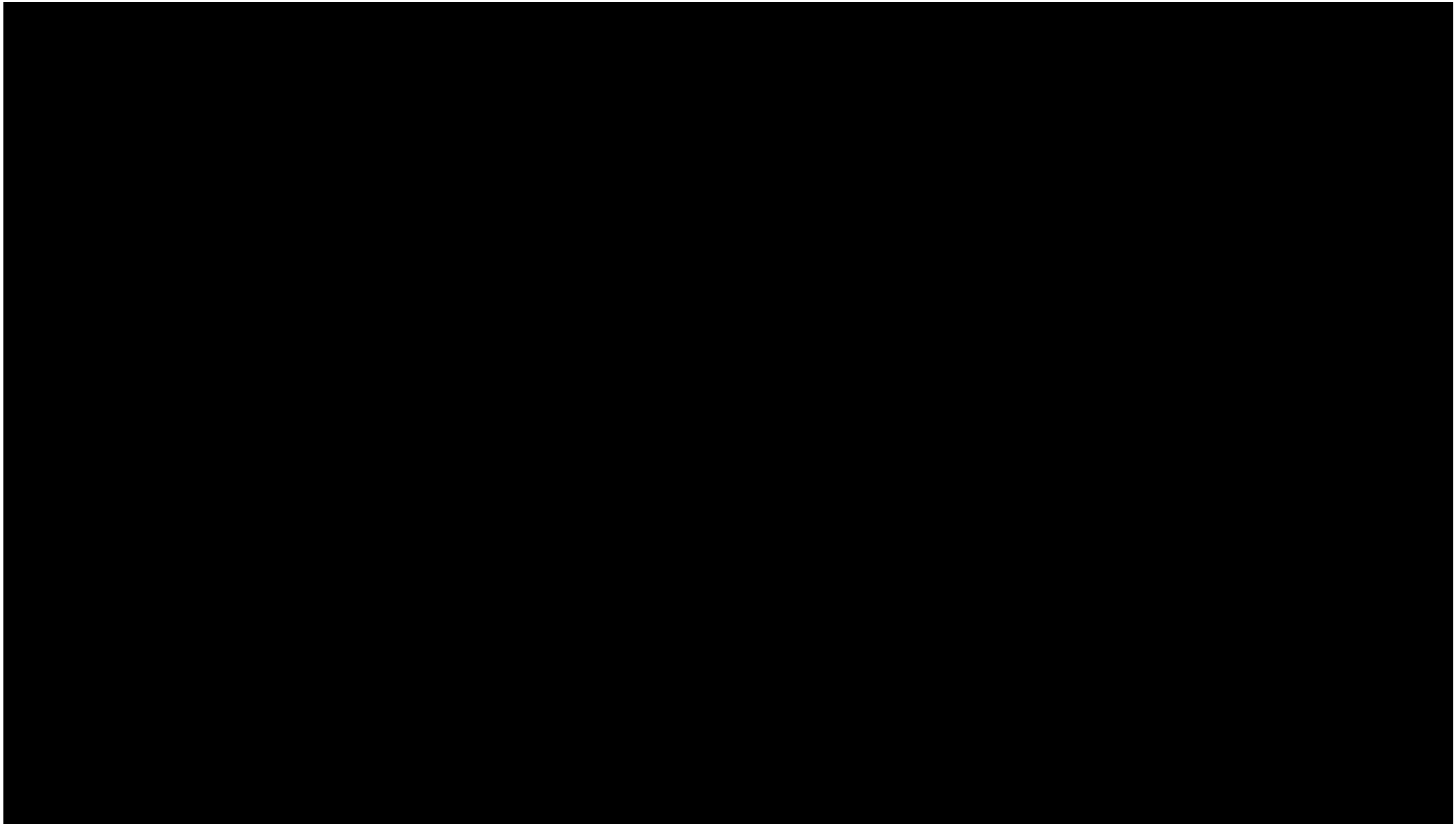

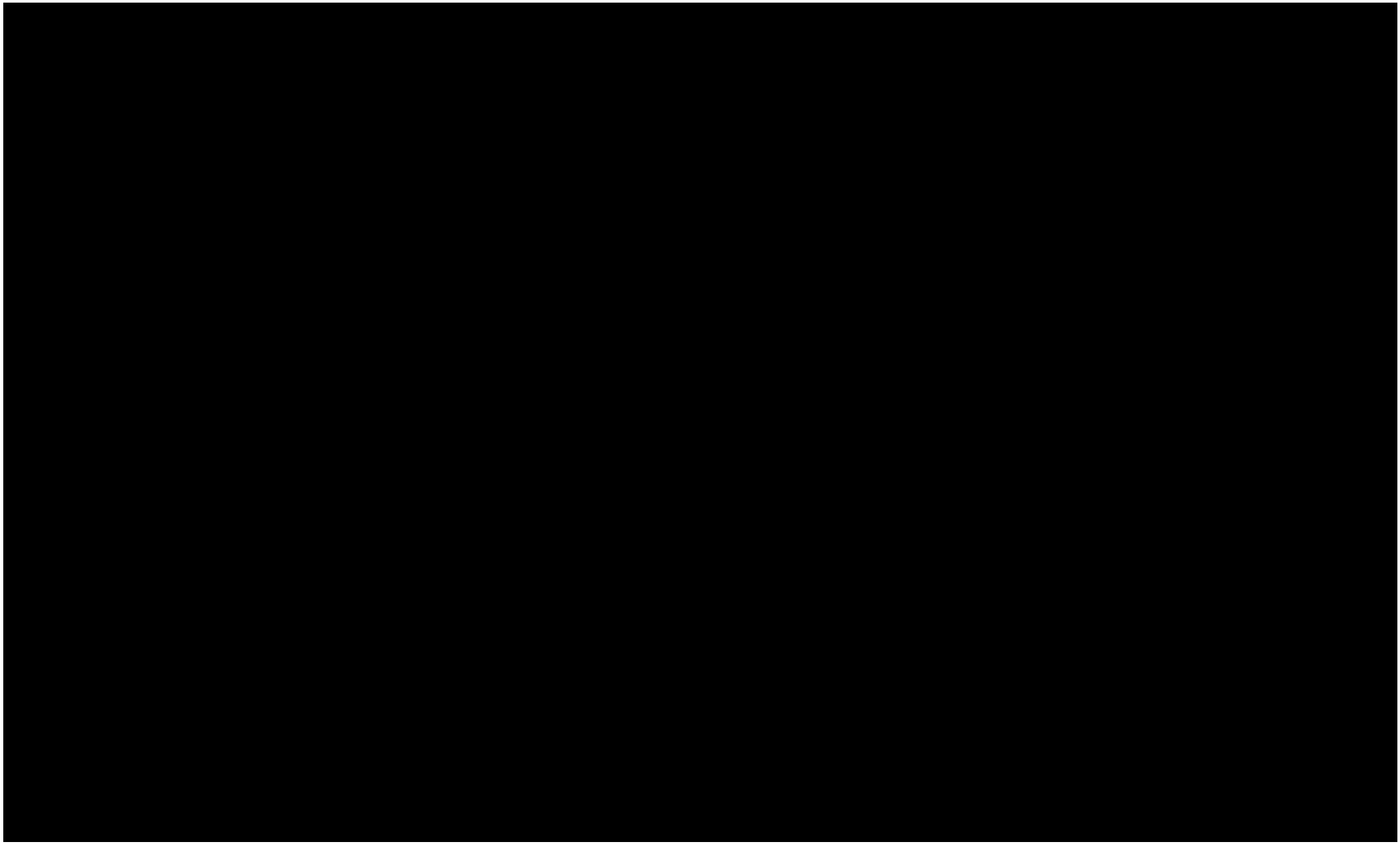

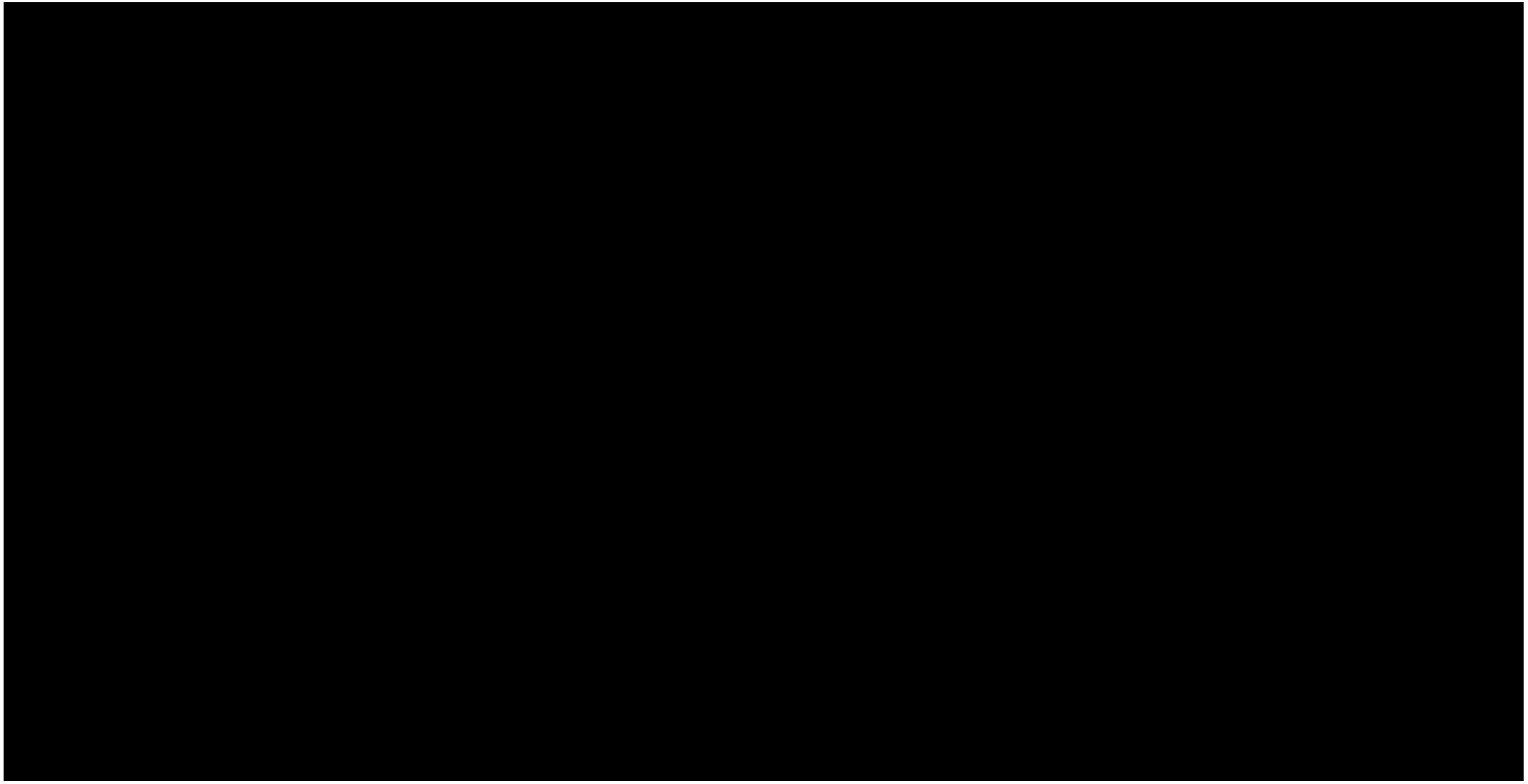

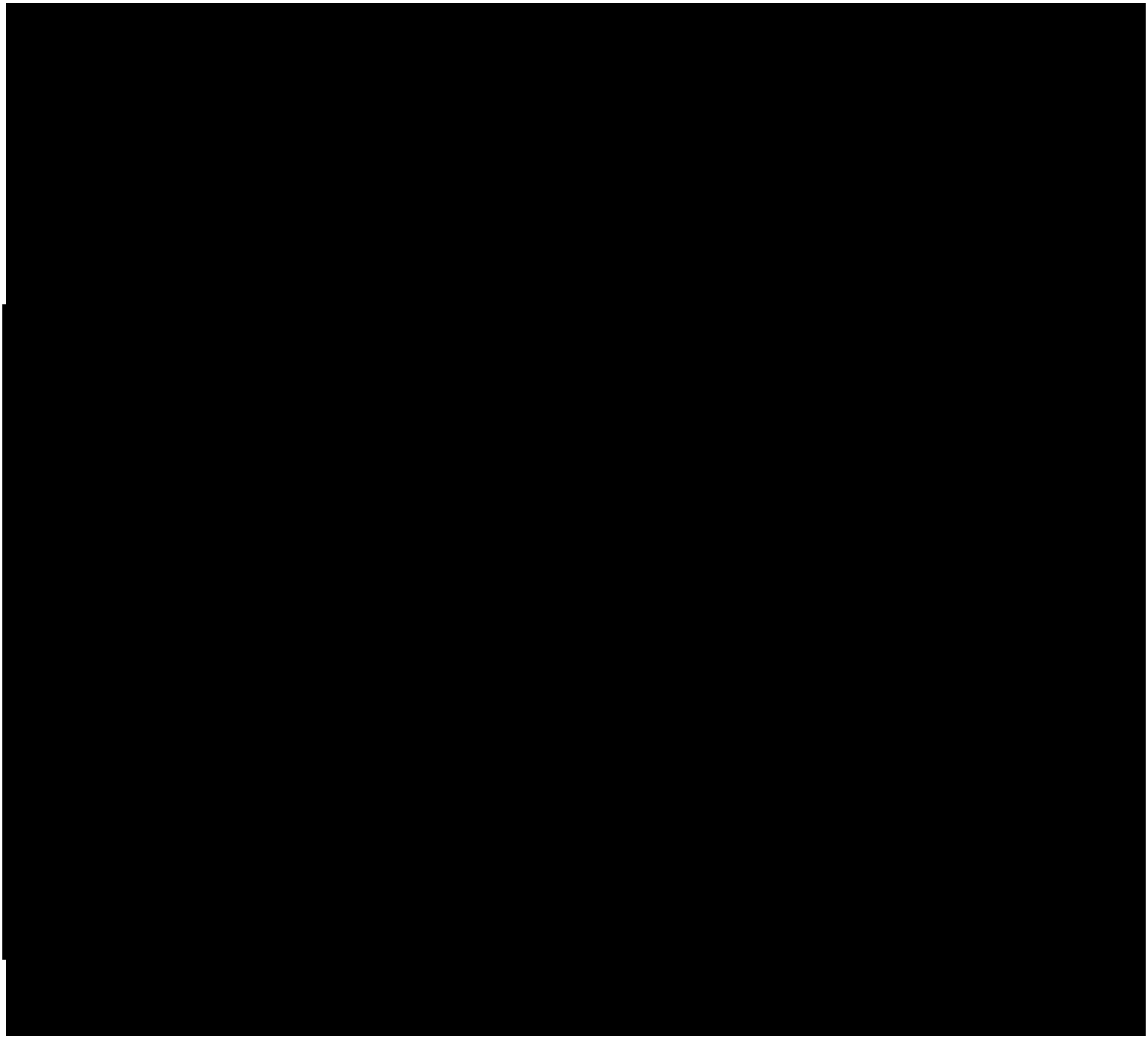

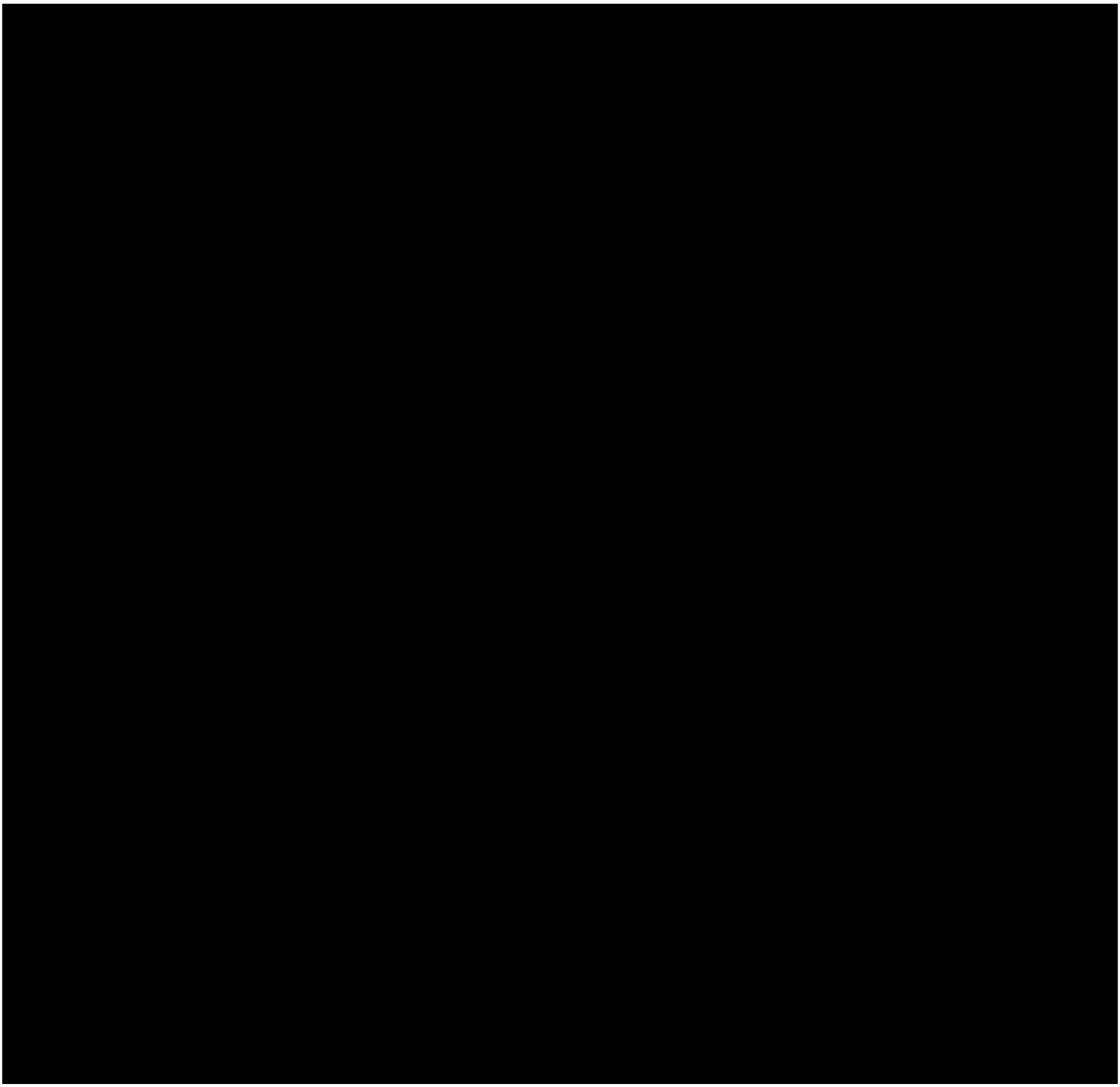

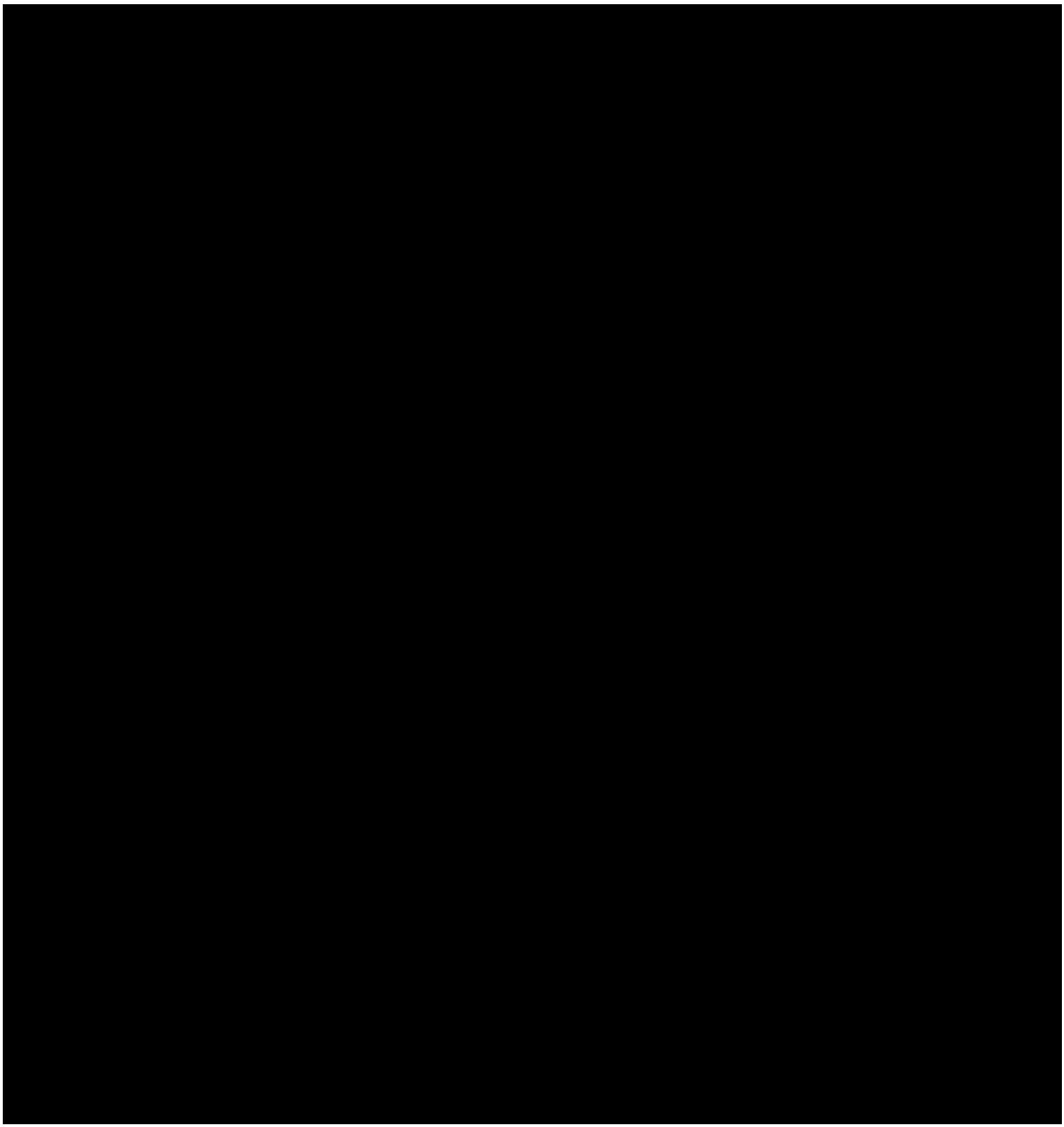

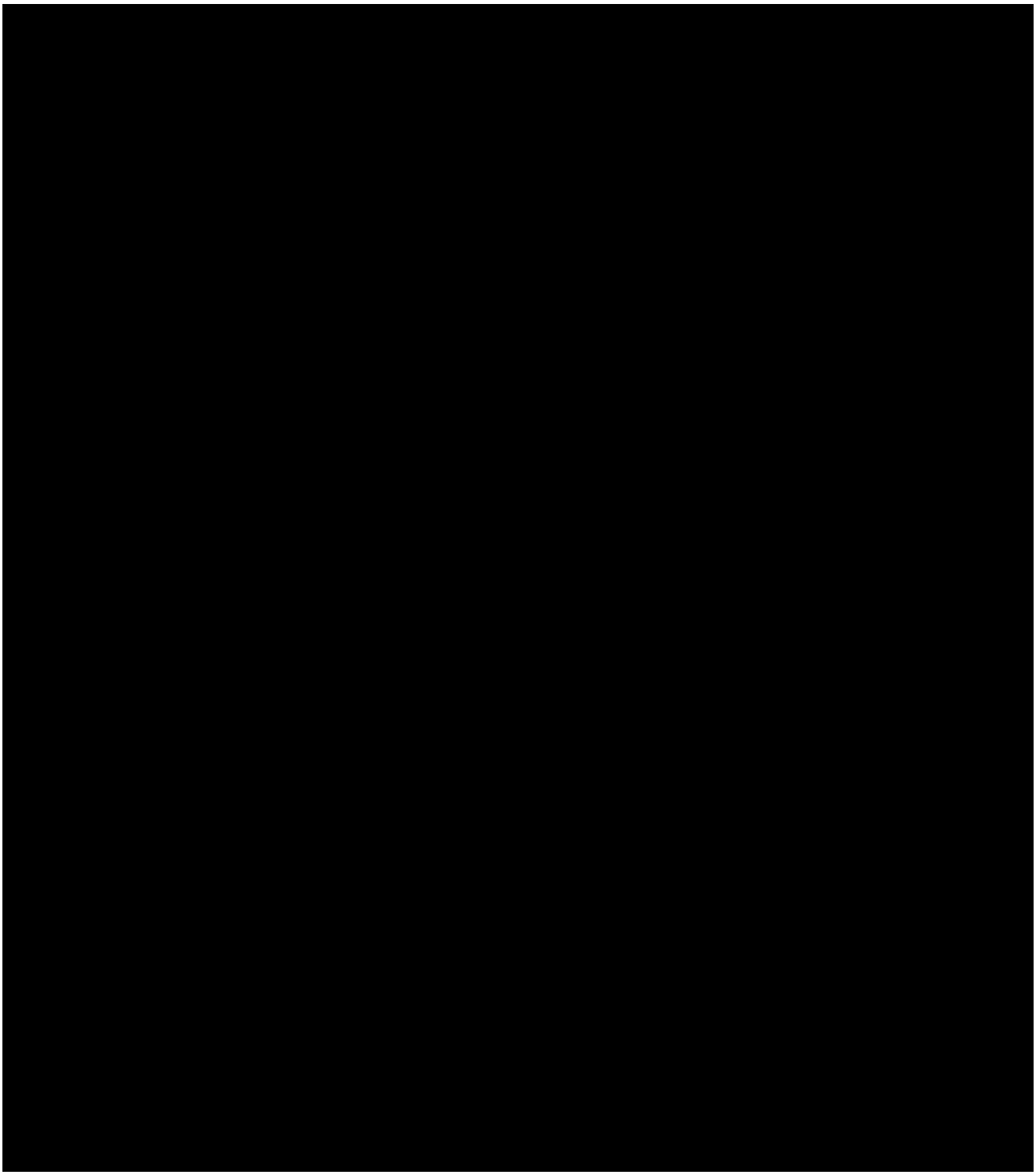

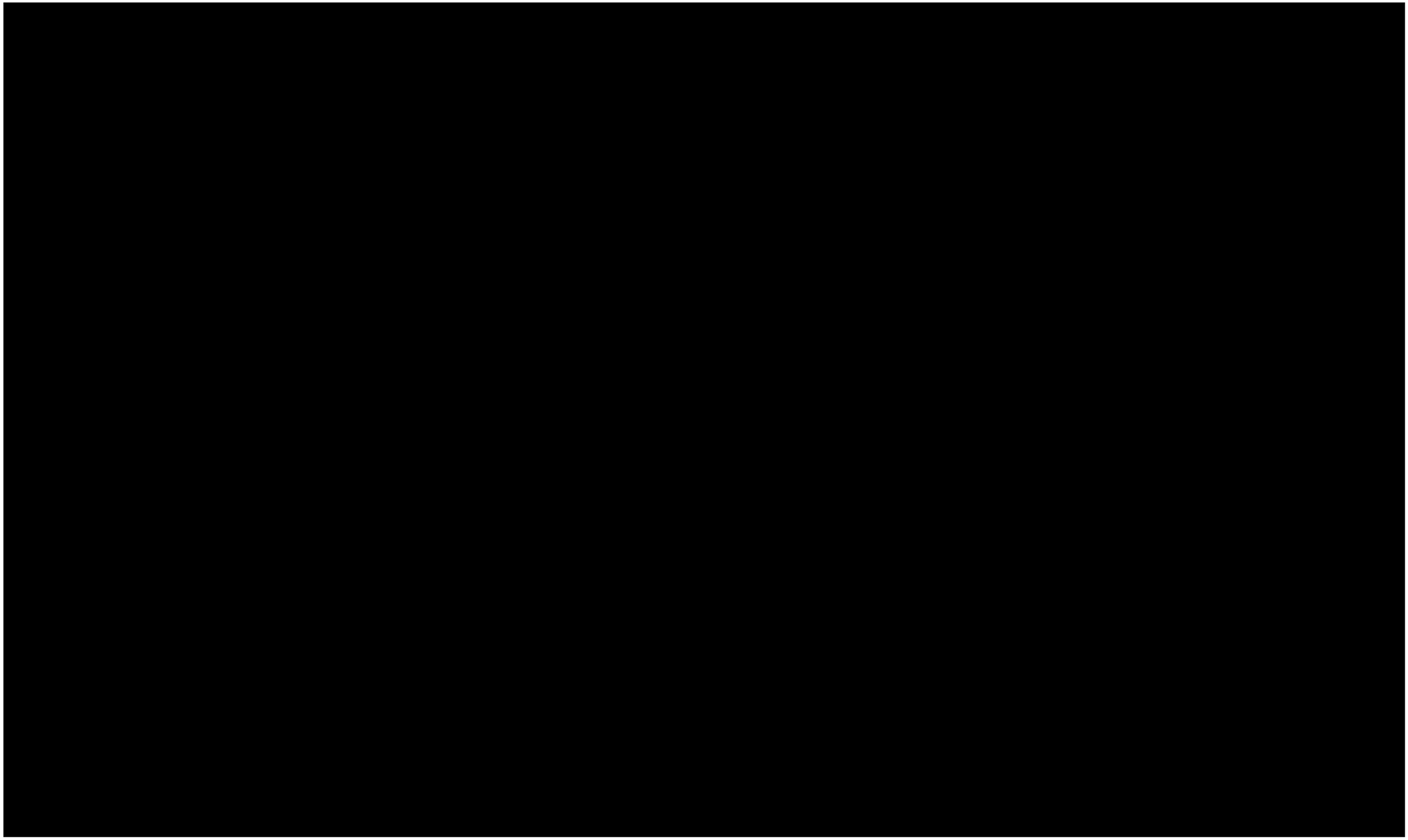

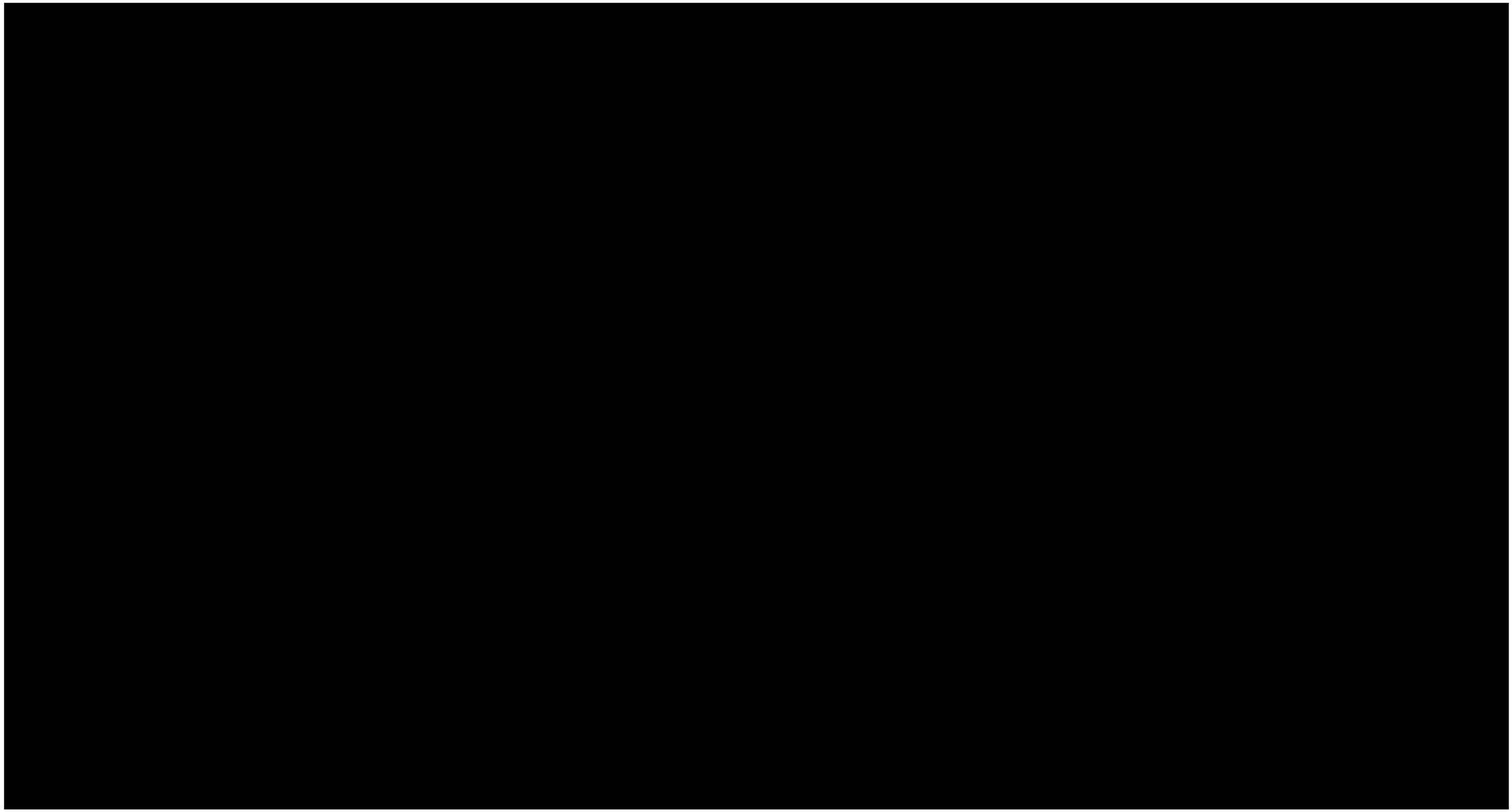

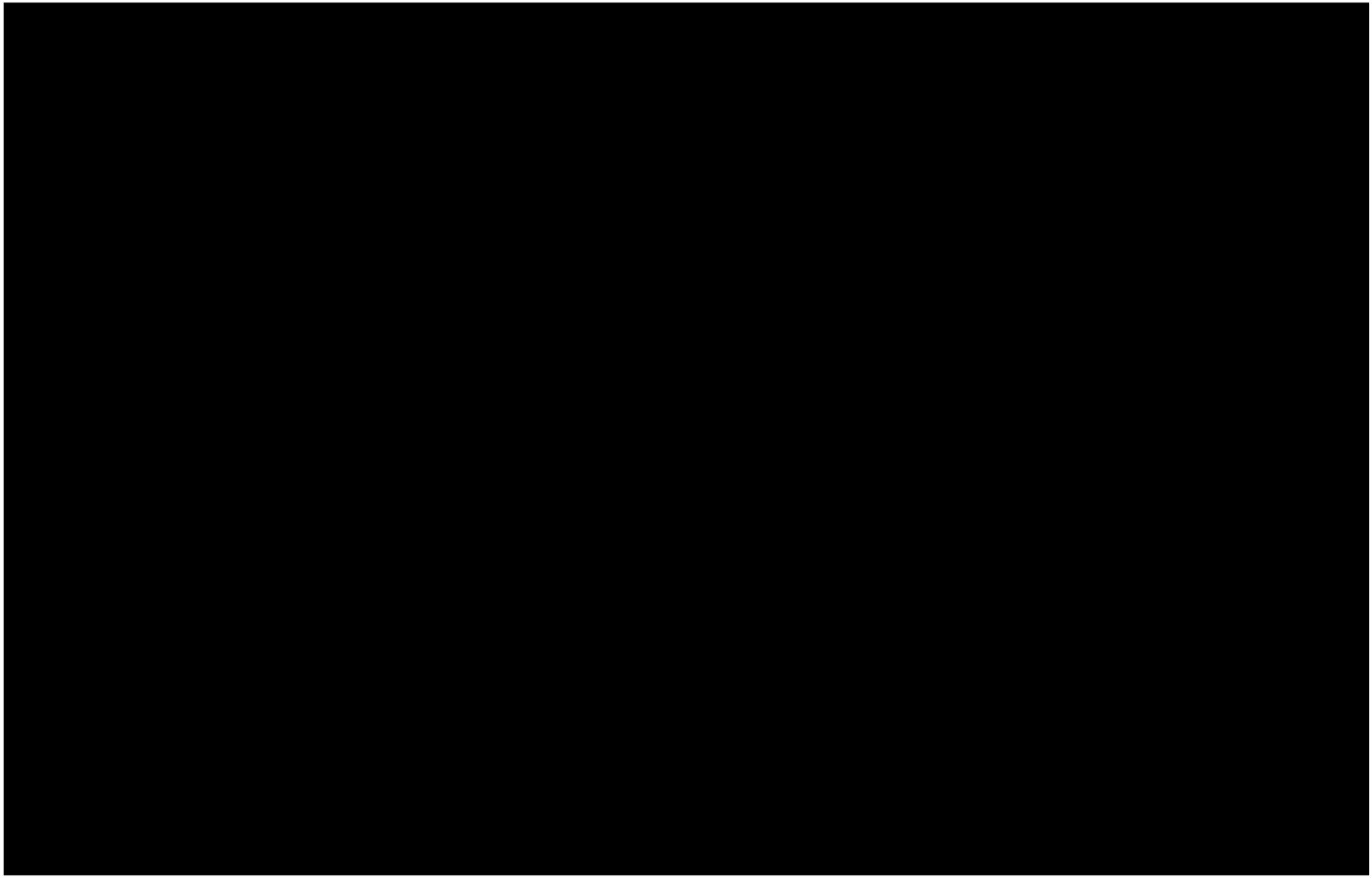

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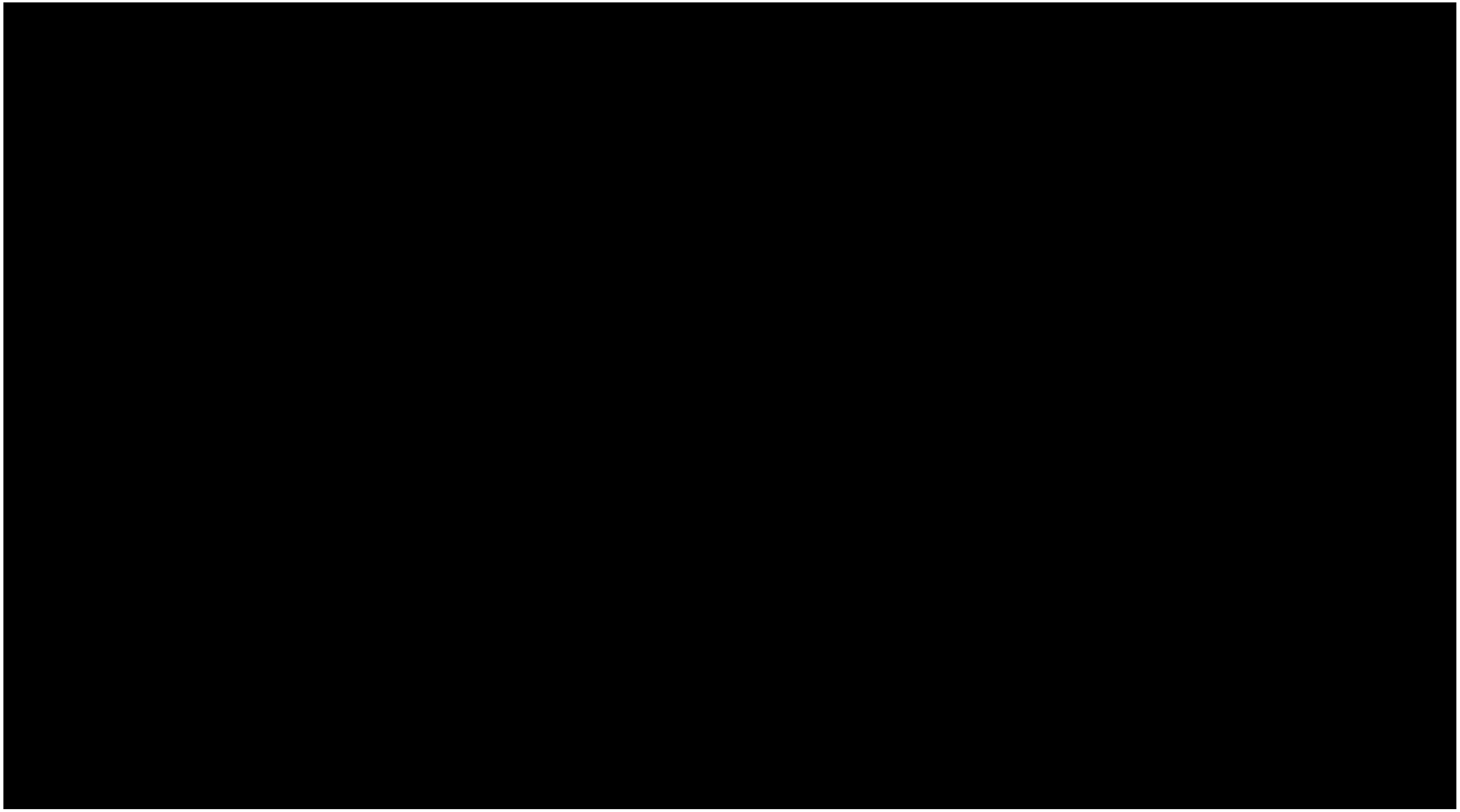

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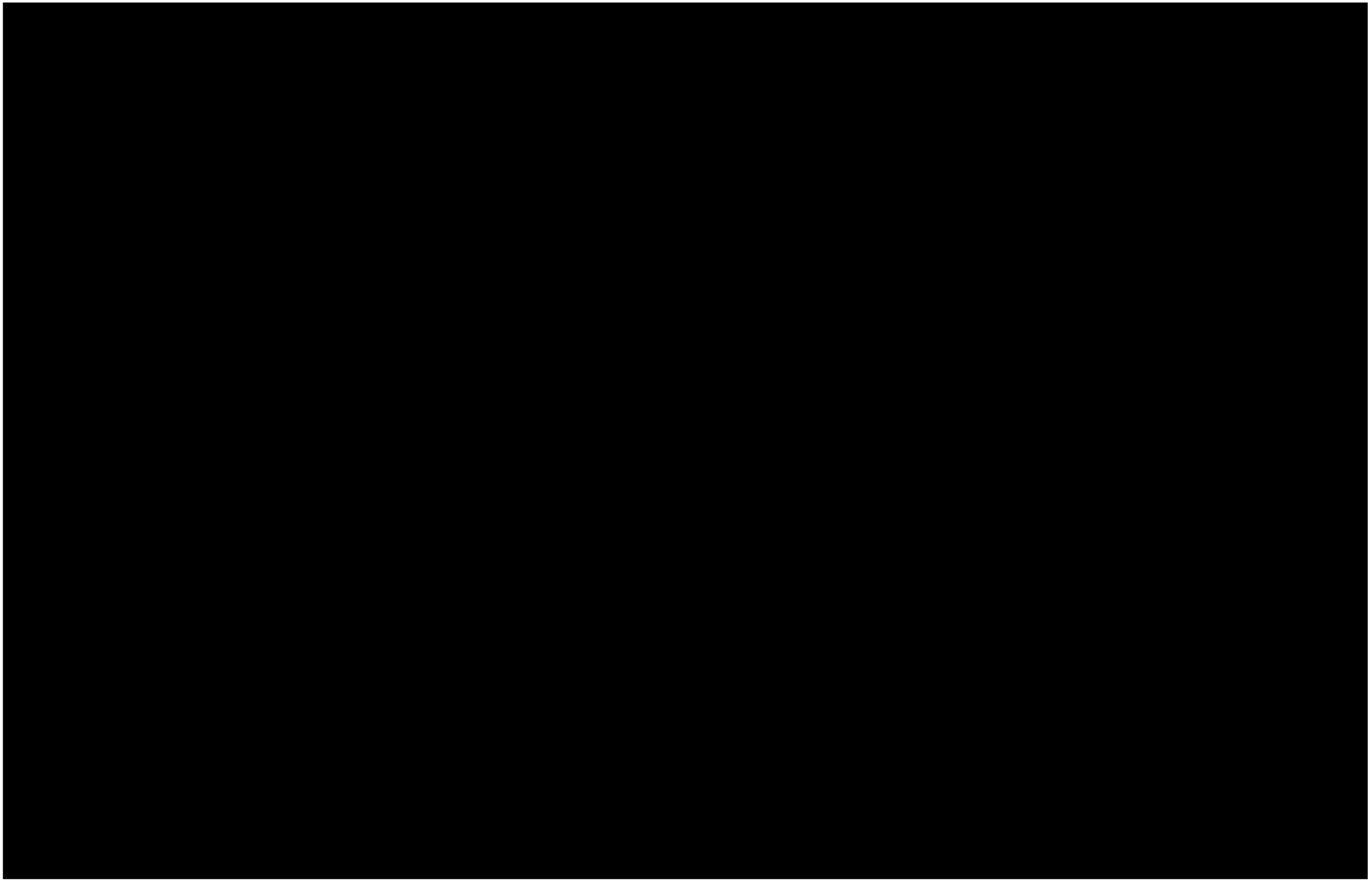

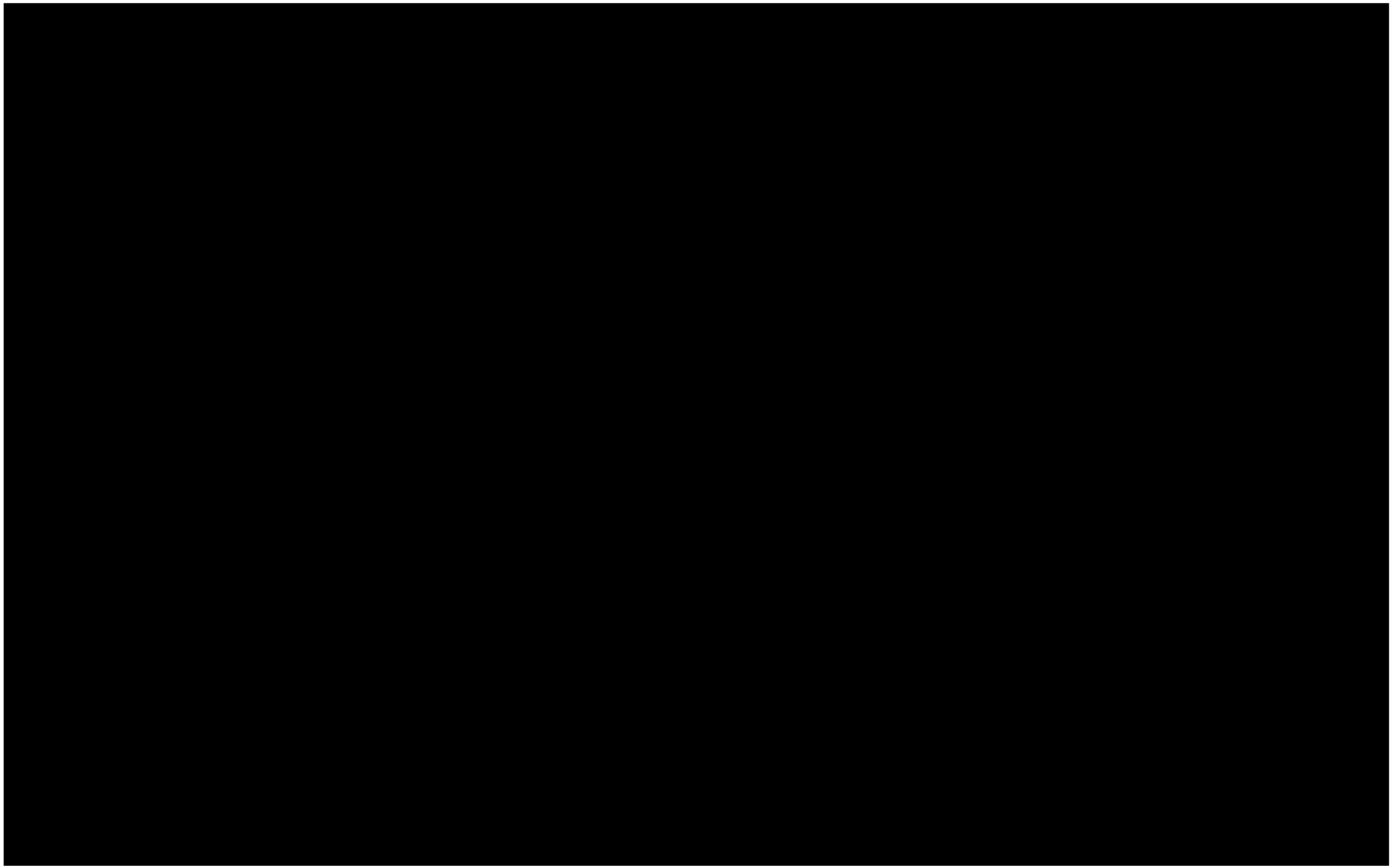

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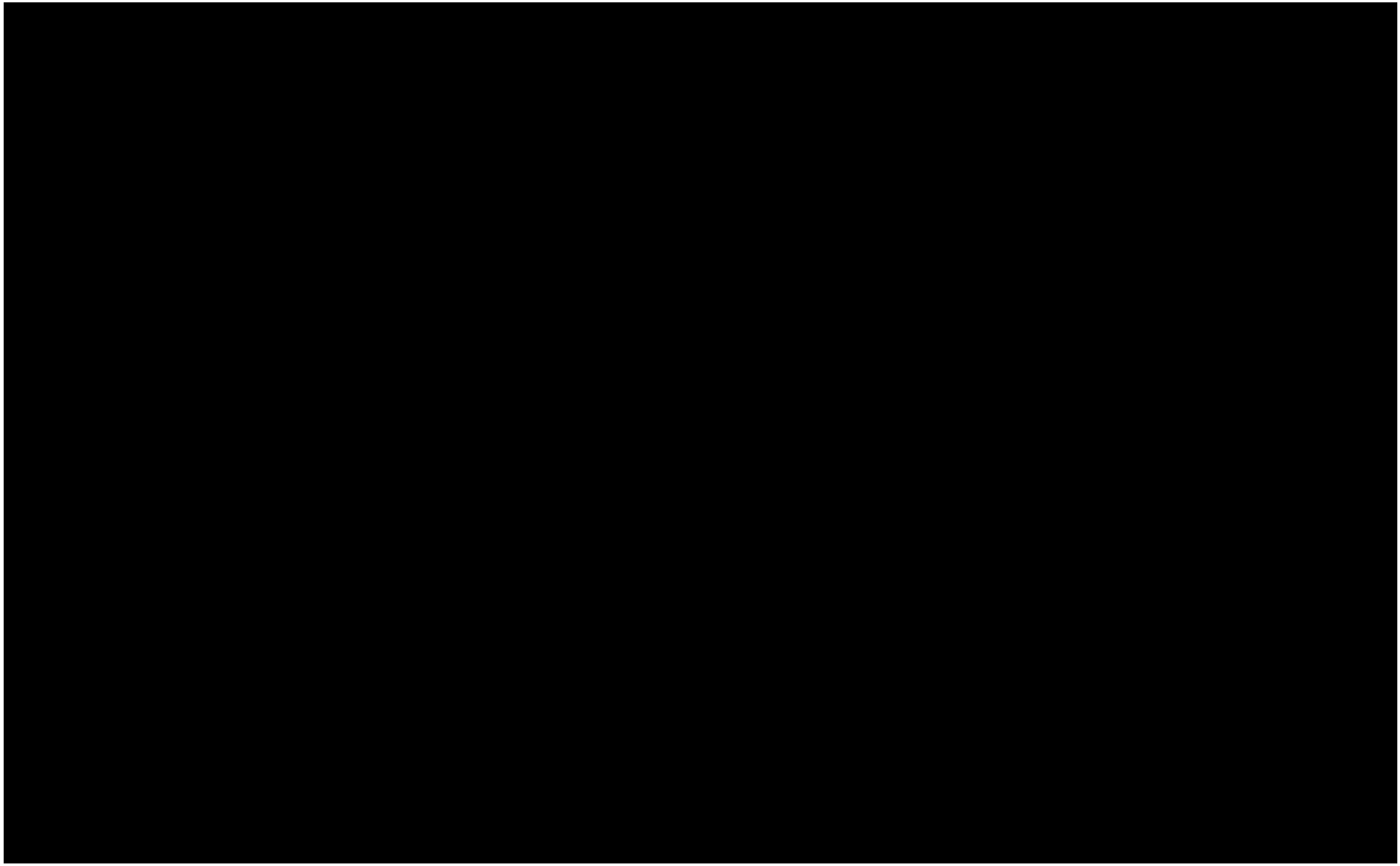

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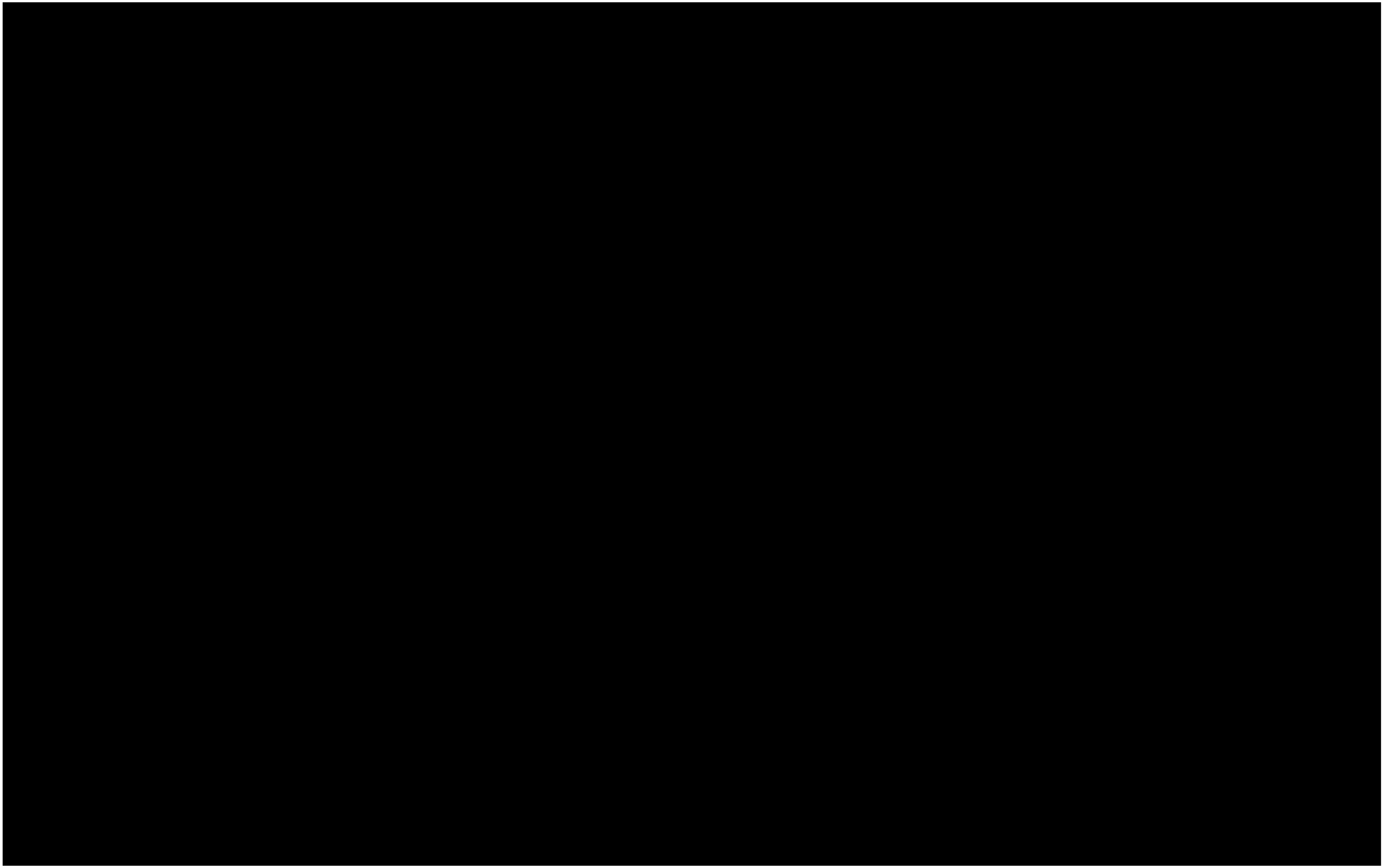

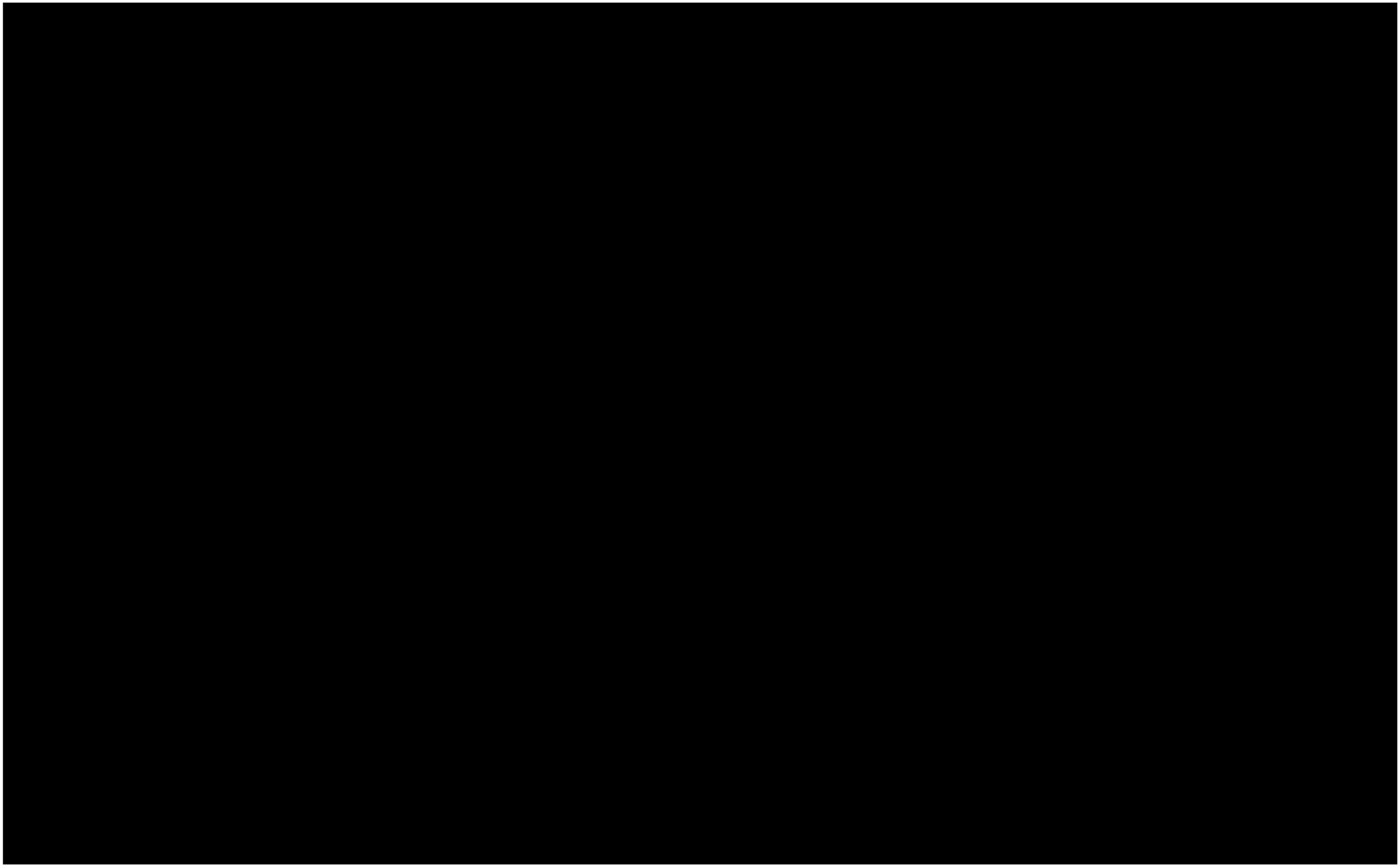

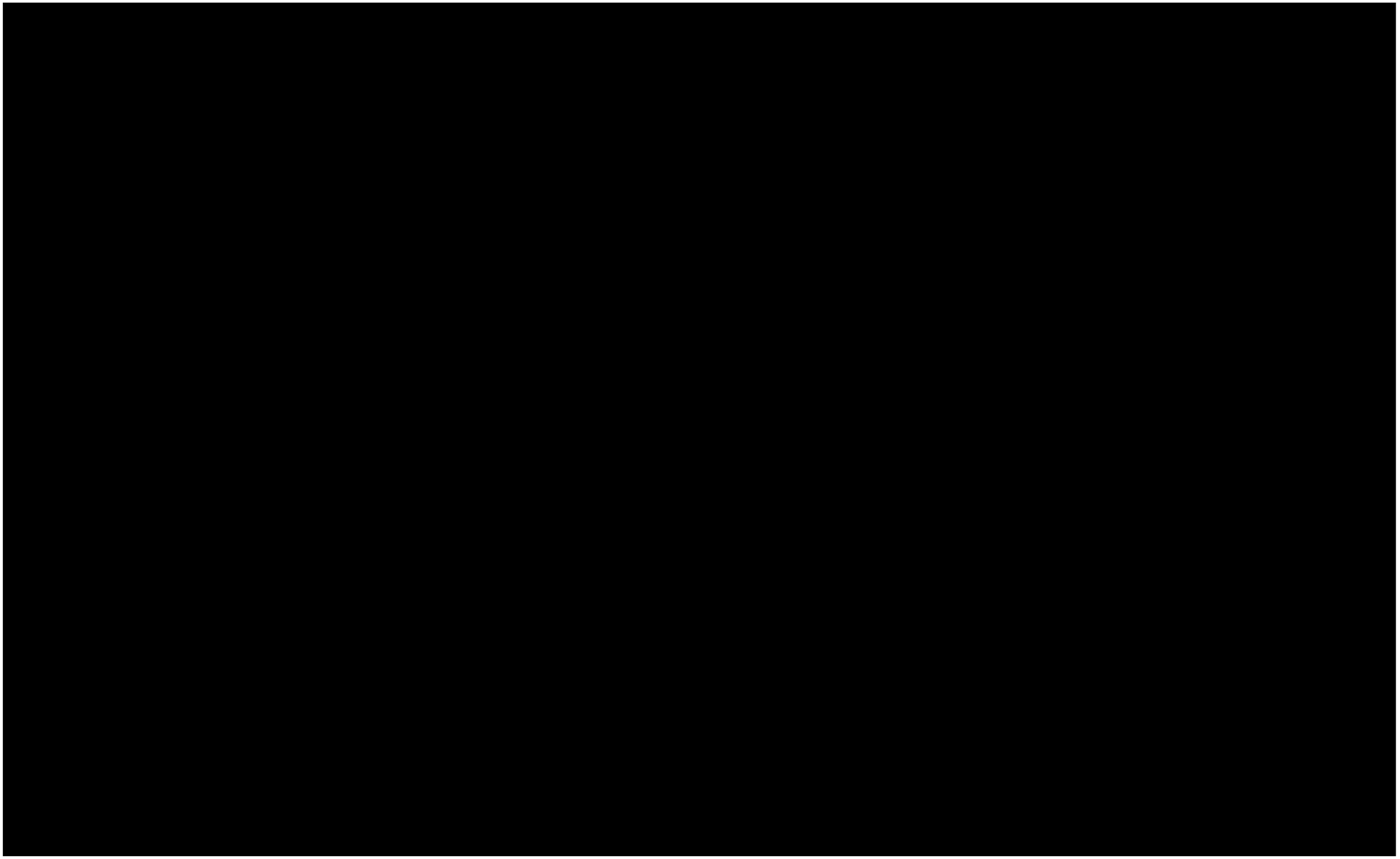

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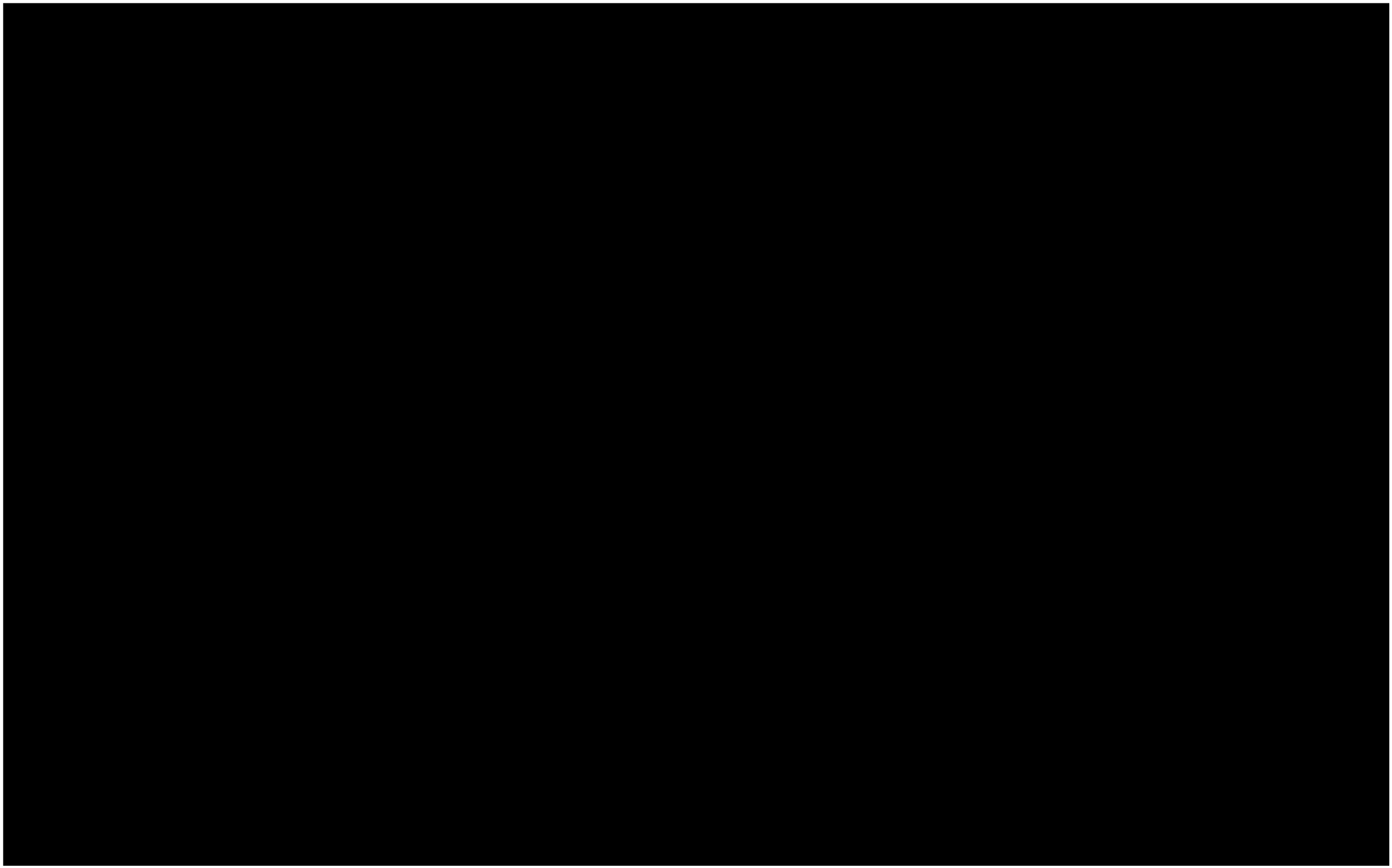

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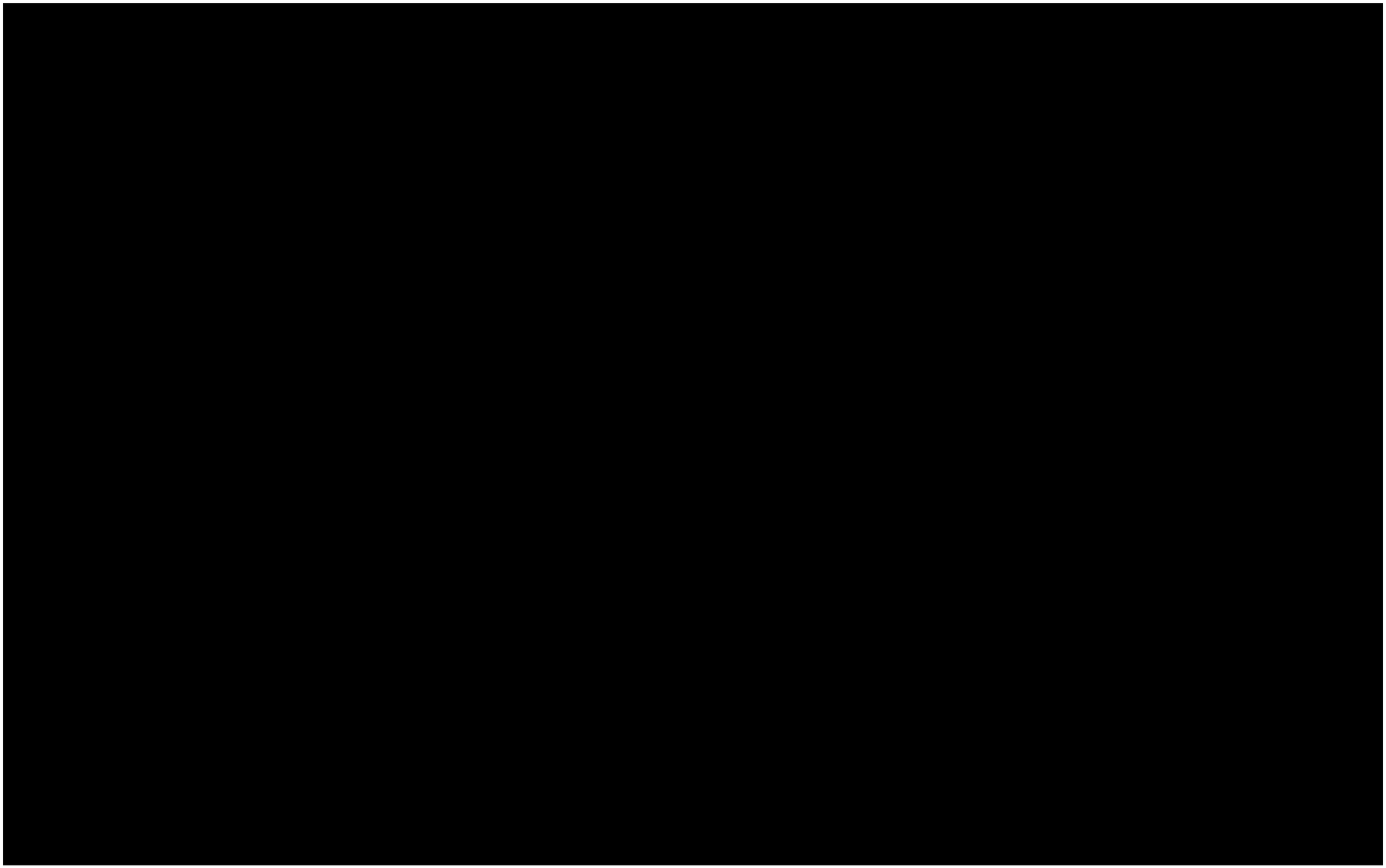

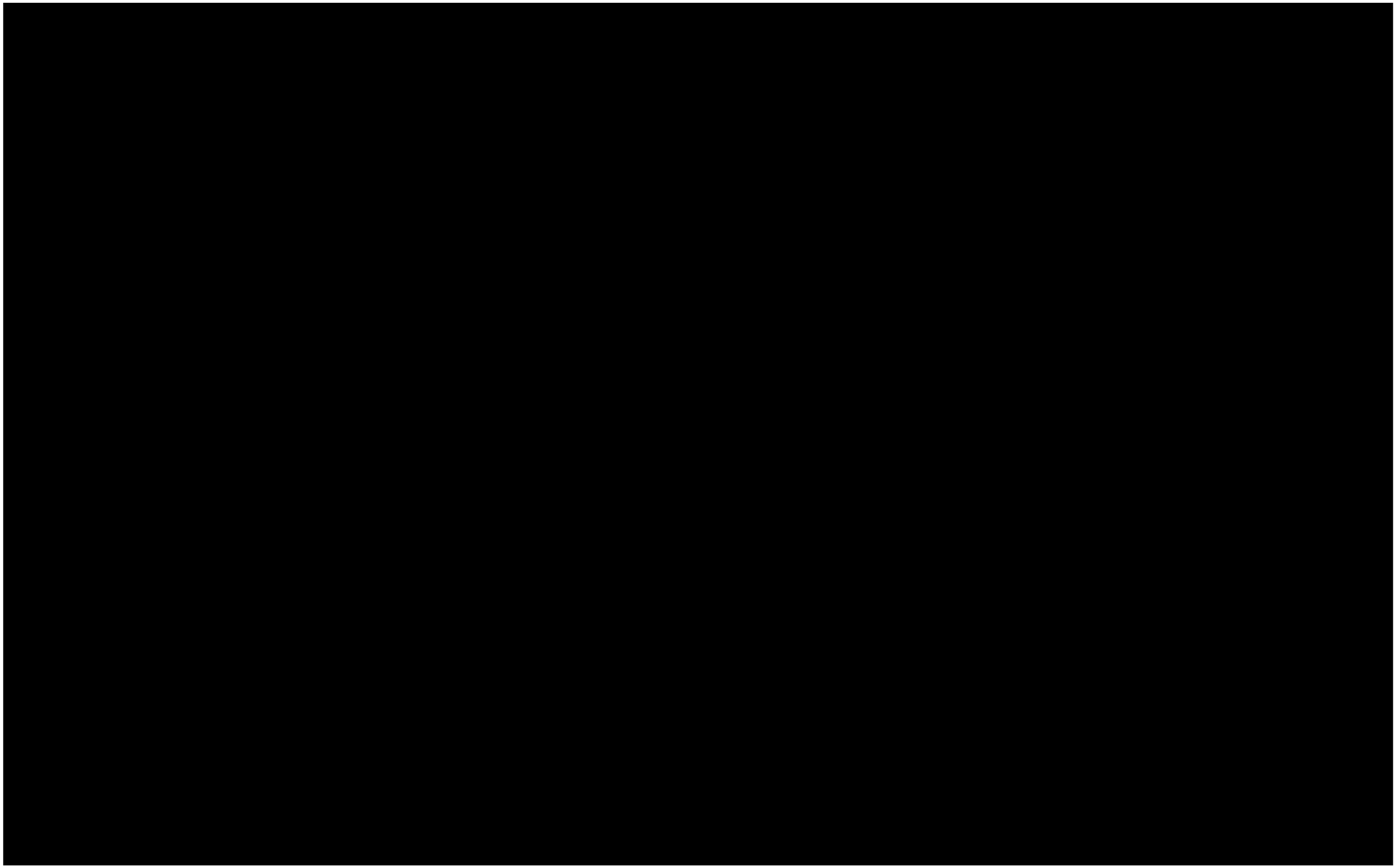

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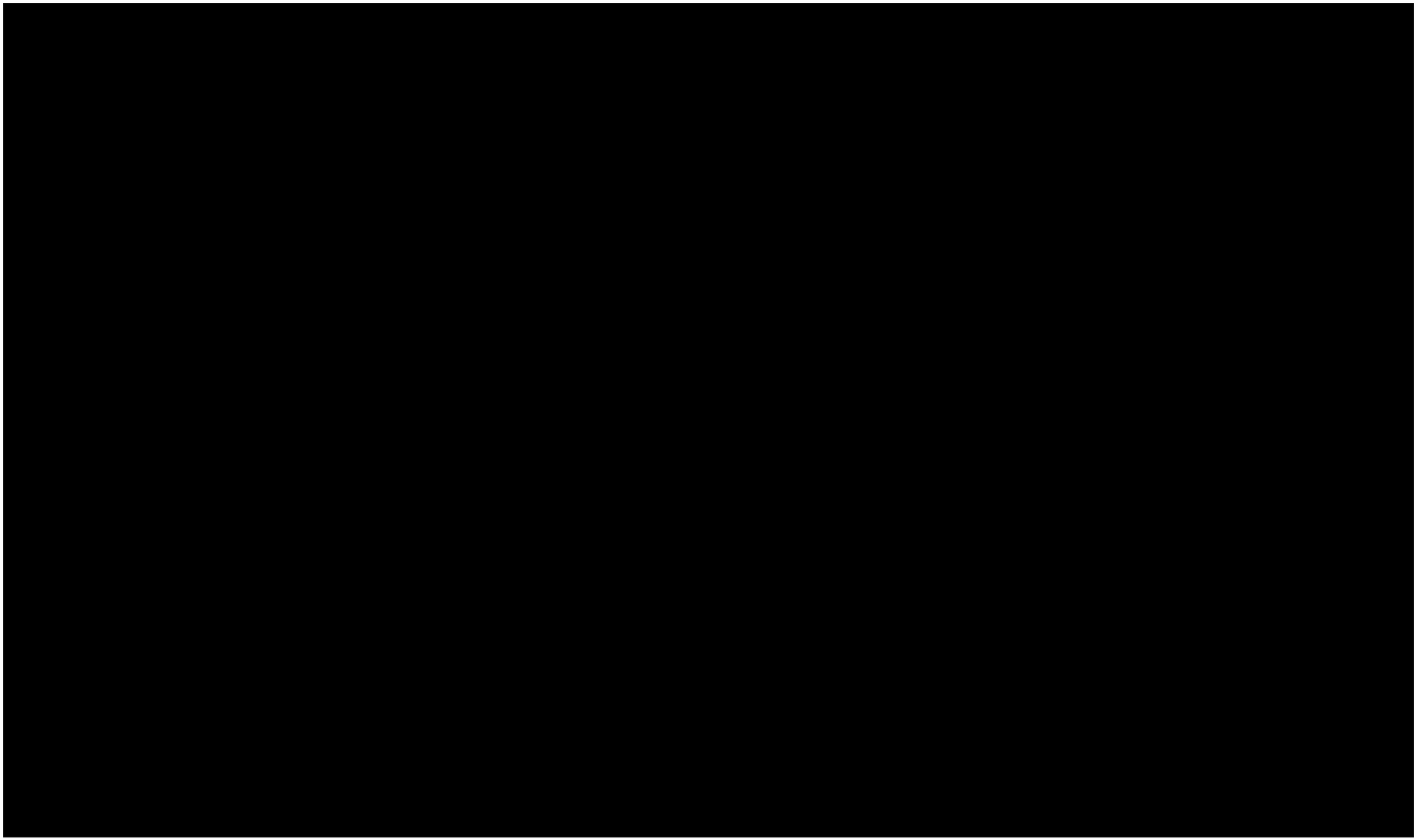

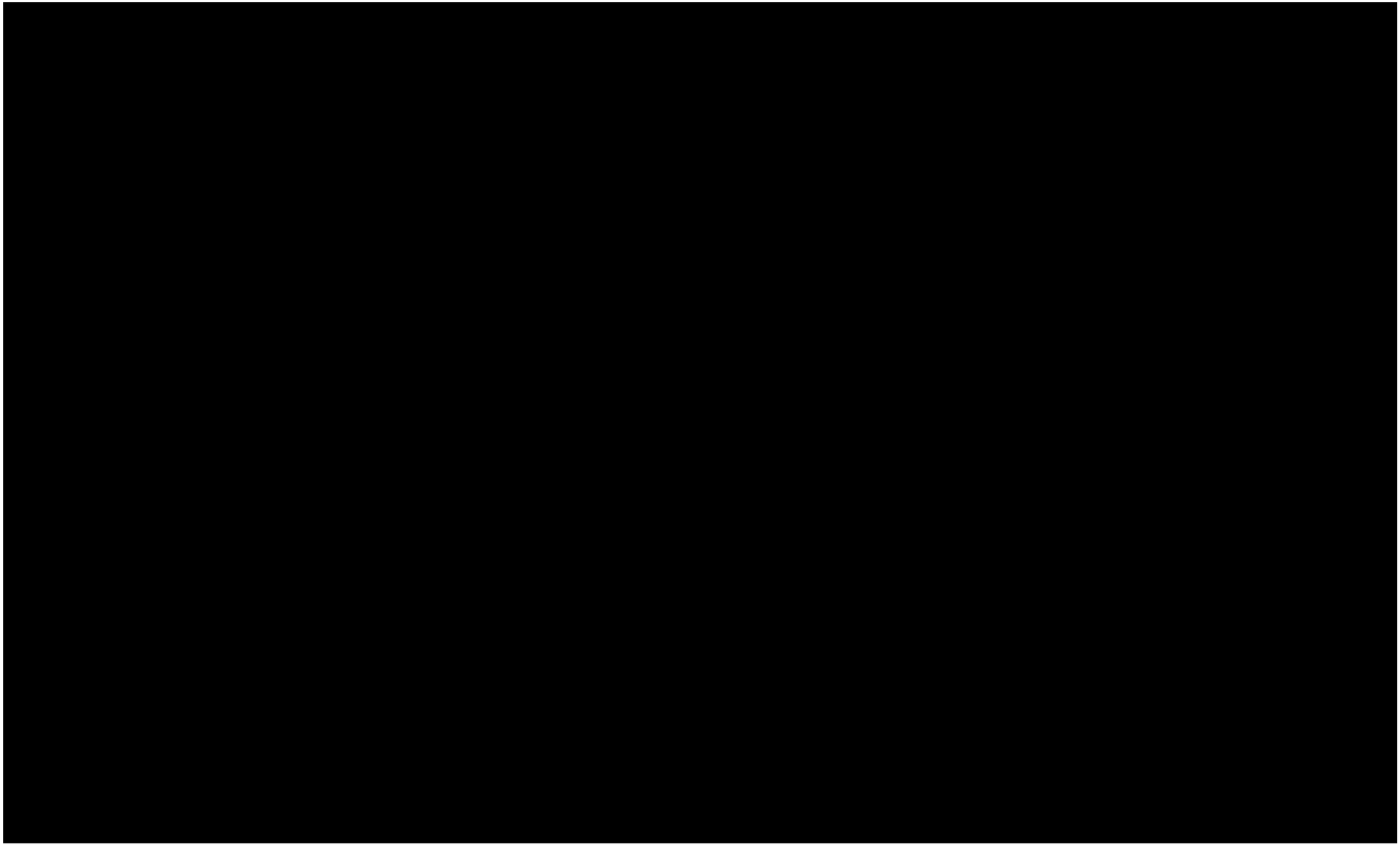

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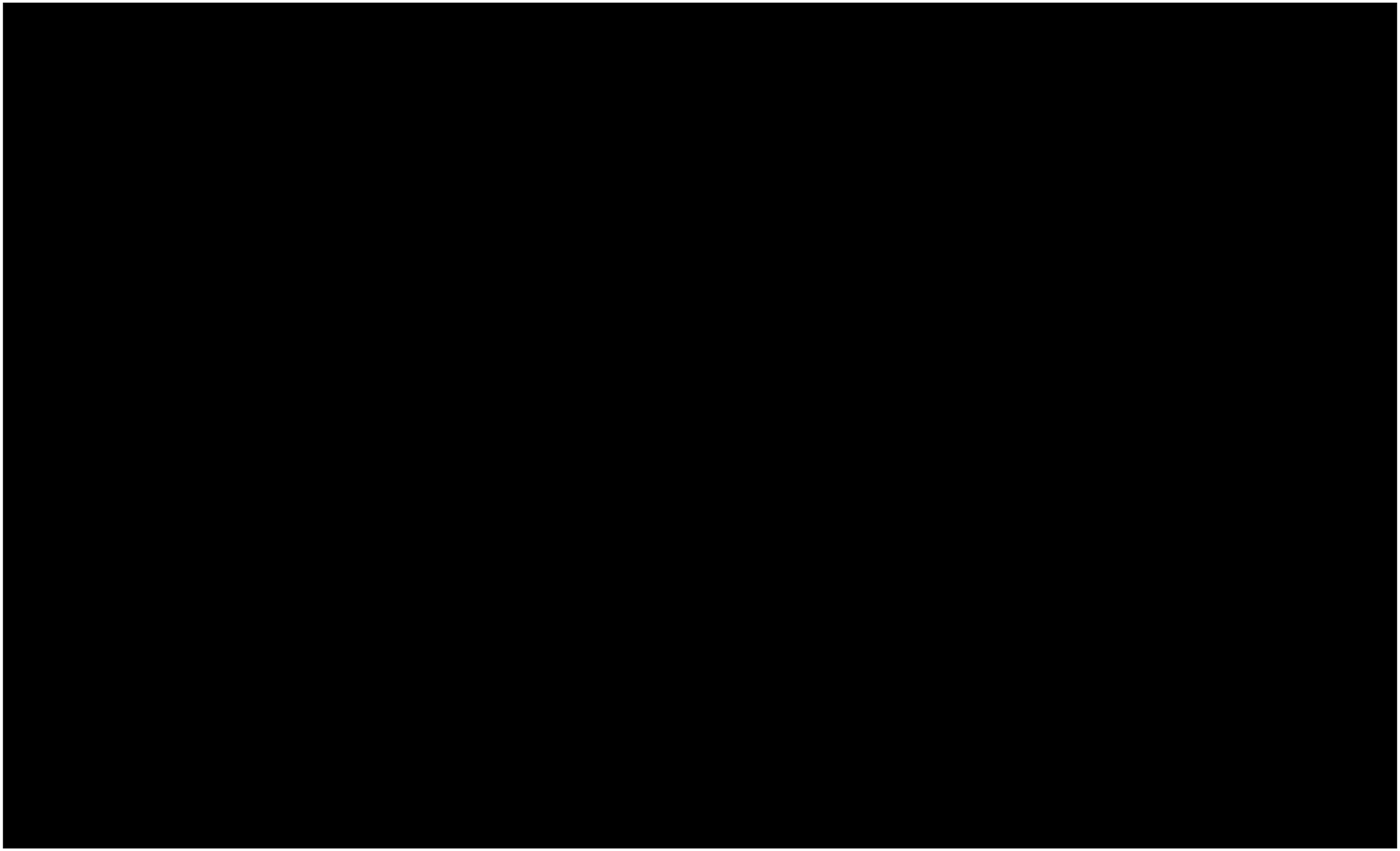

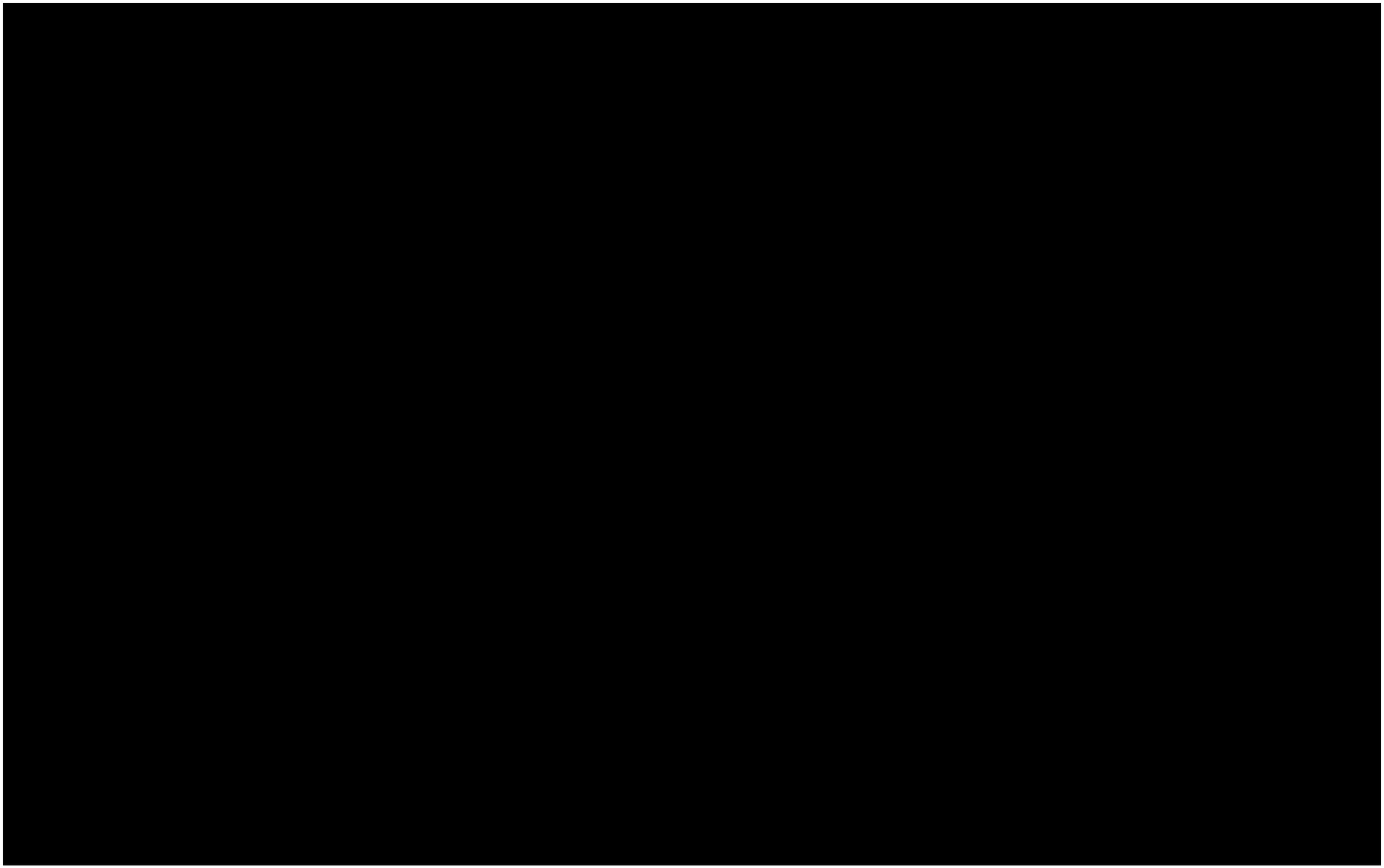

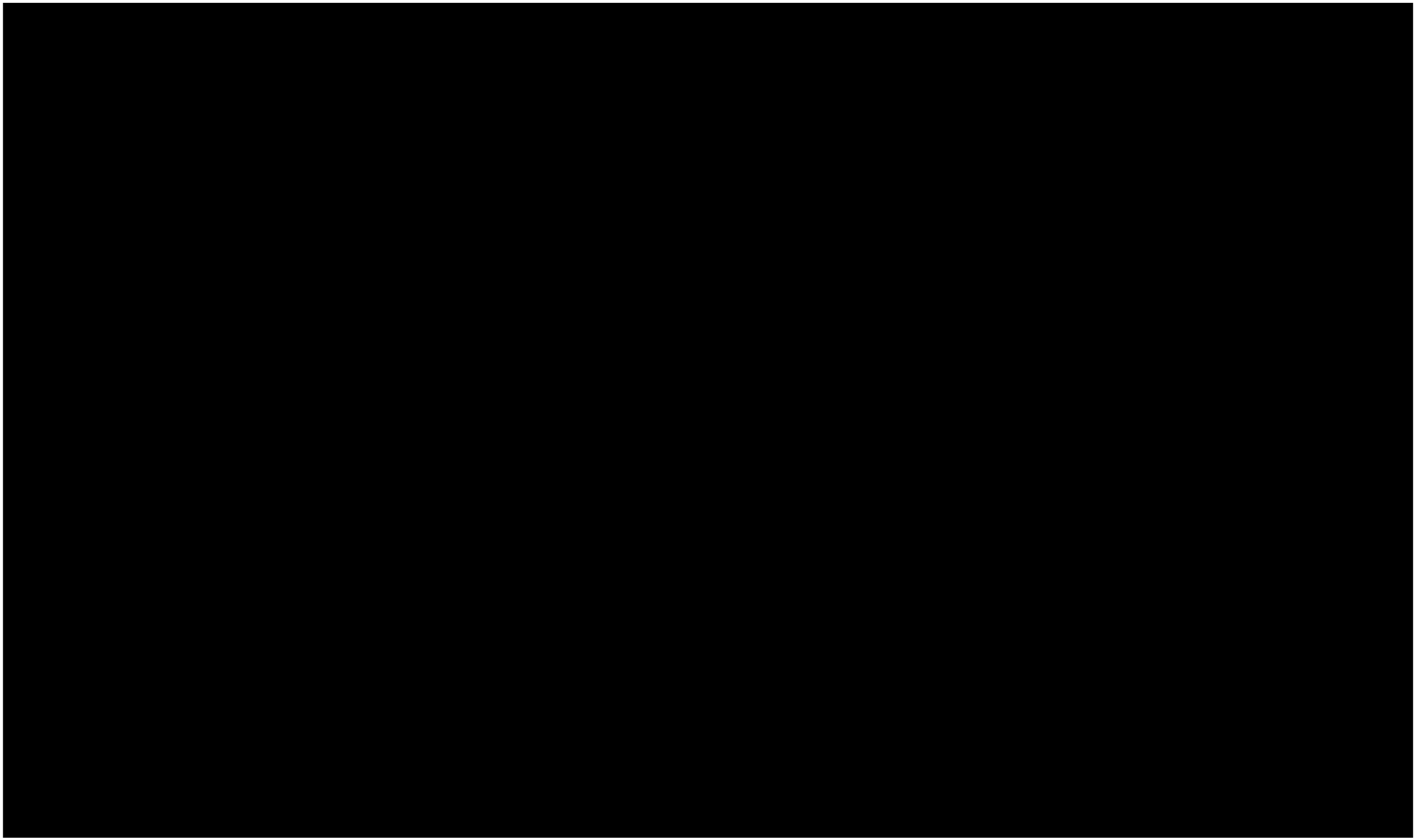

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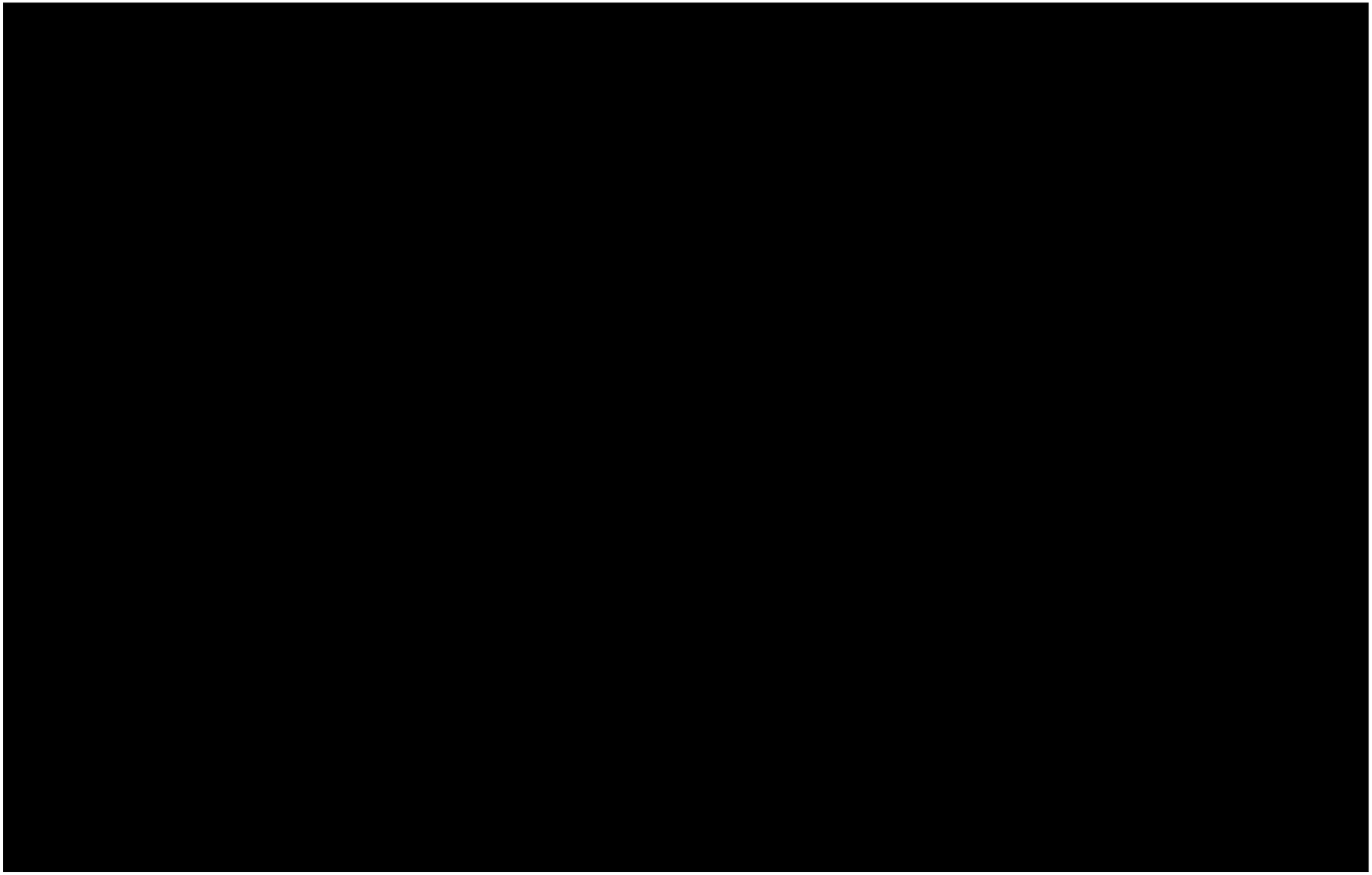

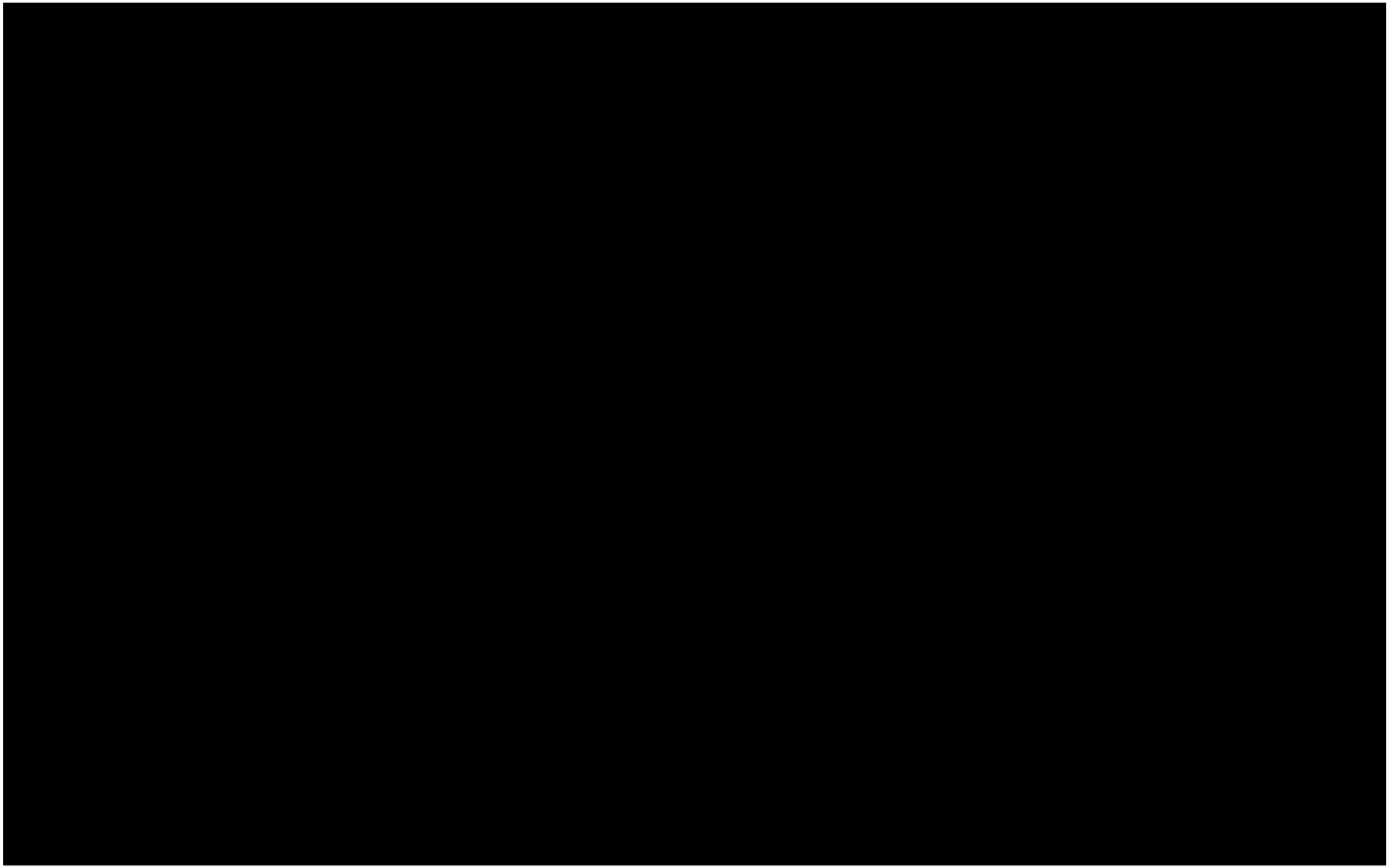

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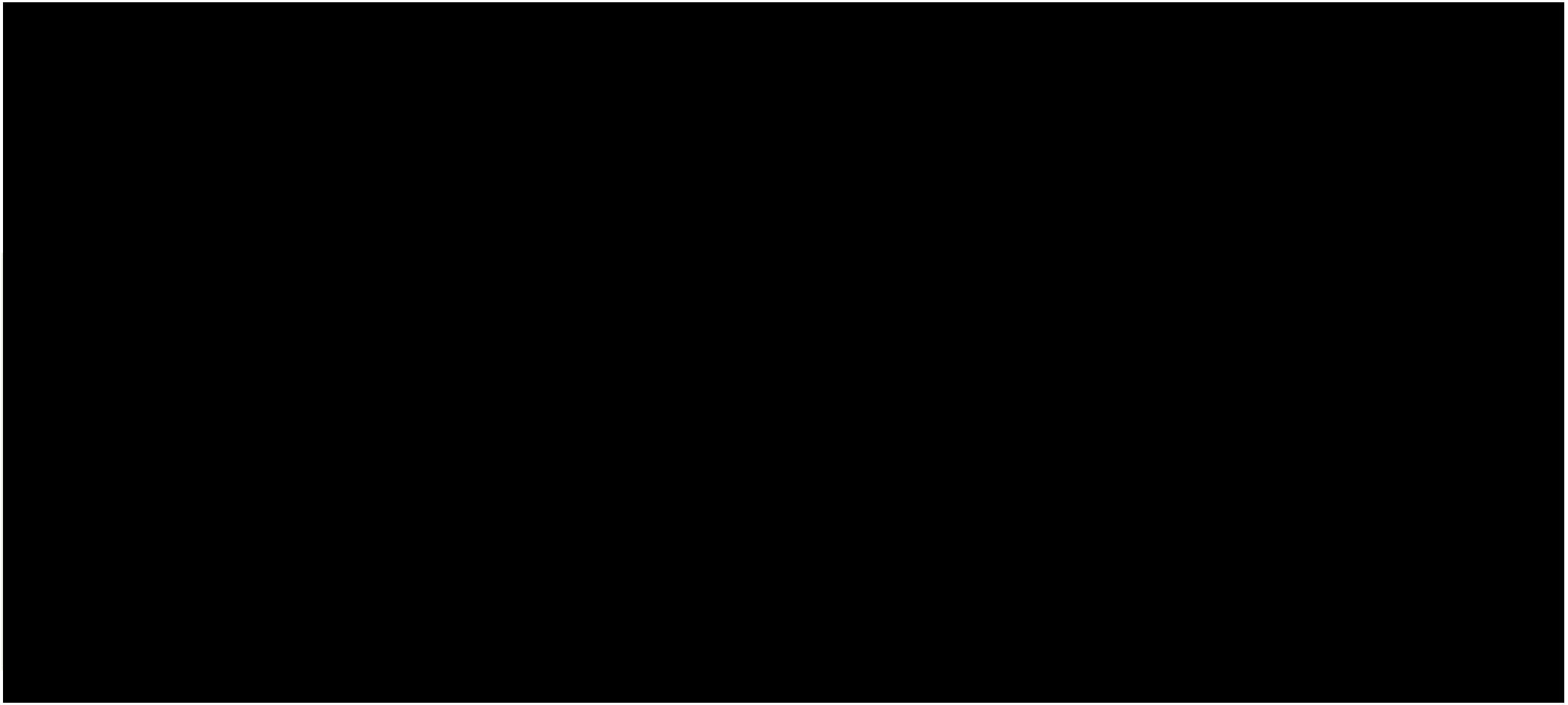

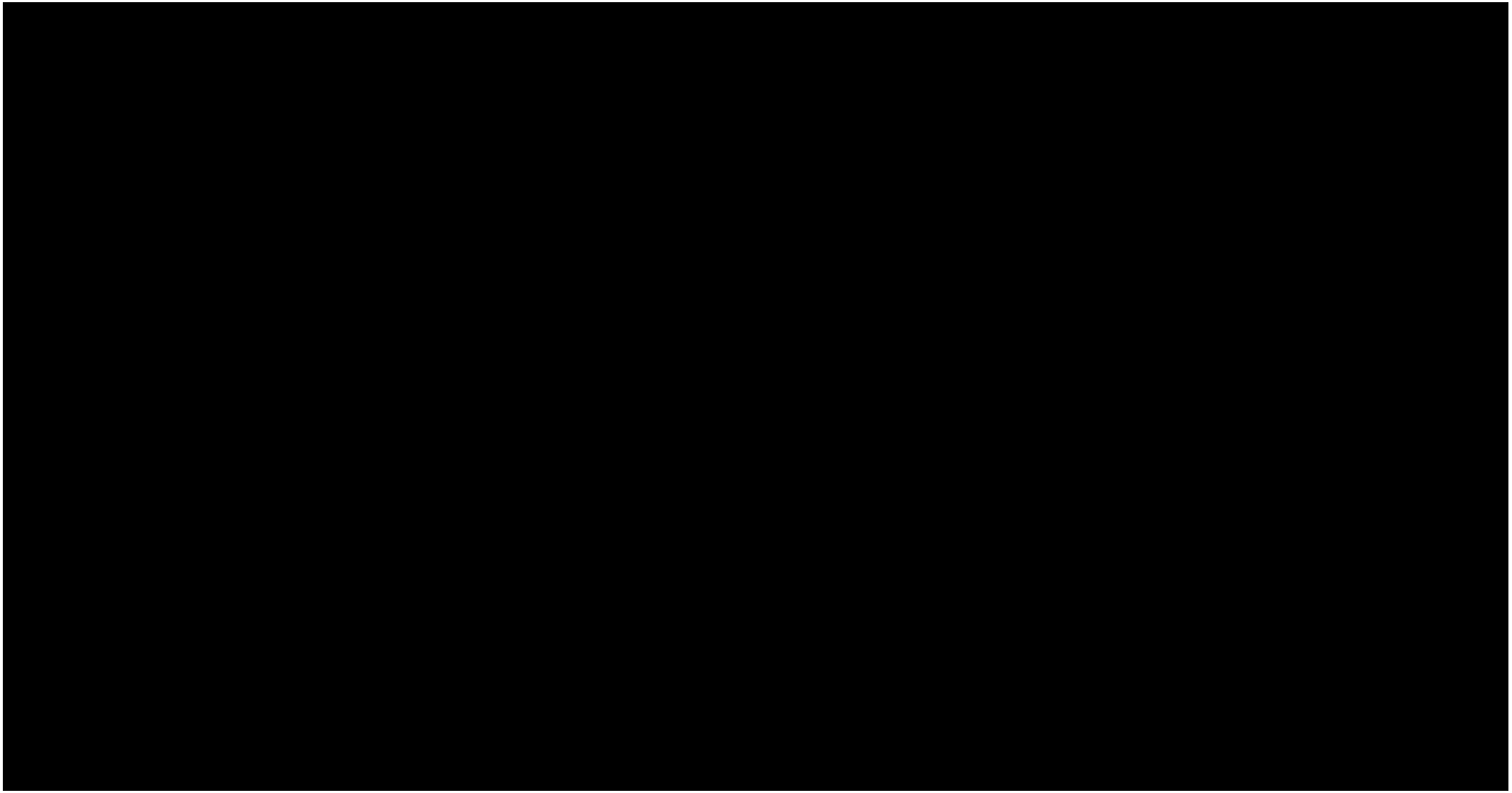

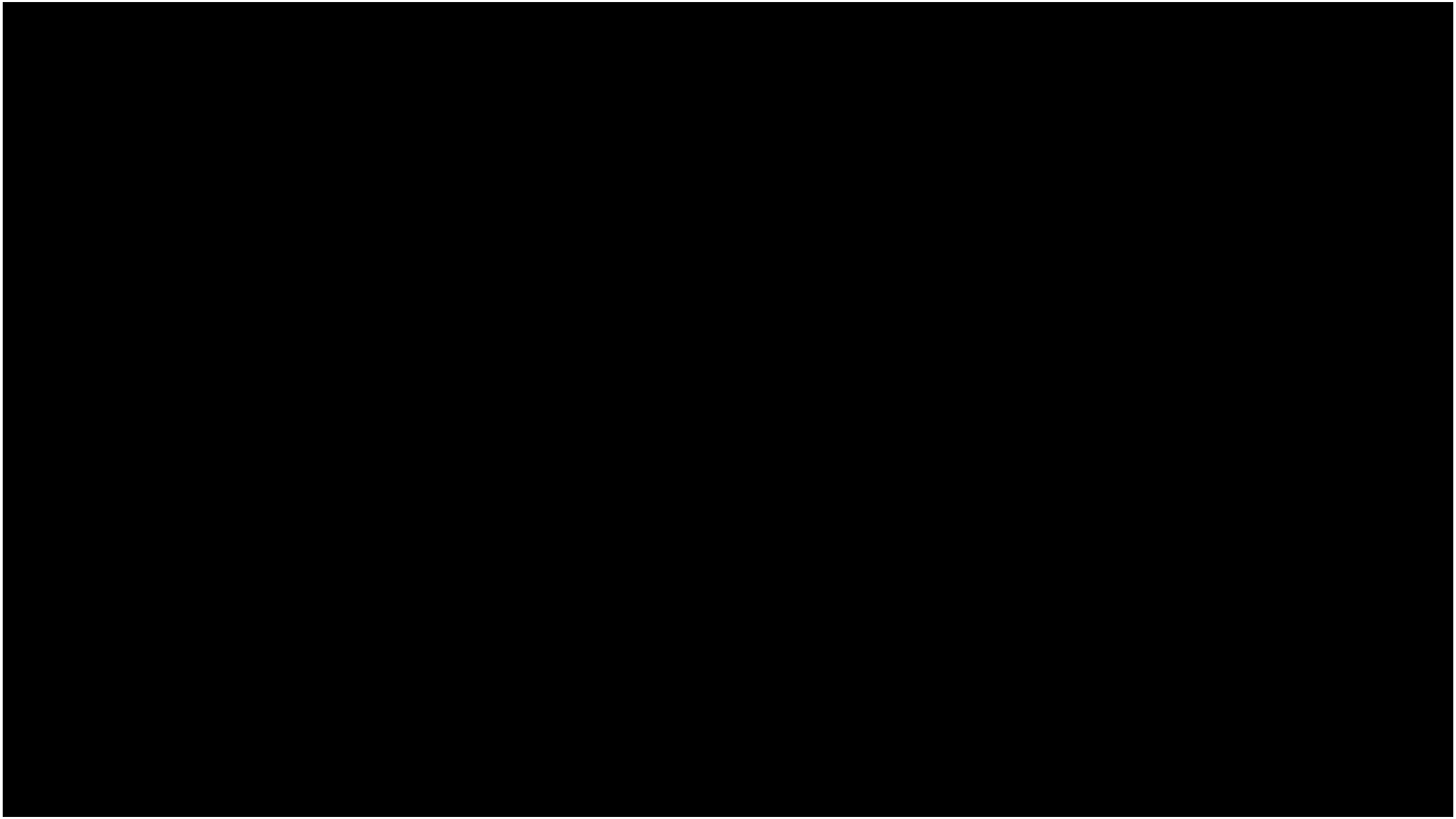

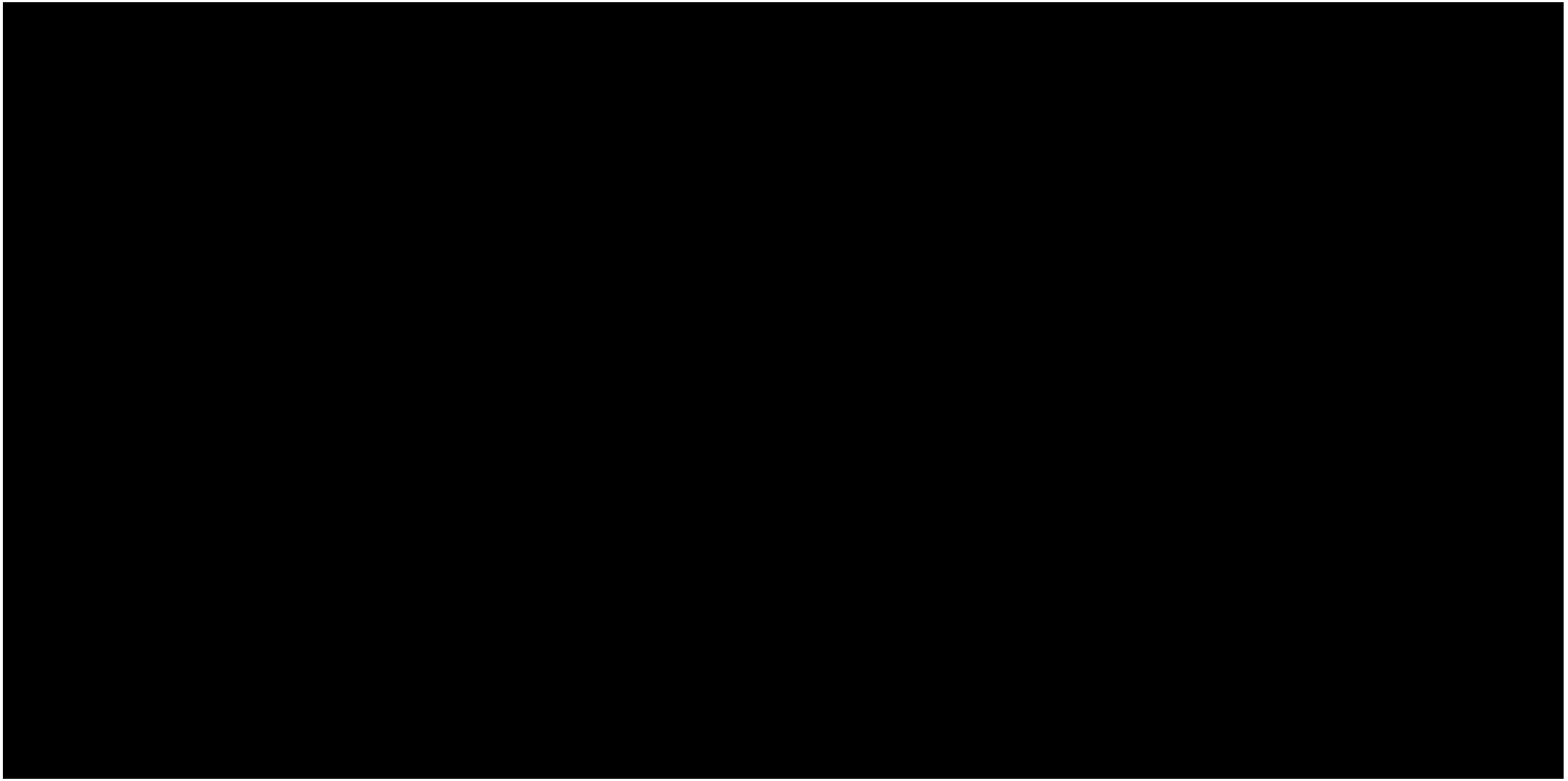

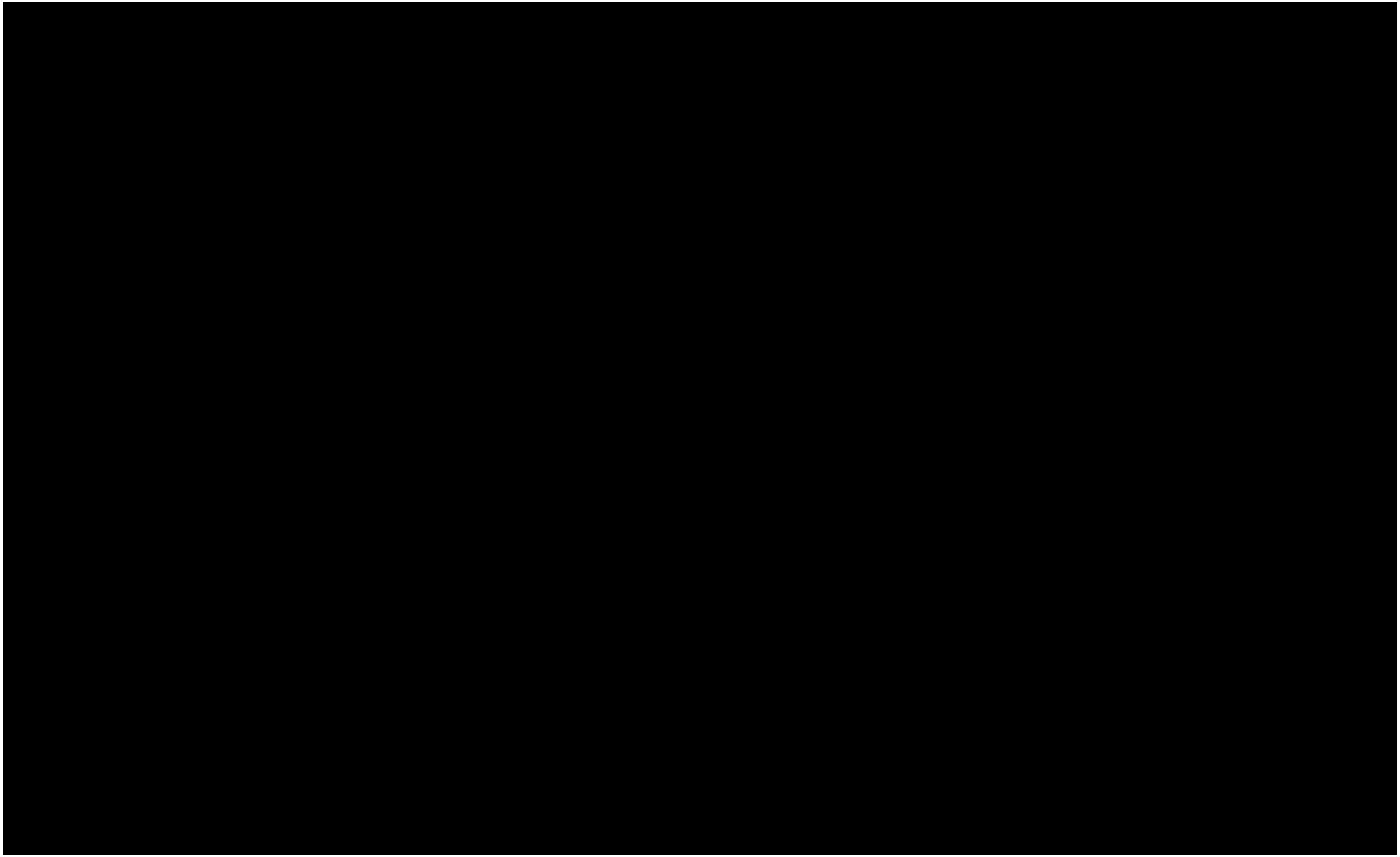

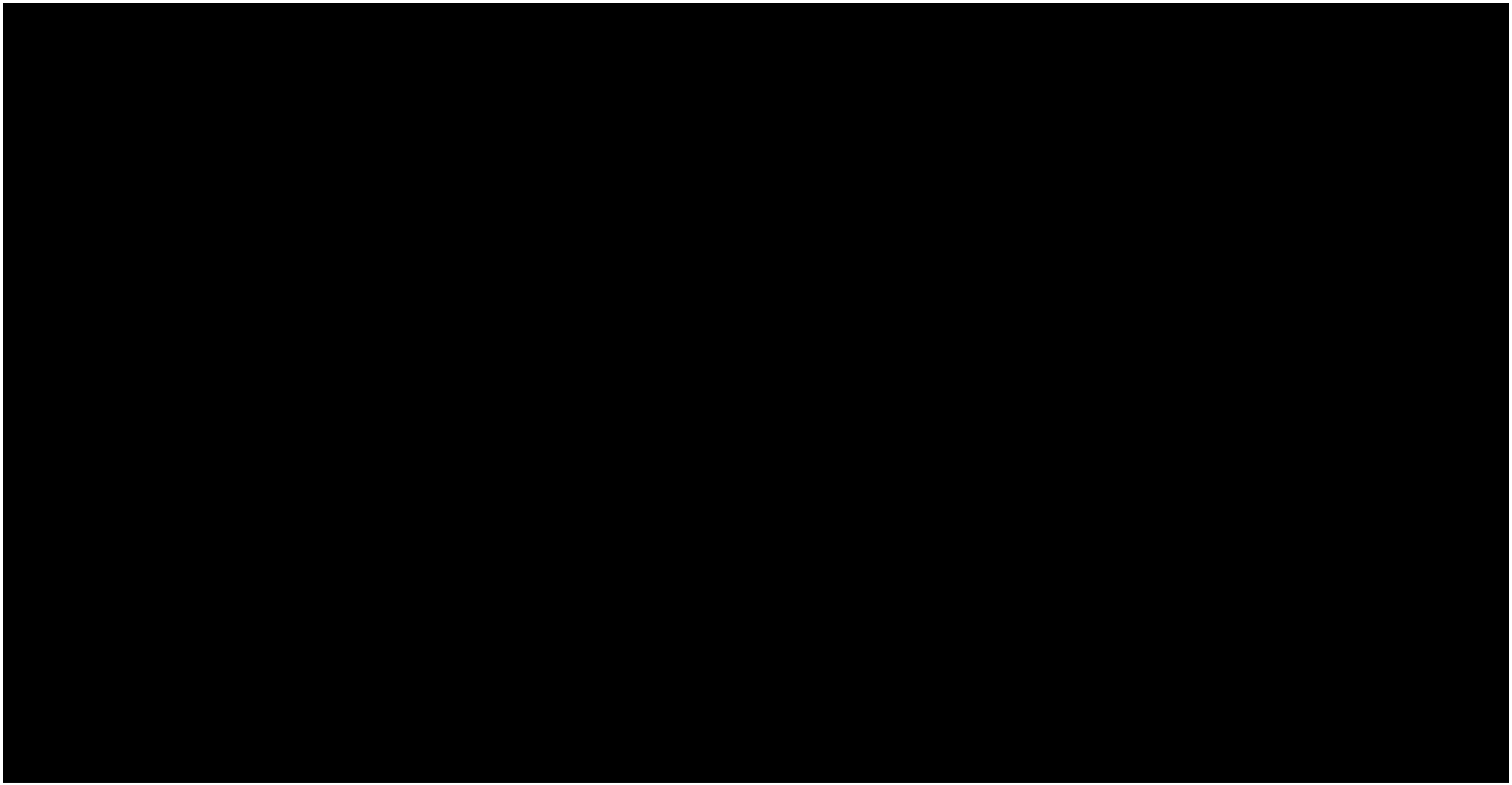

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Infrastructure

Updated Capability and Gap Analysis

Sydney Trains Rail Operations Centre

Description

This document provides a consolidated view of the required capabilities for the ROC applications of CIMS, DTTS and IMS. The document also presents a top level assessment of the alignment between the candidate vendor's products and the required capabilities.

Audience

Business Sponsor, Owner, Program Manager, Program Delivery Manager, Project Teams

Document Purpose

The purpose of the document is to inform the assessment of the candidate vendors and products, with respect to their compliance to the required capabilities, through a consolidated view.

Project Manager

David Hayward

Responsible Author

Benjamin James, Lead Systems Analyst, Ajilon.

TemplateID

Gap Analysis v1

Amendment and Approval Record

Please update these tables and sign where appropriate.

Document Revision History

Date:	Version:	Description:	Revised by:
23-Feb-15	0.3	First draft for circulation to the ROC Program team.	Benjamin James
25-Feb-15	0.4	Updated draft incorporating latest workshop results and improved presentation.	Benjamin James
06-Mar-15	0.5	Revised to incorporate updated response from Frequentis.	Benjamin James
19-Mar-15	3.1	Revised to incorporate Release 2 of Capabilities	Benjamin James
20-Mar-15	4.0	Formatting fixes	Bruce McDonald
30-Mar-15	4.1	Include traceability	Catherine Ohis

Approval / Signoff History

Date:	Version:	Approved by:	Role:	Signature:

Acceptance Criteria by Role

Distribution List

Name:	Role:

1. Introduction

This Updated Capability and Gap Analysis document details how the vendor applications will address the required functional capabilities as documented in Release 2 of the Request For Proposal (RFP) spreadsheet Q5.2.1 Product Capabilities, worksheet SP1, SP2, SP3. These capabilities were augmented and refined on a product by product basis in the ECI workshops, with the resulting capabilities presented here.

The High Level Solution Design (HLSD) phase will address at a broad level across each product the required capabilities. As part of a high level exploration of these requirement this HLSD phase will then identify the work packages necessary to complete the detailed design, the subsequent build and how this might be scheduled with the rest of the project.

2. Summary of Functional Alignment

The tables below provide metrics for the alignment of the proposed COTS solution to the functional capabilities.

2.1 Unresolved Gaps

	Essential	Important	Desired	Grand Total
CIMS	0	0	0	0
DTTS	0	0	0	0
IMS	12	0	0	12
Grand Total	12	0	0	12

2.2 3rd Party Solutions

	Essential	Important	Desired	Grand Total
CIMS	5	0	0	5
DTTS	0	0	0	0
IMS	7	0	0	7
Grand Total	12	0	0	12

2.3 COTS Aligned Out of the Box

	Essential	Important	Desired	Grand Total
CIMS	1	0	0	1
DTTS	85	10	3	98
IMS	78	0	1	79
Grand Total	164	10	4	178

2.4 COTS with Configuration

	Essential	Important	Desired	Grand Total
CIMS	15	4	0	19
DTTS	157	47	13	217
IMS	5	0	0	5
Grand Total	177	51	13	241

2.5 COTS with Customisation

	Essential	Important	Desired	Grand Total
CIMS	35	6	0	41
DTTS	0	0	0	0
IMS	3	0	0	3
Grand Total	38	6	0	44

3. Modified Functional Capabilities

The table below provides a list of all functional capabilities that have been modified from the original form presented in the RFT Capability statements.

Ajilon ID	Sydney Trains Identifier	Summary	Component(s)	Capabilities R2 Description	Updated Description	Business Criticality	Source Document	Ajilon Comments
STROC-920	CIMS-HLFR-003.11	Customer Information Channels	CIMS	The solution shall provide the ability to publish customer information to the Real-Time Train Application.	The solution shall provide the ability to publish customer information to the Real-Time Train Application. Clarification: The intent is to publish information to the real time apps, not to the RTTA application. The RTTA application is still a candidate for retirement.	Essential	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: The intent is to publish information to the real time apps, not to the RTTA application. The RTTA application is still a candidate for retirement.
STROC-890	CIMS-HLFR-002.16	Information Management - Dynamic Content	CIMS	The solution shall provide the ability to automatically generate real-time graphical messages utilising predefined templates.	The solution shall provide the ability to automatically generate real-time graphical messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.
STROC-889	CIMS-HLFR-002.15	Information Management - Dynamic Content	CIMS	The solution shall provide the ability to automatically generate real-time video messages utilising predefined templates.	The solution shall provide the ability to automatically generate real-time video messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.
STROC-888	CIMS-HLFR-002.14	Information Management - Dynamic Content	CIMS	The solution shall provide the ability to automatically generate real-time audio messages utilising predefined templates.	The solution shall provide the ability to automatically generate real-time audio messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.

Ajilon ID	Sydney Trains Identifier	Summary	Component(s)	Capabilities R2 Description	Updated Description	Business Criticality	Source Document	Ajilon Comments
STROC-887	CIMS-HLFR-002.13	Information Management - Dynamic Content	CIMS	The solution shall provide the ability to automatically create real-time text-based messages utilising predefined templates.	The solution shall provide the ability to automatically create real-time text-based messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.
STROC-885	CIMS-HLFR-002.11	Information Management - Dynamic Content	CIMS	The solution shall provide the ability to receive near real-time updates from an external facility fault management system.	The solution shall provide the ability to receive near real-time updates from an external facility fault management system. Clarification: An incident notification can be raised with IMS in a similar manner to the notices reveived from WIMS. This capability refers to the ability to receive an update rather than a specific requirement at this stage. A particular use case might be the linking of a lift alarm that gets generated for the elevator company when a fault occurs, also triggering an out of service indication so that a manual NIN doesn't need to be generated.	Important	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: An incident notification can be raised with IMS in a similar manner to the notices reveived from WIMS. This capability refers to the ability to receive an update rather than a specific requirement at this stage. A particular use case might be the linking of a lift alarm that gets generated for the elevator company when a fault occurs, also triggering an out of service indication so that a manual NIN doesn't need to be generated.
STROC-878	CIMS-HLFR-002.04	Information Management - Static Data	CIMS	The solution shall provide the ability to receive train based reference data.	The solution shall provide the ability to receive train based reference data. Clarification: The SIRI messages and possibly the GTFS messages will be able to share the number of carriages or quiet carriages with customers. The SPI will be able to display quiet carriage information prior to the train arriving.	Essential	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: The SIRI messages and possibly the GTFS messages will be able to share the number of carriages or quiet carriages with customers. The SPI will be able to display quiet carriage information prior to the train arriving.
STROC-875	CIMS-HLFR-001.17	Source Content - Feedback	CIMS	The solution shall provide the ability to automatically create system alerts based on messages received via Twitter.	The solution shall provide the ability to automatically create system alerts based on messages received via Twitter. Clarification: No automatic behaviour is expected from a twitter message receipt. The solution does not need to "read" the twitter feed. Please consider this a manual process where a CIU might generate a message in response to a trending topic.	Desired	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: No automatic behaviour is expected from a twitter message receipt. The solution does not need to "read" the twitter feed. Please consider this a manual process where a CIU might generate a message in response to a trending topic.
STROC-1382	TT-CAP-009.1h	Recalculate and Distribute Timetable	DTTS	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Fleet Allocation System in near real-time during disruption mode.	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Fleet Allocation System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"

Ajilon ID	Sydney Trains Identifier	Summary	Component(s)	Capabilities R2 Description	Updated Description	Business Criticality	Source Document	Ajilon Comments
STROC-1381	TT-CAP-009.1g	Recalculate and Distribute Timetable	DTTS	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Crew System in near real-time during disruption mode.	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Crew System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"
STROC-1378	TT-CAP-009.1d	Recalculate and Distribute Timetable	DTTS	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Fleet Allocation System in near real-time during disruption mode.	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Fleet Allocation System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"
STROC-1377	TT-CAP-009.1c	Recalculate and Distribute Timetable	DTTS	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Crew System in near real-time during disruption mode.	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Crew System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important	6.2.1_Product_Capabilities_-_Release_2	Clarification issued via email from Sanjay Athavalé on 17 March 2015: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"

4. Unresolved Gaps for Functional Capabilities

The table below presents a consolidation of unresolved gaps for functional capabilities, based on all vendor responses.

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1040	IMS-CAP-044	IMS	Close and Report	The ability to create electronic record (package) containing all incident record details and its associated / linked data files. For example: Details may include: - Origin of the Alarm / Incident (e.g. source system, user name), - Priority, - Time of alarm, - Incident ID, - Incident Level, - Cause, - Creator, - Impact on customers. - Time and Date. Other linked data may include: - CCTV, - Phone calls recorded, - Emails, - Text message, - PDF, - Photographs.	Essential
STROC-1094	IMS-CAP-084.02	IMS	Other Capabilities	The ability to view and monitor resource constraints based on real-time rostering information received from a legacy rostering system. For example: - Monitor availability of resources, - Monitor shift start and end times, - Access competence levels. Note: This will be useful information prior to dispatching the relevant resources to assist in the recovery of a incident.	Essential
STROC-1091	IMS-CAP-082.02	IMS	Other Capabilities	The ability to retrieve contact details from an existing legacy system. Note: This would ensure contact details are managed in one single repository.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1080	IMS-CAP-070.02	IMS	Other Capabilities	The ability to automatically attribute further details to incident records. For example: - Who is responsible for root cause analysis, - Who the incident belongs to (Business unit, contract etc.), - Incident Delay Attribution (Late, very late, cancelled etc.), - Incident status (Open, Closed etc.), - Location of a incident, - Force majeure, - Attribution reporting, - Ability for attribution through mobile devices. Note: There are business rules (contractual timeframes) in which externals need to be informed of incident details.	Essential
STROC-1070	IMS-CAP-062.14	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Train Location Systems / On Time Running (TLS-OTR),	Essential
STROC-1051	IMS-CAP-056.02	IMS	Other Capabilities	The ability to automatically link / attach relevant information to an incident record. For example the ability to link the following types of data to incident records: - CCTV & video footage, - Photographs, - Diagrams, - Pictures, - Phone call recordings, - Documents.	Essential
STROC-998	IMS-CAP-006	IMS	Record and Assess	The ability to supress automatically created alarms. For example suppress automatically generated alarms, including but not limited to: - all persons/departments (e.g. false alarms), - by individual alarm instance, alarm type and/or department, - during shunting operations, - during manual proceed authorities (non-signalled movements).	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1024	IMS-CAP-028.02	IMS	Record and Assess	The ability to assign / action response team / personnel. For example: Provide assignee with visibility of: - Availability of response teams in real-time,	Essential
STROC-1010	IMS-CAP-016.02	IMS	Record and Assess	The ability to view the real-time / actual availability of incident response personnel. For example: - View availability of staff already in operation, - View the availability of standby crew or response personnel, - View the capabilities of crew (i.e. trained to operate which set types), - View contact details, - View current location of staff in operation. Note: Requirement linked to IMS-CAP-026	Essential
STROC-1002	IMS-CAP-009.02	IMS	Record and Assess	The ability to automatically record incident details. For example details captured may include: - Weather. Note: The details required will change based on the type of incident being recorded. It is envisaged that automatically created incident records will require some level of manual input to capture data elements which are not provided by other integrated systems.	Essential
STROC-1028	IMS-CAP-031.02	IMS	Select / Define and Activate Response Plan	The ability to assign an incident actions automatically. For example: Assign incident actions to a: - Business group / division, - Individual staff member. Assigning Incident records / actions to be: - Manual and / or, - Automated based on predefined criteria / metadata. Note: It is envisaged that workflow will have predefined actions and potential business groups / divisions responsible for them however this requirements allows for additional actions to be assigned.	Essential

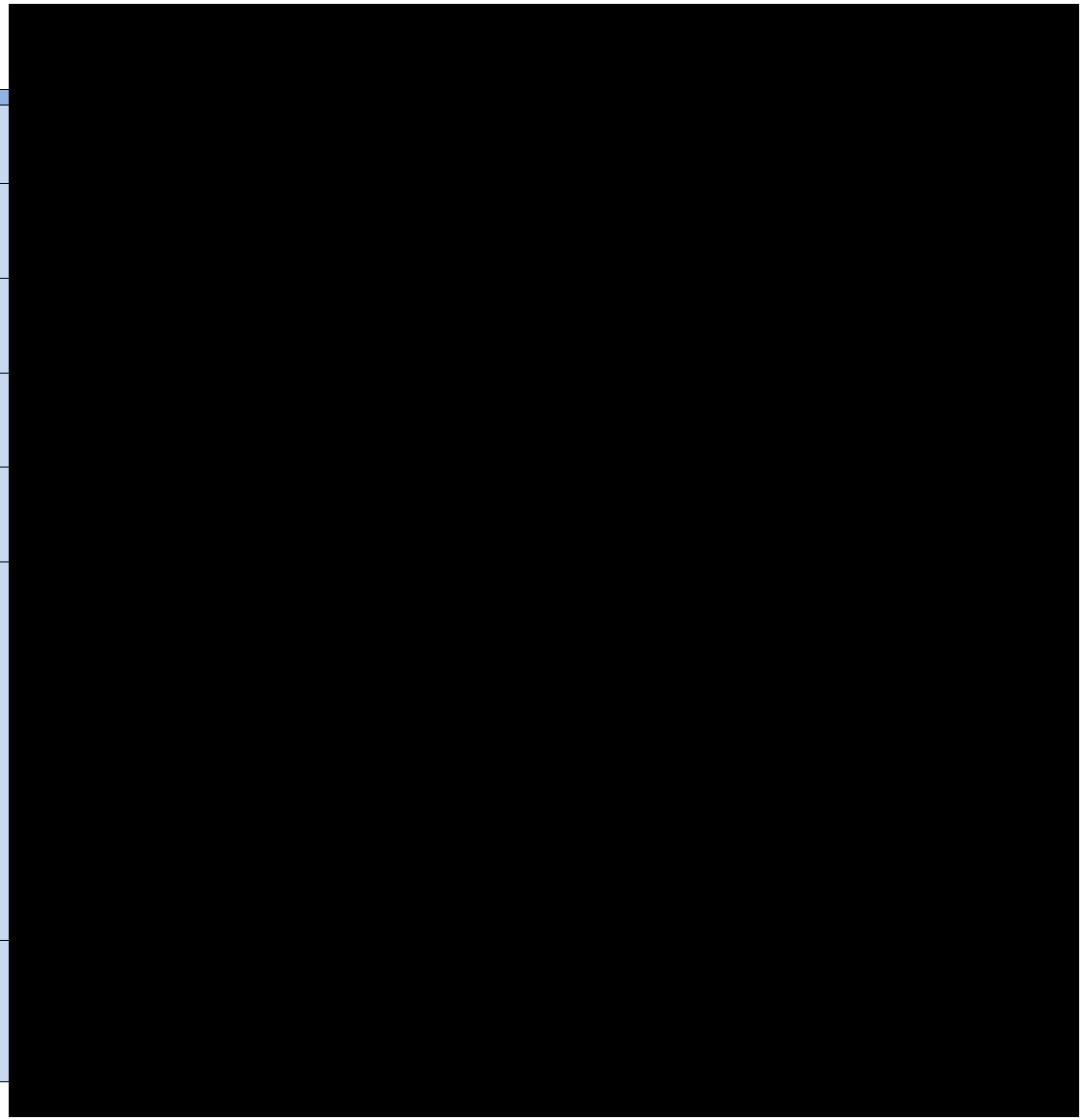
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1020	IMS-CAP-025.03	IMS	Select / Define and Activate Response Plan	The ability to provide notification services to selected personnel For example: - Subscription based notifications, Manage notification distribution lists and groups and business rules: - Create, - Read, - Update, - Delete, - Notifications to be distributes in near real time. Note: Notification may include notifying crew / operational staff of CAN warnings (Condition Affecting Network (i.e. Temporary Speed Restrictions) Notifications will also be distributed to management/ executives and other 3rd parties.	Essential

[redacted]

5. 3rd Party Solutions to Functional Capabilities

The table below presents a consolidation of all the functional capabilities that are to be addressed by 3rd party solutions.

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-908	CIMS-HLFR-002.34	CIMS	Information Management - Administration	The solution shall provide the ability to interrogate audit logs via UI.	Essential
STROC-907	CIMS-HLFR-002.33	CIMS	Information Management - Administration	The solution shall provide the ability to export generated report data in a suitable format for use in a data warehouse/BI solution and other tools.	Essential
STROC-906	CIMS-HLFR-002.32	CIMS	Information Management - Administration	The solution shall provide the ability to generate reports based on an Incident.	Essential
STROC-905	CIMS-HLFR-002.31	CIMS	Information Management - Administration	The solution shall provide the ability to create and generate ad-hoc reports.	Essential
STROC-904	CIMS-HLFR-002.30	CIMS	Information Management - Administration	The solution shall provide the ability to generate pre-defined reports.	Essential
STROC-1046	IMS-CAP-051	IMS	Other Capabilities	The ability to create scheduled reports based on predefined criteria. For example: -Annually, Monthly, Weekly, Daily, Adhoc, - Date / Time, - Incident Reports, - OCR Reports, - NIN Reports, - CAN Reports, - AM Peak Composition Reports, - PM Peak Composition Reports, - AM Peak Summary Reports, - PM Peak Summary Reports, - Delayed Crew Reports, - NIN Report - Outstanding, - NIN Report - Date Raised, - Inactive User Reports, - Other reports such as: Ministerial reports, punctuality reports, sick passengers reports, airport line performance reports, maintenance incident reports etc.	Essential
STROC-1047	IMS-CAP-052	IMS	Other Capabilities	The ability to manage (C,R,U,D) predefined reporting templates. Note: Business needs are constantly evolving therefore it is envisaged that report templates will need to be updated and new report types will need to be created.	Essential

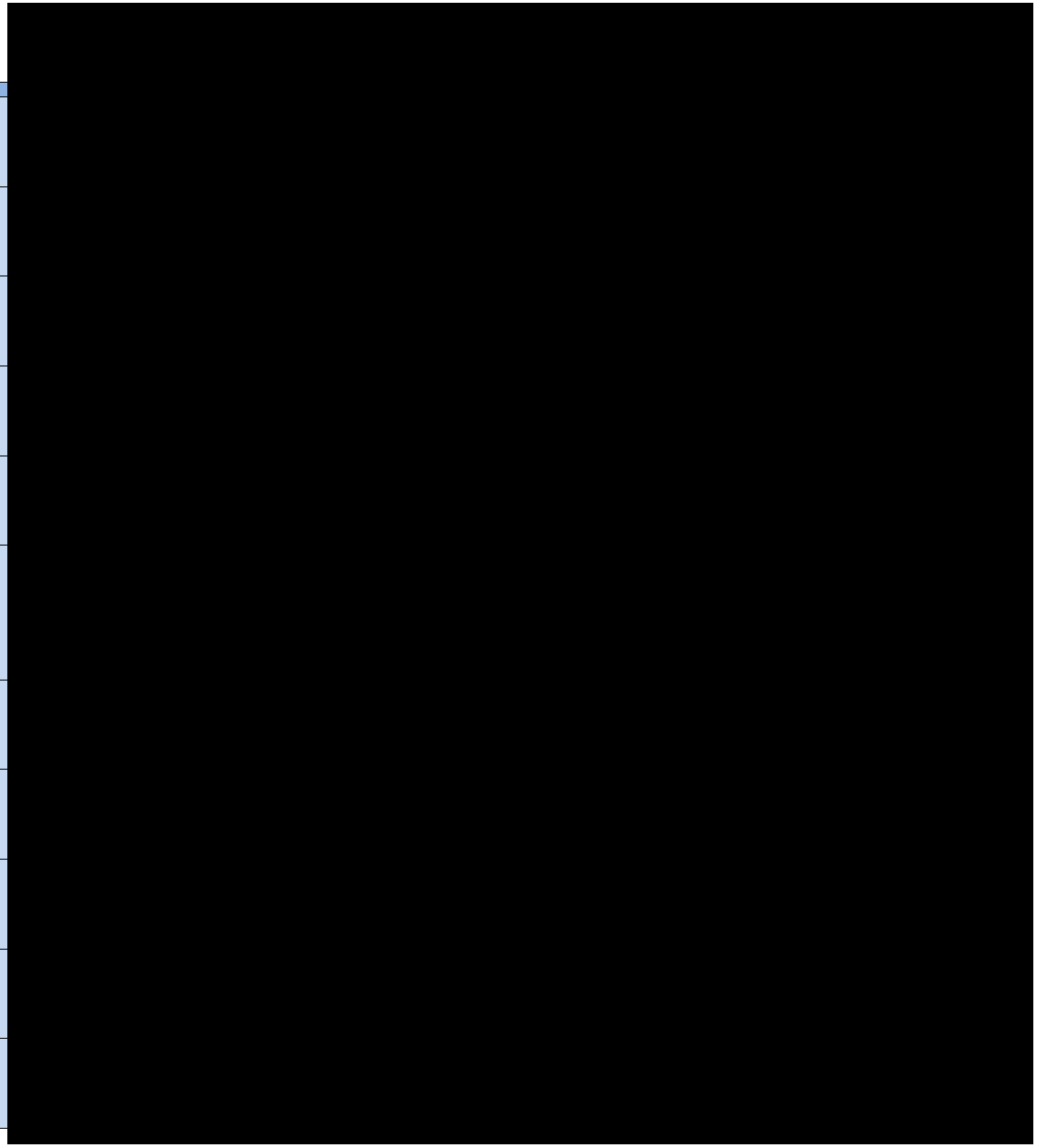


Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1087	IMS-CAP-079	IMS	Other Capabilities	The ability to manage (C,R,U,D) dashboard views that will be available to users. For example: - Create, - Read, - Update, - Delete. - Flexible filtering and data visualisation, - Shared views, - Views including GIS, - Views including internal and external incident information.	Essential
STROC-1088	IMS-CAP-080	IMS	Other Capabilities	The ability to provide users with the ability to access and view dashboards For example: - Access given to those who are within ROC, - Access provided via mobile device. - Information on a dashboard is real-time, - Tables, graphs, hot spots, GIS views etc.	Essential
STROC-1058	IMS-CAP-062.02	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Business Intelligence Systems,	Essential

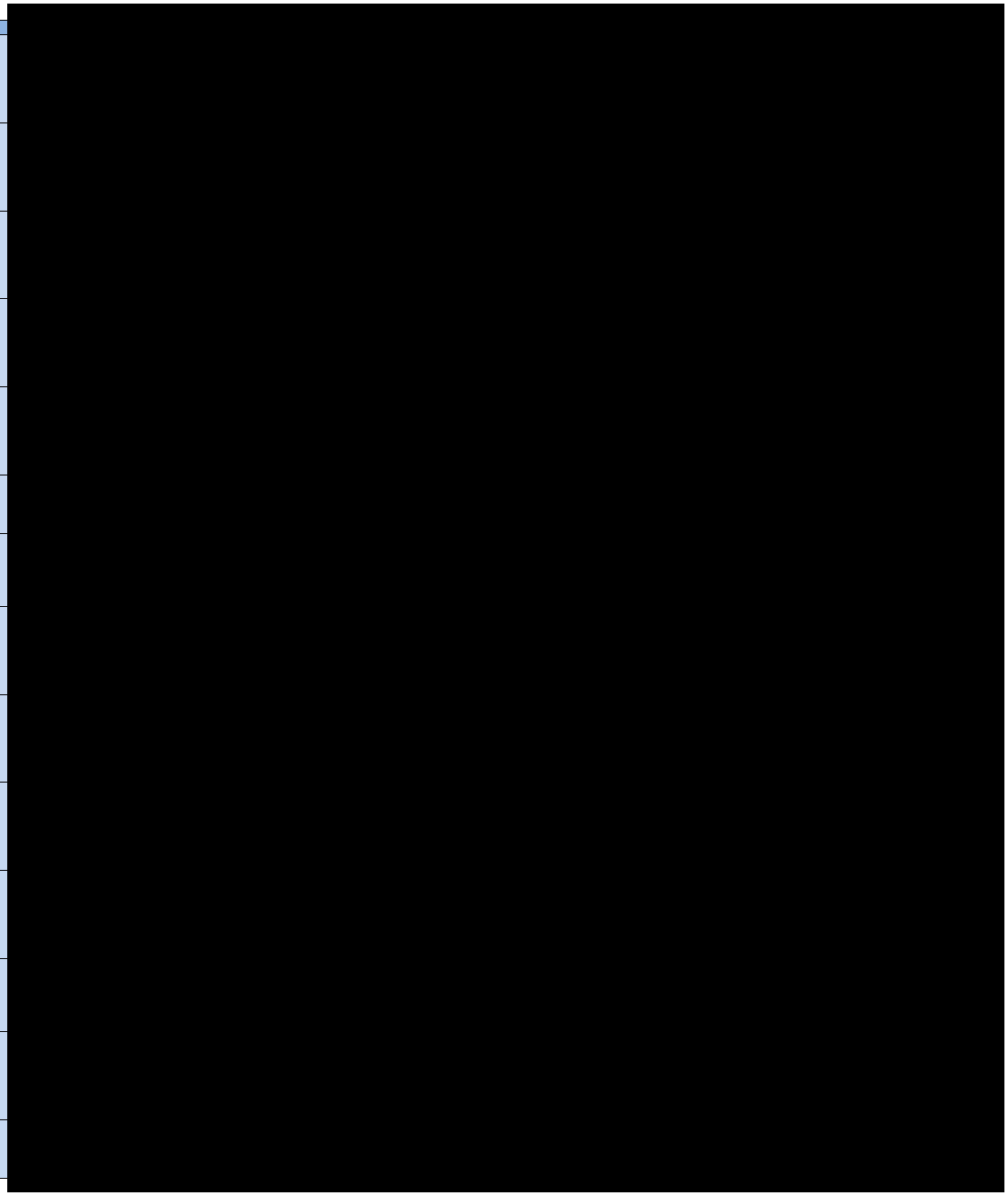
6. Vendor Response to Functional Capabilities

The table below presents a consolidation of all vendor responses for the functional capabilities.

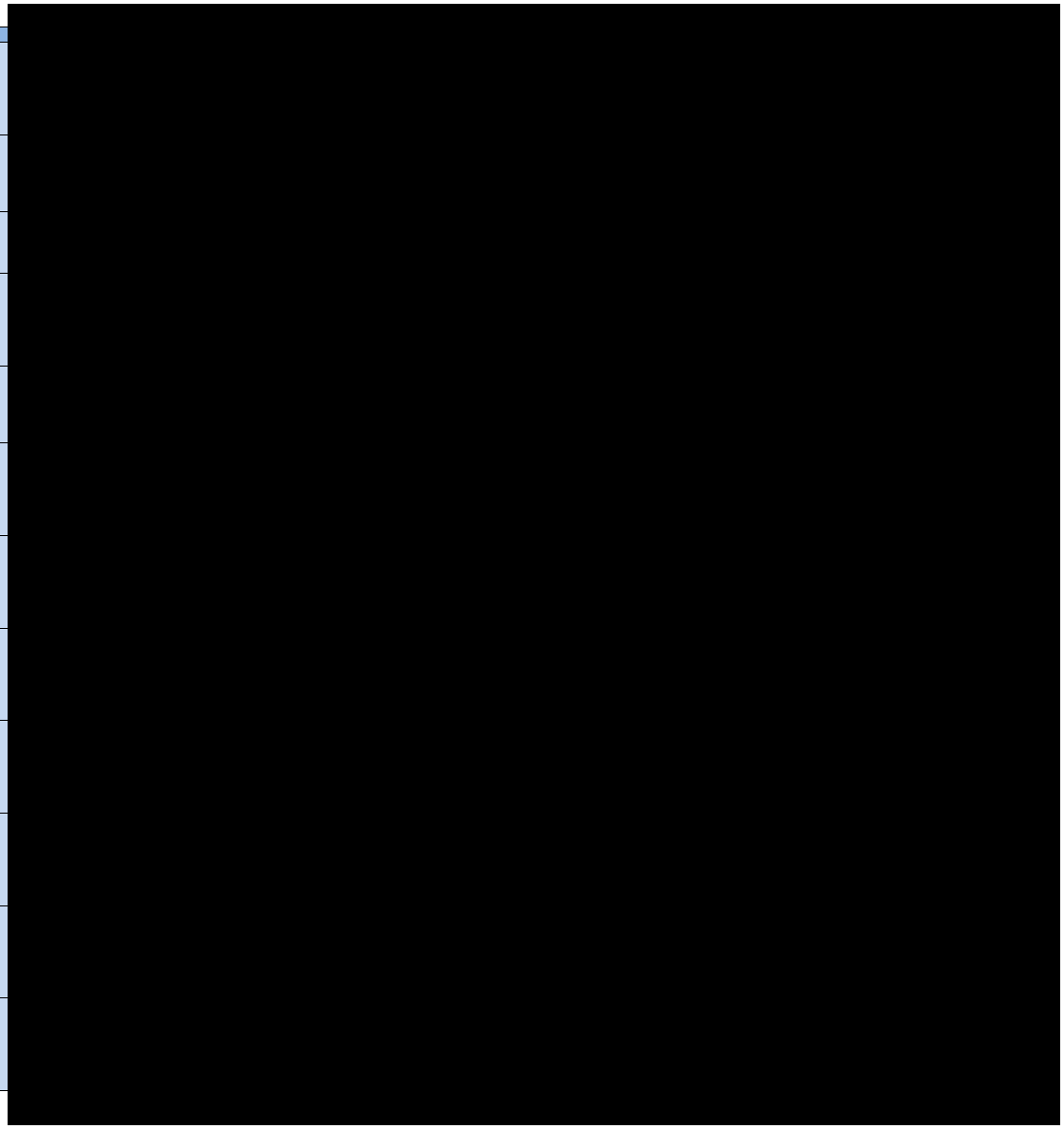
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-925	CIMS-HLFR-003.16	CIMS	Customer Information Channels	The solution shall provide the ability to send customer information to TfNSW in a format suitable for populating the Infoline systems (131500).	Important
STROC-924	CIMS-HLFR-003.15	CIMS	Customer Information Channels	The solution shall provide the ability to publish near real-time train location information to staff.	Essential
STROC-923	CIMS-HLFR-003.14	CIMS	Customer Information Channels	The solution shall provide the ability to publish customer information to staff via Instant Messenger.	Essential
STROC-922	CIMS-HLFR-003.13	CIMS	Customer Information Channels	The solution shall provide the ability to publish customer information to staff via the Staff Portal.	Essential
STROC-921	CIMS-HLFR-003.12	CIMS	Customer Information Channels	The solution shall provide the ability to publish staff-only operational information for the provision of customer information to the Real-Time Train Application that is not made available to public users.	Essential
STROC-920	CIMS-HLFR-003.11	CIMS	Customer Information Channels	The solution shall provide the ability to publish customer information to the Real-Time Train Application. Clarification: The intent is to publish information to the real time apps, not to the RTTA application. The RTTA application is still a candidate for retirement.	Essential
STROC-919	CIMS-HLFR-003.10	CIMS	Customer Information Channels	The solution shall provide the ability to publish customer information to 3rd party customer information channels.	Essential
STROC-918	CIMS-HLFR-003.09	CIMS	Customer Information Channels	The solution shall provide the ability to manipulate source timetable data into an acceptable format for communication to Waratah sets.	Essential
STROC-917	CIMS-HLFR-003.08	CIMS	Customer Information Channels	The solution shall provide the ability to provide customer information to all train-based display indicators on CTIP enabled sets.	Essential
STROC-916	CIMS-HLFR-003.07	CIMS	Customer Information Channels	The solution shall provide the ability to provide customer information to all train-based DVA (inc. Induction Loop) on CTIP enabled sets.	Essential
STROC-915	CIMS-HLFR-003.06	CIMS	Customer Information Channels	The solution shall provide the ability to provide real-time customer information to all advertising screens.	Essential



Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-914	CIMS-HLFR-003.05	CIMS	Customer Information Channels	The solution shall provide the ability to provide real-time customer information to all station based DVA/LLDVA .	Essential
STROC-913	CIMS-HLFR-003.04	CIMS	Customer Information Channels	The solution shall provide the ability to provide real-time customer information to all Variable Message Screens (VMS).	Essential
STROC-912	CIMS-HLFR-003.03	CIMS	Customer Information Channels	The solution shall provide the ability to provide real-time customer information to all customer information monitors.	Essential
STROC-911	CIMS-HLFR-003.02	CIMS	Customer Information Channels	The solution shall provide the ability to publish real-time customer information to Twitter.	Essential
STROC-910	CIMS-HLFR-003.01	CIMS	Customer Information Channels	The solution shall provide the ability to publish real-time customer information to internet/intranet sites.	Essential
STROC-909	CIMS-HLFR-002.35	CIMS	Information Management - Administration	The solution shall display progress indicators while performing functions greater than 2 seconds.	Essential
STROC-908	CIMS-HLFR-002.34	CIMS	Information Management - Administration	The solution shall provide the ability to interrogate audit logs via UI.	Essential
STROC-907	CIMS-HLFR-002.33	CIMS	Information Management - Administration	The solution shall provide the ability to export generated report data in a suitable format for use in a data warehouse/BI solution and other tools.	Essential
STROC-906	CIMS-HLFR-002.32	CIMS	Information Management - Administration	The solution shall provide the ability to generate reports based on an Incident.	Essential
STROC-905	CIMS-HLFR-002.31	CIMS	Information Management - Administration	The solution shall provide the ability to create and generate ad-hoc reports.	Essential
STROC-904	CIMS-HLFR-002.30	CIMS	Information Management - Administration	The solution shall provide the ability to generate pre-defined reports.	Essential
STROC-903	CIMS-HLFR-002.29	CIMS	Information Management - Administration	The solution shall provide the ability for designated Approvers to record approval of draft messages routed for approval via a UI.	Essential
STROC-902	CIMS-HLFR-002.28	CIMS	Information Management - Administration	The solution shall provide the ability to define the business rules (which messages require approval and who is notified) for approval.	Essential
STROC-901	CIMS-HLFR-002.27	CIMS	Information Management - Administration	The solution shall provide the ability to route draft messages for approval prior to distributing.	Essential



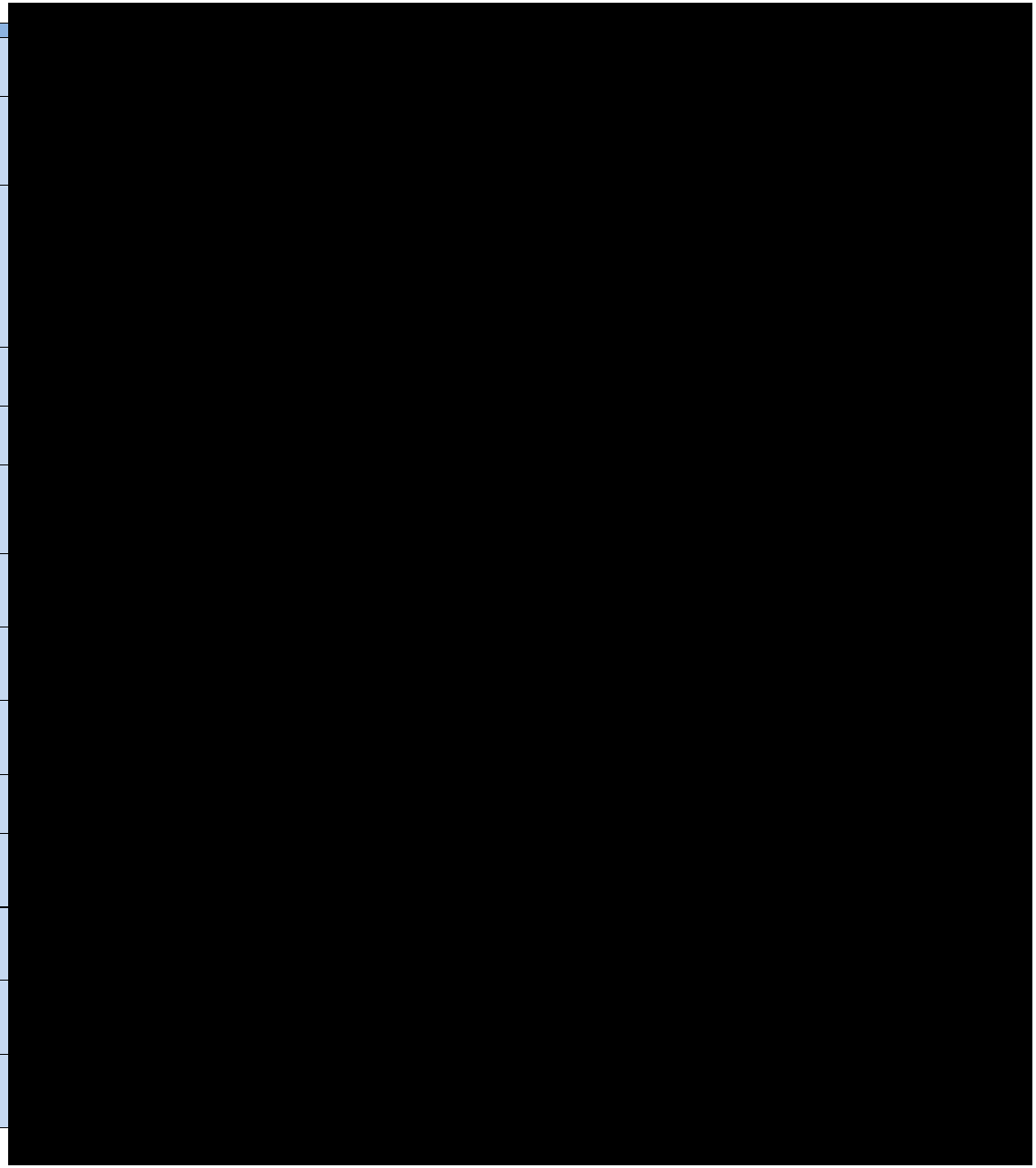
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-877	CIMS-HLFR-002.02	CIMS	Information Management - Content Management	The solution shall provide the ability to create a group of messages triggered by the same event, each containing the same key message however appropriately formatted for its destination channel.	Essential
STROC-876	CIMS-HLFR-002.01	CIMS	Information Management - Content Management	The solution shall provide centralised management of customer information.	Essential
STROC-900	CIMS-HLFR-002.26	CIMS	Information Management - Dynamic Content	The system shall have the ability to receive events generated by fire alarm systems (via PA) at Stations.	Important
STROC-899	CIMS-HLFR-002.25	CIMS	Information Management - Dynamic Content	The system shall provide the ability to manually select if the Countdown Clock will display for a selected Station and/or Platform.	Important
STROC-898	CIMS-HLFR-002.24	CIMS	Information Management - Dynamic Content	The system shall provide the ability to automatically display a countdown clock (until train door close) on platform indicators.	Important
STROC-897	CIMS-HLFR-002.23	CIMS	Information Management - Dynamic Content	The solution shall provide the ability for multiple schedules to co-exist for the same or different messages.	Essential
STROC-896	CIMS-HLFR-002.22	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to sequence / schedule customer information messages at a granular level based on hours, days, dates and date ranges.	Essential
STROC-895	CIMS-HLFR-002.21	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to automatically publish customer information messages.	Essential
STROC-894	CIMS-HLFR-002.20	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to tailor the same information into content suitable for different output channels.	Essential
STROC-893	CIMS-HLFR-002.19	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to define business rules used to select and distribute messages to pre-defined channels.	Essential
STROC-892	CIMS-HLFR-002.18	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to schedule and manage the system behaviours resulting from events for all messages.	Essential
STROC-891	CIMS-HLFR-002.17	CIMS	Information Management - Dynamic Content	The solution shall provide the ability for authorised users to manually suppress (and recommence) automated customer information messages.	Essential



Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-890	CIMS-HLFR-002.16	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to automatically generate real-time graphical messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential
STROC-889	CIMS-HLFR-002.15	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to automatically generate real-time video messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential
STROC-888	CIMS-HLFR-002.14	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to automatically generate real-time audio messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential
STROC-887	CIMS-HLFR-002.13	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to automatically create real-time text-based messages utilising predefined templates. Clarification: Video in this instance only refers to a screen based output in the same manner as existing SPI screens (i.e. video monitor, not video movie). In the final discussed solution the SPI screens are sent HTML5 content rather than a stream in a video format like HDMI. The content delivered via HTML5 would satisfies the capability.	Essential
STROC-886	CIMS-HLFR-002.12	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to receive near real-time train status updates.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-885	CIMS-HLFR-002.11	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to receive near real-time updates from an external facility fault management system. Clarification: An incident notification can be raised with IMS in a similar manner to the notices reveived from WIMS. This capability refers to the ability to receive an update rather than a specific requirement at this stage. A particular use case might be the linking of a lift alarm that gets generated for the elevator company when a fault occurs, also triggering an out of service indication so that a manual NIN doesn't need to be generated.	Important
STROC-866	CIMS-HLFR-001.08	CIMS	Information Management - Dynamic Content	The solution shall provide the ability to receive real-time Incident information updates from an Incident Management System (IMS).	Essential
STROC-926	CIMS-HLFR-003.17	CIMS	Information Management - Static Data	The solution shall provide the ability to manually publish customer information messages to one or more pre-defined customer information channels.	Essential
STROC-884	CIMS-HLFR-002.10	CIMS	Information Management - Static Data	The solution shall provide the ability to define / map message types to the various information channels.	Essential
STROC-883	CIMS-HLFR-002.09	CIMS	Information Management - Static Data	The solution shall provide the ability to define pre-configured customer information templates.	Essential
STROC-882	CIMS-HLFR-002.08	CIMS	Information Management - Static Data	The solution shall provide the ability to define the Types of customer information messages.	Essential
STROC-881	CIMS-HLFR-002.07	CIMS	Information Management - Static Data	The solution shall provide the ability to define message libraries.	Essential
STROC-880	CIMS-HLFR-002.06	CIMS	Information Management - Static Data	The solution shall provide the ability to receive station characteristic details.	Desired
STROC-879	CIMS-HLFR-002.05	CIMS	Information Management - Static Data	The solution shall provide the ability to receive station based reference data.	Important
STROC-878	CIMS-HLFR-002.04	CIMS	Information Management - Static Data	The solution shall provide the ability to receive train based reference data. Clarification: The SIRI messages and possibly the GTFS messages will be able to share the number of carriages or quiet carriages with customers. The SPI will be able to display quiet carriage information prior to the train arriving.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-871	CIMS-HLFR-001.13	CIMS	Information Management - Static Data	The solution shall provide the ability to manually record an Incident number when manually creating messages.	Important
STROC-869	CIMS-HLFR-001.11	CIMS	Information Management - Static Data	The solution shall provide the ability to manually create customer information messages using predefined template(s).	Essential
STROC-875	CIMS-HLFR-001.17	CIMS	Source Content - Feedback	The solution shall provide the ability to automatically create system alerts based on messages received via Twitter. Clarification: No automatic behaviour is expected from a twitter message receipt. The solution does not need to "read" the twitter feed. Please consider this a manual process where a CIU might generate a message in response to a trending topic.	Desired
STROC-874	CIMS-HLFR-001.16	CIMS	Source Content - Feedback	The solution shall provide the ability to optionally restrict remote users to creating messages by distribution channel.	Important
STROC-873	CIMS-HLFR-001.15	CIMS	Source Content - Feedback	The solution shall provide the ability to optionally restrict remote users to creating messages by Station.	Important
STROC-872	CIMS-HLFR-001.14	CIMS	Source Content - Feedback	The solution shall provide the ability for remote users (to the ROC) to manually create customer information messages.	Important
STROC-865	CIMS-HLFR-001.07	CIMS	Source Content - Incident Management	The solution shall automatically record the associated Incident identifier with all messages generated by the IMS data feed.	Essential
STROC-864	CIMS-HLFR-001.06	CIMS	Source Content - Incident Management	The solution shall provide the ability to receive Incident data from an Incident Management System (IMS).	Essential
STROC-863	CIMS-HLFR-001.05	CIMS	Source Content - Timetable	The solution shall automatically receive real-time timetable updates generated from the Day of Operation Timetable System (DTTS).	Essential
STROC-862	CIMS-HLFR-001.04	CIMS	Source Content - Timetable	The solution shall provide the ability to schedule periodic timetable imports for each timetable type.	Essential
STROC-861	CIMS-HLFR-001.03	CIMS	Source Content - Timetable	The solution shall automatically receive a Day of Operation Timetable from a Day of Operation Timetable System (DTTS).	Essential
STROC-860	CIMS-HLFR-001.02	CIMS	Source Content - Timetable	The solution shall automatically receive a Daily Working Timetable (DWTT) from a source timetable system.	Essential
STROC-859	CIMS-HLFR-001.01	CIMS	Source Content - Timetable	The solution shall automatically receive a Standard Working Timetable (SWTT) from a source timetable system.	Essential
STROC-868	CIMS-HLFR-001.10	CIMS	Source Content - Vehicle Monitoring	The solution shall provide the ability to receive real-time train location information for the Sydney Intercity and Regional network.	Essential



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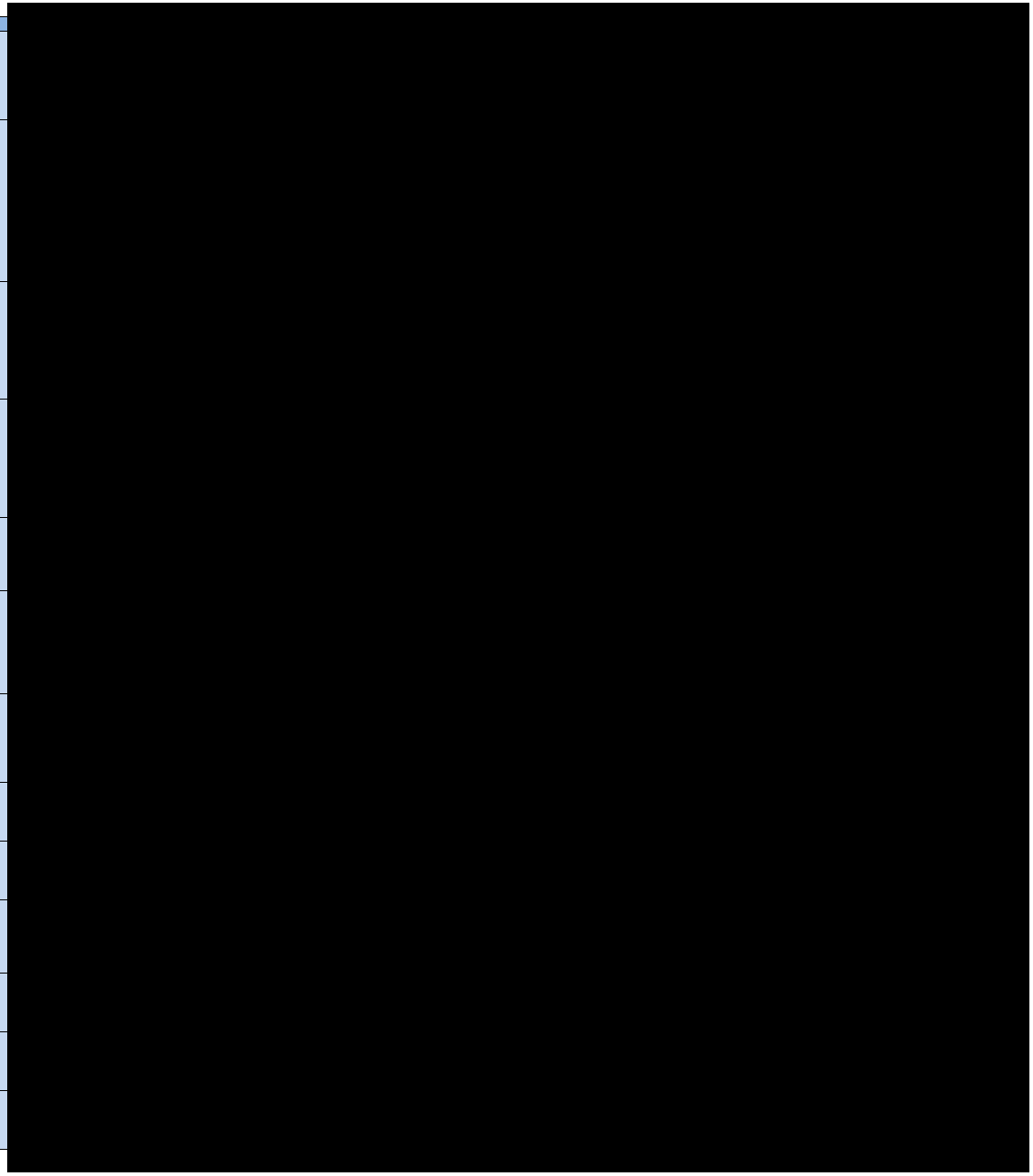
STROC-867	CIMS-HLFR-001.09	CIMS	Source Content - Vehicle Monitoring	The solution shall provide the ability to receive real-time train location information for the Sydney Trains network.	Essential
STROC-1544	TT-CAP-010.10	DTTS	Audit Trail, Reporting, Training and System Testing	Performance Reporting - Train Running. Provide train running information for train performance reporting. For example - train delays for specific locations and time.	Essential
STROC-1545	TT-CAP-010.11	DTTS	Audit Trail, Reporting, Training and System Testing	Reporting - Customised views. Provide ability to filter trips using customised views For example, - way points - routes - directions - regions	Essential
STROC-1546	TT-CAP-010.12	DTTS	Audit Trail, Reporting, Training and System Testing	Reporting - Yards. Provide reports for yards timetabling	Essential
STROC-1547	TT-CAP-010.13	DTTS	Audit Trail, Reporting, Training and System Testing	Reporting - Stationary duties. Provide reports for stationary duties For example, - re-fill - shunt - wash	Essential
STROC-1548	TT-CAP-010.14	DTTS	Audit Trail, Reporting, Training and System Testing	Reporting - Rail clean. Provide reports for rail clean (rail points clean) timetabling	Essential
STROC-1549	TT-CAP-010.15	DTTS	Audit Trail, Reporting, Training and System Testing	Reporting - On-Time Running. Provide reports for on-time running performance using various criteria. For example: - Line - Sector - Peak, off-peak - Time period	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1550	TT-CAP-010.3	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting - staff. Report Timetable management in manual mode vs. automatic. Reasons and time of occurrence.	Essential
STROC-1551	TT-CAP-010.4	DTTS	Audit Trail, Reporting, Training and System Testing	Performance Reporting - Analytics. Provide analytics tools. For example - report graphically: Time loss train patterns based on train running information statistics - Delay time vs. specific time frame	Essential
STROC-1552	TT-CAP-010.6	DTTS	Audit Trail, Reporting, Training and System Testing	Situational Operational Reporting. Provide ability to produce reports which demonstrate that the situational analysis, decision making and plan execution was optimal given the existing constraints	Essential
STROC-1412	TT-CAP-010.7	DTTS	Audit Trail, Reporting, Training and System Testing	Analytics to identify where Timetable has sub-optimal or stretched performance. Identify errors in planning. Provide ability to run optimisation analytics to identify where the planned Day of Operations timetable has suboptimal or stretched performance. For example: - trains are 80% late at location X - potentially crew walk time has been considered too short	Essential
STROC-1553	TT-CAP-010.8	DTTS	Audit Trail, Reporting, Training and System Testing	Simulation for system testing purposes. Provide ability to simulate train activity for system testing (in a test environment)	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1414	TT-CAP-010.9b	DTTS	Audit Trail, Reporting, Training and System Testing	Audit trail. Provide ability to record all manual train movements, train activity, constraints/ rules involved and all timetable changes	Essential
STROC-1413	TT-CAP-010.9a	DTTS	Audit Trail, Reporting, Training and System Testing	Audit trail. Provide ability to record all automated train movements, train activity, constraints/ rules involved and all timetable changes.	Essential
STROC-1411	TT-CAP-010.5b	DTTS	Audit Trail, Reporting, Training and System Testing	Performance Reporting - Platform Utilisation. Provide the ability to report a Platform Utilisation over time (statistical)	Essential
STROC-1410	TT-CAP-010.5a	DTTS	Audit Trail, Reporting, Training and System Testing	Performance Reporting - Platform Utilisation. Provide the ability to graphically display a Platform Utilisation over time (statistical)	Essential
STROC-1409	TT-CAP-010.2c	DTTS	Audit Trail, Reporting, Training and System Testing	Shift Diary Provide a read-only view of train controller shift diaries for managerial review.	Desired
STROC-1408	TT-CAP-010.2b	DTTS	Audit Trail, Reporting, Training and System Testing	Shift Diary Provide the ability for a train controller to manually record observations, as free text, in relation timetable changes made during their shift on the Day of Operations.	Desired
STROC-1407	TT-CAP-010.2a	DTTS	Audit Trail, Reporting, Training and System Testing	Shift Diary Provide the ability to automatically record timetable changes made by each train controller during their shift on the Day of Operations.	Desired
STROC-1402	TT-CAP-010.17k	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a report on the list of fleet standbys	Essential
STROC-1401	TT-CAP-010.17j	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a report on the list of crew standbys	Essential
STROC-1400	TT-CAP-010.17i	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide various roster reports (zig-zags, Sydney trains, NSW Trains Link, etc)	Essential
STROC-1399	TT-CAP-010.17h	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a Timetable report in tabular format.	Essential
STROC-1398	TT-CAP-010.17g	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a points maintenance (cleaning) report.	Essential
STROC-1397	TT-CAP-010.17f	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a curved platform report.	Essential



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STROC-1396	TT-CAP-010.17e	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a short platform report.	Essential
STROC-1395	TT-CAP-010.17d	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide an operational reports for Junction usage	Essential
STROC-1394	TT-CAP-010.17c	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide a terminations report.	Essential
STROC-1393	TT-CAP-010.17b	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide an turnaround report.	Essential
STROC-1392	TT-CAP-010.17a	DTTS	Audit Trail, Reporting, Training and System Testing	Operational Reporting. Provide an operational report for Platform workings.	Essential
STROC-1391	TT-CAP-010.16c	DTTS	Audit Trail, Reporting, Training and System Testing	Print Ability to print Stabling	Essential
STROC-1390	TT-CAP-010.16b	DTTS	Audit Trail, Reporting, Training and System Testing	Printing Ability to print Train Graphs	Essential
STROC-1389	TT-CAP-010.16a	DTTS	Audit Trail, Reporting, Training and System Testing	Printing. Ability to print Timetables	Essential
STROC-1388	TT-CAP-010.0b	DTTS	Audit Trail, Reporting, Training and System Testing	Training and Development Provide ability to simulate train activity to support training of users.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1387	TT-CAP-010.0a	DTTS	Audit Trail, Reporting, Training and System Testing	Training and Development. Provide ability to review historic train movements to support training of users.	Essential
STROC-1384	TT-CAP-009.2b	DTTS	Audit Trail, Reporting, Training and System Testing	Notification of timetable changes and delays - systems. Provide ability to receive acknowledge from notified specific systems (e.g. customer information) that operational information in relation to the Day of Operations Timetable has been successfully delivered.	Essential
STROC-1383	TT-CAP-009.2a	DTTS	Audit Trail, Reporting, Training and System Testing	Notification of timetable changes and delays - systems. Provide ability to notify specific systems (e.g. customer information) that operational information in relation to the Day of Operations Timetable has been published.	Essential
STROC-1474	TT-CAP-015.1	DTTS	Billing Information	Provide freight paths information for billing. Provide ability to interface with a Sydney Train's billing system to send planned vs actual freight train running information for a set period (e.g. at the end of each day)	Important
STROC-1479	TT-CAP-002.0	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Nodal Geography and Network rules. Use Operational Geography data and Network Rules with external sources and also use this for timetable validations. For example, validations on the network geography and infrastructure such as track, points, stations, platform lengths, bridges as well as the corresponding schematics, routes and control regions. - Use of different versions of geography	Essential
STROC-1480	TT-CAP-002.10	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Geography alignment with downstream and upstream systems. Provide ability to align geography with downstream systems geography. For example: - Control systems - Fleet maintenance - information from possessions management system to optimise possession requirements and plan possessions - ATRICS trigger points and other business rules	Essential

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Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1481	TT-CAP-002.11	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Geography metadata support. Provide ability to support metadata from Timetable point of view. For example: - Public timing points - e.g. can stop train at a particular location - Location turn-around	Essential
STROC-1482	TT-CAP-002.12	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Timetable trips tagging business rules. Provide ability to configure and use specific business rules. For example: - Tag stops as "set-down" only - Maintenance train - Control systems business rules - Stabling (admittance/ withdrawal, etc.) e.g.. last in, last out - Train preparations - Train requires a relay driver - Selected metadata for operational purposes	Essential
STROC-1483	TT-CAP-002.13	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Exceptions business rules. Provide ability to configure and use specific business rules. For example: - Train Operating Conditions (TOC) exceptions	Essential
STROC-1276	TT-CAP-002.4	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Sectorisation. Provide ability to Add, Change, Delete and Display Sectorisation Business Rules. The known business rules may include: - divide and manage the timetable into sectors &/or lines - assign and manage constraints to individual sectors &/or lines - assign network constraints to multiple lines	Essential

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STROC-1484	TT-CAP-002.7	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Validations and violations reporting. Provide ability to re-validate Day of Operations timetable at any given time on request: to analyse the current Timetable plan for viability including; route availability, sectional running times, crew information, planned possessions, etc. Ability to alert any violations of the business rules.	Essential
STROC-1485	TT-CAP-002.8	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Customer Impact Business Rules. Use/ Create business rules of known restrictions and issues impacting customers when Timetable is changed. Use this data for Timetable validations. For example: - Long Line Public Announcements, time operating restrictions and impact from late trains - Maximum overcrowding. Customer peak hours, skipping stops during peak hours to be restricted - Unattended stations, station opening patterns - Minimum service frequency. Two consecutive trains are not allowed to skip same stop's) - Lifts out of order	Essential
STROC-1284	TT-CAP-002.9d	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Geography. Configurable and appropriate level of details. Provide ability to support configurable and appropriate level of civil geography details to meet service planning.	Essential
STROC-1283	TT-CAP-002.9c	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Geography. Configurable and appropriate level of details. Provide ability to support configurable and appropriate level of nodal geography details to meet service planning.	Essential
STROC-1282	TT-CAP-002.9b	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Geography. Configurable and appropriate level of details. Provide ability to support configurable and appropriate level of signally geography details to meet service planning.	Essential
STROC-1281	TT-CAP-002.9a	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Geography. Configurable and appropriate level of details. Provide ability to support configurable and appropriate level of electrical geography details to meet service planning.	Essential

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STROC-1280	TT-CAP-002.6b	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Fleet Maintenance Business Rules. Provide ability to Add, Change, Delete and Display Fleet Maintenance Business Rules.	Essential
STROC-1279	TT-CAP-002.6a	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Fleet Maintenance Constraints. Provide ability to Add, Change, Delete and Display Fleet Maintenance Constraints. Fleet Maintenance: - Timeframe Limited Track Possession - Timeframe Limited Temporary Speed Restrictions - Major and minor maintenance restriction requirements for fleet - Infrastructure that is booked-out-use	Essential
STROC-1278	TT-CAP-002.5b	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Platform Business Rules Provide ability to Add, Change, Delete and Display Platform Business Rules for Service Stop points.	Essential
STROC-1277	TT-CAP-002.5a	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Platform Constraints. Provide ability to Add, Change, Delete and Display Platform Constraints for Service Stop points. The known constraints may include: - length - location - business hours of stations - ease of access - disability access	Essential
STROC-1275	TT-CAP-002.3b	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Crew (Workforce) Business Rules Provide ability to Add, Change, Delete and Display Crew (Workforce) Business Rules.	Essential
STROC-1274	TT-CAP-002.3a	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Crew (Workforce) Constraints. Provide ability to Add, Change, Delete and Display Train Crew (Workforce) Constraints. The known constraints may include: - crew rostering restrictions, for example: Employee Maximum Shift Length Restrictions, Minimum Off-Duty Interval Restrictions, Leave Restrictions, Shift Break Restrictions, Overtime Rules, etc. - certification type/level - route knowledge - current location / running on which service - crew constraints in relation to two separate organisations (NSW TrainLink and Sydney Trains) - restrictions based on crew requirements (e.g. "relay drivers for a specific location")	Essential
STROC-1273	TT-CAP-002.2b	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Fleet Business Rules Provide ability to Add, Change, Delete and Display Fleet Business Rules.	Essential

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STROC-1272	TT-CAP-002.2a	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Fleet Constraints. Provide ability to Add, Change, Delete and Display Fleet Constraints. The known constraints may include: - certain fleet types can only run on certain tracks - set types that use more power - width of set, compared to track - set lengths, for example 4, 6 or 8 cars - fleet constraints in relation to two separate organisations (NSW TrainLink and Sydney Trains) - availability periods - contractual obligations/constraints, e.g. Waratah trains availability according to Reliance Rail's provisions - planned maintenance, usually represented through running-in and running out lists - train length (for example freight train stopped at Granville fouling Clyde Junction)	Essential
STROC-1271	TT-CAP-002.1b	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Network Business Rules Provide ability to Add, Change, Delete and Display Network Business Rules. The known business rules may include: - restrictions/rules for alternate transport (e.g. cannot get a bus to a specific location)	Essential
STROC-1270	TT-CAP-002.1a	DTTS	Business Rules, Operational Constraints and Validations for the Timetable Creation	Network Constraints. Provide ability to Add, Change, Delete and Display Network Constraints. The known constraints may include: - planned possessions/infrastructure availability and condition - network design (for example train A and B can not pass each other at a particular point due to width, axle weight of a particular model of train) - signal timeout (for example due to slow speed or longer length freight trains) - speed restrictions - infrastructure faults - loop lengths - environmental (for example freight train stopped blocking pedestrian pathway) - power supply restrictions (due to Waratah electricity consumption) - operational notices - assets (e.g. points and signals) that are temporarily unavailable (booked out, out of use)	Essential
STROC-1495	TT-CAP-006.0	DTTS	Distribute Day of Operations Timetable	Generate a Day of Operations Timetable. Provide ability to create a new Target Day of Operations Timetable or Timetable changes only based on the business rules specified and manual changes provided, for example: - adding operational notices, - omitting certain stops (e.g. for police operation), - adding extra stops (e.g. for support of special events, overcrowding)	Essential
STROC-1345	TT-CAP-006.2	DTTS	Distribute Day of Operations Timetable	Distribute Timetable plan to various interfaces. Provide ability to distribute a Timetable plan (e.g. Target) to customer information application.	Essential

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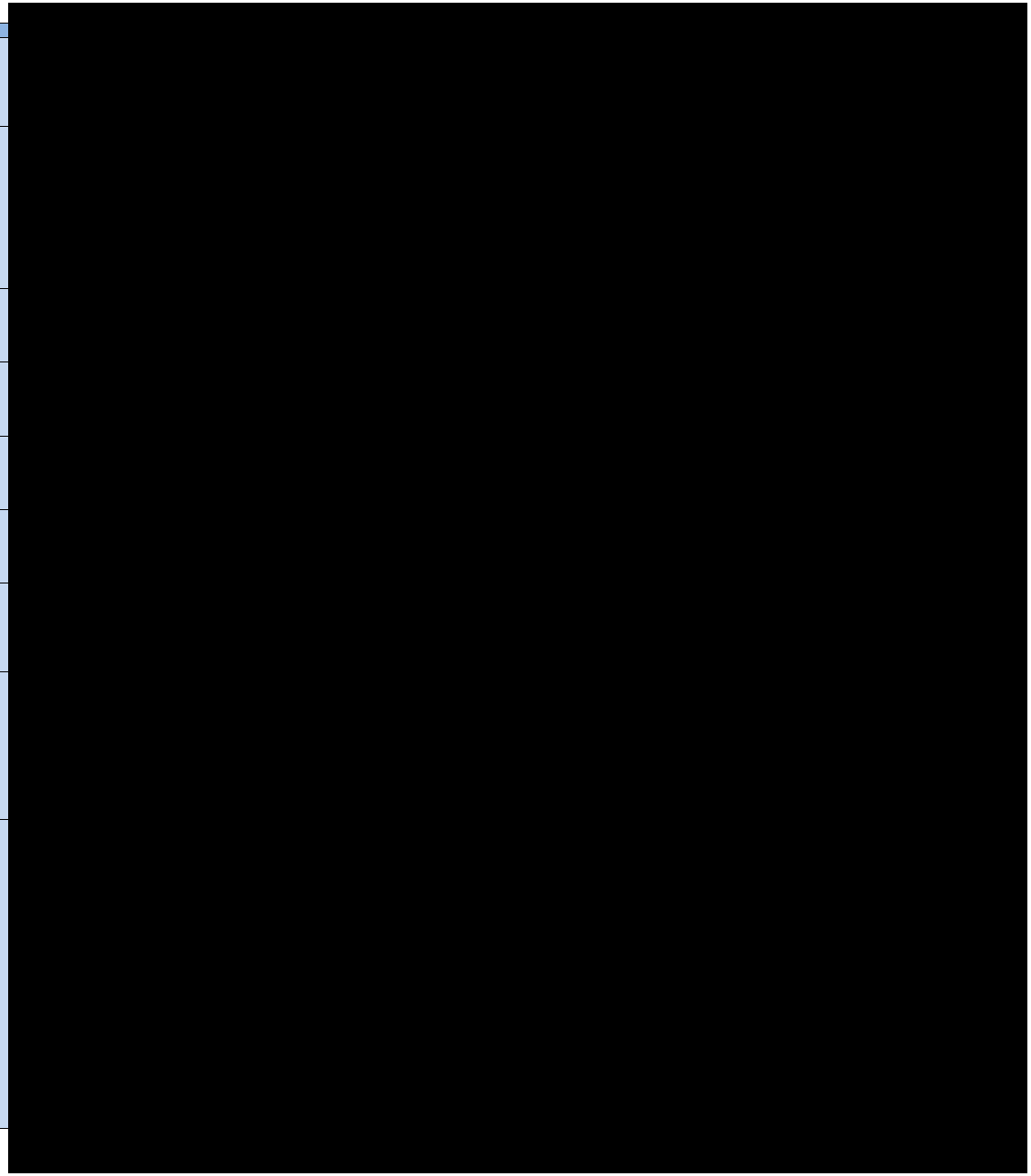
STROC-1344	TT-CAP-006.2	DTTS	Distribute Day of Operations Timetable	Distribute Timetable plan to various interfaces. Provide ability to distribute a Timetable plan (e.g. Target) to specific Sydney Trains control systems	Essential
STROC-1496	TT-CAP-006.3	DTTS	Distribute Day of Operations Timetable	Publishing and Distributing Timetable in various formats. Provide ability to publish Day of Operations Timetable in various formats, for example: - SIRI - Existing control systems formats (e.g. Railform, TDTES) - GTFS, which is the current specification for mobile apps supported by TfNSW - Ability for user/administrator to configure custom formats for use by various on-train systems	Essential
STROC-1343	TT-CAP-006.1f	DTTS	Distribute Day of Operations Timetable	Distribute a segregated Timetable. Provide ability to distribute a Timetable segregated into sectorised plans	Essential
STROC-1342	TT-CAP-006.1e	DTTS	Distribute Day of Operations Timetable	Distribute a segregated Timetable. Provide ability to distribute a Timetable segregated between weekday and weekend plans	Essential
STROC-1341	TT-CAP-006.1d	DTTS	Distribute Day of Operations Timetable	Distribute a segregated Timetable. Provide ability to distribute a Timetable segregated into control area based plans	Essential
STROC-1340	TT-CAP-006.1c	DTTS	Distribute Day of Operations Timetable	Publish a segregated Timetable. Provide ability to publish a Timetable segregated into sectorised plans	Essential
STROC-1339	TT-CAP-006.1b	DTTS	Distribute Day of Operations Timetable	Publish a segregated Timetable. Provide ability to publish a Timetable segregated between weekday and weekend plans	Essential
STROC-1338	TT-CAP-006.1a	DTTS	Distribute Day of Operations Timetable	Publish a segregated Timetable. Provide ability to publish a Timetable segregated into control area based plans	Essential
STROC-1554	TT-CAP-011.0	DTTS	Manage Network Visualisation	Dynamic Day of Operations Train Graph. Provide the ability to separately show Planned, Target, Estimated and Actual times for train services on the Train Graph Plots the current and predicted location of trains, highlighting any conflicts, graphically displays information as follows: - current and predicted train locations - location and Impact of a Network Possession - location and Impact of a Temporary Speed Restrictions - location and impact of any constraint violations - service stopping patterns	Essential



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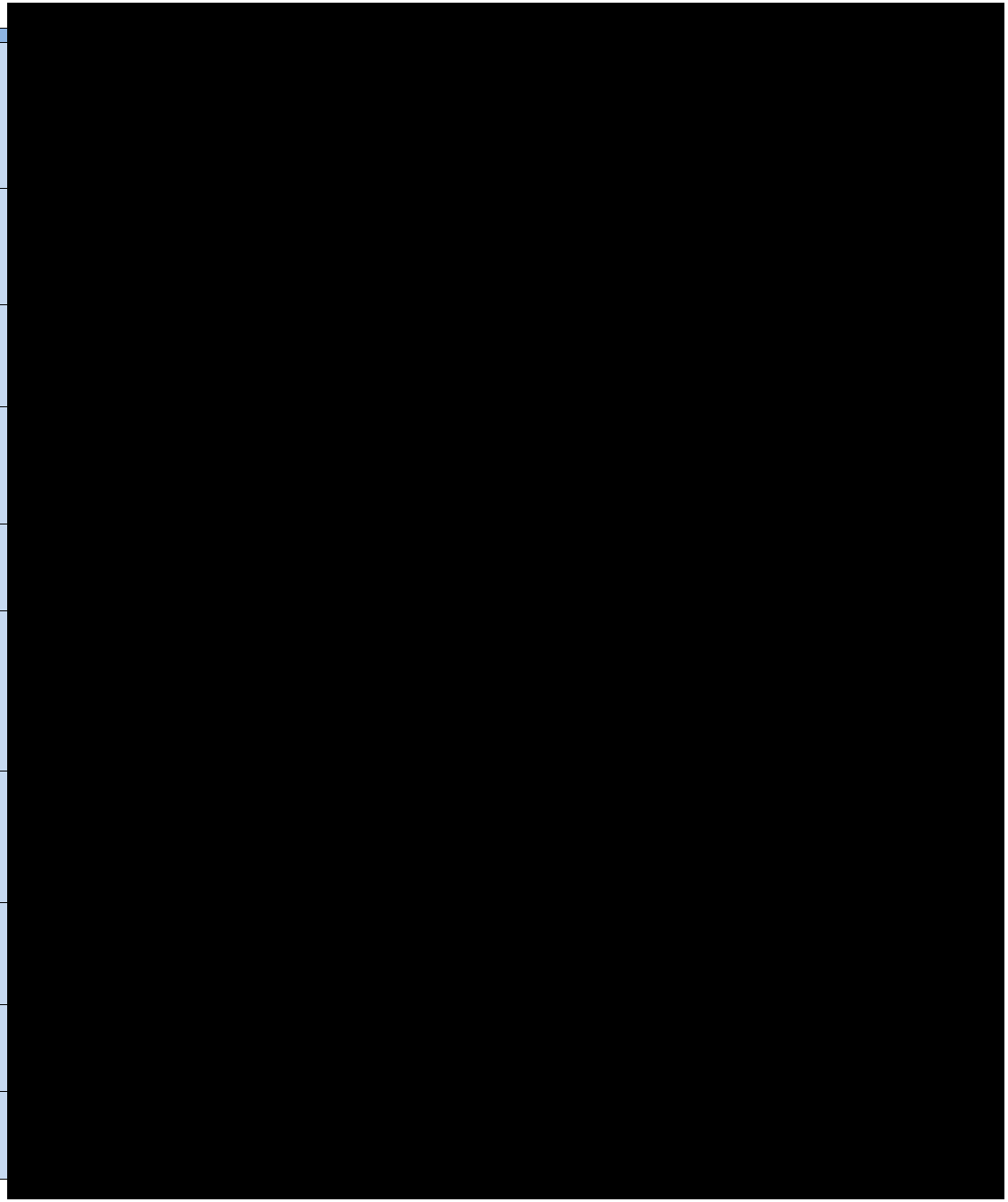
STROC-1556	TT-CAP-011.2	DTTS	Manage Network Visualisation	Dynamic Day of Operations Train Graph - view and manipulate. Provide the ability for direct manipulation of the current plan via the Train Graph, for specific roles, for example: - allow blocking section of a track in emergency situations with consideration of geography - allow controllers to edit trips, i.e. requirements TT-CAP-008.34-44	Essential
STROC-1557	TT-CAP-011.3	DTTS	Manage Network Visualisation	Dynamic Day of Operations Train Graph - data filter. Provide the ability to filter data produced in a Train Graph (in both read and edit mode) to focus on specific areas, for example: - passenger trains - freight trains - a particular run number.	Essential
STROC-1558	TT-CAP-011.6	DTTS	Manage Network Visualisation	Provide Facility for Additional Geospatial Layers. Provide ability to display additional contextual geospatial data layers within the geospatial representation provided, for example: - street maps - water courses.	Essential
STROC-1559	TT-CAP-011.7	DTTS	Manage Network Visualisation	Standard Geospatial Navigation Features. Provide standard geospatial navigational aids. Standard features are expected to include: - zoom in and zoom out - multi-directional panning - ability to turn spatial layers on and off (filtering).	Essential
STROC-1560	TT-CAP-011.9	DTTS	Manage Network Visualisation	Stabling Diagram. Provide the ability to graphically display a Stabling Occupation Diagrams over time	Essential
STROC-1439	TT-CAP-011.8b	DTTS	Manage Network Visualisation	Display Graphical View of Service Run (Zig-Zag). Provide the ability to graphically display a Service Run for sequentially grouped train services and future impact of a delay on connected services (including crew & fleet). For example: scheduled crew change will be delayed and thereby delaying the departure of a connected service.	Essential
STROC-1438	TT-CAP-011.8a	DTTS	Manage Network Visualisation	Display Graphical View of Service Run (Zig-Zag). Provide the ability to graphically display a Service Run for sequentially grouped current train services (including crew & fleet)	Essential
STROC-1437	TT-CAP-011.5f	DTTS	Manage Network Visualisation	Display up-to-date Geospatial Representation of Rail Network. Provide the ability to graphically display a Geospatial representation of the Rail Network which may include - location of line closures (e.g. when a line is shut down due to OHW problems)	Essential
STROC-1436	TT-CAP-011.5e	DTTS	Manage Network Visualisation	Display up-to-date Geospatial Representation of Rail Network. Provide the ability to graphically display a Geospatial representation of the Rail Network which may include - location of any currently active Alarms/Alerts	Essential
STROC-1435	TT-CAP-011.5d	DTTS	Manage Network Visualisation	Display up-to-date Geospatial Representation of Rail Network. Provide the ability to graphically display a Geospatial representation of the Rail Network which may include - location of any Temporary Speed Restrictions	Essential



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STROC-1434	TT-CAP-011.5c	DTTS	Manage Network Visualisation	Display up-to-date Geospatial Representation of Rail Network. Provide the ability to graphically display a Geospatial representation of the Rail Network which may include - location of any Network Possessions	Essential
STROC-1433	TT-CAP-011.5b	DTTS	Manage Network Visualisation	Display up-to-date Geospatial Representation of Rail Network. Provide the ability to graphically display a Geospatial representation of the Rail Network which may include - location of any current Work Crews	Essential
STROC-1432	TT-CAP-011.5a	DTTS	Manage Network Visualisation	Display up-to-date Geospatial Representation of Rail Network. Provide the ability to graphically display a Geospatial representation of the Rail Network which may include - real-time disposition of currently running trains	Essential
STROC-1431	TT-CAP-011.4k	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - customer information infrastructure outages	Essential
STROC-1430	TT-CAP-011.4j	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - sections of track impacted by changed safe working practices	Essential
STROC-1429	TT-CAP-011.4i	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - bi-directional working	Essential
STROC-1428	TT-CAP-011.4h	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - station opening patterns	Essential
STROC-1427	TT-CAP-011.4g	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - conflicts with Timetabled services	Essential
STROC-1426	TT-CAP-011.4f	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - track work (method of protection between trains)	Essential

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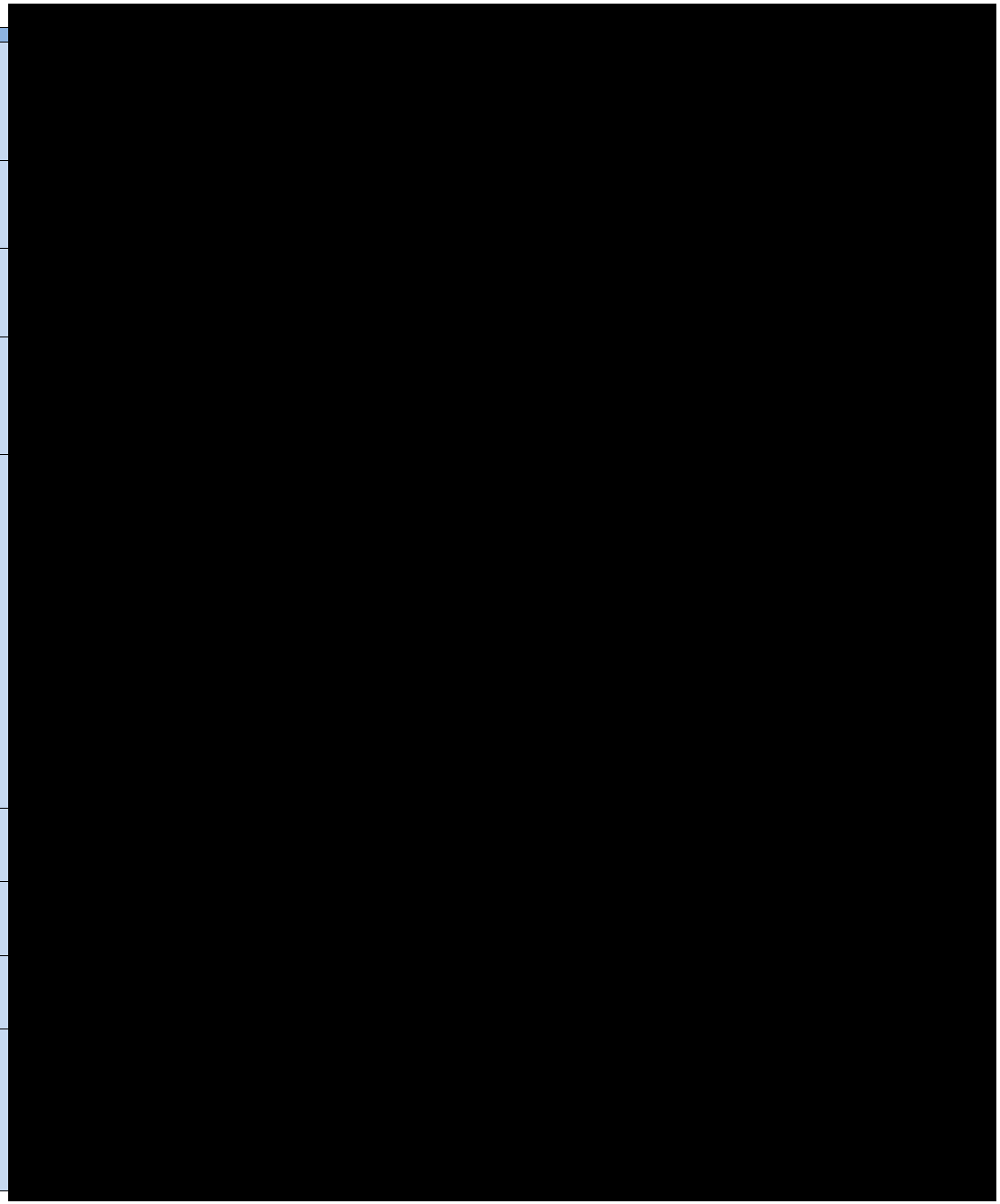
STROC-1425	TT-CAP-011.4e	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - location of any current Work Crews	Essential
STROC-1424	TT-CAP-011.4d	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - location of any currently active Alarms/Alerts	Essential
STROC-1423	TT-CAP-011.4c	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - location of any Temporary Speed Restrictions	Essential
STROC-1422	TT-CAP-011.4b	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - location of any Network Possessions	Essential
STROC-1421	TT-CAP-011.4a	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic. Provide the ability to graphically display information on the Network Schematic - real-time disposition of currently running trains	Essential
STROC-1420	TT-CAP-011.11d	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic Layers. Provide the ability to display nodal geography details on the Network Schematic for emergency possessions planning.	Essential
STROC-1419	TT-CAP-011.11c	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic Layers. Provide the ability to display civil geography details on the Network Schematic for emergency possessions planning.	Essential
STROC-1418	TT-CAP-011.11b	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic Layers. Provide the ability to display Signalling geography details on the Network Schematic for emergency possessions planning.	Essential
STROC-1417	TT-CAP-011.11a	DTTS	Manage Network Visualisation	Dynamic Day of Operations Network Schematic Layers. Provide the ability to display Electrical geography details on the Network Schematic for emergency possessions planning.	Essential



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STROC-1416	TT-CAP-011.10b	DTTS	Manage Network Visualisation	Track Circuits on the Network Map. Provide ability to graphically display track circuits on the Network map (large scale or local)	Essential
STROC-1415	TT-CAP-011.10a	DTTS	Manage Network Visualisation	Signalling details on the Network Map. Provide the ability to graphically display signalling details on the Network map (large scale or local)	Essential
STROC-1386	TT-CAP-009.3b	DTTS	Manage Network Visualisation	Notification of timetable changes and delays - operational crew and staff. Provide ability to receive acknowledgement from notified impacted crew and staff that operational information in relation to the Day of Operations Timetable has been successfully delivered.	Essential
STROC-1385	TT-CAP-009.3a	DTTS	Manage Network Visualisation	Notification of timetable changes and delays - operational crew and staff. Provide ability to notify impacted crew and staff that operational information in relation to the Day of Operations Timetable have been published, for example: - timetable changes, platform changes, stopping pattern - delays - transposition instructions to crew	Essential
STROC-1462	TT-CAP-013.0	DTTS	Mobile Control During Possessions	Take possession from site (via mobile device). Provide ability to take possession from site via a mobile device. For example: to complete planned track maintenance	Desired
STROC-1463	TT-CAP-013.1	DTTS	Mobile Control During Possessions	Remote control during possessions (via mobile device). Provide ability to allow points movements on-site via mobile device, that is remotely from Rail Operations Centre	Desired
STROC-1471	TT-CAP-013.4c	DTTS	Mobile Control During Possessions	Emergency possessions. Provide ability for approved possessions to automatically close section in a timetable according to geography layers for the nominated time period.	Important
STROC-1470	TT-CAP-013.4b	DTTS	Mobile Control During Possessions	Emergency possessions. Provide ability to dynamically present solution options to address the impact of an emergency possession on the current Day of Operations Timetable.	Important

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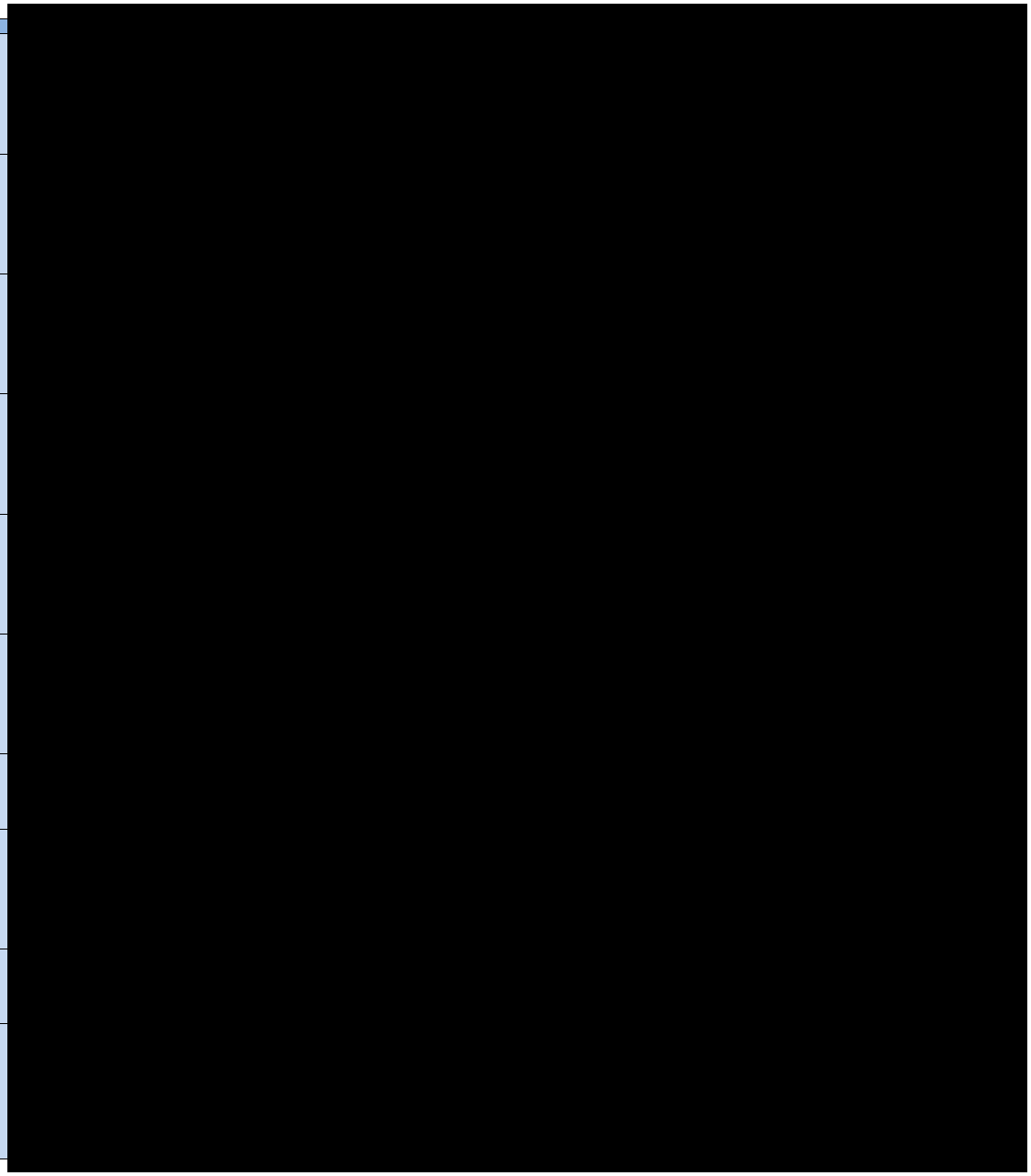
STROC-1469	TT-CAP-013.4a	DTTS	Mobile Control During Possessions	Emergency possessions. Provide ability to dynamically determine impact of an emergency possession on the current Day of Operations Timetable.	Important
STROC-1468	TT-CAP-013.3e	DTTS	Mobile Control During Possessions	Internal Staff Track Access Request. Provide the ability for approved internal staff track access requests to automatically close section in a timetable according to geography for the nominated time period.	Important
STROC-1467	TT-CAP-013.3d	DTTS	Mobile Control During Possessions	Internal Staff Track Access Request. Provide the ability to manually approval of internal staff track access booking requests, dependent upon predefined business rules.	Important
STROC-1466	TT-CAP-013.3c	DTTS	Mobile Control During Possessions	Internal Staff Track Access Request. Provide the ability for automatic approval of internal staff track access booking requests, dependent upon predefined business rules.	Important
STROC-1465	TT-CAP-013.3b	DTTS	Mobile Control During Possessions	Internal Staff Track Access Request. Provide ability for approved internal staff to submit a request to book track access during an available slot in the current Day of Operations Timetable via mobile device.	Important
STROC-1464	TT-CAP-013.3a	DTTS	Mobile Control During Possessions	Internal Staff Track Access Request. Provide ability for approved internal staff to view available slots in the current Day of Operations Timetable via mobile device.	Important
STROC-1487	TT-CAP-004.10	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Stationary Duties. Provide ability to plan stationary duties (e.g. stand by, shunt, decant, refuel, service breaks, etc.)	Important
STROC-1305	TT-CAP-004.13	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Delete portion of DWTT to revert back to SWTT. Provide ability to delete portion of DWTT to revert back to SWTT (e.g. when a possession is cancelled at late notice)	Desired
STROC-1488	TT-CAP-004.15	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Visibility of stabled trains across multiple timetables. Provide visibility of stabled trains across timetable	Essential
STROC-1323	TT-CAP-004.6	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable changes - Special working situations. Provide ability to plan yard-working in a timetable special working situations	Essential



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STROC-1322	TT-CAP-004.6	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable changes - Special working situations. Provide ability to plan non-signalled moves (e.g. Pilot Staff Working) in a timetable special working situations.	Essential
STROC-1489	TT-CAP-004.7	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Versions. Provide ability to manage versions of a Timetable.	Essential
STROC-1490	TT-CAP-004.9	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Next day duties. Provide ability to plan next day duties (what service a selected service is forming next day of operations, a relationship between two services)	Essential
STROC-1327	TT-CAP-004.8d	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Changes. Provide a report on request using specific filters (e.g. sector, line, etc.) which details changes made to the DWTT	Important
STROC-1326	TT-CAP-004.8c	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Changes. Provide a report on request using specific filters (e.g. sector, line, etc.) which details changes made to the Day of Operations Timetable.	Essential
STROC-1325	TT-CAP-004.8b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Changes. Provide ability to track/highlight changes made to the DWTT	Important
STROC-1324	TT-CAP-004.8a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Changes. Provide ability to track/highlight changes made to the Day of Operations Timetable	Essential
STROC-1321	TT-CAP-004.5d	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Service Request (Freight, Heritage and any billed party). Provide the ability to manually approval of 3rd party booking requests, dependent upon predefined business rules.	Important
STROC-1320	TT-CAP-004.5c	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Service Request (Freight, Heritage and any billed party). Provide the ability for automatic approval of 3rd party booking requests, dependent upon predefined business rules.	Important
STROC-1319	TT-CAP-004.5b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Service Request (Freight, Heritage and any billed party). Provide ability for approved third parties to submit a request to book an available slot in the current Day of Operations Timetable	Important
STROC-1318	TT-CAP-004.5a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Service Request (Freight, Heritage and any billed party) Provide ability for approved third parties to view available slots in the current Day of Operations Timetable.	Important

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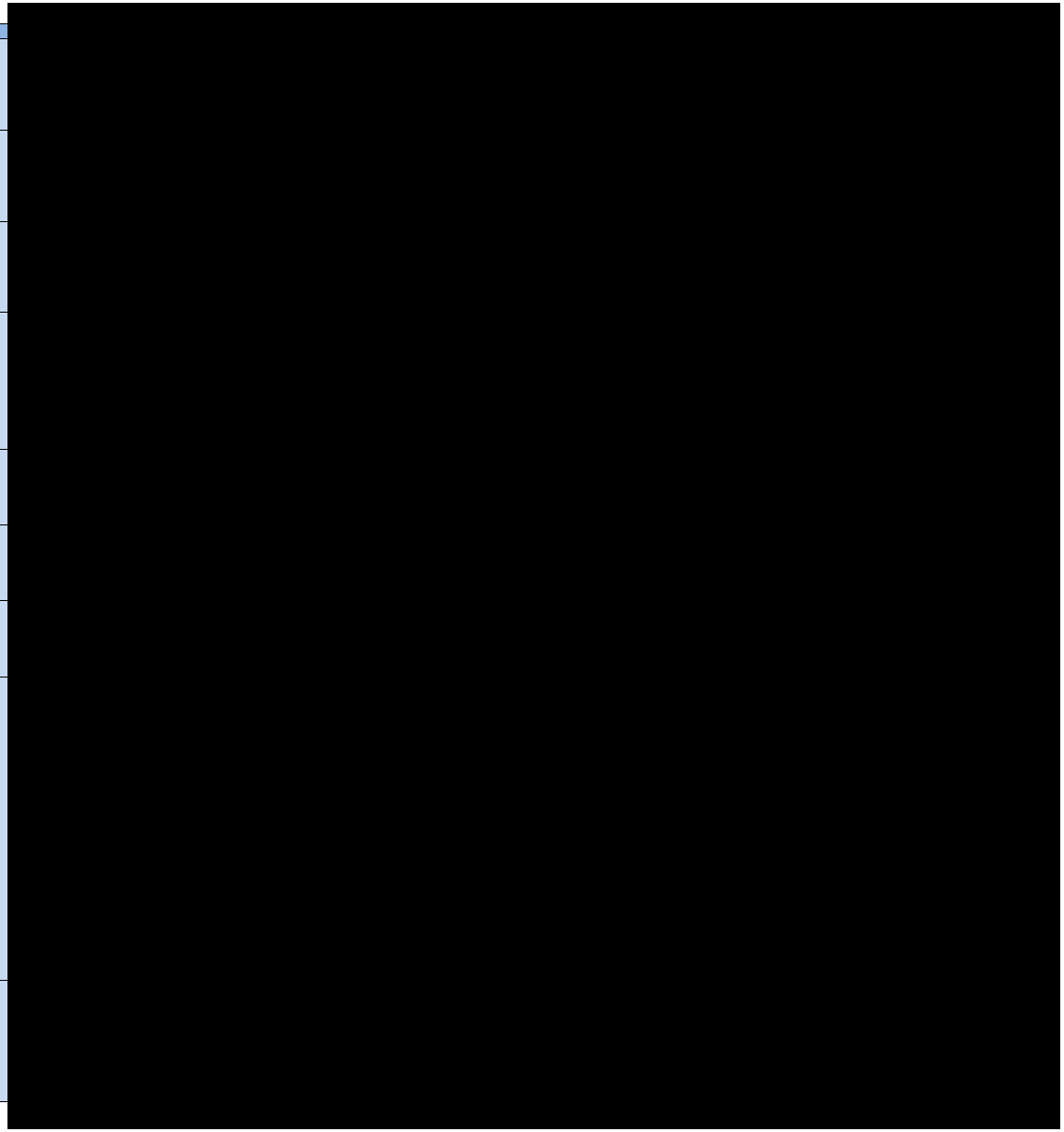
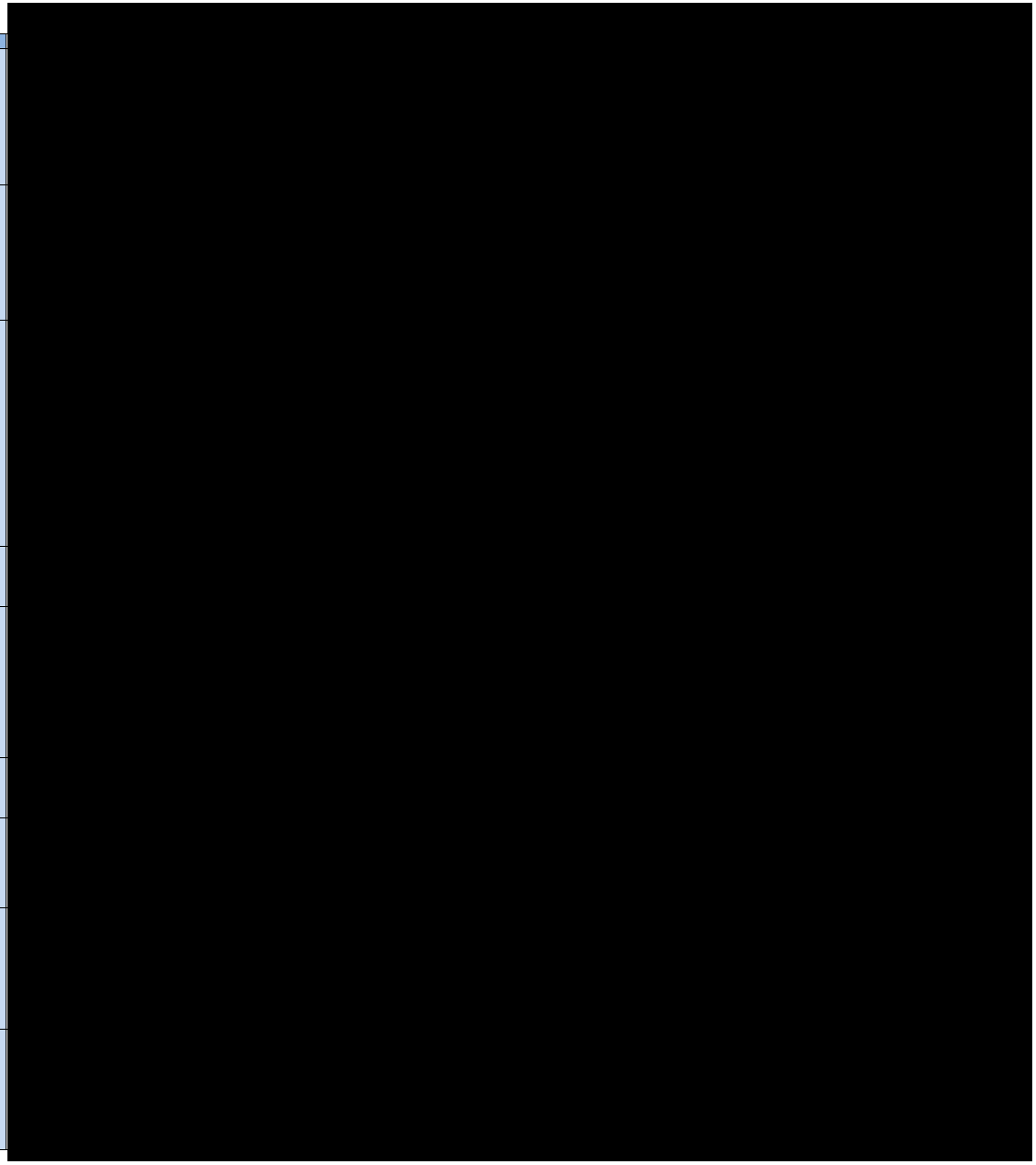
STROC-1317	TT-CAP-004.4d	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Crew Allocation Alterations Provide ability to manually delete crew allocations to a scheduled run, within defined parameters and crew working restrictions/ rostering rules.	Essential
STROC-1316	TT-CAP-004.4c	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Crew Allocation Alterations Provide ability to manually change crew allocations to a scheduled run, within defined parameters and crew working restrictions/ rostering rules.	Essential
STROC-1315	TT-CAP-004.4b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Crew Allocation Alterations Provide ability to manually add crew allocations to a scheduled run, within defined parameters and crew working restrictions/rostering rules.	Essential
STROC-1314	TT-CAP-004.4a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Crew Allocation Provide ability to display actual crew allocations to a scheduled run.	Essential
STROC-1313	TT-CAP-004.3d	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Fleet Allocation Alterations Provide ability to manually delete fleet allocations to a scheduled run, within defined parameters.	Essential
STROC-1312	TT-CAP-004.3c	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Fleet Allocation Alterations Provide ability to manually change fleet allocations to a scheduled run, within defined parameters.	Essential
STROC-1311	TT-CAP-004.3b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Fleet Allocation Alterations Provide ability to manually add fleet allocations to a scheduled run, within defined parameters.	Essential
STROC-1310	TT-CAP-004.3a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Fleet Allocation Provide ability to display actual fleet consists allocated to a scheduled run.	Essential
STROC-1309	TT-CAP-004.1d	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Bulk Editing. Provide ability to manually perform various timetable editing functions across multiple trips in bulk: - Split trips - Splice - Link	Essential



Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1308	TT-CAP-004.1c	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Editing Provide ability to manually perform various timetable editing functions for a single train service: - Split trips - Splice - Link	Essential
STROC-1307	TT-CAP-004.1b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Bulk Editing. Provide ability to manually perform various timetable editing functions across multiple trips in bulk: - Add - Edit - Cancel	Essential
STROC-1306	TT-CAP-004.1a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Timetable Editing. Provide ability to manually perform various timetable editing functions for a single train service: - Add - Edit - Cancel	Essential
STROC-1304	TT-CAP-004.12b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	SWTT. Provide ability to validate the Standard Working Timetable (SWTT).	Desired
STROC-1303	TT-CAP-004.12a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	SWTT. Provide ability to plan the Standard Working Timetable (SWTT).	Desired
STROC-1302	TT-CAP-004.11b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	DWTT. Provide ability to validate the Daily Working Timetable (DWTT).	Important
STROC-1301	TT-CAP-004.11a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	DWTT. Provide ability to plan the Daily Working Timetable (DWTT).	Important
STROC-1300	TT-CAP-004.0l	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually apply updated stopping patterns, retrieved from a predefined stopping patterns library, to a particular services during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1299	TT-CAP-004.0k	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually update stopping patterns for a particular service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential



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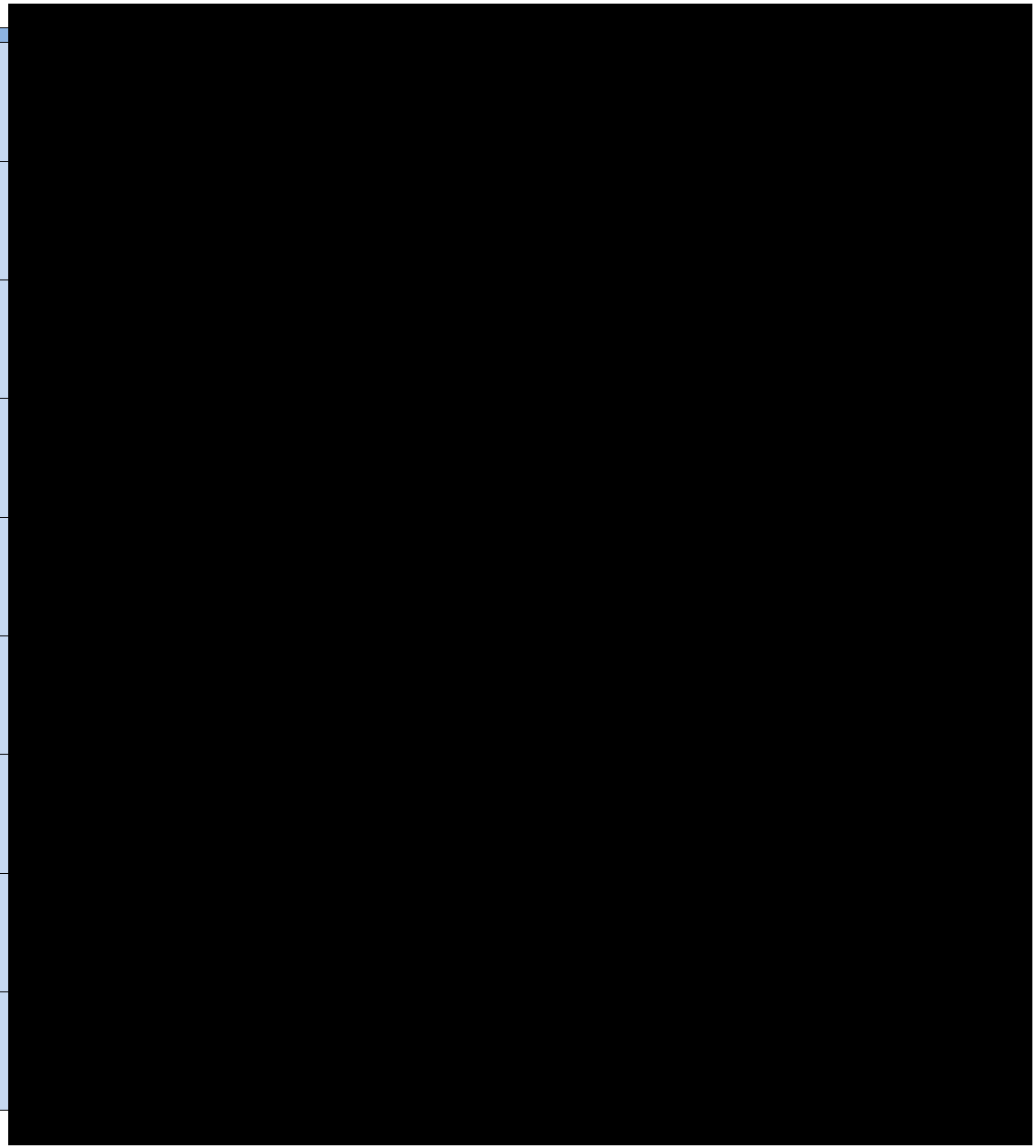
STROC-1298	TT-CAP-004.0j	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually update crew allocations to a train service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1297	TT-CAP-004.0i	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually update fleet allocations to train service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1296	TT-CAP-004.0h	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually cancel/delete a train service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1295	TT-CAP-004.0g	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually truncate a service run during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1294	TT-CAP-004.0f	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually turnback a train service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1293	TT-CAP-004.0e	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually alter stop point platform allocations for a particular services during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1292	TT-CAP-004.0d	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually alter a stopping pattern for a particular train service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1291	TT-CAP-004.0c	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually add a new train service during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1290	TT-CAP-004.0b	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually create an emergency possession during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential



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STROC-1289	TT-CAP-004.0a	DTTS	Modify Day of Operations Timetable, DWTT, SWTT	Manual Timetable update at short notice. Provide ability to manually update a possession plan (e.g. for a time extension) during the Day of Operations Timetable via user friendly and efficient interface (for example, electronic graph).	Essential
STROC-1497	TT-CAP-007.0	DTTS	Monitor and Manage On Time Running	On-Time Running - Receive real-time information from train monitoring systems and update Actual Times at Monitoring Locations. Provide ability to receive real-time feeds from external train detection / location / describer systems and record these as actual passing times at train monitoring locations.	Essential
STROC-1498	TT-CAP-007.1	DTTS	Monitor and Manage On Time Running	Detect minor variations between planned and actual. Minor Variances - Compare Actual Time to Target Time at Monitoring Location and Re-estimate Future Times for Variance outside "on-time" tolerances. Provide the ability to detect variations between actual recorded monitoring times and expected train running times and automatically recalculate estimated running times for the remainder of that train service and impact on other services.	Essential
STROC-1486	TT-CAP-003.0	DTTS	Prepare Day of Operation Timetable	Day of Operations Timestamps. Separate timestamps are required to reflect Day of Operations (day of operation) timetable changes. Provide discrete timestamps that reflect the context and origin of their creation. For example, - "Planned" timestamp carried forward from the DWTT - "Target" timestamp for the Day of Operations Timetable, as a baseline for the Day of Operations, including late changes at short notice (for example, operating notices) on the day of operations. - "Estimated" timestamp created during day of operations for recalculated forward running times for a service. - "Actual" ("Current") timestamp for timetable events recorded during the day of operations.	Essential
STROC-1288	TT-CAP-003.1d	DTTS	Prepare Day of Operation Timetable	Day of Operations Timetable views. Provide ability to support Crew timetable view (e.g. crew change/ relief points).	Essential
STROC-1287	TT-CAP-003.1c	DTTS	Prepare Day of Operation Timetable	Day of Operations Timetable views. Provide ability to support a Fleet timetable view (e.g. Zig-zag).	Essential

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STROC-1286	TT-CAP-003.1b	DTTS	Prepare Day of Operation Timetable	Day of Operations Timetable views. Provide ability to support an Operational timetable view (e.g. detailed/ layered schematics).	Essential
STROC-1285	TT-CAP-003.1a	DTTS	Prepare Day of Operation Timetable	Day of Operations Timetable views. Provide ability to support a Customer Information timetable views.	Essential
STROC-1543	TT-CAP-009.0	DTTS	Recalculate and Distribute Timetable	Train Service Alterations - Generate and validate newly revised timetable or a portion of a Timetable. Provide ability to create/generate a new Day of Operations timetable and automatically validate against business rules, operational constraints and validations in near real-time during disruption mode.	Essential
STROC-1555	TT-CAP-011.1	DTTS	Recalculate and Distribute Timetable	Dynamic Day of Operations Train Graph - view only. Provide the ability to produce a view only Train Graph, for specific roles.	Essential
STROC-1406	TT-CAP-010.1d	DTTS	Recalculate and Distribute Timetable	Replay. Provide ability to replay historical data using a Network Graph.	Essential
STROC-1405	TT-CAP-010.1c	DTTS	Recalculate and Distribute Timetable	Replay. Provide ability to replay historical data using a Train Graph.	Essential
STROC-1404	TT-CAP-010.1b	DTTS	Recalculate and Distribute Timetable	Replay. Provide ability to replay planned data using a Network Graph.	Essential
STROC-1403	TT-CAP-010.1a	DTTS	Recalculate and Distribute Timetable	Replay. Provide ability to replay planned data using a Train Graph.	Essential
STROC-1382	TT-CAP-009.1h	DTTS	Recalculate and Distribute Timetable	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Fleet Allocation System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important
STROC-1381	TT-CAP-009.1g	DTTS	Recalculate and Distribute Timetable	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Crew System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important
STROC-1380	TT-CAP-009.1f	DTTS	Recalculate and Distribute Timetable	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Customer Information System in near real-time during disruption mode.	Essential

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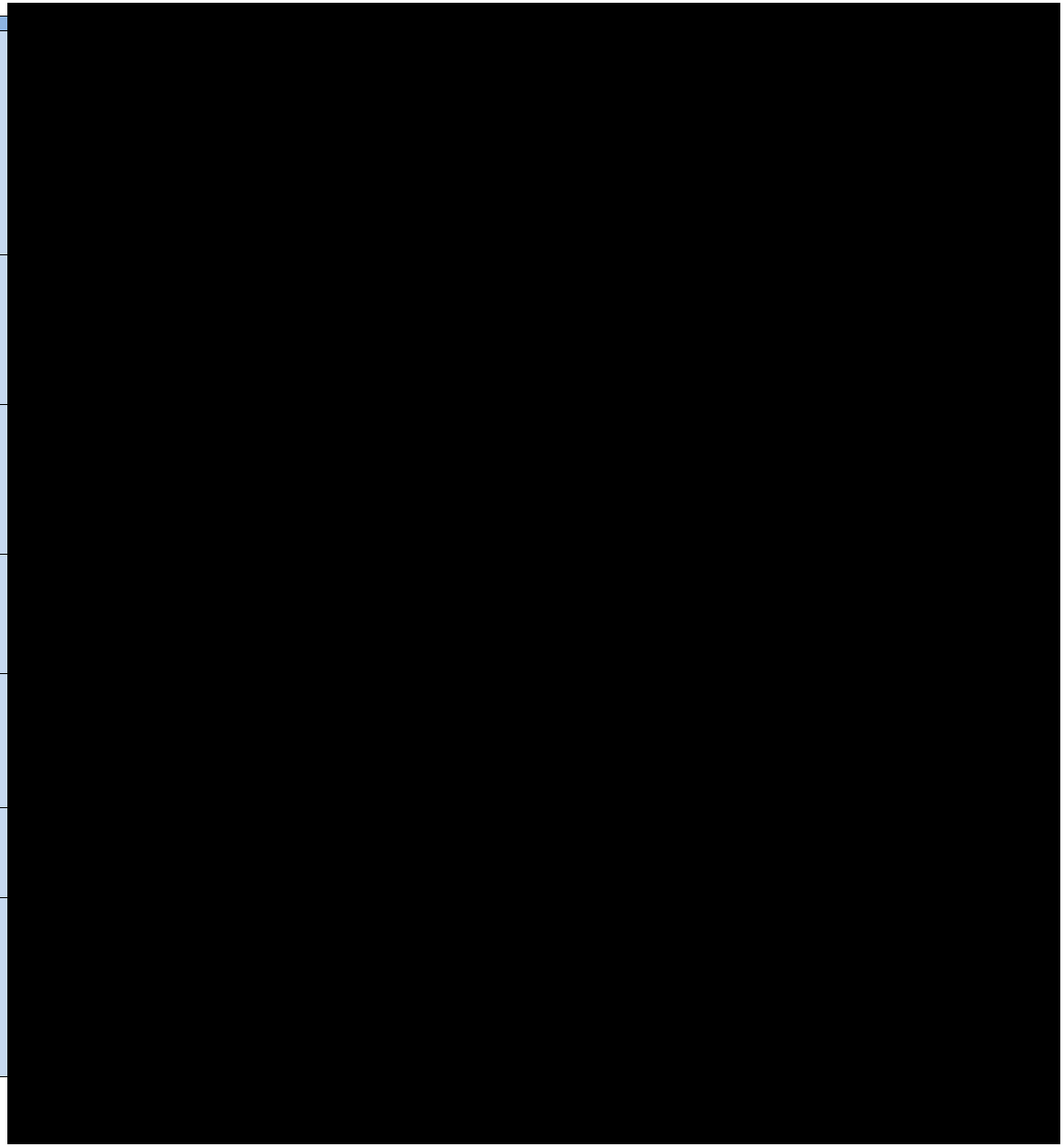
STROC-1379	TT-CAP-009.1e	DTTS	Recalculate and Distribute Timetable	Distribute revised portion of the Timetable plan during disruption and recovery modes. Provide ability to distribute a revised portion of the Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Control System in near real-time during disruption mode.	Essential
STROC-1378	TT-CAP-009.1d	DTTS	Recalculate and Distribute Timetable	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Fleet Allocation System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important
STROC-1377	TT-CAP-009.1c	DTTS	Recalculate and Distribute Timetable	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Crew System in near real-time during disruption mode. Clarification: TT-CAP-009.1c/d/g/h should be changed to a Criticality of "I"	Important
STROC-1376	TT-CAP-009.1b	DTTS	Recalculate and Distribute Timetable	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Customer Information System in near real-time during disruption mode.	Essential
STROC-1375	TT-CAP-009.1a	DTTS	Recalculate and Distribute Timetable	Distribute revised Timetable plan during disruption and recovery modes. Provide ability to distribute a revised Day of Operations timetable (e.g. Estimated Timetable) to down stream Train Control System in near real-time during disruption mode.	Essential
STROC-1475	TT-CAP-001.4	DTTS	Receive Daily Working Timetable	Provide ability to recognise a previous day Timetable that might be still in operation during the import time of a new daily Timetable (do not overwrite trains that might still be operational).	Essential
STROC-1476	TT-CAP-001.7	DTTS	Receive Daily Working Timetable	Full Customer Journey. Provide ability to plan full customer journey, beyond Sydney Trans, NSW TrainLink and NSW state. For example: - Customer journey from Sydney to Melbourne.	Desired



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STROC-1477	TT-CAP-001.8	DTTS	Receive Daily Working Timetable	Automated electronic exchange with other Rail Operators. Provide ability for automated electronic exchange of border time/path request information with other rail operators (e.g. Australian Rail Track Corporation, Country Regional Network)	Essential
STROC-1478	TT-CAP-001.9	DTTS	Receive Daily Working Timetable	Import Daily Working Timetable (DWTT) manually to generate the Day of Operations Timetable. Provide ability to import a date (and/or time) range based Daily Train Plan manually on demand using a user interface. The import formats may include proprietary DWTT files format and/or SIRI/XML.	Essential
STROC-1269	TT-CAP-001.6b	DTTS	Receive Daily Working Timetable	Coaches/ Buses Plan. Provide ability to clearly flag locations where to change between trains and buses in stopping pattern.	Desired
STROC-1268	TT-CAP-001.6a	DTTS	Receive Daily Working Timetable	Coaches/ Buses Plan. Provide ability to link a bus timetable plan, including stops (e.g. stations) and times, to the train timetable. This may occur during scheduled maintenance or a major disruption. For example, weekend track work to have a train Central to Hornsby and a bus from Hornsby to a final destination	Desired
STROC-1267	TT-CAP-001.5b	DTTS	Receive Daily Working Timetable	Import Standard Working Timetable as a backup (SWTT) to generate the Day of Operations Timetable. Provide ability to import a Standard Working Timetable via electronic feeds (one or multiple), on demand as the "Target" Timetable for Day of Operations. The import formats may include proprietary DWTT files format and/or SIRI/XML.	Essential
STROC-1266	TT-CAP-001.5a	DTTS	Receive Daily Working Timetable	Import Standard Working Timetable as a backup (SWTT) to generate the Day of Operations Timetable. Provide ability to import a Standard Working Timetable via electronic feeds (one or multiple), in near real-time as the "Target" Timetable for Day of Operations. The import formats may include proprietary DWTT files format and/or SIRI/XML.	Essential
STROC-1265	TT-CAP-001.3d	DTTS	Receive Daily Working Timetable	Provide ability to link imported fleet roster to a timetable originating in the prior "X" hours period or terminating in next "Y" hour period: - fleet roster related to timetabled train runs	Essential
STROC-1264	TT-CAP-001.3a	DTTS	Receive Daily Working Timetable	Provide ability to link imported crew roster to a timetable originating in the prior "X" hours period or terminating in next "Y" hour period - crew roster (diagrams) related to timetabled train runs.	Essential

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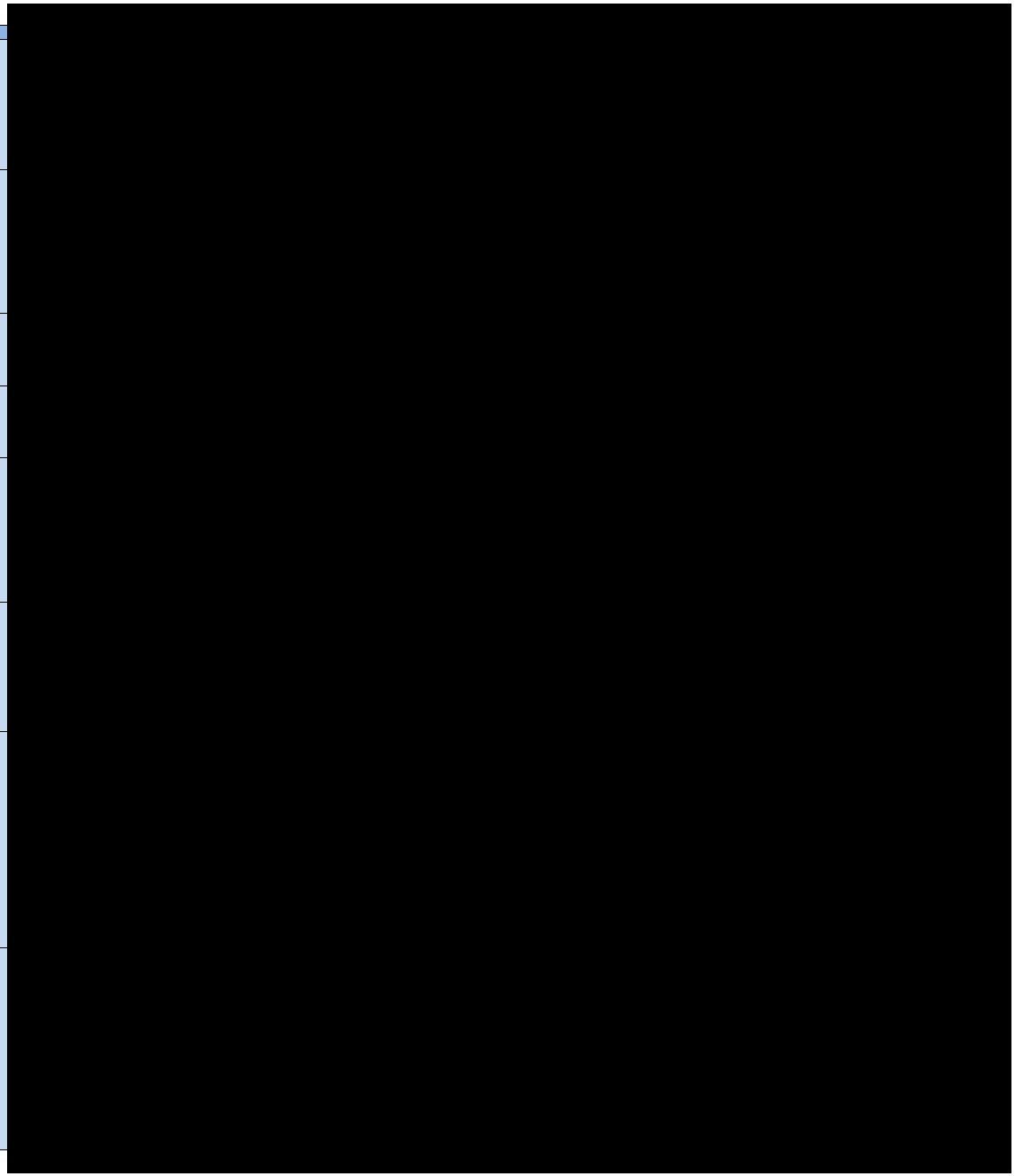
STROC-1263	TT-CAP-001.2b	DTTS	Receive Daily Working Timetable	Provide ability to merge timetables imported from multiple sources based on a defined time period, originating in the prior "X" hours period or terminating in next "Y" hour: - passenger trains - freight - maintenance cars - planned possessions.	Essential
STROC-1262	TT-CAP-001.2a	DTTS	Receive Daily Working Timetable	Provide ability to merge timetables imported from multiple sources: - passenger trains - freight - maintenance cars - planned possessions.	Essential
STROC-1261	TT-CAP-001.1c	DTTS	Receive Daily Working Timetable	Provide ability to display (refer to Network visualisation) all Train Services that form part of the Day of Operations Timetable Plan for a given date and time range.	Essential
STROC-1260	TT-CAP-001.1b	DTTS	Receive Daily Working Timetable	Provide ability to display (refer to Network visualisation) all Train Services that form part of the Day of Operations Timetable Plan for a given time range.	Essential
STROC-1259	TT-CAP-001.1a	DTTS	Receive Daily Working Timetable	Provide ability to display (refer to Network visualisation) all Train Services that form part of the Day of Operations Timetable Plan for a given date range.	Essential
STROC-1258	TT-CAP-001.0b	DTTS	Receive Daily Working Timetable	Import Daily Working Timetable (DWTT) electronically to generate the Day of Operations Timetable. Provide ability to import a date (and/or time) range based Daily Train Plan via electronic feeds (one or multiple), on demand as the "Target" Timetable for Day of Operations. The import formats may include proprietary DWTT files format and/or SIRI/XML.	Essential
STROC-1257	TT-CAP-001.0a	DTTS	Receive Daily Working Timetable	Import Daily Working Timetable (DWTT) electronically to generate the Day of Operations Timetable. Provide ability to import a date (and/or time) range based Daily Train Plan via electronic feeds (one or multiple), in near real-time as the "Target" Timetable for Day of Operations. The import formats may include proprietary DWTT files format and/or SIRI/XML.	Essential
STROC-1499	TT-CAP-007.2	DTTS	Re-plan and Recover Services	Detect major variations between planned and actual. Major Variances - Compare Actual Time to Target Time at Monitoring Location and initiate an Incident/Alert/Alarm to Incident Management for Variance outside "threshold" Tolerances. Provide ability to detect variations between actual recorded monitoring times and expected/ planned/ targeted/scheduled train running times and automatically generate an Incident/Alert/Alarm notification to Incident Management where the variation exceeds the "threshold" tolerances.	Essential



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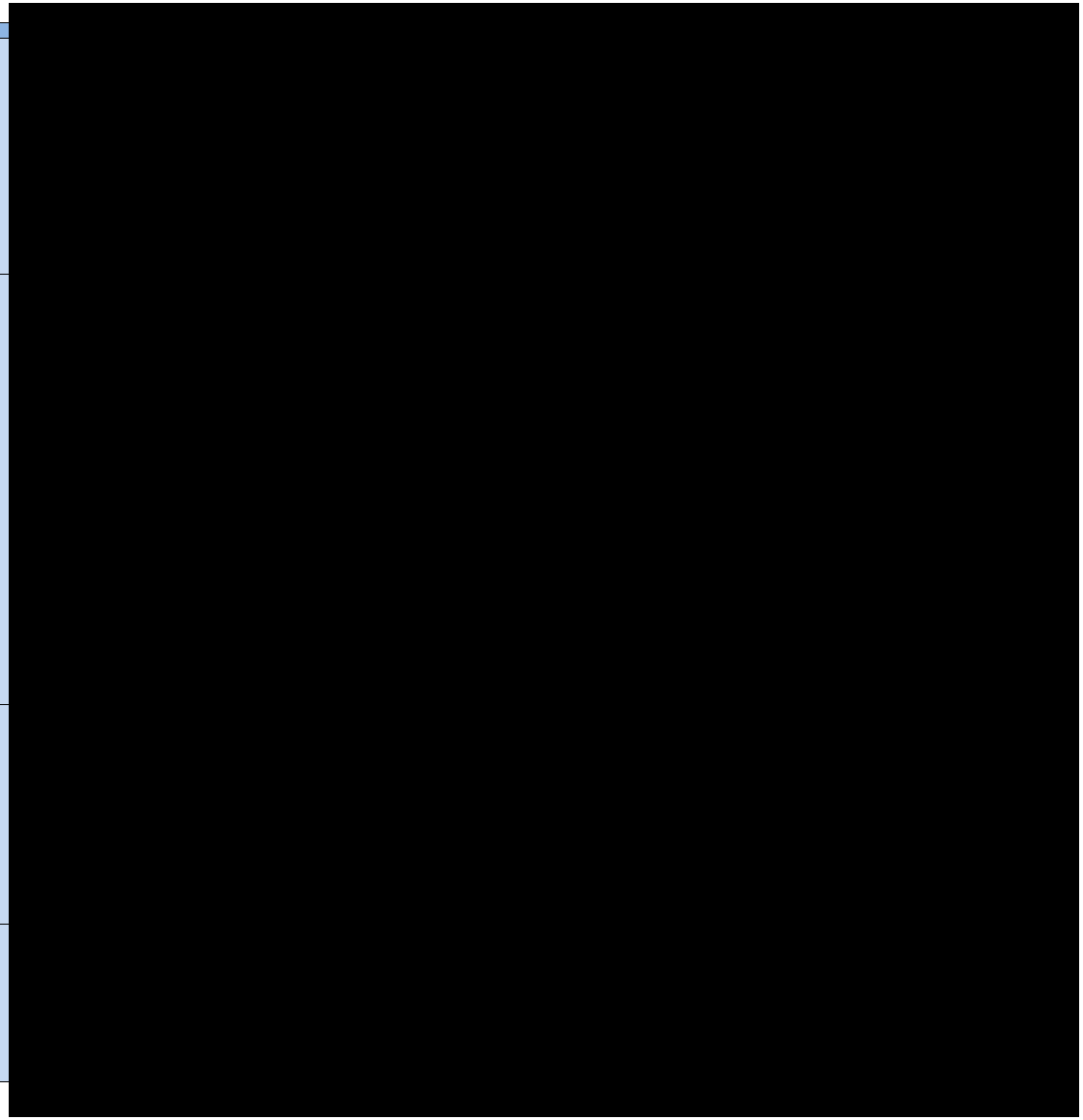
STROC-1346	TT-CAP-007.3	DTTS	Re-plan and Recover Services	Detect major variations between planned and actual. Link to a single incident. Provide ability to link major variations between actual recorded monitoring times and expected train running times and automatically or manually link to a generated single Incident/Alert/Alarm notification to Incident Management System.	Essential
STROC-1500	TT-CAP-008.1	DTTS	Re-plan and Recover Services	Response to unplanned incident/event. Provide ability to present and implement alternative disruption Timetable resolution scenarios (solutions) to impact analysis outputs based on various restrictions, pre-defined constraints, additional disruption constraints, business objectives and defined business rules (e.g. best customer service during peak hour). For example: - emergency possessions - trains' transpositions - fleet re-planning (e.g. call-in for maintenance) - where to deploy crew - right location, relief, etc. - decision support plan on how crew can get back to their schedule within a specific timeframe - customer impact information for decision making (e.g. overcrowding) - customer impact information for distribution (e.g. platform change, stopping patterns, etc.) - staff and crew information/ actions required for distribution - train run numbers re-numbering (when a service cut short and forms a different train service with a different run number)	Essential
STROC-1501	TT-CAP-008.10	DTTS	Re-plan and Recover Services	Remove manually recorded additional disruption constraints. Provide ability to remove manually recorded restrictions (in a user friendly, for example, in a graphical form such as a train graph). Temporary timeframe limited additional constraints may include: - signal failures - emergency trains delays (minor and major) - emergency track possessions - track/section blockages - temporary Speed Restrictions - minor and major fleet maintenance restrictions - minor and major crewing availability restrictions	Essential
STROC-1502	TT-CAP-008.13	DTTS	Re-plan and Recover Services	Timetable optimisation in respect to customer service objectives and customer impact business rules. Provide Timetable optimisation with consideration of customer service objective and taking into account customer impact business rules, for example: - travel with least amount of time - minimum frequencies - maximum overcrowding.	Important



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STROC-1503	TT-CAP-008.14	DTTS	Re-plan and Recover Services	Timetable optimisation in respect to Network Constraints. Provide Timetable optimisation with consideration of network constraints ,for example: - topology - minimum headway - speed limits - dimensional constraints.	Important
STROC-1504	TT-CAP-008.15	DTTS	Re-plan and Recover Services	Timetable optimisation in respect to Fleet Constraints. Provide Timetable optimisation with consideration of fleet constraints, for example: - vehicle numbers - stabling locations - dimensions/allowed network sections - maximum passenger capacity.	Important
STROC-1505	TT-CAP-008.16	DTTS	Re-plan and Recover Services	Timetable optimisation in respect to Workforce Constraints. Provide Timetable optimisation with consideration of workforce constraints: - crew walking time effects on dwell time at terminus - effects of limits on crew numbers - requirements for special qualifications for certain parts of the network - required qualifications for certain fleet types - stabling locations - crew duty - break and rest limitations.	Important
STROC-1506	TT-CAP-008.17	DTTS	Re-plan and Recover Services	Timetable optimisation in respect to Platform Constraints. Provide Timetable optimisation with consideration of platform constraints, for example: - maximum length of train consist - maximum capacity - maximum flow rate.	Important
STROC-1360	TT-CAP-008.18	DTTS	Re-plan and Recover Services	Timetable optimisation in respect to Fleet Maintenance Constraints. Provide Timetable optimisation with consideration of fleet maintenance constraints, for example: - scheduled fleet maintenance - minimum time between fleet maintenance/cleaning opportunities - temporary section closures - speed restrictions.	Important

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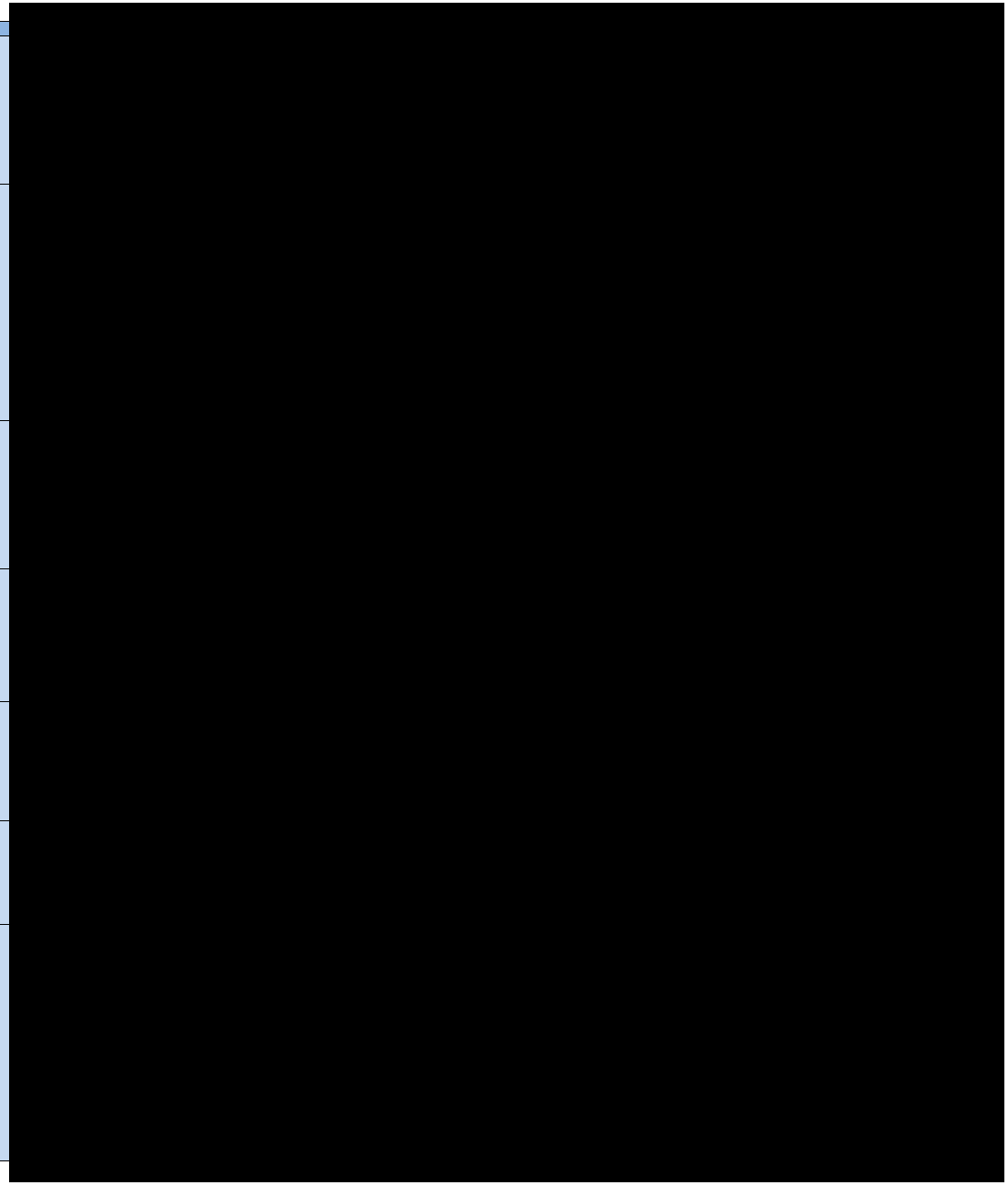
STROC-1507	TT-CAP-008.19	DTTS	Re-plan and Recover Services	Timetable optimisation: Workforce objectives. Provide Timetable optimisation with consideration of crew objectives, for example: - least cost (where costs could be number of crew required, allowances, travel expenses etc.) - best satisfaction of crew preferences - getting crew to their roster in least possible time - most robust Timetable.	Important
STROC-1508	TT-CAP-008.2	DTTS	Re-plan and Recover Services	Provide the facility to manually or automatically apply the Timetable changes identified within a given disruption resolution scenario and reflect these as changes to the Day of Operations Timetable.	Essential
STROC-1509	TT-CAP-008.20	DTTS	Re-plan and Recover Services	Timetable optimisation: Fleet/ Customer objectives. Provide Timetable optimisation with consideration of fleet objectives, for example: - maximum utilisation (to minimise the number of vehicles required, amount of dead running, amount of maintenance performed before required running hours) - best customer service (minimising overcrowding)	Important
STROC-1510	TT-CAP-008.21	DTTS	Re-plan and Recover Services	Timetable optimisation: Fleet/ Network/ Customer objectives. Provide Timetable optimisation with consideration of fleet objectives, for example: - maximum fleet utilisation: stabling locations, dimensions/allowed network sections, maximum passenger capacity	Important
STROC-1511	TT-CAP-008.22	DTTS	Re-plan and Recover Services	Timetable optimisation: Fleet/ Platform constraints and objectives. Provide Timetable optimisation with consideration of fleet/platform constraints, for example - maximum fleet utilisation - maximum length of train consist - platform length and utilisation	Important
STROC-1512	TT-CAP-008.23	DTTS	Re-plan and Recover Services	Timetable optimisation: Fleet maintenance objectives. Provide Timetable optimisation with consideration fleet maintenance objectives, for example: - fleet maintenance optimisation: maximum time between inspections/cleaning, locations where inspections/cleaning	Important
STROC-1513	TT-CAP-008.24	DTTS	Re-plan and Recover Services	Timetable Recovery - Service Recovery Optimisation. Provide Timetable recovery optimisation: the process of generating changes to the timetable that are feasible and good solutions to a disruption on the day of operation based on specific objectives, constraints and business rules.	Important



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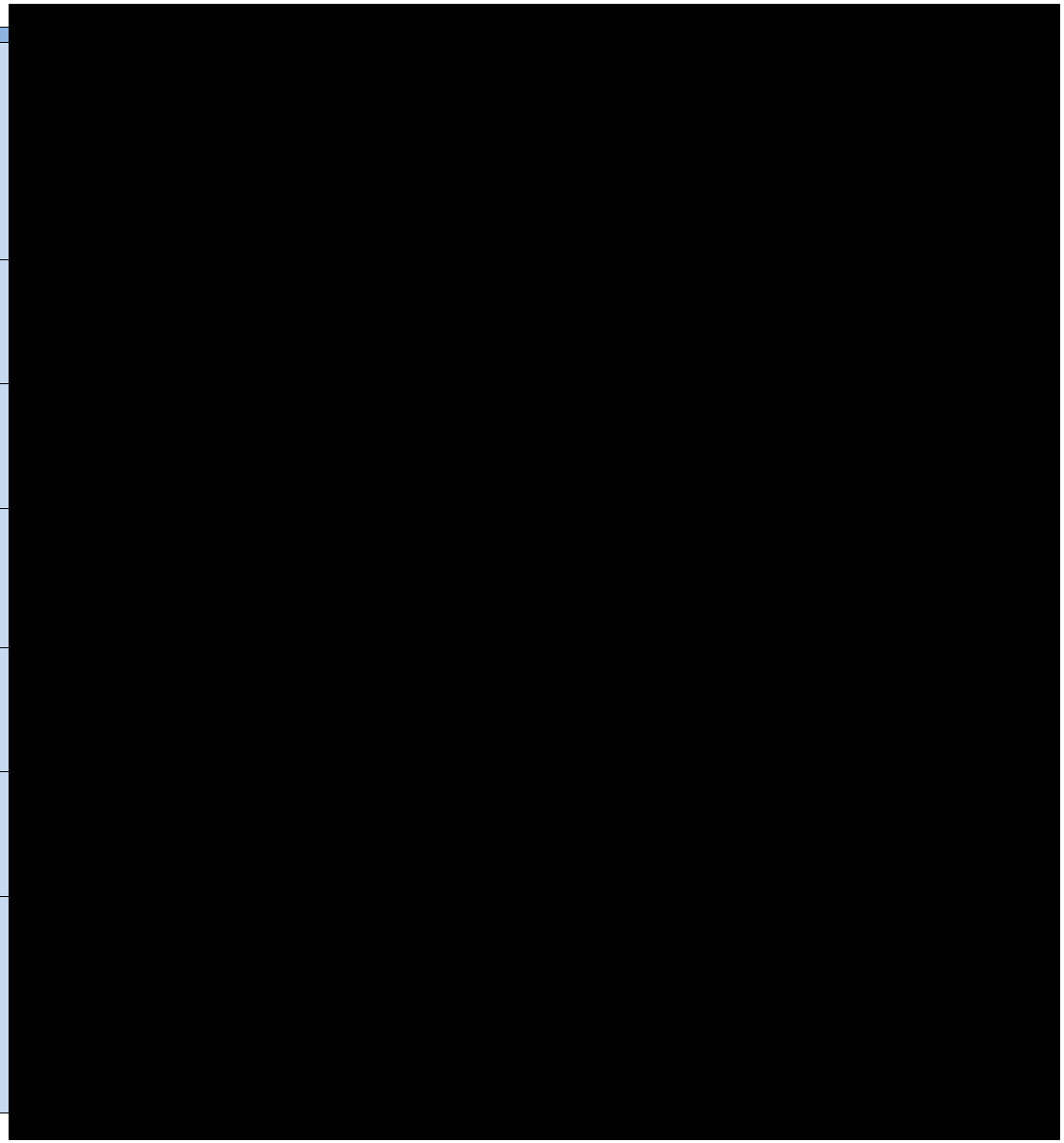
STROC-1514	TT-CAP-008.25	DTTS	Re-plan and Recover Services	Provide Timetable optimisation with the following objectives when evaluating possible feasible Timetable recovery solutions: - situational circumstances (for example, special events, time of day) - amount of customer delay - overall least customer impact - amount of overcrowding on trains and platforms - cost of crew overtime - cost of standby crew - amount of empty running	Important
STROC-1515	TT-CAP-008.26	DTTS	Re-plan and Recover Services	Provide Timetable optimisation with consideration of network constraints when generating feasible solutions, for example: - track section unavailability - electric power unavailability - signalling problems	Important
STROC-1516	TT-CAP-008.27	DTTS	Re-plan and Recover Services	Provide Timetable optimisation with consideration of fleet constraints when generating feasible schedule recovery solutions, for example: - fleet availability - dimensions/allowed network sections - maximum passenger capacity	Important
STROC-1517	TT-CAP-008.28	DTTS	Re-plan and Recover Services	Provide Timetable optimisation with consideration of workforce constraints when generating feasible schedule recovery solutions, for example, crew rostering constraints: - crew depots - crew qualifications - break and rest limitations - walk times	Important
STROC-1518	TT-CAP-008.29	DTTS	Re-plan and Recover Services	Provide Timetable optimisation with consideration of platform constraints when generating feasible schedule recovery solutions, for example: - maximum capacity - maximum flow rate - maximum length of train consist	Important
STROC-1361	TT-CAP-008.30	DTTS	Re-plan and Recover Services	Provide Timetable optimisation with consideration of fleet maintenance constraints when generating feasible schedule recovery solutions, for example: - requirements to repair fleet - locations where repairs can occur - locations where inspections/cleaning have been planned	Important
STROC-1519	TT-CAP-008.31	DTTS	Re-plan and Recover Services	Recovery to "Target" state. Produce a report providing details where we cannot meet a "Target" state, for example, any disparity between actual Crew and Fleet dispositions and those originally planned in the original Target timetable, so as to facilitate recovery back to the "Target" state.	Essential



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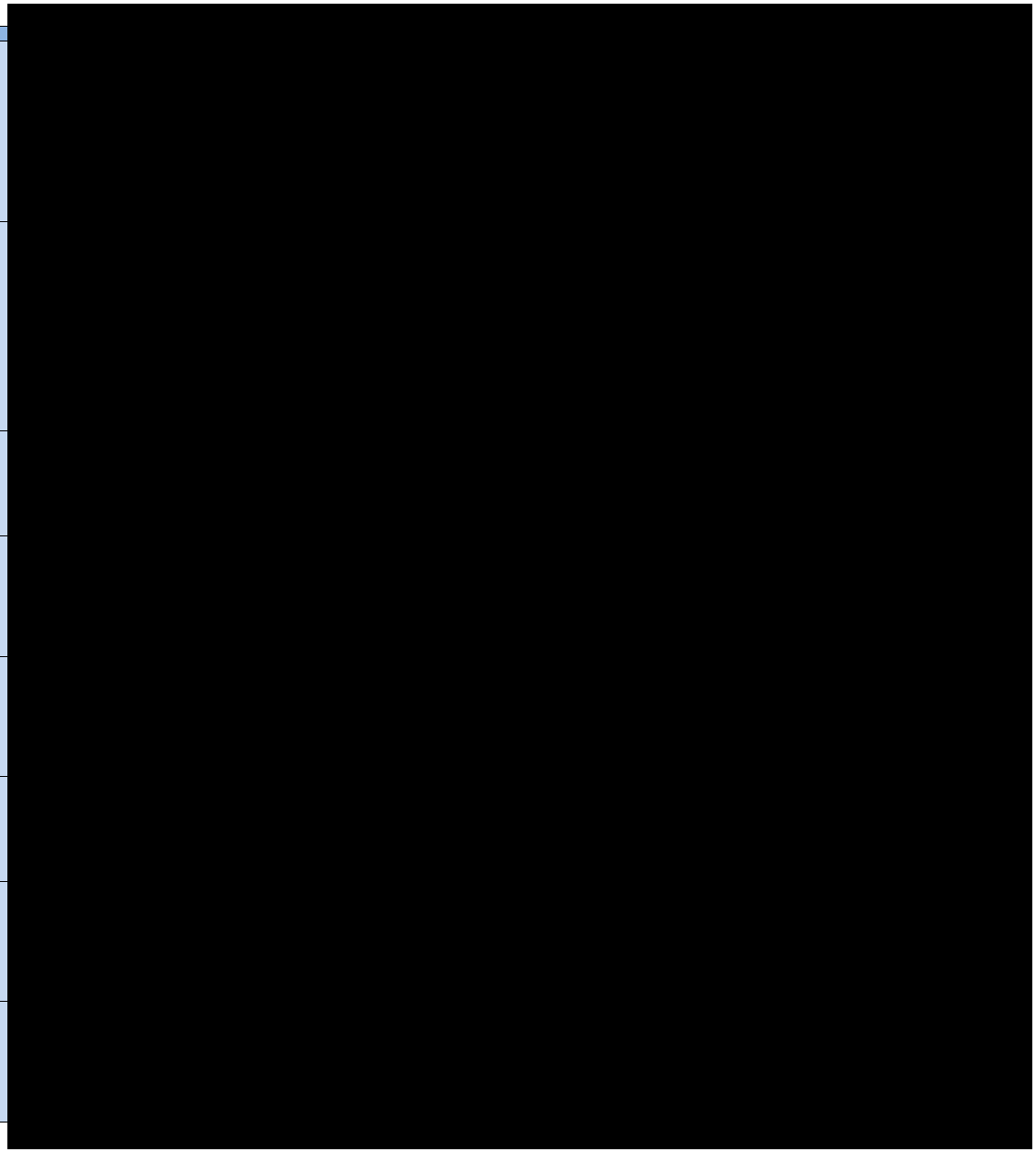
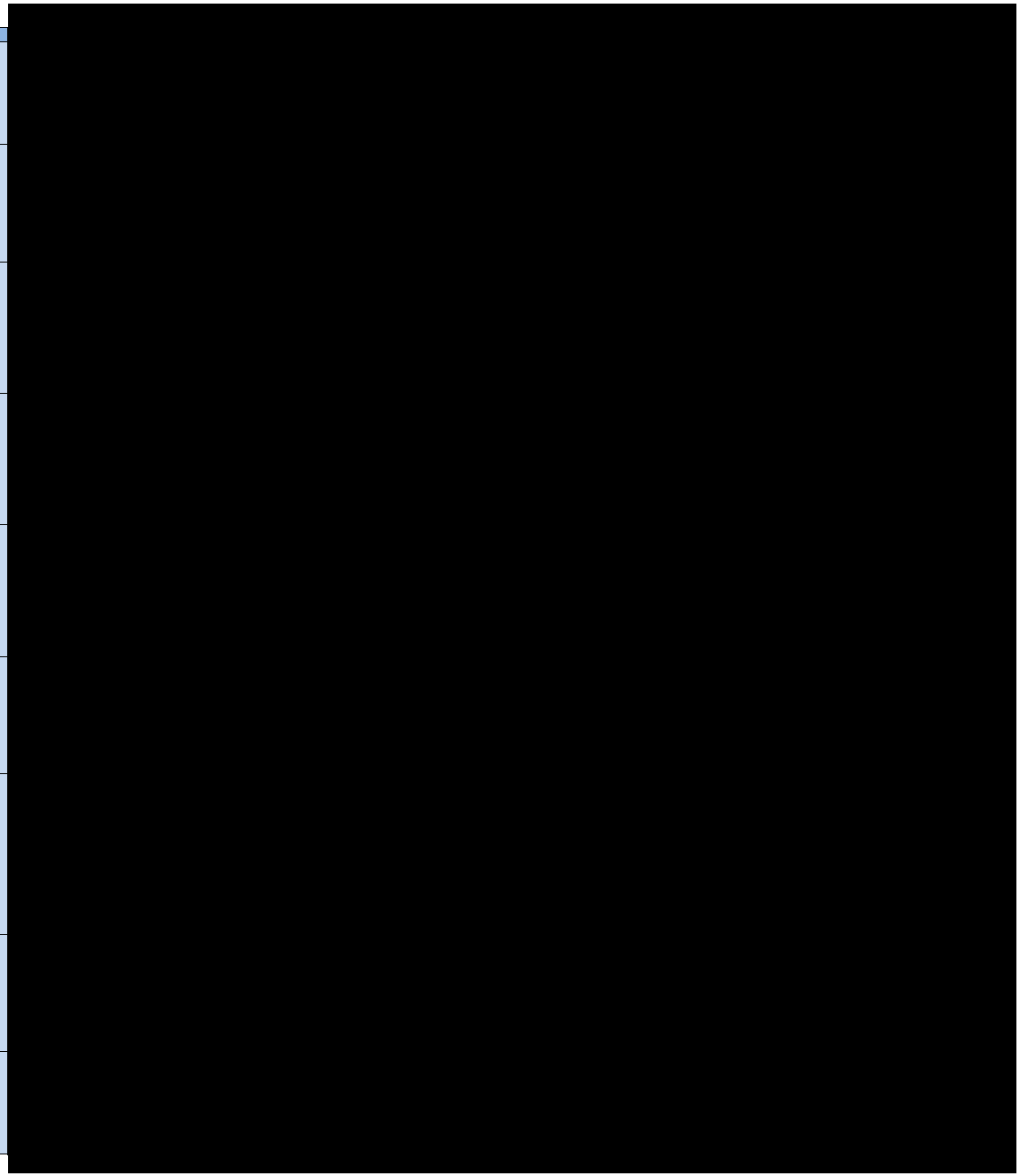
STROC-1520	TT-CAP-008.32	DTTS	Re-plan and Recover Services	Predict Recovery to "Target" state timeline. Once service interruption/constraint has been resolved, produce a report which predicts when service recovery to the originally planned Target timetable will be achieved, proposing alternate running options to achieve on-time running in a shorter timeframe, for example: - running current schedule it will take 60 minutes to return to on-time running, however cancel XYZ run and stop short ABC & DEF runs on-time running will be achieved within 30 minutes.	Essential
STROC-1521	TT-CAP-008.33	DTTS	Re-plan and Recover Services	Next day Impacts. It is possible in major disruption scenarios that the root cause problems and impacts of the disruption are not resolved before the next day's operation. Provide reporting support to identify and propagate ongoing disruption constraints and impact on customers so that required changes can be made to the next day's timetable and customers notified appropriately.	Essential
STROC-1522	TT-CAP-008.34	DTTS	Re-plan and Recover Services	Trips updates - departure and arrival time. During disruption mode, provide ability to automatically update all trips scheduled in a timetable, in near real-time. These updates would give a predicted arrival or departure time for stops along the route.	Essential
STROC-1523	TT-CAP-008.35	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Skip Stop(s) 'Trip Update' which allows a train controller to skip a number of stops in a timetabled trip based on its stopping pattern and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1524	TT-CAP-008.36	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Add Stop(s) 'Trip Update' which allows a train controller to add a number of stops in a timetabled trip based on its stopping pattern and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1525	TT-CAP-008.37	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Cancel Trip(s) 'Trip Update' which allows a train controller to cancel trips in a timetable and re-calculate the timetable. That would include all departure and arrival times of the corresponding services and impact on crew	Essential
STROC-1526	TT-CAP-008.38	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Terminate Early 'Trip Update' which allows a train controller to terminate early a timetabled trip based on its stopping pattern and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1527	TT-CAP-008.39	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Change Start 'Trip Update' which allows a train controller to add/ remove a stop in allowable route at the start of a timetabled trip and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential



Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1528	TT-CAP-008.4	DTTS	Re-plan and Recover Services	Contingency Planning Modelling. Provide ability to build and store predefined and agreed plan modifications (library like) to be electronically implemented during times of disruption.	Essential
STROC-1529	TT-CAP-008.40	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Change Platform 'Trip Update' which allows a train controller to change the platform where the train arrives at a stop in a timetabled trip and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1530	TT-CAP-008.41	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Delay Trip 'Trip Update' which allows a train controller to delay a trip by specifying the stop(s) which there is a delay and the delay time interval in seconds whether for a stop or for a section of stops of a timetabled trip and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1531	TT-CAP-008.42	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Re-route Trip ' which allows a train controller re-routing. Re-routing trains fall into two categories: Change a line in which a service runs (main, local, suburban). This may have a minor impact on the platforms available or change the route (via station). This would have a significant impact on the stations in which a service passes through. Re-calculate timetable	Essential
STROC-1532	TT-CAP-008.43	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Extend Trip 'Trip Update' which allows to extend an existing trip to any possible location / station based on what's possible as defined by restrictions and constraints and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1533	TT-CAP-008.44	DTTS	Re-plan and Recover Services	Provide ability to manually perform the Insert Trip 'Trip Update' which allows a train controller to insert an unplanned trip into the Day Of Operation timetable and re-calculate the timetable. That would include all departure and arrival times of the changed service, corresponding services and impact on crew	Essential
STROC-1534	TT-CAP-008.45	DTTS	Re-plan and Recover Services	Timetable changes (e.g. service delays) link to an incident. Provide ability to automatically link timetable changes and/or delays to a specific incident. For example, - when a service is delayed, this service delay and other impacted services' delays are linked to one incident	Essential
STROC-1535	TT-CAP-008.46	DTTS	Re-plan and Recover Services	Fleet Allocations Change. Provide ability to automatically capture fleet allocations changes from other internal systems For example: - fleet re-planning (e.g. call-in for maintenance)	Essential
STROC-1536	TT-CAP-008.47	DTTS	Re-plan and Recover Services	Crew Allocation Change. Provide ability to automatically capture crew allocation changes from other internal systems	Essential



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STROC-1537	TT-CAP-008.48	DTTS	Re-plan and Recover Services	Full Customer Journey during Disruption. Provide ability to re-plan full customer journey in disruption mode (part train and part bus plan with stopping patterns). For example: - Customer journey from Hurstville to Cronulla will be provided by buses with a stopping pattern at specified stations and approximate times	Desired
STROC-1538	TT-CAP-008.5	DTTS	Re-plan and Recover Services	Contingency planning to achieve best situational outcome. In times of service disruption management, automatically suggest the best contingency plan based on the predefined models and additional parameters entered, for example: - move an additional 10000 people during peak-time from CBD along North Shore line	Important
STROC-1539	TT-CAP-008.51	DTTS	Re-plan and Recover Services	Variations of transpositions. Provide ability to support variations of transpositions TT-CAP-008.34 - TT-CAP-008.44	Essential
STROC-1540	TT-CAP-008.52	DTTS	Re-plan and Recover Services	Rebalance fleet types during disruption. Provide ability to re-balance fleet types during disruption mode For example: - substitute set types and balance fleet at stabling locations	Essential
STROC-1541	TT-CAP-008.53	DTTS	Re-plan and Recover Services	Run numbers conflicts and relationships with timetabled run numbers during disruption. Provide ability to resolve run numbers conflicts during the disruption For example: - duplicate run numbers (when there is a blockage and trains are turned around) - a new run number is given for a portion of a journey	Essential
STROC-1542	TT-CAP-008.6	DTTS	Re-plan and Recover Services	Predict Operational Situation Outcome. Provide ability to predict where each train will be and at what time (corresponding time delays) based upon the current operational situation (incidents, delays etc) and existing constraints/restrictions. This will facilitate the provision of near real-time information to our customers.	Essential
STROC-1374	TT-CAP-008.9b	DTTS	Re-plan and Recover Services	Identify conflicts - Consequential/ Reactionary delays. Provide the ability to check for conflicts arising from service delays that may impact connected services and automatically implement a solution.	Important

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STROC-1373	TT-CAP-008.9a	DTTS	Re-plan and Recover Services	Identify conflicts - Consequential/ Reactionary delays. Provide the ability to check for conflicts arising from service delays that may impact connected services and propose resolution options which can be manually applied.	Essential
STROC-1372	TT-CAP-008.8b	DTTS	Re-plan and Recover Services	Identify Conflicts - check for path conflicts. Provide the ability to check for path conflicts within the current plan, taking into consideration possessions and infrastructure availability, and calculate the consequential delays and automatically implement a solution. An assumption is made that the plan is already consistent with crew availability and analysed as part of the ?validation? capability.	Important
STROC-1371	TT-CAP-008.8a	DTTS	Re-plan and Recover Services	Identify Conflicts - check for path conflicts. Provide the ability to check for path conflicts within the current plan, taking into consideration possessions and infrastructure availability, and calculate the consequential delays and propose resolution options which can be manually applied. An assumption is made that the plan is already consistent with crew availability and analysed as part of the ?validation? capability.	Essential
STROC-1370	TT-CAP-008.7b	DTTS	Re-plan and Recover Services	Communicate Predicted Time delays. Provide ability to communicate predicted time delays, based upon the current operational situation, to downstream Customer Information system.	Essential
STROC-1369	TT-CAP-008.7a	DTTS	Re-plan and Recover Services	Predict Time delays. Provide ability to predict time delays to services based upon the current operational situation.	Essential
STROC-1368	TT-CAP-008.50b	DTTS	Re-plan and Recover Services	Timetable exchange with other Rail Operators during disruption. Provide ability to provide a Timetable to 3rd party rail operators during disruption time (e.g. ARTC).	Essential

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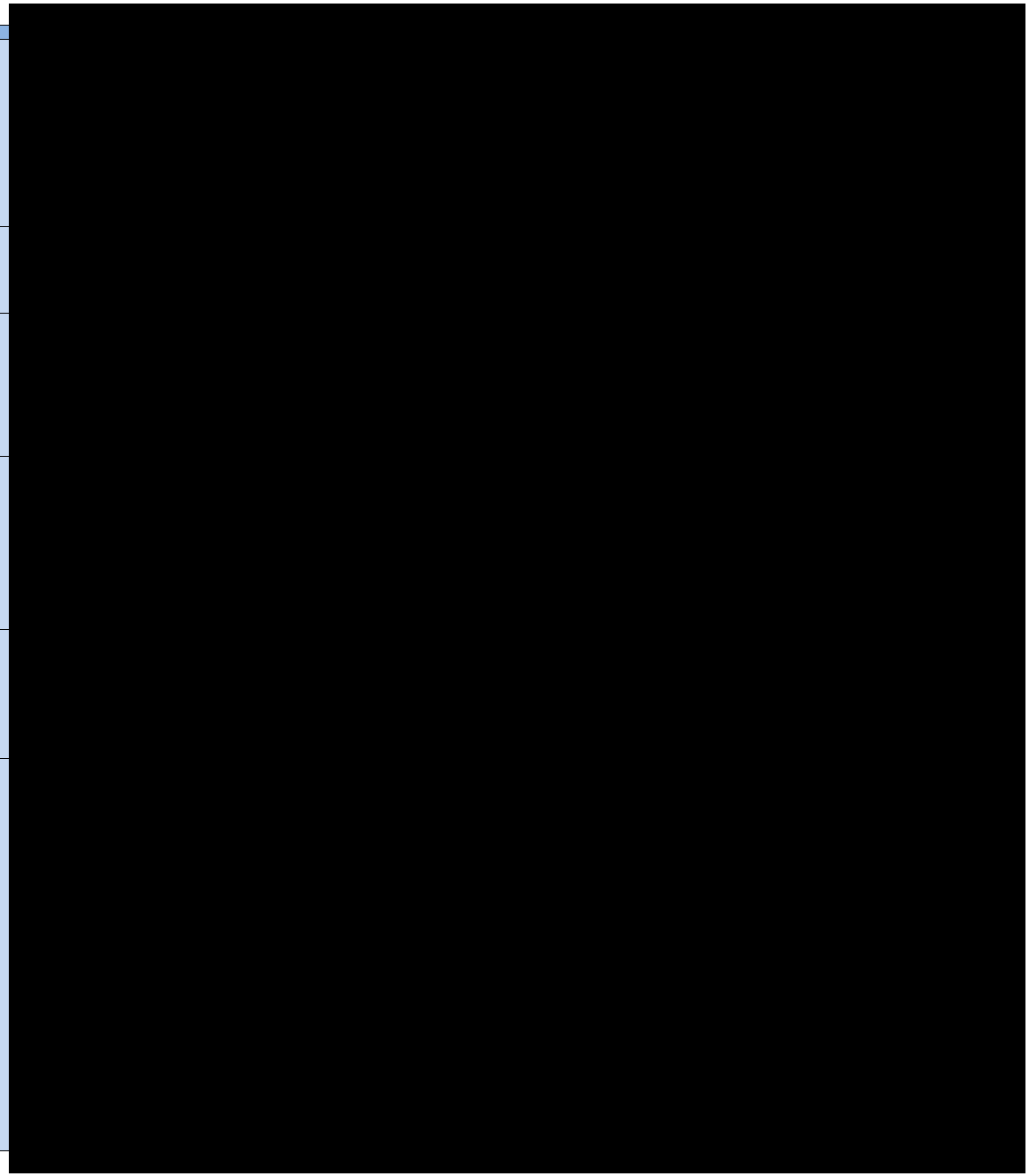
STROC-1367	TT-CAP-008.50a	DTTS	Re-plan and Recover Services	Timetable exchange with other Rail Operators during disruption. Provide ability to obtain a Timetable from 3rd party rail operators during disruption time (e.g. ARTC).	Essential
STROC-1366	TT-CAP-008.49b	DTTS	Re-plan and Recover Services	Obtaining the Information on Alternative Bus Services (e.g. Emergency buses organised by Sydney Trains). Provide ability to obtain Alternative Buses information and merge it with the rail timetable during time of disruption.	Desired
STROC-1365	TT-CAP-008.49a	DTTS	Re-plan and Recover Services	Obtaining the Information on Alternative Bus Services (e.g. Emergency buses organised by Sydney Trains). Provide ability to obtain Alternative Buses information and merge it with the rail timetable during time of disruption.	Desired
STROC-1364	TT-CAP-008.3c	DTTS	Re-plan and Recover Services	Service Impact Assessment/ Analysis. Provide Impact Analysis (electronic and/or printed) to highlight any impact of proposed changes to the Day of Operations Plan on Crew, based on predefined customer services constraints and business rules. For example: - station (for example, hours the station is manned/station opening patterns) - customer impact (for example, stopping pattern changes may cause overcrowding)	Essential
STROC-1363	TT-CAP-008.3b	DTTS	Re-plan and Recover Services	Service Impact Assessment/ Analysis. Provide Impact Analysis (electronic and/or printed) to highlight any impact of proposed changes to the Day of Operations Plan on Crew, based on predefined fleet constrains and business rules. For example: - train will be stabled in a different location	Essential
STROC-1362	TT-CAP-008.3a	DTTS	Re-plan and Recover Services	Service Impact Assessment/ Analysis. Provide Impact Analysis (electronic and/or printed) to highlight any impact of proposed changes to the Day of Operations Plan on Crew, based on predefined crew constrains and business rules. For example: - crew to exceed/conflict daily crew rostering rules - static or dynamic (for example, work hours rules, fatigue level, overrun number of kilometres allowed, etc.)	Essential



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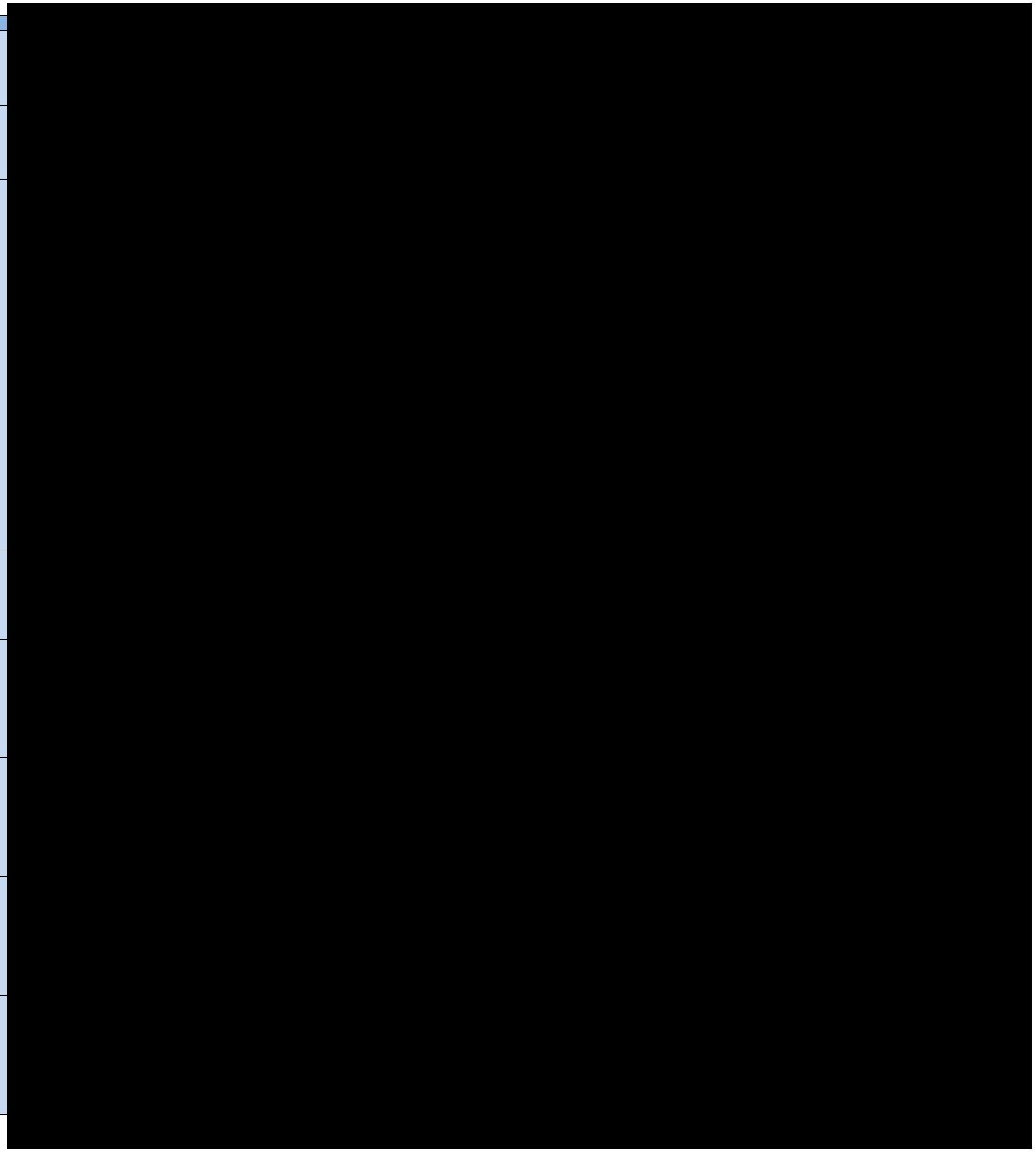
STROC-1359	TT-CAP-008.12c	DTTS	Re-plan and Recover Services	Timetable optimisation: Service Level vs Crew Provide timetable optimisation objectives to achieve best customer service for given crew constraints	Important
STROC-1358	TT-CAP-008.12b	DTTS	Re-plan and Recover Services	Timetable optimisation: Service Level vs Fleet Provide timetable optimisation objectives to achieve best customer service for given fleet constraints	Important
STROC-1357	TT-CAP-008.12a	DTTS	Re-plan and Recover Services	Timetable optimisation: Service Level vs Cost Provide timetable optimisation objectives to achieve least cost for a given level of service (where cost could be amount of empty running, number of consists required, number of crew shifts required)	Important
STROC-1356	TT-CAP-008.11b	DTTS	Re-plan and Recover Services	Timetable optimisation - "Estimated" Timetable. Provide Timetable optimisation to "Estimated" timetable in respect to specific/ defined constraints and objectives	Important
STROC-1355	TT-CAP-008.11a	DTTS	Re-plan and Recover Services	Timetable optimisation - "Target" Timetable. Provide Timetable optimisation to "Target" timetable in respect to specific/ defined constraints and objectives	Important
STROC-1354	TT-CAP-008.0h	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) a track/section blockage, to reflect as additional temporary constraints to be considered in disruption management processes.	Essential
STROC-1353	TT-CAP-008.0g	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) an emergency stop for unknown reasons, to reflect as additional temporary constraints to be considered in disruption management processes.	Essential
STROC-1352	TT-CAP-008.0f	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) the unplanned platform constraints to reflect as additional temporary constraints to be considered in disruption management processes.	Essential



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STROC-1351	TT-CAP-008.0e	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) the unplanned temporary speed restrictions to reflect as additional temporary constraints to be considered in disruption management processes.	Essential
STROC-1350	TT-CAP-008.0d	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) the unplanned temporary speed restrictions to reflect as additional temporary constraints to be considered in disruption management processes.	Essential
STROC-1349	TT-CAP-008.0c	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) the unplanned crew availability restrictions to reflect as additional temporary constraints to be considered in disruption management processes.	Essential
STROC-1348	TT-CAP-008.0b	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) the unplanned fleet maintenance to reflect as additional temporary constraints to be considered in disruption management processes. For example: - unplanned call-in for maintenance	Essential
STROC-1347	TT-CAP-008.0a	DTTS	Re-plan and Recover Services	Record additional disruption constraints. Provide ability to manually record (in a user friendly, for example, in a graphical form such as a train graph) the unplanned loss of network infrastructure to reflect as additional temporary constraints to be considered in disruption management processes.	Essential
STROC-1569	TT-CAP-014.0	DTTS	Set Train Paths	Automatic Route Setting. Provide ability to set train routes automatically	Important

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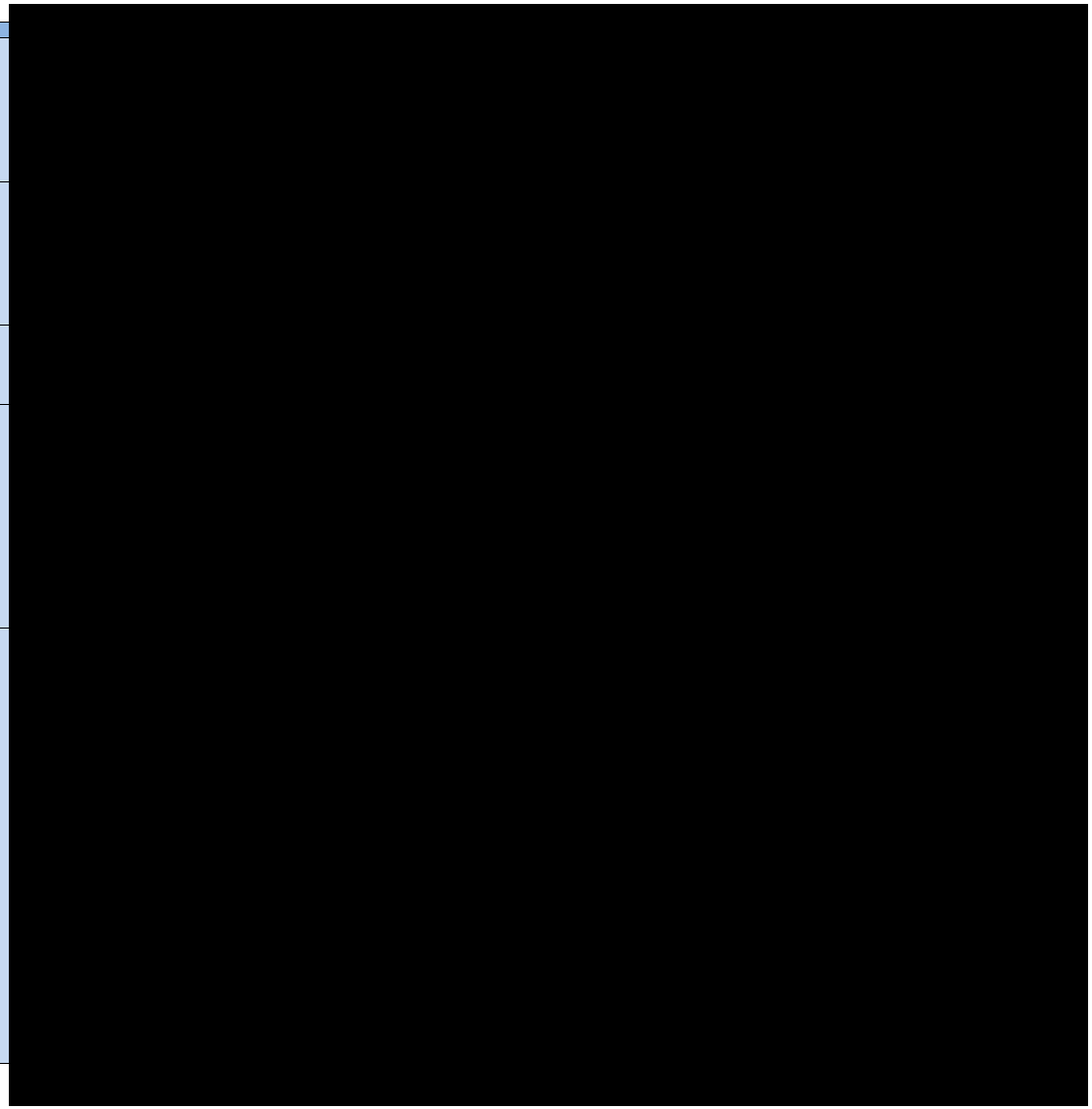
STROC-1570	TT-CAP-014.1	DTTS	Set Train Paths	Standardised Signalling Interface. Provide user friendly standard signalling interface	Important
STROC-1571	TT-CAP-014.3	DTTS	Set Train Paths	Automatically re-adjust paths. Provide ability to automatically re-adjust paths. Automatic resolution of conflicts	Important
STROC-1473	TT-CAP-014.2b	DTTS	Set Train Paths	Dynamic Tolerances. Provide ability to automatically resolve conflicts in interlocking tolerances.	Important
STROC-1472	TT-CAP-014.2a	DTTS	Set Train Paths	Dynamic Tolerances. Provide ability to automatically resolve conflicts in dynamic headway tolerances.	Important
STROC-1491	TT-CAP-005.0	DTTS	Simulation of Operational Timetable	Simulation and optimisation algorithms. Provide ability to invoke simulation and optimisation algorithms incorporating additional changes, constraints (permanent and temporary) and rules. Provide ability to make changes to services based on simulations and optimisation scenarios.	Essential



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STROC-1492	TT-CAP-005.1	DTTS	Simulation of Operational Timetable	Simulate outcome to level of service required. Provide ability to enter a range of variables and return simulation for the optional outcome, for example input level of service required and output resource requirements.	Essential
STROC-1493	TT-CAP-005.3	DTTS	Simulation of Operational Timetable	Simulate stability of timetable. Provide ability to perform simulation with use of statistical methods to determine the stability of the timetable in the presence of a range of possible adverse events with given probabilities, for example: - probability of X happening is Y%, if a proposed alternate timetable is implemented	Essential
STROC-1494	TT-CAP-005.4	DTTS	Simulation of Operational Timetable	Simulate special event activity. Provide ability to perform simulation of special event activity based on input demand values.	Essential
STROC-1337	TT-CAP-005.2j	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on the effect of extreme rain incidents.	Essential
STROC-1336	TT-CAP-005.2i	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on the effect of extreme heat incidents.	Essential
STROC-1335	TT-CAP-005.2h	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on the effect electric power outage incidents.	Essential
STROC-1334	TT-CAP-005.2g	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on the effect of incidents such as track section unavailability.	Essential

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STROC-1333	TT-CAP-005.2f	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on the effect of signal failure incidents.	Essential
STROC-1332	TT-CAP-005.2e	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on alterations to crew allocations	Essential
STROC-1331	TT-CAP-005.2d	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on alterations to fleet allocations	Essential
STROC-1330	TT-CAP-005.2c	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on alterations to network availability	Essential
STROC-1329	TT-CAP-005.2b	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on alterations to network configuration	Essential
STROC-1328	TT-CAP-005.2a	DTTS	Simulation of Operational Timetable	Simulate disruption resolution scenarios. Provide ability to simulate Timetable resolution scenarios based on alterations to select train services	Essential
STROC-1561	TT-CAP-012.1	DTTS	Technical - Interoperability, Collaboration and Workflow	Provide ability to configure data format and content once input to the system from upstream systems, for example: - physical or geospatial data	Essential
STROC-1562	TT-CAP-012.10	DTTS	Technical - Interoperability, Collaboration and Workflow	Current Train Location Information. Provide ability to interface to a Train Location system or Ability to identify current train location	Essential
STROC-1563	TT-CAP-012.11	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - patronage data. Provide ability to interface to external systems to obtain patronage data	Desired

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STROC-1564	TT-CAP-012.13	DTTS	Technical - Interoperability, Collaboration and Workflow	Current Train Location Information to downstream systems. Provide ability to provide current train location to downstream systems.	Essential
STROC-1565	TT-CAP-012.14	DTTS	Technical - Interoperability, Collaboration and Workflow	Provide ability to integrate with modern Train Condition Monitoring Systems in order to capture train passenger loading by car and consist, for the purpose of service performance reporting, timetable scenario evaluation, and providing information to downstream systems	Essential
STROC-1566	TT-CAP-012.3	DTTS	Technical - Interoperability, Collaboration and Workflow	Provide ability to configure data format and content output from the system specific to each downstream system and recipient.	Essential
STROC-1456	TT-CAP-012.4	DTTS	Technical - Interoperability, Collaboration and Workflow	SIRI Standard The system must support the SIRI standard to support an increase collaboration with alternative transport, marketing and comms through the Timetable production lifecycle.	Essential
STROC-1457	TT-CAP-012.5	DTTS	Technical - Interoperability, Collaboration and Workflow	Business rules. Provide the ability to define and edit business rules via a Rules Engine, rather than hard-coded within the System logic.	Essential

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STROC-1458	TT-CAP-012.6	DTTS	Technical - Interoperability, Collaboration and Workflow	Constraint rules. Provide the ability to define and edit constraint rules via a Constraint Editor, rather than hard-coded within the System logic	Essential
STROC-1567	TT-CAP-012.8	DTTS	Technical - Interoperability, Collaboration and Workflow	Business process management. Provide the following Business Process Management capabilities: - Business Process Definition - Business Process Modelling - Business Process Activity Monitoring (including alerts, automated process and event triggers)	Desired
STROC-1568	TT-CAP-012.9	DTTS	Technical - Interoperability, Collaboration and Workflow	Manage and present Alerts. Processes a range of data sources to identify issues that may impact the operational situation and raises alerts/alarms where appropriate.	Essential
STROC-1461	TT-CAP-012.7c	DTTS	Technical - Interoperability, Collaboration and Workflow	Integrated workflow. Provide the capability for user configurable workflow(s)	Essential
STROC-1460	TT-CAP-012.7b	DTTS	Technical - Interoperability, Collaboration and Workflow	Integrated workflow. Provide the capability for integrated workflow for emergency possessions management	Essential
STROC-1459	TT-CAP-012.7a	DTTS	Technical - Interoperability, Collaboration and Workflow	Integrated workflow Provide the capability for integrated workflow for incident/ event management	Essential

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STROC-1455	TT-CAP-012.2b	DTTS	Technical - Interoperability, Collaboration and Workflow	Dependent Data/System Interoperability - Downstream. Provide integration with downstream systems to distribute timetable information - operational timetables to current and future project planned (in-flight) signalling systems.	Essential
STROC-1454	TT-CAP-012.2a	DTTS	Technical - Interoperability, Collaboration and Workflow	Dependent Data/System Interoperability - Downstream. Provide integration with downstream systems to distribute timetable information - customer timetables to Customer Information System	Essential
STROC-1453	TT-CAP-012.16b	DTTS	Technical - Interoperability, Collaboration and Workflow	Integrated workflow for Service Request Management: - internal staff track access (TT-CAP-013.3)	Important
STROC-1452	TT-CAP-012.16a	DTTS	Technical - Interoperability, Collaboration and Workflow	Integrated workflow for Service Request Management: - third party service request (TT-CAP-004.5)	Important
STROC-1451	TT-CAP-012.15b	DTTS	Technical - Interoperability, Collaboration and Workflow	Integration from Day of Operations Timetable to Crew. Provide integration Crew systems to automate the impact from Timetable changes and to distribute timetable information: - crew workings changes/ impact (Crew system)	Important
STROC-1450	TT-CAP-012.15a	DTTS	Technical - Interoperability, Collaboration and Workflow	Integration from Day of Operations Timetable to Fleet Provide integration Fleet to automate the impact from Timetable changes and to distribute timetable information: - fleet impact (Fleet Allocation System)	Important
STROC-1449	TT-CAP-012.0j	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - CCTV VMS/PSIM (protective security)	Essential

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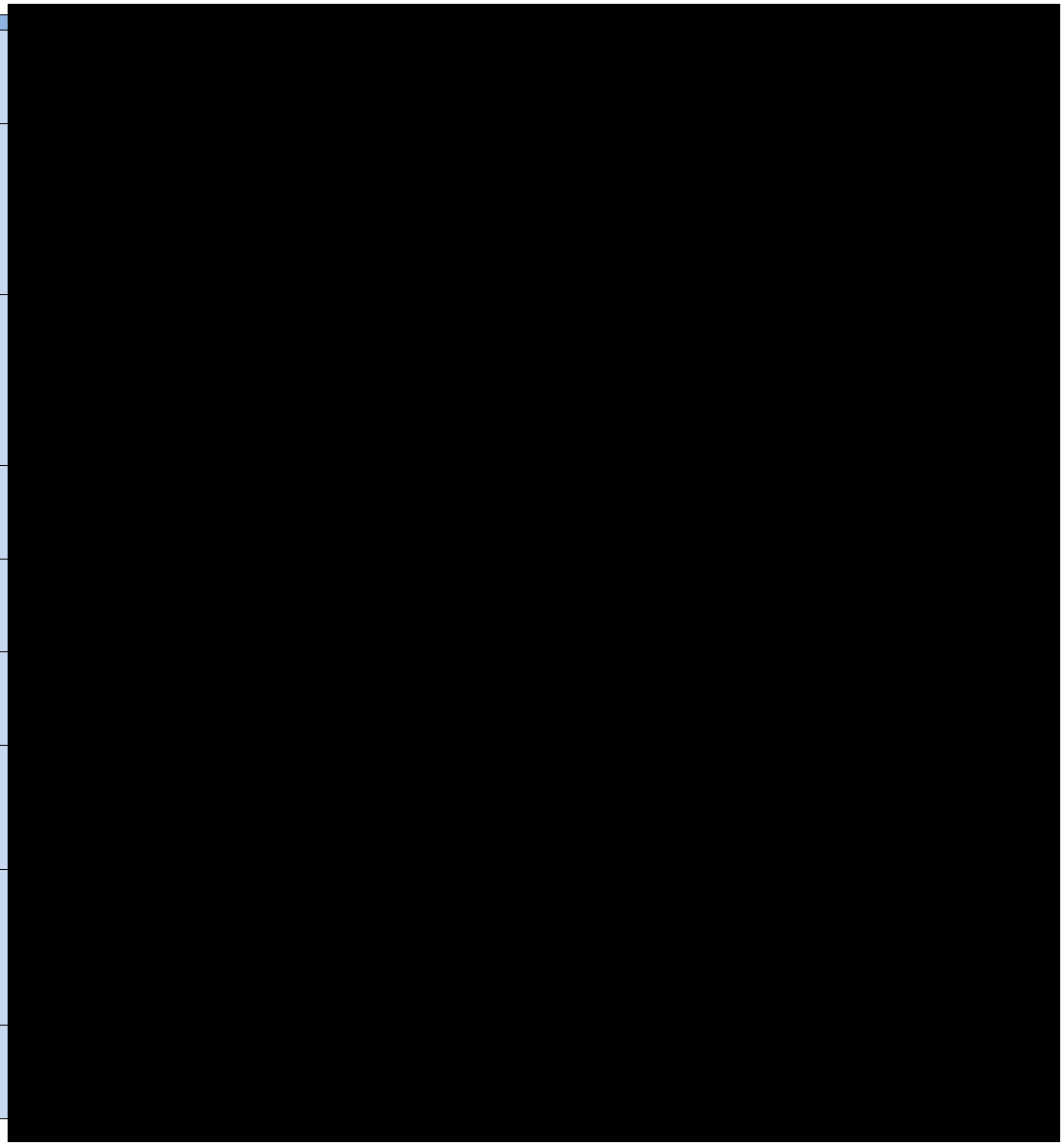
STROC-1448	TT-CAP-012.0i	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - blocked/planned possessions	Essential
STROC-1447	TT-CAP-012.0h	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - incident/event information	Essential
STROC-1446	TT-CAP-012.0g	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - geospatial data (trains and potentially, coaches)	Essential
STROC-1445	TT-CAP-012.0f	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - logical network model	Essential
STROC-1444	TT-CAP-012.0e	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - fleet constraints	Essential
STROC-1443	TT-CAP-012.0d	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - Daily/Standard Working Timetable	Essential
STROC-1442	TT-CAP-012.0c	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - late train notices	Essential
STROC-1441	TT-CAP-012.0b	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - crew availability, assignment and location	Essential
STROC-1440	TT-CAP-012.0a	DTTS	Technical - Interoperability, Collaboration and Workflow	Data/System Source Interoperability - Upstream. Where required, provide integration with upstream systems to obtain information - current train location	Essential



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STROC-1040	IMS-CAP-044	IMS	Close and Report	The ability to create electronic record (package) containing all incident record details and its associated / linked data files. For example: Details may include: - Origin of the Alarm / Incident (e.g. source system, user name), - Priority, - Time of alarm, - Incident ID, - Incident Level, - Cause, - Creator, - Impact on customers. - Time and Date. Other linked data may include: - CCTV, - Phone calls recorded, - Emails, - Text message, - PDF, - Photographs.	Essential
STROC-1041	IMS-CAP-045	IMS	Close and Report	The ability to provide incident information to other downstream systems in real-time. For example: - Basic incident information, - Impact on services, - Expected restoration times. Note: Impact to trips, line and station would need to be received from DTTS.	Essential
STROC-1042	IMS-CAP-046	IMS	Close and Report	The ability to generate defined and ad hoc reports on incident status.	Essential
STROC-1043	IMS-CAP-047	IMS	Close and Report	The ability to export safety related incident information in real time to an external system. Note: Refer to IMS architecture for interfacing systems.	Essential
STROC-1044	IMS-CAP-048	IMS	Close and Report	The ability to export incident details to a data warehouse.	Essential

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Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1045	IMS-CAP-050	IMS	Close and Report	The ability to manage business rules for closing incident records.	Essential
STROC-992	IMS-CAP-001	IMS	Detect	The ability to integrate with various alarm sources, systems and technology to receive automated alerts. The type of automated alerts is to include but not be confined to: - Service delays received from DTTS, - Signal passed at danger, - Condition Monitoring, - Signal failure, - Points failure, - Overhead wiring failure, - Social media feeds, - Dwell time, - Section running time Lost, - Control system failure, - Technology failure, - Electrical failures / SCADA Network, - CCTV, - Alerts received from other incident management systems. Note: Please refer to NFR for details on interfacing standards and technologies.	Essential
STROC-993	IMS-CAP-002	IMS	Detect	The ability to create a network incident notice. Details to be captured for example are: - Issuers name, - Designation, - Contact details, - Relevant factual information, - Asset Information, - Weather (Forecast, actual, variance , actions).	Essential
STROC-995	IMS-CAP-003.02	IMS	Detect	The ability to receive and automatically input alerts received via a mobile application. Note: This includes any associated / attached information such as photographs etc.	Essential

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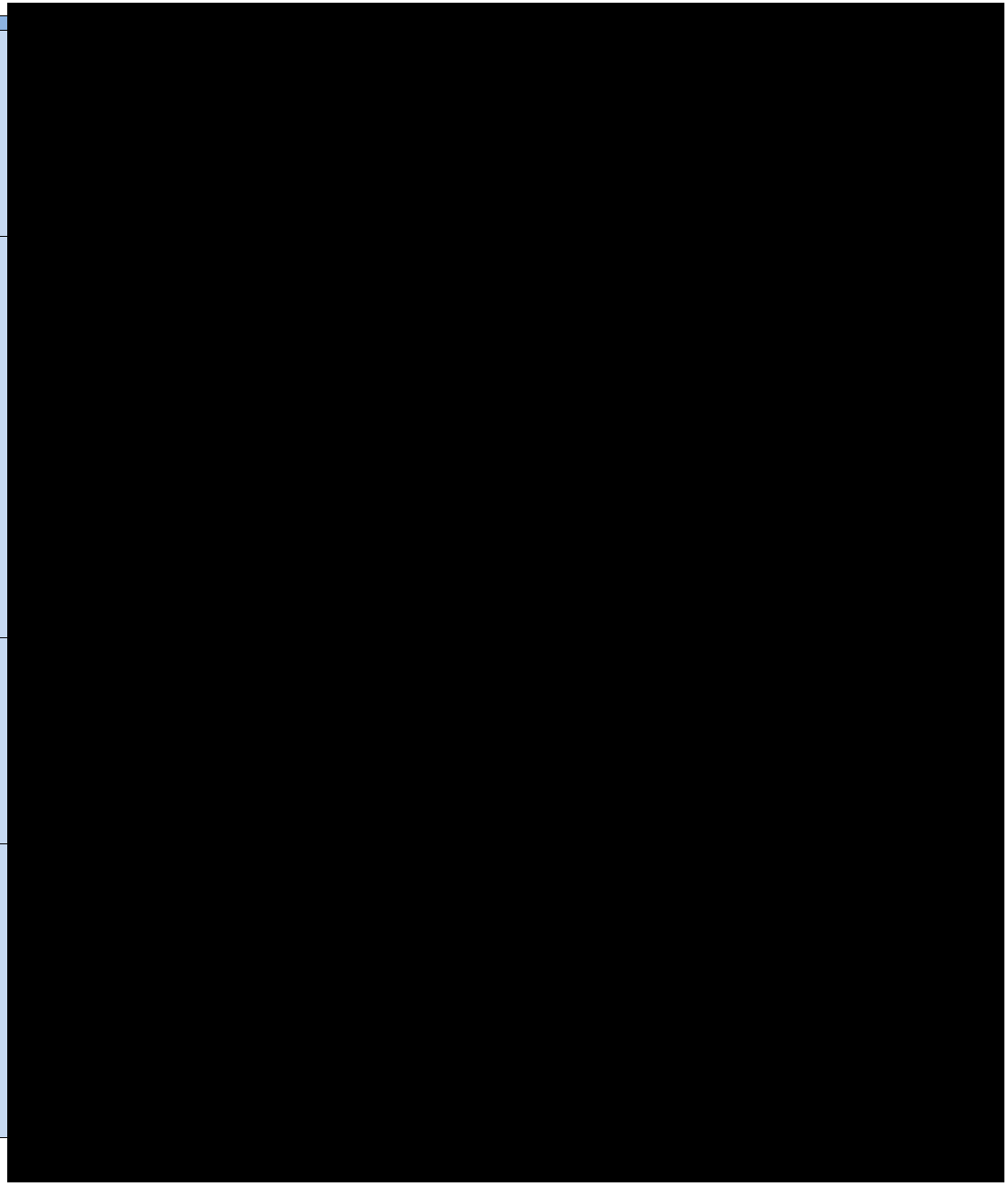
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-994	IMS-CAP-003.01	IMS	Detect	The ability to receive and input manual alerts. For example: - Phone call, - Text, - Email, - Web, Phone calls are to be: - Recorded and entered into IMS, - Directed to the appropriate staff member. Note: All manually captured information is to be captured as structured data, this may involve prompts and human interaction.	Essential
STROC-1046	IMS-CAP-051	IMS	Other Capabilities	The ability to create scheduled reports based on predefined criteria. For example: -Annually, Monthly, Weekly, Daily, Adhoc, - Date / Time, - Incident Reports, - OCR Reports, - NIN Reports, - CAN Reports, - AM Peak Composition Reports, - PM Peak Composition Reports, - AM Peak Summary Reports, - PM Peak Summary Reports, - Delayed Crew Reports, - NIN Report - Outstanding, - NIN Report - Date Raised, - Inactive User Reports, - Other reports such as: Ministerial reports, punctuality reports, sick passengers reports, airport line performance reports, maintenance incident reports etc.	Essential
STROC-1047	IMS-CAP-052	IMS	Other Capabilities	The ability to manage (C,R,U,D) predefined reporting templates. Note: Business needs are constantly evolving therefore it is envisaged that report templates will need to be updated and new report types will need to be created.	Essential
STROC-1048	IMS-CAP-053	IMS	Other Capabilities	The ability to manage (C,R,U,D) reference data. For example: - Import reference date, - Manage the different categories of incidents, - Manage Incident coding (used for attribution), - Asset information, - Stations, - Line, - Sectors, - Fleet types. Ability to: - Create (access / import) - Read, - Update, - Delete, - Export.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1049	IMS-CAP-055	IMS	Other Capabilities	The ability to provide access to incident information to mobile / operational staff and 3rd parties external to the ROC. For example the ability to: - Provide real-time access to users and 3rd parties, - Received incident updates from a mobile device, - Ability to create incident notifications, - Provide a mobile collaborative work place, - Optimise data for mobile devices.	Essential
STROC-1052	IMS-CAP-057	IMS	Other Capabilities	The ability to create, manage and maintain workflows, templates and checklists. For example: Workflows, Checklist, Templates we require the ability to: - Create, - Read, - Update, - Delete. Workflow capabilities to manage: - Business processes, - Activities (manual and automated), - Deadlines, - Check lists, - Business rules, - Notifications, - Escalations, - User roles, - User permissions, - Process monitoring, - Administration, - Auditing. Note: It's envisaged that some safety / network rules could be incorporated into the workflows either as pointer or guidance or actions	Essential
STROC-1053	IMS-CAP-058	IMS	Other Capabilities	The ability to manage alarm business rules: For example: - Manage Hierarchy of alarms, - Automated suppression rules, - Associated workflows rules, - Notification rules (Colour, frequency, visual, brightness, audio, volume), - Trigger CCTV views. Note: Requirement related to human factors.	Essential
STROC-1054	IMS-CAP-059	IMS	Other Capabilities	The ability to manage the roles and their associated permissions. For example: - Create, - Read, - Update, - Delete. - Roles (for example: Train Controller, Shift Manager), - Groups, (Train Control, Customer Information, Signalling etc.), - Permissions (ability to supress alarm, depart workflow, assign workflow). Note: The roles need to be in alignment with and in consideration of roles defined in other systems.	Essential



Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1055	IMS-CAP-060	IMS	Other Capabilities	The ability to filter /search and select incident records for viewing. For example: - Origin (e.g. source system), - Priority, - Time of alarm, - Most recently acknowledged, - Incident ID, - Incident Level, - Cause, - Creator, - Time and Date.	Essential
STROC-1056	IMS-CAP-061	IMS	Other Capabilities	The ability to view or instigate raising or closing of defect records for assets whose defect has caused a delay to services. For example: - View defect records for assets, - Instigate opening defect record for a specific asset / incident, - Instigate closing a defect record for a specific asset / incident. Note: Defects are managed in Fault Management Systems.	Essential
STROC-1072	IMS-CAP-063	IMS	Other Capabilities	The ability to integrate with a day of operation timetabling system. For example: - Receive alerts when services are experiencing delays, - Receive transposition details (i.e. add stop, skipped stop, terminate, cancel run etc.) - Receive lists of services affected, - Provide estimated restoration / recovery times - Compliance with SIRI 1.3 + standard.	Essential
STROC-1073	IMS-CAP-064	IMS	Other Capabilities	The ability to integrate with a Customer Information Management System. For example: - Provide cause impact and advice details, - Provide estimate recovery times. - Compliance with SIRI 1.3 + standard.	Essential
STROC-1074	IMS-CAP-065	IMS	Other Capabilities	The ability to integrate / display views on a large video display. For example: - Display dashboard type views, - Display GIS views, - Display location of response teams, - Display the location of a incident.	Essential
STROC-1075	IMS-CAP-066	IMS	Other Capabilities	The ability to support the management of multiple incidents simultaneously. For example: - Different users working on different incidents, - Same users supporting different incidents.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1078	IMS-CAP-069	IMS	Other Capabilities	The ability for users to configure their own user preferences. For example: - Set up notifications of interest based on incident type, area of responsibility, - Set up method of notification, text, email etc., - Set up dashboard views. Note: Authorisation and Authentication is covered in the NFR's.	Essential
STROC-1081	IMS-CAP-071	IMS	Other Capabilities	The ability to trigger viewing of specific CCTV cameras based on predefine alarms and business rules. For example: - Trigger CCTV cameras once a emergency help point has been activated (i.e. on set, on station, in lift etc.), - Trigger CCTV cameras on plats forms that are over crowded.	Essential
STROC-1082	IMS-CAP-072	IMS	Other Capabilities	The ability to assist users in managing / arranging alternative transport with 3rd party providers. For example: - Notification, - Booking, - Tracking progress (i.e. ETA), - Communicating with station staff. Note: This requirement is also covered under workflow requirements.	Desired
STROC-1083	IMS-CAP-073	IMS	Other Capabilities	The ability to provide users with visibility of pre-planned special events / track work. For example: - Easter show, - Carols in the domain, - Track work - daily summary reports, - Road, bus, ferry and light rail.	Essential
STROC-1084	IMS-CAP-074	IMS	Other Capabilities	The ability to provide users with access to images, photos and documents to aid in the communication of incident details. For example: - GIS imagery, - Access to reference data, - Ability to edit imagery and distribute updates.	Essential

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STROC-1085	IMS-CAP-076	IMS	Other Capabilities	The ability to manage (C,R,U,D) meta data for records within the system. For example: - Create, - Read, - Update, - Delete. Meta data examples: Location, Creator, Alarm Type etc.	Essential
STROC-1086	IMS-CAP-078	IMS	Other Capabilities	The ability to assist / prompt users to help in the diagnosis of the root cause of a incident / defect.	Essential
STROC-1087	IMS-CAP-079	IMS	Other Capabilities	The ability to manage (C,R,U,D) dashboard views that will be available to users. For example: - Create, - Read, - Update, - Delete. - Flexible filtering and data visualisation, - Shared views, - Views including GIS, - Views including internal and external incident information.	Essential
STROC-1088	IMS-CAP-080	IMS	Other Capabilities	The ability to provide users with the ability to access and view dashboards For example: - Access given to those who are within ROC, - Access provided via mobile device. - Information on a dashboard is real-time, - Tables, graphs, hot spots, GIS views etc.	Essential
STROC-1089	IMS-CAP-081	IMS	Other Capabilities	The ability to view a incidents sequence of events in time order in either real-time or post incident. For example: - Real-time replay to help identify what actions have been activated, - Post event replay to learn and improve process and procedure	Essential

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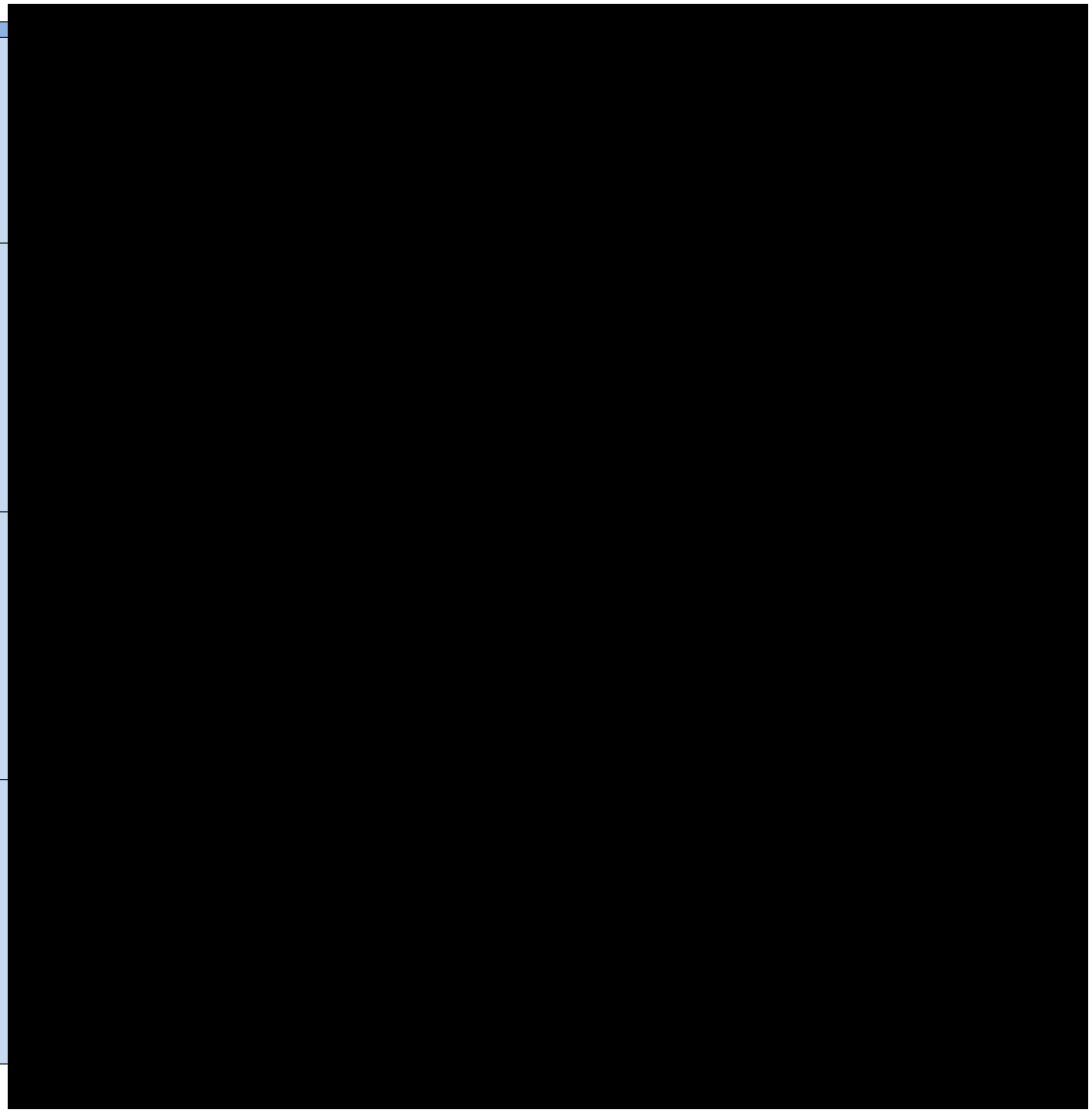
STROC-1092	IMS-CAP-083	IMS	Other Capabilities	The ability to simulate how a incident recovery may unfold. For example: - Based on actions assigned, - Based on historical information (provide improved estimated response / recovery times), - Based on feedback received from end users.	Important
STROC-1095	IMS-CAP-085	IMS	Other Capabilities	The ability for the system to dynamically learn and improve processes based on historic data. For example: - Ability to change activities based on timeframes, - Ability to suggest alterations to predefined support plans due to identified bottle necks.	Important
STROC-1096	IMS-CAP-086	IMS	Other Capabilities	The ability to capture incidents for existing incident management systems. i.e. Act as the single point in which all incident records are created. Note: It is envisaged that IMS will become the single point in which incident records are created. After which IMS will pass the incident records down to the existing incident management systems. For example: - IFMS, - SRS, - FMS.	Essential
STROC-1094	IMS-CAP-084.02	IMS	Other Capabilities	The ability to view and monitor resource constraints based on real-time rostering information received from a legacy rostering system. For example: - Monitor availability of resources, - Monitor shift start and end times, - Access competence levels. Note: This will be useful information prior to dispatching the relevant resources to assist in the recovery of a incident.	Essential
STROC-1093	IMS-CAP-084.01	IMS	Other Capabilities	The ability to view and monitor resource constraints based on planned rostering information. For example: - Monitor availability of resources, - Monitor shift start and end times, - Access competence levels. Note: This will be useful information prior to dispatching the relevant resources to assist in the recovery of a incident.	Essential
STROC-1091	IMS-CAP-082.02	IMS	Other Capabilities	The ability to retrieve contact details from an existing legacy system. Note: This would ensure contact details are managed in one single repository.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1090	IMS-CAP-082.01	IMS	Other Capabilities	The ability to manage (C,R,U,D) a contact management details. For example: - Telephone, email, mobile, address, - Provide access contact details for internal and external 3rd parties, - List of on call response staff. Note: This may require integration with existing legacy systems.	Essential
STROC-1080	IMS-CAP-070.02	IMS	Other Capabilities	The ability to automatically attribute further details to incident records. For example: - Who is responsible for root cause analysis, - Who the incident belongs to (Business unit, contract etc.), - Incident Delay Attribution (Late, very late, cancelled etc.), - Incident status (Open, Closed etc.), - Location of a incident, - Force majeure, - Attribution reporting, - Ability for attribution through mobile devices. Note: There are business rules (contractual timeframes) in which externals need to be informed of incident details.	Essential
STROC-1079	IMS-CAP-070.01	IMS	Other Capabilities	The ability to manually attribute further details to incident records. For example: - Who is responsible for root cause analysis, - Who the incident belongs to (Business unit, contract etc.), - Incident Delay Attribution (Late, very late, cancelled etc.), - Incident status (Open, Closed etc.), - Location of a incident, - Force majeure, - Attribution reporting, - Ability for attribution through mobile devices. Note: There are business rules (contractual timeframes) in which externals need to be informed of incident details.	Essential
STROC-1071	IMS-CAP-062.15	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Billing systems	Essential



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STROC-1070	IMS-CAP-062.14	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Train Location Systems / On Time Running (TLS-OTR),	Essential
STROC-1069	IMS-CAP-062.13	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - TMC Incident Management Systems,	Essential
STROC-1068	IMS-CAP-062.12	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Wayside Information Management System (for alarms),	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1067	IMS-CAP-062.11	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - State emergency services,	Essential
STROC-1066	IMS-CAP-062.10	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - ERP systems,	Essential
STROC-1065	IMS-CAP-062.09	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Geospatial Information Systems (such as Small World),	Essential

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STROC-1064	IMS-CAP-062.08	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Other Computer Aided Dispatch Systems (i.e. ICEMS),	Essential
STROC-1063	IMS-CAP-062.07	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Other Incident Management Systems,	Essential
STROC-1062	IMS-CAP-062.06	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - External 3rd Party Systems,	Essential

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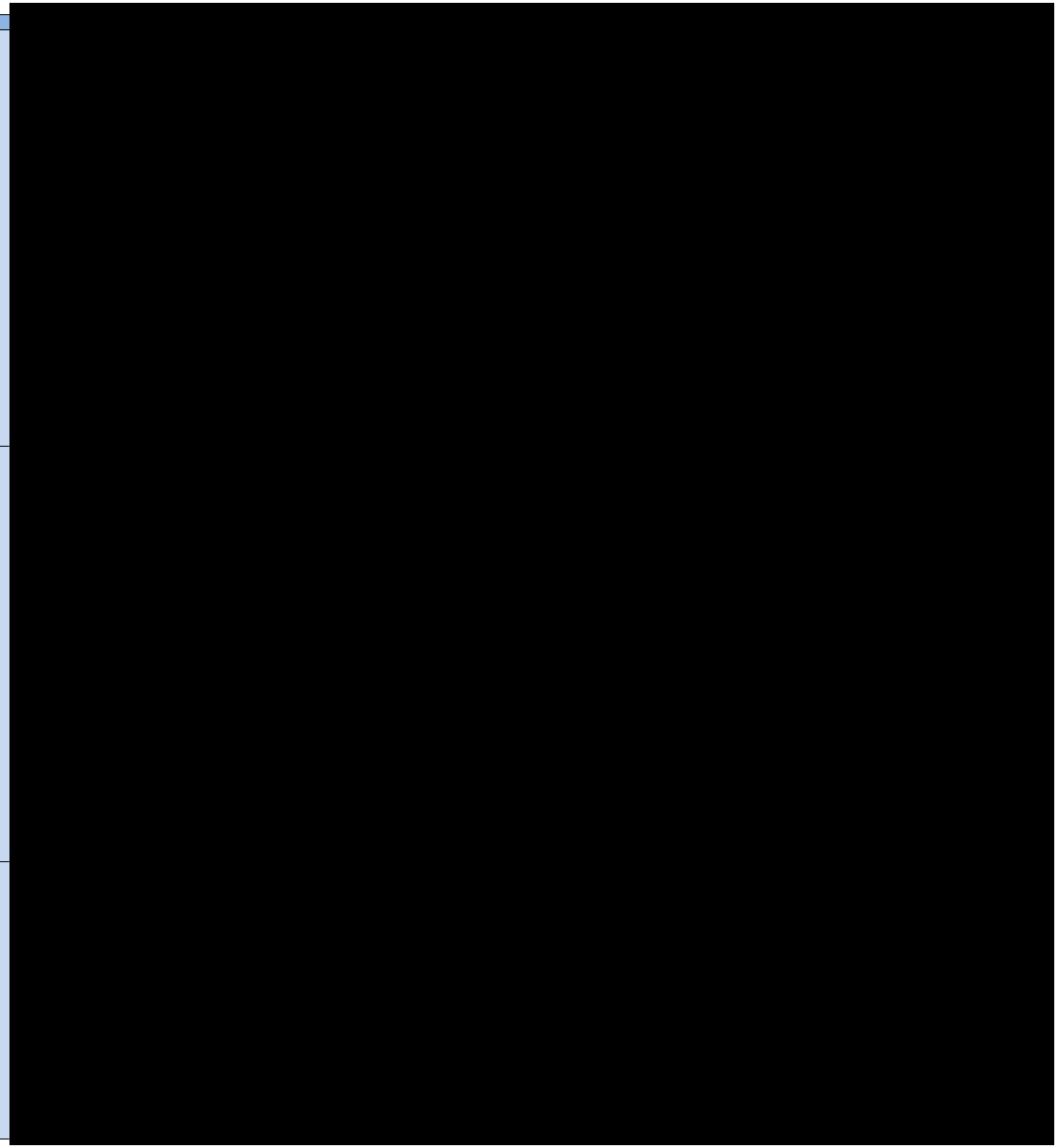
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1061	IMS-CAP-062.05	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Safety Management Systems,	Essential
STROC-1060	IMS-CAP-062.04	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Fault Management Systems,	Essential
STROC-1059	IMS-CAP-062.03	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Calculation Engine,	Essential



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STROC-1058	IMS-CAP-062.02	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Business Intelligence Systems,	Essential
STROC-1057	IMS-CAP-062.01	IMS	Other Capabilities	The ability to integrate and share real-time and post event incident information with other systems. For example systems such as: - Customer Information Management System, - Dynamic Timetabling System, - Operational Video Display System (OVDS),	Essential
STROC-1051	IMS-CAP-056.02	IMS	Other Capabilities	The ability to automatically link / attach relevant information to an incident record. For example the ability to link the following types of data to incident records: - CCTV & video footage, - Photographs, - Diagrams, - Pictures, - Phone call recordings, - Documents.	Essential
STROC-1050	IMS-CAP-056.01	IMS	Other Capabilities	The ability to manually link / attach relevant information to an incident record. For example the ability to link the following types of data to incident records: - CCTV & video footage, - Photographs, - Diagrams, - Pictures, - Phone call recordings, - Documents.	Essential
STROC-996	IMS-CAP-004	IMS	Record and Assess	The ability to receive Network Incident Notices. For example: A network Incident Notice must be issued as soon as possible when an incident occurs on the rail network, and involves: - Actual or potential loss of life or injury, - Actual or potential damage to or defect in network infrastructure, - Damage to or defect in rail traffic, - Breach of Network Rules or Network Procedures.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-997	IMS-CAP-005	IMS	Record and Assess	The ability for users to search and filter alarms. For example filter by: - Type of alarm, - Location of alarm, - Time and date of alarm.	Essential
STROC-998	IMS-CAP-006	IMS	Record and Assess	The ability to supress automatically created alarms. For example suppress automatically generated alarms, including but not limited to: - all persons/departments (e.g. false alarms), - by individual alarm instance, alarm type and/or department, - during shunting operations, - during manual proceed authorities (non-signalled movements).	Essential
STROC-999	IMS-CAP-007	IMS	Record and Assess	The ability to manually create and update incident records. For example incident records are to be: - Assigned a unique identifier, - Brief title / heading. Incident records are to be either: - Built from scratch or, - Follow predefined templates.	Essential
STROC-1000	IMS-CAP-008	IMS	Record and Assess	The ability to automatically create and update incident records based on predefined business rules. Incident records are to be: - Assigned a unique identifier, - Brief title / heading. Incident records are to be either: - Built from scratch or, - Follow predefined templates.	Essential
STROC-1003	IMS-CAP-010	IMS	Record and Assess	The ability to manually record incident details. For example user may be prompted as to details required based on: - Users role (by either selecting from list or manually typing), - Type off Incident. Incident details may include: - Users Name, - Title & description, - Priority, - Type of incident (Infrastructure, Electrical, Security etc.), - Date & time of Incident, - Location (can be location of train, geographic location etc.), - Reporter, - Category and sub-category (e.g. Category of 'Passenger on train' sub-category 'Passenger fainted on train'), - Services effected (i.e. run numbers) - Reference data - Weather, - Events near by. Note: The details required will change based on the type of incident.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1004	IMS-CAP-011	IMS	Record and Assess	The ability to correlate multiple incident records into a single incident record. For example: - Ability to consolidate many incident records into a single incident record, - All original incident ID?s are to be store for reference purposes, - Merge / consolidate without any loss of data.	Essential
STROC-1005	IMS-CAP-012	IMS	Record and Assess	The ability to prompt users in the correlation incident records based on predefined business rules. For example: - Ability to consolidate many incident records into a single incident record, - All original incident ID?s are to be store for reference purposes, - Merge / consolidate without any loss of data.	Essential
STROC-1006	IMS-CAP-013	IMS	Record and Assess	The ability to receive a list of affected train services in real time from an external system and associate these with an incident. For example: - Receive a list of affected services associated with a single incident, - Impact the incident had on each service, - The number of passengers travelling on each service, - The time in which the service returned to planned stopping times.	Essential
STROC-1007	IMS-CAP-014	IMS	Record and Assess	The ability to easily indicate the impact an incident is having on services either manually and / or automatically. For example users may be prompted / supported by the system to capture impact details. Impacts could be to: - Specific runs, - Runs on a line, - Runs passing through a stations, - Cross modal transport, - Stations. Types of impact will include: - Delays, - Cancellations, - Altered stopping patterns, - Change route, - Alternative transport.	Essential
STROC-1008	IMS-CAP-015	IMS	Record and Assess	The ability to retrieve asset information from an external system in real time. For example: - Sets, - Stations, - Lines, - Overhead wiring, - Signals, - Points, - Assets maintenance schedules (Over due, next planned etc.).	Essential

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STROC-1013	IMS-CAP-018	IMS	Record and Assess	The ability to manually add an estimated recovery time to an incident record. For example: - Estimated recovery times, - Estimated response times. Note: This estimate may be based on historic data or user knowledge.	Essential
STROC-1014	IMS-CAP-019	IMS	Record and Assess	The ability to automatically add an estimated recovery time to an incident based on configurable business rules. For example: - Estimated recovery times, - Estimated response times. Note: It is envisaged these automated estimations will be applied based on historic data.	Essential
STROC-1024	IMS-CAP-028.02	IMS	Record and Assess	The ability to assign / action response team / personnel. For example: Provide assignee with visibility of: - Availability of response teams in real-time,	Essential
STROC-1023	IMS-CAP-028.01	IMS	Record and Assess	The ability to assign / action response team / personnel. For example: Provide assignee with visibility of: - Competence, Provide response teams with: - Notification of action including all details required (fault type, location etc.), - Ability to accept / reject action, - Provide checklist of actions to address.	Essential
STROC-1012	IMS-CAP-017.02	IMS	Record and Assess	The ability to identify the location of an incident on a legacy geospatial view . For example: - Incidents location in relation to rail network assets, - Location based on the geospatial coordinates of the incident, - Street view, - Aerial view, - Terrains view, - Mark up map with location / notes, - Ability to geo reference, - Identify site / incident access points etc.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1011	IMS-CAP-017.01	IMS	Record and Assess	The ability to identify the location of an incident on a internal geospatial view. For example: - Incidents location in relation to rail network assets, - Location based on the geospatial coordinates of the incident, - Street view, - Aerial view, - Terrains view, - Mark up map with location / notes, - Ability to geo reference, - Identify site / incident access points etc.	Essential
STROC-1010	IMS-CAP-016.02	IMS	Record and Assess	The ability to view the real-time / actual availability of incident response personnel. For example: - View availability of staff already in operation, - View the availability of standby crew or response personnel, - View the capabilities of crew (i.e. trained to operate which set types), - View contact details, - View current location of staff in operation. Note: Requirement linked to IMS-CAP-026	Essential
STROC-1009	IMS-CAP-016.01	IMS	Record and Assess	The ability to view the planned availability of incident response personnel. For example: - View availability of staff already in operation, - View the availability of standby crew or response personnel, - View the capabilities of crew (i.e. trained to operate which set types), - View contact details, - View current location of staff in operation. Note: Requirement linked to IMS-CAP-026	Essential
STROC-1002	IMS-CAP-009.02	IMS	Record and Assess	The ability to automatically record incident details. For example details captured may include: - Weather. Note: The details required will change based on the type of incident being recorded. It is envisaged that automatically created incident records will require some level of manual input to capture data elements which are not provided by other integrated systems.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1001	IMS-CAP-009.01	IMS	Record and Assess	The ability to automatically record incident details. The details and business rules required to automate the capture of incident details need to be configurable. For example details captured may include: - Users name, - Title & description, - Priority, - Type of incident (Infrastructure, Electrical, Security etc.), - Date & time of Incident, - Location (Location of train, geographic location etc.), - Reporting system, - Category and sub-category (e.g. Category of 'Passenger on train' sub-category 'Passenger fainted on train'), - Services effected (i.e. run numbers), - Reference data, - Events near by. Note: The details required will change based on the type of incident being recorded. It is envisaged that automatically created incident records will require some level of manual input to capture data elements which are not provided by other integrated systems.	Essential
STROC-1015	IMS-CAP-021	IMS	Select / Define and Activate Response Plan	The ability to initiate a workflow in response to creating an incident record. For example: - Initiate relevant workflow / response plans.	Essential
STROC-1016	IMS-CAP-022	IMS	Select / Define and Activate Response Plan	The ability to initiate manual predefined response plans. For example: - Provide plans to support Train Controllers or incident personnel in decision making. - Initiate alternate transport plans.	Essential
STROC-1017	IMS-CAP-023	IMS	Select / Define and Activate Response Plan	The ability to create and initiate ad-hoc response plans. For example: - Create plans to respond effectively to rare / unusual incidents.	Essential
STROC-1021	IMS-CAP-026	IMS	Select / Define and Activate Response Plan	The ability to track and display the location of all response teams / personnel: For example: - Location indicated on a map / geospatial display, - Roster information, i.e. the availability of team / personnel, - Current list of assigned actions assigned. Note: Requirement linked to IMS-CAP-016	Essential
STROC-1022	IMS-CAP-027	IMS	Select / Define and Activate Response Plan	The ability to view a current list of consumables that a teams / personnel are in possession of. For example: - Consumables required to fix / address a fault, - Tools required to fix / address a fault, - Vehicle type (specific vehicle type may be required to access a fault), - Historical analysis.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1025	IMS-CAP-029	IMS	Select / Define and Activate Response Plan	The ability for mobile personnel capture incident details when responding to a incident. For example: - Response teams capture and provide more details (via forms and checklists), - Reponses teams are able to view the latest details / information captured by other staff members.	Essential
STROC-1026	IMS-CAP-030	IMS	Select / Define and Activate Response Plan	The ability to create predefined workflow / check lists for different types of incidents. For example different types of incident groupings will include: - Equipment, - Miscellaneous, - People, - Trains, - Weather Conditions. Note: Different types of incident will require involvement from different personnel and 3rd parties. Ability to: - Create, - Read, - Update, - Delete.	Essential
STROC-1029	IMS-CAP-032	IMS	Select / Define and Activate Response Plan	The ability to manually override / skip workflows and checklists. For example authorised user able to depart: - Predefined Workflow, - Predefined Activity, - Predefine Checklist.	Essential
STROC-1030	IMS-CAP-033	IMS	Select / Define and Activate Response Plan	The ability to manually re-assign a workflow activity to a different individual or role. For example: - Initial assigned user unable to action task.	Essential
STROC-1031	IMS-CAP-034	IMS	Select / Define and Activate Response Plan	The ability to distribute response plans to selected personnel electronically. For example via: - Web based application - Mobile application. Note: It is envisaged that distribution business rules would be managed as part of workflow.	Essential

Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1032	IMS-CAP-035	IMS	Select / Define and Activate Response Plan	The ability to provide a collaborative working environment in which multiple user will have the ability to simultaneously access and update incident details in real-time. For Example internal and external users provided with: - Visibility of incidents via multiple mechanisms: - Video, - Conferencing (calling and video), - Web, - Application based, - Notification, - Phone, - Mobile App, - Ability to provide input / suggestions. These would be managed through role based permissions. The ability to display visually the progress of incident management, such as that of a 'traffic light' - Green indicates that required actions for the incident are tracking to the response plan - Red indicates that required actions for the incident are not tracking to the response plan.	Essential
STROC-1028	IMS-CAP-031.02	IMS	Select / Define and Activate Response Plan	The ability to assign an incident actions automatically. For example: Assign incident actions to a: - Business group / division, - Individual staff member. Assigning Incident records / actions to be: - Manual and / or, - Automated based on predefined criteria / metadata. Note: It is envisaged that workflow will have predefined actions and potential business groups / divisions responsible for them however this requirements allows for additional actions to be assigned.	Essential
STROC-1027	IMS-CAP-031.01	IMS	Select / Define and Activate Response Plan	The ability to assign an incident actions manually. For example: Assign incident actions to a: - Business group / division, - Individual staff member. Assigning Incident records / actions to be: - Manual and / or, - Automated based on predefined criteria / metadata. Note: It is envisaged that workflow will have predefined actions and potential business groups / divisions responsible for them however this requirements allows for additional actions to be assigned.	Essential

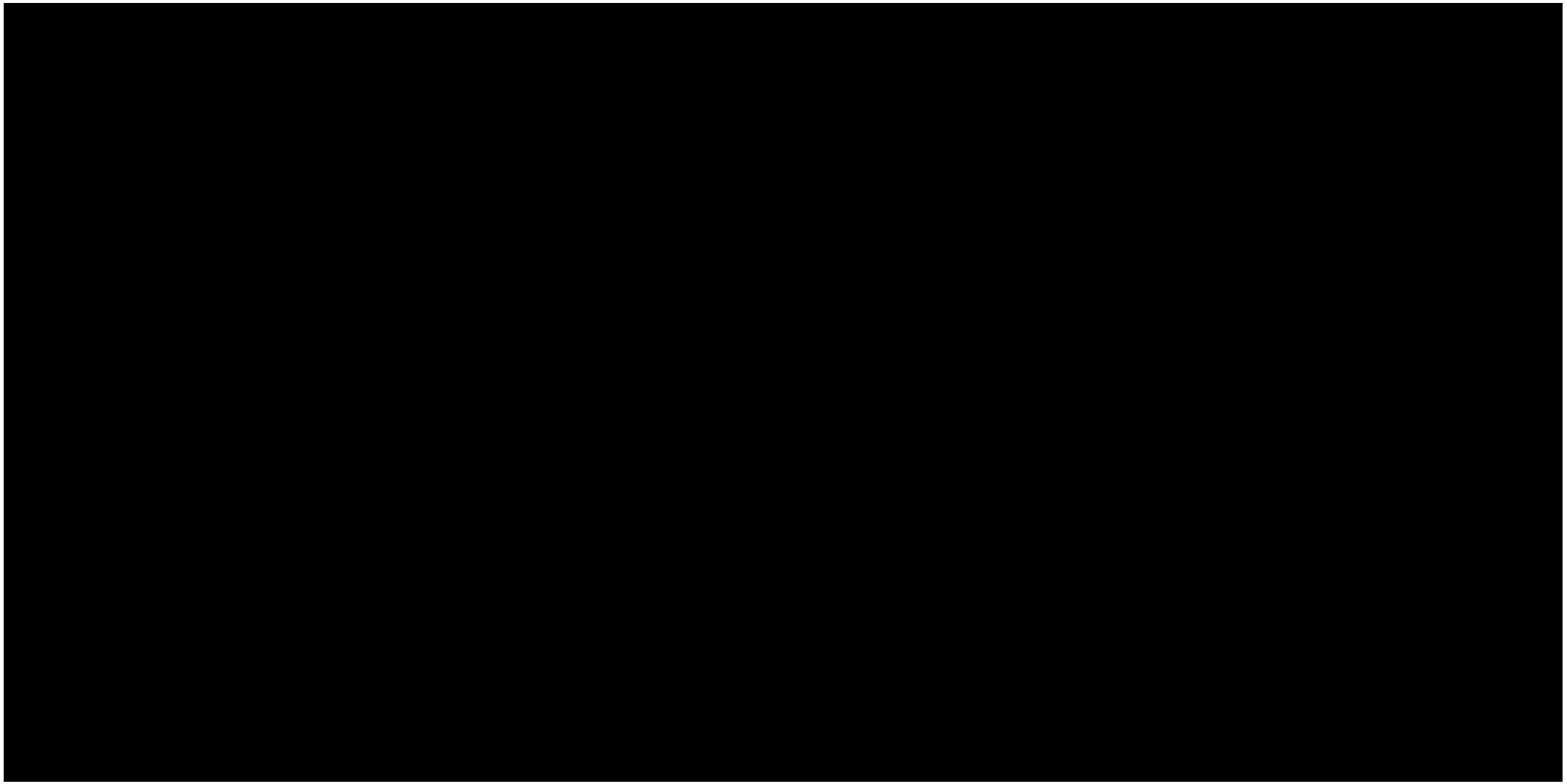
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1020	IMS-CAP-025.03	IMS	Select / Define and Activate Response Plan	The ability to provide notification services to selected personnel For example: - Subscription based notifications, Manage notification distribution lists and groups and business rules: - Create, - Read, - Update, - Delete, - Notifications to be distributes in near real time. Note: Notification may include notifying crew / operational staff of CAN warnings (Condition Affecting Network (i.e. Temporary Speed Restrictions) Notifications will also be distributed to management/ executives and other 3rd parties.	Essential
STROC-1019	IMS-CAP-025.02	IMS	Select / Define and Activate Response Plan	The ability to provide notification services to selected personnel For example: - Pull based notifications, Manage notification distribution lists and groups and business rules: - Create, - Read, - Update, - Delete, - Notifications to be distributes in near real time. Note: Notification may include notifying crew / operational staff of CAN warnings (Condition Affecting Network (i.e. Temporary Speed Restrictions) Notifications will also be distributed to management/ executives and other 3rd parties.	Essential
STROC-1018	IMS-CAP-025.01	IMS	Select / Define and Activate Response Plan	The ability to provide notification services to selected personnel For example: - Push based notifications, - Push media update. Manage notification distribution lists and groups and business rules: - Create, - Read, - Update, - Delete, - Notifications to be distributes in near real time. Note: Notification may include notifying crew / operational staff of CAN warnings (Condition Affecting Network (i.e. Temporary Speed Restrictions) Notifications will also be distributed to management/ executives and other 3rd parties.	Essential

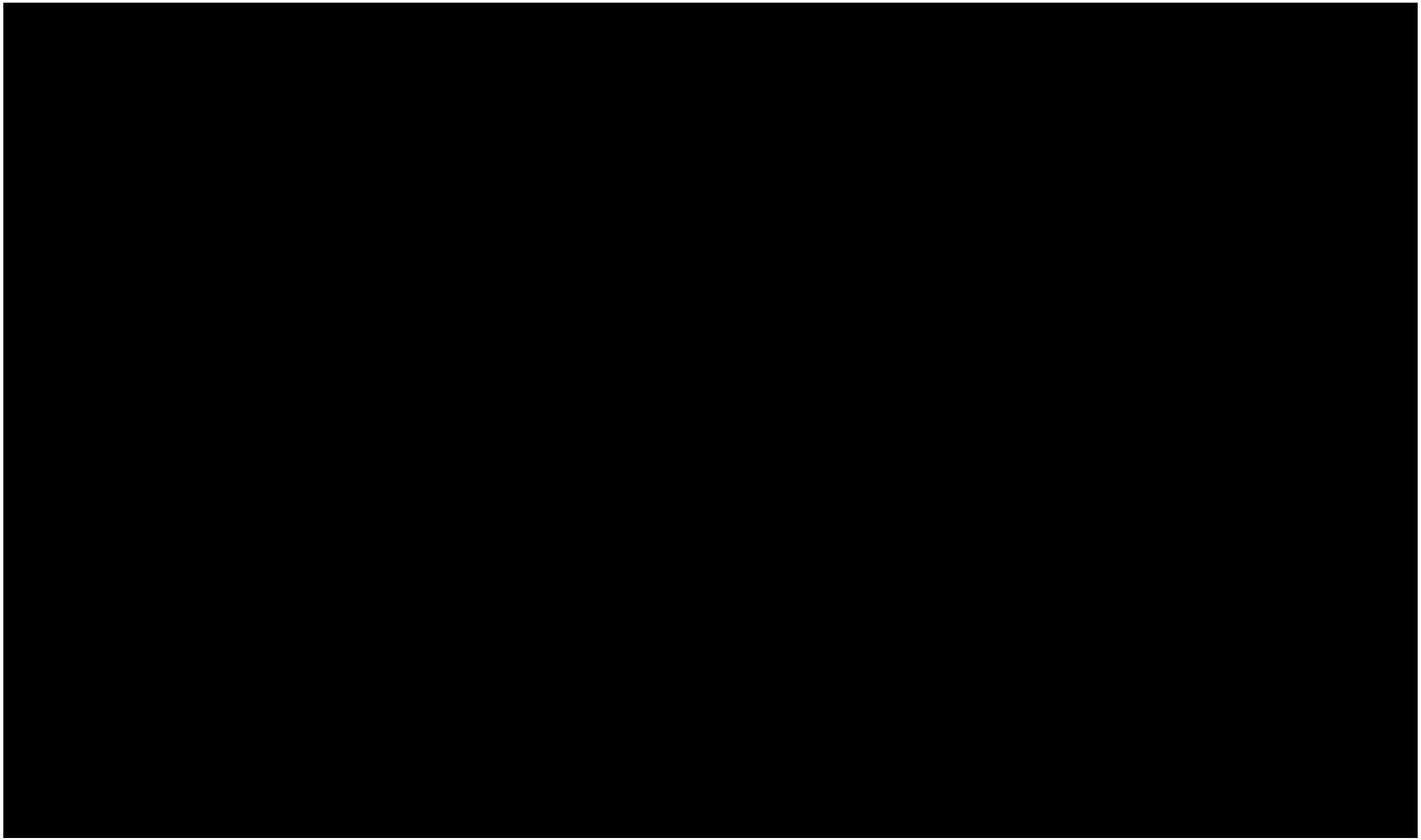
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1033	IMS-CAP-038	IMS	Track and Escalate	The ability to record action(s) within an incident record. For example record action information such as: - Calling emergency services, - Calling operational staff, - Timestamps. The status of an action is monitored on its own and as part of the overall workflow, including but not limited to: - Overall status, - Time-forecast to complete, - Action completed, - Action authorisation (whom, when etc. where applicable), - Incidents and actions are tracked until completion, - Critical issues, - Constraints & Dependencies.	Essential
STROC-1036	IMS-CAP-040	IMS	Track and Escalate	The ability to track the progress / monitor incidents from creation until completion. For example: - Overall status, - Time-forecast to completion, - Action completed, - Action authorisation (who, when etc.), - Assignment information (assigner, assignee, time/date of assignment), - Updates made to the record (new comments, change to 'fields' such as the incident's category, priority etc.), - Internal communications distributed, - Customer Information distributed.	Essential
STROC-1037	IMS-CAP-041	IMS	Track and Escalate	The ability to manually and / or automatically escalate an activity or task based on a pre-defined business rules. For example: Business rules are to be configurable. Automated escalation based on: - Time boxed activities, (an incident has not 'progressed' (no record update) for a specified timeframe) - Assignee not available. Manual escalation required where: - The incident itself has risen to the next severity level. - An incident has no response plan after a specified timeframe - Category, severity, priority.	Essential
STROC-1038	IMS-CAP-042	IMS	Track and Escalate	The ability to manually prioritise incident, actions and activities. For example: - Change priority due to severity.	Essential
STROC-1039	IMS-CAP-043	IMS	Track and Escalate	The ability to filter views and create real-time and post event incident reports. For example: - All current ('open') Incidents, - All Incidents of a given status. Views of an incident can be customised as different staff (e.g. different profile, location, team etc.) will require different information. Ability to export report based data through a standard based interface.	Essential

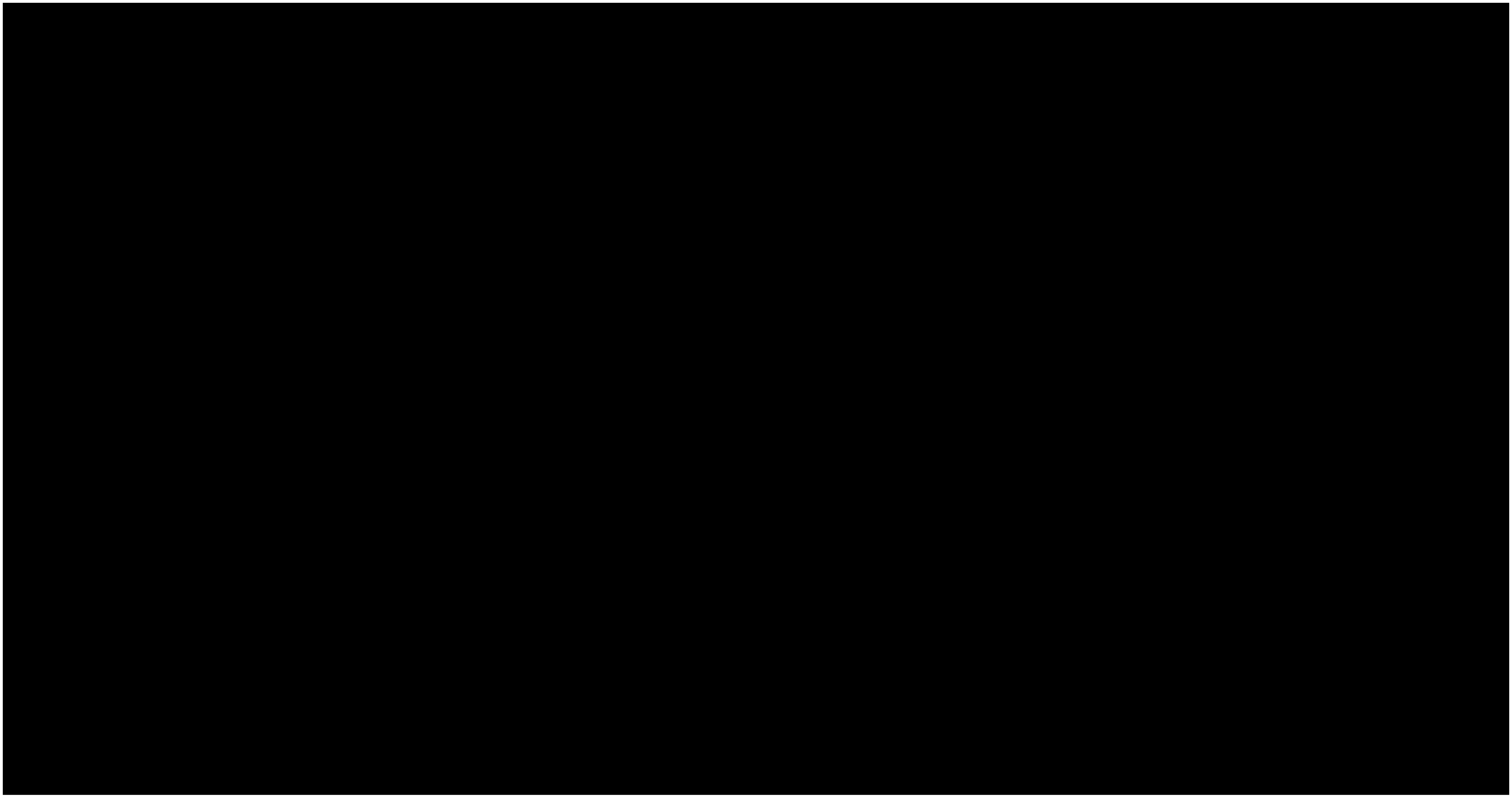
Ajilon ID	Sydney Trains Identifier	Component(s)	Summary	Description	Business Criticality
STROC-1076	IMS-CAP-067	IMS	Track and Escalate	The ability to adjust the boundaries which define the areas of responsibility for users. For example: - Train controller boundaries / sectors (Boards), - Response teams areas of responsibility.	Essential
STROC-1077	IMS-CAP-068	IMS	Track and Escalate	The ability for users to reserve a incident number in the system without having to provide incident details.	Essential
STROC-1035	IMS-CAP-039.02	IMS	Track and Escalate	The ability to provide visualisation capabilities to easily assess an incident and the status of its progress. For example: - On a rail schematic map, - On a geospatial map, - Affected service(s), - Related assets/equipment e.g. gates and assets, - Likely impact.	Essential
STROC-1034	IMS-CAP-039.01	IMS	Track and Escalate	The ability to provide visualisation capabilities to easily assess an incident and the status of its progress. For example: The ability to display visually the progress of incident management, such as that of a 'traffic light' - Green indicates that required actions for the incident are tracking to the response plan, - Red indicates that required actions for the incident are not tracking to the response plan, - The ability to display a heat map to visualize or alert over crowding on platforms.	Essential

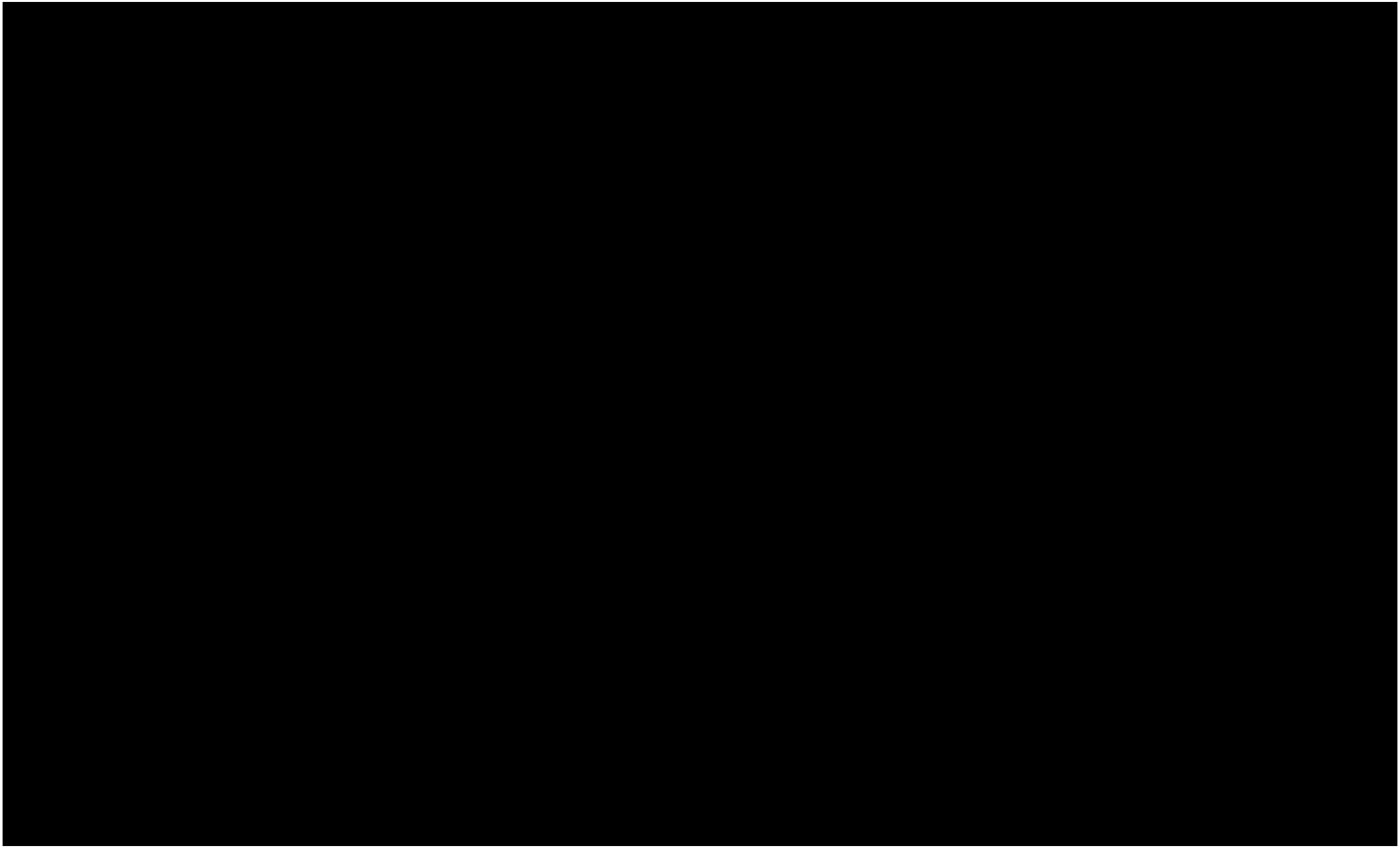
7. Appendix - Risks, Issues, Constraints, Assumptions, Decisions and Dependencies

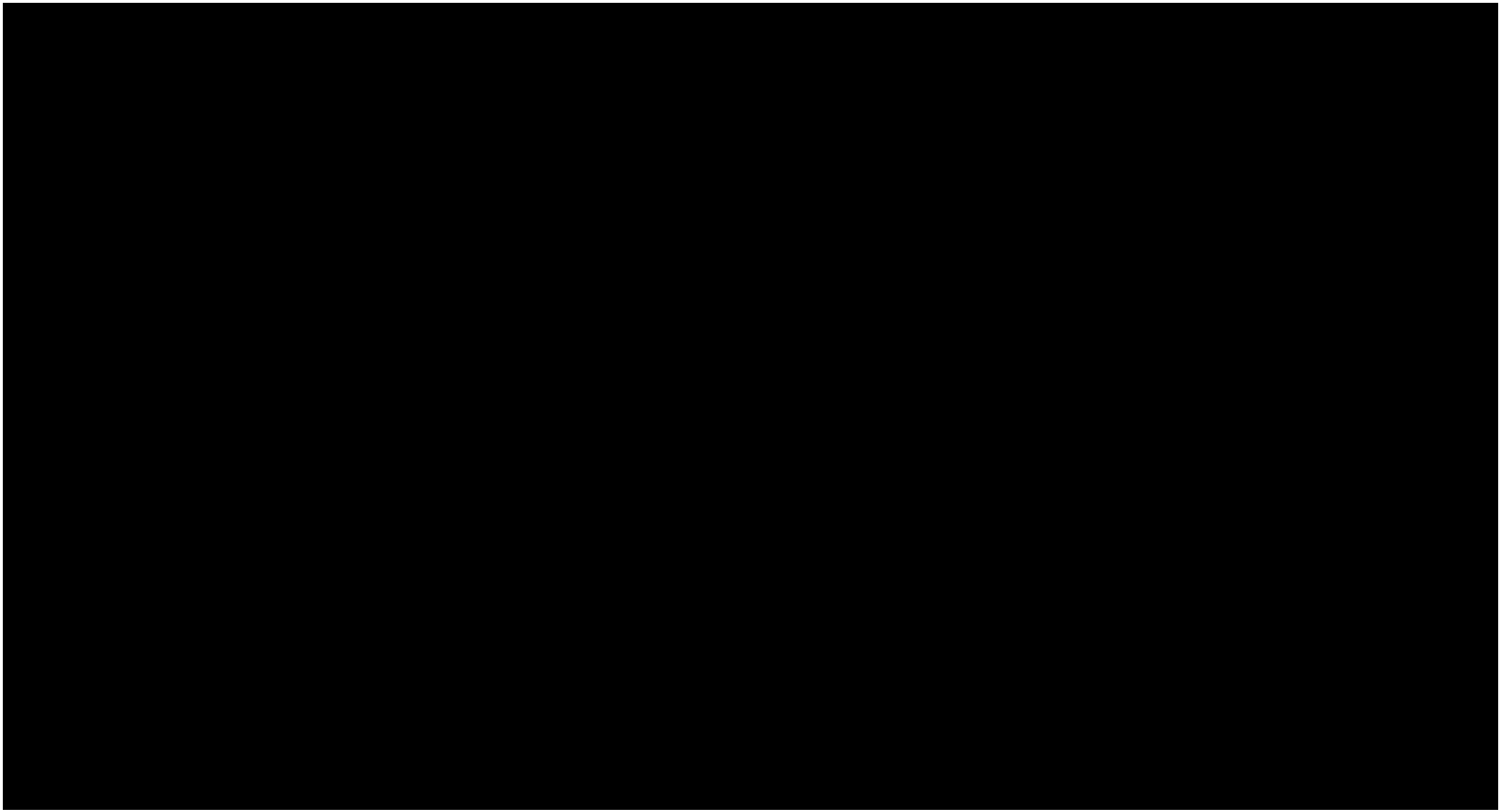
For the purpose of providing readers of this document some analytical context, the following tables of Risks, Issues, Constraints, Assumptions, Decisions and Dependencies are presented as a subset of those found in the High Level Solution Design PART B - Systems Architecture.

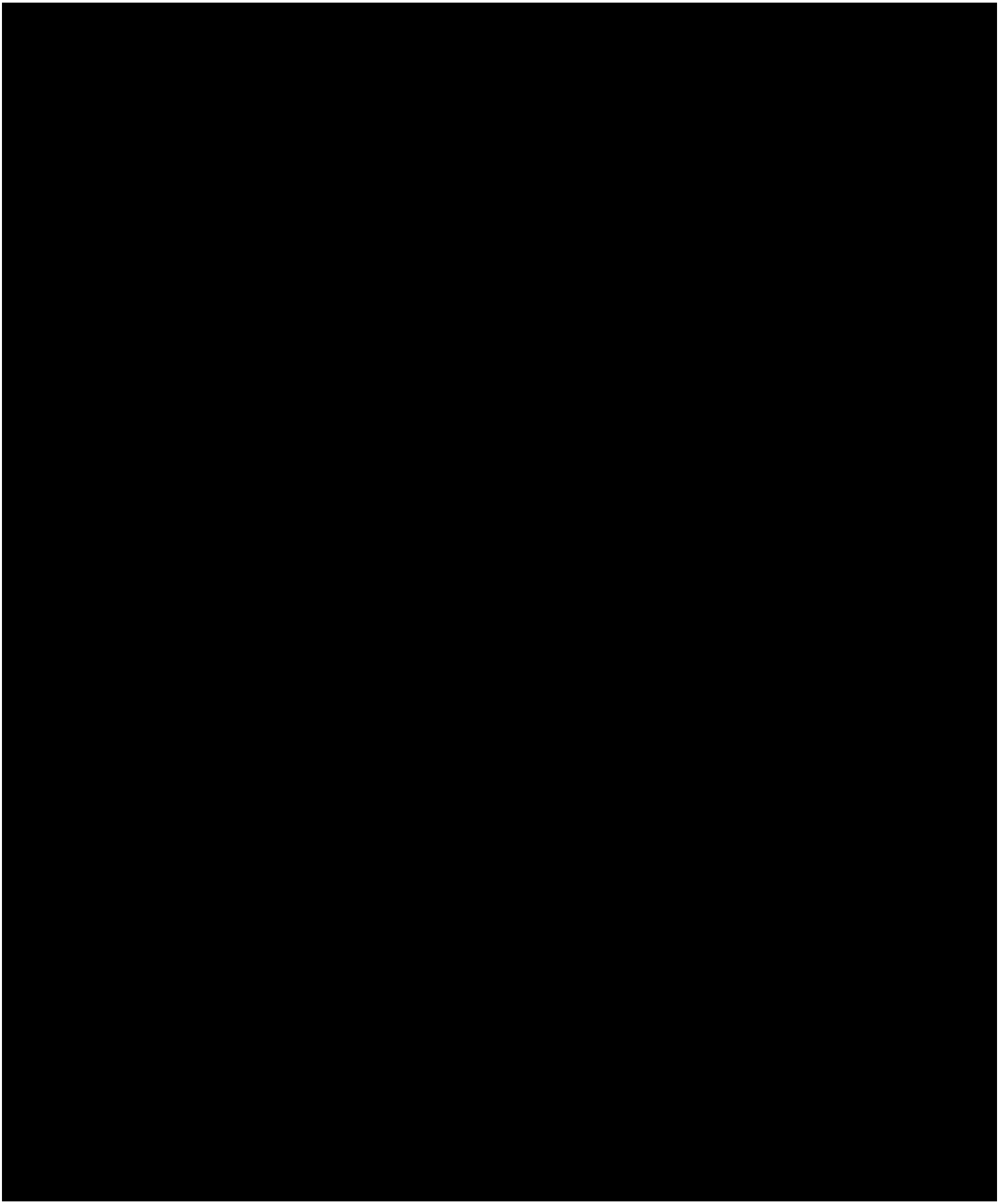


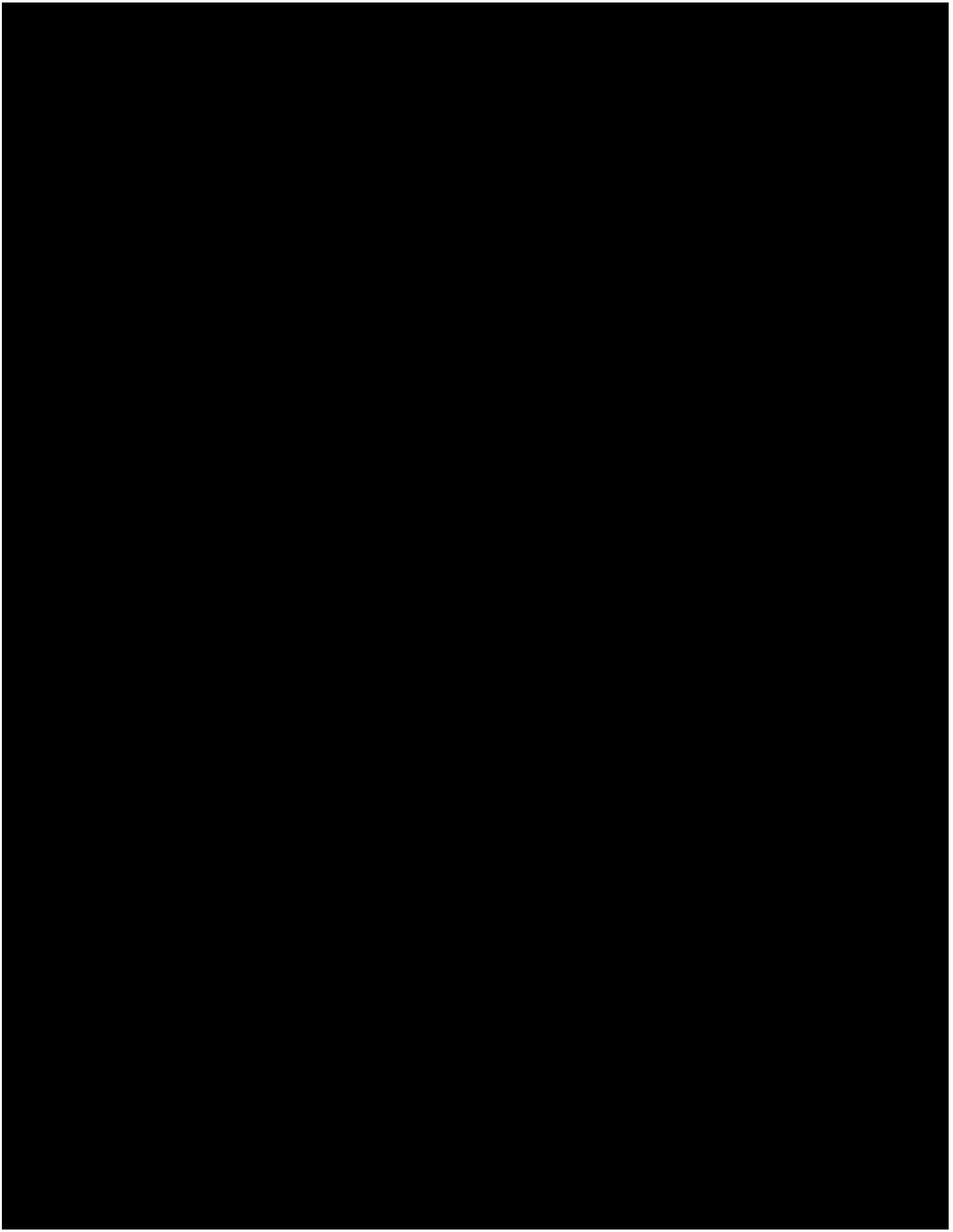


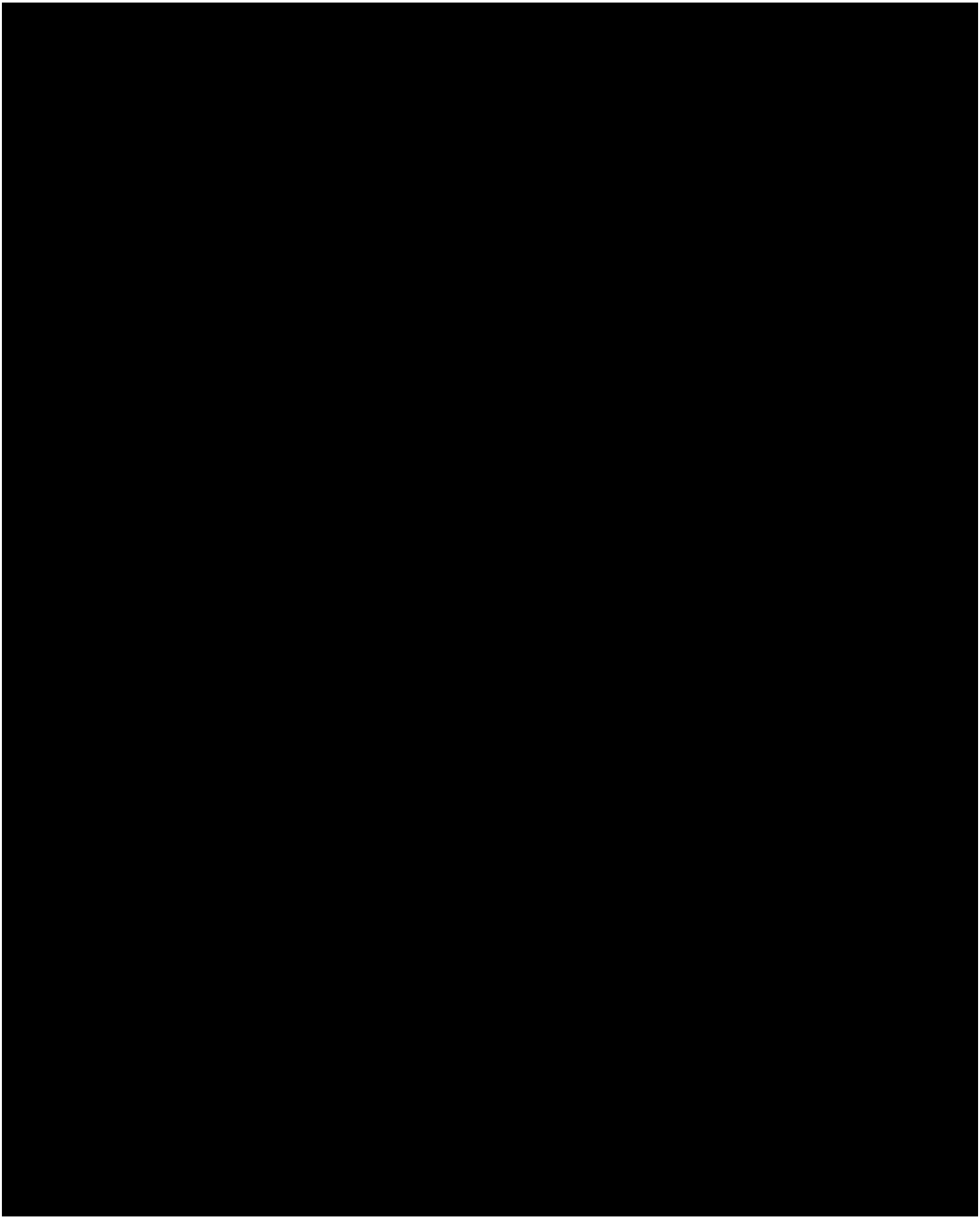


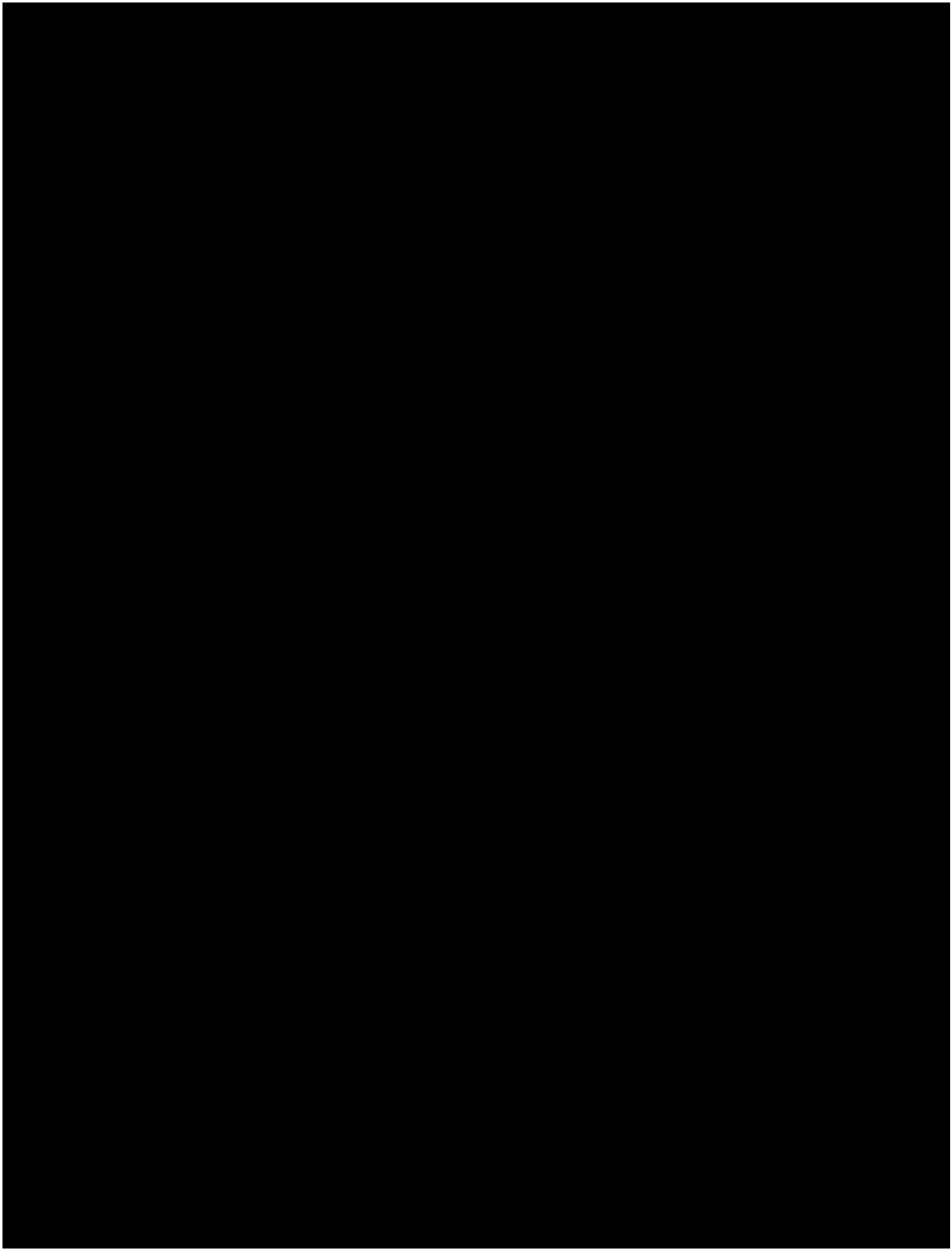


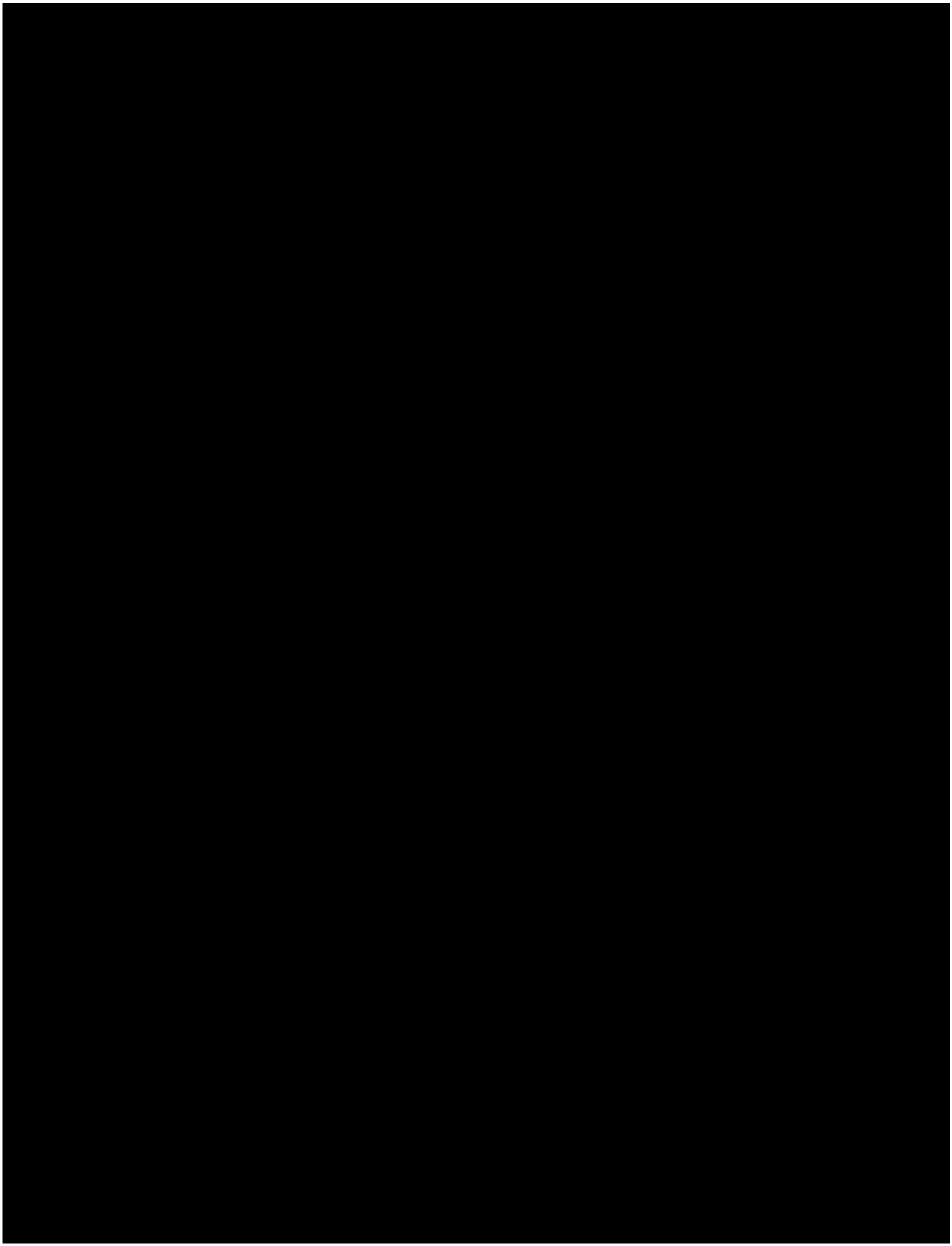


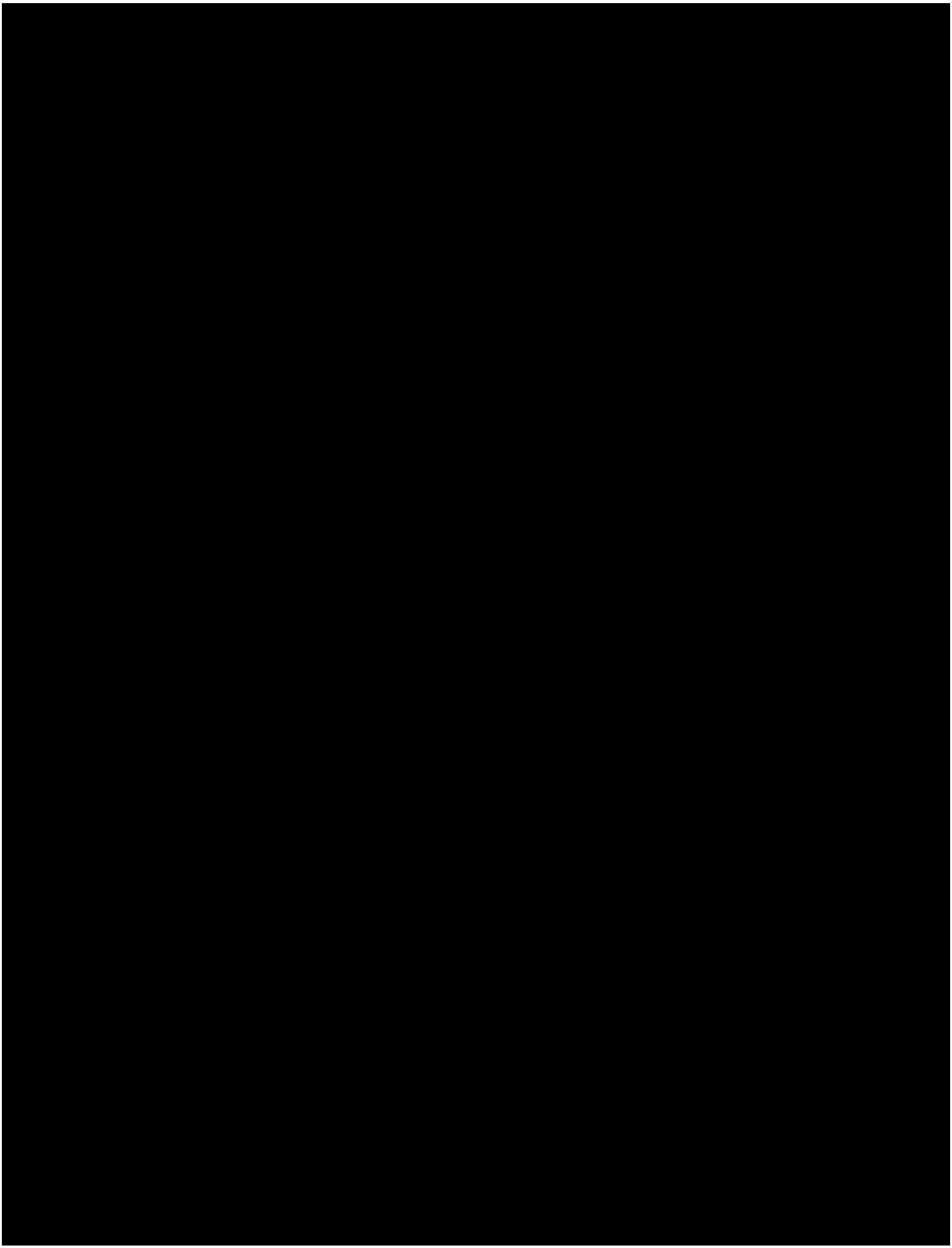


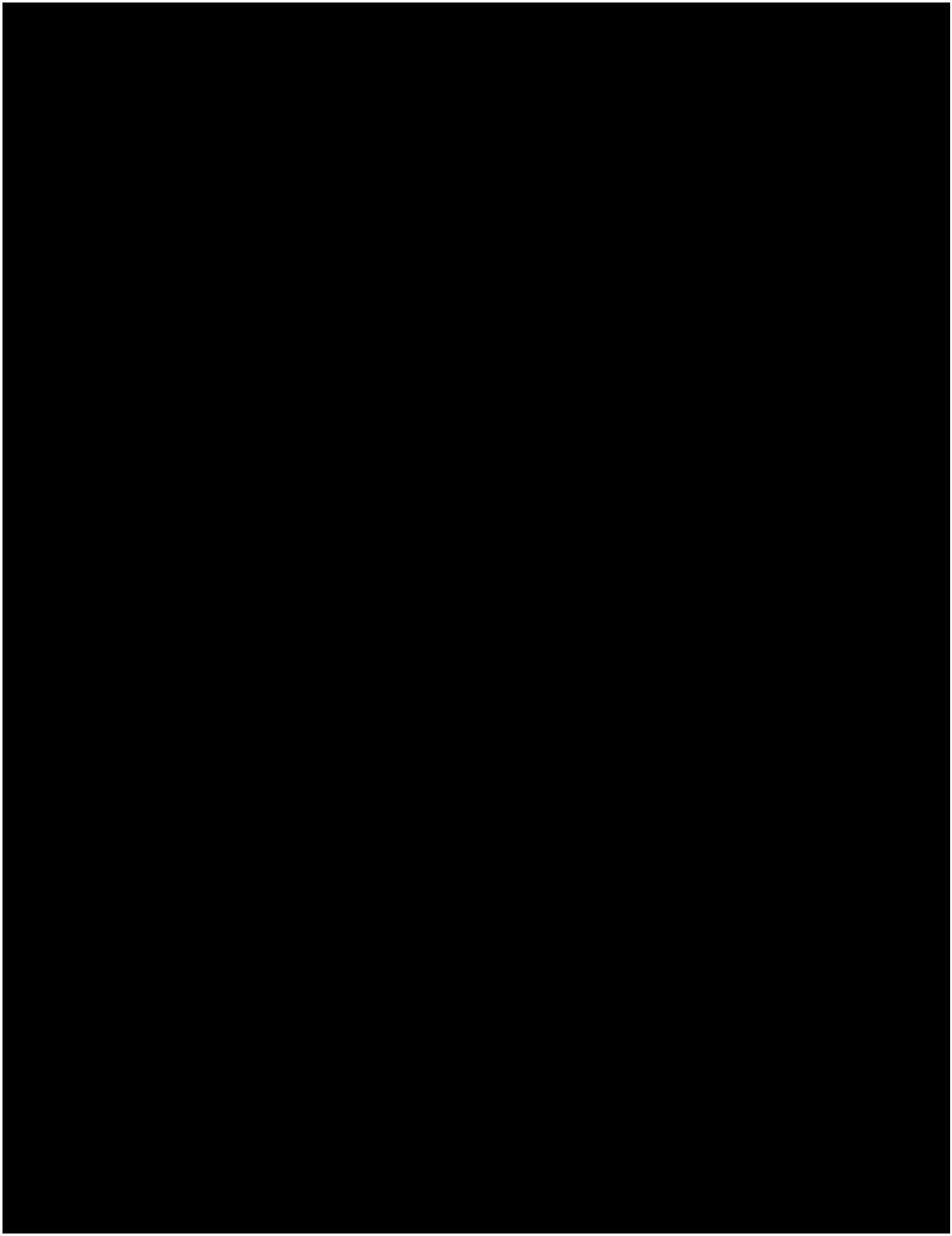


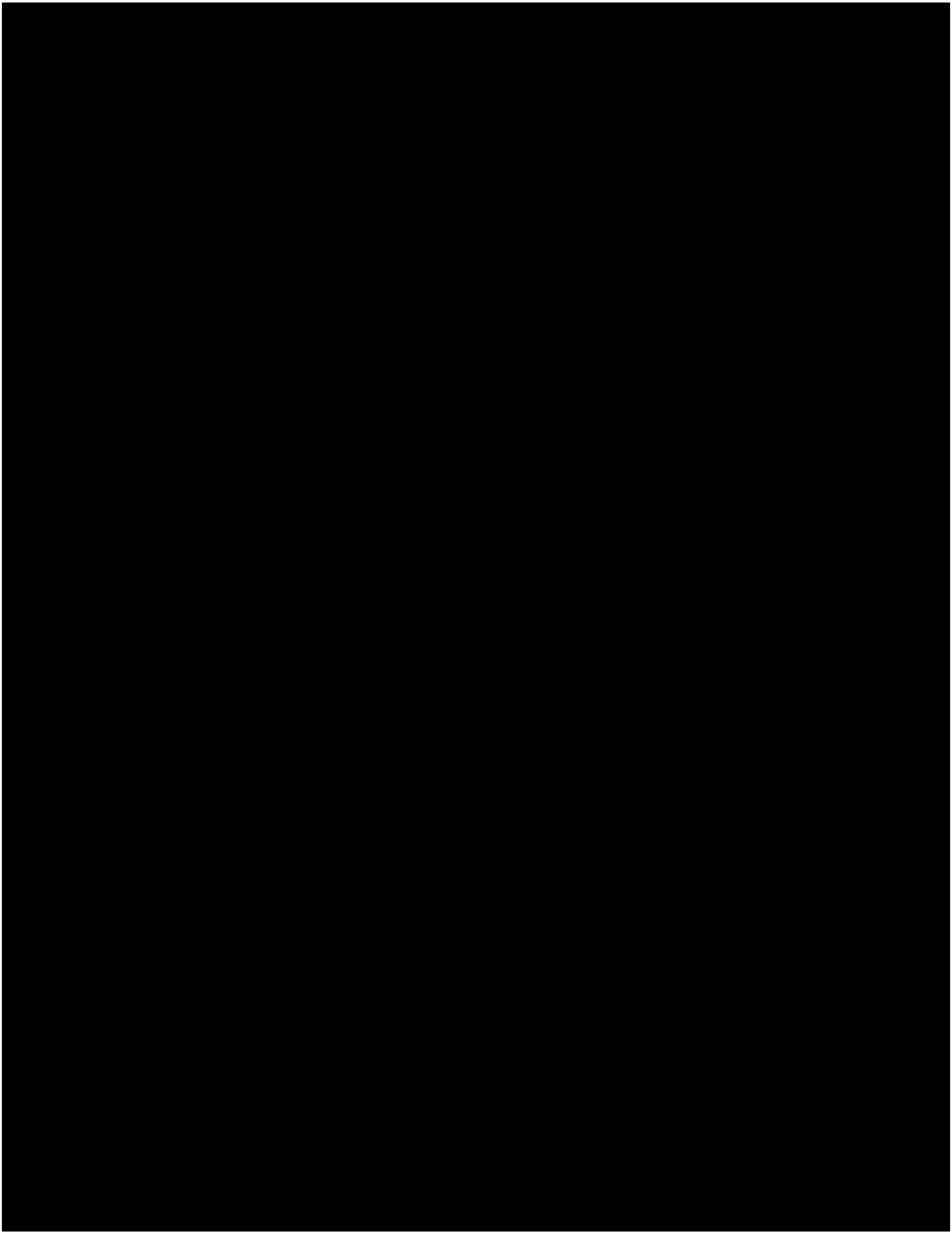


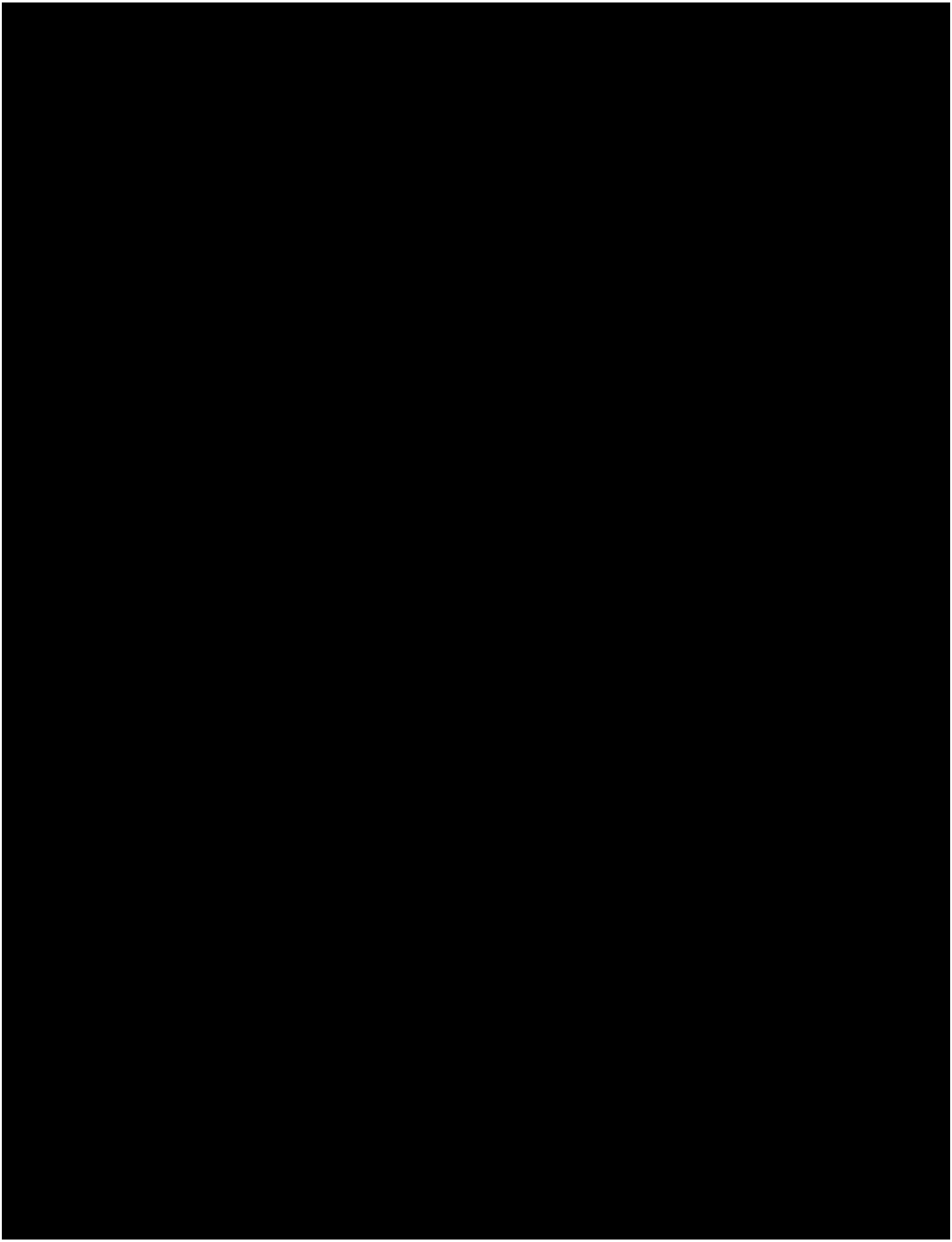


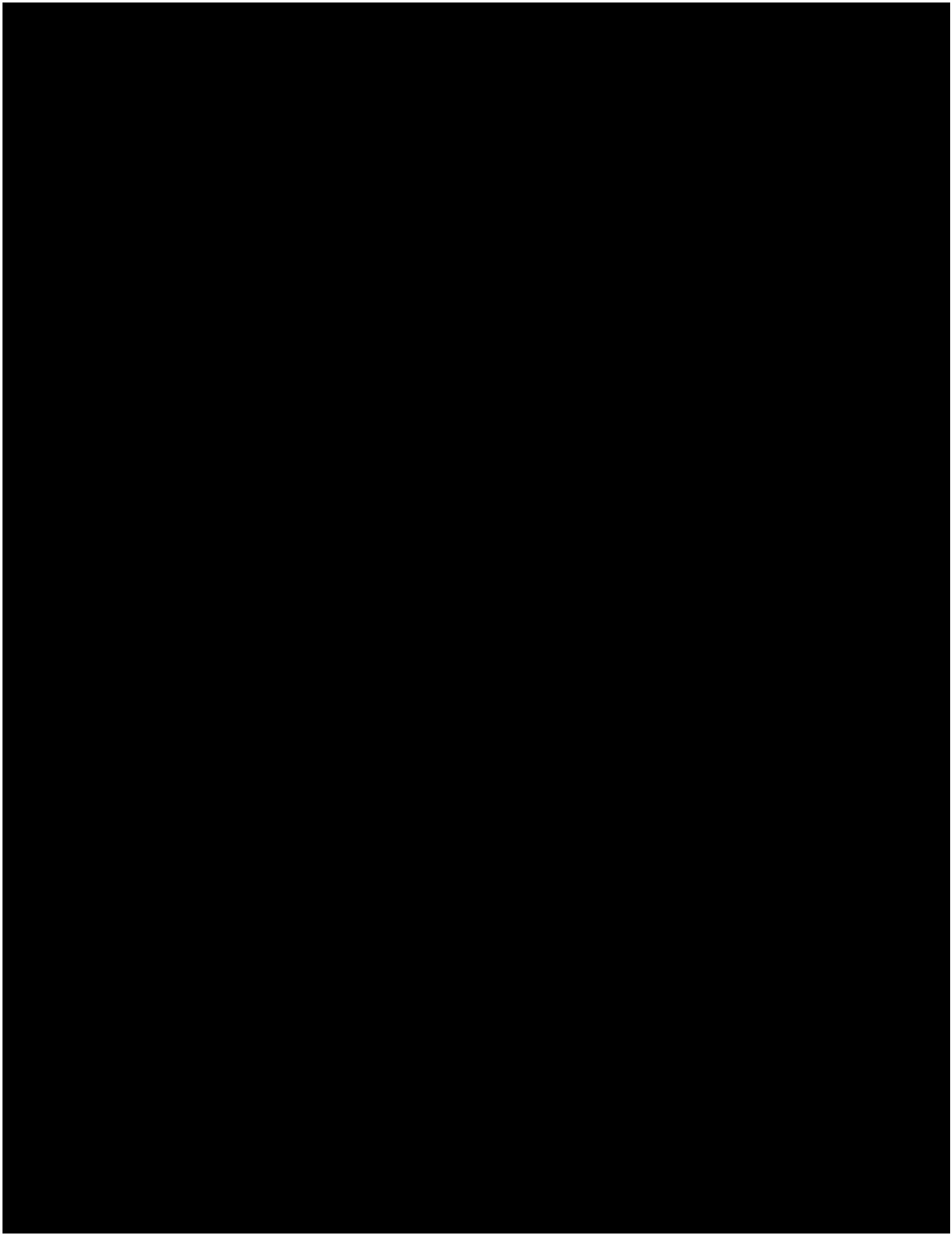


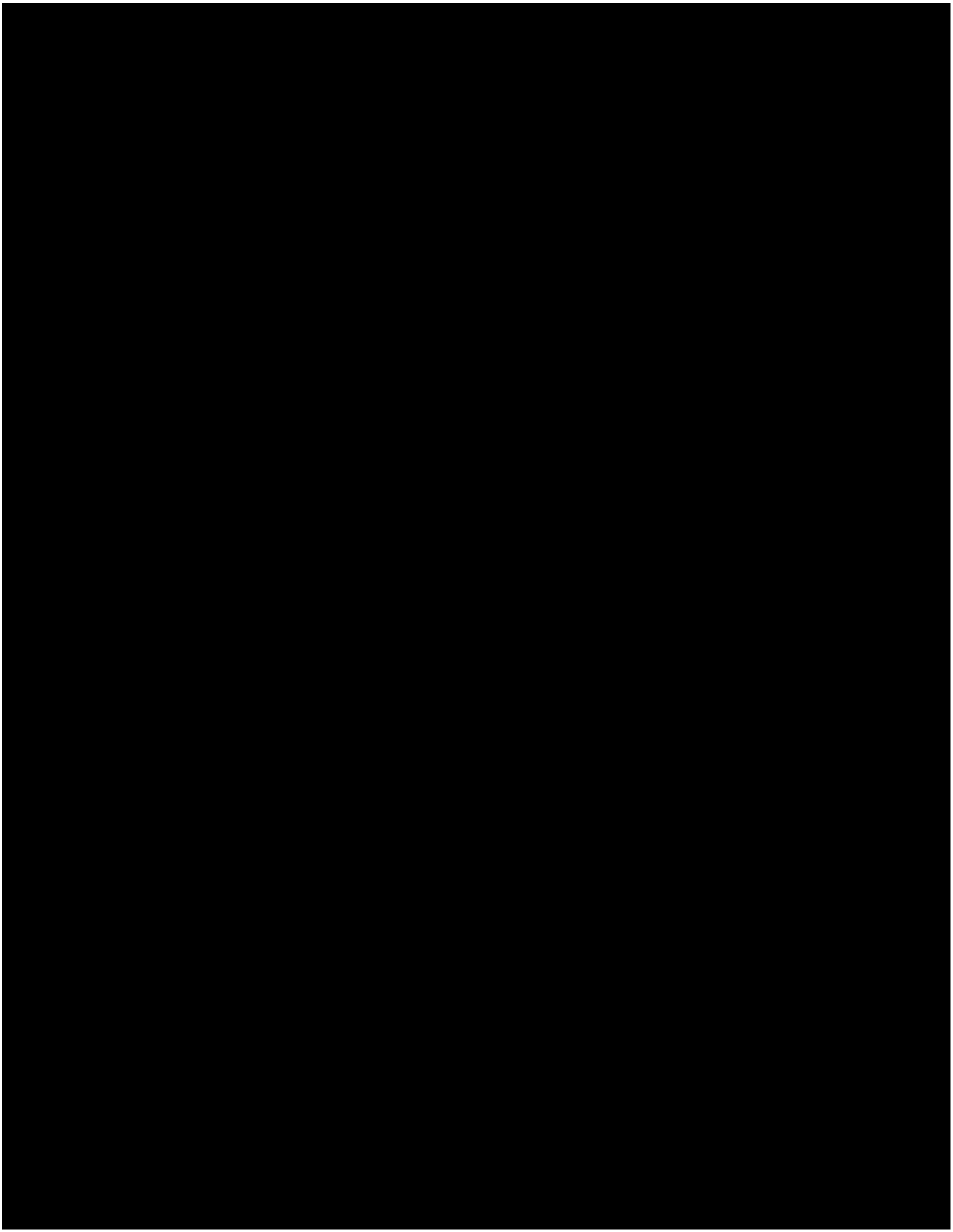


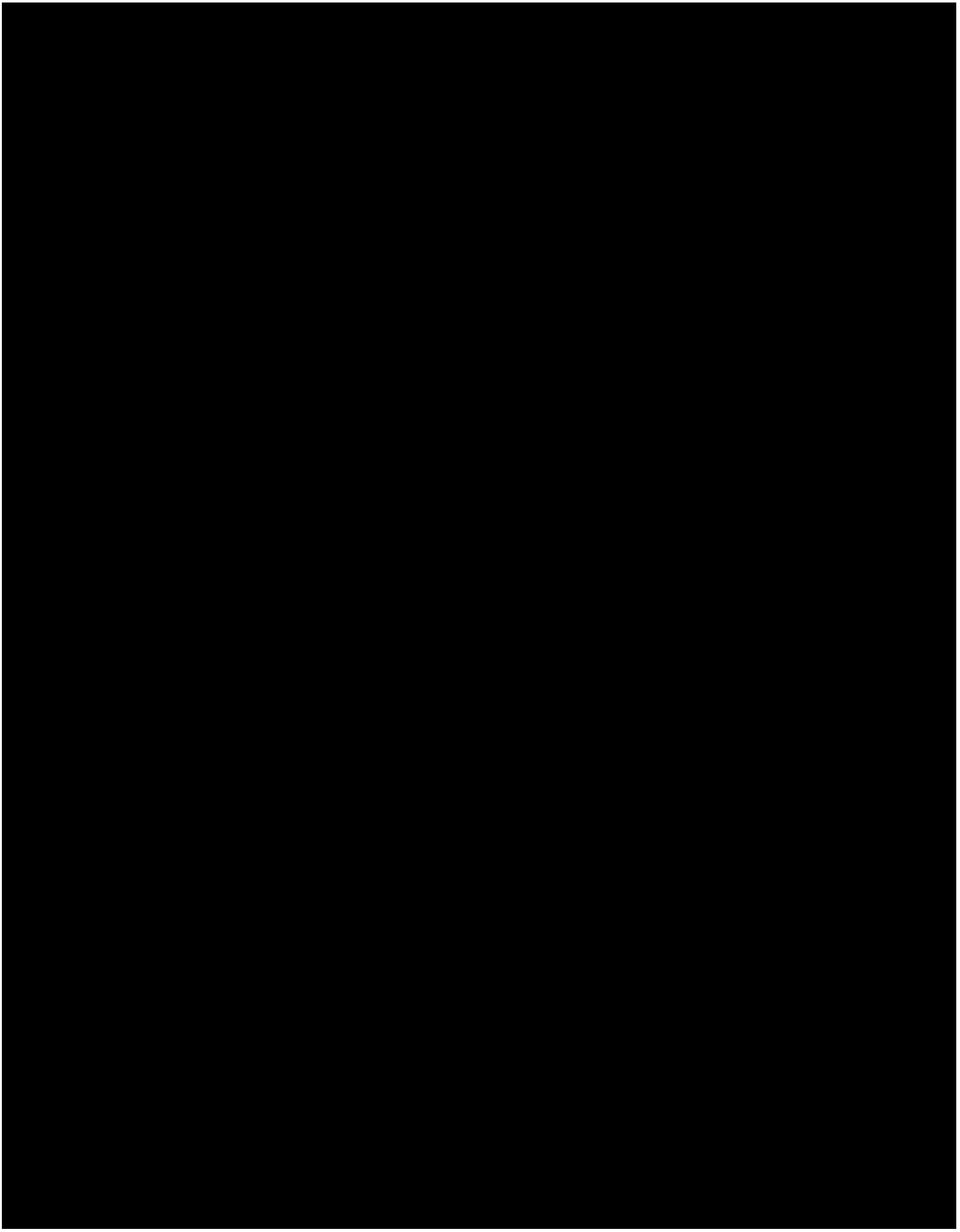


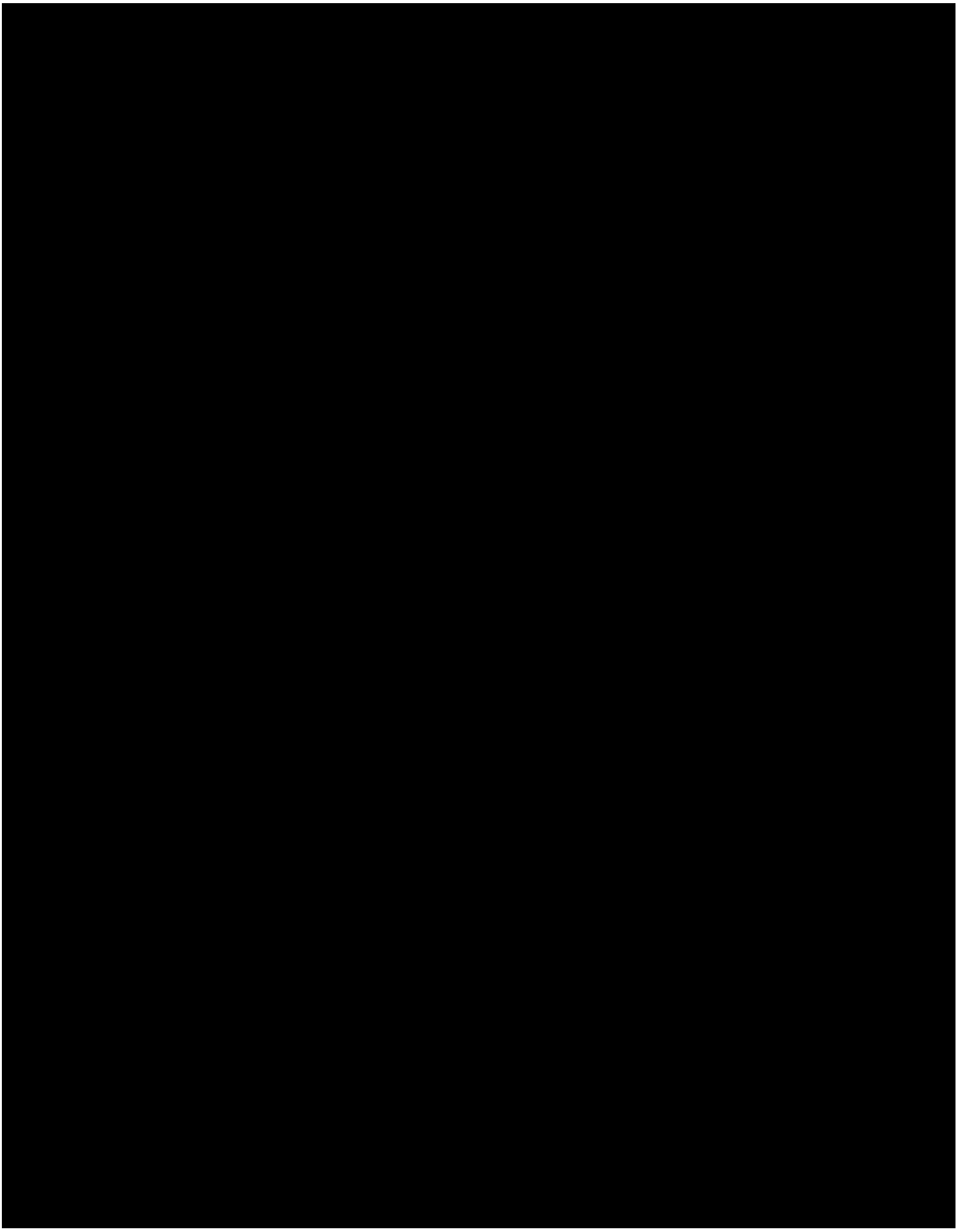












Appendix B – Roles and responsibilities and Specified Personnel

1 Contractor roles and responsibilities and Specified Personnel

Name	The Contractor roles	Responsibilities	Certification
Daniel Woodford	Program Director (PD)	• To ensure Project success • To monitor and ensure that Project targets (Milestones/Deliverables) are met • To decide upon necessary resources required to successfully meet Project objectives • To manage key decisions. • To provide guidance on overall direction • To provide monthly status report on progress highlighting risks and issues • Expected time on site: As required	[redacted]
Susanne Olovsson (Transitioning to Sydney resource)	Project Manager (PM)	• To manage progress in ensuring Project targets (Milestones/Deliverables) are met • To manage the Project effectively within allocated responsibility set • To manage resources in the delivery of Project Schedule Milestones • To manage budgeting and scheduling requirements • To manage all project management procedures • To provide weekly status report on progress highlighting risks and issues in cooperation with the Customer Project Manager • Expected time on site: 4 days/week	

Cameron Collie	Rail Program Lead	• To ensure coherence in the envisioned solution, both functionally and technically • To help the Customer define the relevant business processes • Expected time on site: 1-3 days/week	[redacted]
Tim Duncan	Quality Assurance Business Consultant (QA-BC)	• To guide functional implementation of Quintiq Modules • To review and guide the Contractor's team in meeting the Customer's requirements • Expected time on site: As required	
TBA (Transitioning to Sydney Resource)	Lead Business Consultant (BC)	• To create the functional documentation and functional solution • To support creation of the test plan • To address issues during Iterative Development • Expected time on site: 3-4 days/week	
Peter Lawlor	Commercial Manager	• To negotiate the Final Contract and all modifications thereto on the part of the Contractor • Expected time on site: As required	

A description of the skills a person has to have in order to be certified to a particular level is set out in section 3 below.

2 Customer roles and responsibilities

Name	Role	Responsibility
Mark Pigot	Technology Team Manager	Management of the Technology Team
Stefano Bianchini	Lead Architect	Oversight of Technical Design for ROC Program
Bob Allum	Commercial Lead	Oversight of Commercial negotiations and management of ROC Agreements

Sharat Kumar	Project Manager	Project Management of ROC Vendors
Reuben Bowd	Legal	Oversight of Legal activities
As required	Customer Business Representatives	Provide Business functional requirements and inputs
As required	ROC BA Team Members	Provide Business Analysis skills as required
As required	ROC Architect Team Members	Provide Architecture skills as required
As required	ROC Business Processes Team Members	Provide Business Processes as required

3 Certification Levels – summary table

THE SKILLS MAP

QUINTIQ ACADEMY

QUINTIQ

Certification Levels | Summary

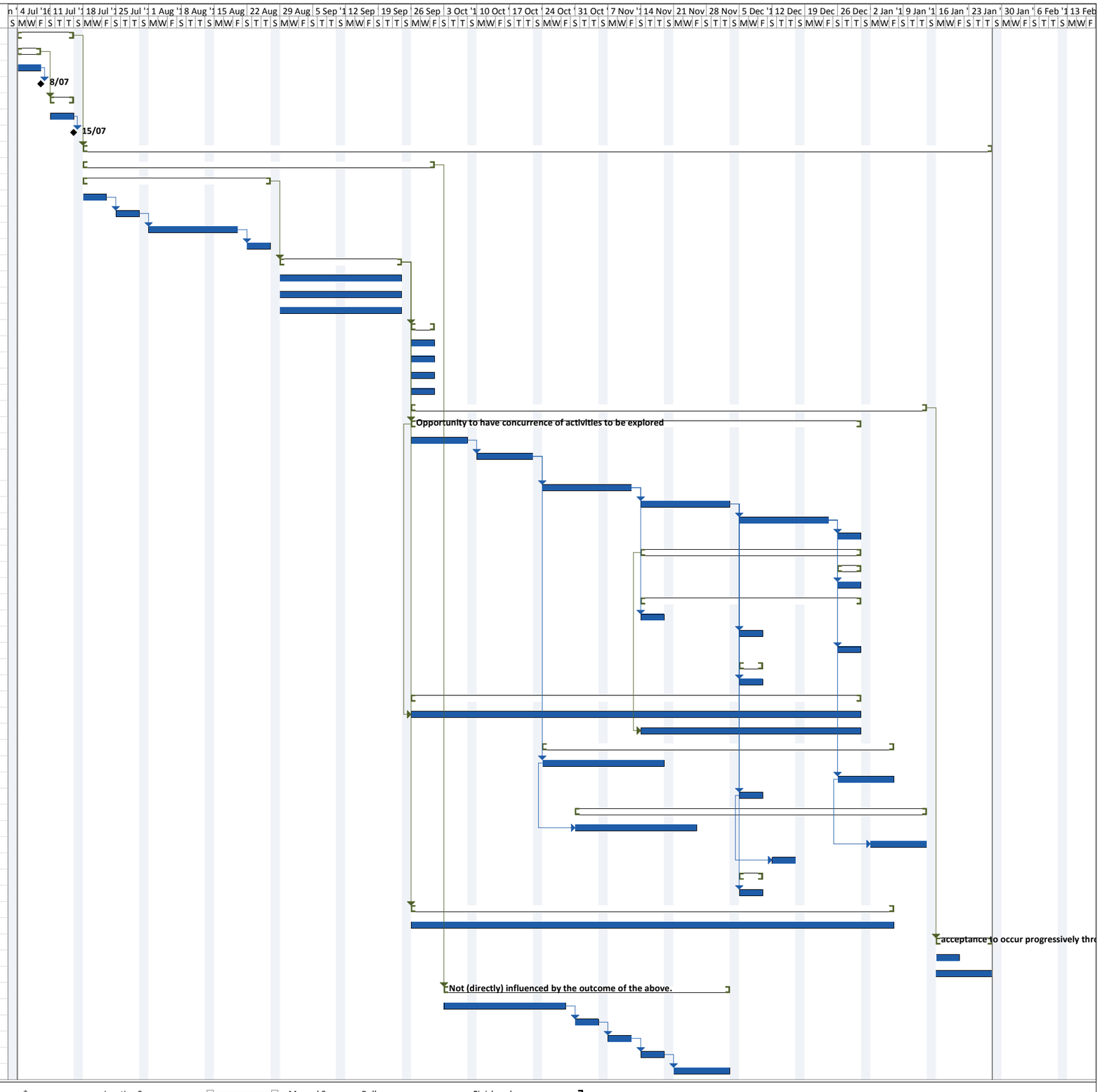
Summary	Level 1	Level 2	Level 3	Level 4	Level 5
Algorithm Expert					
Business Consultant					
Project Manager					
Quintiq Specialist					
Sales Executive					
Technical Consultant					

Appendix C – Project Schedule

The embedded draft MS Project schedule is based on the workshop schedule provided by the Customer and will be further revised once the Contractor has completed more detailed planning sessions with Other Contractors. The Contractor's aim is to (where possible) consolidate workshops to enable progress to be accelerated and to reduce the impact on the Customer's Personnel.

ROC - DD - High Level Project Plan v4.

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Initiation**	**10 days**	**Mon 4/07/16**	**Fri 15/07/16**	
2		Resources	**5 days**	**Mon 4/07/16**	**Fri 8/07/16**	
3		Onboarding	1 wk	Mon 4/07/16	Fri 8/07/16	
4		Resources onboarded	0 days	Fri 8/07/16	Fri 8/07/16	3
5		Project plan	**5 days**	**Mon 11/07/16**	**Fri 15/07/16**	**2**
6		Review current plan	1 wk	Mon 11/07/16	Fri 15/07/16	
7		Plan agreed	0 days	Fri 15/07/16	Fri 15/07/16	6
8		**Detailed Design**	**140 days**	**Mon 18/07/16**	**Fri 27/01/17**	**1**
9		**High Level**	**55 days**	**Mon 18/07/16**	**Fri 30/09/16**	
10		Doc: High Level Solution Design	**30 days**	**Mon 18/07/16**	**Fri 26/08/16**	
11		Consolidate Use Cases	1 wk	Mon 18/07/16	Fri 22/07/16	
12		Define high level business processes	1 wk	Mon 25/07/16	Fri 29/07/16	11
13		Assumptions and Dependencies	3 wks	Mon 1/08/16	Fri 19/08/16	12
14		Finalise detailed requirements	1 wk	Mon 22/08/16	Fri 26/08/16	13
15		Doc: Data Management Plan	**20 days**	**Mon 29/08/16**	**Fri 23/09/16**	**10**
16		Topology data model	4 wks	Mon 29/08/16	Fri 23/09/16	
17		Services data model	4 wks	Mon 29/08/16	Fri 23/09/16	
18		Path data model	4 wks	Mon 29/08/16	Fri 23/09/16	
19		**Technical strategies**	**5 days**	**Mon 26/09/16**	**Fri 30/09/16**	**15**
20		Environment strategies	1 wk	Mon 26/09/16	Fri 30/09/16	
21		Integration strategies	1 wk	Mon 26/09/16	Fri 30/09/16	
22		Authorisation strategies	1 wk	Mon 26/09/16	Fri 30/09/16	
23		Reporting strategies	1 wk	Mon 26/09/16	Fri 30/09/16	
24		**Low Level**	**80 days**	**Mon 26/09/16**	**Fri 13/01/17**	
25		Doc: Functional Specifications	**70 days**	**Mon 26/09/16**	**Fri 30/12/16**	**15**
26		Topology management	2 wks	Mon 26/09/16	Fri 7/10/16	
27		Timetable import, preparation and publication	2 wks	Mon 10/10/16	Fri 21/10/16	26
28		Train Services and Posessions	3 wks	Mon 24/10/16	Fri 11/11/16	27
29		Train Services Replanning / Decision Support	3 wks	Mon 14/11/16	Fri 2/12/16	28
30		Fleet, Crew & Actuals	3 wks	Mon 5/12/16	Fri 23/12/16	29
31		System Administration	1 wk	Mon 26/12/16	Fri 30/12/16	30
32		Doc: Non-functional Design	**35 days**	**Mon 14/11/16**	**Fri 30/12/16**	
33		User authorisation	**5 days**	**Mon 26/12/16**	**Fri 30/12/16**	
34		Define user groups	1 wk	Mon 26/12/16	Fri 30/12/16	30
35		Reporting	**35 days**	**Mon 14/11/16**	**Fri 30/12/16**	
36		Define reports (Topology)	1 wk	Mon 14/11/16	Fri 18/11/16	28
37		Define reports (Routing)	1 wk	Mon 5/12/16	Fri 9/12/16	29
38		Define reports (Timetable)	1 wk	Mon 26/12/16	Fri 30/12/16	30
39		Archiving	**5 days**	**Mon 5/12/16**	**Fri 9/12/16**	
40		Define archiving strategy	1 wk	Mon 5/12/16	Fri 9/12/16	29
41		**Doc: Requirements Traceability Matrix**	**70 days**	**Mon 26/09/16**	**Fri 30/12/16**	
42		Update functional requirements	14 wks	Mon 26/09/16	Fri 30/12/16	25SS
43		Update non-functional requriements	7 wks	Mon 14/11/16	Fri 30/12/16	32SS
44		Doc: Data Technical Analysis	**55 days**	**Mon 24/10/16**	**Fri 6/01/17**	
45		Topology interfaces	4 wks	Mon 24/10/16	Fri 18/11/16	27
46		Service interfaces	2 wks	Mon 26/12/16	Fri 6/01/17	30
47		Path interfaces	1 wk	Mon 5/12/16	Fri 9/12/16	29
48		**Doc: Integration Specifications**	**55 days**	**Mon 31/10/16**	**Fri 13/01/17**	
49		Topology	4 wks	Mon 31/10/16	Fri 25/11/16	45SS+1 wk
50		Service	2 wks	Mon 2/01/17	Fri 13/01/17	46SS+1 wk
51		Path	1 wk	Mon 12/12/16	Fri 16/12/16	47SS+1 wk
52		Doc: Architectural Specifications	**5 days**	**Mon 5/12/16**	**Fri 9/12/16**	
53		Sizing	1 wk	Mon 5/12/16	Fri 9/12/16	29
54		Doc: Data Technical Analysis	**75 days**	**Mon 26/09/16**	**Fri 6/01/17**	**15**
55		ongoing support for SI	15 wks	Mon 26/09/16	Fri 6/01/17	
56		**Acceptance**	**10 days**	**Mon 16/01/17**	**Fri 27/01/17**	**24**
57		Doc: Product Gap Analysis	1 wk	Mon 16/01/17	Fri 20/01/17	
58		Document review & acceptance	2 wks	Mon 16/01/17	Fri 27/01/17	
59		**Processes**	**45 days**	**Mon 3/10/16**	**Fri 2/12/16**	**9**
60		Doc: Project Management Plan	4 wks	Mon 3/10/16	Fri 28/10/16	
61		Doc: Communication Plan	1 wk	Mon 31/10/16	Fri 4/11/16	60
62		Doc: Test Strategy	1 wk	Mon 7/11/16	Fri 11/11/16	61
63		Doc: Implementation Strategy	1 wk	Mon 14/11/16	Fri 18/11/16	62
64		Doc: Operating Model	2 wks	Mon 21/11/16	Fri 2/12/16	63



Project: ROC - DD - High Level Pro
Date: Thu 12/05/16

Task	Summary	External Milestone	Inactive Summary	Manual Summary Rollup	Finish-only		
Split	Project Summary	Inactive Task	Manual Task	Manual Summary	Deadline		
Milestone	External Tasks	Inactive Milestone	Duration-only	Start-only	Progress		

DRAFT VERSION
to be reviewed and agreed during Initiation phase

25 **Doc: Functional Specifications**
Opportunity to have concurrence of activities to be explored
56 **Acceptance**
acceptance to occur progressively throughout Detailed Design
59 **Processes**
Not (directly) influenced by the outcome of the above.

DRAFT VERSION
to be reviewed and agreed during Initiation phase

Appendix D – Risk Management Plan

The risk management plan is documented in the ROC Program PMP and has been reproduced in this PIPP document

The risk management process aims to optimise the delivery of the ROC by balancing risks and benefits with the achievement of schedule, cost and performance goals. Risk management is conducted as an ongoing process throughout the ROC Program, providing appropriate focus for specific tasks.

The program applies the Sydney Trains Enterprise Risk Management framework to the management of program risks. A Risk Management Plan (RMP) has been produced to provide details of the processes adopted by the program in the identification, analysis, planning and subsequent management of risks. This includes:

- Risk management strategies within the program team and other stakeholders as necessary;
- Responsibilities and accountabilities for managing identified program risks; and
- Risk management documentation and reporting.

A single risk register within the DRICA-SB template is used to facilitate risk management. The input and management of content into this template follows four steps in the Risk Management methodology.

Risk Identification: The risks to the achievement of the ROC objectives can be identified and raised by anyone at any time. Those risks identified must be fed into the PMO who will facilitate the risk analysis process via stakeholder consultation. The majority of risks are raised however, through the use of structured risk review workshops facilitated by a risk specialist/professional and attended by relevant stakeholders. A number of workshops have been held over the Planning Phase covering the four work streams (Technology, Infrastructure, Transformation and Change, Solution Integration) and Program Management. These have been complemented by program wide workshops, ensuring all risks have been captured, managed and allocated appropriately. The work streams monitor the status of risk treatment plans at weekly work stream status meetings. Risk workshop(s) will be conducted at regular intervals and also at significant phase points in the program, such as prior to the construction phase of the ROC facility, or the technology ECI phase. The schedule of weekly work stream risk status reviews and monthly program/phase related risk workshops will continue throughout the program life cycle.

Risk Analysis: The risks identified are analysed to understand whether they will impact the overall achievement and delivery of the proposed benefits of the ROC by looking at their causes and studying their impact and consequences.

Risk Evaluation: Risks are evaluated in accordance with the Sydney Trains Enterprise Risk Management (ERM) Framework Requirement[1] and associated Risk Assessment Guide[2] to determine whether the level of risk is acceptable or tolerable.

Risk Treatment: Following analysis and evaluation, each risk is assigned a treatment (avoided, transferred, mitigated or accepted) and an associated set of controls. The controls focus primarily on the causes and secondly on the consequences where the causes cannot be adequately addressed. The controls are assigned an owner, who may or may not be the same as the risk owner, who takes overall responsibility for the mitigation of the risk.

Risks are included in the formal program reporting governance ensuring that stakeholders are kept regularly informed of all timely and relevant risks.

The overall risk management process to be applied can be summarised in the figure below.

[1] ERM-SR-01, System Requirement, Enterprise Risk Management, Version 1.1, 20/10/11
[2] ERM-GD-003, System Guide, ERM Risk Identification and Risk Assessment Guide, Version 0.3, 14/10/10

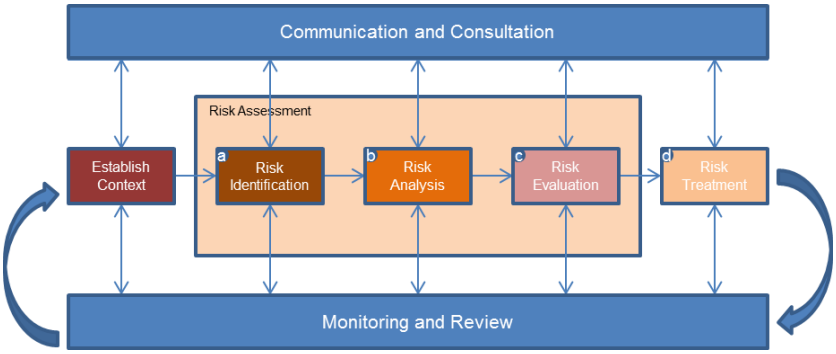


Figure: ERM risk assessment process as illustrated in AS/NZS ISO 31000:2009

Risk reviews will be carried out at a level and frequency within the program commensurate with the level of risk identified and its environment. Risks will also be assessed when there is any major change affecting, or potentially affecting the program. The below table illustrates a guideline of reviews on the ROC Program.

Risk / Issue Rating	Risk / Issue Review Frequency	Review by whom / Forum for discussion
A	Weekly / Monthly.	Weekly at a workstream meeting; Once a month at a program risk workshop facilitated by a Risk Specialist/Professional; and Once a month at a workstream risk workshop facilitated by a Risk Specialist/Professional.
B	Weekly / Monthly.	Weekly at a workstream meeting; Once a month at a program risk workshop facilitated by a Risk Specialist/Professional; and Once a month at a workstream risk workshop facilitated by a Risk Specialist/Professional.
C	Monthly.	Monthly at a workstream risk workshop, facilitated by a Risk Specialist/Professional.
D	Monthly.	Monthly at a workstream risk workshop, facilitated by a Risk Specialist/Professional.

Table: ROC risk review schedule

Appendix E – Milestone Acceptance Form

Appendix E - Acceptance Form.doc

AJILON MILESTONE ACCEPTANCE

CLIENT NAME :	**Sydney Trains**
CONTRACT :	
PROJECT :	

Milestone Details

The following Milestones have been met under the above project:

Milestone/ Deliverable	Evidence	Date Provided/Met

The above Milestones/ Deliverables have been provided/ met :

Signature _____

Project Director _____

Date _____

On Behalf Of Ajilon Consulting Pty Ltd

Signature _____

Program Manager _____

Date _____

On Behalf Of Sydney Trains

[Ajilon Commercial use]		
Description	**Amount**	**Comments/Reference**
Client Purchase Order Value	$	
Value of Previous Claims	$	
Value of this Claim	$	Payable to Ajilon
Total Value this Claim	**$**	Payable by Sydney Trains
Balance Outstanding	$	

Appendix F – Documentation RACI

The below RACI summarises which party is accountable, responsible and consulted for each deliverable for the detailed design phase.

R: Responsible	The organisation(s) who actually provides the appropriate input or content and has responsibility for task completion but not accountability for the task. The "doer" creates or contributes to the creation of the deliverable/activity/task/objective. Responsibility can be shared.
A: Accountable	The accountable organisation is ultimately answerable to the customer for the deliverable/activity/task/objective. Only one "A" can be assigned to an action. Also known as the "Owner" of the activity.
C: Consulted	The consult role is the organisation (typically subject matter experts) to be consulted prior to a final decision or action. Provides guidance, oversight, and/or knowledge before the work can be completed and/or signed-off, i.e. "In the Loop"
I: Informed	This is the individual (s) who need to be informed and kept updated on progress, i.e. "Keep in the Picture"

Item	Document Name	SI Contractor	Quintiq	Customer
	Release 2			
1	Updated High Level Solution Design	A,R	R	C
2	Release 2 Architecture Specification	A,R	R	C
3	Release 2 Functional Specification	A,R	R	C
4	Release 2 Non-Functional Design	A,R	R	C
5*	Resourcing Plan (*this is to be provided during the Project Preparation Phase)	C	A,R	C
5	Release 2 Integration Specification	A,R	R	C
6	Project Communication Plan for Release 2	A,R	R	C
7	Release 2 Data Management Plan	A,R	R	C
8	Release 2 Data Technical Analysis Outputs	A,R	R	C
9	Updated Technology Implementation Strategy	A,R	R	C
10	Release 2 Technology Implementation Plan (Template)	A,R	R	C
11	Technology Test Strategy	A,R	R	C
12	Updated Project Management Plan	A,R	R	C
13	RACI	A,R	R	C
14	Agreed Final Contract	R, I	R, I	A

15	Detailed Implementation & Maintenance Phase PIPP	R, I	R, I	A
16	Updated Release 2 Product Gap Analysis	A,R	R	I
17	Release 2 System Test Plan	A,R	R	C
18	Requirements Traceability Matrix updated for Release 2	A,R	R	C
19	Technology Environment Management Strategy	A,R	R	C
19A	Detailed Support Proposal	C	A, R	C
20	Operating Model	A,R	R	C
21	Draft recommended ROC Organisational Structure	A,R	R	C
22	Change Impact Analysis (Release 2)	A,R	R	C
23	Release 2 Training Needs Analysis	A,R	R	C
24	Training Plan	C	A,R	C

Appendix G – Acceptance Criteria

Approval Criteria for Project Preparation Phase

The Approval Criteria for the Deliverables under the Project Preparation Phase are as follows:

a) the Deliverable is in a 'readable' format (both soft copy and hardcopy);

b) the Deliverable is complete, to the extent the Deliverable can be completed; and

c) detailed approval criteria will be documented by the end of Week 2 of the Detailed Design Phase, following the completion of the initial Customer/ Contractor workshops.

Approval Criteria for Detailed Design (Release 2) Phase

Standard List of Approval Criteria

The Approval Criteria for the following Deliverables of Detailed Design (Release 2) Phase are as follows:

a) the Deliverable conforms to the agreed template as agreed in the Project Preparation Phase;

b) where the Deliverable is a document, that all sections of the document are complete;

c) the Deliverable meets the criteria listed in the Deliverables section (section 5.4 of the PIPP), where stated;

d) the Deliverable includes a summary of all relevant decisions, assumptions, dependencies, risks and issues, together with any associated action plans; and

e) there are no outstanding major defects from the review of the deliverable.

The Deliverable shall be deemed fit for purpose when all criteria expressed above have been met.

Appendix H - Project management methodology

Quintiq-Whitepaper-Program-Management.

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__qplc.quintiq.com_iterative-development_

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Program Management

Whitepaper

September 8, 2014 – version 0.4

QUINTIQ

Table of contents

1. Introduction

Quintiq is frequently asked to undertake program management. However, as the definition of program management varies, this whitepaper has been created to clearly define our understanding of the concept.

This document is meant to help both customers and Quintiq employees align their expectations. It is also meant to provide a foundation for a successful program.

The whitepaper does not describe detailed tasks, tools and templates for executing program management.

2. Defining program management

The first question that is normally asked is: “what the difference is between project management and program management?”

According to Project Management Institute (PMI), The Standard for Program Management: "A program is a group of related projects managed in a coordinated manner to obtain benefits and control NOT available from managing them individually. Programs may include elements of related work outside of the scope of the discreet projects in the program... Some projects within a program can deliver useful incremental benefits to the organization before the program itself has completed."

Or as Dan Bourne, Managing Director at PPM-Practitioners, puts it:

“Project management is like juggling three balls – time, cost and quality. Program management is like a troupe of circus performers standing in a circle, each juggling three balls and swapping balls from time to time.”

Program management typically focuses on the coordination and prioritizing of resources across projects, managing dependencies between the projects and the overall scope, quality, costs and risks of the program.

Program management is one level above project management and establishes an environment where projects can be run successfully. Program managers should focus on the overall program and avoid micromanaging. The project management of the individual projects should be left to the project managers.

2.1 How program management differs from project management

A program brings together all the outputs of the underlying projects and focuses on value and alignment. Projects have a defined scope, budget and timeline, making it more “tactical”, whereas programs are often more “strategic” and focus on long-term outcomes.

As a program consists of multiple projects, it is typically larger and more complex. It involves more people and more stakeholders than a project. Almost by default, this means that the risks are higher for a program, and that coordination needs to be better and communication needs to be more comprehensive. In other words, there are more things that can go wrong and if they do go wrong, the impacts will be greater and the resulting issues will be more time consuming and expensive to resolve. For example, a delay in one of four projects might not only impact the timeline and cost of that project but also cause delays and incur additional costs for the other three.

Program management is different depending on who is running the program. The program could either:

1) consist only of Quintiq projects, or

2) consist of one or more Quintiq projects along with other projects e.g. an ERP system, Business Intelligence tool, etc.

2.2 Quintiq program

A Quintiq program groups the coordination of multiple projects because the projects are related and typically lead to a combined delivery. A program could also consist of a number of projects that do not lead to a combined delivery but are interdependent due to shared resources (functional or technical) or have other dependencies.

The program helps to coordinate the project management activities between the related projects, to decrease risks, manage costs and improve management and communication. This would not be achieved if the projects were not managed as parts of a program.

In such cases, Quintiq would typically take on the program management responsibilities.

2.3 Customer program

A customer program is one that could include Quintiq projects in addition to others. In this situation, a Quintiq project could be one among many other projects (for example, if we are expected to deliver a planning solution while the customer is implementing a new ERP solution with another vendor).

The overall outcome of a program is typically revealed over time. Usually, the results take a while to materialize after the individual projects have been completed. While Quintiq may no longer be involved in the program at that point, we would still maintain contact with the customer to ensure that the company reaps the benefits of its new planning solution in tandem with the other projects that were part of the program.

In such a case, Quintiq's main focus would be project management and completing our project(s) successfully (delivering on time, according to budget and to specification), while the overall program responsibility would lie with the customer.

3. Quintiq projects versus Quintiq programs

When there is more than one delivery for the same customer, it needs to be decided if these should be managed as:

- one project
- separate independent projects, or
- a program with multiple projects.

3.1 One project

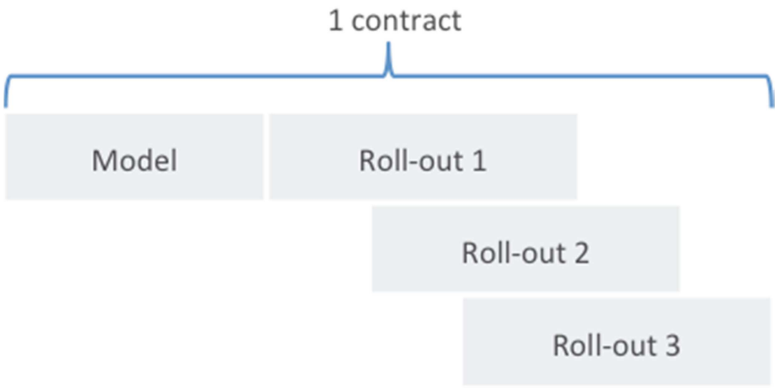
Most Quintiq deliveries are managed as projects. This is done when there is a scope, timeline and budget to be managed and the deliveries do not have significant dependencies between multiple streams.

As a rule of thumb, a Quintiq project should not exceed 9 to 12 months in duration or exceed 8 to 10 project team members. If it does, it would indicate the need to break the project into multiple sub-projects.

Example A:

This example involves the implementation of the Workforce Planner at a single location.

Example B:

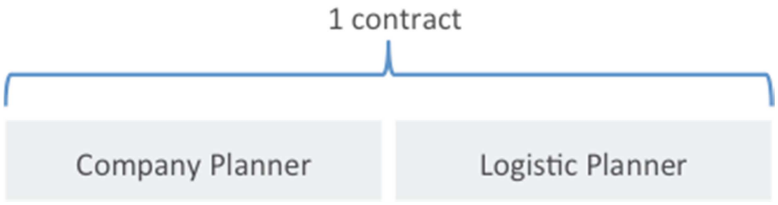


In the above example, a core model is developed and subsequently rolled out to 3 different locations. As it's the same core model that's being implemented at each site, there are no significant dependencies between the roll-outs that need to be coordinated and managed.

3.2 Multiple independent projects

If you are executing multiple projects for the same customer, these do not necessarily need to be managed as a program. Each of these projects could target completely different and independent areas of the business or it may be the case that the projects are to be delivered to different sites, locations or departments within the business. It could also be that the projects are to be implemented sequentially. In such cases, a program is typically not needed.

Example C:

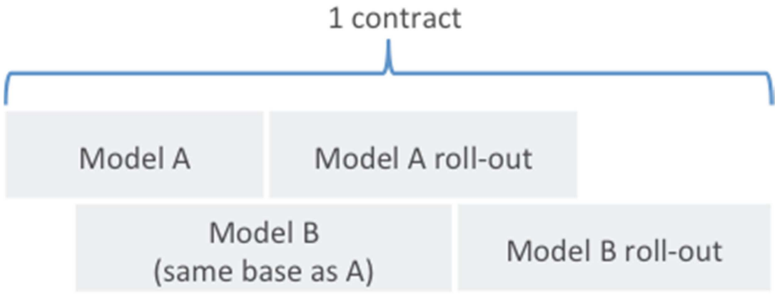


In this example, we have a contract with a customer to deliver two projects that are to run sequentially. A Company Planner solution could first be implemented, followed by a Logistics Planner solution. In this case, it could be treated as two separate projects. No program management is required, as there is no overlap of resources, dependencies or risks to manage.

3.3 A program with multiple projects

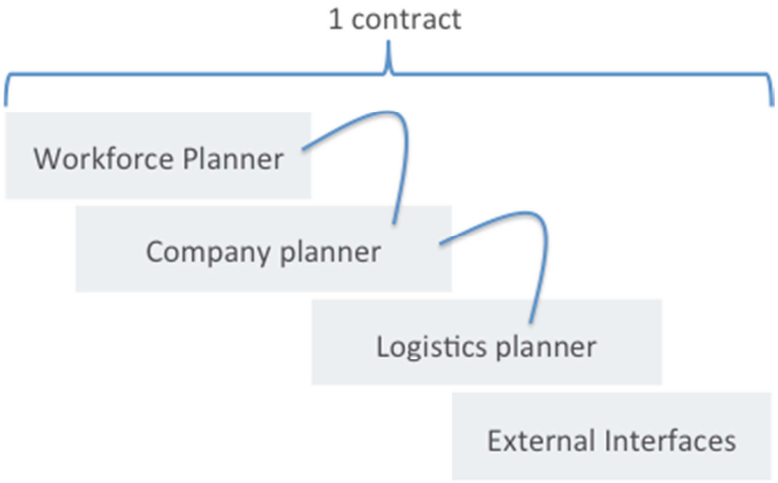
If you are running multiple projects that are highly interdependent, you will likely want to manage the overall delivery as a program.

Example D:



In the above example, we are configuring a core model – A – that is to be rolled out to one location. In parallel, model B is configured based on model A, and model B is to be rolled out to a different site by a different team. As changes to one model might impact the other model, we would recommend running model A and model B as separate projects and running the overall delivery as a program to ensure that activities between the two projects are coordinated. A delay in project A might impact the timeline of project B, as it would not be able to start until the core of model A has been completed. Likewise, if we identify any modeling issues in project B, we may want to feed these issues back to the managers of project A as model A might eventually have the same issues.

Example E:



In the example above, multiple Quintiq solutions are being implemented in parallel for the same customer, at the same time. As these solutions are integrated, there is a high degree of dependency between them even though they are run as separate projects by separate teams. Therefore, a program is put in place to manage the combined solution and its delivery to the customer.

4. Managing programs

To a large extent, it could be argued that program management is simply project management that is conducted on a higher level. Some would say that it does not require a different "skill set" but a different "scale set" to run a program.

4.1 Methodology

From a methodology point of view, program management involves more than just oversight and management of a set of projects. It also includes the application of common standards and processes to drive efficiency, transparency and communication. This would include implementation methodologies, the reporting frequency, the overall communication strategy, etc.

If we are talking about a Quintiq program, we would most likely use the QPLC methodology to manage the overall program and the individual projects in the program. However, if we are talking about a customer program, that methodology would be inapplicable, especially when multiple vendors serve one customer.

Therefore, it is more important to agree very clearly on the weekly reporting requirements. It is possible that one supplier uses QPLC, another uses SCRUM, a third one uses PMBOK and a fourth one uses PRINCE, but as long as each subproject reports the project progress every week using the same reporting template, the program manager can summarize (aggregate) the total progress of the program.

4.2 Coordination in focus

Instead of tracking project progress based on tasks, it is more efficient to track program progress by milestone/phase. It's especially important to focus on milestones that are related to the milestones of other projects in the program.

In the same way, risk management focuses on the mitigation of risks that could impact the other projects. Similarly, weekly reports and steering committee slide decks should focus on the higher-level development of items that could impact the progress of the overall program.

It's important to note that program management is more than just adding a layer of management on top of project management. It's about organizing things differently. For example, in a typical Quintiq project, it's common to keep the entire project team informed about many aspects of the project. However, using Skype chats, emails, etc. to keep everyone abreast is no longer practical in a program as team members would be overwhelmed by the amount of information.

It's also unlikely that the lead Business Consultant will be able to oversee the entire solution the same way he would normally be able to in an individual project. As such, responsibilities need to be more clearly defined; functional and technical areas need to be divided into multiple areas and these areas need to be delegated to multiple team members. It must be clear to everyone whom to go to, depending on the question, task or issue at hand. Most critical are coordination and ensuring that team members responsible for the various elements are kept in sync.

4.3 Program deliverables and acceptance criteria

On a project level, we usually track a number of deliverables for each project phase. The project acceptance criteria must be clearly defined in the Statement(s) of Work in order to effectively manage each project stream.

Program deliverables should be kept at the milestone level and project-phase level. In addition to the project-related deliverables, the program might have specific program-level deliverables and acceptance criteria, e.g. a "program start" tollgate that could have deliverables such as: all project teams must be established, contracts must be signed, a kick-off meeting must be held, a program timeline must be prepared, etc.

When defining the acceptance criteria, it's important to clarify how any Change Request to the project and the overall program will impact acceptance. In large programs, it's likely that new opportunities will be uncovered and it is in the best interest of all parties to ensure that projects are kept to a manageable size by handling Change Requests in separate work streams.

4.4 Planning

When planning the overall program, it's important to focus on long-term planning. The project managers for the individual projects will typically plan on a shorter time horizon, but from an overall program point of view, it's important not to get lost in the details but continuously keep the overall timeline in mind.

The program manager needs to be stricter when managing the plan as any slippage might not only impact the individual sub-project but also impact other project streams.

Where a Quintiq project is typically based on sequential QPLC phases, program management involves a different type of planning whereby different sub-projects typically run simultaneously in parallel. On the one hand, this is an opportunity to re-allocate and share resources between sub-projects and absorb delays if slack is properly planned. On the other hand, it can be a challenge to ensure model ownership, model consistency, and that knowledge is shared amongst teams. An additional challenge comes from preventing one project's delays from affecting other projects and the overall program.

4.5 Steering committee, program manager and project managers

The typical program governance structure looks like that of a project, except that it has an additional level. As such, project teams report to project managers, who report to a program manager, who in turn, reports to a steering committee.

Depending on the size of the individual projects, each project might require an individual project manager. Alternatively, project managers could each manage a cluster of projects. It is recommended that each project be managed with a Project Management Report (PMR) and on the program level, these should be consolidated into an overall Program Progress Report.

One option is to have the program manager represent the project managers in the steering committee, but we have also seen programs where each project manager participates and a time slot is reserved for each project manager to report on the project status. However, project managers should always report to the program manager who is accountable for the overall program. Please be aware that the program manager and the project managers might have different goals. For example, to ensure that we can keep to the overall program timeline, it might be necessary to temporarily borrow resources from one project thereby negatively impacting that sub-project and the project manager's goals. Such conflicting interests must be managed carefully.

The governance structure might depend on the program approach, e.g. whether it is a pilot and roll-out type of implementation, or big bang (where all sub-projects go live at the same time) or something else.

To facilitate coordination and communication, it is a good idea to establish internal steering committees (if the program is very complex or has a high risk) and a Change Request Management Board (if uncertainty about the combined solution leads to the expectation of a significant number of Change Requests). Please note that additional governance structures add to the complexity of program management and additional controls should therefore only be added when they will positively benefit the program.

Some roles may be general across projects on the customer's side, e.g. training manager, testing manager, change manager, etc.

4.6 Project Management Office

For larger programs, it might be good to have an overall program PMO, who manages daily, weekly and monthly administrative tasks such as:

- approving hours (and monitoring budget versus actual reporting)
- collecting daily and weekly reports from team members
- compiling and sending out project and program progress reports
- creating and tracking project financials including invoicing and payments
- coordinating project-team, program-management and steering-committee meetings
- managing project documentation, etc.

A PMO will free up the project managers and program manager to enable them to focus on running the projects and program, making project administration more efficient as these tasks are centralized in one place.

4.7 Program Solution Architect

A Quintiq program will typically benefit from having an overall Program Solution Architect to ensure that the overall deliveries are aligned and to monitor the quality of the overall Quintiq solution. A typical example could be the roll-out of a Quintiq solution to several locations, where we start with a project to configure the core solution that is then subsequently rolled out (maybe in slightly modified forms) to different locations in parallel. The Program Solution Architect will ensure that the individual solutions do not stray too far from the core solution and that lessons learned from individual roll-outs are worked back into the core solution where applicable. The individual roll-outs are managed as separate projects and we have an overall program manager to ensure that the overall deliveries are met.

In a customer program, it's also important to establish a Program Solution Architect to ensure that solutions from different vendors are aligned and that the quality of the overall functional and technical solution lives up to expectations, in terms of quality.

4.8 Governance

Governing programs is typically different from governing projects due to the size and complexity of the deliveries, longer timelines, and the size and nature of the customer's organization.

It is, therefore, very important to be extra diligent in the Initiation phase of the program to protect all parties and to mitigate potential risks. Generally, contractual terms and conditions need to be clearer as larger organizations typically have less room to maneuver in case of disputes. The customer representative will probably be asked to follow formal procedures and approval processes, and also asked to ensure that documentation is updated. As the program timeline is usually significantly longer than a project timeline, team members on both sides are also more likely to have changed roles or left the program, towards the program's conclusion, leaving less room for discussing "what was originally agreed and intended". It is, therefore, crucial to ensure that documentation is kept up to date.

An important example to cite is the Quintiq Business Analysis document that describes the scope of the solution and the deliverables. As multiple analysis phases (at least one for each project) will be conducted and decisions made may not be fully aligned with the original requirements specified during the sales/purchase phase, it's important to ensure that the QBA is agreed upon to supersede the original requirements and to ensure that there is full alignment on the scope and agreed solutions.

4.9 Modeling

When working on programs and bigger projects, you will find yourself working with more people on the same model. This makes it important to clearly communicate who has ownership of the Quintiq Designer and mitigate the risk of downtime that could impact other developers who are modeling at the same time. It can sometimes be effective to set up separate environments for separate parts of the solution, for example, interface development. The process of model ownership and how to best merge functionality should be clearly defined and the responsibilities should be clearly assigned.

4.10 Testing

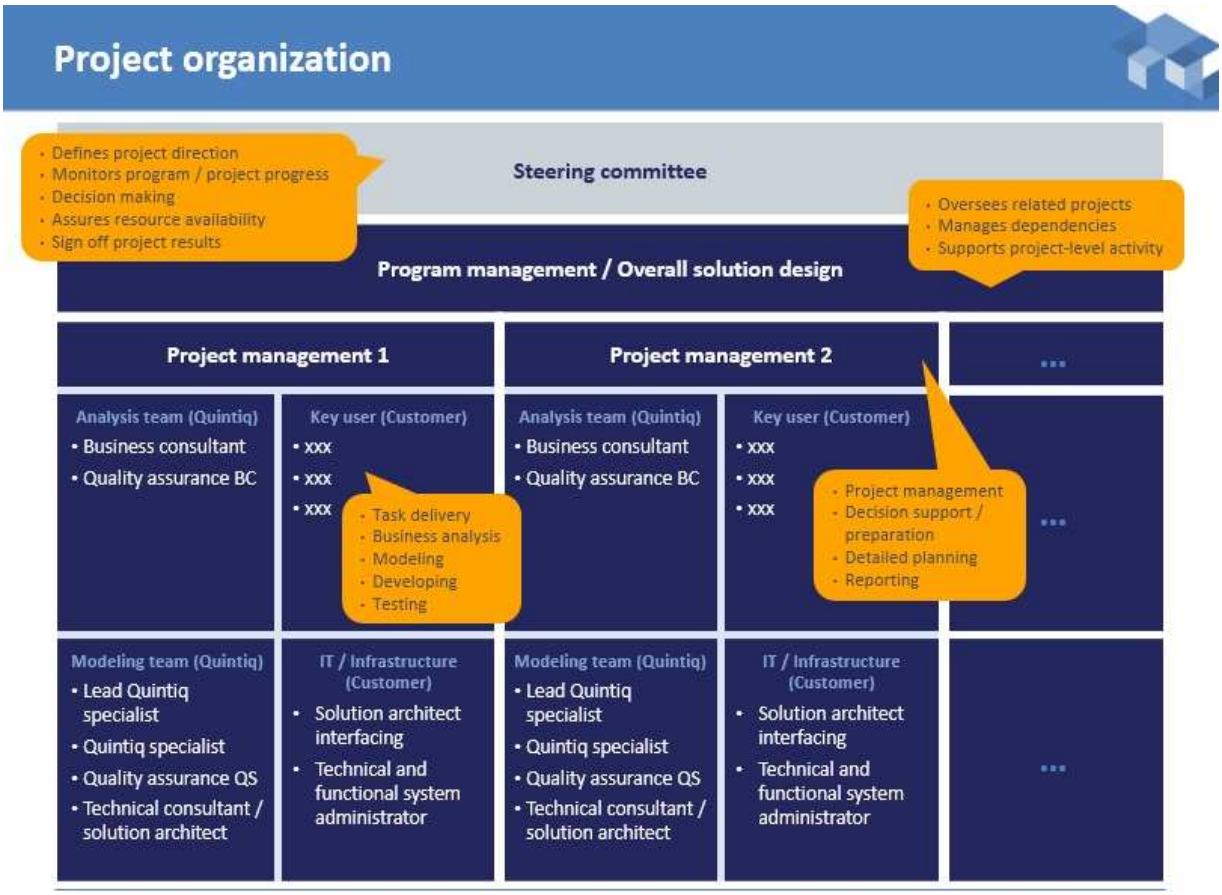
Regression is caused by the occurrence of errors in functions that had been previously tested and approved. Mostly, regression occurs when modeling is ongoing, due to the existing dependencies that exist between different parts of the model. Regression is difficult to avoid and in programs and projects with longer timelines and larger models, the risk of regression is higher. The prevention of regression therefore deserves special attention in programs. Clear documentation, knowledge sharing and team consistency are important mitigating factors.

Regression testing is an important tool to prevent model regression. It is important to ensure that the customer understands the importance of having a testing team and solid regression test cases in place. It is also important to define the testing process and the procedure and criteria for accepting issues and test cases.

4.11 Program templates

Project management templates, e.g. risk sheets, budget tracking and PMRs (Project Management Reports), should continue to be used in each project and in addition, weekly reporting should be done at the program level.

Appendix



Roles and responsibilities

Steering committee <Customer> & Quintiq	• Approves contracts • Assigns sufficient resources • Makes decisions in the event of changes in scope, timeline, budget
Program Manager <Customer> & Quintiq	• Oversees all projects within the program • Steers project managers • Identifies and manages cross-project dependencies
Project management <Customer> & Quintiq	• Plans the project phases • Makes detailed assignment of available resources • Controls execution of the plan
Business expert <Customer>	• Provides detailed knowledge of the business and planning processes • Reviewer and owner of QBA document
Business consultant Quintiq	• Responsible for creating the QBA document and solution • Support generation of the test plan • Solves issues during Iterative Development
Key user <Customer>	• Creates the test plan (supported by Quintiq) • Executes the tests • Creates the user documentation • Creates and performs user training
Quintiq specialist / Technical specialist Quintiq	• Creates the test plan (supported by Quintiq) • Executes the tests • Creates the user documentation • Creates and performs user training
Solution Architect / IT expert <Customer>	• Defines and realizes the technical architecture • Installs Quintiq, including new versions of software (supported by Quintiq)

Offices: www.quintiq.com/locations
Web: www.quintiq.com
E-mail: info@quintiq.com

Principles & Guidelines

While doing Quintiq Implementation Projects, Quintiq and her Partners have together discovered the principles that determine the success of projects. By writing down these principles in a methodology, we want to share these experiences with everyone who will be performing Quintiq Implementation Projects. The methodology should be viewed as a guideline during the *Quintiq Project Life Cycle*. When Quintiq is responsible for a project we will follow the QPLC methodology. For projects performed fully under a partner's responsibility the QPLC Methodology is a proposal.

As all Quintiq products, this methodology is not static, but can and should be improved. Indeed, it may be decided after careful consideration to take a different approach. In such cases it is requested to inform QPLC@quintiq.com (mailto:QPLC@quintiq.com) so we can improve the methodology and inform the whole Quintiq community.

Principles & Guidelines

Underlying the QPLC Methodology are a number of important principles that can be summed up by the keywords Quality and Efficiency. By focusing on doing it right (**Quality**) the first time (**Efficiency**), other success factors of a project such as budget, time line, etc. will follow. This focus has lead to the following main guidelines during a Quintiq project:

- **Two know more than one**: This is the most basic principle. At all key moments in a project we elect to do things together. Examples are Solution Sessions, Modeling Kick-off, Modeling Sessions, Big Issue Session. Rather than having a single person make a decision, it is safer to do this through collaboration. Sparring early is preferable to reviewing afterwards. In our experience, no matter how knowledgeable someone is, consulting your colleagues up front is the best way to stay on track and avoid costly errors.
- **Customer Ownership**: Throughout the life cycle we strive for customer ownership. Instead of emphasising the Quintiq/Partner responsibility, one should try to make the Customer responsible for the project. The longer the system is not considered to be their system, the longer it will take to implement the solution in their organization. Therefore one should avoid doing work that can be done by the customer, such as defining contents of knowledge tables (during Modeling), creating the Test Plan, most certainly for testing the application by Key Users, installing the IT-infrastructure, and executing the Parallel Test. Point out the customer's responsibility, maybe coach them, but never do the work for them.
- **100% Value**: To achieve the business value for the customer it is important to only spend effort on issues that contribute to this business value. To do so it is important to achieve 100% fit which means including important details but also leaving out unnecessary details. So, for example we should not include a detail that enhances the planning accuracy by 5 minutes if 15 minutes is sufficient. Also, we should avoid including functionality that is actually the responsibility of other systems like shop-floor control and order entry. When in doubt choose the simplest best fit solution.
- **70% Approach**: Throughout the process the approach is to cover the scope at a high-level first and later refine the details. During the Analysis phase we define all functionality that is needed, but we leave certain details (e.g. the precise content of knowledge tables, the layout of the screens) to be filled-in later. During the Modeling phase we create the 70% system, that covers all functionality but may still be incorrect in places. So finally, during Iterative Development, we will together with the customer discover what was not understood, what is missing and what should be done differently. Do not attempt to think through all details up front on paper, but focus on the main structure and trust the later phases to fine tune the details.
- **Respect Milestones**: Clear milestones have been defined to make sure it is efficient to start the next project phase. QBA Acceptance, a successful 70% Pre-Demo, a Reality Check at the end of Iterative Development, a successful Active Parallel Test. It is our experience that time pressure, budget or other reasons these milestones are sometimes not taken seriously which in general leads to large damage later on in a project. Do not be afraid to delay the project (time line is less important).
- **Weekly Goals**: In order to remain focused during the project it is important to avoid getting side-tracked by the daily issues. Therefore, we consider in weekly sessions the road towards the end of each phase and the project; during the Analysis phase there are weekly Solution Sessions, during the Modeling phase weekly Pre-Demos and during the Iterative Development phase weekly Reality Check Sessions.
- **Quality**: Many steps have been defined to ensure that the right quality is achieved such as Solution Sessions and Modeling Sessions in the early stages of the project. High quality means high business value for the customer, which is more easily created when it is considered up-front rather than later add-ons in the project. The right thing is a system that meets the goals of the customer, which implies that all intermediate deliverables must be aimed at getting this quality. After defining the goals at the start of the project they must be measured and reconsidered on a regular basis.
- **Efficiency**: Everybody should at all time focus on efficiency, and as soon as efficiency is not being achieved appropriate measures should be taken. Many processes in the methodology have been defined to enable efficiency. Starting each phase with a Quick-Start or Kickoff, working with To Do Lists and Issue Lists, daily releases, are all directed towards higher efficiency. You make the process as efficient as possible when you "do it first time right".

Relevant E-learnings

- QPLC: The Principles (http://academy.quintiq.com/course/view.php?id=202)

Phases

The QPLC Methodology divides a Quintiq implementation project into six main implementation phases. Each of these phases is described in a separate section.

- **Initiation Phase** (http://213.206.233.124/initiation-phase/): This phase covers all activities concerning the project management; basically making sure that all people involved in the project know what their role is and keeping track of the project progress. The main goal here is that the project teams should understand the QPLC principles.
- **Analysis Phase** (http://213.206.233.124/analysis-phase/): The goal of this phase is to ensure that the scope of the project is defined in sufficient detail so that modeling can commence without the danger that many modeling decisions will have to be changed later in the project. The goal is to enable effective

modeling, not to specify all details completely, so finding the correct level of detail is essential. Essential for this are the business goals corresponding Key Performance Indicators.

- **Modeling Phase** (http://213.206.233.124/modeling-phase/): The goal of this phase is to create the 70% system, which contains the whole backbone of the model, but is not tuned with all the details necessary in the final model. It should be remarked that it is not simply by choice that we only aim at a 70% system. Instead, it is seen as a fact of life that for the customer that it is much easier to relate to a prototype system than to a static document, and to discover through interaction with that system what business logic and functionality must be added. Therefore, both the business analysis phase and the modeling phase are focused on getting the 70% system in place so that the iterative phase can get underway.
- **Iterative Development Phase** (http://213.206.233.124/iterative-development/): The goal of the iterative development phase is to strongly involve the customer project team in the creation of the right system. Therefore, this phase is not merely testing the system against fixed specifications, but instead, the customer is able to determine what the effect is of the description in the business analysis, and is able to possibly amend the previous analysis. Please note that amending is possible within the scope of the QBA and SOW. Other requested changes will follow a CR process. Educated key-users and customer ownership are important side-effects of this iterative phase.
- **Implementation Phase** (http://213.206.233.124/implementation-phase/): The goal of this phase is to ensure that the system that has been modelled, and which has been determined to be almost completely finished, will be successfully used within the organization. During this phase we go live with the Decision Support version of the system.
- **Post Go Live Support Phase** (http://213.206.233.124/post-go-live-support-phase/): Right after going live it's important to follow the customer. Are there any problems with Quintiq? What are the KPI values, and are they being monitored by the customer. As such, the goal of this phase is to ensure that business benefits are achieved. This phase must be covered by the AMA contract, separate from the project, as the system is being used in a live setting.

Satisfied customers is the goal of QPLC, and to continuously improve we must measure these expectations. We do this via the Customer Satisfaction Evaluations.

see also the **Whitepaper – Quintiq Project Life Cycle Methodology** (http://213.206.233.124/wp-content/uploads/2014/07/Quintiq-whitepaper-Quintiq-Project-Life-Cycle-Methodology.docx) in MS Word or **Whitepaper – Quintiq Project Life Cycle Methodology** (http://213.206.233.124/wp-content/uploads/2014/07/Quintiq-whitepaper-Quintiq-Project-Life-Cycle-Methodology.pdf) in PDF.

Large and Small Projects

Large Projects

- Quintiq is frequently asked to undertake program management. However, as the definition of program management varies, a whitepaper has been created to clearly define our understanding of the concept. This document is meant to help both customers and Quintiq employees align their expectations. It is also meant to provide a foundation for a successful program. The whitepaper does not describe detailed tasks, tools and templates for executing program management.
  You can read all about Quintiq's view on Program Management in this whitepaper: **Whitepaper – Program Management** (http://qplc.quintiq.com/wp-content/uploads/2014/11/Quintiq-Whitepaper-Program-Management.docx).

Small Projects (Fast-Track QPLC)

- If our customer's planning puzzle is less complex they might not require a 100% fit and a fully customized solution. Instead, they are happy to utilize our standard industry solutions and best practices. This allows us to limit the implementation efforts and the project duration, thereby giving the customer a better and faster ROI.
  Quintiq is currently piloting multiple Fast-Track approaches. More information can be found **here** (https://qplc.quintiq.com/documents/2015/12/fast-track-qplc-v1.pptx).

Iterative Development Phase

Back to iterative development phase tasks (https://qplc.quintiq.com/tasks/iterative-development)

Goal

The goal of the Iterative Development phase is to transform the 70% system (ready for testing) into a 95% system (ready for live usage). To reach this goal we depend heavily on the involvement of the customer.

Deliverables

- 95% System: A system is called a 95% system when there are no known modeling show stoppers that would prevent the system from being used in a live situation.
- All test cases accepted: Determining whether the system in fact has no modeling show stoppers is concluded from the test case acceptance.
- System set up according to specifications in QID and QAD: For both the performance tests and the load tests results should be available.
- Educated Key Users: During the iterative development process the key users gain an in-depth understanding of the system and should therefore be capable of both using the system operationally and playing a main role in educating other users.

Time-line

The time-line of the activities is very important, as there are dependencies between them:

- Week 1: Plan a session combining the Iterative Development Kick-Off Session, the Customer Training by the BC for key-user and administrators, followed by the Quick Start Testing, the first of many Reality Check Sessions, by BC and key-users. As part of the kickoff the Test Schedule will be created.
- Week 2-x: Daily cycle:
  - The new version of the model is installed by the (future) system administrator. The key users perform Test Sessions. First, re-testing solved issues, next performing test cases from the test plan, and finally at the end of a week doing a weekly reality check.
  - In parallel, the QS is busy Solving Issues and regularly has Modeling Sessions with the QS-QA. When key decisions are taken the design document is updated.
  - At the end of the day, the BC qualifies the new issues, reviews the solved issues and regularly discusses issues in Solution Sessions with the BC-QA. He updates the QBA when needed. A Big Issue Session by QS, QS-QA and BC is held if necessary.
  - Before the end of iterative development the customer should be prepared for Implementation.
- Week x+1: A final Dry run is done. During the last few reality check sessions the KPIs will be implemented already. A final reality check is done. A Steering Group Meeting is organized to formally accept the 95% System. At this point one performs a Q&E Session.

Key Topics

The key topics to keep in mind when executing the Iterative Development phase are:

- Process
- Controlling scope
- Controlling WIP
- People
- Few Key Users
- Time management

Relevant E-learnings

- Iterative Development – The Pitfalls (http://academy.quintiq.com/course/view.php?id=56)
- Monitoring the Iterative Development Phase (http://academy.quintiq.com/course/view.php?id=357)

Modeling Phase

Back to modeling phase tasks (https://qplc.quintiq.com/tasks/modeling)

Goal

To create the first complete version of the Quintiq model for the customer. At the same time, this phase is used by the customer for creation of a complete and detailed test plan that will guide the activities during Iterative Development.

Deliverables

- Accepted 70% version: A 70% version of the system must be presented to the customer. Remember: a 70% version covers 100% of the QBA, QID and QAD.
- Customer Test Design: The customer has to have completed the writing of the test cases before ID.
- Complete PTD and LTD: the Performance Test Design and the Load Test Design documents have to be completed.
- Performance and Load Test Benchmark: For the performance and the load test the benchmark needs to be available.

Time-line

The time-line of the activities is very important, as there are dependencies between them:

- Week 1: The start is the Modeling Kick-off.
- Week 2-3: The QS is modeling, updates the todo-list daily and regularly has modeling sessions with the QS QA. The BC is testing the model and updates the QBA. A weekly internal pre-demo is held with the project team. Each week there is a team meeting to discuss project risks. A Big Issue Session is held by QS, QS-QA and BC when necessary. The customer works on the knowledge tables, on the interface and data and on the test design for the iterative development. The PMs should prepare for Iterative Development. Also the load and performance test are designed and a first benchmark is created.
- Week 4: The model is finalized by organizing a last pre-demo, solving issues and perfecting the demo protocol. The 70% demo is given at the customer.

Key Topics

The key topics to keep in mind when executing the Modeling phase are:

- Focus on 100% of QBA functionality.
- Create an excellent 70% demo.
- Test plan.
- Daily contact.

Relevant E-learnings

- Modeling – The Pitfalls (http://academy.quintiq.com/course/view.php?id=28)
- Monitoring the Modeling Phase (http://academy.quintiq.com/course/view.php?id=356)

Implementation Phase

Back to implementation phase tasks (https://qplc.quintiq.com/tasks/implementation)

Goal

To bring the system live.

Deliverables

- Decision Support System: a working and operational decision support system.
- Test results: a history of performance and load tests should be available, including the last tests that function as a benchmark for future changes to the project.

Time-line

- Week 1: End user Training followed by a week for the passive parallel test. Every day, the plan is first made in the old system and after that copied to Quintiq. Only showstopper issues are being solved immediately by the QS. The Project Deliverables are checked and completed.
- Week 2: Active parallel test. Now the plan is first made with Quintiq and afterwards copied to the old system.
- Week 3: The Go-live Procedure is executed. The steering group formally does the Decision Support Acceptance, where the Project Voucher is agreed on: a fixed number of days to solve issues during live usage. At this point one performs a Q&E session

Key Topics

The key topics to keep in mind when executing the Implementation phase are:

- Stay informed
- Get buy-in
- Big Event

Relevant E-learnings

- Implementation – The Pitfalls (http://academy.quintiq.com/course/view.php?id=358)
- Monitoring the Implementation Phase (http://academy.quintiq.com/course/view.php?id=359)

Post Go Live Support Phase

Back to post go live support phase tasks (https://qplc.quintiq.com/tasks/post-go-live-support)

Goal

To ensure that the system is used in such a way so that business benefits are achieved.

Deliverables

- Expert planner(s). During this phase the planner's ability to create a high quality plan and his focus on planning supported by KPIs is built up.
- Stable and accepted system. Although "system development" is not a goal of this phase as such, during the first weeks of actual live-usage, further improvements to system usability can be identified and implemented. This will increase system acceptance.
- KPI Monitoring. KPIs are structurally monitored during several weeks. A clear baseline for further improvements (e.g. during the optimization phase) is set.

Time-line

The time-line of the activities is very important, as there are dependencies between them:

- Week 1: The BC is on-site for the first full week of customer live support. The system is used operationally. The plan is made with Quintiq, fully integrated with all other operational systems. Daily, the KPIs are monitored by the customer and the BC.
- Week 2-5: If the planner has any questions, he will contact the consultant. Also, during these weeks BC and QS solve any issues that have come up during week 1. The planner will continue reporting the KPIs.
- Week 6: The BC is on-site again. The goal is to take the system in use from the level where they are at that point, to a higher performance level.
- Week 7-12: The planner will continue reporting KPIs.

Key Topics

The key topics to keep in mind when executing the Analysis phase are:

- BC masters the planning.
- Focus on KPIs.

Relevant E-learnings

- Post Go-Live – The Pitfalls (http://academy.quintiq.com/course/view.php?id=360)
- Post Go-Live Support – Monitoring (http://academy.quintiq.com/course/view.php?id=361)

Initiation Phase

Back to initiation phase tasks (https://qplc.quintiq.com/tasks/initiation)

Goal

The goal of the Initiation Phase is to have an efficient start of the project such that the whole project (team) has a clear view on the principles of QPLC. Besides that, this phase ensures there is a clear view on the consequences of these principles: Time line, Scope, Budget, Information Structures, Project Organization.

Deliverables

- Complete relevant Academy Courses: Having the Quintiq team and Customer Team following the right eLearnings for the phase is an important step forward in making sure expectations are aligned
- Detailed Project Plan: We further detail the High Level Project Plan, created during the Bid Team Process. Do this together with the Customer Project Manager to create a common understanding.
- Project Teams: The Customer and Quintiq project teams are setup during project initialization.
- Kick-Off meeting: Project goals, scope, time line and more are presented to the project teams and other stakeholders at the Kick-off meeting. This meeting is important since it influences the overall expectations of the project, not only in the team but in the customer organization as a whole.
- First Steering Committee meeting (combined with the kick off meeting): Here the scene is set for all future Steering Committee meetings.

Time-line

The time-line of the activities is very important, as there are dependencies between them. Assuming a 4 week initiation phase (duration can differ) the activities can be split into weeks as follows:

- Week 1: Create & configure the project. Apply for a project code at Finance, and configure your project in Quintiq People and Quintiq Projects. Read through the applicable materials from the sales cycle (such as the SoW)
- Week 2: The customer and Quintiq PM meet up. Part of this visit should be an explanation of the key points of QPLC to set the expectations of the customer. The team follows the relevant academy courses. The BC starts converting the SoW into the QBA version 0.1 as well as setting up the Analysis Questionnaire
- Week 3: Activities from the previous week continue. The BC makes sure the customer is doing the right things by being in contact with the customer and receiving information collected by the customer. The PMs together prepare the Analysis phase and detail the project plan. They also set up the teams.
- Week 4: Everyone has completed the relevant academy courses and a Kick-Off meeting and Steering Committee meeting at the customer is held to create awareness and commitment in the customer organization.

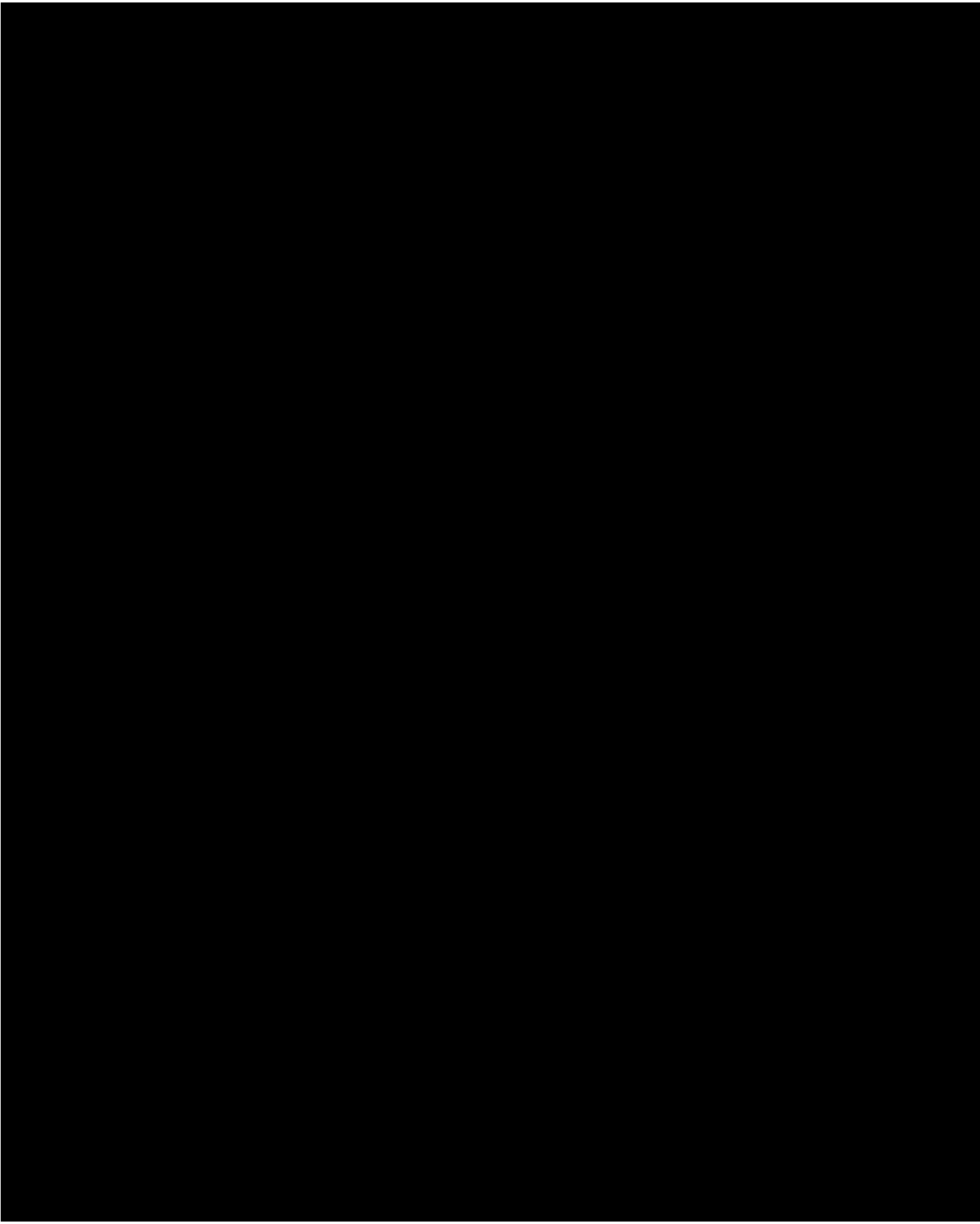
Key Topics

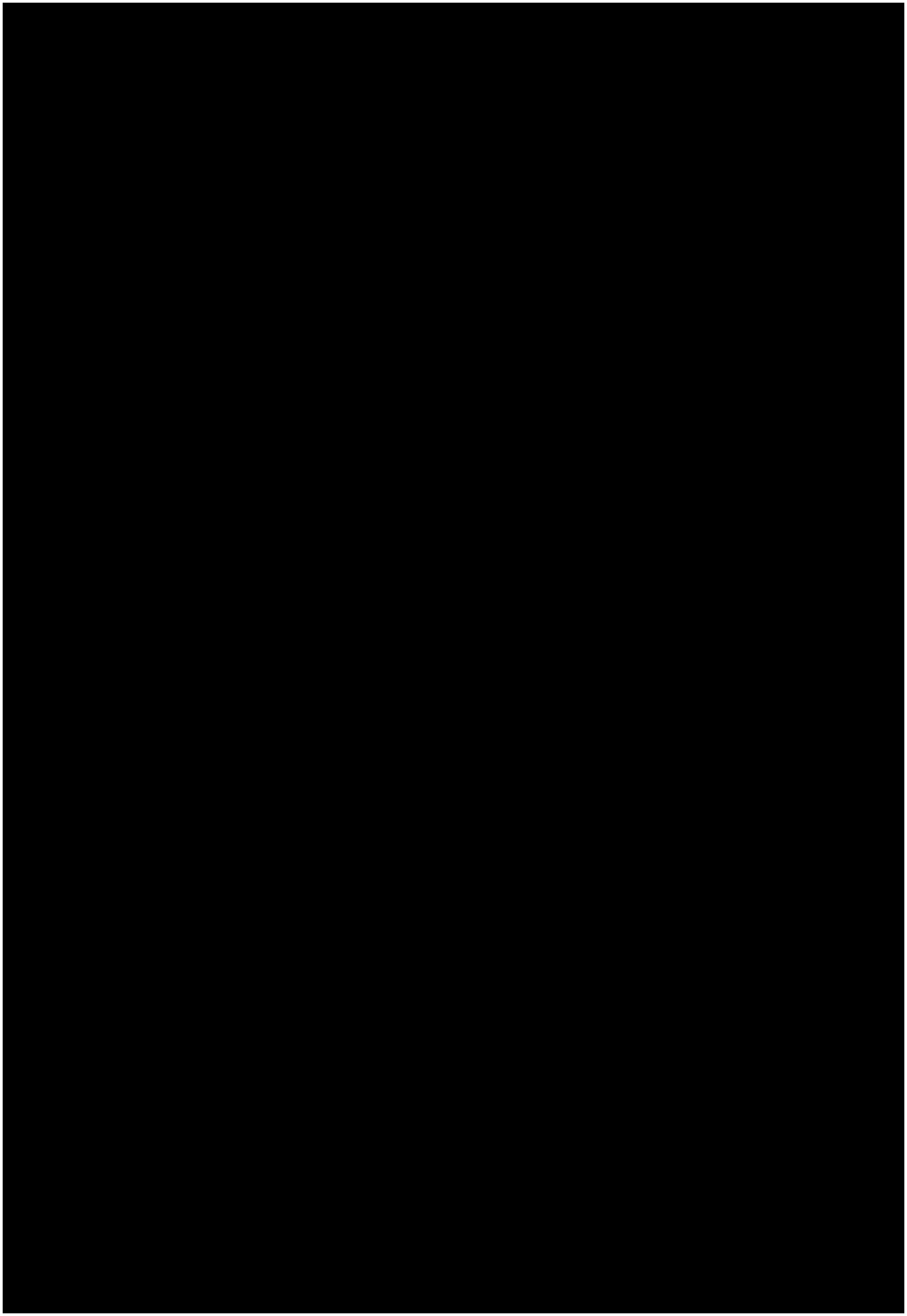
The key topics to keep in mind when executing the Initiation phase are:

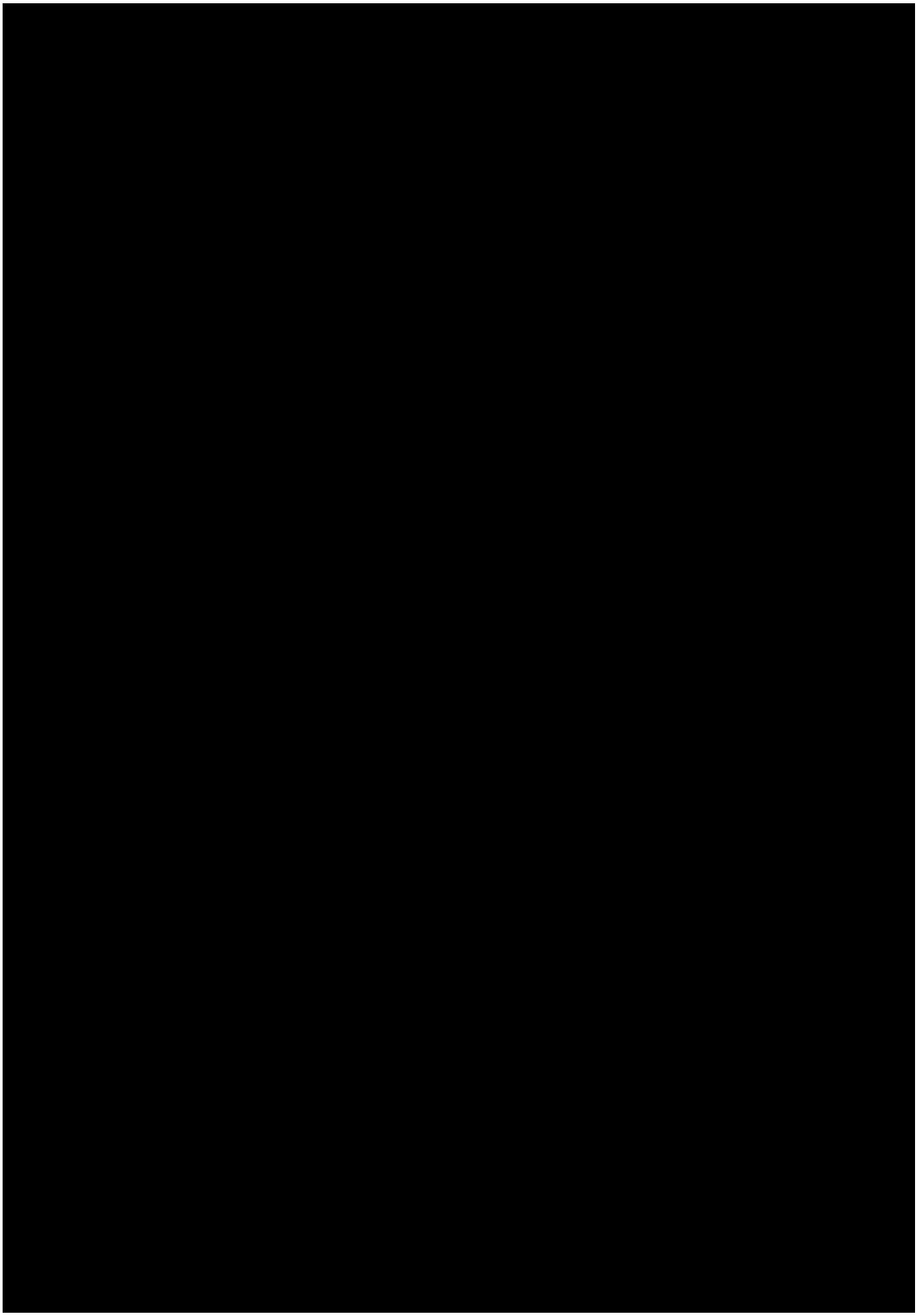
- Working Relationship
- QPLC Methodology in detail
- Understanding of the agreements regarding scope and project
- Awareness of Quintiq and customer effort
- Explaining the acceptance process

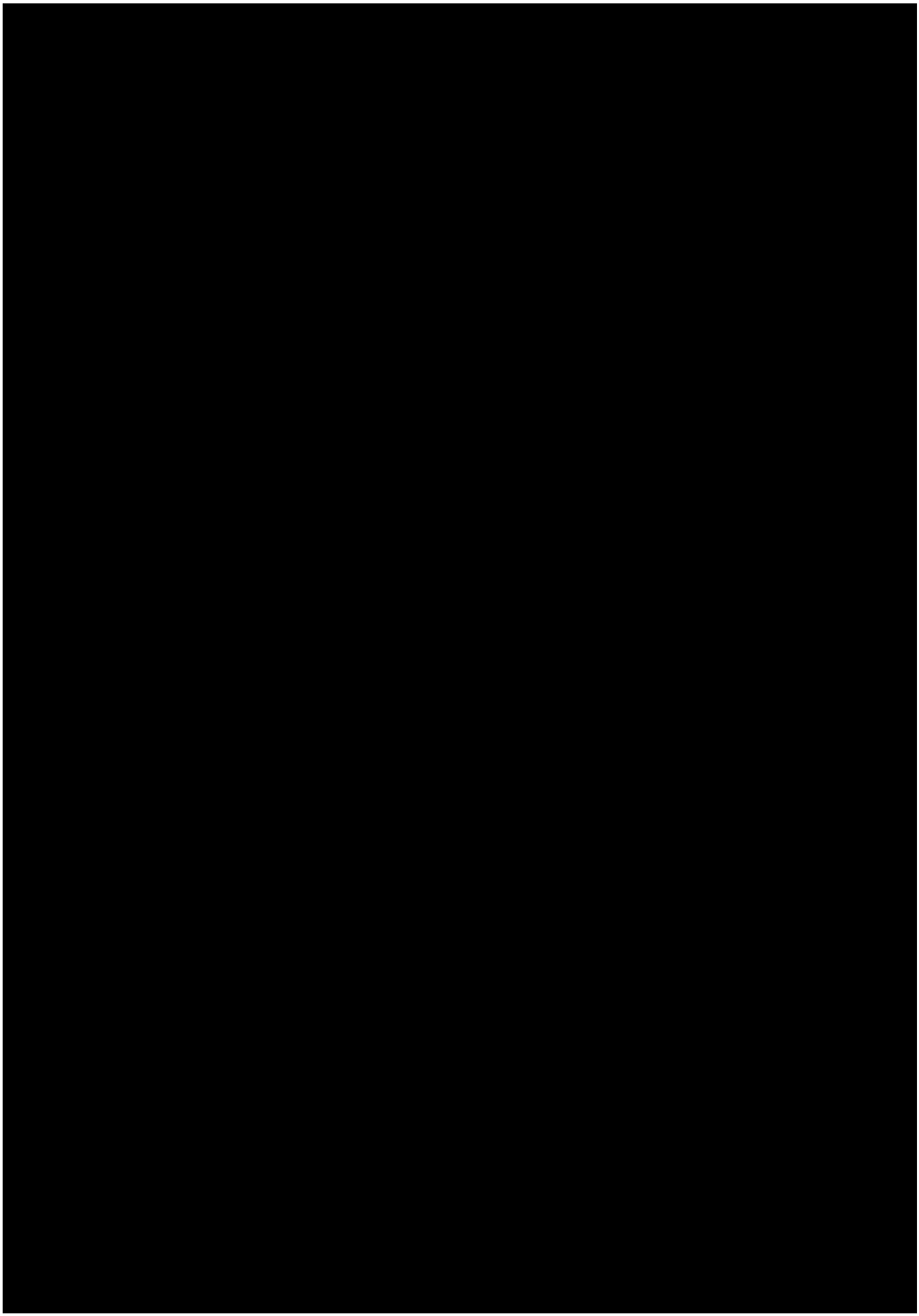
Relevant E-learnings

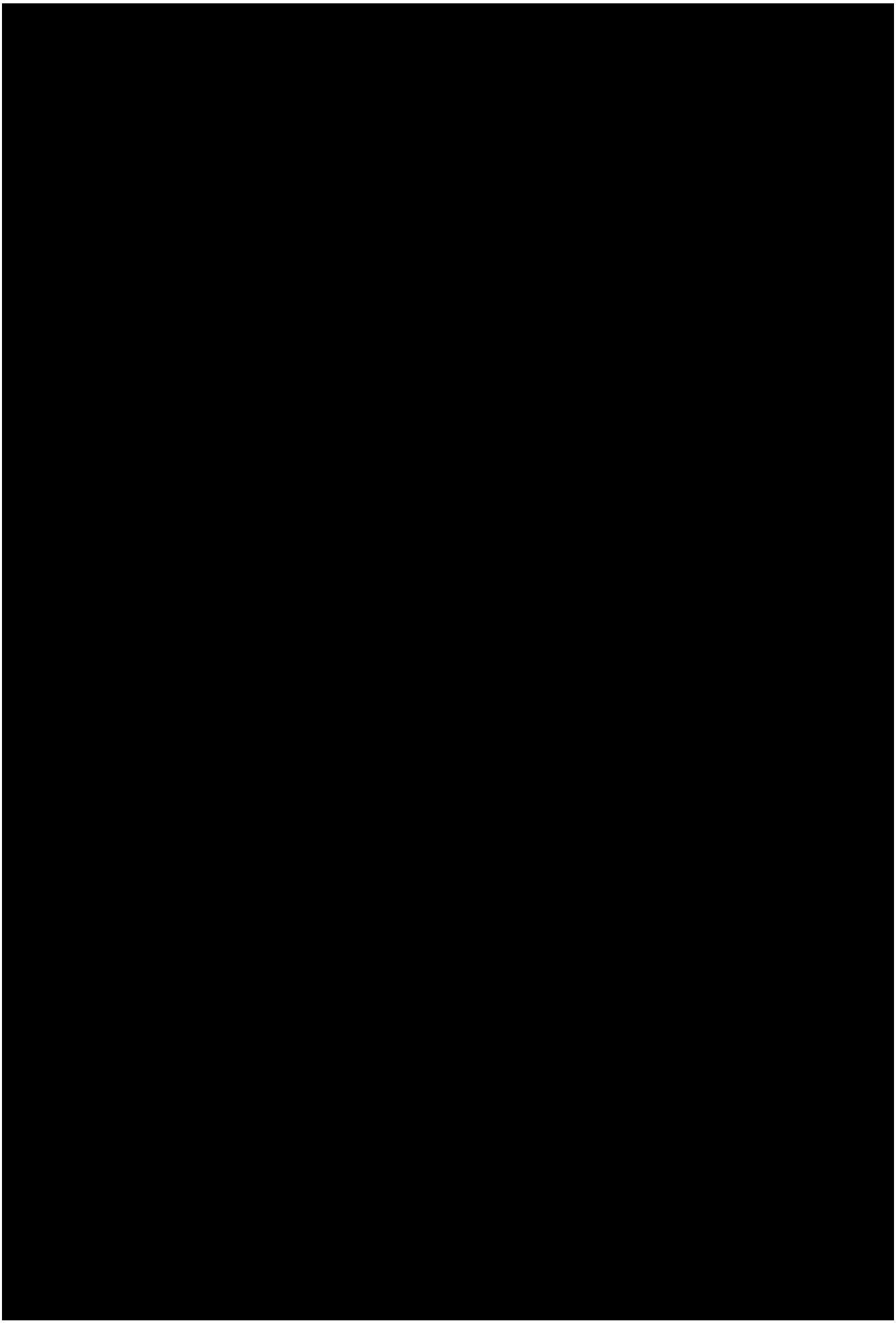
- QPLC – the Principles (https://academy.quintiq.com/course/view.php?id=202)
- Initiation – The Pitfalls (http://academy.quintiq.com/course/view.php?id=311)

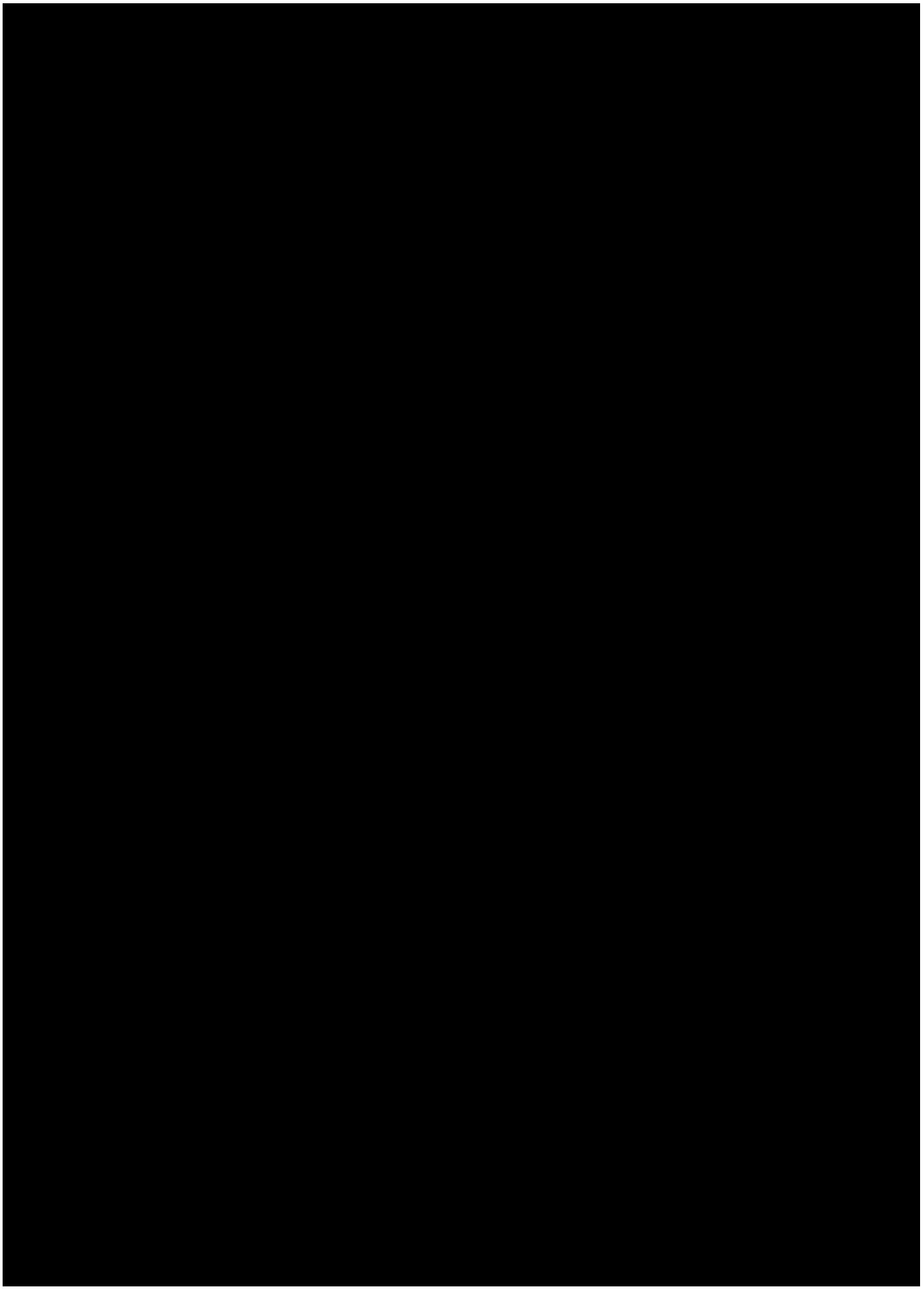


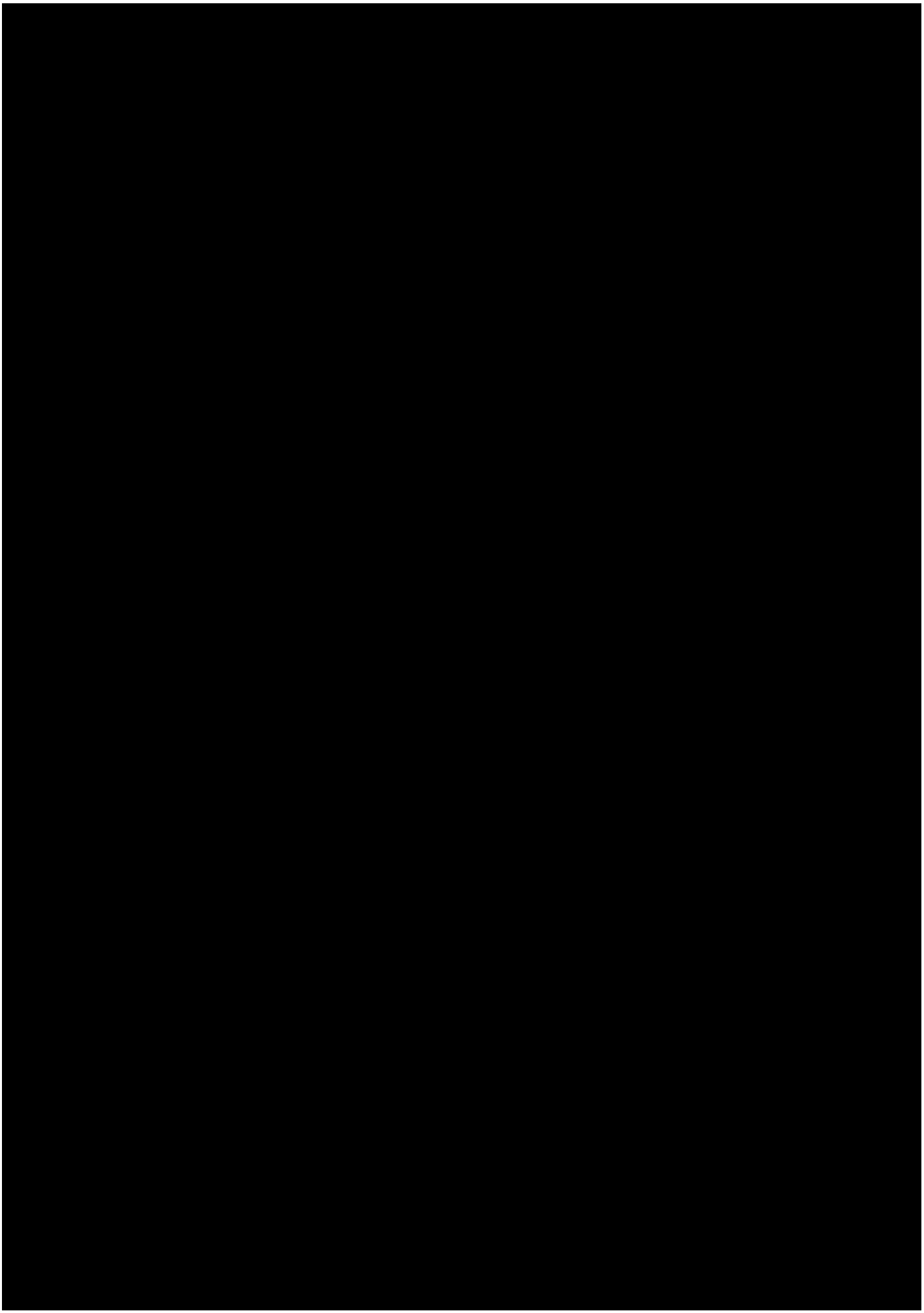


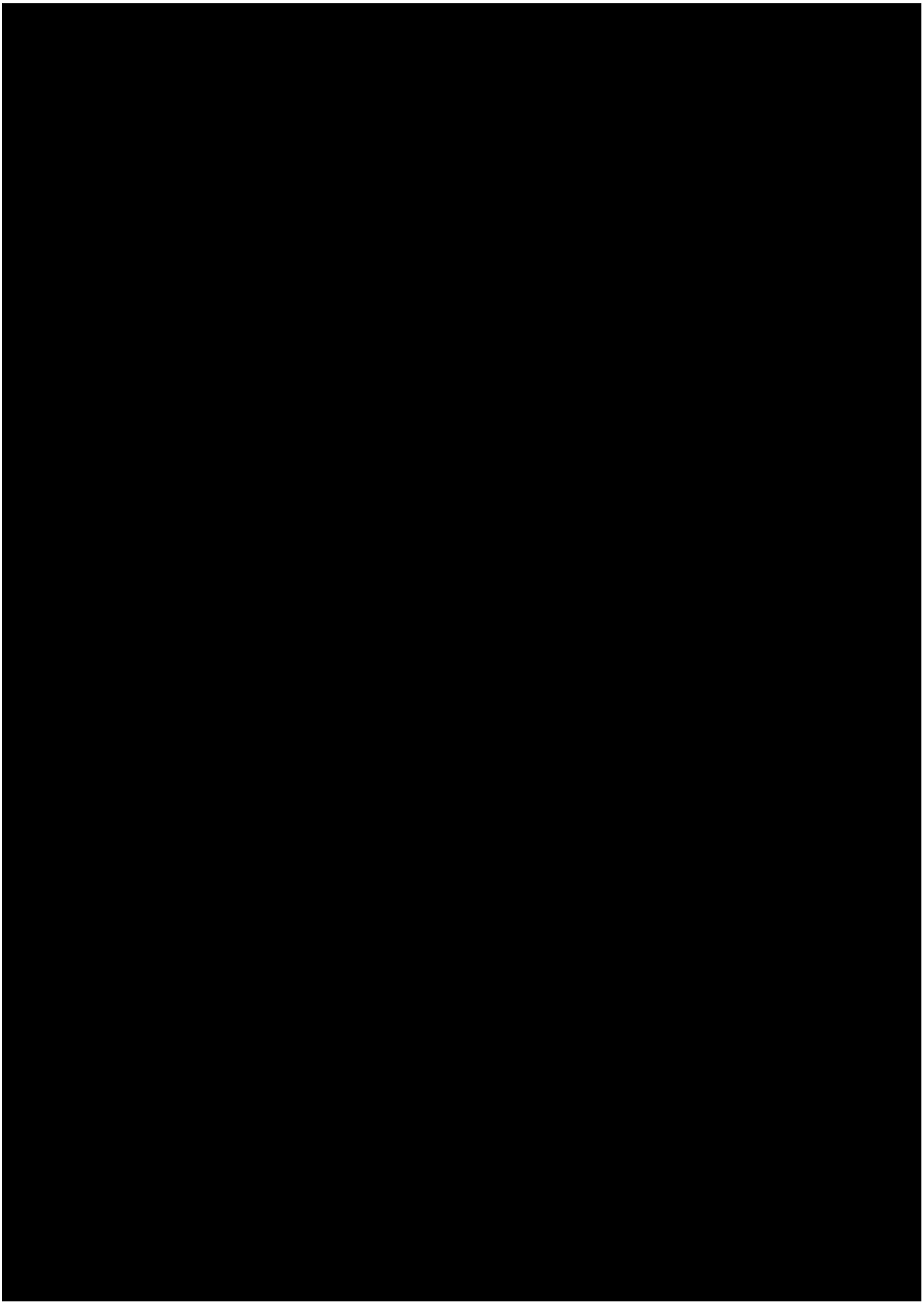


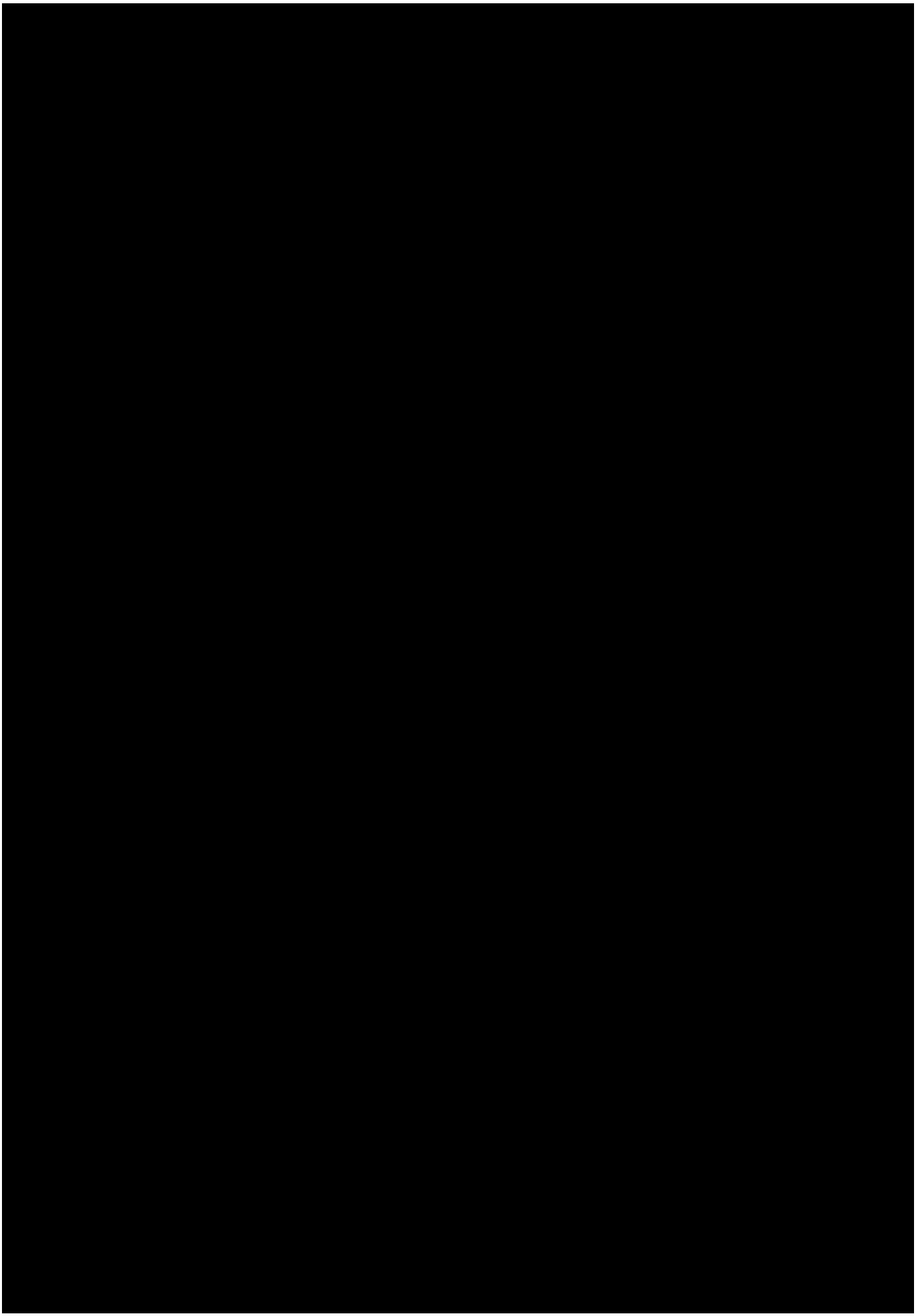


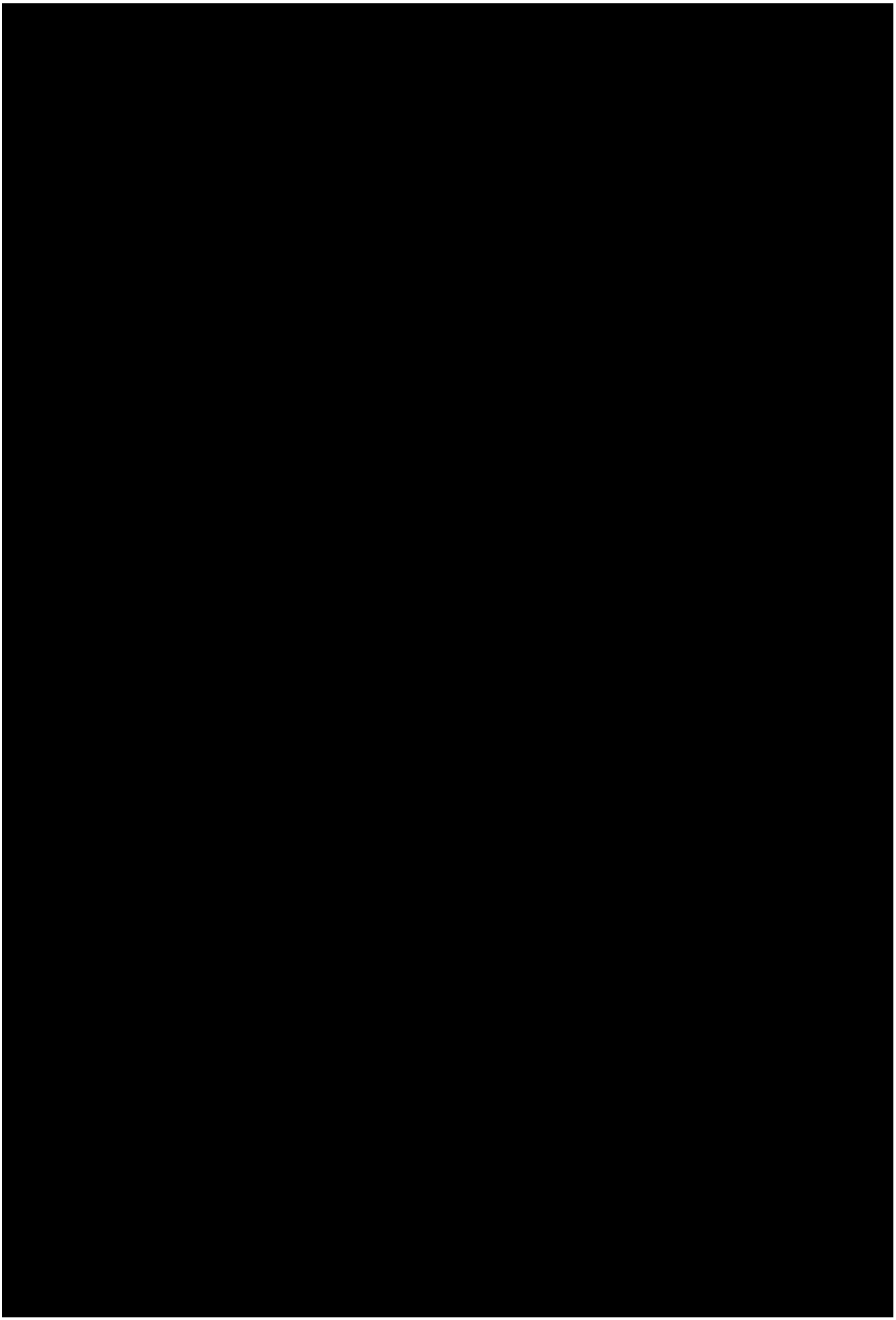


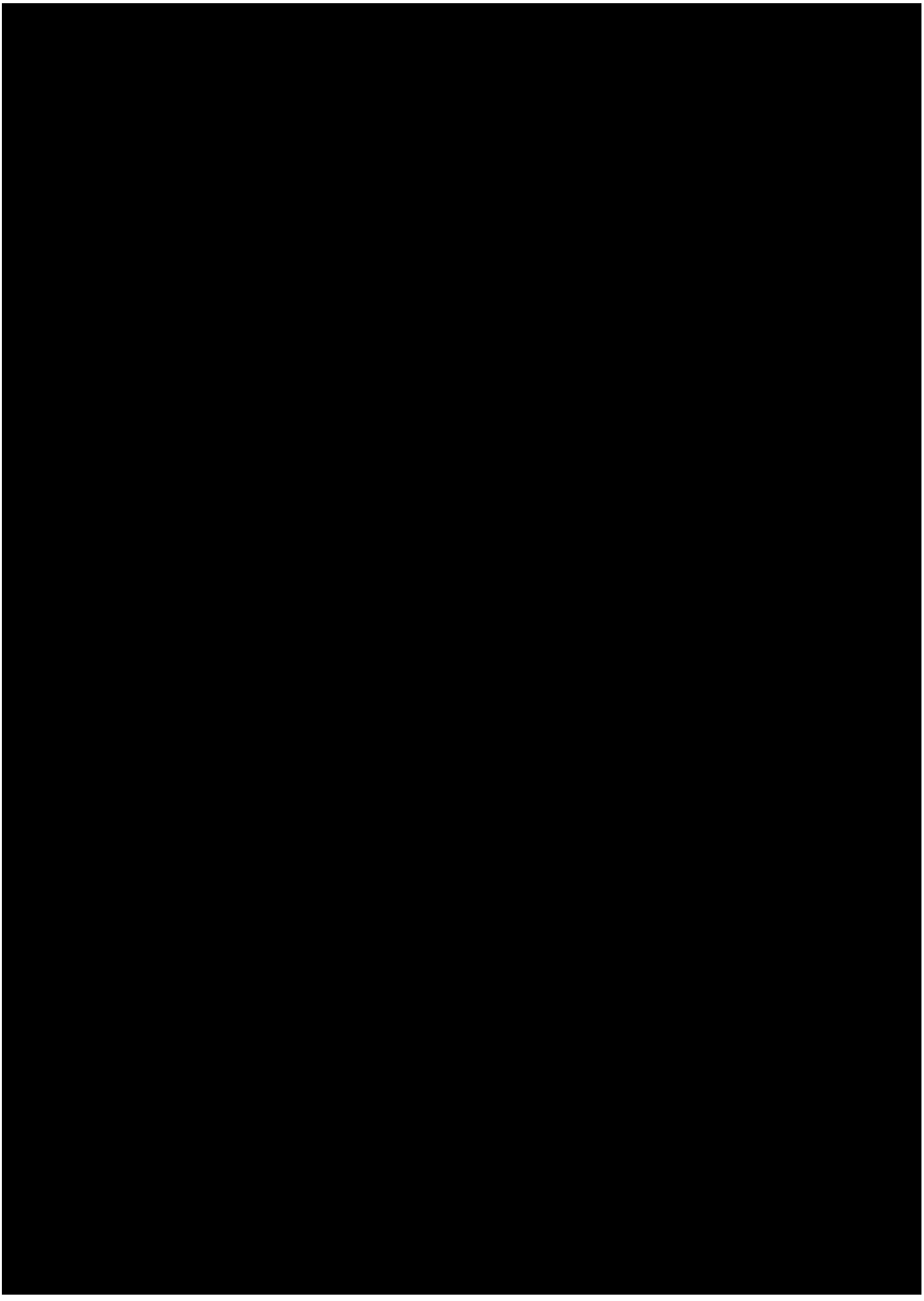


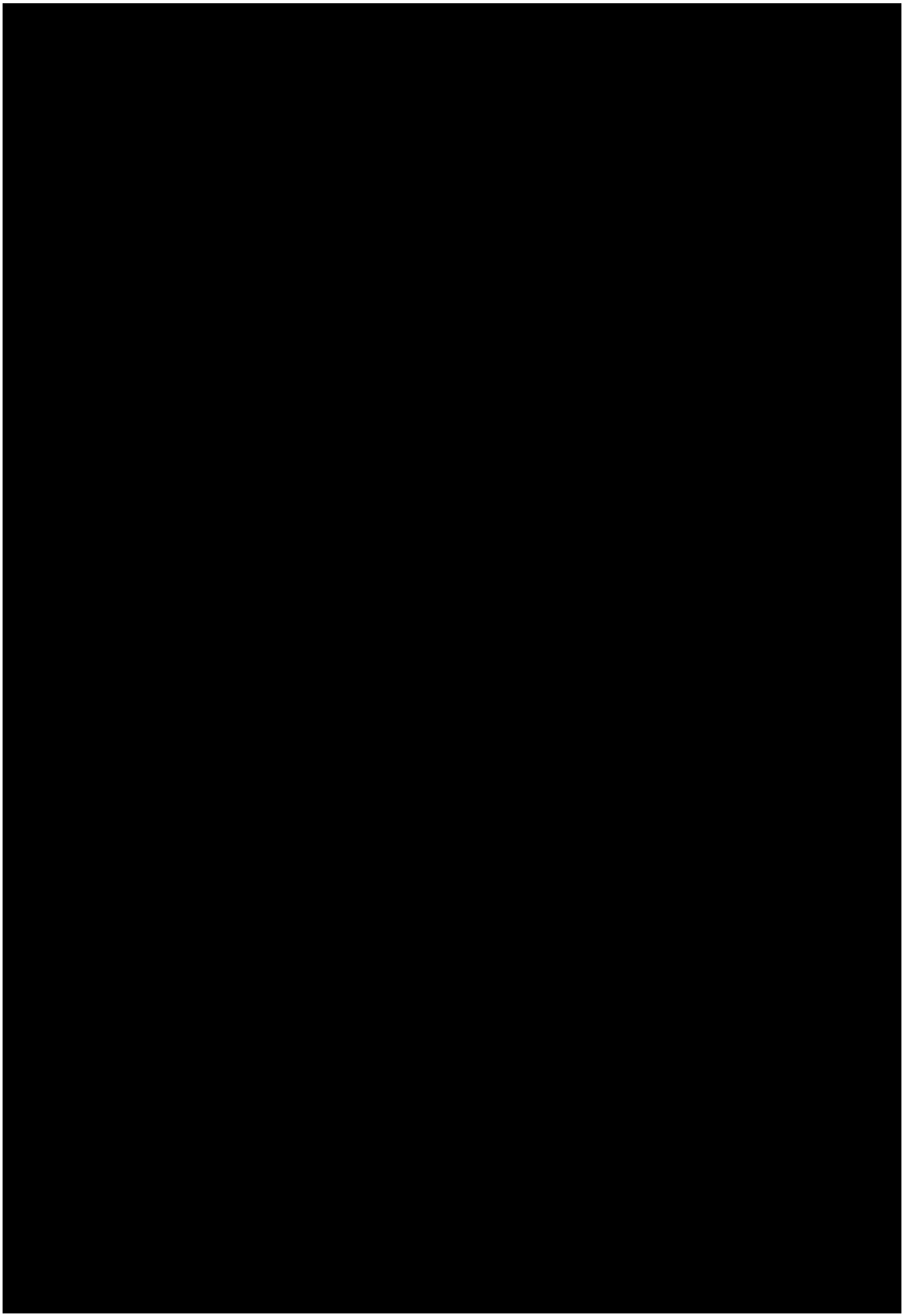


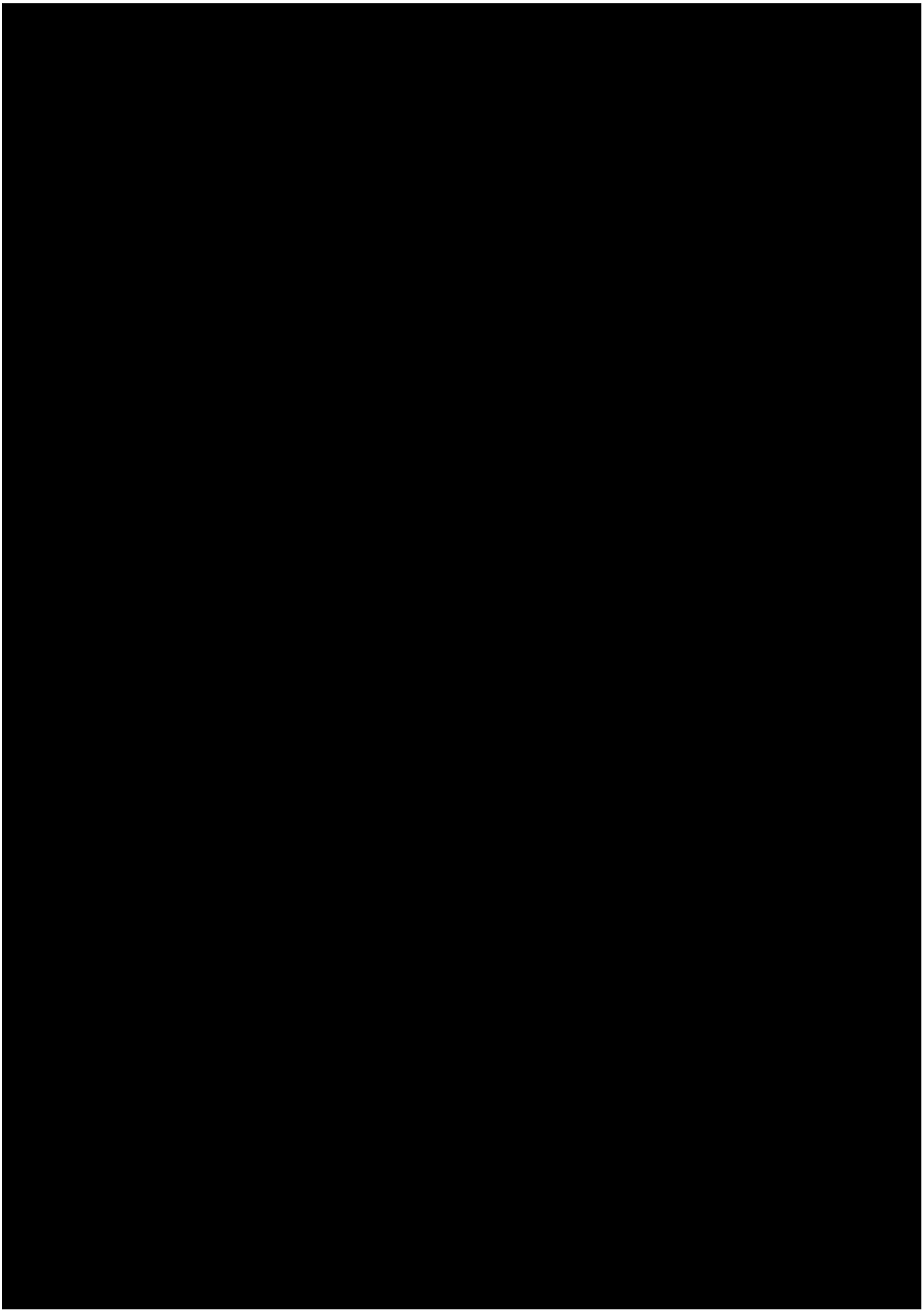


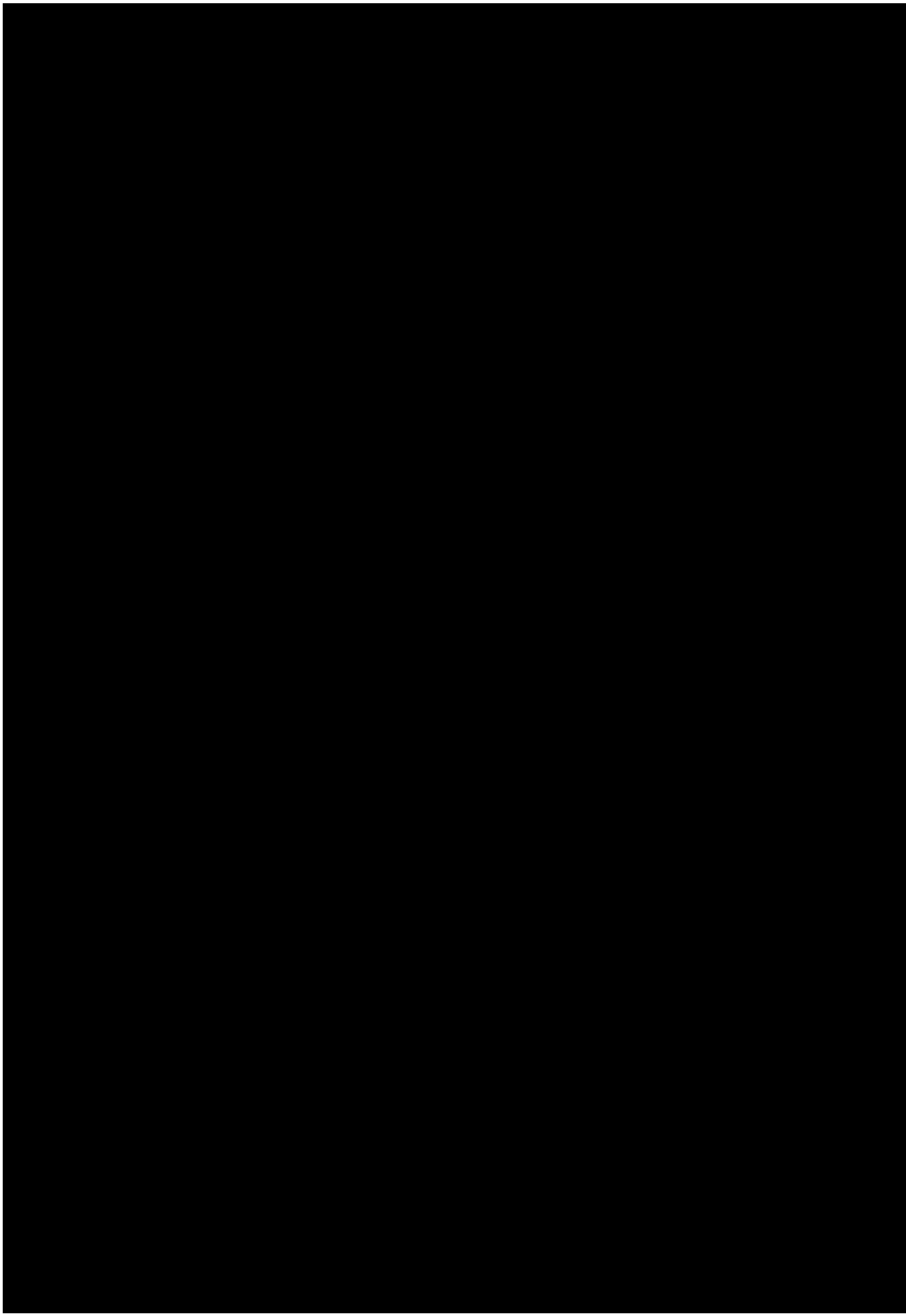


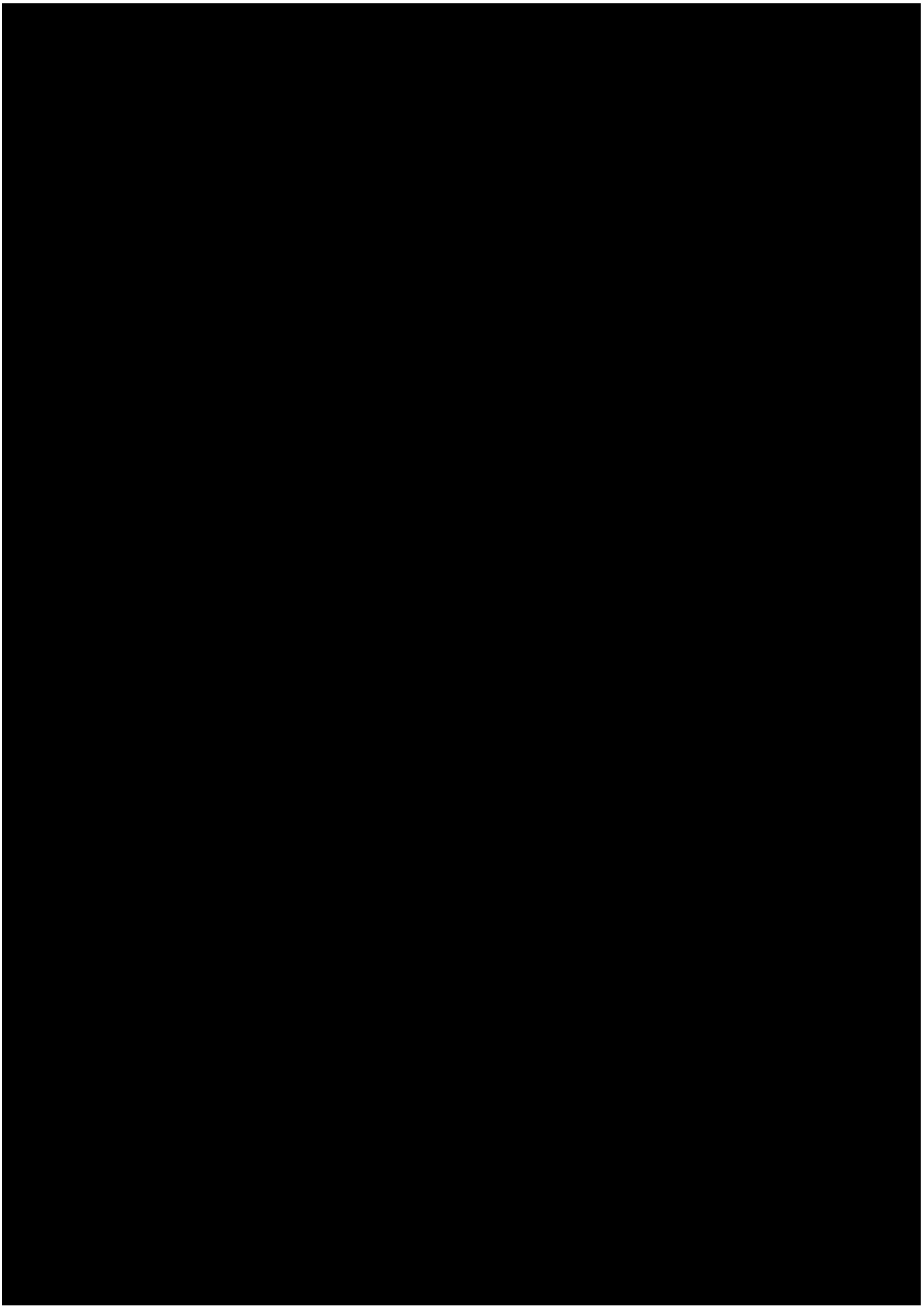


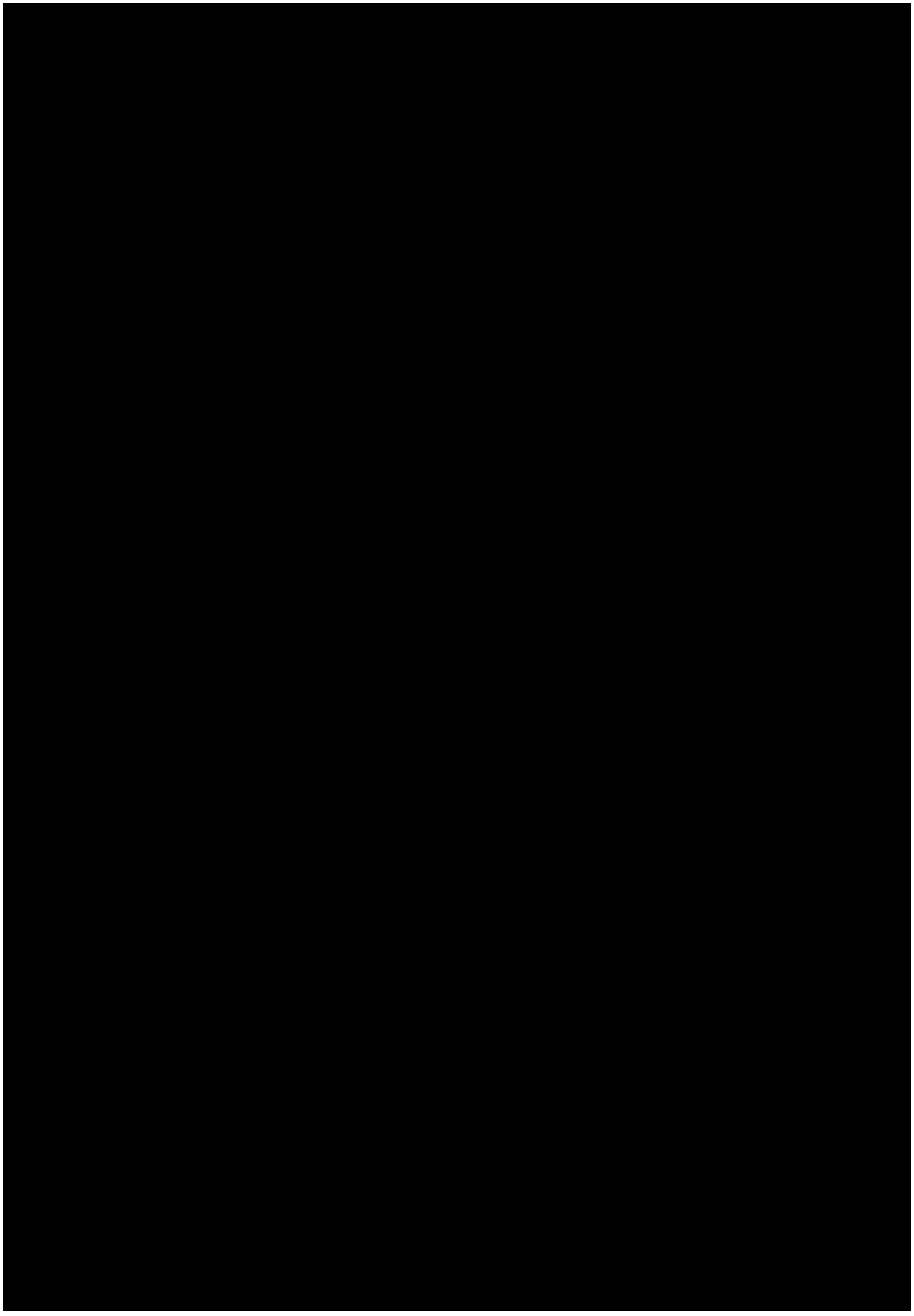


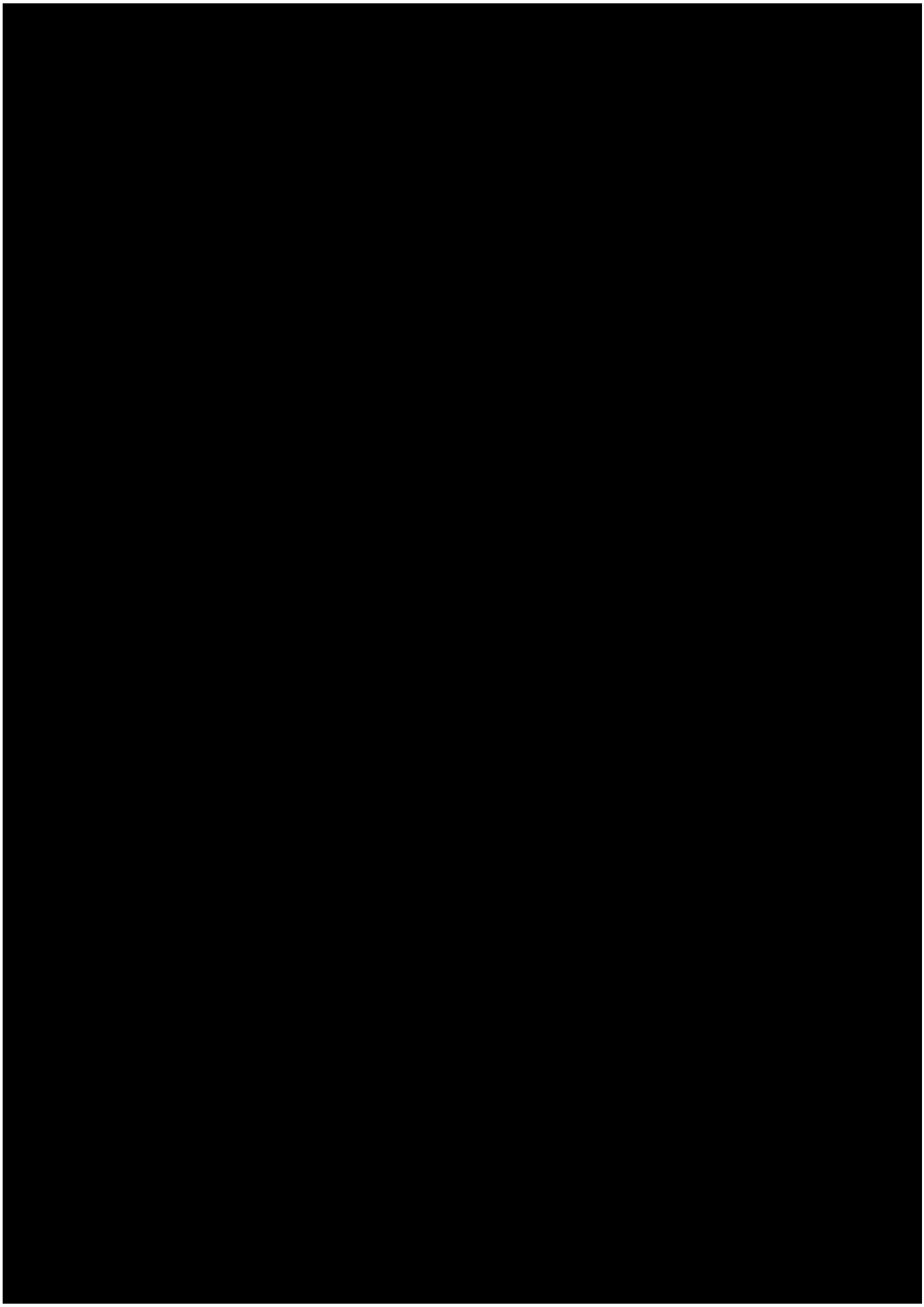


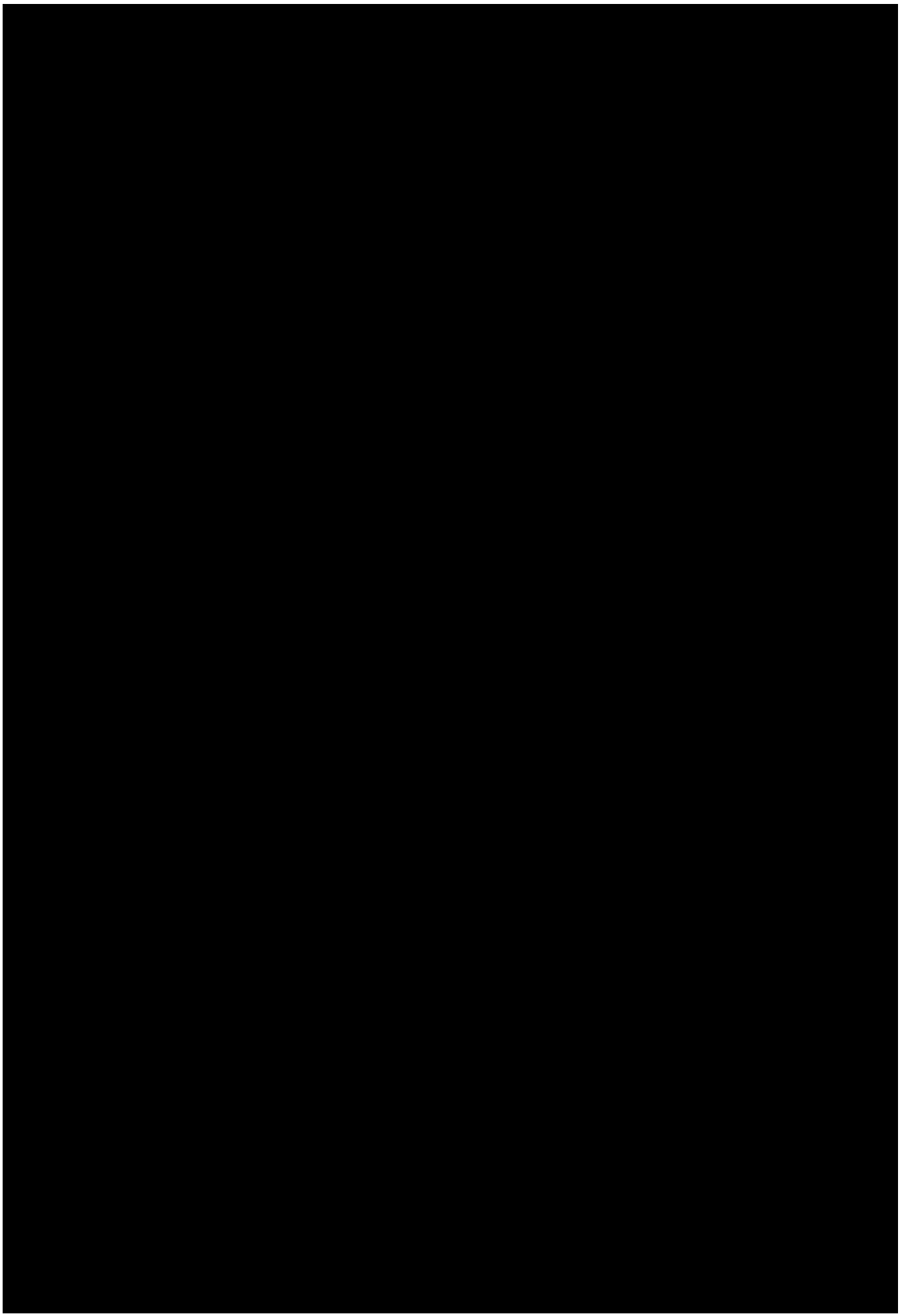


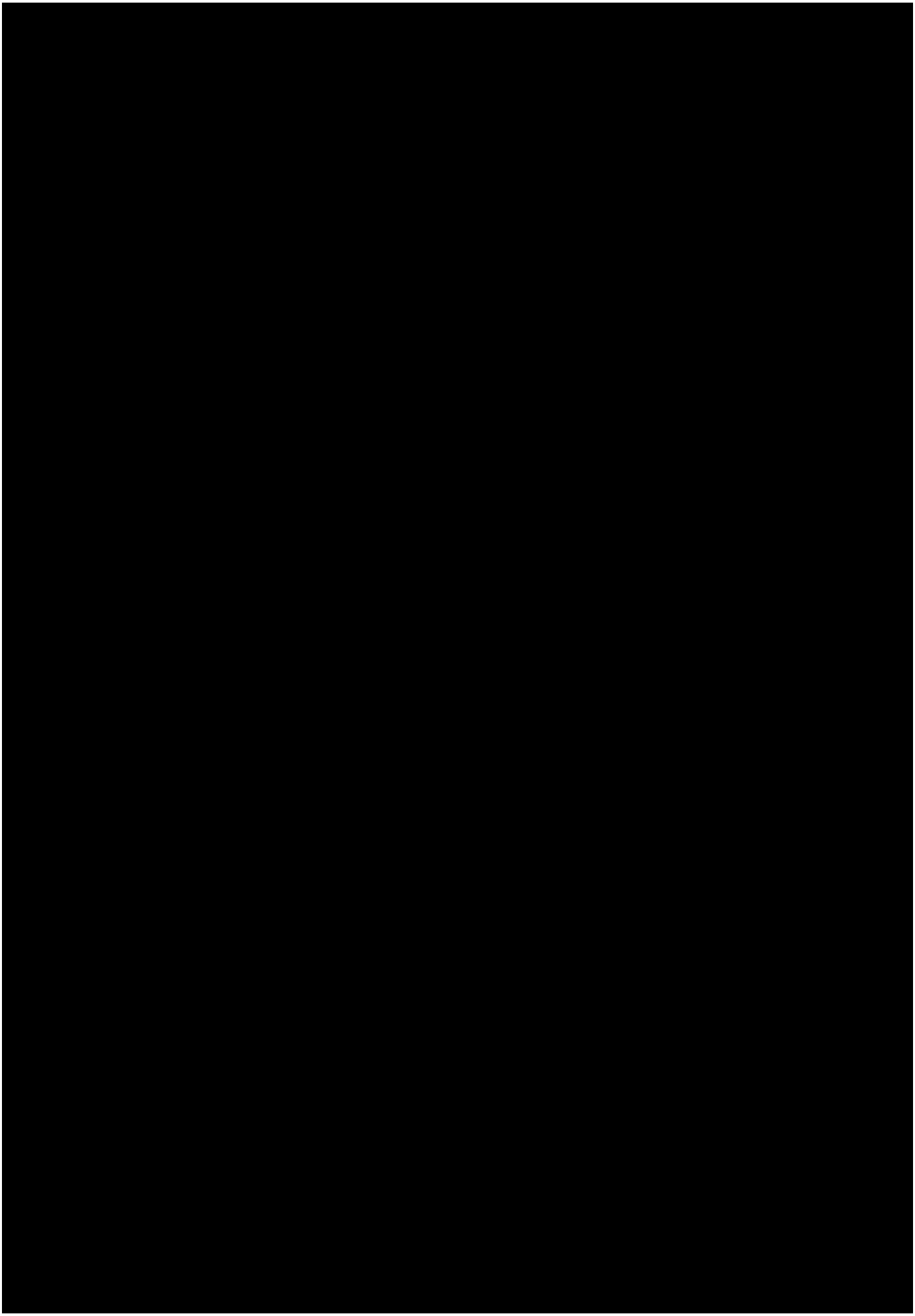


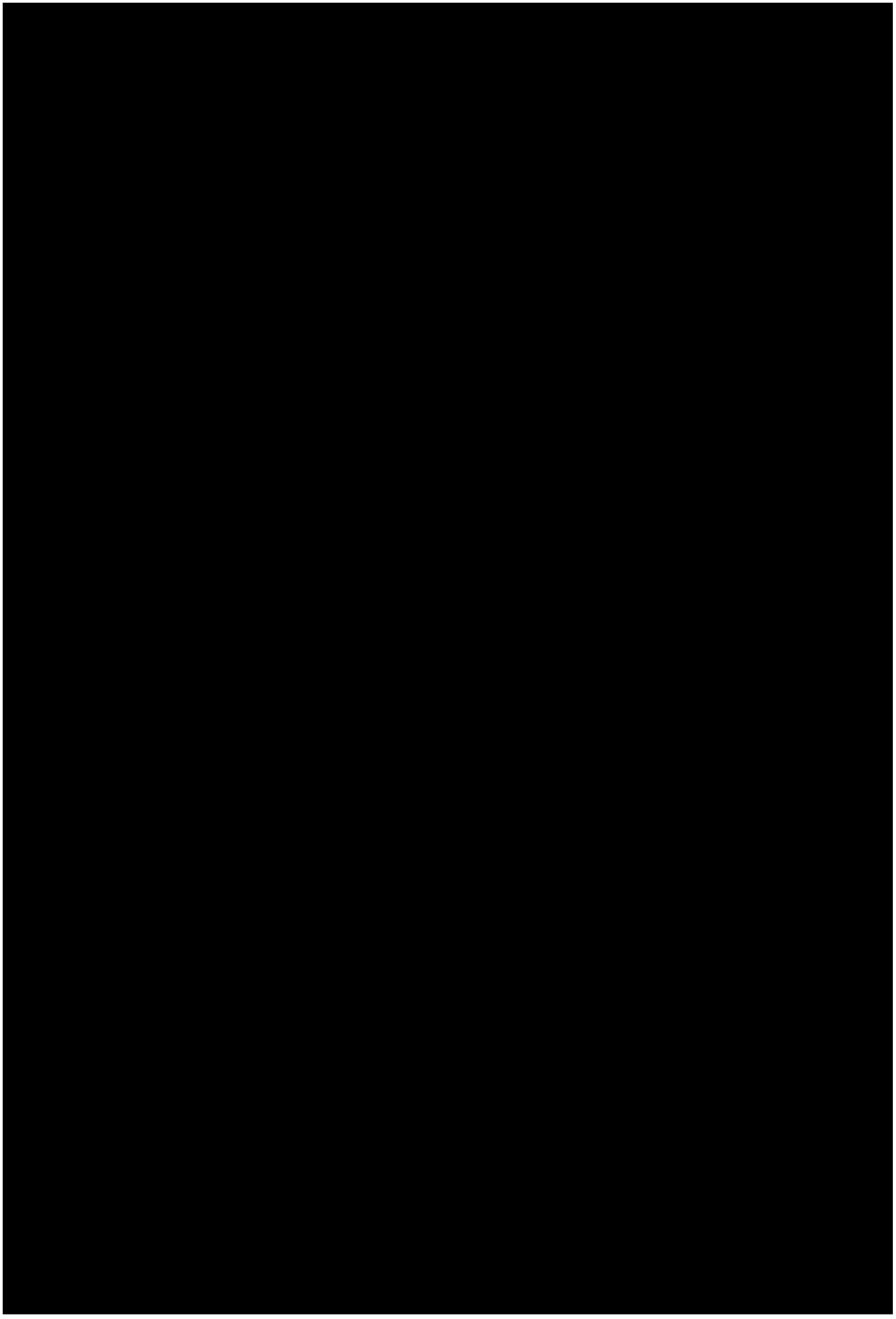


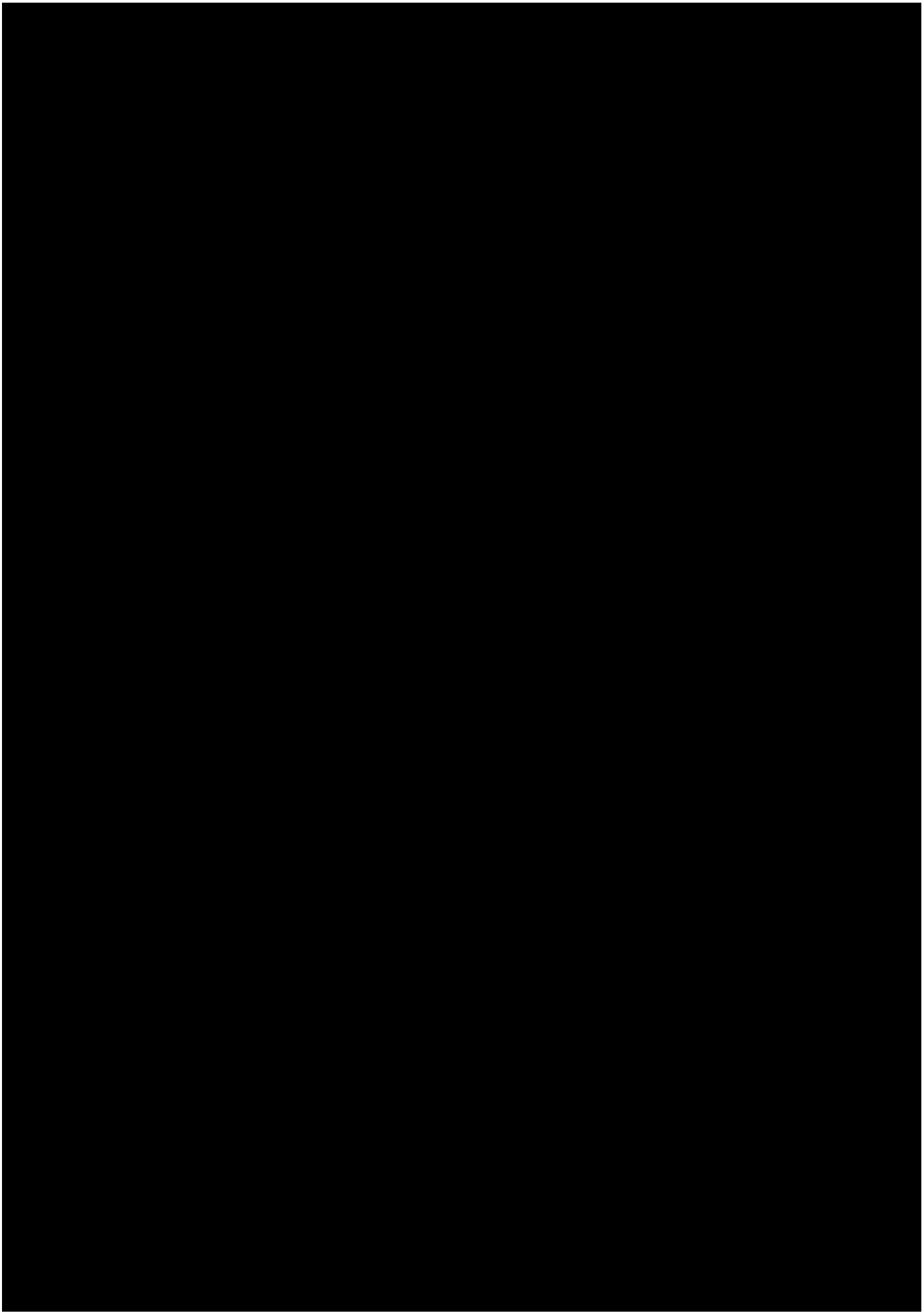










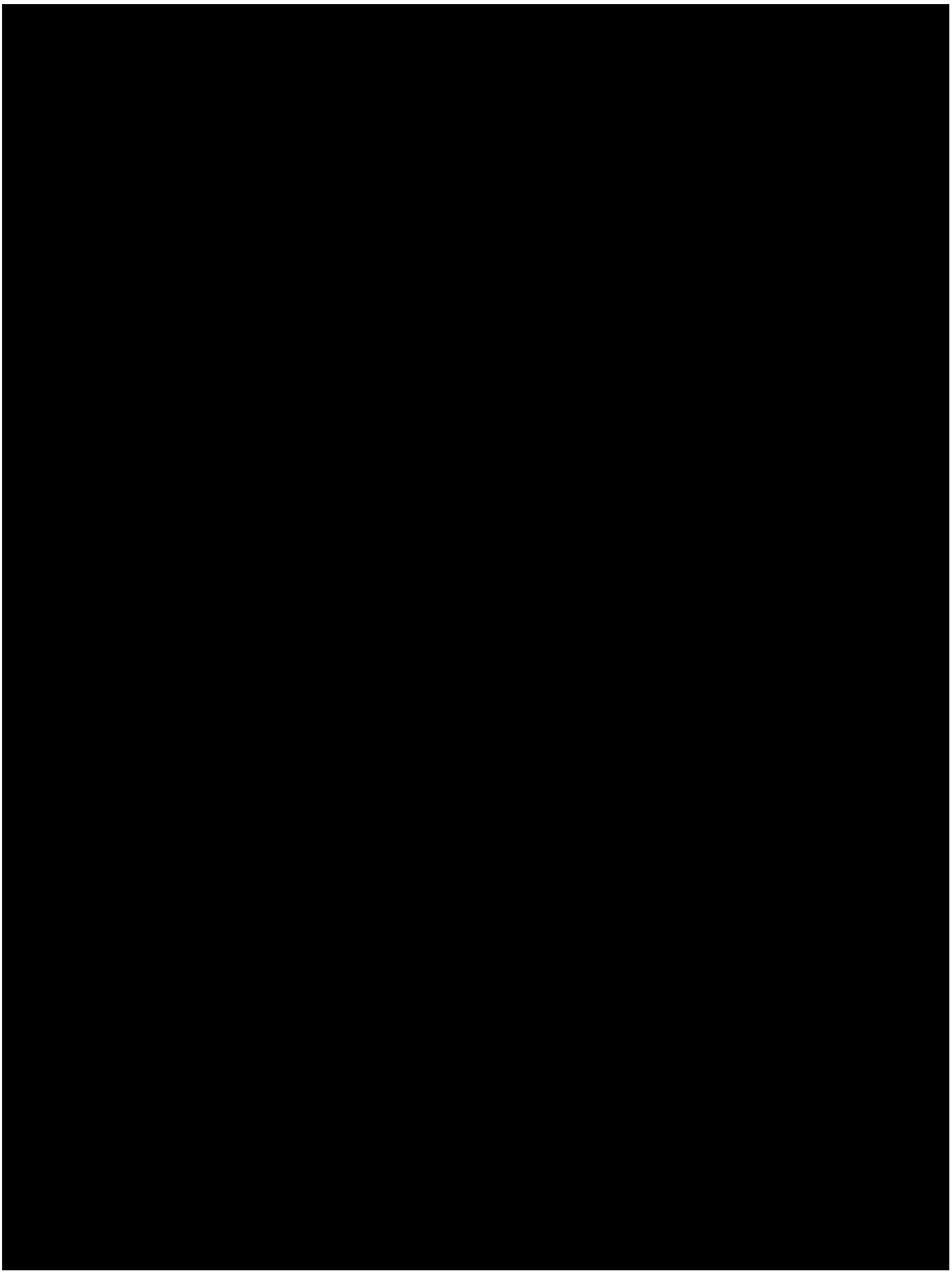


Deed of release

Sydney Trains
Customer

Dassault Systemes Australia Pty Ltd (ABN 92 113 589 772)
Contractor

Quintiq Pty Ltd (ABN 85 128 925 039)
Quintiq



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