MORRISON HERSHFIELD

FINAL

Due Diligence Building Condition Review

The West Side Collection Portfolio, Vancouver, BC

Presented to:

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EXECUTIVE SUMMARY

Morrison Hershfield Limited (MH) was retained by Interrent REIT to perform a Due Diligence - Building Condition Assessment on the portfolio known as Vancouver Legacy Apartments-The West Side Collection in Vancouver, BC.

A cursory walkthrough of the subject properties was conducted on November 25 and 26, 2020 by Jacquelyn White, in the company of Interrent REIT representatives, CBRE representatives and Hollyburn personnel. MH returned on December 14, 2020 to visually assess the main building structure, building envelope, mechanical, electrical and site systems. We were accompanied by Allan Wasel of Hollyburn, who provided the history of the buildings and responded to questions regarding major renewals.

Our general observations, and identification of key elements requiring significant remedial costs (above $10,000), or where there is major uncertainty regarding future costs, are summarized below, by building. Associated costs are provided in Appendix A. Photos are provided in Appendix B. KJA elevator report is included in Appendix C.

Arbutus Court

Recommended upcoming work includes:

- Parkade leak repair, $15,000
- Balcony restoration, $100,000
- Replace roof assembly, $250,000
- Replace domestic water distribution system, $350,000
- Replace hydronic heating boiler system, $250,000
- IR Scan and address any found anomaly and cleanup, $30,000
- Scanning and testing existing NMD-3 cable and address any anomaly, $10,000
- Staged distribution renewal, $45,000
- Staged lighting renewal, $10,000
- Replace fire alarm system equipment, $15,000
- Lifecycle replacement of intercom system, $10,000
- Modernize elevator, $225,000

Discretionary upgrades include:

- Replace guardrails, $55,000
- Replace windows and sliding doors, $325,000
- Install domestic water backflow preventor, $15,000
- Install fire sprinkler backflow preventor and monitor by fire alarm system, $20,000
- Replace main isolation valve for fire sprinkler system and monitor by fire alarm panel, $10,000
- Lifecycle renewal of distribution equipment, $60,000
- Replace NMD-3 to NMD-90, $350,000
- Perform energy study and implement advanced lighting controls, $10,000
- Lifecycle renewal of lighting system, $35,000

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1. INTRODUCTION

Morrison Hershfield Limited (MH) was retained by Interrent REIT to perform a Due Diligence - Building Condition Assessment, subject to the limitations of Section 1.6, on the portfolio known as Vancouver Legacy Apartments-West Side Collection in Vancouver, BC.

Authorization to proceed with the assessment was provided by the signed Consultant Agreement dated December 9, 2020.

A cursory walkthrough of the subject properties was conducted on November 25 and 26, 2020 by Jacquelyn White, in the company of Interrent REIT representatives, CBRE representatives and Hollyburn personnel. MH returned on December 14, 2020 to visually assess the main building structure, building envelope, mechanical, electrical and site systems. We were accompanied by Allan Wasel of Hollyburn, who provided the history of the buildings and responded to questions regarding major renewals.

1.1 Objectives

The overall purpose of the Due Diligence Building Condition Review is to provide a report on the subject building, which would identify significant ownership liabilities, based on a preliminary assessment and review of the subject site relating to the physical assets of the property. This Building Condition Review consists of an evaluation of the following items:

1. Site Features
2. Main Building Structure System
3. Building Envelope
4. Mechanical Systems
5. Electrical Systems
6. Elevators

Specific objectives are:

1. To attain an evaluation of the specific systems, structures, and services based on a general visual review of the buildings.
2. To attain recommended repairs and associated costs above a $10,000 threshold. Identified items to be prioritized as immediate (within one year), short-term (within 2-5 years) and long-term (within 6-10 years). Costs will not be provided for items beyond 10 years.

1.2 Terms of Reference

The Due Diligence Building Condition Review is subject to the limitations of Section 1.6 and addressed the scope of service, as outlined in our proposal of December 2, 2020.

1.3 Project Team

The following are the MH reviewers and the respective disciplines for which each was responsible.

- Ms. Jacquelyn White, P.Eng., Principal of MH visited the sites on November 25, 26, December 8, 9, 2020 to review the site development, structural and building envelope systems and prepared those sections of this report.
- Mr. Jameson Vong, P.Eng., Principal of MH reviewed the sections prepared by Ms. White.
- Mr. Sun Jang, EIT of MH visited the sites on December 14, 2020 to review the electrical systems and prepared those sections of this report.
- Mr. Kevin Pearson, P.Eng. of MH reviewed the sections prepared by Mr. Jang.
- Ms. Zoe Wong, EIT of MH visited the sites on December 14, 2020 to review the mechanical systems.
- Mr. Matthew Yim, P.Eng. of MH prepared the mechanical sections of this report.
- KJA consultants prepared the elevator portion of this report based on past reviews and involvement in recent modernization projects at the sites.

1.4 Report Format

Each building is reported on individually, divided into sections according to major building elements. Each section presents the observations, assessments and recommended remedial work for that element. Cost estimates and timing for each recommended remedial task are provided in Appendix A.

Photographs are provided in Appendix B to highlight observations, where deemed appropriate.

KJA Elevator report is provided as Appendix C and their recommendations are carried in the cost summary, Appendix A.

1.5 Reference Documents/Information

We were provided with a drawings and reports for each building, specifically:

- Site survey information
- Previous Building Condition Assessment reports issued by RJC
- Capital expenditure lists 2016-2020

- 2020 Fire Alarm Verification Report issued by service provider, Voltech Fire Protection
- Backflow reports
- Elevator Permit
- Fire and Life Safety Documents

Electrical record drawing, operation & maintenance manual, and other previously completed system test report such as distribution equipment infrared scan (IR scan) result were not available for review.

1.6 Limitations and Assumptions

This Due Diligence Building Condition Review provides an assessment of the current conditions at the reviewed buildings based on our specific scope of services and to support the specific objectives identified previously.

This report was prepared for the exclusive use of the client named, and may not be reproduced, in whole or in part, or used or relied upon by any other party. MH accepts no responsibility for any damages suffered by any third party because of decisions made, or actions taken, based on this report.

Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions. No other warranties, either expressed or implied, are made.

The assessment is based, in part, on information provided by others. Unless specifically noted, we have assumed that this information is correct and have relied on it in developing our conclusions.

No testing, detailed analysis or design calculations were conducted.

Unexpected conditions may be encountered at the facility that have not been explored within the scope of this report. Should such an event occur, MH should be notified in order that we may determine if modifications to our conclusions are necessary.

Conclusions are based on a visual review of a sampling of building elements for the purpose of identifying major deficiencies within the building, building elements and site. Observations were made only of those areas that were readily accessible during our review. The general findings reported might not be extended to portions of the facility that were unavailable for direct observation at the time of the MH visits.

Detailed discussions of the existing elements and required repairs or replacements, and reporting on minor repairs or preventive maintenance requirements, were beyond the scope of this assessment.

Cost estimates are provided only as an indication of the order of magnitude of remedial work. Our cost projections are based upon the following:

- our past experience and records of similar construction and remedial work
- discussions with various contractors and/or material suppliers in the lower mainland, where appropriate, or in the location of the facility
- current cost data from RSMeans CostWorks 2021
- our professional judgment

More precise cost estimates could require additional effort, possibly including more detailed investigation to better define the scope of work.

All costs are identified in Year 2020 Canadian dollars, and do not include consulting fees or taxes. For consulting fees, we typically recommend a budget allowance of 15% to 20% of the costs identified. Unless otherwise specified, the total replacement cost identified for each component will reflect the cost to remove and replace the existing equipment/component with the same type of component.

All cost estimates assume that regular maintenance and repairs will be performed to all elements at the buildings.

1.7 General Portfolio Description

The 5 properties are generally described below:

Name	Address	Units	Floors	Structure	Elevator
Arbutus Court	8740 Cartier St	35	3	Wood	1
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More specific descriptions are provided in the following sections.

2. ARBUTUS COURT

Arbutus Court located at 8740 Cartier Street is a three-storey building with 35 residential rental units. The wood framed building was constructed circa 1971. Overall views of the building are provided in photos AC01-02.

The MH team visited the site on Dec. 14 and reviewed the service rooms, common corridors, roof, parkade, building exterior and unit.

2.1 Site Features

There are limited site features. An exterior stairwell with exposed concrete stairs and steel guardrails is located from grade to the parkade, the ramp to parkade is asphalt surfaced and there is an aluminum fence surrounding the property on the east and north elevations.

No capital expenditures are anticipated for the site features.

2.2 Structural Systems

2.2.1 Below Grade Structure

The foundation walls are reinforced concrete on spread and strip footings. The foundation walls were reviewed from the parkade. There were no signs of water ingress through parkade walls.

The parkade roof is a reinforced concrete suspended slab supported on reinforced columns and the foundation walls. There is no membrane on the slab where it extends beyond the footprint of the building (photo AC01). Numerous active leaks were noted (photo AC03) as well as some light spalling.

The parkade floor is a slab on grade. Some cracking was present but not a structural concern.

Repairs to seal active leakage are recommended. If leakage is no longer manageable by a maintenance program or significant spalling occurs, consideration could be given to protecting the slab with a membrane.

2.2.2 Above Grade Structure

The building flooring and walls are wood framed. No drawings were available to confirm sizing and no wood framing was exposed for review.

Units are provided with framed balconies, cantilevered (photo AC04). The balcony floors are coated with a liquid membrane, ages vary as work is done as suites are updated. The soffits are stucco. No signs of distress were noted at balconies. Targeted deck restoration was undertaken in 2016/2017.

Guardrails are top mounted aluminum pickets and stucco clad framed guardwalls. The guardwalls have wood caps which are in varying states, some deteriorated.

The roof is assumed to be constructed of wood joists with insulation in the joist cavity.

Balcony membranes appear to be renewed with suite upgrades. It was reported that any repairs to the structure are undertaken at that time. A budget for continued renewal including replacing any soft plywood decking and review of the structural system is recommended.

Framed guardwalls are a high-risk assembly, as moisture can enter from the top rail as well as through the stucco itself and damage the underlying wood structure. Consideration should be given to replacing guardwalls with aluminum railings during any future balcony work.

2.3 Building Envelope

2.3.1 Wall Assembly

The main wall assembly is stucco, assumed to be applied over a building paper and sheathing.

The walls are heavily stained, particularly along the east elevation, guardwalls and upper floors (photos AC01, 02). The balance of the walls benefit from a significant roof overhang and staining is limited. Some localized crack repair is evident (photo AC05), but no significant cracking of the stucco was noted.

The heavy staining and corrosion suggest that the stucco wall is experiencing repeated wetting cycles. While no evidence of leakage was noted or reported, damage to the underlying wall assembly is possible if the walls aren't drying out between wetting cycles. In older buildings, there is typically a significant amount of air leakage from the interior which helps dry the wall assembly from the interior.

The building should be cleaned, any cracking addressed. Exploratory openings should be undertaken to confirm the condition of the underlying wood components. A re-clad should be considered at some point beyond the 10-year horizon of this report.

2.3.2 Glazing Systems

The windows are single glazed aluminum sliders. Both swing doors (photo AC05) and sliding glass doors are provided at balconies, also single glazed aluminum. They are assumed to be from original construction.

The front entry is an aluminum storefront system, again single glazed. It has good overhead protection.

Replacement of windows should be considered but would be considered a discretionary upgrade.

2.3.3 Roof Systems

The roof is a conventional system, where the membrane is applied over the insulation and plywood deck. The membrane was replaced in 1990 with a 2-ply modified bitumen membrane system. As drains are sumped, it is assumed that there is a minimal amount of insulation on the roof.

The membrane is aging and appears brittle with ridging throughout. There was significant ponding throughout the roof areas (photo AC06). At the time of re-roofing, a sloped insulation package should be added to improve drainage and thermal insulating value.

Conventional roofs have a life expectancy of approximately 25 years; therefore, this roof is beyond its life expectancy and will require replacement in the next 5 years.

2.4 Mechanical Systems

2.4.1 Domestic Water System

The building is provided with a 4" (approximate) combined water and fire service that enters the building inside the sprinkler room and splits into a 4" fire service and 1-1/2" domestic water service. The domestic water supply is equipped with a water meter but no backflow preventer (photo AC07). As-built plumbing drawings were not available for review to determine routing of plumbing systems. It is our understanding that the domestic water distribution is original with localized repairs undertaken as needed. Given the age of the building, a full replacement will likely be required within the next 5 years.

Domestic hot water is generated via an A.O. Smith 399 MBH domestic hot water heater (photo AC08) inside the boiler room. Storage capacity of the heater is unknown but is anticipated to be in the range of 85 to 100 US gallon. The heater was manufactured in 2010. No major expenditure is expected in the next 10 years.

2.4.2 Hydronic Heating Water System

The building is heated by hydronic baseboard heaters. Heating hot water is generated by two Super Hot 600 MBH input boilers (photo AC09) inside the basement boiler room. Heating hot water is distributed to the building via a circulator pump. The boiler system was installed in 1986 and is due to be replaced in the next 5 years.

2.4.3 Fire Sprinkler System

Boiler room and covered parking area are protected by fire sprinkler system. Fire sprinkler water supply is not equipped with any backflow preventer (photo AC10). Main isolation valve is not monitored by fire alarm system. No major expenditure is expected in the next 10 years.

2.4.4 Ventilation

Suites are not mechanically ventilated. Rangehoods inside suites are of recirculation type, i.e. it is not vented to outside. Bathrooms inside suites are vented to outside. No major expenditure is expected in the next 10 years.

2.5 Electrical Systems

2.5.1 Power Distribution Systems – Equipment, Branch Circuit, and Feeders

The building is fed utility power from BC Hydro through a service entrance fused disconnect switch rated 600A, 120/208V, 3-phase, 4-wire system located in the main electrical room (MER). Each residential suit is fed from a meter center c/w 100A circuit breaker and revenue meter (photo AC11). Most of the electrical equipment appeared to be original, 49 years old. Existing electrical equipment is functional; however, equipment has surpassed expected useful lifespan based on the visual assessment. Due to the years of operation, directory schedules for panels are required to be updated.

Electrical equipment serving building mechanical system such as motor starters and disconnect switches appeared to be new. The in-suite load center panels have been replaced with new load center panels c/w circuit breakers when each suite renovation was taken place. Receptacles in washroom and on kitchen countertop are ground fault circuit interrupter (GFCI) receptacle, up to Canadian Electrical Code 2018 (CEC 2018).

Existing feeders, wiring, are installed in and protected by electro-metallic tubing (EMT), done with BX (AC90) wiring, and NMD-3 Lumex cable. Due to aging, numerous conduits are rusty. Condition of actual feeders installed in the EMT or BX wiring was unable to be confirmed. Existing NMD-3 cable shows signs of aging, cracked jacket. Due to the crack, we were unable to identify any labeling on the cable.

For future maintenance, all directory schedules of existing panelboards are recommended to be updated with typed and printed labels. Due to aging, IR scanning and equipment interior vacuum cleaning of all original distribution equipment is recommended. Any anomaly found from the IR scan result shall be immediately corrected to ensure safe and secure operation of the distribution systems. IR scanning is recommended to be completed every 5 years as a minimum. Any repeated failure identified during the normal operation, or found in the IR scanning, are recommended to be replaced. Considering that the estimated useful lifespan of electrical distribution equipment is 30 to 60 years as typical, the reliability of the existing electrical distribution system may suffer by equipment wear out. Followed by IR scanning, it is recommended to replace any distribution equipment repeatedly found with anomalies.

NMD-3 had been widely used as electrical cable for residential projects in the past, between the years 1962 and 1984. This type of cable is known for fire hazards from reported incidents where this type of cable has lower insulation temperature ratings. Due to the crack on the cable surface, the temperature rating of the cable was unable to be identified during the site visit. It is recommended to IR scan existing cables and

to perform megger testing and review of the insulation integrity of the existing cable to confirm the existing condition. Followed by the scanning and the testing, it is recommended to replace any cable found with anomaly with new such as NMD-90.

2.5.2 Lighting Systems – Luminaires and Controls

Existing luminaires in parkade and building interior have been retrofitted with LED linear tubes and LED bulbs in fluorescent surface troffers, and decorative luminaires 4 years ago. The exterior luminaires appeared to be LED wall-pack as well. Building luminaires appeared to be controlled by mechanical timers located in the MER (photo AC11).

Existing lighting systems are functional; however, existing lighting controls are not up to standard with advanced controls solutions mandated by applicable building codes and standards. Typically estimated lifespan of LED is 50,000 hours of continuous operation while maintaining 70% of initial luminance (L70). As LED is solid state device, advanced lighting controls solutions do not impact the lifespan of the source negatively as outdated fluorescent sources did; however, the controls are capable of improving both operating lifespan of the fixture and reduction of energy consumption from lighting.

After performing an energy study, it is recommended to implement advanced lighting control solutions such as dimming, occupancy/vacancy sensors, photocells, etc. to be compliant with ASHRAE 90.1-2016 standard. Based on the existing lighting controls, parkade and building interior LED tubes/bulbs are expected to reach L70 estimated lifespan in 5 years. Understanding that existing luminaires retrofitted with LED have been utilized for 3-4 years, the existing fixtures will be reached to estimated useful lifespan of typical luminaire, 10-15 years. It is recommended to secure cash allowances for replacing any faulty luminaires with new LED fixtures.

2.5.3 Life Safety Systems – Emergency & Exit Lights and Fire Alarm

Existing emergency system of the building consists of battery packs and remote heads. Existing exit light are red text base exit lights. Both existing remote heads and exit lights are fed from battery packs installed throughout the building. Service tags and 2020 FAVI indicates emergency battery packs are annually tested and maintained (photo AC13). The current building code mandates exit signs to be green pictogram type in lieu of traditional red text-based signs. We recommend that once failures start to occur, all the exit signs are replaced with green pictogram type at the same time.

The existing building fire alarm control panel (FACP) is in the MER. The annunciator is located at the main lobby. The existing FACP is a conventional type control panel. The FACP was installed around 1995. The alarm is monitored by Paladin Security via DSC security monitoring systems. Field addressable devices, alarm initiation devices and notification devices, such as smoke detectors, heat detectors, bells, and manual pull stations, are installed throughout the building. Service tags and 2020 FAVI indicates the existing fire alarm system is annually tested and maintained (photo AC12). The recent revision of applicable building code mandates manual pull stations

to be mounted a height of 1,100mm above finished floor as a measure to improve occupant accessibility. Due to the age of the building, existing manual pull stations are installed at higher elevations. Currently fire alarm elevator recall/override is not provided which is required by the applicable building code. Per 2020 FAVI, numerous heat detectors that are currently installed in the building have been recalled.

Estimated life expectancy of FACP is approximately 15 years. The 10 years life expectance is estimated for any fire alarm device. Life expectancy of any batteries for emergency power installed in battery packs and FACP is 5 years. The existing FACP has already surpassed the end of life expectancy. As it is a critical part of building's life safety system, it is recommended to renew the existing fire alarm system with a new system immediately. As per the building code, the voluntary renewal will trigger the installation of the elevator recall/override system. In case the building's elevator controls system is not available to support the function, then the new FACP shall have a future provision as a minimum. Any deficiency identified in the 2020 FAVI shall be immediately addressed and corrected.

Batteries and field devices shall be replaced with new when any fault or deficiency is noted during normal operation or from annual testing. Budget for those replacement assumed to be incorporated in the building's operation budget.

2.5.4 Security Systems – Access Controls

The building is installed with an intercom and fob system for access controls (photos AC14, AC15) The existing system is approximately 25 years old. No camera system is currently provided at the building.

Estimated life expectancy of intercom system is approximately 15 to 20 years. Therefore, it is recommended to replace the equipment with a new system when it is found to be faulty.

2.6 Elevator Systems

There a basement geared traction elevator installed in 1977 and modernized in 1997. Refer to KJA report, Appendix C for full discussion and recommendations.

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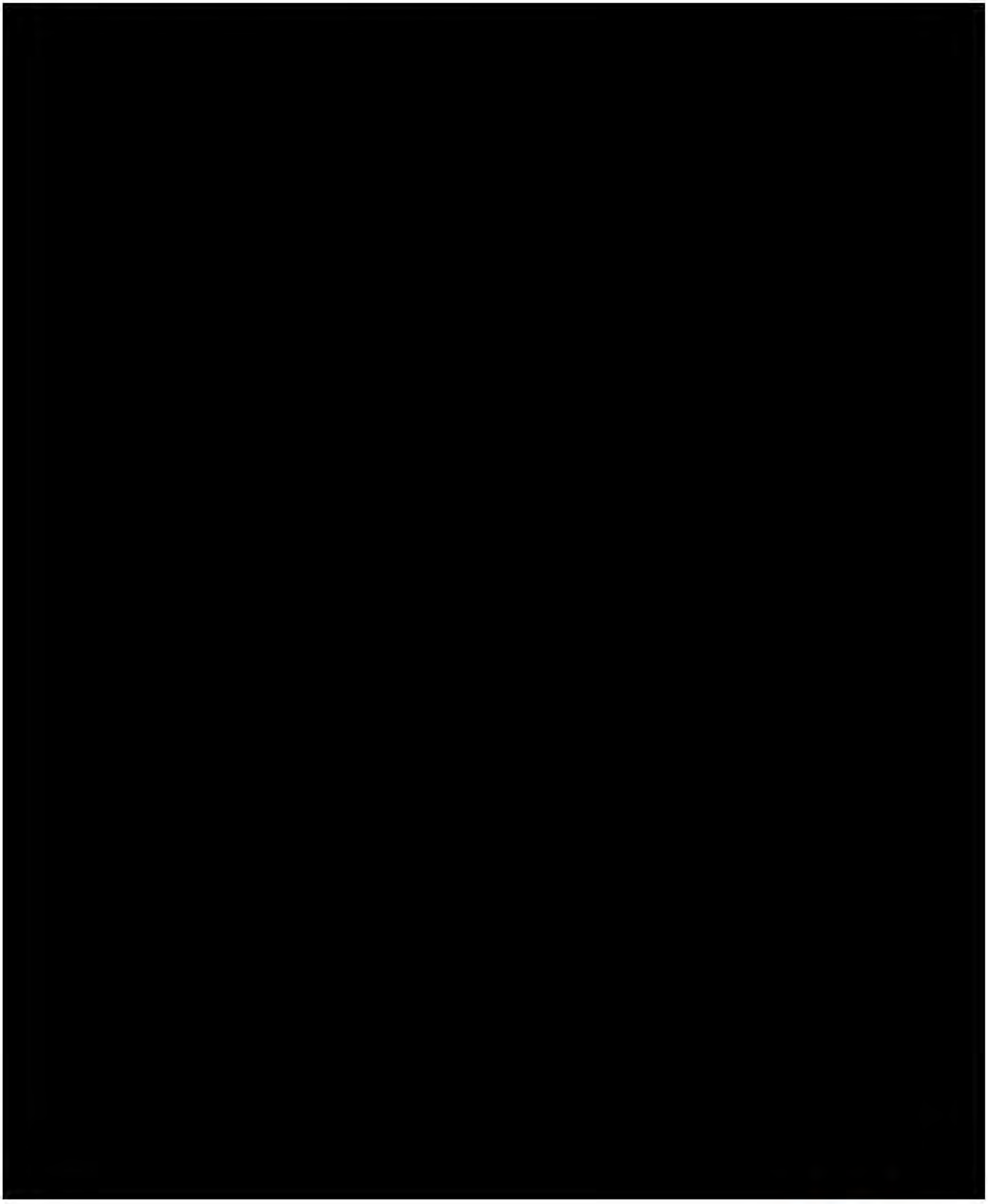

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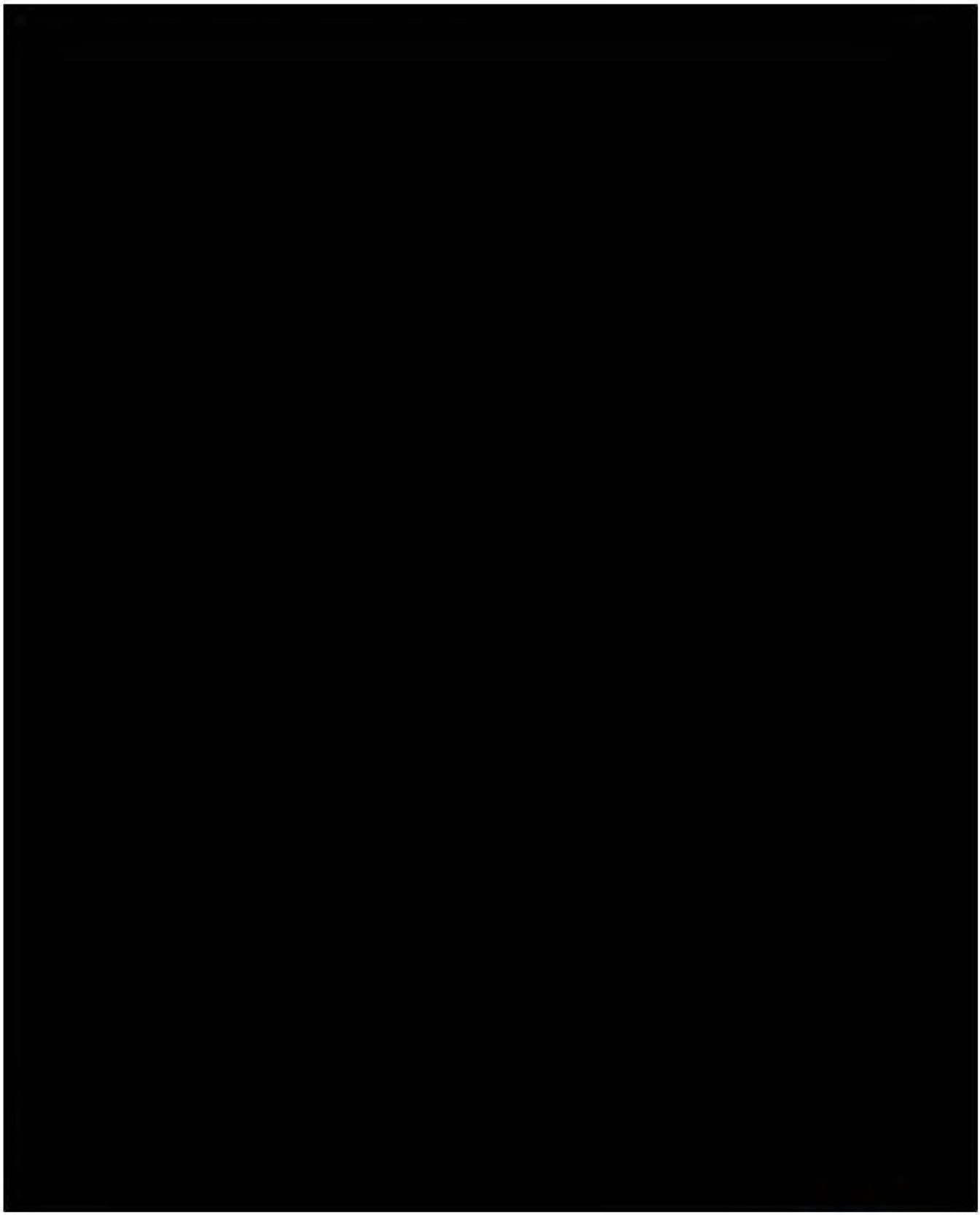

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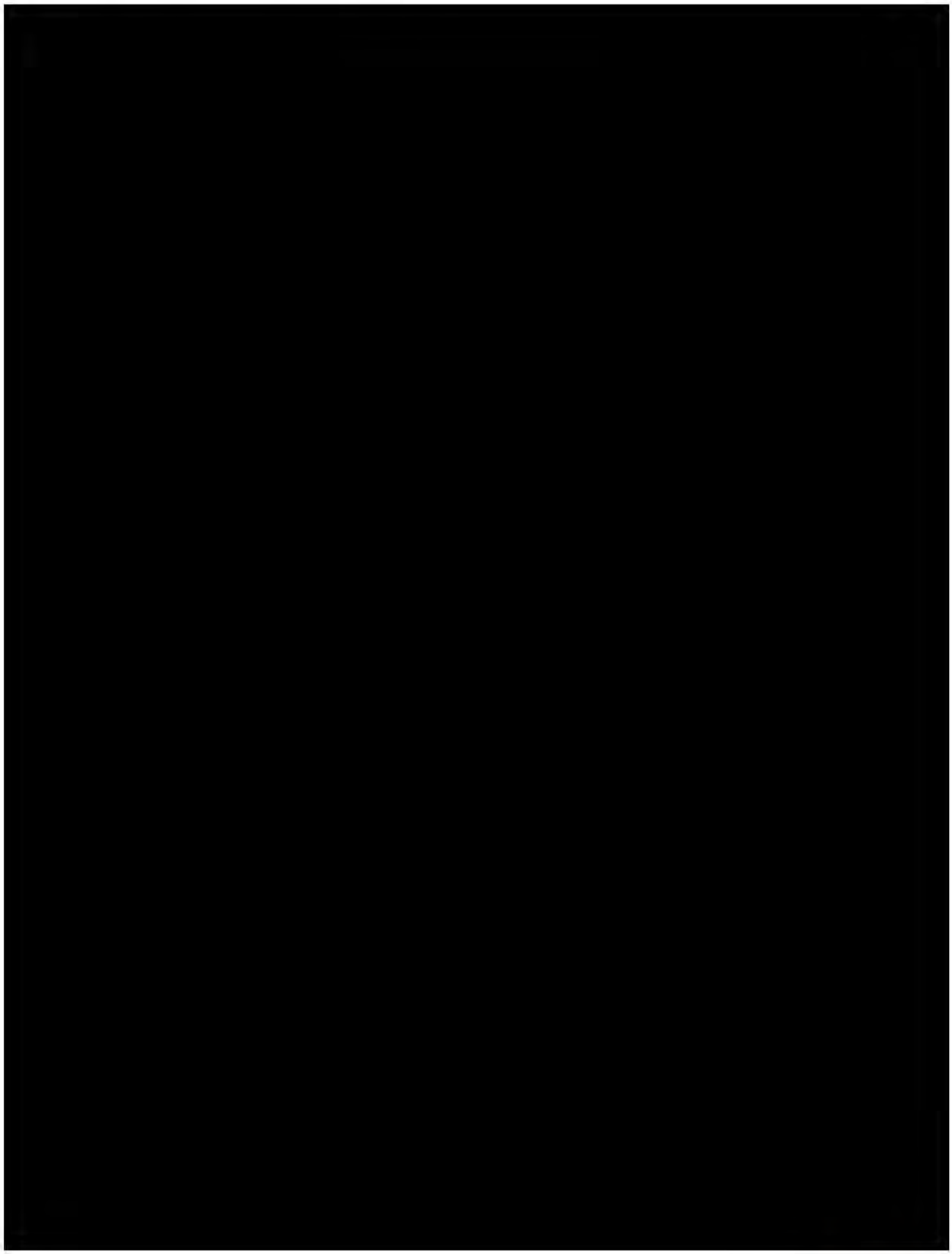

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7. SUMMARY/DISCUSSION

Exterior Site Features

Exterior site features are limited at all properties. Fencing, rails, some retaining walls and tiled entrance stairs are generally in good condition with any upgrades being discretionary.

Building Structural Systems

Generally, the concrete foundations are in good condition with limited cracking where exposed for review. Some leakage into parkades was noted throughout the portfolio, this is typical of concrete construction and requires regular maintenance to address. Some localized areas of spalling and corroded re-bar were noted, but it was not widespread.

There is no membrane on the suspended concrete slabs where they extend beyond the footprint of the building. This is typical of the time of construction but not today's standard. Once a program of leak repair becomes too onerous, or concrete deterioration is increasing, consideration should be given to installing a membrane over the suspended slab. This is a high-cost project that will include removal of all overburden and would not be expected within the next 10 years.

Wood framed balconies throughout the portfolio did not appear distressed but some repair and replacement of structural members can be expected to be ongoing as membranes are renewed.

Aluminum guardrails generally have a 40+ life expectancy; however, several building's guardrails would not meet current code. While there is no need to change them, if any work is done to the building that involves removing the guardrails, the old railings would not be permitted to be re-used and new guardrails would be required. Upgrading those that are particularly low and with climbable bottom rails should be considered.

Framed guardwalls are a high-risk assembly, as moisture can enter from the top rail as well as through the stucco or wood cladding itself and damage the underlying wood structure. Consideration should be given to replacing guardwalls with aluminum railings during any future balcony work.

Building Envelope-Stucco and Wood Clad Walls on Wood Frame

The cladding at most building is showing signs of wetting. While no evidence of leakage was noted or reported, damage to the underlying wall assembly is possible if the walls aren't drying out between wetting cycles. In older buildings, there is typically a significant amount of air leakage from the interior which helps dry the wall assembly from the interior.

Based on the age and condition of the wood frame cladding assemblies, consideration should be given to re-cladding, particularly if any window upgrades are considered. Full building envelope condition assessments at all buildings are recommended to confirm the condition of the underlying wood components and to help generate a long term renewal plan.

Building Envelope-Aluminum Windows

All the windows in the portfolio are single glazed aluminum windows from original construction. When exposed to wind driven rain, windows can allow leakage to the inside. This can create significant damage and nuisance depending on how often it happens. Of more concern, windows have proven to be a common source of water penetration into wall systems. Typical leakage points include:

- poorly sealed joints at the window to wall junction
- joints within window frames particularly at bottom corners, or
- joints where sectional window are coupled together.

The windows installed at throughout the portfolio are of a type that has proven to be prone to failures of the sealant in the mitred joints at the corners of the frames. Furthermore, the condensation resistance performance of single glazed units is low, the thermal value is low, and single glazed units generally allow more noise nuisance, particularly on busy streets.

There are reasons to consider replacement of the single glazed units:

- The use of better windows reduces the risk of water damage to sills and material below the windows and nuisance of rain penetration.
- Windows with a more appropriate condensation resistance can be purchased.
- Windows with a greater thermal value will provide better occupant comfort.
- There should be an energy cost savings for heating.

Given the high cost of window replacement, and the potentially low return on the investment, upgrades are considered discretionary.

Building Envelope- Roofs

Exposed membrane roofs have a life expectancy of 25-30 years. Factors that can reduce life expectancy include significant ponding, moss build up and high traffic. All the roofs showed significant signs of wear in the form of brittle membrane, ridging and blistering of the membrane. They have exceeded or are nearing their life expectancy and will require replacement within the next 10 years.

Mechanical Systems-Domestic Water Systems

All domestic water distribution is original and will require a re-pipe.

There are no backflow preventers at domestic water supply. During any major work, the City of Vancouver will mandate the installation of backflow preventers.

Mechanical Systems-Hydronic Heating Water System

The buildings are heated by hydronic baseboard heaters. Most boilers are due for replacement. Hydronic heating systems are protected by backflow preventors.

Mechanical Systems Standpipe System

Generally, the boiler room and covered parking area are protected by a fire sprinkler system. Fire sprinkler water supply is not equipped with any backflow preventer. Main isolation valve is not monitored by fire alarm system.

During any major work, the City of Vancouver will mandate the installation of backflow preventers.

Mechanical Systems Ventilation

All buildings generally lack in-suite ventilation. Range hoods vent to the exterior.

Electrical Systems- Power Distribution Systems

Most of the existing power distribution equipment in the buildings is in working condition, but the original construction is beyond the life expectancy of 30 to 60 years. As noted by the current management, no regular maintenance or infrared scanning records were available. It is recommended to perform infrared scanning of all power distribution equipment to identify equipment requiring immediate replacement. Due to the age of the systems, equipment and raceways are rusty and circuit wiring is poorly managed. For ease of future maintenance, circuit directory schedules of existing panelboards should be immediately updated with typed and printed schedules. As the systems are beyond their life expectancy, it is recommended to budget for staged renewal.

Several properties have NMD-3 type electrical cable. This type of cable is known as a fire hazard from reported incidents where the type of cable has a lower insulation temperature rating. Due to the crack on the cable surfaces, it often not possible to identify temperature rating of the cables during the site visit. It is recommended to IR scan existing cables and to perform megger testing, and review insulation integrity of the existing cables to confirm the existing condition. Following the scanning and the testing, it is recommended to replace any cables found with anomalies with new, such as NMD-90 if necessary.

Electrical Systems -Lighting Systems

Most of buildings' lighting fixtures are in working condition and have been retrofitted with LED tubes or bulbs 3 to 5 years ago. However, as the life expectancy of luminaires is approximately 20 years, the retrofitted fixtures will eventually wear out. It is recommended to budget for staged renewal of outdated luminaires when they fail or prior to failure. Existing lighting controls systems in the buildings are minimal and not compliant with the applicable building code and standards. It is recommended to perform an energy study and implement advanced lighting controls as guided by the current building code and ASHRAE 90.1-2016 standard. The advanced lighting controls will not only lengthen lifespan of LED fixture use, but also improve energy savings.

Electrical Systems- Life Safety Systems

Most of buildings' exit signs and emergency lights are standalone battery packs and are still the original installation. Battery packs require replacement every 5-years to ensure reliable operation. Most of existing exit signs are red text-based signage which is not compliant with the current building code. It is recommended to replace all exit signs to green pictogram type signage once any of the existing exit signs in the building have failed. Most of the fire alarm systems are in fair condition, but some are beyond their life expectancy, 15 years. As the fire alarm system is a critical piece of life safety systems of the building, it is recommended to immediately replace those outdated fire alarms with new systems.

Electrical Systems-Security Systems

Intercom systems are found in good working condition. For CCTV camera systems and intercom systems, it is recommended to replace with new when equipment has reached end of service life.

8. CLOSURE

Morrison Hershfield Limited has reviewed this property in accordance with the Scope of Services and the Limitations and Assumptions outlined in Section 1 of this report. If you have any questions regarding the information contained herein, please contact the undersigned.

MORRISON HERSHFIELD LTD.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. D. WHITE
#27717

Jacquelyn White, P. Eng
Principal, Project Manager

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. YIM

JAN 21, 2021

Matthew Yim, P.Eng., CEM, LEED AP
Mechanical Consultant

Sun Jang, EIT
Electrical Consultant

APPENDIX A:
SUMMARY OF ANTICIPATED CAPITAL EXPENSES

Table 1 - Summary of Anticipated Capital Expenditures
VLP West Side Collection

System	Item	Priority	Immediate 1)	Years 2-5	Years 6-10	Discretionary Upgrades
Arbutus Court						
	Subtotals		$ 85,000	$ 1,185,000	$ 90,000	$ 880,000
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Table 1A - Summary of Anticipated Capital Expenditures
Arbutus Court

System	Item	Priority	Immediate 1)	Years 2-5	Years 6-10	Discretionary Upgrades
Arbutus Court						
Structural	Parkade leak repair program	2	$ 15,000			
	Budget for continued balcony restoration	2		$ 50,000	$ 50,000	
	Replace guardwalls and guardrails with new alumnimum rails	2				$ 55,000
Envelope	Replace aluminum windows and sliding doors with better performing units.	3				$ 325,000
	Replace roof assembly.	2		$ 250,000		
Mechanical	Install domestic water backflow preventor	3				$ 15,000
	Replace domestic water distribution system	2		$ 350,000		
	Replace hydronic heating boiler system	2		$ 250,000		
	Install fire sprinkler backflow preventor and monitored by fire alarm system.	3				$ 20,000
	Replace main isolation valve for fire sprinkler system and monitored by fire alarm panel.	3				$ 10,000
Electrical - Distribution	IR Scan, vacuum cleaning equipment interior, and address any anomalies	1	$ 10,000	$ 10,000	$ 10,000	
	IR Scan and sample megger testing existing NMD-3 cables, and address any anomolies	1	$ 10,000			
	Panel directory schedules update with typed and printed	1	$ 5,000			
	Staged replacement of repeatedly failed aged distribution equipment	1	$ 15,000	$ 15,000	$ 15,000	
	Lifecycle replacement of electrical distribution system	2				$ 60,000
	Replacement of NMD-3 to NMD-90, modification of interior finishing or structural of the building not included	3				$ 350,000
Electrical - Lighting	Perform an energy study and implement advanced lighting controls solutions	3				$ 10,000
	Staged replacement of failed luminaires and controls	1		$ 5,000	$ 5,000	
	Lifecycle replacement of lighting system	2				$ 35,000
Electrical - Life Safety	Replace FACP with a new and install elevator recall/override	1	$ 15,000			
	Replace all exit signs with green pictogram type	2			$ 5,000	
	Address all deficiency items from 2020 FAVI	1	$ 5,000			
Electrical - Security	Lifecycle replacement of intercom system	2		$ 10,000		
Elevator	Hands-free telephone	1	$ 5,000			
	Major elevator modernization includiing car door restricor, hall door retainer, new cab finishes and barrier free access upgrades.	2		$ 225,000		
	Address water in elevator pit	1	$ 5,000			
	Machine room cooling	2		$ 15,000		
	Code changes and vandalism	1		$ 5,000	$ 5,000	
	Subtotals		**$ 85,000**	**$ 1,185,000**	**$ 90,000**	**$ 880,000**

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System	Item	Priority	[redacted]	[redacted]	[redacted]	[redacted]
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APPENDIX B:
PHOTOGRAPHS

WSC Portfolio-Arbutus Court

AC01

AC02

WSC Portfolio-Arbutus Court

AC03

AC04

WSC Portfolio-Arbutus Court

AC05

AC06

WSC Portfolio-Arbutus Court

AC07

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WSC Portfolio-Arbutus Court

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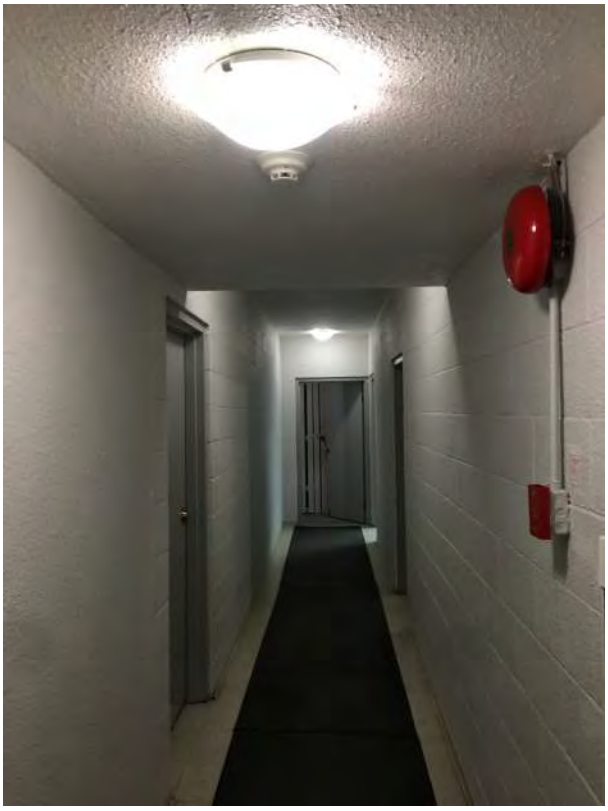
WSC Portfolio-Arbutus Court

AC11



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WSC Portfolio-Arbutus Court

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WSC Portfolio-Arbutus Court

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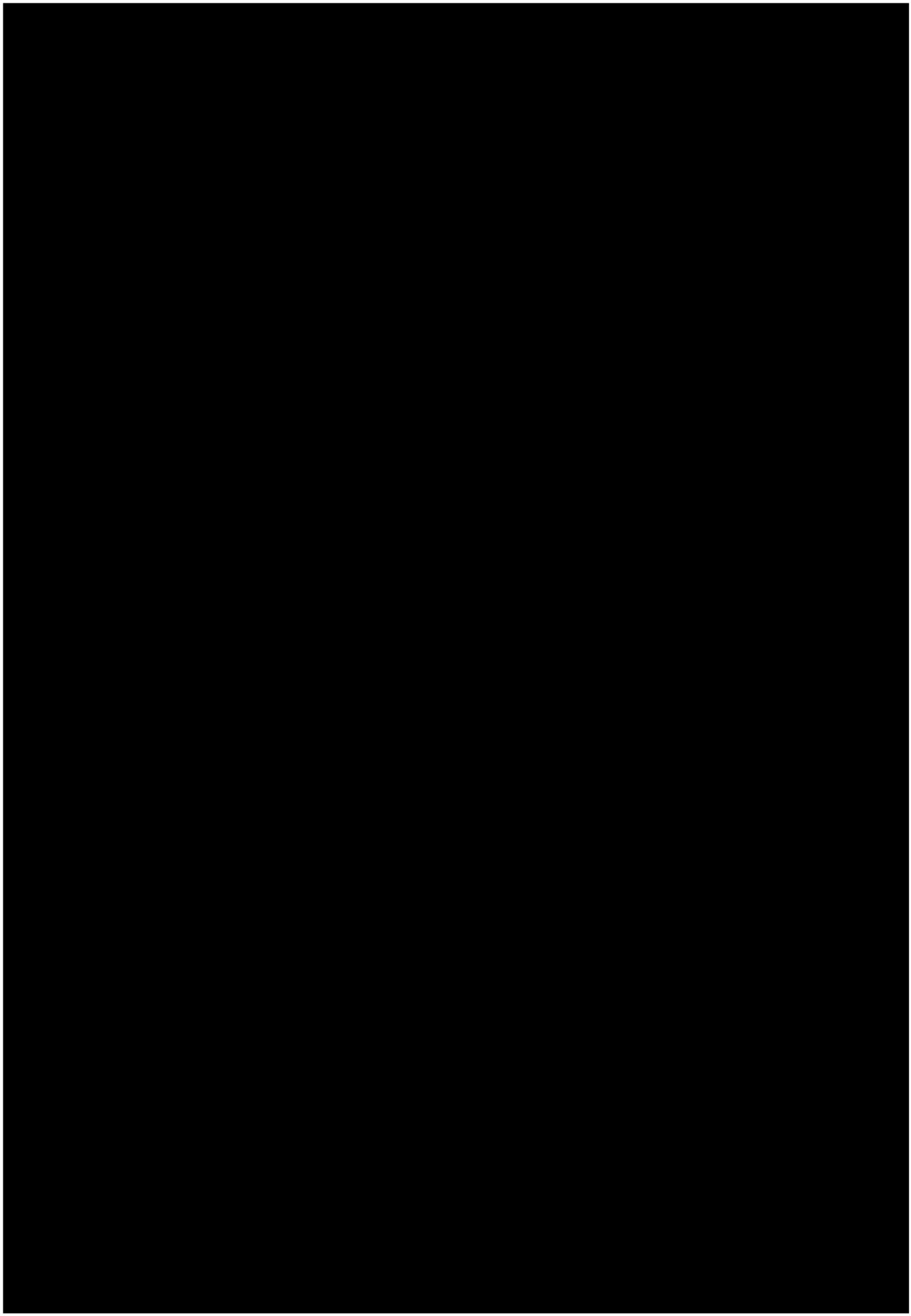

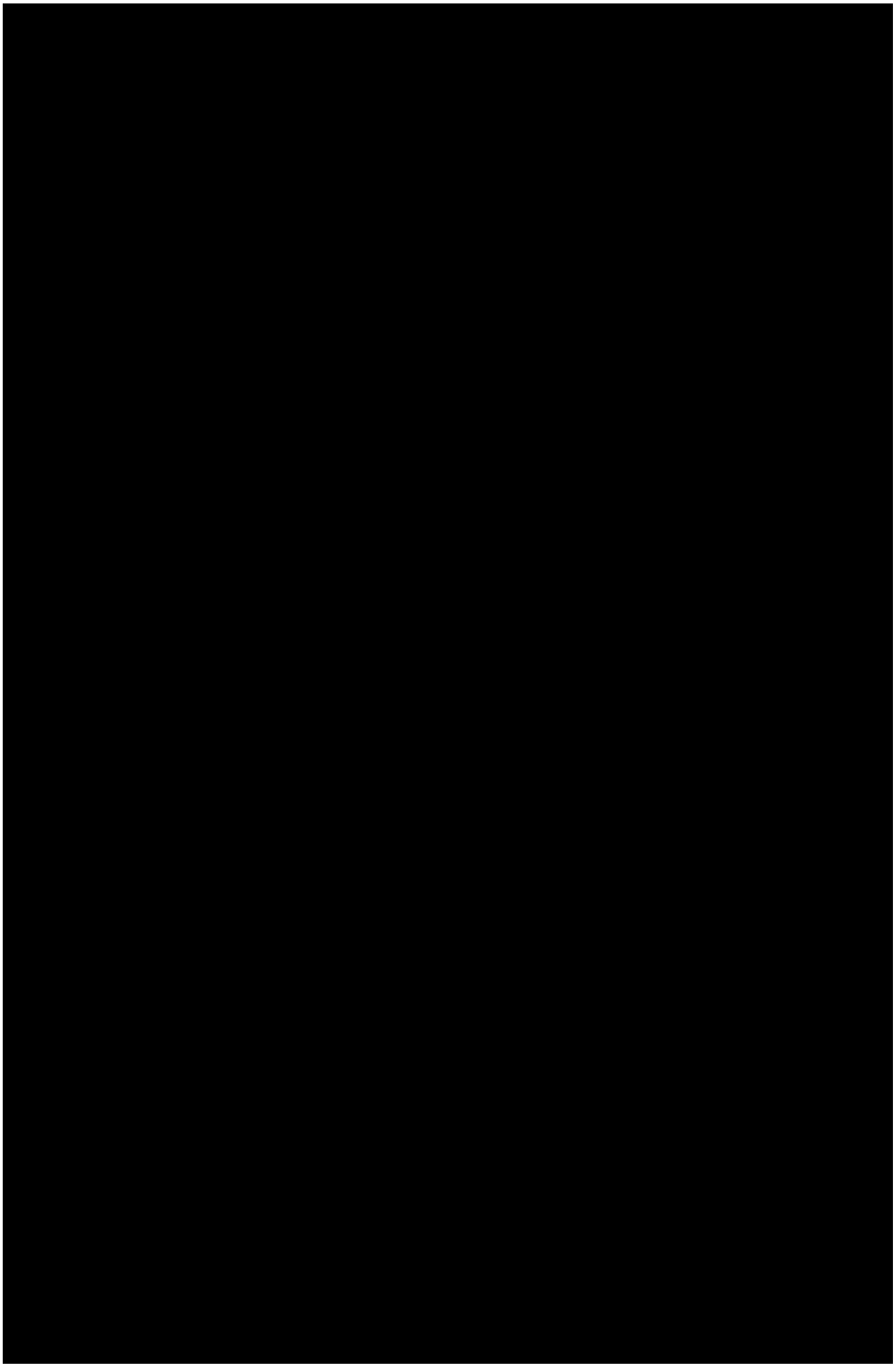

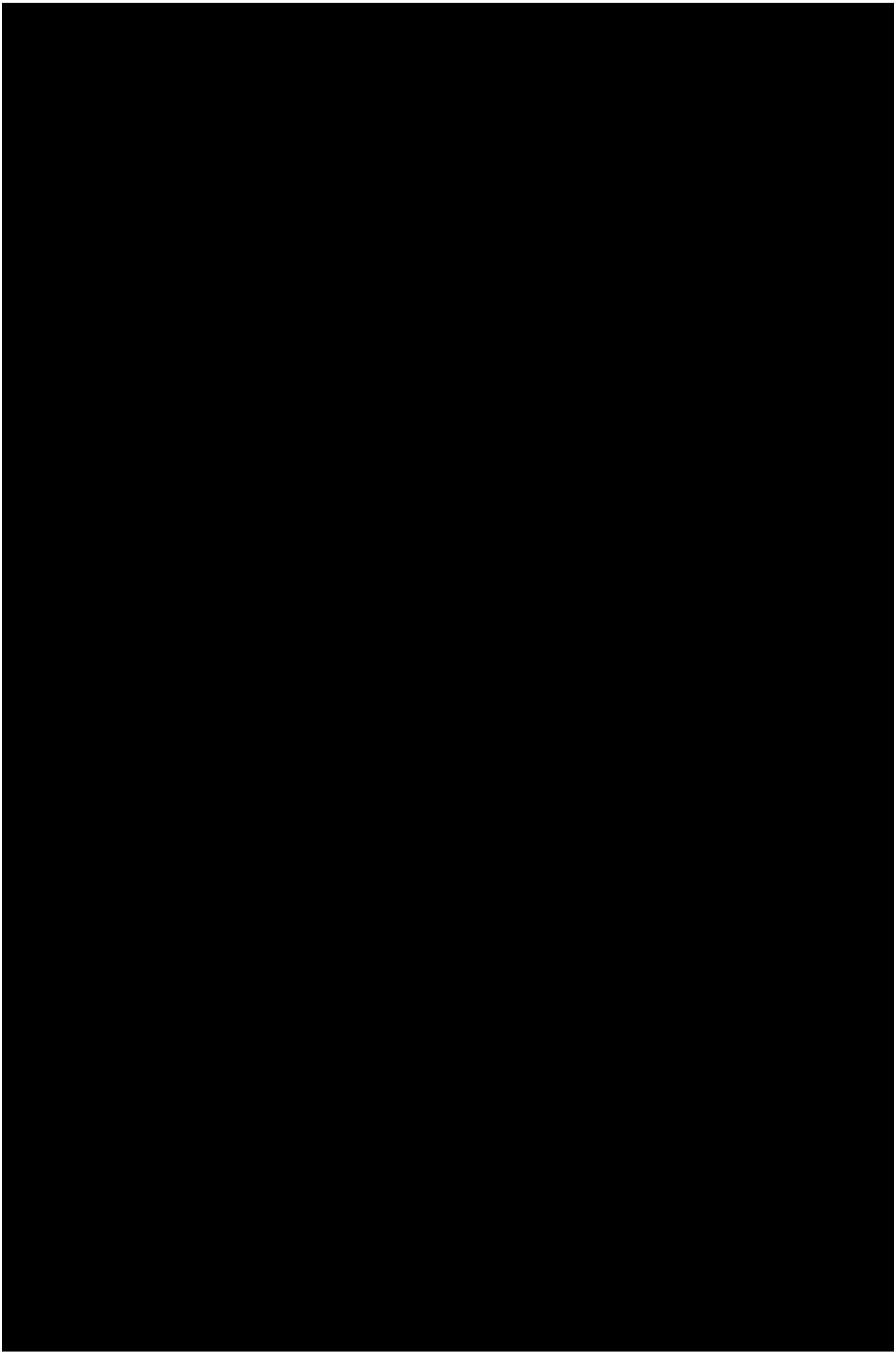

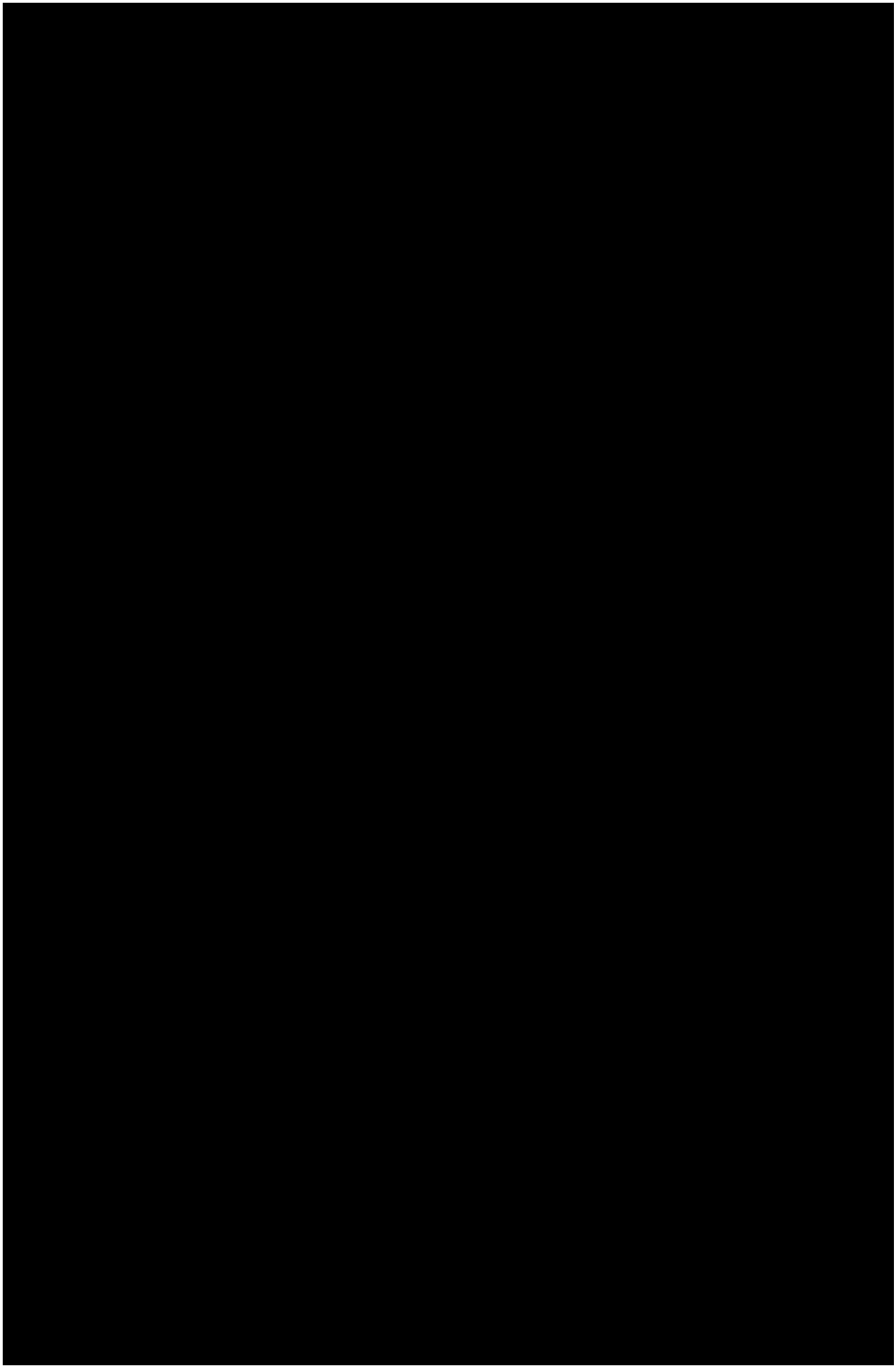

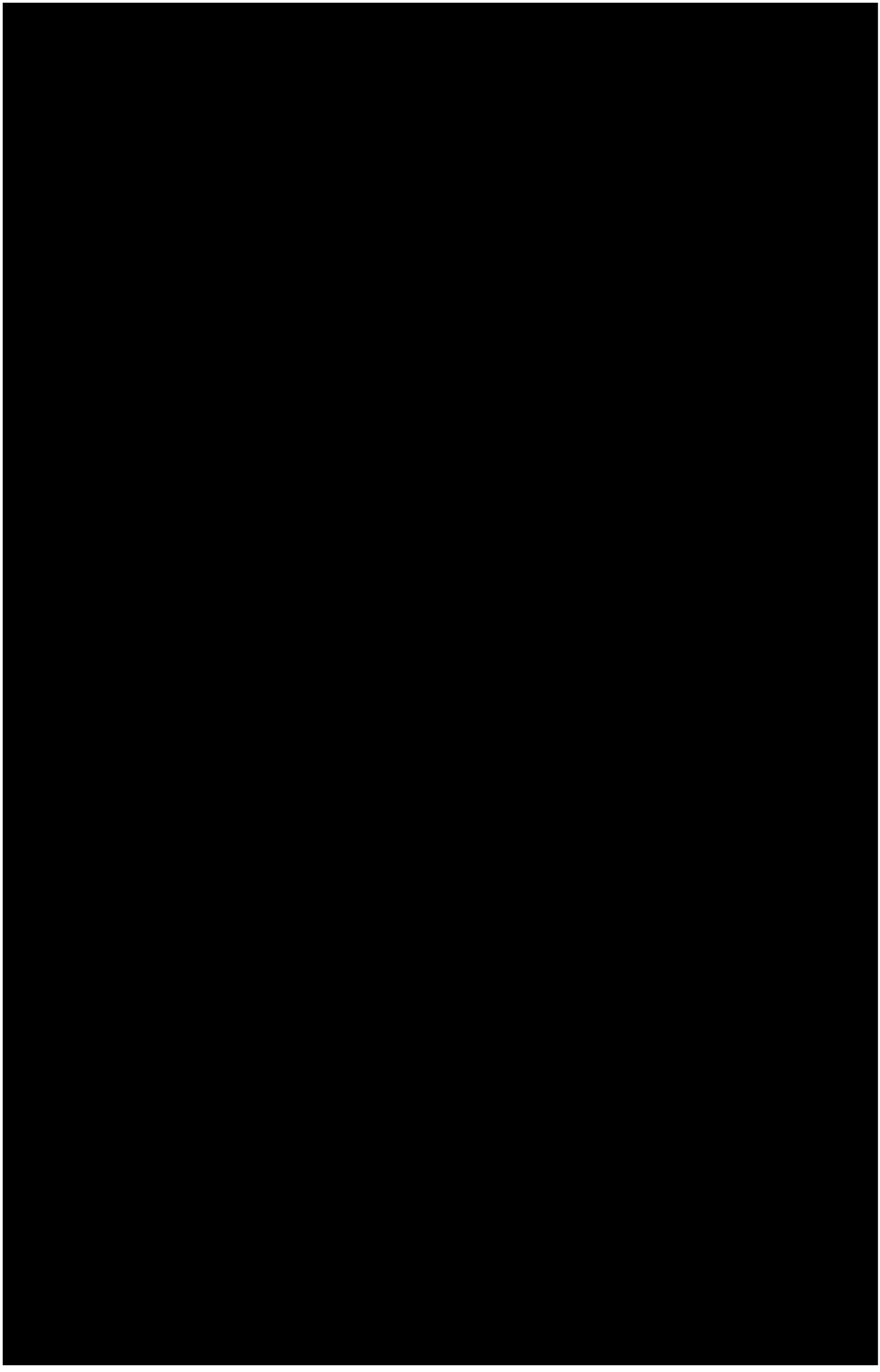

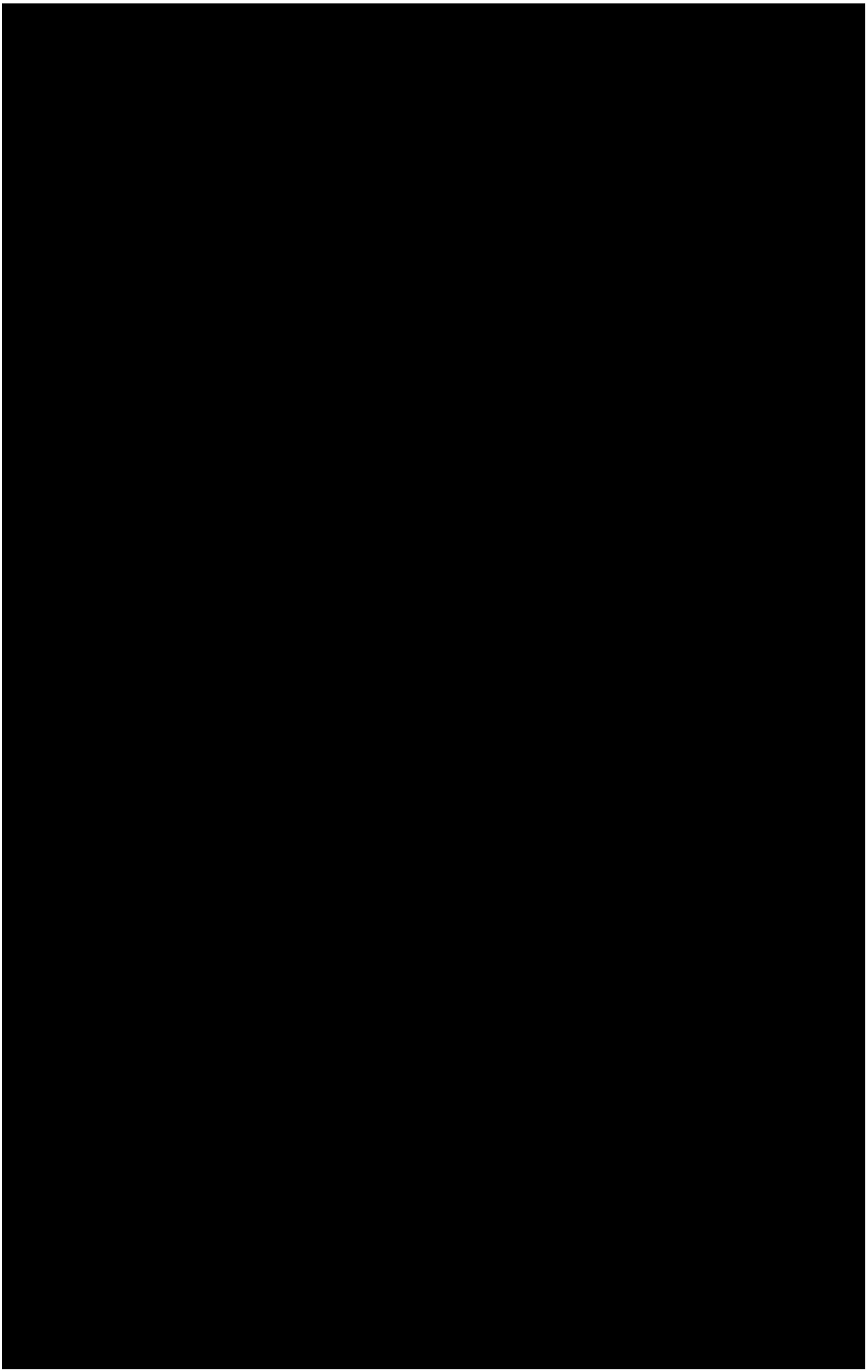

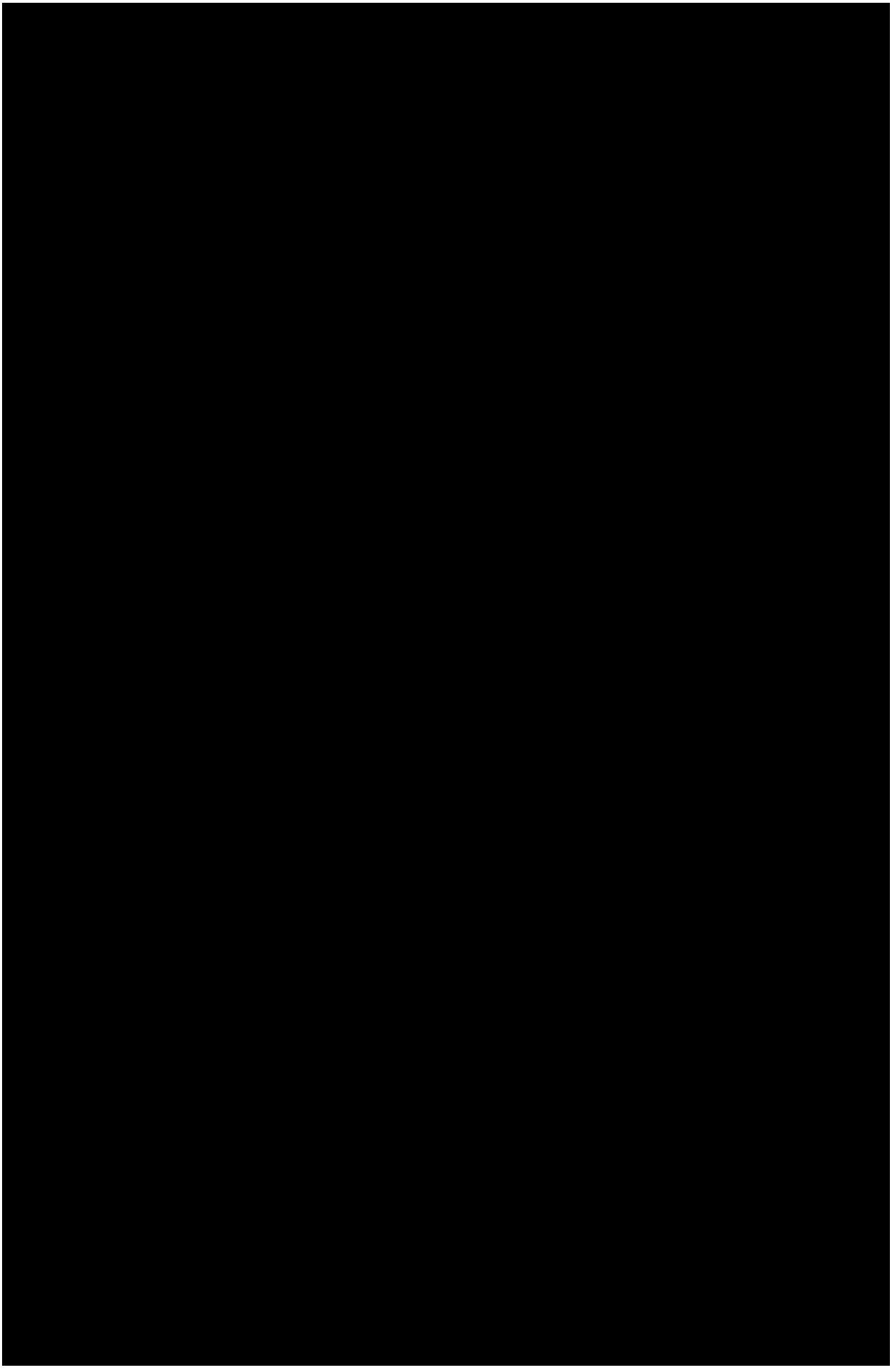

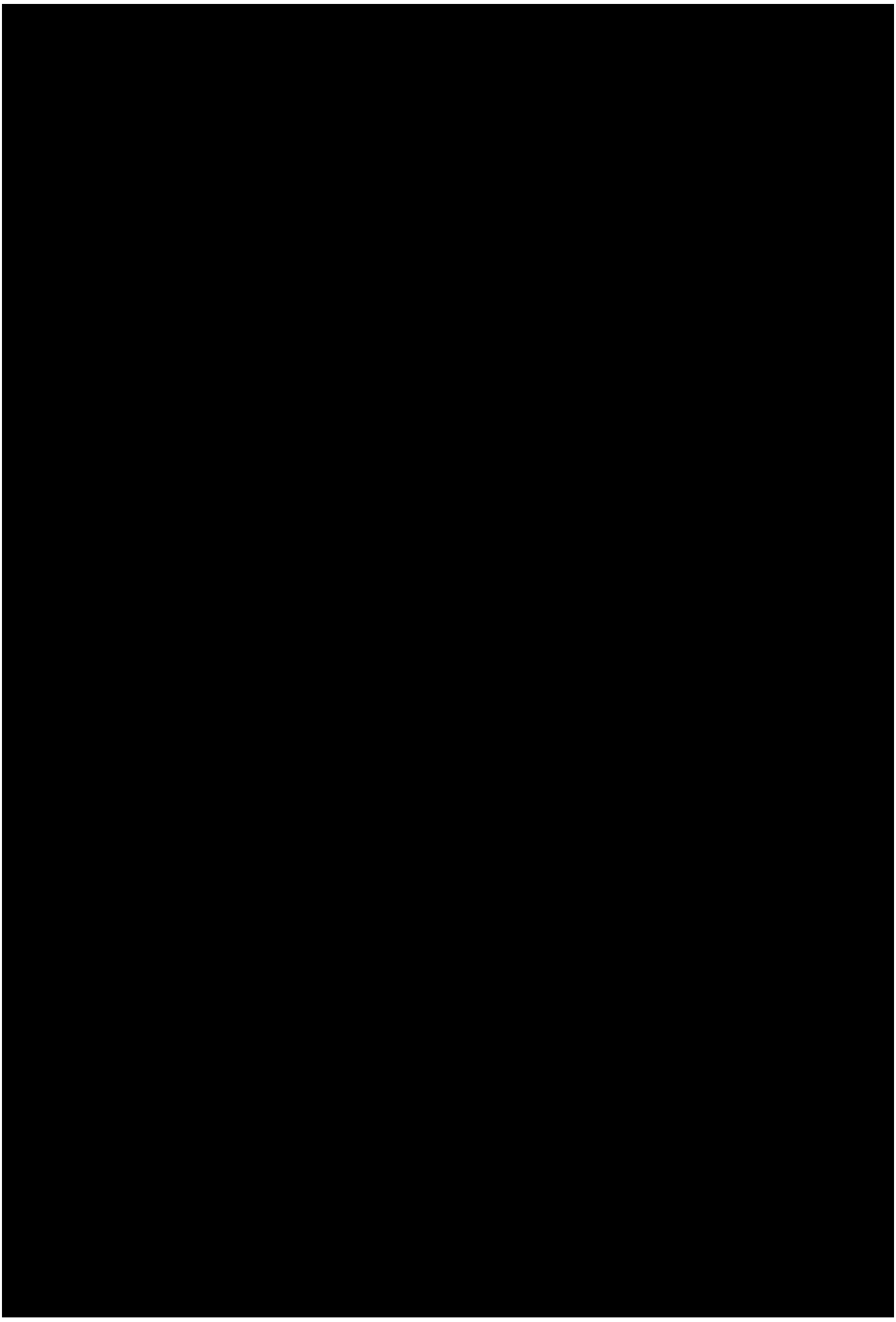

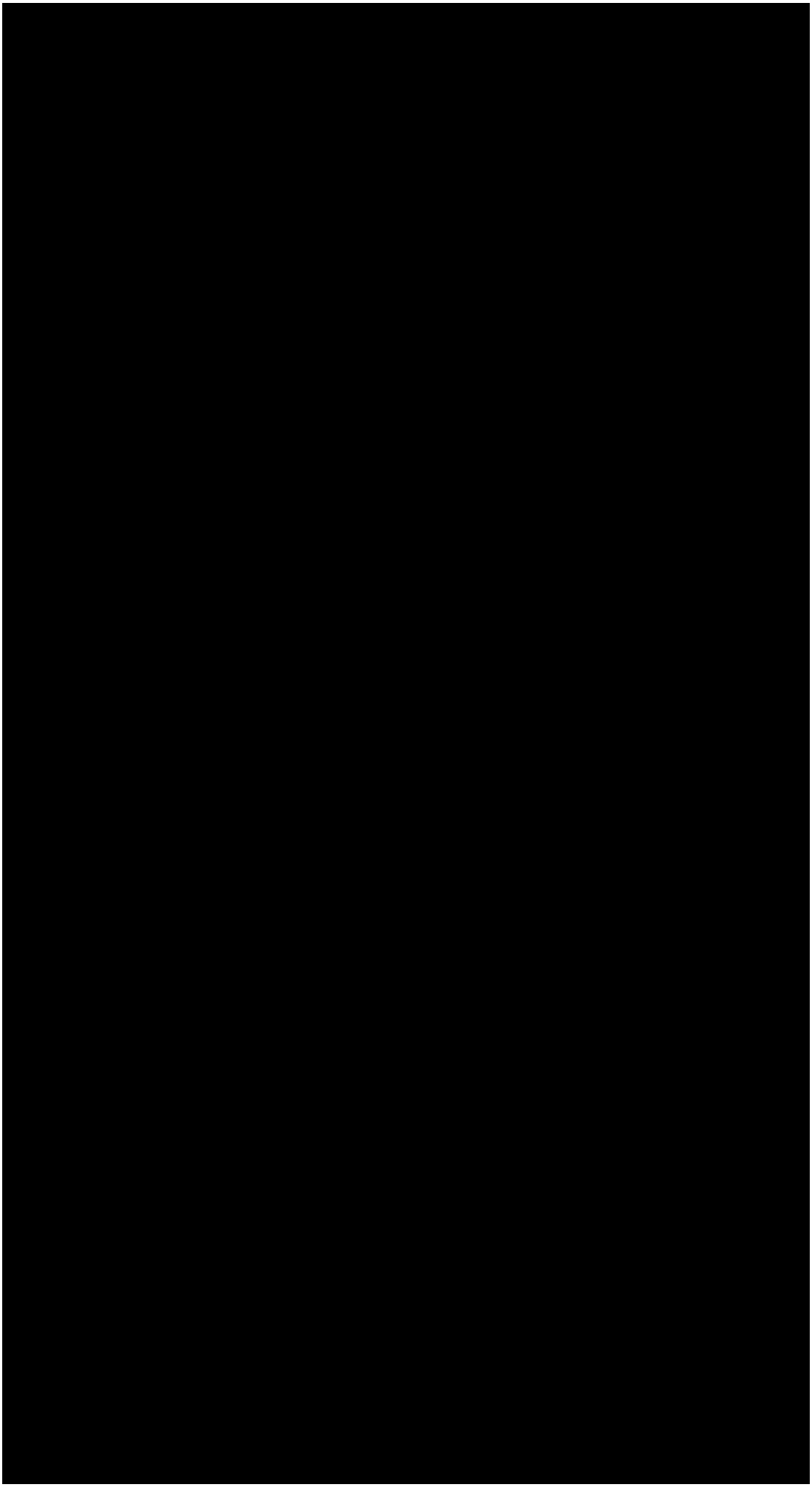

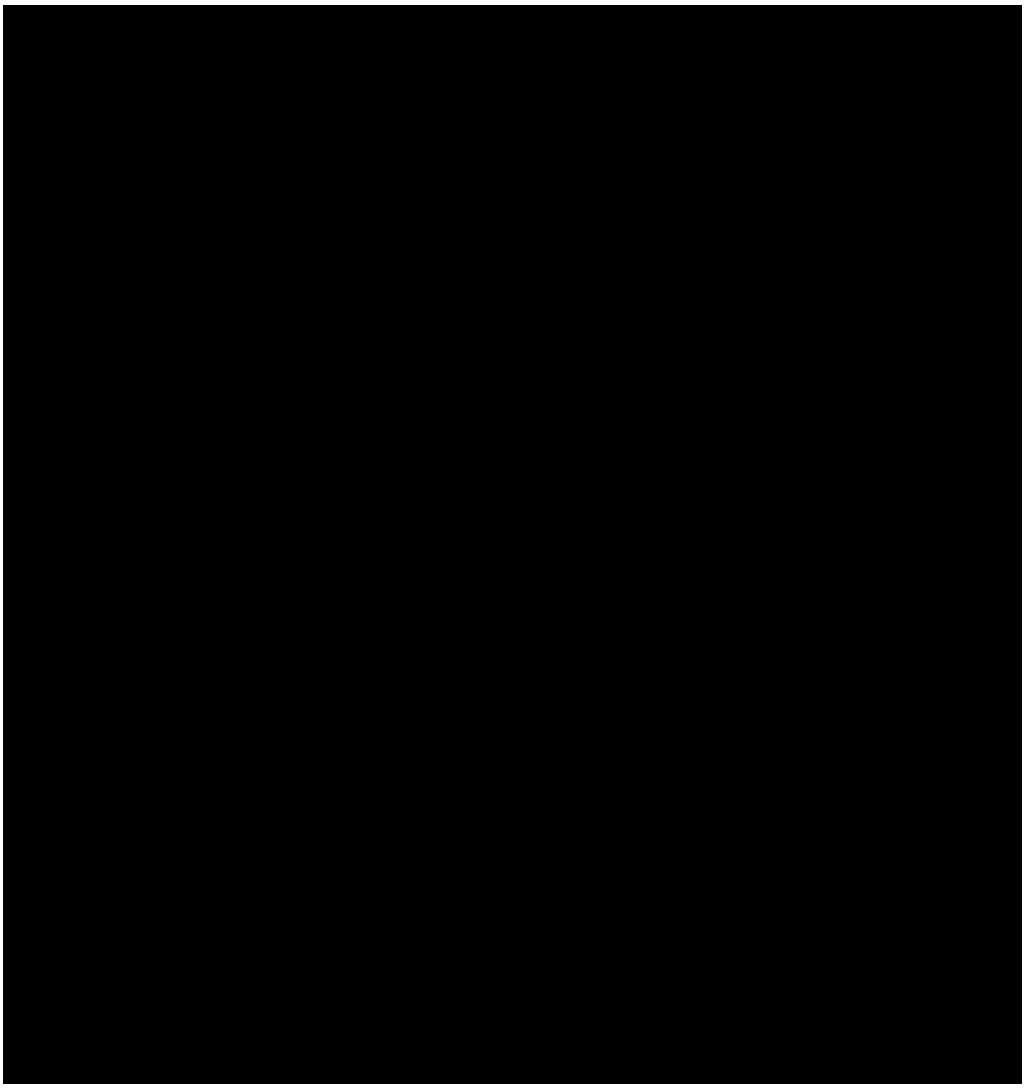

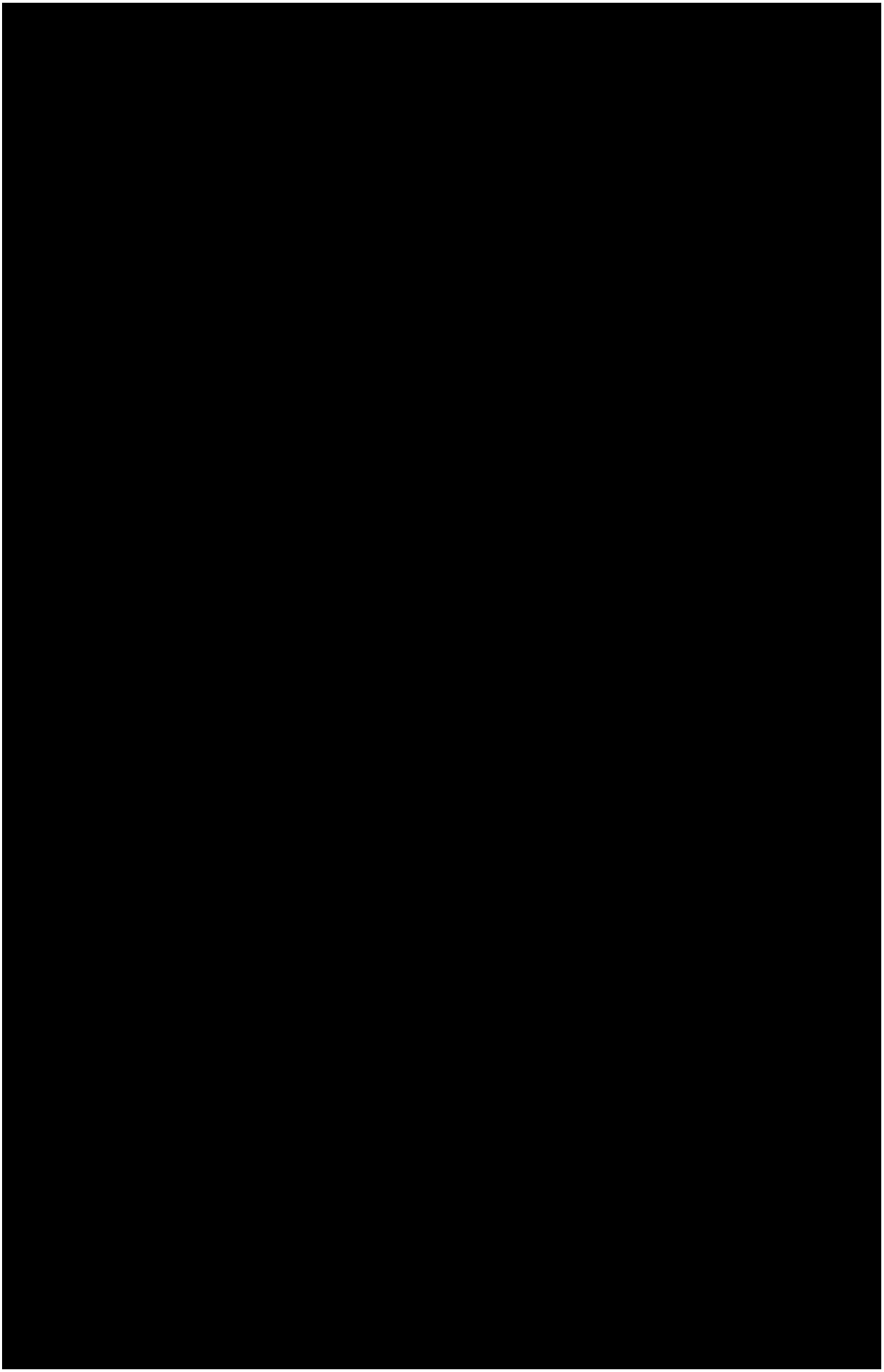

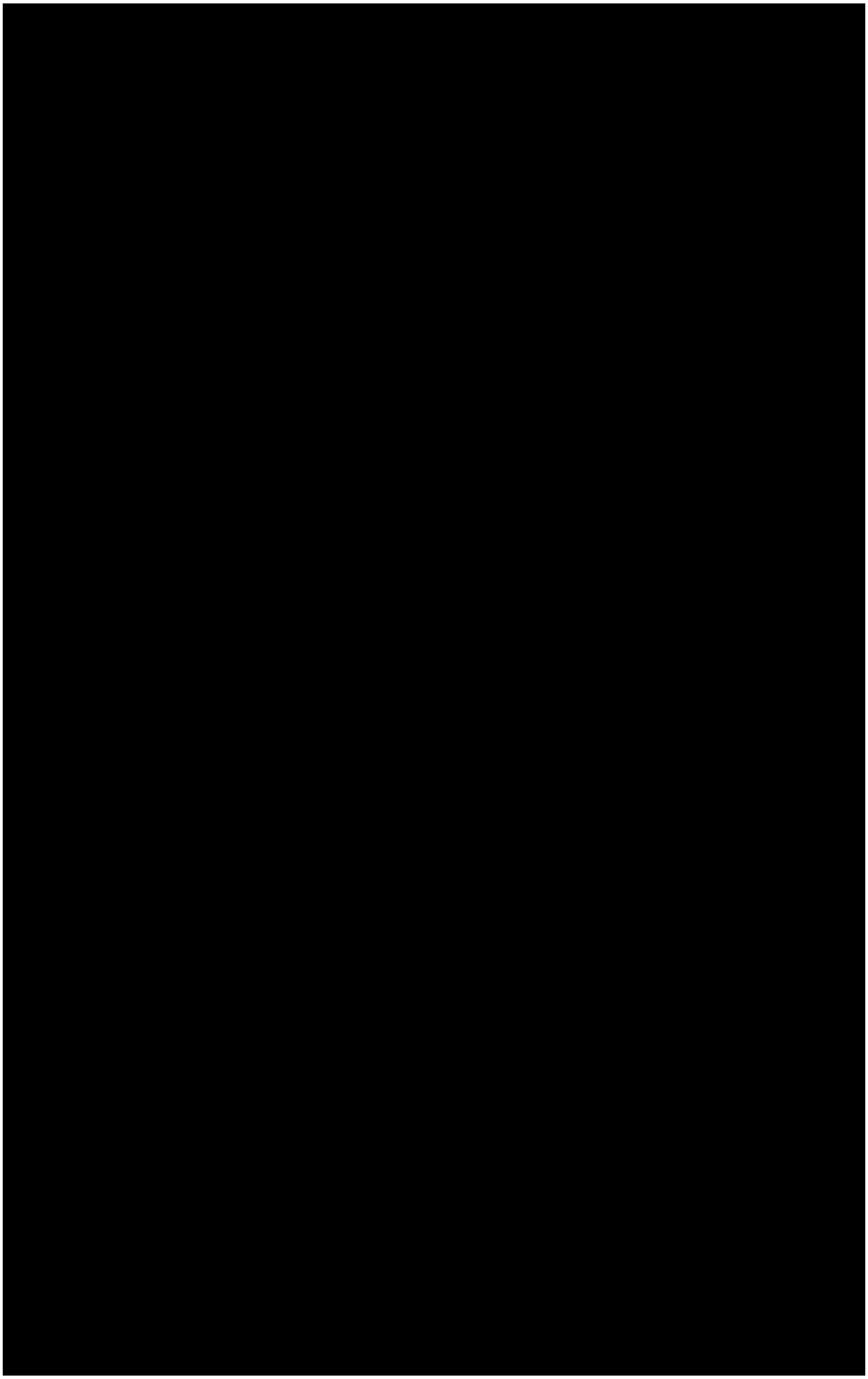

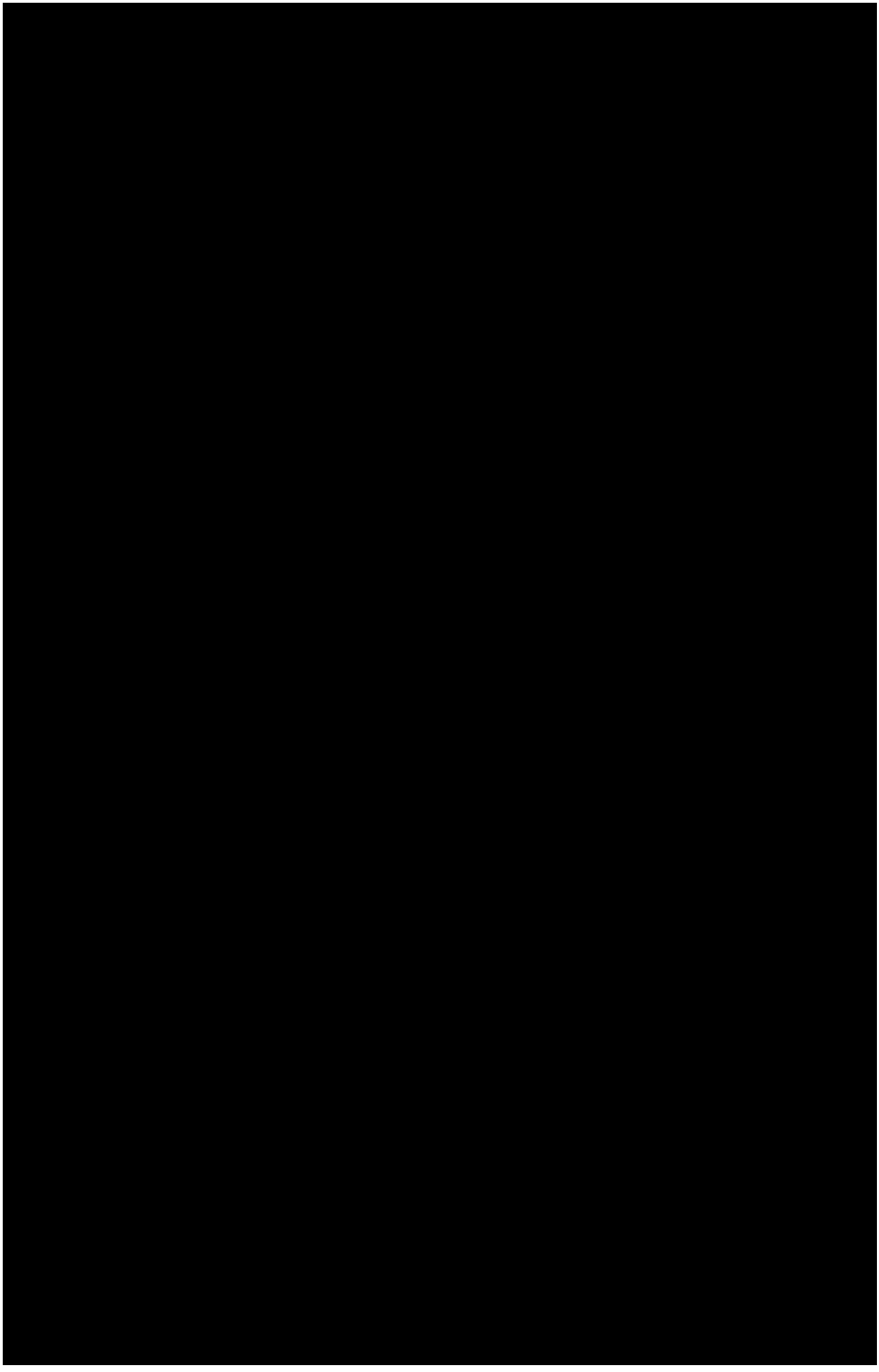

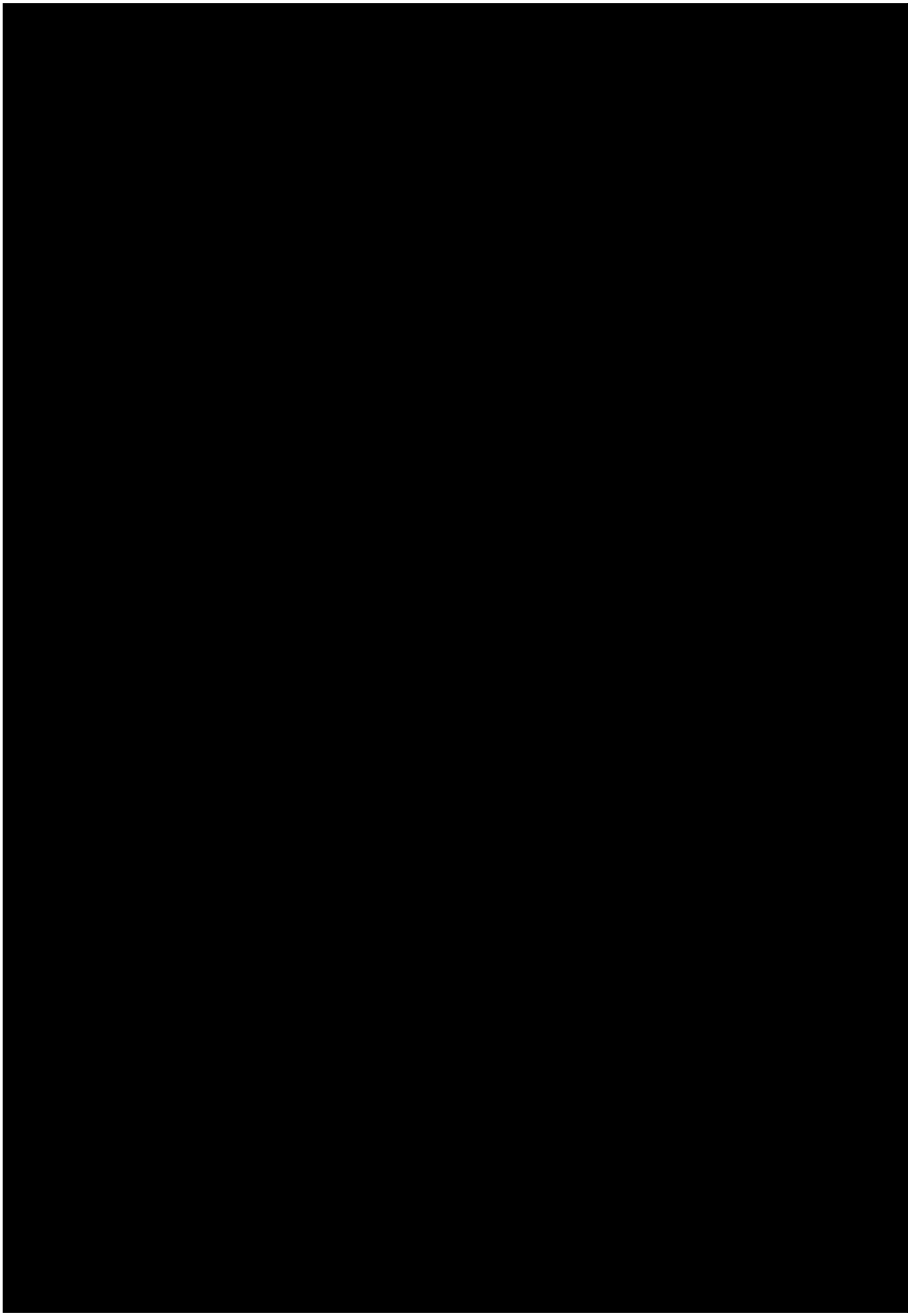

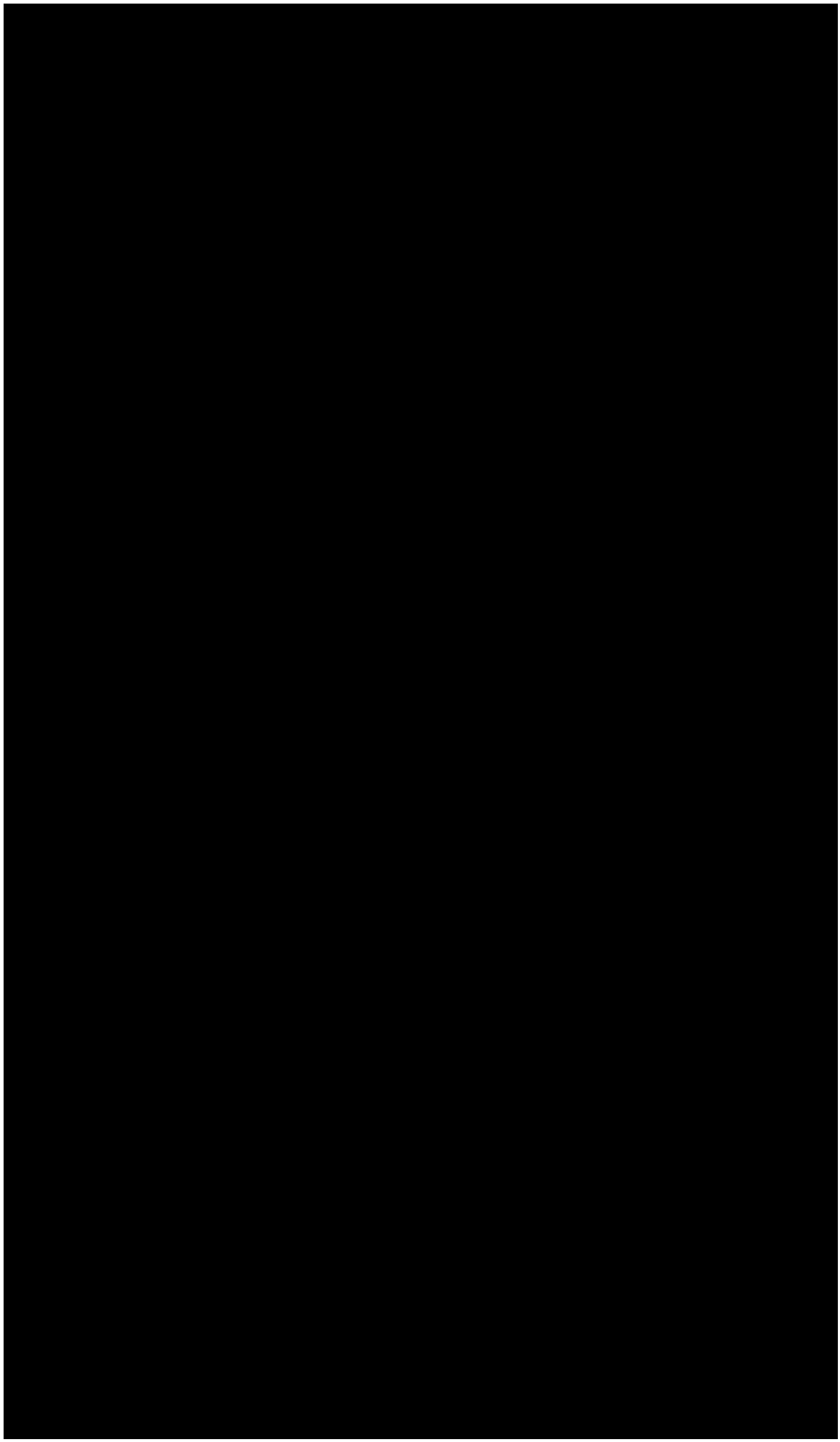

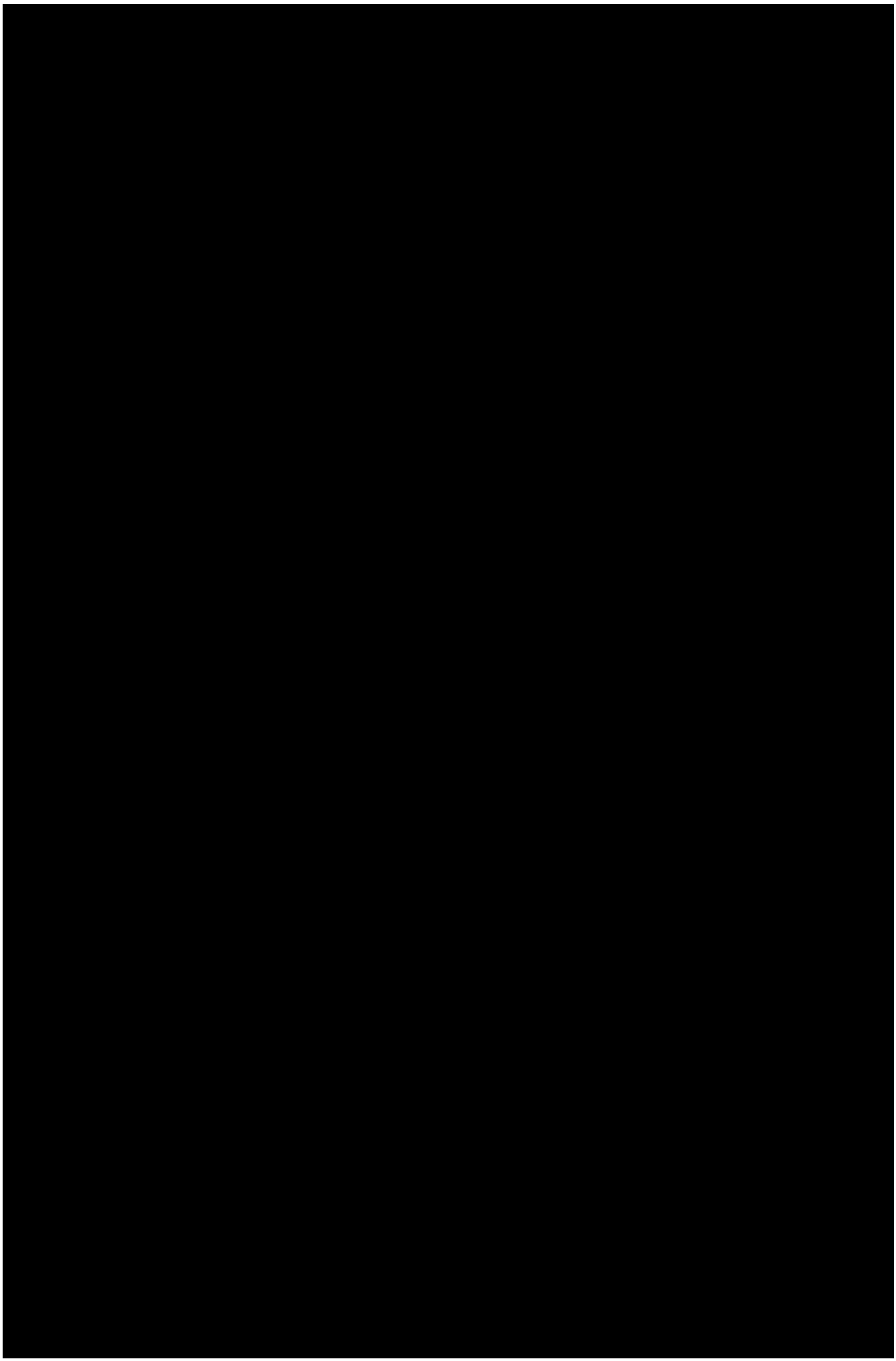

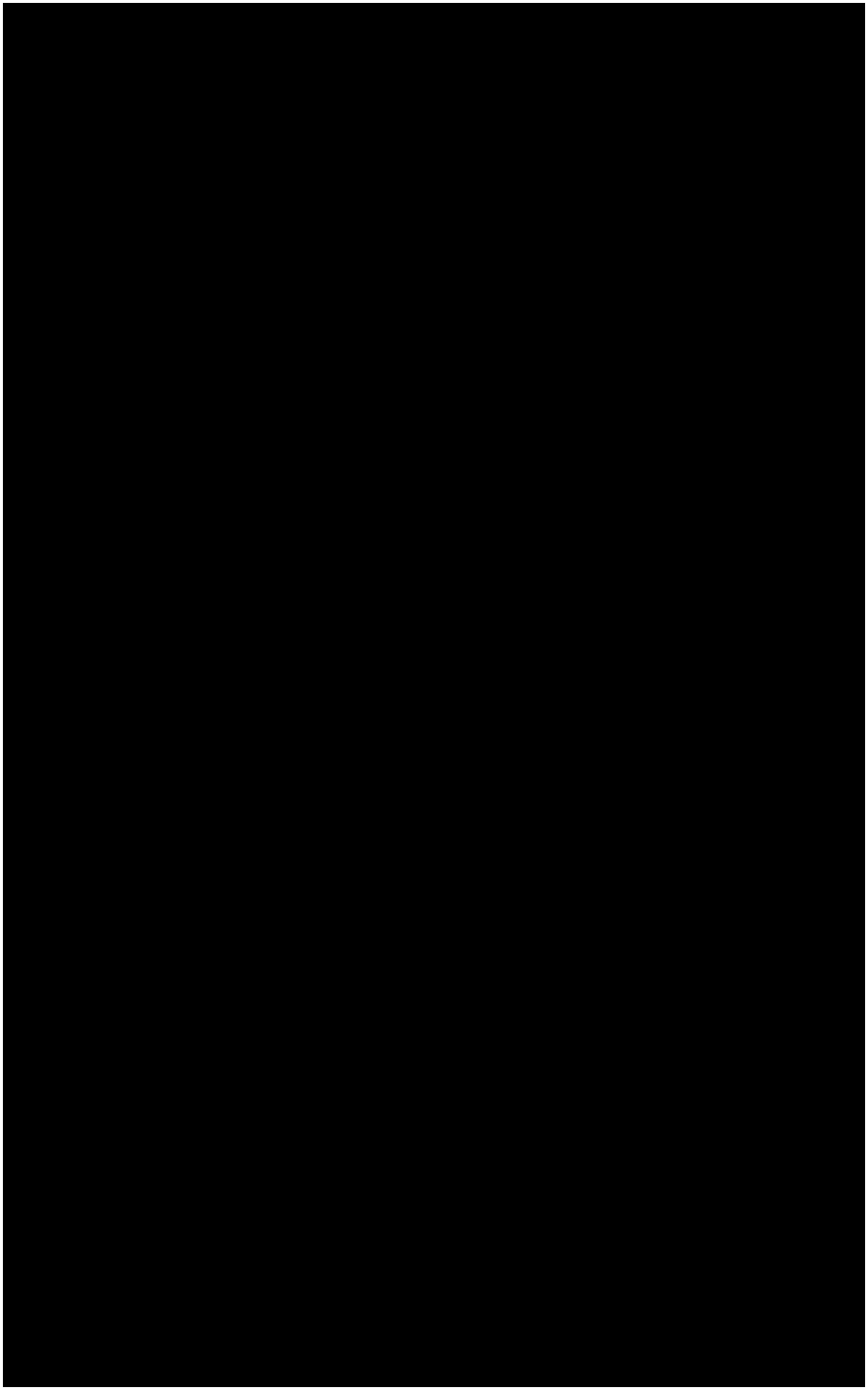

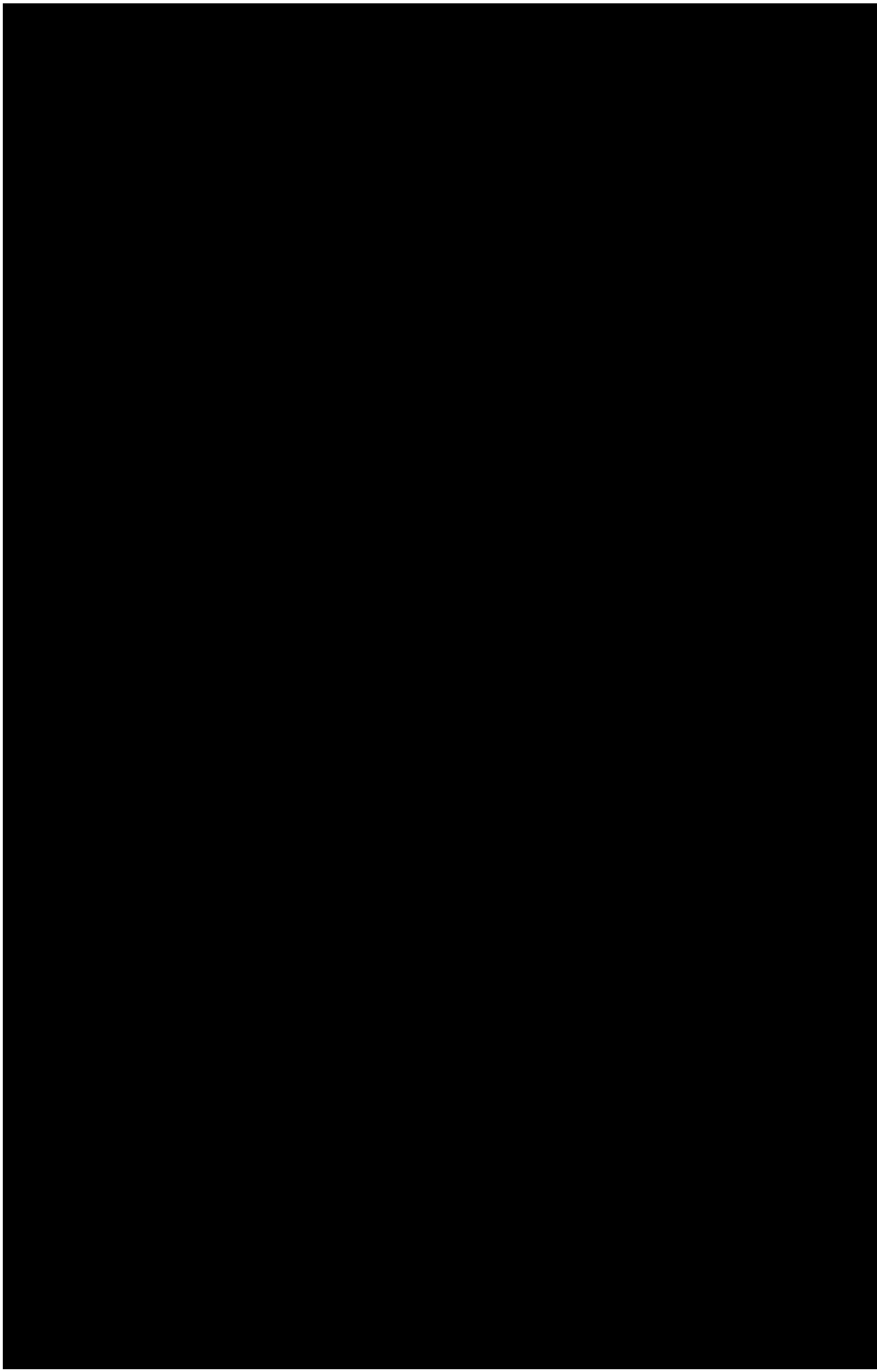

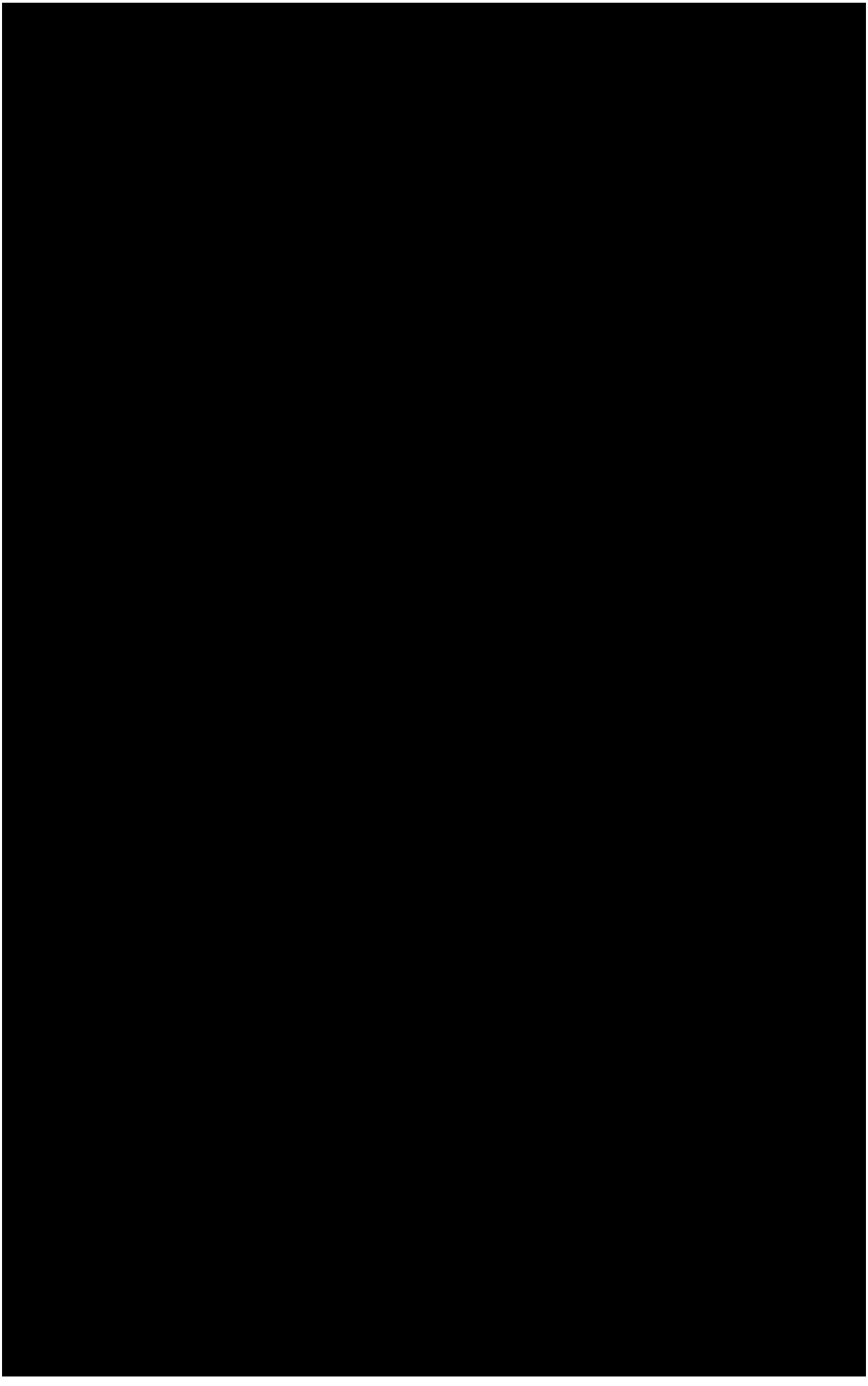

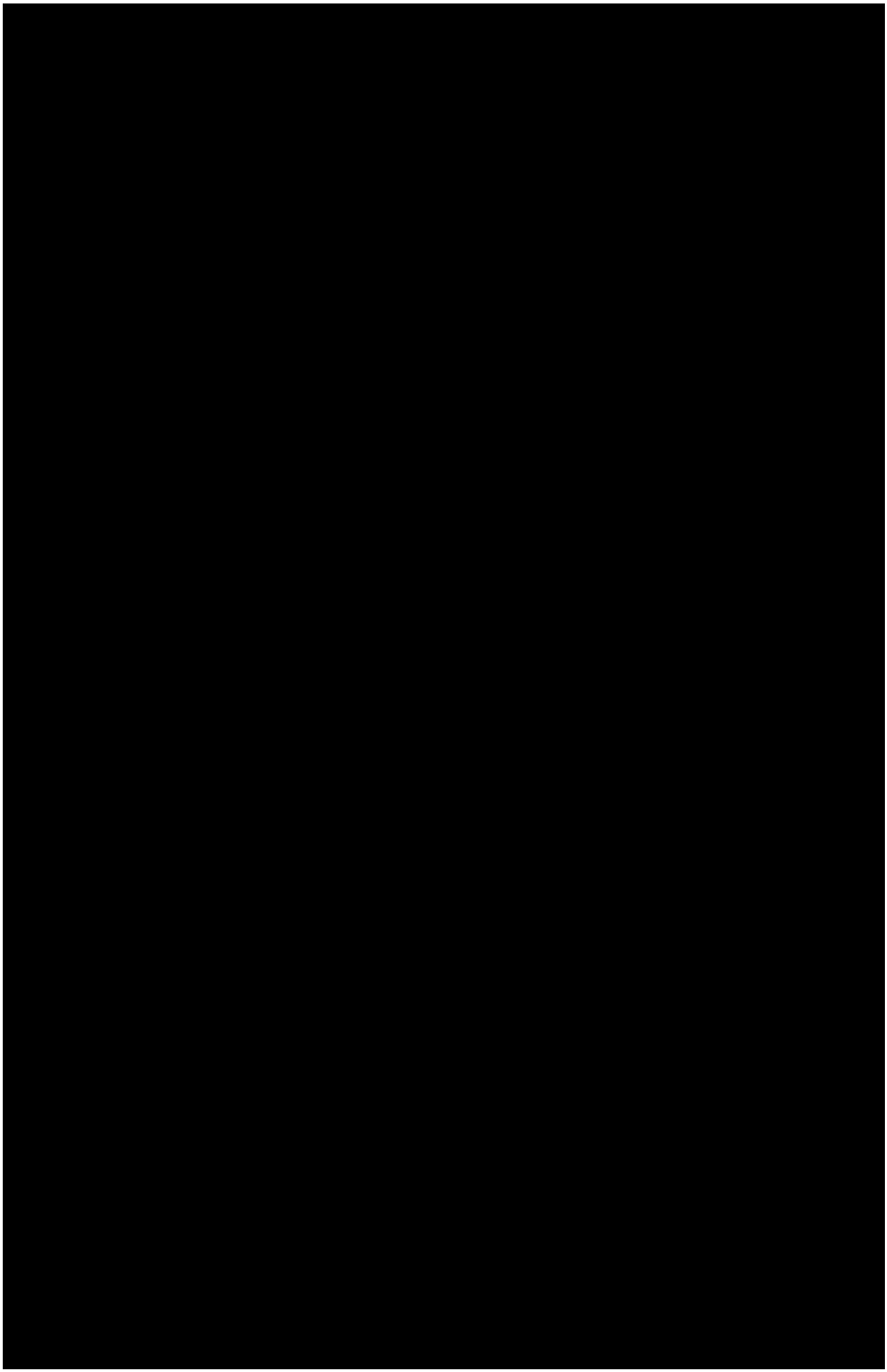

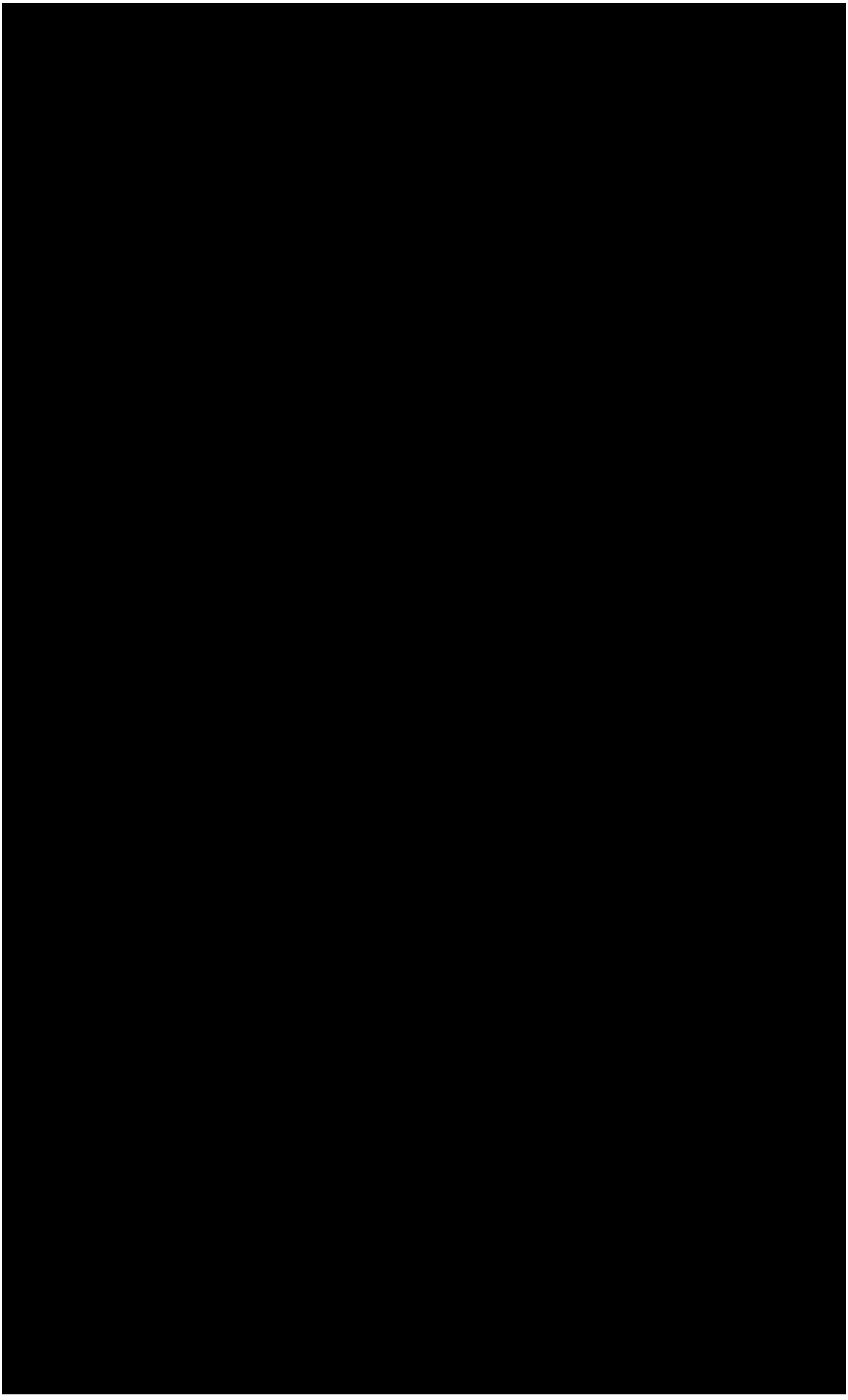

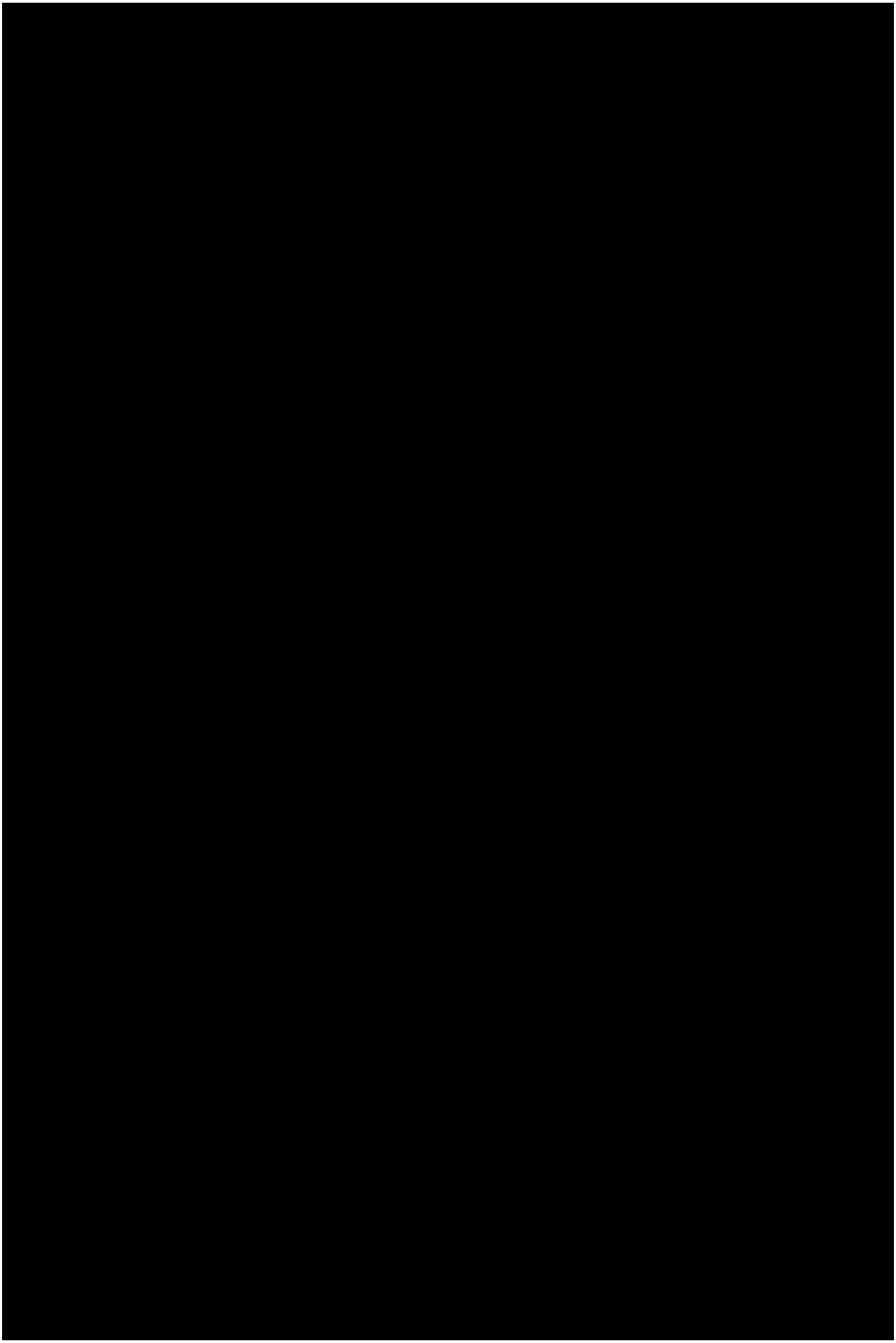

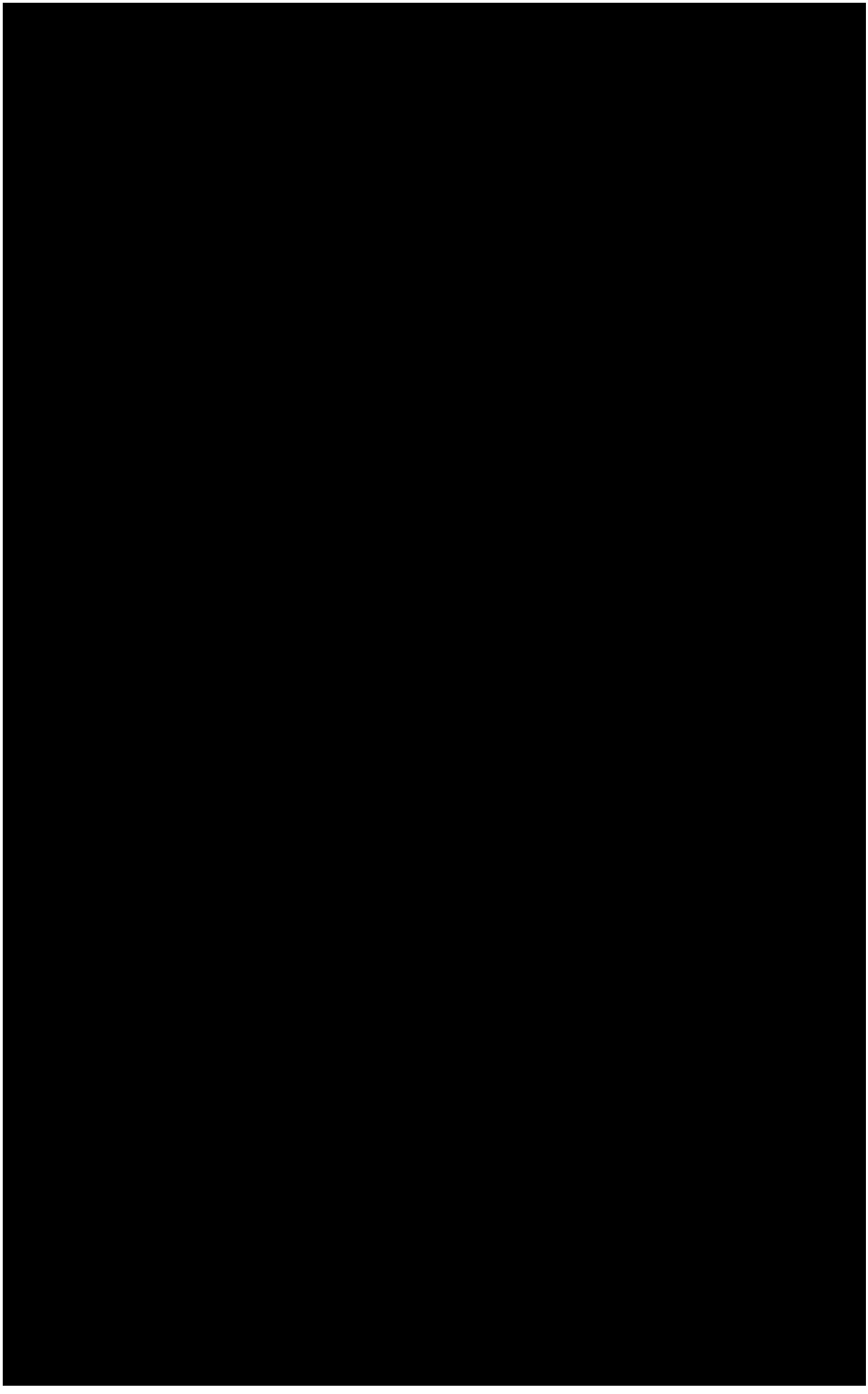

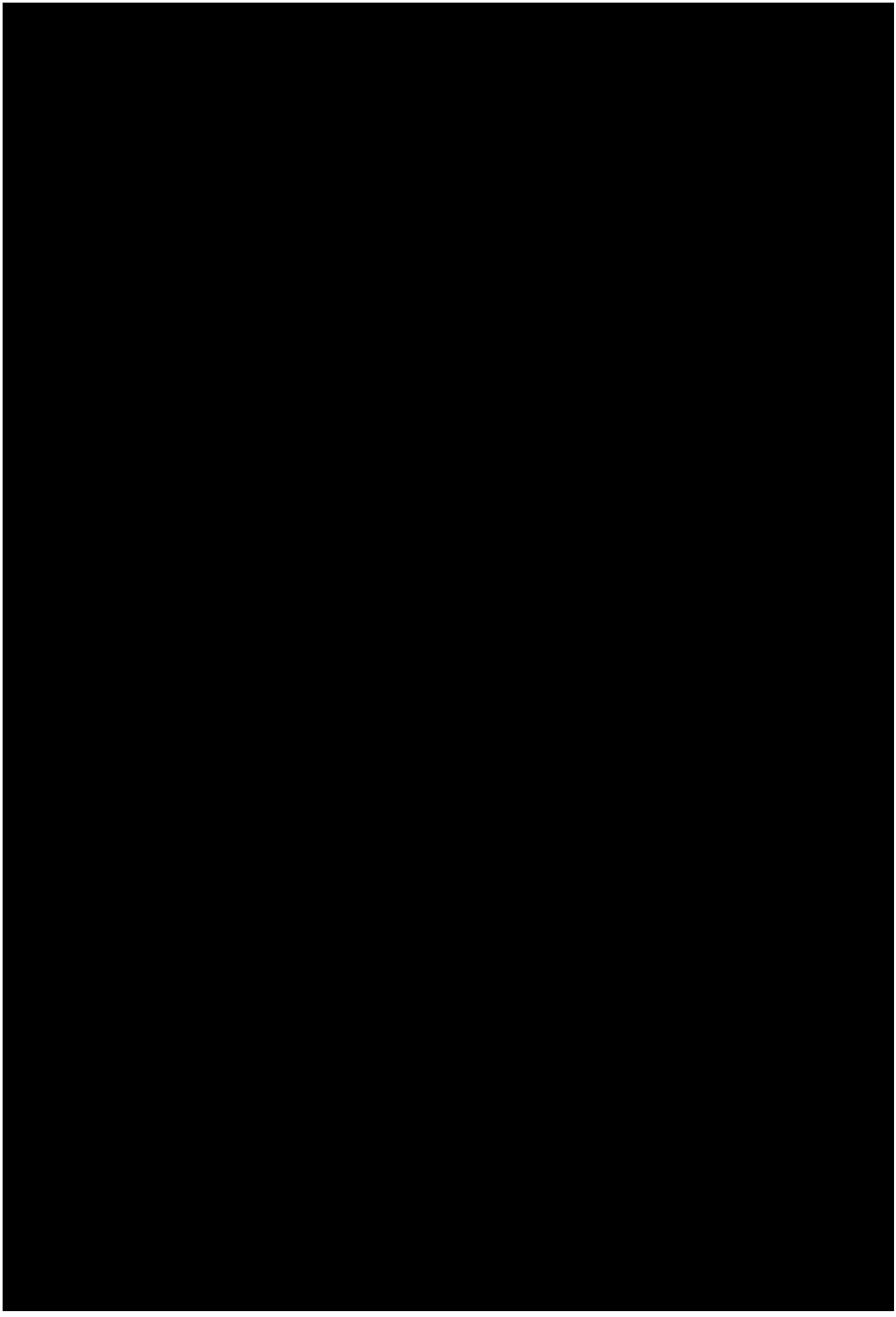

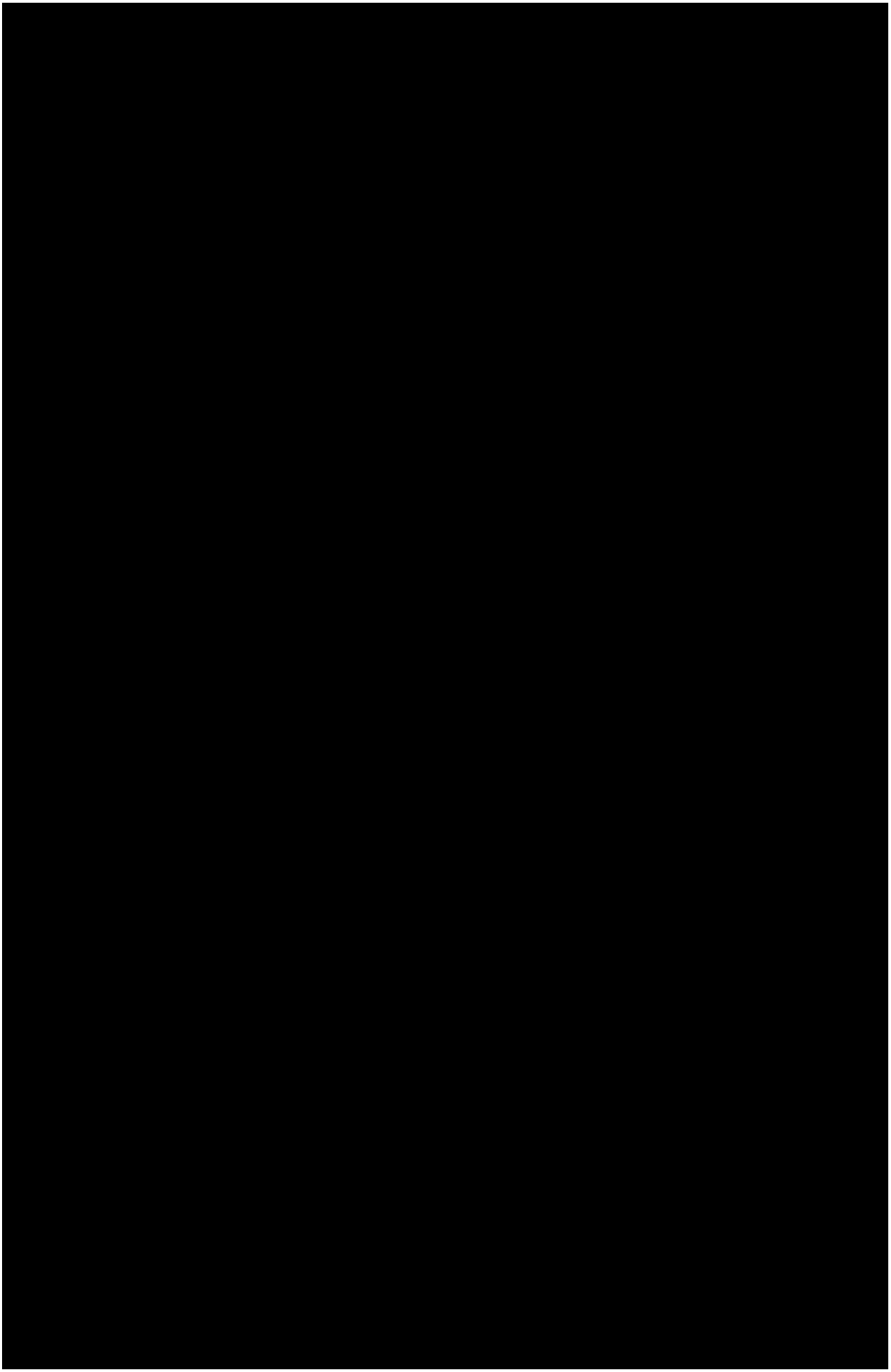

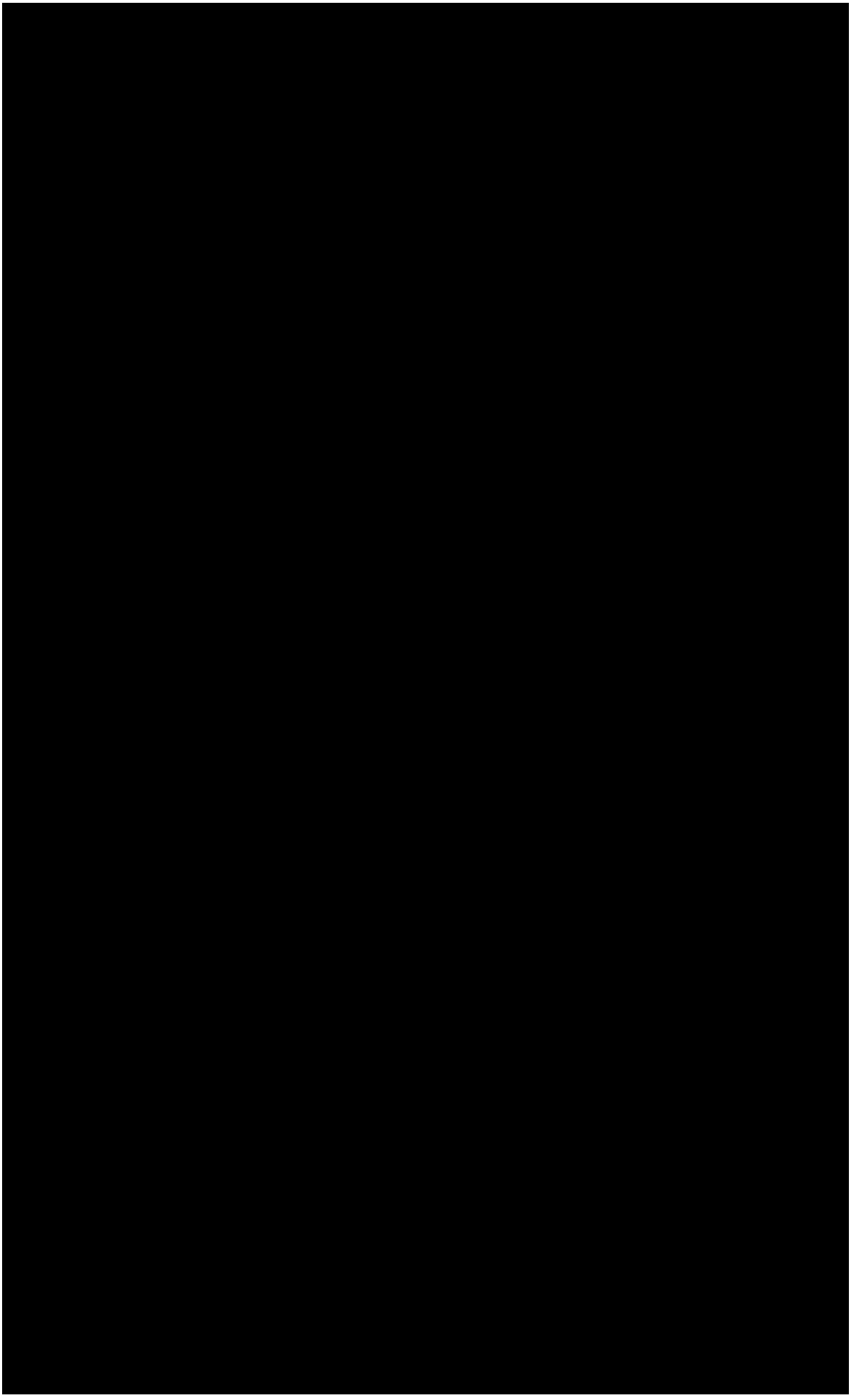

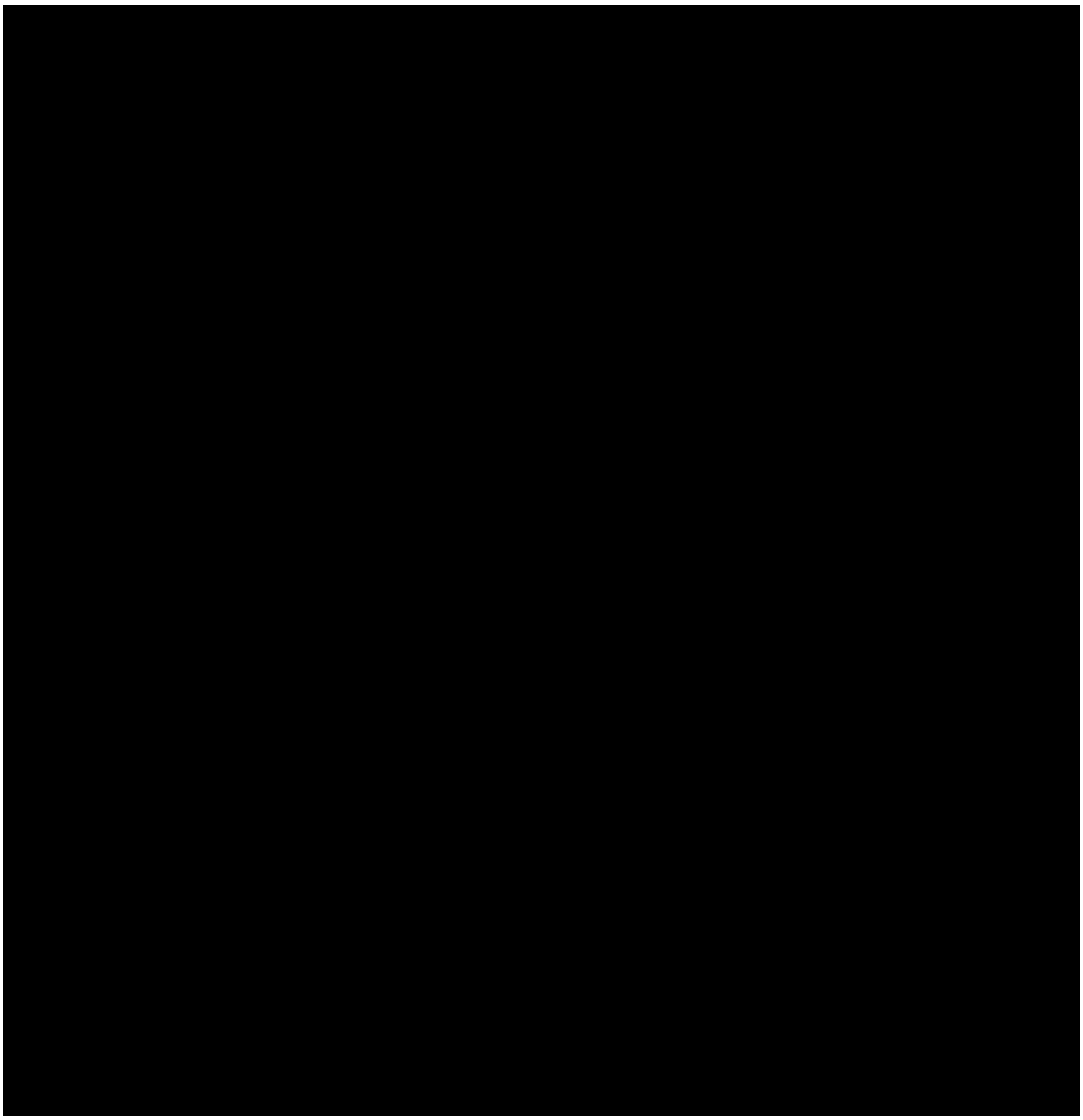

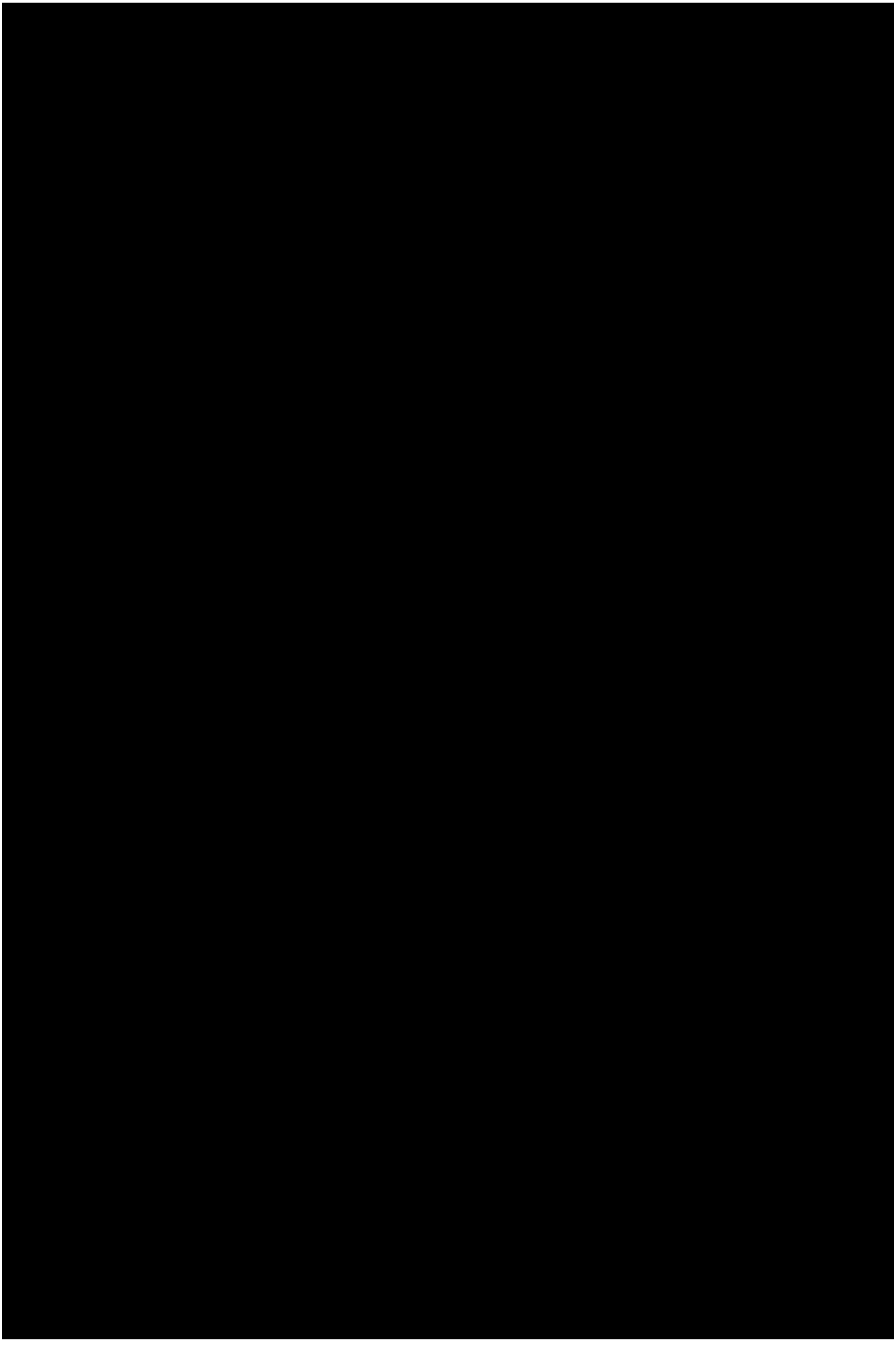

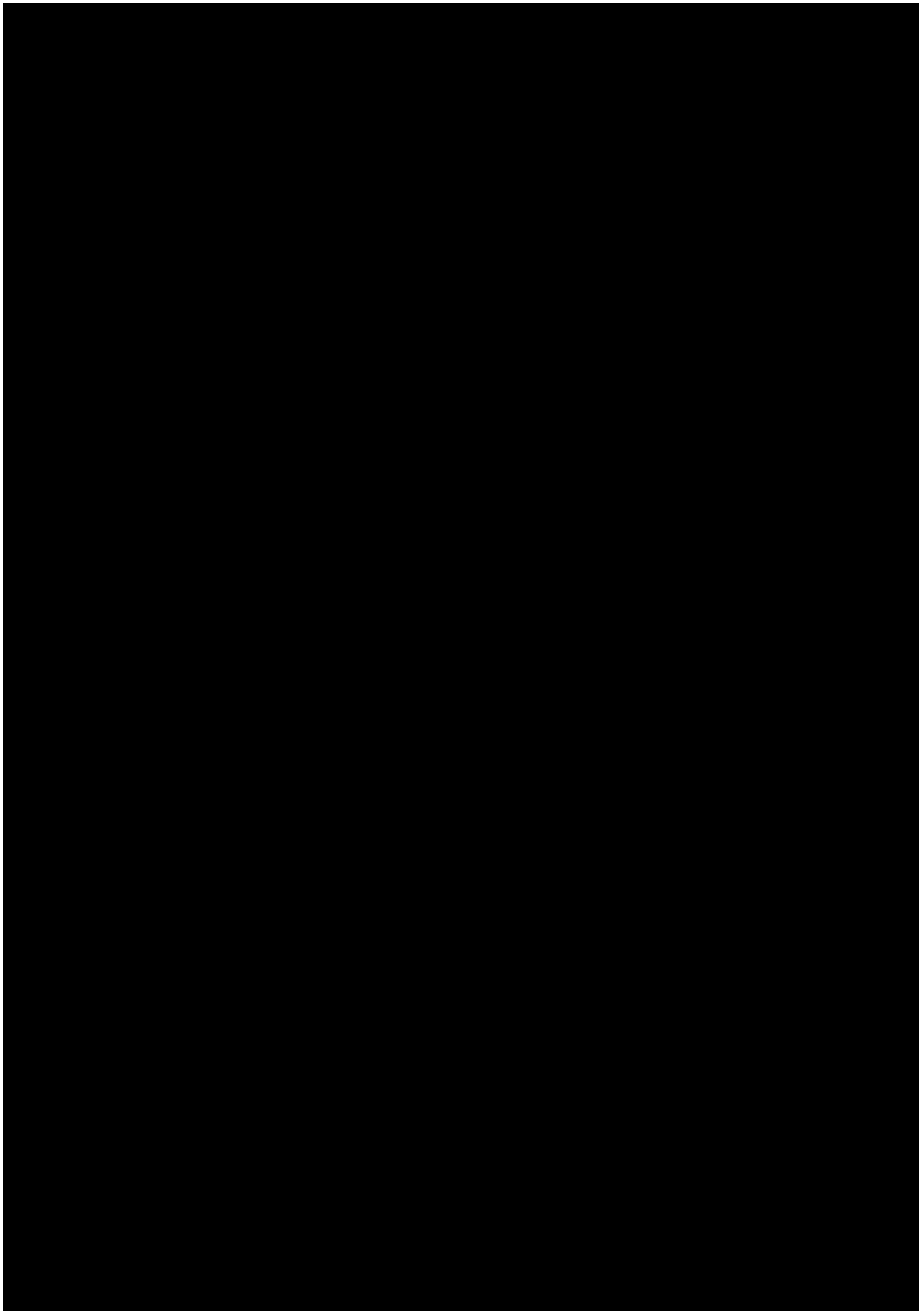

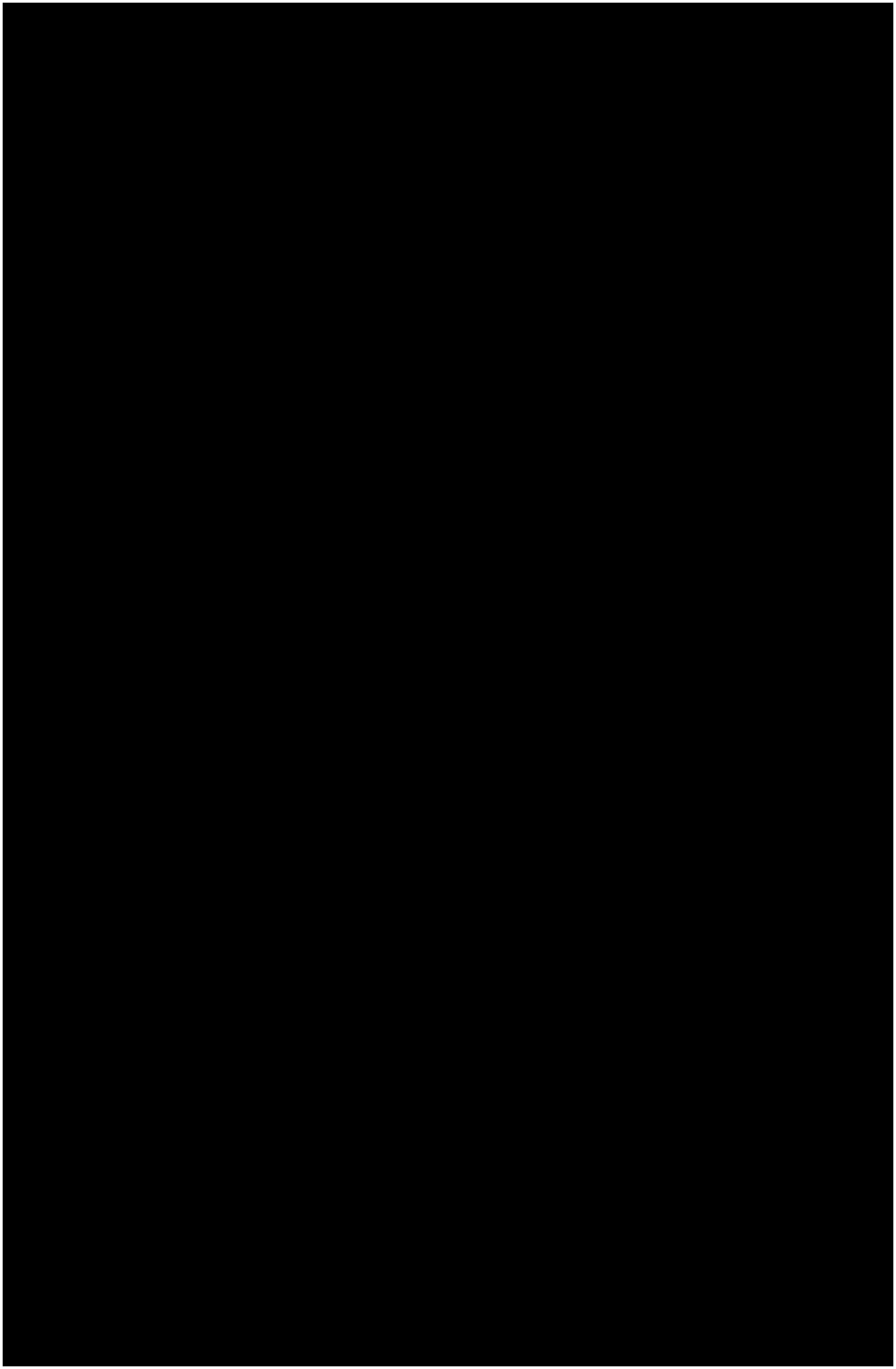

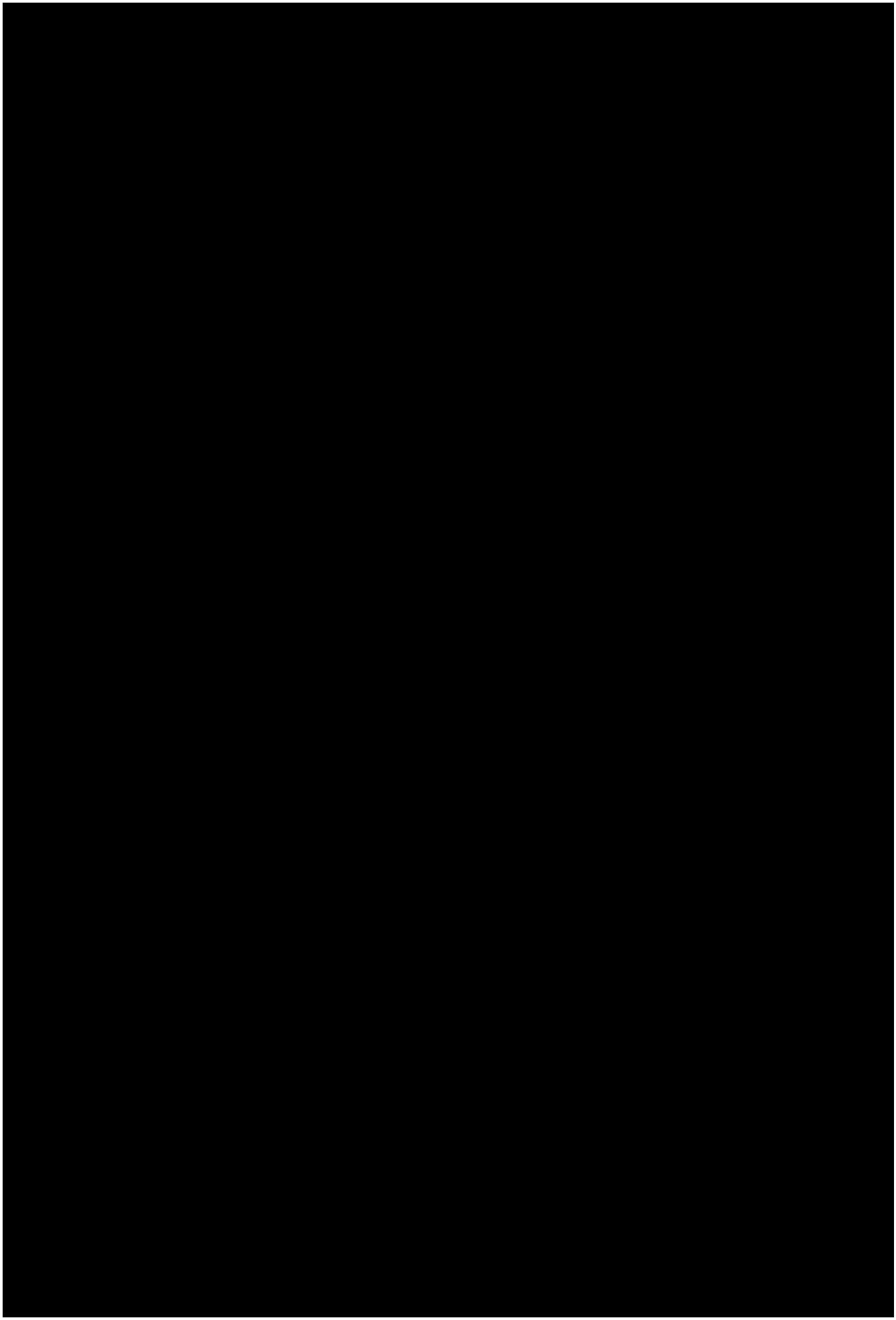

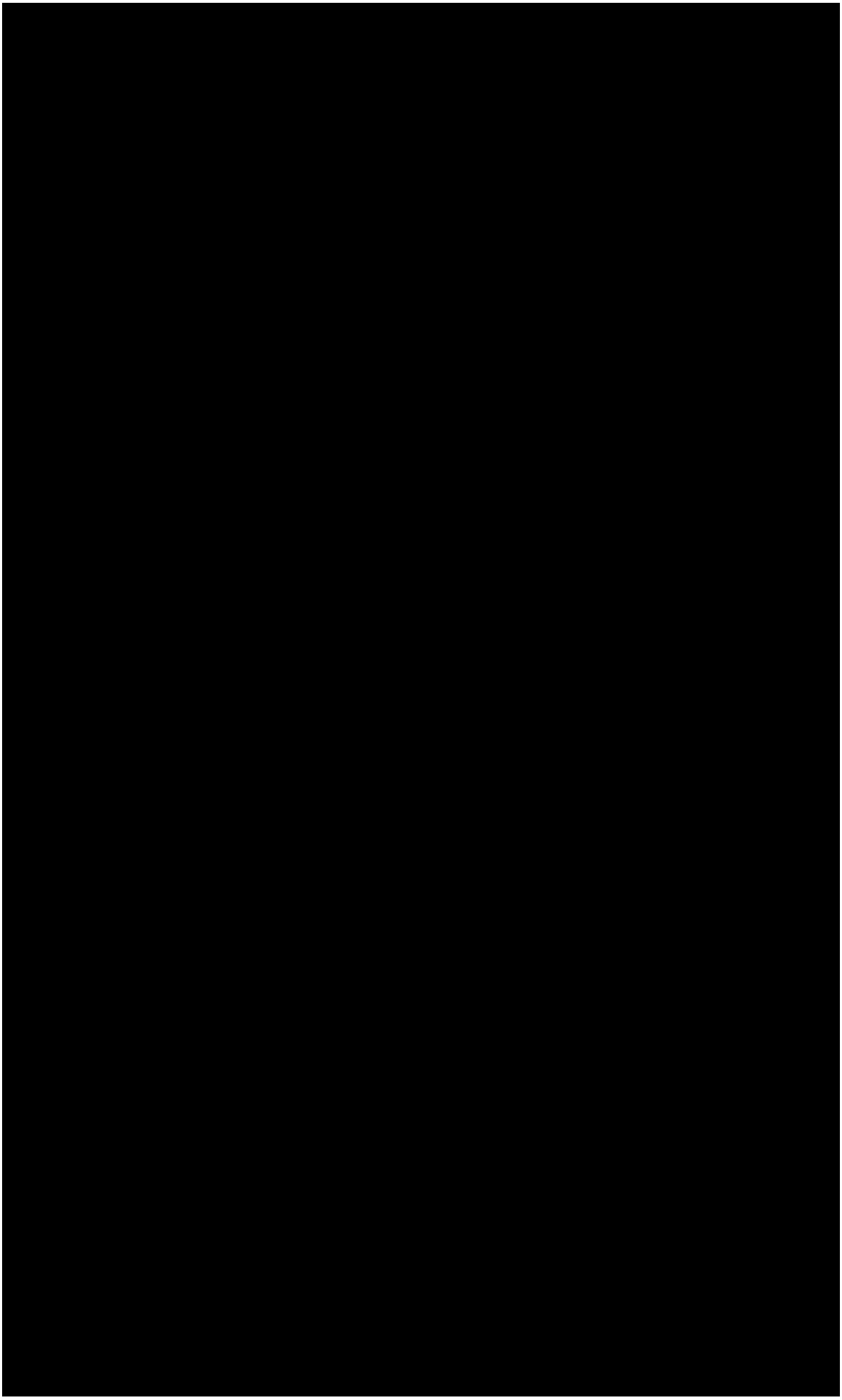

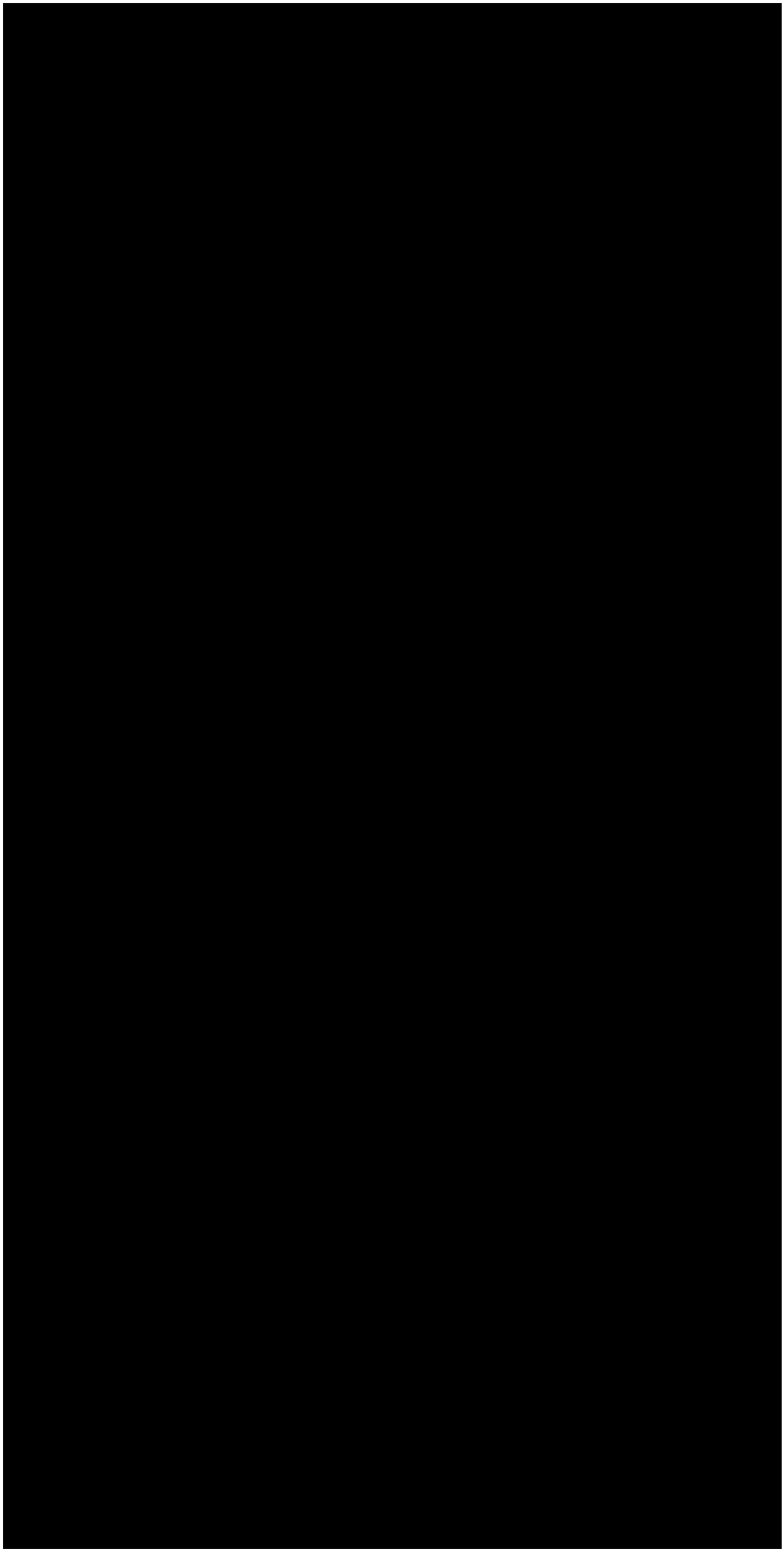

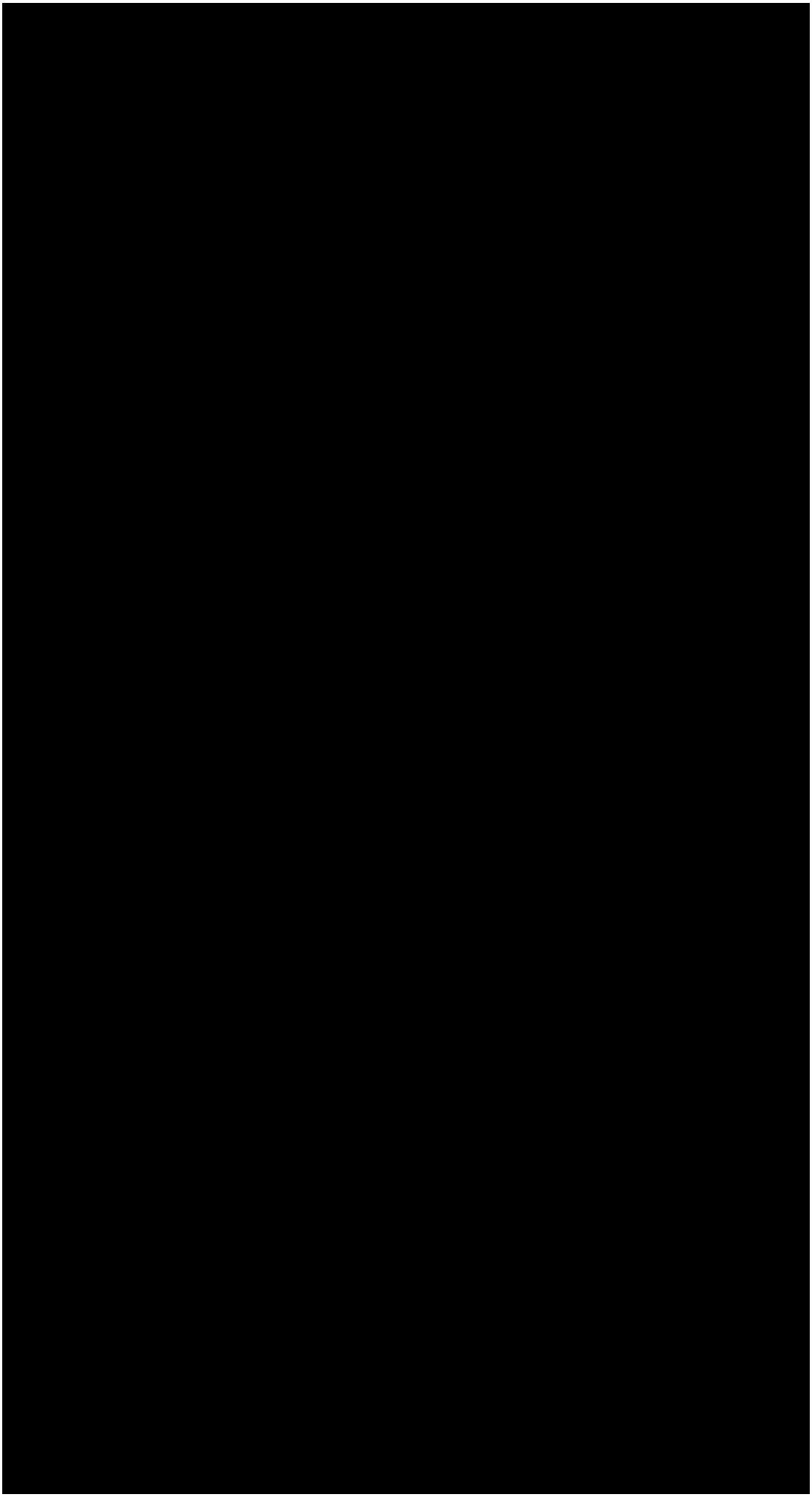

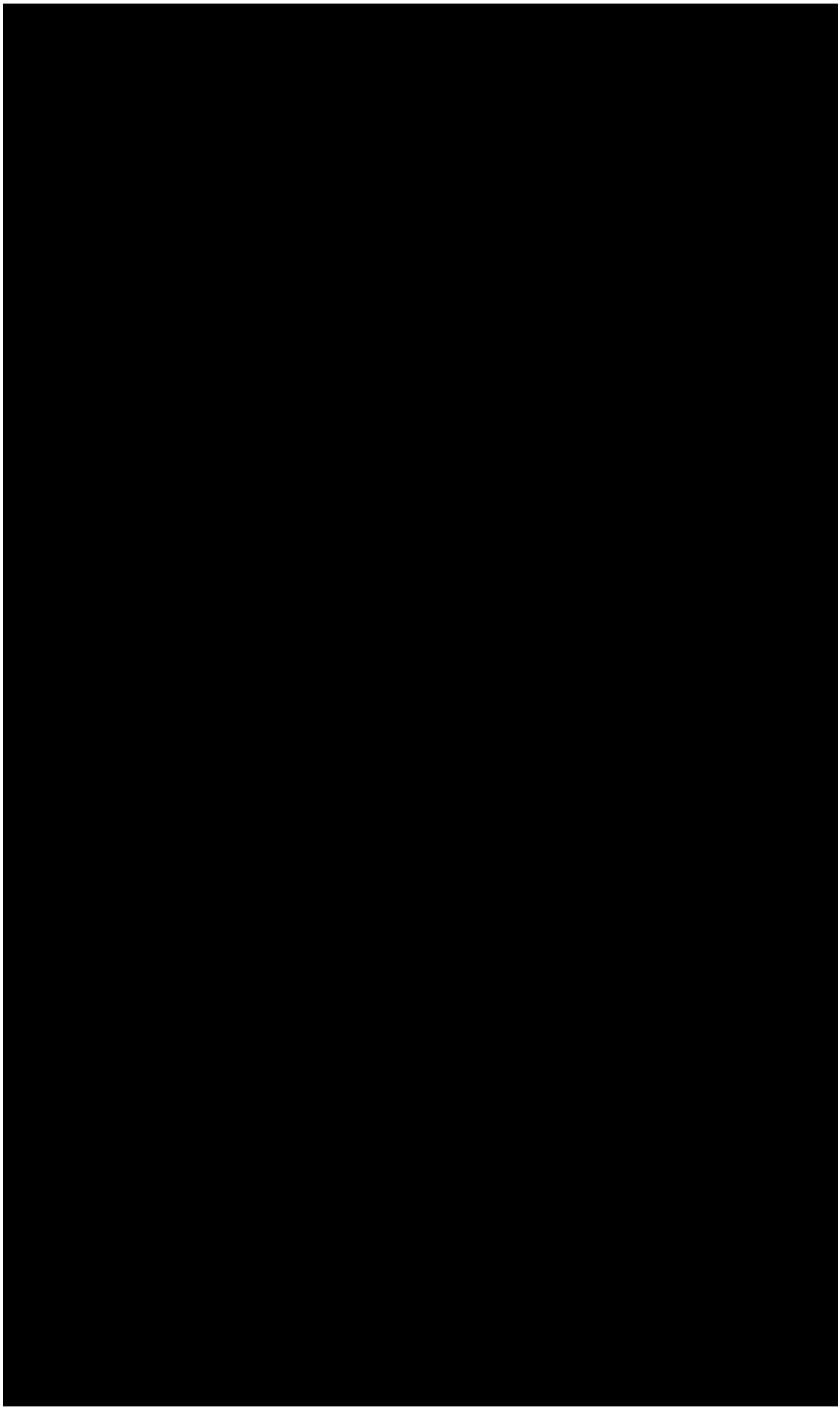

APPENDIX C:
KJA REPORT

Elevator Design. Advice. Solutions.

Due Diligence

5 Buildings
Various
Vancouver, BC

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1 Summary

In review of Due Diligence for the elevating devices located within 5 Buildings (Various addresses) in Vancouver, BC. The purpose of the inspection was to review the equipment condition and provide an estimate for required and recommended capital expenditures over the next 10 years. Please note that KJA did not inspect or test the safety features of the equipment as we are not the regulatory authority responsible for the enforcement of the applicable regulations governing the installation.

The equipment reviewed, and outlined in this report, consists of:

Group	Quantity	Type	OEM / Install Year	MOD / Install Year
Arbutus Court	1	Basement geared traction	Armor / 1977	Richmond / 1997
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

2 Possible Upgrades and Concerns

2.1 Introduction

A typical contractor prepared agreement contract covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventative maintenance work. Entrances and cab finishes are normally excluded. The only additional operating costs to the Owner should be for malicious damage and repairs to the elevator cabs and entrances. We are assuming, of course, that repairs due to accidents or "Acts of God" (flood, fire, etc) are covered by insurance.

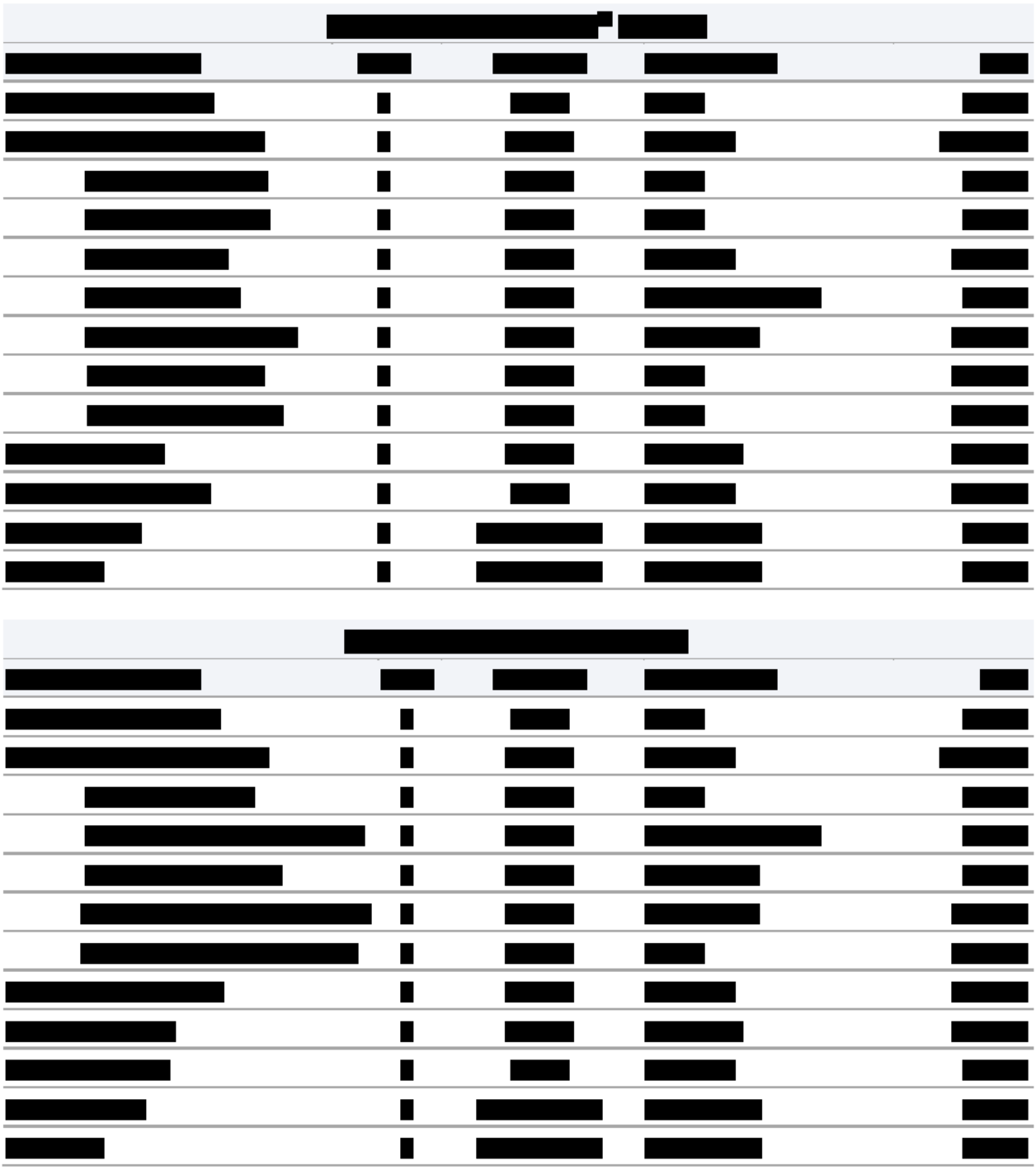
A summary of possible upgrades or concerns is as follows. We would suggest that money be set aside for the following upgrades that will likely be required (voluntary or otherwise) over the next 10 years. The costs noted are indicative budget figures only, are based on the current market and are in present dollars. The actual costs may vary depending on the time of tendering, the actual detailed scope of work and market conditions. The figures listed below do not include work required by other trades in conjunction with the elevator work.

Please note the intent of our inspection is to make recommendations for capital expenditures based on the present type and condition of the elevating equipment. No invasive procedures or equipment dismantling would typically be conducted. Hidden conditions that cannot be visually inspected may be present, hence we cannot guarantee that some will not exist that could result in requests for additional services or costs by the contractor.

A summary of possible upgrades and concerns are identified in the tables below.

Arbutus Court – 8740 Cartier Street				
Description of work	**Unit**	**Schedule**	**Improvement**	**Cost**
Hands-Free telephone	1	1 year	Safety	$5,000
Major Control Modernization	1	4 years	Reliability	$225,000
* Car door restrictor	1	1 – 2 years	Safety	$5,000
* Hall door retainer	1	1 – 2 years	Safety	$3,000
* New cab finishes	1	3 – 5 years	Aesthetics	$20,000
* Barrier-Free Upgrades	1	2 – 5 years	Accessibility	$25,000
Water in Elevator Pit	1	1 year	Reliability	$5,000
Machine Room Cooling	1	5 years	Reliability	$15,000
Code Changes	1	every 5 years	Contingency	$3,000
Vandalism	1	every 5 years	Contingency	$2,000

[redacted]



* Items marked with an asterisk (*) would likely be included as part of a major control modernization but are identified separately should it be decided to proceed with individual upgrades independent from a major control modernization.

2.2 Major Control Modernization – All buildings

The typical elevator "full maintenance" contract covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventive maintenance work. Despite this, over time some components will require modernization. Certain elevator components may soon no longer be readily available. This will require that the maintenance contractor make arrangements to purchase parts from an external supplier or have parts manufactured and repaired locally. Although this is not the owner's direct concern, it will result in some delays and difficulties in implementing a proper maintenance program. Additionally, service personnel capable of performing the numerous adjustments necessary to keep the equipment operating will become increasingly difficult to find as newer equipment designs become more predominant.

Given the quality of the equipment and the decreased reliability likely to be provided by the system due to its type and vintage, we estimate that a major modernization will be required within the next five years. The base scope of work would include replacement of the present controller with a microprocessor-based controller, replacement of the drive system with a solid state drive (such as SCR drive), fixture replacement and refurbishment or replacement of the geared machine, motor and door operating equipment. The cost for this would be in the area of $160,000 to $225,000 per elevator.

2.3 Items Included as part of a Major Control Modernization

The following items would likely be included as part of a major control modernization but are identified separately should it be decided to proceed with individual upgrades independent from a major control modernization.

.1 Car Door Restrictor – Arbutus, [redacted]

There is currently no car door restrictor provided. The addition of a car door restrictor would prevent the car door from being manually opened by more than 100 mm, except when the car is within the unlocking zone (extending at least 17 mm above and below the landing floor level, and possibly as much as 450 mm). This safety device reduces the risk of people falling down the hoistway while attempting to exit a stalled elevator. The Safety Code for Elevators requires a car door restrictor on all new installations. While it is not mandatory on existing installations, we believe it is a desirable safety enhancement. It is also possible that this Code requirement will be made retroactive at some point in the future. The cost for this would be negligible if performed in conjunction with a major control modernization.

.2 Hands-Free Telephone – All Buildings

Presently the only form of emergency communication inside the elevator is an alarm bell. Should a passenger become entrapped there would be no assured way of directly calling for help. We recommend that a hands-free telephone be installed inside the elevator cab for emergency communication. An active telephone line to the machine room would be

required to be installed by other trades. The cost for this would be included with a major control modernization.

.3 Hall Door Unlocking Devices - [redacted]

Hoistway door unlocking devices are not currently provided at every floor served by the elevator. These devices provide a means to disengage the locking mechanism on hoistway doors and permit the opening of hoistway doors irrespective of the position of the car. In the event of an entrapment, this safety device would allow elevator and emergency personnel to easily access the hoistway at the landing in closest proximity to the stalled car and release passengers.

The Safety Code for Elevators requires new installations to be provided with hoistway door unlocking devices for each elevator at every landing where there is an entrance. While it is not mandatory on existing installations, several jurisdictions have made it mandatory to install this device on existing elevators. Whether mandated or not it is our opinion that the hall door unlocking devices are a desirable safety measure. The cost for this would be included with a major control modernization.

.4 Addition of Hall Door Retainer – All buildings

The elevator hall doors are not provided with safety retainers. These safety devices are now required by code for new installations and prevent the hall doors from being pushed off the tracks and into the hoistway. While it is currently not mandatory to install hall door retainers on the elevator, several jurisdictions have made it mandatory to provide safety retainers on installations with particular door types. Whether mandated or not it is our opinion that the hall door retainers are a desirable safety measure. We recommend budgeting $3,500 to perform this work within the next one to two years. The cost for this would be included with a major control modernization

.5 Door Operator Replacement - [redacted]

The existing door operator has reached the end of its design lifespan and represents dated technology. We recommend replacement with a new closed-loop door operator. A closed-loop door operator would provide feedback on the position and speed of the elevator doors. This allows the door operator to automatically adapt to the environment in which the elevator is operating, improving overall reliability. We recommend budgeting $20,000 for this work. cost for this would be included with a major control modernization.

.6 Car Top Railings – [redacted]

The addition of car top railings on top of the elevators has been made a retroactive requirement in several provinces where a fall hazard exists. For the safety of mechanics working on top of the elevators and following several fatalities over the years involving falls from car tops, we strongly recommend the addition of car top railings in the short term. A budget figure of $6,000 is appropriate. It should be noted that if the ultimate design requirements include provision for ancillary devices such as collapsible railings and

electrical interlocks this cost figure could be exceeded. The cost for this would be included with a major control modernization.

.7 New Cab Finishes – All buildings

The existing cab finishes are dated and show signs of wear. We suggest the cab upgrades be performed in the next three years mainly for aesthetic reasons.

The cost to upgrade the cab finishes could range from $15,000 to $25,000, depending on the finishes selected. We recommend using a figure of $20,000. The cost could be reduced if performed in conjunction with a major control modernization.

.8 Equipment Guarding - [redacted]

There is a trend across Canada towards providing greater safety for workers on elevator equipment. The statutory requirements are as yet not well defined although the respective authorities often have a wide degree of latitude in the application of existing requirements to provide safe working environments.

It is expected that the requirements applicable to elevating devices might include machine room equipment guarding such as the protection of drive sheaves, machine brakes, commutators, selectors, governors and high voltage connections. We would expect that this work would be carried out by qualified, licenced elevator contractors.

While we cannot determine the timing or extent of future regulations or changes in enforcement of existing regulations, we do recommend budgeting for the provision of elevator machine room equipment guarding. The cost for this could be reduced if performed in conjunction with a major control modernization

.9 Barrier-Free Access – All buildings

The elevating equipment does not meet barrier-free access requirements, as listed in the Safety Code for Elevators (B44 Appendix E). It should be noted that it is not currently mandatory to modify existing buildings to comply with barrier-free access requirements, although in some provincial jurisdictions the building codes have incorporated this requirement for new buildings. It is also probable that this requirement will be enforced for new buildings in other jurisdictions throughout Canada. To conform, the following would need to be provided:

- An in-car emergency communications device compliant with the B44 Safety Code for Elevators;
- In-car lanterns with dual-stroke gongs to announce elevator direction;
- An audible floor-passing or floor-stopping tone or provision of a voice synthesizer for floor annunciation;
- Handrails mounted at barrier-free heights on all non-access cab walls;
- Tactile plates with floor designation on both jambs of each hall entrance, mounted at barrier-free access heights;
- New hall fixtures to lower the hall button height to meet barrier-free height requirements;
- New car-operating panel equipment with all controls oriented according to the barrier-free access requirements.

The cost would be reduced if performed in conjunction with a major control modernization.

2.4 Emergency Power Operation – [redacted]

We understand that emergency power is not provided for the elevator. In the event of a power failure the elevator would stop where it is (possibly between floors). While elevator emergency power operation is presently not required by code for this building, it is possible that at some point it may become mandatory. If there is an emergency power system available with sufficient capacity to run the elevator, the cost to arrange the equipment to run on emergency power would be minimal. We recommend emergency rescue operation be provided within the next two to three years. Depending on the controller configuration, a battery powered rescue system could be installed if there is no available source of emergency power, although this may necessitate a variance from the AHJ. This unit will provide enough power to bring the elevator to the closest floor and open the elevator doors to release trapped passengers. The cost for this would be reduced if performed in conjunction with a major control modernization.

2.5 Machine Room Cooling – All buildings

Presently the only form of machine room cooling is a wall fan. Adequate machine room cooling (air conditioning) should be provided prior to a major control modernization. This work would normally not be performed by the elevator contractor.

2.6 Water in Pit – Arbutus [redacted]

There are signs of water ingress to the elevator pit and the pit steel shows signs of corrosion. The corrosion should be removed from the pit steel and a coat of rust-inhibiting paint applied.

The source of the water intrusion should be isolated and eliminated to prevent further corrosion. This portion of the work would typically not be performed by the elevator maintenance contractor. The cost will vary considerably depending on the scope of repairs and should be evaluated by other trades.

2.7 Code Changes – All buildings

Code requirements have become more onerous over the past decade and the interval between code changes has decreased. For that reason, we recommend budgeting funds at five-year intervals to address code changes. Without being able to pinpoint these changes, it is reasonable to expect that they would require in the area of $3,000 per device every five years.

2.8 Vandalism – All buildings

We recommend budgeting funds to repair vandalism - principally damage to exposed finishes and fixtures. No precise figure can be assigned since much depends on the location and environment, but we suggest allowing a figure of $2,000 per device every five years.

Appendix A Equipment Description

Arbutus Court – 8740 Cartier Street	
Number of elevators in group:	1
Government installation number:	3012
Installed by/Date:	Armor / 1972
Modernized by/Date:	Richmond / 1994
Service company:	Richmond
Capacity (pounds):	1500
Function:	Passenger
Floors served:	B, 1, 2, 3
Contract speed (feet per minute):	100
Car governor trip speed (fpm):	210
Drive method:	Basement geared traction
Controller type:	RAM Mfg. D6V
Drive type:	Freqrol A200
Motor type:	Bull 5hp AC
Machine type:	Armor Type 1
Emergency brake:	Not provided
Roping ratio / # and size of hoist ropes:	1:1 / 4 x 1/2"
Door type:	Single speed, side opening
Door operator:	ECI 895
Hall door interlocks:	ECI 890
Car door restrictor / Hall door retainers:	Not provided / Not provided
Door dimensions (W x H, inches):	32 x 84
Door protection:	Infrared multi-beam detector
Cab size (W x D x H, inches):	60 x 42 x 95
Car guide / counterweight guide:	Guide shoes / Guide shoes
Car station:	Main
Position indicator (car/hall):	Digital / Digital at Lobby hall station
Arrival and directional signals:	None
Communication:	Alarm bell only
Compensation:	Not provided
Firefighters' operation:	Not provided
Emergency power operation:	Not provided
Security:	Not provided
Car top railings / equipment guarding:	Not provided / Not required
Machine room HVAC:	Not provided
Seismic:	Not provided

[redacted]

[1] The car door restrictor was noted to have been mechanically dis-abled.