

**BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**CENTURYLINK COMMUNICATIONS,  
LLC,**

**Respondent.**

**DOCKET UT- 181051**

**EXHIBIT TO  
TESTIMONY OF**

**STACY J. HARTMAN**

**ON BEHALF OF  
CENTURYLINK COMMUNICATIONS, LLC**

***COMTECH RESPONSES TO DATA REQUESTS CLC 1-10***

**March 31, 2022**

CTL-1 At page 6 of Comtech's Root Cause Analysis (see Exhibit BR-9C, attached to the Direct Testimony of Brian Rosen), Comtech identified as a Corrective and Remedial Action, [REDACTED]

- a. Identify and describe all steps taken by Comtech, prior to and following the December 2018 outage, to use "[REDACTED]"

**RESPONSE:**

TSYS objects to this data request as it is overly broad, unduly burdensome, calls for information that is irrelevant and disproportionate to the needs of this case, and is not reasonably calculated to lead to the discovery of admissible evidence. TSYS further objects to this request as it seeks information that may be protected by the attorney work-product doctrine. Without waiving these objections, TSYS provides the following response.

[REDACTED]

[REDACTED] For example, copies of TSYS's **confidential** emails requesting such quotes are attached hereto as **Attachment 1**.

[REDACTED]

**b. Produce all documents that support your response to subpart a.**

**RESPONSE:** TSYS objects to this data request as it is overly broad, unduly burdensome, calls for information that is irrelevant and disproportionate to the needs of this case, and is not reasonably calculated to lead to the discovery of admissible evidence. TSYS also objects to this request as it may also seek information that is protected by the attorney work-product doctrine. Without waiving these objections, TSYS provides the **confidential** documents attached hereto as **Attachment 1**.

**CTL-2**      **At page 29 of his Direct Testimony, Mr. Rosen states Comtech “had identified the issue [of supplier diversity] and was in the process of bringing on another supplier that eventually would provide two of the links, leaving CenturyLink to supply the remaining two.”**

- a.      Please state whether Mr. Rosen is accurate when he makes this statement.**

**RESPONSE:** Mr. Rosen’s statement is accurate. TSYS emphasizes, however, that supplier diversity is not a legal requirement; indeed, many facilities-based legacy 911 providers do not have supplier diversity. That said, if possible, TSYS seeks supplier diversity as a matter of practice.

- b.      Did Comtech uncover facts that caused Comtech to make a decision to bring on another supplier that eventually would provide two of the links, leaving CenturyLink to supply the remaining two”? If so, describe all such facts.**

**RESPONSE:** No, this was always TSYS’s intention.

- c.      Were there circumstances other than a change in facts that caused Comtech to make a decision to bring “on another supplier that eventually would provide two of the links, leaving CenturyLink to supply the remaining two”? If so, describe all such circumstances.**

**RESPONSE:** No.

- d.      What caused Comtech to make a decision to bring “on another supplier that eventually would provide two of the links, leaving CenturyLink to supply the remaining two”? links. Please identify all facts and produce all documents supporting your response.**

**RESPONSE:** *See* TSYS Response to CTL-1(a), above.

- e.      At the time of the December 2018 outage, was Comtech aware that CenturyLink was providing all of the signaling links Comtech was using to support its Washington 911 service?**

**RESPONSE:** Yes, this is why [REDACTED]

**CTL-3**      **CSRIC 12-10-0594 recommends that 911 service providers “should follow industry guidelines for validating SS7 link diversity, which should be performed at a minimum of twice a year, and at least one of those validations should include a physical validation of equipment compared to the recorded documentation of diversity.”**

- a.      Please state whether Comtech agrees that this is a standard that all 911 service providers should follow.**

**RESPONSE:** The above-quoted CSRIC recommendation is a telecommunications provider-oriented recommendation, which is listed in several CSRIC documents for legacy networks and E9-1-1 networks. NG9-1-1 networks use IP circuits. The complete CSRIC 12-10-0594 recommendation is:

Network Operators and Service Providers should follow industry guidelines for validating SS7 link diversity, which should be performed at a minimum of twice a year, and at least one of those validations should include a physical validation of equipment compared to the recorded documentation of diversity.<sup>1</sup>

CSRIC “Best Practices” are recommendations that were not designed to be “one size fits all” solutions, but instead are “voluntary in nature and may not apply in every situation due to the need for flexibility, innovation, and control in the management of different carriers’ unique business models, cost, feasibility, resource limitations, or other factors.”<sup>2</sup>

- b.      Did Comtech follow this standard in the state of Washington during 2017 and 2018?**

**RESPONSE:** TSYS did not provide NG911 services in Washington in 2017. In 2018, TSYS had four distinct circuits at all times and [REDACTED]

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<sup>1</sup> See CSRIC Best Practices Widget, <https://opendata.fcc.gov/Public-Safety/CSRIC-Best-Practices/qb45-rw2t/data> (last visited Feb. 8, 2022).

<sup>2</sup> Communications Security, Reliability and Interoperability Council IV Working Group 7 Final Report at 6 (2014) (“*CSRIC IV WG 7 Report*”), <https://transition.fcc.gov/pshs/advisory/csric4/CSRIC%20IV%20WG7%20Legacy%20Best%20Practices%20Final.pdf>.

<sup>3</sup> See, e.g., TeleCommunication System, Inc.’s Response to PC Data Request Nos. 1-9(REVISED) at 3 (filed Sept. 16, 2021).

- c. **Produce copies of all documents that predate December 28, 2018, where Comtech validated signaling diversity on circuits used to support 911 calls in the state of Washington.**

**RESPONSE:** TSYS is unable to test signal diversity on its own as it is not the facilities-based carrier for such circuits.

**CTL-4**      **Citing Comtech’s response to Public Counsel data request PC-2, at page 40 of his Direct Testimony, Mr. Webber states that “TSYS . . . explained that its ‘intended redundancy was to have four physically diverse paths for the DS-1s, which is most certain using a single vendor since different vendors will not share information with one another about the physical paths they use.’”**

**a.      Is this an accurate statement?**

**RESPONSE:** Yes, Mr. Webber accurately quoted TSYS’s response to PC-2, which related to the circumstances of the CenturyLink Outage. As TSYS further explained in response to PC-2,



**b.      Identify all literature, standards, statutes, regulations or decisional law of which you are aware that make such a recommendation.**

**RESPONSE:** TSYS objects to this data request as it is overly broad, unduly burdensome, calls for information that is irrelevant and disproportionate to the needs of this case, and is not reasonably calculated to lead to the discovery of admissible evidence.

**c.      Before the December 2018 outage, did you disclose the fact that Comtech relied exclusively upon CenturyLink to provide SS7 functionality for its 911 services in Washington to the following. If your answer is other than no, please fully describe the disclosure and produce all documents supporting your response.**

**RESPONSE:** TSYS objects to this data request as it is overly broad, unduly burdensome, calls for information that is irrelevant and disproportionate to the needs of this case, and is not reasonably calculated to lead to the discovery of admissible evidence. TSYS also objects to this request as it may also seek information that is protected by the attorney work-product doctrine. Without waiving these objections, TSYS provides the following responses:

**i.    Commission Staff**

**RESPONSE:** TSYS does not have any information to indicate one way or another that such information was or was not provided to UTC staff before the CenturyLink.

**ii.    WMD**

**RESPONSE:** TSYS does not have any information to indicate one way or another that such information was or was not provided to WMD before the CenturyLink Outage.

**iii. CenturyLink**

**RESPONSE:** TSYS does not have any information to indicate one way or another that such information was or was not provided to CenturyLink before the CenturyLink Outage.

**iv. Any consultants (if so, identify them by name and address)**

**RESPONSE:** TSYS does not have any information to indicate one way or another that such information was or was not provided to any consultants before the CenturyLink Outage.

**v. TNS**

**RESPONSE:** TSYS expects that TNS would have reviewed the SS7 network design during engineering meetings and scheduled maintenance windows to support the changes in production systems, however, TSYS has no record to indicate one way or another that TSYS discussed its temporary, exclusive reliance on CenturyLink to provide SS7 functionality for its 911 services in Washington with TNS before the CenturyLink Outage.

**vi. anyone else (if so, identify them by name and address)**

**RESPONSE:** TSYS does not have any information to indicate one way or another that such information was or was not provided to anyone else before the CenturyLink Outage.

**From:** [Hobelmann, Gary](mailto:Hobelmann.Gary)  
**To:** [Loree Parker](mailto:Loree.Parker); [Agastya Kohli](mailto:Agastya.Kohli); [Aaron Demorow](mailto:Aaron.Demorow)  
**Cc:** [Honghai Liu](mailto:Honghai.Liu); [Gimbert, Richard](mailto:Gimbert.Richard); [Stegman, Cynthia](mailto:Stegman.Cynthia); [Boucek, Jeanne](mailto:Boucek.Jeanne)  
**Subject:** RE: Connectivity IPX and SS7  
**Date:** Friday, October 5, 2018 5:02:09 PM  
**Attachments:** [ipxss001.png](#)

Hello everyone, just revisiting this one to see if we could clear up next steps and timeline. Let me know how Comtech wants to proceed and when would be a good time to do so.

Thank you,

Gary

**From:** Hobelmann, Gary  
**Sent:** Thursday, September 13, 2018 6:59 PM  
**To:** Loree Parker <[Loree.Parker@comtechtel.com](mailto:Loree.Parker@comtechtel.com)>; Agastya Kohli <[Agastya.Kohli@comtechtel.com](mailto:Agastya.Kohli@comtechtel.com)>; Aaron Demorow <[Aaron.Demorow@comtechtel.com](mailto:Aaron.Demorow@comtechtel.com)>  
**Cc:** Honghai Liu <[Honghai.Liu@comtechtel.com](mailto:Honghai.Liu@comtechtel.com)>; Gimbert, Richard <[RGimbert@tnsi.com](mailto:RGimbert@tnsi.com)>; Stegman, Cynthia <[cliggett@tnsi.com](mailto:cliggett@tnsi.com)>; Boucek, Jeanne <[jboucek@tnsi.com](mailto:jboucek@tnsi.com)>  
**Subject:** RE: Connectivity IPX and SS7

Hi Loree,

Thanks for the clarification. I think my intent was correct, but the names were off. So yes, My thinking is that you would cancel the AT&T orders on the highlighted T1s below. Then we could migrate the existing CenturyLink circuits to SIGTRAN. Do you guys need to do anything special to get the circuits to SIGTRAN? The reason I ask is for scheduling and timing. And then I wondered if you had a preference for how to migrate.

I have it as two projects

1. Migrate one batch of circuits to SIGTRAN over the IPX – then disconnect
2. Migrate the other batch to SIGTRAN and retain.

So let us know what timing you are thinking is realistic.

Thanks,

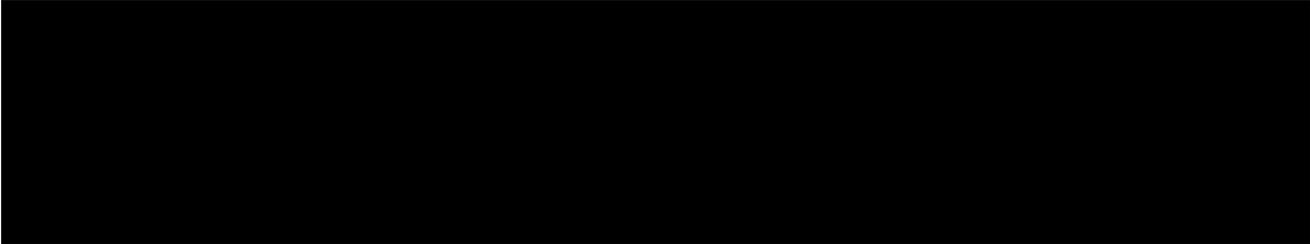
Gary

**From:** Loree Parker <[Loree.Parker@comtechtel.com](mailto:Loree.Parker@comtechtel.com)>  
**Sent:** Thursday, September 13, 2018 6:29 PM  
**To:** Agastya Kohli <[Agastya.Kohli@comtechtel.com](mailto:Agastya.Kohli@comtechtel.com)>; Hobelmann, Gary <[ghobelmann@tnsi.com](mailto:ghobelmann@tnsi.com)>; Aaron Demorow <[Aaron.Demorow@comtechtel.com](mailto:Aaron.Demorow@comtechtel.com)>  
**Cc:** Honghai Liu <[Honghai.Liu@comtechtel.com](mailto:Honghai.Liu@comtechtel.com)>; Gimbert, Richard <[RGimbert@tnsi.com](mailto:RGimbert@tnsi.com)>; Stegman, Cynthia <[cliggett@tnsi.com](mailto:cliggett@tnsi.com)>; Boucek, Jeanne <[jboucek@tnsi.com](mailto:jboucek@tnsi.com)>  
**Subject:** RE: Connectivity IPX and SS7

Gary,

The details of your last email aren't entirely accurate, as a few weeks ago Sprint disconnected the remaining TDM circuits terminating to Comtech facilities. Currently, all four existing circuits are from CenturyLink, at least on Comtech's side of the network. This is obviously not an ideal situation, and was intended to be extremely temporary, but AT&T has yet to successfully complete my open T1 orders even after all this time. This has prevented the rest of the TDM conversion.

Here is the current state of each link:



If we have an approximate timeline for the Sigtran conversion of the latter two links, I can cancel my orders with AT&T and we can finally put this project to bed.

Thanks,

Loree Parker | Senior Telecom Engineer | Safety & Security Technologies (SST) | Comtech Telecommunications Corp. | O: 206-792-2450 - M: 206-437-0664 | [loree.parker@comtechtel.com](mailto:loree.parker@comtechtel.com)

**From:** Agastya Kohli  
**Sent:** Wednesday, September 12, 2018 12:00 PM  
**To:** Hobelmann, Gary <[ghobelmann@tnsi.com](mailto:ghobelmann@tnsi.com)>; Loree Parker <[Loree.Parker@comtechtel.com](mailto:Loree.Parker@comtechtel.com)>; Aaron Demorow <[Aaron.Demorow@comtechtel.com](mailto:Aaron.Demorow@comtechtel.com)>  
**Cc:** Honghai Liu <[Honghai.Liu@comtechtel.com](mailto:Honghai.Liu@comtechtel.com)>; Gimbert, Richard <[RGimbert@tnsi.com](mailto:RGimbert@tnsi.com)>; Stegman, Cynthia <[cliggett@tnsi.com](mailto:cliggett@tnsi.com)>; Boucek, Jeanne <[jboucek@tnsi.com](mailto:jboucek@tnsi.com)>  
**Subject:** RE: Connectivity IPX and SS7

+Aaron D.

Gary – Loree is currently OOO, our response might be a bit delayed. Thanks.

**From:** Hobelmann, Gary [<mailto:ghobelmann@tnsi.com>]  
**Sent:** Wednesday, September 12, 2018 8:29 AM  
**To:** Loree Parker <[Loree.Parker@comtechtel.com](mailto:Loree.Parker@comtechtel.com)>; Agastya Kohli <[Agastya.Kohli@comtechtel.com](mailto:Agastya.Kohli@comtechtel.com)>  
**Cc:** Honghai Liu <[Honghai.Liu@comtechtel.com](mailto:Honghai.Liu@comtechtel.com)>; Gimbert, Richard <[RGimbert@tnsi.com](mailto:RGimbert@tnsi.com)>; Stegman, Cynthia <[cliggett@tnsi.com](mailto:cliggett@tnsi.com)>; Boucek, Jeanne <[jboucek@tnsi.com](mailto:jboucek@tnsi.com)>  
**Subject:** RE: Connectivity IPX and SS7

Loree, Agastya,

Here is a summary of where I think we are. Please take a look and let me know if you agree. Then let's get on the phone to discuss and put a plan together with timing, etc.

- Plan is to change from current connectivity of 4 IPX circuits and 4 SS7/TDM circuits to end state connectivity of 4 IPX and 2 SS7.
- We will disconnect two of the existing SS7/TDM circuits and route that traffic using SIGTRAN over the existing IPX circuits
- The two Sprint SS7/TDM circuits will remain until 2021
- Plan would be to convert existing Sprint SS7/TDM circuits to SIGTRAN
- We should have a call to discuss scheduling of a maintenance windows for each of the steps
  - I have it as at least two projects
    - Moving the current links to SIGTRAN (do we do that for just the Sprint circuits or for all four)
    - Then the migration of the traffic on the non-Sprint circuits to the IPX connectivity.
- We will also need to have paperwork prepared that clearly documents the go-forward connectivity for technical and billing reasons.

Let me know what you think about the notes above. We can get together potentially on Friday of this week to discuss if that works for your team.

Thank you,

Gary

**From:** Hobelmann, Gary  
**Sent:** Friday, August 31, 2018 12:44 PM  
**To:** Loree Parker <Loree.Parker@comtechtel.com>; Agastya Kohli <Agastya.Kohli@comtechtel.com>  
**Cc:** Honghai Liu <Honghai.Liu@comtechtel.com>  
**Subject:** RE: Connectivity IPX and SS7

Hi Loree,

That is a bit surprising that they would hold you to that long of a term. So it sounds like we need to review then and go with the combined approach of the six circuits. Let me grab my team next week and perhaps we can get a call going.

Have a great holiday weekend everyone.

Thank you,

Gary

**From:** Loree Parker <Loree.Parker@comtechtel.com>  
**Sent:** Friday, August 31, 2018 12:28 PM  
**To:** Hobelmann, Gary <ghobelmann@tnsi.com>; Agastya Kohli <Agastya.Kohli@comtechtel.com>  
**Cc:** Honghai Liu <Honghai.Liu@comtechtel.com>  
**Subject:** RE: Connectivity IPX and SS7

Update from our vendor's account team, we will need to keep the new circuits in place until 3/22/21 in order to avoid early termination charges.

**From:** Loree Parker  
**Sent:** Friday, August 31, 2018 9:22 AM  
**To:** 'Hobelmann, Gary' <ghobelmann@tnsi.com>; Agastya Kohli <Agastya.Kohli@comtechtel.com>  
**Cc:** Honghai Liu <Honghai.Liu@comtechtel.com>  
**Subject:** RE: Connectivity IPX and SS7

Yes. These are the Comtech-owned T1 transport links that should stay as-is for now:

Comtech Seattle 002-015-001 to TNS Los Angeles 238-091-000  
 Comtech Phoenix 002-015-002 to TNS Las Vegas 238-090-000

And these are the TNS-owned DSO transport links we propose to move to IPX in the near future:

Comtech Seattle 002-015-001 to TNS Las Vegas 238-090-000  
 Comtech Phoenix 002-015-002 to TNS Olympia (Los Angeles) 238-091-000

**From:** Hobelmann, Gary <ghobelmann@tnsi.com>  
**Sent:** Friday, August 31, 2018 7:48 AM  
**To:** Agastya Kohli <Agastya.Kohli@comtechtel.com>  
**Cc:** Loree Parker <Loree.Parker@comtechtel.com>; Honghai Liu <Honghai.Liu@comtechtel.com>  
**Subject:** RE: Connectivity IPX and SS7

Good morning,

To make sure I am clear, the proposed design would disconnect two of the TDM circuits, ride that traffic over the IPX circuits for a period of time and then migrate to all IP within the next year roughly. Does that sound correct?

Thank you,

Gary

**From:** Agastya Kohli <Agastya.Kohli@comtechtel.com>  
**Sent:** Thursday, August 30, 2018 11:58 AM  
**To:** Hobelmann, Gary <ghobelmann@tnsi.com>  
**Cc:** Loree Parker <Loree.Parker@comtechtel.com>; Honghai Liu <Honghai.Liu@comtechtel.com>  
**Subject:** RE: Connectivity IPX and SS7

Gary,

Just chatted with Loree – our circuit expert. She said:  
"I wouldn't be opposed to canceling the pending AT&T circuits and converting the remaining two DS0s to IP now(ish). We'd need to keep the two we've already migrated to T1 for at least another 8 months. And having half IP and half TDM has some redundancy advantages."

Thoughts?  
Agastya

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**From:** Hobelmann, Gary [<mailto:ghobelmann@tnsi.com>]  
**Sent:** Thursday, August 30, 2018 9:52 AM  
**To:** Agastya Kohli <[Agastya.Kohli@comtechtel.com](mailto:Agastya.Kohli@comtechtel.com)>  
**Subject:** RE: Connectivity IPX and SS7

Hi Agastya, Just checking in on this one. Let me know what you think.

Thank you,  
Gary

---

**From:** Hobelmann, Gary  
**Sent:** Tuesday, August 28, 2018 10:55 AM  
**To:** Agastya Kohli <[Agastya.Kohli@comtechtel.com](mailto:Agastya.Kohli@comtechtel.com)>  
**Subject:** Connectivity IPX and SS7

Agastya,

Some time ago we talked about combining the old SS7 connectivity with the new IPX Connectivity we were putting in. Now that all of the connectivity pieces for IPX are in, is there still a desire to put everything together or should we just leave them as separate connections for a period of time? and if we want to keep them separate, what is a good timeframe for revisiting the combination?

Let me know what you are thinking.

Thank you,  
Gary

**Gary W. Hobelmann** | Sales Account Executive  
Transaction Network Services  
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O: +1 913 814 6241 | M: +1 913 515 1238  
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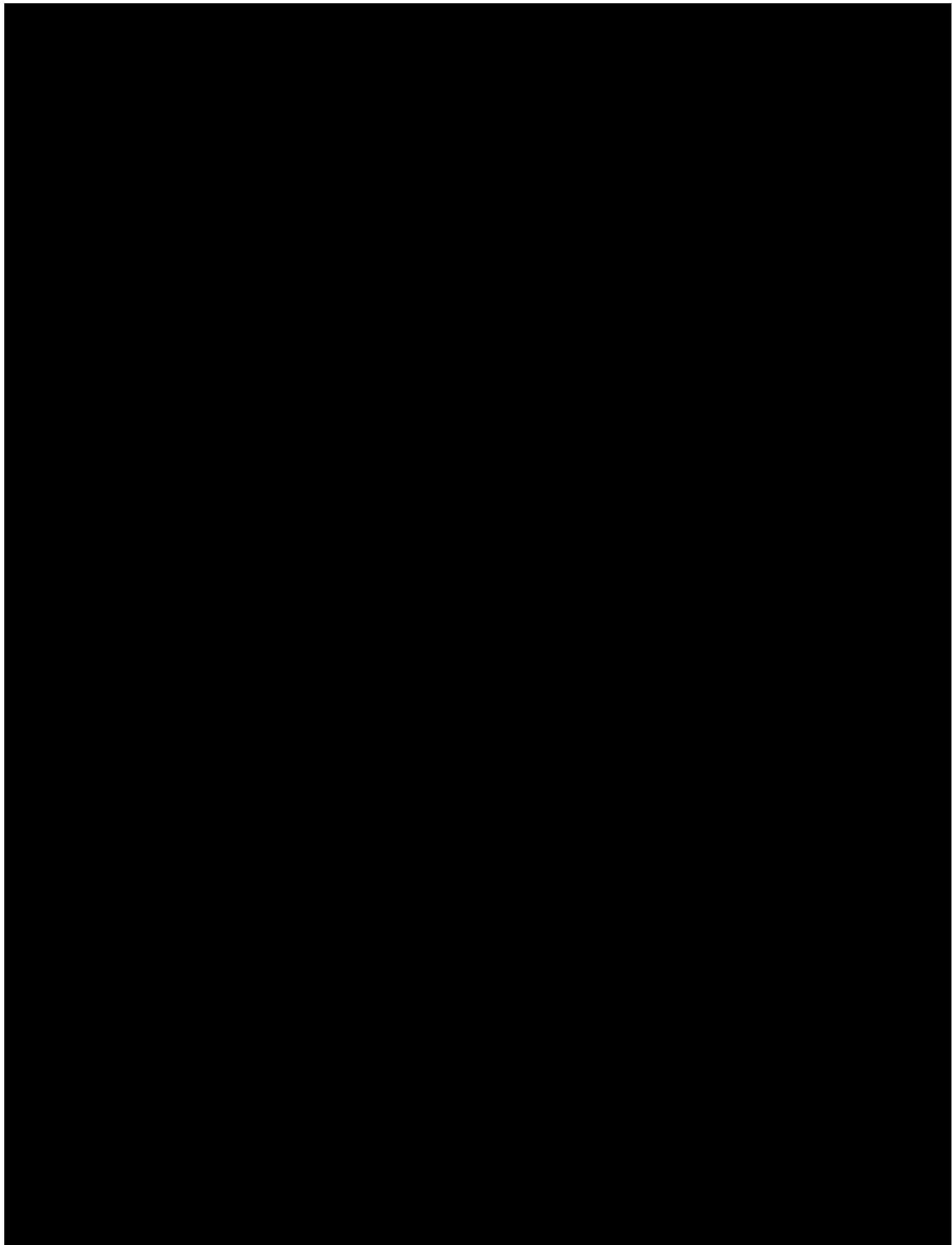
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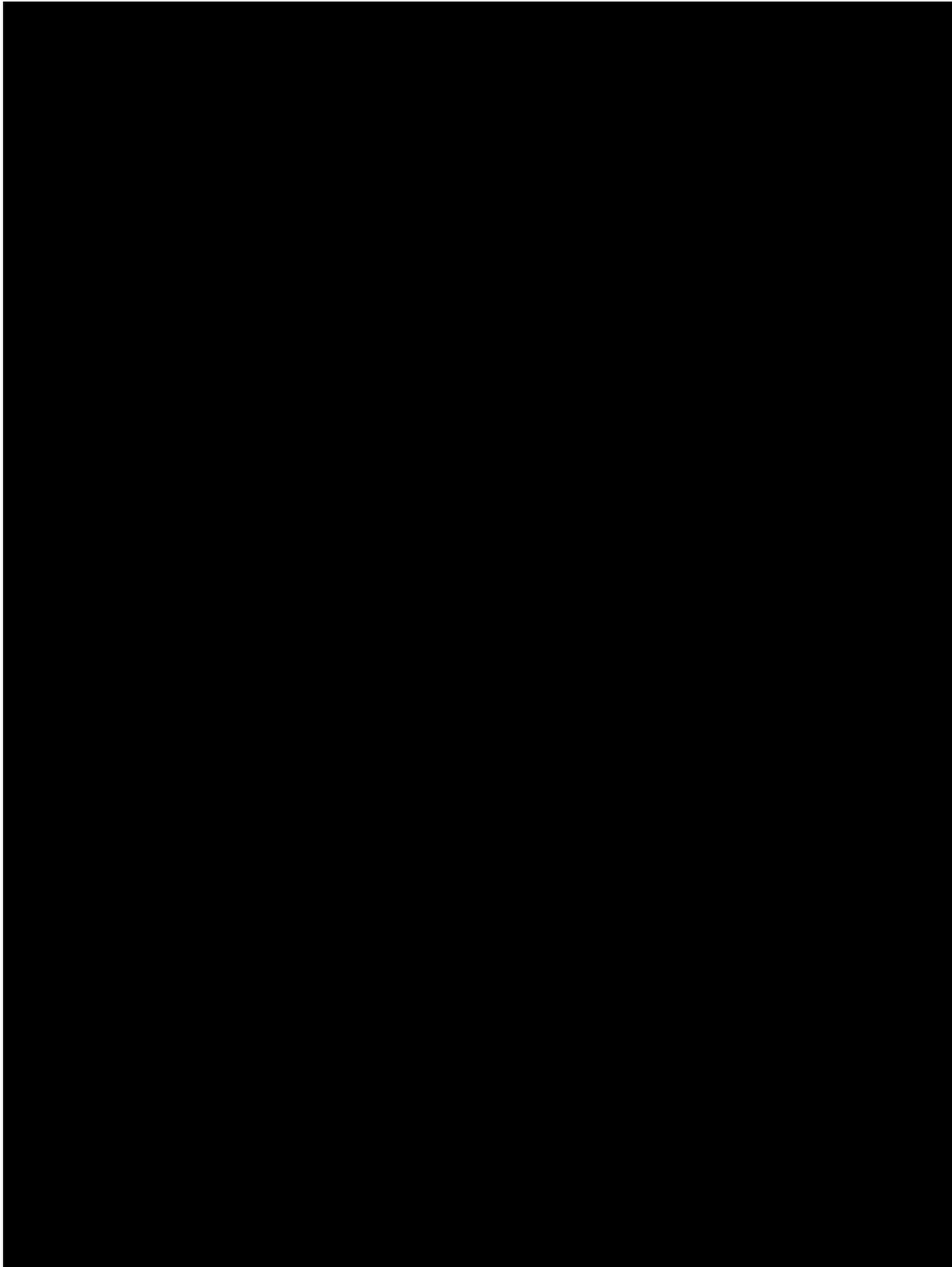
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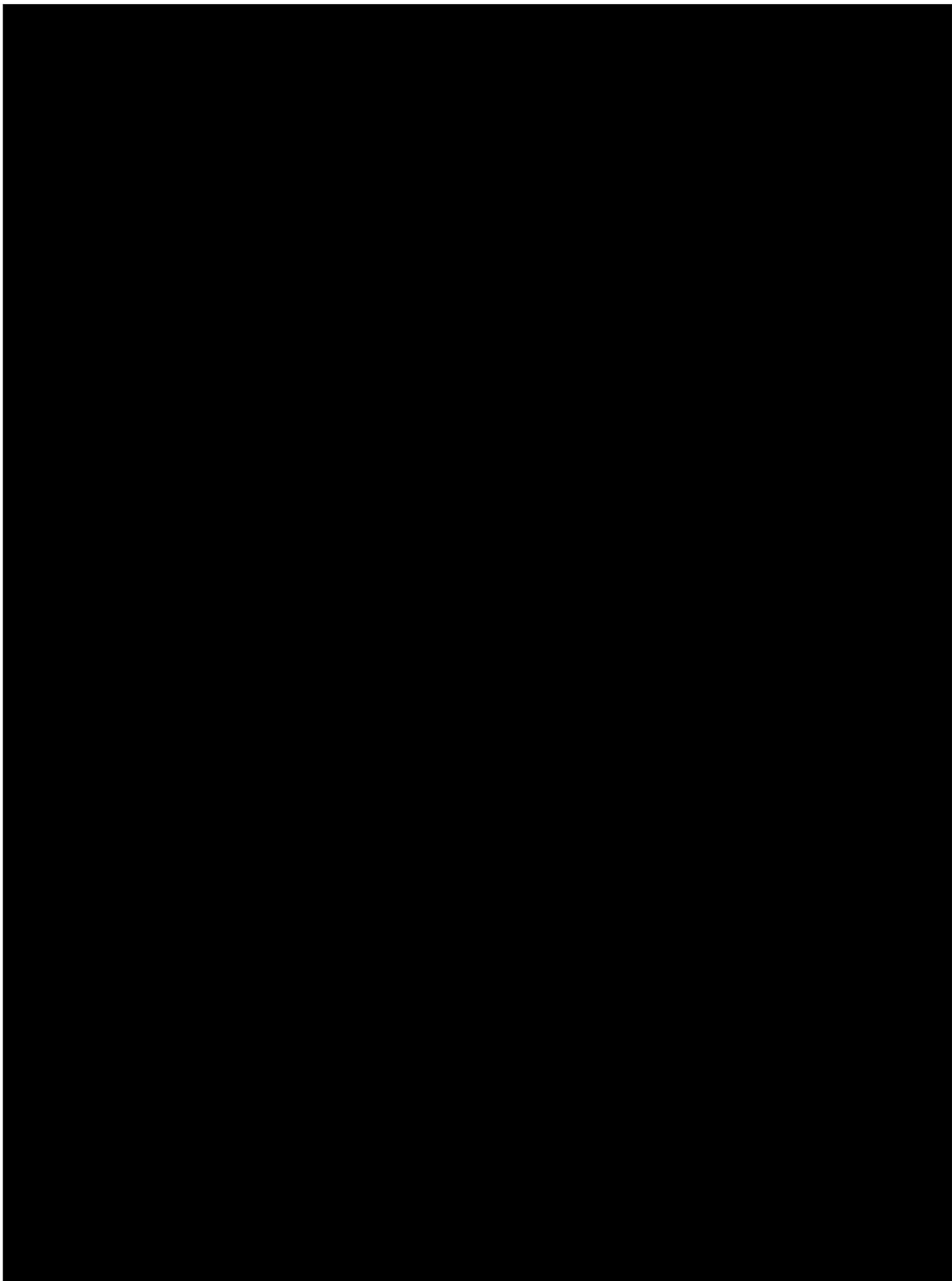
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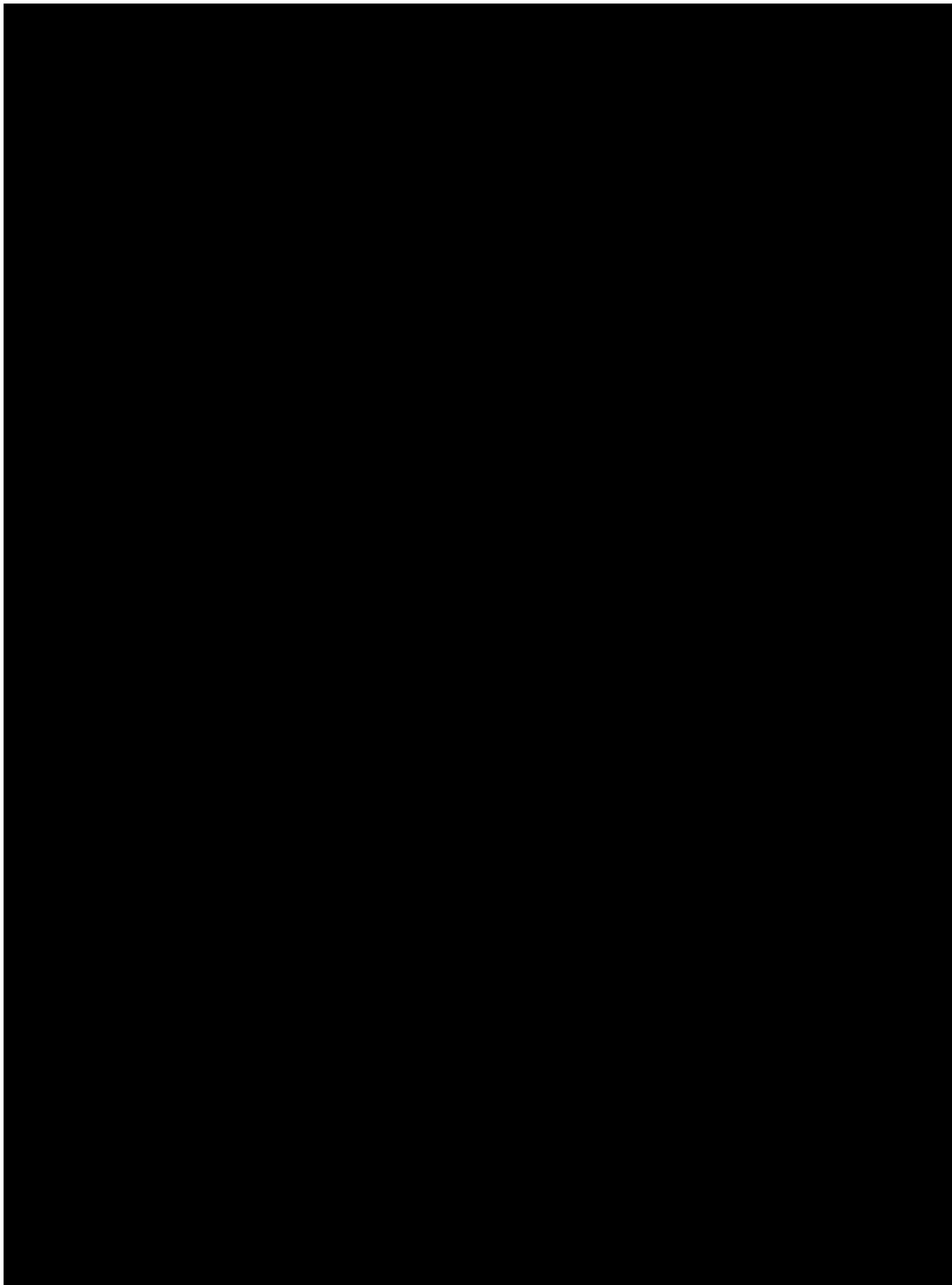
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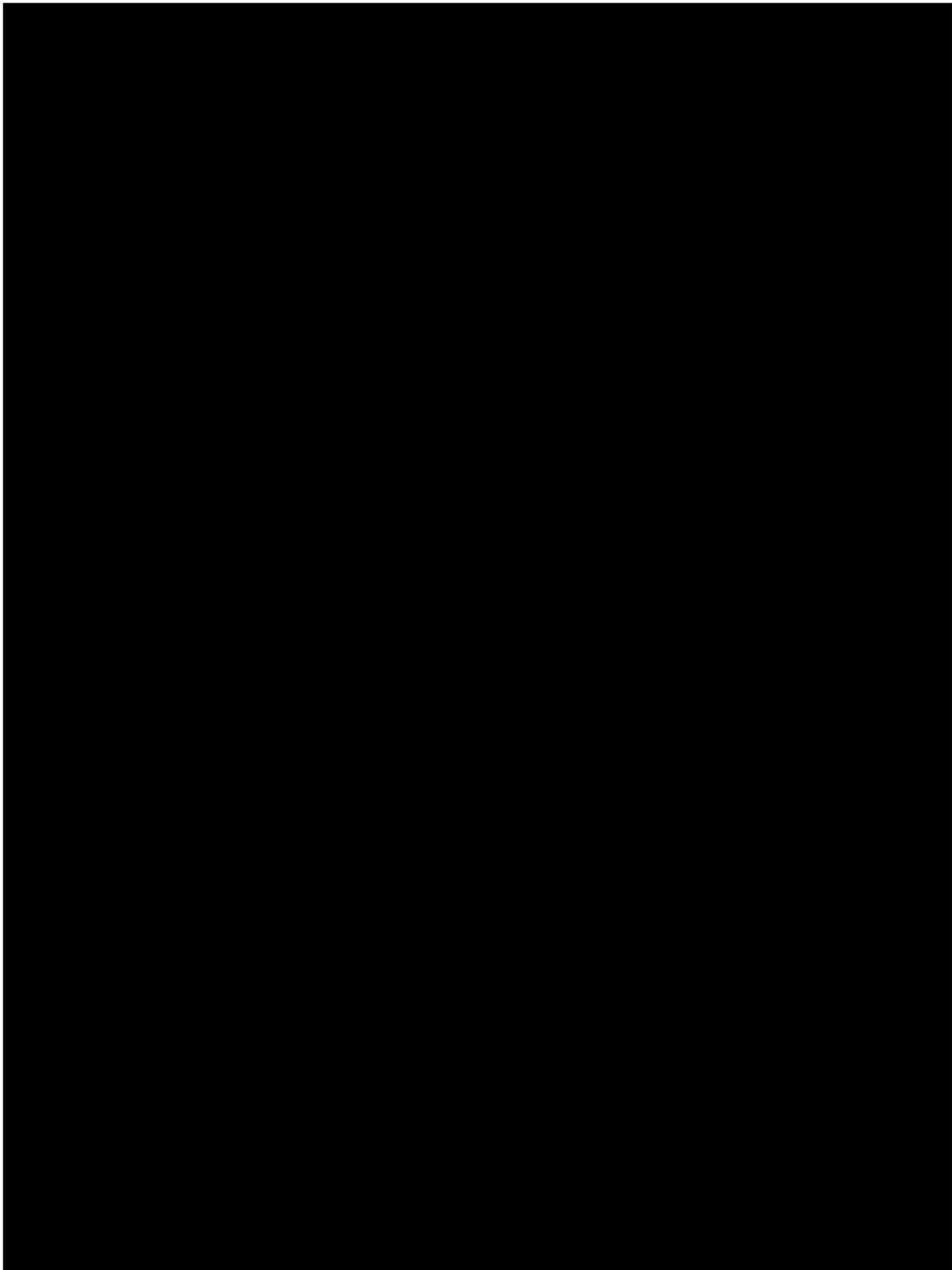
are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

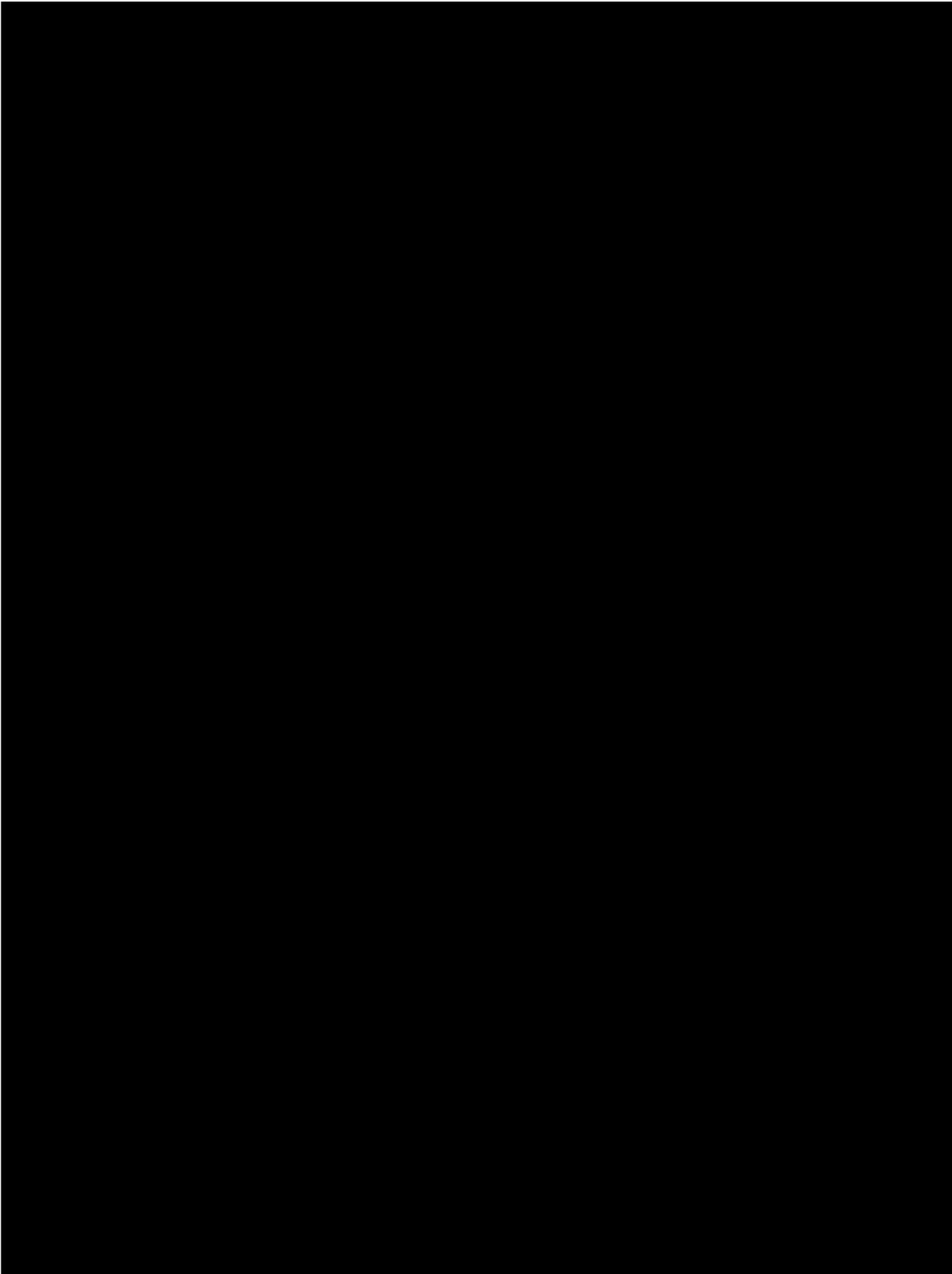


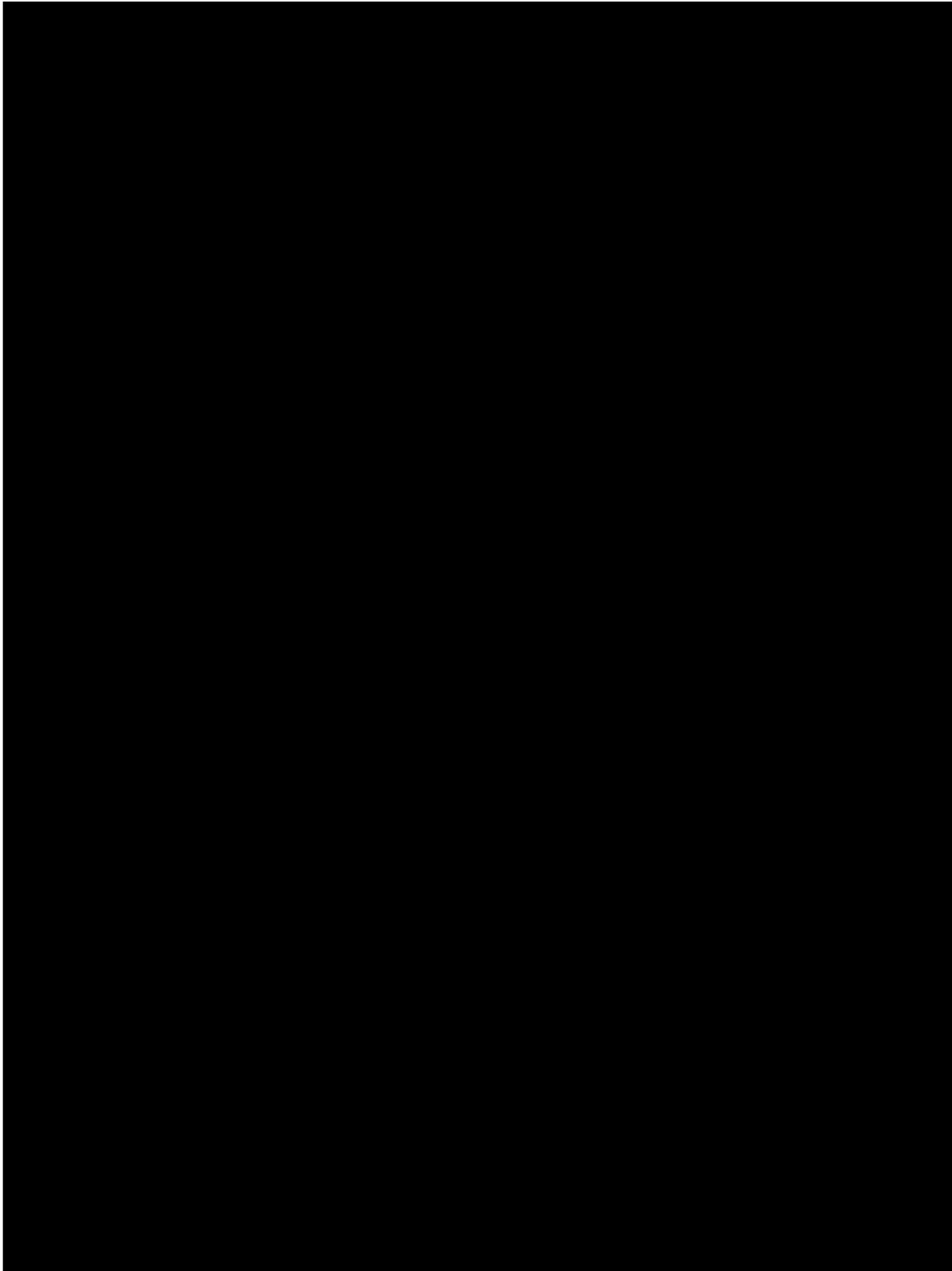


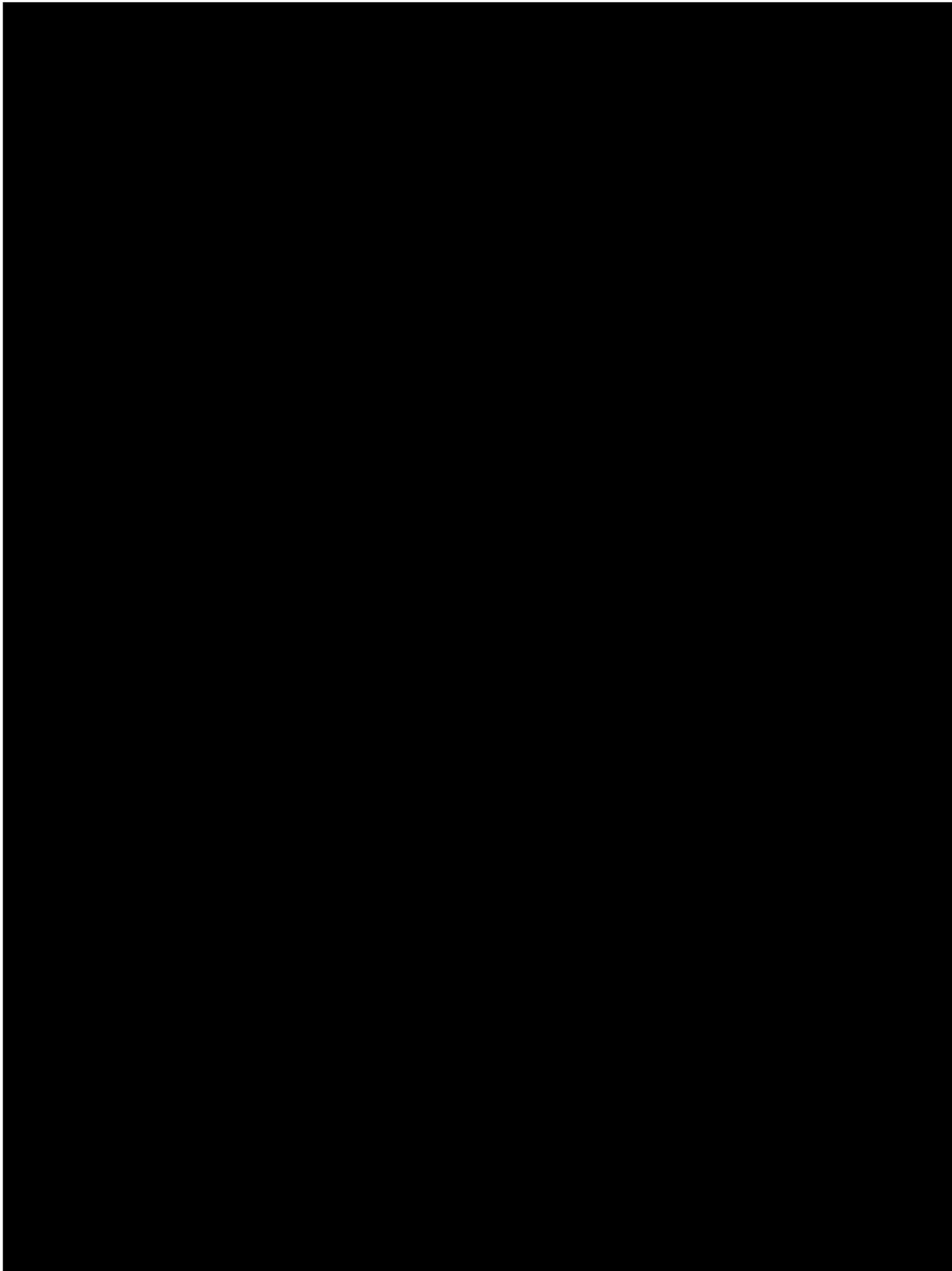


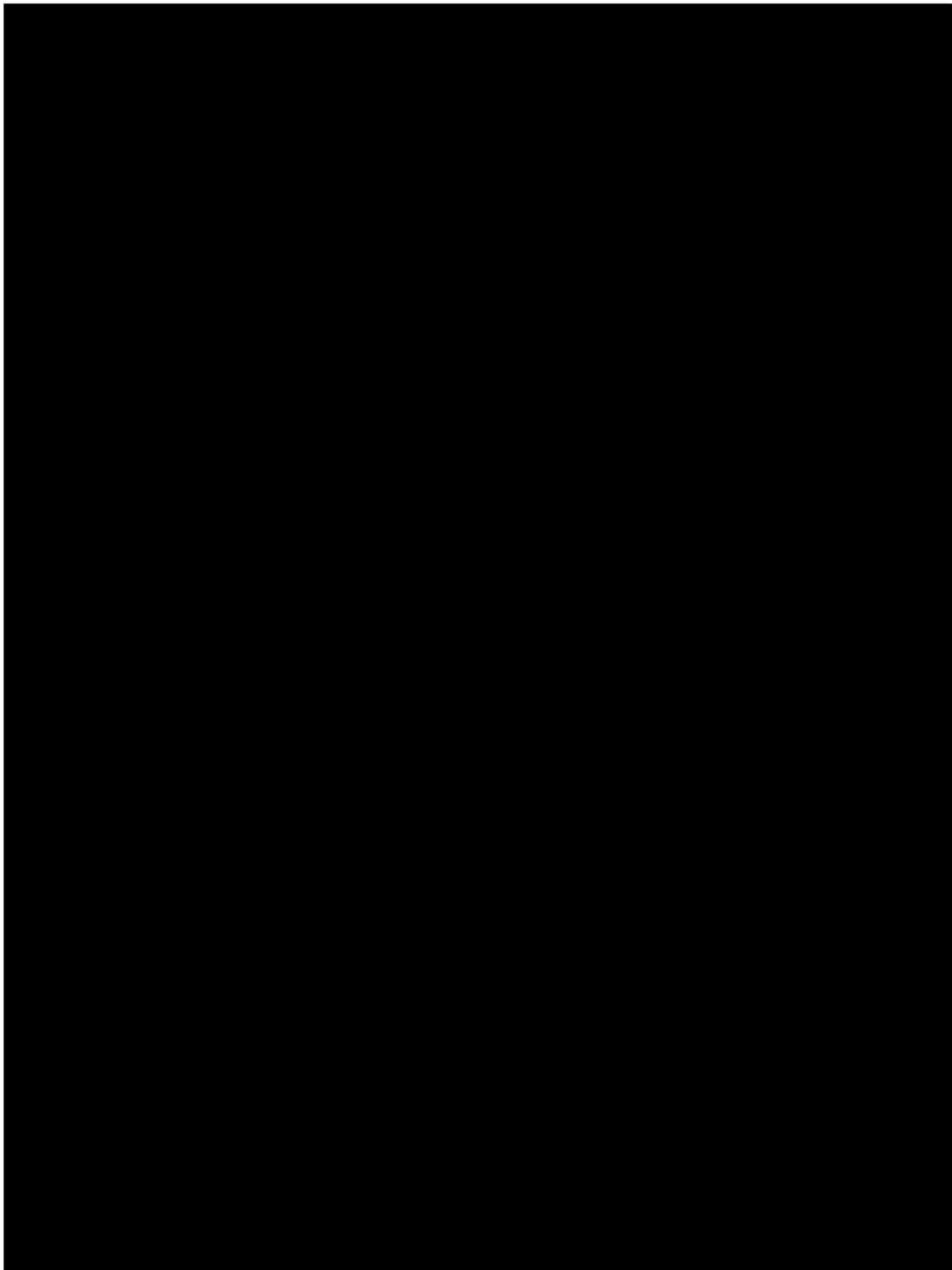


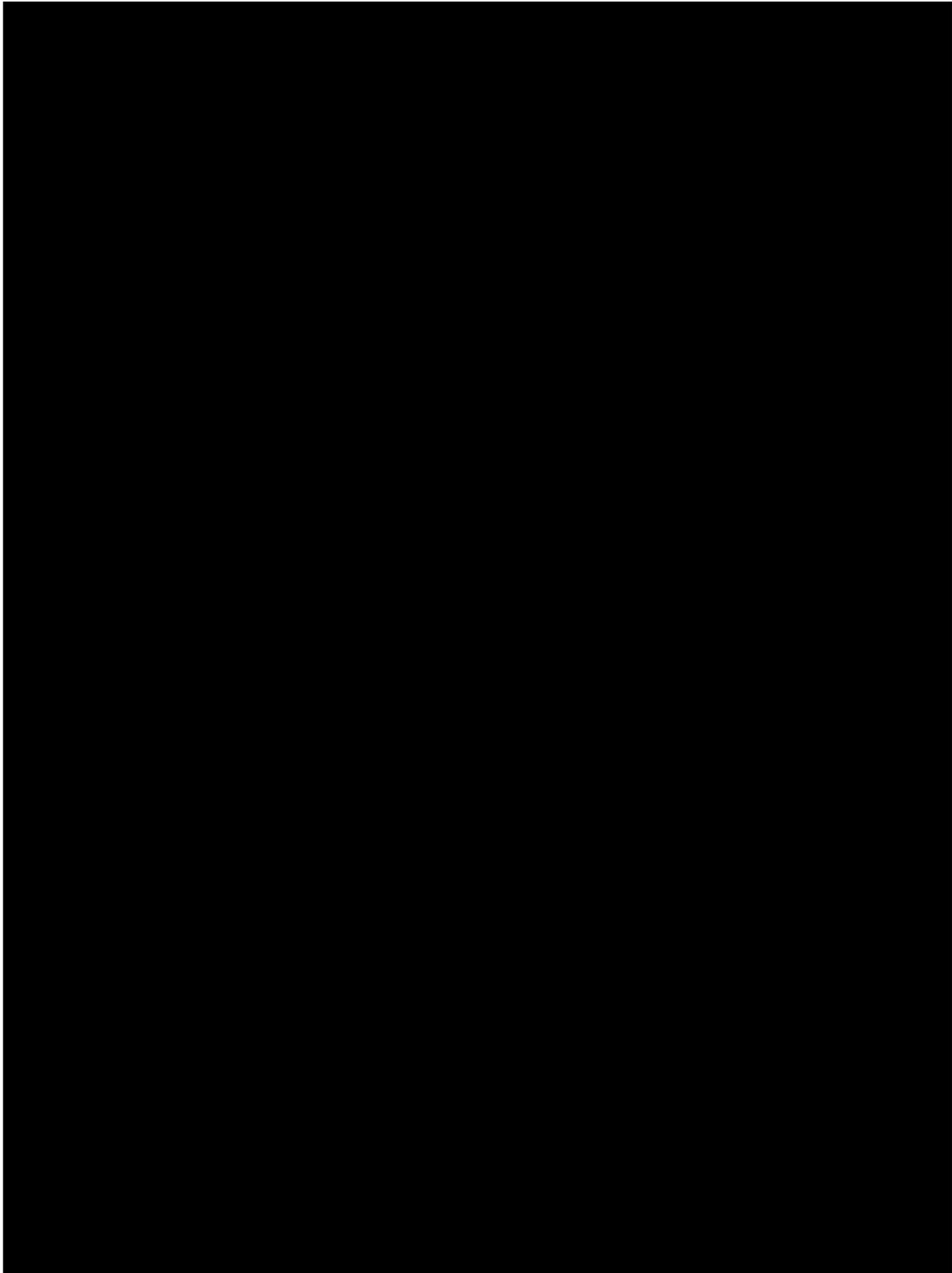


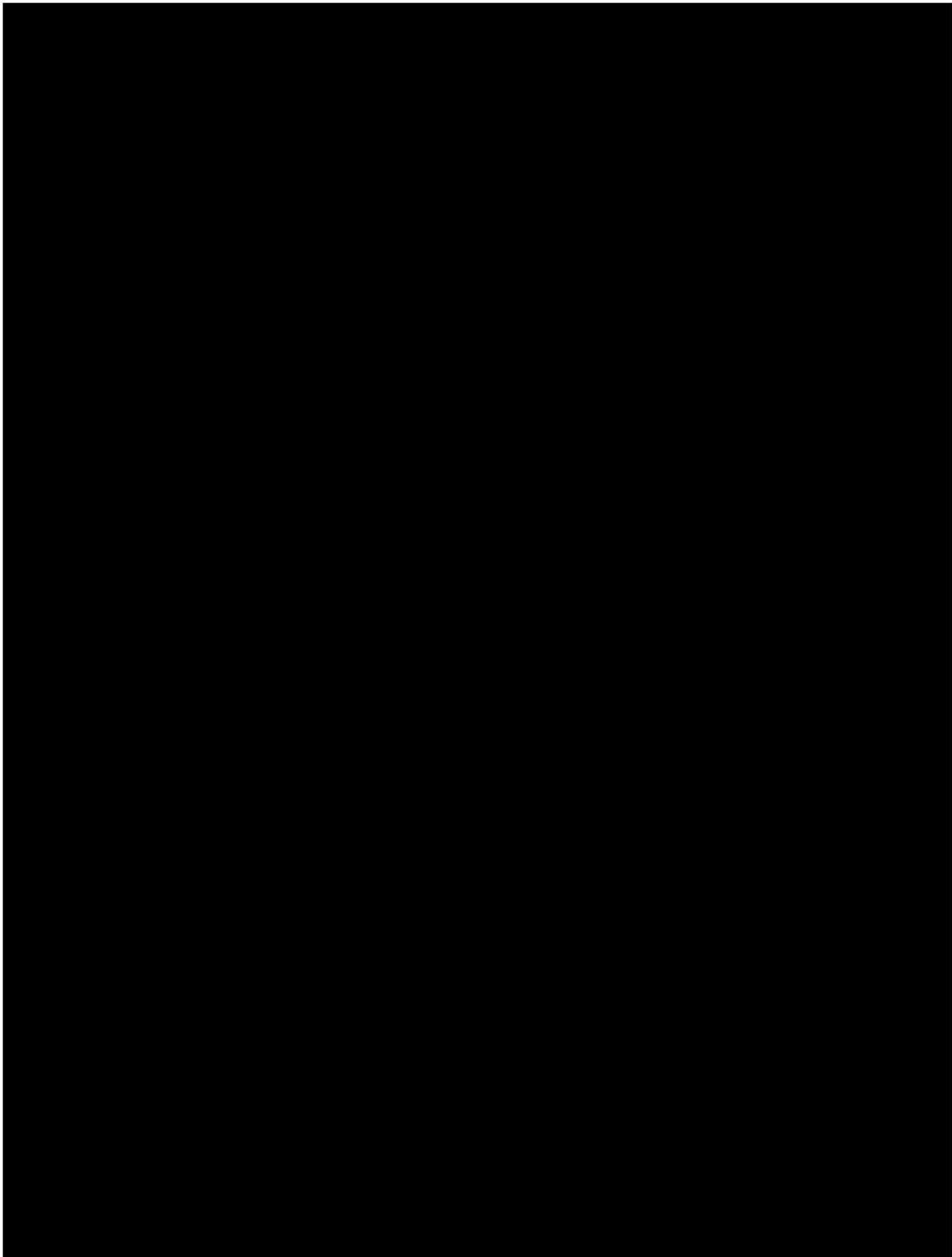












**CTL-5** Does Comtech utilize SS7 links anywhere within its 911 network in Washington? If your answer is anything other than yes, fully explain why do not use SS7 in your network today.

**RESPONSE:** [REDACTED]

[REDACTED] At the time of the CenturyLink Outage, TSYS also indirectly connected to CenturyLink utilizing SS7 links because CenturyLink refused to connect to TSYS via SIP or directly via SS7.

**CTL-6** **Does Comtech utilize SS7 links anywhere within its 911 network in any state other than Washington? If your answer is other than yes, please describe (i) when it made the decision to transition away from SS7, (ii) when Comtech completed the transition away from SS7, and (ii) why it made the decision to transition away from SS7.**

**RESPONSE:** TSYS objects to this data request in its entirety as it is overly broad, calls for information that is irrelevant and disproportionate to the needs of this case, and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, TSYS provides the following response.

