EVERSOURCE

Project Approval Form

Project Title: ARKA Reconductor	**Project Number: CD02681**
Date Prepared: 07/31/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: 12/31/2025	**NWS Excludable:** ☐ Yes ☒ No
Total Capital Request: $441K	**Authorization Type:** Full Funding

1. Executive Summary

This project was created to address electrical reliability and restoration concerns from ARKA; a satellite and space-based optics company at [redacted].

The partial funding capital request for this project was $225.9K and was approved during the 4/24/2025 CPAC meeting. The full funding capital request for this project is $441K. The capital difference of the full funding minus the partial funding is equal to +$215.1K, a 95% increase. There was a small increase in internal labor and material costs. As a result, there was an increase in indirect costs. The only scope change was opting for a gravel road vs temporary matting, this was a very minor increase in cost.

Division: Western
District: Newtown AWC
Town(s): Danbury

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2025	Year 2026	Year 2027+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	41.3	0.0	0.0	41.3
Outside Services	69.0	0.0	0.0	69.0
Materials	12.1	0.0	0.0	12.1
Removals	33.4	0.0	0.0	33.4
Risk and Contingency	30.8	0.0	0.0	30.8
Other	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	**186.6**	**0.0**	**0.0**	**186.6**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	254.4	0.0	0.0	254.4
Capitalized interest or AFUDC, if any	0.0	0.0	0.0	0.0
Subtotal – Indirect Costs	**254.4**	**0.0**	**0.0**	**254.4**
Total Gross Capital Costs	**441.0**	**0.0**	**0.0**	**441.0**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**441.0**	**0.0**	**0.0**	**441.0**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

As for ARKA, they have experienced 4 outages in the last 5 years (2020-2025):

Date	Storm	Weather	Cause	Duration
[redacted]				

Figure 1: Outage Table

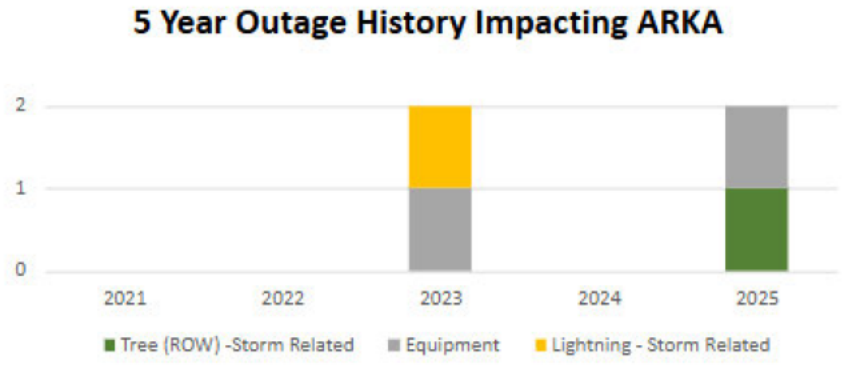


Figure 2: Outage Bar Chart

In response to the most recent outage, vegetation management has removed many trees in the right of way (ROW). The new tree line to pole line distance is 25’.

Before (2/27/25)	**After (3/7/25)**
	
Before (2/27/25)	**After (3/7/25)**
	

Figure 3: Before and After Vegetation

Projects that have been accounted for during this project include: CD01132 [redacted] CD02678 - ARKA - SCADA Backup. Additionally, the service upgrade occurring in 2025 for ARKA has also been accounted for.

b. Project Need

The need for this project stems from ARKA's concerns in Eversource's ability to provide uninterrupted and reliable power. The most recent outage in February 2025 was caused by a fallen tree in their ROW which greatly affected their business. As shown in Figure 3, tree related outages localized to their ROW should be substantially mitigated due to the newly receded tree line.

[redacted]

[redacted]

Successful execution of this project will further bolster this ROW and will mitigate future outages localized to this area.

c. Project Scope

This project proposes five options. The preferred option is Option 1. This option looks to reconductor the bare wire in the ROW to covered wire with the installation of a road access route. The scope of Option 1 is as follows:

Reconductor:

- Perform tree trimming, tree removals, and low-lying brush removal in ROW
- Extend gravel road from P.6742 to P.6744
- [redacted]
  - [redacted]
- [redacted]
  - [redacted]

Major Materials:

- 556 AL TW

4. Alternatives Considered

Design Criteria	[redacted]				
Normal loads < 80% of U rating					
Normal loads < 90% of OH rating					
Proactive measures to mitigate outage duration at ARKA					
Reconductor to tree wire in ROW					
Betters access into ROW					
Provides backup battery					
Eliminate OH ROW					
Authorization Type	Full	Full	Full	Full	Full
Capital Cost	$441,042	$475,875	$730,146	$770,043	$45,420,982
Expense Cost	$25,043	$27,021	$41,457	$43,723	$2,579,018
Total Cost	$466,085	$502,896	$771,603	$813,766	$48,000,000
Total Cost / MVA Added	N/A	N/A	N/A	N/A	N/A
Total Cost / CM Saved	N/A	N/A	N/A	N/A	N/A
Total Cost / CI Saved	N/A	N/A	N/A	N/A	N/A
Preferred Option	X				

Option 1 was selected over Option 2 because of the configuration and distance in the [redacted]. Options 3 and 4 were not cost effective solutions compared to Option 1.

Non-Wire Solution (NWS) (Option 5)

[redacted], it is not cost effective compared to the other options. This option was calculated at $2.0M per MWh based on the two lowest of the three contractor bids received in Connecticut.

5. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	April 2025
100% Detailed Engineering Completion	July 2025
Fully Funded	September 2025
Construction Start	October 2025
Project Completion	December 2025

6. Regulatory Decisions

N/A

7. Codes and Standards

N/A

8. Risk and Contingencies

Contingencies: 20% contingency was added for 2025 work. This contingency accounts for any risks that are unknown and do not have mitigation plans.

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2025	Medium	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Customer Permission / Siting Council / Municipal approvals	2025	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2025	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Internal engineering resources not available to perform the work.	2025	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2025	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2025	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2025	Medium	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Wetlands / Environmentally sensitive area	2025	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1. CD01132 Triangle Switchgear [redacted]
2. CD02678 - ARKA - SCADA Backup

10. Attachments (One Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Geographic Maps	*YES*
B. One-lines	*YES*
C. Load Sheets	*YES*
D. Partial Funding PAF	*YES*

Attachment - A: Geographic Maps





Figure 5: Circuit Map – Before (Detailed View)



Figure 6: Circuit Map – Option 1 (preferred)



Figure 7: Circuit Map – Option 1 Final Build (preferred)

Attachment - B: One-lines



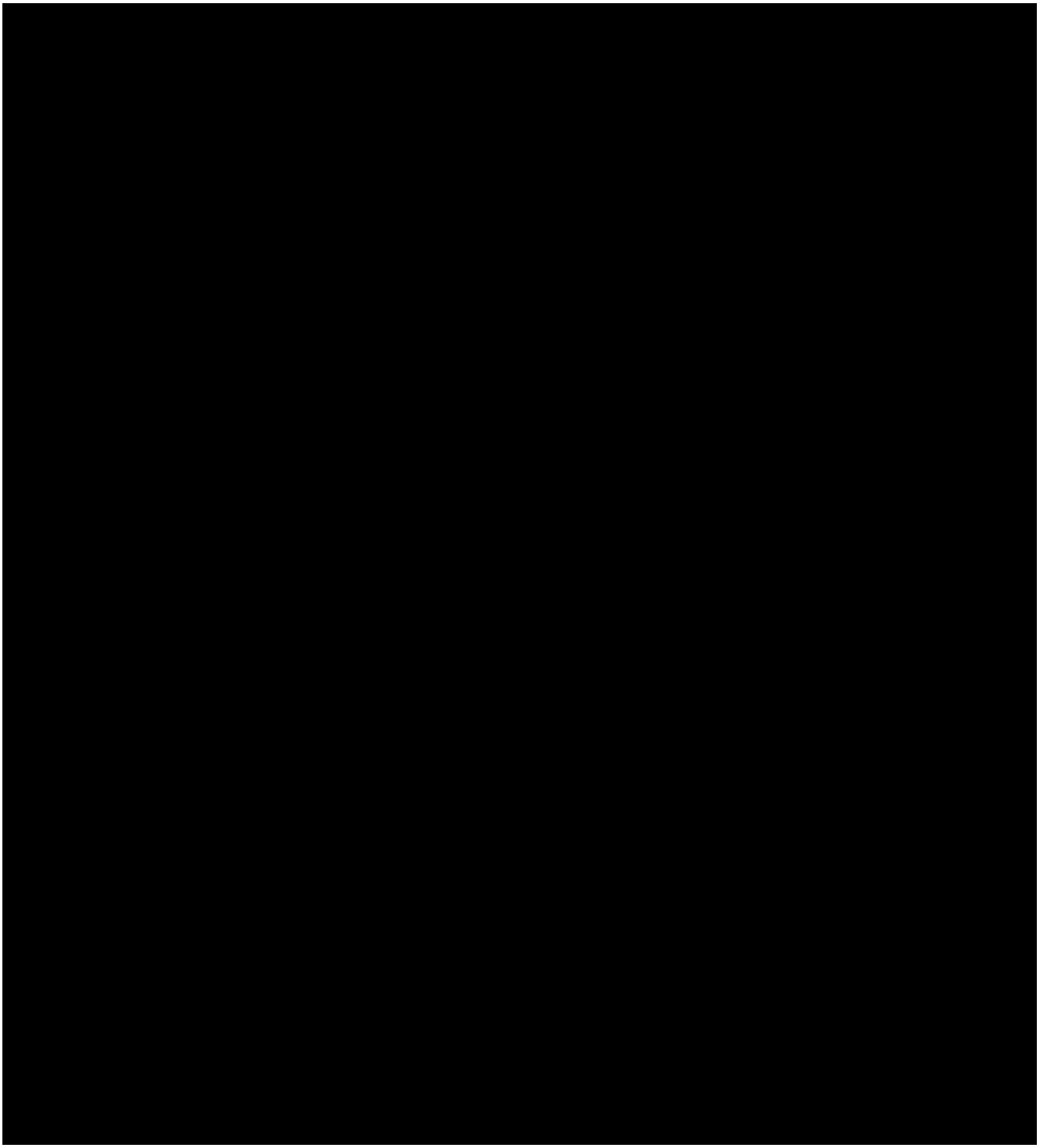
Figure 8: One-lines – Before (11A57)



Figure 9: One-lines – Option 1 (preferred)

Attachment - C: Load Sheets





Attachment - D: Partial Funding PAF

Project Title: ARKA Reconductor	**Project Number: CD02681**
Date Prepared: 04/24/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: 12/31/2025	**NWS Excludable:** ☐ Yes ☒ No
Total Capital Request: $225.9K	**Authorization Type:** Partial Funding

1. Executive Summary

This project was created to address electrical reliability and restoration concerns from ARKA; a satellite and space-based optics company at [redacted]. [redacted] This area will be improved via reconductoring bare wire to covered wire.

Division: Western
District: Newtown AWC
Town(s): Danbury

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2025	Year 2026	Year 2027+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	11.8	0.0	0.0	11.8
Outside Services	80.1	0.0	0.0	80.1
Materials	32.1	0.0	0.0	32.1
Removals	28.3	0.0	0.0	28.3
Other	1.1	0.0	0.0	1.1
Risk and Contingency	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	**153.4**	**0.0**	**0.0**	**153.4**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	68.0	0.0	0.0	68.0
Capitalized interest or AFUDC, if any	4.5	0.0	0.0	4.5
Subtotal – Indirect Costs	**72.5**	**0.0**	**0.0**	**72.5**
Total Gross Capital Costs	**225.9**	**0.0**	**0.0**	**225.9**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**225.9**	**0.0**	**0.0**	**225.9**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

As for ARKA, they have experienced 4 outages in the last 5 years (2020-2025):

Date	Storm Event	Weather	Cause	Duration (min)
[redacted]				

Figure 1: Outage Table

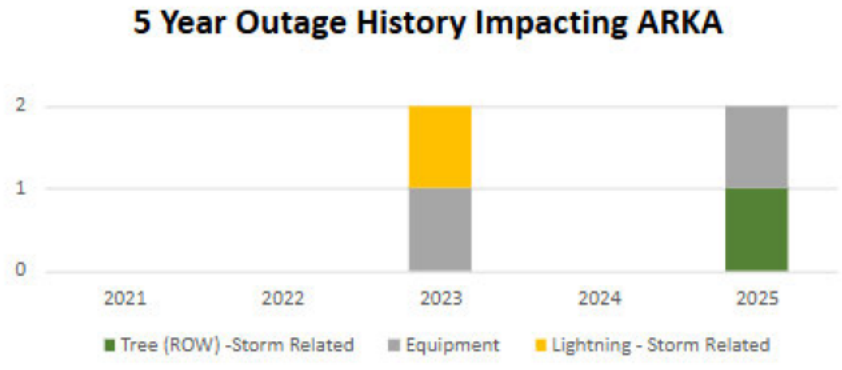


Figure 2: Outage Bar Chart

In response to the most recent outage, vegetation management has removed many trees in the right of way (ROW). The new tree line to pole line distance is 25’.

Before (2/27/25)	After (3/7/25)
	
Before (2/27/25)	**After (3/7/25)**
	

Figure 3: Before and After Vegetation

Projects that have been accounted for during this project include: CD01132 [redacted] CD02678 - ARKA - SCADA Backup. Additionally, the service upgrade occurring in Q2 of 2025 for ARKA has also been accounted for.

b. Project Need

[redacted]

Successful execution of this project will further bolster this ROW and will mitigate future outages localized to this area.

c. Project Scope

This project proposes seven options. The preferred option is Option 1A. This option looks to reconductor the bare wire in the ROW to covered wire without the installation of a road access route. The scope of Option 1A is as follows:

Reconductor:

[redacted]

Major Materials:

- 477 AL TW

4. Alternatives Considered

[redacted]

Authorization Type	Partial	Partial	Partial	Partial	Partial	Partial	Partial
Capital Cost	$594,995	$225,949	$612,842	$243,795	$374,434	$394,894	$45,420,982
Expense Cost	$33,784	$12,829	$34,797	$13,843	$21,260	$22,422	$2,579,018
Total Cost	$628,779	$238,778	$647,639	$257,638	$395,694	$417,316	$48,000,000
Total Cost / MVA Added	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Cost / CM Saved	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Cost / CI Saved	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Preferred Option		X					

Option 1A was selected over Option 1, Option 2, and Option 2A because of the configuration and distance in the ROW. [redacted]

Non-Wire Solution (NWS) (Option 5)

[redacted]. This option was calculated at $2.0M per MWh based on the two lowest of the three contractor bids received in Connecticut.

5. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	April 2025
100% Detailed Engineering Completion	July 2025
Fully Funded	September 2025
Construction Start	October 2025
Project Completion	December 2025

6. Regulatory Decisions

N/A

7. Codes and Standards

N/A

8. Risk and Contingencies

Contingencies: 20% contingency was added for 2025 work. This contingency accounts for any risks that are unknown and do not have mitigation plans.

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2025	Medium	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Customer Permission / Siting Council / Municipal approvals	2025	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2025	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Internal engineering resources not available to perform the work.	2025	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2025	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2025	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2025	Medium	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Wetlands / Environmentally sensitive area	2025	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
3. CD01132 Triangle Switchgear [redacted]
4. CD02678 - ARKA - SCADA Backup

10. Attachments (One Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Cost Estimates	*YES*
B. Geographic Maps	*YES*
C. One-lines	*YES*
D. Load Sheets*	*YES*
E. Initial Funding PAF	*YES*

*Option 1 and 1A share the same load sheets. Same for Option 2 and 2A. Differences between these sets of options will not affect the electrical limitations for the load sheets.

Attachment - A: Cost Estimates

Design Alternative CD02681-05

Estimate

Preliminary
Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$198,982
Contingency Amount:	$39,796
Estimate:	$238,778
Reimbursement:	$0
Net Amount:	**$238,778**

Description:

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 1 officer @ $1,000 per day	23-ALL18	$3,000.00
OTHER OTHER 30% contractor adder ($153,064*0.3)	23-ALL14	$45,919.00
POLE OH - POLE - 3ph (Eversource custodian) 50% pole replacement	23-OH14	$12,157.60
OTHER OTHER Matting costs to reconductor	23-ALL14	$50,000.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil Reconductor to 477 AL TW	23-OH27	$75,660.00
OH WIRE OH - Remove circuit wire (3 phase) Remove 336 ACSR Bare	23-OH37A	$3,120.00
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Switching	23-ALL17	$9,124.96

[redacted]

Figure 4: Cost Estimates – Option 1A (preferred)

Design Alternative CD02681-01

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$523,983
Contingency Amount:	$104,797
Estimate:	$628,779
Reimbursement:	$0
Net Amount:	$628,779
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 1 officer @ $1,000 per day	23-ALL18	$3,000.00
OTHER OTHER 30% contractor adder ($403,064*0.3)	23-ALL14	$120,920.00
POLE OH - POLE - 3ph (Eversource custodian) 50% pole replacement	23-OH14	$12,157.60
OTHER OTHER Gravel road: leveling, grading, matting, fill, materials, labor	23-ALL14	$300,000.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil Reconductor to 477 AL TW	23-OH27	$75,660.00
OH WIRE OH - Remove circuit wire (3 phase) Remove 336 ACSR Bare	23-OH37A	$3,120.00
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Switching	23-ALL17	$9,124.96

Figure 5: Cost Estimates – Option 1

Design Alternative CD02681-02

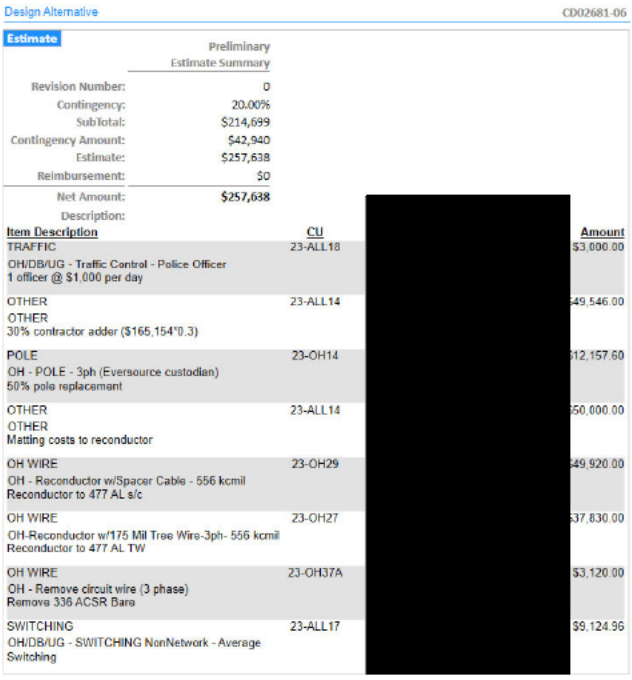
Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$539,700
Contingency Amount:	$107,940
Estimate:	$647,639
Reimbursement:	$0
Net Amount:	$647,639
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 1 officer @ $1,000 per day	23-ALL18	$3,000.00
OTHER OTHER 30% contractor adder ($415,154*0.3)	23-ALL14	$124,547.00
POLE OH - POLE - 3ph (Eversource custodian) 50% pole replacement	23-OH14	$12,157.60
OTHER OTHER Gravel road: leveling, grading, matting, fill, materials, labor	23-ALL14	$300,000.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil Reconductor to 477 AL s/c	23-OH29	$49,920.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil Reconductor to 477 AL TW	23-OH27	$37,830.00
OH WIRE OH - Remove circuit wire (3 phase) Remove 336 ACSR Bare	23-OH37A	$3,120.00
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Switching	23-ALL17	$9,124.96

Figure 6: Cost Estimates – Option 2



Design Alternative CD02681-06

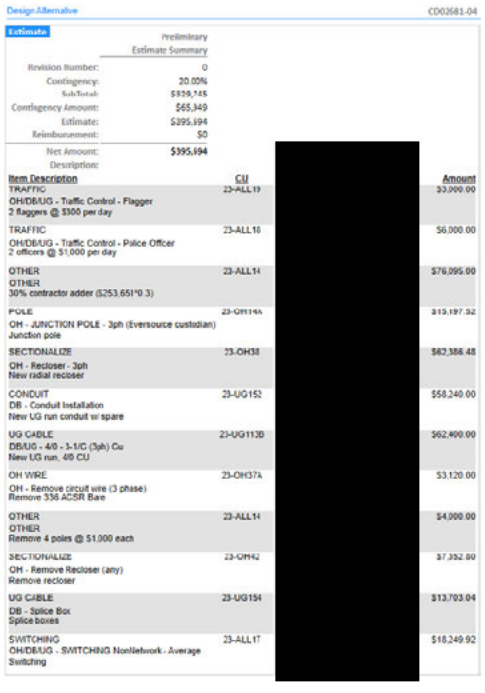
Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$214,699
Contingency Amount:	$42,940
Estimate:	$257,638
Reimbursement:	$0
Net Amount:	$257,638
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 1 officer @ $1,000 per day	23-ALL18	$3,000.00
OTHER OTHER 30% contractor adder ($165,154*0.3)	23-ALL14	$49,546.00
POLE OH - POLE - 3ph (Eversource custodian) 50% pole replacement	23-OH14	$12,157.60
OTHER OTHER Matting costs to reconductor	23-ALL14	$50,000.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil Reconductor to 477 AL s/c	23-OH29	$49,920.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil Reconductor to 477 AL TW	23-OH27	$37,830.00
OH WIRE OH - Remove circuit wire (3 phase) Remove 336 ACSR Bare	23-OH37A	$3,120.00
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Switching	23-ALL17	$9,124.96

Figure 7: Cost Estimates – Option 2A



Design Alternative CD02681-04

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$329,745
Contingency Amount:	$65,949
Estimate:	$395,694
Reimbursement:	$0
Net Amount:	$395,694
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Flagger 2 flaggers @ $300 per day	23-ALL19	$3,000.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 2 officers @ $1,000 per day	23-ALL18	$6,000.00
OTHER OTHER 30% contractor adder ($253,651*0.3)	23-ALL14	$76,095.00
POLE OH - JUNCTION POLE - 3ph (Eversource custodian) Junction pole	23-OH14A	$13,197.52
SECTIONALIZE OH - Recloser - 3ph New radial recloser	23-OH38	$82,386.48
CONDUIT DB - Conduit Installation New UG run conduit w/ spare	23-UG152	$58,240.00
UG CABLE DB/UG - 4/0 - 3-1/C (3ph) Cu New UG run, 4/0 CU	23-UG113D	$62,400.00
OH WIRE OH - Remove circuit wire (3 phase) Remove 336 ACSR Bare	23-OH37A	$3,120.00
OTHER OTHER Remove 4 poles @ $1,000 each	23-ALL14	$4,000.00
SECTIONALIZE OH - Remove Recloser (any) Remove recloser	23-OH42	$7,352.80
UG CABLE DB - Splice Box Splice boxes	23-UG154	$13,703.04
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Switching	23-ALL17	$18,249.92

Figure 8: Cost Estimates – Option 3

Design Alternative CD02681-07

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	20.00%
SubTotal:	$347,763
Contingency Amount:	$69,553
Estimate:	$417,316
Reimbursement:	$0
Net Amount:	**$417,316**
Description:	

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Flagger 2 flaggers @ $300 per day	23-ALL19	$8,400.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 2 officers @ $1,000 per day	23-ALL18	$8,000.00
OTHER OTHER 30% contractor adder ($267,511*0.3)	23-ALL14	$80,254.00
OH WIRE OH - Line Extension - 3ph (556 kcmil) Extend 477 AL TW	23-OH34	$156,000.00
SECTIONALIZE OH - Recloser - 3ph Radial recloser	23-OH38	$62,386.48
OH WIRE OH - Remove circuit wire (3 phase) Remove 336 ACSR Bare	23-OH37A	$3,120.00
OTHER OTHER Remove poles	23-ALL14	$4,000.00
SECTIONALIZE OH - Remove Recloser (any) Remove radial recloser	23-OH42	$7,352.80
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average Switching	23-ALL17	$18,249.92

Figure 9: Cost Estimates – Option 4

Attachment - B: Geographic Maps

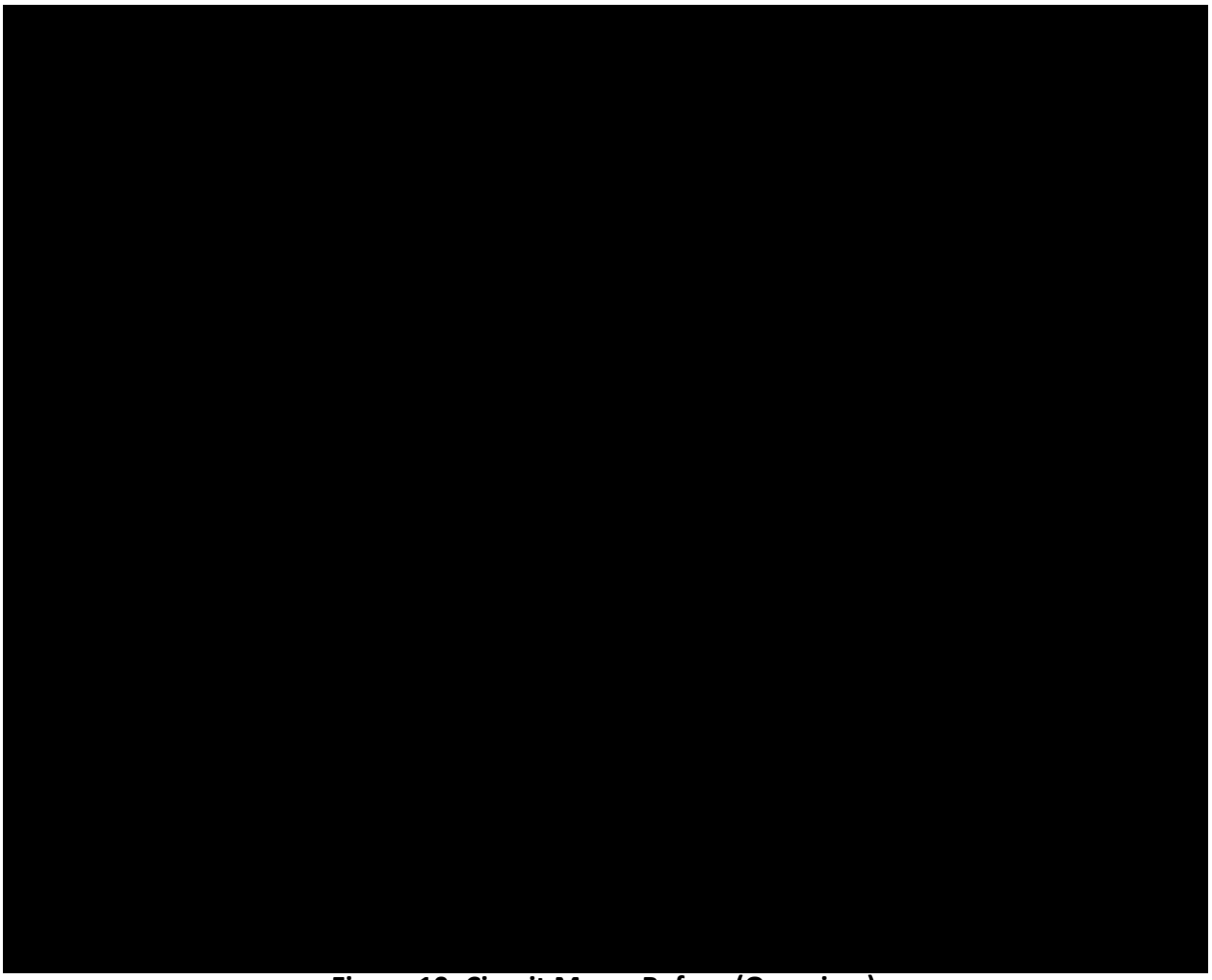


Figure 10: Circuit Map – Before (Overview)



Figure 11: Circuit Map – Before (Detailed View)

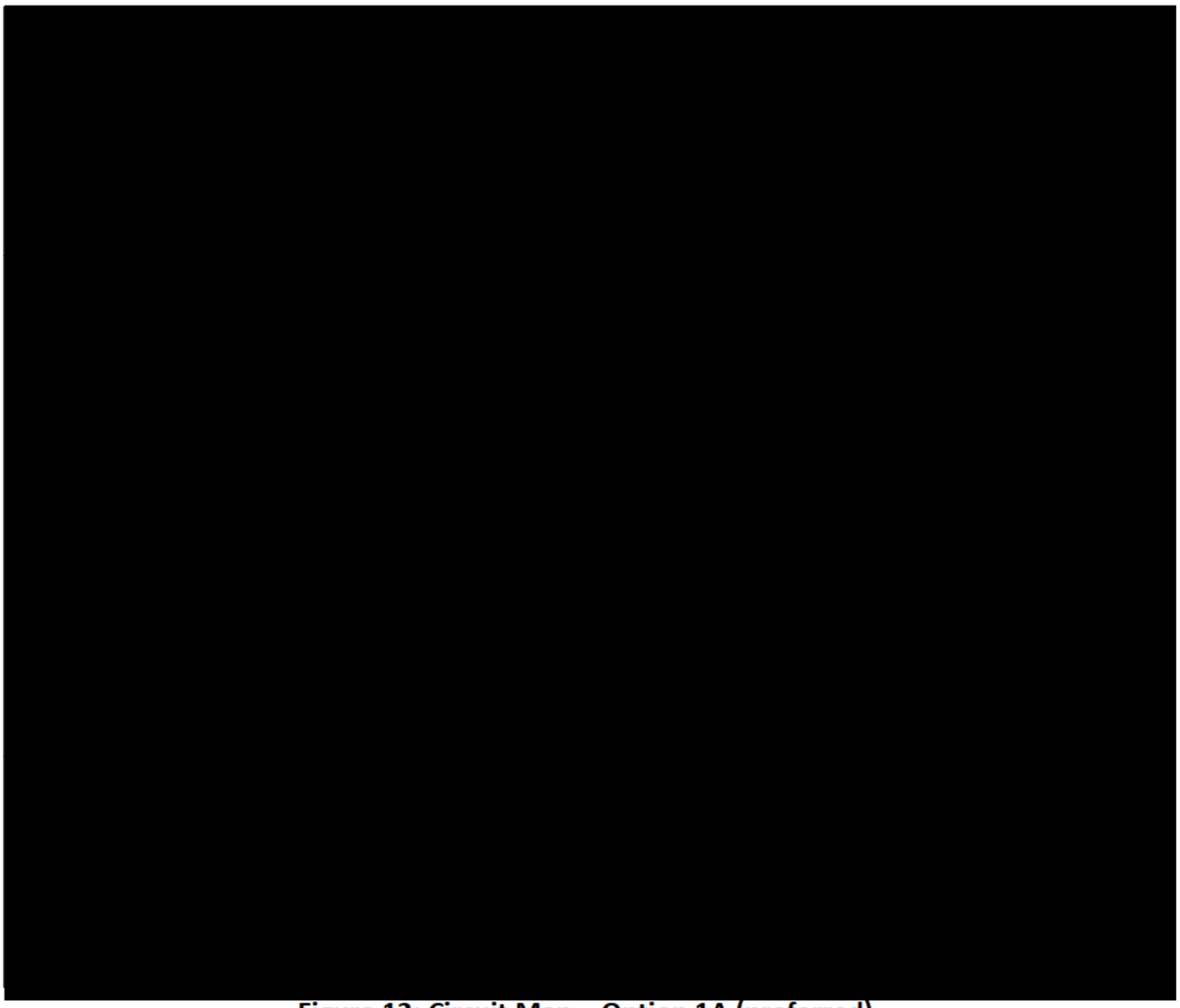


Figure 12: Circuit Map – Option 1A (preferred)



Figure 13: Circuit Map – Option 1A Final Build (preferred)



Figure 14: Circuit Map – Option 1



Figure 15: Circuit Map – Option 1 Final Build

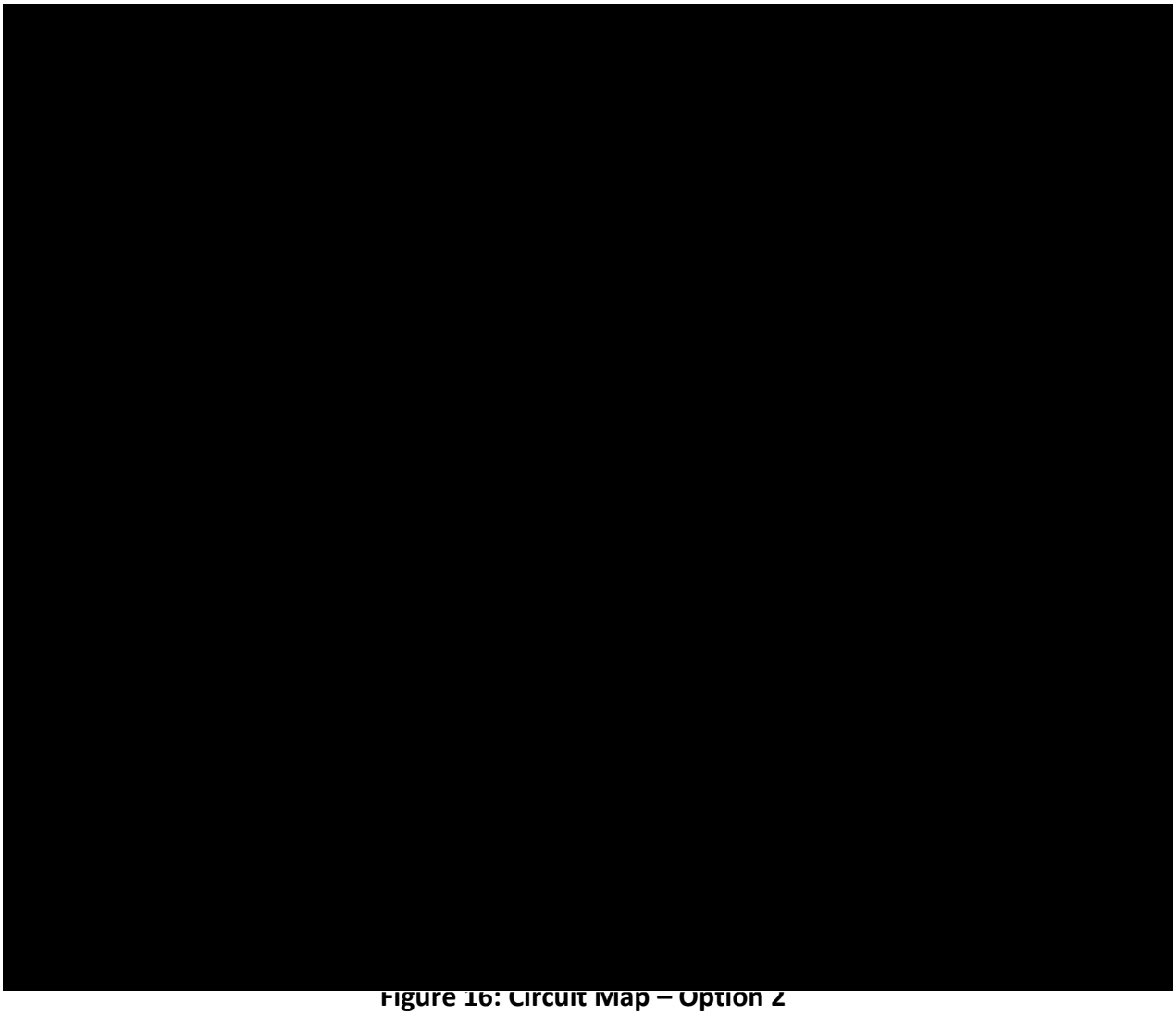


Figure 16: Circuit Map – Option 2



Figure 17: Circuit Map – Option 2 Final Build



Figure 18: Circuit Map – Option 2A



Figure 19: Circuit Map – Option 2A Final Build



Figure 20: Circuit Map – Option 3



Figure 21: Circuit Map – Option 3 Final Build



Figure 22: Circuit Map – Option 4



Figure 23: Circuit Map – Option 4 Final Build

Attachment - C: One-lines



Figure 24: One-lines – Before (11A57)



Figure 25: One-lines – Option 1A (preferred)



Figure 26: One-lines – Option 1



Figure 27: One-lines – Option 2



Figure 28: One-lines – Option 2A



Figure 29: One-lines – Option 3

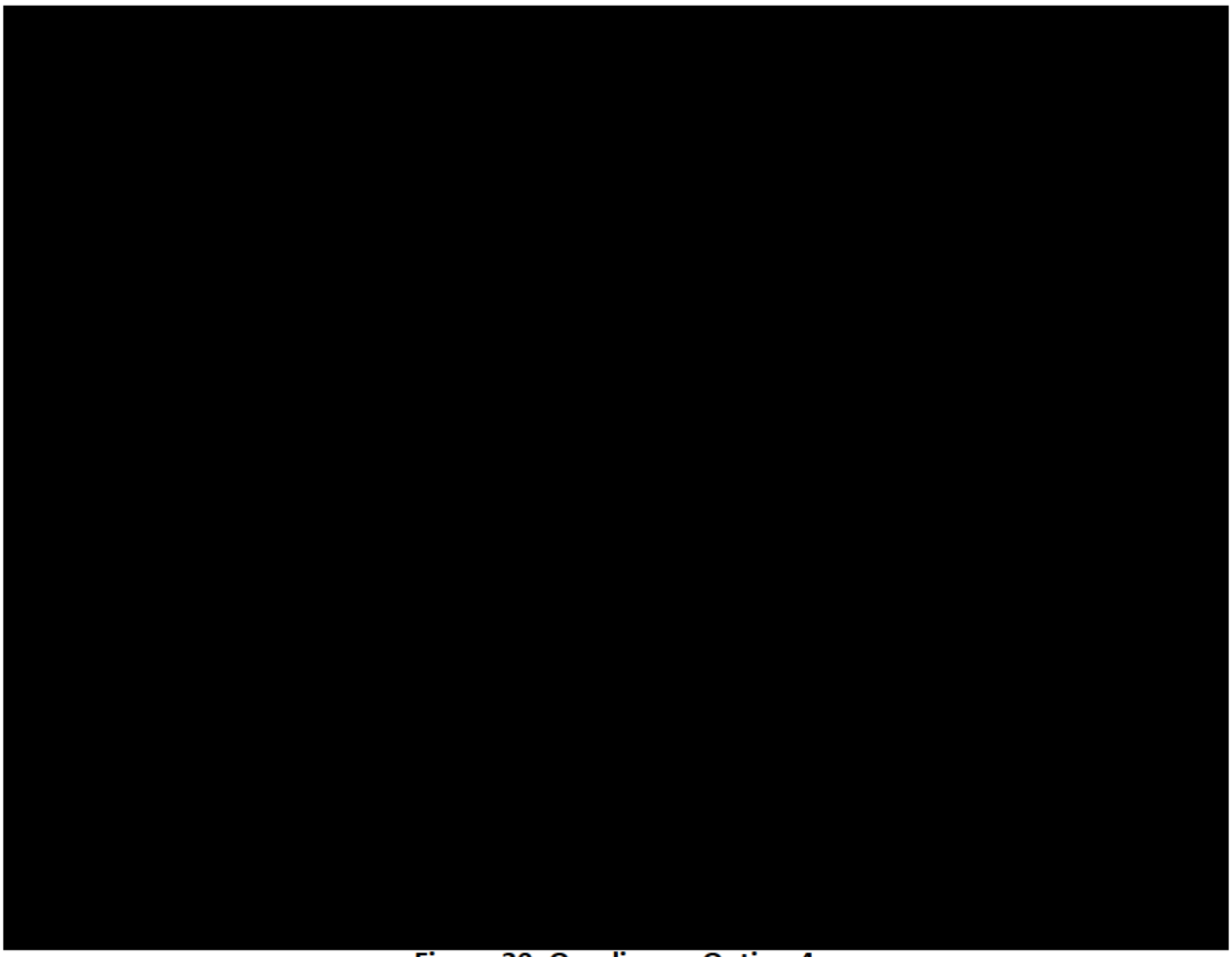
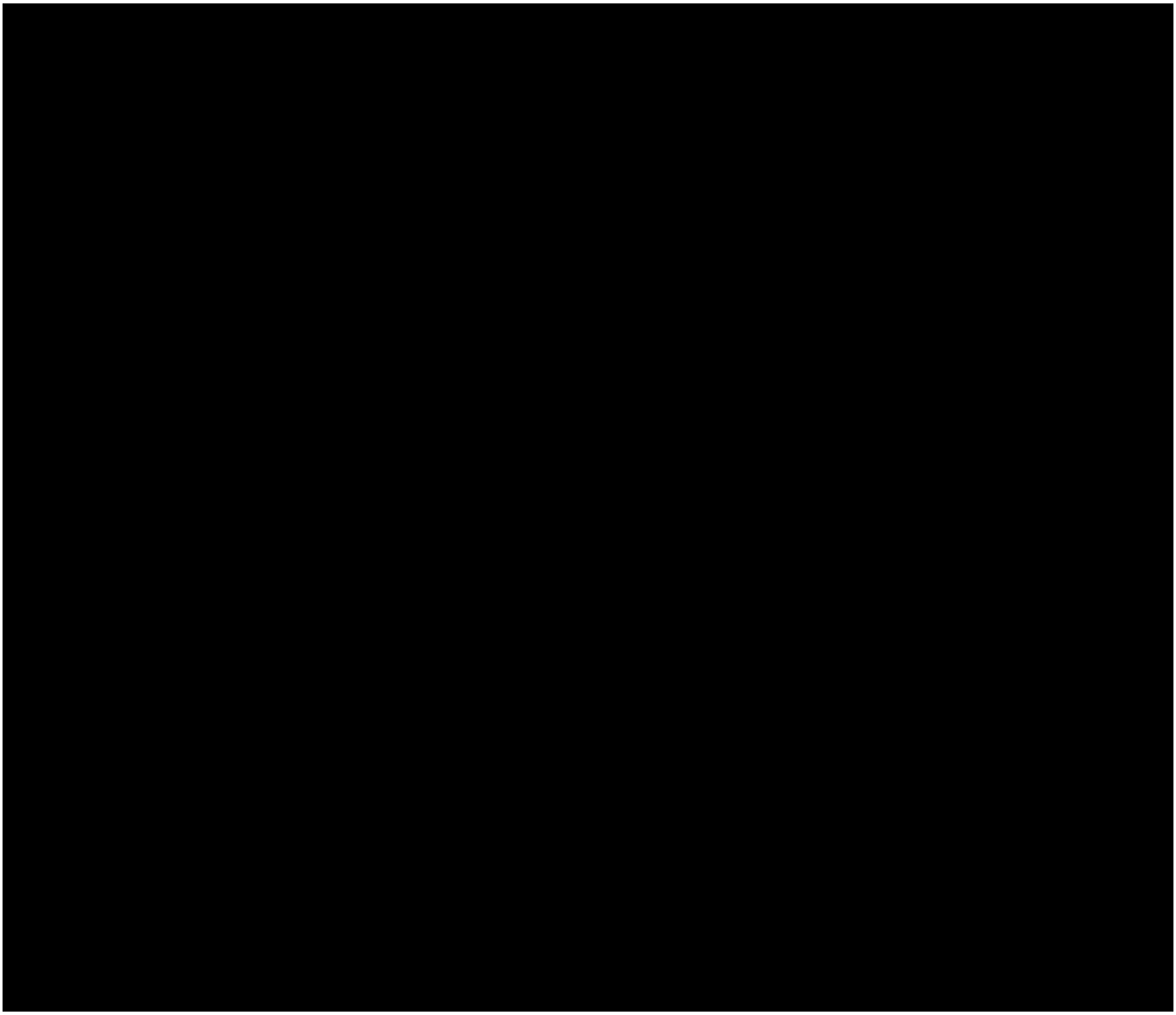
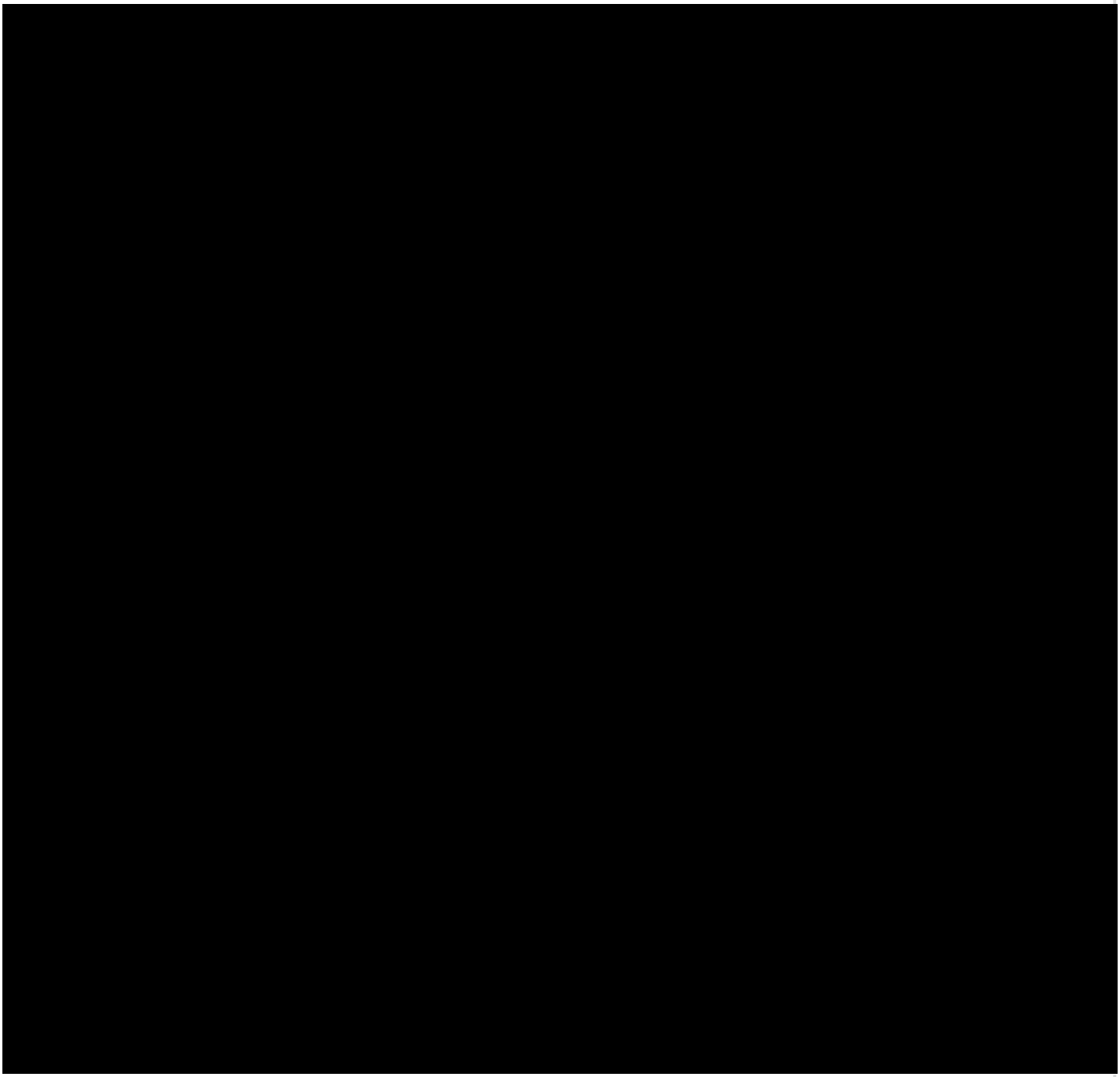
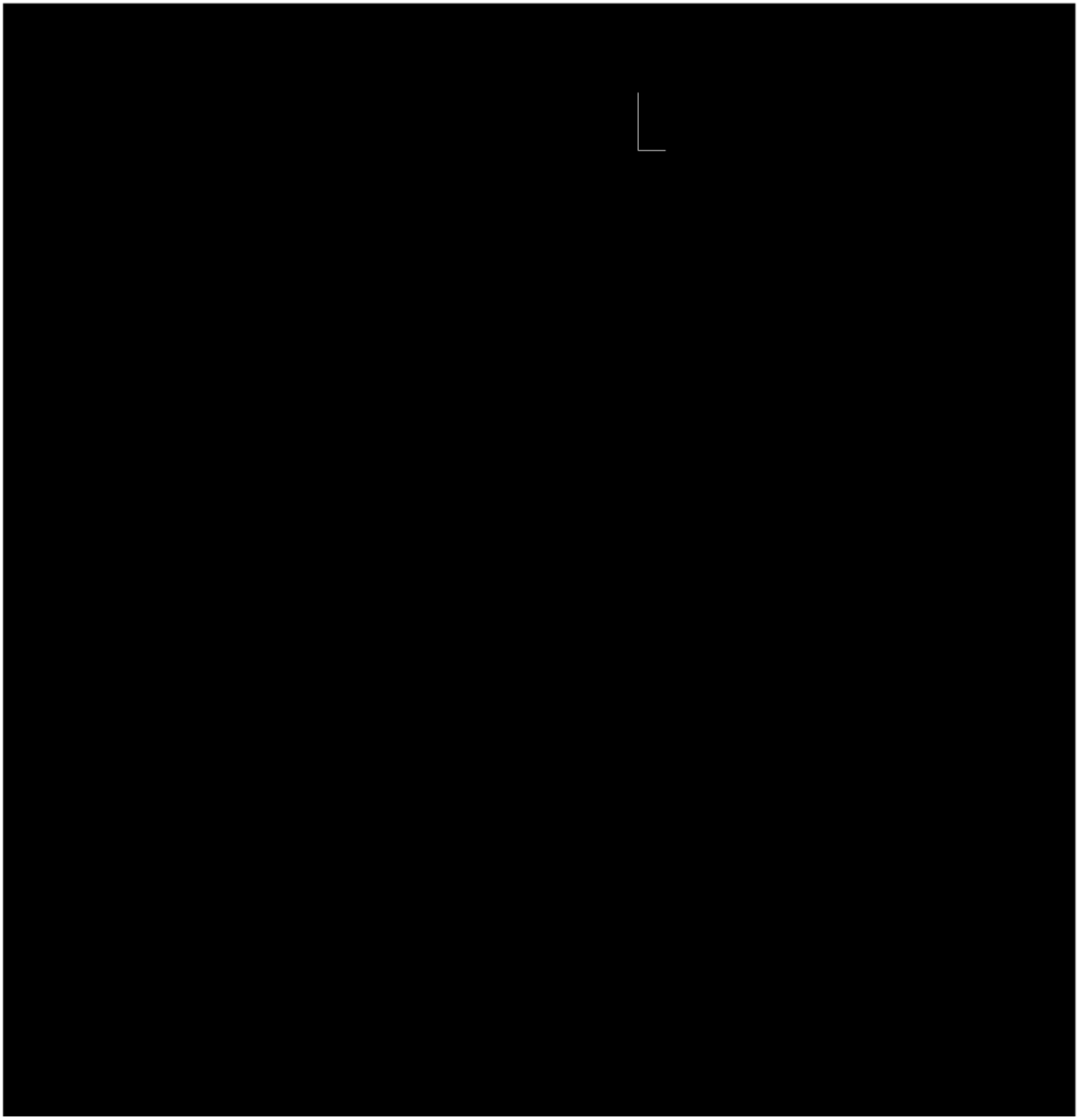


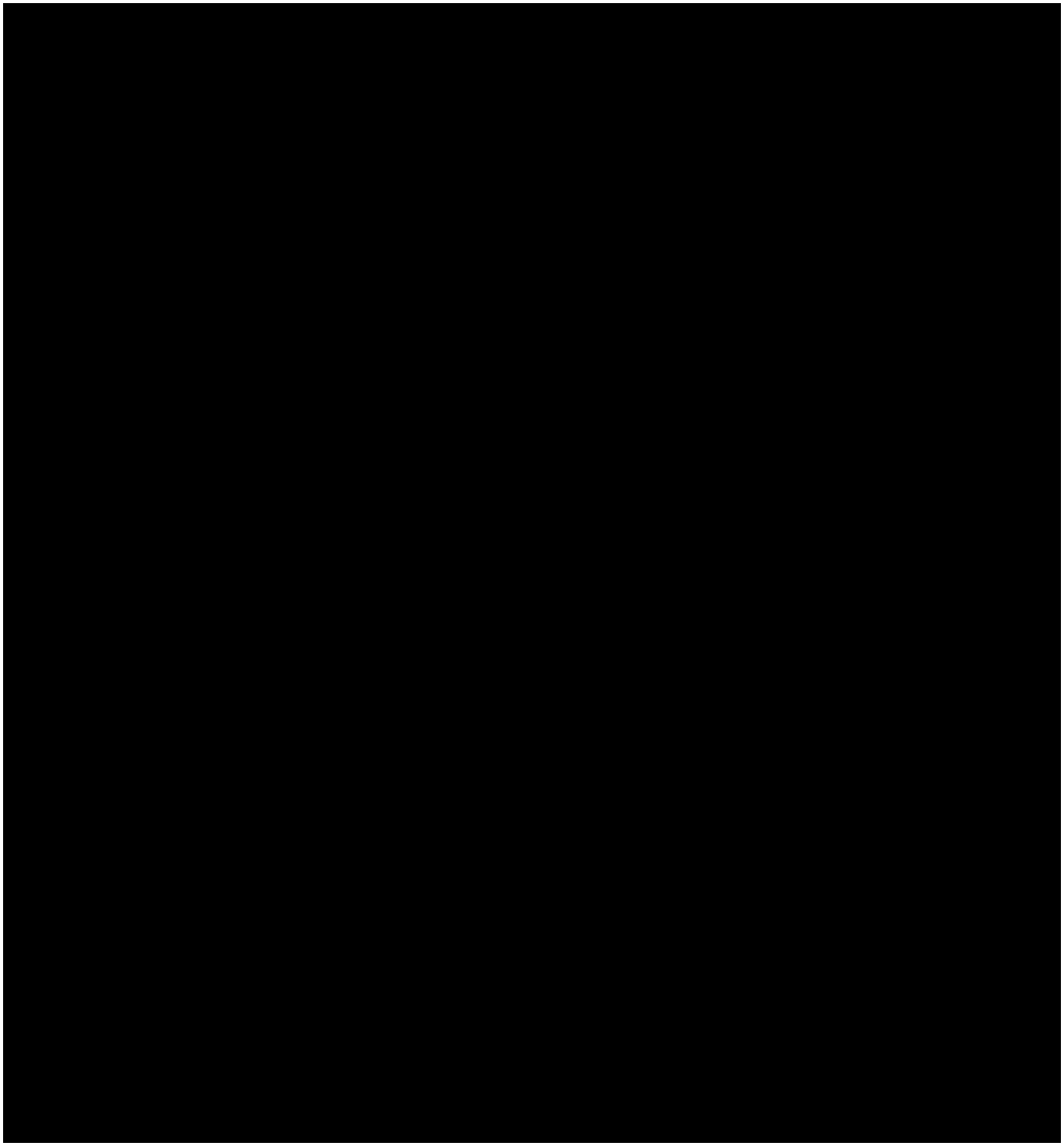
Figure 30: One-lines – Option 4

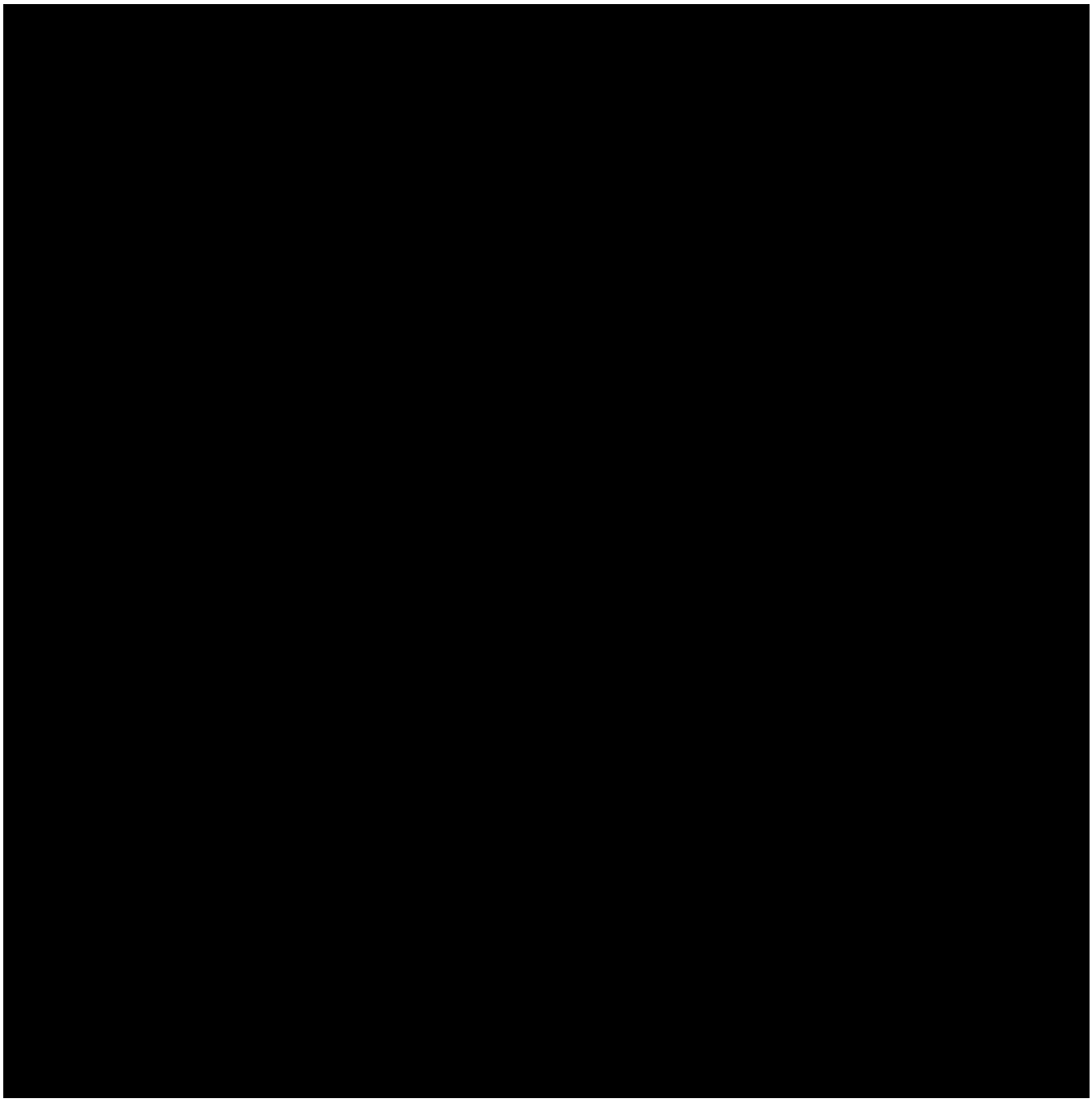
Attachment - D: Load Sheets











Attachment - E: Initial Funding PAF

EVERSOURCE

Project Approval Form

Project Title: ARKA Reconductor	**Project Number: CD02681**
Date Prepared: 03/26/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Project Manager [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of 5-year plan?** No
	Emergency Related Request? No
Total Request ($): 30K	**Authorization Type:** Initial Funding

1. Project Need Statement

Project CD02681 was established to address the reliability and restoration concerns from ARKA; a satellite and space-based optics company at [redacted] The customer's concern stems from multiple outages in back-to-back months in 2025. [redacted]

Title: **ARKA Reconductor**
Division: Western
District: Newtown AWC
Town: Danbury

2. Project Objectives

The objective for this project is to reconductor the ROW serving ARKA. This initial funding request is to investigate methods to perform and complete the objectives above. The initial requested amount is $30,000.

Project Initiator: [redacted]

Engineering Approval: _____

1

Refer to Distribution Capital Project Approval Process
JA-AM-2001-B, Rev.3