EVERSOURCE

Operations Project Authorization Form

Approved on May 25, 2023 EPAC

Link to Meeting Minutes

Project Title: [redacted] **Add Feeder Breaker**	**Project Number: CS00571**
Date Prepared: 05/02/2023	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Other**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 80232625**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: December 2023	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Total Capital Request:Total Capital Request: $881K	**Authorization Type: Full Funding**

[1] Executive Summary

This project is requesting full funding approval of $881K [redacted]

There is growing load in the Danbury, CT area and a new customer, will be constructing a mixed use (commercial/residential) development on [redacted] in Danbury. This development will be constructed in four (4) phases and includes ten (10) different buildings. The Mill Plain Road development's phase 1 buildings are targeted to be in service by the end of 2023. [redacted] (See Attachment D).

This project is being coordinated with a new [redacted] (CD01922).

The initial funding request of $120K was approved on March 21, 2021, and work order 80232625 was set up. As of April 14, 2023, $34K has been spent to complete preliminary

engineering, a planning grade estimate, preliminary constructability review and preparation of this full funding Project Authorization Form (PAF).

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[2] PROJECT COSTS SUMMARY

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2023 to Go	2024	Total
1. ROW / Easements / Land Acquisition					
2. Environmental Approvals / Permits			$3		$3
3. Outreach					
4. Siting Approvals / Permits					
5. Engineering / Design		$9	$89		$98
6. Materials (Eversource purchased)			$95		$95
7. Construction		$0	$154		$155
8. Testing / Commissioning			$51		$51
9. Project Mgmt. Team		$16	$27		$43
10. Removals					
11. Other					
12. Risks			$62		$62
SUBTOTAL DIRECTS W/ RISKS	**$120**	**$25**	**$481**		**$506**
13. Indirects/Overhead		$7	$314		$322
14. AFUDC		$1	$26		$27
PROJECT TOTAL – BASELINE BUDGET	**$120**	**$34**	**$821**		**$855**
15. Contingency			$27		$27
TOTAL CAPITAL REQUEST	**$120**	**$34**	**$848**		**$881**
16. Reimbursables/Customer Contribution					
PROJECT TOTAL (LESS REIMBURSABLES)	**$120**	**$34**	**$848**		**$881**
O&M					
TOTAL REQUEST	**$120**	**$34**	**$848**		**$881**

For complete estimate, see Attachment A.

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions	$25K
2. Severe Weather causing delays and resulting in OT	$21K
3. Design development	$16K
Total	**$62K**

Explain unique payment provisions, if applicable: N/A

Identify and detail any unique O&M impacts resulting from this project: N/A

[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

A new customer in the Danbury, CT area, will be constructing a new mixed use (commercial/residential) development on [redacted] in Danbury, CT. [redacted] See Attachment D for the Station Operating Diagram.

There is growing load in the Danbury, CT area. The new mixed use development will be constructed in four (4) phases and includes ten (10) different buildings. In addition to this development, there other residential and industrial loads being proposed. The [redacted] development's phase 1 buildings are targeted to be in service by the end of 2023. See attachment E one for the proposed WestConn Park map.

[redacted]

Project Scope

The project scope includes the following:

- [redacted]
- [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- Test and commission the breakers to verify local and remote operations and status.

A preliminary constructability review was performed on 2/09/2023. As per normal Eversource design procedures, a detailed constructability review will be performed during the detailed design stage of the project to ensure there are no unaccounted for details that have been missed during the design stage.

This project is being coordinated with a new Distribution line project (CD01922) which is currently being prepared to complete the distribution line work to connect the WestConn Park service to the Middle River substation.

Substation Equipment

Station	Device Position / Nomenclature	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Background

A new customer will be constructing a new development on [redacted] in Danbury, CT. The customer will be fed from the [redacted]. A new customer service is being installed by the Distribution line group under project the New Service - WestConn Park Danbury Project (CD01922). See reference 1.

Estimated total load for the four phases of WestConn Park development is approximately 2.8 MVA. Phase 1 buildings will target to be in service by the end of 2023. The full development is expected to be completed by the end of 2026. The final loads and schedules still need to be

confirmed and a new project will be set up to address the final loading needs. See attachment F for an estimate of the customer loads.

[redacted] See Attachment G.

[4] ALTERNATIVES CONSIDERED

Alternative 1 (This is the preferred alternative)

[redacted]

Alternative 1 Planning Grade Cost Estimate: $881K

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

- [redacted]

Alternative 2 (This is not the preferred alternative)

[redacted]

Alternative 2 Cost Estimate: $941K – Estimate based on Alternative 1 Planning Grade estimate increased by $60K for purchase of added spare breaker purchase ($40K) and associated Indirects ($20K). As this alternative is not considered viable, no estimate has been included.

[redacted]

- [redacted]

[redacted]

[5] Project Schedule

Milestone	Scheduled Completion Date
IFR Approval	March 2022
SDC Approval (for applicable projects)	N/R
Conversion of Tx development costs,	N/R
EPAC Partial Funding Approval	N/R
Preliminary Design Completion	May 2023
EPAC Full Funding Approval	May 2023
Siting Approval (for applicable projects)	N/R
Start of Construction	November 2023
Project In-Service Date (ISD)	December 2023
Project Need Date	December 2023

The P6 schedule is included as Attachment B.

[6] Regulatory Approvals

N/A

[7] Risk and Risk Mitigation Plans

Contingency:

Project cost estimate includes $27K of contingency for any risks that are not yet known and do not yet have mitigation plans.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions	Be flexible with construction and have alterative paths and solutions to conduit installations. Risk allocation is included to address this risk.
2. Severe Weather causing delays and resulting in OT.	Monitor weather and reschedule work, if possible, to avoid severe weather. Risk allocation is included to address this risk.
3. Design development	Weekly project meeting meetings to discuss project status and schedule to ensure the team is on track. Risk allocation is included to address this risk.

[8] REFERENCES

References
1. New Service - WestConn Park Danbury Project (CD01922) – (CPAC January 31, 2022)
2. [redacted] MH Inspection (Project IFUG1B Work Order 80162574) Completed
3. CS00571-[redacted] Add Feeders-IFR, dated March 3, 2022
4. CD02119

[9] ATTACHMENTS (One-Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Cost Estimate: CS00571 C-23-184 Add Feeder Positions -[redacted]	YES
B. P6 Schedule: 20230407 Schedule Middle River 4.7.23	YES
C. CS00571 Substation Constructability Review Form Final LD 20230404	YES
D. [redacted] CS00571 SS Operating Diagram	YES
E. Proposed WestConn Park Map	YES
F. WestConn Park Customer Load Estimate	YES
G. WO_7633775 28M Manhole Inspection	YES

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **Add Feeder Breaker**		**Project Number: CS00571**	
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non- regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?		No	
Is an ISO-NE PAC presentation required?		No	
ISO-NE Presentation Date (if completed):			
Cost in ISO-NE Presentation ($M) (if completed):			
Is a PPA required?		No	
ISO-NE Approval Date (if completed):			
Is a TCA Application Required?		No	
TCA Submittal Date (if submitted):			
Cost in TCA Submittal ($M) (if submitted):			
Enter ISO-NE RSP / Asset Condition ID, if assigned:			
PLANNING/PROTECTION & CONTROLS			
Are RAS/SPS/UVLs affected?		No	
OPERATIONS			
Outage Required?	☒ Primary Equipment (Power Transfer)	☐ Secondary Equipment (P&C only)	☐ Outage Not Required
Do SCLL Conditions Exist?		No	
Has an outage schedule been approved?		No	
Are Operations & Maintenance procedures/training required?		No	
STANDARDS			
Does the project include standard equipment and designs?		Yes	
SUBSTATION ENGINEERING			
Does this impact Revenue Metering		No	
Is preliminary short circuit/ breaker duty analysis required?		No	
Are there any changes to the baseline audible noise?		No	
Is there an impact to the existing ground grid?		No	
Is a Transient Over Voltage (TOV) analysis required?		No	

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] **Add Feeder Breaker**	**Project Number: CS00571**
P&C ENGINEERING	
OP-22 - Are PMUs and DDR required?	No
If BPS, is an NPCC Directory #4 presentation required?	No
Are ISO-NE OP-24 Appendix B updates necessary?	No
TRANSMISSION LINE ENGINEERING	
Are there any changes that affect the baseline EMF?	No
Are there any changes that affect the baseline EMI?	No
SITING	
Has Siting reviewed this project?	Yes
Name of Siting contact:	[redacted]
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	No
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
Has Project Services reviewed this project?	Yes Choose an item
Name of Project Services contact:	[redacted]
What is the level of outreach expected?	None
Is any part of this project in an Environmental Justice Community?	No
Has ROW Coordination reviewed this project?	No
Is this project coordinating with other existing scheduled work?	Yes
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
What team/firm prepared the cost estimate?	Estimate was prepared by the Eversource Estimating Team
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Full Review

ESTIMATE SUMMARY

Project Title: Add Feeders [redacted]
Project Mgr/Lead: [redacted]

Proiect Number: CS00571
WO & Task #: 80232625
Estimate revision #: 00
Estimate Type - Station work

Estimate #: C-123-184
Date of Estimate:04/21/2023

Estimate done by: [redacted]
In Service date (ISD):12/21/2023

Alt Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-123-184
Date of Estimate:04/21/2023

Project Number: CS00571
WO & Task #: 80232625

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2023	2024	2025	2026	2027	TOTAL w/ escal broken out
1	ROW / Easements / Land purchases										ROW / Easements / Land purchas $ -
2	Environmental Approvals / Permits	$2,900	0.6%	0.3%		$2,900					Environmental Approvals / Permit $ 2,900
3	Outreach										Outreach $ -
4	Siting Approvals / Permits										Siting Approvals / Permits $ -
5	Engineering / Design	$98,400	19.4%	11.2%	$9,000	$89,400					Engineering / Design $ 98,400
6	Materials (Eversource purchased)	$95,100	18.8%	10.8%		$95,100					Materials (Eversource purchased $ 105,600
7	Construction (incl materials by contractors)	$154,700	30.5%	17.5%	$300	$154,400					Construction (incl materials by cc $ 144,200
8	Testing / Commissioning	$50,700	10.0%	5.8%		$50,700					Testing / Commissioning $ 50,700
9	PMT Project Mgmt Team	$43,100	8.5%	4.9%	$15,900	$27,200					PMT Project Mgmt Team $ 43,000
10	Removals										Removals $ -
11	Other										Other $ -
12	Risks	$61,500	12.1%	7.0%		$61,500					Risks $ 61,500
125											
	Project Directs Total w/Risks	**$506,400**	100.0%	57.4%	**$25,200**	**$481,200**					**$506,300**
13	Indirects/Overhead	$321,600		36.5%	$7,400	$314,200					Indirects/Overhead $ 321,600
14	AFUDC	$26,900		3.1%	$1,200	$25,700					AFUDC $ 26,900
125											$ -
	Project Total - Baseline Budget	**$854,900**		97.0%	**$33,800**	**$821,100**					**$854,800**
											$ -
15	Contingency	$26,600		3.0%		$26,600					Contingency $ 26,600
	Project Total - Funding Approval Level	**$881,500**		100.0%	**$33,800**	**$847,700**					**$881,400**
											$ -
16	Reimbursables/Customer Contribution										$ -
125											-
	Project Total (less reimbursables)	**$881,500**			**$33,800**	**$847,700**					**$881,400**
	Cost per key qty (if appl)	440,750 $'s / EA Add 13.8kV Feeders to Existing 13.8kV Switchgear									
	Amount of Escalation included above										$ -
6	Total materials - Eversource	$95,100				$95,100					
	Total materials - Contractor	$10,500				$10,500					Escal total **$881,400**
	Total materials	$105,600				$105,600					Check total -$100
	NOTE: Risk / Contingency is 11.1% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)										

Estimate Range	**-25%**	-	**25%**
	$661,000	-	**$1,102,000**

COMMENTS:

Project Scope:

Key qty's and UOM (tie to inputs on est sheets)	2	EA	Add 13.8kV Feeders to Existi	9.27	Factor (total $/Eversource Mat'l $'s)
				5.32	Factor (Total directs $/Total Eversource mat'l $'s)

[redacted]

Assumptions/Clarifications:

Indirect rates based on: 11 - CT . Station work

Site Spare Breaker used in estimate with no additional spare breaker added to the Switchgear per email dated 4/25/23
Engineering is Internal.
Construction is Internal.
P6 Schedule used is Dated 04/07/2023.
Scope does not change foot print of the yard.
No lightning Protection or Lighting study required.
No Increase in fault current.
No Mobile Transformer or Switcher will be needed.
National Breaker Services revised quote dated 4/14/2023 for $40,000.00 includes additional bus.
Added Asbestos removal per email from AM dated 4/17/23
Provide Thermal Rating and Bus analysis Budget cost per email dated 4/20/2023 for $6500.00

RISKS

Potential UG Obstructions	$	25.000
Severe Weather. Delays. OT	$	21.000
Design development	$	15.500

UNESCALATED LINE ITEM DOLLARS

Project Number CS00571
Date of Estimate 04/21/2023
Estimate revision # 00

Escalation Rate — E Rate $ 57

		Prior Mhrs	Prior DOLLARS	2023 Mhrs	2023 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
CSTXX-CONSTRUCTION	R						
Electrical Construction	LT				$78,293		$78,293
General Construction	LT		$302				$302
SCADA / Automation	LT				$1,731		$1,731
Telecom - Field	LT						
Construction Reps (Internal)	LT				$11,902		$11,902
Support Switch/Tag	LT				$3,782		$3,782
Other (specify)	LT						
Other (specify)	LT						
Other (specify)	LT						
LT Total			$302		$95,708		$96,010
Employee Expenses	AE				$4,785		$4,785
Construction Purchased Material	AM				$1,217		$1,217
Outside Construction Vendor	AO				$43,389		$43,389
Sales tax on Constr. Vendor							
Vehicles (now in Indirects section)	AV						
Inspection services (Outside Vendor)	AO						
Construction Reps (Outside vendor)	AO						
Rents and Leases	BR						
CSTXX Subtotal			$302		$145,099		$145,401
Escalation							
CSTXX Total			$302		$145,099		$145,401
ENRXX-TG ENGINEERING/DESIGN							
Project Services/Crafting	LT				$1,996		$1,996
T- Line Engineering/Design	LT						
D- Street Engineering/Design	LT						
Civil Engineering/Design	LT						
Substation (T) Engineering/Design	LT						
Substation (D) Engineering/Design	LT		$9,026		$6,492		$15,518
Protection & Controls Engineering	LT				$7,006		$7,006
Survey Engineering	LT						
SCADA / Automation Engineering	LT						
Telecom Engineering	LT						
Other - specify	LT						
Other - specify	LT						
LT Total			$9,026		$15,496		$24,522
Employee Expenses	AE				$775		$775
Contractor Engineering - T-Line	AO						
Contractor Engineering - D-Street	AO						
Contractor Engineering - T -Station	AO						
Contractor Engineering - D-Station	AO				$43,740		$43,740
Contractor Engineering - P&C	AO				$39,340		$39,340
Contractor Engineering - Survey	AO						
Contractor Engineering - SCADA / Automation	AO						
Contractor Engineering - Telecom	AO						
Contractor Engineering - Specify	AO						
Contractor Engineering - Specify	AO						
Contractor Engineering - Specify	AO						
Vehicles (now in Indirects section)	AV						
ENRXX Subtotal			$9,026		$89,351		$98,377
Escalation							
ENRXX Total			$9,026		$89,351		$98,377
LNDXX-TG LAND							
Real Estate	LT	$ 59.50					
Employee Expenses	AE	8%					
Purchase Land	AM						
Easements	AM						
Vehicles (now in Indirects section)	AV						
Fees and Payments	BF						
LNDXX Subtotal							
Escalation							
LNDXX Total							
MATXX-TG MATERIAL							
Eversource	AM				$89,834		$89,834
Outside Services	AM				$10,500		$10,500
	AM						
Freight							
Sales Tax Eversource/outside services	3.9% 3.9%				$3,900		$3,900
Other							
MATXX Subtotal					$104,334		$104,334
Escalation							
MATXX Total					$104,334		$104,334
PSMXX-PROJECT MANAGER & SUPPORT							
Project Management (PM)							
Project Planning/Cost (IP)					$407		$407
Contracts/Purchasing (C/P)							
System Planning							
Environmental					$2,924		$2,924
SCS - None							
Legal							
Estimating							
Siting - None							
Asset Management					$934		$934
Other -							
Other -							
Other -							
LT Total					$4,265		$4,265
Employee Expenses					$213		$213
Project Support Vendor - PM			$15,842		$20,480		$36,342
Project Support Vendor - IP							
Project Support Vendor - C/P							
Project Support Vendor - System Planning							
Project Support Vendor - Environental							
Project Support Vendor - SCS - None							
Project Support Vendor - Legal							
Project Support Vendor - Estimating					$5,120		$5,120
Project Support Vendor - Siting - None							
Project Support Vendor - Asset Management							
Project Support Vendor - Other							
Project Support Vendor - Other							
Project Support Vendor - Other							
Project Support Vendor - Other							
Vehicles (now in Indirects section)							
Property or CWIP tax large proj. allowance							
Builder All risk insurance excluding deductables(if project is over $50m)							
Fees and Payments - Environental	BF						
Fees and Payments - Siting	BF						
Fees and Payments - Other	BF						
PSMXX Subtotal			$15,842		$30,078		$45,940
Escalation							
PSMXX Total			$15,842		$30,078		$45,940
REMXX-TG REMOVAL							
Engineering/Design	LT						
Internal Construction	LT						
LT Total							
Employee Expenses	AE						
Outside Services	AO						
Contractor Labor	AO						
Vehicles (now in Indirects section)	AV						
Rents and Leases	BR						
REMXX Subtotal							
Escalation							
REMXX Total							
TSTXX-TG TEST							
Test / Field Engr. Labor (In House)	LT				$30,720		$30,720
Lead Commissioning Engr. (LCE) (Internal)	LT				$15,360		$15,360
Employee Expens	AE				$4,608		$4,608
Test / Field Engr. Labor (contractor)	AO						
Lead Commissioning Engr. (LCE) (contractor)	AO						
Vehicles (now in Indirects section)	AV						
TSTXX Subtotal					$50,688		$50,688
Escalation							
TSTXX Total					$50,688		$50,688
SUBTOTAL PROJECT DIRECT COST		-	$26,190		$419,560		$444,749
Risk							
Risk					$61,500		$61,500
				$ -			
				$ -			
Risk Total					$61,500		$61,500
TOTAL PROJECT DIRECT COST (w/risk)		-	$26,190		$481,060		$506,249
INDIRECTS							
Non-Productive Time Allocation (ZNP)	17.0%		$1,295		$27,483		$28,778
Payroll Benefits Allocation (ZPB) Incl NPT	44.0%				$80,970		$80,970
Gen SVC CO Overhead (ZGS) Incl NPT	80.0%		$5,648		$3,992		$9,640
E&S Allocations (ZES,ZEL, ZES)	28.0%				$116,492		$116,492
AG&E Allocations (ZAS)	1.3%		$289		$8,106		$8,395
Stores Expense Allocation (ZST)	8.0%				$7,195		$7,195
Lobby Stock							
MDEC (ZMI)	6.0%				$24,723		$24,723
Vehicles (ZVE)	28.0%		$158		$45,234		$45,392
Indirects Subtotal			$7,389		$314,175		$321,564
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)			$92,579		$795,235		$827,814
AFUDC							
AFUDC (DI)			$1,255	6.50%	$25,706		$26,941
In Service Dollars / Land costs							
Cumulative ISS & Land Costs					-		
AFUDC Subtotal			$1,255		$25,706		$26,941
TOTAL PROJECT COST - Baseline Budget			$93,914		$820,941		$854,748
Contingency							
Contingency					$26,613		$26,613
Other			$ -		$ -		
Contingency SubTotal					$26,613		$26,613
TOTAL PROJECT COST - Approved Funding			$93,914		$847,544		$881,359
Reimbursables / Customer Contribution							
Reimbursables / Customer Contribution (enter as negative)			$ -		$ -		
TOTAL PROJECT COST			$93,914		$847,544		$881,359

Activity ID	Activity Name	Start	Finish	Resources	Predecessors	Successors
[redacted] Add Feeders (CS00571)		21-Mar-22 A	26-Feb-24			
PROJECT PLANNING & FUNDING		21-Mar-22 A	27-Nov-23			
PPF1000	Project Planning & Funding	21-Mar-22 A	27-Nov-23			
Project Funding		21-Mar-22 A	27-Nov-23			
AT0805C	Civil IFC - Civil (BG) w/BOM		30-Dec-22 A		DSSE-120	AT00
AT0801	ALL PERMITS RECEIVED		21-Mar-23 A			AT00
AT2605	Preliminary Design / Engineering Completed		12-May-23		A3380, DSSE-1280	AT00, LCE100
AT1811	Detail Design/Engineering Completed		09-Jun-23		DSSE-210	AT00
AT2404	DETERMINE / ASSIGN LCE (LEAD COMMISSIONING ENGINEER)		21-Jun-23		LCE200, A3500	AT00
AT0805E	IFC - Electrical (AG) w/Final BOM		23-Jun-23		DSSE-240	AT00
AT1201	SCADA Date (Tab) Sheets/Signal List Sent to LCC		30-Jun-23		DSSE-990	AT00
AT0409	A-T-04.09 ALL FIRM TOA APPLICATIONS DUE TO LCC		30-Jun-23		A1250	AT00
A3570	Final Engineering Issued for Construction W/BOM		05-Jul-23		DSSE-120, DSSE-240, DSSE-22	AT00
AT0805P	IFC - P&C w/BOM		05-Jul-23		DSSE-220	AT00
AT0814	Construction Contracts / PSA In Place		13-Jul-23		A3420, A3460	AT00
AT1202	P/C DESCRIPTION / DRAFT OPERATING INSTRUCTIONS ISSUED		17-Jul-23		DSSE-920, DSSE-460, DSSE-93	AT00
AT0203	CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)		20-Jul-23		A1170	AT00
AT1301	COMMISSIONING PLAN COMPLETE		25-Jul-23		LCE400	AT00
AT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED		27-Nov-23		DSSE-1190, DSSE-560, DSSE-5	AT00
AT00	A-T-00 - START OF CONSTRUCTION - WO#		27-Nov-23		AT2605, AT2404, AT1811, AT080	A1140, A1120, A1130, OUTAGE #
Initial Funding		21-Mar-22 A	02-May-22 A			
PI1300	Initial Funding Request Approved	21-Mar-22 A	21-Mar-22 A	Eversource Project Approval Committee	PI1000	PI1400
PI1000	Submit Initial Funding Request		21-Mar-22 A		PI1200	PI1300, DSSE-400
PI1200	Project Initiator Develop Intitial Funding Request	02-May-22 A	02-May-22 A			PI1000
PI1400	Assign Project Manager	02-May-22 A	02-May-22 A		PI1300	DE1900, PI1600, PI1500
PI1500	Assign Scheduler	02-May-22 A	02-May-22 A		PI1400	
PI1600	Assign Cost Analyst	02-May-22 A	02-May-22 A		PI1400	
Full Funding		09-Feb-23 A	09-Jun-23			
PAF - FF		09-Feb-23 A	02-May-23 A			
DE1900	Conduct Detail Constructability Walk Down	09-Feb-23 A	09-Feb-23 A	[redacted]	PI1400	DE1700
DE1700	Conduct Initial Risk Management & SCLL Review (Project Initiator & PM)	13-Feb-23 A	17-Feb-23 A		DE1900	DE1710
DE1710	Project Constructability Review Complete	13-Feb-23 A	31-Mar-23 A		DE1700	DE1600
DE1610	Estimating Request Initiated	03-Apr-23 A	14-Apr-23 A		DE1600	DE1620
DE1600	Create Planning Grade Estimate (+/-25% Full Funding)	14-Apr-23 A	24-Apr-23 A		DE1710	DE1610
DE1620	Review Planning Grade Estimate	24-Apr-23 A	02-May-23 A		DE1610	PAFF2000
EPAC - FF		03-May-23 A	05-Jun-23			
PAFF2000	Submit Full Funding PAF to EPAC for Internal Review	03-May-23 A	09-May-23 A		DE1620	PAFF2200
PAFF2200	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	10-May-23 A	11-May-23		PAFF2000	PAFF2210
PAFF2210	Present Full Funding PAF to EPAC	25-May-23*	25-May-23		PAFF2200	PAFF2220
PAFF2220	Incorporate EPAC Full Funding PAF Review Comments	26-May-23	02-Jun-23		PAFF2210	FF1000
FF1000	EPAC Full Funding Approval	05-Jun-23	05-Jun-23		PAFF2220	A3680
Power Plan - FF		05-Jun-23	09-Jun-23			
A3680	Full Funding PowerPlan Approval	05-Jun-23	09-Jun-23		FF1000	A1010, A3390, A3420, A3430, A3
P&C Conceptual & Preliminary Engineering Design		02-May-22 A	19-May-23			
P&C Preliminary Design		02-May-22 A	19-May-23			
DSSE-400	Prepare & Issue P&C Design Package to Drafting	02-May-22 A	21-Mar-23 A		PI1000	DSSE-410
DSSE-410	Drafting Prepare & Issue Back to P&C	22-Mar-23 A	30-Mar-23 A		DSSE-400	A3380

TASK filter: All Activities

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Activity ID	Activity Name	Start	Finish	Resources	Predecessors	Successors
DSSE-1280	Re-work - Prepare & Issue P&C Design Package to Drafting	05-May-23 A	12-May-23	[redacted]		DSSE-1290, AT2605
DSSE-1290	Re-work - Drafting Prepare & Issue Back to P&C	15-May-23	19-May-23		DSSE-1280	A3690
Project Management		26-Jun-23	20-Jul-23			
Compliance Authorization Notification		14-Jul-23	20-Jul-23			
A1170	Prepare CAN (Construction Authorization Notice)	14-Jul-23*	20-Jul-23		DSSE-240, DSSE-120, A3460, A:	AT0203
Outage Permits / TOAs Request		26-Jun-23	30-Jun-23			
A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before o	26-Jun-23*	30-Jun-23		DSSE-240	AT0409
SITING APPROVALS / PERMITS / PROJECT SERVICES		01-Feb-23 A	21-Mar-23 A			
SIT1000	Siting Approvals / Permits / Project Services	01-Feb-23 A	21-Mar-23 A			
Local Approvals And Permits		01-Feb-23 A	21-Mar-23 A			
Zoning / Planning Board		01-Feb-23 A	21-Mar-23 A			
A3620	Permitting - PM Send Scope to Siting Team	01-Feb-23 A	10-Feb-23 A			A3630
A3630	Permitting - Siting Team Review Scope to Determine Siting Requirements (e.g. zoning)	13-Feb-23 A	21-Mar-23 A		A3620	
ENGINEERING DETAILED / IFC DESIGN		01-Dec-22 A	17-Jul-23			
ENG1000	Engineering Detailed / IFC Design	01-Dec-22 A	17-Jul-23			
Civil Engineering		01-Dec-22 A	30-Dec-22 A			
Civil Engineering Detailed Design		01-Dec-22 A	06-Dec-22 A			
DSSE-100	Design Package to Civil	01-Dec-22 A	06-Dec-22 A			DSSE-110
Civil Engineering Pre-IFC Design		07-Dec-22 A	16-Dec-22 A			
DSSE-110	Civil Package to Design	07-Dec-22 A	16-Dec-22 A		DSSE-100	DSSE-120
Civil Engineering IFC Design		19-Dec-22 A	30-Dec-22 A			
DSSE-120	Civil Package IFC	19-Dec-22 A	30-Dec-22 A		DSSE-110, A3680	DSSE-500, A1170, A3390, A3430
Electrical Engineering		26-May-23	17-Jul-23			
Electrical Engineering Detailed Design		26-May-23	15-Jun-23			
DSSE-210	Detailed Electrical Design Package	26-May-23	09-Jun-23		A3380, A3690	DSSE-230, DSSE-220, AT1811
DSSE-230	Electrical Engineering - BOM Complete	12-Jun-23	15-Jun-23		DSSE-210	DSSE-240, LCE100
Electrical Engineering IFC Design		16-Jun-23	17-Jul-23			
DSSE-240	Electrical Engineering - Electrical Package IFC (Physical & Electrical)	16-Jun-23	23-Jun-23		DSSE-230	A1170, DSSE-990, A1250, AT080
DSSE-460	Operating Instructions - SSED Review Draft Distribution OI	11-Jul-23	11-Jul-23		DSSE-450	AT1202
DSSE-920	Operating Instructions - SSED Review Draft Convex OI	11-Jul-23	17-Jul-23		DSSE-450	AT1202
P&C Engineering		20-Mar-23 A	11-Jul-23			
P&C Engineering Detailed Design		20-Mar-23 A	11-Jul-23			
A3380	Issue P&C Package Design	20-Mar-23 A	03-Apr-23 A		DSSE-410	NX9A-EM44, DSSE-450, AT2605
A3690	Re-work - Issue P&C Package Design	22-May-23	25-May-23		DSSE-1290	DSSE-210
DSSE-990	P&C INITIATE SCADA Data Sheets	26-Jun-23	30-Jun-23		DSSE-240	DSSE-220, AT1201
DSSE-220	SDS Complete	03-Jul-23	05-Jul-23		DSSE-990, DSSE-210	A3570, AT0805P
DSSE-450	Operating Instructions - Prepare and Issue Draft Distribution OI to Engineering	12-Jun-23	10-Jul-23		A3380, A3680	DSSE-930, DSSE-920, DSSE-47(
DSSE-470	Operating Instructions - P&C Review Draft Distribution OI	11-Jul-23	11-Jul-23		DSSE-450	AT1202
DSSE-930	Operating Instructions - P&C Review Draft Convex OI	11-Jul-23	11-Jul-23		DSSE-450	AT1202
P&C Relay Settings Development		17-Apr-23 A	19-Jun-23			
NX9A-EM44	P&C Develops and Provides LTRC with P&C Checklist & Thermal Ratings Data	17-Apr-23 A	21-Apr-23 A		A3380	NX9A-EM54
NX9A-EM54	LTRC Prepares and Sends Thermal Rating Data for TRC Review	24-Apr-23 A	05-Jun-23		NX9A-EM44	NX9A-EM64
NX9A-EM64	TRC Reviews and Approves Thermal Rating Data	06-Jun-23	12-Jun-23		NX9A-EM54	NX9A-EM74
NX9A-EM74	LTRC Files Feeder Capability Sheets	13-Jun-23	19-Jun-23		NX9A-EM64	CFM
PROCUREMENT LONG LEAD MATERIAL		12-Jun-23	25-Nov-23			
PLLM1000	Procurement Long Lead Material	12-Jun-23	25-Nov-23			
Civil Long Lead Material		12-Jun-23	31-Jul-23			

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Activity ID	Activity Name	Start	Finish	Resources	Predecessors	Successors
DSSE-500	MATERIAL - CIVIL - Prepare & Issue DR	12-Jun-23	16-Jun-23	[redacted]	DSSE-120, A3680	DSSE-1040, DSSE-540
DSSE-540	Civil (BG) Material Ordered		16-Jun-23		DSSE-500	DSSE-1050
DSSE-1040	MATERIAL - CIVIL - Procurement Issue PO	19-Jun-23	30-Jun-23		DSSE-500	DSSE-1050
DSSE-1050	MATERIAL - CIVIL - Material Vendor Delivery Leadtime	01-Jul-23	30-Jul-23		DSSE-1040, DSSE-540	DSSE-560
DSSE-560	MATERIAL - CIVIL - Material Handler Confirm Material Delivery to Site	31-Jul-23	31-Jul-23		DSSE-1050	AT0401
Electrical Long Lead Material		12-Jun-23	25-Nov-23			
DSSE-520	MATERIAL - Electrical - Prepare & Issue DR	12-Jun-23*	16-Jun-23		A3680	DSSE-1020, DSSE-530
DSSE-530	Electrical Material Ordered		16-Jun-23		DSSE-520	DSSE-1030
DSSE-1200	MATERIAL - Electrical-Breaker- Prepare & Issue DR	12-Jun-23	16-Jun-23		A3680	DSSE-1210, DSSE-1230
DSSE-1230	Electrical -Breaker Material Ordered		16-Jun-23		DSSE-1200	DSSE-1220
DSSE-1210	MATERIAL - ELectrical -Breaker - Procurement Issue PO	19-Jun-23	23-Jun-23		DSSE-1200	DSSE-1220
DSSE-1020	MATERIAL - ELectrical - Procurement Issue PO	19-Jun-23	30-Jun-23		DSSE-520	DSSE-1030
DSSE-1030	MATERIAL - Electrical - Material Vendor Delivery Leadtime	01-Jul-23	30-Jul-23		DSSE-1020, DSSE-530	DSSE-550
DSSE-550	MATERIAL - Electrical - Material Handler Confirm Material Delivery to Site	31-Jul-23	31-Jul-23		DSSE-1030	AT0401
DSSE-1220	MATERIAL - Electrical-Breaker - Material Vendor Delivery Leadtime	24-Jun-23	24-Nov-23		DSSE-1210, DSSE-1230	DSSE-1190
DSSE-1190	MATERIAL - Electrical-Breaker - Material Handler Confirm Material Delivery to Site	25-Nov-23	25-Nov-23		DSSE-1220	AT0401
P&C Long Lead Material		12-Jun-23	09-Oct-23			
DSSE-1150	MATERIAL - FEEDERS - Prepare & Issue DR	12-Jun-23	16-Jun-23		A3680	DSSE-1160, DSSE-1180
DSSE-1180	FEEDER (AG) Material Ordered		16-Jun-23		DSSE-1150	DSSE-1140
DSSE-1240	MATERIAL - P&C - Prepare & Issue DR	12-Jun-23	16-Jun-23		A3680	DSSE-1250
DSSE-1160	MATERIAL - FEEDERS - Procurement Issue PO	19-Jun-23	30-Jun-23		DSSE-1150	DSSE-1140
DSSE-1250	MATERIAL - P&C - Procurement Issue PO	19-Jun-23	30-Jun-23		DSSE-1240	DSSE-1260
DSSE-1260	MATERIAL - P&C - Material Vendor Delivery Leadtime	01-Jul-23	08-Sep-23		DSSE-1250	DSSE-1270
DSSE-1270	MATERIAL - P&C - Material Handler Confirm Material Delivery to Site	09-Sep-23	09-Sep-23		DSSE-1260	AT0401
DSSE-1140	MATERIAL - FEEDERS - Material Vendor Delivery Leadtime	01-Jul-23	08-Oct-23		DSSE-1160, DSSE-1180	DSSE-1130
DSSE-1130	MATERIAL - FEEDERS - Material Handler Confirm Material Delivery to Site	09-Oct-23	09-Oct-23		DSSE-1140	AT0401
PROCUREMENT OF SERVICE CONTRACTS		20-Jun-22 A	13-Jul-23			
PSC1000	Procurement of Service Contracts	20-Jun-22 A	13-Jul-23			
Engineer of Choice - Direct Award or Bid		20-Jun-22 A	20-Jun-22 A			
A3550	STAFFING DECISION: EVERSOURCE OR OUTSOURCE COC ENGINEERING - (Civil- Partly {Fou	20-Jun-22 A	20-Jun-22 A			A3390, A3430
Constructor of Choice - Direct Award or Bid		12-Jun-23	13-Jul-23			
A3390	CONST.SERVICES - COC - Eversource Provides Spec / RFQ to COC	12-Jun-23	16-Jun-23		DSSE-120, A3550, A3680	A3400
A3430	CONST.SERVICES - BID - Eversource provide Spec / RFP	12-Jun-23	16-Jun-23		DSSE-120, A3550, A3680	A3440
A3440	CONST.SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	19-Jun-23	19-Jun-23		A3430	A3450
A3450	CONST.SERVICES - BID - Eversource reviews contractor proposals	20-Jun-23	20-Jun-23		A3440	A3460
A3460	CONST.SERVICES - BID - Contract is Awarded - PO Issued	21-Jun-23	21-Jun-23		A3450, A3680	A1170, AT0814
A3400	CONST.SERVICES - COC - COC Evaluates Spec and Provides Quote	19-Jun-23	23-Jun-23		A3390	A3410
A3410	CONST.SERVICES - COC - Eversource Reviews Quote from COC	26-Jun-23	30-Jun-23		A3400	A3420
A3420	CONST.SERVICES - COC - Eversource Awards Contract - PO Issued	03-Jul-23	13-Jul-23		A3410, A3680	A1170, AT0814
Testing Service - Direct Award or Bid		12-Jun-23	11-Jul-23			
A1010	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC TESTING	12-Jun-23	14-Jun-23		A3680	A3470, A3510
A3470	TEST SERVICES - COC - Eversource Provides Spec / RFQ to COC	15-Jun-23	15-Jun-23		A1010	A3480
A3480	TEST SERVICES - COC - COC Evaluates Spec and Provides Quote	16-Jun-23	16-Jun-23		A3470	A3490
A3490	TEST SERVICES - COC - Eversource Reviews Quote from COC	19-Jun-23	19-Jun-23		A3480	A3500
A3500	TEST SERVICES - COC - Eversource Awards Contract - PO Issued	20-Jun-23	20-Jun-23		A3490, A3680	AT2404
A3510	TEST SERVICES - BID - Eversource provide spec / RFP	15-Jun-23	06-Jul-23		A1010	A3520
A3520	TEST SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	07-Jul-23	07-Jul-23		A3510	A3530

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Activity ID	Activity Name	Start	Finish	Resources	Predecessors	Successors
A3530	TEST SERVICES - BID - Eversource reviews contractor proposals	10-Jul-23	10-Jul-23	[redacted]	A3520	A3540
A3540	TEST SERVICES - BID - Eversource awards contract - PO Issued	11-Jul-23	11-Jul-23		A3530, A3680	LCE320
CONSTRUCTION		08-May-23 A	26-Dec-23			
CFM	Construction Finish Milestone		11-Dec-23		A1140, OUTAGE #, A1080, A107	A1110, A1040, ISD, A1030, A126
ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint)		11-Dec-23*		CFM, LCE610, LCE620	FINISH
CON1000	Construction	08-May-23 A	26-Dec-23			
Outages		27-Nov-23	26-Dec-23			
OUTAGE #	OUTAGE / General Construction Work	27-Nov-23	30-Nov-23		AT00	CFM, A1080, A1070
A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD)	12-Dec-23*	26-Dec-23		CFM	A1030
Construction Support LOEs		27-Nov-23	11-Dec-23			
A1080	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN	30-Nov-23	30-Nov-23		OUTAGE #	CFM
ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP	27-Nov-23	11-Dec-23		AT00	CFM
A1070	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT	27-Nov-23	11-Dec-23		OUTAGE #	CFM
CONSTelec	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN	27-Nov-23	11-Dec-23		AT00	CFM
Site Development		08-May-23 A	08-May-23 A			
A1120	N/R Construction - Civil (NO CIVIL IF 1:1 REPLACE AND SAME FOUNDATION; CONDUIT done	08-May-23 A	08-May-23 A		AT00	A1140, CFM, A1130
Substation Construction		27-Nov-23	11-Dec-23			
A1130	Construction - Electrical - General Construction	27-Nov-23*	11-Dec-23		A1120, AT00	CFM
A1140	Construction - Electrical - Overhead Line Tasks	27-Nov-23	11-Dec-23		A1120, AT00	CFM
TEST & COMMISSIONING		16-Jun-23	05-Oct-23			
TC1000	Test & Commissioning	16-Jun-23	05-Oct-23			
Isolation Plan		16-Jun-23	23-Aug-23			
LCE100	PM to Request Lead Commissioning Engineer GO/NO-GO {Preliminary design is often the predeces	16-Jun-23	19-Jun-23		DSSE-120, DSSE-230, AT2605	LCE200
LCE200	Assign Lead Commissioning Engineer	20-Jun-23	21-Jun-23		LCE100	LCE310, AT2404
LCE400	Develop Test and Commissioning Plan	26-Jun-23	25-Jul-23		LCE310, LCE320	LCE500, AT1301
LCE500	Eversource LCE Review and Approve Testing and Commissioning Plan	26-Jul-23	23-Aug-23		LCE400	LCE610, LCE620
Testing Activities		24-Jun-23	05-Oct-23			
LCE310	Mobilize LCE Prior to Construction	24-Jun-23	25-Jun-23		LCE200	LCE400
LCE320	Mobilize Testing Vendor Prior to Construction	12-Jul-23	25-Jul-23		A3540	LCE400, LCE620
LCE620	Execute Test and Commissioning Plan	26-Jul-23	06-Sep-23		LCE500, LCE320	ISD, LCE700
LCE700	LCE Ensure Test Group Prepare Electrical Field Mark Ups	07-Sep-23	07-Sep-23		LCE620	DSSE-820, DSSE-950, LCE800
LCE610	LCE Oversee Execution of Test and Commissioning Plan	24-Aug-23	05-Oct-23		LCE500	ISD
PROJECT CLOSE OUT		07-Sep-23	26-Feb-24			
PCO1000	Project Close Out	07-Sep-23	26-Feb-24			
Civil Close Out		12-Dec-23	26-Feb-24			
A1110	Restore / Remediate Site	12-Dec-23	26-Dec-23		CFM	FINISH, DSSE-860
DSSE-860	Eversource Engineering Verifies Civil Mark Up As-Built Drawing Package	27-Dec-23	10-Jan-24		A1110	DSSE-970
DSSE-970	Eversource Engineering Updates Civil As-Built Drawing Package	11-Jan-24	16-Jan-24		DSSE-860	DSSE-870
DSSE-870	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	17-Jan-24	26-Jan-24		DSSE-970	DSSE-1120, DSSE-880
DSSE-880	PM to Document Civil As-Built Drawings Complete	29-Jan-24	29-Jan-24		DSSE-870	FINISH
DSSE-1120	Complete TD-176 CIVIL Design Prep & Issue As-Built Dwgs	29-Jan-24	26-Feb-24		DSSE-870	FINISH
Electrical Close Out		19-Dec-23	16-Feb-24			
DSSE-820	Eversource Engineering Verifies Electrical Mark Up As-Built Drawing Package	19-Dec-23	03-Jan-24		DSSE-1100, LCE700	DSSE-940
DSSE-940	Eversource Engineering Updates Electrical As-Built Drawing Package	04-Jan-24	08-Jan-24		DSSE-820	DSSE-830
DSSE-830	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	09-Jan-24	19-Jan-24		DSSE-940, DSSE-950	DSSE-1110, DSSE-840
DSSE-840	PM to Document Electrical As-Built Drawings Complete	22-Jan-24	22-Jan-24		DSSE-830	FINISH

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Activity ID	Activity Name	Start	Finish	Resources	Predecessors	Successors
DSSE-1110	Complete TD-176 Electrical Design Prep & Issue As-Built Dwgs	22-Jan-24	16-Feb-24	[redacted]	DSSE-830	FINISH
P&C Close Out		19-Dec-23	26-Dec-23			
DSSE-950	P&C Submits SDS As-Builts	19-Dec-23	26-Dec-23		LCE700, DSSE-1100	DSSE-830
LCE Closeout		07-Sep-23	21-Sep-23			
LCE800	LCE Ensures Marked up Prints Ready for Pick-up	07-Sep-23	07-Sep-23		LCE700	LCE900
LCE900	LCE Review Test Data and Issue Commissioning Report	08-Sep-23	21-Sep-23		LCE800	A1040
Work Order / Financial Close Out		12-Dec-23	08-Feb-24			
A1020	Cost Analyst Prepares FINAL Units of Property	12-Dec-23	25-Jan-24		CFM	FINISH
A1030	Asset Management Complete Asset Update(s) in CASCADE	27-Dec-23	08-Feb-24		A1260, CFM	FINISH
Project Management Close Out		12-Dec-23	26-Feb-24			
DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	12-Dec-23	18-Dec-23		CFM	DSSE-820, DSSE-950
A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	12-Dec-23	25-Jan-24		CFM, LCE900	FINISH
FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)		26-Feb-24		DSSE-1110, A1030, A1110, DSSE	
NOT REQUIRED ACTIVITIES		13-Mar-23 A	21-Mar-23 A			
A3640	N/R Permitting - If transformer changes substation footprint, conduct zoning review	13-Mar-23 A	13-Mar-23 A			A3650
DSSE-200	N/R Prelim Electrical Design Package to Drafting	20-Mar-23 A	20-Mar-23 A			DSSE-205
DSSE-205	N/R Prelim Electrical Design Package to Design	20-Mar-23 A	20-Mar-23 A		DSSE-200	
A3650	N/R Permitting - Meet with Building Inspector	21-Mar-23 A	21-Mar-23 A		A3640	A3660
A3660	N/R Permitting - Obtain Special Use Permit	21-Mar-23 A	21-Mar-23 A		A3650	

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EVERSOURCE

Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

Project Title: [redacted] -Add Feeder	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00571	**Project Constructability Phase:**	
Date(s) of Constructability Review: **02/09/2023**	☐ Conceptual Engineering Design	
Click to enter a date	☒ Preliminary Engineering Design	
	☐ Detailed Engineering Design	

Project Scope Statement:

I. Description of Eversource Scope of Work

[redacted]

II. Description of Eversource Scope of Work

[redacted]

Department Review/Walkdown Attendees*:

Required [X]	Attended [X]	Department	Name	Required [X]	Attended [X]	Department	Name
☐	☒	Project Management	[redacted]	☐	☒	S/S Engineering	[redacted]
☐	☐	Asset Management		☐	☐	P&C Engineering	
☐	☒	Constr. Management	[redacted]	☐	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☐	☐	Telecom	

EVERSOURCE

Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

☐	☒	S/S Operations**	[redacted]	☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☒	Civil Construction	[redacted]	☐	☐	ROW T&D Rights & Survey	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☐	☐	Siting		☐	☐	Cost Estimating	
☐	☐	Safety		☐	☐	Project Services (Outreach)	
☐	☐	SCADA		☐	☐	Material Procurement	

*** Sign-off in the table above for the Detailed Engineering Design Constructability Review indicates that all Action Items/Concerns from prior Constructability Reviews have been mitigated/resolved as documented in this form. Not every department is required to attend walkdowns for every project but should be consulted for project impact considerations**

** Internal Eversource Substation Operations must be included in the review even if external construction resources are planned

[Project Manager] certifies that this review was performed to completeness, that all applicable departments were informed of the project and have had opportunity to provide input to this review:

[redacted] _____ *4/4/2023* _____

Name / Signature *Date*

Documents available for use prior to Constructability Review					
[X]	**Document**	**[X]**	**Document**	**[X]**	**Document**
☒	Initial Scope -Birdseye site plan -General Arrangement	☒	Preliminary Drawings -Civil Site Drawing -Electrical Drawing -Section Drawings	☐	Prints in hand for marking up -Panel Front/Read View -Control Enclosure Layout -Floor / Wall Plans
☐	Detailed Scope Document	☐	Proposed Schedule	☐	Construction Sequence/Timeline
☐	Previous Notes / Comments / Observations	☐	Major Material / Equipment List	☐	Replace / Reuse of equipment

Action Items and Resolutions:

Item No.	Const. Review Action Item/Concern	Design Resolution/Mitigation:
1		
2		
3		
4		
5		

EVERSOURCE

Constructability Review Form: **M6-PM-2012 - Eversource**

Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**Engineering & Asset Management**		
1	**Scope of Work** - Is scope adequately developed and sufficiently detailed for intended deliverable? - Any complimentary projects or other adjacent obsolete equipment for inclusion? - Any overlapping projects that could impact work/outages? - Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence - Any remote station impacts? - Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	☐	Scope is adequately developed for intended deliverable No overlapping projects No remote station impacts
2	**Materials Identified/Ordered** -Any concerns with BOM/Major Materials? Review BOM lead times and project need dates -Specialty Major Materials: Identify Specialty Equipment & Materials potentials - temporary/replacement - long lead items? -Any Materials needed to facilitate construction access?	☐	Major material adequately defined. Longest lead time of 22 weeks lead time for 13.8kV breaker.
3	**Control House** - Review Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station breaker availability and service loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..	☐	No concerns. No new equipment will be added in the Control House.
4	**Ratings & Dimensions** for Major Equipment. Any concerns upon field review? Equipment Rating One Line (and/or equipment thermal ratings tables) - Review for any errors in field	☐	No concerns

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5	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Pre-Project Sound Measurements Needed? Sound Walls? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Assess condition of existing yard equipment foundations and viability for reuse (if proposed) -Review station expansion areas (if needed) for structures, old foundations, etc. -Any Steel Structural Plan Considerations? -Any impacts to construction plan?	☐	No concerns. Fence will not be expanded.
6	**Below Grade / Enclosure Raceway** - If possible, evaluate existing raceway and review spacing requirements. Review for any subsurface investigation needs or potential below grade obstructions. GPR/test pits needed? Geotechnical Investigation - is soil boring or resistivity investigation needed?	☐	Test pits will be required
7	**Underground Obstructions** -Drawing review concerns? -Is preconstruction or test excavation needed? -Is reuse of underground control cables / Conduits /replace Non-Shielded Cable feasible (if applicable) -Are spare conduits available? Are they useable? -Review if any areas will need to be plated for increased load bearing for equipment access (i.e., large Xfmr, etc.)	☐	Installation of new conduits and a new manhole.
8	**Grounding Plan (Ground Grid)** - Will footprint impact layout or other equipment? Identify locations to improve grounding. Impacts to foundations and ground grid plans. Observations on wetlands or ability to perform tests	☐	N/A
9	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☐	Updates to GIS will be made as 28M7 and 28M15 are in-service.

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10	BPS Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	☐	N/A
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	X	N/A
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☐	N/A
B	**Construction**		
1	**Any safety hazards specific to the facility? i.e., Low Bus, Deterioration, etc.**	X	N/A
2	**Prior known Site Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	☐	N/A
3	**Identify/Consider Required Depts for Construction?** -Who is constructor: Internal vs External Resources -S/S Ops, GO, Test, Field Engineering, etc. -Specialty Contractors Required? -Required Oversite Needed - Estimated level of CR and LCE support needed	☐	Civil, Electrical and Testing will be completed in-house

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4	**Site Plan, Access, and Temporary Construction Facilities:** -Confirm maintenance access for proposed new or replaced equipment -Verify clear footprint for yard equipment / Property Plan -General access to site, can areas outside substation be utilized? -Substation Entry Plan (driveway and drive path modifications) - Identification of Unique Requirements, i.e. (access bridges, station service, etc.) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any police details needed for deliveries, restricted hours, and/or need for extended hour approvals -Any Sanitary Civil Requirements? (Septic tanks, etc.) -Review turning radius for delivery trucks (if critical) -Any Substation Access and site/yard access Limitations? -Office Trailer Needs: Facilities, Utilities, Restroom, Container, Dumpster Space -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Where will new vs removed equipment go? -Construction permit for trailers outside substation fence?	☐	There will not be any permanent impacts due to construction. There is adequate space withing the yard for construction trailers if needed. No police required for substation work or deliverables. There is adequate space within the yard for material laydown.
5	Unique Equipment Considerations: Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser	X	N/A

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6	**Outage & Energization Plan and Construction Sequence:** *Review electrical working clearances for equipment during construction, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized.* ***Considerations:*** -Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -Distribution Clearances -Clearance Holder Assignments -Drawings vs Field Conditions -Outage boundaries and interconnections -Phased approach needs for additional mobilizations -Verify outage sequence supports the planned construction sequence and timeline. (Lead Commissioning Engineer "LCE", Substation Operations, and Outage Planner input) -Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions -Additional outage requirements: Railroad Catenaries, Fiber outage, SCADA outage, Relay permissions -Seasonal or weather conditions impacts	☐	No concern
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	☐	No concern
8	Need for mobile generator and where connected (if needed)	X	N/A
9	Need for mobile battery and where connected (if needed)	X	N/A
10	OT work required or Notable Permit Conditions (special hours)?	X	N/A
11	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	X	N/A

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	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☐	Soil Pre-characterization will be required
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	X	
3	Risk or presence of PCB's/Asbestos/Lead/SF6	☐	There is a risk of asbestos that will have to abated
4	Transformer Spill Containment Recommended?	X	
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	X	
6	Environmental oversight considerations? (Inspection type/Interval)	X	
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.	X	
D	**Siting, Project Services, and ROW T&D Rights & Survey**		
1	**Any regulatory concerns or approvals needed?** - Any concerns noted that could be mitigated by scope/design alterations? - Likely to require visual screening? What considerations (feasibility or location)? -Zoning Relief and Permits required?	X	N/A
2	Other siting considerations?	X	N/A
3	**Neighbor/Abutter impacts:** - Any noise, visual impacts, or sensitive abutters - Any changes to lighting or additional lighting needed?	X	N/A
4	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	X	No concerns
5	Installation within Eversource Rights - Is Rights and Restrictions Review required?	X	N/A
6	Expanding Footprint / New Buildings / Fence line or future Expansion Plans?	X	

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7	Proposed Equipment on same property? - Any Encroachments	X	
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	X	
2	Space on existing panels for new equipment? (front & rear of panel fronts)	X	
3	Panel fronts conform to drawings	X	
4	Access to bring new panels into control enclosure	X	
5	Nameplate list and location of nameplates	X	
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	X	
7	Temporary protection, relays, control cable needed? How long will they be required?	X	
8	Will relay setting changes be needed? Any additional outage requirements for changes?		Settings changes to the SEL 351S, SEL 501, and ION 7500 will be needed for activation of the feeder.
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	X	
2	Review path to get telecom circuits into the station and paths within the control house. Determine whether new underground duct or overhead tray work is needed.	X	
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	X	
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	X	
5	Review and list any remote station impacts/updates	X	
6	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	X	
7	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	X	

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8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	X	
9	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	X	

Photos

(Ex. Equipment control cabinet, Breakers, MODs, CCVTs, PTs, Transformers)

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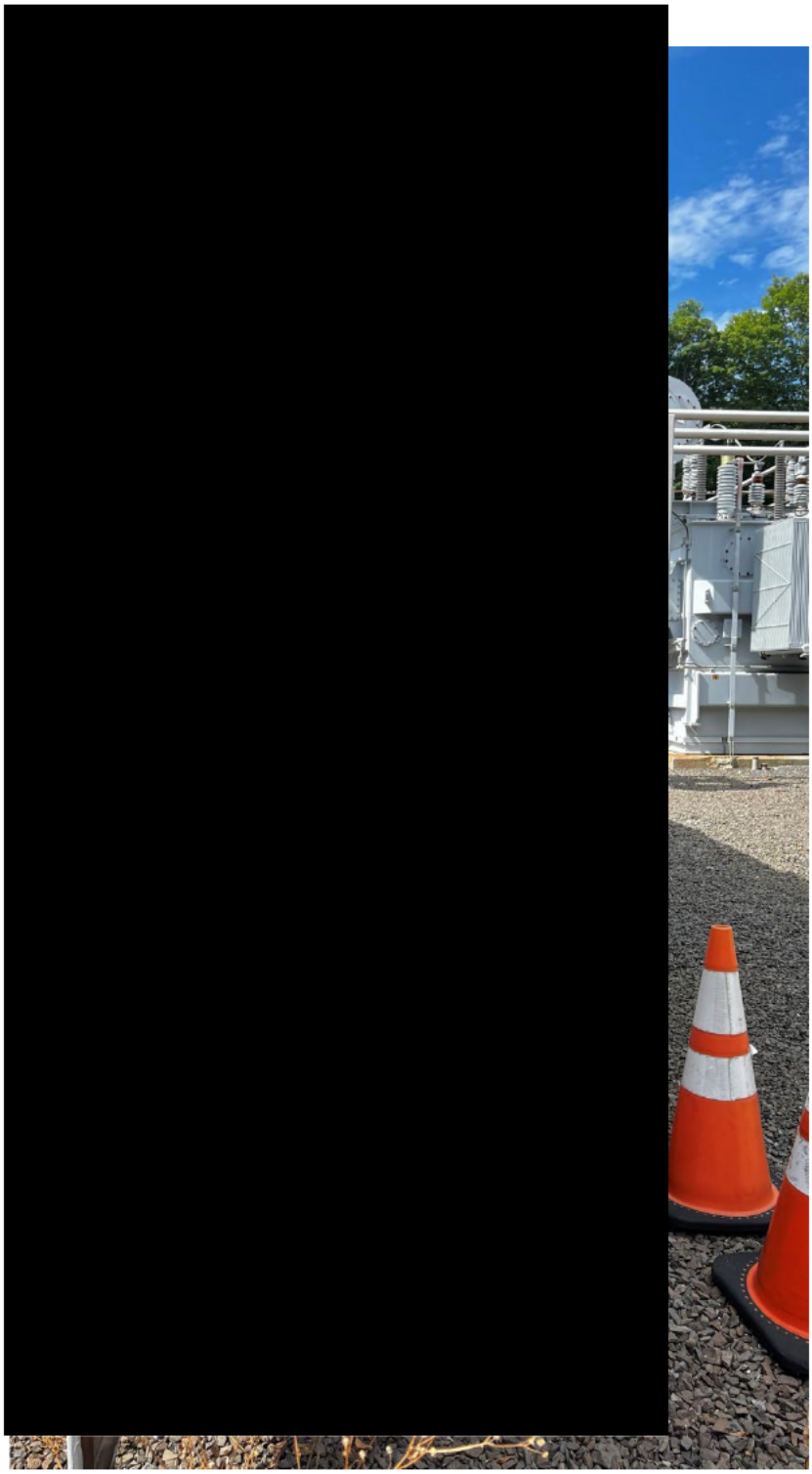
Substation Constructability Review



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