EVERSOURCE

Operations Project Authorization Form

Approved at November 03, 2021 EPAC

Link to Meeting Minutes

Date Prepared: 10/18/2021	**Project Title: [redacted] Fault Locator**
Company: Eversource CT	**Project Number: CS00384**
Organization: Substation Technical Engineering	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Switches**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: utilize feeder fault locator software**
Estimated in service date: 6/13/22	**Capital Investment part of original Oper. Plan: Yes**
Eng./Constr. Resources Budgeted? Yes	**O&M Expenses part of original Oper. Plan: No**
Authorization Type: Full Funding	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution
Total Request: $572K	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This Project is seeking full funding of $572K to upgrade the existing revenue metering at [redacted].

This Project is associated with Project CS00318 [redacted] Project CS00318 was approved in PowerPlan on August 9, 2018. [redacted]

This Full Funding PAF is required to provide funding to upgrade the [redacted]

Work Order # CS003841 is currently being used for work related to this Project. This Project was set up as a Capital Annual project in PowerPlan and received Auto-Approval on April 7, 2020 with an initial budget of $92K. To date the constructability walkdown, the project scope, engineering and estimating have been completed. The total actual costs charged to CS003841 as of August 3, 2021 was $67K. The remaining work includes equipment procurement and installation, commissioning and testing of the equipment. These outages required for these activities are being coordinated with the outages at [redacted] OCB Phase 2 replacement project CS00395 to reduce the total number of outages for these two projects. Project CS00395 was approved in PowerPlan on March 23, 2021. The transformer outages are being scheduled to take place in the first half of 2022, and the In Service Date (ISD) for this Project is scheduled for June 2022. The extended outage period resulting in higher costs is reflected in the estimate.

EVERSOURCE

Project Costs Summary

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2021 to Go	2022	2023	2024	2025	Total
1. ROW / Easements / Land Acquisition	$							
2. Environmental Approvals / Permits	$							
3. Outreach	$		$0	$0				$0
4. Siting Approvals / Permits	$		$1	$1				$1
5. Engineering / Design	$	$20	$3	$6				$28
6. Materials (Eversource purchased)	$	$30	$1	$0				$31
7. Construction (incl matl's by contractors)	$		$83	$15				$98
8. Testing / Commissioning	$		$42	$88				$130
9. Project Mgmt Team	$		$10	$4				$14
10. Removals	$	$0		$3				$3
11. Other	$							
12. Risks	$		$28	$13				$41
SUBTOTAL DIRECTS W/ RISKS	**$**	**$50**	**$167**	**$128**				**$345**
13. Indirects/Overhead	$	$15	$102	$76				$192
14. AFUDC	$	$2	$10	$9				$21
PROJECT TOTAL – BASELINE BUDGET	**$92**	**$67**	**$278**	**$213**				**$558**
15. Contingency	$0		$7	$6				$13
TOTAL CAPITAL REQUEST	**$92**	**$67**	**$285**	**$220**				**$572**
16. Reimbursables/Customer Contribution	$0							
PROJECT TOTAL (LESS REIMBURSABLES)	**$92**	**$67**	**$285**	**$220**				**$572**
O&M	$0							
TOTAL REQUEST	**$92**	**$67**	**$285**	**$220**				**$572**

Note: Explain unique payment provisions, if applicable: *Provide a detailed breakdown of Other costs here.*

Risk budget of $41K has been included for the severe weather delays.

EVERSOURCE

Breakout Costs

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2021 To Go	2022	2023	2024	2025	Total
ST Labor	$	$3	$18	$6	$	$	$	$27
OT Labor	$				$	$	$	
Outside Services Labor	$	$16	$117	$107	$	$	$	$240
Materials*	$	$30	$3	$0	$	$	$	$33
Removals	$	$0		$3	$	$	$	$3
Other	$		$36	$19	$	$	$	$55
Indirects	$	$15	$102	$76	$	$	$	$192
AFUDC	$	$2	$10	$9	$	$	$	$21
TOTAL CAPITAL REQUEST - W/O REIMBURSABLES	**$92**	**$67**	**$285**	**$220**	**$**	**$**	**$**	**$572**

*All materials including Eversource purchased and outside service purchased. Note that outside service purchased material included in construction in project cost summary above.

Future Financial Impacts:

Provide below the estimated future costs that will result from the project: N/A
Note: Dollar values are in thousands

Future Costs	Year 20__	Year 20__	Year 20__	Year 20__+	Total Future Project Costs
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M, and/or Other costs noted above:

What functional area(s) will these future costs be funded in? N/A

A representative from the respective functional area is required to be included as a project approver.

Provide below the estimated future financial benefits that will result from the project: N/A
Note: Dollar values are in thousands

Future Benefits	Year 20__	Year 20__	Year 20__	Year 20__+	Total Future Project Benefits
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M, and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in? N/A

Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? **NO**

Are there other environmental cleanup costs associated with this project? **NO**

Technical Justification

Project Need Statement

[redacted]

[redacted]

[redacted]

See attachment B for Nomenclature Diagram.

Project Objectives

[redacted]

Project Scope

The scope of work required to upgrade revenue metering to utilize feeder fault locator software includes:

[redacted]

[redacted]

- [redacted]
- [redacted]
- Verify all connections and perform testing and commissioning of all equipment.

Table 1 - Equipment List of Existing Equipment to be Upgraded

Equipment Type	Nomenclature Number	Description	Location Town, State
Meter Replacement	[redacted]	Upgrade revenue metering to utilize with feeder fault locator software	Hartford, CT

A constructability review was completed on July 16, 20201 and is included as Attachment C.

Background / Justification

[redacted]

Business Process and / or Technical Improvements

This Project will allow underground feeder faults to be located quickly reducing downtime. Use in other substations has shown the improvements in the time taken to locate a fault from three (3) days to just a few hours.

Alternatives Considered with Cost Estimates

Alternative 1: Do Nothing This option would not meet the objectives of [redacted] This option was rejected.

Alternative 2: Install New Non-Revenue Meters This option would provide for [redacted] This option was considered but rejected since most of the cost of the project is in the installation, testing and commissioning activities and the cost of replacing the [redacted] is only a small portion of the overall project cost. No estimate has been provided for this option.

Alternative 3: Upgrade Existing Meters This option is the preferred option and would replace the [redacted] The estimate is $554K, see Attachment A.

Project Schedule:

Milestone/Phase Name	Estimated Completion Date
Initial Funding Request Approved	December 2019
Capital Project Approved in PowerPlan	April 2020
Engineering IFC Packages	May 2021
Full Funding Presentation at EPAC	October 2021
Construction Start	January 2022
Testing/Commissioning Completion	June 2022
In Service Date	June 2022
Project Closeout Completion	August 2022

See Attachment D for the P6 schedule.

Regulatory Approvals

No regulatory approvals are required.

Risks and Risk Mitigation Plans

Risk allocation is included in the estimate for the above risks and includes $41K for severe weather delays. Mitigation involves informing all stakeholders of upcoming conditions and rescheduling and providing OT as required if construction is delayed or outages cannot be performed during the scheduled times due to severe weather.

Contingency

The project cost estimate includes $13K contingency for any risks that are not yet known and do not yet have mitigation plans.

References

CS00318 Feeder Fault Locator Project approved in PowerPlan August 9, 2019.
CS00384 Initial Funding Request approved in PowerPlan April 7, 2020.

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

1. Attachment A - CS00384 [redacted] er Fault Locator Estimate C-21-605 REV.0
2. Attachment B: CS00384 [redacted] eeder Fault Locator Nomenclature Diagram
3. Attachment C: CS00384 [redacted] eeder Fault Locator Constructability Review Document
4. Attachment D: CS00384 [redacted] eeder Fault Locator Schedule

INSTRUCTIONS:
It is the responsibility of the initiator to contact the subject matter experts in the listed area disciplines to determine if the project considerations contained in this list are applicable to their project. They should fill out the checklist and determine a transition plan for the purpose of project execution. See the PAF Guide for additional instruction.

Project Checklist - Transmission & Substation Capital Project					
Project Name: [redacted] **Feeder Fault Locator**				**Project Number: CS00384**	
Facility Type: ☐ BPS ☐ BES ☐ PTF ☐ non-PTF ☐ CIP ☒ Distribution					
PLANNING					
Is a NX-9 required?				No	
Is an ISO-NE PAC presentation required?				No	
ISO-NE Presentation Date (if completed):				N/A	
Cost in ISO-NE Presentation ($M) (if completed):				N/A	
Is a PPA required?				No	
Is a TCA Application Required?				No	
TCA Submittal Date (if submitted):				N/A	
Cost in TCA Submittal ($M) (if submitted):				N/A	
Enter ISO-NE RSP / Asset Condition ID, if assigned:				N/A	
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				Yes	
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] **Feeder Fault Locator**	**Project Number: CS00384**
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	
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
SITING & CONSTRUCTION SERVICES (OUTREACH)	
What is the level of outreach expected?	None
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 Eversource Engineering
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Partial Review

Cost Estimate Backup Details

The detailed cost estimate is provided as Attachment A.

ESTIMATE SUMMARY

Project Title: [redacted] Feeder Fault Locator
Project Mgr/Lead:
Project Number:CS00384
WO & Task #: CS003841
Est. Revision # 0
Estimate Type - Station work

Estimate By: [redacted]
Date of Estimate: 8/03/2021
ISD:06/13/2022
Estimate # C-21-605

Template Revision # 01.65c

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2021	2022	2023	2024	2025	2026
1	ROW / Easements / Land purchases	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0
2	Environmental Approvals / Permits	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0
3	Outreach	$500	0.1%	0.1%	$0	$300	$200	$0	$0	$0	$0
4	Siting Approvals / Permits	$1,300	0.4%	0.2%	$0	$700	$600	$0	$0	$0	$0
5	Engineering / Design	$27,900	8.1%	4.9%	$19,700	$2,700	$5,500	$0	$0	$0	$0
6	Materials (Eversource purchased)	$30,500	8.8%	5.3%	$29,900	$500	$100	$0	$0	$0	$0
7	Construction (incl matl's by	$98,000	28.4%	17.1%	$0	$83,400	$14,600	$0	$0	$0	$0
8	Testing / Commissioning	$129,600	37.6%	22.7%	$0	$41,600	$88,000	$0	$0	$0	$0
9	PMT Project Mgmt Team	$13,500	3.9%	2.4%	$0	$10,000	$3,500	$0	$0	$0	$0
10	Removals	$3,000	0.9%	0.5%	$0	$0	$3,000	$0	$0	$0	$0
11	Other	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0
12	Risks	$40,500	11.7%	7.1%	$0	$28,000	$12,500	$0	$0	$0	$0
	Project Directs Total w/Risks	**$344,800**	100.0%	60.3%	**$49,600**	**$167,200**	**$128,000**	**$0**	**$0**	**$0**	**$0**
13	Indirects/Overhead	$192,500		33.7%	$14,800	$101,500	$76,200	$0	$0	$0	$0
14	AFUDC	$21,000		3.7%	$2,300	$9,700	$9,000	$0	$0	$0	$0
	Project Total - Baseline Budget	**$558,300**		97.6%	**$66,700**	**$278,400**	**$213,200**	**$0**	**$0**	**$0**	**$0**
15	Contingency	$13,500		2.4%	$0	$7,000	$6,500	$0	$0	$0	$0
	Project Total - Funding Approval Level	**$571,800**		100.0%	**$66,700**	**$285,400**	**$219,700**	**$0**	**$0**	**$0**	**$0**
16	Reimbursables/Customer Contribution	$0			$0	$0	$0	$0	$0	$0	$0
	Project Total (less reimbursables)	**$571,800**			**$66,700**	**$285,400**	**$219,700**	**$0**	**$0**	**$0**	**$0**
		-									
	Amount of Escalation included above	$5,600			$0	$0	$5,600	$0	$0	$0	$0
6	Total materials - Eversource	$30,500			$29,900	$500	$100	$0	$0	$0	$0
	Total materials - Contractor	$2,528			$28	$2,500	$0	$0	$0	$0	$0
	Total materials	$33,028			$29,928	$3,000	$100	$0	$0	$0	$0

NOTE: Risk / Contingency is 10.4% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)

Estimate Range	**-25%**	-	**25%**
	$429,000	-	**$715,000**

COMMENTS:

P

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - CT . Station work

Three seperate tranformer outages will be required for each meter replacement.
Engineering Estimate based on ES Boulus Co. (ESB) T&M Not-To-Exceed quotation dated July 20, 2021. $2880 was substratced from the contractor's proposal and was added to removals.
Engineering will be outsourced sources with Inhouse review.
Construction, Testing and LCE will be out-sourced.
Eversouce supplied material have been purchased from ES Boulus Co for the project.
All work to be performed inside of substation fence line.

RISKS

0		
Severe Weather. Delays. OT	$	40.500
0		
0		
0		
0		

CSTXX-CONSTRUCTION	R		Prior Mhrs	Prior DOLLARS	2021 Mhrs	2021 DOLLARS	2022 Mhrs	2022 DOLLARS	2023 Mhrs	2023 DOLLARS	2024 Mhrs	2024 DOLLARS	2025 Mhrs	2025 DOLLARS	2026 Mhrs	2026 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
Electrical Construction	LT		0	$0	[redacted]	$0	[redacted]	$0	0	$0	0	$0	0	$0	0	$0	[redacted]	$0
General Construction	LT		0	$0		$0		$0		$0		$0		$0		$0		$0
SCADA / Automation	LT		0	$0		$7 208		$0	0	$0	0	$0	0	$0	0	$0		$7 208
Telecom - Field	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Construction Recs (Internal)	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Support Switch/Tag	LT		0	$0		$7 420		$0	0	$0	0	$0	0	$0		$0		$7 420
Other (specify)	LT		0	$0		$0		$0	0	$0	0	$0	0	$0		$0		$0
Other (specify)	LT		0	$0		$0		$0	0	$0	0	$0	0	$0		$0		$0
Other (specify) (Outside Services)	LT		0			$0		$0	0	$0	0	$0	0	$0		$0		$0
LT Total			0	$0		$14 628		$0	0	$0	0	$0	0	$0	0	$0		$14 628
Employee Expenses	AE	5%	0			$731		$0		$0		$0		$0		$0		$731
Construction Purchased Material	AM	1%	0	$0		$425		$142		$0		$0		$0		$0		$567
Outside Construction Vendor	AQ		0	$0		$42 464		$14 155	0	$0	0	$0	0	$0	0	$0		$56 619
Sales tax on Constr. Vendor		0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
Inspection services (Outside Vendor)	AQ		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Construction Rep (Outside vendor)	AQ		0	$0		$23 040		$0	0	$0	0	$0	0	$0	0	$0		$23 040
Rents and Leases	BR		0	$0		$0		$0		$0		$0		$0		$0		$0
CSTXX Subtotal				$0		$81 288		$14 297		$0		$0		$0		$0		$95 585
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
CSTXX Total			0	$0		$81 288		$14 297	0	$0	0	$0	0	$0	0	$0		$95 585
ENRXX-TG ENGINEERING/DESIGN																		$0
Project Services/Drafting	LT		0	$0		$0		$2 120	0	$0	0	$0	0	$0	0	$0		$2 120
T- Line Engineering/Design	LT		0			$0		$0	0	$0	0	$0	0	$0	0	$0		$0
D- Street Engineering/Design	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Civil Engineering/Design	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Substation (T) Engineering/Design	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Substation (D) Engineering/Design	LT		0			$1 272		$2 120	0	$0	0	$0	0	$0	0	$0		$3 392
Protection & Controls Engineering	LT		0	$0		$848		$848	0	$0	0	$0	0	$0	0	$0		$1 696
Survey Engineering	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
SCADA / Automation Engineering	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Telecom Engineering	LT		0	$0		$424		$0	0	$0	0	$0	0	$0	0	$0		$424
Other - specify (Engineering & Drafting)	LT		0	$3 206		$0		$0	0	$0	0	$0	0	$0	0	$0		$3 206
Other - specify	LT		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
LT Total			0	$3 206		$2 544		$5 088	0	$0	0	$0	0	$0	0	$0		$10 838
Employee Expenses	AE	5%	0	$0		$127		$254		$0		$0		$0		$0		$381
Contractor Engineering - T-Lines	AQ		0	$0		$0		$0		$0		$0	0	$0	0	$0		$0
Contractor Engineering - D-Street	AQ		0	$0		$0		$0		$0		$0	0	$0	0	$0		$0
Contractor Engineering - T -Station	AQ		0	$0		$0		$0		$0		$0	0	$0	0	$0		$0
Contractor Engineering - D-Station	AQ		0			$0		$0		$0		$0	0	$0	0	$0		$0
Contractor Engineering - P&C	AQ		0	$0		$0		$0		$0		$0	0	$0	0	$0		$0
Contractor Engineering - Survey	AQ		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - SCADA / Automation	AQ		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - Telecom	AQ		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Other - specify (Outside Service-Engineering)	AQ		0	$16 458		$0		$0	0	$0	0	$0	0	$0	0	$0		$16 458
Other - specify	AQ		0			$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Contractor Engineering - Specify	AQ		0	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
ENRXX Subtotal				$19 664		$2 671		$5 342		$0		$0		$0		$0		$27 677
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
ENRXX Total			0	$19 664	[redacted]	$2 671	[redacted]	$5 342	0	$0	0	$0	0	$0	0	$0		$27 677
LNDXX-TG LAND																		0
Real Estate	LT		0	$0	0	$0	0	$0		$0	0	$0		$0		$0		$0
Employee Expenses	AE	5%	0	$0		$0		$0		$0		$0		$0		$0		$0
Purchase Land	AM		0	$0		$0		$0		$0		$0		$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
Fees and Payments	BF		0	$0														$0
LNDXX Subtotal				$0		$0		$0		$0		$0		$0		$0		$0
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
LNDXX Total			0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
MATXX-TG MATERIAL																		$0
Eversource	AM		0	$29 928		$0		$0		$0		$0		$0		$0		$29 928
Outside Services	AM		0			$2 500		$0		$0		$0		$0		$0		$2 500
	AM		0	$0														$0
Freight		0%	0	$0														$0
Sales Tax Eversource/outside services	3.9%	3.9%	0	$0		$100		$0		$0		$0		$0		$0		$100
Other		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
MATXX Subtotal				$29 928		$2 600		$0		$0		$0		$0		$0		$32 528
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
MATXX Total				$29 928		$2 600		$0		$0		$0		$0		$0		$32 528
PSMXX-PROJECT MANAGER & SUPPORT																		$0
Project Management (PM)	LT		0			$0		$0		$0		$0	0	$0	0	$0		$0
Project Planning/Cost (PI)	LT		0	$0	[redacted]	$318	[redacted]	$212		$0		$0	0	$0	0	$0		$530
Contracts/Purchasing (C/P)	LT		0			$424		$106		$0		$0	0	$0	0	$0		$530
System Planning	LT		0			$0		$0		$0		$0	0	$0	0	$0		$0
Environmental	LT		0	$0	0	$0		$0	0	$0	0	$0	0	$0	0	$0		$0
SCS - Notification	LT		0	$0		$13		$11	0	$0	0	$0	0	$0	0	$0		$24
Legal	LT		0			$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Estimating	LT		0			$0		$0		$0	0	$0	0	$0	0	$0		$0
Siting - Local Zoning	LT		0			$0		$0	0	$0	0	$0	0	$0	0	$0		$0
Asset Management	LT		0		[redacted]	$212	[redacted]	$106		$0		$0		$0		$0		$318
Other -	LT		0			$0		$0		$0		$0		$0		$0		$0
Other -	LT					$0		$0		$0		$0		$0		$0		$0
Other -	LT		0			$0		$0		$0		$0		$0		$0		$0
Other -	LT		0			$0		$0		$0		$0		$0		$0		$0
LT Total				$0	[redacted]	$967	[redacted]	$435	0	$0	0	$0	0	$0	0	$0		$1 402
Employee Expenses	AE	5%	0	$0		$48		$22	0	$0	0	$0	0	$0	0	$0		$70
Project Support Vendor - PM	AQ		0		[redacted]	$9 000	[redacted]	$3 000		$0		$0	0	$0	0	$0		$12 000
Project Support Vendor - P	AQ	0.0%	0			$0		$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - C/P	AQ		0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - System Planning	AQ		0		0	$0		$0		$0		$0	0	$0	0	$0		$0
Project Support Vendor - Enviromental	AQ	0.0%	0		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - SCS - Notification	AQ	0.0%	0		0	$240	0	$210	0	$0	0	$0	0	$0	0	$0		$450
Project Support Vendor - Legal	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - Estimating	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - Siting - Local Zoning	AQ	0.0%	0		0	$700	0	$600	0	$0	0	$0	0	$0	0	$0		$1 300
Project Support Vendor - Asset Management	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Project Support Vendor - Other	AQ	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Property or C/W P tax large proj. allowance	BR		0			$0	0	$0		$0	0	$0	0	$0	0	$0		$0
	BR		0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Fees and Payments - Enviromental	BF		0		0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Fees and Payments - Siting	BF		0	$0	0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
Fees and Payments - Other	BF		0	$0	0	$0	0	$0		$0	0	$0	0	$0	0	$0		$0
PSMXX Subtotal				$0		$10 955		$4 267		$0		$0		$0		$0		$15 222
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
PSMXX Total				$0	[redacted]	$10 955	[redacted]	$4 267	0	$0	0	$0	0	$0	0	$0		$15 222
REMXX-TG REMOVAL																		$0
Engineering/Design	LT		0	$0	0	$0	0	$0		$0		$0	0	$0		$0		$0
Internal Construction	LT		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
LT Total			0	$0		$0		$0		$0		$0		$0		$0		$0
Employee Expenses	AE	15%	0	$15		$0		$0		$0		$0		$0		$0		$15
Outside Services	AQ	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
Contractor Labor	AQ	0.0%	0	$0	0	$0	[redacted]	$2 880	0	$0	0	$0	0	$0	0	$0		$2 880
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
Rents and Leases	BR		0	$0														$0
REMXX Subtotal				$15		$0		$2 880		$0		$0		$0		$0		$2 895
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
REMXX Total				$15	0	$0	[redacted]	$2 880	0	$0	0	$0	0	$0	0	$0		$2 895
TSTXX-TG TEST																		$0
Test / Field Engr. Labor (In House)	LT		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Lead Commissioning Engr. (LCE) (Internal)	LT		0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$0
Employee Expense	AE	10%	0	$0		$0		$0		$0		$0		$0		$0		$0
Test / Field Engr. Labor (contractor)	AQ		0	$0	[redacted]	$22,860	[redacted]	$57,600	0	$0	0	$0	0	$0	0	$0		$80,460
Lead Commissioning Engr. (LCE) (contactor)	AQ		0	$0	[redacted]	$18 720	[redacted]	$27 872	0	$0	0	$0	0	$0	0	$0		$46 592
Vehicles (now in Indirects section)	AV	0.0%	0	$0		$0		$0		$0		$0		$0		$0		$0
TSTXX Subtotal				$0		$41 580		$85 472		$0		$0		$0		$0		$127 052
Escalation			0	$0														$0
		0%	0	$0		$0		$0		$0		$0		$0		$0		$0
TSTXX Total				$0	[redacted]	$41 580	[redacted]	$85 472	0	$0	0	$0	0	$0	0	$0		$127 052
SUBTOTAL PROJECT DIRECT COST			-	$49 606	[redacted]	$139 094	[redacted]	$112 258	0	$0	0	$0	0	$0	0	$0	0	$300 958
Risk																		$0
Risk						$28 000		$12 500		$0		$0		$0		$0	0	$40 500
					0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$0
					0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$0
Risk Total				$0		$28 000		$12 500		$0		$0		$0		$0		$40 500
TOTAL PROJECT DIRECT COST (w risk)			-	$49 606	[redacted]	$167 094	680	$124 758	0	$0	0	$0	0	$0	0	$0	1,704	$341 458
INDIRECTS																	0	
Non-Productive Time Allocation (ZNP)		15.1%	0	$0		$2 730		$831		$0		$0		$0		$0	0	$3 561
Payroll Benefits Allocation (ZPB) Incl NPT		44.0%	0	$0		$7 405		$0		$0		$0		$0		$0	0	$7 405
Gen SVC CO Overhead (ZGS) Incl NPT		75.0%	0	$0		$3 030		$4 766		$0		$0		$0		$0	0	$7 796
E&S Allocations (ZFB,ZEL,ZES)		50.0%	0	$9 679		$74 164		$58 719		$0		$0		$0		$0	0	$142 562
A&SE Allocations (ZAS)		1.3%	0	$704		$2 830		$2 207		$0		$0		$0		$0	0	$5 831
Stores Expense Allocation (ZST)		8.0%	0	$0		$0		$0		$0		$0		$0		$0	0	$0
Lobby Stock		0.0%	0	$0		$0		$0		$0		$0		$0		$0	0	$0
MDEC (ZMI)		5.0%	0	$0		$6 273		$5 886		$0		$0		$0		$0	0	$12 159
Vehicles (ZVE)		28.0%	0	$0		$5 079		$1 546		$0		$0		$0		$0	0	$6 625
		0.0%	0	$4 262			0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0.00%	$0	0	$4 262
Indirects Subtotal				$14 788		$101 511		$73 955		$0		$0		$0		$0	0	$190 232
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)				$64 372		$268 605		$186 713		$0		$0		$0		$0		$531 690
AFUDC																		$0
																		$0
AFUDC (ZK)				$2 329	4.81%	$9 668	4.81%	$9 045	4.81%	$0	4.81%	$0	4.81%	$0	4.81%	$0		$21 042
In Service Dollars						$0		$0		$0		$0		$0		$0		
Cumulative ISS						-		-		-		-		-		-		
																		$0
AFUDC Subtotal				$2 329		$9 668		$9 045		$0		$0		$0		$0		$21 042
TOTAL PROJECT COST - Baseline Budget				$66,701		$278, 273		$207,758		$0		$0		$0		$0		$552,732
Contingency																		$0
Contingency				$0		$6 990		$6 475		$0		$0		$0		$0		$13 465
Other				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$0
																		$0
Contingency SubTotal				$0		$6 990		$6 475		$0		$0		$0		$0		$13 465
TOTAL PROJECT COST - Approved Funding				$66,701		$285 263		$214 233		$0		$0		$0		$0		$566 196
Reimbursables / Customer Contribution																		$0
Reimbursables / Customer Contribution (enter as negative)				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$0
		0.0%		$0		$0		$0		$0		$0		$0		$0	0	$0



EVERSOURCE

Constructability Review Form: **Substation**

Project Title: [redacted] Feeder Locator Project	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00384	**Project Constructability Phase:**	
Date(s) of Constructability Review: **04/22/2021** 04/22/2021	☐ Conceptual Engineering Design ☒ Preliminary Engineering Design ☐ Detailed Engineering Design	

Project Scope Statement:

[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		☐	☐	Civil Engineering	
☒	☒	S/S Technical / LCE		☐	☐	Telecom	
☐	☐	S/S Operations**		☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☐	Line Engineering		☐	☐	T&D ROW	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☐	☐	Siting		☐	☐	Cost Estimating	
☐	☐	Safety		☐	☐	Outreach (SCS)	
☐	☐	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**

EVERSOURCE

Constructability Review Form: **Substation**

** Internal Eversource Substation Operations must be included in 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] 10/14/2021

Name / Signature *Date*

Documents available for use on Constructability Review					
[X]	Deliverable	[X]	Deliverable	[X]	Deliverable
☐	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	☐	Previous Notes	☐	Identify Required Contractors
☐	Proposed Schedule	☐	Major Material List	☐	Replace / Reuse of equipment
☐	Construction Sequence/Timeline	☐	Major Equipment Items	☐	Pre-Walkdown Comments / Observations

Action Items and Resolutions:

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

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**General**		
1	**Any safety hazards specific to the facility? i.e. Low Bus, Deterioration, etc.**	☒	

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	**Prior known Site Specific Conditions - Common or Obvious station Issues**	☒	
3	**Scope Adequately Developed** Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence	☐	Yes
4	**Materials Identified/Ordered** Long Lead Equipment? Specialty material considerations? Review BOM lead times and project need dates Bids for Specialty Major Materials - Identify Specialty Equipment & Materials potentials - temporary/replacement Any Materials needed to facilitate construction access?	☐	Yes, material is ordered and shipped to the Metering Dep.
5	**Any impacts that would drive T-Line Eng Scope?**	☐	No
6	**Any other known projects that could overlap or impact outage work?**	☐	Yes, the S. Meadow OCB Project.
B	**Construction**		
1	**Site Plan / Access:** -Confirm maintenance access for proposed new or replaced equipment -Review station expansion areas (if needed) for structures, old foundations, etc. -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) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any Sanitary Civil Requirements? (Septic tanks, etc) -Assess condition of existing yard equipment foundations and viability for reuse (if proposed)	☒	N/A
2	**Any Substation Access and site/yard access Limitations?** -Review turning radius for delivery trucks (if critical) -Identify Office Trailer / Container / Dumpster Space + source of utilities for construction trailer(s) if needed -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Construction permit for trailers outside substation fence?	☐	N/A

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	**Outage Planning & Construction Sequence** -Working Clearances - Review electrical clearances for equipment during construction – Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -As-Built drawing review (contacts and contributions) -Outage boundaries -Phased approach needs for additional mobilizations -Detail Design package align with schedule and outage sequence? -Lead Commissioning Engineer (LCE), Substation Operations, and Outage Planner - Review or give input to planned construction sequence to insure it is reasonable and scheduled outages associated with the sequence -Review or give input to planned construction sequence to insure it is reasonable -Verify outage sequence supports the planned construction sequence	☐	Contractor to be brought on board to provide construction sequence.
4	**Need for mobile generator and where connected (if needed)**	☒	N/A
5	**Need for mobile battery and where connected (if needed)**	☒	N/A
6	**Energization Plan** What outages are required, Detailed look at contributions to equipment, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized Mobile transformer, Additional outage requirements, Working clearance, Railroad Catenaries, Distribution overhead/underground/networks, Fiber outage, SCADA outage, Relay permissions	☐	To be developed shortly once the contractor is onboard.
7	**Identify Required Oversite Needed - Estimated level of CR and LCE support needed**	☒	
8	**OT work required or Notable Permit Conditions (special hours)?**	☐	No
9	**Seasonal or weather conditions impacts?**	☐	No
10	**Identify Required Depts for Construction? (who is constructor ?)**	☐	Outside Resources
11	**Specialty Contractors Required?**	☐	No
12	**Unique Equipment Considerations, Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser**	☐	No

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
13	**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.)	☐	No
14	**Any other items missing in scope or could be underfunded?**	☐	No
15	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	☐	No
C	**Environmental**		**N/A**
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☒	
2	Has Desktop investigation and EAD Review form been completed.	☒	
3	Dewatering requirements	☐	
4	Risk or presence of PCB's/Asbestos/Lead/SF6	☒	
5	Permit requirements (Wetlands, Rare Species, etc)	☒	
6	Stormwater Considerations	☒	
7	Transformer Spill Containment Recommended?	☒	
8	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	☒	
D	**Siting, S&CS, and T&D Real Estate**		**N/A**
1	Expanding Footprint / New Buildings or future Expansion Plans?	☒	
2	Installation is within Eversource Rights? - Rights and Restrictions Review	☒	
3	Proposed Equipment on same property? - Any Encroachments	☒	
4	Identify existing lighting and determine if additional lighting is needed?	☒	
5	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☒	
6	Visual mitigation screening considerations (feasibility or location)	☒	
7	Neighbor/Abutter impacts (noise, visual, sensitive abutters)	☒	

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
E	**Engineering**		
1	**Scope of Work** Identify if high level scope sufficiently detailed? Any remote station impacts? Does title match the project deliverable/intent?	☐	See above.
2	**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	☒	
3	**Materials** Any concerns with BOM/Major Materials Review? Where will new vs removed equipment go? Review for OH and UG Items	☐	No
4	**Control House** - Review: Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station service and loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..	☐	No conflicts with panel space with regards to the new equipment installation.
5	Identification of Unique Requirements, i.e. (access bridges, station service, etc.)	☒	
6	**BPS Separation Requirements** Is this BPS Substation? Y/N (part of PAF) Changes to pre-existing BPS standards?	☒	N/A
7	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☒	N/A
8	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☐	No
9	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Any impacts to construction plan?	☒	N/A

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
10	**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?	☒	N/A
11	**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
12	Any Lighting Plan & Fixture Schedule Considerations?	☒	N/A
13	Any Steel Structural Plan Considerations?	☒	N/A
14	Sound Study Needed? Pre-Project Sound Measurements Needed? Sound Walls?	☒	N/A
15	Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	☒	N/A
16	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☒	N/A
17	Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions	☒	N/A
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	☒	
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☒	
3	Panel fronts conform to drawings	☒	
4	Access to bring new panels into control enclosure	☒	
5	Nameplate list and location of nameplates	☒	
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☒	
7	Verify auxiliary panels have breaker available or space for new breakers (if needed)	☒	
G	**Telecom Engineering**		**N/A**
1	Review telecom equipment in existing control enclosure	☒	
2	Review path to get telecom circuits into the station and determine whether new underground duct bank is needed.	☒	

EVERSOURCE

Constructability Review Form: **Substation**

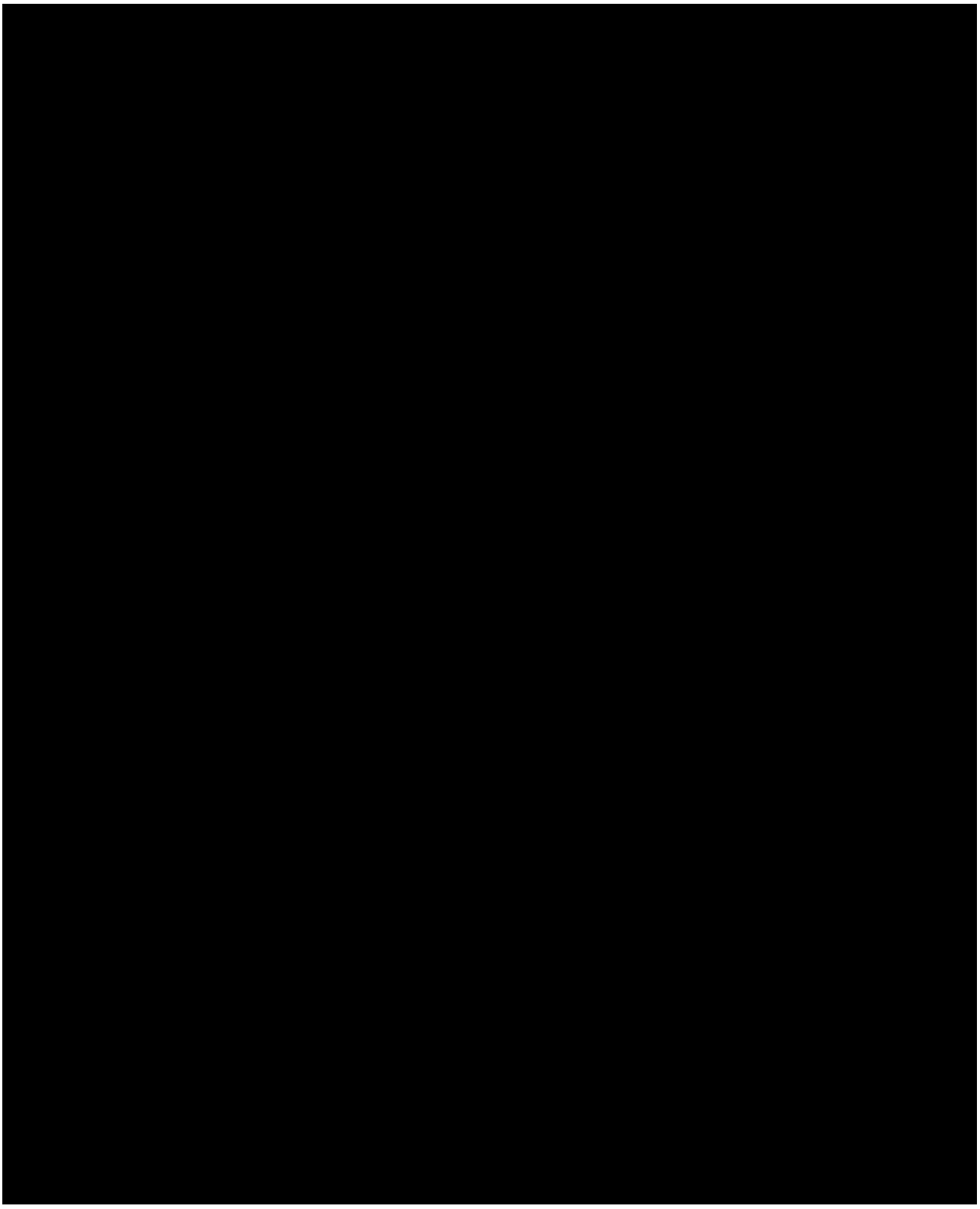
	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	☒	
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	☒	
5	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☒	
6	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☒	
7	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☒	
8	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	☒	

Photos

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

EVERSOURCE

Constructability Review Form: **Substation**



Activity ID	Activity Name	Activity Status	Original Duration	Start	Finish	Total Float	Activity Scheduler
CS003841	**[redacted] Feeder Fault Locator (CS00384)**		688	11/25/2019 A	08/18/2022	0	
CS003841.01	**INITIALIZATION AND SCOPE DEVELOPEMENT**		539	11/25/2019 A	01/19/2022	149	[redacted]
START	SCHEDULE START MILESTONE	Completed	0	11/25/2019 A			
CS003841.01.01	**Initial Funding**		29	11/25/2019 A	01/07/2020 A		
PI1200	Project Initiator Develop Intitial Funding Request	Completed	9	11/25/2019 A	12/06/2019 A		
PI1000	Submit Initial Funding Request	Completed	0		12/06/2019 A		
PI1300	Initial Funding Request Approved	Completed	10	12/09/2019 A	12/20/2019 A		
PI1500	Assign Scheduler	Completed	5	12/23/2019 A	12/30/2019 A		
PI1600	Assign Cost Analyst	Completed	5	12/23/2019 A	12/30/2019 A		
PI1400	Assign Project Manager	Completed	10	12/23/2019 A	01/07/2020 A		
CS003841.01.02	**SDC Approval**		38	12/30/2019 A	02/24/2020 A		
CE1600	Conduct Project Team Kickoff Meeting	Completed	1	01/02/2020 A	01/02/2020 A		
CE1400	ES Engineering Develop P&C Conceptual Engineering Design in Accordance with Deliverables Checklist	Completed	15	12/30/2019 A	01/03/2020 A		
CE1500	ES Engineering Develop Communications Conceptual Engineering Design in Accordance with Deliverables Checklist	Completed	15	12/30/2019 A	01/03/2020 A		
CE1100	Develop Electrical Substation Conceptual Engineering Design in Accordance with Deliverables Checklist	Completed	15	12/30/2019 A	01/03/2020 A		
CE1000	ES Engineering Develop Civil Substation Conceptual Engineering Design in Accordance with Deliverables Checklist	Completed	15	12/30/2019 A	01/03/2020 A		
CE1710	Conduct Conceptual Constructability Walk Down	Completed	1	01/03/2020 A	01/03/2020 A		
CE1700	Review Conceptual Siting & Permitting (If Required)	Completed	15	01/06/2020 A	01/17/2020 A		
CGE1000	Develop Conceptual Grade Estimate (-25%+50% SDC)	Completed	4	01/21/2020 A	01/24/2020 A		
SSF1000	Develop Soultions Selection Form (SSF)	Completed	19	01/27/2020 A	02/07/2020 A		
SDC1000	Solution Design Committee(SDC) Approval	Completed	10	02/10/2020 A	02/24/2020 A		
CS003841.01.09	**Project Initiation**		455	02/25/2020 A	12/13/2021	172	
CS003841.01.09.2	**EPAC Partial Funding**		37	02/25/2020 A	04/15/2020 A		
PE1700	Conduct Preliminary Constructability Walk Down	Completed	1	02/25/2020 A	02/25/2020 A		
PE1600	Review Preliminary Siting & Permitting (If Required)	Completed	20	02/26/2020 A	03/24/2020 A		
PAFP1000	Submit Partial Funding PAF for Internal Review	Completed	10	03/18/2020 A	03/31/2020 A		
PE1710	Create Engineering Scope Document	Completed	5	03/25/2020 A	03/31/2020 A		
PE1720	Engineering Scope Document Complete	Completed	0		03/31/2020 A		
PAFP1100	Incorporate Internal Review Comments & Submit Partial Funding PAF to EPAC for Review	Completed	5	04/01/2020 A	04/07/2020 A		
ATCGE1010	Develop At Least Conceptual Grade Estimate (-25%+50% Partial Funding)	Completed	10	04/01/2020 A	04/14/2020 A		
PAFP1200	Incorporate EPAC Partial Funding PAF Review Comments	Completed	5	04/08/2020 A	04/14/2020 A		
PF1000	EPAC Partial Funding Approval	Completed	1	04/15/2020 A	04/15/2020 A		
CS003841.01.09.3	**EPAC Full Funding**		162	04/22/2021 A	12/13/2021	172	
DE1900	Conduct Detail Constructability Walk Down	Completed	1	04/22/2021 A	04/22/2021 A		
DE1800	Review Detail Siting & Permitting (If Required)	Completed	1	07/30/2021 A	07/30/2021 A		

TASK filters: Remove MAX Activities, Remove N/R.

© Oracle Corporation

Activity ID	Activity Name	Activity Status	Original Duration	Start	Finish	Total Float	Activity Scheduler
DE1700	Conduct Initial Risk Management & SCLL Review (Project Initiator & PM)	Completed	4	08/02/2021 A	08/05/2021 A		[redacted]
DE2000	Project Constructability Review Complete	Completed	4	08/09/2021 A	08/12/2021 A		
DE1600	Create Planning Grade Estimate (+/-25% Full Funding)	Completed	10	08/17/2021 A	08/30/2021 A		
PAFF2000	Submit Full Funding PAF for Internal Review	Not Started	1	10/15/2021*	10/15/2021	7	
PAFF2100	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	Not Started	1	10/18/2021	10/18/2021	7	
PAFP1210	EPAC Full Funding Meeting	Not Started	0		10/27/2021*	0	
PAFF2200	Incorporate EPAC Full Funding PAF Review Comments	Not Started	5	10/28/2021	11/03/2021	172	
FF1000	EPAC Full Funding Approval	Not Started	1	11/04/2021	11/04/2021	172	
FF1010	Full Funding PowerPlan Approval	Not Started	25	11/05/2021	12/13/2021	172	
CS003841.01.12 T-Minus Milestones			325	06/01/2020 A	01/19/2022	0	
CS003841.01.12.02 Electrical T-Milestones			325	06/01/2020 A	01/19/2022	0	
A1090	T-26.05 - 30% Design / Engineering Completed	Completed	0		06/01/2020 A		
AT1811	T-18.11 - 70% Design/Engineering Completed	Completed	0		09/23/2020 A		
AT1201	A-T-12.01 SCADA Date (Tab) Sheets/Signal List Sent to LCC	Completed	0		09/28/2020 A		
AT0805E	A-T-08.05.Elect IFC - Electrical (AG) w/Final BOM	Completed	0		11/06/2020 A		
AT0805C	A-T-08.05.Civil IFC - Civil (BG) w/BOM	Completed	0		11/06/2020 A		
AT0404	A-T-04.04 ALL FINAL RELAY PROTECTIVE SETTING ISSUED	Completed	0		11/06/2020 A		
AT3001	T-30.01 - Eng. Project Scoping Document Issued (Scope Lockdown)	Completed	0		01/20/2021 A		
AT2404	A-T-24.04 DETERMINE / ASSIGN LCE (LEAD COMMISSIONING ENGINEER)	Completed	0		05/17/2021 A		
AT1301	A-T-13.01 COMMISSIONING PLAN COMPLETE	Completed	0		08/02/2021 A		
AT0401	A-T-04.01 ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED	Completed	0		08/10/2021 A		
AT0804	A-T-08.04 ALL PERMITS RECEIVED	Completed	0		09/03/2021 A		
AT0813	A-T-08.13 SITING PETITION AND APPLICATION FILED	Completed	0		09/07/2021 A		
AT0409	A-T-04.09 ALL FIRM TOA APPLICATIONS DUE TO LCC (for DISTRIBUTION Non-transformer equipment)	Not Started	0		12/21/2021	0	
AT0203	A-T-02.03 CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)	Not Started	0		01/04/2022	0	
AT00	A-T-00 - START OF CONSTRUCTION - WO#	Not Started	0	01/19/2022*		0	
CS003841.01.12.2 T-Minus Milestones "B" Group for Transformer Test			88	11/06/2020 A	12/03/2021	0	
BT0805P	A-T-08.05.P&C IFC - P&C w/BOM	Completed	0		11/06/2020 A		
BT1202	A-T-12.02 P/C DESCRIPTION / DRAFT OPERATING INSTRUCTIONS ISSUED	Not Started	0		10/26/2021	0	
BT00	B-T-00 - START OF CONSTRUCTION - WO#	Not Started	0	12/03/2021*		0	
CS003841.03 ENVIRONMENTAL APPROVALS AND PERMITS			194	02/26/2020 A	10/18/2021	52	
CS003841.03.00 PREPARE COMPLIANCE MATRICES - REGULATORY & COMMITMENTS			194	02/26/2020 A	10/18/2021	52	
A1240	Determine Requirment for CSC (CT Siting Council submissions/approvals)	Completed	1	09/07/2021 A	09/07/2021 A		
A1230	Prepared Compliance Matrices - Regulatory	In Progress	194	02/26/2020 A	10/18/2021	52	
A1220	Prepared Compliance Matrices - Non-Reqgulatory (Commitments)	In Progress	194	02/26/2020 A	10/18/2021	52	

TASK filters: Remove MAX Activities, Remove N/R.

© Oracle Corporation

Activity ID	Activity Name	Activity Status	Original Duration	Start	Finish	Total Float	Activity Scheduler
CS003841.03.01	**APPROVALS - FEDERAL**		5	08/30/2021 A	09/03/2021 A		[redacted]
A1180	Determine Requirment for and Prepare Permitting Docments - FEDERAL	Completed	5	08/30/2021 A	09/03/2021 A		
CS003841.03.02	**APPROVALS - STATE**		5	08/30/2021 A	09/03/2021 A		
A1190	Determine Requirment for and Prepare Permitting Docments - STATE	Completed	5	08/30/2021 A	09/03/2021 A		
CS003841.03.03	**APPROVALS - REGIONAL**		5	08/30/2021 A	09/03/2021 A		
A1200	Determine Requirment for and Prepare Permitting Docments - REGIONAL	Completed	5	08/30/2021 A	09/03/2021 A		
CS003841.03.04	**APPROVALS - LOCAL**		5	08/30/2021 A	09/03/2021 A		
A1210	Determine Requirment for and Prepare Permitting Docments - LOCAL	Completed	5	08/30/2021 A	09/03/2021 A		
CS003841.05	**ENGINEERING & DESIGN**		257	07/10/2020 A	05/21/2021 A		
CS003841.05.00	**Engineering Services Staffing**		5	12/01/2020 A	12/07/2020 A		
A3370	Decision Required Regarding Engineering Staffing (ES, COC, BID)	Completed	5	12/01/2020 A	12/07/2020 A		
CS003841.05.01	**Civil Engineering**		142	07/10/2020 A	05/21/2021 A		
DSSE-110	Civil Package to Design	Completed	20	07/10/2020 A	05/21/2021 A		
DSSE-120	Civil Package IFC	Completed	5	07/10/2020 A	05/21/2021 A		
DSSE-100	Design Package to Civil	Completed	30	07/10/2020 A	05/21/2021 A		
CS003841.05.02	**Electrical Engineering**		127	07/10/2020 A	11/06/2020 A		
DSSE-200	70% Electrical Design Package Design	Completed	40	09/10/2020 A	09/23/2020 A		
DSSE-205	70% Electrical Design Package Drafting	Completed	20	09/10/2020 A	09/23/2020 A		
DSSE-240	Electrical Engineering - Electrical Package IFC (Physical & Electrical)	Completed	5	07/10/2020 A	11/06/2020 A		
DSSE-260	Submit Electrical Design to Siting & Permitting for Filing w/Regulator Authority	Completed	20	11/06/2020 A	11/06/2020 A		
DSSE-920	Operating Instructions - SSED Review Draft Convex OI	Completed	5	11/06/2020 A	11/06/2020 A		
DSSE-460	Operating Instructions - SSED Review Draft Distribution OI	Completed	5	11/06/2020 A	11/06/2020 A		
DSSE-210	100% Electrical Design Package IFR	Completed	20	11/06/2020 A	11/06/2020 A		
DSSE-230	Electrical Engineering - BOM Complete	Completed	2	11/06/2020 A	11/06/2020 A		
CS003841.05.04	**P&C Engineering**		142	07/10/2020 A	11/06/2020 A		
DSSE-470	Operating Instructions - P&C Review Draft Distribution OI	Completed	5	09/23/2020 A	09/28/2020 A		
DSSE-930	Operating Instructions - P&C Review Draft Convex OI	Completed	5	09/23/2020 A	09/28/2020 A		
DSSE-400	Prepare & Issue P&C Design Package to Drafting	Completed	20	09/23/2020 A	09/28/2020 A		
DSSE-450	Operating Instructions - Prepare and Issue Draft Distribution OI to Engineering	Completed	20	09/23/2020 A	09/28/2020 A		
DSSE-990	P&C INITIATE SCADA Data Sheets	Completed	20	09/23/2020 A	09/28/2020 A		
A3380	Issue P&C Package Design	Completed	10	09/23/2020 A	09/28/2020 A		
DSSE-410	Drafting Prepare & Issue Back to P&C	Completed	10	09/23/2020 A	09/28/2020 A		
DSSE-480	P&C INITIATE CASCADE FORMS (Apenndix A) for Construction	Completed	20	09/23/2020 A	09/28/2020 A		
DSSE-220	SDS Complete	Completed	2	11/06/2020 A	11/06/2020 A		
CS003841.05.04.1	**Relay Settings**		20	07/10/2020 A	11/06/2020 A		

TASK filters: Remove MAX Activities, Remove N/R.

© Oracle Corporation

Activity ID	Activity Name	Activity Status	Original Duration	Start	Finish	Total Float	Activity Scheduler
DSSE-440	Relay Settings - Prepare and Issue Relay Settings IFC- (Is standard Relay logic Needed?)	Completed	20	07/10/2020 A	11/06/2020 A		[redacted]
CS003841.06	**MATERIAL PROCUREMENT**		74	05/17/2021 A	08/10/2021 A		
CS003841.06.1	**MATERIAL FOR P&C**		69	06/17/2021 A	08/03/2021 A		
DSSE-510	MATERIAL - P&C - Prepare & Issue DR	Completed	5	06/17/2021 A	06/24/2021 A		
DSSE-980	MATERIAL - P&C - Procurement Issue PO	Completed	5	06/28/2021 A	07/02/2021 A		
DSSE-1000	MATERIAL - P&C - Material Vendor Delivery Leadtime	Completed	30	07/05/2021 A	08/03/2021 A		
DSSE-1010	MATERIAL - P&C - Confirm Material Delivery to Site	Completed	1	08/03/2021 A	08/03/2021 A		
CS003841.06.2	**MATERIAL FOR ELECTRICAL**		31	06/17/2021 A	08/10/2021 A		
DSSE-520	MATERIAL - Electrical - Prepare & Issue DR	Completed	5	06/17/2021 A	06/24/2021 A		
DSSE-530	Electrical (AG) Material Ordered	Completed	0		06/24/2021 A		
DSSE-1020	MATERIAL - ELectrical - Procurement Issue PO	Completed	10	06/28/2021 A	07/09/2021 A		
DSSE-1030	MATERIAL - ELectrical - Material Vendor Delivery Leadtime	Completed	30	07/12/2021 A	08/10/2021 A		
DSSE-550	MATERIAL - Electrical -Confirm Material Delivery to Site	Completed	1	08/10/2021 A	08/10/2021 A		
CS003841.06.3	**MATERIAL FOR CIVIL**		64	05/17/2021 A	08/10/2021 A		
DSSE-540	Civil (BG) Material Ordered	Completed	0		05/17/2021 A		
DSSE-500	MATERIAL - CIVIL - Prepare & Issue DR	Completed	5	06/17/2021 A	06/24/2021 A		
DSSE-1040	MATERIAL - CIVIL - Procurement Issue PO	Completed	10	06/28/2021 A	07/09/2021 A		
DSSE-1050	MATERIAL - CIVIL - Material Vendor Delivery Leadtime	Completed	30	07/12/2021 A	08/10/2021 A		
DSSE-560	MATERIAL - CIVIL -Confirm Material Delivery to Site	Completed	1	08/10/2021 A	08/10/2021 A		
CS003841.07	**CONSTRUCTION**		182	10/04/2021	06/24/2022	8	
CS003841.07.02	**CONSTRUCTION - ELECTRICAL**		5	01/19/2022	01/25/2022	96	
A1130	Construction - Electrical	Not Started	5	01/19/2022	01/25/2022	96	
CS003841.07.03	**CONSTRUCTION - P&C**		5	01/19/2022	01/25/2022	96	
A1140	Construction - P&C Implement Relay Settings	Not Started	5	01/19/2022	01/25/2022	96	
CS003841.07.04	**CONSTRUCTION - COMMUNICATIONS**		5	01/19/2022	01/25/2022	96	
A1150	Construction - Communications	Not Started	5	01/19/2022	01/25/2022	96	
CS003841.07.92	**CONSTRUCTION - CONST.REP TASKS**		182	10/04/2021	06/24/2022	8	
A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage)	Not Started	5	10/04/2021	10/08/2021	49	
A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD)	Not Started	10	06/13/2022	06/24/2022	8	
CS003841.07.94	**CONSTRUCTION RESOURCE TRACKING**		101	01/19/2022	06/10/2022	0	
A1070	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT	Not Started	1	01/20/2022	01/20/2022	99	
ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP	Not Started	101	01/19/2022	06/10/2022	0	
CONSTelec	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN	Not Started	101	01/19/2022	06/10/2022	0	
A1080	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN	Not Started	1	06/10/2022	06/10/2022	0	
CS003841.07.96	**CONSTRUCTION OUTAGES**		101	01/19/2022	06/13/2022	0	

TASK filters: Remove MAX Activities, Remove N/R.

© Oracle Corporation

Activity ID	Activity Name	Activity Status	Original Duration	Start	Finish	Total Float	Activity Scheduler
CSM	Construction Start Milestone	Not Started	0	01/19/2022		-1	[redacted]
TOA-Const	OUTAGE / General Construction Work	Not Started	100	01/20/2022	06/10/2022	0	
CFM	Construction Finish Milestone	Not Started	0		06/10/2022	1	
ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint)	Not Started	0		06/13/2022*	0	
CS003841.07.98	**CONSTRUCTION CLOSEOUT**		2	06/13/2022	06/14/2022	5	
DSSE-900	Prepare Civil Field Mark Ups (Tie after Last Civil Construction Activity)	Not Started	2	06/13/2022	06/14/2022	5	
CS003841.09	**TEST AND COMMISSION**		235	05/11/2021 A	06/12/2022	48	
CS003841.09.01	**TEST - SERVICES STAFFING DECISION**		11	07/16/2021 A	07/30/2021 A		
A1010	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC	Completed	1	07/16/2021 A	07/16/2021 A		
A3250	Procure Testing Vendor {predecessor to test planning}	Completed	10	07/19/2021 A	07/30/2021 A		
CS003841.09.02	**LCE PLANNING**		155	05/11/2021 A	02/16/2022	-1	
LCE100	PM to Request Lead Commissioning Engineer GO/NO-GO {30% design is often the predecessor}	Completed	2	05/11/2021 A	05/12/2021 A		
LCE200	Assign Lead Commissioning Engineer	Completed	2	05/13/2021 A	05/17/2021 A		
LCE400	Develop Test and Commissioning Plan	Completed	20	07/06/2021 A	08/02/2021 A		
LCE500	Eversource LCE Review and Approve Testing and Commissioning Plan	Not Started	21	01/19/2022	02/16/2022	-1	
CS003841.09.04	**TEST ACTIVITIES**		217	07/30/2021 A	06/12/2022	48	
LCE310	Mobilize LCE Prior to Construction	Completed	2	07/30/2021 A	08/02/2021 A		
LCE320	Mobilize Testing Vendor Prior to Construction	Not Started	2	03/01/2022*	03/02/2022	119	
LCE610	LCE Oversee Execution of Test and Commissioning Plan	Not Started	30	02/17/2022	03/31/2022	50	
LCE620	Execute Test and Commissioning Plan	Not Started	80	02/17/2022	06/10/2022	-1	
LCE700	LCE Ensure Test Group Prepare Electrical Field Mark Ups	Not Started	2	06/11/2022	06/12/2022	-1	
CS003841.10	**PROJECT CLOSE OUT**		48	06/13/2022	08/18/2022	0	
DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	Not Started	5	06/13/2022	06/17/2022	2	
CS003841.10.01	**Civil As-Builts**		41	06/20/2022	08/16/2022	2	
DSSE-860	Eversource Engineering Verifies Civil Mark Up As-Built Drawing Package	Not Started	10	06/20/2022	07/01/2022	2	
DSSE-970	Eversource Engineering Updates Civil As-Built Drawing Package	Not Started	3	07/05/2022	07/07/2022	2	
DSSE-870	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	Not Started	8	07/08/2022	07/19/2022	2	
DSSE-880	PM to Document Civil As-Built Drawings Complete	Not Started	1	07/20/2022	07/20/2022	21	
DSSE-1120	Complete TD-176 CIVIL Design Prep & Issue As-Built Dwgs	Not Started	20	07/20/2022	08/16/2022	2	
CS003841.10.02	**Electrical As-Builts**		41	06/22/2022	08/18/2022	0	
DSSE-820	Eversource Engineering Verifies Electrical Mark Up As-Built Drawing Package	Not Started	10	06/22/2022	07/06/2022	0	
DSSE-940	Eversource Engineering Updates Electrical As-Built Drawing Package	Not Started	3	07/07/2022	07/11/2022	0	
DSSE-830	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	Not Started	8	07/12/2022	07/21/2022	0	
DSSE-840	PM to Document Electrical As-Built Drawings Complete	Not Started	1	07/22/2022	07/22/2022	19	
DSSE-1110	Complete TD-176 ELECTRICAL Design Prep & Issue As-Built Dwgs	Not Started	20	07/22/2022	08/18/2022	0	

TASK filters: Remove MAX Activities, Remove N/R.

© Oracle Corporation

Activity ID	Activity Name	Activity Status	Original Duration	Start	Finish	Total Float	Activity Scheduler
CS003841.10.03	**P&C As-Builts**		5	06/22/2022	06/28/2022	8	[redacted]
DSSE-950	P&C Submits SDS As-Builts	Not Started	5	06/22/2022	06/28/2022	8	
DSSE-960	P&C Submits Relay Setting As-Builts	Not Started	5	06/22/2022	06/28/2022	8	
CS003841.10.04	**Test Closout**		7	06/13/2022	06/21/2022	0	
LCE800	LCE Ensures Marked up Prints Ready for Pick-up	Not Started	5	06/13/2022	06/17/2022	0	
LCE900	LCE Review Test Data and Issue Commissioning Report	Not Started	2	06/20/2022	06/21/2022	0	
CS003841.10.05	**SITE RESTORATION CLOSEOUT**		10	06/13/2022	06/24/2022	38	
A1110	Restore / Remediate Site	Not Started	10	06/13/2022	06/24/2022	38	
CS003841.10.06	**MATERIAL, EQUIPMENT, COST, AND ASSET MANAGEMENT CLOSEOUT**		40	06/13/2022	08/08/2022	8	
A1020	Cost Analyst Prepares FINAL Units of Property	Not Started	30	06/13/2022	07/25/2022	18	
A1030	Asset Management Complete Asset Update(s) in CASCADE	Not Started	30	06/27/2022	08/08/2022	8	
CS003841.10.07	**PROJECT MANAGEMENT CLOSEOUT**		48	06/13/2022	08/18/2022	0	
A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	Not Started	30	06/13/2022	07/25/2022	17	
A1270	Prepare TD-17 Document.	Not Started	30	06/13/2022	07/25/2022	17	
FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)	Not Started	0		08/18/2022	0	
CS003841.13	**OVERHEAD / INDIRECTS**		10	10/04/2021	10/18/2021	52	
CS003841.13.01	**PROJECT MANAGEMENT**		10	10/04/2021	10/18/2021	52	
A1170	Prepare CAN (Construction Authorization Notice)	Not Started	10	10/04/2021	10/18/2021	52	

TASK filters: Remove MAX Activities, Remove N/R.

© Oracle Corporation