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Rhode Island Energy™
a PPL company

May 28, 2024

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket No. 23-38-EL – The Narragansett Electric Company d/b/a Rhode Island Energy's Petition for Acceleration of a System Modification Due to Distributed Generation Project Weaver Hill Projects
Responses to PUC Data Requests – Set 2 (Complete Set)

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a Rhode Island Energy (the "Company"), enclosed please find the Company's complete set of responses to the Public Utilities Commission's Second Set of Data Requests in the above-referenced docket.

This transmittal contains the Company's responses to data requests PUC 2-3 and PUC 2-4.

Thank you for your attention to this filing. If you have any questions, please contact me at 401-784-4263.

Sincerely,

Andrew S. Marcaccio

Enclosures

cc: Docket No. 23-38-EL Service List

PUC 2-1

Request:

Definitions from Standards for Interconnecting Distributed Generation

> System Improvement is defined as: Economically justified upgrades determined by the Company in the Facility study phase for capital investments associated with improving the capacity or reliability of the EDS that may be used along with System Modifications to serve an Interconnection Customer.
>
> System Modification is defined as: Modifications or additions to Company facilities that are integrated with the Company EDS for the benefit of the Interconnecting Customer.

Where, other than the Standards for Connecting Distributed Generation is the defined term "System Improvement" used?

Response:

The defined term "System Improvement" is not in the Interconnection Statute, R.I. Gen. Laws § 39-26.3-4.1. The term is used within the Company's Petition filed on October 17, 2023 and supporting filings; however, its meaning varies depending on the context.

Please see the Company's response to PUC 1-1 and the table in the Company's response to PUC 2-4 (to be filed on May 28, 2024) which breaks out System Improvements consistent with the Tariff's definition.

PUC 2-2

Request:

Definitions from Standards for Interconnecting Distributed Generation

> System Improvement is defined as: Economically justified upgrades determined by the Company in the Facility study phase for capital investments associated with improving the capacity or reliability of the EDS that may be used along with System Modifications to serve an Interconnection Customer.
>
> System Modification is defined as: Modifications or additions to Company facilities that are integrated with the Company EDS for the benefit of the Interconnecting Customer.

Does the Company believe the same investment can be both a System Modification and a System Improvement? Please explain.

Response:

Yes, an investment can be both a System Modification and a System Improvement across time. For example, a Distributed Generation applicant can require a cable that is a System Modification in year one that can also be considered a System Improvement in year five. The Company recognizes that the same cable can be represented as a System Modification or a System Improvement in various discussions or filings. Rhode Island Energy believes it is most appropriate to consider what the purpose of the equipment was at the time of installation and then how that purpose can change over time.

PUC 2-3

Request:

The Company has provided an estimated final cost of the project benefiting other customers is $13,569,565. Please itemize how the Company arrived at this number using the total estimated cost of the project and the allocations as described in the Company's testimony. (Use example table below with the originally filed numbers and a second table with updated numbers)

	Non-reimbursable cost	Reimbursable cost	Total
Ductbank	$6,072,255	$5,951,270	$12,023,525
….	…	…	…
Total	….	13,569,565	…

Response:

The table below provides an itemization of how the Company arrived at this number using estimates and information available at the time the petition was drafted.

	Non-reimbursable cost	Reimbursable cost	Total
Civil – Ductbank	$6,813,725	$8,186,275	$15,000,000
Electric – 3310 Cable		$5,383,290	$5,383,290
Total	$6,813,725	$13,569,565	$20,383,290

An updated detailed breakdown is included in the response to PUC 2-4.

Prepared by or under the supervision of: Ryan Constable

PUC 2-4[1]

Request:

PUC 1-4 includes a map with a various dotted lines which represent construction shared by developers and RIE. PUC 1-1 provides the scope of "system modification subject to Petition" by developer. (Each subpart should include a table - see example below 2-3.c).

a. Box 3309 states, in part, ductbank part of shared cost with RIE. First, please confirm this is the only portion of costs subject to the petition with the remainder of items in that box. Second, please explain how the Company allocated the cost of the shared ductbank between itself and the developer, including an itemization of the cost for that portion resulting solely from the System Modifications required to allow for safe, reliable, parallel operation of the Facility with the Company EDS, an itemization of the cost of that portion the Company is claiming to be an accelerated Modification, and the cost the Company believes is an economically justified upgrade that may be used along with System Modifications to serve an Interconnecting Customer. Please label as System Modification and System Improvement, as applicable. Please relate the costs for the work in Box 3309 back to the relevant table in the response to PUC 1-1 and Rebuttal Testimony at 7. (Provide totals where appropriate and use the most recent numbers available, noting any changes from previously filed numbers).

b. Box 3310 states, in part, "From Riser to Node A. UG Cable and Ductbank both shared by DG developers and RIE." First, please explain how the Company allocated the cost of the shared ductbank between itself and the developers, including an itemization of the cost for that portion resulting solely from the System Modifications required to allow for safe, reliable, parallel operation of the Facility with the Company EDS, an itemization of the cost of that portion the Company is claiming to be an accelerated System Modification, and the cost the Company believes to be an economically justified upgrade that may be used along with System Modifications to serve an Interconnecting Customer. Please label as System Modification and System Improvement, as applicable. Please relate the costs for the work in Box 3310 back to the relevant table in the response to PUC 1-1 and Rebuttal Testimony at 7. (Provide totals where appropriate and use the most recent numbers available, noting any changes from previously filed numbers).

c. Box 3311 states, in part, Ductbank part of shared cost with RIE. First, please explain how the Company allocated the cost of the shared ductbank between itself and the developer, including an itemization of the cost for that portion resulting solely from the System

[1] The Company's response begins on page 2.

PUC 2-4, page 2

Modifications required to allow for safe, reliable, parallel operation of the Facility with the Company EDS, an itemization of the cost of that portion the Company is claiming to be an accelerated System Modification, and the cost the Company believes to be an economically justified upgrade that may be used along with System Modifications to serve an Interconnecting Customer. Please label as System Modification and System Improvement, as applicable. Please relate the costs for the work in Box 3311 back to the relevant table in the response to PUC 1-1 and Rebuttal Testimony at 7. (Provide totals where appropriate and use the most recent numbers available, noting any changes from previously filed numbers).

Scope (See, e.g., Dkt. No. 5209, RR-11, page 6)	System Modification (%)	Accelerated System Modification (%)	System Improvement (%)	Cost ($)

Response:

Attachment PUC 2-4 explains how estimated costs may be allocated across the various sections of the work. The costs are itemized as follows:

- System Modifications – Portion of the cost assigned to the developers to allow for safe, reliable, parallel operation of the Facility with the Company EDS
- Accelerated Modification - Portion of the cost the Company believes is an economically justified upgrade that is aligned with area study recommendations and system needs.
- System Improvement – Portion of the cost not included in the category above but reasonably required at the time of construction for system purposes such as additional spare ducts.

The costs are presented using the format shown in the response to Division 4-9, which also includes information related to PUC 1-1. Generally, the costs associated with the items originally contemplated in the Petition have reduced from about $13.57 million to $10.54 million. However, the Company has now included additional possible reimbursement associated with additional ducts which is estimated at approximately $4.02 million. This brings the total possible reimbursement to $14.56 million.

Prepared by or under the supervision of: Ryan Constable

PUC 2-4, page 3

a. The Company confirms that only the ductbank is a shared cost for the 3309 box in the map included in the response to PUC 1-4. An estimated allocation method is included in the attachment.

b. An estimated allocation method is included in the attachment.

c. An estimated allocation method is included in the attachment.

Capex Only For locations, refer to PUC 1-4-1 Map

Description	From	To	Area Study	EDP SIS	Revity SIS	GDP SIS	FY23 ISR	FY24 ISR	FY25 ISR	Costs in Petition (PUC 1-1)	Updated Costs 5/2024	% For DG	% For Accel Mod	% For Sys Improve	System Modification (Soley Serve DG)	Accelerated Modification (Aligned With Study Recommendtaion)	System Improvement (Additional Ducts)
Sub-T DG Customer Cost Share																	
Cable 35kV - New Install 3309	3309 Riser (Hopkins Hill Rd)	3310 Riser (Hopkins Hill Rd)	N.A.	N.A.	$716,048	N.A.	N.A.	N.A.	N.A.	$987,961	$ 1,281,331	100%			$1,281,331	$0	$0
Duct Bank Civil Work-Revity	3309 Riser (Hopkins Hill Rd)	3310 Riser (Hopkins Hill Rd)	N.A.	N.A.	Self Build - No Cost	N.A.	N.A.	N.A.	N.A.	N.A.	$ 3,188,415	80%		20%	$2,550,732	$0	$637,683
Duct Bank Civil Work-Green	3309 Riser (Hopkins Hill Rd)	3310 Riser (Hopkins Hill Rd)	N.A.	N.A.	Self Build - No Cost	N.A.	N.A.	N.A.	N.A.	N.A.	$ 177,654	100%			$177,654	$0	$0
Cable 35kV - New Install 3310	3310 Riser (Hopkins Hill Rd)	Node A (Nooseneck/Weaver Hill)	$5,280,108	$4,479,108	$5,204,291	$2,325,114	0	0	0	$6,243,000	$ 2,629,370		100%		$0	$2,629,370	$0
Cable 35kV - New Install 3309	3310 Riser (Hopkins Hill Rd)	Node A (Nooseneck/Weaver Hill)	$6,211,892	N.A.	$5,204,291	N.A.	N.A.	N.A.	N.A.	$5,598,447	$ 2,629,370	100%			$2,629,370	$0	$0
3310 OH Line Work	3310 Riser (Hopkins Hill Rd)	Node A (Nooseneck/Weaver Hill)									$ 281,730		100%		$0	$281,730	$0
Duct Bank Civil Work	3310 Riser (Hopkins Hill Rd)	Node A (Nooseneck/Weaver Hill)	$8,186,000	$15,361,827	$16,136,861	Self Build - No Cost	0	0	0	$5,951,270	$ 5,951,270	33%	33%	33%	$1,983,757	$1,983,757	$1,983,757
Cable 35kV - New Install 3310	Node A (Nooseneck/Weaver Hill)	Green Dev Site	N.A.	N.A.	N.A.	$1,502,298	N.A.	N.A.	N.A.	$1,356,000	$ 2,159,823	100%			$2,159,823	$0	$0
Duct Bank Civil Work	Node A (Nooseneck/Weaver Hill)	Green Dev Site	N.A.	N.A.	N.A.	Self Build - No Cost	N.A.	N.A.	N.A.	$6,072,000	$ 5,894,601	80%		20%	$4,715,681	$0	$1,178,920
Cable 35kV - New Install 3310	Node A (Nooseneck/Weaver Hill)	Revity - Robin Hollow Site	$80,019	$158,086	$183,681	N.A.	0	$77,023	$77,595	$80,019	$ 98,191		100%		$0	$98,191	$0
Cable 35kV - New Install 3309	Node A (Nooseneck/Weaver Hill)	Revity - Robin Hollow Site	N.A.	N.A.	$183,681	N.A.	N.A.	N.A.	N.A.	$197,592	$ 98,191	100%			$98,191	$0	$0
Cable 35kV - New Install 3311	Node A (Nooseneck/Weaver Hill)	Revity - Robin Hollow Site	$80,019	N.A.	N.A.	N.A.	0	$77,023	$77,595	$80,019	To be installed by RIE						
Duct Bank Civil Work	Node A (Nooseneck/Weaver Hill)	Revity - Robin Hollow Site	$204,065	$542,182	Self Build - No Cost	N.A.	0	$196,423	$197,884	$204,065	$ 925,669	53%	23%	23%	$493,690	$215,989	$215,989
Cable 35kV - New Install 3310	Revity - Robin Hollow Site	Revity - Studley Solar (former EDP)	$493,453	$974,865	N.A.	N.A.	0	$474,972	$478,505	$493,453	$ 575,116		100%		$0	$575,116	$0
Cable 35kV - New Install 3311	Revity - Robin Hollow Site	Revity - Studley Solar (former EDP)	$493,453	N.A.	N.A.	N.A.	0	$474,972	$478,505	$493,453	To be installed by RIE						
Duct Bank Civil Work	Revity - Robin Hollow Site	Revity - Studley Solar (former EDP)	$1,258,404	Self Build - No Cost	N.A.	N.A.	0	$1,211,274	$1,220,284	$1,258,404	$ 4,756,910	0%	100%		$0	$4,756,910	$0
Weaver Hill Substation			$3,800,000				$3,800,000	$3,658,000	$3,685,000	$3,800,000							
Cable 35kV - New Install 3310	Revity - Studley Solar (former EDP	Weaver Hill Sub	$623,618	N.A.	N.A.	N.A.	$0	$600,262	$604,727	$623,618							
Cable 35kV - New Install 3311	Revity - Studley Solar (former EDP	Weaver Hill Sub	$623,618	N.A.	N.A.	N.A.	$0	$600,262	$604,727	$623,618							
Duct Bank Civil Work	Revity - Studley Solar (former EDP	Weaver Hill Sub	$1,590,350	N.A.	N.A.	N.A.	$0	$1,530,789	$1,542,175	$1,590,350							
Spacer Cable 15kV - New Install	Weaver Hill Sub	To New Circuits (63F6 Transfer)	$700,251	N.A.	N.A.	N.A.	$125,000	$770,000	$3,899,000	$3,899,000							
N.A. = Not Applicable											$ 30,647,639				$ 16,090,227	$ 10,541,062	$ 4,016,349

Total Potential Reimbursement **$ 14,557,411**

Cost Basis		Quantity	Unit of Measure	Unit Cost	Capex	Opex	Removal	Total
Cable 35kV - New Install	SU-UG Cbl 1000ft 1000MCM Cu 3-1/C 35KV EPR	17.9	1000 ft	$133,772	$2,394,518.80	$0	$0	$2,394,518.80
Duct Bank Civil Work	Duct Bank Civil Work - 6X6" (Asphalt). Total =100 LF.	90	EA	$33,925	$3,053,250.00	$0	$0	$3,053,250.00
Spacer Cable 15kV - New Install	SU-SPCR CBL 477 MILE 2ND CKT 15KV 25 PCT POLES ELEC SET	2	MI	$399,407	$700,251.00	$40,825	$57,738	$798,814.00
					$6,148,019.80	**$40,825.00**	**$57,738.00**	**$6,246,582.80**

Sub-T DG Customer Cost Share

Cost Basis		Quantity	Unit of Measure	Unit Cost	Capex	Opex	Removal	Total
Cable 35kV - New Install 3310	SU-UG Cbl 1000ft 1000MCM Cu 3-1/C 35KV EPR	16.8	1000 ft	$314,292	$5,280,108	$2,297	$3,216	$5,285,622
Cable 35kV - New Install 3309	SU-UG Cbl 1000ft 1000MCM Cu 3-1/C 35KV EPR	19.9	1000 ft	$312,155	$6,211,892	$2,703	$3,784	$6,218,378
Duct Bank Civil Work	Duct Bank Civil Work - 6X6" (Asphalt). Total =100 LF.	170	EA	$48,153	$8,186,000.00	$0	$0	$8,186,000
					$19,678,000	**$5,000**	**$7,000**	**$19,690,000**

Total	**$25,936,582.80**
Dline + Dsub	$29,736,582.80

Cost Basis - D-Sub

NECO - Substation Work (D-Sub)	Capital	O&M	Removal	Total
Install a 7.5/9.375 MVA transformer and one modular feeder position to be supplied by the 3311 preferred and 3310 alternate.	$ 3,800,000.00	$ -	$ -	$ 3,800,000.00
	$ 3,800,000.00	$ -	$ -	$ 3,800,000.00

PUC 2-5

Request:

On page 3 of his testimony, Mr. Palumbo states that: Revity was instructed by the Company to perform an additional scope of work for the sole benefit of the ratepayer. This scope of work was not related to any solar projects in the area and was not included in the approved design." He then describes three components included in a change order.

a. Please quantify the incremental cost of each component.

b. Are these the only costs for which Revity is being reimbursed through this petition? If not, what are the other costs for which the Company is proposing to reimburse Revity related to? (This response may reference back to prior responses)

c. Does the Company agree with Mr. Palumbo's representation of the reimbursable expenses on page 10 of his testimony in the amount of $5,917,359.98. If so, please reconcile this amount back to PUC 1-1.

Response:

a. Mr. Palumbo's summary includes the following components:

   (1) increased duct bank work on Weaver Hill Road from a 6-way duct bank to a 9-way duct bank to support an additional feeder for the Company's substation;
   (2) an additional 400 to 450 feet of excavation of a depth of 1.5 feet to 2.5 feet;
   (3) supplemental blasting, hammering and rock processing; and
   (4) additional conduit, concrete, labor and materials.

   The costs of each component cannot be quantified at this time as the Company has not completed reconciliation for this project. Revity has stated that the third party audit is complete. Although the Company cautions review of this audit prior to the Company's review, Revity may be able to provide the incremental cost for the line items above if the auditor was directed to separate them out.

b. No, the items in a. are not the items for which Revity is being reimbursed through this petition. The items described in a. above are System Improvement items that would be reimbursed in full through an ISR Plan. The items Revity would be reimbursed through this petition are described in PUC 1-1 and include an apportionment of the duct bank from Nooseneck Hill Road to the Robin Hollow site access road including but greater

than the items in a. and some apportionment of the self-performed electrical work for the 3310 circuit.

c. The Company cannot comment on Revity's proposed reimbursable expenses of $5,917,359.98 at this time as the Company's reconciliation of this project is not complete.

PUC 2-6

Request:

In its Motion for Summary Disposition, Green Development requests the Commission find that $5,951,000 is the reimbursable amount. Green Development also requests "the actual cost to the Company for the electrical component that will be determined when all work orders are closed and the project is fully reconciled as set forth on page 22 of the Company's direct testimony."

a. The $5.9 million is included in PUC 1-1, Table 1. Is the $5,951,000 the amount the Company has represented as the reimbursable amount before or after applying depreciation?

b. Who purchased the materials for the electrical component?

c. Who installed the electrical component?

d. What costs "to the Company" would be reimbursable to the developer?

e. When will the final expense be known?

Response:

a. The Company believes the $5.9 million that is included in PUC 1-1, Table 1, is the amount before depreciation and cost sharing with other interconnection customers. The Company is not representing this amount as the definitive number for reimbursement, but does believe the majority of that amount would be reimbursed to Green Development by the Company or other Distributed Generation customers.

b. The Company purchased all electric materials for the Green Development interconnection between pole 26-2 Hopkins Hill Rd and the point of interconnection.

c. The Company installed all electrical components for the Green Development interconnection between pole 26-2 Hopkins Hill Rd and the point of interconnection.

d. The final reimbursable amount will be determined based on the final ruling by the Commission. However, the Company believes that much of the manhole and duct system, and the 3310 underground cable labor and material costs should be reimbursable to the developer.

Prepared by or under the supervision of: Eric Wiesner

PUC 2-6, page 2

e. Final expenses are expected to be known within the next 30 days. However, the final reconciliation might need to be updated based on the Commission's findings in this docket.

PUC 2-7

Request:

Please provide a copy of the work plan that identified the modification as a necessary capital investment as of the date (February 12, 2019) the Company began the impact study of the 899 Nooseneck Hill Road.

Response:

The Company does not have any work plans that outline the modification as a necessary capital investment as of the date (February 12, 2019) the Company began the impact study of the 899 Nooseneck Hill Road. They were identified in the Central Rhode Island West Area Study that was substantially completed in May 2021.

PUC 2-8

Request:

Please provide a copy of the work plan that identified the modification as a necessary capital investment as of the date (October 18, 2019) the Company began the impact study of the combined Revity projects.

Response:

The Company does not have any work plans that outline the modification as a necessary capital investment as of the date (October 18, 2019) that the Company began the impact study of the combined Revity projects. They were identified in the Central Rhode Island West Area Study that was substantially completed in May 2021.

Prepared by or under the supervision of: Eric Wiesner

PUC 2-9

Request:

Please provide a copy of the work plan that identified the modification as a necessary capital investment as of the date (May 10, 2019) the Company began the impact study of the EDP project.

Response:

The Company does not have any work plans that outline the modification as a necessary capital investment as of the date (May 10, 2019) that the Company began the impact study of the EDP project. They were identified in the Central Rhode Island West Area Study that was substantially completed in May 2021.

PUC 2-10

Request:

On page 22 of the Company's prefiled testimony, it states that the Area Study identified overloading forecasted in 2035. Why is the Company using a 2027 in service date for the project absent the DG interconnections?

Response:

Please see the Central RI West Area Study starting on petition page 452. Petition page 465 shows a loading table with the 63F6 at 102% in 2020 and 104% in 2035. The Company presents loading in this manner to demonstrate near-term and long-term issues. The reference on page 22 should not be interpreted as a loading concern appearing in 2035, but as a loading concern that persists to 2035.

In addition to loading concerns the study identified voltage and reliability concerns, which are also near-term issues.

PUC 2-11

Request:

When did the Company first identify the subject investments as qualifying as an accelerated System Modification subject to cost sharing? Please provide a copy of any such written communication made to someone external to the Company.

Response:

Per the Interconnection Statute, R.I. Gen. Laws § 39-26.3-4.1(b), the Commission determines whether the subject project qualifies as an accelerated System Modification subject to cost sharing. The Company believes the subject project qualifies but any qualification or determination is subject to the outcome of this Petition.

In regard to potential qualification, the Company first identified the subject project as one which would use a portion of equipment to be paid for by a distributed generation customer when the area study was substantially completed in May 2021. A technical session was held to review the study results with the Division. The written communication setting up the session is included as Attachment PUC 2-11-1 and the associated presentation is included as Attachment PUC 2-11-2.

A number of discussions and consultations have taken place since May 2021 including workshops held by the Commission in Dockets Nos. 5205 and 5206 from August to November 2022. It was after these workshops and as the Company drafted its first petitions to be filed with the Commission that the subject project was termed an accelerated System Modification subject to cost sharing.

Prepared by or under the supervision of: Eric Wiesner

Review Area Study information for Central RI West and Tiverton

Easterly, Patricia <PCEasterly@ng.rienergy.com>

Thu 5/6/2021 2:45 PM

To:'Bell, John (DPUC)' <John.Bell@dpuc.ri.gov>;Greg Booth <gboothpe@gmail.com>;lkushner33@gmail.com <lkushner33@gmail.com>;Hetherington, Christy (DPUC) <Christy.Hetherington@dpuc.ri.gov>;Prifti, Elton <Elton.Prifti@nationalgrid.com>;Labarre, Alan T. <Alan.LaBarre@nationalgrid.com>;Castro, Kathy <Kathy.Castro2@nationalgrid.com>;Broderick, Caitlin <Caitlin.Broderick@nationalgrid.com>;Toronto, Susan <Susan.Toronto@nationalgrid.com>;Marcaccio, Andrew <Andrew.Marcaccio@nationalgrid.com>
Cc:Sullivan, Colin <Colin.Sullivan@nationalgrid.com>;Barys, Francis <Francis.Barys2@nationalgrid.com>;Adam Houghton <ahoughton@cpteng.com>;Grant, Kate <Kate.Grant2@nationalgrid.com>;kblanton@utilityengineering.com <kblanton@utilityengineering.com>;whassan@utilityengineering.com <whassan@utilityengineering.com>;George, Caleb <caleb.george@nationalgrid.com>;Crompton, Jeffrey <Jeffrey.Crompton@nationalgrid.com>;Rahul Pantagada <rpantagada@cpteng.com>

2 attachments (13 MB)

Tiverton Area Study - Plan Development.pdf; CRIW Area Study - Plan Development.pdf;

Hi,
I am attaching presentations for this call.

We plan to spend the first hour reviewing the Tiverton Area Study presentation and second hour on the Central RI West Area Study.

<< Tiverton Area Study - Plan Development.pdf >> << CRIW Area Study - Plan Development.pdf >>

Microsoft Teams meeting

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Central Rhode Island West Area Study

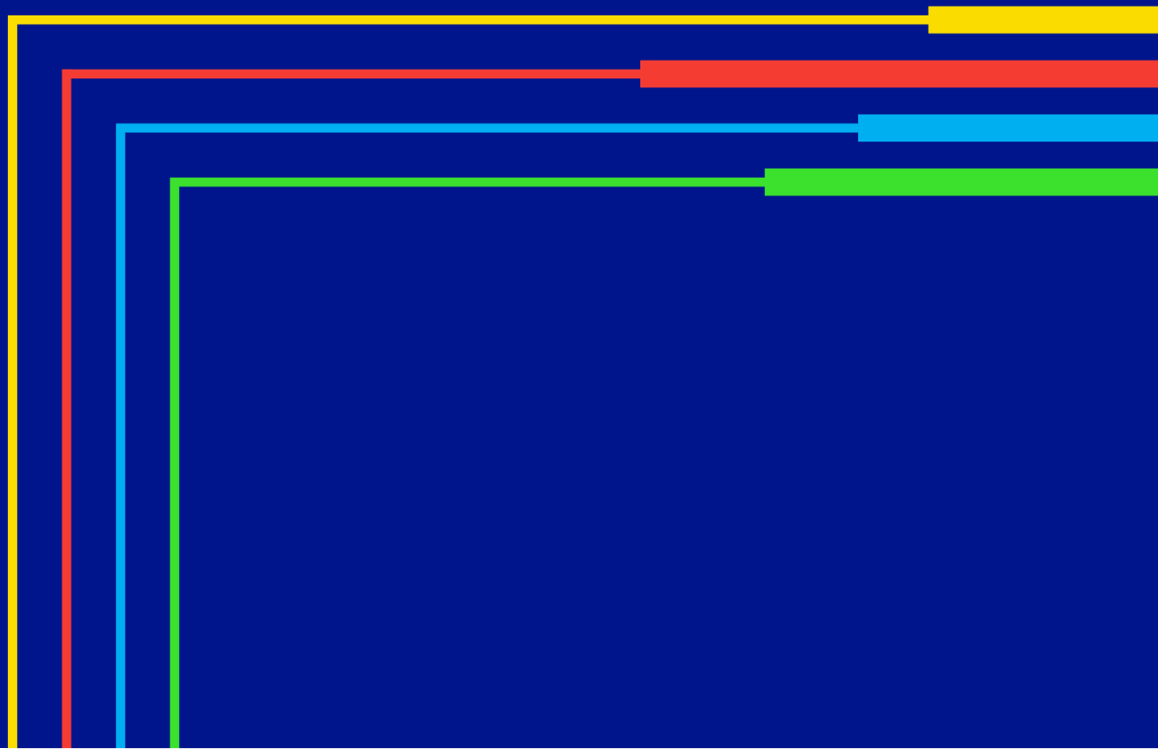
May 7th, 2021

nationalgrid

Agenda

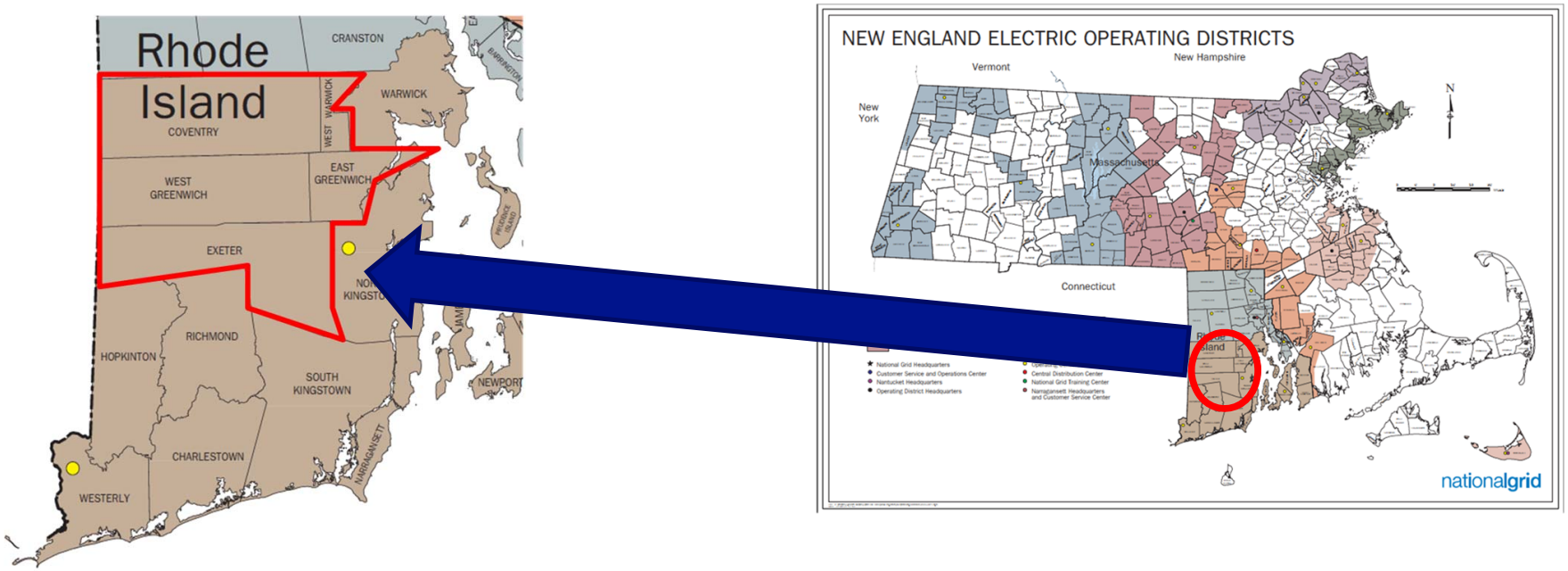
- **Area Definition**
  - Geographic
  - Electrical
- **Study Scope**
- **Issue Identification**
- **Common Items**
- **Drumrock Plans**
- **Kent Co. Plans**
- **Cost Comparison**

CRIW Area Study – Background



nationalgrid

Area Details – Geographic



Electric Facilities

Substations

- Anthony #64
- Coventry #54
- Division St. #61
- Hope #15
- Hopkins Hill #63
- Kent Co. #22
- Natick #29
- New London #150
- Tiogue Ave. #100
- Warwick Mall #28

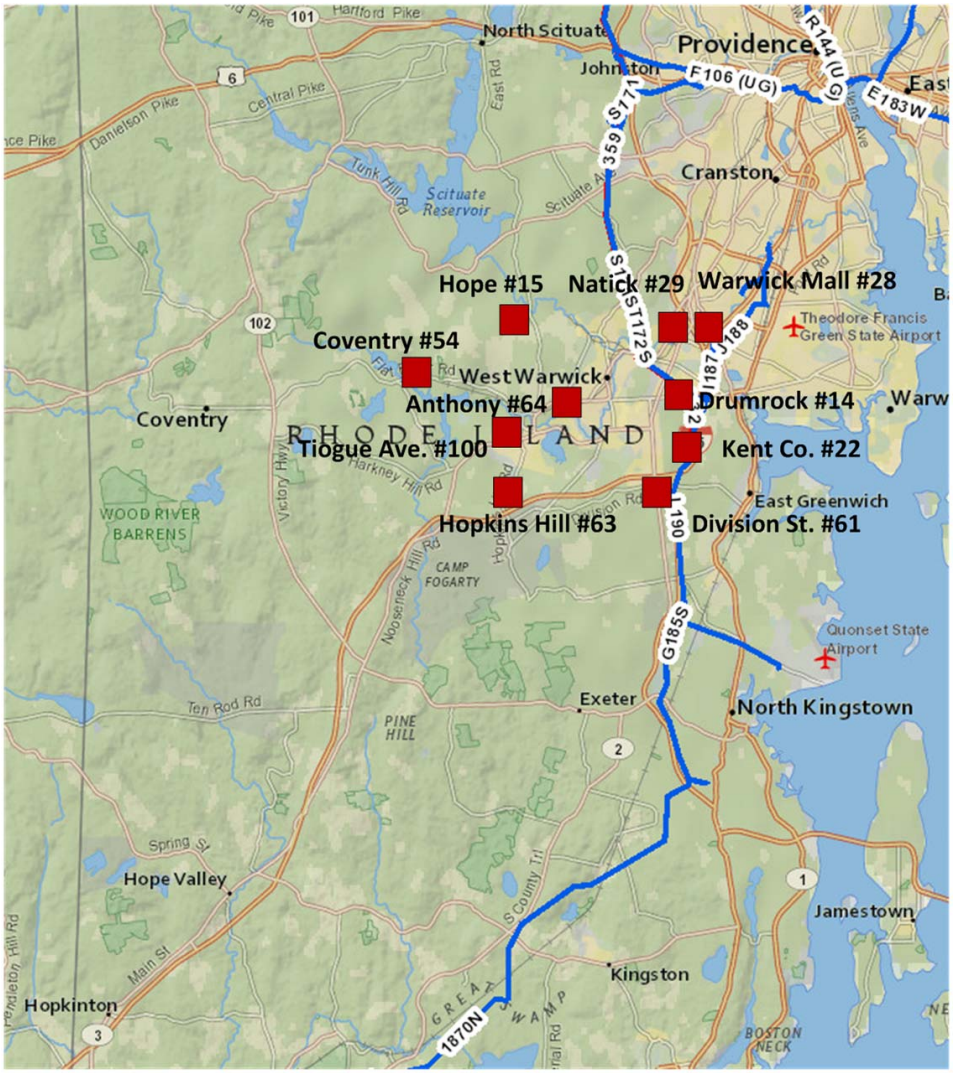
Feeders

- **29-12.47 kV**

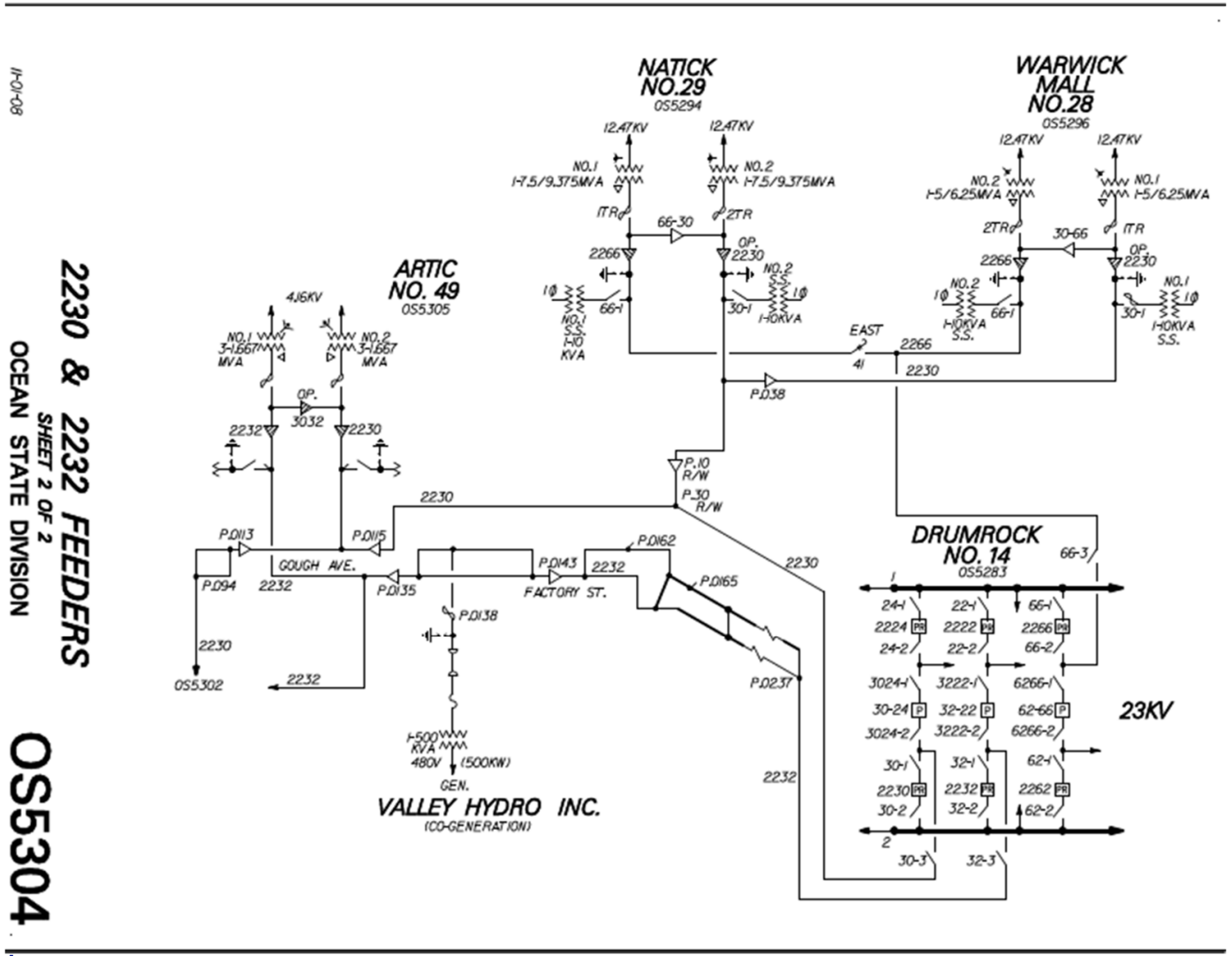
Sub T Lines

- 2230 Drumrock #14-Hope #15
- 2232 Drumrock #14-Hope #15
- 2266 Drumrock #14-Warwick Mall #28
- 3309 Kent Co. #22-Amgen
- 3310 Kent Co. #22-Hopkins Hill #63
- 3311 Kent Co. #22-Hopkins Hill #63
- 3312 Kent Co. #22-Division St. #61

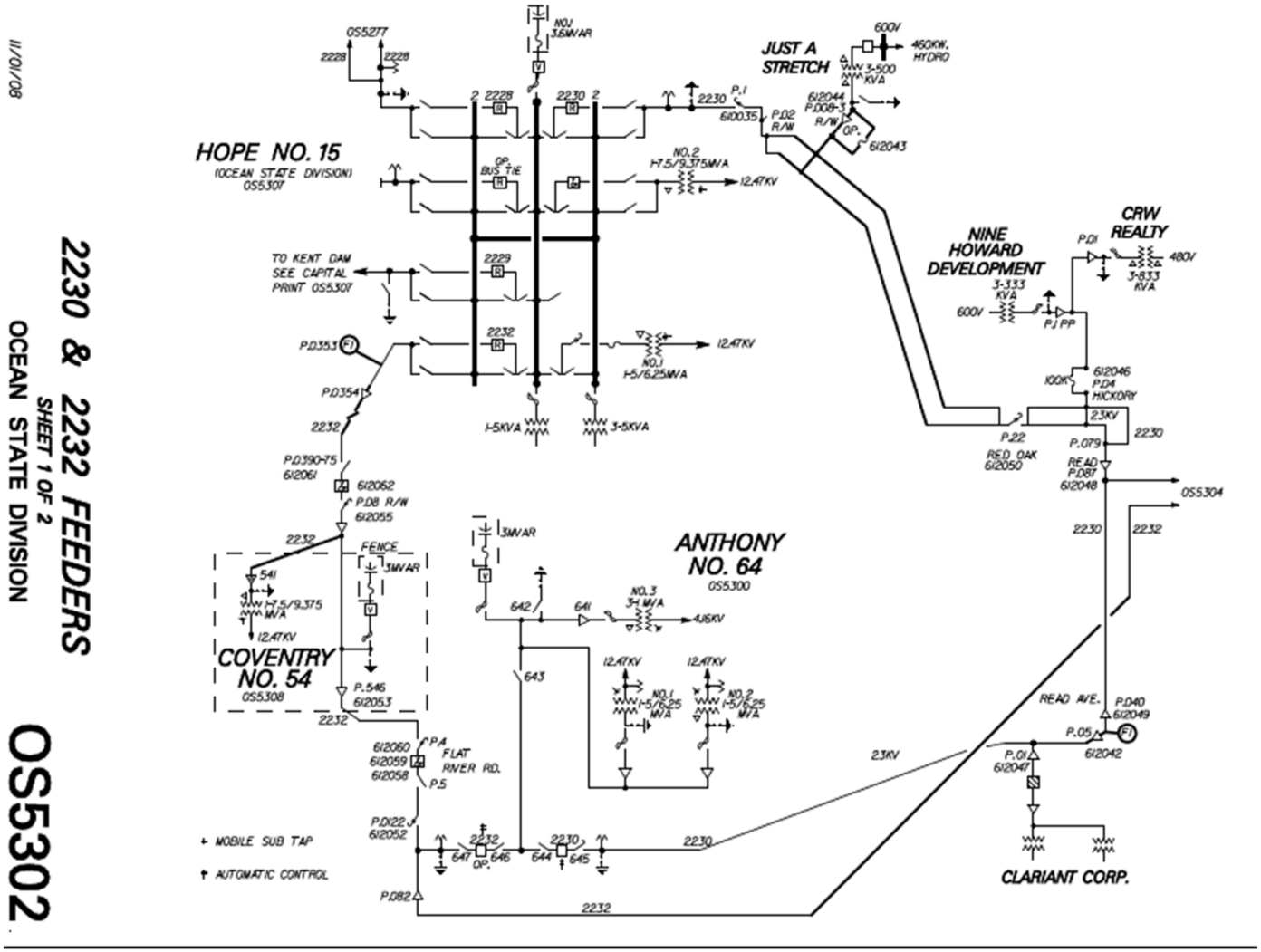
Central R.I. Area Overview



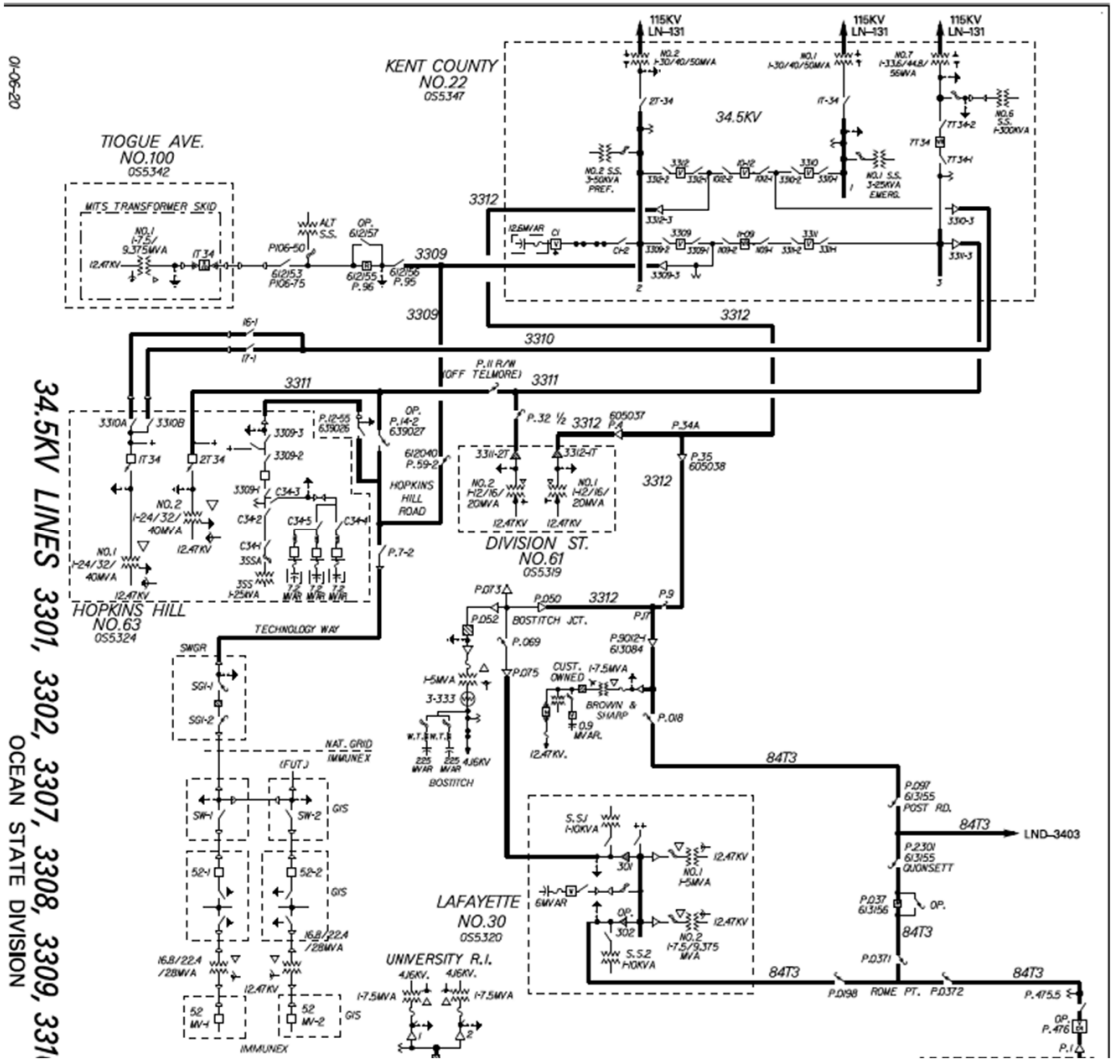
Drumrock 23 kV System-Sheet 1



Drumrock 23 kV System-Sheet 2



Kent Co. 34.5 kV System



Study Scope

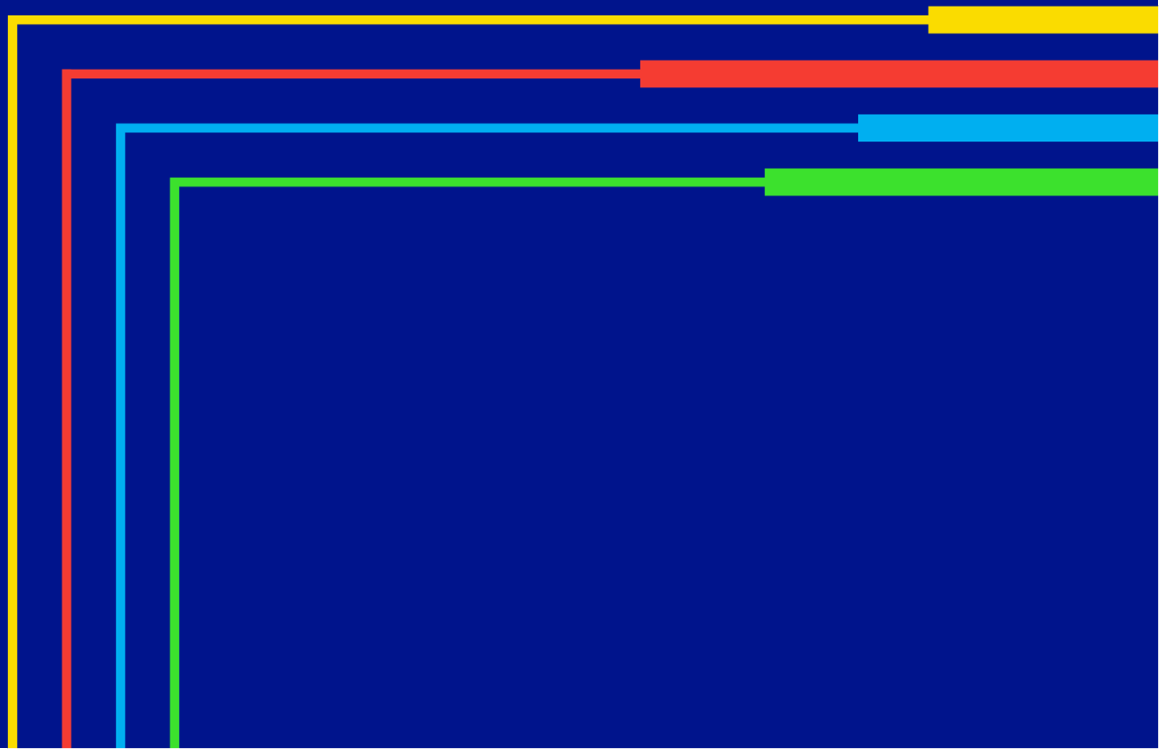
- **10-15 year study, 2020-2035**
- **200 MVA in 2020 increasing to 203 MVA in 2035**

Western Narragansett R.I. PSA Growth Rates

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
11.9%	-0.2%	0.6%	0.5%	0.4%	0.2%	0.2%	0.2%	0.2%	0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	0.0%

- **Summer load peaking area**
- **Study Review includes:**
  - Loading (feeder, transformer, SubT), normal and emergency.
  - Voltage, normal and emergency
  - Distribution Design Criteria (MWHr and unserved load)
  - Short circuit duty
  - Asset Condition
  - Arc Flash
  - Reactive Compensation
  - Reliability

CRIW Area Study – Issue Identification



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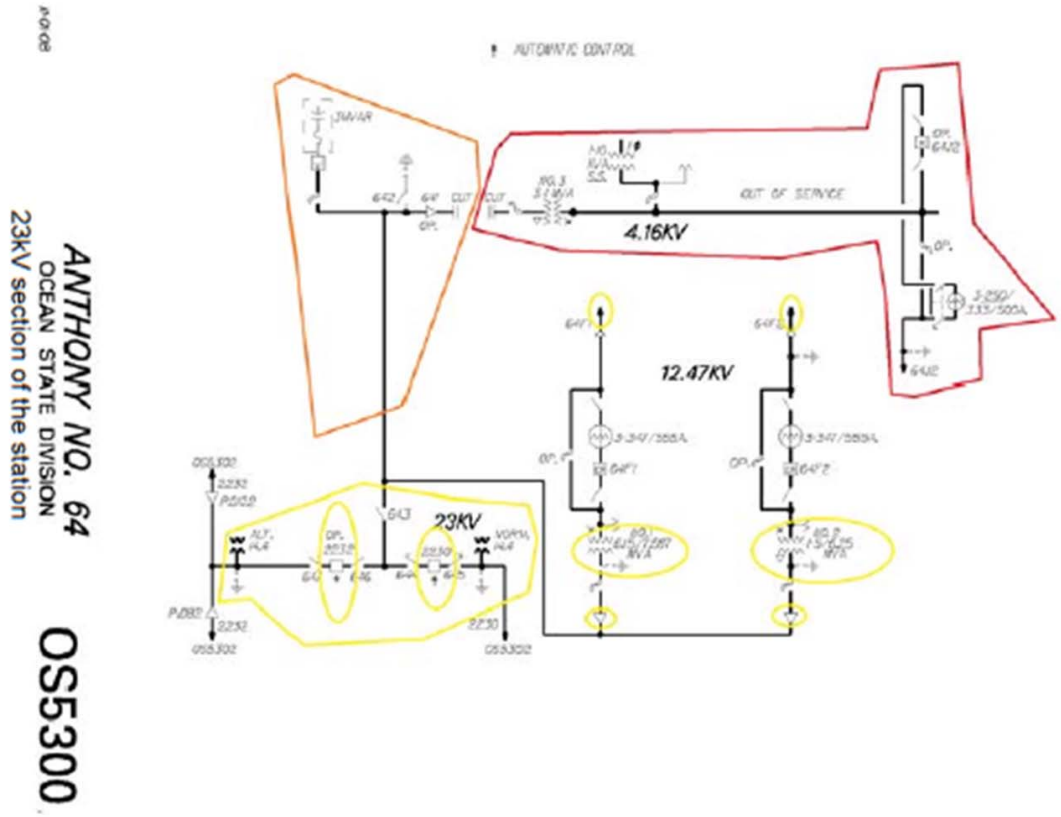
Distribution Feeder Loading

Central RI West Feeder Analysis						
Substation	Voltage (kV)	Feeder	2020		2035	
			Amps	%SN	Amps	%SN
HOPKINS HILL	12.47	63F6	542	102%	551	104%

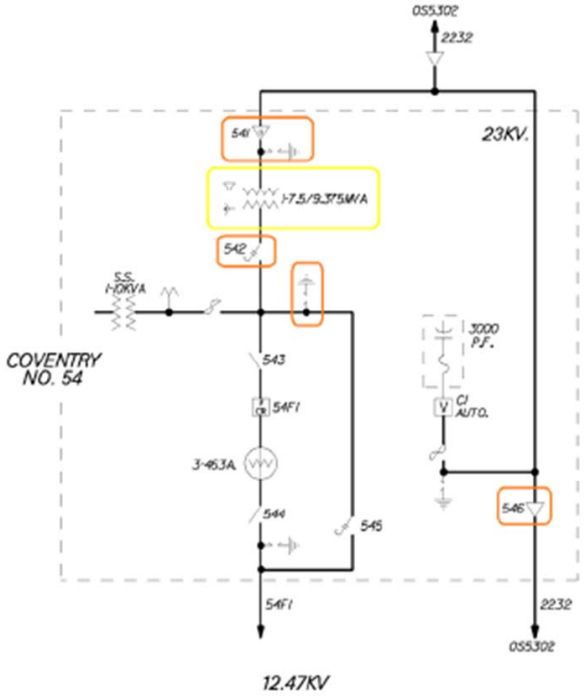
Transformer Loading

Central RI West Transformer Contingency Analysis									
Substation	Tranf. ID.	System Voltage (kV)		Rating (MVA)		Contingency Loading			
						2020		2035	
		From	To	SN	SE	MVA	% SE	MVA	% SE
DIVISION ST	1	34.5	12.47	23.70	27.60	28.3	103%	28.7	104%
DIVISION ST	2	34.5	12.47	23.70	27.60	28.3	103%	28.7	104%

Substation Asset Condition- Anthony #64



Substation Asset Condition- Coventry #54

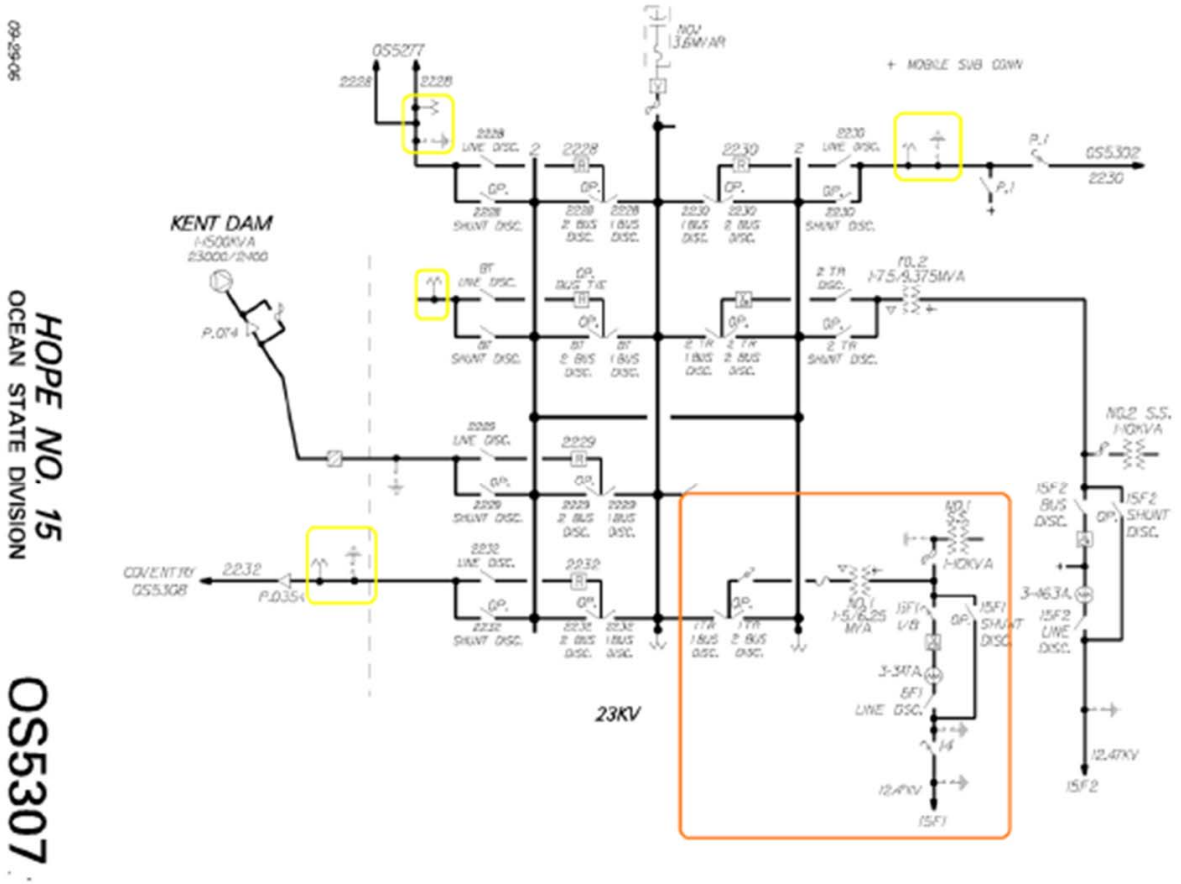


11-01-08

COVENTRY NO. 54
OCEAN STATE DIVISION

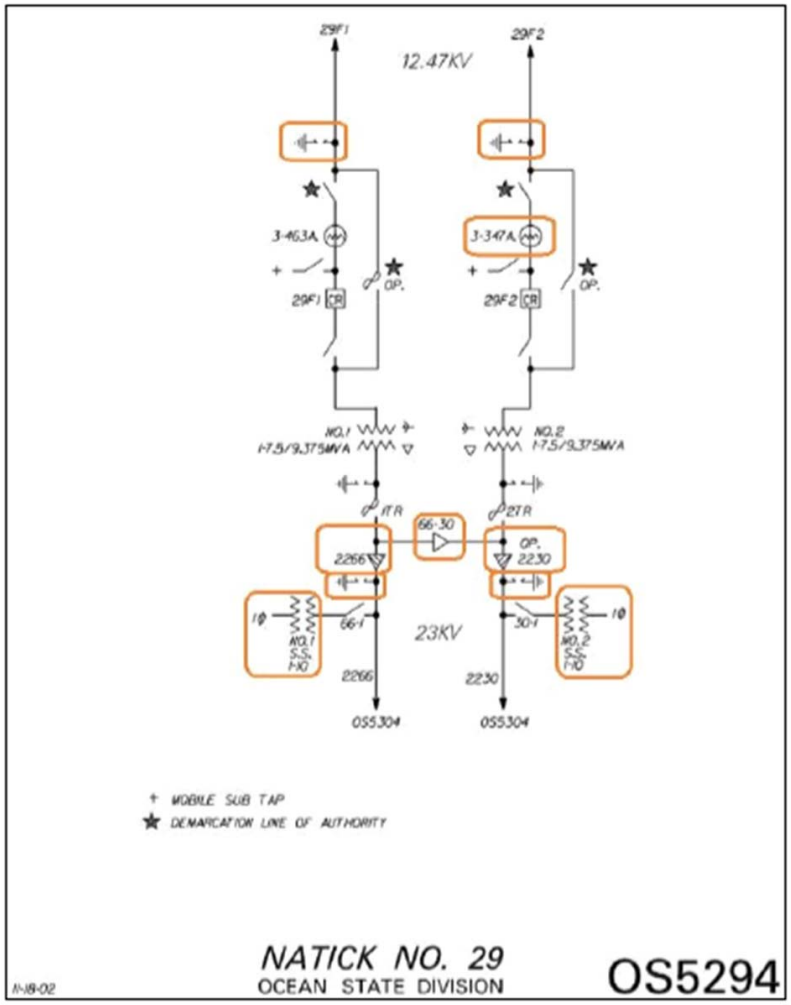
OS5308

Substation Asset Condition- Hope #15



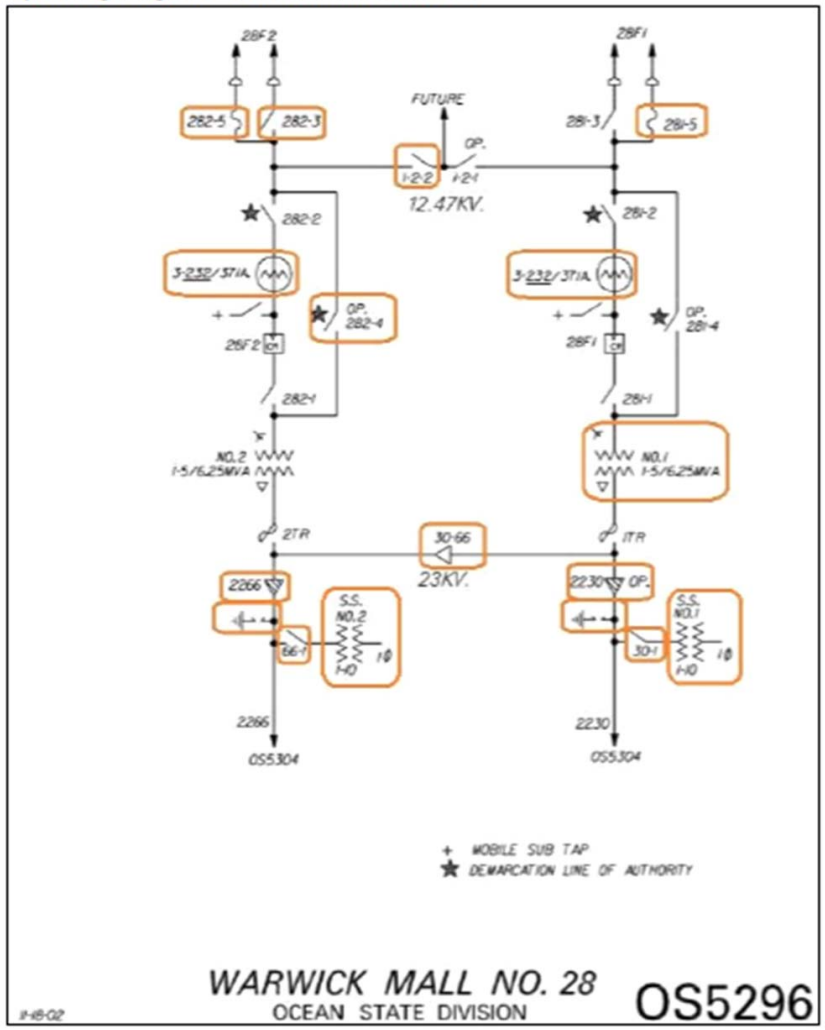
Substation Asset Condition- Natick #29

Operating Diagram - Natick Station 29

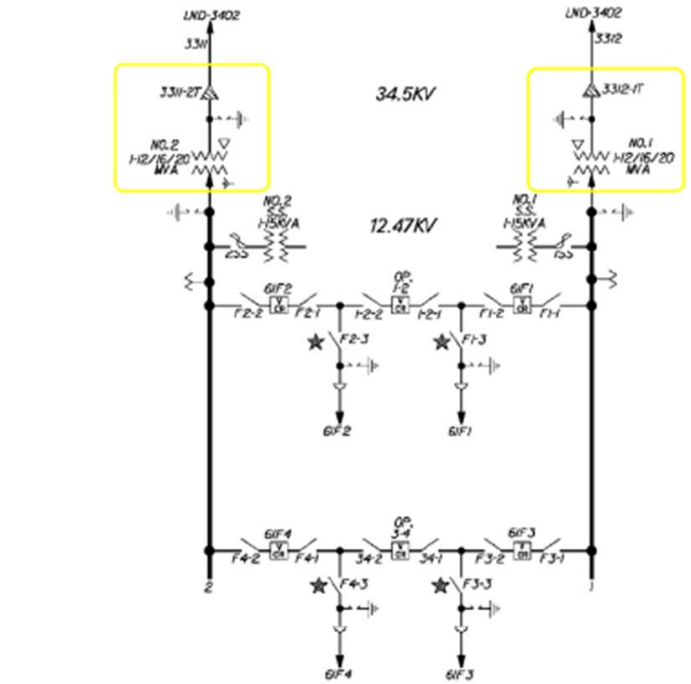


Substation Asset Condition- Warwick Mall #28

Operating Diagram - Warwick Mall Station 28



Substation Asset Condition- Division St. #61



Other Issues

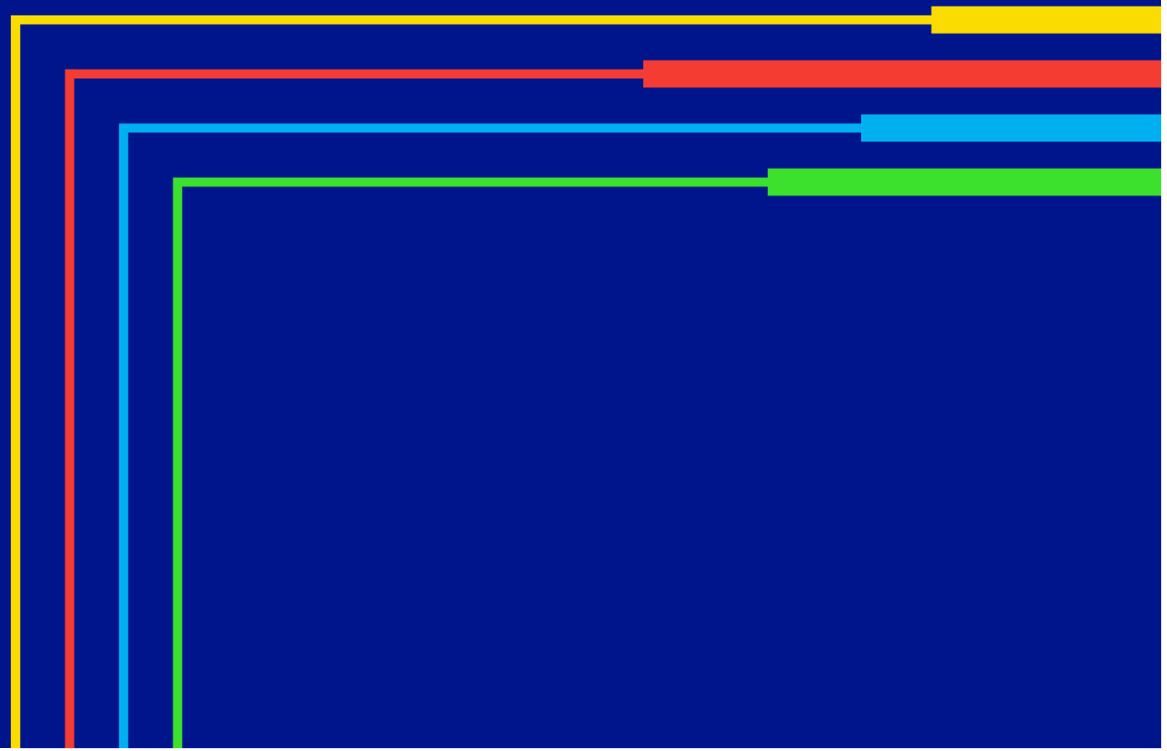
- **Coventry 54F1 and Hopkins Hill 63F6 low voltage and insufficient ties.**
- **No other problems regarding short circuit duty, arc flash, reliability or feeder VAR compensation.**

CRIW Area Study – Solution Development

Common Items

Drumrock 23 kV system

Kent Co. 34.5 kV system



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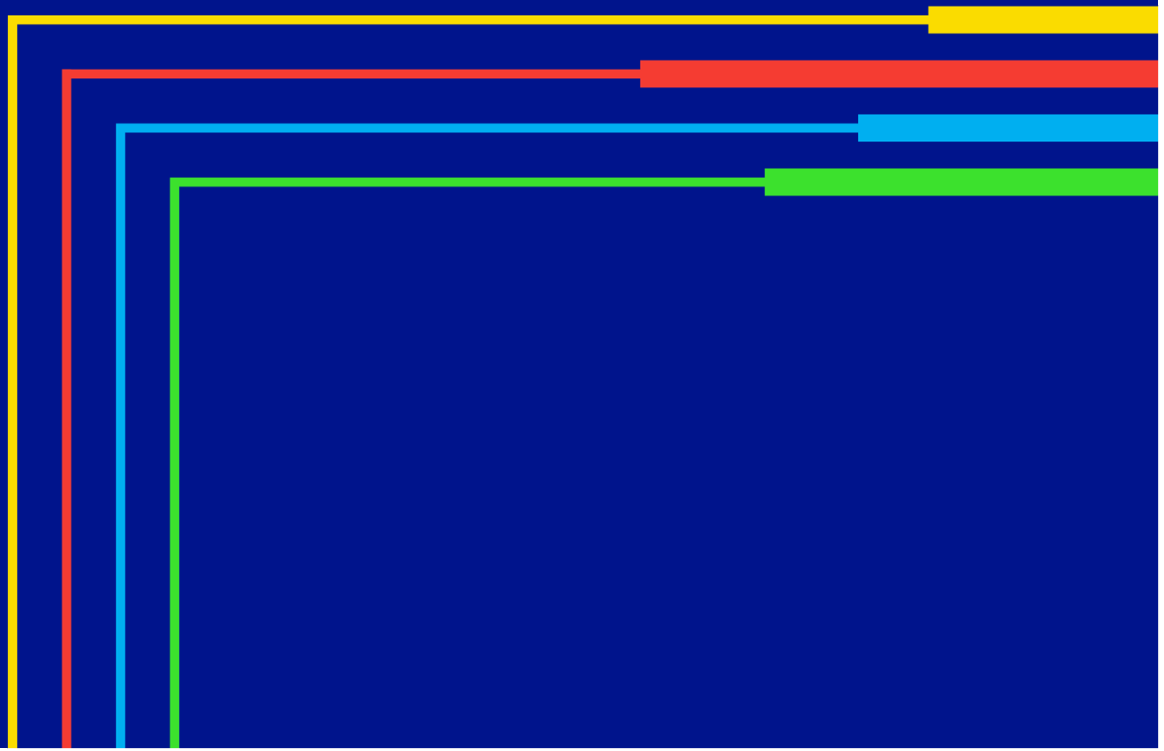
Common Items



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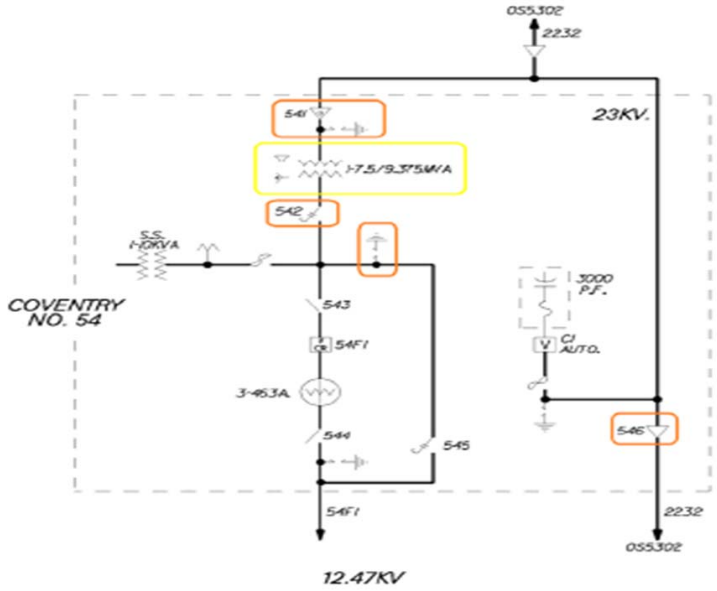
Substation Asset Condition- Coventry #54

Rebuild Coventry #54



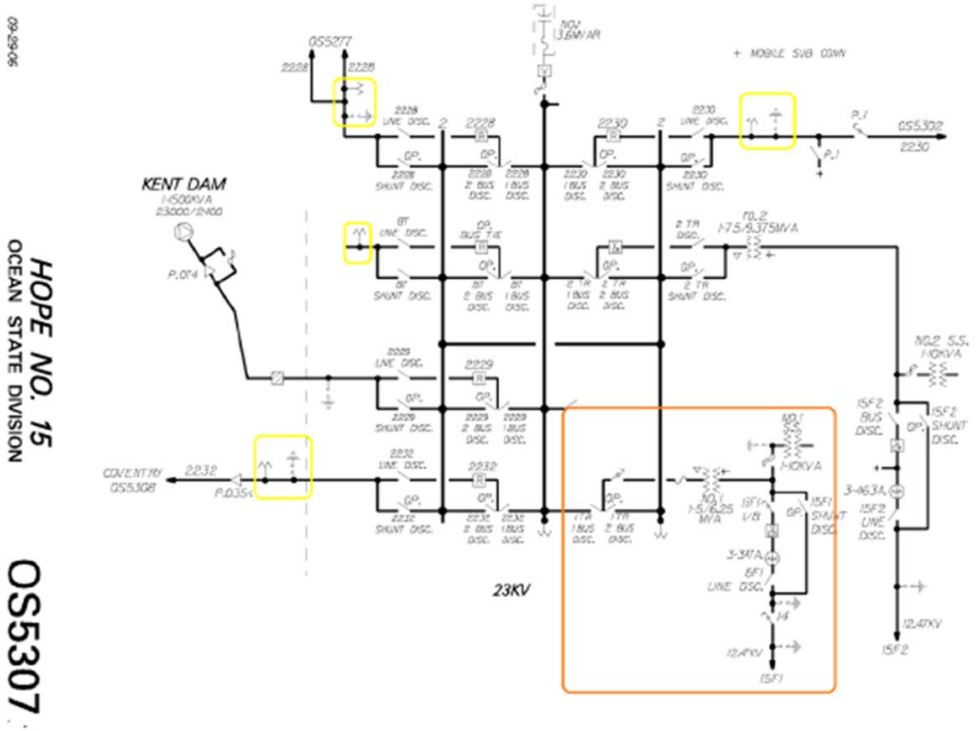
Cost ($M):

Capex:	$3.253
Opex:	$0.0
Rem:	$0.174
Total:	$3.427

11-01-08 COVENTRY NO. 54 OCEAN STATE DIVISION OS5308

Substation Asset Condition- Hope #15

Replace relevant equipment

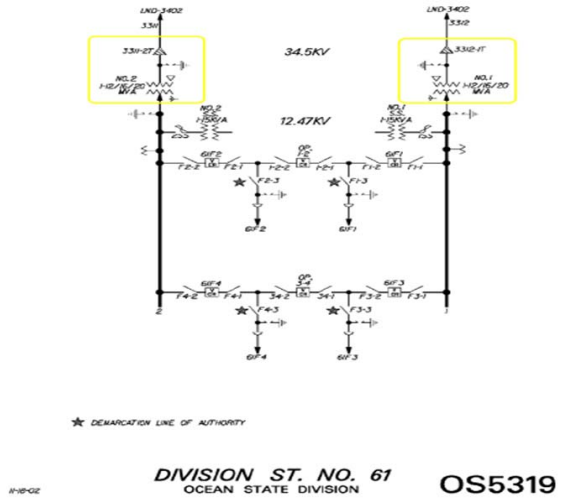


Cost ($M):

Capex:	$2.657
Opex:	$0.0
Rem:	$0.051
Total:	$2.708

Substation Asset Condition- Division St. #61

Replace existing two transformers



Cost ($M):

Capex:	$4.979
Opex:	$0.0
Rem:	$0.379
Total:	$5.358

25

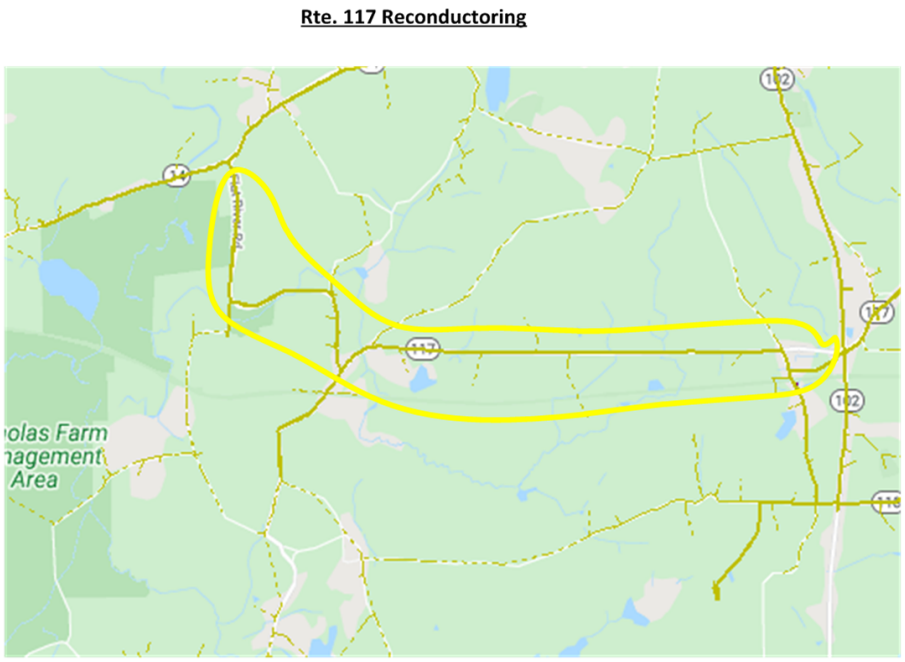
Coventry 54F1 line reliability

Reliability

- Outage related issues due to tree contact

Solution

- Reconductor 4.5 miles along Rte. 117 from Victory Hwy. to Plainfield Tpk. with 477 Al spacer cable



Cost ($M):

Capex:	$3.870
Opex:	$0.248
Rem:	$0.382
Total:	$4.500

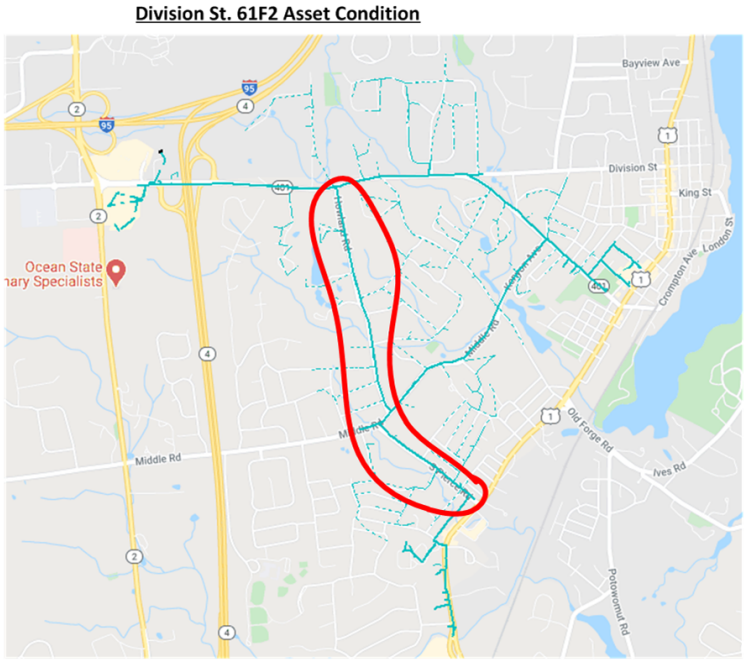
Division St. 61F2 Asset Condition

Asset condition

- Conductor is in poor condition, many splices.

Solution

- Reconductor 1.6 miles along S. Pierce and Howland Rd with 477 Al spacer cable



Cost ($M):

Capex:	$1.376
Opex:	$0.088
Rem:	$0.136
Total:	$1.600

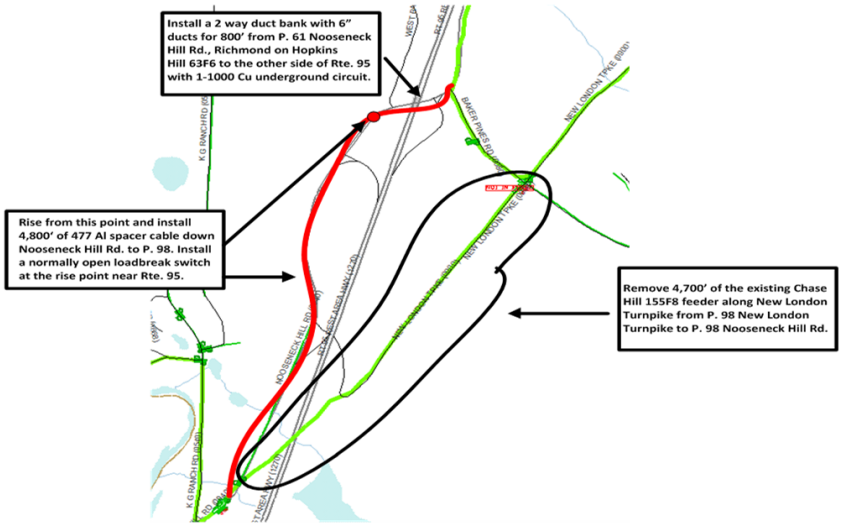
Chase Hill 155F8-Hopkins Hill 63F6 tie Relocation

Asset Condition

- This conductor is in poor condition and difficult to access

Solution

- Relocate and install 5,600’ of new conductor



Cost ($M):

Capex:	$0.860
Opex:	$0.055
Rem:	$0.085
Total:	$1.000

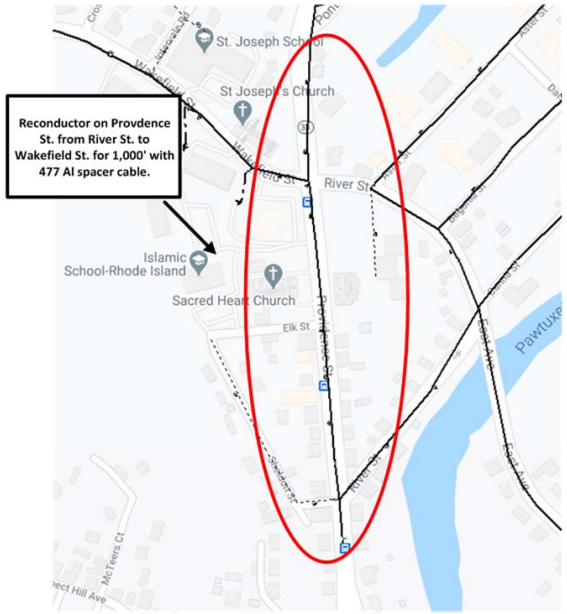
Natick 29F1 line loading

Loading

- Line (1/0 Cu) loading reaches up to 106% Sn rating

Solution

- Reconductor 1,000’ along Providence St. with 477 Al spacer cable



Cost ($M):

Capex:	$0.164
Opex:	$0.010
Rem:	$0.016
Total:	$0.190

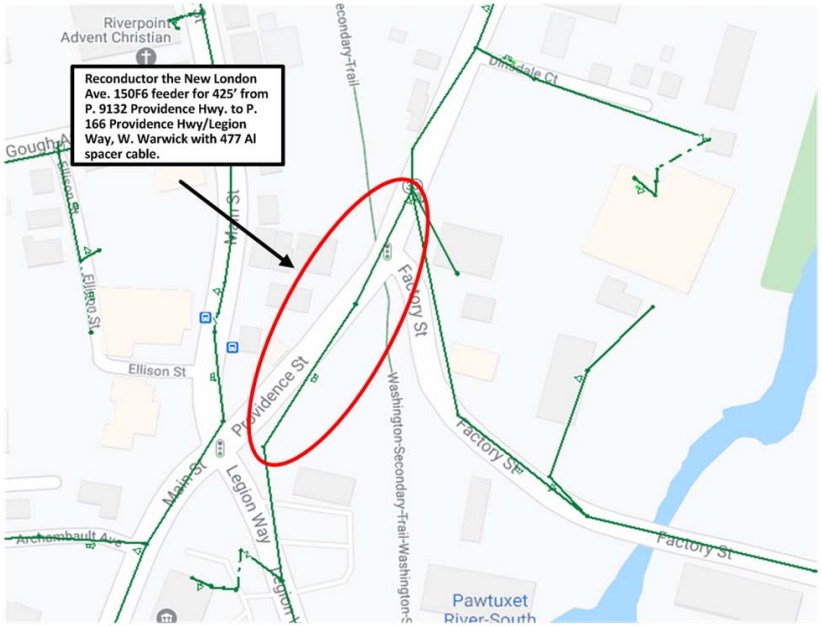
New London 150F6 line loading

Loading

- Line (1/0 Al) loading reaches up to 155% Sn rating

Solution

- Reconductor 425’ along Providence Hwy with 477 Al spacer cable



Cost ($M):

Capex:	$0.068
Opex:	$0.005
Rem:	$0.007
Total:	$0.080

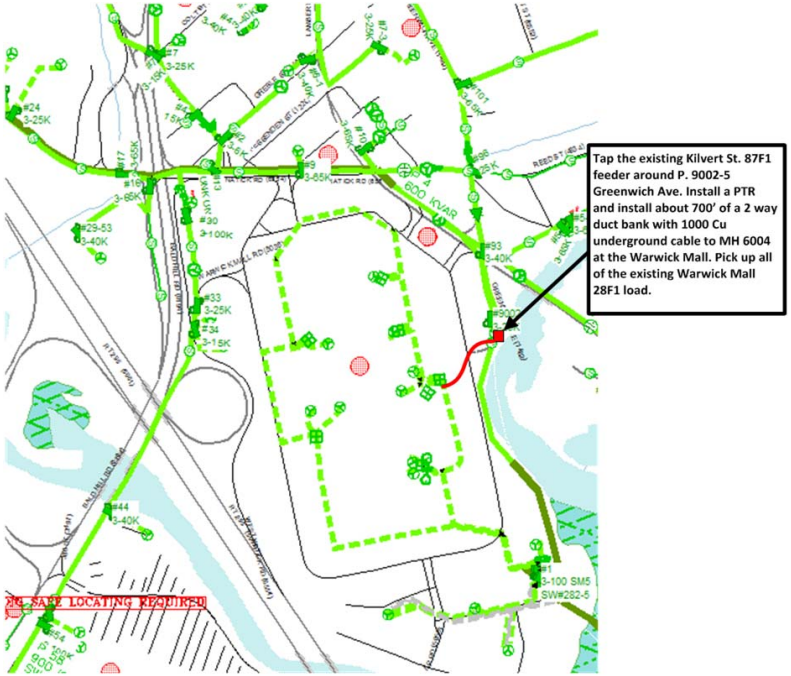
Kilvert St. 87F1 extension

Tie capacity

- Lack of adequate backup feeder capacity to Warwick Mall

Solution

- Create a new feeder tie



Cost ($M):

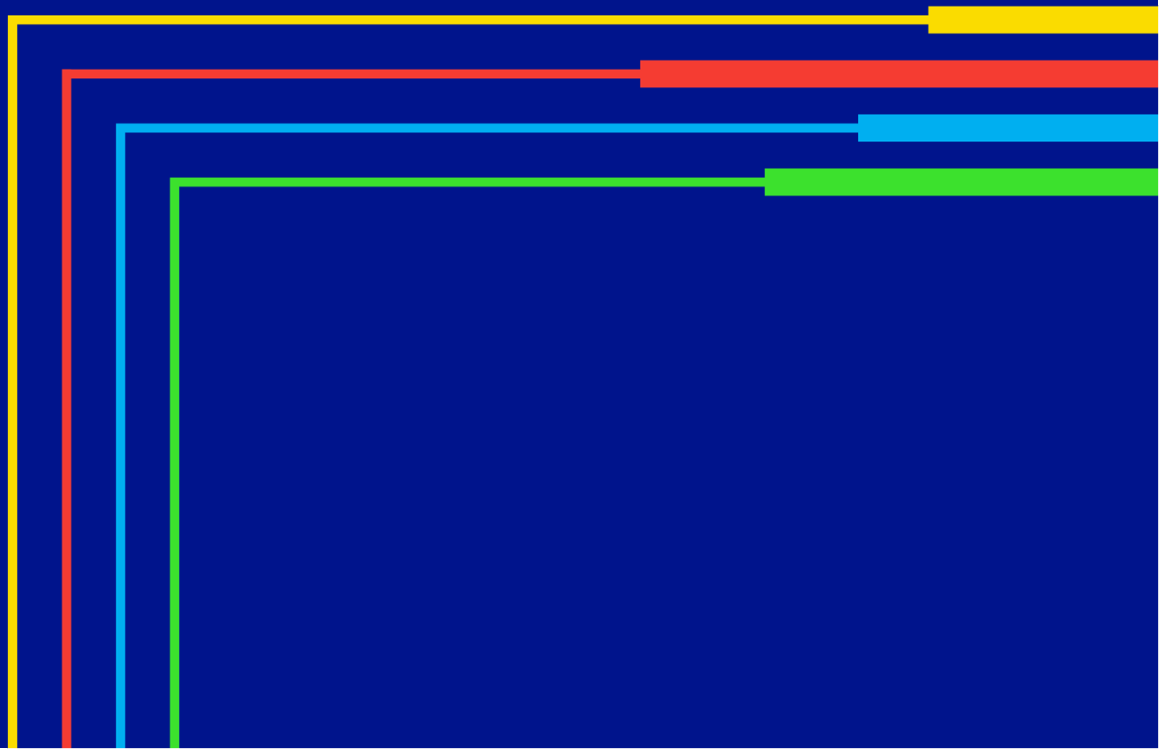
Capex:	$0.469
Opex:	$0.030
Rem:	$0.046
Total:	$0.545

Common Items Cost Summary

Common Items Cost Table

Component	Capital ($k)	O&M ($k)	Removal ($k)	Sub Total ($k)	Total ($k)
Coventry Sub (D)	3,253	0	174	3,427	19,760
Hope Sub (D)	2,657	0	51	2,708	
Division St. sub (D)	4,979	0	379	5,358	
Coventry 54F1 Reconductoring (Dline)	3,870	248	382	4,500	
Division St. 61F2 Reconductoring (Dline)	1,376	88	136	1,600	
Chase Hill-Hopkins Hill Feeder Tie (Dline)	860	55	85	1,000	
Natick 29F1 Reconductoring (Dline)	164	10	16	190	
New London 150F6 Reconductoring (Dline)	68	5	7	80	
Kilvert St. 87F1 ext to Warwick Mall (Dline)	469	30	46	545	
23 kV Line ERRs	352	0	0	352	

Drumrock 23kV System



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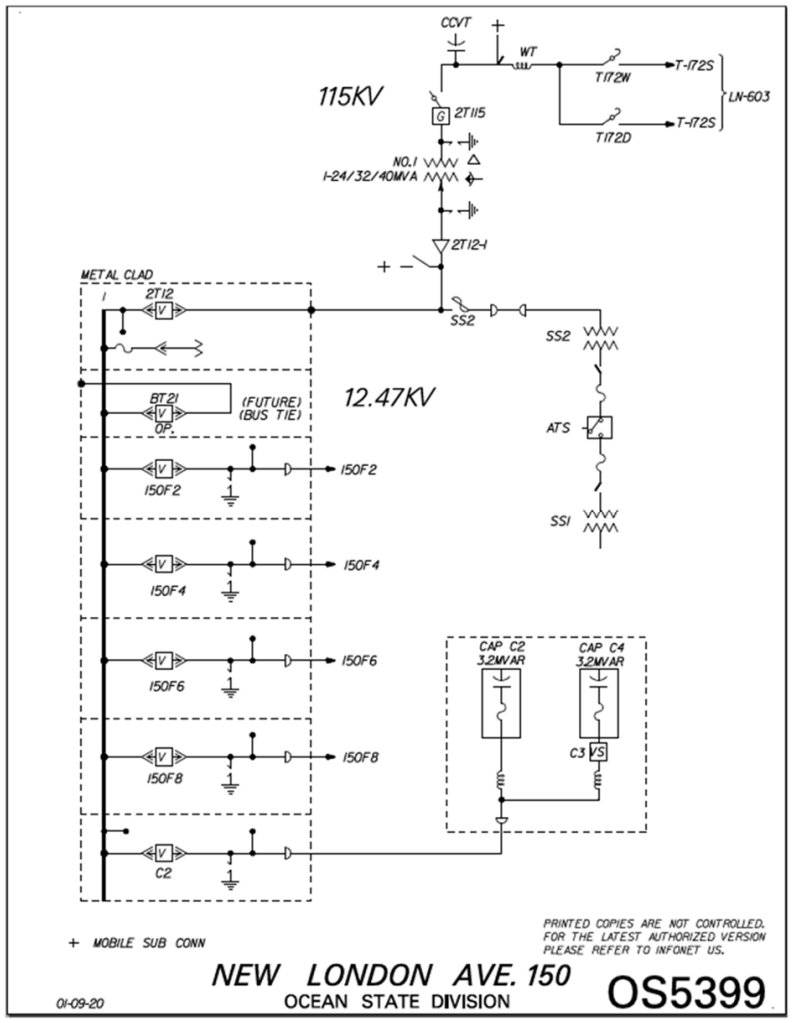
Drumrock Area Solutions

- **Plan 1**
  - Four additional New London Ave.12.47 kV feeders to completely offload Anthony #64, Warwick Mall #28 and Natick #29. Second New London Ave. 115/12.47 kV transformer, four feeder positions and related Dline work.
  - Remove all equipment at Anthony #64, Warwick Mall #28 and Natick #29.


CCVT
WT
115KV
T172W
T172S
LN-603
T172D
T172S
2T115
NO.1
1-24/32/40MVA
2T12-1
METAL CLAD
2T12
SS2
SS2
12.47KV
BT21
(FUTURE)
(BUS TIE)
OP.
ATS
150F2
150F2
SS1
150F4
150F4
150F6
150F6
CAP C2
3.2MVAR
CAP C4
3.2MVAR
150F8
150F8
C3
VS
C2
+ MOBILE SUB CONN
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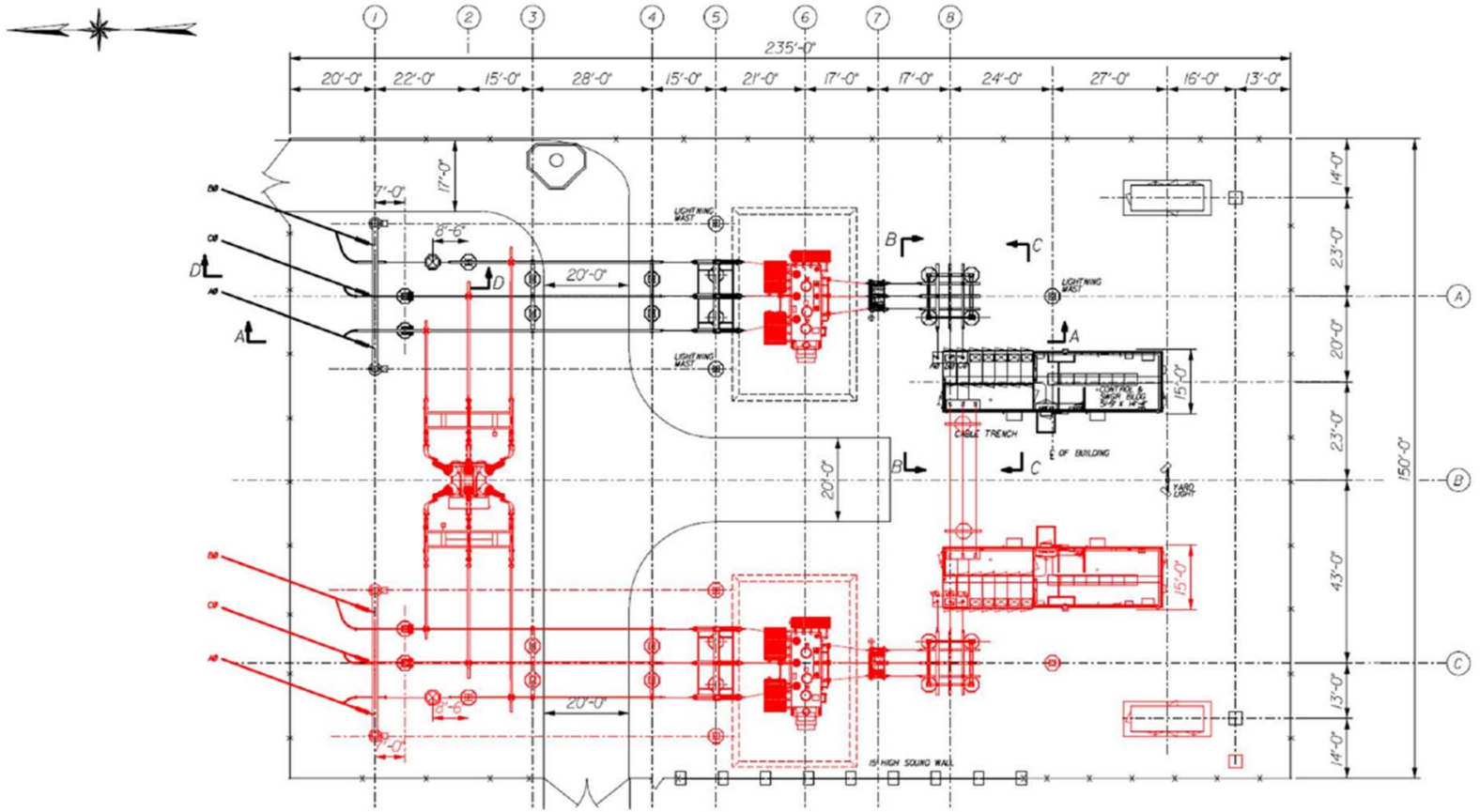
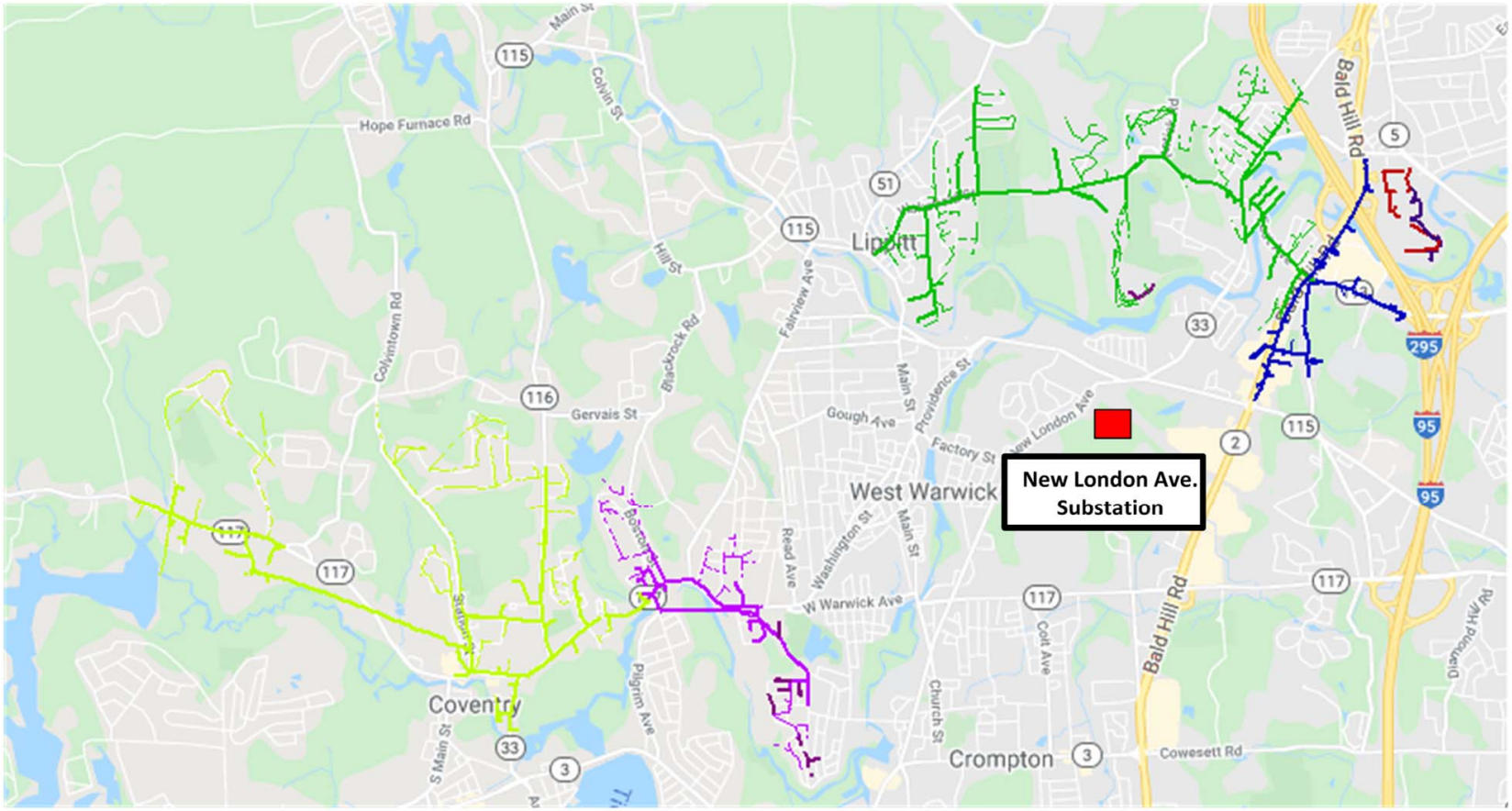
NEW LONDON AVE. 150
OCEAN STATE DIVISION
OS5399
01-09-20

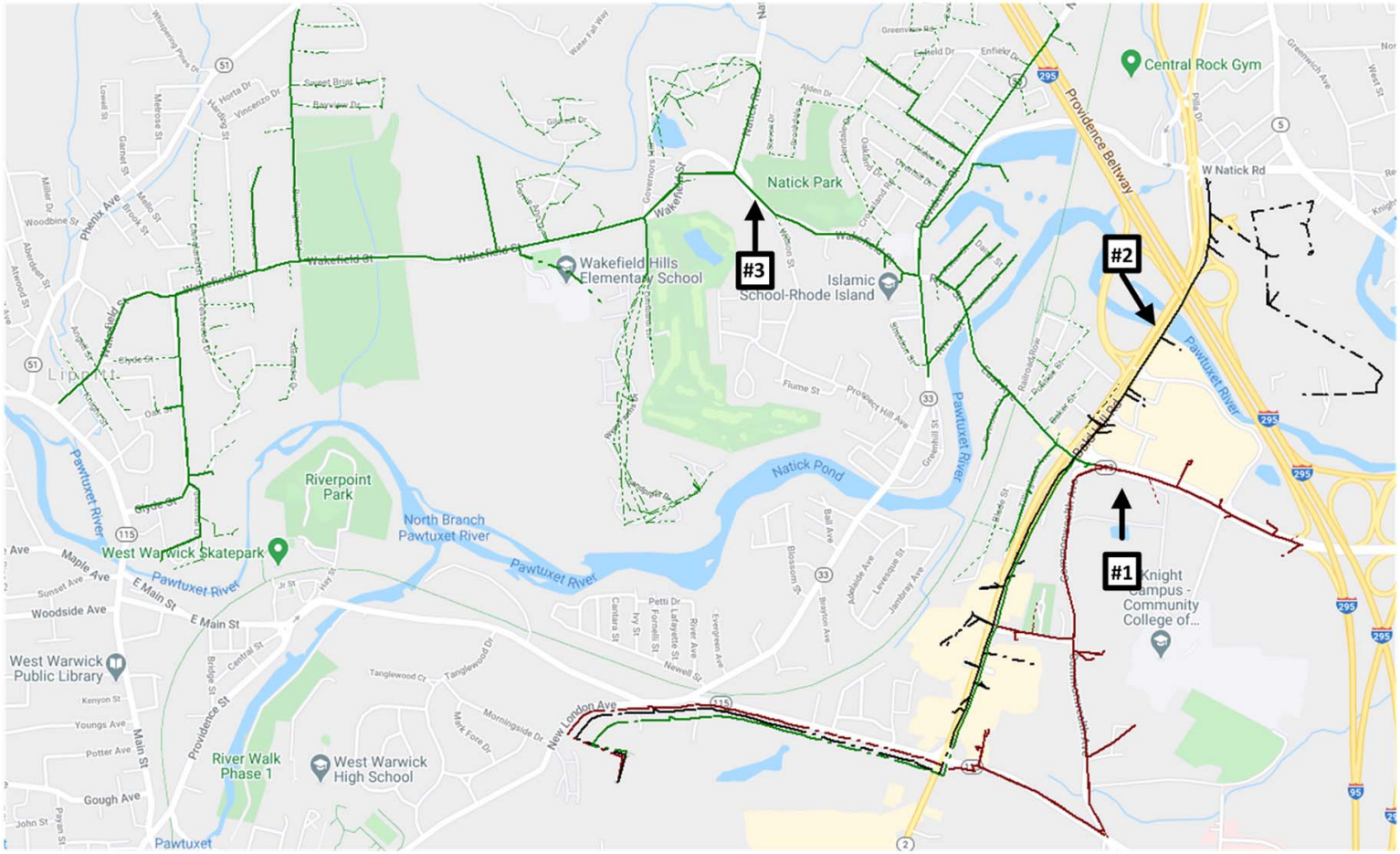
New London #150 Ultimate Layout



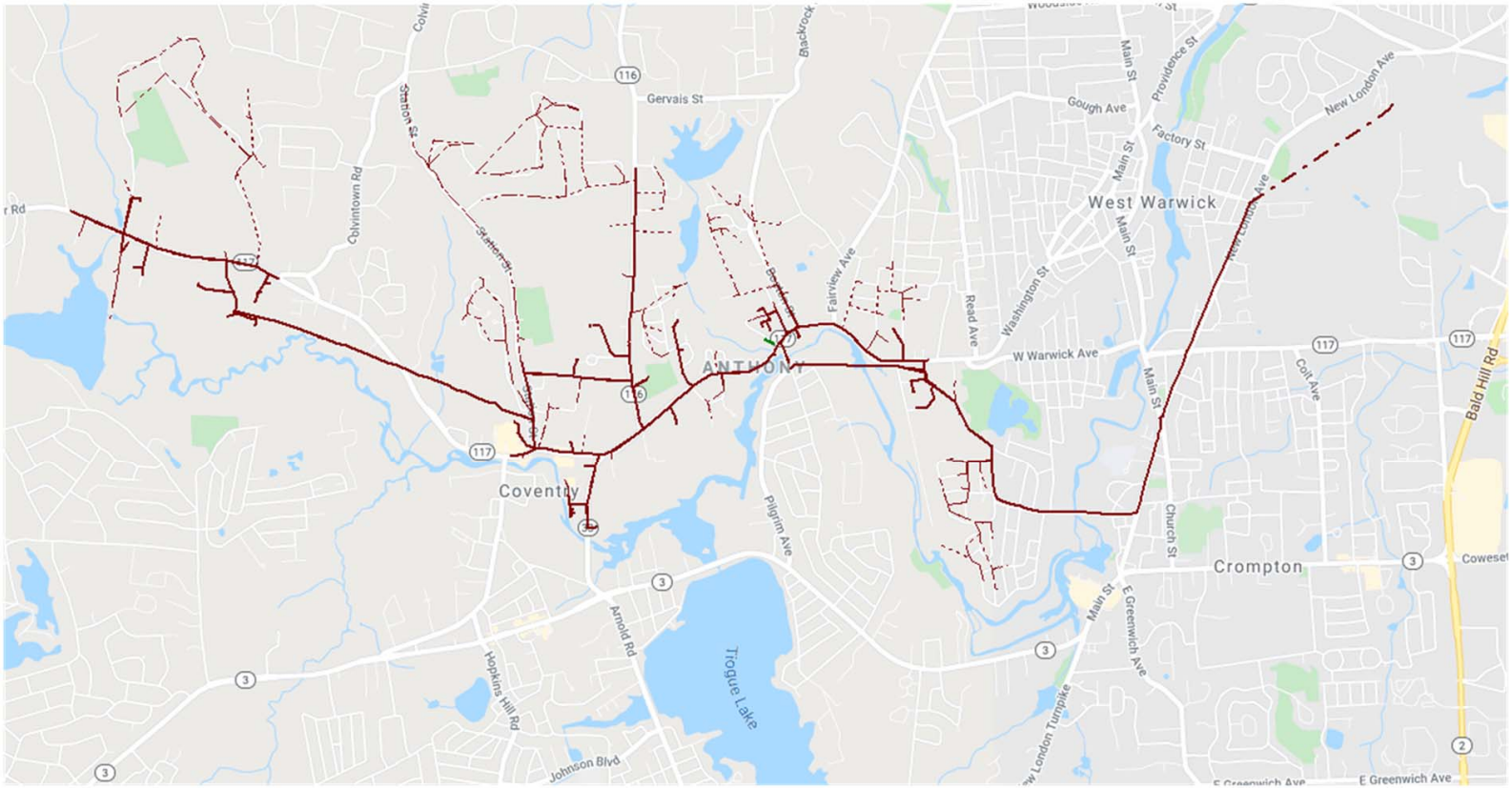
Anthony #64, Natick #29 and Warwick Mall #28 Feeders



New London Feeders 1,2 and 3



New London #4


Gervais St
Colvintown Rd
Station St
Fairview Ave
Read Ave
Washington St
W Warwick Ave
Main St
Gough Ave
Providence St
Factory St
New London Ave
West Warwick
Colt Ave
Bald Hill Rd
Church St
Crompton
E Greenwich Ave
Coventry
Pilgrim Ave
Arnold Rd
Hopkins Hill Rd
Johnson Blvd
Tiogue Lake
New London Turnpike

Drumrock Area Solutions

- **Plan 2**
  - Replace all equipment with asset condition issues at Anthony #64, Natick #29 and Warwick Mall #28.

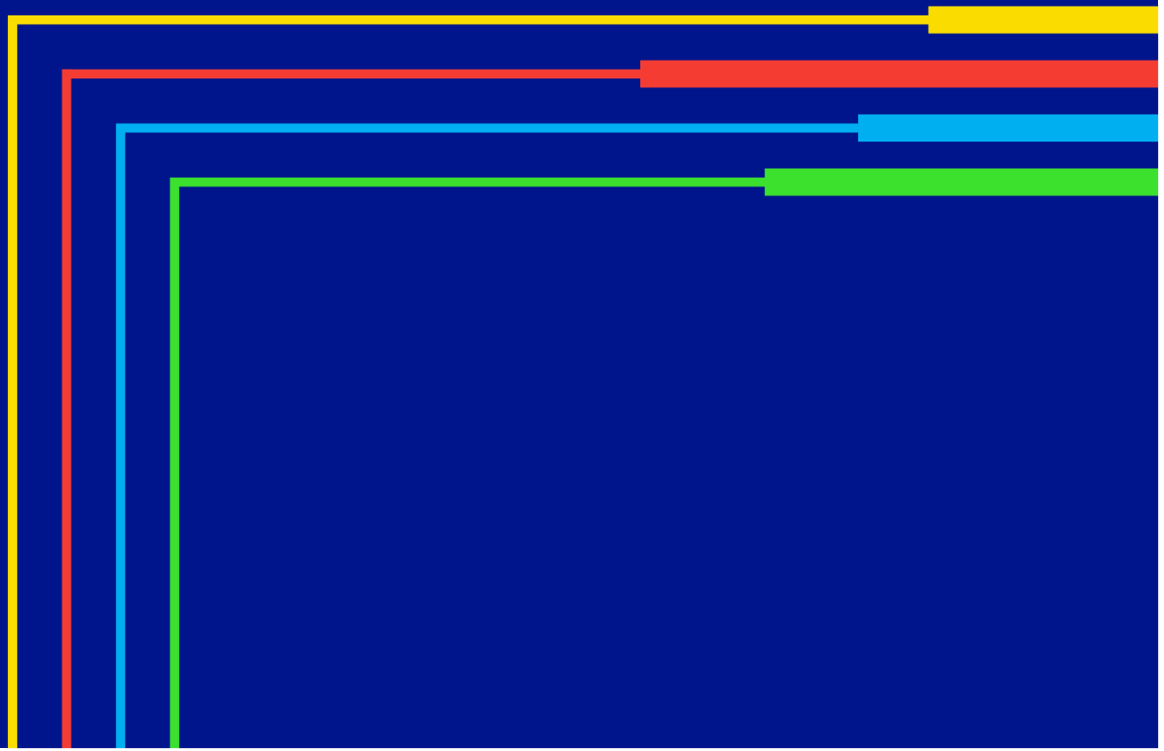
Drumrock 23 kV Plan Cost Comparison

Options	Component	Capital ($k)	O&M ($k)	Removal ($k)	Sub Total ($k)	Total ($k)
Plan 1	New London Sub (T)	4,762	0	0	4,762	22,308
	New London Sub (D)	6,321	0	134	6,455	
	New London (Dline)	8,640	0	0	8,640	
	Anthony Sub (D)	0	0	1,147	1,147	
	Natick Sub (D)	77	0	507	584	
	Warwick Mall (D)	0	0	721	721	
Plan 2	Anthony Sub (D)	3,490	0	315	3,805	7,585
	Natick Sub (D)	790	0	55	845	
	Warwick Mall (D)	2,776	0	160	2,936	

Drumrock Execution Risk

Execution Risk	Drumrock Option 1	Drumrock Option 2
Environmental Permitting	Red	Red
Outages	Green	Yellow
Engineering and Design Recourses	Yellow	Green
Construction	Green	Red
Land Acquisition	Green	Green
Licensing	Green	Green
Property Rights	Yellow	Yellow
Materials	Green	Green
Procurement	Green	Green
Schedule	Green	Green
Technical Risk	Green	Green
Community	Yellow	Yellow
Other	Green	Green

Kent Co. 34.5kV System



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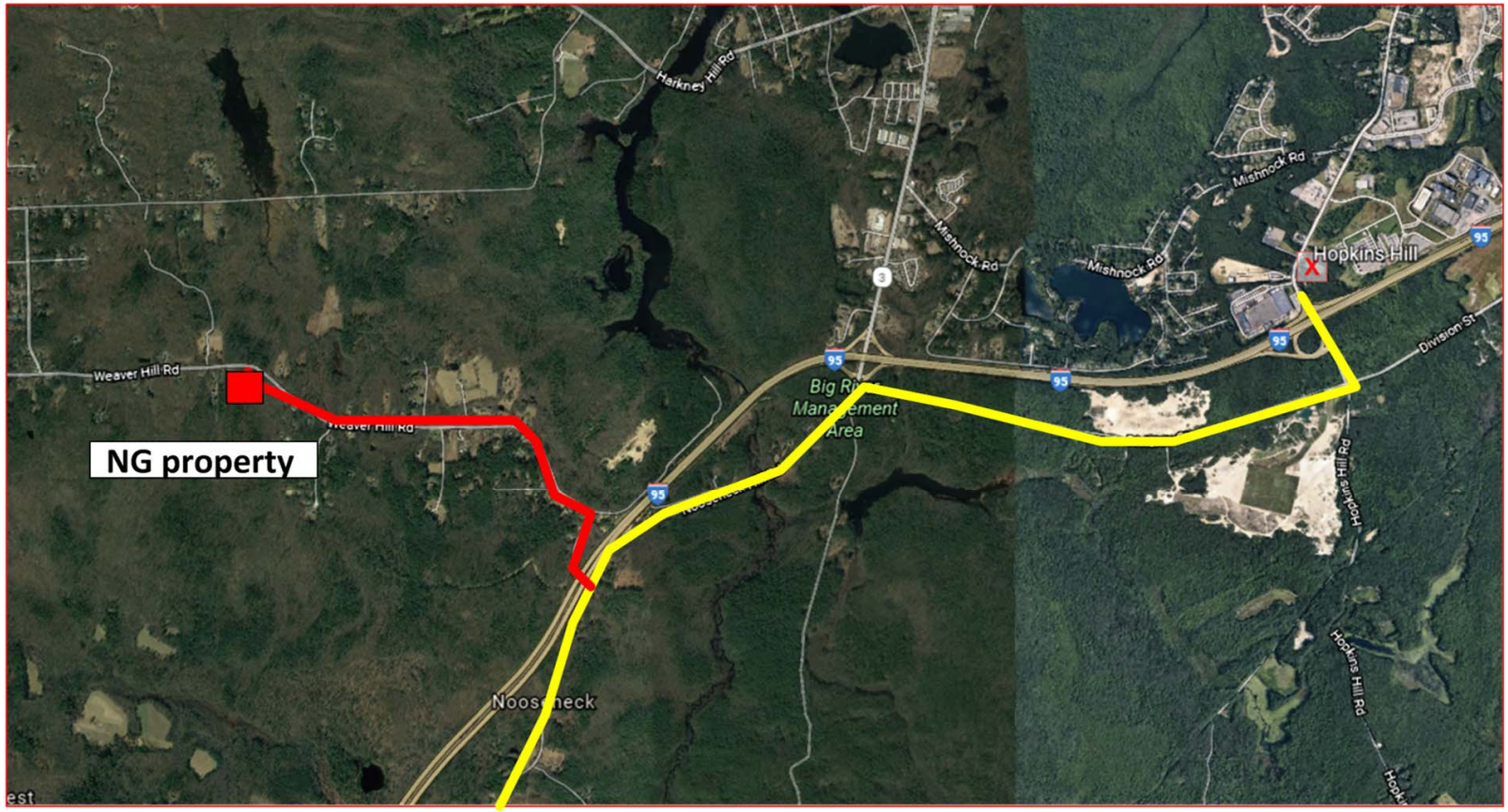
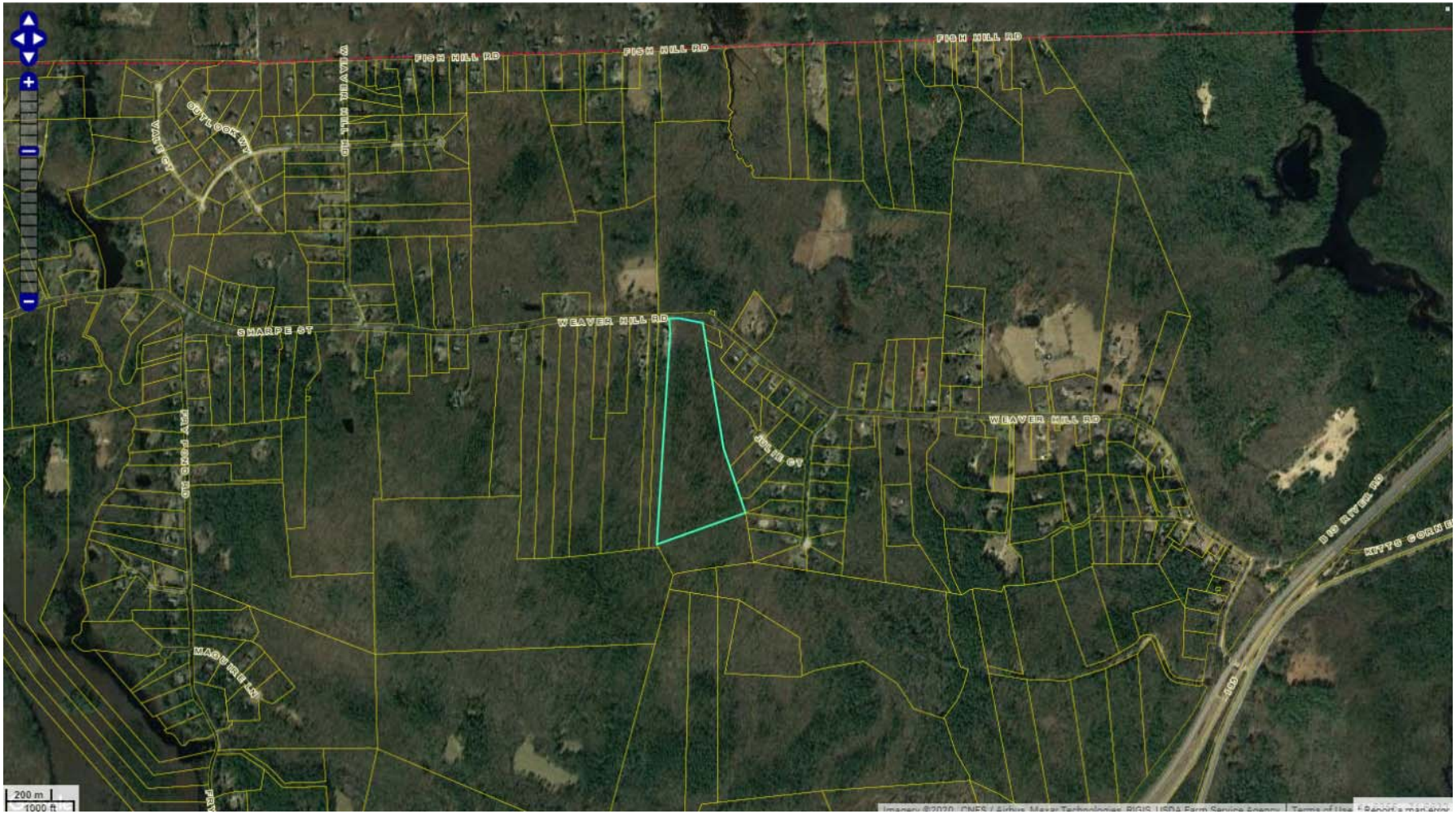
Kent Co. Area Solutions

Plan 1

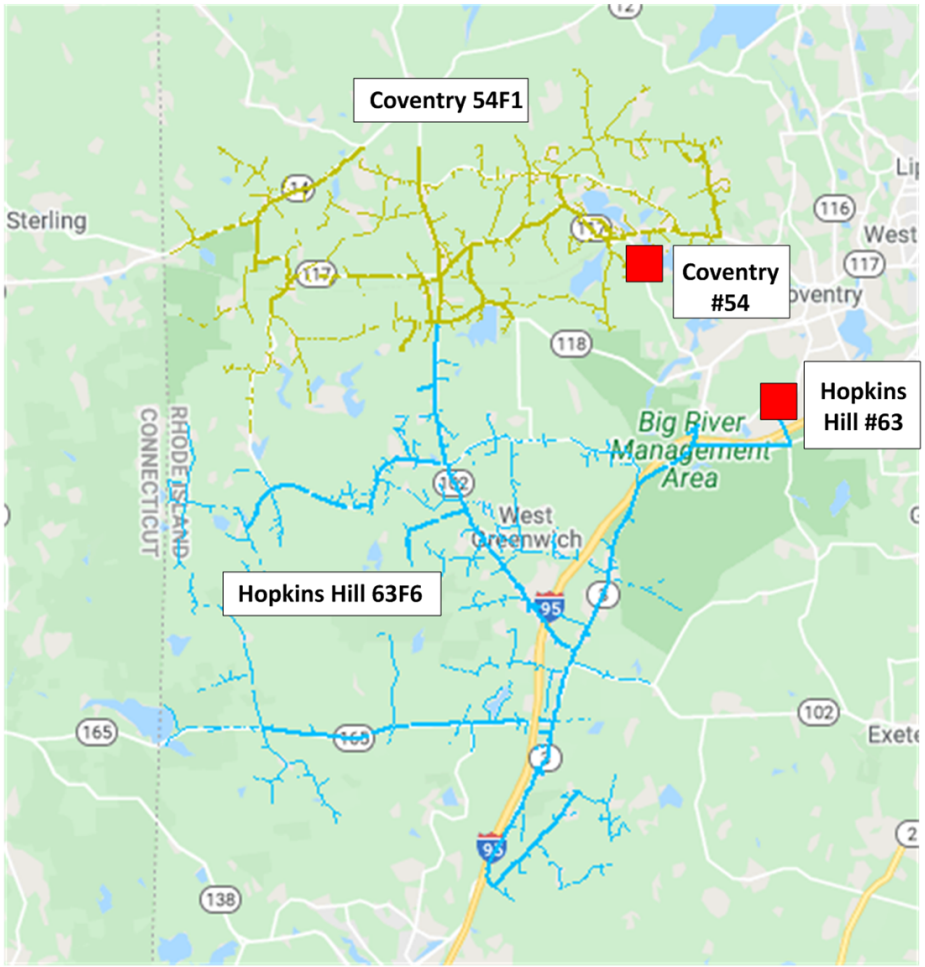
- Extend 3309 and 3310 for 1.7 miles from Nooseneck Hill and Weaver Hill Rds., up Weaver Hill Rd. to a NG owned property off P. 64.
- Install a 7.5/9.375 MVA transformer and one modular feeder position to be supplied by 3309 preferred/3310 alternate.
- Install Dline for a new feeder to be made up of parts of Coventry 54F1 and Hopkins Hill 63F6.

3309, 3310 and 3311 extensions

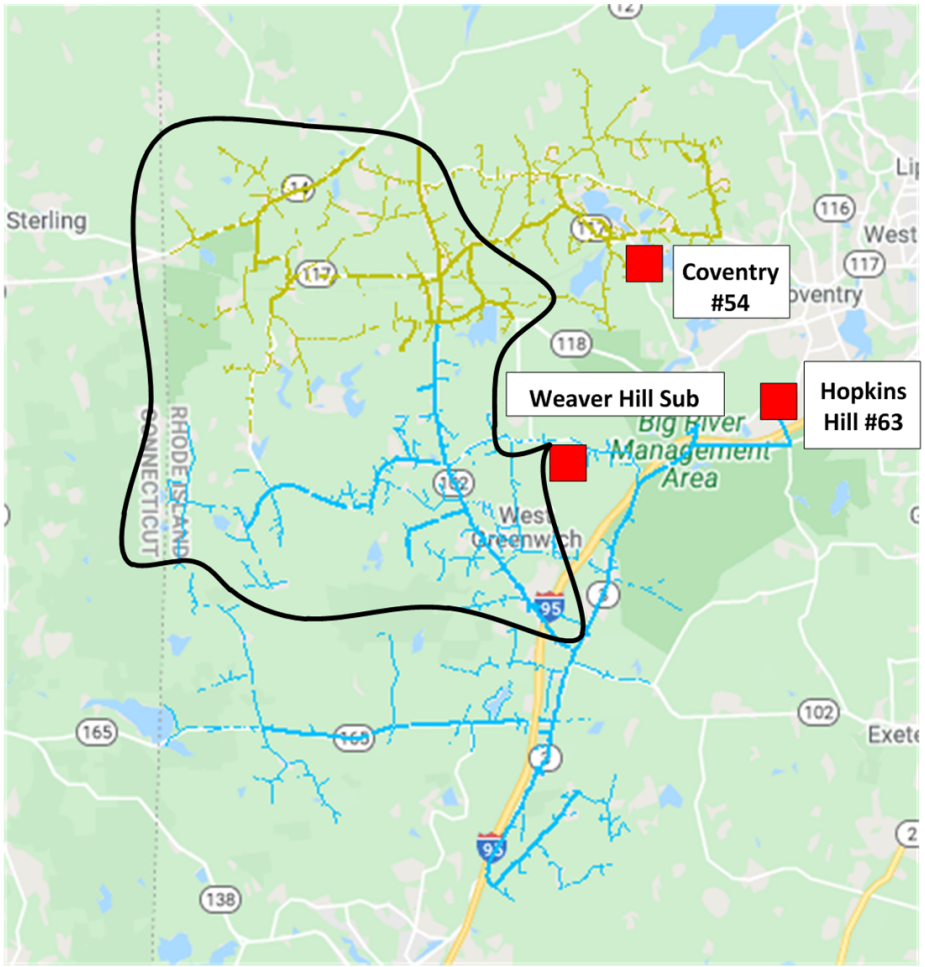



FISH HILL RD
FISH HILL RD
FISH HILL RD
WEAVER HILL RD
OUTLOOK WY
WAITE CT
SHARPE ST
WEAVER HILL RD
JOLIN CT
WEAVER HILL RD
MAPLE CREST DR
MAPLE CREST DR
BIG RIVER RD
KITTY CORNER
200 m
1000 ft

Coventry 54F1 and Hopkins Hill 63F6



Weaver Hill XXF1

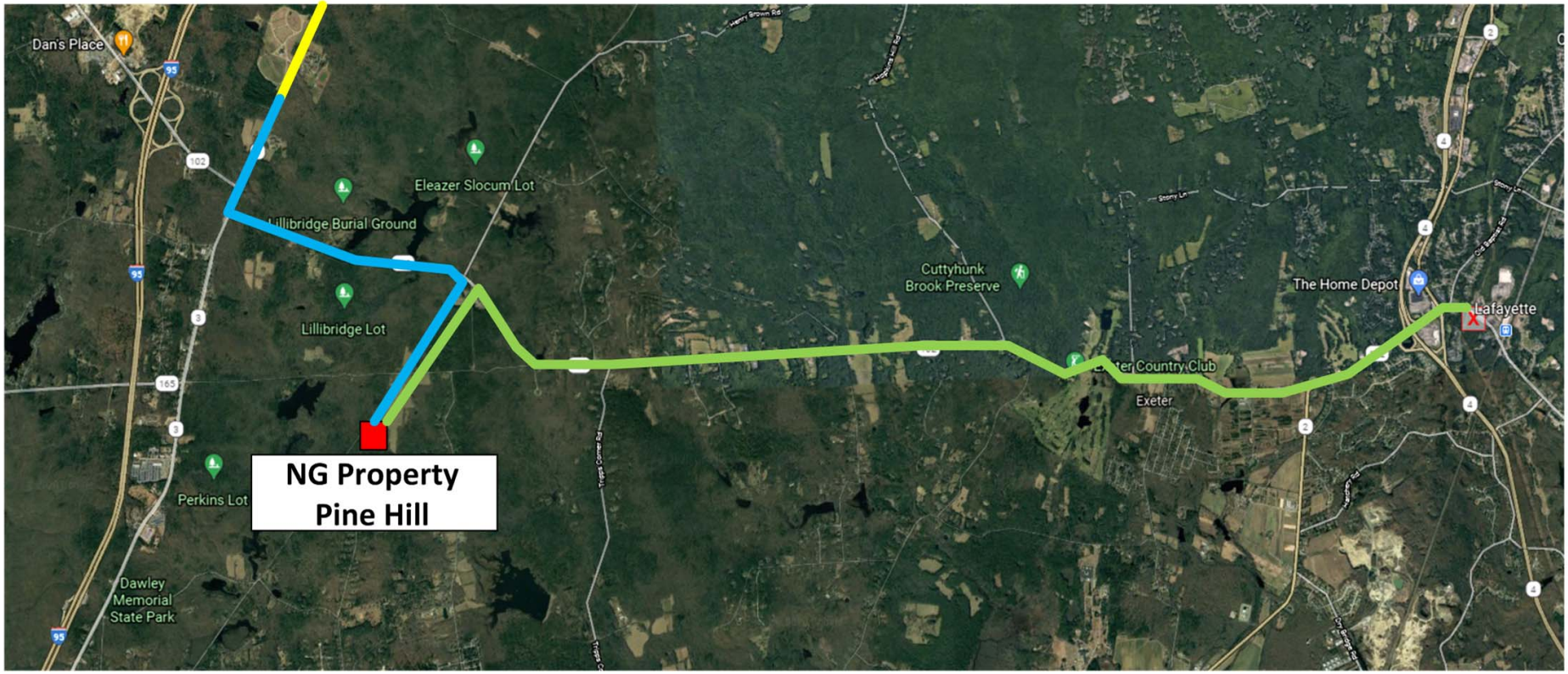


Kent Co. Area Solutions

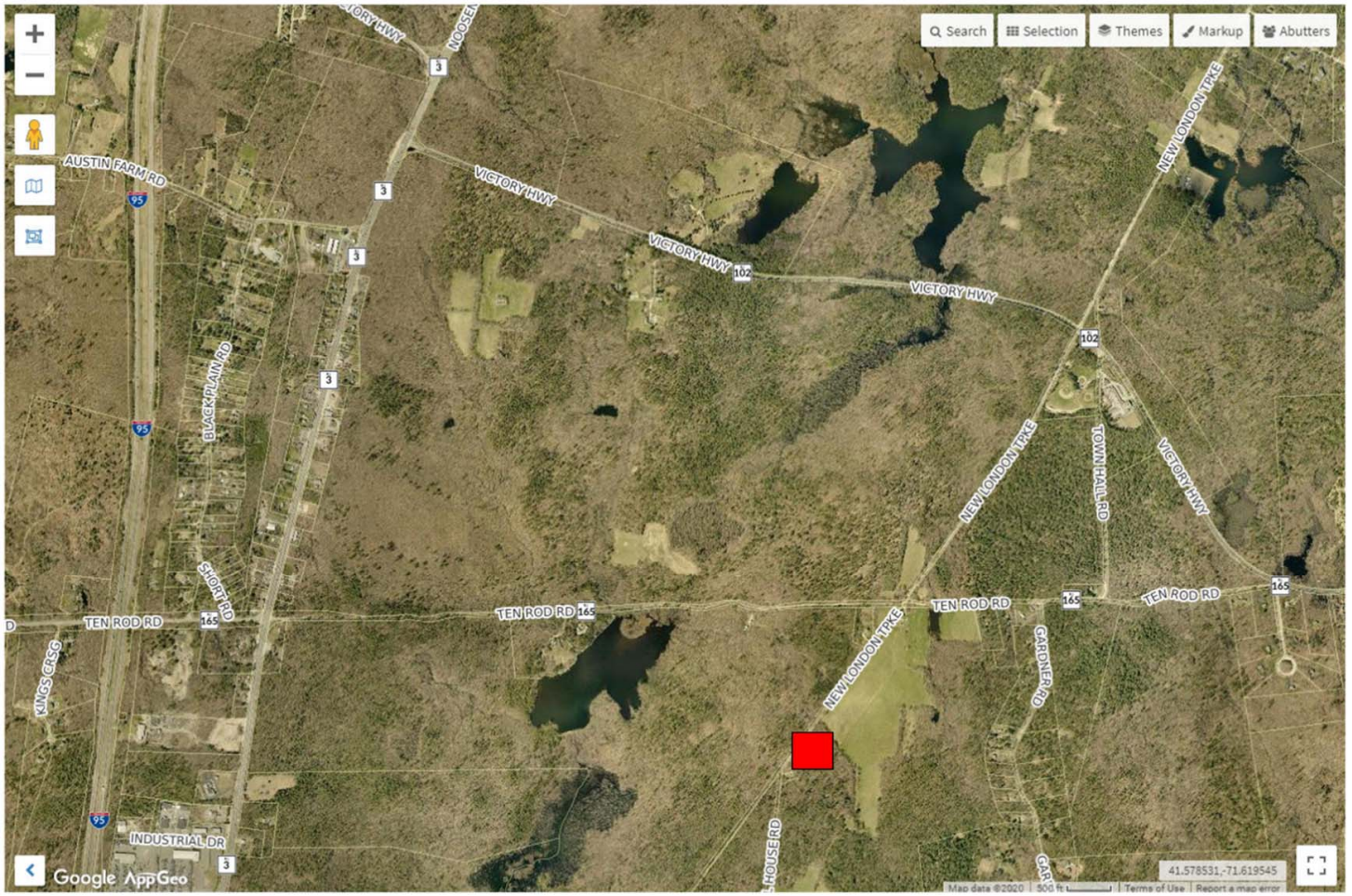
Plan 2

- Extend 3310 for 3.25 miles from Rtes. 3 and 102 to a NG parcel of property at the intersection of New London Tpk. and Bell Schoolhouse Rd.-Pine Hill sub.
- Install a new 34.5 kV line for 7.5 miles from the new Wickford Jct. substation to Pine Hill sub.
- Install a 7.5/9.375 MVA transformer and one modular feeder position to be supplied by 3310 preferred/Wickford Jct. line alternate.
- Install Dline for a new feeder to be made up of parts of Coventry 54F1 and Hopkins Hill 63F6.

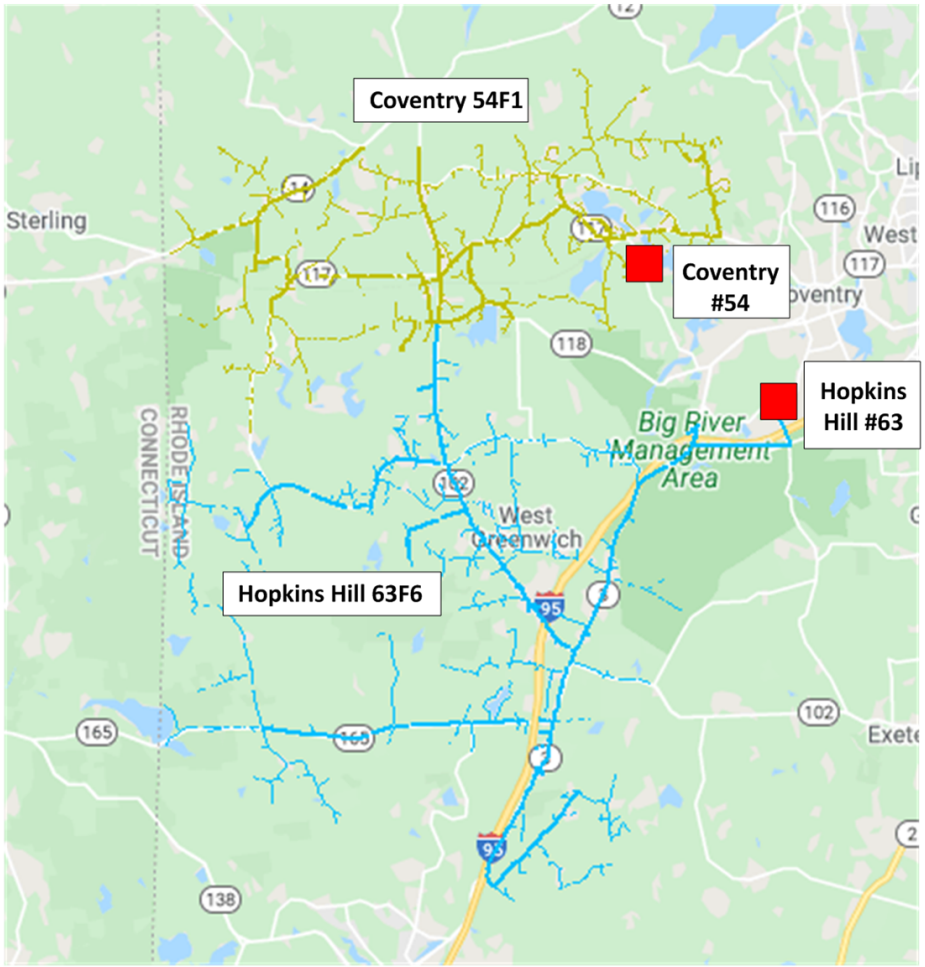
34.5 kV Supply Extensions to Pine Hill Substation



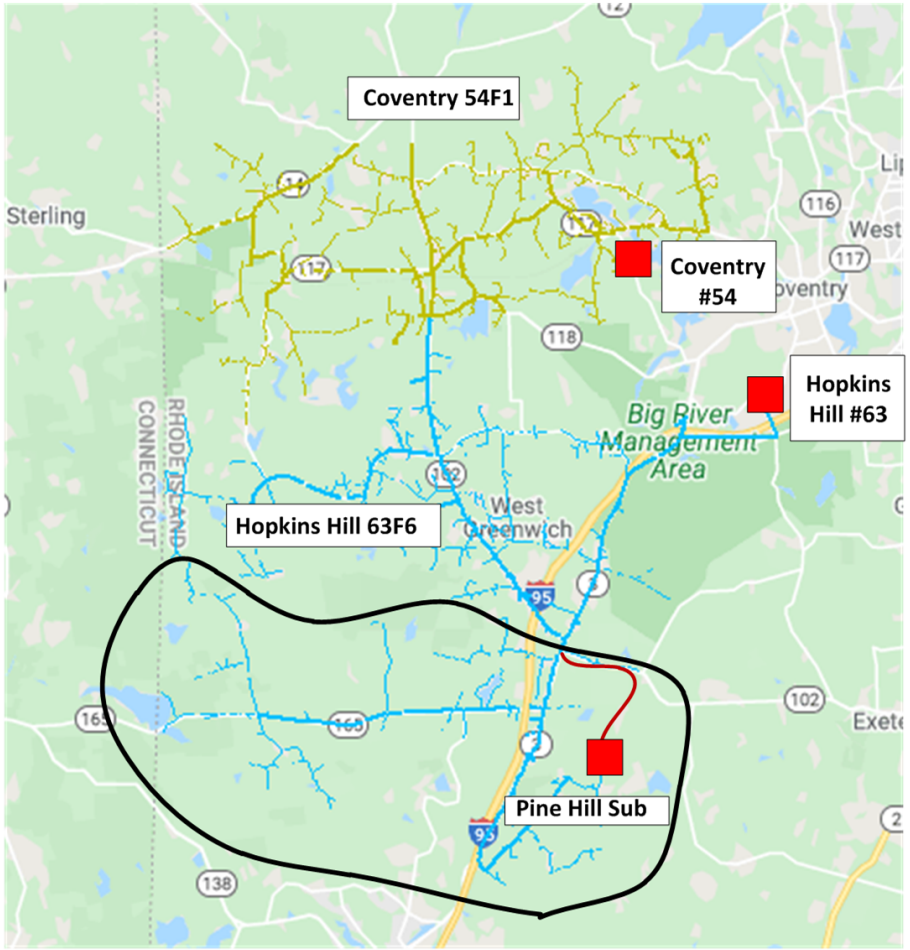
Pine Hill Property



Coventry 54F1 and Hopkins Hill 63F6



Pine Hill XXF1 Feeder



Kent Co. 34.5 kV Plan Cost Comparison

Options	Component	Capital ($k)	O&M ($k)	Removal ($k)	Sub Total ($k)	Total ($k)
Plan 1	Weaver Hill (SubT)	5,447	0	0	5,447	10,045
	Weaver Hill (Sub)	3,800	0	0	3,800	
	Weaver Hill (Dline)	798	0	0	798	
Plan 2	Pine Hill (SubT)	12,772	0	0	12,772	17,316
	Pine Hill (Sub)	3,760	0	0	3,760	
	Pine Hill (Dline)	784	0	0	784	

Kent Co. Execution Risk

Execution Risk	Kent Co. Option 1	Kent Co. Option 2
Environmental Permitting	Red	Red
Outages	Green	Green
Engineering and Design Recourses	Green	Green
Construction	Green	Green
Land Acquisition	Green	Green
Licensing	Red	Red
Property Rights	Green	Green
Materials	Green	Green
Procurement	Green	Green
Schedule	Green	Green
Technical Risk	Green	Green
Community	Yellow	Yellow
Other, Forestry	Green	Green

Non Wires Alternatives

Only two loading issues.

- Division St. transformer also has asset condition issues.
- Hopkins Hill 63F6 loading can be resolved with switching.

Cost Summaries

Sub-area	Plan	Capital	O&M	Removal	Total
Drumrock					
	New London Expansion	$19,800	$0	$2,508	$22,308
	Area Asset Replacement	$7,056	$0	$530	$7,585
Kent Co.					
	Weaver Hill Modular Feeder	$10,045	$0	$0	$10,045
	Pine Hill Modular Feeder	$17,316	$0	$0	$17,316
Common Items	All	$19,156	$0	$604	$19,759

All costs in k$

nationalgrid

PUC 2-12

Request:

When did the Company first advise the Division of Public Utilities and Carriers that the subject project would qualify for cost sharing?

Response:

Please see the response to PUC 2-11.

PUC 2-13

Request:

When did the Company first seek a Commission finding that the subject capital investments are (a) System Modifications; (b) benefit other customers; and (c) have been accelerated due to an interconnection request?

Response:

The Company first sought a Commission finding that the subject capital investments are (a) System Modifications; (b) benefit other customers; and (c) have been accelerated due to an interconnection request on October 17, 2023, when the Company filed the Petition for Acceleration of a System Modification Due to Distributed Generation Project.

PUC 2-14

Request:

When did the Company first file with the Commission a copy of the executed ISAs for the subject DG projects?

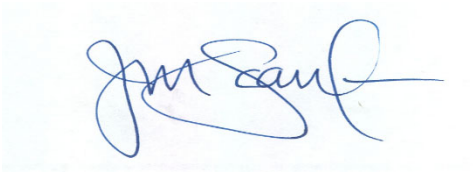
Response:

The Company first filed the executed Weaver Hill DG projects ISAs with the Commission on October 17, 2023, when the Company submitted the Acceleration of a System Modification Due to a Distributed Generation Project in connection with the Weaver Hill Projects petition.

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.



Joanne M. Scanlon

May 28, 2024
Date

Docket No. 23-38-EL Rhode Island Energy – Petition for Acceleration Due to DG Project – Weaver Hill Projects Service List updated 5/21/2024

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