EVERSOURCE ENERGY

107 Selden Street
Berlin, CT 06037-1616

August 13, 2015

Mr. Robert Stein
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 461 - CSC 461 Greenwich Substation and Line Project

Dear Mr. Stein:

This letter provides the response to requests for the information listed below.

Response to CSC-01 Interrogatories dated 07/30/2015
CSC-001, 002, 003, 004, 005, 006, 007, 008, 009, 010 *, 011, 012, 013, 014, 015, 016, 017, 018, 019, 020 , 021

Very truly yours,

John Morissette /tr

John Morissette
Manager
Siting and Permitting
As Agent for CL&P dba Eversource Energy

cc: Service List

* This response is proprietary and confidential and is available only to signatories of the nondisclosure agreement.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Please describe the attendance and any comments received from the Town of Greenwich at the Community Open House held on July 15, 2015.

Response:
There were 77 attendees at the Open House held on July 15, 2015. Because the Application had previously been filed with the Council, the Project Team did not solicit written comments from attendees. Eversource provided attendees with the mailing address and the Website for the Council and encouraged the attendees to submit comments directly to the Council.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Referring to Application pp. G-15-16, did the Town request any of the four Preferred Route options (Bruce Park Underground Open Trenching, MNRR/I-95 HDD Crossing Variation, BPV1, BPV2)? What issues necessitated the various options? Did the Town indicate a preference for a particular option?

Response:
Eversource (the Company) had included the Open Trenching Variation (P6) as part of the route options put forth in the Municipal Consultation Filing (MCF). The open trenching along Bruce Park Drive would be faster than the Horizontal Directional Drill (HDD) across the Park, however it would interrupt the normal traffic flow along an important east/west travel corridor and there would be impacts to vegetation along the road.

Comments received from the Town and members of the community during the MCF process encouraged the Company to assess additional routes to avoid impacts to Kinsman Lane and to Bruce Park. The Blue Variation (BPV1) would move the open trenching off of Kinsman Lane and place it along the tree line at the base of the rock outcropping as the route heads south down Kinsman Lane. It also would move the site of the HDD crossing of the Park from the intersection of Bruce Park Drive and Kinsman Lane to a site south of the CDOT right-of-way, parallel and in close proximity to Interstate 95. This alternate site for the HDD crossing is further away from the residential properties along Kinsman Lane and it minimizes impacts to the ball field. The Orange Variation (BPV2) would head west from the north end of Kinsman Lane and cut across the rock outcropping, paralleling Interstate 95 to the same HDD site as the Blue Variation, and would avoid open trenching along or off to the side of Kinsman Lane. The Orange Variation also would avoid trenching near the ball field. Just as with the Blue Variation (BPV1), the alternate site for the HDD crossing of the Park is further away from the residential properties and minimizes impacts to the ball field.

The Green Variation (MNRR/I-95 Crossing) was the result of additional engineering work during the MCF period. The Company identified the site on Station Drive, to the east of Indian Field Road, as a more advantageous location to set up for a HDD under Metro North Railroad and Interstate 95. Indian Field Road is an important north/south travel corridor as well as an important access point for both entering and exiting Interstate 95 and traveling to or from the Cos Cob Railroad Station. Working on the east side of Indian Field Road would avoid the traffic impacts that would be caused by open trenching across Indian Field Road to the west side of the road. In the Application, the Company states that the Green Variation could terminate at either the Greenwich Department of Public Works (DPW) garage or the north end of Kinsman Lane.

The Town of Greenwich told the Company they do not support the Green Variation (MNRR/I-95) ending at the DPW garage due to space constraints and any potential interruptions to their DPW operations. The Town did not show any opposition to terminating the HDD at the end of Kinsman Lane. The Town has not, as of today, informed the Company of a preference between the Blue Variation (BPV1) or the Orange Variation (BPV2).

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Regarding the Bruce Park Underground Open Trenching option, is it necessary to place the transmission lines below Bruce Park Drive between Indian Harbor and the pond to the east? Can land adjacent to the road be used?

Response:
No, it is not necessary for the transmission lines to be placed below Bruce Park Drive between Indian Harbor and the pond to the east. Adjacent land can be used, but it would necessitate vegetation removal. If the south side of the road were used, removal of shrubs and trees on the south side of the road would be required. If the north side of the road were used, removal of the shrubs and trees on the north side of the road would be required, and removal of the shrubs and trees near the lawn bowling green would also be required.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Has Eversource conducted any preliminary survey regarding underground conditions along the route of its proposed underground transmission line (Preferred Route and North and South Alternatives), either on its own or in consultation with the Town of Greenwich, or other entities that may have underground utilities in this area? If so, have the results been incorporated into cost estimates and route design? What methods were used? If not, at what time are subsurface investigations conducted and what methods are used to identify existing utilities, soil conditions, depth to bedrock?

Response:
Yes. Eversource has had ongoing conversations with the Town of Greenwich about the town's underground infrastructure in the vicinity of the Project. The Project Team has also reached out to other utilities to obtain applicable utility information.

The investigation of geological features has been conducted along all routes under consideration including completion of a total of over forty (40) individual bore holes to identify soil conditions, depth to rock, rock compressive strength, and water table levels as well as to develop parameters as to the incidence of rock; the relative likelihood of rock excavation was reflected in the costs estimates.

A subsurface utility investigation has been initiated and is nearly complete for the preferred route. This includes collecting and incorporating the record "as-builts" drawings for underground utilities, opening vaults and measuring inverts for gravity systems, and identifying and locating critical crossings using "potholing" or "soft-dig" excavation methods. Additional efforts to characterize the utilities on the Southern Alternative and the Northern Alternative are also underway.

Subsurface utility allowances to relocate existing utilities that conflict with the Project are included in the cost estimates based on experience gained from the construction work on the Stamford Reliability Cable Project underground 115-kV line (CSC Docket 435).

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Referring to Application p. E-16, how much capacity was added to the electric system as a result of the upgrades listed in Table E-4?

Response:
Items 2 and 3 added 30 MVA of capacity by installing a 115- to 13.2-kV transformer at Cos Cob Substation. This transformer capacity serves as backup to the existing 115- to 13.2-kV 25 MVA transformer and also provides load relief to the Cos Cob 27.6-kV system via Prospect 13.2-kV feeders and to Mianus Substation.

Items 7 and 8 added a total of 37.5 MVA of capacity to the North Greenwich Substation by replacing three 27.6- to 13.2-kV (12.5 MVA) transformers with three 27.6- to 13.2-kV (25 MVA) transformers. This increased capacity addressed the North Greenwich capacity /reliability issues only.

Items 6 and 9 added 16.6 MVA of capacity to the 27.6-kV distribution cables (8.3 MVA per cable for 2 cables). This increased cable capacity was undertaken to improve the distribution reliability for contingency situations such as a cable failure.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Referring to Application p. E-8 and p. F-9, how many 27.6-kV network feeders originate from the Prospect Substation?

Response:
No 27.6-kV network distribution feeders originate from the Prospect Substation. There are five 27.6-kV network feeders that originate from Cos Cob Substation. Four of these network feeders are the 27.6-kV source feeders to Prospect Substation. The fifth network feeder is the source for the Byram 1X 27.6-to 13.2 kV transformer.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Referring to Application p. G-7, how many distribution feeders are initially proposed?

Response:
Initially, a total of nine new getaway distribution feeders will exit Greenwich Substation. The getaway feeders from the Greenwich Substation will intercept existing distribution feeders on Railroad Avenue and Prospect Street.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Referring to Application Section G-7, does the underground transmission line cost refer only to the Preferred Route? Provide a cost estimate for the Preferred Route, Preferred Route options listed in G.4.1, Southern Route and Northern Route.

Response:
The Application Section G.7 references the Preferred Route transmission line cost of approximately $72 million.

The transmission line costs for the alternatives below would be compared to the $72.1 million preferred route estimate.

- Southern Route Alternative (line costs only) $71.3M
- Northern Route Alternative (line costs only) $87.1M

The route variations listed in section G.4.1, are considered minor routing variations from the Preferred Route in the area of Bruce Park, and their costs are noted below as either the same costs or a "delta" to the base estimate of $72 million. The costs of the Bruce Park HDDs (BPV1 HDD and BPV2 HDD) are included in the costs for the Bruce Park Variations 1 and 2 respectively (Blue variation -BPV1, Orange variation -BPV2).

Green variation RR/I-95 (alternate HDD location)	Same cost as the original RR/I-95 crossing (yellow route)
Blue variation - BPV1 (open trench around ball field to HDD)+BPHDD	Approximately $1M less than the Preferred Route
Orange variation - BPV2 (trench through wooded area to HDD)+BPHDD	Approximately $1M less than the Preferred Route

In addition, the Company has shown a preferred route variation that utilizes open trench construction in Kinsman Lane and Davis Ave (P6V on Figure G-8). This variation would reduce the estimated costs for the transmission line by approximately $3 million.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
What is the estimated cost of the proposed Greenwich Substation?

Response:
The estimated transmission and distribution cost of the proposed Greenwich Substation is approximately $52 million.

Witness: **Witness Panel**
Request from: **Connecticut Siting Council**

Question:
Regarding the life-cycle cost of the transmission lines, provide life-cycle component costs using the parameters included in Table ES-3 of the Council's 2012 Life-Cycle report.

Response:
For the life-cycle component costs, please see confidential Attachment 1.

** This response is proprietary and confidential and is available only to signatories of the nondisclosure agreement.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
How are project costs allocated to Connecticut/regional customers?

Response:
Given the project's radial nature and its primary purpose of serving local distribution customers, we expect about $93 million or about 2/3 of the estimated project costs will be borne by Connecticut customers. The estimated project costs include $21 million of distribution costs, which are allocated fully to Eversource's Connecticut-based distribution customers, $12 million of Pool Transmission Facility ("PTF") costs allocated through Regional Network Service ("RNS") rates under Schedule 9 of the ISO-NE Transmission, Markets and Services Tariff ("Tariff"), and $107 million of non-PTF costs allocated through Local Network Service ("LNS") rates under Schedule 21-NU, Category A of the ISO-NE Tariff. Based upon 2014 load data, Connecticut has about a 25% share of the RNS costs and a 64% share of the LNS costs.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Describe the methodology Eversource uses to predict increase in load deruand, as described on Application p. E-1.

Response:
Eversource utilized the 2013 actual peak loads for each substation and applied 1% load growth per year for the subsequent years. The 1% load growth reflects the average load growth experienced at the Cos Cob Substation transformers and other substations in Greenwich and its surrounding area.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
What is the estimated construction time for the following: a) proposed Greenwich Substation; b) Preferred Route; c) Southern Alternative; d) Northern Alternative; and e) Cos Cob modifications.

Response:
Presuming siting certification and other permits have been obtained, the Project estimated construction times are listed below for the following:

a) Proposed Greenwich Substation: Assuming an October 2016 start, it is estimated that a construction period of approximately 19 months would be required for civil, structural, architectural, mechanical and electrical installation based on 7:00 AM to 7:00 PM for six (6) working days per week, with an option to work Sundays should the events warrant. Construction will continue through the winter for all activities.

b) Preferred Route 115-kV Underground Transmission Line: Assuming an October 2016 start, it is estimated that a construction period of approximately 19 months would be required for civil and electrical installation based on 7:00 AM to 7:00 PM for six (6) working days per week in multiple work zones, with an option to work Sundays should the events warrant. Construction will continue through the winter for all activities.

c) Southern Alternative 115-kV Underground Transmission Line: Assuming an October 2016 start, it is estimated that a construction period of approximately 19 months would be required for civil and electrical installation based on 7:00 AM to 7:00 PM for six (6) working days per week in multiple work zones, with an option to work Sundays should the events warrant. Construction will continue through the winter for all activities.

d) Northern Alternative 115-kV Underground Transmission Line: Assuming an October 2016 start, it is estimated that a construction period of approximately 25 months would be required for civil and electrical installation based on 7:00 AM to 7:00 PM for six (6) working days per week in multiple work zones, with an option to work Sundays should the events warrant. Construction will continue through the winter for all activities.

e) Cos Cob Substation Modifications: Assuming an October 2016 start, it is estimated that a construction period of approximately 19 months would be required for civil, structural and electrical installation based on 7:00 AM to 7:00 PM for six (6) working days per week with an option to work Sundays should the events warrant. Construction will continue through the winter for all activities. The outages required for sequencing the work in Cos Cob 11R Substation and Cos Cob 35K Substation will be coordinated in a

time frame to support the schedule above but efforts will be made to reduce the construction period if outage windows permit.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
What were the results of Eversource's notice to abutting property owners? If mail receipts were not returned, did Eversource make any additional attempts to contact these property owners?

Response:
Eversource mailed notices to 34 abutters by certified mail. Eversource received 24 proof of delivery receipts and received two undeliverable receipts. Eversource sent an additional notice via first class mail to the remaining 10 abutters from whom Eversource did not receive delivery receipts.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
In regards to Application p. J-9, has Eversource completed a preliminary survey of significant trees that would have to be removed on public and private property to accommodate the underground transmission lines (Preferred Route, North Alternative, South Alternative)? If so, please provide.

Response:
Eversource has not conducted surveys for significant trees that would have to be removed on the Preferred Route, North Alternative, or South Alternative. Eversource expects to complete a tree survey along the selected route prior to construction to determine whether minor adjustments in the project construction plans or methods can be implemented to minimize or avoid the removal of significant trees.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Application Section K describes the size of the splice vault excavation. Are the cable pull boxes (p. K-
12) included in the excavation dimensions or is this an additional excavation?

Response:
The splice vault outside dimensions are approximately 13 feet wide by 9 feet high by 20 feet long and would typically require an excavation that is approximately 16 feet wide by 12 feet deep by 24 feet long. The communications cable pull boxes (handholes) are separate and usually located within 50 to 100 feet of the splicing vaults. These communications vaults are round with approximately five foot outside diameter and six feet high and would typically require an excavation that is approximately 8 feet wide by 8 feet deep by 8 feet long.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Does the site plan in Application Appendix B represent the latest substation configuration? If so, how does the substation design incorporate the Town's comment of April6, 2015? If not, please submit a revised plan including narrative how the design was altered to address the Town's comments.

Response:
Yes. Based on comments received from the Town, the proposed Greenwich Substation was substantially revised between the Municipal Consultation Filing (MCF) and the filing of the Application. This is best illustrated in Figure G-2, page G-6, and Appendix B of the application.

As stated in the MCF, the proposed GIS portion of the Greenwich Substation was a precast concrete building along the sidewalk. Based on comments received from the Town, the Company:

- Hired an independent architect to redesign the building to more closely resemble the former Eversource Area Work Center at 330 Railroad Avenue,
- Varied the building facade to add scale and focal features by adding brick veneer, windows, a front door, and other architectural elements to the design,
- Reconfigured the building to break up the façade length by incorporating a projecting doorway and tower sections,
- Reconfigured the building to break up the building height by incorporating tower fascia on the east and west ends and reducing the height of the main roof,
- Moved the building back from Railroad Avenue to provide additional separation between building and the curb and sidewalk.
- Reoriented the battery portion of the building extending it to the south, along the east side of the property, thereby limiting the view into the substation from the east, and
- Extended the length of the building on the west side to allow the overhead door into the GIS building to be on the back of the building, accessible from the substation yard, rather than at the intersection of Field Point Road and Railroad Avenue.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Please resubmit Application Appendix C, Cos Cob Site Plans, with appropriate substation component labels/property lines/vegetation as the plans submitted are difficult to read.

Response:
Please see the attached updated Appendix C, Cos Cob Site Plans.

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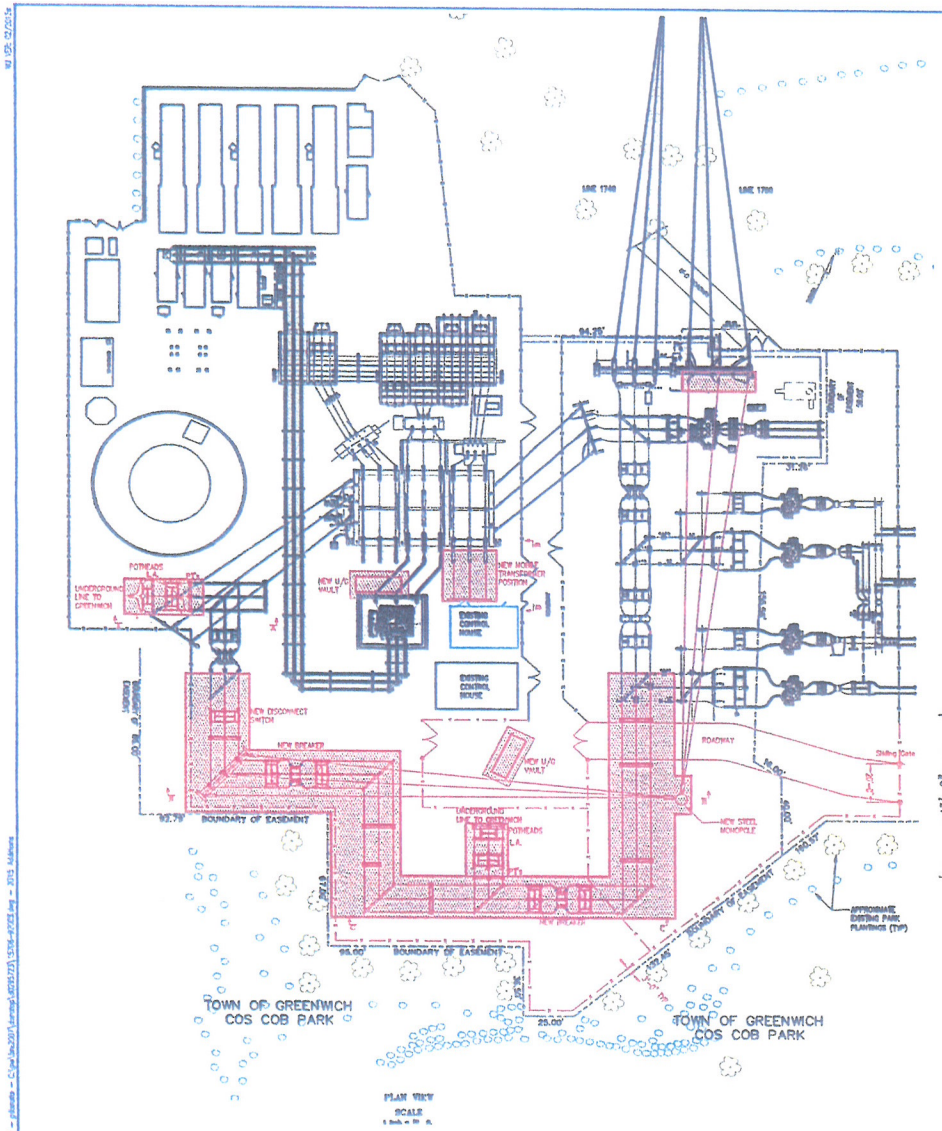
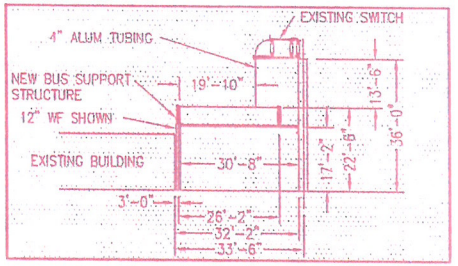
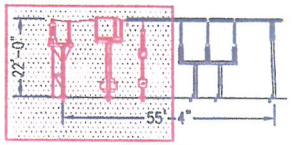
Dated 07/30/2015
Q-CSC-018, Attachment Page 1 of 2





SECTION D–D



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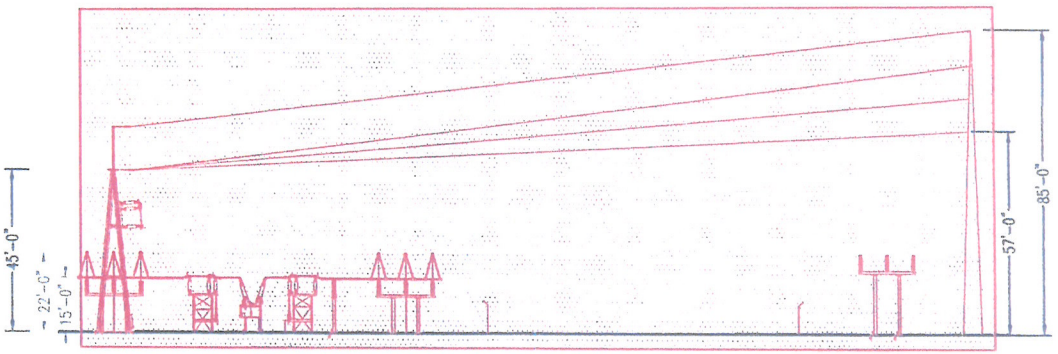

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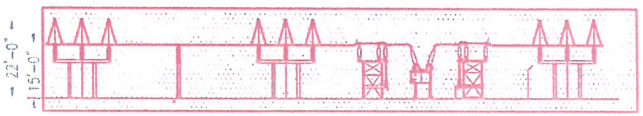

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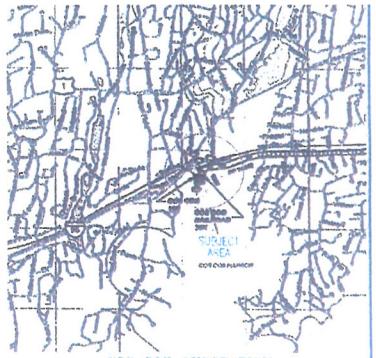

2015 Additions

EVERSOURCE ENERGY

COS COB
PLAN & SECTIONS
CONNECTICUT SITING COUNCIL
GREENWICH, CT

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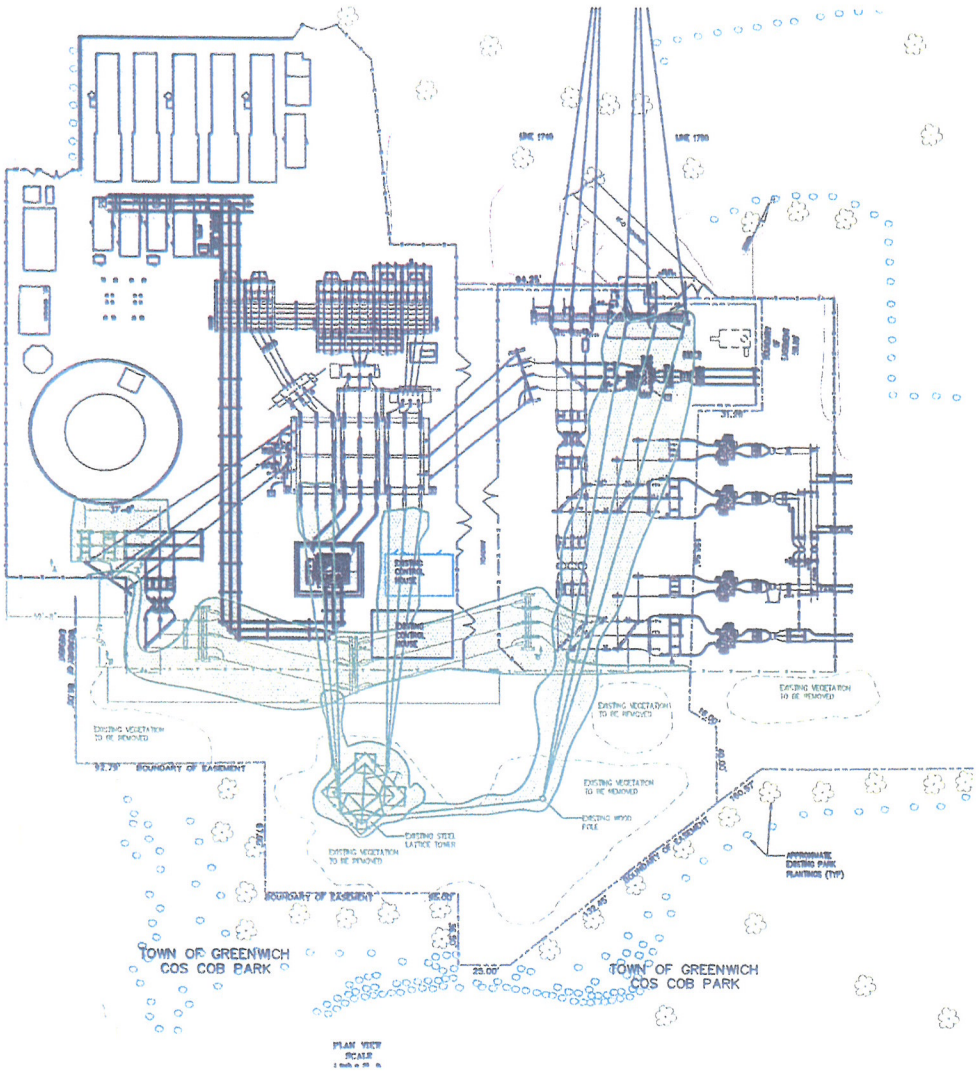

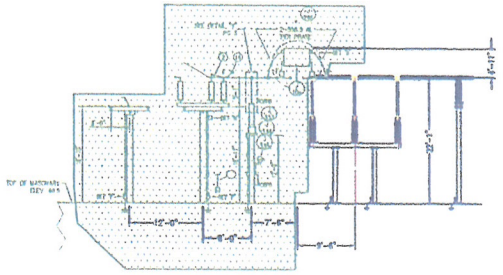

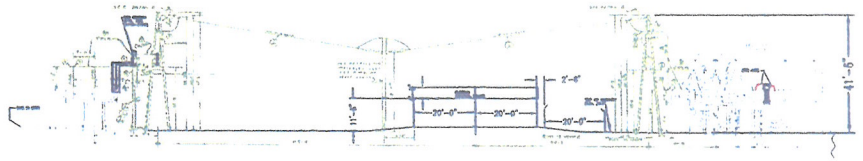

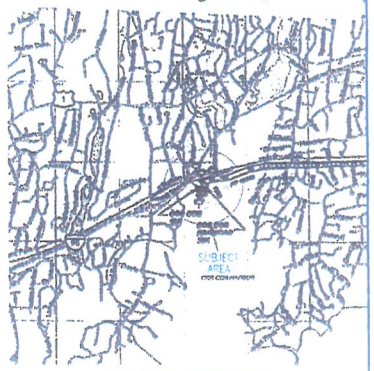

2015
Removals

EVERSOURCE ENERGY

COS COB
PLAN & SECTIONS
CONNECTICUT SITING COUNCIL
GREENWICH, CT

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15706-92003

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Regarding Application Appendix E, what proposed Eversource transmission line routes correspond to the routes listed in the DOT's letter? (the attached maps are illegible) . Has the DOT indicated a preference for any of the proposed transmission line routes?

Response:
The transmission line routes listed in the ConnDOT letter in Appendix E of the Application are the routes identified as North Easement, Variation 1 – South Easement, and Variation 2 – Middle Easement in the Overhead Metro-North Railroad Corridor sub-section of Section H.4.1, Overhead Routes Considered and Rejected, of the Application. Attached are more legible copies of the maps that are attached to the letter in Appendix E.

ConnDOT has not indicated a preference for any of the proposed transmission line routes. However, the letter in Appendix E indicates that ConnDOT "does not endorse the utilization of the I-95 corridor or the New Haven line corridor when there are other viable alternatives." Additionally, in a meeting on April 1, 2014, ConnDOT stated that a route with the least impact to ConnDOT facilities was preferred. The Preferred Route has the least impact to ConnDOT facilities.

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Dated 07/30/2015
Q-CSC-019, Attachment Page 1 of 4

CONCEPTUAL ROUTES **Legend**

North Easement
Middle Easement
South Easement

Parcels
Purchase Type
Fee Purchase
Easement
Parcels

N

0' 200' 300' 400' Feet

FOR DISCUSSION PURPOSES ONLY

Proposed Power Line
Cos Cob Substation to
Greenwich Substation

Page 1 of 4	Cornerstone
DRAWN BY: CS	SCALE: 1" = 200'
DATE: OCT 03, 2014	

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CONCEPTUAL ROUTES Legend

North Easement
Middle Easement
South Easement

Parcels
Purchase Type
Fee Purchase
Easement
Parcels

0' 200' 300' 400' Feet

FOR DISCUSSION PURPOSES ONLY

N

Proposed Power Line
Cos Cob Substation to
Greenwich Substation

Page 2 of 4	Cornerstone
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DATE: OCT 03, 2014	

CONCEPTUAL ROUTES Legend

North Easement
Middle Easement
South Easement

Parcels
Purchase Type
Fee Purchase
Easement
Parcels

0' 200' 300' 400' Feet

FOR DISCUSSION PURPOSES ONLY

N

Proposed Power Line
Cos Cob Substation to
Greenwich Substation

Page 3 of 4	Cornerstone
DRAWN BY: CS	SCALE: 1" = 200'
DATE: OCT 03, 2014	

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CONCEPTUAL ROUTES Legend

- North Easement
- Middle Easement
- South Easement

Parcels

Purchase Type

- Fee Purchase
- Easement
- Parcels

0' 200' 300' 400' Feet

FOR DISCUSSION PURPOSES ONLY

N

Proposed Power Line
Cos Cob Substation to
Greenwich Substation

Page 4 of 4	Cornerstone
DRAWN BY: CS	SCALE: 1" = 200'
DATE: OCT 03, 2014	

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
Was the state-owned property west of the intersection of Field Point Road and Horesneck Lane considered for a substation? Please explain.

Response:
No, the search area for the new substation was north of the railroad tracks due to the need to connect the substation to the existing distribution lines. In addition, the railroad bridge over Field Point Road to gain access to this state owned property is a very old narrow stone arch bridge with the large Horseneck Brook culvert under the roadway. Further review of this state owned site shows that it is between the I-95 corridor and the New Haven railroad corridor and the Department of Transportation correspondence dated January 23, 2015 states that "the Department does not endorse the utilization of the I-95 corridor or the New Haven line corridor when there are other viable alternatives." In addition, parcel specific correspondence dated August 7, 2015 from Department of Transportation explains that this "parcel property in question is required to serve the needs of the Department of Transportation. Therefore, this property is not anything the State would be willing to relinquish."

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:
What is the height of the current building on the 290 Railroad Avenue parcel? What is the existing front yard setback?

Response:
The height of the current building on 290 Railroad Avenue from the base of building to the first peak is 16.6 feet above ground and to the highest point is 21.5 feet above ground. The approximate setback from the Railroad Avenue curb is 35 feet.