

The United Illuminating Company
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November 30, 2006

Daniel Caruso, Esq.
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 317 – The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance, and Operation of a Proposed 115-kV/13.8-kV Electric Substation and Associated Facilities Located at 307 Wildflower Lane, Trumbull Connecticut

Dear Chairman Caruso:

Enclosed are an original and 20 copies of The United Illuminating Company's responses to the Wildflower Coalition and the Town of Trumbull's interrogatories (Set 2) and the pre-filed testimony of Richard J. Reed.

Very truly yours,

A handwritten signature in cursive script that reads "Charles Eves".

Charles Eves
Director, Strategic Planning
Electric System

cc: Service List (via electronic mail)

WCP Set Two
Interrogatory WCP-1

The United Illuminating Company
Docket 317

Witness: Charles Eves
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Q-WCP-1: What plans or projections has UI made for this area of the transmission system as it relates to the future size or the load switching/carrying capability of the proposed facility? Provide this information for increments of one year, 5 year and 10 year planning purposes, and provide copies of all written documentation evidencing same.

A-WCP-1: At present, UI does not have any plans to add to or enhance the transmission or distribution infrastructure capability of the proposed Trumbull Substation within the next 10 years. UI is planning to complete a ten year Transmission Plan by April 2007. The results of this plan will be incorporated into the Siting Council's forecast of loads and resources for 2007.

During the summer of 2006 UI as well as the rest of New England, experience load levels not predicted until the 2010 time frame. UI is currently studying the impacts of this increased load on our system, this analysis may result in new projects being added to UI's ten year plan.

The proposed Trumbull Substation due its strategic location in the 115 kV transmission grid would be one of the possible locations where additional transmission infrastructure may be needed.

WCP Set Two
Interrogatory WCP-2

The United Illuminating Company
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Q-WCP-2: Please explain how the proposed substation conforms to a long-range plan for expansion of the electric power grid serving the state and interconnected utility systems.

A-WCP-2: The proposed substation conforms to a long-range plan for expansion of the electric power grid serving the state and interconnected utility systems in the following three ways:

Distribution Substation Capacity

The substation provides the distribution substation capacity to eliminate the current overloads at Trap Falls and Old Town Substations and provide capacity to support electrical demand growth in the greater Trumbull region in the future.

Transmission Reliability

The proposed project provides a transmission reliability benefit by breaking down the existing 3 terminal 1730 line into 3 independently protected lines. As a result, where a failure now results in an outage to all three sections of the line, in the future, a failure will result in an outage on only one of the three sections of the line, preserving the flow of power on the other two sections

Transmission Capacity

The 115 kV three breaker ring bus design for the proposed project will accommodate a fourth breaker and fourth line into the substation. Trumbull Substation due to its strategic location on the 115 kV transmission grid is a possible location to accommodate an additional 115 kV line termination.

WCP Set Two
Interrogatory WCP-3

The United Illuminating Company
Docket 317

Witness: Charles Eves
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Q-WCP-3: Identify all correspondence and provide copies of all written communications with any regulatory or government agency regarding UI's future planning for any expansion, upgrades or improvements that would affect this proposed facility.

A-WCP-3: At present, UI does not have any plans to add to or enhance the transmission or distribution infrastructure capability of the proposed Trumbull Substation within the next 10 years. As such, no written correspondence or communications exist.

WCP Set Two
Interrogatory WCP-4

The United Illuminating Company
Docket 317

Witness: Charles Eves
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Q-WCP-4: Is the proposed substation being constructed with room for adequate room for expansion or is future additional expansion of the substation compound area possible?

A-WCP-4: The proposed substation is being designed to be able to accommodate possible future expansion within the 4.85 acre Wildflower Lane parcel.

WCP Set Two
Interrogatory WCP-5

The United Illuminating Company
Docket 317

Witness: Charles Eves
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- Q-WCP-5: If the substation was an open air substation:
- a. How far on the property could it be shifted to the:
 - i. north; and
 - ii. east
 - b. What would the resulting EMF levels be at the three closest residential property lines to the south at this new location?
 - c. What would the resulting noise levels be:
 - i. With mitigation and
 - ii. Without mitigation

- A-WCP-5:
- a.i. The substation could be shifted 20 feet to the north.
 - a.ii. The substation could not be shifted to the east because it would interfere with switching structure NB31.
 - b. See attached figure.
 - c.i. With mitigation - The change in the facility sound pressure levels due to shifting the equipment 20 feet north are estimated as follows.
 - North Residential Property Boundary: Approximately a 1 dBA increase, but still below the 45 dBA noise ordinance limit.
 - 1500 Huntington Turnpike Residential Home: Approximately a 1 dBA increase.
 - 6 Wildflower Lane Residential Home: Less than approximately a 1 dBA decrease.
 - 45 Stella Road Residential Home: Less than approximately a 1 dBA decrease.

These changes are relative to the facility sound levels if the facility was not shifted and remained in the current proposed location.

- c.i.i Without mitigation – UI has incorporated mitigation in the form of low-noise transformers. Studies have not been conducted to determine the higher levels associated with removing the mitigation, i.e. providing transformers with standard-noise ratings.

WCP Set Two
Interrogatory WCP-6

The United Illuminating Company
Docket 317

Witness: Charles Eves
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Q-WCP-6: If the substation was an gas insulated substation:

- i. How far on the property could it be shifted to the:
 1. north; and
 2. east
- ii. What would the resulting EMF levels be at the three closest residential property lines to the south at this new location?
- iii. What would the resulting noise levels be:
 1. With mitigation and
 2. Without mitigation

- A-WCP-6:
- i.1. The substation could be shifted 20 feet to the north.
 - 1.2. The substation could not be shifted to the east because it would interfere with switching structure NB31.
 - ii. A gas insulated substation would reduce the magnetic field within the substation fenceline. Since the dominant sources of the magnetic fields outside of the substation fenceline are the transmission lines, the answer is the same as in 5.b.
 - iii.1. From a noise standpoint, the GIS alternative is similar to the open-air option in that the transformers are located outdoors. In the GIS arrangement being considered, the transformers are located closer to the north boundary. However, one of the two transformers is shielded from the north boundary by the intervening GIS building. Therefore, the resulting sound levels for the GIS alternative are expected to be approximately equivalent to the sound levels for the open-air substation shifted 20 feet north.
 - iii.2. Please see response to Interrogatory WCP-5. (set 2)

WCP Set Two
Interrogatory WCP-7

The United Illuminating Company
Docket 317

Witness: Kathleen Shanley
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Q-WCP-7: Please identify examples of UI substations that are sited in dense residential areas similar to Wildflower Lane.

A-WCP-7: There are three categories of substation located in dense residential areas: Residential areas are identified as residentially zoned areas or transition areas that are immediately adjacent to residences or residential areas.

a. UI bulk substations

| Town | Substation Name | Address | Residential Area | Transition Area |
|------------|---------------------|--------------------------|------------------|-----------------|
| Bridgeport | Old Town Bulk Sub | 280 Kaechele Place | | yes |
| Fairfield | Hawthorne Bulk Sub | 160 Hawthorne Dr. (rear) | yes | |
| Hamden | Mix Avenue Bulk Sub | 690 Mix Avenue | yes | |
| New Haven | Quinnipiac Bulk Sub | 1100 Quinnipiac Avenue | yes | |
| Shelton | Trap Falls Bulk Sub | 104 Armstrong Road | yes | |

b. UI distribution substations

| Town | Substation Name | Address | Residential Area | Transition Area |
|-------------|--------------------------|---------------------|------------------|-----------------|
| Bridgeport | Carnegie Dist. Sub | 31 Carnegie Avenue | | yes |
| Bridgeport | Freeman Street Dist. Sub | 106 Freeman Street | | yes |
| Bridgeport | Jackson Avenue Dist Sub | 107 Jackson Avenue | | yes |
| Fairfield | Tunxis Hill Dist Sub | 5 York Road | | yes |
| Hamden | Whitney Ave Dist Sub | 915 Whitney Avenue | yes | |
| Milford | Noble Avenue Dist Sub | 91-95 Noble Avenue | | yes |
| New Haven | Court Street Dist Sub | 88 Olive Street | | yes |
| New Haven | Fair Haven Dist Sub | 362 Ferry Street | | yes |
| North Haven | Maiden Lane Dist Sub | 11 Maiden Lane | | yes |
| Stratford | Canal Street Dist Sub | Canal Street | | yes |
| Stratford | Lordship Dist. Sub | 940 Stratford Road | | yes |
| West Haven | Jones Hill Dist Sub | 637 Jones Hill Road | yes | |

c. UI transmission switching stations

| Town | Substation Name | Address | Residential Area | Transition Area |
|-----------|------------------------|--------------------|------------------|-----------------|
| New Haven | West River Trans Sub | 255 Blvd. Overpass | | yes |
| Trumbull | Trumbull Tap Trans Sub | Nichols Ave - Rear | yes | |

WCP Set Two
Interrogatory WCP-8

The United Illuminating Company
Docket 317

Witness: Chuck Eves
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Q-WCP-8: Does UI believe the siting and growth of electric infrastructure of this size is better suited for a dense residential area or an industrial area?

A-WCP-8: In establishing a proposed site for a substation facility the Company considers balancing the need for adequate and reliable public utility services at the lowest reasonable cost to consumers with the need to protect the environment and ecology of the state and to minimize damage to scenic, historic, and recreational values.

WCP Set Two
Interrogatory WCP-9

The United Illuminating Company
Docket 317

Witness: Kathleen Shanley
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Q-WCP-9: If the proposed substation were located at the Quarry Road (Site 11) identify if any of the following would result:

- a. Wetlands impacts;
- b. Historic impacts;
- c. Scenic impacts;
- d. Mature tree/vegetation removal;
- e. Residential impact within a radius of 750 feet;
- f. Proximate noise impacts; and
- g. Proximate residential EMF impacts.

A-WCP-9: UI objects to this interrogatory since UI is not seeking approval to construct the substation on the Quarry Road (Site 11) site and consequently has not undertaken any formal assessment of this property. Notwithstanding the foregoing objection, UI believes that the property does not contain any wetlands, but lies within the 100 year flood plain. UI believes that the nearest resident is located approximately 1000± feet east/southeast of the site.

WCP Set Two
Interrogatory WCP-10

The United Illuminating Company
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Witness: Chuck Eves
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Q-WCP-10: If the proposed substation is approved for the Quarry Road site is it technically feasible to relocate the switching station to Quarry Road? Are there technical benefits or efficiencies to doing so?

A-WCP-10: If the proposed substation is approved for the Quarry Road site it is technically feasible to relocate the switching station to Quarry Road.

Relocating the junction requires the extension of the transmission system which increases costs and adds reliability exposure. As a result, the Company sees no technical benefits or efficiencies in this relocation.

WCP Set Two
Interrogatory WCP-11

The United Illuminating Company
Docket 317

Witness: Charles Eves
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Q-WCP-11: If the proposed substation was approved for Quarry Road, is the undergrounding that UI has described and provided cost estimates for the only way to provide transmission or are there alternatives?

- a. If this is the only method available, please explain why.
- b. If alternatives are available, please detail what methods are possible?

A-WCP-11: This question is addressed in the pre file testimony of Richard J. Reed, dated 11/30/2006. Please refer to this testimony.

WCP Set Two
Interrogatory WCP-13

The United Illuminating Company

Docket 317

Witness: Charles Eves
Kathleen Shanley
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Q-WCP-13: Is there any reason why that access cannot be used for the substation?

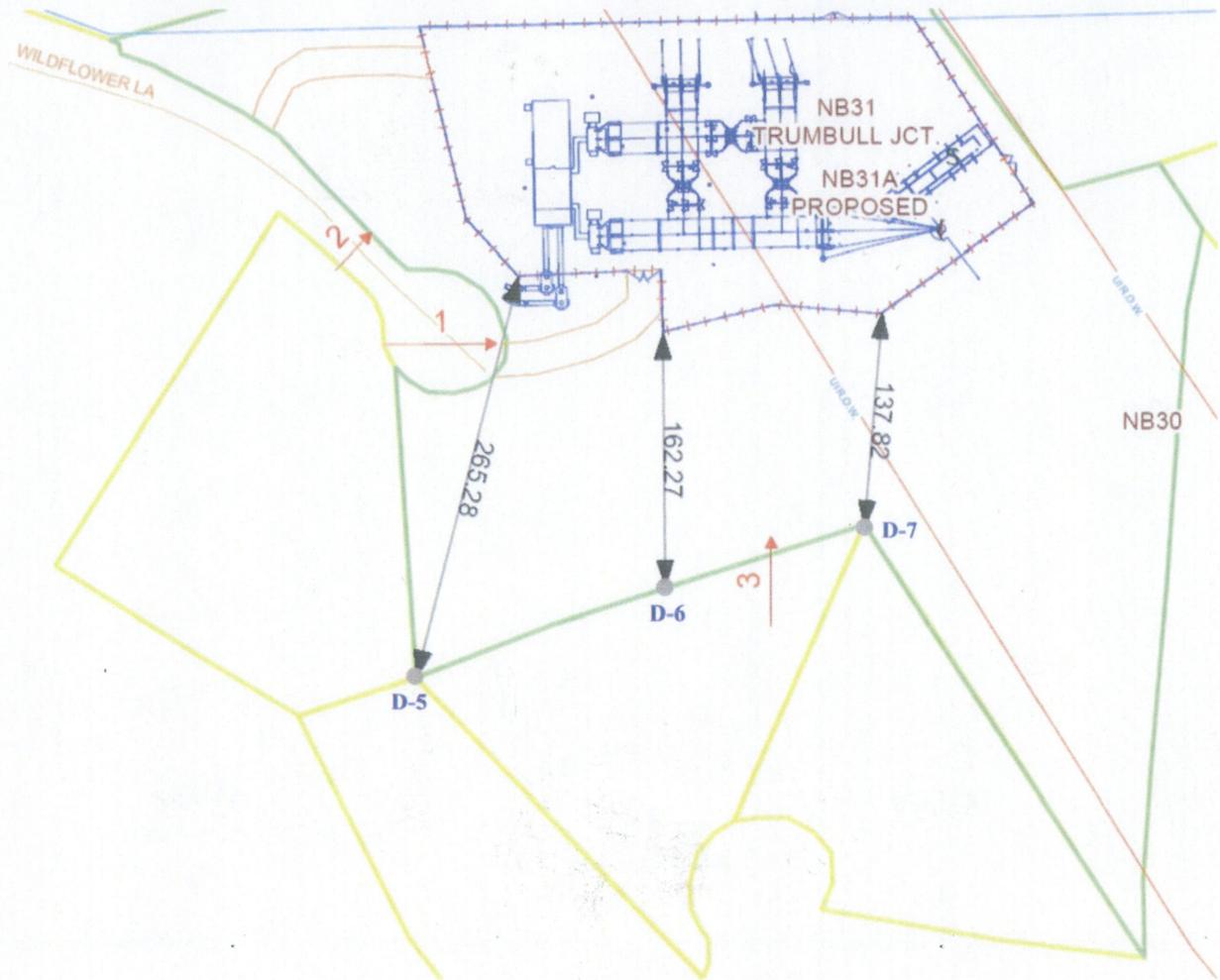
A-WCP-13: Assuming that the State of Connecticut easement allows UI to improve the access road and use it as the permanent primary entrance to the proposed substation, it can be used as a means of substation access.

The primary design constraint for the substation access is the turning radius of UI's mobile substation transformer. In an emergency condition, the mobile transformer must be able to pull in next to the transformers under the 115 kV bus. The distances between the fenceline and substation structures must be sufficient to accommodate the turning radius of the mobile substation trailer.

One potential design for substation access would be to arrive and exit the substation from Nichols Ave. In order to accommodate the turning radius of the mobile transformer the fenceline along the northern and southern boundaries must be expanded approximately 20' each.

A sketch of this design with the turning radii is included below:

This design would also require UI to negotiate an easement with the State of Connecticut to pass from UI's property line at the easterly fence boundary, back to the existing access easement.



Summary of Calculated Magnetic Field for Existing and Proposed Conditions – Substation Relocated 20 Feet to the North

| Reference point | Calculated Magnetic Field- mG | | | | | |
|--------------------------------|-------------------------------|---|---|---|---|---|
| | 2003 Load | 2003 Load | Normal Load (15 GW) | | Peak Load (27 GW) | |
| | Case #1: Existing Conf. | Case #2: “Pre-Bethel/ Norwalk” (with Trumbull) | Case #3: “Post- Bethel/ Norwalk” | Case #4: “Post- Middletown/ Norwalk” | Case #3: “Post- Bethel/ Norwalk” | Case #4: “Post- Middletown/ Norwalk” |
| Point “D-5” (39 Stella Street) | 0.2 / 0.2 | 0.3 / 0.3 | 0.3 / 0.3 | 0.2 / 0.2 | 0.6 / 0.6 | 0.3 / 0.3 |
| Point “D-6” (45 Stella Street) | 0.3 / 0.3 | 0.5 / 0.5 | 0.5 / 0.5 | 0.3 / 0.3 | 0.8 / 0.8 | 0.5 / 0.5 |
| Point “D-7” (52 Stella Street) | 0.4 / 0.4 | 1.8 / 1.8 | 1.2 / 1.1 | 0.9 / 0.9 | 1.3 / 1.3 | 1.0 / 0.9 |

NOTE: The calculated magnetic field levels at Points D-5, D-6 and D-7 by moving the substation from the proposed location appear in **red**. The original values appear in black. The distances shown from the substation fenceline to the property lines are increased by 20 feet.

WCP Set Two
Interrogatory WCP-14

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Witness: Charles Eves
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Q-WCP-14: What would the construction cost be to create a suitable grade for access to the site over the DOT easement?

A-WCP-14: The construction cost to create a suitable grade and loading capability for access to the site over the State of Connecticut easement would be approximately \$378,000.

WCP Set Two
Interrogatory WCP-15

The United Illuminating Company
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Witness: Kathleen Shanley
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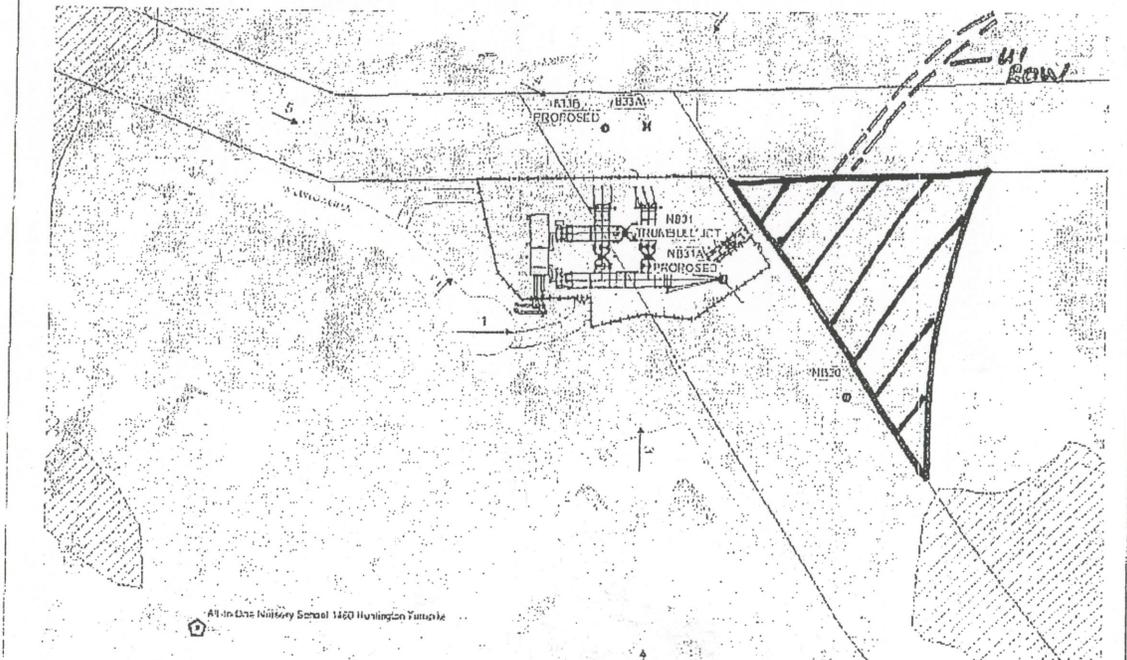
Q-WCP-15: Refer to Application Exhibit L.

- a. Identify who owns the parcel(s) of property that comprise the triangular section of property at the junction of and to the east of the UI right of way and the south of the CL&P right of way.
- b. Confirm the aggregate size of all of the size of the parcels comprising the triangle.
- c. Identify whether UI ever considered this site as a possible location for the substation, particularly since it already had access rights to the property.
- d. Confirm whether UI ever did any studies, test or analysis on this site
- e. As this site is at the same junction of the UI and CL&P transmission lines, doesn't it offer the claimed technical benefits as the Wildflower Lane site?

A-WCP-15:

- a. The State of Connecticut owns the parcels immediately to the east of UI right of way.
- b. Based on a drawing received from the Wildflower Coalition Petitioners, the size of the referenced triangle is 1.45 acres. This drawing is included below:
- c. Based on previous inquiries by UI, the State of Connecticut has indicated that it is not willing to give up any land that might be required for future highway improvements. UI again made a request of the Department of Transportation Property Management Division, asking the agency to respond to this question at this specific location. A response has not been received.
- d. No.
- e. In general, the location of the parcel would allow for the transmission benefit associated with the Wildflower Lane site.

Trumbull Substation Proposed Site
3 - 7 Wildflower La, Trumbull CT



WCP Set Two
Interrogatory WCP-16

The United Illuminating Company
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Witness: Chuck Eves
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Q-WCP-16: In its responses to CEAB, UI represents this substation will result in an anticipated savings of \$226,000 in transmission costs. Has the cost of the project been credited in an amount equal to this savings?

A-WCP-16: The design of the substation at Site 1 will allow the Company to serve a portion of the load that is currently served from CL&P transmission lines, from transmission lines the Company owns. The Company estimated that this will result in a reduction of the fees UI currently pays CL&P for transmission access of \$226,000. This is not a reduction to the cost of the project, and as such, the estimates for the project have not been credited.

WCP Set Two
Interrogatory WCP-17

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Witness: Charles Eves
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Q-WCP-17: Confirm the following UI substations are fed by CL&P 115 kV lines: Hawthorne, Old Town, Trap Falls, Indian Well, Ansonia, and June Street.

- a. Explain why the proposed substation at Quarry Road could not similarly be fed by the existing CL&P transmission lines at Quarry Road.
- b. Confirm how the predicted transmission costs would be impacted if the proposed substation was fed by the existing CL&P transmission lines at Quarry Road

A-WCP-17: Yes the following UI 115/13.8 kV substations are supplied by CL&P 115 kV lines: Hawthorne, Old Town, Trap Falls, Indian Well, Ansonia and June Street.

- a. The Quarry Road substation could similarly be supplied by existing CL&P 115 kV transmission lines.
- b. The differential transmission costs between Site 1 and Site 11 Quarry Rd, consist of the two deadend structures required to direct the existing 1730 line into and out of the substation. This cost was estimated to be \$486,000