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May 17, 2022

Melanie A. Bachman, Esq.
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 508 - The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project

Dear Ms. Bachman:

Enclosed for filing with the Connecticut Siting Council ("Council") are The United Illuminating Company's Late Filed Exhibits 1 through 4.

An original and fifteen (15) copies of this filing will be hand delivered to the Council.

Should you have any questions regarding this filing, please do not hesitate to contact me.

Very truly yours,



Bruce L. McDermott

Enclosures

cc: Service List

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Q-LF-1: Describe the process of how the proposed transmission structure heights were determined for the Project, and include the various considerations in that process

A-LF-1: The Project has many design considerations that impact the heights and positions of the structures. Of these, the most important was the continued co-location, to the maximum extent practical, of the rebuilt 115-kV lines within the CT DOT corridor. Within and along the CT DOT corridor, other factors that UI considered in the design of the Project included existing topography; the existing built environment inclusive of buildings, roads, parking lots, cemeteries, and overpasses; both underground and overhead utilities; and the existing natural environment including wetlands and watercourses.

Transmission pole conceptual locations during design were used to minimize impacts to both the built and natural environments.

Further design considerations included allowing for ease of access to pole locations with minimal earthwork and maximizing the alignment of the rebuilt 115-kV lines within the CT DOT property, thereby minimizing the amount of new right-of-way (ROW) that UI would need to acquire from landowners adjacent to the railroad corridor. Once the poles had been aligned with the other relative design criteria UI could begin height optimization.

Height optimization was performed by placing generic poles at every pole spotting location and adjusting each pole height in 5' increments. For example, if analyses of the initial spotting of the structure resulted in no clearance violations (either to the Metro-North catenary structures, the ground, or other above-ground features), its height was reduced until it did experience a clearance violation, and then backed up one increment to mitigate the violation.

If at first the structure did experience a clearance violation, the structure height was increased until the violation was mitigated. In some cases, it was better to reposition the structure entirely rather than to change its height. In general, structures positioned transversely farther away from the railroad catenary structures were able to be lower in height than structures positioned closer to the railroad catenary structures. See Attachment LF-1-1.

Structure heights were then adjusted accordingly to eliminate excessive insulator swing and conductor uplift. This was generally accomplished by raising the height of the structure. It should be noted that insulator swing and uplift do not have to be considered at dead-end structures.

This design process was iterated numerous times as structures were repositioned to allow for better construction access, or when structures were eliminated entirely due to being in an inaccessible location or to minimize environmental and cultural impacts. On each iteration, structure heights were reduced as much as possible such that they would not create any clearance violations or result in uplift in any of the conductors or shield wires.

Along with the above referenced design criteria and methodologies, UI also conducted multiple meetings (both field and office) with local and State stakeholders to discuss opportunities for improvement relative to minimizing the Project's footprint and potential impacts. The following are some of the meetings with stakeholders that UI used to assist in the design of the current Project double-circuit alignment:

- a) Bi-weekly CT DOT/MNR Project meetings
- b) State of Connecticut Department of Energy and Environmental Protection
- c) Connecticut State Historic Preservation Office
- d) City of Milford
- e) City of New Haven
- f) City of West Haven
- g) Town of Orange

Q-LF-2: Under scenarios where the structure heights were minimized (while maintaining compliance with all applicable codes and standards) for the Downtown Milford area only (1" = 400' Scale Maps, Map 2 of 9) and for the entire 9.5-mile project, provide a list of the total number of additional project structures required, where the structures could be located, the respective heights of the additional project structures, any resulting changes to project EMF levels from lowering the structure heights, and the estimated total cost of the project under each of these scenarios.

A-LF-2: If the structure heights are further minimized for the Downtown Milford locations and for the entire 9.5-mile Project, a number of additional structures would have to be added to the Project. It should be noted that this information is preliminary: further due diligence would have to be conducted to ensure that no underground utilities or other obstructions are located at the additional pole locations.

Accordingly, the following are the locations along the Project route (progressing west to east) where monopoles would be added.

Downtown Milford:

Three structures would need to be added to further minimize the height of structures P904N, P905N, P906N, P908N and P910N. In addition, the locations of P908N and P912N would have to change. Two of the three new structures would be located west of High Street, adding structures adjacent to existing catenary structures 907 and 909. These structures would be placed in the grassy bump-outs within the parking area. Parking spaces may be lost due to required clearances. The third new structure would be located east of High Street in the grassy median north of Milford Train Station. These new structures would range from 105' to 110' tall, while structures P904N, P905N, P906N, P908N and P910N could decrease in height between 10' and 25' depending on location.

Milford Cemetery:

In order to further minimize the height of structures P915N, P916N, and P918N, structures P916N and P918N would have to move further north away from the existing catenary structures, or an additional structure would have to be added between catenary structures 916A and 917. Based on UI's prior due diligence activities, this additional structure would be located near an unmarked potential cultural resource. This additional structure would have to be approximately 110' in height in order to decrease the height of the 3 proposed structures (P915N, P916N and P918N) by 15'-25' depending on location.

Indian River:

In order to further minimize the height of structure P934N, two new structures would have to be added, one by catenary structure 933, on the west bank of the Indian River, and one by catenary structure 935. Both of these poles would be located within the tidal wetland complex associated with the Indian River. The two additional structures to be added based on minimizing heights within the Indian River wetland complex will have both temporary and permanent tidal wetland, floodplain and watercourse impacts along with needed species mitigation.

City Carting:

To further minimize the height of structures P940N, P942N, and P944N, an additional four poles would have to be added. The poles would have to be placed adjacent to catenary structures 939, 941, 943, and 945. These additional poles would be approximately 105' in height, while the three proposed structures listed above would decrease in height between 10' and 20' depending on location. However, adding these structures would limit future vehicular travel within the CTDOT corridor south of the property located at 125 Old Gate Lane. In addition, one of the additional poles would have to be located on private property located at 221 Old Gate Lane due to the proposed rail spur realignment project at that location.

Morgan Lane and Heffernan Drive:

To further minimize the height of structure P994N, this structure would be moved to be adjacent to catenary structure 994 and an additional pole would have to be placed adjacent to catenary structure 995. As part of UI's prior due diligence activities, it was decided to eliminate P995N due to the tight work area, surrounding overhead obstructions, clearance to the roadway, and the adjacent watercourse. If P995N were to be re-added, these two poles would be approximately 105' in height.

West River:

To further minimize the height of structures P1043N, P1045N, and P1047N, two to three new structures would have to be added and placed within the wetland complex associated with the West River. One structure would have to be located immediately adjacent to the west bank of the West River. The two to three additional structures within the West River wetland complex will have both temporary or permanent tidal and inland wetland, watercourse and floodplain impacts along with needed species mitigation.

In general, adding additional pole(s) will allow UI to lower the overall structure height in given areas. However, this height decrease will be no more than 25'.

These proposed poles will be at their lowest possible height when they are adjacent to the existing catenary structures with no longitudinal offset. However, existing terrain, environmental features, and the built environment do not allow this in certain locations.

General:

In general, it can be estimated that each additional structure would increase the Project cost between ~\$1.7 and \$1.9 million depending on the pole height. If UI aligned a steel pole at each catenary location along the existing CTDOT corridor using the approximate 300-foot span length, catenary to catenary an additional 22 structures would be added to the Project, increasing the total cost by ~\$37.4 - \$41.8 million.

As it relates to EMF, UI used 23 feet vertical clearance for 115 kV lines. However, in order to maintain safe clearance from adjacent MNR wires a minimum ground clearance of 34 feet was conservatively assumed for EMF calculations during UI's study. At most locations the conductor clearance to ground would be much greater. UI has confirmed that the minimum 34-foot ground clearance can be maintained through engineering design, including the use of additional structures. As such, the EMF levels calculated and reported in *Appendix E - Electric- and Magnetic-Field Report* of the Application will not change.

Late Filed Exhibit 3

The United Illuminating Company
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Witness: Shawn Crosbie
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Q-LF-3: Estimate the total number of non-standard work hour days (e.g. extended or 24-hours days) that UI expects would be necessary to complete the Project, or alternatively, estimate the percentage of the work days that would require non-standard work hours.

A-LF-3: An estimated 50% percent of the total Project work days may have to be performed outside of standard transmission line construction hours (that is, outside of the typical construction timeframe of 7 a.m. – 7 p.m., Monday-Saturday). The non-typical work would be required principally to conform to MNR / CT DOT requirements for minimizing impacts to rail operations.

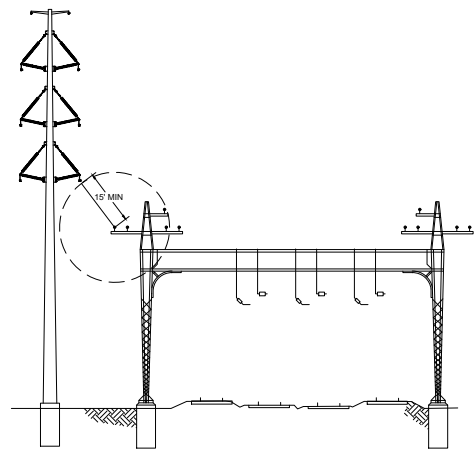
Late Filed Exhibit 4

The United Illuminating Company
Docket No. 508

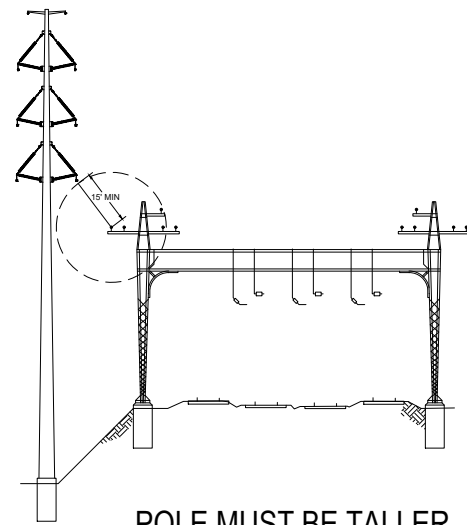
Witness: Shawn Crosbie
Page 1 of 1

Q-LF-4: Estimate the percentage of the regionalized cost for the Project that would be borne by Connecticut ratepayers while taking into account and including Connecticut's percentages of the loads on the transmission owners' systems.

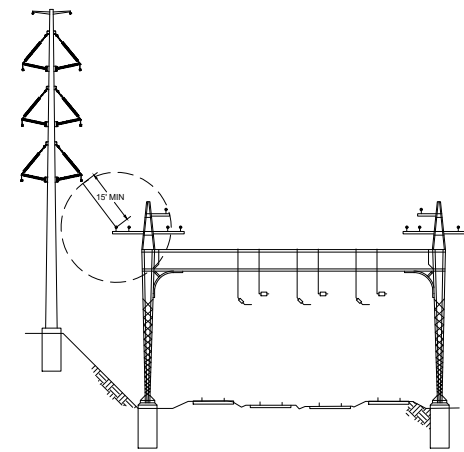
A-LF-4: Based on their share of the loads in New England, retail electric customers in Connecticut would bear approximately 24% of regionalized Project costs.



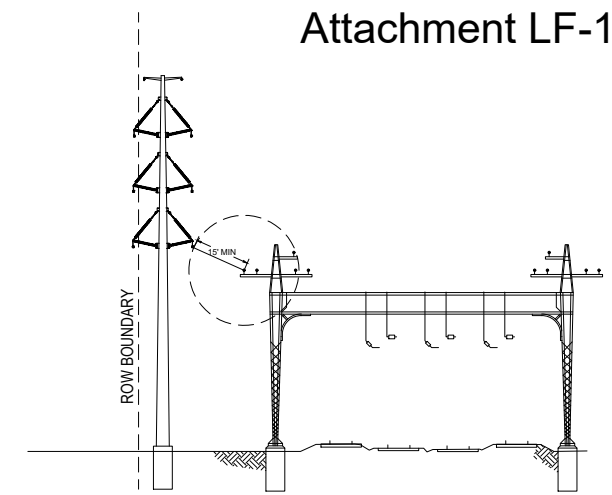
AVERAGE-HEIGHT POLE
(IDEAL TOPOGRAPHY)



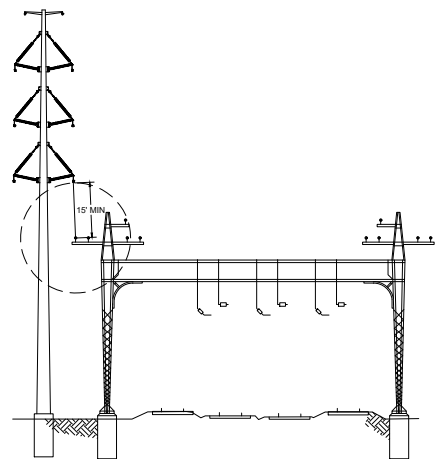
POLE MUST BE TALLER



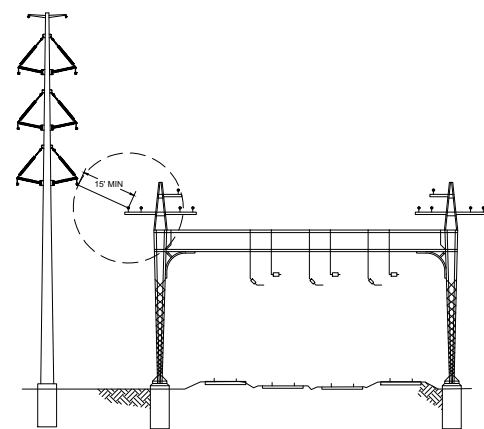
POLE MAY BE SHORTER



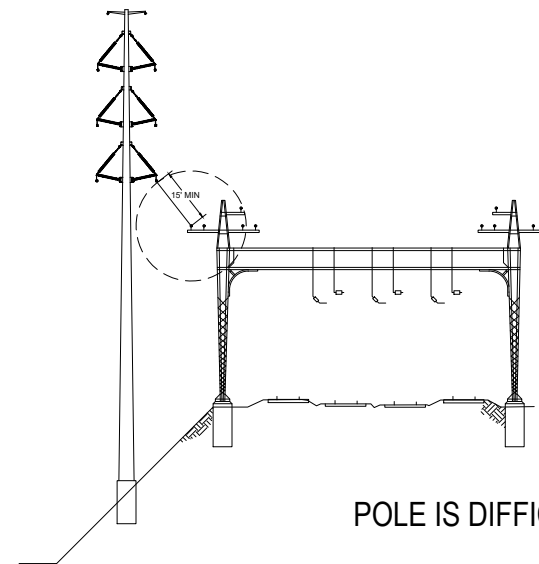
POLE EXCEEDS ROW BOUNDARY
OFFSET MUST BE DECREASED



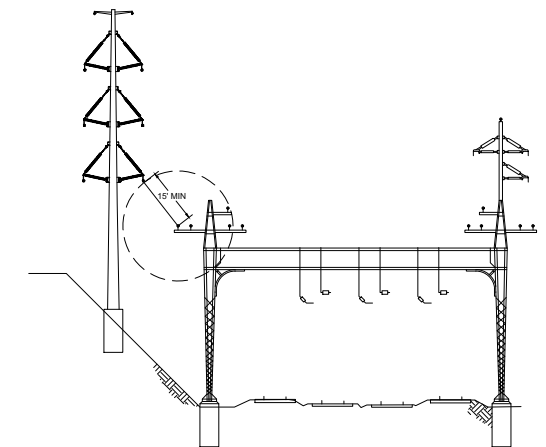
POLE OFFSET DECREASED
POLE MUST BE TALLER



POLE OFFSET INCREASED
POLE MAY BE SHORTER




POLE IS DIFFICULT TO ACCESS WITHOUT EARTH WORK



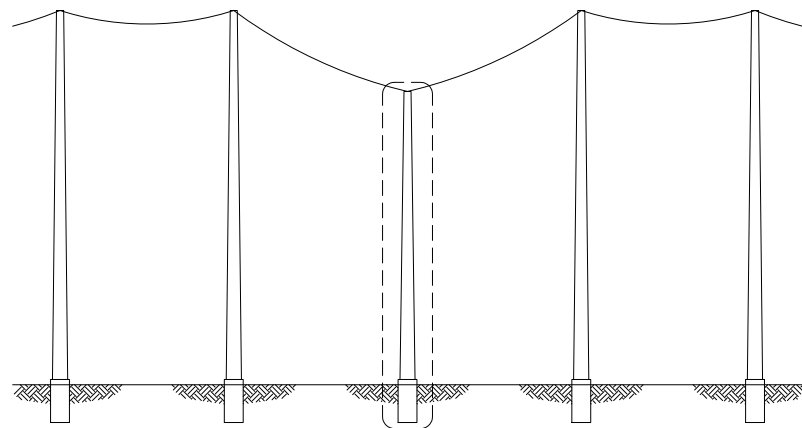
CADD Drawing, DO NOT REVISE MANUALLY.

ANSI B

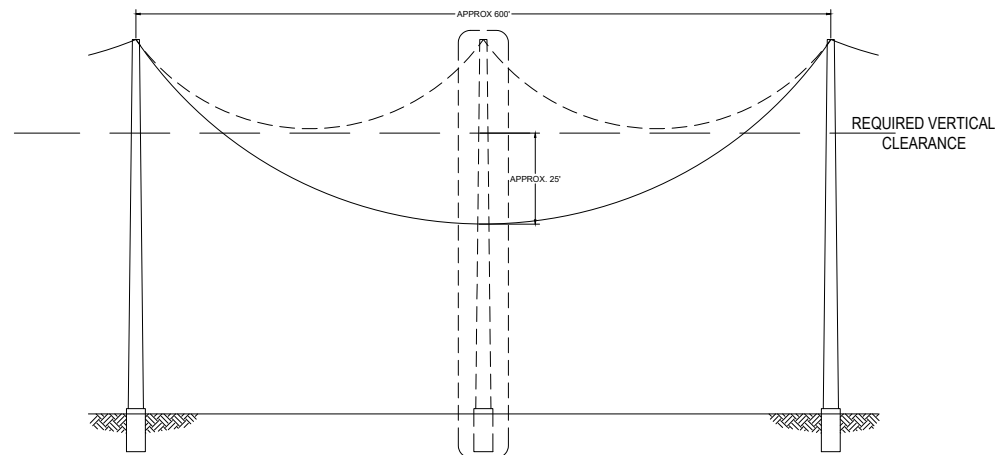
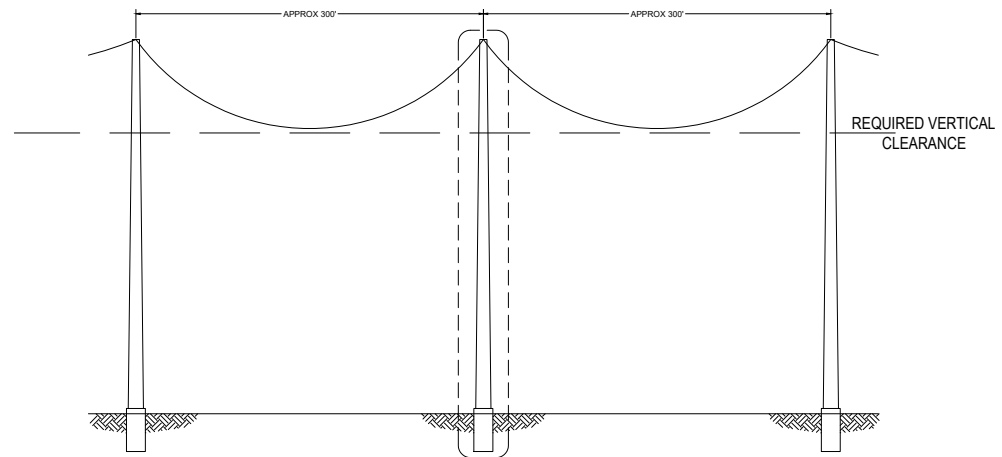
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												UI 115 KV RAILROAD PROJECT MILVON TO WEST RIVER			
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CADD Drawing, DO NOT REVISE MANUALLY.


ANSI B



POLE WILL EXPERIENCE UPLIFT
UNLESS IT IS A DEADEND STRUCTURE



WHEN A SPAN IS INCREASED FROM APPROXIMATELY 300' TO APPROXIMATELY 600' BY REMOVING A STRUCTURE, ADJACENT STRUCTURE HEIGHTS MAY INCREASE BY AS MUCH AS ABOUT 25' EACH.

						PE Stamp					SHEET 2 OF 2					
REV.	DESCRIPTION	DATE	BY	CK	APP	OWNER ENGINEER:	APPROVAL STAMP:					UI 115 KV RAILROAD PROJECT MILVON TO WEST RIVER				
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