
**Addendum
to the
LandWorks Visual Assessment
for the
Seacoast Reliability Project**

October 7, 2016

Prepared for

Public Service Company of New Hampshire,
doing business as Eversource Energy (“PSNH”)

Prepared by

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I. ADDENDUM TO LANDWORKS VA

SEACOST RELIABILITY PROJECT VISUAL ASSESSMENT

The purpose of this Addendum to the Project Visual Assessment (VA) is to provide revisions to the VA based on the design changes to the Project submitted to the SEC in the Application Amendment dated October 7, 2016.

A. Changes to the Project Design

The redesign of the Project as presented in the amended application includes 3 key changes that are subject to aesthetic review for visual effect, including:

1) DESIGN CHANGES TO THE OVERHEAD CONFIGURATION IN DURHAM AND NEWINGTON

Line design changes have occurred to the overhead line design in the Town of Durham. The changes include alterations to the Project design beginning of the side-by-side configuration, where the 115kV line and 34.5kV line are on separate structures, near Durham Point Road to Structure 91 instead of Structure 93 as originally proposed. This allows for longer span lengths and the elimination of proposed structure 92. Near Fox Point Road in Newington, the section between Structures 116 and 118 was redesigned to eliminate Structure 117 located in the middle of the open field. At Route 108 the design of the 34.5kV line was modified to reduce wetland impacts and conform to newly completed distribution line and road construction at the transmission line crossing.

2) UNDERGROUNDING IN NEWINGTON AT GUNDALOW LANDING

The second proposed change is on the Newington side of the Little Bay crossing. The Project crosses under Little Bay from Durham to Newington. After crossing the Bay, the Project will leave the ROW at Gundalow Landing Road, continue underground in the street, and utilize a portion of private property until reaching Little Bay Road. After crossing under Little Bay Road, the Project will continue underground across property owned by the Town of Newington, NH. The underground segment on Town land east of Little Bay Road is approximately 440 feet, extending to a point where the Project will transition back to overhead on the northeast side of the existing ROW and rejoin the existing ROW in an overhead design. The length of this underground segment from Little Bay to the transition structure is approximately 1,800 feet

3) UNDERGROUNDING IN THE NEWINGTON HISTORIC DISTRICT

The overhead design will continue from the transition structure as described in the original application within the existing ROW, for 2,820 feet. After crossing onto property owned by The Frink Family Trust of 2004, Helen H. Frink and John D. Frink, individually, and William H. Ryder and Sara F. Ryder, as Trustees of The Ryder Family Revocable Trust (Frink Farm) the line will transition to an underground design. The Project will continue underground within the existing ROW across the Frink Farm property and the Newington Center Historic District, crossing Nimble Hill Road underground and continuing in existing ROW beyond Hannah Lane residential neighborhood for a total distance of approximately 2,680 feet where the Project will transition back to an overhead design. A transition structure will be placed near an existing utility pole located approximately 1,200 feet east of Nimble Hill Road.

B. Analysis of Changes to the Project Design

A review of the Project design changes was conducted within the parameters of Site 301.05 and relied on the field work and analysis and resource identification presented in the “Visual Assessment for the Seacoast Reliability Project” as prepared for Public Service Company of New Hampshire d/b/a Eversource Energy, by LandWorks and as filed with the original application as Appendix 32. Additional follow-up site visits, review of engineering documents, and desktop analysis using 3D modeling, aerial photography and Google Earth imaging were also conducted to analyze the potential impact of the design changes.

1) DESIGN CHANGES TO THE OVERHEAD CONFIGURATION IN DURHAM AND NEWINGTON

The conclusions reached in the initial analysis have not changed with the revisions to the overhead configuration in Durham. Only one resource is present in this area that has any potential for visual effect resulting from the Project, Durham Point Road, which is identified as a scenic road. LandWorks initially concluded that the visual effect in this portion of the corridor was low and does not result in an unreasonable adverse effects; LandWorks conclusion has not changed as a result of this line re-design. The proposed changes are a direct result from local input from town officials and property owners. The side-by-side configuration translates into lower overall structure and conductor heights keeping the Project elements near to or below the treeline of the existing right-of-way. Eliminating structure 92 reduces the overall visual presence of the Project in this section as well. Additionally, this portion of the route runs in a mostly wooded area and does not have extensive visibility. The change in the Route 108 crossing results in a minimal visual change from the previously proposed configuration and the corresponding effect to the viewer will be minimal as well. The elimination of structure 117 in the open field near top Fox Point Road will result in slight increase in height for structures 116 and 118 but the elimination of structure 117 takes it out the middle of the field when viewed from Nimble Hill Road and this represents a distinct improvement visually.

2) UNDERGROUNDING IN NEWINGTON AT GUNDALOW LANDING AND LITTLE BAY ROAD

The relocation of the transition structure and underground routing onto the Town of Newington’s Flynn Pit property sets the Project structure further back from the Little Bay shoreline and well to the east of Little Bay Road. The conclusion in the LandWorks VA as submitted found no substantive issues with this particular site. Although the original location of the transition structures was proximate to Little Bay Road, the undergrounding through the Gundalow Landing neighborhood was considered to be a substantial and effective avoidance and minimization measure; the transition structures as originally proposed were not intrusive on views to the Bay from nearby residences or the road or views from the Bay itself towards this area. In the new configuration the undergrounding will be extended further to the east – about 440 feet from where the riser/transitions structure was originally proposed and a landscape mitigation plan has been developed by LandWorks (“Flynn Pit Proposed Planting Plan”, dated June 2, 2016) to reduce the visibility and perceived opening of the cleared PSNH ROW. This will de-emphasize the presence of the Project in this area and greatly reduce any perceived visual change. Thus, it can be concluded that there is a net gain in terms of visual quality insofar as structures are now more removed from the neighborhood.

3) UNDERGROUNDING IN THE NEWINGTON CENTER HISTORIC DISTRICT

The changes in the Newington Center Historic District also represent a net gain in visual quality over the previously proposed overhead route. The undergrounding of the section through the Historic District for approximately 0.51 miles represents a substantial avoidance and minimization measure. Our previous conclusion is not altered - that the Project as proposed initially would result in a moderate to high visual effect and a low to moderate effect overall in terms of viewer effect in this area. When a project is located underground it eliminates all but the transition structures from view – and the locations of the newly proposed transition structures at either end of the underground section are such that they would not be overly obtrusive and they will be accommodated by existing woodlands at the western transition point and at the edge of a wooded portion of the ROW at the east.

4) Change in Visual Effect

The scenic resources with an overall sensitivity rating of moderate-high or high as determined in our original VA that will be specifically affected by the design change in this amendment include Little Bay Road in Newington and to a much lesser extent Stratham Hill Fire Tower in Stratham. The change in effect the amended design will have on these resources is outlined in the following analysis, which follows the methodology outlined in our VA.

TABLE I. SENSITIVE SCENIC RESOURCES AFFECTED BY THE DESIGN CHANGE

SCENIC RESOURCE	OVERALL SENSITIVITY RATING
1. Little Bay Road (#45)	MODERATE-HIGH
2. Stratham Hill Fire Tower (#181)	MODERATE-HIGH

A. SCALE AND SPATIAL PRESENCE

The ‘scale and spatial presence’ of a project can be determined by considering the following sub-criteria, in combination with the factors of distance and contrast:

(1) Vertical Scale Relationship

Each key view from a resource identified as having moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

- a. Over 50% of new visible transmission structures appear significantly taller than existing visible transmission structures or adjacent landscape elements where existing transmission structures are not visible (50%+ taller, measuring visible portion of structure only)
 - 3 points if most are within .5 mile
 - 2 points if most are within 1 mile
 - 1 point if most over 1 mile away
 - 0 points if does not apply

NOTE: For structures more than .5 mile away, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures (do not alter score if structures are “skylined”)

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TABLE 2.1 VERTICAL SCALE RELATIONSHIP

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	3	0
2. Stratham Hill Fire Tower (#181)	0	0

- b. Where this was not the case with existing structures, new structures have the potential to result in the perception that they are “towering over the observer,” which is defined as the condition where the ratio of the structure’s height (above the observer) to the observer’s distance from the structure is greater than 1:2 (e.g. 1:1.5)¹.
- 3 points if this condition applies, where the existing structure was not previously visible)
 - 2 points if this condition applies, where the ratio of the existing structure’s height to the observer’s distance from the structure was previously greater than 1:4 (e.g. 1:5).
 - 1 point if this condition applies, where the ratio of the existing structure’s height to the observer’s distance from the structure was previously between 1:2 and 1:4 (e.g. 1:3)
 - 0 points if this condition does not apply

TABLE 2.2 VERTICAL SCALE RELATIONSHIP

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	0	0
2. Stratham Hill Fire Tower (#181)	0	0

(2) Spatial Presence

Each key view from a resource identified as having moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

- a. Where existing structures were not visible, new visible structures take up a high horizontal angle of view (visibility of cross-arms minimum, high = when looking toward Project, structures occupy and extend beyond entire 50-degree field of view, with breaks in visual continuity no greater than 35 degrees).

SCORE:

- 3 points if most are within .5 mile
- 2 points if most are within 1 mile
- 1 point if most over 1 mile away
- 0 points if does not apply

NOTE: For structures more than .5 mile away, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures.

¹ Visual Resources Assessment Procedure for US Army Corps of Engineers, by Richard C. Smardon et al ,March 1988.

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TABLE 3.1 SPATIAL PRESENCE

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	0	0
2. Stratham Hill Fire Tower (#181)	0	0

- b. Where existing structures were not visible spanning more than one distance zone, structures are now visible extending continuously through multiple distance zones into the background, making the Project's geographic expansiveness now apparent.
- 3 points if structures now visible through foreground, midground, and background
 - 2 points if structures now visible through midground and background
 - 0 points if does not apply

NOTE: For galvanized steel (light grey) structures, multiply score by 1, for self-weathering steel (rust brown) structures, multiply by 0.5.

TABLE 3.2 SPATIAL PRESENCE

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	0	0
2. Stratham Hill Fire Tower (#181)	0	0

B. PROMINENCE

(1) Skyline (or "Skylining")

Structures that are or skylined or silhouetted typically have a higher likelihood of drawing attention due to the potential for the forms and lines to stand out in strong contrast to the sky background. Time of day and orientation are factors that can influence the intensity of the effect, as the contrast is particularly pronounced when structures are backlit, thereby appearing dark against a light sky background. Skylined structures that are elevated in the landscape, such as those located on ridges are even more likely to draw attention and affect a scene, particularly if in close proximity to the vantage point.

- a. Structures are skylined (visibility of cross-arms/conductors minimum).
- 3 points if 1-2 structures are within .5 mile OR 3+ structures are within 1 mile
 - 2 points if 1-2 structures are within 1 mile OR 3+ structures are between 1-3 miles
 - 1 point if 1-2 structures are 1-3 miles away OR 3+ structures are beyond 3 miles
 - 0 points if does not apply

NOTE: If existing transmission structures are skylined, multiply score by .5. Color/contrast does not affect the point rating for this factor because dark silhouetting can occur regardless of structure color under certain lighting conditions.

TABLE 4. SKYLINE

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	3	0

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TABLE 4. SKYLINE

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
2. Stratham Hill Fire Tower (#181)	0	0

(2) Scenic Focal Point

A scenic focal point is a portion of a view that attracts viewer attention due to its high level of scenic interest distinguished from the rest of the scene, often based on the presence of water bodies or distinct topographic elements in the background. Interesting landscape elements and high diversity in the middleground may also contribute to creating a scenic focal point. Due to the inherent tendency for a viewer's eye to be drawn to such locations in the landscape for their scenic enjoyment, disruption of these views can result in undesirable effects on the view. This disruption can range from a minor distraction to a situation where structures directly block views of the most distinct element in the view, thereby having the potential to undermine the quality of an otherwise engaging or pleasing view.

- a. Structures within 50-degree field of view looking toward scenic focal point, competing for viewer attention (where existing structures are not visible or visible only above cross-arms/conductors).
 - 3 points if structures are within .5 mile OR if structures directly overlap view of scenic focal point (e.g. distinct/iconic mountain backdrop)
 - 2 points if structures are within 1 mile
 - 1 point if structures are over 1 mile away
 - 0 points if does not apply

NOTE: For structures more than .5 mile away that do not directly overlap the view of a scenic focal point, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures.

TABLE 5. SCENIC FOCAL POINT

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	0	0
2. Stratham Hill Fire Tower (#181)	0	0

C. COMPATIBILITY

The 'compatibility' of a project can be determined by considering if the project or project components are consistent or inconsistent with the built or natural elements that are currently visible in the landscape. Each key view from an identified resource of moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

- a. Forms of structures contrast highly with environment.
 - 9 points if form is completely foreign to the environment (e.g. proposed lattice structures where no other electrical utility structures of any type are in view)

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- 3 points if form is significantly different than existing forms in the environment (e.g. proposed lattice transmission structures with pole-type transmission/distribution lines in view, or proposed monopole transmission structures with no other electrical utility structures of any type in view)
- 2 points if form is somewhat different than existing forms in the environment (e.g. proposed monopole transmission structures with pole-type transmission/distribution lines in view)
- 0 points if does not apply

NOTE: Multiply score by .5 for instances where all structures are over 3 mile away or visibility above cross-arms/conductors, or color/finish of structure is similar to existing structures.

TABLE 6.1 COMPATIBILITY

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	2	1*
2. Stratham Hill Fire Tower (#181)	0	0

*Scoring of compatibility is in consideration of the transition structure

- b. Expanded ROW clearing is noticeable where it wasn't previously and is clearly unnatural, geometric, and highly visible/contrasting
- 3 points if linear clearing is highly visible (extensive ground can now be seen) and completely foreign to the environment (no other linear clearing visible)
 - 2 points if linear clearing is moderately visible (limited ground can now be seen) and completely foreign to the environment (no other linear clearing visible)
 - 1 point if linear clearing is somewhat visible (no ground visible) and completely foreign to the environment (no other linear clearing is visible)
 - 0 points if does not apply

TABLE 6.2 COMPATIBILITY

SCENIC RESOURCE	ORIGINAL SCORE	AMENDED SCORE
1. Little Bay Road (#45)	0	0
2. Stratham Hill Fire Tower (#181)	0	0

D. OVERALL VISUAL EFFECT

The total points for each of the three aforementioned criteria for each resource are combined to obtain an Overall Visual Effect rating.² The combination of the three criteria provides a good picture of visual effect by considering all the factors that relate not only to the surrounding context of the site, but to the Project itself, and how it is seen from the selected locations. Resulting scores and ratings are as follows:

² Scoring system:

Total points for each of the three criteria are combined and assigned overall ratings based on the following breakdown:

Low = 0 to 1.5 total combined points

Low-Moderate = 2 to 3.5 total combined points

Moderate = 4 to 5.5 total combined points

Moderate-High = 6 to 11.5 total combined points

High = 12+ total combined points

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TABLE 7. OVERALL VISUAL EFFECT RATING

SCENIC RESOURCE	SCALE AND SPATIAL PRESENCE	PROMINENCE	COMPATIBILITY	TOTAL COMBINED SCORE	RATING
1. Little Bay Road (#45)	(3) 0	(3) 0	(2) 1	(8) 1	(MODERATE-HIGH) LOW
2. Stratham Hill Fire Tower (#181)	(0) 0	(0) 0	(0) 0	(0) 0	(LOW) LOW

*Original score/rating indicated by (parentheses). Amended score/rating indicated by **bold**.

Ratings for **Low**/Low-Moderate/**Moderate**/Moderate-High/**High** are defined by the following:

- **Low (L)** - The project is not readily visible within the view due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a low alteration to the landscape character, and the landscape remains clearly dominant.
- **Moderate (M)** - The project is visible within the view and may attract attention due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a moderate alteration to the landscape character, but the change is limited and other features of the landscape remain the primary focus.
- **High (H)** - The project commands or controls the view due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a fundamental alteration to the landscape character, and the project becomes a primary feature in the landscape.

Those resources that emerge with a 'Moderate-High' or 'High' Overall Visual Effect rating have the potential to be significantly affected by the visual change that could result if the Project is constructed, and additional analysis is provided in the following section. No additional evaluation is provided for those resources that emerge with a 'Low' to 'Moderate' rating because the visibility of the Project is not considered significant. Both resources result in a 'Low' Overall Visual Effect rating and therefore do not proceed to the next step of the analysis, Viewer Effect, since the resulting visual change will not be significant.

C. Overall Conclusion

Taken together, the design changes and the new underground segments reduce the potential visual change and effect from the original Project design. In that regard, the overall conclusion previously reached by LandWorks—namely, that the Project does not result in an unreasonable adverse effect on aesthetics—does not change.