

**THE STATE OF NEW HAMPSHIRE  
BEFORE THE  
SITE EVALUATION COMMITTEE  
DOCKET NO. 2015-04**

**SUPPLEMENTAL PRE-FILED TESTIMONY OF  
DAVID RAPHAEL**

**APPLICATION OF PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
D/B/A EVERSOURCE ENERGY  
FOR A CERTIFICATE OF SITE AND FACILITY FOR CONSTRUCTION OF A NEW  
115 kV TRANSMISSION LINE**

**THE SEACOAST RELIABILITY PROJECT**

**July 27, 2018**



**Initial Background**

1  
2 **Q. Please state your name, title, and business address.**

3 A. My name is David Raphael, Principal / Landscape Architect and Planner, doing  
4 business as LandWorks, and we are located at 228 Maple Street in the MarbleWorks,  
5 Middlebury, VT 05753

6 **Q. What is the purpose of your supplemental pre-filed testimony?**

7 A. The purpose of my supplemental testimony is to provide additional information  
8 regarding the visual assessment (“VA”) LandWorks conducted for the Seacoast Reliability  
9 Project (the “Project”), to respond to the aesthetic analysis conducted on behalf of Counsel for  
10 the Public, and to address additional aesthetics concerns identified by the parties in this docket.

**Supplemental Work**

11  
12 **Q. Please describe any additional work that you have completed for the**  
13 **Seacoast Reliability Project.**

14 A. To respond to questions raised at the technical sessions held on June 12, 2017, I  
15 conducted an analysis of the potential for visual impacts from the use of concrete mattresses on  
16 the shores of Little Bay. I revised one photosimulation of the transition structure at Little Bay in  
17 Durham showing the addition of the distribution structure and tree removal that is required for  
18 the Project. I also revised one photosimulation that depicts the view of the Project at the  
19 intersection of Nimble Hill Road and Hannah Lane, in Newington, NH to reflect the change in  
20 the design of the riser structure on the Darius Frink Farm from a three-pole riser structure to a  
21 monopole. The revised photosimulations are attached as Attachment A and B respectively.

22 In addition, I have reviewed the pre-filed testimony of other parties and interveners in  
23 this proceeding and provide comment as necessary.

24 **Q. Please describe the work that you did to assess to assess potential visual**  
25 **impacts from concrete mattresses.**

26 A. I conducted two site visits on both land and water and assessed the visual effects  
27 of the proposed concrete mattresses, which are necessary to protect the integrity of the  
28 underwater cable. I examined the height and width of concrete mattresses and their proposed  
29 location along the shores of Little Bay. I also assessed how close a boater could potentially get  
30 to the locations for the installation and what the concrete mattresses would look like at low tide  
31 (only partially visible and not up close due to the tidal flats) and at high tide (not readily visible

1 due to water levels and mattress placement along the shore). As stated in the *Addendum to the*  
2 *Visual Assessment*, the site visit was conducted at low tide. It should be clarified that the visit  
3 began at low tide, but by the completion of the visit high tide had returned, and the visual  
4 simulation in Exhibit 22A, provided with the *Addendum to the Visual Assessment*, represents a  
5 time period between low and high tide.

6 LandWorks conducted a viewshed analysis to assist in the review of the overall visibility  
7 and effect that concrete mattresses may have on the resource, namely, Little Bay. Both of these  
8 studies, as well as the development of an additional photosimulation, informed our overall  
9 understanding of the Project.

10 More specifically, LandWorks undertook the following activities to analyze the potential  
11 visual effect of the structures:

- 12 • Conducted two site visits, including viewing the shoreline from the water, to take  
13 photographs, measurements and observing activity on and off the water.
- 14 • Prepared, under my supervision, sections and rough sketches to understand the placement  
15 of the structures and the extent of concrete elements above low and high tide levels.
- 16 • Consulted with the Eversource Project team and the manufacturer of concrete mattresses  
17 to understand the specifics of concrete mattress installation.
- 18 • Researched prior installations and performance of the concrete mattresses. Observed that  
19 the concrete color fades and often is colonized by marine plants and organisms,  
20 diminishing the visibility of the concrete forms over time. The concrete mattresses will  
21 also fade into the background of a rocky shore line from several vantage points.
- 22 • Prepared a visual simulation of the proposed installation that was relied on for evaluation  
23 purposes.
- 24 • Observed potential viewer effects for those engaged in recreational boating to understand  
25 the nature of the view, its duration, and how it would affect those traveling in motorboats  
26 or sailboats, as well as paddlers.

27 Based on this information and our analysis, as well as on-site observations, LandWorks  
28 concluded that the proposed concrete mattresses will not ‘draw the eye’ to any great extent, and  
29 they will not be a substantive intrusion into the visual landscape.

1 For additional information on LandWork’s visual assessment of the proposed concrete  
2 mattresses, please see Attachment C, *Addendum to the Visual Assessment* and *Exhibits 21A and*  
3 *22A*. The Addendum was previously provided to all the parties in this docket on July 18, 2017.

4 **Q. Have you reviewed the pre-filed testimony of the parties in this proceeding?**

5 A. Yes, I have.

6 **Q. Based on your review of the pre-filed testimony in this proceeding and**  
7 **responses to data requests, have you identified any new scenic resources that were not**  
8 **considered as part of your initial VA?**

9 A. Yes, pursuant to Mr. Denis Hebert’s pre-filed testimony submitted to the Site  
10 Evaluation Committee (“SEC”) on July 28, 2017, Nimble Hill Road is identified as a locally  
11 designated scenic road in the Town of Newington. The Town’s Master Plan identifies that all  
12 class V roads east of the Spaulding Turnpike are locally designated roads. When LandWorks  
13 completed its original review, we relied on NH DOT data that had Nimble Hill Road listed as a  
14 Class II road. At some point after my initial review, I was made aware that Nimble Hill Road  
15 was given to the Town to maintain by NH DOT. This change altered Nimble Hill Road’s status  
16 from a Class II road to a Class V road. Therefore, Nimble Hill Road would be classified as a  
17 locally designated scenic resource according to the Town’s master plan. As such, LandWorks  
18 has completed a full assessment of the potential impacts to this locally-designated road. For a  
19 complete assessment of the potential visual impacts to Nimble Hill Road, please see Attachment  
20 *D, Nimble Hill Road Addendum to the Visual Assessment*.

21 Our analysis followed the two-step process presented in the methodology section of the  
22 Visual Assessment under Section E – Identification of Sensitive Scenic Resources, on pages 15–  
23 31. These steps follow all our preliminary work with regard to project visibility, site visits, data  
24 gathering and the identification of resources and sites with visibility. This key step determines  
25 the sensitivity of the resource with regard to any visual changes resulting from the Project that  
26 might affect the resource and the views from that resource.

27 Nimble Hill had the highest possible cultural designation as it is an officially designated  
28 scenic road. Thus, it receives a ranking reflecting its value to the public – a “High”. The next  
29 evaluation in the process is to identify its scenic quality. This is also an objective analysis that  
30 provides numerical rankings for seven key factors or conditions, which either elevate or depress  
31 its scenic quality ranking. Each factor was analyzed based on the conditions present on Nimble

1 Hill Road. While the road has been designated as a scenic road, the qualities that contribute to a  
2 high scenic value are not readily present. Nimble Hill Road has some pleasant scenery and  
3 historic buildings, but it is not a unique road and does not possess long distant views or  
4 outstanding scenery that draw attention and stand out as a high value scenic resource. This is not  
5 a road that one would drive specifically to experience scenic values. In summary, the resource  
6 has features such as tree lined sections and some visible stone walls that are fairly common  
7 among local roads and the Seacoast region, and, when taken together, the point scores from the  
8 Scenic Quality Inventory and Evaluation Chart add up to a 10, which is a “Low” ranking.

9 Next, the cultural designation of “High”, valued at 3 points, is combined with the scenic  
10 quality ranking of “Low”, which is valued at 1 point, to result in a total score is a 4 – which is  
11 “Moderate” in terms of overall sensitivity. As part of the evaluation process, resources receiving  
12 a ranking of “Moderate to High” (5 points) or “ High” (6 points), advanced to the next step of the  
13 analysis.

14 Thus, we concluded that the potential for visual effect, or visual change, from the Project,  
15 while moderate, does not rise to a level of having a significant adverse effect on the scenic  
16 qualities of Nimble Hill Road.

17 **Q. Have you considered any additional information provided by the parties in**  
18 **this proceeding?**

19 **A.** Yes. I reviewed the pre-filed testimony of Counsel for the Public’s aesthetics  
20 witness, Michael Lawrence. Mr. Lawrence identified 13 key observation points, that in his view,  
21 required further analysis. Prior to completing the VA, I reviewed each of these specific  
22 locations. We conducted an evaluation of the entire route, including all crossings, views from  
23 adjacent properties and the UNH campus. As discussed further below, it is my opinion that the  
24 13 locations identified do not qualify as scenic resources nor do they rise to the level of being  
25 overly sensitive or requiring specific mitigation. However, to address the concerns raised,  
26 LandWorks is working to develop various potential planting plans (a.k.a. vegetation screening  
27 plans) to reduce some of the potential identified visual impacts of the Project.

28 I also reviewed data request responses from the parties pertaining to the identification of  
29 scenic resources. Based on my review, it is my opinion that the locations identified by the  
30 parties do not qualify as additional scenic resources, per the SEC’s definition of same, and that  
31 those locations should not be included in the VA.

1           **Q.     Please explain in more detail why, in your opinion, the Project will not have a**  
2 **significant adverse visual impact in the 13 locations along the Project route and do not**  
3 **merit further consideration by the Committee.**

4           A.     First, it is my opinion that 11 of the 13 locations do not meet the definition of a  
5 scenic resource according to the SEC's rules. Aside from Fox Point Road and Durham Point  
6 Road, which LandWorks has identified as "scenic resources" and fully analyzed in the original  
7 VA, the vantage points and views from these locations are not considered scenic resources  
8 according to the SEC rules.

9           Second, LandWorks had previously reviewed the additional 11 and determined that the  
10 additional views or vantage points are not sensitive to visual change. Mr. Lawrence has not  
11 provided a basis to refute our conclusions. Supporting documentation has not been provided for  
12 the conclusions regarding the potential visual effects from the Project on viewers and how those  
13 viewers would experience the change in visual character. For example, the report describes  
14 expectations for a roadway experience and simply concludes that because of increased clearing  
15 along a roadway, the change in vegetation "will dramatically alter the existing view" (Lawrence  
16 Report, at Page 23). However, the view being described is directly on the existing ROW, which  
17 is not a scenic resource nor a view with a substantive value or concern to drivers, joggers, or  
18 bicyclists. While the view will be more open here (we have stated that natural revegetation of  
19 low growing plants such as willow and sumacs-will provide some effective mitigation over time  
20 as seen in other transmission projects we have been involved in), the view will still be of an  
21 electrical transmission line ROW. Further, the report does not articulate the duration of view,  
22 roadway topography or alignment and nor the methodology that can be replicated by others to  
23 come to the report's conclusions.

24           While these 11 locations do not meet the definition of a "scenic resource" and are not  
25 sensitive to visual change, as stated above, LandWorks is working to develop planting plans and  
26 the Applicant has committed to planting trees and screening at these locations, subject to the  
27 approval of the underlying landowner.

1           **Q.     Counsel for the Public’s aesthetic witness, at page 3 of their testimony, also**  
2 **has opined that some areas are “worthy of consideration” by the Committee as assessing**  
3 **the overall aesthetic effect of the Project, even though, those areas do not qualify as “scenic**  
4 **resources” under the Committee’s rules. Do you agree?**

5           A.     I do not agree. Professionals in the field of visual assessments are guided by the  
6 standards the SEC has set. The SEC rules require an applicant to conduct a visual assessment to  
7 consider potential effects from the construction and operation of an energy facility to “scenic  
8 resources” as defined by the SEC Rules. An applicant must complete a “visual impact  
9 assessment of the proposed energy facility, prepared in a manner consistent with generally  
10 accepted professional standards by a professional trained or having experience in visual impact  
11 assessment procedures, regarding the effects of, and plans for avoiding, minimizing, or  
12 mitigating potential adverse effects of, the proposed facility on aesthetics.” Site 301.05.  
13 The SEC’s rules focus on analyzing potential impacts of the proposed facility on identified  
14 scenic resources based on a several factors. Site 301.05(b)(6). A scenic resource is clearly  
15 defined in the rules at Site 102.45. If a visual impact assessment is not focused on assessing  
16 aesthetics within the accepted and reasonable definitions of what constitutes a scenic resource in  
17 New Hampshire, it would create a completely unworkable and unpredictable structure.

18           As indicated by Mr. Lawrence during the technical session on May 15, 2017,  
19 LandWorks did not fail to complete any analysis that is required pursuant to the SEC’s rules for  
20 a visual assessment.

21           **Q.     Do road crossings, as suggested by Counsel for the Public’s aesthetic witness,**  
22 **qualify as a “key observation point” as that term is defined in the SEC’s rules?**

23           A.     Road crossings are not key observation points unless such road crossings have  
24 designated pullouts or viewing locations where the public is actually viewing something of  
25 interest rather than either A) looking down a transmission corridor or B) passing under some  
26 conductors along a road section. Key observation points are typically selected because they are  
27 designated viewpoints or locations that are public areas designed for viewing and frequented by  
28 the public for recreational or cultural activities that have a scenic or visual component.

29           **Q.     Counsel for the Public’s aesthetic witness has criticized your VA for failing to**  
30 **assess road crossings. How do you respond?**



1           A.     As described above, road crossings, in and of themselves, are not scenic  
2 resources. Notwithstanding that point, LandWorks examined road crossings where the Project  
3 crosses existing public roads. *See e.g.*, VA at pp. 47, 53, 57, 60, 62-63, 93 (Fox Point Road and  
4 Durham Point Road); 106 (Sandy Brook Drive); Exhibit 15 (Frost Drive); p. 48-49, 53, 58, 60,  
5 62-64, 68-71, 93, Exhibit 19 (Route 4). As described in the VA, none of the road crossings—  
6 even the instances where the Project will cross locally designated scenic roads—rise to a level of  
7 undermining the character of those roads nor were the focus of any specific or identified views or  
8 vantage points. *See e.g.*, VA at page 63; 89. In any event, to minimize effects on such crossings  
9 and the visibility and presence of structures, LandWorks has worked directly with and will  
10 continue to work with Eversource engineers to develop landscaping plans to mitigate the  
11 Project's impact in these locations.

12           **Q.     Do you agree with Counsel for the Public's position that additional plantings**  
13 **at road crossings should be utilized to minimize and mitigate potential visual impacts?**

14           A.     In my professional opinion, I do not think that additional planting plans are  
15 necessary to avoid adverse effects on road crossings because 1) for the most part the road  
16 crossings are pre-existing, and, 2) the views are not scenic resources, are not located in or  
17 adjacent to scenic resources and will not have a highly noticeable or unacceptable effect on road  
18 travelers who pass perpendicular to these crossings.

19           In my experience, most road crossings in wooded areas or on tree and vegetation lined  
20 roads benefit from natural regrowth of existing vegetation, which occurs relatively quickly. New  
21 plantings are difficult to establish, often draw attention to the crossing rather than de-emphasize  
22 it, and need to be very carefully considered and designed if such plantings are necessary or  
23 desirable. It should also be noted that the conductors that cross the Project area roads are often  
24 hard to see given their height and intervening vegetation and are not prominent or highly  
25 noticeable in the view. This particular factor will not change substantially with the upgraded  
26 structures and conductors.

27           Nonetheless, as mentioned previously, LandWorks is working to develop several  
28 proposed planting plans for the road crossings.

29           **Q.     Do you believe, contrary to Counsel for the Public's aesthetic witness**  
30 **position, that the Applicant has proposed adequate avoidance, minimization, and**  
31 **mitigation measures?**

1           A.     Yes. The Applicant has made quite substantial efforts to provide significant  
2 avoidance, minimization and mitigation measures for the Project. Such efforts include: 1) burial  
3 of the transmission line in the Newington Center Historic in the vicinity of the Frink Farm and  
4 Main Street on the UNH Campus in Durham; 2) installation of an underwater cable crossing at  
5 Little Bay; 3) selection of suitable structure types and placement throughout the Project ROW to  
6 reduce visibility and the physical presence of the structures; 4) relocation of the riser structure  
7 and landscape mitigation plans at the Flynn Pit site in Newington; 5) landscape plantings for  
8 mitigation purposes for private properties abutting the ROW; and 6) retention of existing  
9 vegetation wherever possible and feasible and within the parameters of reliability and the NESC.

10           Finally, a key avoidance and minimization measure that characterizes the Project overall,  
11 the construction of this upgraded transmission project is being planned entirely within an  
12 existing ROW. Siting the Project in an existing corridor avoids the need for any new corridor  
13 construction and the corresponding visual effects that may accompany such new corridors. This  
14 is a key element of the Project Team's approach to minimize aesthetic effects and changes in the  
15 landscape.

16           **Q.     What do you consider when exploring “best practical measures” for**  
17 **avoidance, minimization, and mitigation measures for potential visual impacts?**

18           A.     I focus on the SEC rules and guidance from previous cases. Our work on the  
19 Antrim Wind Project, SEC Docket 2015-02, reinforced our understanding of this approach.  
20 According to the SEC rules, “best practical measures” means available, effective, and  
21 economically feasible on-site or off-site methods or technologies used during siting, design,  
22 construction and operation of an energy facility that effectively avoid, minimize or mitigate  
23 relevant impacts. In my view, this requires an applicant to consider avoidance, minimization and  
24 mitigation measures that a reasonable person would employ or support for mitigation expense  
25 and efficacy. Thus, one should consider measures that are of reasonable cost, provide sufficient  
26 benefit for that cost, and are practical and possible to implement from a functional perspective.

27           **Q.     Do the thirteen (13) additional sites, as identified on page 9 of the Aesthetics**  
28 **Review Analysis, require further analysis for avoidance, minimization, and mitigation**  
29 **measures?**

30           A.     No. As previously discussed, I do not believe any of the thirteen additional sites  
31 rise to the level of a scenic resource or a sensitive viewing area. The UNH campus (in which

1 there are several areas highlighted in the Analysis) is primarily a cultural and educational  
2 resource. The UNH campus is not typically considered to be a destination for scenic quality and  
3 views. Yes, there may be some “scenery” incidental to the campus and its historic quadrangles,  
4 but the areas identified are in parking lots and along roadway areas that in and of themselves are  
5 not scenic. Those areas where we identified sensitivity to visual change have been addressed via  
6 our analysis and mitigation measures proposed.

7 **Q. In light of the pre-filed testimony submitted by Mr. Hebert on behalf of the**  
8 **Town of Newington in this proceeding, have you again reviewed the Town’s Master Plan as**  
9 **it relates to visual impacts?**

10 A. Yes, I have. There is little, if any, guidance as to what is and is not acceptable  
11 with regard to changes that may affect local designated Newington Town roads. The Newington  
12 Master Plan does not provide detailed information on the characteristics of town-designated  
13 roads, other than to state that: “The removal of stone walls or large trees should be permitted  
14 only when there are no other feasible alternatives to assure public safety.” Also, of note, is the  
15 statement that “Scenic Road designation does not preclude paving, nor does it limit the property  
16 rights of abutters.” (*Newington Town Plan*, page 32). Eversource has carefully sited new  
17 structures, to the greatest extent practicable, to not directly affect or impact the scenic roads of  
18 Newington and to limit visual effects on road crossings in Durham as well. *See* Outreach  
19 Summary, Supplemental Pre-Filed Testimony of Kenneth Bowes and David Plante, Attachment  
20 A (examples of modifications made by the Project team to avoid and/or minimize potential  
21 visibility of the Project).

### 22 Conclusions

23 **Q. Has your review of the pre-filed testimony submitted by other parties and the**  
24 **additional work that you have completed since filing of the Amendment on March 29, 2017**  
25 **changed your assessments or conclusions in your testimony of April 12, 2016 and your**  
26 **Amended Pre-Filed Testimony from March 29, 2017?**

27 A. No, it has not. My professional opinion remains that the Project will not have an  
28 unreasonable adverse effect on aesthetics or scenic resources within the Project area. As stated  
29 previously, based on our original work and the additional work we have since undertaken, our  
30 conclusions with regard to the Project’s effect on the aesthetic/visual resources of the area have  
31 not changed from the original Visual Impact Assessment. We have concluded that the Project as

1 a whole would not result in an unreasonable adverse effect on the aesthetics and scenic resources  
2 of the Project area.

3 **Q. Does this conclude your supplemental pre-filed testimony?**

4 A. Yes, it does.