

**PREFILED WRITTEN TESTIMONY OF**  
**PATRICIA FOSTER**

**AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC.**

**A. INTRODUCTION**

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

A. Patricia Foster, Senior 2 Planner  
Amec Foster Wheeler Environment & Infrastructure, Inc.  
271 Mill Road, 3rd Floor, Chelmsford, MA 01824

**Q. Please describe your current responsibilities and professional experience.**

A. I am a Senior 2 Planner in Amec Foster Wheeler's Environmental Planning, Permitting and Compliance group specializing in siting and licensing activities for energy and transportation facilities. I have over 17 years of experience in environmental consulting. Project experience includes regulatory review; project planning; directing and preparing environmental impact statements, reports, assessments and permit applications, and permit compliance.

**Q. What has been your involvement in this Project?**

A. I have assisted with preparation of portions of the Environmental Assessment and related documents. I also have coordinated the work of the subconsultant for cultural resource studies and assisted with developing responses to the previously filed interrogatory responses.

**Q. Do you have any corrections, modifications, or additions to the interrogatory responses that were previously identified as having been primarily prepared by Amec Foster Wheeler that you wish to bring to the Council's attention?**

A. Yes, based on changes to the Project design since the initial evidentiary hearing date, as well as other on-going efforts, I am providing herein updates to several of the previously filed interrogatory responses.

**Q. What is the purpose of your testimony?**

A. The purpose of my testimony is to assist Mr. Bukowski and Mr. Butler in addressing the existing environmental conditions and potential project effects to environmental and community resources, as noted in their previously filed testimony.

**B. UPDATES TO PREVIOUSLY FILED INTERROGATORY RESPONSES**

**Q. Please identify the previously filed interrogatories for which you are providing updated responses.**

A. I am providing updated responses to CSC Interrogatories Numbers 11, 13 – 16, 47 – 50, 54 and 60. In addition, I am providing an updated response to the Town of New Milford Interrogatory Number 13.

**Q. Please provide your updated response to CSC Interrogatory Number 11.**

A. Based on the revised site plan presented in Mr. Lindsay's supplemental pre-filed testimony (Exhibits 1 and 2), the northern limit of work/tree clearing associated with the revised layout is approximately 933 feet south of the terminus of the Housatonic Range Trail / Blue Trail System and the array fence line is approximately 963 feet south, over 100 feet further south from the original layout. Ample forested area north of the solar array will screen views of the Facility from the trail. Additionally, as presented in Exhibit 3 of Mr. Lindsay's testimony, the area north of the solar array, which includes the summit of Candlewood Mountain and terminus of the Housatonic Range Trail / Blue Trail System, is included within the proposed approximate 100 acre contiguous area to be set aside for permanent conservation restriction.

The nearest recreational area from the outer edge of the revised Solar Array fence line remains Candlewood Lake, approximately 815 feet to the east. Lynn Deming Park is located on the east side of Candlewood Lake and is approximately 1,698 feet from the approximate edge of the revised Solar Array fence line. [Please see also response #13 for discussion on visibility.]

As noted in Mr. Lindsay's supplemental prefiled testimony, a portion of the electric interconnect route east of the Facility has been slightly altered to follow an existing old road cut (see Exhibits 1 and 2). The portion of the interconnect closest to Candlewood Lake has not changed. [Please see also response #13 for discussion on visibility.]

**Q. Please provide your updated response to CSC Interrogatory Number 13.**

A. As noted in Mr. Lindsay's supplemental prefiled testimony, revisions to the site plan layout include reducing the footprint of the Solar Array and altering a portion of the electric interconnect route east of the Facility to follow an existing old road cut (see Exhibits 1 and 2). Specifically, the Solar Array has been pulled away from Wetland 1 to the east and Wetland V to the north (see Exhibit 4, Figure 12).

Additionally, as stated in Mr. Lindsay's prefiled testimony, the revised array is approximately 24 MW DC at a 12-degree tilt angle, and will consist of approximately 60,000 solar panels. At a 12-degree tilt angle, the top height of the panels is approximately 7 feet above the existing ground surface, which is lower than the previously proposed panels at a tilt angle of 15-degrees. Additionally, the number of panels has been reduced by approximately 15,000.

As noted in the updated response to CSC Interrogatory Number 11, a portion of the electric interconnect route east of the Facility has been slightly altered to follow an old road cut. This adjustment was made to use the previously altered area and reduce potential impacts in this area.

Based on a lower panel height, increased distance to off-site receptors, and less tree clearing, CS does not expect that the revisions to the site plan will result in any changes to the visibility of the Project from Candlewood Lake. Specifically, CS does not expect the Solar Array to be visible from any portion of the main body of Candlewood Lake. CS also does not expect the relocation of the electric interconnect route east of the Facility to

the old road cut to provide any new views of the electric interconnect route from the Lake.

**Q. Please provide your updated response to CSC Interrogatory Number 14.**

A. The Phase IA cultural resources assessment survey completed by Heritage Consultants, LLC (Heritage) recommended Phase IB cultural resources reconnaissance, using subsurface testing techniques, of approximately 35 acres within the central portion of the original Solar Array layout. Heritage completed Phase IB subsurface testing of the approximate 35 acre Solar Array area and the approximate 5 acre hay/horse pasture located along Candlewood Mountain Road in September and October 2017.

Based on the results of the Phase IB cultural resources reconnaissance, the nearest area of archaeological sensitivity is located on the 163.5 acre Facility site. In the Phase IB report, Heritage recommends that an avoidance plan for this area be developed by Candlewood Solar in consultation with the SHPO so this area is not adversely affected by the proposed construction or if avoidance is not feasible, then Phase II National Register of Historic Places (NRHP) testing and evaluation of the area should be completed prior to construction.

The revised site plan layout (Exhibits 1 and 2) will avoid the area of archaeological sensitivity and a buffer of approximately 69 feet will separate the limit of work (LOW) / limit of tree clearing and the area of archaeological sensitivity. CS will implement the following avoidance and protection strategy for this area. An exclusion barrier consisting of standard silt fencing will be installed along the limit of work (LOW) after tree clearing activities, but prior to April 15<sup>th</sup>. Standard silt fencing was selected for erosion and sediment control purposes as well as for ecological reasons (species exclusion barrier). Orange snow fencing was considered, however, DEEP NDDB notes that plastic web or netted silt-fence should not be used (see NDDB July 10, 2017 letter, Recommended Protection Strategies for Wood and Box Turtles).

The approximate 69 foot buffer between the LOW / limit of tree clearing and the area of archaeological sensitivity consists of mature forest. Given the forested buffer that will remain between the limit of tree clearing and the area of archaeological sensitivity, CS does not expect that the solar array will be visible from the area of archaeological sensitivity. Additionally, the area that will be set aside for permanent conservation restriction includes the area of archaeological sensitivity, providing further permanent protection of this resource.

A copy of the Phase IB cultural resources reconnaissance survey Report is included as Exhibit 5, "protected." . A revised site plan showing the area of archaeological sensitivity is also included in Exhibit 5 as Figure CSC 14, "protected". Copies of the Phase IB report and a cover letter outlining the above noted avoidance and protection strategies will be filed with the State Historic Preservation Office (SHPO) in the near term.

**Q. Please provide your updated response to CSC Interrogatory Number 15.**

A. The Phase IA cultural resources assessment survey completed by Heritage Consultants, LLC was filed with the SHPO and CSC on September 18, 2017. Please see the updated response to CSC Interrogatory Number 14 above for additional information.

**Q. Please provide your updated response to CSC Interrogatory Number 16.**

A. The rear dwelling structure located on the parcel of property identified as 183 Candlewood Mountain Road remains the closest residential structure to the Project at approximately 350 feet as measured from the solar array fence to the structure and approximately 300 feet from the limit of work.

**Q. Please provide your updated response to CSC Interrogatory Number 47.**

A. As noted in Mr. Lindsay's prefilled testimony, the output of the Facility will be reduced due to the reduction in kW size and the revised Facility output on an annual basis is projected at 31,000,000 kWh AC based on detailed system modeling using PVsyst software, which takes into account system losses for conversion from DC to AC. Using

the U.S. Environmental Protection Agency (EPA) Greenhouse Gas Equivalencies calculator and the new estimated annual output, the energy produced will be sufficient to offset approximately 23,071 metric tons of carbon dioxide (equivalent) each year.

**Q. Please provide your updated response to CSC Interrogatory Number 48.**

A. The revised site plan presented in Mr. Lindsay's prefiled testimony (see Exhibits 1 and 2) include approximately 56.07 acres of forest to be cleared for the Project, including the solar array, interconnect, and to eliminate shading. 56.07 acres of forest clearing would result in an estimated loss of carbon dioxide sequestration of approximately 59.4 metric tons per year due to the Project. As noted in response to question 47 above, based on 31,000,000 kWh AC annual electric production for the Facility, and using the EPA Greenhouse Gas Equivalencies calculator, 23,071 metric tons of carbon dioxide (equivalent) emission would be avoided by the operation of the Facility per year. This means that the "break even" point, where the avoided carbon dioxide emissions equal the sequestration loss is less than one (1) day in each year of operation.

**Q. Please provide your updated response to CSC Interrogatory Number 49.**

A. As previously noted, Amec Foster Wheeler received a letter from Ms. Dawn McKay of DEEP on July 10, 2017 and a copy was provided to the CSC on August 28, 2017. Oxbow Associates, Inc. (Oxbow) was subcontracted by Amec Foster Wheeler to complete listed species surveys of the Project Area. The results of Oxbow's surveys have been documented and the Oxbow report is attached as Exhibit 6. A copy of this report will be filed with DEEP NDDB in the near term. Additionally, in a letter to DEEP NDDB accompanying Oxbow's report, CS will commit to the following best management practices, protection measures, and mitigation.

**All Species**

- All construction personnel will be trained on the potential presence of listed threatened and endangered species likely to occur in the Project area. Training will include species descriptions, agency and project contacts if a species is identified, reporting and notification requirements, and instructions for relocation if a species is found inside

work areas. Additionally, laminated, instructional posters will be placed at the construction trailer(s).

### **Bats**

- Tree clearing will be completed during the hibernation or winter range period (Hoary, Red and Silver-haired) for bats and tree clearing will be limited to November 1 through March 30. The implementation of this measure would be protective of those species of bats identified as well as other bat species.

### **Eastern Box Turtle**

- After tree clearing activities, but prior to April 15<sup>th</sup>, a perimeter of standard silt fence and haybales will be installed along the limit of work (LOW) to enclose the solar array field and active construction areas. A perimeter of standard silt fence and haybales will also be installed to enclose the 30-foot work corridor from Rocky River near the Candlewood Reservoir Dam east, and northeast to the intersection with the paved service road (app. 1,500') during construction and installation of the electric interconnection route. The perimeter, exclusionary barrier will be a minimum of 20 inches tall and will be secured to and remain in contact with the ground. The exclusion barrier will be maintained, and inspected weekly through the construction period to secure any gaps or openings at ground level to exclude any box turtles that may seek the disturbed soils for nesting substrate, or random wanderings of extant mountain turtles. Plastic web or netted silt-fence will not be used. Silt fencing that is used for exclusion will be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- Any turtles encountered within the immediate work area will be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point.

- Any sightings of box, wood or spotted turtles will be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at ([http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav\\_GID=1641](http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)).
- No heavy machinery or vehicles will be parked beyond the LOW and exclusion barrier.
- If felling of trees adjacent to brooks and streams is required, they will be cut to fall away from the waterway and will not be dragged across the waterway and stumps will not be removed from banks.
- To the extent practicable, usage of equipment within 50 feet of streams and brooks will be avoided and limited.

#### **Wood Turtle**

- No protection measures beyond Contractor education is proposed for this species at this Site. See Oxbow report in Exhibit 6 for additional information.

#### **Slimy Salamander and Jefferson Salamander**

- The solar array field will be surrounded with an exclusion barrier during the construction period to exclude trespass and incidental mortality. See Eastern box turtle for additional detail regarding the exclusion barrier.

#### **Mitigation**

- An approximate 100-acre contiguous, steep slope, mature forest perpetual conservation parcel will be created to preserve slimy salamander habitat, conserve existing unfragmented forest, and protect existing wetlands and vernal pools.

For a discussion on the golden-winged warbler, please see Oxbow's report included as Exhibit 6.

#### **Q. Please provide your updated response to CSC Interrogatory Number 50.**

A. The acreages of proposed tree clearing within upland areas have changed as a result of revisions to the site layout. Potential use of the existing hay/horse pasture off of Candlewood Mountain Road for construction parking and material/equipment storage would not require any tree clearing. The following table provides a summary of changes by Project component.

Component	Previous Forested Area to be Cleared (Acres)	Revised Forested Area to be Cleared (Acres)
Solar Array Limit of Work (LOW)	68.52	51.55
Fenced Solar Array	57.1	38.92
Additional Cleared Area	11.4	12.63
Interconnect	4.3	4.52
<b>Total Area of Disturbance</b>	<b>72.8</b>	<b>56.07</b>

Impacts to wetlands and watercourses remain unchanged and approximately 2,322 sq. ft. (0.05 acres) of Wetlands VI, VII, VIII, and IX would be converted from forested wetlands to emergent and/or shrub wetlands to provide vertical clearance for the overhead utility line. No direct impacts to wetlands or watercourses would be required to install the utility poles and guy wires associated with the overhead electric interconnect.

Of the total 56.07 acres of tree clearing, all but the approximately 0.06 acres of wetland area tree clearing for overhead utility line clearing will be in upland areas (56.01 acres).

**Q. Please provide your updated response to CSC Interrogatory Number 54.**

A. Distances from the solar facility fence line to the closest wetland and watercourse has changed as a result of revisions to the site layout. The following table provides a summary of these changes.

Resource	Previous Distance (Feet) and Direction	Revised Distance (Feet) and Direction
Wetland III	51 feet	64 feet

Watercourse (Stream from Discharge of Wetland I, Northeast of closest fence)	262 feet	470 feet
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**Q. Please provide your updated response to CSC Interrogatory Number 60.**

A. Please see response to CSC Interrogatory Numbers 86 and 90 through 93 for additional information.

**Q. Please provide your updated response to Town of New Milford Interrogatory Number 13.**

A. As discussed in the updated response to CSC Interrogatory Number 50, a total of approximately 56.07 acres of forest would be cleared for the Project.

As stated in Section 2.4 of the Environmental Assessment (EA), an average tree density of 209 trees per acre, for trees six (6) inches in diameter at breast height (dbh) or larger, was determined based on an assessment of several 2,500 square foot sample plots recorded at various representative locations throughout the Project Site. At an average of 209 trees per acre, it is estimated that approximately 11,719 trees six (6) inches dbh will be removed as part of the Project.

**C. PROJECT SPECIFIC TESTIMONY**

**Q. Do you have any additional updates to Project information you would like to address at this time?**

A. Yes. As a result of the revisions to the proposed layout of the solar array to minimize impacts to vernal pool and slimy salamander habitat, as described in Mr. Lindsay's supplemental prefiled testimony, the acreages of proposed clearing and final alteration for the solar array and associated fenced and cleared areas have changed. Additionally, a segment of the electric interconnect route has been re-routed east of the Facility to follow an existing old road cut.

Further, as noted in Mr. Lindsay's supplemental prefiled testimony, CS is considering potentially utilizing the existing hay/horse pasture located along Candlewood Mountain Road for parking and equipment and material storage during construction. The existing hay/horse pasture located along Candlewood Mountain Road is part of the approximate 163.5 acre parcel of property (26/67/1) and is approximately 5 acres in size. There is existing access to the hay/horse pasture from the existing access road off of Candlewood Mountain Road. No work (grading, etc) to the hay/horse pasture would be required for construction parking and material/equipment storage, no additional tree clearing would be required for its use, and no alteration to existing stone walls would occur. The construction parking and staging area will only be used during construction of the Project and is temporary in nature. Upon completion of construction, the hay/horse pasture would be seeded/mulched as necessary and allowed to return to existing conditions.

The following table provides a summary of these changes.

<b>Component</b>	<b>Previous Total Area</b>	<b>Previous Forested Area to be Cleared</b>	<b>Revised Total Area</b>	<b>Revised Forested Area to be Cleared</b>
Solar Array Limit of Work (LOW)	84.42	68.52	67.9	51.55
Fenced Solar Array	67.04	57.1	54.55	38.92
Electric Interconnect Route	4.57	4.3	4.83	4.52
Access Road	0.43	0	0.43	0
Temporary Construction Parking and Equipment / Material Storage Area	0	0	5	0
<b>Total Area</b>	<b>89.42</b>	<b>72.8</b>	<b>78.16</b>	<b>56.07</b>

**Q. Have any assessments of the existing hay/horse pasture located along Candlewood Mountain Road proposed for potential use as parking and material and equipment storage during construction been completed?**

A. Yes. Oxbow Associates, Inc. (Oxbow) conducted a habitat assessment for the golden-winged warbler, on the approximate 5 acre hay/horse pasture located along Candlewood Mountain Road in September 2017. The results of this assessment are included in Oxbow's report, attached as Exhibit 6. However, Oxbow concluded that, "...suitable breeding habitat for golden-winged warbler is wholly absent from the premises due to a lack of open canopy habitat in a suitable early to mid-successional seral stage to support the species, no protective measures are provided."

Potential impacts to cultural resources were assessed by Heritage Consultants, LLC. Specifically, the potential temporary construction parking and material and equipment storage area was visually reconnoitered and determined to retain a moderate/high archaeological sensitivity. Based on this determination, a Phase IB cultural resources assessment (Phase IB) of this area was completed. A copy of the Phase IB report is included in Exhibit 5. As noted in the Phase IB report, this area was determined to lack research potential and the qualities of significance as defined by the National Register of Historic Places (NRHP) criteria for evaluation and no further archaeological examination of this area was recommended prior to usage of this area for temporary construction parking and material and equipment storage.

**Q. Does this conclude your prefiled written testimony?**

A. Yes.