



Memorandum

To: Connecticut Water Company
Attention: Cindy Gaudino, Manager
Source Protection and Real Estate
93 West Main Street
Clinton, Connecticut 06413

Date: March 26, 2011

Project No.: 41604.01

From: Matthew Davison
Registered Soil Scientist
CT Certified Forester 193

Re: Wind Prospect Site Restoration

As you are aware, BNE Energy Inc. ("BNE") is proposing to construct and operate a wind generating development on its 67.5-acre property located at 178 New Haven Road in Prospect, Connecticut (the "Property"). In addition to the two turbines, the development will include an ancillary storage building, access road and associated ground equipment including an electrical collector yard and associated utility infrastructure so that the turbines can be interconnected to the electrical grid (collectively the "Project"). Current access to the Property exists off of Kluge Road. BNE proposes to construct a gravel access road through a meadow area and second growth forest to access the proposed turbine locations.

A total of approximately 8.84-acres of the total 67.5-acre Property will be disturbed as a result of the proposed Project, including approximately 4.45-acres of tree clearing. Of the 8.84-acres of total disturbance, approximately 7.71-acres will be restored following construction with a native herbaceous seed mixture. Restored areas are referred to as "Upland Meadow Creation and Restoration Areas". The remaining 1.13-acres include the gravel access drive, crane access pads, ancillary storage building and associated gravel parking area.

As noted in the most recently revised plan set, two (2) bioretention basins have been incorporated to provide primary treatment of the design water quality volume (WQV). The southernmost basin, located at station 8+50, will be formed in fill materials and as such, bioretention is likely a suitable treatment method for this location. The northernmost basin, located adjacent to Turbine Location 2, may not have the necessary separation from groundwater for bioretention. At this location, primary treatment practices that utilize groundwater, such as a stormwater wetland, may be more appropriate. If feasible, this design will be incorporated into the final plan set during the development and management phase of the project. Additional geotechnical investigations and site assessments to characterize soil characteristics and groundwater elevations at these locations will be necessary in order to determine the most appropriate primary stormwater treatment measures. A detailed description of a typical stormwater wetland basin is provided.

Upland Meadow Creation & Restoration Areas

Disturbed earth areas will be restored following construction with New England Conservation/Wildlife Mix, a native herbaceous seed mixture that will form a permanent, maintenance free cover of grasses, forbs, wildflowers and legumes. This seed mixture will provide erosion control and wildlife habitat value. Creation Areas refer to areas that were previously forested that will be converted to meadow. Restoration Areas refer to the restoration of the existing meadow habitat located on-site. Creation Areas in proximity to the turbine bases will be mowed to facilitate maintenance access. Remaining areas will not be maintained and allowed to revert to forest through the natural process of succession.

Upland Meadow Creation & Restoration Area Construction Sequence and Planting Schedule

1. Prior to all work, erosion control barriers will be installed as detailed on the Erosion Control Plan.
2. Where adequate topsoil (± 6 inches) does not exist, the Upland Meadow Areas shall be backfilled to a minimum depth of 6 inches with clean topsoil. Once final topsoil is in place, these areas will be planted with New England Conservation/Wildlife Mix after the completion of final grading. The seed mix will be applied at a rate of 1 lb/1,750 square feet. Soil conditioning activities, including raking, will be combined with the seed application process.
3. Where 2:1 slopes are utilized for final grading, or in areas specified on the plan sheets located between Turbine Location 2 and the Wetland 3, biodegradable erosion control matting will be installed over the seed mixture to promote establishment of vegetation and aid in stabilization. The contractor will use "SC2" erosion control matting, available at New England Wetland Plants Inc. (413) 548-8000 or an approved equivalent.
4. The contractor will be responsible for the careful installation, maintenance (including watering) and establishment of native plant material in these areas.
5. The erosion control barriers shall be disassembled following successful stabilization of these areas. Sediment collected by these devices will be removed and disposed of in a manner that prevents erosion and transport to a wetland or watercourse.
6. Monitoring of the Upland Meadow Creation and Restoration Areas will be conducted as follows by a qualified third party inspector. These areas will be monitored the first two growing seasons following their construction. Monitoring reports will be submitted to the Connecticut Siting Council and Connecticut Water Company no later than December 15 of each year. The reports will provide details on the three success standards described below. In the event that remediation measures are required, recommendations will be provided. The first year of monitoring will be the first year that the site has been through a full growing season after completion of construction and planting. For monitoring purposes, a growing season starts no later than May 31.
7. The Upland Meadow Creation and Restoration Areas will be assessed using three success standards. Each standard is described below. Success Standard 1: At least 75% of the surface area of the these areas should be reestablished with indigenous species within two growing seasons. Success Standard 2: Vegetation should be checked to ensure that no invasive species colonize in these areas. Success Standard 3: Slopes within and adjacent to the Upland Meadow Creation and Restoration Areas are stabilized.

8. In the event that remediation measures are recommended, BNE Energy, Inc. will initiate these measures with the assistance of the qualified third party inspector.
9. If necessary to control invasive species, herbicide applications will be conducted by a state-licensed individual. If applications are required in proximity to site wetlands, the herbicide RODEO® [glyphosate (53.8% active ingredient)] shall be utilized as it is the only herbicide approved by CTDEP for application in aquatic environments.
10. Fertilizers will not be used to promote growth within these areas. The proposed seed mixture contains a variety of native herbaceous species adept at colonizing recently disturbed areas.

Planting Schedule 1: Upland Meadow Creation & Restoration Areas

Upland Meadow Creation & Restoration Areas will be planted with New England Conservation/Wildlife Mix (or equivalent) at 1750 sq.ft./lb. or as recommended by manufacturer. This mix includes the following species: big bluestem (*Andropogon gerardii*), fringed brome grass (*Bromus ciliates*), creeping red fescue (*Festuca rubra*), Canada wild rye (*Elymus Canadensis*), Virginia wild rye (*Elymus virginicus*), switchgrass (*Panicum virgatum*), deer tongue grass (*Panicum clandestinum*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), common milkweed (*Asclepias syriaca*), New England aster (*Aster novae-angliae*), partridge pea (*Chamaecrista fasciculata*), showy tick-trefoil (*Desmodium Canadense*), grass leaved goldenrod (*Euthamia graminifolia*), gray goldenrod (*Solidago nemoralis*).

Stormwater Wetland Basin

The constructed stormwater wetland basin will achieve a high removal rate of particulate and soluble pollutants and nutrients through gravitational settling, native wetland plant uptake, absorption, physical filtration and biological decomposition. Total suspended solids contained within the stormwater discharge will be properly removed in excess of requirements noted in the 2004 Connecticut Stormwater Quality Manual. The stormwater wetland will provide additional treatment of both the quantity and quality of stormwater generated by the proposed development prior to its controlled discharge to the Site wetlands.

Stormwater Wetland Basin Design

The constructed stormwater wetland basin will consist of multiple cells including a forebay, high marsh, low marsh, and a micropool. The forebay is a deep water area at the inlet of the stormwater discharge that reduces the velocity of the runoff, traps coarse sediments, provides some pretreatment and spreads the runoff evenly over the high marsh and low marsh areas. The high marsh and low marsh areas consist of planted native emergent wetland vegetation to treat the two types of stormwater flows: high flows (by the high marsh) and the more frequent low flows (by the low marsh). The low marsh follows a sinuous pathway to maximize contact with the vegetation during the more frequent small precipitation events by providing more surface area to treat the "first flush" of runoff. This maximizes pollutant removal efficiency. The micropool is an open water area that will increase the diversity of wildlife habitat and prevent the outlet structure from clogging. Planting Schedule 2, which follows the Stormwater Wetland Basin Construction Sequence, provides a typical list of species to be planted in each type of wetland habitat within the stormwater wetland basin.

Stormwater Wetland Basin Construction Sequence and Planting Schedule

- 1) A qualified wetland scientist responsible for this planting design shall be notified 48 hours prior to any phase of the planting to monitor and oversee implementation of the construction of the various wetland habitats and planting plan.
- 2) The constructed stormwater wetland basin will be excavated and formed to the limits shown on this plan. The area will be excavated approximately 12 inches below final grades to allow for the placement of a wetland topsoil layer to achieve final grades.
- 3) Minor modifications to this grading plan may be made in the field by the wetland scientist in response to observed subsurface hydraulic conditions in order to achieve the proper hydrology conditions for the various created wetland habitats.
- 4) Wetland topsoil consisting of a 1:1 mixture (or equal volumes) of organic and mineral materials that contains at least 12 percent organic carbon content by weight will be placed over the bottom of the basin. Clean leaf compost or commercially available compost (well to partially decomposed) is the preferred amendment to achieve this standard, though other materials may be used if approved by the supervising wetland scientist. Materials should be uncontaminated and void of any woodchips. The contractor shall ensure that proper soil compaction levels (loose to friable) are maintained and appropriate corrective measures (e.g., rototilling) may be necessary.
- 5) The qualified wetland scientist may determine that dewatering is needed during the grading and planting of the constructed stormwater wetland basin. If necessary, excess water will be discharged into a temporary sediment trap. The need for dewatering and any specific method for dewatering is site specific and may be modified by the Contractor to accommodate field conditions. The Contractor shall provide the means and methods of dewatering consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
- 6) Prior to planting, the basin bottom will be lined with erosion control matting. Basin side slopes will be planted with the recommended native seed mixture (see Planting Schedule 2) and then covered with erosion control matting.
- 7) Constructed stormwater wetland basin plantings will take place once the above listed tasks have been completed. The species, size and quantity of the plantings will follow the constructed stormwater wetland basin planting schedule found in Planting Schedule 2.
- 8) Prior to delivery to the Site, the supervising wetland scientist may visit the nursery providing the planting stock to ensure that the specimens are healthy, free from pests, and suitable for use within the planting areas. Unsuitable specimens will be rejected and replaced with suitable specimens. The wetland scientist must approve any planting substitutions. All woody plant stock will be container-grown. Planting within the basin area will conform to the plans or will be completed in accordance with directions provided in the field by the wetland scientist. Only plant materials native and indigenous to the region shall be used.
- 9) All plantings to be spaced equidistant to provide a dense planting bed for effective stormwater treatment. Plantings will be placed in holes created in the erosion control matting.

- 10) The contractor hired to build the constructed stormwater wetland basin shall attend the pre-construction meeting. The contractor shall be responsible for the careful installation, maintenance (including watering if necessary), and establishment of the plant material in the basin area. All plants shall be guaranteed by the contractor to remain alive and healthy for a full twenty four (24) month period.

Planting Schedule 2: Stormwater Wetland Basin

Botanical Name	Common Name	Size	Spacing	Quantity
Low Marsh				
<i>Carex comosa</i>	Bearded sedge	2" plugs	2FT-O.C.	TBD
<i>Schoenoplectus (Scirpus) Acutus</i>	Hard-stem Bulrush	2" plugs	2FT-O.C.	TBD
<i>Sparganium americanum</i>	Burreed	2" plugs	2FT-O.C.	TBD
High Marsh				
<i>Carex lupulina</i>	Hop sedge	2" plugs	2FT-O.C.	TBD
<i>Juncus effuses</i>	Soft rush	2" plugs	2FT-O.C.	TBD
<i>Iris versicolor</i>	Blue flag iris	2" plugs	2FT-O.C.	TBD
<i>Scirpus atrovirens</i>	Green bulrush	2" plugs	2FT-O.C.	TBD
<i>Scirpus cyperinus</i>	Woolgrass	2" plugs	2FT-O.C.	TBD
Micropool & Edge of Forebay				
<i>Pontederia cordata</i>	Pickerelweed	2" plugs	2FT-O.C.	TBD
<i>Sagittaria latifolia</i>	Northern arrowhead	2" plugs	2FT-O.C.	TBD
<i>Scirpus acutus</i>	Hard-stem bulrush	2" plugs	2FT-O.C.	TBD
<i>Scirpus validus</i>	Soft-stem bulrush	2" plugs	2FT-O.C.	TBD

Side slopes of Stormwater Wetland Basin will be planted with New England Conservation/Wildlife Mix for moist sites (or equivalent) at 1750 sq.ft./lb. or as recommended by manufacturer. Wetland plugs to be provided by New England Wetland Plants, Inc. (413-548-8000), or approved nursery.