

**Exhibit 10A**  
**Erosion and Sedimentation Control Plan**

## **1.0 EROSION AND SEDIMENTATION CONTROL PLAN**

This erosion and sedimentation control plan has been developed to (1) satisfy the requirements of the Land Use Regulation Commission (LURC) Chapter 10 Rules and Standards and (2) identify road construction and stormwater management techniques that will minimize unreasonable soil erosion and prevent potential reductions in the water storage capacity of existing soils. The erosion control plan is included on the 400- to 900-series sheets of the project design plans located in Exhibit 1A. The plan identifies best management practices (BMPs) that can be implemented during project construction to minimize and control soil erosion. The plans, details, and specifications included in the plan identify appropriate BMPs for various soil and environmental conditions, explain the basis for their use, and provide details for their installation.

## **2.0 OVERVIEW OF EROSION AND SEDIMENTATION CONCERNS**

Activities that may potentially cause erosion during project construction primarily consist of grading of the access and crane path roads and grading and site preparation for the 27 wind turbine clearings (i.e., foundations, crane pads, and rotor assembly areas), as well as the Operations & Maintenance (O&M) and substation sites. As part of the Bowers Mountain Wind Project, approximately 0.21 mile of 10-foot wide access roads, 0.69 mile of 16-foot wide access roads, 3.63 miles of 20-foot wide access roads, 5.98 miles of 35-foot wide crane path roads, and 0.75 miles of 35-foot wide spur roads leading to the turbine sites will be used. A portion of these roads, approximately 1.44 miles (13%), will be improvements to the existing logging roads. The remaining 9.82 miles (87%) will be new construction that is primarily through wooded areas.

Additionally, the Moose Road, an existing 10-foot wide unpaved road, will be utilized by smaller construction vehicles (e.g., pickup trucks, dump trucks, concrete trucks, etc.) for access to the site during construction. Moose Road will not be used by cranes during construction or for delivery of turbine components. Moose Road is approximately 5.89 miles long, including two existing spurs. While the existing road will remain unimproved, it is anticipated that the contractor will 'dress up' the road as necessary with crushed gravel. Turnouts will also be added to this unimproved road in existing cleared areas, as necessary, for safety purposes. These turnouts will be removed following completion of construction and the impacted areas will be revegetated.

Due to terrain and grading limitations, temporary clearing around each turbine site will range from approximately 2.25 to 3.30 acres, of which approximately 0.43 acres will be permanent clearing for each turbine site. As construction plans are developed, the geometry of these clearings will likely be reduced and tailored to the specific site conditions (e.g., existing grades, depth to bedrock and soil types) to minimize steep grades and extended fill zones.

There will be a maximum of up to four permanent meteorological towers; each permanent met tower will require up to 2.92 acres of permanent clearing. In addition, there may be up to three temporary meteorological towers installed at three turbine sites; each temporary met tower will require up to 1.22 acres of additional temporary clearing.

The O&M site will not require any additional permanent clearing. The substation site will require approximately 2.58 acres of permanent clearing. Laydown areas for construction materials and equipment will require approximately 8.8 acres of temporary clearing. The laydown areas will be revegetated after completion of construction.

This is summarized in Section 1 Table 1.

## **3.0 EROSION AND SEDIMENTATION CONTROL MEASURES**

The proposed erosion and sedimentation control plan includes installation of silt fencing, erosion control mulch, riprap slope protection, and rock sandwich road construction. These BMPs will be designed in

accordance with the following standard references on erosion and sedimentation control in the State of Maine:

*Maine Erosion and Sedimentation Control Best Management Practices* [Maine Department of Environmental Protection (MDEP), 2003];

*Erosion and Sediment Control Handbook for Maine Timber Harvesting Operations – Best Management Practices* (1991); and

*Land Use Handbook – Section 6 – Erosion Control on Logging Jobs and Revision (Supplement)* (effective January 5, 1981).

Erosion and sedimentation control design plans, details, and specifications will be reviewed by a State of Maine licensed Professional Engineer and Certified Professional in Erosion and Sediment Control who specializes in design and implementation of erosion control methods.

If winter or early spring construction occurs, the recommended winter construction BMPs will be followed. These include application of hay mulch at twice the standard rate and installing a double row of sediment barriers for areas within 100 feet of a wetland. Winter construction specifications are also provided in Exhibit 1A, Sheet 3 of the project design plans.

Following is a brief summary of the implementation of each of the BMPs in the proposed erosion and sedimentation control plan. Typical details for each BMP are included with the turbine site and road plans in Exhibit 1A.

#### **Silt Fence**

Silt fence, or a combination of silt fencing and erosion control mulch, will be installed down-gradient of construction and clearing activities. In critical areas, particularly near wetlands, a double layer of silt fencing may be installed. Multiple rows of silt fencing may also be necessary in long areas of cuts. The final layout will be prepared in accordance with typical design methods for these BMPs included in the above references. Silt fence should not be used in areas of concentrated stormwater runoff.

#### **Erosion Control Mulch**

Erosion control mulch will be used to provide cover for denuded or hydroseeded areas until vegetation is established for slope stabilization. Mulch placed on slopes less than 10 percent will be anchored by applying water or another tackifier; mulch placed on slopes steeper than 10 percent will be covered with fabric netting and anchored with staples as deemed necessary. Wood mulch generated by chipping trees and other cleared woody vegetation will be used to provide cover material over bare slopes as an erosion control material. Depending on up-gradient slopes, erosion control mulch may also be bermed up to 12 inches high on the uphill side of silt fences. Erosion control mulch should not be used in areas of concentrated stormwater runoff.

#### **Stormwater Ditch Armoring (Riprap)**

Steeply-sloped ditches along project roadways will be armored with appropriately sized riprap armoring to stabilize the ditch.

#### **Rock Sandwich Road Construction**

The erosive potential of water that may be concentrated in ditches will be minimized by the use, where applicable, of “rock sandwich” road construction as suggested by State Soil Scientist David Rocque. Rock sandwich construction will be used in fill areas at the bottom of any low points with high ground water or poor soils to enable water to flow down to cross slopes that are intercepted by the project roadway. This will eliminate the concentration of flows in a ditch on the uphill side of the road and allow water from uphill areas to continue flowing under the road in a layer of coarse gravel.

### **Ditch Turnouts and Level Spreaders**

Where ditches are necessary, primarily in cut sections of the roadway, appropriately sized and located cross-culverts and ditch turnouts will be used to dissipate collected stormwater runoff back to sheet flow. Plunge pools, check dams, and level spreaders will be used to dissipate concentrated flows that might cause erosion and thereby protect culvert outlets. Stormwater ditches will be designed as suggested by MDEP and LURC Chapter 10 criteria, which requires a ditch turnout ending with a level spreader every 250 feet if both sides of a crowned road are being diverted, and every 400 feet if only one side of the road is discharged through the ditch and level spreader. In areas of long deep cuts, MDEP has found that the creation of the level spreaders themselves are an unnecessary disturbance and has allowed longer runs and oversized spreaders at the end of the cut section. The final erosion and sedimentation control plan will reflect these findings.

### 3.1 Site Plans

James W. Sewall Company prepared the road and turbine site design plans for the site development application. These plans identify vegetation types and locations, slopes, and other natural features near the disturbed areas within the project site. The plans and accompanying details show and describe temporary and permanent erosion control measures.

### 3.2 Sequence of Construction

In general, erosion control measures will be implemented down-gradient of each work area before earthwork begins. Construction activities will be sequenced to minimize the project area that is disturbed but unstabilized at any point in time. Disturbed and stockpiled soil will be temporarily stabilized at the end of each workday. Temporary erosion control measures will be the first items installed and the last items to be removed after healthy vegetation is established.

After preliminary layout and staking of the new road segments and areas to be cleared, erosion control measures will be installed. As the roads are constructed and areas are cleared, additional measures will be implemented. As roads reach final grade, permanent measures, such as ditch turnouts and level spreaders, will be constructed.

Cleared areas will receive temporary mulching and seeding. Topsoil stockpiles will be protected by double measures such as temporary seeding and silt fences. After turbines are installed, a significant portion of each turbine clearing will be regraded with the stockpiled topsoil and permanently stabilized with mulch.

Because stabilization of areas following completion of final grading is very important to prevent erosion, areas will be stabilized within seven days of work completion. Final stabilization will consist of coarse gravel or blast rock (project roadways), mulch (turbine clearings), permanent seeding and erosion control mulch/matting (less steep cut and fill slopes), and riprap (steep cut/fill slopes, ditches and culvert outlets).

### 3.3 Maintenance and Inspection of Erosion Control Measures

Maintenance of erosion control measures is key to their successful operation. BMPs will be inspected at least weekly and after any rainstorm greater than 0.5-inch by the project General Contractor, who will be certified in erosion control practices by the MDEP, as well as periodically by third-party inspection personnel under direct supervision of a licensed Professional Engineer. Inspections will be documented in writing and be made available to LURC upon request. Workers on-site will be instructed to report problems as they occur so remedial action can be taken as soon as possible.