

**Section 14**  
**Basic Standards Submission**

**AMENDED OAKFIELD WIND PROJECT**  
**SECTION 14**  
**EROSION AND SEDIMENTATION CONTROL PLAN**  
**L-24572-24-A-N / L-24572-TF-B-N**

*Submitted to:*

**MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION**

*Submitted by:*

**Evergreen Wind Power II, LLC**  
**129 Middle Street**  
**Portland, ME 04101**

*Prepared by:*

**DELUCA-HOFFMAN ASSOCIATES, INC.**  
**778 Main Street**  
**South Portland, Maine**  
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B – Sample Certification and Inspection Forms

## 14.0 Introduction

DeLuca-Hoffman Associates, Inc. has been retained by Evergreen Wind Power II to prepare designs and portions of the permit applications for a series of wind turbines proposed to be sited within the Towns of Oakfield and T4R3 WELS, Maine. The following narrative is intended to amend Permit Order #24572-24-A-N as the Applicant seeks to expand the project boundary to include a total of 50 turbines. DeLuca-Hoffman Associates, Inc. has designed the primary access roads and summit roads, which will be used to access the wind turbines from existing roadway systems; and also prepared the Stormwater Management Report, Erosion and Sedimentation Control Plans, and Blasting Narrative associated with the primary access roads and summit roads.

Section 14 - Basic Standards submission prepared by DeLuca-Hoffman Associates, Inc. is supported by the project Civil Engineering Design Drawings included with this submission. Please refer to Cover Sheet C-1 for a complete list of the project drawings.

The designs and reports prepared by DeLuca-Hoffman Associates, Inc. rely upon baseline information provided for this project by other consultants to Evergreen Wind Power II.

DeLuca-Hoffman Associates, Inc. has prepared the following plan, which presents the erosion and sedimentation control provisions required to construct the roadways.

The baseline data prepared by other consultants includes the following:

- The identification and location of wetlands and other natural resources by Stantec Inc.
- Surficial Soils Surveys, identification of water courses and seep areas, and narratives prepared by Albert Frick Associates.
- Base topographic mapping prepared by Aerial Survey.

There are other physical elements of the project such as the electrical power transmission lines, staging areas, and small buildings with attendant construction areas, which are being designed by other consultants and discussed in separate portions of the application. The fundamentals of erosion and sediment control presented in this document for the roads will be implemented for the operation and maintenance building pad, staging areas and electrical collector line access route construction. A separate erosion and sediment control plan has been written for transmission line corridor construction.

This plan presents the erosion and sedimentation control provisions required to construct the roadways and turbine pads. There is the potential for conditions to be encountered during construction that have not been anticipated at this time. This plan and supporting drawings identify the tools which can be implemented during construction of the roadways and pads, explain the basis for their use, and provide details for their installation to be able to field adjust the controls to match encountered conditions. The erosion and sedimentation control plan and attendant drawings are not intended to provide the exact location for placement of the erosion control measures, but rather provide the basis for their use. The erosion and sedimentation control plan has been developed to satisfy the requirements of Site Location of Development Permit Basic Standards requirements and calls for provisions for the construction of roads and turbine pads to minimize unreasonable soil erosion and not result in reduction in the capacity of the land to absorb and hold water.

#### **14.1 Existing Site Conditions**

The development activities proposed by Evergreen Wind Power II, LLC will generally involve access from multiple, existing land management roads within the Towns of Oakfield and T4R3 WELS, Maine. New road construction and upgrades to existing land management roads are contemplated, thus requiring adequate measures be in place to prevent and minimize erosion and sediment transport from disturbed areas. Much of the existing land management roads have a defined drainage ditch system and are reasonably maintained. Typical road widths are 14' to 18'; however, this may vary, depending upon

forest management practices and frequency of existing use. In many areas, improvements are proposed, including grading, drainage course stabilization, and road widening as part of the proposed activity. In other areas, new road construction is warranted to provide delivery and crane access to the site.

Wind turbine pad and road construction Lot development activities are primarily planned for areas that have moderate topography (<25% average slope) and are located within land areas away from sensitive natural resources including streams, vernal pools or wetlands.

## 14.2 Overview of Soil Erosion and Sedimentation Concerns

The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. The “K” value is frequently used with the universal soil loss equation. The higher values are indicative of the more erodible soils. The soils identified by Albert Frick Associates and the USDA Medium Intensity Soil Survey with the attendant “K” values are listed in Table 1.

<b>Table 1 – Surficial Soil Types and Relative Erodibility</b>		
<b>Soil Type</b>	<b>Soil Description</b>	<b>K Value</b>
Howland (SWP) and (MWD)	HSG/C Course-loamy glacial till, somewhat poorly drained or moderately well drained – not hydric	0.24 – 0.28
Howland (SWP) – Monarda complex	HSG/C Course-loamy glacial till, somewhat poorly drained – not hydric	.24 - .28
Howland SWP – Thorndike Complex	HSG C/D Coarse loamy glacial till, somewhat poorly drained – shallow to deep bedrock – not hydric.	0.24 - .28
Monarda	HSG D Loamy glacial till, poorly drained – hydric.	>.28
Thorndike	HSG C depending on bedrock exposure. Fine grained glacial till. Shallow to bedrock.	0.24

Based on a review of the K values, the onsite soils in the area where construction is focused are potentially slightly to moderately erodible after the cover material is stripped.

The control of erosion and sediment transport from the proposed construction of the access roads and turbine sites has several requirements which will be necessary, irrespective of tools selected for construction:

- A strict limit on the amount of denuded area exposed at any time;
- The rapid establishment of stabilized drainage patterns to control runoff and divert it away from construction areas;
- The proper selection and installation of the erosion control materials;
- The use of native materials to the extent possible; and
- The availability of the materials for construction without delay.

These five requirements are detailed in the following paragraphs:

### **2.1 Limitation of Denuded Areas**

There will undoubtedly be periods of adverse weather during the construction period for the roadways and turbine pads. Most construction areas are susceptible to erosion during adverse weather. By limiting the amount of denuded areas, the area exposed to erosion at any given time is reduced. Consequently, a major rain event will not cause significant erosion, because the open area which is susceptible to erosion will be small.

Achieving this objective will require that roadway segments be constructed and completed within a reasonable period, as opposed to sequential step progression where one element (such as clearing and grubbing) is entirely completed followed by the next construction element.

To achieve this objective, construction work should adhere to the sequence established by this plan.

### **2.2 Rapid Establishment of Stabilized Drainage Patterns to Control Runoff and Avoidance of Erosion**

Establishment of drainage patterns includes the diversion of runoff from the construction site and the installation of the measures to collect and convey runoff

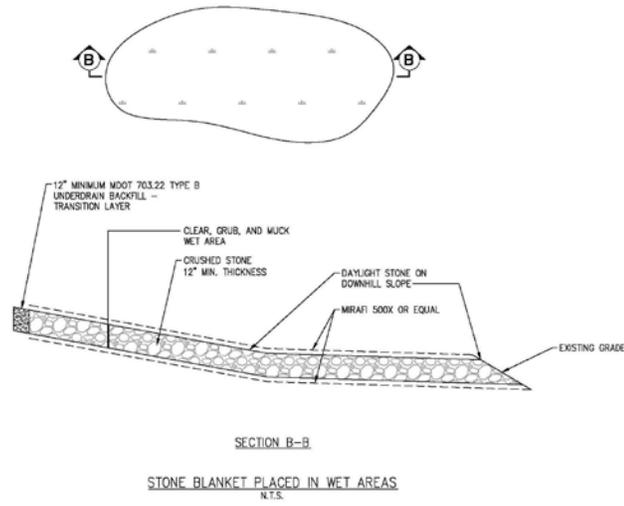
across the roadways or around turbine pad sites. These methods are described in the same sequence in which construction of these measures is recommended, and will typically follow clearing operations.

### **2.2.1 Wet or Seepage Areas**

The first step will be to identify areas where wet conditions or seepage is observed. The following sequence of measures to address these conditions is required:

- Review the proposed road profile and determine if an adjustment of the profile needs to be made to elevate the section of roadway over the wet seepage area. If so, the design profile should be adjusted, being cautious to remain within the basis of design parameters established for the roadway. Generally, the proposed road profiles have been developed to provide adequate measures for the maintenance of natural hydrology.
- Grub the wet area – Grubbing of the wet area should occur only when a deep (>2 feet) organic layer is present or when it otherwise precludes the placement of filter fabric over it. Otherwise, the organic layer shall remain and any stumps brought to a level surface to allow the placement of filter fabric.

Place fabric and drainage stone – The fabric should be overlapped at the edges by approximately 18 inches and be installed to minimize creases of the fabric. If the conditions are very wet, it may be necessary to use staples or ballast to secure the fabric until the stone is placed on top of the fabric. The filter fabric shall be placed only below and above the stone layers. A minimum 12” layer of MDOT 703.22 Underdrain Type B backfill shall be placed to the sides of the stone layer to function as a transition layer between native ground and the stone layer. The figure below shows a detail of stone blanket for placement in wet areas.



- ❑ Install cross culvert – In most areas, at least a 12-inch culvert will be installed within the stone bedding. All culverts shall be installed with a minimum invert 3” above the bottom of the stone layer, thereby avoiding circumventing of the stone layer. This may be done concurrently with the stone placement or as a subsequent step. However, if done later, the fabric will need to be cut and repaired.
- ❑ Place and secure fabric over the stone (unless stipulated otherwise by the geotechnical representative).
- ❑ Cover fabric with common borrow to provide at least 15 inches of cover over the top of the culvert.
- ❑ Install the riprap culvert inlet and outlet aprons and channel, including the flow dispersion lip for the culvert outlet.

### 2.2.2 Install Cross Culverts Including Aprons and Outlet Flow Dispersion Lip

It is very important that culverts be carefully sited. Field observation will be required to finalize culvert locations. The final culvert locations should be at locations that appear to be stable and not eroded and at either natural low areas or areas where wide flow dispersion can be achieved. The accompanying permit

drawings generally depict the approximate culvert locations based on topography and drainage area size. A crushed stone level spreader may be used to achieve wide flow dispersion to avoid concentrated or channelized flow immediately downstream of the culvert outlet. Culverts installed at natural channelized drainage paths may be installed without flow dispersion at the outlet. Culverts should be properly bedded and backfilled with cover material prior to crossing them with construction vehicles. Riprap aprons at the inlet and outlet should be installed at the same time that culverts are installed.

### 2.2.3 Divert Uphill Drainage

Runoff that must be handled during construction includes that emanating upslope of the work area. There is a series of implementation steps or tools to control runoff from the upgradient areas when necessary. These include:

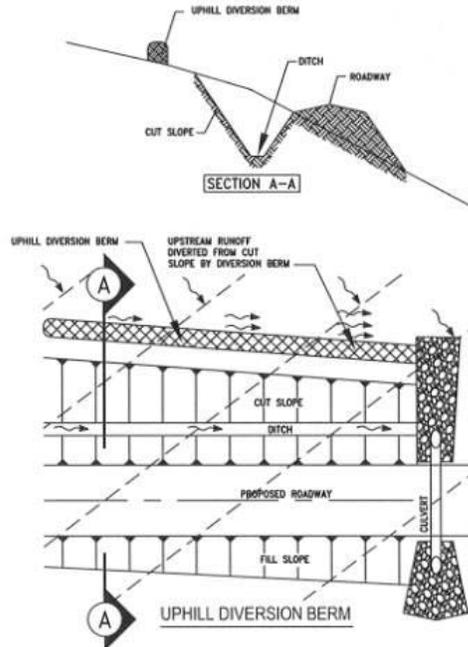
- A barrier positioned across the upslope area to divert the water. This method will be very effective when the barrier directs the runoff to an area where a culvert has been set to convey the water across the proposed access road. The upstream barrier is illustrated in the sketch below.

The material of the diversion berm will vary. A suggested schedule of materials for the barrier, as well as suggested maintenance and removal, is provided in the following table:

<b>Table 2 – Riprap Material Size for Diversion Berm</b>				
<b>Flow Range (cfs)</b>	<b>Gradient (% Slope)</b>			
	<b>0-5</b>	<b>5-10</b>	<b>10-15</b>	<b>&gt;15</b>
0-2	d50 = 2"	d50 = 3"	d50 = 3"	d50 = 4"
2-4	d50 = 2"	d50 = 3"	d50 = 4"	d50 = 5"
4-6	d50 = 3"	d50 = 4"	d50 = 5"	d50 = 6"
6-10	d50 = 3"	d50 = 5"	d50 = 7"	d50 = 8"

- An upgradient trench to divert the water: This alternative involves trenching in the upstream area to divert the runoff away from the slope. Instead of a

berm, a ditch is constructed. The following table illustrates the treatment of the diversion ditch.



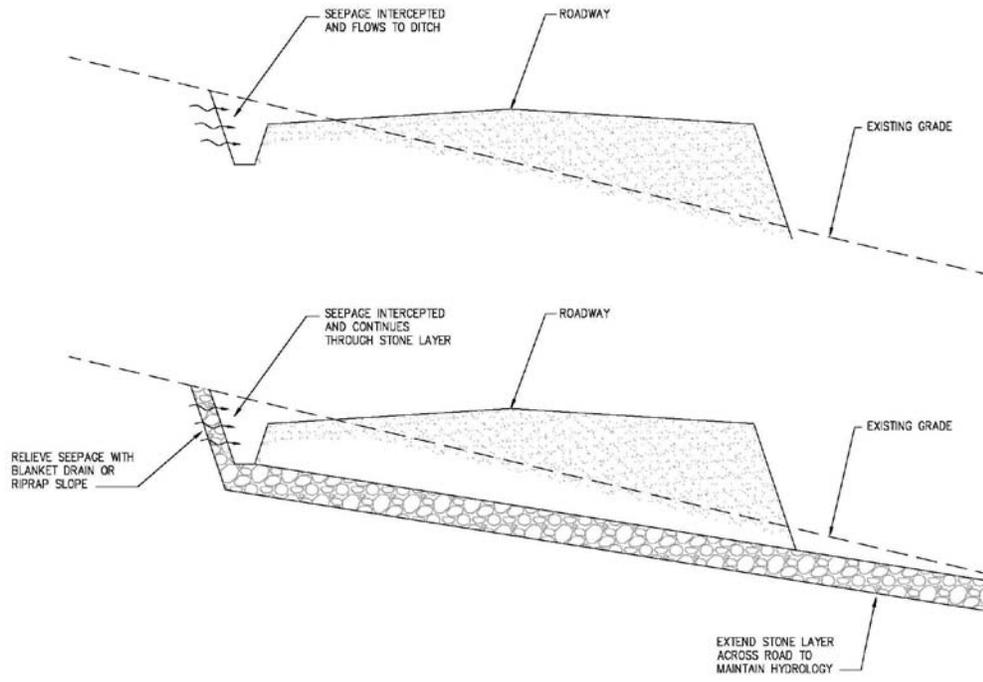
<b>Flow Range (cfs)</b>	<b>Gradient (% Slope)</b>			
	<b>0-5</b>	<b>5-10</b>	<b>10-15</b>	<b>&gt;15</b>
0-2	d50 = 2"	d50 = 3"	d50 = 3"	d50 = 4"
2-4	d50 = 2"	d50 = 3"	d50 = 4"	d50 = 5"
4-6	d50 = 3"	d50 = 4"	d50 = 5"	d50 = 6"
6-10	d50 = 3"	d50 = 5"	d50 = 7"	d50 = 8"

Generally, diversion berms will only be used in lower sections of the roadway where upstream drainage runoff is substantial due to the size of the catchment.

#### **2.2.4 Construct Backslope and Drainage Collector**

The final step in the control of the drainage is to construct the ditch on the “cut” side of the roadway. This ditch is typically two feet deep with a maximum 2H:1V slope to the edge of shoulder and a backslope that matches the cut slope. The ditch should be protected with the final cover material as soon as possible. The ditch will lead to either a ditch turnout or the riprap aprons of a cross culvert.

In some cases, there may be a drainage collector up the backslope to intercept the runoff from the diversion berm. Ditching should only be used where the bottom elevation can be maintained above the natural groundwater level. In areas where seepage is observed and is associated with shallow groundwater, it will be necessary to construct the road using the stone “sandwich” approach discussed in detail later in this narrative. Otherwise the use of a stone blanket drain shall be used as described in the following depiction:



STONE BLANKET/RIPRAP USE IN AREA OF BACKSLOPE SEEPAGE  
N.T.S.

### 2.3 The Proper Selection and Installation of Erosion Control Materials

The erosion control material selection is contingent upon the slope, the tributary watershed, and the season of construction. Provisions for erosion control in winter are different than those used at other times of the year.

The installation of erosion control materials should be in strict accordance with the details that are part of the Construction drawings, Maine DEP Best Management Practices, and information provided by suppliers.

#### **2.4 The Availability of the Materials for Construction**

The contractor will not be allowed to substitute material without owner approval, or delay installation of erosion control measures. The contractor shall be given the responsibility to maintain an adequate supply of all erosion/sedimentation control materials. In the event that a material supply is depleted, additional areas for the roadway or turbine pad construction cannot be denuded until the materials have been received and are available for use on the project.

### **14.3 Description and Location of Limits of All Proposed Earth Movements for the Roadway Construction**

The construction of the roadways and turbine pads will disturb a variable width cross section. The goal of this section is to minimize disturbance. The width of the disturbed area will vary based upon the following:

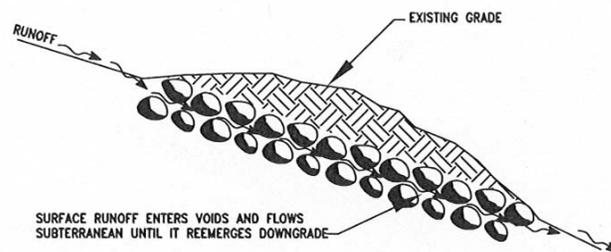
- ❑ The existing transverse grade;
- ❑ The relative grade of the proposed section relative to the existing grade;
- ❑ The selected side slope treatment;
- ❑ Uphill diversion methods (if any);
- ❑ Whether the road is in tangent or a curve; and
- ❑ Whether the cut side is being widened to generate fill or the fill side is being widened to accommodate waste material.

In addition, there will be disturbance for stump disposal areas and for the borrow areas where the roadway and turbine pad, embankment fill, and surface gravels will be obtained.

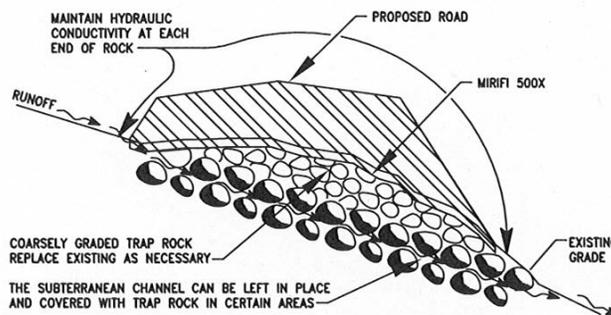
## 14.4 Existing and Proposed Drainage Features for Roadways and Turbine Pads

The new roadways and turbine pads will traverse timberland currently containing no formal drainage systems. The basic measures to capture, convey and control drainage may include:

- Retaining existing seeps and subsurface drainage channels to the extent possible. (In certain areas, surface seeps and runoff enter the subterranean features although there is no evidence of surface flow.) The tool to accommodate these situations is the fabric and crushed stone or trap rock sandwich, placed in locations where wet conditions are observed, or trap rock protected by fabric under the prepared subgrade. These are illustrated in the following figures:



EXISTING SUBTERRANEAN FLOW AREA



CONSTRUCTION OVER SUBTERRANEAN FLOW AREAS

- In some areas, the runoff may principally be a mix of sheet flow, shallow concentrated flow, and subterranean flow. Once again the use of the stone sandwich should be the primary construction method to minimize disruption to the existing hydrologic conditions. Careful culvert placement may also be used to address peak

runoff conditions, although culverts must be placed to avoid circumventing of the stone layer to the extent practicable. The project drawings depict locations where it is anticipated that the rock sandwich section will be required. These locations are based on the findings of the high intensity soil survey completed by Albert Frick Associates.

- Intercepting groundwater where seeps or erosion of the cut slope are likely to occur.

Culvert sizing has been based on the Rational Method and supporting calculations are contained in Section 12 of the Application. Monitoring of the culvert outlets after construction will be necessary to confirm the culvert discharges are not causing erosion in downstream areas. If erosion is observed, the following corrective alternatives are available:

- Placement of non-erodible material or geotextiles to re-disperse the flow.
- Adding Culverts – For example, if a problem area is observed, and it appears to be fed by 200 feet of runoff intercepted in the uphill ditch, a second culvert placed midway back of the ditch line would reduce the flow by 50%. Therefore, follow-up monitoring of the outlets will occur to verify discharge stability.

The existing roadways have culverts and bridges, which will be retained. If longer culverts are required along existing roadways, the diameter of the new culvert will be the same as the old one. When culverts require replacement, small culverts will be replaced by ones one size larger (for example, a 15-inch culvert would be replaced with an 18-inch culvert). Larger culverts would be checked for size before replacement, using the standard procedures.

## **14.5 Critical Areas**

The following three areas are considered “critical” areas:

### 5.1 Areas Within the Viewsheds

Stump disposal areas, borrow sources, laydown areas and other features which result in additional clearing should not be located within the areas considered to be viewsheds.

### 5.2 Areas Near Particular Natural Resources

Wetlands, streams, and other natural resources are considered critical areas. These critical areas should include a minimum 100-foot buffer. Only the specific work shown on the plans shall be permitted in these areas. No optional areas such as stockpiles, stump disposal areas, or borrow sources should be located within these critical areas.

### 5.3 Areas With Slopes Over 25%

These areas are inherently unstable due to slope. Stump dumps and stockpiles should not be located within these areas.

## 14.6 Erosion/Sedimentation Control Measures

The developer will provide their contractors with the Final Erosion Control Plan, since it defines the basis of the erosion/sedimentation control plan for the project. **It should be the responsibility of the contractor to properly install these devices to control fugitive dust emissions, avoid turbid discharges, and avoid significant sedimentation throughout the construction process.** The proper installation of these devices, combined with the essential steps of implementation outlined in Sections 3.1 to 3.4, will be necessary for the contractor to meet these responsibilities. The devices described in this section are among the tools available to the contractor for construction of this project. These devices shall be installed as indicated on the plans or as described within this plan. For further reference, see the *Maine Erosion and Sediment Control Best Management Practices*, March 2003. Also see: State of Maine Department of Transportation (MDOT), *Standard Specifications, Highways and Bridges*, Revision of 1992; *Best Management Practices for Forestry: Protecting Maine's Water Quality*, 2004; *Stormwater Management for Maine, Volume III, January 2006: Best Management Practices Technical Design Manual*; and *Land Use Handbook – Section 6 – Erosion*

*Control on Logging Jobs* and Revision (Supplement), effective January 5, 1981. In addition, the contractor may add measures to meet the requirements as defined by this plan.

The following devices shall be available to implement as part of the construction activities:

#### **6.1 Siltation Fence**

If used, siltation fence shall be installed down slope of any disturbed areas to trap runoff-borne sediments until the site is revegetated. The silt fence shall be installed per the detail provided in the plan set. The fence will be inspected immediately after each rainfall and at least daily during prolonged rainfall. The contractor shall make repairs immediately if there are any signs of erosion or sedimentation below the fence line. Proper placement of stakes and keying the bottom of the fabric into the ground is critical to the fence's effectiveness. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence, the barrier shall be replaced with a stone check dam.

Siltation fence on the downgradient side of the roadway or turbine pad should be installed after the profile and slope treatment for the applicable segment of roadway or pad area has been determined.

Silt fence is classified by three categories of use depending upon the timing of installation and intent, as follows:

<b>Table 4 – Schedule of Silt Fence Requirements</b>		
<b>Silt Fence</b>	<b>Type and Purpose</b>	<b>Time of Installation</b>
Category Use 1	To trap sediment along the downgradient edge of the roadway with the silt fence; placed in segments to nearly parallel existing contours.	At initial site preparation and clearing, prior to other work. Also install around the perimeter of any stockpile that has erosion potential.
Category Use 2	To trap sediment from the work area; install in short sections parallel to existing contour; typically occurs where proposed and existing contours form a “V” shape.	During construction as the contour is shaped.
Category Use 3	To trap sediment along the base of proposed cut slopes; typically used in deeper cut areas.	During construction after new grade and backslope are shaped. Time between work in area and shaping new grade to allow silt fence to be installed shall be minimized. Typically not required if the cut slope height exceeds five feet. However, slopes that are found to be wet or have seepage may warrant the use of this silt fence for shallower heights.

## 6.2 Erosion Control Mix For Sediment Barriers

An erosion control mix sediment barrier is a berm installed across or at the toe of a slope and down gradient of disturbed earth. Its purpose is to intercept and retain small amounts of sediment from disturbed or unprotected areas of limited extent. (For other sediment barrier use, see MDEP BMP handbook section 14.0.). **An erosion control mix sediment barrier is intended to be the primary siltation barrier measure used on the project due to availability and applicability for the proposed activities.**

The erosion control mix sediment barrier is used where:

- Sedimentation can pollute or degrade a wetland or any other water resource.

- Sedimentation will reduce the capacity of storm drainage systems or adversely flood adjacent areas.
- The contributing drainage area does not exceed 1/4 acre per 100 ft of barrier length; the maximum length of slope above the barrier is 100 feet; and the maximum gradient behind the barrier is 50 percent (2H:IV). If the slope length is greater, additional measures such as diversions may be necessary to reduce that length.
- Sediment barriers cannot be used in areas of concentrated flows. Under no circumstances should erosion control mix sediment barriers be constructed in streams or in swales.

### **6.2.1 Specifications**

Erosion control mix can be manufactured on or off the project site. It consists primarily of organic material, separated at the point of generation, and may include: shredded bark, stump grindings, composted bark, or flume grit and fragmented wood generated from water-flume log handling systems. Wood chips, ground construction debris, reprocessed wood products or bark chips are not acceptable as the organic component of the mix.

Erosion control mix contains a well-graded mixture of particle sizes and may contain rocks less than 4” in diameter. Erosion control mix must be free of refuse, physical contaminants, and material toxic to plant growth.

### **6.2.2 Composition**

The mix should have the following composition:

- The organic matter content is between 80 and 100%, dry weight basis.
- Particle size by weight is 100 % passing a 6” screen and a minimum of 70 %, maximum of 85%, passing a 0.75” screen.
- The organic portion needs to be fibrous and elongated.
- Large portions of silts, clays or fine sands are not acceptable in the mix.
- Soluble salts content is less than 4.0 mmhos/cm.
- The pH should fall between 5.0 and 8.0.

### **6.2.3 Installation of Organic Sediment Barriers**

- On slopes less than 5 % or at the bottom of steeper slopes (<2H:IV) up to 20 feet long, the barrier should be a minimum of 12” high, as measured on the uphill side of the barrier, and a minimum of two feet wide. On longer or steeper slopes, the barrier should be wider to accommodate the additional flow.
- The barrier must be placed along a relatively level contour. It may be necessary to cut tall grasses or woody vegetation to avoid creating voids and bridges that would enable fines to wash under the barrier through the grass blades or plant stems.
- Good locations for stand-alone use without reinforcement by other BMPs are:
  - At toe of shallow slopes;
  - On frozen ground, outcrops of bedrock and very rooted forested areas; and
  - At the edge of gravel parking areas and areas under construction.
- Locations where other BMPs should be used:
  - At low points of concentrated runoff;
  - Below culvert outlet aprons;
  - Where a previous stand-alone erosion control mix application has failed;
  - At the bottom of steep perimeter slopes that are more than 50 feet from top to bottom (i.e., a large up-gradient contributing watershed).

### **6.3 Erosion Control Mix for Mulch**

Erosion control mix is long-term mulch that creates a good buffer around disturbed sites such as turbine pads, roads and drainage ways. Erosion control mix can be used as a permanent ground cover, as an overwinter stabilization mulch, or left to naturalize. It is not designed to support grass vegetation, but legumes or woody vegetation may be established to add stability.

Erosion control mix must not be used in areas of concentrated water flows. Evidence of groundwater seepage on slopes may require the erosion control mix to be replaced with riprap.

### 6.3.1 Specifications

Erosion control mix can be manufactured on or off the project site. It consists primarily of organic material, separated at the point of generation, and may include: shredded bark, stump grindings, composted bark, or flume grit and fragmented wood generated from water-flume log handling systems. Wood chips, ground construction debris, reprocessed wood products or bark chips are not acceptable as the organic component of the mix.

Erosion control mix is composed of a well-graded mixture of particle sizes and may contain rocks less than 4" in diameter. Erosion control mix must be free of refuse, physical contaminants, and material toxic to plant growth.

### 6.3.2 Composition

The mix composition should have the following composition:

- The organic matter content is between 80 and 100%, dry weight basis.
- Particle size by weight is 100 % passing a 6" screen and a minimum of 70 %, maximum of 85%, passing a 0.75" screen.
- The organic portion needs to be fibrous and elongated.
- Large portions of silts, clays or fine sands are not acceptable in the mix.
- Soluble salts content is less than 4.0 mmhos/cm.
- The pH should fall between 5.0 and 8.0.

### 6.3.3 Installation

- When used as mulch, the length and steepness of the slope determines the appropriate **thickness** of the erosion control mix. **Erosion control mix is not recommended for slopes steeper than 2H:IV.** For other slopes, the following minimums apply:

**On slopes of 3H:IV or less:** 2 inches plus an additional 1/2 inch per 20 feet of slope up to 100 feet;

**On slopes between 3H:IV and 2H:IV:** 4 inches plus an additional 1/2 inch per 20 feet of slope up to 100 feet.

*The thickness of the mulch at the bottom of the slope needs to be:*

..... < 3:1 slope .....	slopes between 3:1 and 2:1
< 20' of slope .....	2.0" .....4.0"
< 60' of slope .....	3.0" .....5.0"
< 100' of slope .....	4.0" .....6.0"

**6.4 Riprap**

Riprap slopes, ditch linings, stone check dams, hay bale barriers, and culvert outlet aprons and level spreaders are intended to reduce runoff velocities and protect denuded soil surfaces from concentrated flows. Installation details and stone sizes are to be provided in the construction details which are part of the plan set.

**6.5 Diversion Berms**

Flow dispersion berms at culvert outlets are intended to help re-disperse the flow. In areas where a defined area for concentrated flow is visible, the need for this will be less pronounced. In other areas, the redistribution of the water will be necessary. The identification of appropriate discharge locations and treatment of culvert discharges in the field is usually the most effective way to achieve the successful implementation of the erosion control methods. During the course of construction, the flow pattern of the runoff discharge should be carefully observed. There will be instances where the outlet area is less stable than anticipated. In these areas, it is recommended that a geotextile or stone be placed downgradient to a location where stable flow conditions are apparent.

**6.6 Construction Entrances**

A construction entrance will be constructed between the terminus of the last completed segment of roadway and the next section scheduled for construction. A crushed stone-stabilized construction entrance will be installed wherever construction traffic will enter the public road system. The size, type, and locations of these shall be as shown and detailed in the Drawings. Entrances shall be constructed with a six-inch minimum layer of two-inch stone. Stone

entrance shall be placed on geotextile fabric and shall include a minimum 10-foot by 10-foot taper on both sides of the entrance to allow for turning vehicles.

#### **6.7 Sediment Traps**

Stone sediment traps will be installed ahead of culvert inlets. Installation details are provided in the plan set.

#### **6.8 Level Lip Spreader**

Unless otherwise specified or indicated on Drawings, level lip spreaders will generally consist of 25-foot long, 6-inch deep, stone-lined ponded areas discharging over a level berm through a well-vegetated buffer area. These spreaders will function to disperse channelized flow into shallow sheet flow. Construction and length of level lip spreaders shall be as detailed on the Drawings.

#### **6.9 Dirtbags™**

Dirtbags™ will be required to be on site and available for construction dewatering. These will have particular benefit for dewatering areas where wet subgrade has been encountered and filtering of turbid water is required.

#### **6.10 Dust Control**

Contractor shall take necessary steps to prevent blowing and airborne movement of dust from exposed soil surfaces. Maintaining natural or temporary vegetation and or mulching shall be used where practical. Mechanical sweepers or washing of pavement shall be used where necessary to prevent and remove dust buildup on paved surfaces. Regularly traveled soil surfaces shall be maintained to minimize dust by periodically moistening bare areas with adequate water to prevent dust. Calcium chloride solution spray should be used in areas experiencing significant dust problems to reduce frequency of watering. Repetitive treatment shall be applied as necessary to accomplish adequate dust control (refer to Section 17.0 in the *Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices* manual).

### 6.11 Loam and Seed

Loam and seed is intended to serve as a permanent revegetative measure for denuded areas not provided with other erosion control measures such as erosion control mix for mulch or riprap. To allow natural woody vegetation to grow back, **erosion control mix slope protection is preferred over loam and seed, and will be used as the primary soil stabilization measure.** Application rates for seeding are provided in Attachment A of this section for temporary and permanent seeding in non-wetland areas.

### 6.12 Separation Fabric

Separation fabrics are to be placed in wet crossing areas in conjunction with stone or trap rock; they reduce turbidity and avoid rutting of the subgrade on the construction site.

## 14.7 Temporary Erosion/Sedimentation Control Measures

The following are planned as temporary erosion/sedimentation control measures during construction:

- Erosion control mix barriers shall be relied upon as the primary sediment control barrier for the project. If erosion control mix is not available, Category 1 and 2 siltation fence shall be installed along the downgradient side of the proposed disturbance areas. The siltation fence will remain in place and properly maintained until the site is acceptably revegetated. The following maintenance measures shall apply to the use of erosion control mix barriers.
- The erosion control mix barriers should be inspected regularly and after rainfall events exceeding 0.25 inch in a 24 hour period. Any required repairs should be made immediately, with additional erosion control mix placed on the berm to reach the desired height and width. Failure is typically not catastrophic and is more easily repaired than silt fencing.

- If there is any sign of undercutting at the center or the edges, or any sign of impounding large volumes of water behind the barrier, it may be necessary to reinforce the barrier by adding another sediment barrier, such as a temporary rock check dam.
  - Sediment deposits should be removed when they reach approximately one-half the height of the barrier.
  - When the barrier is decomposed, clogged with sediment, eroded or ineffective, it must be replaced or repaired. The barrier should be reshaped as needed.
  - Erosion control mix barriers can be left in place. Any sediment deposits remaining in place after barrier is no longer required should be spread to conform to the existing grade and be seeded and mulched.
  - In the long-term, vegetation adds stability and will blend in the barrier to the natural environment. Woody vegetation can be planted into the barriers, or they can be over-seeded with legumes.
  - If the barrier needs to be removed, it can be spread out into the landscape.
- A crushed-stone-stabilized construction entrance shall be placed at any construction access points onto public roadways or at the terminus of established roadways.
  - Dirtbags™ shall be available for use and, where necessary, installed in accordance with the details in the plan set. The Dirtbags'™ function on the project is to receive any water pumped from excavations during construction. When Dirtbags™ are observed to be at 50% capacity, they shall be cleaned or replaced. Stone under the Dirtbag™ shall be removed and replaced concurrently.
  - Temporary stockpiles of erodible materials should be protected as follows:

1. Temporary stockpiles shall not be located within critical areas, and shall be surrounded by silt fence or an Erosion Control Mix barrier. In general, these stockpiles are expected to consist of the material that has been stripped from the surface.
  2. Inactive stockpiles shall be stabilized within 5 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with Erosion Control Mix mulch. If necessary, mesh shall be installed to prevent wind from removing the mulch.
- All back and fill slopes that will be seeded should be rough graded, then fine graded with loam or an organic soil mixture. The mulch and mesh should be applied as soon as possible. As noted, the goal during the drier construction periods of the year should be to construct the roadway in sections that can be completed within a one-week period.
  - The existing roadways shall be treated to control fugitive dust as necessary. In fall and spring, a water truck may be adequate, but it is likely that calcium chloride will be necessary during the months of higher evaporation. Controlling fugitive dust should improve visibility for equipment and vehicle operators, and to enhance safety.
  - Stone check dams, downstream stone, or fabric should be installed where any concentrated flow discharge points are evident during construction and earthwork operations. The treatment should extend downgradient to a location where stable flow conditions exist.
  - If used, Silt fencing shall have a maximum spacing of 6 feet between stakes, unless the fence is reinforced by wire mesh of at least 14 gauge and a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be properly anchored to a minimum depth of 6" and backfilled, per the plan detail. Any silt fence identified as not being properly

installed during construction shall be immediately repaired in accordance with the installation details.

- Depending on flow conditions culvert inlets may require protection by stone sediment barriers or check dams. Stone sediment barrier installation details are to be provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary, including the removal of sediment. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. Inlet protection shall be removed when the tributary drainage area has been stabilized.
  
- All slopes over 4H:1V shall receive erosion control mesh or a layer of erosion control mix.
  
- Slopes steeper than 2H:1V shall be avoided unless necessary due to rock or ledge excavation.
  
- If used, Category 3 silt fences shall be installed as construction progresses. If possible the erosion control mix barrier should be the primary siltation barrier used, however.
  
- Areas of visible erosion shall be stabilized with crushed stone, erosion control matting or erosion control mix as determined by the nature of the observed conditions. The size of the stone shall be based on flow, slopes, and observed field conditions.

All temporary sedimentation and erosion control measures shall be removed after construction activity has ceased and healthy vegetation has established itself, or other appropriate permanent control measures have been implemented.

## 14.8 Standards for Stabilizing Sites for the Winter

### 8.1 Standard for the Timely Stabilization of Ditches and Channels

The following additional measures apply to the colder seasons. The contractor shall construct and stabilize stone-lined ditches and channels along the roadway or turbine pads, using the standard methods, by November 15. The contractor shall construct and stabilize all grass-lined ditches and channels along the roadway or turbine pads, using the standard methods, by September 15. If the contractor fails to stabilize a ditch or channel to be grass-lined by the specified dates, then the contractor shall take one of the following actions to stabilize the ditch for late fall and winter.

- ❑ Install a Sod Lining in the Ditch – The contractor shall line the ditch with properly installed sod. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.
- ❑ Install an Erosion Control Mat in the Ditch - The Contractor shall line the ditch with a heavy erosion control mat tacked to the ground surface in accordance with the manufacturer’s instructions. The matting shall be selected to withstand the anticipated flow velocities and flow depths within the ditch.
- ❑ Install a Stone Lining in the Ditch – The contractor shall line the ditch with stone riprap. The contractor shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the contractor shall regrade the ditch prior to placing the stone lining, so as to prevent the stone lining from reducing the ditch’s cross-sectional area.

## 8.2 Standard for the Timely Stabilization of Disturbed Slopes

The contractor shall construct and stabilize stone-covered slopes using standard methods by November 15. The contractor shall seed and mulch all slopes to be vegetated, using standard methods, by September 15. DEP will consider any area having a grade greater than 15% (7 horizontal foot : 1 vertical foot) to be a slope. If the contractor fails to stabilize any slope to be vegetated by the specified date, the contractor shall take one of the following actions to stabilize the slope for late fall and winter.

- Stabilize the Soil with Temporary Vegetation and Erosion Control Mesh – By October 1, the contractor may seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The contractor shall monitor growth of the rye over the next 45 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed slope by November 15, then the contractor shall cover the slope with a layer of Erosion Control mix mulch as described in this plan, or with stone riprap as described in this plan.
- Stabilize The Slope With Sod – The contractor may stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3 horizontal foot: 1 vertical foot) or having groundwater seeps on the slope face.
- Stabilize the Slope with Erosion Control Mix for mulch – The contractor may place a minimum six-inch layer of erosion control mix on the slope by November 15. Prior to placing the erosion control mix, the contractor shall remove any snow accumulation on the disturbed slope. The contractor shall not use erosion control mix to stabilize slopes having grades greater than

50% (2H:1V) or having groundwater seeps on the slope face. If necessary the contractor shall tack down the erosion control mix layer with appropriate netting or manufactured erosion control matting, tacked in accordance with the manufacturer's recommendations.

- Stabilize The Slope With Stone Rip Rap – The contractor may place a layer of stone riprap on the slope by November 15. The contractor shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

### **8.3 Standard for the Timely Stabilization of Disturbed Soil**

By September 15, the contractor shall seed and mulch all otherwise stabilize disturbed soils on areas having a slope less than 15%. If the contractor fails to stabilize these soils by this date, then the contractor shall take one of the following actions to stabilize the soil for late fall and winter.

- Stabilize the Soil with Sod – The contractor may stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the Soil with Erosion Control Mix Mulch – By November 15, the contractor may cover the disturbed soil by spreading erosion control mix in accordance with the minimum placement depths described above. Prior to applying the erosion control mix, the contractor shall remove any snow accumulation on the disturbed area. Immediately after applying the erosion control mix, the contractor may anchor the mix with plastic netting to prevent wind from moving the mix off the disturbed soil, if necessary.

## **14.9 Sedimentation Sumps**

The use of shallow sediment sumps on the downgradient side of erodible stockpiles and in areas where excess borrow is removed from the “cut side” of the roadway is encouraged.

## **14.10 Permanent Erosion Control Measures**

The permanent erosion control measures for the roadways and lot developments will include:

- ❑ Culverts with proper inlet and outlet aprons and flow dispersion berms (level spreaders) where necessary;
- ❑ Ditching on the cut side of the roadway with fully established vegetation or specified erosion resistant material (stone, etc.). Ditching shall only occur when the ditch bottom may be maintained above the natural groundwater level;
- ❑ Ditch turnouts and level spreaders;
- ❑ Permanently stabilized and restored borrow pit areas;
- ❑ Stone stabilized aprons at all pipe outlets including culverts and foundation drains.
- ❑ Graded and revegetated stump disposal areas; and
- ❑ Properly designed culvert crossings where specified.

DEP standards require permanent soil stabilization to be completed within 30 days of inactivity or completion of construction (seven days for sensitive or critical areas).

## **14.11 Timing and Sequence of Erosion/Sedimentation Control Measures**

The following sequence is recommended for each roadway segment or turbine pad. A roadway segment is defined to be the length of road which can be constructed in one week. Where possible, roadway segments should end just beyond a cross culvert.

1. Mark the roadway centerline or turbine location and mark the clearing limits to each side of the road.
2. Clear a corridor using temporary skidder roads with appropriate crossings over wet areas.
3. Stakeout the roadway at 50-foot sections and walkover by the project team to select final:
  - Cross section and slope treatment to be used along the segment;
  - Locations of cross culverts;
  - Determination of the need for uphill diversion;
  - Identification of seeps or wet areas;
  - Erosion control measures to be employed; and
  - Confirmation or recommended adjustment of horizontal and vertical alignment.
4. Mark the final clearing limits along the roadway segment.
5. Conduct final clearing, including select clearing of trees over 6-inch diameter 30 feet behind the grading limits.
6. Install Category 1 and 2 silt fence or erosion control mix berms.
7. Stabilize wet or seepage areas using the procedure specified in Section 3.2.1 of this plan.
8. Install cross culverts including inlet and outlet aprons with dispersion berm, if necessary.
9. Install temporary erosion control measures ahead of culvert inlets.
10. Grub the roadway segment for that portion of the road to be constructed over the next seven day period. Generally, roads to be built less than five (5) feet above existing

grade will be grubbed, and roads greater than five (5) feet above grade will not be grubbed.

11. Prepare backslope (if blasting is required, it should be completed for the roadway segment concurrent with this step).
12. Install ditch and prepare roadway or turbine pad subgrade.
13. Install Category 3 silt fences or additional erosion control mix barriers.
14. Install erosion control and final restoration measures in the ditch including meshes and staples when necessary.
15. Dress backslope including placement of final surface cover with mesh and staples, when necessary.
16. Install and compact roadway or turbine pad gravels.
17. Remove construction entrances as necessary.
18. Dress and restore fill slopes (certain fill slopes with structural reinforcement will need to be integrated with subgrade preparation).
19. Conduct final grading of roadway and turbine pad surfaces.
20. Periodically remove sediment from barriers and dress up any areas of minor erosion rills.
21. Remove temporary erosion control measures after site stabilization has been achieved (for vegetation, a 75% catch of healthy vegetation is required).

Any deviation from this sequence is subject to approval of the regulatory officials.

## **14.12 Contracting Procedure**

The contract documents will require a schedule for the completion of the work that will satisfy the following criteria:

### **12.1 The Work shall be Constructed in Accordance with this Erosion Control Plan**

Work must also be scheduled or phased to prevent exposed areas as stipulated in this plan, to as great an extent possible. The contractor shall also agree and have the responsibility to control turbidity, to prevent significant erosion, to control fugitive dust, and to employ the tools outlined in this plan, and other measures as may be necessary to meet this responsibility. The work shall be conducted in sections which will:

- Limit the amount of exposed area to those areas in which work is expected to be undertaken during the following week.
- Revegetate disturbed areas as rapidly as possible.
- Incorporate specified inlets, groundwater control, and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.
- Comply with the provisions of this section.
- Stockpile material at least 100' from any stream/water body or wetland.

### **12.2 The Area of Denuded Non-Stabilized Construction shall be Limited to the Minimum Area Practicable**

An area shall be considered to be denuded until the surface gravel is installed on the roadway or turbine pad surface, or the area has been permanently covered with erosion control mix, or loamed, seeded, and mulched.

Any deviations from the schedule or provisions contained in this plan shall require the approval of the permittee. The permittee may elect to consult with DEP to secure their approval prior to approving any schedule changes.

The contractor must install any added measures that may be necessary to control erosion/sedimentation from the site, dependent upon the actual site and weather conditions occurring at the time of construction.

### **14.13 Provisions for Winter or Seasonal Shutdown**

Because the roadway and turbine pad construction is required to be completed in small segments, the ability to shut down the work for seasonal or other reasons should be relatively easy. This narrative describes this shutdown procedure. Any segments of the roadway where vegetation has not been re-established shall be treated as outlined in Section 9.0 of this narrative.

An inspection shall be made to identify any areas where additional erosion control work is needed. Such areas shall be repaired.

The new access roads shall be secured and barricaded to prevent illicit entry.

Subsequently, the new and reconstructed access roads shall be re-inspected after a significant rainfall. Any eroded areas shall be repaired. These subsequent inspections shall follow for four significant rainfall events.

### **14.14 Provisions for Maintenance of the Erosion/Sedimentation Control Features**

The roadway and turbine pad construction will be contracted for by the applicant. The final provisions of the DEP permit are anticipated to require the applicant and his contractors to prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection and maintenance of all erosion control measures identified within this section and as contained in the Erosion and Sedimentation Control Plan of the contract drawings. The applicant shall engage a contractor certified in erosion control practices by the Maine DEP to install all control measures and conduct follow-up inspections. Alternatively, the applicant may engage a Maine registered Professional Engineer to conduct follow-up inspections. The “Rapid

Establishment of Drainage Patterns to Control Runoff and Avoidance of Erosion” and the “Erosion/Sedimentation Measures” sections of this application provide details on maintenance procedures. Specific responsibilities of the contract documents for the inspector(s) should include:

1. Execution of the Contractor/Subcontractor Certification by any and all parties responsible for erosion control measures on the site.
2. Assuring and certifying the contractor’s construction sequence is in conformance with the specified schedule of this plan. A weekly certification stating compliance, any deviations, and corrective measures necessary to comply with the erosion control requirements of this section shall be prepared and signed by the inspector(s).
3. In addition to the weekly certifications, the inspector(s) shall maintain written reports recording construction activities on site which include:
  - ❑ Dates when major grading activities occur in a particular area.
  - ❑ Dates when major construction activities cease in a particular area, either temporarily or permanently.
  - ❑ Dates when an area is stabilized.
4. All project work sites shall be inspected on a weekly basis and after each significant rainfall event (0.25 inches or more within any consecutive 24-hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of a project work site shall include:
  - ❑ Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.
  - ❑ Determine whether each erosion control measure is operating properly. If not, identify damage to the control device and determine remedial measures.

- ❑ Identify areas that appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.
- ❑ Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 75 percent is required prior to removal of erosion control measures.

Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.

5. If inspection of the site indicates a change should be made to the erosion control plan, either to improve effectiveness or correct a site-specific deficiency, the inspector shall immediately implement the corrective measure and notify the applicant of the change.

Once construction has been completed, long-term maintenance of the permanent erosion control measures and storm water systems will be the responsibility of the applicant.

All certifications, inspection forms, and written reports prepared by the inspector(s) should be filed with the applicant and the Maine Construction General Permit (MCGP) Permit File contained on the project site. All written certifications, inspection forms, and written reports should be filed within one (1) week of the inspection date.

## **14.15 MCGP Overview**

The Erosion and Sediment Control Plan is to be stored onsite at all times by the Site Contractor. The owner, the General Contractor and the Site Contractor are to sign the onsite copy to certify that they have read and understand the terms of the requirements. The General Contractor and Site Contractor can incorporate changes as necessary to accommodate field and construction conditions. These changes should be made a part of the onsite records and the log updated as to the changes.

All erosion control measures shall be updated after every rain event of 0.25 inch or greater and on a weekly basis. The Site Contractor is responsible for monitoring and updating the field copy of the Erosion Control Plan. When the construction activities are finalized, the Site Contractor is responsible to either file the Notice of Termination or contact the Engineer to file the form as specified in the Construction Sequence.

1. Waste Disposal: No hazardous waste materials will be generated by work on the site. No hazardous waste will be stored onsite. All sanitary waste will be collected and disposed of in accordance with local and state requirements.
2. Non-Storm Water Discharges: No non-permitted, non-stormwater discharges are expected with this project. Uncontaminated groundwater (from dewatering activities) will be contained in temporary sediment traps or Dirtbags™ before discharge into vegetated upland areas or stabilized stormwater structures.
3. Spill Prevention: The site superintendent will use best efforts to ensure that the material management practices are used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store only enough product required to do the job.
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.

- Whenever possible, all of a product will be used up before disposing of the container.
  - Manufacturers' recommendations for proper use and disposal will be followed.
  - Trash on site will be controlled by monitoring and by periodic clean up.
4. Hazardous Products: No hazardous products will be used on the site by the operator.
5. Product Specific Practices:

*Petroleum Products*: All onsite vehicles and equipment will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed, clearly labeled containers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

*Fertilizers*: Fertilizers will be applied as directed in the seeding application forms accompanying this report. The use of organic fertilizers will be encouraged.

*Paints*: Paints will be stored in tightly sealed, clearly labeled containers. Any paints used onsite will be applied according to the manufacturer's recommendations. Empty containers will be properly disposed of.

6. Re-fueling Equipment Onsite:
- Refueling of onsite equipment should be performed with either delivered onsite tanker trucks or the following method.
  - All off road diesel or gasoline kept onsite should be located near the existing access routes in order to provide access by pickup trucks, refueling trucks and the fire department.
  - Off road diesel or gasoline containers should be kept within a sealed protective enclosure. The bottom half of a septic tank works well to contain any possible spillage during the refueling process.

- The refueling area should be kept a minimum of 100' from wetlands or stream resources.
7. Spill Control Practices: In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:
- Site personnel will be made aware of the recommended procedures and the location of the information and cleanup supplies.
  - For large oil spills, MeDEP Petroleum Spill Response program will be notified immediately at 1-800-482-0777 and an emergency response contractor would be called in.
  - Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials may include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for the purpose.
  - All spills will be cleaned up immediately after discovery.
  - The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
  - Spills of toxic or hazardous material will be reported to the appropriate State or Local government agency as required by State and Local regulations.
  - The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
  - The site superintendent responsible for the day-to-day operations will be the spill prevention and cleanup coordinator.

## **14.16 Preconstruction Conference**

Prior to any construction at the site, representatives of the MeDEP, the General Contractor, and the site design engineer should meet with the owner to discuss the scheduling of the site construction and compliance with this plan. By or before that meeting, the contractor will prepare a detailed schedule and a marked-up site plan(s) indicating areas and components of the work and key dates, including dates of disturbance and completion of the work. Three copies of the schedule and marked-up site plan(s) shall be provided to the applicant.

## **14.17 Closure**

This Erosion and Sedimentation Control Plan applies to the new roadways and turbine pads which will be constructed for access to the proposed development activities proposed by Evergreen Wind Power II. MeDEP standards require permanent and temporary erosion and sedimentation control measures to meet the standards and specifications of the “*Maine (MeDEP) Erosion and Sediment Control BMP Manual of March 2003*” or other equally effective practices. This Erosion and Sedimentation Control Plan seeks to outline the measures that will be applied to minimize any unreasonable soil erosion or reduction in the capacity of the land to absorb and hold water during the course of future development activities.

# **ATTACHMENT A**

## **Seeding Requirements**

**TEMPORARY SEEDING PLAN**

**Project:** \_\_\_\_\_ Oakfield Wind Project \_\_\_\_\_

**Site Location:** \_\_\_\_\_ Oakfield, Maine \_\_\_\_\_

\_\_\_\_\_ Permanent Seeding        X   Temporary Seeding

1. **Area to be seeded:** Varies depending on season, weather conditions and progress of work.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used.
3. **Apply Lime as Follows:** \_\_\_\_\_ #/acres, OR   138#  /M Sq. Ft.
4. **Fertilize With:**   1   pound of active N/1000 s.f. of (N-P-K) Analysis Ratio 3-1-2 with 50% urea-based Nitrogen.
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the Following Mixture:**  
     50% Perennial Ryegrass  
     50% Annual Ryegrass
7. **Mulching Instructions:** Apply at the rate of   115   pounds per M. Sq. Ft. with netting or 230 pounds per M. Sq. Ft. without netting.
8. **Application:**

Type	Unit # (lbs.)	Application Rate
Total Lime	138	#/1,000 s.f.
Total Fertilizer	1 pound Active N	#/1,000 s.f.
Total Seed	4	#/1,000 s.f.
Total Mulch	115 with netting or 230 without netting	#/1,000 s.f.
Total Other		

9. **Remarks:**  
     The above seed mix is required in all temporarily disturbed areas that must be stabilized due to seasonal shutdown, delay in activity, etc.  
  
     Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

**PERMANENT SEEDING PLAN (EROSION CONTROL MIX A)**

**Project:**                     Oakfield Wind Project                    

**Site Location:**                     Oakfield, Maine                    

    X     Permanent Seeding                                           Temporary Seeding

1. **Area to be Seeded:**                      acres, or      M Sq. Ft. Areas receiving periodic water inundation, including the prepared underdrained soil filter beds.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used.
3. **Apply Lime as Follows:**                      #/acres, OR   138#  /M Sq. Ft.
4. **Fertilize With:**   1   pound of Active N/1000 s.f. (N-P-K) Analysis Ratio 3-1-2 with 50% urea-based Nitrogen.
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the Following Mixture:**

New England Erosion Control/Restoration Seed Mix for Dry Sites as manufactured by “*New England Wetland Plants, Inc. – Amherst, MA*” consisting of the following species:

- |                     |                  |
|---------------------|------------------|
| Creeping Red Fescue | Annual Rye-grass |
| Timothy             | White Clover     |
| Red Top             | Little Bluestem  |
| Indian Grass        |                  |

7. **Mulching Instructions:** Apply at the rate of   230   pounds per M. Sq. Ft.
8. **Application:**

<b>Type</b>	<b>Unit #</b>	<b>Tons, Etc.</b>
Total Lime	138	#/1,000 s.f.
Total Fertilizer	1 lb. Active N	#/1,000 s.f.
Total Seed	1	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other		

9. **Remarks:**

For areas with slopes >10% and fall and winter erosion control areas, mulch netting shall be used per manufacturer’s specifications.

Recommended seeding dates April 15 to June 15 and August 15 until October 15. Permanent seeding should be made prior to October 15 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seed dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 8%.

**PERMANENT SEEDING PLAN (EROSION CONTROL MIX B)**

**Project:** Oakfield Wind Project

**Site Location:** Oakfield, Maine

Permanent Seeding  Temporary Seeding

1. **Area to be Seeded:** >5 acres, or \_\_\_\_\_ M Sq. Ft. Infrequently maintained areas and on slopes steeper than 3H:1V.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used.
3. **Apply Lime as Follows:** \_\_\_\_\_ #/acres, OR 138# /M Sq. Ft.
4. **Fertilize With:** 1 pound of Active N/1000 s.f. (N-P-K) Analysis Ratio 3-1-2 with 50% urea-based Nitrogen.
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the Following Mixture:**

MDOT Method #2 Roadside Mixture #2:

Red Fescue	50%
Sheep Fescue	25%
Red Top	5%
Annual Rye	10%
White Clover	10%

7. **Mulching Instructions:** Apply at the rate of 230 pounds per M. Sq. Ft.
8. **Application:**

Type	Unit # (lbs.)	Application Rate
Total Lime	138	#/1,000 s.f.
Total Fertilizer	1 lb. Active N	#/1,000 s.f.
Total Seed	4	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other		

9. **Remarks:**

For areas with slopes >10% and fall and winter erosion control areas, mulch netting shall be used per manufacturer's specifications.

Recommended seeding dates April 15 to June 15 and August 15 until October 15. Permanent seeding should be made prior to October 15 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seed dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis.

If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 8%.

## **ATTACHMENT B**

### **Sample Erosion Control Compliance and Certification and Inspection Forms**

**MAINE CONSTRUCTION GENERAL PERMIT**  
**CONTRACTOR/SUBCONTRACTOR CERTIFICATION**

**PROJECT INFORMATION**

Project Name:           Oakfield Wind Power Project  
Address:                Oakfield, Maine

**CONTRACTOR/SUBCONTRACTOR INFORMATION**

Firm Name:  
Address:  
Telephone:  
Type of Firm:

**CERTIFICATION STATEMENT**

“I certify under penalty of law that I understand the terms and conditions of the Maine Construction General Permit that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification.”

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Typed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**MAINE CONSTRUCTION GENERAL PERMIT**

**INSPECTION REPORT**

**PROJECT INFORMATION**

Project Name: Oakfield Wind Project

Address: Oakfield, Maine

**INSPECTOR INFORMATION**

Inspector Name: \_\_\_\_\_

Firm: \_\_\_\_\_

Title: \_\_\_\_\_

Qualifications: \_\_\_\_\_

**INSPECTION SUMMARY**

Date of Inspection: \_\_\_\_\_

Major Observations: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN WITH THE FOLLOWING EXCEPTIONS:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

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REQUIRED MODIFICATIONS TO STORMWATER POLLUTION PREVENTION PLAN  
(MUST BE IMPLEMENTED WITHIN 7 DAYS OF INSPECTION):

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CERTIFICATION STATEMENT:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

---

Signature

---

Typed Name

---

Title

---

Date