

Section 12. STORMWATER MANAGEMENT

James W. Sewall Company (Sewall) has developed, as part of the turbine site and road design, this comprehensive stormwater management and control plan for the Downeast Wind Project (Project).

In general, the stormwater control plan is designed to minimize the concentration of stormwater flows leaving the Project site. The primary components of the plan include minimizing areas permanently impacted by the Project and incorporating appropriate Best Management Practices (BMPs) into the Project design.

A large component of stormwater management includes minimizing the permanent impacts associated with the Project through systematic revegetation of disturbed areas. Turbine clearing areas will be stabilized and allowed to revegetate with the exception of the following: a 50-foot radius around the base of each turbine; 75-foot by 120-foot crane pads at each turbine; and a short 24-foot wide access drive to each of the crane pads.

Impacts to site hydrology from the proposed Project will also be minimized by the use of appropriate stormwater management BMPs, such as culverts with outlet protection and level spreaders. In areas where ditches are required (primarily in areas of cut), they will outlet to stone bermed level lip spreaders or to traditional level spreaders as suggested by the Maine Department of Environmental Protection (MDEP) design criteria. Through proper installation and maintenance of BMPs, no significant water quality impacts to the watersheds will occur.

12.1. METHODOLOGY

Criteria used to establish a viable stormwater management plan are as follows:

- Maintain existing flow paths and discharge points to the extent possible;
- Maintain current runoff curve numbers for all watersheds;
- Provide MDEP prescribed levels of water quality treatment for the developed area; and
- Avoid disturbance of existing wetlands to the maximum extent practicable.

The runoff curve numbers (CN's) determined by ground cover and soil types (Section 11), were calculated to compare the pre- and post-development conditions. Soils found on the site were predominantly Hydrologic Group A soils. The impacts of the existing roads will remain the same in both the pre and post development conditions.

12.2. MODELING ASSUMPTIONS

The pre-development watershed study assumes a largely undeveloped site.

12.3. ALTERATIONS TO LAND COVER

Alterations to land cover will be consistent with development of a wind energy facility and associated roadways. Developed areas of existing roads will be regraded and widened as necessary. Roadway surface and turbine areas will be comprised of a gravel aggregate.

12.4. EXISTING CONDITIONS

Land cover within the Project area consists primarily of actively managed blueberry barrens as well as secondary deciduous, coniferous, and mixed deciduous/coniferous forest. There is also a network of existing gravel roads within the Project area. The Project watershed is divided into four sub-areas draining to the following locations:

Lake Watershed

- Schoodic Lake

River/Stream Watersheds

- Mopang Stream
- Upper Pleasant River
- Harrington River

12.5. PROPOSED CONDITIONS

Alterations associated with the post-development conditions include improvements to existing gravel roads and construction of new gravel roads and gravel turbine pad areas.

The post-development watershed for the Project was also divided into four subcatchments. The relative amount of disturbance from the development in each watershed was minimal. The drainage areas were the same in the pre- and post-development conditions. The curve number calculations were adjusted to add the revised land cover (gravel) associated with the proposed development. No significant changes to the curve numbers were noted, therefore there were no changes in the runoff as a result of the proposed Project. See the attached calculations in Exhibit 12-2.

12.6. SUMMARY

Per the water quality standards, the nonlinear impervious area (substation and O&M site) of the Project must have 95% treatment and the linear impervious area (crane paths, access roads and turbine pads) must exceed 75% treatment within river watersheds. Lake watersheds must meet the phosphorous standards. See section 12.8 below for the phosphorous watershed summary.

The Downeast Wind Project is located within three river watersheds, Mopang Stream, Upper pleasant River and Harrington River. A combination of buffers will be used to treat the runoff from the proposed development. As designed, these methods treat runoff from 75.49% of the impervious surface within the Mopang Stream watershed, 80.543% within the Upper Pleasant River watershed and 107.36% within the Harrington River watershed. In the Harrington River watershed we were able to achieve a high percentage of treatment by providing stormwater treatment for existing roads. In all watersheds, these treatment methods exceed the DEP's water quality standards.

The O&M facility is located off US Route 1. Currently the site has a commercial building, a mixture of gravel and paved parking areas and drives, and several accessory structures. The existing impervious area for the site is 0.28 acres. The proposed development will be located within the same general area as the existing development. Once the O&M site has been constructed there will be a total of 0.77 acres of impervious area, of which 0.50 acres will be new impervious area. The O&M site is a nonlinear facility and is located within the Lower Pleasant River watershed.

Therefore, the site must meet 95% treatment of the impervious area in addition to meeting the flooding standard. Two underdrain soil filters will be constructed to treat 146% of the impervious area. We were able to achieve high levels of treatment by treating a portion of the existing impervious area. The flooding standard for the O&M site will be met by storing runoff volume using the two underdrain soil filters. These structures are designed to collect, store and control the stormwater runoff. The structures have been designed to accommodate the 2-, 10-, and 25-year storm events in addition to providing water quality treatment. As part of the flooding standard, the runoff at each of the property lines must meet or be less than the predevelopment flows. The overall storm water management system is designed to prohibit any adverse impact on areas downstream of the site. Appendix 12.1 includes the calculations and Hydrocad models for both the pre and post development conditions.

The Substation facility is located within the Harrington River watershed. The substation yard is part of the nonlinear portion of the Project and must meet the DEP's 95% treatment standard. This is accomplished by constructing a self-treating gravel pad (CMP's pad standards). In addition to meeting the water quality standards the substation site must also meet the flooding standard. The substation was included in the post development curve number calculations. There was no notable change in curve numbers from pre-development to post-development conditions. See Appendix 12-1.

Attached in Exhibit 12-3 is a spreadsheet that summarizes the method of treatment, with their sizes, the contributing area of impervious surface and developed area, and the percentage of the Project's treatment met with each treatment system.

See the table in Exhibit 12-2 for the summarized results of pre-development and post-development CN calculations for the Project area. There was no notable change in curve numbers from pre-development to post-development conditions.

12.7. CONCLUSIONS

Based upon results of the above analysis, no increase in discharge rate from the Project area will be created. No adverse impact to adjacent waterbodies and/or properties will occur upon the implementation of stormwater management schemes depicted on referenced drainage plans.

Attached as Exhibit 12-2 are the CN calculations.

12.8. PHOSPHOROUS ANALYSIS

There is one lake watershed, Schoodic Lake, for the Downeast Wind Project. The Schoodic Lake watershed is located in Columbia and T18 MD BPP. The following describes the phosphorus loading for this lake watershed. See the attached calculations in Exhibit 12-3.

The phosphorus analysis is based on several assumptions listed in this narrative, the support calculations, and the specific analytical methods described in *Phosphorus Control in Lake Watersheds: A Technical Guide to Evaluating New Development* (MDEP, January 2008). Data on current water quality and allowable loading for Schoodic Lake was obtained from MDEP. See the attached phosphorous calculations for the phosphorous allocations, small watershed thresholds, and the phosphorous budget for the lake watershed.

The phosphorous budget for Schoodic Lake watershed within Columbia was calculated using the MDEP provided per-acre phosphorous budget (P value) and by selecting a development area of 0.82 acres within the watershed.⁹ Based on this, a Project Phosphorus Budget (PPB) of 0.0773 pounds/year was calculated. The post-development calculation on the attached spreadsheet (Exhibit 12-3) was prepared using a new permanent gravel (impervious) area of 0.032 acres of gravel roads that will remain on the site once revegetation occurs. The calculations demonstrate that the currently proposed development will result in a phosphorus loading of 0.0562 pounds/year, which is less than the 0.0773 pounds/year PPB.

The phosphorous budget for Schoodic Lake watershed within T18 MD BPP was calculated using the MDEP provided P value and by selecting a development area of 53.79 acres within the watershed. Based on this, a Project Phosphorus Budget (PPB) of 2.3147 pounds/year was calculated. The post-development calculation on the attached spreadsheet in Appendix 12-2 was prepared using a new permanent gravel (impervious) area of 0.756 acres of gravel roads that will remain on the site once revegetation occurs. The calculations reflect 0.6911 pounds/year of phosphorous export for this new impervious area. The calculations also reflect treatment of 2.58 acres of existing gravel (impervious) roadways. This results in a phosphorous mitigation credit of 1.3559 pounds/year. Therefore, not only is the Project under the allowable phosphorous export budget of 2.31478 pounds/year, it results in a 0.6647 pounds/year reduction of phosphorus export compared to existing conditions.

Phosphorus treatment will be accomplished by extensive forest and meadow roadside buffering. The road surface runoff will be treated either by sheet-flow roadside buffers or by buffers with stone bermed level spreaders. Typically, forested or meadow roadside buffers will be established wherever grading will permit sheet flow runoff from the access roads and crane paths. Where sheet flow is not possible, stormwater running off the roads will be collected in ditches on the downhill side of the roads. These ditches will then be periodically discharged downhill via buffers with stone bermed level spreaders. Buffers will also be utilized around the perimeter of turbine pads.

Stormwater buffers will be protected through the execution and recording of a deed restriction. Declaration of Restrictions for both meadow and forested buffers are included in Exhibit 12-1. The Declaration of Restrictions are consistent with the requirements of Chapter 500 but modified consistent with changes approved in prior wind power projects to allow certain ongoing land use activities to occur.

In addition to stormwater buffer restrictions, future development will be prohibited in the phosphorous development area as depicted on the civil design plans unless the developments has prior approval from the Department. However, activities such as general forestry practices as outlined in the Maine Forest Practices Act as well as agricultural blueberry activities may continue within the phosphorous development area.

12.9. MAINTENANCE OF COMMON FACILITIES OR PROPERTY

Facilities requiring regular maintenance at the Project include the stormwater management system, roads, and turbine pads. The following are maintenance requirements that will be included in this Project.

⁹ The “development” area is an area that was chosen around the Project to determine the allowable phosphorous budget within the lake watersheds. The development area is shown on the design plans.

The Applicant will be responsible for ensuring that maintenance activities are completed in a timely manner. During construction, the prime contractor will have this responsibility.

12.9.1. LONG-TERM MAINTENANCE PLAN

At a minimum, inspect the following components twice annually on or about May 1 and November 1 and after severe storms:

1. Ditches

a. Rip-rap Lined Ditches:

- Inspect semi-annually.
- Remove sediment buildup, leaves, litter, or other debris from the bottom and side slopes.
- Reposition stones to restore channel to original dimensions.

b. Vegetated Ditches:

- Inspect the ditch lining monthly for slumping of the lining, downcutting of the ditch's base, or undercutting of the banks.
- Repair any damage immediately.
- Mow or brush-cut annually to prevent the establishment of woody vegetation.

2. Culverts

- Inspect for sediment buildup.
- Flush pipes and remove sediment when depth of sediment at any location in the pipe exceeds three inches.

3. Rip-Rap Aprons, Level Spreaders, and Stone Bermed Level Lip Spreaders

- Inspect semi-annually or after severe storms for dislodged stones or slumping of the stone lining.
- Reposition stones to restore original dimensions of the pool and create a uniform surface.
- Clean any accumulated sediments and debris from the plunge pool.
- Cut and remove any woody vegetation growing within the pool.

4. Vegetation

- Inspect vegetated areas each spring.
- Re-seed and mulch areas where cover is less than 90 percent.
- Rework, seed, and mulch areas with spotty plant germination, sparse vegetation, or where soil erosion is evident.

5. Stones Check Dams

a. Prior to establishment of permanent vegetation:

- Inspect check dams after each storm event until permanent vegetation is established.
- Remove sediment buildup behind check dams.

b. After establishment of permanent vegetation:

- Inspect for sediment build-up in void space between stones and dislodged stones.
- Remove sediment build-up.
- Seed and mulch disturbed areas.

- Replace check dams if sediment is filling void space.
- Replace dislodged stones.

6. Road Grading

- Grade the road to maintain the proposed roadway crown or super elevation and to prevent the creation of berms or ruts that may channelize flow.

7. Buffers

- Delineate and maintain delineation of buffer limits.
- Inspect wooded buffers for evidence of erosion or concentrated flows.
- Repair, seed, and mulch eroded areas.
- Do not remove vegetation or trees other than dead plants and debris for the buffer.
- Maintain a specific and stable footpath and do not walk unnecessarily within the buffer.

8. Underdrain Soil Filters

- a. Inspect after every major storm event in the first few months to ensure proper function and once every six months after that to ensure that the filter is draining within 24 hours.
- b. Maintenance.
 - The top several inches of the filter shall be replaced with fresh material when the water ponds on the surface of the bed for more than 72 hours.
 - Sediment and plant debris should be removed from the pretreatment structure for the Underdrain Soil Filter at least annually.
 - Filters with grass cover should be mowed no more than 2 times per growing season to maintain grass heights less than 12 inches.
 - Fertilization of the Underdrain Soil Filter area should be avoided unless absolutely necessary to establish vegetation.
 - Harvesting and pruning the Soil Filter needs to be done occasionally for the excessive growth. Remove the invasive plants as necessary.

12.9.2. MINIMUM ANNUAL MAINTENANCE

1. Side Slopes of Gravel Surfaces

- Inspect slopes for rill erosion due to concentrated flows.
- Replace topsoil and reseed eroded slopes.

2. Level Spreaders and Stone Bermed Level Lip Spreaders

- Inspect and verify that top of stone is level (+/- one inch).
- Repair level lip to distribute flows uniformly across the buffer.
- Inspect stone to ensure that it remains clean and free of sediment and is in place as designed.
- Remove sediments, replace any dislodged stone, and maintain lip level to disperse flows uniformly across the buffer area.

3. Underdrain Soil Filters

- a. Inspect after every major storm event in the first few months to ensure proper function and once every six months after that to ensure that the filter is draining within 24 hours.

b. Maintenance.

- Sediment and plant debris should be removed from the pretreatment structure for the Underdrain Soil Filter at least annually.
- Filters with grass cover should be mowed no more than 2 times per growing season to maintain grass heights less than 12 inches.
- Harvesting and pruning the Soil Filter needs to be done occasionally for the excessive growth. Remove the invasive plants as necessary.

4. Wooded Buffers

- Delineate and maintain delineation of buffer limits.
- Inspect wooded buffers for evidence of erosion or concentrated flows.
- Inform abutters of limitations on activities in buffers in order to maintain vegetation and organic duff.
- Repair, seed, and mulch eroded areas.
- Do not remove vegetation or trees other than dead plants and debris for the buffer.
- Maintain a specific and stable footpath and do not walk unnecessarily within the buffer.

Inspection and Maintenance Log of Stormwater Structures

Silt Fencing:	Inspected By/ Date:	Action Taken/ Date
a. Bottom of fence	_____	_____
b. Sediment Build-Up	_____	_____
c. Rips, Tears, Holes	_____	_____

Ditches and Swales:	Inspected By/ Date:	Action Taken/ Date
a. Check Dams	_____	_____
b. Erosion of Ditches	_____	_____
c. Slumping of Ditch Banks	_____	_____
d. Short-Circuiting by Check Dams	_____	_____
e. Accumulation of Sediment	_____	_____

Roadside Slopes:	Inspected By/ Date:	Action Taken/ Date
a. Erosion of slopes	_____	_____
b. Established vegetation	_____	_____

Culverts:	Inspected By/ Date:	Action Taken/ Date
a. Pipe Openings	_____	_____
b. Sumps	_____	_____
c. Frost Action	_____	_____
d. Inlet / Outlet Protection	_____	_____

Underdrain Soil Filter:	Inspected By/ Date:	Action Taken/ Date
a. Draining Properly	_____	_____
b. Sediment Build-Up	_____	_____
c. Established Vegetation	_____	_____
d. Remove Unwanted Plants	_____	_____

Level Spreader & Spillway:	Inspected By/ Date:	Action Taken/ Date
a. Short-Circuiting	_____	_____
b. Sediment Build-Up	_____	_____
c. Spillway Erosion	_____	_____

Buffers:	Inspected By/ Date:	Action Taken/ Date
a. Sediment Build-Up	_____	_____
b. Erosion, Bare Soil	_____	_____
c. Vegetation	_____	_____

*NOTE: Refer to Inspection & Maintenance Plan for inspection intervals, acceptable and unacceptable conditions, and remedies for unacceptable conditions.

**EXHIBIT 12-1: DECLARATIONS OF RESTRICTIONS – MEADOW AND FORESTED
BUFFERS**

DECLARATION OF RESTRICTIONS
(Non-Wooded Meadow Buffer)

THIS DECLARATION OF RESTRICTIONS is made this ____ day of _____, 20__, by _____ (herein referred to as the "Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve buffer areas on certain parcels of land in _____, _____ County, Maine.

WHEREAS, the Declarant is the developer of a certain wind power project constructed on lands located in _____, _____ County, Maine (the "Project") in accordance with Maine Department of Environmental Protection Order # _____ dated (the "Order");

WHEREAS, the Declarant is the owner of certain leasehold and easement interests pursuant to certain agreements identified on the attached EXHIBIT A, all recorded at the _____ County Registry of Deeds as set forth on the attached EXHIBIT A (the "Project Area Interests"), pursuant to which Project Area Interests the Declarant controls certain real property necessary for the Project situated in _____, _____ County, Maine described in the recorded instruments specified on the attached EXHIBIT A, herein referred to as the "property";

WHEREAS, pursuant to Condition ____ of the Order, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows:

Those areas shown as "Restricted Buffer Areas" on the plans attached hereto as EXHIBIT B, which areas all are marked/flagged in the field.

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S.A. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein during the term hereof. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner or occupant of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the

Restricted Buffer Area must remain undeveloped for the term of this Declaration. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

- a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor may the topography or the natural mineral soil of the area be altered or manipulated in any way;
- b. A dense cover of grassy vegetation must be maintained over the Restricted Buffer Area, except that shrubs, trees and other woody vegetation may also be planted or allowed to grow in the area. Additionally, the area may be used for commercial blueberry production. The Restricted Buffer Area may not be maintained as a lawn or used as a pasture. If vegetation in the Restricted Buffer Area is mowed, it may be mown no more than two times per year.
- c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole, guy wires and anchors, or fence;
- d. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area during the term of this Declaration that is inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area during the term of this Declaration must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.
3. Term; Binding Effect. The term of this Declaration shall expire upon the decommissioning of the Project as described in the Order. The restrictions set forth herein shall be binding on any present or future owner or occupant of the Restricted Buffer Area during the term hereof. If the Restricted Buffer Area is at any time owned or leased by more than one owner/occupant, each owner/occupant shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner/occupant's property.
4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the holder of the Project Area Interests and by the MDEP.
5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area during the term hereof.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.
7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

By: _____

Print: _____

Its: _____

STATE OF _____, 20____
COUNTY OF _____

Personally appeared before me the above named _____, _____
of _____, who swore to the truth of the foregoing to the best of (his/her) knowledge,
information and belief and acknowledged the foregoing instrument to be (his/her) free act and
deed and the free act and deed of said company.

Notary Public

EXHIBIT A

Project Area Interests

1. Easement interests:
2. Leasehold interest:

EXHIBIT B
(Plans of Restricted Buffer)

DECLARATION OF RESTRICTIONS
(Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this ____ day of _____, 20__, by _____ (herein referred to as the "Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve buffer areas on certain parcels of land in _____, _____ County, Maine.

WHEREAS, the Declarant is the developer of a certain wind power project constructed on lands located in _____, _____ County, Maine (the "Project") in accordance with Maine Department of Environmental Protection Order # _____ dated _____ (the "Order");

WHEREAS, the Declarant is the owner of certain leasehold and easement interests pursuant to certain agreements identified on the attached EXHIBIT A, all recorded at the _____ County Registry of Deeds as set forth on the attached EXHIBIT A (the "Project Area Interests"), pursuant to which Project Area Interests the Declarant controls certain real property necessary for the Project situated in _____, _____ County, Maine described in the recorded instruments specified on the attached EXHIBIT A, herein referred to as the "property";

WHEREAS, pursuant to Condition ____ of the Order, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows:

Those areas shown as "Restricted Buffer Areas" on the plans attached hereto as EXHIBIT B, which areas all are marked/flagged in the field.

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S.A. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP");

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein during the term hereof. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner or occupant of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the

Restricted Buffer Area must remain undeveloped for the term of this Declaration. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

- a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;
- b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following definition of general forest use:
 - (i) The land must be maintained in essentially forest cover with undisturbed soil, duff layer and ground cover vegetation, and understory vegetation. Timber may be harvested on a selective basis provided that no more than 40% of the volume is harvested within any 10 year period.
- c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole, guy wires and anchors, or fence;
- d. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area during the term of this Declaration that is inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area during the term of this Declaration must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.
3. Term; Binding Effect. The term of this Declaration shall expire upon the decommissioning of the Project as described in the Order. The restrictions set forth herein shall be binding on any present or future owner or occupant of the Restricted Buffer Area during the term hereof. If the Restricted Buffer Area is at any time owned or leased by more than one owner/occupant, each owner/occupant shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner/occupant's property.
4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the holder of the Project Area Interests and by the MDEP.
5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area during the term hereof.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.
7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

By: _____

Print: _____

Its: _____

STATE OF _____, 20____
COUNTY OF _____

Personally appeared before me the above named _____,
of _____, who swore to the truth of the foregoing to the best of (his/her) knowledge,
information and belief and acknowledged the foregoing instrument to be (his/her) free act and
deed and the free act and deed of said company.

Notary Public

EXHIBIT A

Project Area Interests

1. Easement interests:
2. Leasehold interests:

EXHIBIT B
(Plans of Restricted Buffer)

**EXHIBIT 12-2: CURVE NUMBER CALCULATIONS FOR WIND PROJECT; O&M SITE PRE
AND POST DEVELOPMENT HYDROCAD REPORT**

Project Name **owneast Wind**
 Project Number **113.20.01**
 Date **3/4/2021**
 Done by **JAO**

CN Value Calcs HARRINGTON RIVER

PRE DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Harrington River (PRE)	63746209	62499689												1246520		100%	31.3	31.3

Total Area = 63746209
1463.41

CN Value = 31.3
100.00%

POST DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Harrington River (POST)	63746209	61876781												1869428	0	100%	31.9	31.9

Total Area = 63746209
1463.41

CN Value = 31.9
100.00%

CN Value Calcs SCHOODIC LAKE

PRE DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Schoodic Lake (PRE)	29270043	26619369	415796				1611367							623511		100%	33.3	33.3

Total Area = 29270043
671.95

CN Value = 33.3
100.00%

POST DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Schoodic Lake (POST)	29270043	26585048	415796				1611367							657832	0	100%	33.4	33.4

Total Area = 29270043
671.95

CN Value = 33.4
100.00%

CN Value Calcs UPPER PLEASANT RIVER

PRE DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Upper pleasant River	446950553	207942111	60832804	106038341	21889394		39816706	5492187						4939010		100%	48.9	48.9

Total Area = 446950553
10260.57

CN Value = 48.9
100.00%

POST DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Upper Pleasant River	446950553	206502798	60832804	104911099	21889394		39816706	5492187						7505565		100%	49.2	49.2

Total Area = 446950553
10260.57

CN Value = 49.2
100.00%

CN Value Calcs MOPANG STREAM

PRE DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Mopang Stream (PRE)	62189986	20931317	3466461	24932492	1056466		5271198	6055300							476752	100%	55.1	55.1

Total Area = 62189986
1427.69

CN Value = 55.1
100.00%

POST DEVELOPMENT

Watershed ID	AREA (SF)	WOODS				Meadow				Lawn				Gravel	Impervious	% of Area	CN Vaue	Weighted CN Value
		A 30	B 55	C 70	D 77	A 30	B 58	C 71	D 78	A 49	B 69	C 79	D 84	All 96	All 98			
Mopang Stream (POST)	62189986	20803847	3376524	24789794	1056466		5271198	5974142							918015	100%	55.4	55.4

Total Area = 62189986
1427.69

CN Value = 55.4
100.00%

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **3/8/2021**
 Done by **JAO**

Lower Pleasant River Watershed

QUALITY CALCULATIONS FOR O&M SITE

Total EXISTING impervious area=	12043	sf	=	0.28	acres
Total NEW NONLINEAR area of project=	33703	sf	=	0.77	acres
Total NET NEW NONLIN impervious area for project=	21660	sf	=	0.50	acres
Total NEW NONLIN landscaped area for project=	0	sf	=	0.00	acres
Total NEW NONLINEAR area of project=	21660	sf	=	0.50	acres

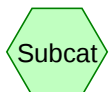
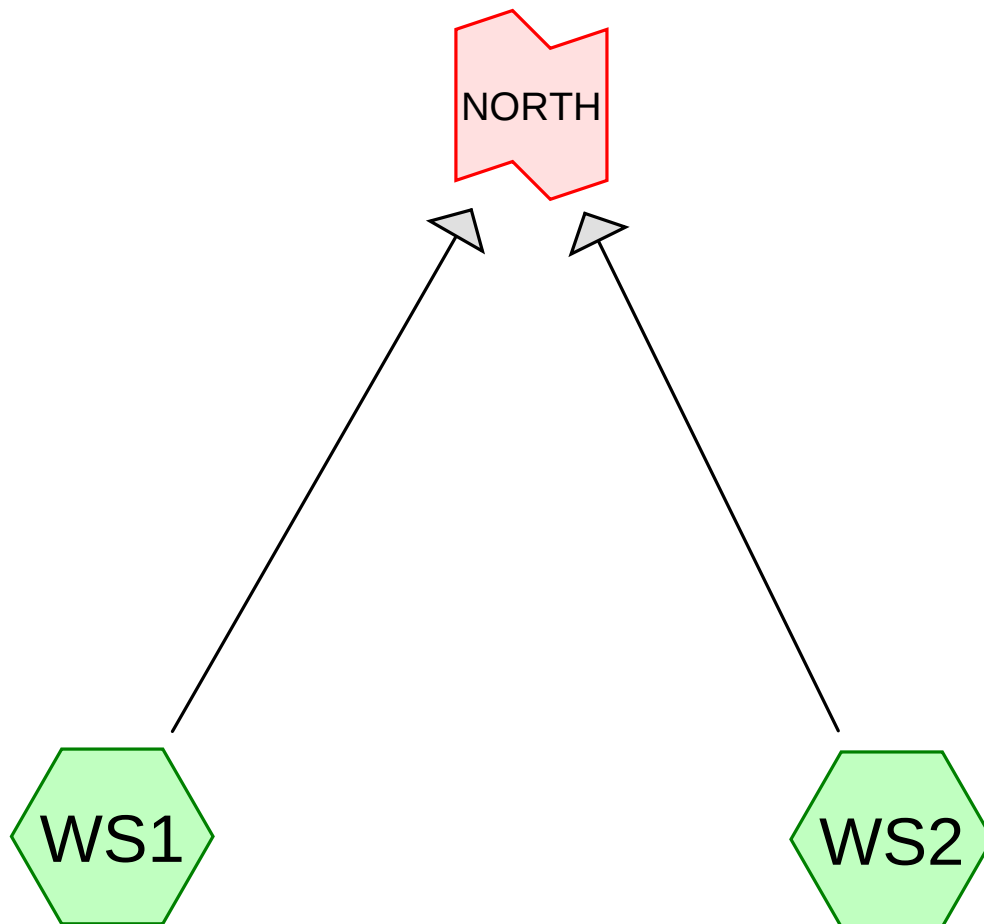
Subcatchment #	BMP Type & #	NONLinear Area		Description If Applicable
		Imp (sf)	Land (sf)	
Q1	USF1	24846	0	
Q2	USF2	6776	0	
			0	
TOTAL		31622	0	

SUMMARY FOR THE NONLINEAR PORTION OF THE PROJECT

IMP Area Required area to be treated (sf)=	20577.00		
Total NONLIN IMP Area Being Treated (sf)=	31622	146.0%	>=95%
DEVEL Area Required area to be treated (sf)=	17328.00		
Total NONLIN DEVEL Area Being Treated (sf)=	31622	145.99%	>=80%

Pre/Post Development Peak Runoff Summary for O&M Site

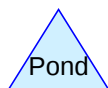
Condition	Watershed	2 Yr Storm (cfs)	10 Yr Storm (cfs)	25 Yr Storm (cfs)
Pre	North (WS1, 2)	1.83	3.18	4.33
Post	North (WS1, 2, 3, 4)	1.83	2.72	3.47
CHANGE		0.00	-0.46	-0.86



Subcat



Reach



Pond



Link

Routing Diagram for 2021-03-11 Pre O&M Site

Prepared by HP Inc., Printed 3/11/2021

HydroCAD® 10.00-20 s/n 01064 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment WS1:

Runoff = 0.60 cfs @ 12.27 hrs, Volume= 0.058 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=2.80"

Area (sf)	CN	Description
13,265	77	Woods, Good, HSG D
3,259	96	Gravel surface, HSG D
13,779	80	>75% Grass cover, Good, HSG D
30,303	80	Weighted Average
30,303		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	150	0.0170	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
3.5	230	0.0240	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
18.7	380	Total			

Summary for Subcatchment WS2:

Runoff = 1.24 cfs @ 12.32 hrs, Volume= 0.128 af, Depth> 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=2.80"

Area (sf)	CN	Description
1,936	77	Woods, Good, HSG D
14,468	96	Gravel surface, HSG D
37,374	80	>75% Grass cover, Good, HSG D
53,778	84	Weighted Average
53,778		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	60	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.90"
2.5	104	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	40	0.0100	2.36	1.85	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
0.2	60	0.0100	6.52	78.26	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 ' Top.W=12.00' n= 0.022 Earth, clean & straight
22.8	264	Total			

Summary for Link NORTH:

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 1.16" for 2-yr event
Inflow = 1.83 cfs @ 12.31 hrs, Volume= 0.187 af
Primary = 1.83 cfs @ 12.31 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment WS1:

Runoff = 1.10 cfs @ 12.26 hrs, Volume= 0.105 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=3.90"

Area (sf)	CN	Description
13,265	77	Woods, Good, HSG D
3,259	96	Gravel surface, HSG D
13,779	80	>75% Grass cover, Good, HSG D
30,303	80	Weighted Average
30,303		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	150	0.0170	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
3.5	230	0.0240	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
18.7	380	Total			

Summary for Subcatchment WS2:

Runoff = 2.11 cfs @ 12.32 hrs, Volume= 0.218 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=3.90"

Area (sf)	CN	Description
1,936	77	Woods, Good, HSG D
14,468	96	Gravel surface, HSG D
37,374	80	>75% Grass cover, Good, HSG D
53,778	84	Weighted Average
53,778		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	60	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.90"
2.5	104	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	40	0.0100	2.36	1.85	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
0.2	60	0.0100	6.52	78.26	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 ' Top.W=12.00' n= 0.022 Earth, clean & straight
22.8	264	Total			

Summary for Link NORTH:

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 2.01" for 10-yr event
Inflow = 3.18 cfs @ 12.30 hrs, Volume= 0.323 af
Primary = 3.18 cfs @ 12.30 hrs, Volume= 0.323 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment WS1:

Runoff = 1.53 cfs @ 12.26 hrs, Volume= 0.147 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
13,265	77	Woods, Good, HSG D
3,259	96	Gravel surface, HSG D
13,779	80	>75% Grass cover, Good, HSG D
30,303	80	Weighted Average
30,303		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	150	0.0170	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
3.5	230	0.0240	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
18.7	380	Total			

Summary for Subcatchment WS2:

Runoff = 2.84 cfs @ 12.31 hrs, Volume= 0.297 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=4.80"

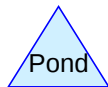
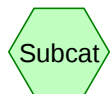
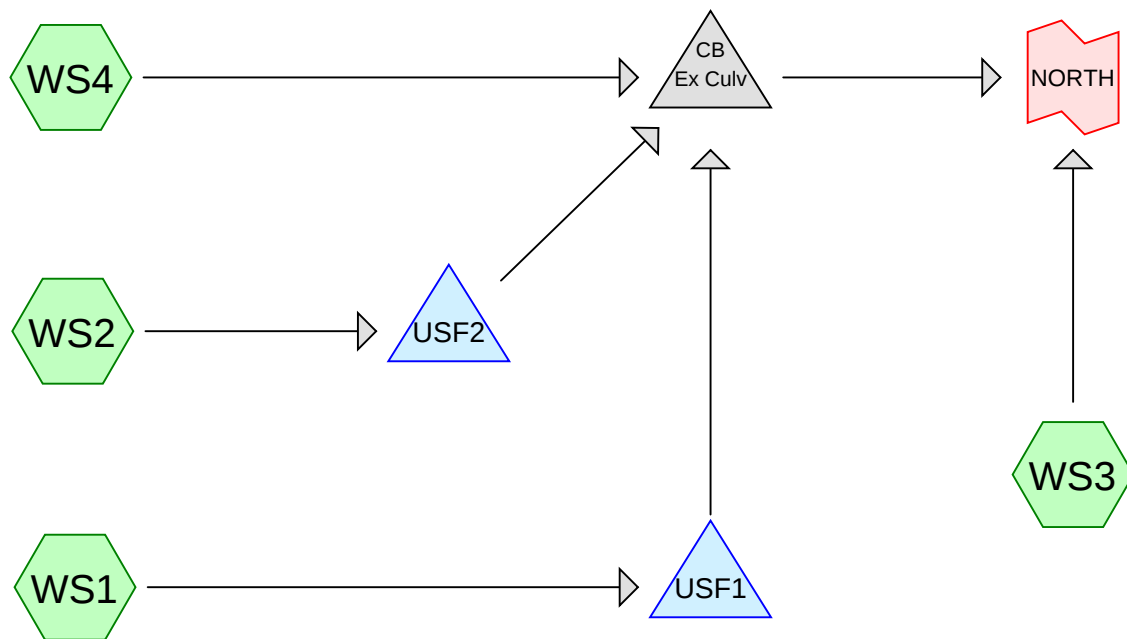
Area (sf)	CN	Description
1,936	77	Woods, Good, HSG D
14,468	96	Gravel surface, HSG D
37,374	80	>75% Grass cover, Good, HSG D
53,778	84	Weighted Average
53,778		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	60	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.90"
2.5	104	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	40	0.0100	2.36	1.85	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
0.2	60	0.0100	6.52	78.26	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 ' ' Top.W=12.00' n= 0.022 Earth, clean & straight
22.8	264	Total			

Summary for Link NORTH:

Inflow Area = 1.930 ac, 0.00% Impervious, Inflow Depth > 2.75" for 25-yr event
Inflow = 4.33 cfs @ 12.29 hrs, Volume= 0.443 af
Primary = 4.33 cfs @ 12.29 hrs, Volume= 0.443 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Subcatchment WS1:

Runoff = 1.73 cfs @ 12.08 hrs, Volume= 0.118 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=2.80"

Area (sf)	CN	Description
24,836	96	Gravel surface, HSG D
8,319	80	>75% Grass cover, Good, HSG D
33,155	92	Weighted Average
33,155		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	10	0.0150	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
1.9	140	0.0150	1.25		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.90"
0.4	45	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.0	200	0.0075	3.42	6.84	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=1.00' Z= 2.0 ' /' Top.W=4.00' n= 0.022 Earth, clean & straight
5.1	395	Total			

2021-03-09 Post O&M Site

Type III 24-hr 2-yr Rainfall=2.80"

Prepared by HP Inc.

Printed 3/9/2021

HydroCAD® 10.00-20 s/n 01064 © 2017 HydroCAD Software Solutions LLC

Page 3

Summary for Subcatchment WS2:

Runoff = 0.45 cfs @ 12.11 hrs, Volume= 0.033 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=2.80"

Area (sf)	CN	Description
6,777	96	Gravel surface, HSG D
2,629	80	>75% Grass cover, Good, HSG D
9,406	92	Weighted Average
9,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	75	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment WS3:

Runoff = 0.58 cfs @ 12.21 hrs, Volume= 0.051 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=2.80"

Area (sf)	CN	Description
11,174	77	Woods, Good, HSG D
13,714	80	>75% Grass cover, Good, HSG D
1,292	98	Paved parking, HSG D
26,180	80	Weighted Average
24,888		95.06% Pervious Area
1,292		4.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	135	0.0450	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
3.6	15	0.0450	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.90"
1.3	40	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.4	190	Total			

Summary for Subcatchment WS4:

Runoff = 0.57 cfs @ 12.15 hrs, Volume= 0.045 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=2.80"

Area (sf)	CN	Description
8,871	80	>75% Grass cover, Good, HSG D
6,482	98	Paved parking, HSG D
15,353	88	Weighted Average
8,871		57.78% Pervious Area
6,482		42.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0200	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
0.2	50	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.2	60	0.0100	6.52	78.26	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 ' ' Top.W=12.00' n= 0.022
10.7	210	Total			

Summary for Pond Ex Culv:

Inflow Area = 1.330 ac, 11.19% Impervious, Inflow Depth > 1.72" for 2-yr event
 Inflow = 1.28 cfs @ 12.17 hrs, Volume= 0.190 af
 Outflow = 1.28 cfs @ 12.17 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.28 cfs @ 12.17 hrs, Volume= 0.190 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.66' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	130.02'	12.0" Round Culvert L= 40.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 130.02' / 129.01' S= 0.0253 ' /' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=1.26 cfs @ 12.17 hrs HW=130.65' (Free Discharge)
 ↗ **1=Culvert** (Barrel Controls 1.26 cfs @ 3.44 fps)

Summary for Pond USF1:

Inflow Area = 0.761 ac, 0.00% Impervious, Inflow Depth > 1.86" for 2-yr event
 Inflow = 1.73 cfs @ 12.08 hrs, Volume= 0.118 af
 Outflow = 0.45 cfs @ 12.45 hrs, Volume= 0.112 af, Atten= 74%, Lag= 22.3 min
 Primary = 0.45 cfs @ 12.45 hrs, Volume= 0.112 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 133.25' @ 12.45 hrs Surf.Area= 1,388 sf Storage= 1,709 cf

Plug-Flow detention time=57.2 min calculated for 0.112 af (95% of inflow)
 Center-of-Mass det. time= 40.3 min (810.6 - 770.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	130.32'	4,952 cf	Custom Stage Data (Prismatic) listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
130.32	1,275	0.0	0	0
130.33	1,275	40.0	5	5
132.99	1,275	40.0	1,357	1,362
133.00	1,275	100.0	13	1,374
133.50	1,500	100.0	694	2,068
134.00	1,746	100.0	812	2,880
134.50	2,018	100.0	941	3,821
135.00	2,508	100.0	1,132	4,952

Device	Routing	Invert	Outlet Devices
#1	Primary	130.67'	4.0" Round Culvert L= 36.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 130.67' / 130.30' S= 0.0103 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#2	Primary	134.50'	25.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.45 cfs @ 12.45 hrs HW=133.25' (Free Discharge)

1=Culvert (Barrel Controls 0.45 cfs @ 5.14 fps)
 2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Summary for Pond USF2:

Inflow Area = 0.216 ac, 0.00% Impervious, Inflow Depth > 1.86" for 2-yr event
 Inflow = 0.45 cfs @ 12.11 hrs, Volume= 0.033 af
 Outflow = 0.29 cfs @ 12.24 hrs, Volume= 0.033 af, Atten= 36%, Lag= 7.7 min
 Primary = 0.29 cfs @ 12.24 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 135.02' @ 12.24 hrs Surf.Area= 184 sf Storage= 162 cf

Plug-Flow detention time=17.9 min calculated for 0.033 af (98% of inflow)
 Center-of-Mass det. time= 9.9 min (782.6 - 772.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	132.82'	1,167 cf	Custom Stage Data (Prismatic) listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.82	184	0.0	0	0
132.83	184	40.0	1	1
135.49	184	40.0	196	197
135.50	184	100.0	2	198
136.00	306	100.0	123	321
136.50	455	100.0	190	511
137.00	648	100.0	276	787
137.50	874	100.0	381	1,167

Device	Routing	Invert	Outlet Devices
#1	Primary	133.17'	4.0" Round Culvert L= 100.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 133.17' / 132.17' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.29 cfs @ 12.24 hrs HW=135.01' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.29 cfs @ 3.27 fps)

Summary for Link NORTH:

Inflow Area = 1.931 ac, 9.24% Impervious, Inflow Depth > 1.50" for 2-yr event
Inflow = 1.83 cfs @ 12.19 hrs, Volume= 0.241 af
Primary = 1.83 cfs @ 12.19 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment WS1:

Runoff = 2.61 cfs @ 12.07 hrs, Volume= 0.181 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=3.90"

Area (sf)	CN	Description
24,836	96	Gravel surface, HSG D
8,319	80	>75% Grass cover, Good, HSG D
33,155	92	Weighted Average
33,155		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	10	0.0150	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
1.9	140	0.0150	1.25		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.90"
0.4	45	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.0	200	0.0075	3.42	6.84	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=1.00' Z= 2.0 ' /' Top.W=4.00' n= 0.022 Earth, clean & straight
5.1	395	Total			

2021-03-09 Post O&M Site

Type III 24-hr 10-yr Rainfall=3.90"

Prepared by HP Inc.

Printed 3/9/2021

HydroCAD® 10.00-20 s/n 01064 © 2017 HydroCAD Software Solutions LLC

Page 11

Summary for Subcatchment WS2:

Runoff = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=3.90"

Area (sf)	CN	Description
6,777	96	Gravel surface, HSG D
2,629	80	>75% Grass cover, Good, HSG D
9,406	92	Weighted Average
9,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	75	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment WS3:

Runoff = 1.05 cfs @ 12.20 hrs, Volume= 0.091 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=3.90"

Area (sf)	CN	Description
11,174	77	Woods, Good, HSG D
13,714	80	>75% Grass cover, Good, HSG D
1,292	98	Paved parking, HSG D
26,180	80	Weighted Average
24,888		95.06% Pervious Area
1,292		4.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	135	0.0450	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
3.6	15	0.0450	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.90"
1.3	40	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.4	190	Total			

Summary for Subcatchment WS4:

Runoff = 0.91 cfs @ 12.15 hrs, Volume= 0.073 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=3.90"

Area (sf)	CN	Description
8,871	80	>75% Grass cover, Good, HSG D
6,482	98	Paved parking, HSG D
15,353	88	Weighted Average
8,871		57.78% Pervious Area
6,482		42.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0200	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
0.2	50	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.2	60	0.0100	6.52	78.26	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 ' Top.W=12.00' n= 0.022
10.7	210	Total			

Summary for Pond Ex Culv:

Inflow Area = 1.330 ac, 11.19% Impervious, Inflow Depth > 2.70" for 10-yr event
 Inflow = 1.72 cfs @ 12.16 hrs, Volume= 0.299 af
 Outflow = 1.72 cfs @ 12.16 hrs, Volume= 0.299 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.72 cfs @ 12.16 hrs, Volume= 0.299 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.78' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	130.02'	12.0" Round Culvert L= 40.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 130.02' / 129.01' S= 0.0253 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=1.71 cfs @ 12.16 hrs HW=130.78' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 1.71 cfs @ 3.69 fps)

Summary for Pond USF1:

Inflow Area = 0.761 ac, 0.00% Impervious, Inflow Depth > 2.86" for 10-yr event
 Inflow = 2.61 cfs @ 12.07 hrs, Volume= 0.181 af
 Outflow = 0.51 cfs @ 12.51 hrs, Volume= 0.175 af, Atten= 81%, Lag= 26.1 min
 Primary = 0.51 cfs @ 12.51 hrs, Volume= 0.175 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 133.97' @ 12.51 hrs Surf.Area= 1,733 sf Storage= 2,833 cf

Plug-Flow detention time=64.8 min calculated for 0.175 af (97% of inflow)
 Center-of-Mass det. time= 52.1 min (812.3 - 760.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	130.32'	4,952 cf	Custom Stage Data (Prismatic) listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
130.32	1,275	0.0	0	0
130.33	1,275	40.0	5	5
132.99	1,275	40.0	1,357	1,362
133.00	1,275	100.0	13	1,374
133.50	1,500	100.0	694	2,068
134.00	1,746	100.0	812	2,880
134.50	2,018	100.0	941	3,821
135.00	2,508	100.0	1,132	4,952

Device	Routing	Invert	Outlet Devices
#1	Primary	130.67'	4.0" Round Culvert L= 36.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 130.67' / 130.30' S= 0.0103 ' / Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#2	Primary	134.50'	25.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.51 cfs @ 12.51 hrs HW=133.97' (Free Discharge)

1=Culvert (Barrel Controls 0.51 cfs @ 5.80 fps)
 2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Summary for Pond USF2:

Inflow Area = 0.216 ac, 0.00% Impervious, Inflow Depth > 2.85" for 10-yr event
 Inflow = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af
 Outflow = 0.34 cfs @ 12.31 hrs, Volume= 0.051 af, Atten= 50%, Lag= 11.5 min
 Primary = 0.34 cfs @ 12.31 hrs, Volume= 0.051 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 136.00' @ 12.31 hrs Surf.Area= 307 sf Storage= 322 cf

Plug-Flow detention time=16.4 min calculated for 0.051 af (99% of inflow)
 Center-of-Mass det. time= 10.5 min (773.2 - 762.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	132.82'	1,167 cf	Custom Stage Data (Prismatic) listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.82	184	0.0	0	0
132.83	184	40.0	1	1
135.49	184	40.0	196	197
135.50	184	100.0	2	198
136.00	306	100.0	123	321
136.50	455	100.0	190	511
137.00	648	100.0	276	787
137.50	874	100.0	381	1,167

Device	Routing	Invert	Outlet Devices
#1	Primary	133.17'	4.0" Round Culvert L= 100.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 133.17' / 132.17' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.34 cfs @ 12.31 hrs HW=136.00' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.34 cfs @ 3.87 fps)

Summary for Link NORTH:

Inflow Area = 1.931 ac, 9.24% Impervious, Inflow Depth > 2.42" for 10-yr event
Inflow = 2.72 cfs @ 12.18 hrs, Volume= 0.390 af
Primary = 2.72 cfs @ 12.18 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment WS1:

Runoff = 3.31 cfs @ 12.07 hrs, Volume= 0.233 af, Depth> 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
24,836	96	Gravel surface, HSG D
8,319	80	>75% Grass cover, Good, HSG D
33,155	92	Weighted Average
33,155		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	10	0.0150	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
1.9	140	0.0150	1.25		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.90"
0.4	45	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.0	200	0.0075	3.42	6.84	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.022 Earth, clean & straight
5.1	395	Total			

2021-03-09 Post O&M Site

Type III 24-hr 25-yr Rainfall=4.80"

Prepared by HP Inc.

Printed 3/9/2021

HydroCAD® 10.00-20 s/n 01064 © 2017 HydroCAD Software Solutions LLC

Page 19

Summary for Subcatchment WS2:

Runoff = 0.86 cfs @ 12.11 hrs, Volume= 0.066 af, Depth> 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
6,777	96	Gravel surface, HSG D
2,629	80	>75% Grass cover, Good, HSG D
9,406	92	Weighted Average
9,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	75	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment WS3:

Runoff = 1.47 cfs @ 12.20 hrs, Volume= 0.127 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
11,174	77	Woods, Good, HSG D
13,714	80	>75% Grass cover, Good, HSG D
1,292	98	Paved parking, HSG D
26,180	80	Weighted Average
24,888		95.06% Pervious Area
1,292		4.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	135	0.0450	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
3.6	15	0.0450	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.90"
1.3	40	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.4	190	Total			

Summary for Subcatchment WS4:

Runoff = 1.20 cfs @ 12.15 hrs, Volume= 0.096 af, Depth> 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
8,871	80	>75% Grass cover, Good, HSG D
6,482	98	Paved parking, HSG D
15,353	88	Weighted Average
8,871		57.78% Pervious Area
6,482		42.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0200	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 2.90"
0.2	50	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.2	60	0.0100	6.52	78.26	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 ' ' Top.W=12.00' n= 0.022
10.7	210	Total			

Summary for Pond Ex Culv:

Inflow Area = 1.330 ac, 11.19% Impervious, Inflow Depth > 3.51" for 25-yr event
 Inflow = 2.05 cfs @ 12.15 hrs, Volume= 0.389 af
 Outflow = 2.05 cfs @ 12.15 hrs, Volume= 0.389 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.05 cfs @ 12.15 hrs, Volume= 0.389 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.88' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	130.02'	12.0" Round Culvert L= 40.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 130.02' / 129.01' S= 0.0253 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=2.04 cfs @ 12.15 hrs HW=130.88' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 2.04 cfs @ 3.83 fps)

Summary for Pond USF1:

Inflow Area = 0.761 ac, 0.00% Impervious, Inflow Depth > 3.68" for 25-yr event
 Inflow = 3.31 cfs @ 12.07 hrs, Volume= 0.233 af
 Outflow = 0.58 cfs @ 12.55 hrs, Volume= 0.228 af, Atten= 83%, Lag= 28.4 min
 Primary = 0.58 cfs @ 12.55 hrs, Volume= 0.228 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 134.50' @ 12.54 hrs Surf.Area= 2,021 sf Storage= 3,827 cf

Plug-Flow detention time= 73.7 min calculated for 0.227 af (97% of inflow)
 Center-of-Mass det. time= 63.2 min (818.1 - 754.9)

Volume	Invert	Avail.Storage	Storage Description	
#1	130.32'	4,952 cf	Custom Stage Data (Prismatic) listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
130.32	1,275	0.0	0	0
130.33	1,275	40.0	5	5
132.99	1,275	40.0	1,357	1,362
133.00	1,275	100.0	13	1,374
133.50	1,500	100.0	694	2,068
134.00	1,746	100.0	812	2,880
134.50	2,018	100.0	941	3,821
135.00	2,508	100.0	1,132	4,952

Device	Routing	Invert	Outlet Devices
#1	Primary	130.67'	4.0" Round Culvert L= 36.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 130.67' / 130.30' S= 0.0103 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#2	Primary	134.50'	25.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.55 cfs @ 12.55 hrs HW=134.50' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 0.55 cfs @ 6.25 fps)

— **2=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.12 fps)

Summary for Pond USF2:

Inflow Area = 0.216 ac, 0.00% Impervious, Inflow Depth > 3.68" for 25-yr event
 Inflow = 0.86 cfs @ 12.11 hrs, Volume= 0.066 af
 Outflow = 0.36 cfs @ 12.36 hrs, Volume= 0.065 af, Atten= 58%, Lag= 14.9 min
 Primary = 0.36 cfs @ 12.36 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 136.47' @ 12.36 hrs Surf.Area= 446 sf Storage= 498 cf

Plug-Flow detention time=16.8 min calculated for 0.065 af (99% of inflow)
 Center-of-Mass det. time= 12.1 min (769.4 - 757.3)

Volume	Invert	Avail.Storage	Storage Description	
#1	132.82'	1,167 cf	Custom Stage Data (Prismatic) listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.82	184	0.0	0	0
132.83	184	40.0	1	1
135.49	184	40.0	196	197
135.50	184	100.0	2	198
136.00	306	100.0	123	321
136.50	455	100.0	190	511
137.00	648	100.0	276	787
137.50	874	100.0	381	1,167

Device	Routing	Invert	Outlet Devices
#1	Primary	133.17'	4.0" Round Culvert L= 100.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 133.17' / 132.17' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.36 cfs @ 12.36 hrs HW=136.47' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.36 cfs @ 4.12 fps)

Summary for Link NORTH:

Inflow Area = 1.931 ac, 9.24% Impervious, Inflow Depth > 3.21" for 25-yr event
Inflow = 3.47 cfs @ 12.17 hrs, Volume= 0.516 af
Primary = 3.47 cfs @ 12.17 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**EXHIBIT 12-3: QUALITY CALCULATIONS FOR O&M SITE; QUALITY CALCULATIONS
FOR WIND PROJECT AND STORMWATER STRUCTURE SIZING CALCULATIOS**

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **3/17/2021**
 Done by **JAO**

BA=Buffer Adjacent to Small Imp
 BL=Buffer w/level spreader
 DT=Buffer w/ditch turnout
 USF=Underdrain Soil Filter

RB=Roadside buffer
 DB=Detention basin
 WP=Wet pond
 INF=Infiltration
 BRS=Roadside Buffer with Rock Sandwich

QUALITY CALCULATIONS FOR LINEAR PORTION

Harrington River

Total Post Development Phos Export (lbs P/yr)=	0.0000	<=	N/A	Access rd width(Const)=	24	Crane path width(Const)=	36.5
% of Project Treated for WS=	107.36%	>=	75%	Access rd width(Perm)=	24	Crane path width(Perm)=	36.5
Total Impervious Area for WS=	14.30	Acres		Existing NC=	remain as is	Met Tower Rd width=	16

Roadway Alignment or Turbine Site	Access Crane Turbine	Station to Station		% of area	BMP No. (or none)	Side of road being Tx right, left, both	BMP cover Forest Meadow	Existing Imp Area Width	New Imp. Area (acres)	Imp Area to be Tx (acres)	Treatment Factor
Access Rd 200	Access	20065	21570	100%	NONE	BOTH		12	0.4146	0.8292	1
T33	Turbine			100%	BT33				0.3330	0.3330	0.4
Crane Path 250	Crane	25135	25450	50%	BL1	Left	Forest		0.1320	0.1320	0.4
Crane Path 250	Crane	25135	25450	50%	BL2	Right	Forest		0.1320	0.1320	0.4
Crane Path 390	Crane	39018	39325	50%	BL4	Left	Forest		0.1286	0.1286	0.4
Crane Path 390	Crane	39325	39475	50%	NONE	Left			0.0628	0.0628	1
Crane Path 390	Crane	39475	39575	50%	BT32	Left	Forest		0.0419	0.0419	0.4
T32	Turbine			75%	BT32		Forest		0.2498	0.2498	0.4
Crane Path 250	Crane	26285	26800	100%	BL4	BOTH	Forest		0.4315	0.4315	0.4
Crane Path 250	Crane	26800	26950	50%	BL5	Right	Forest		0.0628	0.0628	0.4
Crane Path 250	Crane	26800	26975	50%	BL6	Left	Forest		0.0733	0.0733	0.4
Crane Path 250	Crane	26950	27100	50%	RB1	Right	Forest		0.0628	0.0628	0.4
Crane Path 250	Crane	26975	27100	50%	RB2	Left	Forest		0.0524	0.0524	0.4
Crane Path 250	Crane	27100	27500	50%	BL7	Right	Forest		0.1676	0.1676	0.4
Crane Path 250	Crane	27100	27500	50%	BL8	Left	Forest		0.1676	0.1676	0.4

Crane Path 250	Crane	27500	28150	100%	BL9	BOTH	Forest		0.5447	0.5447	0.4
Crane Path 250	Crane	28150	28375	50%	BL9	Right	Forest		0.0943	0.0943	0.4
Crane Path 250	Crane	28150	28975	50%	RB3	Left	Forest		0.3456	0.3456	0.4
Crane Path 250	Crane	28150	28550	50%	BL10	Right	Forest		0.1676	0.1676	0.4
Crane Path 4000	Crane	400018	400425	100%	BL10	BOTH	Forest		0.3410	0.3410	0.4
Crane Path 4000	Crane	400425	400625	50%	RB4	Right	Forest		0.0838	0.0838	0.4
Crane Path 4000	Crane	400025	400625	50%	BL10	Left	Forest		0.2514	0.2514	0.4
T37	Turbine			50%	BT37		Forest		0.1665	0.1665	0.4
Crane Path 250	Crane	28550	28800	50%	RB5	Right	Forest		0.1047	0.1047	0.4
Crane Path 250	Crane	28800	28975	50%	NONE	Left	Forest		0.0733	0.0733	1
Crane Path 250	Crane	28975	29650	100%	BL11	Both	Forest		0.5656	0.5656	0.4
Crane Path 250	Crane	29650	30300	50%	RB6	Right	Forest		0.2723	0.2723	0.4
Crane Path 250	Crane	29650	30090	50%	BL12	Left	Forest		0.1843	0.1843	0.4
Crane Path 250	Crane	30300	31150	50%	BL13	Right	Forest		0.3561	0.3561	0.4
Crane Path 250	Crane	30090	31575	50%	BL14	Left	Forest		0.6222	0.6222	0.4
T29	Turbine			100%	BL13		Forest		0.3330	0.3330	0.4
Crane Path 250	Crane	31150	31575	50%	BL14	Right	Forest		0.1781	0.1781	0.4
Crane Path 250	Crane	31575	32050	50%	RB7	Left	Forest		0.1990	0.1990	0.4
Crane Path 250	Crane	31575	32925	50%	BL16	Right	Meadow		0.5656	0.5656	0.4
Crane Path 250	Crane	32050	32400	50%	BL16	Left	Meadow		0.1466	0.1466	0.4
Crane Path 250	Crane	32400	32550	50%	BT31	Left	Forest		0.0628	0.0628	0.4
T31	Turbine			50%	BL16		Forest		0.1930	0.1930	0.4
T31	Turbine			50%	BL16		Forest		0.1930	0.1930	0.4
Crane Path 250	Crane	32550	32950	50%	BL16	Left	Forest		0.1676	0.1676	0.4
Crane Path 250	Crane	32950	33250	50%	BL18	Left	Meadow		0.1257	0.1257	0.4
Crane Path 250	Crane	32925	33125	50%	RB8	Right	Forest		0.0838	0.0838	0.4
Substation 1	Met	18	600	100%	BL19	BOTH	Forest		0.2138	0.2138	0.4
Substation 1	Met	600	1125	100%	BL20	BOTH	Forest		0.1928	0.1928	0.4
Substation 1	Met	1125	1835	100%	BL21	BOTH	Forest		0.2608	0.2608	0.4
Substation 2	Met	2050	2296	100%	BL21	BOTH	Forest		0.0904	0.0904	0.4
Crane Path 250	Crane	33125	33700	50%	BL22	Right	Forest		0.2409	0.2409	0.4
Crane Path 250	Crane	33250	33925	50%	BL19	Left	Forest		0.2828	0.2828	0.4
T28	Turbine			50%	BL24		Forest		0.1750	0.1750	0.4
T28	Turbine			50%	BL23		Forest		0.1750	0.1750	0.4
Crane Path 250	Crane	33700	34450	50%	RB9	Right	Forest		0.3142	0.3142	0.4
Crane Path 250	Crane	33925	34450	50%	BL24	Left	Forest		0.2200	0.2200	0.4
Crane Path 250	Crane	34450	34725	50%	BL25	Right	Forest		0.1152	0.1152	0.4
Crane Path 250	Crane	34450	34950	50%	BL26	Left	Forest		0.2095	0.2095	0.4
Crane Path 250	Crane	34725	35300	50%	RB10	Right	Forest		0.2409	0.2409	0.4

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **3/17/2021**
 Done by **JAO**

BA=Buffer Adjacent to Small Imp
 BL=Buffer w/level spreader
 DT=Buffer w/ditch turnout
 USF=Underdrain Soil Filter

RB=Roadside buffer
 DB=Detention basin
 WP=Wet pond
 INF=Infiltration
 BRS=Roadside Buffer with Rock Sandwich

QUALITY CALCULATIONS FOR LINEAR PORTION

Upper Pleasant River

Total Post Development Phos Export (lbs P/yr)=	0.0000	<=	N/A	Access rd width(Const)=	24	Crane path width(Const)=	36.5
% of Project Treated for WS=	80.43%	>=	75%	Access rd width(Perm)=	24	Crane path width(Perm)=	36.5
Total Impervious Area for WS=	58.92	Acres		Existing NC=	remain as is	Met Tower Rd width=	16

Roadway Alignment or Turbine Site	Access Crane Turbine	Station to Station		% of area	BMP No. (or none)	Side of road being Tx right, left, both	BMP cover Forest Meadow	Existing Imp Area Width	New Imp. Area (acres)	Imp Area to be Tx (acres)	Treatment Factor
Access Rd 200	Access	21570	21700	100%	NONE	BOTH		12	0.0358	0.0716	1
Access Rd 200	Access	21700	21780	100%	NONE	BOTH			0.0441	0.0441	1
Access Rd 200	Access	21780	21900	100%	NONE	BOTH	Forest		0.0661	0.0661	1
Access Rd 200	Crane	21900	22036	100%	NONE	BOTH	Forest	10	0.0827	0.1140	1
Crane Path 250	Crane	25450	26285	50%	NONE	LEFT	Forest		0.3498	0.3498	1
Crane Path 250	Crane	25450	25825	50%	NONE	Right			0.1571	0.1571	1
Crane Path 250	Crane	25825	26285	50%	NONE	Right			0.1927	0.1927	1
Crane path 390	Crane	39018	39325	50%	NONE	Right	Forest		0.1286	0.1286	1
Crane Path 390	Crane	39325	39575	50%	NONE	Right			0.1047	0.1047	1
T32	Turbine			25%	NONE				0.0833	0.0833	1
T37	Turbine			50%	BT37		Forest		0.1665	0.1665	0.4
Access Rd 500	Access	51845	52850	100%	NONE	BOTH		20	0.0923	0.5537	1
Access Rd 500	Access	53550	56750	100%	NONE	BOTH		20	0.2938	1.7631	1
Access Rd 500	Access	57525	57575	50%	NONE	Left		22	0.0011	0.0138	1
Access Rd 500	Access	57525	57875	50%	RB22A	Right	Meadow	22	0.0080	0.0964	0.4
Access Rd 500	Access	57875	58050	50%	NONE	Right		22	0.0040	0.0482	1
Access Rd 500	Access	58050	59500	50%	RB22	Right	Meadow	22	0.0333	0.3994	0.4
Access Rd 500	Access	57575	58700	50%	NONE	Left		22	0.0258	0.3099	1
Access Rd 500	Access	58700	59575	50%	BL34	Left	Meadow	22	0.0201	0.2410	0.4
Access Rd 500	Access	59500	59550	50%	NONE	Right		22	0.0011	0.0138	1
Access Rd 500	Access	59550	60200	50%	RB23	Right	Meadow	22	0.0149	0.1791	0.4
Access Rd 500	Access	60200	60850	50%	NONE	Right		22	0.0149	0.1791	1
Access Rd 500	Access	59575	60740	50%	BL35	Left	Meadow	22	0.0267	0.3209	0.4

Access Rd 700	Access	71525	71900	50%	RB31	Left	Meadow	22	0.0086	0.1033	0.4
Access Rd 700	Access	71900	72100	50%	NONE	Left		22	0.0046	0.0551	1
Access Rd 700	Crane	72100	72350	50%	NONE	Left		22	0.0416	0.1047	1
Access Rd 700	Crane	72350	72475	50%	RB34	Left	Forest	11	0.0366	0.0524	0.4
Access Rd 700	Access	71525	71900	50%	RB35	Right	Meadow	22	0.0086	0.1033	0.4
Access Rd 700	Access	71900	72100	50%	NONE	Right		22	0.0046	0.0551	1
Access Rd 700	Crane	72100	72350	50%	NONE	Right		22	0.0416	0.1047	1
Access Rd 700	Crane	72350	73000	50%	NONE	Right		11	0.1903	0.2723	1
Access Rd 700	Crane	72475	73000	50%	NONE	Left		11	0.1537	0.2200	1
Access Rd 700	Crane	73000	74100	50%	NONE	Left			0.4609	0.4609	1
Access Rd 700	Crane	74100	74200	50%	BT26	Left	Forest		0.0419	0.0419	0.4
Access Rd 700	Crane	73000	73325	50%	RB36	Right	Forest		0.1362	0.1362	0.4
Access Rd 700	Crane	73325	73900	50%	NONE	Right			0.2409	0.2409	1
Access Rd 700	Crane	73900	74100	50%	RB37	Right	Forest		0.0838	0.0838	0.4
Access Rd 700	Crane	74100	74200	50%	BT26	Right	Forest		0.0419	0.0419	0.4
T26	Turbine			100%	BT26		Forest		0.3771	0.3771	0.4
Crane Path 800	Crane	80200	81000	50%	NONE	Left			0.3352	0.3352	1
Crane Path 800	Crane	81000	81150	50%	RB38	Left	Forest		0.0628	0.0628	0.4
Crane Path 800	Crane	81150	81775	50%	NONE	Left			0.2619	0.2619	1
Crane Path 800	Crane	80200	81800	50%	NONE	Right			0.6703	0.6703	1
Crane Path 800	Crane	81775	83925	50%	NONE	Left			0.9008	0.9008	1
Crane Path 800	Crane	82675	83925	50%	RB39	Right	Forest		0.5237	0.5237	0.4
Crane Path 800	Crane	83925	84050	100%	BL40	BOTH	Forest		0.1047	0.1047	0.4
Crane Path 800	Crane	84050	84650	100%	BL41	BOTH	Forest		0.5028	0.5028	0.4
Crane Path 800	Crane	84650	85050	50%	BL41	Left	Forest		0.1676	0.1676	0.4
Crane Path 800	Crane	84650	84850	50%	BT27	Right	Forest		0.0838	0.0838	0.4
T27	Turbine			100%	BT27		Forest		0.3330	0.3330	0.4
Crane Path 800	Crane	84850	85050	50%	BL42	Right	Forest		0.0838	0.0838	0.4
Crane Path 800	Crane	85050	85650	100%	BL43	BOTH	Forest		0.5028	0.5028	0.4
Crane Path 800	Crane	85650	85800	50%	BL44	Right	Meadow		0.0628	0.0628	0.4
Crane Path 800	Crane	85800	85975	50%	NONE	Right			0.0733	0.0733	1
Crane Path 800	Crane	85650	86400	50%	BL45	Left	Forest		0.3142	0.3142	0.4
Crane Path 800	Crane	85975	86225	50%	BL46	Right	Meadow		0.1047	0.1047	0.4
Crane Path 800	Crane	86225	86325	50%	RB40	Right	Forest		0.0419	0.0419	0.4
Crane Path 800	Crane	86325	86425	50%	NONE	Right			0.0419	0.0419	1
Crane Path 800	Crane	86400	87200	50%	BL47	Left	Forest		0.3352	0.3352	0.4
Crane Path 800	Crane	86425	87200	50%	BL47	Right	Forest		0.3247	0.3247	0.4
T25	Turbine			100%	BL47		Forest		0.3330	0.3330	0.4
Crane Path 800	Crane	87200	87500	50%	BL48	Right	Forest		0.1257	0.1257	0.4
Crane Path 800	Crane	87500	87700	50%	RB41	Right	Forest		0.0838	0.0838	0.4
Crane Path 800	Crane	87200	87600	50%	BL47	Left	Forest		0.1676	0.1676	0.4
Crane Path 800	Crane	87600	88250	50%	BL49	Left	Forest		0.2723	0.2723	0.4
Crane Path 800	Crane	87700	87975	50%	BL50	Right	Forest		0.1152	0.1152	0.4
Crane Path 800	Crane	87975	88175	50%	RB42	Right	Forest		0.0838	0.0838	0.4
Crane Path 800	Crane	88175	88375	50%	BL49	Right	Forest		0.0838	0.0838	0.4
T24	Turbine			100%	BL49		Forest		0.3330	0.3330	0.4
Crane Path 800	Crane	88250	88640	50%	BL51	Right	Forest		0.1634	0.1634	0.4
Crane Path 800	Crane	88375	88640	50%	BL51	Left	Forest		0.1110	0.1110	0.4
Crane Path 800	Crane	88640	89350	100%	BL52	BOTH	Forest		0.5949	0.5949	0.4
Crane Path 800	Crane	89350	89900	100%	BL53	BOTH	Meadow		0.4609	0.4609	0.4

Crane Path 800	Crane	89900	90550	100%	NONE	BOTH			0.5447	0.5447	1
Crane Path 910	Crane	91000	91450	100%	NONE	BOTH			0.3771	0.3771	1
Crane Path 910	Crane	91450	91850	50%	BT22	Right	Meadow		0.1676	0.1676	0.4
T22	Turbine			100%	BT22		Forest		0.3330	0.3330	0.4
Crane Path 910	Crane	91450	92475	50%	BL54	Left	Meadow		0.4294	0.4294	0.4
Crane Path 910	Crane	91850	92475	50%	BL54	Right	Meadow		0.2619	0.2619	0.4
Crane Path 910	Crane	92475	93700	50%	BL55	Left	Forest		0.5132	0.5132	0.4
Crane Path 910	Crane	92475	93625	50%	BL55	Right	Forest		0.4818	0.4818	0.4
Crane Path 910	Crane	93700	94675	50%	RB43	Left	Forest		0.4085	0.4085	0.4
Crane Path 910	Crane	93625	93775	50%	RB44	Right	Forest		0.0628	0.0628	0.4
Crane Path 910	Crane	93775	94025	50%	BL56	Right	Forest		0.1047	0.1047	0.4
Crane Path 910	Crane	94025	94300	50%	NONE	Right			0.1152	0.1152	1
Crane Path 910	Crane	94300	94750	50%	RB45	Right	Forest		0.1885	0.1885	0.4
Crane Path 910	Crane	94750	94850	50%	NONE	Right			0.0419	0.0419	1
Crane Path 910	Crane	94850	95400	50%	BL57	Right	Forest		0.2304	0.2304	0.4
Crane Path 910	Crane	95400	95550	50%	BL58	Right	Forest		0.0628	0.0628	0.4
Crane Path 910	Crane	95550	95857	50%	BL59	Right	Forest		0.1286	0.1286	0.4
T21	Turbine			50%	BL59		Forest		0.1665	0.1665	0.4
T21	Turbine			50%	BL58		Forest		0.1665	0.1665	0.4
Crane Path 910	Crane	94675	94850	50%	BL60	Left	Forest		0.0733	0.0733	0.4
Crane Path 910	Crane	94850	95857	50%	BL58	Left	Forest		0.4219	0.4219	0.4
Crane Path 1100	Access	110018	112875	100%	NONE	BOTH		22	0.1312	1.5741	1
Crane Path 1100	Access	112875	113160	100%	NONE	BOTH			0.1570	0.1570	1
Crane Path 1100	Access	113160	113800	100%	NONE	BOTH		22	0.0294	0.3526	1
Crane Path 1100	Access	113800	114050	100%	NONE	BOTH		24	0.0000	0.1377	1
Crane Path 1100	Access	114050	115980	50%	RB46	Right	Meadow	24	0.0000	0.5317	0.4
Access Road 1300	Access	130000	130625	50%	RB46	Right	Meadow	24	0.0000	0.1722	0.4
Crane Path 1100	Access	114050	115350	50%	RB47	Left	Meadow	24	0.0000	0.3581	0.4
Crane Path 1100	Access	115350	115450	50%	NONE	Left		24	0.0000	0.0275	1
Crane Path 1100	Access	115450	115980	50%	RB48	Left	Meadow	24	0.0000	0.1460	0.4
Access Road 1300	Access	130000	130050	50%	RB48	Left	Meadow	24	0.0000	0.0138	0.4
Access Road 1300	Access	130050	130625	50%	NONE	Left		24	0.0000	0.1584	1
Access Road 1300	Access	130625	131000	50%	BL61	Right	Forest	24	0.0000	0.1033	0.4
Access Road 1300	Access	130625	131475	50%	BL61	Left	Forest	24	0.0000	0.2342	0.4
Access Road 1300	Access	131000	131450	50%	RB49	Right	Forest	24	0.0000	0.1240	0.4
Access Road 1300	Access	131450	133450	50%	NONE	Right		24	0.0000	0.5510	1
Access Road 1300	Access	131475	135550	50%	NONE	Left		24	0.0000	1.1226	1
Access Road 1300	Access	133450	133650	50%	RB50	Right	Meadow	24	0.0000	0.0551	0.4
Access Road 1300	Access	133650	134450	50%	NONE	Right		24	0.0000	0.2204	1
Access Road 1300	Access	134450	134850	50%	RB51	Right	Meadow	24	0.0000	0.1102	0.4
Access Road 1300	Access	134850	135475	50%	NONE	Right		24	0.0000	0.1722	1
Access Road 1300	Access	135475	136225	50%	BL62	Right	Meadow	24	0.0000	0.2066	0.4
Access Road 1300	Access	135550	136500	50%	RB52	Left	Meadow	24	0.0000	0.2617	0.4
Access Road 1300	Access	136500	137300	50%	NONE	Left		24	0.0000	0.2204	1
Access Road 1300	Access	137300	137600	50%	RB53	Left	Meadow	24	0.0000	0.0826	0.4
Access Road 1300	Access	136225	141050	50%	NONE	Right		24	0.0000	1.3292	1
Access Road 1300	Access	137600	141050	50%	NONE	Left		24	0.0000	0.9504	1
Access Road 1300	Access	141050	141300	100%	NONE	Both			0.1377	0.1377	1
Access Road 1300	Access	141300	142250	100%	NONE	BOTH		18	0.1309	0.5234	1

Access Road 1300	Access	142250	142500	50%	BL63	Left	Forest	18	0.0172	0.0689	0.4
Access Road 1300	Access	142500	143000	50%	NONE	Left		18	0.0344	0.1377	1
Access Road 1300	Access	143000	143950	50%	RB54	Left	Meadow	18	0.0654	0.2617	0.4
Access Road 1300	Access	142250	142500	50%	NONE	Right		18	0.0172	0.0689	1
Access Road 1300	Access	142500	142575	50%	RB55	Right	Meadow	18	0.0052	0.0207	0.4
Access Road 1300	Access	142575	142950	50%	NONE	Right		18	0.0258	0.1033	1
Access Road 1300	Access	142950	145050	50%	RB56	Right	Meadow	18	0.1446	0.5785	0.4
Access Road 1300	Access	143950	145050	50%	NONE	Left		18	0.0758	0.3030	1
Access Road 1300	Access	145050	145550	100%	NONE	BOTH			0.2755	0.2755	1
Access Road 1300	Access	145550	146250	100%	NONE	BOTH		16	0.1286	0.3857	1
Access Road 1300	Access	146250	146750	50%	RB57	Right	Meadow	16	0.0459	0.1377	0.4
Access Road 1300	Access	146250	147875	50%	NONE	Left		16	0.1492	0.4477	1
Access Road 1300	Access	146750	147250	50%	NONE	Right		16	0.0459	0.1377	1
Access Road 1300	Access	147250	147875	50%	RB58	Right	Meadow	16	0.0574	0.1722	0.4
Access Road 1300	Access	147875	148275	50%	RB58	Right	Meadow	10	0.0643	0.1102	0.4
Access Road 1300	Access	148275	148525	50%	NONE	Right		10	0.0402	0.0689	1
Access Road 1300	Access	148525	148900	50%	NONE	Right			0.1033	0.1033	1
Access Road 1300	Access	148900	150150	50%	NONE	Right		10	0.2009	0.3444	1
Access Road 1300	Access	147875	148100	50%	NONE	Left		10	0.0362	0.0620	1
Access Road 1300	Access	148100	148575	50%	RB59	Left	Meadow	10	0.0763	0.1309	0.4
Access Road 1300	Access	148575	148650	50%	NONE	Left		10	0.0121	0.0207	1
Access Road 1300	Access	148650	149050	50%	RB60	Left	Meadow	10	0.0643	0.1102	0.4
Access Road 1300	Access	149050	149350	50%	NONE	Left		10	0.0482	0.0826	1
Access Road 1300	Access	149350	149525	50%	RB61	Left	Forest	10	0.0281	0.0482	0.4
Access Road 1300	Access	149525	150150	50%	NONE	Left		10	0.1004	0.1722	1
Access Road 1300	Access	150150	150400	50%	RB62	Left	Meadow	10	0.0402	0.0689	0.4
Access Road 1300	Access	150400	150875	50%	NONE	Left		10	0.0763	0.1309	1
Access Road 1300	Access	150875	151800	50%	BL64	Left	Meadow	10	0.1486	0.2548	0.4
Access Road 1300	Access	150150	151150	50%	NONE	Right		10	0.1607	0.2755	1
Access Road 1300	Access	151150	151650	50%	RB63	Right	Meadow	10	0.0803	0.1377	0.4
Access Road 1300	Access	151650	153800	50%	NONE	Right		10	0.3455	0.5923	1
Access Road 1300	Access	153800	154700	50%	NONE	Right			0.2479	0.2479	1
Access Road 1300	Access	154700	155275	50%	BL65	Right	Forest		0.1584	0.1584	0.4
Access Road 1300	Access	155275	156575	50%	NONE	Right			0.3581	0.3581	1
Access Road 1300	Access	151800	152525	50%	NONE	Left		10	0.1165	0.1997	1
Access Road 1300	Access	152525	152750	50%	RB64	Left	Forest	10	0.0362	0.0620	0.4
Access Road 1300	Access	152750	153800	50%	NONE	Left		10	0.1687	0.2893	1
Access Road 1300	Access	153800	154350	50%	NONE	Left			0.1515	0.1515	1
Access Road 1300	Access	154350	154700	50%	RB65	Left	Forest		0.0964	0.0964	0.4
Access Road 1300	Access	154700	155275	50%	BL65	Left	Forest		0.1584	0.1584	0.4
Access Road 1300	Access	155275	155875	50%	NONE	Left			0.1653	0.1653	1
Access Road 1300	Access	155875	156475	50%	NONE	Left			0.1653	0.1653	1
Access Road 1300	Access	156475	156725	50%	BL66	Left	Meadow		0.0689	0.0689	0.4
Access Road 1300	Access	156575	156725	50%	BL67	Right	Meadow		0.0413	0.0413	0.4
Access Road 1300	Access	156725	157400	50%	NONE	Right			0.1860	0.1860	1
Access Road 1300	Access	157400	157850	50%	BL68	Right	Forest		0.1240	0.1240	0.4
Access Road 1300	Met	157850	158075	50%	BL68	right	Forest		0.0413	0.0413	0.4
Access Road 1300	Access	156725	156775	50%	NONE	Left			0.0138	0.0138	1
Access Road 1300	Access	156775	157100	50%	BL69	Left	Meadow		0.0895	0.0895	0.4
Access Road 1300	Access	157100	157850	50%	NONE	Left			0.2066	0.2066	1

Access Road 1300	Met	157850	158275	50%	NONE	Left			0.0781	0.0781	1
Access Road 1300	Access	158075	158275	50%	NONE	Right			0.0551	0.0551	1
Access Road 1300	Access	158275	158525	50%	BL70	Right	Forest		0.0689	0.0689	0.4
Access Road 1300	Access	158525	158700	50%	NONE	Right			0.0482	0.0482	1
Access Road 1300	Access	158700	158850	50%	RB66	Right	Forest		0.0413	0.0413	0.4
Access Road 1300	Access	158275	159300	50%	NONE	Left			0.2824	0.2824	1
Access Road 1300	Access	159300	160000	50%	BL71	Left	Forest		0.1928	0.1928	0.4
T2	Turbine			70%	BL71		Forest		0.2331	0.2331	0.4
T2	Turbine			30%	BL73		Forest		0.0999	0.0999	0.4
Access Road 1300	Access	158850	159525	50%	BL72	Right	Forest		0.1860	0.1860	0.4
Access Road 1300	Access	159525	159650	50%	NONE	Right			0.0344	0.0344	1
Access Road 1300	Access	159650	160300	50%	BL73	Right	Forest		0.1791	0.1791	0.4
Access Road 1300	Access	160300	160650	50%	RB67	Right	Forest		0.0964	0.0964	0.4
Access Road 1300	Access	160000	160300	50%	BL74	Left	Forest		0.0826	0.0826	0.4
Access Road 1300	Access	160300	160600	50%	NONE	Left			0.0826	0.0826	1
Access Road 1300	Access	160600	161200	50%	BL75	Left	Forest		0.1653	0.1653	0.4
Access Road 1300	Access	161200	161550	50%	BT1	Left	Forest		0.0964	0.0964	0.4
T1	Turbine			100%	BT1		Forest		0.3330	0.3330	0.4
Access Road 1300	Access	160650	161050	50%	NONE	Right			0.1102	0.1102	1
Access Road 1300	Access	161050	161350	50%	BL76	Right	Forest		0.0826	0.0826	0.4
Access Road 1300	Access	161350	162225	50%	NONE	Right			0.2410	0.2410	1
Access Road 1300	Access	161550	161850	50%	NONE	Left			0.0826	0.0826	1
Access Road 1300	Access	161850	162712	50%	BL77	Left	Forest		0.2375	0.2375	0.4
T35	Turbine			40%	BL77		Forest		0.1332	0.1332	0.4
Access Road 1300	Access	162225	162712	50%	BL78	Right	Forest		0.1342	0.1342	0.4
T35	Turbine			20%	BL78		Forest		0.0666	0.0666	0.4
T35	Turbine			40%	NONE				0.1332	0.1332	1
Access Road 1700	Access	170012	170725	50%	BL65	Right	Forest		0.1964	0.1964	0.4
Access Road 1700	Access	170012	170600	50%	NONE	Left			0.1620	0.1620	1
Access Road 1700	Access	170600	171525	50%	BL79	Left	Forest		0.2548	0.2548	0.4
Access Road 1700	Access	171525	172150	50%	BL80	Left	Forest		0.1722	0.1722	0.4
Access Road 1700	Access	172150	172257	50%	BT36	Left	Forest		0.0295	0.0295	0.4
T36	Turbine			50%	BT36		Forest		0.1665	0.1665	0.4
T36	Turbine			50%	NONE				0.1665	0.1665	1
Access Road 1700	Access	170725	171100	50%	NONE	Right			0.1033	0.1033	1
Access Road 1700	Access	171100	171425	50%	RB68	Right	Forest		0.0895	0.0895	0.4
Access Road 1700	Access	171425	171525	50%	NONE	Right			0.0275	0.0275	1
Access Road 1700	Access	171525	171725	50%	RB69	Right	Forest		0.0551	0.0551	0.4
Access Road 1700	Access	171725	172257	50%	NONE	Right			0.1466	0.1466	1
Access Road 1800	Access	180024	180275	100%	NONE	Both			0.1383	0.1383	1
Access Road 1800	Access	180275	180600	50%	RB70	Left	Meadow		0.0895	0.0895	0.4
Access Road 1800	Access	180600	180925	50%	BL82	Left	Meadow		0.0895	0.0895	0.4
Access Road 1800	Access	180275	180925	50%	NONE	Right			0.1791	0.1791	1
Access Road 1800	Access	180925	181350	100%	BL83	Both	Forest		0.2342	0.2342	0.4
Access Road 1800	Access	181350	181825	100%	NONE	Both			0.2617	0.2617	1
Access Road 1800	Access	181825	182225	100%	BL84	Both	Forest		0.2204	0.2204	0.4
Access Road 1800	Access	182225	182400	100%	NONE	Both			0.0964	0.0964	1
Access Road 1800	Access	182400	182810	100%	NONE	Both		22	0.0188	0.2259	1
Access Road 1800	Access	182810	183100	100%	BL85	Both	Forest	22	0.0133	0.1598	0.4
Access Road 1800	Access	183100	183175	100%	NONE	Both		22	0.0034	0.0413	1

Access Road 1800	Access	183175	183650	50%	RB71	Left	Meadow	22	0.0109	0.1309	0.4
Access Road 1800	Access	183175	184450	50%	NONE	Right		22	0.0293	0.3512	1
Access Road 1860	Access	186000	186750	50%	NONE	Right		22	0.0172	0.2066	1
Access Road 1800	Access	183650	183800	50%	NONE	Left		22	0.0034	0.0413	1
Access Road 1800	Access	183800	184075	50%	RB72	Left	Forest	22	0.0063	0.0758	0.4
Access Road 1800	Access	184075	184450	50%	NONE	Left		22	0.0086	0.1033	1
Access Road 1860	Access	186000	186750	50%	NONE	Left		22	0.0172	0.2066	1
Access Road 1860	Access	186750	188250	50%	NONE	Left	Meadow	22	0.0344	0.4132	1
Access Road 1860	Access	186750	188800	50%	RB74	Right	Meadow	22	0.0471	0.5647	0.4
Access Road 1860	Access	188250	188850	50%	BL86	Left	Meadow	22	0.0138	0.1653	0.4
Access Road 1860	Access	188850	189050	50%	BL86	Left	Meadow		0.0551	0.0551	0.4
Access Road 1860	Access	189050	189950	50%	RB75	Left	Meadow		0.2479	0.2479	0.4
Access Road 1860	Access	188800	188850	50%	BL87	Right	Meadow	22	0.0011	0.0138	0.4
Access Road 1860	Access	188850	189275	50%	BL87	Right	Meadow		0.1171	0.1171	0.4
Access Road 1860	Access	189275	189350	50%	NONE	right			0.0207	0.0207	1
Access Road 1860	Access	189350	189950	50%	BL88	Right	Meadow		0.1653	0.1653	0.4
Access Road 1860	Access	189950	190125	50%	NONE	Right	Forest		0.0482	0.0482	1
Access Road 1860	Access	189950	190025	50%	NONE	Left			0.0207	0.0207	1
Access Road 1860	Access	190125	190475	50%	BL89	Right	Meadow		0.0964	0.0964	0.4
Access Road 1860	Access	190025	190400	50%	BL89	Left	Meadow		0.1033	0.1033	0.4
Access Road 1860	Access	190400	191025	50%	NONE	Left			0.1722	0.1722	1
Access Road 1860	Crane	191025	191125	50%	NONE	Left			0.0419	0.0419	1
Access Road 1860	Access	190475	190650	50%	NONE	Right			0.0482	0.0482	1
Access Road 1860	Access	190650	190975	50%	BL90	Right	Meadow		0.0895	0.0895	0.4
Access Road 1860	Access	190975	191025	50%	BT15	Right	Forest		0.0138	0.0138	0.4
Access Road 1860	Crane	191025	191450	50%	BT15	Right	Forest		0.1781	0.1781	0.4
T15	Turbine			100%	BT15		Forest		0.3330	0.3330	0.4
Access Road 1860	Crane	191125	191600	50%	BL91	Left	Forest		0.1990	0.1990	0.4
Access Road 1860	Crane	191450	192100	50%	BL91	Right	Forest		0.2723	0.2723	0.4
Met Tower B	Met	418	700	50%	BL92	Right	Forest		0.0518	0.0518	0.4
Met Tower B	Met	418	625	50%	BL92	Left	Forest		0.0380	0.0380	0.4
Met Tower B	Met	625	850	50%	RB76	Left	Forest		0.0413	0.0413	0.4
Met Tower B	Met	850	1050	50%	BL93	Left	Meadow		0.0367	0.0367	0.4
Met Tower B	Met	1050	1093	50%	NONE	Left			0.0079	0.0079	1
Met Tower B	Met	700	1093	50%	BL94	Right	Meadow		0.0722	0.0722	0.4
Access Road 1860	Crane	191600	192100	50%	BL92	Left	Forest		0.2095	0.2095	0.4
Access Road 1860	Crane	192100	192500	50%	BL95	Left	Meadow		0.1676	0.1676	0.4
Access Road 1860	Crane	192100	192500	50%	RB77	Right	Forest		0.1676	0.1676	0.4
Access Road 1860	Crane	192500	193375	50%	BL96	Left	Forest		0.3666	0.3666	0.4
Access Road 1860	Crane	192500	192550	50%	BL96	Right	Forest		0.0209	0.0209	0.4
Access Road 1860	Crane	192550	192975	50%	BL97	Right	Forest		0.1781	0.1781	0.4
Access Road 1860	Crane	192975	193175	50%	RB78	Right	Forest		0.0838	0.0838	0.4
Access Road 1860	Crane	193175	193825	50%	NONE	Right			0.2723	0.2723	1
Access Road 1860	Crane	193825	194100	50%	BL98	Right	Forest		0.1152	0.1152	0.4
Access Road 1860	Crane	193375	193825	50%	NONE	Left			0.1885	0.1885	1
Access Road 1860	Crane	193825	194575	50%	NONE	Left			0.3142	0.3142	1
Access Road 1860	Crane	194575	194875	50%	BL99	Left	Meadow		0.1257	0.1257	0.4
Access Road 1860	Crane	194100	194425	50%	RB79	Right	Forest		0.1362	0.1362	0.4
T13	Turbine			50%	NONE		Meadow		0.1665	0.1665	1
T13	Turbine			50%	RB79		Forest		0.1665	0.1665	0.4

Access Road 1860	Crane	194425	196567	50%	NONE	Right			0.8974	0.8974	1
Access Road 1860	Crane	194875	196567	50%	NONE	Left			0.7089	0.7089	1
T14	Turbine			100%	NONE				0.3330	0.3330	1
Access Road 2000	Crane	200200	200500	50%	BL98	Right	Forest		0.1257	0.1257	0.4
Access Road 2000	Crane	200200	200300	50%	BL98	Left	Forest		0.0419	0.0419	0.4
Access Road 2000	Crane	200300	201100	50%	RB80	Left	Forest		0.3352	0.3352	0.4
Access Road 2000	Crane	201100	201300	50%	BL100	Left	Forest		0.0838	0.0838	0.4
Access Road 2000	Crane	200500	200800	50%	NONE	Right			0.1257	0.1257	1
Access Road 2000	Crane	200800	201150	50%	BL101	Right	Meadow		0.1466	0.1466	0.4
Access Road 2000	Crane	201150	201875	50%	NONE	Right			0.3037	0.3037	1
Access Road 2000	Crane	201300	201600	50%	BL102	Left	Forest		0.1257	0.1257	0.4
Access Road 2000	Crane	201600	201875	50%	NONE	Left			0.1152	0.1152	1
Access Road 2000	Crane	201875	202050	50%	BL103	Left	Forest		0.0733	0.0733	0.4
Access Road 2000	Crane	201875	202150	50%	BL103	Right	Forest		0.1152	0.1152	0.4
Access Road 2000	Crane	202150	202350	50%	RB81	Right	Forest		0.0838	0.0838	0.4
Access Road 2000	Crane	202050	202600	50%	NONE	Left			0.2304	0.2304	1
Access Road 2000	Crane	202600	202950	50%	BL104	Left	Forest		0.1466	0.1466	0.4
Access Road 2000	Crane	202350	202950	50%	BL104	right	Forest		0.2514	0.2514	0.4
Access Road 2000	Crane	202950	203150	50%	RB81A	Right	Forest		0.0838	0.0838	0.4
Access Road 2000	Crane	202950	203350	50%	NONE	Left			0.1676	0.1676	1
Access Road 2000	Crane	203150	203450	50%	BL105	Right	Meadow		0.1257	0.1257	0.4
Access Road 2000	Crane	203450	203575	50%	NONE	Right			0.0524	0.0524	1
Access Road 2000	Crane	203575	203850	50%	BL106	Right	Forest		0.1152	0.1152	0.4
Access Road 2000	Crane	203350	203525	50%	RB82A	Left	Forest		0.0733	0.0733	0.4
Access Road 2000	Crane	203525	203850	50%	BL106	Left	Forest		0.1362	0.1362	0.4
Access Road 2000	Crane	203850	203975	50%	NONE	Left			0.0524	0.0524	1
Access Road 2000	Crane	203975	204800	50%	BL107	Left	Forest		0.3456	0.3456	0.4
Access Road 2000	Crane	203850	203975	50%	NONE	Right			0.0524	0.0524	1
Access Road 2000	Crane	203975	204250	50%	BL108	Right	Meadow		0.1152	0.1152	0.4
Access Road 2000	Crane	204250	204675	50%	NONE	Right			0.1781	0.1781	1
Access Road 2000	Crane	204675	205225	50%	RB82	Right	Forest		0.2304	0.2304	0.4
Access Road 2000	Crane	204800	205500	50%	BL109	Left	Meadow		0.2933	0.2933	0.4
Access Road 2000	Crane	205225	205550	50%	NONE	Right			0.1362	0.1362	1
Access Road 2000	Crane	205550	205950	50%	BL110	Right	Forest		0.1676	0.1676	0.4
Access Road 2000	Crane	205500	205625	50%	NONE	Left			0.0524	0.0524	1
Access Road 2000	Crane	205625	205825	50%	BL111	Left	Forest		0.0838	0.0838	0.4
Access Road 2000	Crane	205825	205925	50%	RB83	Left	Forest		0.0419	0.0419	0.4
Access Road 2000	Crane	205925	206175	50%	BL112	Left	Forest		0.1047	0.1047	0.4
Access Road 2000	Crane	205950	206175	50%	BL112	Right	Forest		0.0943	0.0943	0.4
Access Road 2000	Crane	206175	206350	50%	NONE	Right			0.0733	0.0733	1
Access Road 2000	Crane	206350	206600	50%	BL113	Right	Forest		0.1047	0.1047	0.4
Access Road 2000	Crane	206600	206719	50%	BL114	Right	Forest		0.0499	0.0499	0.4
Access Road 2000	Crane	206175	206350	50%	NONE	Left			0.0733	0.0733	1
Access Road 2000	Crane	206350	206719	50%	BL114	Left	Forest		0.1546	0.1546	0.4
Access Road 2200	Crane	221000	221450	50%	BL120	Right	Forest		0.1885	0.1885	0.4
Access Road 2200	Crane	221450	221675	50%	NONE	Right			0.0943	0.0943	1
T4	Turbine			100%	BT4		Forest		0.3757	0.3757	0.4
Access Road 2200	Crane	221675	222050	50%	BT4	Right	Forest		0.1571	0.1571	0.4
Access Road 2200	Crane	222050	222400	50%	BL121	Right	Forest		0.1466	0.1466	0.4
Access Road 2200	Crane	223615	223800	50%	BL114	Right	Forest		0.0775	0.0775	0.4

Access Road 2200	Crane	223800	224250	50%	BL113	Right	Forest		0.1885	0.1885	0.4
Access Road 2200	Crane	224250	224875	50%	BL127	Right	Meadow		0.2619	0.2619	0.4
Access Road 2200	Crane	224875	225225	50%	RB87	Right	Forest		0.1466	0.1466	0.4
T6	Turbine			100%	BL128		Forest		0.3330	0.3330	0.4
Access Road 2200	Crane	224575	225150	50%	BL128	Left	Forest		0.2409	0.2409	0.4
Access Road 2200	Crane	225150	225200	50%	NONE	Left			0.0209	0.0209	1
Access Road 2200	Crane	225150	225375	50%	BL129	Left	Forest		0.0943	0.0943	0.4
Access Road 2200	Crane	225225	225400	50%	BL129	Right	Forest		0.0733	0.0733	0.4
Access Road 2200	Crane	225400	226000	50%	RB88	Right	Forest		0.2514	0.2514	0.4
Access Road 2200	Crane	225375	225750	50%	BL130	Left	Forest		0.1571	0.1571	0.4
Access Road 2200	Crane	225720	226210	50%	BL131	Left	Forest		0.2053	0.2053	0.4
Access Road 2200	Crane	226000	226150	50%	BL131	Right	Forest		0.0628	0.0628	0.4
Access Road 2200	Crane	226150	226525	50%	RB89	Right	Forest		0.1571	0.1571	0.4
Access Road 2200	Crane	226525	226950	50%	BL132	Right	Forest		0.1781	0.1781	0.4
Access Road 2200	Crane	226210	227325	50%	BL132	Left			0.4671	0.4671	0.4
Access Road 2200	Crane	226950	227050	50%	NONE	Right			0.0419	0.0419	1
Access Road 2200	Crane	227050	228025	50%	RB90	Right	Forest		0.4085	0.4085	0.4
Access Road 2200	Crane	227325	227475	50%	BL133	Left	Forest		0.0628	0.0628	0.4
Access Road 2200	Crane	227475	227675	50%	RB90	Left	Forest		0.0838	0.0838	0.4
T8	Turbine			100%	BL133		Forest		0.3330	0.3330	0.4
Access Road 2200	Crane	227675	227850	50%	BL133	Left	Forest		0.0733	0.0733	0.4
Access Road 2200	Crane	227850	228325	50%	BL134	Left	Forest		0.1990	0.1990	0.4
Access Road 2200	Crane	228025	228200	50%	NONE	Right			0.0733	0.0733	1
Access Road 2200	Crane	228200	228325	50%	BL134	Right	Forest		0.0524	0.0524	0.4
Access Road 2200	Crane	228325	228875	50%	BL135	Left	Forest		0.2304	0.2304	0.4
Access Road 2200	Crane	228875	229125	50%	NONE	Left			0.1047	0.1047	1
Access Road 2200	Crane	229125	229205	50%	BL136	Left	Forest		0.0335	0.0335	0.4
Access Road 2200	Crane	228325	228675	50%	BL135	Right	Forest		0.1466	0.1466	0.4
Access Road 2200	Crane	228675	228825	50%	RB99	Right	Forest		0.0628	0.0628	0.4
Access Road 2200	Crane	228825	229205	50%	NONE	Right			0.1592	0.1592	1
T9	Turbine			50%	NONE				0.1665	0.1665	1
T9	Turbine			50%	BL136		Forest		0.1665	0.1665	0.4
Access Road 2500	Crane	250018	250460	50%	BL135	Left	Forest	25	0.0583	0.1852	0.4
Access Road 2500	Crane	250018	250460	50%	NONE	Right		25	0.0583	0.1852	1
Access Road 2500	Crane	259200	259600	50%	NONE	Left		25	0.0528	0.1676	1
Access Road 2500	Crane	259600	259665	50%	BL155	Left	Forest	25	0.0086	0.0272	0.4
Access Road 2500	Crane	259200	259500	50%	NONE	Right		25	0.0396	0.1257	1
Access Road 2500	Crane	259500	259665	50%	BL155	Right	Forest	25	0.0218	0.0691	0.4
T10	Turbine			100%	BT10		Forest		0.3330	0.3330	0.4
Access Road 2925	Crane	292633	293375	50%	BL155	Left	Forest	0	0.3109	0.3109	0.4
Access Road 2925	Crane	292633	293100	50%	BL156	Right	Forest	0	0.1957	0.1957	0.4
Access Road 2925	Crane	293100	293450	50%	NONE	Right		0	0.1466	0.1466	1
Access Road 2925	Crane	293375	293915	50%	NONE	Left		0	0.2262	0.2262	1
Access Road 2925	Crane	293915	294375	50%	BL158	Left	Meadow	0	0.1927	0.1927	0.4
T11	Turbine			50%	BL158		Meadow		0.1665	0.1665	0.4
T11	Turbine			50%	BL159		Meadow		0.1665	0.1665	0.4
Access Road 2925	Crane	294375	294525	50%	BL159	Left	Meadow	0	0.0628	0.0628	0.4
Access Road 2925	Crane	294525	294800	50%	BL159A	Left	Meadow	0	0.1152	0.1152	0.4
Access Road 2925	Crane	293450	293915	50%	NONE	Right	Meadow	0	0.1948	0.1948	1
Access Road 2925	Crane	293915	294350	50%	NONE	Right		0	0.1822	0.1822	1

Access Road 2925	Crane	294350	294525	50%	BL159	Right	Meadow	0	0.0733	0.0733	0.4
Access Road 2925	Crane	294525	294800	50%	BL159A	Right	Meadow	0	0.1152	0.1152	0.4
Access Road 2500	Crane	259665	259850	100%	BL156	Both	Forest	25	0.0488	0.1550	0.4
Access Road 2500	Crane	259850	260100	100%	NONE	Both		25	0.0660	0.2095	1
Access Road 2500	Crane	260100	260400	100%	BL163	Both	Forest	25	0.0792	0.2514	0.4
Access Road 2500	Crane	260400	261250	100%	BL164	Both	Meadow	25	0.2244	0.7122	0.4
Access Road 2500	Crane	261250	261425	50%	RB93	Left	Meadow	25	0.0231	0.0733	0.4
Access Road 2500	Crane	261425	261650	50%	BL166	Left	Forest	25	0.0297	0.0943	0.4
Access Road 2500	Crane	261250	261675	50%	BL165	Right	Forest	25	0.0561	0.1781	0.4
Access Road 2500	Crane	261675	261725	50%	NONE	Right		25	0.0066	0.0209	1
Access Road 2500	Crane	261725	261900	50%	BL167	Right	Forest	25	0.0231	0.0733	0.4
Access Road 2500	Crane	261650	261800	50%	NONE	Left		25	0.0198	0.0628	1
Access Road 2500	Crane	261800	262240	50%	BL168	Left	Forest	25	0.0581	0.1843	0.4
Access Road 2500	Crane	261900	262240	50%	BL168	Right	Forest	25	0.0449	0.1424	0.4
Access Road 2500	Crane	262240	262675	100%	BL169	Both	Forest	25	0.1148	0.3645	0.4
Access Road 2500	Crane	262675	262950	50%	RB94	Left	Forest	25	0.0363	0.1152	0.4
Access Road 2500	Crane	262675	263375	50%	BL170	Right	Forest	25	0.0924	0.2933	0.4
Access Road 2500	Crane	262950	263375	50%	BL170	Left	Forest	25	0.0561	0.1781	0.4
Access Road 2500	Crane	263375	263575	50%	BL171	Left	Forest	25	0.0264	0.0838	0.4
Access Road 2500	Crane	263575	263700	50%	NONE	Left		25	0.0165	0.0524	1
Access Road 2500	Crane	263700	264050	50%	BL172	Left	Forest	25	0.0462	0.1466	0.4
Access Road 2500	Crane	263375	263900	50%	BL173	Right	Forest	25	0.0693	0.2200	0.4
Access Road 2500	Crane	264050	264550	50%	BL174	Left	Forest	25	0.0660	0.2095	0.4
Access Road 2500	Crane	263900	264550	50%	BL174	Right	Forest	25	0.0858	0.2723	0.4
Access Road 2500	Crane	264550	264800	100%	NONE	Both		25	0.0660	0.2095	1
Access Road 2500	Crane	264800	265035	50%	BL175	Right	Forest	25	0.0310	0.0985	0.4
Access Road 2500	Access	265035	265450	50%	BL176	Right	Forest	24	0.0000	0.1143	0.4
Access Road 2500	Access	264800	264875	50%	BL175	Left	Forest	25	-0.0009	0.0207	0.4
Access Road 2500	Crane	264875	265035	50%	BL179	Left	Forest	25	0.0211	0.0670	0.4
Access Road 2500	Crane	265035	265250	50%	RB95	Left	Forest	25	0.0284	0.0901	0.4
Access Road 2500	Access	265250	265450	50%	BL176	Left	Forest	24	0.0000	0.0551	0.4
T19	Turbine			100%	BT19		Forest		0.3330	0.3330	0.4
Access Road 2970	Crane	297135	297325	50%	RB96	Left	Forest	0	0.0796	0.0796	0.4
Access Road 2970	Crane	297135	297375	50%	RB97	Right	Forest	0	0.1006	0.1006	0.4
Access Road 2970	Crane	297325	297700	50%	BL177	Left	Forest	0	0.1571	0.1571	0.4
Access Road 2970	Crane	297375	297850	50%	BL177	Right	Forest	0	0.1990	0.1990	0.4
Access Road 2970	Crane	297700	298230	50%	NONE	Left		0	0.2221	0.2221	1
Access Road 2970	Crane	297850	298230	50%	NONE	Right		0	0.1592	0.1592	1
Access Road 2970	Crane	298230	298642	50%	BL175	Left	Forest	0	0.1726	0.1726	0.4
Access Road 2970	Crane	298230	298642	50%	BL176	Right	Forest	0	0.1726	0.1726	0.4
Access Road 2990	Crane	299000	299275	50%	RB95	Right	Forest	0	0.1152	0.1152	0.4
Access Road 2990	Crane	299275	299550	50%	BL178	Right	Forest	0	0.1152	0.1152	0.4
Access Road 2990	Crane	299000	299650	50%	BL179	Left	Forest	0	0.2723	0.2723	0.4
Access Road 2990	Crane	299550	300300	50%	BL180	Right	Forest	0	0.3142	0.3142	0.4
Access Road 2990	Crane	299650	300675	50%	NONE	Left		0	0.4294	0.4294	1
Access Road 2990	Crane	300300	300425	50%	NONE	Right		0	0.0524	0.0524	1
Access Road 2990	Crane	300425	300750	50%	RB96A	Right	Forest	0	0.1362	0.1362	0.4
Access Road 2990	Crane	300675	301575	50%	BL181	Left	Forest	0	0.3771	0.3771	0.4
T18	Turbine			100%	BT18		Forest	0	0.3330	0.3330	0.4
Access Road 2990	Crane	300750	301125	50%	BT18	Right	Forest	0	0.1571	0.1571	0.4

Project Name **Downeast Wind**
Project Number **113.20.01**
Date **2/16/2021**
Done by **JAO**

BA=Buffer Adjacent to Small Imp
BL=Buffer w/level spreader
DT=Buffer w/ditch turnout
USF=Underdrain Soil Filter

Qual Calcs Lin Schoodic (Col)
RB=Roadside buffer
DB=Detention basin
WP=Wet pond
INF=Infiltration

BRS=Roadside Buffer with Rock Sandwich

QUALITY CALCULATIONS FOR LINEAR PORTION

Schoodic Lake (Columbia)

Phosphorous Requirement

Watershed per acre phosphorus budget (Appendix C):	P	0.094	# P/acre/year	Total ac of devel. parcel:	TA	0.82	acres
Small Watershed Threshold (Appendix C)	SWT	17	acres	NWI wetland acreage:	WA		acres
Allowable increase in Town's share of annual phos (App C)	FC	6.35	lbs P/year	Steep slope acreage:	SA		acres
Area avail. For development (App C)	AAD	169	acres	Existing imp area (Pre 1980)	EIA _B		acres
Project acreage: A = TA - (WA + SA + EIA _B + EIA _A)	A	0.82	acres	Existing imp area (post 1980)	EIA _A		acres
A/AAD	R	0.005					
Project Phos Budget: PPB = P x A				PPB	0.0773	lbs P/year	
Project Phos Budget with small watershed adjustment:				PPB	N/A	lbs P/year	

Total Post Development Phos Export (lbs P/yr)=	0.0562	<=	0.0773	Access rd width(Const)=	24	Crane path width(Const)=	36.5
Total Impervious Area for Schoodic lake WS=	0.03	Acres		Access rd width(Perm)=	24	Crane path width(Perm)=	36.5
				Existing NC=	remain as is	Met Tower Rd width=	16

Roadway Alignment or Turbine Site	Access Crane Turbine	Station to Station		% of area	BMP No. (or none)	Side of road being Tx right, left, both	BMP cover Forest Meadow	Existing Imp Area Width	New Imp. Area (acres)	Imp Area to be Tx (acres)	Treatment Factor	Export Coefficient	Pre-Treatment lbs P/Year	Post Treatment lbs P/year
Access Rd 500	Access	52850	53550	100%	None	Both		22	0.0321	0.3857	1	1.75	0.0562	0.0562
														0.0000
														0.0000
														0.0000
														0.0000
														0.0000

Total New Impervious	0.0321	acres	Total Pre Tx Phos	0.0562	lbs P/year	Total Post Tx Phos	0.0562	lbs P/year
----------------------	--------	-------	-------------------	--------	------------	--------------------	--------	------------

Project Name	Downeast Wind	BA=Buffer Adjacent to Small Imp	RB=Roadside buffer	BRS=Roadside Buffer with Rock Sandwich
Project Number	113.20.01	BL=Buffer w/level spreader	DB=Detention basin	
Date	2/16/2021	DT=Buffer w/ditch turnout	WP=Wet pond	
Done by	JAQ	USF=Underdrain Soil Filter	INF=Infiltration	

QUALITY CALCULATIONS FOR LINEAR PORTION

Schoodic Lake (T18)

Phosphorous Requirement

Watershed per acre phosphorus budget (Appendix C):	P	0.088	# P/acre/year	Total ac of devel. parcel:	TA	53.79	acres
Small Watershed Threshold (Appendix C)	SWT	16	acres	NWI wetland acreage:	WA		acres
Allowable increase in Town's share of annual phos (App C)	FC	5.48	lbs P/year	Steep slope acreage:	SA		acres
Area avail. For development (App C)	AAD	156	acres	Existing imp area (Pre 1980)	EIA _B		acres
Project acreage: A = TA - (WA + SA + EIA _B + EIA _A)	A	53.79	acres	Existing imp area (post 1980)	EIA _A		acres
A/AAD	R	0.345					

Project Phos Budget: PPB = P x A	PPB	N/A	lbs P/year
Project Phos Budget with small watershed adjustment:	PPB	2.3147	lbs P/year

Total Post Development Phos Export with STC (lbs P/yr)=	-0.6647	<=	2.3147	Access rd width(Const)=	24	Crane path width(Const)=	36.5
Total Post Development Phos Export (lbs P/yr)=	0.6911	without STC credit		Access rd width(Perm)=	24	Crane path width(Perm)=	36.5
Total source treatment mitigation credit (STC) (lbs/yr)=	1.3559			Existing NC=	remain as is	Met Tower Rd width=	16
Total Impervious Area for Schoodic lake WS=	0.76	Acres					

Roadway Alignment or Turbine Site	Access Crane Turbine	Station to Station		% of area	BMP No. (or none)	Side of road being Tx right, left, both	BMP cover Forest Meadow	Existing Imp Area Width	New Imp. Area (acres)	Imp Area to be Tx (acres)	Treatment Factor	Export Coefficient	Pre-Treatment lbs P/Year	Post Treatment lbs P/year
Access Rd 500	Access	56750	57525	100%	None	Both		20	0.0712	0.4270	1	1.75	0.1245	0.1245
Access Rd 500	Access	60850	62000	50%	BL36	Right	Forest	22	0.0264	0.3168	0.4	1.75	0.0462	0.0185
Access Rd 500	Access	60740	61800	50%	BL36	Left	Forest	22	0.0243	0.2920	0.4	1.75	0.0426	0.0170
Access Rd 500	Access	61800	63200	50%	RB24	Left	Meadow	22	0.0321	0.3857	0.4	1.75	0.0562	0.0225
Access Rd 500	Access	62000	62700	50%	BL37	Right	Meadow	22	0.0161	0.1928	0.4	1.75	0.0281	0.0112
Access Rd 500	Access	62700	63900	50%	RB25	Right	Meadow	22	0.0275	0.3306	0.4	1.75	0.0482	0.0193
Access Rd 500	Access	63900	65000	50%	None	Right		22	0.0253	0.3030	1	1.75	0.0442	0.0442

Access Rd 500	Access	63200	63400	50%	None	Left		22	0.0046	0.0551	1	1.75	0.0080	0.0080
Access Rd 500	Access	63400	63900	50%	RB26	Left	Meadow	22	0.0115	0.1377	0.4	1.75	0.0201	0.0080
Access Rd 500	Access	63900	64550	50%	None	Left		22	0.0149	0.1791	1	1.75	0.0261	0.0261
Access Rd 500	Access	64550	64725	50%	RB27	Left	Meadow	22	0.0040	0.0482	0.4	1.75	0.0070	0.0028
Access Rd 500	Access	64725	65150	50%	None	Left		22	0.0098	0.1171	1	1.75	0.0171	0.0171
Access Rd 500	Access	65000	66196	50%	RB28	Right	Meadow	22	0.0275	0.3295	0.4	1.75	0.0480	0.0192
Access Rd 700	Access	70000	70300	50%	RB28	Right	Meadow	22	0.0069	0.0826	0.4	1.75	0.0121	0.0048
Access Rd 500	Access	65150	65525	50%	RB29	Left	Meadow	22	0.0086	0.1033	0.4	1.75	0.0151	0.0060
Access Rd 500	Access	65525	65800	50%	BL38	Left	Meadow	22	0.0063	0.0758	0.4	1.75	0.0110	0.0044
Access Rd 500	Access	65800	65950	50%	None	Left		22	0.0034	0.0413	1	1.75	0.0060	0.0060
Access Rd 500	Access	65950	66196	50%	RB30	Left	Meadow	22	0.0056	0.0678	0.4	1.75	0.0099	0.0040
Access Rd 700	Access	70000	70400	50%	None	Left		22	0.0092	0.1102	1	1.75	0.0161	0.0161
Access Rd 700	Access	70400	71525	50%	RB31	Left	Meadow	22	0.0258	0.3099	0.4	1.75	0.0452	0.0181
Access Rd 700	Access	70300	70400	50%	RB32	Right	Meadow	22	0.0023	0.0275	0.4	1.75	0.0040	0.0016
Access Rd 700	Access	70400	71100	50%	None	Right		22	0.0161	0.1928	1	1.75	0.0281	0.0281
Access Rd 700	Access	71100	71525	50%	RB33	Right	Meadow	22	0.0098	0.1171	0.4	1.75	0.0171	0.0068
Crane Path 800	Crane	81800	82675	50%	BL39	Right	Forest	0	0.3666	0.3666	0.4	1.75	0.6415	0.2566

Total New Impervious **0.7558** acresTotal Pre Tx Phos **1.3226** lbs P/yearTotal Post Tx Phos **0.6911** lbs P/year

Total Imp Including Existing 4.6096

Mitigation credit when a pre-existing source is treated by a new BMP

Watershed	Existing Road Area to be Tx (acres)	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)		Treatment Factor for New BMP(s) Chapter 6	Mitigation Credit (lbs P/year)		Comments
Schoodic Lake	2.5826	1.75	0.5	2.2598	1	2.2598	1 -	0.4	1.3559		
Total source treatment mitigation credit (STC)									1.3559		lbs P/year

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **3/17/2021**
 Done by **JAO**

BA=Buffer Adjacent to Small Imp
 BL=Buffer w/level spreader
 DT=Buffer w/ditch turnout
 USF=Underdrain Soil Filter

RB=Roadside buffer
 DB=Detention basin
 WP=Wet pond
 INF=Infiltration

BRS=Roadside Buffer with Rock Sandwich

QUALITY CALCULATIONS FOR LINEAR PORTION

Mopang Stream

Total Post Development Phos Export (lbs P/yr)=
 % of Project Treated for Watershed=
 Total Impervious Area for Watershed=

75.49%
 10.13

<= **N/A**
 >= **75%**
 Acres

Access rd width(Const)= **24**
 Access rd width(Perm)= **24**
 Existing NC= remain as is

Crane path width(Const)= **36.5**
 Crane path width(Perm)= **36.5**
 Met Tower Rd width= **16**

Roadway Alignment or Turbine Site	Access Crane Turbine	Station to Station		% of area	BMP No. (or none)	Side of road being Tx right, left, both	BMP cover Forest Meadow	Existing Imp Area Width	New Imp. Area (acres)	Imp Area to be Tx (acres)	Treatment Factor
Access Road 2200	Crane	220135	220550	50%	BL115	Left	Forest	0	0.1739	0.1739	0.4
Access Road 2200	Crane	220135	220750	50%	BL116	Right	Forest	0	0.2577	0.2577	0.4
T3	Turbine			50%	BL116		Forest		0.1665	0.1665	0.4
T3	Turbine			25%	BL115		Forest		0.0833	0.0833	0.4
T3	Turbine			25%	BT3		Forest		0.0833	0.0833	0.4
Access Road 2200	Crane	220550	221150	50%	BL117	Left	Forest	0	0.2514	0.2514	0.4
Access Road 2200	Crane	220750	221000	50%	BL118	Right	Meadow	0	0.1047	0.1047	0.4
Access Road 2200	Crane	221150	221475	50%	BL119	Left	Forest	0	0.1362	0.1362	0.4
Access Road 2200	Crane	221475	221925	50%	NONE	Left		0	0.1885	0.1885	1
Access Road 2200	Crane	221925	222225	50%	BL122	Left	Forest	0	0.1257	0.1257	0.4
Access Road 2200	Crane	222225	222825	50%	RB84	Left	Forest	0	0.2514	0.2514	0.4
Access Road 2200	Crane	222400	222850	50%	BL123	Right	Forest	0	0.1885	0.1885	0.4
Access Road 2200	Crane	222850	223175	50%	BL124	Right	Forest	0	0.1362	0.1362	0.4
Access Road 2200	Crane	222825	223025	50%	BL124	Left	Forest	0	0.0838	0.0838	0.4
Access Road 2200	Crane	223025	223575	50%	RB85	Left	Forest	0	0.2304	0.2304	0.4
Access Road 2200	Crane	223175	223615	50%	BT5	Right	Forest	0	0.1843	0.1843	0.4
T5	Turbine			100%	BT5		Forest		0.3330	0.3330	0.4
Access Road 2200	Crane	223575	223875	50%	BL125	Left	Forest	0	0.1257	0.1257	0.4
Access Road 2200	Crane	223875	224300	50%	RB86	Left	Forest	0	0.1781	0.1781	0.4
Access Road 2200	Crane	224300	224475	50%	BL126	Left	Forest	0	0.0733	0.0733	0.4
Access Road 2200	Crane	224475	224575	50%	NONE	Left		0	0.0419	0.0419	1

Access Road 2500	Crane	250460	250950	50%	BL137	Left	Forest	24	0.0703	0.2053	0.4
Access Road 2500	Crane	250460	250950	50%	BL137	Right	Forest	24	0.0703	0.2053	0.4
Access Road 2500	Crane	250950	251040	50%	BL137	Left	Forest	0	0.0377	0.0377	0.4
Access Road 2500	Crane	250950	251050	50%	BL137	Right	Forest	0	0.0419	0.0419	0.4
Access Road 2500	Crane	251040	251100	50%	NONE	Left		0	0.0251	0.0251	1
Access Road 2500	Crane	251050	251100	50%	NONE	Right		0	0.0209	0.0209	1
Access Road 2500	Crane	251100	251380	50%	BL138	Left	Forest	0	0.1173	0.1173	0.4
Access Road 2500	Crane	251100	251400	50%	BL138	Right	Forest	0	0.1257	0.1257	0.4
Access Road 2500	Crane	251380	252050	50%	BL139	Left	Forest	0	0.2807	0.2807	0.4
Access Road 2500	Crane	251400	252050	50%	NONE	Right		0	0.2723	0.2723	1
Access Road 2500	Crane	252050	252550	50%	BL140	Left	Forest	0	0.2095	0.2095	0.4
Access Road 2500	Crane	252050	252560	50%	BL140	Right	Forest	0	0.2137	0.2137	0.4
Access Road 2500	Crane	252550	253150	50%	NONE	Left		0	0.2514	0.2514	1
Access Road 2500	Crane	253150	253800	50%	NONE	Left		10	0.1977	0.2723	1
Access Road 2500	Crane	252560	253150	50%	NONE	Right		0	0.2472	0.2472	1
Access Road 2500	Crane	253150	253825	50%	NONE	Right		10	0.2053	0.2828	1
Access Road 2500	Crane	253800	254050	50%	BL141	Left	Forest	0	0.1047	0.1047	0.4
Access Road 2500	Crane	253825	254060	50%	BL141	Right	Forest	10	0.0715	0.0985	0.4
Access Road 2500	Crane	254060	254475	50%	BL142	Right	Meadow	10	0.1262	0.1739	0.4
Access Road 2500	Crane	254050	254250	50%	NONE	Left		10	0.0608	0.0838	1
Access Road 2500	Crane	254250	254460	50%	BL143	Left	Meadow	10	0.0639	0.0880	0.4
Access Road 2500	Crane	254460	254675	50%	BL144	Left	Meadow	0	0.0901	0.0901	0.4
Access Road 2500	Crane	254675	254750	50%	BL144	Left	Meadow	22	0.0125	0.0314	0.4
Access Road 2500	Crane	254475	254700	50%	BL144	Right	Meadow	0	0.0943	0.0943	0.4
Access Road 2500	Crane	254700	254775	50%	BL144	Right	Meadow	22	0.0125	0.0314	0.4
Access Road 2500	Crane	254775	255400	50%	NONE	Right		22	0.1040	0.2619	1
Access Road 2500	Crane	254750	255000	50%	NONE	Left		22	0.0416	0.1047	1
Access Road 2500	Crane	255000	255450	50%	BL145	Left	Forest	22	0.0749	0.1885	0.4
Access Road 2500	Crane	255400	255900	50%	BL146	Right	Forest	22	0.0832	0.2095	0.4
Access Road 2500	Crane	255450	255950	50%	BL146	Left	Forest	22	0.0832	0.2095	0.4
Access Road 2500	Crane	255950	256150	50%	BL147	Left	Forest	25	0.0264	0.0838	0.4
Access Road 2500	Crane	255900	256010	50%	NONE	Right		24	0.0158	0.0461	1
Access Road 2500	Crane	256010	256275	50%	RB91	Right	Forest	24	0.0380	0.1110	0.4
Access Road 2500	Crane	256275	256500	50%	NONE	Right		24	0.0323	0.0943	1
Access Road 2500	Crane	256500	256575	50%	RB91	Right	Forest	24	0.0108	0.0314	0.4
Access Road 2900	Crane	290018	290400	50%	BL147	Left	Forest	0	0.1600	0.1600	0.4
Access Road 2900	Crane	290400	290700	100%	NONE	Both		0	0.2514	0.2514	1
Access Road 2900	Crane	290700	290750	100%	BT7	Both	Forest	0	0.0419	0.0419	0.4
Access Road 2900	Crane	290018	290400	50%	BL148	Right	Forest	0	0.1600	0.1600	0.4
T7	Turbine			100%	BT7		Forest		0.3330	0.3330	0.4
Met Tower C	Met	500	1125	50%	BL149	Right	Meadow	0	0.1148	0.1148	0.4
Met Tower C	Met	1125	1200	50%	RB92	Right	Meadow	0	0.0138	0.0138	0.4
Met Tower C	Met	1200	1350	50%	BL150	Right	Meadow	0	0.0275	0.0275	0.4
Met Tower C	Met	500	1100	50%	BL149	Left	Meadow	0	0.1102	0.1102	0.4
Met Tower C	Met	1100	1350	50%	BL150	Left	Meadow	0	0.0459	0.0459	0.4

Access Road 2500	Crane	256150	256350	50%	BL148	Left	Forest	25	0.0264	0.0838	0.4
Access Road 2500	Crane	256350	257350	50%	NONE	Left		25	0.1320	0.4190	1

[illegible]

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **3/8/2021**
 Done by **JAO**

BA=Buffer Adjacent to Small Imp
 BL=Buffer w/level spreader
 DT=Buffer w/ditch turnout
 USF=Underdrain Soil Filter

RB=Roadside buffer
 DB=Detention basin
 WP=Wet pond
 INF=Infiltration

QUALITY CALCULATIONS FOR NON LINEAR PORTION

Total NEW NONLIN impervious area for project=	132442	sf	=	3.04	acres
Total NEW NONLIN landscaped area for project=	0	sf	=	0.00	acres
Total NEW NONLINEAR area of project=	132442	sf	=	3.04	acres

		NONLinear Area		
Subcatchment #	BMP Type & #	Imp (sf)	Land (sf)	Description If Applicable
Substation	Substation Pad	132442	0	Self treating
TOTAL		132442	0	

SUMMARY FOR THE NONLINEAR PORTION OF THE PROJECT

IMP Area Required area to be treated (sf)=	125819.90				
Total NONLIN IMP Area Being Treated (sf)=	132442	100.0%	>=95%		
DEVEL Area Required area to be treated (sf)=	105953.60				
Total NONLIN DEVEL Area Being Treated (sf)=	132442	100.00%	>=80%		
NONLinear Area Not Being Treated (sf)=	0				

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **2/16/2021**
 Done by **JAO**

RB=Roadside Buffer
 Imp=Impervious area
 Land=Landscaped Area

W=Width
 B=Buffer

REQUIRED BUFFER FLOW PATH LENGTHS ~BUFFER ADJACENT TO DOWN HILL SIDE OF ROAD~

Access/Met Tower Roads

# of Travel Ways to Buffer	Length of Flow Forest	Length of Flow Meadow
1	35	50
2	55	80

Crane Paths

# of Travel Ways to Buffer	Length of Flow Forest	Length of Flow Meadow
1	55	80
2	80	110

* Buffer slopes may not exceed 20%

** Buffers may not be located in a wetland

*** Roadside slopes may be included in a meadow buffer **if** the slope is less than 4:1 **and** if the soils allow infiltration

Mopang Lake Watershed

BMP Type & #	Roadway Align. or Turbine Site	Type of Road	# of Travel Ways (1 or 2)	Buffer Type (Forest or Meadow)	Treatment Factor	Standard Buffer Length (ft)	Adjusted Buffer Length (ft)
RB84	Access Road 2200	Crane	1	Forest	0.40	55	55
RB85	Access Road 2200	Crane	1	Forest	0.40	55	55
RB86	Access Road 2200	Crane	1	Forest	0.40	55	55
RB91	Access Road 2500	Crane	1	Forest	0.40	55	55
RB92	Met Tower C	Met	1	Meadow	0.40	50	50

Schoodic Lake Watershed (Columbia)

BMP Type & #	Roadway Align. or Turbine Site	Type of Road	# of Travel Ways (1 or 2)	Buffer Type (Forest or Meadow)	Treatment Factor	Standard Buffer Length (ft)	Adjusted Buffer Length (ft)

Schoodic Lake Watershed (T18)

BMP Type & #	Roadway Align. or Turbine Site	Type of Road	# of Travel Ways (1 or 2)	Buffer Type (Forest or Meadow)	Treatment Factor	Standard Buffer Length (ft)	Adjusted Buffer Length (ft)
RB24	Access Rd 500	Access	1	Meadow	0.40	50	50
RB25	Access Rd 500	Access	1	Meadow	0.40	50	50
RB26	Access Rd 500	Access	1	Meadow	0.40	50	50
RB27	Access Rd 500	Access	1	Meadow	0.40	50	50
RB28	Access Rd 500	Access	1	Meadow	0.40	50	50
RB29	Access Rd 500	Access	1	Meadow	0.40	50	50
RB30	Access Rd 500	Access	1	Meadow	0.40	50	50
RB31	Access Rd 700	Access	1	Meadow	0.40	50	50
RB32	Access Rd 700	Access	1	Meadow	0.40	50	50
RB33	Access Rd 700	Access	1	Meadow	0.40	50	50

Upper Pleasant River Watershed

BMP Type & #	Roadway Align. or Turbine Site	Type of Road	# of Travel Ways (1 or 2)	Buffer Type (Forest or Meadow)	Treatment Factor	Standard Buffer Length (ft)	Adjusted Buffer Length (ft)
RB22A	Access Rd 500	Access	1	Meadow	0.40	50	50
RB22	Access Rd 500	Access	1	Meadow	0.40	50	50

RB23	Access Rd 500	Access	1	Meadow	0.40	50	50
RB31	Access Rd 700	Access	1	Meadow	0.40	50	50
RB34	Access Rd 700	Crane	1	Forest	0.40	55	55
RB35	Access Rd 700	Access	1	Meadow	0.40	50	50
RB36	Access Rd 700	Crane	1	Forest	0.40	55	55
RB37	Access Rd 700	Crane	1	Forest	0.40	55	55
RB38	Crane Path 800	Crane	1	Forest	0.40	55	55
RB39	Crane Path 800	Crane	1	Forest	0.40	55	55
RB40	Crane Path 800	Crane	1	Forest	0.40	55	55
RB41	Crane Path 800	Crane	1	Forest	0.40	55	55
RB42	Crane Path 800	Crane	1	Forest	0.40	55	55
RB43	Crane Path 910	Crane	1	Forest	0.40	55	55
RB44	Crane Path 910	Crane	1	Forest	0.40	55	55
RB45	Crane Path 910	Crane	1	Forest	0.40	55	55
RB46	Crane Path 1100	Access	1	Meadow	0.40	50	50
RB47	Crane Path 1100	Access	1	Meadow	0.40	50	50
RB48	Crane Path 1100	Access	1	Meadow	0.40	50	50
RB49	Access Road 1300	Access	1	Forest	0.40	35	35
RB50	Access Road 1300	Access	1	Meadow	0.40	50	50
RB51	Access Road 1300	Access	1	Meadow	0.40	50	50
RB52	Access Road 1300	Access	1	Meadow	0.40	50	50
RB53	Access Road 1300	Access	1	Meadow	0.40	50	50
RB54	Access Road 1300	Access	1	Meadow	0.40	50	50
RB55	Access Road 1300	Access	1	Meadow	0.40	50	50
RB56	Access Road 1300	Access	1	Meadow	0.40	50	50
RB57	Access Road 1300	Access	1	Meadow	0.40	50	50
RB58	Access Road 1300	Access	1	Meadow	0.40	50	50
RB59	Access Road 1300	Access	1	Meadow	0.40	50	50
RB60	Access Road 1300	Access	1	Meadow	0.40	50	50
RB61	Access Road 1300	Access	1	Forest	0.40	35	35
RB62	Access Road 1300	Access	1	Meadow	0.40	50	50
RB63	Access Road 1300	Access	1	Meadow	0.40	50	50
RB64	Access Road 1300	Access	1	Forest	0.40	35	35
RB65	Access Road 1300	Access	1	Forest	0.40	35	35
RB66	Access Road 1300	Access	1	Forest	0.40	35	35
RB67	Access Road 1300	Access	1	Forest	0.40	35	35
RB68	Access Road 1700	Access	1	Forest	0.40	35	35

RB69	Access Road 1700	Access	1	Forest	0.40	35	35
RB70	Access Road 1800	Access	1	Meadow	0.40	50	50
RB71	Access Road 1800	Access	1	Meadow	0.40	50	50
RB72	Access Road 1800	Access	1	Forest	0.40	35	35
RB74	Access Road 1860	Access	1	Meadow	0.40	50	50
RB75	Access Road 1860	Access	1	Meadow	0.40	50	50
RB76	Met Tower B	Met	1	Forest	0.40	35	35
RB77	Access Road 1860	Crane	1	Forest	0.40	55	55
RB78	Access Road 1860	Crane	1	Forest	0.40	55	55
RB79	Access Road 1860	Crane	1	Forest	0.40	55	55
RB80	Access Road 2000	Crane	1	Forest	0.40	55	55
RB81	Access Road 2000	Crane	1	Forest	0.40	55	55
RB81A	Access Road 2000	Crane	1	Forest	0.40	55	55
RB82A	Access Road 2000	Crane	1	Forest	0.40	55	55
RB82	Access Road 2000	Crane	1	Forest	0.40	55	55
RB83	Access Road 2000	Crane	1	Forest	0.40	55	55
RB87	Access Road 2200	Crane	1	Forest	0.40	55	55
RB88	Access Road 2200	Crane	1	Forest	0.40	55	55
RB89	Access Road 2200	Crane	1	Forest	0.40	55	55
RB90	Access Road 2200	Crane	1	Forest	0.40	55	55
RB93	Access Road 2500	Crane	1	Meadow	0.40	80	80
RB94	Access Road 2500	Crane	1	Forest	0.40	55	55
RB95	Access Road 2500	Crane	1	Forest	0.40	55	55
RB96	Access Road 2970	Crane	1	Forest	0.40	55	55
RB96A	Access Road 2990	Crane	1	Forest	0.40	55	55
RB97	Access Road 2970	Crane	1	Forest	0.40	55	55
RB97A	Access Road 2990	Crane	1	Forest	0.40	55	55
RB98	Access Road 2990	Crane	1	Forest	0.40	55	55
RB99	Access Road 2200	Crane	1	Forest	0.40	55	55

Harrington River Watershed

BMP Type & #	Roadway Align. or Turbine Site	Type of Road	# of Travel Ways (1 or 2)	Buffer Type (Forest or Meadow)	Treatment Factor	Standard Buffer Length (ft)	Adjusted Buffer Length (ft)
RB1	Crane Path 250	Crane	1	Forest	0.40	55	55
RB2	Crane Path 250	Crane	1	Forest	0.40	55	55
RB3	Crane Path 250	Crane	1	Forest	0.40	55	55
RB4	Crane Path 4000	Crane	1	Forest	0.40	55	55
RB5	Crane Path 250	Crane	1	Forest	0.40	55	55
RB6	Crane Path 250	Crane	1	Forest	0.40	55	55
RB7	Crane Path 250	Crane	1	Forest	0.40	55	55
RB8	Crane Path 250	Crane	1	Forest	0.40	55	55
RB9	Crane Path 250	Crane	1	Forest	0.40	55	55
RB10	Crane Path 250	Crane	1	Forest	0.40	55	55
RB11	Crane Path 250	Crane	1	Meadow	0.40	80	80
RB12	Access Rd 400	Access	1	Meadow	0.40	50	50
RB13	Access Rd 400	Access	1	Meadow	0.40	50	50
RB14	Access Rd 445	Access	1	Meadow	0.40	50	50
RB17	Access Rd 445	Access	1	Meadow	0.40	50	50
RB18	Access Rd 445	Access	1	Meadow	0.40	50	50
RB19	Access Rd 445	Access	1	Meadow	0.40	50	50
RB20	Access Rd 445	Access	1	Meadow	0.40	50	50
RB21	Access Rd 445	Access	1	Meadow	0.40	50	50
RB21A	Access Rd 445	Access	1	Meadow	0.40	50	50

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **2/16/2021**
 Done by **JAO**

BL=Buffer with a Level Lip Spread L=Length
 Imp=Impervious area W=Width
 Land=Landscaped Area B=Buffer
 C1=Loamy Sand or Sandy Loam C2=Silt Loam, Clay Loam or Silty Clay Loam

REQUIRED BUFFER FLOW PATH LENGTHS ~BUFFERS WITH LEVEL LIP SPREADERS~

0-8% Buffer Slope

Soils	Length of Flow Thru Buffer (ft)	Berm L for Forested Buffer(ft)		Berm L for Meadow Buffer(ft)	
		Per acre Imp	Per acre Land	Per acre Imp	Per acre Land
A	75	75	25	125	35
	100	65	20	75	25
	150	50	15	60	20
B	75	100	30	150	45
	100	80	25	100	30
	150	65	20	75	25
C1	75	125	35	150	45
	100	100	30	125	35
	150	75	25	100	30
C2	100	150	45	200	60
	150	100	30	150	45
D	150	150	45	200	60

9-15% Buffer Slope

Length of Flow Thru Buffer (ft)	Berm L for Forested Buffer(ft)		Berm L for Meadow Buffer(ft)	
	Per acre Imp	Per acre Land	Per acre Imp	Per acre Land
75	90	30	150	42
100	78	24	90	30
150	60	18	72	24
75	120	36	180	54
100	96	30	120	36
150	78	24	90	30
75	150	42	180	54
100	120	36	150	42
150	90	30	120	36
100	180	54	240	72
150	120	36	180	54
150	180	54	240	72

Mopang Lake Watershed

from table from table

BMP Type & #	Roadway Align. or Turbine Site	Imp (acres)	Buffer Type (forest/meadow)	Treatment Factor	Soil Type	Buffer Slope	Standard Buffer Length (ft)	L of Berm per ac. imp	Standard Berm Length (ft)	Adjusted Buffer Length (ft)
BL115	Access Road 2200	0.2571	Forest	0.4	D	6%	150	150	39	150
BL116	Access Road 2200	0.4242	Forest	0.4	D	7%	150	150	64	150
BL117	Access Road 2200	0.2514	Forest	0.4	D	4%	150	150	38	150
BL118	Access Road 2200	0.1047	Meadow	0.4	D	4%	150	200	21	150
BL119	Access Road 2200	0.1362	Forest	0.4	D	4%	150	150	20	150
BL122	Access Road 2200	0.1257	Forest	0.4	D	8%	150	150	19	150
BL123	Access Road 2200	0.1885	Forest	0.4	D	7%	150	150	28	150

BL124	Access Road 2200	0.2200	Forest	0.4	D	6%	150	150	33	150
BL125	Access Road 2200	0.1257	Forest	0.4	D	4%	150	150	19	150
BL126	Access Road 2200	0.0733	Forest	0.4	D	14%	150	180	13	150
BL137	Access Road 2500	0.4902	Forest	0.4	A/B	8%	100	80	39	100
BL138	Access Road 2500	0.2430	Forest	0.4	A/B	12%	75	120	29	75
BL139	Access Road 2500	0.2807	Forest	0.4	A	5%	75	75	21	75
BL140	Access Road 2500	0.4232	Forest	0.4	A	2%	75	75	32	75
BL141	Access Road 2500	0.2032	Forest	0.4	A	15%	75	90	18	75
BL142	Access Road 2500	0.1739	Meadow	0.4	A	3%	75	125	22	75
BL143	Access Road 2500	0.0880	Meadow	0.4	A	15%	75	150	13	75
BL144	Access Road 2500	0.2472	Meadow	0.4	A	10%	75	150	37	75
BL145	Access Road 2500	0.1885	Forest	0.4	C/D	14%	75	150	28	75
BL146	Access Road 2500	0.4190	Forest	0.4	C/D	13%	100	120	50	100
BL147	Access Road 2500	0.2438	Forest	0.4	C/D	8%	100	100	24	100
BL148	Access Road 2900	0.2438	Forest	0.4	C/D	7%	100	100	24	100
BL149	Met Tower C	0.2250	Meadow	0.4	D	6%	150	200	45	150
BL150	Met Tower C	0.0735	Meadow	0.4	D	5%	150	200	15	150
BL152	Access Road 2500	0.0943	Forest	0.4	C/D	7%	75	125	12	75
BL153	Access Road 2500	0.3037	Forest	0.4	C/D	10%	100	120	36	100
BL154	Access Road 2500	0.5237	Forest	0.4	C/D	8%	150	75	39	150
BL160	Access Road 2925	0.4980	Forest	0.4	C/D	10%	150	90	45	150
BL161	Access Road 2925	0.2304	Meadow	0.4	D	4%	150	200	46	150
BL162	Access Road 2925	0.1215	Meadow	0.4	C/D	6%	75	150	18	75

Schoodic Lake Watershed (Columbia)

BMP Type & #	Roadway Align. or Turbine Site	Imp (acres)	Buffer Type (forest/meadow)	Treatment Factor	Soil Type	Buffer Slope	from table		Standard Berm Length (ft)	Adjusted Buffer Length (ft)
							Standard Buffer Length (ft)	L of Berm per ac. imp		

Schoodic Lake Watershed (T18)

BMP Type & #	Roadway Align. or Turbine Site	Imp (acres)	Buffer Type (forest/meadow)	Treatment Factor	Soil Type	Buffer Slope	from table		Standard Berm Length (ft)	Adjusted Buffer Length (ft)
							Standard Buffer Length (ft)	L of Berm per ac. imp		
BL36	Access Rd 500	0.6088	Forest	0.4	A/B	7%	100	80	49	100
BL37	Access Rd 500	0.1928	Meadow	0.4	A/B	4%	75	150	29	75
BL38	Access Rd 500	0.0758	Meadow	0.4	A	1%	75	125	9	75
BL39	Crane Path 800	0.3666	Forest	0.4	A/B	2%	75	100	37	75

Upper Pleasant River Watershed

BMP Type & #	Roadway Align. or Turbine Site	Imp (acres)	Buffer Type (forest/meadow)	Treatment Factor	Soil Type	Buffer Slope	from table		Standard Berm Length (ft)	Adjusted Buffer Length (ft)
							Standard Buffer Length (ft)	L of Berm per ac. imp		
BL34	Access Rd 500	0.2410	Meadow	0.4	A/B	1%	100	100	24	100

BL35	Access Rd 500	0.3209	Meadow	0.4	A/B	1%	100	100	32	100
BL40	Crane Path 800	0.1047	Forest	0.4	A/B	1%	75	100	10	75
BL41	Crane Path 800	0.6703	Forest	0.4	A/B	6%	150	65	44	150
BL42	Crane Path 800	0.0838	Forest	0.4	A/B	10%	75	120	10	75
BL43	Crane Path 800	0.5028	Forest	0.4	A/B	7%	100	80	40	100
BL44	Crane Path 800	0.0628	Meadow	0.4	A/B	14%	75	180	11	75
BL45	Crane Path 800	0.3142	Forest	0.4	A/B	2%	100	80	25	100
BL46	Crane Path 800	0.1047	Meadow	0.4	A/B	15%	75	180	19	75
BL47	Crane Path 800	1.1605	Forest	0.4	A/B	6%	150	65	75	150
BL48	Crane Path 800	0.1257	Forest	0.4	A/B	6%	75	100	13	75
BL49	Crane Path 800	0.6891	Forest	0.4	A/B	8%	100	80	55	100
BL50	Crane Path 800	0.1152	Forest	0.4	A/B	8%	75	100	12	75
BL51	Crane Path 800	0.2744	Forest	0.4	A/B	4%	100	80	22	100
BL52	Crane Path 800	0.5949	Forest	0.4	A/B	5%	100	80	48	100
BL53	Crane Path 800	0.4609	Meadow	0.4	A	1%	100	75	35	100
BL54	Crane Path 910	0.6913	Meadow	0.4	A	1%	150	60	41	150
BL55	Crane Path 910	0.9950	Forest	0.4	A/B	11%	150	78	78	150
BL56	Crane Path 910	0.1047	Forest	0.4	A/B	7%	75	100	10	75
BL57	Crane Path 910	0.2304	Forest	0.4	A/B	3%	75	100	23	75
BL58	Crane Path 910	0.6512	Forest	0.4	A/B	3%	150	65	42	150
BL59	Crane Path 910	0.2951	Forest	0.4	A/B	2%	75	100	30	75
BL60	Crane Path 910	0.0733	Forest	0.4	A/B	5%	75	100	7	75
BL61	Access Road 1300	0.3375	Forest	0.4	A	20%	100	78	26	100
BL62	Access Road 1300	0.2066	Meadow	0.4	A	15%	75	90	19	75
BL63	Access Road 1300	0.0689	Forest	0.4	A	18%	75	90	6	75
BL64	Access Road 1300	0.2548	Meadow	0.4	A	4%	75	125	32	75
BL65	Access Road 1300	0.5132	Forest	0.4	A	1%	100	65	33	100
BL66	Access Road 1300	0.0689	Meadow	0.4	A	2%	75	125	9	75
BL67	Access Road 1300	0.0413	Meadow	0.4	A	19%	75	90	4	75
BL68	Access Road 1300	0.1653	Forest	0.4	A	12%	75	90	15	75
BL69	Access Road 1300	0.0895	Meadow	0.4	A	3%	75	125	11	75
BL70	Access Road 1300	0.0689	Forest	0.4	A/B	12%	75	120	8	75
BL71	Access Road 1300	0.4259	Forest	0.4	D	3%	150	150	64	150
BL72	Access Road 1300	0.1860	Forest	0.4	A/B	9%	75	120	22	75

BL73	T2	0.2790	Forest	0.4	C/D	12%	100	120	33	100
BL74	Access Road 1300	0.0826	Forest	0.4	C/D	6%	75	125	10	75
BL75	Access Road 1300	0.1653	Forest	0.4	C/D	7%	75	125	21	75
BL76	Access Road 1300	0.0826	Forest	0.4	C/D	5%	75	125	10	75
BL77	Access Road 1300	0.3707	Forest	0.4	D	4%	150	150	56	150
BL78	Access Road 1300	0.2008	Forest	0.4	D	1%	150	150	30	150
BL79	Access Road 1700	0.2548	Forest	0.4	A	6%	75	75	19	75
BL80	Access Road 1700	0.1722	Forest	0.4	C/D	22%	75	150	26	75
BL82	Access Road 1800	0.0895	Meadow	0.4	A	4%	75	125	11	75
BL83	Access Road 1800	0.2342	Forest	0.4	A	12%	75	90	21	75
BL84	Access Road 1800	0.2204	Forest	0.4	A	8%	75	125	28	75
BL85	Access Road 1800	0.1598	Forest	0.4	A	10%	75	90	14	75
BL86	Access Road 1860	0.2204	Meadow	0.4	A	3%	75	125	28	75
BL87	Access Road 1860	0.1309	Meadow	0.4	A	2%	75	125	16	75
BL88	Access Road 1860	0.1653	Meadow	0.4	A	4%	75	125	21	75
BL89	Access Road 1860	0.1997	Meadow	0.4	A	2%	75	125	25	75
BL90	Access Road 1860	0.0895	Meadow	0.4	C/D	2%	75	150	13	75
BL91	Access Road 1860	0.4713	Forest	0.4	C/D	5%	100	100	47	100
BL92	Met Tower B	0.2993	Forest	0.4	C/D	3%	75	125	37	75
BL93	Met Tower B	0.0367	Meadow	0.4	C/D	3%	75	150	6	75
BL94	Met Tower B	0.0722	Meadow	0.4	C/D	2%	75	150	11	75
BL95	Access Road 1860	0.1676	Meadow	0.4	C/D	2%	75	150	25	75
BL96	Access Road 1860	0.3875	Forest	0.4	C/D	3%	100	100	39	100
BL97	Access Road 1860	0.1781	Forest	0.4	C/D	3%	75	125	22	75
BL98	Access Road 1860	0.2828	Forest	0.4	D	2%	150	150	42	150
BL99	Access Road 1860	0.1257	Meadow	0.4	A	2%	75	125	16	75
BL100	Access Road 2000	0.0838	Forest	0.4	D	2%	150	150	13	150
BL101	Access Road 2000	0.1466	Meadow	0.4	D	5%	150	200	29	150
BL102	Access Road 2000	0.1257	Forest	0.4	D	2%	150	150	19	150
BL103	Access Road 2000	0.1885	Forest	0.4	D	5%	150	150	28	150
BL104	Access Road 2000	0.3980	Forest	0.4	D	3%	150	150	60	150
BL105	Access Road 2000	0.1257	Meadow	0.4	D	8%	150	200	25	150
BL106	Access Road 2000	0.2514	Forest	0.4	D	15%	150	180	45	150
BL107	Access Road 2000	0.3456	Forest	0.4	D	6%	150	150	52	150
BL108	Access Road 2000	0.1152	Meadow	0.4	D	2%	150	200	23	150
BL109	Access Road 2000	0.2933	Meadow	0.4	D	4%	150	200	59	150
BL110	Access Road 2000	0.1676	Forest	0.4	D	11%	150	180	30	150
BL111	Access Road 2000	0.0838	Forest	0.4	D	11%	150	180	15	150
BL112	Access Road 2000	0.1990	Forest	0.4	D	16%	150	180	36	150
BL113	Access Road 2000	0.2933	Forest	0.4	D	8%	150	150	44	150

BL114	Access Road 2000	0.2820	Forest	0.4	D	8%	150	150	42	150
BL120	Access Road 2200	0.1885	Forest	0.4	D	4%	150	150	28	150
BL121	Access Road 2200	0.1466	Forest	0.4	D	8%	150	150	22	150
BL127	Access Road 2200	0.2619	Meadow	0.4	D	3%	150	200	52	150
BL128	T6	0.5739	Forest	0.4	D	8%	150	150	86	150
BL129	Access Road 2200	0.1676	Forest	0.4	D	12%	150	180	30	150
BL130	Access Road 2200	0.1571	Forest	0.4	D	12%	150	180	28	150
BL131	Access Road 2200	0.2681	Forest	0.4	C/D	10%	100	120	32	100
BL132	Access Road 2200	0.6452	Forest	0.4	C/D	6%	150	75	48	150
BL133	Access Road 2200	0.4692	Forest	0.4	C/D	5%	150	75	35	150
BL134	Access Road 2200	0.2514	Forest	0.4	C/D	5%	100	100	25	100
BL135	Access Road 2200	0.5622	Forest	0.4	C/D	3%	150	75	42	150
BL136	Access Road 2200	0.2000	Forest	0.4	C/D	5%	75	125	25	75
BL155	Access Road 2500	0.4072	Forest	0.4	C/D	5%	100	100	41	100
BL156	Access Road 2925	0.3507	Forest	0.4	C/D	3%	100	100	35	100
BL158	Access Road 2925	0.3592	Meadow	0.4	D	5%	150	200	72	150
BL159	T11	0.3027	Meadow	0.4	D	2%	150	200	61	150
BL159A	Access Road 2925	0.2304	Meadow	0.4	D	2%	150	200	46	150
BL163	Access Road 2500	0.2514	Forest	0.4	D	2%	150	150	38	150
BL164	Access Road 2500	0.7122	Meadow	0.4	C/D	2%	150	75	53	150
BL165	Access Road 2500	0.1781	Forest	0.4	C/D	5%	75	125	22	75
BL166	Access Road 2500	0.0943	Forest	0.4	C/D	6%	75	125	12	75
BL167	Access Road 2500	0.0733	Forest	0.4	C/D	5%	75	125	9	75
BL168	Access Road 2500	0.3268	Forest	0.4	C/D	2%	100	100	33	100
BL169	Access Road 2500	0.3645	Forest	0.4	C/D	5%	100	100	36	100
BL170	Access Road 2500	0.4713	Forest	0.4	C/D	5%	100	100	47	100
BL171	Access Road 2500	0.0838	Forest	0.4	C/D	3%	75	125	10	75
BL172	Access Road 2500	0.1466	Forest	0.4	C/D	3%	75	125	18	75
BL173	Access Road 2500	0.2200	Forest	0.4	C/D	13%	75	150	33	75
BL174	Access Road 2500	0.4818	Forest	0.4	D	5%	150	150	72	150
BL175	Access Road 2500	0.2917	Forest	0.4	D	5%	150	150	44	150
BL176	Access Road 2500	0.3420	Forest	0.4	D	10%	150	180	62	150
BL177	Access Road 2970	0.3561	Forest	0.4	D	2%	150	150	53	150
BL178	Access Road 2990	0.1152	Forest	0.4	D	8%	150	150	17	150
BL179	Access Road 2500	0.3394	Forest	0.4	D	10%	150	150	51	150
BL180	Access Road 2990	0.3142	Forest	0.4	D	4%	150	150	47	150
BL181	Access Road 2990	0.3771	Forest	0.4	D	8%	150	150	57	150
BL182	Access Road 2990	0.1885	Forest	0.4	D	6%	150	150	28	150
BL183	Access Road 2990	0.2095	Forest	0.4	D	4%	150	150	31	150
BL184	Access Road 2990	0.3352	Forest	0.4	D	3%	150	150	50	150
BL185	Access Road 2990	0.0943	Forest	0.4	D	4%	150	150	14	150
BL186	T16	0.0833	Forest	0.4	C/D	12%	150	180	15	150

Harrington River Watershed

from table

from table

BMP Type & #	Roadway Align. or Turbine Site	Imp (acres)	Buffer Type (forest/meadow)	Treatment Factor	Soil Type	Buffer Slope	Standard Buffer Length (ft)	L of Berm per ac. imp	Standard Berm Length (ft)	Adjusted Buffer Length (ft)
BL1	Crane Path 250	0.1320	Forest	0.4	A/B	6%	75	100	13	75
BL2	Crane Path 250	0.1320	Forest	0.4	A/B	4%	75	100	13	75
BL4	Crane Path 390	0.5602	Forest	0.4	A/B	2%	100	80	45	100
BL5	Crane Path 250	0.0628	Forest	0.4	A/B	18%	75	120	8	75
BL6	Crane Path 250	0.0733	Forest	0.4	A/B	16%	75	120	9	75
BL7	Crane Path 250	0.1676	Forest	0.4	A/B	18%	75	120	20	75
BL8	Crane Path 250	0.1676	Forest	0.4	A/B	18%	75	120	20	75
BL9	Crane Path 250	0.6389	Forest	0.4	A/B	4%	150	65	42	150
BL10	Crane Path 250	0.7600	Forest	0.4	A/B	4%	150	65	49	150
BL11	Crane Path 250	0.5656	Forest	0.4	A	9%	100	78	44	100
BL12	Crane Path 250	0.1843	Forest	0.4	A/B	3%	75	100	18	75
BL13	Crane Path 250	0.6891	Forest	0.4	A/B	6%	100	80	55	100
BL14	Crane Path 250	0.8002	Forest	0.4	A/B	5%	150	65	52	150
BL16	Crane Path 250	1.2658	Meadow	0.4	A	2%	150	60	76	150
BL18	Crane Path 250	0.1257	Meadow	0.4	A/B	2%	75	150	19	75
BL19	Substation 1	0.4966	Forest	0.4	A/B	5%	100	80	40	100
BL20	Substation 1	0.1928	Forest	0.4	A/B	2%	75	100	19	75
BL21	Substation 1	0.3511	Forest	0.4	A/B	4%	75	100	35	75
BL22	Crane Path 250	0.2409	Forest	0.4	A/B	8%	75	100	24	75
BL23	T28	0.1750	Forest	0.4	A/B	2%	75	100	18	75
BL24	T28	0.3950	Forest	0.4	A/B	12%	100	96	38	100
BL25	Crane Path 250	0.1152	Forest	0.4	A/B	9%	75	120	14	75
BL26	Crane Path 250	0.2095	Forest	0.4	A/B	1%	75	100	21	75
BL27	Crane Path 250	0.5082	Meadow	0.4	A/B	1%	150	90	46	150
BL28	Crane Path 250	0.2921	Meadow	0.4	A/B	2%	100	100	29	100
BL29	Crane Path 250	0.5593	Meadow	0.4	A/B	2%	100	100	56	100
BL30	Met Tower A	0.2443	Meadow	0.4	A/B	1%	100	100	24	100
BL31	Access Rd 445	0.2342	Meadow	0.4	A/B	1%	75	120	28	75
BL32	Access Rd 445	0.3030	Meadow	0.4	A/B	2%	100	100	30	100
BL33	Access Rd 445	0.6061	Meadow	0.4	A/B	1%	150	75	45	150

Project Name **Downeast Wind**
 Project Number **113.20.01**
 Date **3/8/2021**
 Done by **JAO**

BIORETENTION CELL OR UNDERDRAIN SOIL FILTER CALCULATIONS

USF1

Subcatchment #	BMP Type & #	Imp (sf)	Land (sf)							Sizing Starting Point		
				Volume req'd (cubic feet)	Pretreated (yes or no)	Vol req'd, 25% Red. For pretreat	Sediment Pre- Treat V(cft)	L of Pre Treat A*	Depth of Cell (in)	Area of cell (sq ft)	L of Cell (ft)	W of Cell (ft)
Q1	USF1	24846	0	2070.50	no	N/A	N/A	N/A	18	1380.33	55	25.10
	TOTAL	24846	0									

*Length of pretreatment trough is based on an 8" deep trough with 3:1 side slopes (overall width 4')

SOIL FILTER ELEVATIONS

135	Top of Berm
6	Spillway Height (6in min)
134.50	Top of Spillway/Storage
133.00	Top of Soil Filter Media
131.50	Bottom Soil Filter Media
14	Depth of Gravel (in)
130.33	Bottom of Gravel/USF
130.67	Underdrain Elevation
4	Underdrain Diameter (in)
6	Underdrain Cover (Min 4")

STORAGE CALCULATIONS

Elevation	Area	Volume
133.00	1275	0
133.5	1500	693.75
134	1746	811.50
134.5	2018	941.00
Cumm. Storage		2446.25

must be > or =
2071

USF2

							Sizing Starting Point					
Subcatchment #	BMP Type & #	Imp (sf)	Land (sf)	Volume req'd (cubic feet)	Pretreated (yes or no)	Vol req'd, 25% Red. For pretreat	Sediment Pre-Treat V(cft)	L of Pre Treat A*	Depth of Cell (in)	Area of cell (sq ft)	L of Cell (ft)	W of Cell (ft)
Q2	USF2	6776	0	564.67	no	N/A	N/A	N/A	18	376.44	55	6.84
				*Length of pretreatment trough is based on an 8" deep trough with 3:1 side slopes (overall width 4')								
TOTAL		6776	0									

SOIL FILTER ELEVATIONS

137.5	Top of Berm
6	Spillway Height (6in min)
137.00	Top of Spillway/Storage
135.50	Top of Soil Filter Media
134.00	Bottom Soil Filter Media
14	Depth of Gravel (in)
132.83	Bottom of Gravel/USF
133.17	Underdrain Elevation
4	Underdrain Diameter (in)
6	Underdrain Cover (Min 4")

STORAGE CALCULATIONS

Elevation	Area	Volume
135.50	184	0
136	306	122.50
136.5	455	190.25
137	648	275.75
Cumm. Storage		588.50

must be > or =
565
