

TECHNICAL REVIEW MEMORANDUM

Bureau of Land Resources

TO: **Jim Beyer, Project Manager – Bureau of Land Resources**
FROM: **Kerem Gungor, Environmental Engineer-- Bureau of Land Resources**
RE: **Central Maine Power Company, New England Clean Energy Connect,
L-27625-26-A-N**
DATE: **January, 2018**

I have reviewed the new Site Location of Development Act (SLODA) permit application submitted by the *Central Maine Power Company (CMP)* for the New England Clean Energy Connect (NECEC) project. The SLODA permit application was received and accepted by the Department on 9/27/17 and 10/13/17, respectively. Following Natural Resources Protection Act (NRPA) permit applications were also made due to the scale of NECEC: L-27625-TG-B-N, L-27625-2C-C-N, L-27625-VP-D-N, and L-27625-IW-E-N. This review was performed to determine NECEC SLODA permit application's compliance with Maine Stormwater Management Rules (Chapter 500). Some of the materials enclosed with the NRPA permit application were also reviewed to have a better understanding of the potential stormwater impacts on the protected natural resources and provide technical feedback to improve the proposed stormwater management plan.

APPLICANT: CMP

DEP#: L-27625-26-A-N

Primary Contact for the Applicant: Gerry Mirabile

Project description: NECEC which mainly includes transmission line construction and improvements, substation improvements, one new converter station and one new substation construction

Resultant impervious area¹: 12.55 ac

Resultant developed area²: 19.27 ac

Standards applicable to the project: Basic, flooding, general, phosphorus, and redistribution of stormwater discharges.

A. PROJECT SUMMARY

Central Maine Power Company (CMP) proposes to construct the *New England Clean Energy Connect (NECEC)* project which includes a *High Voltage Direct Current (HVDC)* transmission line with a maximum capacity of 1,200 MW and its facilities. The longest section of NECEC will extend from Quebec Border southerly to Pownal. NECEC is a large-scale project with linear and non-linear components. Linear component of the project includes new transmission line construction and existing transmission line reconstruction. Total length of the new and rebuilt transmission lines will be approximately 201.1 miles. Approximately 28.1 miles of existing transmission line will be rebuilt, which is exempt from SLODA

¹ Proposed transmission line work and existing substation improvements will not create jurisdictional impervious area. Therefore, the given resultant impervious area figure is the total figure for the two new substations: 3.90 ac for Fickett Road; 7.15 ac (substation pad) + 1.50 ac (access road) for Merrill Road substations.

² Proposed transmission line work and existing substation improvements will not create jurisdictional developed area. Therefore, the given resultant developed area figure is the total figure for the two new substations: 10.71 ac (substation pad) + 3.69 ac (access road) for Merrill Road; 4.87 ac (total) for Fickett Road substations.

pursuant to 38 M.R.S. §488. The construction activities will take place in a transmission corridor stretching approximately 193 miles. The linear component of the project is comprised of five segments (Table 1-1).

1. Linear Component Segments:

- Segment 1: 150-ft wide new clearing is proposed in 300-ft wide new right-of-way (ROW) stretching approximately 53.5 miles from Quebec Border/Beattie Township to the Forks Plantation. Above-ground height of the proposed poles is 100 ft (See *Segment 1* detail drawing in *Attachment 1*). No transmission line rebuild is proposed. Various degrees of vegetation clearing will take place in 973 acres of the new ROW.
- Segment 2: Total length of the segment is 21.9 miles extending from the Forks Plantation to Wyman Hydro Substation in Moscow. Seventy-five ft of the existing 300-ft wide ROW will be cleared for a stretch of 20.7 miles. Eighty ft of the existing 300-ft wide ROW will be cleared for the remaining part of the segment. No transmission line rebuild is proposed. Total area to be cleared within the existing ROW is approximately 199 acres.
- Segment 3: Total length of the segment is 71.1 miles extending from Wyman Hydro Substation in Moscow Wyman Hydro Substation in Moscow to the existing Larrabee Road Substation in Lewiston. Proposed clearing width is mostly 75 ft within the existing ROW, which ranges from 340 to 500 ft. Only 0.8-mile of transmission line rebuild (CMP Section #72) is proposed. Approximately 639 acres of the existing ROW will be cleared.
- Segment 4: Total length of the segment is 16.4 miles extending from the existing Larrabee Road Substation in Lewiston to a new substation on Fickett Road in Pownal. New transmission line construction will be limited to only 0.3 mile (CMP Section #3005). Proposed transmission line rebuild is 25.4 miles (CMP Sections #62 & #64). All the construction will take place within the existing ROW ranging between 340 and 400 ft. No clearing is proposed.
- Segment 5: Total length of the segment is 26.5 miles extending from the existing Coopers Mills Substation to the existing Maine Yankee Substation in Wiscasset. Twenty-six and a half miles of new transmission line (CMP Section #3027) will be built within the existing ROW ranging from 270 to 640 ft. There will be 1.9-mile-long transmission line rebuild work. No clearing is proposed.

In addition to the segments given above, the proposed Merrill Road substation in Lewiston will have a linear portion (i.e. access road) of 1.50 acres.

2. Non-linear Component: Substations

CMP proposes to construct two new substations, namely *Merrill Road Converter Station* and *Fickett Road Substation*, for NECEC project. Merrill Road Converter Substation will be northerly from Merrill Road in Lewiston. The converter substation pad or yard will be 10.71 acres in size and located adjacent to the transmission corridor. Fickett Road Substation will be near Surowiec Substation in Pownal. The substation area will be approximately 4.87 acres.

New equipment will be installed in some of the existing CMP substations to satisfy the NECEC infrastructure requirements. Concrete foundations to support the new equipment will result in an increase in the impervious area of the following substation yards:

- Coopers Mills Substation (Windsor): 12,000 sf of new impervious area,
- Larrabee Substation (Lewiston): Approximately 3,500 sf of new impervious area,
- Maine Yankee Substation (Wiscasset): Approximately 900 sf of new impervious area,
- Surowiec Substation (Pownal): Approximately 450 sf of new impervious area,
- Raven Farm Substation (Cumberland): Approximately 2,200 sf of new impervious area.

A. Submitted Materials Used for the Technical Review:

Electronic application files of the NECEC project were made available to the public on <http://www.maine.gov/dep/land/projects/necec/index.html>. I obtained the following components of the SLODA permit application package from the web address and used them in my review:

- Chapters:
 - Chapter 1. Development Description.
 - Chapter 10. Buffers.
 - Chapter 11. Soils.
 - Chapter 12. Stormwater Management.
 - Chapter 14. Basic Standard Submissions.
- Attachments:
 - Attachment 1. Transmission Line Cross Sections.
 - Attachment 4. Floodplain and Soils.

Plan sheets enclosed with the stormwater management system portable document files (PDFs) submitted for the proposed (new) *Merrill Road Converter Substation* and *Fickett Road Substation* are listed below:

- Merrill Road Complete.pdf:
 - Sheet 3 of 4. Pre-development Stormwater Plan. Unsealed.
 - Sheet 4 of 4. Post-development Stormwater Plan. Unsealed.
 - Sheet 1 of 2. General Site Plan Existing Conditions.
 - Sheet 2 of 2. General Site Plan Proposed Conditions.
 - Sheet 1 of 4. Grading Plan.
 - Sheet 2 of 4. Stormwater Treatment Plan.
 - Sheet 3 of 4. Pre-development Stormwater Plan.
 - Sheet 4 of 4. Post-development Stormwater Plan.
 - Sheet 1 of 2. Erosion and Sediment Control Plan 1.
 - Sheet 2 of 2. Erosion and Sediment Control Plan 2.
 - Sheet 1 of 3. Road Plan and Profile 1.
 - Sheet 2 of 3. Road Plan and Profile 2.
 - Sheet 3 of 3. Road Plan and Profile 3.
 - Sheet 1 of 6. Site Details 1.
 - Sheet 2 of 6. Site Details 2.
 - Sheet 3 of 6. Site Details 3.
 - Sheet 4 of 6. Site Details 4.
 - Sheet 5 of 6. Site Details.

- Sheet 6 of 6. Site Details.

Above plan sheets were dated 9/8/17, signed and sealed by *Kenneth R. Volock, P.E.* unless stated otherwise.

- *Fickett Road Complete.pdf*
 - Sheet 1 of 2. General Site Plan Existing Conditions. 9/13
 - Sheet 2 of 2. General Site Plan Proposed Conditions. 9/13
 - Sheet 1 of 1. Grading Plan.
 - Sheet 1 of 3. Stormwater Treatment Plan.9/13
 - Sheet 2 of 3. Pre-development Stormwater Plan. 9/13
 - Sheet 3 of 3. Post-development Stormwater Plan. 9/13
 - Sheet 1 of 1. Erosion and Sediment Control Plan.
 - Sheet 1 of 5. Site Details 1.
 - Sheet 2 of 5. Site Details 2. 9/13.
 - Sheet 3 of 5. Site Details 3. 9/13.
 - Sheet 4 of 5. Site Details 4. 9/13.
 - Sheet 5 of 5. Site Details 5. 9/13.

Above plan sheets were dated 9/13/17, signed and sealed by *Kenneth R. Volock, P.E.*

STORMWATER MANAGEMENT

A. Basic Standards

Note: *As always, the applicant's erosion control plan is a good starting point for providing protection during construction. However, based on site and weather conditions during construction, additional erosion and sediment control measures may necessary to stop soil from leaving the site. In addition, other measures may be necessary for winter construction. All areas of instability and erosion must be repaired immediately during construction and need to be maintained until the site is fully stabilized or vegetation is established. Approval of this plan does not allow unauthorized discharges from the site.*

1. Transmission Line

The applicant proposes vegetation clearing for *Segment 1, Segment 2, and Segment 3*. No clearing is proposed for *Segment 4 and Segment 5*. Approximate clearing area, as proposed, descends in the following order: *Segment 1* (973 acres), *Segment 3* (639 acres), and *Segment 2* (199 acres). *Segment 1* is constituted by a new right-of-way (ROW) which is 300 ft wide. The applicant proposes to clear half of the ROW for NECEC. Considering the segments' characteristics -especially clearing areas-, a special emphasis must be given on the *Segment 1* in terms of erosion and sedimentation control (ESC).

Comments:

1. I recommend following amendments and revisions for Exhibit 14-1 "Environmental Guidelines for Construction and Maintenance Activities on Transmission Lines and Substation Projects" enclosed with the application:
 - a. Water bars are important and commonly used erosion control measures for the linear projects. To facilitate their proper construction, please amend "Appendix D. Construction Technique Illustrations" with typical plan and cross-sectional view of the water bars,
 - b. Certain sections of the transmission projects are sloped such that the runoff traverses the ROW. Temporary water diversion structures can be deployed in these sections to divert the upgradient runoff away from the disturbed work area and towards a stable drainageway. Please amend Section 5.0 (page 11) to incorporate the upgradient runoff diversion and provide a typical drawing in Appendix D. Section 4.0 of "Maine Erosion and Sediment

Control Best Management Practices (BMPs) Manual for Designers and Engineers (October 2016)” can be used as a reference,

- c. Temporary sediment basins can be necessary where the runoff flows along the transmission line in high-pitch ROWs and concentrates in a low spot which may have protected natural resources. In such areas, temporary sediment basins can be installed to -at a minimum- detain the runoff due to major storm or snowmelt events and control sedimentation. Please amend Section 6.0 to include temporary sediment basins and provide a typical drawing in Appendix D,
 - d. Although it is always advisable to use common sense when implementing ESC measures, Chapter 500 Appendix A(7) clearly requires the implementation of additional winter construction ESC measures between November 1 and April 15. Therefore, please revise second paragraph in Section 8.0 accordingly,
 - e. The DEP reference given in Appendix C has been superseded with the following documents. Please revise the reference accordingly and update the citations within the text:
 - o Maine Erosion and Sediment Control Best Management Practices (BMPs). Manual for Designers and Engineers. Bureau of Land Resources, Maine Department of Environmental Protection, Augusta, Maine. October 2016.
http://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf
 - o Maine Erosion and Sediment Control Practices Field Guide for Contractors. Bureau of Land Resources, Maine Department of Environmental Protection, Augusta, Maine. 2014.
http://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_field.pdf
 - f. Section 3.1 (Page 5): Runoff typically channelizes when the flow path length exceeds 100 ft. Channelization can happen even at a shorter flow path length in the presence of steep slopes. Therefore, increasing filter strip width as a function of slope may not deliver the desired outcome by itself. It is important to scope the filter strips in steep terrain for drainageways and make sure that turbid runoff from the disturbed area does not discharge into a drainageway which may result in a short-circuiting and sedimentation in the resource. Implementation of additional structural measures at the low point where the work area drains into the filter strip (e.g. multiple layers of sediment barriers, temporary sediment basins) becomes necessary in such cases. Please revise Section 3.1 accordingly.
2. Chapter 14 (Page 14-2): Please specify what kind of changes will be made on the “order of construction operations” per my recommendations.
3. Using the GIS data provided by the applicant on ArcGIS platform, I performed a preliminary spatial analysis to the sections of *Segment 1* with relatively high slope (>22%). Based on my preliminary analysis on the slopes, the applicant must allocate more resources for ESC in the following sections of *Segment 1*:

Pole #		ESC Notes for the Section
From	To	
3006-287	3006-271	Mill Brook crossing (3006-280 to 3006-279). Valley bottom where runoff concentrates.
3006-217	3006-202	Upgradient runoff diversion will be necessary.
3006-116	3006-105	Steep slope to stream. Sediment basin can be necessary (3006-113 to 3006-112)

3006-91	3006-88	Frequently placed water bars and upgradient flow diversion can be satisfactory for this section.
3006-24	3006-21	Kennebec River Crossing

I strongly recommend the applicant to perform a complete GIS analysis including both soils and topographic data on *Segment 1* to determine the areas with high erosion risk. The high-risk areas must

- Receive a higher frequency of environmental inspection as outlined in page 14-3 of the application,
- Have a dedicated ESC maintenance crew,
- Have additional structural ESC measures which can include multiple layers of sediment barriers, upgradient flow diversion structures, and temporary sediment basins depending on the location,
- Have an accelerated work schedule to the maximum extent practicable.

The applicant must submit a stand-alone ESC plan for the Kennebec River crossing (Pole 3006-24 – Pole 3006-21) in accordance with Chapter 500 for the Department’s review.

4. Substations

a. Merrill Road Substation

An erosion and sedimentation control (ESC) plan has been prepared for the proposed *Merrill Road Converter Substation* by *Power Engineers*. Related information was provided in the following plan sheets (see [Merrill Road Complete.pdf](#) for the plan sheets):

- **Location plan** presented in *Erosion and Sediment Control Plan 1 & 2 (Sheet 1 of 2 & Sheet 2 of 2)*
- **Erosion and sedimentation control notes** presented in *Site Details (Sheet 6 of 6)*
- **Construction and installation details** presented in *Site Details 2 (Sheet 2 of 6), Site Details 4 (Sheet 2 of 6)*

Comments:

1. Some of the housekeeping plan components have been addressed in *Site Details (Sheet 6 of 6)*. Please make sure that other housekeeping components (i.e., spill prevention, groundwater protection, debris and other materials, authorized non-stormwater discharges) are also covered under a separate section titled *Housekeeping Plan* per *Chapter 500 Appendix C*.
2. The applicant proposes a 1:3 (V:H) cut slope at the southeastern side of the substation. Maximum linear length of the slope will be approximately 130 ft. I recommend installing geogrid for this section of the slope to minimize potential sliding, slumping, or rilling that can particularly occur before the minimum 90% vegetation cover is attained.
3. Please revise *Fertilizer and Limestone Requirements* section of *Site Details (Sheet 6 of 6)*: “The fertilizer and lime application rates shall be determined using the site-specific soil test results.”
4. Considering the southeastern 1:3 (V:H) cut embankment and its slope length, I recommend limiting the applicable erosion control measures to erosion control blankets and erosion control mix for the slopes steeper than 8% in the site. Please revise *Site Details (Sheet 6 of 6)* accordingly.

b. Fickett Road Substation

An ESC plan has been prepared for the proposed *Fickett Road Substation* by *Power Engineers*. Related information was provided in the following plan sheets:

- **Location plan** presented in *Erosion and Sediment Control Plan (Sheet 1 of 1)*
- **Erosion and sedimentation control notes** presented in *Site Details 5 (Sheet 6 of 6)*
- **Construction and installation details** presented in *Site Details 1 thru Site Details 4 (Sheet 1 of 5 thru Sheet 4 of 5)*

Comments:

1. I recommend using erosion control blankets or erosion control mix for the stabilization of the slopes steeper than 8% (particularly for 1:3 (H:V) slopes). Please revise the construction sequence, mulching sections of the notes given in *Site Details 5 (Sheet 5 of 5)* accordingly.
2. Some of the housekeeping plan components have been addressed in *Site Details (Sheet 6 of 6)*. Please make sure that other housekeeping components (i.e., spill prevention, groundwater protection, debris and other materials, authorized non-stormwater discharges) are also covered under a separate section titled *Housekeeping Plan* per Chapter 500 Appendix C.

B. General Standards

a. Merrill Road Substation

The proposed substation yard will result in 7.15 and 10.71 ac of impervious and developed area, respectively. The proposed access road will result in 3.69 ac of developed area 1.50 ac of which will be impervious.

The applicant proposes to treat the linear portion of the project (i.e. access road) using a grassed underdrained soil filter (GUSF). The proposed filter will treat 75.10 and 59.89% of the impervious and developed area pursuant to Chapter 500 Section 4(C)(5)(c). The applicant also proposes to build another GUSF westerly from the proposed substation yard for stormwater treatment purposes. The proposed GUSFs can be seen in the Post-development Stormwater Plan (*Sheet 4 of 4*). The CMP substation yard is considered as a “self-treating” impervious surface pursuant to the Department’s letter dated 6/5/2008 and signed by *Don Witherill* (pp. 17-18 in *Merrill Road Complete.pdf*). Based on the areal breakdown of *Subbasin A2* and *A3* land covers, total area of the substation yard, excluding the other impervious areas within it, will be 4.17 ac. Other impervious surfaces (i.e. paved surfaces, roofs, concrete foundations) enveloped by the substation yard will be 2.94 ac. The substation yard will provide sufficient storage volume (*ca.* 109,000 cf) to retain 1” of the runoff from the other impervious surfaces (*ca.* 10,700 cf).

Comments:

1. As written in the Department’s substation yard approval letter, groundwater should not be any higher than 18” below the top of the gravel fill. A portion of the proposed substation will have a final grade lower than the existing grade as shown in *Substation Yard Section A-A (Site Details 1, Sheet 1 of 6)*. Please provide an analysis demonstrating that the proposed design will satisfy the letter’s condition.
2. Please verify that the elevations *A* and *B* are accurate in the schedule presented for *CB 1* and *CB 2* in *Stormwater Treatment Plan (Sheet 2 of 4)*.
3. Please provide the loamy coarse sand specifications per Table 7.1.3 of *Maine Stormwater BMP Manual* Chapter 7.1.

4. Release time of the filters must be adjusted to 24-48 h by using an orifice or a ball valve. Please revise Stormwater Treatment Plan (*Sheet 2 of 4*) accordingly.

C. Phosphorus Standard

a. Fickett Road Substation

The proposed substation will discharge into *Runaround Brook*, a tributary of *Runaround Pond*. *Runaround Pond* is the first pond, which fits the description given in Chapter 500 Section 3(N), downstream the proposed project. The pond is listed as a lake most-at-risk from new development in Chapter 502.

The 2-ft deep substation yard specifications of which have been approved by the Department will provide ample storage volume for the impervious roof and concrete surfaces to be built within the substation yard: One-inch storage volume required for the impervious roof and concrete surfaces is approximately 1,053 cf. The substation yard will provide 90,430 cf of storage volume.

Comments:

1. *Jeff Dennis* (DEP Watershed Management Unit) determined *per acre phosphorus allocation* for Runaround Pond watershed within New Gloucester town as 0.030 lb/acre/yr. Please revise the first worksheet including the project's phosphorus budget (PPB) calculations and other submittals including the PPB value (e.g. *Sheet 3 of 3*) accordingly.
2. Minimum allowable treatment factor (TF) is 0.1 as shown in Table 4.1 of Maine Stormwater Management Design Manual Volume II. Hence, TF values smaller than 0.1 must be replaced with 0.1 and the project phosphorus export (PPE) values must be recalculated in Worksheet 2.
3. Please fill out and submit "Project Phosphorus Export Summary (Worksheet 4)". A template worksheet is available from <http://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html>.
4. Since the low phosphorus export coefficient (0.4 lb/ac/yr for Hydrologic Soil Group D soil) was used for the proposed lawn, the applicant needs to put a phosphorus use restriction on the deed per *Maine Stormwater BMP Manual Volume II Chapter 3*. The deed restriction will prohibit the use of fertilizers containing phosphorus except when establishing new vegetation on bare soil. Please mention the phosphorus containing fertilizer restriction in the post-construction stormwater inspection & maintenance checklist (Appendix A-1).

b. Surowiec Substation

The existing substation is in the direct watershed of *Runaround Pond*. The pond is listed as a lake most-at-risk from new development in Chapter 502. The approved project phosphorus budget (PPB) and the post-treatment project phosphorus export (post-PPE) are 2.19175 and 0.4225 lbs P/yr, respectively. The proposed improvements will replace approximately 0.01 ac of the substation yard with concrete foundations, which will increase the pre-treatment project phosphorus export (pre-PPE) by 0.005 lbs P/yr. Under the proposed conditions, the post-PPE will remain smaller than the PPB.

The proposed improvements at the substation comply with Chapter 500 Section 4(D).

D. Flooding Standard

a. Fickett Road Substation

The applicant created pre- and post-development hydrologic models for the project site using SCS TR-55 method. The pre-development model consisted of four subbasins (A thru D) as shown in *Sheet 2 of 3*. The post-development model consisted of five subbasins (A, B-1, B-2, C, D) as shown in *Sheet 3 of 3*. The project will impact all subbasins except Subbasin D. The peak flows off the project site were assessed at four analysis points.

The model results showed that the post-development peak flows would not exceed the pre-development peak flows for 2-, 10-, and 25-yr storms. The applicant also demonstrated that the proposed 15-inch culvert, which will be installed under the access road connecting to Fickett Road, was capable of handling 25-yr storm peak flow (page 27 in *Fickett Road Complete.pdf*).

The proposed substation project complies with Chapter 500 Section 4(F).

b. Merrill Road Substation

The applicant created pre- and post-development hydrologic models for the project site using SCS TR-55 method. The pre-development model consisted of five subbasins (A thru E) as shown in *Sheet 3 of 4*. The post-development model consisted of eight subbasins (A1, A2, A3, B, C1, C2, D, E) as shown in *Sheet 4 of 4*. The peak flows off the project site were assessed at five analysis points: A thru E. The model results showed that the post-development peak flows would not exceed the pre-development peak flows for 2-, 10-, and 25-yr storms. The applicant also demonstrated that the proposed culverts were capable of handling 25-yr storm peak flow (page 131 in *Merrill Road Complete.pdf*).

The proposed substation project complies with Chapter 500 Section 4(F).

c. Substation Improvements

i. Coopers Mills Substation

The applicant provided modeling results demonstrating that the improvements (i.e. 0.275-ac new impervious area within the existing substation yard) at this substation would increase the area-weighted curve number by one point (61 vs. 62). The maximum peak flow increase (proposed vs. existing) was simulated to be 1.1%. The peak flows for 2-, 10-, and 25-yr storms under the proposed condition would remain significantly smaller than the pre-development peak flows (Subsection 12.1.3.1.5 of the application).

ii. Larrabee Substation

The applicant provided modeling results demonstrating that the improvements (i.e. 0.08-ac new impervious area within the existing substation yard) at this substation would not increase the area-weighted curve number, which was 56. Therefore, the post-development peak flows for 2-, 10-, and 25-yr storms would remain the same with those of the existing condition (Subsection 12.1.3.3.5 of the application).

iii. Yankee Substation

The applicant provided modeling results demonstrating that the improvements (i.e. 0.02-ac new impervious area within the existing substation yard) at this substation would not increase the area-weighted curve number, which was 69. Therefore, the post-development peak flows for 2-, 10-, and 25-yr storms would remain the same with those of the existing condition (Subsection 12.1.3.4.5 of the application).

iv. Surowiec Substation

The applicant provided modeling results demonstrating that the improvements (i.e. 0.01-ac new impervious area within the existing substation yard) at this substation would not increase the area-weighted curve number, which was 68. Therefore, the post-development peak flows for 2-, 10-, and 25-yr storms would remain the same with those of the existing condition (Subsection 12.1.3.5.5 of the application).

v. Raven Farm Substation

The applicant declared that half of the development previously approved by the Department was constructed at this substation site. The new impervious area (approximately 0.05 ac) and the new substation yard (3.52 ac) proposed for NECEC will not exceed the previously approved level for the Maine Power Reliability Project (MPRP).

The improvement projects will not have a noticeable impact on the 2-, 10-, and 25-yr post-development peak flows off the substations. Hence, the proposed substation improvements comply with Chapter 500 Section 4(F).

E. Redistribution of Stormwater Discharges Standard

a. Merrill Road Substation

The applicant proposes to build four level spreaders to convert concentrated stormwater flow into sheet flow:

- o Level Spreader-1 (LS-1) at the outlet of Grassed Underdrained Soil Filter #2 as shown in Road Plan and Profile (*Sheet 1 of 3*),
- o Level Spreader-2 (LS-2) southerly from the substation yard receiving runoff from the perimeter swale as shown in General Site Plan Proposed Conditions (*Sheet 2 of 2*),
- o Level Spreader-3 (LS-3) between the Stations 20+00 and 21+00 at the culvert outlet as shown in Road Plan and Profile 2 (*Sheet 2 of 3*),
- o Level Spreader-4 (LS-4) between the Stations 18+00 and 19+00 at the culvert outlet as shown in Road Plan and Profile 2 (*Sheet 2 of 3*).

The proposed lip length for the level spreaders was 10 ft exceeding the minimum lip length calculated using the standard: 0.25 cfs per linear foot lip for 10-yr, 24-h storm peak flow.

The proposed level spreaders comply with Chapter 500 4(H).