Print Form

Construction General Permit 3-9020

Erosion Prevention and Sediment Control Plan

Summary Form

VERMONT ENVIRONMENTAL CONSERVATION

Project Information:			
Applicant Name: **Champlain VT, LLC d/b/a TDI-New England**			
Project Name: **New England Clean Power Link (NECPL)**			
Application Date: **3/26/15**			

Plan Preparer Information:			
1.Name: **Galen Guerrero-Murphy, TRC Environmental Corp.**			
2. Mailing Address a. Street/PO Box: **650 Suffolk Street, Suite 200**			
b. City/Town: **Lowell**		c. State: **Massachu**	d. Zip: **01854**
3. Contact Information a. Phone: **978-656-3595**	b. Fax: **978-453-1995**	c. Email: gguerrero-murphy@trcsolutions.com	

Designer Certification

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

I hereby certify that this Erosion Prevention and Sediment Control Plan was prepared in conformance with the requirements of DEC's General Permit for Stormwater Runoff from Construction Sites (General Permit 3-9020) and DEC's *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control.* I also certify that I am knowledgeable in the principles and practices of erosion prevention and sediment control and possess the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

Signature: _____ Date: March 26, 2015

General Project Information

Project Name: **New England Clean Power Link (NECPL)**

Project Town: Alburgh, Benson, Fair Haven, Rutland, Clarendon, Shrewsbury, Wallingford, Ludlow, Cavendish

Applicant Name: **Champlain VT, LLC d/b/a TDI-New England**

Total Disturbed Area for this NOI (acres): **285.9**	Total Disturbed Area as part of Larger Common Plan of Development (acres): ☑ Not Applicable	
Project Duration (months): **21**	Is winter construction planned? ☑ YES ☐ NO	Are winter EPSC requirements included? ☑ YES ☐ NO

Receiving Waters Summary

Number of receiving waters: **04**	Distance from project to receiving water (feet): **00**
Types: (i.e. stream, pond, wetland, etc.) **lakes, streams, wetlands**	

Plan Components*

The submitted Erosion Prevention and Sediment Control Plan must have the following components:

☑	Pre-Construction Plan	☑	Construction Plan
☑	Stabilization Plan	☑	EPSC Details
☑	Location Map	☑	Project Description Narrative
☑	Drainage Map *	☑	Minimum EPSC Plan Requirements

Each of the above plans contains the following:

☒	Project Name	☑	Designer's Name
☒	Plan Name and Number	☑	Scale Bar
☒	Revision Date	☑	North Arrow

Do not combine plan sheets or submit plans unrelated to EPSC!

Project Site Soil Summary

Enter area of disturbance by soil erodibility (acres):	**Low (K< .18)**	**Moderate K(.18 <K<0.37)**	**High (K>0.37)**
	116.05	**74.47**	**95.41**

List soil names with 0.5 acre or more of planned disturbance:

See Table 2 in Attachment 5 of EPSC Plan.

*See VT EPSC Standards and Specs, Section 3.3 for minimum plan require

*Drainage Map for the Converter Station was provided in the GP 3-9015 application (No. GP 7354-9015). This process is not suitable for linear projects per Page 3.6 of VT EPSC Standards and Specs. See Figure 2 in Attachment 3 for drainage overview.

Discharge Area Summary

For each drainage area with disturbance of 0.5 acres or more, complete a line below.

Not required for linear projects, per Page 3.6 of Vermont Standards and Specifications for Erosion Prevention and Sediment Control (2006, amended 2008). See Table 2 in Attachment 5 of EPSC Plan for abbreviated discharge area summary.

Drainage Area	Disturbance Area (acres)	Weighted Soil K[1] *<.18, .18-.37 or >.37*			Average Slope % *<5, 5-15 or >15*			Risk[2] *L, M or H*	EPSC[3] *A, B and/or C*
		<. ☐					>15% ☐		
		<. ☐					>15% ☐		
		<. ☐	☐	☐	☐	☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		
		<.18 ☐	.18 -.37 ☐	>.37 ☐	<5% ☐	5 – 15% ☐	>15% ☐		

[1] Area weighted, go to page 3.16 of the Vermont Standards and Specifications for EPSC
[2] Low Medium or High – Refer to Table 3.2 in Vermont Standards and Specifications for EPSC
[3] Refer to Table 3.3: A = Limit Disturbed Soil, Temporary Stabilization, Small Area Sediment Control
B = Slope Protection, Runoff Control, Flow Protection
C= Large Area Sediment Control

Standard: Temporary Stabilization and Vegetation Establishment

Check all that apply

Project Name: New England Clean Power Link (NE	**Designer Name:** Galen Guerrero-Murphy, TRC Env

Practice	Description				
Surface Roughening	☐ Location shown on plans			☐ Detail Provided	
Mulching	☑ Directions on plans ☑ Detail Provided	☑ Directions on plans include temporary stabilization	Within 21 / 14* days of initial disturbance	☑ Not used in areas exceeding 3:1 slope	Mulch Material: varies; see detail Application Rate: varies; see detail
Temporary & Permanent Plantings	☑ Location shown on plans	☑ Detail Provided	☑ Seeding Deadline of September 15 on plans		Seed Mix Specified: varies; see detail
Soil Amendments	☐ Detail Provided		List Amendments Required: _____		
Rolled Erosion Control Products	☑ Location shown on plans ☑ Detail Provided		Types of RECP specified: 1 _____ ☑ Complies with manufacturer's recommendations		
Construction Road Stabilization	☐ Location shown on plans		☐ Detail Provided		
Other	**Describe all other specified Temporary Stabilization and Vegetation Establishment Practices:** Streambank Restoration with RECP Streambank Restoration with Coir Logs				

*21 days at converter station and 14 days at all other project areas (transmission line, laydown yard, HDDs)

Standard: Limiting Disturbance

Check all that apply

Project Name: New England Clean Power Link (NE	**Designer Name:** Galen Guerrero-Murphy, TRC En

Practice	Description
Limit Concurrent Disturbance	Maximum acres disturbed at any one time: A maximum of 40 acres distributed to multiple work crews; see EPSC Plan Narrative for description.
Phasing	Number of Independent Phases: dependent on number of work crews ☑ Directions to complete each phase before commencing following phase
Limits of Disturbance (LOD)	☑ Shown on plans ☑ Detail provided ☑ Silt fence not used as LOD ☐ Fence around drip line of trees **Type of barrier within 50 feet of waters of the state (including wetlands):** ☑ Construction fence ☑ Snow fence ☐ Boulders ☑ Other(specify): One row of staked or stapled 3-inch (minimum) roange barrier mesh tape or rope **Other barrier type(s) called out on plans:** ☑ Barrier tape ☑ Rope ☑ Flagging tape ☐ Other(specify)
Other	**Describe all other specified Limiting Disturbance practices:** Temporary Equipment Bridge Construction Matting Reinforced Silt Fence with Wire Mesh Straw Bale Dike (to reinforce silt fence) Typical Water Filter Bag Concrete Washout Temporary Trench Breaker

Standard: Runoff Control

Check all that apply

Project Name: New England Clean Power Link (	**Designer Name:** Galen Guerrero-Murphy, TRC Envi

Practice	Description		
Fiber Roll	☑ Location shown on plans	☑ Detail provided	
Water Bar	☐ Location shown on plans	☐ Detail provided	☐ Stable outlet provided
Check Dam	☐ Location shown on plans ☐ Detail provided	☐ Side Slopes 2:1 or flatter ☐ Spacing on plans is accurate	
Diversion	☐ Location shown on plans ☐ Detail provided ☐ Design calculations included	☐ Channel grade called out on plans ☐ Directions for stabilization	
Earth Dike	☐ Location shown on plans ☐ Detail provided Dike Type: ☐ Type A (Drainage area < 5 Acres) ☐ Type B (Drainage area < 10 Acres)	☐ Location shown on plans ☐ Channel grade called out on plans ☐ Minimum cross sections on plans ☐ Directions for stabilization	
Temporary Swale	☐ Location shown on plans ☐ Detail provided Swale Type: ☐ Type A (Drainage area < 5 Acres) ☐ Type B (Drainage area < 10 Acres)	☐ Outlet protection specified ☐ Channel grade called out on plans ☐ Minimum cross sections on plans ☐ Directions for stabilization	
Perimeter Swale	☐ Location shown on plans ☐ Detail provided ☐ Drainage area < 2 Acres)	☐ Outlet protection specified ☐ Channel grade called out on plans ☐ Minimum cross sections on plans ☐ Directions for stabilization	

Standard: Slope Protection

Check all that apply

Project Name: New England Clean Power Link (NE	**Designer Name:** Galen Guerrero-Murphy, TRC Enviror

Practice	Description	
Rip Rap	☑ Location shown on plans	☑ Detail Provided
Retaining Wall	☐ Location shown on plans	☐ Detail Provided
Brush Layer	☐ Location shown on plans	☐ Detail Provided
Live Fascine	☐ Location shown on plans	☐ Detail Provided
Branch Packing	☐ Location shown on plans	☐ Detail Provided

Standard: Flow Protection

Check all that apply

Grassed Waterway	☐ Location shown on plans	☐ Calculations Included
	☐ Detail Provided	☐ Outlet Protection Specified
Lined Outlet/ Lined Waterway	☐ Location shown on plans	☐ Calculations Included
	☐ Detail Provided	☐ Designed to 10-year/24 hour storm event
Rock Outlet Protection	☑ Location shown on plans	☑ Location is to scale, sized
	☑ Detail Provided	☑ Drain < 2 acres
Grade Stabilization Structure	☐ Location shown on plans	
	☐ Detail Provided	
	☐ Calculations Included	
Paved Flume	☐ Location shown on plans	
	☐ Detail Provided	
	☐ Calculations Included	
	☐ Designed to 10-year storm	
	☐ Slope < 1.5:1	

Standard: Large and Small Sediment Control

Check all that apply

Project Name: New England Clean Power Lir	**Designer Name:** Galen Guerrero-Murphy, TRC Environ

Practice	Description	
Silt Fence	☑ Locations shown on plans ☑ Detail Provided ☑ Located on Contours	☑ Drainage Area ≤ ¼ acre per 100 linear feet ☑ Not located in areas of concentrated flow ☑ Slopes ≤ 2:1
Excavated Storm Drain Inlet Protection	Number specified: as needed ☑ Drainage Area ≤ 1 acre/ inlet	☑ Locations shown on plans ☑ Detail Provided
Fabric Drop Inlet Protection	Number specified: as needed ☑ Drainage Area ≤ 1 acre/ inlet	☑ Locations shown on plans ☑ Detail Provided
Stone and Drop Block Inlet Protection	Number specified: as needed ☑ Drainage Area ≤ 1 acre/ inlet	☑ Locations shown on plans ☑ Detail Provided
Stabilized Construction Entrance	☑ Location shown on plans ☑ Detail Provided	☑ Present at all vehicle access points to public roadways
Debris Basin	☐ Location shown on plans ☐ Detail Provided ☐ Calculations Included	
Rock Dam	☐ Location shown on plans ☐ Detail Provided ☐ Calculations Included	
Sediment Trap	Number specified: _____	☐ Worksheet completed for each (Use: Page 7 of 12)
Temporary Sediment Basin	Number specified: _____	☐ Worksheet completed for each (Use: Page 8 thru 10 of 12)

Standard: Small Area Sediment Control – Sediment Traps

Check all that apply

Project Name: New England Clean Power Link	**Designer Name:** Galen Guerrero-Murphy, TRC Environn

Practice	Description	
Pipe Outlet Sediment Trap	☐ Location shown on plans ☐ Detail Provided ☐ Drainage Area ≤ 5 acres	☐ Capacity ≥ 3600 feet^3 per acre drainage area ☐ Calculations provided
Grass Outlet Sediment Trap	☐ Location shown on plans ☐ Detail Provided ☐ Drainage Area ≤ 5 acres	☐ Capacity ≥ 3600 feet^3 per acre drainage area ☐ Calculations provided
Catch Basin Sediment Trap	☐ Location shown on plans ☐ Detail Provided ☐ Drainage Area ≤ 3 acres	☐ Capacity ≥ 3600 feet^3 per acre drainage area ☐ Calculations provided
Stone Outlet Sediment Trap	☐ Location shown on plans ☐ Detail Provided ☐ Drainage Area ≤ 5 acres	☐ Capacity ≥ 3600 feet^3 per acre drainage area ☐ Calculations provided
Riprap Outlet Sediment Trap	☐ Location shown on plans ☐ Detail Provided ☐ Drainage Area ≤ 15 acres	☐ Capacity ≥ 3600 feet^3 per acre drainage area ☐ Calculations provided

Temporary Sediment Basin Summary

Check all that apply – Complete one sheet per Sediment Basin

Project Name: New England Clean Power Lin	**Designer Name:** Galen Guerrero-Murphy, TRC Environ

Drainage Area #:	**Sediment Basin #:**	**Drainage Area Size (acres):**

Total Required Storage: _____ **cubic feet**	**Total Storage Available:** _____ **cubic feet**	**Class:** **1** ☐ or **2** ☐

	Class 1	**Class 2**
Standard:	☐ Drainage Area ≤ 100 acres	☐ Drainage Area ≤ 100 acres
	☐ Dam Height ≤ 10 ft	☐ Dam Height ≤ 15 ft
	☐ Embankment Width ≥ 8 ft	☐ Embankment Width ≥ 8 ft
	☐ Embankment Side Slopes ≤ 2:1	☐ Embankment Side Slopes ≤ 2½ :1

Plans include:	☐ Location of Basin
	☐ Plan view of the storage basin and emergency spillway
	☐ Existing and proposed contours
	☐ Cross section of dam
	☐ Cross section of principal spillway
	☐ Cross section of emergency spillway
	☐ Profile of emergency spillway.
	☐ Details of pipe connections
	☐ Details of riser to pipe connections
	☐ Details of riser base
	☐ Details of Anti-seep control
	☐ Details of trash rack cleanout elevation
	☐ Details of anti-vortex device
	☐ Directions for final disposal of basin and collected sediment deposits
	☐ Directions for removal of dam basin with 36 months of installation

Temporary Sediment Basin Design

Complete one sheet per Sediment Basin – See Directions Below (page 12)

Drainage Area #:	**Sediment Basin #:**	**Drainage Area Size (acres):**

BASIN SIZE DESIGN

1. Minimum sediment storage volume = 134 yds^3 X _____ acres of drainage area = _____ yds^3
2. a. Cleanout at 50 percent of minimum required volume: _____ yds^3
   b. Elevation corresponding to scheduled time to clean out: _____ feet
   c. Distance below top of riser: _____ feet
3. Minimum surface area is **larger** of 0.01 $Q_{(1)}$_____ or, 0.015 drainage area = _____

DESIGN OF SPILLWAYS & ELEVATIONS

Runoff

4. $Q_{p(10)}$ = _____ cfs (EFH, Ch. 2, TR-55, or Section 4; Attach runoff computation sheet)

Pipe Spillway (Q_{ps})

5. Minimum pipe spillway capacity: _____ Q_{ps} = 0.2 X _____ acres. Drainage = _____ cfs
   Note: If there is no emergency spillway, then required Q_{ps} = $Q_{p(10)}$ = _____ cfs
6. H = _____ feet _____ Barrel length = _____ feet
7. Barrel: Diameter: _____ inches; Q_{ps} = (Q _____ X (cor.fac.) _____ = _____ cfs
8. Riser: Diameter: _____ inches
   Length: _____ feet
   Height (h): _____ feet
   Crest Elevation: _____ feet
9. Trash Rack: Diameter: _____ inches
   Height: _____ inches

Emergency Spillway Design: If no spillway designed, please specify reason:_____ _____

10. Emergency Spillway Flow (Q_{es} = Q_p - Q_{ps}): _____ - _____ = _____ cfs
11. Width _____ feet

H_p _____ feet
Crest elevation _____ feet
Design High Water Elevation _____ feet
Entrance channel slope _____ %
Top of Dam Elevation _____ feet
Exit channel slope _____ %

ANTI-SEEP COLLAR/ SEEPAGE DIAPHRAGM DESIGN

12. Collars: y =_____ feet; z = ____**:**1; pipe slope = _____ %, L_s = _____ feet
Use ____ collars, ____ inches square; projection = ____ feet

13. Diaphragms: Number ____ ; width ____feet; height ____feet

DEWATERING ORIFICE SIZING

13. A_o = A_s X $(2h)^{0.5}$ = _____ $feet^2$
    h = _____ft.; therefore use a _____ inch orifice

Temporary Sediment Basin Design Directions

1. Minimum required sediment storage volume is 134 cubic yards (3600 cubic feet) per acre from each acre of drainage area. Values larger than 134 cubic yards per acre may be used for greater protection. Compute volume using entire drainage area although only part may be disturbed.

2. The volume of a naturally shaped basin (no excavation in basin) may be approximated by the formula V = (0.4)(A)(d), where V is in cubic feet, A is the surface area of the basin, in square feet, and d is the maximum depth of the basin, in feet. Volume may be computed from contour information or other suitable methods.

3. If volume of basin is not adequate for required storage, excavate to obtain the required volume.

4. The minimum surface area of the basin pool at the storage volume elevation will be the larger of the two elevations shown.

5. USDA-NRCS TR-55 or the NRCS Engineering Field Handbook – Chapter 2, are the preferred methods for runoff computation. Runoff curve numbers will be computed for the drainage area that reflects the maximum construction condition.

6. Required minimum discharge from pipe spillway equals 0.2 cfs/acre times total drainage area. (This is equivalent to a uniform runoff of 5 in. per 24 hours). The pipe shall be designed to carry Q_p if site conditions preclude installation of an emergency spillway to protect the structure.

7. Determine value of “H” from field conditions; “H” is the interval between the centerline of the outlet pipe and the emergency spillway crest, or if there is no emergency spillway, to the design high water.

8. See Standards and Specifications for Pipe Spillway Design Charts.

9. See Riser Inflow Curves in Standards and Specifications.

10. Compute the orifice size required to dewater the basin over a 10 hour period.

11. See Trash Rack and Anti-Vortex Device Design details in Standards and Specifications.

12. Compute Q_{es} by subtracting actual flow carried by the pipe spillway from the total inflow, Q_p.

13. Use appropriate tables in Standards and Specifications to obtain values of Hp, bottom width, and actual Q_{es}.

14. See Anti-Seep Collar / Seepage Diaphragm Design in Standards and Specifications.

15. Fill in design elevations. The emergency spillway crest must be set no closer to riser crest than value of h, which causes pipe spillway to carry the minimum, required Q. Therefore, the elevation difference between spillways shall be equal to the value of h, or one foot, whichever is greater. Design high water is the elevation of the emergency spillway crest plus the value of Hp, or if there is no emergency spillway, it is the elevation of the riser crest plus h required to handle the 10-year storm. Minimum top of dam elevation requires 1.0 ft. of freeboard above design high water.