November 14, 2016

Ref: 57836.00

Ms. Tina Heath
District Wetlands Ecologist
Vermont DEC – Watershed Management Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Re: Magee Hill Solar Farm
Hinesburg, Vermont
Application for a Vermont Wetland Individual Permit and Wetland Determination Petition

Dear Tina:

On behalf of Encore Renewable Energy ("Encore" or "Applicant"), VHB is electronically submitting the application form and supporting materials to the Vermont Department of Environmental Conservation ("DEC") requesting a Vermont Individual Wetland Permit per the Vermont Wetland Rules pursuant to 10 V.S.A. § 6025(d)(5), to authorize activities related to the construction and operation of a planned project to install a 1.3MW solar facility in an agricultural field located in Hinesburg, Vermont (the "Project"). A petition for a wetland determination for the on-site wetland proposed for impact is also included.

The Applicant is seeking authorization for Permanent Wetland Impacts (4 square feet) and Permanent Buffer Impacts (713 square feet) for activities required as part of the proposed construction of the Project's perimeter fence and tree cutting. A check payable to the State of Vermont for the permit fee of $421.25 is also enclosed.

Thank you for your assistance providing input as this Project was developed, and your timely review of the enclosed materials. Please do not hesitate to contact me if you have any questions, comments, or require further information regarding the enclosed Vermont Wetland Permit Application and Petition for Wetland Determination request and supporting materials.

Sincerely,

Carla A. Fenner
Environmental Scientist

CAF/jkw

Enclosure
Permit Fee Check

cc: Derek Moretz, Encore Redevelopment

\\vhb\proj\Vermont\57836.00 Encore Magee Hill Solar\docs\Permits\VWP\VWP_Cover Letter_final.doc

Engineers | Scientists | Planners | Designers

40 IDX Drive, Building 100
Suite 200
South Burlington, Vermont 05403
P 802.497.6100
F 802.495.5130

Vermont Wetlands Program
Permit Application Database Form

Under Sections 8 and 9
of the Vermont Wetland Rules

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
WETLANDS PROGRAM

Application Submittal Instructions

- If submitting via US post, include a check in the correct fee amount made payable to the "**State of Vermont**," and a CD for applications that contain large files (1 MB or greater).

  Mail to: Vermont Wetlands Program
  Watershed Management Division
  One National Life Drive, Main 2
  Montpelier, VT 05620-3522

- Applications can also be submitted via email to the following address: anr.wsmdwetlands@vermont.gov
  - If submitting via email, please mail a check in the correct fee amount, made payable to the "**State of Vermont**," and a copy of the Vermont Wetlands Program Application Database Form (this page) to the address provided above. ***It is not necessary to mail in a copy of the complete application.***

Applicant Name: Encore Renewable Energy	**Application Preparer Name:** Carla A. Fenner
Town where project is located: Hinesburg	**County:** Chittenden
Span#:	**Vermont Wetlands Project (VWP)# if Known:**
Project Location Description: *911 street address or direction from nearest intersection* 952 Magee Hill Road	
Brief Project Summary: Construction and operation of an approximately 1.3 MW solar electric generation facility on privately owned agricultural and fallow fields in Hinesburg, Vermont.	

Application Type: ☐Individual Permit (multiple wetlands) ☐After the Fact Permit ☒Wetland Determination
☐Individual Permit (single wetland) ☒General Permit Coverage Authorization ☐Permit Amendment: VWP Project #_____

Existing Land Use Type(s): *(Check all that apply)* ☐Residential (single family) ☐Residential (subdivision) ☐Undeveloped
☒Agriculture ☐Transportation ☐Forestry ☐Parks/Rec/Trail ☐Institutional ☐Industrial/Commercial

Proposed Land Use Type(s): *(Check all that apply)* ☐Residential (single family) ☐Residential (subdivision) ☐Undeveloped
☐Agriculture ☐Transportation ☐Forestry ☐Parks/Rec/Trail ☐Institutional ☒Industrial/Commercial

Proposed Impact Type(s): *(Check all that apply)* ☐Buildings ☐Utilities ☐Parking ☐Septic/Well ☐Stormwater
☐Driveway ☐Park/Path ☐Agriculture ☐Pond ☐Lawn ☐Dry Hydrant ☐Beaver Dam Alteration ☐Silviculture
☐Road ☐Aesthetics ☐No Impact ☒Other: Renewable energy

Wetland and Buffer Impact Type: *(Check all that apply)* ☐ Dredge ☐Drain ☒Cut Vegetation ☐Stormwater
☒Trench/Fill ☒Other:_____

Wetland Delineation Date(s): 12/10/15, 5/5/16, 9/7/16

Wetland Improvements		Buffer Zone Improvements		Reason for Improvements
Restoration:	s.f.	Restoration:	s.f.	☐Correction of Violation
Creation:	s.f.	Creation:	s.f.	☐To offset permit impacts
Enhancement:	s.f.	Enhancement:	s.f.	☐Voluntary
Conservation:	s.f.	Conservation:	s.f.	

Wetland Impact Fee Calculations: *Round to the nearest square foot. Fees will auto-calculate.*

Total Wetland Impact (minus linear clear, including ATF)	4 square feet (s.f.)	Wetland Impact Fee:($0.75/sf)	$ 3.00
Total Wetland Clearing (qualified linear projects only)	square feet (s.f.)	Wetland Clearing Fee:($0.25/sf)	$ 0.00
After The Fact Wetland Impact (to correct a violation)	square feet (s.f.)	After the Fact Wetland Fee: (0.75/sf) *(Required for after the fact permit applications)*	$ 0.00

Total Buffer Zone Impacts and Calculations: *Round to the nearest square foot*

Total Buffer Zone Impact	713 square feet (s.f.)	Buffer Impact Fee: ($0.25/sf)	$ 178.25

Additional Fees

	Agricultural Crop Conversion *Check here:* ☐ *(Flat fee of $200.00)*	$ 0.00
	Minimum Application Fee: ($50.00) *Required when total impact fee is less than $50.00*	$ 0.00
	Administrative Fee:	$ 240.00
Make Checks Payable to: State of Vermont	**Total Check Amount:**	$ 421.25

Vermont Individual Wetland Permit Application and Determination Petition

Under Sections 8 and 9
of the Vermont Wetland Rules

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
WETLANDS PROGRAM

Applicant Information: *If the applicant is someone other than the landowner, the landowner information must be included below*			
Applicant Name: Encore Renewable Energy (c/o Derek Moretz)			
Address: 110 Main Street, Suite 2E	City/Town: Burlington	State VT	Zip: 05401
Phone Number: (802) 861-3023	Email Address: derek@encorerenewableenergy.com		

Applicant Certification:
By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Applicant Signature: _____ Date: 11/11/16

Landowner Information: *Landowner must sign the application. If landowner is different from the applicant this section must be filled out*			
☐**Check this box if landowner is the same as the applicant**			
Landowner Name: Timothy and Kristi Brown			
Address: 952 Magee Hill Road	City/Town Hinesburg	State: VT	Zip: 05462
Phone Number: 802-363-1205	Email Address: kjb0213@gmavt.net		

Landowner Easement: *Attach copies of any easements, agreements, or other documents conveying permission, and agreement with the landowner stating who will be responsible for meeting the terms and conditions of the permit.* ***List the attachment for this information in this section. Describe the nature of the agreement or easement in the space provided below:***

SEE ATTACHED LEASE OPTION AGREEMENT

Landowner Certification:
By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Landowner Signature: Timothy Brown Kristi Brown Date: 11/10/16

Application Preparer Information: *Consultant, engineer, or other representative that is responsible for filling out the application, if other than the applicant or landowner.*			
Application Preparer Name: Carla A. Fenner	Organization/Company: VHB		
Address: 40 IDX Drive, Building 100 Suite 200	City/Town S. Burlington	State: VT	Zip: 05403
Phone Number: (802) 497-6144	Email Address: cfenner@vhb.com		

Application Preparer Certification:
By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Application Preparer Signature: _____ Date: 11/14/2016

Handwritten signatures are also accepted

Vermont Individual Wetland Permit Application and Determination Petition

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VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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Applicant Name: Encore Renewable Energy (c/o Derek Moretz)			
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Applicant Certification:
By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Applicant Signature:_____ Date: 11/8/16

Landowner Information: *Landowner must sign the application. If landowner is different from the applicant this section must be filled out*			
☐**Check this box if landowner is the same as the applicant**			
Landowner Name: Timothy and Kristi Brown			
Address: 952 Magee Hill Road	City/Town: Hinesburg	State: VT	Zip: 05462
Phone Number:	Email Address:		

Landowner Easement: *Attach copies of any easements, agreements, or other documents conveying permission, and agreement with the landowner stating who will be responsible for meeting the terms and conditions of the permit.* ***List the attachment for this information in this section. Describe the nature of the agreement or easement in the space provided below:***

See attached Lease Option Agreement.

Landowner Certification:
By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Landowner Signature:_____ Date:_____

Application Preparer Information: *Consultant, engineer, or other representative that is responsible for filling out the application, if other than the applicant or landowner.*			
Application Preparer Name: Carla A. Fenner	Organization/Company: VHB		
Address: 40 IDX Drive, Building 100 Suite 200	City/Town: S. Burlington	State: VT	Zip: 05403
Phone Number: (802) 497-6144	Email Address: cfenner@vhb.com		

Application Preparer Certification:
By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Application Preparer Signature:_____ Date:_____

Handwritten signatures are also accepted

1. Location of wetland and project:
Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if available, and any other distinguishing features.

Project is located on agricultural and fallow lands to the north side of 952 Magee Hill Road in the northeast corner of Hinesburg, Vermont.

2. Site visit date(s) and attendees:
*A site visit is **required** before the application can be called complete*

2.1 Date of Visit(s) with State District Wetland Ecologist	2.2. List of people present for site visit(s) including Ecologist, landowner, and representatives.
5/24/16, 9/7/16	5/24/16: VHB (C. Fenner), Encore (D. Moretz, C. Nichols), DEC (T. Heath), USACE (M. Adams) 9/7/16: VHB (C. Fenner), Encore (D. Moretz, DEC (T. Heath)

3. Wetland Classification:
For multiple wetlands fill out the multiple wetlands table for sections 1 and 3 through 1

3.1. The wetland is a Class II wetland because :

The wetland meets the presumption of significance

3.2. Section 4.6 Presumption
If the wetland meets the Section 4.6 Presumption, it does so primarily because:

a. Wetland is of the same type and threshold size as those mapped on VSWI maps; or greater than 0.5 acres.

b. The wetland contains woody vegetation and is adjacent to a stream, river, or open body of water

<Choose One>

4. Description of the Entire Wetland:
Answer the following questions regarding the entire wetland, which includes all wetland areas connected to the wetland proposed for impact. Answers may be estimates based on desktop review when the wetland extends past the investigation area (parcel boundary). Specific questions about the wetland in the project area will follow. For multiple wetlands , fill out the multiple wetlands table.

4.1. Size of Complex in Acres:
The size of the complex can be obtained from the Wetland Inventory Map for mapped wetlands, or best estimation based on review of aerial photography or site visit. This is not the size of the of the delineated wetland on the subject property unless the entirety of the wetland is represented in the delineation.

Within VHB's area of investigation, Wetland 2016-2 is approximately 8,290 square feet. It is associated with an intermittent stream channel and as such may be hydrologically connected to other Class II wetlands in a complex further down gradient.

4.2. Vegetation Cover Types Present:
List all wetland types in the wetland or wetland complex and their percent cover.
***For example:** 50 acres of softwood forested swamp; or 30% scrub swamp, 70% emergent wetland*

Wetland is PSS-PFO, with a dominant (>50%) PFO cover.

4.3. Landscape Position:
Where is the wetland located on the landscape?
***For example:** Bottom of a basin, edge of a stream, shore of a lake, etc.*

Wetland is located mid-slope, in concave topography at a slight break in slope and around an ephemeral channel.

4.4. Hydrology:
Describe the main source of water for the entire wetland. List any river, stream, lakes, or ponds

Groundwater discharge- multiple seepages

4.4.1. Direction of Flow:
***For example:** Stream flows from north to south through the wetland complex, or the wetland drains generally to the southwest.*

Overland flow generally to the north through the wetland complex and entering an intermittent stream channel beyond the north edge of the delineated wetland

4.4.2. Influence of Hydrology on the Entire Wetland:
***For example:** The river provides floodwater to the wetland in the spring.*

Groundwater discharge creates seasonally saturated soil conditions and a fluctuating water table.

4.4.3. Relation of Entire Wetland to the Project Area:
The distance between the project area and any nearby surface waters

The wetland is positioned in a hedgerow and forested area to the north and northeast of an agricultural field. A stream channel extends to the north from the downslope edge of the wetland. where additional presumed Class II wetlands may be present. The Project site is located generally south and east of th

4.4.4. Entire Wetland Hydroperiod:
Discuss the frequency and duration of flooding, ponding, and/or soil saturation

The wetland is seasonally saturated, and experiences a seasonally high water table, as observed by VHB throughout the 2016 growing season.

4.5. Surrounding Landuse of the Entire Wetland:
For example: *Rural residential and forested; Agricultural and undeveloped*

Land use surrounding the wetland complex is agricultural fields, a forest stand managed for maple sap production, and rural residential development along Magee Hill Road.

4.6. Relation of the Entire Wetland to Other Nearby Wetlands:
Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.

The wetland is not mapped on the VSWI, however there are VSWI-mapped wetlands in the surrounding landscape. The closest VSWI wetland is located approximately 878 feet to the north of the subject wetland and along Swamp Road. To the northeast of the Project approximately 1,045 and to the east approximately 1,445 feet are two more VSWI-mapped wetlands which are also mapped along Swamp Road. The closest VSWI feature upgradient to the south of the subject wetland is more than approximately 1,500 feet away. All of the surrounding VSWI-mapped wetlands appear to be of similar general vegetative cover and type, according to soil mapping and aerial photography interpretation.

4.7. Pre-project Cumulative Impacts to the Entire Wetland:
Identify any cumulative ongoing impacts outside of the proposed project that may influence the wetland. ***Examples include but are not limited to:*** *Wetland encroachments on and off the subject property, land use management in or surrounding the wetland, or development that influences hydrology or water quality. List any past Vermont Wetland Permits or CUD's related to this property.*

The wetland complex is currently impacted by the presence of non-native invasive plants ("NNIS") including buckthorn (Rhamnus cathartica) and honeysuckle (Lonicera spp.). Additional impacts to the wetland are the presence of an existing access trail which extends along an existing stone wall. The access trail is used for smaller agricultural equipment between fields to the east and west of the wetland, and ATV access to the managed sugarbush to the north. The same cumulative ongoing impacts observed are present in the wetland and the buffer. Additionally, the southwestern portion of the buffer is within an agricultural (hay) field, and as such has been planted to forage crop species and is subject to regular, annual mowing.

5. Description of Subject Wetland and Buffer:
Subject wetland is defined as the area of wetland in the project vicinity, but not limited to the portion of the wetland to be directly impacted by the project. For the purposes of this application, the subject wetland should encompass any portion of the wetland that could either be directly or indirectly impacted by the project, as defined by chemical, physical, or biological characteristics. This may include the entire wetland area, or wetland area off property. For multiple wetlands, fill out the multiple wetlands table.

5.1. Context of Subject Wetland:
Describe where the subject wetland is in the context of the entire wetland described in section 4 above.
For example: *Upslope, narrow eastern "finger", 400 ft. from open water portion.*

The subject wetland and buffer are generally in the center of the wetland and southeastern edge of the buffer. The subject wetland is along the north edge of the existing access trail as described in Section 4.7 above, where an agricultural/ATV trail bisects the hedgerow and extends into the sugarbush to the north of the Project. The subject buffer is at the upland (eastern) edge of the buffer and along the edge of a hedgerow and agricultural field.

5.2. Subject Wetland Land Use:
For example: *Mowed lawn, old field, naturally vegetated.*
Describe any previous and ongoing disturbance in the subject wetland.

The subject wetland is in a currently unused but previously cleared, successional forest edge that lies between agricultural fields and at the southern end of a maple sugarbush. The only active use in the subject wetland is an existing access trail as described in Section 4.7 and 5.1 above.

5.3. Subject Wetland Vegetation:
List dominant wetland vegetation cover type and associated dominant plant species.

The subject wetland is dominated by herbaceous vegetation, as it is within an existing cleared corridor for a trail used as field and sugarbush access. Dominant herbaceous species include sensitive fern (Onoclea sensibilis) and touch-me-not (Impatiens capensis). Wetland areas surrounding the subject wetland are forested, and dominated by green ash (Fraxinus pensylvanica, red maple (Acer rubrum), gray dogwood (Cornus racemosa) and meadowsweet (Spiraea alba).

5.4. Subject Wetland Soils:
Use the USDA NRCS information where possible and use the ACOE Delineation Manual soil description

NRCS: Cabot extremely stony silt loam (CbD)
ACOE: Redox Dark Surface (F6)

5.5. Subject Wetland Hydrology:
Use the description from the ACOE Delineation Manual

Saturation (A3), High Water Table (A2), Drainage Patterns (B10), Geomorphic Position (D2)

5.6. Buffer Zone:
Describe the buffer zone of the subject wetland (50 foot envelope of land adjacent to wetland boundary).

5.6.1. Buffer Land Use:
For example: *Mowed shoulder, forested, old field, paved road, and residential lawns, etc. Describe any previous and ongoing disturbance in the buffer zone.*

The subject buffer occurs along the edge of an agricultural field, where a hedgerow of shrubs and trees bisects two fields. There is no active land use within the subject buffer.

5.6.2. Buffer Vegetation:
List the vegetation cover type and dominant plant species.

Buffer vegetation in the area of the subject buffer includes woody species such as red maple, sugar maple (Acer saccharum), American elm (Ulmus americana), and buckthorn. Mature trees are scattered, with clumps of mature shrubs in between. Locally abundant herbaceous species observed include patridgeberry (Mitchella repens) and Canada goldenrod (Solidago candensis).

5.6.3. Buffer Soils:
Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description.

NRCS: Peru stony loam (PeB), Cabot extremely stony silt loam (CaD).
ACOE: none

6. Entire Wetland Function and Value Summary (as defined in the Vermont Wetland Rules Section 5):
Check which functions are present in the entire wetland

■ Flood/Storm Storage	☐ RTE Species
■ Surface & Groundwater Protection	☐ Education & Research
☐ Fish Habitat	☐ Recreation/Economic
☐ Wildlife Habitat	☐ Open Space/Aesthetics
☐ Exemplary Natural Community	■ Erosion Control

Functions and Values: *For each function and value:*

1. *Evaluate the entire wetland and check all that apply. Use Wetland Inventory Maps for offsite areas*
2. *Evaluate how the wetland in the project area contributes to the function.*
3. *Explain how the project will not result in adverse impacts to the function.*

Include any information on specific avoidance and minimization measures.

If more than one wetland complex is involved, provide a function and value checklist for each wetland complex. In addition fill out the Multiple Wetlands Table.

7. Water Storage for Flood Water and Storm Runoff

■ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function

- ■ Constricted outlet or no outlet and an unconstructed inlet.
- ■ Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and transpiration.
- ■ If a stream is present, it's course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.
- ☐ Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.
- ☐ Hydrologic or hydraulic study indicates wetland attenuates flooding

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

Water Storage for Flood Water and Storm Runoff Continued…

☐ Check this box if any of the following conditions apply that may indicate the wetland provides this function at a ***lower*** level.

- ☐ Significant flood storage capacity upstream of the wetland, and the wetland in question provides this function at a negligible level in comparison to upstream storage (unless the upstream storage is temporary such as a beaver impoundment).
- ☐ Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland.
- ☐ Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures.
- ☐ Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.

☐ Check this box if any of the following conditions apply that may indicate the wetland provides this function at a ***higher*** level.

- ☐ History of downstream flood damage to public or private property.
- ☐ Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by loss or reduction of the water storage function.
  - ☐ Developed public or private property
  - ☐ Stream banks susceptible to scouring and erosion
  - ☐ Important habitat for aquatic life
- ☐ The wetland is large in size and naturally vegetated.
- ☐ Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by a loss or reduction of the water storage function.
  - ☐ Developed public or private property.
  - ☐ Stream banks susceptible to scouring and erosion.
  - ☐ Important habitat for aquatic life.
- ☐ The wetland is large in size and naturally vegetated
- ☐ Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.
  - ☐ A large amount of impervious surface in urbanized areas.
  - ☐ Relatively impervious soils.
  - ☐ Steep slopes in the adjacent areas.

7.1 Subject Wetland Contribution to Water Storage: ☐
Explain how the subject wetland contributes to the function listed above

The subject wetland is located in an area dominated by herbaceous vegetation surrounded by a forested wetland area contiguous to a stream channel, and provides storage for floodwater and stormwater runoff.

7.2 Statement of No Undue Adverse Impact to ***Water Storage for Flood Water and Storm Runoff*: ☐
Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, and compensation measures relevant to this function.

Wetland impact will be minimal and will not constrict or hinder the flow through the wetland. Unavoidable impacts are minimized as described above. As such, no undue adverse impact to wetlands and buffers will result from the Project.

8. Surface and Ground Water Protection: ☐

■ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☐ Constricted or no outlets.

■ Low water velocity through dense, persistent vegetation.

☐ Hydroperiod permanently flooded or saturated.

☐ Wetlands in depositional environments with persistent vegetation wider than 20 feet.

☐ Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.

■ Presence of seeps or springs.

☐ Wetland contains a high amount of microtopography that helps slow and filter surface water.

☐ Position in the landscape indicates the wetland is a headwaters area.

■ Wetland is adjacent to surface waters.

☐ Wetland recharges a drinking water source.

☐ Water sampling indicates removal of pollutants or nutrients.

☐ Water sampling indicates retention of sediments or organic matter.

☐ Fine mineral soils and alkalinity not low.

☐ The wetland provides an obvious filter between surface water or ground water and land uses that may contribute point or nonpoint sources of sediments, toxic substances or nutrients to the wetland, such as: steep erodible slopes; row crops; dumps; areas of pesticide, herbicide or fertilizer application; feed lots; parking lots or heavily traveled road; and septic systems.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

☐ Check this box if any of the following conditions apply that may indicate the wetland provides function at a ***lower*** level.

☐ Presence of dead forest or shrub areas in sufficient amounts to result in diminished nutrient uptake.

☐ Presence of ditches or channels that confine water and restrict contact of water with vegetation.

☐ Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.

☐ Current use in the wetland results in disturbance that compromises this function.

☐ Check this box if any of the following conditions apply that may indicate the wetland provides function at a ***higher*** level.

☐ The wetland is adjacent to a well head or source protection area, and provides ground water recharge.

☐ The wetland provides flows to Class A surface water. (Check ANR Atlas)

☐ The wetland contributes to the protection or improvement of water quality of any impaired waters.

☐ The wetland is large in size and naturally vegetated.

8.1. Subject Wetland Contribution to Water Protection:
Explain how the subject wetland contributes to the function listed above.

The subject wetland complex consists of dense woody vegetation and groundwater discharge seeps and as such provides the function of groundwater protection.

8.2. Statement of No Undue Adverse Impact to *Surface and Ground Water Protection*:
Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

Wetland impact will be minimal and will not constrict or hinder the function of groundwater protection. Unavoidable impacts are minimized as described above. As such, no undue adverse impact to wetlands and buffers will result from the Project.

9. Fish Habitat:

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☐ Contains woody vegetation that overhangs the banks of a stream or river and provides any of the following: shading that controls summer water temperature; cover including refuges created by overhanging branches or undercut banks; source of terrestrial insects as fish food; or streambank stability.

☐ Provides spawning, nursery, feeding or cover habitat for fish (documented or professionally judged). Common habitat includes deep marsh and shallow marsh associates with lakes and streams, and seasonally flooded wetlands associated with streams and rivers.

☐ Documented or professionally judged spawning habitat for northern pike.

☐ Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.

☐ The wetland is located along a tributary that does not support fish, but contributes to a larger body of water that does support fish. The tributary supports downstream fish by providing cooler water and food sources.

9.1. Subject Wetland Contribution to Fish Habitat:
Explain how the subject wetland contributes to the function listed above.

9.2. Statement of No Undue Adverse Impact to *Fish Habitat*:
Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

10. Wildlife Habitat ☐

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Provides resting, feeding staging or roosting habitat to support waterfowl migration, and feeding habitat for wading birds. Good habitats for these species include open water wetlands.
- ☐ Habitat to support one or more breeding pairs or broods of waterfowl including all species of ducks, geese, and swans. Good habitats for these species include open water habitats adjacent shallow marsh, deep marsh, shrub wetland, forested wetland, or naturally vegetated buffer zone.
- ☐ Provides a nest site, a buffer for a nest site or feeding habitat for wading birds including but not limited to: great blue heron, black-crowned night heron, green-backed heron, cattle egret, or snowy egret. Good habitats for these species include open water or deep marsh adjacent to forested wetlands, or standing dead trees.
- ☐ Supports or has the habitat to support one or more breeding pairs of any migratory bird that requires wetland habitat for breeding, nesting, rearing of young, feeding, staging roosting, or migration, including: Virginia rail, common snipe, marsh wren, American bittern, northern water thrush, northern harrier, spruce grouse, Cerulean warbler, and common loon.
- ☐ Supports winter habitat for white-tailed deer. Good habitats for this species include softwood swamps. Evidence of use includes browsing, bark stripping, worn trails, or pellet piles.
- ☐ Provides important feeding habitat for black bear, bobcat, or moose based on an assessment of use. Good habitat for these types of species includes wetlands located in a forested mosaic.
- ☐ Has the habitat to support muskrat, otter, or mink. Good habitats for these species include deep marshes, wetlands adjacent to bodies of water including lakes, ponds, rivers, and streams.
- ☐ Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.
- ☐ Provides the following habitats that support the reproduction of uncommon Vermont amphibian species including:
  - ☐ Wood frog, Jefferson salamander, blue-spotted salamander, or spotted salamander. Breeding habitat for these species includes vernal pools and small ponds.
  - ☐ Northern dusky salamander and the spring salamander. Habitat for these species includes headwater seeps, springs, and streams.
  - ☐ The four-toed salamander, Fowler's toad, western or boreal chorus frog, or other amphibians, found in Vermont of similar significance.
- ☐ Supports or has the habitat to support populations of Vermont amphibian species including, but not limited to, pickerel frog, northern leopard frog, mink frog, and others found in Vermont of similar significance. Good habitat for these types of species include large marsh systems with open water components.
- ☐ Supports or has the habitat to support populations of uncommon Vermont reptile species including: wood turtle, northern map turtle, eastern musk turtle, spotted turtle, spiny softshell, eastern ribbonsnake, northern watersnake, and others found in Vermont of similar significance.
- ☐ Supports or has the habitat to support significant populations of Vermont reptile species, including smooth greensnake, DeKay's brownsnake, or other more common wetland-associated species.
- ☐ Meets four or more of the following conditions indicative of wildlife habitat diversity:
  - ☐ Three or more wetland vegetation classes (greater than 1/2 acre) present including but not

Wildlife Habitat Continued…

limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog.

☐ The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp.

☐ Located adjacent to a lake, pond, river or stream.

☐ Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land.

☐ Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water.

☐ One of the following:

- ☐ Hydrologically connected to other wetlands of different dominant classes or open water within 1 mile.
- ☐ Hydrologically connected to other wetlands of same dominant class within 1/2 mile.
- ☐ Within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected.

☐ Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation.

☐ Contains evidence that it is used by wetland dependent wildlife species

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***lower*** level.

- ☐ The wetland is small in size for its type and does not represent fugitive habitat in developed areas (vernal pools and seeps are generally small in size, so this does not apply).
- ☐ The surrounding land use is densely developed enough to limit use by wildlife species (with the exception of wetlands with open water habitat). Can be negated by evidence of use.
- ☐ The current use in the wetland results in frequent cutting, mowing or other disturbance.
- ☐ The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***higher*** level.

- ☐ The wetland is large in size and high in quality.
- ☐ The habitat has the potential to support several species based on the assessment above.
- ☐ Wetland is associated with an important wildlife corridor.
- ☐ The wetland has been identified as a locally important wildlife habitat by an ANR Wildlife Biologist.

10.1. Subject Wetland Contribution to Wildlife Habitat Functions: ☐
Explain how the subject wetland contributes to the function listed above.

10.2. Statement of No Undue Adverse Impact to *Wildlife Habitat*: ☐
Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

11. Exemplary Wetland Natural Community

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☐ Wetlands that are identified as high quality examples of Vermont's natural community types recognized by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department, including rare types such as dwarf shrub bogs, rich fens, alpine peatlands, red maple-black gum swamps and the more common types including deep bulrush marshes, cattail marshes, northern white cedar swamps, spruce-fir-tamarack swamps, and red maple-black ash seepage swamps are automatically significant for this function

The wetland is also likely to be significant if any of the following conditions are met:

☐ Is an example of a wetland natural community type that has been identified and mapped by, or meets the ranking and mapping standards of, the Natural Heritage Information Project of the Vermont Fish and Wildlife Department.

☐ Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:

☐ Deep peat accumulation reflecting a long history of wetland formation;

☐ Forested wetlands displaying very old trees and other old growth characteristics;

☐ A wetland natural community that is at the edge of the normal range for that type;

☐ A wetland mosaic containing examples of several to many wetland community types; or

☐ A large wetland complex containing examples of several wetland community types.

List species or communities of concern:

11.1. Subject Wetland Proximity to Exemplary Natural Communities ☐
.

11.2. Statement of No Undue Adverse Impact to Exemplary Wetland Natural Community: ☐
Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

12. Rare, Threatened, and Endangered Species Habitat:

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☐ Wetlands that contain one or more species on the federal or state threatened or endangered lists, as well as species that are rare in Vermont, are automatically significant for this function.

The wetland is also likely to be significant if any of the following apply:

☐ There is creditable documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;

☐ There is creditable documentation that threatened or endangered species have been present in past 10 years;

☐ There is creditable documentation that the wetland provides important habitat for any species listed as rare in Vermont (S1 or S2 ranks), state historic (SH rank), or rare to uncommon globally (G1, G2, or G3 ranks) by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department;

☐ There is creditable documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

12.1. Subject Wetland Contribution to RTE Habitat:

Explain how the subject wetland contributes to the function listed above.

12.2 Statement of No Undue Adverse Impact to ***Rare, Threatened, or Endangered Species Habitat***:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

13. Education and Research in Natural Sciences: ☐

☐ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.

☐ Owned by or leased to a public entity dedicated to education or research.

☐ History of use for education or research.

☐ Has one or more characteristics making it valuable for education or research.

13.1. Subject Wetland <u>Education and Research Potential</u>: ☐
Explain how the subject wetland contributes to the function listed above.

13.2 Statement of No Undue Adverse Impact to *<u>Education and Research in Natural Sciences</u>*****:** ☐
Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.

14. Recreational Value and Economic Benefits: ☐

☐ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.

☐ Used for, or contributes to, recreational activities.

☐ Provides economic benefits.

☐ Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.

☐ Used for harvesting of wild foods.

Comments:

14.1. Subject Wetland <u>Recreational and Economic Value</u>: ☐
Explain how the subject wetland contributes to the value listed above.

14.2. Statement of No Undue Adverse Impact to *<u>Recreational Value and Economic Benefits</u>*****:** ☐
Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.

15. Open Space and Aesthetics: ☐

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☐ Can be readily observed by the public; and

☐ Possesses special or unique aesthetic qualities; or

☐ Has prominence as a distinct feature in the surrounding landscape;

☐ Has been identified as important open space in a municipal, regional or state plan.

Comments:

15.1. Subject Wetland Aesthetic Value: ☐
Explain how the subject wetland contributes to the value listed above.

15.2. Statement of No Undue Adverse Impact to *Open Space and Aesthetics:* ☐
Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.

16. Erosion Control Through Binding and Stabilizing ☐

☒ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☒ Erosive forces such as wave or current energy are present and any of the following are present as well:

☒ Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.

☐ Good interspersion of persistent emergent vegetation and water along course of water flow.

☐ Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

What type of erosive forces are present?

☐ Lake fetch and waves

☒ High current velocities:

☐ Water level influenced by upstream impoundment

Erosion Control Through Binding and Stabilization Continued...

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a *moderate level*.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***lower*** level.

☐ The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***higher*** level.

☐ The stream contains high sinuosity.

☐ Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.

16.1. Subject Wetland Contribution to Erosion Control:
Explain how the subject wetland contributes to the function listed above.

The wetland is located at the upgradient end of an intermittent stream and contains an ephemeral channel. Dense persistent vegetation is present along and adjacent to the channels.

16.2. Statement of No Undue Adverse Impact to *Erosion Control:*
Explain how the proposed project will not result in any undue, adverse impact to this function. include any avoidance, minimization, or compensation measures relevant to this function.

Wetland impact will be minimal and will not constrict or hinder the ability of the wetland to protect adjacent stream bank stabilization or riparian zone function. Unavoidable impacts are minimized as described above. As such, no undue adverse impact to wetlands and buffers will result from the Project.

17. Project Description:

17.1. Overall Project Purpose:
Description of the basic project and why it is needed. Partial projects with no clear purpose will not be accepted.
For example: *six-lot residential subdivision; expansion of an existing commercial building, building a single family residence.*

The Project would consist of the installation and operation of a 1.3 MW (AC) solar electric generation facility within an existing field located to the north of Magee Hill Road. The array arrangement is proposed to be installed as 20 rows, three of which would be split rows in order to avoid impacts to a wetland and wetland buffer. The Project would be accessed from Magee Hill Road via a proposed Project access road. The Project area within the proposed perimeter fence and outside of significant wetlands and buffers would be annually mowed or brush-hogged to cut herbaceous and scattered small shrubs during operation as needed to prevent shading. As the Project site is currently largely an open field, no pre-construction site clearing and no site grading is required. Shrub and select tree trimming and cutting are required in the hedgerow that bisects the Project field and along the eastern and northwestern edges of the field to minimize shading and the threat of damage to the array by hazard trees or branches. Otherwise, existing hedgerow and forest vegetation surrounding the Project would remain intact to screen the Project and maintain existing forest cover. The Project would also include installation of an earthen berm around the southwest corner of the array and extensive landscaping with trees and shrubs to augment the naturally occurring woody vegetation cover in the area for aesthetic screening, as described under separate cover in the Project's aesthetic resource report and landscaping plan. Temporary construction staging and laydown space would occur in two upland areas near the south edge of the field. The Project's interconnection would occur from a ground-mounted transformer located near the south-central edge of the array via one new utility riser pole on the north side of Magee Hill Road and an overhead line extension to the existing Vermont Electric Cooperative ("VEC") distribution network on the south side of Magee Hill Road, according to Project Site Plans. The new pole and overhead line would not require any tree clearing or site preparation, only marginal trimming of existing trees in upland locations. The ground-mounted transformer would be owned and operated by VEC and installed during construction of the Project. The purpose of the Project is to increase the renewable energy generation within VEC's service area while protecting the integrity of natural resources on site. VEC has deemed the Hinesburg service area as a high priority for distributed generation, and of the multiple sites considered in the service area to meet VEC's demand, the proposed site and the proposed design are selected because they avoid and minimize wetland impacts.

17.2. Description of Project Component Impacting Wetland or Buffer:
Explain in general terms which portions of the project will impact wetlands or buffer zones.
For example: *Cross the wetland with a driveway to construct a residential subdivision, upgrade existing road through buffer to improve access, extend a trail system.*

The Project would result in unavoidable impacts to wetlands and buffers. Wetland impacts as proposed are very minimal, and would consist of only approximately 4 square feet of fill from the placement of fence posts in wetland 2016-2 for the Project's perimeter fence. Buffer impacts as proposed would result from the clearing of a sugar maple tree growing along the edge and within the 50' buffer area of wetland 2016-2. The tree clearing would result in approximately 707 square feet of buffer impact. The fence would result in up to 6 square feet of buffer impact and 4 square feet of wetland impact.

17.3. Acreage of Parcel(s) or Easements(s):
Acreage of subject property.

The Project will be constructed on a property that has a parcel size of approximately 147 acres, and within an approximately 16 acre area

17.4. Acreage of Project Area:
Acreage of area involved in the project.

The total Project size is approximately 7.9 acres, as measured within the proposed perimeter fence.

18. Project Details:
Provide details regarding specific impacts to the wetland and buffer zone.

For multiple wetlands fill out the multiple wetland table.

18.1. Specific Impacts to Wetland and Buffer Zone Dimensions:
List portions of the project that will specifically impact the wetland or buffer zone and their dimensions.
For example: *driveway crossing with 16' wide fill; installation of buried sewer force main with 5' trench Including fill footprint; addition of Stormwater outfall which directs flow to northern portion of wetland*

The proposed wetland impact would consist of approximately 4 square feet of fill in a wetland from the installation of four fence posts, each with approximately 1 square foot of impact. Posts would be set at an approximately 15 foot spacing for the entire fenceline, and would be placed via vertically driven construction thereby avoiding the need fro soil disturbance in adjacent areas to each pole. As there is an existing access road through the wetland and buffer currently and the fenceline as proposed would follow the alignment of that road, no clearing of woody vegetation would be needed for construction of the fence. The proposed buffer impacts would consist of up to approximately 6 square feet of impact from fence posts, and approximately 707 square feet of clearing impact from the cutting of a single tree. The fence post buffer impact would be installed the same way as described for the wetland buffer. The tree removal is required for shade management in order to meet the Project's efficiency and production goals. The tree would be felled using hand tools only, and all woody debris would be either chipped, offered to the landowner for firewood, or stockpiled on site in an upland location outside of any resources of buffers.

18.2. Bridges and Culverts:
Culvert circumference, length, placement and shapes, or bridge details. List any stream alteration permits that are required or obtained where perennial streams or rivers are involved.

There is one road culvert under Magee Hill Road along the southern edge of the Project, however it is not associated with this permit application and would not be altered during the construction or operation of the Project.

18.3. Construction Sequence:
Describe any details pertaining to the work planned in the wetland and buffer in terms of sequence or phasing that is relevant. Describe the construction limits of disturbance, how those will be marked, and check to ensure these are shown on the site plans as well.

The Project would be constructed in 2017, pending issuance of a CPG and collateral environmental permitting. The proposed wetland and buffer impacts would occur coincident with Project construction, and construction of the fence would occur during dry or frozen ground conditions if practicable. The limits of the wetland and buffer not impacted would be demarcated in the field prior to construction with high visibility flagging or fence. Following construction, the perimeter fence would demarcate the boundary of the Project, and boulders would be placed along the wetland buffer edge to prevent inadvertent disturbance during project operation.

18.4. Stormwater Design**
List any stormwater permits obtained or applied for. Describe stormwater and/or erosion controls proposed. ***** Erosion prevention is <u>required</u> in order to prevent sediment from entering the wetland.***

The Project would not result in an increase of impervious surface of more than one acre and as such does not require an operational phase stormwater permit. Construction is anticipated to result in slightly more than one acre of surface soil disturbance, and so the Project will require a General Permit 3-9020 for construction phase stormwater discharges, and will implement erosion prevention and sediment control ("EPSC") measures in accordance with the DEC Low Risk Site Handbook. As such, soil erosion and any impacts to wetlands and buffers from sediment would be prevented, and all construction stormwater management measures would be permitted.

18.5. Permanent Demarcation of Limit of Impacts**
Describe any boulders, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses. ***Permanent demarcations are <u>required</u> for projects with ongoing activities in or near wetlands or buffer zones such as houses, yards, woody clearing or parking areas, and needs to be depicted on the site plans.***

Prior to construction all wetland and buffer locations as well as the Project's LOD would be demarcated in the field with silt fencing and/or high visibility flagging and/or fencing. Silt fence and/or high visibility demarcation would remain installed through the duration of Project construction.

The proposed wetland impact would be permanently demarcated by the fence posts which would cause the impact. Likewise for buffer impacts from the fence. As described in Section 18.3 above, permanent demarcation of the wetland buffer of wetland 2016-2 within the Project's perimeter fence would be achieved by placing large rocks and boulders (available in existing rock piles in uplands on site) along the buffer edge. This demarcation would prevent accidental or inadvertent entry for vegetation management or otherwise within the protected resource area.

19. Wetland and Buffer Zone Impacts:

For multiple wetlands provide narrative overview for each section below, and fill out the Multiple Wetland Tables

19.1. Wetland Impacts:

Summarize the square footage of impact in the appropriate category. Add After-the-Fact impacts here too. ***Round to the nearest square foot***

Permanent Wetland Fill	4	s.f.
Temporary Wetland Impact		s.f.
Other Permanent Wetland Impact ***(this number includes clearing of woody vegetation, dredging, and does not include fill)***		s.f.
Total Wetland Impact:	4	s.f.

Describe in detail the proposed impact to wetlands
For example: *Fill for road crossing, temporary impacts for trench and fill related to utility installation.*

General narrative required here even for projects with multiple wetlands and impacts

Wetland fill would result form the placement of four fenceposts within a wetland area. Approximately 1 square foot of impact is anticipated for each fence post, which would be vertically driven into the ground from small, low ground pressure equipment during dry or frozen ground conditions if possible. The fence alignment would coincide with an existing access road through the successional forest, and as such no woody vegetation clearing in the wetland is needed in order to install the fence, and no work within the wetland other than access during fence installation would occur.

19.2. Buffer Zone Impacts:

Summarize the square footage of impact in the appropriate category.

Temporary Buffer Impact		s.f.
Permanent Buffer Impact	713	s.f.
Total Buffer Impact:	713	s.f.

Describe in detail the proposed impact to buffer zones
For example: Addition of fill along roadway embankment extending into buffer zone.

General narrative required here even for projects with multiple wetlands and impacts.

Buffer impacts would result from the installation of up to six fence posts, resulting in up to approximately 6 square feet of fill in the buffer, and the cutting of one mature sugar maple tree located along the edge of, but the stem of which is within, the 50 foot buffer. The tree has an approximate canopy radius of 15 feet, and so cutting the tree would result in removal of approximately 707 square feet of cover. To summarize, 707 square feet of buffer impact from woody vegetation cutting and 6 square feet of buffer fill would result in a total permanent buffer impact of 713 square feet.

19.3. Cumulative Impacts:

List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland.
For example: *Increased noise from parking lot, vegetation management, inputs from stormwater pond outlet, reduction in flood storage volume from the addition of fill from the project.*

No proposed additional cumulative and ongoing impacts to wetlands and buffers resulting from the Project other than the direct impacts described in Section 19.1 and19.2 above. Annual mowing or brushogging within the currently cleared agricultural field in the western portion of the buffer would continue in a manner consistent with previous management.

Existing cumulative and ongoing impacts to wetlands and buffers on the Project parcel include a history of vegetation maintenance based on interpretation of historic aerial photography, compaction from equipment along the existing access road, non-native invasive plants ("NNIS"), and management of the plant community for the production of maple sap in a developed sugarbush to the north of the subject wetland and buffer.

20. Mitigation Sequence:

Before you begin, please read all of Section 20 to respond most appropriately to specific questions. Questions specifically related to Section 9.5b of the Vermont Wetland Rules.

20.1. Avoidance of Wetland Impacts:

20.1.1. Can the activity be located on another site owned or controlled by the applicant, or reasonably available to satisfy the basic project purpose? If not, indicate why. Cite any alternative sites and explain why they were not chosen.

VEC has deemed the Hinesburg service area as high demand for distributed generation to meet its Renewable Energy Standard mandate. The Applicant conducted a screening exercise of multiple sites within the VEC service area prior to selecting the Project site. Within the subject property, the Applicant investigated a much larger area than the Project requires in order to determine the proposed site with the least possible impacts to wetland and other resources. Constructing the Project on the subject property and at the selected site was determined to result in the least impacts to wetlands and other natural resources.

20.1.2. Can the proposed activity be practicably located outside the wetland/buffer zone? If not, indicate why. Explain the alternatives you have explored for avoiding the wetland and buffer onsite, And why they are not feasible.

The Project design has been revised numerous times, as described in 20.2.2 and 20.2.3 below, in order to avoid impacts to significant wetlands, however it cannot practicably be located entirely outside the wetland buffer. Impacts to wetland buffers are unavoidable due to the size of the Project and distribution of wetlands on site, as well as numerous competing design constraints such as landform, slope and aspect, minimum set-backs from property boundaries, residences, and town roads, required minimum access road dimensions for emergency vehicle access, and neighboring landowners. Additionally, the landowner requires vehicular access to numerous locations around the Project, which constrains design alternatives. Measures taken to avoid and minimize impacts have been discussed with DEC (Tina Heath) during the planning process including two site visits and an off-site meeting. The Project has explored alternative array layouts, fencing layouts, and boundaries of vegetation management however the other alternatives would have resulted in greater impacts to wetlands and buffers. In particular, the option of installing fence along the edge of the subject buffer in order to avoid wetland impacts was considered, however was ultimately not selected because it would have resulted in the need for long term woody vegetation management in the buffer as well as a decrease in Project capacity that would compromise VEC and the Applicant's Project objective.

20.2. Avoidance to the Impact to Functions and Values:

20.2.1. If the proposed activity cannot be practicably located outside the wetland/buffer zone, have all practicable measures been taken to avoid adverse impacts on protected functions? ■ Yes ☐ No

20.2.2. What design alternatives were examined to avoid impacts to wetland function?
For example: *Use of matting, relocation of footprint, etc.*

The Applicant has undertaken multiple design revisions in order to avoid impacts to wetlands and buffers. Where it was determined the impacts would be unavoidable due to Project site constraints (which are primarily parcel size, orientation of the wetland complex bisecting the northern portion of the site, surrounding vegetation that presents shade management challenges), the Project design was revised multiple times through coordination with the DEC Wetlands Program and undertaking the suggested additional avoidance and minimization measures. From this input, the final proposed design was developed to avoid impacts to the on site wetlands where practicable and feasible to meet the Project purpose. As described above, two site visits as well as an off-site meeting with DEC were conducted as site plans were revised to further avoid significant wetland and buffer resources. In particular, the Project has avoided impacts to on site wetlands:

- Preliminary evaluation of alternative agricultural fields and other sites within the landowner's property in a location that would result in the least amount of impact to wetlands, buffers, and other natural resources;
- Siting the array within upland areas outside of Class II wetlands and all wetland buffers;
- Multiple rounds of Project design revisions to design layout and configuration, including incorporating comments from DEC (Tina Heath) between May and September, 2016;
- Avoidance of Class II wetlands and buffers by siting the construction staging and laydown area and the Project's transformer and all interconnection components in uplands along the south edge of the Project;
- Conducting a detailed tree survey in the vicinity of the Project to specifically identify individual trees that would compromise Project efficiency with shading, and designing the array layout so that no wetland vegetation clearing is avoided completely and only one buffer tree would be cut;
- Avoidance of the more intact and higher functioning (i.e., less disturbed) portions of wetland 2015-2 to the north of the Project;
- Use of an existing access road through the 2016-2 wetland and buffer in the hedgerow for the selected perimeter fence alignment, thereby avoiding vegetation clearing and restricting access by equipment to only the wetland and buffer areas with existing cumulative impacts.

20.2.3. What steps have been taken to minimize the size and scope of the project to avoid impacts to wetland functions and values? Include information on project size reduction and relocation.

- Project size as proposed is necessary in order to meet the minimum solar electricity output needed;
- Limiting wetland buffer clearing impacts to only the upland edge of the buffer along the edge of an agricultural field, and also limiting buffer impacts to portions of the buffer with low function/value due to existing cumulative ongoing impacts from agriculture are otherwise.
- Array row spacing and solar module layout has been consolidated as much as possible to minimize the footprint of the Project and restrict it to existing field areas and successional shrub field edges, and therefore avoid the need for any solar panel racking in wetlands or buffers;
- All Project components except for up to 10 fenceposts and one tree removal, including the array itself, the access road, transformer, aesthetic screening, and interconnection infrastructure have been sited outside of wetlands and buffers;
- Fenceposts within the wetland and buffer are minimized only to what is needed for safety and security during Project operation, to be spaced approximately 15 feet apart;
- All staging areas will be located outside of wetlands or buffers;
- EPSC measures will be implemented according to the Low Risk Site Handbook and GP 3-9020;
- Conducting natural resources screenings and surveys early in the Project process in order to first identify and then avoid impacts to sensitive natural resources within the Project Study Area;
- Avoidance of all clearing of scrub-shrub strata vegetation in significant wetlands and buffers during construction and operation of the Proejct;
- Locating all transformer and interconnection components for the Project outside of wetlands and buffers.

20.2.4. Explain how the proposed project represents the least impact alternative design. Explain why other alternatives, which you described above, were not chosen.

The Project design as proposed represents the design alternative with the least amount of wetland and buffer impact. In response to discussions with DEC Wetland Ecologist Tina Heath during multiple site visits and correspondence during the planning and VWP pre-application process, the Applicant has revised the Project design to avoid and minimize impacts to wetlands and buffers. The other alternative designs were not chosen because they would result in a greater impact to natural resources, including streams and wetlands.

20.3. Minimization and Restoration:

20.3.1. If avoidance of adverse effects on protected functions cannot be practically achieved, has the proposed activity been planned to minimize adverse impacts on the protected function? ☐ Yes ☐ No ▣ N/A

20.3.2. What measures will be used during construction and on an ongoing basis to protect the wetland and buffer zone?
***For example*:** *Stormwater treatment, signs, fencing, etc.*

- The Project will require a construction phase stormwater permit GP 3-9020, and will follow BMPs for EPSC;
- All non-impacted wetlands and buffers will be demarcated in the field prior to construction with a continuous extent of high visibility flagging and/or fence (ie snow fence), to be left in place for the duration of construction in order to avoid inadvertent unauthorized activity within a wetland or buffer;
- The Project consists of a permanent perimeter fence for wildlife exclusion, which will demarcate the area of wetland and buffer fill impact. Placed boulders and large rocks around the non-impacted wetland and buffer within the Project's perimeter fence would prevent inadvertent unauthorized activity associated with operation of the Project.

Minimization and Restoration Continued…

20.3.3. Has a plan been developed for the prompt restoration of any adverse impacts on protected functions? ☐ Yes ☐ No ☐ N/A

Restoration Narrative:
For example: *Planting along the stream.*

Quantification of Restoration:

Wetland Area (sqft)	Buffer Area (sqft)	Functions/Value s Addressed

20.4. Compensation: ☐

Please refer to Section 9.5c of the Vermont Wetland Rules for compensation, which is required when the project will result in net adverse impact to wetland function. Not all functions are presumed to be compensable. ***All projects requiring compensation need prior consultation with the Vermont Wetlands Program.***

If compensation is proposed please include a summary here. Also list any supporting documents you may have attached to the application including In-Lieu-Fee proposal or detailed compensation plan.

21. Wetland Determination:
If the application involves a wetland determination please answer the following. For multiple wetlands provide narrative overview for each section below, and fill out the Multiple Wetland Tables.

☐ Wetland is mapped or contiguous to the Vermont Significant Wetland Inventory Map
▣ Wetland is not mapped on or contiguous to the Vermont Significant Wetland Inventory Map

21.1. Reason for Petition:
Please choose one from the dropdown menu.

Make a determination of class II

21.2. Determination Narrative:
Please provide any narrative to support the petition for a wetland determination here, including previous decisions by the Secretary or Water Board.

The wetland identified by VHB as 2016-2 meets a VWR section 4.6 presumption and has been field-reviewed by DEC Wetland Ecologist Tina Heath. Based on site visit discussions and electronic mail communication following those site visits, VHB's proposed Class II designation for wetland 2016-2 was concurred by DEC.

22. Supporting Materials:

*****ADDITIONAL MATERIAL REQUIRED TO CALL APPLICATION COMPLETE***

22.1. **Location Map:

Provide a location map that is 8 ½" x 11" and separate from any site plans.
The Vermont Natural Resources Atlas is appropriate using USGS topography map base layer, roads, and VSWI wetlands at a minimum.

Date	Title
October 14, 2016	Magee Hill Solar Farm Site Location Map

22.2. **Site Plan(s):

List as specified below. Plans must be legible and include wetland delineation and buffer zones, limits of disturbance, erosion controls, building envelopes, and any permanent memorialization.

Title	Author	Date	Date of Last Revision
Magee Hill Solar Project Site Plan	VHB	9/23/16	
Magee Hill Solar Farm VWP Impact Exhibit	VHB	11/11/16	
Chittenden			

22.3. **U.S. Army Corps of Engineer Wetland Delineation Forms:

List attachment names, dates data was collected, cover types sampled, and number of paired plots included

Attachment #/Title	Range of Collection Dates	Vegetation Cover Types	# of Paired Plots
USACE Data Forms	12/2015-05/2016	PEM, PSS, PFO	3

22.4. Other Supporting Documents:

Provide any other documentation that supports the application.
Examples include but are not limited to: *Photographs, easements, agreements, restoration/plan, GIS shapefiles, additional ACOE forms.*

Date	Last Revision	Author	Title
9/16/16		VHB	Natural Resources Map
10/4/16		VHB	Summary of On-Site Wetlands Table
		Encore	Magee Hill Solar Farm Lease Option Agreement

23. Abutting Landowners ☐

Please provide abutting landowner information so that all persons owning property within, or adjacent to, the affected wetland area of buffer zone can be notified during the public notice period. **Please use additional sheets if necessary**.

23.1. Abutting Land Owner Information: Please list as first names first followed by last name

1. Name:	Llewellyn K. and Heather R. Cobden	**16. Name:**	
Street/Road:	1057 Magee Hill Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
2. Name:	Timothy Hoopes	**17. Name:**	
Street/Road:	329 Swamp Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
3. Name:	John and Phyllis J. Cheeseman	**18. Name:**	
Street/Road:	223 Swamp Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
4. Name:	Lauren and Karen Tronsgard-Scott	**19. Name:**	
Street/Road:	435 Swamp Road, Hinesburg, VT .5461	**Street/Road:**	
City/State/Zip:		**City/State/Zip:**	
5. Name:	Douglas Properties, LLC	**20. Name:**	
Street/Road:	149 Skunk Hollow Road	**Street/Road:**	
City/State/Zip:	Jericho, VT 05465	**City/State/Zip:**	
6. Name:	Leslie Morrisey (Trustee)	**21. Name:**	
Street/Road:	125 Swamp Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
7. Name:	Deborah Gianelli	**22. Name:**	
Street/Road:	56 Rugby Road	**Street/Road:**	
City/State/Zip:	Manhasset, NY 11030	**City/State/Zip:**	
8. Name:	Brian J. and Rachel P. Thibault	**23. Name:**	
Street/Road:	814 Magee Hill Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
9. Name:	Timothy L. and Lin T. Isham	**24. Name:**	
Street/Road:	896 Magee Hill Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT, 05461	**City/State/Zip:**	
10. Name:	Timothy G. and Kristy J. Brown	**25. Name:**	
Street/Road:	PO Box 184 Hinesburg, VT	**Street/Road:**	
City/State/Zip:	05461	**City/State/Zip:**	
11. Name:	Sleepy Hollow Ski & Bike Center LLC	**26. Name:**	
Street/Road:	1805 Sherman Hollow Road	**Street/Road:**	
City/State/Zip:	Huntington, VT 05462	**City/State/Zip:**	
12. Name:	Brett Johnson	**27. Name:**	
Street/Road:	715 Magee Hill Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
13. Name:	Timothy Bortnick	**28. Name:**	
Street/Road:	1227 Magee Hill Road	**Street/Road:**	
City/State/Zip:	Hinesburg, VT 05461	**City/State/Zip:**	
14. Name:		**29. Name:**	
Street/Road:		**Street/Road:**	
City/State/Zip:		**City/State/Zip:**	
15. Name:		**30. Name:**	
Street/Road:		**Street/Road:**	
City/State/Zip:		**City/State/Zip:**	

24. Modified Distribution *(Newspaper Notification)*: In situations where there is an application within a large wetland or buffer zone that has a large number of landowners, applicants can choose to limit the distribution list with a supplemental newspaper notification. At a minimum the applicant must 1) provide notice to immediate abutters, 2) provide notice to all persons owning property containing the wetland or buffer within 500 ft. of the project area, and 3) shall have the VWP publish notice of the application in a local newspaper generally circulating in the area where the wetland is located. *****The applicant will be billed directly by the newspaper listed. Use of newspaper notification may extend the notice period, depending on when the notice posts in the newspaper*****

Name of Newspaper(s)

Summary of Delineated Wetlands
Client: Encore Renewable Energy
Project: Magee Hill Solar Farm - Hinesburg, Vermont
Date: October 4, 2016
Delineation Date: December 10, 2015, May 4, 2016 and September 7, 2016
Delineator(s): VHB (C. Fenner, M. Jackman)
Prepared by: VHB (C. Fenner)

VHB Delineated Wetlands												
					Vermont Wetland Rules Classification							
Wetland ID	Delineated Area (Square Feet)[1]	Cowardin Classification[2]	Hydrology	Hydric Soil Indicator	Contiguous to a VSWI-mapped Wetland?	Riparian Wetland Contiguous to Stream Channel? (Flow Regime)[3]	VWR Section 4.6 Presumptions[4]	VWR Section 5 Functional Criteria Presence/ Significance		VHB Proposed VWR Classification[6]	Typical Vegetation	Comments
								Type[5]	VHB-Proposed Significant?			
2015-1	9,782	PEM	Surface Water (A1), Saturation (A3), Drainage Patterns (B10)	Redox Dark Surface (F6)	No	No (JD ditch within wetland)	-	5.1(P), 5.2(P)	No	III	*Phalaris arundinacea, Juncus effusus, Typha latifolia*	Associated with field-edge ditch 2015-JD-1; ditch flow becomes dispersed within wetland feature; dominated by cattail and reed canary grass
2015-2	3,311	PEM	Saturation (A3), High Water Table (A2)	Redox Dark Surface (F6)	No	No	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis*	Mid-slope, isolated feature where topography is slightly more flat than surrounding; partially within ag field road
2016-2	8,290	PFO	Surface Water (A1), High Water Table (A2), Saturation (A3), Drainage Patterns (B10)	Redox Dark Surface (F6)	No	Yes (E), (I)	a, b	5.1(P), 5.2(P), 5.10 (L)	Yes	II	*Onoclea sensibilis, Acer rubrum, Rhamnus cathartica*	Wetland extends through lower slope of shrub/tree hedgerow between hayfields, extends downslope across stone wall
2016-3	1,605	PSS	Saturation (A3), High Water Table (A2)	Depleted Matrix (F3)	No	No	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis*	Wetland restricted to an isolated area within a shrub/tree hedgerow between hayfields
2016-4	1,825	PFO	Surface Water (A1), High Water Table (A2), Saturation (A3), Drainage Patterns (B10)	Redox Dark Surface (F6)	No	No	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis*	Wetland restricted to an isolated area within an area of successional forest on th edge of a hayfield
2016-5	575	PEM	Saturation (A3), High Water Table (A2)	Redox Dark Surface (F6)	No	No	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis, Scirpus cyperinus*	Wetland restricted to an isolated area within an area of successional forest on th edge of a hayfield
2016-6	514	PFO	Surface Water (A1), Saturation (A3), Drainage Patterns (B10)	Redox Dark Surface (F6)	No	No	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis, Scirpus cyperinus*	Wetland restricted to an isolated area within an area of successional forest on th edge of a hayfield
2016-7	519	PEM	Surface Water (A1), High Water Table (A2), Saturation (A3), Drainage Patterns (B10)	Redox Dark Surface (F6)	No	Yes (Intermittent)	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis, Scirpus cyperinus*	Very small wetland located on the fringe of an intermittent stream, mid-slope
2016-8	751	PEM	Saturation (A3), High Water Table (A2)	Depleted Matrix (F3)	No	Yes (Intermittent)	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis*	Very small wetland located on the fringe of an intermittent stream, mid-slope

Client: Encore Renewable Energy
Project: Magee Hill Solar Project - Hinesburg, Vermont
Date: October 4, 2016
Delineation Date: December 10, 2015, May 4, 2016 and September
Delineator(s): VHB (C. Fenner, M. Jackman)
Prepared by: VHB (C. Fenner)

VHB Delineated Wetlands												
Wetland ID	Delineated Area (Square Feet)[1]	Cowardin Classification[2]	Hydrology	Hydric Soil Indicator	Vermont Wetland Rules Classification						Typical Vegetation	Comments
					Contiguous to a VSWI-mapped Wetland?	Riparian Wetland Contiguous to Stream Channel? (Flow Regime)[3]	VWR Section 4.6 Presumptions[4]	VWR Section 5 Functional Criteria Presence/ Significance		VHB Proposed VWR Classification[6]		
								Type[5]	VHB-Proposed Significant?			
2016-9	731	PEM	Saturation (A3), Drainage Patterns (B10)	Redox Dark Surface (F6)	No	No	-	5.1(L), 5.2(L)	No	III	*Onoclea sensibilis, Impatiens capensis*	Isolated, depressional wetland surrounded by upland areas adjacent to a house lawn

ll wetlands field-delineated per the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and North Central Region. U.S. Army Corps of Engineers. 2011; Italics indicate wetland continues outside of study area.

lassification follows Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitat of the United States. U.S. Fish and Wildlife Service. FWS/OBD-79/31. 103pp.

/etland contiguity to streams as defined in the Vermont ANR 12/9/05 *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers* and confirmed if a delineated perennial or intermittent stream channel inflows, through flows, and outflows from a delineated wetland (ephemeral channels not typically being subject to ANR Riparian Buffer Guidance). The vegetative assemblage or natural community type is used when :termining riparian vegetation function. Flow regime determined based on qualitative observations of instream hydrology indicators and geomorphic characteristic and are subject to professional judgment (P=perennial, I=intermittent, E=ephemeral).

lpha-numeric codes correspond with Section 4.6 Presumptions , of the 2010 Vermont Wetland Rules.

WR Section 5: Functional Criteria for Evaluating a Wetland's Significance: 5.1=Water Storage for Flood Water and Storm Runoff, 5.2=Surface and Groundwater Protection, 5.3=Fish Habitat, 5.4=Wildlife Habitat, 5.5=Exemplary Wetland Natural Community, 5.6=Rare, Threatened or Endangered Species Habitat, 5.7=Education and Research in Natural Sciences, 5.8=Recreational Value and Economic Benefits, 5.9=Open Space and Aesthetics, L0=Erosion Control Through Binding and Stabilizing the Soil. (P)= Present, (H)=High, (L)=Low; Correspond to observed level of functionality

LEASE OPTION AGREEMENT

THIS AGREEMENT, entered into by and between Timothy & Kristi Brown of Hinesburg, Vermont, hereinafter referred to as the "Owner" and Encore Redevelopment, LLC, of Burlington, Vermont, hereafter referred to as "Encore".

W I T N E S S E T H:

WHEREAS, The Owner is the owner of certain real estate located at 952 Magee Hill Road in Hinesburg, Vermont (the "Property"); and

WHEREAS, the parties have agreed that Encore may lease said real estate from the Owner; and

WHEREAS, the parties wish to reduce their agreement to writing.

NOW THEREFORE, in consideration of One Dollar and other good and valuable consideration and the mutual benefits accruing to each, the parties hereby covenant and agree as follows:

1. The Owner hereby grants to Encore the right and option to lease from the Owner any portion of the Property, and access thereto, owned by the Owner, located at the Property as shown in Exhibit 1, to develop the site for electricity generation (the "Option Agreement").

2. The owner hereby warrants and represents that Owner (1) owns the property in fee simple absolute; b) has the sole and unilateral right and authority to enter into this Option Agreement, (c) has and will maintain good and marketable title to the Premises, free and clear of any encumbrances that could reasonably be expected to have a material adverse affect on development of the Premises for a solar energy generating facility, (d) shall not enter into any lease, option to lease, purchase and sale agreement, option to purchase, or any other similar agreement with any other developer of solar energy generating facilities during the Option period, and (e) shall notify Encore promptly in writing after any transfer or other change in ownership of all or any part of the Premises, including the name and address of the new owner.

3. Encore shall give the Owner written notice of Encore's election to lease the subject Property at the time and date specified by Encore in such notice, which time and date shall not be later than sixty (60) days from the date the Owner receives such notice. The formal Site Lease Agreement, which has been fully negotiated and agreed to by Owner and Encore, and included herein as Exhibit 2, shall be executed by both Parties at that time.

4. During the Option Period, Owner shall permit Encore and its authorized agents and representatives to enter upon the Property at reasonable times during normal business hours to inspect the Property and perform surveys. Encore shall notify Owner of its intention, or the intention of its agents or representatives, to enter the Property at least twenty-four (24) hours prior to such intended entry. Encore shall bear the cost of all inspections.

5. In the event Owner fails to perform its obligations under this Agreement for any reason other than Encore's breach, Encore may pursue all remedies available at law and in equity. Owner hereby acknowledges that Encore will incur significant expenses in reliance on this Agreement.

6. The parties shall execute any and all other documents and take all actions necessary to effectuate the intent of this Option Agreement.

7. This Option Agreement shall be and remain in full force until December 31, 2017 or two (2) years from the date of execution of this Option Agreement, whichever is later.

8. This agreement shall be binding upon the parties hereto and the respective heirs, successors and assigns of each.

DATED at Hinesburg, VT this 27th day of NOV., 2015.

Timothy Brown

(Signature)

Kristi Brown

(Signature)

STATE OF VERMONT
COUNTY OF Chittenden, SS.

At Hinesburg, VT in said County this 27th day of November, 2015, Timothy & Kristi Brown personally appeared, and they acknowledged this instrument, by them sealed and subscribed, to be their free act and deed.

Before me, Bianca Rousseau
Notary Public

DATED at Burlington, Vermont this 30th day of Nov., 2015.

Encore Redevelopment, LLC

By: Charles R. (Chad) Farrell, Member

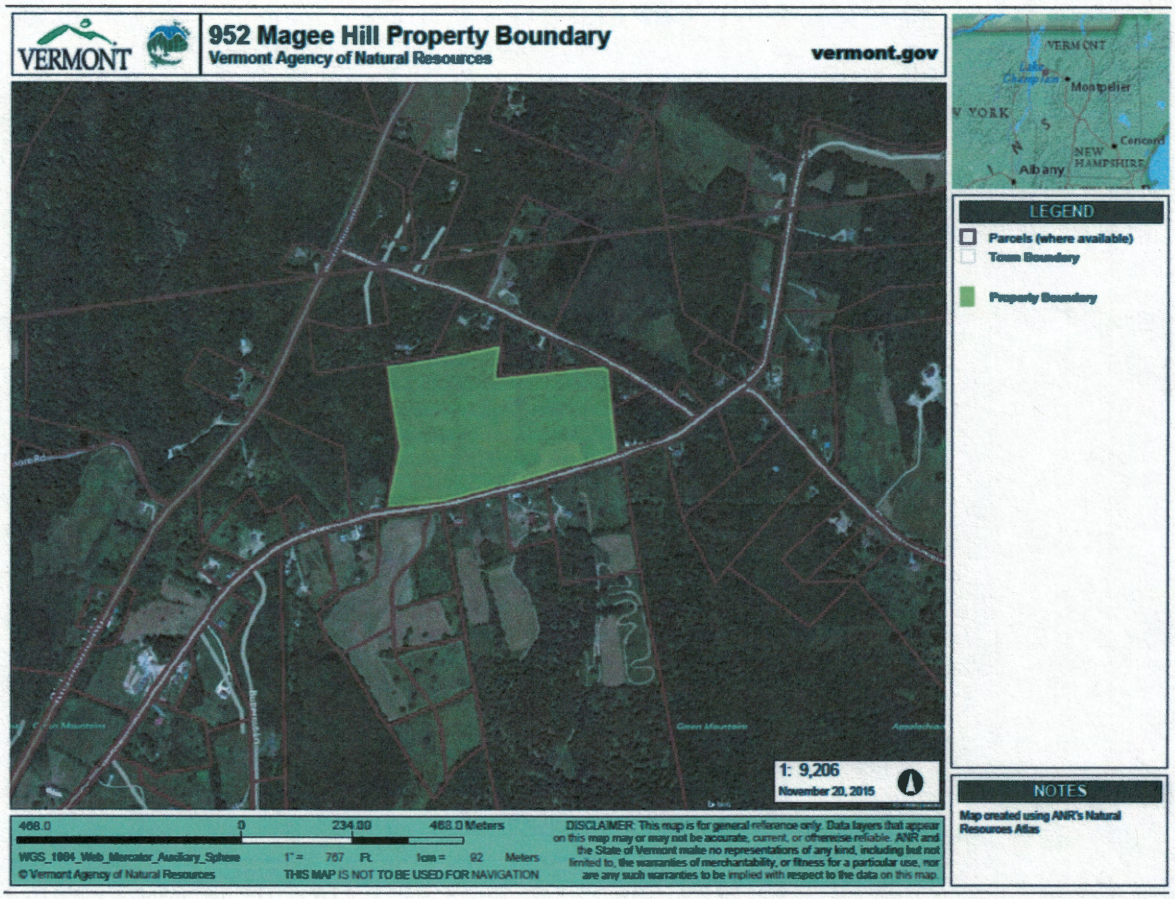
STATE OF VERMONT
COUNTY OF CHITTENDEN, SS.

At Burlington, Vermont in said County this 30th day of November, 2015, personally appeared Charles R. ("Chad") Farrell, Duly Authorized Agent of Encore Redevelopment, LLC, and he acknowledged this instrument, by him sealed and subscribed, to be his free act and deed and the free act and deed of Encore Redevelopment, LLC.

Before me, A Boyer
Notary Public exp. 2/10/19

EXHIBIT 1

MAP OF PROPERTY at 952 Magee Hill Road
Parcel ID: 5-01-08.1 / SPAN – 294-093-11868
Acreage: 30.74
Book #___; Page #____



encore RENEWABLE ENERGY

vhb

September 16, 2016

Wetland and Waters Delineation conducted by VHB (C. Fenner) on Dec. 10, 2015, May 4, 2016, and Sept. 7, 2016 . Verified by DEC (T. Heath) and USACE (M. Adams) on May 24, 2016.

VHB Study Area
Area- 16.0 acres
73°3'37.908"W 44°22'6.857"N

TOWN OF HINESBURG

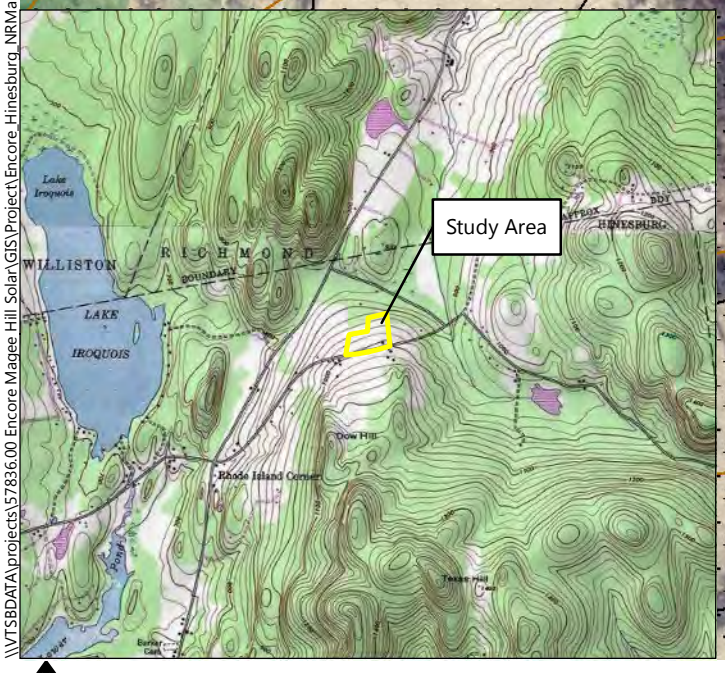
SWAMP RD

MAGEE HILL RD

2016-8 (Class III)
2016-4 (Class III)
2016-SC-1 (Intermittent)
2016-7 (Class III)
2016-5 (Class III)
2015-2 (Class III)
2016-6 (Class III)
2016-SC-1A (Ephemeral)
2016-2 (Class II)
2016-2-1-wet
2016-2-1-up
2015-SC-2 (Ephemeral)
2016-2-2-up
2016-1-1-up
051816-dp-1-up
2015-JD-1 (Jurisdictional Ditch)
2016-1-1-wet
2016-3 (Class III)
051816-dp-2-up
2016-3-1-wet
2016-3-1-up
051816-dp-3-up
2015/2016-1 (Class III)
2016-9 (Class III)

880 860 900 920 940 960 980 1000 1020 1040 1060 1080 1100

MeC PsC CbD PeB Rk PeC W VSWI



Summary of Onsite Soils

Soil Abbreviation	Soil Name	Agricultural Value	NRCS Classification	Erodibility	Area (acres)
CaC	Cabot stony silt loam, 3 to 15 percent slopes	7d	Statewide (b)	Potentially Highly Erodible	0.10
CbD	Cabot extremely stony silt loam, 3 to 25 percent slopes	11	NPSL	Potentially Highly Erodible	2.47
PeB	Peru stony loam, 5 to 12 percent slopes	7d	Statewide	Potentially Highly Erodible	8.84
PsC	Peru extremely stony loam, 0 to 20 percent slopes	11	NPSL	Potentially Highly Erodible	4.76

200 100 0 200 Feet

- Found Culvert (VHB)
- Delineation Data Point (VHB)
- Study Area (VHB)
- 50' Wetland Buffer (VHB)
- Stream (VHB)
- Riparian Buffer (VHB)
- Wetland (VHB)
- Bear Crossing (FWD)*
- Bear Feeding (FWD)*
- Bear Habitat (FWD)*
- NHI Element Occurrence (FWD)*
- Deer Wintering Area (ANR)
- VSWI Wetland (ANR)
- NRCS Soil Boundary (VCGI)
- Public Well (ANR)*
- Private Well (ANR)
- VHD Stream (VCGI)
- River Corridor (ANR)*
- FEMA 100 Year Flood Zone (VCGI)*
- Ground Water Protection Area (ANR)*
- Surface Water Protection Area (ANR)
- County Boundary (VCGI)*
- Town Boundary (VCGI)
- Parcel Boundary (VCGI)
- 20 ft. Contour (VCGI)

* Feature not present in map extent

Magee Hill Solar Farm

Hinesburg, Vermont

Natural Resources Map

Sources: Background ESRI Basemap layer (2014); NHI Element Occurrence, Surface Water Protection Area, Ground Water Protection Area, and Deer Wintering Area by ANR (2013-2015); River Corridor by ANR (2015); Contours from VCGI (2012); Streams and Waterbodies by VHD (2010); Soil Boundary by NRCS (2008); VSWI Wetlands by ANR (2014); Flood Zones by FEMA (2014); Public and Private Wells from VT ANR (2011); Roads from VTrans (2013); Parcel data downloaded from VCGI (2014); Study Area prepared by VHB (2015); Bear data from ANR (2010); Natural Resources, found well, culverts, and delineation datapoints GPS located and digitized by VHB (2015).

\\VTSBDATA\projects\57836.00 Encore Magee Hill Solar\GIS\Project\Encore_Hinesburg_NRMap_11x17.mxd

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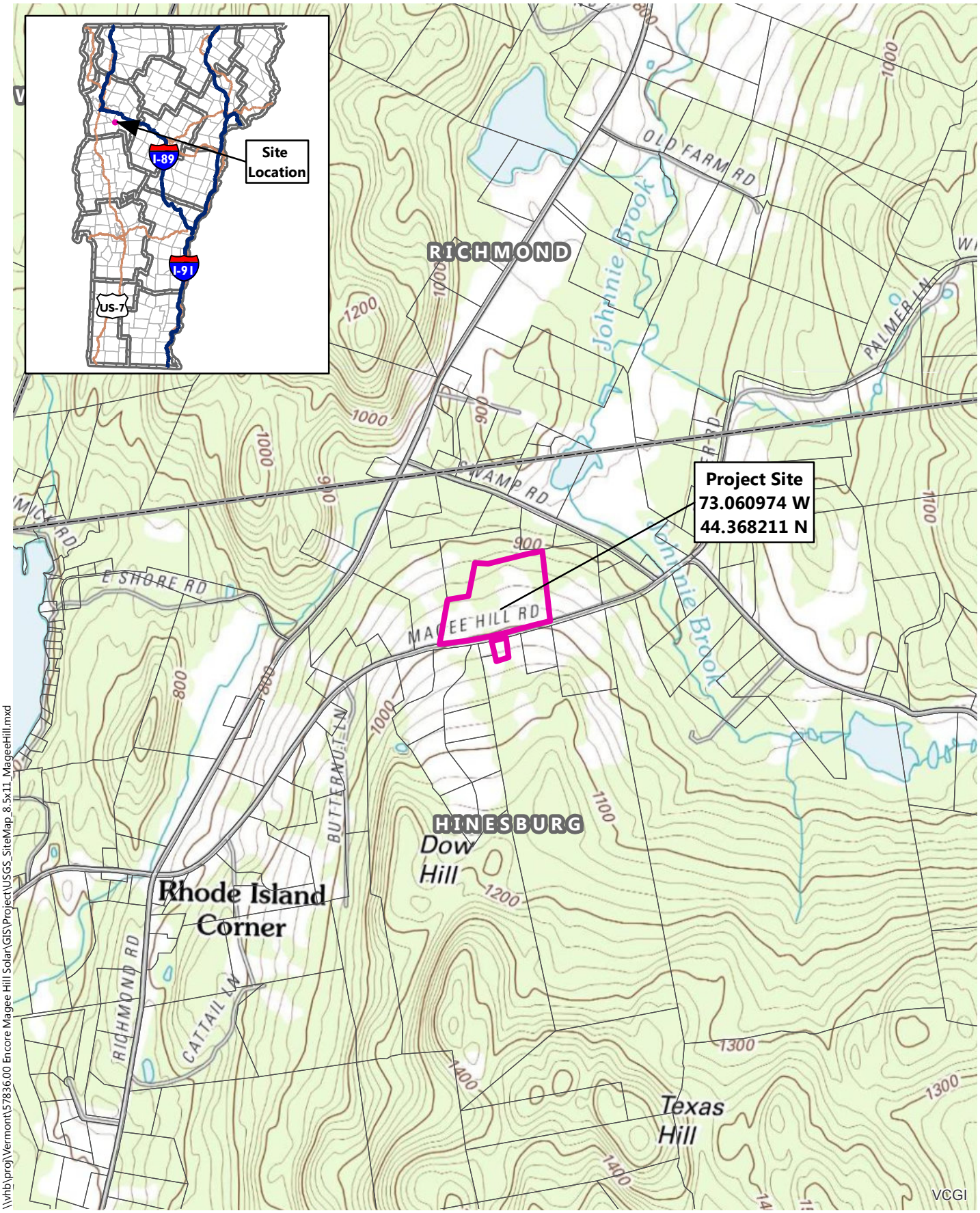
vhb

October 14, 2016



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0 0.125 0.25 0.5 Miles

Project Site (VHB)

Town Boundary (VCGI)

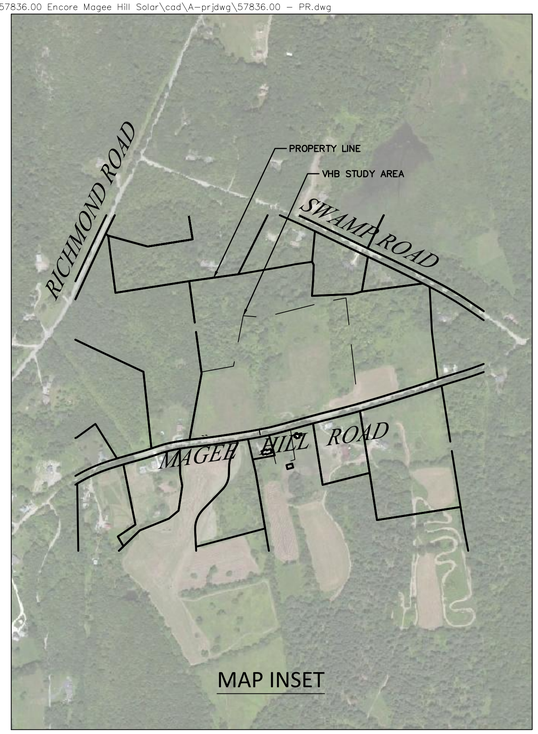
Parcel Boundary (VCGI)

Magee Hill Solar Farm | Hinesburg, Vermont

Sources:
USGS Topo Background served by VCGI - 2012
VCGI (Vermont Center for Geographic Information - Various Dates)
VHB - 2016

Site Location

\\vtsbdata\projects\57836.00 Encore Magee Hill Solar\cad\A-prjdwg\57836.00 - PR.dwg



Legend

EXISTING	PROPOSED	
		WETLAND
		50' WETLAND BUFFER\RIPARIAN BUFFER
		JURISDICTIONAL DITCH
		ACCESS DRIVES
		FENCE
		TEMPORARY STAGING AREA
		APPROXIMATE PROPERTY LINE
		INTERNAL LOT LINE
		R.O.W. EASEMENT
		SEWER EASEMENT
		DRAINAGE PIPE
OHW	OHW	OVERHEAD UTILITY
UE	UGE	UNDERGROUND UTILITY
		VEGETATION LINE
		TREES
		MINOR CONTOUR
100	100	MAJOR CONTOUR

0 25 50 100 Feet

vhb.com

vhb

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

encore
RENEWABLE ENERGY

Encore Renewable Energy Magee Hill Solar Project

Magee Hill Road
Hinesburg, Vermont

No.	Revision	Date	Appvd.

Designed by | Checked by

Issued for | Date

Sep. 23, 2016

Not Approved for Construction

Drawing Title

Existing Conditions 248 Site Plan

Drawing Number

C-1

Sheet 1 of 2

Project Number
57836.00

Saved Monday, September 26, 2016 2:38:16 PM CHAKEY Plotted Monday, September 26, 2016 2:42:52 PM Hakey, Christopher

\\vtsbdata\projects\57836.00 Encore Magee Hill Solar\cad\A-prjdwg\57836.00 - PR.dwg

Summary Table

ARRAY SUMMARY:	
TOTAL PROJECT AREA WITHIN PERIMETER FENCE	7.92 ACRES
LENGTH OF PERIMETER FENCE	2,573-FT
SOLAR TABLE (2X9) COUNT	328-EA
SOLAR MODULE COUNT	5,904-EA
IMPERVIOUS AREA BREAKDOWN:	
GRAVEL ACCESS (L=815-FT)	14,230-SF
CONCRETE PADS FOR EQUIPMENT	
(1) -FT X 612-FT	612-SF
24-EA @ 6-SF	120-SF
AREA BREAKDOWN:	
AREA OF EXISTING IMPERVIOUS	1,890-SF
AREA OF NEW PROPOSED IMPERVIOUS	14,962-SF
AREA OF TREE CLEARING/GRUBBING	55,579-SF
TOTAL AREA OF EARTH DISTURBANCE	
NEW IMPERVIOUS ,STAGING AREA, TRENCHING	2.5-Ac
PROJECT COORDINATES: 44°22'06.03"N 73°03'39.33"W	

Legend

EXISTING	PROPOSED	
		WETLAND
		50' WETLAND BUFFER\RIPARIAN BUFFER
		JURISDICTIONAL DITCH
		ACCESS DRIVES
		FENCE
		TEMPORARY STAGING AREA
		APPROXIMATE PROPERTY LINE
		INTERNAL LOT LINE
		R.O.W. EASEMENT
		SEWER EASEMENT
		DRAINAGE PIPE
OHW	OHW	OVERHEAD UTILITY
UE	UGE	UNDERGROUND UTILITY
		VEGETATION LINE
		TREES
100	100	MINOR CONTOUR
		MAJOR CONTOUR

0 25 50 100 Feet

vhb.com
vhb
40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

encore RENEWABLE ENERGY

Encore Renewable Energy Magee Hill Solar Project

Magee Hill Road
Hinesburg, Vermont

No.	Revision	Date	Appvd.

Designed by | Checked by

Issued for | Date

Sep. 23, 2016

Not Approved for Construction

Drawing Title
Propsoed Conditions
248 Site Plan

Drawing Number
C-2

Sheet 2 of 2

Project Number
57836.00

Saved Monday, September 26, 2016 2:38:16 PM CHAKEY Plotted Monday, September 26, 2016 2:42:56 PM Hokey, Christopher

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-1-1WET

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	12/10/2015
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-1-1WET
Investigator(s):	M. Jackman	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	Concave	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.368448	Long: -73.059562	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	PEM

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? **YES**
Hydric Soil Present?	YES	
Wetland Hydrology Present?	YES	

Remarks:

Representative wetland conditions approximately 10 feet from the upland edge

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Aquatic Fauna (B13)	X	Drainage Patterns (B10)
X	Saturation (A3)		Marl Deposits (B13)		Moss Trim Lines (B16)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial (C9)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1)
	Iron Deposits (B5)		Thin Muck Surface (C7)		Geomorphic Position (D2)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)		Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)				Microtopographic Relief (D4)
					FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?	X	Depth (inches):	10"
Saturation Present?	X	Depth (inches):	6"

Wetland Hydrology Present? **YES**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.11" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					SILT LOAM	
5-11	2.5Y 5/2	85	10YR 5/6	15	C	M	SILT LOAM	Coarse gravel refusal below 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)		2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Histic Epipedon (A2)				Coast Prairie Redox (A16) (LRR K, L, R)
	Black Histic (A3)		Thin Dark Surface (S9) (LRR R, MLRA 149B)		5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Hydrogen Sulfide (A4)		Loamy Mucky Mineral (F1) (LRR K, L)		Dark Surface (S9) (LRR K, L, M)
	Stratified Layers (A5)		Loamy Gleyed Matrix (F2)		Polyvalue Below Surface (S8) (LRR K, L)
	Depleted Below Dark Surface (A11)	X	Depleted Matrix (F3)		Thin Dark Surface (S9) (LRR K, L)
	Thick Dark Surface (A12)		Redox Dark Surface (F6)		Iron-Manganese Masses (F12) (LRR K, L, R)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)		Piedmont Floodplain Soils (F19) (MLRA 149B)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Sandy Redox (S5)				Red Parent Material (F21)
	Stripped Matrix (S6)		[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		Very Shallow Dark Surface (TF12)
	Dark Surface (S7) (LRR R, MLRA 149B)				Other (Explain in Remarks)

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **YES**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-1-1WET**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (Plot size: **15' RAD**)			
1. **Rhamnus cathartica**	**38**	**X**	**FAC**
2. **Cornus racemosa**	**15**	**X**	**FAC**
3.			
4.			
5.			
6.			
7.			
	53	= Total Cover	
Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: **5' RAD**)			
1. **Phalaris arundinacea**	**38**	**X**	**FACW**
2. **Onoclea sensibilis**	**38**	**X**	**FACW**
3. **Symphyotrichum novae-angliae**	**15**		**FACW**
4. **Equisetum arvense**	**3**		**FAC**
5. **Ranunculus acris**	**3**		**FAC**
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97	= Total Cover	
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **4** (A)

Dominants across all strata: **4** (B)

% Dominants OBL, FACW, FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **91**	x 2 =	**182**
FAC **59**	x 3 =	**177**
FACU	x 4 =	
UPL	x 5 =	
Sum: **150** (A)		**359** (B)

Prevalence Index = B/A = **2.39**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-2-1UP

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-2-1UP
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	None	Slope (%):	3 to 25
Subregion (LRR or MLRA):	LRR R	Lat: 44.368678	Long: -73.061407	Datum:	NAD 83
Soil Map Unit:	Cabot extremely stony silt loam			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? No — Normal Circumstances? Yes

Are Vegetation, Soil, or Hydrology naturally problematic? No — (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? NO
Hydric Soil Present?	NO	
Wetland Hydrology Present?	YES	

Remarks:

Upland datapoint colelcted neat the edge of wetland 2016-2

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?		Depth (inches):	
Saturation Present?	X	Depth (inches):	10"

Wetland Hydrology Present? YES

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100					FINE SANDY LOAM	
12-13	2.5Y 5/3	80	2.5Y 5/4	20	C	M	RAVELLY SANDY LOA	Coarse gravel refusal below 13"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)	Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)
	Thick Dark Surface (A12)	Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)	Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)	
	Sandy Redox (S5)	
	Stripped Matrix (S6)	
	Dark Surface (S7) (LRR R, MLRA 149B)	

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

2 cm Muck (A10) (LRR K, L, MLRA 149B)
Coast Prairie Redox (A16) (LRR K, L, R)
5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Dark Surface (S9) (LRR K, L, M)
Polyvalue Below Surface (S8) (LRR K, L)
Thin Dark Surface (S9) (LRR K, L)
Iron-Manganese Masses (F12) (LRR K, L, R)
Piedmont Floodplain Soils (F19) (MLRA 149B)
Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Red Parent Material (F21)
Very Shallow Dark Surface (TF12)
Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? NO

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-2-1UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1. **Acer saccharum**	**15**	**X**	**FACU**
2. **Fraxinus americana**	**3**		**FACU**
3.			
4.			
5.			
6.			
7.			
	18	= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1. **Cornus racemosa**	**38**	**X**	**FAC**
2. **Rhamnus cathartica**	**38**	**X**	**FAC**
3. **Juniperus virginiana**	**15**		**FACU**
4. **Fraxinus pennsylvanica**	**3**		**FACW**
5. **Prunus serotina**	**3**		**FACU**
6.			
7.			
	97	= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Erythronium americanum**	**38**	**X**	**UPL**
2. **Equisetum arvense**	**15**	**X**	**FAC**
3. **Dennstaedtia punctilobula**	**15**	**X**	**UPL**
4. **Onoclea sensibilis**	**15**	**X**	**FACW**
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	83	= Total Cover	

Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **4** (A)

Dominants across all strata: **7** (B)

% Dominants OBL, FACW, FAC: **57%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL		x 1 =	
FACW	**18**	x 2 =	**36**
FAC	**91**	x 3 =	**273**
FACU	**36**	x 4 =	**144**
UPL	**53**	x 5 =	**265**
Sum:	**198** (A)		**718** (B)

Prevalence Index = B/A = **3.63**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- ___ Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-2-1WET

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-2-1WET
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	Concave	Slope (%):	3 to 25
Subregion (LRR or MLRA):	LRR R	Lat: 44.368794	Long: -73.061456	Datum:	NAD 83
Soil Map Unit:	Cabot extremely stony silt loam			NWI Class:	PEM-PFO

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? **YES**
Hydric Soil Present?	YES	
Wetland Hydrology Present?	YES	

Remarks:

Representative wetland conditions along the eastern edge of the featureapproximately 7 feet from the eastern edge

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)
X	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
X	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
X	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?	X	Depth (inches):	6"
Saturation Present?	X	Depth (inches):	SURFACE

Wetland Hydrology Present? **YES**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					SILT LOAM	
7-16	10YR 2/1	94	7.5YR 4/4	6	C	M	SILT LOAM	Coarse gravel refusal below 16"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)		Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)		Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)	X	Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)		
	Sandy Redox (S5)		
	Stripped Matrix (S6)		
	Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **YES**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-2-1WET**

		Absolute % Cover	Dom. Sp?	Indicator Status
Tree Stratum	(Plot size: **30' RAD**)			
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Sapling Stratum	(Plot size: **15' RAD**)			
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Shrub Stratum	(Plot size: **15' RAD**)			
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Herb Stratum	(Plot size: **5' RAD**)			
1.	**Phalaris arundinacea**	**63**	**X**	**FACW**
2.	**Solidago rugosa**	**3**		**FAC**
3.	**Ranunculus acris**	**3**		**FAC**
4.	**Taraxacum officinale**	**3**		**FACU**
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		72	= Total Cover	
Woody Vines	(Plot size:)			
1.				
2.				
3.				
4.				
5.				
			= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **1** (A)

Dominants across all strata: **1** (B)

% Dominants OBL, FACW, FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **63**	x 2 =	**126**
FAC **6**	x 3 =	**18**
FACU **3**	x 4 =	**12**
UPL	x 5 =	
Sum: **72** (A)		**156** (B)

Prevalence Index = B/A = **2.17**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-2-2UP

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-2-2UP
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	Concave	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.368543	Long: -73.061463	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	NO	
Wetland Hydrology Present?	NO	

Remarks:

Upland datapoint immediately beyond the eastern edgeof the wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Water-Stained Leaves (B9)	
High Water Table (A2)	Aquatic Fauna (B13)	
Saturation (A3)	Marl Deposits (B13)	
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	
Iron Deposits (B5)	Thin Muck Surface (C7)	
Inundation Visible on Aerial (B7)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):		
Water Table Present?	X	Depth (inches):	12"	Wetland Hydrology Present? **NO**
Saturation Present?	X	Depth (inches):	12"	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	**10YR 2/1**	**100**					**FINE SANDY LOAM**	**Coarse gravel refusal below 18"**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	
Stratified Layers (A5)	Depleted Matrix (F3)	
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)		
Sandy Redox (S5)		
Stripped Matrix (S6)		
Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S9) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-2-2UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: **5' RAD**)			
1. **Onoclea sensibilis**	**98**	**X**	**FACW**
2. **Impatiens capensis**	**3**		**FACW**
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	101 = Total Cover		
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **1** (A)

Dominants across all strata: **1** (B)

% Dominants OBL, FACW, FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **101**	x 2 =	**202**
FAC	x 3 =	
FACU	x 4 =	
UPL	x 5 =	
Sum: **101** (A)		**202** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-3-1UP

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-3-1UP
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	Concave	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.367859	Long: -73.061274	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NO	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	NO	
Wetland Hydrology Present?	YES	

Remarks:

Upland datapoint colelcted to the south of the wetland where concave topography exists approximately 10 feet south from the wetland edge

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?		Depth (inches):	
Saturation Present?	X	Depth (inches):	10"

Wetland Hydrology Present? **YES**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					SILT LOAM	
10-15	10YR 3/1	100						Coarse gravel refusal below 15"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)	Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)
	Thick Dark Surface (A12)	Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)	Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)	
	Sandy Redox (S5)	
	Stripped Matrix (S6)	
	Dark Surface (S7) (LRR R, MLRA 149B)	

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-3-1UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (Plot size: **15' RAD**)			
1. **Malus pumila**	**15**	**X**	**UPL**
2. **Rhamnus cathartica**	**15**	**X**	**FAC**
3. **Acer saccharum**	**3**		**FACU**
4. **Cornus racemosa**	**3**		**FAC**
5. **Ulmus americana**	**3**		**FACW**
6.			
7.			
	39	= Total Cover	
Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: **5' RAD**)			
1. **Onoclea sensibilis**	**38**	**X**	**FACW**
2. **Festuca rubra**	**38**	**X**	**FACU**
3. **Impatiens capensis**	**15**		**FACW**
4. **Juncus effusus**	**3**		**OBL**
5. **Fragaria vesca**	**3**		**UPL**
6. **Equisetum arvense**	**3**		**FAC**
7. **Phalaris arundinacea**	**3**		**FACW**
8. **Ranunculus acris**	**3**		**FAC**
9.			
10.			
11.			
12.			
	106	= Total Cover	
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **2** (A)

Dominants across all strata: **4** (B)

% Dominants OBL, FACW, FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL	**3**	x 1 =	**3**
FACW	**59**	x 2 =	**118**
FAC	**24**	x 3 =	**72**
FACU	**41**	x 4 =	**164**
UPL	**18**	x 5 =	**90**
Sum:	**145** (A)		**447** (B)

Prevalence Index = B/A = **3.08**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is > 50%

_____ Prevalence Index is <= 3.0

_____ Problematic Hydrophytic Vegetation[1] (explain)

_____ Rapid Test for Hydrophytic Vegetation

_____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **NO**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-3-1WET

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-3-1WET
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	None	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.367983	Long: -73.061269	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	PSS

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? **YES**
Hydric Soil Present?	YES	
Wetland Hydrology Present?	YES	

Remarks:

Wetland datapoint collected near the west-central portion of the feature approximately 8 feet from the upland edge

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)
X	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?	X	Depth (inches):	10"
Saturation Present?	X	Depth (inches):	3"

Wetland Hydrology Present? **YES**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	97	7.5YR 4/4	3	C	m, pl	SILT LOAM	
10-12	2.5Y 6/2	70	2.5Y 5/3	30	C	M	SILT LOAM	Coarse gravel refusal below 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)		Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)		Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)	X	Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)		
	Sandy Redox (S5)		
	Stripped Matrix (S6)		
	Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **YES**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-3-1WET**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (Plot size: **15' RAD**)			
1. **Rhamnus cathartica**	**38**	**X**	**FAC**
2. **Cornus racemosa**	**3**		**FAC**
3.			
4.			
5.			
6.			
7.			
	41	= Total Cover	
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: **5' RAD**)			
1. **Onoclea sensibilis**	**98**	**X**	**FACW**
2. **Impatiens capensis**	**3**		**FACW**
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	101	= Total Cover	
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **2** (A)

Dominants across all strata: **2** (B)

% Dominants OBL, FACW, FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **101**	x 2 =	**202**
FAC **41**	x 3 =	**123**
FACU	x 4 =	
UPL	x 5 =	
Sum: **142** (A)		**325** (B)

Prevalence Index = B/A = **2.29**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-1-1UP

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	12/10/2015
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	2016-1-1UP
Investigator(s):	M. Jackman	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	None	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.368579	Long: -73.059588	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NO	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	YES	
Wetland Hydrology Present?	NO	

Remarks:

Upland datapoint located approximately 10 feet from the northern wetland edge

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Water-Stained Leaves (B9)	
High Water Table (A2)	Aquatic Fauna (B13)	
Saturation (A3)	Marl Deposits (B13)	
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	
Iron Deposits (B5)	Thin Muck Surface (C7)	
Inundation Visible on Aerial (B7)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)
Drainage Patterns (B10)
Moss Trim Lines (B16)
Dry-Season Water Table (C2)
Crayfish Burrows (C8)
Saturation Visible on Aerial (C9)
Stunted or Stressed Plants (D1)
Geomorphic Position (D2)
Shallow Aquitard (D3)
Microtopographic Relief (D4)
FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Depth (inches):

Water Table Present? Depth (inches):

Saturation Present? Depth (inches):

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.11" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 2/2**	**98**	**5YR 3/4**	**2**	**c**	**pl**	**SILT LOAM**	
12-14	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**M**	**SILT LOAM**	**Coarse gravel refusal below 14"**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	
Stratified Layers (A5)	Depleted Matrix (F3)	
Depleted Below Dark Surface (A11)	X Redox Dark Surface (F6)	
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)		
Sandy Redox (S5)		
Stripped Matrix (S6)		
Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

2 cm Muck (A10) (LRR K, L, MLRA 149B)
Coast Prairie Redox (A16) (LRR K, L, R)
5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Dark Surface (S9) (LRR K, L, M)
Polyvalue Below Surface (S8) (LRR K, L)
Thin Dark Surface (S9) (LRR K, L)
Iron-Manganese Masses (F12) (LRR K, L, R)
Piedmont Floodplain Soils (F19) (MLRA 149B)
Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Red Parent Material (F21)
Very Shallow Dark Surface (TF12)
Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **YES**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-1-1UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Shrub Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: 5' RAD)			
1. **Phalaris arundinacea**	**15**	**X**	**FACW**
2. **Trifolium pratense**	**15**	**X**	**FACU**
3. **Galium mollugo**	**15**	**X**	**FACU**
4. **Vicia sativa**	**15**	**X**	**UPL**
5. **Ranunculus acris**	**3**		**FAC**
6. **Juncus effusus**	**1**		**OBL**
7. **Taraxacum officinale**	**1**		**FACU**
8.			
9.			
10.			
11.			
12.			
	65	= Total Cover	
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **1** (A)

Dominants across all strata: **4** (B)

% Dominants OBL, FACW, FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL	**1**	x 1 =	**1**
FACW	**15**	x 2 =	**30**
FAC	**3**	x 3 =	**9**
FACU	**31**	x 4 =	**124**
UPL	**15**	x 5 =	**75**
Sum:	**65** (A)		**239** (B)

Prevalence Index = B/A = **3.68**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is > 50%

_____ Prevalence Index is <= 3.0

_____ Problematic Hydrophytic Vegetation[1] (explain)

_____ Rapid Test for Hydrophytic Vegetation

_____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **NO**

Remarks: (If observed, list morphological adaptations below).

Carex sp. observed at 3%

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

051816-DP-1-UP

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	051816-DP-1-UP
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	None	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.368516	Long: -73.059699	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NO	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	NO	
Wetland Hydrology Present?	NO	

Remarks:

Representative upland conditions to the nothwest of wetland 2016-1 into the agricultural field

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Water-Stained Leaves (B9)	
High Water Table (A2)	Aquatic Fauna (B13)	
Saturation (A3)	Marl Deposits (B13)	
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	
Iron Deposits (B5)	Thin Muck Surface (C7)	
Inundation Visible on Aerial (B7)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)
Drainage Patterns (B10)
Moss Trim Lines (B16)
Dry-Season Water Table (C2)
Crayfish Burrows (C8)
Saturation Visible on Aerial (C9)
Stunted or Stressed Plants (D1)
Geomorphic Position (D2)
Shallow Aquitard (D3)
Microtopographic Relief (D4)
FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Depth (inches):

Water Table Present? Depth (inches):

Saturation Present? Depth (inches):

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	**10YR 3/2**	**100**					**SILT LOAM**	
8-10	**10YR 3/1**	**100**					**SILT LOAM**	**Coarse gravel refusal below 10"**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	
Stratified Layers (A5)	Depleted Matrix (F3)	
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)		
Sandy Redox (S5)		
Stripped Matrix (S6)		
Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

2 cm Muck (A10) (LRR K, L, MLRA 149B)
Coast Prairie Redox (A16) (LRR K, L, R)
5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Dark Surface (S9) (LRR K, L, M)
Polyvalue Below Surface (S8) (LRR K, L)
Thin Dark Surface (S9) (LRR K, L)
Iron-Manganese Masses (F12) (LRR K, L, R)
Piedmont Floodplain Soils (F19) (MLRA 149B)
Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Red Parent Material (F21)
Very Shallow Dark Surface (TF12)
Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **051816-DP-1-UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Shrub Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5' RAD)			
1. **Trifolium pratense**	**38**	**X**	**FACU**
2. **Festuca rubra**	**38**	**X**	**FACU**
3. **Phalaris arundinacea**	**15**		**FACW**
4. **Ranunculus acris**	**15**		**FAC**
5. **Taraxacum officinale**	**15**		**FACU**
6. **Juncus effusus**	**15**		**3**
7.			
8.			
9.			
10.			
11.			
12.			
	136 = Total Cover		
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: _____ (A)

Dominants across all strata: **2** (B)

% Dominants OBL, FACW, FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **15**	x 2 =	**30**
FAC **15**	x 3 =	**45**
FACU **91**	x 4 =	**364**
UPL	x 5 =	
Sum: **121** (A)		**439** (B)

Prevalence Index = B/A = **3.63**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is > 50%

_____ Prevalence Index is <= 3.0

_____ Problematic Hydrophytic Vegetation[1] (explain)

_____ Rapid Test for Hydrophytic Vegetation

_____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **NO**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

051816-DP-2-UP

Project Site: **Encore Redevelopment - Magee Hill Solar Farm** City/County: **Hinesburg/Chittenden** Samp. Date: **5/18/2016**

Applicant/Owner: **Encore Redevelopment** State: **VT** Sampling Point: **051816-DP-2-UP**

Investigator(s): **C. Fenner** Section, Township, Range: **Hinesburg**

Landform (hillslope, terrace, etc.): **Hillslope** Local relief (concave, convex, none): **None** Slope (%): **5 to 12**

Subregion (LRR or MLRA): **LRR R** Lat: **44.368247** Long: **-73.061498** Datum: **NAD 83**

Soil Map Unit: **Peru stony loam** NWI Class: **Upland**

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**YES**	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	**NO**	
Wetland Hydrology Present?	**NO**	

Remarks:

Representative upland conditions to the southeast of wetland 2016-2

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Water-Stained Leaves (B9)	
High Water Table (A2)	Aquatic Fauna (B13)	
Saturation (A3)	Marl Deposits (B13)	
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	
Iron Deposits (B5)	Thin Muck Surface (C7)	
Inundation Visible on Aerial (B7)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Depth (inches):

Water Table Present? Depth (inches):

Saturation Present? Depth (inches):

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	**10YR 2/1**	**100**						**Coarse gravel refusal below 16"**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	
Stratified Layers (A5)	Depleted Matrix (F3)	
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)		
Sandy Redox (S5)		
Stripped Matrix (S6)		
Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S9) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **051816-DP-2-UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling Stratum (Plot size: **15' RAD**)			
1. **Rosa multiflora**	**3**	**X**	**FACU**
2. **Juniperus virginiana**	**3**	**X**	**FACU**
3. **Salix discolor**	**3**	**X**	**FACW**
4.			
5.			
6.			
7.			
	9 = Total Cover		
Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: **5' RAD**)			
1. **Phalaris arundinacea**	**62**	**X**	**FACW**
2. **Equisetum arvense**	**15**		**FAC**
3. **Onoclea sensibilis**	**15**		**FACW**
4. **Festuca rubra**	**15**		**FACU**
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	107 = Total Cover		
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **2** (A)

Dominants across all strata: **4** (B)

% Dominants OBL, FACW, FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **80**	x 2 =	**160**
FAC **15**	x 3 =	**45**
FACU **21**	x 4 =	**84**
UPL	x 5 =	
Sum: **116** (A)		**289** (B)

Prevalence Index = B/A = **2.49**

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

051816-DP-3-UP

Project Site:	Encore Redevelopment - Magee Hill Solar Farm	City/County:	Hinesburg/Chittenden	Samp. Date:	5/18/2016
Applicant/Owner:	Encore Redevelopment	State:	VT	Sampling Point:	051816-DP-3-UP
Investigator(s):	C. Fenner	Section, Township, Range:	Hinesburg		
Landform (hillslope, terrace, etc.):	Hillslope	Local relief (concave, convex, none):	Concave	Slope (%):	5 to 12
Subregion (LRR or MLRA):	LRR R	Lat: 44.367714	Long: -73.061338	Datum:	NAD 83
Soil Map Unit:	Peru stony loam			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	NO	
Wetland Hydrology Present?	NO	

Remarks:

Representative upland conditions downslope from the outlet of a road culvert on the edge of a hayfield and hedgerow

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Water-Stained Leaves (B9)	
High Water Table (A2)	Aquatic Fauna (B13)	
Saturation (A3)	Marl Deposits (B13)	
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	
Iron Deposits (B5)	Thin Muck Surface (C7)	
Inundation Visible on Aerial (B7)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?		Depth (inches):	
Saturation Present?	X	Depth (inches):	12"

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

.51" precipitation in the 7 days prior (NOAA Burlington)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/1	100					SILT LOAM	
13-17	2.5Y 6/2	85	10YR 5/6	15	C	M	FINE SANDY LOAM	Coarse gravel refusal below 17"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	
Stratified Layers (A5)	Depleted Matrix (F3)	
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)		
Sandy Redox (S5)		
Stripped Matrix (S6)		
Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S9) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **051816-DP-3-UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Shrub Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: 5' RAD)			
1. **Onoclea sensibilis**	**62**	**X**	**FACW**
2. **Phalaris arundinacea**	**38**	**X**	**FACW**
3. **Impatiens capensis**	**3**		**FACW**
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	103	= Total Cover	
Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **2** (A)

Dominants across all strata: **2** (B)

% Dominants OBL, FACW, FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **103**	x 2 =	**206**
FAC	x 3 =	
FACU	x 4 =	
UPL	x 5 =	
Sum: **103** (A)		**206** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

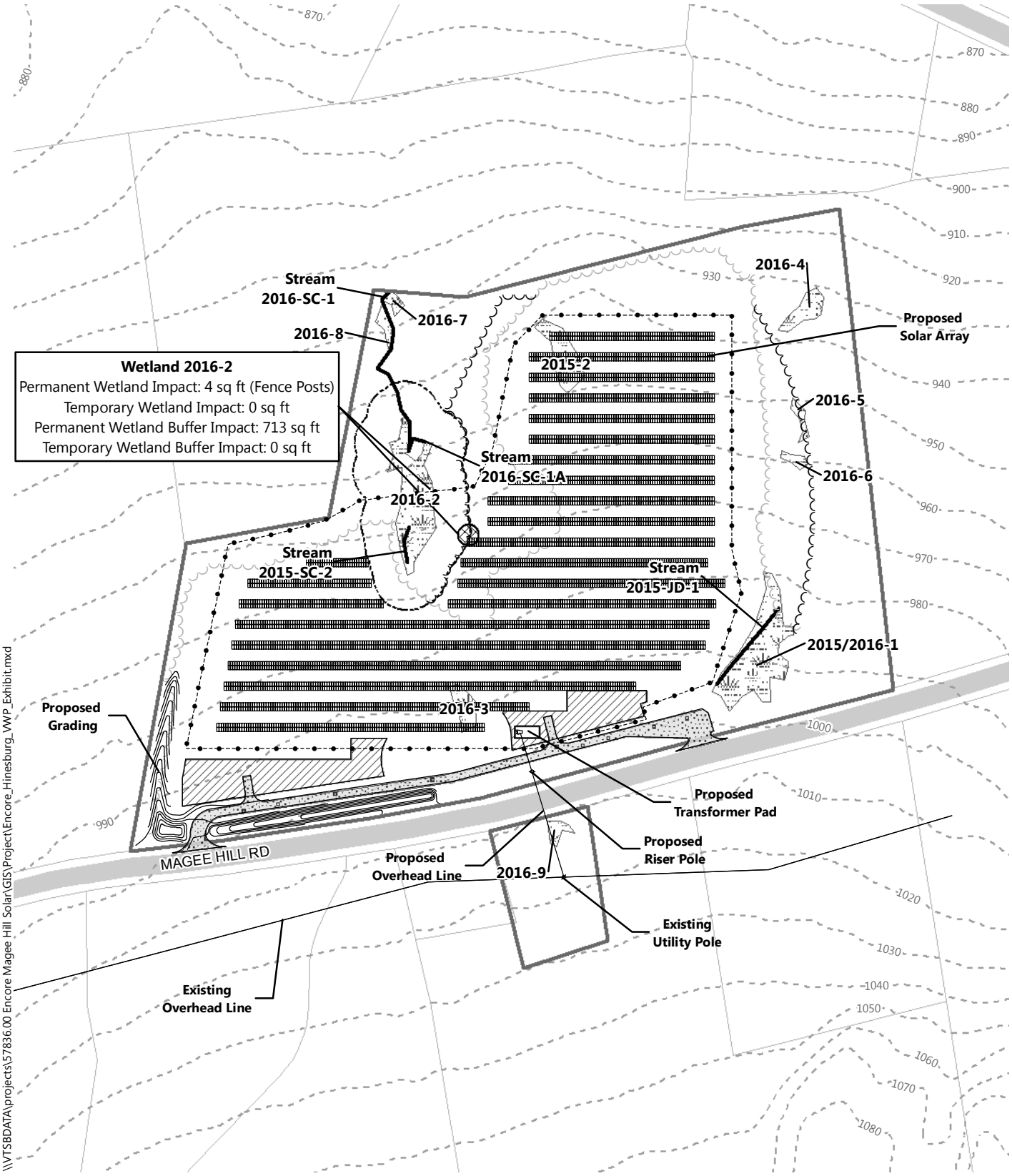
Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

November 11, 2016



\\VTSBDATA\projects\57836.00 Encore Magee Hill Solar\GIS\Project\Encore_Hinesburg_VWP_Exhibit.mxd

0 100 200 400 Feet

Magee Hill Solar Farm | Hinesburg, Vermont

Proposed Treeline (VHB)

Proposed Project Component (VHB)

Perimeter Fence (15 ft post spacing)

Gravel Access Drive

Temp Laydown

Natural Resource Study Area (VHB)

Delineated Wetland (VHB)

Class II Wetland Buffer (VHB)

Permanent Wetland Buffer Impact (VHB)

Delineated Stream (VHB)

VHD Stream (VCGI)

Parcel Boundary (VCGI)

Existing Shrub/Treeline (VHB)

10 ft Contour (VCGI)

Vermont Wetland Permit
Wetland Impact Exhibit

Sources:
VCGI (Vermont Center for Geographic Information - Various Dates)
VHB - 2015-2016