

To: ER Reservoir Road Solar
Project File

Date: December 4, 2024

Project #: 58952.07

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Re: Section 248 Natural Resources Assessment

Introduction

At the request of Encore Renewable Energy ("Encore"), and on behalf of Reservoir Road Solar, LLC ("RRS" or "Petitioner"), VHB conducted natural resource assessments in support of a planned a 2.375-megawatt ("MW") alternating current ("AC") ground-mounted solar project ("Project"). The Project array is sited on approximately 10.5 acres of land within an overall 96-acre Study Area, off Reservoir Road in Berkshire, Vermont (see the Natural Resource Map in Attachment 1). Natural resources assessments were conducted on the overall larger tract, so that potential nearby resources or their buffers could be identified and alternative designs considered to avoid or minimize impacts through Project design where feasible. A 14.8-acre subset of the Study Area will contain all Project components and limits of work (array, transformer, access road) ("Project Area"). This technical memorandum includes an overview of the proposed Project array site and access, site conditions in the Study Area, descriptions of the methodologies used for each assessment, assessment findings, and an evaluation of the Project with respect to the applicable 30 V.S.A. § 248(b)(5) natural resources criteria reviewed by the Vermont Public Utility Commission ("PUC").

The natural resources assessment that VHB conducted in support of the Project included database reviews as well as field assessments, and was designed to include an evaluation of the following criteria, which are given due consideration under PUC review for a Certificate of Public Good ("CPG"):

- Outstanding Resource Waters (10 V.S.A. § 1424a(d));
- Headwaters (§ 6086(a)(1)(A));
- Floodways (§ 6086(a)(1)(D));
- Streams (§ 6086(a)(1)(E));
- Shorelines (§ 6086(a)(1)(F));
- Wetlands (§ 6086(a)(1)(G));
- Rare and Irreplaceable Natural Areas ("RINA") (§ 6086(a)(8)); and
- Necessary Wildlife Habitat and Endangered Species (§ 6086 (a)(8)(A)).

In making assessments of potential Project impacts to natural resources, VHB relied on Project information provided by Encore and Project site plans prepared by VHB. VHB conducted natural resources field assessments on August 6, September 15, and 19, and October 18 in 2022 and on June 9 and October 3 in 2023, February 7, 2024, and June 27, 2024. Results from VHB's assessments are described in the following sections of this memorandum.

Project Description

The Project will consist of the installation and operation of a solar electric generation facility, capable of generating up to 2.375 MW AC. Project components will include:

- Approximately 5,472 photovoltaic panels installed on ground-mounted racking systems, across approximately 10.5 acres of the site. The solar panels will be coated with a non-reflective glazing to reduce glare from the array, on ground-mounted racking systems, approximately ten to fifteen feet off the ground at their highest point;
- A network of string-inverters dispersed across the array connected with underground cables installed in protective conduit;
- Approximately 2,931 feet of agricultural-style perimeter fence, seven to eight feet in height;
- Temporary staging/laydown areas for delivery and short-term storage of materials;
- Widening and improvements to an existing access driveway to provide access to the solar site;
- Replacing two existing culverts (24-inch reinforced concrete pipe and 38-inch corrugated metal pipe) at the crossing of Trout Brook with a 15-foot x 6.5-foot aluminum box culvert and associated road reconstruction within the existing footprint;
- An extension to the northern part of the existing access road up to the Project entrance, including turnaround area;
- One 2,500 KVA pad-mounted transformer, located in the south-central portion of the array, with secondary oil containment providing 110% of the equipment oil volume with freeboard for 5 inches of rain; and
- Up to approximately 5.4 acres of tree or brush clearing will be necessary to facilitate construction and reduce impacts from shading (areas where woody material will be removed with stump removal/ grubbing).

Site Description

The Study Area occurs in the Champlain Hills biophysical region of Vermont which is characterized as a region that is low in elevation and relatively warm and dry compared to other regions in Vermont (Thompson et al. 2019). The Study Area occurs within Tyler Branch-Missisquoi River Watershed (HUC10: 0430010704). On-site elevation within Study Area ranges from approximately 480 to 570 feet above mean sea level. The Natural Resources Conservation Services ("NRCS") has mapped the dominant soils within the Study Area as Binghamville silt loam; Enosburg loamy fine sand; Missisquoi loamy sand; and Windsor loamy fine sand. There are several streams in the Study Area mapped by the Vermont Hydrography Dataset ("VHD"), including Trout Brook and unnamed tributaries. Likewise, several wetlands mapped by the Vermont Significant Wetland Inventory ("VSWI") are located within the Study Area, and VHB's delineation confirmed several wetland complexes are present. The Enosburg Falls Reservoir occurs in the southern portion of the Study Area, east of the proposed array. This impoundment's dam occurs upstream of the site's existing access road crossing of Trout Brook. In addition, there are two public water supply wells in the southern portion of the Study Area.

Adjacent lands surrounding the Study Area generally consist of forested, rural residential, and agricultural land use and cover. The Study Area over all is characterized by a mix of fallow fields, forest, and wetland areas as well as the reservoir, stream channels, and an access road for the dam. Typical vegetation within the Project Area includes white pine (*Pinus strobus*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), sensitive fern (*Onoclea sensibilis*), Queen

Anne's lace (*Daucus carota*), hayscented fern (*Dennstaedtia punctilobula*), blackberry (*Rubus allegheniensis*), false baby's breath (*Gallium mollugo*), bird vetch (*Vicia cracca*), and clover (*Trifolium repens*, *T. pratense*). VHB botanists also found non-native invasive species ("NNIS") present within the Study Area, including Morrow's honeysuckle (*Lonicera morrowii*), Tatarian honeysuckle (*L. tatarica*), wild parsnip (*Pastinaca sativa*), spotted knapweed (*Centaurea maculosa*), and reed canarygrass (*Phalaris arundinacea*). Representative site photographs are included in Attachment 2.

SECTION 248 NATURAL RESOURCES CRITERIA

OUTSTANDING RESOURCE WATERS (10 V.S.A. § 1424a(d))

The Vermont Water Quality Standards ("VWQS", ANR 2022a), under section 29A-105(d), state that the Secretary of the Vermont Agency of Natural Resources ("ANR") may, under 10 V.S.A. Section 1424(a), designate Outstanding Resource Waters ("ORW"). The following waterways have been designated ORWs:

1. Batten Kill River, Towns of East Dorset and Arlington;
2. Pike's Falls/Ball Mountain, Town of Jamaica;
3. Poultney River, Towns of Poultney and Fair Haven; and,
4. Great Falls, Ompompanoosuc River, Town of Thetford.

The Study Area was reviewed against this list to determine if it is located within the vicinity of any listed ORW. The Study Area is within the Trout Brook watershed, which is not designated as an ORW. None of designated ORW are within or near the Study Area, and therefore, the Project would not result in any impact to Outstanding Resource Waters.

HEADWATERS (10 V.S.A. § 6086(a)(1)(A))

The Headwaters criterion under Act 250, given due consideration under Section 248 review, requires that a project — if located in a headwater — meet any applicable health and department of environmental conservation regulations regarding reduction of the quality of the ground or surface waters flowing through or upon lands that are not devoted to intensive development. The sub-categories for headwaters are:

- i. Headwaters or watersheds characterized by steep slopes and shallow soils; or
- ii. Drainage areas of 20 square miles or less; or
- iii. Above 1,500 feet elevation; or
- iv. Watersheds of public water supplies designated by ANR; or
- v. Areas supplying significant amounts of recharge waters to aquifers.

VHB analyzed available information, including soils data, topographic maps, and state-mapped public water supply source protection areas, as well as field reviewed, to determine if the Study Area is located on any lands that would be considered a Headwater location. While some of the Study Area contains steep slopes, which the Project largely designed to avoid, shallow soils are not mapped or otherwise observed in the Study Area. As such, the Project does not meet subcategory (i). Subcategory (ii) is met since the drainage area of the on-site waters that would likely receive Project runoffs (Trout Brook) has an approximately 3-square mile drainage area. The Study Area does not meet the headwaters subcategory (iii) as it is located below 1,500 feet in elevation. The Study Area meets headwaters subcategories (iv and v) as a portion of the Study Area is within a mapped ground water source protection area

("SPA"); Enosburg Falls Water System Zone 1 (SYSTEM ID: VT0005116). In addition, all surface waters within the SPA, described as "Village of Enosburg Falls water source and Trout Brook in Berkshire and all waters within its watershed upstream of the outlet of Enosburg Reservoir" are designated as Class A(2) Public Water Supplies (ANR 2022a). As mentioned above, VHB field located two public water supply wells with GPS equipment capable of sub-meter accuracy, which are depicted on the Natural Resources Map (Attachment 1). These two wells are identified as WL001 and WL002. The wells have an approved Source Protection Plan ("SPP") to minimize the contaminant risks to their drinking water supply sources (Enosburg Falls Village, 2024). Consistent with the plan, the wells will be afforded a 200-foot radius buffer (isolation zone) where minimal Project activities will take place and are limited to upgrades and use of the existing access road. That access road is proposed for a culvert replacement where it crosses Trout Brook within the SPA, reconstruction of the road adjacent to the culvert within its current extent, and temporary widening and clearing as need to allow for construction access. Construction and operational traffic will be contained within this existing and expanded access route. The Project activities will be demarcated with erosion prevention and sediment control measures ("EPSC") to mitigate risks of construction run-off to the isolation zones and adjacent waters, subject construction stormwater permitting.

VHB understands temporary road improvements and temporary use of the existing access road in Zone 1 of the SPA for WL001 is allowable¹. To further protect the SPA, the Petitioner will incorporate Best Management Practices ("BMPs") to avoid the release of hazardous materials to the ground surface within the 200-foot radius isolation zone of the town water supply wells, WL001 and WL002. BMPs are as follows:

- No overnight parking, refueling of equipment and vehicles, and/or storage of chemicals or fuel within the 200-foot radius isolation zone shall be permitted.
- No nitrogen, herbicides, and/or pesticides applications may occur within the 200 feet radius isolation zone.
- A spill prevention and contingency plan that would contain language similar in scope and nature to the following, which is anticipated to be included in the Project's CPG and/or a memorandum of understanding between the Petitioner and the ANR:
 - o *If a spill or release of any hazardous material occurs within the source protection areas (SPAs), the Permit Holder or their representative must immediately report the event to the Vermont Department of Environmental Conservation Spills Program and the SPA's water system owner or operator. The Spills Program can be reached during regular office hours at 802-828-1138 or via the 24-hour hotline at 800-641-5005. Any person reporting a release must speak directly with a Spills Program representative and cannot report by email, text, or other written form of communication. The person reporting a release must provide the applicable water system identification number; VT000000 (water system name), to the Spills Program. The Permit Holder must provide instructions, with contact phone numbers, for reporting a toxic or hazardous substance release to all contractors for the Project and those instructions must be visibly displayed on site.*

It is VHB's finding that the Project is in a Headwater location, as it meets subcategories (ii, iv, and v) listed above.

¹ Per email correspondence with Laura Ranker, Source Water Protection Specialist, DEC, in March 2024. Ms. Ranker stated: "The proposed temporary widening of the roadway in specific areas as shown on the draft plan sheet C2.01 would be acceptable, and as you said, "given that the access road will be temporarily used for construction of the solar facility, will remain unpaved and unsalted, and then only used for periodic access to the solar facility once constructed." The BMPs described herein are straight from Ms. Ranker's recommendations for the proposed action.

However, the Project will not produce wastewater; other limited pollutants (e.g. transformer oil) and stormwater runoff will be appropriately managed during construction and operation as applicable and with specific restrictions within SPAs as described above and anticipated to be specified in a CPG. VHB has prepared a separate analysis of Project waste disposal and stormwater plans that provides further detail regarding pertinent aspects and regulations to prevent water pollution (see the prefiled testimony of Stephanie Wyman), but in brief summary, the Project will adhere to the requirements of Vermont Department of Environmental Conservation ("DEC") construction stormwater discharge requirements and will include measures to protect against impacts in the event of an inadvertent release of transformer oil. As such, the Project will also not adversely impact ground or surface water quality, and the Project will meet applicable health and DEC regulations regarding the quality of groundwater and surface waters.

FLOODWAYS (10 V.S.A. § 6086(a)(1)(D))

The Floodways criterion under Act 250, as incorporated into Section 248 review, takes into consideration a project's effect on both floodways and floodway fringes. The term "floodway" is defined to mean "the channel of a watercourse which is expected to flood on an average of at least once every 100 years and the adjacent land areas which are required to carry and discharge the flood of the watercourse." (10 V.S.A. § 6001(6)). The term "floodway fringe" is defined as "an area which is outside of a floodway and is flooded with an average frequency of once or more in each 100 years." (Id. § 6001(7)). A project's impacts are considered with respect to both flood inundation and fluvial erosion hazards pursuant to *Flood Hazard Area and River Corridor Protection Procedure* (ANR 2017a). The Flood Hazard Area and River Corridor Protection Procedure ("FHARC") addresses both inundation risks as represented by Federal Emergency Management Agency ("FEMA")-mapped flood information, and potential fluvial erosion risks associated with the geomorphic principles necessary to achieve stable fluvial processes. ANR defines "River Corridors" for many streams and rivers in Vermont. The River Corridor consists of the meander belt or fluvial erosion hazard area, which is defined as the lateral width of a stream corridor that may be subject to fluvial erosion from stream channel lateral migration as well as a 50-foot riparian buffer outside of this meander belt (ANR 2017a). The meander belt is typically determined by geomorphic assessments of channel bankfull width, meander centerline, confining lateral topography, channel type, and current channel adjustments, which is then translated into the channel-width-to-belt-width ratio, dependent on- stream sensitivity type and adjacent landform.

VHB reviewed the available FEMA data for the Berkshire, Vermont, to determine if the Study Area is located within any designated floodway or floodway fringe. VHB also reviewed available mapping from the State of Vermont River Corridor mapping.

Based on a review of FEMA data, there is a FEMA-mapped floodway within a portion of the Study Area according to Flood Insurance Rate Map ("FIRM") Community Panel Number # 5000490005B (Effective June 1, 1983). This FIRM was digitized by VHB and shown on the Natural Resources Map (Attachment 1) as the 100 Year Flood Zone. Portions of the Study Area, adjacent to Trout Brook, are mapped within the 100-year floodplain (Zone A). Based on the review of ANR mapping, a River Corridor associated with a reach of Trout Brook intersects the southwest corner of the Study Area but is not within the Project Area. Per the FHARC, a 50-foot river corridor is afforded to delineated perennial streams within the Study Area as depicted on the Attachment 1 Natural Resources Map. Further data characterizing perennial streams is provided in the Summary of Delineated Wetlands and Streams in Attachment 3.

The Project array entirely avoids floodway, floodway fringe, and river corridor areas, but the Project's access road crosses the FEMA mapped 100-year floodplain and ANR mapped River Corridor. In order to utilize an existing on-site access road which would also minimize natural resource impacts from the Project, the access road will be upgraded.

The following access road and stream crossing activities would be needed and would necessarily occur within FHARC-regulated resource areas:

- Temporary access road widening to the existing access road to facilitate safe access of construction vehicles;
- Upgraded existing culverted Trout Brook crossings and road reconstruction;
- Tree clearing for the access road construction and operation;
- Temporary EPSC measures during construction.

Project activities proposed in FEMA-mapped floodway and River Corridor will require a FHARC permit from the DEC River Management Program. The Project will submit an application in order to acquire a permit ahead of Project construction and therefore the Project will not restrict or divert the flow of flood waters (floodway or floodway fringe), or endanger the health, safety, and welfare of the public, or of riparian landowners during flooding or from potential erosion.

STREAMS (10 V.S.A. § 6086(a)(1)(E))

The Streams criterion under Act 250, given due consideration under Section 248 review, requires that projects will, when feasible, maintain natural stream channel condition, and will not endanger the health, safety, or welfare of the public or adjoining landowners.

When applicable, VHB's stream delineation flagging is conducted pursuant to ANR's Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers ("Riparian Buffer Guidance" 2005). Stream and Ordinary High Water ("OHW") width determinations follow guidance provided in the U.S. Army Corps of Engineers ("USACE") Regulatory Guidance Letter: Subject- Ordinary High-Water Identification (2005). Stream TOB and TOS are flagged in the field according to the ANR Riparian Buffer Guidance (ANR 2005). Stream TOB and TOS are flagged on larger channels, generally wider than six feet, using blue survey tape and labeling that includes the stream ID and flag number. Stream centerline is flagged for smaller channels, generally less than six feet wide, with blue survey tape, and labeling that includes the stream ID and flag number. When applicable, stream TOS, TOB, or OHW limits in the investigated area are marked with blue flagging tape and labeled by stream ID and flag number. Flow regimes are preliminarily classified in the field as ephemeral, intermittent, or perennial, and are determined based on qualitative observations of in-stream hydrology indicators at the time of observation, as culvert well as geomorphic characteristics (i.e., stream bed and bank development), and are subject to professional judgment. When present, stream flagging is mapped in the field using sub-meter capable mobile data collection equipment. Riparian buffers adjacent to streams and rivers, consistent with the ANR Riparian Buffer Guidance, are designated for natural perennial and intermittent stream channels when applicable.

VHB Environmental Scientists delineated perennial and intermittent stream channels in the Study Area, including a segment of Trout Brook and several unnamed tributaries, entering the Study Area from the north, east, and west. For a depiction of the delineated stream segments and their buffers, refer to the Natural Resources Map (Attachment 1). Further data characterizing the streams are provided in the Summary of Delineated Wetlands and Streams in Attachment 3. Project impacts under this criterion have been minimized by utilizing an existing access road over Trout Brook (depicted as Stream 2022-TOB-TB on Attachment 1) and designing an upgraded crossing of Trout Brook to accommodate safety and construction equipment access. The existing culvert crossings at Trout Brook are in poor condition and require replacement for Project use both during construction and operation. The existing crossing includes replacing a 24-inch corrugated metal pipe ("CMP") and a 38-inch concrete culvert with a 15-foot x 6.5-foot aluminum box culvert. In addition to culvert replacement within the stream banks, access road expansion is

necessary to widen the road for construction vehicles. Temporary access road expansion through 50-foot riparian buffer will include tree clearing and temporary fill. Other anticipated impacts through the riparian buffer are permanent in nature and include replacing the existing culverts and raising the roadway profile, as necessary, to accommodate the new design. A Stream Alteration Permit from the DEC River Management Program and a Section 404 Permit from the USACE will be required prior to the Trout Brook culvert replacement. No other Project components are proposed to be located within stream channels or riparian buffers, and all necessary permits will be obtained prior to Project construction to maintain the natural channel condition as feasible and not endanger the public or adjoining landowners.

SHORELINES (§ 6086(a)(1)(F))

Shorelines are defined under Act 250, given due consideration under Section 248, as “the land adjacent to the waters of lakes, ponds, reservoirs, and rivers. Shorelines shall include the land between the mean high-water mark and the mean low water mark of such surface waters” (10 V.S.A. § 6001(17); Argentine 2008).

As described above, the Study Area contains the Enosburg Falls Reservoir, which is a surface water that would have a Shoreline as considered under this criterion. At its closest approach, the Project array perimeter fence is located greater than 50 feet from the Enosburg Falls Reservoir, which is impounded by a dam located at the south end of the Reservoir. The shoreline of the reservoir is largely undeveloped and consists of forested upland and wetland areas. The Project is not located in areas subject to the Shoreland Protection Act, which regulates shoreland development within 250 feet of a lake’s mean water level for all lakes greater than 10 acres in size, including reservoirs, which may have natural or artificial water level control. The Enosburg Falls Reservoir, delineated entirely within the limits of the Study Area, is less than 10 acres in size. Furthermore, it is VHB’s judgement that Project activities adjacent to the Reservoir will not impinge on current shoreline conditions, recreational use, existing riparian vegetation, or result in decreased bank stability from the current condition, and will therefore, not have any undue adverse impacts on areas defined as shorelines.

WETLANDS (§ 6086(a)(1)(G))

The Wetlands criterion under Act 250, given due consideration under Section 248, requires that the proposed project comply with the Vermont Wetland Rules (“VWR”) (ANR 2023). The VWR applies to significant wetlands (Class I and Class II wetlands) and their buffers. Impacts to Class III wetlands are not considered under Act 250 Criterion 1(G) but are generally reviewed under Section 248(b)(5) through the PUC’s consideration of the potential for undue adverse impacts on the natural environment. Further, all jurisdictional wetlands are regulated by the USACE under Section 404 of the Clean Water Act (“CWA”) permit program, as well as the related DEC CWA Section 401 Water Quality Certification (“WQC”) review process.

VHB’s wetland delineations are made pursuant to applicable methodologies outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Routine Determination Method (USACE 2012). When applicable, wetlands are identified in the field with pink flagging. Field notes are taken to record information such as potential wetland classifications, general characteristics, wetland functions and values, and any unique qualities observed during the site assessment, along with other considerations relevant to support site findings. Wetlands are classified in accordance with the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Presence and significance of wetland functions and values are evaluated based on field notes and observations according to the VWR. When present, wetland features are mapped in the field using GPS equipment capable of sub-meter accuracy.

VHB delineated portions of ten wetlands within the Study Area, seven of which are presumed Class II wetlands as they provide the following VWR functions at present or high levels: Water Storage for Flood Water and Storm Runoff (5.1), Surface and Ground Water Protection (5.2), Fish Habitat (5.3), Wildlife Habitat (5.4), and/or Erosion Control through Binding and Stabilizing the Soil (5.10) (see Natural Resources Map for delineated wetland boundaries, Attachment 1). Three delineated wetlands are presumed Class III as they do not meet any of the VWR functions and/or values at a significant level. The delineated wetland boundaries and classifications assessed during 2022 were confirmed by DEC District Wetland Ecologist, Julie Follensbee, on November 2, 2022. Additional delineations were performed by VHB in 2023 and 2024, occurring from Study Area expansion to the west: 2023-300 (II), 2023-301 (II), 2024-1(II), and 2024-2(III). These wetland boundaries were reviewed by DEC District Wetland Ecologist, Krystal Sewell, on July 3, 2024. Further data characterizing on-site wetlands is presented in the Summary of Delineated Wetlands (Attachment 3), and the USACE Wetland Determination data sheets (Attachment 4).

The Project has been designed to first avoid and then minimize activity within wetlands and associated Class II wetland buffers to the extent practicable. The array and its perimeter fence entirely avoids wetlands and buffers. Access to the Project will occur via upgrades (including widening and the Trout Brook crossing replacement as described above) to the existing gravel road which is flanked by Categorical Class II wetland areas on the east and west within Wetlands 2022-1(II) and 2022-3(II) and Wetlands 2024-1(II) and 2023-300(II) or the respective Class II wetland 50-foot buffer zone area. Anticipated Class II wetland impacts will consist of tree clearing/grubbing and grading associated with temporarily widening the existing 12-foot-wide gravel access road, as necessary, to accommodate construction and delivery vehicles. This roadway expansion will be temporary in nature through the Class II wetlands and buffers. When construction is complete, the gravel in areas that were temporarily widened will be removed and revegetated. Other anticipated impacts to Class II wetlands and buffers are permanent in nature and include replacing the existing culverts and raising the roadway profile, as necessary, to accommodate the new design. VHB observed two potential vernal pools ("PVP") within the limits of two larger subject wetlands (2022-3 and 2022-5), which are discussed in more detail in the Necessary Wildlife Habitat section below. The resulting upgrades would result in substantial work in Class II wetland, wetland buffer, and/or PVP buffer; therefore, work would not be considered an Allowed Use under Section 6 of the VWR and the Project will require a Vermont Wetland Permit. The Project will also require a federal Clean Water Act Section 404 Vermont General Permit ("GP"), presumably to be covered under GP #18 for linear transportation projects and stream/wetland crossings as there will be activities within delineated wetlands to upgrade the existing road. All necessary wetland permits will be obtained before construction. Wetland and wetland buffer demarcation is anticipated to be required as part of EPSC measures in a forthcoming construction stormwater permit. As such, the Project will comply with the VWR and will not result in undue adverse impacts to wetlands, significant or otherwise.

RARE AND IRREPLACEABLE NATURAL AREAS (RINA) (10 V.S.A. § 6086(a)(8)), AND NECESSARY WILDLIFE HABITAT AND ENDANGERED SPECIES (10 V.S.A. §6086(a)(8)(A))

Under Act 250, given due consideration under Section 248 review, a project must be shown to have no undue adverse effect on Rare and Irreplaceable Natural Areas ("RINA"). Additionally, a project must not destroy or significantly imperil Necessary Wildlife Habitat ("NWH") or any Endangered Species.

RINA

Per the Vermont Fish and Wildlife Department ("FWD"), significant natural communities can be deemed RINA as part of the four-part test required by Act 250 Criterion 8. Determinations of "Significance" are made by applying a

combination of community ranking, current condition (age, degree of disturbance), and landscape context (size, degree of fragmentation) to determine an “Element (or Community) Occurrence Ranking”. Rare (S1 and S2) natural communities can be considered significant when quality-ranked A, B, or C. Uncommon (S3) and common (S4) types require a quality rank of A or B to be considered significant. Very common (S5) types require an A-rank to be considered significant (ANR 2016b). Additional considerations for RINA include the presence of rare, threatened, or endangered (“RTE”) species in these communities, or the presence of an association of natural communities that characterize a part of the landscape and for which ecologically intact examples are rare or declining in the state (ANR 2004).

To identify potential occurrences of known significant natural communities, VHB queried the Vermont Natural Heritage Inventory (“NHI”) database (accessed initially in August 2022, prior to the start of field work and last reviewed in April 2024) for the presence of known Element Occurrences (“EOs”) of significant natural community types within, adjacent to, and within three miles of the Study Area. None are mapped on site, and occurrences for four natural community types are known from within three miles of the Study Area:

- Poor Fen: S2
- Black Spruce Woodland Bog: S2
- Red Maple-Spagnum Basin Swamp: S3
- Spruce-Fir-Tamarack Swamp: S3

During the field assessments, VHB Environmental Scientists compared the on-site vegetative assemblages within the Study Area against characteristics of Natural Community types described in *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* (2019). The portion of the Study Area where the array is proposed has been largely managed for agricultural use, and VHB’s field assessment confirmed that the forested area of approximately 5.2 acres that would be cleared for the Project are not state-significant natural communities. Forested portions of the Project Area contain vegetation consistent with the Hemlock Northern Hardwood community type but would not be considered significant due to the patch size and landscape connectivity (as assessed through both field observations and remote sensing and available databases). As mentioned above, VHB identified two potential vernal pools within the Study Area, discussed further in the Necessary Wildlife Habitat section (neither will be directly impacted). Representative photographs of the potential vernal pool and representative views of the forested areas are included in Attachment 2.

Endangered Species

Endangered Species include those that are defined as “threatened” or “endangered” on the Vermont state endangered and the state threatened species lists, and that are protected under the Vermont Endangered Species Law (10 V.S.A. Chapter 123). Species protected under the federal Endangered Species Act are included as well.

To identify the potential occurrence of rare or sensitive species, particularly those that are federal or Vermont listed threatened or endangered, and to assess available on-site habitat condition relative to each, VHB queried the NHI database for the presence of known EOs of rare, threatened, endangered (“RTE”) species within and adjacent to the Study Area and in the surrounding landscape. VHB used a three-mile database query radius for RTE species in order to identify EO records in surrounding habitats which may have similar conditions to those found in the Study Area. Details for all EOs identified in the database review, including species name, rarity rank and protection status, known habitat and potential on-site habitat are included in Attachment 5.

Based on the results of this query, VHB found no records of Vermont threatened or endangered species within the Study Area. In order to avoid adverse or undue impact to RTE or uncommon plant species, VHB Botanists conducted a general plant inventory on September 15, 2022. This plant inventory followed ANR's *Guidance for Conducting Rare, Threatened, and Endangered Plant Inventories in Connection with Section 248 Projects* (ANR 2016a). All plant species identified in the inventory were checked against the current *Rare and Uncommon Native Vascular Plants of Vermont* list (ANR 2024), as well as the *Endangered and Threatened Plants of Vermont* (ANR 2022b), to determine their rarity rank and protections under endangered species law. No RTE plants were identified on-site. A complete list of identified on-site vascular plants is included in Attachment 6.

Additionally, VHB last queried the U.S. Fish and Wildlife Service ("USFWS") information for planning and consultation ("IPaC") system project review database on October 16, 2024 to identify any federally listed Threatened or Endangered species or critical habitat within the Project region. Based on this review, there are no threatened or endangered species on this list in the Project area. There is one candidate species, Monarch butterfly (*Danaus Plexippus*) but there is no critical habitat within the Project area under the USFWS office jurisdiction. See the USFWS Official Species List (IPaC) provided as Attachment 7.

The Study Area is within the known summer range of the federally and state endangered northern long-eared bat (*Myotis septentrionalis*) ("MYSE"). The NHI database has no mapped occurrence of MYSE within at least a three-mile radius of the Study Area boundary. As there are no known occurrences of MYSE summer habitat or winter hibernacula, the Project is assumed to occur within "Potential Summer Habitat," according to FWD guidance (2017b). Per the FWD guidance, if tree clearing in assumed Potential Summer Habitat is kept under one percent of the available MYSE habitat within one mile of the Project center, no additional conservation measures are necessary. The Project is proposing approximately 5.4 acres of tree clearing (tree removal with stumping/ grubbing). Based on an analysis of forested landcover, using ANR's Natural Resources Atlas "Summarize Landcover" tool², the total forested area within one mile of the Project is approximately 940 acres. Therefore, the total area of tree cutting for the Project represents approximately 0.57 percent of the total forested area within one-mile of the Project and will not require further surveys or conservation measures. Furthermore, VHB understands that USACE, during the course of review for the Project's Section 404 GP authorization request, will undergo consultation with USFWS to further evaluate tree clearing in regard to MYSE and determine if additional permit conditions or conservation measures apply to tree clearing with a nexus to federal review.

Necessary Wildlife Habitat

The types of habitats that typically constitute Necessary Wildlife Habitat ("NWH") include white-tailed deer (*Odocoileus virginianus*) wintering habitat, American black bear (*Ursus americanus*) mast stands [concentrated stands of American beech (*Fagus grandifolia*) and oak (*Quercus* spp.)], black bear forested wetland habitat, black bear travel corridors, and in some cases, moose (*Alces alces*) overwintering area. Grassland bird habitat and vernal pools have also been considered NWH during reviews of solar projects. In addition, ANR noted in its comments responding to the Project's advance notice the potential for blue heron (*Ardea herodias*) rookeries in the northeast of the Study Area, which VHB evaluated as part of this assessment.

VHB reviewed deer wintering habitat ("DWA"), black bear travel corridors, and black bear feeding habitat mapping

² ANR's Natural Resources Atlas, accessed at: <https://anrmaps.vermont.gov/websites/anra5/>; analysis most recently conducted on 10/2022.

available from ANR to determine if the Study Area is situated within or adjacent to mapped NWH. Additionally, VHB Environmental Scientists assessed the Study Area for the presence and (if present), the quality and condition of NWH. There is no mapped black bear feeding habitat or travel corridors within the Project site, and VHB did not observe any signs of either. The closest ANR mapped DWA is approximately 3.5 miles east of the Study Area.

During VHB's field assessments on various dates in 2023, while reviewing the far western forested boundary of the site, VHB noted portions of the forested stand exhibiting a dominant softwood overstory (*Pinus strobus*) (*Abies balsamea*) (*Tsuga canadensis*) with a relatively high canopy closure (~75 percent) however these areas were sparse and broken by strip cuts. Much of the stand had codominant hardwood species and cut areas regenerating with hardwood. The areas showed signs summer deer use and some historical wintering sign including tracks, trails, scat, and some browse and historic bark stripping. Due to the fragmented nature of the stand, lack of contiguous aerial cover, lack of signs of historic and continued deer wintering including broom-like browsed saplings, multi-aged bark stripping, well-worn paths, and deer hair and bones, it is VHB's opinion that while the site does provide some measure of winter cover for deer, it does not rise to the level of being considered NWH. DWA was not assessed in the forested, eastern section of the site as no Project activities will take place within 300 feet of forested cover that may be appropriate DWA.

VHB reviewed the *Guidance for the Review and Mitigation of Impacts to Grassland Bird Habitat* (FWD 2021b) and FWD guidance that open fields over 20 acres with a topographic openness equal to, or above 80 degrees (Keyel *et al.* 2013; N. Dodge, FWD, personal communication, June 14, 2022) could be NWH for grassland bird species. The field within the overall parcel, as well as the open adjoining field not within the Study Area limits, is approximately 14 acres in size and therefore would not be considered necessary grassland bird habitat. In response to ANR comments following the 45-day filing notice, VHB surveyed the extent of the Study Area for great blue heron rookeries. The survey was concentrated in the wetland complex, and fringing forested area of Enosburg Falls Reservoir, where the highest potential for suitable habitat in the Study Area occurred. No great blue herons or nests characteristic of the species were observed.

As mentioned above, VHB identified two potential vernal pools in the eastern and southern section of the Study Area, as indicated on the Natural Resources Map in Attachment 1. Because VHB's assessment of PVPs occurred outside of the seasonal timeframe during which vernal pool species are active, the two PVPs are conservatively assumed to be providing vernal pool habitat and so were afforded a 100-foot wide buffer during Project planning and design. The 100-foot buffer is depicted on the Natural Resources Map (Attachment 1) as well as on Project site plans. No activities will occur within either potential vernal pool. No Project activities would occur within the 100-foot buffer of the PVP within Wetland 2022-5. Based on the location of the existing access road and the Project's need to widen and upgrade the road for construction and operation and provide array interconnection, there are certain Project activities within the 100-foot buffer of the PVP within Wetland 2022-3 that are unavoidable. Such activities include road surface and shoulder widening and associated tree clearing as well as tree cutting for the overhead interconnection line. Conservatively assuming they do provide vernal pool habitat, the proposed road upgrades will not create a new barrier to amphibian movement, and although tree clearing will occur, the immediate areas surrounding the pool will remain forested and allow seasonal migrations to and from the pool. Subject to obtaining the required USACE and VWP coverages (which review or includes vernal pool impact conditions) the Project will not destroy or significantly imperil necessary vernal pool wildlife habitat. No other NWH were observed or mapped within or in the vicinity of the Study Area.

Conclusion

Based on VHB's assessment of the Project, with respect to the natural resources criteria listed above and assessed, VHB concludes that the Project will not result in undue adverse effects to the natural environment provided that the required permits are obtained, and the Project is constructed as proposed. With respect to the wetlands criterion, the site is subject to wetland boundary classification and review in spring 2024, by the DEC Wetland's Program. The Project will obtain a VWP and USACE 404 permit to authorize impacts to state and federal jurisdictional wetlands, associated buffers, and waters. PVP habitat will be retained through the Petitioner's proposed avoidance and mitigation efforts. With respect to floodways and stream criteria, a FHARC permit and a SAP from the DEC River Management Program will be obtained. Lastly, resource demarcation, EPSC, and SPA BMPs will be implemented to mitigate risks of construction run-off to adjacent waters, subject to construction stormwater permitting requirements, and the Project will meet applicable health and DEC regulations regarding the quality of groundwater and surface waters.

Attachments

1. Natural Resources Map
2. Representative Site Photographs
3. Summary of Delineated Wetlands and Streams
4. Wetland Determination Data Forms
5. Potential Rare, Threatened, and Endangered Plant Species and Significant Natural Communities Summary in the Project Region and Onsite Habitats
6. Partial Floristic Inventory
7. USFWS IPaC Official Species List

Resources and References

- Agency of Natural Resources 2024. *Rare and Uncommon Native Vascular Plants of Vermont*. Fish and Wildlife Department. Effective June 10, 2024..
- 2023. *The Vermont Wetland Rules*. Department of Environmental Conservation. Effective February 10, 2023.
- 2022a. *Vermont Water Quality Standards*. Environmental Protection Rule, Chapter 29A. Department of Environmental Conservation. Effective November 15, 2022.
- 2022b. *Endangered and Threatened Plants of Vermont*. Natural Heritage Inventory, Fish and Wildlife Department. Effective February 10, 2022.
- 2021. *Guidance for the review and Mitigation of Impacts to Grassland Bird Habitat in Connection with Regulated Projects in Vermont*. Effective October 26, 2021.
- 2017a. *Flood Hazard Area and River Corridor Protection Procedure*. Environmental Protection Rule Chapter 29. Department of Environmental Conservation. Effective September 7, 2017.
- 2017b. *Regulatory Review Guidance for Protecting Northern Long-eared Bats and Their Habitats*. Fish and Wildlife Department. Effective February 2017.

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- US Army Corps of Engineers (USACE). 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeastern Region (Version 2.0), Final Report*.
- 2005. *Regulatory Guidance Letter: Ordinary High Water Mark Identification*. No. 05-05.
- US Geological Survey (USGS). 2023. *StreamStats, Version 4.2.1*.



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Natural Resources Assessment Representative Photographs

PROJECT NUMBER

58952.07

ER Reservoir Road Solar Project

CLIENT

Encore Renewable Energy
110 Main Street Suite 2C
Burlington, VT 05401

LOCATION

Reservoir Road
Enosburg Falls, Vermont 05450



NO. 1 / 10.18.2022

DESCRIPTION

Representative photograph of palustrine forested ("PFO") Wetland 2022-1(II), view is looking south to southwest.



NO. 2 / 11.2.2022

DESCRIPTION

Representative photograph of large palustrine emergent, palustrine scrub-shrub ("PEM/PSS") Wetland 2022-2(II) stretching north of reservoir, view is looking south to southeast.



NO. 3 / 10.18.2022

DESCRIPTION

Representative photograph of PFO Wetland 2022-3(II), depicting presence of potential vernal pool ("PVP") on eastern side of wetland. View is looking north.



NO. 4 / 10.18.2022

DESCRIPTION

Representative photograph palustrine emergent ("PEM") Wetland 2022-4(III); view is looking west.



NO. 5 / 11.2.2022

DESCRIPTION

Representative photograph PFO Wetland 2022-5(II); depicting PVP; view is looking north.



NO. 6 / 10.18.2022

DESCRIPTION

Representative photograph PEM Wetland 2022-6(II); view is looking north to northeast.



NO. 7 / 10.18.2022

DESCRIPTION

Representative photograph of palustrine emergent ("PEM") Wetland 2022-300(II), view is looking west.



NO. 8 / 6.9.2023

DESCRIPTION

Representative photograph of PFO Wetland 2023-300(II) in southwest corner of Study Area, view is looking south.



NO. 9 / 6.9.2023

DESCRIPTION

Representative photograph of PFO Wetland 2023-301(II) in northwest corner of Study Area. View is looking north to northwest.



NO. 10 / 6.9.2023

DESCRIPTION

Representative photograph of adjacent upland area east of PFO Wetland 2023-301(II). View is looking south to southwest.



NO. 11 / 6.9.2023

DESCRIPTION

Representative photograph of upland area northeast from PFO Wetland 2023-301(II), view is looking north to northeast.



NO. 12 / 2.3.2024

DESCRIPTION

Representative photograph of upland area northeast from PFO Wetland 2024-1(II), view is looking west to southwest.



NO. 13 / 2.7.2024

DESCRIPTION

Representative photograph of upland area northeast from PFO Wetland 2024-2(II), view is looking west.



NO. 14 / 10.18.2022

DESCRIPTION

Representative photograph of intermittent stream channel 2022-SC-1; a tributary to Trout Brook, which generally flows north to south, through PEM Wetland 2022-4(III).



NO. 15 / 10.18.2022

DESCRIPTION

Representative photograph of intermittent stream 2022-SC-2; a tributary to Trout Brook, which flows generally northeast to southwest and outlets into Wetland 2022-2(II). View is looking southwest.



NO. 16 / 10.18.2022

DESCRIPTION

Representative photograph of intermittent stream 2022-SC-3; a tributary to Trout Brook, which flows generally west to east and outlets into Wetland 2022-2(II). View is looking west.



NO. 17 / 10.18.2022

DESCRIPTION

Representative photograph of intermittent stream 2022-SC-4; a tributary to Trout Brook, which flows generally north to south through Wetland 2022-2(II). View is looking south to southwest.



NO. 18 / 10.18.2022

DESCRIPTION

Representative photograph of intermittent stream 2022-SC-5; a tributary to Trout Brook, which flows generally west to east and outlets into Wetland 2022-2(II). View is looking east to southeast.



NO. 19 / 10.18.2022

DESCRIPTION

Representative photograph of perennial stream 2022-SC-102; a tributary to Trout Brook, which flows generally northeast to southwest and outlets into Wetland 2022-2(II). View is looking southwest.



NO. 20 / 10.18.2022

DESCRIPTION

Representative photograph of perennial stream 2022-SC-103; a tributary to Trout Brook, which flows generally west to east and outlets into Wetland 2022-2(II). View is looking east to southeast.



NO. 21 / 10.18.2022

DESCRIPTION

Representative photograph of perennial stream 2022-SC-105; a tributary to Trout Brook, which flows generally north to south. View is looking south.



NO. 22 / 10.18.2022

DESCRIPTION

Representative photograph of perennial stream 2022-TOB-100; a tributary to Trout Brook, associated with PFO Wetlands 2022-1(III) and 2022-3(II).



NO. 23 / 10.18.2022

DESCRIPTION

Representative photograph of perennial stream 2022-TOB/OHW-101; a tributary to Trout Brook, which flows generally north to south through Wetland 2022-2(II) and outlets into the Enosburg Falls Reservoir. View is looking north.



NO. 24 / 10.18.2022

DESCRIPTION

Representative photograph of Enosburg Falls Reservoir (2022-TOB/OHW-R) from the southern edge, view is looking northwest.



NO. 25 / 10.18.2022

DESCRIPTION

Representative photograph of Enosburg Falls Reservoir (2022-TOB/OHW-R) from the northern edge, view is looking southeast.



NO. 26 / 10.3.2023

DESCRIPTION

Representative photograph of perennial stream 2023-TOB-300; a tributary to Trout Brook, associated with PFO Wetland 2023-300(II). View is looking south to southeast.



NO. 27 / 2.21.2023

DESCRIPTION

Representative photograph of access road from Reservoir Road, view is looking north.



NO. 28 / 2.21.2023

DESCRIPTION

Representative photograph of access road, looking southwest from Enosburg Falls Reservoir.



NO. 29 / 2.21.2023

DESCRIPTION

Representative photograph of access road, looking north from Reservoir Road.



NO. 30 / 2.21.2023

DESCRIPTION

Representative photograph of culvert under access road; view is looking east to southeast, downstream.



NO. 31 / 2.21.2023

DESCRIPTION

Representative photograph of southern portion of Study Area, looking north across proposed array area.



NO. 32 / 2.21.2023

DESCRIPTION

Representative photograph of east-central portion of Study Area, looking west in proposed array area.



NO. 33 / 2.21.2023

DESCRIPTION

Representative photograph of east-central portion of Study Area, looking north to northwest in proposed array area.



NO. 34 / 2.21.2023

DESCRIPTION

Representative photograph of western forested portion of Study Area.



NO. 35 / 2.21.2023

DESCRIPTION

Representative photograph of the northern portion of Enosburg Falls Reservoir, within the eastern portion of Study Area.



NO. 36 / 2.21.2023

DESCRIPTION

Representative photograph of the southern portion of Enosburg Falls Reservoir.



NO. 37 / 2.21.2023

DESCRIPTION

Representative photograph of Enosburg Falls Reservoir dam.



NO. 38 / 2.21.2023

DESCRIPTION

Representative photograph of Well pumphouse exterior, southwest of Enosburg Falls Reservoir.



NO. 39 / 10.3.2023

DESCRIPTION

Representative photograph of forested corridor on western edge of Study Area. View is of central portion, looking south to southeast.

Summary of Delineated Wetlands

Project: ER Reservoir Solar Project

Client: Encore Renewable Energy

Location: Enosburg Falls, Vermont

Prepared By: VHB (C. Peterson, K. Maines); February 9, 2024

Delineation Date(s): August 6, September 15, 19, October 18, 2022 and June 9, October 3, 2023, February 7, 2024, and June 27, 2024



VHB Delineated Wetlands												
Wetland ID	Delineated Area (Square Feet) ¹	Cowardin Classification ²	Hydrology Indicator	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 Categorical Class II Wetlands ⁴	VWR Section 5 Functional Criteria Presence / Significance		VHB-Proposed VWR Classification ⁶		
								Type ⁵	VHB-Proposed Significant?			
2022-1	2,781	PEM	Oxidized Rhizospheres on Living Roots (C3), Geomorphic Position (D2),	Redox Dark Surface (F6)	Yes	Yes (perennial)	5.1, 5.2, 5.3, 5.4, 5.10	a, b	Yes	II	<i>Phalaris arundinacea, Urtica dioica</i>	Adjacent to Trout Brook
2022-2	536,809	PEM/PSS	Surface Water (A1), High Water Table (A2), Saturation (A3), Inundation Visible on Aerial (B7), Water Stained Leaves (B9), Aquatic Fauna (B13), Hydrogen Sulfide Odor (C1), Oxidized Rhizospheres on Living Roots (C3), Presence of Reduced Iron (C4), Drainage Patterns (B10), Saturation Visible on Aerial (C9), Geomorphic Position (D2), Microtopographic Relief (D4)	Histosol (A1), Histic Epipedon (A2), Depleted Matrix (F3), Redox Dark Surface (F6)	Yes	Yes (perennial)	5.1, 5.2, 5.3, 5.4, 5.10	a,b	Yes	II	<i>Calamagrostis canadensis, Typha latifolia, Phalaris arundinacea</i>	Feature continues beyond Study Area; adjacent to Trout Brook
2022-3	2,209	PFO	Surface Water (A1), High Water Table (A2), Saturation (A3), Water Marks (B1), Sparsely Vegetated Concave Surface (B8)	Depleted Matrix (F3), Histic Epipedon (A2)	No	No	5.1, 5.2, 5.4	c	Yes	II	<i>Scutellaria lateriflora, Solanum dulcamara</i>	Feature contains potential vernal pool
2022-4	651	PEM	Saturation (A3)	Redox Dark Surface (F6)	Yes	No	5.1, 5.2	-	No	III	<i>Solidago rugosa, Poa palustris, Rubus allegheniensis</i>	Feature continues beyond Study Area
2022-5	21,737	PFO	Surface Water (A1), High Water Table (A2), Saturation (A3)	Histic Epipedon (A2)	No	No	5.1, 5.2, 5.4	c	Yes	II	<i>Onoclea sensibilis, Dryopteris intermedia, Betula alleghaniensis</i>	Feature contains potential vernal pool
2022-6	1,420	PFO	Saturation (A3), Water-Stained Leaves (B9), Oxidized Rhizospheres on Living Roots (C3)	Depleted Matrix (F3)	Yes	No	5.1, 5.2	-	No	III	<i>Scutellaria lateriflora, Carex intumescens, Betula alleghaniensis</i>	Feature continues beyond Study Area; not connected to VSWI mapped south
2023-300	32,048	PFO	Surface Water (A1), Saturation (A3), Sparsely Vegetated Concave Surface (B8), Geomorphic Position (D2)	Hydrogen Sulfide (A4), Depleted Matrix (F3)	Yes	Yes (perennial)	5.1, 5.2, 5.3, 5.4, 5.10	a,b	Yes	II	<i>Impatiens capensis, Dryopteris intermedia, Ulmus rubra</i>	Feature continues beyond Study Area
2023-301	9,142	PFO	Saturation (A3), Geomorphic Position (D2), Microtopographic Relief (D4)	Depleted Matrix (F3)	No	No	5.1, 5.2	a	Yes	II	<i>Onoclea sensibilis, Dryopteris intermedia, Betula alleghaniensis</i>	Feature continues beyond Study Area
2024-1	12,448	PFO	Surface Water (A1), Drainage Patterns (B10), Geomorphic Position (D2)	Problematic soils: Frozen	Yes	Yes (perennial)	5.1, 5.2, 5.3, 5.4, 5.10	a,b	Yes	II	<i>Alnus incana</i>	Adjacent to Trout Brook.
2024-2	7,649	PFO/PUB	Surface Water (A1), Geomorphic Position (D2)	Problematic soils: Frozen	Yes	No	5.1, 5.2	-	No	III	<i>Abies Balsamea</i>	Ponded wetland contained to a topographic depression.

¹All 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; Delineated Wetlands that extend outside the Study Area are denoted with **bold** text.

²Classification follows Cowardin, L.M., Carter, V., Golet, F.C. 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.

³Wetland contiguity to streams as defined in the Vermont ANR (2005) *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 determining 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).

⁴Alpha-numeric codes correspond with Section 4.6 Presumptions of the 2023 Vermont Wetland Rules.

⁵VWR 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, 5.10=Erosion Control Through Binding and Stabilizing the Soil. (P)= Present, (H)=High, (L)=Low; Correspond to observed level of functionality.

⁶VHB-Proposed VWR Classification is based on review and application of the VWR, particularly VHB's interpretation of Section 4.6 Presumptions. Wetland boundaries and classifications confirmed by DEC District Ecologist November 2, 2022 and July 3, 2024.

Summary of Delineated Streams

Project: ER Reservoir Solar Project

Client: Encore Renewable Energy

Location: Enosburg Falls, Vermont

Prepared By: VHB (C. Peterson, K. Maines); February 9, 2024

Delineation Date(s): August 6, September 15, 19, October 18, 2022 and June 9, October 3, 2023, February 7, 2024, and June 27, 2024

VHB Delineated Streams														
Stream ID	Stream Name	Associated Wetlands	Average Ordinary High Water (OHW) Width (Feet) ¹	Dominant Substrate	Water Depth (Inches)	Bank Height (Feet)	Flow Regime (Ephemeral, Intermittent, or Perennial) ²	Watershed Size (Square Miles) ³	VWQS Classification (2022) ⁴	ANR-Mapped Stream/River (Yes/No)	ANR-Mapped River Corridor? (Yes/No) ⁵	VHB-Proposed River Corridor (Yes/No)	VHB-Proposed Riparian Buffer? (Yes/No) ⁶	Comments
2022-SC-1	Unnamed tributary of Trout Brook	2022-2	4.0	Gravel	1	0.3	Intermittent	<0.5	A2	Yes	No	No	Yes	Culverted stream entering the Study Area from the east.
2022-SC-2	Unnamed tributary of Trout Brook	2022-2	3.0	Clay, Boulder	1	8.0	Intermittent	<0.5	A2	No	No	No	Yes	Feature extends beyond Study Area.
2022-SC-3	Unnamed tributary of Trout Brook	2022-2	3.0	Clay, Boulder	1	8.0	Intermittent	<0.5	A2	No	No	No	Yes	Feature connects to wetland 2022-2.
2022-SC-4	Trout Brook	2022-2	4.0	Sand, Organic, Silt	5	4.0	Intermittent	<0.5	A2	Yes	No	No	Yes	Feature extends beyond Study Area.
2022-SC-5	Unnamed tributary of Trout Brook	2022-2	1.5	Organic	3	1.5	Intermittent	<0.5	A2	No	No	No	Yes	Feature bisects wetland 2022-2.
2022-SC-100	Unnamed tributary of Trout Brook	None	3.0	Cobble	3	2.0	Perennial	1.8	A2	No	No	Yes	Yes	Side channel from dam.
2022-SC-100a	Unnamed tributary of Trout Brook	None	3.0	Cobble	3	2.0	Perennial	1.8	A2	No	No	Yes	Yes	Side channel from dam.
2022-SC-101	Unnamed tributary of Trout Brook	2022-2	4.0	Organic	16	4.0	Perennial	1.2	A2	No	No	Yes	Yes	Feature connects back to main channel, 2022-TOB/OHW-101
2022-SC-101a	Unnamed tributary of Trout Brook	2022-2	3.0	Silt	4	3.0	Perennial	1.2	A2	No	No	Yes	Yes	Feature connects back to main channel, 2022-TOB/OHW-101.
2022-SC-102	Unnamed tributary of Trout Brook	2022-2	4.0	Gravel	7	3.0	Perennial	<0.5	A2	Yes	No	Yes	Yes	Feature extends beyond Study Area.
2022-SC-102a	Unnamed tributary of Trout Brook	2022-2	1.5	Silt, sand	2	1.5	Perennial	<0.5	A2	No	No	Yes	Yes	Side channel that connected back to 2022-SC-102.
2022-SC-103	Unnamed tributary of Trout Brook	2022-2	6.0	Organic, silt	50	8.0	Perennial	1.1	A2	No	No	Yes	Yes	Feature extends beyond Study Area.
2022-SC-105	Unnamed tributary of Trout Brook	2022-2	1.5	Silt, sand	2	1.5	Intermittent	1.8	A2	No	No	No	Yes	Feature connects back to main channel, 2022-TOB/OHW-101.
2022-TOB/OHW-R	Enosburg Falls Reservoir	2022-2	7.0	Sand, gravel	100	5.0	Reservoir	1.2	A2	Yes	No	Yes	Yes	Feature is Enosburg Falls Reservoir.
2022-TOB/OHW-101	Trout Brook	2022-2	7.0	Sand, gravel	100	5.0	Perennial	1.2	A2	Yes	No	Yes	Yes	Feature extends beyond Study Area.
2022-TOB-TB	Trout Brook	2022-1	3.5	Cobble	10	4.0	Perennial	1.9	A2	Yes	No	Yes	Yes	Feature extends beyond Study Area.
2023/2024-TOB-100	Trout Brook	2023-300, 2024-1	3.5	Cobble	10	4.0	Perennial	1.9	A2	Yes	No	Yes	Yes	Feature extends beyond Study Area.
2023-TOB-300	Unnamed tributary of Trout Brook	2023-300, 2024-2	5.0	Cobble	3	2.0	Perennial	0.9	A2	Yes	No	Yes	Yes	Feature extends beyond Study Area.

¹ U.S. Army Corps of Engineers. 2005. *Regulatory Guidance Letter. Subject: Ordinary High Water Mark Identification. No. 05-05.*

² Stream flow regime determined based on qualitative observations of in stream hydrology indicators and geomorphic characteristic and are subject to professional judgment.

³ Watershed size determined from Vermont Agency of Natural Resources ("ANR") Stream Alteration Regulatory Program mapping or USGS Stream Stats

⁴ From ANR. 2022. *Vermont Water Quality Standards. 303(d) Assessment of the Condition of Vermont Waters. Priority Listing of Vermont Waters. Vermont Department of Environmental Conservation.*

⁵ List of River Corridors from the ANR Atlas.

⁶ Determined through guidance from Vermont ANR (2005) *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers.*



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2022-2-wet

Project Site:	ER Enosburg Solar Project	City/County:	Franklin	Samp. Date:	10/18/2022
Applicant/Owner:	Encore Renewable Energy	State:	Vermont	Sampling Point:	2022-2-wet
Investigator(s):	VHB	Section, Township, Range:	Berkshire		
Landform (hillslope, terrace, etc.):	floodplain	Local relief (concave, convex, none):	concave	Slope (%):	
Subregion (LRR or MLRA):	LRR R	Lat:	44.941273	Long:	-72.781494
Soil Map Unit:	Terric Medisapristis	Datum:	NAD 83	NWI Class:	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:		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☒ 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)	
Field Observations:			
Surface Water Present?	Depth (inches):	Wetland Hydrology Present? YES	
Water Table Present?	Depth (inches):		
Saturation Present? X	Depth (inches): 3		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
0.70" of rain 5 day prior to investigation in Burlington, VT (NWS 2022); PDSI 1.18 (Near Normal) for week ending 10/22/2022			
Remarks:			
In central portion of wetland, approximately 55 feet east of switchback bend in 2022-TOB-101.			

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redox Features			Texture	Remarks
(in)	Color (moist)	%	Color (moist)	%	Type ¹ Loc ²		
1-0							FALSE
0-6+	10YR 5/1	98	10YR 3/4	2	C M		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix.							
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :			
☒ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
☒ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)			☐ Coast Prairie Redox (A16) (LRR K, L, R)			
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR K, L)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)			☐ Dark Surface (S9) (LRR K, L, M)			
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)			☐ Polyvalue Below Surface (S8) (LRR K, L)			
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)			☐ Thin Dark Surface (S9) (LRR K, L)			
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)			☐ Iron-Manganese Masses (F12) (LRR K, L, R)			
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)			☐ Piedmont Floodplain Soils (F19) (MLRA 149B)			
☐ Sandy Gleyed Matrix (S4)				☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
☐ Sandy Redox (S5)				☐ Red Parent Material (F21)			
☐ Stripped Matrix (S6)				☐ Very Shallow Dark Surface (TF12)			
☐ Dark Surface (S7) (LRR R, MLRA 149B)				☐ Other (Explain in Remarks)			
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.							
Restrictive Layer (if observed):						Hydric Soil Present? YES	
Type:							
Depth (inches):							
Remarks:							

Tree Stratum	(Plot size: 30' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				

Sapling Stratum	(Plot size: 15' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				

Shrub Stratum	(Plot size: 15' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status
1. Alnus incana		35	X	FACW
2.				
3.				
4.				
5.				
6.				
7.				

Herb Stratum	(Plot size: 5' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status
1. Phalaris arundinacea		80	X	FACW
2. Mentha arvensis		15		FACW
3. Solidago gigantea		2		FACW
4. Poa palustris		2		FACW
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

Woody Vines	(Plot size: 15' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status
1.				
2.				
3.				
4.				
5.				

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 134	x 2 = 268
FAC	x 3 =
FACU	x 4 =
UPL	x 5 =
Sum: 134 (A)	268 (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

2023-301-1wet

Project Site:	ER Enosburg Solar Project		City/County:	Franklin		Samp. Date:	6/9/2023	
Applicant/Owner:	Encore Renewable Energy		State:	Vermont		Sampling Point:	2023-301-1wet	
Investigator(s):	VHB		Section, Township, Range:	Enosburg				
Landform (hillslope, terrace, etc.):	hillslope		Local relief (concave, convex, none):	concave		Slope (%):	0-2	
Subregion (LRR or MLRA):	LRR R		Lat:	44.940554		Long:	-72.7843129	
Soil Map Unit:	Binghamville silt loam		Datum:	NAD 83		NWI Class:	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:		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☐ 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)	
Field Observations:			
Surface Water Present?	Depth (inches):	Wetland Hydrology Present? YES	
Water Table Present?	Depth (inches):		
Saturation Present?	Depth (inches):		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
0.57" of rain in five days prior in Burlington, VT (NWS, 2023); PDSI -1.47 (Near Normal) in week ending 06/10/2023			
Remarks:			
In forested section northwestern portion of Study Area; approximately 90' south by southeast of northern edge of Study Area.			

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
0-6	2.5Y 2.5/1	100			D	M	LOAM	FALSE
6-16	2.5Y 5/1	90	2.5Y 2.5/1	10	D	M		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.								
² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :				
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)				
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)			☐ Coast Prairie Redox (A16) (LRR K, L, R)				
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR K, L)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)				
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)			☐ Dark Surface (S9) (LRR K, L, M)				
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)			☐ Polyvalue Below Surface (S8) (LRR K, L)				
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)			☐ Thin Dark Surface (S9) (LRR K, L)				
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)			☐ Iron-Manganese Masses (F12) (LRR K, L, R)				
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)			☐ Piedmont Floodplain Soils (F19) (MLRA 149B)				
☐ Sandy Gleyed Matrix (S4)				☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)				
☐ Sandy Redox (S5)				☐ Red Parent Material (F21)				
☐ Stripped Matrix (S6)				☐ Very Shallow Dark Surface (TF12)				
☐ Dark Surface (S7) (LRR R, MLRA 149B)				☐ Other (Explain in Remarks)				
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer (if observed):				Hydric Soil Present? YES				
Type: _____								
Depth (inches): _____								
Remarks:								

Tree Stratum (Plot size: 30' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status	Dominance Test Worksheet:	
1.	Betula alleghaniensis	30	X	FAC	# Dominants OBL, FACW, FAC:	5 (A)
2.	Tsuga canadensis	20	X	FACU	# Dominants across all strata:	7 (B)
3.	Fraxinus nigra	10		FACW	% Dominants OBL, FACW, FAC:	71% (A/B)
4.						
5.						
6.						
7.						
		60	= Total Cover		Prevalence Index Worksheet:	
Sapling Stratum (Plot size: 15' RAD)					Total % Cover of:	Multiply By:
1.	Betula alleghaniensis	10	X	FAC	OBL	x 1 =
2.	Tsuga canadensis	5	X	FACU	FACW 35	x 2 = 70
3.					FAC 55	x 3 = 165
4.					FACU 25	x 4 = 100
5.					UPL	x 5 =
6.					Sum: 115 (A)	335 (B)
7.					Prevalence Index = B/A =	2.91
		15	= Total Cover		Hydrophytic Vegetation Indicators:	
Shrub Stratum (Plot size: 15' RAD)					X Dominance Test is > 50%	
1.					X Prevalence Index is <= 3.0	
2.					Problematic Hydrophytic Vegetation ¹ (explain)	
3.					Rapid Test for Hydrophytic Vegetation	
4.					Morphological Adaptations	
5.					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6.					Definitions of Vegetation Strata:	
7.					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).	
Herb Stratum (Plot size: 5' RAD)					Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.	
1.	Carex intumescens	15	X	FACW	Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.	
2.	Dryopteris intermedia	15	X	FAC	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.	
3.	Onoclea sensibilis	10	X	FACW	Woody vine - All woody vines, regardless of height.	
4.					Hydrophytic Vegetation Present? YES	
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
		40	= Total Cover			
Woody Vines (Plot size: 15' RAD)						
1.						
2.						
3.						
4.						
5.						
			= Total Cover			

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



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2023-301-1up

Project Site:	ER Enosburg Solar Project		City/County:	Franklin		Samp. Date:	6/9/2023	
Applicant/Owner:	Encore Renewable Energy		State:	Vermont		Sampling Point:	2023-301-1up	
Investigator(s):	VHB		Section, Township, Range:	Enosburg				
Landform (hillslope, terrace, etc.):	terrace		Local relief (concave, convex, none):	convex		Slope (%):	0-2	
Subregion (LRR or MLRA):	LRR R		Lat:	44.940445		Long:	-72.78404845	
Soil Map Unit:	Binghamville silt loam					Datum:	NAD 83	
						NWI Class:	UPL	
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?	YES		
Wetland Hydrology Present?	NO		
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☐ 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)	
Field Observations:			
Surface Water Present?	_____	Depth (inches): _____	Wetland Hydrology Present? NO
Water Table Present?	_____	Depth (inches): _____	
Saturation Present?	_____	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
0.57" of rain in five days prior in Burlington, VT (NWS, 2023); PDSI -1.47 (Near Normal) in week ending 06/10/2024			
Remarks:			
In forested section northwestern portion of Study Area; approximately 50' south of northern edge of Study Area.			

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
0-1	2.5YR 2.5/2	100					LOAM	FALSE
1-4	2.5Y 4/4	90	10YR 3/6	10	C	M	FINE SANDY LOAM	
4-16	2.5Y 4/4	97	10YR 4/6	3	C	M	SILT LOAM	
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)			☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)		☐ Coast Prairie Redox (A16) (LRR K, L, R)			
☐ Black Histic (A3)			☐ Loamy Mucky Mineral (F1) (LRR K, L)		☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
☐ Hydrogen Sulfide (A4)			☐ Loamy Gleyed Matrix (F2)		☐ Dark Surface (S9) (LRR K, L, M)			
☐ Stratified Layers (A5)			☒ Depleted Matrix (F3)		☐ Polyvalue Below Surface (S8) (LRR K, L)			
☐ Depleted Below Dark Surface (A11)			☐ Redox Dark Surface (F6)		☐ Thin Dark Surface (S9) (LRR K, L)			
☐ Thick Dark Surface (A12)			☐ Depleted Dark Surface (F7)		☐ Iron-Manganese Masses (F12) (LRR K, L, R)			
☐ Sandy Mucky Mineral (S1)			☐ Redox Depressions (F8)		☐ Piedmont Floodplain Soils (F19) (MLRA 149B)			
☐ Sandy Gleyed Matrix (S4)					☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
☐ Sandy Redox (S5)					☐ Red Parent Material (F21)			
☐ Stripped Matrix (S6)					☐ Very Shallow Dark Surface (TF12)			
☐ Dark Surface (S7) (LRR R, MLRA 149B)					☐ Other (Explain in Remarks)			
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer (if observed):							Hydric Soil Present? YES	
Type: _____								
Depth (inches): _____								
Remarks:								

Tree Stratum (Plot size: 30' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status
1.	Acer rubrum	40	X	FAC
2.	Abies balsamea	40	X	FAC
3.	Betula papyrifera	10		FACU
4.	Betula alleghaniensis	5		FAC
5.				
6.				
7.				
		95	= Total Cover	

Sapling Stratum (Plot size: 15' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status
1.	Acer rubrum	5	X	FAC
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	

Shrub Stratum (Plot size: 15' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	

Herb Stratum (Plot size: 5' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status
1.	Maianthemum canadense	20	X	FACU
2.	Dryopteris intermedia	15	X	FAC
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		35	= Total Cover	

Woody Vines (Plot size: 15' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status
1.				
2.				
3.				
4.				
5.				
			= Total Cover	

Dominance Test Worksheet:

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

Dominants across all strata: **5** (B)

% Dominants OBL, FACW, FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply By:
OBL	x 1 =
FACW	x 2 =
FAC 105	x 3 = 315
FACU 30	x 4 = 120
UPL	x 5 =
Sum: 135 (A)	435 (B)

Prevalence Index = B/A = **3.22**

Hydrophytic Vegetation Indicators:

X Dominance Test is > 50%

Prevalence Index is <= 3.0

Problematic Hydrophytic Vegetation¹ (explain)

Rapid Test for Hydrophytic Vegetation

Morphological Adaptations

¹Indicators 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).

Vermont Potential Rare, Threatened, and Endangered Species and Natural Communities in the Project Region and Onsite Habitats Summary

Client: Encore Renewable Energy
Project: ER Reservoir Road Solar
Prepared by: VHB (C. Peterson) April 2, 2024
Survey Date: September 15, 2023



Element Occurrence - 3 miles radius

Species	Common Name	Type	State Rank	Global Rank	Vermont Status	Federal Status	EO last Observed	Habitat Description ¹	Occurrence Description ²	Optimal Survey Time ³	EO Mapped within Study Area?	Potential for Habitat to Occur Onsite?	Survey Recommended?	
													(yes/no)	Comments
<i>Alasmodonta undulata</i>	Triangle Floater	Animal	S3	G4	-	-	2019	Streams, rivers, and lakes, substrates of sand or gravel.	Missisquoi River - Enosburg Falls.	Summer - Fall	No	No	No	Species is not state or federally listed.
<i>Bombus rufocinctus</i>	Red-belted Bumble Bee	Animal	S3	G5	-	-	2013	Woodlands, fields and meadows, quarries, barrens	Near Berkshire Town Forest	Spring - Fall	No	Yes	No	Species is not state or federally listed.
<i>Calopogon tuberosus</i> var. <i>tuberosus</i>	Tuberous Grass-pink	Plant	S3	G5T5	-	-	2008	Bogs, fens, wet meadows, and openings in conifer swamps.	Little Pond Bog.	Summer	No	No	No	Species is not state or federally listed.
<i>Calystegia silvatica</i> ssp. <i>fraterniflora</i>	Twin-flower Hedge Bindweed	Plant	S3?	G5T5	-	-	2016	Fields, roadsides, clearings	Near Missisquoi Pulloff, VT Route 105	Spring - Late Summer	No	Yes	No	Species is not state or federally listed.
<i>Carex oligosperma</i>	Few-seeded Sedge	Plant	S2S3	G5	-	-	2008	Bogs, acidic fens, and wet meadows.	Little Pond Bog, within bog and poor fen communities in wooded openings.	Summer	No	Yes	No	Species is not state or federally listed.
<i>Etheostoma flabellare</i>	Fantail Darter	Animal	S3	G5	-	-	1994	Shallow pools and clear creeks to small rivers with permanent flow; substrates of gravel, stones, or boulder.	Samsonville Brook.	Spring - Summer	No	No	No	Species is not state or federally listed.
<i>Hemidactylium scutatum</i>	Four-toed Salamander	Animal	S2	G5	-	-	2010	Maple swamps, fens, bogs, and vernal pools.	Mineral Brook Road near Water Tower Road, between mixed wood upland and beaver pond complex on Mineral Brook.	Spring - Summer	No	Yes	No	Species is not state or federally listed.
<i>Hybognathus hankinsoni</i>	Brassy Minnow	Animal	S2S3	G5	-	-	1997	Stream channels, pools, back waters and beaver ponds.	Samsonville Brook	Spring - Summer	No	Yes	No	Species is not state or federally listed.
<i>Lasmigona compressa</i>	Creek Heelsplitter	Animal	S2	G5	-	-	2019	Creeks, small rivers, and upstream portions of large rivers; substrates of sand, fine gravel and mud.	Between East Berkshire and North Enosburgh; below dam at Enosburg Falls.	Summer - Late Summer	No	Yes	No	Species is not state or federally listed.
<i>Lycopus virginicus</i>	Virginia Bugleweed	Plant	S3	G5	-	-	2020	Swamps, shorelines, wetland margins.	Enosburg Falls to Samsonville	Summer	No	No	No	Species is not state or federally listed.
<i>Platanthera belphearglottis</i> var. <i>blephariglottis</i>	White-fringed Orchid	Plant	S2	G5T4T5	-	-	2008	Open fens, peaty and sandy meadows.	Little Pond Bog, in poor fen.	Summer	No	Yes	No	Species is not state or federally listed.
<i>Pogonia ophioglossoides</i>	Rose Pogonia	Plant	S3	G5	-	-	2008	Fens, bogs, sandy meadows, ditches.	Little Pond Bog.	Summer - Late Summer	No	No	No	Species is not state or federally listed.
<i>Strophitus undulatus</i>	Creeper	Animal	S3	G5	-	-	2019	Woodlands, groves, coniferous and deciduous mature forests, occasional in developed parks.	Missisquoi River - Enosburg Falls	Spring - Late Summer	No	No	No	Species is not state or federally listed.
<i>Sturnella magna</i>	Eastern Meadowlark	Animal	S2B	G5	T	-	2022	Grasslands, fields and meadows, coasts and shorelines, shrublands and thickets	Near Berkshire Center Road	Spring - Summer	No	No	No	Species is state threatened but without any suitable habitat within the Study Area.
Black Spruce Woodland Bog		Community	S2	-	-	-	2008	Usually found within fens, often above 1000 foot elevations; nutrient poor or highly acidic peatlands.	Little Pond Bog.	Summer - Late Summer	No	No	No	No suitable conditions for this Natural Community in the Project Area.
Poor Fen		Community	S2	-	-	-	2008	Strongly acidic, peat-laden community often found in wet depressions and glacial lakeplains.	Little Pond Bog.	Spring - Summer	No	No	No	No suitable conditions for this Natural Community in the Project Area.
Red Maple-Spagnum Basin Swamp		Community	S3	-	-	-	2000	Occur in small basins surrounded by upland forests, small <15 acres. Deep, peaty organic soils permanently saturated and acidic.	Near Berkshire Village	Spring - Summer	No	No	No	No suitable conditions for this Natural Community in the Project Area.
Spruce-Fir-Tamarack Swamp		Community	S3	-	-	-	2000	Often in basins with cold air drainage, peaty soils permanently saturated over acidic bedrock.	Near Berkshire Village	Spring - Summer	No	No	No	No suitable conditions for this Natural Community in the Project Area.

¹Potential sources for habitat description listed below
 Allies, Harry E. and Magee, Dennis W. 2007. *Flora of the Northeast - A Manual of the Vascular Flora of New England and Adjacent New York*. Animal Diversity Web. Retrieved from: <https://animaldiversity.org/accounts>
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 Gleason, Henry A. and Cronquist, Arthur. 1991. *Manual of Vascular Plants of Northeast United States and Adjacent Canada*. The New York Botanical Garden.
 Haines, Arthur. 2011. *Flora Novae Angliae*. New England Wildflower Society/Yale University Press, New Haven, CT. 973 Pp.
 Langdon, Richard W., Ferguson, Mark T. and Cox, Kenneth M. 2006. *Fishes of Vermont*. Vermont Department of Fish and Wildlife.
 Newcomb, Lawrence. 1977. *Newcomb's Wildflower Guide*. Little, Brown, and Company, Boston
 Northern Prairie Wildlife Research Center. <http://www.npwrc.usgs.gov/resource/distr/insects/tigb/usa/49.htm>
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 Thompson, Elizabeth H., Sorenson, Eric R. and Zaino, Robert J. 2019. *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*. Vermont Department of Fish and Wildlife and The Nature Conservancy.
 Vermont Natural Resources Atlas, Accessed October 2023. Element Occurrence Reports
²Sources for occurrence description listed below:
 Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department - Element Occurrence Reports.
³Flowering Time: Spring (April-May), Summer (June-July), Late Summer (August-September), Fall (October-November)

Project: ER Reservoir Solar Project

Client: Encore Renewable Energy

Survey Dates: September 15, 2022 (VHB: P. Kallfelz-Werts)

Prepared by: VHB (C. Peterson; P. Kallfelz-Werts)

February 19, 2024

Scientific Name ¹	Common Name	Family	VT Rarity Rank ²	Non-Native Invasive Species ³
<i>Abies balsamea</i> (L.) Mill.	balsam fir	Pinaceae	-	-
<i>Acer rubrum</i> L.	red maple	Aceraceae	-	-
<i>Achillea millefolium</i> L.	common yarrow	Asteraceae	-	-
<i>Alnus incana</i> (L.) Moench	gray alder	Betulaceae	-	-
<i>Amphicarpa bracteata</i> (L.) Fernald	American hogpeanut	Fabaceae	-	-
<i>Asclepias syriaca</i> L.	common milkweed	Asclepiadaceae	-	-
<i>Betula alleghaniensis</i> Britton	yellow birch	Betulaceae	-	-
<i>Betula papyrifera</i> Marshall	paper birch	Betulaceae	-	-
<i>Betula populifolia</i> Marshall	gray birch	Betulaceae	-	-
<i>Brassica rapa</i> L.	field mustard	Brassicaceae	-	-
<i>Carex intumescens</i> Rudge	greater bladder sedge	Cyperaceae	-	-
<i>Calystegia sepium</i> (L.) R. Br.	hedge false bindweed	Convolvulaceae	-	-
<i>Centaurea maculosa</i> auct. non Lam.	spotted knapweed	Asteraceae	-	WL
<i>Cinna arundinacea</i> L.	sweet woodreed	Poaceae	-	-
<i>Claytonia caroliniana</i> Michx.	Carolina springbeauty	Portulacaceae	-	-
<i>Clematis virginiana</i> L.	devil's darning needles	Ranunculaceae	-	-
<i>Crataegus crus-galli</i> L.	cockspur hawthorn	Rosaceae	-	-
<i>Dactylis glomerata</i> L.	orchardgrass	Poaceae	-	-
<i>Daucus carota</i> L.	Queen Anne's lace	Apiaceae	-	-
<i>Dennstaedtia punctilobula</i> (Michx.) T. Moore	eastern hayscented fern	Dennstaedtiaceae	-	-
<i>Dryopteris intermedia</i> (Muhl. ex Willd.) A. Gray	intermediate woodfern	Dryopteridaceae	-	-
<i>Erigeron annuus</i> (L.) Pers.	eastern daisy fleabane	Asteraceae	-	-
<i>Eurybia divaricata</i> (L.) G.L. Nesom	white wood aster	Asteraceae	-	-
<i>Euthamia graminifolia</i> (L.) Nutt.	flat-top goldentop	Asteraceae	-	-
<i>Fraxinus nigra</i> Marshall	black ash	Oleaceae	-	-
<i>Galium mollugo</i> L.	false baby's breath	Rubiaceae	-	-
<i>Gentiana clausa</i> Raf.	bottle gentian	Gentianaceae	-	-
<i>Hieracium caespitosum</i> Dumort.	meadow hawkweed	Asteraceae	-	-
<i>Hypericum canadense</i> L.	lesser Canadian St. Johnswort	Clusiaceae	-	-
<i>Iris versicolor</i> L.	harlequin blueflag	Iridaceae	-	-
<i>Juniperus virginiana</i> L.	eastern redcedar	Cupressaceae	-	-
<i>Laportea canadensis</i> (L.) Weddell	Canadian woodnettle	Urticaceae	-	-
<i>Lonicera morrowii</i> A. Gray	Morrow's honeysuckle	Caprifoliaceae	-	B
<i>Lonicera tatarica</i> L.	Tatarian honeysuckle	Caprifoliaceae	-	B
<i>Lycopus uniflorus</i> Michx.	northern bugleweed	Lamiaceae	-	-
<i>Maianthemum canadense</i> Desf.	Canada mayflower	Liliaceae	-	-
<i>Malus</i> Mill.	apple	Rosaceae	-	-
<i>Melilotus albus</i> Medik.	white sweetclover	Fabaceae	-	-
<i>Mentha arvensis</i> L.	wild mint	Lamiaceae	-	-
<i>Mitchella repens</i> L.	partridgeberry	Rubiaceae	-	-
<i>Onoclea sensibilis</i> L.	sensitive fern	Dryopteridaceae	-	-
<i>Osmunda cinnamomea</i> L.	cinnamon fern	Osmundaceae	-	-
<i>Pastinaca sativa</i> L.	wild parsnip	Apiaceae	-	WL
<i>Phalaris arundinacea</i> L.	reed canarygrass	Poaceae	-	WL
<i>Phleum pratense</i> L.	timothy	Poaceae	-	-
<i>Picea abies</i> (L.) Karst.	Norway spruce	Pinaceae	-	-
<i>Picea mariana</i> (Mill.) Britton, Sterns & Poggenb.	black spruce	Pinaceae	-	-
<i>Pilea pumila</i> (L.) A. Gray	Canadian clearweed	Urticaceae	-	-
<i>Pinus strobus</i> L.	eastern white pine	Pinaceae	-	-
<i>Plantago major</i> L.	common plantain	Plantaginaceae	-	-
<i>Poa palustris</i> L.	fowl bluegrass	Poaceae	-	-
<i>Populus tremuloides</i> Michx.	quaking aspen	Salicaceae	-	-

Project: ER Reservoir Solar Project

Client: Encore Renewable Energy

Survey Dates: September 15, 2022 (VHB: P. Kallfelz-Werts)

Prepared by: VHB (C. Peterson; P. Kallfelz-Werts)

February 19, 2024

Scientific Name ¹	Common Name	Family	VT Rarity Rank ²	Non-Native Invasive Species ³
<i>Potentilla simplex</i> Michx.	common cinquefoil	Rosaceae	-	-
<i>Prunus pensylvanica</i> L. f.	pin cherry	Rosaceae	-	-
<i>Prunus serotina</i> Ehrh.	black cherry	Rosaceae	-	-
<i>Pteridium aquilinum</i> (L.) Kuhn	western brackenfern	Dennstaedtiaceae	-	-
<i>Ranunculus acris</i> L.	tall buttercup	Ranunculaceae	-	-
<i>Rhus typhina</i> L.	staghorn sumac	Anacardiaceae	-	-
<i>Ribes</i> L.	currant	Grossulariaceae	-	-
<i>Rubus allegheniensis</i> Porter	Allegheny blackberry	Rosaceae	-	-
<i>Rubus idaeus</i> L.	American red raspberry	Rosaceae	-	-
<i>Sanguinaria canadensis</i> L.	bloodroot	Papaveraceae	-	-
<i>Sisymbrium altissimum</i> L.	tall tumbledaisy	Brassicaceae	-	-
<i>Solidago canadensis</i> L.	Canada goldenrod	Asteraceae	-	-
<i>Solidago gigantea</i> Aiton	giant goldenrod	Asteraceae	-	-
<i>Solidago rugosa</i> Mill.	wrinkleleaf goldenrod	Asteraceae	-	-
<i>Spiraea tomentosa</i> L.	steeplesbush	Rosaceae	-	-
<i>Streptopus lanceolatus</i> (Aiton) Reveal	twistedstalk	Liliaceae	-	-
<i>Symphyotrichum lateriflorum</i> (L.) Á. Löve & D. Löve	calico aster	Asteraceae	-	-
<i>Taraxacum officinale</i> F.H. Wigg.	common dandelion	Asteraceae	-	-
<i>Thalictrum pubescens</i> Pursh	king of the meadow	Ranunculaceae	-	-
<i>Thelypteris noveboracensis</i> (L.) Nieuwl.	New York fern	Thelypteridaceae	-	-
<i>Tiarella cordifolia</i> L.	heartleaf foamflower	Saxifragaceae	-	-
<i>Toxicodendron radicans</i> (L.) Kuntze	eastern poison ivy	Anacardiaceae	-	-
<i>Trifolium pratense</i> L.	red clover	Fabaceae	-	-
<i>Trifolium repens</i> L.	white clover	Fabaceae	-	-
<i>Tsuga canadensis</i> (L.) Carrière	eastern hemlock	Pinaceae	-	-
<i>Veratrum viride</i> Aiton	green false hellebore	Liliaceae	-	-
<i>Vicia cracca</i> L.	bird vetch	Fabaceae	-	-
<i>Viola</i> L.	violet	Violaceae	-	-

¹ Nomenclature follows the USDA NRCS PLANTS Database. USDA, NRCS. 2024. The PLANTS Database (<http://plants.usda.gov>, 01/02/2024). National Plant Data Team, Greensboro, NC USA.

² The Vermont Rarity Rank from the "Rare and Uncommon Native Vascular Plants of Vermont - Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department", version dated May 4, 2022. The Vermont Rarity Rank from the "Endangered and Threatened Plants of Vermont - Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department", version dated February 10, 2022.

³ **Class B Noxious Weeds Species (B)** from: Quarantine #3- Noxious Weeds (2012).

Watch List Species (WL) from: Vermont Invasive Exotic Plant Committee. 2017. Quarantine and Watch List Update.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104



In Reply Refer To:
Project Code: 2025-0006411
Project Name: ER Reservoir Road Solar

10/16/2024 16:18:10 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 4/12/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

PROJECT SUMMARY

Project Code: 2025-0006411

Project Name: ER Reservoir Road Solar

Project Type: Power Gen - Solar

Project Description: planned a 2.375-megawatt (“MW”) alternating current (“AC”) ground-mounted solar project

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.9407561,-72.78101255895893,14z>



Counties: Franklin County, Vermont

ENDANGERED SPECIES ACT SPECIES

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity

Name: Allison Slaney

Address: 40 IDX Drive Building 100 Suite 200

City: South Burlington, VT

State: VT

Zip: 05403

Email: alanclos@vhb.com

Phone: 8024976198

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers