Natural Resources Assessment Report
Windsor Substation Project

Windsor, Vermont

Prepared for:
VELCO

Prepared by:
Arrowwood Environmental, LLC

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ARROWWOOD ENVIRONMENTAL
950 BERT WHITE ROAD
HUNTINGTON, VT 05462
(802 434-7276 FAX: (802) 329-2253

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Attachments

1.0 Summary Findings

This Natural Resource Assessment Report and the enclosed attachments describe the results of Arrowwood Environmental LLC's (AE) natural resource investigation on behalf of Vermont Transco, LLC and Vermont Electric Power Company (collectively referred to as "VELCO") for its proposed Windsor Substation improvement project ("Project") in Windsor, Vermont. This report addresses each of the criteria specified in 30 V.S.A. § 248(b)(5): 10 V.S.A. §1424a(d) and §6086(a)(1) through (9) and greenhouse gas impacts. AE concludes that the Project will not have an undue adverse effect upon Section 248(b)(5) criteria with implementation of avoidance and minimization measures, application of VELCO's Environmental Best Management Practices (BMPs), and compliance with ancillary environmental permit conditions. Summary findings are provided for each criteria:

- Outstanding Resource Waters (ORW) (10 V.S.A. § 1424a(d)): There are no waters which intersect the Project area (area of potential impact, or Project footprint) or are near the Project area that have been designated as an ORW.
- Greenhouse Gas Impacts (30 V.S.A. § 248(b)(5)): The Project is not anticipated to have any impact on greenhouse gas emissions. The limited, temporary emissions associated with construction-related vehicles and equipment are not anticipated to have any impact on greenhouse gas emissions.
- Water and Air Pollution (10 V.S.A. § 6086(a)(1)): The Project does not propose any facilities that will generate air pollution. Temporary dust resulting from construction activities will be managed in accordance with VELCO's Environmental Guidance Manual (VEGM), and the Vermont Standards & Specifications for Erosion Prevention & Sediment Control, and any associated permits.
- Headwaters (10 V.S.A. § 6086(a)(1)(A)): The Project is located in a headwaters. The Project will be constructed in accordance with the practices and standards outlined in the VEGM, VELCO's Transmission Vegetation Management Plan, a Project-specific Erosion and Sediment Control Plan (EPSC) (as part of Construction Stormwater Discharge Permit coverage), and VELCO's site-specific Spill Prevention, Control, and Countermeasures Plan (SPCC Plan).
- Waste Disposal (10 V.S.A. § 6086(a)(1)(B)): The Project is expected to involve limited waste disposal and hazardous waste storage and disposal and will comply with all state and federal regulations regarding the handling and disposal of waste. VELCO will install a wastewater system that conforms to Wastewater System and Potable Water Supply Rules administered by the Vermont Department of Environmental Conservation. The Project will be constructed in accordance with the practices and standards outlined in VELCO's site-specific Spill Prevention, Control, and Countermeasures Plan (SPCC Plan).
- Water Conservation (10 V.S.A. § 6086 (a)(1)(C)): Water use associated with the Project is expected to be minimal. The new control building will utilize low flow toilet and fixtures for water conservation.
- Floodways (10 V.S.A. § 6086(a)(1)(D)): The Project area is not located within a 100-year Flood Zone Area and will not restrict or divert the flow of floodwaters or significantly increase the peak discharge of a river or stream within or downstream from the area of development. The Project area is not located within a river corridor.

- Streams (10 V.S.A. § 6086 (a)(1)(E)): There are no streams located within the Project area. The closest stream is Kimball Brook, located on the south side of Hunt Road. The Project will have no impacts to streams and riparian zone resources.
- Shorelines (10 V.S.A. § 6086 (a)(1)(F)): There are no rivers, lakes, reservoirs, or large, permanent ponds that are located within the Project area. The closest shoreline to the Project area is that of Lake Runnemede, several hundred feet distant.
- Wetlands (10 V.S.A. § 6086 (a)(1)(G)): The Project involves impacts to Class 2 wetlands and associated 50' buffers. VELCO will obtain a Vermont Wetland Individual Permit. The proposed design avoids and minimizes impacts to wetland resources to the extent practicable.
- Water Supply (10 V.S.A. § 6086 (a)(2) and (3)): VELCO is currently in the evaluation and design phase of its water and wastewater system for the new control building and will obtain and comply with a Wastewater System and Potable Water Supply permit from the Vermont Agency of Natural Resources ("VT ANR") for the Project's engineered design. VELCO will drill a water supply well that conforms to VELCO's Water Supply Siting Standard and Wastewater System and Potable Water Supply Rules administered by the Vermont Department of Environmental Conservation ("VT DEC").
- Soil Erosion (10 V.S.A. § 6086 (a)(4)): The Project will require a VT DEC Construction Stormwater Discharge Permit. VELCO will develop and adhere to a detailed EPSC plan for the Project to facilitate compliance and proper implementation of stormwater BMPs during construction.
- Rare and Irreplaceable Natural Areas (10 V.S.A § 6086 (a)(8)): The Project area does not contain significant natural communities and is not considered a rare and irreplaceable natural area (RINA).
- Necessary Wildlife Habitat and Endangered Species (10 V.S.A. § 6086 (a)(8)(A)): The Project involves impacts in the 100' vernal pool envelope. VELCO will develop and adhere to erosion prevention and sediment control measures designed to allow for amphibian passage and designed to prevent sediment transport inside the vernal pool envelope boundary outside of the limits of disturbance. The Project area was assessed for Deer Wintering Areas ("DWA"), Black Bear Habitat and Grassland bird habitat, and none were identified. VELCO will develop appropriate avoidance, minimization or mitigation measures for site clearing necessary to avoid and/or mitigate significant adverse impacts to the federally endangered Northern Long Eared Bat. The tree clearing area for the Project is minimal in nature and does not trigger additional conservation measures as relates to Northern Long Eared bats. The Project area was assessed for RTE plant species and none were identified.
- Primary Agricultural Soils (10 V.S.A. § 6086 (a)(9)(B): There are Statewide (b) Primary Agricultural Soils ("PAS") within the Project area. There are no areas within the mapped PAS currently used for agriculture, and the surrounding slope and proximity to dense utility infrastructure largely precludes agricultural use of the land. The Project will have minimal impact on PAS.

2.0 Introduction

On behalf of VELCO, AE has prepared this Natural Resources Assessment Report for the Project. This report summarizes the results of AE's natural resource review of the Project Assessment Area ("PAA") as depicted in Figure 1 below.

As part of the review, AE evaluated the potential effect of the Project on water quality and the natural environment in accordance with Section 248(b)(5) of Title 30, Vermont Statutes Annotated ("V.S.A"), which provides in relevant part that an electric transmission facility should not have an undue adverse effect on air and water purity, the natural environment, the use of natural resources, or public health and safety, with due consideration having been given to, but not limited to, the following environmental criteria:

- Outstanding Resource Waters (10 V.S.A. § 1424a(d))
- Greenhouse Gas Impacts (30 V.S.A. § 248(b)(5))
- Water and Air Pollution (10 V.S.A. § 6086(a)(1))
- Headwaters (10 V.S.A. § 6086(a)(1)(A))
- Waste Disposal (10 V.S.A. § 6086(a)(1)(B))
- Water Conservation (10 V.S.A. § 6086 (a)(1)(C))
- Floodways (10 V.S.A. § 6086(a)(1)(D))
- Streams (10 V.S.A. § 6086 (a)(1)(E))
- Shorelines (10 V.S.A. § 6086 (a)(1)(F))
- Wetlands (10 V.S.A. § 6086 (a)(1)(G))
- Water Supply (10 V.S.A. § 6086 (a)(2) and (3))
- Soil Erosion (10 V.S.A. § 6086 (a)(4))
- Rare and Irreplaceable Natural Areas (10 V.S.A § 6086 (a)(8))
- Necessary Wildlife Habitat and Endangered Species (10 V.S.A. § 6086 (a)(8)(A))
- Primary Agricultural Soils (10 V.S.A. § 6086 (a)(9)(B)

The development of this natural resource assessment was based on review of applicable Vermont environmental standards and geographic information system ("GIS") data available from the Vermont Center for Geographic Information ("VCGI") and the Vermont Natural Resources Atlas. In addition, field data collected during natural resource field surveys in June 2023 were evaluated and incorporated into this report. AE has also consulted with personnel from the ANR and the U.S. Army Corps of Engineers ("USACE") related to the identification of wetland resources within the PAA.

The following sections describe the natural resources identified in the PAA and address potential effects of the Project on those environmental criteria listed above.

3.0 Project Description

The VELCO Windsor Substation was originally built in 1978, with various modifications and improvements occurring over the subsequent years of service. VELCO conducted a condition assessment of the Substation and identified the need to replace some of the equipment due to condition. VELCO proposes to construct and operate the following major components at the Windsor Substation:

- Replace the existing 115kV circuit switcher with a new vacuum circuit breaker.
- Replace the existing control building with a new larger control building that can accommodate the protection and control system, redundant AC and DC station services, communication equipment, security systems, and new bathroom facilities. The new control building will be located on the northeast corner of the substation yard.

- Replace the perimeter fence and expand to accommodate the new control building, facilitate construction, and to improve access to equipment for maintenance.
  - Reconstruct and widen driveway to 20 feet with turn-around.
  - Relocate approximately 620 feet of driveway and the entryway onto Hunt Road.
  - Improve site drainage.
  - Perform tree clearing to accommodate the temporary infrastructure, temporary substation/construction area support area, expanded substation yard and driveway improvements.
  - Install temporary feeds to GMP's 46kV system, which will be removed, with any disturbance restored.
  - Drill a water supply well and install a wastewater system that conforms to VELCO's Water Supply Siting Standard and Wastewater System and Potable Water Supply Rules administered by the Vermont Department of Environmental Conservation.
  - Cleanup of ledge on the west side of the substation to maintain proper clearance and allow for expansion in the northeast corner.

3.1 Project Assessment Area

The Project is located at 488 Hunt Road in Windsor, Vermont.

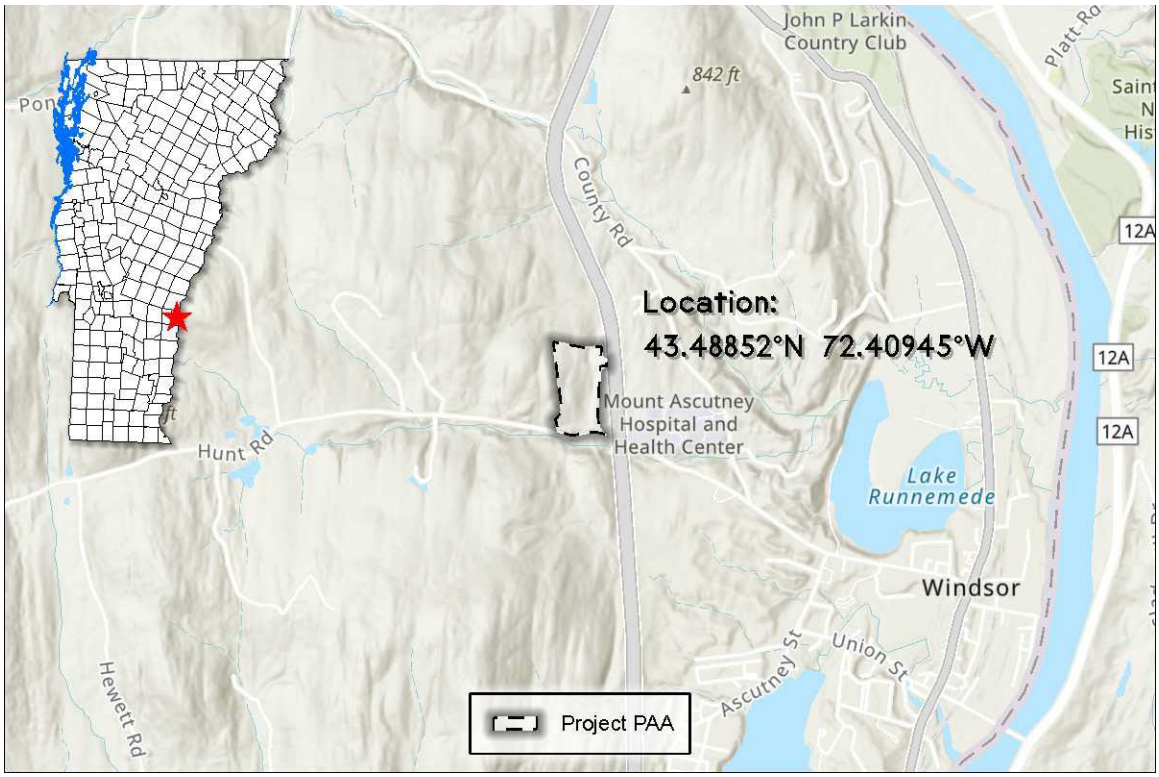

Figure 1. Site Location and Project Assessment Area (PAA)

The PAA includes approximately 20.8 acres, as depicted in Figure 2 below. The PAA was reviewed for the natural resources assessment.

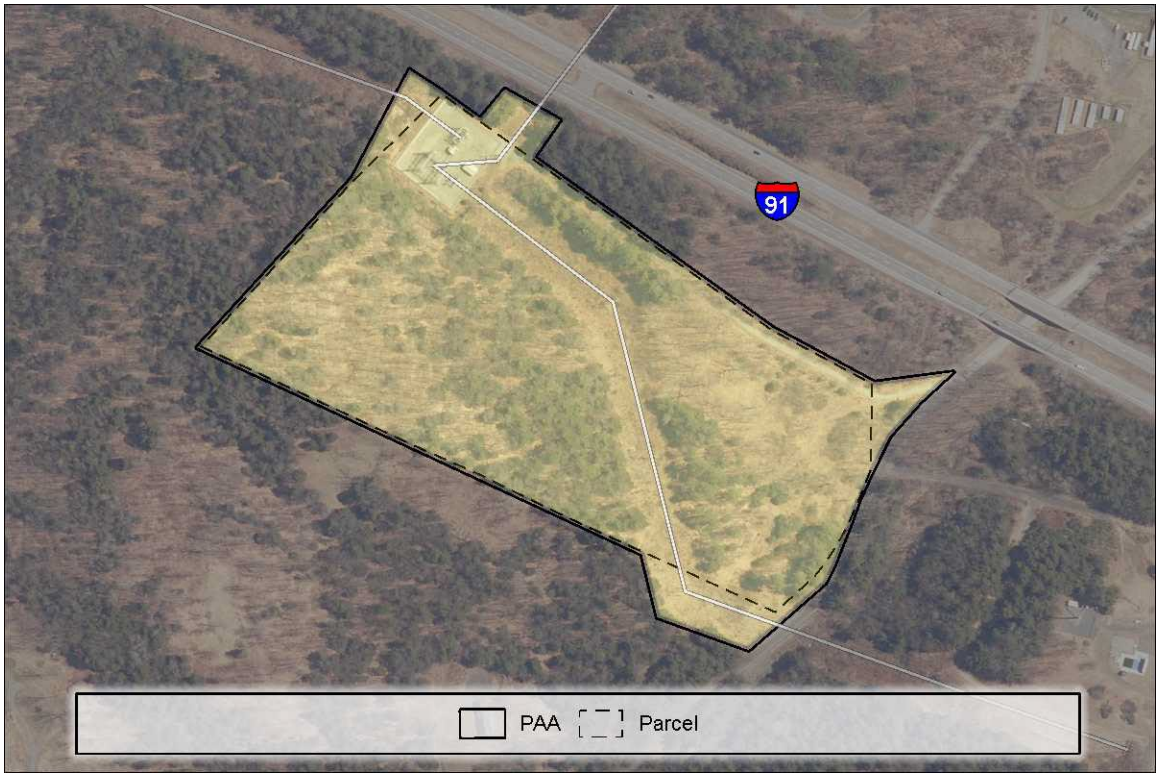

Figure 2. Project Parcel and PAA

3.2 Construction Activity

The Project will be constructed in compliance with applicable state and federal regulations, guidelines, and standards, and the specific requirements of any necessary permits. The general construction sequence and procedures for the substation construction include:

Substation Construction Sequence:

- Site survey
- Vegetation clearing, where necessary
- Access road construction and/or maintenance
- Ledge blasting and cleanup
- Site grading and foundation construction
- Assemble and erect substation equipment
- Connect conductors to equipment
- Restoration and re-vegetation
- Testing and commissioning

3.3 Permits and Approvals

Construction of the Project will require the following ancillary environmental permits:

- State of Vermont Wetland Permit
- Section 404 USACE General Permit
- Construction Stormwater Discharge Permit
- Wastewater and Potable Water Supply Permit

4.0 Landscape Context

Ecologically, the PAA is within the Southern Vermont Piedmont biophysical region of the state (Thompson, Sorenson and Zaino, 2019). The PAA is located at approximately 200 feet above mean sea level according to U.S. Geologic Survey ("USGS") topographic data with the PAA generally level. The mapped bedrock that is underlying the western portion of the PAA is of the metasedimentary rock class with quartzite rock type from the Gile Mountain Formation. The mapped bedrock that is underlying the eastern portion of the PAA is metasedimentary rock class with phyllite and metalimestone rock types from the Waits River Formation (Ratcliffe et al. 2011). Soils within PAA are characterized as very rocky (NRCS Soil Survey). The PAA consists of open field vegetation, mixed forests and two wetlands. The forests consist of Northern Hardwood, White Pine-Northern Hardwood and Hemlock-Northern Hardwood Forests. The wetlands consist of semi-emergent marsh/vernal pool and semi-emergent marsh/scrub shrub wetlands.

5.0 Outstanding Resource Waters (10 V.S.A. § 1424a (d))

The Vermont Water Resources Panel designates ORWs. Four waterways have been listed as ORWs: Batten Kill River in towns of East Dorset and Arlington; Pike's Falls/Ball Mountain in the town of Jamaica; Poultney River in the towns of Poultney and Fair Haven; and Great Falls, Ompompanoosuc in the town of Thetford.

There are no waters which intersect the PAA or are near the PAA that have been designated as an ORW. Therefore, the Project will have no undue, adverse impacts on ORWs.

6.0 Greenhouse Gas Impacts (30 V.S.A. § 248(b)(5))

The Project is not anticipated to have any impact on greenhouse gas emissions. Beyond the limited, temporary emissions associated with construction-related gasoline- and diesel-powered vehicles and equipment, the Project is not anticipated to have any impact on greenhouse gas emissions. In the event that a vacuum breaker is not available, VELCO plans to use a sulfur hexafluoride (SF6) circuit breaker. The unit will be to be sealed and is not anticipated to result in the emission of SF6 gas. As such, there will be no undue, adverse effect associated with greenhouse gas emissions associated with the proposed Project.

7.0 Water and Air Pollution (§ 6086) (a)(1))

The Project will not contribute to water pollution. Sections 7 through 15 discuss specific water resources.

The Project does not propose any facilities that will generate air pollution and will not be subject to an air pollution control permit. During the Project's construction phase, work will result in minor air emissions involving brief discharges of dust generated by general construction activities. Persistent dust resulting from construction activities associated with the Project will be managed as necessary in accordance with VELCO's VEGM and the Vermont Standards & Specifications for Erosion Prevention & Sediment Control, such as watering access roads or applying calcium chloride. The Project will not contribute to air pollution or result in any undue air pollution as a result of construction or post-construction activities.

8.0 Headwaters (10 V.S.A. § 6086) (a)(1)(A))

Vermont Act 250 Criterion 1(A) (Headwaters) defines headwaters as land not devoted to intensive development and that 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 elevations; or
(iv) watersheds of public water supplies designated by the VT Water Supply Division; or
(v) areas supplying significant amounts of recharge waters to aquifers.

The PAA is situated below 1500' and based on review of the ANR Atlas, there are no public water supplies or associated source protection areas (SPA) within or adjacent to the PAA. There are no ground water SPA within or adjacent to the PAA. The closest SPA is the Windsor Water Department surface water SPA approximately 0.4 miles to the southeast. The PAA is characterized by rocky soils with slopes ranging from 8 to 60% with a watershed area less than 20 square miles. Therefore, the PAA is located within headwaters as defined above.

The Project will be constructed in accordance with the practices and standards outlined in VELCO's VEGM, VELCO's Transmission Vegetation Management Plan, a Project-specific EPSC Plan (as part of Construction Stormwater Discharge Permit coverage), and VELCO's site-specific SPCC Plan.

The proposed Project will not result in a reduction of the quality of ground or surface waters in the area. For these reasons, we conclude that the Project will have no undue, adverse impact on headwater areas.

9.0 Waste Disposal (10 V.S.A. § 6086)(a)(1)(B))

The Project will not require nor involve the injection of any waste materials or any harmful or toxic substances into groundwater or wells. The Project is expected to involve limited waste disposal and hazardous waste storage and disposal and will comply with all state and federal regulations regarding the handling and disposal of waste. Specifically, VELCO will dispose of solid waste, construction debris, or waste that cannot be reused or recycled in accordance with the applicable VT DEC waste management rules, BMPs, and VELCO's substation decommissioning plan, where applicable. The site-specific SPCC Plan includes spill control and response measures in the event of a release of oil and/or hazardous material and specifies secondary containment systems that are available. Spill response plans are also outlined in the

VEGM to ensure the contractor is properly trained in spill response, clean up and containment, environmental quality sampling, and disposal.

Metal equipment such as structure steel, chain link fence, disconnect switches, and the control building will be recycled as scrap metal. Decommissioned materials from the control building will be disposed of as standard construction and demolition debris. The protection and control systems generally consist of microprocessor, solid state, or electric mechanical relays, which constitute recyclable material and/or e-waste. Replaced or decommissioned relays will be disposed of according to their material makeup in compliance with applicable waste disposal rules and regulations. Smaller oil-filled equipment, such as instrument voltage transformers and bushings, will be handled by a licensed commercial entity. The Project will involve limited hazardous material storage for equipment refueling during construction and will comply with all state and federal regulations regarding handling and disposal of hazardous materials.

The sanitary facilities installed will require VELCO to install a wastewater system because there are no municipal wastewater connections available at the site. The new system will conform to the Wastewater System and Potable Water Supply Rules administered by the VT DEC Drinking Water and Groundwater Protection Division. A wastewater permit will be obtained. VELCO will dispose of sanitary waste during construction by obtaining and using portable toilet(s).

The implementation and adherence to the above-mentioned criteria will ensure that proper waste disposal practices are performed during the construction and operation of the Project. As such, the Project will not have any undue adverse impacts relating to waste disposal.

10.0 Water Conservation (10 V.S.A. § 6086)(a)(1)(C))

VELCO will install a bathroom in the proposed control building. The new facility will utilize low flow toilet and fixtures for water conservation. Water may be used onsite during the Project for several activities, which may include dust control and establishment of vegetation. Water for this use is expected to be limited and temporary in nature. Water use associated with the overall Project is expected to be minimal, and thus, there will be no undue adverse effect to water conservation.

11.0 Floodways (10 V.S.A § 6086)(a)(1)(D))

AE reviewed the Federal Emergency Management Agency (FEMA) Digital Flood Insurance Rate Map Database (DFIRM) and the VT ANR's Flood Ready Atlas to identify floodways or floodway fringes in the PAA. AE also reviewed ANR's river corridor data layer on the VT ANR's Flood Ready Atlas.

The PAA is not located within a river corridor or a 100-year Flood Zone Area. The Project will not restrict or divert the flow of floodwaters or significantly increase the peak discharge of a river or stream within or downstream from the area of development. The Project's proposed site drainage improvements will not significantly alter existing drainage characteristics with respect to drainage area contributions and flows. The Project will not have any undue, adverse impacts on floodways or river corridors, nor will the Project endanger the health, safety, and welfare of the public or riparian owners as it relates to flood events or fluvial erosion.

12.0 Streams (10 V.S.A. § 6086)(a)(1)(E))

The stream assessment involved both a remote review of the USGS topographic map, Vermont Hydrography Dataset (streams, rivers, and waterbodies), high resolution LiDAR derived topography, and field investigation.

AE conducted surveys for stream resources using the following definition of a stream as per the VT ANR Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers (2005):

A stream has a channel that periodically or continuously contain moving water, has a defined bed, and has banks that serve to confine water at low to moderate flows. Streams include intermittent streams that have a defined channel and evidence of sediment transport, even if such stream does not have surface water flow throughout the year and/or throughout the channel. For the purpose of this guidance, constructed drainageways including water bars, swales, and roadside ditches, are not considered streams.

The Project is located in the Hubbard and Kimball Brook sub-watersheds. Stream resources were not identified within the PAA. The closest stream is Kimball Brook, located on the south side of Hunt Road. The Project will have no impacts to streams and riparian zone resources. Based on review of the ANR Atlas, no impaired waters are located within the PAA and the PAA is not located within a watershed included on the 303(d) list of impaired watersheds.

The Project will not have an undue, adverse impact upon stream resources.

13.0 Shorelines (10 V.S.A. § 6086 (a)(1)(F))

The shoreline assessment involved the review of USGS topographic maps, the Vermont Hydrography Dataset (streams, rivers, and waterbodies), digital orthophotography and field investigation. Shoreline boundaries include the land between the mean high water and low water mark of ponds, lakes, and applicable rivers (10 V.S.A. § 6001(17)). Act 250 further defines shoreline as the land adjacent to the waters of lakes, ponds, reservoirs, and rivers. Act 250 criterion (1)(F) seeks to, insofar as possible and reasonable considering the purpose of the proposed Project,

(i) retain the shoreline and the waters in their natural condition,
(ii) allow continued access to the waters and the recreational opportunities provided by the waters,
(iii) retain or provide vegetation which will screen the development or subdivision from the waters, and
(iv) stabilize the bank from erosion, as necessary with vegetation cover.

There are no rivers, lakes, reservoirs, or large, permanent ponds that are located within the Project area. The closest shoreline to the Project area is that of Lake Runnemede, several hundred feet distant on the opposite side of the I91 corridor. Therefore, the Project will have no undue adverse impacts on shoreline resources.

14.0 Wetlands (10 V.S.A. § 6086 (a)(1)(G))

The wetland assessment involved both a remote review of available maps (including Vermont Significant Wetland Inventory Maps and the NRCS Soil Survey) and a field inventory component conducted on June 26, 2023. The protocols put forth in the USACE's *Corp of Engineers Wetlands Delineation Manual* (2009 Regional Supplement for the Northcentral and Northeast Region) were employed for delineating wetlands as is the standard practice in Vermont.

AE's field review confirmed the presence of two wetlands within the PAA. A vernal pool was identified within one of the wetlands. Per the wetland survey protocol, AE flagged wetland boundaries in the field and subsequently located with a GPS unit capable of sub-meter accuracy. The data was compiled and transferred to the geo-referenced resource map drawing in Figure 1 of the Attachment. Documentation of wetland boundaries further consisted of completing wetland and upland data forms (USACE Wetland Determination Forms) for each wetland. Table 1 of the Attachment summarizes the wetland resources delineated in the PAA, provides the Cowardin classification, the functions and values for each wetland, and lists the wetland classification. Wetland field data forms and functions and values assessment forms are included in Attachment 3.

The Project involves impacts to wetlands WI-1 and WI-2 and the associated 50-foot buffers. Impacts associated with wetland WI-1 and its associated 50-foot buffer are primarily related to the driveway improvements and the repair of the existing culvert beneath the substation. Impacts associated with wetland WI-2 and the associated 50-foot buffer are primarily related to the expansion of the existing facility for the new control building, and drainage improvements for the site.

VELCO proposes to expand the existing substation perimeter fence in the direction of wetland WI-2 for the new control building. The preferred siting location for the new control building on the expanded northeast side of the substation would include necessary site drainage improvements. The wetland buffer of wetland WI-1 will also be impacted by access drive widening (from 12' to 20') that is necessary for substation construction and maintenance equipment access to the site and by repair of the existing culvert beneath the substation.

The Project team conducted a detailed evaluation of the site and identified several constraints, including but not limited to overhead transmission lines, fire code setbacks, adjacent existing infrastructure, steep ledge terrain, property boundaries, necessary vehicle access, and mandatory clearances between energized equipment and substation fencing. As wetland WI-2 closely abuts the existing substation and wetland WI-1 closely abuts the existing access drive, impacts in the 50-foot buffers of these wetlands were largely unavoidable. VELCO designed the Project to minimize direct wetland impacts to the extent practicable.

VELCO met with the VT DEC and the USACE onsite October 12, 2023 to review the wetland delineation boundaries, proposed wetland classifications, and the Project's anticipated wetland buffer impacts. The USACE and VT DEC reviewed and approved the wetland delineations and classifications during the site visit. Onsite consultation with the VT DEC Wetlands Program confirmed that a permit could be issued for the Project, as the proposed impacts to the adjacent wetland and associated buffers are unavoidable and VELCO has taken the necessary steps to

minimize impacts as part of the design. The Project has minimal direct wetland impacts and will likely trigger a non-reporting general permit from the USACE.

VELCO will seek the necessary authorizations from the VT DEC Wetlands Program for its proposed impacts to jurisdictional wetlands and buffers and will adhere to its Construction Stormwater Discharge permit, Project-specific EPSC plan, and the VEGM to minimize the Project's potential impacts to wetlands during construction.

For these reasons, the Project will not have an undue, adverse impact upon wetland resources.

15.0 Water Supply (10 V.S.A. § 6086 (a)(2) and (3))

Water usage is proposed onsite during the Project for several activities, including, but not limited to dust control and establishment of vegetation. Water for this use will be limited and temporary in nature and is necessary to support the construction phase of the proposed Project. As such, VELCO expects water use associated with Project construction to be minimal.

VELCO is currently in the evaluation and design phase of its water and wastewater system for the new control building and will obtain and comply with a Wastewater System and Potable Water Supply permit from the VT ANR for the Project's engineered design. VELCO will drill a well and install a wastewater system as there are no available municipal connections for the site. As such, the Project will have no undue adverse impacts on water supplies.

16.0 Soil Erosion (10 V.S.A. § 6086 (a)(4))

AE assessed whether the Project would cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result.

16.1 Soils Types

Soil series data was obtained from VCGI and soil series descriptions from the Natural Resources Conservation Service ("NRCS") Web Soil Survey for Windsor County. These series were plotted within the PAA as shown in Figure 4. Soils found in the PAA are summarized in Table 2 below.

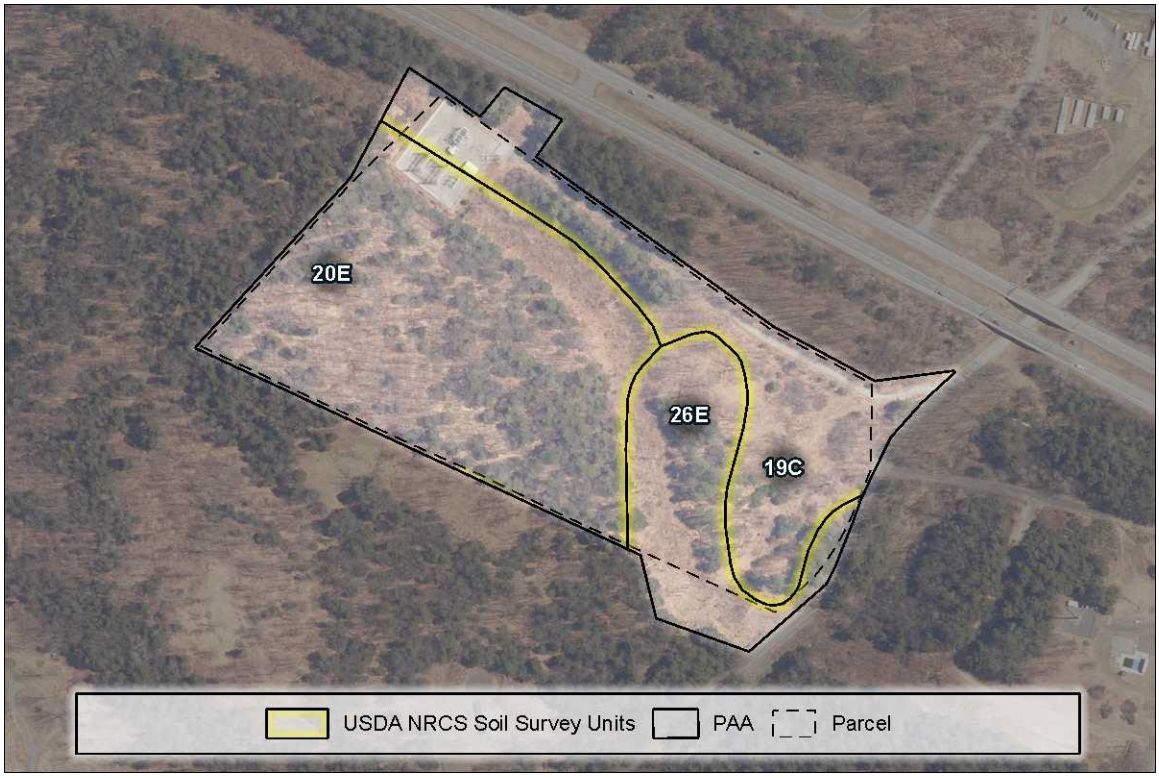

Figure 4. Soil Types in PAA

The following table provides summary information for the soil types within the PAA.

Table 2. Soil Type Summary

Symbol	Soil Name	Highly Erodible Class	Acres in Study Area
19C	Vershire-Dummerston Complex, 8-15% slopes, rocky	highly erodible	6.82
26E	Buckland loam, 35-60% slopes, very stony	highly erodible	4.05
20E	Glover-Vershire complex, 35-60% slopes, very rocky	highly erodible	12.03

16.2 Soil Erosion

Soil types and slope gradients were evaluated within the PAA to assess the potential for proposed construction activity to reduce permeable area or cause an unreasonable risk for drainage or runoff problems that lead to soil erosion.

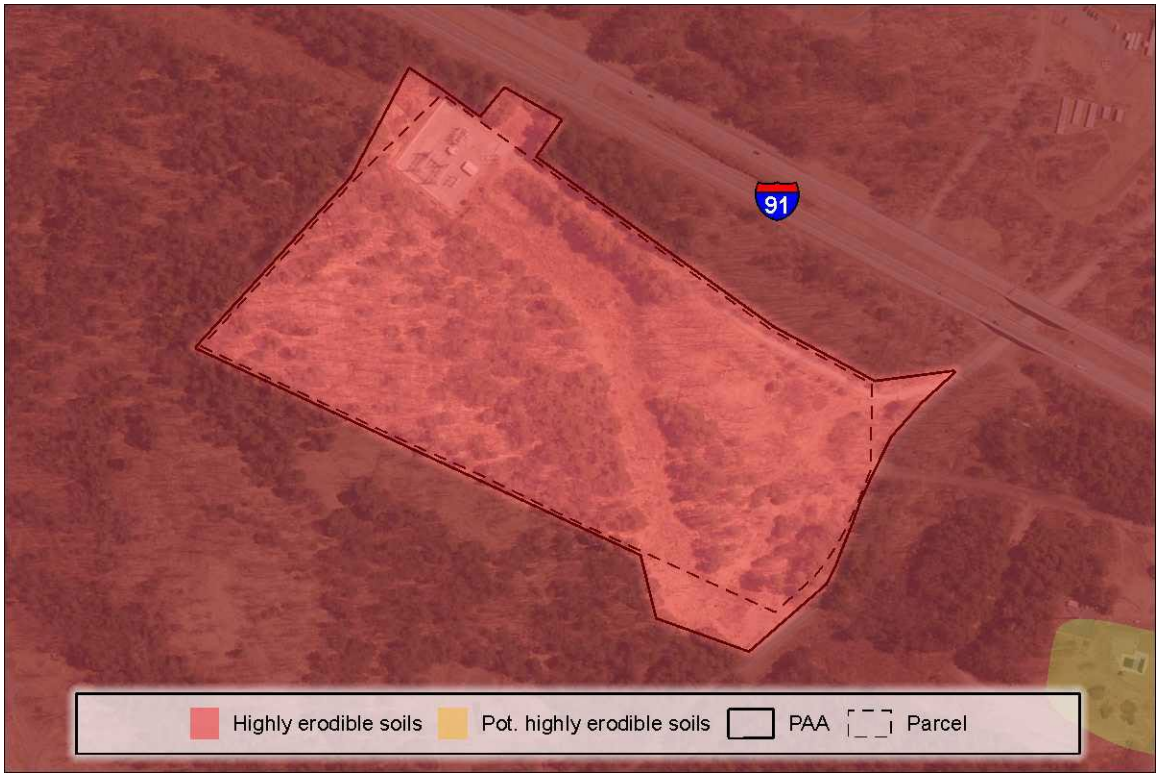

Figure 5. Soil Erodibility within PAA

The Project will require a VT DEC Construction Stormwater Discharge Permit, as the construction activities will involve more than one acre of earth disturbance. VELCO will develop and adhere to a detailed site-specific EPSC plan for the Project to facilitate compliance and ensure proper implementation of stormwater BMPs to avoid and minimize soil erosion during construction.

VELCO will perform all earth-disturbing activities in accordance with the site-specific EPSC Plan, the Construction Stormwater Permit conditions, the Vermont Standards and Specifications for EPSC, and the VEGM. With the adherence to these conditions and BMPs, the proposed construction activities will not cause undue, adverse effects on soil erosion, or cause a reduction in the capacity of the land to hold water from the Project.

17.0 Rare and Irreplaceable Natural Areas (10 V.S.A. § 6086(a)(8)), Necessary Wildlife Habitat and Endangered Species (10 V.S.A. § 6086(a)(8)(A))

17.1 Rare and Irreplaceable Natural Areas (RINA)

The RINA assessment involved both a remote review of available digital maps for the PAA and a field review. AE reviewed digital orthophotography, the NRCS Soil Survey, the 2011 Bedrock Geologic Map of Vermont, and the Wildlife Natural Heritage Inventory ("NHI") Rare, Threatened and Endangered Species digital database. No NHI-documented significant natural communities are located within 6000' of the PAA.

The PAA consists of open field vegetation, mixed forests and two wetlands. The forests consist of Northern Hardwood, White Pine-Northern Hardwood and Hemlock-Northern Hardwood Forests which are disturbed and contain early successional areas and areas dominated by non-native invasive species. The wetlands consist of shallow emergent marsh and a vernal pool. These wetland communities are small, somewhat disturbed and contain NNIS species. None of the upland or wetland natural communities meet the criteria for state-significant natural communities or Rare and Irreplaceable Natural Areas.

17.2 Necessary Wildlife Habitat

The wildlife habitat assessment involved both a remote review of available digital maps for the PAA and a field inventory component. A remote review of available digital databases was conducted to identify and map necessary wildlife habitat (including State of Vermont Deeryard data layer USGS Topographic map, "VT HYDRODEM" elevation data, State of Vermont Bear Habitat data layers) within the PAA and within the vicinity of the PAA. The field inventory component involved characterizing vegetation natural communities and recording observations of wildlife signs or sightings during field surveys. There are no State of Vermont Wildlife Management Areas within 2,000' of the PAA.

17.2.1 White-tailed Deer Wintering Habitats

There are no mapped VT Fish and Wildlife Department ("VFWD") white-tailed deer (*Odocoileus virginianus*) winter areas ("DWA") within approximately 2,000 feet of the PAA. AE confirmed the absence of historic or recent deer wintering activity as well as lack of forested areas containing significant enough soft wood canopy closure to be considered DWA habitat in the PAA. The Project will have no adverse impact on deer wintering habitat.

17.2.2 Black Bear Habitat

There is no bear habitat mapped by the VFWD within the PAA and no observations of bear feeding (including bear claw scarring) were made during the field inventories of the forests, open fields, and wetlands within the PAA. The forests contained with the PAA consist of northern hardwood with combinations of white pine and hemlock. No concentrations of beech or oak stands were documented in these forests. The PAA does not contain necessary bear habitat. As such, the Project will have no adverse impact on necessary bear habitat.

17.2.3 Grassland Bird Habitat

The VFWD considers grassland bird habitat to be easily identifiable, concentrated, and essential for the reproductive success and survival of a suite of birds. Grasslands used by many species of grassland birds consist of large expanses (minimum of 20 acres) of native grasses with little or no woody vegetation. Contiguous area of open field is minimal within the PAA and does not provide necessary wildlife habitat. As such, the Project will have no adverse impact on necessary grassland bird habitat.

17.2.4 Amphibian Breeding Habitat/Vernal Pools

The Vermont Department of Fish and Wildlife considers intact well-functioning breeding pools that are interconnected to intact upland forest and the area within 100' of them (the "pool envelope") necessary wildlife habitat for pool-breeding amphibians.

The vernal pool assessment was conducted in June 2023. AE's field review confirmed the presence of a vernal pool within wetland WI-1. Per the survey protocol, AE located the vernal pool boundaries with a GPS unit capable of sub-meter accuracy. The data was compiled and transferred to the geo-referenced resource map drawing in Figure 1 of the Attachment. Documentation of vernal pool characteristics consisted of completing a Vermont Vernal Pool Data Form. The vernal pool data form is included in Attachment 3.

The Project involves impacts to the 100' pool envelope. Impacts are primarily related to the driveway improvements. The vernal pool envelope will be impacted by access drive widening (from 12' to 20') that is necessary for substation construction and maintenance equipment access to the site and by repair of the existing culvert beneath the substation.

VELCO will perform all earth-disturbing activities in accordance with the site-specific EPSC Plan, the Construction Stormwater Permit conditions, the Vermont Standards and Specifications for EPSC, and the VEGM to avoid and minimize soil erosion during construction.

Erosion prevention and sediment control measures shall be designed to allow for amphibian passage and designed to prevent sediment transport inside the wetland buffer boundary outside of the limits of disturbance. Erosion prevention and sediment control measures shall be removed within 30-days following final stabilization. Tree clearing and trimming related activities within the vernal pool envelope shall be conducted under frozen conditions, in as minimal time and with as little ground disturbance as is practicable.

For these reasons, the Project will have no undue adverse impact to vernal pools.

17.3 Rare, Threatened, Endangered (RTE) Species

The RTE species review involved both a remote review of available digital maps for the PAA as well as a field survey. AE reviewed digital orthophotography, the NRCS Soil Survey, the 2011 Bedrock Geologic Map of Vermont and the Wildlife Natural Heritage Inventory (NHI) Rare, Threatened and Endangered Species digital database.

17.3.1 RTE Animal Species

According to the NHI, there are no RTE element occurrences ("EO") of rare (ranked "S1" or "S2"), threatened, or endangered animal species within 2,000 feet of the PAA. The Northern Long Eared Bat (NLEB) is a federally listed endangered species in Vermont, potentially occurring statewide. The VFWD has issued guidance that project clearing constituting greater than 1% of the total forested area within a 1 square mile radius of a project triggers review for habitat loss of this species. The tree clearing area for the Project constitutes approximately 1.99 acres, significantly less than 1% of the total forested area within a 1 square mile radius of the Project. The proposed clearing is minimal in nature and does not trigger additional conservation measures.

The Project is not in an area that potentially provides summer roosting habitat for Indiana bat, there are no old or abandoned buildings potentially providing roosting habitat for little brown bat proposed for demolition, and there are no known bat hibernacula or maternity roosts within 1 mile of the Project site. The Project will have no undue adverse impact on RTE animal species.

The S3-ranked Smooth green snake (*Opheodrys vernalis*) was identified to the north of the PAA in the existing powerline corridor. This uncommon species was also identified within the existing powerline corridor on the western limits of the PAA during the June 2023 field survey. The wetland and vernal pool complex may provide feeding habitat for this species. Conservation measures designed and adhered to for protection of the vernal pool and vernal pool envelope will similarly protect movement patterns of the green snake.

17.3.2 RTE Plant Species

An RTE plant survey was conducted throughout the entire PAA on June 26, 2023 by Michael Lew-Smith. A complete species list is included in Attachment 2.

According to the NHI, there are no known occurrences of RTE or uncommon plant species in the PAA, and none were found in the Project Area. The Project will have no undue adverse impact on RTE plant species.

18.0 Primary Agricultural Soils (30 V.S.A. § 248(b)(5))

AE assessed whether the Project would result in a reduction in the agricultural potential of primary agricultural soils (PAS).

18.1 Soil Types

Soil series data was obtained from VCGI and soil series descriptions and PAS designation from the Natural Resources Conservation Service (NRCS) Web Soil Survey for Windsor County. These series were plotted within the PAA as shown in Figure 6.

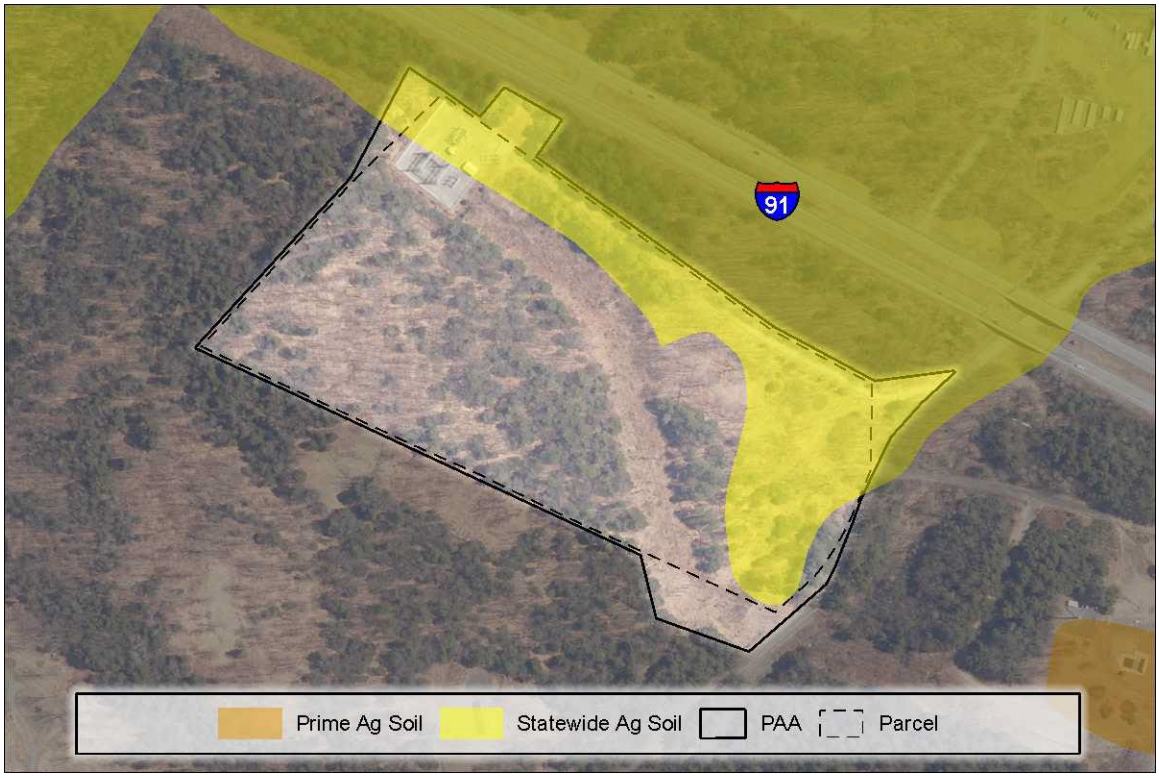

Figure 6. Primary Agricultural Soils within PAA

18.2 Primary Agricultural Soils in the Project Area

The eastern portion of the PAA is comprised of PAS soils rated by the NRCS as Statewide Agricultural soils with an agricultural value of 7. There are no areas within the mapped PAS currently used for agriculture, and the surrounding slope and proximity to dense utility and transportation infrastructure largely precludes agricultural use of the land. The area of mapped PAS soils overlaps a portion of the existing substation and access drive, is also coincident with wetlands WI-1 and WI-2, existing managed utility corridors, and areas with slope greater than 15%. Additionally, previous development of the site also has impacted the viability of PAS on site. In addition to the substation, access drive and utility lines, there was also historically a residence on the southern portion of the property generally coincident with the existing Green Mountain Power construction support area.

The Project has been designed to minimize impacts to the extent possible, but because of terrain-driven constraints, there will be permanent impacts to PAS as a result of the Project. The total PAS within the Project Area limits of disturbance is 3.9 acres, of which 2.1 acres is impacted by previous development and 0.4 acres is wetland and wetland buffers (0.13 acres of this wetland/wetland buffer area overlaps with previous development). The regulated PAS to be impacted by the Project totals approximately 1.54 acres. The PAS impacts associated with the Project are related to driveway relocation, temporary work access route, grading side slopes, culvert replacement, substation expansion, wastewater system installation as well as the coincident temporary substation configuration ground grid, and an overhead GMP line re-configuration that will be left in place permanently.

In addition to the permanent impacts to intact PAS at the site described above, the Project will also result in minor impacts to non-intact PAS. Areas of non-intact PAS at the site do not provide viable farmland due to proximity to existing site improvements and/or their position within and adjacent to steep slopes, wetlands, and existing site improvements. These areas include the substation driveway, substation, and substation site drainage/grading. The Project includes approximately 2.1 acres of permanent impacts to non-intact PAS.

Due to the minimal impact on PAS, the Project will have no undue adverse impact to soils with agricultural potential or importance.

19.0 References

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Vermont Fish and Wildlife Department. Guidance for Conducting Rare, Threatened, and Endangered Plant Inventories in Connection with Section 248 Projects, 2016.

Attachments

Attachment 1: Natural Resources Map
Attachment 2. Rare Plant Inventory Species List
Attachment 3. Wetland and Vernal Pool Field Data Forms and Functions and Values Assessment Forms
Table 1. Wetland Summary Table