



To: Essex A North Lot Solar, LLC

Date: June 12, 2024

Memorandum

Project #: 58972.01

From: Stephanie Wyman, PE; Civil Engineer

Re: Section 248 Waste Disposal, Soil Erosion Technical
Memorandum

Introduction

On behalf of Essex A North Lot Solar, LLC ("Petitioner"), and at the request of Encore Renewable Energy ("Encore"), VHB has prepared this technical memorandum concerning the proposed solar electric generation facility ("Project") that will occupy approximately 13.2 acres within an overall 228-acre parcel owned by GlobalFoundries. All proposed utility poles and overhead electrical lines will be owned and installed by Green Mountain Power (GMP). VHB understands that the Petitioner has agreed to accept responsibility for ensuring adequate steps are taken during the installation of the GMP components to avoid undue adverse impacts to protected resources. The content of this technical memorandum presents the results of an assessment of the Project as it relates to the following criteria under 30 V.S.A. § 248(b)(5), which are given due consideration by the Vermont Public Utility Commission ("PUC") in its review of Essex A North Lot Solar's request for a Certificate of Public Good ("CPG"):

- Waste Disposal (Section 248(b)(5) / 10 V.S.A. § 6086(a)(1)(B))
- Soil Erosion (Section 248(b)(5) / 10 V.S.A. § 6086(a)(4))

Project Description

The Project consists of the installation and operation of a solar electric generation facility within the GlobalFoundries campus. GlobalFoundries Power LLC ("GF Power") is an owned subsidiary of GlobalFoundries and operates as a public service company. The Project Area was selected and designed after considering all site constraints – including topography, environmental resources, and aesthetic impacts – while maximizing the potential energy generation benefits. The Project will consist of a solar electric generation facility, capable of generating up to 3.5 MW AC. The approximate 13.2-acre Project will be located between Maple Street (Vermont Route 117) and Robinson Parkway in Essex Junction, Vermont (refer to **Exhibit EANL-JC-2**). The Project components will include:

- Approximately 7,488 fixed tilt photovoltaic panels installed on ground-mounted racking systems, across approximately 13.2 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 4,485 feet of agricultural-style perimeter fence, seven to eight feet in height, that will allow small wildlife passage;
- Temporary staging areas for delivery and short-term storage of materials;
- Extending an existing access drive approximately 480 feet, and 12 feet wide to provide connectivity to an existing drive to the west;
- Approximately 390 feet of underground line from the transformer to a proposed riser pole;

- From the riser pole, the electricity will run north approximately 360 feet on new overhead 3-phase lines, which will require 5 new poles (1 riser pole, and 4 more poles to get to the existing Green Mountain Power (GMP) owned pole) to convey electricity to the point of interconnection with an existing GMP-owned pole on the east side of the Police Department access road. At the point where the new overhead lines connect with the existing GMP owned pole on the east side of the Police Station access road, the Project will interconnect with GMP's existing distribution network; and
- One 4.2 MVA pad-mounted transformer, located in the center of the arrays, with secondary oil containment providing 110% of the equipment oil volume with freeboard for 5 inches of rain.

The Project will also include approximately 2.7 acres of tree clearing (areas where woody material will be removed with stump removal/grubbing). Clearing will not occur between April 15 to September 30 of any given year, when bats are known to roost in trees.

Section 248 Criteria Reviewed

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

The Waste Disposal criterion incorporated into Section 248 review provides that the Project must meet applicable health and Vermont Department of Environmental Conservation ("DEC") regulations regarding the disposal of waste and must not involve the injection of waste materials into groundwater or wells. For the Project, VHB's consideration of waste disposal involves sanitary wastewater, stormwater runoff, general construction waste including tree and brush debris and injection of waste materials or any harmful or toxic substances into groundwater or wells. VHB's consideration of waste materials also involves the Project's storage of transformer oil and the potential for a leak or release.

The Project will not need permanent sanitary waste treatment, will not require on-site sanitary waste treatment or use of public waste treatment facilities, and will not involve the injection of waste materials or any harmful or toxic substances into groundwater or wells. Wastes will be managed in accordance with applicable DEC regulations.

The majority of the Project is sited on a developed parking lot with existing storm drains, catch basins, light poles and underground electrical. Prior to construction, at a minimum, the light poles and foundations will be removed and disposed of at an approved disposal facility in accordance with Vermont Solid Waste Management Rules and Procedures (DEC 2012). The existing parking lot surface is not anticipated to be removed except where necessary to install the transformer pad and to install underground electrical runs. The existing storm drain system is expected to remain. The removal of minor amounts of pavement and/or subbase material required for construction will be disposed of in the same manner as above.

In addition, given the developed and industrial use of the Project parcel, Petitioner will work with the DEC Sites Management Sections ("SMS") to ensure Project soils are sampled, tested, and managed appropriately and in accordance with applicable regulations as needed.

The Project will generate minor amounts of scrap and waste material during installation, and this waste will be disposed of or recycled at an approved disposal facility in accordance with Vermont Solid Waste Management Rules and Procedures (DEC 2012). Construction waste generated during construction, such as office trash from the

contractor's operations, or from portable toilets, would be the responsibility of the contractor to dispose of properly. The Project is not anticipated to generate any wastes during operation.

The Project will include approximately 2.7 acres of tree clearing (areas where trees will be removed with stump removal/grubbing within the Project Area. Woody debris generated from tree clearing will be sold for lumber if merchantable, offered as firewood, or chipped and hauled to an approved disposal site.

Operational-phase stormwater discharge permit authorization from DEC is required under discharges of regulated stormwater runoff to waters of the State from new development, redevelopment, and/or expansion of existing development that results in at least one acre of impervious surface. The Project parcel contains more than one-acre of existing impervious; thus, the Project is required to permit and treat all new impervious surface. The majority of the GlobalFoundries campus has coverage under a National Pollutant Discharge Elimination System (NPDES) Permit 3-1295. The Project parcel in this vicinity has coverage under the NPDES Permit 3-1925, therefore all new impervious surface created by the Project has been designed to discharge to the existing permitted system and will receive coverage under the existing permit.

The Project anticipates the installation and use of one 4.2 MVA pad-mounted transformer, the location of which is shown on the Project Site plans included in the petition material. The transformer will contain approximately 500 gallons of non-hazardous FR3 oil. The Project by itself is not subject to Spill Prevention Control and Countermeasure ("SPCC") regulations under 40 CFR § 112 ("SPCC Regulations"), because the total volume of oil storage at the fenced-in Project Site will not exceed 1,320 gallons. Regardless, the transformer will be placed within a secondary containment structure to prevent the release of transformer oil to the environment.

Though secondary containment will be constructed to prevent the release of oil to the environment, VHB evaluated the location of the fluid-filled transformer with respect to sensitive receptors near the Project. According to the Agency of Natural Resources ("ANR") Natural Resources Atlas, there are no surface water or groundwater protection areas within the vicinity of the Project. The closest ANR-mapped well is mapped within the Project limits of work. The well is not used for potable water, as the GlobalFoundries facility relies on municipal water for potable and domestic water use. The proposed transformer is not located within wetlands, wetland buffers, streams, or stream buffers. The proposed secondary containment structure would prevent the release of oil to water of the U.S. or other sensitive receptors. Furthermore, the transformer fluid will be non-hazardous. Accordingly, VHB believes that the proposed transformers do not pose a potential for adverse impacts to sensitive receptors.

As indicated above, the Project will meet the applicable health and DEC regulations regarding the disposal of waste that have been considered and does not involve the injection of waste materials into groundwater or wells, therefore the Project will comply with this criterion.

Soil Erosion (10 V.S.A. § 6086(a)(4))

Act 250 Criterion 4, which is to be accorded due consideration as part of Section 248, requires a finding that the Project "will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result." (10 V.S.A. § 6086(a)(4)). Compliance with this criterion involves two considerations: (1) preventing soil erosion, and (2) preventing a reduction in the land's capacity to hold water.

According to the Natural Resources Conservation Service ("NRCS") soils report, underlying soils within the Project Site are described in the table below:

Table 1 Soil Classifications Within Project Site

Soil Classification	K-Value	Hydrologic Soil Group ¹
Agawam fine sandy loam, 0 to 5 percent slopes	0.20	A
Belgrade and Eldridge soils, 3 to 8 percent slopes	0.32	C/D
Hartland very fine sandy loam, 2 to 6 percent slopes	0.32	B
Munson and Belgrade silt loams, 12 to 25 percent slopes	0.32	C/D
Munson and Raynham silt loams, 2 to 6 percent slopes	0.49	C/D
Munson and Raynham silt loams, 6 to 12 percent slopes	0.49	C/D

Erodibility ratings (or “K-values”) indicate the susceptibility of soil to erosion by water. Values typically range from 0.02 to 0.69, with higher values more susceptible to erosion. Soils with K-values that are greater than 0.17 but less than 0.36 are generally considered to have a moderate risk of erodibility per the Vermont Standards and Specifications for Erosion Prevention and Sediment Control. The soils underlying the Project are mostly Munson and Belgrade silt loams which have a higher k-value and thereby a higher susceptibility to erosion. Therefore, the Project is considered to have a moderate-to-high risk of soil erosion. Any risks related to potential soil erodibility are intended to be minimized via implementation of a site-specific Erosion Prevention and Sediment Control (“EPSC”) plan.

Hydrologic soil groups (“HSG”) established by the NRCS are based on estimates of runoff potential, with four classifications (A, B, C, and D) based on their rate of water infiltration under certain conditions, with HSG A having the least runoff potential and HSG D having the greatest runoff potential. The Project Site is primarily underlain by HSG C soils indicating a higher potential for runoff. Implementation of the EPSC plan will take these site-specific factors into consideration to reduce potential for runoff.

For Project construction, direct earth disturbance is necessary for the access drive construction and drainage, tree clearing/grubbing, underground electric lines, interconnection facilities, removal of select existing pavement and utilities and use of staging areas. Other areas within the array that are not underlain by existing pavement have the potential to be indirectly disturbed by equipment during construction. The total area of potential disturbance within the Project’s limit of work is approximately 7.8 (±) acres.

Because soil disturbance for Project construction will total more than one-acre, the Project will be required to obtain coverage from the Vermont Stormwater program. The initial risk-category evaluation determined that the Project will qualify for an Individual Construction Stormwater Discharge Permit (“INDC”). The Project will implement EPSC BMPs to minimize soil erosion and reduce the potential for sediment-laden runoff to reach receiving waters. The installation and maintenance of BMPs will prevent any undue soil erosion from all areas of earth disturbance. BMPs that will be implemented as part of the Project include, but are not necessarily limited to, a stabilized construction entrance to minimize tracking of soil by vehicles, demarcation of disturbed areas with barrier tape, installing perimeter controls such as silt fence and construction fencing, and installing straw wattles at numerous locations parallel to the slope within the array to prevent erosion and the creation of rills.

¹ Soils that can be adequately drained are assigned to dual hydrologic soil groups (A/D, B/D, and C/D) based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high-water table is kept at least 60 centimeters [24 inches] below the surface in a soil where it would be higher in a natural state (USDA NRCS 2007).

Based on evaluation of the proposed Project, it is VHB's opinion that the Project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition results.

References:

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