Stantec Consulting Services Inc.
30 Park Drive, Topsham ME 04086-1737

October 26, 2023
File: 195602046

Attention: Chip Stephens, Code Enforcement Officer
Town of Readfield
8 Old Kents Hill Road
Readfield, ME 04355

VIA: Fed Ex

Reference: Readfield Main Street Solar Project – Zoning Designation Request – Commercial, Industrial and Infrastructure District

Dear Chip and Planning Board Members,

On behalf of Readfield Main Street Solar, LLC (Applicant), Stantec Consulting Services Inc. (Stantec) is filing a request for zoning designation to support the installation and operation of the Readfield Main Street Solar Project (Project). Readfield Main Street Solar, LLC, is managed by Norwich Technologies Inc. with offices in Brunswick, Maine.

The proposed Project is an approximately 975 kilowatt alternating current solar facility on the parcel found at Tax Map 143, Lot 14 located on the south side of Main Street (Route 17) in the Rural District. The Project includes a structure area (solar panels) greater than 5,000 square feet. Therefore, in accordance with Article 9 of the Land Use Ordinance for the Town of Readfield, the Applicant is requesting the Project parcel be designated as Commercial, Industrial and Infrastructure District.

The Applicant attended a pre-application meeting with the Code Enforcement Officer (CEO) on April 1, 2022, filed a Site Review Application for the Project on August 7, 2023, and attended the Planning Board meeting on September 26, 2023. Additionally, the Applicant had a follow-up meeting with the CEO and Planning Board Chair on October 16, 2023 to discuss the requirements of Article 9 of the Land Use Ordinance and the zoning designation process.

In accordance with the Article 9 of the Land Use Ordinance for the Town of Readfield, the enclosed application includes the following:

- Narrative – Standards, General Requirements, and Application Requirements
- Attachment A – Site Plans
- Attachment B – NRCS Soil Resource Report
- Attachment C – Wetland and Watercourse Delineation and Vernal Pool Survey Report
- Attachment D – Agency Correspondence
- Attachment E – Sound Assessment
- Attachment F – Agent Authorization

This submittal includes 11 copies of the complete application package.

Reference: Readfield Main Street Solar Project – Zoning Designation Request – Commercial, Industrial and Infrastructure District

We look forward to discussing this request with the Planning Board during the meeting scheduled for November 14, 2023. Please let me know if you have any questions about the enclosed materials.

Regards,

Stantec Consulting Services Inc.

Kara Moody
Senior Associate
Phone: 207-406-5505
kara.moody@stantec.com

Attachments: Zoning Designation Application Package and Site Plans

c. Martha Staskus, Readfield Main Street Solar, LLC

Readfield Main Street Solar Project

Zoning Designation Application – Commercial, Industrial and Infrastructure District

Readfield, ME 04355

Tax Map 143, Lot 14

CONTENTS

Reference: Readfield Main Street Solar Project – Zoning Designation Request – Commercial, Industrial and Infrastructure District

PROJECT OVERVIEW

Readfield Main Street Solar, LLC (the Applicant), proposes to construct the Readfield Main Street Solar Project (Project), a distributed generation solar energy facility on the south side of Main Street (Route 17) in Readfield. Norwich Technologies Inc. (Norwich) manages the Applicant. The proposed Project is located on Tax Map 143, Lot 14 which includes approximately 71.93 acres, primarily comprised of open land within which the Project is sited.

The Project is a ground-mounted solar facility comprised of photovoltaic modules (solar panels) installed on a fixed-tilt racking system supported by driven posts or ground screws. The racking system is designed to support the bottom of the solar panels approximately 3 feet above grade to the top of the panels at a maximum of 10 feet above grade. The array will be arranged in multiple rows running generally east-west with sufficient distance between the rows to minimize shading. The solar array will have an installed capacity of up to 975 kilowatts alternating current (kWac).

Other Project features will include two equipment pads to support the Project equipment, a temporary staging area, a gravel driveway off Main Street, and a medium voltage electrical collector line that will connect the solar array to the electrical grid at a point of interconnection (POI) with the utility distribution circuit on Main Street. The electrical collector line will be installed underground within the array footprint and along the Project driveway to the POI. Perimeter fencing with an access gate will be installed around the array in compliance with the National Electrical Code (NEC). The gate will be secured with a Knox Box lock (or similar locking mechanism) to provide for public safety and allow emergency services access. Following Project construction, the area in and around the array will be maintained as a meadow.

The total fenced Project area will include approximately 9.59 acres; the total Project limits including the access road and vegetation clearing to prevent shading of the panels will include approximately 17.51 acres; and the total permanent impervious area associated with the Project will be approximately 0.25 acre. Based upon the Town of Readfield Solar Ordinance, the Project is considered a large-scale solar energy system.

The Project is located within the Rural District where solar is a permitted use. As described in the Land use Ordinance, the purpose of the Rural District is to ensure that proposed development and land uses are compatible with the preservation of Readfield's open, rural character and are protective of sensitive natural resources and visual/scenic quality. The Rural District also accommodates certain commercial and light industry uses and strives to maintain a development patter of mixed, low density use while protecting critical natural and scenic resources. However, the Project includes a structure area (solar panels) greater than 5,000 square feet and therefore the Applicant is requesting the Project parcel be additionally designated as Commercial, Industrial and Infrastructure District.

SECTION 2 – STANDARDS

A. *The proposed zoning change shall be consistent with the Town of Readfield Comprehensive Plan and shall be in keeping with the Town's rural character.*

The proposed zoning change is consistent with the Town of Readfield Comprehensive Plan and will maintain the Town's rural character. As described in the Comprehensive Plan, the Commercial, Industrial and Infrastructure District was established for the purpose of allowing the opportunity for large scale commercial or industrial uses to locate or expand in the community if such development can be accomplished with minimal negative impact. Further, the Land Use Ordinance seeks to ensure that proposed uses are compatible with existing uses and the rural character of the Town and are protective of natural resources and visual quality.

The Project is compatible with the rural character of Readfield. The array will be set back more than 1,000 feet from Main Street with intervening forested vegetation and approximately 720 feet from the nearest existing structure. In addition, a buffer of existing forested vegetation will surround the array, as shown on Sheet C-1.0 of the Site Plans in Attachment A. Based on the setback distances, the low profile of the array, and the screening provided by existing forested vegetation, the Project is not expected to be visible from neighboring properties or roadways (unlike the 25-acre solar project approximately 1.1 miles to the west on Route 17). Additionally, the array will not impact scenic views. The solar array is predominantly sited within an open field portion of the parcel, thereby maintaining existing open space, and resulting in limited tree clearing. Furthermore, the Project will not impact natural resources, as detailed under Section 2.D below.

The General Recommendations section of the Comprehensive Plan states that the Local Economy goal is to "allow for new, commercial, service, and clean light industrial growth in designated growth areas to diversify the Town's tax base, promote local job opportunities, and make important services available for local citizens. The scale of new uses should be in keeping with existing community character." One of the strategies to meet this goal is to "direct industrial, commercial uses (excluding home occupations) including retail land uses to village areas or other districts appropriately zoned for those uses (including the Commercial Industrial District)." The Project is a "clean" use as it will generate up to 975 kWac of clean, renewable energy without emitting any air pollutants or greenhouse gases like those associated with conventional fossil fuel power facilities. The Project is sited in an appropriate zoning district as the array will be located within the Rural District. Per the Town's Solar Ordinance, large-scale solar energy systems (such as the Project) are a permitted use within the Rural District.

Another strategy to meet the Local Economy goal described above is to "maintain performance and design standards for commercial and industrial developments in the Land Use Ordinance. These standards should assure that all development subject to review is well planned, minimizes environmental impacts, makes effective use of the site, provides adequate and safe vehicular access, and protects adjacent residential neighborhoods and commercial establishments." The Project has been designed to minimize environmental impacts. As described below, the Project will not impact natural resources, significant wildlife habitat, rare plant habitat, or significant natural communities. The Project will provide for adequate and safe vehicular access at an existing entrance off Route 17 that will be improved. Once operational, access to the array will be infrequent and limited to seasonal ground maintenance and annual inspections. The Project has been sited to protect adjacent residential uses. Unlike the 25-acre solar project that is approximately 1.1 miles to the west on Route 17, the Readfield Main Street Solar Project is not expected to be visible from neighboring properties or roadways.

Furthermore, the Comprehensive Plan public participation process noted that the development of solar energy systems should be discouraged in areas known to have prime agricultural soils. The U.S. Department of Agriculture's Natural Resource Conservation Service web soils survey data was used to map the existing soil condition within the Project area (see Attachment B). There are no known prime farmland soils within the Project area. There is one soil type designated as farmland of statewide importance in a portion of the Project parcel; however, the array is not sited in this area. The only Project components in this portion of the parcel will be the access driveway and temporary staging area, which will be revegetated following Project construction.

B. The proposed use shall be compatible with the surrounding area with respect to rural character, existing uses and anticipated development.

The Project is compatible with the surrounding area with respect to rural character and existing uses. Existing land uses in the vicinity of the Project include undeveloped forested land, agricultural land, and residential uses, as well as an approximately 25-acre solar project located 1.1 miles west of the Project off Route 17.

Unlike the solar project referenced above that is adjacent to and visible from Route 17, the Readfield Main Street Solar Project will be set back more than 1,000 feet from Main Street and approximately 720 feet from the nearest structure. In addition, a buffer of existing forested vegetation will surround the array, as shown on Sheet C-1.0 of the Site Plans in Attachment A. Based on the setback distances and the screening provided by existing forested vegetation, the Project is not expected to be visible from neighboring properties or roadways.

The Project area is predominantly comprised of a gently sloping open field. The slope of the Project area is suitable for development of a solar array and minimizes the need for grading. The Project will require minimal tree clearing, and the existing land cover will generally remain unchanged. Following Project construction, the area in and around the solar array will be maintained as a meadow, and the land within the Project area will resemble current conditions aside from the addition of the solar array infrastructure. Once operational, the Project will passively generate solar energy.

C. The proposal shall serve the public good, safety or welfare of the Town of Readfield.

The proposed Project will serve the public good, safety, and/or welfare of the Town of Readfield. As a renewable energy source powered by the sun, this Project will contribute to reducing greenhouse gas emissions. Project operations will not generate emissions or hazardous materials with the potential to adversely affect public health. Throughout its operation, the Project will generate no air pollution, except for minimal vehicle emissions associated with periodic site and equipment maintenance visits. Additionally, the type of solar panels used for the Project will be silicon-based panels, which do not pose a risk to public health and safety.[1]

The Project will provide Maine and the region with an opportunity for the creation of a new source of clean energy and the economic benefits associated with both the construction and ongoing maintenance and operation of such a project.

Project operations will generate up to 975 kWac of clean, renewable energy without emitting any air pollutants or greenhouse gases. The proposed Project will have long-term benefits related to the use and conservation of energy resources, and, as a result, will not contribute to climate change. The operating Project will not increase demand on Town services and will not require water, discharge wastewater, burn fossil fuels, or emit pollutants, such as mercury and lead, sulfur dioxide (SO_2) and nitrogen oxides (NO_x) (criteria pollutants and precursors to acid rain and ozone), or carbon dioxide (CO_2).

The U.S. Environmental Protection Agency's Emissions and Generation Resource Integrated Database (eGRID) provides data on the environmental characteristics of electric power generated in the United States.[2] According to eGRID, the three largest sources of electricity generation in New England in 2021 were gas (54.3%), nuclear (26.3%), and hydro (5.7%). Total emission rates for Maine in 2021 were approximately equal to the following: CO_2 at 301.0 pounds per MW hour (lbs/MWh) and NO_x at 0.2 lbs/MWh. Considering these values and assuming maximum annual electricity generation of 975 kWac (0.975 MW), it is estimated that the Project will annually displace approximately 325,170 pounds of CO_2 and 234 pounds of NO_x.

D. The proposal shall be protective of all natural resources including significant wildlife habitat.

The Project will not impact natural resources, significant wildlife habitat identified or defined by the Maine Department of Inland Fisheries and Wildlife (MDIFW) or the Town of Readfield, or rare plant and animal

[1] NC Clean Energy Technology Center. 2017. Health and Safety Impacts of Solar Photovoltaics. Available at: https://nccleantech.ncsu.edu/wp-content/uploads/2018/10/Health-and-Safety-Impacts-of-Solar-Photovoltaics-2017_white-paper.pdf

[2] U.S. Environmental Protection Agency. 2021. eGRID Summary Tables 2021. Available at: https://www.epa.gov/system/files/documents/2023-01/eGRID2021_summary_tables.pdf

species, critical habitat, significant or irreplaceable natural areas as identified by the Maine Natural Areas Program (MNAP).

There are no known unique natural features within the Project area. A wetland and watercourse delineation was conducted for the Project to identify wetlands, watercourses, and vernal pools within the Project area. Five wetlands and one stream were identified on the Project parcel during the delineation, and no vernal pools were identified. The Wetland and Watercourse Delineation and Vernal Pool Survey Report is provided in Attachment C. The Project will not impact wetlands, the stream, or the area within 75 feet of the stream.

The Applicant consulted with the MDIFW regarding known locations of endangered, threatened, and special concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns in the vicinity of the Project. According to MDIFW, there are no mapped Essential or Significant Wildlife Habitats or inland fisheries habitats that will be affected by the Project. Based on historical evidence, MDIFW believes that endangered, threatened, and special concern species of bats may occur within the Project area during fall/spring migration, summer breeding season, and/or overwintering. Based on the lack of known hibernacula or maternity roost trees in the vicinity of the Project area, along with the absence of other bat overwintering habitat (e.g., talus slopes, exposed rock faces) and limited amount of tree clearing proposed, impacts to bats are not expected as a result of the Project. Necessary tree clearing will adhere to the protection guidelines for bats within the MDIFW Endangered Species Rules.[3] Correspondence received from MDIFW is included in Attachment D.

The Applicant consulted with the MNAP to request information on the presence of rare or unique botanical features documented in the vicinity of the proposed Project. Such rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. According to MNAP's Biological and Conservation Data System files, there are no rare botanical features documented within the Project area. Correspondence received from MNAP is provided in Attachment D.

SECTION 3 – GENERAL REQUIREMENTS

The Applicant shall comply with the following requirements and restrictions:

A. Only conditions and restrictions that relate to the physical development or operation of the property shall be included in the proposal.

The zoning designation proposal described herein is limited to the physical development and operation of the proposed Project. The Applicant would like to maintain the option for multiple land uses on the parcel. For example, the Project may be able to collaborate with a local farmer to grow crops or to allow for grazing, if such opportunities are available and feasible.

B. A Commercial, Industrial and Infrastructure District proposal shall not include any provision or conditions that limits or restricts the Town of Readfield zoning authority.

The Project does not include any provisions or conditions that limit or restrict the Town of Readfield zoning authority.

C. Areas currently within a Village Residential District shall not be eligible for a Commercial, Industrial and Infrastructure District redesignation.

[3] MDIFW Endangered Species Rule, Chapter 8.06. Available at: http://www.maine.gov/sos/cec/rules/09/137/137c008.docx.

The Project is not located within a Village Residential District. The proposed solar array is located within the Rural District.

D. Land uses within a Commercial, Industrial and Infrastructure District shall be limited to those allowed in the Table of Uses in Article 7 for the district as designated at the time of application for a Commercial, Industrial and Infrastructure redesignation.

The proposed use, a large-scale solar energy system, is an allowed use within the Rural District.

E. The terms, conditions and restrictions of the zoning agreement shall run with the land and bind all future owners of the land or any other person who claims an interest in the property.

The Applicant understands that the terms, conditions, and restrictions of the zoning agreement will run with the land and will bind future owners or others who claim an interest in the property.

F. All development and use of the proposed re-zoned property shall comply with all applicable standards and requirements in this Ordinance (Article 9: Commercial, Industrial and Infrastructure District Adoption Procedures).

The Applicant understands that all development and use of the proposed re-zoned property shall comply with all applicable standards and requirements described in Article 9 of the Land Use Ordinance. The proposed Project complies with Article 9 standards as described in Section 2 above, as well as Article 9 requirements described in Sections 3 and 4 of this application.

G. Any conditions or requirements placed upon the proposed rezoning may be more restrictive but shall not be less restrictive than the applicable requirements of this Ordinance.

The Applicant understands that conditions or requirements placed on the proposed rezoning may be more restrictive than the applicable requirements of the Land Use Ordinance.

H. An agreement containing all conditions and restrictions of a Commercial, Industrial and Infrastructure District proposal shall be recorded in the Kennebec County Registry of Deeds within 10 days of the date that it is approved at the Town Meeting. The rezoning shall not become effective until the agreement is recorded.

The Applicant understands and agrees to the recording requirement associated with the Commercial, Industrial and Infrastructure District proposal.

I. Any violation of the terms, conditions and the restrictions contained in the zoning agreement shall be violations of this Ordinance and subject to applicable enforcement standards. A statement to this effect shall be included in the zoning agreement.

The Applicant understands that any violation of the terms, conditions, and restrictions in the zoning agreement will be a violation of the Land Use Ordinance of the Town of Readfield and will be subject to applicable enforcement standards.

J. The proposed site has an existing or proposed access to a town, state-aid highway or state road.

The Project parcel is located on the south side of Main Street (Route 17). The Project will be accessed via an existing entrance off Route 17 that will be improved.

K. The proposal contains provisions for a buffer area along all property lines sufficient to screen adjacent land uses. A landscape buffer area shall be provided along the road frontage that allows for safe access to the site and also sufficiently screens any development from public view.

Existing forested vegetation will provide screening from roads and adjacent properties (see the Site Plans in Attachment A). The array will be set back more than 1,000 feet from Main Street, 200 feet from the nearest property line, and approximately 720 feet from the nearest structure. The array will be surrounded by existing forested vegetation that will screen the Project. Specifically, an approximately 435-foot forested buffer will remain on the north side of the array to provide screening of the Project from Main Street, and an approximately 500-foot-wide forested buffer will remain between the array and the nearest structure to provide a visual screen. Approximately 50 feet and 25 feet of existing forested vegetation will remain along the western and eastern property lines, respectively.

L. The site plan shall show the future locations of all proposed structures or provide a written set of design standards for the placement of future structures. Structures shall be located on the site in a manner so as to protect the environment, minimize off-site impacts such as noise, light, and odors, provide the maximum visual screening from adjacent roads and property, and be in keeping with the Town's character.

The locations of structures are depicted on the Site Plans provided in Attachment A. Project structures have been located in a manner so as to protect the environment, minimize off-site impacts such as noise, light, and odors, provide the maximum visual screening from adjacent roads and property, and be in keeping with the Town's character.

Environment

The solar array and associated Project features (e.g., collector lines, access driveway) have been sited to avoid impacts to natural resources.

Noise

The anticipated sound level of the Project is based on two components: inverters (100-125 kilowatts) and transformers (up to 1,000 kilovolt-amperes). It is important to note that these Project components only generate noise when the sun is up and that sound levels are proportional to electric load. Based on the equipment specifications, noise levels at inverter locations are expected to be 65 A-weighted decibels (dBA) at a distance of 3.3 feet, 29.3 dBA at a distance of 200 feet, and 19.8 dBA at a distance of 600 feet. Noise levels at the 1,000-kilovolt-amperes transformer are expected to be 64 dBA at 3.3 feet, 28.3 dBA at 200 feet, and 18.8 dBA at 600 feet. The sound assessment conducted for the Project is based on the distance of the nearest property line in relation to inverters and transformers and demonstrates the combined sound level impact is anticipated to be approximately 32.8 dBA (see Attachment E). For comparison, the sound level of a quiet rural area is approximately 30 dBA and a library is approximately 40 dBA. The Project is incompliance with the most restrictive sound level limits set by MDEP for abutting parcels containing a residence, which are 55 dBA during daytime hours (7:00 am to 7:00 pm) and 45 dBA during nighttime hours (7:00 pm to 7:00 am).

Light

The Project does not require and will therefore not include lighting.

Odors

The Project will not generate any odors during operations. Only limited, short-term odors may be generated during construction by exhaust from construction equipment.

Visual Screening

Existing forested vegetation will provide screening from roads and adjacent properties. Additional details are provided in Section 3.K above.

Town Character

The Project will be compatible with the rural character of Readfield, as described in Sections 2.A and 2.B above.

M. The proposal shall include a list of those uses planned to be developed in the Commercial, Industrial and Infrastructure District.

The proposed use in the Commercial, Industrial and Infrastructure District is the development of a large-scale solar energy system consisting of the following: photovoltaic modules (solar panels) installed on a fixed-tilt racking system supported by driven posts or ground screws; two equipment pads to support the Project equipment; a gravel driveway off Main Street; a medium voltage underground electrical collector line that will connect the solar array to the electrical grid at a POI with the utility distribution line on Main Street; perimeter fencing; and a temporary staging area that will be revegetated following Project construction. The solar array will have an installed capacity of up to 975 kWac.

SECTION 4 – APPLICATION REQUIREMENTS

A. The applicant for a Commercial, Industrial and Infrastructure District proposal shall submit an application to the Code Enforcement Officer.

This narrative and the accompanying attachments constitute the application for Commercial, Industrial and Infrastructure District designation for Tax Map 143, Lot 17.

B. The application shall include the following:

1. A survey plan of the site showing all applicable details required in Article 6, Section 3.J.1.c.

The Project Site Plans are provided in Attachment A.

2. A narrative describing the proposal and how it specifically meets all the standards and requirements contained in this Article.

This application narrative and associated attachments provide a description of the proposed Project and how it meets the standards and requirements of Article 9 of the Land Use Ordinance.

3. A copy of the conditions and restrictions proposed for the property.

There are no conditions or restrictions proposed for the property.

4. A timetable indicating the start and completion dates of the development or construction in the proposed rezoned area.

Pending receipt of all local and state approvals and the Central Maine Power Company interconnection schedule, construction of the Project is projected to begin in the second quarter of 2024 with the goal of Project completion set for the fourth quarter of 2024. The sequence of Project construction will generally adhere to the timeline detailed in Table 1, although adjustments may be necessary to accommodate seasonality, weather conditions, and the interconnecting utility.

Table 1. Estimated Construction Activity Timeline

Project Phase	Timeframe (2024)
Preliminary layout and staking of improved and new driveway segment and solar array/staging area	June
Install erosion control; grubbing (as needed)	June
Underground electrical work; racking posts and modules installation	July – August
Substantial completion and commissioning	September
Begin commercial operations	October

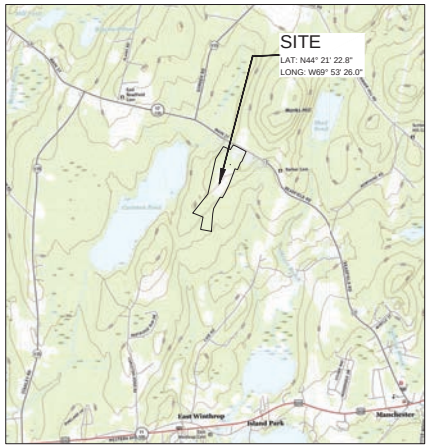
ATTACHMENT A: SITE PLANS

READFIELD MAIN STREET SOLAR, LLC

CIVIL SITE PLANS

PROPOSED PHOTOVOLTAIC POWER GENERATION FACILITY

MAIN STREET READFIELD, MAINE



READFIELD, ME LOCATION MAP
SCALE: 1" = 1/2 Mile

SHEET INDEX

READFIELD MAIN STREET SOLAR, LLC
Main Street
Readfield, Maine

NORWICH SOLAR
Brunswick, Maine

Stantec

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horizons Engineering
NEWPORT VT ★ LITTLETON NH ★ NEW LONDON NH
POMFRET VT ★ KENNEBUNK ME ★ CONWAY NH

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
Stantec
30 Park Drive
Topsham, Maine 04086

Electrical:
Norwich Solar
14 Maine Street, Suite 305C-1, Box 49
Brunswick, Maine 04011

Surveying:
Horizons Engineering, Inc.
1040 Portland Road
Saco, Maine 04072

STATE OF MAINE — IAN A. JESKEY — NO. 17165 — LICENSED PROFESSIONAL ENGINEER

10/24/2023

REV. NO.	REVISIONS/COMMENTS	DATE
1	NO CHANGES TO THIS SHEET	10/24/23
2		
3		
4		

DRAWING TITLE:

INDEX SHEET
READFIELD MAIN STREET SOLAR, LLC

DATE of Issue: 07/31/23

Drawn by: LJM Checked by: IAJ

Project No.: 22124 Scale: N/A

Drawing No.: Rev No.:

DWG NAME: Readfield_Main_Street_Base.dwg

GENERAL NOTES

1. OWNER OF RECORD:

   ESTATE OF WILLIAM C. HEWETT
   490 GORDON ROAD
   READFIELD, MAINE

2. REFERENCE DEED:

   A. DEED OF TRUSTEE FROM COLIN C. HEWETT (TRUSTEE) UNDER WILLIAM C. AND CARLENE J. HEWETT FAMILY TRUST TO WILLIAM C. HEWETT, DATED AUGUST 28, 2019 AND RECORDED IN THE KENNEBEC COUNTY REGISTRY OF DEEDS BOOK 13355 PAGE 23.

   B. WARRANTY DEED FROM AUGUSTA WATER DISTRICT TO CHARLES O. ELVIN, DATED JANUARY 11, 1910 AND RECORDED IN THE KENNEBEC COUNTY REGISTRY OF DEEDS IN BOOK 544, PAGE 253.

3. REFERENCE PLAN:

   A. MAINE STATE HIGHWAY COMMISSION MAP, STATE AID HIGHWAY No. 1-A TOWN OF READFIELD, PROJECT NUMBER S-53-(1), SHEET NUMBERS 4-5, DATED MAY 1946.

4. THE BEARINGS SHOWN HEREON REFER TO THE MAINE WEST COORDINATE SYSTEM (NAD83), VERTICAL DATUM IS NAVD88 TAKEN FROM STATIC GPS OBSERVATIONS PROCESSED BY OPUS.

5. TOPOGRAPHY SHOWN HEREON IS BASED ON DEM (DIGITAL ELEVATION MODEL) DATA FILES MADE AVAILABLE TO THE PUBLIC BY THE STATE OF MAINE.

6. THIS PLAN IS BASED ON A FIELD SURVEY COMPLETED ON JANUARY 20, 2022 WITH CARLSON BRX7 SURVEY GRADE GPS RECEIVERS AND A LEICA 1200 SERIES ROBOTIC TOTAL STATION.

LEGEND

- IRON PIPE OR ROD FOUND (DIMENSIONS LABELED ON PLAN)
- STONE MONUMENT FOUND
- CALCULATED CORNER
- UTILITY POLE
- SURVEYED PARCEL LINE
- ABUTTING PARCEL LINE
- STONE WALL
- OHE — OVERHEAD ELECTRIC
- TREE LINE
- PAVEMENT
- WIRE FENCE
- TRAIL
- ['ELY 26 RODS 16 FEET'] DENOTES RECORD DIMENSION

SCALE: 1" = 200'

0 100' 200' 400' 800'

SCALE IN FEET

CERTIFICATION:

I HEREBY CERTIFY THAT THIS BOUNDARY SURVEY CONFORMS WITH THE MAINE BOARD OF LAND SURVEYORS RULES, CHAPTER 90: STANDARDS OF PRACTICE.

ANDREW J. NADEAU, PLS 2326 — *DATE* 9/14/22

horizons Engineering
Civil and Structural Engineering
Land Surveying and Environmental Consulting
MAINE ● NEW HAMPSHIRE ● VERMONT
www.horizonsengineering.com

NORWICH SOLAR TECHNOLOGIES, INC.

MAIN STREET/ME ROUTE 17

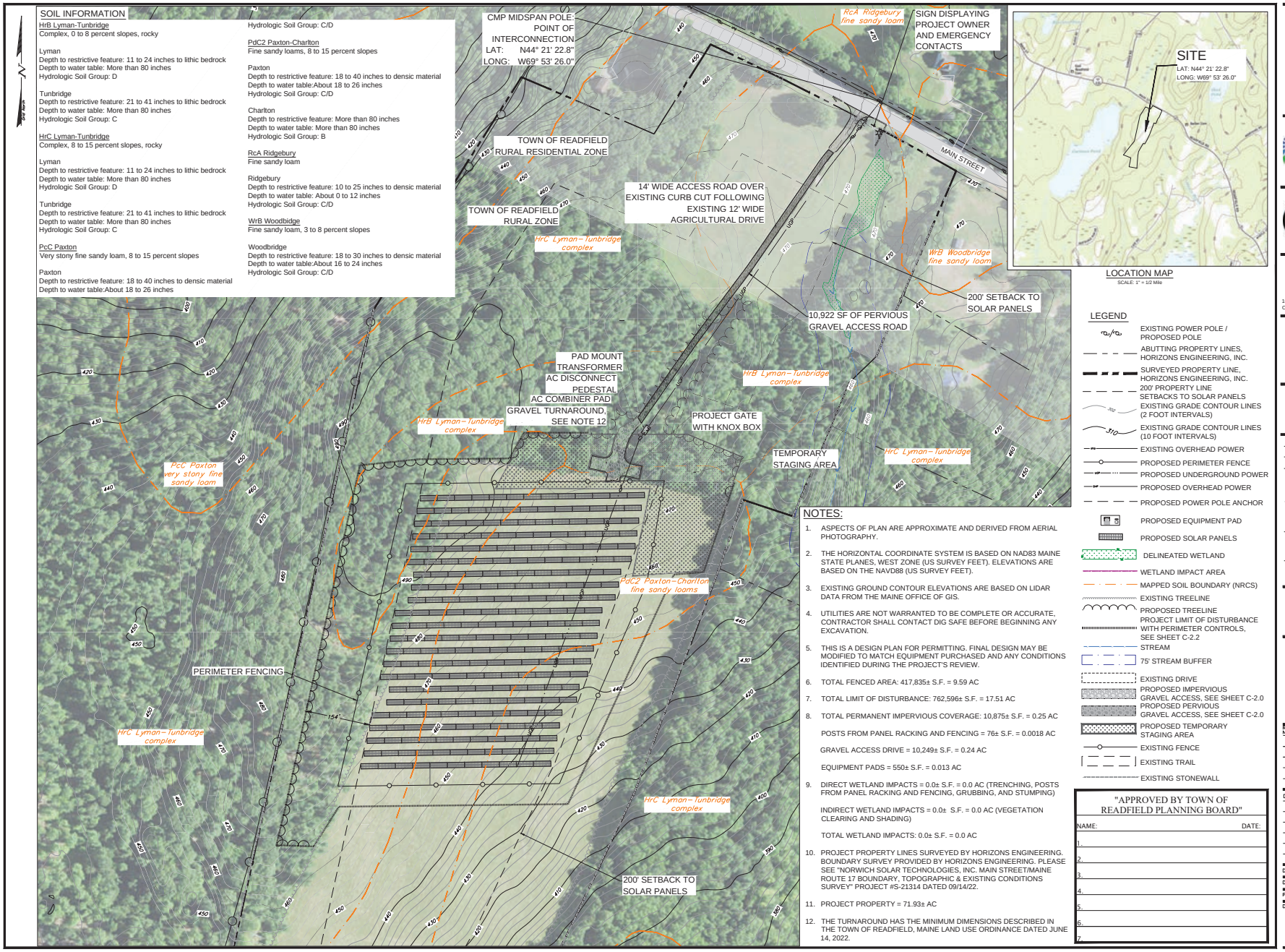
READFIELD, KENNEBEC COUNTY - MAINE

BOUNDARY, TOPOGRAPHIC & EXISTING CONDITIONS SURVEY

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

DATE: 9/14/2022	PROJECT #: S-21314
SURV'D BY: JDN/DG	DRAWN BY: JDN/RMF
CHECK'D BY: AJN	ARCHIVE #: H-___

SHEET 1 OF 1



SOIL INFORMATION

HrB Lyman-Tunbridge
Complex, 0 to 8 percent slopes, rocky

Lyman
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Depth to water table: More than 80 inches
Hydrologic Soil Group: D

Tunbridge
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Depth to water table: More than 80 inches
Hydrologic Soil Group: C

HrC Lyman-Tunbridge
Complex, 8 to 15 percent slopes, rocky

Lyman
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Depth to water table: More than 80 inches
Hydrologic Soil Group: D

Tunbridge
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Depth to water table: More than 80 inches
Hydrologic Soil Group: C

PcC Paxton
Very stony fine sandy loam, 8 to 15 percent slopes

Paxton
Depth to restrictive feature: 18 to 40 inches to densic material
Depth to water table:About 18 to 26 inches
Hydrologic Soil Group: C/D

PdC2 Paxton-Charlton
Fine sandy loams, 8 to 15 percent slopes

Paxton
Depth to restrictive feature: 18 to 40 inches to densic material
Depth to water table:About 18 to 26 inches
Hydrologic Soil Group: C/D

Charlton
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

RcA Ridgebury
Fine sandy loam

Ridgebury
Depth to restrictive feature: 10 to 25 inches to densic material
Depth to water table: About 0 to 12 inches
Hydrologic Soil Group: C/D

WrB Woodbridge
Fine sandy loam, 3 to 8 percent slopes

Woodbridge
Depth to restrictive feature: 18 to 30 inches to densic material
Depth to water table:About 16 to 24 inches
Hydrologic Soil Group: C/D

LOCATION MAP
SCALE: 1" = 1/2 Mile

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- ABUTTING PROPERTY LINES, HORIZONS ENGINEERING, INC.
- SURVEYED PROPERTY LINE, HORIZONS ENGINEERING, INC.
- 200' PROPERTY LINE SETBACKS TO SOLAR PANELS
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING OVERHEAD POWER
- PROPOSED PERIMETER FENCE
- PROPOSED UNDERGROUND POWER
- PROPOSED OVERHEAD POWER
- PROPOSED POWER POLE ANCHOR
- PROPOSED EQUIPMENT PAD
- PROPOSED SOLAR PANELS
- DELINEATED WETLAND
- WETLAND IMPACT AREA
- MAPPED SOIL BOUNDARY (NRCS)
- EXISTING TREELINE
- PROPOSED TREELINE
- PROJECT LIMIT OF DISTURBANCE WITH PERIMETER CONTROLS, SEE SHEET C-2.2
- STREAM
- 75' STREAM BUFFER
- EXISTING DRIVE
- PROPOSED IMPERVIOUS GRAVEL ACCESS, SEE SHEET C-2.0
- PROPOSED PERVIOUS GRAVEL ACCESS, SEE SHEET C-2.0
- PROPOSED TEMPORARY STAGING AREA
- EXISTING FENCE
- EXISTING TRAIL
- EXISTING STONEWALL

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, WEST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON LIDAR DATA FROM THE MAINE OFFICE OF GIS.
4. UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE, CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
5. THIS IS A DESIGN PLAN FOR PERMITTING. FINAL DESIGN MAY BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND ANY CONDITIONS IDENTIFIED DURING THE PROJECT'S REVIEW.
6. TOTAL FENCED AREA: 417,835± S.F. = 9.59 AC
7. TOTAL LIMIT OF DISTURBANCE: 762,596± S.F. = 17.51 AC
8. TOTAL PERMANENT IMPERVIOUS COVERAGE: 10,875± S.F. = 0.25 AC

   POSTS FROM PANEL RACKING AND FENCING = 76± S.F. = 0.0018 AC

   GRAVEL ACCESS DRIVE = 10,249± S.F. = 0.24 AC

   EQUIPMENT PADS = 550± S.F. = 0.013 AC
9. DIRECT WETLAND IMPACTS = 0.0± S.F. = 0.0 AC (TRENCHING, POSTS FROM PANEL RACKING AND FENCING, GRUBBING, AND STUMPING)

   INDIRECT WETLAND IMPACTS = 0.0± S.F. = 0.0 AC (VEGETATION CLEARING AND SHADING)

   TOTAL WETLAND IMPACTS: 0.0± S.F. = 0.0 AC
10. PROJECT PROPERTY LINES SURVEYED BY HORIZONS ENGINEERING. BOUNDARY SURVEY PROVIDED BY HORIZONS ENGINEERING. PLEASE SEE "NORWICH SOLAR TECHNOLOGIES, INC. MAIN STREET/MAINE ROUTE 17 BOUNDARY, TOPOGRAPHIC & EXISTING CONDITIONS SURVEY" PROJECT #S-21314 DATED 09/14/22.
11. PROJECT PROPERTY = 71.93± AC
12. THE TURNAROUND HAS THE MINIMUM DIMENSIONS DESCRIBED IN THE TOWN OF READFIELD, MAINE LAND USE ORDINANCE DATED JUNE 14, 2022.

"APPROVED BY TOWN OF READFIELD PLANNING BOARD"

NAME: DATE:

1.
2.
3.
4.
5.
6.
7.

READFIELD MAIN STREET SOLAR, LLC

Main Street
Readfield, Maine

NORWICH SOLAR
Brunswick, Maine

Stantec

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
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horizons Engineering
NEWPORT VT • LITTLETON NH • NEW LONDON NH
POMFRET VT • KENNEBUNK ME • CONWAY NH

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
Stantec
30 Park Drive
Topsham, Maine 04086

Electrical:
Norwich Solar
14 Maine Street, Suite 305C-1, Box 49
Brunswick, Maine 04011

Surveying:
Horizons Engineering, Inc.
1040 Portland Road
Saco, Maine 04072

0' 150' 300' 450'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 150')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

STATE OF MAINE — IAN A. JOHNSON — No. 12765 — PROFESSIONAL ENGINEER

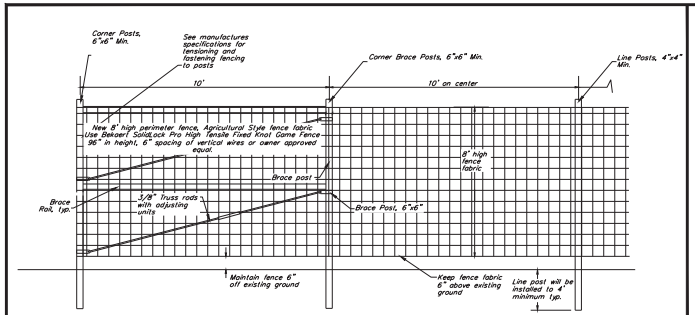
10/24/2023

REV NO.	REVISIONS/COMMENTS	DATE
1	OVERHEAD POWER CHANGED TO UNDERGROUND POWER BY ACCESS	10/24/23
2		
3		
4		

DRAWING TITLE:

SITE PLAN
READFIELD MAIN STREET SOLAR, LLC

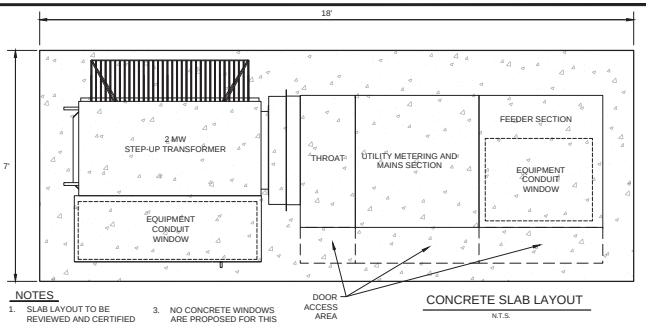
DATE of Issue: 07/31/23
Drawn by: LJM Checked by: IAJ
Project No.: 22124 Scale: 1" = 150'
Drawing No.: C-1.0 Rev No.:



TYPICAL AGRICULTURAL FENCE

N.T.S.

Note:
-Agricultural style fence requires strong corner brace post assemblies, see Bekaert for additional specifications
-Additional bracing may be required on longer fence runs. Contractor to add additional bracing when contractor observes corner post deflection during fence tensioning/fastening.
-Fabric to be fastened with manufacturer approved corrosion resistant staples
-Fabric to be Bekaert SolidLock Pro High Tensile Fixed Knot Game Fence. Height: 96". Vertical Spacing of Wires: 6" or owner approved equal

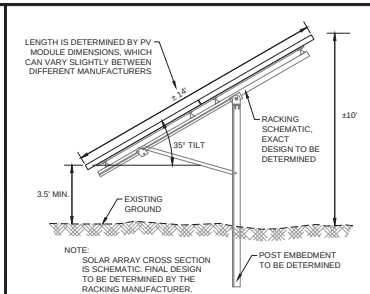


NOTES

1. SLAB LAYOUT TO BE REVIEWED AND CERTIFIED BY ELECTRICAL ENGINEER PRIOR TO INSTALLATION.
2. CONTRACTOR TO VERIFY LOCATIONS OF REBAR IN SLAB AND REDUCE CONFLICTS WITH DRILL LOCATIONS FOR EQUIPMENT SUPPORTS.
3. NO CONCRETE WINDOWS ARE PROPOSED FOR THIS SLAB. CONDUIT WILL BE INSTALLED PRIOR TO POURING CONCRETE. STUB CONDUIT UP THROUGH THE PREPARED SLAB IN THE EQUIPMENT WINDOW LOCATIONS SHOWN AND POUR CONCRETE AROUND STUBBED CONDUIT.

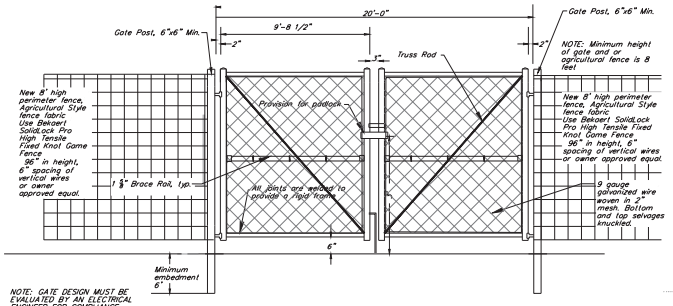
CONCRETE SLAB LAYOUT

N.T.S.



TYPICAL SOLAR ARRAY CROSS SECTION (RENDERING)

N.T.S.



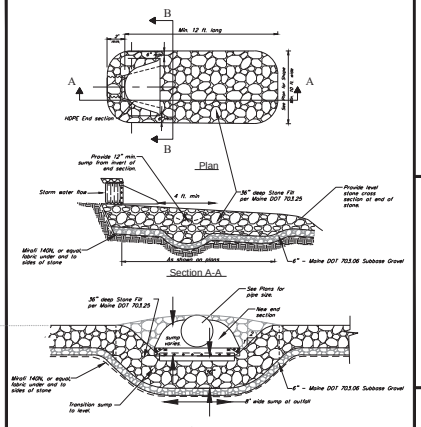
NOTE: GATE DESIGN MUST BE EVALUATED BY AN ELECTRICAL ENGINEER FOR COMPLIANCE WITH ELECTRIC CODE.

Contractor to supply shop drawing of swing gate. Movable portion of gate will be evaluated for durability, reliability, ease of operation by Owner.

PERMANENT SWING GATE

N.T.S.

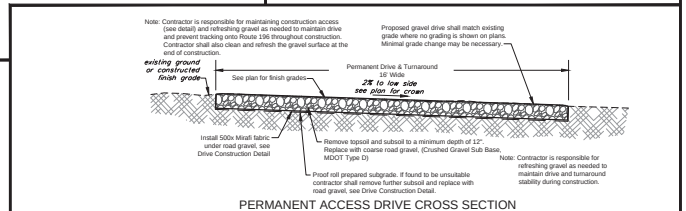
Provide Knox Box for emergency access, coordinate location and type with fire department.



Section B-B

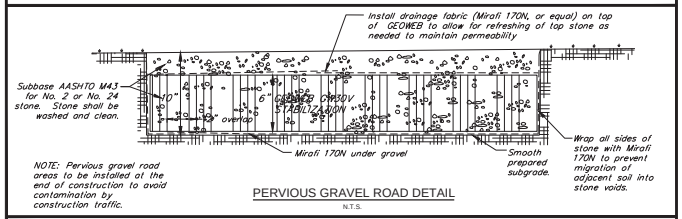
Typical Rip Rap Outfall and Energy Dissipation Pad Detail

N.T.S.



PERMANENT ACCESS DRIVE CROSS SECTION

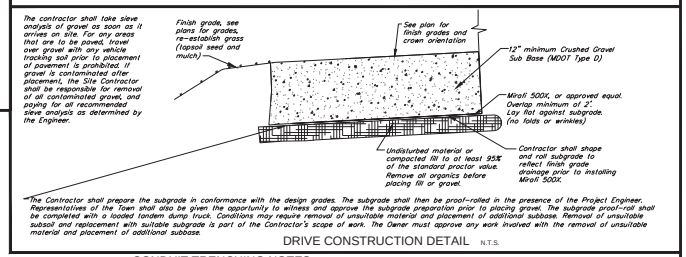
N.T.S.



NOTE: Pervious gravel road areas to be installed at the end of construction to avoid contamination by construction traffic.

PERVIOUS GRAVEL ROAD DETAIL

N.T.S.



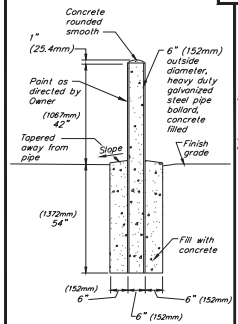
The contractor shall take sieve analysis of gravel as soon as it arrives on site. For any areas that are to be paved, travel over gravel with any vehicle tracking soil prior to placement of pavement is prohibited. If gravel is contaminated after placement, the Site Contractor shall be responsible for removal of all contaminated gravel, and paying for all recommended sieve analysis as determined by the Engineer.

The Contractor shall prepare the subgrade in conformance with the design grades. The subgrade shall then be proof-rolled in the presence of the Project Engineer. Representatives of the Town shall also be given the opportunity to witness and approve the subgrade preparation prior to placing gravel. The subgrade proof-roll shall be completed with a loaded tandem dump truck. Conditions may require removal of unsuitable material and placement of additional subbase. Removal of unsuitable subsoil and replacement with suitable subgrade is part of the Contractor's scope of work. The Owner must approve any work involved with the removal of unsuitable material and placement of additional subbase.

DRIVE CONSTRUCTION DETAIL N.T.S.

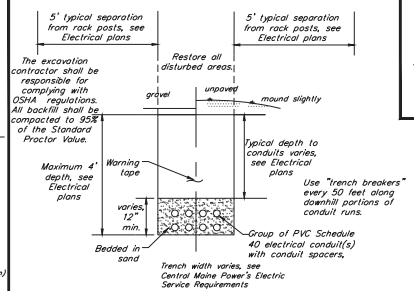
CONSTRUCTION NOTES

1. The methods and materials of construction shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by Engineer. All work shall be done in a workmanlike manner and completed in the time specified by Owner.
2. The Contractor shall be responsible for all work and materials shown and required to make the job complete. These drawings do not show every fitting or appurtenance. Materials shall be as specified on the drawings. Manufacturer's product specifications shall be submitted for all materials to the Engineer for approval prior to installation.
3. The location and size of existing underground utilities is not warranted to be exact or complete. The Contractor shall field locate all utilities and shall contact the affected utility company, the Engineer and the Town prior to making any hook ups. The Contractor shall be solely responsible for all existing utilities and their uninterrupted services. All off-site backfill, sheeting and shoring, dewatering, clearing and grubbing, erosion control, dust control, traffic control, grading, and all incidentals shall be included as part of the required work.
4. The Contractor shall verify all temporary bench marks before use.
5. The workmen and public shall be protected by the Contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flagmen. All barricades left in position overnight are to be properly lighted. Kerosene pots are not acceptable. When work narrows the usable pavement, flagmen shall be employed to aid the flow of traffic so that there will be no undue delays. The Contractor shall be held responsible for the safety of all workmen and the general public and all damages to property occurring from or upon the work occasioned by negligence or otherwise growing out of a failure on the part of the Contractor to protect persons or property from hazards of open trenches, materials, or equipment at any time of the day or night within the working area. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652.
6. The Contractor shall verify all utility intersections and contact Engineer and Owner with conflicts.
7. The Contractor shall call, Dig Safe or other approved equal underground utility identifier prior to any excavation.
8. The Contractor shall coordinate with final electrical, structural and landscaping plans.



OPTIONAL PIPE BOLLARD DETAIL

N.T.S.



TYPICAL CONDUIT TRENCH

N.T.S.

CONDUIT TRENCHING NOTES

1. The methods and materials of construction shall conform to the latest standards of Central Maine Power's Handbook of Requirements and the State of Maine. All work shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by the Owners Representative.
2. The excavation contractor shall dig the conduit trenching and assist the Electrician in placing the conduit. The conduits shall be placed with conduit spacers when more than two conduits are placed in a trench. All conduit and spacers shall be provided by the Electrical Contractor.
3. The excavation contractor shall allow sufficient time for the conduit to be inspected prior to backfilling. If any conduit is backfilled without inspection it will be the excavation contractor's responsibility to uncover the conduit for inspection and backfill the trench without charge.
4. The workers and public shall be protected by the excavation contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flaggers. All barricades left in position overnight are to be properly lighted. When work narrows the usable pavement, flaggers shall be employed to aid the flow of traffic so that there will be no undue delays. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652.
5. The excavation contractor is responsible for compacting all trench backfill to 95% of the Standard Proctor Value.
6. The excavation contractor is responsible for all conduit excavation and backfill necessary to complete the project.

READFIELD MAIN STREET SOLAR, LLC

Main Street
Readfield, Maine

NORWICH SOLAR
Brunswick, Maine

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Civil Engineering:
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164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
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30 Park Drive
Topsham, Maine 04086

Electrical:
Norwich Solar
14 Maine Street, Suite 305C-1, Box 49
Brunswick, Maine 04011

Surveying:
Horizons Engineering, Inc.
1040 Portland Road
Saco, Maine 04072

STATE OF MAINE
LAWRENCE A. JESSEE
NO. 17165
REGISTERED PROFESSIONAL ENGINEER

REV. NO.	REVISIONS/COMMENTS	DATE
1	TYPICAL SOLAR ARRAY CROSS SECTION HEIGHT CHANGED FROM 12' TO 10'	10/24/23
2		
3		
4		

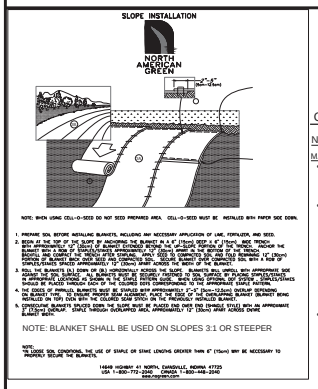
10/24/2023

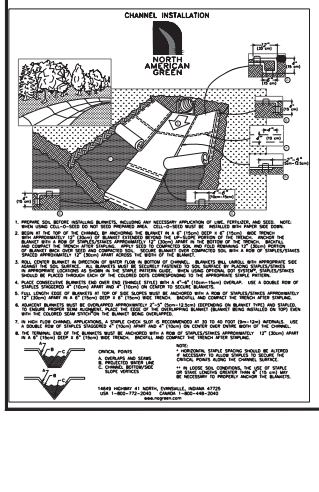
DRAWING TITLE:

STANDARD DETAILS
READFIELD MAIN
STREET SOLAR, LLC

DATE of Issue: 07/31/23
Drawn by: LJM
Checked by: IAJ
Project No.: 22124
Scale: N/A
Drawing No.: C-2.0
Rev No.:

DWG NAME: Readfield_Main_Street_Base.dwg





EROSION CONTROL BLANKET

NORTH AMERICAN GREEN S75BN

MATERIAL SPECIFICATIONS:

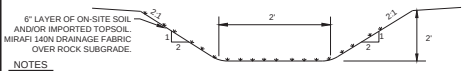
- EROSION CONTROL BLANKET SHALL BE A MACHINE-PRODUCED MAT OF 100% AGRICULTURAL STRAW.
- THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH 100% BIODEGRADABLE WOVEN NATURAL ORGANIC FIBER NETTING HAVING AN APPROXIMATE 1/2" X 1" MESH AND BE SEWN TOGETHER WITH BIODEGRADABLE THREAD.
- STRAW EROSION CONTROL BLANKET SHALL BE S75BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:

MATERIAL CONTENT:

- STRAW: 100% (0.50 lbs/sq.yd.)(0.27 kg/m²)
- NETTING: ONE SIDE ONLY, LENO WOVEN 100% BIODEGRADABLE NATURAL ORGANIC FIBER (APPROX. WEIGHT 9.3 lbs./100 sq. ft.)
- THREAD: BIODEGRADABLE

PHYSICAL SPECIFICATIONS (ROLL):

- WIDTH: 6.67 feet (2.03 m)
- LENGTH: 108 feet (32.92 m)
- WEIGHT: 46.4 lbs. ± 10% (21.05 kg)
- AREA: 80 sq. yd. (50 m²)



NOTES

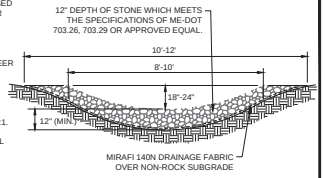
1. TYPICAL GRASS SWALE. SEE PLAN VIEW FOR LOCATIONS.
2. TYPICAL SIDE SLOPES TO BE 2:1.
3. DURING CONSTRUCTION TEMPORARILY SEEDED AND HEAVILY MULCHED. EROSION CONTROL BLANKET MAY BE NECESSARY IN STEEPER SLOPES. INSTALL BLANKET IF EROSION PERSISTS AND/OR GRASS IS HAVING DIFFICULTY GERMINATING. POST CONSTRUCTION CONTRACTOR SHALL RE-GRADE ANY EROSION, REMOVE BUILD UP SEDIMENTS, PERMANENT SEED AND HEAVILY RE-MULCH.
4. CROSS-SECTION SHALL BE EXCAVATED TO NEAT LINES AND GRADES. OVER-EXCAVATED AREAS SHALL BE BACKFILLED WITH MOIST SOIL COMPACTED TO DENSITY OF SURROUNDING MATERIAL.
5. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF IN APPROVED UPLAND AREA (PER ON SITE PLAN COORDINATOR) SUCH THAT IT DOES NOT INTERFERE WITH FUNCTION.

GRASS SWALE CROSS SECTION

N.T.S.

NOTES

1. STONE-LINED SWALES TO BE USED ON SLOPES ≥5%. DESIGNED FOR VELOCITIES LESS THAN 10 FEET PER SECOND.
2. USE RIP RAP STONE. PROVIDE QUARRY GRADATION TO ENGINEER FOR APPROVAL. STONE WHICH MEETS THE SPECIFICATIONS OF ME-DOT 703.26, 703.29 OR APPROVED EQUAL.
3. SIDE SLOPES NOT TO EXCEED 2:1.
4. STONE LINING THICKNESS SHALL BE 1.5 X MAX. STONE SIZE PLUS THE THICKNESS OF FILTER OR BEDDING.
5. ALL DISTURBED AREAS SHALL BE STABILIZED AND OTHERWISE PROTECTED AGAINST SOIL EROSION.

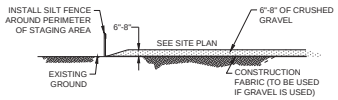


STONE SWALE CROSS SECTION

N.T.S.

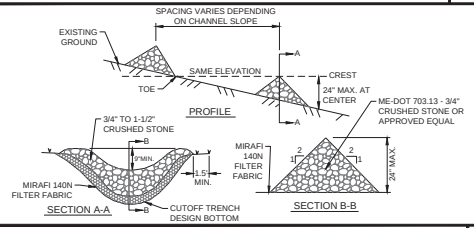
NOTES

1. SILT FENCING TO BE INSTALLED BEFORE CONSTRUCTION OF STAGING AREA IS INSTALLED.
2. INSTALL AND MAINTAIN SURFACE OF STAGING AREA WITH CONSTRUCTION FABRIC OVER EXISTING GROUND. COVER WITH 6"-8" OF CRUSHED GRAVEL, SEE DETAIL. MAINTAIN DEPTH OF GRAVEL THROUGHOUT PROJECT CONSTRUCTION.
3. INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCE, SEE DETAIL. INSTALL WOODEN GATE AT ENTRANCE OF OF STAGING AREA.
4. ALL ABUTTERS TO STAGING AREA WILL BE NOTIFIED OF THE PROJECT. DUE TO LIKELY CONSTRUCTION NOISE, ACTIVITIES AT STAGING AREA AND CONSTRUCTION SITE SHALL ABIDE BY LOCAL NOISE ORDINANCES.
5. STAGING AREA IS LIKELY TO BE USED FOR PARKING DURING CONSTRUCTION, STAGING OF CONSTRUCTION MATERIALS, BASE OF PROJECT OPERATIONS AND MISCELLANEOUS PROJECT ACTIVITIES.
6. CLOSE TO PROJECT CONSTRUCTION COMPLETION, STAGING AREA WILL BE REMOVED. GRAVEL AND CONSTRUCTION FABRIC SHALL BE REMOVED AND PROPERLY DISPOSED OF. RESTORE THE PORTION OF EXISTING MEADOW COVERED BY STAGING AREA BY SEEDING, MULCHING, AERATING, ETC AS NECESSARY TO RESTORE AREA TO ITS NATURAL PRECONSTRUCTION STATE.
7. CONTRACTOR IS RESPONSIBLE FOR REFRESHING GRAVEL AS NEEDED TO MAINTAIN STABILITY OF STABILIZED STAGING AREA.



TYPICAL STABILIZED STAGING AREA SURFACE

N.T.S.



NOTES

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

STONE CHECK DAM

N.T.S.

WINTER EROSION CONTROL PROCEDURES

(FOR ANY EARTH WORK PERFORMED BETWEEN NOVEMBER 1ST AND APRIL 15TH)

WINTER EROSION CONTROL NARRATIVE:
OBJECTIVE - ANY SITE WORK PERFORMED LATER THAN NOVEMBER 1ST WILL RESULT IN EXPOSED SOIL THROUGH THE WINTER. THIS PRESENTS A POTENTIAL FOR EROSION THROUGH THE WINTER. THE WINTER EROSION CONTROL MEASURES ARE INTENDED TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION ZONE DURING THAWS AND RAINSTORMS IN THE SPRING AND DURING MID-WINTER THAWS.

WINTER EROSION CONTROL SEQUENCE:
THE CONTRACTOR SHALL BE SURE ALL EROSION CONTROL MEASURES REQUIRED FOR WINTER CONSTRUCTION ARE INSTALLED BY NOVEMBER 1ST AND PRIOR TO GROUND FREEZING. IF A PERMITTED AREA CAN BE LEFT UNDISTURBED UNTIL THE SPRING THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LIMIT DISTURBANCE OF THESE AREAS.

THE CONTRACTOR SHALL STABILIZE ANY PORTION OF THE SITE THAT IS BEING WORKED AND DISTURBED PRIOR TO BEGINNING CONSTRUCTION AT ANOTHER AREA OF THE SITE. AT NO TIME DURING WINTER CONSTRUCTION SHALL THERE BE MORE THAN 1 ACRE OF EXPOSED SOIL OR WHAT CAN BE STABILIZED IN ONE DAY ON SITE.

ANTICIPATED WINTER CONSTRUCTION ACTIVITIES WILL INCLUDE ALL ASPECTS OF THE PROJECT PROPOSED DURING SUMMER CONSTRUCTION. THIS IS A CONTINUATION OF WORK WHICH WAS NOT COMPLETED DURING THE SUMMER. MAJOR GRADING IS EXPECTED TO BE COMPLETE BEFORE NOVEMBER 1ST.

LIMITS OF DISTURBANCE - LOD WILL BE MOVED AND/OR REPLACED TO REFLECT THE BOUNDARY OF WINTER WORK. CONTRACTOR WILL MAINTAIN A MINIMUM 25' BUFFER FROM PERIMETER CONTROLS TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.

SNOW STORAGE ON SITE - CONTRACTOR WILL CREATE A SNOW MANAGEMENT PLAN. PLAN WILL IDENTIFY LOCATIONS FOR ADEQUATE SNOW STORAGE AND CONTROL SNOW MELT. SNOW STORAGE WILL BE DOWN GRADIENT OF ALL DISTURBED AREAS AND WILL NOT PROHIBIT THE FUNCTION OF ALL PERMANENT STORMWATER TREATMENT STRUCTURES. CONTRACTOR SHALL KEEP ALL DRAINAGE STRUCTURES OPEN AND FREE OF SNOW AND ICE DAMS. CONTRACTOR SHALL NOT STORE SNOW IN ONE CENTRAL LOCATION WHICH WOULD CREATE A CENTRAL DISCHARGE POINT IN A MELTING SITUATION, ATTEMPT TO SPREAD SNOW PILES.

INSTALL SILT FENCE - SILT FENCE SHALL BE INSTALLED ON THE DOWNHILL SIDE OF THE WINTER CONSTRUCTION AREAS AND SOIL STOCKPILE AREAS, AS SHOWN ON THE PLAN, BY NOVEMBER 1ST. IF THE GROUND IS UNFROZEN, THE SILT FENCE SHALL BE DUG IN AS NORMAL. IF THE GROUND IS FROZEN CONTACT THE ENGINEER FOR ALTERNATE OPTIONS. STONE BERM, FILTREXX SILT SOXX, STRAW WATTLES, HAY BALES,ETC. ALL MAY BE USED TO KEY IN SILT FENCE AND STRENGTHEN THE BMP.

STABILIZED CONSTRUCTION ENTRANCE - THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL STABILIZED CONSTRUCTION ENTRANCES TO PREVENT SEDIMENT TRACKING OFF SITE. CONTRACTOR SHALL ENLARGE THE WIDTH OF ACCESS TO PROVIDE ADDITIONAL ROOM FOR SNOW STOCKPILING, IF NEEDED. ADDITIONAL STONE SHALL BE ADDED OR THE LENGTH SHALL BE INCREASED, IF ICE AND SNOW LIMITS CONSTRUCTION ENTRANCE'S ABILITY TO HOLD SEDIMENTS ON SITE.

WINTER STABILIZATION – ALL DISTURBED AREAS NOT INVOLVED IN WINTER CONSTRUCTION SHALL BE AT LEAST TEMPORARILY STABILIZED BY NOVEMBER 1ST. AFTER, ALL AREAS DISTURBED DURING WINTER CONSTRUCTION SHALL BE STABILIZED DAILY TO PREVENT EXPOSURE FROM RAIN EVENTS AND ACCUMULATION OF SNOWFALL (SEE EXCEPTIONS BELOW). STABILIZATION RATES IN THE WINTER WILL BE DOUBLED THE RATES LISTED IN THE MULCHING SCHEDULE. CONTRACTOR SHALL ADD ADDITIONAL STONE, AS NECESSARY, TO PROVIDE STABILIZATION THROUGH WINTER CONSTRUCTION ON ALL AREAS WHERE CONSTRUCTION TRAFFIC IS ANTICIPATED.

EXCEPTIONS:

- HYDROSEEDING AFTER NOVEMBER 1ST AND BEFORE APRIL 15TH MUST BE STABILIZED WITH STRAW MULCH OR EROSION CONTROL MATTING.
- SNOW AND/OR ICE MUST BE REMOVED TO, AT MOST, ONE INCH PRIOR TO APPLYING MULCH OR EROSION CONTROL STABILIZATION MATTING.
- IF NO PRECIPITATION, WITHIN 24 HOURS, IS FORECASTED AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
- DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS OPEN UTILITY TRENCHES, REQUIRE STABILIZATION AT THE END OF EACH WORK WEEK.

MAINTENANCE - ALL DISTURBED AREAS SHALL BE MONITORED BY THE CONTRACTOR AND THE INSPECTOR IN ACCORDANCE WITH THE PERMIT. THE CONTRACTOR AND INSPECTOR SHALL EVALUATE THE SITE AFTER A THAW OR RAINSTORM. THE CONTRACTOR OR INSPECTOR SHALL NOTIFY THE ENGINEER IF ANY EROSION CONTROL MEASURES APPEAR TO BE INADEQUATE. THE CONTRACTOR OR INSPECTOR SHALL IMMEDIATELY (WITHIN THE SAME BUSINESS DAY) IMPLEMENT ANY FURTHER EROSION CONTROL MEASURES SPECIFIED BY THE ENGINEER. THE CONTRACTOR OR INSPECTOR SHALL ADD MULCH, AS NECESSARY, THROUGHOUT THE WINTER AFTER THAWS OR RAINSTORMS. THE MULCH DEPTHS SHALL BE DOUBLED. THE MULCH AND SILT FENCE SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER (90% STABILIZATION) IS ESTABLISHED IN THE SPRING. THE SITE SHALL BE REMULCHED AND RESEEDED, IN THE SPRING, AS REQUIRED TO ESTABLISH A VIGOROUS PERMANENT GROUND COVER.

INSPECTION - THE EROSION AND SEDIMENT INSPECTOR SHALL BE RESPONSIBLE FOR, AT A MINIMUM, DAILY WRITTEN INSPECTIONS WHILE THE SITE IS DISTURBED OR WEEKLY IF EVERYTHING IS STABILIZED BUT CONSTRUCTION IS ON-GOING. IF, DURING WINTER CONSTRUCTION, EARTH DISTURBANCE ACTIVITIES TEMPORARILY CEASE AND THE SITE HAS BEEN FULLY STABILIZED, INSPECTION AND MONITORING REQUIREMENTS FOR THE INSPECTOR MAY BE REDUCED TO ONCE PER MONTH MINIMUM. ALL INSPECTION SHEETS SHALL BE KEPT ON SITE AND BE AVAILABLE UPON REQUEST.

HOUSEKEEPING PROCEDURES

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT, FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

SEE APPENDIX D FOR LICENSE BY RULE STANDARDS FOR INFILTRATION OF STORMWATER.

NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST- CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. EXCAVATION DE-WATERING. EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

6. AUTHORIZED NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON- STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:

a. DISCHARGES FROM FIREFIGHTING ACTIVITY
b. FIRE HYDRANT FLUSHINGS
c. VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED)
d. DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3)
e. ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS
f. PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED
g. UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE
h. UNCONTAMINATED GROUNDWATER OR SPRING WATER
i. FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED
j. UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5))
k. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS
l. LANDSCAPE IRRIGATION.

7. UNAUTHORIZED NON-STORMWATER DISCHARGES . THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:

a. WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS
b. FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE
c. SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING
d. TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE

8. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

READFIELD MAIN STREET SOLAR, LLC

Main Street
Readfield, Maine

NORWICH SOLAR
Brunswick, Maine

Stantec

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
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horizons Engineering
NEWPORT VT • LITTLETON NH • NEW LONDON NH
PEMFRET VT • KENNEBUNK ME • CONWAY NH

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
Stantec
30 Park Drive
Topsham, Maine 04086

Electrical:
Norwich Solar
14 Maine Street, Suite 305C-1, Box 49
Brunswick, Maine 04011

Surveying:
Horizons Engineering, Inc.
1040 Portland Road
Saco, Maine 04072

STATE OF MAINE
JAY A. JESKEY
NO. 17165
REGISTERED PROFESSIONAL ENGINEER

10/24/2023

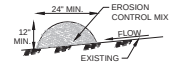
REV. NO.	REVISIONS/COMMENTS	DATE
1	NO CHANGES TO THIS SHEET	10/24/23
2		
3		
4		

DRAWING TITLE:

ESC DETAILS
READFIELD MAIN
STREET SOLAR, LLC

DATE of Issue: 07/31/23
Drawn by: LJM — Checked by: IAJ
Project No.: 22124 — Scale: N/A
Drawing No.: C-2.1 — Rev No.:

DSG NAME: Readfield_Main_Street_Base.dwg



COMPOSITION:

EROSION CONTROL MIX BERM SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH *THE MAINE EROSION CONTROL AND BEST MANAGEMENT PRACTICES (BMPS) MANUAL*, SEDIMENT CONTROL BMP, B-1 SEDIMENT BARRIERS. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED WOOD AND BARK CHIPS AND/OR ACCEPTABLE MANUFACTURED PRODUCTS. GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE. ALL MATERIALS USED TO MANUFACTURE THE EROSION CONTROL MIX SHALL BE NATIVE MAINE MATERIALS.

NOTES

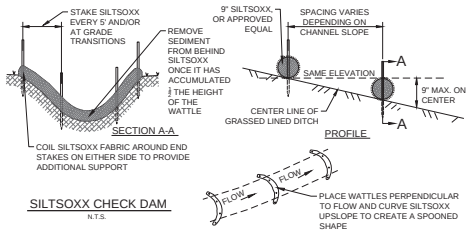
1. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BARRIER LIES NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
3. ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20' LONG, THE BARRIER MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, AND A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BARRIER SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
4. EROSION CONTROL MIX MAY BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED AND SCHEDULED ON THE DESIGN PLANS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER END SECTIONS AT OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES (UP TO 2:1 WITH ON SITE PLAN COORDINATOR APPROVAL) THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. EROSION CONTROL MIX MAY NOT BE USED IN WETLAND AREAS. EROSION CONTROL MIX MAY BE USED UPHILL OF PLANNED EARTH DISTURBANCE.

TYPICAL EROSION CONTROL MIX BERM

N.T.S.

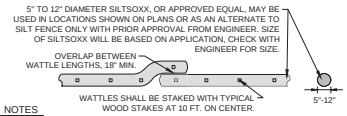
NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF SILTSOXX IN ALL LOCATIONS SHOWN ON THE PLANS. SILTSOXX MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES WATTLE FOR GROWTH POST CONSTRUCTION.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL SILTSOXX WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
3. WHEN INSTALLING LENGTHS OF SILTSOXX, LENGTHS WILL OVERLAP BY MINIMUM 2' WHEN TRANSITIONING TO A NEW LENGTH OF WATTLE.
4. CONTRACTOR SHALL REFER TO ALL MANUFACTURES SPECIFICATIONS AND DETAILS.
5. SILTSOXX CAN ONLY BE USED IN A GRASS LINED SWALE, MAY NOT BE USED IN STONE LINED SWALES.
6. SILTSOXX CHECK DAM CAN ONLY BE USED IN CHANNELS WITH SLOPES LESS THAN 5%.
5. SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.



SILTSOXX CHECK DAM

N.T.S.

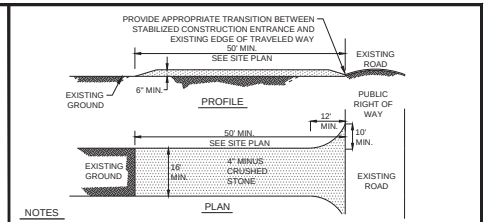


NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF SILTSOXX IN ALL LOCATIONS SHOWN ON THE PLANS. SILTSOXX MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES OVER SILTSOXX FOR GROWTH POST CONSTRUCTION.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL WATTLES WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
3. WHEN INSTALLING LENGTHS OF SILTSOXX, LENGTHS WILL OVERLAP BY MINIMUM 18" WHEN TRANSITIONING TO A NEW LENGTH OF SILTSOXX.
4. CONTRACTOR SHALL REFER TO ALL MANUFACTURES SPECIFICATIONS AND DETAILS.
5. SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.
6. SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER.

TYPICAL SILTSOXX SEDIMENT CONTROL

N.T.S.



NOTES

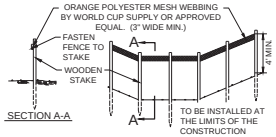
1. CONTRACTOR SHALL STABILIZE CONSTRUCTION ENTRANCE AS REQUIRED TO PREVENT TRACKING OF SEDIMENT OFF-SITE.
2. CONTRACTOR TO USE MIRAFI 500X UNDER STONE FOR TEMPORARY CONSTRUCTION ROADS.
3. CRUSHED STONE SHALL BE ADDED OR REPLACED WHEN 80% OF THE VOIDS ARE FILLED WITH SEDIMENT.
4. STONE SIZE SHALL BE 2-3" ROCK.
5. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES IS ALLOWED.

STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

NOTES

1. ACCEPTABLE EPSC MEASURE DETAILS ARE PROVIDED BELOW.
2. AT A MINIMUM, EPSC MEASURES MEET ME DEP STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
3. LIMITS OF DISTURBANCE (OR "CONSTRUCTION DEMARCATION") SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
4. BARRIER TAPE/ROPE: FOR USE WHERE PROPOSED DISTURBANCE BORDERS NON-WOODED, VEGETATED AREAS MORE THAN 100 FT FROM THE NEAREST WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.), BARRIER TAPE IS HIGH VISIBILITY FIBERGLASS TAPE, MINIMUM 3" IN WIDTH COMMONLY USED IN SKI AREAS FOR DEMARCATING CLOSED AREAS. BARRIER TAPE AND ROPE SHOULD BE ATTACHED TO STAKES, AT A MINIMUM HEIGHT OF 4 FT FROM THE GROUND.
5. MINIMUM 1 TO 2 ROWS OF MESH BARRIER TAPE TO BE INSTALLED ALONG CONSTRUCTION PERIMETER.
6. EACH ROW OF BARRIER TAPE TO BE 3" WIDE MINIMUM.
7. BARRIER TAPE TO BE ORANGE.
8. SECURE BARRIER TAPE TO STAKES OR EXISTING TREE TRUNKS WITH BOTTOM ROW AT 4' DISTANCE FROM GROUND SURFACE (MINIMUM).
9. MAINTAIN AND REPLACE AS NEEDED. REMOVE AT COMPLETION OF PROJECT PER ON SITE PLAN COORDINATOR.
10. IN EVENT THE ON SITE PLAN COORDINATOR DETERMINES BARRIER TAPE IS NOT SUFFICIENT, REPLACE WITH ORANGE CONSTRUCTION FENCE OR SNOW FENCE.

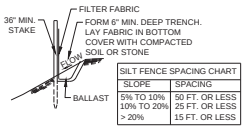


TYPICAL CONSTRUCTION LIMIT BARRIER

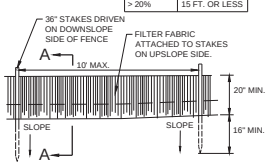
N.T.S.

NOTES

1. AT A MINIMUM, EROSION AND SEDIMENT CONTROL MEASURES MUST MEET ALL MEDEP STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
2. PERIMETER CONTROLS SHALL BE UTILIZED IN SMALL AREAS < 1 ACRE. IN AREAS > 1 ACRE, TEMPORARY SEDIMENT TRAPS OR TEMPORARY SEDIMENT BASINS ARE TO BE UTILIZED.
3. PERIMETER CONTROLS SHALL BE INSTALLED ON DOWNSLOPE SIDE OF PLANNED EARTH DISTURBANCE.
4. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES WITHIN UPSLOPE CONTRIBUTING AREA.
5. SILT FENCE SHALL NOT BE USED AS CONSTRUCTION DEMARCATION.
6. SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER. SEE DETAIL.
7. EROSION CONTROL MIX BERM CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER, EXCEPT IN AREAS OF CONCENTRATED FLOW OR IN AREAS ADJACENT TO PROTECTED ENVIRONMENTAL RESOURCES. SEE DETAIL.
8. IF SILT FENCE IS INSTALLED WHEN GROUND IS FROZEN, A GRAVEL, SHOT ROCK, OR SAND BALLAST MUST BE USED, MINIMUM OF 8".
9. WHEN DISTURBANCE IS WITHIN 75' OF A WATERBODY OR WETLAND CONTRACTOR MUST USE 2 ROWS OF SILT FENCE OR OTHER APPROVED PERIMETER BMP (SUCH AS SILT FENCE WITH FILTER SOCK OR SILT FENCE WITH EROSION CONTROL MIX).
10. INSTALL SILT FENCE AROUND DOWNGRADIENT OF ALL STOCKPILES AND PREVENT STORMWATER FROM RUNNING ONTO STOCKPILE AREAS.



SILT FENCE SPACING CHART	
SLOPE	SPACING
5% TO 10%	50 FT. OR LESS
10% TO 20%	25 FT. OR LESS
> 20%	15 FT. OR LESS



TYPICAL TEMPORARY SILT FENCE

N.T.S.

CONSTRUCTION EROSION AND SEDIMENT CONTROL INSPECTOR

1. THE CONTRACTOR SHALL DESIGNATE AN EROSION AND SEDIMENT CONTROL INSPECTOR THROUGHOUT THE ENTIRETY OF CONSTRUCTION. THE INSPECTOR OR HIS/HER DESIGNEE SHALL BE ON-SITE ON A DAILY BASIS DURING ACTIVE CONSTRUCTION.
2. THE INSPECTOR SHALL BE KNOWLEDGEABLE IN PRINCIPLES AND PRACTICES OF EROSION PREVENTION AND STORMWATER CONTROL, IMPLEMENTATION AND POSSESS SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY. TO ASSESS EFFECTIVENESS OF CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs) SELECTED TO CONTROL QUALITY OF STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY.
3. THE INSPECTOR SHALL BE RESPONSIBLE FOR ON-SITE IMPLEMENTATION OF THIS EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTIONS, MONITORING AND REPORTING.
4. INSPECTIONS SHALL BE PERFORMED AT MINIMUM ONCE A WEEK BUT ALSO PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT. A "WET WEATHER EVENT" IS DEFINED AS 0.5 INCHES OR GREATER IN A 24 HOUR PERIOD.
5. THE SCOPE OF CONSTRUCTION INSPECTIONS SHALL INCLUDE BUT ARE NOT LIMITED TO ALL THE EROSION AND SEDIMENT CONTROL MEASURES ON SITE. DOCUMENTATION OF THE OVERALL DISTURBANCE FOR THE PROJECT SITE. REVIEW OF ALL STOCKPILE AREAS AND VEHICLE EGRESSES FROM THE PROJECT SITE.
6. CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 3 YEARS. THIS DOCUMENTATION SHALL BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE AUTHORIZED BY THE OWNER. CORRECTIVE ACTIONS SHOULD BE STARTED SAME DAY COMPLETED WITHIN 7 DAYS OR BEFORE THE NEXT STORM EVENT, WHICHEVER IS FIRST.
7. THE INSPECTOR SHALL HAVE AUTHORITY TO STOP AND/OR MODIFY CONSTRUCTION ACTIVITIES AS NECESSARY TO COMPLY WITH THESE PLANS AND TERMS AND CONDITIONS OF THE PERMIT.
8. THE INSPECTORS CONTACT INFORMATION SHALL BE PROVIDED TO MAINE DEP (IF DESIRED), PROJECT ENGINEER AND PROJECT OWNER PRIOR TO START OF CONSTRUCTION.

CONSTRUCTION LIMITS FOR EROSION AND SEDIMENT CONTROL

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPs" DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION. CONTRACTOR SHALL HAVE A COPY OF THE LATEST REVISION ON SITE AT ALL TIMES.
2. CONTRACTOR SHALL LIMIT EXCAVATION AND EARTHWORK TO NO MORE THAN 10 ACRES NON-CONTIGUOUS OR 10 ACRES PER PROJECT SUBCATCHMENT THROUGHOUT THE CONSTRUCTION SITE AT ONE TIME. TEMPORARY STABILIZE ALL AREAS OF COMPLETED EXCAVATION AND EARTHWORK PRIOR TO MOVING ONTO A NEW AREA.
3. EXPOSED OR OPEN AREA FREE OF VEGETATION FROM CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY.
4. CONTRACTOR SHALL MINIMIZE THE AMOUNT OF TIME AN AREA UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT EXPOSED OR FREE OF VEGETATION. AREAS WHICH ARE INITIALLY DISTURBED BUT FURTHER CONSTRUCT IS PLANNED MUST BE TEMPORARILY STABILIZED WITHIN 7 DAYS, IF THE AREAS ARE BEING LEFT FOR AN EXTENDED PERIOD OF TIME. AREAS WHICH ARE CONSIDERED FINISHED SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF THE FINISH WORK. IF WORK IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE ABOVE MENTIONED TIMEFRAME IS REDUCED TO 2 DAYS IN BOTH THE PERMANENT AND TEMPORARY CONDITIONS.
5. ALL EROSION AND SEDIMENT CONTROL BMPs SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE. CONTRACTOR SHALL MAINTAIN THE BMPS THROUGHOUT CONSTRUCTION. REFER TO INDIVIDUAL DETAILS FOR EACH BMP.
6. REPAIR AND/OR REPLACE ANY EROSION AND SEDIMENT CONTROL BMPs WHICH HAVE BEEN DAMAGED OR NEED MAINTENANCE. ONCE A PROBLEM HAS BEEN IDENTIFIED BY THE INSPECTOR OR OTHERS, THE REPAIR SHALL BE UNDERWAY WITHIN THE END OF THE NEXT WORKING DAY AND COMPLETED WITHIN 7 DAYS OR BEFORE THE NEXT STORM EVENT.
7. CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS DEFINED AS 90% GRASS CATCH IN VEGETATED AREAS.

GRADING, SEEDING AND MULCHING

1. NO SLOPES, PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN 1.5:1. SLOPE STABILITY BASED UPON UNSATURATED SOIL CONDITIONS. IF DURING CONSTRUCTION SATURATED SOILS ARE ENCOUNTERED CONTRACTOR , CONTACT THE ENGINEER.
2. ALL AREA DISTURBED AND ALL AREAS WITHIN THE CLEARING LIMITS SHALL BE GRADED AND COVERED WITH A MINIMUM OF 4" OF LOAM TOPSOIL AND SMOOTHED.
3. MULCH ALL AREAS WHICH ARE DISTURBED FROM CONSTRUCTION PER THE TABLE BELOW. IF MULCH IS USED AS TEMPORARY STABILIZATION, REFRESH MULCHING AS NEEDED TO MAINTAIN STABILIZATION.
4. SEEDING SHOULD BE PERFORMED THROUGHOUT CONSTRUCTION AS A PERMANENT AND TEMPORARY STABILIZATION MEASURE. SEE SEED SPECIFICATIONS BELOW, TEMPORARY SEED CAN BE USES FOR BOTH TEMPORARY STABILIZATION OR IN COLDER MONTHS.

SEEDING SPECIFICATIONS

PERMANENT SEED MIX SHALL BE USED AS EARLY AS PRACTICABLE BETWEEN 4/15 AND 8/15 AND SHALL MEET THE FOLLOWING CRITERIA:

SEED	% WEIGHT
RED FESCUE	50%
SHEEP FESCUE	25%
RED TOP	5%
WHITE CLOVER	10%
ANNUAL RYE	10%

TEMPORARY SEED MIX SHALL BE USED BETWEEN 8/15 AND 04/15 AND SHALL MEET THE FOLLOWING CRITERIA:

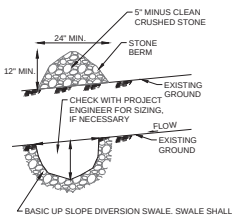
SEED	% WEIGHT	%GERMINATION
WINTER RYE	80% MIN.	85% MIN.
RED FESCUE (CREEPING)	4% MIN.	80% MIN.
PERENNIAL RYE GRASS	3% MIN.	90% MIN.
RED CLOVER	3% MIN.	90% MIN.
OTHER CROP GRASS	0.5% MAX.	
NOXIOUS WEED SEED	0.5% MAX.	
INERT MATTER	1% MAX.	

POLLINATOR SEED MIX SHALL CONTAIN SOME OF THE SPECIES OF SEED OR APPROVED EQUAL:

EASTERN (RED) COLUMBINE
BLUE FALSE INDIGO
HORSEFLYWEED
TALL WHITE BEARD TONGUE
OHIO SPIDERWORT
COMMON MILKWEED
BUTTERFLY MILKWEED
PARTRIDGE PEA
WILD BERGAMOT
VIRGINIA MOUNTAIN MINT
EARLY GOLDENROD
SMOOTH ASTER
NEW ENGLAND ASTER
HEATH ASTER
GRAY GOLDEN ROD
LITTLE BLUESTEM
BLACK EYED SUSAN
COREOPSIS
FOXGLOVE BEARDTONGUE
INDIAN BLANKET
BEE BALM
CARDINAL FLOWER
GOLDEN ALEXANDERS
SUNDIAL LUPINE

GUIDE TO MULCH MATERIALS, RATES, AND USES

	QUALITY STANDARDS	PER 1000 SQ. FT. (Rates noted shall be doubled during winter construction)	PER ACRE	DEPTH OF APPLICATION	REMARKS
WOOD CHIPS OR SHAVINGS	AIR-DRIED, FREE OF OBJECTIONABLE COARSE MATERIAL	500-900 LBS	10-20 TONS	2 - 7"	USED PRIMARILY AROUND SHRUB AND TREE PLANTINGS AND RECREATION TRAILS TO INHIBIT WEED COMPETITION. RESISTANT TO WIND BLOWING. DECOMPOSES SLOWLY.
WOOD FIBER CELLULOSE (PARTLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS.	-	APPLY WITH HYDROMULCHER. NO TIE DOWN REQUIRED. LESS EROSION CONTROL PROVIDED THAN 2 TONS OF HAY OR STRAW.
GRAVEL, CRUSHED STONE OR SLAG	WASHED; SIZE 2B OR 3A - ½"	9 CU. YDS.	405 CU. YDS.	3"	EXCELLENT MULCH FOR SHORT SLOPES AND AROUND PLANTS AND ORNAMENTALS. USE 2B WHERE SUBJECT TO TRAFFIC. (APPROXIMATELY 2,000 LBS./CU. YD.). FREQUENTLY USED OVER FILTER FABRIC FOR BETTER WEED CONTROL.
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS & COARSE MATERIALS	90-100 LBS 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE	USE SMALL GRAIN STRAW WHERE MULCH IS MAINTAINED FOR MORE THAN THREE MONTHS. SUBJECT TO WIND BLOWING UNLESS ANCHORED. MOST COMMONLY USED MULCHING MATERIAL. PROVIDES THE BEST MICRO-ENVIRONMENTAL FOR GERMINATING SEEDS.
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3-9 CU. YDS.	134-402 CU. YDS.	1 - 3"	COARSER TEXTURED MULCHES MAY BE MORE EFFECTIVE IN REDUCING WEED GROWTH AND WIND EROSION.
EROSION CONTROL MIX	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80-100%, DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	* SLOPES 3(HZ.):1(VERT.) OR FLATTER = 2 INCH DEPTH PLUS ADDITIONAL 1/2 INCH DEPTH PER 20 FT. OF SLOPE UP TO 100 FT. ** SLOPES BETWEEN 3(HZ.):1(VERT.) AND 2(HZ.):1(VERT.) = 4 INCH DEPTH PLUS ADDITIONAL 1/2 INCH PER 20 FT. OF SLOPE UP TO 100 FT. *** SLOPES STEEPER THAN 2(HZ.):1(VERT.) USE OF EROSION CONTROL MIX AND MULCH DEPTH TO BE REVIEWED AND APPROVED PRIOR TO USE BY ON SITE PLAN COORDINATOR OR EPSC SPECIALIST			COMPRISED OF SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. MAY CONTAIN ROCK < 4" IN DIAMETER. ORGANICS SHALL BE FIBROUS AND ELONGATED. NO LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS.



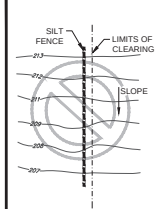
BASIC UP SLOPE DIVERSION SWALE. SWALE SHALL BE LINED WITH STONE IF LONGITUDINAL SLOPE EXCEEDS 3%. USE 5" MINUS CLEAN CRUSHED STONE.

NOTES

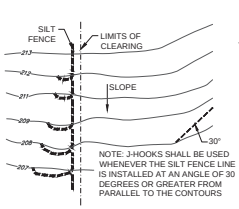
1. UPSLOPE DIVERSION BERM WILL BE USED AS SHOWN ON PLAN AND DETAIL. DIVERSION SWALES ARE NOT PART OF THIS DESIGN, IF NECESSARY DURING CONSTRUCTION, CONTRACTOR SHALL CHECK WITH THE PROJECT ENGINEER FOR SIZING.

TYPICAL UPSLOPE DIVERSION DETAIL

N.T.S.



INCORRECT
SILT FENCE INSTALLED PARALLEL TO SLOPE (PERPENDICULAR TO CONTOUR) IN ONE, LONG RUN



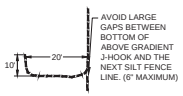
CORRECT
SILT FENCE INSTALLED IN SHORTER RUNS WITH J-HOOKS TO AVOID CONCENTRATION OF FLOWS AT ONE LOCATION BY TRAPPING RUNOFF AT MULTIPLE POINTS ALONG A SLOPE.

NOTE: J-HOOKS SHALL BE USED WHENEVER THE SILT FENCE LINE IS INSTALLED AT AN ANGLE OF 30 DEGREES OR GREATER FROM PARALLEL TO THE CONTOURS

NOTES

1. PROPER INSTALLATION OF J-HOOKS PROVIDES SILT FENCE THE ABILITY TO TEMPORARILY POND RUNOFF, ALLOWING TIME FOR SEDIMENTS TO SETTLE.
2. LONG RUNS OF SILT FENCE BETWEEN J-HOOKS SHOULD BE AVOIDED REFER TO ADJACENT TABLE FOR PROPER SPACING OF J-HOOKS.
3. J-HOOKS SHOULD BE BUILT ALONG CONTOUR IN A "SMILE" SHAPE WITH A MINIMUM WIDTH OF 20 FEET AND MINIMUM DEPTH OF 10 FEET.
4. ALONG A NARROW RIGHT OF WAY, NARROWER J-HOOKS CAN BE USED WITH A HIGHER SPACING FREQUENCY.

SLOPE STEEPNESS	MAXIMUM SPACING BETWEEN SILT FENCE J-HOOKS (FT.)
2:1 SLOPE (50%)	25
3:1 SLOPE (33%)	50
4:1 SLOPE (25%)	75
5:1 SLOPE OR FLATTER (50%)	100



TYPICAL SILT FENCE "J-HOOK" CONSTRUCTION

N.T.S.

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Electrical:
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Surveying:
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1040 Portland Road
Saco, Maine 04072

STATE OF MAINE
JAY A. JESSES
NO. 17165
REGISTERED PROFESSIONAL ENGINEER

10/24/2023

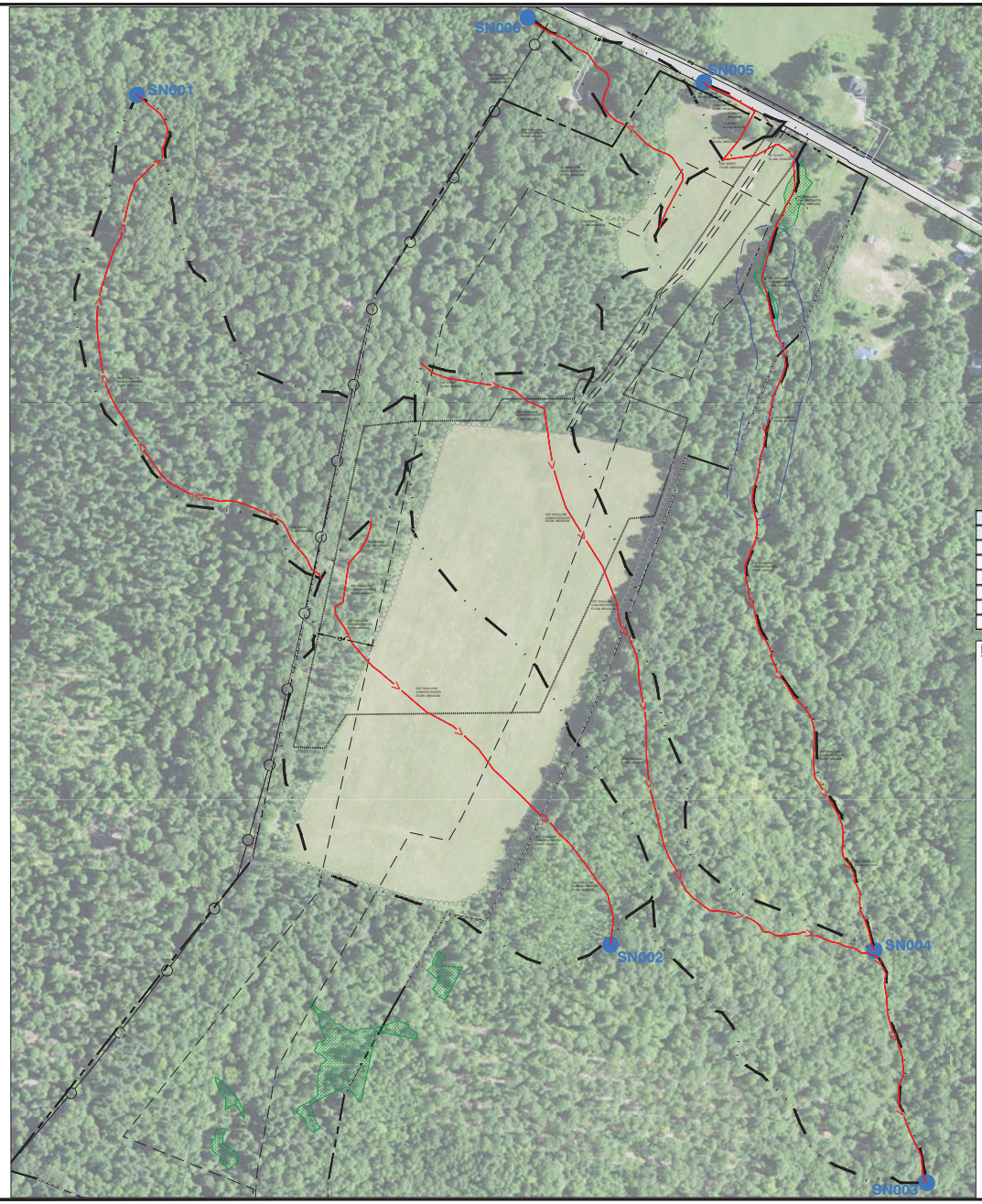
REV. NO.	REVISIONS/COMMENTS	DATE
1	NO CHANGES TO THIS SHEET	10/24/23
2		
3		
4		

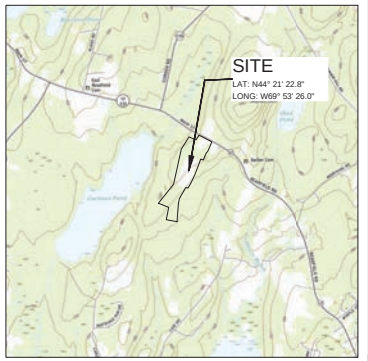
DRAWING TITLE:

ESC DETAILS
READFIELD MAIN
STREET SOLAR, LLC

DATE of Issue: 07/31/23
Drawn by: LJM
Checked by: IAJ
Project No.: 22124
Scale: N/A
Drawing No.: C-2.2
Rev No.:

DIG NAME: Readfield_Main_Street_Base.dwg





LOCATION MAP
SCALE: 1" = 1/2 Mile

Pre-Development Peak Flows (cfs)				
Analysis Point	2-year	10-year	25-year	50-year
SN001	3.87	8.59	12.31	15.78
SN002	6.59	14.24	20.19	25.71
SN003	6.18	13.69	19.59	25.08
SN004	7.8	16.86	23.91	30.45
SN005	0.35	0.76	1.07	1.36
SN006	1.56	3.34	4.73	6.02

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, WEST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON LIDAR DATA FROM THE MAINE OFFICE OF GIS.
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5. THIS IS A DESIGN PLAN FOR PERMITTING. FINAL DESIGN MAY BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND ANY CONDITIONS IDENTIFIED DURING THE PROJECT'S REVIEW.
6. TOTAL FENCED AREA: 417,835± S.F. = 9.59 AC
7. TOTAL LIMIT OF DISTURBANCE: 762,596± S.F. = 17.51 AC
8. TOTAL PERMANENT IMPERVIOUS COVERAGE: 10,875± S.F. = 0.25 AC

   POSTS FROM PANEL RACKING AND FENCING = 76± S.F. = 0.0018 AC

   GRAVEL ACCESS DRIVE = 10,249± S.F. = 0.24 AC

   EQUIPMENT PADS = 550± S.F. = 0.013 AC
9. DIRECT WETLAND IMPACTS = 0.0± S.F. = 0.0 AC (TRENCHING, POSTS FROM PANEL RACKING AND FENCING, GRUBBING, AND STUMPING)

   INDIRECT WETLAND IMPACTS = 0.0± S.F. = 0.0 AC (VEGETATION CLEARING AND SHADING)

   TOTAL WETLAND IMPACTS: 0.0± S.F. = 0.0 AC
10. PROJECT PROPERTY LINES SURVEYED BY HORIZONS ENGINEERING. BOUNDARY SURVEY PROVIDED BY HORIZONS ENGINEERING. PLEASE SEE "NORWICH SOLAR TECHNOLOGIES, INC. MAIN STREET/MAINE ROUTE 17 BOUNDARY, TOPOGRAPHIC & EXISTING CONDITIONS SURVEY" PROJECT #S-21314 DATED 09/14/22.
11. PROJECT PROPERTY = 71.93± AC
12. THE TURNAROUND HAS THE MINIMUM DIMENSIONS DESCRIBED IN THE TOWN OF READFIELD, MAINE LAND USE ORDINANCE DATED JUNE 14, 2022.

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- ABUTTING PROPERTY LINES, HORIZONS ENGINEERING, INC.
- SURVEYED PROPERTY LINE, HORIZONS ENGINEERING, INC.
- 200' PROPERTY LINE SETBACKS TO SOLAR PANELS
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
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- PROPOSED PERIMETER FENCE
- PROPOSED UNDERGROUND POWER
- PROPOSED OVERHEAD POWER
- PROPOSED POWER POLE ANCHOR
- PROPOSED EQUIPMENT PAD
- PROPOSED SOLAR PANELS
- DELINEATED WETLAND
- WETLAND IMPACT AREA
- MAPPED SOIL BOUNDARY (NRCS)
- EXISTING TREELINE
- PROPOSED TREELINE
- PROJECT LIMIT OF DISTURBANCE WITH PERIMETER CONTROLS, SEE SHEET C-2.2
- STREAM
- 75' STREAM BUFFER
- EXISTING DRIVE
- PROPOSED IMPERVIOUS GRAVEL ACCESS
- PROPOSED PERVIOUS GRAVEL ACCESS
- PROPOSED TEMPORARY STAGING AREA
- EXISTING FENCE
- EXISTING TRAIL
- EXISTING STONEWALL

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0' 150' 300' 450'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 150')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

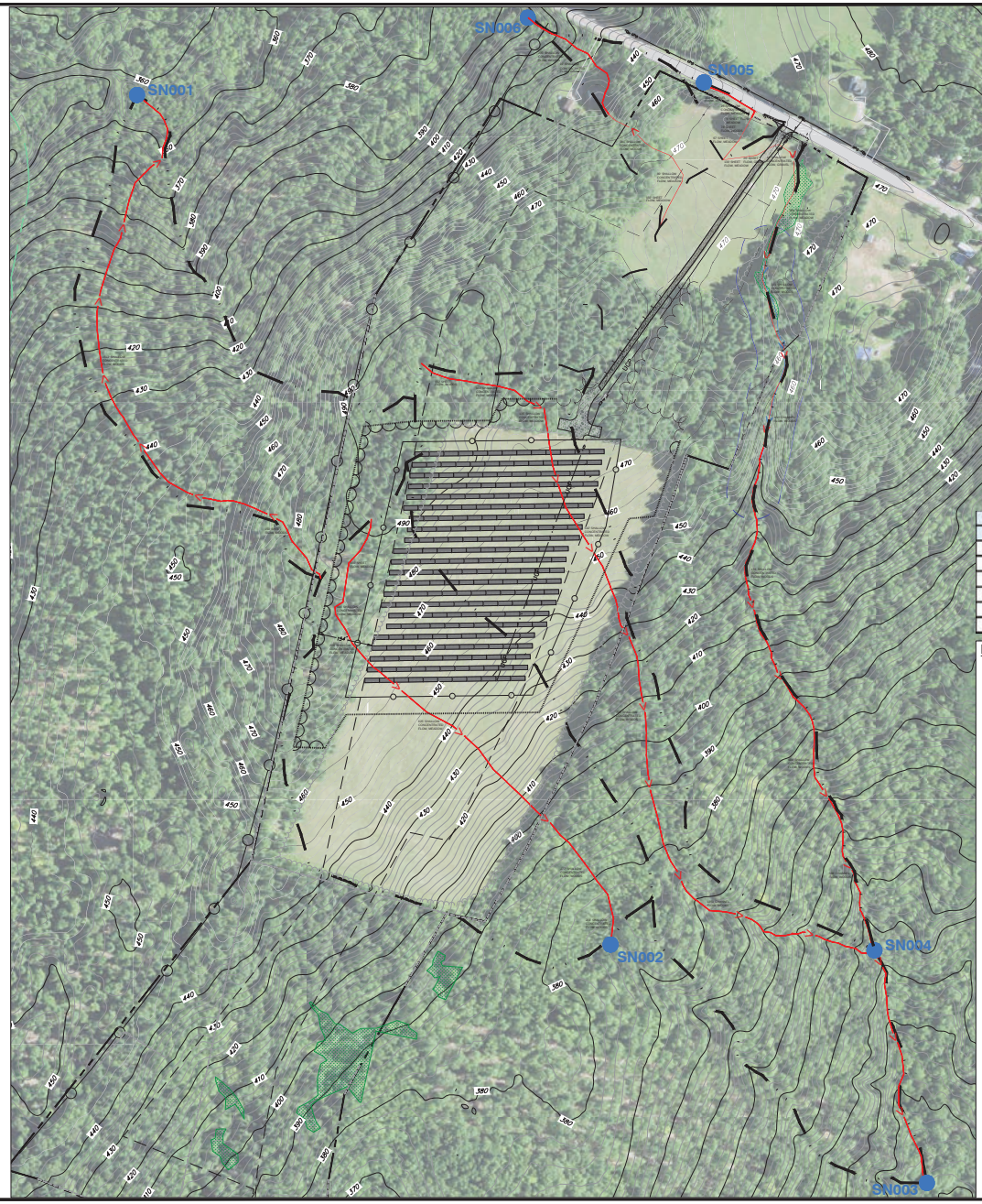
STATE OF MAINE — IAN A. JOHNSON — NO. 12165 — LICENSED PROFESSIONAL ENGINEER
10/24/2023

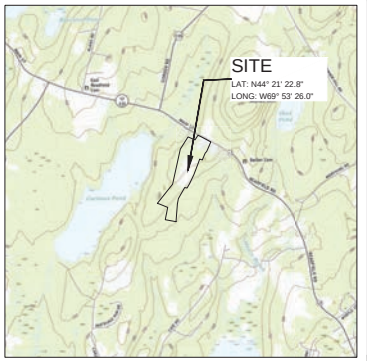
REV NO.	REVISIONS/COMMENTS	DATE
1	NO CHANGES TO THIS SHEET	10/24/23
2		
3		
4		

DRAWING TITLE:

PRE-DEVELOPMENT STORMWATER PLAN READFIELD MAIN STREET SOLAR, LLC

DATE of Issue: 07/31/23
Drawn by: LJM — Checked by: IAJ
Project No.: 22124 — Scale: 1" = 150'
Drawing No.: C-3.0 — Rev No.:





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0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 150')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

STATE OF MAINE — IAN A. JOHNSON — NO. 12165 — LICENSED PROFESSIONAL ENGINEER
10/24/2023

REV NO.	REVISIONS/COMMENTS	DATE
1	NO CHANGES TO THIS SHEET	10/24/23
2		
3		
4		

DRAWING TITLE:

POST-DEVELOPMENT STORMWATER PLAN
READFIELD MAIN STREET SOLAR, LLC

DATE of Issue: 07/31/23
Drawn by: LJM — Checked by: IAJ
Project No.: 22124 — Scale: 1" = 150'
Drawing No.: C-3.1
Rev No.:

ATTACHMENT B: NRCS SOIL RESOURCE REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Kennebec County, Maine

July 11, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,790 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kennebec County, Maine
Survey Area Data: Version 21, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	11.2	30.7%
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	17.2	47.3%
PdC2	Paxton-Charlton fine sandy loams, 8 to 15 percent slopes, eroded	8.0	22.0%
RcA	Ridgebury fine sandy loam	0.0	0.0%
Totals for Area of Interest		**36.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Kennebec County, Maine

HrB—Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2x1cx
Elevation: 0 to 520 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lyman and similar soils: 50 percent
Tunbridge and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 79 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till

Hydric soil rating: No

Description of Tunbridge

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 79 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

HrC—Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2x1cy
Elevation: 0 to 520 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman and similar soils: 45 percent
Tunbridge and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 79 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Tunbridge

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 79 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

PdC2—Paxton-Charlton fine sandy loams, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: 9k0y
Elevation: 0 to 3,500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Paxton and similar soils: 60 percent
Charlton and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 31 inches: gravelly fine sandy loam
H3 - 31 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Charlton

Setting

Landform: Drumlins
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 20 inches: gravelly fine sandy loam
H3 - 20 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

RcA—Ridgebury fine sandy loam

Map Unit Setting

National map unit symbol: 9k16
Elevation: 10 to 2,500 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury

Setting

Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 14 inches: fine sandy loam
H3 - 14 to 65 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 25 inches to densic material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

ATTACHMENT C: WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT

Wetland and Watercourse Delineation and Vernal Pool Survey Report

Potential Solar Development Site – Readfield, Maine

September 2022

Prepared for:

Norwich Solar Technologies
14 Maine Street, Suite 305C-1
Brunswick, ME 04011

Prepared by:

Stantec Consulting Services Inc.
30 Park Drive
Topsham, ME 04086

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1.0 INTRODUCTION

Norwich Solar Technologies contracted Stantec Consulting Services Inc. (Stantec) to perform a wetland and watercourse delineation and vernal pool survey on a parcel in Readfield, Maine (Project Site). The Project Site (Tax Map 143, Lot 43) is located on Main Street (Appendix A: Figure 1. Wetland and Watercourse Delineation Map).

On October 25, 2021, Stantec performed on-site wetland delineation and mapping services at the Project Site. This report includes descriptions of the wetland and watercourse delineation and vernal pool survey methods, results, and an overview of relevant federal and state regulations.

2.0 METHODS

2.1 WETLAND AND WATERCOURSE DELINEATION

Wetlands and watercourses within the Project Site were identified in accordance with the definitions detailed in Maine State Statute 38 M.R.S.A. Sec. 480-B of the Natural Resources Protection Act (NRPA).[1] Wetland boundaries were determined using the technical criteria described in the United States Army Corps of Engineers (Corps) *Corps of Engineers Wetlands Delineation Manual*[2] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0).*[3] Wetland communities were classified according to the *Classification of Wetlands and Deepwater Habitats of the United States.*[4] Hydric soil determinations were made in accordance with the Corps wetland delineation manuals and the *Field Indicators for Identifying Hydric Soils in New England (Version 4).*[5] Wetlands of Special Significance (WoSS) were identified based on criteria in Chapter 310 of the NRPA[6] and Chapter 335 Significant Wildlife Habitat.[7] Identification of WoSS was limited to observable conditions within the Project Site. Wetland delineations were conducted under seasonally appropriate conditions.

[1] Title 38: Waters and Navigation, Chapter 3: Protection and Improvement of Waters, Subchapter 1: Environmental Protection Board, Article 5-a: Natural Resources Protection Act
[2] Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
[3] U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0),* ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[4] *Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.*
[5] New England Hydric Soils Technical Committee. 2017. Field Indicators for Identifying Hydric Soils in New England (Version 4).
[6] Maine Department of Environmental Protection. 26 January 2009. Natural Resources Protection Act Chapter 310: Wetlands and Waterbodies Protection Rules. Bureau of Land and Water Quality, DEPLW0297-D2009.
[7] Maine Department of Environmental Protection. 7 January 2014. Natural Resources Protection Act Chapter 335: Significant Wildlife Habitat.

Mapped watercourses (e.g., river, stream, or brook) were identified based on the technical guidance available from the Corps on the identification of an Ordinary High Water Mark,[8] definition of a tributary as described in the Clean Water Act,[9] and as detailed in the Maine Department of Environmental Protection (MDEP) watercourse identification guidance document.[10] Data was collected on flow regime, bankfull and Ordinary High Water Mark width, dominant substrates, and evidence of biological use.

Each delineated resource was assigned a unique alpha-numeric code. Wetland boundaries and watercourses were not marked in the field. A Global Positioning System (GPS) receiver capable of sub-meter accuracy was used to locate the wetland and watercourse boundaries. Representative photographs were taken of each wetland and watercourse and are included in Appendix B.

2.2 VERNAL POOL SURVEY

Stantec conducted a vernal pool survey on May 19, 2022, in accordance with the Maine Association of Wetland Scientists' 2014 Vernal Pool Survey Protocol,[11] as well as the definitions set forth in Chapter 335, Significant Wildlife Habitat, of the NRPA and the Corps General Permit.

Vernal pools are dynamic habitats that vary in water level, vegetative cover, and other physical characteristics during the course of a year, as well as from year to year. In addition, the breeding activity of amphibians, particularly the initiation of breeding, depends upon seasonal environmental parameters, such as temperature and precipitation. Due to this variability, the presence and number of egg masses may differ between breeding seasons and during a given breeding season. Based on observed field conditions, Stantec determined that the field survey in 2022 was conducted at an appropriate time of year and coincided with the obligate vernal pool species respective breeding periods.

The survey involved searching for amphibian breeding activity, primarily the presence of egg masses, and use by other vernal pool-dependent species. If present, information was collected on the physical characteristics of each pool such as the likely hydro-period (i.e., how long surface water will remain in the pool) and the presence and/or type of inlet and outlet. Information on the biological and physical characteristics of each pool was used to determine if the vernal pool met the criteria of a Significant Vernal Pool, as defined in Chapter 335 of the NRPA. According to this rule, a vernal pool is a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanently flowing inlet or outlet and no viable populations of predatory fish. In addition, a Significant Vernal Pool contains one or any combination of the following:

- 40 or more wood frog (*Lithobates sylvaticus*) egg masses;
- 20 or more spotted salamander (*Ambystoma maculatum*) egg masses;
- 10 or more blue-spotted salamander (*Ambystoma laterale*) egg masses;

[8] U.S. Army Corps of Engineers. 2005. Regulatory Guidance Letter: Ordinary High Water Mark Identification. December 8, 2005. No. 05-05.
[9] U.S. Army Corps of Engineers. 2020. *85 Code of Federal Regulations 22250, "Waters of the United States"*. April 21, 2020.
[10] Danielson, T. J. 2018. Natural Resource Protection Act Streams, Rivers, and Brooks. Maine Department of Environmental Protection, Augusta, ME.
[11] Maine Association of Wetland Scientists Vernal Pool Technical Committee. 2014. Vernal Pool Survey Protocol. April 2014.

- Fairy shrimp (*Eubranchipus* spp.); and/or
- Documented use by a state-listed rare, threatened, or endangered species that commonly requires a vernal pool to complete a critical portion of their life-history, such as Blanding's turtle (*Emydoidea blandingii*), spotted turtle (*Clemmys guttata*), wood turtle (*Clemmys insculpta*), eastern ribbon snake (*Thamnophis sauritus*), ringed boghaunter (*Williamsonia lintneri*), swamp darner (*Epiaeschna heros*), and comet darner (*Anax longipes*).

If present, the characteristics of the pools were also compared to the regulatory definition of a vernal pool used by the Corps. In Maine, vernal pools are regulated by the Corps according to the Maine General Permit, which provides the following definition for vernal pools:

> *A vernal pool, also referred to as a seasonal forest pool, is a temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish.*
>
> *A vernal pool may provide the primary breeding habitat for wood frogs (Lithobates [sylvatica] sylvaticus), spotted salamanders (Ambystoma maculatum), blue-spotted salamanders (Ambystoma laterale), and fairy shrimp (Eubranchipus spp.), as well as valuable habitat for other plants and wildlife, including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition. For the purposes of this GP, the presence of any of the following species in any life stage in any abundance level/quantity would designate the waterbody as a vernal pool: fairy shrimp, blue-spotted salamanders, spotted salamanders, or wood frogs.*

3.0 SURVEY RESULTS

3.1 GENERAL SITE DESCRIPTION

The Project Site is approximately 85 acres and is located on the south side of Main Street (Route 17) in Readfield. The proposed access to the Project Site is from Main Street. The northern end of the Project Site abuts private residences to the east and west. There is a gravel pull-off lot in the northeast corner of the Project Site along Main Street that contains piles of debris. The Project Site is dominated by two upland fields and forested uplands. A farm road traverses the northern field, continues through upland forest dominated by eastern white pine (*Pinus strobus*), and terminates at the southern field. Both fields were mowed at the time of the delineation. An informal trail system connects hunting stands and shacks in the southern end of the property.

The topography slopes to the east and southeast from the high point in the northwest corner. Fields within the Project Site were characterized as disturbed, tilled, upland soil. Tree species in the upland forested areas include eastern white pine, eastern hemlock (*Tsuga canadensis*), red maple (*Acer rubrum*), gray birch (*Betula populifolia*), paper birch (*Betula papyrifera*), balsam fir (*Abies balsamea*), northern red oak (*Quercus rubra*), and American beech (*Fagus grandifolia*). The upland sapling and shrub layer is dominated by regenerating species present in the forest canopy interspersed with invasive species including multiflora rose (*Rosa multiflora*) and Japanese honeysuckle (*Lonicera*

japonica). The upland herbaceous layer is dominated by bracken fern (*Pteridium aquilinum*) and Canadian goldenrod (*Solidago canadensis*).

The U.S. Department of Agriculture Soil Survey of Kennebec County, Maine,[12] depicts four major soil types within the Project Site: Lyman – Tunbridge complex, Paxton very stony fine sandy loam, Woodbridge very stony fine sandy loam, and Paxton – Charlton fine sandy loam. The Lyman – Turnbridge complex comprises the majority of the northern field as well as both the eastern and western edges of the southern field and is somewhat excessively drained. The Paxton very stony fine sandy loam is a well-drained soil and is located in the southern area of the Project Site, south of the southern field. The Woodbridge very stony fine sandy loam is a moderately well-drained soil found in the southeast corner of the Project Site. The Paxton – Charlton fine sandy loam is a well-drained soil comprising the majority of the southern field.

3.2 WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY

During the on-site fieldwork conducted on October 25 and 26, 2021, and May 19, 2022, five wetlands and one watercourse were identified within the Project Site. The resources were GPS-located and are depicted on Figure 1 (Appendix A). These results are characterized in Table 1. Summary of Delineated Wetlands and Table 2. Summary of Delineated Watercourses. Representative photographs of identified natural resources are included in Appendix B. Representative Corps wetland determination data forms were prepared at one location and are included in Appendix C. Additionally, a vernal pool survey was conducted on May 19, 2022, which coincided with obligate vernal pool species respective breeding periods. No vernal pools were identified during the survey.

[12] Web Soil Survey, Natural Resources Conservation Service, United States Department of Agriculture. Available at: http://websoilsurvey.nrcs.usda.gov/. Accessed March 2022.

Table 1. Summary of Delineated Wetlands

Wetland Resource Identifier	Wetland Classification[1]	Dominant Vegetation	Hydric Soil Criteria and Indicator	Evidence of Hydrology	Wetland of Special Significance (WoSS)	Additional Comments
W01GPA	PEM/PSS	**Trees:** none **Saplings / Shrubs:** red raspberry (*Rubus idaeus*) **Herbs:** narrow-leaf cattail (*Typha angustifolia*), cottongrass bulrush (*Scirpus cyperinus*), sensitive fern (*Onoclea sensibilis*), reed canary grass (*Phalaris arundinacea*), wrinkleleaf goldenrod (*Solidago rugosa*), flat-top goldentop *(Euthamia graminifolia*)	A11: Depleted Below Dark Surface	High Water Table (A2) Saturation (A3) Water-Stained Leaves (B9)	Yes, portions within 25 feet of a stream	Stream S01GP flows north along northeastern edge of the Project Site. Feature extends offsite to the east.
W01GPB	PFO	**Trees:** black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), eastern white pine, American beech **Saplings / Shrubs:** balsam fir, black ash, green ash, red raspberry, red maple, eastern hemlock **Herbs:** cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern, fringed sedge (*Carex crinita*), ostrich fern *(Matteuccia struthiopteris*), cottongrass bulrush	A2: Histic Epipedon	High Water Table (A2) Water-stained Leaves (B9) Stunted or Stressed Plants (D1)	No	Portion of larger wetland complex outside Project Site to the east. Eastern white pine and American beech growing on hummocks show wetland adaptations including shallow roots.
W01GPC	PFO	**Trees:** black ash, green ash, red maple, balsam fir, eastern hemlock, gray birch **Saplings / Shrubs:** red maple, balsam fir **Herbs:** fringed sedge, royal fern (*Osmunda* regalis), sensitive fern, three-leaf goldthread (*Coptis trifolia*), cottongrass bulrush, Christmas fern (*Polystichum acrostichoides*)	A11: Depleted Below Dark Surface	Water-stained Leaves (B9) Stunted or Stressed Plants (D1) Microtopographic Relief (D4)	No	Forested wetland is located on the southern end of the Project Site and extends offsite to the south.
W01GPD	PEM/PFO	**Trees:** black ash **Saplings / Shrubs:** eastern white pine, red raspberry **Herbs:** sensitive fern, royal fern, narrow-leaf cattail, wrinkleleaf goldenrod	A2: Histic Epipedon	High Water Table (A2) Saturation (A3)	No	Isolated wetland.
W01GPE	PEM	**Trees:** black ash **Saplings / Shrubs:** eastern white pine, red raspberry **Herbs:** sensitive fern, royal fern, narrow-leaf cattail, wrinkleleaf goldenrod	A2: Histic Epipedon	High Water Table (A2) Saturation (A3) Stunted or Stressed Plants (D1)	No	Isolated wetland.

[1] Wetland classification follows Federal Geographic Data Committee. (2013):

PFO = Palustrine Forested

PSS = Palustrine Scrub Shrub

PEM = Palustrine Emergent

Table 2. Summary of Delineated Watercourses

Stream Identifier	Flow Type	Bankfull Width (ft)	Ordinary High Water Mark Width (ft)	Dominant Substrates	NRPA Stream	Additional notes
S01GP	Ephemeral	1–6	1–6	Boulder, cobble, silt	No	Flows north into wetland W01GPA. Ephemeral stream does not contain aquatic vegetation or aquatic animals and is not depicted on a USGS 7.5' topographic map.

4.0 WETLAND REGULATIONS

4.1 STATE AND FEDERAL REGULATIONS

The Corps and MDEP regulate the wetlands and waterbodies (e.g., streams) identified within the Project Site. Under the provisions of Section 404 of the Clean Water Act, the Corps regulates dredging or filling within Waters of the United States, which include navigable waters and all their tributaries, adjacent wetlands, and other waters or wetlands where degradation or destruction could affect interstate or foreign commerce. The Corps has recently reissued a General Permit for the State of Maine (October 13, 2020) that merges the federal and state permit review process for many projects.

In Maine, wetlands and waterbodies, as well as other protected natural resources, are regulated under 38 M.R.S.A. §§ 480-A – 480-JJ, the NRPA. Projects that do not impact a wetland or projects that impact less than 4,300 square feet of wetland are usually exempt from state NRPA Tier permitting requirements. This exemption does not apply if the impact is:

1. in, on, or over a coastal wetland, great pond, river, stream, or brook;
2. within 25 feet of those resources identified above, or is more than 25 feet and no erosion control is used;
3. in a shoreland zone or a wetland protected by the shoreland zone;
4. part of a wetland with more than 20,000 square feet of open water or emergent vegetation, except artificial impoundments;
5. in a peatland;
6. part of a larger project; or
7. in Significant Wildlife Habitat.

Typically, projects with cumulative impacts to freshwater wetlands between 4,300 but less 15,000 square feet are eligible for review under the Tier 1 NRPA permitting process. Wetland alterations between 0 and 15,000 square feet require a Corps Self Verification Form submittal, assuming the project meets the thresholds for activities for this level of review. Alterations that affect between 15,000 and 43,560 square feet (1 acre) of freshwater wetlands are eligible for the NRPA Tier 2 review process and Corps Pre-Construction Notification. Cumulative freshwater wetland impacts that exceed 1 acre typically require a NRPA Tier 3 review. Impacts to WoSS, rivers, streams and brooks, great ponds, and Significant Wildlife Habitat typically require an Individual Corps Permit. Specifics of how the agencies will regulate this Project can be determined with preliminary plans and consultation with the agencies.

Stream S01GP (Photo 4) does not meet the MDEP definition of a stream because it is not depicted on a USGS 7.5-minute series topographic map, does not contain flowing water continuously for a period of at least 6 months of the year, and does not contain aquatic vegetation or aquatic insects. Due to S01GP not meeting the MDEP definition of a stream the portions of wetland W01GPA that are located within 25 feet of a stream are not considered WoSS.

Full identification of WoSS involves contacting natural resource agencies such as the Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, and MDEP to determine if there are

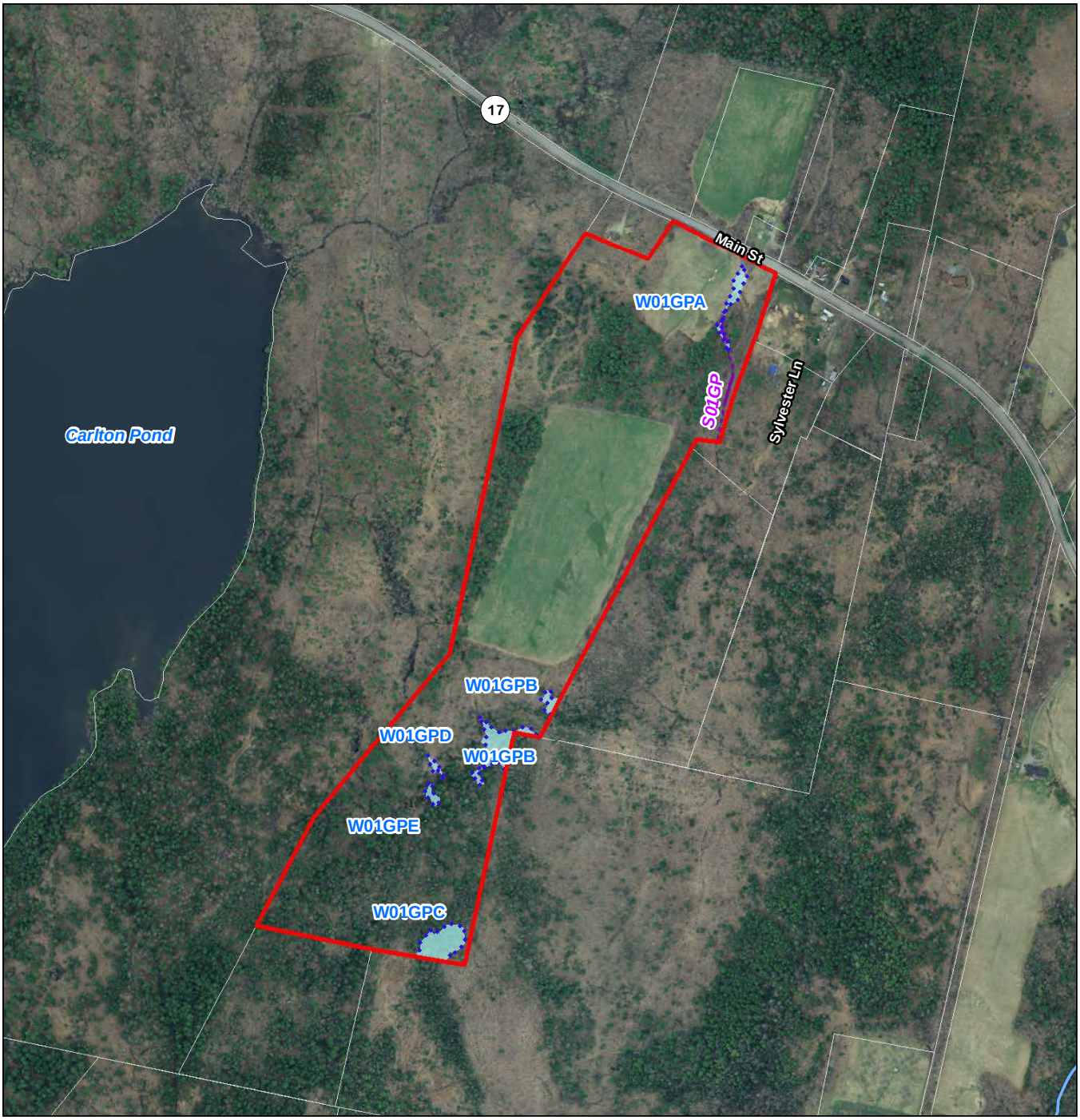
any documented occurrences of rare, threatened, or endangered species and communities within or in the vicinity of the Project Site. Stantec initiated consultation with the Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, and MDEP for the Project Site in November 2021. Responses have been received from all three agencies. The agency responses did not identify any endangered, threatened, or special concern species, rare or unique botanical features, or Essential and Significant Wildlife Habitats within the Project Site.

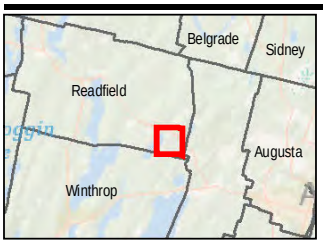
4.2 LOCAL REGULATIONS

According to the Town of Readfield Zoning Maps, the southwestern portion of the Project Site includes an area mapped as Resource Protection Zoning District. Although Stantec identified wetlands and streams within the Project Site, they are not specifically identified on the Town Zoning Map. Stantec recommends contacting the Town Code Enforcement Officer regarding any local zoning requirements for the Project Site.

APPENDICES

Appendix A FIGURES





Legend

- Delineated Ephemeral Stream
- Delineated Wetland Area
- Approximate Delineation Limits
- Tax Parcel

0 800 Feet

(At original document size of 8.5x11)
1:500,000

N

Stantec

Notes

1. Wetland boundaries delineated in accordance with USACE Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regional Supplement (Version 2.0).
2. Wetland boundaries and streams were located utilizing a Trimble GeoExplorer Series Receiver. Expected accuracy of GPS data is within 1 meter of actual position.
3. Coordinate System: NAD 1983 UTM Zone 19N
4. Data Sources: MEGIS.
5. Background:Maine Orthoimagery Regional, 2018.

Project Location
Readfield, Maine

Prepared by PWB on 2022-02-15
TR Review by KWH on 2022-02-15
IR Review by KM on 2022-02-15

Client/Project 195602046
Norwich Solar Technologies
Norwich Solar Maine - Readfield

Figure No.
1

Title
Wetland and Watercourse Delineation Map

V:\1956\active\195602046\03_data\gis_cad\gis\MXDs\Readfield\195602046_01_Readfield_WetDelin.mxd Revised: 2022-09-07 By: pbarbera

Appendix B REPRESENTATIVE PHOTOGRAPHS

Photo 1. PEM/PSS wetland 01GPA, facing north.
Stantec, October 25, 2021.

Photo 2. Debris pile near PEM/PSS wetland 01GPA, facing southwest.
Stantec, October 25, 2021.

Photo 3. PFO wetland 01GPC.
Stantec, October 25, 2021.

Photo 4. Ephemeral stream S01GP, view south from upstream.
Stantec, October 25, 2021.

Appendix C CORPS WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Readfield Delineation	Stantec Project #:	195602046	Date:	10/25/21
Applicant:	Norwich Solar			County:	Kennebec
Investigator #1:	G. Pelletier	Investigator #2:	L. Pelletier	State:	ME
Soil Unit:		NWI/WWI Classification:		Wetland ID:	01GPA
Landform:	Depression	Local Relief:	Concave	Sample Point:	**Wetland**
Slope (%):	0-3	Latitude: 44.355598	Longitude: -69.890318	Datum: NAD83	Community ID: PEM/PSS

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Wetland Hydrology Present? ☑ Yes ☐ No

Hydric Soils Present? ☑ Yes ☐ No

Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐)

Primary:
- ☐ A1 - Surface Water
- ☑ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☑ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☑ Yes	☐ No	Depth: 6	(in.)
Saturation Present?	☑ Yes	☐ No	Depth: 0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks: associated with ephemeral stream 01GP

SOILS

Map Unit Name: 0 Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	3	1	10YR 2/1	100					loam
4	7	2	10YR 3/2	90	10YR 4/6	10	C		silt loam
8	10	3	10YR 4/2	90	10YR 4/6	10	C		silt loam
11	14	4	10YR 4/1	90	10YR 4/6	10	C	--	loam
15	20	5	10YR 6/1	90	10YR 4/6	10	C	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐)
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☑ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☑ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: Depth:

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Readfield Delineation | Wetland ID: 01GPA | Sample Point *Netlanc*

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Rubus idaeus*		--	
2.	--		--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Typha angustifolia*	25	Y	OBL
2.	*Scirpus cyperinus*	1	N	OBL
3.	*Solidago rugosa*	5	N	FAC
4.	*Onoclea sensibilis*	20	N	FACW
5.	*Phalaris arundinacea*	3	N	FACW
6	*Euthamia graminifolia*	3	N	FAC
7.	*Lythrum salicaria*	25	Y	OBL
8.	--			--
9.	--			--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	82		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	51	x 1 =	51
FACW spp.	23	x 2 =	46
FAC spp.	8	x 3 =	24
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	82 (A)		121 (B)

Prevalence Index = B/A = ***1.476***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Readfield Delineation	Stantec Project #:	195602046	Date:	10/25/21
Applicant:	Norwich Solar			County:	Kennebec
Investigator #1:	G. Pelletier	Investigator #2:	L. Pelletier	State:	ME
Soil Unit:		NWI/WWI Classification:		Wetland ID:	01GPB
Landform:	Depression	Local Relief:	Concave	Sample Point:	**Wetland**
Slope (%):	0-3	Latitude: 44.349675	Longitude: -69.894076	Datum: NAD83	Community ID: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Wetland Hydrology Present? ☑ Yes ☐ No

Hydric Soils Present? ☑ Yes ☐ No

Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐)

Primary:
- ☐ A1 - Surface Water
- ☑ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☑ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	3	(in.)
Water Table Present?	☑ Yes ☐ No	Depth:	6	(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks:

SOILS

Map Unit Name: 0 Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	12	1	10YR 4/1	100					loam
13	20	2	5Y 4/1	100					sandy loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐)
- ☐ A1- Histosol
- ☑ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☑ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: Depth:

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Readfield Delineation | Wetland ID: 01GPB | Sample Point *Netlanc*

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Fraxinus nigra*	5	Y	FACW
2.	*Fraxinus pennsylvanica*	2	N	FACW
3.	*Pinus strobus*	2	N	FACU
4.	*Fagus grandifolia*	1	N	FACU
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	10		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Abies balsamea*	2	N	FAC
2.	*Fraxinus nigra*	5	N	FACW
3.	*Fraxinus pennsylvanica*	3	N	FACW
4.	*Rubus idaeus*	10	N	FACU
5.	*Acer rubrum*	5	N	FAC
6.	*Tsuga canadensis*	2	N	FACU
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	27		

Herb Stratum (Plot size: 2 meter radius)

1.	*Osmundastrum cinnamomeum*	2	N	FACW
2.	*Scirpus cyperinus*	5	N	OBL
3.	*Carex crinita*	5	N	OBL
4.	*Onoclea sensibilis*	5	N	FACW
5.	*Matteuccia struthiopteris*	2	N	FAC
6	*Solidago rugosa*	2	N	FAC
7.				
8.				
9.	--			--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	21		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	10	x 1 =	10
FACW spp.	22	x 2 =	44
FAC spp.	11	x 3 =	33
FACU spp.	15	x 4 =	60
UPL spp.	0	x 5 =	0
Total	58 (A)		147 (B)

Prevalence Index = B/A = ***2.534***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Readfield Delineation	Stantec Project #:	195602046	Date:	10/25/21
Applicant:	Norwich Solar			County:	Kennebec
Investigator #1:	G. Pelletier	Investigator #2:	L. Pelletier	State:	ME
Soil Unit:		NWI/WWI Classification:		Wetland ID:	01GPC
Landform:	Depression	Local Relief:	Concave	Sample Point:	**Wetland**
Slope (%):	0-3	Latitude: 44.346054	Longitude: -69.89616	Datum:	NAD83
				Community ID:	PFO

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Wetland Hydrology Present? ☑ Yes ☐ No

Hydric Soils Present? ☑ Yes ☐ No

Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐)

Primary:
- ☐ A1 - Surface Water
- ☑ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☑ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	3	(in.)
Water Table Present?	☑ Yes ☐ No	Depth:	6	(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks:

SOILS

Map Unit Name: 0 Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	4	1	10YR 3/1	100					loam
5	6	2	10YR 4/1	100					loam
10	12	3	5YR 5/2	100					loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐)
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☑ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☑ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: Depth:

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Readfield Delineation | Wetland ID: 01GPC | Sample Point *Netlanc*

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Fraxinus nigra*	10	N	FACW
2.	*Acer rubrum*	10	N	FAC
3.	*Fraxinus pennsylvanica*	10	N	FACW
4.	*Fagus grandifolia*	5	N	FACU
5.	*Thuja occidentalis*	10	N	FACW
6.	*Abies balsamea*	20	Y	FAC
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	65		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Abies balsamea*	2	N	FAC
2.	*Acer rubrum*	2	N	FAC
3.	*Fraxinus pennsylvanica*	1	N	FACW
4.				
5.				
6.				
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	5		

Herb Stratum (Plot size: 2 meter radius)

1.	*Osmundastrum cinnamomeum*	10	N	FACW
2.	*Scirpus cyperinus*	5	N	OBL
3.	*Dryopteris intermedia*	3	N	FAC
4.	*Onoclea sensibilis*	2	N	FACW
5.	*Typha angustifolia*	2	N	OBL
6				
7.				
8.				
9.	--			--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	22		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	7	x 1 =	7
FACW spp.	43	x 2 =	86
FAC spp.	37	x 3 =	111
FACU spp.	5	x 4 =	20
UPL spp.	0	x 5 =	0
Total	92 (A)		224 (B)

Prevalence Index = B/A = ***2.435***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Remarks:

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Readfield Delineation	Stantec Project #:	195602046
Applicant:	Norwich Solar		
Investigator #1:	G. Pelletier	Investigator #2:	L. Pelletier
Soil Unit:		NWI/WWI Classification:	
Landform:	Depression	Local Relief:	Concave
Slope (%):	0-3	Latitude: 44.348649	Longitude: -69.896281 Datum: NAD83

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	10/25/21
County:	Kennebec
State:	ME
Wetland ID:	01GPD
Sample Point:	**Wetland**
Community ID:	PEM/PFO

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Hydric Soils Present? ☑ Yes ☐ No
Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐)

Primary:
- ☐ A1 - Surface Water
- ☑ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☑ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	3	(in.)
Water Table Present?	☑ Yes ☐ No	Depth:	6	(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks:

SOILS

Map Unit Name: 0 Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	12	1	10YR	2/1	100					loam
2	12	2	10YR	3/2	90	10YR	4/6	10	C	loam
										--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐)
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☑ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: rock Depth:12'

Hydric Soil Present? ☑ Yes ☐ No

Remarks: Rock refusal at 12"

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Readfield Delineation | Wetland ID: 01GPD | Sample Point *Netlanc*

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Fraxinus nigra*	10	N	FACW
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	10		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Pinus strobus*	2	N	FAC
2.	*Rubus idaeus*	10	N	FACU
3.		--	--	--
4.		--	--	--
5.		--	--	--
6.		--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	12		

Herb Stratum (Plot size: 2 meter radius)

1.	*Onoclea sensibilis*	10	Y	FACW
2.	*Solidago rugosa*	5	N	FAC
3.	*Osmunda spectabilis*	2	N	OBL
4.	*Typha angustifolia*	3	N	OBL
5.	--			
6				
7.				
8.				
9.	--			--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	20		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	5	x 1 =	5
FACW spp.	20	x 2 =	40
FAC spp.	7	x 3 =	21
FACU spp.	10	x 4 =	40
UPL spp.	0	x 5 =	0
Total	42 (A)		106 (B)

Prevalence Index = B/A = ***2.524***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Readfield Delineation	Stantec Project #:	195602046	Date:	10/25/21
Applicant:	Norwich Solar			County:	Kennebec
Investigator #1:	G. Pelletier	Investigator #2:	L. Pelletier	State:	ME
Soil Unit:		NWI/WWI Classification:		Wetland ID:	01GPE
Landform:	Depression	Local Relief:	Concave	Sample Point:	**Wetland**
Slope (%):	0-3	Latitude: 44.348289	Longitude: -69.896383	Datum: NAD83	Community ID: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Wetland Hydrology Present? ☑ Yes ☐ No

Hydric Soils Present? ☑ Yes ☐ No

Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐)

Primary:
- ☐ A1 - Surface Water
- ☑ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☑ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	3	(in.)
Water Table Present?	☑ Yes ☐ No	Depth:	6	(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks:

SOILS

Map Unit Name: 0 Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	11	1	10YR 4/1	100					loam
12	14	2	2.5Y 5/2	100					--
									--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐)
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☑ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: rock Depth:14'

Hydric Soil Present? ☑ Yes ☐ No

Remarks: Rock refusal at 14"

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Readfield Delineation | Wetland ID: 01GPE | Sample Point *Netlanc*

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Fraxinus nigra*	10	N	FACW
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	10		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Pinus strobus*	2	N	FAC
2.	*Rubus idaeus*	10	N	FACU
3.		--	--	--
4.		--	--	--
5.		--	--	--
6.		--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	12		

Herb Stratum (Plot size: 2 meter radius)

1.	*Onoclea sensibilis*	10	Y	FACW
2.	*Solidago rugosa*	5	N	FAC
3.	*Osmunda spectabilis*	2	N	OBL
4.	*Typha latifolia*	3	N	OBL
5.	--			
6				
7.				
8.				
9.	--			--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	20		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	5	x 1 =	5
FACW spp.	20	x 2 =	40
FAC spp.	7	x 3 =	21
FACU spp.	10	x 4 =	40
UPL spp.	0	x 5 =	0
Total	42 (A)		106 (B)

Prevalence Index = B/A = ***2.524***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

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Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

ATTACHMENT D: AGENCY CORRESPONDENCE

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

December 2, 2021

Eben Baker
Stantec
30 Park Drive
Topsham, ME 04086

RE: Information Request – Norwich Solar Technologies Solar Project, Readfield

Dear Eben:

Per your request received on November 02, 2021, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Norwich Solar Technologies Solar, Readfield* project. Note that as project details are lacking, our comments are non-specific and should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded special protection under Maine's Endangered Species Act (MESA, 12 M.R.S §12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence, it is likely that several of these species occur within the project area during the fall/spring migration, the summer breeding season, and/or for overwintering. If the proposed project has a Federal nexus, either via funding or permitting, or if the project is not consistent with the USFWS "4(d) Rule", we recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, Wende_Mahaney@fws.gov, 207-902-1569) for further guidance on their perspective, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. The USFWS "4(d) Rule" provides guidance for protection of bat winter hibernacula and maternity roost trees for northern long-eared bats (see https://www.fws.gov/midwest/endangered/mammals/nleb/4drule.html). MDIFW Endangered Species Rules for bats (Chapter 8.06; see link at http://www.maine.gov/sos/cec/rules/09/137/137c008.docx) provide equivalent seasonal protection of maternity roost trees for any of the three state-listed bats, seasonally prohibits entry into subsurface winter hibernacula, and has additional protections for tree removal within ¼ mile of subsurface winter hibernacula. At present, no maternity roost trees have been designated for protection.

In addition to traditional hibernacula like caves and old mines, recent findings indicate that *Myotis* and big brown bats may also overwinter in exposed rocky features. To date, Maine talus and rocky outcrop studies have focused on relatively exposed slopes with minimal canopy cover, although ongoing research has shown that bats use rocky areas under the forest canopy. Occupied talus slopes in Maine have

consisted of variable rock sizes, ranging in size from softball-sized to car-sized boulders. Rock piles, rock ledges, and small vertical cracks in rocks (>1/2-inch-wide) create crevices that allow bats to access deeper cavities that provide protection for predators and suitable temperature and humidity conditions. Some species of bat, like the eastern small-footed bat, use rocky features year-round. A desktop GIS analysis does not indicate the presence of these features in your project area; however, not all talus and rocky features have been mapped statewide. Therefore, we advise that all areas of talus and rocky features of approximately 1,000 square feet or greater in size be documented on and within 250 feet of your project area, including smaller areas of rock piles and tailings (i.e., quarry spoils). See attached photographs for representative features—these photographs are not all-inclusive and should be used for guidance purposes only. Detailed photographs and coordinates should be submitted to MDIFW for review, and acoustic monitoring may be recommended to document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these features are not present in the project area, our Agency does not anticipate significant impacts to any of the bat species as a result of this project based on currently best available science.

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We generally recommend maintaining 100-foot undisturbed vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support fish and other aquatic species. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide for full aquatic passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions and become a frequent maintenance problem that causes reoccurring damage to the resource. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in providing habitat connectivity for fish and other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils can travel

significant distances as well as transport other pollutants resulting in direct impacts to fish, other aquatic life, and their habitats. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

Wildlife Permeable Fencing

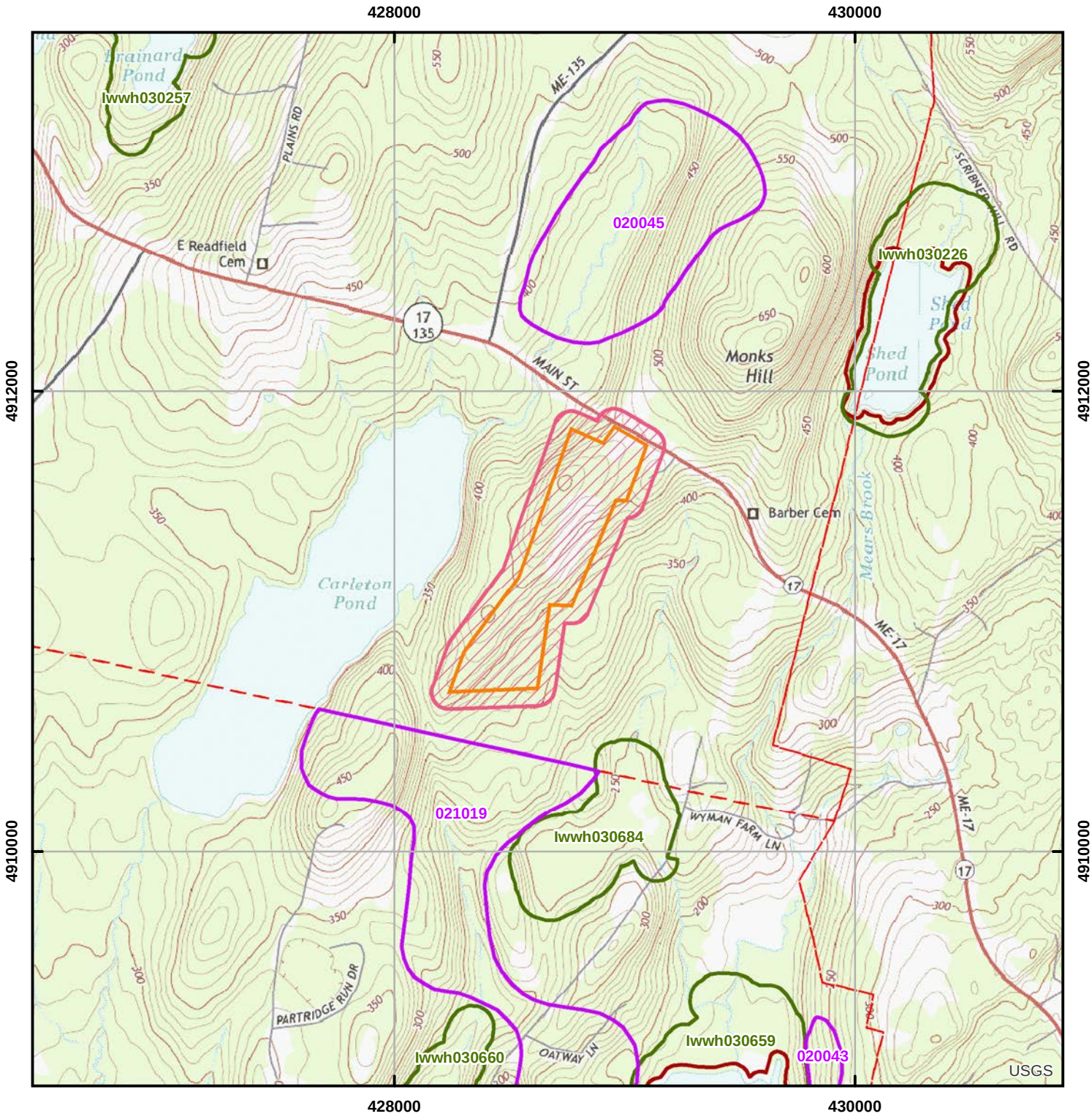
To enhance the use of the project area by smaller animals, and in consideration of the need for site safety and security, we recommend the use of wildlife-permeable fencing. Options for wildlife-permeable fencing includes the use of larger mesh fencing, similar to typical highway right-of-way fencing, with large (12-in. x 12-in.) holes along the bottom of the fence, spaced evenly along the entire perimeter of the fence line every 20-25 feet. Alternatively, the fence can be installed so that there is at least 12 inches of clearance along the entire perimeter bottom.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Norwich Solar Technologies Solar, Readfield (Version 1)

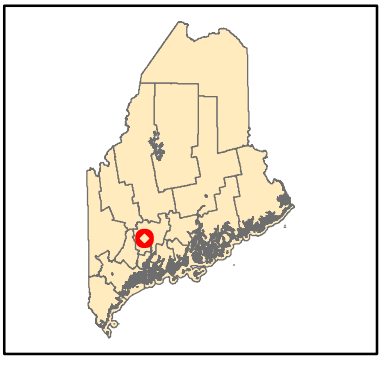
Maine Department of Inland Fisheries and Wildlife

0 0.125 0.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N

Date: 11/2/2021

- ProjectSearchAreas - All Versions
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



Representative Photographs of Suitable Bat Rock-Roosting Sites

Prepared by the Maine Department of Inland Fisheries and Wildlife

Photographs are for guidance only and should not be considered all-inclusive.

Arrows indicate sites of rock-roosting bats.

Photographs used by permission: Paul R. Moosman, Jr., Department of Biology, Virginia Military Institute

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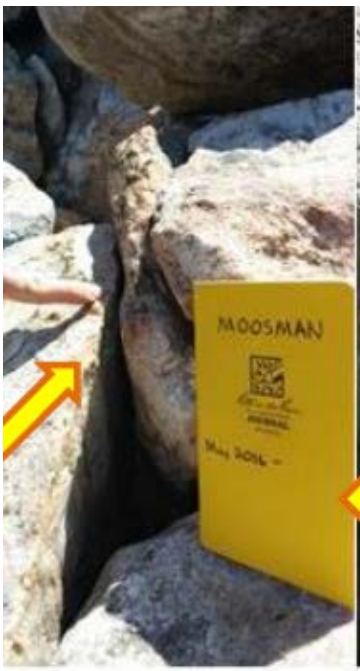

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DEPT. OF INLAND FISHERIES AND WILDLIFE

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

November 5, 2021

Eben Baker
Stantec
30 Park Drive
Topsham, ME 04086

Via email: eben.baker@stantec.com

Re: Rare and exemplary botanical features in proximity to: #195602046, Norwich Solar Technologies, Route 17, Readfield, Maine

Dear Mr. Baker:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received November 1, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Readfield, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: #195602046, Norwich Solar, Readfield, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Adder's Tongue Fern						
	SC	S1	G5	1924-07	8	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
American Ginseng						
	E	S3	G3G4	1907-07-28	18	Hardwood to mixed forest (forest, upland)
Blunt-lobed Woodsia						
	T	S1	G5	1932	5	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Broad Beech Fern						
	SC	S2	G5	1998-06-25	1	Hardwood to mixed forest (forest, upland)
	SC	S2	G5	1895-08-17	12	Hardwood to mixed forest (forest, upland)
Columbia Water-meal						
	SC	S2	G5	2020-08-25	10	Open water (non-forested, wetland)
Ebony Spleenwort						
	SC	S2	G5	1987-08-07	4	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Fragrant Wood Fern						
	SC	S3	G5	1932	29	Rocky summits and outcrops (non-forested, upland),Alpine or subalpine (non-forested, upland)
Indian Grass						
	E	S1	G5	1933-07-12	9	Non-tidal rivershore (non-forested, seasonally wet)
Mountain Honeysuckle						
	E	S2	G5	1975-pre	1	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Northern Hardwoods Forest						
	<null>	S5	G3G5	1998-06-25	4	Hardwood to mixed forest (forest, upland)

Rare and Exemplary Botanical Features within 4 miles of
Project: #195602046, Norwich Solar, Readfield, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Showy Lady's-slipper						
	SC	S3	G4G5	1903-06	33	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S3	G4G5	1874-07-04	36	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Stiff Arrowhead						
	SC	S2	G5	2016-08-29	12	Tidal wetland (non-forested, wetland)
Water Stargrass						
	SC	S3	G5	2020-07-19	7	Open water (non-forested, wetland)
White Adder's-mouth						
	E	S1	G5T4T5	1878-06	15	Forested wetland

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

maine DEPARTMENT OF Agriculture Conservation & Forestry
NATURAL AREAS

ATTACHMENT E: SOUND ASSESSMENT

INVERTER AND TRANSFORMER NOISE ANALYSIS
Readfield Main Solar LLC
Readfield, Maine

15 RAILROAD ROW, SUITE 101
WHITE RIVER JUNCTION, VT 05001

The table shows the noise level of each component at a 3, 200, and 600-foot distance:

Component	Capacity	Noise Level (dBA) @ 3.3ft	dBA @ 200ft	dBA @ 600ft
Inverter 001	100 kW	65	29.3	19.8
Inverter 002	100 kW	65	29.3	19.8
Inverter 003	100 kW	65	29.3	19.8
Inverter 004	100 kW	65	29.3	19.8
Inverter 005	100 kW	65	29.3	19.8
Inverter 006	100 kW	65	29.3	19.8
Inverter 007	125 kW	65	29.3	19.8
Inverter 008	125 kW	65	29.3	19.8
Inverter 009	125 kW	65	29.3	19.8
Transformer 001	1000 kVa	64	28.3	18.8
Transformer 002	30 kVa	45	9.3	0.0

Component	Dist to Boundary (ft)	dBA @ Dist
Inverter 001	420	22.9
Inverter 002	420	22.9
Inverter 003	420	22.9
Inverter 004	420	22.9
Inverter 005	420	22.9
Inverter 006	420	22.9
Inverter 007	415	23.0
Inverter 008	415	23.0
Inverter 009	415	23.0
Transformer 001	425	21.8
Transformer 002	425	2.8
	Total Impact (dBA)	**32.8**

Commercial	Industrial	Residential	dB Level
Threshold For Hearing			0
Good Recording Studio		Breathing	10
		Rustling Leaves	15
		Whisper, Mosquito	20
Library		Living / Dining Room	30
Refrigerator Hum		Kitchen / Bathroom	40
Quiet Office	Power Lawn Mower	Home Office	50
		Birds at 10'	55
Conversational Speech			60
Piano Practice		Electric Shaver	60
Business Office		Piano Practice	65
Noisy Restaurant	Inplant Office	Street Traffic	70
Chamber Music		Barking Dog	75
Classroom		Alarm Clock	75
		Television / Dishwasher	75

Relevant equations:

FT-M conversion: 1 foot = 0.3048 meter

Sound level of individual components:

R2 = R1-20*LOG(D)

Where:

R2 = sound level at user-specified distance

R1 = sound level at one meter distance

D = user-specified distance, in meters

Combined sound level:

RN = 10*LOG(Σ(10^[R2/10])

Where:

RN = sound level of combined components

R2 = sound level at user-specified distance

[1] Ambient sound level for Readfield, Maine from USGS CONUS Summer Day map L50 dB(A) https://www.nps.gov/subjects/sound/upload/CONUS_Natural_L50dBA_SummerDay_Legend.png

[2] Noise level CPS 100kW/125kW inverter online datasheet https://www.chintpowersystems.com/wp-content/uploads/2022/08/CPS-SCH100-125KTL-DO-US-600-Datasheet-August-10-2022.pdf

[3] Transformer noise level from National Electrical Manufacturers Association (NEMA) Standard ST-20 for sound level based on transformer kVA (701-1000 kVa <> 64 dBA)

[4] Transformer noise level from National Electrical Manufacturers Association (NEMA) Standard ST-20 for sound level based on transformer kVA (10-50 kVa <> 45 dBA)

[5] Decibel chart from NetWell Noise Control and Soundproofing *http://www.controlnoise.com/decibel-chart*

Prepared 8/1/2023

ATTACHMENT F: AGENT AUTHORIZATION

August 3, 2023

Attention: Kara Moody & Adam Gravel
Stantec Consulting Services Inc.
30 Park Drive
Topsham, ME 04086

Reference: Agent Authorization

Dear Kara and Adam,

The intent of this letter is to authorize Stantec Consulting Services Inc. to act as Norwich Technologies' agent in submitting municipal, state, and federal permit applications and answering questions associated with the Norwich Technologies proposed solar project, known as Readfield Main Street Solar in Readfield, Maine. The proposed project is located off Main Street (State Route 17 in Readfield).

Regards,

Martha Staskus
Chief Development Officer
Norwich Technologies, Inc