

Permit Fee \$ 150
Date Paid 9/6/23
Receipt # _____

Town of Readfield
Readfield, Maine 04355
(207) 685-4939

Map 121 Lot 020

Planning Board
Land Use Permit Application

The undersigned applies for approval of the Readfield Planning Board as follows:

1. Applicant / Owner:

Name John Cushing
Address P.O. Box 171
Readfield, ME 04355
Phone# (W) 207-685-7328
(H) 207-242-8075

Agent (if any):

Name _____
Address _____
Phone# (W) _____
(H) _____

Email for applicant/agent cushing_construction@yahoo.com

Note: Property owner must provide written authorization if he/she wishes to be represented by an agent. Such authorization may be provided either by signing this application, or by providing authorization by means of a separately signed statement included with the application.

2. Physical location of property: 866 & 874 Main Street, Readfield

3. Please describe what you are proposing to do:

Build two storage buildings if commercial drop zone is approved.
20x100
50x100

4. What land use district, e.g., rural residential, is the property located (as defined in Article 7 of the Land Use Ordinance (LUO) and depicted on the Land Use Map)?

Village

5. What is the existing use of the property (see Table I/Table of Uses, Article 7, of the LUO)?

Warehouse and Storage/Multi-Family Dwelling

6. What is the proposed use of the property as best described from Table I/Table of Uses in Article 7?

Warehouse and Storage/ Mulit-Family Dwelling

7. Lot Width 780' Lot Depth 433' Lot Area in Acres (1 acre = 43,560 sq. ft.) 2 acres

8. If a structure is proposed to be built, or expanded, list the following:

Type of Structure(s)	Length	Width	Height
Storage Building	100	20'	10' approx
Storage Building	100'	50'	10' approx

Non-Conforming Structures

Questions to answer if you are seeking a permit to expand, relocate, reconstruct or replace a **non-conforming** structure or are seeking a permit to build a new, enlarged or replacement foundation beneath an existing non-conforming structure. (See Article 11 of the Land Use Ordinance for definition of “non-conforming.”)


A. For an expansion of a structure, please list the total **floor area** for all portions of the structure(s) located between 25 to 75 feet from the normal highwater line of the water body, tributary stream, or upland edge of a wetland: N/A. (Please attach a worksheet showing how you calculated the total **floor area**. The term “**floor area**” is defined in Article 11 of the Land Use Ordinance.)

B. For an expansion of a structure, please list the total **floor area** for all portions of the structure(s) located between 75 to 100 feet from the normal high-water line of the water body: N/A. (Please attach a worksheet showing how you calculated the total **floor area**. The term “**floor area**” is defined in Article 11 of the Land Use Ordinance.)

C. If you plan to put in a new, enlarged or replacement foundation below a non-conforming structure OR if you are seeking to relocate, reconstruct or replace a non-conforming structure, please describe whether the foundation or structure can be located further from the water to meet, or come closer to meeting set-backs, and if not, explain why it cannot be moved further back.
N/A

D. For structures in the Shoreland Residential, Resource Protection or Stream Protection zones, please show how the proposed development does not result in exceeding the 20% lot coverage maximum. See Article 11 of the Land Use Ordinance for definition of “**lot coverage**.”
N/A

I certify that the foregoing, and the attached materials including responses to review criteria, are true, correct and accurate to the best of my knowledge.

Signature of Applicant / Owner  Date 7/28/2003
 Signature of Agent (if any): _____ Date _____

Applicant: Town of Readfield

**Planning Board Review Criteria
Questionnaire**

1. State how the proposed activity will not have an undue adverse affect on:
 - a) the scenic or natural beauty of the area, **Plan to build below Grade**
 - b) any historical sites that may be located on the property, **N/A**
 - c) any significant wildlife habitat, **N/A**
 - d) any public rights for physical or visual access to any shoreline, **N/A**
 - e) any rare and irreplaceable natural areas, **N/A**
2. a) What other Town, State or Federal permits will be required for this project? **None**
 - b) Do you intend to apply for these permits? **N/A**
 - c) Are you committed to conducting this activity and subsequent use of the property in conformance with all applicable Town, State and Federal laws, rules, regulations and ordinances? **YES**
3. State how the proposed activity will: **Landowner/builder certified in Erosion control, will take necessary precautions to avoid stormwater or erosion issues. Neither are anticipated with the current slope and ground conditions**
 - a) prevent stormwater from giving rise to soil erosion both during and after the development,

(In this regard you may reference the appropriate erosion control or stormwater management books available at the Town Office)
 - b) reasonably conserve the land's capacity to hold water,
4. State what impact the proposed activity will have upon the Town's public services and facilities. This may include, but not be limited to the amount and type of anticipated traffic, requirements for emergency services, effects relating to public education, etc. **Do not anticipate any strain on public services or increase in traffic.**
5. a) What financial resources (including mortgage commitments) do you have to assure the completion and implementation of this project in compliance with the Land Use Ordinance? **Landowner has means necessary to complete project.**
 - b) What technical support will be used in connection with any design, development or use of the project? **No technical support needed**

6. a) Is any portion of the subject property located within, or affected by any flood areas as depicted on the Federal Emergency Management Agency Flood Insurance Rate Map? **NO** (These Flood Maps are available for your reference at the Town Office).
- i) If the answer to question (a) is yes, do you intend to include any portion of your development within the boundaries of the flood plain, including any structures or buildings, wells, wastewater disposal systems, or any storage or placement of property stockpiling of materials? _____
- ii) If the answer to question (i) is yes, how do you intend to develop this project (including it's subsequent use) to comply with the Floodplain Ordinance of the Town of Readfield? _____
7. a) Does your proposed development or use include any alteration of or impact to any wetland? **NO** If the answer to this question is yes, describe how you intend to minimize this impact?
- b) Are you aware that any wetland alteration requires additional permitting on the State or Federal level and will you be applying for those? **YES**
8. What part of your development or use will rely on or could impact groundwater? **None**
9. a) State the nature of solid waste your proposal will generate both during development and the subsequent use of the property. **N/A- waste removal bin on site if needed by customers**
- b) Will this solid waste be taken to the Town Recycling Station? **NO** If so, how will the Town be compensated for handling such waste?
- c) If the solid waste is not to be taken to the Town Recycling Station, how do you plan to dispose of it?
10. Do you intend to connect to any public water supply? **NO**
11. a) What impact, if any, could the proposed activity have on adjacent properties and their uses. State whether any noise, glare, fumes smoke, dust, odors, or other affects will be generated. **Slight noise during construction, after completion anticipate the same amount of noise.**
- b) Describe the anticipated extent of these impacts and how you intend to buffer or reduce them to a level acceptable to adjacent properties.
12. a) What is the approximate percentage of slope of the land? **2%**
- b) What is the nature of the soils?
- c) What is the nature and extent of the existing vegetation on the site of development or use? **Grass and some Trees**
13. a) What is the nearest waterbody (lake, pond, stream, or brook)? **Maranacook**
- b) What is the least distance between the waterbody and the project site? **Not an adjacent parcel- Camp KV is on backside.**
- c) What part of your project could impact one of these waterbodies? **None**
- d) How do you intend to minimize this impact? **N/A**

14. How do you intend to provide for the adequate disposal of sewage and wastewater in order to comply with the requirements of the State Plumbing Code? **Drainage for wastewater, no septic needed.**
15. Describe or illustrate on a separate paper how you intend to control and manage any additional stormwater resulting from this project or use. You may reference the publication, "Stormwater Management for Maine, Best Management Practices" published by the Department of Environmental Protection (1995) and which is available for reference at the Town Office.

NOTE: If the project results in 20,000 sq. ft. or more of impervious area in the Maranacook Lake watershed or more than one (1) acre in the other lake watersheds, or more than five (5) acres of disturbed area in either watershed, a Stormwater Management permit from the Department of Environmental Protection will be required.

16. What will your water requirements be for this use and what will be your water source? **None**
17. What types and amount of additional traffic do you expect as a result of this use? **No major impact**
18. What are your plans for permanent access to the site of the proposed use? **Access already established**
19. Does your proposed development or use cross the Readfield town line? **NO**
If so, into which town?
How will you avoid causing unreasonable traffic congestion or unsafe conditions as related to the use of that town's public ways?
20. What is the estimated depth-to-frontage ratio of the lots you propose to create or develop? **N/A**
21. Has a representative of the Readfield Fire Department reviewed your proposal? **NO**
22. Are there currently any enforceable land use violations associated with this property? **NO**
23. If your project involves the construction of a road has the road design been approved by the Road Committee? **N/A**

Required Submittals

(Per Article 6, Section 3.I.2)

- ___ 1. Copy of the portion of applicable tax map showing subject property, abutting properties and boundaries of all contiguous property under the control of the owner or applicant, regardless of whether all or part is being developed at this time.
- ✓ 2. Names and mailing addresses of all property owners abutting the proposed development. (Abutters are the owners of any parcels with one or more common boundaries or points, as well as property owners of any parcel located directly across any road, railroad or stream along the road, railroad or stream from the parcel involved in the application. Also included is any Qualified Conservation Holder of an easement in any of these parcels).
- ✓ 3. Exact direction to the property from the Town Office, using a map if necessary.
- ___ 4. The Assessor's tax map and lot numbers of the parcels.
- ✓ 5. A copy of the deed to the property or other documentation to demonstrate right, title or interest in the property on the part of the applicant.
- N/A 6. The name, registration number and seal of the land surveyor, architect, engineer and/or similar professional who prepared any plan.
- ✓ 7. Map showing the north bearing and lot dimensions of all property lines of the property to be developed and the source of this information.
- ✓ 8. Site plan(s) illustrating the following: (Note: If the site plan is not drawn to scale, then specific distances identifying the relative locations of the following features must be shown on the plan).
 - a) The location and size of any existing and proposed sewer and water mains, culverts and drains that will serve the development whether on or off the property along with the direction of existing and proposed surface water drainage across the site.
 - b) The location, names, and present and proposed widths of existing and proposed roads, driveways, streets, parking and loading areas, walkways and rights-of-way within or adjacent to the proposed development.
 - c) The location and dimensions of all existing and proposed buildings and structures on the site, including underground storage tanks.
 - d) The location of intersecting roads or driveways within 200 hundred feet of the site.
 - e) The location of existing and proposed open drainage courses, wetlands, water bodies, floodplains, stands of trees, and other important natural features, with a description of such features to be retained.
 - f) The location and dimensions of any existing and proposed easements.
 - g) The location and dimensions of all existing and proposed provisions for water supply and wastewater disposal systems, including a design copy or letter of soils suitability for any proposed new or replacement wastewater disposal systems.
 - h) The location and dimensions of all existing and proposed signs.
 - i) For any project which shall result in a change to exterior lighting, the location, height, and type of existing and proposed exterior lighting and, for commercial, industrial and institutional projects, the foot-candle intensities of proposed lighting projecting on abutting properties.
 - j) The proposed landscaping and buffering.
 - k) The location and amount of any earth-moving.
 - l) A copy of all existing or proposed covenants or deed restrictions associated with the subject property.

- 9. A copy of any applicable Federal, State or Town applications or permits which have been issued.
- 10. A narrative describing how the proposal meets all of the Planning Board's Review Criteria.
- 11. Evidence of receipt of application fee paid to the Town of Readfield.
- 12. A schedule of construction, including anticipated beginning and completion dates.
- 13. A stormwater drainage and erosion and control plan in compliance with Article 8, Sections 10 and 11.
- 14. A description of the traffic movement to be generated by the development including types, peak hour and average daily vehicle trips, travel routes, and duration of traffic movement both during and following construction. A full traffic impact study shall be required under the conditions set forth in Article 8, Section 18.H, and shall include the components described therein.
- 15. An assessment of the solid or hazardous wastes to be generated by the proposed activity and a plan for its handling and disposal, along with evidence of disposal arrangements.
- 16. A copy of any required dimensional calculations applicable to the standards being reviewed, for example, square footage of structures, percent of lot coverage, etc.
- 17. Elevation drawings for new commercial, industrial, and institutional buildings.
- 18. Any additional information relevant to the project, for example, photographs, Cobbossee Watershed District recommendations, etc.

------(end of application)-----

Planning Board Fees

<u>Value of Project</u>	<u>Fee</u>
Up to \$100,000	\$100
\$100,001 to \$500,000	\$150
\$500,001 to \$1,000,000	\$250
\$1,000,001 and over	\$500

“Value of Project” is considered the fair market value of all labor and materials associated with the project requiring site review. The above fee schedule does not include other fees that may be required as part of this project, for example, building and plumbing permit fees.

Subdivision Review

Minor subdivisions	\$175
Major subdivisions	\$175 plus \$50 per lot

Legitimate non-profit organizations will be assessed one-half of the regular fees

866 and 877 Main street currently consist of a multi family unit dwelling, one storage building with climate controlled and regular storage units and an additional building with 10' x 20' storage units down back. We have mostly been operating at capacity and would like to build two additional storage buildings. The first building will be approximately 100' x 20' long the other storage building will be approximately 100' x 50' long.

Current zoning restrictions prevent any further development. At this time I am asking for a commercial drop zone so square footage will be in compliance with zoning requirements. I am also asking for an approved permit for the two buildings. This is my second time before the planning board to build and I feel that this application meets all criteria that the planning board currently has.

There is no anticipated excess traffic or waste associated with this project that would unnecessarily burden the towns resources or restrict regular traffic flow. I feel that I have included everything that the planning board requires to complete approval currently. Thank you for your time and consideration.

Erosion control plan- before any work starts erosion control silt fence and mulch mix and/or hay bales will be installed where needed on the down grade side of the worksite.

Stormwater management. Currently there is a 15" culvert installed, and the access drive is sloped appropriately so the water sheds where needed. I plan to continue to slope the drive down and have water flow into a constructed containment basin with a level spread exit. Will be constructed using aggregate materials. Water will flow into the basin and slowly exit if the basin should become too full. Have attached an example of what a similar design would look.

EXAMPLE

Step 6a: Sizing Type A basins

The settling pond within a Type A sediment basin is divided horizontally into three zones:

- upper settling zone
- free water zone
- sediment storage zone.

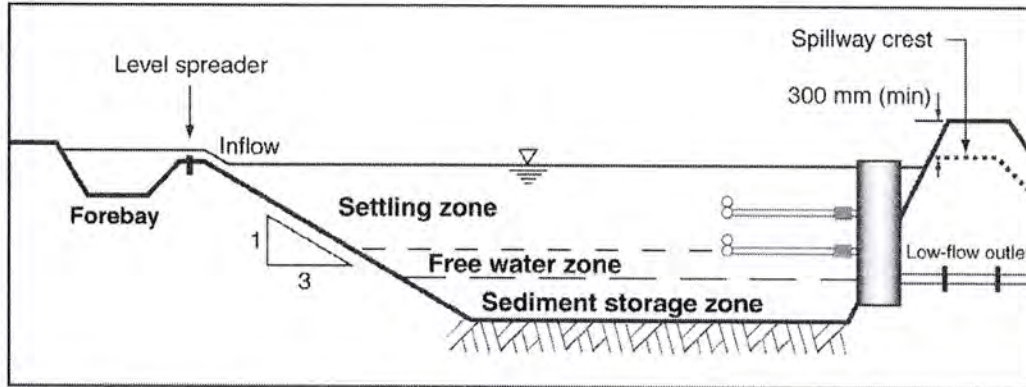


Figure 1 – Long-section of a typical Type A basin

The sizing of a Type A basin is governed by achieving or exceeding a minimum settling volume (V_s), and a minimum settling zone surface area (A_s). It is generally advisable to optimise the basin's dimensions such that both the pond volume and surface area are minimised, thus resulting in a basin that requires the minimum space and construction cost.

For a given low-flow decant rate (Q_A), there is an 'optimum' settling zone depth (D_s) that will allow the minimum settling volume and minimum settling zone surface area requirements to be achieved concurrently. Conversely, for a given settling zone depth, there is an 'optimum' low-flow decant rate that will also allow both of these design requirements to be achieved concurrently.

If site conditions place restrictions on the total depth of the sediment basin (D_T), then this will directly impact upon the maximum allowable depth of the settling zone (D_s); however, the relationship between the settling zone depth and the total pond depth is complex, and depends on a number of factors.

If it is possible to determine, or nominate, a desirable settling zone depth (D_s), then the optimum low-flow decant rate may be determined from Equation 1.

$$Q_{A \text{ (optimum)}} = (K \cdot I^{1.8}) / (K_s \cdot D_s) \quad (1)$$

where:

Q_A = the low-flow decant rate per hectare of contributing catchment [$\text{m}^3/\text{s}/\text{ha}$]

K = equation coefficient that varies with the design event (X) and the low-flow decant rate (Q_A) refer to Table 7

I = $I_{X \text{ yr}, 24 \text{ hr}}$ the average rainfall intensity for an X -year, 24-hour storm [mm/hr]

K_s = inverse of the settling velocity of the critical particle size (Table 8)

D_s = depth of the settling zone measured from the spillway crest [m]

For a 1 year ARI design event, the coefficient 'K' may be estimated from Equation 2:

$$K = 0.6836 Q_A^{-0.6747} \quad (2)$$

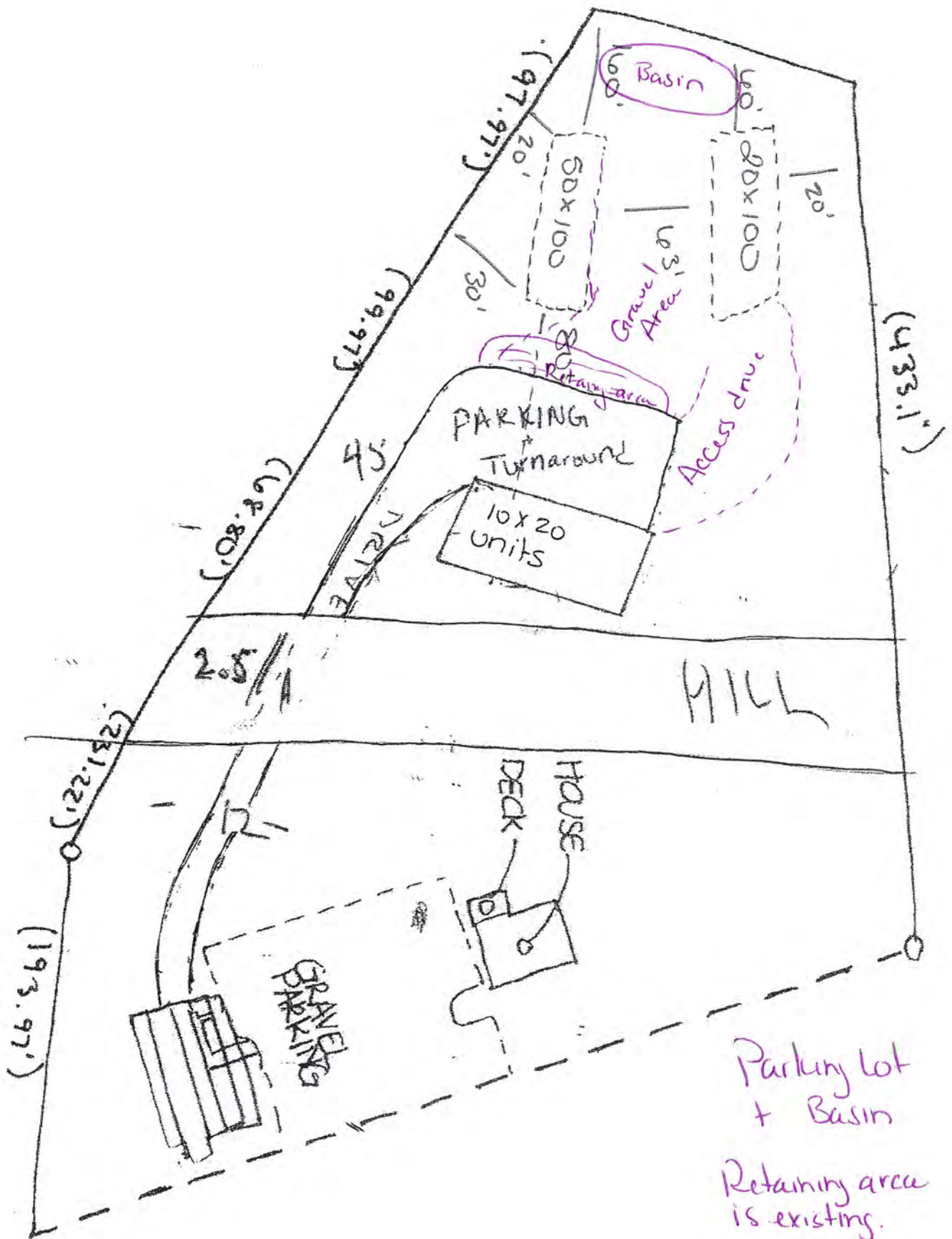
This means the 'optimum' low-flow decant rate can be estimated from Equation 3.

For a 1 yr ARI design:

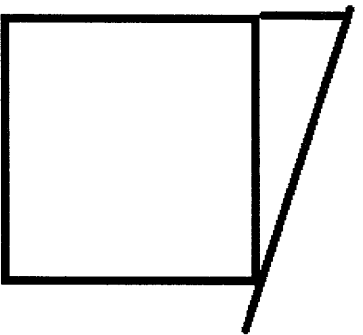
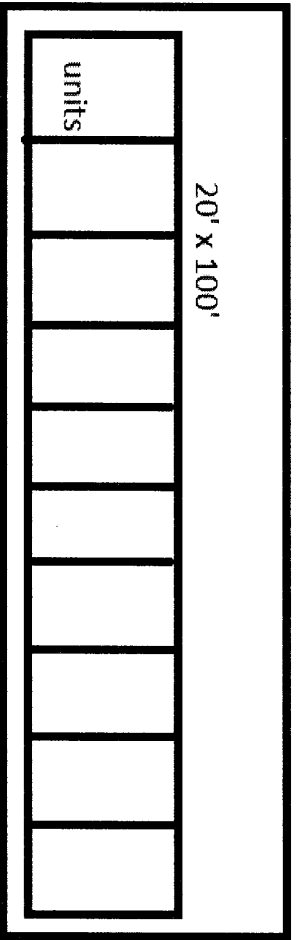
$$Q_{A \text{ (optimum)}} = 0.8 (I^{1.08}) / (K_A \cdot D_s)^{0.6} \quad (3)$$



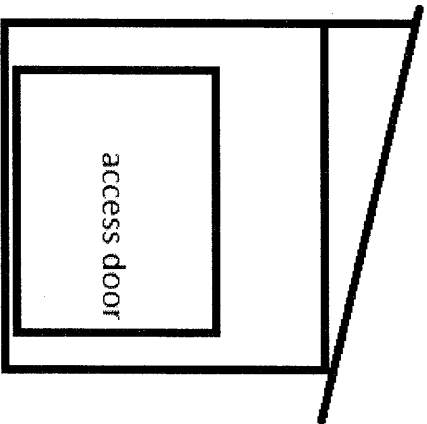
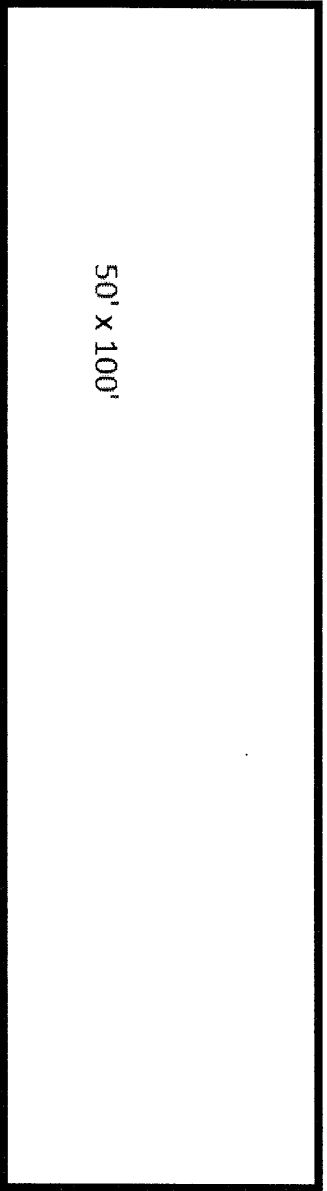
Buildings + setbacks



Parking lot + Basin
 Retaining area is existing.

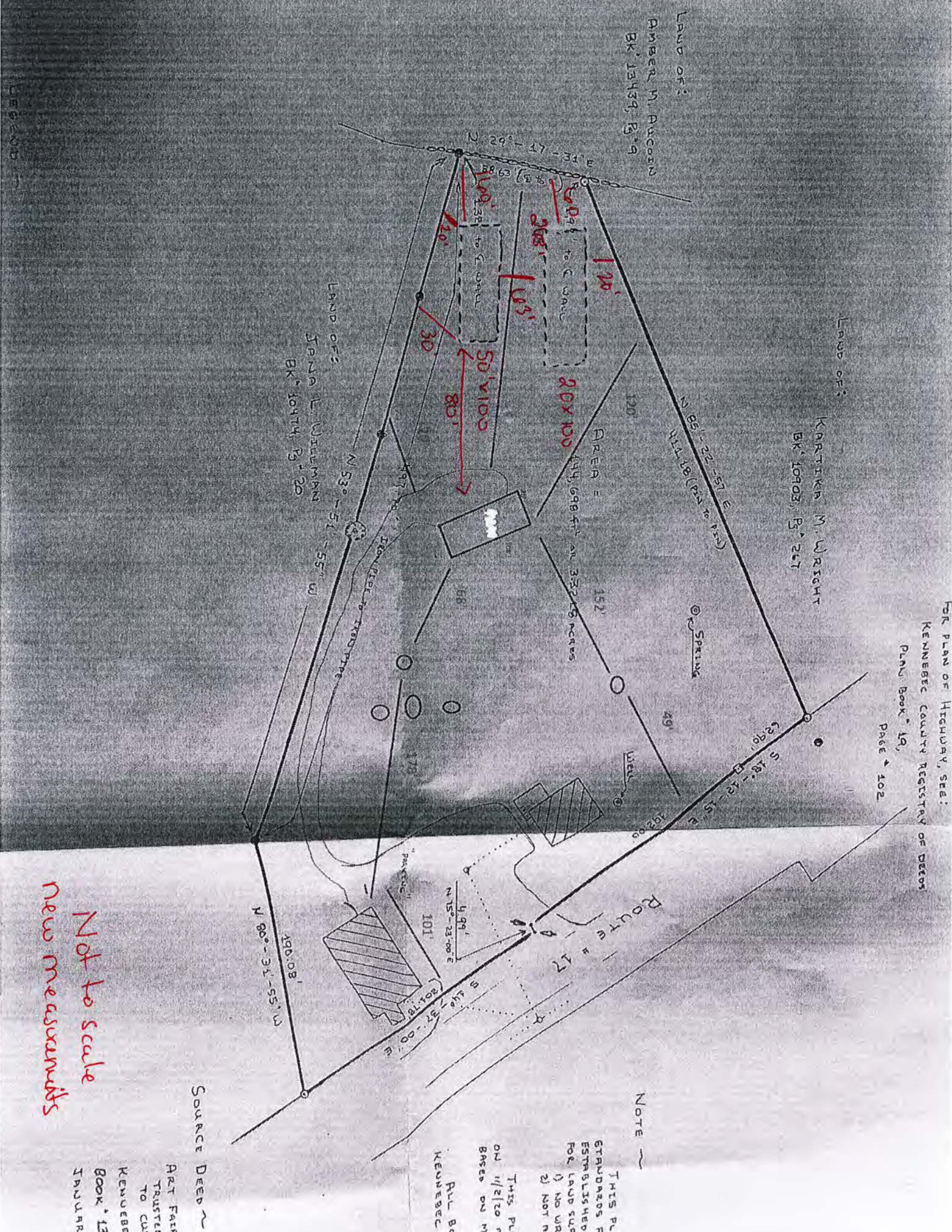


side view



Rough Design
not to scale

FOR PLAN OF HIGHWAY, SEE:
 KENNEBEC COUNTY REGISTRY OF DEEDS
 Plan Book 19,
 Page 102



LAND OF:
 AMBER M. AUCCOIN
 BK 12449, P 9

LAND OF:
 KARRIEAN M. WRIGHT
 BK 10903, P 267

LAND OF:
 JANA L. WILLIAMS
 BK 10914, P 20

NOTE ~

THIS PLAN
 STANDARDS FOR
 ESTABLISHED
 FOR LAND SURV
 1) NO WAT
 2) NOT IN
 THIS PLAN
 ON 11/2/20 IN
 BASED ON MR
 RILEY BOO
 KENNEBEC

SOURCE DEED ~

ART FAIRI
 TRUSTEES
 TO CUS
 KENNEBEC
 BOOK 13;
 JANUARY

Not to scale
 New measurements

Abutters

#121-019 Katrika Wright-Brower 896 Main St, Readfield ME 04355

#121-021 Scott Lowery & Kimberly Hatch 860 Main St, Readfield ME 04355

#121-018 Camp KV 916 Main St Readfield, ME 04355.

#121-004 Valerue Pomereleau 863 Main St, Readfield ME 04355

Directions- From Town Office take right onto Old Kents Hill Rd. At stop sign take left onto RT 17 and follow for approximately 1.6 miles until you reach 866 Main St. It will be on your right.



**TRANSFER
TAX
PAID**

WARRANTY DEED

**ART FAIRBROTHER, LAREN WHALEY, and FRANK SICILIANO, TRUSTEES OF
THE CHURCH OF GOD, READFIELD,** of Readfield, Maine, grant to **CUSHING STORAGE
AND RENTALS, LLC**, a Maine limited liability company, with a mailing address of 32 Roddy
Lane, Readfield, Maine 04351 with **WARRANTY COVENANTS**, three certain lots or parcels of
land with the buildings thereon located in the Town of Readfield, County of Kennebec and State of
Maine, bounded and described as follows:

Parcel One: A certain lot or parcel of land triangular in shape, with the buildings thereon, situate
in said Readfield on the westerly side of the road leading from Readfield Corner to Readfield
Depot and bounded and described as follows: Commencing at a point on the westerly line of the
road from Readfield Corner to Readfield Depot, said point being on the southeasterly corner of
the lot of land now or formerly owned by Robert C. Killam and Mary H. Killam; thence
northerly along the westerly line of said road twelve rods to an elm tree; thence in a line
perpendicular to the westerly line of said road to a stake on the southerly line of land now or
formerly of the said Killams; said stake also being on the north line of land now or formerly
owned by Lawrence Lane; thence easterly along the southerly line of land now or formerly of the
said Killams and the northerly line of property of said Lawrence Lane to the point of beginning.

Parcel Two: A certain lot or parcel of land situated in said Readfield on the southerly side of the
road leading from Readfield Depot to Readfield Corner and bounded and described as follows:
Beginning at a point where the westerly Church surveyed line joins the road right-of-way; thence
along said road right-of-way in a westerly direction, two hundred fifty (250) feet, more or less, to
an iron stake driven in the ground; thence southerly to another iron stake driven in the ground at
the point where the Girl Scout line meets the George Nobis, Jr. surveyed line; thence along this
surveyed line to another iron stake driven in the ground at the point where the Church lot, being
Parcel 1 above, and the George Nobis, Jr. lot meet; thence along the Church surveyed line
(Parcel 1) to the point of beginning.

This two hundred fifty (250) foot frontage, more or less, is meant to convey and include a certain

④ Farris Law

spring or well located on the above described premises and all rights of ownership, except as follows: Reserving the water rights to said spring or well to Carl Bigelow, et al, their heirs and assigns, as stipulated in a certain Warranty Deed from said Bigelow to Robert C. and Mary H. Killam dated September 22, 1947 and recorded in Kennebec County Registry of Deeds in Book 882, Page 412.

Parcel Three: A parcel of land adjoining Parcels 1 and 2 above on the southwest, being the same conveyed by Evelyn E. Nobis to Assembly of God of Readfield, Maine, a corporation, by deed dated December 11, 1956 and recorded in Kennebec County Registry of Deeds in Book 1068, Page 173, and in said deed described as follows:

"A certain lot or parcel of land situated in said Readfield and bounded and described as follows, to wit: Beginning in the middle of the stone wall in the southeasterly line of land of Kennebec Valley Council Girl Scouts and at the north corner of land of this Grantor; thence running south, 53 degrees and 45 minutes east (Magnetic in 1956), in the northeasterly line of this Grantor, passing over an iron beside said wall, over a cedar post about three feet from said wall, over a one-inch iron pipe at the west corner of the triangular parcel of land of this Grantee (see Kennebec Registry, Book 884, Page 243), over an iron rod 99.4 feet distant from the one-inch iron pipe, a total distance of 676.5 feet to a point in the middle of the stone wall in the westerly line of the road leading from Readfield Depot to Readfield Corner, said point being the northeasterly corner of land of this Grantor and the southeasterly corner of the triangular parcel of land above mentioned of this Grantee; this line if extended slightly in the same course butts the elm tree referred to in the deeds of this Grantor and this Grantee; thence turning an interior angle of 26 degrees and 40 minutes and running westerly passing over an iron 2.2 feet from said point, a distance of 195 feet to another one-inch iron pipe which is at 90 degrees from and 88 feet distant from the iron rod 99.4 feet from the west corner of the above referred to triangular parcel of land of this Grantee; thence running north 53 degrees and 45 minutes west (Magnetic in 1956) and parallel with and 88 feet distant from the first described line, passing over an iron 100 feet distant through a huge pine tree 230 feet distant and over irons 300, 400 and 498.4 feet distant, a total distance of 500 feet to the middle of the first mentioned stone wall; thence running northeasterly in the line of said wall, a distance of 88.2 feet to the point of beginning.

Meaning and intending to hereby convey an irregular four-sided parcel of land, bounded northeasterly by land of this Grantee, running to a point in the westerly line of the road leading from Readfield Depot to Readfield Corner, southerly and southwesterly by other land of this Grantor and northwesterly by land of said Kennebec Valley Council of Girl Scouts."

Meaning and intending convey the premises described in deed of Full Gospel Tabernacle of Readfield to Grantor by deed dated June 1, 1978 as recorded at the Kennebec County Registry in Book 2119, Page 304.

Following the procedure set forth in Exhibit A of said deed, the local Readfield church having ceased to function and its Local Board of Trustees having ceased to exist, Bishop Michael White, State Overseer has declared all offices of the local church vacant and has appointed the undersigned as a special Board of Successor Trustees who now automatically hold title.

WITNESS our hands and seals this 12 day of JANUARY, 2019.

[Signature]

Art Fairbrother
ART FAIRBROTHER, Trustee

Laren Whaley
LAREN WHALEY, Trustee

Frank Siciliano
FRANK SICILIANO, Trustee

STATE OF NEW HAMPSHIRE
COUNTY OF HILLSBOROUGH

JAN. 12th, 2019

Personally appeared the above named ART FAIRBROTHER and acknowledged the foregoing instrument to be his free act and deed in said capacity.

Before me,

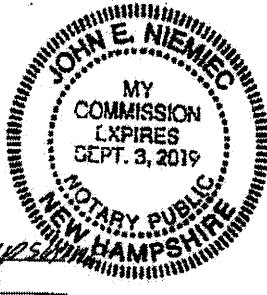
John Niemiec
Notary Public
Print Name: John NIEMIEC
Commission Expires: 9-3-19



STATE OF New Hampshire
COUNTY OF Hillsborough

JAN 12, 2019

Personally appeared the above named **LAREN WHALEY** and acknowledged the foregoing instrument to be his free act and deed in said capacity.



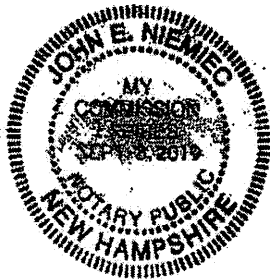
Before me,

John Niemiec
Notary Public
Print Name: John NIEMIEC
Commission Expires: 9-3-2019

STATE OF New Hampshire
COUNTY OF Hillsborough

JAN. 12, 2019

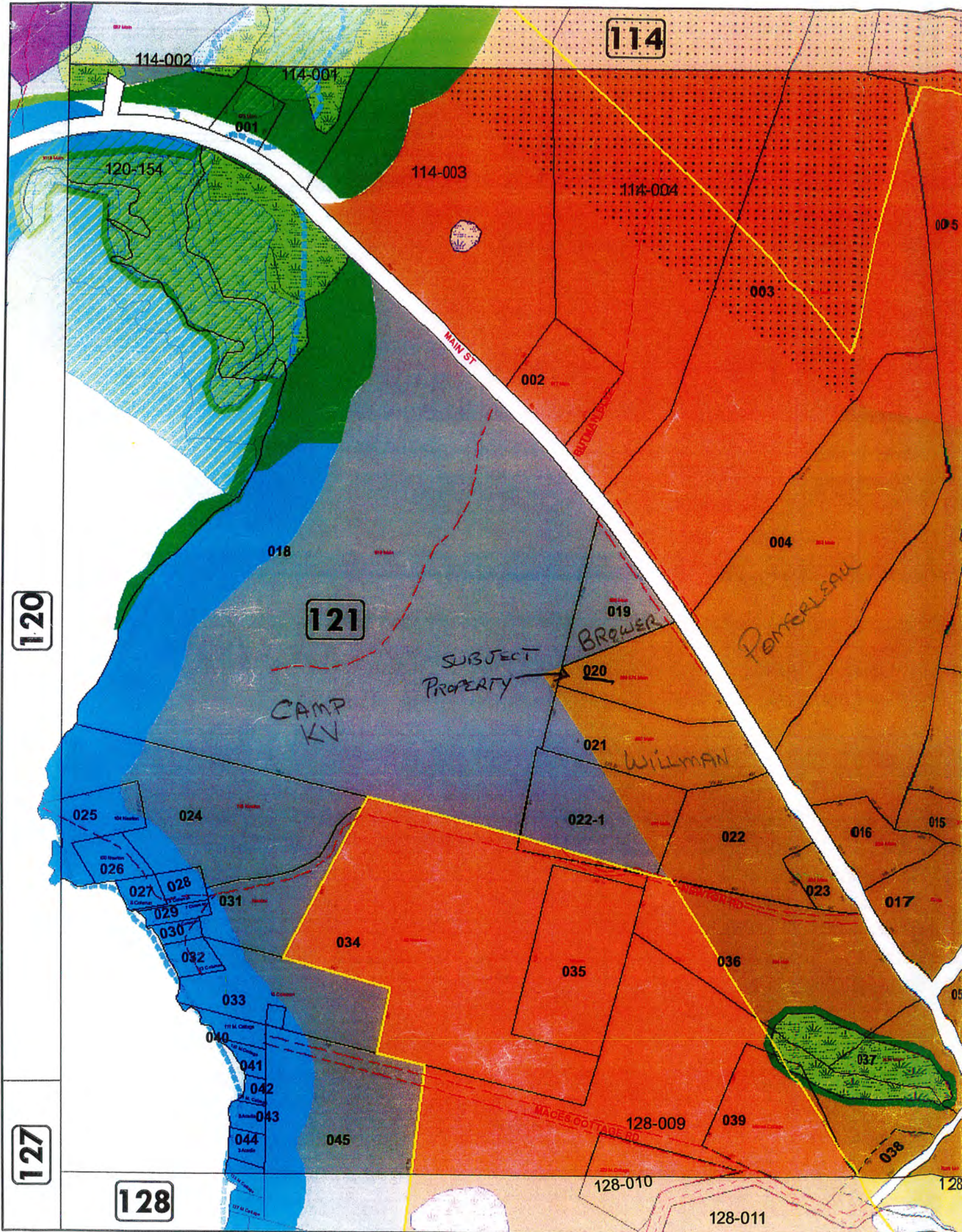
Personally appeared the above named **FRANK SICILIANO** and acknowledged the foregoing instrument to be his free act and deed in said capacity.



Before me,

John Niemiec
Notary Public
Print Name: John NIEMIEC
Commission Expires: 9-3-2019

LD/CO
T-4645



114

114-002

114-001

001

120-154

114-003

114-004

003

002

120

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018

019

SUBJECT PROPERTY

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Pomerleau

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MAIN ST

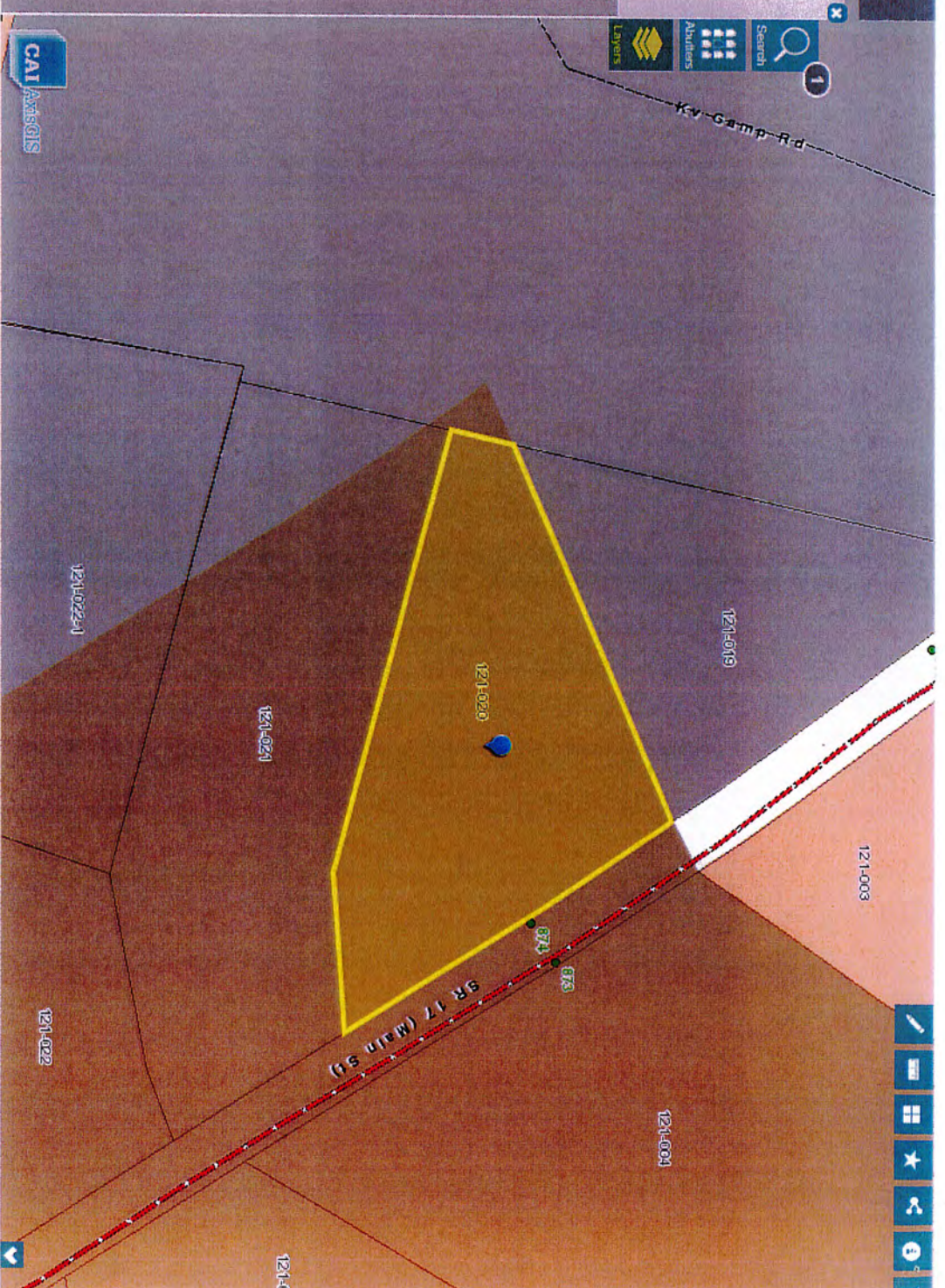
BUTMAN ST

NEW FOR RD

MACES GOTTAERO



- + Parcel Lines
- + Water
- + Aquifer Map
- E911 Address Point Map
- E911 Address Points
- + FEMA Flood
- + Future Land Use Map
- + Land Cover Map
- + Road Management System
- + Public Facilities Map
- + Soil Map
- + Subdivision Map
- + Bedrock Map
- + Conserved Lands
- + Watershed Map
- + Topographic Map
- + Transportation
- Wetland Map
- + Wetlands - USFWS NWI
- Zoning Map
- Zoning
 - Resource Protection
 - Shoreland Residential
 - Stream Protection
 - Rural Residential
 - Rural Resource
 - Rural
 - Village Residential
 - Village
 - Academic



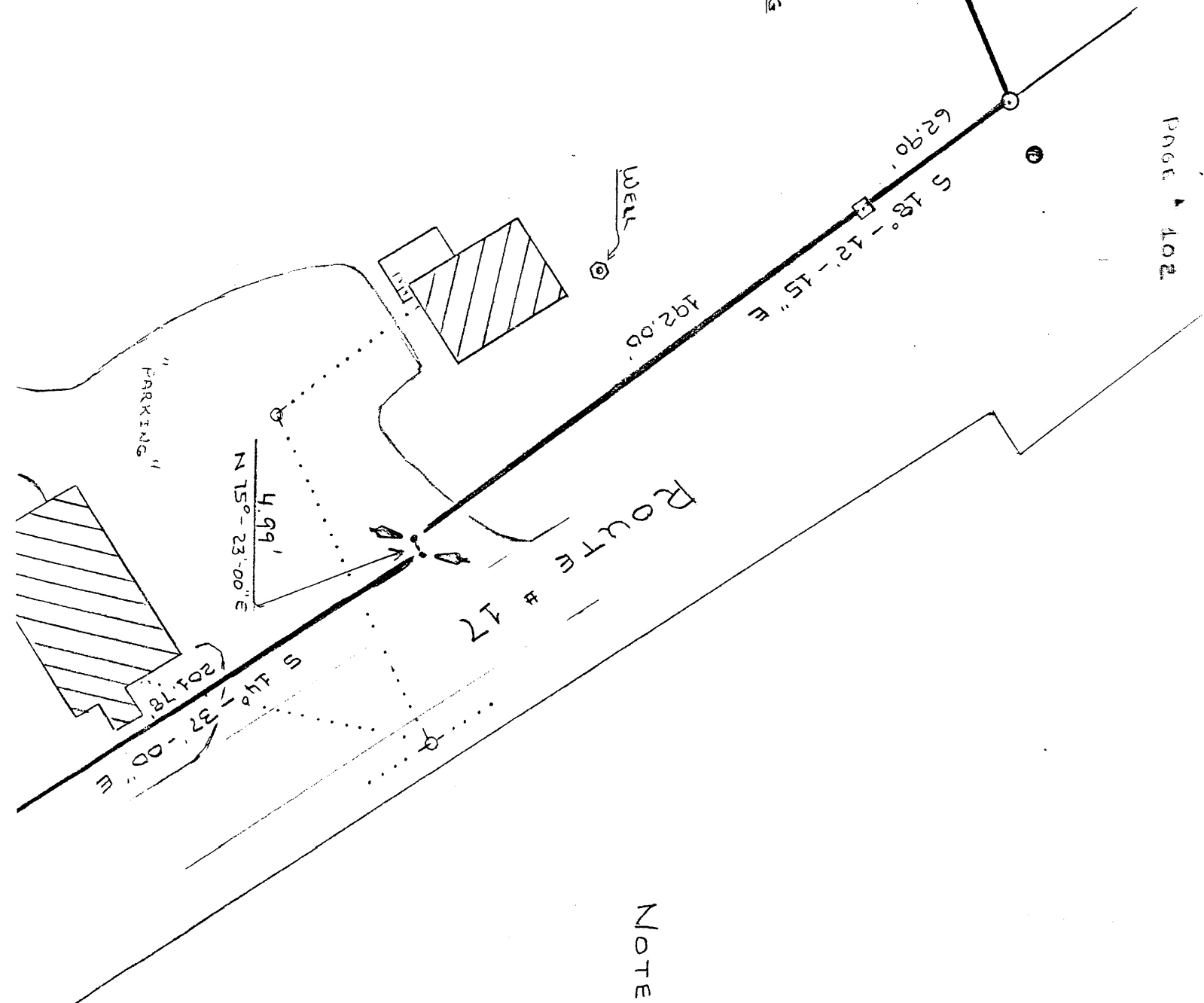
KARTIKH M. WRIGHT
BK 10903, P 267

5'-22"-57" E
N 11.18 (PIN TO PIN)

SPRING

AREA =
144,698 ft² OR 3.3218 ACRES

497.70'
N 53° - E
IRON PIPE TO IRON PIPE



NOTE -

STI
EST-
FOI
ON
BA
KE



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

Project Overview	1
Section 2 – Standards	1
Section 3 – General Requirements	4
Section 4 – Application Requirements	7

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

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 patten 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.

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

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.

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

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 (SO₂) and nitrogen oxides (NO_x) (criteria pollutants and precursors to acid rain and ozone), or carbon dioxide (CO₂).

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: CO₂ 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 CO₂ 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

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

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>.

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

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.

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

- 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 in compliance 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.

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

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

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

ATTACHMENT A: SITE PLANS



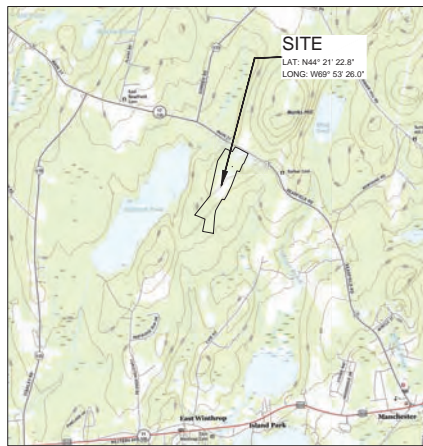
READFIELD MAIN STREET SOLAR, LLC

CIVIL SITE PLANS

PROPOSED PHOTOVOLTAIC POWER GENERATION FACILITY

MAIN STREET

READFIELD, MAINE



READFIELD, ME

LOCATION MAP
SCALE 1" = 1/2 Miles

SHEET INDEX

1 of 1 BOUNDARY, TOPOGRAPHIC, AND
EXISTING CONDITIONS PLAN

C-1.0 SITE PLAN

C-2.0 STANDARD DETAILS

C-2.1 ESC DETAILS

C-2.2 ESC DETAILS

C-3.0 PRE-DEVELOPMENT STORMWATER

C-3.1 POST-DEVELOPMENT STORMWATER

READFIELD
MAIN STREET
SOLAR, LLC
Main Street
Readfield, Maine



ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPLETION

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

Environmental:
Stantec
30 Park Drive
Topsham, Maine 04086

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

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



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: LAJ
Project No.: 22124 Scale: N/A

Drawing No.: _____ Rev No.: _____

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

PcC2 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 10 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

CMP MIDSPAN POLE:
POINT OF
INTERCONNECTION
LAT: N44° 21' 22.8"
LONG: W69° 53' 26.0"

TOWN OF READFIELD
RURAL RESIDENTIAL ZONE

TOWN OF READFIELD
RURAL ZONE

14' WIDE ACCESS ROAD OVER
EXISTING CURB CUT FOLLOWING
EXISTING 12' WIDE
AGRICULTURAL DRIVE

HrC Lyman-Tunbridge
complex

10,922 SF OF PERVIOUS
GRAVEL ACCESS ROAD

200' SETBACK TO
SOLAR PANELS

PAD MOUNT
TRANSFORMER
AC DISCONNECT
PEDESTAL
AC COMBINER PAD
GRAVEL TURNAROUND,
SEE NOTE 12

PROJECT GATE
WITH KNOX BOX

TEMPORARY
STAGING AREA

PERIMETER FENCING

200' SETBACK TO
SOLAR PANELS

SIGN DISPLAYING
PROJECT OWNER
AND EMERGENCY
CONTACTS

SITE
LAT: N44° 21' 22.8"
LONG: W69° 53' 26.0"

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 PERMETER 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



ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPIATION

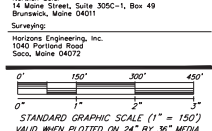
Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:

Stantec:
30 Park Drive
Fogebush, Maine 04086

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

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



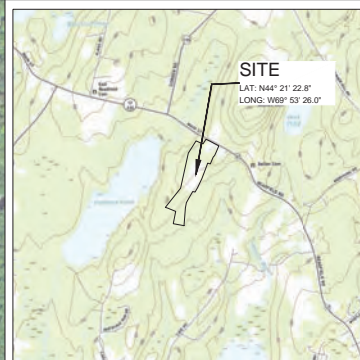
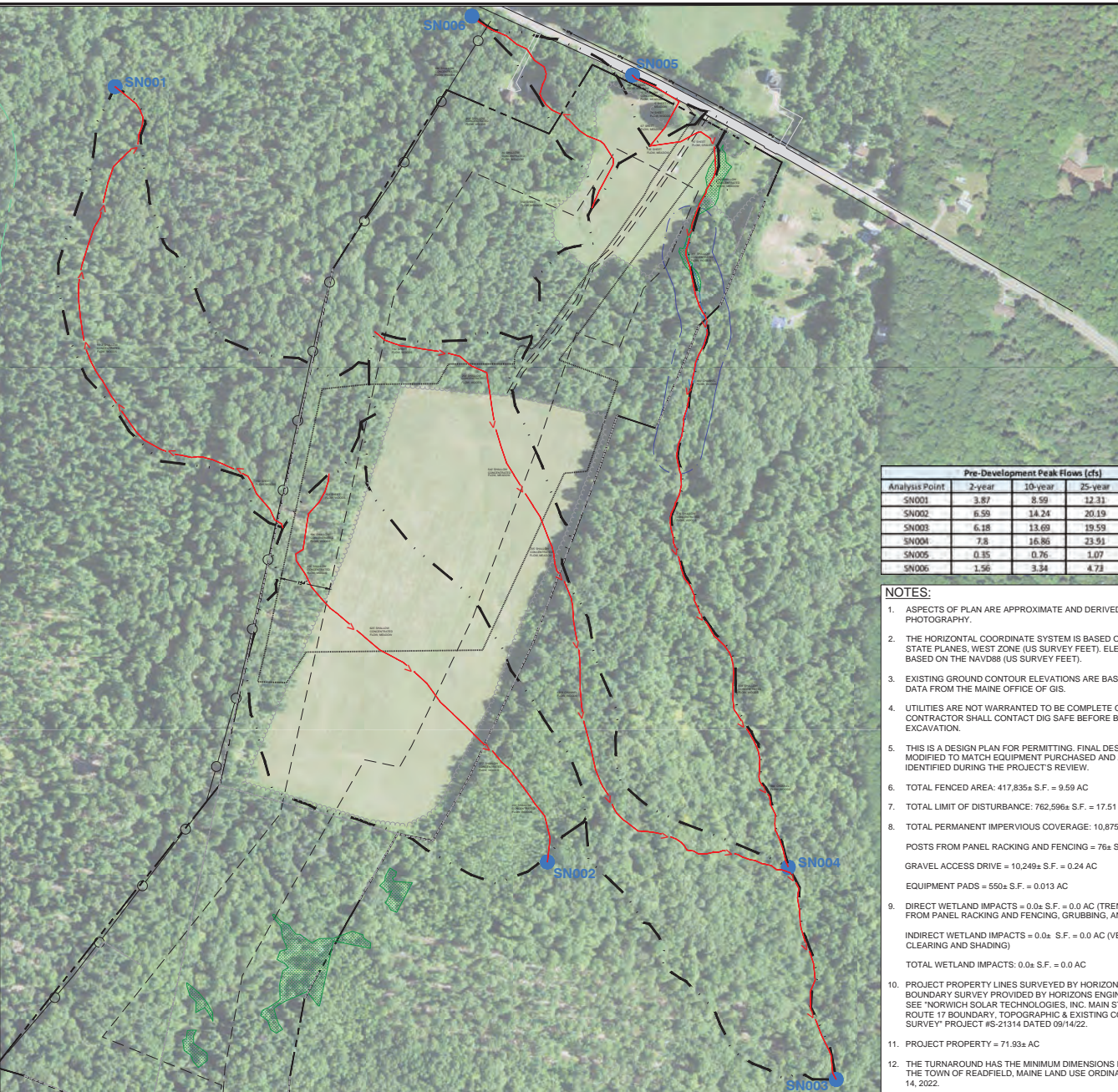
REV. NO.	REVISIONS/COMMENTS	DATE
1.	OVERHEAD POWER CHANGED TO UNDERGROUND POWER BY ACCESS	10/24/23
2.		
3.		
4.		

DRAWING TITLE:
**SITE PLAN
READFIELD MAIN
STREET SOLAR, LLC**

DATE of Issue: 07/31/23
Drawn by: LM
Project No: 22124
Scale: 1" = 150'

Checked by: ALJ
Drawing No.:
Rev No.:

C-1.0



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:

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- PROJECT PROPERTY = 71.93± AC
- 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)
- 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
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- EXISTING TREELINE
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- PROJECT LIMIT OF DISTURBANCE WITH PERMITTER CONTROLS, SEE SHEET C-2.2
- STREAM
- 75' STREAM BUFFER
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- PROPOSED IMPERVIOUS GRAVEL ACCESS
- PROPOSED PERVIOUS GRAVEL ACCESS
- PROPOSED TEMPORARY STAGING AREA
- EXISTING FENCE
- EXISTING TRAIL
- EXISTING STONEWALL

**READFIELD
MAIN STREET
SOLAR, LLC**
Main Street
Readfield, Maine

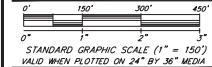


ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPIATION
Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environment:
Stantec
30 Park Drive
Fogebush, Maine 04086
Electrical:
Norwich Solar
14 Moore Street, Suite 305C-1, Box 49
Brunswick, Maine 04011

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

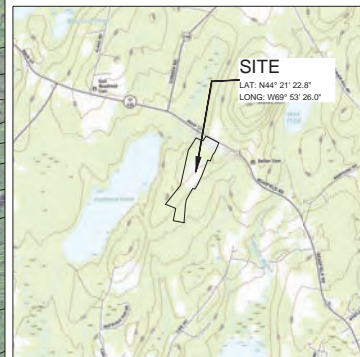
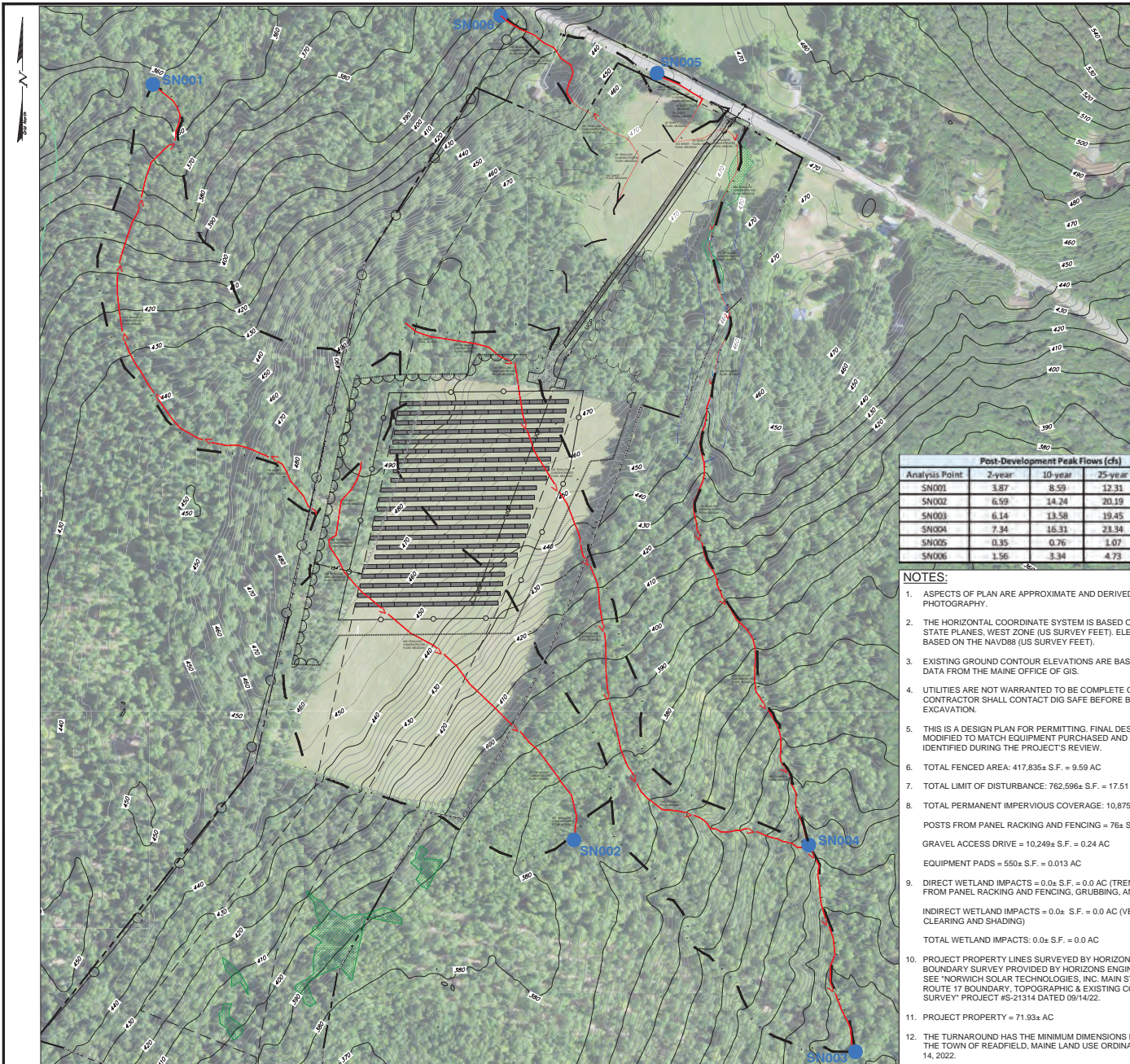


REV. NO.	REVISIONS/COMMENTS	DATE
1	NO CHANGES TO THIS SHEET	10/24/23
2		
3		
4		

DRAWING TITLE:
**PRE-DEVELOPMENT
STORMWATER PLAN
READFIELD MAIN
STREET SOLAR, LLC**

DATE of Issue: 07/31/23
Drawn by: LM Checked by: ALJ
Project No.: 22124 Scale: 1" = 150'
Drawing No.: Rev No.:

C-3.0



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)
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- PROPOSED PERIMETER FENCE
- PROPOSED UNDERGROUND POWER
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- 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
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- EXISTING TRAIL
- EXISTING STONEWALL

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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.

READFIELD
MAIN STREET
SOLAR, LLC
Main Street
Readfield, Maine



ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

MAPPING SOURCE DATA USED FOR PLAN COMPIATION

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

Environmental:

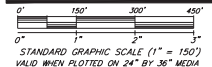
Stantec:
30 Park Drive
Fogebun, Maine 04086

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

Surveying:

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



VALID WHEN PLOTTED ON 24" BY 36" MEDIA



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: LM Checked by: 1AJ

Project No.: 22124 Scale: 1" = 150'

Drawing No.: Rev No.:

C-3.1

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

ATTACHMENT B: NRCS SOIL RESOURCE REPORT



Custom Soil Resource Report for **Kennebec County, Maine**



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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

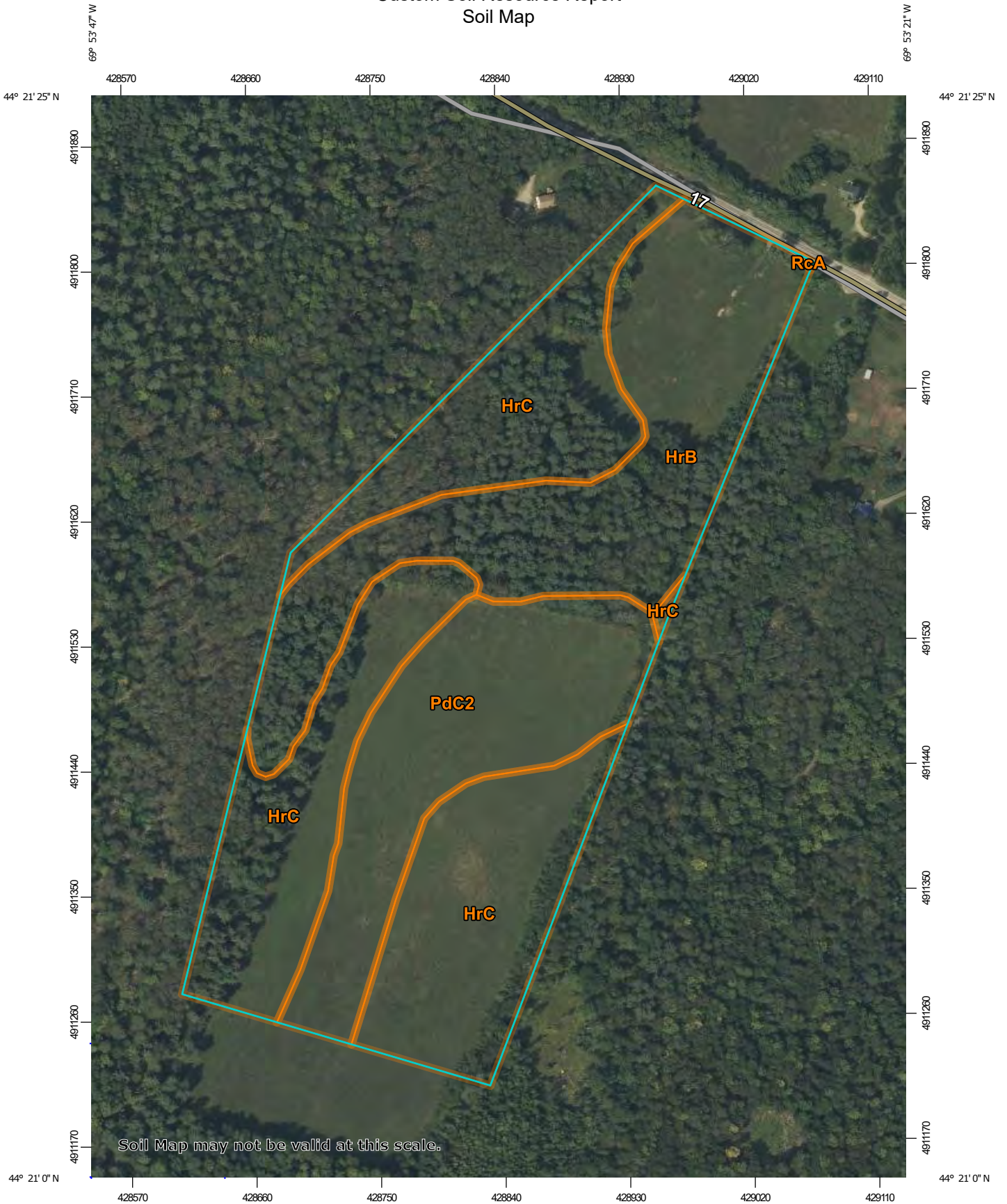
Contents

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Soil Map.....	6
Legend.....	7
Map Unit Legend.....	8
Map Unit Descriptions.....	8
Kennebec County, Maine.....	10
HrB—Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky.....	10
HrC—Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky.....	11
PdC2—Paxton-Charlton fine sandy loams, 8 to 15 percent slopes, eroded.....	13
RcA—Ridgebury fine sandy loam.....	15

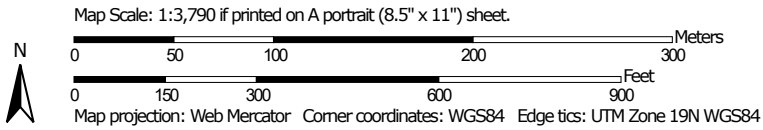
Soil Map

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



Soil Map may not be valid at this scale.



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.

Custom Soil Resource Report

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

Custom Soil Resource Report

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

Custom Soil Resource Report

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

Custom Soil Resource Report

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

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

**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:

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Prepared by:

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WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT

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 NRPA⁶ 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.



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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.



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- Fairy shrimp (*Eubbranchipus* 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 (*Epiaschna 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 (*Eubbranchipus* 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*



WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT

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 – Tunbridge 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.



WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT

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	<p>Trees: none</p> <p>Saplings / Shrubs: red raspberry (<i>Rubus idaeus</i>)</p> <p>Herbs: narrow-leaf cattail (<i>Typha angustifolia</i>), cottongrass bulrush (<i>Scirpus cyperinus</i>), sensitive fern (<i>Onoclea sensibilis</i>), reed canary grass (<i>Phalaris arundinacea</i>), wrinkleleaf goldenrod (<i>Solidago rugosa</i>), flat-top goldentop (<i>Euthamia graminifolia</i>)</p>	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	<p>Trees: black ash (<i>Fraxinus nigra</i>), green ash (<i>Fraxinus pennsylvanica</i>), eastern white pine, American beech</p> <p>Saplings / Shrubs: balsam fir, black ash, green ash, red raspberry, red maple, eastern hemlock</p> <p>Herbs: cinnamon fern (<i>Osmundastrum cinnamomeum</i>), sensitive fern, fringed sedge (<i>Carex crinita</i>), ostrich fern (<i>Matteuccia struthiopteris</i>), cottongrass bulrush</p>	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	<p>Trees: black ash, green ash, red maple, balsam fir, eastern hemlock, gray birch</p> <p>Saplings / Shrubs: red maple, balsam fir</p> <p>Herbs: fringed sedge, royal fern (<i>Osmunda regalis</i>), sensitive fern, three-leaf goldthread (<i>Coptis trifolia</i>), cottongrass bulrush, Christmas fern (<i>Polystichum acrostichoides</i>)</p>	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	<p>Trees: black ash</p> <p>Saplings / Shrubs: eastern white pine, red raspberry</p> <p>Herbs: sensitive fern, royal fern, narrow-leaf cattail, wrinkleleaf goldenrod</p>	A2: Histic Epipedon	High Water Table (A2) Saturation (A3)	No	Isolated wetland.
W01GPE	PEM	<p>Trees: black ash</p> <p>Saplings / Shrubs: eastern white pine, red raspberry</p> <p>Herbs: sensitive fern, royal fern, narrow-leaf cattail, wrinkleleaf goldenrod</p>	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



WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT

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



WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT

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.



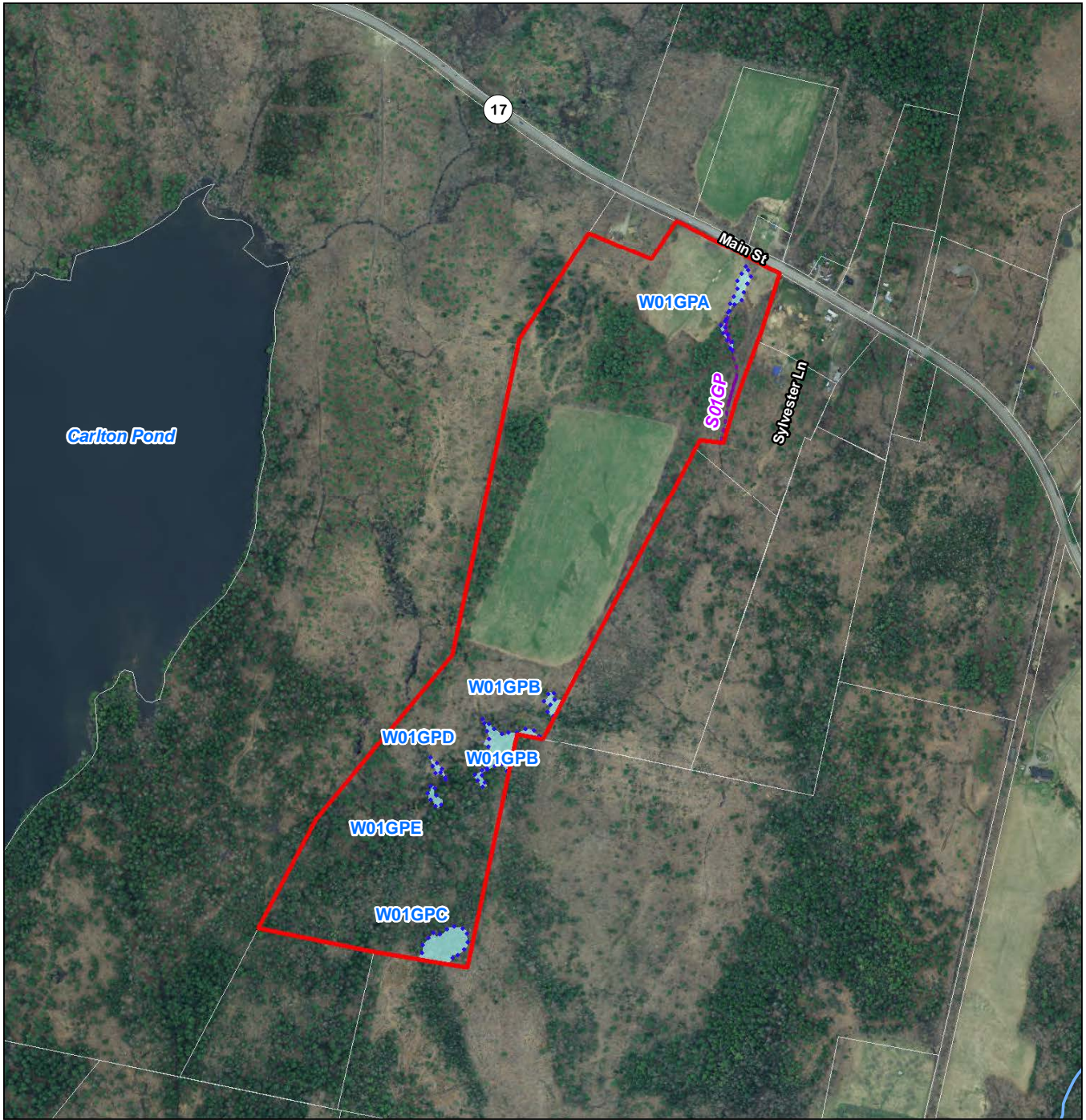
APPENDICES



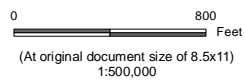
Appendix A FIGURES



V:\1956\active\195602046\03_data\gis_carc\gis\mxd\Readfield\195602046_01_Readfield_WetDeline.mxd Reviset: 2022-09-07 By: pbarbera



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



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: Norwich Solar Technologies
 Norwich Solar Maine - Readfield

Figure No. 1
 Title: **Wetland and Watercourse Delineation Map**

- 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.

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

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.



WETLAND AND WATERCOURSE DELINEATION AND VERNAL POOL SURVEY REPORT



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



Project/Site: Readfield Delineation	Stantec Project #: 195602046	Date: 10/25/21
Applicant: Norwich Solar	Investigator #1: G. Pelletier	County: Kennebec
Investigator #2: L. Pelletier	NWI/WVI Classification:	State: ME
Soil Unit:	Local Relief: Concave	Wetland ID: 01GPA
Landform: Depression	Latitude: 44.355598	Sample Point: Wetland
Slope (%): 0-3	Longitude: -69.890318	Community ID: PEM/PSS
Datum: NAD83		
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

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

<p><u>Primary:</u></p> <input type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B15 - Marl Deposits <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test
---	--	--

<p>Field Observations:</p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth: (in.) Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 6 (in.) Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 0 (in.)	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

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			Mottles				Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)	%	Type	Location	
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	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

<p>NRCS Hydric Soil Field Indicators (check here if indicators are not present) <input type="checkbox"/></p> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input checked="" type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)	<p>Indicators for Problematic Soils ¹</p> <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B) <input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B) <input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input checked="" type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions <input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B) <input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R) <input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R) <input type="checkbox"/> S7 - Dark Surface (LRR K, L, M) <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L) <input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L) <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B) <input type="checkbox"/> TA6 - Mesic Spodic (MLRA 144A, 145, 149B) <input type="checkbox"/> TF2 - Red Parent Material <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> 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:	<p>Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
---	--

Remarks:

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

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

Tree Stratum (Plot size: 10 meter radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	<i>Rubus idaeus</i>		--	--
2.	--		--	--
3.	--		--	--
4.	--		--	--
5.	--		--	--
6.	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
Total Cover =		0		

Herb Stratum (Plot size: 2 meter radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	<i>Typha angustifolia</i>	25	Y	OBL
2.	<i>Scirpus cyperinus</i>	1	N	OBL
3.	<i>Solidago rugosa</i>	5	N	FAC
4.	<i>Onoclea sensibilis</i>	20	N	FACW
5.	<i>Phalaris arundinacea</i>	3	N	FACW
6.	<i>Euthamia graminifolia</i>	3	N	FAC
7.	<i>Lythrum salicaria</i>	25	Y	OBL
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--		--	--
14.	--		--	--
15.	--		--	--
Total Cover =		82		

Woody Vine Stratum (Plot size: 10 meter radius)				
	<u>Species Name</u>	<u>% Cover</u>	<u>Dominant</u>	<u>Ind.Status</u>
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Additional 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.	<u>51</u>	x 1 =	<u>51</u>
FACW spp.	<u>23</u>	x 2 =	<u>46</u>
FAC spp.	<u>8</u>	x 3 =	<u>24</u>
FACU spp.	<u>0</u>	x 4 =	<u>0</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>

Total 82 (A) 121 (B)

Prevalence Index = B/A = 1.476

Hydrophytic Vegetation Indicators:

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Rapid Test for Hydrophytic Vegetation |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Dominance Test is > 50% |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Prevalence Index is ≤ 3.0 * |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Morphological Adaptations (Explain) * |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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

Project/Site: Readfield Delineation	Stantec Project #: 195602046	Date: 10/25/21
Applicant: Norwich Solar	Investigator #1: G. Pelletier	County: Kennebec
Investigator #2: L. Pelletier	NWI/WWI Classification:	State: ME
Soil Unit:	Local Relief: Concave	Wetland ID: 01GPB
Landform: Depression	Latitude: 44.349675	Sample Point: Wetland
Slope (%): 0-3	Longitude: -69.894076	Community ID: PFO
Datum: NAD83		
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

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

<p><u>Primary:</u></p> <input type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B15 - Marl Deposits <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input checked="" type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test
---	--	---

<p>Field Observations:</p> Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 3 (in.) Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 6 (in.) Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 0 (in.)	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

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

<p>NRCS Hydric Soil Field Indicators (check here if indicators are not present) <input type="checkbox"/></p> <input type="checkbox"/> A1 - Histosol <input checked="" type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)	<p>Indicators for Problematic Soils ¹</p> <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B) <input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B) <input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input checked="" type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions <input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B) <input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R) <input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R) <input type="checkbox"/> S7 - Dark Surface (LRR K, L, M) <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L) <input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L) <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B) <input type="checkbox"/> TA6 - Mesic Spodic (MLRA 144A, 145, 149B) <input type="checkbox"/> TF2 - Red Parent Material <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> 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:	<p>Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
---	--

Remarks:

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

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

Tree Stratum (Plot size: 10 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Fraxinus nigra</i>	5	Y	FACW
2.	<i>Fraxinus pennsylvanica</i>	2	N	FACW
3.	<i>Pinus strobus</i>	2	N	FACU
4.	<i>Fagus grandifolia</i>	1	N	FACU
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		10		

Sapling/Shrub Stratum (Plot size: 5 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Abies balsamea</i>	2	N	FAC
2.	<i>Fraxinus nigra</i>	5	N	FACW
3.	<i>Fraxinus pennsylvanica</i>	3	N	FACW
4.	<i>Rubus idaeus</i>	10	N	FACU
5.	<i>Acer rubrum</i>	5	N	FAC
6.	<i>Tsuga canadensis</i>	2	N	FACU
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		27		

Herb Stratum (Plot size: 2 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Osmundastrum cinnamomeum</i>	2	N	FACW
2.	<i>Scirpus cyperinus</i>	5	N	OBL
3.	<i>Carex crinita</i>	5	N	OBL
4.	<i>Onoclea sensibilis</i>	5	N	FACW
5.	<i>Matteuccia struthiopteris</i>	2	N	FAC
6.	<i>Solidago rugosa</i>	2	N	FAC
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		21		

Woody Vine Stratum (Plot size: 10 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Additional 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.	<u>10</u>	x 1 =	<u>10</u>
FACW spp.	<u>22</u>	x 2 =	<u>44</u>
FAC spp.	<u>11</u>	x 3 =	<u>33</u>
FACU spp.	<u>15</u>	x 4 =	<u>60</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>

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

Project/Site: Readfield Delineation	Stantec Project #: 195602046	Date: 10/25/21
Applicant: Norwich Solar	Investigator #1: G. Pelletier	County: Kennebec
Investigator #2: L. Pelletier	NWI/WWI Classification:	State: ME
Soil Unit:	Local Relief: Concave	Wetland ID: 01GPC
Landform: Depression	Latitude: 44.346054	Sample Point: Wetland
Slope (%): 0-3	Longitude: -69.89616	Community ID: PFO
Datum: NAD83		
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydic Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

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

<u>Primary:</u>	<u>Secondary:</u>
<input type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B15 - Marl Deposits <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input checked="" type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input checked="" type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input checked="" type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test

Field Observations:

Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 3 (in.)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 6 (in.)	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)	

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			Mottles				Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)	%	Type	Location	
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)

<input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input checked="" type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)	<input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B) <input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B) <input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input checked="" type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions	Indicators for Problematic Soils ¹ <input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B) <input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R) <input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R) <input type="checkbox"/> S7 - Dark Surface (LRR K, L, M) <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L) <input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L) <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B) <input type="checkbox"/> TA6 - Mesic Spodic (MLRA 144A, 145, 149B) <input type="checkbox"/> TF2 - Red Parent Material <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)
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¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: _____ Depth: _____	Hydic Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Remarks:

Project/Site: **Readfield Delineation**

Wetland ID: **01GPC**

Sample Point **Metlanc**

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

Tree Stratum (Plot size: 10 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Fraxinus nigra</i>	10	N	FACW
2.	<i>Acer rubrum</i>	10	N	FAC
3.	<i>Fraxinus pennsylvanica</i>	10	N	FACW
4.	<i>Fagus grandifolia</i>	5	N	FACU
5.	<i>Thuja occidentalis</i>	10	N	FACW
6.	<i>Abies balsamea</i>	20	Y	FAC
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		65		

Sapling/Shrub Stratum (Plot size: 5 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Abies balsamea</i>	2	N	FAC
2.	<i>Acer rubrum</i>	2	N	FAC
3.	<i>Fraxinus pennsylvanica</i>	1	N	FACW
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		5		

Herb Stratum (Plot size: 2 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Osmundastrum cinnamomeum</i>	10	N	FACW
2.	<i>Scirpus cyperinus</i>	5	N	OBL
3.	<i>Dryopteris intermedia</i>	3	N	FAC
4.	<i>Onoclea sensibilis</i>	2	N	FACW
5.	<i>Typha angustifolia</i>	2	N	OBL
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
Total Cover =		22		

Woody Vine Stratum (Plot size: 10 meter radius)				
	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Additional 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.	<u>7</u>	x 1 =	<u>7</u>
FACW spp.	<u>43</u>	x 2 =	<u>86</u>
FAC spp.	<u>37</u>	x 3 =	<u>111</u>
FACU spp.	<u>5</u>	x 4 =	<u>20</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>
Total		<u>92</u> (A)	<u>224</u> (B)
Prevalence Index = B/A =		<u>2.435</u>	

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

Project/Site: Readfield Delineation	Stantec Project #: 195602046	Date: 10/25/21
Applicant: Norwich Solar	Investigator #1: G. Pelletier	County: Kennebec
Investigator #2: L. Pelletier	NWI/WWI Classification:	State: ME
Soil Unit:	Local Relief: Concave	Wetland ID: 01GPD
Landform: Depression	Latitude: 44.348649	Sample Point: Wetland
Slope (%): 0-3	Longitude: -69.896281	Community ID: PEM/PFO
Datum: NAD83		
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

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

<p><u>Primary:</u></p> <input type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B15 - Marl Deposits <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary:</u></p> <input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input checked="" type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test
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<p>Field Observations:</p> Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 3 (in.) Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 6 (in.) Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth: 0 (in.)	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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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			Mottles				Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)	%	Type	Location	
0	12	1	10YR	2/1	100					loam
2	12	2	10YR	3/2	90	10YR	4/6	10	C	loam
										--
										--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

<p>NRCS Hydric Soil Field Indicators (check here if indicators are not present) <input type="checkbox"/></p> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input checked="" type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)	<p>Indicators for Problematic Soils ¹</p> <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B) <input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B) <input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions <input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B) <input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R) <input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R) <input type="checkbox"/> S7 - Dark Surface (LRR K, L, M) <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L) <input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L) <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B) <input type="checkbox"/> TA6 - Mesic Spodic (MLRA 144A, 145, 149B) <input type="checkbox"/> TF2 - Red Parent Material <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> Other (Explain in Remarks)
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¹ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: rock Depth: 12'	<p>Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks: **Rock refusal at 12"**

Project/Site: **Readfield Delineation**

Wetland ID: **01GPD**

Sample Point **Metlanc**

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

Tree Stratum (Plot size: 10 meter radius)

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

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

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

Herb Stratum (Plot size: 2 meter radius)

1.	<i>Onoclea sensibilis</i>	10	Y	FACW
2.	<i>Solidago rugosa</i>	5	N	FAC
3.	<i>Osmunda spectabilis</i>	2	N	OBL
4.	<i>Typha angustifolia</i>	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.	<u>5</u>	x 1 =	<u>5</u>
FACW spp.	<u>20</u>	x 2 =	<u>40</u>
FAC spp.	<u>7</u>	x 3 =	<u>21</u>
FACU spp.	<u>10</u>	x 4 =	<u>40</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>

Total 42 (A) 106 (B)

Prevalence Index = B/A = 2.524

Hydrophytic Vegetation Indicators:

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Rapid Test for Hydrophytic Vegetation |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Dominance Test is > 50% |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Prevalence Index is ≤ 3.0 * |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Morphological Adaptations (Explain) * |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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:

Project/Site: Readfield Delineation	Stantec Project #: 195602046	Date: 10/25/21
Applicant: Norwich Solar	Investigator #1: G. Pelletier	County: Kennebec
Investigator #2: L. Pelletier	NWI/WWI Classification:	State: ME
Soil Unit:	Local Relief: Concave	Wetland ID: 01GPE
Landform: Depression	Latitude: 44.348289	Sample Point: Wetland
Slope (%): 0-3	Longitude: -69.896383	Community ID: PEM
Datum: NAD83		
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	Are normal circumstances present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is This Sampling Point Within A Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks:

HYDROLOGY

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

<u>Primary:</u>	<u>Secondary:</u>
<input type="checkbox"/> A1 - Surface Water <input checked="" type="checkbox"/> A2 - High Water Table <input checked="" type="checkbox"/> A3 - Saturation <input type="checkbox"/> B1 - Water Marks <input type="checkbox"/> B2 - Sediment Deposits <input type="checkbox"/> B3 - Drift Deposits <input type="checkbox"/> B4 - Algal Mat or Crust <input type="checkbox"/> B5 - Iron Deposits <input type="checkbox"/> B7 - Inundation Visible on Aerial Imagery <input type="checkbox"/> B8 - Sparsely Vegetated Concave Surface	<input checked="" type="checkbox"/> B9 - Water-Stained Leaves <input type="checkbox"/> B13 - Aquatic Fauna <input type="checkbox"/> B15 - Marl Deposits <input type="checkbox"/> C1 - Hydrogen Sulfide Odor <input type="checkbox"/> C3 - Oxidized Rhizospheres on Living Roots <input type="checkbox"/> C4 - Presence of Reduced Iron <input type="checkbox"/> C6 - Recent Iron Reduction in Tilled Soils <input type="checkbox"/> C7 - Thin Muck Surface <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> B6 - Surface Soil Cracks <input type="checkbox"/> B10 - Drainage Patterns <input type="checkbox"/> B16 - Moss Trim Lines <input type="checkbox"/> C2 - Dry-Season Water Table <input type="checkbox"/> C8 - Crayfish Burrows <input type="checkbox"/> C9 - Saturation Visible on Aerial Imagery <input checked="" type="checkbox"/> D1 - Stunted or Stressed Plants <input type="checkbox"/> D2 - Geomorphic Position <input type="checkbox"/> D3 - Shallow Aquitard <input type="checkbox"/> D4 - Microtopographic Relief <input type="checkbox"/> D5 - FAC-Neutral Test

Field Observations:

Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 3 (in.)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 6 (in.)	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth: 0 (in.)	

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			Mottles				Texture (e.g. clay, sand, loam)
			Color (Moist)		%	Color (Moist)	%	Type	Location	
0	11	1	10YR	4/1	100					loam
12	14	2	2.5Y	5/2	100					--
										--
										--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
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<p>NRCS Hydric Soil Field Indicators (check here if indicators are not present) <input type="checkbox"/></p> <input type="checkbox"/> A1 - Histosol <input type="checkbox"/> A2 - Histic Epipedon <input type="checkbox"/> A3 - Black Histic <input type="checkbox"/> A4 - Hydrogen Sulfide <input type="checkbox"/> A5 - Stratified Layers <input type="checkbox"/> A11 - Depleted Below Dark Surface <input type="checkbox"/> A12 - Thick Dark Surface <input type="checkbox"/> S1 - Sandy Muck Mineral <input type="checkbox"/> S4 - Sandy Gleyed Matrix <input type="checkbox"/> S5 - Sandy Redox <input type="checkbox"/> S6 - Stripped Matrix <input type="checkbox"/> S7 - Dark Surface (LRR R, MLRA 149B)	<p>Indicators for Problematic Soils ¹</p> <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR R, MLRA 149B) <input type="checkbox"/> S9 - Thin Dark Surface (LRR R, MLRA 149B) <input type="checkbox"/> F1 - Loamy Mucky Mineral (LRR K, L) <input type="checkbox"/> F2 - Loamy Gleyed Matrix <input checked="" type="checkbox"/> F3 - Depleted Matrix <input type="checkbox"/> F6 - Redox Dark Surface <input type="checkbox"/> F7 - Depleted Dark Surface <input type="checkbox"/> F8 - Redox Depressions <input type="checkbox"/> A10 - 2 cm Muck (LRR K, L, MLRA 149B) <input type="checkbox"/> A16 - Coast Prairie Redox (LRR K, L, R) <input type="checkbox"/> S3 - 5cm Mucky Peat of Peat (LRR K, L, R) <input type="checkbox"/> S7 - Dark Surface (LRR K, L, M) <input type="checkbox"/> S8 - Polyvalue Below Surface (LRR K, L) <input type="checkbox"/> S9 - Thin Dark Surface (LRR K, L) <input type="checkbox"/> F12 - Iron-Manganese Masses (LRR K, L, R) <input type="checkbox"/> F19 - Piedmont Floodplain Soils (MLRA 149B) <input type="checkbox"/> TA6 - Mesic Spodic (MLRA 144A, 145, 149B) <input type="checkbox"/> TF2 - Red Parent Material <input type="checkbox"/> TF12 - Very Shallow Dark Surface <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

Remarks: **Rock refusal at 14"**

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

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

Tree Stratum (Plot size: 10 meter radius)

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

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

	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Pinus strobus</i>	2	N	FAC
2.	<i>Rubus idaeus</i>	10	N	FACU
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
Total Cover =		12		

Herb Stratum (Plot size: 2 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	<i>Onoclea sensibilis</i>	10	Y	FACW
2.	<i>Solidago rugosa</i>	5	N	FAC
3.	<i>Osmunda spectabilis</i>	2	N	OBL
4.	<i>Typha latifolia</i>	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)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
Total Cover =		0		

Remarks:

Additional 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.	<u>5</u>	x 1 =	<u>5</u>
FACW spp.	<u>20</u>	x 2 =	<u>40</u>
FAC spp.	<u>7</u>	x 3 =	<u>21</u>
FACU spp.	<u>10</u>	x 4 =	<u>40</u>
UPL spp.	<u>0</u>	x 5 =	<u>0</u>

Total 42 (A) 106 (B)

Prevalence Index = B/A = 2.524

Hydrophytic Vegetation Indicators:

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Rapid Test for Hydrophytic Vegetation |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Dominance Test is > 50% |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Prevalence Index is ≤ 3.0 * |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Morphological Adaptations (Explain) * |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> 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

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

ATTACHMENT D: AGENCY CORRESPONDENCE





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



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

428000

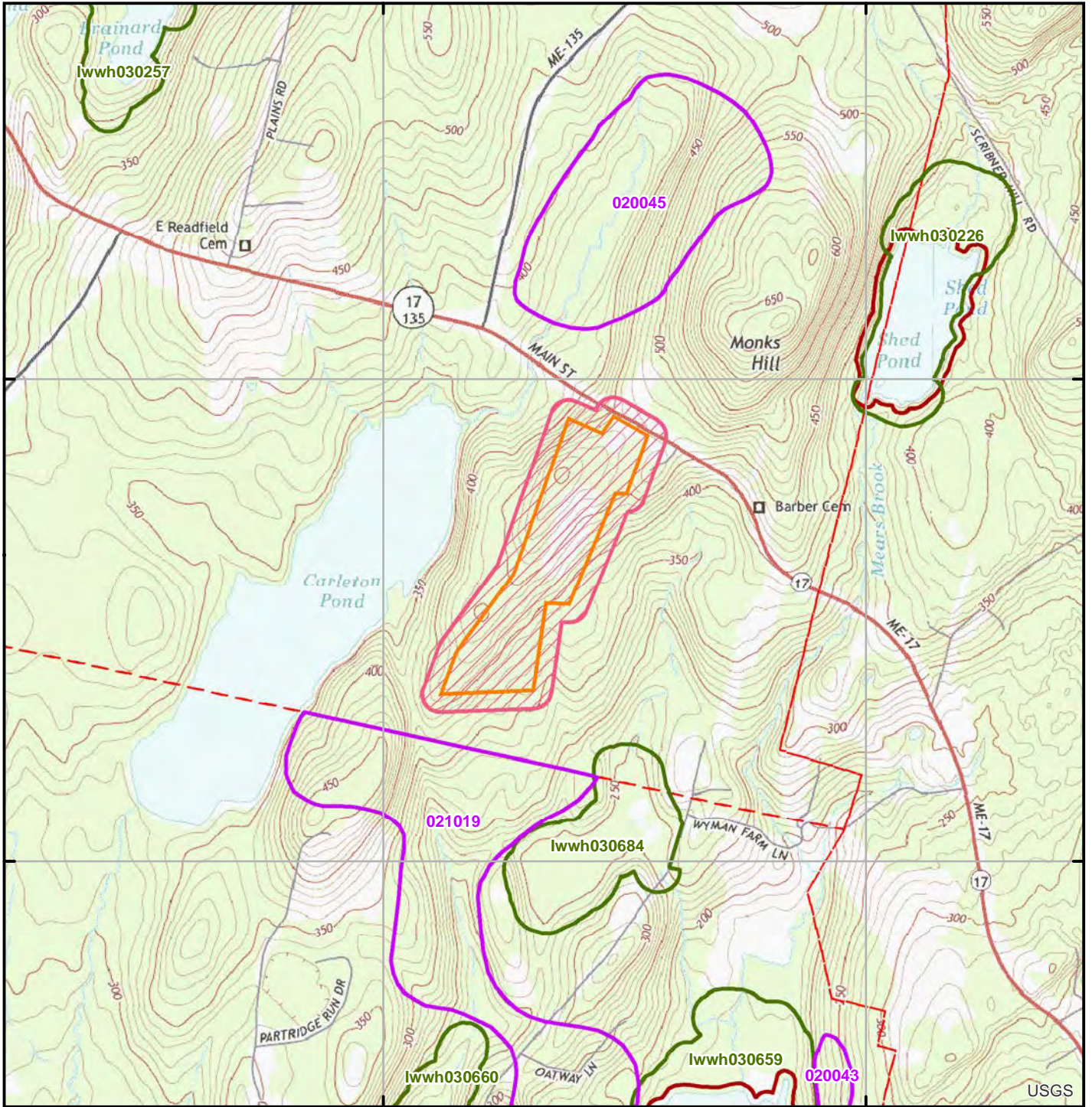
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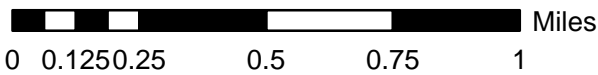


Environmental Review of Fish and Wildlife Observations and Priority Habitats

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



Maine Department of Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 11/2/2021

- | | | |
|-----------------------------------|----------------------------------|---|
| ProjectSearchAreas - All Versions | Deer Winter Area | Roseate Tern |
| Maine Cliff and Talus Areas | LUPC p-fw | Piping Plover and Least Tern |
| Cooperative DWAs | Seabird Nesting Islands | Aquatic ETSc - 2.5 mi review |
| Shorebird Areas | Inland Waterfowl and Wading Bird | Rare Mussels - 5 mi review |
| 2008 lwwh - Shoreland Zoning | Tidal Waterfowl and Wading Bird | Maine Heritage Fish Waters |
| Significant Vernal Pools | Environmental Review Polygons | 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









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



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 of 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#	Intraspecific Taxon (trinomial) – The status of intraspecific 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>



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

ATTACHMENT E: SOUND ASSESSMENT



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

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:

$$R2 = R1 - 20 * \text{LOG}(D)$$

Where:

R2 = sound level at user-specified distance

R1 = sound level at one meter distance

D = user-specified distance, in meters

Combined sound level:

$$RN = 10 * \text{LOG}(\sum(10^{R2/10}))$$

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>

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

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,

A handwritten signature in blue ink, appearing to read "Martha Staskus", is written over a light blue circular stamp.

Martha Staskus
Chief Development Officer
Norwich Technologies, Inc