APPENDIX I.1
Baseline Vegetation and Wetlands Report

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ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

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CONSULTING

BASELINE VEGETATION AND WETLANDS REPORT
EVREC Green Energy Hub
Near Botwood, NL

May 11, 2026

EXECUTIVE SUMMARY

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project"). To support the preparation and submission of the provincial Environmental Impact Statement (EIS) for the Project, a series of desktop reviews and field assessments were completed from 2023 to 2025. This baseline report provides the methods and results of desktop and field components relating to vegetation and wetlands.

The objective of the vegetation and wetlands baseline assessment was to understand existing conditions within the Project Area (PA). The results of the baseline assessment were incorporated into the design of the Project through an iterative process with the goal of avoiding and minimizing interactions to the extent possible.

The following were completed as part of the baseline assessment:

- A review of desktop resources to characterize the land cover types, wetlands, and flora species known to occur within and near the PA.
- Detailed land cover modelling and identification of potential habitat for rare flora.
- Targeted field surveys for vascular flora and lichens.

Summary of Results

The results of land cover modelling indicate that softwood forest is the dominant land cover type within the PA (34%), followed by shrub cover (22%). Wetland models reviewed for the Project suggest between 8% and 25% of the PA consists of wetlands, with bogs being the most abundant type.

The review of species occurrence data revealed that one flora species at risk (SAR), Newfoundland's natural population of red pine [*Pinus resinosa*; Threatened under the Newfoundland and Labrador Endangered Species Act (NL ESA) (Newfoundland and Labrador, 2001)], is known to occur within approximately 5 km of the PA. No non-vascular flora or lichen SAR records were identified in the desktop review.

A total of 128 vascular plant species were identified during field surveys. Of these, red pine was the only vascular plant SAR observed. Three vascular flora species of conservation concern (SOCC), common wintergreen (*Chimaphila umbellata*, S2), rock polypody (*Polypodium virginianum*, S2S3), and shinleaf (*Pyrola elliptica*, S2S3) were also observed in the PA. There were 32 non-vascular plant species observed during field surveys, none of which are SAR or SOCC.

A total of 131 lichen species were also observed. One lichen SAR, blue felt lichen (*Pectenia plumbea,* SARA Special Concern and NL ESA Vulnerable, S2S3), was observed in the PA. The lichen SOCC in the PA are Acadian jellyskin *(Leptogium acadiense,* S2S3), punctured

ramalina lichen (*Ramalina dilacerata,* S1S3), and rock ramalina lichen (*Ramalina intermedia*, S2S3).

During field assessments, wetlands were observed to be a common feature on the landscape, with shrub swamps, fens, and bogs observed throughout the PA.

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LIST OF ACRONYMS

ACCDC	Atlantic Canada Conservation Data Centre
BWPA	Botwood Wind Project Area
cm	Centimetre
CNWI	Canadian National Wetlands Inventory
EVREC	Exploits Valley Renewable Energy Corporation
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
FRI	Forest Resource Inventory
NLFAL	Newfoundland and Labrador Department of Forestry, Agriculture and Lands
GW	Gigawatt
ha	Hectare
IPA	Industrial Project Area
km	Kilometre
LiDAR	Light detection and ranging
LTWPA	Leading Tickles Wind Project Area
m	Metre
masl	Metres above sea level
MW	Megawatt
NLECCC	Newfoundland and Labrador Environment, Conservation and Climate Change
NL ESA	Newfoundland and Labrador Endangered Species Act
PA	Project Area
S-Rank	Sub-national Conservation Status Rank
SARA	*Species at Risk Act*
SAR	Species at Risk
SLWPA	Seabrights Lake Wind Project Area
SOCC	Species of Conservation Concern
SPA	Solar Project Area
TLWPA	Twin Lakes Wind Project Area
WTG	Wind Turbine Generator
WPA	Wind Project Area

1.0 INTRODUCTION

1.1 Background

Exploits Valley Renewable Energy Corporation (EVREC, the "Proponent"), is proposing to develop, construct, and operate a wind to green ammonia project on the brownfield, former Abitibi lands, near Botwood in central Newfoundland, Canada (the "Project"). EVREC will develop an onshore wind project consisting of up to 534 wind turbines, a 150 megawatt (MW) Solar Project, and associated off-site infrastructure (export and import terminals, access roads, collector substations, and water pipelines). Included as part of the Project will be an Industrial Facility comprised of 2.6 gigawatt (GW) of electrolysers utilizing a combination of proton exchange membrane and aqueous solution units, air separation plants, ammonia plant, electrical energy storage facilities, molecular storage, water purification systems, warehousing, administrative buildings, and other associated utility infrastructure (switchyards, transformers, pipelines, emergency generators, and cooling systems) including an electrical grid connection for critical loads. Collectively the wind to green ammonia project, including all components mentioned above, will be referred to as the "EVREC Green Energy Hub", or "the Project".

The Project nameplate capacity will be up to 3.5 GW of electrical power and produce 925,000 to 1,000,000 tons per year of certified green ammonia. The Project is considered an undertaking under Section 34 (1f) of the Newfoundland and Labrador Environmental Assessment Regulations (2003), where electrical power generation that has a capacity greater than 1 MW and engages in the manufacturing of green hydrogen and ammonia, which requires the submission of an Environmental Impact Statement (EIS). The Project will involve development, construction, operations, decommissioning, and reclamation of a wind project, a solar project, an industrial facility, and water supply for green hydrogen production and ammonia synthesis, including air separation, water treatment, and ammonia storage.

The Project will use the existing Port of Botwood for its shipping needs, which has historically served various clients across industrial sectors for over 100 years. The Project is proposed on land parcels totaling 35,834 hectares (ha) in central Newfoundland [defined hereafter as the Project Area (PA)]. The Project is centered at 49.161441° N, 55.486669° W (Drawing 1, Appendix A).

For the purposes of the EIS, the Project consists of three components: (i) Wind Project and transmission line; (ii) Solar Project; and (iii) hydrogen and ammonia production facilities (defined hereafter as the Industrial Facility). The Industrial Facility and Solar Project, along with associated infrastructure, are co-located on a parcel southwest of the Town of Botwood. Within the PA, siting of wind turbine generators (WTGs) will be within four areas: Botwood, Seabrights Lake, Twin Lakes, and Leading Tickles.

A series of biophysical assessments have been completed in support of the EIS. This report describes the baseline assessment methods and results pertaining to vegetation and wetlands completed between 2023 and 2025. The components of the baseline assessment include:

- A review of desktop resources to characterize the land cover types, wetlands, and flora species present within and near the PA.
- Detailed land cover modelling and identification of potential habitat for rare flora.
- Targeted field surveys to document the floral diversity of the PA, with a focus on flora species at risk (SAR) and species of conservation concern (SOCC).

Flora SAR and SOCC are defined as follows:

- SAR: Species that are listed as Extirpated, Endangered, Threatened, or Special Concern on Schedule 1 of SARA, and species designated as Extirpated, Endangered, Threatened, or Vulnerable under the Newfoundland and Labrador *Endangered Species Act* (NL ESA).
- SOCC: Species having a subnational (provincial) rank (S-Rank) of S1, S2, S1S2, or S2S3 (ACCDC, 2026b).

The information compiled in the desktop review was used to inform the approach for field assessments. The results of the baseline assessment have been incorporated into the design of the Project with the goal of minimizing interactions with rare flora species and wetlands.

1.2 Regulatory Context

The Project has potential to interact with lands, flora species, and their associated habitats that may be protected under federal and/or provincial legislation and regulatory guidelines. Legislation relating to vegetation and wetlands includes:

Federal Legislation

- *Species At Risk Act* (SARA) (Canada, 2002)

Provincial Legislation

- NL ESA (Newfoundland and Labrador, 2001)
- *Lands Act* (Newfoundland and Labrador, 1991)
- *Water Resources Act* (Newfoundland and Labrador, 2002)

Species at Risk Act, S.C. 2002 c. 29

The objective of SARA is to prevent species from becoming lost or extinct, to provide for the recovery of species designated Endangered or Threatened, and to prevent species of Special Concern from becoming further at risk. Individual protection of SAR is granted under Section 32(1) of SARA, which states that “no person shall kill, harm, harass, capture, or take an individual of a wildlife species that is listed as an Extirpated species, an Endangered species or a Threatened species”. It is also prohibited to “damage or destroy the residence of one or more individuals of a wildlife species that is listed as an Endangered species or a Threatened species” under Section 33 of SARA.

Habitat protection for species listed in Schedule 1 of SARA (i.e., species designated as Extirpated, Endangered, or Threatened) is granted through the identification and designation of

Critical Habitat. Critical Habitat is defined as habitat that is critical to the survival of species and for flora SAR, applies to federal lands.

Endangered Species Act S.N.L. 2001, c. E-10

Species designated as Threatened, Endangered, or Extirpated receive individual protection from harm under Section 16 of NL ESA, which states that a person may not, “disturb, harass, injure, or kill an individual of a species designated as threatened, endangered or extirpated” (Newfoundland and Labrador, 2001). NL ESA also prohibits disturbing or destroying the residence of any of these species.

Habitat protection for designated species may be established through a Critical or Recovery Habitat order under Section 28 of NL ESA. Critical Habitat refers to areas that are critical to the survival of a species, and Recovery Habitat refers to areas that are necessary for the recovery of a species. These areas are identified in species recovery plans developed for Threatened and Endangered species.

The Minister may issue a permit to engage in an activity that affects a designated species, its residence, or Critical Habitat, as described in Section 19 of NL ESA.

Lands Act, S.N.L. 1991, c. 36

The *Lands Act* (Newfoundland and Labrador, 1991) designates Crown Reserves and Special Management Areas. This legislation may be used to grant temporary protection to an area of land.

Under Section 7(1) of the *Lands Act* (Newfoundland and Labrador, 1991), Crown lands grants, leases, and licenses do not include the 15 m area around lakes, ponds, rivers, seashore, or foreshore (i.e., the shoreline reserve), unless an exception is issued by the Minister.

Water Resources Act, S.N.L. 2002, c. W-4.01

The use and modification of wetlands is regulated under the *Water Resources Act* (Newfoundland and Labrador, 2002). Under Section 48 of the Act, a permit is required to undertake certain activities in wetlands, which are further described in the Policy for Development in Wetlands (NLECCC, 2001).

The *Water Resources Act* (Newfoundland and Labrador, 2002) defines “wetlands” as land that has the water table at, near, or above the land surface and includes bogs, fens, marshes, swamps and other shallow open water areas. Wetland development is defined in the Policy for Development in Wetlands (NLECCC, 2001) as, "the carrying out of an activity or operation which includes the construction of ditches, mechanical disturbance of the ground, alteration of normal water level fluctuations, infilling, drainage, dredging, channelization, and removal of vegetation cover and/or organic matter on a wetland for social or economic benefits, or the making of any change in the use or the intensity of use of any wetland which affects its hydrologic characteristics or functions”. Certain developments may be permitted in wetlands with the written permission of the Minister of Newfoundland and Labrador Environment,

Conservation and Climate Change (NLECCC).

In addition to legislative requirements, guidance provided by NLECCC to support the completion of the EIS recommends that undisturbed buffers be placed on the highwater mark of all wetlands.

1.3 Spatial Boundaries

The boundaries of the baseline assessment for vegetation and wetlands are based on the areas where the four components of the Project will be located (Drawing 1, Appendix A):

- Wind Projects [within the Wind Project Area (WPA)]
  - Botwood Wind Project
    - Botwood Wind Project Area (BWPA) is 20,802 ha
  - Leading Tickles Wind Project
    - Leading Tickles Wind Project Area (LTWPA) is 2,391 ha
  - Seabrights Lakes Wind Project
    - Seabrights Lakes Wind Project Area (SLWPA) is 3,555 ha
  - Twin Lakes Wind Project
    - Twin Lakes Wind Project Area (TLWPA) is 7,686 ha
- Solar Farm
  - Solar Project Area (SPA) is 242 ha
- Industrial Facility
  - Industrial Project Area (IPA) is 1,157 ha

2.0 DESKTOP REVIEW

2.1 Desktop Methods

The desktop component of the baseline assessment consisted of a review of published literature, and existing biophysical and spatial data pertaining to vegetation (including rare flora species) and wetlands. Geospatial analyses and modelling were also conducted to characterize the land cover, wetlands, and vegetation types present in the PA and identify potential habitat for rare flora. The results of the desktop review were used to prioritize and guide field programs.

2.1.1 Vegetation

Ecological Land Classification

Two Ecological Land Classifications (ELCs) were developed for the Project to understand the range of land cover and terrestrial habitat types present within and near the PA. A generalized ELC was developed early in the Project planning process to inform the approach for initial biophysical assessments. The generalized ELC consists of a reclassification of Forest Resource Inventory (FRI) data included in the Newfoundland and Labrador Department of Forestry, Agriculture and Lands (NLFAL) Land Cover Database (NLFAL, 2025) into 11 land

cover categories: softwood, mixedwood, hardwood, and regenerating forests, coniferous, deciduous, and mixed scrub, barrens, wetlands, waterbodies, and anthropogenic.

As the Project progressed, a more detailed ELC was developed using remote sensing and machine learning techniques. High-resolution [30 centimetre (cm)] airborne LiDAR (light detection and ranging) data were collected in December 2023 and August 2024 and combined with aerial orthophoto mosaics of the PA acquired from NLFAL to refine the delineation of land cover at a 3 m resolution. The output of this model (which includes 35,303 ha of the 35,834 ha PA, or 99%) assisted in identifying potential habitat for rare flora and fauna, and in determining the extent of wetlands. Fauna habitat is described in a separate baseline report.

The technical methods and limitations relating to the detailed ELC are provided in Appendix B.

Old-Growth / Late-Successional Forests

Old-growth forests are inconsistently defined (Hilbert & Wiensczyk, 2007), but in general refer to treed areas that have not been disturbed for long periods of time, have reached late successional stages, and are therefore characterized by variability in stand age and structure (Franklin & Van Pelt, 2004; Hilbert & Wiensczyk, 2007). These characteristics of old-growth forests support a range of flora and fauna. For instance, although present in a variety of forest habitats, the American marten (*Martes americana atrata*, Newfoundland population; a SAR designated as Vulnerable under NL ESA) prefers large tracts of intact old-growth forests due to the accessibility and abundance of prey (Newfoundland and Labrador, 2010). Several bird species in Newfoundland have also been shown to prefer old-growth balsam fir (*Abies balsamea*) stands relative to secondary forest growth (Thompson et al., 1999). Further, many insects, fungi, lichen, and plant species rely on old-growth forest conditions (Luyssaert et al., 2008). In addition to serving as habitat for wildlife, old-growth forests also provide many ecological services, including sequestering carbon, regulating groundwater and surface water supplies, and reducing flood risk (Luyssaert et al., 2008).

In Newfoundland, old-growth forests are referred to as “late-successional” forests. Late-successional forests are described as having been minimally disturbed for unusually long periods, and include late-seral stage forests (Newfoundland and Labrador, 2014). These forests are not legislatively protected, but their ecological importance is highlighted by their inclusion in the Provincial Sustainable Forest Management Practices (2014-2024) that states a goal of “maintaining or increasing the current level of intact and late seral forests at the landscape scale”.

To estimate the extent of old-growth/late-successional forest habitat in the PA, polygons associated with the 81+ year age class were extracted from FRI data contained in the NLFAL Land Cover Database (NLFAL, 2025) [the best available approximation of late-seral forests (Newfoundland and Labrador, 2014)]. The resulting layer was used to identify the extent of old-growth/late-successional forest stands in the PA, prioritize field surveys, and used as an input for habitat suitability mapping (described in further detail below).

Flora Species

The desktop review for flora species focused on identifying the range of species likely to occur in the PA, with a focus on flora SAR and SOCC. This was completed by reviewing species occurrence data provided by the Atlantic Canada Conservation Data Centre (ACCDC) and identifying habitats with elevated potential to host rare flora.

The ACCDC maintains a database of rare species occurrence records throughout Atlantic Canada (including vascular and non-vascular plants and lichens). Two ACCDC data reports were prepared for the Project (due to refinement of the Project layout) that contain species occurrences records within approximately 5 kilometres (km) of the PA boundary (ACCDC, 2023, 2026a) (Appendix C).

Potential Habitat Mapping

Potential habitat mapping was completed to prioritize areas for targeted rare flora surveys. The species and groups of flora selected for mapping were determined based on a review of published literature about the flora of Newfoundland. The following species were selected for potential habitat mapping:

- Red pine (*Pinus resinosa* - natural population, NL ESA Threatened, S2)
- Blue felt lichen (*Pectenia plumbea*, SARA Special Concern, NL ESA Vulnerable, S2S3)
- Boreal felt lichen (*Erioderma pedicellatum* - Boreal population, SARA Special Concern, NL ESA Vulnerable, S3)

Note that black ash (*Fraxinus nigra*), a second tree SAR that occurs on Newfoundland (NL ESA Threatened, S2S3), was not selected for habitat mapping as literature suggests that the provincial range of the species is over 40 km from the western extent of the PA (near Springdale) (Deichmann, 1989).

In addition to species-level mapping, an additional mapping exercise was completed to identify areas within the PA with landscape characteristics that may be suitable for species of rare flora more generally. The methods used to do develop potential habitat maps are described in the following sections.

Red Pine Potential Habitat Mapping

Newfoundland's natural (i.e., non-planted) population of red pine is designated Threatened under NL ESA. Red pine was identified as occurring near the PA in the initial ACCDC data report prepared for the Project (ACCDC, 2023) suggesting there is potential for the species to occur in areas of suitable habitat within the PA. Subsequently, occurrences of red pine were observed during initial field surveys for the Project completed in 2024 and early 2025 (described further in Section 3.2.1). Potential habitat mapping was completed to inform additional field surveys in 2025.

Potential red pine habitat in the PA was identified by developing geospatial layers that represent the known soil and landform associations of naturally occurring red pine stands in

Newfoundland, as described by Roberts and Bajzak (1996):

1. Red pine on medium textured sands. Soil containing sandy loam developed on glaciofluvial terraces or glaciofluvial plains.
2. Red pine on coarse textured glaciofluvial deposits. Soil containing loamy sand developed on glaciofluvial terraces or eroded glaciofluvial terraces.
3. Red pine on folisols over bedrock. Dry organic soil/rock.

Three geospatial layers were developed that focused on the above criteria. The first layer was developed by filtering data from the Provincial Surficial Geology Layer (NLGS, 2011) to contain features with glaciofluvial terraces and/or plains. The second layer was developed from data in the Soils of the Botwood-Wesleyville area, Newfoundland Report No. 6 (CanSIS, 2012; Sudom & Van De Hulst, 1985), which includes the PA. Soils of the Pitt's Pond type contain glaciofluvial materials and/or glaciofluvial terraces, including coarse textured, well stratified light brownish grey glaciofluvial sands and gravels of mixed origin (Sudom & Van De Hulst, 1985). The final layer was developed by identifying the soil types from Sudom and Van De Hulst (1985) associated with field-verified red pine occurrences identified in 2024 and early 2025. Soils underlying field-verified red pine occurrences are characterized as the Alderburn type, consisting of morainal veneer over ridged bedrock and deflated inclined moraine landforms (Sudom & Van De Hulst, 1985). The resulting layers were used to assess the extent of potential habitat within the PA and were used to prioritize locations for flora surveys.

To further inform surveys for red pine, the locations of interpreted red pine stands in the PA were also extracted from the FRI within the NLFAL Land Cover Database (NLFAL, 2025).

Rare Lichen Potential Habitat Mapping

A total of four lichen SAR are known to occur in Newfoundland (ACCDC, 2025):

- Blue felt lichen (SARA Special Concern, NL ESA Vulnerable, S2S3)
- Boreal felt lichen, Boreal Population (SARA Special Concern, NL ESA Vulnerable, S3)
- Graceful felt lichen (*Erioderma mollissiumum*, SARA and NL ESA Endangered, S1S2)
- Wrinkled shingle lichen (*Pannaria lurida*, SARA and NL ESA Threatened, S1)

Priority areas for rare lichen surveys were identified through a potential habitat mapping exercise for blue felt lichen and boreal felt lichen. Graceful felt lichen and wrinkled shingle lichen were not considered for habitat mapping due to having highly restricted distributions in Newfoundland; graceful felt lichen is only known to occur on the Avalon Peninsula, and wrinkled shingle lichen at one location in the Codroy Valley (southwestern Newfoundland) (NLFAL, n.d.). Habitat that is suitable for blue or boreal felt lichen may also represent suitable habitat for other species of rare or uncommon lichens (e.g., mature forest stands, high humidity).

Potential attributes of suitable habitat for blue felt lichen and boreal felt lichen were identified

through review a review of existing literature, including predictive habitat models (Lauriault & Wiersma, 2020; Wiersma & Skinner, 2011), and input from a subject matter expert (Dr. Yolanda Weirsma, Professor of Biology, Memorial University of Newfoundland). Habitat mapping extends into all PAs except for the SLWPA, as this WPA was added at a later stage of the Project's development.

Blue Felt Lichen Potential Habitat

Blue felt lichen is a foliose cyanolichen that is usually found on the trunks of large, mature to overmature hardwood trees (ECCC, 2022). In Newfoundland, it most often grows on yellow birch (*Betula alleghaniensis*), trembling aspen (*Populus tremuloides*), white spruce (*Picea glauca*), and the non-native Norway maple (*Acer platanoides*) (ECCC, 2022; NLFAL, n.d.). Recently, surveys in Central Newfoundland (at the location known as Charlie's Place, approximately 40 km southeast of the town of Botwood), have discovered new populations of rare and uncommon lichen species such as blue felt lichen (Gillingham et al., 2024), suggesting that the PA may have potential to support this species and possibly other rare or uncommon cyanolichens. Recent discoveries of blue felt lichen were on large trembling aspen in mixedwood stands (Gillingham et al., 2024).

The blue felt lichen potential habitat layer was developed using data from the FRI within the NLFAL Land Cover Database (NLFAL, 2025). Polygons associated with mixedwood forests were overlaid with the locations of old-growth/late-successional forest stands (81+ year age class) and filtered to select stands with trembling aspen as the primary or secondary species (stands of yellow birch are absent from this region). The resulting polygons were prioritized for targeted rare lichen surveys (described further in Section 3.1.1).

Boreal Felt Lichen Potential Habitat

In Newfoundland, boreal felt lichen primarily occur on the Avalon Peninsula and the southern portion of the Island (Wiersma & Skinner, 2011), where the species mainly grows on the trunks and branches of balsam fir trees in wet forest types (ECCC, 2010). Although the PA is outside of the main concentration of occurrences, the species is known to sporadically occur in areas of suitable habitat beyond its primary range in Newfoundland (e.g., the Great Northern Peninsula) (ECCC, 2010). A boreal felt lichen predictive distribution model by Wiersma & Skinner (2011) also highlights a large portion of the WPAs as potential habitat for boreal felt lichen – though there are deficiencies known in that model (Wiersma & Skinner, 2011).

The combination of distance from coast and site aspect have been found to be good predictors of boreal felt lichen occurrences Newfoundland (Wiersma & Skinner, 2011). In Nova Scotia, a potential habitat model found that the best predictors of suitable habitat for boreal felt lichen were distance to the Atlantic coast and distance from the nearest sphagnum-covered wetland - usually a nominal distance of 80 metres (m) (Cameron & Neily, 2008). The majority of wetlands in Newfoundland are peat-dominated and nearly all of the PA is within 25 km of the coast – the furthest extent boreal felt lichen has been found from the coast in Newfoundland (Lauriault & Wiersma, 2020) – such that this approach is not directly applicable. For this baseline study potential habitat mapping for boreal felt lichen focused on forest canopy composition and

proximity to wetlands.

These features are known to support boreal felt lichen because:

1) Old-growth/late-successional forests provide structurally diverse stands of primarily balsam fir (the most common host species for boreal felt lichen), with small and large diameter stems likely present within multi-aged old growth stands. Stand maturity is an important aspect of habitat suitability due to the long period required for lichens to establish and reproduce, and the balance of moisture retention and access to light that is often characteristic of mature stands.
2) Proximity to wetlands accounts for moisture regimes that are known to support boreal felt lichen (Cameron & Neily, 2008; ECCC, 2010).

The potential habitat layer for boreal felt lichen was created by identifying areas of overlap between old-growth/late successional forest stands (81+ year age class) extracted from the FRI and an 80 m buffer on wetlands. For this mapping exercise, wetlands were identified from the "saturated soils" layer in the CanVec Land Features Database (NRCan, 2023).

Potential Rare Flora Habitat Mapping

A mapping exercise was completed to identify areas within the PA with elevated potential to support rare flora. Though flora species vary greatly in their habitat requirements and are rarely bound to a quantifiable set of criteria, landscape features such as barrens, wetlands, floodplains, shorelines, limestone, and cliffs are known to host flora species with specific habitat requirements, including rare species.

The desktop review began with narrowing down a subset of species that may be present in the PA based on geographic location. A list of flora SOCC considered "likely" to occur in the Central Newfoundland Ecoregion was developed based on a literature review of plants in Newfoundland (ACCDC, 2023; Bouchard, 1991). Although most are not known to occur in the PA, all flora SAR designated under NL ESA, irrespective of their known ranges, were added to the species list. The known habitat requirements for this resulting list of 72 flora species were determined through a literature review and used to guide desktop modeling (Potential Rare Flora Species List, Appendix D).

To identify areas of potential rare flora habitat within the PA, a series of spatial layers were first developed that represent the habitat features associated with rare flora (including potential habitat mapping for red pine, as described above) (presented in Table 2.1).

Table 2.1: Landscape Features Included in Potential Habitat Mapping for Rare Flora

Landscape Features	Description of Spatial Layer
Alluvial floodplains (wetlands and riparian areas)	Alluvial floodplains are a subset of wetland and riparian areas that have habitat conditions suitable for several rare plant species (Boland, 2017; Djan-Chékar et al., 2004). These features were mapped using elevations derived from LiDAR data collected for the Project. For all known watercourses within the PA, a water rise of 3 m was simulated to identify the estimated extent of associated floodplains.
Wetlands	Wetlands and adjacent areas can offer suitable conditions for a variety of flora species. These areas were identified by placing a 50 m buffer around features saturated soils and open water features within the CanVec Database (NRCan, 2023).
Volcanic rock, outcrops	Surficial (NLGS, 2011) and detailed bedrock geology layers (NLGS, 2013) were referenced to identify areas of exposed volcanic bedrock. These areas were identified by selecting areas where surficial geology features classified as "Rock" (but not "Rock Concealed") overlapped with bedrock features having a volcanic rock type.
Talus cliffs, rocky outcrops	Talus cliffs and rocky outcrops offer unique substrate and microhabitats that make them suitable for hosting rare flora species (Haines & Vining, 1998; H. Hinds, 2000). Using LiDAR data, cliffs with a slope steeper than 45 degrees and minimum size of 10 m x 10 m were extracted to create this layer.
Exposed limestone	Exposed limestone, including limestone barrens, are known to host several flora SAR and SOCC in Newfoundland (Boland, 2017). No areas containing exposed limestone were identified within the PA based on a review of surficial geology. This layer was therefore not carried forward.
Red pine habitat	Areas identified as potential habitat for red pine based on soil and landform properties were incorporated into potential habitat mapping for rare flora.

The final potential rare flora habitat layer was prepared by overlaying the layers described in Table 2.1. The resulting polygons were assigned priority ranks based on the number of intersecting habitat types; polygons containing two or more habitat types likely to support rare flora and overlapping the Project Footprint were prioritized during field assessments in 2025.

2.1.2 Wetlands

Wetlands provide valuable ecosystem function including flood and erosion control, water purification, carbon storage, wildlife habitat, and recreational opportunities. Boreal wetlands are vital to many wildlife species such as ducks, muskrat (*Ondatra zibethicus*), moose (*Alces alces americana*), and woodland caribou (*Rangifer tarandus caribou*; several subpopulations of woodland caribou are designated as SAR under SARA and/or NL ESA) (DUC, n.d.). Wetlands are also home to diverse lichens, sedges, and herbaceous species. Several flora SAR in Newfoundland can occur within or adjacent to wetlands, including black ash (NL ESA Threatened, S2S3) and boreal felt lichen.

A wetland is defined under the *Water Resources Act* (Newfoundland and Labrador, 2002) as

land that has the water table at, near or above the land surface and includes bogs, fens, marshes, swamps and other shallow open water areas. Wetlands are sensitive to disturbance, and alterations within wetlands (e.g., vegetation clearing, infilling) may impact their functional role. An initial review of topographic maps, provincial databases, and aerial photography was completed to assess the distribution of wetlands within the PA, including:

- NLFAL Land Cover Database (NLFAL, 2025)
- CanVec Land Features – Saturated Soil Layer (NRCan, 2023)
- Canadian National Wetlands Inventory (CNWI) (ECCC, 2024)
- LiDAR-derived ELC developed for the Project

These data sources were reviewed against aerial imagery and the LiDAR-derived ELC, and the CNWI (ECCC, 2024) was selected a feature layer to estimate the extent and type of wetlands present in the PA. Wet areas were determined from the ELC by selecting the "wet" land cover classes from the model: bog, raised wet area, wet hardwood forest, wet herbaceous/shrub, wet shrub, wet softwood forest. In developing the ELC, these areas were determined to have water at or near the surface, or to have a shallow depth to water table, indicating a high potential to be a wetland feature. These wet areas are hereafter referred to as "wetland areas"; however, note that these land cover types include potential drainage areas, seasonally wet areas, and fringe environments such that the layer is a conservative overestimate of wetland area. As a national-scale data product, the CNWI has a coarser resolution (10 m) than the ELC, and based on visual inspection, appears to underestimate the potential extent of wetlands visible in aerial imagery. A benefit of this layer, however, is that wetland types are classified using standardized primary wetland classes (bog, fen, swamp, and marsh) in the Canadian Wetland Classification System schema (NWWG, 1997). Areal estimates of the extent and type of wetlands in the PA are provided for both models as a representative range of potential wetland area.

2.2 Desktop Results

2.2.1 Vegetation

The PA is within two of Newfoundland's nine ecoregions: the Central Newfoundland Ecoregion (33,303 ha, 93% of the Project Area) and North Shore Forest Ecoregion (2,531 ha or 7% of the PA, Drawing 2, Appendix A).

The Central Newfoundland Ecoregion is heavily forested, and is characterized by lowlands, wetlands, and an abundance of rivers, streams, ponds, lakes, and bogs (S. J. Meades, 1990; PAANL, 2008a). Fires are a common part of the natural disturbance regime, with stands of trembling aspen often forming after fires in the central and northern portions of the ecoregion (S. J. Meades, 1990). The natural distribution of red pine in Newfoundland is mainly restricted to the Central Newfoundland Ecoregion where it occurs on dry sites (Roberts & Bajzak, 1996).

The portions of the PA in the Central Newfoundland Ecoregion are within the Northcentral Subregion. This subregion has the warmest summer temperatures on the Island. Elevations

are generally below 200 m above sea level (masl) with rolling topography, and soils range in texture from sandy loam to loam (NLFAL, 2020). Forest stands are frequently dominated by black spruce (*Picea mariana*) and aspen. In areas where regeneration failure has occurred after natural or human caused disturbance, conversion to dwarf shrub heath frequently occurs. Flora species found within these areas include sheep laurel (*Kalmia angustifolia*), rhodora (*Rhododendron canadense*), sweet gale (*Myrica gale*), and Labrador tea (*Rhododendron groenlandicum*) (PAANL, 2008a).

The North Shore Forest Ecoregion borders the Labrador Sea and accounts for 7% of the PA (primarily the LTWPA; Drawing 2, Appendix A). This ecoregion is largely forested with exposed rocky barrens along coastal areas, and elevations are generally below 130 masl (S. J. Meades, 1990; PAANL, 2008b). Forest fires regularly occur due to reduced moisture levels and high summer temperature (S. J. Meades, 1990). Vegetation cover is influenced by the proximity to the ocean and stunted trees a common feature due to coastal influence (PAANL, 2008b).

Forests in the North Shore Forest Ecoregion are dominated by black spruce and balsam fir. White spruce is more abundant than in the Central Newfoundland Ecoregion, and trembling aspen is less common (PAANL, 2008b). The North Shore Forest contains coastal species such as alpine bilberry (*Vaccinium uliginosum*), Swedish bunchberry (*Cornus suecica*), and bunchberry (*Cornus canadensis*). It is home to several large seabird colonies including Leach's storm-petrel (*Hydrobates leucorhous)* and several gull species.

Ecological Land Classification

The generalized ELC developed from the FRI categorized dominant land cover types into 11 classes (Table 2.2; Drawing 3A-E, Appendix A). The dominant land cover in the Project Area is softwood forest, which accounts for more than half (52%) of the PA. Coniferous scrub (15%) and mixedwood forests (11%) are the next most abundant land cover types. Barrens (< 1%) and hardwood forest (< 1%) were the least common land cover types.

Table 2.2: Generalized ELC - Land Cover Types within the Project Area

Land Cover Type	Area (ha)	Percentage (%) of Project Area
Anthropogenic	490	1
Barrens	59	< 1
Coniferous Scrub	5,298	15
Deciduous Scrub	318	1
Hardwood Forest	1723	< 1
Mixed Forest	4,090	11
Mixed Scrub	1,185	3
Regenerating Forest	712	2
Softwood Forest	18,781	52
Waterbody	1,456	4
Wetland	3,274	9
Total	**35,836[(1)]**	**100**

[(1)]The sum of land cover areas differs slightly from the total PA due to rounding

Where the generalized ELC provides a useful overview of the major land cover types present across the PA, the LiDAR-derived ELC allows for a more detailed assessment of land cover that includes information about major vegetation types. Modelling for the detailed ELC resulted in a total of 14 land cover classes (Table 2.3; Drawing 4A-K, Appendix A). As with the generalized ELC, softwood forest was identified as the most common landcover type (34% of the PA) in the detailed ELC. Shrub-dominated areas were the next most common cover type (22%). Bogs and other wet areas (including raised wet areas, wet hardwood, mixedwood, and softwood forest, wet shrub and wet herbaceous shrub) make of 7% and 15% of the PA, respectively. The extent of barrens in the detailed ELC (89 ha) was comparable to the generalized ELC (59 ha), whereas the percentage of hardwood forest cover was higher (8%).

Table 2.3: LiDAR-derived ELC - Land Cover Types within the Project Area

Land Cover Type	WPAs				SPA	IPA	Total PA
	BWPA	LTWPA	SLWPA	TLWPA			
Area (ha)							
Road	284	28	46	42	3	12	415
Barren	54	7	6	0	0	22	89
Bog	1,747	33	103	465	25	182	2,555
Hardwood Forest	1,432	256	421	683	2	42	2,836
Herbaceous/Shrub Barren	988	85	105	239	74	91	1,582
Raised Wet Area	965	52	119	20	8	90	1,254
Shrub	4,202	424	1,154	1,659	53	163	7,655
Softwood Forest	7,125	1,089	611	2,984	11	85	11,905
Water	987	181	91	471	0	11	1,741
Wet Hardwood Forest	256	21	77	145	1	35	535
Wet Herbaceous/Shrub	489	56	86	32	32	145	840
Wet Mixedwood	114	1	17	8	3	35	178
Wet Shrub	1,057	63	118	287	22	142	1,689
Wet Softwood Forest	1,097	97	98	644	6	85	2,027
Total	**20,797**	**2,393**	**3,052**	**7,679**	**242**	**1,140**	**35,303**[1]
Percentage (%)							
Road	1	1	2	1	1	1	1
Barren	< 1	< 1	< 1	0	0	2	< 1
Bog	8	1	3	6	10	16	7
Hardwood Forest	7	11	14	9	1	4	8
Herbaceous/Shrub Barren	5	4	3	3	31	8	4
Raised Wet Area	5	2	4	< 1	3	8	4
Shrub	20	18	38	22	22	14	22
Softwood Forest	34	46	20	39	5	7	34
Water	5	8	3	6	0	1	5
Wet Hardwood Forest	1	1	3	2	< 1	3	2

Land Cover Type	WPAs				SPA	IPA	Total PA
	BWPA	LTWPA	SLWPA	TLWPA			
Wet Herbaceous/Shrub	2	2	3	< 1	13	13	2
Wet Mixedwood	1	< 1	1	< 1	1	3	1
Wet Shrub	5	3	4	4	9	12	5
Wet Softwood Forest	5	4	3	8	3	7	6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

(1) LiDAR data are unavailable for small sections of the PA, such that the total area of the ELC represents 99% of the PA.

Old-Growth/Late-Successional Forests

Old-growth/late-successional forest stands are present through the PA, with distinct concentrations in the northern parts of the TLWPA and LTWPA. A total of 5,882 ha of old-growth/late-successional forest was identified in the PA (16%). Of the four WPAs, old-growth/late-successional stands are most abundant in the LTWPA (42%) on a proportional land basis, and least abundant BWPA (13%) (Table 2.4). A total of 24 ha was identified in the SPA (10%), and 133 ha was identified in the IPA (12%).

Table 2.4: Extent of Old-growth/Late-successional Forest Stands within Project Area

Project Area	Old-Growth Forest Area (ha)	Percentage (%) of Project Area
BWPA	2,729	13
LTWPA	1,003	42
TLWPA	1,172	15
SLWPA	822	23
SPA	24	10
IPA	133	12
Total	**5,882**	**16**

Flora Species

The ACCDC data reports prepared for the Project (ACCDC, 2023, 2026a) include records of flora SAR and SOCC known to occur within approximately 5 km of the PA. The reports contain flora occurrence records representing 59 unique species (Drawing 5A-K, Appendix A). Of these, red pine is a SAR (NL ESA Threatened, S2), and 25 species are SOCC (Table 2.5). No lichen SAR or SOCC were identified in the reports (Appendix C).

Table 2.5: ACCDC Flora SAR and SOCC within 5 km of the Project Area

Scientific Name	Common Name	COSEWIC	SARA	NL ESA	S-Rank
Alisma triviale	Northern Water-plantain	--	--	--	S2
Astragalus alpinus var. *brunetianus*	Alpine Milk-vetch	--	--	--	S2S3
Botrychium matricariifolium	Chamomile Grape-fern	--	--	--	S2S3
Buxbaumia minakatae	Hump-backed Elves	Candidate (Group 1)	--	--	S2?

Scientific Name	Common Name	COSEWIC	SARA	NL ESA	S-Rank
Carex conoidea	Field Sedge	--	--	--	S2
Carex cryptolepis	Northeastern Sedge	--	--	--	S1
Carex deweyana var. *deweyana*	Short-Scale Sedge	--	--	--	S2
Carex houghtoniana	A Sedge	--	--	--	S1
Carex pseudocyperus	Cyperus-like Sedge	--	--	--	S2
Chimaphila umbellata	Common Wintergreen	--	--	--	S2
Crataegus chrysocarpa var. *chrysocarpa*	Fineberry Hawthorne	--	--	--	S2
Crataegus macrosperma	Big-Fruit Hawthorn	--	--	--	S1
Dryopteris fragrans	Fragrant Cliff Wood-fern	--	--	--	S2S3
Eriophorum gracile	Slender Cotton-grass	--	--	--	S1S2
Festuca rubra	Red Fescue	--	--	--	S2S3
Graphephorum melicoides	Purple False Oats	--	--	--	S2S3
Juncus gerardii	Black Grass	--	--	--	S2S3
Najas flexilis	Bushy Naiad	--	--	--	S2
Persicaria amphibia	Water Smartweed	--	--	--	S2
Pinus resinosa	Red Pine	--	--	Threatened	S2
Potamogeton spirillus	Spiral Pondweed	--	--	--	S2
Pyrola elliptica	Shinleaf	--	--	--	S2S3
Ranunculus macounii	Macoun Buttercup	--	--	--	S2S3
Ranunculus pensylvanicus	Bristly Crowfoot	--	--	--	S2S3
Zannichellia palustris	Horned Pondweed	--	--	--	S2S3

No areas of provincial or federal Critical Habitat for flora species, or other conservation or protected areas for flora, are located near the PA.

Red Pine Potential Habitat Mapping

A total of 239 ha of potential red pine habitat was identified within the PA. Areas of potential habitat are within the BWPA (103 ha) and the IPA (136 ha). No areas of potential habitat were identified in the remaining three WPAs or in the SPA.

There were two potential red pine stands identified in the FRI, both within the BWPA, with a total area of 7 ha (Drawing 5A-K, Appendix A). No red pine stands were identified in the FRI within the IPA or SPA.

Potential Rare Flora Habitat Mapping

Potential habitat for rare flora was identified in all component PAs (Drawing 5A-K, Appendix A). These areas were prioritized for field assessments in 2025.

Rare Lichen Potential Habitat Mapping

Concentrated areas of potential habitat are in the LTWPA, the northern third of TLWPA, throughout the eastern half of the BWPA (Drawing 5A-K, Appendix A).

Concentrated areas of potential habitat are in the LTWPA, the northern third of TLWPA, throughout the eastern half of the BWPA. (Drawing 5A-K, Appendix A).

2.2.2 Wetlands

Wetlands identified using the wet area classes from the LiDAR-derived ELC and primary wetland classes from the CNWI (ECCC, 2024) provide an estimated range of the total wetland area in the PA. A total of 9,078 ha of wetland area was identified in wetland layer derived from the ELC, which accounts for 25% of the PA. Bogs (2,555 ha) and wet softwood forest (2,027 ha) were the most common classes (Table 2.6). Wetlands were identified throughout all PAs and were most abundant in the IPA and SPA on a proportional basis, and least abundant in LTWPA (Drawing 6, Appendix A).

Table 2.6: Estimated Extent of Wetlands in the Project Area - ELC

Wetland Type	WPAs				SPA	IPA	Total PA
	BWPA	LTWPA	SLWPA	TLWPA			
Area (ha)							
Bog	1,747	33	103	465	25	182	2,555
Raised Wet Area	965	52	119	20	8	90	1,254
Wet Hardwood Forest	256	21	77	145	1	35	535
Wet Herbaceous/Shrub	489	56	86	32	32	145	840
Wet Mixedwood	114	1	17	8	3	35	178
Wet Shrub	1,057	63	118	287	22	142	1,689
Wet Softwood Forest	1,097	97	98	644	6	85	2,027
Total	**5,725**	**323**	**618**	**1,601**	**97**	**714**	**9,078**
Percentage (%)							
Bog	8	1	3	6	10	16	7
Raised Wet Area	5	2	3	< 1	3	8	4
Wet Hardwood Forest	1	1	2	2	< 1	3	1
Wet Herbaceous/Shrub	2	2	2	< 1	13	13	2
Wet Mixedwood	1	< 1	< 1	< 1	1	3	< 1
Wet Shrub	5	3	3	4	9	12	5
Wet Softwood Forest	5	4	3	8	2	7	6
Total	**28**	**14**	**17**	**21**	**40**	**62**	**25**

The total wetland area identified in the CNWI database (ECCC, 2024) was lower than the ELC, with 2,889 ha identified (8% of the PA) (Table 2.7). Bogs were also the most common wetland type (1,716 ha), with the fen wetland class being the next most common (679 ha). The proportional distribution of CNWI wetlands across PAs was the same as wetland areas identified by the ELC.

Table 2.7: Estimated Extent of Wetlands in the Project Area - CNWI

Primary Wetland Type	WPAs				SPA	IPA	Total PA
	BWPA	LTWPA	SLWPA	TLWPA			
Area (ha)							
Bog	994	25	76	276	52	292	1,716
Fen	422	11	91	85	5	65	679
Swamp	283	2	65	50	1	41	442
Marsh	20	1	4	3	1	24	52
Total	**1,718**	**39**	**235**	**415**	**60**	**422**	**2,889**
Percentage (%)							
Bog	5	1	2	4	22	5	5
Fen	2	< 1	3	1	2	< 1	2
Swamp	1	< 1	2	1	1	< 1	1
Marsh	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total	**8**	**2**	**7**	**5**	**25**	**5**	**8**

Discrepancies in the area estimates of the two layers are related to differences in the resolution, scale, and land cover classes captured by the respective layers. Based on comparison of the layers against aerial imagery, it is likely that areas in the CNWI underrepresent the total wetland area in the PA, whereas wetlands in the LiDAR-derived ELC layer have potential to include areas of transitional habitat, resulting in potential overestimations. The wetland area estimates represent a modelled range of potential wetland habitat with the PA.

A comparison of estimated wetlands areas within PAs is presented in Table 2.8.

Table 2.8: Comparison of Wetland Areas Identified Using LiDAR-derived ELC and the CNWI

Project Area	ELC Wetlands		CNWI Wetlands	
	ha	% of PA	ha	% of PA
BWPA	5,723	28	1,718	8
LTWPA	299	13	39	2
SLWPA	618	20	235	7
TLWPA	1,599	21	415	5
SPA	97	40	60	25
IPA	723	63	422	37
Total	**9,061**	**26**	**2,889**	**8**

3.0 FIELD ASSESSMENTS

3.1 Field Methods

Field assessments focused on identifying the forest types and flora species present in the PA, with a focus on flora SAR and SOCC. Information about the presence of wetlands in the PA was also recorded incidentally during biophysical surveys.

3.1.1 Vegetation

Field assessments began in June 2024 and continued until October 2025, as outlined in Table 3.1. Surveys took place within appropriate seasonal windows by qualified professionals.

Table 3.1: Field Assessment Components and Timing

Survey		Date	Project Areas Surveyed
Vegetation Classification		June 2 to August 10, 2024 June 18 to September 9, 2025	WPAs, SPA
Vascular Plant Surveys	Early Botany	June 2 to 13, 2024	WPAs, SPA
	Late Botany	August 7 to 12, 2024	WPAs, SPA
	Mid-Season Botany	July 16 to 29, 2025	WPAs, IPA, SPA
	Red Pine Surveys	June 25 to 27, 2025	BWPA
Lichen Survey		April 27 to May 6, 2025 October 2 to 4, 2025	WPAs, IPA

Vascular and Non-Vascular Plants

Flora surveys for the Project were completed with the goals of characterizing the landscape and flora species present in the PA and identifying the type and location of habitats capable of supporting flora SAR and SOCC. A variety of approaches were used to obtain representative survey coverage of the major land cover types in the PA, including natural and disturbed areas.

The initial round of assessments (June to August 2024) included vascular flora surveys at 117 pre-determined point locations that were selected to be proportionally representative of the land cover types present in the PA (i.e., stratified within the land cover classes of the generalized ELC). An additional 13 point-based surveys were completed in June and September 2025 in portions of the SLWPA and LTWPA that were not captured in earlier surveys. In addition to ensuring representative coverage of land cover types, survey points were concentrated in areas more likely to be impacted by infrastructure development and avoided areas that were determined to be highly in accessible due to remoteness (e.g., the central portion of the LTWPA and TLWPA). A small number of survey points are not in the final PA due to adjustments in the Project layout.

Field assessments at point location were completed during two dedicated survey sessions to capture average bloom periods of early (June 2 to 13, 2024) and late (August 7 to 12, 2024) flowering plants (each sampling location was visited once). At select survey points, the forest types were described following the classifications outlined in the Forest Site Classification Manual: A Field Guide to the Damman Forest Types of Newfoundland (W. J. Meades & Moores, 1994), if applicable, and the following information was recorded:

- Coordinates
- Date and time
- Dominant tree, shrub, and herbaceous species
- Damman Forest Type, following Meades & Moores (1994)
- Representative photographs

Surveys consisted of meandering transects near the point location, completed on foot while maintaining a list of vascular plant species observed (non-vascular flora were recorded incidentally). An intelligent, meandering search pattern is an accepted method for detecting the presence of plant species, including rare flora.

In addition to the 117 point-based surveys completed in 2024, meandering transect surveys were completed in the TLWPA, BWPA, and LTWPA in June and August 2024 to address spatial gaps in the point locations. Additional flora surveys (meandering transects) were completed in July 2025 to increase survey coverage of the SLWPA and other areas of the PA with elevated potential to host rare flora as identified through potential habitat mapping (described in Section 2.1.1). Priority areas for these surveys included polygons where two or more habitat features known to support rare flora, including red pine potential habitat, were expected to be present.

During all flora surveys, habitats with potential to support vascular flora SAR were thoroughly searched, particularly for red pine. If a species could not be identified in the field, detailed photographs were taken to capture diagnostic features, and, if required, specimens were collected and preserved for identification out of the field. Specimens were only collected if they were abundant on the site and were not collected if only one or two individuals were observed. All occurrences of flora SAR and SOCC were georeferenced, counted (where possible), photographed, and a description of their habitat was recorded. If a species was present in tufts or in large numbers (e.g., counting was not feasible), the areas that contained large numbers of the species were measured (e.g., 10 m x 10 m). The following literature served as the primary references used during the field surveys to assist with species identification:

- Trees and Shrubs of Newfoundland and Labrador: Field Guide (Boland, 2013)
- Wildflowers and Ferns of Newfoundland (Boland, 2017)
- Flora of New Brunswick (H. Hinds, 2000)
- Flora of Newfoundland and Labrador (S. J. Meades & Brouillet, 2019)
- Go Botany (NPT, 2024)
- Sedges of Maine (Arsenault et al., 2013)
- Grasses and Rushes of Maine (Mittelhauser et al., 2019)
- Mosses of Eastern North America Vol. 1 & 2 (Crum & Anderson, 1981)

All plant species were reviewed to determine if they are considered invasive according to the Canadian Invasive Plant Lists (CIPR, n.d.).

Red Pine Surveys

Throughout the course of field assessments, locations of potential red pine occurrences within and near the PA were provided by local knowledge holders with extensive familiarity with the landscapes. These locations (in the BWPA and IPA) were verified by field technicians in 2024 and 2025, and surveys within the polygons identified through potential habitat mapping and in forest stands identified in the FRI as containing red pine (in the BWPA) were assessed in June 2025.

In June 2025, surveys were also completed in the BWPA along pre-determined transects in areas where red pine had been observed during initial Project surveys in 2024 and early 2025. The survey approach was developed in response to the reported sporadic distribution of red pine in the southeast of the BWPA. Initial planning incorporated the locations of several previously documented red pine occurrences, which served as anchor points for the survey design. A detailed review of recent aerial imagery was then conducted to pinpoint additional areas with the structural characteristics likely to support red pine, focusing on forested areas rather than open scrubland, wetlands, or barrens. These candidate areas were mapped and overlaid with the PA to delineate a zone with a likely red pine presence within the PA. Within this zone, a network of transects spaced at approximately 150 m intervals was established to ensure thorough ground coverage within the PA and to maximize the likelihood of detecting red pine.

Biologists were assigned to systematically walk each transect, recording changes in forest composition. For every section of forest encountered, surveyors estimated the proportion of the stand composed of red pine noting its relative abundance on a scale from 0 to 4 (0 – no red pine; 1 – sporadic red pine; 25% or less, 2 – consistent red pine; 25-50% coverage, 3 – majority red pine 50-75% coverage; and 4 – red pine stand; 75-100% coverage). The survey design was intentionally adaptive: if a biologist encountered a red pine stand that extended beyond the bounds of the planned transect, additional transects were added to ensure the full extent of the stand was captured. This expandable framework ensured that areas of ecological interest were thoroughly documented, even when stand boundaries were irregular or more extensive than anticipated.

Rare Lichens

Areas exhibiting potential to serve as habitat for rare lichens were surveyed from April 27 to May 6, and October 4 to 6, 2025, by a Strum lichenologist and biologist. The surveys took place in areas within 100 m of a planned turbine location or within 25 m of a proposed road in areas of suitable habitat guided by the desktop review. Areas identified as being likely to support lichen SAR, as identified by potential habitat mapping, were initially prioritized. Priority areas for surveys were further refined through a detailed review of aerial imagery and considering proximity to the coast. Aerial imagery was used to predict the location of disturbed sites so they could be avoided and to further verify the forest types identified during potential habitat mapping.

During surveys, meandering transects were completed on foot and targeted mature trees

appropriate for hosting lichen SAR and SOCC. Potential host trees were visually inspected, focusing on tree trunks, branches, and twigs. Any lichen SAR or SOCC encountered was clearly marked with flagging tape. During the lichen survey, a list of common lichens was recorded with focus on macrolichens (i.e., foliose, fruticose, and squamulose), along with georeferenced locations of lichen SAR and SOCC.

The following information was collected for lichen SAR or SOCC identified during field surveys:

- Coordinates
- Date and time
- Weather condition
- Survey condition
- General site location
- Species observed
- Number of thalli
- Size of thallus or thalli
- Habitat (host tree and general habitat – including within a wetland or upland)
- Height and orientation of the specimen on the host tree
- Representative photographs

If a lichen specimen could not be readily identified in the field, photographs and/or specimens were collected and identified later. Specimens were only collected if they were abundant on site and were confirmed to not potentially be a SAR. Samples were not collected if only one or two individuals were observed. If necessary, collected samples were inspected via microscope and standard chemical spot tests in accordance with Brodo et al. (2001), to determine the species. The following literature was referenced during the surveys and identification process:

- The Macrolichens of New England (J. Hinds & Hinds, 2007)
- Lichens of North America (Brodo et al., 2001)
- Keys to Lichens of North American – Revised and Expanded (Brodo et al., 2016)
- Microlichens of the Pacific Northwest – Volume 1 – Key to The Genera (McCune & Geiser, 2017)
- Microlichens of the Pacific Northwest – Volume 2 – Key to the Species (McCune & Geiser, 2017)
- Common Lichens of Northeastern North America (McMullin & Anderson, 2014)
- The Lichens of Great Britain and Ireland (Smith et al., 2016)

Additionally, the distribution of trees capable of supporting rare lichens was also recorded incidentally during lichen surveys. This includes balsam fir with a diameter > 25 cm for *Erioderma* species and yellow birch, red maple, and trembling aspen with a diameter > 25 cm for blue felt lichen.

3.1.2 Wetlands

The presence of wetlands in the PA was documented during biophysical surveys within the

assessment area, including vascular flora and lichen surveys. The dominant tree, shrub, and herbaceous species present, as well as the wetland type, was recorded.

3.2 Field Results

3.2.1 Vegetation

During field surveys, the PA was observed to be comprised of a mosaic of softwood dominated stands, shrublands, wetlands, open water, and disturbed areas. Disturbed portions of the PA include roads and regenerating areas from forestry operations.

The PA is a relatively uniform landscape dominated by black spruce forests and wet ground with shallow soils. There is a history of forestry across the landscape, and regenerating forests are intersected by forest access roads and ATV trails. Despite this, many portions of the WPAs are very remote with little access. The LTWPA in particular was observed to have rough terrain with steep cliffs and few roads.

Of the forest types described by Meades & Moores (1994), six were identified within the PA (Table 3.2, Drawing 7A-K, Appendix A). The dominant forest type observed during surveys was the black spruce forest type. Representative photographs of each forest type are presented in a photograph log (Appendix E) which correspond with survey point locations (Drawing 7A-K, Appendix A).

Table 3.2: Dominant Forest and Land Cover Types within or near the Project Area

Forest Type (Damman)	Description	Representative Point	Corresponding Land Cover Type
Balsam Fir Forest	Closed canopy softwood stands with < 75% black spruce canopy cover.	1	Softwood forest
Kalmia-Black Spruce Forest	Open black spruce forest with understory dominated by ericaceous shrubs and lichens/ sedges and forbs sparse or absent.	2	
Black Spruce Forest	Closed canopy softwood stands > 75% black spruce canopy cover.	3	
Hardwood	Hardwood (white birch/ trembling aspen) forests with merchantable sized trees covering 50% or more of the site.	4	Hardwood forest
		5	Mixedwood forest
Black Spruce Fen	Open black spruce forest with sedges and forbs dominant; ericaceous shrubs may be abundant but not dominant.	6	Wetland/Coniferous scrub
Hardwood Thickets and Heath	Hardwood thicket vegetation usually < 3 m in height with birch, alder, mountain ash, or ericaceous dominant.	7	Deciduous scrub
N/A	Barrens	8	Barrens
N/A	Open peatland	9	Wetland
N/A	Open swamp	10	
N/A	Open water	11	Water

Forest Type (Damman)	Description	Representative Point	Corresponding Land Cover Type
N/A	Regenerating forest	12	Regenerating forest
N/A	Roads	13	Anthropogenic

Vascular and Non-Vascular Plants

A total of 128 species of vascular flora were identified during field surveys (Appendix F). Of these, one SAR, red pine (NL ESA Threatened, S2), was observed in the BWPA and IPA (Drawing 7A-K, Appendix A). Three SOCC were also observed in the PA: common wintergreen (*Chimaphila umbellata*, S2), shinleaf (*Pyrola elliptica*, S2S3), and rock polypody (*Polypodium virginianum,* S2S3). The locations of SAR and SOCC observations within the PAs are presented in Table 3.3.

Table 3.3: Field-Observed Flora SAR and SOCC

Scientific Name	Common Name	COSEWIC	SARA	NL ESA	S-Rank	Number and Location of Occurrences
Chimaphila umbellata	Common Wintergreen	--	--	--	S2	3 - LTWPA
Pinus resinosa	Red Pine	--	--	Threatened	S2	BWPA[(1)] IPA[(1)]
Polypodium virginianum	Rock Polypody	--	--	--	S2S3	2 - LTWPA
Pyrola elliptica	Shinleaf	--	--	--	S2S3	1 - BWPA 1 - IPA

[(1)] Individual occurrences of red pine were not recorded during field assessments due to their overall abundance. Additional details about red pine observations are provided below.

Within the PA, 17 (13%) of the observed vascular plant species are non-native, with an S-Rank of SNA, and four (3%) of these non-native species are considered invasive in Canada: Amur maple (*Acer ginnala*), oxeye daisy (*Leucanthemum vulgare*), butter-and-eggs (*Linaria vulgaris*), and orange hawkweed (*Pilosella aurantiaca*) (Appendix F). Many of the occurrences of non-native flora species were confined to the edges of the dirt roads in disturbed areas.

There were also 31 bryophyte species that were recorded during field surveys (Appendix F), none of which are SAR or SOCC.

Red Pine (NL ESA Threatened, S2S3)

Red pine is a conifer that can grow up to 12 m in Newfoundland. Female flowers bloom from late June to mid July and seeds are shed in autumn (Ryan, 1978). Red pine grows in dry, sandy soils and are primarily located in three locations on the island including in central and northeast central Newfoundland (Ryan, 1978). Although the species has been widely used in silvicultural plantations (NLFAL, 2025), research suggests fewer than 30 naturally occurring red pine stands are present in Newfoundland (Roberts & Bajzak, 1996). A primary threat to the natural red pine population is the spread of the Scleroderris canker (*Gremmeniella abietina*),

which has caused significant mortality to silvicultural pine plantations in Newfoundland (Warren et al., 2011).

Two red pine stands were observed during initial field assessment in 2024, one in the southeastern extent of the BWPA, and a second in the IPA (Drawing 7A-K, Appendix A). Additional occurrences of red pine were observed during flora surveys in 2025 at three locations in the southeastern extent of the BWPA (within 3 km of the stand observed in 2024). Targeted red pine transects surveyed in June 2025 further confirmed the presence of the red pine in the southeastern extent of the BWPA and the IPA. Portions of several transects had consistent, majority, or complete coverage of red pine (Drawing 7A-K, Appendix A).

Many of the red pine trees observed during field assessments had the appearance of planted individuals or trees that have naturalized from planted stands, although it is not possible to determine the origin of the red pine trees (natural versus planted individuals) with absolute certainty. Several of the trees observed were in stands of uniform size and planted in rows, features that are indicative of silvicultural plantations. Additional individuals had the appearance of naturalized trees, in that they were located in low numbers in areas near what appeared to be planted stands. Data provided to Strum by NLFAL-Forest Ecosystem Management Division indicates that all recorded occurrences fall within or directly adjacent to areas that have undergone silvicultural treatments, including planting and harvesting. All observed red pine trees were healthy in appearance.

Shinleaf (S2S3)

Shinleaf is a flowering herb that grows up to 25 cm tall. Its fragrant flowers are greenish-white, and waxy with five petals. Leaves are evergreen and occur at the base of the plant and are elliptical to oblong. The species grows in deciduous and mixedwood forests throughout North America. It was observed in two locations, one in the BWPA one in the IPA (Drawing 7A-K, Appendix A). A total of approximately 15 individuals were observed within mixedwood and softwood forests.

Common Wintergreen (S2)

Common wintergreen is a SOCC in Newfoundland and is restricted to central and northwestern regions of the Island. It grows in old-growth/late-successional forests that have mossy understories and sandy soils (Boland, 2017). Common wintergreen is a colonial evergreen shrub that has distinct dark green waxy leaves with have serrate edges. Leaves are three to seven centimeters long and grow in whorls of three to four. A single flower stem grows from each plant producing pink or white flowers that have 10 stamens each. The species' fruit is a capsule that can persists through winter (Boland, 2017). Three occurrences were observed in the PA, all of which are in the LTWPA (Drawing 7A-K, Appendix A).

Rock Polypody (S2S3)

Rock polypody is a fern found uncommonly throughout Newfoundland. It has been observed on talus slopes, cliff edges, crevices and mossy rocks, It is epiphytic or lithophytic in nature and produces solitary fronds that arise from rhizomes (Boland, 2017). Leaves are deeply lobed and

have large sori containing spores on underside of fronds (H. Hinds, 2000). Two occurrences of the species were observed growing in boulders and rocky scree within TLWPA (Drawing 7A-K, Appendix A).

Lichens

A total of 131 lichen species were identified during lichen surveys. One lichen SAR, blue felt lichen (SARA Special Concern, NL ESA Vulnerable, S2S3), and three lichen SOCC were observed in the PA (Drawing 7A-K, Appendix A), as described in Table 3.4.

Table 3.4: Lichen SAR and SOCC Observed in the Project Area

Scientific Name	Common Name	COSEWIC	SARA	NL ESA	S-Rank	Number and Location of Occurrences
Leptogium acadiense	Acadian jellyskin lichen	--	--	--	S2S3	2 – BWPA 12 – LTWPA 5 – TLWPA
Pectenia plumbea	Blue felt lichen	Special Concern	Special Concern	Vulnerable	S2S3	22 – LTWPA
Ramalina dilacerata	Punctured ramalina lichen	--	--	--	S1S3	1 – LTWPA
Ramalina intermedia	Rock ramalina lichen	--	--	--	S2S3	1 – LTWPA

Acadian Jellyskin Lichen (S2S3)

Acadian jellyskin lichen is a large foliose lichen with a light blue-grey to dark brown-grey thallus. The distinctive feature of this lichen is laminal stacked granular isidia that resemble open trees. This species primarily occurs on deciduous bark in mixedwood forests, particularly on species of maple, ash, and poplar. A total of 19 occurrences of Acadian jellyskin lichen were observed (LTWPA, TLWPA, BWPA), with most of these (12) occurring in the LTWPA (Drawing 7A-K, Appendix A). Thalli were observed on red maple and trembling aspen.

Blue Felt Lichen (SARA Special Concern, NL ESA Vulnerable, S2S3)

Blue felt lichen is a large foliose species and has a prominent black-blue fungal mat and red-brown fruiting bodies (COSEWIC, 2010). Blue felt lichen is commonly found on the trunks of old hardwood trees, especially red maple (*Acer rubrum*), in moist habitats or near streams or lakes. It prefers cool, humid woodlands with mixed coniferous/hardwood or deciduous dominant swamps (COSEWIC, 2010). During surveys, 22 occurrences of the species were observed, growing on trembling aspen or red maple. All observations were within the northern section of the LTWFPA (Drawing 7A-K, Appendix A).

Punctured Ramalina Lichen (S1S3)

Punctured ramalina lichen has a small and shrubby thallus, with terete - sometime flattened - hollow branches with many perforations into the center. These branches terminate in spiky branchlets, occasionally with apothecia. The species is distinct from similar species in that it is

hollow and contains obvious perforations (J. Hinds & Hinds, 2007). One occurrence of punctured ramalina lichen was observed on balsam fir growing in TLWPA (Drawing 7A-K, Appendix A).

Rock Ramalina Lichen (S2S3)

Rock ramalina lichen is a greenish-yellow fruticose lichen with flattened branches rarely longer than 3 mm wide. This species can occur on trees or rocks. One occurrence of rock ramalina lichen was observed in the LTWPA on a damp rock wall (Drawing 7A-K, Appendix A).

3.2.2 Wetlands

Wetlands were a dominant feature observed on the landscape. As predicted in the wetland models (Section 2.2.2), there were a range of shrub swamps, fens, and bogs throughout the PAs. Representative photographs of wetlands within the PAs are included in a photograph log (Appendix E).

4.0 SUMMARY OF CONDITIONS

This report documents the desktop and field assessments completed for vegetation and wetlands. The objective of the baseline assessment was to understand existing conditions within the PA.

4.1 Vegetation

The PA is composed of a range of land cover and forest types, including softwood dominated stands, shrublands, wetlands, open water, and disturbed areas. Disturbed portions of the PA include roads and regenerating areas from forestry operations. Softwood forest and coniferous shrub are by far the dominant land cover types present in the PA. Old-growth/late-successional forest stands, as identified in the FRI, are present throughout the PAs. A total of 16% of the PA consists of old-growth/late-successional forest stands, with the highest concentrations present in the LTWPA (42%) and lowest in the SPA (10%).

4.1.1 Vascular and Non-Vascular Flora

The ACCDC data reports prepared for the Project identified 59 species of vascular flora within approximately 5 km of the PA. Of these, 25 are SOCC and one (red pine) is a SAR.

A total of 128 vascular plants were identified during field assessment within and near the PA (Appendix F). One vascular flora SAR, red pine, was observed. The flora SOCC observed were common wintergreen (S2), rock polypody (S2S3), and shinleaf (S2S3).

Incidental observations of non-vascular flora included records of 31 species, none of which are SAR or SOCC.

4.1.2 Lichens

The ACCDC data reports did not contain any records of lichen SAR or SOCC. A total 131

lichen species were observed during field assessments, one of which is a SAR and three of which are SOCC (Appendix F). The lichen SAR was blue felt lichen (SARA Special Concern, NL ESA Vulnerable, S2S3), which was observed in 22 locations in the LTWPA. The lichen SOCC observed were Acadian jellyskin lichen (S2S3), punctured ramalina lichen (S1S3), and rock ramalina lichen (S2S3), all of which were observed in the LTWPA. Occurrences of Acadian jellyskin lichen were also observed in the BWPA and TLWPA.

4.2 Wetlands

Wetlands were identified via desktop analysis using the both the LiDAR-derived ELC and CNWI database (ECCC, 2024). Bogs were identified as the dominant wetland type in both models. The extent of wetland area identified differed substantially between the two data sources, with wetlands estimated to be make up between 8% and 25% of the PA. During field assessments, wetlands were observed to be a common feature on the landscape, with shrub swamps, fens, and bogs observed throughout the PA.

5.0 STATEMENT OF QUALIFICATIONS AND LIMITATIONS

This Report (the "Report") has been prepared by Strum Consulting ("Consultant") for the benefit of EVREC ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental, or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

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This Statement of Qualifications and Limitations forms part of the Report and any use of the Report is subject to the terms hereof.

Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report. This report was reviewed by Mark MacDonald, MSc., Project Manager and Senior Terrestrial Lead.

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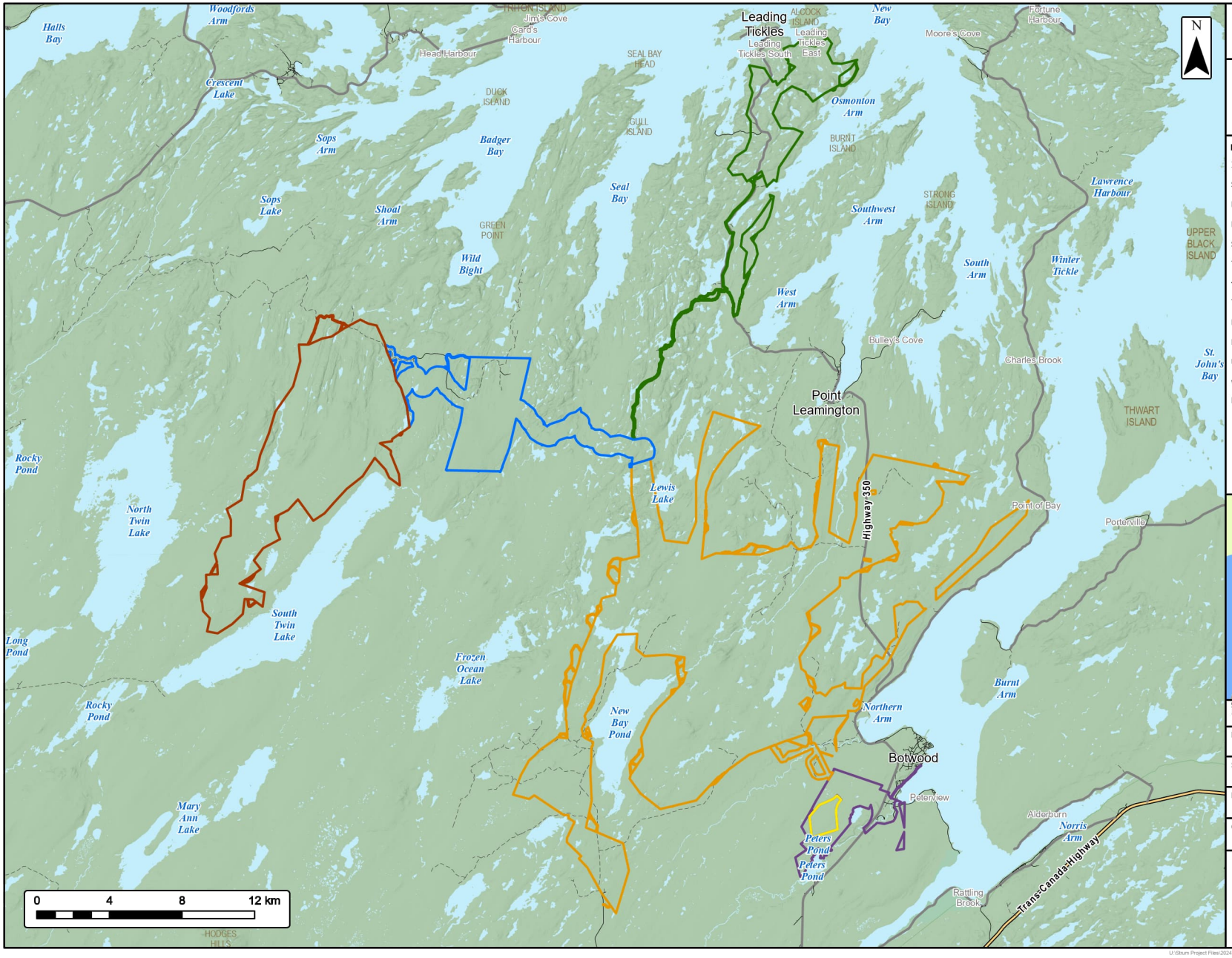
APPENDIX A
DRAWINGS



EVREC Green Energy Hub

Project Locator

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:200,000	Drawing #: 1
Drawn By: M. Partridge	
Checked By: N. Thomas	

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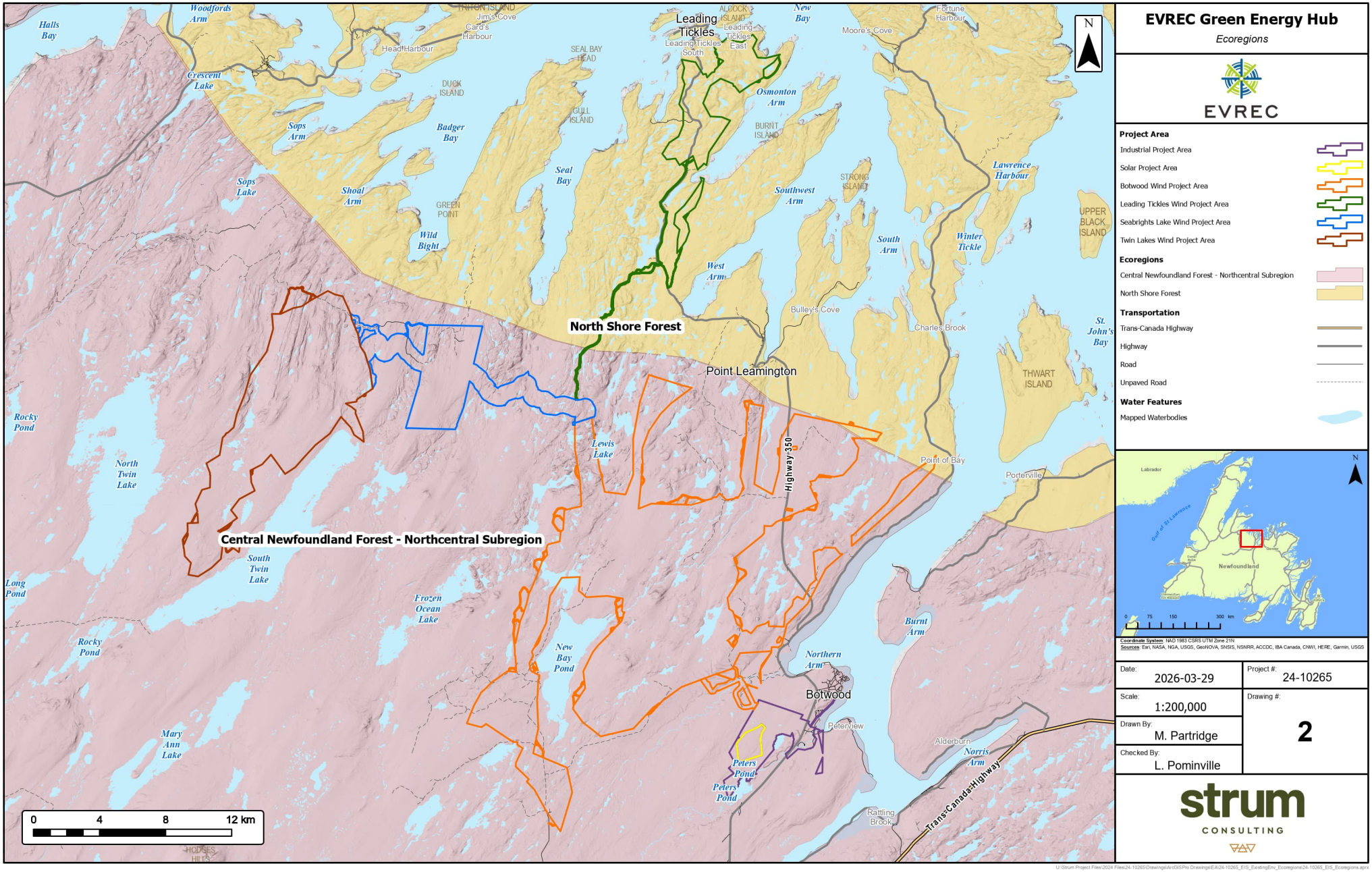

EVREC Green Energy Hub

Ecoregions

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Ecoregions

- Central Newfoundland Forest - Northcentral Subregion
- North Shore Forest

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-29	Project #: 24-10265
Scale: 1:200,000	Drawing #: 2
Drawn By: M. Partridge	
Checked By: L. Pominville	

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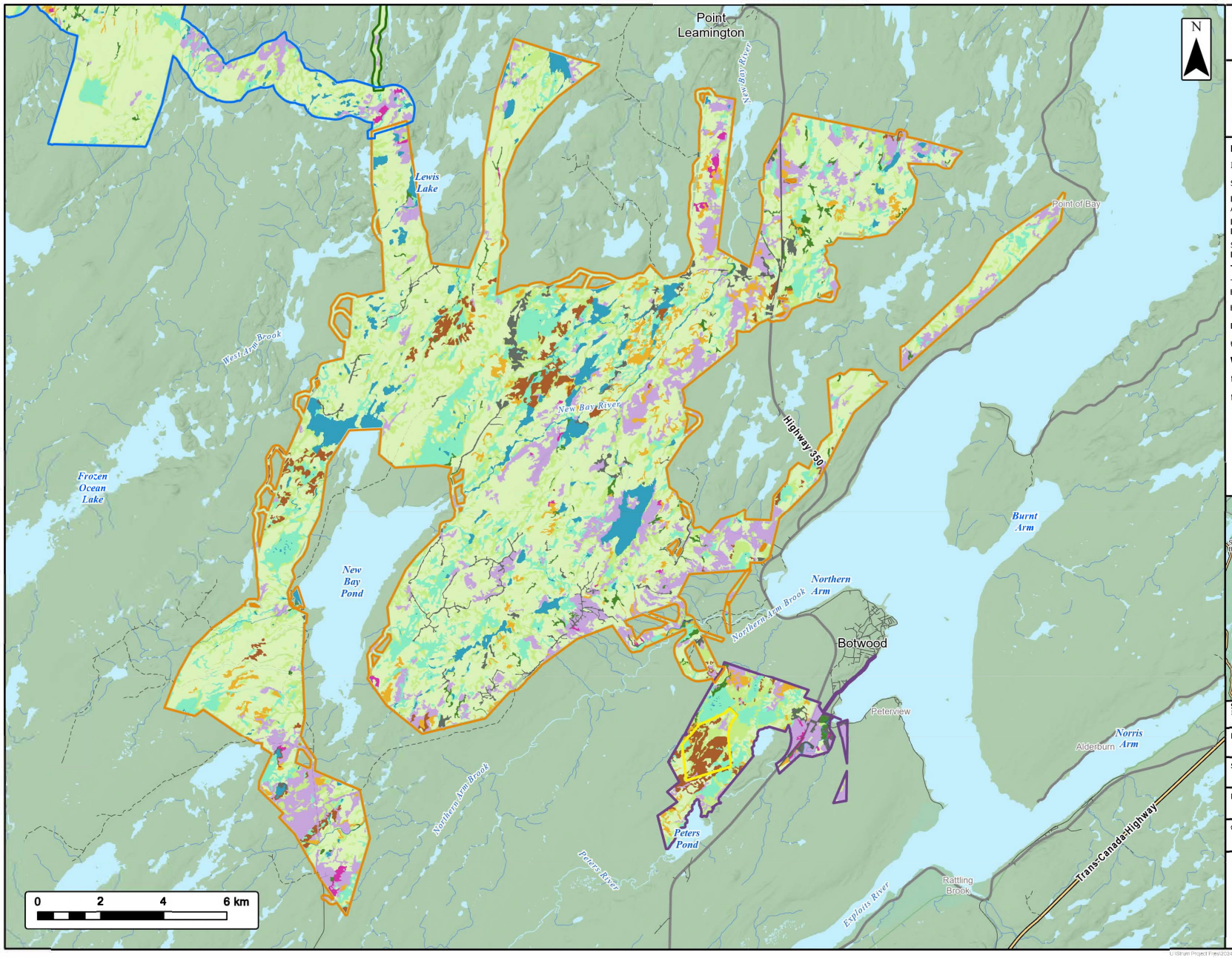


EVREC Green Energy Hub

Botwood Wind Project Area
Generalized Ecological Land Classification

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area

Transportation

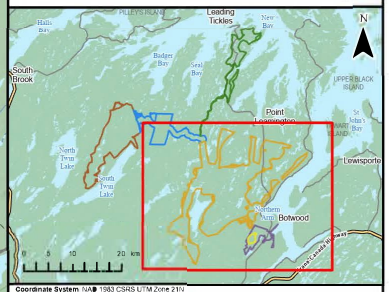
- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Generalized Ecological Land Classification

- Anthropogenic
- Barren
- Coniferous Scrub
- Deciduous Scrub
- Hardwood
- Mixed Forest
- Mixed Scrub
- Regenerating
- Softwood
- Waterbody
- Wetland



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCOC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:115,000	Drawing #: 3A
Drawn By: M. Partridge	
Checked By: E. Davis	

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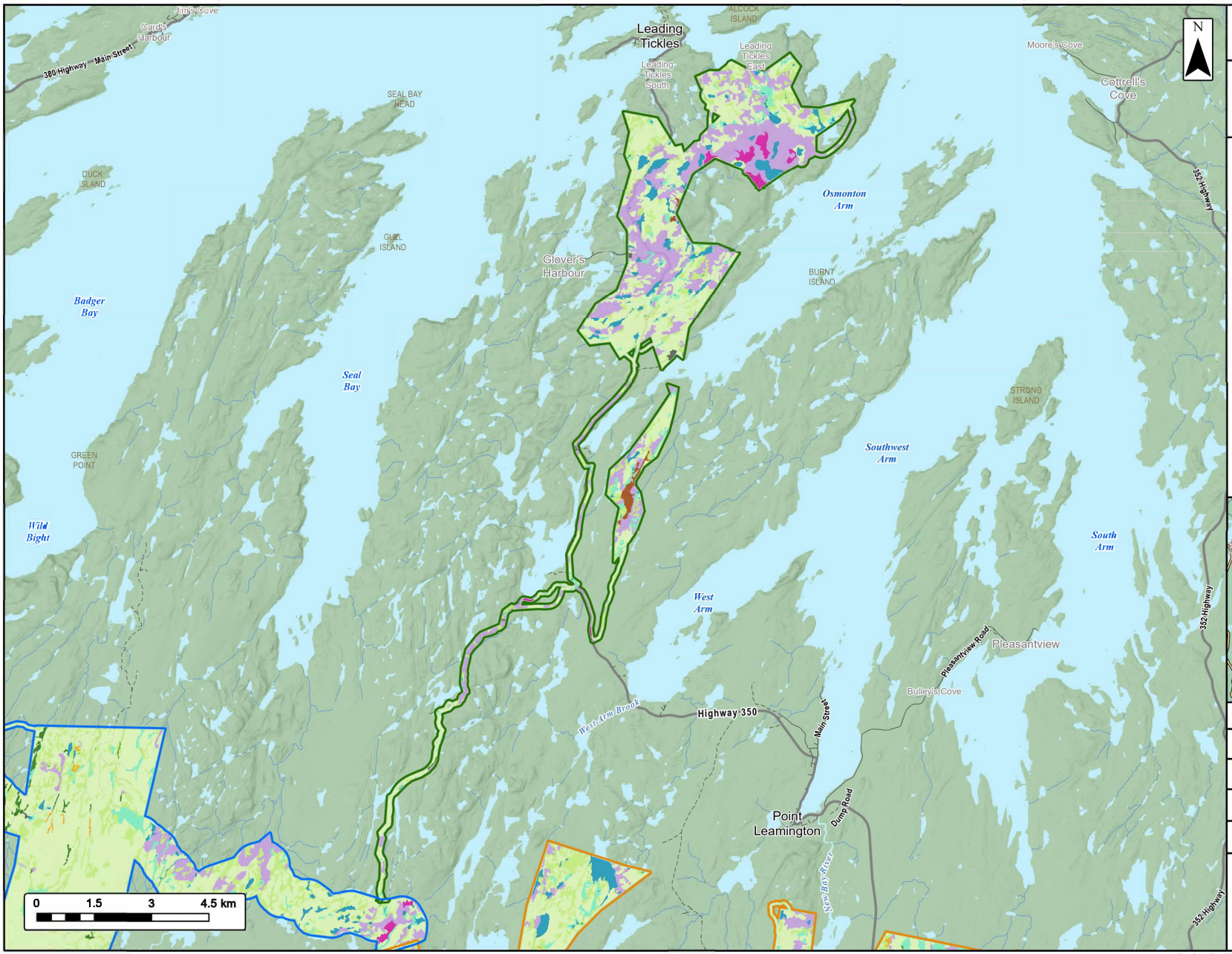


EVREC Green Energy Hub

Leading Tickles Wind Project Area
Generalized Ecological Land Classification

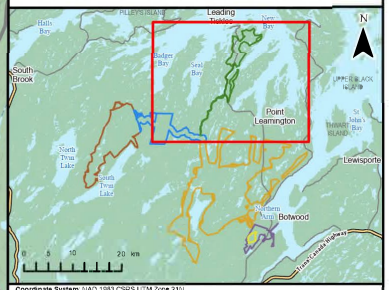
EVREC

Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies

Generalized Ecological Land Classification
- Anthropogenic
- Barren
- Coniferous Scrub
- Deciduous Scrub
- Hardwood
- Mixed Forest
- Mixed Scrub
- Regenerating
- Softwood
- Waterbody
- Wetland



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, ISA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:95,000	Drawing #: 3B
Drawn By: M. Partridge	
Checked By: E. Davis	

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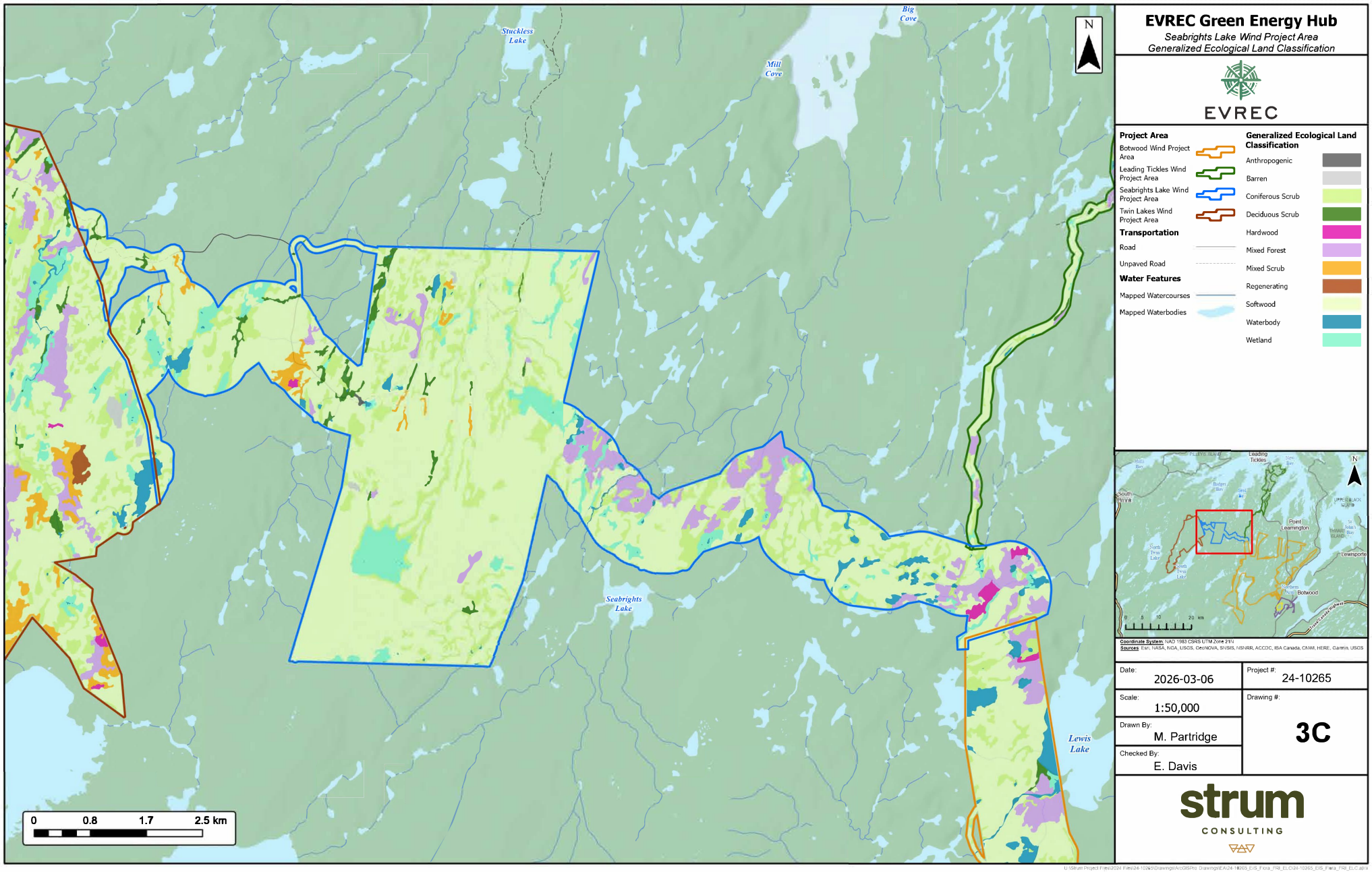

EVREC Green Energy Hub

Seabrights Lake Wind Project Area
Generalized Ecological Land Classification

EVREC

Project Area
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies

Generalized Ecological Land Classification
- Anthropogenic
- Barren
- Coniferous Scrub
- Deciduous Scrub
- Hardwood
- Mixed Forest
- Mixed Scrub
- Regenerating
- Softwood
- Waterbody
- Wetland

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: 3C
Drawn By: M. Partridge	
Checked By: E. Davis	

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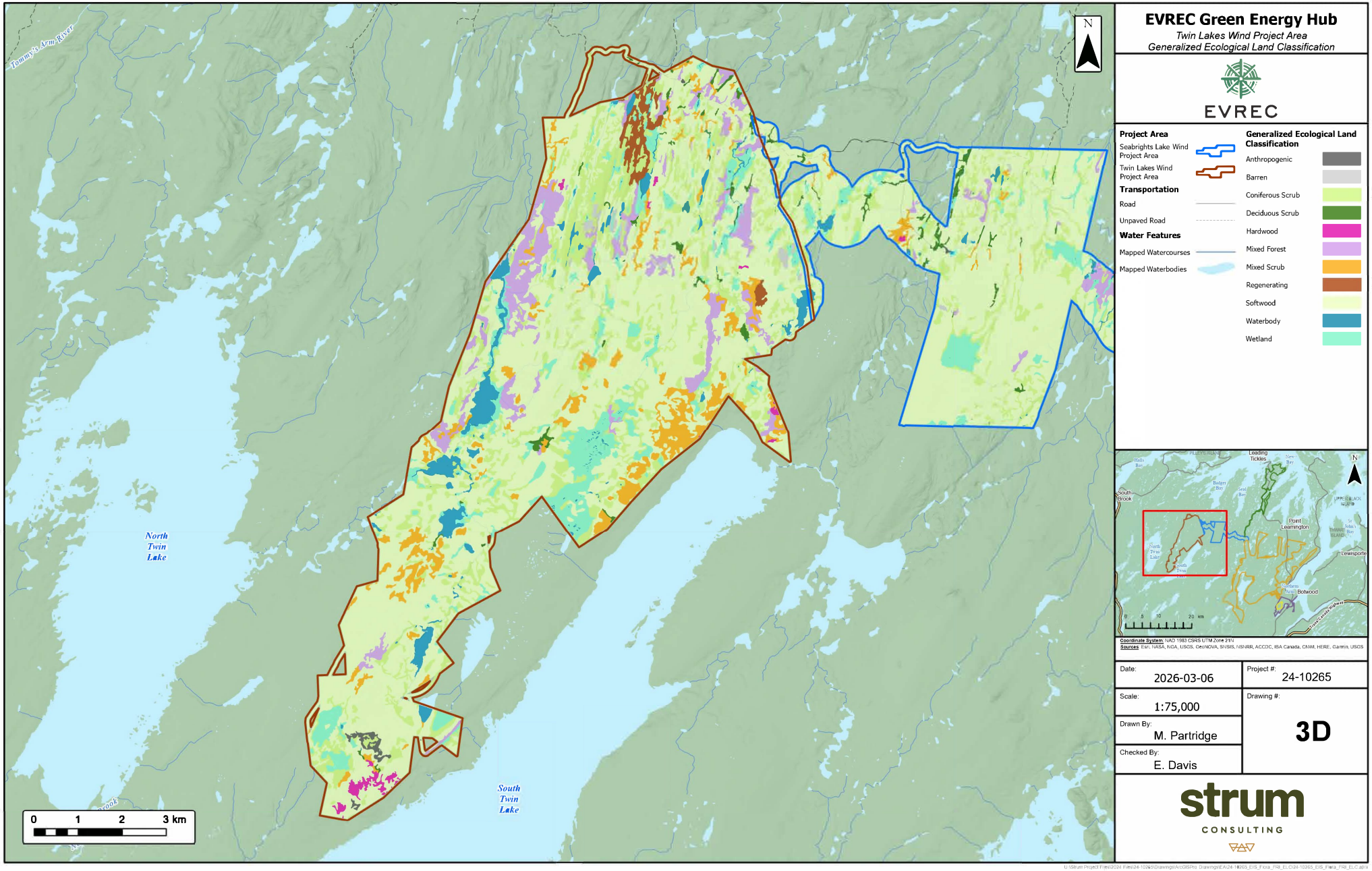

EVREC Green Energy Hub

Twin Lakes Wind Project Area
Generalized Ecological Land Classification

EVREC

Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Transportation
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies

Generalized Ecological Land Classification
- Anthropogenic
- Barren
- Coniferous Scrub
- Deciduous Scrub
- Hardwood
- Mixed Forest
- Mixed Scrub
- Regenerating
- Softwood
- Waterbody
- Wetland

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:75,000	Drawing #: 3D
Drawn By: M. Partridge	
Checked By: E. Davis	

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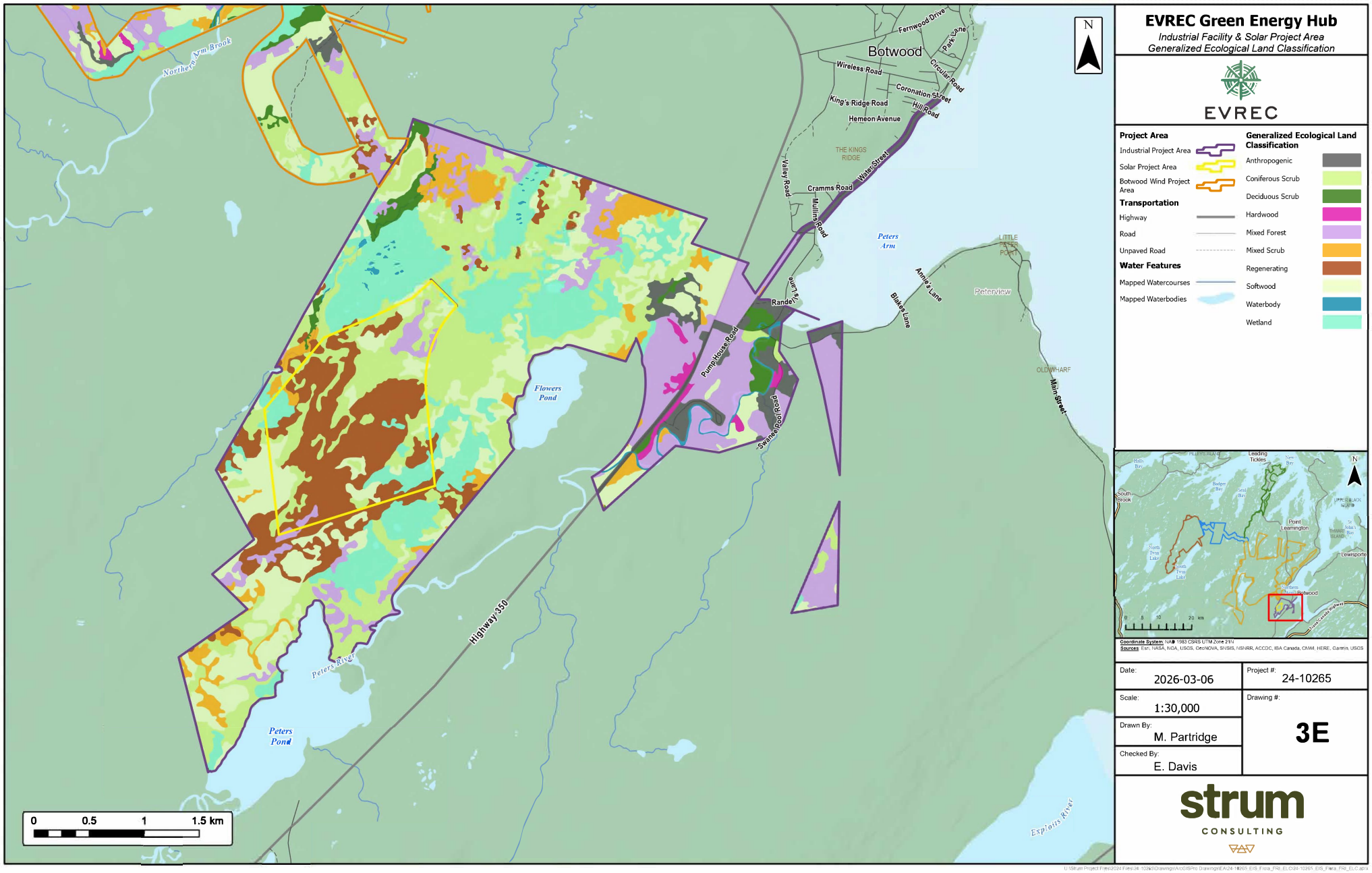

EVREC Green Energy Hub

Industrial Facility & Solar Project Area
Generalized Ecological Land Classification

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Generalized Ecological Land Classification

- Anthropogenic
- Coniferous Scrub
- Deciduous Scrub
- Hardwood
- Mixed Forest
- Mixed Scrub
- Regenerating
- Softwood
- Waterbody
- Wetland

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, ISA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: 3E
Drawn By: M. Partridge	
Checked By: E. Davis	

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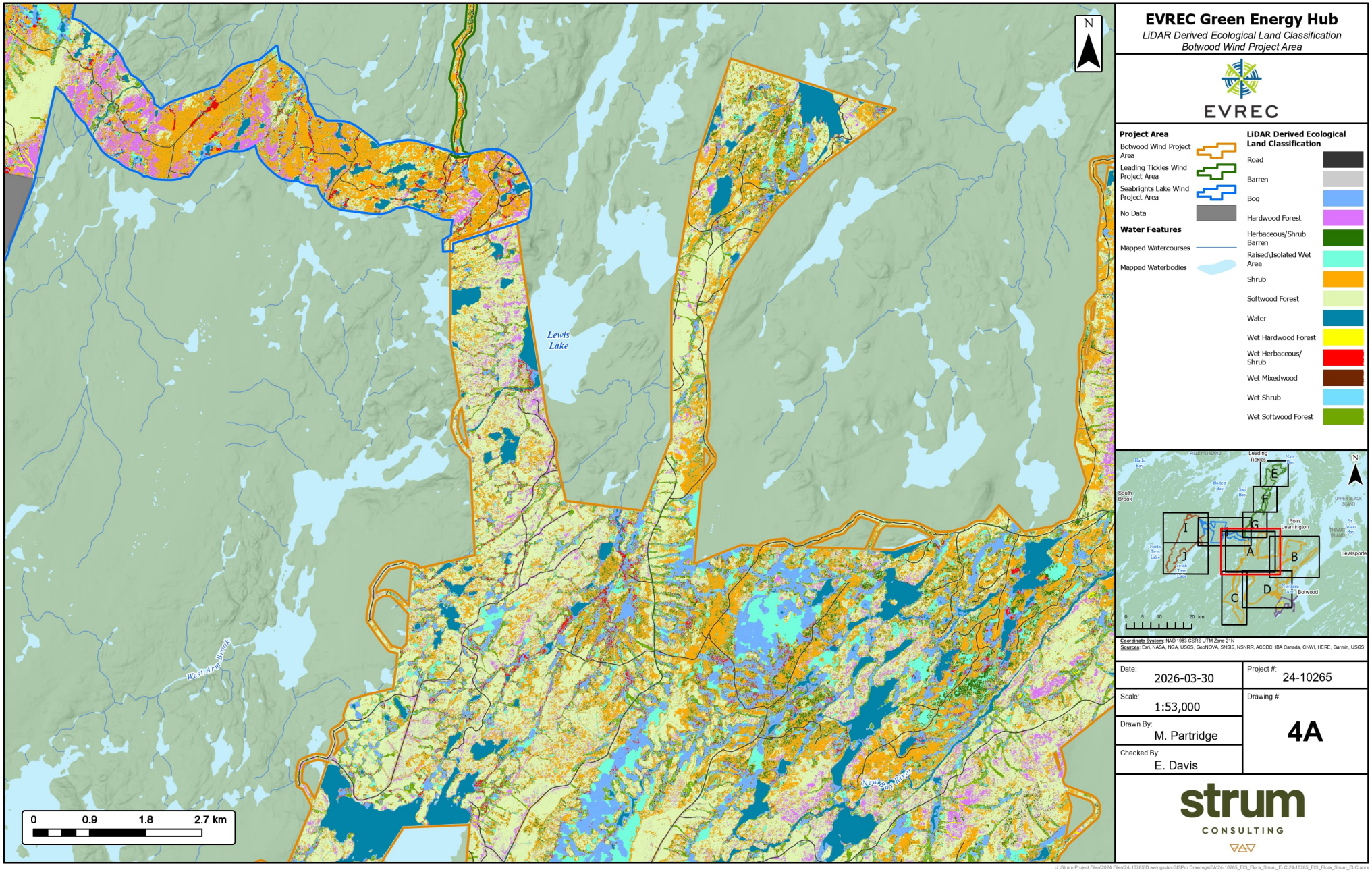

EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Botwood Wind Project Area

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- No Data

Water Features

- Mapped Watercourses
- Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:53,000	Drawing #: 4A
Drawn By: M. Partridge	
Checked By: E. Davis	

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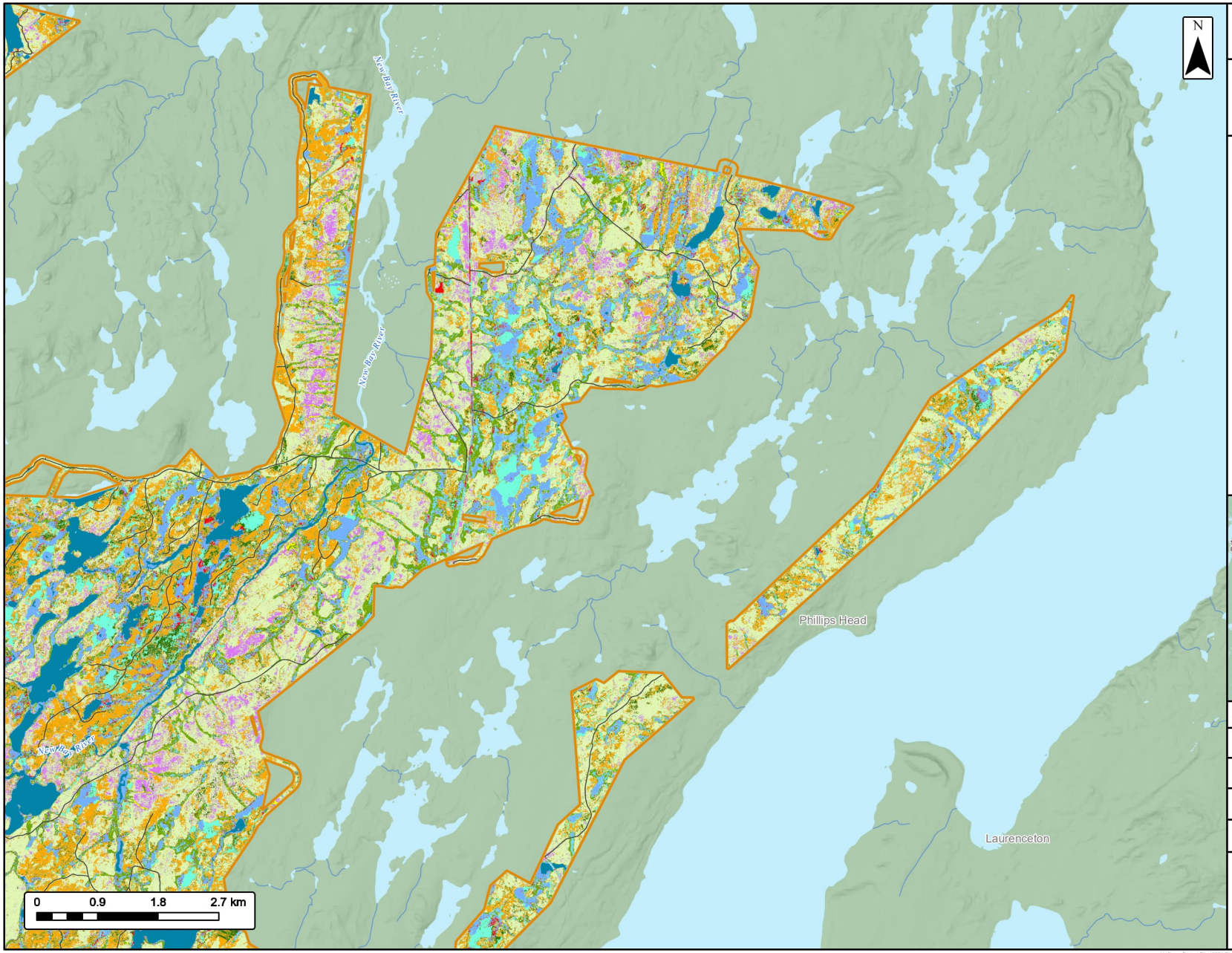


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Botwood Wind Project Area

EVREC

Project Area

Botwood Wind Project Area

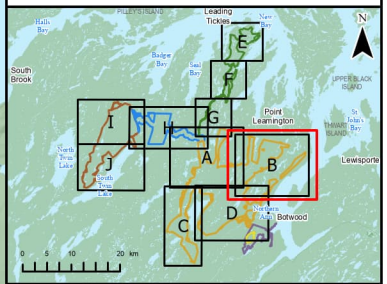
Water Features

Mapped Watercourses

Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
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Date: 2026-03-30	Project #: 24-10265
Scale: 1:54,000	Drawing #: 4B
Drawn By: M. Partridge	
Checked By: E. Davis	

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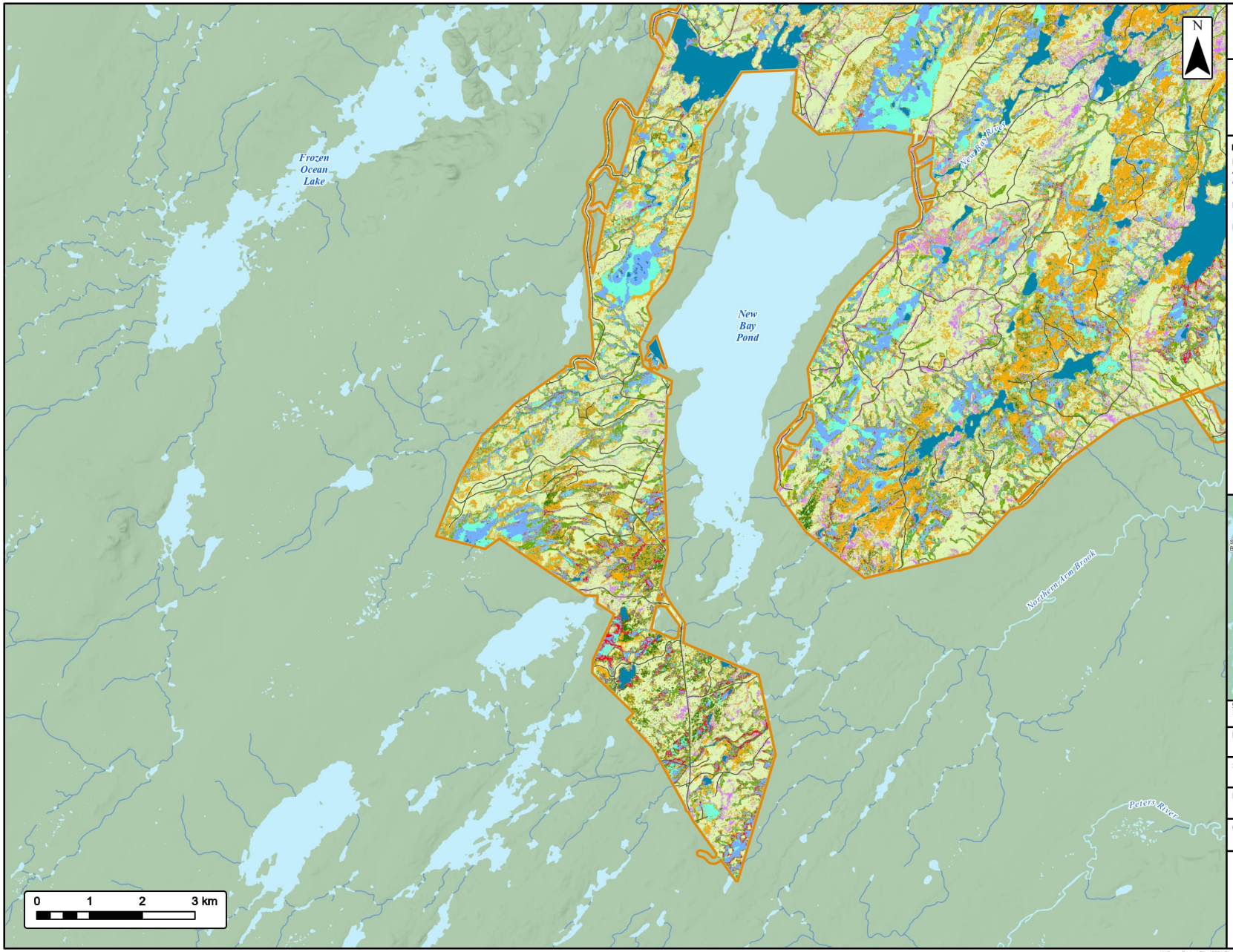


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Botwood Wind Project Area

EVREC

Project Area

Botwood Wind Project Area

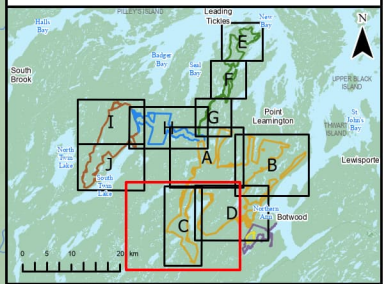
Water Features

Mapped Watercourses

Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:69,000	Drawing #: 4C
Drawn By: M. Partridge	
Checked By: E. Davis	

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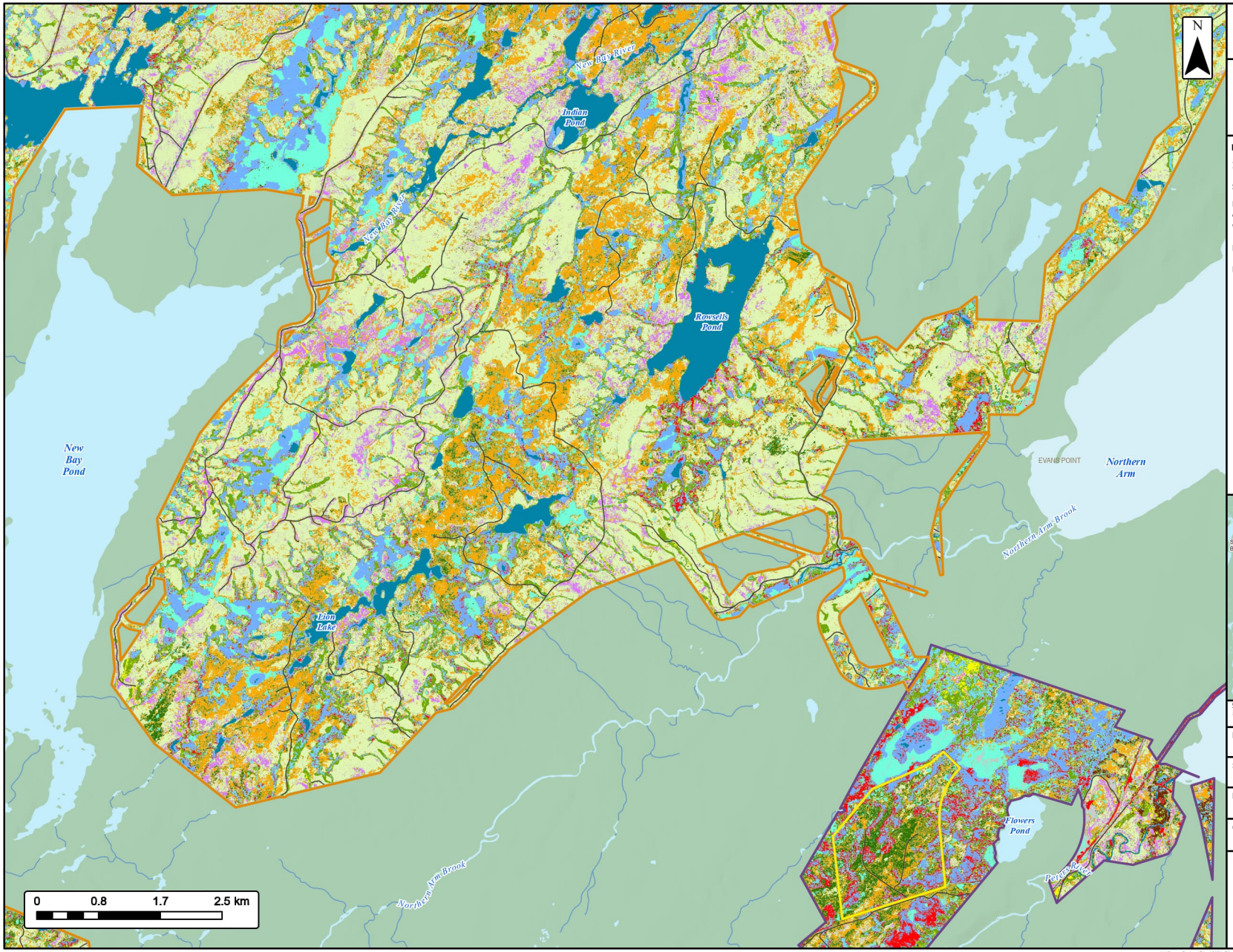


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Botwood Wind Project Area

EVREC

Project Area

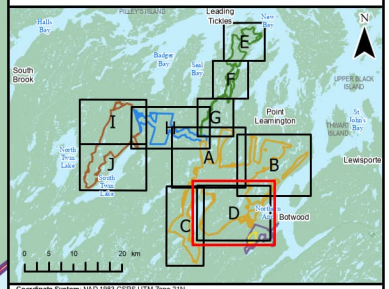
- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area

Water Features

- Mapped Watercourses
- Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:50,000	Drawing #: **4D**
Drawn By: M. Partridge	
Checked By: E. Davis	

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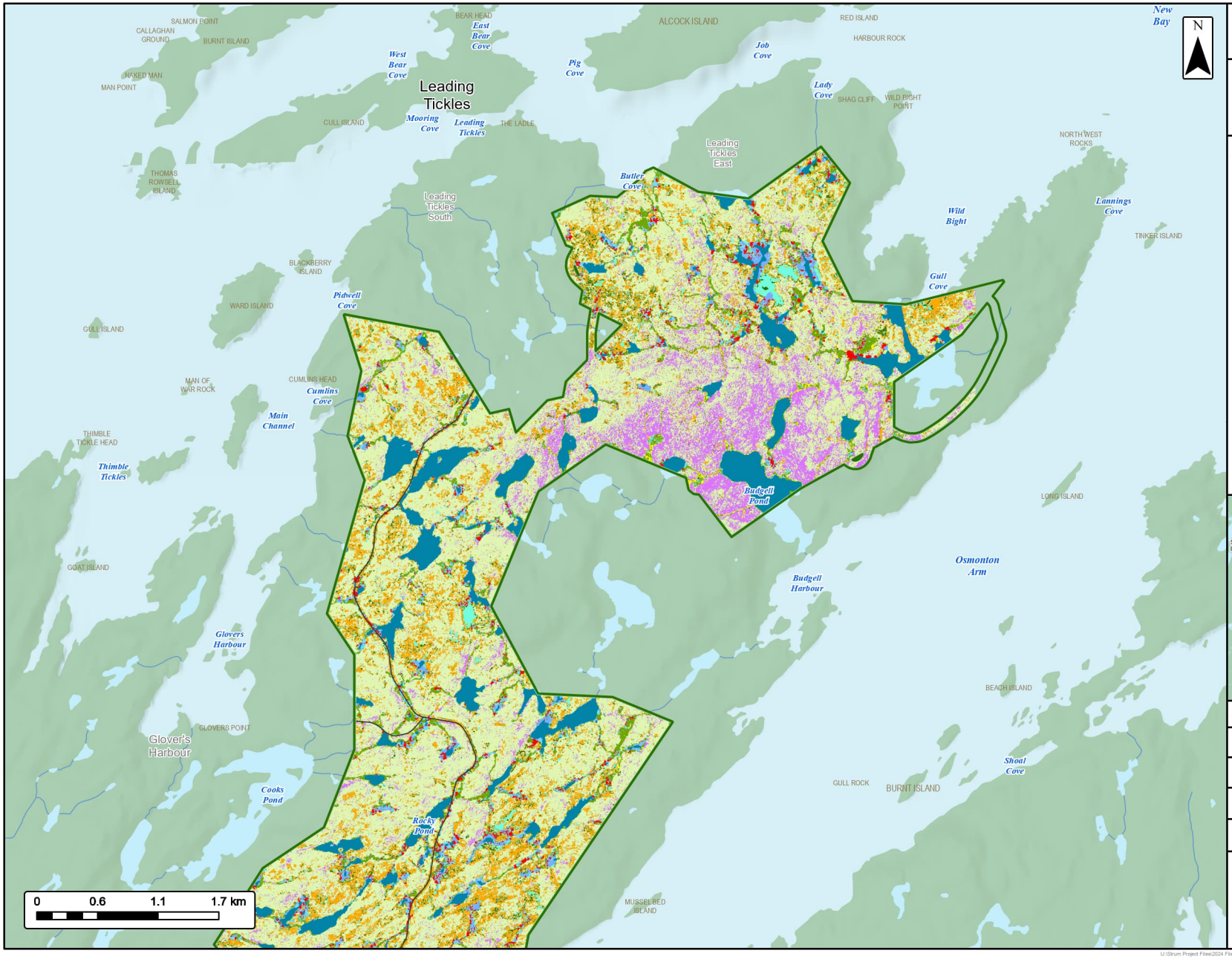


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Leading Tickles Wind Project Area

EVREC

Project Area

Leading Tickles Wind Project Area

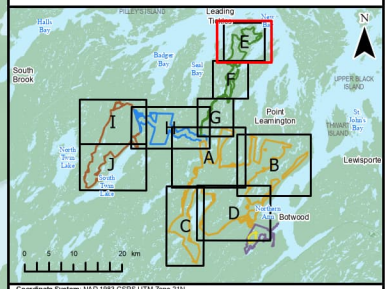
Water Features

Mapped Watercourses

Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:33,000	Drawing #: 4E
Drawn By: M. Partridge	
Checked By: E. Davis	

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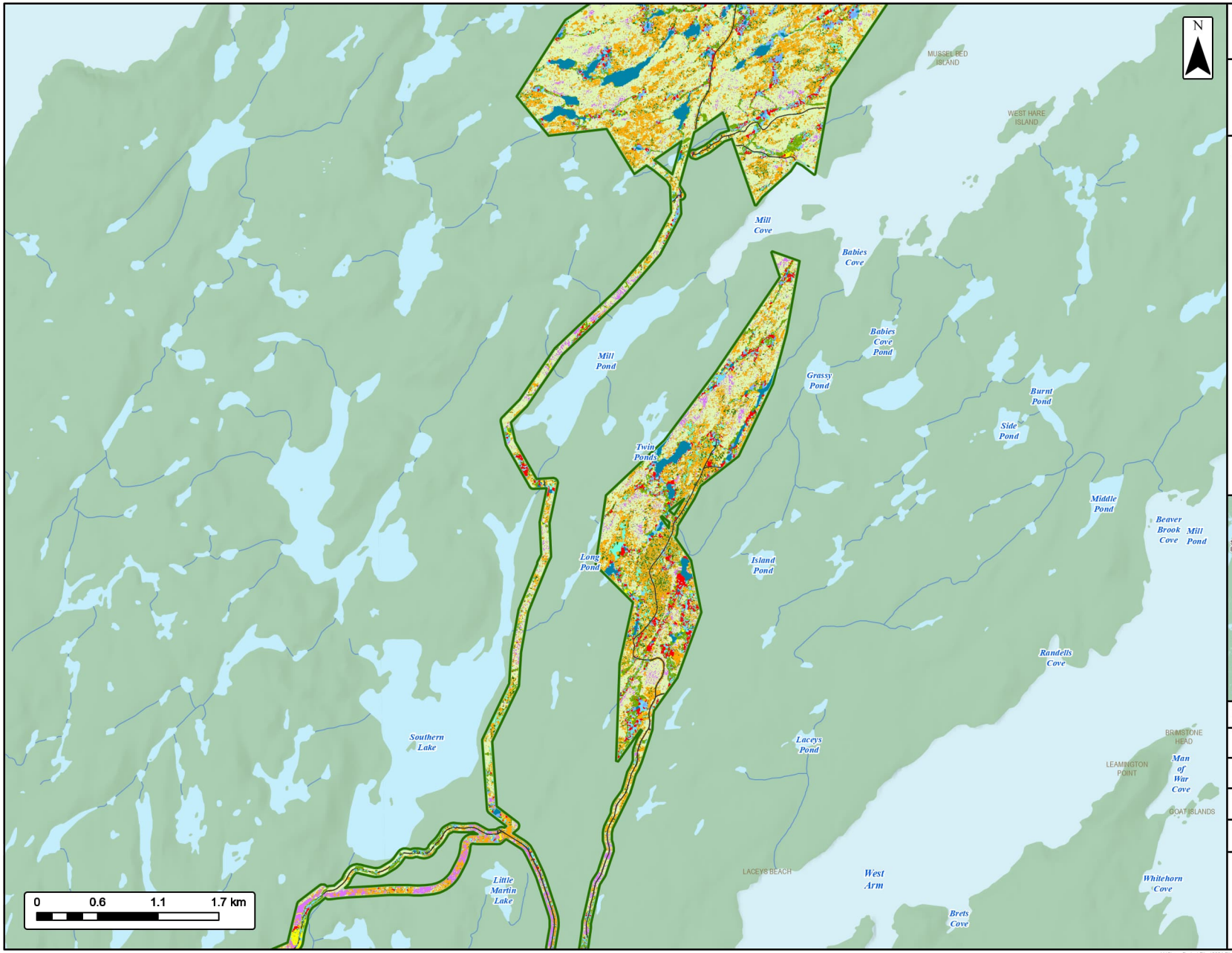


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Leading Tickles Wind Project Area

EVREC

Project Area

Leading Tickles Wind Project Area

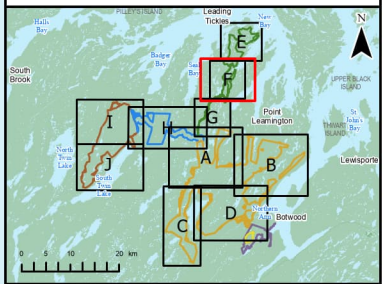
Water Features

Mapped Watercourses

Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:33,000	Drawing #: 4F
Drawn By: M. Partridge	
Checked By: E. Davis	

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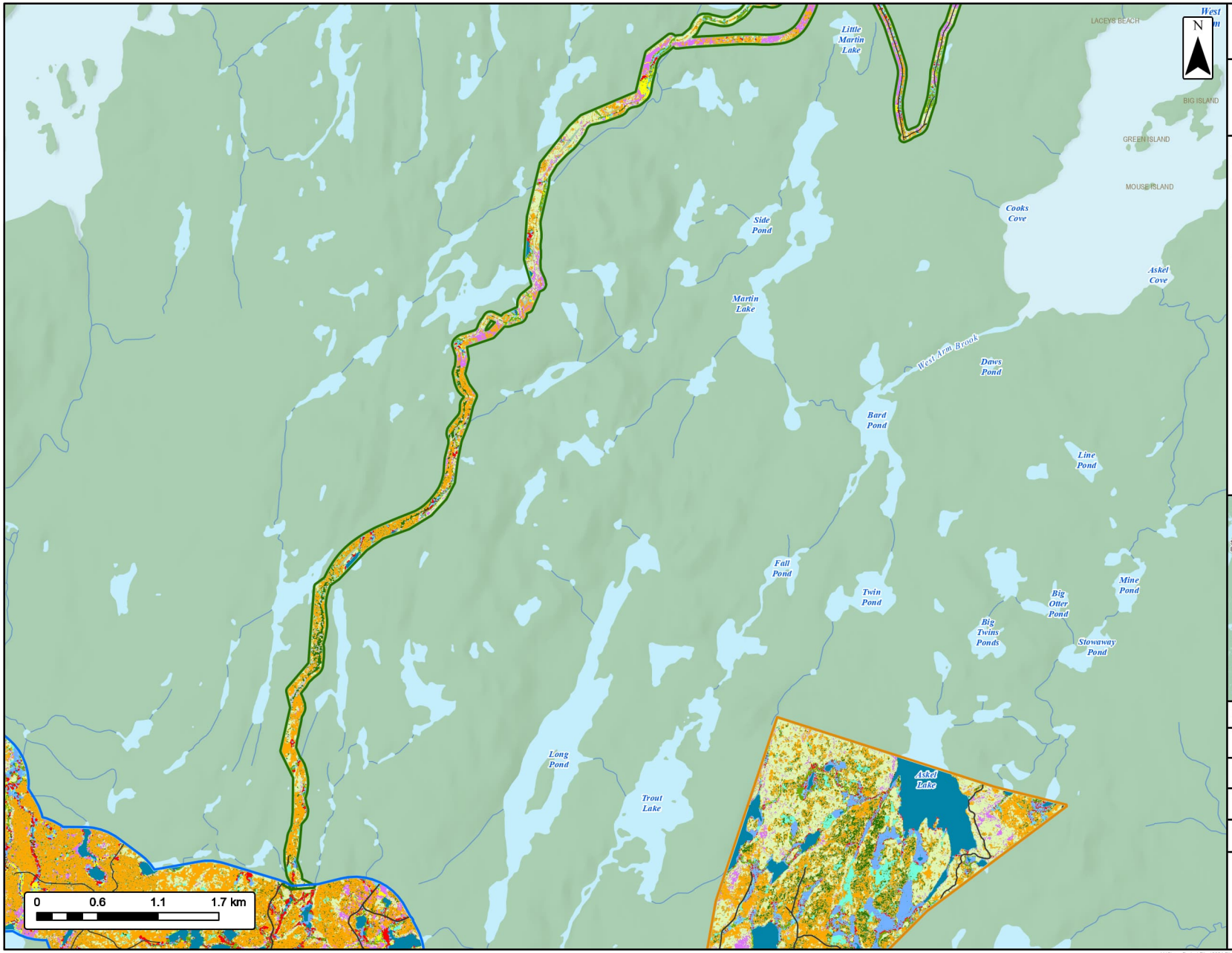


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Leading Tickles Wind Project Area

EVREC

Project Area

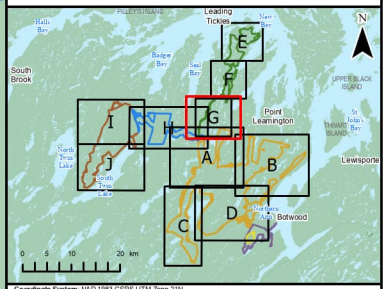
- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area

Water Features

- Mapped Watercourses
- Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:33,000	Drawing #: 4G
Drawn By: M. Partridge	
Checked By: E. Davis	

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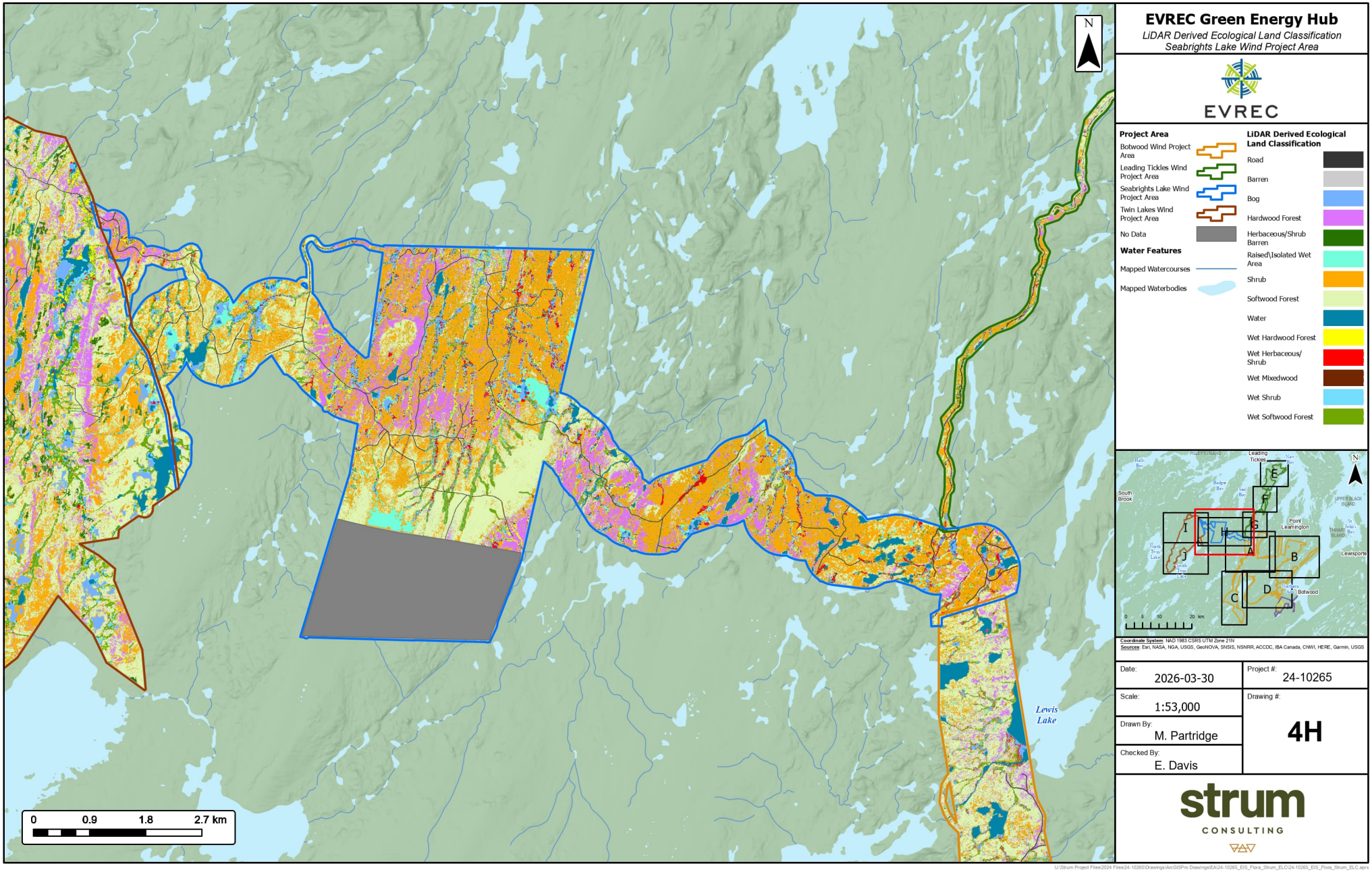

EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Seabrights Lake Wind Project Area

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- No Data

Water Features

- Mapped Watercourses
- Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:53,000	Drawing #: 4H
Drawn By: M. Partridge	
Checked By: E. Davis	

strum CONSULTING

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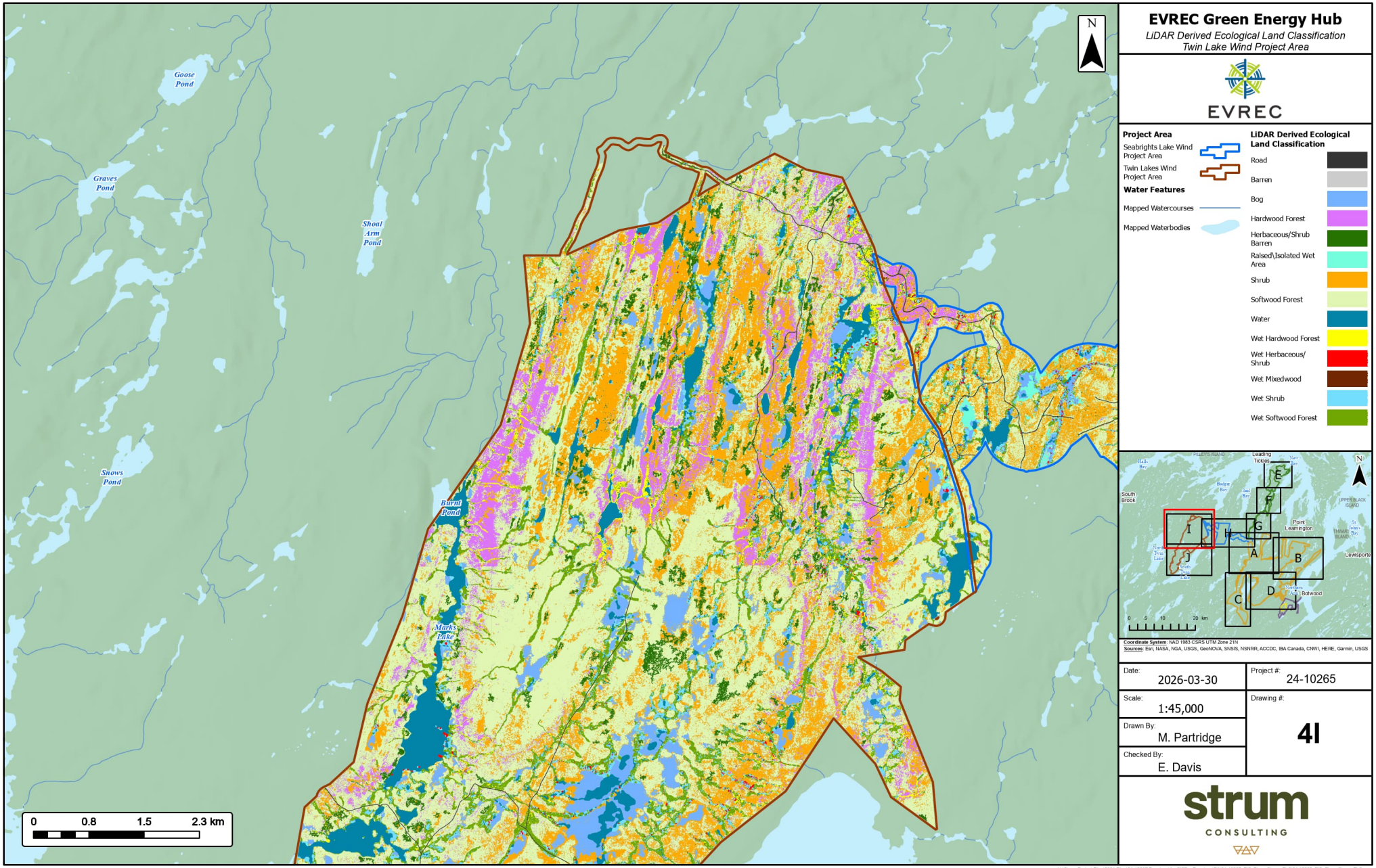

EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Twin Lake Wind Project Area

EVREC

Project Area

- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area

Water Features

- Mapped Watercourses
- Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:45,000	Drawing #: 4l
Drawn By: M. Partridge	
Checked By: E. Davis	

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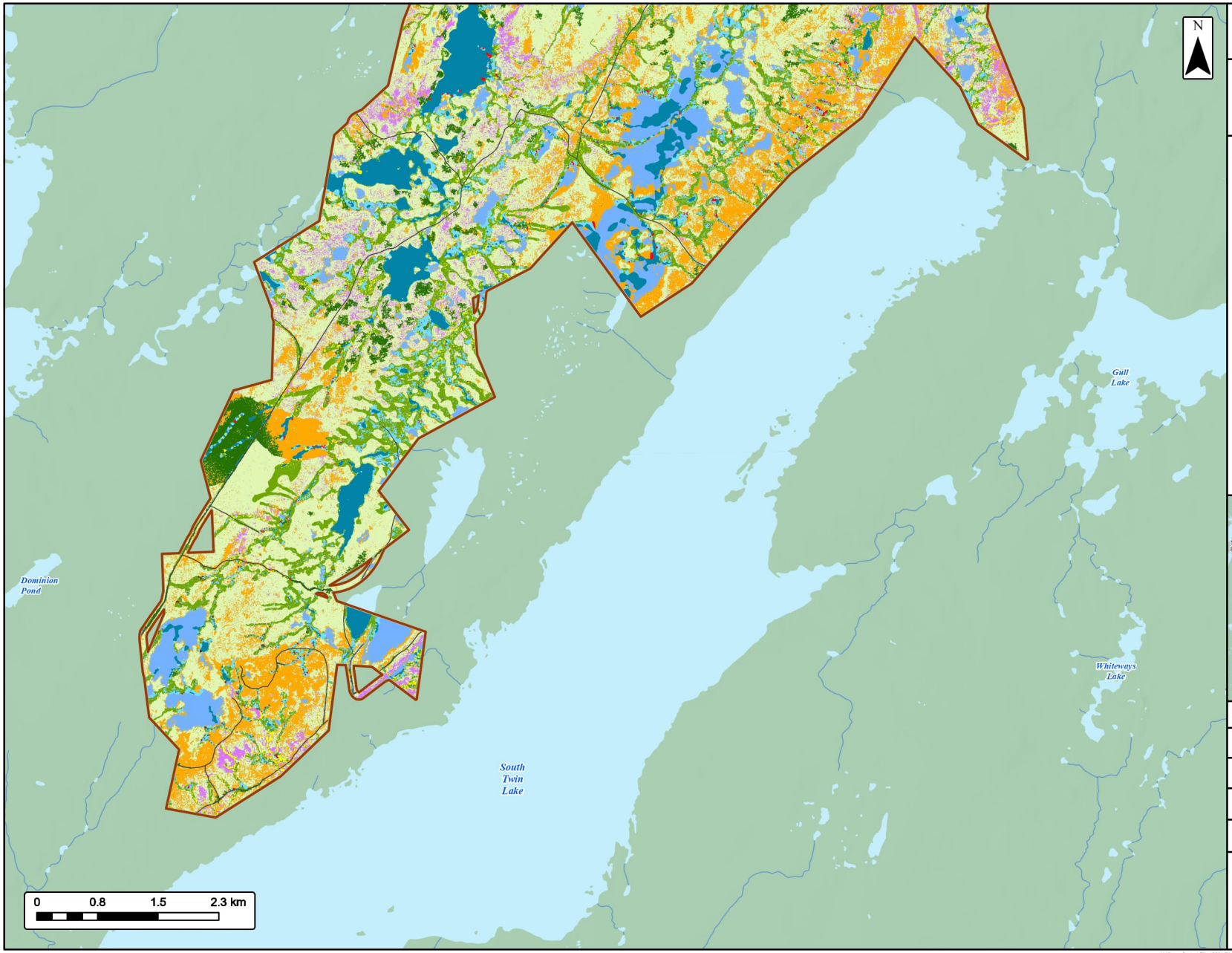


EVREC Green Energy Hub

LiDAR Derived Ecological Land Classification
Twin Lake Wind Project Area

EVREC

Project Area

Twin Lakes Wind Project Area

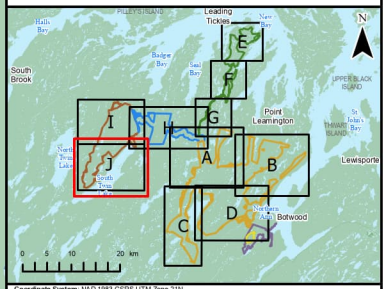
Water Features

Mapped Watercourses

Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNVI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:45,000	Drawing #: 4J
Drawn By: M. Partridge	
Checked By: E. Davis	

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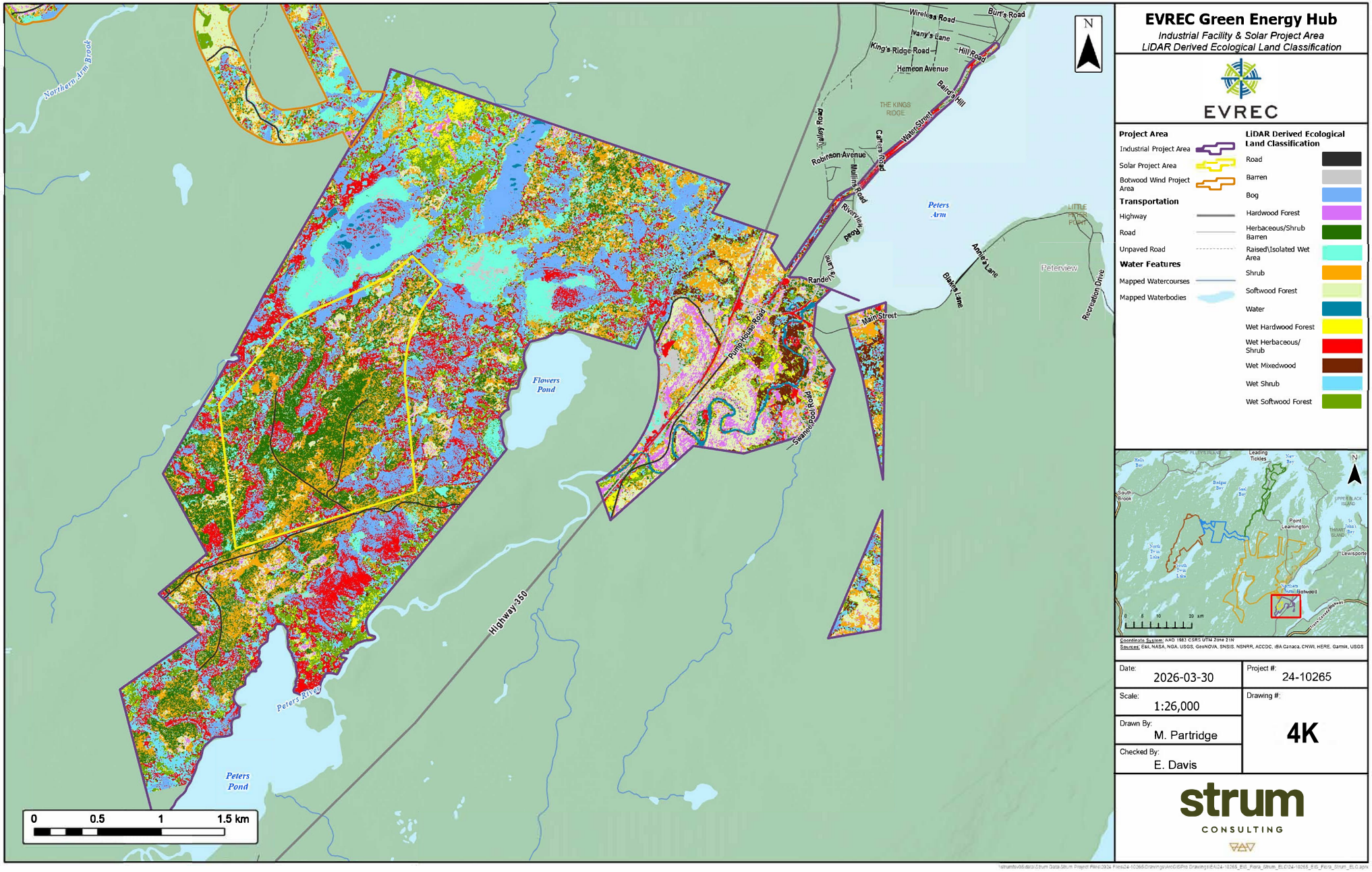

EVREC Green Energy Hub

Industrial Facility & Solar Project Area
LiDAR Derived Ecological Land Classification

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

LiDAR Derived Ecological Land Classification

- Road
- Barren
- Bog
- Hardwood Forest
- Herbaceous/Shrub Barren
- Raised\Isolated Wet Area
- Shrub
- Softwood Forest
- Water
- Wet Hardwood Forest
- Wet Herbaceous/ Shrub
- Wet Mixedwood
- Wet Shrub
- Wet Softwood Forest

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-30	Project #: 24-10265
Scale: 1:26,000	Drawing #: 4K
Drawn By: M. Partridge	
Checked By: E. Davis	

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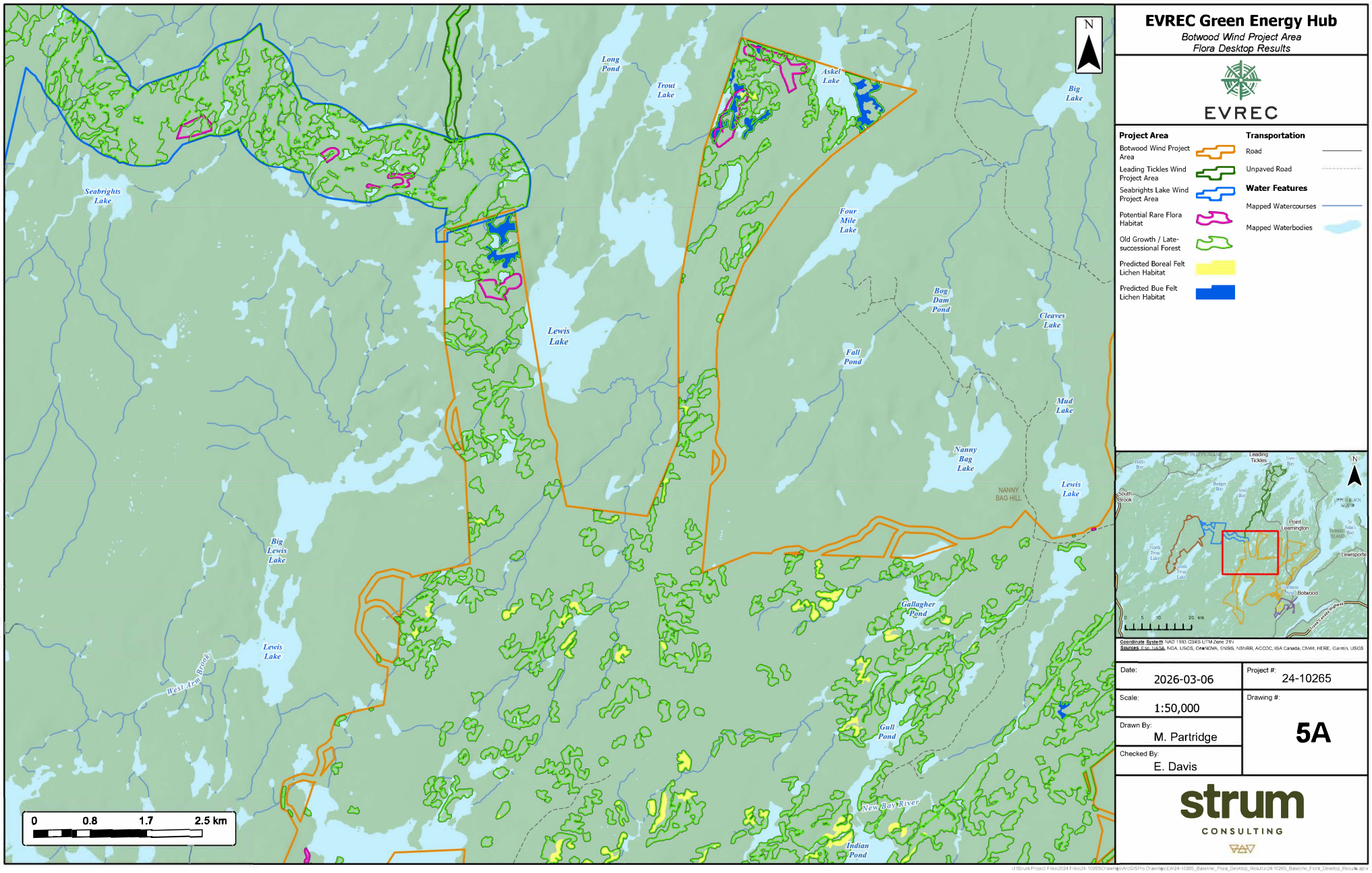

EVREC Green Energy Hub

Botwood Wind Project Area
Flora Desktop Results

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, USA, NGA, USGS, GeoNOVA, SNSB, NSNRR, ACCDC, ISA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: **5A**
Drawn By: M. Partridge	
Checked By: E. Davis	

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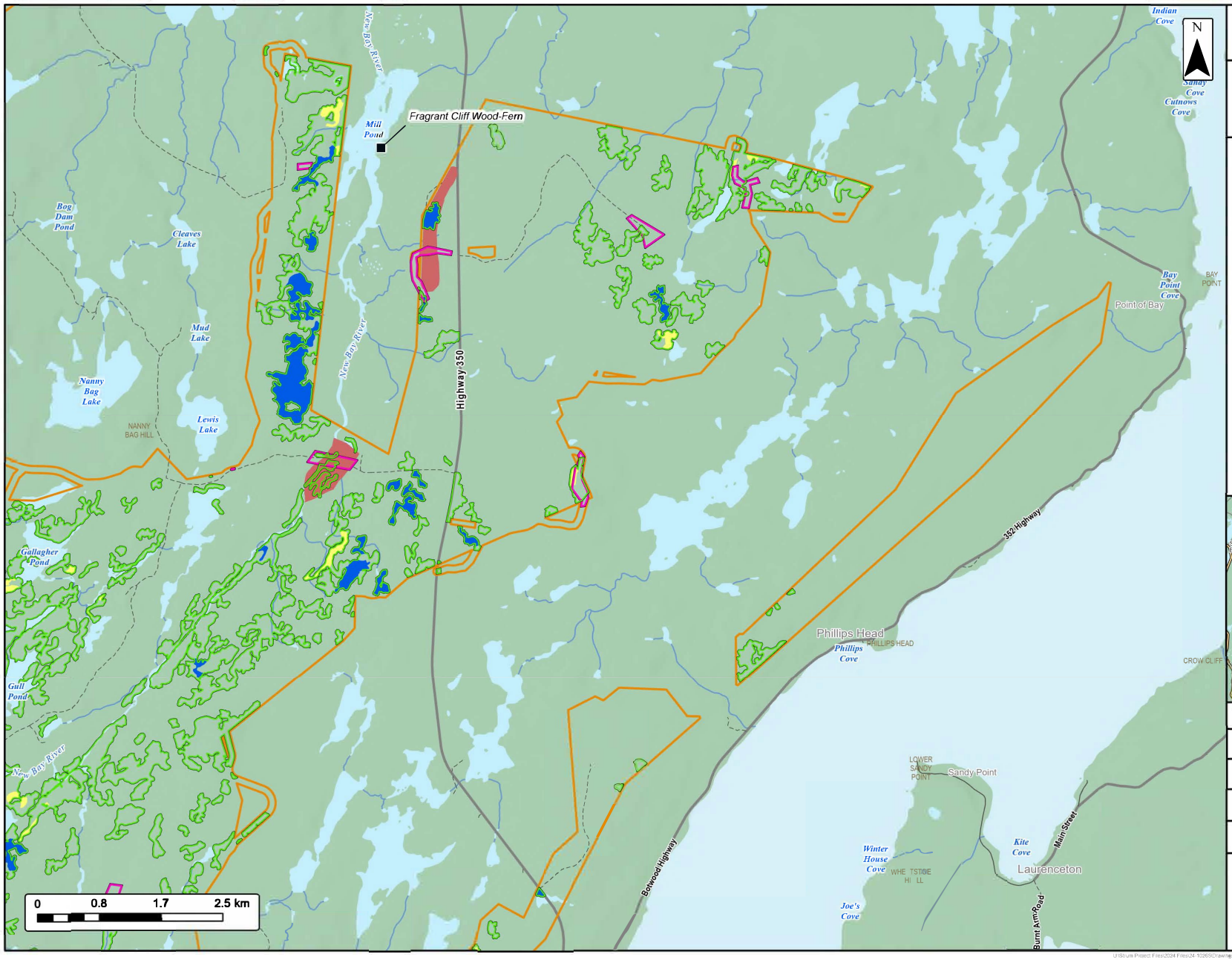


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Desktop Results

EVREC

Project Area

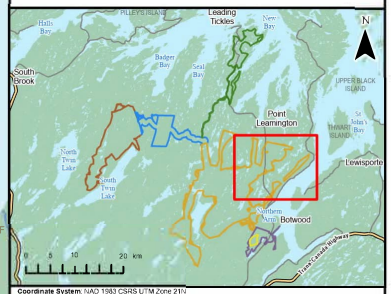
- Botwood Wind Project Area
- ACCDC Point Observations
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat
- Predicted Red Pine Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: 5B
Drawn By: M. Partridge	
Checked By: E. Davis	

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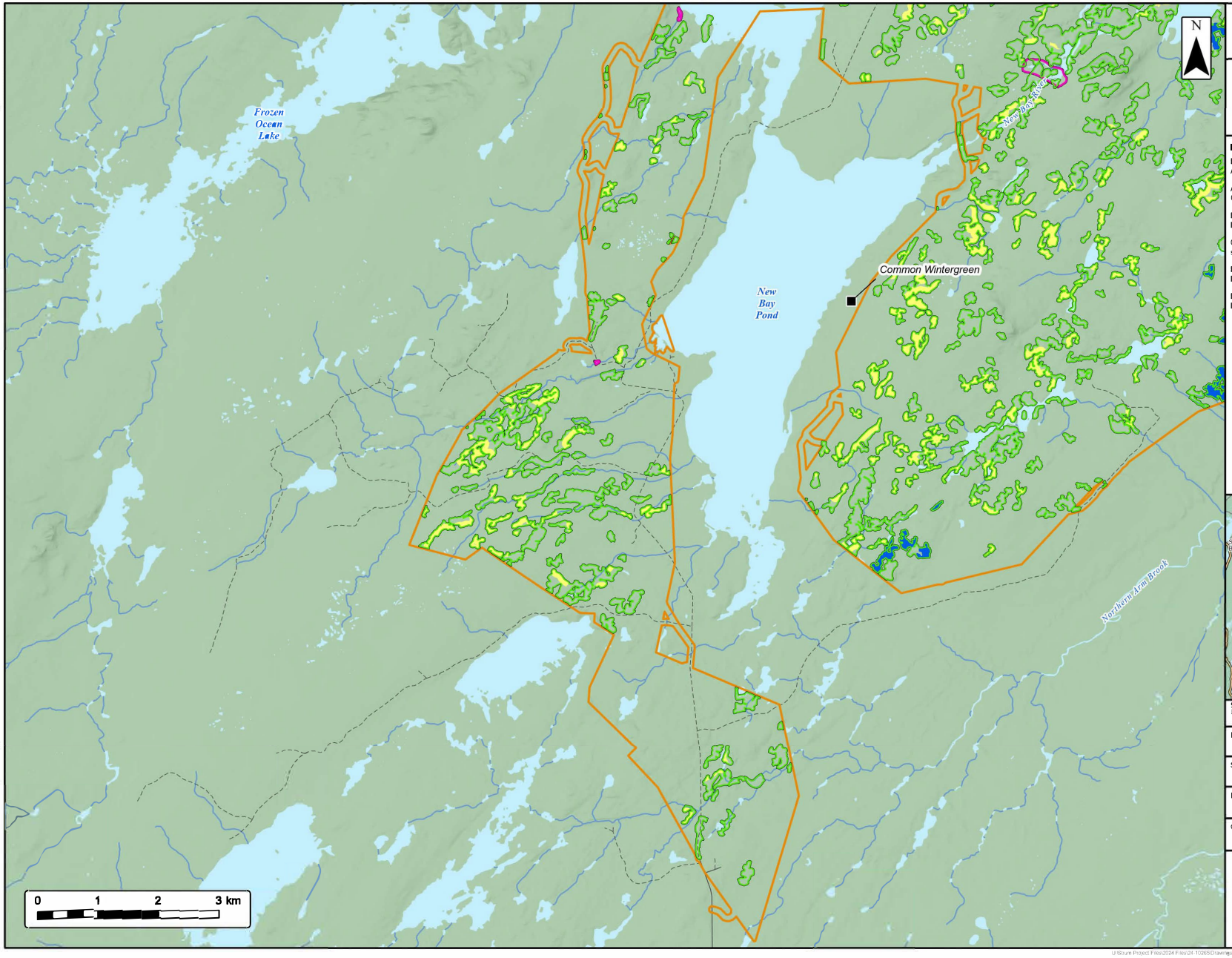


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Desktop Results

EVREC

Project Area

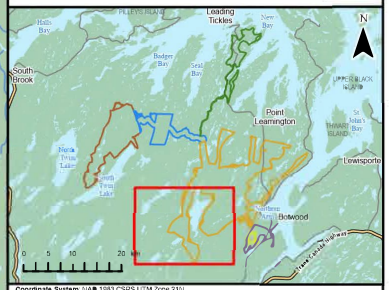
- Botwood Wind Project Area
- ACCDC Point Observations
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, ISA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:60,000	Drawing #: 5C
Drawn By: M. Partridge	
Checked By: E. Davis	

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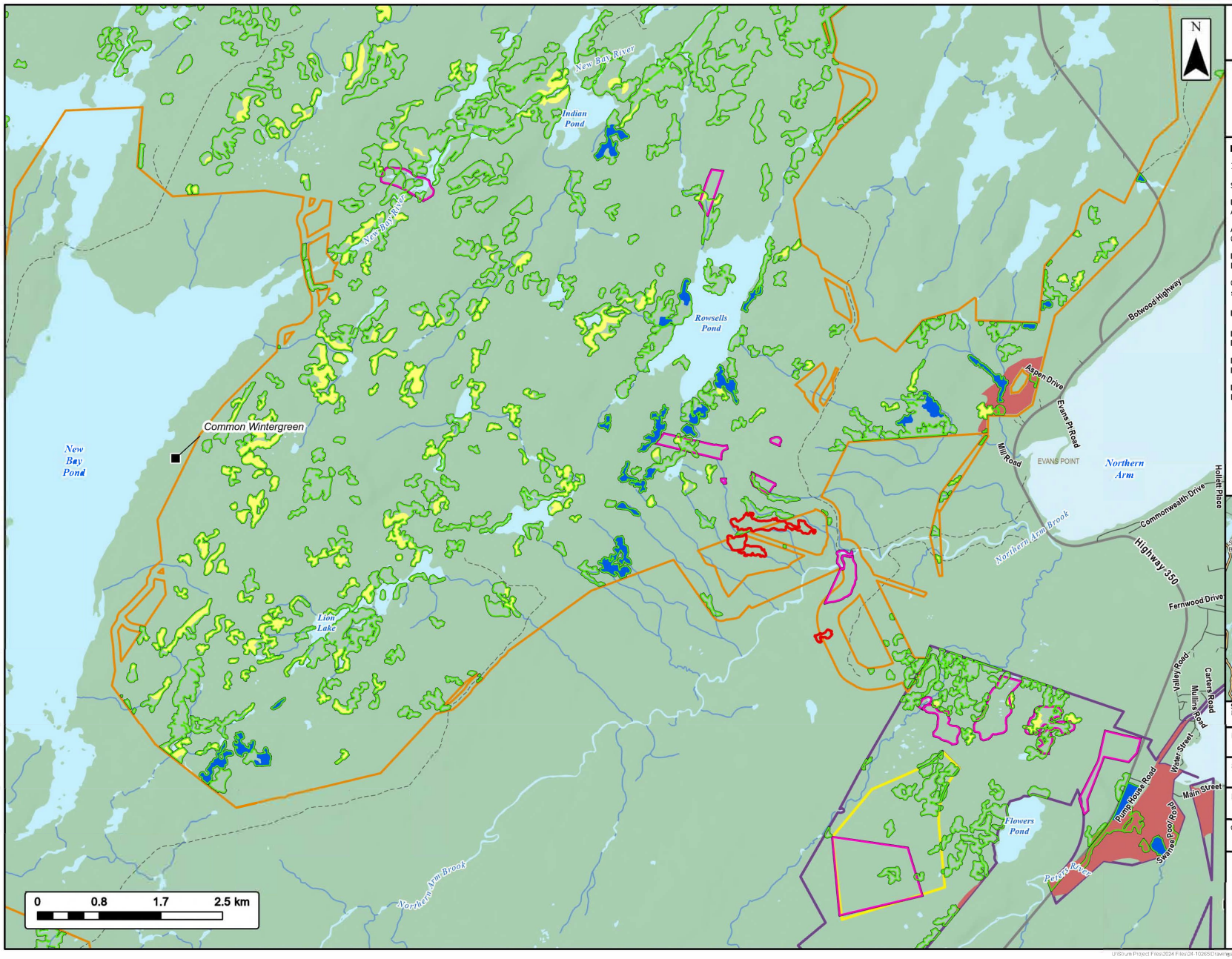


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Desktop Results

EVREC

Project Area

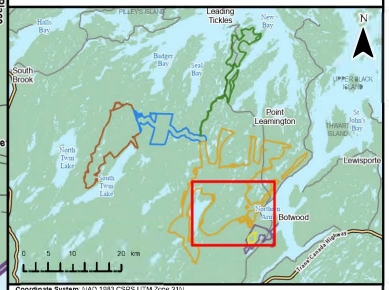
- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- ACCDC Point Observations
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- FRI Red Pine Stands
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat
- Predicted Red Pine Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: 5D
Drawn By: M. Partridge	
Checked By: E. Davis	

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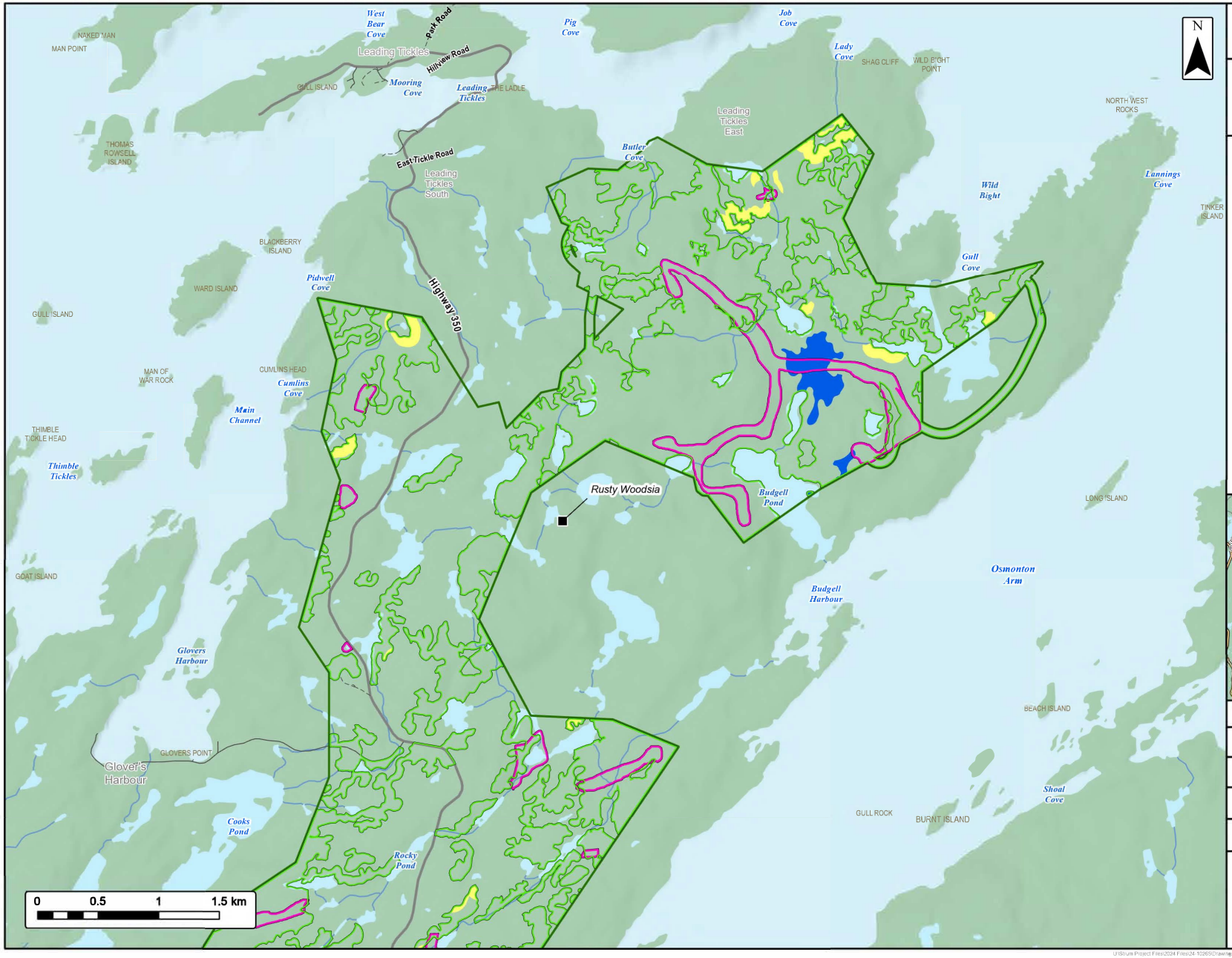


EVREC Green Energy Hub

Leading Tickles Wind Project Area
Flora Desktop Results

EVREC

Project Area

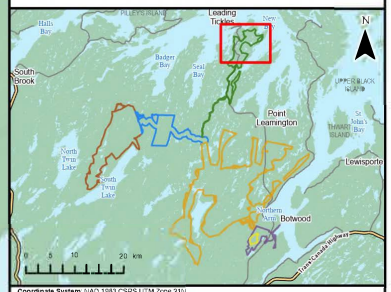
- Leading Tickles Wind Project Area
- ACCDC Point Observations
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: 5E
Drawn By: M. Partridge	
Checked By: E. Davis	

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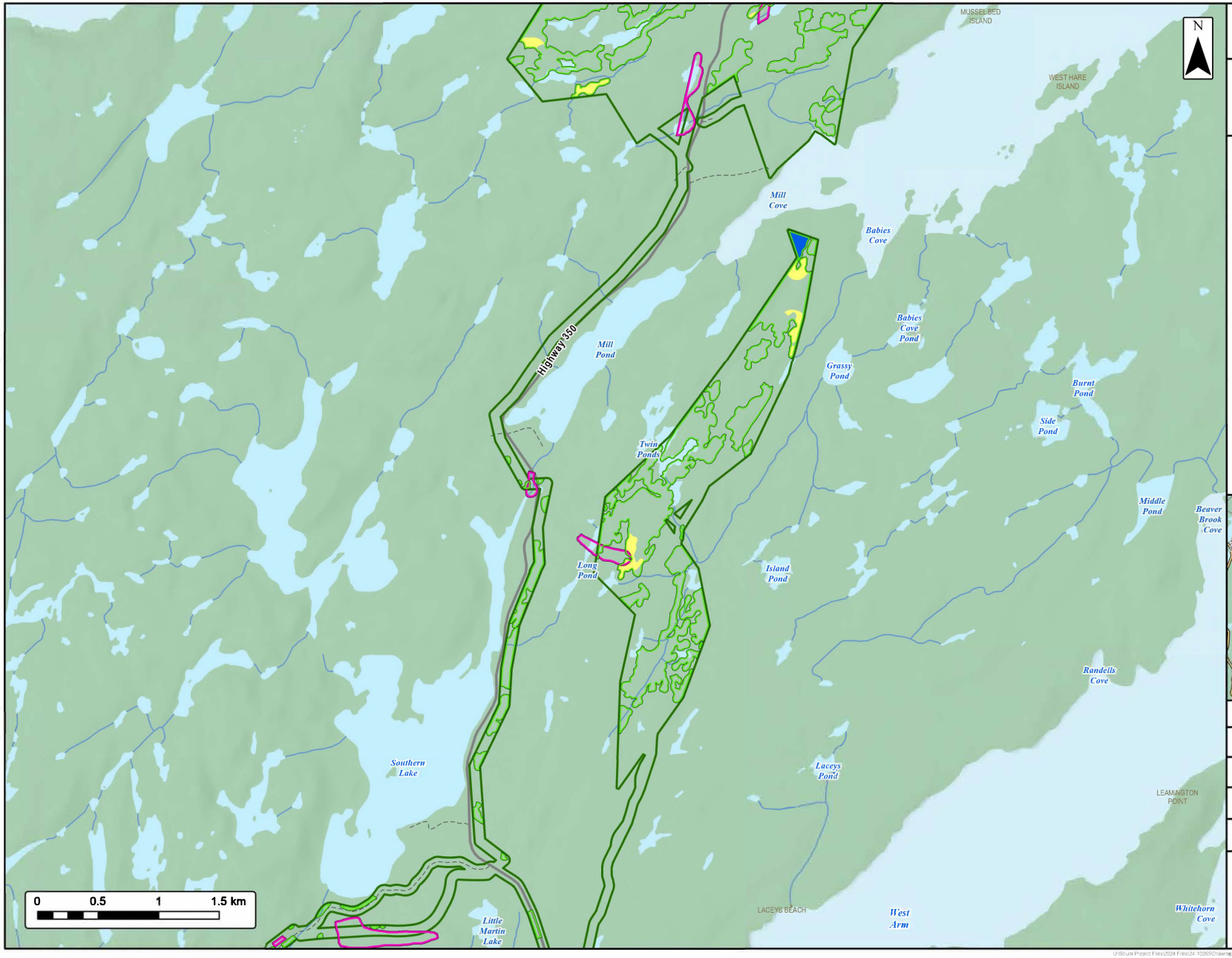


EVREC Green Energy Hub

Leading Tickles Wind Project Area
Flora Desktop Results

EVREC

Project Area

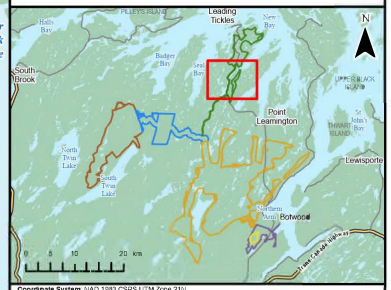
- Leading Tickles Wind Project Area
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, USGS, NGA, USCS, GeoNOVA, SVSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: 5F
Drawn By: M. Partridge	
Checked By: E. Davis	

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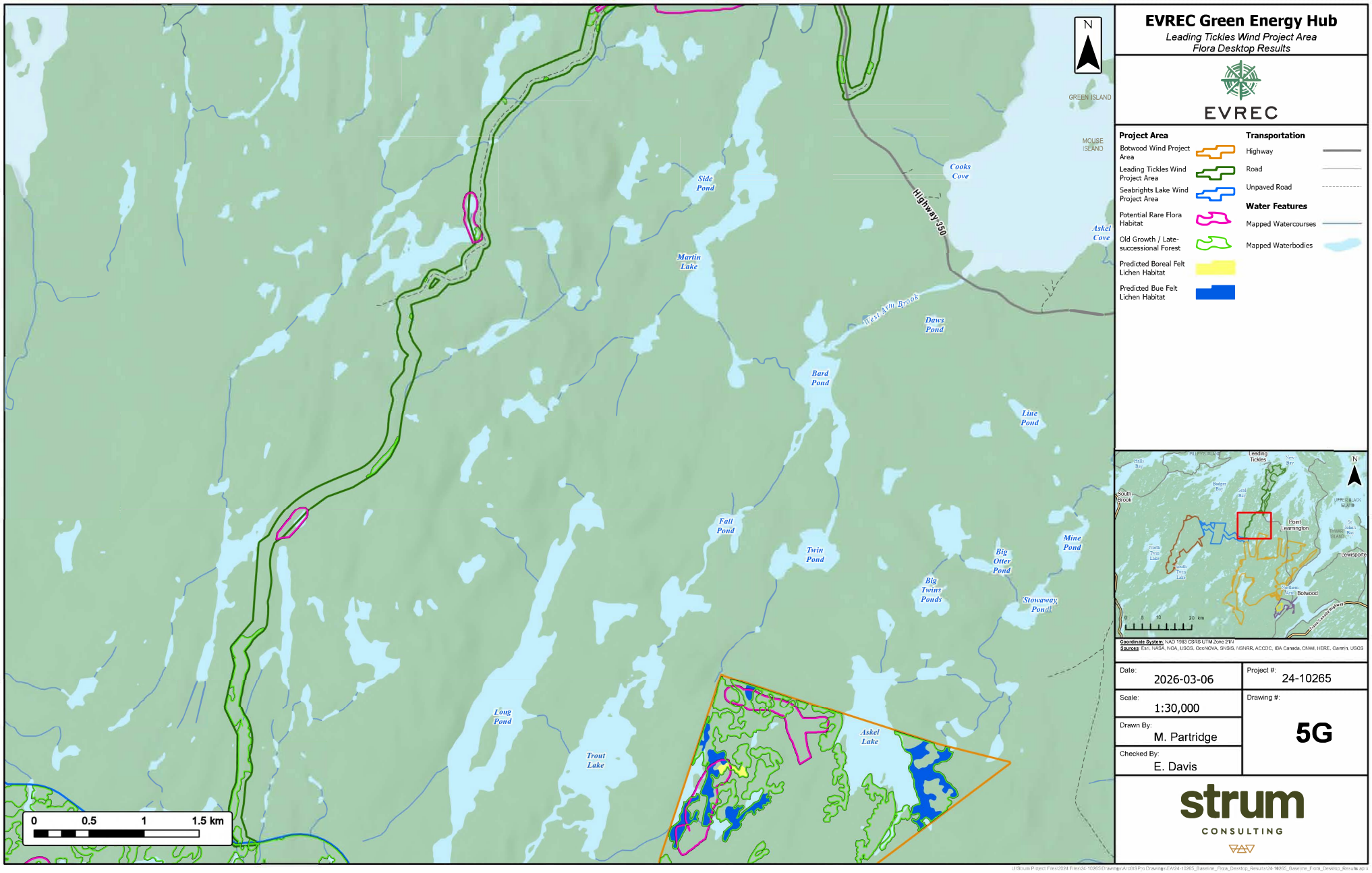

EVREC Green Energy Hub

Leading Tickles Wind Project Area
Flora Desktop Results

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: 5G
Drawn By: M. Partridge	
Checked By: E. Davis	

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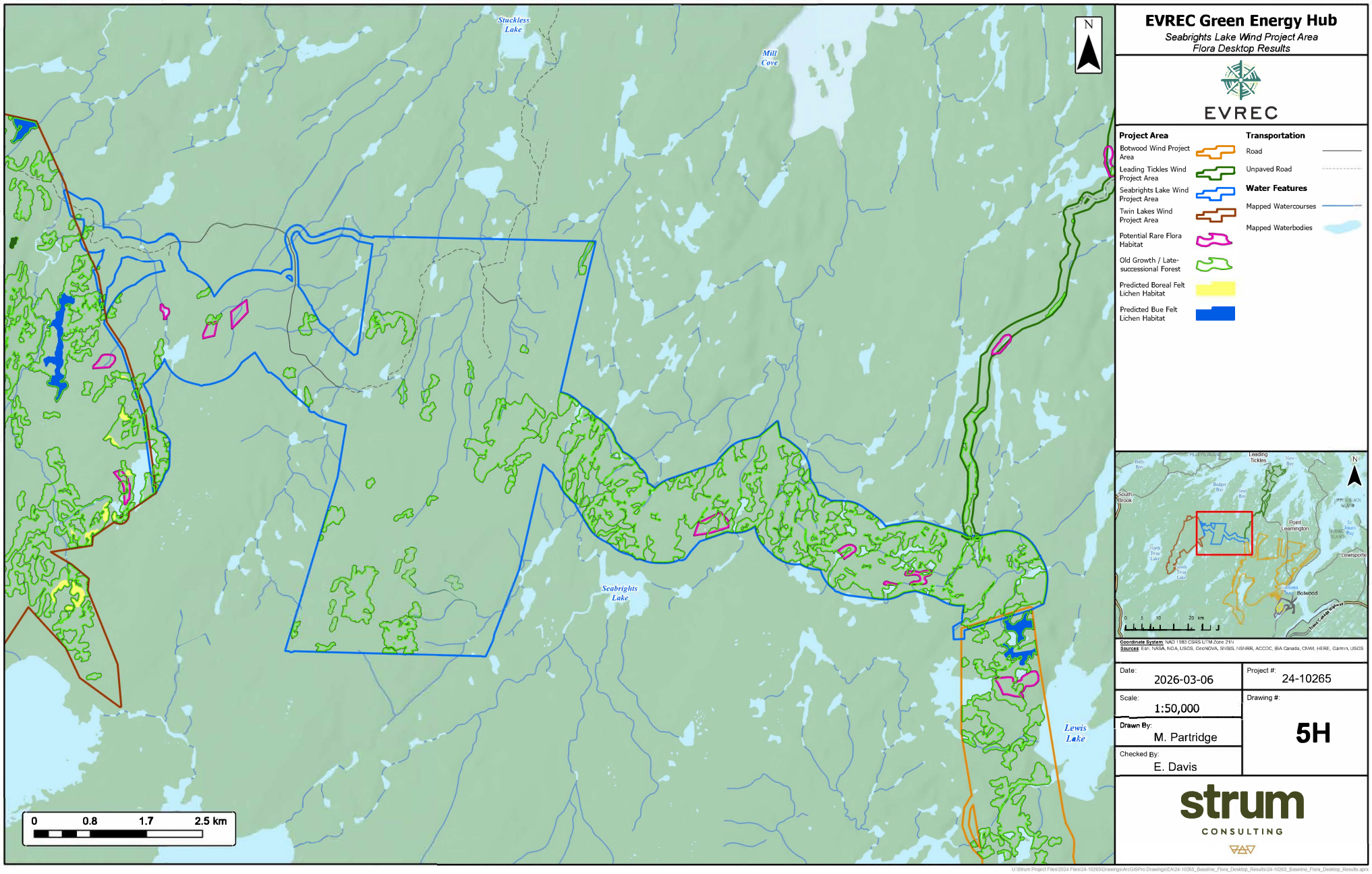

EVREC Green Energy Hub

Seabrights Lake Wind Project Area
Flora Desktop Results

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCOC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: 5H
Drawn By: M. Partridge	
Checked By: E. Davis	

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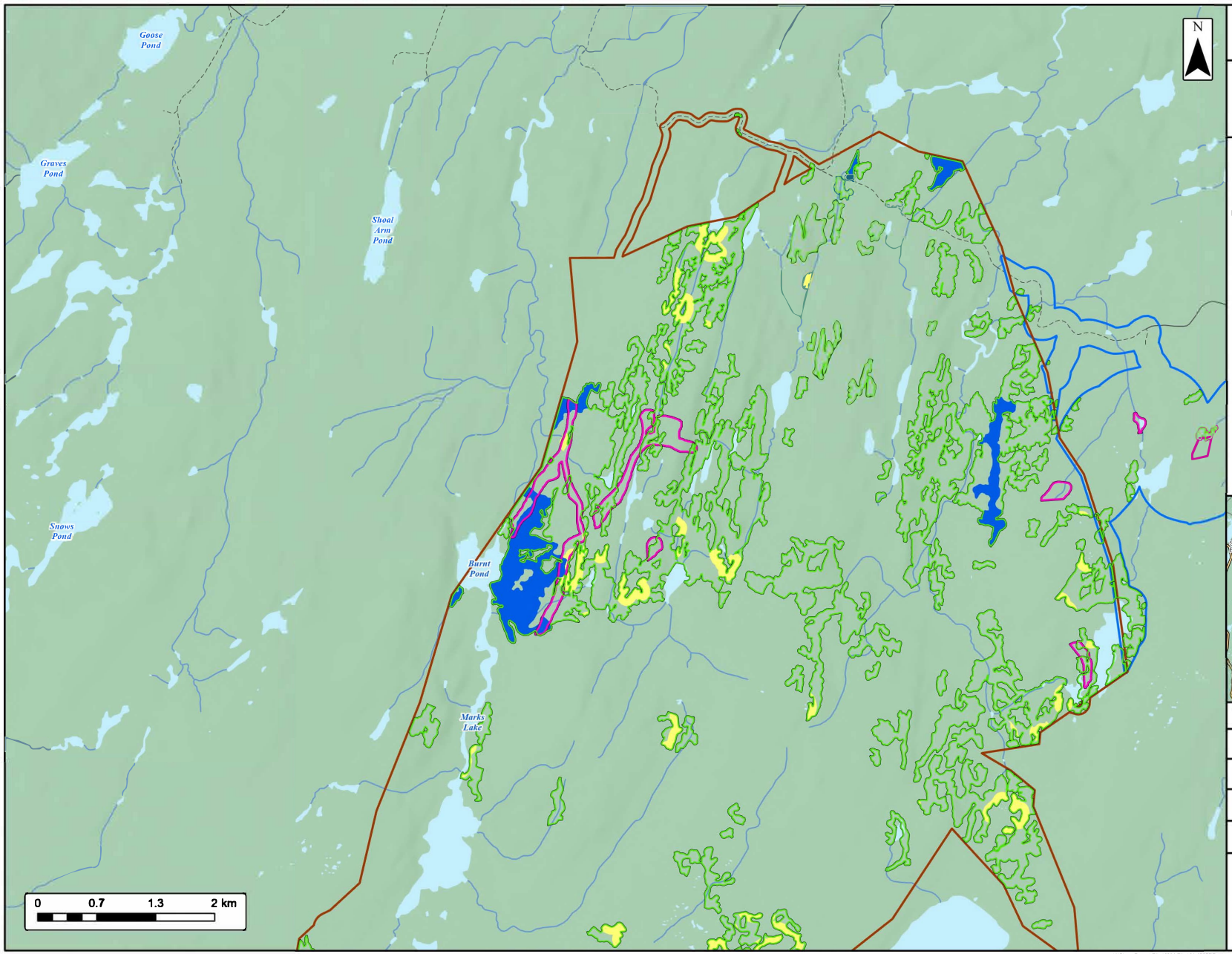


EVREC Green Energy Hub

Twin Lake Wind Project Area
Flora Desktop Results

EVREC

Project Area

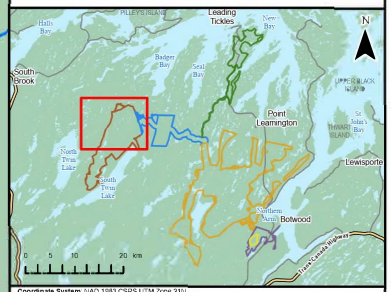
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:40,000	Drawing #: 5I
Drawn By: M. Partridge	
Checked By: E. Davis	

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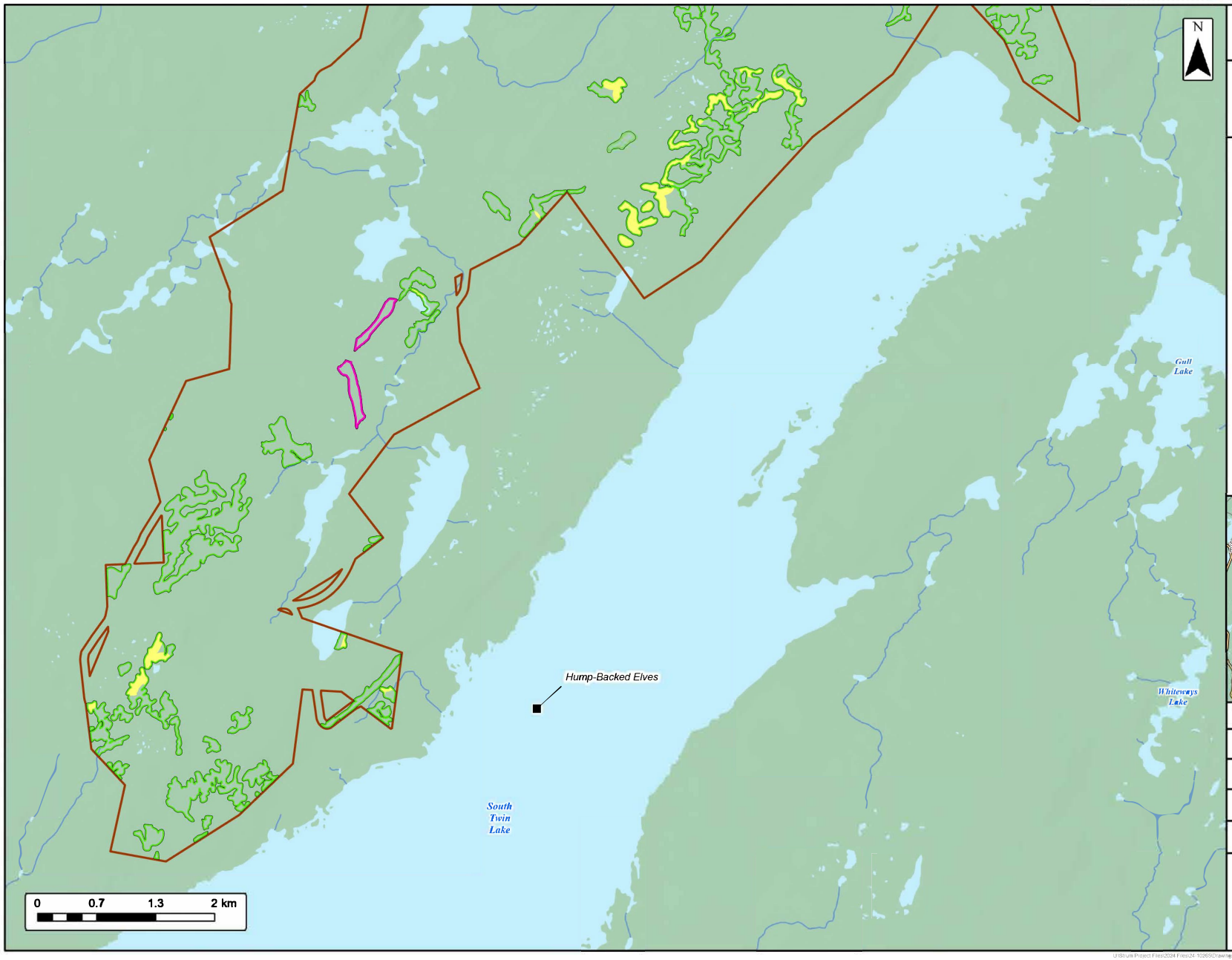


EVREC Green Energy Hub

Twin Lake Wind Project Area
Flora Desktop Results

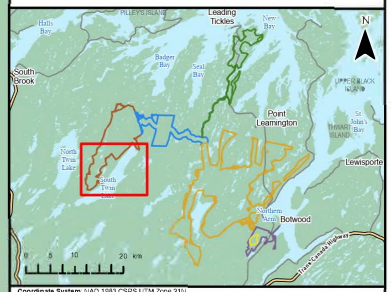
EVREC

Project Area

- Twin Lakes Wind Project Area
- ACCDC Point Observations
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- Predicted Boreal Felt Lichen Habitat

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:40,000	Drawing #: **5J**
Drawn By: M. Partridge	
Checked By: E. Davis	

strum CONSULTING

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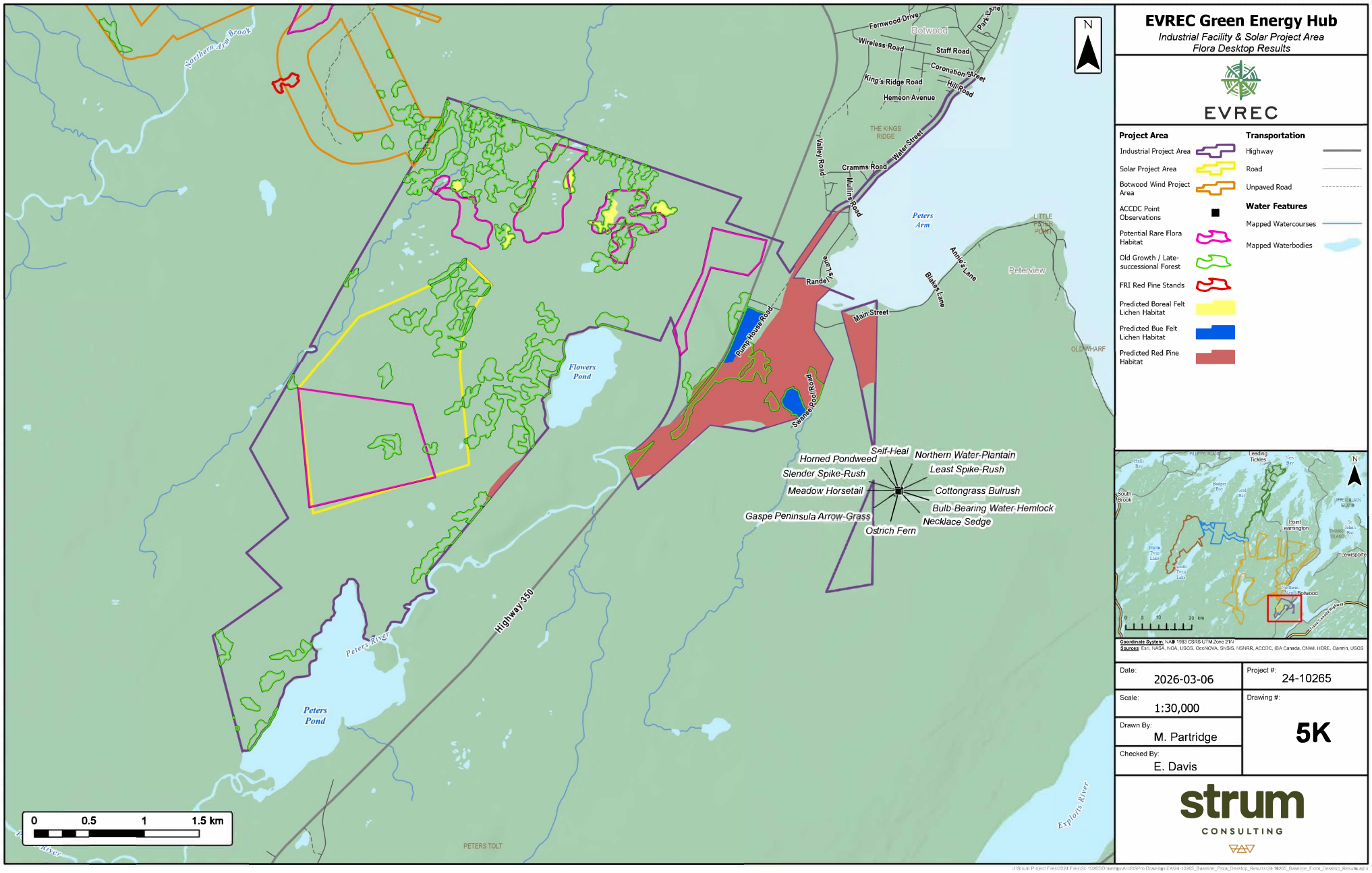

EVREC Green Energy Hub

Industrial Facility & Solar Project Area
Flora Desktop Results

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- ACCDC Point Observations
- Potential Rare Flora Habitat
- Old Growth / Late-successional Forest
- FRI Red Pine Stands
- Predicted Boreal Felt Lichen Habitat
- Predicted Bue Felt Lichen Habitat
- Predicted Red Pine Habitat

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: 5K
Drawn By: M. Partridge	
Checked By: E. Davis	

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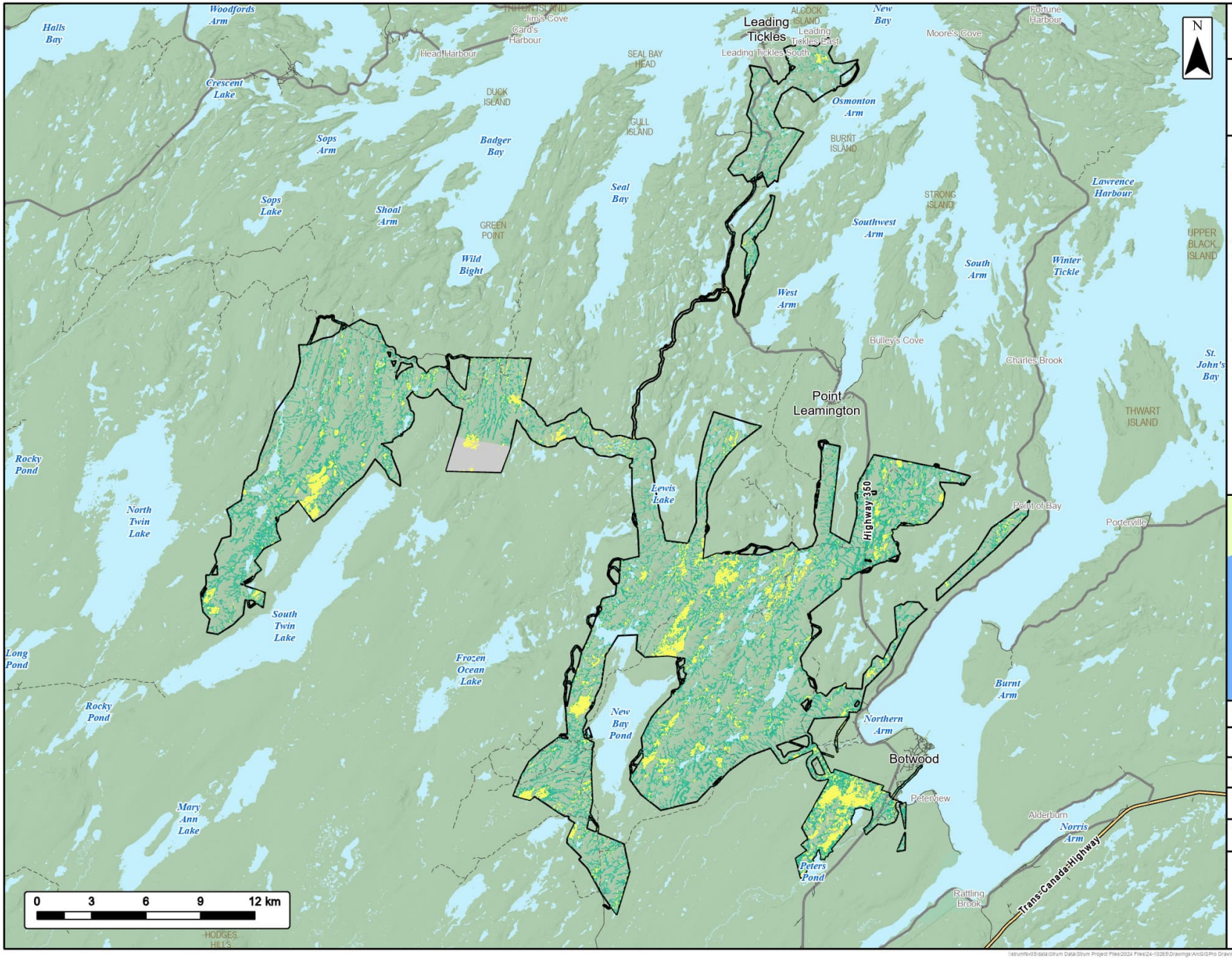

EVREC Green Energy Hub

Desktop Wetland Results

EVREC

- Project Area
- Mapped Wetland (CNWI)
- Modelled Wet Area
- No Data

Transportation

- Trans-Canada Highway
- Highway
- Road
- Unpaved Road

Water Features

- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Source: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-27	Project #: 24-10265
Scale: 1:200,000	Drawing #: 6
Drawn By: E. Johnson	
Checked By: E. Davis	

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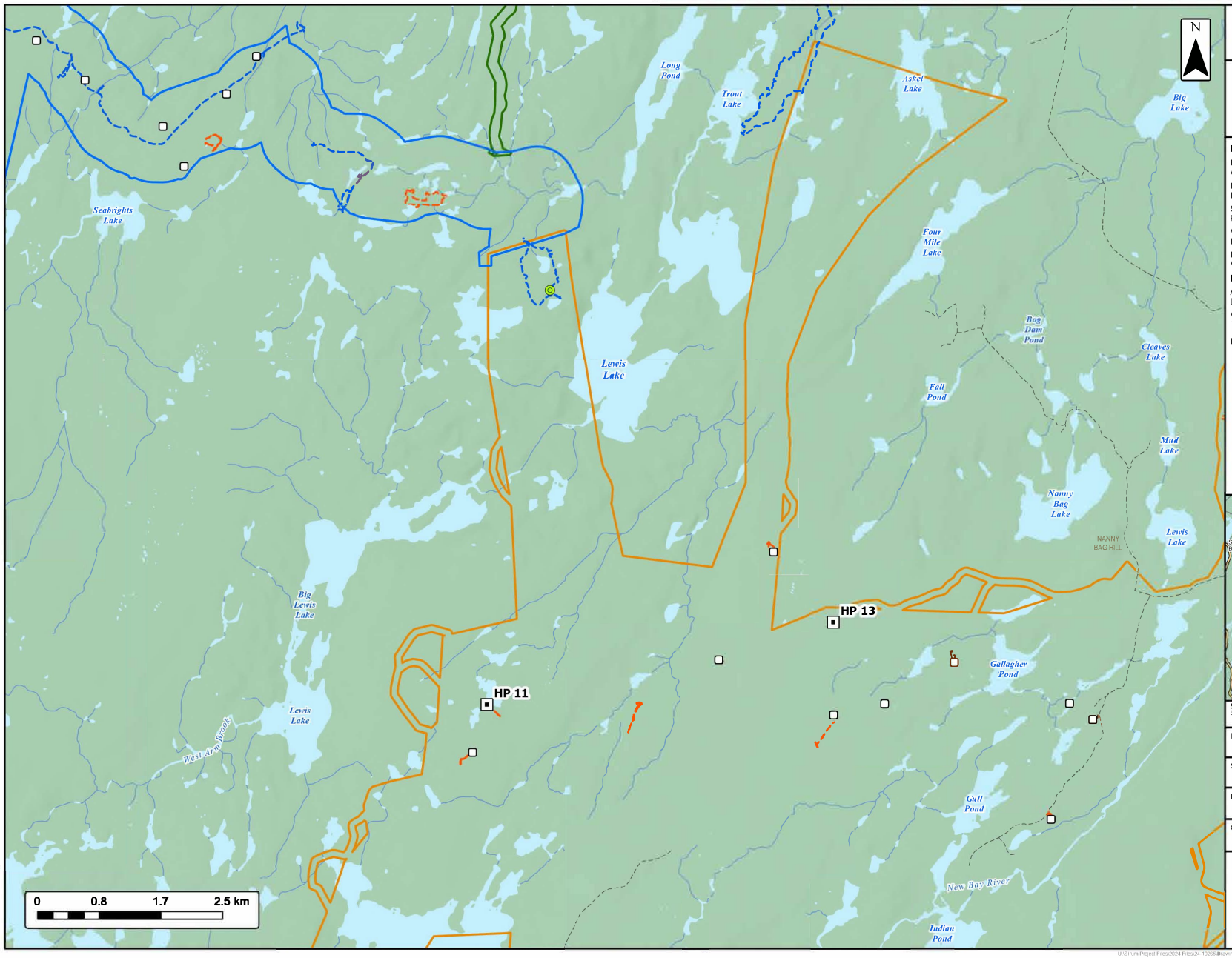


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Field Results

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points

Lichen SAR/SOCC

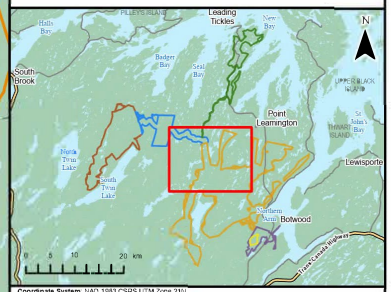
- Acadian jellyskin lichen
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:50,000	Drawing #: 7A
Drawn By: M. Partridge	
Checked By: E. Davis	

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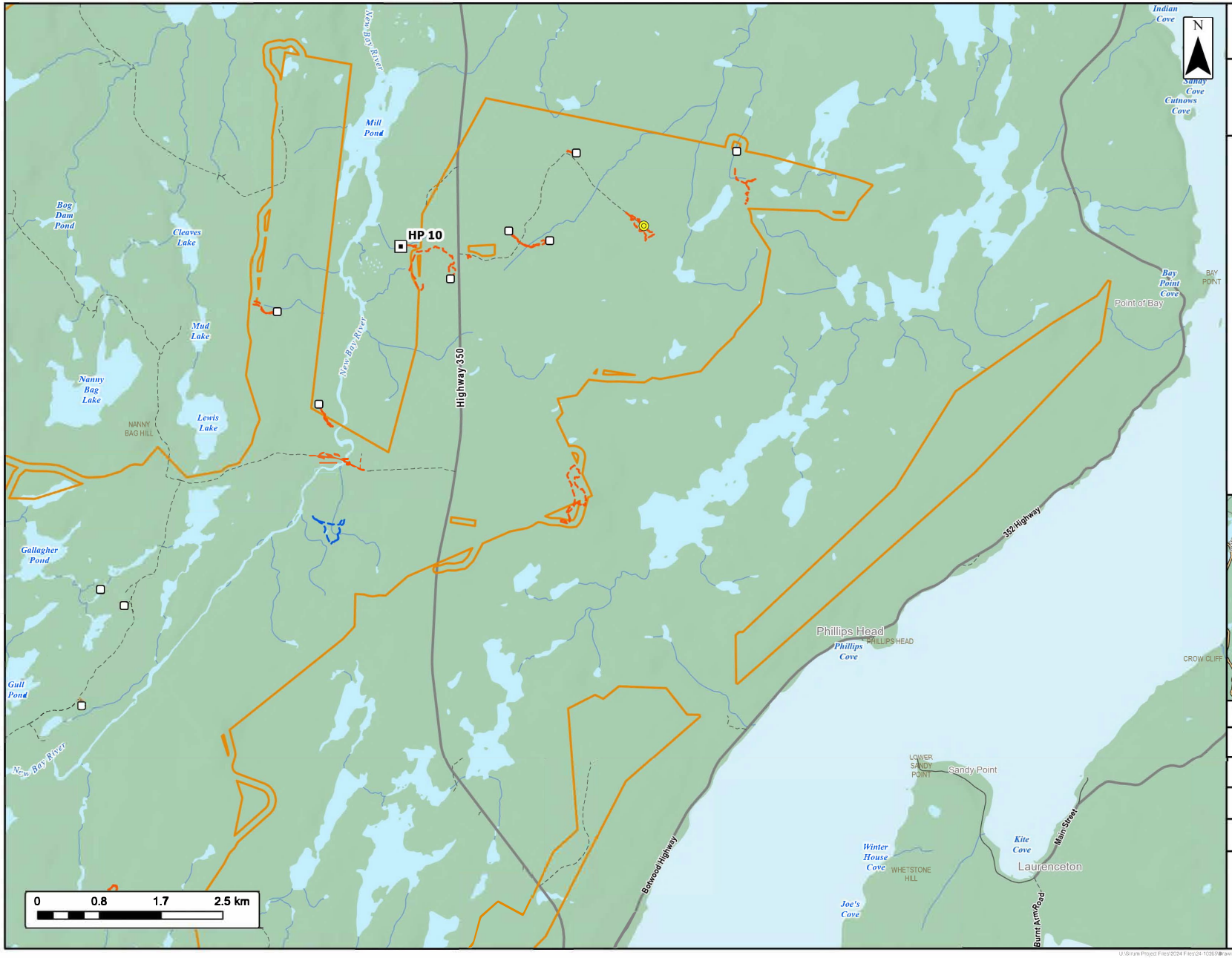


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Field Results

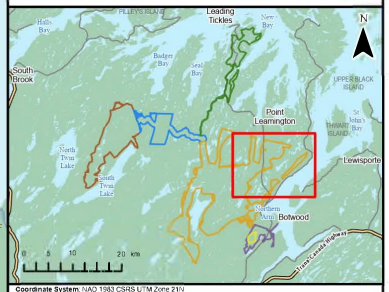
EVREC

Project Area
- Botwood Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points

Vascular Plant SAR/SOCC
- Shinleaf
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Scale: 1:50,000	Drawing #: 7B
Drawn By: M. Partridge	
Checked By: E. Davis	

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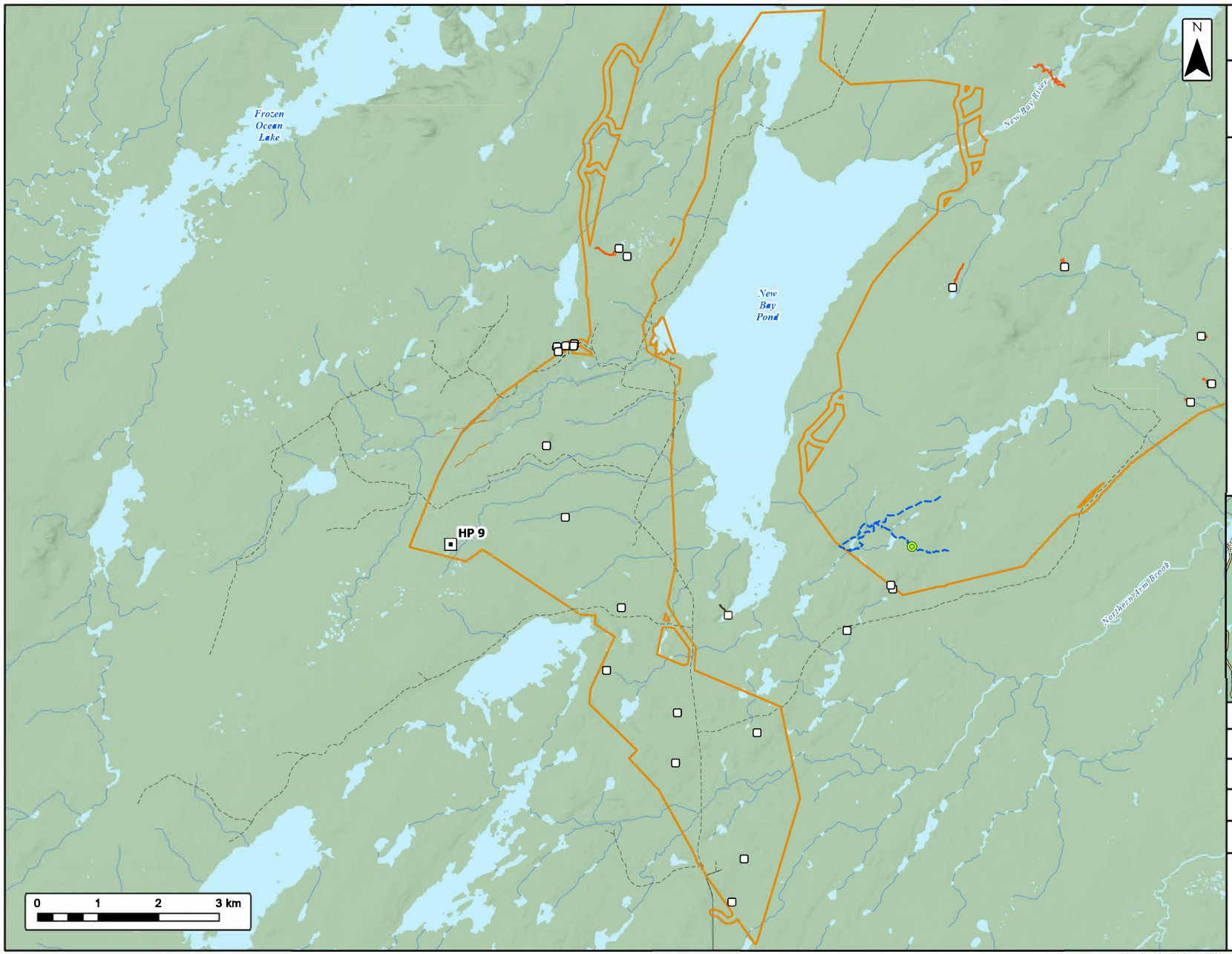


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Field Results

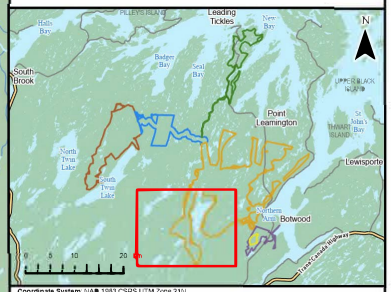
EVREC

Project Area
- Botwood Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points

Lichen SAR/SOCC
- Acadian jellyskin lichen
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Date: 2026-03-06	Project #: 24-10265
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Checked By: E. Davis	

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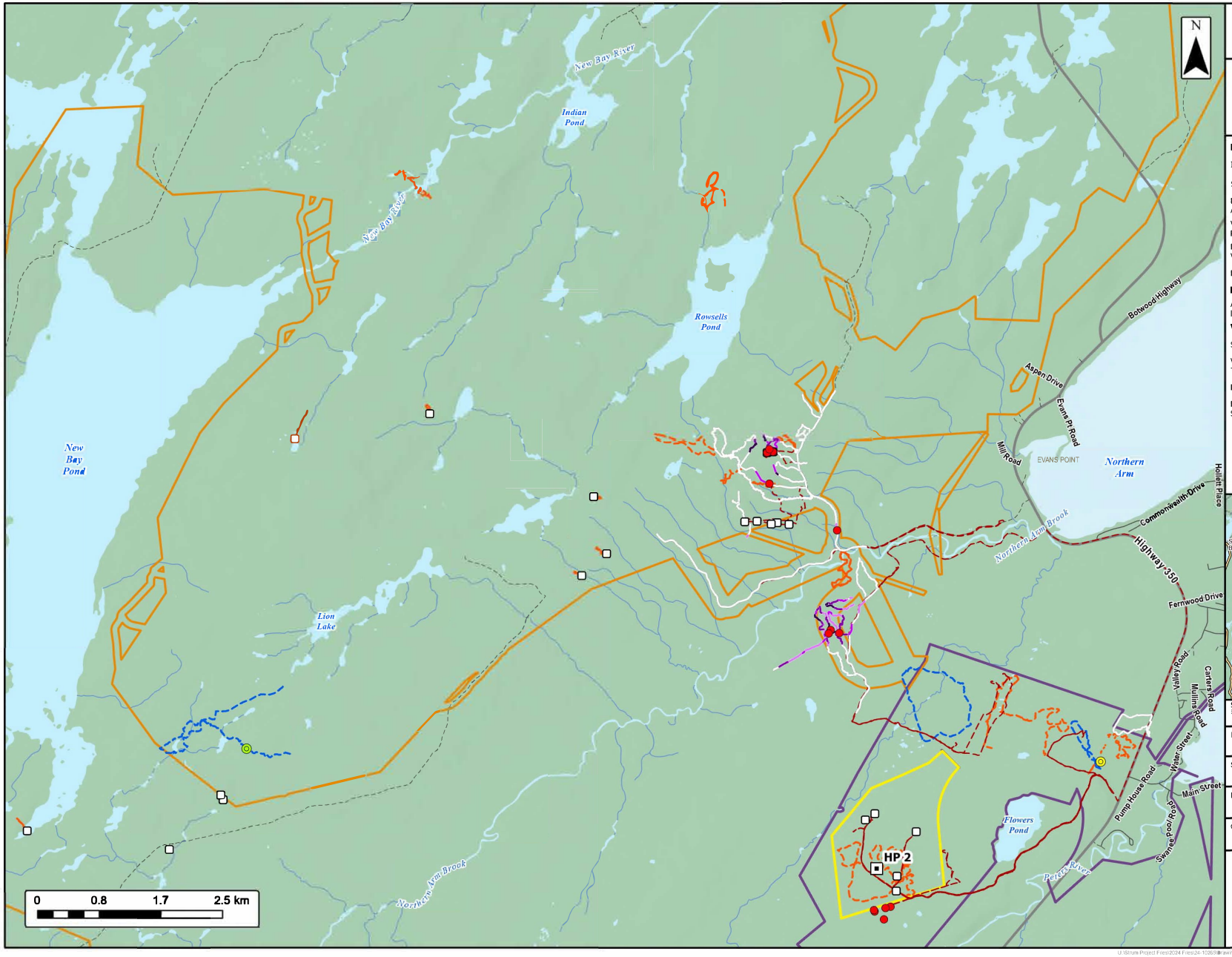


EVREC Green Energy Hub

Botwood Wind Project Area
Flora Field Results

EVREC

Project Area
- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points
- Red Pine Observations

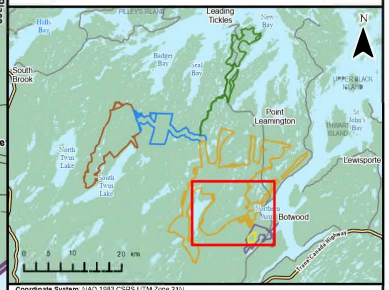
Lichen SAR/SOCC
- Acadian jellyskin lichen

Vascular Plant SAR/SOCC
- Shinleaf
- Vegetation Survey Tracks
- Lichen Survey Tracks
- Red Pine Incidental Survey Tracks

Forest Composition Survey Tracks
- No Red Pine
- 1-25% Red Pine
- 26-50% Red Pine
- 50%-75% Red Pine
- 75%-100% Red Pine

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Checked By: E. Davis	

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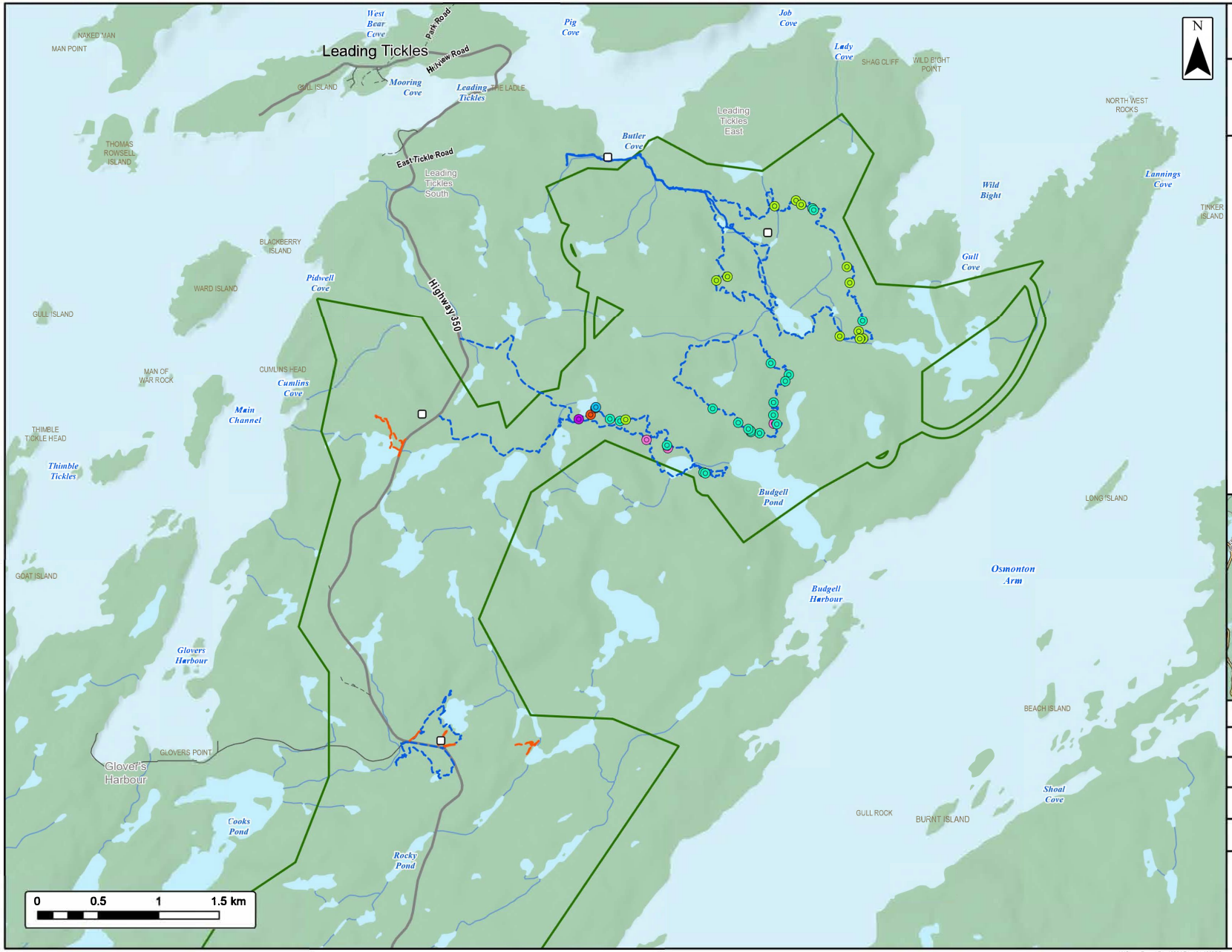


EVREC Green Energy Hub

Leading Tickles Wind Project Area
Flora Field Results

EVREC

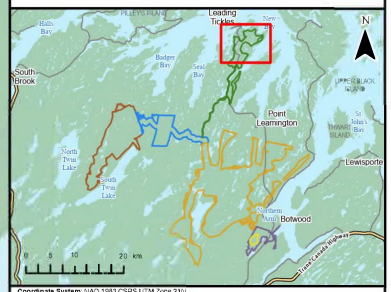
Project Area
- Leading Tickles Wind Project Area
- Vegetation Survey Points

Lichen SAR/SOCC
- Acadian jellyskin lichen
- Blue felt lichen
- Punctured ramalina lichen
- Rock Ramalina lichen

Vascular Plant SAR/SOCC
- Common wintergreen
- Rock polypody
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Date: 2026-03-06	Project #: 24-10265
Scale: 1:30,000	Drawing #: 7E
Drawn By: M. Partridge	
Checked By: E. Davis	

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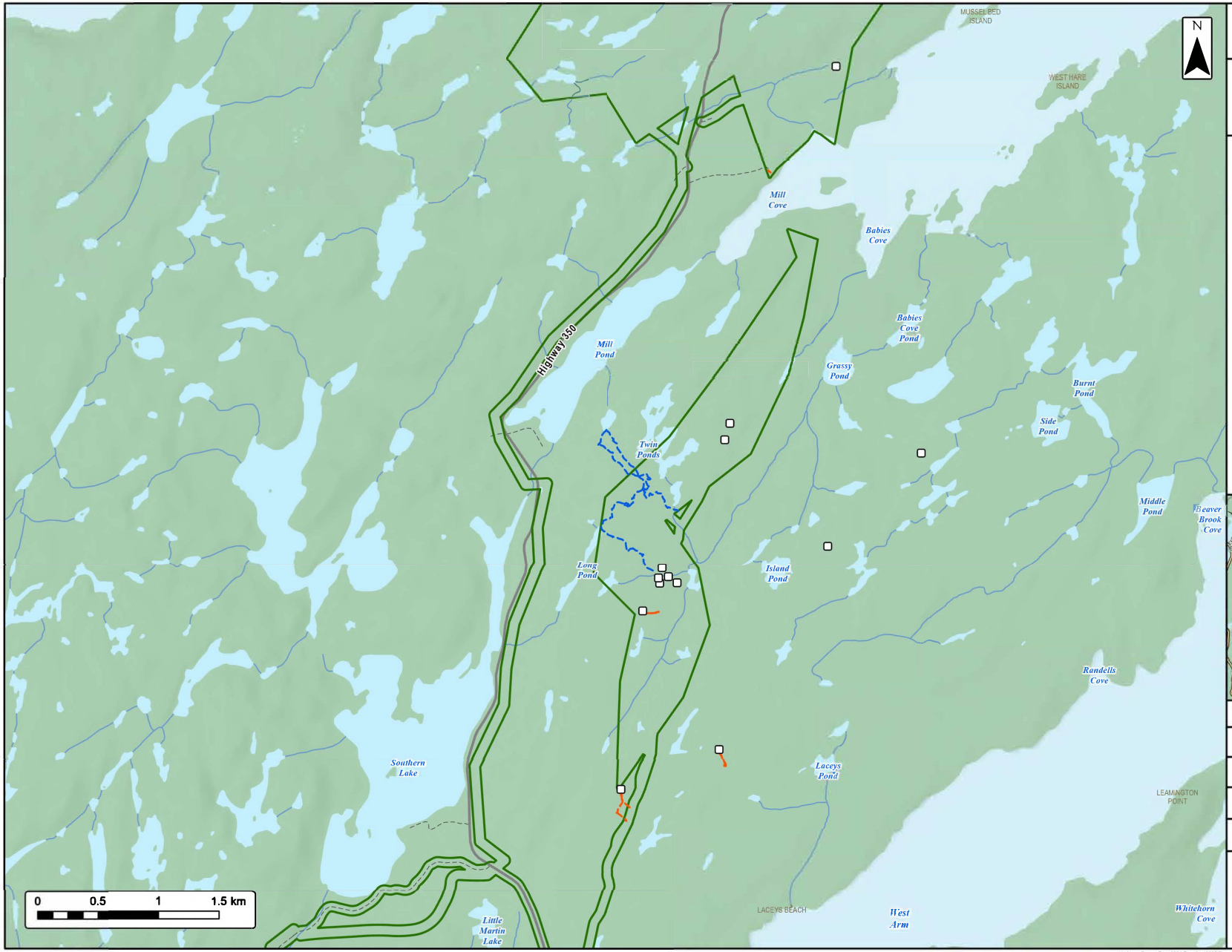


EVREC Green Energy Hub

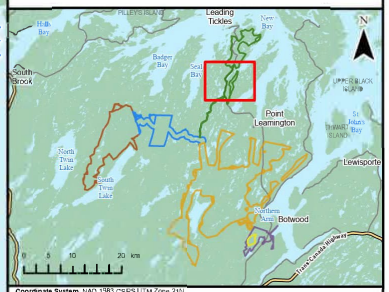
Leading Tickles Wind Project Area
Flora Field Results

EVREC

Project Area
- Leading Tickles Wind Project Area
- Vegetation Survey Points
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation
- Highway
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Checked By: E. Davis	

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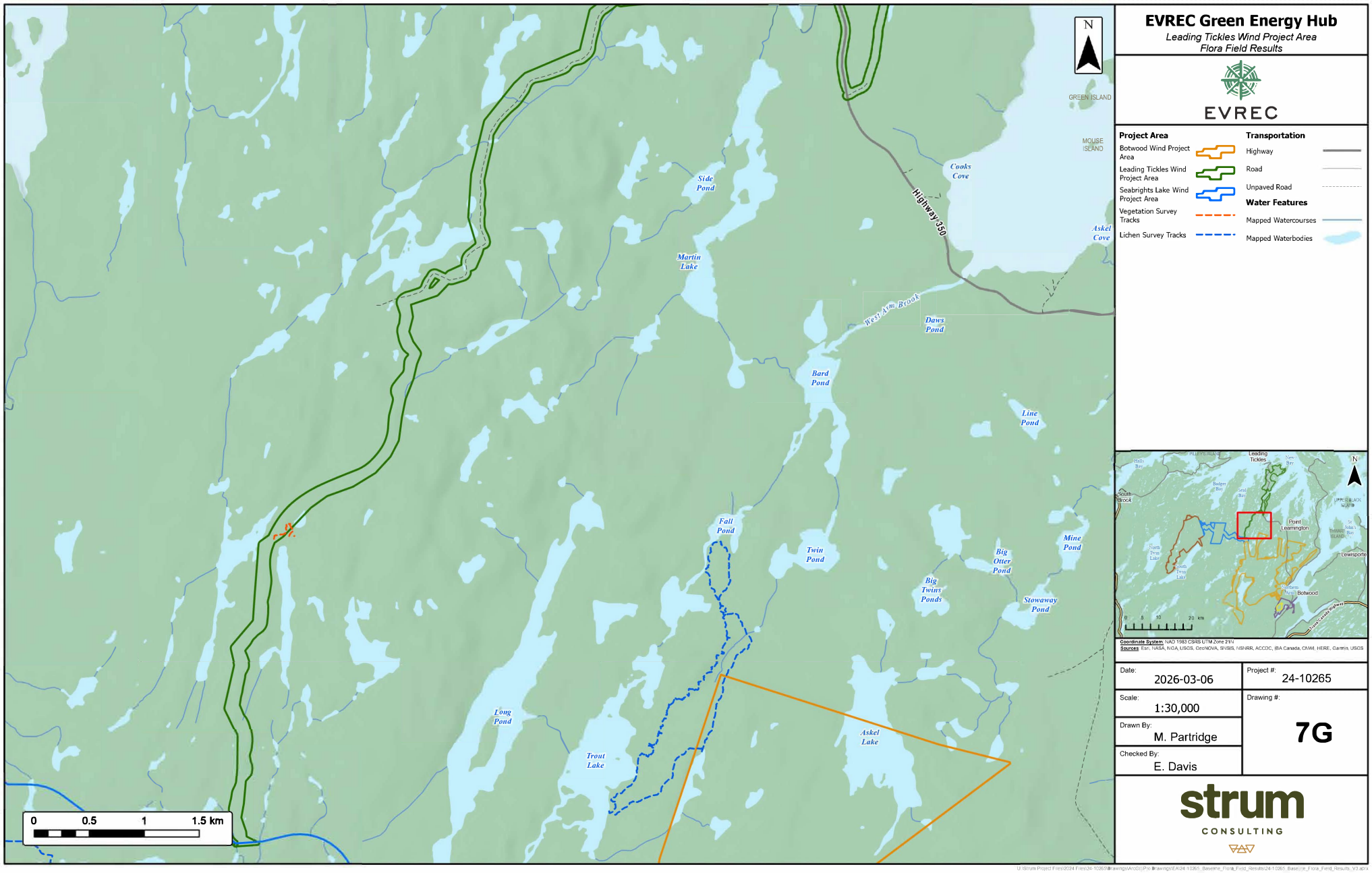

EVREC Green Energy Hub

Leading Tickles Wind Project Area
Flora Field Results

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies

Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
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Drawn By: M. Partridge	
Checked By: E. Davis	

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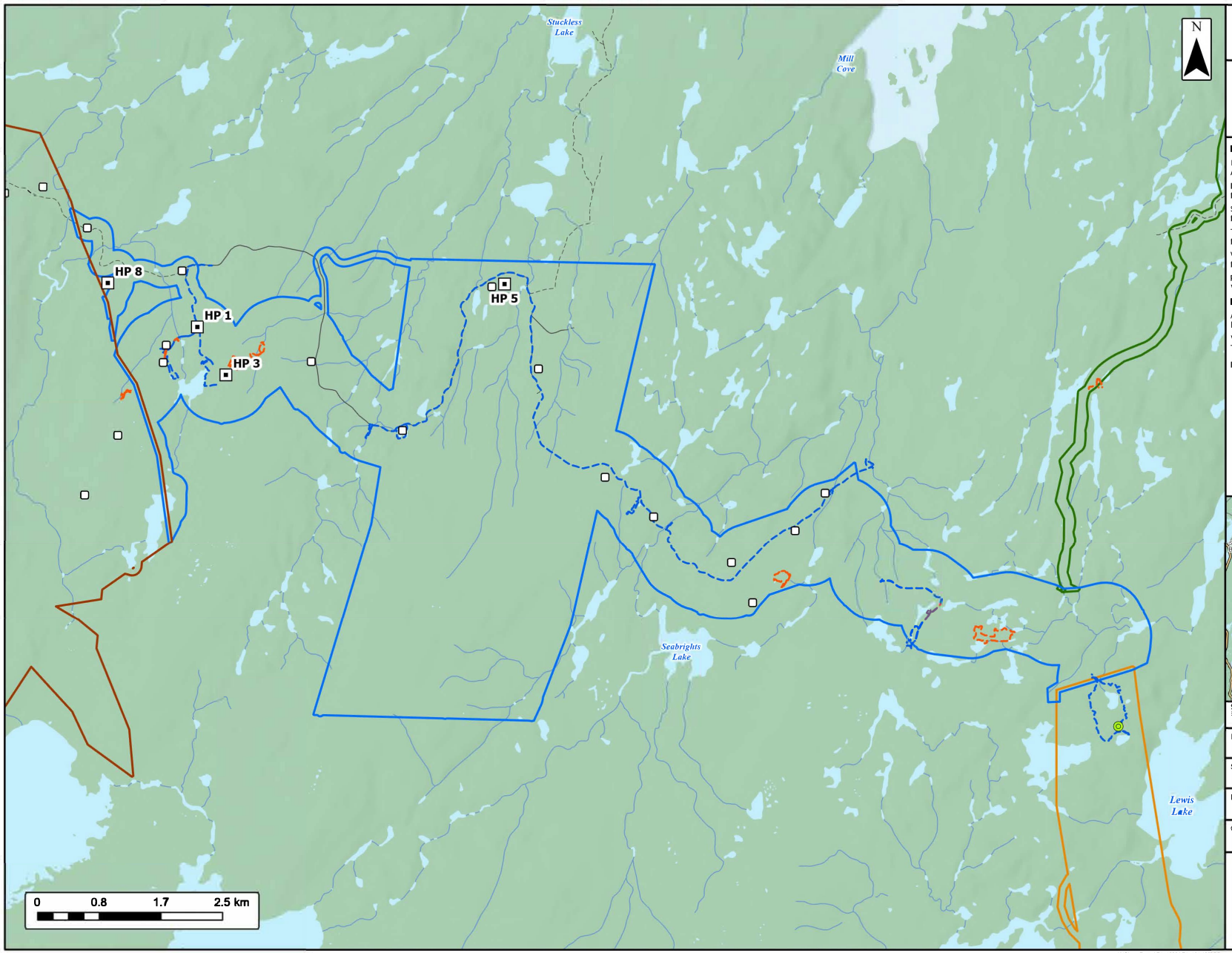


EVREC Green Energy Hub

Seabrights Lake Wind Project Area
Flora Field Results

EVREC

Project Area

- Botwood Wind Project Area
- Leading Tickles Wind Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points

Lichen SAR/SOCC

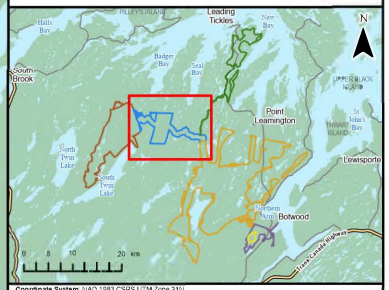
- Acadian jellyskin lichen
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation

- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Checked By: E. Davis	

strum CONSULTING

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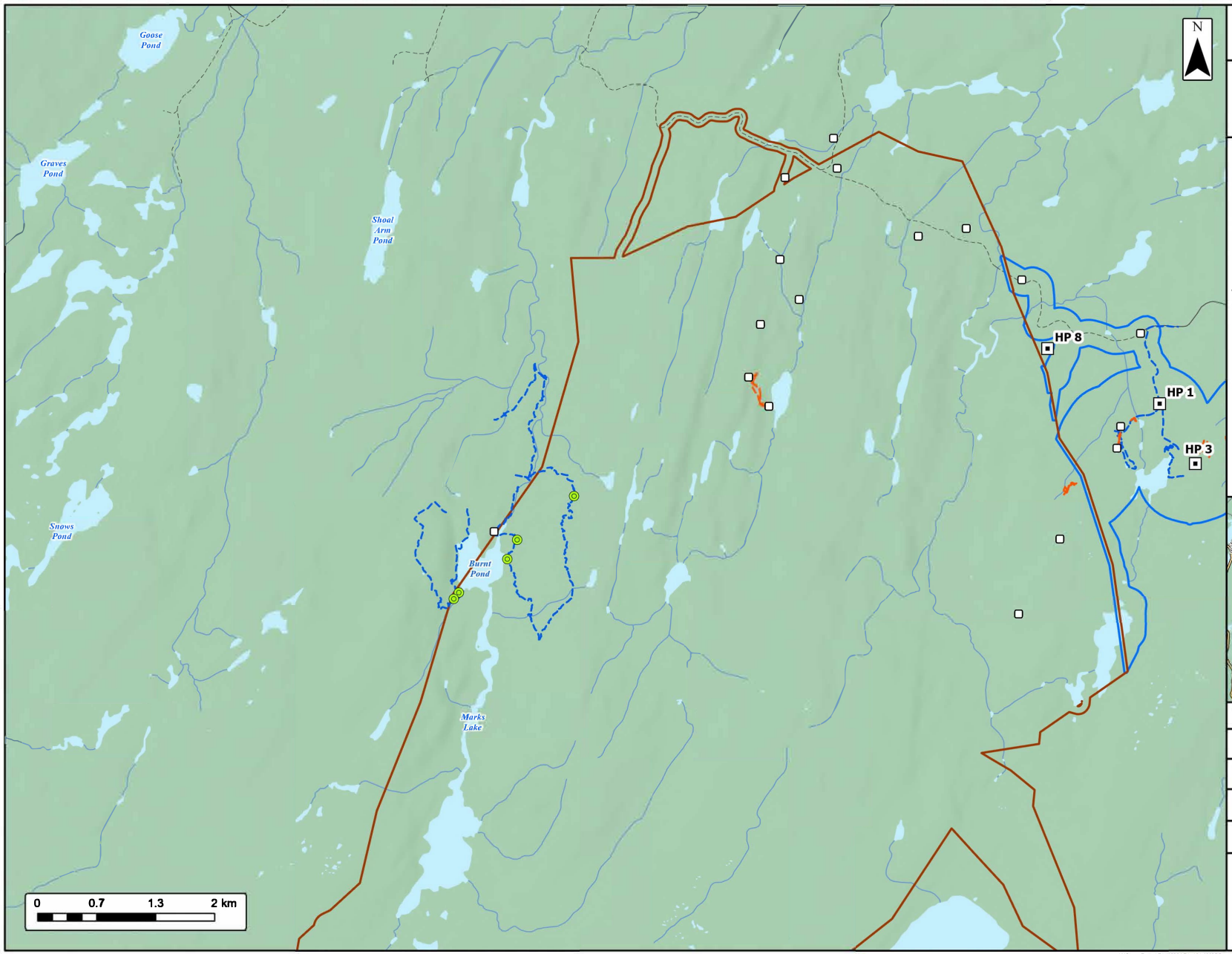


EVREC Green Energy Hub

Twin Lake Wind Project Area
Flora Field Results

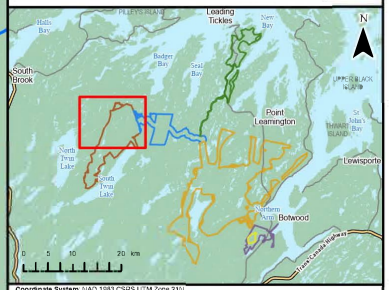
EVREC

Project Area
- Seabrights Lake Wind Project Area
- Twin Lakes Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points

Lichen SAR/SOCC
- Acadian jellyskin lichen
- Vegetation Survey Tracks
- Lichen Survey Tracks

Transportation
- Road
- Unpaved Road

Water Features
- Mapped Watercourses
- Mapped Waterbodies



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Drawn By: M. Partridge	
Checked By: E. Davis	

strum CONSULTING

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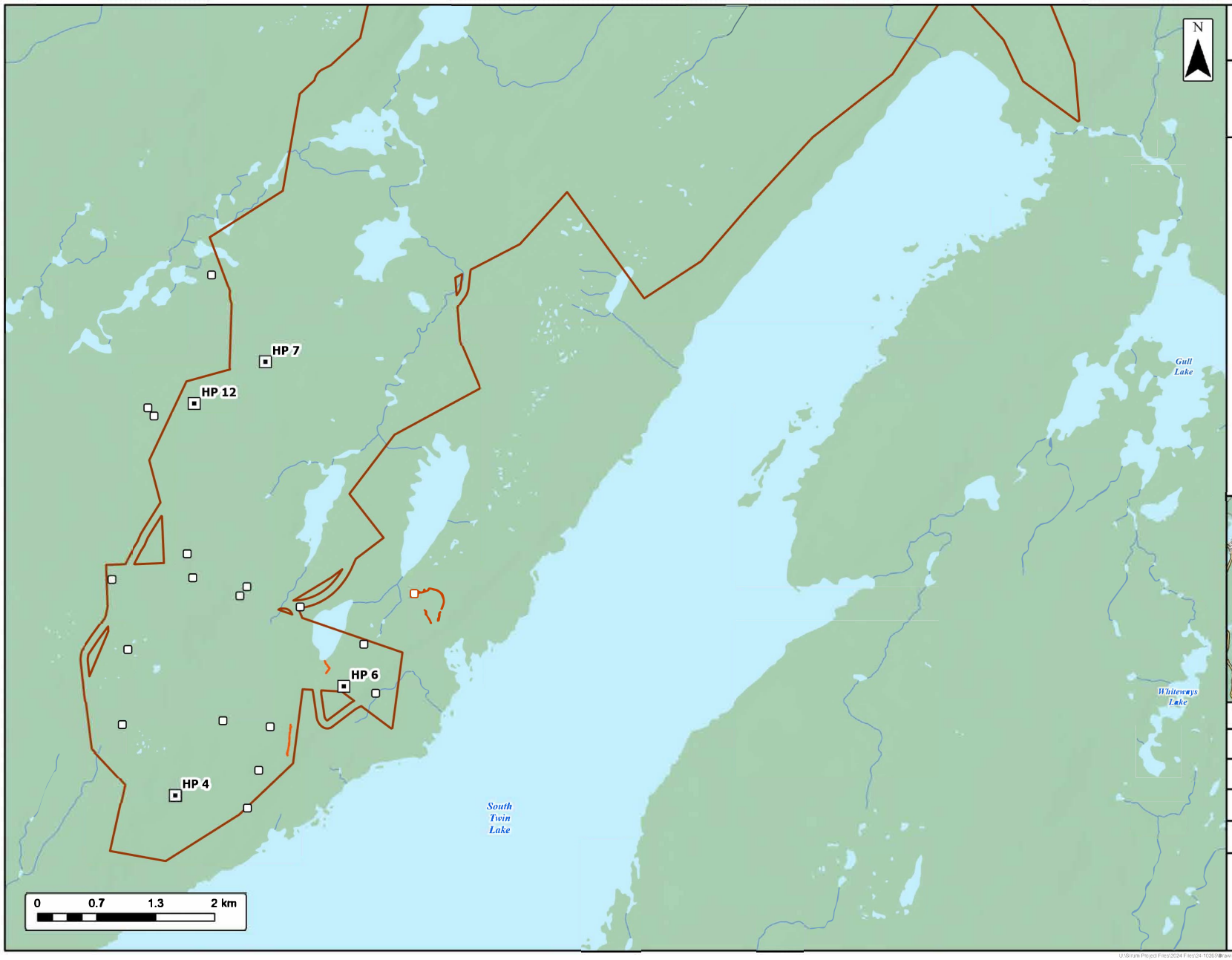


EVREC Green Energy Hub

Twin Lake Wind Project Area
Flora Field Results

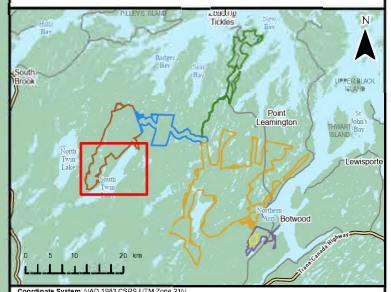
EVREC

Project Area

- Twin Lakes Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points
- Vegetation Survey Tracks

Water Features

- Mapped Watercourses
- Mapped Waterbodies



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Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
Scale: 1:40,000	Drawing #: **7J**
Drawn By: M. Partridge	
Checked By: E. Davis	

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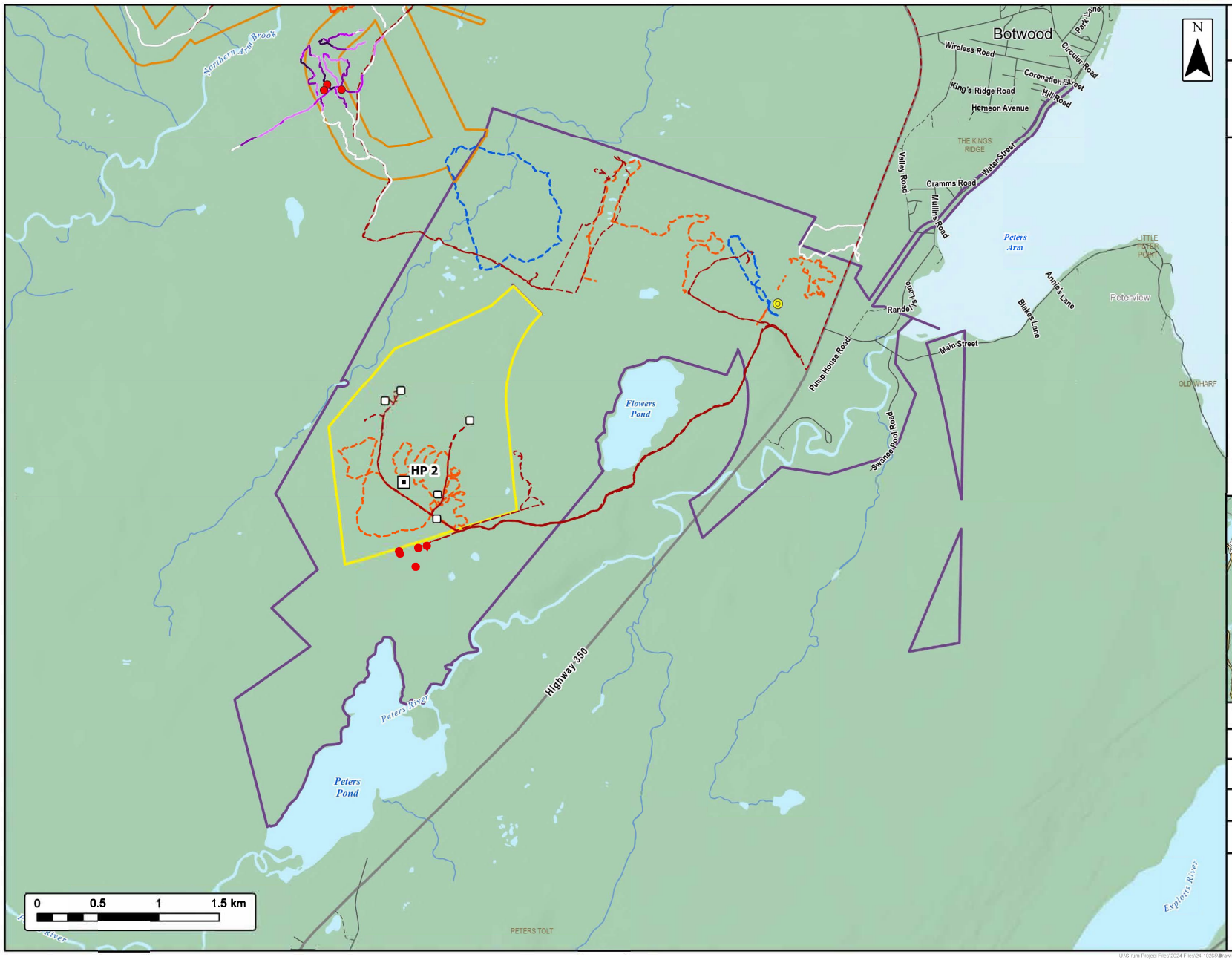


EVREC Green Energy Hub

Industrial Facility & Solar Project Area
Flora Field Results

EVREC

Project Area

- Industrial Project Area
- Solar Project Area
- Botwood Wind Project Area
- Vegetation Survey Points
- Representative Vegetation Points
- Red Pine Observations

Vascular Plant SAR/SOCC

- Shinleaf

- Vegetation Survey Tracks
- Lichen Survey Tracks
- Red Pine Incidental Survey Tracks

Forest Composition Survey Tracks

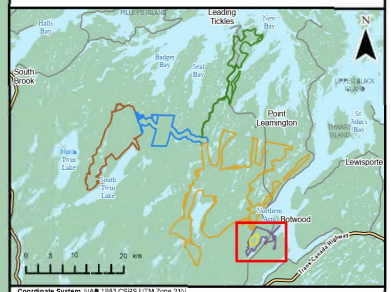
- No Red Pine
- 1-25% Red Pine
- 26-50% Red Pine
- 50%-75% Red Pine
- 75%-100% Red Pine

Transportation

- Highway
- Road
- Unpaved Road

Water Features

- Mapped Watercourses
- Mapped Waterbodies



Coordinate System: NAD 1983 CSRS UTM Zone 21N
Sources: Esri, NASA, NGA, USGS, GeoNOVA, SNSIS, NSNRR, ACCOC, IBA Canada, CNWI, HERE, Garmin, USGS

Date: 2026-03-06	Project #: 24-10265
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Checked By: E. Davis	

strum CONSULTING

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APPENDIX B
ELC METHODOLOGY

Ecological Land Classification Methodology

A detailed Ecological Land Classification (ELC) was developed to support baseline desktop and field assessments for the Environmental Impact Statement of the Exploits Valley Renewable Energy Corporation (EVREC) Green Energy Hub near Botwood in Central Newfoundland. The ELC provides a detailed assessment of the land cover types present in the Project Area, a 35,833 hectare (ha) area consisting of four Wind Project Areas, a Solar Project Area, and Industrial Project Area. The model was developed using remote sensing and machine learning techniques. This approach was chosen because it produces accurate results using aerial imagery, airborne LiDAR data, and land cover data.

High-resolution (30-cm) airborne LiDAR data were collected within the Project Area in December 2023 and August 2024. Data were collected for 35,303 ha, or 99%, of the Project Area. These data were combined with aerial orthophoto mosaics acquired from Newfoundland and Labrador Forestry, Agriculture and Lands (NLFAL) using predictive modelling. Predictive modelling techniques were used to aggregate the collected data and feed the resulting product into a supervised modelling process. The supervised modelling assigns each pixel within an aerial image a class category. Various classes were chosen that were representative of each Project Area and ecoregion, summarized into ten classes (Table 1).

Table 1: Class Categories used in Supervised Modelling

Class Categories	
Coniferous	Water
Deciduous	“Shiny” Water
Bog	Shrub
Wetland	Road
Flark	Barren

Training data for each class category was created for each part of the provided images where spectral differences were apparent. Difference in the spectral quality of imagery used for the ELC was due to the time range over which aerial imagery was collected (2011-2021), and many spectral conditions discussed further in the Limitations Section. In total, nine areas were subdivided from the original imagery for Botwood, one for Leading Tickles, four for Seabrights Lake, and three for Twin Lakes. Each subdivided image was processed individually through the supervised modeling process. The resulting data were then passed into a machine learning classifier, to generate the definition file for classifying each subdivided area.

The Support Vector Machine Classifier tool withing ArcGIS Pro was chosen for the predictive modelling process because it offers advantages for training data that does not display normal distribution, it is less susceptible to noise in imagery, and each class does not need to contain the same number of training samples (ESRI, 2024). It also allows for additional inputs to be considered when training the classifier, such as LiDAR derived products (e.g., digital surface model, canopy height model, and tree classification deep learning model). Optionally, additional high-resolution imagery can be added as well as a composite dataset or as a standalone dataset.

Additional subdivision of classes based on the LiDAR derived data products occurred after the image classification was complete. The ELC model was enhanced by using a canopy height-based raster datasets to group forest criteria based on height and a depth-to-water product which allowed for interpretation of wet areas, drainage, and upland areas.

To alleviate noise and misclassifications of the imagery a geoprocessing model was developed to enhance accuracy and accommodate the limitations of the input data. The model first applied a majority filter, which processes the raster by replacing each pixel's value with the most common value in its surrounding neighborhood. This spatial filtering technique helps to reduce noise and smooth out the raster, improving the overall quality of the data. Next, the raster was resampled to a 3 m resolution, adjusting the pixel size to allow for some generalization and faster computing while maintaining detail through interpolation techniques.

Following resampling, the Region Group tool was applied to the raster. This tool groups connected pixels that share the same classification value, identifying distinct regions or clusters of contiguous pixels. Once the regions are defined, the extract by attributes tool was used to filter out unwanted regions or misclassified areas based on specific attributes. This step ensures that the majority of classifications are valid, and properly classified regions remain in the raster, refining the dataset. The Nibble tool was used to fill in any gaps or voids that may have been created during the previous steps, such as areas removed due to misclassification. The Nibble tool works by replacing pixel areas with no data with values from neighboring pixels, ensuring continuity and a more seamless raster output. The result of this process is a cleaned, refined, and continuous raster dataset, with limited misclassifications, enhanced accuracy, and a spatial resolution suited for more efficient analysis.

Limitations

As with all remote sensing data products, it is important to understand the limitations on which the model was built, and the way that the imagery was interpreted. The main source of potential error is associated with the aerial imagery used for the classification. There were many occurrences of blurriness, haziness, off nadir image capture (i.e., significant leaning of elevated features such as trees), and various lighting conditions which affected the ability of the Machine Learning Classifier to model the study areas. For instance, part of the image could have contained defined pixel values for a dark green softwood stand, but elsewhere this defined pixel value could have corresponded to a hardwood stand, or shrubs along a watercourse, etc. This created confusion in the model, thus resulting in misclassification. Nevertheless, the majority of this misclassification was addressed with various LiDAR inputs to the Support Vector Machine Classifier; however, misclassification still occurred where imagery was the poorest.

References

ESRI. (2024). *Train Support Vector Machine Classifier (Image Analyst)-ArcGIS Pro*. Retrieved from https://pro.arcgis.com/en/pro-app/latest/tool-reference/image-analyst/train-support-vector-machine-classifier.htm

APPENDIX C
ACCDC DATA REPORTS

GNAME	GCOMNAME	OBSERVER	MONTH	DAY	YEAR	Verification
Pinus resinosa	Red Pine	Bruce Roberts; digitized by			0	
Carex foenea	Dry-Spike Sedge	Fernald; Wiegand; Darling			0	
Persicaria amphibia	water smartweed	Fernald; Wiegand; Darling	8		1911	
Astragalus alpinus var. brunetianus	Alpine Milk-Vetch	Fernald, M.L., K.M. Wiega	7	28	1911	v
Eleocharis quinqueflora	Few-Flower Spikerush	Fernald, M.L., K.M. Wiega	7	28	1911	v
Crataegus macrosperma	Big-Fruit Hawthorn	Fernald, M.L., K.M. Wiega	7	28	1911	v
Astragalus eucosmus	Pretty Milk-Vetch	Fernald, M.L., K.M. Wiega	7	28	1911	v
Cornus alternifolia	Alternate-Leaf Dogwood	Fernald, M.L., K.M. Wiega	7		1911	v
Carex houghtoniana	A Sedge	Fernald, M.L., K.M. Wiega	7		1911	v
Ranunculus macounii	Macoun Buttercup	Fernald, M.L., K.M. Wiega	7	28	1911	v
Crataegus chrysocarpa var. chrysocarpa	Fineberry Hawthorne	Fernald, M.L., K.M. Wiega	7	28	1911	v
Carex pseudocyperus	Cyperus-Like Sedge	Fernald, M.L., K.M. Wiega	7		1911	v
Ranunculus pensylvanicus	Bristly Crowfoot	Fernald, M.L., K.M. Wiega	7	28	1911	v
Graphephorum melicoides	Purple False Oats	Fernald, M.L., K.M. Wiega	7	28	1911	v
Spartina pectinata	Fresh Water Cordgrass	Fernald; Wiegand; Darling	7	28	1911	
Carex conoidea	Field Sedge	Fernald, M.L., K.M. Wiega	7	28	1911	v
Carex adusta	Crowded Sedge	Fernald; Wiegand; Darling	7		1911	
Carex cryptolepis	Northeastern Sedge	Fernald, M.L., K.M. Wiega	7		1911	v
Carex houghtoniana	A Sedge	Bouchard, A., S. Hay, L. B	7	21	1988	v
Carex adusta	Crowded Sedge	Bouchard, A., S. Hay, L. B	7	21	1988	v
Spartina pectinata	Fresh Water Cordgrass	Bouchard, A., S. Hay, L. B	7	21	1988	v
Carex conoidea	Field Sedge	Bouchard, A., S. Hay, L. B	7	21	1988	v
Najas flexilis	Bushy Naiad	Bouchard, A., S. Hay, L. B	7	23	1988	v
Potamogeton spirillus	Spiral Pondweed	Bouchard, A., S. Hay, L. B	7	23	1988	v
Juncus militaris	Bayonet Rush	Hanel, C. and Hancock, J.	8	27	2001	
Eleocharis acicularis	Least Spike-Rush	Hanel, C. and Hancock, J.	8	27	2001	v
Potamogeton alpinus	Northern Pondweed	Hanel, C. and Hancock, J.	8	27	2001	v
Sagittaria graminea	Grassleaf Arrowhead	Hanel, C. and Hancock, J.	8	27	2001	
Astragalus eucosmus	Pretty Milk-Vetch	Hanel, C. and Hancock, J.	8	27	2001	v
Apocynum cannabinum	Clasping-Leaf Dogbane	Hanel, C. and Hancock, J.	8	27	2001	v
Prunella vulgaris	Self-Heal	Hanel, C. and Hancock, J.	8	27	2001	
Dichanthelium boreale	Northern Witchgrass	Hanel, C. and Hancock, J.	8	27	2001	
Apocynum androsaemifolium	Spreading Dogbane	Hanel, C. and Hancock, J.	8	27	2001	
Muhlenbergia glomerata	Marsh Muhly	Hanel, C. and Hancock, J.	8	27	2001	v
Hedysarum americanum	Apline Sweet-Vetch	Hanel, C. and Hancock, J.	8	27	2001	
Cicuta bulbifera	Bulb-Bearing Water-Heml	Hanel, C. and Hancock, J.	8	27	2001	

GNAME	GCOMNAME	OBSERVER	MONTH	DAY	YEAR	Verification
Dichanthelium boreale	Northern Witchgrass	Hanel, C. and Hancock, J.	8	27	2001	
Juncus militaris	Bayonet Rush	Hanel, C. and Hancock, J.	8	27	2001	
Dulichium arundinaceum	Three-Way Sedge	Hanel, C. and Hancock, J.	8	27	2001	
Eleocharis elliptica	Slender Spike-Rush	Hanel, C. and Hancock, J.	8	27	2001	v
Apocynum cannabinum	Clasping-Leaf Dogbane	Hanel, C. and Hancock, J.	8	27	2001	v
Crataegus chrysocarpa var. chrysocarpa	Fineberry Hawthorne	Maunder, John E.	6	15	1987	v
Amelanchier spicata	Running Serviceberry	Maunder, John E.	6	15	1987	v
Astragalus eucosmus	Pretty Milk-Vetch	C. Hanel and P. Sokoloff	7	10	2008	
Astragalus eucosmus	Pretty Milk-Vetch	C. Hanel and P. Sokoloff	7	10	2008	
Astragalus alpinus var. brunetianus	Alpine Milk-Vetch	C. Hanel and P. Sokoloff	7	10	2008	
Diervilla lonicera	Northern Bush-honeysuck	C. Hanel and P. Sokoloff	7	10	2008	
Astragalus eucosmus	Pretty Milk-Vetch	C. Hanel and P. Sokoloff	7	10	2008	
Astragalus eucosmus	Pretty Milk-Vetch	C. Hanel and P. Sokoloff	7	10	2008	
Astragalus alpinus var. brunetianus	Alpine Milk-Vetch	C. Hanel and P. Sokoloff	7	10	2008	
Diervilla lonicera	Northern Bush-honeysuck	C. Hanel and P. Sokoloff	7	10	2008	
Pinus resinosa	Red Pine	Roberts, B.			1985	v
Alisma triviale	Northern Water-Plantain	Hanel, C. and Pardy, S.	7	25	2001	v
Eleocharis acicularis	Least Spike-Rush	Hanel, C. and Pardy, S.	7	25	2001	v
Cicuta bulbifera	Bulb-Bearing Water-Heml	Hanel, C. and Pardy, S.	7	25	2001	v
Eleocharis elliptica	Slender Spike-Rush	Hanel, C. and Pardy, S.	7	25	2001	v
Prunella vulgaris	Self-Heal	Hanel, C. and Pardy, S.	7	25	2001	v
Scirpus cyperinus	Cottongrass Bulrush	Hanel, C. and Pardy, S.	7	25	2001	
Prunella vulgaris	Self-Heal	Hanel, C. and Pardy, S.	7	25	2001	
Equisetum pratense	Meadow Horsetail	Hanel, C. and Pardy, S.	7	27	2001	v
Matteuccia struthiopteris var. pensylvani	Ostrich Fern	Hanel, C. and Pardy, S.	7	27	2001	
Scirpus cyperinus	Cottongrass Bulrush	Hanel, C. and Pardy, S.	7	27	2001	v
Carex projecta	Necklace Sedge	Hanel, C. and Pardy, S.	7	27	2001	v
Carex pedunculata	Longstalk Sedge	Damman, A.W.H.	7	30	1957	v
Carex houghtoniana	A Sedge	Damman, A.W.H.	7	1	1957	v
Eriophorum gracile	Slender Cotton-Grass	Fernald, M.L., K.M. Wiega	7	14	1911	v
Chimaphila umbellata	Common Wintergreen	van Nostrand, R.	8		1958	v
Zannichellia palustris	Horned Pondweed	Hanel, C. and Pardy, S.	7	27	2001	v
Juncus gerardii	Black Grass	Hanel, C. and Pardy, S.	7	27	2001	v
Spartina pectinata	Fresh Water Cordgrass	Hanel, C. and Pardy, S.	7	27	2001	v
Triglochin gaspensis	GaspT Peninsula Arrow-G	Hanel, C. and Pardy, S.	7	27	2001	
Juncus gerardii	Black Grass	Hanel, C. and Pardy, S.	7	27	2001	

GNAME	GCOMNAME	OBSERVER	MONTH	DAY	YEAR	Verification
Buxbaumia minakatae	Hump-Backed Elves	G. Freake			0	v
Dryopteris fragrans	Fragrant Cliff Wood-Fern	Rouleau, E.	6	25	1958	v
Diervilla lonicera	Northern Bush-honeysuck	Hanel, C. and Pardy, S.	7	26	2001	
Apocynum androsaemifolium	Spreading Dogbane	Hanel, C. and Pardy, S.	7	26	2001	v
Brachyelytrum aristosum	Northern Shorthusk	Hanel, C. and Pardy, S.	7	26	2001	v
Brachyelytrum aristosum	Northern Shorthusk	Hanel, C. and Pardy, S.	7	26	2001	v
Pyrola elliptica	Shinleaf	Hanel, C. and Pardy, S.	7	26	2001	
Dryopteris cristata	Crested Wood Fern	Hanel, C. and Pardy, S.	7	26	2001	v
Packera aurea	Golden Groundsel	Hanel, C. and Pardy, S.	7	26	2001	v
Dichanthelium boreale	Northern Witchgrass	Hanel, C. and Pardy, S.	7	26	2001	v
Brachyelytrum aristosum	Northern Shorthusk	Hanel, C. and Pardy, S.	7	26	2001	
Diervilla lonicera	Northern Bush-honeysuck	Hanel, C. and Pardy, S.	7	26	2001	
Carex deweyana var. deweyana	Short-Scale Sedge	Hanel, C. and Pardy, S.	7	26	2001	v
Botrychium matricariifolium	Chamomile Grape-Fern	Hanel, C. and Pardy, S.	7	26	2001	v
Gentianella amarella subsp. acuta	Northern Gentian	Hanel, C. and Pardy, S.	7	26	2001	v
Rhinanthus minor	Little Yellow-Rattle	Hanel, C. and Pardy, S.	7	26	2001	
Festuca rubra	Red Fescue	Hanel, C. and Pardy, S.	7	26	2001	
Woodsia ilvensis	Rusty Woodsia	Hanel, C. and Pardy, S.	7	26	2001	v
Festuca rubra	Red Fescue	Hanel, C. and Pardy, S.	7	26	2001	

GNAME	SRANK_2010	SRANK_2015	NRANK	GRANK	FAMILY	PROV_END_A
Pinus resinosa	S2	S2	N5	G5	Pinaceae	Threatened
Carex foenea	S2S3	S3	N5	G5	Cyperaceae	
Persicaria amphibia	S2	S2	N5	G5	Polygonaceae	
Astragalus alpinus var. brunetianus	S1	S2S3	N3N4	G5T3	Fabaceae	
Eleocharis quinqueflora	S3	S3S4	N5	G5	Cyperaceae	
Crataegus macrosperma	S1	S1	N5	G5	Rosaceae	
Astragalus eucosmus	S3	S3	N5	G5	Fabaceae	
Cornus alternifolia	S3	S3S4	N5	G5	Cornaceae	
Carex houghtoniana	S1	S1	N5	G5	Cyperaceae	
Ranunculus macounii	S2	S2S3	N5	G5	Ranunculaceae	
Crataegus chrysocarpa var. chrysocarpa	S2	S2	N5	G5T5	Rosaceae	
Carex pseudocyperus	S2	S2	N5	G5	Cyperaceae	
Ranunculus pensylvanicus	S2	S2S3	N5	G5	Ranunculaceae	
Graphephorum melicoides	S2	S2S3	N4N5	G4G5	Poaceae	
Spartina pectinata	S3	S3S4	N5	G5	Poaceae	
Carex conoidea	S2	S2	N4N5	G5	Cyperaceae	
Carex adusta	S2S3	S3	N5	G5	Cyperaceae	
Carex cryptolepis	S1	S1	N4N5	G4G5	Cyperaceae	
Carex houghtoniana	S1	S1	N5	G5	Cyperaceae	
Carex adusta	S2S3	S3	N5	G5	Cyperaceae	
Spartina pectinata	S3	S3S4	N5	G5	Poaceae	
Carex conoidea	S2	S2	N4N5	G5	Cyperaceae	
Najas flexilis	S2	S2	N5	G5	Hydrocharitacea	
Potamogeton spirillus	S2	S2	N5	G5	Potamogetonace	
Juncus militaris	S3	S3	N5	G5	Juncaceae	
Eleocharis acicularis	S3S5	S3S4	N5	G5	Cyperaceae	
Potamogeton alpinus	S3S4	S3S4	N5	G5	Potamogetonace	
Sagittaria graminea		S3S4	N4N5	G5	Alismataceae	
Astragalus eucosmus	S3	S3	N5	G5	Fabaceae	
Apocynum cannabinum	S2S3	S3	N5	G5	Apocynaceae	
Prunella vulgaris	S3S4	S3S5	N5	G5	Lamiaceae	
Dichanthelium boreale	S3S5	S3S4	N5	G5	Poaceae	
Apocynum androsaemifolium	S2S3	S3	N5	G5	Apocynaceae	
Muhlenbergia glomerata	S3S5	S3S4	N5	G5	Poaceae	
Hedysarum americanum	S3	S3	N5	G5	Fabaceae	
Cicuta bulbifera	S3	S3	N5	G5	Apiaceae	

GNAME	SRANK_2010	SRANK_2015	NRANK	GRANK	FAMILY	PROV_END_A
Dichanthelium boreale	S3S5	S3S4	N5	G5	Poaceae	
Juncus militaris	S3	S3	N5	G5	Juncaceae	
Dulichium arundinaceum	S3S5	S3S4	N5	G5	Cyperaceae	
Eleocharis elliptica	S3S5	S3S4	N5	G5	Cyperaceae	
Apocynum cannabinum	S2S3	S3	N5	G5	Apocynaceae	
Crataegus chrysocarpa var. chrysocarpa	S2	S2	N5	G5T5	Rosaceae	
Amelanchier spicata	SNR	S3S4	N5	G5	Rosaceae	
Astragalus eucosmus	S3	S3	N5	G5	Fabaceae	
Astragalus eucosmus	S3	S3	N5	G5	Fabaceae	
Astragalus alpinus var. brunetianus	S1	S2S3	N3N4	G5T3	Fabaceae	
Diervilla lonicera	S3S4	S3S4	N5	G5	Caprifoliaceae	
Astragalus eucosmus	S3	S3	N5	G5	Fabaceae	
Astragalus eucosmus	S3	S3	N5	G5	Fabaceae	
Astragalus alpinus var. brunetianus	S1	S2S3	N3N4	G5T3	Fabaceae	
Diervilla lonicera	S3S4	S3S4	N5	G5	Caprifoliaceae	
Pinus resinosa	S2	S2	N5	G5	Pinaceae	Threatened
Alisma triviale	S1	S2	N5	G5	Alismataceae	
Eleocharis acicularis	S3S5	S3S4	N5	G5	Cyperaceae	
Cicuta bulbifera	S3	S3	N5	G5	Apiaceae	
Eleocharis elliptica	S3S5	S3S4	N5	G5	Cyperaceae	
Prunella vulgaris	S3S4	S3S5	N5	G5	Lamiaceae	
Scirpus cyperinus	S2S3	S3S4	N5	G5	Cyperaceae	
Prunella vulgaris	S3S4	S3S5	N5	G5	Lamiaceae	
Equisetum pratense	S3	S3	N5	G5	Equisetaceae	
Matteuccia struthiopteris var. pensylvani	S3S4	S3S4	N5	G5T5	Dryopteridaceae	
Scirpus cyperinus	S2S3	S3S4	N5	G5	Cyperaceae	
Carex projecta	S3	S3	N5	G5	Cyperaceae	
Carex pedunculata	S3	S3	N5	G5	Cyperaceae	
Carex houghtoniana	S1	S1	N5	G5	Cyperaceae	
Eriophorum gracile	S1S2	S1S2	N5	G5	Cyperaceae	
Chimaphila umbellata	S2	S2	N5	G5	Ericaceae	
Zannichellia palustris	S2	S2S3	N5	G5	Potamogetonace	
Juncus gerardii	S2S3	S2S3	N5	G5	Juncaceae	
Spartina pectinata	S3	S3S4	N5	G5	Poaceae	
Triglochin gaspensis	S2S3	S3	N4N5	G4G5	Juncaginaceae	
Juncus gerardii	S2S3	S2S3	N5	G5	Juncaceae	

GNAME	SRANK_2010	SRANK_2015	NRANK	GRANK	FAMILY	PROV_END_A
Buxbaumia minakatae	S1	S2?	N1N3	G2G4	Buxbaumiaceae	
Dryopteris fragrans	S2	S2S3	N5	G5	Dryopteridaceae	
Diervilla lonicera	S3S4	S3S4	N5	G5	Caprifoliaceae	
Apocynum androsaemifolium	S2S3	S3	N5	G5	Apocynaceae	
Brachyelytrum aristosum		S3S4	N5	G5	Poaceae	
Brachyelytrum aristosum		S3S4	N5	G5	Poaceae	
Pyrola elliptica	S2S3	S2S3	N5	G5	Ericaceae	
Dryopteris cristata	S3S4	S3S4	N5	G5	Dryopteridaceae	
Packera aurea	S4S5	S3S4	N5	G5	Asteraceae	
Dichanthelium boreale	S3S5	S3S4	N5	G5	Poaceae	
Brachyelytrum aristosum		S3S4	N5	G5	Poaceae	
Diervilla lonicera	S3S4	S3S4	N5	G5	Caprifoliaceae	
Carex deweyana var. deweyana	S1S2	S2	N5	G5T5	Cyperaceae	
Botrychium matricariifolium	S2	S2S3	N5	G5	Ophioglossaceae	
Gentianella amarella subsp. acuta	S2S3	S3	N5	G5T5	Gentianaceae	
Rhinanthus minor	S3	S3	N5	G5	Scrophulariacea	
Festuca rubra	S5	S2S3	N5	G5	Poaceae	
Woodsia ilvensis	S3	S3S4	N5	G5	Dryopteridaceae	
Festuca rubra	S5	S2S3	N5	G5	Poaceae	

GNAME	COSEWIC	DESCR_HABITA	ACCURACY_ME	SYNAME	SITE_NAME	SURVEYSITE
Pinus resinosa			100		ER, Exploits Rive	
Carex foenea		Ditch in bog	1000	Carex aenea; C.		Bishop Falls
Persicaria amphibia		Shallow pool nea	1000	Polygonum ampl		Bishop Falls
Astragalus alpinus var. brunetianus		Ledges, talus, ar	1000	Astragalus bruer	Bishop Falls	Bishop Falls, north ba
Eleocharis quinqueflora		Springy spots in	1000	Scirpus quinquef	Bishop Falls	Bishop Falls; north ba
Crataegus macrosperma		Ledges, gravel, c	1000	Crataegus acutil	Bishop Falls	Bishop Falls, south ba
Astragalus eucosmus		Ledges, talus, ar	1000	Astragalus eucos	Bishop Falls	Bishop Falls, north ba
Cornus alternifolia		Woods.	1000	Swida alternifolia	Bishop Falls	Bishop Falls.
Carex houghtoniana		Sandy terraces.	1000	Carex houghtoni	Bishop Falls	Bishop Falls; north ba
Ranunculus macounii		Springy spots in	1000	Ranunculus mac	Bishop Falls	Bishop Falls; n. bank
Crataegus chrysocarpa var. chrysocarpa		Ledges, gravel, c	1000	Cratagus bruneti	Bishop Falls	Bishop Falls, south ba
Carex pseudocyperus		Boggy thickets.	1000		Bishop Falls	Bishop Falls.
Ranunculus pensylvanicus		Alluvial bushy fla	1000		Bishop Falls	Bishop Falls; n. bank
Graphephorum melicoides		Ledges, talus, ar	1000	Graphephorum r	Bishop Falls	Bishop Falls, north ba
Spartina pectinata		Springy spots in	1000	Spartina michau		Bishop Falls, north ba
Carex conoidea		Ledges, gravel, c	1000	Carex katahdine	Bishop Falls	Bishop Falls; south ba
Carex adusta		Sandy terraces, r	1000			Bishop Falls, north ba
Carex cryptolepis		Bogs.	1000	Carex flava var. t	Bishop Falls	Bishop Falls.
Carex houghtoniana		Sandy flood plair	100	Carex houghtoni	Bishop's Falls	Bishop's Falls, south s
Carex adusta		Sandy flood plair	100		Bishop's Falls	Bishop's Falls, south s
Spartina pectinata		boulder and grav	100	Spartina michau		Bishop's Falls, south s
Carex conoidea		Ledges and crev	100	Carex katahdine	Bishop's Falls	Bishop's Falls, south s
Najas flexilis		Flood pond on al	100		Exploits River	Exploits River, Bishop
Potamogeton spirillus		Flood pond on al	100	Potamogeton dir	Exploits River	Exploits River, Bishop
Juncus militaris		Backwater of rive	100		Bishop's Falls (T	Exploits Valley, Bisho
Eleocharis acicularis		Backwater of rive	100	Scirpus aciculari	Bishop's Falls (T	Exploits Valley, Bisho
Potamogeton alpinus		Backwater of rive	100	Potamogeton alp	Bishop's Falls (T	Exploits Valley, Bisho
Sagittaria graminea		Backwater of rive	100		Bishop's Falls (T	Exploits Valley, Bisho
Astragalus eucosmus		Cobblely and bou	10	Astragalus eucos	Bishop's Falls (b	Exploits Valley, Bisho
Apocynum cannabinum		Cobblely and bou	10	Apocynum canna	Bishop's Falls (b	Exploits Valley, Bisho
Prunella vulgaris		Bouldery river sh	10		Bishop's Falls (T	Exploits Valley, Bisho
Dichanthelium boreale		Bouldery riverbar	10	Panicum boreale	Bishop's Falls (b	Exploits Valley, Bisho
Apocynum androsaemifolium		Bouldery riverbar	10	Apocynum ambi	Bishop's Falls (b	Exploits Valley, Bisho
Muhlenbergia glomerata		Bouldery riverbar	10	Polypogon glome	Bishop's Falls (b	Exploits Valley, Bisho
Hedysarum americanum		Bouldery riverbar	10	Hedysarum alpin	Bishop's Falls (b	Exploits Valley, Bisho
Cicuta bulbifera		Bouldery river sh	10		Bishop's Falls (T	Exploits Valley, Bisho

GNAME	COSEWIC	DESCR_HABITA	ACCURACY_ME	SYNAME	SITE_NAME	SURVEYSITE
Dichanthelium boreale		Bouldery river sh	10	Panicum boreale	Bishop's Falls (T	Exploits Valley, Bisho
Juncus militaris		Bouldery river sh	10		Bishop's Falls (T	Exploits Valley, Bisho
Dulichium arundinaceum		Bouldery river sh	10	Cyperus arundin	Bishop's Falls (T	Exploits Valley, Bisho
Eleocharis elliptica		Bouldery river sh	10	Eleocharis capita	Bishop's Falls (T	Exploits Valley, Bisho
Apocynum cannabinum		Bouldery river sh	10	Apocynum canna	Bishop's Falls (T	Exploits Valley, Bisho
Crataegus chrysocarpa var. chrysocarpa			50	Cratagus bruneti		Bishops Falls, at bridg
Amelanchier spicata			50			Bishops Falls, at bridg
Astragalus eucosmus		Open gravelly an	10	Astragalus eucos	Bishops Falls, E	Central Newfoundlan
Astragalus eucosmus		Open gravelly an	10	Astragalus eucos	Bishops Falls, E	Central Newfoundlan
Astragalus alpinus var. brunetianus		Rocky river shore	10	Astragalus bruer	Bishops Falls, E	Central Newfoundlan
Diervilla lonicera		Open gravelly an	10	Diervilla diervilla;	Bishops Falls, E	Central Newfoundlan
Astragalus eucosmus		Open gravelly an	10	Astragalus eucos	Bishops Falls, E	Central Newfoundlan
Astragalus eucosmus		Open gravelly an	10	Astragalus eucos	Bishops Falls, E	Central Newfoundlan
Astragalus alpinus var. brunetianus		Rocky river shore	10	Astragalus bruer	Bishops Falls, E	Central Newfoundlan
Diervilla lonicera		Open gravelly an	10	Diervilla diervilla;	Bishops Falls, E	Central Newfoundlan
Pinus resinosa			1000		Exploits River	Exploits River, below
Alisma triviale		Small backwater	100	Alisma plantago-	Peters River (nea	Northeast Coast, Bay
Eleocharis acicularis		Small backwater	100	Scirpus aciculari	Peters River (nea	Northeast Coast, Bay
Cicuta bulbifera		Small backwater	100		Peters River (nea	Northeast Coast, Bay
Eleocharis elliptica		Small backwater	100	Eleocharis capita	Peters River (nea	Northeast Coast, Bay
Prunella vulgaris		Small backwater	100		Peters River (nea	Northeast Coast, Bay
Scirpus cyperinus		Small backwater	100	Eriophorum cype	Peters River (nea	Northeast Coast, Bay
Prunella vulgaris		Gravelly shore of	10		Peters River (nea	Northeast Coast, Bay
Equisetum pratense		Alluvial Alnus inc	100	Equisetum pratei	Peterview	Northeast Coast, Bot
Matteuccia struthiopteris var. pensylvani		Alluvial Alnus inc	100	Struthiopteris pe	Peterview	Northeast Coast, Bot
Scirpus cyperinus		Slight depressior	10	Eriophorum cype	Peterview	Northeast Coast, Bot
Carex projecta		Slight depressior	10		Peterview	Northeast Coast, Bot
Carex pedunculata		Black spruce fore	1000		Exploits River	Exploits River.
Carex houghtoniana		On sandy, wet ba	100	Carex houghtoni	Rattling Brook	Rattling Brook, a few
Eriophorum gracile		Shallow pool in t	1000	Eriophorum grac	Mary Ann Lake	Mary Ann Lake, head
Chimaphila umbellata		Dry mossy Black	1000	Chimaphila umb	New Bay Lake	New Bay Lake (near),
Zannichellia palustris		Pool in intertidal	10	Zannichellia maj	Peters River (mc	Northeast Coast, Bot
Juncus gerardii		Marsh at rivermo	10	Juncus bulbosus	Peters River (mc	Northeast Coast, Bot
Spartina pectinata		Marsh at rivermo	10	Spartina michau	Peters River (mc	Northeast Coast, Bot
Triglochin gaspensis		Shallow pool in s	10		Peters River (mc	Northeast Coast, Bot
Juncus gerardii		Shallow pool in s	10	Juncus bulbosus	Peters River (mc	Northeast Coast, Bot

GNAME	COSEWIC	DESCR_HABITA	ACCURACY_ME	SYNAME	SITE_NAME	SURVEYSITE
Buxbaumia minakatae	Candidate (Group 1, Hi		10000			South Twin Lake, 35k
Dryopteris fragrans		Dry cliffs.	1000	Polypodium fragi	Point Leamingtoi	Point Leamingon, Mill
Diervilla lonicera		Clearing around	100	Diervilla diervilla;	Point Leamingtoi	Northeast Coast, Poir
Apocynum androsaemifolium		Clearing around	100	Apocynum ambi(	Point Leamingtoi	Northeast Coast, Poir
Brachyelytrum aristosum		Small ledges on	10		Point Leamingtoi	Northeast Coast, Poir
Brachyelytrum aristosum		Edge of trail in A	100		Point Leamingtoi	Northeast Coast, Poir
Pyrola elliptica		Edge of trail in A	100	Pyrola compacta	Point Leamingtoi	Northeast Coast, Poir
Dryopteris cristata		Edge of trail in A	100	Polypodium crist	Point Leamingtoi	Northeast Coast, Poir
Packera aurea		Moist clearing in	100	Senecio aureus;	Point Leamingtoi	Northeast Coast, Poir
Dichanthelium boreale		Open area on bo	100	Panicum boreale	Point Leamingtoi	Northeast Coast, Poir
Brachyelytrum aristosum		Open area on bo	100		Point Leamingtoi	Northeast Coast, Poir
Diervilla lonicera		Open area on bo	100	Diervilla diervilla;	Point Leamingtoi	Northeast Coast, Poir
Carex deweyana var. deweyana		Landward rocky	100		Leading Tickles	Northeast Coast, Lea
Botrychium matricariifolium		Open slope on la	10	Botrychium lunar	Leading Tickles	Northeast Coast, Lea
Gentianella amarella subsp. acuta		Open slope on la	10	Gentiana acuta;	Leading Tickles	Northeast Coast, Lea
Rhinanthus minor		Open slope on la	10		Leading Tickles	Northeast Coast, Lea
Festuca rubra		Rocky tip of sma	10	Festuca rubra su	Leading Tickles	Northeast Coast, Lea
Woodsia ilvensis		Dry crack in rock	10	Acrostichum ilve	Leading Tickles	Northeast Coast, Lea
Festuca rubra		Crest of headlan	10	Festuca rubra su	Leading Tickles	Northeast Coast, Lea

GNAME	ACRONYMS_O	COLLECTION	SOURCES	IDNUM	EST_NF_ID	5KM GRID CELL
Pinus resinosa			Natural and man	SP103541	560867	Grid Cell 19 - Bis
Carex foenea	GH	4821		SP027115	881663	Grid Cell 19 - Bis
Persicaria amphibia	GH	5348		SP026981	414337	Grid Cell 19 - Bis
Astragalus alpinus var. brunetianus	GH	5794	Bouchard, A. Da	SP024177	515713	Grid Cell 19 - Bis
Eleocharis quinqueflora	GH	4756	Bouchard, A. Da	SP025525	602077	Grid Cell 19 - Bis
Crataegus macrosperma	GH	5640	Bouchard, A. Da	SP024703	613627	Grid Cell 19 - Bis
Astragalus eucosmus	GH; CAN	5797	Bouchard, A. Da	SP024198	456721	Grid Cell 19 - Bis
Cornus alternifolia	GH	5973	Bouchard, A. Da	SP024081	513156	Grid Cell 19 - Bis
Carex houghtoniana	GH	5009	Bouchard, A. Da	SP025360	537502	Grid Cell 19 - Bis
Ranunculus macounii	GH	5439	Bouchard, A. Da	SP024634	483135	Grid Cell 19 - Bis
Crataegus chrysocarpa var. chrysocarpa	GH	6606	Bouchard, A. Da	SP024696	284901	Grid Cell 19 - Bis
Carex pseudocyperus	GH; CAN	5015	Bouchard, A. Da	SP025471	276562	Grid Cell 19 - Bis
Ranunculus pensylvanicus	GH; CAN	5436	Bouchard, A. Da	SP024658	494456	Grid Cell 19 - Bis
Graphephorum melicoides	GH	4590	Bouchard, A. Da	SP026179	621925	Grid Cell 19 - Bis
Spartina pectinata	GH, K, CAN	4603		SP026975	569770	Grid Cell 19 - Bis
Carex conoidea	GH; CAN	4934	Bouchard, A. Da	SP025260	508283	Grid Cell 19 - Bis
Carex adusta	GH	4827		SP026838	560759	Grid Cell 19 - Bis
Carex cryptolepis	GH; CAN	4981	Bouchard, A. Da	SP025267	555204	Grid Cell 19 - Bis
Carex houghtoniana	MT; CAN	88129	Bouchard, A. Da	SP025359	537502	Grid Cell 19 - Bis
Carex adusta	CAN, MT	88130	Bouchard, A. Da	SP026669	560759	Grid Cell 19 - Bis
Spartina pectinata	CAN, MT	88133		SP026670	569770	Grid Cell 19 - Bis
Carex conoidea	MT; CAN	88131	Bouchard, A. Da	SP025259	508283	Grid Cell 19 - Bis
Najas flexilis	MT	88191	Bouchard, A. Da	SP025690	505132	Grid Cell 19 - Bis
Potamogeton spirillus	MT; CAN	88189	Bouchard, A. Da	SP026233	565179	Grid Cell 19 - Bis
Juncus militaris			Herbarium Data	SP020040	603241	Grid Cell 19 - Bis
Eleocharis acicularis	NFM, MT	CH 010827-38	Herbarium Data	SP020048	431311	Grid Cell 19 - Bis
Potamogeton alpinus	NFM, MT	CH 010827-39	Herbarium Data	SP020050	462419	Grid Cell 19 - Bis
Sagittaria graminea			Herbarium Data	SP020053	629817	Grid Cell 19 - Bis
Astragalus eucosmus	NFM	CH 010827-51	Herbarium Data	SP019958	456721	Grid Cell 19 - Bis
Apocynum cannabinum	NFM, MT	CH 010827-52	Herbarium Data	SP019959	560775	Grid Cell 19 - Bis
Prunella vulgaris			Herbarium Data	SP019968	544712	Grid Cell 19 - Bis
Dichanthelium boreale			Herbarium Data	SP020072	596871	Grid Cell 19 - Bis
Apocynum androsaemifolium			Herbarium Data	SP020083	284625	Grid Cell 19 - Bis
Muhlenbergia glomerata	NFM, MT	CH 010827-47	Herbarium Data	SP020085	396197	Grid Cell 19 - Bis
Hedysarum americanum			Herbarium Data	SP020086	478048	Grid Cell 19 - Bis
Cicuta bulbifera			Herbarium Data	SP019980	556706	Grid Cell 19 - Bis

GNAME	ACRONYMS_O	COLLECTION	SOURCES	IDNUM	EST_NF_ID	5KM GRID CELL
Dichanthelium boreale			Herbarium Data	SP019985	596871	Grid Cell 19 - Bis
Juncus militaris			Herbarium Data	SP019991	603241	Grid Cell 19 - Bis
Dulichium arundinaceum			Herbarium Data	SP019995	432864	Grid Cell 19 - Bis
Eleocharis elliptica	NFM, MT	CH 010827-54	Herbarium Data	SP020006	426607	Grid Cell 19 - Bis
Apocynum cannabinum	NFM, MT	CH 010827-29	Herbarium Data	SP020031	560775	Grid Cell 19 - Bis
Crataegus chrysocarpa var. chrysocarpa	NFM		Herbarium Data	SP048164	284901	Grid Cell 19 - Bis
Amelanchier spicata	NFM		Herbarium Data	SP049081	958238	Grid Cell 19 - Bis
Astragalus eucosmus				SP066662	456721	Grid Cell 19 - Bis
Astragalus eucosmus				SP066663	456721	Grid Cell 19 - Bis
Astragalus alpinus var. brunetianus				SP062432	515713	Grid Cell 19 - Bis
Diervilla lonicera				SP062954	600376	Grid Cell 19 - Bis
Astragalus eucosmus			Excel Doc From	SP087978	456721	Grid Cell 19 - Bis
Astragalus eucosmus			Excel Doc From	SP087980	456721	Grid Cell 19 - Bis
Astragalus alpinus var. brunetianus			Excel Doc From	SP087982	515713	Grid Cell 19 - Bis
Diervilla lonicera			Excel Doc From	SP087984	600376	Grid Cell 19 - Bis
Pinus resinosa		obs	Bouchard, A. Da	SP025160	560867	Grid Cell 17 - N (
Alisma triviale	NFM, MT, SWG(	CH 010725-1	Herbarium Data	SP018935	573506	Grid Cell 16 - SW
Eleocharis acicularis	NFM, MT	CH 010725-11	Herbarium Data	SP018946	431311	Grid Cell 16 - SW
Cicuta bulbifera	NFM, MT	CH 010725-15	Herbarium Data	SP018951	556706	Grid Cell 16 - SW
Eleocharis elliptica	NFM, MT	CH 010725-36	Herbarium Data	SP018977	426607	Grid Cell 16 - SW
Prunella vulgaris	NFM, MT	CH 010725-37	Herbarium Data	SP018978	544712	Grid Cell 16 - SW
Scirpus cyperinus			Herbarium Data	SP018979	525578	Grid Cell 16 - SW
Prunella vulgaris				SP018992	544712	Grid Cell 16 - SW
Equisetum pratense	NFM, MT	CH 010727-23	Herbarium Data	SP019144	397943	Grid Cell 16 - SW
Matteuccia struthiopteris var. pensylvani			Herbarium Data	SP019163	997712	Grid Cell 16 - SW
Scirpus cyperinus	NFM, MT	CH 010727-21	Herbarium Data	SP019174	525578	Grid Cell 16 - SW
Carex projecta	NFM, MT, SWG(	CH 010727-22	Herbarium Data	SP019175	553368	Grid Cell 16 - SW
Carex pedunculata	FFB	143	Bouchard, A. Da	SP025454	605204	Grid Cell 15 - Pe
Carex houghtoniana	MT; FFB	s.n.	Bouchard, A. Da	SP025362	537502	Grid Cell 15 - Pe
Eriophorum gracile	GH; CAN	4726	Bouchard, A. Da	SP025566	487385	Grid Cell 1 - Nort
Chimaphila umbellata	MT; FFB	392	Bouchard, A. Da	SP024561	557089	Grid Cell 2 - New
Zannichellia palustris	NFM, MT	CH 010727-2	Herbarium Data	SP019131	483344	Grid Cell 14 - Bo
Juncus gerardii	NFM, MT	CH 010727-4	Herbarium Data	SP019134	458105	Grid Cell 14 - Bo
Spartina pectinata	NFM, MT	CH 010727-6	Herbarium Data	SP019136	569770	Grid Cell 14 - Bo
Triglochin gaspensis	NFM	CH 010727-9		SP019139	452377	Grid Cell 14 - Bo
Juncus gerardii				SP019143	458105	Grid Cell 14 - Bo

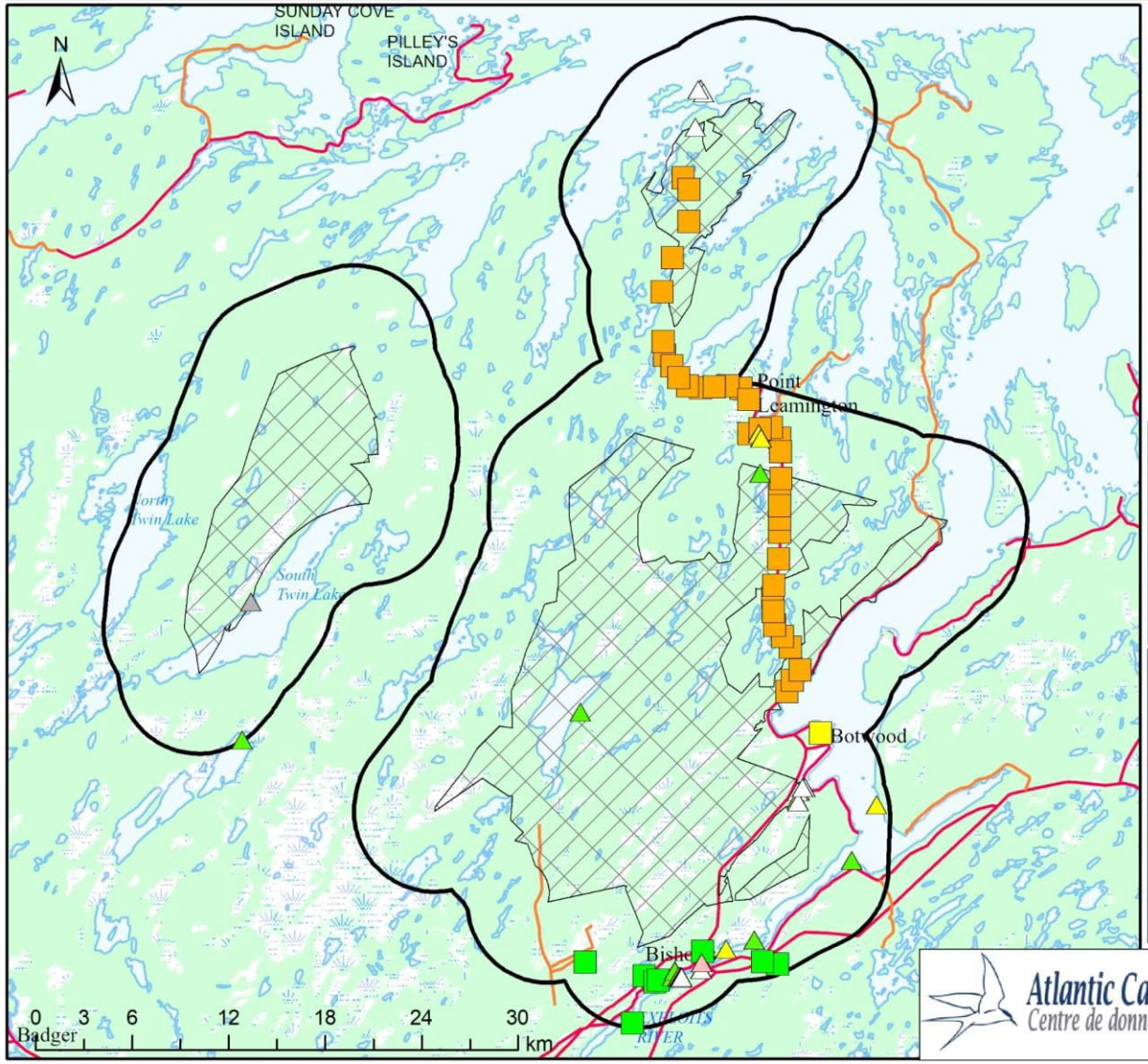
GNAME	ACRONYMS_O	COLLECTION	SOURCES	IDNUM	EST_NF_ID	5KM GRID CELL
Buxbaumia minakatae			Email Communic	SP070692	255674	Grid Cell 0 - Nort
Dryopteris fragrans	MT	4457		SP026525	515791	Grid Cell 11 - S c
Diervilla lonicera			Herbarium Data	SP019115	600376	Grid Cell 10 - Po
Apocynum androsaemifolium	NFM, MT	CH 010726-44	Herbarium Data	SP019114	284625	Grid Cell 10 - Po
Brachyelytrum aristosum	NFM	CH 010726-34	Herbarium Data	SP019088	301366	Grid Cell 10 - Po
Brachyelytrum aristosum	NFM, MT	CH 010726-35	Herbarium Data	SP019093	301366	Grid Cell 10 - Po
Pyrola elliptica	NFM	CH 010726-36	Herbarium Data	SP019094	450979	Grid Cell 10 - Po
Dryopteris cristata	NFM, MT	CH 010726-45	Herbarium Data	SP019095	561153	Grid Cell 10 - Po
Packera aurea	NFM, MT	CH 010726-37	Herbarium Data	SP019102	381433	Grid Cell 10 - Po
Dichanthelium boreale	NFM, MT	CH 010726-41	Herbarium Data	SP019106	596871	Grid Cell 10 - Po
Brachyelytrum aristosum			Herbarium Data	SP019111	301366	Grid Cell 10 - Po
Diervilla lonicera			Herbarium Data	SP019112	600376	Grid Cell 10 - Po
Carex deweyana var. deweyana	NFM	CH 010726-11	Herbarium Data	SP019025	433703	Grid Cell 3 - Lea
Botrychium matricariifolium	NFM, MT	CH 010726-1	Herbarium Data	SP019030	578530	Grid Cell 3 - Lea
Gentianella amarella subsp. acuta	NFM, MT	CH 010726-2	Herbarium Data	SP019031	494298	Grid Cell 3 - Lea
Rhinanthus minor	NFM	CH 010726-3	Herbarium Data	SP019032	483438	Grid Cell 3 - Lea
Festuca rubra			Herbarium Data	SP019065	454428	Grid Cell 3 - Lea
Woodsia ilvensis	NFM	CH 010726-31	Herbarium Data	SP019083	554013	Grid Cell 3 - Lea
Festuca rubra			Herbarium Data	SP019024	454428	Grid Cell 3 - Lea

GNAME	Y GRID CELL CI	X GRID CELL CENTROID
Pinus resinosa	49.00926804	-55.45128125
Carex foenea	49.00926804	-55.45128125
Persicaria amphibia	49.00926804	-55.45128125
Astragalus alpinus var. brunetianus	49.00926804	-55.45128125
Eleocharis quinqueflora	49.00926804	-55.45128125
Crataegus macrosperma	49.00926804	-55.45128125
Astragalus eucosmus	49.00926804	-55.45128125
Cornus alternifolia	49.00926804	-55.45128125
Carex houghtoniana	49.00926804	-55.45128125
Ranunculus macounii	49.00926804	-55.45128125
Crataegus chrysocarpa var. chrysocarpa	49.00926804	-55.45128125
Carex pseudocyperus	49.00926804	-55.45128125
Ranunculus pensylvanicus	49.00926804	-55.45128125
Graphephorum melicoides	49.00926804	-55.45128125
Spartina pectinata	49.00926804	-55.45128125
Carex conoidea	49.00926804	-55.45128125
Carex adusta	49.00926804	-55.45128125
Carex cryptolepis	49.00926804	-55.45128125
Carex houghtoniana	49.00926804	-55.45128125
Carex adusta	49.00926804	-55.45128125
Spartina pectinata	49.00926804	-55.45128125
Carex conoidea	49.00926804	-55.45128125
Najas flexilis	49.00926804	-55.45128125
Potamogeton spirillus	49.00926804	-55.45128125
Juncus militaris	49.00926804	-55.45128125
Eleocharis acicularis	49.00926804	-55.45128125
Potamogeton alpinus	49.00926804	-55.45128125
Sagittaria graminea	49.00926804	-55.45128125
Astragalus eucosmus	49.00926804	-55.45128125
Apocynum cannabinum	49.00926804	-55.45128125
Prunella vulgaris	49.00926804	-55.45128125
Dichanthelium boreale	49.00926804	-55.45128125
Apocynum androsaemifolium	49.00926804	-55.45128125
Muhlenbergia glomerata	49.00926804	-55.45128125
Hedysarum americanum	49.00926804	-55.45128125
Cicuta bulbifera	49.00926804	-55.45128125

GNAME	Y GRID CELL CI	X GRID CELL CENTROID
Dichanthelium boreale	49.00926804	-55.45128125
Juncus militaris	49.00926804	-55.45128125
Dulichium arundinaceum	49.00926804	-55.45128125
Eleocharis elliptica	49.00926804	-55.45128125
Apocynum cannabinum	49.00926804	-55.45128125
Crataegus chrysocarpa var. chrysocarpa	49.00926804	-55.45128125
Amelanchier spicata	49.00926804	-55.45128125
Astragalus eucosmus	49.00926804	-55.45128125
Astragalus eucosmus	49.00926804	-55.45128125
Astragalus alpinus var. brunetianus	49.00926804	-55.45128125
Diervilla lonicera	49.00926804	-55.45128125
Astragalus eucosmus	49.00926804	-55.45128125
Astragalus eucosmus	49.00926804	-55.45128125
Astragalus alpinus var. brunetianus	49.00926804	-55.45128125
Diervilla lonicera	49.00926804	-55.45128125
Pinus resinosa	49.05329012	-55.38147752
Alisma triviale	49.09824963	-55.38001577
Eleocharis acicularis	49.09824963	-55.38001577
Cicuta bulbifera	49.09824963	-55.38001577
Eleocharis elliptica	49.09824963	-55.38001577
Prunella vulgaris	49.09824963	-55.38001577
Scirpus cyperinus	49.09824963	-55.38001577
Prunella vulgaris	49.09824963	-55.38001577
Equisetum pratense	49.09824963	-55.38001577
Matteuccia struthiopteris var. pensylvani	49.09824963	-55.38001577
Scirpus cyperinus	49.09824963	-55.38001577
Carex projecta	49.09824963	-55.38001577
Carex pedunculata	49.09726827	-55.31155051
Carex houghtoniana	49.09726827	-55.31155051
Eriophorum gracile	49.14895038	-55.85833381
Chimaphila umbellata	49.14591349	-55.58415303
Zannichellia palustris	49.14320875	-55.37855038
Juncus gerardii	49.14320875	-55.37855038
Spartina pectinata	49.14320875	-55.37855038
Triglochin gaspensis	49.14320875	-55.37855038
Juncus gerardii	49.14320875	-55.37855038

GNAME	Y GRID CELL CI	X GRID CELL CENTROID
Buxbaumia minakatae	49.23888559	-55.85626197
Dryopteris fragrans	49.2780838	-55.37413227
Diervilla lonicera	49.32304138	-55.37265221
Apocynum androsaemifolium	49.32304138	-55.37265221
Brachyelytrum aristosum	49.32304138	-55.37265221
Brachyelytrum aristosum	49.32304138	-55.37265221
Pyrola elliptica	49.32304138	-55.37265221
Dryopteris cristata	49.32304138	-55.37265221
Packera aurea	49.32304138	-55.37265221
Dichanthelium boreale	49.32304138	-55.37265221
Brachyelytrum aristosum	49.32304138	-55.37265221
Diervilla lonicera	49.32304138	-55.37265221
Carex deweyana var. deweyana	49.50382207	-55.43572621
Botrychium matricariifolium	49.50382207	-55.43572621
Gentianella amarella subsp. acuta	49.50382207	-55.43572621
Rhinanthus minor	49.50382207	-55.43572621
Festuca rubra	49.50382207	-55.43572621
Woodsia ilvensis	49.50382207	-55.43572621
Festuca rubra	49.50382207	-55.43572621

GIS Scan of Rare and Provincially/Federally Listed Species for Area East and Northeast of Botwood, Newfoundland and Labrador



Legend

- Botwood Boundary 20230619
- 5 km Buffer Around AOI

Rare Flora

- 10m Accuracy
- 50m Accuracy
- 100m Accuracy
- 1000m Accuracy
- 10000m Accuracy

Rare Fauna

- 100m Accuracy
- 250m Accuracy
- 1000m Accuracy

Atlantic Canada Conservation Data Centre
July 4, 2023
For: Strum Consulting
Data Request: RQ1054

Datum: Transverse Mercator NAD83
Note: Interpretations of this map should always be conducted in relation with data provided in spreadsheets and any other communications.

Atlantic Canada Conservation Data Centre
Centre de données sur la conservation du Canada atlantique

GNAME	GCOMNAME	accuracy_n	OBSERVER	DATA_SOU	Day	Month	Year	verificati
Carex pedunculata	Longstalk Sedge	1000	Damman, A	Bouchard,	30	7	1957	v
Alisma triviale	Northern Water-Plantain	100	Hanel, C. a	Herbarium	25	7	2001	v
Eleocharis acicularis	Least Spike-Rush	100	Hanel, C. a	Herbarium	25	7	2001	v
Cicuta bulbifera	Bulb-Bearing Water-Hemlock	100	Hanel, C. a	Herbarium	25	7	2001	v
Eleocharis elliptica	Slender Spike-Rush	100	Hanel, C. a	Herbarium	25	7	2001	v
Prunella vulgaris	Self-Heal	100	Hanel, C. a	Herbarium	25	7	2001	v
Scirpus cyperinus	Cottongrass Bulrush	100	Hanel, C. a	Herbarium	25	7	2001	
Prunella vulgaris	Self-Heal	10	Hanel, C. a		25	7	2001	
Matteuccia struthiopteris var. pensylva	Ostrich Fern	100	Hanel, C. a	Herbarium	27	7	2001	
Triglochin gaspensis	GaspT Peninsula Arrow-Grass	10	Hanel, C. a		27	7	2001	
Equisetum pratense	Meadow Horsetail	100	Hanel, C. a	Herbarium	27	7	2001	v
Scirpus cyperinus	Cottongrass Bulrush	10	Hanel, C. a	Herbarium	27	7	2001	v
Carex projecta	Necklace Sedge	10	Hanel, C. a	Herbarium	27	7	2001	v
Zannichellia palustris	Horned Pondweed	10	Hanel, C. a	Herbarium	27	7	2001	v
Carex houghtoniana	Houghton's Sedge	100	Damman, A	Bouchard,	1	7	1957	v
Chimaphila umbellata	Common Wintergreen	1000	van Nostra	Bouchard,		8	1958	v
Buxbaumia minakatae	Hump-Backed Elves	10000	G. Freake	Email Com			0	v
Dryopteris fragrans	Fragrant Cliff Wood-Fern	1000	Rouleau, E.		25	6	1958	v
Apocynum androsaemifolium	Spreading Dogbane	100	Hanel, C. a	Herbarium	26	7	2001	v
Diervilla lonicera	Northern Bush-honeysuckle	100	Hanel, C. a	Herbarium	26	7	2001	
Brachyelytrum aristosum	Northern Shorthusk	10	Hanel, C. a	Herbarium	26	7	2001	v
Brachyelytrum aristosum	Northern Shorthusk	100	Hanel, C. a	Herbarium	26	7	2001	v
Pyrola elliptica	Shinleaf	100	Hanel, C. a	Herbarium	26	7	2001	
Dryopteris cristata	Crested Wood Fern	100	Hanel, C. a	Herbarium	26	7	2001	v
Packera aurea	Golden Groundsel	100	Hanel, C. a	Herbarium	26	7	2001	v
Dichanthelium boreale	Northern Witchgrass	100	Hanel, C. a	Herbarium	26	7	2001	v
Brachyelytrum aristosum	Northern Shorthusk	100	Hanel, C. a	Herbarium	26	7	2001	
Diervilla lonicera	Northern Bush-honeysuckle	100	Hanel, C. a	Herbarium	26	7	2001	
Woodsia ilvensis	Rusty Woodsia	10	Hanel, C. a	Herbarium	26	7	2001	v
Botrychium matricariifolium	Chamomile Grape-Fern	10	Hanel, C. a	Herbarium	26	7	2001	v
Gentianella amarella ssp. acuta	Northern Gentian	10	Hanel, C. a	Herbarium	26	7	2001	v
Rhinanthus minor	Little Yellow-Rattle	10	Hanel, C. a	Herbarium	26	7	2001	

Carex deweyana var. deweyana	Short-Scale Sedge	100	Hanel, C. a	Herbarium	26	7	2001	v
Festuca rubra	Red Fescue	10	Hanel, C. a	Herbarium	26	7	2001	
Festuca rubra	Red Fescue	10	Hanel, C. a	Herbarium	26	7	2001	

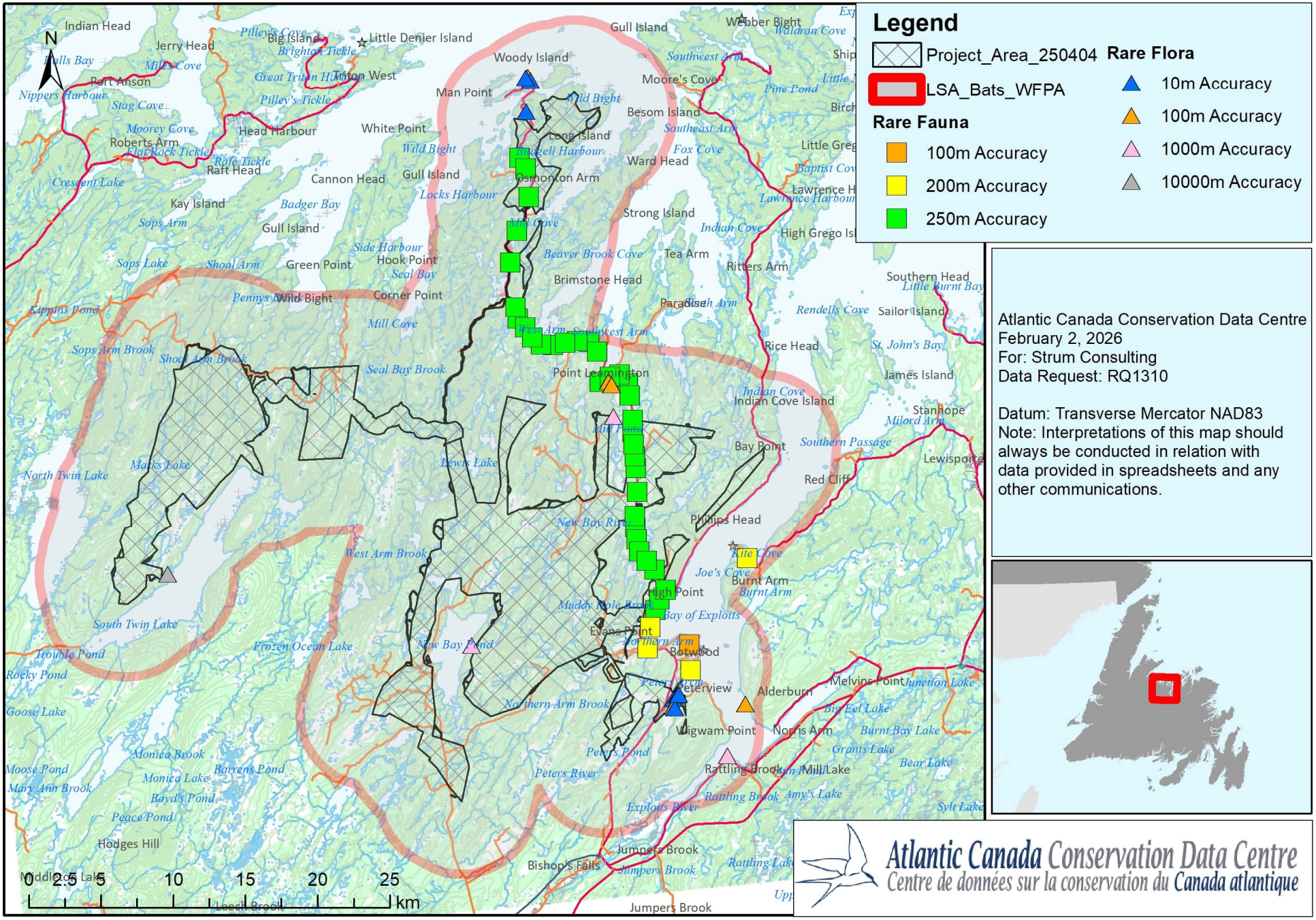
SRANK_20	SRANK_20	NRANK	GRANK	PROV_END	COSEWIC	FAMILY	HABITAT	SURVEYSIT	STATION_LI	SPECIMEN_	SITE_NAME	COLLECTIC
S3	S3	N5	G5			Cyperacea	Black spruc	Exploits Riv	EORsMT74	SP025454	Exploits Riv	143
S2	S2	N5	G5			Alismatace	Small back	Northeast (	2001-242	SP018935	Peters Rive	CH 010725
S3S4	S3S4	N5	G5			Cyperacea	Small back	Northeast (	2001-242	SP018946	Peters Rive	CH 010725
S3	S3	N5	G5			Apiaceae	Small back	Northeast (	2001-242	SP018951	Peters Rive	CH 010725
S3S4	S3S4	N5	G5			Cyperacea	Small back	Northeast (	2001-242	SP018977	Peters Rive	CH 010725
S3S5	S3S5	N5	G5			Lamiaceae	Small back	Northeast (	2001-242	SP018978	Peters Rive	CH 010725
S3S4	S3S4	N5	G5			Cyperacea	Small back	Northeast (	2001-242	SP018979	Peters Rive	
S3S5	S3S5	N5	G5			Lamiaceae	Gravelly sh	Northeast (	Point 01-07	SP018992	Peters Rive	
S3S4	S3S4	N5	G5T5			Dryopterid	Alluvial Aln	Northeast (	2001-245	SP019163	Peterview	
S3	S3	N4	G4G5			Juncaginac	Shallow po	Northeast (	Point 01-08	SP019139	Peters Rive	CH 010727
S3	S3	N5	G5			Equisetace	Alluvial Aln	Northeast (	2001-245	SP019144	Peterview	CH 010727
S3S4	S3S4	N5	G5			Cyperacea	Slight depr	Northeast (	Point 01-09	SP019174	Peterview	CH 010727
S3	S3	N5	G5			Cyperacea	Slight depr	Northeast (	Point 01-09	SP019175	Peterview	CH 010727
S2S3	S2S3	N5	G5			Potamoget	Pool in inte	Northeast (	Point 01-08	SP019131	Peters Rive	CH 010727
S1	S1	N5	G5			Cyperacea	On sandy, v	Rattling Brc	EORsMT95	SP025362	Rattling Brc	s.n.
S2	S2	N5	G5			Ericaceae	Dry mossy I	New Bay La	EORsMT75	SP024561	New Bay La	392
S2?	S2?	N2	G2G4		Candidate	Buxbaumia		South Twin		SP070692		
S2S3	S2S3	N5	G5			Dryopterid	Dry cliffs.	Point Leam	RouleauCa	SP026525	Point Leam	4457
S3	S3	N5	G5			Apocynace	Clearing ar	Northeast (	Point 01-08	SP019114	Point Leam	CH 010726
S3S4	S3S4	N5	G5			Caprifoliac	Clearing ar	Northeast (	Point 01-08	SP019115	Point Leam	
S3S4	S3S4	N5	G5			Poaceae	Small ledge	Northeast (	Point 01-08	SP019088	Point Leam	CH 010726
S3S4	S3S4	N5	G5			Poaceae	Edge of trai	Northeast (	Point 01-08	SP019093	Point Leam	CH 010726
S2S3	S2S3	N5	G5			Ericaceae	Edge of trai	Northeast (	Point 01-08	SP019094	Point Leam	CH 010726
S3S4	S3S4	N5	G5			Dryopterid	Edge of trai	Northeast (	Point 01-08	SP019095	Point Leam	CH 010726
S3S4	S3S4	N5	G5			Asteraceae	Moist clear	Northeast (	Point 01-08	SP019102	Point Leam	CH 010726
S3S4	S3S4	N5	G5			Poaceae	Open area (	Northeast (	Point 01-08	SP019106	Point Leam	CH 010726
S3S4	S3S4	N5	G5			Poaceae	Open area (	Northeast (	Point 01-08	SP019111	Point Leam	
S3S4	S3S4	N5	G5			Caprifoliac	Open area (	Northeast (	Point 01-08	SP019112	Point Leam	
S3S4	S3S4	N5	G5			Dryopterid	Dry crack ir	Northeast (	Point 01-07	SP019083	Leading Tic	CH 010726
S2S3	S2S3	N5	G5			Ophiogloss	Open slope	Northeast (	2001-243	SP019030	Leading Tic	CH 010726
S3	S3	N5	G5T5			Gentianace	Open slope	Northeast (	2001-243	SP019031	Leading Tic	CH 010726
S3	S3	N5	G5			Scrophulari	Open slope	Northeast (	2001-243	SP019032	Leading Tic	CH 010726

S2	S2	N5	G5T5		Cyperacea	Landward r	Northeast C	Point 01-07	SP019025	Leading Tic CH 010726
S2S3	S2S3	NNR	G5		Poaceae	Rocky tip of	Northeast C	Point 01-07	SP019065	Leading Tic
S2S3	S2S3	NNR	G5		Poaceae	Crest of he	Northeast C	Point 01-07	SP019024	Leading Tic

ACRONYMS	ELCODE	LAT_CENTR	LONG_CENTROID_OF_5KM_FISHNET
FFB	PMCYP03A	49.055745	-55.2942
NFM, MT, S	PMALI0105	49.104858	-55.3551
NFM, MT	PMCYP090	49.104858	-55.3551
NFM, MT	PDAPI0M02	49.104858	-55.3551
NFM, MT	PMCYP090	49.104858	-55.3551
NFM, MT	PDLAM1M0	49.104858	-55.3551
	PMCYP0Q0	49.104858	-55.3551
	PDLAM1M0	49.104858	-55.3551
	PPDRY0K0	49.104858	-55.3551
NFM	PMJCG020	49.104858	-55.3551
NFM, MT	PPEQU010	49.104858	-55.3551
NFM, MT	PMCYP0Q0	49.104858	-55.3551
NFM, MT, S	PMCYP03B	49.104858	-55.3551
NFM, MT	PMZAN030	49.104858	-55.3551
MT; FFB	PMCYP036	49.100315	-55.2872
MT; FFB	PDPYR010	49.162846	-55.5522
	NBMUS1B0	49.224795	-55.8178
MT	PPDRY0A0	49.287689	-55.3956
NFM, MT	PDAPO060	49.332268	-55.3887
	PDCPR010	49.332268	-55.3887
NFM	PMPOA120	49.332268	-55.3887
NFM, MT	PMPOA120	49.332268	-55.3887
NFM	PDPYR040	49.332268	-55.3887
NFM, MT	PPDRY0A0	49.332268	-55.3887
NFM, MT	PDAST8H0	49.332268	-55.3887
NFM, MT	PMPOA240	49.332268	-55.3887
	PMPOA120	49.332268	-55.3887
	PDCPR010	49.332268	-55.3887
NFM	PPDRY0U0	49.470519	-55.4363
NFM, MT	PPOPH012	49.515101	-55.4293
NFM, MT	PDGEN070	49.515101	-55.4293
NFM	PDSCR1M0	49.515101	-55.4293

NFM	PMCYP033	49.515101	-55.4293
	PMPOA2V0	49.515101	-55.4293
	PMPOA2V0	49.515101	-55.4293

GIS Scan of Rare and Provincially/Federally Listed Species for Area of Interest in Central Newfoundland, Newfoundland and Labrador



APPENDIX D
POTENTIAL RARE FLORA SPECIES LIST

Table 1: Potential Rare Flora Species List

Scientific Name	Common Name	Taxa[1]	NL S-Rank	COSEWIC, NL ESA, SARA	SAR or SOCC	General Habitat
Agrostis perennans	Perennial Bentgrass	V	S2	---	SOCC	Anthropogenic (man-made or disturbed habitats), forests, shores of rivers or lakes
Alisma triviale	Northern Water-Plantain	V	S2	---	SOCC	Grows naturally in bogs and shallow water along shorelines Two individual observations were made in the central Mature Coniferous Forest ecotype.
Arnica angustifolia ssp. tomentosa	Woolly arnica	V	S1S2	NL ESA: Endangered	SAR	Most often grows in small clusters on limestone and has limited ability to multiply or colonize new areas.
Arnica griscomii ssp. griscomii	Griscom's arnica	V	S1S2	COSEWIC and SARA: Threatened NL ESA: Endangered	SAR	Limestone on ledges and partially shaded cliffs.
Astragalus alpinus var. brunetianus	Alpine Milk-Vetch	V	S2S3	---	SOCC	Wetlands.
Astragalus bodinii	Bodin's Milkvetch	V	S1	NL ESA: Threatened	SAR	Upland habitat, restricted to coastal areas in Newfoundland
Boechera stricta	Drummond's Rockcress	V	S2	---	SOCC	Cliffs, balds, or ledges, forests, talus and rocky slopes, woodlands
Botrychium matricariifolium	Chamomile Grape-Fern	V	S2S3	---	SOCC	Terrestrial. Forest edges, forests, meadows and fields.
Botrychium simplex	Little Grapefern	V	S2	---	SOCC	Anthropogenic (man-made or disturbed habitats), meadows and fields, shores of rivers or lakes
Braya fernaldii	Fernald's Braya	V	S1	COSEWIC, SARA, NL ESA: Endangered	SAR	Limestone barrens.
Braya humilis	Low Northern Rockcress	V	S1	NL ESA: Endangered	SAR	Limestone barrens found on exposed mountain ridges
Braya longii	Long's Braya	V	S1	COSEWIC, SARA, NL ESA: Endangered	SAR	Limestone barrens.
Buxbaumia minakatae	Hump-Backed Elves	N	S2?	COSEWIC: Candidate (Group 1, High Priority)	SOCC	Logs or stumps in swampy habitats.

Scientific Name	Common Name	Taxa[(1)]	NL S-Rank	COSEWIC, NL ESA, SARA	SAR or SOCC	General Habitat
Calla palustris	Wild Calla	V	S2S3	---	SOCC	Marshes, shores of rivers or lakes, swamps, wetland margins (edges of wetlands)
Carex conoidea	Field Sedge	V	S2	---	SOCC	Anthropogenic (man-made or disturbed habitats), meadows and fields, shores of rivers or lakes
Carex cryptolepis	Northeastern Sedge	V	S1	---	SOCC	Shores of rivers or lakes, wetland margins (edges of wetlands)
Carex deweyana var. deweyana	Short-Scale Sedge	V	S2	---	SOCC	Terrestrial. Forest edges, forests
Carex houghtoniana	Houghton's Sedge	V	S1	---	SOCC	Anthropogenic (man-made or disturbed habitats), forests, meadows and fields, ridges or ledges
Carex pseudocyperus	Cyperus-Like Sedge	V	S2	---	SOCC	Fens, marshes, shores of rivers or lakes, swamps
Carex umbellata	Hidden Sedge	V	S2	---	SOCC	Forests, meadows and fields
Chimaphila umbellata	Common Wintergreen	V	S2	---	SOCC	Forests. Terrestrial
Corallorhiza striata var. vreelandii	Vreeland's Striped Coralroot	V	S1	NL ESA: Endangered	SAR	Semi-open, second-growth forests of balsam fir, black spruce, eastern larch, speckled alder, balsam poplar and mountain white birch.
Crassula aquatica	Water Pigmy-Weed	V	S1	NL ESA: Vulnerable	SAR	Semi-aquatic. In Newfoundland, this species occupies wet, anthropogenically disturbed habitats such as quarry pits, roadside shoulders and ditches, and trail ruts. Coastal loving succulent found on sandy, gravelly, or muddy shores alongside oceans and brackish waterways.

Scientific Name	Common Name	Taxa[(1)]	NL S-Rank	COSEWIC, NL ESA, SARA	SAR or SOCC	General Habitat
Crataegus chrysocarpa	Fineberry Hawthorn	V	S2	---	SOCC	Terrestrial. Anthropogenic (man-made or disturbed habitats), forest edges, meadows and fields, shores of rivers or lakes, shrublands or thickets.
Crataegus chrysocarpa var. chrysocarpa	Fineberry Hawthorne	V	S2	---	SOCC	Terrestrial. Anthropogenic (man-made or disturbed habitats), forest edges, meadows and fields, shores of rivers or lakes, shrublands or thickets.
Crataegus macrosperma	Big-Fruit Hawthorn	V	S1	---	SOCC	Terrestrial. Anthropogenic (man-made or disturbed habitats), forest edges, meadows and fields, shrublands or thickets.
Cystopteris montana	Mountain Bladder Fern	V	S1	NL ESA: Endangered (Nf Population)	SAR	Wet woodlands, near watercourses,
Draba pycnosperma	Dense Draba	V	SH	COSEWIC: Special Concern NL ESA: Vulnerable	SAR	Small, perennial plant that grows in clumps on cliffs and rock outcrops
Dryopteris fragrans	Fragrant Cliff Wood-Fern	V	S2S3	---	SOCC	Terrestrial. Cliffs, balds, or ledges, ridges or ledges.
Eleocharis nitida	Slender Spike-Rush	V	S1	---	SOCC	Anthropogenic (man-made or disturbed habitats), meadows and fields.
Eleocharis ovata	Ovate Spikerush	V	S1	---	SOCC	Floodplain (river or stream floodplains), meadows and fields, shores of rivers or lakes.
Erigeron compositus	Cutleaf Fleabane	V	S1	NL ESA: Endangered	SAR	Talus slopes, often on calcareous soils.
Erioderma mollissimum	Vole Ears Lichen	L	S1S2	COSEWIC, SARA, NL ESA: Endangered	SAR	Humid forests. In Newfoundland, the species can be found in stands dominated by Balsam Fir. In mature or uneven-aged coniferous forests on gentle, well-drained to imperfectly-drained slopes.

Scientific Name	Common Name	Taxa[(1)]	NL S-Rank	COSEWIC, NL ESA, SARA	SAR or SOCC	General Habitat
Erioderma pedicellatum	Boreal Felt Lichen	L	S3	COSEWIC, SARA: Special Concern NL ESA: Vulnerable	SAR	On balsam fir in wet coniferous forests.
Eriophorum gracile	Slender Cotton-Grass	V	S1S2	---	SOCC	Bogs, fens, meadows and fields.
Erysimum coarctatum	Crowded Wormseed Mustard, Gulf of St. Lawrence wormseed mustard	V	S1	NL ESA: Endangered	SAR	---
Festuca rubra	Red Fescue	V	S2S3	---	SOCC	Terrestrial. Anthropogenic (man-made or disturbed habitats), cliffs, balds, or ledges, coastal beaches (sea beaches), meadows and fields, talus and rocky slopes.
Fraxinus nigra	Black Ash	V	S2S3	COSEWIC, NL ESA: Threatened	SAR	The species typically occurs in areas with rich, moist soils (e.g., bogs, flood plains, swamps, and stream banks), and occasionally on steep, limestone talus slopes
Gaultheria procumbens	Teaberry	V	S1	---	SOCC	Terrestrial. Anthropogenic (man-made or disturbed habitats), forest edges, forests, meadows and fields, woodlands).
Graphephorum melicoides	Purple False Oats	V	S2S3	---	SOCC	Terrestrial. Cliffs, balds, or ledges, ridges or ledges, shores of rivers or lakes.
Haplodontium macrocarpum	Porsild's Bryum	N	S1S3	COSEWIC, SARA, NL ESA: Threatened	SOCC	Mainly arctic or alpine climates, occurs on rock faces.
Hedysarum boreale ssp. mackenziei	Mackenzie's Sweetvetch	V	S1	NL ESA: Threatened	SOCC	Open limestone barrens.
Juncus gerardii	Black Grass	V	S2S3	---	SOCC	Aquatic, wetlands
Juncus subcaudatus	Woods-Rush	V	S1	---	SOCC	Wetlands. Anthropogenic (man-made or disturbed habitats), marshes, swamps.

Scientific Name	Common Name	Taxa[(1)]	NL S-Rank	COSEWIC, NL ESA, SARA	SAR or SOCC	General Habitat
Limosella australis	Mudwort	V	S1S2	---	SOCC	Aquatic. Wetlands. Brackish or salt marshes and flats, fresh tidal marshes or flats.
Maianthemum racemosum	Feathery False Solomon's Seal	V	S1	NL ESA: Endangered	SAR	Deciduous woods in addition to shaded roadsides and urban and suburban wood tracts. It is typically found in the elevation range of 0-800m.
Myriophyllum verticillatum	Whorled Water-Milfoil	V	S2S3	---	SOCC	Aquatic
Nabalus racemosus	Rattlesnakeroot, Glaucous Rattlesnake-root	V	S1	NL ESA: Endangered	SAR	Wetland, fen habitat.
Najas flexilis	Bushy Naiad	V	S2	---	SOCC	Aquatic
Neottia borealis	Northern Twayblade	V	S1	NL ESA: Endangered	SAR	Bogs, wetlands
Nymphoides cordata	Floating-Heart	V	S2	---	SOCC	Aquatic
Oclemena acuminata	Sharpleaf Aster	V	S1	NL ESA: Threatened	SAR	Sharpleaf aster is found in shaded woodland habitats
Pannaria lurida	Wrinkled Shingle Lichen	L	S1	COSEWIC, SARA, NL ESA: Threatened	SAR	In Newfoundland, cliff-side habitat on white spruce.
Pectenia plumbea	Blue Felt Lichen	L	S2S3	COSEWIC and SARA: Special Concern NL ESA: Vulnerable	SAR	Primarily on mature yellow birch in moist sites. Also occurs on red maple, trembling aspen, and non-native tree species.
Persicaria amphibia	Water Smartweed	V	S2		SOCC	Aquatic, wetlands
Pinus resinosa	Red Pine	V	S2	NL ESA: Threatened	SAR	Terrestrial. Wetland edges.
Platanthera unalascensis	Alaska Rein Orchid	V	S1	NL ESA: Endangered	SAR	Larch shrub swamps.
Potamogeton spirillus	Spiral Pondweed	V	S2	---	SOCC	Aquatic
Pyrola elliptica	Shinleaf	V	S2S3	---	SOCC	Terrestrial. Forests
Ranunculus flammula var. ovalis	Oval-leaved Creeping Spearwort	V	S1	NL ESA: Endangered	SAR	Low elevations, restricted to intermittent pools.
Ranunculus gmelinii	Gmelin's Watercrowfoot	V	S1	NL ESA: Endangered	SAR	Aquatic, shallow rivers with muddy bottoms.
Ranunculus macounii	Macoun Buttercup	V	S2S3	---	SOCC	Wetlands, ditches

Scientific Name	Common Name	Taxa[1]	NL S-Rank	COSEWIC, NL ESA, SARA	SAR or SOCC	General Habitat
Ranunculus pensylvanicus	Bristly Crowfoot	V	S2S3	---	SOCC	Terrestrial, wetlands. Anthropogenic (man-made or disturbed habitats), marshes, shores of rivers or lakes, swamps
Salix jejuna	Barrens Willow	V	S1S2	COSEWIC, SARA, NL ESA: Endangered	SAR	Limestone barrens.
Salix pedicellaris	Bog Willow	V	S2S3	---	SOCC	Wetlands. Fens, shores of rivers or lakes, swamps
Salix serissima	Autumn Willow	V	S2S3	---	SOCC	Wetlands. Fens, meadows and fields, swamps
Sparganium fluctuans	Floating Bur-Reed	V	S2S3	---	SOCC	Aquatic, wetlands
Symphyotrichum boreale	Northern Bog Aster	V	S1	NL ESA: Endangered	SAR	Wetland, fen habitat.
Symphyotrichum ciliolatum	Lindley's Aster	V	S2	NL ESA: Endangered	SAR	Open, calcareous boreal deciduous forests, openings, clearings.
Symphyotrichum tradescantii	Tradescant Aster	V	S1	NL ESA: Threatened	SAR	It is a plant of shoreline habitats that can survive periods of complete inundation in wet years.
Thelypteris quelpaertensis	Mountain Fern	V	S1	NL ESA: Vulnerable	SAR	Moist, open subalpine meadows, beside lake shores, brooks, and springs
Zannichellia palustris	Horned Pondweed	V	S2S3	---	SOCC	Aquatic

[1] V = vascular plant, N = non-vascular plant/bryophyte, L = lichen

APPENDIX E
VEGETATION AND WETLANDS PHOTO LOG

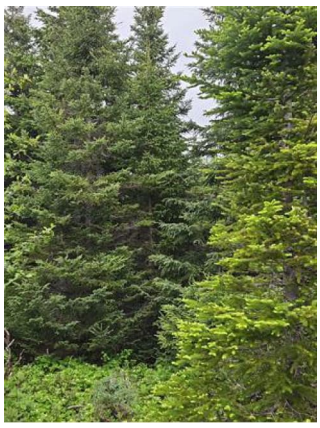


Photo 1: Representative photo of Softwood Forest, balsam fir forest type (HP 1).

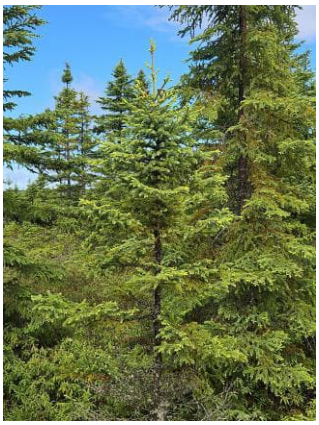


Photo 2: Representative photo of Softwood Forest, Kalmia black spruce forest type (HP 2).

Photo 3: Representative Softwood Forest, Black spruce forest type (HP 3).

Photo 4: Representative photo of Hardwood Forest (HP 4).

Photo 5: Representative photo of Hardwood Forest ground cover (HP 4).

Photo 6: Representative photo Mixedwood Forest (HP 5).

Photo 7: Representative photo of Coniferous Shrub (HP 6).

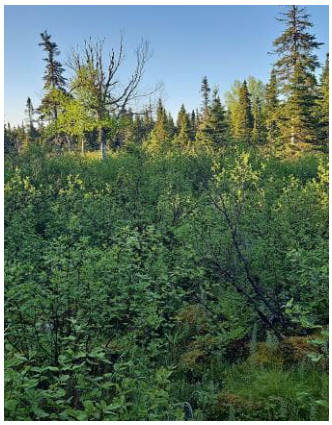


Photo 8: Representative photo of Deciduous Scrub (HP 7).

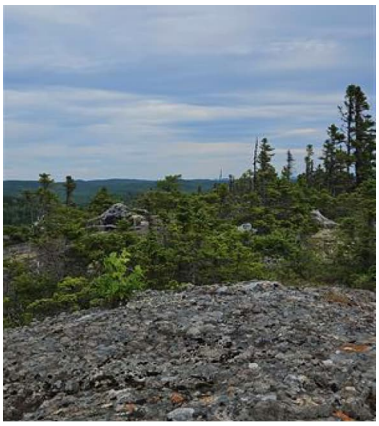


Photo 9: Representative photo of Barrens (HP 8).

Photo 10: Representative photo of a Bog/ Open Peatland (HP 9).

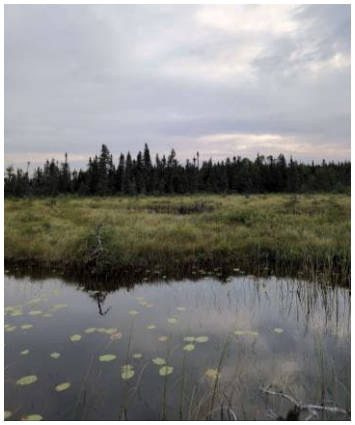


Photo 11: Representative photo of a swamp with open water (HP 10).

Photo 12: Representative photo of Open Water (HP 11).

Photo 13: Representative photo of a regenerating stand, (anthropogenic, HP 12).	Photo 14: Representative photo of a road (anthropogenic, HP 13).

APPENDIX F
FIELD FLORA LIST

Table 1: Field Flora Species List

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Vascular Plants						
Abies balsamea	Balsam fir	S5	---	---	---	No
Acer ginnala	Amur maple	SNA	---	---	---	Yes
Acer spicatum	Mountain maple	S5				No
Acer rubrum	Red maple	S5	---	---	---	No
Achillea millefolium	Common yarrow	SNA	---	---	---	No
Amelanchier bartramiana	Bertram's serviceberry	S5	---	---	---	No
Anaphalis margaritacea	Pearly everlasting	S4S5	---	---	---	No
Andromeda polifolia	Bog rosemary	S5	---	---	---	No
Aralia nudicaulis	Wild sarsaparilla	S5	---	---	---	No
Athyrium filix-femina	Lady fern	S5	---	---	---	No
Alnus alnobetula	Green alder	S5	---	---	---	No
Bellis perennis	Lawn daisy	SNA	---	---	---	No
Betula michauxii	Newfoundland dwarf birch	S5	---	---	---	No
Betula papyrifera	Paper birch	S5	---	---	---	No
Calamagrostis canadensis	Bluejoint reedgrass	S5	---	---	---	No
Centaurea nigra	Black starthistle	SNA	---	---	---	No
Chamaedaphne calyculata	Leatherleaf	S5	---	---	---	No
Chamerion angustifolium	Fireweed	S5	---	---	---	No
Chelone glabra	White turtlehead	S4	---	---	---	No
Chimaphila umbellata	Common wintergreen	S2	---	---	---	No
Cirsium muticum	Swamp thistle	S5	---	---	---	No
Clintonia borealis	Clinton lily	S5	---	---	---	No
Coptis trifolia	Goldthread	S5	---	---	---	No
Cornus canadensis	Dwarf dogwood	S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Cornus suecica	Swedish dwarf dogwood	S4	---	---	---	No
Cypripedium acaule	Pink lady's-slipper	S4	---	---	---	No
Dasiphora fruitocosa subsp. floribunda	Shrubby cinquefoil	S4S5	---	---	---	No
Lycopodium dendroideum	Treelike clubmoss	S4	---	---	---	No
Diphasiastrum sitchense	Sitka clubmoss	S3S4	---	---	---	No
Doellingeria umbellata	Parasol white-top	S5	---	---	---	No
Drosera rotundifolia	Roundleaf sundew	S5	---	---	---	No
Dryopteris campyloptera	Mountain wood-fern	S5	---	---	---	No
Dryopteris cristata	Crested wood fern	S3S4	---	---	---	No
Empetrum nigrum	Black crowberry	S5	---	---	---	No
Epigaea repens	Trailing arbutus	S3S4	---	---	---	No
Equisetum fluviatile	Water horsetail	S4	---	---	---	No
Eriocaulon aquaticum	Seven-angled pipewort	S5	---	---	---	No
Eriophorum angustifolium	Narrow-leaved cotton-grass	S4S5	---	---	---	No
Eriophorum virginicum	Tawny cotton grass	S4S5	---	---	---	No
Eriophorum viridicarinatum	Green keeled cottongrass	S4S5	---	---	---	No
Euphrasia nemorosa	Common eyebright	S4S5	---	---	---	No
Eurybia radula	Rough-leaved aster	S5	---	---	---	No
Euthamia graminifolia	Flat-top fragrant-golden-rod	S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Eutrochium maculatum	Spotted joe-pye weed	S4S5	---	---	---	No
Fragaria virginiana	Virginia strawberry	S5	---	---	---	No
Gaultheria hispidula	Creeping snowberry	S5	---	---	---	No
Gymnocarpium dryopteris	Northern oak fern	S5	---	---	---	No
Ilex mucronata	Mountain holly	S5	---	---	---	No
Iris versicolor	Blue flag iris	S5	---	---	---	No
Juncus conglomeratus	Compact rush	SNA	---	---	---	No
Juniperus communis	Ground juniper	S5	---	---	---	No
Juniperus horizontalis	Creeping juniper	S5	---	---	---	No
Kalmia angustifolia	Sheep-laurel	S5	---	---	---	No
Kalmia polifolia	Pale laurel	S5	---	---	---	No
Larix laricina	American larch	S5	---	---	---	No
Leucanthemum vulgare	Oxeye daisy	SNA	---	---	---	Yes
Linaria vulgaris	Butter-and-eggs	SNA	---	---	---	Yes
Linnaea borealis	Twinflower	S5	---	---	---	No
Lonicera villosa	Mountain fly-honeysuckle	S5	---	---	---	No
Lysimachia borealis	Northern starflower	S5	---	---	---	No
Maianthemum canadense	Wild lily-of-the-valley	S5	---	---	---	No
Maianthemum trifolium	Three-leaf Solomon's-plume	S5	---	---	---	No
Matricaria discoidea	Pineapple-weed chamomile	SNA	---	---	---	No
Matteuccia struthiopteris	Ostrich fern	S3S4	---	---	---	No
Mitella nuda	Naked bishops cap	S5	---	---	---	No
Monotropa uniflora	Ghost pipe	S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Myrica gale	Sweet bayberry	S5	---	---	---	No
Nabalus trifoliolatus	Three leaf rattlesnake-root	S5	---	---	---	No
Nuphar variegata	Yellow cowlily	S5	---	---	---	No
Oclemena nemoralis	Bog aster	S5	---	---	---	No
Oenothera biennis	Common evening-primrose	SNA	---	---	---	No
Onoclea sensibilis	Sensitive fern	S4S5	---	---	---	No
Orthilia secunda	One-sided wintergreen	S5	---	---	---	No
Osmunda regalis	Royal fern	S4S5	---	---	---	No
Osmundastrum cinnamomeum	Cinnamon fern	S5	---	---	---	No
Packera aurea	Golden groundsel	S3S4	---	---	---	No
Picea glauca	White spruce	S5	---	---	---	No
Picea mariana	Black spruce	S5	---	---	---	No
Pilosella aurantiaca	Orange hawkweed	SNA	---	---	---	Yes
Pinus resinosa	Red pine	S2	---	---	Threatened	No
Pinus strobus	White pine	S3	---	---	---	No
Plantago major	Nipple-seed plantain	SNA	---	---	---	No
Platanthera obtusata	Small northern bog-orchid	S4	---	---	---	No
Pogonia ophioglossoides	Snakemouth	S4	---	---	---	No
Polypodium virginianum	Rock polypody	S2S3	---	---	---	No
Populus tremuloides	Quaking aspen	S4S5	---	---	---	No
Potentilla anserina	Silverweed	S5	---	---	---	No
Prunella vulgaris	Self-heal	S3S5	---	---	---	No
Pteridium aquilinum	Bracken	S4S5	---	---	---	No
Pyrola elliptica	Shinleaf	S2S3	---	---	---	No
Ranunculus repens	Creeping buttercup	SNA	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Rhinanthus minor	Little yellow-rattle	S3	---	---	---	No
Rhododendron canadense	Rhodora	S5	---	---	---	No
Rhododendron groenlandicum	Common labrador-tea	S5	---	---	---	No
Rhynchospora alba	White beakrush	S4S5	---	---	---	No
Ribes glandulosum	Skunk currant	S5	---	---	---	No
Rosa nitida	Shining rose	S4S5	---	---	---	No
Rubus arcticus	Northern blackberry	S3S4	---	---	---	No
Rubus chamaemorus	Cloudberry	S5	---	---	---	No
Rubus idaeus	Red raspberry	S5	---	---	---	No
Rubus pubescens	Dwarf red raspberry	S5	---	---	---	No
Rumex acetosella	Sheep sorrel	SNA	---	---	---	No
Sambucus racemosa	Red elderberry	S4	---	---	---	No
Sanguisorba canadensis	Canada burnet	S5	---	---	---	No
Sarracenia purpurea	Northern pitcher-plant	S5	---	---	---	No
Scheuchzeria palustris	Pod grass	S3S4	---	---	---	No
Scirpus atrocinctus	Black-girdle bulrush	S5	---	---	---	No
Sibbaldia tridentata	Three-toothed cinquefoil	S4S5	---	---	---	No
Solidago rugosa	Rough-leaf goldenrod	S5	---	---	---	No
Solidago uliginosa	Bog goldenrod	S5	---	---	---	No
Sorbus americana	American mountain-ash	S4S5	---	---	---	No
Spinulum annotinum	Stiff clubmoss	S5	---	---	---	No
Spiraea alba	White meadowsweet	S4S5	---	---	---	No
Spiranthes romanzoffiana	Hooded ladies' tresses	S4S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Symphyotrichum puniceum	Swamp aster	S5	---	---	---	No
Tanacetum vulgare	Common tansy	SNA	---	---	---	No
Taraxacum officinale	Common dandelion	SNA	---	---	---	No
Thalictrum pubescens	Tall meadow-rue	S5	---	---	---	No
Thelypteris noveboracensis	New York fern	S4	---	---	---	No
Thelypteris palustris	Marsh fern	S3S4	---	---	---	No
Trichophorum cespitosum	Deergrass	S5	---	---	---	No
Trifolium pratense	Red clover	SNA	---	---	---	No
Typha latifolia	Broad-leaved cattail	SNA	---	---	---	No
Utricularia cornuta	Horned bladderwort	S5	---	---	---	No
Vaccinium angustifolium	Late lowbush blueberry	S5	---	---	---	No
Vaccinium oxycoccos	Small cranberry	S5	---	---	---	No
Vaccinium vitis-idaea	Mountain cranberry	S5	---	---	---	No
Viola macloskeyi	Smooth white violet	S5	---	---	---	No
Bryophytes (Non-vascular)						
Bazzania trilobata	Three-lobed bazzania	S4S5	---	---	---	No
Dicranum polysetum	Wavy-leaved broom moss	S4S5	---	---	---	No
Dicranum scoparium	Common broom moss	S4S5	---	---	---	No
Dicranum undulatum	A Dicranum moss	S4S5	---	---	---	No
Fontinalis antipyretica	Common water moss	S4	---	---	---	No
Fontinalis novae-angliae	New England water moss	S4	---	---	---	No
Hylocomiastrum umbratum	Shaded wood moss	S4S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Hylocomium splendens	Stairstep moss	S5	---	---	---	No
Hypnum imponens	Pellucid plait moss	S4				No
Mnium hornum	Swan's-neck leafy moss	S3S4	---	---	---	No
Neckera pennata	Feathery Neckera moss	S4	---	---	---	No
Pleurozium schreberi	Scherber's feathermoss	S4S5	---	---	---	No
Polytrichum commune	Common haircap moss	S4S5	---	---	---	No
Polytrichum piliferum	Bristly haircap moss	S4S5	---	---	---	No
Polytrichum strictum	Bog haircap moss	S4S5	---	---	---	No
Radula complanata	Flat-leaved scalewort	S3S4	---	---	---	No
Scapania nemorea	Grove earwort	S3S5	---	---	---	No
Sphagnum capillifolium	Northern peat moss	S4	---	---	---	No
Sphagnum cuspidatum	Feathery peat moss	S4S5	---	---	---	No
Sphagnum girgensohnii	Green peat moss	S5	---	---	---	No
Sphagnum magellanicum	Magellan's peat moss	S4S5	---	---	---	No
Sphagnum majus	Greater peatmoss	S4	---	---	---	No
Sphagnum palustre	Prairie peatmoss	S4	---	---	---	No
Sphagnum papillosum	Papillose peat moss	S5	---	---	---	No
Sphagnum riparium	Streamside sphagnum	S4	---	---	---	No
Sphagnum rubellum	Red peat moss	S5	---	---	---	No
Sphagnum russowii	Russow's peat moss	S4	---	---	---	No
Sphagnum squarrosum	Shaggy peat moss	S4S5	---	---	---	No
Sphagnum wulfianum	Wulf's peatmoss	SU	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Ulota coarctata	---	S3	---	---	---	No
Ulota crispa	Crisped pinchusion moss	S3S4	---	---	---	No
Ulota hutchinsiae	Hutchin's pincushion moss	S3	---	---	---	No
Lichens (Non-vascular)						
Arctoparmelia centrifuga	Ripple ringle lichen	S5	---	---	---	No
Arctoparmelia incurva	Finger ring lichen	S5	---	---	---	No
Bacidia schweinitzii	---	SNR	---	---	---	No
Baeomyces rufus	Brown beret lichen	S4	---	---	---	No
Biatora vernalis	---	S5	---	---	---	No
Bryoria furcellata	Burred horsehair lichen	S5	---	---	---	No
Bryoria nadvornikiana	Blonde horsehair lichen	S4	---	---	---	No
Calicium abietinum	---	SNR	---	---	---	No
Calicium glaucellum	---	SNR	---	---	---	No
Calicium lenticulare	---	SNR	---	---	---	No
Cetraria aculetea	Spiny heath lichen	S4S5	---	---	---	No
Cetraria islandica	True icelandmoss lichen	S4	---	---	---	No
Cetraria laevigata	Pin-striped icelandmoss lichen	S4	---	---	---	No
Cetraria muricata	Spiny heath lichen	S3S5	---	---	---	No
Chaenotheca brunneola	Brown-head stubble lichen	SNR	---	---	---	No
Chaenotheca chrysocephala	---	SNR	---	---	---	No
Chaenotheca furfuracea	---	SNR	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Chaenotheca trichalis	---	SNR	---	---	---	No
Cladonia amaurocraea	Quill lichen	S3S5	---	---	---	No
Cladonia arbuscula	Reindeer lichen	S5	---	---	---	No
Cladonia boryi	Fishnet lichen	S5	---	---	---	No
Cladonia cenotea	Powdered funnel lichen	S5	---	---	---	No
Cladonia chlorophaea	Mealy pixie-cup lichen	S5	---	---	---	No
Cladonia cornuta	Bighorn pixie lichen	S5	---	---	---	No
Cladonia crispata	Orangepipe lichen	S5	---	---	---	No
Cladonia cristatella	British soldiers lichen	S5	---	---	---	No
Cladonia digitata	Fingered pixie-cup lichen	S5	---	---	---	No
Cladonia fimbriata	Cup lichen	S5	---	---	---	No
Cladonia furcata	Forking lichen	SU	---	---	---	No
Cladonia gracilis	Cup lichen	S5	---	---	---	No
Cladonia macilenta	Lipstick powderhorn lichen	S4S5	---	---	---	No
Cladonia maxima	Giant Cladonia lichen	S5	---	---	---	No
Cladonia multiformis	Sieve Lichen	S4	---	---	---	No
Cladonia ochrochlora	Smooth-footed powderhorn lichen	S5	---	---	---	No
Cladonia pleurota	Red-fruited Pixie-cup	S5	---	---	---	No
Cladonia rangiferina	Gray reindeer lichen	S5	---	---	---	No
Cladonia squamosa	Dragon Lichen	S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Cladonia stellaris	Star-tipped Reindeer Lichen	S5	---	---	---	No
Cladonia strepsilis	Olive cladonia lichen	SU	---	---	---	No
Cladonia stygia	Black-footed reindeer lichen	S5	---	---	---	No
Cladonia terrae-novae	Newfoundland reindeer lichen	S5	---	---	---	No
Cladonia uncialis	Thorn lichen	S5	---	---	---	No
Cladonia verticillata	Ladder lichen	SNR	---	---	---	No
Collema subflaccidum	Blistered tarpaper lichen	S3S4	---	---	---	No
Dermatocarpon luridum	Brookside stippleback lichen	SU	---	---	---	No
Dibaeis baeomyces	Pink Earth Lichen	S5	---	---	---	No
Dolichousnea longissima	Methuselah's beard lichen	S3S5	---	---	---	No
Fuscopannaria ahlneri	Roughened shingle lichen	S3S4	---	---	---	No
Graphis scripta	---	SNR	---	---	---	No
Heterodermia neglecta	Fringe lichen[2]	S1	---	---	---	No
Heterodermia speciosa	Powdered fringe lichen	SU	---	---	---	No
Hypogymnia incurvoides	Lattice tube lichen	S4S5	---	---	---	No
Hypogymnia krogiae	Freckled tube lichen	S5	---	---	---	No
Hypogymnia physodes	Monk's hood lichen	S5	---	---	---	No
Hypogymnia tubulosa	Powder-headed tube lichen	S5	---	---	---	No
Hypogymnia vittata	Slender monk's good lichen	S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Icmadophila ericetorum	---	SNR	---	---	---	No
Imshaugia aleurites	Salted starburst lichen	S5	---	---	---	No
Imshaugia placorodia	Eyed starburst lichen	SNR	---	---	---	No
Ionaspis lacustris	---	SNR	---	---	---	No
Lasallia papulosa	Brown-bellied toadskin lichen	S5	---	---	---	No
Lecanora caesiorubella	---	SNR	---	---	---	No
Lecanora thysanophora	---	SNR	---	---	---	No
Lecidea albofuscescens	---	SNR	---	---	---	No
Lepra amara	---	SNR	---	---	---	No
Lepra multipunctoides	---	SNR	---	---	---	No
Lepraria finkii	Fluffy dust lichen	SNR	---	---	---	No
Lepraria neglecta	Zoned dust lichen	SNR	---	---	---	No
Leptogium acadiense	Acadia jelly lichen	S2S3	---	---	---	No
Leptogium cyanescens	Blue jellyskin lichen	S3S4	---	---	---	No
Lobaria pulmonaria	Lungwort lichen	S4	---	---	---	No
Lobaria scrobiculata	Textured lungwort lichen	S4	---	---	---	No
Loxospora ochrophaea	---	SNR	---	---	---	No
Menegazzia subsimilis	Tree flute lichen	S3S4	---	---	---	No
Menegazzia terebrata	Magic flute lichen	S3S4	---	---	---	No
Mycoblastus sanguinarioides	---	S5	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Nephroma bellum	Naked kidney lichen	S3S4	---	---	---	No
Nephroma helveticum	Fringed kidney lichen	SU	---	---	---	No
Nephroma laevigatum	Mustard kidney lichen	S3S4	---	---	---	No
Nephroma parile	Powdery kidney lichen	S3S4	---	---	---	No
Normandina pulchella	Rimmed elf-ear lichen	SNR	---	---	---	No
Pannaria rubiginosa	Brown-eyed shingle lichen	S3	---	---	---	No
Parmelia saxatilis	Salted shield lichen	S5	---	---	---	No
Parmelia squarrosa	Bottlebrush shield lichen	S5	---	---	---	No
Parmelia sulcata	Hammered shield lichen	S5	---	---	---	No
Parmeliella triptophylla	Black-bordered shingles lichen	S3S4	---	---	---	No
Parmeliopsis capitata	Powder-tipped starburst lichen	S4S5	---	---	---	No
Pectenia plumbea	Blue Felt Lichen	S2S3	Special Concern	Special Concern	Vulnerable	No
Peltigera aphthosa	Common freckle pelt lichen	S4S5	---	---	---	No
Peltigera canina	Dog lichen	S5	---	---	---	No
Peltigera didactyla	Alternating pelt lichen	S4S5	---	---	---	No
Peltigera extenuata	Sheepish pelt lichen	SU	---	---	---	No
Peltigera membranacea	Membranous pelt lichen	S4S5	---	---	---	No
Peltigera polydactylon	Many-fruited pelt lichen	S3S5	---	---	---	No
Peltigera praetextata	Born-again pelt lichen	SU	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Pertusaria consocians	---	SNR	---	---	---	No
Phaeocalicium compressulum	Alder needle lichen	SU	---	---	---	No
Platismatia glauca	Varied rag lichen	S4S5	---	---	---	No
Platismatia norvegica	Oldgrowth rag lichen	S3S5	---	---	---	No
Platismatia tuckermanii	Crumpled rag lichen	SU	---	---	---	No
Polycauliona candelaria	Pinchusion sunburst lichen	SU	---	---	---	No
Porpidia albocaerulscens	---	SNR	---	---	---	No
Porpidia crustulata	---	SNR	---	---	---	No
Porpidia macrocarpa	---	SNR	---	---	---	No
Porpidia tuberculosa	Boulder lichen	SNR	---	---	---	No
Protopannaria pezizoides	Brown-gray moss-shingle lichen	S3S4	---	---	---	No
Racodium rupestre	Rock Hair Lichen	---	---	---	---	No
Ramalina dilacerata	Punctured Ramalina lichen	S1S3	---	---	---	No
Ramalina roesleri	Frayed Ramalina lichen	S4	---	---	---	No
Rhizocarpon cinereovirens	---	SNR	---	---	---	No
Rhizocarpon concentricum	---	SNR	---	---	---	No
Rhizocarpon geographicum	Yellow map lichen	SNR	---	---	---	No
Rhizocarpon reductum	a map lichen	SNR	---	---	---	No
Rhizocarpon macrosporum	---	SNR	---	---	---	No
Ricasolia quercizans	Smooth lung lichen	S3S4	---	---	---	No

Scientific Name	Common Name	S-Rank	COSEWIC	SARA	NL ESA	Invasive[1]
Sclerophora peronella	Frosted Glass-whiskers	SU	---	---	---	No
Sphaerophorus globosus	Northern coral lichen	S3S5	---	---	---	No
Stenocybe major	---	SNR	---	---	---	No
Stictis urceolatum	---	S4	---	---	---	No
Thelotrema lepadinum	---	SNR	---	---	---	No
Tuckermannopsis americana	Fringed wrinkle lichen	S4S5	---	---	---	No
Tuckermannopsis orbata	Variable wrinkle lichen	SU	---	---	---	No
Umbilicaria americana	Frosted rocktripe lichen	SU	---	---	---	No
Umbilicaria deusta	Peppered rocktripe lichen	S4?	---	---	---	No
Umbilicaria hyperborea	Blistered rocktripe lichen	S4S5	---	---	---	No
Umbilicaria mammulata	Smooth rocktripe lichen	SU	---	---	---	No
Umbilicaria muhlenbergii	Plated rock tripe	S3S5	---	---	---	No
Umbilicaria vallea	Grizzled rocktripe lichen	S3S4	---	---	---	No
Usnea subfloridana	Nit beard lichen	SU	---	---	---	No
Usnea trichodea	Bony beard lichen	SNR	---	---	---	No
Vahliella leucophaea	Shelter shingle lichen	SU	---	---	---	No

[1] As per the Canadian Invasive Plant List (https://ccipr.ca/canadian-invasive-plant-lists/)

[2] Observed outside of the Project Area, only.