



# EIA Registration Document

Residential Development, Glory View Estates

**PREPARED FOR – MURRAY MUNN & SONS LTD.**

c/o Keith Munn, President  
1378 Route 8 Highway,  
Nashwaak Bridge, NB  
E6C 1T5

**Project 22-0264**  
**Aug 15, 2022**

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c/o Keith Munn, President  
1378 Route 8 Highway,  
Nashwaak Bridge, NB  
E6C 1T5

Attention: Justin Chase

**Re: EIA Registration Document, Residential Development Glory View Estates, Penniac, New Brunswick**

Boreal Environmental has prepared the following EIA Registration Document for the proposed residential development in the Glory View Estates community in Penniac, New Brunswick.

This report provides descriptions of the location, proposed activities, existing environment, potential impacts, and proposed mitigation for the project as well as a description of assessment work done to date and a description of additional planned studies.

Do not hesitate to contact the undersigned with any questions regarding the information presented herein.

Sincerely,



Derrick Mitchell, BScF, RPF.

President

Boreal Environmental Ltd.



| Acronym | Definition  |
|---------|---|
| ACCDC   | Atlantic Canada Conservation Data Centre                      |
| BMP(s)  | Best Management Practice(s)                                   |
| COSEWIC | Committee on the Status of Endangered Wildlife in Canada      |
| ECCC    | Committee on the Status of Endangered Wildlife in Canada      |
| EIA     | Environmental Impact Assessment                               |
| NBNRED  | (New Brunswick) Department of Energy and Resource Development |
| NBDELG  | New Brunswick Department of Environment and Local Government  |
| NBESA   | New Brunswick Endangered Species Act                          |
| NBSARA  | New Brunswick Species at Risk Act                             |
| NBHN    | New Brunswick Hydrographic Network                            |
| PID     | Parcel Identifier   |
| SAR     | Species at Risk   |
| SARA    | Federal Species at Risk Act                                   |
| SNB     | Service New Brunswick   |
| SOCC    | Species of Conservation Concern                               |
| TRC     | EIA Technical Review Committee                                |
| WAWA    | Watercourse and Wetland Alteration (Regulation)               |

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## 1 Introduction

Boreal Environmental (Boreal) was retained by Murray Munn and Sons Ltd. (herein “Proponent”) to prepare an Environmental Impact Assessment (EIA) Registration Document for the expansion of a residential subdivision within the existing Glory View Estates Subdivision in Penniac, New Brunswick. The residential subdivision is proposed to be constructed on portions of the two properties identified by Service New Brunswick (SNB) as Parcel Identifiers (PIDs) 75226894 and 75537191.

This registration document is required under the New Brunswick Environmental Impact Assessment Regulation 87-83 of the Clean Environment Act. As per Item (t) of Schedule “A” of “A Guide to Environmental Impact Assessment in New Brunswick”, the project is a major development outside an incorporated area.

## 2 Proponent and Project Information

|                             |   |
|-----------------------------|---|
| <b>Name of Undertaking</b>  | Glory View Estates  |
| <b>Name of Proponent</b>    | Murray Munn and Sons Ltd.   |
| <b>Address of Proponent</b> | 1378 Route 8 Highway, Nashwaak Bridge, NB E6C 1T5   |
| <b>Proponent Contact</b>    | Keith Munn (same address as above)<br>(506) 461-6077<br><a href="mailto:kgmunn@hotmail.com">kgmunn@hotmail.com</a>  |
| <b>Property Ownership</b>   | Murray Munn and Sons Ltd.   |
| <b>EIA Contact</b>          | Derrick Mitchell, Boreal Environmental Ltd.<br><a href="mailto:Derrick@borealenvironmental.com">Derrick@borealenvironmental.com</a><br>Bus: (506) 651-1346<br>511 Bay Street, Saint John, NB, E2M 7L3 |

## 3 Project Description

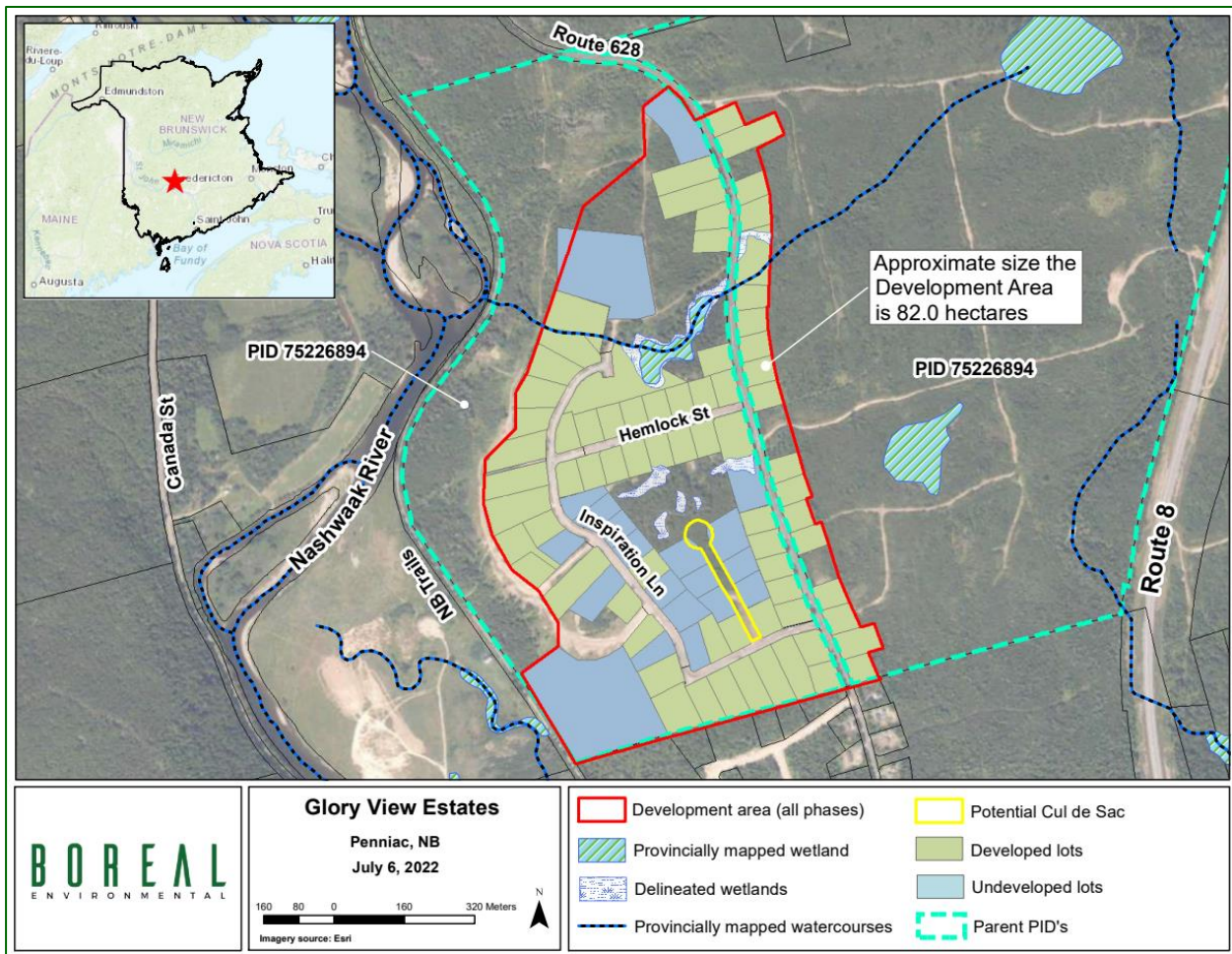
### 3.1 Project Location

The Glory View Estates project is a residential development in Penniac, New Brunswick located between Route 628 and the NB Trail along the Nashwaak River, with some developed lots located along the road frontage of Route 628. The development is within the former PIDs 75226894 and 75537191, but has been subdivided into residential lots, with 76 lots having been previously sold and developed and a further 20-24 lots yet to be developed as shown in Figure 1. The Project area includes both the 76 previously sold and/or developed lots and 20 -24 undeveloped lots as well as some of the parent PID 75537191 which is included as a potential option to include up to four additional residential lots. The Road network to access the lots has largely been developed and includes a portion of Route 628, Hemlock Street, and Inspiration Lane. The remaining 20-24 lots are only anticipated to require a cul-de-sac (approximately 350 m in length) to enter the six undeveloped lots that do not currently have road access in the center of the southern portion of the development.

### 3.2 Project Overview

The proposed undertaking consists of the previously constructed residential subdivision with lots constructed along Route 628 and along Hemlock Street and Inspiration Lane (Figure 1) for residential lots and home development. The relocation of Route 8 and associated interchanges to the east has facilitated access to properties along the Nashwaak Valley and these properties have become more desirable for residential development purposes. The adjacent property to the south has been developed for similar purposes.

While portions of the subject properties (PIDs 75226894 and 75537191) have been developed as residential lots as a part of the Glory View Estates development since 2000, the proposal to develop additional portions of the lands for residential purposes requires that the entire development be registered under the Environmental Impact Assessment Regulation (87-83) – Clean Environment Act; Schedule A, (t) all major residential developments outside of incorporated areas.



**FIGURE 1.** MAP OF THE DEVELOPMENT AREA, EXISTING AND UNDEVELOPED LOTS.

### 3.3 Project Rationale

As previously noted, sections of the parent PID properties have been developed in small phases since 2000. This project proposal is intended to enable the “build-out” of the properties to the west of Route 628 (including the previously developed residential lots on the east side of Route 628) (figure 1) for residential lots and home development. As previously stated, the re-development of Route 8 and associated interchanges has facilitated access to properties along the Nashwaak Valley and these properties have become more desirable for residential development purposes.

The proposed development is free of the flood prone area and would complete the development of Glory View Estates, adding tax revenue to the province (and future Nashwaak Ward) and will make provincial maintenance of the associated road network more cost-effective. There have been no maintenance or

drainage problems identified with the existing Inspiration Lane and Hemlock Street that might be amplified by adding additional density.

### 3.4 Siting Considerations

The development and the surrounding area a part of the proposed Nashwaak Ward (Entity 68), along with the communities of Stanley, Saint Marys, Estey's Bridge and Douglas. The local governance reform that will incorporate this Ward is currently underway. Future development plans or guidelines for this entity are not yet known.

This Registration seeks approval to develop areas within the Development Area as shown on Figure 1. However, the final layout of the 20-24 lots, including the identified undeveloped lots or any new potential lots, is subject to the approvals of this Environmental Impact Assessment (EIA) process.

Portions of the PID 75537191 have been omitted from the Development Area due to known constraints such as steep slopes and unmapped wetlands and will remain undeveloped. Wetlands within the Development Area will be avoided to the extent possible.

Existing wells on previously developed residential lots have been shown to have water quality that meets federal Drinking Water Quality Guidelines and no issues (quality or quantity) have been identified by existing homeowners. The proponent has engaged a qualified professional to undertake a Water Supply Source Assessment (WSSA) to ensure there is sufficient water to support the proposed development.

Additionally, there are two watercourse and wetland features on the lands proposed for development. On-site delineation of these features as a part of this EIA process will be carried out and information gained will be used to refine and finalize lot size and shape. This will also determine any further requirements for approval within the Watercourse and Wetlands Alteration Approvals process.

Lands are currently zoned Rural under the existing Rural Plan. The proposed development of residential lots is consistent with the current Rural Plan and the uses identified in the policies around a Rural zoning. Regional Service Commission 11 Planning and Development Authority will be informed through the EIA process.

To address specific requirements outlined by NBDELG in the Siting Considerations, we offer the following:

- Given the existing development and disturbance history of the Development Area, it is unlikely that archaeological resources would be identified on this site with historical context.
- It is understood that a WAWA permit will be required if the Project is approved.
- The Project is not located within Zone A or B as prescribed in "A Coastal Areas Protection Policy for New Brunswick".
- The Development Area is not within the provincially identified Flood Risk zone.

### 3.5 Physical Components and Dimensions of Project

The Project Includes 76 lots that have already been developed or sold over the last 20 years and 20 additional undeveloped lots, as well as some additional area to allow for flexibility to develop additional lots (to a maximum of 25 new lots) or redefine residential lot boundaries of some of the previously subdivided 20 undeveloped lots as needed, based on the findings of this EIA review. The extent of potential development area is 82 ha in size and is shown on Figure 1 as the Development Area. The final development layout is subject to mitigation required to avoid any sensitive features or other constraints identified through the EIA process. This would complete the planned residential development for the two properties and any subsequent proposal for development of the eastern portion of the properties will be subject to approvals processes that are in place at that time. Several areas of the Development Area may be reserved as land that will not be developed, although the configuration of these will also be determined by the EIA process based on findings of additional field surveys and feedback from the TRC (technical review committee).

The existing homes in the development have wells that have been developed following provincial guidelines, and the water quality and quantity information they provide will be utilized by the professional that will undertake the Water Supply Source Assessment for the proposed project.

All existing on-site wastewater management (septic) systems have been constructed to provincial standards, as will any additional future systems. All new roadways and required easements will be designed and constructed to provincial standards.

While the final layout and lot numbers have not yet been determined, the Project will include the following components:

- The 76 existing developed lots, their septic systems, and wells;
- The two roads that were constructed to access these lots (Hemlock Street and Inspiration Lane, which are provincially managed);
- Up to 24 new lots including the 20 undeveloped lots identified on Figure 1, along with their provincially regulated septic systems, and drinking wells; and
- A new, 350-metre-long additional cul-de-sac leading off Inspiration Lane, as shown on Figure 1 to be developed to DTI standards and ultimately maintained by the province.

### 3.6 Construction Details

The proponent will undertake the construction of the proposed cul-de-sac and potential pollutants that could be generated during the construction phase include:

- Noise associated with the operation of machinery, vehicles, and equipment.

Airborne emissions (volatile organics) associated with the operation of machinery,  
Vehicles and equipment.

- Dust associated with exposed soils and/or wind.
- Sediment in runoff during construction.
- Minor releases of hydraulic/diesel spills from equipment, vehicles and machinery operating on-site.
- Solid waste generated as part of general construction activities (i.e., excess PVC piping, concrete, asphalt, cardboard, plastics etc.).

The mitigation measures employed to reduce impacts to the environment are discussed in further detail in Section 6.0 of this report.

Following the completion of the below grade construction and finishing of the cul-de-sac, and the final step of construction consists of the individual development of the residential lots. The Proponent has indicated that the construction of the 20-24 residential dwellings will be built over a period of 10 years beginning in 2022, subject to market conditions. Individuals purchasing lots may choose to build/development in a later time frame.

### 3.7 Operation and Maintenance Details

Upon the completion of the construction of the infrastructure for the subdivision, each of the residential dwellings will be sold and privately owned. Therefore, the operation and maintenance that will occur post-construction will be the responsibility of the owner of the individual residences.

Potable water and septic systems will be maintained by the individual home owners. The well and septic systems will be located and designed according to provincial requirements and subject to any conditions of approval for this EIA. Typical domestic waste generated in the individual residences will be collected curb-side by regional waste management services on a weekly basis.

The maintenance and snow removal of the existing road infrastructure including Route 628, Hemlock Street and Inspiration Lane is conducted by the province. Any additional roads to access new lots, such as the cul-de-sac on Figure 1 would also be maintained by the province.

### 3.8 Operation and Maintenance Details

The Project will consist of the 76 existing lots and the development of a maximum 25 additional lots within the existing Glory View Estates development. The proponent is seeking approval to develop these 25 lots in any configuration within the Development area outside any constrained areas identified as a part of this approval process. Wetlands, watercourses, and rare species may affect the configuration of the development and the schedule of construction.

### 3.9 Documentation Related to the Undertaking

Any relevant documentation that was currently available has been Appended to this registration document, but several environmental field studies have yet to be completed and documented. These studies will be submitted as addendums to the application once complete.

Documents appended to this report or to be submitted as completed:

- Water Supply Assessment
- ACCDC Report (Included in Appendix A)

## 4 Description of the Existing Environment

### 4.1 Physical and Natural Features

The development area is in the Cardigan Ecodistrict of the Valley Lowlands Ecoregion as defined by Zelazny (2007). The Cardigan Ecodistrict is a gently rolling area of central New Brunswick that is bisected by the lower reaches of the Nashwaak River. The river divides two plateaus on either side that area around 150 m above sea level. The Development area is located along the hillside where the eastern plateau descends into the river valley. Several transportation corridors follow the river valley including the recently constructed Route 8 to the east, Canada Street (the former Route 8) on the western bank of the river, Goodspeed Road (a small farming road in the floodplain, and Route 628 (the river road) which passes through the Development Area. Watercourses in this area all flow into the Nashwaak River.

The predominant forest cover in the Cardigan Ecodistrict occurs on moist, mid-slope terrain like the Development Area and is composed of red spruce (*Picea rubens*), balsam fir (*Abies balsmaea*), and red maple (*Acer rubens*) with scattered hemlock (*Tsuga canadensis*) and white pine (*Pinus strobus*). Extensive communities of red maple, trembling aspen (*Populus tremuloides*), large-toothed aspen (*Populus grandidentata*), balsam fir, white birch (*Betula papyrifera*), and grey birch (*Betula populifolia*) occur on areas disturbed by logging activities (Zelazny 2007).

#### 4.1.1 Topography

The site generally slopes to the west towards the Nashwaak River and is separated from the flood plain of the river by the New Brunswick Trail which is located along a decommissioned rail bed along the western edge of the Development Area. There are two major breaks in the westward slope: One along the western edge of the westernmost developed properties, and another along the extreme western margin of the Development area where the site slopes off steeply towards the NB Trail. These areas can be the site topography (Figure 2) and area considered generally inoperable and will largely be left undeveloped.

The floodplain of the Nashwaak River is immediately to the west of the NB Trail and is largely undeveloped due the frequency of flooding in spring.

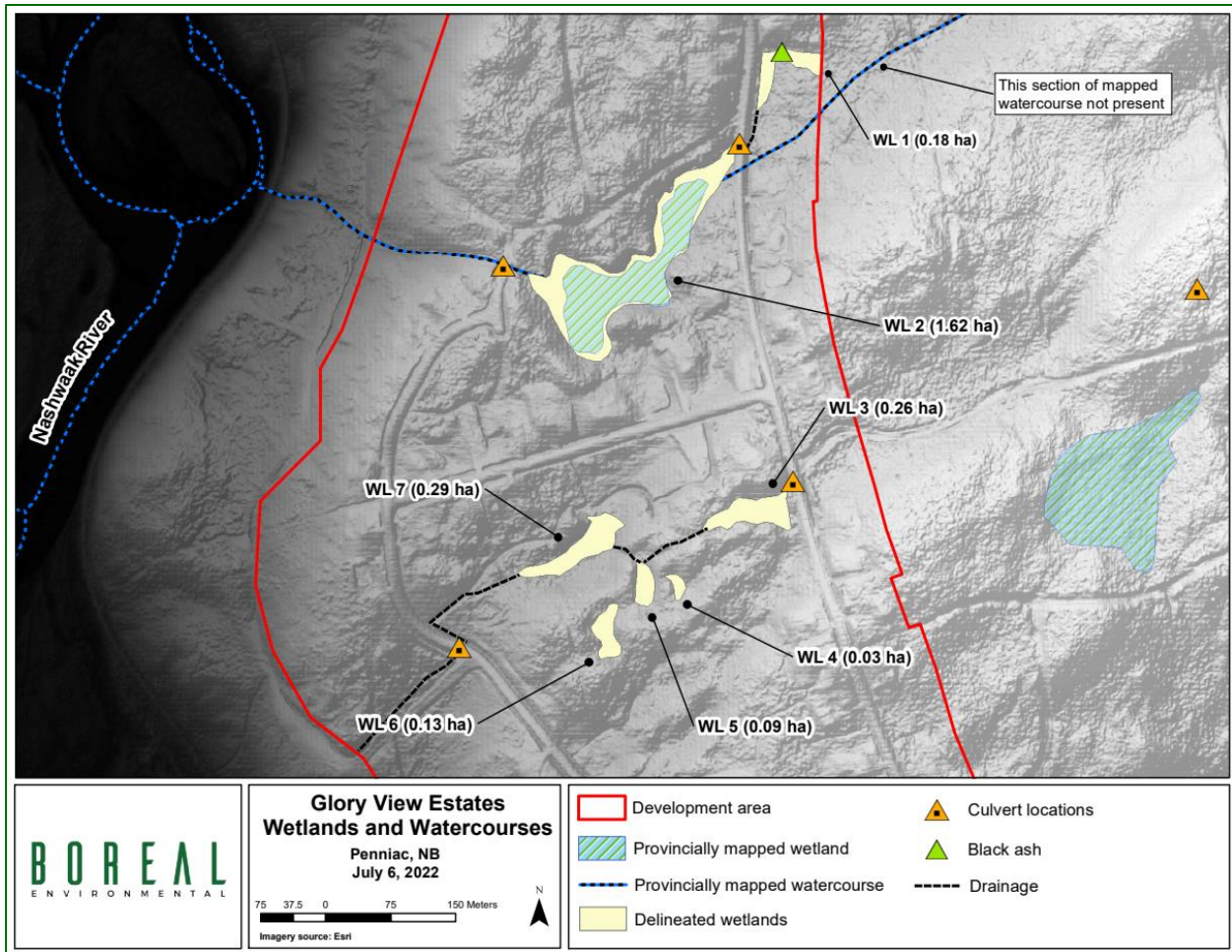


FIGURE 2. TOPOGRAPHICAL SITE MAP OF DEVELOPMENT AREA SHOWING SURFACE WATER FEATURES AND DRAINAGE.

#### 4.1.2 Watercourses and Fish Habitat

##### **Regulatory Framework**

In New Brunswick, watercourses (and wetlands) are regulated by the New Brunswick Department of Environment and Local Government (NBDELG) through the Watercourse and Wetland Alteration Regulation (90-80) under the Clean Water Act. This regulation is intended to protect provincial streams, rivers, wetlands, and lakes from work or ground disturbance in their vicinity. Any person intending to do work (construction, demolition, clearing land, landscaping, etc.) within 30 metres of a watercourse or wetland must apply for a Watercourse and Wetland Alteration (WAWA) Permit to NBDELG. A watercourse is defined in New Brunswick as a feature in which the primary function is the conveyance or containment of water, which includes: the bed, banks, and sides of any incised channel greater than 0.5 metres in width that displays a rock or soil bed. Water or flow does not have to be continuous and may be absent during any time of year; or a natural or man-made basin.



Fish Habitat is regulated federally under the *Fisheries Act* by the Department of Fisheries and Oceans (DFO). The fish and fish habitat protection provisions of the *Fisheries Act* include: a prohibition against causing the death of fish, by means other than fishing (Section 34.4) a prohibition against causing the harmful alteration, disruption, or destruction of fish habitat (Section 35). Fish habitat defined in the *Fisheries Act* “means water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas”. Fish, defined in the *Fisheries Act* “includes (a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals “. Our focus was on lotic gill bearing organisms with a cranium of bone or cartilage, and a body with fins. There are 56 known fish species in New Brunswick, with 42 being native to the province (Gautreau and Curry 2020). These species have different life history strategies that can require varied physiochemical conditions for different life processes.

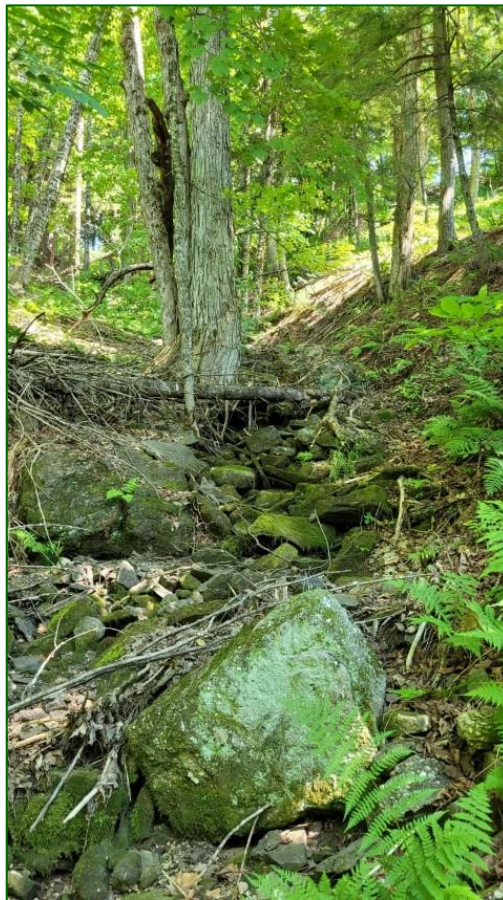
### ***Existing Conditions***

The Nashwaak River, into which the Development Area drains to the west, was once known for its Atlantic Salmon recreational fishery but numbers of Salmon have declined, and the river has been closed to angling since the early 1990s. Other fish known to occur in the Nashwaak include brook trout, striped bass, smallmouth bass, fallfish, yellow perch and chain pickerel (Zelazny 2007). There are a total of 32 species of fish known to occur in the watershed (Curry and Gautreau 2010)

Field surveys, conducted by Boreal on June 7 and July 23, 2022, confirmed the presence of one provincially mapped (NBHN) watercourse that flows west through the northern portion of the Development Area. Ground truthing confirmed that this mapped watercourse had all provincially outlined parameters to be defined as a watercourse. Small seasonal drainages were observed in the centre of the Development Area (Figure 2), draining a series of small, unmapped wetlands into a network of roadside ditches that also flowed west. The drainages were differentiated from the watercourse by the absence of a incised channel and mineral substratum.

The mapped watercourse (Figure 1) is approximately 400 m long with a small, mapped, headwater wetland located to the east of the Development Area. The total catchment area for this watercourse was calculated using LiDAR derived digital elevation model as approximately 26 ha. It has a width ranging from 0.5 to 2 m, but widths mostly 0.5 m. It flows westward from that wetland through the northern portion of the Development Area through another, smaller mapped wetland before it descends a steep incline to the floodplain and into the Nashwaak River. The steep slopes (~45%) and many of the frequent large drops throughout the 400 m portion were identified as fish passage barriers. Although there was no water flowing in the channel during the field program, the geomorphological visualization of the consistent interchange between boulder drops and sloped cobble cascading with no pooling, shows a consistent high

velocity habitat not conducive to fish passage even for the largest, fittest of fish. Even if a large fish could pass up the small watercourse, there is no resting or rearing. The flow within the watercourse is seasonal and was dry at the time of the July 23 field survey. The portion of the watercourse within the Development Area was one long, cascade/waterfall mesohabitat, with a cobble/boulder substrate. The substrate characteristics are not optimal for plunge pool creation, adding to fish passage problems and a decrease in optimal habitat conditions in regard to riffle:pool ratio, as most fish require a respite from riffle/run velocities. No impact to watercourses is anticipated and will be avoided to the extent possible.



**FIGURE 3.** VIEW OF MAPPED WATERCOURSE TAKEN NEAR THE WESTERN SIDE OF THE DEVELOPMENT AREA LOOKING EAST (UPSTREAM) TOWARD THE NORTHERN END OF INSPIRATION LANE. THERE IS NO FLOW IN THE CHANNEL AT THE TIME OF THE VISIT AND THE STEEP SLOPE WOULD BE IMPASSABLE TO FISH.



**FIGURE 4.** VIEW OF MAPPED WATERCOURSE LOOKING WEST (DOWNSTREAM) TOWARD NASHWAAK RIVER FROM WITHIN THE WESTERN SIDE OF DEVELOPMENT AREA.

The channel of the watercourse is approximately 50 cm wide within the Development Area and does not match the path shown on provincial mapping at the eastern side of the Development Area. Figure 1 shows the correct watercourse alignment compared to the mapped alignment near where it crosses Route 628 through a small culvert. The actual watercourse does not appear to extend as far to the east of the Development Area, and likely originates within the delineated wetland east of the road. To the west of the road, the watercourse enters a large shallow emergent marsh that appears to have been human made as much as a century ago, possibly excavated as a source of water for cattle. There is standing water among the mats of vegetation within the wetland and potentially some smaller fish species. The depth of the pond is uniform, at approximately 40 cm.



**FIGURE 5.** PHOTO OF LARGER 'POND' IN WESTERN PORTION OF DEVELOPMENT AREA DESIGNATED AS WETLAND 2 ON **FIGURE 2.** VIEW IS LOOKING NORTH TOWARD ROUTE 628. THIS WETLAND IS PART OF THE HEADWATERS FOR THE MAPPED WATERCOURSE SHOWN ON **FIGURE 1.**

#### 4.1.3 General Geology

According to Zelazny (2007), the bedrock in the area is composed almost entirely of Carboniferous sedimentary rocks. Most of these lithologies consist of grey to olive sandstone and conglomerate with minor siltstone and shale. Strata of red sandstone, conglomerate, and siltstone also are situated in patches near Cross Creek and McLeod Hill.

A large glaciofluvial deposit belonging to the Riverbank Soil Unit overlies Penniac Brook, whereas more recent alluvial deposits cover the Nashwaak and Tay River valleys. Both deposits are coarse textured and very gravelly with low fertility. The alluvial deposits, tend to be capped with the more fertile, fine-grained silts and sands of the Interval Unit.

The Generalized Surficial Geology Map of New Brunswick (Rampton, V.N. 1984) identifies general surficial soils as loam, silt, gravel, and rubble to a depth of 0.5 to 3 m).

#### 4.1.4 Groundwater

The developed lots of Glory View Estates residential development is serviced by privately owned wells for water supply. Most of the maximum proposed 100 total lots are already supplied with groundwater and no water supply issues have been identified. Drinking water quality meets Canadian federal guidelines for drinking water quality. No groundwater water supply issues are anticipated for a complete buildout

of the remaining lots, but a water supply source assessment (WSSA) is being conducted by a qualified professional and the report will be submitted to ELG and provided as an addendum to this registration.

#### 4.1.5 Protected Wellfields/Watersheds

There are no protected wellfields or watersheds in the proposed development area.

#### 4.1.6 Ambient Air Quality

The Development Area is centered around an existing residential subdivision. Air quality is consistent with conditions expected to be present within a rural residential area. There is currently no significant generation of dust or other emissions in the area surrounding the Development Area.

#### 4.1.7 Existing Ambient Noise Levels

The Development Area includes the existing residential subdivision. Ambient noise levels are consistent with conditions expected to be present within a rural residential area (i.e., minor traffic noise, lawnmowers, etc.). There are no major contributors to ambient noise levels in the surrounding area.

#### 4.1.8 Flora and Fauna Species at Risk or of Conservation Concern

##### **Regulatory Framework**

Some species of flora and fauna are protected by federal and/or provincial Species at Risk legislation such as the federal Species at Risk Act (SARA) and the New Brunswick Species at Risk Act (NBSARA). Species at Risk are considered those listed as extirpated, endangered, threatened, or special concern by the federal Species at Risk Act (SARA), the New Brunswick Species at Risk Act (NB SARA), or by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Other non-protected species covered in this section include those species that are not listed under federal or provincial legislation but are considered rare in New Brunswick, or the long-term sustainability of their populations has been evaluated as tenuous and may be compromised by major developments. These species are referred to here as Species of Conservation Concern (SOCC) and are defined as species ranked S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable) in New Brunswick by the Atlantic Canada Conservation Data Centre (ACCDC).

##### **Existing Conditions**

The only SAR or SOCC species encountered during field surveys for birds, wildlife or plants was Black Ash (*Fraxinus nigra*), ranked S3S4 by the ACCDC and assessed as Threatened by the committee for the Status of Endangered Wildlife in Canada (COSEWIC) in 2018 due to the threat from the introduced emerald ash borer beetle which has the potential to devastate all native ash species. This species is not yet protected under Schedule A of SARA. Multiple saplings of this species were found at the location shown on Figure 2 at the northern end of Wetland 1 where no development will occur. The project is not anticipated to affect the black ash trees there.



**FIGURE 6.** BLACK ASH (*FRAXINUS NIGRA*) SAPLINGS IN WETLAND 1.

To determine the potential for presence of other Species at Risk (SAR) or SOCC not encountered in field surveys, a data report for the Development area was obtained from the ACCDC (Appendix A). This report does not include any SAR or SOCC from within the Development Area. There are 2 known records of vascular plant SOCC and SAR occurring within five kilometers of the Development Area, including a record of butternut (*Juglans cinerea*) (*Endangered* under SARA and NBSARA) occurring along the Nashwaak to the west; and a dwarf ginseng (*Panax trifolius*) (S3) record occurring approximately 3 km to southeast of the development area.

For fauna there are two **fish** SAR records listed within 5 km of the development area:

- Atlantic Salmon – Inner Bay of Fundy population (*Salmo salar pop 1.*) (*Endangered* under SARA and NBSARA) located within the Nashwaak River to the north; and

- American Eel (*Anguilla rostrata*) (Threatened under NBSARA) located within the Nashwaak River to the north.

Additionally, there are 10 **bird** SAR listed in the report as occurring within 5 km of the Development Area, including:

- Eastern Whip-poor-will (*Antrostomus vociferus*), (Threatened under SARA and NBSARA);
- Bank Swallow (*Riparia riparia*), (Threatened under SARA);
- Barn Swallow (*Hirundo rustica*), (Threatened under SARA and NBSARA);
- Eastern Wood Peewee (*Contopus virens*), (Special Concern under SARA and NBSARA);
- Olive-sided Flycatcher (*Contopus cooperi*), (Threatened under SARA and NBSARA);
- Bobolink (*Dulichonyx oryzivorus*), (Threatened under SARA and NBSARA);
- Evening Grosbeak (*Coccothraustes verspertinus*), (Special Concern under SARA);
- Common Nighthawk (*Chordeiles minor*), (Threatened under SARA and NBSARA);
- Canada Warbler (*Cardellina canadensis*), (Threatened under SARA and NBSARA); and
- Bald Eagle (*Haliaeetus leucocephalus*), (Endangered under NBSARA).

In addition to these bird SAR, there were records for eleven bird SOCC within 5 km of the Development Area including Cliff Swallow (*Petrochelidon pyrrhonota*) (S2B); Northern Mockingbird (*Mimus polyglottus*) (S2B); Pine grosbeak (*Pinicola enucleator*) (S2B); Brown thrasher (*Toxostoma rufum*) (S2S3B); Baltimore Oriole (*Icterus galbula*) (S2S3B); Pine Siskin (*Spinus pinus*) (S3B); Kildeer (*Charadrius vociferus*) (S3B); Black-billed Cuckoo (*Coccyzus erythrophthalmus*); Scarlet tanager (*Piranga olivacea*); Rose-breasted Grosbeak (*Pheucticus ludovicianus*) (S3B); and Indigo Bunting (*Passerina cyanea*) (S3B).

The results of the bird survey are summarized below. None of these bird SAR or SOCC were recorded during the breeding bird fieldwork for the Development Area.

There is at least one record of wood turtle (*Glyptemis insculpta*) (Threatened under SARA and NBSARA) included within 5 km of the site and there is critical habitat identified for wood turtle in the proposed recovery strategy for wood turtles (Environment Canada 2016) identified in the lower Nashwaak watershed and along the lower Penniac Stream (approximately 2 km south of the Development Area), although the exact location of the critical habitat is not disclosed. The lower Nashwaak is known to support a population of wood turtles which are semi-aquatic but spend a significant proportion of their life cycle on land, travelling between feeding, nesting, and/or overwintering areas and are known to occur up to several hundred metres from watercourses although their occurrence decreases in likelihood with distance from suitable watercourses. While the Nashwaak River is known to be a suitable watercourse for foraging, nesting, and overwintering wood turtles, the unmapped watercourse within the Development Area is unlikely to support wood turtles. The location of the wood turtle record(s) near the Development Area is undisclosed. An assessment of the potential for wood turtle to occur with be included in terrestrial field surveys in 2022 and included as an addendum to this registration submission.

In addition to the above SAR and SOCC, there is one butterfly SOCC – Compton Tortoiseshell (*Nymphatus vaualbum*) (S3), and one SAR bumblebee called the Yellow-banded Bumblebee (*Bombus terricola*), (Special Concern under SARA).

#### 4.1.9 Wetlands and Vegetation

##### **Regulatory Framework**

Wetlands are protected by the New Brunswick Watercourse and Wetland Alteration Regulation – Clean Water Act under the mandate set by the New Brunswick Wetlands Conservation Policy (NBDNR and NBDELG 1991). Any proposed alterations within a wetland, or within their 30 m regulated buffer, requires permitting and potential compensation through the NBDELG’s Watercourse and Wetland Alteration (WAWA) Program. A preliminary desktop review of provincial mapping showed one wetland within the Development Area associated with the unnamed, mapped tributary to the Nashwaak River as shown on Figure 1. Another small, mapped wetland is present to the west of the NB trail, that falls within 30m of the Development Area. This wetland will not be directly or indirectly affected by the project but would require regulatory approval through the WAWA process for any disturbance that may occur within 30m.

##### **Field Methods**

Wetland and vegetation surveys were conducted on the property by Boreal on July 23, 2022. During the field surveys, any wetlands encountered were delineated in accordance with the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (U.S. Army Corps of Engineers 2008).

Wetland data were recorded on a NBDELG wetland delineation data form provided in Appendix B. Atlantic Canada Conservation Data Center (ACCDC 2020) website was consulted for plant nomenclature, identification and wetland status. Munsell Soil Color Charts were used to identify hydric soils within the assessment area (Kollmorgan 1990).

Wetland habitat was identified using the following criteria in accordance with the Corps of Engineers Wetlands Delineation Manual:

- A majority of dominant vegetation species are wetland associated (hydrophytic) species;
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season; and
- Hydric soils are present.

Data point locations were sampled to evaluate vegetation, hydrology, and soil data to support a determination of wetland or non-wetland status. The location of boundary and data points were recorded using a Trimble Nomad field computer and Garmin GLO GPS receiver with a stated accuracy of +/- 3 m.



Wetland functional assessment was completed for each wetland greater than 1 ha within the Development Area using the Wetland Ecosystem Services Protocol - Atlantic Canada (WESP-AC) wetland evaluation technique. The WESP-AC process involves the completion of three forms; a desktop review portion that examines the landscape level aerial conditions to which the wetland is situated, and two field forms. The process serves as a rapid method for assessing individual wetland functions and values.

A complete survey of all vascular plant species within the development area was conducted, recorded all species encountered and all locations of any plant SOCC or SAR.

***Existing Conditions for Wetlands***

A total of seven wetlands were encountered and delineated in the field by Boreal. Of the seven wetlands shown in Figure 2, only one was over one hectare (Wetland 2 at 1.62 ha), while all others combined area was less than one hectare. The drainage course that connects wetlands 3, 5 and 7 does not meet the provincial definition of a watercourse so these wetlands are not regulated under the WAWA Regulation. Wetland 1 is associated with a mapped watercourse, and while the watercourse does not meet the provincial definition of a watercourse at this location, the wetland is hydraulically contiguous with Wetland 2 and is considered to be regulated for the purposes of this report. Table 1 provides a summary of key parameters for each wetland delineated within the Development Area.

**TABLE 1.** SUMMARY OF DELINEATED WETLANDS BY TYPE, AREA, WATERCOURSE PRESENCE AND ASSOCIATED WATERSHED.

| Wetland ID    | Area (ha)            | Wetland Type*     | Associated Watercourse      | Associated Watershed |
|---------------|----------------------|-------------------|-----------------------------|----------------------|
| WL 1          | 0.18                 | Drainageway swamp | Mapped (but does not exist) | Nashwaak River       |
| WL 2          | 1.62                 | Basin marsh       | Mapped Watercourse          | Nashwaak River       |
| WL 3 and 7    | 0.26 and 0.29        | Drainageway swamp | None                        | Nashwaak River       |
| WL 4, 5 and 6 | 0.04, 0.10, and 0.13 | Basin marsh       | None                        | Nashwaak River       |

\*Canadian Wetland Classification System (CWCS 1997)

Of these seven wetlands, wetland data points were conducted for all except for Wetland 4, which was very small and shares characteristics with Wetland 6 and so is represented by that data point. Upland data points were conducted for the largest two wetlands (WL 2 and WL 7) and are representative of the upland conditions for the others. The wetland data sheets are included in Appendix B. A photolog that includes representative wetland and adjacent upland photos for each wetland is included in Appendix C.

- Wetland 1

Wetland 1 is the northernmost wetland in the Development Area, and the only one identified to the east of Route 628. This wetland was a Drainageway Swamp, dominated by mixedwood forest and shrub. The wetland may continue outside the Development Area to the east for a small distance, although it is not likely much larger than 0.2 ha in total. The wetland serves as the headwater for the only watercourse within the Development Area as shown on Figure 2. The location of this mapped watercourse is incorrectly shown on provincial mapping and does not meet the WAWA definition of a watercourse to the east of Route 628. Wetland 1 drains into Wetland 2 via a small, ~450mm culvert under Route 628.

Dominant vegetation cover in Wetland 1 is comprised of red maple (*Acer rubrum*), eastern cedar (*Thuja occidentalis*), yellow birch (*Betula alleghaniensis*), mountain maple (*Acer spicatum*), cinnamon fern (*Osmunda cinnamomea*), and spotted touch-me-not (*Impatiens capensis*). There was abundant poison ivy (*Toxicodendron radicans*) identified throughout the wetland.

- Wetland 2

Wetland 2 was the only wetland that was greater than 1 ha and/pr contiguous with a watercourse and therefore meeting the provincial definition of a regulated wetland under the WAWA Regulation. The mapped watercourse shown on Figure 2 flows from the western side of the wetland and through a culvert under the end of Inspiration Lane.

Wetland 2 is a basin marsh and is similar to Wetlands 4, 5, and 6 in that they all appear to have been excavated many decades ago, possibly as water supplies for cattle. All three wetlands are shallow, uniform depth emergent marshes that occur in settings that area not typical for wetlands of those types in this region. Of these shallow marshes, Wetland 2 is the largest by far at 1.62 ha. The wetland has some open water areas but is generally well-vegetated, having large, dense matts of vegetation in the central areas. There were numerous frogs of a variety of species observed in the wetland.

The dominant vegetation cover in the wetland was comprised of broad-leaved pondweed (*Potamogeton natans*), large fowl-mannagrass (*Glyceria grandis*), and woolgrass (*Scirpus cyperinus*).

A WESP-AC Functional Assessment was conducted for Wetland 2 as the only wetland over 1 ha and/or contiguous with a watercourse. A summary of the WESP-AC results for Wetland 2 is provided in Table 2 below and the full form is included in Appendix D.

The results are summarized in Table 3 as a 'Function-Benefit Product' (FBP) is calculated based upon the Grouped Functions and has a theoretical maximum of 100. Threshold values for the FBP are applied, in order to categorize the FBP scores into 'Low', 'Moderate' or 'High' scores. Thresholds are determined based upon the statistical distribution of WESP-AC scores compiled from various sites. These system of categorizing the functional importance of a wetland is borrowed from Nova Scotia, where it is used to identify wetlands of special significance (WSS). This index provides a useful summary of the WESP-AC

results and provides an estimation of the relative functional importance of this wetland compared to a set of representative benchmark wetland in the Maritime region.

**TABLE 2.** SUMMARY OF GROUPED FUNCTIONS FOR WETLAND 2.

| Function-Benefit Products (FBP)  | FBP SCORE | FBP SCORE CATEGORY |
|--|-----------|--------------------|
| SUPPORT SUPERGROUP - HYDROLOGIC  | 0.08      | Low                |
| SUPPORT SUPERGROUP - WATER QUALITY SUPPORT   | 8.47      | Low                |
| SUPPORT SUPERGROUP - AQUATIC SUPPORT   | 28.93     | Low                |
| HABITAT SUPERGROUP - AQUATIC HABITAT   | 17.37     | Low                |
| HABITAT SUPERGROUP - TRANSITION HABITAT  | 1.92      | Low                |
| <p><b>Functional Importance Rule Definitions:</b></p> <p><i>Habitat Rule:</i> Two 'High' Scores -OR- One 'High' and one 'Moderate' score</p> <p><i>Support Rule:</i> Three 'High' scores -OR- Two 'High' and one 'Moderate' score</p> <p><i>Habitat/Support Hybrid Rule:</i> One 'High' HAB score -AND- Two or three 'High' SUP Scores</p> |           |                    |
| <b>Functional Importance (WSS) Determination:</b>  |           | <b>(YES/NO)</b>    |
| Habitat Rule Satisfied   |           | No                 |
| Support Rule Satisfied   |           | No                 |
| Habitat/Support Hybrid Rule Satisfied  |           | No                 |
| CONCLUSION   |           | Site is not a WSS  |

Wetland 2 would not be considered a wetland of special significance based on the criteria in Table 3, but it could serve an important ecological role as amphibian habitat as it was observed to support a healthy population of frogs of various species.

- Wetland 3 and Wetland 7

Wetlands 3 and 7 are described together and they are both drainageway shrub swamps with similar hydrology and vegetation cover. Wetland 3 is adjacent (west of) Route 628 and is fed by drainage from ditches and a small culvert under Route 628. Wetland 3 drains into wetland 7 to the west via an indistinct drainage that supplies water to wetland 5 as well. Wetland 7 is similar in size to wetland 3 at 0.27 ha. The drainage to wetland 7 has been altered somewhat by past excavation and drainage work along the backside of building lots on Hemlock Lane although the wetland does appear to be in largely natural condition. The surface water drainage leaves wetland to the west and continues to the ditch along Inspiration Lane and through a culvert there into a drainage ditch beyond. At no point did this drainage meet the definition of a watercourse. Figure 6 shows the drainage ditch to the west of Inspiration Lane. Representative photos of each wetland are provided in Appendix C.

The vegetation in both Wetlands 3 and 7 were dominated by a sparse tree layer of yellow birch and red maple with spotted touch-me-not, sensitive fern, and mad-dog skullcap (*Scutellaria lateriflora*). The upland conditions, as measured near Wetland 7 was immature mixedwood forest dominated by red maple balsam fir (*Abies balsmaea*), and yellow birch, with smaller grey birch (*Betula populifolia*) in the understory and a sparse herbaceous layer dominated by three-leaf-false Solomon’s seal (*Maianthemum canadense*) and Sarsaparilla (*Aralia nudicaulis*). Wetland delineation sheets are provided for these wetlands in Appendix B.



**FIGURE 7.** DRAINAGE DITCH TO THE WEST OF INSPIRATION LANE THROUGH WHICH DRAINAGE FROM WETLANDS 3, 4, 5, 6, AND 7 FLOWS TOWARDS THE NASHWAAK RIVER.

- Wetlands 4, 5, and 6

These three small, basin marsh wetlands have an unusual appearance due to their shallow, uniform depths and flat bottoms that suggests that they may have been human-made many decades ago. The surrounding upland of these wetlands had mature hemlock trees suggesting that the pond excavation was

likely done in the distant past, and to the south there is an old road with fallen transmission poles that also appear to have been abandoned many decades ago. All three wetlands had populations of frogs in and around the wetlands that included at least four species: Green Frogs (*Lithobates clamitans*), Mink Frogs (*Lithobates septentrionalis*), Pickerel Frogs (*Lithobates palustris*), and wood frogs (*Lithobates sylvaticus*).

The dominant vegetation in these wetlands included nodding sedge (*Carex gynandra*), woolgrass (*Scirpus cyperinus*), threeway sedge (*Dulichium arundinaceum*), and water hemlock (*Cicuta maculata*). At the time of the visit, Wetlands 4 and 5 had clear, standing water, suggesting ground water inputs but wetland 6 was largely dry. Wetland delineation sheets for these wetlands are included in Appendix B and representative photos are in Appendix C.

### ***Existing Conditions for Vegetation***

The vegetation communities encountered within the Development Area were mostly developed for the existing residences and most undeveloped areas showed evidence of recent disturbance and forestry activity. Figure 8 shows the typical conditions for the vegetation community in areas of planned future development.



**FIGURE 8.** VIEW OF PLANNED CUL-DE-SAC-LOCATION SHOWING TYPICAL VEGETATION CONDITIONS ACROSS MOST OF THE DEVELOPMENT AREA.

The vegetation community in undeveloped areas was typical to the region, being dominated by a mixture of deciduous and coniferous species in various stages of development. Most of the forest habitat was young or immature but adjacent to several of the wetlands such as WL 2, WL 5 and WL 4, there were small

groves of mature eastern hemlock (*Tsuga canadensis*) and red spruce (*Picea rubra*). No development is planned in these areas.



**FIGURE 9.** EXAMPLE OF A SMALL GROVE OF MATURE EASTERN HEMLOCK ADJACENT TO WETLAND 5.

No plants S3 or rarer were encountered during the botanical surveys but several black ash (*Fraxinus nigra*) were found at the northern end of Wetland 1. This species is ranked S3S4 by the ACCDC and listed as Threatened by COSEWIC due to the threat to the species from the ongoing invasion of the emerald ash-borer (*Agrilus planipennis*), an exotic pest already present in New Brunswick that has the potential to decimate ash populations. A total of 222 different vascular plant species were recorded throughout the Development Area. The full plant list of all species encountered, and their conservation rankings is included in Appendix E.

#### 4.1.10 Birds and Bird Habitat

##### **Regulatory Framework**

The Migratory Bird Convention Act (MBCA) provides overarching protection for individual and populations of birds and their nests against harm or destruction (Government of Canada, 1994). The MBCA and associated regulations are administered by Environment Canada through the Canadian Wildlife Service (Government of Canada 1994a). Species groups protected by the MBCA include; songbirds, waterfowl, and seabirds; however, grouse, hawks, eagles, owls, blackbirds or jays are not afforded protection under the MBCA (Environment Canada 1991), but are covered under the New Brunswick Fish and Wildlife Act (2004).

**Field Methods**

Point count surveys for breeding birds were conducted by Boreal on June 7, 2022 at nine point count stations. The point counts were placed in forested habitats of the Development Area that were not yet developed. During travel between point count stations and during other field surveys, any bird species encountered that had not yet been recorded were recorded. The raw data and coordinates for the point count stations are included in Appendix E. The first survey began at 6:08 am in clear weather and low wind speed (Beaufort 0) and continued until approximately 8:45 am. The temperature varied between 6 and 10 degrees Celsius.

**Existing Conditions**

During point counts, a total of 98 individual birds from 25 species were recorded in and around the Development Area (Table 3). None of the species recorded were SAR or SOCC. The most common species encountered were Red-eyed Vireo (*Vireo olivaceus*) (9), American Robin (*Turdus migratorius*) (8), American redstart (*Setophaga ruticilla*) (7), and Common Yellowthroat (*Geothlypis trichus*) (7).

**TABLE 3.** LIST OF BIRD SPECIES RECORDED WITHIN THE DEVELOPMENT AREA DURING POINT COUNTS.

| Common Name             | Scientific Name        | S-Rank        | NB NRED | Status | Number |
|-------------------------|------------------------|---------------|---------|--------|--------|
| Alder Flycatcher        | Empidonax alnorum      | S5B           | Secure  | PO     | 6      |
| American Crow           | Corvus brachyrhynchos  | S5            | Secure  | PO     | 1      |
| American Goldfinch      | Spinus tristis         | S5            | Secure  | OB     | 1      |
| American Redstart       | Setophaga ruticilla    | S5B           | Secure  | PO     | 7      |
| American Robin          | Turdus migratorius     | S5B           | Secure  | PO     | 8      |
| Black-and-White Warbler | Mniotilta varia        | S5B           | Secure  | PO     | 4      |
| Blackburnian Warbler    | Setophaga fusca        | S5B           | Secure  | PO     | 2      |
| Black-capped Chickadee  | Poecile atricapillus   | S5            | Secure  | PO     | 3      |
| Blue Jay                | Cyanocitta cristata    | S5            | Secure  | PO     | 2      |
| Broad-winged Hawk       | Buteo platypterus      | S5B           | Secure  | PO     | 1      |
| Chestnut-sided Warbler  | Setophaga pensylvanica | S5B           | Secure  | PO     | 6      |
| Common Yellowthroat     | Geothlypis trichas     | S5B           | Secure  | PO     | 7      |
| Downy Woodpecker        | Dryobates pubescens    | S5            | Secure  | OB     | 1      |
| Hermit Thrush           | Catharus guttatus      | S5B           | Secure  | PO     | 2      |
| Mallard                 | Anas platyrhynchos     | S5B, S4N      | Secure  | OB     | 1      |
| Northern Flicker        | Colaptes auratus       | S5B           | Secure  | PO     | 2      |
| Northern Parula         | Setophaga americana    | S5B           | Secure  | PO     | 6      |
| Ovenbird                | Seiurus aurocapilla    | S5B           | Secure  | PO     | 5      |
| Pileated Woodpecker     | Dryocopus pileatus     | S5            | Secure  | OB     | 1      |
| Purple Finch            | Haemorhous purpureus   | S4S5B,SUN,S5M | Secure  | PO     | 6      |
| Red-eyed Vireo          | Vireo olivaceus        | S5B           | Secure  | PO     | 9      |
| Song Sparrow            | Melospiza melodia      | S5B           | Secure  | PO     | 5      |
| Veery                   | Catharus fuscescens    | S4B           | Secure  | PO     | 4      |
| White-throated Sparrow  | Zonotrichia albicollis | S5B           | Secure  | PO     | 6      |

| Common Name  | Scientific Name      | S-Rank | NB NRED | Status | Number    |
|--------------|----------------------|--------|---------|--------|-----------|
| Winter Wren  | Troglodytes hiemalis | S5B    | Secure  | PO     | 2         |
| <b>Total</b> |                      |        |         |        | <b>98</b> |

Bird habitat within the Development Area was generally suited to birds commonly found in residential areas due to the presence of the existing development and the generally disturbed state of the undeveloped areas. There was no interior forest habitat identified and no suitable nesting habitat available for bird SAR with nearby records (as listed in Section 4.1.8.) such as Bald Eagles, Bank Swallows, and Cliff Swallows.

#### 4.1.11 Environmentally Sensitive Areas

The ACCDC data report does not identify and protected or sensitive habitats within or near the Development Area, although it is understood that there may be Critical Habitat for Wood turtles within 5 km.

## 4.2 Cultural Features

### 4.2.1 Traditional Use

The Development Area, which lies in the traditional territory of the Wolastoqey Nation, consists largely of residential development. While the Nashwaak River Valley has long been used for hunting and fishing, and for overland excursions into Miramichi country (Zelazny 2007), there are no specific records of use for the Development Area and it is not known to be used provincially, federally or locally for tourism operations or cultural activities.

### 4.2.2 Heritage resources

There are no known heritage resources/areas such as historic sites, buildings or structures, national/provincial parks, fossil sites within proximity to the Development Area.

### 4.2.3 Existing and Historic Land Uses

The earliest non-aboriginal inhabitants of the lower Nashwaak River were French grant-holders in the 1600's, who set up forts at the mouth of the Nashwaak River. The upper Nashwaak, however, remained essentially unsettled until construction of the Royal Road in 1832 (Zelazny 2007). The road encouraged settlement by English, Scottish, and Irish immigrants who established such villages as Durham Bridge, Taymouth, and Penniac (Zelazny 2007).

The Development Area itself has likely long been subject to timber harvesting by European settlers and shows evidence of past and ongoing forestry activities but no obvious evidence of agricultural use. The steep slope along the western edge of the Development Area prevents easy access to the Nashwaak River



flood plain from the Development Area which may have historically discouraged human occupation of the site. The NB Trail that lies between the Development Area and the river was historically part of the Canada Nation Railway, along which nearby Penniac became a flag station around the turn of the 20<sup>th</sup> century.

The Development Area does not show evidence of past agricultural use but has recent human disturbance across the site, including roadbuilding, forestry, and excavation.

### 4.3 Socio-Economic Considerations

The project will have a positive effect on the local economy. New housing options in an already developed area within the Fredericton area will help to close the gap associated with the current housing shortage in central New Brunswick, in particular the City of Fredericton. Despite being located outside of Fredericton, it is less than five minutes' drive to the city limits and has ready access to the NB Trail for bicycling and walking.

The construction of new residential dwellings will generate property tax revenue for the province and future Nashwaak Ward. It will also provide work for laborers employed by a New Brunswick-owned and operated company. The completion of the work will permit the continued economic growth of the Capital Region.

## 5 Potential Environmental Impacts

The Development area includes 76 developed lots and up to a maximum of 25 additional single-unit residential lots. The development includes a section of the existing River Road (Route 628), and the already constructed Hemlock Street and Inspiration Lane. To access some of the proposed additional residential lots, a 350m long cul-de-sac will be constructed from Inspiration Lane, as shown on Figure 1.

The proposed undertaking will involve new construction and development within an existing subdivision. Potential environmental impact considerations associated with the project could include the following:

- Solid waste generated as part of general construction activities (i.e., excess PVC piping, concrete, asphalt, cardboard, plastics etc.).
- Harm to Migratory Birds
- Disturbance of animal SAR and SOCC that may be present in the area, including wood turtles.
- Loss of SAR or SOCC plants.
- Noise and airborne emissions (volatile organics) associated with the operation of machinery, vehicles, and equipment.
- Dust associated with exposed soils and/or wind.
- Loss or degradation of fish habitat through spills or sediment in runoff during construction.
- The potential net loss of XX hectares of wetland.

- Minor releases of hydraulic/diesel spills from equipment, vehicles and machinery operating on-site.

The mitigations for these potential effects are discussed below in Section 6.

## 6 Mitigation of Environmental Impacts

### 6.1 Waste

To avoid the potential impact to the environment associated with construction waste generated on-site, the construction site will have covered disposal bins for solid waste. The waste bins will be taken off-site for disposal at an approved facility (either a C&D disposal facility or the sanitary landfill). No construction waste will remain on-site following the completion of the Project. This waste stream will be associated with construction of individual residences and is typically managed by private individuals. As much of the lands have been previously developed it is anticipated that community standards will ensure wastes associated with residential construction will be properly managed.

### 6.2 Harm to Migratory Birds

Migratory birds are known to occur and breed within the Development Area but the habitat types present are not rare or limited in availability in the surrounding region and much of the Development Area is already cleared, and/or developed. To avoid effects on Migratory Birds for the remainder of the project, any clearing of vegetation will be conducted outside of the breeding bird season (April 1<sup>st</sup> to August 31<sup>st</sup>). If this is not possible in some areas, a survey will be conducted to ensure that no breeding birds are present in the area to be cleared.

### 6.3 Disturbance to Animal SAR and SOCC

While no bird SAR or SOCC were found using the Development Area during bird surveys and no records of SAR or SOCC or their critical habitat are present in the ACCDC report (Appendix A), there is a potential that some could occur on the site during construction. Avoiding clearing within the breeding season as prescribed in Section 5.1.2. will mitigate any additional potential effects on bird SAR and SOCC. To discourage bank swallow nesting, any exposed soil slopes or aggregate piles created during construction will be maintained at a slope less than 70 degrees angle.

In the unlikely event that a wood turtle should stray into the Development Area during construction, measures will be taken to avoid effects on them. Construction crews will be provided within information pamphlets on the identification of wood turtles and will check their work areas prior to grubbing or disturbing ground for wood turtle presence. Any exposed gravel or sand material left inactive during the months of June and July will be covered to prevent wood turtle nesting on the site.

#### 6.4 Loss of SAR or SOCC plants

The only SAR or SOCC known to occur on the site is black ash (S3S4 Threatened) which occurs at the northeastern edge of Wetland 1, to the east of Route 628. The adjacent lots to the wetland are already developed and not impact to the wetland is anticipated as a result of the Project. No mitigation for this species is recommended. While several species of SAR and SOCC are known to occur within 5 km of the Development Area, none of these were found.

#### 6.5 Noise and Airborne Emissions

To reduce the potential impact to the surrounding environment associated with noise and airborne emissions (volatile organics), the operation of machinery, vehicles and equipment will take place during routine business hours (7 am to 7pm, Monday through Friday). This will also be mitigated by ensuring equipment is in good condition and by establishing a no-idling policy. Any increase in noise levels or airborne emissions will only take place during the construction phase; upon completion of the Project, there will be no long-term increase in noise or airborne emissions on the Site in comparison to surrounding areas, as the land use will be the same as surrounding areas (i.e., typical residential subdivision).

Again, this is particular to the phase that will see construction of a proposed 350 m cul-de-sac. House construction (foundation and the building) will be short term and subject to private individuals that acquire lots.

#### 6.6 Dust Emission

To mitigate dust emissions, the Proponent will minimize exposed stockpile areas of overburden material during the construction phases of the Project (i.e., will be reused or taken off-site). If dust becomes an issue, water trucks will be used to moisten exposed soils to limit dust emissions. Upon completion of work in any area of the Site, appropriate stabilization methods (i.e., hydroseeding, sodding or mulching) will be implemented to reduce the potential for dust emissions (for road construction only).

#### 6.7 Loss or Degradation of Fish Habitat and Aquatic Habitat

Direct Impacts to Watercourses will be avoided to the extent possible. If watercourses are found to occur within the Development Area and cannot be avoided, a WAWA permit will be obtained for the alteration/crossing and the conditions and prescribed mitigation of that permit will be followed. Loss of fish habitat will be avoided. There is no plan to cross or impact the mapped watercourse present on the site.

Prior to commencement of the project, erosion and sediment control (ESC) structures will be installed as required to protect any watercourses in or near the development Area where sedimentation and erosion may affect aquatic habitat. To reduce or eliminate potential for erosion and/or sedimentation, the structures will be inspected on a regular basis to ensure that they are functioning as intended and removed once construction area is stabilized.

Excavated soils, grubblings and fill will not be stored in immediate proximity to wetlands or watercourses to reduce potential for off-site impacts. In the event of a major rain event, stockpiled materials will be taken off-site or covered to eliminate the potential for erosion.

## 6.8 Loss of Wetland

There are no plans to affect the mapped wetland present within the Development Area and any unmapped wetlands will be avoided to the extent possible. If any impacts or alterations within 30m of a wetland are not avoidable, a WAWA permit for the alteration will be obtained and the conditions of that permit followed, including the typical requirement for compensation for loss of wetlands at a ratio of 2:1 by area of affected. No wetland loss is anticipated for the Project.

Indirect effects on wetlands will be avoided by avoidance of refueling equipment within 30m of wetlands, and the use of sediment fence where work occurs within 30m of any wetland. The compensation will be conducted based on the requirements outlined in the NBDELG's "Wetland Compensation General Guidance" dated August 19, 2020.

## 6.9 Minor Spills

To reduce the potential for minor fuel spills during construction and operation activities, all equipment should be in good working condition and free of any known fluid leaks. Inspection of the equipment will also be completed regularly in order to prevent any equipment failure which could potentially cause a fuel release. Spill kits will be available in proximity to any fuel-operated machinery in the event of an unexpected release. Any releases of fuel would be reported to NBDELG and remediated immediately in accordance with provincial guidelines.

## 6.10 Stormwater Management Plan

The roadway and surface drainage systems for Glory View Estates have been constructed and operational as the development of the subdivision(s) has taken place since 2000. As the only modification to this network is the proposed addition of a cul-de-sac (350 m) it is expected that the existing infrastructure will continue to provide storm water management as the inputs are consistent with what exists today, and all storm water flows towards the Nashwaak River floodplain lands.

# 7 Public and First Nations Engagement

The proponent will inform existing residents of Glory View Estates of the project and solicit inputs from them. The Development has been previously approved by the Regional Planning Commission, and it is assumed that any additional public consultation is not required for the completion of the ongoing development beyond the required posting of the registration on the Government of New Brunswick website for public access.

The proponent will provide a project overview directly to St Marys (Sitansisk), Kingsclear (Pilick), and Oromocto (Welamukotuk) First Nations and request project related inputs from those communities. They will be informed that the proposed development has been registered under the provincial EIA process and further project related detail will be available through the EIA project web-site. Any information received from these communities will be provided to the EIA Project manager.

## 8 Approval of the Project

The following approval is required for the proposed project:

- Authorization/conditional approval of the undertaking under the provincial EIA requirements outlined in NB Regulation 87-83.
- A potential Watercourse and Wetland Alteration Permit under the Clean Water Act in NB Regulation 90-80, depending on the final findings of the terrestrial and aquatic technical studies.

## 9 Project Funding

The project is solely funded by the Proponent and does not include any municipal, provincial, or federal funding.

## 10 Closure

The report was prepared for the sole benefit of Murray Munn and Sons Ltd.. This report and any of its content cannot be relied upon by any other person or entity without the express written consent of Boreal Environmental Limited and Murray Munn and Sons Ltd.. This document is submitted to NBDELG to initiate the Project Registration process, in advance of some additional technical reports (as outlined in Section 3.9) that will be submitted upon completion. The conclusions presented herein represent the best technical judgement of Boreal Environmental personnel based on current engineering and scientific practices and environmental standards at the time the work was performed. The conclusions are based on the site conditions encountered at the time the work was performed at the locations presented in this report.

Boreal accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report or data by any third party.

This report was prepared by Derrick Mitchell, *B.Sc.F., R.P.F.* Please contact the undersigned if you have any questions or concerns about this report.

Kind Regards,



Derrick Mitchell (RPF, BScF)

## 11 References

- Atlantic Canada Conservation Data Centre. "Data Report 7374: Penniac, NB". June 30, 2022.
- Environment Canada. 2016. Recovery Strategy for the Wood Turtle (*Glyptemys insculpta*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. v + 48 pp.
- Gautreau M and Curry A. 2020. Inland Fishes of New Brunswick. Canadian Rivers Institute.
- Curry, R., & Gautreau, M. (2010). Freshwater fishes of the Atlantic Maritime Ecozone. In D. McAlpine, & I. Smith (Eds.), Assessment of Species Diversity in the Atlantic Maritime Ecozone (pp. 599-612). Ottawa, Ontario: NRC Research Press.
- New Brunswick Department of Environment and Local Government's "A Guide to Environmental Impact Assessment in New Brunswick" dated January 2018.
- Rampton, V.N., 1984. "Generalized surficial geology map of New Brunswick" Department of Natural Resources and Energy, Minerals, Policy and Planning Division. NR-8 Scale 1:500,000.
- Zelazny, V.F. 2007. Our Landscape Heritage: The Story of Ecological Land Classification in New Brunswick. Chapter 11. Retrieved from: <http://www2.gnb.ca/content/dam/gnb/Departments/nr-rn/pdf/en/ForestsCrownLands/ProtectedNaturalAreas/OurLandscapeHeritage/Chapter11-e.pdf>

# Appendix A

ACCDC Data Report



# DATA REPORT 7347: Penniac, NB

Prepared 30 June 2022

by J. Pender, Data Manager

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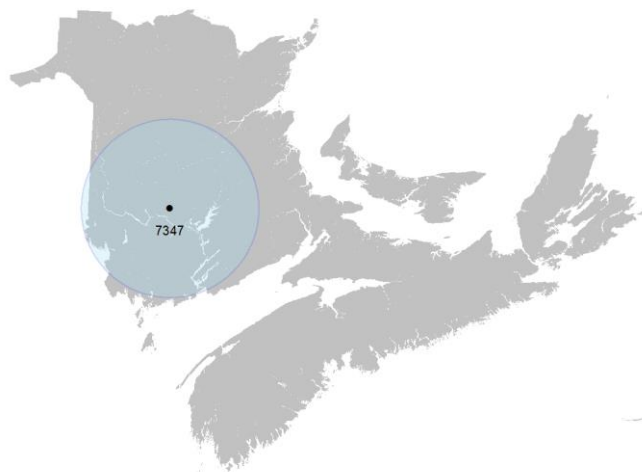
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5.1 Source Bibliography



**Map 1.** A 100 km buffer around the study area

## 1.0 PREFACE

The Atlantic Canada Conservation Data Centre (AC CDC; [www.accdc.com](http://www.accdc.com)) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The AC CDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Although a non-governmental agency, the AC CDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees.

Upon request and for a fee, the AC CDC queries its database and produces customized reports of the rare and endangered flora and fauna known to occur in or near a specified study area. As a supplement to that data, the AC CDC includes locations of managed areas with some level of protection, and known sites of ecological interest or sensitivity.

### 1.1 DATA LIST

Included datasets:

#### Filename

PenniacNB\_7347ob.xls

PenniacNB\_7347ob100km.xls

PenniacNB\_7347ff\_py.xls

#### Contents

Rare or legally-protected Flora and Fauna in your study area

A list of Rare and legally protected Flora and Fauna within 100 km of your study area

Rare Freshwater Fish in your study area (DFO database)

## 1.2 RESTRICTIONS

The AC CDC makes a strong effort to verify the accuracy of all the data that it manages, but it shall not be held responsible for any inaccuracies in data that it provides. By accepting AC CDC data, recipients assent to the following limits of use:

- Data is restricted to use by trained personnel who are sensitive to landowner interests and to potential threats to rare and/or endangered flora and fauna posed by the information provided.
- Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
- The AC CDC requires Data Users to cease using and delete data 12 months after receipt, and to make a new request for updated data if necessary at that time.
- AC CDC data responses are restricted to the data in our Data System at the time of the data request.
- Each record has an estimate of locational uncertainty, which must be referenced in order to understand the record's relevance to a particular location. Please see attached Data Dictionary for details.
- AC CDC data responses are not to be construed as exhaustive inventories of taxa in an area.
- The absence of a taxon cannot be inferred by its absence in an AC CDC data response.

## 1.3 ADDITIONAL INFORMATION

The accompanying Data Dictionary provides metadata for the data provided.

Please direct any additional questions about AC CDC data to the following individuals:

|  |                 |   |                |  |
|--|-----------------|---|----------------|--|
| <b>Plants, Lichens, Ranking Methods, All other Inquiries</b> | Sean Blaney     | Senior Scientist / Executive Director       | (506) 364-2658 | <a href="mailto:sean.blaney@accdc.ca">sean.blaney@accdc.ca</a>         |
| <b>Animals (Fauna)</b>                                       | John Klymko     | Zoologist                                   | (506) 364-2660 | <a href="mailto:john.klymko@accdc.ca">john.klymko@accdc.ca</a>         |
| <b>Data Management, GIS</b>                                  | James Churchill | Conservation Data Analyst / Field Biologist |                | <a href="mailto:james.churchill@accdc.ca">james.churchill@accdc.ca</a> |
| <b>Billing</b>   | Jean Breau      | Financial Manager / Executive Assistant     | (506) 364-2657 | <a href="mailto:jean.breau@accdc.ca">jean.breau@accdc.ca</a>           |

Questions on the biology of Federal Species at Risk can be directed to AC CDC: (506) 364-2658, with questions on Species at Risk regulations to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

**New Brunswick.** For information about rare taxa, protected areas, game animals, deer yards, old growth forests, archeological sites, fish habitat etc., or to determine if location-sensitive species (section 4.3) occur near your study site, please contact Hubert Askanas, Energy and Resource Development: (506) 453-5873.

**Nova Scotia.** For information about Species at Risk or general questions about Nova Scotia location-sensitive species please contact the Biodiversity Program at [biodiversity@novascotia.ca](mailto:biodiversity@novascotia.ca). For questions about protected areas, game animals, deer yards, old growth forests, archeological sites, fish habitat etc., or to determine if location-sensitive species (section 4.3) occur near your study site please contact a Regional Biologist:

|                         |                           |                |  |
|-------------------------|---------------------------|----------------|--|
| <b>DIGB, ANNA, KING</b> | Emma Vost                 | (902) 670-8187 | <a href="mailto:Emma.Vost@novascotia.ca">Emma.Vost@novascotia.ca</a>                                 |
| <b>SHEL, YARM</b>       | Sian Wilson               | (902) 930-2978 | <a href="mailto:Sian.Wilson@novascotia.ca">Sian.Wilson@novascotia.ca</a>                             |
| <b>QUEE, LUNE</b>       | Peter Kydd                | (902) 523-0969 | <a href="mailto:Peter.Kydd@novascotia.ca">Peter.Kydd@novascotia.ca</a>                               |
| <b>HALI, HANT</b>       | Shavonne Meyer            | (902) 893-0816 | <a href="mailto:Shavonne.Meyer@novascotia.ca">Shavonne.Meyer@novascotia.ca</a>                       |
| <b>Central Region</b>   | Jolene Laverty            | (902) 324-8953 | <a href="mailto:Jolene.Laverty@novascotia.ca">Jolene.Laverty@novascotia.ca</a>                       |
| <b>COLC, CUMB</b>       | Kimberly George           | (902) 890-1046 | <a href="mailto:Kimberly.George@novascotia.ca">Kimberly.George@novascotia.ca</a>                     |
| <b>ANTI, GUYS</b>       | Harrison Moore            | (902) 497-4119 | <a href="mailto:Harrison.Moore@novascotia.ca">Harrison.Moore@novascotia.ca</a>                       |
| <b>INVE, VICT</b>       | Maureen Cameron-MacMillan | (902) 295-2554 | <a href="mailto:Maureen.Cameron-MacMillan@novascotia.ca">Maureen.Cameron-MacMillan@novascotia.ca</a> |
| <b>CAPE, RICH, PICT</b> | Elizabeth Walsh           | (902) 563-3370 | <a href="mailto:Elizabeth.Walsh@novascotia.ca">Elizabeth.Walsh@novascotia.ca</a>                     |

**Prince Edward Island.** For information about rare taxa, protected areas, game animals, fish habitat etc., please contact Garry Gregory, PEI Department of Environment, Energy and Climate Action: (902) 569-7595.

## 2.0 RARE AND ENDANGERED SPECIES

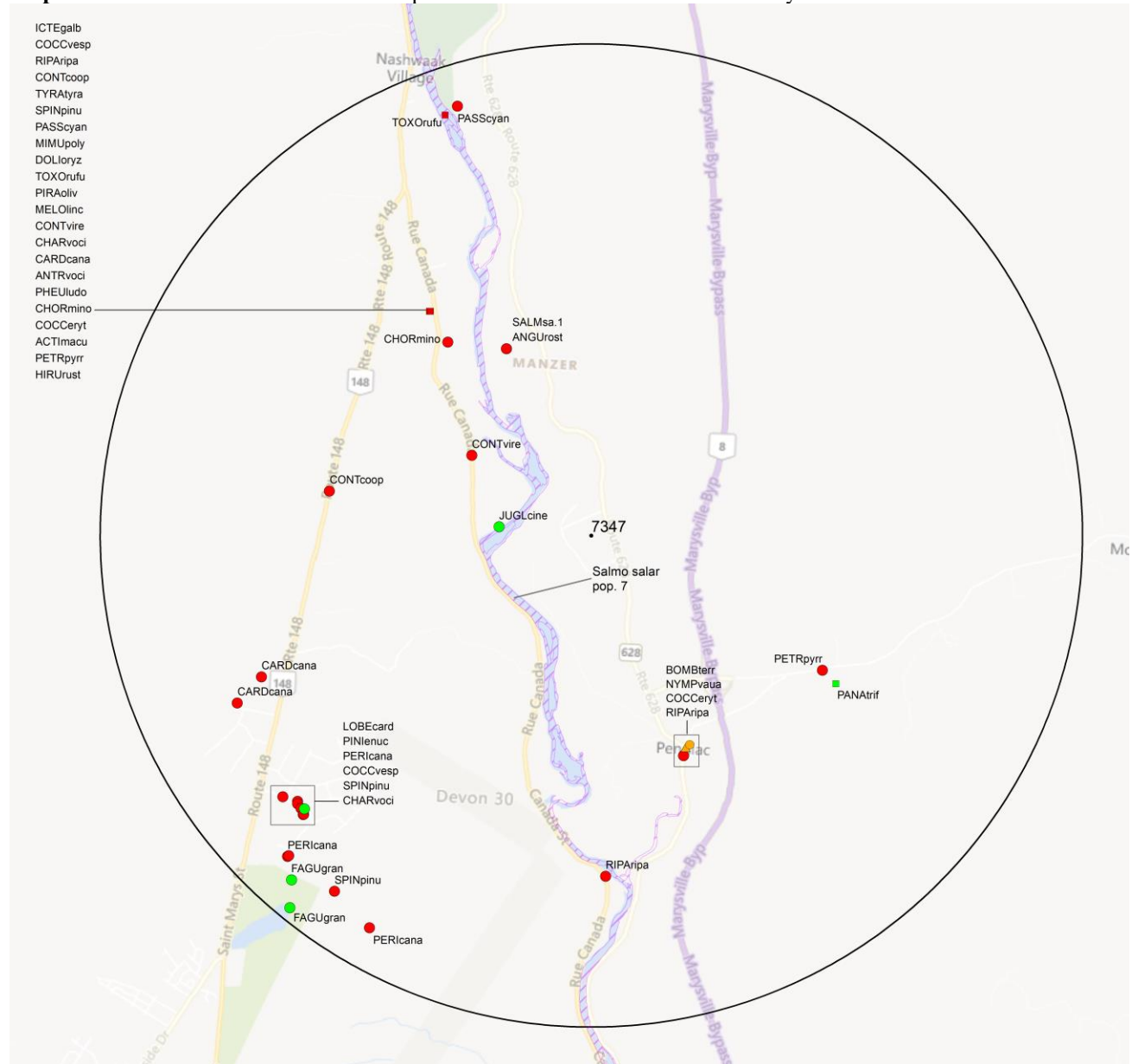
### 2.1 FLORA

The study area contains 5 records of 4 vascular, no records of nonvascular flora (Map 2 and attached: \*ob.xls), excluding 'location-sensitive' species.

### 2.2 FAUNA

The study area contains 89 records of 26 vertebrate, 3 records of 2 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List), excluding 'location-sensitive' species. Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.

**Map 2:** Known observations of rare and/or protected flora and fauna within the study area.



- RESOLUTION**
- 4.7 within 50s of kilometers
  - 4.0 within 10s of kilometers
  - 3.7 within 5s of kilometers
  - △ 3.0 within kilometers
  - △ 2.7 within 500s of meters
  - ◇ 2.0 within 100s of meters
  - ◇ 1.7 within 10s of meters

- HIGHER TAXON**
- vertebrate fauna
  - invertebrate fauna
  - vascular flora
  - nonvascular flora

### 3.0 SPECIAL AREAS

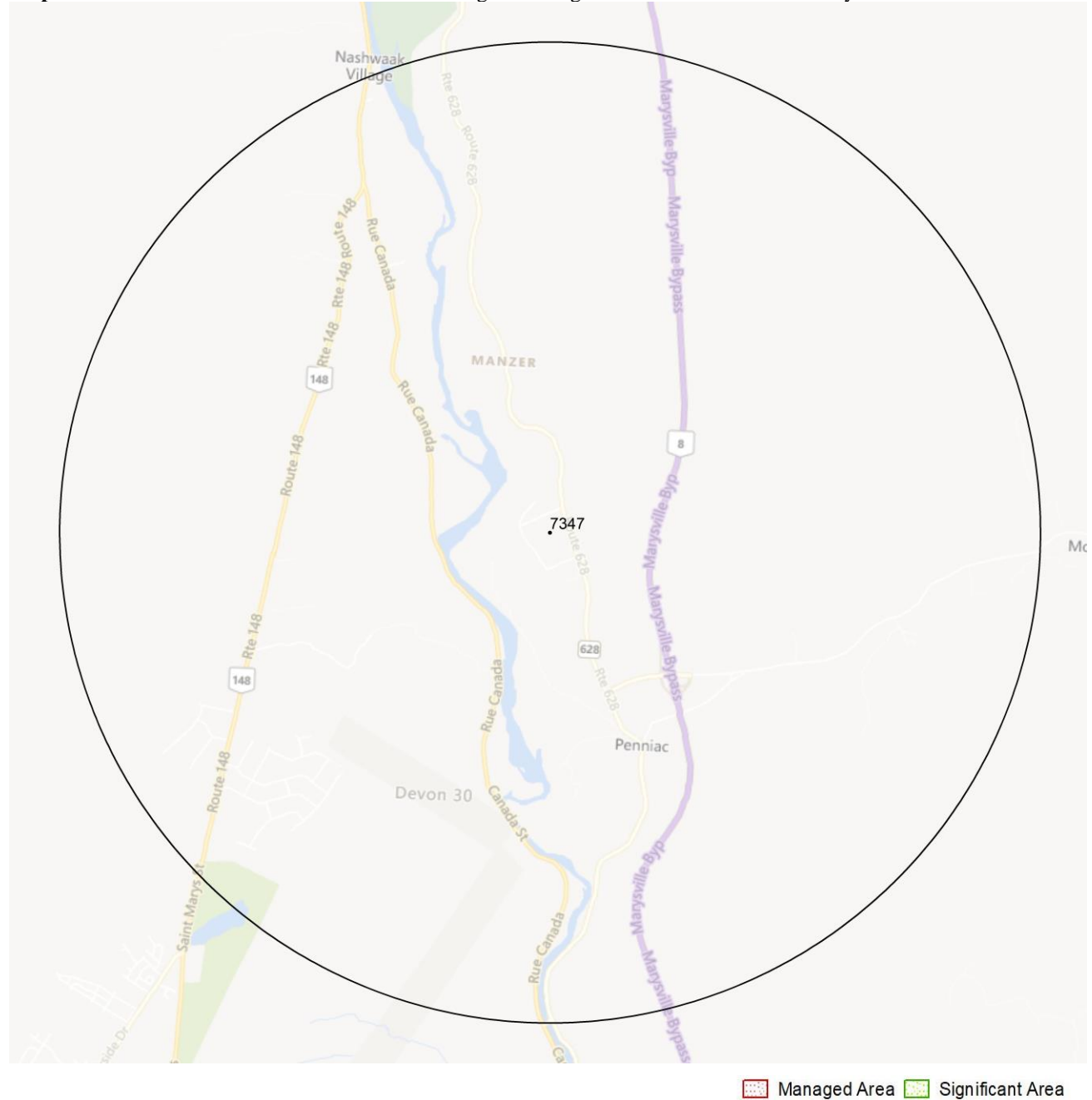
#### 3.1 MANAGED AREAS

The GIS scan identified no managed areas in the vicinity of the study area (Map 3).

#### 3.2 SIGNIFICANT AREAS

The GIS scan identified no biologically significant sites in the vicinity of the study area (Map 3).

**Map 3:** Boundaries and/or locations of known Managed and Significant Areas within the study area.



## 4.0 RARE SPECIES LISTS

Rare and/or endangered taxa (excluding “location-sensitive” species, section 4.3) within the study area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation ( $\pm$  the precision, in km, of the record). [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community. Note: records are from attached files \*ob.xls/\*ob.shp only.

### 4.1 FLORA

|   | Scientific Name           | Common Name     | COSEWIC    | SARA       | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) |
|---|---------------------------|-----------------|------------|------------|-----------------|------------------|--------|---------------|
| P | <i>Juglans cinerea</i>    | Butternut       | Endangered | Endangered | Endangered      | S1               | 1      | 0.9 $\pm$ 0.0 |
| P | <i>Panax trifolius</i>    | Dwarf Ginseng   |            |            |                 | S3               | 1      | 2.9 $\pm$ 2.0 |
| P | <i>Lobelia cardinalis</i> | Cardinal Flower |            |            |                 | S3S4             | 1      | 4.0 $\pm$ 0.0 |
| P | <i>Fagus grandifolia</i>  | American Beech  |            |            |                 | S3S4             | 2      | 4.6 $\pm$ 0.0 |

### 4.2 FAUNA

|   | Scientific Name                   | Common Name                                     | COSEWIC         | SARA            | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) |
|---|-----------------------------------|---|-----------------|-----------------|-----------------|------------------|--------|---------------|
| A | <i>Salmo salar pop. 1</i>         | Atlantic Salmon - Inner Bay of Fundy population | Endangered      | Endangered      | Endangered      | S2               | 3      | 2.1 $\pm$ 0.0 |
| A | <i>Antrostomus vociferus</i>      | Eastern Whip-Poor-Will                          | Threatened      | Threatened      | Threatened      | S2B              | 1      | 2.8 $\pm$ 7.0 |
| A | <i>Riparia riparia</i>            | Bank Swallow                                    | Threatened      | Threatened      |                 | S2B              | 6      | 2.4 $\pm$ 0.0 |
| A | <i>Anguilla rostrata</i>          | American Eel                                    | Threatened      |                 | Threatened      | S4N              | 1      | 2.1 $\pm$ 0.0 |
| A | <i>Hirundo rustica</i>            | Barn Swallow                                    | Special Concern | Threatened      | Threatened      | S2B              | 6      | 2.8 $\pm$ 7.0 |
| A | <i>Contopus virens</i>            | Eastern Wood-Pewee                              | Special Concern | Special Concern | Special Concern | S3B              | 4      | 1.5 $\pm$ 0.0 |
| A | <i>Contopus cooperi</i>           | Olive-sided Flycatcher                          | Special Concern | Threatened      | Threatened      | S3B              | 3      | 2.7 $\pm$ 0.0 |
| A | <i>Dolichonyx oryzivorus</i>      | Bobolink  | Special Concern | Threatened      | Threatened      | S3B              | 6      | 2.8 $\pm$ 7.0 |
| A | <i>Coccothraustes vespertinus</i> | Evening Grosbeak                                | Special Concern | Special Concern |                 | S3B,S3S4N,SUM    | 2      | 2.8 $\pm$ 7.0 |
| A | <i>Chordeiles minor</i>           | Common Nighthawk                                | Special Concern | Threatened      | Threatened      | S3B,S4M          | 5      | 2.5 $\pm$ 0.0 |
| A | <i>Cardellina canadensis</i>      | Canada Warbler                                  | Special Concern | Threatened      | Threatened      | S3S4B            | 9      | 2.8 $\pm$ 7.0 |
| A | <i>Petrochelidon pyrrhonota</i>   | Cliff Swallow                                   |                 |                 |                 | S2B              | 5      | 2.7 $\pm$ 0.0 |
| A | <i>Mimus polyglottos</i>          | Northern Mockingbird                            |                 |                 |                 | S2B              | 1      | 2.8 $\pm$ 7.0 |
| A | <i>Pinicola enucleator</i>        | Pine Grosbeak                                   |                 |                 |                 | S2B,S4S5N,S4S5M  | 2      | 4.1 $\pm$ 0.0 |
| A | <i>Toxostoma rufum</i>            | Brown Thrasher                                  |                 |                 |                 | S2S3B            | 3      | 2.8 $\pm$ 7.0 |
| A | <i>Icterus galbula</i>            | Baltimore Oriole                                |                 |                 |                 | S2S3B            | 2      | 2.8 $\pm$ 7.0 |
| A | <i>Spinus pinus</i>               | Pine Siskin                                     |                 |                 |                 | S3               | 3      | 2.8 $\pm$ 7.0 |
| A | <i>Charadrius vociferus</i>       | Killdeer  |                 |                 |                 | S3B              | 4      | 2.8 $\pm$ 7.0 |
| A | <i>Coccyzus erythrophthalmus</i>  | Black-billed Cuckoo                             |                 |                 |                 | S3B              | 2      | 2.4 $\pm$ 0.0 |
| A | <i>Piranga olivacea</i>           | Scarlet Tanager                                 |                 |                 |                 | S3B              | 2      | 2.8 $\pm$ 7.0 |
| A | <i>Pheucticus ludovicianus</i>    | Rose-breasted Grosbeak                          |                 |                 |                 | S3B              | 3      | 2.8 $\pm$ 7.0 |
| A | <i>Passerina cyanea</i>           | Indigo Bunting                                  |                 |                 |                 | S3B              | 3      | 2.8 $\pm$ 7.0 |
| A | <i>Perisoreus canadensis</i>      | Canada Jay                                      |                 |                 |                 | S3S4             | 4      | 4.1 $\pm$ 0.0 |
| A | <i>Tyrannus tyrannus</i>          | Eastern Kingbird                                |                 |                 |                 | S3S4B            | 5      | 2.8 $\pm$ 7.0 |
| A | <i>Actitis macularius</i>         | Spotted Sandpiper                               |                 |                 |                 | S3S4B,S4M        | 3      | 2.8 $\pm$ 7.0 |
| A | <i>Melospiza lincolni</i>         | Lincoln's Sparrow                               |                 |                 |                 | S3S4B,S4M        | 1      | 2.8 $\pm$ 7.0 |
| I | <i>Bombus terricola</i>           | Yellow-banded Bumble Bee                        | Special Concern | Special Concern |                 | S4               | 2      | 2.4 $\pm$ 0.0 |
| I | <i>Nymphalis l-album</i>          | Compton Tortoiseshell                           |                 |                 |                 | S3               | 1      | 2.4 $\pm$ 2.0 |

### 4.3 LOCATION SENSITIVE SPECIES

The Department of Natural Resources in each Maritimes province considers a number of species “location sensitive”. Concern about exploitation of location-sensitive species precludes inclusion of precise coordinates in this report. Those intersecting your study area are indicated below with “YES”.

#### New Brunswick

| Scientific Name  | Common Name                             | SARA                      | Prov Legal Prot           | Known within the Study Site? |
|--|---|---------------------------|---------------------------|------------------------------|
| <i>Chrysemys picta picta</i>                             | Eastern Painted Turtle                  | Special Concern           |                           | No                           |
| <i>Chelydra serpentina</i>                               | Snapping Turtle                         | Special Concern           | Special Concern           | No                           |
| <i>Glyptemys insculpta</i>                               | Wood Turtle                             | Threatened                | Threatened                | YES                          |
| <i>Haliaeetus leucocephalus</i>                          | Bald Eagle                              |                           | Endangered                | YES                          |
| <i>Falco peregrinus pop. 1</i>                           | Peregrine Falcon - anatum/tundrius pop. | Special Concern           | Endangered                | No                           |
| <i>Cicindela marginipennis</i>                           | Cobblestone Tiger Beetle                | Endangered                | Endangered                | No                           |
| <i>Coenonympha nipisiquit</i>                            | Maritime Ringlet                        | Endangered                | Endangered                | No                           |
| <i>Bat hibernaculum</i> or <i>bat species occurrence</i> |   | [Endangered] <sup>1</sup> | [Endangered] <sup>1</sup> | No                           |

<sup>1</sup> *Myotis lucifugus* (Little Brown Myotis), *Myotis septentrionalis* (Long-eared Myotis), and *Perimyotis subflavus* (Tri-colored Bat or Eastern Pipistrelle) are all Endangered under the Federal Species at Risk Act and the NB Species at Risk Act.

### 4.4 SOURCE BIBLIOGRAPHY

The recipient of these data shall acknowledge the AC CDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

| # recs | CITATION   |
|--------|--|
| 53     | Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.                       |
| 22     | Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.                     |
| 14     | iNaturalist. 2020. iNaturalist Data Export 2020. iNaturalist.org and iNaturalist.ca, Web site: 128728 recs.                    |
| 4      | Cowie, F. 2007. Electrofishing Population Estimates 1979-98. Canadian Rivers Institute, 2698 recs.                             |
| 2      | Richardson, Leif. 2018. Maritimes Bombus records from various sources. Richardson, Leif.                                       |
| 1      | Benedict, B. Connell Herbarium Specimen Database Download 2004. Connell Memorial Herbarium, University of New Brunswick. 2004. |
| 1      | Dept of Fisheries & Oceans. 2001. Atlantic Salmon Maritime provinces overview for 2000. DFO.                                   |
| 1      | Klymko, J. Univeriste de Moncton insect collection butterfly record dataset. Atlantic Canada Conservation Data Centre. 2017.   |

## 5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 28079 records of 151 vertebrate and 1713 records of 79 invertebrate fauna; 13351 records of 353 vascular, 716 records of 156 nonvascular flora (attached: \*ob100km.xls).

Taxa within 100 km of the study site that are rare and/or endangered in the province in which the study site occurs (including “location-sensitive” species). All ranks correspond to the province in which the study site falls, even for out-of-province records. Taxa are listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation ( $\pm$  the precision, in km, of the record).

| Taxonomic Group | Scientific Name                         | Common Name  | COSEWIC         | SARA            | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km)    | Prov |
|-----------------|---|--|-----------------|-----------------|-----------------|------------------|--------|------------------|------|
| A               | <i>Myotis lucifugus</i>                 | Little Brown Myotis  | Endangered      | Endangered      | Endangered      | S1               | 60     | 10.9 $\pm$ 1.0   | NB   |
| A               | <i>Myotis septentrionalis</i>           | Northern Myotis  | Endangered      | Endangered      | Endangered      | S1               | 15     | 10.9 $\pm$ 1.0   | NB   |
| A               | <i>Perimyotis subflavus</i>             | Tricolored Bat   | Endangered      | Endangered      | Endangered      | S1               | 6      | 79.6 $\pm$ 100.0 | NB   |
| A               | <i>Osmerus mordax</i> pop. 2            | Rainbow Smelt - Lake Utopia Large-bodied population                | Endangered      | Threatened      | Threatened      | S1               | 1      | 98.6 $\pm$ 10.0  | NB   |
| A               | <i>Charadrius melodus melodus</i>       | Piping Plover melodus subspecies                                   | Endangered      | Endangered      | Endangered      | S1B              | 5      | 96.1 $\pm$ 0.0   | NB   |
| A               | <i>Dermochelys coriacea</i> pop. 2      | Leatherback Sea Turtle - Atlantic population                       | Endangered      | Endangered      | Endangered      | S1S2N            | 1      | 99.6 $\pm$ 50.0  | NB   |
| A               | <i>Salmo salar</i> pop. 1               | Atlantic Salmon - Inner Bay of Fundy population                    | Endangered      | Endangered      | Endangered      | S2               | 439    | 2.1 $\pm$ 0.0    | NB   |
| A               | <i>Melanerpes erythrocephalus</i>       | Red-headed Woodpecker  | Endangered      | Threatened      |                 | SNA              | 1      | 91.9 $\pm$ 7.0   | NB   |
| A               | <i>Empidonax virescens</i>              | Acadian Flycatcher   | Endangered      | Endangered      |                 | SNA              | 2      | 13.9 $\pm$ 0.0   | NB   |
| A               | <i>Protonotaria citrea</i>              | Prothonotary Warbler   | Endangered      | Endangered      |                 | SNA              | 1      | 97.7 $\pm$ 2.0   | NB   |
| A               | <i>Icteria virens</i>                   | Yellow-Breasted Chat   | Endangered      | Endangered      |                 | SNA              | 1      | 84.8 $\pm$ 7.0   | NB   |
| A               | <i>Salmo salar</i> pop. 7               | Atlantic Salmon - Outer Bay of Fundy population                    | Endangered      |                 | Endangered      | SNR              | 39     | 25.9 $\pm$ 0.0   | NB   |
| A               | <i>Rangifer tarandus</i> pop. 2         | Caribou - Atlantic-Gaspésie population                             | Endangered      | Endangered      | Extirpated      | SX               | 4      | 50.5 $\pm$ 1.0   | NB   |
| A               | <i>Colinus virginianus</i>              | Northern Bobwhite  | Endangered      | Endangered      |                 |                  | 4      | 62.6 $\pm$ 0.0   | NB   |
| A               | <i>Sturnella magna</i>                  | Eastern Meadowlark   | Threatened      | Threatened      | Threatened      | S1B              | 52     | 14.2 $\pm$ 7.0   | NB   |
| A               | <i>Asio flammeus</i>                    | Short-eared Owl  | Threatened      | Special Concern | Special Concern | S1S2B            | 15     | 47.2 $\pm$ 7.0   | NB   |
| A               | <i>Ixobrychus exilis</i>                | Least Bittern  | Threatened      | Threatened      | Threatened      | S1S2B            | 30     | 8.1 $\pm$ 7.0    | NB   |
| A               | <i>Hylocichla mustelina</i>             | Wood Thrush  | Threatened      | Threatened      | Threatened      | S1S2B            | 235    | 12.3 $\pm$ 7.0   | NB   |
| A               | <i>Antrostomus vociferus</i>            | Eastern Whip-Poor-Will   | Threatened      | Threatened      | Threatened      | S2B              | 99     | 2.8 $\pm$ 7.0    | NB   |
| A               | <i>Catharus bicknelli</i>               | Bicknell's Thrush  | Threatened      | Threatened      | Threatened      | S2B              | 4      | 75.0 $\pm$ 7.0   | NB   |
| A               | <i>Riparia riparia</i>                  | Bank Swallow   | Threatened      | Threatened      |                 | S2B              | 505    | 2.4 $\pm$ 0.0    | NB   |
| A               | <i>Glyptemys insculpta</i>              | Wood Turtle  | Threatened      | Threatened      | Threatened      | S2S3             | 2054   | 1.6 $\pm$ 0.0    | NB   |
| A               | <i>Chaetura pelagica</i>                | Chimney Swift  | Threatened      | Threatened      | Threatened      | S2S3B,S2M        | 590    | 7.8 $\pm$ 0.0    | NB   |
| A               | <i>Acipenser oxyrinchus</i>             | Atlantic Sturgeon  | Threatened      |                 | Threatened      | S3B,S3N          | 2      | 49.1 $\pm$ 1.0   | NB   |
| A               | <i>Tringa flavipes</i>                  | Lesser Yellowlegs  | Threatened      |                 |                 | S3M              | 207    | 16.9 $\pm$ 0.0   | NB   |
| A               | <i>Limosa haemastica</i>                | Hudsonian Godwit   | Threatened      |                 |                 | S3M              | 25     | 97.9 $\pm$ 0.0   | NB   |
| A               | <i>Anguilla rostrata</i>                | American Eel   | Threatened      |                 | Threatened      | S4N              | 132    | 2.1 $\pm$ 0.0    | NB   |
| A               | <i>Coturnicops noveboracensis</i>       | Yellow Rail  | Special Concern | Special Concern | Special Concern | S1?B,SUM         | 3      | 30.6 $\pm$ 7.0   | NB   |
| A               | <i>Histrionicus histrionicus</i> pop. 1 | Harlequin Duck - Eastern population                                | Special Concern | Special Concern | Endangered      | S1B,S1S2N,S2M    | 1      | 20.6 $\pm$ 0.0   | NB   |
| A               | <i>Hirundo rustica</i>                  | Barn Swallow   | Special Concern | Threatened      | Threatened      | S2B              | 1240   | 2.8 $\pm$ 7.0    | NB   |
| A               | <i>Salmo salar</i> pop. 12              | Atlantic Salmon - Gaspé - Southern Gulf of St. Lawrence population | Special Concern |                 | Special Concern | S2S3             | 1171   | 34.5 $\pm$ 0.0   | NB   |
| A               | <i>Euphagus carolinus</i>               | Rusty Blackbird  | Special Concern | Special Concern | Special Concern | S2S3B,S3M        | 278    | 11.5 $\pm$ 2.0   | NB   |
| A               | <i>Bucephala islandica</i>              | Barrow's Goldeneye   | Special Concern | Special Concern | Special Concern | S2S3N,S3M        | 50     | 10.2 $\pm$ 0.0   | NB   |
| A               | <i>Acipenser brevirostrum</i>           | Shortnose Sturgeon   | Special Concern | Special Concern | Special Concern | S3               | 12     | 23.5 $\pm$ 10.0  | NB   |
| A               | <i>Chelydra serpentina</i>              | Snapping Turtle  | Special Concern | Special Concern | Special Concern | S3               | 66     | 7.7 $\pm$ 0.0    | NB   |
| A               | <i>Contopus virens</i>                  | Eastern Wood-Pewee   | Special Concern | Special Concern | Special Concern | S3B              | 947    | 1.5 $\pm$ 0.0    | NB   |

| Taxonomic Group | Scientific Name                   | Common Name  | COSEWIC         | SARA            | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|-----------------------------------|--|-----------------|-----------------|-----------------|------------------|--------|---------------|------|
| A               | <i>Contopus cooperi</i>           | Olive-sided Flycatcher   | Special Concern | Threatened      | Threatened      | S3B              | 791    | 2.7 ± 0.0     | NB   |
| A               | <i>Dolichonyx oryzivorus</i>      | Bobolink   | Special Concern | Threatened      | Threatened      | S3B              | 1108   | 2.8 ± 7.0     | NB   |
| A               | <i>Coccothraustes vespertinus</i> | Evening Grosbeak   | Special Concern | Special Concern |                 | S3B,S3S4N,SUM    | 355    | 2.8 ± 7.0     | NB   |
| A               | <i>Chordeiles minor</i>           | Common Nighthawk   | Special Concern | Threatened      | Threatened      | S3B,S4M          | 521    | 2.5 ± 0.0     | NB   |
| A               | <i>Phalaropus lobatus</i>         | Red-necked Phalarope   | Special Concern | Special Concern |                 | S3M              | 2      | 87.8 ± 0.0    | NB   |
| A               | <i>Podiceps auritus</i>           | Horned Grebe   | Special Concern | Special Concern | Special Concern | S3N              | 20     | 22.9 ± 0.0    | NB   |
| A               | <i>Cardellina canadensis</i>      | Canada Warbler   | Special Concern | Threatened      | Threatened      | S3S4B            | 1571   | 2.8 ± 7.0     | NB   |
| A               | <i>Phocoena phocoena</i>          | Harbour Porpoise   | Special Concern |                 | Spec.Concern    | S4               | 5      | 95.1 ± 100.0  | NB   |
| A               | <i>Chrysemys picta picta</i>      | Eastern Painted Turtle   | Special Concern | Special Concern |                 | S4               | 82     | 7.6 ± 13.0    | NB   |
| A               | <i>Calidris subruficollis</i>     | Buff-breasted Sandpiper  | Special Concern | Special Concern |                 | SNA              | 16     | 98.5 ± 1.0    | NB   |
| A               | <i>Fulica americana</i>           | American Coot  | Not At Risk     |                 |                 | S1B              | 9      | 47.3 ± 7.0    | NB   |
| A               | <i>Falco peregrinus pop. 1</i>    | Peregrine Falcon -<br>anatum/tundrius  | Not At Risk     | Special Concern | Endangered      | S1B,S3M          | 135    | 10.7 ± 0.0    | NB   |
| A               | <i>Bubo scandiacus</i>            | Snowy Owl  | Not At Risk     |                 |                 | S1N,S2S3M        | 11     | 8.1 ± 1.0     | NB   |
| A               | <i>Accipiter cooperii</i>         | Cooper's Hawk  | Not At Risk     |                 |                 | S1S2B            | 19     | 11.0 ± 0.0    | NB   |
| A               | <i>Buteo lineatus</i>             | Red-shouldered Hawk  | Not At Risk     |                 |                 | S1S2B            | 59     | 22.2 ± 7.0    | NB   |
| A               | <i>Sorex dispar</i>               | Long-tailed Shrew  | Not At Risk     |                 |                 | S2               | 4      | 67.5 ± 5.0    | NB   |
| A               | <i>Chlidonias niger</i>           | Black Tern   | Not At Risk     |                 |                 | S2B              | 347    | 11.0 ± 5.0    | NB   |
| A               | <i>Podiceps grisegena</i>         | Red-necked Grebe   | Not At Risk     |                 |                 | S2N,S3M          | 14     | 10.7 ± 0.0    | NB   |
| A               | <i>Globicephala melas</i>         | Long-finned Pilot Whale  | Not At Risk     |                 |                 | S2S3             | 1      | 99.8 ± 1.0    | NB   |
| A               | <i>Desmognathus fuscus pop. 2</i> | Northern Dusky Salamander<br>- Quebec / New Brunswick<br>population                | Not At Risk     |                 |                 | S3               | 96     | 10.6 ± 1.0    | NB   |
| A               | <i>Sterna hirundo</i>             | Common Tern  | Not At Risk     |                 |                 | S3B,SUM          | 228    | 10.7 ± 0.0    | NB   |
| A               | <i>Lagenorhynchus acutus</i>      | Atlantic White-sided Dolphin   | Not At Risk     |                 |                 | S3S4             | 1      | 99.8 ± 1.0    | NB   |
| A               | <i>Haliaeetus leucocephalus</i>   | Bald Eagle   | Not At Risk     |                 | Endangered      | S4               | 859    | 2.8 ± 7.0     | NB   |
| A               | <i>Lynx canadensis</i>            | Canada Lynx  | Not At Risk     |                 | Endangered      | S4               | 35     | 5.3 ± 10.0    | NB   |
| A               | <i>Canis lupus</i>                | Grey Wolf  | Not At Risk     |                 | Extirpated      | SX               | 4      | 48.0 ± 1.0    | NB   |
| A               | <i>Puma concolor pop. 1</i>       | Cougar - Eastern population  | Data Deficient  |                 | Endangered      | SU               | 62     | 16.3 ± 1.0    | NB   |
| A               | <i>Calidris canutus rufa</i>      | Red Knot rufa subspecies -<br>Tierra del Fuego / Patagonia<br>wintering population | E,SC            | Endangered      | Endangered      | S2M              | 19     | 95.5 ± 0.0    | NB   |
| A               | <i>Morone saxatilis</i>           | Striped Bass   | E,SC            |                 |                 | S3S4B,S3S4N      | 11     | 9.9 ± 0.0     | NB   |
| A               | <i>Salmo salar</i>                | Atlantic Salmon  | E,T,SC          |                 |                 | S2S3             | 1      | 84.4 ± 0.0    | NB   |
| A               | <i>Thryothorus ludovicianus</i>   | Carolina Wren  |                 |                 |                 | S1               | 37     | 8.1 ± 7.0     | NB   |
| A               | <i>Salvelinus alpinus</i>         | Arctic Char  |                 |                 |                 | S1               | 2      | 71.9 ± 1.0    | NB   |
| A               | <i>Vireo flavifrons</i>           | Yellow-throated Vireo  |                 |                 |                 | S1?B             | 10     | 8.1 ± 7.0     | NB   |
| A               | <i>Tringa melanoleuca</i>         | Greater Yellowlegs   |                 |                 |                 | S1?B,S4S5M       | 316    | 12.1 ± 1.0    | NB   |
| A               | <i>Aythya americana</i>           | Redhead  |                 |                 |                 | S1B              | 7      | 61.2 ± 7.0    | NB   |
| A               | <i>Gallinula galeata</i>          | Common Gallinule   |                 |                 |                 | S1B              | 24     | 8.1 ± 7.0     | NB   |
| A               | <i>Grus canadensis</i>            | Sandhill Crane   |                 |                 |                 | S1B              | 14     | 74.9 ± 0.0    | NB   |
| A               | <i>Bartramia longicauda</i>       | Upland Sandpiper   |                 |                 |                 | S1B              | 30     | 19.6 ± 7.0    | NB   |
| A               | <i>Phalaropus tricolor</i>        | Wilson's Phalarope   |                 |                 |                 | S1B              | 42     | 15.9 ± 7.0    | NB   |
| A               | <i>Leucophaeus atricilla</i>      | Laughing Gull  |                 |                 |                 | S1B              | 3      | 12.1 ± 1.0    | NB   |
| A               | <i>Alca torda</i>                 | Razorbill  |                 |                 |                 | S1B              | 1      | 98.9 ± 0.0    | NB   |
| A               | <i>Progne subis</i>               | Purple Martin  |                 |                 |                 | S1B              | 302    | 14.2 ± 7.0    | NB   |
| A               | <i>Aythya marila</i>              | Greater Scaup  |                 |                 |                 | S1B,S2N,S4M      | 33     | 25.5 ± 7.0    | NB   |
| A               | <i>Oxyura jamaicensis</i>         | Ruddy Duck   |                 |                 |                 | S1B,S2S3M        | 44     | 10.7 ± 0.0    | NB   |
| A               | <i>Aythya affinis</i>             | Lesser Scaup   |                 |                 |                 | S1B,S4M          | 199    | 10.2 ± 0.0    | NB   |
| A               | <i>Eremophila alpestris</i>       | Horned Lark  |                 |                 |                 | S1B,S4N,S5M      | 33     | 11.0 ± 0.0    | NB   |
| A               | <i>Chroicocephalus ridibundus</i> | Black-headed Gull  |                 |                 |                 | S1N,S2M          | 4      | 12.1 ± 1.0    | NB   |
| A               | <i>Branta bernicla</i>            | Brant  |                 |                 |                 | S1N,S2S3M        | 11     | 22.9 ± 0.0    | NB   |
| A               | <i>Calidris alba</i>              | Sanderling   |                 |                 |                 | S1N,S3S4M        | 113    | 10.7 ± 0.0    | NB   |
| A               | <i>Butorides virescens</i>        | Green Heron  |                 |                 |                 | S1S2B            | 21     | 11.0 ± 0.0    | NB   |
| A               | <i>Nycticorax nycticorax</i>      | Black-crowned Night-heron  |                 |                 |                 | S1S2B            | 9      | 71.4 ± 0.0    | NB   |
| A               | <i>Empidonax traillii</i>         | Willow Flycatcher  |                 |                 |                 | S1S2B            | 97     | 8.1 ± 7.0     | NB   |
| A               | <i>Stelgidopteryx serripennis</i> | Northern Rough-winged<br>Swallow   |                 |                 |                 | S1S2B            | 20     | 8.1 ± 7.0     | NB   |



| Taxonomic Group | Scientific Name                     | Common Name                    | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|-------------------------------------|--------------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| A               | <i>Troglodytes aedon</i>            | House Wren                     |         |      |                 | S1S2B            | 26     | 19.6 ± 0.0    | NB   |
| A               | <i>Calidris bairdii</i>             | Baird's Sandpiper              |         |      |                 | S1S2M            | 29     | 79.0 ± 0.0    | NB   |
| A               | <i>Melanitta americana</i>          | American Scoter                |         |      |                 | S1S2N,S3M        | 35     | 10.4 ± 0.0    | NB   |
| A               | <i>Microtus chrotorrhinus</i>       | Rock Vole                      |         |      |                 | S2?              | 5      | 81.4 ± 1.0    | NB   |
| A               | <i>Petrochelidon pyrrhonota</i>     | Cliff Swallow                  |         |      |                 | S2B              | 564    | 2.7 ± 0.0     | NB   |
| A               | <i>Cistothorus palustris</i>        | Marsh Wren                     |         |      |                 | S2B              | 396    | 8.1 ± 7.0     | NB   |
| A               | <i>Mimus polyglottos</i>            | Northern Mockingbird           |         |      |                 | S2B              | 108    | 2.8 ± 7.0     | NB   |
| A               | <i>Poocetes gramineus</i>           | Vesper Sparrow                 |         |      |                 | S2B              | 91     | 22.2 ± 7.0    | NB   |
| A               | <i>Mareca strepera</i>              | Gadwall                        |         |      |                 | S2B,S3M          | 81     | 10.9 ± 30.0   | NB   |
| A               | <i>Tringa solitaria</i>             | Solitary Sandpiper             |         |      |                 | S2B,S4S5M        | 117    | 10.3 ± 0.0    | NB   |
| A               | <i>Pinicola enucleator</i>          | Pine Grosbeak                  |         |      |                 | S2B,S4S5N,S4S5M  | 68     | 4.1 ± 0.0     | NB   |
| A               | <i>Phalacrocorax carbo</i>          | Great Cormorant                |         |      |                 | S2N              | 5      | 24.3 ± 0.0    | NB   |
| A               | <i>Larus hyperboreus</i>            | Glaucous Gull                  |         |      |                 | S2N              | 87     | 10.7 ± 0.0    | NB   |
| A               | <i>Melanitta perspicillata</i>      | Surf Scoter                    |         |      |                 | S2N,S4M          | 1      | 90.4 ± 8.0    | NB   |
| A               | <i>Asio otus</i>                    | Long-eared Owl                 |         |      |                 | S2S3             | 20     | 14.2 ± 7.0    | NB   |
| A               | <i>Picoides dorsalis</i>            | American Three-toed Woodpecker |         |      |                 | S2S3             | 30     | 12.1 ± 1.0    | NB   |
| A               | <i>Toxostoma rufum</i>              | Brown Thrasher                 |         |      |                 | S2S3B            | 92     | 2.8 ± 7.0     | NB   |
| A               | <i>Icterus galbula</i>              | Baltimore Oriole               |         |      |                 | S2S3B            | 246    | 2.8 ± 7.0     | NB   |
| A               | <i>Somateria mollissima</i>         | Common Eider                   |         |      |                 | S2S3B,S2S3N,S4M  | 103    | 11.6 ± 0.0    | NB   |
| A               | <i>Larus delawarensis</i>           | Ring-billed Gull               |         |      |                 | S2S3B,S4N,S5M    | 233    | 10.6 ± 0.0    | NB   |
| A               | <i>Pluvialis dominica</i>           | American Golden-Plover         |         |      |                 | S2S3M            | 51     | 14.4 ± 0.0    | NB   |
| A               | <i>Calcarius lapponicus</i>         | Lapland Longspur               |         |      |                 | S2S3N,SUM        | 17     | 14.7 ± 0.0    | NB   |
| A               | <i>Larus marinus</i>                | Great Black-backed Gull        |         |      |                 | S3               | 145    | 9.3 ± 1.0     | NB   |
| A               | <i>Picoides arcticus</i>            | Black-backed Woodpecker        |         |      |                 | S3               | 100    | 8.8 ± 0.0     | NB   |
| A               | <i>Loxia curvirostra</i>            | Red Crossbill                  |         |      |                 | S3               | 139    | 8.1 ± 7.0     | NB   |
| A               | <i>Spinus pinus</i>                 | Pine Siskin                    |         |      |                 | S3               | 291    | 2.8 ± 7.0     | NB   |
| A               | <i>Prosopium cylindraceum</i>       | Round Whitefish                |         |      |                 | S3               | 2      | 26.6 ± 0.0    | NB   |
| A               | <i>Salvelinus namaycush</i>         | Lake Trout                     |         |      |                 | S3               | 4      | 60.2 ± 0.0    | NB   |
| A               | <i>Sorex maritimensis</i>           | Maritime Shrew                 |         |      |                 | S3               | 1      | 32.9 ± 1.0    | NB   |
| A               | <i>Spatula clypeata</i>             | Northern Shoveler              |         |      |                 | S3B              | 94     | 8.1 ± 7.0     | NB   |
| A               | <i>Charadrius vociferus</i>         | Killdeer                       |         |      |                 | S3B              | 648    | 2.8 ± 7.0     | NB   |
| A               | <i>Tringa semipalmata</i>           | Willet                         |         |      |                 | S3B              | 13     | 20.9 ± 0.0    | NB   |
| A               | <i>Cephus grylle</i>                | Black Guillemot                |         |      |                 | S3B              | 8      | 97.7 ± 20.0   | NB   |
| A               | <i>Coccyzus erythrophthalmus</i>    | Black-billed Cuckoo            |         |      |                 | S3B              | 194    | 2.4 ± 0.0     | NB   |
| A               | <i>Myiarchus crinitus</i>           | Great Crested Flycatcher       |         |      |                 | S3B              | 433    | 8.1 ± 7.0     | NB   |
| A               | <i>Piranga olivacea</i>             | Scarlet Tanager                |         |      |                 | S3B              | 368    | 2.8 ± 7.0     | NB   |
| A               | <i>Pheucticus ludovicianus</i>      | Rose-breasted Grosbeak         |         |      |                 | S3B              | 977    | 2.8 ± 7.0     | NB   |
| A               | <i>Passerina cyanea</i>             | Indigo Bunting                 |         |      |                 | S3B              | 130    | 2.8 ± 7.0     | NB   |
| A               | <i>Molothrus ater</i>               | Brown-headed Cowbird           |         |      |                 | S3B              | 279    | 8.1 ± 7.0     | NB   |
| A               | <i>Setophaga tigrina</i>            | Cape May Warbler               |         |      |                 | S3B,S4S5M        | 185    | 12.3 ± 7.0    | NB   |
| A               | <i>Mergus serrator</i>              | Red-breasted Merganser         |         |      |                 | S3B,S4S5N,S5M    | 47     | 14.2 ± 7.0    | NB   |
| A               | <i>Anas acuta</i>                   | Northern Pintail               |         |      |                 | S3B,S5M          | 51     | 11.4 ± 1.0    | NB   |
| A               | <i>Anser caerulescens</i>           | Snow Goose                     |         |      |                 | S3M              | 6      | 17.6 ± 0.0    | NB   |
| A               | <i>Numerius phaeopus hudsonicus</i> | Whimbrel                       |         |      |                 | S3M              | 43     | 44.0 ± 0.0    | NB   |
| A               | <i>Arenaria interpres</i>           | Ruddy Turnstone                |         |      |                 | S3M              | 65     | 42.5 ± 0.0    | NB   |
| A               | <i>Calidris pusilla</i>             | Semipalmated Sandpiper         |         |      |                 | S3M              | 312    | 10.7 ± 0.0    | NB   |
| A               | <i>Calidris melanotos</i>           | Pectoral Sandpiper             |         |      |                 | S3M              | 126    | 10.3 ± 0.0    | NB   |
| A               | <i>Limnodromus griseus</i>          | Short-billed Dowitcher         |         |      |                 | S3M              | 184    | 20.9 ± 0.0    | NB   |
| A               | <i>Phalaropus fulicarius</i>        | Red Phalarope                  |         |      |                 | S3M              | 1      | 79.0 ± 0.0    | NB   |
| A               | <i>Bucephala albeola</i>            | Bufflehead                     |         |      |                 | S3N              | 430    | 10.7 ± 0.0    | NB   |
| A               | <i>Calidris maritima</i>            | Purple Sandpiper               |         |      |                 | S3N              | 2      | 99.0 ± 0.0    | NB   |
| A               | <i>Perisoreus canadensis</i>        | Canada Jay                     |         |      |                 | S3S4             | 453    | 4.1 ± 0.0     | NB   |
| A               | <i>Poecile hudsonicus</i>           | Boreal Chickadee               |         |      |                 | S3S4             | 273    | 8.5 ± 7.0     | NB   |
| A               | <i>Eptesicus fuscus</i>             | Big Brown Bat                  |         |      |                 | S3S4             | 44     | 7.8 ± 10.0    | NB   |

| Taxonomic Group | Scientific Name   | Common Name  | COSEWIC         | SARA            | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|---|--|-----------------|-----------------|-----------------|------------------|--------|---------------|------|
| A               | <i>Synaptomys cooperi</i>   | Southern Bog Lemming   |                 |                 |                 | S3S4             | 75     | 15.4 ± 1.0    | NB   |
| A               | <i>Tyrannus tyrannus</i>  | Eastern Kingbird   |                 |                 |                 | S3S4B            | 733    | 2.8 ± 7.0     | NB   |
| A               | <i>Vireo gilvus</i>   | Warbling Vireo   |                 |                 |                 | S3S4B            | 314    | 8.1 ± 7.0     | NB   |
| A               | <i>Actitis macularius</i>   | Spotted Sandpiper  |                 |                 |                 | S3S4B,S4M        | 781    | 2.8 ± 7.0     | NB   |
| A               | <i>Melospiza lincolnii</i>  | Lincoln's Sparrow  |                 |                 |                 | S3S4B,S4M        | 412    | 2.8 ± 7.0     | NB   |
| A               | <i>Gallinago delicata</i>   | Wilson's Snipe   |                 |                 |                 | S3S4B,S5M        | 1027   | 8.1 ± 7.0     | NB   |
| A               | <i>Setophaga striata</i>  | Blackpoll Warbler  |                 |                 |                 | S3S4B,S5M        | 50     | 12.3 ± 7.0    | NB   |
| A               | <i>Pluvialis squatarola</i>   | Black-bellied Plover   |                 |                 |                 | S3S4M            | 175    | 20.9 ± 0.0    | NB   |
| A               | <i>Morus bassanus</i>   | Northern Gannet  |                 |                 |                 | SHB              | 4      | 81.6 ± 0.0    | NB   |
|                 | <i>Quercus macrocarpa</i> - <i>Acer rubrum</i> / <i>Onoclea sensibilis</i> - <i>Carex arcta</i> Forest                    | Bur Oak - Red Maple / Sensitive Fern - Northern Clustered Sedge Forest |                 |                 |                 | S2               | 1      | 36.9 ± 0.0    |      |
| C               | <i>Acer saccharinum</i> / <i>Onoclea sensibilis</i> - <i>Lysimachia terrestris</i> Forest                                 | Silver Maple / Sensitive Fern - Swamp Yellow Loosestrife Forest        |                 |                 |                 | S3               | 1      | 42.2 ± 0.0    | NB   |
| C               | <i>Acer saccharum</i> - <i>Fraxinus americana</i> / <i>Gymnocarpium dryopteris</i> - <i>Deparia acrostichoides</i> Forest | Sugar Maple - White Ash / Common Oak Fern - Silvery Glade Fern Forest  |                 |                 |                 | S3               | 2      | 93.8 ± 0.0    |      |
| C               | <i>Acer saccharum</i> - <i>Fraxinus americana</i> / <i>Polystichum acrostichoides</i> Forest                              | Sugar Maple - White Ash / Christmas Fern Forest                        |                 |                 |                 | S3S4             | 2      | 85.5 ± 0.0    | NB   |
| I               | <i>Bombus bohemicus</i>   | Ashton Cuckoo Bumble Bee   | Endangered      | Endangered      |                 | S1               | 9      | 13.1 ± 5.0    | NB   |
| I               | <i>Danaus plexippus</i>   | Monarch  | Endangered      | Special Concern | Special Concern | S2S3?B           | 175    | 5.8 ± 0.0     | NB   |
| I               | <i>Bombus affinis</i>   | Rusty-patched Bumble Bee   | Endangered      | Endangered      |                 | SH               | 1      | 11.0 ± 5.0    | NB   |
| I               | <i>Gomphurus ventricosus</i>  | Skillet Clubtail   | Special Concern | Endangered      | Endangered      | S2               | 99     | 11.6 ± 1.0    | NB   |
| I               | <i>Cicindela marginipennis</i>  | Cobblestone Tiger Beetle   | Special Concern | Endangered      | Endangered      | S2S3             | 221    | 32.6 ± 0.0    | NB   |
| I               | <i>Ophiogomphus howei</i>   | Pygmy Snaketail  | Special Concern | Special Concern | Special Concern | S2S3             | 45     | 60.2 ± 0.0    | NB   |
| I               | <i>Alasmidonta varicosa</i>   | Brook Floater  | Special Concern | Special Concern | Special Concern | S3               | 13     | 46.2 ± 0.0    | NB   |
| I               | <i>Lampsilis cariosa</i>  | Yellow Lampmussel  | Special Concern | Special Concern | Special Concern | S3               | 104    | 11.4 ± 0.0    | NB   |
| I               | <i>Bombus terricola</i>   | Yellow-banded Bumble Bee   | Special Concern | Special Concern |                 | S4               | 134    | 2.4 ± 0.0     | NB   |
| I               | <i>Coccinella transversoguttata richardsoni</i>   | Transverse Lady Beetle   | Special Concern |                 |                 | SH               | 19     | 13.6 ± 5.0    | NB   |
| I               | <i>Appalachina sayana sayana</i>  | Spike-lip Crater Snail   | Not At Risk     |                 |                 | S3?              | 3      | 29.4 ± 0.0    | NB   |
| I               | <i>Conotrachelus juglandis</i>  | Butternut Curculio   |                 |                 |                 | S1               | 3      | 14.4 ± 0.0    | NB   |
| I               | <i>Haematopota rara</i>   | Shy Cleg   |                 |                 |                 | S1               | 1      | 15.4 ± 1.0    | NB   |
| I               | <i>Corythucha juglandis</i>   | a lace bug   |                 |                 |                 | S1               | 1      | 83.0 ± 0.0    | NB   |
| I               | <i>Tharsalea dorcas</i>   | Dorcas Copper  |                 |                 |                 | S1               | 20     | 74.3 ± 0.0    | NB   |
| I               | <i>Erora laeta</i>  | Early Hairstreak   |                 |                 |                 | S1               | 11     | 34.3 ± 7.0    | NB   |
| I               | <i>Somatochlora septentrionalis</i>   | Muskeg Emerald   |                 |                 |                 | S1               | 5      | 46.0 ± 1.0    | NB   |
| I               | <i>Polites origenes</i>   | Crossline Skipper  |                 |                 |                 | S1?              | 8      | 15.1 ± 0.0    | NB   |
| I               | <i>Icaricia saepiolus</i>   | Greenish Blue  |                 |                 |                 | S1S2             | 4      | 10.9 ± 2.0    | NB   |
| I               | <i>Pachydiplax longipennis</i>  | Blue Dasher  |                 |                 |                 | S1S2             | 2      | 30.7 ± 0.0    | NB   |
| I               | <i>Cicindela ancocisconensis</i>  | Appalachian Tiger Beetle   |                 |                 |                 | S2               | 5      | 70.7 ± 0.0    | NB   |
| I               | <i>Encyclops caeruleus</i>  | Cerulean Long-horned Beetle  |                 |                 |                 | S2               | 3      | 12.8 ± 0.0    | NB   |
| I               | <i>Scaphinotus viduus</i>   | Bereft Snail-eating Beetle   |                 |                 |                 | S2               | 2      | 13.3 ± 13.0   | NB   |
| I               | <i>Brachyleptura circumdata</i>   | Dark-shouldered Long-horned Beetle                                     |                 |                 |                 | S2               | 6      | 21.1 ± 0.0    | NB   |
| I               | <i>Satyrrium calanus</i>  | Banded Hairstreak  |                 |                 |                 | S2               | 29     | 8.1 ± 7.0     | NB   |
| I               | <i>Satyrrium calanus falacer</i>  | Falacer Hairstreak   |                 |                 |                 | S2               | 1      | 11.6 ± 1.0    | NB   |
| I               | <i>Strymon melinus</i>  | Gray Hairstreak  |                 |                 |                 | S2               | 5      | 43.8 ± 2.0    | NB   |
| I               | <i>Aeshna juncea</i>  | Sedge Darner   |                 |                 |                 | S2               | 1      | 94.7 ± 0.0    | NB   |
| I               | <i>Somatochlora brevicincta</i>   | Quebec Emerald   |                 |                 |                 | S2               | 8      | 85.9 ± 0.0    | NB   |
| I               | <i>Hybomitra frosti</i>   | Frost's Horse Fly  |                 |                 |                 | S2S3             | 1      | 80.1 ± 0.0    | NB   |
| I               | <i>Tabanus vivax</i>  | Vivacious Horse Fly  |                 |                 |                 | S2S3             | 1      | 86.0 ± 0.0    | NB   |
| I               | <i>Ophiogomphus colubrinus</i>  | Boreal Snaketail   |                 |                 |                 | S2S3             | 38     | 10.8 ± 0.0    | NB   |
| I               | <i>Sphaeroderus nitidicollis</i>  | Polished Snail-eating Beetle   |                 |                 |                 | S3               | 1      | 29.9 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name                        | Common Name                       | COSEWIC    | SARA       | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|--|-----------------------------------|------------|------------|-----------------|------------------|--------|---------------|------|
| I               | <i>Lepturoopsis biforis</i>            | Two-spotted Long-horned Beetle    |            |            |                 | S3               | 1      | 98.1 ± 1.0    | NB   |
| I               | <i>Orthosoma brunneum</i>              | Moist Long-horned Beetle          |            |            |                 | S3               | 1      | 37.8 ± 5.0    | NB   |
| I               | <i>Elaphrus americanus</i>             | Boreal Elaphrus Beetle            |            |            |                 | S3               | 1      | 21.2 ± 0.0    | NB   |
| I               | <i>Semanotus terminatus</i>            | Light Long-horned Beetle          |            |            |                 | S3               | 1      | 23.4 ± 0.0    | NB   |
| I               | <i>Desmocerus palliatus</i>            | Elderberry Borer                  |            |            |                 | S3               | 7      | 12.2 ± 0.0    | NB   |
| I               | <i>Agonum excavatum</i>                | Excavated Harp Ground Beetle      |            |            |                 | S3               | 1      | 21.2 ± 0.0    | NB   |
| I               | <i>Clivina americana</i>               | America Pedunculate Ground Beetle |            |            |                 | S3               | 1      | 21.2 ± 0.0    | NB   |
| I               | <i>Olisthopus parmatus</i>             | Tawny-bordered Harp Ground Beetle |            |            |                 | S3               | 1      | 29.9 ± 0.0    | NB   |
| I               | <i>Tachys scitulus</i>                 | Handsome Riverbank Ground Beetle  |            |            |                 | S3               | 1      | 21.2 ± 0.0    | NB   |
| I               | <i>Carabus serratus</i>                | Serrated Ground Beetle            |            |            |                 | S3               | 1      | 41.4 ± 0.0    | NB   |
| I               | <i>Coccinella hieroglyphica kirbyi</i> | a Ladybird Beetle                 |            |            |                 | S3               | 1      | 98.1 ± 1.0    | NB   |
| I               | <i>Hippodamia parenthesis</i>          | Parenthesis Lady Beetle           |            |            |                 | S3               | 5      | 23.4 ± 0.0    | NB   |
| I               | <i>Stenocorus vittiger</i>             | Shrub Long-horned Beetle          |            |            |                 | S3               | 1      | 21.2 ± 0.0    | NB   |
| I               | <i>Gnathacmaeops pratensis</i>         | Meadow Flower Longhorn Beetle     |            |            |                 | S3               | 5      | 98.1 ± 1.0    | NB   |
| I               | <i>Pogonocherus mixtus</i>             | Mixed-spotted Flatface Sawyer     |            |            |                 | S3               | 1      | 98.1 ± 1.0    | NB   |
| I               | <i>Badister neopulchellus</i>          | Red-black Spotted Beetle          |            |            |                 | S3               | 1      | 21.2 ± 0.0    | NB   |
| I               | <i>Gonotropis dorsalis</i>             | Birch Fungus Weevil               |            |            |                 | S3               | 1      | 23.4 ± 0.0    | NB   |
| I               | <i>Ceruchus piceus</i>                 | Black Stag Beetle                 |            |            |                 | S3               | 1      | 50.4 ± 0.0    | NB   |
| I               | <i>Saperda lateralis</i>               | Red-edged Long-horned Beetle      |            |            |                 | S3               | 2      | 83.4 ± 0.0    | NB   |
| I               | <i>Epargyreus clarus</i>               | Silver-spotted Skipper            |            |            |                 | S3               | 10     | 33.3 ± 0.0    | NB   |
| I               | <i>Hesperia sassacus</i>               | Indian Skipper                    |            |            |                 | S3               | 24     | 14.2 ± 7.0    | NB   |
| I               | <i>Euphyes bimacula</i>                | Two-spotted Skipper               |            |            |                 | S3               | 25     | 18.0 ± 7.0    | NB   |
| I               | <i>Satyrium acadica</i>                | Acadian Hairstreak                |            |            |                 | S3               | 17     | 14.5 ± 0.0    | NB   |
| I               | <i>Callophrys eryphon</i>              | Western Pine Elfin                |            |            |                 | S3               | 3      | 62.7 ± 7.0    | NB   |
| I               | <i>Plebejus idas empetri</i>           | Crowberry Blue                    |            |            |                 | S3               | 9      | 96.2 ± 0.0    | NB   |
| I               | <i>Argynnis aphrodite</i>              | Aphrodite Fritillary              |            |            |                 | S3               | 22     | 10.9 ± 2.0    | NB   |
| I               | <i>Boloria eunomia</i>                 | Bog Fritillary                    |            |            |                 | S3               | 8      | 27.6 ± 0.0    | NB   |
| I               | <i>Boloria bellona</i>                 | Meadow Fritillary                 |            |            |                 | S3               | 84     | 5.8 ± 0.0     | NB   |
| I               | <i>Boloria chariclea</i>               | Arctic Fritillary                 |            |            |                 | S3               | 2      | 67.3 ± 2.0    | NB   |
| I               | <i>Nymphalis l-album</i>               | Compton Tortoiseshell             |            |            |                 | S3               | 20     | 2.4 ± 2.0     | NB   |
| I               | <i>Gomphurus vastus</i>                | Cobra Clubtail                    |            |            |                 | S3               | 124    | 10.8 ± 0.0    | NB   |
| I               | <i>Celithemis martha</i>               | Martha's Pennant                  |            |            |                 | S3               | 8      | 79.3 ± 0.0    | NB   |
| I               | <i>Ladona exusta</i>                   | White Corporal                    |            |            |                 | S3               | 4      | 56.6 ± 0.0    | NB   |
| I               | <i>Enallagma pictum</i>                | Scarlet Bluet                     |            |            |                 | S3               | 6      | 67.9 ± 0.0    | NB   |
| I               | <i>Ischnura kellicotti</i>             | Lilypad Forktail                  |            |            |                 | S3               | 19     | 52.3 ± 0.0    | NB   |
| I               | <i>Arigomphus furcifer</i>             | Lilypad Clubtail                  |            |            |                 | S3               | 23     | 21.2 ± 0.0    | NB   |
| I               | <i>Alasmidonta undulata</i>            | Triangle Floater                  |            |            |                 | S3               | 52     | 23.1 ± 0.0    | NB   |
| I               | <i>Atlanticoncha ochracea</i>          | Tidewater Mucket                  |            |            |                 | S3               | 168    | 11.4 ± 0.0    | NB   |
| I               | <i>Striatura ferrea</i>                | Black Striate Snail               |            |            |                 | S3               | 1      | 14.8 ± 1.0    | NB   |
| I               | <i>Neohelix albolabris</i>             | Whitelip Snail                    |            |            |                 | S3               | 3      | 14.8 ± 1.0    | NB   |
| I               | <i>Spurwinkia salsa</i>                | Saltmarsh Hydrobe                 |            |            |                 | S3               | 34     | 74.0 ± 0.0    | NB   |
| I               | <i>Pantala hymenaea</i>                | Spot-Winged Glider                |            |            |                 | S3B              | 4      | 23.4 ± 0.0    | NB   |
| I               | <i>Bombus griseocollis</i>             | Brown-belted Bumble Bee           |            |            |                 | S3S4             | 2      | 9.8 ± 0.0     | NB   |
| I               | <i>Lanthus vernalis</i>                | Southern Pygmy Clubtail           |            |            |                 | S3S4             | 1      | 94.6 ± 0.0    | NB   |
| I               | <i>Somatochlora forcipata</i>          | Forcinate Emerald                 |            |            |                 | S3S4             | 17     | 11.6 ± 1.0    | NB   |
| I               | <i>Somatochlora tenebrosa</i>          | Clamp-Tipped Emerald              |            |            |                 | S3S4             | 10     | 14.6 ± 1.0    | NB   |
| N               | <i>Pannaria lurida</i>                 | Wrinkled Shingle Lichen           | Threatened | Threatened |                 | S1?              | 45     | 82.2 ± 0.0    | NB   |
| N               | <i>Anzia colpodes</i>                  | Black-foam Lichen                 | Threatened | Threatened |                 | S1S2             | 3      | 7.7 ± 0.0     | NB   |
| N               | <i>Fuscopannaria leucosticta</i>       | White-rimmed Shingle              | Threatened |            |                 | S2               | 140    | 27.6 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name                       | Common Name                   | COSEWIC     | SARA       | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|---------------------------------------|-------------------------------|-------------|------------|-----------------|------------------|--------|---------------|------|
| N               | <i>Peltigera hydrothyria</i>          | Lichen                        |             |            |                 | S2S3             | 9      | 72.1 ± 0.0    | NB   |
| N               | <i>Pseudevernia cladonia</i>          | Eastern Waterfan              | Threatened  | Threatened |                 | S2S3             | 6      | 67.9 ± 0.0    | NB   |
| N               | <i>Aphanorhagma serratum</i>          | Ghost Antler Lichen           | Not At Risk |            |                 | S1               | 1      | 94.9 ± 0.0    | NB   |
| N               | <i>Imbricium muehlenbeckii</i>        | a Moss                        |             |            |                 | S1               | 1      | 86.5 ± 1.0    | NB   |
| N               | <i>Sphagnum macrophyllum</i>          | Muehlenbeck's Bryum Moss      |             |            |                 | S1               | 4      | 71.9 ± 0.0    | NB   |
| N               | <i>Coscinodon cribrosus</i>           | Sphagnum                      |             |            |                 | S1               | 1      | 97.5 ± 0.0    | NB   |
| N               | <i>Syntrichia ruralis</i>             | Sieve-Toothed Moss            |             |            |                 | S1               | 1      | 95.1 ± 0.0    | NB   |
| N               | <i>Leptogium hirsutum</i>             | a Moss                        |             |            |                 | S1               | 4      | 98.2 ± 0.0    | NB   |
| N               | <i>Coccocarpia palmicola</i>          | Jellyskin Lichen              |             |            |                 | S1               | 1      | 93.7 ± 0.0    | NB   |
| N               | <i>Atrichum angustatum</i>            | Salted Shell Lichen           |             |            |                 | S1?              | 1      | 78.0 ± 2.0    | NB   |
| N               | <i>Pseudocallergon trifarium</i>      | Lesser Smoothcap Moss         |             |            |                 | S1?              | 1      | 93.0 ± 0.0    | NB   |
| N               | <i>Dichelyma falcatum</i>             | Three-ranked Spear Moss       |             |            |                 | S1?              | 2      | 9.3 ± 10.0    | NB   |
| N               | <i>Dicranum bonjeanii</i>             | a Moss                        |             |            |                 | S1?              | 1      | 12.6 ± 1.0    | NB   |
| N               | <i>Entodon brevisetus</i>             | Bonjean's Broom Moss          |             |            |                 | S1?              | 2      | 80.2 ± 10.0   | NB   |
| N               | <i>Oxyrrhynchium hians</i>            | a Moss                        |             |            |                 | S1?              | 3      | 10.9 ± 1.0    | NB   |
| N               | <i>Homomallium adnatum</i>            | Light Beaked Moss             |             |            |                 | S1?              | 2      | 80.2 ± 10.0   | NB   |
| N               | <i>Niphotrichum ericoides</i>         | Adnate Hairy-gray Moss        |             |            |                 | S1?              | 1      | 54.0 ± 3.0    | NB   |
| N               | <i>Splachnum pennsylvanicum</i>       | Dense Rock Moss               |             |            |                 | S1?              | 2      | 19.7 ± 1.0    | NB   |
| N               | <i>Platylomella lescurii</i>          | Southern Dung Moss            |             |            |                 | S1?              | 1      | 94.1 ± 1.0    | NB   |
| N               | <i>Heterodermia squamulosa</i>        | a Moss                        |             |            |                 | S1?              | 1      | 78.9 ± 0.0    | NB   |
| N               | <i>Pilophorus fibula</i>              | Scaly Fringe Lichen           |             |            |                 | S1?              | 1      | 94.7 ± 0.0    | NB   |
| N               | <i>Peltigera venosa</i>               | New England Matchstick Lichen |             |            |                 | S1?              | 2      | 58.0 ± 0.0    | NB   |
| N               | <i>Cephaloziella spinigera</i>        | Fan Pelt Lichen               |             |            |                 | S1S2             | 2      | 88.3 ± 0.0    | NB   |
| N               | <i>Pallavicinia lyellii</i>           | Spiny Threadwort              |             |            |                 | S1S2             | 3      | 36.6 ± 0.0    | NB   |
| N               | <i>Solenostoma obovatum</i>           | Lyell's Ribbonwort            |             |            |                 | S1S2             | 1      | 84.7 ± 0.0    | NB   |
| N               | <i>Brachythecium acuminatum</i>       | Egg Flapwort                  |             |            |                 | S1S2             | 3      | 10.9 ± 10.0   | NB   |
| N               | <i>Pseudocampyllum radicale</i>       | Acuminate Ragged Moss         |             |            |                 | S1S2             | 1      | 10.9 ± 1.0    | NB   |
| N               | <i>Ditrichum pallidum</i>             | Long-stalked Fine Wet Moss    |             |            |                 | S1S2             | 4      | 41.5 ± 1.0    | NB   |
| N               | <i>Drummondia prorepens</i>           | Pale Cow-hair Moss            |             |            |                 | S1S2             | 1      | 86.9 ± 1.0    | NB   |
| N               | <i>Fissidens taxifolius</i>           | a Moss                        |             |            |                 | S1S2             | 4      | 81.3 ± 0.0    | NB   |
| N               | <i>Sphagnum platyphyllum</i>          | Yew-leaved Pocket Moss        |             |            |                 | S1S2             | 2      | 41.5 ± 1.0    | NB   |
| N               | <i>Timmia norvegica</i>               | Flat-leaved Peat Moss         |             |            |                 | S1S2             | 1      | 91.7 ± 0.0    | NB   |
| N               | <i>Pseudotaxiphyllum distichaceum</i> | a moss                        |             |            |                 | S1S2             | 1      | 12.4 ± 1.0    | NB   |
| N               | <i>Pilophorus cereolus</i>            | a Moss                        |             |            |                 | S1S2             | 1      | 94.7 ± 0.0    | NB   |
| N               | <i>Calyptogeia neesiana</i>           | Powdered Matchstick Lichen    |             |            |                 | S1S3             | 1      | 86.6 ± 1.0    | NB   |
| N               | <i>Fuscocephaloziopsis connivens</i>  | Nees' Pouchwort               |             |            |                 | S1S3             | 1      | 88.4 ± 0.0    | NB   |
| N               | <i>Cephaloziella elachista</i>        | Forcipated Pincerwort         |             |            |                 | S1S3             | 1      | 93.4 ± 5.0    | NB   |
| N               | <i>Porella pinnata</i>                | Spurred Threadwort            |             |            |                 | S1S3             | 2      | 81.8 ± 1.0    | NB   |
| N               | <i>Amphidium mougeotii</i>            | Pinnate Scalewort             |             |            |                 | S2               | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Anomodon viticulosus</i>           | a Moss                        |             |            |                 | S2               | 8      | 86.9 ± 0.0    | NB   |
| N               | <i>Cirriophyllum piliferum</i>        | a Moss                        |             |            |                 | S2               | 2      | 80.2 ± 1.0    | NB   |
| N               | <i>Dicranella palustris</i>           | Hair-pointed Moss             |             |            |                 | S2               | 2      | 55.0 ± 100.0  | NB   |
| N               | <i>Didymodon ferrugineus</i>          | Drooping-Leaved Fork Moss     |             |            |                 | S2               | 3      | 80.0 ± 0.0    | NB   |
| N               | <i>Ditrichum flexicaule</i>           | Rusty Beard Moss              |             |            |                 | S2               | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Anomodon tristis</i>               | Flexible Cow-hair Moss        |             |            |                 | S2               | 1      | 57.5 ± 1.0    | NB   |
| N               | <i>Hypnum pratense</i>                | a Moss                        |             |            |                 | S2               | 3      | 84.2 ± 1.0    | NB   |
| N               | <i>Isoetecium myosuroides</i>         | Meadow Plait Moss             |             |            |                 | S2               | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Meesia triquetra</i>               | Slender Mouse-tail Moss       |             |            |                 | S2               | 2      | 55.0 ± 100.0  | NB   |
| N               | <i>Physcomitrium immersum</i>         | Three-ranked Cold Moss        |             |            |                 | S2               | 7      | 10.9 ± 1.0    | NB   |
| N               | <i>Seligeria calcarea</i>             | a Moss                        |             |            |                 | S2               | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Seligeria brevifolia</i>           | Chalk Brittle Moss            |             |            |                 | S2               | 1      | 80.7 ± 1.0    | NB   |
| N               | <i>Sphagnum lindbergii</i>            | a Moss                        |             |            |                 | S2               | 1      | 93.5 ± 1.0    | NB   |
| N               | <i>Sphagnum flexuosum</i>             | Lindberg's Peat Moss          |             |            |                 | S2               | 1      | 84.2 ± 0.0    | NB   |
| N               | <i>Tayloria serrata</i>               | Flexuous Peatmoss             |             |            |                 | S2               | 1      | 93.3 ± 1.0    | NB   |
| N               |                                       | Serrate Trumpet Moss          |             |            |                 | S2               | 1      | 93.3 ± 1.0    | NB   |

| Taxonomic Group | Scientific Name                    | Common Name                       | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|------------------------------------|-----------------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| N               | <i>Tetraplodon mnioides</i>        | Entire-leaved Nitrogen Moss       |         |      |                 | S2               | 1      | 98.8 ± 0.0    | NB   |
| N               | <i>Thamnobryum alleghaniense</i>   | a Moss                            |         |      |                 | S2               | 4      | 40.9 ± 0.0    | NB   |
| N               | <i>Tortula mucronifolia</i>        | Mucronate Screw Moss              |         |      |                 | S2               | 1      | 96.5 ± 0.0    | NB   |
| N               | <i>Anomobryum julaceum</i>         | Slender Silver Moss               |         |      |                 | S2               | 1      | 10.9 ± 1.0    | NB   |
| N               | <i>Usnea ceratina</i>              | Warty Beard Lichen                |         |      |                 | S2               | 1      | 92.7 ± 0.0    | NB   |
| N               | <i>Leptogium corticola</i>         | Blistered Jellyskin Lichen        |         |      |                 | S2               | 3      | 25.2 ± 0.0    | NB   |
| N               | <i>Leptogium milligranum</i>       | Stretched Jellyskin Lichen        |         |      |                 | S2               | 3      | 82.8 ± 0.0    | NB   |
| N               | <i>Nephroma laevigatum</i>         | Mustard Kidney Lichen             |         |      |                 | S2               | 2      | 35.4 ± 0.0    | NB   |
| N               | <i>Peltigera lepidophora</i>       | Scaly Pelt Lichen                 |         |      |                 | S2               | 3      | 58.0 ± 0.0    | NB   |
| N               | <i>Anomodon minor</i>              | Blunt-leaved Anomodon Moss        |         |      |                 | S2?              | 2      | 89.3 ± 1.0    | NB   |
| N               | <i>Ptychostomum pallescens</i>     | Tall Clustered Bryum              |         |      |                 | S2?              | 2      | 61.6 ± 1.0    | NB   |
| N               | <i>Dichelyma capillaceum</i>       | Hairlike Dichelyma Moss           |         |      |                 | S2?              | 2      | 56.9 ± 4.0    | NB   |
| N               | <i>Schistostega pennata</i>        | Luminous Moss                     |         |      |                 | S2?              | 5      | 10.9 ± 1.0    | NB   |
| N               | <i>Seligeria diversifolia</i>      | a Moss                            |         |      |                 | S2?              | 1      | 43.2 ± 0.0    | NB   |
| N               | <i>Sphagnum angermanicum</i>       | a Peatmoss                        |         |      |                 | S2?              | 2      | 74.6 ± 1.0    | NB   |
| N               | <i>Plagiomnium rostratum</i>       | Long-beaked Leafy Moss            |         |      |                 | S2?              | 1      | 92.1 ± 0.0    | NB   |
| N               | <i>Collema leptaleum</i>           | Crumpled Bat's Wing Lichen        |         |      |                 | S2?              | 7      | 23.0 ± 0.0    | NB   |
| N               | <i>Physcia subtilis</i>            | Slender Rosette Lichen            |         |      |                 | S2?              | 1      | 83.8 ± 0.0    | NB   |
| N               | <i>Buxbaumia aphylla</i>           | Brown Shield Moss                 |         |      |                 | S2S3             | 1      | 98.2 ± 15.0   | NB   |
| N               | <i>Calliergonella cuspidata</i>    | Common Large Wetland Moss         |         |      |                 | S2S3             | 5      | 90.6 ± 0.0    | NB   |
| N               | <i>Drepanocladus polygamus</i>     | Polygamous Hook Moss              |         |      |                 | S2S3             | 1      | 80.9 ± 1.0    | NB   |
| N               | <i>Palustriella falcata</i>        | Curled Hook Moss                  |         |      |                 | S2S3             | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Didymodon rigidulus</i>         | Rigid Screw Moss                  |         |      |                 | S2S3             | 3      | 41.6 ± 8.0    | NB   |
| N               | <i>Ephemerum serratum</i>          | a Moss                            |         |      |                 | S2S3             | 3      | 21.3 ± 0.0    | NB   |
| N               | <i>Fissidens bushii</i>            | Bush's Pocket Moss                |         |      |                 | S2S3             | 6      | 81.6 ± 1.0    | NB   |
| N               | <i>Isopterygiopsis pulchella</i>   | Neat Silk Moss                    |         |      |                 | S2S3             | 1      | 82.9 ± 1.0    | NB   |
| N               | <i>Neckera complanata</i>          | a Moss                            |         |      |                 | S2S3             | 3      | 84.4 ± 1.0    | NB   |
| N               | <i>Orthotrichum elegans</i>        | Showy Bristle Moss                |         |      |                 | S2S3             | 4      | 41.3 ± 3.0    | NB   |
| N               | <i>Scorpidium scorpioides</i>      | Hooked Scorpion Moss              |         |      |                 | S2S3             | 5      | 90.6 ± 0.0    | NB   |
| N               | <i>Seligeria campylopoda</i>       | a Moss                            |         |      |                 | S2S3             | 1      | 80.0 ± 0.0    | NB   |
| N               | <i>Taxiphyllum deplanatum</i>      | Imbricate Yew-leaved Moss         |         |      |                 | S2S3             | 1      | 80.0 ± 0.0    | NB   |
| N               | <i>Zygodon viridissimus</i>        | a Moss                            |         |      |                 | S2S3             | 1      | 99.6 ± 5.0    | NB   |
| N               | <i>Schistidium agassizii</i>       | Elf Bloom Moss                    |         |      |                 | S2S3             | 2      | 97.2 ± 2.0    | NB   |
| N               | <i>Loeskeobryum brevirostre</i>    | a Moss                            |         |      |                 | S2S3             | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Cyrtomnium hymenophylloides</i> | Short-pointed Lantern Moss        |         |      |                 | S2S3             | 1      | 97.7 ± 0.0    | NB   |
| N               | <i>Sphaerophorus globosus</i>      | Northern Coral Lichen             |         |      |                 | S2S3             | 1      | 90.2 ± 0.0    | NB   |
| N               | <i>Cetrariella delisei</i>         | Snowbed Icelandmoss Lichen        |         |      |                 | S2S3             | 2      | 95.8 ± 0.0    | NB   |
| N               | <i>Dendriscoaulon umhausense</i>   | a lichen                          |         |      |                 | S2S3             | 1      | 100.0 ± 0.0   | NB   |
| N               | <i>Polychidium muscicola</i>       | Eyed Mossthorns Woollybear Lichen |         |      |                 | S2S3             | 3      | 68.5 ± 0.0    | NB   |
| N               | <i>Punctelia caseana</i>           |                                   |         |      |                 | S2S3             | 3      | 85.3 ± 0.0    | NB   |
| N               | <i>Hypnum curvifolium</i>          | Curved-leaved Plait Moss          |         |      |                 | S3               | 2      | 89.3 ± 0.0    | NB   |
| N               | <i>Tortella fragilis</i>           | Fragile Twisted Moss              |         |      |                 | S3               | 1      | 20.9 ± 0.0    | NB   |
| N               | <i>Collema nigrescens</i>          | Blistered Tarpaper Lichen         |         |      |                 | S3               | 8      | 74.2 ± 0.0    | NB   |
| N               | <i>Solorina saccata</i>            | Woodland Owl Lichen               |         |      |                 | S3               | 1      | 58.0 ± 0.0    | NB   |
| N               | <i>Cladonia strepsilis</i>         | Olive Cladonia Lichen             |         |      |                 | S3               | 1      | 80.0 ± 0.0    | NB   |
| N               | <i>Scytinium lichenoides</i>       | Tattered Jellyskin Lichen         |         |      |                 | S3               | 2      | 57.9 ± 0.0    | NB   |
| N               | <i>Peltigera degenii</i>           | Lustrous Pelt Lichen              |         |      |                 | S3               | 1      | 84.1 ± 0.0    | NB   |
| N               | <i>Leptogium laceroides</i>        | Short-bearded Jellyskin Lichen    |         |      |                 | S3               | 9      | 84.8 ± 0.0    | NB   |
| N               | <i>Peltigera membranacea</i>       | Membranous Pelt Lichen            |         |      |                 | S3               | 8      | 36.2 ± 0.0    | NB   |
| N               | <i>Cladonia botrytes</i>           | Wooden Soldiers Lichen            |         |      |                 | S3               | 7      | 95.3 ± 0.0    | NB   |
| N               | <i>Aulacomnium androgynum</i>      | Little Groove Moss                |         |      |                 | S3?              | 3      | 84.4 ± 1.0    | NB   |

| Taxonomic Group | Scientific Name                     | Common Name                    | COSEWIC         | SARA            | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|-------------------------------------|--------------------------------|-----------------|-----------------|-----------------|------------------|--------|---------------|------|
| N               | <i>Dicranella rufescens</i>         | Red Forklet Moss               |                 |                 |                 | S3?              | 2      | 11.5 ± 4.0    | NB   |
| N               | <i>Sphagnum lescurii</i>            | a Peatmoss                     |                 |                 |                 | S3?              | 1      | 88.7 ± 0.0    | NB   |
| N               | <i>Sphagnum inundatum</i>           | a Sphagnum                     |                 |                 |                 | S3?              | 2      | 29.0 ± 0.0    | NB   |
| N               | <i>Rostania occultata</i>           | Crusted Tarpaper Lichen        |                 |                 |                 | S3?              | 1      | 23.0 ± 0.0    | NB   |
| N               | <i>Cystocoleus ebeneus</i>          | Rockgossamer Lichen            |                 |                 |                 | S3?              | 1      | 87.4 ± 0.0    | NB   |
| N               | <i>Scytinium subtile</i>            | Appressed Jellyskin Lichen     |                 |                 |                 | S3?              | 5      | 8.1 ± 0.0     | NB   |
| N               | <i>Anomodon rugelii</i>             | Rugel's Anomodon Moss          |                 |                 |                 | S3S4             | 5      | 85.7 ± 0.0    | NB   |
| N               | <i>Barbula convoluta</i>            | Lesser Bird's-claw Beard Moss  |                 |                 |                 | S3S4             | 2      | 41.6 ± 8.0    | NB   |
| N               | <i>Brachytheciastrum velutinum</i>  | Velvet Ragged Moss             |                 |                 |                 | S3S4             | 4      | 43.5 ± 4.0    | NB   |
| N               | <i>Dicranum majus</i>               | Greater Broom Moss             |                 |                 |                 | S3S4             | 2      | 98.2 ± 15.0   | NB   |
| N               | <i>Fissidens bryoides</i>           | Lesser Pocket Moss             |                 |                 |                 | S3S4             | 4      | 21.5 ± 0.0    | NB   |
| N               | <i>Elodium blandowii</i>            | Blandow's Bog Moss             |                 |                 |                 | S3S4             | 3      | 82.9 ± 1.0    | NB   |
| N               | <i>Heterocladium dimorphum</i>      | Dimorphous Tangle Moss         |                 |                 |                 | S3S4             | 1      | 97.2 ± 2.0    | NB   |
| N               | <i>Isopterygiopsis muelleriana</i>  | a Moss                         |                 |                 |                 | S3S4             | 5      | 43.5 ± 4.0    | NB   |
| N               | <i>Myurella julacea</i>             | Small Mouse-tail Moss          |                 |                 |                 | S3S4             | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Orthotrichum speciosum</i>       | Showy Bristle Moss             |                 |                 |                 | S3S4             | 1      | 19.0 ± 0.0    | NB   |
| N               | <i>Physcomitrium pyriforme</i>      | Pear-shaped Urn Moss           |                 |                 |                 | S3S4             | 8      | 10.9 ± 10.0   | NB   |
| N               | <i>Sphagnum torreyanum</i>          | a Peatmoss                     |                 |                 |                 | S3S4             | 1      | 100.0 ± 0.0   | NB   |
| N               | <i>Sphagnum austinii</i>            | Austin's Peat Moss             |                 |                 |                 | S3S4             | 1      | 98.7 ± 1.0    | NB   |
| N               | <i>Sphagnum contortum</i>           | Twisted Peat Moss              |                 |                 |                 | S3S4             | 1      | 90.1 ± 0.0    | NB   |
| N               | <i>Sphagnum quinquefarium</i>       | Five-ranked Peat Moss          |                 |                 |                 | S3S4             | 1      | 84.4 ± 1.0    | NB   |
| N               | <i>Tetraphis geniculata</i>         | Geniculate Four-tooth Moss     |                 |                 |                 | S3S4             | 3      | 91.9 ± 0.0    | NB   |
| N               | <i>Tomentypnum nitens</i>           | Golden Fuzzy Fen Moss          |                 |                 |                 | S3S4             | 1      | 81.7 ± 3.0    | NB   |
| N               | <i>Weissia controversa</i>          | Green-Cushioned Weissia        |                 |                 |                 | S3S4             | 2      | 21.3 ± 0.0    | NB   |
| N               | <i>Abietinella abietina</i>         | Wiry Fern Moss                 |                 |                 |                 | S3S4             | 1      | 83.0 ± 0.0    | NB   |
| N               | <i>Trichostomum tenuirostre</i>     | Acid-Soil Moss                 |                 |                 |                 | S3S4             | 4      | 80.0 ± 0.0    | NB   |
| N               | <i>Scorpidium revolvens</i>         | Limprichtia Moss               |                 |                 |                 | S3S4             | 2      | 86.2 ± 0.0    | NB   |
| N               | <i>Rauvella scita</i>               | Smaller Fern Moss              |                 |                 |                 | S3S4             | 5      | 88.1 ± 3.0    | NB   |
| N               | <i>Pannaria rubiginosa</i>          | Brown-eyed Shingle Lichen      |                 |                 |                 | S3S4             | 24     | 23.4 ± 0.0    | NB   |
| N               | <i>Pseudocyphellaria holarctica</i> | Yellow Specklebelly Lichen     |                 |                 |                 | S3S4             | 84     | 12.6 ± 0.0    | NB   |
| N               | <i>Scytinium teretiusculum</i>      | Curly Jellyskin Lichen         |                 |                 |                 | S3S4             | 1      | 75.2 ± 0.0    | NB   |
| N               | <i>Montanelia panniformis</i>       | Shingled Camouflage Lichen     |                 |                 |                 | S3S4             | 1      | 87.4 ± 0.0    | NB   |
| N               | <i>Cladonia floerkeana</i>          | Gritty British Soldiers Lichen |                 |                 |                 | S3S4             | 1      | 80.0 ± 0.0    | NB   |
| N               | <i>Cladonia parasitica</i>          | Fence-rail Lichen              |                 |                 |                 | S3S4             | 1      | 97.2 ± 0.0    | NB   |
| N               | <i>Nephroma parile</i>              | Powdery Kidney Lichen          |                 |                 |                 | S3S4             | 14     | 20.8 ± 0.0    | NB   |
| N               | <i>Nephroma resupinatum</i>         | a lichen                       |                 |                 |                 | S3S4             | 9      | 80.8 ± 0.0    | NB   |
| N               | <i>Protopannaria pezizoides</i>     | Brown-gray Moss-shingle Lichen |                 |                 |                 | S3S4             | 8      | 51.1 ± 0.0    | NB   |
| N               | <i>Parmelia fertilis</i>            | Fertile Shield Lichen          |                 |                 |                 | S3S4             | 1      | 80.8 ± 0.0    | NB   |
| N               | <i>Usnea strigosa</i>               | Bushy Beard Lichen             |                 |                 |                 | S3S4             | 3      | 83.2 ± 0.0    | NB   |
| N               | <i>Fuscopannaria soredata</i>       | a Lichen                       |                 |                 |                 | S3S4             | 5      | 27.3 ± 1.0    | NB   |
| N               | <i>Pannaria conoplea</i>            | Mealy-rimmed Shingle Lichen    |                 |                 |                 | S3S4             | 37     | 26.6 ± 0.0    | NB   |
| N               | <i>Physcia tenella</i>              | Fringed Rosette Lichen         |                 |                 |                 | S3S4             | 1      | 89.4 ± 0.0    | NB   |
| N               | <i>Anaptychia palmulata</i>         | Shaggy Fringed Lichen          |                 |                 |                 | S3S4             | 11     | 71.8 ± 0.0    | NB   |
| N               | <i>Grimmia anodon</i>               | Toothless Grimmiid Moss        |                 |                 |                 | SH               | 2      | 95.5 ± 10.0   | NB   |
| N               | <i>Leucodon brachypus</i>           | a Moss                         |                 |                 |                 | SH               | 2      | 24.6 ± 10.0   | NB   |
| N               | <i>Orthotrichum gymnostomum</i>     | a Moss                         |                 |                 |                 | SH               | 1      | 25.9 ± 10.0   | NB   |
| N               | <i>Thelia hirtella</i>              | a Moss                         |                 |                 |                 | SH               | 1      | 55.0 ± 100.0  | NB   |
| N               | <i>Cyrtio-hypnum minutulum</i>      | Tiny Cedar Moss                |                 |                 |                 | SH               | 3      | 75.1 ± 10.0   | NB   |
| P               | <i>Juglans cinerea</i>              | Butternut                      | Endangered      | Endangered      | Endangered      | S1               | 719    | 0.9 ± 0.0     | NB   |
| P               | <i>Polemonium vanbruntiae</i>       | Van Brunt's Jacob's-ladder     | Threatened      | Threatened      | Threatened      | S1               | 6      | 97.7 ± 1.0    | NB   |
| P               | <i>Fraxinus nigra</i>               | Black Ash                      | Threatened      |                 |                 | S3S4             | 938    | 7.9 ± 0.0     | NB   |
| P               | <i>Isoetes prototypus</i>           | Prototype Quillwort            | Special Concern | Special Concern | Endangered      | S1               | 23     | 19.0 ± 0.0    | NB   |
| P               | <i>Symphyotrichum anticostense</i>  | Anticosti Aster                | Special Concern | Special Concern | Endangered      | S3               | 63     | 23.0 ± 0.0    | NB   |
| P               | <i>Pterospora andromedea</i>        | Woodland Pinedrops             |                 |                 | Endangered      | S1               | 33     | 15.4 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name                                   | Common Name                  | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|---|------------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Cryptotaenia canadensis</i>                    | Canada Honewort              |         |      |                 | S1               | 5      | 75.7 ± 1.0    | NB   |
| P               | <i>Antennaria parlinii</i> ssp. <i>fallax</i>     | Parlin's Pussytoes           |         |      |                 | S1               | 7      | 54.8 ± 1.0    | NB   |
| P               | <i>Antennaria howellii</i> ssp. <i>petaloidea</i> | Pussy-Toes                   |         |      |                 | S1               | 2      | 85.6 ± 1.0    | NB   |
| P               | <i>Bidens discoidea</i>                           | Swamp Beggarticks            |         |      |                 | S1               | 4      | 29.2 ± 0.0    | NB   |
| P               | <i>Pseudognaphalium obtusifolium</i>              | Eastern Cudweed              |         |      |                 | S1               | 2      | 44.8 ± 0.0    | NB   |
| P               | <i>Helianthus decapetalus</i>                     | Ten-rayed Sunflower          |         |      |                 | S1               | 21     | 18.4 ± 0.0    | NB   |
| P               | <i>Hieracium paniculatum</i>                      | Panicled Hawkweed            |         |      |                 | S1               | 4      | 35.7 ± 0.0    | NB   |
| P               | <i>Andersonglossum boreale</i>                    | Northern Wild Comfrey        |         |      |                 | S1               | 14     | 82.3 ± 0.0    | NB   |
| P               | <i>Barbarea orthoceras</i>                        | American Yellow Rocket       |         |      |                 | S1               | 1      | 79.8 ± 1.0    | NB   |
| P               | <i>Cardamine parviflora</i>                       | Small-flowered Bittercress   |         |      |                 | S1               | 3      | 72.9 ± 0.0    | NB   |
| P               | <i>Cardamine concatenata</i>                      | Cut-leaved Toothwort         |         |      |                 | S1               | 14     | 20.0 ± 0.0    | NB   |
| P               | <i>Draba arabisans</i>                            | Rock Whitlow-Grass           |         |      |                 | S1               | 3      | 80.4 ± 1.0    | NB   |
| P               | <i>Draba cana</i>                                 | Lance-leaved Draba           |         |      |                 | S1               | 10     | 9.1 ± 0.0     | NB   |
| P               | <i>Draba glabella</i>                             | Rock Whitlow-Grass           |         |      |                 | S1               | 8      | 54.6 ± 1.0    | NB   |
| P               | <i>Mononeuria groenlandica</i>                    | Greenland Stitchwort         |         |      |                 | S1               | 2      | 81.8 ± 0.0    | NB   |
| P               | <i>Chenopodium simplex</i>                        | Maple-leaved Goosefoot       |         |      |                 | S1               | 7      | 11.6 ± 5.0    | NB   |
| P               | <i>Blitum capitatum</i>                           | Strawberry-Blite             |         |      |                 | S1               | 5      | 13.3 ± 6.0    | NB   |
| P               | <i>Hypericum virginicum</i>                       | Virginia St. John's-wort     |         |      |                 | S1               | 7      | 60.7 ± 0.0    | NB   |
| P               | <i>Drosera anglica</i>                            | English Sundew               |         |      |                 | S1               | 2      | 80.8 ± 0.0    | NB   |
| P               | <i>Drosera linearis</i>                           | Slender-Leaved Sundew        |         |      |                 | S1               | 6      | 80.8 ± 0.0    | NB   |
| P               | <i>Corema conradii</i>                            | Broom Crowberry              |         |      |                 | S1               | 1      | 97.5 ± 10.0   | NB   |
| P               | <i>Vaccinium boreale</i>                          | Northern Blueberry           |         |      |                 | S1               | 1      | 89.0 ± 0.0    | NB   |
| P               | <i>Vaccinium corymbosum</i>                       | Highbush Blueberry           |         |      |                 | S1               | 9      | 89.2 ± 0.0    | NB   |
| P               | <i>Hylodesmum glutinosum</i>                      | Large Tick-trefoil           |         |      |                 | S1               | 8      | 56.1 ± 0.0    | NB   |
| P               | <i>Lespedeza capitata</i>                         | Round-headed Bush-clover     |         |      |                 | S1               | 11     | 39.5 ± 0.0    | NB   |
| P               | <i>Gentiana rubricaulis</i>                       | Purple-stemmed Gentian       |         |      |                 | S1               | 10     | 76.5 ± 0.0    | NB   |
| P               | <i>Ribes cynosbati</i>                            | Prickly Gooseberry           |         |      |                 | S1               | 1      | 79.7 ± 0.0    | NB   |
| P               | <i>Proserpinaca pectinata</i>                     | Comb-leaved Mermaidweed      |         |      |                 | S1               | 1      | 92.3 ± 0.0    | NB   |
| P               | <i>Pycnanthemum virginianum</i>                   | Virginia Mountain Mint       |         |      |                 | S1               | 4      | 71.0 ± 0.0    | NB   |
| P               | <i>Decodon verticillatus</i>                      | Swamp Loosestrife            |         |      |                 | S1               | 4      | 58.8 ± 0.0    | NB   |
| P               | <i>Polygala verticillata</i>                      | Whorled Milkwort             |         |      |                 | S1               | 2      | 86.8 ± 0.0    | NB   |
| P               | <i>Polygonum douglasii</i>                        | Douglas Knotweed             |         |      |                 | S1               | 1      | 97.3 ± 0.0    | NB   |
| P               | <i>Lysimachia quadrifolia</i>                     | Whorled Yellow Loosestrife   |         |      |                 | S1               | 14     | 71.4 ± 0.0    | NB   |
| P               | <i>Hepatica acutiloba</i>                         | Sharp-lobed Hepatica         |         |      |                 | S1               | 11     | 88.2 ± 0.0    | NB   |
| P               | <i>Coptidium lapponicum</i>                       | Lapland Buttercup            |         |      |                 | S1               | 1      | 82.0 ± 1.0    | NB   |
| P               | <i>Crataegus jonesiae</i>                         | Jones' Hawthorn              |         |      |                 | S1               | 4      | 12.8 ± 1.0    | NB   |
| P               | <i>Potentilla canadensis</i>                      | Canada Cinquefoil            |         |      |                 | S1               | 1      | 55.5 ± 0.0    | NB   |
| P               | <i>Rubus flagellaris</i>                          | Northern Dewberry            |         |      |                 | S1               | 2      | 10.5 ± 0.0    | NB   |
| P               | <i>Galium brevipes</i>                            | Limestone Swamp Bedstraw     |         |      |                 | S1               | 6      | 68.4 ± 5.0    | NB   |
| P               | <i>Saxifraga paniculata</i> ssp. <i>laestadii</i> | Laestadius' Saxifrage        |         |      |                 | S1               | 8      | 84.4 ± 1.0    | NB   |
| P               | <i>Agalinis tenuifolia</i>                        | Slender Agalinis             |         |      |                 | S1               | 9      | 9.3 ± 0.0     | NB   |
| P               | <i>Gratiola lutea</i>                             | Golden Hedge-hyssop          |         |      |                 | S1               | 2      | 86.4 ± 0.0    | NB   |
| P               | <i>Pedicularis canadensis</i>                     | Canada Lousewort             |         |      |                 | S1               | 4      | 15.4 ± 0.0    | NB   |
| P               | <i>Viola sagittata</i> var. <i>ovata</i>          | Arrow-Leaved Violet          |         |      |                 | S1               | 13     | 10.8 ± 0.0    | NB   |
| P               | <i>Carex annectens</i>                            | Yellow-Fruited Sedge         |         |      |                 | S1               | 1      | 80.7 ± 0.0    | NB   |
| P               | <i>Carex backii</i>                               | Rocky Mountain Sedge         |         |      |                 | S1               | 6      | 9.2 ± 0.0     | NB   |
| P               | <i>Carex blanda</i>                               | Eastern Woodland Sedge       |         |      |                 | S1               | 1      | 80.4 ± 0.0    | NB   |
| P               | <i>Carex salina</i>                               | Saltmarsh Sedge              |         |      |                 | S1               | 2      | 97.1 ± 1.0    | NB   |
| P               | <i>Carex sterilis</i>                             | Sterile Sedge                |         |      |                 | S1               | 13     | 25.8 ± 0.0    | NB   |
| P               | <i>Carex grisea</i>                               | Inflated Narrow-leaved Sedge |         |      |                 | S1               | 16     | 16.0 ± 1.0    | NB   |
| P               | <i>Carex saxatilis</i>                            | Russet Sedge                 |         |      |                 | S1               | 14     | 82.2 ± 0.0    | NB   |
| P               | <i>Cyperus diandrus</i>                           | Low Flatsedge                |         |      |                 | S1               | 7      | 12.7 ± 0.0    | NB   |
| P               | <i>Rhynchospora capillacea</i>                    | Slender Beakrush             |         |      |                 | S1               | 3      | 22.3 ± 0.0    | NB   |
| P               | <i>Scirpus pendulus</i>                           | Hanging Bulrush              |         |      |                 | S1               | 1      | 65.9 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name                                       | Common Name                        | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|---|------------------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Sisyrinchium angustifolium</i>                     | Narrow-leaved Blue-eyed-grass      |         |      |                 | S1               | 6      | 53.0 ± 0.0    | NB   |
| P               | <i>Juncus subtilis</i>                                | Creeping Rush                      |         |      |                 | S1               | 1      | 54.8 ± 5.0    | NB   |
| P               | <i>Allium canadense</i>                               | Canada Garlic                      |         |      |                 | S1               | 11     | 20.0 ± 1.0    | NB   |
| P               | <i>Goodyera pubescens</i>                             | Downy Rattlesnake-Plantain         |         |      |                 | S1               | 9      | 12.4 ± 0.0    | NB   |
| P               | <i>Malaxis monophyllos</i> var. <i>brachypoda</i>     | North American White Adder's-mouth |         |      |                 | S1               | 12     | 26.2 ± 0.0    | NB   |
| P               | <i>Platanthera flava</i> var. <i>herbiola</i>         | Pale Green Orchid                  |         |      |                 | S1               | 13     | 23.5 ± 10.0   | NB   |
| P               | <i>Platanthera macrophylla</i>                        | Large Round-Leaved Orchid          |         |      |                 | S1               | 4      | 13.0 ± 1.0    | NB   |
| P               | <i>Spiranthes casei</i>                               | Case's Ladies'-Tresses             |         |      |                 | S1               | 6      | 15.4 ± 0.0    | NB   |
| P               | <i>Bromus pubescens</i>                               | Hairy Wood Brome Grass             |         |      |                 | S1               | 6      | 36.3 ± 0.0    | NB   |
| P               | <i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>    | Slim-stemmed Reed Grass            |         |      |                 | S1               | 1      | 98.5 ± 0.0    | NB   |
| P               | <i>Cinna arundinacea</i>                              | Sweet Wood Reed Grass              |         |      |                 | S1               | 37     | 23.2 ± 0.0    | NB   |
| P               | <i>Danthonia compressa</i>                            | Flattened Oat Grass                |         |      |                 | S1               | 5      | 60.3 ± 0.0    | NB   |
| P               | <i>Dichantherium xanthophysum</i>                     | Slender Panic Grass                |         |      |                 | S1               | 6      | 60.2 ± 0.0    | NB   |
| P               | <i>Dichantherium dichotomum</i>                       | Forked Panic Grass                 |         |      |                 | S1               | 1      | 77.4 ± 1.0    | NB   |
| P               | <i>Glyceria obtusa</i>                                | Atlantic Manna Grass               |         |      |                 | S1               | 2      | 78.0 ± 0.0    | NB   |
| P               | <i>Sporobolus compositus</i>                          | Rough Dropseed                     |         |      |                 | S1               | 17     | 19.5 ± 0.0    | NB   |
| P               | <i>Potamogeton friesii</i>                            | Fries' Pondweed                    |         |      |                 | S1               | 6      | 10.8 ± 5.0    | NB   |
| P               | <i>Potamogeton nodosus</i>                            | Long-leaved Pondweed               |         |      |                 | S1               | 19     | 15.7 ± 1.0    | NB   |
| P               | <i>Potamogeton strictifolius</i>                      | Straight-leaved Pondweed           |         |      |                 | S1               | 2      | 81.0 ± 2.0    | NB   |
| P               | <i>Xyris difformis</i>                                | Bog Yellow-eyed-grass              |         |      |                 | S1               | 5      | 79.3 ± 0.0    | NB   |
| P               | <i>Asplenium ruta-muraria</i> var. <i>cryptolepis</i> | Wallrue Spleenwort                 |         |      |                 | S1               | 4      | 84.4 ± 1.0    | NB   |
| P               | <i>Dryopteris clintoniana</i>                         | Clinton's Wood Fern                |         |      |                 | S1               | 4      | 27.8 ± 0.0    | NB   |
| P               | <i>Huperzia selago</i>                                | Northern Firmoss                   |         |      |                 | S1               | 1      | 89.3 ± 1.0    | NB   |
| P               | <i>Sceptridium oneidense</i>                          | Blunt-lobed Moonwort               |         |      |                 | S1               | 8      | 24.0 ± 0.0    | NB   |
| P               | <i>Sceptridium rugulosum</i>                          | Rugulose Grapefern                 |         |      |                 | S1               | 5      | 63.9 ± 0.0    | NB   |
| P               | <i>Selaginella rupestris</i>                          | Rock Spikemoss                     |         |      |                 | S1               | 13     | 22.4 ± 1.0    | NB   |
| P               | <i>Cuscuta campestris</i>                             | Field Dodder                       |         |      |                 | S1?              | 3      | 42.4 ± 10.0   | NB   |
| P               | <i>Polygonum aviculare</i> ssp. <i>neglectum</i>      | Narrow-leaved Knotweed             |         |      |                 | S1?              | 5      | 9.9 ± 0.0     | NB   |
| P               | <i>Galium trifidum</i> ssp. <i>subbiflorum</i>        | Three-petaled Bedstraw             |         |      |                 | S1?              | 1      | 85.1 ± 1.0    | NB   |
| P               | <i>Alisma subcordatum</i>                             | Southern Water Plantain            |         |      |                 | S1?              | 8      | 11.9 ± 0.0    | NB   |
| P               | <i>Carex laxiflora</i>                                | Loose-Flowered Sedge               |         |      |                 | S1?              | 3      | 79.6 ± 0.0    | NB   |
| P               | <i>Carex appalachica</i>                              | Appalachian Sedge                  |         |      |                 | S1?              | 1      | 86.3 ± 0.0    | NB   |
| P               | <i>Sisyrinchium mucronatum</i>                        | Michaux's Blue-eyed-grass          |         |      |                 | S1?              | 3      | 83.8 ± 0.0    | NB   |
| P               | <i>Wolffia columbiana</i>                             | Columbian Watermeal                |         |      |                 | S1?              | 7      | 11.1 ± 0.0    | NB   |
| P               | <i>Galium kamtschaticum</i>                           | Northern Wild Licorice             |         |      |                 | S1S2             | 6      | 59.8 ± 0.0    | NB   |
| P               | <i>Galearis spectabilis</i>                           | Showy Orchis                       |         |      |                 | S1S2             | 71     | 71.4 ± 0.0    | NB   |
| P               | <i>Spiranthes ochroleuca</i>                          | Yellow Ladies'-tresses             |         |      |                 | S1S2             | 3      | 54.6 ± 0.0    | NB   |
| P               | <i>Potamogeton bicupulatus</i>                        | Snailseed Pondweed                 |         |      |                 | S1S2             | 5      | 68.3 ± 0.0    | NB   |
| P               | <i>Eriophorum russeolum</i> ssp. <i>albidum</i>       | Smooth-fruited Russet Cottongrass  |         |      |                 | S1S3             | 6      | 48.7 ± 0.0    | NB   |
| P               | <i>Spiranthes cernua</i>                              | Nodding Ladies'-Tresses            |         |      |                 | S1S3             | 13     | 10.8 ± 0.0    | NB   |
| P               | <i>Spiranthes arcisepala</i>                          | Appalachian Ladies'-tresses        |         |      |                 | S1S3             | 6      | 9.1 ± 0.0     | NB   |
| P               | <i>Neottia bifolia</i>                                | Southern Twayblade                 |         |      | Endangered      | S2               | 39     | 22.7 ± 0.0    | NB   |
| P               | <i>Sanicula trifoliata</i>                            | Large-Fruited Sanicle              |         |      |                 | S2               | 24     | 71.4 ± 0.0    | NB   |
| P               | <i>Sanicula odorata</i>                               | Clustered Sanicle                  |         |      |                 | S2               | 28     | 23.8 ± 0.0    | NB   |
| P               | <i>Hieracium robinsonii</i>                           | Robinson's Hawkweed                |         |      |                 | S2               | 1      | 59.7 ± 0.0    | NB   |
| P               | <i>Betula minor</i>                                   | Dwarf White Birch                  |         |      |                 | S2               | 1      | 20.6 ± 0.0    | NB   |
| P               | <i>Hypericum x dissimulatum</i>                       | Disguised St. John's-wort          |         |      |                 | S2               | 2      | 31.9 ± 0.0    | NB   |
| P               | <i>Viburnum dentatum</i> var. <i>lucidum</i>          | Northern Arrow-Wood                |         |      |                 | S2               | 50     | 71.2 ± 0.0    | NB   |



| Taxonomic Group | Scientific Name  | Common Name                 | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|--|-----------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Astragalus eucosmus</i>                               | Elegant Milk-vetch          |         |      |                 | S2               | 12     | 22.2 ± 1.0    | NB   |
| P               | <i>Quercus macrocarpa</i>                                | Bur Oak                     |         |      |                 | S2               | 175    | 8.9 ± 0.0     | NB   |
| P               | <i>Nuphar x rubrodisca</i>                               | Red-disk Yellow Pond-lily   |         |      |                 | S2               | 18     | 9.0 ± 0.0     | NB   |
| P               | <i>Polygaloides paucifolia</i>                           | Fringed Milkwort            |         |      |                 | S2               | 19     | 11.6 ± 0.0    | NB   |
| P               | <i>Persicaria amphibia</i> var. <i>emersa</i>            | Long-root Smartweed         |         |      |                 | S2               | 55     | 9.6 ± 1.0     | NB   |
| P               | <i>Geum fragarioides</i>                                 | Barren Strawberry           |         |      |                 | S2               | 27     | 71.3 ± 1.0    | NB   |
| P               | <i>Micranthes virginiensis</i>                           | Early Saxifrage             |         |      |                 | S2               | 14     | 15.5 ± 0.0    | NB   |
| P               | <i>Scrophularia lanceolata</i>                           | Lance-leaved Figwort        |         |      |                 | S2               | 12     | 28.0 ± 100.0  | NB   |
| P               | <i>Viola canadensis</i>                                  | Canada Violet               |         |      |                 | S2               | 86     | 67.0 ± 0.0    | NB   |
| P               | <i>Carex cephaloidea</i>                                 | Thin-leaved Sedge           |         |      |                 | S2               | 25     | 37.5 ± 0.0    | NB   |
| P               | <i>Carex albicans</i> var. <i>emmonsii</i>               | White-tinged Sedge          |         |      |                 | S2               | 7      | 37.3 ± 0.0    | NB   |
| P               | <i>Cyperus lupulinus</i> ssp. <i>macilentus</i>          | Hop Flatsedge               |         |      |                 | S2               | 69     | 28.6 ± 0.0    | NB   |
| P               | <i>Galearis rotundifolia</i>                             | Small Round-leaved Orchid   |         |      |                 | S2               | 3      | 85.9 ± 0.0    | NB   |
| P               | <i>Calypso bulbosa</i> var. <i>americana</i>             | Calypso                     |         |      |                 | S2               | 41     | 13.0 ± 1.0    | NB   |
| P               | <i>Coeloglossum viride</i>                               | Long-bracted Frog Orchid    |         |      |                 | S2               | 11     | 24.8 ± 5.0    | NB   |
| P               | <i>Cypripedium parviflorum</i> var. <i>makasin</i>       | Small Yellow Lady's-Slipper |         |      |                 | S2               | 14     | 25.1 ± 0.0    | NB   |
| P               | <i>Platanthera huronensis</i>                            | Fragrant Green Orchid       |         |      |                 | S2               | 3      | 24.0 ± 0.0    | NB   |
| P               | <i>Elymus hystrix</i>                                    | Spreading Wild Rye          |         |      |                 | S2               | 32     | 66.3 ± 50.0   | NB   |
| P               | <i>Festuca subverticillata</i>                           | Nodding Fescue              |         |      |                 | S2               | 12     | 85.6 ± 0.0    | NB   |
| P               | <i>Puccinellia nutkaensis</i>                            | Alaska Alkaligrass          |         |      |                 | S2               | 1      | 99.5 ± 1.0    | NB   |
| P               | <i>Botrychium minganense</i>                             | Mingan Moonwort             |         |      |                 | S2               | 1      | 81.4 ± 0.0    | NB   |
| P               | <i>Schizaea pusilla</i>                                  | Little Curlygrass Fern      |         |      |                 | S2               | 8      | 98.9 ± 0.0    | NB   |
| P               | <i>Coryopteris simulata</i>                              | Bog Fern                    |         |      |                 | S2               | 34     | 27.7 ± 0.0    | NB   |
| P               | <i>Toxicodendron radicans</i> var. <i>radicans</i>       | Eastern Poison Ivy          |         |      |                 | S2?              | 17     | 15.4 ± 0.0    | NB   |
| P               | <i>Symphotrichum novi-belgii</i> var. <i>crenifolium</i> | New York Aster              |         |      |                 | S2?              | 3      | 14.2 ± 1.0    | NB   |
| P               | <i>Humulus lupulus</i> var. <i>lupuloides</i>            | Common Hop                  |         |      |                 | S2?              | 6      | 10.3 ± 5.0    | NB   |
| P               | <i>Rubus x recurvicaulis</i>                             | arching dewberry            |         |      |                 | S2?              | 5      | 41.8 ± 10.0   | NB   |
| P               | <i>Osmorhiza longistylis</i>                             | Smooth Sweet Cicely         |         |      |                 | S2S3             | 9      | 24.1 ± 5.0    | NB   |
| P               | <i>Symphotrichum racemosum</i>                           | Small White Aster           |         |      |                 | S2S3             | 13     | 21.2 ± 0.0    | NB   |
| P               | <i>Canadanthus modestus</i>                              | Great Northern Aster        |         |      |                 | S2S3             | 12     | 92.1 ± 0.0    | NB   |
| P               | <i>Alnus serrulata</i>                                   | Smooth Alder                |         |      |                 | S2S3             | 39     | 31.8 ± 8.0    | NB   |
| P               | <i>Cuscuta cephalanthi</i>                               | Buttonbush Dodder           |         |      |                 | S2S3             | 2      | 83.9 ± 0.0    | NB   |
| P               | <i>Gentiana linearis</i>                                 | Narrow-Leaved Gentian       |         |      |                 | S2S3             | 24     | 9.3 ± 1.0     | NB   |
| P               | <i>Hedeoma pulegioides</i>                               | American False Pennyroyal   |         |      |                 | S2S3             | 9      | 36.6 ± 0.0    | NB   |
| P               | <i>Aphyllon uniflorum</i>                                | One-flowered Broomrape      |         |      |                 | S2S3             | 13     | 45.3 ± 1.0    | NB   |
| P               | <i>Polygala senega</i>                                   | Seneca Snakeroot            |         |      |                 | S2S3             | 34     | 36.8 ± 1.0    | NB   |
| P               | <i>Persicaria careyi</i>                                 | Carey's Smartweed           |         |      |                 | S2S3             | 14     | 11.9 ± 1.0    | NB   |
| P               | <i>Hepatica americana</i>                                | Round-lobed Hepatica        |         |      |                 | S2S3             | 63     | 13.4 ± 0.0    | NB   |
| P               | <i>Ranunculus sceleratus</i>                             | Cursed Buttercup            |         |      |                 | S2S3             | 6      | 6.1 ± 0.0     | NB   |
| P               | <i>Rosa acicularis</i> ssp. <i>sayi</i>                  | Prickly Rose                |         |      |                 | S2S3             | 35     | 55.9 ± 0.0    | NB   |
| P               | <i>Cephalanthus occidentalis</i>                         | Common Buttonbush           |         |      |                 | S2S3             | 51     | 33.2 ± 0.0    | NB   |
| P               | <i>Galium obtusum</i>                                    | Blunt-leaved Bedstraw       |         |      |                 | S2S3             | 9      | 18.9 ± 0.0    | NB   |
| P               | <i>Dirca palustris</i>                                   | Eastern Leatherwood         |         |      |                 | S2S3             | 87     | 15.4 ± 0.0    | NB   |
| P               | <i>Phryma leptostachya</i>                               | American Lopseed            |         |      |                 | S2S3             | 89     | 20.1 ± 1.0    | NB   |
| P               | <i>Verbena urticifolia</i>                               | White Vervain               |         |      |                 | S2S3             | 35     | 15.4 ± 2.0    | NB   |
| P               | <i>Viola novae-angliae</i>                               | New England Violet          |         |      |                 | S2S3             | 10     | 46.8 ± 1.0    | NB   |
| P               | <i>Carex comosa</i>                                      | Bearded Sedge               |         |      |                 | S2S3             | 8      | 87.4 ± 0.0    | NB   |
| P               | <i>Carex rostrata</i>                                    | Narrow-leaved Beaked Sedge  |         |      |                 | S2S3             | 11     | 83.1 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name                                       | Common Name                  | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|---|------------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Juncus ranarius</i>                                | Seaside Rush                 |         |      |                 | S2S3             | 1      | 91.5 ± 0.0    | NB   |
| P               | <i>Allium tricoccum</i>                               | Wild Leek                    |         |      |                 | S2S3             | 36     | 24.6 ± 0.0    | NB   |
| P               | <i>Corallorhiza maculata</i> var. <i>occidentalis</i> | Spotted Coralroot            |         |      |                 | S2S3             | 12     | 13.0 ± 1.0    | NB   |
| P               | <i>Corallorhiza maculata</i> var. <i>maculata</i>     | Spotted Coralroot            |         |      |                 | S2S3             | 7      | 12.9 ± 1.0    | NB   |
| P               | <i>Elymus canadensis</i>                              | Canada Wild Rye              |         |      |                 | S2S3             | 26     | 13.5 ± 5.0    | NB   |
| P               | <i>Piptatheropsis canadensis</i>                      | Canada Ricegrass             |         |      |                 | S2S3             | 5      | 43.7 ± 0.0    | NB   |
| P               | <i>Poa glauca</i>                                     | Glaucous Blue Grass          |         |      |                 | S2S3             | 1      | 97.5 ± 2.0    | NB   |
| P               | <i>Piptatheropsis pungens</i>                         | Slender Ricegrass            |         |      |                 | S2S3             | 5      | 59.9 ± 0.0    | NB   |
| P               | <i>Potamogeton vaseyi</i>                             | Vasey's Pondweed             |         |      |                 | S2S3             | 12     | 37.7 ± 0.0    | NB   |
| P               | <i>Isoetes tuckermanii</i> ssp. <i>acadiensis</i>     | Acadian Quillwort            |         |      |                 | S2S3             | 9      | 36.0 ± 1.0    | NB   |
| P               | <i>Botrychium tenebrosum</i>                          | Swamp Moonwort               |         |      |                 | S2S3             | 1      | 98.1 ± 0.0    | NB   |
| P               | <i>Panax trifolius</i>                                | Dwarf Ginseng                |         |      |                 | S3               | 17     | 2.9 ± 2.0     | NB   |
| P               | <i>Artemisia campestris</i> ssp. <i>caudata</i>       | Tall Wormwood                |         |      |                 | S3               | 148    | 16.7 ± 1.0    | NB   |
| P               | <i>Artemisia campestris</i>                           | Field Wormwood               |         |      |                 | S3               | 1      | 35.8 ± 0.0    | NB   |
| P               | <i>Nabalus racemosus</i>                              | Glaucous Rattlesnakeroot     |         |      |                 | S3               | 75     | 10.9 ± 5.0    | NB   |
| P               | <i>Solidago racemosa</i>                              | Racemose Goldenrod           |         |      |                 | S3               | 23     | 18.9 ± 0.0    | NB   |
| P               | <i>Tanacetum bipinnatum</i> ssp. <i>huronense</i>     | Lake Huron Tansy             |         |      |                 | S3               | 44     | 15.6 ± 5.0    | NB   |
| P               | <i>Ionactis linariifolia</i>                          | Flax-leaved Aster            |         |      |                 | S3               | 84     | 10.8 ± 0.0    | NB   |
| P               | <i>Pseudognaphalium macounii</i>                      | Macoun's Cudweed             |         |      |                 | S3               | 13     | 9.3 ± 0.0     | NB   |
| P               | <i>Impatiens pallida</i>                              | Pale Jewelweed               |         |      |                 | S3               | 6      | 12.5 ± 0.0    | NB   |
| P               | <i>Turritis glabra</i>                                | Tower Mustard                |         |      |                 | S3               | 15     | 46.6 ± 0.0    | NB   |
| P               | <i>Arabis pycnocarpa</i>                              | Cream-flowered Rockcress     |         |      |                 | S3               | 19     | 9.2 ± 0.0     | NB   |
| P               | <i>Cardamine maxima</i>                               | Large Toothwort              |         |      |                 | S3               | 130    | 9.7 ± 0.0     | NB   |
| P               | <i>Boechera stricta</i>                               | Drummond's Rockcress         |         |      |                 | S3               | 12     | 9.2 ± 0.0     | NB   |
| P               | <i>Sagina nodosa</i>                                  | Knotted Pearlwort            |         |      |                 | S3               | 1      | 91.5 ± 0.0    | NB   |
| P               | <i>Stellaria humifusa</i>                             | Saltmarsh Starwort           |         |      |                 | S3               | 1      | 98.7 ± 0.0    | NB   |
| P               | <i>Stellaria longifolia</i>                           | Long-leaved Starwort         |         |      |                 | S3               | 13     | 10.9 ± 10.0   | NB   |
| P               | <i>Oxybasis rubra</i>                                 | Red Goosefoot                |         |      |                 | S3               | 4      | 87.4 ± 1.0    | NB   |
| P               | <i>Hudsonia tomentosa</i>                             | Woolly Beach-heath           |         |      |                 | S3               | 4      | 83.7 ± 0.0    | NB   |
| P               | <i>Cornus obliqua</i>                                 | Silky Dogwood                |         |      |                 | S3               | 155    | 31.8 ± 8.0    | NB   |
| P               | <i>Lonicera oblongifolia</i>                          | Swamp Fly Honeysuckle        |         |      |                 | S3               | 145    | 69.6 ± 0.0    | NB   |
| P               | <i>Triosteum aurantiacum</i>                          | Orange-fruited Tinker's Weed |         |      |                 | S3               | 182    | 22.5 ± 1.0    | NB   |
| P               | <i>Viburnum lentago</i>                               | Nannyberry                   |         |      |                 | S3               | 64     | 63.3 ± 0.0    | NB   |
| P               | <i>Rhodiola rosea</i>                                 | Roseroot                     |         |      |                 | S3               | 6      | 81.0 ± 5.0    | NB   |
| P               | <i>Astragalus alpinus</i>                             | Alpine Milk-vetch            |         |      |                 | S3               | 3      | 19.0 ± 0.0    | NB   |
| P               | <i>Astragalus alpinus</i> var. <i>brunetianus</i>     | Alpine Milk-Vetch            |         |      |                 | S3               | 14     | 19.2 ± 0.0    | NB   |
| P               | <i>Oxytropis campestris</i> var. <i>johannensis</i>   | Field Locoweed               |         |      |                 | S3               | 16     | 19.5 ± 0.0    | NB   |
| P               | <i>Bartonia paniculata</i> ssp. <i>iodandra</i>       | Branched Bartonia            |         |      |                 | S3               | 9      | 72.9 ± 0.0    | NB   |
| P               | <i>Gentianella amarella</i> ssp. <i>acuta</i>         | Northern Gentian             |         |      |                 | S3               | 9      | 57.0 ± 0.0    | NB   |
| P               | <i>Geranium bicknellii</i>                            | Bicknell's Crane's-bill      |         |      |                 | S3               | 16     | 19.9 ± 5.0    | NB   |
| P               | <i>Myriophyllum farwellii</i>                         | Farwell's Water Milfoil      |         |      |                 | S3               | 34     | 37.9 ± 0.0    | NB   |
| P               | <i>Myriophyllum humile</i>                            | Low Water Milfoil            |         |      |                 | S3               | 16     | 30.1 ± 1.0    | NB   |
| P               | <i>Myriophyllum quitense</i>                          | Andean Water Milfoil         |         |      |                 | S3               | 71     | 71.3 ± 0.0    | NB   |
| P               | <i>Proserpinaca palustris</i>                         | Marsh Mermaidweed            |         |      |                 | S3               | 38     | 52.9 ± 0.0    | NB   |
| P               | <i>Utricularia resupinata</i>                         | Inverted Bladderwort         |         |      |                 | S3               | 16     | 60.7 ± 0.0    | NB   |
| P               | <i>Fraxinus pennsylvanica</i>                         | Red Ash                      |         |      |                 | S3               | 155    | 11.0 ± 0.0    | NB   |
| P               | <i>Rumex pallidus</i>                                 | Seabeach Dock                |         |      |                 | S3               | 3      | 43.9 ± 1.0    | NB   |
| P               | <i>Rumex occidentalis</i>                             | Western Dock                 |         |      |                 | S3               | 1      | 20.4 ± 1.0    | NB   |

| Taxonomic Group | Scientific Name                                     | Common Name                          | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|---|--------------------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Podostemum ceratophyllum</i>                     | Horn-leaved Riverweed                |         |      |                 | S3               | 35     | 42.8 ± 0.0    | NB   |
| P               | <i>Primula mistassinica</i>                         | Mistassini Primrose                  |         |      |                 | S3               | 22     | 20.6 ± 0.0    | NB   |
| P               | <i>Pyrola minor</i>                                 | Lesser Pyrola                        |         |      |                 | S3               | 4      | 58.7 ± 0.0    | NB   |
| P               | <i>Anemone multifida</i>                            | Cut-leaved Anemone                   |         |      |                 | S3               | 5      | 24.0 ± 0.0    | NB   |
| P               | <i>Anemone multifida</i> var. <i>multifida</i>      | Early Anemone                        |         |      |                 | S3               | 2      | 79.7 ± 5.0    | NB   |
| P               | <i>Clematis occidentalis</i>                        | Purple Clematis                      |         |      |                 | S3               | 31     | 9.2 ± 0.0     | NB   |
| P               | <i>Ranunculus flabellaris</i>                       | Yellow Water Buttercup               |         |      |                 | S3               | 20     | 11.6 ± 0.0    | NB   |
| P               | <i>Amelanchier gaspensis</i>                        | Gasp   Serviceberry                  |         |      |                 | S3               | 1      | 80.2 ± 0.0    | NB   |
| P               | <i>Amelanchier canadensis</i>                       | Canada Serviceberry                  |         |      |                 | S3               | 16     | 11.0 ± 0.0    | NB   |
| P               | <i>Crataegus scabrida</i>                           | Rough Hawthorn                       |         |      |                 | S3               | 10     | 41.0 ± 1.0    | NB   |
| P               | <i>Rubus occidentalis</i>                           | Black Raspberry                      |         |      |                 | S3               | 149    | 11.6 ± 0.0    | NB   |
| P               | <i>Salix candida</i>                                | Sage Willow                          |         |      |                 | S3               | 12     | 39.2 ± 1.0    | NB   |
| P               | <i>Salix myricoides</i>                             | Bayberry Willow                      |         |      |                 | S3               | 16     | 19.5 ± 0.0    | NB   |
| P               | <i>Salix nigra</i>                                  | Black Willow                         |         |      |                 | S3               | 183    | 11.5 ± 0.0    | NB   |
| P               | <i>Salix interior</i>                               | Sandbar Willow                       |         |      |                 | S3               | 48     | 10.6 ± 3.0    | NB   |
| P               | <i>Comandra umbellata</i>                           | Bastard's Toadflax                   |         |      |                 | S3               | 2      | 41.8 ± 10.0   | NB   |
| P               | <i>Agalinis purpurea</i> var. <i>parviflora</i>     | Small-flowered Purple False Foxglove |         |      |                 | S3               | 11     | 8.5 ± 0.0     | NB   |
| P               | <i>Castilleja septentrionalis</i>                   | Northeastern Paintbrush              |         |      |                 | S3               | 9      | 59.7 ± 0.0    | NB   |
| P               | <i>Valeriana uliginosa</i>                          | Swamp Valerian                       |         |      |                 | S3               | 55     | 69.6 ± 0.0    | NB   |
| P               | <i>Viola adunca</i>                                 | Hooked Violet                        |         |      |                 | S3               | 18     | 55.0 ± 1.0    | NB   |
| P               | <i>Symplocarpus foetidus</i>                        | Eastern Skunk Cabbage                |         |      |                 | S3               | 47     | 54.6 ± 0.0    | NB   |
| P               | <i>Carex adusta</i>                                 | Lesser Brown Sedge                   |         |      |                 | S3               | 11     | 21.9 ± 6.0    | NB   |
| P               | <i>Carex arcta</i>                                  | Northern Clustered Sedge             |         |      |                 | S3               | 62     | 21.2 ± 0.0    | NB   |
| P               | <i>Carex conoidea</i>                               | Field Sedge                          |         |      |                 | S3               | 17     | 26.6 ± 1.0    | NB   |
| P               | <i>Carex garberi</i>                                | Garber's Sedge                       |         |      |                 | S3               | 17     | 25.6 ± 0.0    | NB   |
| P               | <i>Carex granularis</i>                             | Limestone Meadow Sedge               |         |      |                 | S3               | 9      | 12.7 ± 0.0    | NB   |
| P               | <i>Carex gynocrates</i>                             | Northern Bog Sedge                   |         |      |                 | S3               | 50     | 80.8 ± 0.0    | NB   |
| P               | <i>Carex hirtifolia</i>                             | Pubescent Sedge                      |         |      |                 | S3               | 81     | 27.3 ± 0.0    | NB   |
| P               | <i>Carex livida</i>                                 | Livid Sedge                          |         |      |                 | S3               | 7      | 89.1 ± 0.0    | NB   |
| P               | <i>Carex ormostachya</i>                            | Necklace Spike Sedge                 |         |      |                 | S3               | 28     | 9.2 ± 0.0     | NB   |
| P               | <i>Carex plantaginea</i>                            | Plantain-Leaved Sedge                |         |      |                 | S3               | 166    | 22.2 ± 0.0    | NB   |
| P               | <i>Carex prairea</i>                                | Prairie Sedge                        |         |      |                 | S3               | 35     | 88.9 ± 0.0    | NB   |
| P               | <i>Carex rosea</i>                                  | Rosy Sedge                           |         |      |                 | S3               | 264    | 9.4 ± 0.0     | NB   |
| P               | <i>Carex sprengei</i>                               | Longbeak Sedge                       |         |      |                 | S3               | 52     | 16.7 ± 0.0    | NB   |
| P               | <i>Carex tenuiflora</i>                             | Sparse-Flowered Sedge                |         |      |                 | S3               | 29     | 73.6 ± 0.0    | NB   |
| P               | <i>Carex vaginata</i>                               | Sheathed Sedge                       |         |      |                 | S3               | 18     | 69.6 ± 0.0    | NB   |
| P               | <i>Cyperus esculentus</i>                           | Perennial Yellow Nutsedge            |         |      |                 | S3               | 1      | 36.2 ± 0.0    | NB   |
| P               | <i>Cyperus esculentus</i> var. <i>leptostachyus</i> | Perennial Yellow Nutsedge            |         |      |                 | S3               | 89     | 10.2 ± 0.0    | NB   |
| P               | <i>Cyperus squarrosus</i>                           | Awed Flatsedge                       |         |      |                 | S3               | 46     | 12.8 ± 0.0    | NB   |
| P               | <i>Eriophorum gracile</i>                           | Slender Cottongrass                  |         |      |                 | S3               | 17     | 32.8 ± 0.0    | NB   |
| P               | <i>Blysmopsis rufa</i>                              | Red Bulrush                          |         |      |                 | S3               | 1      | 91.5 ± 0.0    | NB   |
| P               | <i>Elodea nuttallii</i>                             | Nuttall's Waterweed                  |         |      |                 | S3               | 8      | 10.8 ± 5.0    | NB   |
| P               | <i>Juncus brachycephalus</i>                        | Small-Head Rush                      |         |      |                 | S3               | 6      | 73.7 ± 0.0    | NB   |
| P               | <i>Juncus vaseyi</i>                                | Vasey Rush                           |         |      |                 | S3               | 10     | 59.2 ± 0.0    | NB   |
| P               | <i>Najas gracillima</i>                             | Thread-Like Naiad                    |         |      |                 | S3               | 6      | 28.4 ± 0.0    | NB   |
| P               | <i>Cypripedium reginae</i>                          | Showy Lady's-Slipper                 |         |      |                 | S3               | 129    | 69.7 ± 0.0    | NB   |
| P               | <i>Goodyera oblongifolia</i>                        | Menzies' Rattlesnake-plantain        |         |      |                 | S3               | 1      | 33.1 ± 0.0    | NB   |
| P               | <i>Neottia auriculata</i>                           | Auricled Twayblade                   |         |      |                 | S3               | 9      | 29.5 ± 0.0    | NB   |
| P               | <i>Platanthera grandiflora</i>                      | Large Purple Fringed Orchid          |         |      |                 | S3               | 41     | 10.5 ± 0.0    | NB   |
| P               | <i>Platanthera orbiculata</i>                       | Small Round-leaved Orchid            |         |      |                 | S3               | 44     | 10.5 ± 1.0    | NB   |
| P               | <i>Spiranthes lucida</i>                            | Shining Ladies'-Tresses              |         |      |                 | S3               | 27     | 26.2 ± 0.0    | NB   |
| P               | <i>Agrostis mertensii</i>                           | Northern Bent Grass                  |         |      |                 | S3               | 2      | 34.3 ± 0.0    | NB   |
| P               | <i>Bromus latiglumis</i>                            | Broad-Glumed Brome                   |         |      |                 | S3               | 36     | 23.3 ± 0.0    | NB   |
| P               | <i>Dichanthelium linearifolium</i>                  | Narrow-leaved Panic Grass            |         |      |                 | S3               | 11     | 26.7 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name  | Common Name                 | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|--|-----------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Leersia virginica</i>                                   | White Cut Grass             |         |      |                 | S3               | 42     | 10.5 ± 0.0    | NB   |
| P               | <i>Muhlenbergia richardsonis</i>                           | Mat Muhly                   |         |      |                 | S3               | 34     | 20.9 ± 0.0    | NB   |
| P               | <i>Schizachyrium scoparium</i>                             | Little Bluestem             |         |      |                 | S3               | 63     | 11.9 ± 0.0    | NB   |
| P               | <i>Zizania aquatica</i>                                    | Southern Wild Rice          |         |      |                 | S3               | 2      | 35.4 ± 0.0    | NB   |
| P               | <i>Zizania aquatica</i> var. <i>aquatica</i>               | Eastern Wild Rice           |         |      |                 | S3               | 6      | 10.9 ± 5.0    | NB   |
| P               | <i>Adiantum pedatum</i>                                    | Northern Maidenhair Fern    |         |      |                 | S3               | 396    | 21.3 ± 0.0    | NB   |
| P               | <i>Asplenium trichomanes</i>                               | Maidenhair Spleenwort       |         |      |                 | S3               | 9      | 35.9 ± 0.0    | NB   |
| P               | <i>Anchistea virginica</i>                                 | Virginia chain fern         |         |      |                 | S3               | 60     | 18.9 ± 0.0    | NB   |
| P               | <i>Dryopteris goldieana</i>                                | Goldie's Woodfern           |         |      |                 | S3               | 265    | 19.3 ± 5.0    | NB   |
| P               | <i>Woodsia alpina</i>                                      | Alpine Cliff Fern           |         |      |                 | S3               | 7      | 84.4 ± 1.0    | NB   |
| P               | <i>Isoetes tuckermanii</i> ssp. <i>tuckermanii</i>         | Tuckerman's Quillwort       |         |      |                 | S3               | 17     | 45.8 ± 0.0    | NB   |
| P               | <i>Diphasiastrum x sabinifolium</i>                        | Savin-leaved Ground-cedar   |         |      |                 | S3               | 16     | 11.6 ± 0.0    | NB   |
| P               | <i>Huperzia appressa</i>                                   | Mountain Firmoss            |         |      |                 | S3               | 1      | 94.2 ± 1.0    | NB   |
| P               | <i>Sceptridium dissectum</i>                               | Dissected Moonwort          |         |      |                 | S3               | 55     | 10.8 ± 0.0    | NB   |
| P               | <i>Botrychium lanceolatum</i> ssp. <i>angustisegmentum</i> | Narrow Triangle Moonwort    |         |      |                 | S3               | 28     | 10.9 ± 5.0    | NB   |
| P               | <i>Botrychium simplex</i>                                  | Least Moonwort              |         |      |                 | S3               | 18     | 11.0 ± 0.0    | NB   |
| P               | <i>Ophioglossum pusillum</i>                               | Northern Adder's-tongue     |         |      |                 | S3               | 9      | 50.5 ± 1.0    | NB   |
| P               | <i>Selaginella selaginoides</i>                            | Low Spikemoss               |         |      |                 | S3               | 2      | 92.4 ± 6.0    | NB   |
| P               | <i>Crataegus submollis</i>                                 | Quebec Hawthorn             |         |      |                 | S3?              | 15     | 10.0 ± 1.0    | NB   |
| P               | <i>Crataegus succulenta</i>                                | Fleshy Hawthorn             |         |      |                 | S3?              | 1      | 10.9 ± 5.0    | NB   |
| P               | <i>Platanthera hookeri</i>                                 | Hooker's Orchid             |         |      |                 | S3?              | 52     | 12.2 ± 1.0    | NB   |
| P               | <i>Arnica lanceolata</i>                                   | Lance-leaved Arnica         |         |      |                 | S3S4             | 30     | 19.7 ± 0.0    | NB   |
| P               | <i>Bidens hyperborea</i>                                   | Estuary Beggarticks         |         |      |                 | S3S4             | 1      | 91.5 ± 0.0    | NB   |
| P               | <i>Solidago altissima</i>                                  | Tall Goldenrod              |         |      |                 | S3S4             | 47     | 15.5 ± 0.0    | NB   |
| P               | <i>Symphyotrichum boreale</i>                              | Boreal Aster                |         |      |                 | S3S4             | 159    | 20.2 ± 10.0   | NB   |
| P               | <i>Betula pumila</i>                                       | Bog Birch                   |         |      |                 | S3S4             | 74     | 30.1 ± 0.0    | NB   |
| P               | <i>Mertensia maritima</i>                                  | Sea Lungwort                |         |      |                 | S3S4             | 8      | 91.5 ± 0.0    | NB   |
| P               | <i>Subularia aquatica</i> ssp. <i>americana</i>            | American Water Awlwort      |         |      |                 | S3S4             | 17     | 49.5 ± 0.0    | NB   |
| P               | <i>Lobelia cardinalis</i>                                  | Cardinal Flower             |         |      |                 | S3S4             | 318    | 4.0 ± 0.0     | NB   |
| P               | <i>Callitriche hermaphroditica</i>                         | Northern Water-starwort     |         |      |                 | S3S4             | 7      | 52.4 ± 0.0    | NB   |
| P               | <i>Viburnum edule</i>                                      | Squashberry                 |         |      |                 | S3S4             | 11     | 22.0 ± 1.0    | NB   |
| P               | <i>Crassula aquatica</i>                                   | Water Pygmyweed             |         |      |                 | S3S4             | 3      | 28.6 ± 1.0    | NB   |
| P               | <i>Penthorum sedoides</i>                                  | Ditch Stonewort             |         |      |                 | S3S4             | 67     | 9.1 ± 1.0     | NB   |
| P               | <i>Elatine americana</i>                                   | American Waterwort          |         |      |                 | S3S4             | 7      | 29.4 ± 1.0    | NB   |
| P               | <i>Hedysarum americanum</i>                                | Alpine Hedysarum            |         |      |                 | S3S4             | 36     | 75.8 ± 0.0    | NB   |
| P               | <i>Fagus grandifolia</i>                                   | American Beech              |         |      |                 | S3S4             | 367    | 4.6 ± 0.0     | NB   |
| P               | <i>Geranium robertianum</i>                                | Herb Robert                 |         |      |                 | S3S4             | 21     | 79.8 ± 1.0    | NB   |
| P               | <i>Stachys hispida</i>                                     | Smooth Hedge-Nettle         |         |      |                 | S3S4             | 17     | 15.4 ± 0.0    | NB   |
| P               | <i>Stachys pilosa</i>                                      | Hairy Hedge-Nettle          |         |      |                 | S3S4             | 8      | 20.4 ± 0.0    | NB   |
| P               | <i>Utricularia radiata</i>                                 | Little Floating Bladderwort |         |      |                 | S3S4             | 93     | 64.8 ± 0.0    | NB   |
| P               | <i>Utricularia gibba</i>                                   | Humped Bladderwort          |         |      |                 | S3S4             | 40     | 37.8 ± 0.0    | NB   |
| P               | <i>Fraxinus americana</i>                                  | White Ash                   |         |      |                 | S3S4             | 334    | 10.7 ± 0.0    | NB   |
| P               | <i>Epilobium strictum</i>                                  | Downy Willowherb            |         |      |                 | S3S4             | 69     | 26.6 ± 1.0    | NB   |
| P               | <i>Fallopia scandens</i>                                   | Climbing False Buckwheat    |         |      |                 | S3S4             | 52     | 10.9 ± 5.0    | NB   |
| P               | <i>Littorella americana</i>                                | American Shoreweed          |         |      |                 | S3S4             | 39     | 30.5 ± 0.0    | NB   |
| P               | <i>Thalictrum confine</i>                                  | Northern Meadow-rue         |         |      |                 | S3S4             | 115    | 14.3 ± 0.0    | NB   |
| P               | <i>Drymocallis arguta</i>                                  | Tall Wood Beauty            |         |      |                 | S3S4             | 56     | 9.2 ± 0.0     | NB   |
| P               | <i>Rosa palustris</i>                                      | Swamp Rose                  |         |      |                 | S3S4             | 171    | 37.3 ± 0.0    | NB   |
| P               | <i>Rubus pensilvanicus</i>                                 | Pennsylvania Blackberry     |         |      |                 | S3S4             | 15     | 14.6 ± 0.0    | NB   |
| P               | <i>Galium boreale</i>                                      | Northern Bedstraw           |         |      |                 | S3S4             | 14     | 16.6 ± 0.0    | NB   |
| P               | <i>Galium labradoricum</i>                                 | Labrador Bedstraw           |         |      |                 | S3S4             | 113    | 29.2 ± 0.0    | NB   |
| P               | <i>Salix pedicellaris</i>                                  | Bog Willow                  |         |      |                 | S3S4             | 89     | 24.0 ± 0.0    | NB   |
| P               | <i>Geocaulon lividum</i>                                   | Northern Comandra           |         |      |                 | S3S4             | 9      | 64.0 ± 0.0    | NB   |
| P               | <i>Parnassia glauca</i>                                    | Fen Grass-of-Parnassus      |         |      |                 | S3S4             | 13     | 25.4 ± 0.0    | NB   |

| Taxonomic Group | Scientific Name                  | Common Name                | COSEWIC | SARA | Prov Legal Prot | Prov Rarity Rank | # recs | Distance (km) | Prov |
|-----------------|----------------------------------|----------------------------|---------|------|-----------------|------------------|--------|---------------|------|
| P               | <i>Agalinis neoscotica</i>       | Nova Scotia Agalinis       |         |      |                 | S3S4             | 8      | 11.0 ± 0.0    | NB   |
| P               | <i>Ulmus americana</i>           | White Elm                  |         |      |                 | S3S4             | 284    | 9.3 ± 1.0     | NB   |
| P               | <i>Boehmeria cylindrica</i>      | Small-spike False-nettle   |         |      |                 | S3S4             | 59     | 18.9 ± 0.0    | NB   |
| P               | <i>Juniperus horizontalis</i>    | Creeping Juniper           |         |      |                 | S3S4             | 2      | 91.5 ± 0.0    | NB   |
| P               | <i>Carex capillaris</i>          | Hairlike Sedge             |         |      |                 | S3S4             | 14     | 69.6 ± 0.0    | NB   |
| P               | <i>Carex eburnea</i>             | Bristle-leaved Sedge       |         |      |                 | S3S4             | 10     | 41.8 ± 1.0    | NB   |
| P               | <i>Carex exilis</i>              | Coastal Sedge              |         |      |                 | S3S4             | 94     | 60.7 ± 0.0    | NB   |
| P               | <i>Carex haydenii</i>            | Hayden's Sedge             |         |      |                 | S3S4             | 92     | 12.2 ± 1.0    | NB   |
| P               | <i>Carex lupulina</i>            | Hop Sedge                  |         |      |                 | S3S4             | 99     | 10.7 ± 0.0    | NB   |
| P               | <i>Carex tenera</i>              | Tender Sedge               |         |      |                 | S3S4             | 72     | 11.7 ± 0.0    | NB   |
| P               | <i>Carex wiedgandii</i>          | Wiegand's Sedge            |         |      |                 | S3S4             | 72     | 21.7 ± 10.0   | NB   |
| P               | <i>Carex recta</i>               | Estuary Sedge              |         |      |                 | S3S4             | 2      | 43.1 ± 0.0    | NB   |
| P               | <i>Carex atratiformis</i>        | Scabrous Black Sedge       |         |      |                 | S3S4             | 5      | 60.5 ± 0.0    | NB   |
| P               | <i>Cladium mariscoides</i>       | Smooth Twigrush            |         |      |                 | S3S4             | 119    | 33.3 ± 0.0    | NB   |
| P               | <i>Cyperus dentatus</i>          | Toothed Flatsedge          |         |      |                 | S3S4             | 237    | 19.2 ± 0.0    | NB   |
| P               | <i>Eleocharis quinqueflora</i>   | Few-flowered Spikerush     |         |      |                 | S3S4             | 34     | 18.9 ± 0.0    | NB   |
| P               | <i>Rhynchospora capitellata</i>  | Small-headed Beakerush     |         |      |                 | S3S4             | 67     | 17.7 ± 0.0    | NB   |
| P               | <i>Trichophorum clintonii</i>    | Clinton's Clubrush         |         |      |                 | S3S4             | 114    | 32.0 ± 1.0    | NB   |
| P               | <i>Bolboschoenus fluviatilis</i> | River Bulrush              |         |      |                 | S3S4             | 59     | 24.2 ± 0.0    | NB   |
| P               | <i>Triglochin gaspensis</i>      | Gasp ♂ Arrowgrass          |         |      |                 | S3S4             | 7      | 98.3 ± 0.0    | NB   |
| P               | <i>Lilium canadense</i>          | Canada Lily                |         |      |                 | S3S4             | 185    | 7.1 ± 2.0     | NB   |
| P               | <i>Triantha glutinosa</i>        | Sticky False-Asphodel      |         |      |                 | S3S4             | 90     | 20.6 ± 0.0    | NB   |
| P               | <i>Corallorhiza maculata</i>     | Spotted Coralroot          |         |      |                 | S3S4             | 23     | 26.2 ± 0.0    | NB   |
| P               | <i>Liparis loeselii</i>          | Loesel's Twayblade         |         |      |                 | S3S4             | 27     | 17.4 ± 0.0    | NB   |
| P               | <i>Neottia cordata</i>           | Heart-leaved Twayblade     |         |      |                 | S3S4             | 40     | 18.6 ± 1.0    | NB   |
| P               | <i>Platanthera obtusata</i>      | Blunt-leaved Orchid        |         |      |                 | S3S4             | 43     | 21.6 ± 6.0    | NB   |
| P               | <i>Calamagrostis pickeringii</i> | Pickering's Reed Grass     |         |      |                 | S3S4             | 86     | 72.9 ± 0.0    | NB   |
| P               | <i>Calamagrostis stricta</i>     | Slim-stemmed Reed Grass    |         |      |                 | S3S4             | 4      | 53.7 ± 0.0    | NB   |
| P               | <i>Eragrostis pectinacea</i>     | Tufted Love Grass          |         |      |                 | S3S4             | 16     | 10.8 ± 10.0   | NB   |
| P               | <i>Stuckenia filiformis</i>      | Thread-leaved Pondweed     |         |      |                 | S3S4             | 9      | 79.3 ± 0.0    | NB   |
| P               | <i>Potamogeton praelongus</i>    | White-stemmed Pondweed     |         |      |                 | S3S4             | 24     | 63.1 ± 0.0    | NB   |
| P               | <i>Potamogeton richardsonii</i>  | Richardson's Pondweed      |         |      |                 | S3S4             | 43     | 10.7 ± 5.0    | NB   |
| P               | <i>Xyris montana</i>             | Northern Yellow-Eyed-Grass |         |      |                 | S3S4             | 106    | 48.9 ± 0.0    | NB   |
| P               | <i>Cryptogramma stelleri</i>     | Steller's Rockbrake        |         |      |                 | S3S4             | 2      | 91.5 ± 0.0    | NB   |
| P               | <i>Asplenium viride</i>          | Green Spleenwort           |         |      |                 | S3S4             | 16     | 73.3 ± 0.0    | NB   |
| P               | <i>Dryopteris fragrans</i>       | Fragrant Wood Fern         |         |      |                 | S3S4             | 21     | 23.6 ± 0.0    | NB   |
| P               | <i>Equisetum palustre</i>        | Marsh Horsetail            |         |      |                 | S3S4             | 13     | 11.2 ± 5.0    | NB   |
| P               | <i>Polypodium appalachianum</i>  | Appalachian Polypody       |         |      |                 | S3S4             | 48     | 10.4 ± 0.0    | NB   |
| P               | <i>Solidago caesia</i>           | Blue-stemmed Goldenrod     |         |      |                 | SX               | 2      | 97.0 ± 1.0    | NB   |
| P               | <i>Solidago ptarmicoides</i>     | Upland White Goldenrod     |         |      |                 | SX               | 3      | 77.5 ± 10.0   | NB   |
| P               | <i>Celastrus scandens</i>        | Climbing Bittersweet       |         |      |                 | SX               | 4      | 26.7 ± 1.0    | NB   |

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| 1      | Nye, T. 2002. Wood Turtle observations in Westmorland, Queens Cos. , Pers. com. to S.H. Gerriets, Dec. 3. 3 recs.   |
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| 1      | Sabine, D.L. 2004. Specimen data: Whittaker Lake & Marysville NB. Pers. comm. to C.S. Blaney, 2pp, 4 recs.  |
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| 1      | Toner, M. 2005. <i>Listera australis</i> population at Bull Pasture Plains. NB Dept of Natural Resources. Pers. comm. to S. Blaney, 8 recs.   |
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| 1      | Tremblay, E. 2006. Kouchibouguac National Park Digital Database. Parks Canada, 105 recs.  |
| 1      | Walker, E.M. 1942. Additions to the List of Odonates of the Maritime Provinces. <i>Proc. Nova Scotian Inst. Sci.</i> , 20. 4: 159-176. 2 recs.  |
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# Appendix B

## Wetland Delineation Sheets

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 1 wet  
 Investigator(s): Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_ X coord: 46.059581 Y coord: -66.583025  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Drainageway Swamp

Are climatic / hydrologic conditions on the site typical for this time of year? YES  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|  |  |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____<br>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____<br>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | <b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____<br>If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.)  |  |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )                         | Absolute % Cover | Dominant Species? | Indicator Status |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-------------------------------|--|--|--|---|--|--|--|-------------------------------|--|--|--|--------------------------------------|--|
| 1. <u>Thuja occidentalis</u>                                  | <u>5</u>         |                   | <u>FACW</u>      | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>8</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>87.5</u> (A/B)   |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 2. <u>Acer rubrum</u>   | <u>25</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 3. <u>Abies balsamea</u>                                      | <u>5</u>         |                   | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 4. <u>Tsuga canadensis</u>                                    | <u>10</u>        | <u>YES</u>        | <u>FACU</u>      |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 5. <u>Betula alleghaniensis</u>                               | <u>10</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
|   | <u>55</u>        | = Total Cover     |                  | <b>Prevalence Index worksheet:</b><br><table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: right;">Multiply by:</td> </tr> <tr> <td>OBL species _____ x 1 = _____</td> <td></td> </tr> <tr> <td>FACW species <u>20</u> x 2 = <u>40</u></td> <td></td> </tr> <tr> <td>FAC species <u>144</u> x 3 = <u>432</u></td> <td></td> </tr> <tr> <td>FACU species <u>10</u> x 4 = <u>40</u></td> <td></td> </tr> <tr> <td>UPL species _____ x 5 = _____</td> <td></td> </tr> <tr> <td>Column Totals: <u>174</u> (A) <u>512</u> (B)</td> <td></td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.94</u></td> </tr> </table> | Total % Cover of: | Multiply by: | OBL species _____ x 1 = _____ |  | FACW species <u>20</u> x 2 = <u>40</u> |  | FAC species <u>144</u> x 3 = <u>432</u> |  | FACU species <u>10</u> x 4 = <u>40</u> |  | UPL species _____ x 5 = _____ |  | Column Totals: <u>174</u> (A) <u>512</u> (B) |  | Prevalence Index = B/A = <u>2.94</u> |  |
| Total % Cover of:   | Multiply by:     |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| OBL species _____ x 1 = _____                                 |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| FACW species <u>20</u> x 2 = <u>40</u>                        |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| FAC species <u>144</u> x 3 = <u>432</u>                       |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| FACU species <u>10</u> x 4 = <u>40</u>                        |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| UPL species _____ x 5 = _____                                 |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| Column Totals: <u>174</u> (A) <u>512</u> (B)                  |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| Prevalence Index = B/A = <u>2.94</u>                          |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| Sapling/Shrub Stratum ( Plot size: <u>5</u> )                 |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 1. <u>Acer spicatum</u>                                       | <u>25</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 2. <u>Betula alleghaniensis</u>                               | <u>5</u>         |                   | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 3. <u>Acer rubrum</u>   | <u>2</u>         |                   | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 4. <u>Fraxinus americana</u>                                  | <u>2</u>         |                   | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 5. <u>Corylus cornuta</u>                                     | <u>5</u>         |                   | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 6. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
|   | <u>39</u>        | = Total Cover     |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| Herb Stratum ( Plot size: <u>1</u> )                          |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 1. <u>Osmunda claytoniana</u>                                 | <u>15</u>        | <u>YES</u>        | <u>FAC</u>       | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> Dominance Test is >50%<br><input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 2. <u>Athyrium filix-femina</u>                               | <u>15</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 3. <u>Aralia nudicaulis</u>                                   | <u>5</u>         |                   | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 4. <u>Rubus pubescens</u>                                     | <u>15</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 5. <u>Impatiens capensis</u>                                  | <u>15</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 6. <u>Ribes lacustre</u>                                      | <u>10</u>        |                   | <u>FACW</u>      |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 7. <u>Onoclea sensibilis</u>                                  | <u>5</u>         |                   | <u>FACW</u>      |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 8. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 9. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 10. _____   |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
|   | <u>80</u>        | = Total Cover     |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| Woody Vine Stratum ( Plot size: _____ )                       |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 1. <u>No woody vines</u>                                      |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| 2. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
|   | <u>174</u>       | = Total Cover     |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |
| Remarks: (Include photo numbers here or on a separate sheet.) |                  |                   |                  |  |                   |              |                               |  |  |  |   |  |  |  |                               |  |  |  |                                      |  |

**SOIL**

Sampling Point: WL 1 wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |     | Redox Features |   |                   |                  | Texture    | Remarks |
|------------|---------------|-----|----------------|---|-------------------|------------------|------------|---------|
|            | Color (moist) | %   | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |            |         |
| 7          | 7.5YR/3/1     | 100 |                |   |                   | Silty            | Black Muck |         |
|            |               |     |                |   |                   |                  |            |         |
|            |               |     |                |   |                   |                  |            |         |
|            |               |     |                |   |                   |                  |            |         |
|            |               |     |                |   |                   |                  |            |         |
|            |               |     |                |   |                   |                  |            |         |
|            |               |     |                |   |                   |                  |            |         |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

|   |  |   |
|---|--|---|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> | <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surfaces (S7)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8)</p> <p><input type="checkbox"/> Thin Dark Surface (S9)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input checked="" type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> 5 c Mucky Peat or Peat (S3)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|---|--|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

|   |  |
|---|--|
| <p><b>Restrictive Layer (if observed):</b></p> <p>Type: <b>Rock</b></p> <p>Depth (cm): <b>7</b></p> | <p><b>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b></p> |
| <p>Remarks:</p>   |  |

**HYDROLOGY**

|  |   |
|--|---|
| <p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input checked="" type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3)</p> <p><input checked="" type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> | <p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> |
| <p><b>Field Observations:</b></p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (cm): _____</p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (cm): <u>20</u></p> <p>Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (cm): <u>0</u></p>  | <p><b>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b></p>  |
| <p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>  |   |
| <p>Remarks: Drainage patterns observed.</p>  |   |

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 2 wet  
 Investigator(s): Ryan Power and Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_ X coord: 46.057265 Y coord: -66.585599  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Spring basin Marsh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|  |  |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____<br>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____<br>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | <b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____<br>If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) Emergent vegetation, standing water 50 cm on average, possibly manmade, no watercourse inlet presence, origin from swamp to the east.                            |  |

### VEGETATION – Use scientific names of plants.

|   | Absolute % Cover | Dominant Species? | Indicator Status |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
|---|------------------|-------------------|------------------|---|-------------------|--------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|--------------------------|-----------|--------------------------------|--|
| <b>Tree Stratum ( Plot size: 15 )</b>                         |                  |                   |                  | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)<br><br>Total Number of Dominant Species Across All Strata: _____ (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)  |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 1. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 2. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 3. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 4. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 5. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| _____ = Total Cover   |                  |                   |                  | <b>Prevalence Index worksheet:</b><br><table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table> | Total % Cover of: | Multiply by: | OBL species _____ | x 1 = _____ | FACW species _____ | x 2 = _____ | FAC species _____ | x 3 = _____ | FACU species _____ | x 4 = _____ | UPL species _____ | x 5 = _____ | Column Totals: _____ (A) | _____ (B) | Prevalence Index = B/A = _____ |  |
| Total % Cover of:   | Multiply by:     |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| OBL species _____   | x 1 = _____      |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| FACW species _____  | x 2 = _____      |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| FAC species _____   | x 3 = _____      |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| FACU species _____  | x 4 = _____      |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| UPL species _____   | x 5 = _____      |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| Column Totals: _____ (A)                                      | _____ (B)        |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| Prevalence Index = B/A = _____                                |                  |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| <b>Sapling/Shrub Stratum ( Plot size: 5 )</b>                 |                  |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 1. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 2. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 3. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 4. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 5. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 6. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| _____ = Total Cover   |                  |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| <b>Herb Stratum ( Plot size: 1 )</b>                          |                  |                   |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation<br><input type="checkbox"/> Dominance Test is >50%<br><input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 1. <u>Potamogeton spp.</u>                                    | _____            | _____             | OBL              |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 2. <u>Scutellaria lateriflora</u>                             | _____            | _____             | FACW             |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 3. <u>Scirpus cyperinus</u>                                   | _____            | _____             | FACW             |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 4. <u>Glyceria grandis</u>                                    | _____            | _____             | OBL              |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 5. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 6. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 7. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 8. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 9. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 10. _____   | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 80 _____ = Total Cover  |                  |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| <b>Woody Vine Stratum ( Plot size: _____ )</b>                |                  |                   |                  | <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 1. <u>No woody vines</u>                                      | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 2. _____  | _____            | _____             | _____            |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| 80 _____ = Total Cover  |                  |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |
| Remarks: (Include photo numbers here or on a separate sheet.) |                  |                   |                  |   |                   |              |                   |             |                    |             |                   |             |                    |             |                   |             |                          |           |                                |  |

**SOIL**

Sampling Point: WL 2 wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |   | Redox Features |   |                   |                  | Texture | Remarks |
|------------|---------------|---|----------------|---|-------------------|------------------|---------|---------|
|            | Color (moist) | % | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

|   |   |   |
|---|---|---|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> | <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surfaces (S7)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8)</p> <p><input type="checkbox"/> Thin Dark Surface (S9)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> 5 c Mucky Peat or Peat (S3)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|---|---|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

|  |   |
|--|---|
| <p><b>Restrictive Layer (if observed):</b></p> <p>Type: <b>NA</b></p> <p>Depth (cm): <b>NA</b></p>             | <p><b>Hydric Soil Present? Yes X No</b></p> |
| <p>Remarks: Wetland condition obvious with emergent vegetation. Soil pit not possible with standing water.</p> |   |

**HYDROLOGY**

|  |   |
|--|---|
| <p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input checked="" type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> | <p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> |
|--|---|

|  |   |
|--|---|
| <p><b>Field Observations:</b></p> <p>Surface Water Present? Yes X No      Depth (cm): <u>50</u></p> <p>Water Table Present? Yes No      Depth (cm): _____</p> <p>Saturation Present? Yes No      Depth (cm): _____ (includes capillary fringe)</p> | <p><b>Wetland Hydrology Present? Yes X No</b></p> |
|--|---|

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

Remarks:

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 2 up  
 Investigator(s): Ryan Power and Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_ X coord: 46.057488 Y coord: -66.585778  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Mature Hemlock Foresty

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|  |  |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____<br>Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/><br>Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | <b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/><br>If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.)  |  |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )                         | Absolute % Cover | Dominant Species? | Indicator Status |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-------------------|-------------|-----------------------|----------------|-----------------------|-----------------|------------------------|------------------|----------------------|-----------------|-------------------------------|----------------|--------------------------------------|--|
| 1. <u>Tsuga canadensis</u>                                    | <u>90</u>        | YES               | FACU             | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>6</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7</u> (A/B)   |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 2. <u>Acer rubrum</u>   | <u>5</u>         |                   | FAC              |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 3. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 4. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 5. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <u>95</u> = Total Cover                                       |                  |                   |                  | <b>Prevalence Index worksheet:</b><br><table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>1</u></td> <td>x 2 = <u>2</u></td> </tr> <tr> <td>FAC species <u>16</u></td> <td>x 3 = <u>48</u></td> </tr> <tr> <td>FACU species <u>90</u></td> <td>x 4 = <u>360</u></td> </tr> <tr> <td>UPL species <u>2</u></td> <td>x 5 = <u>10</u></td> </tr> <tr> <td>Column Totals: <u>109</u> (A)</td> <td><u>420</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.85</u></td> </tr> </table> | Total % Cover of: | Multiply by: | OBL species _____ | x 1 = _____ | FACW species <u>1</u> | x 2 = <u>2</u> | FAC species <u>16</u> | x 3 = <u>48</u> | FACU species <u>90</u> | x 4 = <u>360</u> | UPL species <u>2</u> | x 5 = <u>10</u> | Column Totals: <u>109</u> (A) | <u>420</u> (B) | Prevalence Index = B/A = <u>3.85</u> |  |
| Total % Cover of:   | Multiply by:     |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| OBL species _____   | x 1 = _____      |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| FACW species <u>1</u>   | x 2 = <u>2</u>   |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| FAC species <u>16</u>   | x 3 = <u>48</u>  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| FACU species <u>90</u>  | x 4 = <u>360</u> |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| UPL species <u>2</u>  | x 5 = <u>10</u>  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| Column Totals: <u>109</u> (A)                                 | <u>420</u> (B)   |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| Prevalence Index = B/A = <u>3.85</u>                          |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <u>7</u> = Total Cover  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <b>Sapling/Shrub Stratum ( Plot size: <u>5</u> )</b>          |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 1. <u>Picea rubens</u>  | <u>5</u>         | YES               | FAC              |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 2. <u>Fagus grandifolia</u>                                   | <u>2</u>         | YES               | UPL              |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 3. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 4. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 5. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 6. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <u>7</u> = Total Cover  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <b>Herb Stratum ( Plot size: <u>1</u> )</b>                   |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 1. <u>Maianthemum canadense</u>                               | <u>5</u>         | YES               | FAC              |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 2. <u>Uvularia sessilifolia</u>                               | <u>1</u>         | YES               | FACW             |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 3. <u>Gaultheria hispidula</u>                                | <u>1</u>         | YES               | FAC              |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 4. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 5. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 6. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 7. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 8. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 9. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 10. _____   |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <u>7</u> = Total Cover  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <b>Woody Vine Stratum ( Plot size: _____ )</b>                |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 1. <u>No woody vines</u>                                      |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| 2. _____  |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| <u>109</u> = Total Cover                                      |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |
| Remarks: (Include photo numbers here or on a separate sheet.) |                  |                   |                  |  |                   |              |                   |             |                       |                |                       |                 |                        |                  |                      |                 |                               |                |                                      |  |

**Hydrophytic Vegetation Indicators:**  
 Rapid Test for Hydrophytic Vegetation  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)



**SOIL**

Sampling Point: WL2 up

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |     | Redox Features |   |                   |                  | Texture | Remarks |
|------------|---------------|-----|----------------|---|-------------------|------------------|---------|---------|
|            | Color (moist) | %   | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |         |         |
| 10         |               | 100 |                |   |                   |                  | Organic |         |
| 30         | 7.5YR/6/3     | 100 |                |   |                   |                  | Sandy   |         |
|            |               |     |                |   |                   |                  |         |         |
|            |               |     |                |   |                   |                  |         |         |
|            |               |     |                |   |                   |                  |         |         |
|            |               |     |                |   |                   |                  |         |         |
|            |               |     |                |   |                   |                  |         |         |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

|   |   |   |
|---|---|---|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> | <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surfaces (S7)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8)</p> <p><input type="checkbox"/> Thin Dark Surface (S9)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> 5 c Mucky Peat or Peat (S3)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|---|---|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

|  |  |
|--|--|
| <p><b>Restrictive Layer (if observed):</b></p> <p>Type: <b>Rock</b></p> <p>Depth (cm): <b>30</b></p> | <p><b>Hydric Soil Present? Yes _____ No <u>X</u></b></p> |
| <p>Remarks:</p>  |  |

**HYDROLOGY**

|   |   |
|---|---|
| <p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> | <p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> |
|---|---|

|   |  |
|---|--|
| <p><b>Field Observations:</b></p> <p>Surface Water Present? Yes _____ No _____ Depth (cm): _____</p> <p>Water Table Present? Yes _____ No _____ Depth (cm): _____</p> <p>Saturation Present? Yes _____ No _____ Depth (cm): _____ (includes capillary fringe)</p> | <p><b>Wetland Hydrology Present? Yes _____ No <u>X</u></b></p> |
|---|--|

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

Remarks:

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 3 wet  
 Investigator(s): Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_ X coord: 46.054878 Y coord: -66.584058  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Drainageway Swamp

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|   |   |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____<br>Hydric Soil Present? Yes <u>X</u> No _____<br>Wetland Hydrology Present? Yes <u>X</u> No _____ | <b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____<br>If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.)   |   |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )                         | Absolute % Cover | Dominant Species? | Indicator Status |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-------------------------------|--|--|--|--|--|--------------------------------|--|-------------------------------|--|--|--|
| 1. <u>Betula alleghaniensis</u>                               | <u>15</u>        | <u>YES</u>        | <u>FAC</u>       | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>6</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 2. <u>Acer rubrum</u>   | <u>10</u>        | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 3. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 4. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 5. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
|   | <u>25</u>        | = Total Cover     |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| Sapling/Shrub Stratum ( Plot size: <u>5</u> )                 |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 1. <u>Betula alleghaniensis</u>                               | <u>5</u>         | <u>YES</u>        | <u>FAC</u>       | <b>Prevalence Index worksheet:</b><br><table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: right;">Multiply by:</td> </tr> <tr> <td>OBL species _____ x 1 = _____</td> <td></td> </tr> <tr> <td>FACW species <u>35</u> x 2 = <u>70</u></td> <td></td> </tr> <tr> <td>FAC species <u>65</u> x 3 = <u>195</u></td> <td></td> </tr> <tr> <td>FACU species _____ x 4 = _____</td> <td></td> </tr> <tr> <td>UPL species _____ x 5 = _____</td> <td></td> </tr> <tr> <td>Column Totals: <u>100</u> (A) <u>265</u> (B)</td> <td></td> </tr> </table> Prevalence Index = B/A = <u>2.65</u> | Total % Cover of: | Multiply by: | OBL species _____ x 1 = _____ |  | FACW species <u>35</u> x 2 = <u>70</u> |  | FAC species <u>65</u> x 3 = <u>195</u> |  | FACU species _____ x 4 = _____ |  | UPL species _____ x 5 = _____ |  | Column Totals: <u>100</u> (A) <u>265</u> (B) |  |
| Total % Cover of:   | Multiply by:     |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| OBL species _____ x 1 = _____                                 |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| FACW species <u>35</u> x 2 = <u>70</u>                        |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| FAC species <u>65</u> x 3 = <u>195</u>                        |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| FACU species _____ x 4 = _____                                |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| UPL species _____ x 5 = _____                                 |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| Column Totals: <u>100</u> (A) <u>265</u> (B)                  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 2. <u>Acer rubrum</u>   | <u>5</u>         | <u>YES</u>        | <u>FAC</u>       |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 3. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 4. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 5. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 6. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
|   | <u>10</u>        | = Total Cover     |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| Herb Stratum ( Plot size: <u>1</u> )                          |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 1. <u>Impatiens capensis</u>                                  | <u>30</u>        | <u>YES</u>        | <u>FAC</u>       | <b>Hydrophytic Vegetation Indicators:</b><br>___ Rapid Test for Hydrophytic Vegetation<br><u>X</u> Dominance Test is >50%<br><u>X</u> Prevalence Index is ≤3.0 <sup>1</sup><br>___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br>___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.   |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 2. <u>Onoclea sensibilis</u>                                  | <u>10</u>        |                   | <u>FACW</u>      |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 3. <u>Scutellaria lateriflora</u>                             | <u>5</u>         |                   | <u>FACW</u>      |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 4. <u>Lycopus uniflorus</u>                                   | <u>15</u>        | <u>YES</u>        | <u>FACW+</u>     |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 5. <u>Carex gynandra</u>                                      | <u>5</u>         |                   | <u>FACW</u>      |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 6. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 7. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 8. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 9. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 10. _____   |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
|   | <u>65</u>        | = Total Cover     |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| Woody Vine Stratum ( Plot size: _____ )                       |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 1. <u>No woody vines</u>                                      |                  |                   |                  | <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____   |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| 2. _____  |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
|   | <u>100</u>       | = Total Cover     |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |
| Remarks: (Include photo numbers here or on a separate sheet.) |                  |                   |                  |  |                   |              |                               |  |  |  |  |  |                                |  |                               |  |  |  |

**SOIL**

Sampling Point: WL 3 wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |     | Redox Features |   |                   |                  | Texture | Remarks    |
|------------|---------------|-----|----------------|---|-------------------|------------------|---------|------------|
|            | Color (moist) | %   | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |         |            |
| 7          | 7.5YR/3/1     | 100 |                |   |                   |                  | Silty   | Black muck |
|            |               |     |                |   |                   |                  |         |            |
|            |               |     |                |   |                   |                  |         |            |
|            |               |     |                |   |                   |                  |         |            |
|            |               |     |                |   |                   |                  |         |            |
|            |               |     |                |   |                   |                  |         |            |
|            |               |     |                |   |                   |                  |         |            |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)

- Stripped Matrix (S6)
- Dark Surfaces (S7)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- Coast Prairie Redox (A16)
- 5 c Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Rock  
 Depth (cm): 7

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (cm): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (cm): 5  
 Saturation Present? Yes  No  Depth (cm): 0  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 4 and 6 wet  
 Investigator(s): Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA Local relief (concave, convex, none): Concave Slope (%): \_\_\_\_\_ X coord: 46.053464 Y coord: -66.585891  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Basin Swamp

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|   |  |
|---|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u>_____</u><br>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <u>_____</u><br>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <u>_____</u> | <b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <u>_____</u><br>If yes, optional Wetland Site ID: <u>_____</u> |
| Remarks: (Explain alternative procedures here or in a separate report.) Coordinates stated for WL 6 above.<br>WL 4 coordinates : x 46.054074, y -66.584983,   |  |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )         | Absolute % Cover | Dominant Species? | Indicator Status |  |
|---|------------------|-------------------|------------------|--|
| 1. _____                                      | _____            | _____             | _____            |  |
| 2. _____                                      | _____            | _____             | _____            |  |
| 3. _____                                      | _____            | _____             | _____            |  |
| 4. _____                                      | _____            | _____             | _____            |  |
| 5. _____                                      | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |
| Sapling/Shrub Stratum ( Plot size: <u>5</u> ) |                  |                   |                  |  |
| 1. <u>Acer rubrum</u>                         | <u>2</u>         | <u>YES</u>        | <u>FAC</u>       |  |
| 2. <u>Salix discolor</u>                      | <u>2</u>         | <u>YES</u>        | <u>FAC</u>       |  |
| 3. _____                                      | _____            | _____             | _____            |  |
| 4. _____                                      | _____            | _____             | _____            |  |
| 5. _____                                      | _____            | _____             | _____            |  |
| 6. _____                                      | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |
| Herb Stratum ( Plot size: <u>1</u> )          |                  |                   |                  |  |
| 1. <u>Scirpus cyperinus</u>                   | <u>30</u>        | <u>YES</u>        | <u>FACW</u>      |  |
| 2. <u>Carex gynandra</u>                      | <u>35</u>        | <u>YES</u>        | <u>FACW</u>      |  |
| 3. <u>Carex spp.</u>                          | <u>10</u>        | _____             | _____            |  |
| 4. <u>Juncus effusus</u>                      | <u>10</u>        | _____             | <u>FACW</u>      |  |
| 5. <u>Polygonum sagittatum</u>                | <u>5</u>         | _____             | <u>OBL</u>       |  |
| 6. _____                                      | _____            | _____             | _____            |  |
| 7. _____                                      | _____            | _____             | _____            |  |
| 8. _____                                      | _____            | _____             | _____            |  |
| 9. _____                                      | _____            | _____             | _____            |  |
| 10. _____                                     | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |
| Woody Vine Stratum ( Plot size: _____ )       |                  |                   |                  |  |
| 1. <u>No woody vines</u>                      | _____            | _____             | _____            |  |
| 2. _____                                      | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)  
 Total Number of Dominant Species Across All Strata: 4 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species 5 x 1 = 5  
 FACW species 75 x 2 = 150  
 FAC species 4 x 3 = 12  
 FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_  
 UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_  
 Column Totals: 84 (A) 167 (B)  
 Prevalence Index = B/A = 1.98

**Hydrophytic Vegetation Indicators:**  
 Rapid Test for Hydrophytic Vegetation  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

|  |
|--|
| <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <u>_____</u> |
|--|

Remarks: (Include photo numbers here or on a separate sheet.)



## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 5 wet  
 Investigator(s): Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_ X coord: 46.054108 Y coord: -66.585487  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Spring basin Marsh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|  |  |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____<br>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____<br>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ | <b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____<br>If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.)  |  |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )         | Absolute % Cover | Dominant Species? | Indicator Status |  |
|---|------------------|-------------------|------------------|--|
| 1. _____                                      | _____            | _____             | _____            |  |
| 2. _____                                      | _____            | _____             | _____            |  |
| 3. _____                                      | _____            | _____             | _____            |  |
| 4. _____                                      | _____            | _____             | _____            |  |
| 5. _____                                      | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |
| Sapling/Shrub Stratum ( Plot size: <u>5</u> ) |                  |                   |                  |  |
| 1. _____                                      | _____            | _____             | _____            |  |
| 2. _____                                      | _____            | _____             | _____            |  |
| 3. _____                                      | _____            | _____             | _____            |  |
| 4. _____                                      | _____            | _____             | _____            |  |
| 5. _____                                      | _____            | _____             | _____            |  |
| 6. _____                                      | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |
| Herb Stratum ( Plot size: <u>1</u> )          |                  |                   |                  |  |
| 1. <u>Glyceria striata</u>                    | _____            | _____             | FACW             |  |
| 2. <u>Cicuta maculata</u>                     | _____            | _____             | OBL              |  |
| 3. <u>Iris versicolor</u>                     | _____            | _____             | FACW+            |  |
| 4. <u>Calla palustris</u>                     | _____            | _____             | OBL              |  |
| 5. <u>Scutellaria lateriflora</u>             | _____            | _____             | FACW             |  |
| 6. _____                                      | _____            | _____             | _____            |  |
| 7. _____                                      | _____            | _____             | _____            |  |
| 8. _____                                      | _____            | _____             | _____            |  |
| 9. _____                                      | _____            | _____             | _____            |  |
| 10. _____                                     | _____            | _____             | _____            |  |
| 30 _____ = Total Cover                        |                  |                   |                  |  |
| Woody Vine Stratum ( Plot size: _____ )       |                  |                   |                  |  |
| 1. <u>No woody vines</u>                      | _____            | _____             | _____            |  |
| 2. _____                                      | _____            | _____             | _____            |  |
| _____ = Total Cover                           |                  |                   |                  |  |

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_\_ (A)  
 Total Number of Dominant Species Across All Strata: \_\_\_\_\_ (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_\_ (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by:  
 OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_  
 FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_  
 FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_  
 FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_  
 UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_  
 Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)  
 Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**  
 Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_\_ Dominance Test is >50%  
 \_\_\_\_\_ Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_\_\_ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

|   |
|---|
| <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____ |
|---|

Remarks: (Include photo numbers here or on a separate sheet.) Total herbaceous cover 30%.

**SOIL**

Sampling Point: WL 5 wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |   | Redox Features |   |                   |                  | Texture | Remarks |
|------------|---------------|---|----------------|---|-------------------|------------------|---------|---------|
|            | Color (moist) | % | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

|   |   |   |
|---|---|---|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> | <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surfaces (S7)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8)</p> <p><input type="checkbox"/> Thin Dark Surface (S9)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> 5 c Mucky Peat or Peat (S3)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|---|---|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

|  |   |
|--|---|
| <p><b>Restrictive Layer (if observed):</b></p> <p>Type: <b>NA</b></p> <p>Depth (cm): <b>NA</b></p> | <p><b>Hydric Soil Present? Yes X No</b></p> |
| <p>Remarks: Spring basin swamp has standing water, hydrology and hydric soils obvious.</p>         |   |

**HYDROLOGY**

|  |   |
|--|---|
| <p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input checked="" type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> | <p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> |
| <p><b>Field Observations:</b></p> <p>Surface Water Present? Yes X No      Depth (cm): _____</p> <p>Water Table Present? Yes _____ No _____      Depth (cm): _____</p> <p>Saturation Present? Yes _____ No _____      Depth (cm): _____ (includes capillary fringe)</p>   | <p><b>Wetland Hydrology Present? Yes X No</b></p>   |
| <p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>  |   |
| <p>Remarks:</p>  |   |

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 7 wet  
 Investigator(s): Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): Concave Slope (%):            X coord: 46.054326 Y coord: -66.586604  
 Datum: NAD83 NBDS Soil Map Unit Name/Type:            Wetland Type: Drainageway Swamp

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No            (If no, explain in Remarks.)  
 Are Vegetation           , Soil           , or Hydrology            significantly disturbed? Are "Normal Circumstances" present? Yes X No             
 Are Vegetation           , Soil           , or Hydrology            naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|   |   |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No <u>          </u><br>Hydric Soil Present? Yes <u>X</u> No <u>          </u><br>Wetland Hydrology Present? Yes <u>X</u> No <u>          </u> | <b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No <u>          </u><br>If yes, optional Wetland Site ID: <u>          </u> |
| Remarks: (Explain alternative procedures here or in a separate report.)   |   |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )                         | Absolute % Cover        | Dominant Species? | Indicator Status  | 7Dominance Test worksheet:   |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
|---|-------------------------|-------------------|-------------------|--|-------------------|--------------|-------------------------------|-------------------------|------------------------|-----------------|------------------------|------------------|------------------------|-----------------|-------------------------------|-------------------------|-------------------------------|----------------|
| 1. <u>Betula alleghaniensis</u>                               | <u>10</u>               | <u>YES</u>        | <u>FAC</u>        | Number of Dominant Species That Are OBL, FACW, or FAC: <u>8</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>9</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>88.9</u> (A/B)   |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 2. <u>Acer rubrum</u>   | <u>10</u>               | <u>YES</u>        | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 3. <u>Abies balsamea</u>                                      | <u>5</u>                | <u>          </u> | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 4. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 5. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| <u>25</u> = Total Cover                                       |                         |                   |                   | <b>Prevalence Index worksheet:</b><br><br><table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: right;">Multiply by:</td> </tr> <tr> <td>OBL species <u>          </u></td> <td>x 1 = <u>          </u></td> </tr> <tr> <td>FACW species <u>12</u></td> <td>x 2 = <u>24</u></td> </tr> <tr> <td>FAC species <u>120</u></td> <td>x 3 = <u>360</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>          </u></td> <td>x 5 = <u>          </u></td> </tr> <tr> <td>Column Totals: <u>142</u> (A)</td> <td><u>424</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.98</u> | Total % Cover of: | Multiply by: | OBL species <u>          </u> | x 1 = <u>          </u> | FACW species <u>12</u> | x 2 = <u>24</u> | FAC species <u>120</u> | x 3 = <u>360</u> | FACU species <u>10</u> | x 4 = <u>40</u> | UPL species <u>          </u> | x 5 = <u>          </u> | Column Totals: <u>142</u> (A) | <u>424</u> (B) |
| Total % Cover of:   | Multiply by:            |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| OBL species <u>          </u>                                 | x 1 = <u>          </u> |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| FACW species <u>12</u>  | x 2 = <u>24</u>         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| FAC species <u>120</u>  | x 3 = <u>360</u>        |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| FACU species <u>10</u>  | x 4 = <u>40</u>         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| UPL species <u>          </u>                                 | x 5 = <u>          </u> |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| Column Totals: <u>142</u> (A)                                 | <u>424</u> (B)          |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| <u>50</u> = Total Cover                                       |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| Sapling/Shrub Stratum ( Plot size: <u>5</u> )                 |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 1. <u>Betula alleghaniensis</u>                               | <u>20</u>               | <u>YES</u>        | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 2. <u>Corylus cornuta</u>                                     | <u>15</u>               | <u>YES</u>        | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 3. <u>Betula papyrifera</u>                                   | <u>10</u>               | <u>YES</u>        | <u>FACU</u>       |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 4. <u>Acer spicatum</u>                                       | <u>5</u>                | <u>          </u> | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 5. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 6. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| <u>50</u> = Total Cover                                       |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| Herb Stratum ( Plot size: <u>1</u> )                          |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 1. <u>Athyrium filix-femina</u>                               | <u>10</u>               | <u>YES</u>        | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 2. <u>Osmunda cinnamomea</u>                                  | <u>25</u>               | <u>YES</u>        | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 3. <u>Impatiens capensis</u>                                  | <u>5</u>                | <u>          </u> | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 4. <u>Onoclea sensibilis</u>                                  | <u>10</u>               | <u>YES</u>        | <u>FACW</u>       |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 5. <u>Rubus pubescens</u>                                     | <u>10</u>               | <u>YES</u>        | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 6. <u>Tiarella cordifolia</u>                                 | <u>5</u>                | <u>          </u> | <u>FAC</u>        |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 7. <u>Chelone glabra</u>                                      | <u>2</u>                | <u>          </u> | <u>FACW+</u>      |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 8. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 9. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 10. <u>          </u>   | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| <u>67</u> = Total Cover                                       |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| Woody Vine Stratum ( Plot size: <u>          </u> )           |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 1. <u>No woody vines</u>                                      | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| 2. <u>          </u>  | <u>          </u>       | <u>          </u> | <u>          </u> |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| <u>142</u> = Total Cover                                      |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |
| Remarks: (Include photo numbers here or on a separate sheet.) |                         |                   |                   |  |                   |              |                               |                         |                        |                 |                        |                  |                        |                 |                               |                         |                               |                |

**Hydrophytic Vegetation Indicators:**  
           Rapid Test for Hydrophytic Vegetation  
X Dominance Test is >50%  
X Prevalence Index is ≤3.0<sup>1</sup>  
           Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
           Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No



**SOIL**

Sampling Point: WL 7 wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |   | Redox Features |   |                   |                  | Texture | Remarks    |
|------------|---------------|---|----------------|---|-------------------|------------------|---------|------------|
|            | Color (moist) | % | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |         |            |
| 7          | 7.5YR/3/1     |   |                |   |                   |                  | Silty   | Black Muck |
|            |               |   |                |   |                   |                  |         |            |
|            |               |   |                |   |                   |                  |         |            |
|            |               |   |                |   |                   |                  |         |            |
|            |               |   |                |   |                   |                  |         |            |
|            |               |   |                |   |                   |                  |         |            |
|            |               |   |                |   |                   |                  |         |            |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

|   |  |   |
|---|--|---|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> | <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surfaces (S7)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8)</p> <p><input type="checkbox"/> Thin Dark Surface (S9)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input checked="" type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> 5 c Mucky Peat or Peat (S3)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|---|--|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

|   |  |
|---|--|
| <p><b>Restrictive Layer (if observed):</b></p> <p>Type: <b>Rock</b></p> <p>Depth (cm): <b>7</b></p> | <p><b>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b></p> |
| <p>Remarks:</p>   |  |

**HYDROLOGY**

|  |   |
|--|---|
| <p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input checked="" type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3)</p> <p><input checked="" type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> | <p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> |
|--|---|

|   |  |
|---|--|
| <p><b>Field Observations:</b></p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (cm): _____</p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (cm): <u>20</u></p> <p>Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (cm): <u>0</u></p> | <p><b>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b></p> |
|---|--|

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

Remarks: Drainage patterns observed.

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

## WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: Glory View Estates Municipality/County: York County Sampling Date: July 23, 2022  
 Applicant/Owner: Murray Munn and Sons Ltd Sampling Point: WL 7 up  
 Investigator(s): Derrick Mitchell Affiliation: Boreal Environmental Landform (hillslope, terrace, etc.): NA  
 Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_ X coord: 46.054151 Y coord: -66.586293  
 Datum: NAD83 NBDS Soil Map Unit Name/Type: \_\_\_\_\_ Wetland Type: Intolerant sapling forest

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|  |  |
|--|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____<br>Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/><br>Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | <b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/><br>If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.)  |  |

### VEGETATION – Use scientific names of plants.

| Tree Stratum ( Plot size: <u>15</u> )                         | Absolute % Cover | Dominant Species? | Indicator Status |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-------------------------------|--|--------------------------------|--|---|--|---------------------------------------|--|-------------------------------|--|--|--|--------------------------------------|--|
| 1. <u>Acer rubrum</u>   | <u>5</u>         | YES               | FAC              | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>5</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 2. <u>Abies balsamea</u>                                      | <u>10</u>        | YES               | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 3. <u>Betula alleghaniensis</u>                               | <u>10</u>        | YES               | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 4. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 5. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <u>25</u> = Total Cover                                       |                  |                   |                  | <b>Prevalence Index worksheet:</b><br><table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: right;">Multiply by:</td> </tr> <tr> <td>OBL species _____ x 1 = _____</td> <td></td> </tr> <tr> <td>FACW species _____ x 2 = _____</td> <td></td> </tr> <tr> <td>FAC species <u>137</u> x 3 = <u>411</u></td> <td></td> </tr> <tr> <td>FACU species <u>5</u> x 4 = <u>20</u></td> <td></td> </tr> <tr> <td>UPL species _____ x 5 = _____</td> <td></td> </tr> <tr> <td>Column Totals: <u>142</u> (A) <u>431</u> (B)</td> <td></td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.03</u></td> </tr> </table> | Total % Cover of: | Multiply by: | OBL species _____ x 1 = _____ |  | FACW species _____ x 2 = _____ |  | FAC species <u>137</u> x 3 = <u>411</u> |  | FACU species <u>5</u> x 4 = <u>20</u> |  | UPL species _____ x 5 = _____ |  | Column Totals: <u>142</u> (A) <u>431</u> (B) |  | Prevalence Index = B/A = <u>3.03</u> |  |
| Total % Cover of:   | Multiply by:     |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| OBL species _____ x 1 = _____                                 |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| FACW species _____ x 2 = _____                                |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| FAC species <u>137</u> x 3 = <u>411</u>                       |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| FACU species <u>5</u> x 4 = <u>20</u>                         |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| UPL species _____ x 5 = _____                                 |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| Column Totals: <u>142</u> (A) <u>431</u> (B)                  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| Prevalence Index = B/A = <u>3.03</u>                          |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <u>75</u> = Total Cover                                       |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <b>Sapling/Shrub Stratum ( Plot size: <u>5</u> )</b>          |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 1. <u>Betula populifolia</u>                                  | <u>60</u>        | YES               | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 2. <u>Prunus pensylvanica</u>                                 | <u>5</u>         |                   | FACU             |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 3. <u>Acer rubrum</u>   | <u>10</u>        |                   | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 4. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 5. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 6. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <u>75</u> = Total Cover                                       |                  |                   |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> Dominance Test is >50%<br><input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.   |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <b>Herb Stratum ( Plot size: <u>1</u> )</b>                   |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 1. <u>Maianthemum canadense</u>                               | <u>30</u>        | YES               | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 2. <u>Trientalis borealis</u>                                 | <u>2</u>         |                   | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 3. <u>Aralia nudicaulis</u>                                   | <u>5</u>         |                   | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 4. <u>Clintonia borealis</u>                                  | <u>5</u>         |                   | FAC              |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 5. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 6. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 7. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 8. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 9. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 10. _____   |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <u>42</u> = Total Cover                                       |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <b>Woody Vine Stratum ( Plot size: _____ )</b>                |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 1. <u>No woody vines</u>                                      |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| 2. _____  |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| <u>142</u> = Total Cover                                      |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |
| Remarks: (Include photo numbers here or on a separate sheet.) |                  |                   |                  |  |                   |              |                               |  |                                |  |   |  |                                       |  |                               |  |  |  |                                      |  |

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

**SOIL**

Sampling Point: WL 7 up

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (cm) | Matrix        |   | Redox Features |   |                   |                  | Texture | Remarks |
|------------|---------------|---|----------------|---|-------------------|------------------|---------|---------|
|            | Color (moist) | % | Color (moist)  | % | Type <sup>1</sup> | Loc <sup>2</sup> |         |         |
| 10         |               |   |                |   |                   |                  | Organic |         |
| 30         | 7.5YR/6/3     |   |                |   |                   |                  | Sandy   |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |
|            |               |   |                |   |                   |                  |         |         |

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

|   |   |   |
|---|---|---|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> | <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surfaces (S7)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8)</p> <p><input type="checkbox"/> Thin Dark Surface (S9)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> 5 c Mucky Peat or Peat (S3)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|---|---|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

|  |  |
|--|--|
| <p><b>Restrictive Layer (if observed):</b></p> <p>Type: <b>Rock</b></p> <p>Depth (cm): <b>30</b></p> | <p><b>Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></b></p> |
| <p>Remarks:</p>  |  |

**HYDROLOGY**

|   |   |
|---|---|
| <p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> | <p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> |
| <p><b>Field Observations:</b></p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (cm): _____</p> <p>Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (cm): _____</p> <p>Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (cm): _____ (includes capillary fringe)</p>   | <p><b>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></b></p>  |
| <p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>   |   |
| <p>Remarks:</p>   |   |

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

# Appendix C

Photolog of Wetlands



Photograph 1. Representative tree and shrub cover within WL 1.



Photograph 2. Representative herbaceous vegetation within WL 1.



Photograph 3. Soil pit within WL 1 showing 7 cm of black muck.



Photograph 4. Representative photo of WL 2.



Photograph 5. Representative photo of WL 2 upland.



Photograph 6. Representative photo of WL 3 tree and shrub stratum.



Photograph 7. Representative photo of WL 3 shrub stratum. WL 3 hydrology and hydric soils similar to WL 1.



Photograph 8. Representative photo of WL 4, 5 and 6 graminoid basin swamp. Substrate too rocky to excavate or auger a soil pit.



Photograph 9. Representative photo of WL 7 tree and shrub stratum.



Photograph 10. Representative photo of WL 7 herbaceous stratum. Hydrology and hydric soils similar to WL 1.



Photograph 11. Representative photo of WL 7 upland tree and shrub stratum.



Photograph 12. Representative photo of WL 7 upland herb stratum.



Photograph 13. Upland soil pit for WL 7.



# Appendix D

WESP-AC Data Sheets

**Date: July 23, 2022**

**Observer: Derrick Mitchell**

**Latitude & Longitude (decimal degrees): 46.057488, -66.585778**

| <b>Wetland ID: WL 2</b>                                   | <b>Function Score (Normalised)</b> | <b>Function Rating</b> | <b>Benefits Score (Normalised)</b> | <b>Benefits Rating</b> | Function Score (raw) | Benefits Score (raw) |
|---|------------------------------------|------------------------|------------------------------------|------------------------|----------------------|----------------------|
| Water Storage & Delay (WS)                                | 0.28                               | Lower                  | 0.29                               | Lower                  | 1.95                 | 0.38                 |
| Stream Flow Support (SFS)                                 | 10.00                              | Higher                 | 2.95                               | Moderate               | 5.50                 | 1.72                 |
| Water Cooling (WC)  | 4.46                               | Moderate               | 2.34                               | Moderate               | 2.97                 | 1.41                 |
| Sediment Retention & Stabilisation (SR)                   | 0.00                               | Lower                  | 0.37                               | Lower                  | 2.71                 | 0.22                 |
| Phosphorus Retention (PR)                                 | 1.85                               | Lower                  | 1.11                               | Lower                  | 4.22                 | 1.33                 |
| Nitrate Removal & Retention (NR)                          | 0.54                               | Lower                  | 10.00                              | Higher                 | 4.16                 | 10.00                |
| Carbon Sequestration (CS)                                 | 0.00                               | Lower                  |                                    |                        | 3.78                 |                      |
| Organic Nutrient Export (OE)                              | 4.51                               | Moderate               |                                    |                        | 4.73                 |                      |
| Anadromous Fish Habitat (FA)                              | 0.00                               | Lower                  | 0.00                               | Lower                  | 0.00                 | 0.00                 |
| Resident Fish Habitat (FR)                                | 0.00                               | Lower                  | 0.00                               | Lower                  | 0.00                 | 0.00                 |
| Aquatic Invertebrate Habitat (INV)                        | 5.55                               | Moderate               | 4.06                               | Moderate               | 5.83                 | 3.43                 |
| Amphibian & Turtle Habitat (AM)                           | 8.86                               | Higher                 | 2.02                               | Lower                  | 7.98                 | 3.32                 |
| Waterbird Feeding Habitat (WBF)                           | 8.33                               | Higher                 | 3.33                               | Moderate               | 6.62                 | 3.33                 |
| Waterbird Nesting Habitat (WBN)                           | 7.00                               | Higher                 | 3.33                               | Moderate               | 5.98                 | 3.33                 |
| Songbird, Raptor, & Mammal Habitat (SBM)                  | 0.00                               | Lower                  | 0.00                               | Lower                  | 0.00                 | 0.00                 |
| Pollinator Habitat (POL)                                  | 0.00                               | Lower                  | 0.00                               | Lower                  | 0.00                 | 0.00                 |
| Native Plant Habitat (PH)                                 | 3.38                               | Lower                  | 1.28                               | Moderate               | 4.45                 | 1.11                 |
| Public Use & Recognition (PU)                             |                                    |                        | 2.08                               | Lower                  |                      | 1.81                 |
| Wetland Sensitivity (Sens)                                |                                    |                        | 2.47                               | Lower                  |                      | 2.94                 |
| Wetland Ecological Condition (EC)                         |                                    |                        | 1.33                               | Lower                  |                      | 5.00                 |
| Wetland Stressors (STR) (higher score means more stress)  |                                    |                        | 1.51                               | Lower                  |                      | 2.82                 |
| <b>Summary Ratings for Grouped Functions:</b>             |                                    |                        |                                    |                        |                      |                      |
| HYDROLOGIC Group (WS)                                     | 0.28                               | Lower                  | 0.29                               | Lower                  | 1.95                 | 0.38                 |
| WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS) | 1.23                               | Lower                  | 6.91                               | Moderate               | 3.97                 | 6.93                 |
| AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)     | 8.07                               | Higher                 | 3.59                               | Moderate               | 5.29                 | 2.81                 |
| AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN) | 6.85                               | Higher                 | 2.54                               | Lower                  | 6.05                 | 2.67                 |
| TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)      | 2.25                               | Lower                  | 0.85                               | Moderate               | 2.96                 | 0.74                 |
| WETLAND CONDITION (EC)                                    |                                    |                        | 1.33                               | Lower                  |                      | 5.00                 |

WETLAND RISK (average of Sensitivity & Stressors)

|  |  |      |       |  |      |
|--|--|------|-------|--|------|
|  |  | 1.99 | Lower |  | 2.88 |
|--|--|------|-------|--|------|

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among the 98 NB calibration wetlands that were assessed previously.

# Appendix E

## Plant List

| Scientific Name                   | Common Name               | ACCDC Ranking | Species at Risk |
|-----------------------------------|---------------------------|---------------|-----------------|
| <i>Abies balsamea</i>             | Balsam Fir                | S5            |                 |
| <i>Acer pennsylvanicum</i>        | Striped Maple             | S5            |                 |
| <i>Acer rubrum</i>                | Red Maple                 | S5            |                 |
| <i>Acer saccharinum</i>           | Silver Maple              | S4            |                 |
| <i>Acer saccharum</i>             | Sugar Maple               | S5            |                 |
| <i>Acer spicatum</i>              | Mountain Maple            | S5            |                 |
| <i>Achillea millifolium</i>       | Common Yarrow             | SNA           |                 |
| <i>Actaea pachypoda</i>           | White Baneberry           | S4            |                 |
| <i>Agrostis gigantea</i>          | Redtop                    | SNA           |                 |
| <i>Alnus rugosa</i>               | Speckled Alder            | S5            |                 |
| <i>Amelanchier sp.</i>            | A Serviceberry            | S?            |                 |
| <i>Anaphalis margaritacea</i>     | Pearly Everlasting        | S5            |                 |
| <i>Angelica sylvestris</i>        | Woodland Angelica         | SNA           |                 |
| <i>Anthoxanthum nitens</i>        | Vanilla Sweetgrass        | S5            |                 |
| <i>Arabis muralis</i>             | Rosy Cress                | SNA           |                 |
| <i>Aralia hispida</i>             | Bristly Sarsaparilla      | S5            |                 |
| <i>Aralia nudicaulis</i>          | Wild Sarsaparilla         | S5            |                 |
| <i>Arinaria serpyllifolia</i>     | Thyme-leaved Sandwort     | SNA           |                 |
| <i>Arisaema triphyllum</i>        | Jack in the Pulpit        | S5            |                 |
| <i>Asclepias syriaca</i>          | Common Milkweed           | SNA           |                 |
| <i>Athyrium filix-femina</i>      | Lady Fern                 | S5            |                 |
| <i>Betula alleghaniensis</i>      | Yellow Birch              | S5            |                 |
| <i>Bromus ciliatus</i>            | Fringed Brome             | S5            |                 |
| <i>Cakystegia sepium</i>          | Hedge False               | S5            |                 |
| <i>Calamagrostis canadensis</i>   | Blue-joint Reed Grass     | S5            |                 |
| <i>Callitriche palustris</i>      | Marsh Water-starwort      | S5            |                 |
| <i>Caltha palustris</i>           | Marsh Marigold            | S4S5          |                 |
| <i>Carex arctata</i>              | Black Sedge               | S5            |                 |
| <i>Carex brunnescens</i>          | Brownish Sedge            | S5            |                 |
| <i>Carex communis</i>             | Fibrous-rooted Sedge      | S5            |                 |
| <i>Carex crawfordii</i>           | Crawford's Sedge          | S5            |                 |
| <i>Carex disperma</i>             | Two-seeded Sedge          | S5            |                 |
| <i>Carex gynandra</i>             | nodding Sedge             | S5            |                 |
| <i>Carex intumescens</i>          | Bladder Sedge             | S5            |                 |
| <i>Carex lacustris</i>            | Lake Sedge                | S4S5          |                 |
| <i>Carex lurida</i>               | Sallow Sedge              | S5            |                 |
| <i>Carex navae-angliae</i>        | New England Sedge         | S5            |                 |
| <i>Carex retrorsa</i>             | Retorse sedge             | S4            |                 |
| <i>Carex scabrata</i>             | Rough Sedge               | S5            |                 |
| <i>Carex scoparia</i>             | Broom Sedge               | S5            |                 |
| <i>Carex stipata</i>              | Awl-fruited Sedge         | S5            |                 |
| <i>Chamaenerion angustifolium</i> | Fireweed                  | S5            |                 |
| <i>Chelone glabra</i>             | White Turtlehead          | S5            |                 |
| <i>Chrysosplenium americanum</i>  | American Golden Saxifrage | S5            |                 |

| Scientific Name                     | Common Name                  | ACCDC Ranking | Species at Risk   |
|-------------------------------------|------------------------------|---------------|-------------------|
| <i>Cicuta bulbifera</i>             | Bulbous Water-hemlock        | S5            |                   |
| <i>Cinna latifolia</i>              | Drooping Wood Reed Grass     | S5            |                   |
| <i>Clematis virginiana</i>          | Virginia clematis            | S5            |                   |
| <i>Conioselinium chinense</i>       | Chinese Hemlock-parsley      | SNA           |                   |
| <i>Cornus alternifolia</i>          | Alternate-leaved Dogwood     | S5            |                   |
| <i>Cornus canadensis</i>            | Bunchberry                   | S5            |                   |
| <i>Cornus sericea</i>               | Red Osier Dogwood            | S5            |                   |
| <i>Corylus cornuta</i>              | Beaked Hazel                 | S5            |                   |
| <i>Cypripedium acaule</i>           | Pink Ladies' Slipper         | S5            |                   |
| <i>Danthonia spicata</i>            | Poverty Oat Grass            | S5            |                   |
| <i>Dendrolycopodium dendroideum</i> | Round-branched Tree-clubmoss | S5            |                   |
| <i>Dennstadtia punctilobula</i>     | Eastern Hay-Scented Fern     | S5            |                   |
| <i>Deparia acrostichoides</i>       | Silvery Glade Woodfern       | S4            |                   |
| <i>Dicanthelium accuminatum</i>     | Woolly Panic Grass           | SNA           |                   |
| <i>Diervilla lonicera</i>           | Northern Bush Honeysuckle    | S5            |                   |
| <i>Diphasiastrum complanatum</i>    | Northern Ground-cedar        | S4S5          |                   |
| <i>Doellingeria umbellata</i>       | Hairy Wflat-top White Aster  | S5            |                   |
| <i>Dryopteris intermedia</i>        | Evergreen Wood Fern          | S5            |                   |
| <i>Dryopteris marginalis</i>        | Marginal Wood Fern           | S5            |                   |
| <i>Dulichium arundinaceum</i>       | Three-way Sedge              | S5            |                   |
| <i>Eleocharis tenuis</i>            | Slender Spikerush            | S4S5          |                   |
| <i>Epilobium ciliatum</i>           | Northern Willowherb          | S5            |                   |
| <i>Epipactis heliborine</i>         | Helleborine                  | SNA           |                   |
| <i>Equisetum arvense</i>            | Field Horsetail              | S5            |                   |
| <i>Equisetum sylvaticum</i>         | Woodland Horsetail           | S5            |                   |
| <i>Eriophorum angustifolium</i>     | Narrow-leaf Cotton-grass     | S5            |                   |
| <i>Eupatorium maculatum</i>         | Joe Pye Weed                 | S5            |                   |
| <i>Euphrasia nemorosa</i>           | Common Eyebright             | SNA           |                   |
| <i>Euthamia graminifolia</i>        | Grass-leaved Goldenrod       | S5            |                   |
| <i>Fagus grandiflora</i>            | American Beech               | S3S4          |                   |
| <i>Festuca rubra</i>                | red Fescue                   | S5            |                   |
| <i>Fragaria virginiana</i>          | Wild Strawberry              | S5            |                   |
| <i>Frangula alnus</i>               | Glossy Buckthorn             | S5            |                   |
| <i>Fraxinus americana</i>           | White Ash                    | S5            |                   |
| <b><i>Fraxinus nigra</i></b>        | <b>Black Ash</b>             | <b>S3S4</b>   | <b>Threatened</b> |
| <i>Galium mollugo</i>               | Smooth Bedstraw              | SNA           |                   |
| <i>Galium palustre</i>              | Common Marsh Bedstraw        | S5            |                   |
| <i>Galium trifidum</i>              | Three-petaled Bedstraw       | S5            |                   |
| <i>Gaultheria hispidula</i>         | Winterberry                  | S5            |                   |
| <i>Gaultheria procumbens</i>        | Wintergreen                  | S5            |                   |
| <i>Gaultheria procumbens</i>        | Eastern Teaberry             | S5            |                   |
| <i>Gaylussacia baccata</i>          | Black Huckleberry            | S5            |                   |
| <i>Geum canadense</i>               | White Avens                  | S5            |                   |
| <i>Glechoma hederacea</i>           | Ground Ivy                   | SNA           |                   |

| Scientific Name                 | Common Name                 | ACCDC Ranking | Species at Risk |
|---------------------------------|-----------------------------|---------------|-----------------|
| <i>Glyceria canadensis</i>      | Canada Manna Grass          | S5            |                 |
| <i>Glyceria grandis</i>         | Common Tall Manna Grass     | S5            |                 |
| <i>Glyceria melicaria</i>       | Slender Mannagrass          | S5            |                 |
| <i>Glyceria striata</i>         | Fiowl Manna Grass           | S5            |                 |
| <i>Gymnocarpium dryopteris</i>  | Northern Oak Fern           | S5            |                 |
| <i>Huperzia lucidula</i>        | Shining Firmmoss            | S5            |                 |
| <i>Hydrocotyle americana</i>    | American Water Pennywort    | S5            |                 |
| <i>Hypericum boreale</i>        | Northern St. John;s Wort    | S5            |                 |
| <i>Hypericum fraseri</i>        | Fraser's St. John's-wort    | S5            |                 |
| <i>Hypericum perforatum</i>     | Common Saint John's Wort    | SNA           |                 |
| <i>Ilex mucronat</i>            | Mountain Holly              | S5            |                 |
| <i>Ilex verticillata</i>        | Common Winterberry          | S5            |                 |
| <i>Impatiens capensis</i>       | Spotted Touch-me-not        | S5            |                 |
| <i>Iris versicolor</i>          | Blue Flag Iris              | S5            |                 |
| <i>Juncus effusus</i>           | Soft Rush                   | S5            |                 |
| <i>Juncus pelocarpus</i>        | Brown-fruited Rush          | S5            |                 |
| <i>Juncus tenuis</i>            | Path Rush                   | S5            |                 |
| <i>Lactuca biennis</i>          | Tall Blue Lettuce           | S5            |                 |
| <i>Larix laricina</i>           | Tamarack                    | S5            |                 |
| <i>Leersia oryzoides</i>        | Rice Cut Grass              | S5            |                 |
| <i>Lemna turionifera</i>        | Turon Duckweed              | S5            |                 |
| <i>Leucanthemum vulgare</i>     | Oxeye Daisy                 | SNA           |                 |
| <i>Liatris spicata</i>          | Dense Blazing Star          | SNA           |                 |
| <i>Lobelia inflata</i>          | Inflated Lobelia            | S5            |                 |
| <i>Lonicera canadensis</i>      | Northern Fly Honeysuckle    | S5            |                 |
| <i>Luzula acuminata</i>         | Hairy Woodrush              | S5            |                 |
| <i>Luzula multiflora</i>        | Common Woodrush             | S5            |                 |
| <i>Lycopus americanus</i>       | American Water Horehound    | S5            |                 |
| <i>Lycopus uniflorus</i>        | Northern Water Horehound    | S5            |                 |
| <i>Lysimachia borealis</i>      | Northern Starflower         | S5            |                 |
| <i>Lysimachia terrestris</i>    | Swamp Yellow Loosestrife    | S5            |                 |
| <i>Maianthemum canadense</i>    | Wild Lily-of-the-Valley     | S5            |                 |
| <i>Matricaria discoidea</i>     | Pineapple Weed              | SNA           |                 |
| <i>Matteucia struthiopteris</i> | Ostrich Fern                | S5            |                 |
| <i>Matteucia struthiopteris</i> | Ostrich Fern                | S5            |                 |
| <i>Melilotus albus</i>          | White Sweet-clover          | SNA           |                 |
| <i>Mimulus ringens</i>          | Square-Stemmed Monkeyflower | S5            |                 |
| <i>Mitchella repens</i>         | Partridgeberry              | S5            |                 |
| <i>Mitella nida</i>             | Naked Bishop's Cap          | S5            |                 |
| <i>Monotropa uniflora</i>       | Convulsion-Root             | S5            |                 |
| <i>Myosotis laxa</i>            | Small Forget-me-not         | S5            |                 |
| <i>Nabulus altissima</i>        | Tall Rattlesnake Root       | S5            |                 |
| <i>Oclemena accuminata</i>      | Accuminate Aster            | S5            |                 |
| <i>Oenothera biennis</i>        | Evening Primrose            | SNA           |                 |

| Scientific Name                       | Common Name                         | ACCDC Ranking | Species at Risk |
|---------------------------------------|-------------------------------------|---------------|-----------------|
| <i>Onoclea sensibilis</i>             | Sensitive Fern                      | S5            |                 |
| <i>Osmunda claytoniana</i>            | Interrupted Fern                    | S5            |                 |
| <i>Osmunda cinnamomea</i>             | Cinnamon Fern                       | S5            |                 |
| <i>Osmunda regalis</i>                | Royal Fern                          | S5            |                 |
| <i>Ostrya virginiana</i>              | Ironwood                            | S4S5          |                 |
| <i>Oxalis montana</i>                 | Common Wood Sorrel                  | S5            |                 |
| <i>Paper Birch</i>                    | <i>Betula papyrifera</i>            | S5            |                 |
| <i>Parathelypteris novoboracensis</i> | New York Fern                       | S5            |                 |
| <i>Persecaria sagittata</i>           | Arrow-Leaved Tearthumb              | S5            |                 |
| <i>Phalaris arundinacea</i>           | Reed Canary Grass var. <i>picta</i> | SNA           |                 |
| <i>Phegopteris connectilis</i>        | Northern Beech Fern                 | S5            |                 |
| <i>Phleum pratense</i>                | Common Timothy                      | SNA           |                 |
| <i>Picea glauca</i>                   | White Spruce                        | S5            |                 |
| <i>Picea mariana</i>                  | Black Spruce                        | S5            |                 |
| <i>Picea rubens</i>                   | Red Spruce                          | S5            |                 |
| <i>Pilosella cespitosa</i>            | Meadow Hawkweed                     | SNA           |                 |
| <i>Pinus strobus</i>                  | White Pine                          | S5            |                 |
| <i>Plantago major</i>                 | Common Plantain                     | SNA           |                 |
| <i>Poa compressa</i>                  | Canada Bluegrass                    | S5            |                 |
| <i>Poa palustris</i>                  | Fowl Blue Grass                     | S5            |                 |
| <i>Poa pratensis</i>                  | Kentucky Blue Grass                 | S5            |                 |
| <i>Pontedaria cordata</i>             | Pickerelweed                        | S5            |                 |
| <i>Populus grandifolia</i>            | Large-toothed Aspen                 | S5            |                 |
| <i>Populus tremuloides</i>            | Trembling Aspen                     | S5            |                 |
| <i>Potamogeton natans</i>             | Flotaing-leaved Pondweed            | S5            |                 |
| <i>Potentilla norvegica</i>           | Rough Cinquefoil                    | S5            |                 |
| <i>Potentilla simplex</i>             | Old Field Cinquefoil                | S5            |                 |
| <i>Prunella vulgaris</i>              | Common Self-heal                    | SNA           |                 |
| <i>Prunus pennsylvanica</i>           | Pin Cherry                          | S5            |                 |
| <i>Pteridium aquilinum</i>            | Bracken Fern                        | S5            |                 |
| <i>Quercus rubra</i>                  | Red Oak                             | S5            |                 |
| <i>Ranunculus repens</i>              | Creeping Buttercup                  | SNA           |                 |
| <i>Rhus typhina</i>                   | Staghorn Sumac                      | S5            |                 |
| <i>Ribes lacustre</i>                 | Bristly Black Currant               | S5            |                 |
| <i>Rubus allegheniensis</i>           | Allegheny Blackberry                | S5            |                 |
| <i>Rubus canadensis</i>               | Smooth blackberry                   | S5            |                 |
| <i>Rubus hispidus</i>                 | Bristly dewberry                    | S5            |                 |
| <i>Salix bebbiana</i>                 | Bebb's Willow                       | S5            |                 |
| <i>Salix discolor</i>                 | Pussy Willow                        | S5            |                 |
| <i>Sambucus racemosa</i>              | Red Elderberry                      | S5            |                 |
| <i>Scirpus atrocinctus</i>            | Black-girdled Bulrush               | S5            |                 |
| <i>Scirpus cyperinus</i>              | Common Woolly Bulrush               | S5            |                 |
| <i>Scirpus hattorianus</i>            | Mosquito Bulrush                    | S5            |                 |
| <i>Scorzonerooides autumnalis</i>     | Autumn Haekbit                      | SNA           |                 |



| Scientific Name                   | Common Name               | ACCDC Ranking | Species at Risk |
|-----------------------------------|---------------------------|---------------|-----------------|
| <i>Scutellaria lateriflora</i>    | Mad-dog Skullcap          | S5            |                 |
| <i>Sium suave</i>                 | Common Water Parsnip      | S5            |                 |
| <i>Smilax herbacea</i>            | Herbaceous Carrion Flower | S4            |                 |
| <i>Solanum dulcamara</i>          | Bittersweet Nightshade    | SNA           |                 |
| <i>Solidago canadensis</i>        | Canada Goldenrod          | S5            |                 |
| <i>Solidago felxicaulis</i>       | Zigzag Goldenrod          | S5            |                 |
| <i>Solidago puberula</i>          | Downy goldernrod          | S5            |                 |
| <i>Solidago puberula</i>          | Downy goldernrod          | S5            |                 |
| <i>Solidago rugosa</i>            | Rough Goldenrod           | S5            |                 |
| <i>Soptis trifolia</i>            | Goldthread                | S5            |                 |
| <i>Spinulum annotinum</i>         | Stiff Clubmoss            | S5            |                 |
| <i>Spiraea alba</i>               | White Meadowsweet         | S5            |                 |
| <i>Spiraea tomentosa</i>          | Steeplebush               | S5            |                 |
| <i>Streptopus roseus</i>          | Rose-twisted Stalk        | S5            |                 |
| <i>Symphyotrichum cordifolium</i> | Heart-leaved Aster        | S5            |                 |
| <i>Symphyotrichum latiflorum</i>  | Calico Aster              | S5            |                 |
| <i>Symphyotrichum puniceum</i>    | Purple Stemmed Aster      | S5            |                 |
| <i>Tanacetum vulgare</i>          | Common Tansy              | SNA           |                 |
| <i>Taraxicum officinale</i>       | Common dandelion          | SNA           |                 |
| <i>Thalictrum confine</i>         | Northern Meadow-rue       | S3S4          |                 |
| <i>Thalyctrum pubescens</i>       | Tall Meadowrue            | S5            |                 |
| <i>Thelypteris palustris</i>      | Eastern Marsh Fern        | S5            |                 |
| <i>Thelypteris palustris</i>      | Eastern Marsh Fern        | S5            |                 |
| <i>Thuja occidentalis</i>         | Eastern White Cedar       | S5            |                 |
| <i>Tiarella cordifolia</i>        | Foamflower                | S5            |                 |
| <i>Toxicodendron radicans</i>     | Poison Ivy                | S5            |                 |
| <i>Trifolium arvensis</i>         | Rabbit's-foot Clover      | SNA           |                 |
| <i>Trifolium campestre</i>        | Low Hop Clover            | SNA           |                 |
| <i>trifolium pratense</i>         | Red Clover                | SNA           |                 |
| <i>Trillium undulatum</i>         | Painted Trillium          | S5            |                 |
| <i>Tsuga canadensis</i>           | Eastern Hemlock           | S5            |                 |
| <i>Tussilago farfara</i>          | Coltsfoot                 | SNA           |                 |
| <i>Typha latifolia</i>            | Broad-Leaved Cattail      | S5            |                 |
| <i>Ulmus americana</i>            | American Elm              | S3S4          |                 |
| <i>Uvularia sessilifolia</i>      | Sessile-leaved Bellwort   | S5            |                 |
| <i>Vaccinium myrtilloides</i>     | Velvet-leaved Blueberry   | S5            |                 |
| <i>Vaccinium myrtilloides</i>     | Velvet-leaved Blueberry   | S5            |                 |
| <i>Verbascum thapsus</i>          | Common Mullein            | SNA           |                 |
| <i>Veronica officialis</i>        | Common Speedwell          | SNA           |                 |
| <i>Veronica scutellaria</i>       | Marsh Speedwell           | SNA           |                 |
| <i>Veronica scutellata</i>        | Marsh Speedwell           | S5            |                 |
| <i>Veronica serpyllifolia</i>     | Thyme-leaved Speedwell    | SNA           |                 |
| <i>Viburnum latanoides</i>        | Hobblebush                | S5            |                 |
| <i>Viburnum opulus</i>            | Highbush Cranberry        | S4            |                 |

| Scientific Name        | Common Name       | ACCDC Ranking | Species at Risk |
|------------------------|-------------------|---------------|-----------------|
| <i>Vicia cracca</i>    | Tufted Vetch      | SNA           |                 |
| <i>Viola cucullata</i> | Marsh Blue Violet | S5            |                 |

# Appendix E

## Breeding Bird Point Count Data

| Date     | Type        | Weather     | Temperature (°C) | Beaufort** | Common Name            | Scientific Name               | Number Observed | Breeding Code* | X coordinate | Y coordinate |
|----------|-------------|-------------|------------------|------------|------------------------|-------------------------------|-----------------|----------------|--------------|--------------|
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Blue jay               | <i>Cyanocitta cristata</i>    | 1               | X              | 2493508.81   | 7450238.51   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo         | <i>Vireo olivaceus</i>        | 1               | S              | 2493511.13   | 7450237.81   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Chestnut-sided Warbler | <i>Setophaga pensylvanica</i> | 1               | S              | 2493515.05   | 7450210.03   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Alder Flycatcher       | <i>Empidonax alnorum</i>      | 1               | S              | 2493497.17   | 7450211.67   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Purple Finch           | <i>Haemorhous purpureus</i>   | 1               | S              | 2493489.77   | 7450240.84   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Black-capped Chickadee | <i>Poecile atricapilla</i>    | 1               | S              | 2493508.08   | 7450207.73   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Northern Parula        | <i>Parula americana</i>       | 1               | S              | 2493539.20   | 7450218.11   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo         | <i>Vireo olivaceus</i>        | 1               | S              | 2493533.65   | 7450237.32   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Blackburnian Warbler   | <i>Setophaga fusca</i>        | 1               | S              | 2493425.68   | 7450455.69   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Ovenbird               | <i>Seiurus aurocapilla</i>    | 1               | S              | 2493402.25   | 7450470.53   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Northern Parula        | <i>Parula americana</i>       | 1               | S              | 2493434.99   | 7450472.57   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Broad-winged Hawk      | <i>Buteo platypterus</i>      | 1               | C              | 2493432.00   | 7450505.44   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo         | <i>Vireo olivaceus</i>        | 1               | S              | 2493410.12   | 7450454.78   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo         | <i>Vireo olivaceus</i>        | 1               | S              | 2493452.63   | 7450468.39   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Alder Flycatcher       | <i>Empidonax alnorum</i>      | 1               | S              | 2493348.67   | 7450522.43   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Song Sparrow           | <i>Melospiza melodia</i>      | 1               | S              | 2493329.65   | 7450541.89   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | White-throated Sparrow | <i>Zonotrichia albicollis</i> | 1               | X              | 2493511.11   | 7450216.75   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Purple Finch           | <i>Haemorhous purpureus</i>   | 1               | S              | 2493379.95   | 7450472.77   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Black-capped Chickadee | <i>Poecile atricapilla</i>    | 1               | S              | 2493415.96   | 7450493.03   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Mallard                | <i>Anas platyrhynchos</i>     | 1               | X              | 2493345.72   | 7450774.85   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Purple Finch           | <i>Haemorhous purpureus</i>   | 1               | S              | 2493288.96   | 7450827.77   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Chestnut-sided Warbler | <i>Setophaga pensylvanica</i> | 1               | S              | 2493324.49   | 7450848.97   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Alder Flycatcher       | <i>Empidonax alnorum</i>      | 1               | S              | 2493278.52   | 7450808.91   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Goldfinch     | <i>Carduelis tristis</i>      | 1               | X              | 2493405.40   | 7450797.91   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Northern Parula        | <i>Parula americana</i>       | 1               | S              | 2493392.67   | 7450847.48   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Blackburnian Warbler   | <i>Setophaga fusca</i>        | 1               | S              | 2493372.76   | 7450824.85   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | White-throated Sparrow | <i>Zonotrichia albicollis</i> | 1               | S              | 2493279.03   | 7450843.36   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Ovenbird               | <i>Seiurus aurocapilla</i>    | 1               | S              | 2493371.43   | 7450913.57   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Ovenbird               | <i>Seiurus aurocapilla</i>    | 1               | S              | 2493332.53   | 7451082.56   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Black-capped Chickadee | <i>Poecile atricapilla</i>    | 1               | S              | 2493305.57   | 7451069.34   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Chestnut-sided Warbler | <i>Setophaga pensylvanica</i> | 1               | S              | 2493295.50   | 7451055.74   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Northern Parula        | <i>Parula americana</i>       | 1               | S              | 2493271.44   | 7451072.60   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Purple Finch           | <i>Haemorhous purpureus</i>   | 1               | S              | 2493266.46   | 7451112.36   |

| Date     | Type        | Weather     | Temperature (°C) | Beaufort** | Common Name             | Scientific Name               | Number Observed | Breeding Code* | X coordinate | Y coordinate |
|----------|-------------|-------------|------------------|------------|-------------------------|-------------------------------|-----------------|----------------|--------------|--------------|
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo          | <i>Vireo olivaceus</i>        | 1               | S              | 2493274.71   | 7450774.27   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Crow           | <i>Corvus brachyrhynchos</i>  | 1               | S              | 2493467.05   | 7450882.94   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo          | <i>Vireo olivaceus</i>        | 1               | S              | 2493272.49   | 7451049.68   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Red-eyed Vireo          | <i>Vireo olivaceus</i>        | 1               | S              | 2493329.27   | 7451053.56   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Redstart       | <i>Setophaga ruticilla</i>    | 1               | S              | 2493318.17   | 7451090.82   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>     | 1               | S              | 2493308.55   | 7450834.04   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>     | 1               | S              | 2493405.22   | 7450516.62   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Robin          | <i>Turdus migratorius</i>     | 1               | X              | 2493509.80   | 7450192.36   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>     | 1               | S              | 2493467.80   | 7450233.60   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Robin          | <i>Turdus migratorius</i>     | 1               | X              | 2493499.43   | 7450238.94   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Robin          | <i>Turdus migratorius</i>     | 1               | S              | 2493457.97   | 7450452.81   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | American Robin          | <i>Turdus migratorius</i>     | 1               | S              | 2493359.60   | 7450859.06   |
| 7-Jun-22 | Point count | Clear/sunny | 6                | 0          | Northern Flicker        | <i>Colaptes auratus</i>       | 1               | S              | 2493456.67   | 7450246.86   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Ovenbird                | <i>Seiurus aurocapilla</i>    | 1               | S              | 2493041.30   | 7451216.11   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>     | 1               | S              | 2493127.52   | 7451207.42   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Alder Flycatcher        | <i>Empidonax alnorum</i>      | 1               | S              | 2493102.69   | 7451174.86   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | American Redstart       | <i>Setophaga ruticilla</i>    | 1               | S              | 2493107.04   | 7451213.17   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Northern Parula         | <i>Parula americana</i>       | 1               | S              | 2493049.59   | 7451242.24   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Black and White Warbler | <i>Mniotilta varia</i>        | 1               | S              | 2493072.53   | 7451192.80   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Red-eyed Vireo          | <i>Vireo olivaceus</i>        | 1               | S              | 2493083.38   | 7451251.87   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | American Robin          | <i>Turdus migratorius</i>     | 1               | S              | 2493102.08   | 7451272.62   |
| 7-Jun-22 | Point count | Clear/sunny | 7                | 0          | Purple Finch            | <i>Haemorhous purpureus</i>   | 1               | S              | 2493021.59   | 7451259.46   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>     | 1               | S              | 2493138.84   | 7450083.88   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Black and White Warbler | <i>Mniotilta varia</i>        | 1               | S              | 2493129.11   | 7450067.05   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Northern Parula         | <i>Parula americana</i>       | 1               | S              | 2493132.15   | 7450211.04   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Red-eyed Vireo          | <i>Vireo olivaceus</i>        | 1               | S              | 2493112.60   | 7450082.83   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | American Robin          | <i>Turdus migratorius</i>     | 1               | X              | 2493195.34   | 7450160.11   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | American Redstart       | <i>Setophaga ruticilla</i>    | 1               | S              | 2493097.55   | 7450121.89   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Chestnut-sided Warbler  | <i>Setophaga pensylvanica</i> | 1               | S              | 2493114.02   | 7450067.79   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Song Sparrow            | <i>Melospiza melodia</i>      | 1               | S              | 2493073.16   | 7450155.95   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Pileated Woodpecker     | <i>Dryocopus pileatus</i>     | 1               | X              | 2493143.72   | 7449954.57   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Hermit Thrush           | <i>Catharus guttatus</i>      | 1               | S              | 2493354.52   | 7451082.14   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Veery                   | <i>Catharus fuscescens</i>    | 1               | X              | 2493537.81   | 7450258.46   |

| Date     | Type        | Weather     | Temperature (°C) | Beaufort** | Common Name             | Scientific Name                | Number Observed | Breeding Code* | X coordinate | Y coordinate |
|----------|-------------|-------------|------------------|------------|-------------------------|--------------------------------|-----------------|----------------|--------------|--------------|
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Veery                   | <i>Catharus fuscescens</i>     | 1               | S              | 2493471.88   | 7450467.32   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Veery                   | <i>Catharus fuscescens</i>     | 1               | S              | 2493128.38   | 7451225.23   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Winter Wren             | <i>Troglodytes troglodytes</i> | 1               | S              | 2493469.12   | 7450918.49   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Winter Wren             | <i>Troglodytes troglodytes</i> | 1               | S              | 2493011.75   | 7451306.80   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | White-throated Sparrow  | <i>Zonotrichia albicollis</i>  | 1               | S              | 2493083.05   | 7450129.67   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | White-throated Sparrow  | <i>Zonotrichia albicollis</i>  | 1               | S              | 2493156.26   | 7450060.41   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Northern Flicker        | <i>Colaptes auratus</i>        | 1               | X              | 2492907.86   | 7450620.49   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Alder Flycatcher        | <i>Empidonax alnorum</i>       | 1               | S              | 2492998.69   | 7450658.53   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | American Redstart       | <i>Setophaga ruticilla</i>     | 1               | S              | 2492956.49   | 7450610.09   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Alder Flycatcher        | <i>Empidonax alnorum</i>       | 1               | S              | 2493011.57   | 7450576.42   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | White-throated Sparrow  | <i>Zonotrichia albicollis</i>  | 1               | S              | 2492989.59   | 7450639.79   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Chestnut-sided Warbler  | <i>Setophaga pensylvanica</i>  | 1               | S              | 2492957.75   | 7450581.65   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Black and White Warbler | <i>Mniotilta varia</i>         | 1               | S              | 2492935.72   | 7450593.96   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>      | 1               | S              | 2492946.71   | 7450564.86   |
| 7-Jun-22 | Point count | Clear/sunny | 8                | 0          | Purple Finch            | <i>Haemorhous purpureus</i>    | 1               | S              | 2492953.91   | 7450621.73   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Alder Flycatcher        | <i>Empidonax alnorum</i>       | 1               | S              | 2493655.60   | 7450651.99   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | American Robin          | <i>Turdus migratorius</i>      | 1               | S              | 2493702.87   | 7450581.49   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Common Yellowthroat     | <i>Geothlypis trichas</i>      | 1               | S              | 2493659.48   | 7450639.06   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Hermit Thrush           | <i>Catharus guttatus</i>       | 1               | X              | 2493640.07   | 7450684.97   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | American Redstart       | <i>Setophaga ruticilla</i>     | 1               | S              | 2493635.44   | 7450601.60   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | American Robin          | <i>Turdus migratorius</i>      | 1               | X              | 2493666.55   | 7450578.29   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Black and White Warbler | <i>Mniotilta varia</i>         | 1               | S              | 2493632.24   | 7450644.26   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | White-throated Sparrow  | <i>Zonotrichia albicollis</i>  | 1               | S              | 2493698.39   | 7450648.72   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Downy Woodpecker        | <i>Dryobates pubescens</i>     | 1               | X              | 2493567.47   | 7451336.57   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | American Redstart       | <i>Setophaga ruticilla</i>     | 1               | S              | 2493613.54   | 7451364.31   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | American Redstart       | <i>Setophaga ruticilla</i>     | 1               | S              | 2493573.36   | 7451386.97   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Veery                   | <i>Catharus fuscescens</i>     | 1               | S              | 2493547.46   | 7451418.02   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Song Sparrow            | <i>Melospiza melodia</i>       | 1               | S              | 2493540.93   | 7451370.85   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Ovenbird                | <i>Seiurus aurocapilla</i>     | 1               | S              | 2493558.38   | 7451323.00   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Chestnut-sided Warbler  | <i>Setophaga pensylvanica</i>  | 1               | S              | 2493594.76   | 7451382.43   |
| 7-Jun-22 | Point count | Clear/sunny | 10               | 0          | Song Sparrow            | <i>Melospiza melodia</i>       | 1               | S              | 2493527.98   | 7450203.39   |

\*Breeding codes (Taken from MBBA 2021)

X - Species observed in its breeding season (no breeding evidence)

| Date | Type | Weather | Temperature (°C) | Beaufort** | Common Name | Scientific Name | Number Observed | Breeding Code* | X coordinate | Y coordinate |
|------|------|---------|------------------|------------|-------------|-----------------|-----------------|----------------|--------------|--------------|
|------|------|---------|------------------|------------|-------------|-----------------|-----------------|----------------|--------------|--------------|

H - Species observed in its breeding season in suitable nesting habitat

S - Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season

P - Pair observed in suitable nesting habitat in nesting season

D - Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation

CF - Adult carrying food for young

FY - Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight

\*\* Beaufort – is a scale ranging from 0 to 12 used to estimate wind force via visual observations. Bird surveys must stop when the Beaufort is estimated to be greater than 3