FISHER ENGINEERING LTD.

40 Fairfield Road
Lower Coverdale, New Brunswick E1J 0A2
Phone: 506. 863. 1991

December 7th, 2018 File: PC008

Mr. David Maguire
Director
Project Assessment Branch
Department of Environment
20 McGloin Street
PO Box 6000
Fredericton, NB E3B 5H1

Attention: Mr. Maguire:

RE: Domain Nature Estates Subdivision Expansion, Greater Lakeburn, NB

Enclosed are two hard copies and an electronic copy on USB of the registration document for the above noted undertaking. A cheque for the registration fee is also enclosed.

If you have any questions or require further details, please do not hesitate to contact the undersigned.

Michael Fisher, P. Eng.

MJF

Enclosures

cc: Mr. Rino Savoie, 690763 NB Inc.

EIA Registration
Domain Nature Estates Subdivision Expansion

TABLE OF CONTENTS

EIA Registration
Domain Nature Estates Subdivision Expansion

Pursuant to Section 5(2) of
The Environmental Impact Assessment Regulation 87-83
Clean Environment Act

1 The Proponent

Name: 690763 NB Ltd.

Address: 171 Lutz Street Moncton, NB E1C 5E8

Chief Executive Officer: Rino Savoie, (506) 227-7666

Principal Contact Person for Purposes of EIA: Rino Savoie, (506) 227-7666 and Michael Fisher, Fisher Engineering Ltd. (506) 863-1991.

Property Ownership: Same as Proponent

2 The Undertaking

Name: Domain Nature Estates Subdivision Expansion

Project Overview: Domain Nature Estates was started in 2008 and consisted of an approved 88 lots (EIA 4561-3-1289). The developer now wants to expand the popular subdivision following the purchase of adjacent land. The last approved phase within Domain Nature Estates was Phase VI and consisted of fourteen lots. The proposed expansion once completed will consist of an additional 80 residential building lots. The development will be extended from the existing two main roads, Nature Drive and Lafontaine Drive with several branch roads connecting the two. The lots sizes within the subdivision range from 4200m^2 to 20,000m^2.

Purpose/Rationale/Need: The purpose of the project is to continue with the development of the subdivision that was started in the 2008. With the growth of the City of Dieppe, the subdivision provides people an opportunity to live in a rural setting with larger lots yet be only minutes away from the City.

Project Location: The subdivision is located approximately 1 km east of Dieppe's City limits and is on the east side of the Leblanc Road in Greater Lakeburn, NB (Figure 1, Figure 2 – Appendix A). The proposed expansion covers four parcels as identified by Service New Brunswick, PID 70473947, 70630280, 70495908, and 70007117. The proposed expansion covers an approximate area of 53.8 hectares.

Siting Considerations: The project location was chosen because of the proximity to the City of Dieppe and the success of the existing subdivision. The land is currently zoned, Agricultural – Zone A, which permits single unit residential dwellings. The site is easily accessible off the two existing main streets within the existing subdivision (Nature Drive and Lafontaine Drive. There are currently three exits from the Subdivision, two onto LeBlanc Road, which have been established since the subdivision started, and a third which was added when an adjacent land owner extended Mariette Avenue out to Melanson Road. The existing infrastructure will be able to handle the increased traffic that will be generated by the proposed new residential lots.

The proposed development will adhere to the required conditions and setbacks as outlined in the following regulations in the New Brunswick Community Planning Act:

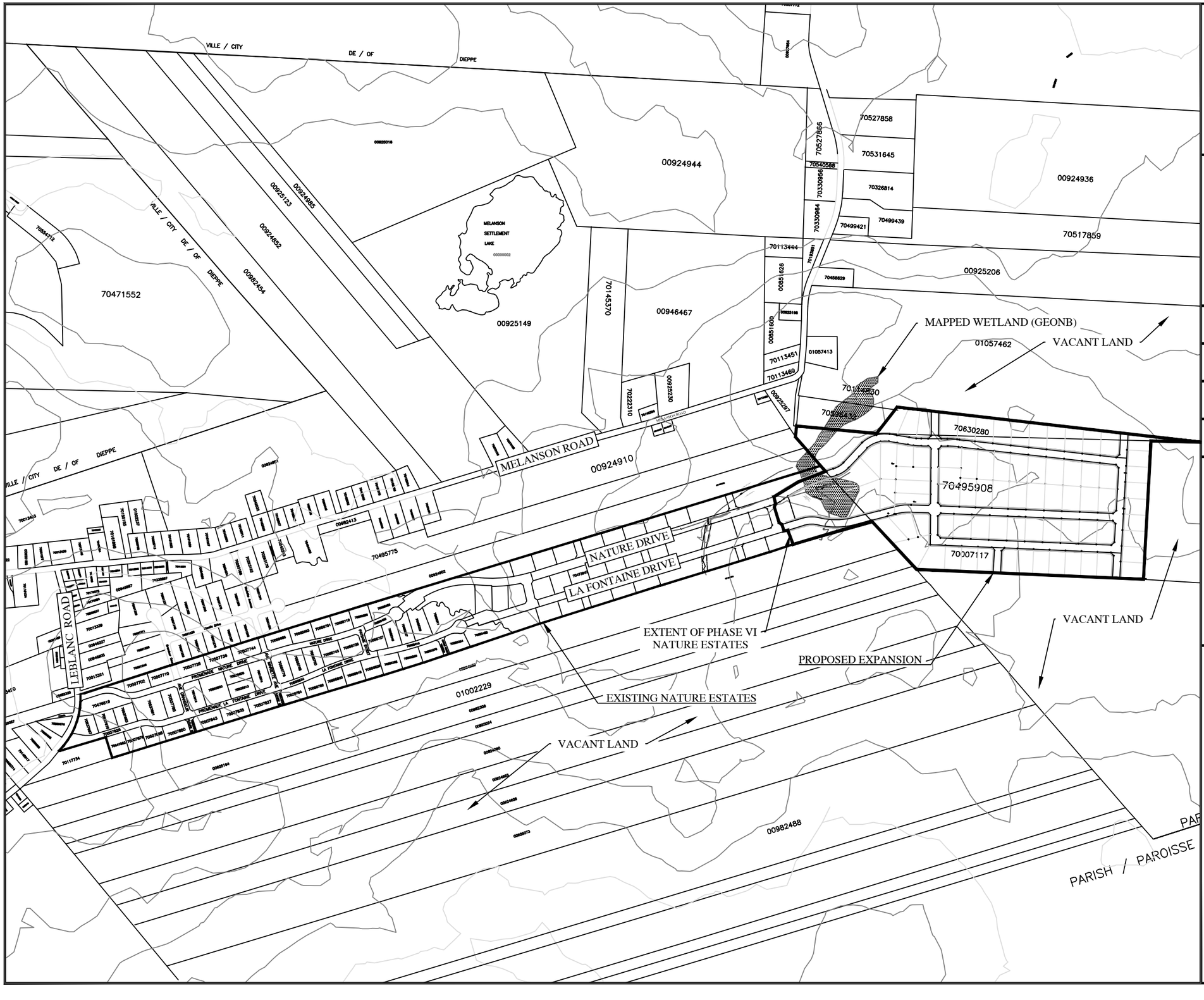
- Greater Moncton Planning Area Rural Plan Regulation
- Regulation 88-3, Greater Moncton Planning District Order.
- Regulation 84-292, Provincial Setback Regulation
- Regulation 80-159, Provincial Subdivision Regulation

The project site is not located within Zone A or Zone B of a protected coastal area. There is one mapped wetland on the property that was identified through GeoNB mapping.

Physical Components and Dimensions of the Project: A conceptual plan showing the proposed expansion of the development and associated physical components and infrastructure is presented in Figure 2. All of the roads will be constructed to New Brunswick Department of Transportation and Infrastructure (NBDTI) standards. There are approximately 3.5km of roads within the proposed expansion of the development to be constructed. All of the roads within the subdivision will be chip sealed as per NBDTI standards. There will be no sidewalks installed and all electrical will be on overhead power poles. Water and sanitary will be provided by individual wells and septic systems respectively. Drainage ditches will be installed for storm water runoff.

The lots will be sold as forested, which is consistent with the existing subdivision. Property owners who have developed in existing subdivision are tending to leave as many of the trees as possible to maintain their privacy. By maintaining the natural landscape the development is more attractive to homeowners who are looking to locate outside the city. The estimated total area of impervious surfaces including the roads and rooftops for an average 150m^2 home on every lot is ten percent of the total site.

Outside of the mapped wetland, there are no mapped watercourses within the development area. The majority of the drainage across the site is directed toward the wetland. More details on the existing wetland and vegetation are presented in the attached wetland delineation and rare plant reports.



Project:

EIA REGISTRATION NATURE ESTATES EXPANSION

Drawing:

OVERALL SITE PLAN

Project No.: PC008		
Drawing No.: PC00801	Revision No.: 0	
Scale: 1 - 12500		
Drawn By: ACB	Checked By: MJF	Date: DEC. 18

FISHER
ENGINEERING LTD.

FISHER ENGINEERING LTD.
40 Fairfield Road
Lower Coverdale, New Brunswick
E1J 0A2

Notes:

Construction Details:
Typically, construction work will consist of three main tasks:
Task 1: clearing and grubbing of the right-of-way for the roads, 4-5 weeks during the winter months (January-March)
Task 2: subgrade work, 3-4 weeks during the spring (May-June).
Task 3: installation of granular sub base material, 1-2 weeks during the summer months (July-August). Construction within the existing subdivision was completed typically every other year as five phases of that development were completed between 2008 and 2017.

The potential sources of pollutants generated during the construction phases are discussed in Section 4.

Typical hours of construction are Monday to Friday 7:30am to 5:00pm. The anticipated equipment that will be used includes an excavator, bulldozer, and several dump trucks. Fill material required for the road construction will include sandstone rock and granular material. The proponent intends to purchase any required fill material from a local quarry.

Operation and Maintenance Details: Since the subdivision will be serviced with individual private wells the New Brunswick Department of Environment (NBDELG) require that a groundwater exploration program be completed, which will show that the surrounding aquifer can support the proposed expansion of the 80 lot development. The exploration program will follow the NBDELG Water Supply Assessment Guideline. The exploration program will consist of drilling test wells at strategic locations across the property and performing a minimum of one 72 hr pump test. The pumping test data will be analyzed to determine the long-term sustainability of the aquifer. Pumping test(s) will be conducted as outlined in the guideline and will be performed during February/March of 2019 when groundwater recharge is minimal. The estimated water requirement for the proposed 80 lots is 108 m^3/day (16.5 igpm), which is based on a per person water usage of 450 Litres per day and an average of 3 people per household. A WSSA application to complete the hydrogeological assessment for this development is attached is Appendix C.

With the roads being constructed to NBDTI standards they will be considered public and operation and maintenance including plowing will become the responsibility of the NBDOT. Design of the subdivision roads must follow the NBDTI minimum standards for the Construction of Subdivision Roads and Streets. Each phase of the development will require engineered plans along with a drainage report be approved by the department prior to construction. This process ensures that all roads/culverts/drainage is designed appropriately and that any impacts are mitigated as work also must follow the New Brunswick Department of Transportation Environmental Management Manual.

Project Related Documents: Overdale Environmental Inc. was retained to complete a rare vascular plant survey, wetland delineation and functional assessment report. These documents are attached. In addition, the previous EIA determination approval for Phase VI of Nature Estates is attached along with the approved Tentative approval. The previous EIA submission 4561-3-1289 had two comprehensive water supply studies completed that were prepared by Fisher Engineering Ltd. relating to the project. The conclusions of the report along with the references are presented below.

- Comprehensive Water Supply Study Assessment Domain Nature Estates Subdivision Hydrogeological Study EIA File# 4561-3-1289 November 2011. File # PC005. The water study was completed for 88 lot proposed subdivision.
    - "In our professional opinion, the drilling and hydraulic testing activities indicate that groundwater withdrawals from the proposed subdivision will not exceed the long-term safe yield of the aquifers and will not aggravate existing, or create new water supply problems for existing users in the area. The majority of the residents of the subdivision are likely to obtain safe well yields greater than 5 igpm from their wells, which easily meets the individual household / lot requirements of 1.53 m^3/day or 0.234 igpm on a continuous basis."

3 Description of the Existing Environment

Physical and Natural Features:

- Based on 1:10,000 scale mapping the surface elevation across the site ranges from approximately 47 metres to 60 metres above mean sea level.
- The subject property is located within the drainage area of Fox Creek and within 4 kilometres of the Petiticodiac River. Surface water drainage across the majority of the site is expected to be controlled by a tributary to Fox Creek that bisects the property flowing south to north. The area to the west of the stream would flow to the east and the area to the east of the stream would be expected to flow westward under natural conditions. Approximately half of the first phase of the development drains westward toward Leblanc Road where is it picked up by the road side ditches.
- Shallow groundwater flow across the property is expected to follow the local topography, which slopes toward a tributary to Fox Creek. Deeper groundwater likely flows in a westerly direction toward the Petiticodiac River. The area to the south and east that could potentially contribute groundwater to the study area is primarily forested.
- The regional bedrock geology is mapped as late Carboniferous stratified rock belonging to either the Cumberland or Pictou Groups, which are both a subbasin of the Maritimes Carboniferous Basin. Mapping indicates that within the Cumberland Group the site may fall within the Boss Point Formation, which consists mainly of fine-grained to granular sandstone, siltstone, and mudstone (Rivard et al. 2003). Within the Pictou Group, the site may fall within the Salisbury Formation, which consists mainly of mudstone, siltstone and fine-grained sandstone (Rivard et al. 2003).
- The Boss Point Formation has been described as one of the more productive sandstone formations in the province (Carr, 1959) while the Salisbury Formation varies from a good to poor aquifer throughout the Moncton basin. The majority of the domestic wells drilled in this formation generally yield 10 igpm (Carr, 1959).
- Surficial geological mapping indicates that the area is underlain by late Wisconsinan age morainal sediments consisting of hummocky, ribbed and rolling ablation till some lodgement till, minor silt, sand, gravel, and boulders generally thicker than 1.5m (Rampton, 1984).
- There are no municipal wells, municipal wellfields, or protected watersheds within 500 metres of the subject site. Surrounding properties rely on private

wells to supply potable water. Within 500 metres of the subject site there are approximately 25 residents.

- One potential wetland was identified on the GEONB mapping and the limits are shown on the site plan. A copy of the GeoNB mapping is attached (Figure 3). The wetland delineation performed by Overdale Environmental identified a larger footprint of the wetland than what is mapped on GEONB; however it is our understanding that the current policy within the NB Department of Environment on wetlands is that what is shown on GEONB is what is regulated and the size of a wetland on a owners land can not increase compared to what is currently mapped on GEONB following a delineation. As such the current mapped wetland on GEONB will be used as the limits of the wetland across the development area.
- A summary of the findings of a requested search of the Atlantic Canada Conservation Data Centre (ACCDC) databases is presented below:

  Within the subject site boundaries:
  - There were no rare and endangered taxa records,
  - No Environmentally significant Areas, and;
  - No managed areas.

  The findings within a 5km radius include the following:
  - Six records of 4 vascular and no record of any nonvascular flora.
  - Fifty-none records of 22 vertebrate and 0 records of invertebrate fauna.
  - One Environmentally Significant Area – Melanson Settlement Lake. North of Melanson Road. There is currently a smaller residential subdivision (like this project) currently under construction adjacent this ESA off Melanson Road

The NBDELG species at Risk database identified no records on the subject site. In addition, there were no reported deer yards on Crown Land within 5 km of the site.

The following are some of the references and personnel that were contacted and used in order to gather information regarding the physical and natural features of the subject and surrounding properties.

1. Atlantic Canada Conservation Data Centre – ACCDC databases.
2. NB Department of Natural Resources - Stewart Lusk personal contact for search of NB DNR databases regarding species at Risk, deer yards, etc..
3. Environment Canada Species at Risk website - http://www.sararegistry.gc.ca
4. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. Web site: http://www.cosewic.gc.ca
5. Canadian Wildlife Service website - http://www.naturecanada.ca
6. Department of Environment Government website – designated wellfields - http://www.gnb.ca/0009/0371/0001/0003.html, and protected watersheds - http://www.gnb.ca/0009/0371/0004/0003.html.
7. Department of Environment – Stewart Lusk personal contact for search of departmental database regarding species at Risk, deer yards, etc.

Cultural Features: None observed or reported on the subject site or adjacent properties

Existing and Historic Land Uses: Historical information was obtained through a review of historical aerial photos (1945 through 2011). Residential development along Leblanc Road near Melanson Road has been present since the 1950's. The entire development area has always been vacant and tree covered. Some minor farming activities have occurred along Melanson Road in the past and may continue.

The application is aware of the Agricultural Operation Practices Act that states "*A person who carries on an agricultural operation using acceptable farm practices is not liable in nuisance to any person for any odour, noise, dust, vibration, light, smoke or other disturbance resulting from the agricultural operation and shall not be prevented by injunction or other order of a court from carrying on the agricultural operation because it causes or creates odour, noise, vibration, dust, light, smoke or other disturbance that constitutes a nuisance".*

4 Summary of Environmental Impacts

Potential Environmental Impacts associated with the construction activities are listed below:

1. Site drainage from construction activities could affect water quality in the wetland.
2. Air Quality issues caused by increased particulate matter (dust) from construction activities, and emissions from heavy equipment. In addition, the use of heavy equipment may increase the ambient noise and vibration in the immediate area.
3. Accidental release of hazardous materials such as fuels, lubricants, cement, concrete additives and agents, solvents and paints.
4. Wildlife fragmentation will occur as a result of the decrease in the amount of green spaces.
5. Road construction through the wetland will destroy wetland habitat within a section of the Road right of way.

5 Summary of Proposed Mitigation

The potential environmental impacts listed in Section 4 are discussed further below along with any proposed mitigation.

1. Site drainage affecting water quality: The majority of the work will be completed outside a 30 metre natural buffer around the existing mapped wetland with the exception of constructing the two roads.

In order to minimize the potential impacts during construction, a detailed sedimentation and erosion control plan will be developed for the entire project. The plan will include engineered erosion control structures for ditches that convey surface water potentially laden with sediment. Structures will be routinely monitored and accumulated sediment will be removed when required. The New Brunswick Department of Transportation Environmental Management Manual will be used as a guide during the construction phase.

2. Air Quality: Construction activities will occur typically between 7am and 5 pm Monday to Friday. Equipment used will consist of an excavator, dozer, and a few dump trucks. The increased noise and vibration caused by this development is expected to be minimal and similar to the existing conditions.

   Particulate generation primarily occurs during the excavation and backfilling operations. Site and weather conditions contribute to the effect particulate matter has on the surrounding environment, i.e. wind and rain directions. Dust will be minimized with the use of water sprays if required.

3. Accidental release of hazardous materials: In order to minimize the risk of a release of hazardous materials the following best management practices will be employed during any onsite work.
   - Refuelling of equipment will take place in designated areas where an impermeable surface will be prepared so that a release of fuel or oil does not enter the surface water. The refuelling areas will be located on level terrain and a minimum of 30 metres from any surface water.
   - Except for fuel tanks, petroleum products will not be stored onsite.
   - Any required maintenance work would be performed offsite.

   The latest CSA standard for emergency response planning will be reviewed prior to construction. The following standard emergency spill response measures will be followed.

   - During construction absorbent material will be kept on-site at all times for immediate response in the event of a spill.
   - In the event of a spill, all work will be stopped and a supervisor notified immediately.
   - A record of the incident will be taken which will include the personnel and machinery involved, spill containment measures employed, quantity and type of material spilled, date and time of occurrence, and agencies notified.

   All necessary actions will be taken to stop the spread of spilled material. Actions may involve ditching, blocking drainage pathways, and using absorbent materials.

   Any spills or leaks, such as those from machinery or fuel storage tanks, will be promptly contained and cleaned up. Actions may involve ditching, blocking drainage pathways, and using absorbent materials. In addition, any spills or leaks will be reported to the 24-hour environmental emergencies reporting system (1-800-565-1633) and to the NBDELG Regional Office in Moncton (506-856-2374).

4. Wildlife fragmentation: Since the development will occur in multiple stages over the next six to ten years, the amount of wildlife fragmentation that will occur yearly is minimal. By completing the project in stages the surrounding wildlife will be able to adapt and adjust to the development over time. Construction activities will only occur along the right-of-way for the roads, which cover approximately 8 hectares of the proposed development (15 percent of the total area). All of the clearing and grubbing activities will occur in the winter months, therefore minimizing any potential impacts on migratory birds. There were no reported migratory bird nesting/breeding sites within the subject site. However, all activities will be planned and conducted in a manner that allows compliance with the *Migratory* Birds Convention Act *(*MBCA).

5. Wetland Destruction: A wetland Compensation Plan will be developed in consultation with NBDLEG for any permeant loss of wetland area, pending the determination of the final road footprint. Any loss will be compensated at a 2:1 ratio.

In addition to the above noted mitigation measures, the following standard NBDTI EMM Mitigative measures will be followed throughout the life of the project:

5.3 – Clearing
5.4 – Culverts
5.6 – Dust Control
5.7 – Erosion and Sediment Management
5.8.1 – Excavation
5.10 – Fire Prevention and Contingency
5.11 – Grubbing
5.12 – Spill Management
5.13 – Storage & handling of Petroleum Products
5.14 - Storage and Handling of other Dangerous Materials
5.23 – Working Near Environmentally Sensitive Areas.

The proponent will regularly consult Environment Canada's local forecast at http://www.weatberoffice.ec.gc.ca/ so that construction-related activities can be scheduled accordingly.

6 Public Involvement

The following stakeholders will be contacted directly via a letter in order to obtain input on the project:

- Elected officials, the local service district, Southeast Regional Planning Commission, First Nations representative and residents within 100metres or abutting the subject property.

The letter will outline the scope of the project and will include a schematic of the development. Contact information for any comments will also be provided. The public will be given thirty days to provide comments. Once the comments have been received, a report will be prepared regarding the public's input. The report will be submitted within sixty days of project registration.

7 Approval of the Undertaking

Approvals will be required from the following authorities: New Brunswick Department of Environment, New Brunswick Department of Transportation and Infrastructure, and the Southeast Regional Service Commission.

8 Funding

No applications for a grant or loan of capital funds from a government agency have or will be submitted. 690763 NB Ltd will be funding the project.

9 Signature

Michael Fisher, P.Eng

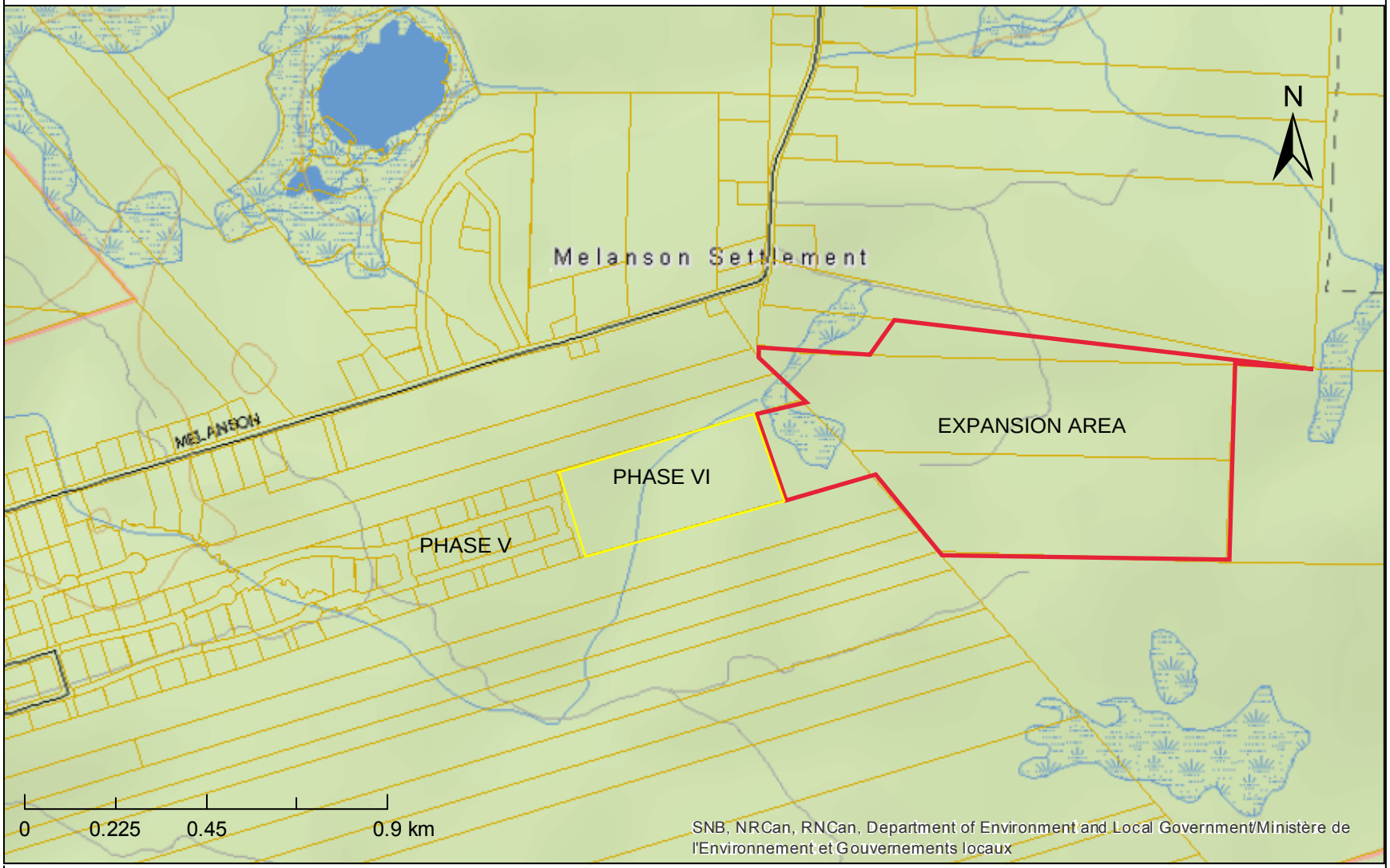
Dec. 7th/2108
Date

PC008/EIA registration.doc

APPENDIX A

FIGURES

Nature Estates Expansion



Scale/Échelle: 1:15,000 **Date: 12/3/2018**

Printed by/Imprimé par:

While this map may not be free from error or omission, care has been taken to ensure the best possible quality. This map is a graphical representation of natural and man made features which appproximates the size, configuration and location of the features. This map is not intended to be used for legal descriptions or to calculate exact dimensions or area. SNB makes no representations or warranties, either expressed or implied, as to the accuracy of the information and the client assumes the entire risk as to the use of any or all information.

Même si cette carte n'est peut-être pas libre de toute erreur ou omission, toutes les précautions ont été prises pour en assurer la meilleure qualité possible. Cette carte est une représentation graphique d'éléments naturels ou artificiels et donne seulement une approximation de la taille, de la configuration et de l'endroi de ces éléments. Elle n'a pas pour but d'être utilisée pour les descriptions juridiques ou le calcul des dimensions ou de la superficie exacte. SNB n'offre aucune garantie explicite ou implicite quant à l'exactitude de l'information présentée; les clients acceptent pleinement les risques liés à l'utilisation d'une partie ou de l'ensemble de cette information.

Project:

EIA REGISTRATION NATURE ESTATES EXPANSION

Drawing:

SITE PLAN SHOWING PROPOSED WELL LOCATIONS

Project No.: PC008		
Drawing No.: PC00802	Revision No.: 0	
Scale: 1 - 5000		
Drawn By: ACB	Checked By: MJF	Date: Dec. 18

FISHER
ENGINEERING LTD.

FISHER ENGINEERING LTD.
40 Fairfield Road
Lower Coverdale, New Brunswick
E1J 0A2

Notes:

APPENDIX B

WETLAND DELINATION

Standard Wetland Delineation Report: Lakeburn, NB

PIDs 70007117, 70495908 and 70473947

December 6, 2018

For

Michael Fisher, P.Eng
Fisher Engineering Ltd.
40 Fairfield Road
Lower Coverdale, NB
E1J 0A2

By

Theo Popma MSc. (Wetland Delineator) at Overdale Environmental Inc.
342 Highfield st.
Moncton, NB
E1C 5R6
tpopma@nb.sympatico.ca
www.Overdale.net
506-227-7605

Table of Contents

Introduction:

A Standard Wetland Delineation was conducted on August 26, 2018 by Theo Popma, a recognized Delineator at Overdale Environmental Inc. The properties (PIDs 70007117, 70495908 and 70473947) are located in Lakeburn, NB near Dieppe (Figure 1, Appendix A). The delineation was conducted in accordance with the NB Wetland Conservation Policy and the Clean Environment Act in support of an Environmental Impact Assessment (EIA) triggered by the proposed residential development.

It is recommended that this report be provided by the client to the New Brunswick Dept. of Environment for review.

Legislation

These identified wetlands are subject to the *Watercourse and Wetland Alteration Regulation* (REG # 90-80), of the New Brunswick *Clean Water Act.* Any proposed alteration within these areas or within the 30 meter regulated upland buffer requires permitting through the Department of Environment, Watercourse and Wetlands Alteration Program. These areas may also be subject to *Environmental Impact Assessment* (REG 87-83) of the New Brunswick *Clean Environment Act* and other *Acts* and Regulations. It is the responsibility of the proponent to ensure that all regulatory requirements are met prior to development within these areas.

Site Description (See Photos in Appendix D)

The Study Area (Figure 3) has been impacted within the last several decades by clearing (less than 1 hectare), logging and maintenance and culverting of a few small logging roads, paths and ATV trails.

Only one wetland polygon is shown on the GeoNB Wetlands Map for the three adjacent PIDs (Figures 1 and 2).

Methodology

Surveys were conducted according to the guidelines established by NBENV based on the US Army Corps of Engineer Wetland Delineation Manual (1987), Field Indicators of Hydric Soils in the United States and Lichvar, 2005. The Flora of NB (Hinds, 2000) was consulted for plant identification along with the National List of Plant Species that occur in Wetlands (1988)

Datapoints were analyzed for soil, hydrology and vegetation characteristics at several different locations (Figure 4). Color of soil strata are described in terms of texture, ‘value’ and ‘chroma’ according to a Munsell Soil Color Chart. The wetland delineation line was then completed by walking with a handheld Garmin GPSmap 64st GPS unit.

Datapoint locations representing boundary-flag positions (real flags were not used in the field) are listed in Appendix B. Coordinates are in UTM NAD83.

Wetland habitat was identified by establishing the presence of dominating hydric vegetation, of hydric soils and of hydrological markers such as surface water, soil saturation and channeling. The wetland edge was identified with Data Points (DPs) (wetland and upland) which straddled the boundary. Data sheets are included in Appendix C.

Results

The wetland boundaries delineated during this survey are shown in the schematic in Figure 4. Photos of each datapoint location are shown in Appendix D. Below is a brief description of factors at each datapoint leading to the determination of wetland or upland conditions:

DP 2, 4, 5, 6, 8 (Wetland)

These datapoints all represent essentially the same habitat: Shrub Swamp or Forested Wetland. Several examples of this habitat were sampled in order to ensure the presence of this habitat along the boundaries of the PIDs outside the natural wetland countours.

Soils were water-saturated with a water-table within approximately 10cm of the soil surface. Soils were also either depleted in color indicating prolonged saturation, or composed entirely of peaty organic material typical of wetlands. These samples were dominated by wetland plants such as Red Maple (*Acer rubrum*), Mountain Holly (Nemopanthus mucronatus), Speckled Alder (*Alnus incana*) and Cinnamon Fern (*Osmunda cinnamomea*).

DP 1 (Wetland)

This datapoint describes a relatively small open, marshy area which occupies less than 10% of the total wetland area. Grasses, sedges and rushes dominate this area. Open, stagnant water is present here and virtually nowhere else on site. Drainage channels are not present but water is ponded in linear pools.

DPs 3, 7 (Upland)

These datapoints displayed no hydrological indicators such as saturation or high watertable. If depletion was present due water-saturation in the recent past, it was only in less than approximately 50% of the sample. Plants were generally facultative wetland species but upland dominants such as Bracken Fern (*Pteridium aquilinum*) were abundant.

Conclusion

Forested Wetland dominates the site. This is likely the reason for the disparity between the mapped GeoNB wetland and the polygon delineated on the ground. Forested wetland is difficult to tell apart from other upland forests from interpretation of aerial photographs alone. Marsh and Shrub wetlands are also present.

The wetland delineated during this study was approximately 14 hectares in size. The corresponding GeoNB wetland polygon is only approximately 3 hectares (occurring within the PIDs in question).

The wetland boundaries appear to extend well beyond the edge of the PIDs in question.

It should be noted that this is considered an Atypical Situation since this wetland system in influenced by pre-existing human activity in the form of infilling, excavation, road-building and culverting.

Closing

I trust this information meets your current needs. Please feel free to contact me via telephone at (506) 227-7605 or by email at tpopma@nb.sympatico.ca if further clarification or explanation is required.

Sincerely,

Theo Popma BSc, MSc.

President, Overdale Environmental Inc.

Sources:

The Canadian Wetland Classification System, 2nd ed. 1997. National Wetlands Working Group. Wetlands Research Center, University of Waterloo, ONT.

Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

Field Indicators of Hydric Soils in the United States; Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017

Hinds, H. 2000. The Flora of New Brunswick.

Lichvar, R., 2005. Wetland Identification, Delineation and Classification. Humbolt Field Research Institute, Steuben, ME, USA.

U.S. Army Corps of Engineers. 200X. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-0X-XX. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

US Army Corps of Engineer Wetland Delineation Manual. 1987.

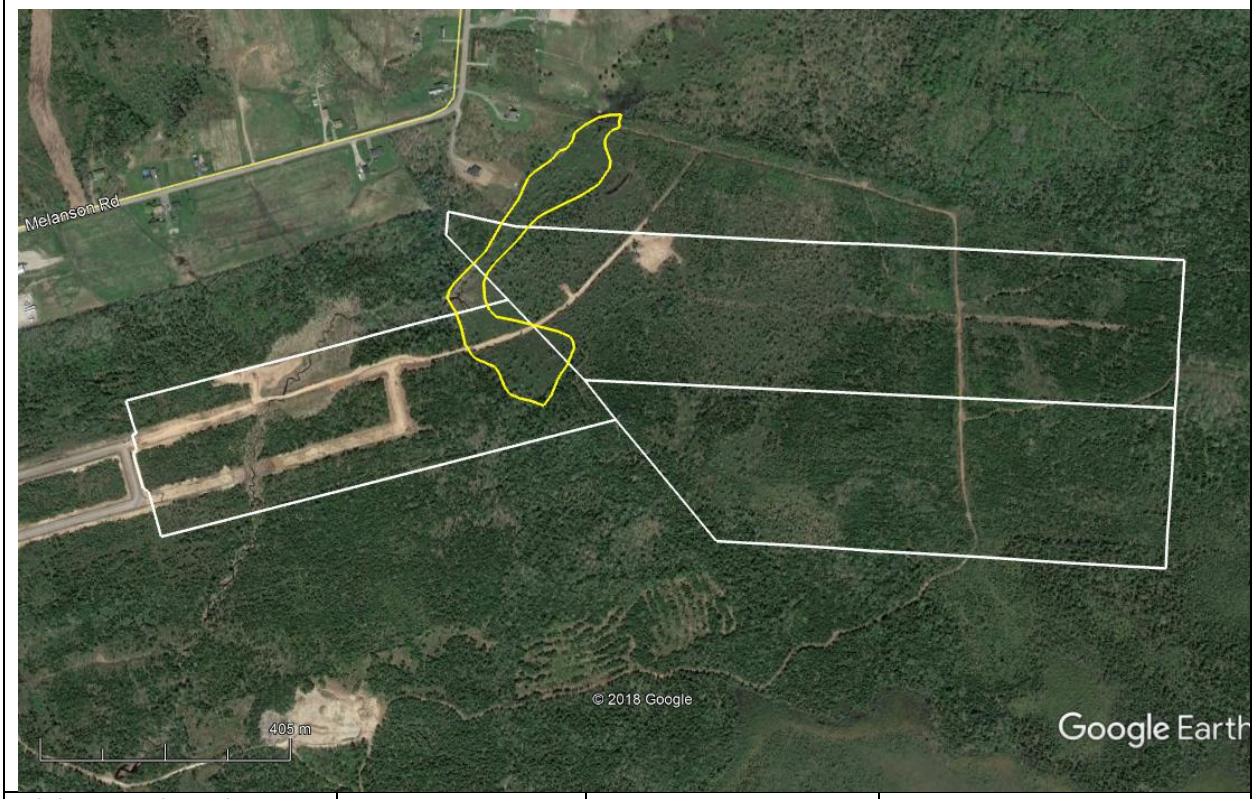
US Department of Fish and Wildlife. 1988. National List of Plant Species that occur in Wetlands.

LAKEBURN WETLAND DELINEATION APPENDIX A: Figures

Figure 1. Survey Area

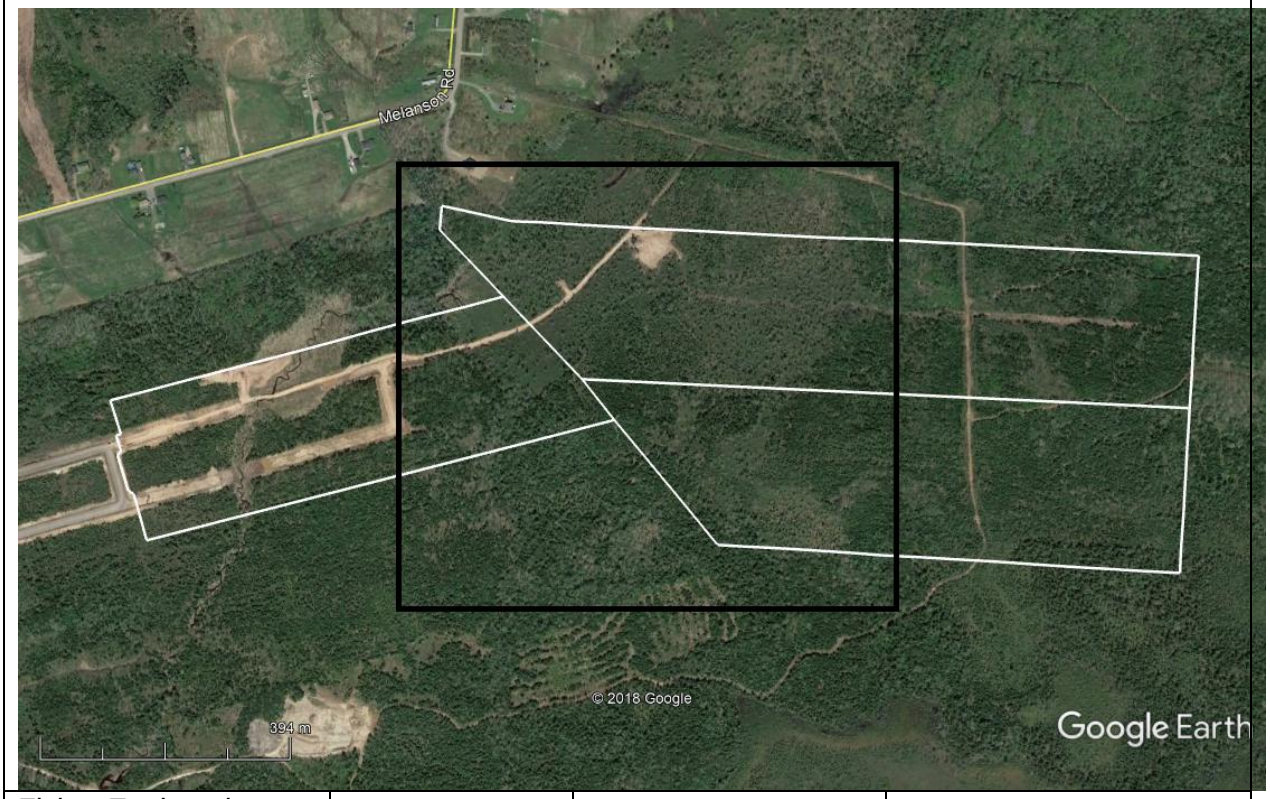
Fisher Engineering; Lakeburn	Figure 1	Survey Area	Overdale Environmental Inc.

Figure 2. GeoNB mapped wetland at PIDs 70007117, 70495908, 70473947.



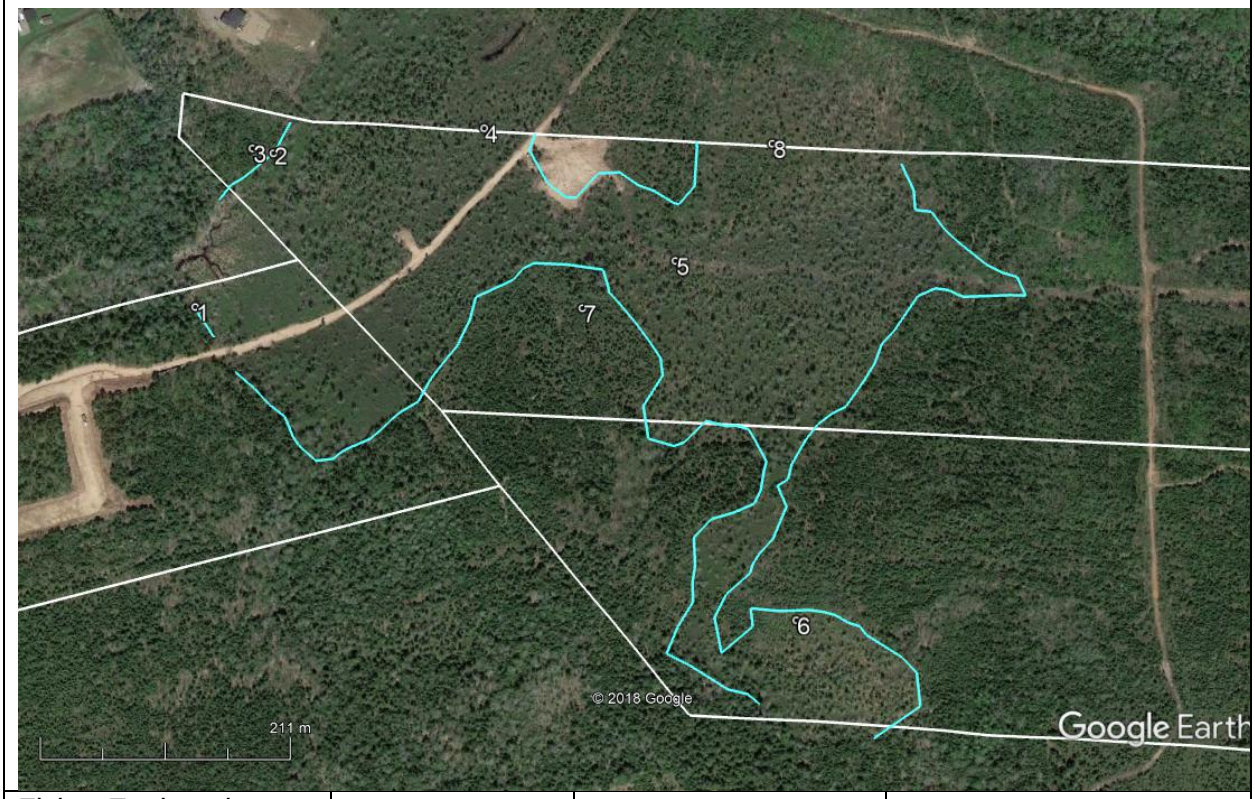
Fisher Engineering; Lakeburn	Figure 2	NB Wetlands Map	Overdale Environmental Inc.

Figure 3. Wetland Delineation Study Area



Fisher Engineering; Lakeburn	Figure 3	Wetland Delineation Study Area	Overdale Environmental Inc.

Figure 4. Wetland Delineation Schematic and Datapoint Locations



Fisher Engineering; Lakeburn	Figure 4	Wetland Numbering	Overdale Environmental Inc.

LAKEBURN WETLAND DELINEATION APPENDIX B: Datapoint and flag positions

Datapoints

ID	Easting	Northing
1	372894.859	5104235.126
2	372964.044	5104363.969
3	372946.573	5104368.221
4	373143.63	5104381.603
5	373303.99	5104265.809
6	373400.556	5103959.258
7	373224.068	5104227.44
8	373388.457	5104363.44

Flags

Order	Easting	Northing
1	373323.305	5104365.813
2	373323.758	5104361.772
3	373320.979	5104328.26
4	373307.28	5104312.87
5	373302.506	5104314.578
6	373286.565	5104324.857
7	373273.06	5104330.137
8	373257.509	5104341.24
9	373239.089	5104340.73
10	373220.266	5104320.666
11	373210.997	5104321.302
12	373195.705	5104333.733
13	373188.635	5104347.217
14	373180.974	5104362.047
15	373186.18	5104375.414
16	372978.642	5104389.122
17	372970.288	5104374.178
18	372964.044	5104363.969
19	372937.388	5104342.956
20	372927.131	5104336.943
21	372917.047	5104324.369
22	372894.859	5104235.126
23	372897.936	5104226.837
24	372903.427	5104219.276

25	372907.982	5104211.401
26	372910.242	5104208.465
27	372928.423	5104178.633
28	372944.914	5104164.398
29	372957.012	5104150.921
30	372970.018	5104140.204
31	372976.556	5104123.395
32	372981.353	5104115.96
33	372996.237	5104102.536
34	373010.73	5104103.904
35	373016.244	5104108.681
36	373021.491	5104111.796
37	373041.384	5104119.945
38	373050.98	5104127.638
39	373060.768	5104137.107
40	373067.53	5104142.414
41	373082.475	5104150.664
42	373090.844	5104166.386
43	373096.972	5104174.708
44	373109.104	5104189.13
45	373116.153	5104197.098
46	373127.523	5104219.539
47	373132.934	5104238.101
48	373165.17	5104252.109
49	373173.876	5104261.711
50	373183.324	5104265.962
51	373211.44	5104264.048
52	373241.735	5104258.977
53	373245.77	5104244.555
54	373246.294	5104239.987
55	373254.234	5104231.154
56	373268.866	5104212.956
57	373280.368	5104196.824
58	373289.06	5104183.195
59	373290.534	5104168.381
60	373273.531	5104142.833
61	373277.293	5104115.189
62	373298.835	5104108.62
63	373307.619	5104111.563
64	373326.699	5104129.066
65	373343.622	5104124.493

66	373351.439	5104124.666
67	373362.438	5104121.661
68	373368.182	5104111.316
69	373377.106	5104093.903
70	373375.108	5104087.053
71	373371.892	5104069.89
72	373366.242	5104058.447
73	373348.457	5104051.255
74	373329.244	5104046.093
75	373314.232	5104030.84
76	373314.748	5104007.043
77	373312.226	5103993.534
78	373312.256	5103976.193
79	373298.992	5103955.681
80	373288.931	5103933.921
81	373307.627	5103924.269
82	373340.296	5103902.921
83	373356.684	5103898.582
84	373366.792	5103889.815
85	373462.618	5103858.831
86	373502.916	5103884.901
87	373500.856	5103912.621
88	373488.299	5103926.44
89	373458.754	5103945.5
90	373453.72	5103952.717
91	373443.962	5103955.919
92	373433.344	5103962.473
93	373423.27	5103965.348
94	373411.01	5103967.268
95	373385.479	5103967.127
96	373361.175	5103970.184
97	373362.554	5103954.483
98	373335.577	5103932.919
99	373330.316	5103962.928
100	373340.459	5103982.171
101	373361.322	5103999.859
102	373363.475	5104006.706
103	373369.464	5104015.809
104	373381.396	5104028.012
105	373393.409	5104055.442
106	373386.036	5104073.045

107	373395.04	5104078.306
108	373398.476	5104091.129
109	373410.413	5104111.113
110	373421.442	5104124.558
111	373433.764	5104133.197
112	373445.643	5104139.066
113	373460.995	5104159.647
114	373470.819	5104174.673
115	373477.268	5104191.102
116	373488.099	5104202.439
117	373508.255	5104230.924
118	373523.547	5104237.279
119	373534.571	5104235.496
120	373547.215	5104229.678
121	373585.902	5104230.217
122	373599.994	5104229.56
123	373592.478	5104245.31
124	373580.262	5104249.34
125	373567.257	5104256.388
126	373544.447	5104275.642
127	373532.609	5104286.778
128	373521.632	5104302.121
129	373508.058	5104304.068
130	373507	5104320.318
131	373496.719	5104343.205

LAKEBURN WETLAND DELINEATION APPENDIX C: Wetland Datasheets

Project Site:	Lakeburn		Date:	26-Aug-18	Sample Point:	1	Job #:
Client/owner:	Fisher Engineering		Field Investigator(s):	Theo Popma			
County:	Westmorland		Coordinates:				
PID	70473947		Do normal environmental conditions exist on-site?		Yes	x	No

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	x	No	
Wetland Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Type: Shrub Swamp

Rational for Determination: Marshy part of overall shrub swamp

Wetland Determination

[x] **YES** [ ] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	10	x	*fac*
2	*Picea glauca*	5	x	*fac*
3	*Abies balsamea*	5	x	*fac*
4				
5				
6				
		20	= **Total Cover**	

	Shrub Stratum: (Plot size: 5m2)			
1	*Alnus incana*	15	x	*facw*
2				
3				
4				
5				
		15	= **Total Cover**	

	Herb Stratum: (Plot Size: 1m2)			
1	*Lycopus uniflorus*	10		*facw+*
2	*Lysimachia terrestris*	15	x	*facw+*
3	*Carex canescens*	5		*obl*
4	*Glyceria striata*	25	x	*facw*
5	*Calamagrostis canadensis*	10		*facw*
		65	= **Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	6
Total # of Dominant Species across all strata:	6
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0	##	0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 1b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	x	No		Depth	25cm			
Water Table Present?	Yes	x	No		Depth	5cm	**Wetland Hydrology Present?**	**Yes**	x **No**
Saturation Present?	Yes	x	No		Depth	0cm			

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
6cm							Organic	
6 to 30+cm	7.5YR 5.2						Fines	

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

Hydric Soil Indicators:

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Dark Surfaces (S7)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)
	Stratified Layers (A5)		Thin Dark Surface (S9)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** x **No**

Comments:

Project Site:	Lakeburn		Date:	26-Aug-18	Sample Point:	2	Job #:
Client/owner:	Fisher Engineering		Field Investigator(s):	Theo Popma			
County:	Westmorland		Coordinates:				
PID	70495908		Do normal environmental conditions exist on-site?		Yes	x	No

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	[x]	No	[ ]
Wetland Hydrology	Yes	[x]	No	[ ]
Hydric Soils	Yes	[x]	No	[ ]

Wetland Type: Shrub Swamp

Rational for Determination:

Wetland Determination

[x] **YES** [ ] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	5		x	*fac*
2					
3					
4					
5					
6					
		5	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)				
1	*Alnus incana*	75		x	*facw*
2					
3					
4					
5					
		75	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)				
1	*Onoclea sensibilis*	25		x	*facw*
2	*Rubus pubescens*	10			*fac*
3	*Glyceria striata*	20		x	*facw*
4					
5					
		55	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	4
Total # of Dominant Species across all strata:	4
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes x No

Hydrology Sample Point: 2b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	x	No		Depth	10						
Water Table Present?	Yes	x	No		Depth	5cm	**Wetland Hydrology Present?**	**Yes**	x	**No**		
Saturation Present?	Yes		No		Depth	0cm						
		x										

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 5cm							Organic	
5 to 20cm	10YR 4/1						Fines	

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

Hydric Soil Indicators:

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Dark Surfaces (S7)
	Hydrogen Sulfide (A4)	0	Polyvalue Below Surface (S8)
	Stratified Layers (A5)		Thin Dark Surface (S9)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** x **No**

Comments:

Project Site:	Lakeburn	Date:	26-Aug-18	Sample Point: 3	Job #:
Client/owner:	Fisher Engineering	Field Investigator(s):	Theo Popma		
County:	Westmorland	Coordinates:			
PID 70495908		Do normal environmental conditions exist on-site?	Yes [x]	No [ ]	

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes [ ]	No [ ]
Wetland Hydrology	Yes [ ]	No [ ]
Hydric Soils	Yes [ ]	No [ ]

Wetland Type:

Rational for Determination:

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2	*Abies balsamea*	20		x	*fac*
3	*Betula papyrifera*	10		x	*facu*
4					
5					
6					
		40	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)				
1	*Abies balsamea*	20		x	*fac*
2	*Acer rubrum*	15		x	*fac*
3	*Betula papyrifera*	15		x	*facu*
4	*Amelanchier laevis*	5			*fac*
5					
		55	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)				
1	*Osmunda cinnamomea*	10		x	*fac*
2	*Pteridium aquilinum*	5			*facu*
3	*Aralia nudicaulis*	5			*fac*
4	*Cornus canadensis*	5			*fac*
5	*Vaccinium myrtilloides*	5			*fac*
		30	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	5
Total # of Dominant Species across all strata:	7
% of Dominant Species that are OBL,FACW,FAC:	71.4

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes [x] No

Hydrology Sample Point: 3b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present? Yes___ No___ Depth ___

Water Table Present? Yes___ No___ Depth ___ **Wetland Hydrology Present?** **Yes** ___ **No** x

Saturation Present? Yes___ No___ Depth ___

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 8cm							Organic	
8 to 30+	10YR 5/3							

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

Hydric Soil Indicators:

___ Histosol (A1)	___ Sandy Redox (S5)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)
___ Black Histic (A3)	___ Dark Surfaces (S7)
___ Hydrogen Sulfide (A4)	___ Polyvalue Below Surface (S8)
___ Stratified Layers (A5)	___ Thin Dark Surface (S9)
___ Depleted Below Dark Surface (A11)	___ Loamy Gleyed Matrix (F2)
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)
___ Sandy Mucky Mineral (S1)	___ Redox Dark Surface (F6)
___ 5cm Mucky Peat or Peat (S3)	___ Depleted Dark Surface (F7)
___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** ___ **No** x

Comments:

Project Site:	Lakeburn		Date:	26-Aug-18	Sample Point:	4	Job #:
Client/owner:	Fisher Engineering		Field Investigator(s):	Theo Popma			
County:	Westmorland		Coordinates:				
PID	70495908		Do normal environmental conditions exist on-site?		Yes	x	No

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	x	No	
Wetland Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Forested Wetland

Rational for Determination: Large trees scattered throughout Tall Shrub understory

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	10	x	*fac*
2	*Picea glauca*	10	x	*fac*
3				
4				
5				
6				
		20	= **Total Cover**	

	Shrub Stratum: (Plot size: 5m2)	%Cover	Dominant Species	Indicator Status
1	*Viburnum nudum*	10		*fac*
2	*Nemopanthus mucronatus*	50	x	*fac*
3				
4				
5				
		60	= **Total Cover**	

	Herb Stratum: (Plot Size: 1m2)	%Cover	Dominant Species	Indicator Status
1	*Osmunda cinnamomea*	10	x	*fac*
2	*Maianthemum trifolium*	5	x	*obl*
3	*Kalmia angustifolia*	5	x	*fac*
4	*Carex trisperma*	5	x	*obl*
5				
		25	= **Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	7
Total # of Dominant Species across all strata:	7
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes x No

Hydrology Sample Point: 4b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth ___						
Water Table Present?	Yes x	No ___	Depth 5cm	**Wetland Hydrology Present?**	**Yes**	x	**No**	___	
Saturation Present?	Yes x	No ___	Depth 0cm						

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 30cm							Organic	

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

Hydric Soil Indicators:

x	Histosol (A1)	___	Sandy Redox (S5)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)
___	Black Histic (A3)	___	Dark Surfaces (S7)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)
___	Thick Dark Surface (A12)	___	Depleted Matrix (F3)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** x **No** ___

Comments:

Project Site:	Lakeburn	Date:	26-Aug-18	Sample Point: 5	Job #:
Client/owner:	Fisher Engineering	Field Investigator(s):	Theo Popma		
County:	Westmorland	Coordinates:			
PID 70495908		Do normal environmental conditions exist on-site?	Yes [x]	No [ ]	

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes [x]	No [ ]
Wetland Hydrology	Yes [x]	No [ ]
Hydric Soils	Yes [x]	No [ ]

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Shrub Swamp

Rational for Determination: Shrub swamp with some large trees present

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2					
3					
4					
5					
6					
		10	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)	%Cover		Dominant Species	Indicator Status
1	*Alnus incana*	20		x	*facw*
2	*Acer rubrum*	5			*fac*
3	*Nemopanthus mucronatus*	30		x	*fac*
4	*Abies balsamea*	5			*fac*
5					
		60	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)	%Cover		Dominant Species	Indicator Status
1	*Osmunda cinnamomea*	20		x	*fac*
2	*Ilex verticillata*	10		x	*facw+*
3	*Maianthemum trifolium*	10		x	*obl*
4					
5					
		40	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	6
Total # of Dominant Species across all strata:	6
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species	1	x 1 =	1
FACW Species	2	x 2 =	4
FAC Species	5	x 3 =	15
FACU Species	0	x 4 =	0
ULP Species	0	x 5 =	0
Column Totals:	8		20

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [x] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 5b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	x	No		Depth	5cm			
Water Table Present?	Yes	x	No		Depth	15cm	**Wetland Hydrology Present?**	**Yes**	x **No**
Saturation Present?	Yes	x	No		Depth	0cm			

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

Hydric Soil Indicators:

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Dark Surfaces (S7)
x	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)
	Stratified Layers (A5)		Thin Dark Surface (S9)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)
	Thick Dark Surface (A12)		Depleted Matrix (F3)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** x **No**

Comments:

Project Site:	Lakeburn			Date:	26-Aug-18	Sample Point:	6	Job #:
Client/owner:	Fisher Engineering			Field Investigator(s):	Theo Popma			
County:	Westmorland			Coordinates:				
PID	70007117			Do normal environmental conditions exist on-site?		Yes	x	No

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	x	No	
Wetland Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type:

Rational for Determination:

Vegetation

	Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*		10		x	*fac*
2	*Betula papyrifera*		10		x	*facu*
3						
4						
5						
6						
			20	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)					
1	*Nemopanthus mucronatus*		30		x	*fac*
2	*Ilex verticillata*		30		x	*facw+*
3	*Alnus incana*		30		x	*facw*
4						
5						
			90	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)					
1	*Maianthemum trifolium*		5			*obl*
2	*Glyceria striata*		10		x	*facw*
3	*Osmunda cinnamomea*		10		x	*fac*
4	*Doellingeria umbellata*		5			*fac*
5						
			30	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 6

Total # of Dominant Species across all strata: 7

% of Dominant Species that are OBL,FACW,FAC: 85.7

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No**

Hydrology Sample Point: 6b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth ___					
Water Table Present?	Yes x	No ___	Depth 10cm	**Wetland Hydrology Present?**	**Yes**	x	**No**	___
Saturation Present?	Yes x	No ___	Depth 0cm					

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 30cm							organic	

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

Hydric Soil Indicators:

x	Histosol (A1)	___	Sandy Redox (S5)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)
___	Black Histic (A3)	___	Dark Surfaces (S7)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)
___	Thick Dark Surface (A12)	___	Depleted Matrix (F3)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** x **No** ___

Comments:

Project Site:	Lakeburn		Date:	26-Aug-18	Sample Point:	7	Job #:
Client/owner:	Fisher Engineering		Field Investigator(s):	Theo Popma			
County:	Westmorland		Coordinates:				
PID	70495908		Do normal environmental conditions exist on-site?		Yes	x	No
If no, explain:							
Atypical Situation?	Yes x	No	Explain:	Culvert, clearing and roadway affecting drainage			
Is this a potential **Problem Area?**		Yes	No x	Explain:			

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes x	No
Wetland Hydrology	Yes	No x
Hydric Soils	Yes	No x

Wetland Determination

YES | x | NO

Wetland Type:

Rational for Determination:

Vegetation

	Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species	Indicator Status
1	*Larix laricina*		10		x	*fac*
2						
3						
4						
5						
6						
			10	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)					
1	*Picea glauca*		10			*fac*
2	*Betula papyrifera*		10			*facu*
3	*Nemopanthus mucronatus*		25		x	*fac*
4	*Viburnum nudum*		10			*fac*
5						
			55	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)					
1	*Kalmia angustifolia*		40		x	*fac*
2						
3						
4						
5						
			40	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	3
Total # of Dominant Species across all strata:	3
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrolic Vegetation
- x Dominance Test is >50%
- ___ Prevalence Index is≤3.0[1]
- ___ Morphological Adaptations[1](explain)
- ___ Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes x No

Hydrology Sample Point: 7b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No x Depth ___

Water Table Present? Yes ___ No x Depth ___ **Wetland Hydrology Present?** **Yes** ___ **x** ___

Saturation Present? Yes ___ No x Depth ___

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 5cm							Organic	
5 to 25	10YR 4/2	50	10YR 5/4	50			Sandy loam	

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

Hydric Soil Indicators:

___ Histosol (A1)	___ Sandy Redox (S5)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)
___ Black Histic (A3)	___ Dark Surfaces (S7)
___ Hydrogen Sulfide (A4)	___ Polyvalue Below Surface (S8)
___ Stratified Layers (A5)	___ Thin Dark Surface (S9)
___ Depleted Below Dark Surface (A11)	___ Loamy Gleyed Matrix (F2)
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)
___ Sandy Mucky Mineral (S1)	___ Redox Dark Surface (F6)
___ 5cm Mucky Peat or Peat (S3)	___ Depleted Dark Surface (F7)
___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** ___ **No** x

Comments:

Project Site:	Lakeburn		Date:	26-Aug-18	Sample Point:	8	Job #:
Client/owner:	Fisher Engineering		Field Investigator(s):	Theo Popma			
County:	Westmorland		Coordinates:				
PID	70495908		Do normal environmental conditions exist on-site?		Yes	x	No

If no, explain:

Atypical Situation? Yes [x] No [ ] Explain: Culvert, clearing and roadway affecting drainage

Is this a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	[x]	No	[ ]
Wetland Hydrology	Yes	[x]	No	[ ]
Hydric Soils	Yes	[x]	No	[ ]

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Forested Wetland

Rational for Determination: Trees scattered through tall shrub dominated understory with histosols

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	10	x	*fac*
2				
3				
4				
5				
6				
		10	= **Total Cover**	

	Shrub Stratum: (Plot size: 5m2)	%Cover	Dominant Species	Indicator Status
1	*Larix laricina*	10		*fac*
2	*Betula populifolia*	30	x	*fac*
3	*Acer rubrum*	20		*fac*
4	*Abies balsamea*	10		*fac*
5	*Nemopanthus mucronatus*	50	x	*fac*
		##	= **Total Cover**	

	Herb Stratum: (Plot Size: 1m2)	%Cover	Dominant Species	Indicator Status
1	*kalmia angustifolia*	10	x	*fac*
2	*Aralia nudicaulis*	10	x	*fac*
3	*Osmunda cinnamomea*	20	x	*fac*
4				
5				
		40	= **Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	6
Total # of Dominant Species across all strata:	6
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Prevalence Index = B/A = ##

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Poir 8b

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

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

Secondary Indicators:(minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	___	No	___	Depth	___			
Water Table Present?	Yes	x	No	___	Depth	10	**Wetland Hydrology Present?**	**Yes** x	**No** ___
Saturation Present?	Yes	x	No	___	Depth	0			

Comments:

Soil Profile

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

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 30cm							organic	

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

Hydric Soil Indicators:

x	Histosol (A1)	___	Sandy Redox (S5)
___	Histic Epipedon (A2)	___	Stripped Matrix (S6)
___	Black Histic (A3)	___	Dark Surfaces (S7)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)
___	Thick Dark Surface (A12)	___	Depleted Matrix (F3)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)

Restrictive Layer Type (if observed Depth: **Hydric Soil Present?** **Yes** x **No** ___

Comments:

LAKEBURN WETLAND DELINEATION APPENDIX D: PHOTOS

Fisher Engineering; Lakeburn	Datapoint 1	Marsh Wetland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 2	Shrub Swamp Wetland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 3	Upland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 4	Forested Wetland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 5	Forested Wetland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 6	Forested Wetland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 7	Upland	Overdale Environmental Inc.

Fisher Engineering; Lakeburn	Datapoint 8	Forested Wetland	Overdale Environmental Inc.

APPENDIX C

RARE VASCULAR PLANT SURVEY

Overdale Environmental Inc.

Rare Vascular Plant Survey Report: Lakeburn, NB

PIDs 70007117, 70495908, 70473947

September 27, 2018

For

Michael Fisher, P.Eng
Fisher Engineering Ltd.
40 Fairfield Road
Lower Coverdale, NB
E1J 0A2

By

Theo Popma MSc. (Wetland Delineator)
Overdale Environmental Inc.
342 Highfield st.
Moncton, NB
E1C 5R6
tpopma@nb.sympatico.ca
www.Overdale.net
506-227-7605

TABLE OF CONTENTS

1.0 INTRODUCTION AND METHODS

A vascular plant survey was conducted on PID PIDs 70007117, 70495908 and 70473947 in Lakeburn, NB on July 30, 2018 (Figure 1). GPS points and photos were recorded as necessary to geographically locate prominent habitat-types or any species of conservation concern. All figures are shown in Appendix 4.

This survey was conducted as part of an Environmental Impact Assessment (EIA) concerning the development of a residential subdivision on the site. The PIDs in question were not surveyed in their entirety as per the scope of work defined by the client. The survey area is shown in Figure 1.

Rare vascular plant potential as estimated before the survey was considered to be low to moderate according to both the online Connell Herbarium at UNB and the Atlantic Canada Conservation Data Center (ACCDC). This is due to the relative scarcity of known element occurences on the PID or in the vicinity. The ACCDC report is contained in Appendix 6.

2.0 RESULTS:

After approximately 2 days of surveying, 136 species of vascular plants were identified. No species of conservation concern were found. For a synopsis of the ranking system see Appendix 1. A full plant list is provided in Appendix 2. Photos of habitat-types are shown in Appendix 3. Lists of species assemblages representing each habitat are shown in Appendix 5. The track followed during the survey is shown in Figure 2. A map of approximate boundaries of the various habitat types encountered during the survey is shown in Figure 3.

2.1 Habitat Types

The habitat map shown in Figure 3 is an approximation. Although wetland habitat was well defined through the standard delineation process, other margins were not. Also, the upland forests were especially mixed in terms of age and species composition. This is likely the result of deforestation having occured at different times in different places on the site.

1. Tall Shrub Swamp

Tall shrubs such as Mountain Holly (*Nemopanthus mucronatus*) and Speckled Alder (*Alnus incana*) were present throughout all wetland habitat on the site except for the small marshy section in the northwest which was devoid of trees and shrubs. Low shrubs such as Leatherleaf (*Chamaedaphne calyculata*) were only locally common in clumps within the wetland. Trees were absent from wetland habitat only in one area nearest the culvert south of the new dirt road.

2. Marsh

This small wetland type was dominated by herbs, grasses, sedges and rushes such as Canada Bluejoint (*Calamagrostis canadensis*), Soft Rush (*Juncus effusus*) and Bugleweed (*Lycopus uniflorus*). Standing water less than 1m deep was present here but appeared not to be flowing in channels.

3. Forested Wetland

Tree were defined as having a diameter at breast height of greater than 15cm. Species such as Red Maple (*Acer rubrum*) and White Spruce (*Picea glauca*) were generally sparse. They occurred less than once every 5m in habitat defined as wetland by standard Wetland Delineation protocols. The understory was always dominated by Mountain Holly as described above. A small slope of approximately 1 or 2 meters defined the boundary of the wetland especially on the northeast boundary.

4. Lichen-dominated clearings

These clearing were upland habitats associated with Bracken Fern (*Pteridium aqulininum*) and Gray Birch (*Betula populifolia*). Open areas appeared to be partially the result of deforestation.

5. Mature Coniferous Forest

Trees here were sufficiently far apart to easily pass through on foot. Trees were approximately 50 years old or older. The understory was virtually completely absent both in the herb and shrub strata.

6. Tolerant Hardwood

This was one of the few regions on site to contain any White Ash (*Fraxinus Americana*). Although the other deciduous species in this small area were not as tolerant, such as Gray Birch, the herbaceous flora was marginally richer here than anywhere else on the site.

7. Larch-dominated Coniferous Forest

American Larch (Larix laricina) was infrequently scattered over most of the site, but it dominated certain habitats as well. These areas were predominantly coniferous with very little vegetation in the understory. Trees appeared to be less than 40 years old.

8, 9 and 10: Young, Moderate and Mature Mixed Forest

Dominated primarily by White Birch (Betula papyrifera) this was probably the most dominant habitat on the site. The boundaries of the different age classes are poorly defined but contained a consistent array of the common flora such as Sarsasparilla (*Aralia nudicaulis*),

Goldthread (*Coptis trifolia*) and Sheep Laurel (*Kalmia angustifolia*). Diversity here was relatively high compared to the other habitats.

11. Young Boreal Forest

Trees in this habitat were generally less than a few centimeters in diameter and only a few feet apart. The understory was virtually non-existent except for a few Club-mosses. Dominant species were White Spruce and Balsam Fir (*Abies balsamea*).

12. Intolerant Hardwood

Plant species diversity was relatively high here compared to the other habitats. Beaked Hazel (*Corylus cornuta*) occurred here and virtually nowhere else. Also present were typical species such as Yellow Blue-Bead Lilly (*Clintonia borealis*) and Northern Beech Fern (*Phegopteris connectilis*).

2.2 Habitat Features

Pond

Ponded water occurred in the Marsh and appeared to be completely stagnant. It also occurred in small pockets less than 10m wide as a result of skidder activity where there was a high watertable.

Streams

One main inlet was identified near the southwest corner of the Shrub Swamp. Channelling was observed infrequently to the north so the main outlet probably lies a short distance off the boundary of PID 70495908. Small seeps were also observed but were mostly dried up this time of year.

Disturbance

Excavation, infilling and clearing have all occurred on the site near the existing dirt road which is an extension of Nature drive.

3.0 DISCUSSION

Species diversity of vascular plants for this area can be considered low to moderate as can the potential for the occurrence of rare species. Little or no encroachment of exotic invasive species was observed except near very disturbed areas such as the roadways and trails. Higher potential for species richness and diversity was observed in the northeast corner of the property where there is a relatively small patch of Tolerant Hardwood which appears to be bound by an old road to the south.

The ACCDC report indicates the occurrence of three S3S4 species and only one S3 species of vascular plant nearby. All four of these species are located at least 1.4km from the center of the study area in the Melanson Settlement Lake Environmentally Significant Area (ESA). They include:

Platanthera blephariglottis	White Fringed Orchid	S3
Eriophorum russeolum	Russet Cottongrass	S3S4
Geocaulon lividum	Northern Comandra	S3S4
Potamogeton oakesianus	Oakes' Pondweed	S3S4

Russet Cottongrass would be considered unlikely to occur on the site since it prefers calcareous environments. The study area shows insufficient species diversity or richness to be considered caclcareous. White Fringed Orchid is a showy species which is generally easy to identify in wet open places dominated by sphagnum moss. Only a small portion of the site matched this description and none were observed. Oakes' Pondweed also is unlikely to occur on site due to a lack of open, shallow water habitat. Finally,Northern Comandra could be expected to occur in the some of the coniferous-dominated areas of the site both in peaty and sandy soils. However, none were observed.

Records from the Connell Herbarium were also queried to identify potential occurrences of rare species in the area. None were found which corresponded to the site location.

4.0 CLOSING

I trust this information meets your current needs. Please feel free to contact me via telephone at (506) 227-7605 or by email at tpopma@nb.sympatico.ca if further clarification or explanation is required.

Sincerely,

Theo Popma BSc, MSc.
President, Overdale Environmental Inc.

5.0 SOURCES

Gleason, H. A. & A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, ed. 2.

Hinds, H. R. 2000. Flora of New Brunswick, ed. 2.

Go Botany. 2018. New England Wild Flower Society. https://gobotany.newenglandwild.org/

LAKEBURN RARE PLANTS APPENDIX 1: RANKS

S Rank, N Rank, G Rank: Sub-national, National and Global Rarity rank of species, using CDC/NatureServe methods.

1 = Extremely rare (typically 5 or fewer occurrences or very few remaining individuals)
2 = Rare (6 to 20 occurrences or few remaining individuals)
3 = Uncommon throughout its range in the province, or found only in a restricted range, even if abundant in at some locations. (21 to 100 occurrences)
4 = Usually widespread). (100+ occurrences)
5 = Demonstrably widespread

NR = Not Ranked
S1S2 = Range rank: in between S1 and S2, for example
? = Inexact numeric rank
E= Exotic species

(For more info on NatureServe/CDC Ranks; http://www.natureserve.org/explorer/ranking.htm)

GSrankCA, GSrank: General Status Rank for Canada and for New Brunswick: These ranks are the product of the National General Status Working Group (NGSWG), under the direction of the Canadian Wildlife Directors Committee (CWDC). The Canadian Wildlife Service, Parks Canada and Fisheries and Oceans Canada (DFO) also participate.

1.1 Extinct
1.2 Extirpated
2 At risk
3 May be at Risk
4 Sensitive
5 Secure
6 Undetermined
7 Not Assessed
8 Exotic
9 Accidental

(For more information on NB GS Ranks:
http://www.wildspecies.ca/default.asp?Lang=En&n=56869CFA-1

SPROT and NPROT: National conservation status of species, as designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) under the Canadian Species at Risk Act (SARA) and the Sub-national conservation status of species, as designated by given provincial jurisdiction (The New Brunswick Endangered Species Act).

Extinct
Extirpated
Endangered
Threatened
Special concern
Not at risk
Data deficient

LAKEBURN RARE PLANTS APPENDIX 2: PLANT LIST

Scientific Name	**Common Name**	**Srank**
Carex retrorsa	Retrorse Sedge	S4
Monotropa hypopithys	Pinesap	S4
Platanthera clavellata	Club Spur Orchid	S4
Lycopodium complanatum	Northern Clubmoss	S4S5
Petasites frigidus	Northern Sweet Coltsfoot	S4S5
Rubus setosus	Bristly Blackberry	S4S5
Abies balsamea	Balsam Fir	S5
Acer rubrum	Red Maple	S5
Acer spicatum	Mountain Maple	S5
Actaea rubra	Red Baneberry	S5
Alnus incana	Speckled Alder	S5
Amelanchier laevis	Smooth Serviceberry	S5
Anaphalis margaritacea	Pearly Everlasting	S5
Apocynum androsaemifolium	Spreading Dogbane	S5
Aralia nudicaulis	Wild Sarsaparilla	S5
Betula papyrifera	Paper Birch	S5
Betula populifolia	Gray Birch	S5
Bidens frondosa	Devil's Beggarticks	S5
Calamagrostis canadensis	Bluejoint Reed Grass	S5
Calla palustris	Wild Calla	S5
Carex arctata	Black Sedge	S5
Carex brunnescens	Brownish Sedge	S5
Carex crinita	Fringed Sedge	S5
Carex debilis	White-edged Sedge	S5
Carex echinata	Star Sedge	S5
Carex magellanica	Boreal Bog Sedge	S5
Carex stipata	Awl-fruited Sedge	S5
Carex stricta	Tussock Sedge	S5
Chamaedaphne calyculata	Leatherleaf	S5
Cicuta maculata	Spotted Water-Hemlock	S5
Clintonia borealis	Yellow Bluebead Lily	S5
Comptonia peregrina	Sweet-fern	S5
Coptis trifolia	Goldthread	S5
Cornus canadensis	Bunchberry	S5
Corylus cornuta	Beaked Hazel	S5
Cypripedium acaule	Pink Lady's-Slipper	S5
Dalibarda repens	Dewdrop	S5
Danthonia spicata	Poverty Oat Grass	S5
Dennstaedtia punctilobula	Eastern Hay-Scented Fern	S5
Doellingeria umbellata	Hairy Flat-top White Aster	S5
Drosera rotundifolia	Round-leaved Sundew	S5

Scientific Name	Common Name	Srank
Dryopteris cristata	Crested Wood Fern	S5
Dulichium arundinaceum	Three-Way Sedge	S5
Eleocharis acicularis	Needle Spikerush	S5
Eleocharis obtusa	Blunt Spikerush	S5
Epigaea repens	Trailing Arbutus	S5
Epilobium leptophyllum	Bog Willowherb	S5
Equisetum arvense	Field Horsetail	S5
Equisetum sylvaticum	Woodland Horsetail	S5
Erechtites hieraciifolia	Eastern Burnweed	S5
Eriophorum virginicum	Tawny Cottongrass	S5
Eurybia macrophylla	Large-leaved Aster	S5
Euthamia graminifolia	Grass-leaved Goldenrod	S5
Fragaria virginiana	Wild Strawberry	S5
Fraxinus americana	White Ash	S5
Galium trifidum	Three-petaled Bedstraw	S5
Gaultheria hispidula	Creeping Snowberry	S5
Gaylussacia baccata	Black Huckleberry	S5
Glyceria canadensis	Canada Manna Grass	S5
Glyceria striata	Fowl Manna Grass	S5
Hypericum canadense	Canada St John's-wort	S5
Hypericum ellipticum	Pale St John's-Wort	S5
Ilex verticillata	Common Winterberry	S5
Impatiens capensis	Spotted Jewelweed	S5
Iris versicolor	Harlequin Blue Flag	S5
Juncus effusus	Soft Rush	S5
Juncus tenuis	Slender Rush	S5
Kalmia angustifolia	Sheep Laurel	S5
Kalmia polifolia	Pale Bog Laurel	S5
Larix laricina	Tamarack	S5
Ledum groenlandicum	Common Labrador Tea	S5
Linnaea borealis	Twinflower	S5
Luzula multiflora	Common Woodrush	S5
Lycopodium dendroideum	Round-branched Tree-clubmoss	S5
Lycopus uniflorus	Northern Water Horehound	S5
Lysimachia terrestris	Swamp Yellow Loosestrife	S5
Maianthemum trifolium	Three-leaved False Soloman's Seal	S5
Mitchella repens	Partridgeberry	S5
Moehringia lateriflora	Blunt-leaved Sandwort	S5
Monotropa uniflora	Indian Pipe	S5
Nemopanthus mucronatus	Mountain Holly	S5
Oclemena acuminata	Whorled Wood Aster	S5
Oenothera perennis	Perennial Evening Primrose	S5

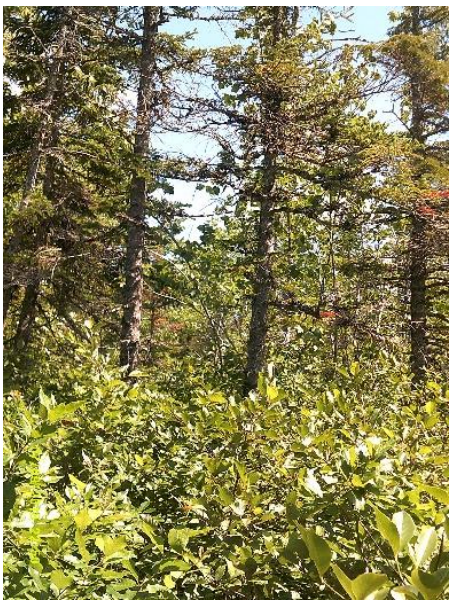
Scientific Name	Common Name	Srank
Onoclea sensibilis	Sensitive Fern	S5
Osmunda cinnamomea	Cinnamon Fern	S5
Osmunda regalis	Royal Fern	S5
Panicum capillare	Common Witch Grass	S5
Phegopteris connectilis	Northern Beech Fern	S5
Picea glauca	White Spruce	S5
Picea rubens	Red Spruce	S5
Poa pratensis	Kentucky Blue Grass	S5
Populus tremuloides	Trembling Aspen	S5
Potentilla simplex	Old Field Cinquefoil	S5
Prenanthes trifoliolata	Three-leaved Rattlesnakeroot	S5
Prunella vulgaris	Common Self-heal	S5
Prunus pensylvanica	Pin Cherry	S5
Pteridium aquilinum	Bracken Fern	S5
Rhododendron canadense	Rhodora	S5
Rhynchospora alba	White Beakrush	S5
Rhynchospora alba	White Beakrush	S5
Rosa nitida	Shining Rose	S5
Rubus idaeus	Red Raspberry	S5
Rubus pubescens	Dwarf Red Raspberry	S5
Rumex orbiculatus	Greater Water Dock	S5
Salix bebbiana	Bebb's Willow	S5
Salix eriocephala	Cottony Willow	S5
Sambucus racemosa	Red Elderberry	S5
Scirpus cyperinus	Common Woolly Bulrush	S5
Scirpus microcarpus	Small-fruited Bulrush	S5
Solidago canadensis	Canada Goldenrod	S5
Solidago rugosa	Rough-stemmed Goldenrod	S5
Solidago uliginosa	Northern Bog Goldenrod	S5
Sorbus americana	American Mountain Ash	S5
Spiraea alba	White Meadowsweet	S5
Spiraea tomentosa	Steeplebush	S5
Symphyotrichum puniceum	Purple-stemmed Aster	S5
Thelypteris palustris	Eastern Marsh Fern	S5
Torreyochloa pallida	Pale False Manna Grass	S5
Triadenum fraseri	Fraser's Marsh St John's-wort	S5
Trientalis borealis	Northern Starflower	S5
Trillium undulatum	Painted Trillium	S5
Typha angustifolia	Narrow-Leaved Cattail	S5
Typha latifolia	Broad-leaved Cattail	S5
Vaccinium myrtilloides	Velvet-leaved Blueberry	S5
Viburnum nudum	Northern Wild Raisin	S5

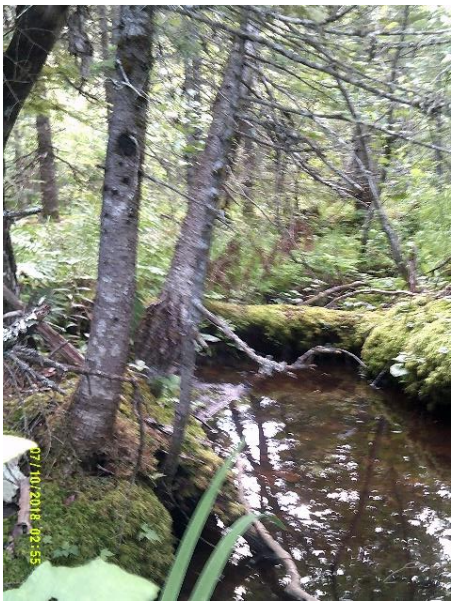
Scientific Name	**Common Name**	**Srank**
Viola cucullata	Marsh Blue Violet	S5
Barbarea vulgaris	Yellow Rocket	SNA
Euphrasia nemorosa	Common Eyebright	SNA
Festuca filiformis	Hair Fescue	SNA
Leontodon autumnalis	Fall Dandelion	SNA
Leucanthemum vulgare	Oxeye Daisy	SNA
Phleum pratense	Common Timothy	SNA
Plantago major	Common Plantain	SNA
Tanacetum vulgare	Common Tansy	SNA
Trifolium repens	White Clover	SNA
Vicia cracca	Tufted Vetch	SNA

LAKEBURN RARE PLANTS APPENDIX 3: HABITAT PHOTOS

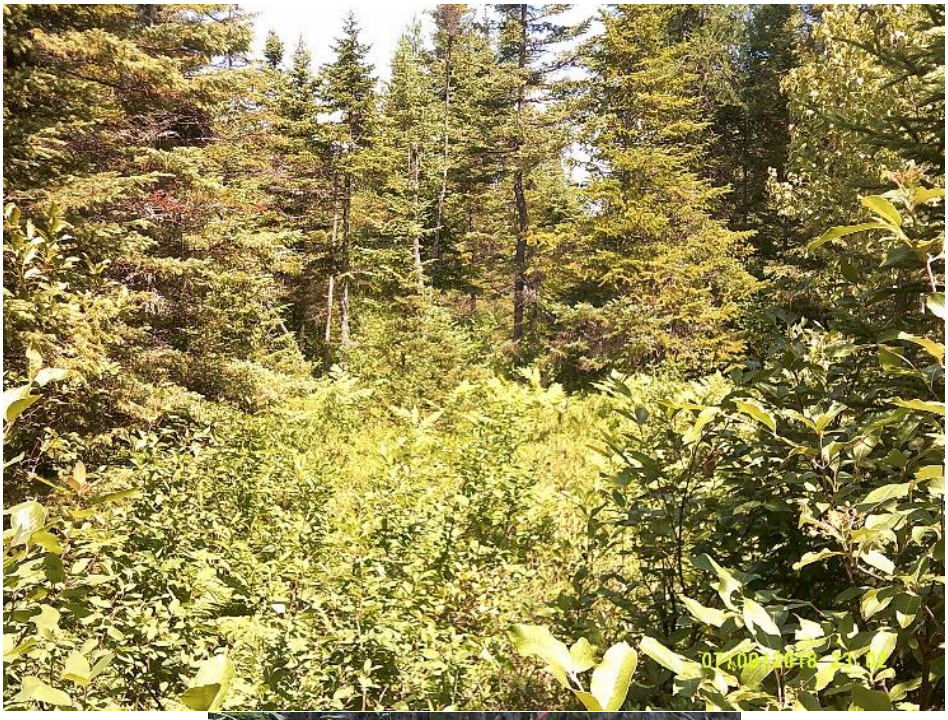
Habitat 1	Shrub Wetland

Habitat 2	Marsh





Habitat 3	Forested Wetland



Habitat 4	Open Upland Clearing with Lichen or Ferns

Habitat 5	Coniferous Forest

Habitat 6	Tolerant Hardwood Forest

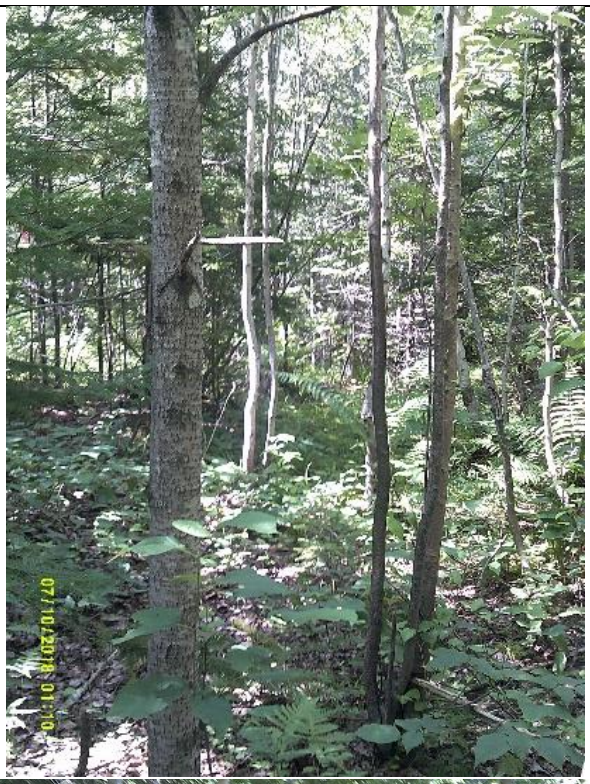
Habitat 7	Larch-dominated Young Coniferous Forest

Habitat 8	Young cutover mixed forest

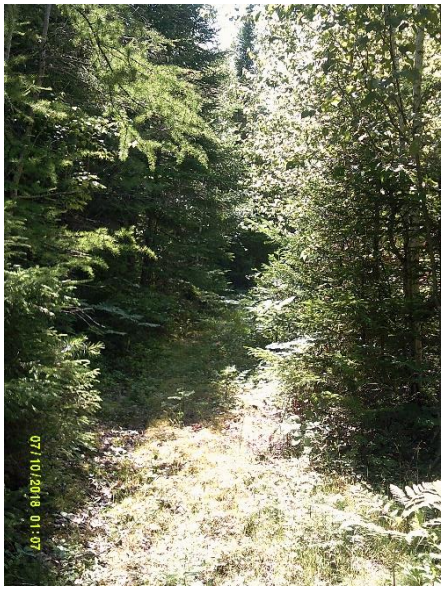
Habitat 9	Moderate Aged Mixed Forest

Habitat 10	Open Mature Mixed Forest

Habitat 11	Boreal Forest



Habitat 12	Intolerant Hardwood



Feature 1	Disturbed Areas

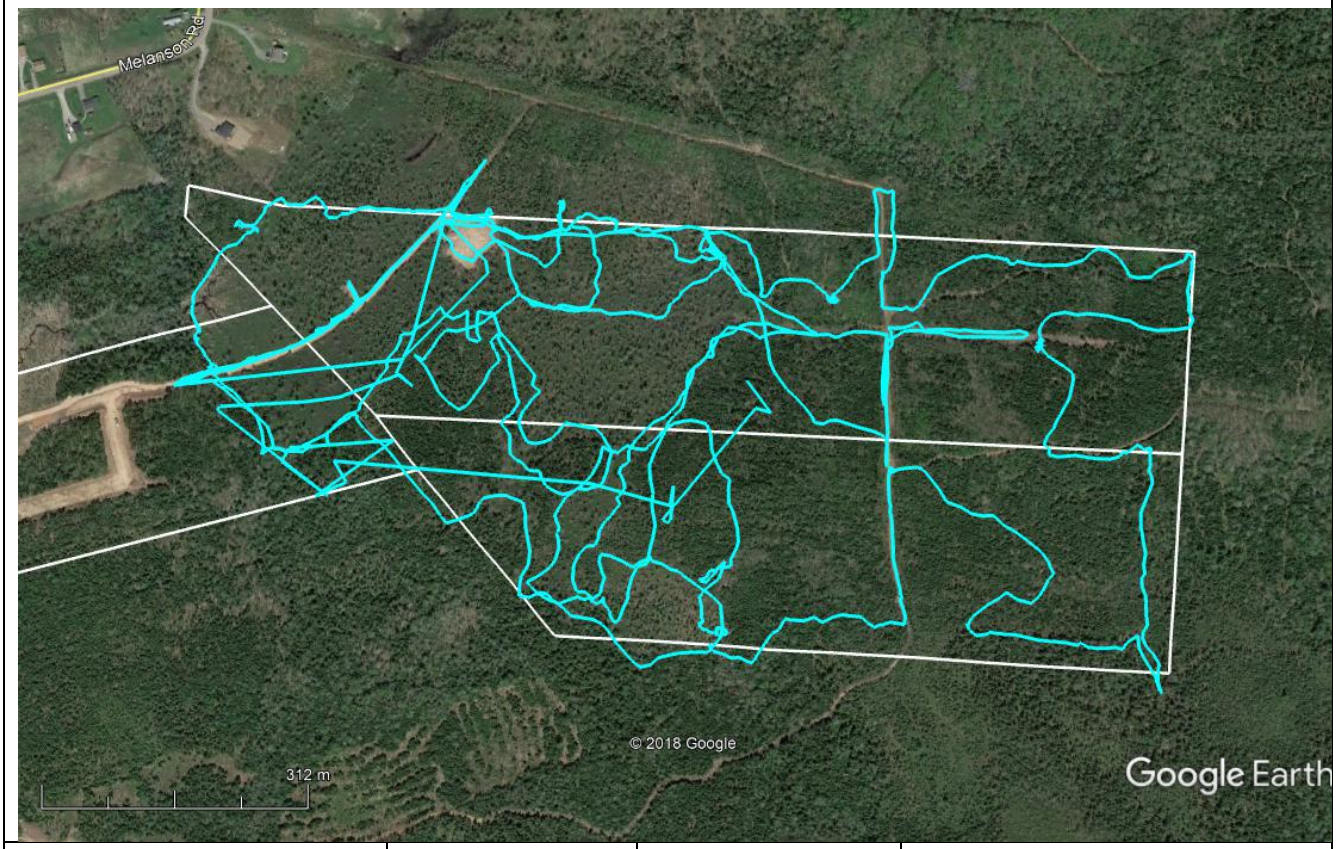
Feature 2	Ponded Water

Feature 3	Streams

Figure 1. Project Location and Survey Area

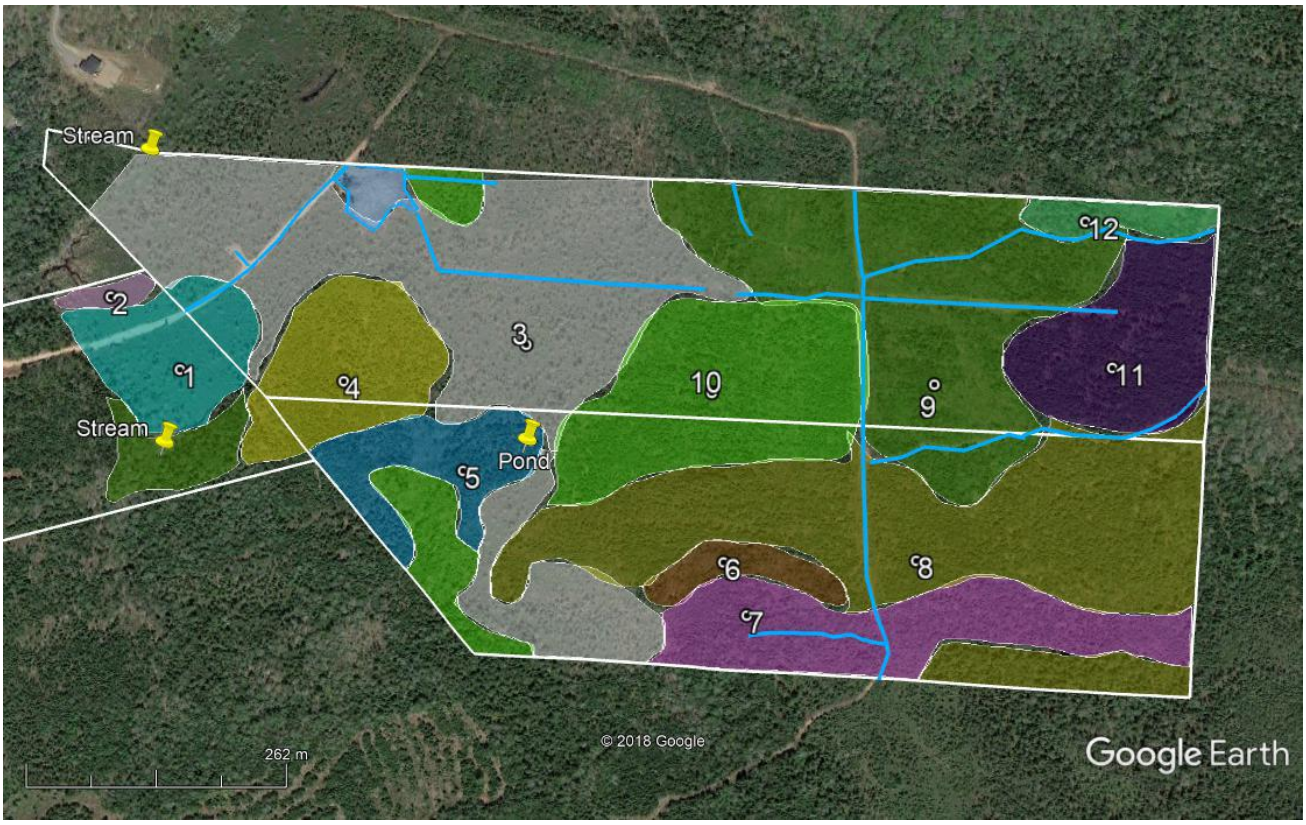
Fisher Engineering; Lakeburn	Figure 1	Project Location and Survey Area	Overdale Environmental Inc.

Figure 2. Survey Tracks



Fisher Engineering; Lakeburn	Figure 2	Survey Tracks	Overdale Environmental Inc.

Figure 3. Habitat Map



Fisher Engineering; Lakeburn	Figure 3	Habitat Map	Overdale Environmental Inc.

LAKEBURN RARE PLANTS APPENDIX 5: HABITAT SPECIES-ASSOCIATIONS

Table 1: Shrub Swamp

Nemopanthus mucronatus	Mountain Holly	S5
Alnus incana	Speckled Alder	S5
Osmunda cinnamomea	Cinnamon Fern	S5
Viburnum nudum	Northern Wild Raisin	S5
Maianthemum trifolium	Three-leaved False Soloman's Seal	S5
Rubus pubescens	Dwarf Red Raspberry	S5
Onoclea sensibilis	Sensitive Fern	S5

Table 2: Marsh

Calamagrostis canadensis	Bluejoint Reed Grass	S5
Glyceria striata	Fowl Manna Grass	S5
Juncus effusus	Soft Rush	S5
Lysimachia terrestris	Swamp Yellow Loosestrife	S5
Lycopus uniflorus	Northern Water Horehound	S5
Calla palustris	Wild Calla	S5

Table 3: Forested Wetland

Acer rubrum	**Red Maple**	**S5**
Nemopanthus mucronatus	**Mountain Holly**	**S5**
Betula populifolia	**Gray Birch**	**S5**
Picea glauca	**White Spruce**	**S5**
Viburnum nudum	**Northern Wild Raisin**	**S5**
Alnus incana	**Speckled Alder**	**S5**
Osmunda cinnamomea	**Cinnamon Fern**	**S5**
Kalmia angustifolia	**Sheep Laurel**	**S5**
Maianthemum trifolium	**Three-leaved False Soloman's Seal**	**S5**
Rhynchospora alba	**White Beakrush**	**S5**

Table 4: Lichens

Betula populifolia	***Gray Birch***	***S5***
Picea glauca	***White Spruce***	***S5***
Pinus strobus	***Eastern White Pine***	***S5***
Pteridium aquilinum	***Bracken Fern***	***S5***
Gaultheria procumbens	***Eastern Teaberry***	***S5***
	Lichens	

Table 5: Mature Coniferous Forest

Abies balsamea	Balsam Fir	S5
Picea glauca	White Spruce	S5
Aralia nudicaulis	Wild Sarsaparilla	S5
Cornus canadensis	Bunchberry	S5

Table 6: Tolerant Hardwood

Fraxinus americana	White Ash	S5
Acer rubrum	Red Maple	S5
Betula populifolia	Gray Birch	S5
Abies balsamea	Balsam Fir	S5

Table 7: Larch

Larix laricina	***Tamarack***	***S5***
Betula papyrifera	***Paper Birch***	***S5***
Betula populifolia	***Gray Birch***	***S5***
Abies balsamea	***Balsam Fir***	***S5***
Picea glauca	***White Spruce***	***S5***
Maianthemum trifolium	***Three-leaved False Soloman's Seal***	***S5***
Osmunda cinnamomea	***Cinnamon Fern***	***S5***
Nemopanthus mucronatus	***Mountain Holly***	***S5***
Kalmia angustifolia	***Sheep Laurel***	***S5***
Viburnum nudum	***Northern Wild Raisin***	***S5***
Sphagnum spp.	***Moss***	

Table 8: Young Cutover Mixed Forest

Betula populifolia	Gray Birch	S5
Abies balsamea	Balsam Fir	S5
Kalmia angustifolia	Sheep Laurel	S5
Viburnum nudum	Northern Wild Raisin	S5
Aralia nudicaulis	Wild Sarsaparilla	S5
Coptis trifolia	Goldthread	S5
Pteridium aquilinum	Bracken Fern	S5

Table 9: Moderate Aged Deciduous

Populus tremuloides	***Trembling Aspen***	***S5***
Acer rubrum	***Red Maple***	***S5***
Betula papyrifera	***Paper Birch***	***S5***
Abies balsamea	***Balsam Fir***	***S5***
Pteridium aquilinum	***Bracken Fern***	***S5***
Cornus canadensis	***Bunchberry***	***S5***
Doellingeria umbellata	***Hairy Flat-top White Aster***	***S5***
Aralia nudicaulis	***Wild Sarsaparilla***	***S5***

Table 10: Mature Mixed Forest

Acer rubrum	***Red Maple***	***S5***
Abies balsamea	***Balsam Fir***	***S5***
Betula papyrifera	***Paper Birch***	***S5***
Picea glauca	***White Spruce***	***S5***
Cypripedium acaule	***Pink Lady's-Slipper***	***S5***
Vaccinium myrtilloides	***Velvet-leaved Blueberry***	***S5***
Clintonia borealis	***Yellow Bluebead Lily***	***S5***
Pteridium aquilinum	***Bracken Fern***	***S5***

Table 11: Boreal Forest

Picea glauca	***White Spruce***	***S5***
Abies balsamea	***Balsam Fir***	***S5***
Lycopodium complanatum	***Northern Clubmoss***	***S4S5***
Lycopodium dendroideum	***Round-branched Tree-clubmoss***	***S5***

Table 12: Intolerant Hardwood

Acer spicatum	Mountain Maple	S5
Betula papyrifera	Paper Birch	S5
Acer rubrum	Red Maple	S5
Corylus cornuta	Beaked Hazel	S5
Phegopteris connectilis	Northern Beech Fern	S5
Clintonia borealis	Yellow Bluebead Lily	S5

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

DATA REPORT 6118: Lakeburn, NB

Prepared 25 July 2018
by J. Churchill, Data Manager

CONTENTS OF REPORT

Map 1. A 100 km buffer around the study area

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (ACCDC) 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 ACCDC 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 ACCDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees. URL: www.ACCDC.com.

Upon request and for a fee, the ACCDC 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 ACCDC 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	Contents
LakeburnNB_6118ob.xls	All Rare and legally protected *Flora and Fauna* in your study area
LakeburnNB_6118ob100km.xls	A list of Rare and legally protected *Flora and Fauna* within 100 km of your study area
LakeburnNB_6118sa.xls	All *Significant Natural Areas* in your study area

1.2 RESTRICTIONS

The ACCDC 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 ACCDC data, recipients assent to the following limits of use:

a) 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.
b) Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
c) The ACCDC 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.
d) ACCDC data responses are restricted to the data in our Data System at the time of the data request.
e) 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.
f) ACCDC data responses are not to be construed as exhaustive inventories of taxa in an area.
g) The absence of a taxon cannot be inferred by its absence in an ACCDC data response.

1.3 ADDITIONAL INFORMATION

The attached file DataDictionary 2.1.pdf provides metadata for the data provided.

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

Plants, Lichens, Ranking Methods, All other Inquiries
Sean Blaney, Senior Scientist, Executive Director
Tel: (506) 364-2658
sblaney@mta.ca

Animals (Fauna)
John Klymko, Zoologist
Tel: (506) 364-2660
jklymko@mta.ca

Plant Communities
Sarah Robinson, Community Ecologist
Tel: (506) 364-2664
srobinson@mta.ca

Data Management, GIS
James Churchill, Data Manager
Tel: (902) 679-6146
jlchurchill@mta.ca

Billing
Jean Breau
Tel: (506) 364-2657
jrbreau@mta.ca

Questions on the biology of Federal Species at Risk can be directed to ACCDC: (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.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in New Brunswick, please contact Stewart Lusk, Natural Resources: (506) 453-7110.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in Nova Scotia, please contact Sherman Boates, NSDNR: (902) 679-6146. To determine if location-sensitive species (section 4.3) occur near your study site please contact a NSDNR Regional Biologist:

Western: Duncan Bayne
(902) 648-3536
Duncan.Bayne@novascotia.ca

Western: Jason Power
(902) 634-7555
Jason.Power@novascotia.ca

Central: Shavonne Meyer
(902) 893-6353
Shavonne.Meyer@novascotia.ca

Central: Kimberly George
(902) 893-5630
Kimberly.George@novascotia.ca

Eastern: Lisa Doucette
(902) 863-7523
Lisa.Doucette@novascotia.ca

Eastern: Terry Power
(902) 563-3370
Terrance.Power@novascotia.ca

For provincial information about rare taxa and protected areas, or information about game animals, fish habitat etc., in Prince Edward Island, please contact Garry Gregory, PEI Dept. of Communities, Land and Environment: (902) 569-7595.

2.0 RARE AND ENDANGERED SPECIES

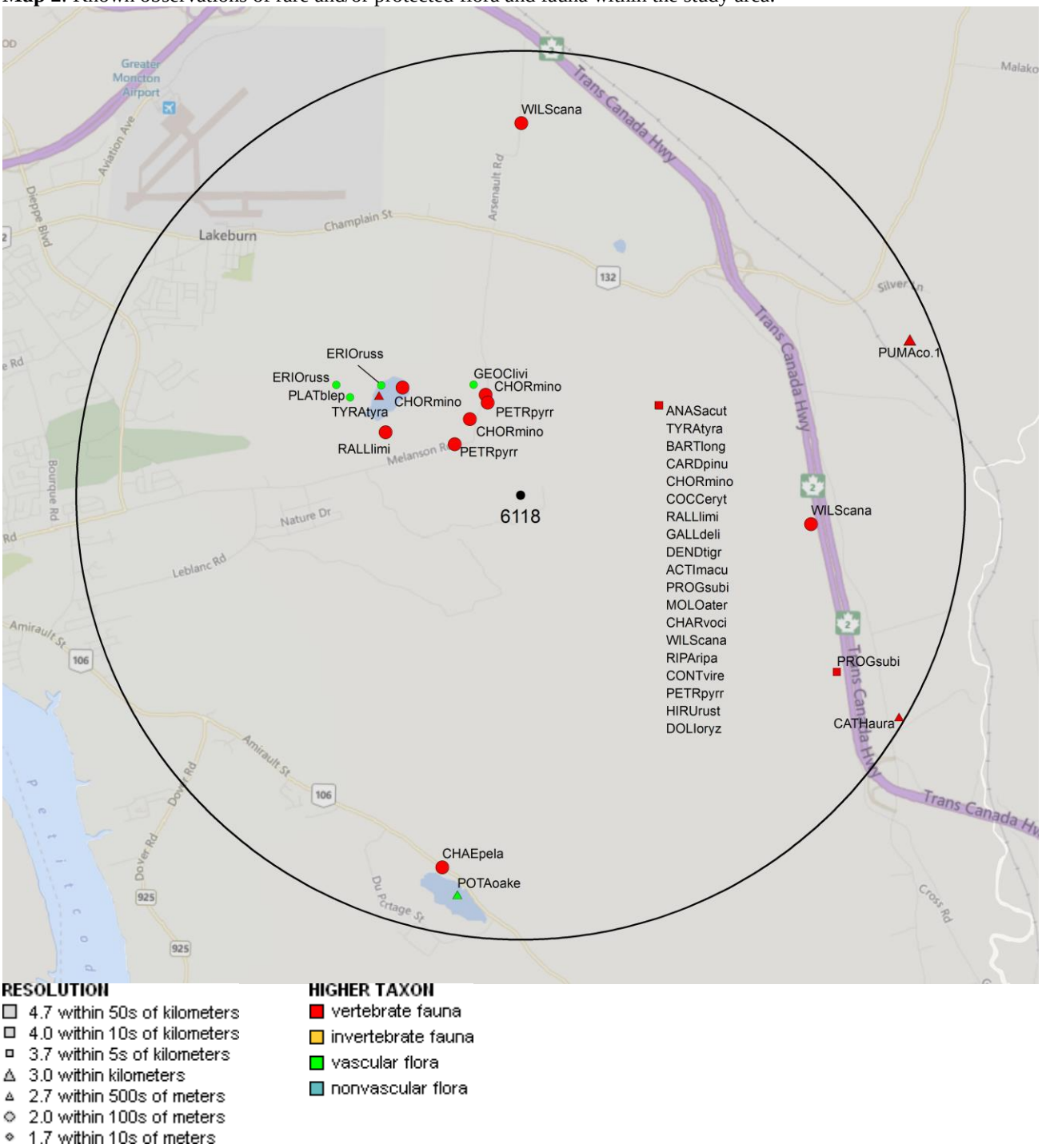
2.1 FLORA

The study area contains 6 records of 4 vascular, no records of nonvascular flora (Map 2 and attached: *ob.xls).

2.2 FAUNA

The study area contains 59 records of 22 vertebrate, no records of invertebrate fauna (Map 2 and attached data files - see 1.1 Data List). 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.

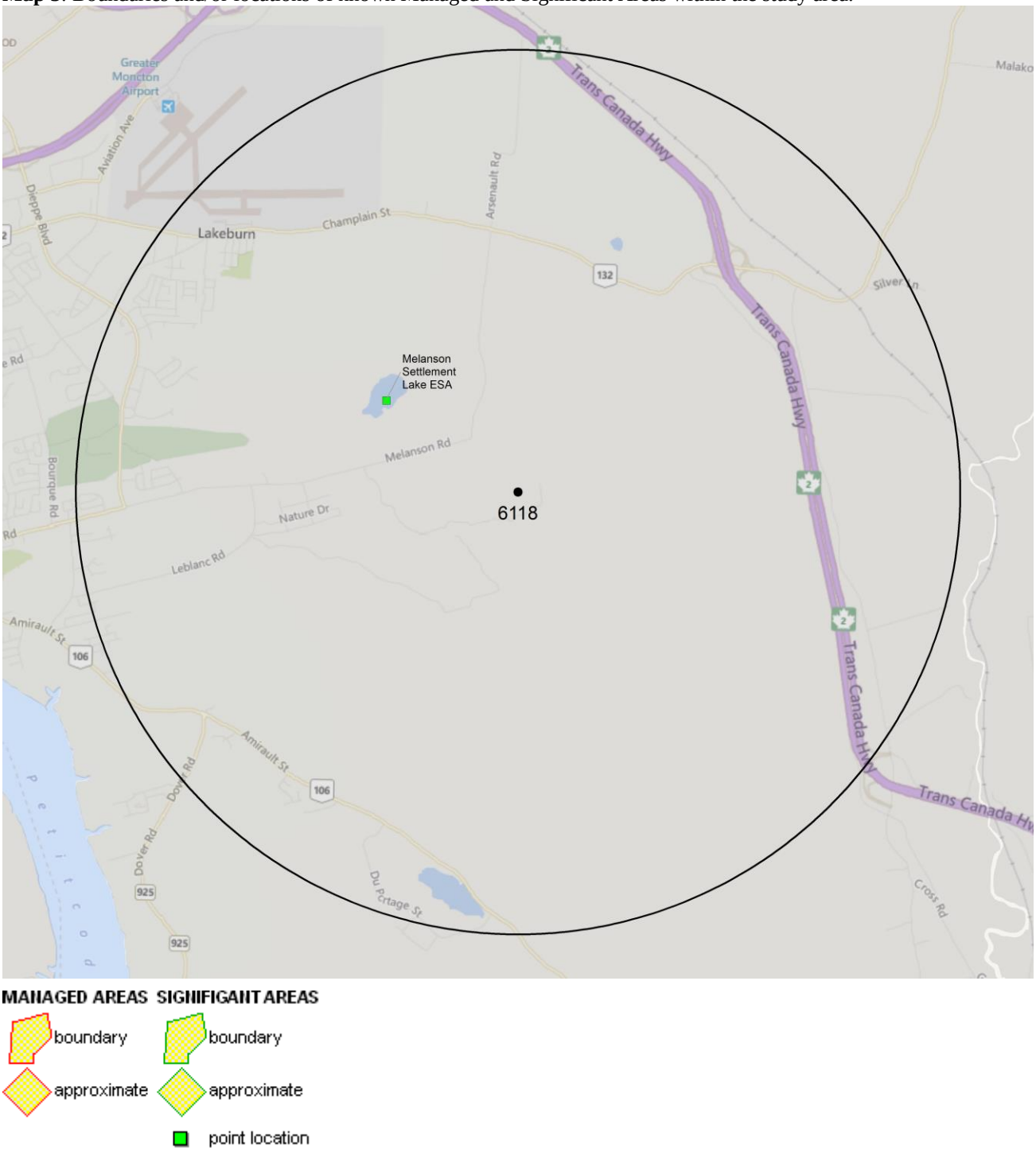


3.0 SPECIAL AREAS

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 1 biologically significant site in the vicinity of the study area (Map 3 and attached file: *sa*.xls).

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 (± 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	Prov GS Rank	# recs	Distance (km)
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	4 Secure	1	2.2 ± 0.0
P	*Geocaulon lividum*	Northern Comandra				S3S4	4 Secure	1	1.4 ± 0.0
P	*Eriophorum russeolum*	Russet Cottongrass				S3S4	4 Secure	2	2.0 ± 0.0
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	2	4.5 ± 0.0

4.2 FAUNA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	*Hirundo rustica*	Barn Swallow	Threatened	Threatened	Threatened	S2B,S2M	3 Sensitive	5	1.9 ± 7.0
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	1	4.3 ± 0.0
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	3 Sensitive	1	1.9 ± 7.0
A	*Wilsonia canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	6	1.9 ± 7.0
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3 Sensitive	4	1.9 ± 7.0
A	*Chordeiles minor*	Common Nighthawk	Threatened	Threatened	Threatened	S3B,S4M	1 At Risk	4	1.1 ± 0.0
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	4 Secure	3	1.9 ± 7.0
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SNA	5 Undetermined	1	4.7 ± 1.0
A	*Bartramia longicauda*	Upland Sandpiper				S1B,S1M	3 Sensitive	1	1.9 ± 7.0
A	*Progne subis*	Purple Martin				S1B,S1M	2 May Be At Risk	2	1.9 ± 7.0
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	7	0.9 ± 0.0
A	*Carduelis pinus*	Pine Siskin				S3	4 Secure	1	1.9 ± 7.0
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	4 Secure	1	4.9 ± 0.0
A	*Rallus limicola*	Virginia Rail				S3B,S3M	3 Sensitive	6	1.7 ± 0.0
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	2	1.9 ± 7.0
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B,S3M	4 Secure	2	1.9 ± 7.0
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	2 May Be At Risk	2	1.9 ± 7.0
A	*Dendroica tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	1	1.9 ± 7.0
A	*Anas acuta*	Northern Pintail				S3B,S5M	3 Sensitive	1	1.9 ± 7.0
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	3	1.9 ± 0.0
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	3	1.9 ± 7.0
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	2	1.9 ± 7.0

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?
Chrysemys picta picta	Eastern Painted Turtle			No
Chelydra serpentina	**Snapping Turtle**	**Special Concern**	**Special Concern**	**YES**
Glyptemys insculpta	Wood Turtle	Threatened	Threatened	No
Haliaeetus leucocephalus	**Bald Eagle**		**Endangered**	**YES**
Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius pop.	Special Concern	Endangered	No
Cicindela marginipennis	Cobblestone Tiger Beetle	Endangered	Endangered	No
Coenonympha nipisiquit	Maritime Ringlet	Endangered	Endangered	No
Bat Hibernaculum		[Endangered][1]	[Endangered][1]	No

1 *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 ACCDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

# recs	CITATION
37	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
18	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
6	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2015. Atlantic Canada Conservation Data Centre Fieldwork 2015. Atlantic Canada Conservation Data Centre, # recs.
2	Hinds, H.R. 1986. Notes on New Brunswick plant collections. Connell Memorial Herbarium, unpubl, 739 recs.
1	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.
1	Scott, Fred W. 1998. Updated Status Report on the Cougar (Puma Concolor couguar) [Eastern population]. Committee on the Status of Endangered Wildlife in Canada, 298 recs.
1	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc.

5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 30624 records of 135 vertebrate and 662 records of 63 invertebrate fauna; 5230 records of 281 vascular, 766 records of 181 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. 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 (± the precision, in km, of the record).

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Myotis lucifugus*	Little Brown Myotis	Endangered	Endangered	Endangered	S1	1 At Risk	15	16.1 ± 1.0	NB
A	*Myotis septentrionalis*	Northern Long-eared Myotis	Endangered	Endangered	Endangered	S1	1 At Risk	15	16.1 ± 1.0	NB
A	*Perimyotis subflavus*	Eastern Pipistrelle	Endangered	Endangered	Endangered	S1	1 At Risk	17	20.1 ± 0.0	NB
A	*Sterna dougallii*	Roseate Tern	Endangered	Endangered	Endangered	S1?B,S1?M	1 At Risk	1	94.1 ± 0.0	NS
A	*Charadrius melodus melodus*	Piping Plover melodus ssp	Endangered	Endangered	Endangered	S1B,S1M	1 At Risk	1650	20.1 ± 0.0	NB
A	*Dermochelys coriacea (Atlantic pop.)*	Leatherback Sea Turtle - Atlantic pop.	Endangered	Endangered	Endangered	S1S2N	1 At Risk	5	38.7 ± 1.0	NB
A	*Salmo salar pop. 1*	Atlantic Salmon - Inner Bay of Fundy pop.	Endangered	Endangered	Endangered	S2	2 May Be At Risk	70	24.8 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Calidris canutus rufa*	Red Knot rufa ssp	Endangered		Endangered	S2M	1 At Risk	712	12.0 ± 44.0	NB
A	*Rangifer tarandus pop. 2*	Woodland Caribou (Atlantic-Gasp├⌐sie pop.)	Endangered	Endangered	Extirpated	SX	0.1 Extirpated	2	38.3 ± 1.0	NB
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened	Threatened	S1B,S1M	2 May Be At Risk	46	20.3 ± 0.0	NB
A	*Ixobrychus exilis*	Least Bittern	Threatened	Threatened	Threatened	S1S2B,S1S2M	1 At Risk	14	15.9 ± 0.0	NB
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened	Threatened	S1S2B,S1S2M	2 May Be At Risk	64	13.0 ± 2.0	NB
A	*Caprimulgus vociferus*	Whip-Poor-Will	Threatened	Threatened	Threatened	S2B,S2M	1 At Risk	20	8.5 ± 7.0	NB
A	*Hirundo rustica*	Barn Swallow	Threatened	Threatened	Threatened	S2B,S2M	3 Sensitive	1160	1.9 ± 7.0	NB
A	*Catharus bicknelli*	Bicknell's Thrush	Threatened	Special Concern	Threatened	S2B,S2M	1 At Risk	11	13.0 ± 2.0	NB
A	*Glyptemys insculpta*	Wood Turtle	Threatened	Threatened	Threatened	S2S3	1 At Risk	544	6.2 ± 0.0	NB
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	170	4.3 ± 0.0	NB
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	3 Sensitive	698	1.9 ± 7.0	NB
A	*Acipenser oxyrinchus*	Atlantic Sturgeon	Threatened		Threatened	S3	4 Secure	3	30.4 ± 1.0	NB
A	*Contopus cooperi*	Olive-sided Flycatcher	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	475	5.4 ± 0.0	NB
A	*Wilsonia canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	585	1.9 ± 7.0	NB
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3 Sensitive	1197	1.9 ± 7.0	NB
A	*Chordeiles minor*	Common Nighthawk	Threatened	Threatened	Threatened	S3B,S4M	1 At Risk	197	1.1 ± 0.0	NB
A	*Anguilla rostrata*	American Eel	Threatened		Threatened	S4	4 Secure	78	16.9 ± 1.0	NB
A	*Coturnicops noveboracensis*	Yellow Rail	Special Concern	Special Concern	Special Concern	S1?B,SUM	2 May Be At Risk	5	27.7 ± 0.0	NB
A	*Falco peregrinus pop. 1*	Peregrine Falcon - anatum/tundrius	Special Concern	Special Concern	Endangered	S1B,S3M	1 At Risk	312	8.5 ± 7.0	NB
A	*Asio flammeus*	Short-eared Owl	Special Concern	Special Concern	Special Concern	S2B,S2M	3 Sensitive	43	5.7 ± 64.0	NB
A	*Bucephala islandica (Eastern pop.)*	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2M,S2N	3 Sensitive	105	11.9 ± 119.0	NB
A	*Balaenoptera physalus*	Fin Whale - Atlantic pop.	Special Concern	Special Concern	Special Concern	S2S3		1	52.7 ± 1.0	NB
A	*Chelydra serpentina*	Snapping Turtle	Special Concern	Special Concern	Special Concern	S3	3 Sensitive	2	3.7 ± 1.0	NB
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B,S3M	2 May Be At Risk	87	15.4 ± 0.0	NB
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern			S3B,S3S4N,SUM	3 Sensitive	242	8.5 ± 7.0	NB
A	*Phalaropus lobatus*	Red-necked Phalarope	Special Concern			S3M	3 Sensitive	18	9.9 ± 0.0	NB
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	4 Secure	601	1.9 ± 7.0	NB
A	*Podiceps auritus*	Horned Grebe	Special Concern		Special Concern	S4N,S4M	4 Secure	50	19.9 ± 5.0	NB
A	*Hemidactylium scutatum*	Four-toed Salamander	Not At Risk			S1?	5 Undetermined	4	66.4 ± 0.0	NB
A	*Bubo scandiacus*	Snowy Owl	Not At Risk			S1N,S2S3M	4 Secure	50	9.5 ± 0.0	NB
A	*Accipiter cooperii*	Cooper's Hawk	Not At Risk			S1S2B,S1S2M	2 May Be At Risk	4	28.2 ± 5.0	NB
A	*Fulica americana*	American Coot	Not At Risk			S1S2B,S1S2M	3 Sensitive	56	16.3 ± 0.0	NB
A	*Aegolius funereus*	Boreal Owl	Not At Risk			S1S2B,SUM	2 May Be At Risk	10	28.0 ± 0.0	NB
A	*Sorex dispar*	Long-tailed Shrew	Not At Risk	Special Concern		S2	3 Sensitive	6	32.5 ± 1.0	NB
A	*Buteo lineatus*	Red-shouldered Hawk	Not At Risk	Special Concern		S2B,S2M	2 May Be At Risk	22	15.4 ± 0.0	NB
A	*Chlidonias niger*	Black Tern	Not At Risk			S2B,S2M	3 Sensitive	62	18.5 ± 7.0	NB
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	13	22.6 ± 10.0	NB
A	*Desmognathus fuscus*	Northern Dusky Salamander	Not At Risk			S3	3 Sensitive	1	61.2 ± 0.0	NB
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B,SUM	3 Sensitive	585	11.3 ± 1.0	NB
A	*Podiceps grisegena*	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive	50	20.1 ± 1.0	NB
A	*Lagenorhynchus acutus*	Atlantic White-sided Dolphin	Not At Risk			S3S4		2	26.2 ± 1.0	NB
A	*Haliaeetus leucocephalus*	Bald Eagle	Not At Risk		Endangered	S4	1 At Risk	1103	1.9 ± 7.0	NB
A	*Canis lupus*	Gray Wolf	Not At Risk		Extirpated	SX	0.1 Extirpated	2	78.1 ± 1.0	NB
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SNA	5 Undetermined	117	4.7 ± 1.0	NB
A	*Morone saxatilis*	Striped Bass	E,E,SC			S3	2 May Be At Risk	39	30.4 ± 0.0	NB
A	*Salvelinus alpinus*	Arctic Char				S1	3 Sensitive	3	73.6 ± 1.0	NB
A	*Vireo flavifrons*	Yellow-throated Vireo				S1?B,S1?M	8 Accidental	4	13.8 ± 0.0	NB
A	*Tringa melanoleuca*	Greater Yellowlegs				S1?B,S5M	4 Secure	1924	7.2 ± 0.0	NB
A	*Aythya americana*	Redhead				S1B,S1M	8 Accidental	10	9.1 ± 7.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Gallinula chloropus*	Common Moorhen				S1B,S1M	3 Sensitive	30	17.8 ± 0.0	NB
A	*Grus canadensis*	Sandhill Crane				S1B,S1M	8 Accidental	11	24.0 ± 7.0	NB
A	*Bartramia longicauda*	Upland Sandpiper				S1B,S1M	3 Sensitive	49	1.9 ± 7.0	NB
A	*Phalaropus tricolor*	Wilson's Phalarope				S1B,S1M	3 Sensitive	27	9.9 ± 0.0	NB
A	*Leucophaeus atricilla*	Laughing Gull				S1B,S1M	3 Sensitive	9	10.0 ± 1.0	NB
A	*Progne subis*	Purple Martin				S1B,S1M	2 May Be At Risk	109	1.9 ± 7.0	NB
A	*Thryothorus ludovicianus*	Carolina Wren				S1B,S1M	8 Accidental	7	13.0 ± 5.0	NB
A	*Oxyura jamaicensis*	Ruddy Duck				S1B,S2S3M	4 Secure	103	9.1 ± 7.0	NB
A	*Aythya affinis*	Lesser Scaup				S1B,S4M	4 Secure	165	11.9 ± 0.0	NB
A	*Aythya marila*	Greater Scaup				S1B,S4M,S2N	4 Secure	10	20.9 ± 1.0	NB
A	*Eremophila alpestris*	Horned Lark				S1B,S4N,S5M	2 May Be At Risk	63	8.5 ± 7.0	NB
A	*Sterna paradisaea*	Arctic Tern				S1B,SUM	2 May Be At Risk	24	21.1 ± 7.0	NB
A	*Fratercula arctica*	Atlantic Puffin				S1B,SUN,SUM	3 Sensitive	3	59.5 ± 11.0	NB
A	*Branta bernicla*	Brant				S1N, S2S3M	4 Secure	34	20.1 ± 1.0	NB
A	*Chroicocephalus ridibundus*	Black-headed Gull				S1N,S2M	3 Sensitive	12	10.9 ± 0.0	NB
A	*Butorides virescens*	Green Heron				S1S2B,S1S2M	3 Sensitive	5	18.5 ± 7.0	NB
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1S2B,S1S2M	3 Sensitive	5	15.4 ± 0.0	NB
A	*Empidonax traillii*	Willow Flycatcher				S1S2B,S1S2M	3 Sensitive	64	8.5 ± 7.0	NB
A	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow				S1S2B,S1S2M	2 May Be At Risk	4	61.6 ± 0.0	NS
A	*Troglodytes aedon*	House Wren				S1S2B,S1S2M	5 Undetermined	11	6.6 ± 0.0	NB
A	*Rissa tridactyla*	Black-legged Kittiwake				S1S2B,S4N,S5M	4 Secure	2	37.2 ± 0.0	NB
A	*Calidris bairdii*	Baird's Sandpiper				S1S2M	3 Sensitive	47	9.9 ± 0.0	NB
A	*Cistothorus palustris*	Marsh Wren				S2B,S2M	3 Sensitive	43	15.9 ± 0.0	NB
A	*Mimus polyglottos*	Northern Mockingbird				S2B,S2M	3 Sensitive	133	8.5 ± 7.0	NB
A	*Toxostoma rufum*	Brown Thrasher				S2B,S2M	3 Sensitive	27	11.6 ± 7.0	NB
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	112	8.5 ± 7.0	NB
A	*Anas strepera*	Gadwall				S2B,S3M	4 Secure	230	8.5 ± 7.0	NB
A	*Pinicola enucleator*	Pine Grosbeak				S2B,S4S5N,S4S5M	3 Sensitive	29	9.0 ± 7.0	NB
A	*Tringa solitaria*	Solitary Sandpiper				S2B,S5M	4 Secure	149	9.7 ± 0.0	NB
A	*Oceanodroma leucorhoa*	Leach's Storm-Petrel				S2B,SUM	3 Sensitive	1	25.5 ± 0.0	NB
A	*Chen caerulescens*	Snow Goose				S2M	4 Secure	22	7.4 ± 0.0	NB
A	*Phalacrocorax carbo*	Great Cormorant				S2N,S2M	4 Secure	29	12.2 ± 2.0	NB
A	*Somateria spectabilis*	King Eider				S2N,S2M	4 Secure	4	20.1 ± 0.0	NB
A	*Larus hyperboreus*	Glaucous Gull				S2N,S2M	4 Secure	92	7.8 ± 59.0	NB
A	*Asio otus*	Long-eared Owl				S2S3	5 Undetermined	27	7.1 ± 0.0	NB
A	*Picoides dorsalis*	American Three-toed Woodpecker				S2S3	3 Sensitive	14	38.5 ± 7.0	NB
A	*Salmo salar*	Atlantic Salmon				S2S3	2 May Be At Risk	35	16.9 ± 1.0	NB
A	*Anas clypeata*	Northern Shoveler				S2S3B,S2S3M	4 Secure	302	6.5 ± 0.0	NB
A	*Myiarchus crinitus*	Great Crested Flycatcher				S2S3B,S2S3M	3 Sensitive	45	8.5 ± 7.0	NB
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	492	0.9 ± 0.0	NB
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	3 Sensitive	198	12.0 ± 0.0	NB
A	*Calcarius lapponicus*	Lapland Longspur				S2S3N,SUM	3 Sensitive	42	15.4 ± 0.0	NB
A	*Cepphus grylle*	Black Guillemot				S3	4 Secure	44	38.5 ± 5.0	NB
A	*Loxia curvirostra*	Red Crossbill				S3	4 Secure	122	8.5 ± 7.0	NB
A	*Carduelis pinus*	Pine Siskin				S3	4 Secure	319	1.9 ± 7.0	NB
A	*Sorex maritimensis*	Maritime Shrew				S3	4 Secure	141	31.6 ± 1.0	NB
A	*Eptesicus fuscus*	Big Brown Bat				S3	3 Sensitive	7	11.6 ± 1.0	NB
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	4 Secure	135	4.9 ± 0.0	NB
A	*Rallus limicola*	Virginia Rail				S3B,S3M	3 Sensitive	141	1.7 ± 0.0	NB
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	855	1.9 ± 7.0	NB
A	*Tringa semipalmata*	Willet				S3B,S3M	3 Sensitive	814	16.0 ± 7.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B,S3M	4 Secure	96	1.9 ± 7.0	NB
A	*Vireo gilvus*	Warbling Vireo				S3B,S3M	4 Secure	54	8.5 ± 7.0	NB
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	4 Secure	46	8.5 ± 7.0	NB
A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	4 Secure	27	19.1 ± 7.0	NB
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	2 May Be At Risk	243	1.9 ± 7.0	NB
A	*Icterus galbula*	Baltimore Oriole				S3B,S3M	4 Secure	86	8.5 ± 7.0	NB
A	*Somateria mollissima*	Common Eider				S3B,S4M,S3N	4 Secure	179	6.3 ± 80.0	NB
A	*Dendroica tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	238	1.9 ± 7.0	NB
A	*Anas acuta*	Northern Pintail				S3B,S5M	3 Sensitive	136	1.9 ± 7.0	NB
A	*Mergus serrator*	Red-breasted Merganser				S3B,S5M,S4S5N	4 Secure	280	15.0 ± 1.0	NB
A	*Arenaria interpres*	Ruddy Turnstone				S3M	4 Secure	1022	9.5 ± 0.0	NB
A	*Phalaropus fulicarius*	Red Phalarope				S3M	3 Sensitive	4	39.3 ± 0.0	NB
A	*Melanitta nigra*	Black Scoter				S3M,S1S2N	3 Sensitive	243	5.7 ± 64.0	NB
A	*Bucephala albeola*	Bufflehead				S3M,S2N	3 Sensitive	106	5.7 ± 64.0	NB
A	*Calidris maritima*	Purple Sandpiper				S3M,S3N	4 Secure	65	20.9 ± 1.0	NB
A	*Synaptomys cooperi*	Southern Bog Lemming				S3S4	4 Secure	88	39.0 ± 1.0	NB
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	473	1.9 ± 7.0	NB
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	826	1.9 ± 7.0	NB
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	775	1.9 ± 7.0	NB
A	*Larus delawarensis*	Ring-billed Gull				S3S4B,S5M	4 Secure	265	9.7 ± 0.0	NB
A	*Dendroica striata*	Blackpoll Warbler				S3S4B,S5M	4 Secure	53	12.3 ± 7.0	NB
A	*Pluvialis squatarola*	Black-bellied Plover				S3S4M	4 Secure	1747	9.9 ± 0.0	NB
A	*Limosa haemastica*	Hudsonian Godwit				S3S4M	4 Secure	407	21.3 ± 0.0	NB
A	*Calidris pusilla*	Semipalmated Sandpiper				S3S4M	4 Secure	2394	9.5 ± 0.0	NB
A	*Calidris melanotos*	Pectoral Sandpiper				S3S4M	4 Secure	373	9.2 ± 1.0	NB
A	*Calidris alba*	Sanderling				S3S4M,S1N	3 Sensitive	1549	19.2 ± 0.0	NB
A	*Morus bassanus*	Northern Gannet				SHB,S5M	4 Secure	168	12.0 ± 44.0	NB
A	*Lanius ludovicianus*	Loggerhead Shrike				SXB,SXM	1 At Risk	1	15.4 ± 0.0	NB
I	*Gomphus ventricosus*	Skillet Clubtail	Endangered		Endangered	S1S2	2 May Be At Risk	2	69.7 ± 0.0	NB
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	3 Sensitive	76	7.3 ± 0.0	NB
I	*Ophiogomphus howei*	Pygmy Snaketail	Special Concern	Special Concern	Special Concern	S2	2 May Be At Risk	1	95.2 ± 0.0	NB
I	*Alasmidonta varicosa*	Brook Floater	Special Concern		Special Concern	S2	3 Sensitive	34	21.8 ± 1.0	NB
I	*Lampsilis cariosa*	Yellow Lampmussel	Special Concern	Special Concern	Special Concern	S2	3 Sensitive	21	79.6 ± 0.0	NB
I	*Bombus terricola*	Yellow-banded Bumblebee	Special Concern			S3?	3 Sensitive	10	28.0 ± 0.0	NB
I	*Appalachina sayana*	Spike-lip Crater	Not At Risk			S3?		1	96.9 ± 1.0	NB
I	*Erora laeta*	Early Hairstreak				S1	2 May Be At Risk	1	19.0 ± 1.0	NB
I	*Leucorrhinia patricia*	Canada Whiteface				S1	2 May Be At Risk	7	83.8 ± 1.0	NB
I	*Plebejus saepiolus*	Greenish Blue				S1S2	4 Secure	2	39.5 ± 7.0	NB
I	*Strymon melinus*	Grey Hairstreak				S2	4 Secure	1	30.2 ± 1.0	NB
I	*Somatochlora brevicincta*	Quebec Emerald				S2	5 Undetermined	2	30.4 ± 0.0	NB
I	*Somatochlora tenebrosa*	Clamp-Tipped Emerald				S2	5 Undetermined	6	22.1 ± 1.0	NB
I	*Ladona exusta*	White Corporal				S2	5 Undetermined	2	70.5 ± 0.0	NB
I	*Coenagrion interrogatum*	Subarctic Bluet				S2	3 Sensitive	3	93.4 ± 1.0	NB
I	*Callophrys henrici*	Henry's Elfin				S2S3	4 Secure	8	18.4 ± 0.0	NB
I	*Elaphrus americanus*	a Ground Beetle				S3	4 Secure	1	42.5 ± 0.0	NB
I	*Agonum crenistriatum*	a Ground Beetle				S3	5 Undetermined	1	10.8 ± 1.0	NB
I	*Agonum consimile*	a Ground Beetle				S3	4 Secure	1	10.8 ± 1.0	NB
I	*Lachnocrepis parallela*	a Ground Beetle				S3	4 Secure	1	38.5 ± 0.0	NB
I	*Dyschirius setosus*	a Ground Beetle				S3	5 Undetermined	3	38.5 ± 0.0	NB
I	*Harpalus fulvilabris*	a Ground Beetle				S3	4 Secure	1	41.9 ± 0.0	NB
I	*Amara pallipes*	a Ground Beetle				S3	4 Secure	2	10.8 ± 1.0	NB
I	*Carabus maeander*	a Ground Beetle				S3	5 Undetermined	1	10.8 ± 1.0	NB
I	*Carabus serratus*	a Ground Beetle				S3	4 Secure	1	13.3 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
I	*Hippodamia parenthesis*	Parenthesis Lady Beetle				S3	4 Secure	7	10.8 ± 1.0	NB
I	*Xylotrechus undulatus*	a Longhorned Beetle				S3		1	9.9 ± 1.0	NB
I	*Calathus gregarius*	a Ground Beetle				S3	4 Secure	1	60.1 ± 1.0	NB
I	*Gonioctena americana*	a Leaf Beetle				S3		1	39.3 ± 0.0	NB
I	*Trachysida aspera*	a Longhorned Beetle				S3		1	47.6 ± 0.0	NB
I	*Hesperia sassacus*	Indian Skipper				S3	4 Secure	2	82.0 ± 5.0	NB
I	*Euphyes bimacula*	Two-spotted Skipper				S3	4 Secure	6	11.5 ± 1.0	NB
I	*Papilio brevicauda*	Short-tailed Swallowtail				S3	4 Secure	6	50.0 ± 0.0	NB
I	*Papilio brevicauda bretonensis*	Short-tailed Swallowtail				S3	4 Secure	5	22.5 ± 0.0	NB
I	*Lycaena hyllus*	Bronze Copper				S3	3 Sensitive	77	8.5 ± 5.0	NB
I	*Lycaena dospassosi*	Salt Marsh Copper				S3	4 Secure	91	20.6 ± 0.0	NB
I	*Satyrium acadica*	Acadian Hairstreak				S3	4 Secure	20	8.5 ± 5.0	NB
I	*Callophrys polios*	Hoary Elfin				S3	4 Secure	6	19.5 ± 0.0	NB
I	*Plebejus idas*	Northern Blue				S3	4 Secure	18	31.2 ± 7.0	NB
I	*Plebejus idas empetri*	Crowberry Blue				S3	4 Secure	1	50.3 ± 0.0	NB
I	*Speyeria aphrodite*	Aphrodite Fritillary				S3	4 Secure	8	12.9 ± 0.0	NB
I	*Boloria chariclea*	Arctic Fritillary				S3	4 Secure	11	21.8 ± 1.0	NB
I	*Polygonia satyrus*	Satyr Comma				S3	4 Secure	1	97.2 ± 0.0	NB
I	*Polygonia gracilis*	Hoary Comma				S3	4 Secure	1	81.0 ± 0.0	NB
I	*Nymphalis l-album*	Compton Tortoiseshell				S3	4 Secure	6	13.5 ± 10.0	NB
I	*Gomphus abbreviatus*	Spine-crowned Clubtail				S3	4 Secure	7	85.5 ± 0.0	NB
I	*Dorocordulia lepida*	Petite Emerald				S3	4 Secure	6	55.9 ± 1.0	NB
I	*Somatochlora cingulata*	Lake Emerald				S3	4 Secure	3	56.9 ± 1.0	NB
I	*Somatochlora forcipata*	Forcipate Emerald				S3	4 Secure	5	38.0 ± 0.0	NB
I	*Williamsonia fletcheri*	Ebony Boghaunter				S3	4 Secure	16	12.3 ± 2.0	NB
I	*Lestes eurinus*	Amber-Winged Spreadwing				S3	4 Secure	17	30.2 ± 1.0	NB
I	*Lestes vigilax*	Swamp Spreadwing				S3	3 Sensitive	1	94.4 ± 0.0	NS
I	*Enallagma geminatum*	Skimming Bluet				S3	5 Undetermined	4	96.0 ± 0.0	NB
I	*Enallagma signatum*	Orange Bluet				S3	4 Secure	2	86.5 ± 0.0	NS
I	*Stylurus scudderi*	Zebra Clubtail				S3	4 Secure	9	12.8 ± 0.0	NB
I	*Alasmidonta undulata*	Triangle Floater				S3	3 Sensitive	46	30.3 ± 1.0	NB
I	*Leptodea ochracea*	Tidewater Mucket				S3	4 Secure	28	26.4 ± 1.0	NB
I	*Neohelix albolabris*	Whitelip				S3		1	96.9 ± 0.0	NB
I	*Pantala hymenaea*	Spot-Winged Glider				S3B,S3M	4 Secure	3	26.6 ± 0.0	NB
I	*Satyrium liparops*	Striped Hairstreak				S3S4	4 Secure	16	7.3 ± 0.0	NB
I	*Satyrium liparops strigosum*	Striped Hairstreak				S3S4	4 Secure	11	12.8 ± 0.0	NB
I	*Cupido comyntas*	Eastern Tailed Blue				S3S4	4 Secure	1	38.2 ± 0.0	NB
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle				SH	2 May Be At Risk	27	9.9 ± 1.0	NB
N	*Erioderma mollissimum*	Graceful Felt Lichen	Endangered		Endangered	SH	2 May Be At Risk	1	68.5 ± 1.0	NB
N	*Erioderma pedicellatum (Atlantic pop.)*	Boreal Felt Lichen - Atlantic pop.	Endangered	Endangered	Endangered	SH	1 At Risk	2	80.2 ± 0.0	NS
N	*Peltigera hydrothyria*	Eastern Waterfan	Threatened			S1	5 Undetermined	6	60.1 ± 0.0	NB
N	*Anzia colpodes*	Black-foam Lichen	Threatened			S1S2	5 Undetermined	2	54.4 ± 1.0	NB
N	*Degelia plumbea*	Blue Felt Lichen	Special Concern	Special Concern	Special Concern	S1	2 May Be At Risk	2	80.1 ± 0.0	NS
N	*Pseudevernia cladonia*	Ghost Antler Lichen	Not At Risk			S2S3	5 Undetermined	6	59.9 ± 0.0	NB
N	*Aloina rigida*	Aloe-Like Rigid Screw Moss				S1	2 May Be At Risk	2	37.6 ± 0.0	NB
N	*Aulacomnium heterostichum*	One-sided Groove Moss				S1	2 May Be At Risk	2	88.0 ± 0.0	NB
N	*Campylostelium saxicola*	a Moss				S1	2 May Be At Risk	1	90.4 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Dicranoweisia crispula*	Mountain Thatch Moss				S1	2 May Be At Risk	1	58.6 ± 0.0	NB
N	*Didymodon rigidulus var. gracilis*	a moss				S1	2 May Be At Risk	1	66.1 ± 1.0	NB
N	*Syntrichia ruralis*	a Moss				S1	2 May Be At Risk	1	75.5 ± 0.0	NB
N	*Zygodon viridissimus var. viridissimus*	a Moss				S1	2 May Be At Risk	1	89.2 ± 0.0	NB
N	*Collema tenax*	Soil Tarpaper Lichen				S1		1	74.8 ± 0.0	PE
N	*Cladonia metacorallifera*	Reptilian Pixie-cup Lichen				S1	5 Undetermined	5	52.4 ± 1.0	NB
N	*Coccocarpia palmicola*	Salted Shell Lichen				S1	2 May Be At Risk	1	52.4 ± 1.0	NB
N	*Peltigera malacea*	Veinless Pelt Lichen				S1	5 Undetermined	1	65.0 ± 1.0	NB
N	*Bryoria bicolor*	Electrified Horsehair Lichen				S1	2 May Be At Risk	1	65.0 ± 1.0	NB
N	*Hygrobiella laxifolia*	Lax Notchwort				S1?	6 Not Assessed	1	66.4 ± 1.0	NB
N	*Atrichum angustatum*	Lesser Smoothcap Moss				S1?	2 May Be At Risk	1	96.4 ± 5.0	NS
N	*Bartramia ithyphylla*	Straight-leaved Apple Moss				S1?	2 May Be At Risk	2	59.5 ± 1.0	NB
N	*Dicranum bonjeanii*	Bonjean's Broom Moss				S1?	2 May Be At Risk	1	94.4 ± 0.0	NS
N	*Dicranum condensatum*	Condensed Broom Moss				S1?	2 May Be At Risk	1	58.7 ± 0.0	NB
N	*Entodon brevisetus*	a Moss				S1?	2 May Be At Risk	1	70.7 ± 10.0	NB
N	*Eurhynchium hians*	Light Beaked Moss				S1?	2 May Be At Risk	1	77.9 ± 0.0	NB
N	*Homomallium adnatum*	Adnate Hairy-gray Moss				S1?	2 May Be At Risk	4	47.4 ± 1.0	NB
N	*Plagiothecium latebricola*	Alder Silk Moss				S1?	2 May Be At Risk	2	65.3 ± 1.0	NB
N	*Rhytidium rugosum*	Wrinkle-leaved Moss				S1?	2 May Be At Risk	2	66.0 ± 1.0	NB
N	*Seligeria recurvata*	a Moss				S1?	2 May Be At Risk	3	43.5 ± 15.0	NB
N	*Timmia megapolitana*	Metropolitan Timmia Moss				S1?	2 May Be At Risk	2	87.7 ± 1.0	NS
N	*Rhizomnium pseudopunctatum*	Felted Leafy Moss				S1?	2 May Be At Risk	1	86.0 ± 0.0	NB
N	*Cephaloziella spinigera*	Spiny Threadwort				S1S2	6 Not Assessed	2	66.9 ± 0.0	NB
N	*Cladopodiella francisci*	Holt's Notchwort				S1S2	6 Not Assessed	4	50.0 ± 0.0	NB
N	*Harpanthus flotovianus*	Great Mountain Flapwort				S1S2	6 Not Assessed	2	53.2 ± 1.0	NB
N	*Jungermannia obovata*	Egg Flapwort				S1S2	6 Not Assessed	1	60.6 ± 0.0	NB
N	*Odontoschisma sphagni*	Bog-Moss Flapwort				S1S2	6 Not Assessed	1	97.4 ± 0.0	NB
N	*Pallavicinia lyellii*	Lyell's Ribbonwort				S1S2	6 Not Assessed	1	70.7 ± 1.0	NB
N	*Radula tenax*	Tenacious Scalewort				S1S2	6 Not Assessed	1	60.6 ± 0.0	NB
N	*Brachythecium acuminatum*	Acuminate Ragged Moss				S1S2	5 Undetermined	2	61.5 ± 2.0	NB
N	*Bryum salinum*	a Moss				S1S2	2 May Be At Risk	1	65.3 ± 1.0	NB
N	*Distichium inclinatum*	Inclined Iris Moss				S1S2	2 May Be At Risk	5	66.1 ± 1.0	NB
N	*Ditrichum pallidum*	Pale Cow-hair Moss				S1S2	2 May Be At Risk	1	67.1 ± 1.0	NB
N	*Drummondia prorepens*	a Moss				S1S2	2 May Be At Risk	1	90.4 ± 0.0	NB
N	*Hygrohypnum bestii*	Best's Brook Moss				S1S2	3 Sensitive	5	58.4 ± 1.0	NB
N	*Seligeria brevifolia*	a Moss				S1S2	3 Sensitive	4	88.9 ± 0.0	NB
N	*Timmia norvegica*	a moss				S1S2	2 May Be At Risk	3	66.3 ± 0.0	NB
N	*Timmia norvegica var. excurrens*	a moss				S1S2	2 May Be At Risk	1	66.3 ± 0.0	NB
N	*Tortella humilis*	Small Crisp Moss				S1S2	2 May Be At Risk	7	60.8 ± 1.0	NB
N	*Pseudotaxiphyllum distichaceum*	a Moss				S1S2	2 May Be At Risk	1	14.4 ± 1.0	NB
N	*Umbilicaria vellea*	Grizzled Rocktripe Lichen				S1S2	5 Undetermined	1	65.7 ± 1.0	NB
N	*Peltigera scabrosa*	Greater Toad Pelt Lichen				S1S2	2 May Be At Risk	4	50.8 ± 1.0	NB
N	*Tritomaria scitula*	Mountain Notchwort				S1S3	6 Not Assessed	1	56.7 ± 1.0	NB
N	*Amphidium mougeotii*	a Moss				S2	3 Sensitive	11	56.2 ± 0.0	NB
N	*Anomodon viticulosus*	a Moss				S2	2 May Be At Risk	3	53.3 ± 10.0	NB
N	*Cirriphyllum piliferum*	Hair-pointed Moss				S2	3 Sensitive	4	47.5 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Dicranella palustris*	Drooping-Leaved Fork Moss				S2	3 Sensitive	7	53.2 ± 1.0	NB
N	*Didymodon ferrugineus*	a moss				S2	3 Sensitive	1	65.8 ± 0.0	NB
N	*Anomodon tristis*	a Moss				S2	2 May Be At Risk	9	60.0 ± 10.0	NB
N	*Hypnum pratense*	Meadow Plait Moss				S2	3 Sensitive	1	79.5 ± 0.0	PE
N	*Isopterygiopsis pulchella*	Neat Silk Moss				S2	3 Sensitive	7	57.3 ± 1.0	NB
N	*Platydictya jungermannioides*	False Willow Moss				S2	3 Sensitive	4	43.5 ± 15.0	NB
N	*Pohlia elongata*	Long-necked Nodding Moss				S2	3 Sensitive	14	59.0 ± 0.0	NB
N	*Pohlia sphagnicola*	a moss				S2	3 Sensitive	1	84.5 ± 0.0	NB
N	*Seligeria calcarea*	Chalk Brittle Moss				S2	3 Sensitive	2	53.2 ± 0.0	NB
N	*Sphagnum centrale*	Central Peat Moss				S2	3 Sensitive	8	53.7 ± 1.0	NB
N	*Sphagnum flexuosum*	Flexuous Peatmoss				S2	3 Sensitive	3	56.8 ± 0.0	NB
N	*Tayloria serrata*	Serrate Trumpet Moss				S2	3 Sensitive	7	36.0 ± 100.0	NB
N	*Tetrodontium brownianum*	Little Georgia				S2	3 Sensitive	12	58.6 ± 0.0	NB
N	*Thamnobryum alleghaniense*	a Moss				S2	3 Sensitive	14	31.1 ± 1.0	NB
N	*Tortula mucronifolia*	Mucronate Screw Moss				S2	3 Sensitive	1	92.0 ± 3.0	NS
N	*Ulota phyllantha*	a Moss				S2	3 Sensitive	4	66.2 ± 0.0	NB
N	*Anomobryum filiforme*	a moss				S2	5 Undetermined	4	66.1 ± 1.0	NB
N	*Cladonia macrophylla*	Fig-leaved Lichen				S2	5 Undetermined	3	58.5 ± 1.0	NB
N	*Fuscopannaria leucosticta*	Rimmed Shingles Lichen				S2	2 May Be At Risk	7	67.4 ± 0.0	NB
N	*Leptogium milligranum*	Stretched Jellyskin Lichen				S2	5 Undetermined	6	14.6 ± 0.0	NB
N	*Nephroma laevigatum*	Mustard Kidney Lichen				S2	2 May Be At Risk	21	69.3 ± 0.0	PE
N	*Anacamptodon splachnoides*	a Moss				S2?	3 Sensitive	2	66.3 ± 1.0	NB
N	*Andreaea rothii*	a Moss				S2?	3 Sensitive	5	56.2 ± 0.0	NB
N	*Anomodon minor*	Blunt-leaved Anomodon Moss				S2?	2 May Be At Risk	1	53.0 ± 1.0	NB
N	*Bryum pallescens*	Pale Bryum Moss				S2?	5 Undetermined	1	76.7 ± 100.0	NB
N	*Dichelyma capillaceum*	Hairlike Dichelyma Moss				S2?	3 Sensitive	1	70.6 ± 3.0	NB
N	*Hygrohypnum montanum*	a Moss				S2?	3 Sensitive	2	56.6 ± 1.0	NB
N	*Seligeria diversifolia*	a Moss				S2?	3 Sensitive	1	98.3 ± 0.0	NB
N	*Sphagnum angermanicum*	a Peatmoss				S2?	3 Sensitive	2	70.6 ± 10.0	NB
N	*Trichodon cylindricus*	Cylindric Hairy-teeth Moss				S2?	3 Sensitive	2	43.5 ± 15.0	NB
N	*Plagiomnium rostratum*	Long-beaked Leafy Moss				S2?	3 Sensitive	5	65.5 ± 0.0	NB
N	*Ramalina pollinaria*	Chalky Ramalina Lichen				S2?	5 Undetermined	1	62.8 ± 1.0	NB
N	*Collema leptaleum*	Crumpled Bat's Wing Lichen				S2?	5 Undetermined	1	88.1 ± 0.0	NB
N	*Nephroma arcticum*	Arctic Kidney Lichen				S2?	3 Sensitive	1	63.4 ± 1.0	NB
N	*Bryum uliginosum*	a Moss				S2S3	3 Sensitive	1	66.2 ± 0.0	NB
N	*Calliergonella cuspidata*	Common Large Wetland Moss				S2S3	3 Sensitive	4	56.5 ± 5.0	NB
N	*Campylium polygamum*	a Moss				S2S3	3 Sensitive	1	61.0 ± 0.0	NB
N	*Palustriella falcata*	a Moss				S2S3	3 Sensitive	2	65.6 ± 0.0	NB
N	*Didymodon rigidulus*	Rigid Screw Moss				S2S3	3 Sensitive	8	61.5 ± 2.0	NB
N	*Ephemerum serratum*	a Moss				S2S3	3 Sensitive	2	74.3 ± 0.0	NB
N	*Orthotrichum speciosum*	Showy Bristle Moss				S2S3	5 Undetermined	6	67.6 ± 4.0	NB
N	*Pohlia proligera*	Cottony Nodding Moss				S2S3	3 Sensitive	14	43.5 ± 15.0	NB
N	*Racomitrium fasciculare*	a Moss				S2S3	3 Sensitive	3	58.6 ± 0.0	NB
N	*Racomitrium affine*	a Moss				S2S3	3 Sensitive	1	54.2 ± 1.0	NB
N	*Saelania glaucescens*	Blue Dew Moss				S2S3	3 Sensitive	2	58.6 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Sphagnum subfulvum*	a Peatmoss				S2S3	2 May Be At Risk	3	78.8 ± 0.0	PE
N	*Taxiphyllum deplanatum*	Imbricate Yew-leaved Moss				S2S3	3 Sensitive	2	60.8 ± 1.0	NB
N	*Zygodon viridissimus*	a Moss				S2S3	2 May Be At Risk	2	60.8 ± 1.0	NB
N	*Schistidium agassizii*	Elf Bloom Moss				S2S3	3 Sensitive	3	54.2 ± 1.0	NB
N	*Loeskeobryum brevirostre*	a Moss				S2S3	3 Sensitive	17	56.2 ± 0.0	NB
N	*Cyrtomnium hymenophylloides*	Short-pointed Lantern Moss				S2S3	3 Sensitive	6	53.4 ± 0.0	NB
N	*Cladonia acuminata*	Scantily Clad Pixie Lichen				S2S3	5 Undetermined	2	65.7 ± 1.0	NB
N	*Cladonia ramulosa*	Bran Lichen				S2S3	5 Undetermined	4	60.8 ± 1.0	NB
N	*Cladonia sulphurina*	Greater Sulphur-cup Lichen				S2S3	5 Undetermined	1	50.2 ± 1.0	NB
N	*Dendriscocaulon umhausense*	a lichen				S2S3	3 Sensitive	1	90.8 ± 0.0	NB
N	*Parmeliopsis ambigua*	Green Starburst Lichen				S2S3	5 Undetermined	1	69.8 ± 1.0	NB
N	*Sphaerophorus globosus*	Northern Coral Lichen				S2S3	3 Sensitive	5	65.0 ± 1.0	NB
N	*Hypnum curvifolium*	Curved-leaved Plait Moss				S3	3 Sensitive	10	56.2 ± 0.0	NB
N	*Tortella fragilis*	Fragile Twisted Moss				S3	3 Sensitive	1	66.3 ± 0.0	NB
N	*Schistidium maritimum*	a Moss				S3	4 Secure	6	61.8 ± 0.0	NB
N	*Hymenostylium recurvirostre*	Hymenostylium Moss				S3	3 Sensitive	5	66.6 ± 1.0	NB
N	*Collema nigrescens*	Blistered Tarpaper Lichen				S3	3 Sensitive	2	81.8 ± 0.0	NS
N	*Solorina saccata*	Woodland Owl Lichen				S3	5 Undetermined	6	65.7 ± 1.0	NB
N	*Ahtiana aurescens*	Eastern Candlewax Lichen				S3	5 Undetermined	1	85.4 ± 0.0	NB
N	*Normandina pulchella*	Rimmed Elf-ear Lichen				S3	5 Undetermined	4	60.8 ± 1.0	NB
N	*Cladonia farinacea*	Farinose Pixie Lichen				S3	5 Undetermined	6	58.4 ± 1.0	NB
N	*Leptogium lichenoides*	Tattered Jellyskin Lichen				S3	5 Undetermined	6	65.7 ± 1.0	NB
N	*Nephroma bellum*	Naked Kidney Lichen				S3	4 Secure	3	57.8 ± 1.0	NB
N	*Peltigera degenii*	Lustrous Pelt Lichen				S3	5 Undetermined	3	61.4 ± 1.0	NB
N	*Usnea strigosa*	Bushy Beard Lichen				S3	5 Undetermined	4	10.1 ± 0.0	NB
N	*Leptogium laceroides*	Short-bearded Jellyskin Lichen				S3	3 Sensitive	4	54.4 ± 1.0	NB
N	*Peltigera membranacea*	Membranous Pelt Lichen				S3	5 Undetermined	9	65.7 ± 1.0	NB
N	*Cladonia carneola*	Crowned Pixie-cup Lichen				S3	5 Undetermined	1	60.1 ± 1.0	NB
N	*Cladonia deformis*	Lesser Sulphur-cup Lichen				S3	4 Secure	5	58.5 ± 1.0	NB
N	*Aulacomnium androgynum*	Little Groove Moss				S3?	4 Secure	10	43.5 ± 15.0	NB
N	*Bryum amblyodon*	a Moss				S3?	4 Secure	1	86.1 ± 3.0	NS
N	*Dicranella rufescens*	Red Forklet Moss				S3?	5 Undetermined	1	66.3 ± 0.0	NB
N	*Rhytidiadelphus loreus*	Lanky Moss				S3?	2 May Be At Risk	1	66.1 ± 1.0	NB
N	*Sphagnum lescurii*	a Peatmoss				S3?	5 Undetermined	6	39.7 ± 0.0	NS
N	*Stereocaulon subcoralloides*	Coralloid Foam Lichen				S3?	5 Undetermined	1	62.8 ± 1.0	NB
N	*Anomodon rugelii*	Rugel's Anomodon Moss				S3S4	3 Sensitive	2	93.6 ± 0.0	NS
N	*Barbula convoluta*	Lesser Bird's-claw Beard Moss				S3S4	4 Secure	1	65.0 ± 15.0	NB
N	*Brachythecium velutinum*	Velvet Ragged Moss				S3S4	4 Secure	3	61.9 ± 1.0	NB
N	*Calliergon giganteum*	Giant Spear Moss				S3S4	3 Sensitive	1	75.0 ± 0.0	PE
N	*Dicranella cerviculata*	a Moss				S3S4	3 Sensitive	4	55.8 ± 0.0	NS
N	*Dicranum majus*	Greater Broom Moss				S3S4	4 Secure	20	53.4 ± 0.0	NB
N	*Dicranum leioneuron*	a Dicranum Moss				S3S4	4 Secure	2	15.7 ± 0.0	NB
N	*Encalypta ciliata*	Fringed Extinquisher Moss				S3S4	3 Sensitive	3	65.8 ± 0.0	NB
N	*Fissidens bryoides*	Lesser Pocket Moss				S3S4	4 Secure	6	61.8 ± 0.0	NB
N	*Helodium blandowii*	Wetland-plume Moss				S3S4	4 Secure	1	70.9 ± 0.0	PE
N	*Heterocladium dimorphum*	Dimorphous Tangle Moss				S3S4	4 Secure	5	56.2 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Isopterygiopsis muelleriana*	a Moss				S3S4	4 Secure	21	53.4 ± 0.0	NB
N	*Myurella julacea*	Small Mouse-tail Moss				S3S4	4 Secure	2	66.3 ± 0.0	NB
N	*Physcomitrium pyriforme*	Pear-shaped Urn Moss				S3S4	3 Sensitive	1	79.2 ± 0.0	NB
N	*Pogonatum dentatum*	Mountain Hair Moss				S3S4	4 Secure	5	55.8 ± 0.0	NS
N	*Sphagnum compactum*	Compact Peat Moss				S3S4	4 Secure	4	73.3 ± 1.0	PE
N	*Sphagnum quinquefarium*	Five-ranked Peat Moss				S3S4	4 Secure	1	60.4 ± 0.0	NB
N	*Sphagnum torreyanum*	a Peatmoss				S3S4	4 Secure	2	68.1 ± 0.0	NB
N	*Sphagnum austinii*	Austin's Peat Moss				S3S4	4 Secure	1	39.7 ± 0.0	NS
N	*Sphagnum contortum*	Twisted Peat Moss				S3S4	4 Secure	1	68.1 ± 0.0	NB
N	*Tetraphis geniculata*	Geniculate Four-tooth Moss				S3S4	4 Secure	13	54.2 ± 1.0	NB
N	*Tetraplodon angustatus*	Toothed-leaved Nitrogen Moss				S3S4	4 Secure	2	77.5 ± 0.0	NS
N	*Weissia controversa*	Green-Cushioned Weissia				S3S4	4 Secure	2	66.6 ± 1.0	NB
N	*Abietinella abietina*	Wiry Fern Moss				S3S4	4 Secure	2	66.3 ± 0.0	NB
N	*Trichostomum tenuirostre*	Acid-Soil Moss				S3S4	4 Secure	6	58.6 ± 0.0	NB
N	*Rauiella scita*	Smaller Fern Moss				S3S4	3 Sensitive	1	83.6 ± 0.0	NB
N	*Pannaria rubiginosa*	Brown-eyed Shingle Lichen				S3S4	3 Sensitive	6	66.2 ± 1.0	NB
N	*Ramalina thrausta*	Angelhair Ramalina Lichen				S3S4	5 Undetermined	11	50.8 ± 1.0	NB
N	*Hypogymnia vittata*	Slender Monk's Hood Lichen				S3S4	4 Secure	22	50.8 ± 1.0	NB
N	*Leptogium teretiusculum*	Beaded Jellyskin Lichen				S3S4	5 Undetermined	6	69.9 ± 0.0	PE
N	*Cladonia floerkeana*	Gritty British Soldiers Lichen				S3S4	4 Secure	4	62.7 ± 1.0	NB
N	*Hypocenomyce friesii*	a Lichen				S3S4	5 Undetermined	1	65.7 ± 1.0	NB
N	*Melanelia panniformis*	Shingled Camouflage Lichen				S3S4	5 Undetermined	4	53.0 ± 1.0	NB
N	*Nephroma parile*	Powdery Kidney Lichen				S3S4	4 Secure	8	35.7 ± 0.0	NB
N	*Protopannaria pezizoides*	Brown-gray Moss-shingle Lichen				S3S4	4 Secure	15	65.0 ± 0.0	NB
N	*Pseudocyphellaria perpetua*	Gilded Specklebelly Lichen				S3S4	3 Sensitive	25	9.8 ± 0.0	NB
N	*Stereocaulon paschale*	Easter Foam Lichen				S3S4	5 Undetermined	1	27.5 ± 1.0	NB
N	*Pannaria conoplea*	Mealy-rimmed Shingle Lichen				S3S4	3 Sensitive	17	70.6 ± 0.0	PE
N	*Anaptychia palmulata*	Shaggy Fringed Lichen				S3S4	3 Sensitive	18	54.4 ± 1.0	NB
N	*Peltigera neopolydactyla*	Undulating Pelt Lichen				S3S4	5 Undetermined	9	52.4 ± 1.0	NB
N	*Cladonia cariosa*	Lesser Ribbed Pixie Lichen				S3S4	4 Secure	3	60.7 ± 1.0	NB
N	*Hypocenomyce scalaris*	Common Clam Lichen				S3S4	5 Undetermined	1	62.8 ± 1.0	NB
N	*Dermatocarpon luridum*	Brookside Stippleback Lichen				S3S4	4 Secure	12	50.2 ± 1.0	NB
N	*Leucodon brachypus*	a Moss				SH	2 May Be At Risk	13	55.2 ± 1.0	NB
N	*Splachnum luteum*	Yellow Collar Moss				SH	5 Undetermined	1	76.7 ± 100.0	NB
N	*Cyrto-hypnum minutulum*	Tiny Cedar Moss				SH	2 May Be At Risk	3	75.9 ± 10.0	NB
P	*Juglans cinerea*	Butternut	Endangered	Endangered	Endangered	S1	1 At Risk	14	52.3 ± 1.0	NB
P	*Symphyotrichum laurentianum*	Gulf of St Lawrence Aster	Threatened	Threatened	Endangered	S1	1 At Risk	32	79.5 ± 0.0	NB
P	*Symphyotrichum subulatum (Bathurst pop)*	Bathurst Aster - Bathurst pop.	Special Concern	Special Concern	Endangered	S2	1 At Risk	20	63.8 ± 0.0	NB
P	*Isoetes prototypus*	Prototype Quillwort	Special Concern	Special Concern	Endangered	S2	1 At Risk	13	82.2 ± 0.0	NS
P	*Lechea maritima var. subcylindrica*	Beach Pinweed	Special Concern			S2	3 Sensitive	486	42.8 ± 0.0	NB
P	*Cryptotaenia*	Canada Honewort				S1	2 May Be At Risk	1	78.5 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
	canadensis									
P	*Antennaria howellii ssp. petaloidea*	Pussy-Toes				S1	2 May Be At Risk	3	89.1 ± 5.0	PE
P	*Symphyotrichum subulatum (non-Bathurst pop)*	Annual Saltmarsh Aster				S1	2 May Be At Risk	12	63.1 ± 0.0	NB
P	*Pseudognaphalium obtusifolium*	Eastern Cudweed				S1	2 May Be At Risk	27	49.6 ± 5.0	NB
P	*Hieracium paniculatum*	Panicled Hawkweed				S1	2 May Be At Risk	1	98.5 ± 1.0	NS
P	*Hieracium robinsonii*	Robinson's Hawkweed				S1	3 Sensitive	9	53.9 ± 0.0	NB
P	*Solidago multiradiata*	Multi-rayed Goldenrod				S1	2 May Be At Risk	19	23.8 ± 0.0	NB
P	*Cardamine parviflora var. arenicola*	Small-flowered Bittercress				S1	2 May Be At Risk	10	87.4 ± 1.0	NS
P	*Draba arabisans*	Rock Whitlow-Grass				S1	2 May Be At Risk	33	54.6 ± 0.0	NB
P	*Draba glabella*	Rock Whitlow-Grass				S1	2 May Be At Risk	7	66.0 ± 0.0	NB
P	*Stellaria crassifolia*	Fleshy Stitchwort				S1	2 May Be At Risk	3	18.5 ± 5.0	NB
P	*Chenopodium simplex*	Maple-leaved Goosefoot				S1	2 May Be At Risk	6	41.7 ± 1.0	NB
P	*Suaeda rolandii*	Roland's Sea-Blite				S1	3 Sensitive	5	30.9 ± 0.0	NB
P	*Triadenum virginicum*	Virginia St John's-wort				S1	2 May Be At Risk	1	92.0 ± 3.0	NS
P	*Corema conradii*	Broom Crowberry				S1	2 May Be At Risk	6	87.2 ± 0.0	PE
P	*Vaccinium boreale*	Northern Blueberry				S1	2 May Be At Risk	5	22.8 ± 1.0	NB
P	*Chamaesyce polygonifolia*	Seaside Spurge				S1	2 May Be At Risk	16	56.0 ± 0.0	NB
P	*Proserpinaca pectinata*	Comb-leaved Mermaidweed				S1	2 May Be At Risk	2	66.8 ± 5.0	NS
P	*Primula laurentiana*	Laurentian Primrose				S1	2 May Be At Risk	28	66.3 ± 0.0	NB
P	*Amelanchier fernaldii*	Fernald's Serviceberry				S1	2 May Be At Risk	2	25.0 ± 1.0	NB
P	*Crataegus jonesiae*	Jones' Hawthorn				S1	2 May Be At Risk	1	87.1 ± 1.0	NB
P	*Dryas integrifolia*	Entire-leaved Mountain Avens				S1	2 May Be At Risk	14	22.8 ± 3.0	NB
P	*Potentilla canadensis*	Canada Cinquefoil				S1	5 Undetermined	1	97.1 ± 0.0	NB
P	*Waldsteinia fragarioides*	Barren Strawberry				S1	2 May Be At Risk	1	32.0 ± 1.0	NB
P	*Salix myrtillifolia*	Blueberry Willow				S1	2 May Be At Risk	24	23.6 ± 0.0	NB
P	*Saxifraga paniculata ssp. neogaea*	White Mountain Saxifrage				S1	2 May Be At Risk	35	65.3 ± 0.0	NB
P	*Agalinis paupercula var. borealis*	Small-flowered Agalinis				S1	2 May Be At Risk	39	42.6 ± 0.0	NS
P	*Viola sagittata var. ovata*	Arrow-Leaved Violet				S1	2 May Be At Risk	1	89.9 ± 2.0	NS
P	*Carex annectens*	Yellow-Fruited Sedge				S1	2 May Be At Risk	3	22.5 ± 0.0	NB
P	*Carex atlantica ssp. atlantica*	Atlantic Sedge				S1	2 May Be At Risk	8	34.7 ± 0.0	NB
P	*Carex backii*	Rocky Mountain Sedge				S1	2 May Be At Risk	3	41.1 ± 0.0	NB
P	*Carex merritt-fernaldii*	Merritt Fernald's Sedge				S1	2 May Be At Risk	1	41.6 ± 0.0	NB
P	*Carex scirpoidea*	Scirpuslike Sedge				S1	2 May Be At Risk	6	78.2 ± 0.0	NB
P	*Carex sterilis*	Sterile Sedge				S1	2 May Be At Risk	1	52.7 ± 2.0	NB
P	*Carex grisea*	Inflated Narrow-leaved Sedge				S1	2 May Be At Risk	1	79.7 ± 5.0	NB
P	*Scirpus pendulus*	Hanging Bulrush				S1	2 May Be At Risk	7	41.0 ± 0.0	NS
P	*Sisyrinchium angustifolium*	Narrow-leaved Blue-eyed-grass				S1	2 May Be At Risk	3	53.5 ± 5.0	NS
P	*Juncus greenei*	Greene's Rush				S1	2 May Be At Risk	10	35.7 ± 0.0	NB
P	*Juncus stygius*	Moor Rush				S1	2 May Be At Risk	1	97.2 ± 0.0	NB
P	*Juncus stygius ssp. americanus*	Moor Rush				S1	2 May Be At Risk	16	37.7 ± 5.0	NB
P	*Goodyera pubescens*	Downy Rattlesnake-Plantain				S1	2 May Be At Risk	5	40.9 ± 0.0	NB
P	*Malaxis brachypoda*	White Adder's-Mouth				S1	2 May Be At Risk	5	85.9 ± 0.0	NS
P	*Platanthera macrophylla*	Large Round-Leaved Orchid				S1	2 May Be At Risk	3	17.9 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Calamagrostis stricta ssp. inexpansa*	Slim-stemmed Reed Grass				S1	2 May Be At Risk	2	32.7 ± 1.0	NB
P	*Danthonia compressa*	Flattened Oat Grass				S1	2 May Be At Risk	17	21.2 ± 0.0	NB
P	*Festuca subverticillata*	Nodding Fescue				S1	2 May Be At Risk	10	77.2 ± 0.0	NS
P	*Puccinellia ambigua*	Dwarf Alkali Grass				S1	5 Undetermined	1	93.1 ± 5.0	PE
P	*Potamogeton friesii*	Fries' Pondweed				S1	2 May Be At Risk	7	42.9 ± 0.0	NS
P	*Cystopteris laurentiana*	Laurentian Bladder Fern				S1	2 May Be At Risk	1	76.5 ± 1.0	NB
P	*Dryopteris filix-mas*	Male Fern				S1	2 May Be At Risk	2	30.1 ± 1.0	NB
P	*Schizaea pusilla*	Little Curlygrass Fern				S1	2 May Be At Risk	9	60.7 ± 0.0	NB
P	*Bidens heterodoxa*	Connecticut Beggar-Ticks				S1?	2 May Be At Risk	2	92.5 ± 0.0	NB
P	*Carex laxiflora*	Loose-Flowered Sedge				S1?	5 Undetermined	2	96.0 ± 1.0	NS
P	*Selaginella rupestris*	Rock Spikemoss				S1S2	2 May Be At Risk	7	69.9 ± 1.0	NB
P	*Cuscuta cephalanthi*	Buttonbush Dodder				S1S3	2 May Be At Risk	5	22.2 ± 0.0	NB
P	*Eriophorum russeolum var. albidum*	Russet Cotton-Grass				S1S3	5 Undetermined	1	31.8 ± 1.0	NB
P	*Scirpus atrovirens*	Dark-green Bulrush				S1S3	5 Undetermined	1	63.2 ± 0.0	PE
P	*Listera australis*	Southern Twayblade			Endangered	S2	1 At Risk	16	15.6 ± 0.0	NB
P	*Osmorhiza longistylis*	Smooth Sweet Cicely				S2	3 Sensitive	8	62.6 ± 1.0	NS
P	*Pseudognaphalium macounii*	Macoun's Cudweed				S2	3 Sensitive	41	44.0 ± 5.0	NB
P	*Ionactis linariifolius*	Stiff Aster				S2	3 Sensitive	1	78.2 ± 5.0	NB
P	*Impatiens pallida*	Pale Jewelweed				S2	2 May Be At Risk	6	77.1 ± 0.0	NS
P	*Arabis drummondii*	Drummond's Rockcress				S2	3 Sensitive	19	40.8 ± 0.0	NB
P	*Sagina nodosa*	Knotted Pearlwort				S2	3 Sensitive	2	88.8 ± 0.0	PE
P	*Sagina nodosa ssp. borealis*	Knotted Pearlwort				S2	3 Sensitive	2	87.9 ± 0.0	PE
P	*Stellaria longifolia*	Long-leaved Starwort				S2	3 Sensitive	9	34.4 ± 1.0	NB
P	*Atriplex franktonii*	Frankton's Saltbush				S2	4 Secure	6	30.4 ± 0.0	NB
P	*Chenopodium rubrum*	Red Pigweed				S2	3 Sensitive	10	26.7 ± 0.0	NB
P	*Hypericum dissimulatum*	Disguised St John's-wort				S2	3 Sensitive	4	61.0 ± 0.0	NS
P	*Triosteum aurantiacum*	Orange-fruited Tinker's Weed				S2	3 Sensitive	7	37.4 ± 0.0	NB
P	*Shepherdia canadensis*	Soapberry				S2	3 Sensitive	41	19.2 ± 0.0	NB
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	3 Sensitive	25	86.7 ± 1.0	NS
P	*Gentiana linearis*	Narrow-Leaved Gentian				S2	3 Sensitive	1	61.3 ± 50.0	NB
P	*Myriophyllum humile*	Low Water Milfoil				S2	3 Sensitive	1	59.3 ± 1.0	NB
P	*Proserpinaca palustris var. crebra*	Marsh Mermaidweed				S2	3 Sensitive	1	94.8 ± 0.0	NS
P	*Hedeoma pulegioides*	American False Pennyroyal				S2	4 Secure	8	65.0 ± 1.0	NS
P	*Nuphar lutea ssp. rubrodisca*	Red-disked Yellow Pond-lily				S2	3 Sensitive	11	12.4 ± 0.0	NB
P	*Polygala paucifolia*	Fringed Milkwort				S2	3 Sensitive	5	76.3 ± 1.0	NB
P	*Polygonum careyi*	Carey's Smartweed				S2	3 Sensitive	2	33.9 ± 1.0	NB
P	*Anemone parviflora*	Small-flowered Anemone				S2	3 Sensitive	8	23.8 ± 0.0	NB
P	*Hepatica nobilis var. obtusa*	Round-lobed Hepatica				S2	3 Sensitive	4	95.2 ± 1.0	NB
P	*Crataegus scabrida*	Rough Hawthorn				S2	3 Sensitive	4	35.6 ± 1.0	NB
P	*Crataegus succulenta*	Fleshy Hawthorn				S2	3 Sensitive	2	65.9 ± 0.0	PE
P	*Euphrasia randii*	Rand's Eyebright				S2	2 May Be At Risk	4	67.9 ± 0.0	PE
P	*Scrophularia lanceolata*	Lance-leaved Figwort				S2	3 Sensitive	2	75.2 ± 1.0	NB
P	*Dirca palustris*	Eastern Leatherwood				S2	2 May Be At Risk	1	13.9 ± 1.0	NB
P	*Sagittaria calycina var. spongiosa*	Long-lobed Arrowhead				S2	4 Secure	67	55.1 ± 0.0	NB
P	*Symplocarpus foetidus*	Eastern Skunk Cabbage				S2	3 Sensitive	117	40.2 ± 1.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Carex comosa*	Bearded Sedge				S2	2 May Be At Risk	7	32.6 ± 0.0	NB
P	*Carex granularis*	Limestone Meadow Sedge				S2	3 Sensitive	10	22.6 ± 0.0	NB
P	*Carex gynocrates*	Northern Bog Sedge				S2	3 Sensitive	1	75.2 ± 1.0	NB
P	*Carex hirtifolia*	Pubescent Sedge				S2	3 Sensitive	12	37.6 ± 0.0	NB
P	*Carex livida var. radicaulis*	Livid Sedge				S2	3 Sensitive	8	38.9 ± 0.0	NS
P	*Carex plantaginea*	Plantain-Leaved Sedge				S2	3 Sensitive	1	67.4 ± 0.0	NB
P	*Carex rostrata*	Narrow-leaved Beaked Sedge				S2	3 Sensitive	2	61.0 ± 0.0	NB
P	*Carex sprengelii*	Longbeak Sedge				S2	3 Sensitive	2	83.1 ± 0.0	NB
P	*Carex tenuiflora*	Sparse-Flowered Sedge				S2	2 May Be At Risk	9	42.0 ± 0.0	NS
P	*Carex albicans var. emmonsii*	White-tinged Sedge				S2	3 Sensitive	12	23.7 ± 0.0	NB
P	*Eriophorum gracile*	Slender Cottongrass				S2	2 May Be At Risk	50	15.4 ± 0.0	NB
P	*Blysmus rufus*	Red Bulrush				S2	3 Sensitive	32	67.3 ± 0.0	PE
P	*Juncus vaseyi*	Vasey Rush				S2	3 Sensitive	12	10.7 ± 0.0	NB
P	*Allium tricoccum*	Wild Leek				S2	2 May Be At Risk	16	40.5 ± 0.0	NB
P	*Calypso bulbosa var. americana*	Calypso				S2	2 May Be At Risk	2	44.6 ± 5.0	NB
P	*Coeloglossum viride var. virescens*	Long-bracted Frog Orchid				S2	2 May Be At Risk	5	28.2 ± 10.0	NB
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	1	98.9 ± 7.0	NS
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain				S2	3 Sensitive	1	75.5 ± 0.0	PE
P	*Spiranthes lucida*	Shining Ladies'-Tresses				S2	3 Sensitive	1	44.9 ± 1.0	NB
P	*Spiranthes ochroleuca*	Yellow Ladies'-tresses				S2	2 May Be At Risk	6	24.1 ± 0.0	NB
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S2	3 Sensitive	1	86.9 ± 0.0	NB
P	*Elymus canadensis*	Canada Wild Rye				S2	2 May Be At Risk	1	22.0 ± 1.0	NB
P	*Piptatherum canadense*	Canada Rice Grass				S2	3 Sensitive	3	31.1 ± 10.0	NB
P	*Poa glauca*	Glaucous Blue Grass				S2	4 Secure	21	62.5 ± 0.0	NB
P	*Puccinellia laurentiana*	Nootka Alkali Grass				S2	3 Sensitive	1	85.8 ± 10.0	NB
P	*Puccinellia phryganodes*	Creeping Alkali Grass				S2	3 Sensitive	2	31.3 ± 1.0	NB
P	*Schizachyrium scoparium*	Little Bluestem				S2	3 Sensitive	3	97.4 ± 0.0	NB
P	*Zizania aquatica var. aquatica*	Indian Wild Rice				S2	5 Undetermined	5	61.5 ± 0.0	NB
P	*Piptatherum pungens*	Slender Rice Grass				S2	2 May Be At Risk	5	40.8 ± 0.0	NB
P	*Potamogeton vaseyi*	Vasey's Pondweed				S2	3 Sensitive	1	61.2 ± 0.0	PE
P	*Asplenium trichomanes*	Maidenhair Spleenwort				S2	3 Sensitive	14	41.3 ± 1.0	NB
P	*Woodwardia virginica*	Virginia Chain Fern				S2	3 Sensitive	4	41.9 ± 0.0	NS
P	*Woodsia alpina*	Alpine Cliff Fern				S2	3 Sensitive	4	53.5 ± 0.0	NB
P	*Lycopodium sitchense*	Sitka Clubmoss				S2	3 Sensitive	4	20.2 ± 0.0	NB
P	*Selaginella selaginoides*	Low Spikemoss				S2	3 Sensitive	8	62.5 ± 0.0	NB
P	*Toxicodendron radicans*	Poison Ivy				S2?	3 Sensitive	7	43.4 ± 0.0	NB
P	*Symphyotrichum novi-belgii var. crenifolium*	New York Aster				S2?	5 Undetermined	5	43.4 ± 0.0	NB
P	*Humulus lupulus var. lupuloides*	Common Hop				S2?	3 Sensitive	2	63.7 ± 5.0	NB
P	*Rubus recurvicaulis*	Arching Dewberry				S2?	4 Secure	4	11.0 ± 1.0	NB
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2?	4 Secure	7	37.4 ± 10.0	NB
P	*Salix myricoides*	Bayberry Willow				S2?	3 Sensitive	1	23.6 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Carex vacillans*	Estuarine Sedge				S2?	3 Sensitive	1	37.5 ± 0.0	NB
P	*Platanthera huronensis*	Fragrant Green Orchid				S2?	5 Undetermined	1	81.1 ± 10.0	NS
P	*Solidago altissima*	Tall Goldenrod				S2S3	4 Secure	1	39.6 ± 0.0	NB
P	*Barbarea orthoceras*	American Yellow Rocket				S2S3	3 Sensitive	2	76.5 ± 1.0	NB
P	*Ceratophyllum echinatum*	Prickly Hornwort				S2S3	3 Sensitive	26	12.9 ± 0.0	NB
P	*Callitriche hermaphroditica*	Northern Water-starwort				S2S3	4 Secure	8	31.4 ± 0.0	NB
P	*Elatine americana*	American Waterwort				S2S3	3 Sensitive	6	32.7 ± 0.0	NB
P	*Bartonia paniculata*	Branched Bartonia				S2S3	3 Sensitive	1	51.0 ± 0.0	NS
P	*Bartonia paniculata ssp. iodandra*	Branched Bartonia				S2S3	3 Sensitive	24	57.6 ± 0.0	NB
P	*Geranium robertianum*	Herb Robert				S2S3	4 Secure	82	47.5 ± 0.0	NB
P	*Epilobium coloratum*	Purple-veined Willowherb				S2S3	3 Sensitive	5	30.7 ± 1.0	NB
P	*Rumex maritimus var. persicarioides*	Peach-leaved Dock				S2S3	5 Undetermined	2	79.6 ± 0.0	NB
P	*Rumex pallidus*	Seabeach Dock				S2S3	3 Sensitive	7	59.4 ± 0.0	NB
P	*Rubus pensilvanicus*	Pennsylvania Blackberry				S2S3	4 Secure	27	25.1 ± 0.0	NB
P	*Galium labradoricum*	Labrador Bedstraw				S2S3	3 Sensitive	14	39.6 ± 0.0	NB
P	*Carex adusta*	Lesser Brown Sedge				S2S3	4 Secure	8	11.0 ± 0.0	NB
P	*Corallorhiza maculata var. occidentalis*	Spotted Coralroot				S2S3	3 Sensitive	6	22.4 ± 10.0	NB
P	*Listera auriculata*	Auricled Twayblade				S2S3	3 Sensitive	1	65.6 ± 0.0	NB
P	*Spiranthes cernua*	Nodding Ladies'-Tresses				S2S3	3 Sensitive	17	18.0 ± 0.0	NB
P	*Eragrostis pectinacea*	Tufted Love Grass				S2S3	4 Secure	5	11.8 ± 0.0	NB
P	*Stuckenia filiformis ssp. alpina*	Thread-leaved Pondweed				S2S3	3 Sensitive	2	27.5 ± 1.0	NB
P	*Stuckenia pectinata*	Sago Pondweed				S2S3	3 Sensitive	51	21.0 ± 0.0	NB
P	*Potamogeton praelongus*	White-stemmed Pondweed				S2S3	4 Secure	11	38.7 ± 0.0	NS
P	*Ophioglossum pusillum*	Northern Adder's-tongue				S2S3	3 Sensitive	5	43.0 ± 0.0	NS
P	*Panax trifolius*	Dwarf Ginseng				S3	3 Sensitive	23	21.4 ± 0.0	NB
P	*Artemisia campestris*	Field Wormwood				S3	4 Secure	3	70.8 ± 0.0	NB
P	*Artemisia campestris ssp. caudata*	Field Wormwood				S3	4 Secure	5	70.3 ± 10.0	NB
P	*Bidens hyperborea*	Estuary Beggarticks				S3	4 Secure	30	37.6 ± 0.0	NB
P	*Bidens hyperborea var. hyperborea*	Estuary Beggarticks				S3	4 Secure	3	37.4 ± 1.0	NB
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3	4 Secure	68	20.4 ± 1.0	NB
P	*Prenanthes racemosa*	Glaucous Rattlesnakeroot				S3	4 Secure	2	97.0 ± 0.0	NB
P	*Symphyotrichum boreale*	Boreal Aster				S3	3 Sensitive	14	39.5 ± 0.0	NB
P	*Betula pumila*	Bog Birch				S3	4 Secure	39	34.4 ± 0.0	NB
P	*Arabis glabra*	Tower Mustard				S3	5 Undetermined	1	78.2 ± 0.0	NB
P	*Arabis hirsuta var. pycnocarpa*	Western Hairy Rockcress				S3	4 Secure	13	21.0 ± 0.0	NB
P	*Cardamine maxima*	Large Toothwort				S3	4 Secure	9	78.3 ± 0.0	NB
P	*Subularia aquatica var. americana*	Water Awlwort				S3	4 Secure	2	60.5 ± 0.0	NB
P	*Stellaria humifusa*	Saltmarsh Starwort				S3	4 Secure	19	18.7 ± 5.0	NB
P	*Hudsonia tomentosa*	Woolly Beach-heath				S3	4 Secure	220	30.9 ± 0.0	NB
P	*Cornus amomum ssp. obliqua*	Pale Dogwood				S3	3 Sensitive	12	97.5 ± 0.0	NB
P	*Crassula aquatica*	Water Pygmyweed				S3	4 Secure	5	60.7 ± 0.0	NB
P	*Rhodiola rosea*	Roseroot				S3	4 Secure	39	54.4 ± 0.0	NB
P	*Penthorum sedoides*	Ditch Stonecrop				S3	4 Secure	27	34.6 ± 0.0	NB
P	*Elatine minima*	Small Waterwort				S3	4 Secure	1	61.0 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Geranium bicknellii*	Bicknell's Crane's-bill				S3	4 Secure	18	11.0 ± 0.0	NB
P	*Myriophyllum farwellii*	Farwell's Water Milfoil				S3	4 Secure	9	33.9 ± 1.0	NB
P	*Myriophyllum heterophyllum*	Variable-leaved Water Milfoil				S3	4 Secure	2	97.0 ± 0.0	NB
P	*Myriophyllum verticillatum*	Whorled Water Milfoil				S3	4 Secure	13	34.1 ± 1.0	NB
P	*Teucrium canadense*	Canada Germander				S3	3 Sensitive	111	23.3 ± 0.0	NB
P	*Nuphar lutea ssp. pumila*	Small Yellow Pond-lily				S3	4 Secure	7	30.6 ± 0.0	NB
P	*Epilobium hornemannii*	Hornemann's Willowherb				S3	4 Secure	3	64.5 ± 1.0	NB
P	*Epilobium hornemannii ssp. hornemannii*	Hornemann's Willowherb				S3	4 Secure	1	64.6 ± 0.0	NB
P	*Epilobium strictum*	Downy Willowherb				S3	4 Secure	27	13.1 ± 0.0	NB
P	*Polygala sanguinea*	Blood Milkwort				S3	3 Sensitive	12	29.1 ± 0.0	NB
P	*Polygonum arifolium*	Halberd-leaved Tearthumb				S3	4 Secure	95	9.1 ± 0.0	NB
P	*Polygonum punctatum*	Dotted Smartweed				S3	4 Secure	4	28.8 ± 5.0	NB
P	*Polygonum punctatum var. confertiflorum*	Dotted Smartweed				S3	4 Secure	20	36.6 ± 1.0	NB
P	*Polygonum scandens*	Climbing False Buckwheat				S3	4 Secure	59	32.2 ± 0.0	NB
P	*Samolus valerandi ssp. parviflorus*	Seaside Brookweed				S3	4 Secure	120	15.3 ± 0.0	NB
P	*Pyrola minor*	Lesser Pyrola				S3	4 Secure	5	41.8 ± 0.0	NS
P	*Clematis occidentalis*	Purple Clematis				S3	4 Secure	10	40.4 ± 0.0	NB
P	*Ranunculus gmelinii*	Gmelin's Water Buttercup				S3	4 Secure	47	26.5 ± 1.0	NB
P	*Thalictrum venulosum*	Northern Meadow-rue				S3	4 Secure	1	99.3 ± 1.0	PE
P	*Amelanchier canadensis*	Canada Serviceberry				S3	4 Secure	19	19.4 ± 0.0	NB
P	*Rosa palustris*	Swamp Rose				S3	4 Secure	3	32.5 ± 0.0	NB
P	*Sanguisorba canadensis*	Canada Burnet				S3	4 Secure	16	58.7 ± 0.0	NB
P	*Galium boreale*	Northern Bedstraw				S3	4 Secure	10	50.2 ± 5.0	NS
P	*Salix interior*	Sandbar Willow				S3	4 Secure	1	22.6 ± 1.0	NB
P	*Salix nigra*	Black Willow				S3	3 Sensitive	5	91.0 ± 50.0	NB
P	*Salix pedicellaris*	Bog Willow				S3	4 Secure	41	10.9 ± 0.0	NB
P	*Comandra umbellata*	Bastard's Toadflax				S3	4 Secure	49	21.2 ± 0.0	NB
P	*Limosella australis*	Southern Mudwort				S3	4 Secure	70	20.5 ± 0.0	NB
P	*Veronica serpyllifolia ssp. humifusa*	Thyme-Leaved Speedwell				S3	4 Secure	7	57.2 ± 0.0	NB
P	*Pilea pumila*	Dwarf Clearweed				S3	4 Secure	52	35.1 ± 0.0	NB
P	*Viola adunca*	Hooked Violet				S3	4 Secure	5	41.5 ± 0.0	NB
P	*Viola nephrophylla*	Northern Bog Violet				S3	4 Secure	4	72.4 ± 0.0	PE
P	*Carex aquatilis*	Water Sedge				S3	4 Secure	23	21.0 ± 0.0	NB
P	*Carex arcta*	Northern Clustered Sedge				S3	4 Secure	3	38.3 ± 20.0	NB
P	*Carex atratiformis*	Scabrous Black Sedge				S3	4 Secure	3	77.4 ± 0.0	NS
P	*Carex capillaris*	Hairlike Sedge				S3	4 Secure	16	50.1 ± 0.0	NS
P	*Carex chordorrhiza*	Creeping Sedge				S3	4 Secure	54	29.7 ± 0.0	NB
P	*Carex conoidea*	Field Sedge				S3	4 Secure	9	22.6 ± 0.0	NB
P	*Carex eburnea*	Bristle-leaved Sedge				S3	4 Secure	11	36.0 ± 100.0	NB
P	*Carex exilis*	Coastal Sedge				S3	4 Secure	6	58.7 ± 0.0	NS
P	*Carex garberi*	Garber's Sedge				S3	3 Sensitive	1	26.4 ± 0.0	NB
P	*Carex haydenii*	Hayden's Sedge				S3	4 Secure	3	9.2 ± 0.0	NB
P	*Carex lupulina*	Hop Sedge				S3	4 Secure	17	34.6 ± 0.0	NB
P	*Carex michauxiana*	Michaux's Sedge				S3	4 Secure	10	31.3 ± 1.0	NB
P	*Carex ormostachya*	Necklace Spike Sedge				S3	4 Secure	5	37.8 ± 1.0	NB
P	*Carex rosea*	Rosy Sedge				S3	4 Secure	13	71.5 ± 0.0	NB
P	*Carex tenera*	Tender Sedge				S3	4 Secure	11	7.0 ± 0.0	NB
P	*Carex tuckermanii*	Tuckerman's Sedge				S3	4 Secure	24	42.9 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Carex wiegandii*	Wiegand's Sedge				S3	4 Secure	120	5.2 ± 0.0	NB
P	*Carex recta*	Estuary Sedge				S3	4 Secure	14	27.1 ± 0.0	NB
P	*Cyperus dentatus*	Toothed Flatsedge				S3	4 Secure	10	59.5 ± 1.0	NB
P	*Cyperus esculentus*	Perennial Yellow Nutsedge				S3	4 Secure	5	55.3 ± 0.0	NB
P	*Eleocharis intermedia*	Matted Spikerush				S3	4 Secure	1	63.4 ± 0.0	NB
P	*Rhynchospora capitellata*	Small-headed Beakrush				S3	4 Secure	2	80.1 ± 0.0	NB
P	*Rhynchospora fusca*	Brown Beakrush				S3	4 Secure	10	39.1 ± 0.0	NS
P	*Trichophorum clintonii*	Clinton's Clubrush				S3	4 Secure	24	64.2 ± 0.0	NB
P	*Schoenoplectus fluviatilis*	River Bulrush				S3	3 Sensitive	4	12.4 ± 1.0	NB
P	*Schoenoplectus torreyi*	Torrey's Bulrush				S3	4 Secure	4	12.0 ± 0.0	NB
P	*Lemna trisulca*	Star Duckweed				S3	4 Secure	18	19.2 ± 0.0	NB
P	*Cypripedium reginae*	Showy Lady's-Slipper				S3	3 Sensitive	33	39.2 ± 0.0	NB
P	*Liparis loeselii*	Loesel's Twayblade				S3	4 Secure	32	26.3 ± 0.0	NB
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	4 Secure	181	2.2 ± 0.0	NB
P	*Platanthera grandiflora*	Large Purple Fringed Orchid				S3	3 Sensitive	23	28.9 ± 1.0	NB
P	*Bromus latiglumis*	Broad-Glumed Brome				S3	3 Sensitive	23	32.2 ± 0.0	NB
P	*Calamagrostis pickeringii*	Pickering's Reed Grass				S3	4 Secure	7	48.2 ± 0.0	NB
P	*Dichanthelium depauperatum*	Starved Panic Grass				S3	4 Secure	6	51.7 ± 0.0	NB
P	*Potamogeton obtusifolius*	Blunt-leaved Pondweed				S3	4 Secure	32	25.7 ± 0.0	NB
P	*Xyris montana*	Northern Yellow-Eyed-Grass				S3	4 Secure	57	15.7 ± 0.0	NB
P	*Zannichellia palustris*	Horned Pondweed				S3	4 Secure	44	20.3 ± 0.0	NB
P	*Adiantum pedatum*	Northern Maidenhair Fern				S3	4 Secure	1	95.2 ± 1.0	NB
P	*Cryptogramma stelleri*	Steller's Rockbrake				S3	4 Secure	2	92.5 ± 0.0	NS
P	*Asplenium trichomanes-ramosum*	Green Spleenwort				S3	4 Secure	12	41.2 ± 1.0	NB
P	*Dryopteris fragrans var. remotiuscula*	Fragrant Wood Fern				S3	4 Secure	47	52.0 ± 0.0	NB
P	*Woodsia glabella*	Smooth Cliff Fern				S3	4 Secure	44	52.0 ± 0.0	NB
P	*Isoetes tuckermanii*	Tuckerman's Quillwort				S3	4 Secure	3	57.6 ± 0.0	NB
P	*Lycopodium sabinifolium*	Ground-Fir				S3	4 Secure	16	18.5 ± 0.0	NB
P	*Huperzia appalachiana*	Appalachian Fir-Clubmoss				S3	3 Sensitive	26	65.6 ± 0.0	NB
P	*Botrychium dissectum*	Cut-leaved Moonwort				S3	4 Secure	9	24.4 ± 1.0	NB
P	*Botrychium lanceolatum var. angustisegmentum*	Lance-Leaf Grape-Fern				S3	3 Sensitive	12	19.6 ± 0.0	NB
P	*Botrychium simplex*	Least Moonwort				S3	4 Secure	6	27.6 ± 0.0	NB
P	*Polypodium appalachianum*	Appalachian Polypody				S3	4 Secure	27	26.8 ± 1.0	NB
P	*Crataegus submollis*	Quebec Hawthorn				S3?	3 Sensitive	1	92.5 ± 7.0	NS
P	*Mertensia maritima*	Sea Lungwort				S3S4	4 Secure	7	37.7 ± 0.0	NB
P	*Suaeda calceoliformis*	Horned Sea-blite				S3S4	4 Secure	36	9.9 ± 5.0	NB
P	*Myriophyllum sibiricum*	Siberian Water Milfoil				S3S4	4 Secure	6	43.8 ± 0.0	NS
P	*Utricularia gibba*	Humped Bladderwort				S3S4	4 Secure	4	30.1 ± 0.0	NB
P	*Rumex maritimus*	Sea-Side Dock				S3S4	4 Secure	62	12.2 ± 0.0	NB
P	*Rumex maritimus var. fueginus*	Tierra del Fuego Dock				S3S4	4 Secure	28	11.3 ± 0.0	NB
P	*Rubus chamaemorus*	Cloudberry				S3S4	4 Secure	60	29.3 ± 0.0	NB
P	*Geocaulon lividum*	Northern Comandra				S3S4	4 Secure	39	1.4 ± 0.0	NB
P	*Juniperus horizontalis*	Creeping Juniper				S3S4	4 Secure	14	25.7 ± 1.0	NB
P	*Cladium mariscoides*	Smooth Twigrush				S3S4	4 Secure	7	31.6 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Eriophorum russeolum*	Russet Cottongrass				S3S4	4 Secure	212	2.0 ± 0.0	NB
P	*Triglochin gaspensis*	Gasp ├⌐ Arrowgrass				S3S4	4 Secure	68	23.3 ± 0.0	NB
P	*Spirodela polyrrhiza*	Great Duckweed				S3S4	4 Secure	14	30.5 ± 0.0	NB
P	*Corallorhiza maculata*	Spotted Coralroot				S3S4	3 Sensitive	16	22.3 ± 5.0	NB
P	*Calamagrostis stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	26	17.4 ± 2.0	NB
P	*Calamagrostis stricta ssp. stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	7	35.2 ± 0.0	NB
P	*Calamagrostis stricta var. stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	9	63.3 ± 0.0	PE
P	*Distichlis spicata*	Salt Grass				S3S4	4 Secure	91	17.0 ± 5.0	NB
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	14	4.5 ± 0.0	NB
P	*Montia fontana*	Water Blinks				SH	2 May Be At Risk	4	17.4 ± 1.0	NB
P	*Agalinis maritima*	Saltmarsh Agalinis				SX	0.1 Extirpated	2	74.7 ± 50.0	NB

5.1 SOURCE BIBLIOGRAPHY (100 km)

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

# recs	CITATION
10663	Morrison, Guy. 2011. Maritime Shorebird Survey (MSS) database. Canadian Wildlife Service, Ottawa, 15939 surveys. 86171 recs.
5927	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.
5834	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
3215	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
837	Pardieck, K.L. & Ziolkowski Jr., D.J.; Hudson, M.-A.R. 2014. North American Breeding Bird Survey Dataset 1966 - 2013, version 2013.0. U.S. Geological Survey, Patuxent Wildlife Research Center <www.pwrc.usgs.gov/BBS/RawData/>.
743	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2015. Atlantic Canada Conservation Data Centre Fieldwork 2015. Atlantic Canada Conservation Data Centre, # recs.
518	Amirault, D.L. & Stewart, J. 2007. Piping Plover Database 1894-2006. Canadian Wildlife Service, Sackville, 3344 recs, 1228 new.
472	Blaney, C.S.; Mazerolle, D.M. 2012. Fieldwork 2012. Atlantic Canada Conservation Data Centre, 13,278 recs.
435	Beaudet, A. 2007. Piping Plover Records in Kouchibouguac NP, 1982-2005. Kouchibouguac National Park, 435 recs.
426	Gravel, Mireille. 2010. Coordonnées GPS et suivi des tortues marquées, 2005-07. Kouchibouguac National Park, 480 recs.
312	Tranquilla, L. 2015. Maritimes Marsh Monitoring Project 2015 data. Bird Studies Canada, Sackville NB, 5062 recs.
304	Belland, R.J. Maritimes moss records from various herbarium databases. 2014.
300	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2013. Atlantic Canada Conservation Data Centre Fieldwork 2013. Atlantic Canada Conservation Data Centre, 9000+ recs.
287	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2003.
235	Mazerolle, D.M. 2017. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
221	Blaney, C.S. & Mazerolle, D.M. 2011. Field data from NCC properties at Musquash Harbour NB & Goose Lake NS. Atlantic Canada Conservation Data Centre, 1739 recs.
204	Blaney, C.S.; Mazerolle, D.M. 2010. Fieldwork 2010. Atlantic Canada Conservation Data Centre. Sackville NB, 15508 recs.
197	Blaney, C.S.; Spicer, C.D.; Mazerolle, D.M. 2005. Fieldwork 2005. Atlantic Canada Conservation Data Centre. Sackville NB, 2333 recs.
189	Blaney, C.S. 2017. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
175	Benjamin, L.K. (compiler). 2012. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 4965 recs.
165	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs.
162	Epworth, W. 2012. Species at Risk records, 2009-11. Fort Folly Habitat Recovery Program, 162 recs.
161	Parks Canada. 2010. Specimens in or near National Parks in Atlantic Canada. Canadian National Museum, 3925 recs.
153	Amirault, D.L. & McKnight, J. 2003. Piping Plover Database 1991-2003. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
148	Clayden, S.R. 1998. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, 19759 recs.
146	Wilhelm, S.I. et al. 2011. Colonial Waterbird Database. Canadian Wildlife Service, Sackville, 2698 sites, 9718 recs (8192 obs).
139	Blaney, C.S.; Mazerolle, D.M.; Klymko, J; Spicer, C.D. 2006. Fieldwork 2006. Atlantic Canada Conservation Data Centre. Sackville NB, 8399 recs.
132	Blaney, C.S. 2016. Atlantic Canada Conservation Data Centre Fieldwork 2016. Atlantic Canada Conservation Data Centre, 6719 recs.
130	Belliveau, A.G. 2018. Atlantic Canada Conservation Data Centre Fieldwork 2017. Atlantic Canada Conservation Data Centre.
129	Benedict, B. Connell Herbarium Specimens (Data) . University New Brunswick, Fredericton. 2003.
127	Stewart, J.I. 2010. Peregrine Falcon Surveys in New Brunswick, 2002-09. Canadian Wildlife Service, Sackville, 58 recs.
121	Newell, R.E. 2000. E.C. Smith Herbarium Database. Acadia University, Wolfville NS, 7139 recs.
120	Mazerolle, D.M. 2005. Bouctouche Irving Eco-Centre rare coastal plant fieldwork results 2004-05. Irving Eco-centre, la Dune du Bouctouche, 174 recs.
119	Churchill, J.L.; Klymko, J.D. 2015. Chignecto and Tintamarre National Wildlife Area Bird Surveys 2015. Atlantic Canada Conservation Data Centre, 2238 recs.

# recs	CITATION
117	McAlpine, D.F. 1998. NBM Science Collections databases to 1998. New Brunswick Museum, Saint John NB, 241 recs.
113	Bagnell, B.A. 2001. New Brunswick Bryophyte Occurrences. B&B Botanical, Sussex, 478 recs.
112	Hicks, Andrew. 2009. Coastal Waterfowl Surveys Database, 2000-08. Canadian Wildlife Service, Sackville, 46488 recs (11149 non-zero).
109	Belliveau, A.G. 2016. Atlantic Canada Conservation Data Centre Fieldwork 2016. Atlantic Canada Conservation Data Centre, 10695 recs.
98	Sollows, M.C,. 2008. NBM Science Collections databases: mammals. New Brunswick Museum, Saint John NB, download Jan. 2008, 4983 recs.
97	Klymko, J.J.D. 2014. Maritimes Butterfly Atlas, 2012 submissions. Atlantic Canada Conservation Data Centre, 8552 records.
95	Blaney, C.S.; Mazerolle, D.M. 2008. Fieldwork 2008. Atlantic Canada Conservation Data Centre. Sackville NB, 13343 recs.
93	Tremblay, E. 2006. Kouchibouguac National Park Digital Database. Parks Canada, 105 recs.
86	Hinds, H.R. 1986. Notes on New Brunswick plant collections. Connell Memorial Herbarium, unpubl, 739 recs.
80	Spicer, C.D. & Harries, H. 2001. Mount Allison Herbarium Specimens. Mount Allison University, 128 recs.
77	Blaney, C.S.; Mazerolle, D.M. 2011. Fieldwork 2011. Atlantic Canada Conservation Data Centre. Sackville NB.
77	Klymko, J.J.D. 2012. Maritimes Butterfly Atlas, 2010 and 2011 records. Atlantic Canada Conservation Data Centre, 6318 recs.
76	Scott, Fred W. 1998. Updated Status Report on the Cougar (Puma Concolor couguar) [Eastern population]. Committee on the Status of Endangered Wildlife in Canada, 298 recs.
72	Benjamin, L.K. (compiler). 2007. Significant Habitat & Species Database. Nova Scotia Dept Natural Resources, 8439 recs.
68	Blaney, C.S.; Mazerolle, D.M.; Oberndorfer, E. 2007. Fieldwork 2007. Atlantic Canada Conservation Data Centre. Sackville NB, 13770 recs.
64	Blaney, C.S. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre. Sackville NB, 1042 recs.
64	Blaney, C.S.; Mazerolle, D.M. 2009. Fieldwork 2009. Atlantic Canada Conservation Data Centre. Sackville NB, 13395 recs.
64	Brunelle, P.-M. (compiler). 2009. ADIP/MDDS Odonata Database: data to 2006 inclusive. Atlantic Dragonfly Inventory Program (ADIP), 24200 recs.
62	Churchill, J.L.; Walker, J. 2017. Species at Risk Surveys at Correctional Services Canada Properties in Nova Scotia and New Brunswick. Atlantic Canada Conservation Data Centre.
61	Catling, P.M., Erskine, D.S. & MacLaren, R.B. 1985. The Plants of Prince Edward Island with new records, nomenclatural changes & corrections & deletions, 1st Ed. Research Branch, Agriculture Canada, Ottawa, Publication 1798. 22pp.
57	Neily, T.H. 2017. Maritmes Lichen and Bryophyte records. Atlantic Canada Conservation Data Centre.
57	Newell, R.E. 2005. E.C. Smith Digital Herbarium. E.C. Smith Herbarium, Irving Biodiversity Collection, Acadia University, Web site: http://luxor.acadiau.ca/library/Herbarium/project/. 582 recs.
54	Sollows, M.C,. 2009. NBM Science Collections databases: molluscs. New Brunswick Museum, Saint John NB, download Jan. 2009, 6951 recs (2957 in Atlantic Canada).
50	Canadian Wildlife Service, Dartmouth. 2010. Piping Plover censuses 2007-09, 304 recs.
50	Erskine, A.J. 1999. Maritime Nest Records Scheme (MNRS) 1937-1999. Canadian Wildlife Service, Sackville, 313 recs.
47	Blaney, C.S. 2000. Fieldwork 2000. Atlantic Canada Conservation Data Centre. Sackville NB, 1265 recs.
47	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2014. Atlantic Canada Conservation Data Centre Fieldwork 2014. Atlantic Canada Conservation Data Centre, # recs.
44	Pronych, G. & Wilson, A. 1993. Atlas of Rare Vascular Plants in Nova Scotia. Nova Scotia Museum, Halifax NS, I:1-168, II:169-331. 1446 recs.
43	MacDonald, M. 2008. PEI Power Corridor Floral Surveys, 2004-08. Jacques Whitford Ltd, 2238 recs (979 rare).
41	Klymko, J.J.D. 2016. 2015 field data. Atlantic Canada Conservation Data Centre.
41	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2013.
41	Wissink, R. 2006. Fundy National Park Digital Database. Parks Canada, 41 recs.
40	Benedict, B. Connell Herbarium Specimen Database Download 2004. Connell Memorial Herbarium, University of New Brunswick. 2004.
39	Majka, C. 2009. Université de Moncton Insect Collection: Carabidae, Cerambycidae, Coccinellidae. Université de Moncton, 540 recs.
35	Klymko, J. 2016. Atlantic Canada Conservation Data Centre Fieldwork 2016. Atlantic Canada Conservation Data Centre.
34	Blaney, C.S & Spicer, C.D.; Popma, T.M.; Basquill, S.P. 2003. Vascular Plant Surveys of Northumberland Strait Rivers & Amherst Area Peatlands. Nova Scotia Museum Research Grant, 501 recs.
34	Donell, R. 2008. Rare plant records from rare coastal plant project. Bouctouche Dune Irving Eco-centre. Pers. comm. to D.M. Mazerolle, 50 recs.
34	Robinson, S.L. 2010. Fieldwork 2009 (dune ecology). Atlantic Canada Conservation Data Centre. Sackville NB, 408 recs.
33	Goltz, J.P. 2012. Field Notes, 1989-2005. , 1091 recs.
31	Doucet, D.A. 2007. Lepidopteran Records, 1988-2006. Doucet, 700 recs.
30	Cowie, F. 2007. Electrofishing Population Estimates 1979-98. Canadian Rivers Institute, 2698 recs.
27	Blaney, C.S.; Spicer, C.D.; Rothfels, C. 2004. Fieldwork 2004. Atlantic Canada Conservation Data Centre. Sackville NB, 1343 recs.
27	Scott, F.W. 2002. Nova Scotia Herpetofauna Atlas Database. Acadia University, Wolfville NS, 8856 recs.
25	Curley, F.R. 2005. PEF&W Collection 2003-04. PEI Fish & Wildlife Div., 716 recs.
25	Tingley, S. (compiler). 2001. Butterflies of New Brunswick. , Web site: www.geocities.com/Yosemite/8425/buttrfly. 142 recs.
24	Bateman, M.C. 2001. Coastal Waterfowl Surveys Database, 1965-2001. Canadian Wildlife Service, Sackville, 667 recs.
24	Coursol, F. 2005. Dataset from New Brunswick fieldwork for Eriocaulon parkeri COSEWIC report. Coursol, Pers. comm. to C.S. Blaney, Aug 26. 110 recs.
22	Hinds, H.R. 1999. Connell Herbarium Database. University New Brunswick, Fredericton, 131 recs.
22	Roland, A.E. & Smith, E.C. 1969. The Flora of Nova Scotia, 1st Ed. Nova Scotia Museum, Halifax, 743pp.
21	Kouchibouguac National Park, Natural Resource Conservation Sec. 1988. The Resources of Kouchibouguac National Park. Beach, H. (ed.) , 90 recs.
20	Speers, L. 2008. Butterflies of Canada database: New Brunswick 1897-1999. Agriculture & Agri-Food Canada, Biological Resources Program, Ottawa, 2048 recs.
19	Blaney, C.S.; Spicer, C.D. 2001. Fieldwork 2001. Atlantic Canada Conservation Data Centre. Sackville NB, 981 recs.
19	Pike, E., Tingley, S. & Christie, D.S. 2000. Nature NB Listserve. University of New Brunswick, listserv.unb.ca/archives/naturenb. 68 recs.
18	Blaney, C.S.; Spicer, C.D.; Popma, T.M.; Hanel, C. 2002. Fieldwork 2002. Atlantic Canada Conservation Data Centre. Sackville NB, 2252 recs.
17	Mazerolle, D. 2003. Assessment of Seaside Pinweed (Lechea maritima var. subcylindrica) in Southeastern New Brunswick. Irving Eco-centre, la Dune du Bouctouche, 18 recs.
17	Thomas, A.W. 1996. A preliminary atlas of the butterflies of New Brunswick. New Brunswick Museum.
16	Caissie, A. Herbarium Records. Fundy National Park, Alma NB. 1961-1993.

# recs	CITATION
16	Mazerolle, M.J., Drolet, B., & Desrochers, A. 2001. Small Mammal Responses to Peat Mining of Southeastern Canadian Bogs. Can. J. Zool., 79:296-302. 21 recs.
16	Webster, R.P. & Edsall, J. 2007. 2005 New Brunswick Rare Butterfly Survey. Environmental Trust Fund, unpublished report, 232 recs.
16	Zinck, M. & Roland, A.E. 1998. Roland's Flora of Nova Scotia. Nova Scotia Museum, 3rd ed., rev. M. Zinck; 2 Vol., 1297 pp.
15	Belland, R.J. 1992. The Bryophytes of Kouchibouguac National Park. Parks Canada, Kouchibouguac NP, 101 pp. + map.
15	Edsall, J. 2001. Lepidopteran records in New Brunswick, 1997-99. , Pers. comm. to K.A. Bredin. 91 recs.
15	McAlpine, D.F. 1998. NBM Science Collections: Wood Turtle records. New Brunswick Museum, Saint John NB, 329 recs.
15	Plissner, J.H. & Haig, S.M. 1997. 1996 International piping plover census. US Geological Survey, Corvallis OR, 231 pp.
14	Churchill, J.L., Klymko, J.D.D. 2016. Atlantic Canada Conservation Data Centre Fieldwork 2016. Atlantic Canada Conservation Data Centre.
14	Gagnon, J. 2004. Specimen data from 2002 visit to Prince Edward Island. , 104 recs.
14	Klymko, J.J.D.; Robinson, S.L. 2014. 2013 field data. Atlantic Canada Conservation Data Centre.
14	Morton, L.D. & Savoie, M. 1983. The Mammals of Kouchibouguac National Park. Parks Canada Report prep. by Canadian Wildlife Service, Sackville, NB, Vols 1-4. 14 recs.
14	Sabine, D.L. 2005. 2001 Freshwater Mussel Surveys. New Brunswick Dept of Natural Resources & Energy, 590 recs.
13	Clayden, S.R. 2007. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, download Mar. 2007, 6914 recs.
13	Wissink, R. 2000. Rare Plants of Fundy: maps. Parks Canada, 20 recs.
12	Doucet, D.A. & Edsall, J.; Brunelle, P.-M. 2007. Miramichi Watershed Rare Odonata Survey. New Brunswick ETF & WTF Report, 1211 recs.
12	Manthorne, A. 2014. MaritimesSwiftwatch Project database 2013-2014. Bird Studies Canada, Sackville NB, 326 recs.
12	McAlpine, D.F. 1983. Status & Conservation of Solution Caves in New Brunswick. New Brunswick Museum, Publications in Natural Science, no. 1, 28pp.
12	Oldham, M.J. 2000. Oldham database records from Maritime provinces. Oldham, M.J; ONHIC, 487 recs.
12	Speers, L. 2001. Butterflies of Canada database. Agriculture & Agri-Food Canada, Biological Resources Program, Ottawa, 190 recs.
12	Webster, R.P. 2004. Lepidopteran Records for National Wildlife Areas in New Brunswick. Webster, 1101 recs.
11	Canadian Wildlife Service, Atlantic Region. 2010. Piping Plover censuses 2006-09. , 35 recs.
10	Bateman, M.C. 2000. Waterfowl Brood Surveys Database, 1990-2000 . Canadian Wildlife Service, Sackville, unpublished data. 149 recs.
10	Bredin, K.A. 2001. WTF Project: Freshwater Mussel Fieldwork in Freshwater Species data. Atlantic Canada Conservation Data Centere, 101 recs.
10	Burns, L. 2013. Personal communication concerning bat occurrence on PEI. Winter 2013. Pers. comm.
10	Goltz, J.P. & Bishop, G. 2005. Confidential supplement to Status Report on Prototype Quillwort (Isoetes prototypus). Committee on the Status of Endangered Wildlife in Canada, 111 recs.
10	Hall, R.A. 2001. S.. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 178 recs.
10	Hall, R.A. 2003. NS Freshwater Mussel Fieldwork. Nova Scotia Dept Natural Resources, 189 recs.
10	Klymko, J.J.D. 2018. 2017 field data. Atlantic Canada Conservation Data Centre.
10	Layberry, R.A. & Hall, P.W., LaFontaine, J.D. 1998. The Butterflies of Canada. University of Toronto Press. 280 pp+plates.
10	McMullin, R.T. 2015. Prince Edward Island's lichen biodiversity and proposed conservation status in a report prepared for the province of PEI. Biodiversity Institute of Ontario Herbarium, University of Guelph, 776 records.
10	Tremblay, E. 2001. Kouchibouguacis River Freshwater Mussel Data. Parks Canada, Kouchibouguac NP, 45 recs.
9	Amirault, D.L. 2000. Piping Plover Surveys, 1983-2000. Canadian Wildlife Service, Sackville, unpublished data. 70 recs.
9	Doucet, D.A. 2008. Fieldwork 2008: Odonata. ACCDC Staff, 625 recs.
9	Erskine, D. 1960. The plants of Prince Edward Island, 1st Ed. Research Branch, Agriculture Canada, Ottawa., Publication 1088. 1238 recs.
9	Godbout, V. 2002. SAR Inventory: Birds in Fort Beauséjour NHS. Parks Canada, Atlantic, SARINV02-01. 202 recs.
9	Mawhinney, K. & Seutin, G. 2001. Lepidoptera Survey of the Salt Marshes of of Kouchibouguac National Park. Parks Canada Unpublished Report, 5p. 9 recs.
8	Blaney, C.S. Miscellaneous specimens received by ACCDC (botany). Various persons. 2001-08.
8	Cowie, Faye. 2007. Surveyed Lakes in New Brunswick. Canadian Rivers Institute, 781 recs.
8	Hinds, H.R. 1992. Rare Vascular Plants of Fundy National Park. , 10 recs.
8	Hinds, H.R. 1997. Vascular Plants of Cocagne Island. , 14 recs.
8	Popma, T.M. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre. Sackville NB, 113 recs.
7	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2000.
7	Curley, F.R. 2007. PEF&W Collection. PEI Fish & Wildlife Div., 199 recs.
7	Doucet, D.A. 2009. Census of Globally Rare, Endemic Butterflies of Nova Scotia Gulf of St Lawrence Salt Marshes. Nova Scotia Dept of Natural Resources, Species at Risk, 155 recs.
7	Haughian, S.R. 2018. Description of Fuscopannaria leucosticta field work in 2017 . New Brunswick Museum, 314 recs.
7	Kennedy, Joseph. 2010. New Brunswick Peregrine records, 2009. New Brunswick Dept Natural Resources, 19 recs (14 active).
7	McNeil, J.A. 2016. Blandings Turtle (Emydoidea blandingii), Eastern Ribbonsnake (Thamnophis sauritus), Wood Turtle (Glyptemys insculpta), and Snapping Turtle (Chelydra serpentina) sightings, 2016. Mersey Tobeatic Research Institute, 774 records.
7	Sollows, M.C. 2008. NBM Science Collections databases: herpetiles. New Brunswick Museum, Saint John NB, download Jan. 2008, 8636 recs.
6	Benedict, B. Connell Herbarium Specimens, Digital photos. University New Brunswick, Fredericton. 2005.
6	Downes, C. 1998-2000. Breeding Bird Survey Data. Canadian Wildlife Service, Ottawa, 111 recs.
6	Elward, D. 2017. 2015-2016 Freshwater Mussel Inventories in the Bouctouche Watershed. Southeastern Anglers Association, 6 recs.
6	Gowan, S. 1980. The Lichens of Kouchibouguac National Park, Parts I (Macrolichens) & II (Microlichens). National Museum of Natural Sciences. Ottawa, ON, 7 recs.
6	Harris, P. 2004. Plant records from 1997-2003. Island Nature Trust, Charlottetown PE, 71 recs.
6	Robinson, S.L. 2015. 2014 field data.
6	Sabine, D.L. 2013. Dwaine Sabine butterfly records, 2009 and earlier.
5	Chaput, G. 2002. Atlantic Salmon: Maritime Provinces Overview for 2001. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-14. 39 recs.

# recs	CITATION
5	Clayden, S.R. 2005. Confidential supplement to Status Report on Ghost Antler Lichen (Pseudevernia cladonia). Committee on the Status of Endangered Wildlife in Canada, 27 recs.
5	Edsall, J. 2007. Personal Butterfly Collection: specimens collected in the Canadian Maritimes, 1961-2007. J. Edsall, unpubl. report, 137 recs.
5	Klymko, J.J.D. 2012. Insect fieldwork & submissions, 2011. Atlantic Canada Conservation Data Centre. Sackville NB, 760 recs.
5	Morrison, Annie. 2010. NCC Properties Fieldwork: June-August 2010. Nature Conservancy Canada, 508 recs.
5	Munro, Marian K. Nova Scotia Provincial Museum of Natural History Herbarium Database. Nova Scotia Provincial Museum of Natural History, Halifax, Nova Scotia. 2014.
5	Neily, T.H. & Pepper, C.; Toms, B. 2018. Nova Scotia lichen database [as of 2018-03]. Mersey Tobeatic Research Institute.
4	Basquill, S.P. 2003. Fieldwork 2003. Atlantic Canada Conservation Data Centre, Sackville NB, 69 recs.
4	Daury, R.W. & Bateman, M.C. 1996. The Barrow's Goldeneye (Bucephala islandica) in the Atlantic Provinces and Maine. Canadian Wildlife Service, Sackville, 47pp.
4	Dept of Fisheries & Oceans. 1999. Status of Wild Striped Bass, & Interaction between Wild & Cultured Striped Bass in the Maritime Provinces. , Science Stock Status Report D3-22. 13 recs.
4	Godbout, V. 2000. Recherche de l'Aster du St-Laurent (Aster laurentianus) et du Satyre des Maritimes (Coenonympha nepisiquit) au Parc national Kouchibouguac et a Dune du Bouctouche, N-B. Irving Eco-centre, 23 pp.
4	Gravel, Mireille. 2010. Coordonnées des tortues des bois Salmon River Road, 2005. Kouchibouguac National Park, 4 recs.
4	Hicklin, P.W. 1995. The Maritime Shorebird Survey Newsletter. Calidris, No. 3. 6 recs.
4	Popma, K. 2001. Phalarope & other bird observations in Westmorland Co. , Pers. comm. to K.A. Bredin. 5 recs.
4	Powell, B.C. 1967. Female sexual cycles of Chrysemy spicta & Clemmys insculpta in Nova Scotia. Can. Field-Nat., 81:134-139. 26 recs.
4	Sabine, D.L. 2012. Bronze Copper records, 2003-06. New Brunswick Dept of Natural Resources, 5 recs.
3	Cameron, R.P. 2014. 2013-14 rare species field data. Nova Scotia Department of Environment, 35 recs.
3	Gautreau-Daigle, H. 2007. Rare plant records from peatland surveys. Coastal Zones Research Institute, Shippagan NB. Pers. comm. to D.M. Mazerolle, 39 recs.
3	Gauvin, J.M. 1979. Etude de la vegetation des marais sales du parc national Kouchibouguac, N-B. M.Sc. Thesis, Universite de Moncton, 248 pp.
3	Godbout, Valerié. 2010. Étude de l'Aster du Saint-Laurent dans le parc national Kouchibouguac, 2000-04. Parks Canada, 3 recs.
3	Grondin, P. & Blouin, J-L., Bouchard, D.; et al. 1981. Description et cartographie de la vegetation du cordon littoral. Parc National de Kouchibouguac. Le Groupe Dryade, 57 pp.
3	Holder, M. & Kingsley, A.L. 2000. Peatland Insects in NB & NS: Results of surveys in 10 bogs during summer 2000. Atlantic Canada Conservation Data Centre, Sackville, 118 recs.
3	Kennedy, Joseph. 2010. New Brunswick Peregrine records, 2010. New Brunswick Dept Natural Resources, 16 recs (11 active).
3	Klymko, J.J.D. 2012. Insect field work & submissions. Atlantic Canada Conservation Data Centre, 852 recs.
3	MacQuarrie, K. 1991-1999. Site survey files, maps. Island Nature Trust, Charlottetown PE, 60 recs.
3	Nye, T. 2002. Wood Turtle observations in Westmorland, Queens Cos. , Pers. com. to S.H. Gerriets, Dec. 3. 3 recs.
3	Olsen, R. Herbarium Specimens. Nova Scotia Agricultural College, Truro. 2003.
3	Stevens, C. 1999. Cam Stevens field data from PEI vegetation plots. Sent along with specimens to C.S. Blaney. UNB masters research project, 732 recs.
2	Adams, J. & Herman, T.B. 1998. Thesis, Unpublished map of C. insculpta sightings. Acadia University, Wolfville NS, 88 recs.
2	Amirault, D.L. 2003. 2003 Peregrine Falcon Survey. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
2	Boyne, A.W. & Grecian, V.D. 1999. Tern Surveys. Canadian Wildlife Service, Sackville, unpublished data. 23 recs.
2	Boyne, A.W. 2000. Tern Surveys. Canadian Wildlife Service, Sackville, unpublished data. 168 recs.
2	Cameron, R.P. 2009. Cyanolichen database. Nova Scotia Environment & Labour, 1724 recs.
2	Donelle, R. 2007. Bouctouche Dune Rare Coastal Plant Data. Irving Eco-centre, la Dune du Bouctouche, 2 recs.
2	Gilhen, J. 1984. Amphibians & Reptiles of Nova Scotia, 1st Ed. Nova Scotia Museum, 164pp.
2	Godbout, V. 2001. Recherche de l'Aster du St-Laurent (Symphyotrichum laurentianum) dans les marais sales du sud-est du Nouveau-Brunswick. Irving Eco-centre, la Dune du Bouctouche, 23 pp.
2	Goltz, J.P. 2002. Botany Ramblings: 1 July to 30 September, 2002. N.B. Naturalist, 29 (3):84-92. 7 recs.
2	Klymko, J.J.D. 2010. Miscellaneous observations reported to ACCDC (zoology). Pers. comm. from various persons, 3 recs.
2	Macaulay, M. Notes on newly discovered Hepatica nobilis var. obtusa population in Cumberland Co. NS. Pers. comm. to S. Blaney, 1 rec.
2	Mazerolle, D. 2003. Assessment and Rehabilitation of the Gulf of St Lawrence Aster (Symphyotrichum laurentianum) in Southeastern New Brunswick. Irving Eco-centre, la Dune du Bouctouche, 13 recs.
2	O'Neil, S. 1998. Atlantic Salmon: Northumberland Strait Nova Scotia part of SFA 18. Dept of Fisheries & Oceans, Atlantic Region, Science. Stock Status Report D3-08. 9 recs.
2	Shafer, A.B.A., D.T. Stewart. 2006. A Disjunct Population of Sorex dispar (Long-Tailed Shrew) in Nova Scotia. Northeastern Naturalist, 13(4): 603-608.
2	Toner, M. 2001. Lynx Records 1973-2000. NB Dept of Natural Resources, 29 recs.
1	Allen, K. 2012. Rare plant spatial data from Pleasant Ridge cranberry farm. NB Deparment of Environment, Environmental Assessment Section, 39 recs.
1	Amirault, D.L. 2005. 2005 Peregrine Falcon Survey. Canadian Wildlife Service, Sackville, unpublished data. 27 recs.
1	Amiro, Peter G. 1998. Atlantic Salmon: Inner Bay of Fundy SFA 22 & part of SFA 23. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-12. 4 recs.
1	Bagnell, B.A. 2003. Update to New Brunswick Rare Bryophyte Occurrences. B&B Botanical, Sussex, 5 recs.
1	Belland, R.J. 2012. PEI moss records from Devonian Botanical Garden. DBG Cryptogam Database, Web site: https://secure.devonian.ualberta.ca/bryo_search.php 748 recs.
1	Belland, R.J. 2012. PEI moss records from New York Botanical Garden. NYBG Virtual Herbarium, Web site: http://sciweb.nybg.org/science2/vii2.asp 135 recs.
1	Belliveau, A.G. 2014. Plant Records from Southern and Central Nova Scotia. Atlantic Canada Conservation Data Centre, 919 recs.
1	Benjamin, L.K. (compiler). 2001. Significant Habitat & Species Database. Nova Scotia Dept of Natural Resources, 15 spp, 224 recs.
1	Benjamin, L.K. 2011. NSDNR fieldwork & consultant reports 1997, 2009-10. Nova Scotia Dept Natural Resources, 85 recs.
1	Blaney, C.S. 1999. Fieldwork 1999. Atlantic Canada Conservation Data Centre. Sackville NB, 292 recs.
1	Blaney, C.S. 2014. 2014 Bank Swallow colony observation, Westcock, NB. Atlantic Canada Conservation Data Centre.
1	Bouchard, A. Herbier Marie-Victorin. Universite de Montreal, Montreal QC. 1999.
1	Bredin, K.A. 2000. NB & NS Bog Project, fieldwork. Atlantic Canada Conservation Data Centre, Sackville, 1 rec.
1	Bredin, K.A. 2001. NB Freshwater Mussel Fieldwork. Atlantic Canada Conservation Data Centere, 16 recs.
1	Bredin, K.A. 2002. NB Freshwater Mussel Fieldwork. Atlantic Canada Conservation Data Centere, 30 recs.
1	Bryson, I. 2013. Nova Scotia rare plant records. CBCL Ltd., 180 records.

# recs	CITATION
1	Cameron, R.P. 2009. Erioderma pedicellatum database, 1979-2008. Dept Environment & Labour, 103 recs.
1	Chaput, G. 1999. Atlantic Salmon: Miramichi & SFA 16 Rivers. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-05. 6 recs.
1	Christie, D.S. 2000. Christmas Bird Count Data, 1997-2000. Nature NB, 54 recs.
1	Clavette, A., and others. 2013. Peregrine Falcon nesting information from NatureNB listserv. NatureNB.
1	Clayden, S.R. 2012. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, 57 recs.
1	Cronin, P. & Ayer, C.; Dubee, B.; Hooper, W.C.; LeBlanc, E.; Madden, A.; Pettigrew, T.; Seymour, P. 1998. Fish Species Management Plans (draft). NB DNRE Internal Report. Fredericton, 164pp.
1	Dibblee, R.L. 1999. PEI Cormorant Survey. Prince Edward Island Fisheries, Aquaculture & Environment, 1p. 21 recs.
1	Doucet, D.A. & Edsall, J. 2007. Ophiogomphus howei records. Atlantic Canada Conservation Data Centre, Sackville NB, 21 recs.
1	Doucet, D.A. 2007. Fieldwork 2007: Insects (minus Odonata). ACCDC Staff, 1 rec.
1	Doucet, D.A. 2008. Wood Turtle Records 2002-07. Pers. comm. to S. Gerriets, 7 recs, 7 recs.
1	Edsall, J. 2007. Lepidopteran Records from Halls Creek, 1994-2000. Edsall, 43 recs.
1	Gerriets, S.H. 1997-2001. Element Occurrence Database. Atlantic Canada Conservation Data Centre, Sackville NB, 1 rec.
1	Glen, W. 1991. 1991 Prince Edward Island Forest Biomass Inventory Data. PEI Dept of Energy and Forestry, 10059 recs.
1	Goltz, J.P. 2007. Field Notes: Listera australis at Kouchibouguac National Park. , 7 recs.
1	Harding, R.W. 2008. Harding Personal Insect Collection 1999-2007. R.W. Harding, 309 recs.
1	Hill, N.M. 1994. Status report on the Long's bulrush Scirpus longii in Canada. Committee on the Status of Endangered Wildlife in Canada, 7 recs.
1	Hinds, H.R. 2000. Rare plants of Fundy in Rare Plants of Fundy: maps. Wissink, R. (ed.) Parks Canada, 2 recs.
1	Kelly, Glen 2004. Botanical records from 2004 PEI Forestry fieldwork. Dept of Environment, Energy & Forestry, 71 recs.
1	Kirkland, G.L. Jr. & Schmidt, D.F. 1982. Abundance, habitat, reproduction & morphology of forest-dwelling small mammals of NS & south-eastern NB. Can. Field-Nat., 96(2): 156-162. 1 rec.
1	Kirkland, G.L. Jr., Schmidt, D.F. & Kirkland, C.J. 1979. First record of the long-tailed shrew (Sorex dispar) in New Brunswick. Can. Field-Nat., 93: 195-198. 1 rec.
1	Klymko, J.J.D. 2016. 2014 field data. Atlantic Canada Conservation Data Centre.
1	Klymko, J.J.D.; Robinson, S.L. 2012. 2012 field data. Atlantic Canada Conservation Data Centre, 447 recs.
1	LaFlamme, C. 2008. Disovery of Goodyera pubescens at Springdale, NB. Amec Earth and Environmental. Pers. comm. to D.M. Mazerolle, 1 rec.
1	Loo, J. & MacDougall, A. 1994. GAP analysis: Summary Report. Fundy Model Forest, 2 recs.
1	Madden, A. 1998. Wood Turtle records in northern NB. New Brunswick Dept of Natural Resources & Energy, Campbellton, Pers. comm. to S.H. Gerriets. 16 recs.
1	Marshall, L. 1998. Atlantic Salmon: Southwest New Brunswick outer-Fundy SFA 23. Dept of Fisheries & Oceans, Atlantic Region, Science. Stock Status Report D3-13. 6 recs.
1	McAlpine, D.F. & Collingwood, L. 1989. Rare Salamander Survey in Fundy National Park. Fundy National Park, Internal Documents, 1 rec.
1	McAlpine, D.F. 1983. Species Record Cards. Fundy National Park, Library, 1 rec.
1	Miller, D.G. 2013. Peregrine Falcon nesting information from birdingnewbrunswick.ca. birdingnewbrunswick.ca.
1	Mills, E. Connell Herbarium Specimens, 1957-2009. University New Brunswick, Fredericton. 2012.
1	Neily, T.H. & Pepper, C.; Toms, B. 2013. Nova Scotia lichen location database. Mersey Tobeatic Research Institute, 1301 records.
1	Novak, Pam. 2017. Email to John Klymko regarding Chelydra serpentina record.
1	Poirier, Nelson. 2012. Geranium robertianum record for NB. Pers. comm. to S. Blaney, Sep. 6, 1 rec.
1	Porter, C.J.M. 2014. Field work data 2007-2014. Nova Scotia Nature Trust, 96 recs.
1	Rankin, Andrew. 2017. Second-ever N.S. sighting: Big brown bat turns up in Oxford. The Chronicle Herald online edition (Herald News).
1	Smith, M. 2013. Email to Sean Blaney regarding Schizaea pusilla at Caribou Plain Bog, Fundy NP. pers. comm., 1 rec.
1	Sollows, M.C,. 2009. NBM Science Collections databases: Coccinellid & Cerambycid Beetles. New Brunswick Museum, Saint John NB, download Feb. 2009, 569 recs.
1	Spicer, C.D. 2004. Specimens from CWS Herbarium, Mount Allison Herbarium Database. Mount Allison University, 5939 recs.
1	Standley, L.A. 2002. Carex haydenii in Nova Scotia. , Pers. comm. to C.S. Blaney. 4 recs.
1	Steeves, R. 2004. Goodyera pubescens occurrence from Colpitts Brook, Albert Co. , Pers. comm. to C.S. Blaney. 1 rec.
1	Tremblay, E., Craik, S.R., Titman, R.D., Rousseau, A. & Richardson, M.J. 2006. First Report of Black Terns Breeding on a Coastal Barrier Island. Wilson Journal of Ornithology, 118(1):104-106. 1 rec.
1	Wilson, G. 2013. 2013 Snapping Turtle email report, Wentworth, NS. Pers. comm.
1	Wissink, R. 2000. Four-toed Salamander Survey results, 2000. Fundy National Park, Internal Documents, 1 rec.
1	Young, A.D., Titman, R.D. 1986. Costs and benefits to Red-breasted Mergansers nesting in tern and gull colonies. Can. J. Zool., 64: 2339-2343.

APPENDIX D

FUNCTIONAL ASSESSMENT

Assessment Area (AA) Results:

Wetland ID: 1

Date: June 16, 2018

Observer: Theo Popma

Latitude & Longitude (decimal degrees): 44.692457°; -66.750762°

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	2.51	Moderate	0.44	Lower	3.66	0.53
Stream Flow Support (SFS)	6.35	Moderate	3.61	Moderate	3.39	2.10
Water Cooling (WC)	7.10	Higher	3.91	Moderate	4.73	2.35
Sediment Retention & Stabilisation (SR)	3.04	Moderate	6.77	Moderate	5.24	4.11
Phosphorus Retention (PR)	3.01	Moderate	6.27	Higher	5.04	6.00
Nitrate Removal & Retention (NR)	2.82	Moderate	10.00	Higher	5.57	10.00
Carbon Sequestration (CS)	4.54	Moderate			6.52	
Organic Nutrient Export (OE)	7.04	Higher			6.07	
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)	6.93	Higher	4.92	Moderate	6.31	3.89
Amphibian & Turtle Habitat (AM)	5.93	Moderate	6.40	Higher	6.44	5.97
Waterbird Feeding Habitat (WBF)	6.37	Moderate	5.00	Moderate	5.07	5.00
Waterbird Nesting Habitat (WBN)	4.69	Moderate	5.00	Moderate	4.01	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	9.48	Higher	5.00	Moderate	7.86	5.00
Pollinator Habitat (POL)	9.16	Higher	3.33	Moderate	7.38	3.33
Native Plant Habitat (PH)	7.83	Higher	7.13	Higher	6.24	6.19
Public Use & Recognition (PU)			1.56	Lower		1.44
Wetland Sensitivity (Sens)			3.54	Moderate		3.26
Wetland Ecological Condition (EC)			8.55	Higher		9.17
Wetland Stressors (STR) (higher score means more stress)			0.08	Lower		2.29
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	0.44	Lower	3.66	0.53
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	3.00	Lower	8.84	Higher	6.05	8.35
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.98	Higher	4.53	Moderate	5.72	3.34
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.88	Moderate	4.84	Moderate	4.77	4.58
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	9.15	Higher	6.14	Higher	7.51	5.52
WETLAND CONDITION (EC)			8.55	Higher		9.17
WETLAND RISK (average of Sensitivity & Stressors)			1.81	Lower		2.78

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.

New Brunswick Reference Scores

Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh
1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
4.56	8.88	4.31	3.13	5.70					
2.33	7.64	5.30	3.12	5.26					
0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
					0.33	7.44	7.11	2.40	5.51
					2.20	5.20	2.99	2.88	5.30
					4.24	10.00	5.76	3.25	6.39
					2.26	5.93	3.67	2.15	4.97
			2.48	5.12				2.58	5.67
			3.07	5.39				4.15	7.64
			3.82	6.04				1.34	4.99
			2.41	6.22				3.15	6.29
			4.68	7.60				0.00	5.33
								3.25	6.39
								2.71	4.33

APPENDIX E

PHASE VI EIA APPROVAL
&
TENTATIVE PLAN

New Nouveau Brunswick
CANADA

December 15, 2016

File Number 4561-3-1289

Mr. Jacques Martin
60 King St.
Moncton, NB
E1C 4M2

Dear Mr. Martin:

RE: EIA #4561-3-1289 - Domain Nature Estates Subdivision (phase 6).

Members of the Technical Review Committee (TRC) have completed their review of the proposed addition of phase 6 in Domain Nature Estates Subdivision (EIA# 4561-3-1289). This letter hereby constitutes **approval to proceed with phase 6 of the subdivision development** however; please note that approval to proceed is contingent upon the following:

1. The proponent is subject to the conditions as outlined in the *Certificate of Determination* for EIA 4561-3-1289.

2. The cumulative total number of lots including all phases cannot exceed the 88 lots that were originally proposed.

3. The proponent must add a restrictive covenant prior to selling any of the remaining lots within the development prohibiting the use of groundwater sourced (i.e. open loop) earth energy systems. Closed loop earth energy systems are permitted provided that they are constructed in accordance with the requirements of the most current version of CSA standard *C448.2 Design and Installation of Earth Energy Systems for Residential and Other Small Buildings* as well as the *National Building Code*.

4. The proponent shall include a disclosure statement during the sale of all future lots informing the buyer of the possible need for water treatment so that they are made aware of any potential water quality issues and can plan for the expense.

5. The proponent must comply with all other acts and regulations.

If you require further information or have any questions please do not hesitate to contact me at (506) 444-3382 or crystale.harty@gnb.ca.

Sincerely,

Crystale Harty, B.Sc.
Project Manager, Environmental Assessment Section, DELG

C. Mr. Michael Fisher, Fisher Engineering Ltd.
Technical Review Committee

N.B. GRID COORDINATE VALUES NAD83 (CSRS)			
POINT	EASTING (m)	NORTHING (m)	DESCRIPTION
50	2643123.241	7454819.650	SMSET
51	2643052.059	7454797.606	PLAN
52	2643035.939	7454849.657	PLAN
53	2643107.228	7454871.355	SMSET
54	2643194.901	7454841.842	SMSET
55	2643178.994	7454893.206	SMSET
56	2643316.689	7454879.557	SMSET
57	2643307.665	7454932.360	SMSET
58	2643321.305	7454888.315	SMSET
59	2643638.624	7455012.104	SMSET
60	2643797.312	7454490.718	RP
61	2643488.903	7454940.061	CP
62	2643476.741	7454931.281	CP
63	2643390.828	7455111.888	RP
64	2643449.993	7454920.840	CP
65	2643352.988	7454890.799	SMSET
66	2643344.231	7454895.415	SMSET
67	2643330.625	7454939.348	SMSET
68	2643516.402	7454929.502	SMSET
69	2643655.446	7454992.032	SMSET

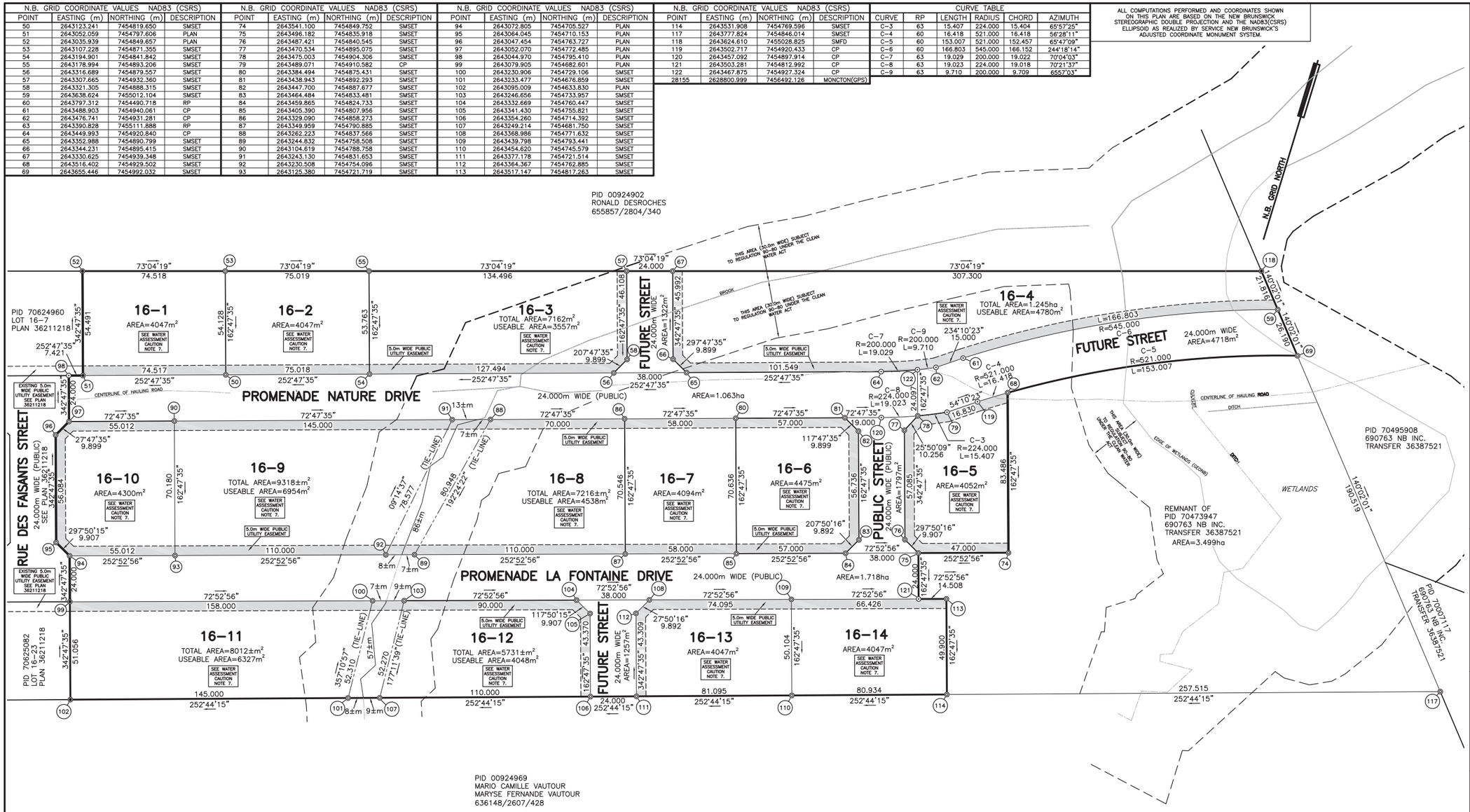
N.B. GRID COORDINATE VALUES NAD83 (CSRS)			
POINT	EASTING (m)	NORTHING (m)	DESCRIPTION
74	2643541.100	7454849.752	SMSET
75	2643496.182	7454835.918	SMSET
76	2643487.421	7454840.545	SMSET
77	2643470.534	7454895.075	SMSET
78	2643475.003	7454904.306	SMSET
79	2643489.071	7454910.582	CP
80	2643384.494	7454875.431	SMSET
81	2643438.943	7454892.293	SMSET
82	2643447.700	7454887.677	SMSET
83	2643464.484	7454833.481	SMSET
84	2643459.865	7454824.733	SMSET
85	2643405.390	7454807.956	SMSET
86	2643329.090	7454858.273	SMSET
87	2643349.959	7454790.885	SMSET
88	2643262.223	7454837.566	SMSET
89	2643244.832	7454758.508	SMSET
90	2643104.619	7454788.758	SMSET
91	2643243.130	7454831.653	SMSET
92	2643230.508	7454754.096	SMSET
93	2643125.380	7454721.719	SMSET

N.B. GRID COORDINATE VALUES NAD83 (CSRS)			
POINT	EASTING (m)	NORTHING (m)	DESCRIPTION
94	2643072.805	7454705.527	PLAN
95	2643064.045	7454710.153	PLAN
96	2643047.454	7454763.727	PLAN
97	2643052.070	7454772.485	PLAN
98	2643044.970	7454795.410	PLAN
99	2643079.905	7454682.601	PLAN
100	2643230.906	7454729.106	SMSET
101	2643233.477	7454676.859	SMSET
102	2643095.009	7454633.830	PLAN
103	2643246.656	7454733.957	SMSET
104	2643332.669	7454760.447	SMSET
105	2643341.430	7454755.821	SMSET
106	2643354.260	7454714.392	SMSET
107	2643249.214	7454681.750	SMSET
108	2643368.986	7454771.632	SMSET
109	2643439.798	7454793.441	SMSET
110	2643454.620	7454745.579	SMSET
111	2643377.178	7454721.514	SMSET
112	2643364.367	7454762.885	SMSET
113	2643517.147	7454817.263	SMSET

N.B. GRID COORDINATE VALUES NAD83 (CSRS)			
POINT	EASTING (m)	NORTHING (m)	DESCRIPTION
114	2643531.908	7454769.596	SMSET
117	2643777.824	7454846.014	SMSET
118	2643624.610	7455028.825	SMFD
119	2643502.717	7454920.433	CP
120	2643457.092	7454897.914	CP
121	2643503.281	7454812.992	CP
122	2643467.875	7454927.324	CP
28155	2628800.999	7456492.126	MONCTON(GPS)

CURVE TABLE					
CURVE	RP	LENGTH	RADIUS	CHORD	AZIMUTH
C-3	63	15.407	224.000	15.404	65°57'25"
C-4	60	16.418	521.000	16.418	5°28'11"
C-5	60	153.007	521.000	152.457	65°47'09"
C-6	60	166.803	545.000	166.152	244°18'14"
C-7	63	19.029	200.000	19.022	70°04'03"
C-8	63	19.023	224.000	19.018	70°21'37"
C-9	63	9.710	200.000	9.709	6557'03"

ALL COMPUTATIONS PERFORMED AND COORDINATES SHOWN ON THIS PLAN ARE BASED ON THE NEW BRUNSWICK STEREOGRAPHIC DOUBLE PROJECTION AND THE NAD83(CSRS) ELLIPSOID AS REALIZED BY SERVICE NEW BRUNSWICK'S ADJUSTED COORDINATE MONUMENT SYSTEM.



KEY PLAN

LEGEND

- STANDARD SURVEY MARKER PLACED (SMSET)
- STANDARD SURVEY MARKER FOUND (SMFD)
- IRON PIPE FOUND (IPFD)
- IRON BAR FOUND (IBFD)
- WOODEN POST
- CALCULATED COORDINATE POINT (CP)
- TABULATED COORDINATE REFERENCE NUMBER —(10)
- CENTRELINE
- EASEMENT
- FENCE —x—x—x—x—x—
- OVERHEAD UTILITY LINE
- UNDERGROUND UTILITY LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- STORM SEWER LATERAL/ LEAD
- COMBINED STORM/ SANITARY SEWER
- WATER MAIN
- GAS MAIN
- RAILWAY TRACKS
- SQUARE METRES m²
- NEW BRUNSWICK LAND SURVEYOR NBLS
- NBLS REGISTRATION NUMBER #306
- ORDINARY HIGH WATER MARK OHWM
- PARCEL IDENTIFIER NUMBER PID
- SERVICE NEW BRUNSWICK SNB
- INSTRUMENT / VOLUME / PAGE 123456/1234/123
- TRANSFER NUMBER TRANSFER 12345678
- DISTANCE OR AZIMUTH CALLED FOR IN DEED (DEED)
- DISTANCE OR AZIMUTH CALLED FOR ON PLAN (PLAN)
- CURVE NUMBER C-1
- POINT OF CURVATURE/ BEGINNING OF CURVE PC
- POINT OF COMPOUND CURVATURE PCC
- POINT OF TANGENCY/ END OF CURVE PT
- RADIUS POINT/ CENTER OF ARC RP
- LAND DEALT WITH BY THIS PLAN BOUNDED THUS:
- LAND DEALT WITH BY THIS PLAN BOUNDED THUS:
- UTILITY POLE/ TELEPHONE POLE/ ANCHOR POLE
- GUY WIRE AND ANCHOR
- CIVIC NUMBER 123
- HECTARE ha
- SPOT ELEVATION (m) *36.44m
- MANHOLE SANITARY
- MANHOLE STORM
- CATCHBASIN
- SLUICE BOX
- WATER VALVE
- SHUTOFF VALVE/ WATER STOP
- VALVE CHAMBER
- FIRE HYDRANT (BENCHMARK)

NOTES:

1. AZIMUTHS AND COORDINATES WERE DERIVED FROM SERVICE NEW BRUNSWICK'S ADJUSTED COORDINATE MONUMENT SYSTEM, NAD83(CSRS), REFERENCED TO MONUMENT, 28155 (GPS).
2. THE SCALE FACTOR USED IS EQUAL TO 1.0000
3. THE DOCUMENT NUMBERS REFERRED TO ON THIS PLAN ARE THOSE OF THE APPLICABLE COUNTY REGISTRY OFFICE.
4. AZIMUTHS ARE ROUNDED TO THE NEAREST 01".
5. CERTIFICATION IS NOT MADE AS TO LEGAL TITLE, BEING THE DOMAIN OF A LAWYER, NOR TO THE ZONING AND SETBACK BY-LAWS OR REGULATIONS, BEING THE DOMAIN OF THE DEVELOPMENT OFFICER.
6. CERTIFICATION IS NOT MADE AS TO COVENANTS SET OUT IN THE DOCUMENT(S), NOR TO THE LOCATION OF ANY UNDERGROUND SERVICES AND/ OR FIXTURES, PERMANENT OR OTHERWISE.
7. BASED ON AN ABBREVIATED WATER SUPPLY ASSESSMENT REPORT PREPARED BY FISHER ENGINEERING LIMITED, A RESIDENTIAL WATER TREATMENT UNIT MAY BE REQUIRED TO ENSURE WATER QUALITY WITHIN THE GUIDELINES FOR THE PROTECTION OF CANADIAN DRINKING WATER QUALITY.

PURPOSE OF PLAN:

1. TO CREATE LOTS 16-1 TO 16-14 FOR RESIDENTIAL BUILDING PURPOSES.
2. TO CREATE 3(THREE) FUTURE STREETS, PURSUANT TO SECTION 55(5)(b) OF THE COMMUNITY PLANNING ACT, 1973.
3. TO CREATE 3(THREE) PUBLIC STREETS (PROMENADE LA FONTAINE DRIVE, PROMENADE NATURE DRIVE & ########, PURSUANT TO SECTION 55(5)(a) OF THE COMMUNITY PLANNING ACT, 1973.
4. TO CREATE 5.0m WIDE PUBLIC UTILITY EASEMENTS, PURSUANT TO SECTION 5, REGULATION 84-217, COMMUNITY PLANNING ACT, 1973, SHOWN THUS:

SUBDIVISION PLAN, UNIT 6

DOMAINE NATURE SUBDIVISION

LOCATED EAST OF
RUE DES FAISANTS STREET
AT GREATER LAKEBURN
PARISH OF MONCTON
COUNTY OF WESTMORLAND
PROVINCE OF NEW BRUNSWICK

20 0 20 40 60
SCALE – METRES 1: 1000

DRAWN BY: C. CORMIER, PTech | CHECKED BY: MJD

SURVEYOR'S STATEMENT:

I, WARREN E. DAIGLE, N.B.L.S. #306, DO HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND ABILITY, THIS PLAN CORRECTLY DEPICTS ANY RESEARCH, FIELD WORK AND COMPUTATIONS UNDERTAKEN FOR THIS PROJECT.

DATE: OCTOBER 27, 2016

N.B.L.S. #306
WARREN E. DAIGLE N.B.L.S. #306

SURVEYED BY : WARREN E. DAIGLE, N.B.L.S. #306
FIELD SURVEY COMPLETED : MARCH 31, 2016

DAIGLE SURVEYS LTD
1060 COVERDALE ROAD, RIVERVIEW, NB E1B 3G5
TELEPHONE (506) 387-4073 FAX (506) 387-7926

JOB No.: 11344-2 MAP: 211/02-T3

PROPERTY INFORMATION

TRANSFER
TO
690763 NB INC.
CENTER INC.

REG.D: OCTOBER 4, 2016
REG. No.: 36387521
PID No.: 70473947

OWNER'S STATEMENT

I, THE UNDERSIGNED, DO HEREBY CERTIFY THAT I REPRESENT THE REGISTERED OWNER(S) OF THE PROPERTY BEING SUBDIVIDED HEREON AND DO HEREBY GRANT APPROVAL TO THIS PLAN, AS MY INTERESTS APPEAR.

########## PID 70473947
(FOR: 690763 NB INC.)

PUBLIC UTILITY EASEMENT(S) APPROVAL

PURSUANT TO SECTION 5 OF "DESIGNATED EASEMENTS REGULATION" 84-217 OF THE COMMUNITY PLANNING ACT, 1973, THE PUBLIC UTILITY EASEMENT(S) ON THIS PLAN VEST(S) IN NEW BRUNSWICK POWER CORPORATION and BELL CANADA WITH THE FILING OF THIS PLAN.

NEW BRUNSWICK POWER CORPORATION and BELL CANADA

DATE

WATER SUPPLY ASSESSMENT CAUTION NOTE

BASED ON AN ABBREVIATED WATER SUPPLY ASSESSMENT REPORT PREPARED BY FISHER ENGINEERING LIMITED, A RESIDENTIAL WATER TREATMENT UNIT MAY BE REQUIRED TO ENSURE WATER QUALITY WITHIN THE GUIDELINES FOR THE PROTECTION OF CANADIAN DRINKING WATER QUALITY.

DECLARATION

– PURSUANT TO SECTION 55(5)(a) OF THE COMMUNITY PLANNING ACT, 1973, THE PUBLIC STREETS VEST IN THE CROWN WITH THE FILING OF THIS PLAN.

– PURSUANT TO SECTION 55(5)(b) OF THE COMMUNITY PLANNING ACT, 1973, THE FUTURE STREETS VEST IN THE CROWN WITH THE FILING OF THIS PLAN.

A.N.B.L.S. No. AAAAAA AA-G N-B

APPENDIX F

WSSA APPLICATION

Water Supply Source Assessment
Step One Application
Domain Nature Estates Subdivision Expansion, Greater Lakeburn. NB

Pursuant to Section 3(5) of
The Water Quality Regulation 82-126
Clean Environment Act

Please answer the following questions:

1) Name of proponent: 690763N.B Ltd.

2) The proposed water supply is to be used for what purpose?

Individual wells will provide potable water to the proposed 80 additional residential building lots.

3) Required water quantity (in m^3/day):

The estimated water requirement for the proposed 80 lots is 108 m^3/day (16.5 igpm), which is based on a per person water usage of 450 litres per day and an average of 3 people per household, which is higher than the 2016 census data for New Brunswick that has an average household size of 2.3.

4) List alternate water supply sources in area (including municipal systems):

The surrounding areas rely on individual wells to provide groundwater for their potable water supply. The nearest municipal system (City of Dieppe) infrastructure ends approximately 4 km from the site. There are no plans to extend the infrastructure to the area.

5) Outline proposed work schedule:

The exploration program will consist of drilling test wells at strategic locations across the property and performing pump test(s). five test wells will be drilled during the winter of 2019 (TW17-1 through TW17-5). The proposed drilling sites are shown on the attached figure. The proposed well locations have been placed outside the mapped wetland area on the property.

If conditions permit (i.e. minimal recharge conditions) a 72 hr pump test will be performed in the winter of 2019. The intent is to pump TW17-2 and monitor the response in the surrounding test wells. A step-test (three 0.5 hour steps) will be completed at the beginning of the long-term test to determine the optimum pumping rate. Depending on the response from the observation wells during the 72 hr test, an additional pump test may be required to characterize the surrounding aquifer across the site. Reporting will be completed once the long-term pumping test is performed.

6) Discuss area hydrogeology as it relates to the project requirements:

The regional bedrock geology is mapped as late Carboniferous stratified rock belonging to either the Cumberland or Pictou Groups, which are both a subbasin of the Maritimes Carboniferous Basin. Mapping indicates that within the Cumberland Group the site may fall within the Boss Point Formation, which consists mainly of fine-grained to granular sandstone, siltstone, and mudstone (Rivard et al. 2003). Within the Pictou Group, the site may fall within the Salisbury Formation, which consists mainly of mudstone, siltstone and fine-grained sandstone (Rivard et al. 2003).

The Boss Point Formation has been described as one of the more productive sandstone formations in the province (Carr, 1959) while the Salisbury Formation varies from a good to poor aquifer throughout the Moncton basin. The majority of the domestic wells drilled in this formation generally yield 10 igpm (Carr, 1959).

Available domestic well logs from within a 500m radius of the site are summarized in the attached Table 1. Well yields range from 33 to 262 m^3/day (5.1 to 40.1 igpm) with a median yield of 98 m^3/day (15 igpm). Well depths range from 18.3 to 79.6 m.

Professional experience in the area from previous hydrogeological studies have produced results stating “In our professional opinion, the drilling and hydraulic testing activities indicate that groundwater withdrawals from the proposed subdivision will not exceed the long-term safe yield of the aquifers and will not aggravate existing or create new water supply problems for existing users in the area. The majority of the residents of the subdivision are likely to obtain safe well yields greater than 5 igpm from their wells, which easily meets the individual household / lot requirements of 1.53 m^3/day or 0.234 igpm on a continuous basis.

7) Identify any existing pollution or contamination hazards within a (minimum) 500 m radius of the proposed drill targets. If groundwater use problems (quantity or quality) have occurred in the past, then these should be identified. Historical land use that might pose a contamination hazard (i.e. tannery, industrial, disposal, etc.) should also be flagged:

Approximately 25 residential properties are located within a 500 m radius of the development. There do not appear to be any potential sources of contamination on adjacent properties that would be considered up gradient from the site. Historically the site was vacant and forested.

Water quality in the area overall is generally good. Elevated levels of iron, fluoride and pH have been encountered at concentrations above their Health Canada drinking water guidelines in groundwater wells within 1km of the subject property. Groundwater samples will be collected during the pumping test and analyzed for the potable water package as recommended in the WSSA guideline. Current restrictions within the existing subdivision include no open looped geothermal systems. This condition will be carried through to the extension.

Within the existing subdivision, a caution note has been added to the final subdivision plans that states: “Based on a comprehensive water supply assessment prepared by Fisher Engineering Ltd. a residential water treatment unit may be required to ensure water quality within the Guidelines for the Protection of Canadian Drinking Water Quality.” It is highly likely that this note will continue to be added to future phases within this expansion.

8) Identify any watercourse(s) (stream, brook, river, wetland, etc.) within 30 m of the proposed drill targets.

There are no watercourses or mapped wetlands within 30 m of any of the proposed drill targets. GeoNB mapping was used to assist in locating the proposed drill targets so that they would be outside the 30metre buffer.

9) Identify site supervisory personnel involved in the source development (municipal officials, consultants and drillers):

The source development consultant is FISHER ENGINEERING LTD.

10) Attach a 1:10000 map and/or recent air photo clearly identifying the following:

- **proposed drill targets**
- **domestic or production wells within a 500 m radius from the drill target**
- **any potential hazards identified in question 7**

Refer to the attached Figure.

11) Attach a land use / zoning map of the area (if any). Superimpose drill targets on this map.

The proposed development falls within the Southeast Regional Service Commission Planning Area. The subject property and surrounding land is currently zoned Rural Agricultural (Zone A), which permits single unit residential dwellings.

Enclosures

PC008/Water Supply Source Assessment Application.doc

Project:

EIA REGISTRATION NATURE ESTATES EXPANSION

Drawing:

SITE PLAN SHOWING PROPOSED WELL LOCATIONS

Project No.: PC008		
Drawing No.: PC00802	Revision No.: 0	
Scale: 1 - 5000		
Drawn By: ACB	Checked By: MJF	Date: Dec. 18

FISHER
ENGINEERING LTD.

FISHER ENGINEERING LTD.
40 Fairfield Road
Lower Coverdale, New Brunswick
E1J 0A2

Notes:

Well Log Summary 500m Radius for PID 70473947

Well Report	Well	Casing	Rock	Yield	Rock Type
	Depths (m)			m3/day	
12046	73.5	54.9	14.3	114	Sandstone
12053	79.6	39.0	12.2	42	Sandstone
17125	48.8	24.4	21.0	98	Sandstone
90022730	54.9	18.3	18.0	98	Sandstone
91409500	18.3	6.1	5.8	131	Sandstone
90525200	43.9	11.0	27.4	33	Sandstone
14243	54.9		2.1	79	Sandstone
24072	36.8	13.1	12.8	66	Sandstone
24073	48.8	15.9	8.8	33	Sandstone
24372	34.1	11.0	4.6	196	Sandstone
24373	27.4	11.6	10.7	196	Sandstone
29004	29.0	13.7	4.9	131	Shale
29005	29.0	12.8	4.3	52	Sandstone
29006	29.0	15.8	4.3	52	Sandstone
30153	32.0	6.7	2.4	262	Sandstone
30154	30.5	6.1	4.3	196	Sandstone
35361	27.4	6.1	5.2	98	Sandstone
35378	42.7	23.5	12.2	65	Sandstone
35415	42.7	35.4	9.1	98	Sandstone
36280	36.6	9.1	7.3	46	Sandstone
36547	42.7	37.5		98	Sandstone
36618	42.7	21.3	7.3	46	Sandstone
36713	36.6	30.5	0.6	229	Sandstone
36816	24.4	8.5	0.9	65	Sandstone

Max	79.6	54.9	27.4	262
Min	18.3	6.1	0.6	33
Average	40.2	18.8	8.7	105
Median	36.7	13.7	7.3	98

NBDELG Water Quality Results, 1 km Radius of PID 70473947

Parameter	CCME DWQG	unit	Sample														
Aluminum		mg/L	0.27	<0.025	0.03	0.003	0.243	0.395	<0.025	0.09	0.044	<0.025	0.18	<0.025	0.003	0.06	0.3
Alkanity		mg/L	236	227	245	190	212	210	233	213	229	160	148	174	190	210	164
Arsenic	10	µg/L	2.3	1.9	2	<1	8.4	2.9	<1.5	1.7	<1.5	1.8	<1.5	1.7	<1.5	2	4.3
Boron	5	mg/L	0.131	0.124	0.116	0.06	<0.2	<0.2	0.084	0.095	0.084	0.056	0.037	0.058	0.06	0.085	0.09
Barium	1	mg/L	0.022	0.013	0.015	0.323	0.041	0.066	0.022	0.01	0.036	0.035	0.119	0.047	0.323	0.01	0.022
Bromine	10	mg/L	<0.1	<0.1	<0.1		0.753	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1
Calcium		mg/L	1.06	0.9	1.51	16.8	2.9	1.4	1.2	1.32	1.3	4.07	7.41	3.53	16.8	1.28	1.15
Cadmium	5	µg/L	<0.5	<0.5	<0.5	<0.01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloride	250	mg/L	34.1	3.28	17.3	32.7	94	21.4	3.03	3.51	3.81	3.59	3.88	3.23	32.7	3.58	10
Conductivity			571	440	566	453	778	502	448	416	452	313	305	332	453	426	350
Chromium	50	µg/L	21	18	<10	<1	12	20	<10	<10	<10	<10	<10	<10	<10	<10	<10
Copper	1000	µg/L	<10	<10	<10	26	10	61	<10	<10	<10	<10	<10	<10	26	<10	<10
E-coli			Ab	Ab	Ab	Ab			Ab	Ab	Ab	Ab	Ab	Ab	Ab	Ab	Ab
Floride	1.5	mg/L	5.38	3.42	7.49	0.36	6.51	3.91	1.87	6.03	2.09	0.519	0.371	0.555	0.36	3.82	2.22
Iron	0.3	mg/L	0.12	0.166	0.242	0.03	0.178	1.281	0.039	0.206	0.25	0.013	0.168	0.095	0.03	0.629	0.615
Hardness		mg/L	2.91	2.42	4.03	47.6	7.7	4.3	3.19	3.59	3.5	11.8	20.9	9.76	47.6	3.61	3.45
Potassium		mg/L	0.7	0.2	0.3	1.38	0.475	0.47	0.3	0.3	0.4	0.6	0.8	0.7	1.38	0.3	0.4
Magnesium		mg/L	<0.1	<0.1	<0.1	1.38	0.1	0.2	<0.1	<0.1	<0.1	0.4	0.58	0.23	1.38	<0.1	0.14
Mangnesium	0.05	mg/L	0.01	0.011	0.013	0.07	0.013	0.024	0.008	0.015	0.017	0.02	0.04	0.045	0.007	0.015	0.008
Sodium	200	mg/L	129	105	138	87.3	158	116	111	114	116	76.4	67.7	76	87.3	98	81.8
Nitrite		mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Nitrate	45	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrite + Nitrate		mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	10	µg/L	<1	<1	<1	0.2	1.9	3	<1	<1	<1	<1	<1	<1	0.2	<1	<1
pH	6.5-9.0		9.15	9.2	9.14	8.2	8.91	9.16	9.08	8.95	9.14	8.87	8.67	8.46	8.2	9.03	9.27
Antimony	6	µg/L	<1	<1	<1	<0.1	1.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	10	µg/L	<1.5	<1.5	<1.5	<0.001	3.1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1.5	2.4
Sulphate	500	mg/L	3.46	4.64	6.38	7	17	5.3	0.699	8.62	5.94	5.78	5.24	5.95	7	5.6	3.18
TDS	500	mg/L	316	254	319	263			258	262	268	188	176	195	263	240	199
Titanium		µg/L	<1	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Turbidity	1	µg/L	10.1	3.4	2.9	0.4	16	21.3	0.52	2.6	2.6	0.2	5.4	0.9	0.4	7	10
Uranium	20	µg/L	<0.5	<0.5	<0.5	0.7			<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.7	<0.5	2.5
Zinc	5000	µg/L	<5	<5	<5	55	16	11	<5	<5	<5	<5	<5	5	55	<5	<5

CCME - Canadian Council of Ministers of the Environment

DWQG - Drinking Water Quality Guidelines.

Value does not meet applicable guideline