

APPENDIX F1
AMEC 2010 and 2014 Wetland Baseline Survey Report

Attachment A – Wetland Delineation Data Sheets and Habitat Assessment
Forms

Black Point Quarry Project
Guysborough County, NS
SLR Project No.: 210.05913.00000

**2010 / 2011 / 2014 WETLAND FIELD SURVEY, DELINEATION
AND FUNCTIONAL ASSESSMENT REPORT**

**BLACK POINT QUARRY
GUYSBOROUGH COUNTY**

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TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1
1.1 PROJECT AREA	1
1.2 SCOPE OF WORK	1
2.0 WETLANDS REGULATORY REQUIREMENT AND DEFINITIONS	2
2.1 FEDERAL POLICY ON WETLAND CONSERVATION.....	2
2.2 NOVA SCOTIA WETLAND POLICY	3
3.0 METHODOLOGY	4
3.1 DESKTOP REVIEW.....	4
3.2 WETLAND DELINEATION.....	4
3.3 WETLAND DETERMINATION	5
3.3.1 Vegetation.....	5
3.3.2 Soils	6
3.3.3 Hydrology.....	6
3.3.4 Regional Supplement	6
3.4 FUNCTIONAL ASSESSMENT METHOD.....	7
4.0 RESULTS	9
4.1 WETLAND DELINEATION.....	11
4.1.1 Wetland 1 (WL1)	11
4.1.2 Wetland 2 (WL2)	12
4.1.3 Wetland 3 (WL3)	13
4.1.4 Wetland 4 (WL4)	14
4.1.5 Wetland 5 (WL5)	14
4.1.6 Wetland 6 (WL6)	15
4.1.7 Wetland 7 (WL7)	15
4.1.8 Wetland 8 (WL8)	16
4.1.9 Wetland 9 (WL9)	17
4.1.10 Wetland 10 (WL10)	17
4.1.11 Wetland 11 (WL11)	18
4.1.12 Wetland 12 (WL12)	18
4.1.13 Wetland 13 (WL13)	19
4.1.14 Wetland 14 (WL14)	19
4.1.15 Wetland 15 (WL15)	20
4.1.16 Wetland 16 (WL16)	21
4.1.17 Wetland 17 (WL17)	21
4.1.18 Wetland 18 (WL18)	22
4.1.19 Wetland 19 (WL19)	23
4.1.20 Wetland 20 (WL20)	23
4.1.21 Wetland 21 (WL21)	24
4.1.22 Wetland 22 (WL22)	24
4.2 FUNCTIONAL ASSESSMENTS	25

4.2.1	Ecological Characterization	25
4.2.2	Significant Wetland Functions	26
4.2.2.1	Wetland 1 (WL1).....	1
4.2.2.2	Wetland 2 (WL2).....	1
4.2.2.3	Wetland 3 (WL3).....	2
4.2.2.4	Wetland 4 (WL4).....	2
4.2.2.5	Wetland 5 (WL5).....	3
4.2.2.6	Wetland 6 (WL6).....	3
4.2.2.7	Wetland 7 (WL7).....	4
4.2.2.8	Wetland 8 (WL8).....	4
4.2.2.9	Wetland 9 (WL9).....	5
4.2.2.10	Wetland 10 (WL10).....	6
4.2.2.11	Wetland 11 (WL11).....	6
4.2.2.12	Wetland 12 (WL12).....	7
4.2.2.13	Wetland 13 (WL13).....	7
4.2.2.14	Wetland 14 (WL14).....	8
4.2.2.15	Wetland 15 (WL15).....	8
4.2.2.16	Wetland 16 (WL16).....	9
4.2.2.17	Wetland 17 (WL17).....	9
4.2.2.18	Wetland 18 (WL18).....	10
4.2.2.19	Wetland 19 (WL19).....	11
4.2.2.20	Wetland 20 (WL20).....	11
4.2.2.21	Wetland 21 (WL21).....	12
4.2.2.22	Wetland 22 (WL22).....	12
5.0	CONCLUSION	13
6.0	REFERENCES.....	14

LIST OF TABLES

Table 3.1: Classification of Wetland-Associated Plant Species	5
Table 4.1: Updated Wetland Identification Number	10
Table 4.2: Wetland Locations and Characterization.....	10

LIST OF FIGURES

Figure 1	Project Location
Figure 2	Wetland Delineation Overview
Figure 3	Wetland WL1
Figure 4	Wetland WL2
Figure 5	Wetland WL3
Figure 6	Wetland WL4
Figure 7	Wetland WL5
Figure 8	Wetland WL6
Figure 9	Wetland WL7
Figure 10	Wetland WL8
Figure 11	Wetland WL9
Figure 12	Wetland WL10
Figure 13	Wetland WL11
Figure 14	Wetland WL12
Figure 15	Wetland WL13
Figure 16	Wetland WL14
Figure 17	Wetland WL15
Figure 18	Wetland WL16
Figure 19	Wetland WL17
Figure 20	Wetland WL18
Figure 21	Wetland WL19
Figure 22	Wetland WL20
Figure 23	Wetland WL21
Figure 24	Wetland WL22

LIST OF APPENDICES

Appendix A	Wetland Delineation Data Sheets and Habitat Assessment Forms
Appendix B	Wetland Delineation Test Pit Locations (GPS Coordinates)
Appendix C	Wetland Photographs
Appendix D	Wetland Functional Assessment Forms
Appendix E	Additional Wetland Delineation Data Sheets

1.0 INTRODUCTION

Vulcan Materials Company and Morien Resources Corp. (the Proponent) proposes the development, operation, decommissioning and abandonment of a granite quarry and marine terminal at Black Point in Guysborough County, Nova Scotia. The Black Point Quarry Project consists of aggregate production (drilling, blasting, processing and stockpiling) on a 354.5 ha property, along with the construction and operation of a 200 m long marine terminal adjacent to the quarry in Chedabucto Bay. The aggregate will be loaded into bulk carriers up to 70,000 DWT and transported to ports along the US eastern and Gulf coasts and potentially to markets in Canada and the Caribbean.

1.1 Project Area

The Black Point Quarry Project (the Project) is located on the south shore of Chedabucto Bay in the District of Guysborough, Nova Scotia. The proposed Project Site is approximately 2 and 2.5 km from the communities of Half Island Cove in the west, and Fox Island Main in the east, respectively. The Project is situated between Highway 16 and the Atlantic coast in an area dominated by coniferous forests, coastal barrens, as well as various types of wetlands including, bog, fen, swamp and marsh. A power transmission line corridor runs along the south end of the property and with the exception of a few ATV trails, skidder tracks and property cut lines, the area is relatively undisturbed.

1.2 Scope of Work

In preparation for construction activities planned within the Black Point Quarry Project boundary, wetlands located within the Project area must be identified, delineated and assessed in terms of ecological functions they provide. This work is required to determine the potential impacts the Project may have on wetland habitat. The information will also be used to prepare wetland alteration applications to NSE and associated plans for wetland compensation. The following activities were conducted to identify and delineate wetland habitat present:

- Review aerial photographs and existing maps to identify location of wetlands;
- Determine wetlands in the field using three parameter approach (soil, vegetation, and hydrology);
- Mark wetland boundaries with physical markers and GPS;
- Conduct wetland habitat and functional assessments; and
- Reporting including photographs and field data sheets.

2.0 WETLANDS REGULATORY REQUIREMENT AND DEFINITIONS

Several definitions of “wetland” exist in literature:

- Lands that are seasonally or permanently covered by shallow water, including lands where the water table is at or close to the surface. The presence of abundant water causes the formation of hydric soils and favours the dominance of either hydrophytic or water-tolerant plants. The five major types of wetlands are: marshes, swamps, bogs, fens and shallow open waters (Environment Canada, 2013);
- A wetland is land “where the water table is at, near, or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation” (Environment Canada, 1996);
- A wetland is land that is “saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic (i.e., water-loving) vegetation and various kinds of biological activity which are adapted to a wet environment” (Government of Canada, 1991); and
- Wetlands are areas of “marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters” (UNESCO, 1987).

Although each definition is slightly different, the relevant common aspects adopted for the purpose of this report that define a wetland are:

- Land that is saturated or covered by water for some time during the growing season;
- Poorly drained soils; and
- Predominantly, hydrophytic vegetation.

From these features that define a wetland, it is clear that preserving wetland habitat is dependent on maintaining existing soil, vegetation, and hydrologic conditions at a site.

Wetlands are environmentally significant for several reasons, including: water filtration; water storage (water recharge); flood reduction and control; carbon absorption; erosion control; and wildlife habitat (Nova Scotia Museum, 1996). Loss of wetlands has resulted, to some degree, in increased flooding, decreased water quality, desertification, and declines of fish and wildlife (Lynch-Stewart, 1992).

2.1 Federal Policy on Wetland Conservation

The *Federal Policy on Wetland Conservation* (Government of Canada, 1991) directs all federal government departments to conserve or sustain wetland functions during delivery of their programs. One of the main considerations in developing the Policy was Canada’s membership in the Ramsar Convention on Wetlands (Revised 1987), signed by Canada in 1981. The Ramsar Convention is a global conservation treaty specifically dealing with wetland loss and sustainable use.

Another consideration in developing the Policy was Canada's commitments under the North American Waterfowl Management Plan and the potentially beneficial influences of land use decisions by federal departments and agencies (Lynch-Stewart *et al.*, 1999).

The two key commitments in the federal wetland policy include:

- No net loss of wetland functions on federal lands through mitigation; and
- Enhancement and rehabilitation of wetlands in areas where wetland loss has reached critical levels.

Implementation of strategies contained in the Federal Policy on Wetland Conservation is outlined in the *Implementation Guide for Federal Land Managers* (Lynch-Stewart *et al.*, 1996). The Guide also outlines the hierarchy for mitigation alternatives for meeting the goal of no net loss of wetland function:

- First – Avoid impacts;
- Second – Minimize unavoidable impacts; and
- Third, and last – Compensate for residual impacts that cannot be minimized.

In addition, the Guide provides advice on integrating wetlands into the project planning process, and details on the related process under the *Canadian Environmental Assessment Act 1992*.

2.2 Nova Scotia Wetland Policy

The *Nova Scotia Wetland Conservation Policy* (NSE, 2011) provides direction with respect to conservation, alteration or infilling of wetlands in Nova Scotia. The guiding principle is to achieve no loss in Wetlands of Special Significance and prevent net loss of wetland function in other wetlands. The Department designates infilling or alteration of wetlands as an "activity" under the NS *Environment Act* (Government of Nova Scotia, 1995) and requires approval of such activities prior to the occurrence.

This Policy recognizes that freshwater wetlands and salt marshes are critical ecosystems that provide a suite of environmental and societal services including:

- Maintaining watershed health;
- Maintaining and improving water quality and quantity (surface and groundwater);
- Reducing impacts and damage due to flooding and storm surges;
- Providing habitat for wildlife and other wetland dependent species; and
- Providing opportunities for recreation and education.

Nova Scotia Environment (NSE) recognizes that wetlands are a particularly sensitive habitat and that alteration of wetlands can cause significant adverse environmental effects. The policy guides departmental decision making with respect to wetlands.

3.0 METHODOLOGY

3.1 Desktop Review

All wetlands noted to occur within the Project footprint from previous reports and databases, were mapped, and information on the location, size and type of these wetlands were extracted. This information has been augmented by information obtained from review of:

- NS Wetlands Atlas
- Aerial photos;
- Topographical maps;
- NSDNR Wet Areas Mapping (WAM); and
- Information collected during field work.

All known wetland locations as well as high potential areas identified during the desk top review were visited in the field to confirm the presence of wetland habitat within the Project area.

3.2 Wetland Delineation

Wetland delineations were conducted by trained wetland biologists according to standard methodologies approved by NSE (NSE, 2013). The determination of wetland habitat in the field was based largely on the Corps of Engineers Wetland Delineation Manual (the Manual) (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual (USACE, 2012). Wetland areas within the Project area were identified and mapped using wetland indicators and definitions from the delineation approach approved by NSE (NSE, 2013). This consisted of using representative “paired data points” (i.e., one sample point in the wetland habitat and one sample point in the adjacent upland habitat) as described in the US Army Corps of Engineers Manual.

Wetland data were recorded on Wetland Delineation Data Sheets developed by the Maritimes College of Forestry Technology for the province of Nova Scotia (Appendix A). *Munsell Soil Color Charts* were used to aid in identifying hydric soils in the field. The *Canadian System of Soil Classification* (SCWG, 1998) was used to aid in description of soil characteristics. The *Roland's Flora of Nova Scotia* (Zinc, 1998) and *Flora of New Brunswick* (Hinds, 2000) aided with plant nomenclature and identification. The location of data points and selected wetland boundary points were recorded by Global Positioning System (GPS) using a TRIMBLE Geo-XH GPS receiver capable of sub-metre accuracy. Accuracy of all saved data points were estimated by the receiver to be <1m.

At each sample site, two sample points were chosen; which represent wetland and upland habitat at the wetland boundary. The location of each sample point was recorded with the GPS and marked using pink flagging tape with a unique GPS waypoint name (See Appendix B). The identified vegetation communities were then used to delineate the wetland boundary. Wetland boundary locations were recorded with the GPS and used to prepare individual wetland figures located at the end of this report. Representative site photos of wetland areas, adjacent upland areas, and soil pit exposures were also collected (Appendix C).

3.3 Wetland Determination

To be determined a wetland; the following three criteria should be met:

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

3.3.1 Vegetation

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanent or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory 1987). The definition of wetlands includes the phrase "sustains aquatic processes as indicated by the presence of hydric soils, hydrophytic vegetation and biological activities adapted to wet conditions." Hydrophytic vegetation should be the dominant plant type and is characterized by the dominant plant species comprising the plant community (Environmental Laboratory 1987).

Dominant plant species observed at each data point were classified according to their Indicator Status Group (probability of occurrence in wetlands) (Table 3.1), in accordance with the Nova Scotia Wetland Indicator Plant List developed by Sean Blaney at the Atlantic Canada Conservation Data Center (ACCDC, 2011). This classification of plants follows methods developed by the US fish and Wildlife Service (Reed 1988). Further relevant information was reviewed in Roland's *Flora of Nova Scotia* 3rd Ed. (Zinc, 1998) and *Flora of New Brunswick* 2nd Ed. (Hinds, 2000).

Table 3.1: Classification of Wetland-Associated Plant Species

Plant Species Classification	Abbreviation	Probability of Occurring in Wetland
Obligate	OBL	>99%
Facultative Wetland	FACW	66-99%
Facultative	FAC	33-66%
Facultative Upland	FACU	1-33%
Upland	UPL	<1%
No indicator status	NI	Insufficient information to determine status
Plants That Are Not Listed (assumed upland species)	NL	Does not occur in wetlands in any region.

Source: USFWS 1988.

The Prevalence Index (PI) was the main indicator used to assess the dominance of hydrophytic vegetation at each data point location. The PI method assigns weighted values to each dominant species according to their Indicator Status Group. The total cover (% area) of species

in each group is then multiplied by the weighted values and the product is divided by the sum of the unweighted total cover, yielding a value between 1 and 5. If the majority of the dominant vegetation on a site are classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC) then the PI will be equal to or less than 3, and the site is considered to be dominated by hydrophytic vegetation.

3.3.2 Soils

A hydric soil is defined as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA-NRCS, 2007). Indicators of hydric soil include; soil color (gleyed soils and soils with bright mottles and/or low matrix chroma), aquic or preaquic moisture regime, reducing soil conditions, sulfidic material (odour), soils listed on hydric soils list, iron and manganese concretions, organic soils (Histosols), histic epipedon, high organic content in surface layer in sandy soils, and organic streaking in sandy soils.

A soil pit was excavated to a minimum depth of 40 centimetres or refusal at each data point. The soil was then examined for hydric soil indicators. The matrix color and mottle color (if present) of the soil was determined using the Munsell Soil Color Charts.

3.3.3 Hydrology

Wetlands, by definition, either periodically or permanently have a water table at, near or above the land's surface or are saturated with water. To be classified as a wetland, a site should have at least one primary indicator or two secondary indicators of wetland hydrology. Primary indicators of wetland hydrology may include, but are not limited to: water marks, drift lines, sediment deposition, drainage patterns, visual observation of saturated soils, and visual observation of inundation. In addition to the primary indicators, there is a variety of secondary wetland hydrology indicators. Secondary indicators include, but are not limited to: oxidized root channels in the upper 12 inches (30.5 centimetres), stunted vegetation, and local soil survey data. When no primary indicators of wetland hydrology are observed at a data point, two or more secondary indicators are required to confirm wetland hydrology.

3.3.4 Regional Supplement

There are a number of uncommon situations, often regional in nature that may cause difficulty in interpreting wetland indicators at a site. Some examples include recent disturbance (e.g. vegetation clearing, infilling), past land use (e.g. agricultural tillage or ditch drainage), recent extreme flooding (e.g. sediment deposits, hanging debris), and problematic soils (e.g. fluvial deposits, red parent material). The Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual (USACE, 2012) contains specific guidance for use in these situations. Although there was some minor disturbance noted in some of the wetlands assessed within the Project area, none were considered to be problematic in terms of interpreting wetland indicators.

3.4 Functional Assessment Method

Environment Canada and the US Army Corps of Engineers both describe wetland ecological functions as the natural processes (physical, chemical, biological) that a wetland provides that is independent from the benefits these processes provide to humans (Hanson et al., 2008; USACE, 1999). This is differentiated from wetland values which reflect the ecosystem services wetlands provide to humans and the associated societal value. These “values” are a product of the ecological function a wetland may provide, but may change depending on individual or community preference (Hanson et al., 2008).

NSE has developed the Nova Scotia Wetland Evaluation Technique (NovaWET) which is designed to assess the condition and functions of wetlands specifically in Nova Scotia (NSE 2014). This technique has been adapted using aspects of various methods successfully employed in other regions, in particular the US. This method uses a combination of landscape level information and site-specific characteristics of the wetland to determine the most significant wetland functions.

NovaWET consists of 11 major sections associated with key wetland functions. Each section contains a number of questions that pertain to that function which provide details that enable the assessor to determine to what degree the wetland provides significant functions (SF). This method identifies a total of 29 significant functions a wetland may provide depending on the specific characteristics of the wetland and surrounding landscape. The 11 major sections and associated 29 significant functions are as follows:

- Section 1 – Watershed Characteristics
 - SF1 – Watershed condition
 - SF2 – Proportion of wetland area in watershed & opportunity for floodwater detention
- Section 2 – Wetland Characteristics
 - SF3 – General wetland condition/integrity
- Section 3 – Adjacent Land Condition and Integrity
 - SF4 – Overall condition and integrity of adjacent land to wetland
- Section 4 – Documented Important Features
 - SF5 – Wetland is a WSS
 - SF6 – Wetland support commercial/recreational fish/shellfish
 - SF7 – Wetland contains/ is utilized by species of concern
 - SF8 – Wetland has conservation/compensation agreement/activity
 - SF9 – Wetland is calcareous fen, black ash or cedar swamp
 - SF10 – Wetland is situated within Drinking Water Protected Area (designated watershed/wellfield)

- SF11 –Wetland is situated within a floodplain and upstream or within a populated area
- SF12 – Wetland is situated within Fed/Prov/Municipal area of interest
- Section 5 – Hydrologic Condition and Integrity
 - SF13 – Wetland hydrologic condition
 - SF14 – Wetland importance for maintaining stream flow
 - SF15 – Wetland ability to detain surface water
- Section 6 – Water Quality
 - SF16 – Wetland improves water quality
 - SF17 – Evidence of excess nutrient loading/contamination
 - SF18 – Wetland contributes to water quality in downstream resources
- Section 7 – Groundwater Interactions
 - SF19 – Wetland likely a recharge site
 - SF20 – Wetland likely a discharge site
- Section 8 – Shoreline Stabilization and Integrity
 - SF21 – Wetland ability to stabilize shoreline
- Section 9 – Plant Community
 - SF22 – Plant community unique or rare regionally or provincially
 - SF23 – Wetland contains a diversity of plant communities
 - SF24 – Overall integrity of the wetland’s plant community
 - SF25 – Presence of rare or endangered plant species
- Section 10 – Fish and Wildlife Habitat and Integrity
 - SF26 – Wetland supports fish/fish habitat
 - SF27 – Presence of rare or endangered fish/wildlife
 - SF28 – Wetland’s overall fish and wildlife habitat quality
- Section 11 – Community Use/Value
 - SF29 – Wetland’s community use/value

NovaWET goes further to identify critical wetland functions (SF rating highlighted in red on the data sheets) that are often unique or rare or associated with high risk to the watershed if lost and as such minimizing or compensating for this loss may be difficult. In many cases the rating of significant functions determines whether the wetland provides a critical function or if this function is just merely present. For example a wetland is considered to provide a critical function as fish and wildlife habitat if that significant function is assessed to be of high quality.

Alternatively, if habitat quality is determined to be low or moderate, the wetland is still considered to offer that function, however it is not considered critical. Other significant functions only need to be present in order to be considered critical for example the presence of a rare or endangered species constitutes a critical function for that wetland. NSE should be consulted should a wetland be determined to provide a critical wetland function prior to Project implementation.

Functional Assessments of all wetlands encountered within the Project area were conducted using the NovaWET method. Appendix D provides the completed NovaWET evaluation forms for the 22 wetlands assessed within the Project area.

4.0 RESULTS

Preliminary field surveys were conducted between August 31st and September 8th, 2010 by AMEC Wetland Biologists, Scott Burley (M.Sc.) and Marion Sensen (Ph.D.). During this initial round of surveys, wetland habitat occurring within the Project Area was identified in the field, approximate boundaries were determined and habitat assessments were conducted. The purpose of this round of surveys was to provide an overview of the amount and type of wetland habitat present on the Project Site to aid in planning and design of specific Project components.

A second round of wetland surveys was conducted in July of 2011 by Pinchin LeBlanc Wetland Biologist, Theo Popma. During this second survey, wetland delineations were conducted following standardized methodologies described above (Sections 3.2 and 3.3).

A third and final round of field surveys was conducted by Scott Burley and Marion Sensen between August 18th and August 22nd, 2014. The weather during these surveys was a mix of sun and cloud with rain on the 18th. Wetland delineations were verified in the field and additional field data was recorded for each wetland to be used during the functional assessments.

A total of 22 wetlands were identified within the Project footprint and/or determined to be hydrologically connected downstream. The majority of wetland habitat identified consists of open bogs and riparian fens which range in size from approximately 16.5 ha to <0.5 ha. Other wetland types identified include swamp and marsh as well as complexes including a combination of a number of these wetland types. The total area of wetland habitat identified within the Project Study Area is approximately 57 ha.

Individual wetlands identified during the initial 2010 surveys were given a unique wetland identifying number. These wetland numbers were recorded on all data sheets completed during the 2010 and 2011 surveys. Over the course of the next two field survey events, wetland boundaries were refined and verified and as such some wetlands identified as individual wetlands in 2010 were subsequently found to be connected, forming larger wetland complexes. In these instances data collected for each wetland component were combined and the wetland complex was assigned a new wetland identifying number that fits chronologically with the actual number of wetlands occurring within the Project Area. Table 4.1 below presents the updated

wetland numbering system along with the corresponding initial numbering system that is reflected in the field data sheets. Note that the functional assessment forms in Appendix D reflect the updated numbering system.

Table 4.1: Updated Wetland Identification Number

Updated Wetland # for Current Report	Initial Wetland # Reflected in Field Data Sheets
WL1	WL1, WL17, WL18
WL2	WL2
WL3	WL3
WL4	WL4
WL5	WL5
WL6	WL6
WL7	WL7
WL8	WL8, WL9
WL9	WL10
WL10	WL11
WL11	WL12
WL12	WL13
WL13	WL14
WL14	WL15
WL15	WL16
WL16	WL19, WL20
WL17	WL21
WL18	WL22
WL19	WL23
WL20	WL24
WL21	WL25
WL22	WL26

Twelve (12) of the 22 wetlands surveyed were found to occur directly within the proposed footprint of the pit, fill areas and plant location (WL1, WL3 – WL7 and WL11-WL15 inclusive in Table 4.2). Four (4) wetlands surveyed occur within the proposed footprint of the access road (WL12- WL20 inclusive). Six (6) wetlands surveyed (WL8-WL10, WL16, WL21 and WL2) are situated outside the proposed footprint of all Project components however these wetlands may be indirectly impacted by the project and as such were included in the surveys. Complete wetland delineation, habitat assessments and functional assessments were conducted for all 22 wetlands surveyed.

Table 4.2 provides a summary of all wetlands assessed along with their general characteristics and corresponding coordinates (UTM Zone 20, NAD 83).

Table 4.2: Wetland Locations and Characterization

Wetland #	Coordinates		Type	Size (Ha)	Landscape Position	Water Flow Path	Landform
	Easting	Northing					

1	645437	5022529	Bog/Swamp Complex	16.5	Lotic Stream	Throughflow	Basin
2	645430	5024058	Fen/Swamp/Marsh Complex	6	Lotic Pond	Inflow	Basin
3	645076	5024059	Riparian Fen	0.5	Lotic Stream	Throughflow	Slope
4	645076	5024059	Bog	0.2	Terrene	Isolated	Basin
5	644431	5024129	Riparian Fen	0.5	Lotic Stream	Throughflow	Slope
6	644737	5024077	Bog	0.3	Terrene	Outflow	Basin
7	644845	5024349	Riparian Treed Swamp	0.5	Lotic Stream	Throughflow	Slope
8	644009	5023134	Swamp/Bog/Fen Complex	10.3	Lotic Stream	Throughflow	Flat
9	643617	5023397	Bog	4.6	Terrene	Isolated	Flat
10	643857	5023694	Riparian Treed Swamp	0.1	Lotic Stream	Throughflow	Slope
11	644458	5023456	Bog	9.0	Terrene	Isolated	Flat
12	644737	5024077	Bog/Fen Complex	0.3	Terrene	Outflow	Basin
13	644860	5023362	Treed Swamp	0.6	Terrene	Isolated	Slope
14	645506	5023190	Fen/Bog Complex	6.2	Lotic Stream	Throughflow	Slope
15	645265	5023544	Riparian Fen	0.07	Lotic Stream	Throughflow	Slope
16	645920	5022505	Bog	0.45	Terrene	Isolated	Basin
17	644193	5021827	Bog/Swamp Complex	0.74	Terrene	Outflow	Basin
18	644396	5022050	Bog	0.07	Terrene	Isolated	Basin
19	644440	5022148	Bog	0.04	Terrene	Isolated	Basin
20	644447	5022225	Bog	0.15	Terrene	Isolated	Basin
21	645820	5023684	Fen	0.19	Lotic Stream	Inflow	Slope
22	645630	5023728	Riparian Fen	0.1	Lotic Stream	Throughflow	Slope
Total Wetland Area (ha)				57.3			

4.1 Wetland Delineation

The following descriptions of sample test points are summarized from field data sheets presented in Appendix A. Site photos are included in Appendix C. The following description refers to GPS points in Appendix B and figures located at the end of this report. In addition to the sample test pit locations summarized below, additional supplemental test pits were completed and summarized on Appendix E.

4.1.1 Wetland 1 (WL1)

WL1 (Figure 3) is a fen/bog/swamp wetland complex approximately 16.5 ha in total area located in the southeast end of the Project Area (Figure 2). This wetland was originally identified as

three separate wetlands (WL1, WL17 and WL18) however further field investigations identified that these areas are in fact connected to form one large complex. One paired sampling site was recorded (labeled as WL17 on data sheets in Appendix A). The wetland was determined to contain normal site conditions however the vegetation along the southern boundary is slightly influenced by maintenance activities within the power transmission line corridor. The upland area around surrounding the wetland consists of a mix of shrub barren and coniferous forest.

The dominant vegetation at Data Point "WL1-WP1" in the overstory is Black Spruce (*Picea mariana*) with Mountain Holy (*Nemopanthes muronata*) and Wild Raisin (*Viburnum nudum*) dominating the shrub layer. The understory is dominated by a thick layer of sphagnum moss with Leather Leaf (*Chamaedaphne calyculata*) and Common Juniper (*Juniperus communis*) as the dominant understory (Photo 1; Appendix C). The PI was observed to be 2.4. The soil was determined to be a Balck Histic (A3) as there was 20 cm of organic matter accumulated over a loamy sand layer with color of 10YR 3/2 (Photo 2; Appendix C). Soil saturation was found to be at 3cm (A3) while no surface water or water table was detected.

The dominant vegetation at Data Point "WL1-UP1" in the overstory is Balsam Fir (*Abies balsamea*), Red Maple (*Acer rubrum*) and Black Spruce. Mountain Holy was found to be dominant in the understorey while Lambkill (*Kalmia angustifolia*) and Labrador Tea (*Ledum groenlandicum*) dominated the understory (Photo 3; Appendix C). The PI was observed to be 2.7. The substrate was found to consist of a 14 cm organic layer over rock (Photo 4, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Changes in topographic relief and vegetation were the main criteria utilized in delineating the wetland boundary. Along the northern, eastern and southern boundaries of the wetland there is a noticeable transition in elevation (~15% slope) and vegetation.

4.1.2 Wetland 2 (WL2)

WL2 (Figure 4) is a Marsh/fen/Swamp wetland complex approximately 6.0 ha in total area located in the northwest end of the Project area (Figure 2). One paired sampling site was recorded. The wetland was determined to contain normal site conditions however the vegetation in southern end of the site has been disturbed and is now an early successional forest. The upland area surrounding the south, east and west sides of the wetland are composed of a coniferous forest while the northern side is bordered by a cobble/boulder/sand beach.

The dominant vegetation at Data Point "WL2-WP1" in the overstory and subcanopy is Balsam Fir along with Lambkill and Mountain Holy dominating the shrub layer. The understory is dominated by a thick layer of sphagnum moss with Three-seeded Sedge (*Carex trisperma*), Creeping Snowberry (*Gaultheria hispidula*) and Three-leaved False Solomon's Seal (*Mainantheum trifolium*) as the dominant understory (Photo 5; Appendix C). The PI was

observed to be 2.6. The soil was determined to be a histosol (A1) as there was more than 40 cm of organic matter accumulated (Photo 6; Appendix C). Although surface water or the water table was not present at the sample point, soil saturation was at 15cm (A3) and a strong Hydrogen Sulfide odor was detected (C1).

Balsam fir and White Birch (*Betula papyrifera*) is the dominant vegetation at Data Point “WL2-UP1”, in the overstory while Balsam Fir, Lambkill and Mountain Ash (*Sorbus americana*) is also dominant in the subcanopy. Bunchberry (*Cornus canadensis*) and Wild Sarsaparilla (*Aralia nudicaulis*) were found to dominate the understory (Photo 7; Appendix C). The PI was observed to be 3.0 although all dominant species were found to have an indicator status of FAC. The substrate was found to consist of a 10 cm duff layer over a 7cm silt loam Ae layer (2.5YR 5/1) (Photo 8, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Delineation of WL2 relied primarily on an abrupt change in elevation and shift in vegetation composition. The wetland is located in a basin where the land slopes inward essentially on all sides. A small stream provides an inlet to the wetland on the southwest end.

4.1.3 Wetland 3 (WL3)

WL3 (Figure 5) is a riparian fen wetland approximately 0.5 ha in total area located in the northern end of the Project area (Figure 2). One paired sampling site was recorded. The wetland was determined to contain normal site conditions. The upland area surrounding the entire wetland is composed of a coniferous forest.

The dominant vegetation at Data Point “WL3-WP1” in the understory is Black Spruce and Larch (*Larix laricina*). The ground layer is dominated by a thick layer of sphagnum moss with Swamp-Pink (*Arethusa bulbosa*) and White Beak-rush (*Rhynchospora alba*) as the dominant species (Photo 9; Appendix C). The PI was observed to be 2.2. The soil was determined to be a histosol (A1) as there was more than 40 cm of organic matter accumulated (Photo 10; Appendix C). Although surface water was not present at the sample point, soil saturation was at surface (A3) and the water table was to 15 cm from surface (A2).

White Spruce (*Picea glauca*) is the dominant species at Data Point “WL3-UP1” in the overstory while Black Holly (*Ilex verticillata*) and Balsam Fir dominate the understorey. Wild lily-of-the-valley (*Mainanthemum canadensis*), Star Flower (*Trientalis borealis*) and Mountain Cranberry (*Vaccinium vitis-idea*) was found to dominate the understory (Photo 11; Appendix C). The PI was observed to be 2.8 although all but one species recorded has an indicator status of FAC. The substrate was found to consist of a 15 cm duff layer over a sand silt Ae horizon (5Y 5/1) (Photo 12, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

WL3 is located in a steep sided basin where boundary delineation was determined primarily by the abrupt change in elevation and associated shift in plant species composition.

4.1.4 Wetland 4 (WL4)

WL4 (Figure 6) is a bog wetland approximately 0.2 ha in total area located in the northern end of the Project area (Figure 2). One paired sampling site was recorded. The wetland was determined to contain normal site conditions. The upland area along the perimeter of this wetland consists of coniferous forest.

The dominant vegetation at Data Point “WL4-WP1” is Black Spruce in the canopy and subcanopy while Three-leaved False Solomon’s Seal and Three-seeded Sedge are the dominant species in the understory (Photo 13; Appendix C). The PI was observed to be 1.9. The soil was determined to be a histosol (A1) as there was more than 40 cm of organic matter accumulated (Photo 14; Appendix C). Surface water was not found to be present at the sample point however soil saturation was at 5 cm (A3) and there was a strong Hydrogen Sulfide odor detected (C1).

Black Spruce is the dominant species at Data Point “WL4-UP1” in the overstory. Mountain Holly and Black Spruce dominated the understorey while Three-seeded Sedge and Lambkill were found to dominate the understory (Photo 15; Appendix C). The PI was observed to be 2.3. The substrate was found to consist of a 15 cm duff layer over a 9 cm silt Ae layer (2.5YR 7/1) (Photo 16, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

WL4 is located in a steep sided basin where boundary delineation was determined primarily by the abrupt change in elevation and associated shift in plant species composition.

4.1.5 Wetland 5 (WL5)

WL5 (Figure 7) is a riparian fen wetland approximately 0.5 ha in total area located in the southern end of the Project area (Figure 2). One paired sampling site was recorded. The wetland was determined to contain normal site conditions. The upland area along the south, east and north boundaries is composed of a coniferous forest while a cobble/boulder/sand beach is located at the west boundary.

The dominant vegetation at Data Point “WL5-WP1” is located in the understorey including Large Cranberry (*Vaccinium macrocarpon*), Tussock Cotton-grass (*Eriophorum vaginatum*) and Bog Aster (*Oclemena nemoralis*) (Photo 17; Appendix C). The PI was observed to be 2.2. The soil was determined to be a histosol (A1) as there was more than 40 cm of organic matter accumulated (Photo 18; Appendix C). Surface water was found to be present at the sample point (A1), soil saturation was at surface (A3) and the water table was to 5 cm from surface (A2).

Balsam Fir and White Spruce are the dominant species at Data Point “WL5-UP1” in the canopy. Speckled Alder (*Alnus incana*) is dominant in the understorey while Bunchberry and Spinulous Woodfern (*Dryopteris carthusiana*) was found to dominate the understory (Photo 19; Appendix C). The PI was observed to be 3.1. The substrate was found to consist of a 2 cm duff layer over a 35 cm sand loam B horizon (7.5YR 4/4) (Photo 20, Appendix C). The soil appeared to

be well drained with no presence of saturation. The lack of hydric vegetation, hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north and south sides were determined by an abrupt change in elevation. The boundary along the eastern end of this wetland consists of a more gradual change in elevation which creates a wider transition from wetland to upland in this area. Wetland boundary in this area was determined by a shift in dominance of sphagnum moss in the wetland to feather moss in the upland. Wetland boundary in the west end was determined by the beach.

4.1.6 Wetland 6 (WL6)

WL6 (Figure 8) is a bog wetland approximately 0.3 ha in total area located in the northern end of the Project area (Figure 2). One paired sampling site was recorded. The wetland was determined to contain normal site conditions. The upland area surrounding this wetland consists of coniferous forest.

The dominant vegetation at Data Point “WL6-WP1” is Black Spruce and Balsam Fir in the canopy with Black Spruce, Huckleberry (*Gaylussacia baccata*) and Sweet Gale (*Myrica gale*) dominating the understorey. Three-leaved False Solomon’s Seal and Tussock Cotton-grass are the dominant species in the understory (Photo 17; Appendix C). The PI was observed to be 2.1. The soil was determined to be a histosol (A1) as there was 30 cm of organic matter overtop of bedrock (Photo 18; Appendix C). Although no surface water was found at the sample point, soil saturation was at surface (A3) and the water table was at 20 cm from surface (A2).

Balsam Fir is the dominant species at Data Point “WL6-UP1”, in the canopy and subcanopy while Wild Lily-of-the-valley, Mountain Cranberry, Twin Flower (*Linnaea borealis*) and Partridge Berry (*Mitchella repens*) dominate the understory (Photo 19; Appendix C). The PI was observed to be 3.0. The substrate was found to consist of a 5 cm duff layer over a sandy loam Ae layer (7.5YR 6/1) over a clay loam Bf horizon (7.5YR 4/6) (Photo 20, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north and south sides were determined by an abrupt change in elevation. The boundaries along the eastern and western end of this wetland consist of a more gradual change in elevation which creates a wider transition from wetland to upland in this area. Wetland boundary in this area was determined by a shift in dominance of sphagnum moss in the wetland to feather moss in the upland.

4.1.7 Wetland 7 (WL7)

WL7 (Figure 9) is a Riparian treed swamp wetland approximately 0.5 ha in total area located at the northern end of the Project area (Figure 2). One paired sampling site was recorded. The wetland was determined to contain normal site conditions. The upland area along the western

boundary is a rock cliff leading the ocean while coniferous forest surrounds the remainder of the wetland.

The dominant vegetation at Data Point “WL7-WP1” is Black Spruce in the canopy and (Photo 21; Appendix C). The PI was observed to be 2.0. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 22; Appendix C). Surface water was not found to be present however a strong Hydrogen Sulfide odor was detected (C1) and soil saturation was at 5 cm (A3).

White Spruce is the dominant species at Data Point “WL7-UP1” in the canopy while Lambkill, White Spruce and Green Alder (*Alnus crispa*) is the dominant species in the subcanopy while Bunchberry dominates the understory (Photo 23; Appendix C). The PI was observed to be 3.1. The substrate was found to consist of a 15 cm duff layer over rock (Photo 24, Appendix C). The soil appeared to be well drained with no presence of saturation. The lack of all three wetland indicators identifies this site as upland.

Wetland boundaries of WL7 were determined by an abrupt change in elevation and vegetation composition.

4.1.8 Wetland 8 (WL8)

WL8 (Figure 10) is a riparian swamp/bog/fen wetland complex approximately 10.3 ha in total area located in the western side of the Project area (Figure 2). One paired sampling site was recorded. This wetland was originally identified as two separate wetlands (WL8 and WL9 on data sheets on Appendix A) however further field investigations identified that these areas are in fact connected to form one large complex. The wetland was determined to contain normal site conditions. The upland habitat surrounding this wetland consists of a mix of barren vegetation, coniferous forest and mixed forest.

The dominant vegetation at Data Point “WL8-WP1” in the canopy is Balsam Fir and Red Maple. The subcanopy is dominated by Cinnamon Fern while Three-seeded Sedge dominates the understorey (Photo 25; Appendix C). The PI was observed to be 1.5. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 26; Appendix C). Surface water was not found to be present however a strong Hydrogen Sulfide odor was detected (C1) and soil saturation was at 5 cm (A3).

The dominant species at Data Point “WL8-UP1” in the canopy is Balsam Fir and Red Maple. Dominant species in the subcanopy include Mountain Holy, Wild Raisin and Lambkill while Wild Sarsaparilla and Star Flower dominate the understory (Photo 27; Appendix C). The PI was observed to be 2.9. The substrate was found to consist of a 20 cm duff layer over 10 cm silt-loam Ae layer (2.5YR 5/1), over rock (Photo 28, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the bog portion of WL8 were determined by an abrupt change in elevation and associated shift in dominant plant species. The boundary of the riparian swamp portion of this wetland consists of a more gradual shift in elevation and dominant plant species. Wetland boundary in this area was determined by a shift in dominance of sphagnum moss in the wetland to feather moss in the upland.

4.1.9 Wetland 9 (WL9)

WL9 (Figure 11) is an open bog wetland approximately 4.6 ha in total area located along the western property boundary of the Project area (Figure 2). One paired sampling site was recorded (labeled as WL10 on data sheets in Appendix A). The wetland was determined to contain normal site conditions. The upland habitat surrounding this wetland consists of a mix of barren vegetation and coniferous forest.

The dominant vegetation at Data Point “WL9-WP1” in the subcanopy is Black Spruce and Huckleberry while Common Juniper, Bog Laurel (*Kalmia polifolia*), Pitcher Plant (*Sarracenia purpurea*) and Deer Grass (*Trichophorum caespitosus*) dominates the understory (Photo 29; Appendix C). The PI was observed to be 2.5. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 30; Appendix C). Surface water was not found to be present however a strong water stained leaves (B9), sparsely vegetated concave surface (B8) and thin muck surface were all noted (C7).

The dominant species at Data Point “WL9-UP1” in the canopy is Black Spruce. Dominate species in the subcanopy include Black Spruce and Huckleberry while Lambkill and Star Flower dominate the understory (Photo 31; Appendix C). The PI was observed to be 2.7. The substrate was found to consist of a 20 cm duff layer over rock (Photo 32, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

4.1.10 Wetland 10 (WL10)

WL10 (Figure 12) is a small riparian treed swamp located along an unnamed stream at the western side of the Project Area. The upland habitat surrounding this wetland consists primarily of coniferous forest. One paired sampling site was recorded (labeled as WL11 on data sheets in Appendix A). The wetland was determined to contain normal site conditions.

The dominant vegetation at Data Point “WL10-WP1” in the canopy is Balsam Fir. Cinnamon Fern is the dominant species in the subcanopy while Three-seeded Sedge dominates the understory (Photo 33; Appendix C). The PI was observed to be 2.4. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 34; Appendix C). Surface water was found to be present (A1) and soil saturation was at 5 cm (A3).

The dominant species at Data Point “WL10-UP1” in the canopy is Black Spruce and Balsam Fir. Dominant species in the subcanopy include Balsam Fir and Mountain Ash while Wild

Sarsaparilla and Star Flower dominate the understory (Photo 35; Appendix C). The PI was observed to be 2.9. The substrate was found to consist of a 10 cm duff layer over rock (Photo 36, Appendix C). The soil appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

4.1.11 Wetland 11 (WL11)

WL11 (Figure 13) is a large open bog located in the center of the Project Area on the east side of Fogherty Lake. The wetland is bordered on three sides by a shrub barren while Fogherty Lake borders the western boundary. One paired sampling site was recorded (labeled as WL12 on data sheets in Appendix A). The wetland was determined to contain normal site conditions.

The dominant vegetation at Data Point “WL11-WP1” is Larch in the canopy; Rhodora (*Rhododendron canadensis*), Mountain Holy and Huckleberry in the subcanopy; and Labrador Tea, Pitcher Plant and Three-leaved False Solomon’s Seal in the understory (Photo 37; Appendix C). The PI was observed to be 2.6. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 38; Appendix C). Although surface water was not detected in the plot, soil saturation was at surface 5 cm (A3).

Larch, Red Maple and Black Spruce are the dominant species in the canopy at Data Point “WL11-UP1”. Huckleberry dominates the subcanopy while Bunchberry and Black Crowberry (*Empetrum nigrum*) dominated the understory (Photo 39; Appendix C). The PI was observed to be 3.0. The substrate was found to consist of a 11 cm duff layer over rock (Photo 40, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the south, and north sides of WL11 were determined by an abrupt change in elevation. The boundary along the eastern and western ends of this wetland consists of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.12 Wetland 12 (WL12)

WL12 (Figure 14) is an open bog/fen wetland approximately 0.3 ha in total area located in the central portion of the Project Area (Figure 2). One paired sampling site was recorded (labeled as WL13 on data sheets in Appendix A). The wetland was determined to contain normal site conditions although a skidder trail was noted to pass through the wetland. Upland habitat surrounding this wetland is primarily shrub barren with patches of coniferous forest.

The dominant vegetation at Data Point “WL12-WP1” cinnamon Fern in the subcanopy and Three-seeded Sedge in the understory (Photo 41; Appendix C). The PI was observed to be 2.7. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated

organic matter (Photo 42; Appendix C). Surface water was not found to be present in the plot however the water table was at 10cm (A2), while soil saturation was at surface (A3).

The dominant species at Data Point “WL12-UP1” is Huckleberry in the subcanopy (Photo 43; Appendix C). The PI was observed to be 2.7. The substrate was found to consist of a 5 cm duff layer over rock (Photo 44, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the south, and north sides of WL12 were determined by an abrupt change in elevation. The boundary along the eastern and western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.13 Wetland 13 (WL13)

WL13 (Figure 15) is a treed swamp wetland approximately 0.6 ha in total area located in a depression in the landscape in the central portion of the Project Area (Figure 2). One paired sampling site was recorded (labeled as WL14 on data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of shrub barren with patches of coniferous forest.

The dominant vegetation at Data Point “WL13-WP1” is Black Spruce and Red maple in the canopy and Mountain Holy, Wild Raisin and Cinnamon Fern in the subcanopy. Three-seeded Sedge and Wild Lily-of-the-valley dominate the understorey (Photo 45; Appendix C). The PI was observed to be 1.9. The soil was determined to be a histic epipedon (A2) as there was 20 cm of accumulated organic matter over a silt layer with a colour of 5YR 2.5/1 (Photo 46; Appendix C). Soil saturation was at surface (A3) and a strong Hydrogen Sulfide odor was detected (C1).

Black Spruce was the dominant species at Data Point “WL13-UP1” in the canopy while Green Alder, Huckleberry, Mountain Holy and Black Spruce dominate the subcanopy. Bunch Berry and Black Crowberry dominate the understory (Photo 47; Appendix C). The PI was observed to be 2.8. The substrate was found to consist of a 5 cm duff layer over rock (Photo 48, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along all sides of WL13 were determined by an abrupt change in elevation.

4.1.14 Wetland 14 (WL14)

WL14 (Figure 16) is a fen/bog wetland complex approximately 6.2 ha in total area located along an unnamed stream in the eastern side of the Project Area (Figure 2). One paired sampling

site was recorded (labeled as WL15 on data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest intermixed with shrub barren.

The dominant vegetation at Data Point “WL14-WP1” is Black Spruce and Balsam Fir in the canopy and Sweet Gale and Huckleberry in the subcanopy. Three-leaved False Solomon’s Seal dominates the understorey (Photo 49; Appendix C). The PI was observed to be 2.6. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 50; Appendix C). Surface water was present (A1), the water table was at 5 cm (A2) and soil saturation was at surface (A3).

Black Spruce was the dominant species at Data Point “WL14-UP1” in the canopy while Black Spruce, Huckleberry and Lambkill dominate the subcanopy. Lambkill and Black Crowberry dominate the understory (Photo 51; Appendix C). The PI was observed to be 2.8. The substrate was found to consist of an 8 cm duff layer over rock (Photo 52, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the south, and north sides of WL14 were determined by an abrupt change in elevation. The boundary along the eastern and western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.15 Wetland 15 (WL15)

WL15 (Figure 17) is a riparian fen wetland approximately 0.07 ha in total area located along an unnamed stream in the center of the Project Area (Figure 2). One paired sampling site was recorded (labeled as WL16 on data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest intermixed with shrub barren.

The dominant species at Data Point “WL15-WP1” is Black Spruce in the canopy and Sweet Gale, Cinnamon Fern and Mountain Holy in the subcanopy. Three-seeded sedge dominates the understorey (Photo 53; Appendix C). The PI was observed to be 2.7. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 54; Appendix C). Surface water was not present however the water table was at 10 cm (A2) and soil saturation was at surface (A3).

Black Spruce and Balsam Fir were the dominant species at Data Point “WL15-UP1” in the canopy while Lambkill is dominant in the subcanopy. Late Low-bush Blueberry (*Vaccinium angustifolium*), Bunchberry and Blackberry (*Rubus allegheniensis*) dominate the understory (Photo 55; Appendix C). The PI was observed to be 3.0. The substrate was found to consist of a 10 cm duff layer over rock (Photo 56, Appendix C). The area appeared to be well drained with

no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along all sides of WL15 were determined by an abrupt change in elevation.

4.1.16 Wetland 16 (WL16)

WL16 (Figure 18) is a bog wetland approximately 0.45 ha in total area located along an unnamed stream in the center of the Project Area (Figure 2). This wetland was originally identified as two separate wetlands (WL19 and WL20 on data sheets on Appendix A) however further field investigations identified that these areas are in fact connected to form one contiguous wetland. One paired sampling site was recorded. The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest.

The dominant species at Data Point "WL16-WP1" is Black Spruce and Larch in the canopy and Lambkill and Balsam Fir in the subcanopy. Three-seeded sedge and Three-leaved False Solomon's Seal dominates the understory (Photo 57; Appendix C). The PI was observed to be 2.6. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 58; Appendix C). Surface water was not present however soil saturation was at 5 cm (A3) and a strong Hydrogen Sulfide odor was detected.

Black Spruce, Red Maple and Balsam Fir were the dominant species at Data Point "WL16-UP1" in the canopy while Balsam Fir is dominant in the subcanopy. Wild Lily-of-the-valley is dominant in the understory (Photo 59; Appendix C). The PI was observed to be 2.9. The substrate was found to consist of a 16 cm duff layer over a 3 cm sand Ae horizon with a colour of 10YR 5/2, over rock (Photo 60, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north and south sides of WL16 were determined by an abrupt change in elevation. The boundary along the eastern and western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.17 Wetland 17 (WL17)

WL17 (Figure 19) is a bog/Swamp wetland complex approximately 0.74 ha in total area located along the proposed access road to the Site (Figure 2). One paired sampling site was recorded (labeled as WL21 on the data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest.

The dominant species at Data Point "WL17-WP1" is Black Spruce in the canopy. Leatherleaf, Rhodora, Balsam Fir and Black Spruce dominate the subcanopy. White-beaked Rush and

Three-leaved False Solomon's Seal dominate the understory (Photo 61; Appendix C). The PI was observed to be 1.6. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 62; Appendix C). Surface water was not present however soil saturation was at surface (A3) and the water table was at 10cm (A2).

Black Spruce and Balsam Fir were the dominant species at Data Point "WL17-UP1" in the canopy and subcanopy. Lambkill is dominant in the understory (Photo 63; Appendix C). The PI was observed to be 2.6. The substrate was found to consist of a 10 cm duff layer over a 6 cm silt loam Ae horizon with a colour of 10YR 6/2, overtop a 5 cm clay loam B horizon with a colour of 7.5YR 5/4, over rock (Photo 64, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north and south sides of WL17 were determined by an abrupt change in elevation. The boundary along the eastern and western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.18 Wetland 18 (WL18)

WL18 (Figure 20) is a bog wetland approximately 0.07 ha in total area located along the proposed access road to the Site (Figure 2). One paired sampling site was recorded (labeled as WL22 on the data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest.

The dominant species at Data Point "WL18-WP1" is Black Spruce in the canopy and subcanopy. Three-leaved False Solomon's Seal, Bunchberry, Three-seeded Sedge and Cinnamon Fern dominate the understory (Photo 65; Appendix C). The PI was calculated to be 2.3. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 66; Appendix C). Surface water was not present however soil saturation was at surface (A3) and the water table was at 10cm (A2).

Black Spruce was the dominant species at Data Point "WL18-UP1" in the canopy while Lambkill and Huckleberry dominate the subcanopy. Bunchberry is dominant in the understory (Photo 67; Appendix C). The PI was observed to be 2.9. The substrate was found to consist of a 10 cm duff layer over a 5 cm silt loam Ae horizon with a colour of 10YR 5/2, over rock (Photo 68, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north, east and south sides of WL18 were determined by an abrupt change in elevation. The boundary along the western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.19 Wetland 19 (WL19)

WL19 (Figure 21) is a bog wetland approximately 0.04 ha in total area located along the proposed access road to the Site (Figure 2). One paired sampling site was recorded (labeled as WL23 on the data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest.

The dominant species at Data Point “WL19-WP1” is Larch in the canopy. The dominant species in the subcanopy include Huckleberry, Mountain Holy and Baltic Rush (*Juncus arcticus*). Deer Grass, White-beaked Rush and Pitcher Plant dominate the understorey (Photo 69; Appendix C). The PI was calculated to be 1.3. The soil was determined to be a histosol (A1) as there was more than 40 cm of accumulated organic matter (Photo 70; Appendix C). Surface water was not present however soil saturation was at surface (A3) and the water table was at 10cm (A2).

Huckleberry was the dominant species at Data Point “WL19-UP1” in the subcanopy while Lambkill and Black Crowberry is dominant in the understory (Photo 71; Appendix C). The PI was observed to be 3.0. The substrate was found to consist of a 5 cm duff layer over rock (Photo 72, Appendix C). The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north, east and south sides of WL19 were determined by an abrupt change in elevation. The boundary along the western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.20 Wetland 20 (WL20)

WL20 (Figure 22) is a bog wetland approximately 0.15 ha in total area located along the proposed access road to the Site (Figure 2). One paired sampling site was recorded (labeled as WL24 on the data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest.

The dominant species at Data Point “WL20-WP1” is Larch in the canopy. The dominant species in the subcanopy include Huckleberry, Mountain Holy, Sweet Gale and Wild Raisin. Deer Grass and Pitcher Plant dominate the understorey (Photo 73; Appendix C). The PI was calculated to be 2.0. The soil was determined to be a Black Histic (A3) as there was 20 cm of accumulated organic matter accumulated over a 10 cm loam sand horizon with a colour of 10YR 5/2 (Photo 74; Appendix C). Surface water was not present however soil saturation was at surface (A3).

Larch and Black Spruce were the dominant species at Data Point “WL20-UP1” in the canopy. Huckleberry, Wild Raisin and Rhodora were dominants in the subcanopy while Late Low-bush Blueberry is dominant in the understory (Photo 75; Appendix C). The PI was observed to be 3.0. The substrate was found to consist of a 10 cm duff layer over rock (Photo 76, Appendix C).

The area appeared to be well drained with no presence of saturation. Although the sample point has hydrophytic vegetation, the lack of hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the north and south sides of WL20 were determined by an abrupt change in elevation. The boundary along the western ends of this wetland consisted of a more gradual change in elevation however a distinct change in dominant vegetation and soil characteristics determined the boundary.

4.1.21 Wetland 21 (WL21)

WL21 (Figure 23) is a Fen wetland approximately 0.19 ha in total area located close the coast at the northeast end of the Project Area (Figure 2). One paired sampling site was recorded (labeled as WL25 on the data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest to the south and cobble/gravel/sand beach to the north.

Balsam Fir, White Spruce and Red Maple are the dominant species at Data Point "WL21-WP1" in the canopy. The dominant species in the subcanopy include Black Choke Berry and Lambkill. Bunchberry, Tawny Cotton-grass (*Eriophorum virginicum*), Bog Aster, and Soft Rush (*Juncus effuses*) dominate the understory (Photo 77; Appendix C). The PI was calculated to be 2.5. The soil was determined to be a Histosol (A1) as there was 30 cm of accumulated organic matter accumulated over bedrock (Photo 78; Appendix C). Surface water was not present however soil saturation was at 5 cm (A3).

Balsam Fir and White Spruce were the dominant species at Data Point "WL21-UP1" in the canopy. Balsam Fir, Mountain Ash, Green Alder, and White Birch were dominants in the subcanopy while Bunchberry, Mountain Woodfern, Blackberry, and Mountain Cranberry are dominant in the understory (Photo 79; Appendix C). The PI was observed to be 3.1. The substrate was found to consist of a 10 cm duff layer over a 20 cm sand loam B horizon (10YR 3/6), over rock (Photo 80, Appendix C). The area appeared to be well drained with no presence of saturation. The lack of hydrophytic vegetation, hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along the west, east and south sides of WL21 were determined by an abrupt change in elevation. The boundary along the northern side of this wetland was determined by the presence of the beach.

4.1.22 Wetland 22 (WL22)

WL22 (Figure 24) is a Fen wetland approximately 0.1 ha in total area located along an unnamed stream in the northeast end of the Project Area (Figure 2). One paired sampling site was recorded (labeled as WL26 on the data sheets in Appendix A). The wetland was determined to contain normal site conditions. Upland habitat surrounding this wetland consists primarily of coniferous forest.

Balsam Fir and White Spruce are the dominant species at Data Point “WL22-WP1” in the canopy. The dominant species in the subcanopy include Black Choke Berry, Green Alder and Leatherleaf. Bog Aster, Canada Bluejoint (*Calamagrostis canadensis*) and Swamp Loosestrife (*Lysmachia terrestris*) dominate the understorey (Photo 81; Appendix C). The PI was calculated to be 1.4. The soil was determined to be a Histosol (A1) as there was over 40 cm of accumulated organic matter accumulated (Photo 82; Appendix C). Surface water was not present however soil saturation was at 3 cm (A3) and Hydrogen Sulfide odor was detected (C1).

White Spruce was the dominant species at Data Point “WL22-UP1” in the canopy. Balsam Fir, Mountain Ash and White Birch were determined to be dominants in the subcanopy while Bunchberry and Mountain Woodfern are dominant in the understory (Photo 83; Appendix C). The PI was observed to be 3.1. The substrate was found to consist of a 15 cm duff layer over a 10 cm silt loam B horizon (7.5YR 3/3) (Photo 84, Appendix C). The area appeared to be well drained with no presence of saturation. The lack of hydrophytic vegetation, hydric soil and wetland hydrology identifies this site as upland.

Wetland boundaries along all sides of WL22 were determined by an abrupt change in elevation.

4.2 Functional Assessments

The resulting description of wetland functions will provide the baseline for further assessment and monitoring of project impacts. The description of wetland functions is intended to be conservative. Completed assessment forms are located in Appendix D.

4.2.1 Ecological Characterization

The Project occurs within the tertiary watershed (1EQ-SD) within which covers approximately 518 km² and encompasses the land east of the Project site to the eastern end of Guysborough County and extends west of the Project site to the community of Goldboro. Land cover within the majority of this watershed is forested and open natural areas (e.g. barrens) with a combined coverage of approximately 86% of tertiary watershed 1EQ-SD. Wetlands also constitute a relatively moderate component of this wetland covering approximately 11% of the total area. Anthropogenic development in this area is relatively low with residential, gravel pits, roads and landfills combining for a total coverage of approximately 7% of the tertiary land cover.

Forestry is the greatest stress within the tertiary watershed where large clear cut and partial cut blocks are noted to occur throughout the area. The overall watershed condition is relatively unaltered with a low percentage of impervious surfaces. The reliance on individual wetlands to contribute to flood water detention is moderate given the proportion of total wetland area in this watershed.

Land cover in the Project area consists primarily of coniferous / mixed forest in various successional stages intermixed with open shrub dominated areas and wetlands. A number of small streams are located within the Project area, the largest occurring in the southwestern end

which flows south through WL1 before connecting to Indian Cove Creek. Fish surveys conducted within the small streams in the Project Area as well as Fogherty Lake (also occurring on the Project Area) found no fish species present which may be attributed to the very low pH of the surface water present onsite.

Vegetation surveys conducted during previous years and supplemented during the 2014 field surveys indicated that no plant species at risk listed under the federal Species at Risk Act (SARA) or Nova Scotia Endangered Species Act (NSES) were recorded in the Project area. One plant species of conservation concern, Northern Comandra (*Geocaulon lividum* – ACCDC rank; S3) was recorded in wetland 22 (WL22). Southern Twayblade (*Listera australis* – ACCDC rank; S2) was also found along two watercourses in the west side of the Project Area. Three lichen species of conservation concern were also noted in many of the wetlands within the Project Area including; Black-footed Reindeer Lichen (*Cladonia stygia* – Canada General Status rank; 3: ACCDC rank; S2S3), Naked Kidney Lichen (*Nephroma bellum* – Canada General Status rank; 3: ACCDC rank; S3?) and Coastal Bushy Beard Lichen (*Usnea flammea* – Canada General Status rank; 3: ACCDC rank; S2S3).

Surface hydrology in the area flows in two major directions on the property. The western and northern portion of the site drains in a northerly direction towards the ocean, while the central and southeastern section of the site flows in a southeast direction into Indian Cove Creek. A small portion of the eastern edge of the Project Area also flows in an easterly direction towards Murphy's Lake and eventually to the ocean.

Groundwater flow is inferred to follow similar directional flow as surface drainage patterns. Based on various characteristics such as wetland soils, land use in the subwatershed upstream, topographic relief surrounding wetlands and hydroperiod of wetland, 16 of the 22 wetlands assessed are likely groundwater discharge sites. Wetlands 9, 11, 16, 19 and 20 were found to potentially serve as groundwater recharge sites. Wetland 9 and 10 are relatively large in size however the groundwater flow path originating from these wetlands flows toward the ocean with no downstream users identified. A total of 16 wells are recorded in the NS well log database, however given the relative small size of wetlands 16, 19 and 20, the location of wetlands 9 and 11 relative to potable water wells and since the remaining wetlands in the Project area are likely discharge wetlands, it is unlikely that the Project impacts on wetlands will have any significant impact on the ground water flow regime and potable water wells of the area.

4.2.2 Significant Wetland Functions

The functional assessments conducted for the 22 wetlands located within the Project site determined that the overall watershed condition within which these wetlands are located is in a relatively unaltered state with wetland habitat covering approximately 11% of the total land area of the watershed. The buffer area surrounding these wetlands is fully vegetated and relatively unaltered providing high quality wildlife habitat and water quality functions. All wetlands assessed were determined to provide high floristic quality where the plant community is composed of native species characteristic of the wetland type with a very minor component of non-native species. Table 4.3 presents a summary of the various significant functions each

wetland was assessed to provide (see Appendix D for more details regarding the functional assessments).

Table 4.3: Wetland Functional Assessment Summary

Significant Function	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10	WL11	WL12	WL13	WL14	WL15	WL16	WL17	WL18	WL19	WL20	WL21	WL22
SF1-Watershed condition (H- Significantly modified, M-Modified, L- Relatively unaltered)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
SF2-Proportion of WL area in watershed & opportunity for floodwater detention (H,M,L)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
SF3-Rate the general wetland condition/integrity (H,M,L)	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
SF4-Rate the overall condition and integrity land adjacent to wetland (H,M,L)	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
SF5-Is the WL a WSS? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF6-Does the WL support commercial/recreational fish/shellfish? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
*SF7-Species of concern (Fed/Prov)? Specify.	S2	N	N	N	N	N	N	S2	N	S3	S2	S2	N	N	N	N	S2	S2,S3	S2	S2	N	N
SF8-Wetland has conservation/ compensation agreements/activity? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF9-Wetland is calcerous fen, black ash or cedar swamp? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF10-Within Drinking Water Protected Area (designated watershed/wellfield) (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF11-WL within a floodplain and upstream of or within of a populated area? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF12-Fed/Prov/Municipal area of interest? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF13-WL hydrologic condition	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT									
SF14-WL important for maintaining stream flow? (Y/N)	Y	N	Y	N	N	Y	N	Y	N	N	N	N	N	Y	N	N	Y	N	N	N	N	N
SF15-WL ability to detain surface water (H,M,L)	M	H	M	M	M	M	M	M	M	M	M	M	M	H	M	M	H	M	M	M	M	M
SF16-Wetland improves water quality? (Y/N)	Y	Y	Y	N	N	Y	Y	Y	N	Y	N	N	N	Y	Y	N	Y	N	N	N	Y	Y
SF17-Evidence of excess nutrient loading/ contamination? (H,M,L)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
SF18-WL contributes to water quality in downstream resources (H,M,L)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
SF19-WL serves as a recharge site (Y/N)	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	Y	N	Y	Y	Y	N	N

Significant Function	WL1	WL2	WL3	WL4	WL5	WL6	WL7	WL8	WL9	WL10	WL11	WL12	WL13	WL14	WL15	WL16	WL17	WL18	WL19	WL20	WL21	WL22
SF20-WL serves as a discharge site (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SF21-WL ability to stabilize shoreline (H,M,L)	M	H	L	L	L	L	M	M	L	M	L	L	L	M	M	L	L	L	L	L	L	M
SF22-Is the plant community unique or rare regionally or provincially? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF23-Does the WL contain a diversity of plant communities (H,M,L)	H	H	L	L	M	L	L	H	M	L	M	L	L	M	L	L	M	M	M	M	L	L
SF24-Rate the overall integrity/quality of plant community? (H,M,L)	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
*SF25-Are there any observed rare or endangered plant species? Specify.	S2	N	N	N	N	N	N	S2	N	S3	S2	S2	N	N	N	N	S2	S2,S3	S2	S2	N	N
SF26-Does wetland support fish/fish habitat? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
*SF27-Rare or endangered fish/wildlife species found in the wetland?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SF28-Overall fish and wildlife habitat quality (H,M,L)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
SF29-Rate the wetland's community use/ value (H,M,L)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Notes:																						
* SF7/SF25/SF27 is considered a red rated function if a species present is listed by SARA or NSESA as Endangered/Threatened/Special Concern; NSDNR - Red listed; or Ranked by ACCDC as S1																						
Cells highlighted in red indicate this function is considered to be critical to the watershed or represent a highly degraded watershed. These functions are typically unique or rare or associated with a high risk to the watershed if lost (NSE 2014).																						
Unless otherwise stated: H=High; M=Moderate/Medium; L=Low; Y=Yes; N=No; NAT=Natural																						

4.2.2.1 Wetland 1 (WL1)

WL1 is characterized as a wetland complex comprised of a mix of bog and swamp types. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

This wetland is important in maintaining stream flow of the unnamed stream that flows along the east side of the Project area (SF14). The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with high species diversity and little to no influence of invasive/non-native species. This complex consists of a number of different wetland types and as such it is considered to have a high diversity of high quality vegetation communities (SF23 and SF24). One lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) was recorded in WL1.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland may provide open aesthetic functions as well as berry picking and plant gathering opportunities as it is somewhat accessible to the public via the power line transmission corridor (SF29).

Red rated significant functions provided by this wetland includes maintaining stream flow in a first/second order stream.

4.2.2.2 Wetland 2 (WL2)

WL2 is characterized as a wetland complex comprised of marsh, fen and swamp wetland types. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function. This wetland borders a small pond at the northern boundary located behind a barrier beach. This area does receive periodic salt water influx during storm events, however the vegetation present in this wetland indicate that this is a fresh water pond.

The hydrologic condition of this wetland is considered natural with a high ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17). Given the location of this wetland within the landscape, it provides a high ability to stabilize the shoreline (SF21) in particular during storm events.

The plant community in this wetland was determined to be relatively intact with high species diversity and little to no influence of invasive/non-native species. This complex consists of a number of different wetland types and as such it is considered to have a high diversity of high quality vegetation communities (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland may provide open aesthetic functions however since this wetland is not readily accessible by the public, community use functions are assessed as low (SF29).

Red rated significant functions provided by this wetland include stabilizing the shoreline (SF21).

4.2.2.3 Wetland 3 (WL3)

WL3 is characterized as a sloped throughflow fen wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

This wetland is important in maintaining stream flow of the unnamed stream that flows through this wetland (SF14). The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland may provide open aesthetic functions however since this wetland is not readily accessible by the public, community use functions are assessed as low (SF29).

Red rated significant functions provided by this wetland includes maintaining stream flow in a first/second order stream.

4.2.2.4 Wetland 4 (WL4)

WL4 is characterized as an isolated treed bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with low species diversity but little to no influence of invasive/non-native species. This wetland is considered to have a low diversity of plant communities, however the vegetation community present is considered of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.5 Wetland 5 (WL5)

WL5 is characterized as a sloped throughflow fen wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland may provide open aesthetic functions however since this wetland is not readily accessible by the public, community use functions are assessed as low (SF29).

No red rated functions were assessed for this wetland.

4.2.2.6 Wetland 6 (WL6)

WL6 is characterized as an outflow bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

This wetland is important in maintaining stream flow of the unnamed stream that originates from the west and east ends of this wetland (SF14). The hydrologic condition of this wetland is

considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes maintaining stream flow in a first/second order stream.

4.2.2.7 Wetland 7 (WL7)

WL7 is characterized as a throughflow swamp wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with low species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.8 Wetland 8 (WL8)

WL8 is characterized as a wetland complex comprised of a mix of bog, fen and swamp types. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

This wetland is important in maintaining stream flow of the unnamed stream that flows along the east side of the Project area (SF14). The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with high species diversity and little to no influence of invasive/non-native species. This complex consists of a number of different wetland types and as such it is considered to have a high diversity of high quality vegetation communities (SF23 and SF24). Two lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) and Coastal Bushy Heard Lichen (*Usnea flammea* – ACCDC rank; S2S3) were recorded in WL8.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland may provide open aesthetic functions as well as berry picking and plant gathering opportunities however since this wetland is not readily accessible by the public, community use functions are assessed as low (SF29).

Red rated significant functions provided by this wetland includes maintaining stream flow in a first/second order stream (SF14). The Bog Portion of this wetland may also serve as a groundwater recharge site (SF19).

4.2.2.9 Wetland 9 (WL9)

WL9 is characterized as an isolated domed bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17). Where this wetland is a large isolated bog with no visible inlet or outlet it may serve as a groundwater recharge site (SF19).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland is considered to have a moderate diversity of high quality plant communities (SF23 and SF24). One lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) was recorded in WL9.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland may provide open aesthetic functions as well as berry picking and plant gathering opportunities however since this wetland is not readily accessible by the public, community use functions are assessed as low (SF29).

Red rated significant functions provided by this wetland includes potentially serving as a groundwater recharge site (SF19).

4.2.2.10 Wetland 10 (WL10)

WL10 is characterized as a throughflow treed swamp wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with low species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24). One lichen species of conservation concern, Naked Kidney Lichen (*Nephroma bellum* – ACCDC rank; S3?) was recorded in WL10.

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.11 Wetland 11 (WL11)

WL11 is characterized as an isolated domed bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17). Since this wetland is a large isolated bog with no visible inlet or outlet it may serve as a groundwater recharge site (SF19).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland is considered to have a moderate diversity of high quality plant communities (SF23 and SF24). One lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) was recorded in WL11.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland may provide open aesthetic functions as well as berry picking and plant gathering opportunities however since this wetland is not readily accessible by the public, community use functions are assessed as low (SF29).

Red rated significant functions provided by this wetland includes potentially serving as a groundwater recharge site (SF19).

4.2.2.12 Wetland 12 (WL12)

WL12 is characterized as an outflow bog / fen wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24). One lichen species of conservation concern, Coastal Bushy Beard Lichen (*Usnea flammea* – ACCDC rank; S2S3) was recorded in WL12.

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.13 Wetland 13 (WL13)

WL13 is characterized as an isolated treed swamp wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with low species diversity but little to no influence of invasive/non-native species. This wetland is considered to have a low diversity of plant communities, however the vegetation community present is considered of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.14 Wetland 14 (WL14)

WL14 is characterized as a wetland complex comprised of a mix of bog and fen types. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

This wetland is important in maintaining stream flow of the unnamed stream that flows through the wetland to the southeast (SF14). The hydrologic condition of this wetland is considered natural with a high ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17). The wetland also provides a significant flood/stormwater attenuation function for the surrounding landscape.

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This complex consists of a number of different wetland types and as such it is considered to have a moderate diversity of high quality vegetation communities (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes maintaining stream flow in a first/second order stream.

4.2.2.15 Wetland 15 (WL15)

WL15 is characterized as a sloped throughflow fen wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.16 Wetland 16 (WL16)

WL16 is characterized as an isolated bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17). Since this wetland is an isolated bog with no visible inlet or outlet it may serve as a groundwater recharge site (SF19).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland is considered to have a low diversity of plant communities, however the vegetation community present is considered to be of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes potentially serving as a groundwater recharge site (SF19).

4.2.2.17 Wetland 17 (WL17)

WL17 is characterized as an outflow bog / swamp wetland complex. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

This wetland is important in maintaining stream flow of the unnamed stream that flows of the wetland at the southwest end (SF14). The hydrologic condition of this wetland is considered natural with a high ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland contains a moderate diversity of high quality plant communities (SF23 and SF24). Two lichen species of conservation concern, Coastal Bushy Beard Lichen (*Usnea flammea* – ACCDC rank; S2S3) and Naked Kidney Lichen (*Nephroma bellum* – ACCDC rank S3?) was recorded in WL17.

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes maintaining stream flow in a first/second order stream.

4.2.2.18 Wetland 18 (WL18)

WL18 is characterized as an isolated bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17). Since this wetland is an isolated bog with no visible inlet or outlet it may serve as a groundwater recharge site (SF19).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland contains a moderate diversity of high quality plant communities (SF23 and SF24). One plant species of conservation concern, Northern Comandra (*Geocaulon lividum* – ACCDC rank; S3) was recorded in WL18. One lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) was also recorded in WL18.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes potentially serving as a groundwater recharge site (SF19).

4.2.2.19 Wetland 19 (WL19)

WL19 is characterized as an isolated bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17). Since this wetland is an isolated bog with no visible inlet or outlet it may serve as a groundwater recharge site (SF19).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland contains a moderate diversity of high quality plant communities (SF23 and SF24). One lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) was recorded in WL19.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes potentially serving as a groundwater recharge site (SF19).

4.2.2.20 Wetland 20 (WL20)

WL20 is characterized as an isolated bog wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural (SF13) with little evidence of excess nutrient loading or contamination (SF17). Since this wetland is an isolated bog with no visible inlet or outlet it may serve as a groundwater recharge site (SF19).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. This wetland contains a moderate diversity of high quality plant communities (SF23 and SF24). One lichen species of conservation concern, Black-footed Reindeer Lichen (*Cladonia stygia* – ACCDC rank; S2S3) was recorded in WL20.

The wetland may provide moderate habitat to amphibians, reptiles and mammals. This wetland is not readily available to the public and as such provides low community use value (SF29).

Red rated significant functions provided by this wetland includes potentially serving as a groundwater recharge site (SF19).

4.2.2.21 Wetland 21 (WL21)

WL21 is characterized as a sloped inflow fen wetland. Although there is no outflow channel present, outflow from this wetland likely occurs under/through the boulder cobble beach located along the northern boundary of this wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

4.2.2.22 Wetland 22 (WL22)

WL22 is characterized as a sloped throughflow fen wetland. The integrity of this wetland and surrounding buffer is considered to be high where impacts to this wetland are minimal and the adjacent buffer area is considered to be in a natural state and fully vegetated (SF3 and SF4). The buffer zone surrounding the wetland provides high quality wildlife habitat and water quality function.

The hydrologic condition of this wetland is considered natural with a moderate ability to detain surface water (SF15) and stabilize the shoreline (SF21). The wetland was also determined to improve water quality (SF16) with little evidence of excess nutrient loading or contamination (SF17).

The plant community in this wetland was determined to be relatively intact with moderate species diversity and little to no influence of invasive/non-native species. Although this wetland contains low diversity of plant communities, the community present is of high quality (SF23 and SF24).

The wetland may provide moderate habitat to amphibians, reptiles and mammals (SF28). This wetland is not readily available to the public and as such provides low community use value (SF29).

No red rated significant functions were assessed for this wetland.

5.0 CONCLUSION

A total of 22 wetlands were encountered within the Project study area. Habitat and functional assessments and field delineations were conducted for all wetlands encountered within the Project study area boundary.

The functional assessment indicate that 12 of the 22 wetlands perform red rated significant functions which elevate the relative importance of these wetlands in terms of the functions they provide to the surrounding watershed. Six of the wetlands assessed with red rated significant functions (WL1, 3, 6, 8, 14 and 17) occur along or form the headwater of small watercourses throughout the site and as such are important in maintaining stream flow. Seven of the wetlands assessed as having red rated significant functions (WL 8, 9, 11, 16, 18, 19 and 20) may serve as groundwater recharge sites while one wetland (WL2) provides a red rated significant function of stabilizing the shoreline. Results of this study will be used to assess the potential impacts of the proposed Black Point Quarry on wetland habitat within the Project Study Area.

6.0 REFERENCES

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APPENDIX A
Wetland Delineation Data Sheets and Habitat Assessment Forms

Freshwater Wetland Data Sheet UL-11

Date: Sept. 8/10
 Investigator(s): _____
 Weather: SUNNY
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹: Treed Swamp
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|-----------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) <u>X</u> |

Wetland Class:

- | | |
|-----------------------------------|--------------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp <u>X</u> |
| 4. Seasonally flooded flats _____ | 8. Bog _____ |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp <u>X</u> |
| 14. Broad-leaved DM _____ | 32. Evergreen WS <u>X</u> |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|--------------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded <u>X</u> |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond X
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above _____

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees -
- 2. Coniferous trees 70% - Fir
- 3. Dead trees 10%
- 4. Tall shrubs 2%
- 5. Low shrubs -
- 6. Dead shrubs -
- 7. Herbs 15% - Carex, hori, Cinnamon fern
- 8. Mosses 10%
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Lotic Bidirectional - Beaver Pond

Wildlife: (Observation/Signs/Reports)

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 80%
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other 20%

Description: ~~mixed woods~~

Bever Pond

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: *none*

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description: *none*

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: *none*

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident X

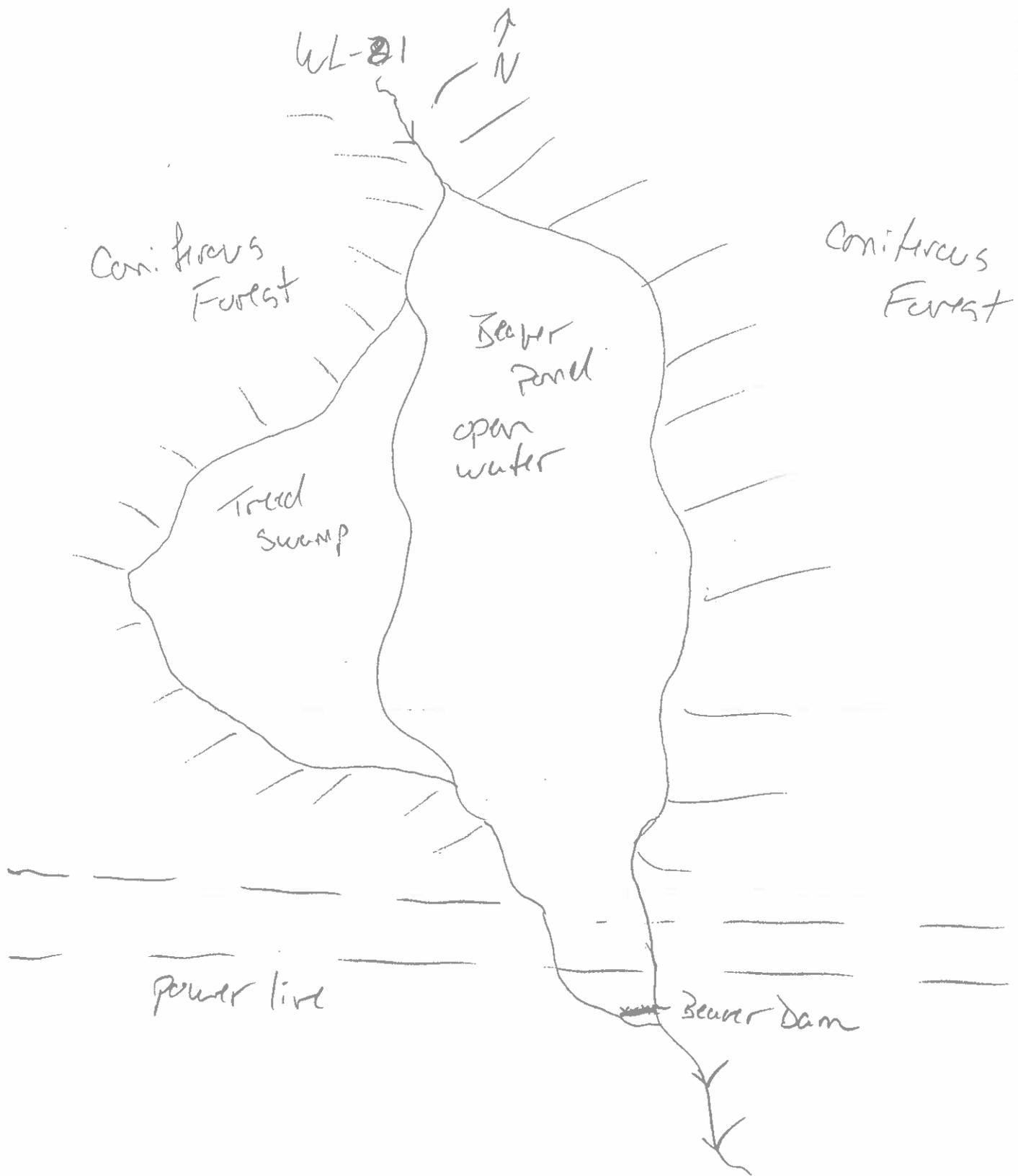
Potential Threats:

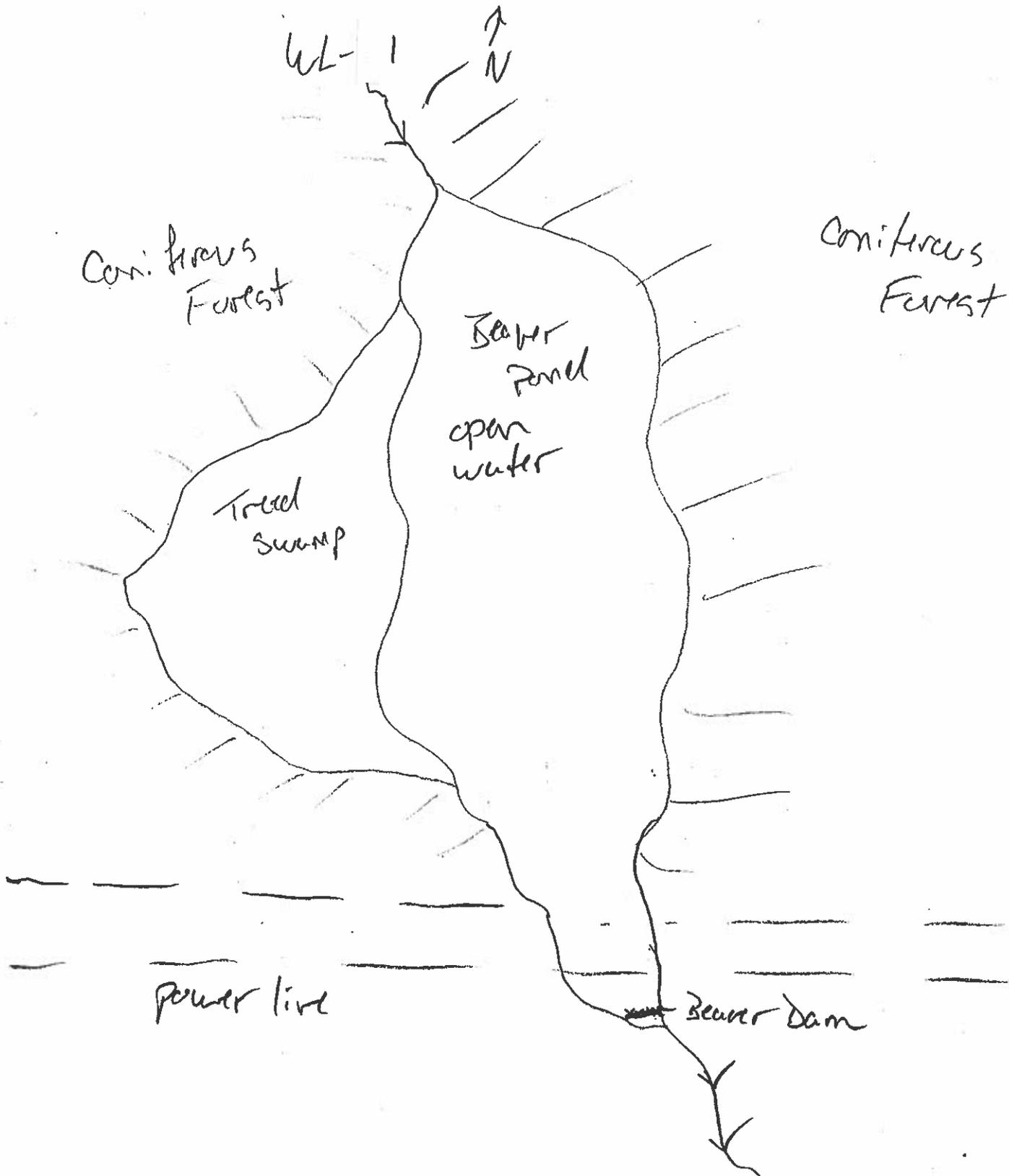
Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: *Potential*

Notes:





Freshwater Wetland Data Sheet WL 17

Date: Sept. 8/10
 Investigator(s): S. Buckley
 Weather: Sun/Cloud
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number: _____
 GIS Map / Stand No.: C4530611 121,123
 Wetland Form¹: Bog/Shrub Fen
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|-----------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <u>X</u> | 5. Shrub wetland (SB) <u>X</u> |
| 3. Fen (FE) <u>X</u> | 6. Forested wetland (FW) <u>X</u> |

Wetland Class:

- | | |
|-----------------------------------|--------------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp <u>X</u> |
| 3. Shallow marsh _____ | 7. Wooded swamp <u>X</u> |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp <u>X</u> |
| 10. Floating leaved DM _____ | 28. Bushy SS <u>X</u> |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp <u>X</u> |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B <u>X</u> |
| 17. Narrow leaved SM _____ | 35. Open B <u>X</u> |
| 18. Broad leaved SM _____ | <u>Treed Fen</u> <u>X</u> |
| | <u>Shrub Fen</u> <u>X</u> |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|---------------------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm <u>X</u> → channel |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 290
- 2. Coniferous trees 3090 - Larch, B. Spruce
- 3. Dead trees 290
- 4. Tall shrubs 2070 - Nemo, wild Raisin
- 5. Low shrubs 3590 - Lydian, leather leaf, Kalina
- 6. Dead shrubs - 2090 - Curtt, Calamagrostis, False Salomon Seal
- 7. Herbs
- 8. Mosses 10090 - S Phag
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal _____ 2. Low 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Stream through Area through Fen / Bog

Wildlife: (Observation/Signs/Reports)

Wet hatch
Dragonflies

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 60%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 40% - burrow

Description: mixed woods

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial 5%
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: Power line along South side of bog.

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks
- 6. Other _____

Description: ATV track through bog

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

WL-17 ↑
↓

Property
cutline

open Bog

Burrow

Tweed
Fen

coniferous
Forest

Shrub Fen

open Bog

Coniferous
Forest

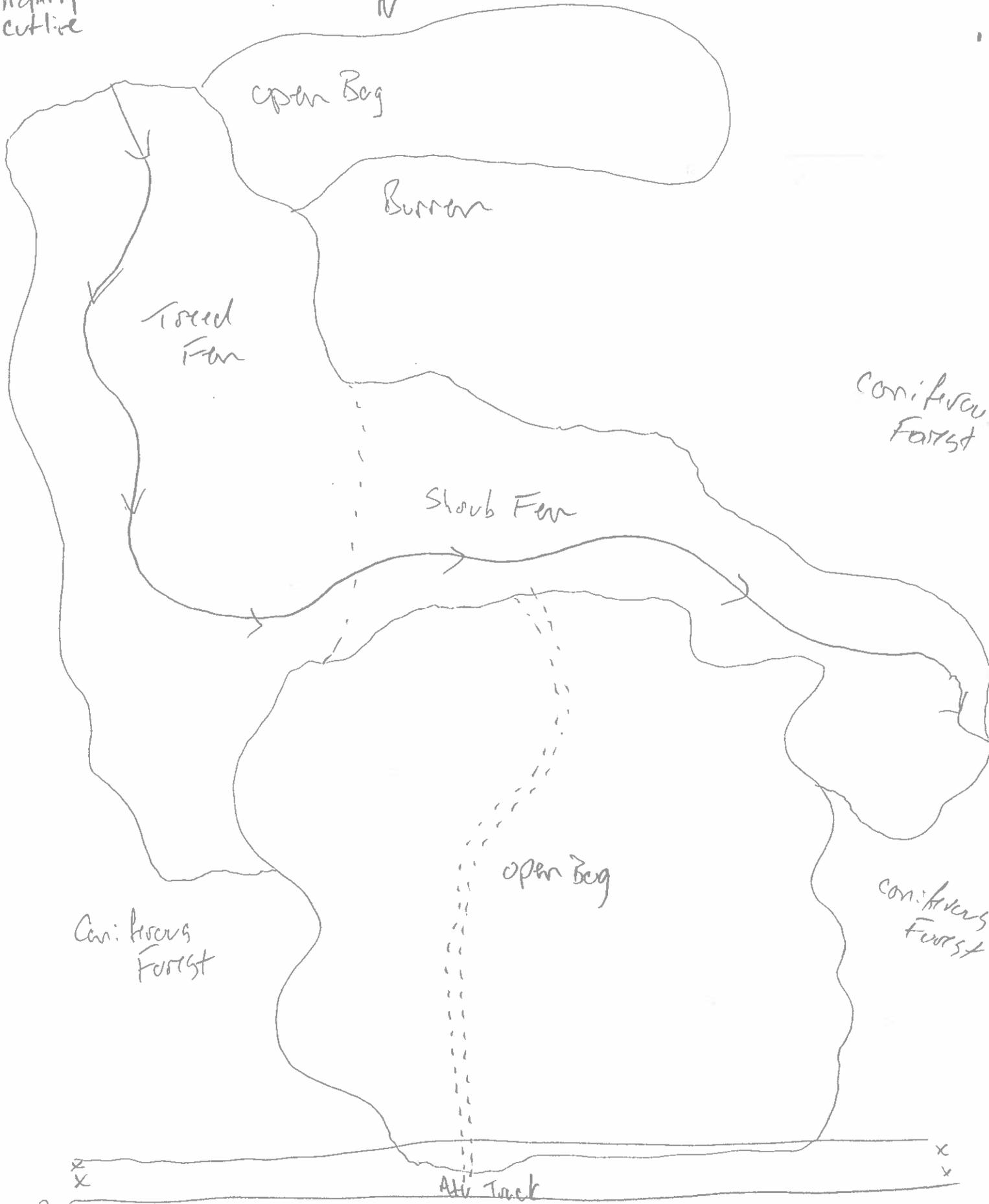
coniferous
Forest

x
x

x
x

Atv Track

Power line



Freshwater Wetland Data Sheet WL18

Date: Sept. 8/10
 Investigator(s): S. Burdett
 Weather: clear, dry
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹:: Deciduous Bog
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|--------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <u>X</u> | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog <u>X</u> |
| 16. Robust SM _____ | 34. Shrubby B <u>X</u> |
| 17. Narrow leaved SM _____ | 35. Open B <u>X</u> |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine

- 4. Isolated
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees -
- 2. Coniferous trees 20% Larch, B. Spruce
- 3. Dead trees -
- 4. Tall shrubs 15% Nmo, wild rose
- 5. Low shrubs 40% - Huckleberry, Kalmia, Ledum, Juniper
- 6. Dead shrubs -
- 7. Herbs 20% - Scirpus cespitosus, Boneberry
- 8. Mosses 10%
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other

Interspersion: 1. Minimal 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression → new revised bog
- 2. Ground water depression _____
- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

more detailed notes

Wildlife: (Observation/Signs/Reports)

Osprey

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 50%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other Sage Barren

Description: mixed woods

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: road

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: road

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Public Sign 1

Notes:

WL-18 ↑
N

Coniferous Forest

270m

Treed/Shrub Bog

Shrub Bog

island

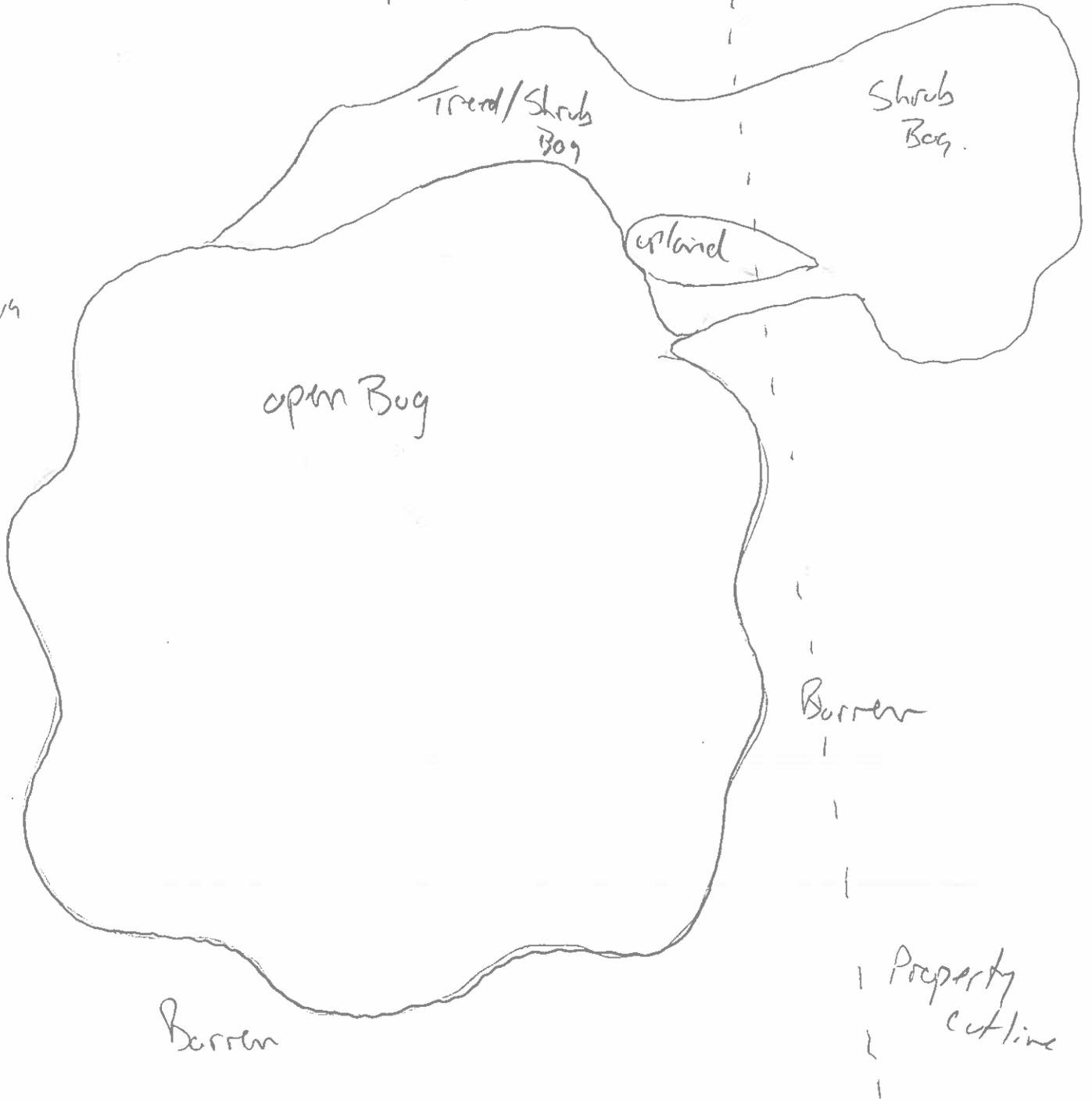
Coniferous Forest
↑

open Bog

Barren

Barren

Property outline



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey County Sampling Date: Aug. 19/14
 Applicant/Owner: Vigora Sampling Point: WL17 - wpl
 Investigator(s): S. Burtin Affiliation: AMEC
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Hummocky
 Slope (%): 5% Lat: 64°53'09" Long: 50°04'32" Datum: WGS 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Bog
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>WL17</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Larix laricina</u>	<u>7</u>		<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>Picea canadensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>7</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Asplenium platyneuron</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Viburnum acerifolium</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species <u>45</u> x 1 = <u>45</u>
3. <u>Rhododendron canadense</u>	<u>5</u>		<u>FAC</u>	FACW species <u>25</u> x 2 = <u>50</u>
4. <u>Picea canadensis</u>	<u>10</u>		<u>FACW</u>	FAC species <u>11</u> x 3 = <u>33</u>
5. <u>Urtica dioica</u>	<u>2</u>		<u>FAC</u>	FACU species _____ x 4 = _____
<u>62</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>181</u> (A) <u>428</u> (B)
				Prevalence Index = B/A = <u>2.4</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation indicators:
1. <u>Juncus communis</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Chamaecrista corymbosa</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Scirpus purpureus</u>	<u>15</u>		<u>OBL</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Vaccinium angustifolium</u>	<u>5</u>		<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Lidum spicata</u>	<u>12</u>		<u>FACW</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. <u>Carex canadensis</u>	<u>2</u>		<u>FAC</u>	
<u>112</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: 4217-4/P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20								
20-35	10YR 3/2	100					Loamy Sand	

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input checked="" type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
	<input type="checkbox"/> Coast Prairie Redox (A16)
	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
	<input type="checkbox"/> Iron-Manganese Masses (F12)
	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
	<input type="checkbox"/> Red Parent Material (TF2)
	<input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 3cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug. 19/14
 Applicant/Owner: Kulem Sampling Point: W17-UP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): Non-mucky
 Slope (%): 25 Lat: 045 30 3 Long: 502 23 9 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>Acer rubrum</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>Picea canadensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
3. <u>Larix laricina</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
4. <u>Abies balsamea</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
<u>17</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>2</u></td> <td>x 1 = <u>2</u></td> </tr> <tr> <td>FACW species <u>24</u></td> <td>x 2 = <u>48</u></td> </tr> <tr> <td>FAC species <u>43</u></td> <td>x 3 = <u>129</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>5374</u> (A)</td> <td><u>199</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.7</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>2</u>	x 1 = <u>2</u>	FACW species <u>24</u>	x 2 = <u>48</u>	FAC species <u>43</u>	x 3 = <u>129</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species _____	x 5 = _____	Column Totals: <u>5374</u> (A)	<u>199</u> (B)	Prevalence Index = B/A = <u>2.7</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>2</u>	x 1 = <u>2</u>																			
FACW species <u>24</u>	x 2 = <u>48</u>																			
FAC species <u>43</u>	x 3 = <u>129</u>																			
FACU species <u>5</u>	x 4 = <u>20</u>																			
UPL species _____	x 5 = _____																			
Column Totals: <u>5374</u> (A)	<u>199</u> (B)																			
Prevalence Index = B/A = <u>2.7</u>																				
Sapling/Shrub Stratum (Plot size: <u>5 m</u>)																				
1. <u>Viburnum bicolor</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>Amorpha canescens</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Gaylussacia buccata</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
4. <u>Picea canadensis</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>																	
5. <u>Larix laricina</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
<u>26</u> = Total Cover																				
Herb Stratum (Plot size: <u>1 m</u>)																				
1. <u>Kalmia angustifolia</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Salix glauca</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
3. <u>Cornus canadensis</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>																	
4. <u>Vaccinium angustifolium</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
5. <u>Celastrus scandens</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>																	
6. <u>Chamaelirium luteum</u>	<u>2</u>	<input type="checkbox"/>	<u>OBL</u>																	
7. <u>Brachyotum</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>																	
<u>46</u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. _____	_____	_____	_____																	
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: W17-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	Black						Organic matter 1.5% clay	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Redox
 Depth (inches): 14 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: W#2

Date: Aug 31/10
 Investigator(s): Scott Burley / M. Searson
 Weather: Sunny
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number: 45
 GIS Map / Stand No.: C4535611
 Wetland Form¹: Emergent Marsh / Shrub Bog
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|-----------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) <u>X</u> |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) <u>X</u> |
| 3. Fen (FE) <u>X</u> | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh <u>X</u> | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW <u>X</u> | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW <u>X</u> | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM <u>X</u> | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | 36. Fen <u>X</u> |

Water Regime Indicator:

- | | |
|--|-----------------------------|
| 1. Permanently flooded <u>X</u> - <u>marsh</u> | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> - <u>Fen</u> | |

Water Depth:

- | | |
|---------------------------------|---|
| 1. 0-5 cm <u>X</u> - <u>Fen</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm <u>X</u> - <u>pond - marsh</u> |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

1. Beaver Pond _____
 2. Man-made Impoundment _____
 3. Ducks Unlimited Impoundment _____
 4. None of the above X

Percent Vegetation Cover:

1. > 95% _____
 2. 76-95% in peripheral band X
 3. 76-96% in patches _____
 4. 26-75% in peripheral band _____
 5. 26-75% in patches _____
 6. 5-25% in peripheral band _____
 7. 5-25% in patches _____
 8. < 5% _____

Wetland Site:

1. Lacustrine _____
 2. Riverine X
 3. Palustrine _____
 4. Isolated _____
 5. Deltaic _____

Vegetation Types (%):

1. Deciduous trees 2% Alder rubrum
 2. Coniferous trees 100% White Spruce, Picea mariana
 3. Dead trees 5%
 4. Tall shrubs _____
 5. Low shrubs 15% Myrica gale, Chamaedaphne Calyculata,
 6. Dead shrubs _____
 7. Herbs _____
 8. Mosses 30%
 9. Narrow-leaved emergents 40% Eriophorum, Carex, Scirpus
 10. Broad-leaved emergents _____
 11. Robust emergents 50% Typha
 12. Free-floating plants _____
 13. Floating plants (rooted) 2% Water Lily
 14. Submerged plants _____
 15. Other _____

Interspersion: 1. Minimal _____ 2. Low X 3. Medium _____ 4. High _____

Conductivity: N/A pH: N/A
Alkalinity: N/A

Hydrological Classification:

1. Surface water depression X
 2. Ground water depression X
 3. Surface water slope _____
 4. Ground water slope _____

Inlets/Outlets/water bodies:

Pond & Beach which wetland flows into. Surface drainage channels inlet wetland @ South side.

Wildlife: (Observation/Signs/Reports)

- Dragon Fly
Pigeons
Bull Frog
Wood Frog

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 90%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach 20%
- 6. River _____
- 7. Other _____

Description:

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: None

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks X
- 6. Other _____

Description: ATV Track along beach next to wetland

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

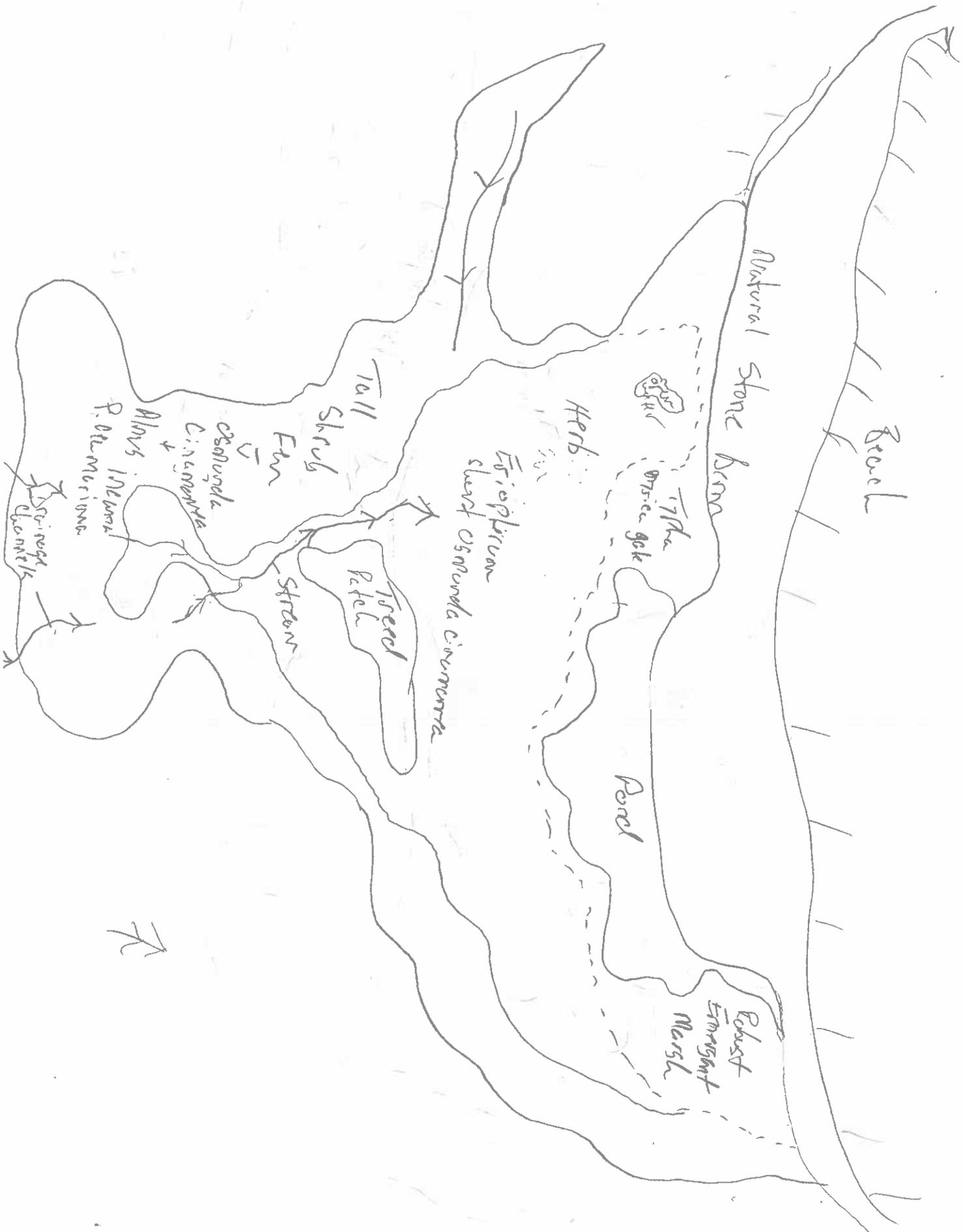
- 4. Nesting site for colonial water birds X
- 5. Migration stop-over site X
- 6. None evident _____

Description: Potential

Notes:

W12

N



N

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug. 20/14
 Applicant/Owner: Vulcan Sampling Point: W2-WP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): irregular
 Slope (%): 1% Lat: 64° 53' 78" Long: 502 42 18 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Shrub Swamp

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>W2</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>100m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Abies balsamea</u>	<u>30%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>30</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>50m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Alnus incana</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Salix caprea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species <u>15</u> x 1 = <u>15</u>
3. <u>Picea canadensis</u>	<u>2%</u>	_____	<u>FAC</u>	FACW species <u>-</u> x 2 = _____
4. _____	_____	_____	_____	FAC species <u>69</u> x 3 = <u>207</u>
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
<u>37</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>84</u> (A) <u>222</u> (B)
				Prevalence Index = B/A = <u>2.6</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Carex brispae</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Gratiola hispida</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Alisma heterophyllum</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Carex canadensis</u>	<u>2</u>	_____	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>22</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: 142-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40"							organic	Plant

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 151m
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 20/14
 Applicant/Owner: Volcan Sampling Point: 4LD-UP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Hummocky
 Slope (%): 0% Lat: 64° 37' 33" Long: 52° 41' 14" Datum: NAD 83
 Soil Map Unit Name/Type: Cockland Wetland Type: Upland

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Abies balsamea</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)
2. <u>Betula papyrifera</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>7</u> (B)
3. <u>Picea canadensis</u>	<u>2%</u>	<input type="checkbox"/>	<u>FACW!</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>2</u> x 2 = <u>4</u> FAC species <u>1/2</u> x 3 = <u>3/2</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species _____ x 5 = _____ Column Totals: <u>126</u> (A) <u>38.2</u> (B) Prevalence Index = B/A = <u>3.0</u>
5. _____	_____	_____	_____	
<u>32</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Abies balsamea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Colaptes auratus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Sporobolus diander</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Carex complanata</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Aralia nudicaulis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Urtica dioica</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
4. <u>Carex diandra</u>	<u>2</u>	<input type="checkbox"/>	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>44</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

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

SOIL

Sampling Point: W2-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10							Organic	Depth
10-17	2.5	7R	5/1	100%			Silt loam	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____
 Water Table Present? Yes _____ No _____ Depth (inches): _____
 Saturation Present? Yes _____ No _____ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Freshwater Wetland Data Sheet: 6L#3

Date: Aug 31/10
 Investigator(s): Scott Burley/
 Weather: _____
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹::: Fen
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|--------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) <input checked="" type="checkbox"/> | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog _____ |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | |

9. Fen

36. Fen

Water Regime Indicator:

- | | |
|--|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <input checked="" type="checkbox"/> | |

Water Depth:

- | | |
|---|--------------------|
| 1. 0-5 cm <input checked="" type="checkbox"/> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 5% - Acer rubrum
- 2. Coniferous trees 10% - Picea mariana
- 3. Dead trees - _____
- 4. Tall shrubs - 2% Alnus, Ilex
- 5. Low shrubs - 5% Aronia
- 6. Dead shrubs - _____
- 7. Herbs 10%
- 8. Mosses _____
- 9. Narrow-leaved emergents 70% - Eriophorum, Chytrichospora abo, Carex
- 10. Broad-leaved emergents - _____
- 11. Robust emergents - 2% Juncus
- 12. Free-floating plants - _____
- 13. Floating plants (rooted) - _____
- 14. Submerged plants - _____
- 15. Other - 15% - Camarda cineraria

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A
Alkalinity: N/A

pH: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Lotic Through Flow

Wildlife: (Observation/Signs/Reports)

Bull Frog

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 100%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other _____

Description:

Surrounding Land Use %:

- 1 Agriculture _____
- 2. Forestry _____
- 3 Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: none

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other ~~_____~~

Description: none

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

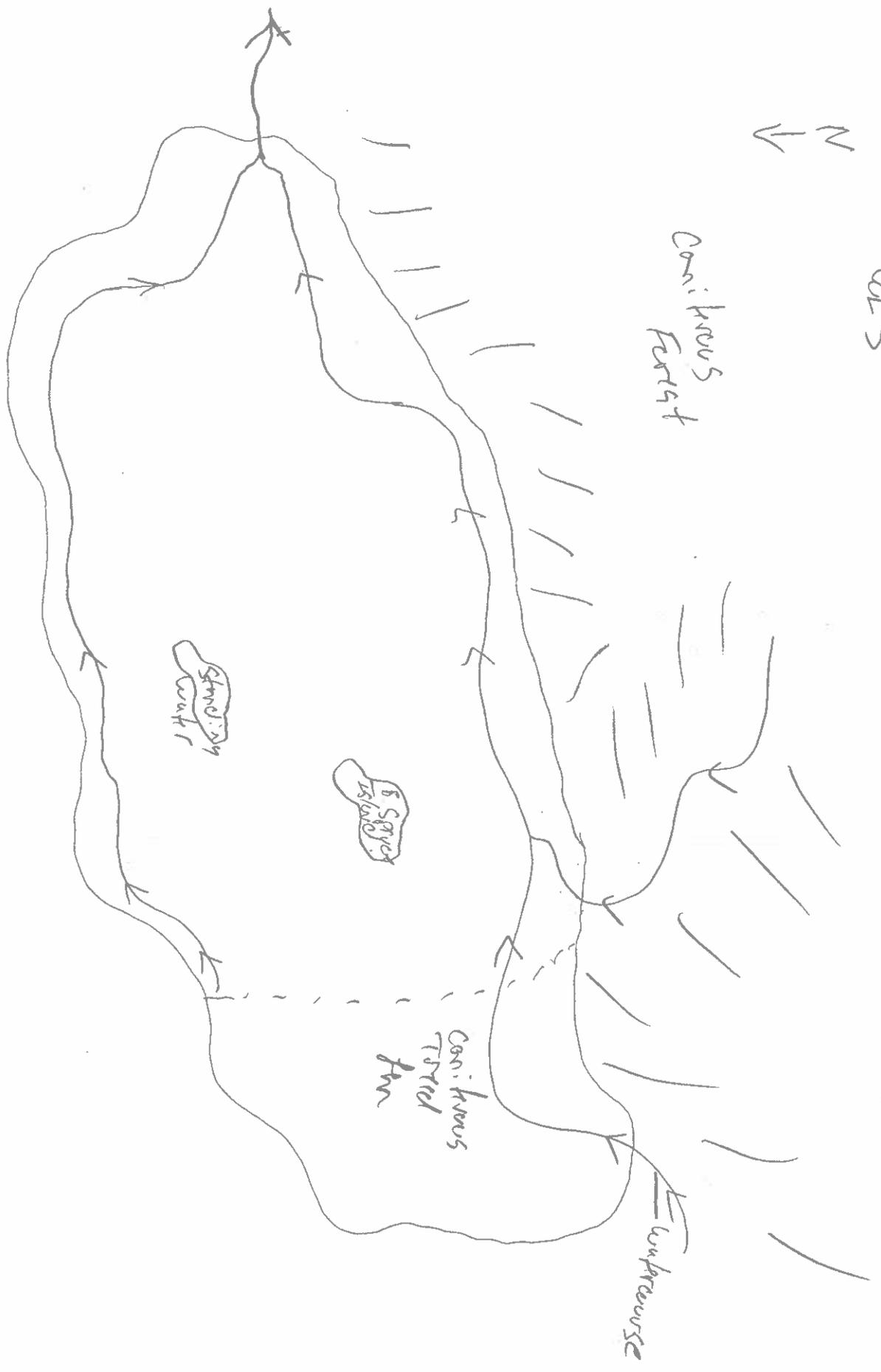
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

W13

N
↓



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey-Sherbrooke Sampling Date: July/2011
 Applicant/Owner: ULCOR Sampling Point: Wk3-WP1
 Investigator(s): ~~Scotty~~ The Pepone Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave
 Slope (%): 2 Lat: 645147 Long: 5024038 Datum: NAD83
 Soil Map Unit Name/Type: Rockland Wetland Type: Fen
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>Wk3</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>50</u> (A) <u>110</u> (B) Prevalence Index = B/A = <u>2.2</u>
5. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u>Picea mariana</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Larix laricina</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>40</u> = Total Cover				
Herb Stratum (Plot size: <u>1</u>)				
1. <u>Arctostaphylos uva-ursi</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Rhynchospora alba</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>10</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: WL3-WP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10" <i>C</i>							<i>silty sand</i>	<i>Parent</i>

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

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

Restrictive Layer (if observed):	Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:

HYDROLOGY

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

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>15</u>	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	

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

Remarks:

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 20/14
 Applicant/Owner: Volcan Sampling Point: WJ-101
 Investigator(s): S. Bentley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Horizontal
 Slope (%): 25 Lat: 6451416 Long: 502 4032 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: upland upland forest
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)
2. <u>Asimina triloba</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>35</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Asimina triloba</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Frax v. verticillata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	OBL species _____ x 1 = _____
3. _____				FACW species <u>20</u> x 2 = <u>40</u>
4. _____				FAC species <u>85</u> x 3 = <u>255</u>
5. _____				FACU species _____ x 4 = _____
<u>50</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>105</u> (A) <u>295</u> (B)
				Prevalence Index = B/A = <u>2.8</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Desmodium illinoense</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Trientalis borealis</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Urtica dioica</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>20</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: WL3-UP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15							Organic Soil	
15-22	5Y 4/1	100					Scud Soil	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 22cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: WL4

Date: Aug 31/10
Investigator(s): Scott Burley/
Weather: Sunny
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹:: Basin Recy
Wetland size: _____ ha
Associated Watercourse: WA

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) X
- 3. Fen (FE) _____
- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW) X

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____
- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog X

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____
- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS _____
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog X
- 34. Shrubby B X
- 35. Open B _____

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated X
- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm X
- 2. 5-20 cm _____
- 3. 20-50 cm _____
- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Salt marsh _____
- 2. Forest 100%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: Coniferous Forest

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: None

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: None

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

wLH

Subterranean
drainage



Tall
shrub
dominated

Coniferous
Forest



Tweed
Bag



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 20/14
 Applicant/Owner: Wickham Sampling Point: W14-UB1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Hummocky
 Slope (%): 2% Lat: 45 10 4 Long: 52 4 19 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Treed Bog
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>W14</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Vicetia americana</u>	<u>45%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>65</u> x 1 = <u>65</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>52</u> x 3 = <u>156</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>122</u> (A) <u>231</u> (B) Prevalence Index = B/A = <u>231.9</u>
5. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Ulmus americana</u>	<u>5</u>	_____	<u>FAC</u>	
2. <u>Vicetia americana</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Lonicera canadensis</u>	<u>5</u>	_____	<u>FACW</u>	
4. <u>Kalmia latifolia</u>	<u>2</u>	_____	<u>FAC</u>	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Carex trisperma</u>	<u>40%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Molinis caerulea</u>	<u>25%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

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

SOIL

Sampling Point: W4-wp1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40 ⁺							organic	Peat

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: **Secondary Indicators (minimum of two required)**

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 2.5m

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 5cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM - NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey-Sherbrooke Sampling Date: July 2011
 Applicant/Owner: ULCOM Sampling Point: WL4-UP1
 Investigator(s): S. D. [unclear] Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): Hummocky
 Slope (%): 5 Lat: 645041 Long: 5024173 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: upland

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>Picea mariana</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>30</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>45</u></td> <td>x 2 = <u>90</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>75</u> (A)</td> <td><u>170</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.3</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>45</u>	x 2 = <u>90</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u>75</u> (A)	<u>170</u> (B)	Prevalence Index = B/A = <u>2.3</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5</u>	x 1 = <u>5</u>																			
FACW species <u>45</u>	x 2 = <u>90</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: <u>75</u> (A)	<u>170</u> (B)																			
Prevalence Index = B/A = <u>2.3</u>																				
Sapling/Shrub Stratum (Plot size: <u>5</u>)																				
1. <u>Picea mariana</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
2. <u>Abies balsamea</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Nemophila maculata</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>30</u> = Total Cover																				
Herb Stratum (Plot size: <u>1</u>)																				
1. <u>Carex trisperma</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>																	
2. <u>Galium angustifolium</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
<u>15</u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____ = Total Cover																				

Hydrophytic Vegetation Indicators:
 ___ Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

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

SOIL

Sampling Point: W4-1P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15cm							Clayey?	Duff
15-24	2.5 YR 7/1	100%					Silt	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
 Depth (inches): 24cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: W25

Date: Sept. 1/10
Investigator(s): Scott Burley/
Weather: Sunny
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹:: Lotic Fen
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) _____
- 3. Fen (FE) X
- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW) _____

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____
- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog _____
Fen X

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____
- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS _____
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog _____
- 34. Shrubby B _____
- 35. Open B _____
Folk X

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated X
- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm X
- 2. 2.5-20 cm X → in channels
- 3. 20-50 cm _____
- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 2% - Acer rubrum
- 2. Coniferous trees 10% - Picea mariana
- 3. Dead trees 2%
- 4. Tall shrubs 5% - Alnus incana, Ilex glabra, Quercus
- 5. Low shrubs 20% - Ilex glabra, Aronia
- 6. Dead shrubs -
- 7. Herbs - 20% - Ros Aster, Cirsium, Vicia, Vaccinium mesocarpum
- 8. Mosses 55% - Sphagnum
- 9. Narrow-leaved emergents - 35% - Fragaria
- 10. Broad-leaved emergents -
- 11. Robust emergents - 10% - Iris
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal _____ 2. Low X 3. Medium _____ 4. High _____

Conductivity: N/A
Alkalinity: N/A

pH: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____
- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Stream Through flow from East -> West

Wildlife: (Observation/Signs/Reports)

Passerines
Brown Snake
wood Frog

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 90%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach 5%
- 6. River _____
- 7. Other 5% - *Barren Headland*

Description:

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: *none*

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: *none*

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

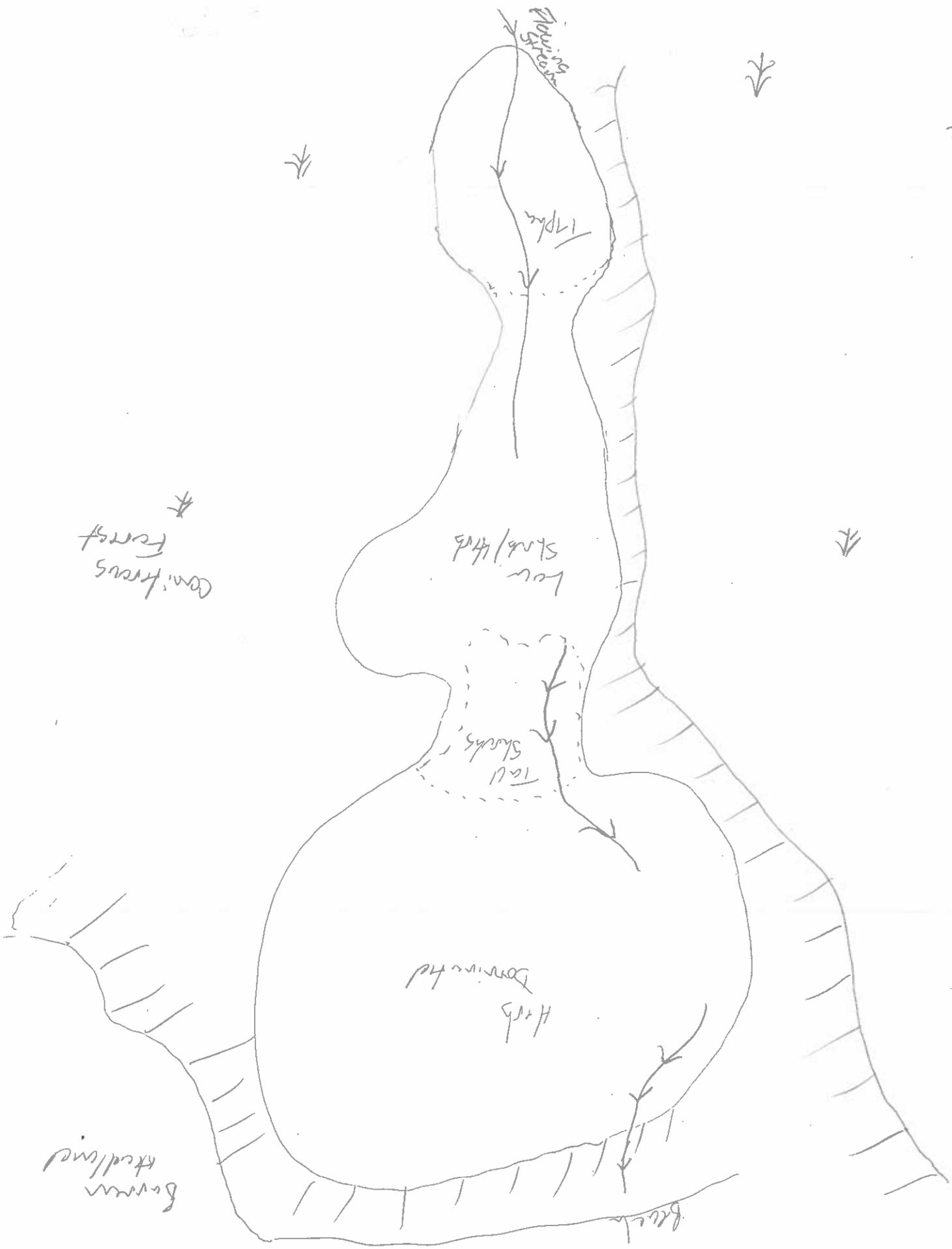
Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: *Potential*

Notes:



↖ ↗

WLS

Com' Forest

Barn

WLS

WETLAND DETERMINATION DATA FORM - NOVA SCOTIA

Project/Site: GPA Municipality/County: Guysborough Sampling Date: Sept 1/10
 Applicant/Owner: Enterprise Waleen Sampling Point: WLS-001
 Investigator(s): S. Purkey Section, Township, Range: Black Point
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
 Slope (%): 15.90 Lat: 644453 Long: 5024118 Datum: NAD 83
 Soil Map Unit Name: Rockland Wetland Type: Herb For

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

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>290</u>		<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>2</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Acer rubrum</u>	<u>290</u>		<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>25</u> x 1 = <u>25</u>
3. _____				FACW species <u>25</u> x 2 = <u>50</u>
4. _____				FAC species <u>4</u> x 3 = <u>12</u>
5. _____				FACU species <u>5</u> x 4 = <u>20</u>
				UPL species _____ x 5 = _____
<u>2</u> = Total Cover				Column Totals: <u>59</u> (A) <u>132</u> (B)
<u>2</u> = Total Cover				Prevalence Index = B/A = <u>2.2</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Vaccinium canadense</u>	<u>1590</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	___ Rapid Test for Hydrophytic Vegetation
2. <u>Fraxinus virginiana</u>	<u>1090</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Rubus odoratus</u>	<u>2090</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Toxaria versicolor</u>	<u>590</u>		<u>FACW</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Rubus - Black Berry</u>	<u>590</u>		<u>FACU</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>55</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				

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

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2009)

SOIL

Sampling Point: GL5-WP1

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

Depth ^{cm} (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>40-0</u>							<u>Histosol</u>	<u>Peat</u>

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

- | | |
|--|---|
| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils³: |
| <input checked="" type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Red Parent Material (TF2) |
| | <input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: _____
 Depth (cm): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (cm): 3cm
 Water Table Present? Yes No Depth (cm): 5cm
 Saturation Present? Yes No Depth (cm): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – NOVA SCOTIA

Project/Site: G. Rd Municipality/County: Guyshereugh Sampling Date: Sept. 1/10
 Applicant/Owner: Esplanade Village Sampling Point: 645-401
 Investigator(s): S. Burley Section, Township, Range: Blacks Point
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): CONVEX
 Slope (%): 25.90 644453 bearing: N 5024120 Datum: NAD 83
 Soil Map Unit Name: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>20.90</u>	<u>FACU</u>	<input checked="" type="checkbox"/>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.90</u> (A/B)
2. <u>Abies balsamea</u>	<u>5.90</u>	<u>FAC</u>	<input checked="" type="checkbox"/>	
3. _____				
4. _____				
5. _____				
<u>25</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>57</u> x 3 = <u>171</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species _____ x 5 = _____ Column Totals: <u>92</u> (A) <u>281</u> (B) Prevalence Index = B/A = <u>3.1</u>
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Alnus incana</u>	<u>15.90</u>	<u>FACW</u>	<input checked="" type="checkbox"/>	
2. _____				
3. _____				
<u>15</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Cordus canadensis</u>	<u>25.90</u>	<u>FAC</u>	<input checked="" type="checkbox"/>	
2. <u>Syrphium lacustris</u>	<u>20.90</u>	<u>FAC</u>	<input checked="" type="checkbox"/>	
3. <u>Solidago rugosa</u>	<u>5.90</u>	<u>FAC</u>		
4. <u>Rubus sp</u>	<u>5.90</u>			
5. <u>Rosa sp</u>	<u>5.90</u>			
6. <u>Deschampsia flexuosa</u>	<u>10.90</u>	<u>NI</u>		
7. <u>Mentha arvensis</u>	<u>2.90</u>	<u>FAC</u>		
8. _____				
9. _____				
10. _____				
<u>72.90</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

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

SOIL

Sampling Point: W25-UP1

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

Depth <u>cm</u> (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>2-0</u>								<u>DC 14</u>
<u>0-35</u>	<u>7.5YR 4/4</u>	<u>100</u>					<u>Sandy loam</u>	<u>well drained</u>

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

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Depleted Dark Surface (F7)
- Sandy Redox (S5)

- Stripped Matrix (S6)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Redox Depressions (F8)
- Red Parent Material (TF2)

Indicators for Problematic Hydric Soils³:

- Sandy Gleyed Matrix (S4)
- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (cm): _____
 Water Table Present? Yes _____ No _____ Depth (cm): _____
 Saturation Present? Yes _____ No _____ Depth (cm): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Freshwater Wetland Data Sheet: WLB

Date: Spt. 1/10
Investigator(s): Scott Burley
Weather: Sun
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹:: Basin Bog
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

1. Aquatic bed/unconsolidated bottom (AB) _____
2. Bog (BO) X
3. Fen (FE) _____
4. Emergent wetland (EW) _____
5. Shrub wetland (SB) _____
6. Forested wetland (FW) X

Wetland Class:

1. Open water _____
2. Deep marsh _____
3. Shallow marsh _____
4. Seasonally flooded flats _____
5. Meadow _____
6. Shrub swamp _____
7. Wooded swamp _____
8. Bog X

Wetland Subclass:

1. Vegetated open water _____
2. Non-vegetated OW _____
3. Floating leaved OW _____
4. Rooted floating leaved OW _____
5. Dead woody OW _____
6. Vegetated deep marsh _____
7. Non-vegetated DM _____
8. Dead woody DM _____
9. Sub-shrub DM _____
10. Floating leaved DM _____
11. Rooted floating leaved DM _____
12. Robust DM _____
13. Narrow-leaved DM _____
14. Broad-leaved DM _____
15. Dead woody shallow marsh _____
16. Robust SM _____
17. Narrow leaved SM _____
18. Broad leaved SM _____
19. Floating leaved SM _____
20. Rooted floating leaved SM _____
21. Non-vegetated SM _____
22. Emergent seasonally flooded flats _____
23. Shrubby SFF _____
24. Grazed meadow _____
25. Ungrazed M _____
26. Sedge M _____
27. Sapling shrub swamp _____
28. Bushy SS _____
29. Compact SS _____
30. Low sparse SS _____
31. Deciduous wooded swamp _____
32. Evergreen WS _____
33. Wooded bog _____
34. Shrubby B X
35. Open B X

Water Regime Indicator:

1. Permanently flooded _____
2. Saturated X
3. Seasonally flooded _____

Water Depth:

1. 0-5 cm X
2. 5-20 cm _____
3. 20-50 cm _____
4. 50-100 cm _____
5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 5% - Red maple, Birch
- 2. Coniferous trees 40% - Blue Spruce
- 3. Dead trees 10%
- 4. Tall shrubs 10% - Bayberry, Noddyberry
- 5. Low shrubs 5% - Waxhaw, Liriodendron
- 6. Dead shrubs _____
- 7. Herbs 25%
- 8. Mosses 10%
- 9. Narrow-leaved emergents 10% - Cattail, Vase, Lotus
- 10. Broad-leaved emergents _____
- 11. Robust emergents 2% - Iris
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other _____

Interspersion: 1. Minimal _____ 2. Low X 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression X

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Traverse cut flow Bay @ East Wetland

Wildlife: (Observation/Signs/Reports)

Passerine
Frog

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 100
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description:

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: None

Disturbance: 1. Low _____ 2. Moderate _____ 3. High _____

Description: None

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: Property cut line @ East side

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident _____

Potential Threats:

Special Features:

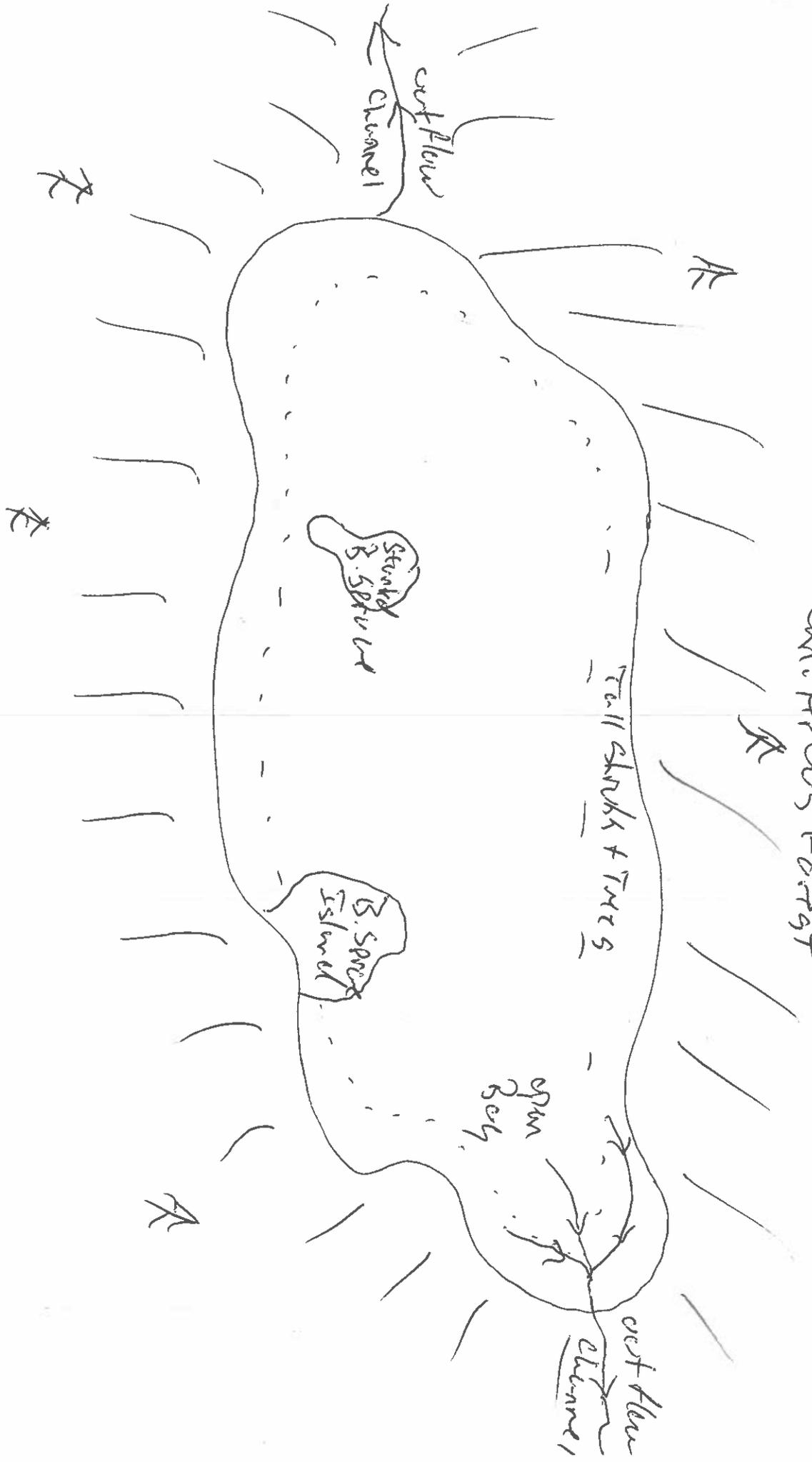
- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

WLG W

Can: Herons Forest



WETLAND DETERMINATION DATA FORM - NOVA SCOTIA

Project/Site: GPR Municipality/County: Guysborough Sampling Date: Sept. 1/10
 Applicant/Owner: F. Adams Wilson Sampling Point: W66 - WPI
 Investigator(s): S. Purley Section, Township, Range: Blacks Point
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave
 Slope (%): 290 Lat: 644740 Long: 5024111 Datum: NAD 83
 Soil Map Unit Name: Rockland Wetland Type: Bog
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Remarks: (Explain alternative procedures here or in a separate report.)	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u> W66 </u>
--	---

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u> 12m </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u> Acer rubrum </u>	<u> 290 </u>		<u> FAC </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u> 6 </u> (A) Total Number of Dominant Species Across All Strata: <u> 7 </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 86 </u> (A/B)
2. <u> Abies balsamea </u>	<u> 590 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
3. <u> Picea mariana </u>	<u> 590 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
4. _____				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> 37 </u> x 1 = <u> 37 </u> FACW species <u> 11 </u> x 2 = <u> 22 </u> FAC species <u> 23 </u> x 3 = <u> 69 </u> FACU species <u> 10 </u> x 4 = <u> 40 </u> UPL species _____ x 5 = _____ Column Totals: <u> 81 </u> (A) <u> 168 </u> (B) Prevalence Index = B/A = <u> 2.1 </u>
5. _____				
Sapling/Shrub Stratum (Plot size: <u> 5m </u>) <u> 12 </u> = Total Cover				
1. <u> Acer rubrum </u>	<u> 100 </u>		<u> FAC </u>	
2. <u> Picea mariana </u>	<u> 590 </u>	<input checked="" type="checkbox"/>	<u> FACW </u>	
3. <u> Alnus incana </u>	<u> 290 </u>		<u> FACW </u>	
4. <u> Myrica pensylvanica </u>	<u> 1090 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
5. <u> Gaylussacia baccata </u>	<u> 590 </u>	<input checked="" type="checkbox"/>	<u> FACU </u>	
Herb Stratum (Plot size: <u> 1m </u>) <u> 23 </u> = Total Cover				
1. <u> Dianthus barbatus </u>	<u> 2090 </u>	<input checked="" type="checkbox"/>	<u> OBL </u>	
2. <u> Erigeron virginicus </u>	<u> 1090 </u>	<input checked="" type="checkbox"/>	<u> OBL </u>	
3. <u> Urtica dioica </u>	<u> 590 </u>		<u> FACU </u>	
4. <u> Lactuca scariola </u>	<u> 590 </u>		<u> OBL </u>	
5. <u> Aster nemorosus </u>	<u> 290 </u>		<u> FACW </u>	
6. <u> Phytolacca hirsuta </u>	<u> 290 </u>		<u> FACW </u>	
7. <u> Rhus typhina </u>	<u> 290 </u>		<u> OBL </u>	
8. _____				
9. _____				
10. _____				
Woody Vine Stratum (Plot size: _____) <u> 46 </u> = Total Cover				
1. _____				
2. _____				
_____ = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: w66-WP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
7-40-0							organic peat	

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

Hydric Soil Indicators:

- Histic Epipedon (A2)
- Histic Gypsedon (A1)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Depleted Dark Surface (F7)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Redox Depressions (F8)
- Red Parent Material (TF2)

Indicators for Problematic Hydric Soils³:

- Sandy Gleyed Matrix (S4)
- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): cm
 Water Table Present? Yes No Depth (inches): 20cm
 Saturation Present? Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM - NOVA SCOTIA

Project/Site: GRPA Municipality/County: Guysborough Sampling Date: Sept. 1/10
 Applicant/Owner: Erroland Volcan Sampling Point: WILK-UPI
 Investigator(s): S. Purley Section, Township, Range: Blacks Point
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): 590 Lat: 6446716 Long: 5024127 Datum: NAD 83 UTM
 Soil Map Unit Name: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Platanus balsamifera</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>5m</u>) <u>15</u> = Total Cover				Prevalence Index worksheet:
1. <u>Alnus incana</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u>
2. <u>Rosa pratincola</u>	<u>5%</u>	_____	<u>FACW</u>	FACW species <u>7</u> x 2 = <u>14</u>
3. <u>Betula pendula</u>	<u>2%</u>	_____	<u>FAC</u>	FAC species <u>54</u> x 3 = <u>162</u>
4. _____	_____	_____	_____	FACW species <u>5</u> x 4 = <u>20</u>
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>1m</u>) <u>22</u> = Total Cover				Column Totals: <u>66</u> (A) <u>196</u> (B)
1. <u>Desmodium illinoense</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Prevalence Index = B/A = <u>2.97</u>
2. <u>Veronica vidua</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Limonium carolinianum</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Hydrophytic Vegetation Indicators:
4. <u>Mitchella repens</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	___ Rapid Test for Hydrophytic Vegetation
5. <u>Piper longum</u>	<u>2%</u>	_____	<u>FACW</u>	___ Dominance Test is >50%
6. <u>Platanus balsamifera</u>	<u>2%</u>	_____	<u>FAC</u>	___ Prevalence Index is ≤3.0 ¹
7. _____	_____	_____	_____	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____) <u>2%</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: L116-UP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	7.5YR 6/1						Sandy loam	Duff
10-30	7.5YR 4/6						Clay loam	

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

- Hydric Soil Indicators:
- Histosol (A1)
 - Histic Epipedon (A2)
 - Black Histic (A3)
 - Hydrogen Sulfide (A4)
 - Stratified Layers (A5)
 - Depleted Below Dark Surface (A11)
 - Thick Dark Surface (A12)
 - Sandy Mucky Mineral (S1)
 - Depleted Dark Surface (F7)
 - Sandy Redox (S5)
 - Stripped Matrix (S6)
 - Polyvalue Below Surface (S8)
 - Thin Dark Surface (S9)
 - Loamy Mucky Mineral (F1)
 - Loamy Gleyed Matrix (F2)
 - Depleted Matrix (F3)
 - Redox Dark Surface (F6)
 - Redox Depressions (F8)
 - Red Parent Material (TF2)
 - Sandy Gleyed Matrix (S4)
 - Coast Prairie Redox (A16)
 - 5 cm Mucky Peat or Peat (S3)
 - Iron-Manganese Masses (F12)
 - Other (Explain in Remarks)

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

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
 Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

- Wetland Hydrology Indicators:
- Primary Indicators (minimum of one is required; check all that apply)
- Surface Water (A1)
 - High Water Table (A2)
 - Saturation (A3)
 - Water Marks (B1)
 - Sediment Deposits (B2)
 - Drift Deposits (B3)
 - Algal Mat or Crust (B4)
 - Iron Deposits (B5)
 - Inundation Visible on Aerial Imagery (B7)
 - Sparsely Vegetated Concave Surface (B8)
 - Water-Stained Leaves (B9)
 - Aquatic Fauna (B13)
 - Marl Deposits (B15)
 - Hydrogen Sulfide Odor (C1)
 - Oxidized Rhizospheres on Living Roots (C3)
 - Presence of Reduced Iron (C4)
 - Recent Iron Reduction in Tilled Soils (C6)
 - Thin Muck Surface (C7)
 - Other (Explain in Remarks)
- Secondary Indicators (minimum of two required)
- Surface Soil Cracks (B6)
 - Drainage Patterns (B10)
 - Moss Trim Lines (B16)
 - Dry-Season Water Table (C2)
 - Saturation Visible on Aerial Imagery (C9)
 - Stunted or Stressed Plants (D1)
 - Geomorphic Position (D2)
 - Shallow Aquitard (D3)
 - Microtopographic Relief (D4)
 - FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): cm

Water Table Present? Yes _____ No _____ Depth (inches): cm

Saturation Present? Yes _____ No _____ Depth (inches): cm

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Freshwater Wetland Data Sheet: WL 7

Date: Sept. 1/10
 Investigator(s): Scott Burley
 Weather: Sun
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹:: Swamp
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO)
- 3. Fen (FE) _____

- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB)
- 6. Forested wetland (FW)

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____

- 5. Meadow _____
- 6. Shrub swamp
- 7. Wooded swamp
- 8. Bog _____

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____

- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS
- 29. Compact SS _____
- 30. Low sparse SS
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS
- 33. Wooded bog _____
- 34. Shrubby B _____
- 35. Open B _____

Water Regime Indicator:

- 1. Permanently flooded - channels
- 2. Saturated

- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm - channels
- 2. 2.5-20 cm - channels
- 3. 20-50 cm _____

- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees _____
- 2. Coniferous trees _____
- 3. Dead trees _____
- 4. Tall shrubs _____
- 5. Low shrubs _____
- 6. Dead shrubs _____
- 7. Herbs _____
- 8. Mosses _____
- 9. Narrow-leaved emergents _____
- 10. Broad-leaved emergents _____
- 11. Robust emergents _____
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other _____

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Let's Through Flow

Wildlife: (Observation/Signs/Reports)

Passerines

Frog

Adjacent Wildlife habitat (%):

- 1.Salt marsh _____
- 2.Forest 902
- 3.Dykelands _____
- 4.Mudflats _____

- 5.Beach 10
- 6.River _____
- 7. Other _____

Description:

Surrounding Land Use %:

- 1 Agriculture _____
- 2.Forestry _____
- 3 Recreation _____
- 4.Industrial _____
- 5.Urban development _____
- 6.Transportation _____

- 7.Residential _____
- 8.Waste Disposal _____
- 9.Scientific Research _____
- 10.Trapping _____
- 11.Education _____
- 12.Seasonal resident _____

Description: None

Disturbance: 1.Low _____ 2.Moderate _____ 3.High _____

Description: None

Roads and/or tracks:

- 1.Private road adjacent _____
- 2.DOT road adjacent _____
- 3.Private road within _____

- 4.DOT road within _____
- 5.Vehicle tracks _____
- 6.Other _____

Description: None

Existing Uses of Wetlands:

- 1.Economic use (e.g. farming) _____
- 2.Recreational activities _____
- 3.Aesthetics _____

- 4.Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1.Rare wetland type _____
- 2.Rare animal or plant species _____
- 3.Habitat of rare species X

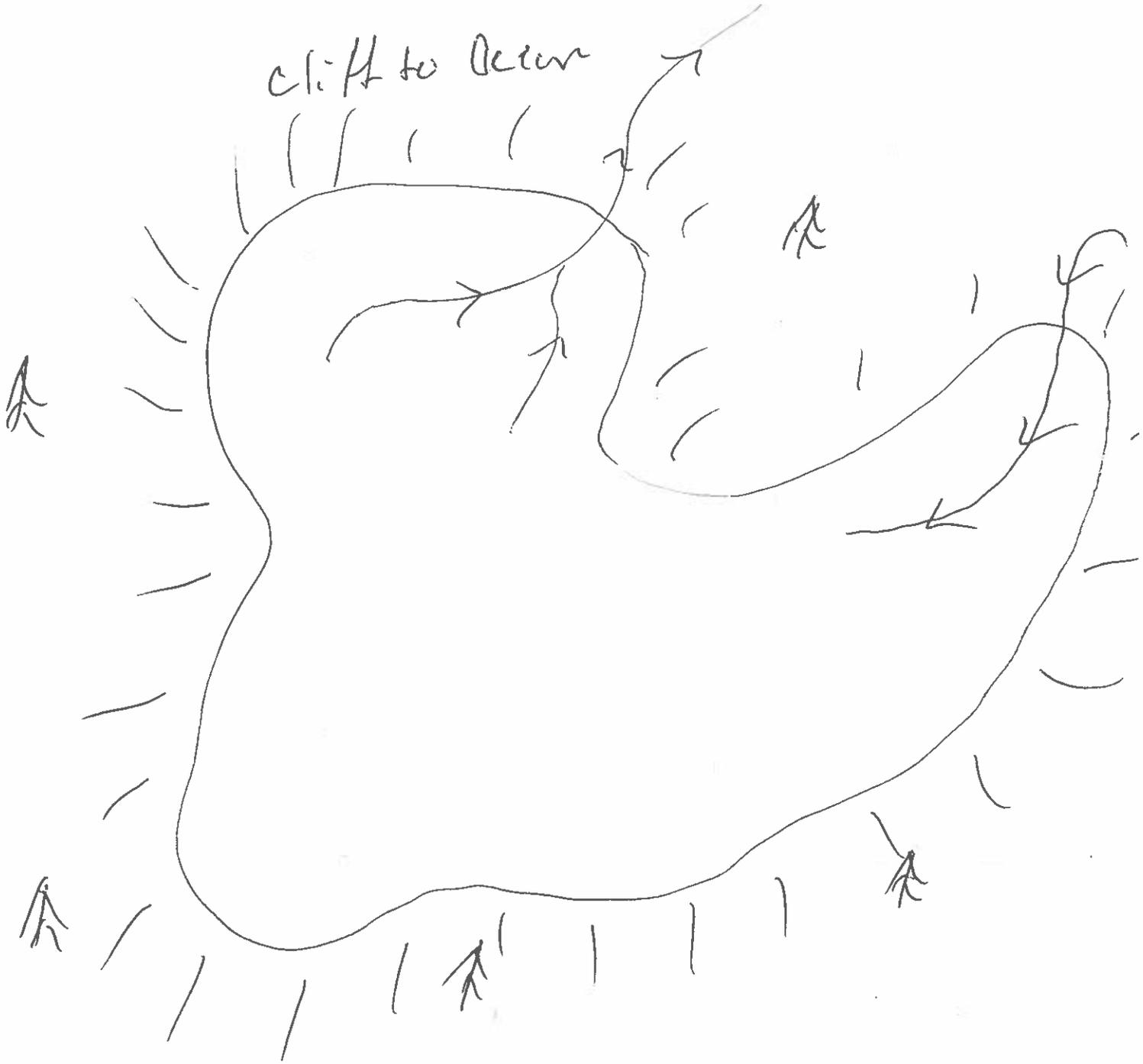
- 4.Nesting site for colonial water birds _____
- 5.Migration stop-over site _____
- 6. None evident _____

Description: Partial

Notes:

W7 \nearrow
W

Cliff to Ocean



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 20/11
 Applicant/Owner: Vulcan Sampling Point: WL7-WP1
 Investigator(s): S. Berkey Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): Hummocky
 Slope (%): 1 Lat: 44°56'9 Long: 52°43'38 Datum: WAD 88
 Soil Map Unit Name/Type: Rockland Wetland Type: Tree Swamp
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>WL7</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>67</u> x 2 = <u>134</u> FAC species <u>4</u> x 3 = <u>12</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>73</u> (A) <u>148</u> (B) Prevalence Index = B/A = <u>2.0</u>
5. _____	_____	_____	_____	
<u>60</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Picea mariana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Amelanchier alnifolia</u>	<u>2</u>	_____	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>7</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Rubus pubescens</u>	<u>2</u>	_____	<u>FAC</u>	
2. <u>Limonium carolinianum</u>	<u>2</u>	_____	<u>FAC</u>	
3. <u>Carex lasiocarpa</u>	<u>2</u>	_____	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: WLF-4P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-40"</u>							<u>carbonic</u>	<u>Peat</u>

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 5cm
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guy Sherrington Sampling Date: Aug 20/14
 Applicant/Owner: Vidcom Sampling Point: Sect 7-UP1
 Investigator(s): S. Burkley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): horizontal
 Slope (%): 50% Lat: 644874 Long: 5024335 Datum: _____
 Soil Map Unit Name/Type: Rockland Wetland Type: upland open forest
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>30</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Alnus crispa</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>EACU</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Galium aparitifolia</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	OBL species _____ x 1 = _____
3. <u>Picea glauca</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species <u>94</u> x 3 = <u>282</u>
5. _____	_____	_____	_____	FACU species <u>10</u> x 4 = <u>40</u>
<u>20</u> = Total Cover				UPL species _____ x 5 = _____
<u>20</u> = Total Cover				Column Totals: <u>104</u> (A) <u>322</u> (B)
<u>20</u> = Total Cover				Prevalence Index = B/A = <u>3.1</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Carex canadensis</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Brachyotum</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input type="checkbox"/> Dominance Test is >50%
3. <u>Tricentris borealis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Vaccinium vitis-idaea</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Alnus incana canadensis</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>54</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				

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

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: WL7-up1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15							carbonic	dark

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	
<input type="checkbox"/> Thin Dark Surface (S9)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed): Type: <u>rock</u> Depth (inches): <u>15cm</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--

Remarks:

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--

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

Remarks:

Freshwater Wetland Data Sheet WLG

Date: Sept 2/10
 Investigator(s): S Butler
 Weather: Sunny
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹: Recreation/Treat/Swamp
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|-----------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) <u>X</u> |

Wetland Class:

- | | |
|-----------------------------------|--------------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp <u>X</u> |
| 4. Seasonally flooded flats _____ | 8. Bog _____ |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp <u>X</u> |
| 14. Broad-leaved DM _____ | 32. Evergreen WS <u>X</u> |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 15% - *Acer rubrum*
- 2. Coniferous trees 55% - *Abies balsamea*
- 3. Dead trees 5%
- 4. Tall shrubs 5%
- 5. Low shrubs 5% - *Kalmia*
- 6. Dead shrubs -
- 7. Herbs - 60% - *Cinnamom fern, Carex lasiocarpa*
- 8. Mosses - 100%
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal _____ 2. Low X 3. Medium _____ 4. High _____

Conductivity: N/A
Alkalinity: N/A

pH: N/A

Hydrological Classification:

- 1. Surface water depression X
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Lotic through flow

Wildlife: (Observation/Signs/Reports)

Frogs
Passerines

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 10%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 90% - Shrub Barren

Description: ~~mixed woods~~ mixed forest

Surrounding Land Use %:

- 1 Agriculture _____
- 2 Forestry _____
- 3 Recreation _____
- 4 Industrial _____
- 5 Urban development _____
- 6 Transportation _____

- 7 Residential _____
- 8 Waste Disposal _____
- 9 Scientific Research _____
- 10 Trapping _____
- 11 Education _____
- 12 Seasonal resident _____

Description: road

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description: road

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other X

Description: Property cut line along west boundary

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

WL 8

iv

Shrub Burden



Freshwater Wetland Data Sheet WL 9

Date: Sept. 2/10
 Investigator(s): S. Burk
 Weather: Sunny
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number: 91
 GIS Map / Stand No.: C4530611
 Wetland Form¹: Deciduous bog / forest / swamp complex
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|-----------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <u>X</u> | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) <u>X</u> |

Wetland Class:

- | | |
|-----------------------------------|--------------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp <u>X</u> |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp <u>X</u> |
| 14. Broad-leaved DM _____ | 32. Evergreen WS <u>X</u> |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B <u>X</u> |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated X
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 5% - Acer Rubrum
- 2. Coniferous trees 15% - Picea mariana
- 3. Dead trees 10%
- 4. Tall shrubs 5% - Alnus, Viburnum nudum, Fragaria sp.
- 5. Low shrubs 75% - Lonicera, Galium angustifolium, Galium sp., Chamadaphne
- 6. Dead shrubs -
- 7. Herbs 10% - Cirsium sp., Sagittaria
- 8. Mosses 10% - Sphagnum
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression X
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

None observed in Bay - Peripheral tree swamp outlets to lake through fan

Wildlife: (Observation/Signs/Reports)

Deer tracks

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 50%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 10% Lake
other 40% - Shrub barren

Description: mixed woods

Surrounding Land Use %:

- 1 Agriculture _____
- 2. Forestry _____
- 3 Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: none

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description: none

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: none

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

Bay is isolated. Periphral Swamp created as ^{marsh} ^{with salt water} ^{at the} ^{end} ^{of} ^{the} ^{bay} ^{at} ^{North} ^{end} ^{is} ^{connected} ^{to} ^{swamp.} fringe line which is hortic bidirectional, ^{is} ^{connected} ^{to} ^{swamp.}



WN
←N

Lake

Shrub Fan

Barrier

Vaniforms detritus

Tall shrub
Barrier

Around
open bog

Tidal Swamp

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Bleak Point Municipality/County: Barrington Sampling Date: Aug 21/14
 Applicant/Owner: Vulcan Sampling Point: 4L8-WP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Horizontal
 Slope (%): 1 Lat: 64 39 67 Long: 50 25 90 Datum: _____
 Soil Map Unit Name/Type: Beckloch Wetland Type: Treed Swamp
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: <u>4L8</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>100m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Abies balsamea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Acer rubrum</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>50</u> x 1 = <u>50</u> FACW species <u>42</u> x 2 = <u>84</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>92</u> (A) <u>134</u> (B) Prevalence Index = B/A = <u>1.5</u>
Sapling/Shrub Stratum (Plot size: <u>50m</u>)				
1. <u>Abies balsamea</u>	<u>5</u>	_____	<u>FAC</u>	
2. <u>Ulmus americana</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Kalmia latifolia</u>	<u>5</u>	_____	<u>FAC</u>	
4. <u>Sambucus racemosa</u>	<u>2</u>	_____	<u>FAC</u>	
<u>27</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Carex trisperma</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	Hydrophytic Vegetation Indicators: _____ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>50</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>* Dominant in WL</u>				

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: WJ 8-408

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40*							organic	Peat

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 5cm
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Cape Breton Sampling Date: Aug 22/14
 Applicant/Owner: Valera Sampling Point: W 8-CP1
 Investigator(s): S. Burkley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Horizontal
 Slope (%): 2 Lat: 64 39 61 Long: 50 27 58 7 Datum: NAD83
 Soil Map Unit Name/Type: Rockland Wetland Type: Cpland - Mixed Forest
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>100m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Thuja occidentalis</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)
2. <u>Picea canadensis</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>7</u> (B)
3. <u>Picea mariana</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>35</u> = Total Cover				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				Total % Cover of: _____ Multiply by: _____
1. <u>Thuja occidentalis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species _____ x 1 = _____
2. <u>Ulmus americana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species <u>7</u> x 2 = <u>14</u>
3. <u>Rubus cuneifolius</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FAC species <u>64</u> x 3 = <u>192</u>
4. _____				FACU species _____ x 4 = _____
5. _____				UPL species _____ x 5 = _____
<u>20</u> = Total Cover				Column Totals: <u>71</u> (A) <u>206</u> (B)
Herb Stratum (Plot size: <u>1m</u>)				Prevalence Index = B/A = <u>2.9</u>
1. <u>Asplenium platyneuron</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Trientalis borealis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Vaccinium angustifolium</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
4. <u>Lolium greenlandicum</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>	
5. <u>Cyperus sp. teretica</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
6. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____				
8. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
9. _____				
10. _____				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: W&VPI

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20							Organic Dark	
20-30	2.5Y 5/1	100					Silt loam	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

Freshwater Wetland Data Sheet WL 10

Date: Sept 2/10
 Investigator(s): S. Burkert
 Weather: Sunny
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number: _____
 GIS Map / Stand No.: 21/90
C4535611 21 / C4530611
 Wetland Form¹: Murred Bog
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) X
- 3. Fen (FE) _____

- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW) _____

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____

- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog X

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____

- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS _____
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog _____
- 34. Shrubby B _____
- 35. Open B X

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated X

- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm X
- 2. 5-20 cm _____
- 3. 20-50 cm _____

- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated X
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees
- 2. Coniferous trees
- 3. Dead trees
- 4. Tall shrubs
- 5. Low shrubs
- 6. Dead shrubs
- 7. Herbs
- 8. Mosses
- 9. Narrow-leaved emergents
- 10. Broad-leaved emergents
- 11. Robust emergents
- 12. Free-floating plants
- 13. Floating plants (rooted)
- 14. Submerged plants
- 15. Other

Same as WL9

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

None observed

5. Dowed Bay - Rain water driven

Wildlife: (Observation/Signs/Reports)

Deer Signs

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 70%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 30% barren

Description: mixed woods

Surrounding Land Use %:

- 1 Agriculture _____
- 2. Forestry _____
- 3 Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: none

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description: none

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: none

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Refugia

Notes:

WL 10



corn: fronds

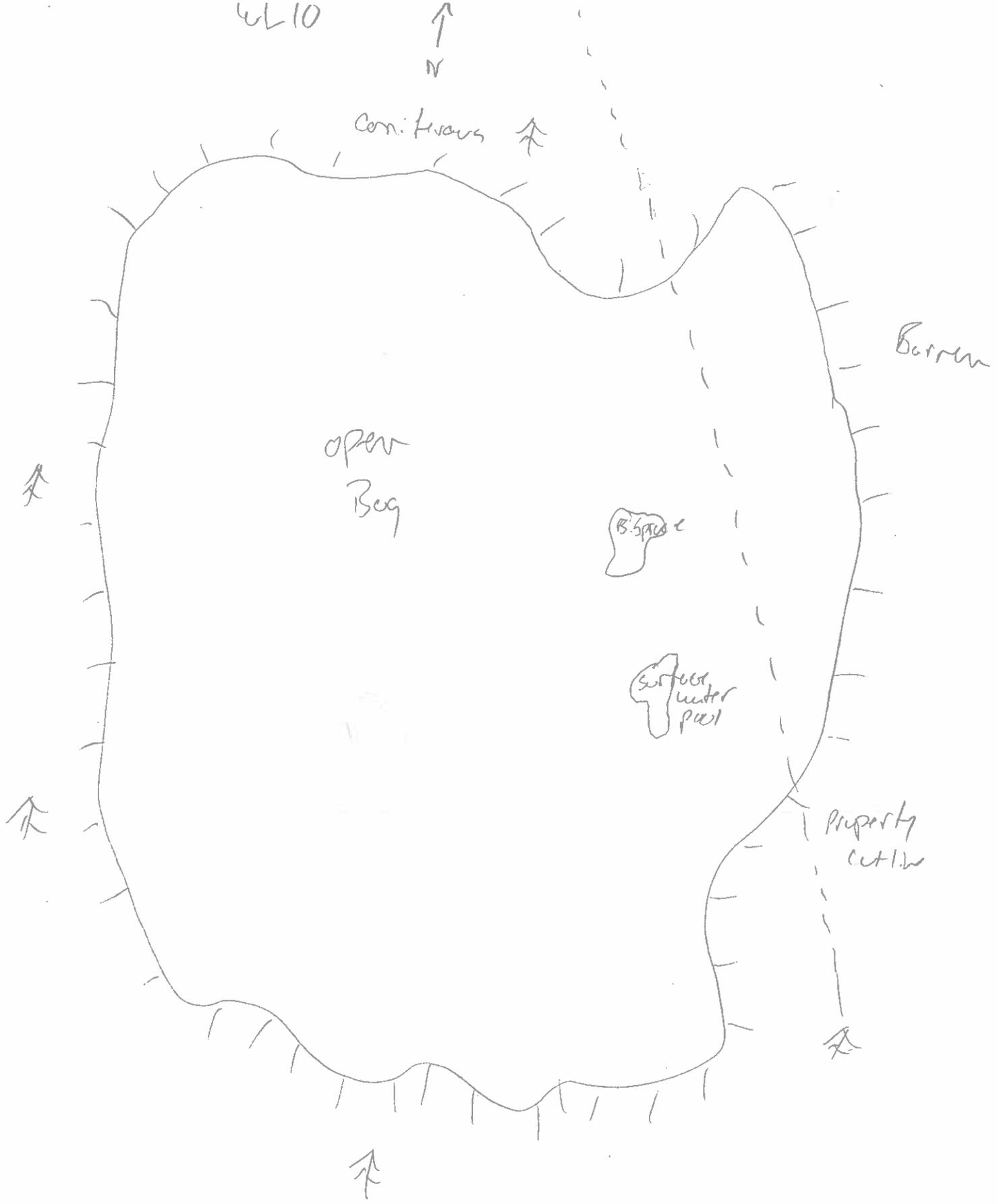
Barren

open
Bog

B. sp. c

Surface
water
pool

Property
cutline



SOIL

Sampling Point: UL10-UP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-40"</u>							<u>capillary</u>	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 20cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 22/14
 Applicant/Owner: Unleam Sampling Point: W/LK-UP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): Hummocky
 Slope (%): 30 Lat: 43° 57' Long: 50° 25' 10" Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland-Barren
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>10</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>57</u> x 3 = <u>171</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>77</u> (A) <u>211</u> (B) Prevalence Index = B/A = <u>2.7</u>
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Asplenium platyneuron</u>	<u>5</u>	_____	<u>FAC</u>	
2. <u>Corylus americana</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Picea mariana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
4. <u>Viburnum dentatum</u>	<u>5</u>	_____	<u>FAC</u>	
<u>40</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Kalmia angustifolia</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Isimifolia borealis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Mnium affine pennsylvanicum</u>	<u>5</u>	_____	<u>FAC</u>	
4. <u>Vaccinium angustifolium</u>	<u>2</u>	_____	<u>FAC</u>	
<u>27</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: White-4P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20							Organic	Soft

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):

Type: Redoxic

Depth (inches): 20cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WK 11

Freshwater Wetland Data Sheet

Date: Sept 2, 2010
 Investigator(s): S. Drably, N. Soren
 Weather: Sunny, hot
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹:: _____
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) _____
- 3. Fen (FE) _____
- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW)

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____
- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp
- 8. Bog _____

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____
- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS _____
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS
- 33. Wooded bog _____
- 34. Shrubby B _____
- 35. Open B _____

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated
- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm _____
 - 2. 5-20 cm _____
 - 3. 20-50 cm _____
 - 4. 50-100 cm _____
 - 5. >100 cm _____
- NA

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____ *NA*
- 3. Ducks Unlimited Impoundment _____
- 4. None of the above *✓*

Percent Vegetation Cover:

- 1. > 95% *✓*
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____
- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine *✓*
- 3. Palustrine _____
- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees *5% Red Maple, Sorbus americana*
- 2. Coniferous trees *30% Black Spruce, Balsam Fir*
- 3. Dead trees *21-2%*
- 4. Tall shrubs *30% Nymphaea*
- 5. Low shrubs *5% Kalmia angustifolia*
- 6. Dead shrubs *1%*
- 7. Herbs *5% Mammoth Trifolium, ~~purple~~ Sarcocolla purpurea*
- 8. Mosses *Sphagnum 100%*
- 9. Narrow-leaved emergents *20 10% Carex lasiocarpa*
- 10. Broad-leaved emergents _____
- 11. Robust emergents _____
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other *Cymodocea fern 15%*

Interspersion: 1. Minimal *✓* 2. Low *✓* 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____
- 3. Surface water slope *✓*
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Inflow out-flow

Wildlife: (Observation/Signs/Reports)

*None ; deer tracks on ATV trail which crosses the WZ
Deer tracks*

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 100%
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: ~~mixed woods~~ coniferous woods (to mixed woods in patches)

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry possible, but not harvested
- 3. Recreation abandoned ATV trail
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description:

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other abandoned ATV trail; crosses wetland

Description:

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident

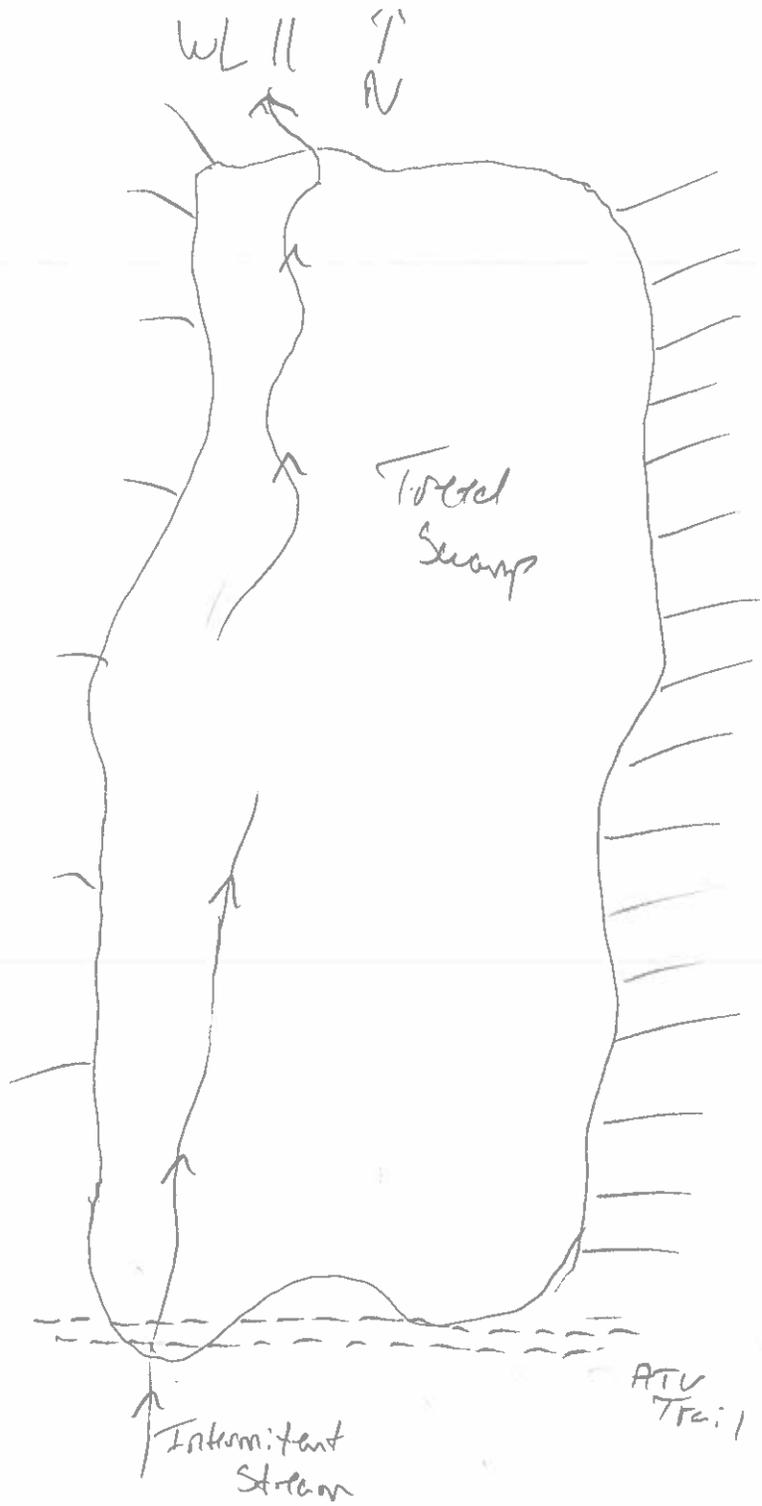
Potential Threats: development

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species _____
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident

Description:

Notes:



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 22/14
 Applicant/Owner: walem Sampling Point: WL 11-01
 Investigator(s): S. Burby Affiliation: ANFE
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): Hummocky
 Slope (%): 40 Lat: 643860 Long: 5023676 Datum: NAD 85
 Soil Map Unit Name/Type: Reekland Wetland Type: Upland - Forest
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> 10m </u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u> Abies balsamea </u>	<u> 30 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u> 6 </u> (A) Total Number of Dominant Species Across All Strata: <u> 6 </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100 </u> (A/B)
2. <u> Picea mariana </u>	<u> 10 </u>	<input checked="" type="checkbox"/>	<u> EHLW </u>	
3. _____				
4. _____				
5. _____				
<u> 40 </u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u> - </u> x 1 = _____ FACW species <u> 10 </u> x 2 = <u> 20 </u> FAC species <u> 57 </u> x 3 = <u> 171 </u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u> 67 </u> (A) <u> 191 </u> (B) Prevalence Index = B/A = <u> 2.9 </u>
Sapling/Shrub Stratum (Plot size: <u> 5m </u>)				
1. <u> Abies balsamea </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
2. <u> Sorbus oblongifolia americana </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
3. _____				
4. _____				
5. _____				
<u> 10 </u> = Total Cover				
Herb Stratum (Plot size: <u> 1m </u>)				
1. <u> Acaulis spicata </u>	<u> 10 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
2. <u> Trientalis borealis </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
3. <u> Melilotus alba </u>	<u> 2 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u> 17 </u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Indicators:
 ___ Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: W-11-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-10</u>							<u>organic</u>	<u>Duff</u>

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Redox
 Depth (inches): 10cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM - NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug. 12/14
 Applicant/Owner: Valena Sampling Point: W11-WP1
 Investigator(s): S. Burkey Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Hummock
 Slope (%): 2 Lat: 643861 Long: 5023677 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Tidal Swamp
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>W11</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Thuja occidentalis</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Thuja occidentalis</u>	<u>5</u>		<u>FACW</u>	
3. _____				
4. _____				
5. _____				
<u>30</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>22</u> x 1 = <u>22</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>49</u> x 3 = <u>147</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species _____ x 5 = _____ Column Totals: <u>81</u> (A) <u>199</u> (B) Prevalence Index = B/A = <u>2.4</u>
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Betula papyrifera</u>	<u>5</u>		<u>FACU</u>	
2. <u>Thuja occidentalis</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Cinnamomum fern</u>	<u>5</u>		<u>FAC</u>	
4. <u>Artemisia vulgaris</u>	<u>2</u>		<u>FAC</u>	
5. _____				
<u>27</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Carex diandra</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Phragmites australis</u>	<u>2</u>		<u>OBL</u>	
3. <u>Cyperus canadensis</u>	<u>2</u>		<u>FAC</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>24</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Present? Yes No

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: WH11-AP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-30							Organic Peat	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 5cm
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 5cm
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet WL 12

Date: Sept 2/10
 Investigator(s): S. Burk
 Weather: Sunny
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : C453561129/C453061110
 Wetland Form¹: open bog (Norm)
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|--------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <u>X</u> | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B <u>X</u> |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% 100
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine X

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees -
- 2. Coniferous trees - 5% *Picea mariana*
- 3. Dead trees 2%
- 4. Tall shrubs 5% - *Viburnum nudum*, *Nyssa*
- 5. Low shrubs 50% - *Gaultheria*, *Bayberry*, *Juniper*
- 6. Dead shrubs -
- 7. Herbs - 65% - *Scirpus cespitosus*
- 8. Mosses 95% - *Sphagnum*
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

outflow channel to North

5. *Drowned Bay*

Wildlife: (Observation/Signs/Reports)

Deer tracks

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 90%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other Wet Lake

Description: mixed woods com: fucus

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: Road

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: none

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

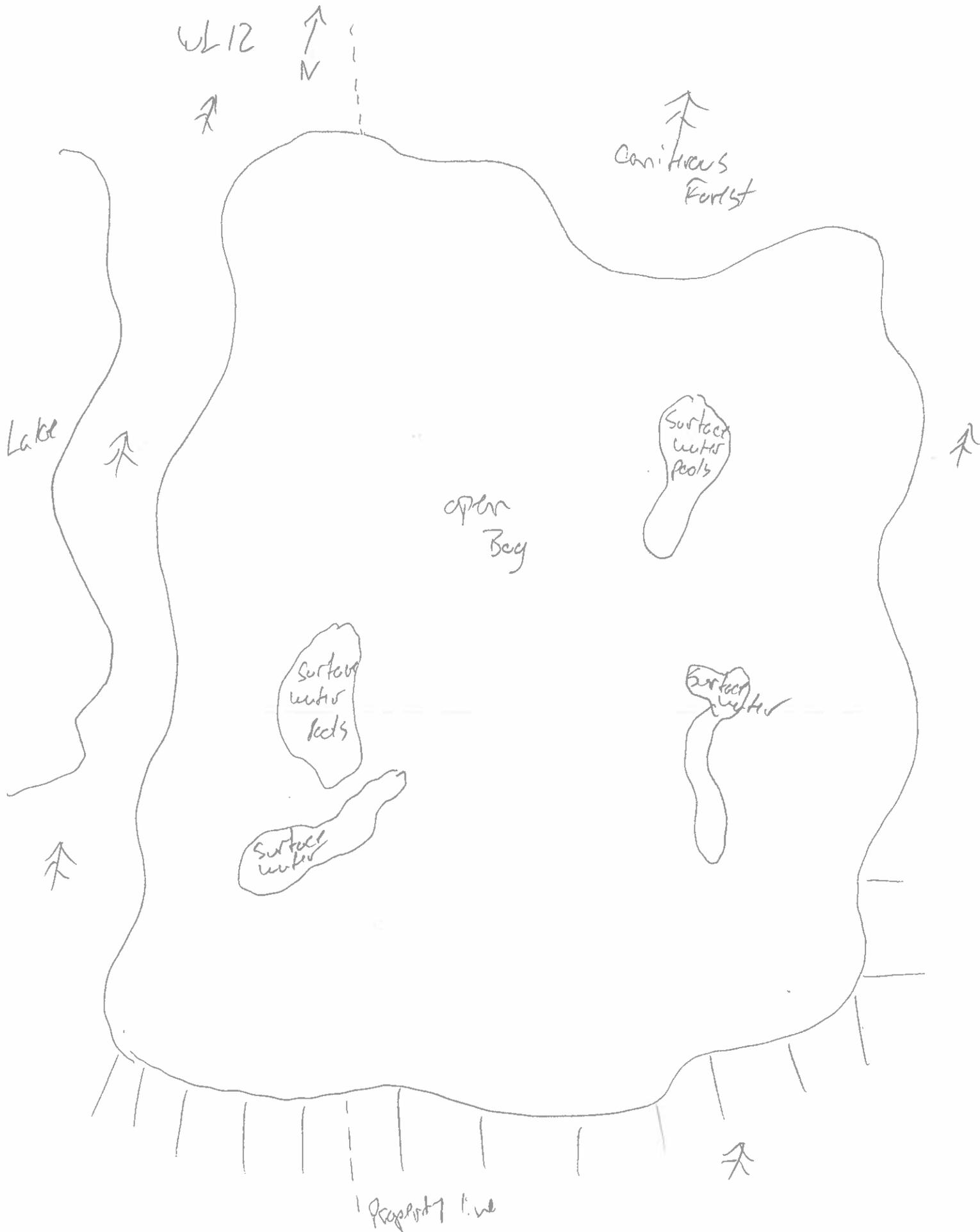
Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 21/14
 Applicant/Owner: Uvicom Sampling Point: UL12-WP1
 Investigator(s): S. Berkey Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Drainage bed Local relief (concave, convex, none): CONVEX
 Slope (%): 1 Lat: 644541 Long: 5023349 Datum: NAD83
 Soil Map Unit Name/Type: Rockland Wetland Type: ISCG
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>UL12</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Loiseleuria procumbens</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)
2. <u>Picea canadensis</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Acer rubrum</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>7</u> (B)
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
5. _____				
Sapling/Shrub Stratum (Plot size: <u>5m</u>) <u>19</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>12</u> x 1 = <u>12</u> FACW species <u>7</u> x 2 = <u>14</u> FAC species <u>67</u> x 3 = <u>201</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>616</u> (A) <u>227</u> (B) Prevalence Index = B/A = <u>2.6</u>
1. <u>Rhododendron</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Cornus cinnamomum</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Asplenium platyneuron</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Ipomoea angustifolia</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
5. <u>Erigeron phillyria</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
Herb Stratum (Plot size: <u>1m</u>) <u>50</u> = Total Cover				Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Lythrum hyssopifolium</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Sagittaria purpurascens</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Carex trisperma</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
4. <u>Microsorum trichomanes</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
Woody Vine Stratum (Plot size: _____) <u>17</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: W-11-CPI

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4.5"							organic	peat

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Polyvalue Below Surface (S8)	
<input type="checkbox"/> Thin Dark Surface (S9)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 24cm

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 5cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guy Sherriff Sampling Date: Aug. 26/14
 Applicant/Owner: Upsilon Sampling Point: WL12-CPI
 Investigator(s): S. Ruckey Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): Horizontal
 Slope (%): 10% Lat: 44 54 0 Long: 50 23 36 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland - Barren
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Larix laricina</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Abies balsamea</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Picea mariana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>14</u> x 3 = <u>54</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>208</u> (A) <u>614</u> (B) Prevalence Index = B/A = <u>3.0</u>
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Viburnum acerifolium</u>	<u>5</u>	_____	<u>FAC</u>	
2. <u>Acer rubrum</u>	<u>5</u>	_____	<u>FAC</u>	
3. <u>Corylus heterophylla</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Alnus</u>	<u>5</u>	_____	<u>FAC</u>	
5. <u>Salix caprea</u>	<u>15</u>	_____	<u>FAC</u>	
<u>100</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Carex canadensis</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Salix caprea</u>	<u>10</u>	_____	<u>FAC</u>	
3. <u>Erigeron</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Urtica dioica</u>	<u>10</u>	_____	<u>FAC</u>	
5. <u>Trifolium</u>	<u>5</u>	_____	<u>FAC</u>	
6. <u>Alnus</u>	<u>5</u>	_____	<u>FAC</u>	
7. <u>Corylus</u>	<u>2</u>	_____	<u>FAC</u>	
8. <u>Larix</u>	<u>5</u>	_____	<u>FACW</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>92</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				
			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: 4652-4P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11							ORGANIC	Dist

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
 Depth (inches): 11 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WL #13

Freshwater Wetland Data Sheet

WL13

Date: Sept 31/03
Investigator(s): S. Borking
Weather: Sunny
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number: _____
GIS Map / Stand No.: _____
Wetland Form¹: Bog / Swamp
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO)
- 3. Fen (FE) _____

- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB)
- 6. Forested wetland (FW) _____

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____

- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____

- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog _____
- 34. Shrubby B
- 35. Open B

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated

- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm
- 2. 5-20 cm _____
- 3. 20-50 cm _____

- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine X

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 290
- 2. Coniferous trees 1090 - Black Spruce, Fir
- 3. Dead trees 290
- 4. Tall shrubs - 8090
- 5. Low shrubs - 3190
- 6. Dead shrubs -
- 7. Herbs - 3590 - Cinnamon Fern
- 8. Mosses - 10090
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal _____ 2. Low X 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Stream outlet to river (possible)

Wildlife: (Observation/Signs/Reports)

Pink herons

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 10%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 90% Barren

Description: mixed woods

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: road

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description: road

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other X

Description: near Property end line

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

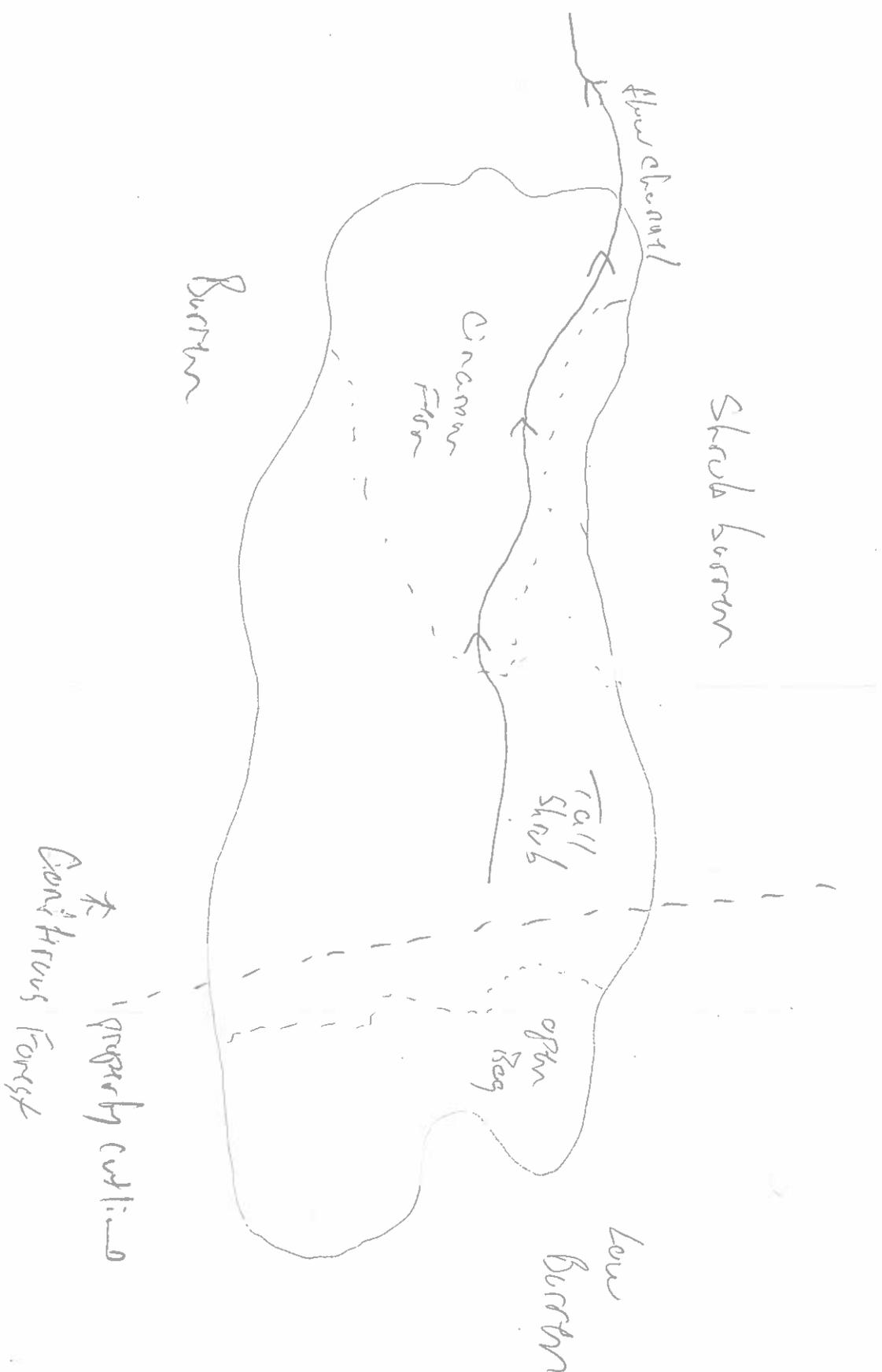
- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

WLB J



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Bleed Point Municipality/County: Guysborough Sampling Date: Aug. 21/14
 Applicant/Owner: Vulcan Sampling Point: WLB-101
 Investigator(s): S Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Hummocky
 Slope (%): 1 Lat: 644890 Long: 5023576 Datum: NAD83
 Soil Map Unit Name/Type: Peckland Wetland Type: F1a
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u> WLB13 </u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> 10m </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u> Picea mariana </u>	<u> 2 </u>	<input checked="" type="checkbox"/>	<u> FACW </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u> 2 </u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u> 2 </u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100 </u> (A/B)
4. _____				
5. _____				
Sapling/Shrub Stratum (Plot size: <u> 5m </u>) <u> 2 </u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> 11 </u> x 1 = <u> 11 </u> FACW species <u> 7 </u> x 2 = <u> 14 </u> FAC species <u> 85 </u> x 3 = <u> 255 </u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u> 103 </u> (A) <u> 280 </u> (B) Prevalence Index = B/A = <u> 2.7 </u>
1. <u> Myrica gale </u>	<u> 15 </u>		<u> FAC </u>	
2. <u> Arisaema Phytolacca anglicanensis </u>	<u> 5 </u>		<u> FACW </u>	
3. <u> Glycyhalla hirsuta </u>	<u> 15 </u>		<u> FAC </u>	
4. <u> Cirsium lan </u>	<u> 40 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
5. <u> Phacelia canadensis </u>	<u> 5 </u>		<u> FH </u>	
Herb Stratum (Plot size: <u> 1m </u>) <u> 90 </u> = Total Cover				
1. <u> Eriophorum virginicum </u>	<u> 2 </u>		<u> OBL </u>	
2. <u> Aster nemoralis </u>	<u> 2 </u>		<u> OBL </u>	
3. <u> Carex lasiocarpa </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> OBL </u>	
4. <u> Ranunculus abortivus </u>	<u> 2 </u>		<u> OBL </u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
Woody Vine Stratum (Plot size: _____) <u> 11 </u> = Total Cover				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Indicators:
 ___ Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: WL13-CPI

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-35</u>							<u>Organic Peat</u>	

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

- | | |
|--|---|
| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils³: |
| <input type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)
<input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: Peat

Depth (inches): 57cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 9cm

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 12cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Bryansburg Sampling Date: Aug 21/14
 Applicant/Owner: Udery Sampling Point: W13-CP
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Hummocky
 Slope (%): 5% Lat: 44°49'2 Long: 70°23'52 Datum: WGS 83
 Soil Map Unit Name/Type: Rock/wood Wetland Type: upland - Barren
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>2</u>		<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>2</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Abies balsamea</u>	<u>5</u>		<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Picea mariana</u>	<u>5</u>		<u>FACW</u>	OBL species <u>5</u> x 1 = <u>5</u>
3. <u>Gaylussacia baccata</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species <u>9</u> x 2 = <u>18</u>
4. <u>Rhododendron canadensis</u>	<u>5</u>		<u>FAC</u>	FAC species <u>57</u> x 3 = <u>171</u>
5. <u>Chamaecyparis thyoides</u>	<u>5</u>		<u>OBL</u>	FACU species _____ x 4 = _____
<u>60</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>71</u> (A) <u>194</u> (B)
				Prevalence Index = B/A = <u>2.7</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Utricularia vulgaris</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Arctostaphylos uva-ursi</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input type="checkbox"/> Dominance Test is >50%
3. _____				<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>4</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>Marsh Hawk noted circling WL</u>				

SOIL

Sampling Point: W13-4P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5 cm							organic	diff

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 5 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet

WL 14

Date: Sept 3, 2010
Investigator(s): M. Suda
Weather: sunny, hot
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number: NA / unmapped
GIS Map / Stand No.: _____
Wetland Form¹: Swamp
Wetland size: _____ ha
Associated Watercourse: —

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) _____
- 3. Fen (FE) _____
- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW)

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____
- 5. Meadow _____
- 6. Shrub swamp
- 7. Wooded swamp
- 8. Bog _____

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____
- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp mixed WS
- 32. Evergreen WS _____
- 33. Wooded bog _____
- 34. Shrubby B _____
- 35. Open B _____

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated
- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm
- 2. 5-20 cm _____
- 3. 20-50 cm _____
- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 30% ; Red Maple, Bet. cordifolia
- 2. Coniferous trees 30-40% Black Spruce
- 3. Dead trees 45%
- 4. Tall shrubs 80% *Najas*, *Myrica*; *Viburnum* *Stolon*
- 5. Low shrubs 20% *Kalmia angustifolia*
- 6. Dead shrubs 40%
- 7. Herbs *Utricularia* 20%
- 8. Mosses 100% *Sphagnum* sp.
- 9. Narrow-leaved emergents *Carex* 50% *Carex* *trispina*
- 10. Broad-leaved emergents _____
- 11. Robust emergents _____
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other _____

Interspersion: 1. Minimal _____ 2. Low 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

NA

Wildlife: (Observation/Signs/Reports)

birds

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 10-20%
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other Shrubbarren 80% - 90%

Description: mixed woods or *comfrous*

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry possible, but not done
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description:

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: *Property line, cut, ca 100m*

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident

Potential Threats: *development*

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species _____
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident

Description:

Notes:

WL 14 \hat{N}

Bottom

Tidal Swamp



WETLAND DETERMINATION DATA FORM - NOVA SCOTIA

Project/Site: GRW Municipality/County: Guysborough Sampling Date: Sep 3/10
 Applicant/Owner: Erdam Sampling Point: WL14-WP1
 Investigator(s): S. Purley Section, Township, Range: Blacks Point
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Hummock
 Slope (%): 290 East: 644869 Long: 5023348 Datum: NAD 83 UTM
 Soil Map Unit Name: Rockland Wetland Type: Tidal Swamp

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u> WL14 </u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u> 10m </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u> Acer glabrum </u>	<u> 1590 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u> 7 </u> (A) Total Number of Dominant Species Across All Strata: <u> 7 </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100 </u> (A/B)
2. <u> Picea mariana </u>	<u> 1590 </u>	<input checked="" type="checkbox"/>	<u> FACW </u>	
3. <u> Rubus occidentalis </u>	<u> 590 </u>		<u> FAC </u>	
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u> 60 </u> x 1 = <u> 60 </u> FACW species <u> 35 </u> x 2 = <u> 70 </u> FAC species <u> 50 </u> x 3 = <u> 150 </u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u> 145 </u> (A) <u> 280 </u> (B) Prevalence Index = B/A = <u> 1.9 </u>
5. _____				
Sapling/Shrub Stratum (Plot size: <u> 5m </u>) <u> 35 </u> = Total Cover				
1. <u> Rhamnus americana </u>	<u> 1090 </u>	<input checked="" type="checkbox"/>	<u> OBL </u>	
2. <u> Viburnum acerifolium </u>	<u> 590 </u>	<input checked="" type="checkbox"/>	<u> FACW </u>	
3. <u> Urtica dioica </u>	<u> 1090 </u>	<input checked="" type="checkbox"/>	<u> FACW </u>	
4. _____				
5. _____				
Herb Stratum (Plot size: <u> 1m </u>) <u> 25 </u> = Total Cover				
1. <u> Carex lasiocarpa </u>	<u> 590 </u>	<input checked="" type="checkbox"/>	<u> OBL </u>	
2. <u> Menyanthes canadensis </u>	<u> 2090 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	
3. <u> Pteris aquilina </u>	<u> 590 </u>		<u> FACW </u>	
4. <u> Valeriana angustifolia </u>	<u> 1090 </u>		<u> FAC </u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
Woody Vine Stratum (Plot size: _____) <u> 05 </u> = Total Cover				
1. _____				
2. _____				

= Total Cover				

Hydrophytic Vegetation Indicators:
 ___ Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

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

Sampling Point: 6/2/14-WP1

SOIL

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

O 20-0
A 0-20

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	5YR 2.5/1						Organic Peat Gilt High organic content	

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

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Depleted Dark Surface (F7)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Redox Depressions (F8)
- Red Parent Material (TF2)

Indicators for Problematic Hydric Soils³:

- Sandy Gleyed Matrix (S4)
- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): cm
 Water Table Present? Yes No Depth (inches): cm
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 21/14
 Applicant/Owner: Volcan Sampling Point: W141-01
 Investigator(s): S. Burke Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): Hummocky
 Slope (%): 1 Lat: 6448941 Long: 5023322 Datum: NAD83
 Soil Map Unit Name/Type: Peck Road Wetland Type: upland - Bursera

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
---	--

Remarks: (Explain alternative procedures here or in a separate report.)

wetland in a depression

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>30%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>8</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>88</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>50</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Picea mariana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Alnus crispa</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	OBL species _____ x 1 = _____
3. <u>Grayularia hucutha</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species <u>40</u> x 2 = <u>80</u>
4. <u>Desmodium illinoense</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FAC species <u>45</u> x 3 = <u>135</u>
5. <u>Kalmia angustifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACU species <u>10</u> x 4 = <u>40</u>
<u>70</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>195</u> (A) <u>555</u> (B)
				Prevalence Index = B/A = <u>2.8</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Ceruss canadensis</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Empetrum Nigra</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Kalmia angustifolia</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Vaccinium angustifolia</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>95</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				

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

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: W114-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0.5							Organic	JAH

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
 Depth (inches): 5 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet WL 15

Date: Sept 3/10
 Investigator(s): S. Bulky
 Weather: Sunny
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number: _____
 GIS Map / Stand No.: C4530611 126
 Wetland Form¹: Treed Bog / Tidal Swamp / Fen
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|-----------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <u>X</u> | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) <u>X</u> | 6. Forested wetland (FW) <u>X</u> |

Wetland Class:

- | | |
|-----------------------------------|--------------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp <u>X</u> |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS <u>X</u> |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog <u>X</u> |
| 16. Robust SM _____ | 34. Shrubby B <u>X</u> |
| 17. Narrow leaved SM _____ | 35. Open B <u>X</u> |
| 18. Broad leaved SM _____ | <u>Open FD</u> <u>X</u> |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

1. Beaver Pond _____
 2. Man-made Impoundment _____
 3. Ducks Unlimited Impoundment _____
 4. None of the above X

Percent Vegetation Cover:

1. > 95% X
 2. 76-95% in peripheral band _____
 3. 76-96% in patches _____
 4. 26-75% in peripheral band _____
 5. 26-75% in patches _____
 6. 5-25% in peripheral band _____
 7. 5-25% in patches _____
 8. < 5% _____

Wetland Site:

1. Lacustrine _____
 2. Riverine X
 3. Palustrine _____
 4. Isolated _____
 5. Deltaic _____

Vegetation Types (%):

1. Deciduous trees 20% Acer rubrum
 2. Coniferous trees 40% B spruce
 3. Dead trees 5%
 4. Tall shrubs 40% - Huckleberry, Nanny wild raisin, Elder, Bushberry
 5. Low shrubs 30% - Leather leaf, Kalmia, Dog, Ledum
 6. Dead shrubs -
 7. Herbs 30% - Carex, Sphagnum
 8. Mosses 10% - Sphagnum
 9. Narrow-leaved emergents -
 10. Broad-leaved emergents -
 11. Robust emergents -
 12. Free-floating plants -
 13. Floating plants (rooted) -
 14. Submerged plants -
 15. Other -

Interspersion: 1. Minimal _____ 2. Low _____ 3. Medium X 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

1. Surface water depression _____
 2. Ground water depression _____
 3. Surface water slope X
 4. Ground water slope _____

Inlets/Outlets/water bodies:

Stream inlet through swamp @ west side and outlets through run @ SE

Wildlife: (Observation/Signs/Reports)

Partridges
 Common yellow throat.

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 50%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 50% Beaver

Description: mixed woods

Surrounding Land Use %:

- 1 Agriculture _____
- 2. Forestry _____
- 3 Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: road

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description: road

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: Property cut line

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident

Potential Threats:

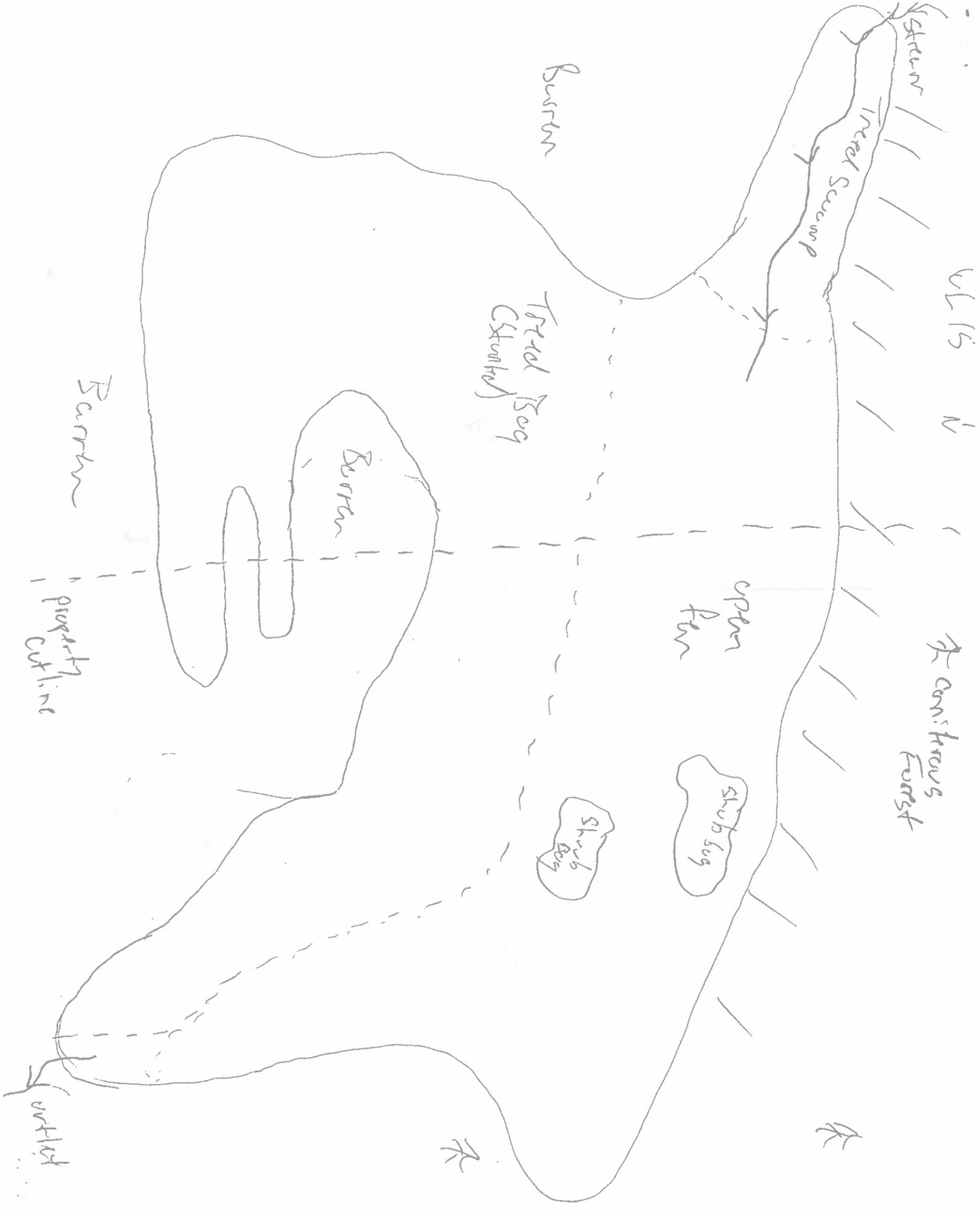
Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Perth (sic)

Notes:



WETLAND DELINEATION DATA FORM - NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug 19/14
 Applicant/Owner: Vielum Sampling Point: WL15-WP1
 Investigator(s): S. Burby Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Hummocky
 Slope (%): 2 Lat: 44° 54' 96" Long: 5023200 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: UWAB Bog
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>WL15</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. <u>Picea mariana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>ETW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
2. <u>Abies balsamea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
<u>15</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>15</u></td> <td>x 1 = <u>15</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>74</u></td> <td>x 3 = <u>222</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>104</u> (A)</td> <td><u>267</u> (B)</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>15</u>	x 1 = <u>15</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>74</u>	x 3 = <u>222</u>	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u>104</u> (A)	<u>267</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>15</u>	x 1 = <u>15</u>																	
FACW species <u>15</u>	x 2 = <u>30</u>																	
FAC species <u>74</u>	x 3 = <u>222</u>																	
FACU species _____	x 4 = _____																	
UPL species _____	x 5 = _____																	
Column Totals: <u>104</u> (A)	<u>267</u> (B)																	
<u>67</u> = Total Cover				Prevalence Index = B/A = <u>2.6</u> Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)														
<u>27</u> = Total Cover																		
<u>27</u> = Total Cover																		
<u>27</u> = Total Cover																		
<u>27</u> = Total Cover																		
<u>27</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
<u>27</u> = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.) <u>Eriophorum, Heather turf, Black Spruce dominates WL across 11</u>																		

SOIL

Sampling Point: WL15-WP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-39							Organic Peat	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rootrock
 Depth (inches): 39cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough L Sampling Date: Aug 19/14
 Applicant/Owner: Walcott Sampling Point: WLLS-01
 Investigator(s): S. Surby Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Hummocky
 Slope (%): 30% Lat: 645490 Long: 5023193 Datum: NAD83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea americana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Abies balsamea</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
<u>7</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>122</u> (A) <u>346</u> (B) Prevalence Index = B/A = <u>2.8</u>
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Picea mariana</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Viburnum acerifolium</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>	
3. <u>Thuja occidentalis</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Gaylussacia baccata</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
5. <u>Arctostaphylos uva-ursi</u>	<u>10</u>	<input type="checkbox"/>	<u>FAC</u>	
<u>90</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Cornus canadensis</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
2. <u>Empetrum nigrum</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Thuja occidentalis</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Gaylussacia procumbens</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
5. <u>Trientalis borealis</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
6. <u>Urtica dioica</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
7. <u>Adiantum canadense</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
<u>40</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>—</u>)				
1. _____	_____	<input type="checkbox"/>	_____	
2. _____	_____	<input type="checkbox"/>	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Indicators:
 ___ Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: WL15-01

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-2</u>							<u>caliche</u>	<u>duff</u>

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

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

Restrictive Layer (if observed): Type: <u>Bedrock</u> Depth (inches): <u>2cm</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	--

Remarks:

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Freshwater Wetland Data Sheet *WL 16*

Date: Sept. 8/10
Investigator(s): S. Burt
Weather: Clear
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹: Fen
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

- | | |
|---|--------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) <u>X</u> | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog _____ |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|--------------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded <u>X</u> |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm <u>X</u> → channels | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees _____
- 2. Coniferous trees 100% - B. Spruce, B. Fir
- 3. Dead trees 5%
- 4. Tall shrubs 35% - Nemo, Wild Raisin,
- 5. Low shrubs 15% - Myrica gale, Lab. Tea
- 6. Dead shrubs _____
- 7. Herbs 40% - Cinnamon fern, Candy fri
- 8. Mosses 100% - Sphagnum
- 9. Narrow-leaved emergents _____
- 10. Broad-leaved emergents _____
- 11. Robust emergents _____
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other _____

Interspersion: 1. Minimal _____ 2. Low X 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression X
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Stream Through Flow

Wildlife: (Observation/Signs/Reports)

Chicadee
Yellowthroat

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 66%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: mixed woods

Surrounding Land Use %:

- 1 Agriculture _____
- 2. Forestry _____
- 3 Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: None

Disturbance: 1. Low _____ 2. Moderate X 3. High _____

Description: Drill Rig through wetland.

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other X

Description: Drill Rig track

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Podentia

Notes:

lot 16



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug. 21/14
 Applicant/Owner: Wilson Sampling Point: W116 - WPI
 Investigator(s): S. Berkey Affiliation: AMEC
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 1 Lat: 64 51 73 Long: 502 33 73 Datum: NAD 83
 Soil Map Unit Name/Type: Perkland Wetland Type: Fem

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>W116</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. <u>Abies balsamea</u>	<u>5</u>		<u>Etc</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
5. _____				
<u>15</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Myrica gale</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Cirsium leucanthemum</u>	<u>5</u>		<u>FAC</u>	OBL species <u>5</u> x 1 = <u>5</u>
3. <u>Menyanthes arvensis</u>	<u>5</u>		<u>FAC</u>	FACW species <u>10</u> x 2 = <u>20</u>
4. <u>Rubus occidentalis</u>	<u>5</u>		<u>FAC</u>	FAC species <u>44</u> x 3 = <u>132</u>
5. _____				FACU species _____ x 4 = _____
<u>35</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>59</u> (A) <u>157</u> (B)
				Prevalence Index = B/A = <u>2.7</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Carex trisperma</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Carex canadensis</u>	<u>2</u>		<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Rubus occidentalis</u>	<u>2</u>		<u>FAC</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>9</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>Dominants in WL</u>				

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: 4/16-cp1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40							organic	Peat

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 100cm
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 100cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM - NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug. 21/14
 Applicant/Owner: WELCO Sampling Point: WLLG-CPI
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
 Slope (%): 30 Lat: 64 52 73 Long: 50 2 25 20 Datum: NAD 83
 Soil Map Unit Name/Type: Peckham Wetland Type: upland - Barren
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Abies balsamea</u>	<u>65%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>Picea mariana</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Amorpha phoenicea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Kalmia latifolia</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species _____ x 1 = _____
3. <u>Brachyglottis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	FACW species <u>20</u> x 2 = <u>40</u>
4. <u>Menyanthes</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FAC species <u>100</u> x 3 = <u>300</u>
5. <u>Rhododendron</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACU species <u>20</u> x 4 = <u>80</u>
<u>65</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>140</u> (A) <u>440</u> (B)
				Prevalence Index = B/A = <u>3.0</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Urtica dioica</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Cyperus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Rubus</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Lactuca</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>55</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: W-16-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10							organic	soft

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
 Depth (inches): 100 in

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet W619

Date: Sept. 8/10
Investigator(s): S. Burke,
Weather: cloudy
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹: Bog
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) X
- 3. Fen (FE) _____
- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW) X

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____
- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog X

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____
- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS _____
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog X
- 34. Shrubby B X
- 35. Open B X

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated X
- 3. Seasonally flooded X

Water Depth:

- 1. 0-5 cm X
- 2. 5-20 cm _____
- 3. 20-50 cm _____
- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated X
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees -
- 2. Coniferous trees 25% - B. Spruce, Larch
- 3. Dead trees 5%
- 4. Tall shrubs 15% - Arno, viburnum
- 5. Low shrubs 40% - Kletterholz, Heidebeere, Ledum
- 6. Dead shrubs -
- 7. Herbs 25% - Carex tri, Rhynchospora alba
- 8. Mosses
- 9. Narrow-leaved emergents
- 10. Broad-leaved emergents
- 11. Robust emergents
- 12. Free-floating plants
- 13. Floating plants (rooted)
- 14. Submerged plants
- 15. Other

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression X
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

none observed

Wildlife: (Observation/Signs/Reports)

Dragon Flies

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 90%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach _____
- 6. River _____
- 7. Other 10% - Box @ East Side

Description: mixed woods

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: Novel

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other X

Description: Property cut line

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Potential

Notes:

Wh-19 ↑
N



Freshwater Wetland Data Sheet WL-20

Date: Sept. 8/10
Investigator(s): S. Zuckler
Weather: Cloudy
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹: Treed Bog
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

1. Aquatic bed/unconsolidated bottom (AB) _____
2. Bog (BO) _____
3. Fen (FE) _____
4. Emergent wetland (EW) _____
5. Shrub wetland (SB) _____
6. Forested wetland (FW)

Wetland Class:

1. Open water _____
2. Deep marsh _____
3. Shallow marsh _____
4. Seasonally flooded flats _____
5. Meadow _____
6. Shrub swamp _____
7. Wooded swamp
8. Bog _____

Wetland Subclass:

1. Vegetated open water _____
2. Non-vegetated OW _____
3. Floating leaved OW _____
4. Rooted floating leaved OW _____
5. Dead woody OW _____
6. Vegetated deep marsh _____
7. Non-vegetated DM _____
8. Dead woody DM _____
9. Sub-shrub DM _____
10. Floating leaved DM _____
11. Rooted floating leaved DM _____
12. Robust DM _____
13. Narrow-leaved DM _____
14. Broad-leaved DM _____
15. Dead woody shallow marsh _____
16. Robust SM _____
17. Narrow leaved SM _____
18. Broad leaved SM _____
19. Floating leaved SM _____
20. Rooted floating leaved SM _____
21. Non-vegetated SM _____
22. Emergent seasonally flooded flats _____
23. Shrubby SFF _____
24. Grazed meadow _____
25. Ungrazed M _____
26. Sedge M _____
27. Sapling shrub swamp _____
28. Bushy SS _____
29. Compact SS _____
30. Low sparse SS _____
31. Deciduous wooded swamp _____
32. Evergreen WS
33. Wooded bog _____
34. Shrubby B _____
35. Open B _____

Water Regime Indicator:

1. Permanently flooded _____
2. Saturated
3. Seasonally flooded _____

Water Depth:

1. 0-5 cm
2. 5-20 cm _____
3. 20-50 cm _____
4. 50-100 cm _____
5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated X
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees - 29%
- 2. Coniferous trees - 60% - Fir, B. Spruce
- 3. Dead trees 29%
- 4. Tall shrubs 15 - Rubus - Viburnum
- 5. Low shrubs 10 - Salix
- 6. Dead shrubs -
- 7. Herbs 25% - Carex lasiocarpa
- 8. Mosses 10%
- 9. Narrow-leaved emergents -
- 10. Broad-leaved emergents -
- 11. Robust emergents -
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression X
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

None

Wildlife: (Observation/Signs/Reports)

Adjacent Wildlife habitat (%):

- | | |
|----------------------|----------------|
| 1. Salt marsh _____ | 5. Beach _____ |
| 2. Forest <u>(W)</u> | 6. River _____ |
| 3. Dykelands _____ | 7. Other _____ |
| 4. Mudflats _____ | |

Description: mixed woods

Surrounding Land Use %:

- | | |
|----------------------------|------------------------------|
| 1. Agriculture _____ | 7. Residential _____ |
| 2. Forestry _____ | 8. Waste Disposal _____ |
| 3. Recreation _____ | 9. Scientific Research _____ |
| 4. Industrial <u>(S)</u> | 10. Trapping _____ |
| 5. Urban development _____ | 11. Education _____ |
| 6. Transportation _____ | 12. Seasonal resident _____ |

Description: Power line

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- | | |
|--------------------------------|--------------------------|
| 1. Private road adjacent _____ | 4. DOT road within _____ |
| 2. DOT road adjacent _____ | 5. Vehicle tracks _____ |
| 3. Private road within _____ | 6. Other <u>X</u> |

Description: Property line

Existing Uses of Wetlands:

- | | |
|--------------------------------------|---------------------------------------|
| 1. Economic use (e.g. farming) _____ | 4. Education & public awareness _____ |
| 2. Recreational activities _____ | 5. None evident <u>X</u> |
| 3. Aesthetics _____ | |

Potential Threats:

Special Features:

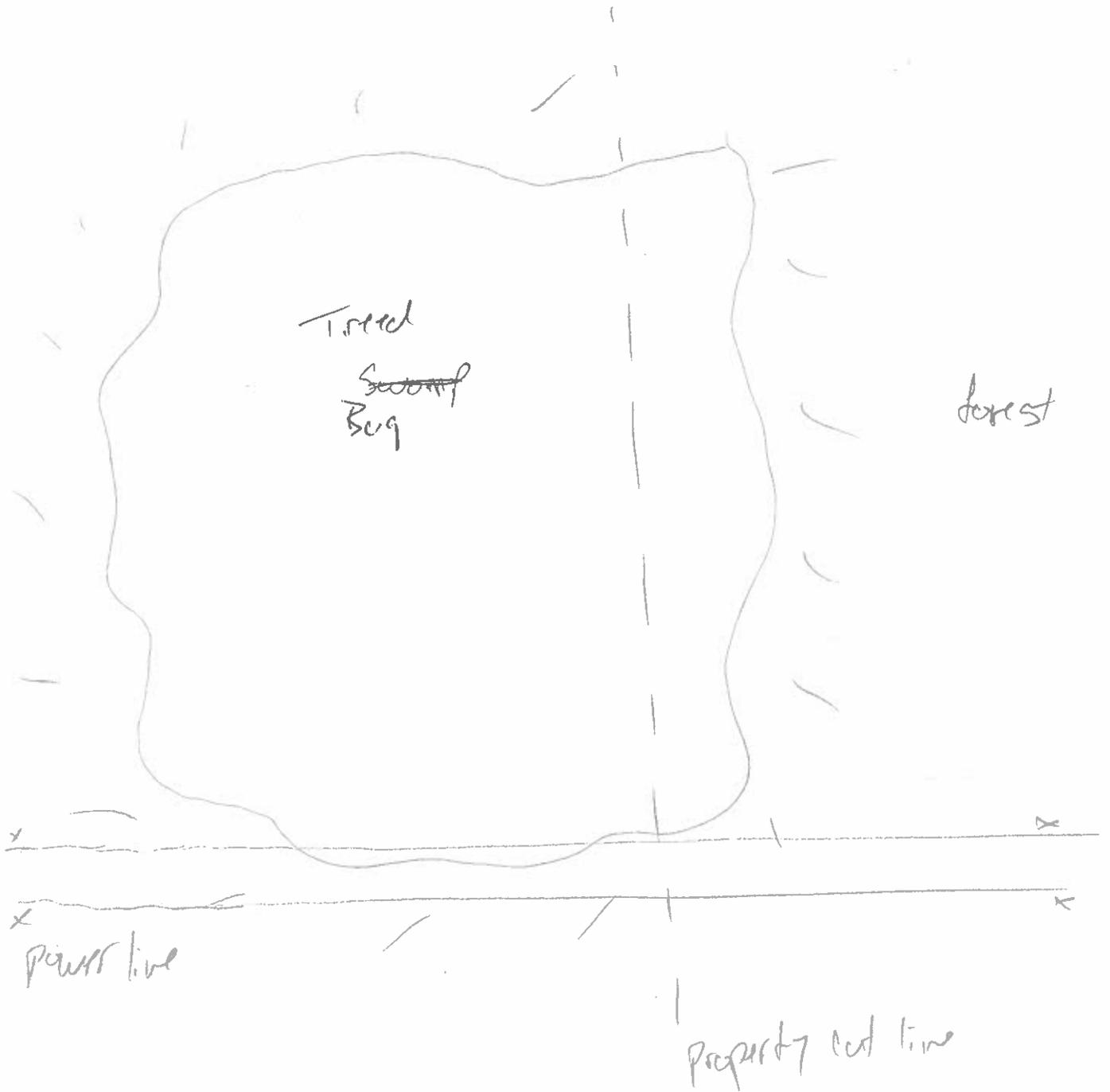
- | | |
|---------------------------------------|--|
| 1. Rare wetland type _____ | 4. Nesting site for colonial water birds _____ |
| 2. Rare animal or plant species _____ | 5. Migration stop-over site _____ |
| 3. Habitat of rare species <u>X</u> | 6. None evident _____ |

Description: Power line

Notes:

Wk - 20

(P)
N



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey Shores Sampling Date: Aug 19/14
 Applicant/Owner: Victoria Sampling Point: WL19-WP1
 Investigator(s): S. Burke Affiliation: AMEC
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): irregularly
 Slope (%): 1 Lat: 645938 Long: 5027562 Datum: NAD 83
 Soil Map Unit Name/Type: Peatland Wetland Type: Swg

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>WL19</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Leucis carolinensis</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>Picea mariana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
3. <u>Abies balsamea</u>	<u>2</u>		<u>FAC</u>																	
4. _____																				
5. _____																				
<u>32</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>20</u></td> <td>x 1 = <u>20</u></td> </tr> <tr> <td>FACW species <u>12</u></td> <td>x 2 = <u>24</u></td> </tr> <tr> <td>FAC species <u>87</u></td> <td>x 3 = <u>261</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>119</u> (A)</td> <td><u>305</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.6</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>20</u>	x 1 = <u>20</u>	FACW species <u>12</u>	x 2 = <u>24</u>	FAC species <u>87</u>	x 3 = <u>261</u>	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u>119</u> (A)	<u>305</u> (B)	Prevalence Index = B/A = <u>2.6</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>20</u>	x 1 = <u>20</u>																			
FACW species <u>12</u>	x 2 = <u>24</u>																			
FAC species <u>87</u>	x 3 = <u>261</u>																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: <u>119</u> (A)	<u>305</u> (B)																			
Prevalence Index = B/A = <u>2.6</u>																				
<u>32</u> = Total Cover				Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
<u>67</u> = Total Cover																				
<u>20</u> = Total Cover																				
<u>20</u> = Total Cover																				
<u>20</u> = Total Cover																				
<u>20</u> = Total Cover																				
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<u>20</u> = Total Cover																				
<u>20</u> = Total Cover																				

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

SOIL

Sampling Point: W19-6P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40 ⁺							calcareous	Peat

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

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Coast Prairie Redox (A16) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) | <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (minimum of two required)

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

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 25cm
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 5cm

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough, NS Sampling Date: Aug 19/14
 Applicant/Owner: Vulcan Sampling Point: WL19-UP1
 Investigator(s): S. Buckley Affiliation: ANCC
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): _____
 Slope (%): 25% Lat: 645944 Long: 5022580 Datum: NAD 83
 Soil Map Unit Name/Type: _____ Wetland Type: Upland

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> 10m </u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u> Abies balsamea </u>	<u> 15 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u> 5 </u> (A) Total Number of Dominant Species Across All Strata: <u> 5 </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100 </u> (A/B)																
2. <u> Acer rubrum </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
3. <u> Picea canadensis </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FACW </u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u> 20 </u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;">Total % Cover of:</td> <td style="width:40%;">Multiply by:</td> </tr> <tr> <td>OBL species <u> — </u></td> <td>x 1 = <u> — </u></td> </tr> <tr> <td>FACW species <u> 5 </u></td> <td>x 2 = <u> 10 </u></td> </tr> <tr> <td>FAC species <u> 53 </u></td> <td>x 3 = <u> 159 </u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u> 58 </u> (A)</td> <td><u> 169 </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u> 2.9 </u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u> — </u>	x 1 = <u> — </u>	FACW species <u> 5 </u>	x 2 = <u> 10 </u>	FAC species <u> 53 </u>	x 3 = <u> 159 </u>	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u> 58 </u> (A)	<u> 169 </u> (B)	Prevalence Index = B/A = <u> 2.9 </u>	
Total % Cover of:	Multiply by:																			
OBL species <u> — </u>	x 1 = <u> — </u>																			
FACW species <u> 5 </u>	x 2 = <u> 10 </u>																			
FAC species <u> 53 </u>	x 3 = <u> 159 </u>																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: <u> 58 </u> (A)	<u> 169 </u> (B)																			
Prevalence Index = B/A = <u> 2.9 </u>																				
<u> 20 </u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u> 5m </u>)																				
1. <u> Abies balsamea </u>	<u> 20 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
2. <u> Kalopanax angustifolium </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
3. <u> Acer rubrum </u>	<u> 2 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
4. <u> Sorbus chamaemorus </u>	<u> 2 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
5. _____	_____	_____	_____																	
<u> 29 </u> = Total Cover																				
Herb Stratum (Plot size: <u> 1m </u>)																				
1. <u> Maianthemum canadensis </u>	<u> 5 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
2. <u> Trientalis borealis </u>	<u> 2 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
3. <u> Gaultheria procumbens </u>	<u> 2 </u>	<input checked="" type="checkbox"/>	<u> FAC </u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
<u> 9 </u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Hydrophytic Vegetation Indicators:
 ___ Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: ULP-UP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features		Type ¹	Loc ²	Texture	Remarks
			Color (moist)	%				
0-16							Organic Soil	
16-19	10YR5/2						Sand (weath. bedrock)	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
 Depth (inches): 19 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

open conifer forest.

Freshwater Wetland Data Sheet: *W21*

Date: *Ag. 18/14*
 Investigator(s): Scott Burley
 Weather: *Sun/Cloud/Showers*
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹:: _____
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|--|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <input checked="" type="checkbox"/> | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) <input checked="" type="checkbox"/> |

Wetland Class:

- | | |
|-----------------------------------|---|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp <input checked="" type="checkbox"/> |
| 4. Seasonally flooded flats _____ | 8. Bog <input checked="" type="checkbox"/> |

Wetland Subclass:

- | | |
|-------------------------------------|--|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M <input checked="" type="checkbox"/> |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS <input checked="" type="checkbox"/> |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog <input checked="" type="checkbox"/> |
| 16. Robust SM _____ | 34. Shrubby B <input checked="" type="checkbox"/> |
| 17. Narrow leaved SM _____ | 35. Open B <input checked="" type="checkbox"/> |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|--|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <input checked="" type="checkbox"/> | |

Water Depth:

- | | |
|---|--------------------|
| 1. 0-5 cm <input checked="" type="checkbox"/> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

W2 depth: > 40cm organic

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____
- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____
- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine
- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 5% Red maple
- 2. Coniferous trees Black Spruce, Larch (5%) Balsam Fir
- 3. Dead trees 2%
- 4. Tall shrubs 5% Arctostaphylos, Tibet Vetscitata, Viburnum nudum
- 5. Low shrubs 5% Leatherleaf, Labrador Tea
- 6. Dead shrubs _____
- 7. Herbs 30% Succisa purpurea, Platantherium tritolicum*, Aster nemoralis
- 8. Mosses 10% Sphagnum
- 9. Narrow-leaved emergents 60% Carex sp. 15%, Eriophorum, Calamagrostis canadensis
- 10. Broad-leaved emergents _____
- 11. Robust emergents _____
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other _____

Interspersion: 1. Minimal 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression
- 2. Ground water depression _____
- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

2 main outlet channels @ west end

Wildlife: (Observation/Signs/Reports)

Coyote Scat
 Rabbit droppings
 Hapud Frog

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest (100%)
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description:

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description:

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other X

Description: Survey cut line @ East end. Highway 16 ~ 150m to South.

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident X

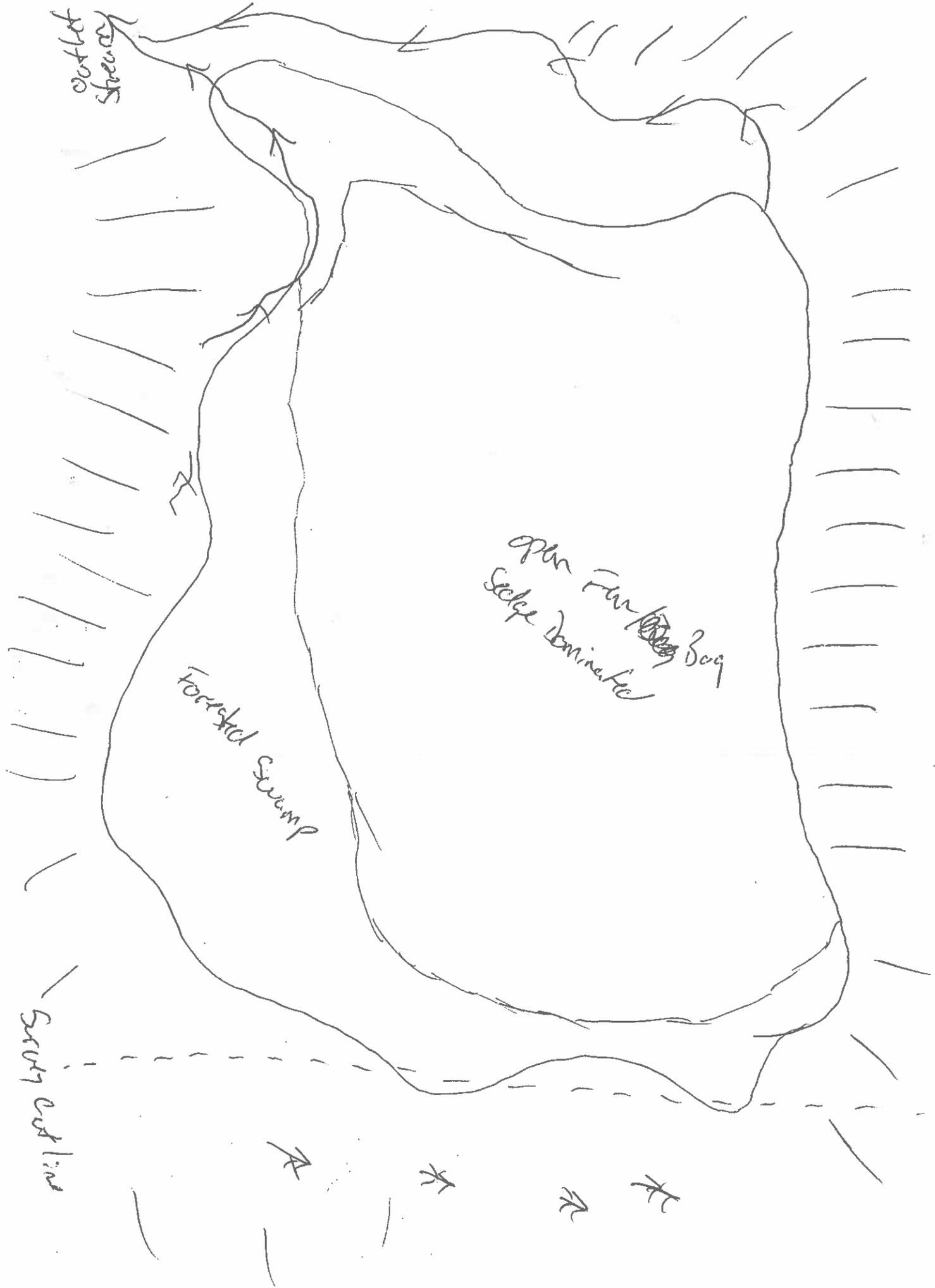
Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species _____
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident X

Description:

Notes:



outer boundary

Forestal Swamp

open Fur ~~bag~~ Bog
Sedge dominated

Survey cut line

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey Sheringham Sampling Date: July 2011
 Applicant/Owner: ULCON Sampling Point: ULH1-WP1
 Investigator(s): ~~S. D. ...~~ Steve Popeman Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Hammered
 Slope (%): 2 Lat: 644735 Long: 5021802 Datum: NAD 83
 Soil Map Unit Name/Type: Reckland Wetland Type: _____

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u><i>Picea mariana</i></u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>50</u> x 1 = <u>50</u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>95</u> (A) <u>150</u> (B) Prevalence Index = B/A = <u>1.6</u>
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u><i>Chamaecyparis canadensis</i></u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u><i>Salix purpurea</i></u>	<u>5</u>		<u>OBL</u>	
3. <u><i>Rhododendron canadensis</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
4. <u><i>Thuja occidentalis</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
5. <u><i>Picea canadensis</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1</u>)				
1. <u><i>Rhynchospora alba</i></u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u><i>Sagittaria purpurascens</i></u>	<u>5</u>		<u>OBL</u>	
3. <u><i>Acer thibautii</i></u>	<u>5</u>		<u>OBL</u>	
4. <u><i>Dracopis reticulata</i></u>	<u>5</u>		<u>OBL</u>	
5. <u><i>Molinia arifolia</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
6. <u><i>Carex flacca</i></u>	<u>5</u>		<u>OBL</u>	
7. _____				
8. _____				
9. _____				
10. _____				
<u>45</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Present? Yes No _____

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: W21-UP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40+							organic	Parent

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 10
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guysborough Sampling Date: Aug. 18/14
 Applicant/Owner: Indem Sampling Point: WL-21-UP1
 Investigator(s): G. Berkeley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): Hummock
 Slope (%): 5% Lat: 64°42'42" Long: 50°17'42" Datum: NAD 83
 Soil Map Unit Name/Type: Reckland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>6</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>15%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Abies balsamea</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
<u>35</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>31</u> x 3 = <u>93</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>51</u> (A) <u>133</u> (B) Prevalence Index = B/A = <u>2.6</u>
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u>Picea mariana</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Abies balsamea</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____				
<u>10</u> = Total Cover				
Herb Stratum (Plot size: <u>1</u>)				
1. <u>Rubus cuneifolius</u>	<u>5%</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	
2. <u>Acer rubrum</u>	<u>6%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>6</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>—</u>)				
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: U-21-U-01

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

Depth (inches)	cm	Matrix		Redox Features			Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type ¹		
<u>0</u>	<u>0-10</u>	<u>-</u>					<u>organic</u>	<u>Drift</u>
<u>AC</u>	<u>10-16</u>	<u>10YR 6/2</u>	<u>100</u>				<u>Silt loam</u>	
<u>B</u>	<u>16-21</u>	<u>7.5YR 5/4</u>	<u>100</u>				<u>clay loam</u>	

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

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 21 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

Freshwater Wetland Data Sheet: *W.L. 22*

Date: *Aug. 19/14*
 Investigator(s): Scott Burley
 Weather: *Sun / Cloud / Shadrows*
 Topographic Sheet: _____
 Aerial Photo Number: _____

Wetland Atlas Number : _____
 GIS Map / Stand No. : _____
 Wetland Form¹: _____
 Wetland size: _____ ha
 Associated Watercourse: _____

Wetland Type:

- | | |
|---|--|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) <input checked="" type="checkbox"/> |

Wetland Class:

- | | |
|-----------------------------------|---|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp <input checked="" type="checkbox"/> |
| 4. Seasonally flooded flats _____ | 8. Bog _____ |

Wetland Subclass:

- | | |
|-------------------------------------|--|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS <input checked="" type="checkbox"/> |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|--|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <input checked="" type="checkbox"/> | |

Water Depth:

- | | |
|---|--------------------|
| 1. 0-5 cm <input checked="" type="checkbox"/> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

*W.L. Soil - 15cm peat
 15cm Black muck = A3
 10-12 d/i
 bedrock @ 30cm*

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated X
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 20% Red maple
- 2. Coniferous trees 30% Picea canadensis, Larch, Fir
- 3. Dead trees 10%
- 4. Tall shrubs 15% Alnus, Salix, Kalmia, Wild Rose, Sweet Birch, Hackberry
- 5. Low shrubs 20% Ilex, Rhus, Cornus, Sambucus
- 6. Dead shrubs _____
- 7. Herbs 15% Cynodon, P. heterophyllum, S. arvensis
- 8. Mosses 10% Sphagnum
- 9. Narrow-leaved emergents Scirpus cespitosus
- 10. Broad-leaved emergents _____
- 11. Robust emergents _____
- 12. Free-floating plants _____
- 13. Floating plants (rooted) _____
- 14. Submerged plants _____
- 15. Other _____

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression X
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

None

Wildlife: (Observation/Signs/Reports)

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest _____
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: 25% Forest; 20% Bay; 55% Shrub Burden

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry 100%
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: Small

Disturbance: 1. Low _____ 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other X

Description: Seaway cut live e west end

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species X
- 3. Habitat of rare species X
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Greenland Lizard present in Bay

Notes:

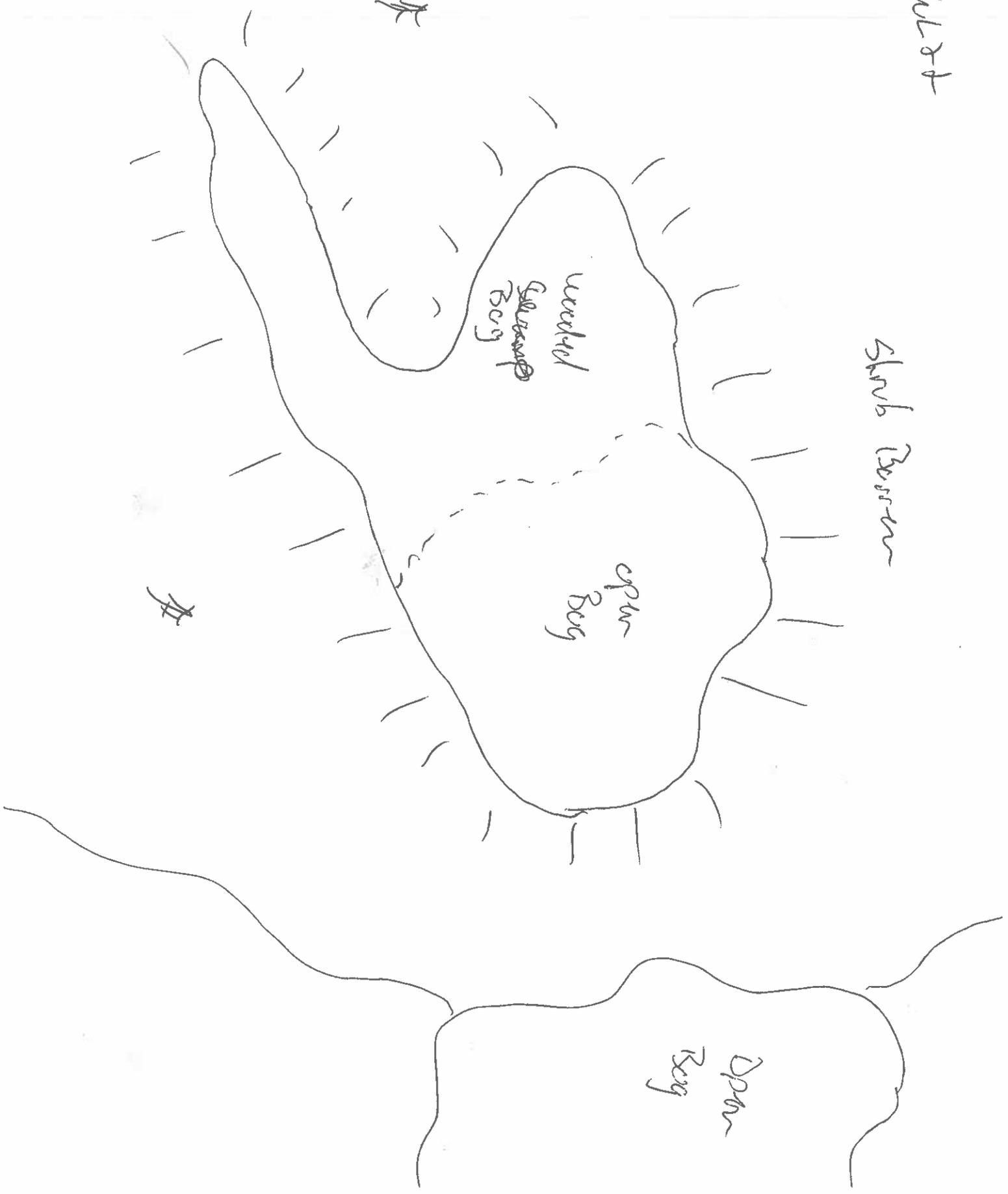
↖ N
↗ West

Shrub Barrier

weeded
~~Salvage~~
Bay

open
Bay

Open
Bay



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Brimley Sampling Date: July 2011
 Applicant/Owner: Union Sampling Point: W11-UP1
 Investigator(s): S. Bunting, J. P. Papan Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Horizontal
 Slope (%): 1 Lat: 644 365 Long: 502 202 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Scg
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Picea mariana</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
<u>25</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>45</u> x 2 = <u>90</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>90</u> (A) <u>205</u> (B) Prevalence Index = B/A = <u>2.3</u>
<u>20</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u>Picea mariana</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>20</u> = Total Cover				
Herb Stratum (Plot size: <u>1</u>)				
1. <u>Menyanthes trifolium</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Cornus canadensis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Carex trisperma</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
4. <u>Sagittaria cuneata</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>40</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: W-22-471

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40							organic	peat

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 102
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Cape Breton Sampling Date: Aug. 18/14
 Applicant/Owner: Urdun Sampling Point: 422-UP1
 Investigator(s): S. Bunk Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Terrace / Flat Local relief (concave, convex, none): Hummocky
 Slope (%): 1% Lat: 644302 Long: 5022022 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea mariana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. <u>Abies balsamea</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. <u>Larix laricina</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. <u>Acacia rubra</u>	<u>1</u>	<input type="checkbox"/>	<u>FAC</u>	
5. _____				
<u>21</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Asplenium adnigrum</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Fallopia angustifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species <u>0</u> x 1 = _____
3. <u>Carex lasiocarpa</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species <u>11</u> x 2 = <u>22</u>
4. <u>Cyperus aculeatus</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	FAC species <u>102</u> x 3 = <u>306</u>
5. <u>Lolium arvense</u>	<u>1</u>	<input type="checkbox"/>	<u>FACW</u>	FACU species _____ x 4 = _____
<u>40</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>113</u> (A) <u>328</u> (B)
				Prevalence Index = B/A = <u>2.9</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Carex acutata</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Trifolium pratense</u>	<u>10</u>	<input type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Clintonia borealis</u>	<u>10</u>	<input type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Alisma heterophyllum</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Urtica dioica</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>52</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>✓</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: W22-CP1

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

O
AL

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10								carbonic duct
10-15	10YR 5/2	100%					Silt/clay	

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
	<input type="checkbox"/> Coast Prairie Redox (A16)
	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
	<input type="checkbox"/> Iron-Manganese Masses (F12)
	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
	<input type="checkbox"/> Red Parent Material (TF2)
	<input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if observed):
 Type: Redoxic C
 Depth (inches): 15 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: wk 23

Date: Aug 18/14
Investigator(s): Scott Burley
Weather: Sun / Cloud / Showers
Topographic Sheet: _____
Aerial Photo Number: _____

Wetland Atlas Number : _____
GIS Map / Stand No. : _____
Wetland Form¹:: _____
Wetland size: _____ ha
Associated Watercourse: _____

Rain Precious Day
Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) X
- 3. Fen (FE) _____

- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW) _____

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____

- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog X

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____

- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF _____
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M _____
- 27. Sapling shrub swamp _____
- 28. Bushy SS _____
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog _____
- 34. Shrubby B X
- 35. Open B X

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated X

- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm X
- 2. 5-20 cm _____
- 3. 20-50 cm _____

- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

W. Sec. 1 40+ Plant A1

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____

- 4. Isolated
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees 100 - Red Maple
- 2. Coniferous trees 50 - B. Spruce, Fir, Larch
- 3. Dead trees 10
- 4. Tall shrubs 50 - Arceuthobium, Alnus, Viburnum nudum, Sweetgale
- 5. Low shrubs 10 - Juniper
- 6. Dead shrubs -
- 7. Herbs 50 - Pitted plant
- 8. Mosses
- 9. Narrow-leaved emergents - R. arifolius, Scirpus, Eriophorum
- 10. Broad-leaved emergents
- 11. Robust emergents
- 12. Free-floating plants
- 13. Floating plants (rooted)
- 14. Submerged plants
- 15. Other

Interspersion: 1. Minimal 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression
- 2. Ground water depression _____

- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

None

Wildlife: (Observation/Signs/Reports)

Ⓟ Rabbit droppings.

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest _____
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: 30% wetland (veg w/I 30m); 20% Forest; 50% Shrub
Barren

Surrounding Land Use %:

- 1 Agriculture _____
- 2. Forestry _____
- 3 Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: Shrub

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description: Shrub

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description: —

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident

Potential Threats:

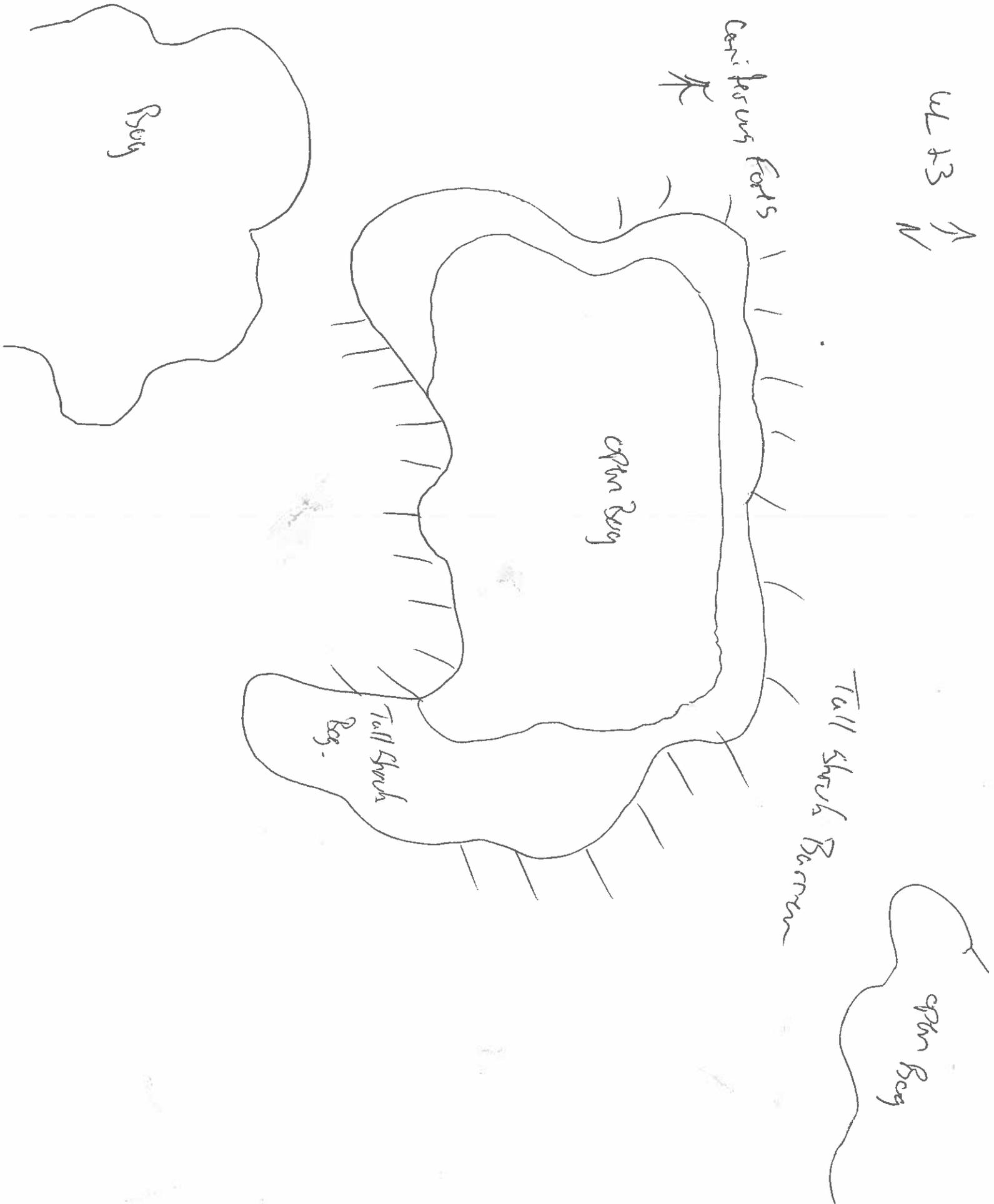
Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species
- 3. Habitat of rare species
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Cladonia stygia present

Notes:

WL 13 ↑
N



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Greyborough Sampling Date: July 2011

Applicant/Owner: ULCO Sampling Point: UL23-UP1

Investigator(s): S. D. [unclear] Theopropus Affiliation: AMEC

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Hummocky

Slope (%): 1 Lat: 644447 Long: 722143 Datum: NAD 83

Soil Map Unit Name/Type: Rockland Wetland Type: BCG

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Thuja laricina</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>7</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>7</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
<u>5</u> = Total Cover				Prevalence Index worksheet:	
Sapling/Shrub Stratum (Plot size: <u>5</u>)				Total % Cover of:	
1. <u>Rhododendron canadense</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>	OBL species	<u>0</u> x 1 = <u>0</u>
2. <u>Corylus americana</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species	<u>15</u> x 2 = <u>30</u>
3. <u>Juniperus horizontalis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	FAC species	<u>35</u> x 3 = <u>105</u>
4. <u>Aster multiflorus</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACU species	_____ x 4 = _____
5. <u>Viburnum acerifolium</u>	<u>05</u>	<input type="checkbox"/>	<u>FAC</u>	UPL species	_____ x 5 = _____
<u>45</u> = Total Cover				Column Totals:	<u>0</u> (A) <u>105</u> (B)
Herb Stratum (Plot size: <u>1</u>)				Prevalence Index = B/A = <u>1.3</u>	
1. <u>Scirpus capitegus</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	Hydrophytic Vegetation Indicators:	
2. <u>Rhynchospora alba</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
3. <u>Sagittaria arifolia</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%	
4. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
5. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
6. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
<u>30</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					

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

SOIL

Sampling Point: WL 23-401

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-40							organic	Peat

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

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 10

Saturation Present? Yes No Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Bleek Point Municipality/County: Guysborough Sampling Date: Aug. 18/14
 Applicant/Owner: ULCMA Sampling Point: 4L23-cpl
 Investigator(s): S. Brubaker Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Hummocky
 Slope (%): 1 Lat: 644453 Long: 5022142 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
---	--

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>Picea mariana</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>Larix laricina</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
3. _____																				
4. _____																				
5. _____																				
<u>4</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>1</u></td> <td>x 1 = <u>1</u></td> </tr> <tr> <td>FACW species <u>2</u></td> <td>x 2 = <u>4</u></td> </tr> <tr> <td>FAC species <u>105</u></td> <td>x 3 = <u>315</u></td> </tr> <tr> <td>FACU species <u>2</u></td> <td>x 4 = <u>8</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>109</u> (A)</td> <td><u>327</u> (B)</td> </tr> <tr> <td align="center" colspan="2">Prevalence Index = B/A = <u>3.0</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>1</u>	x 1 = <u>1</u>	FACW species <u>2</u>	x 2 = <u>4</u>	FAC species <u>105</u>	x 3 = <u>315</u>	FACU species <u>2</u>	x 4 = <u>8</u>	UPL species _____	x 5 = _____	Column Totals: <u>109</u> (A)	<u>327</u> (B)	Prevalence Index = B/A = <u>3.0</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>1</u>	x 1 = <u>1</u>																			
FACW species <u>2</u>	x 2 = <u>4</u>																			
FAC species <u>105</u>	x 3 = <u>315</u>																			
FACU species <u>2</u>	x 4 = <u>8</u>																			
UPL species _____	x 5 = _____																			
Column Totals: <u>109</u> (A)	<u>327</u> (B)																			
Prevalence Index = B/A = <u>3.0</u>																				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)																				
1. <u>Fraxinus americana</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
2. <u>Rubus cuneifolius</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>																	
3. <u>Alnus crispa</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>																	
4. <u>Viburnum acerifolium</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
5. <u>Prunella americana</u>	<u>5</u>	<input type="checkbox"/>	<u>FAC</u>																	
<u>44</u> = Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u>Rubus cuneifolius</u>	<u>590</u>	<input type="checkbox"/>	<u>FAC</u>																	
2. <u>Aster multiflorus</u>	<u>290</u>	<input type="checkbox"/>	<u>FAC</u>																	
3. <u>Trifolium pratense</u>	<u>290</u>	<input type="checkbox"/>	<u>FAC</u>																	
4. <u>Grasshopper</u>	<u>290</u>	<input type="checkbox"/>	<u>FAC</u>																	
5. <u>Erigeron acer</u>	<u>500</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
<u>161</u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
_____ = Total Cover																				

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: WL23-UP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5							organic	depth

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Redrock
 Depth (inches): 5 cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: Wet 24

Date: Aug 18/14
Investigator(s): Scott Burley/
Weather: Sun/Cloud/Showers

Wetland Form¹::
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

- | | |
|---|--------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) <u>X</u> | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) _____ | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog <u>X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF _____ |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M _____ |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog <u>X</u> |
| 16. Robust SM _____ | 34. Shrubby B <u>X</u> |
| 17. Narrow leaved SM _____ | 35. Open B <u>X</u> |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____
- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____
- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine _____
- 4. Isolated
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees - 20% Red Maple
- 2. Coniferous trees - 20% Larch, Spruce, Fir
- 3. Dead trees - 10%
- 4. Tall shrubs - 25% - Arizony thick leaved, Rheedera, Wild Raisin, Kaloria
- 5. Low shrubs - Juniper, Lab tea, 30% - Vaccinium microcarpum
- 6. Dead shrubs - -
- 7. Herbs - 15% - P. later plant, Bette Apple, Bunch berry
- 8. Mosses - -
- 9. Narrow-leaved emergents - 30% - Deer Grass, Eriophorum, Carex exilis
- 10. Broad-leaved emergents - -
- 11. Robust emergents - -
- 12. Free-floating plants - -
- 13. Floating plants (rooted) - -
- 14. Submerged plants - -
- 15. Other - -

Interspersion: 1. Minimal 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression
- 2. Ground water depression _____
- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

None

Wildlife: (Observation/Signs/Reports)

Passerines
Rabbit Droppings

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest _____
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: 60% Forest; 30% Shrub Berrian; 10% Wetland.

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation _____
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description:

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other

Description: Swale cut line through wetland

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident

Potential Threats:

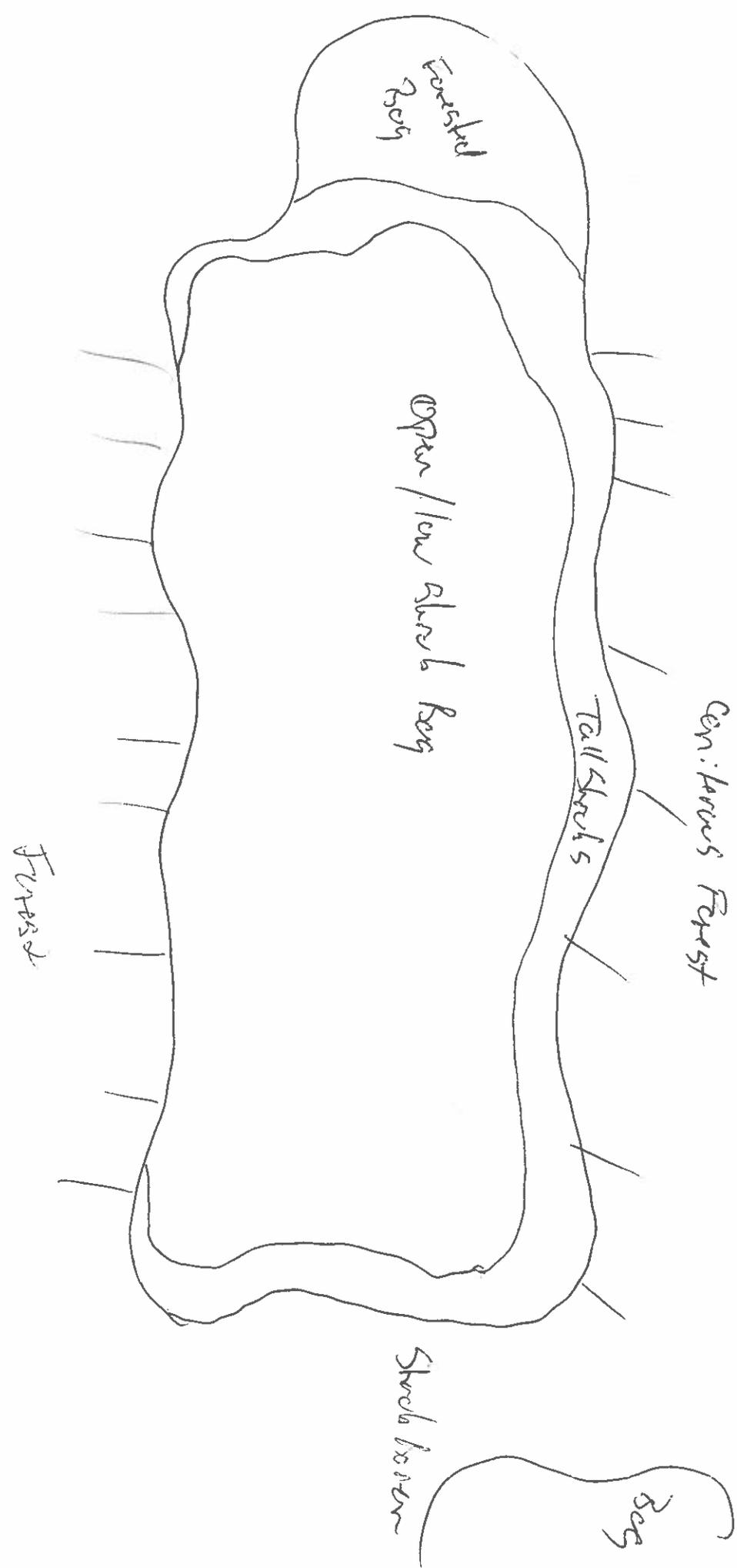
Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species
- 3. Habitat of rare species
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description: Cladonia stygia

Notes:

W 114 ↑
N ↓



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Guy Sharnough Sampling Date: Aug. 18/14
 Applicant/Owner: Valcom Sampling Point: 6424-WP1
 Investigator(s): S. Burby Affiliation: AMEC
 Landform (hillslope, terrace, etc.): NOVSS:im Local relief (concave, convex, none): Horizontal
 Slope (%): 1% Lat: 644456 Long: 502220 Datum: NAD 83
 Soil Map Unit Name/Type: Reckland Wetland Type: Bog
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Carix lasiocarpa</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Potamogeton nodosus</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
<u>7</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>49</u> x 1 = <u>49</u> FACW species <u>6</u> x 2 = <u>12</u> FAC species <u>47</u> x 3 = <u>141</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>102</u> (A) <u>202</u> (B) Prevalence Index = B/A = <u>2.0</u>
Sapling/Shrub Stratum (Plot size: <u>5m</u>)				
1. <u>Corylus americana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Acer rubrum</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Fraxinus americana</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Prunella serotina</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
5. <u>Picea canadensis</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>	
<u>42</u> = Total Cover				
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Scirpus atrovirens</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Sagittaria arifolia</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Aster multiflorus</u>	<u>2</u>	<input type="checkbox"/>	<u>OBL</u>	
4. <u>Helianthus annuus</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>	
5. <u>Eriophorum vaginatum</u>	<u>2</u>	<input type="checkbox"/>	<u>OBL</u>	
6. <u>Cyperus tenuiflorus</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>	
7. _____				
8. _____				
9. _____				
10. _____				
<u>53</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>—</u>)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

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

SOIL

Sampling Point: WH-14-WP1

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

O
A

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20							Organic Deant	
20-30	10YR/5	100%					Loamy Sand	

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input checked="" type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	
<input type="checkbox"/> Thin Dark Surface (S9)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): Surface

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM - NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey-Sherbrooke Sampling Date: Aug 18/14
 Applicant/Owner: ULCOM Sampling Point: UL 14-UP1
 Investigator(s): S. Berkeley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Hummocks
 Slope (%): 5 Lat: 44454 Long: 5011213 Datum: NAD 83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Karrija laevigata</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)
2. <u>Picea mariana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Betula papyrifera</u>	<u>2</u>		<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
5. _____				
_____ = Total Cover <u>17</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = _____ FACW species <u>7</u> x 2 = <u>14</u> FAC species <u>11</u> x 3 = <u>33</u> FACU species <u>2</u> x 4 = <u>8</u> UPL species _____ x 5 = _____ Column Totals: <u>120</u> (A) <u>355</u> (B) Prevalence Index = B/A = <u>3.0</u>
Sapling/Shrub Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Viburnum acerifolium</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Amelanchier canadensis</u>	<u>2</u>		<u>FAC</u>	
3. <u>Corylus heterophylla</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Rhus typhina</u>	<u>2</u>		<u>FACW</u>	
5. <u>Rhododendron canadense</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
6. <u>Asplenium platyneuron</u>	<u>10</u>		<u>FAC</u>	
_____ = Total Cover <u>79</u>				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Carex canadensis</u>	<u>5</u>		<u>FAC</u>	
2. <u>Galium angustifolium</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Vaccinium angustifolium</u>	<u>5</u>		<u>FAC</u>	
4. <u>Andropogon furcatus</u>	<u>2</u>		<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover <u>22</u>				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
_____ = Total Cover _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: W24-1P1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10							organic	DLT

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

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

Restrictive Layer (if observed):

Type: bedrock

Depth (inches): 100cm

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: WLAS

Date: Aug. 20/14
Investigator(s): Scott Burley/
Weather: Sun

Wetland Form¹::
Wetland size: _____ ha
Associated Watercourse: _____

Wetland Type:

- | | |
|---|--------------------------------|
| 1. Aquatic bed/unconsolidated bottom (AB) _____ | 4. Emergent wetland (EW) _____ |
| 2. Bog (BO) _____ | 5. Shrub wetland (SB) _____ |
| 3. Fen (FE) <u>X</u> | 6. Forested wetland (FW) _____ |

Wetland Class:

- | | |
|-----------------------------------|-----------------------|
| 1. Open water _____ | 5. Meadow _____ |
| 2. Deep marsh _____ | 6. Shrub swamp _____ |
| 3. Shallow marsh _____ | 7. Wooded swamp _____ |
| 4. Seasonally flooded flats _____ | 8. Bog _____ |
| | <u>Fen X</u> |

Wetland Subclass:

- | | |
|-------------------------------------|---|
| 1. Vegetated open water _____ | 19. Floating leaved SM _____ |
| 2. Non-vegetated OW _____ | 20. Rooted floating leaved SM _____ |
| 3. Floating leaved OW _____ | 21. Non-vegetated SM _____ |
| 4. Rooted floating leaved OW _____ | 22. Emergent seasonally flooded flats _____ |
| 5. Dead woody OW _____ | 23. Shrubby SFF <u>X</u> |
| 6. Vegetated deep marsh _____ | 24. Grazed meadow _____ |
| 7. Non-vegetated DM _____ | 25. Ungrazed M _____ |
| 8. Dead woody DM _____ | 26. Sedge M <u>X</u> |
| 9. Sub-shrub DM _____ | 27. Sapling shrub swamp _____ |
| 10. Floating leaved DM _____ | 28. Bushy SS _____ |
| 11. Rooted floating leaved DM _____ | 29. Compact SS _____ |
| 12. Robust DM _____ | 30. Low sparse SS _____ |
| 13. Narrow-leaved DM _____ | 31. Deciduous wooded swamp _____ |
| 14. Broad-leaved DM _____ | 32. Evergreen WS _____ |
| 15. Dead woody shallow marsh _____ | 33. Wooded bog _____ |
| 16. Robust SM _____ | 34. Shrubby B _____ |
| 17. Narrow leaved SM _____ | 35. Open B _____ |
| 18. Broad leaved SM _____ | |

Water Regime Indicator:

- | | |
|------------------------------|-----------------------------|
| 1. Permanently flooded _____ | 3. Seasonally flooded _____ |
| 2. Saturated <u>X</u> | |

Water Depth:

- | | |
|--------------------|--------------------|
| 1. 0-5 cm <u>X</u> | 4. 50-100 cm _____ |
| 2. 5-20 cm _____ | 5. >100 cm _____ |
| 3. 20-50 cm _____ | |

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____
- 3. Ducks Unlimited Impoundment _____
- 4. None of the above

Percent Vegetation Cover:

- 1. > 95%
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____
- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine _____
- 3. Palustrine
- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees - 19% - Red maple
- 2. Coniferous trees - 10% - Picea glauca, Abies
- 3. Dead trees - -
- 4. Tall shrubs - 20% - Alder, Aronia
- 5. Low shrubs - 3%
- 6. Dead shrubs - -
- 7. Herbs - 20% - Aster nemoralis, St. Johns wort, Cinnarum fern
- 8. Mosses - 10% - Sphagnum
- 9. Narrow-leaved emergents - 10% - Eriophorum, Calamagrostis, Sagittaria, Sium
- 10. Broad-leaved emergents - 15% - Iris
- 11. Robust emergents - -
- 12. Free-floating plants - -
- 13. Floating plants (rooted) - -
- 14. Submerged plants - -
- 15. Other - -

Interspersion: 1. Minimal 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression
- 2. Ground water depression _____
- 3. Surface water slope _____
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

one seasonal inlet @ South west side.

Wildlife: (Observation/Signs/Reports)

Deer tracks / scat
Passerines

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest _____
- 3. Dykelands _____
- 4. Mudflats _____
- 5. Beach _____
- 6. River _____
- 7. Other _____

Description: *50% Forest / 50% Beach*

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation *50*
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____
- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: *Wetland*

Disturbance: 1. Low 2. Moderate _____ 3. High _____

Description: *ATV tracks around / through wetland*

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____
- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description:

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____
- 4. Education & public awareness _____
- 5. None evident

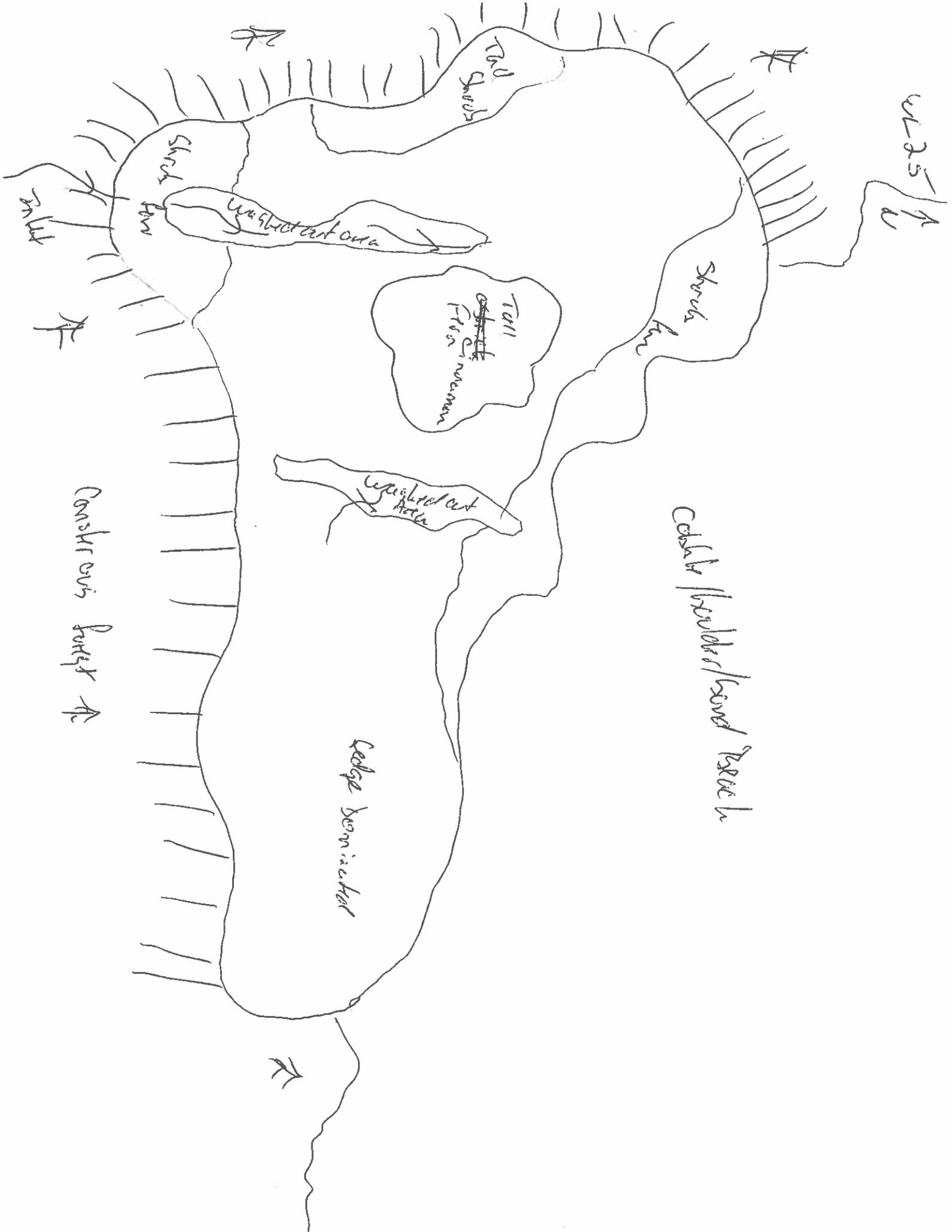
Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species
- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

Description:

Notes:



WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Grey-shuburg Sampling Date: Aug. 2014
 Applicant/Owner: Wickon Sampling Point: WLD25-WP1
 Investigator(s): S Bentley Affiliation: ANAC
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): Horizontal
 Slope (%): 3 Lat: 645864 Long: 5023655 Datum: NAD 83
 Soil Map Unit Name/Type: Rock land Wetland Type: Fen

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>WLD25</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Abies balsamea</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>10</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>Picea glauca</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Acacia rubra</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
4. _____																				
5. _____																				
<u>20</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>14</u></td> <td>x 1 = <u>14</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>55</u></td> <td>x 3 = <u>165</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>94</u> (A)</td> <td><u>239</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.5</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>14</u>	x 1 = <u>14</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>55</u>	x 3 = <u>165</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species _____	x 5 = _____	Column Totals: <u>94</u> (A)	<u>239</u> (B)	Prevalence Index = B/A = <u>2.5</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>14</u>	x 1 = <u>14</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>55</u>	x 3 = <u>165</u>																			
FACU species <u>5</u>	x 4 = <u>20</u>																			
UPL species _____	x 5 = _____																			
Column Totals: <u>94</u> (A)	<u>239</u> (B)																			
Prevalence Index = B/A = <u>2.5</u>																				
<u>40</u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>5m</u>)																				
1. <u>Alnus incana</u>	<u>5</u>		<u>FACW</u>																	
2. <u>Eucalyptus angustifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Viburnum acerifolium</u>	<u>5</u>		<u>FAC</u>																	
4. <u>Amorpha fruticosa</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
5. _____																				
<u>40</u> = Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u>Carex canadensis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
2. <u>Eriophorum angustifolium</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>																	
3. <u>Rhynchospora alba</u>	<u>2</u>		<u>OBL</u>																	
4. <u>Aster spicatus</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>OBL</u>																	
5. <u>Vaccinium myrtillus</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
6. <u>Vaccinium myrtillus</u>	<u>5</u>		<u>OBL</u>																	
7. <u>Juncus effusus</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
8. _____																				
9. _____																				
10. _____																				
<u>34</u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: WL25-CP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-30							organic	head

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	
<input type="checkbox"/> Thin Dark Surface (S9)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed): Type: <u>bedrock</u> Depth (inches): <u>30cm</u>	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--

Remarks:

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>5cm</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--

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

Remarks:

WETLAND DELINEATION DATA FORM - NOVA SCOTIA

Project/Site: Bleek Point Municipality/County: Guysborough Co Sampling Date: Aug 20/14
 Applicant/Owner: Wickham Sampling Point: W-15-UP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): hemispherical
 Slope (%): 45 Lat: 6045 9 55 Long: 502 36 36 Datum: NAD 83
 Soil Map Unit Name/Type: Becklund Wetland Type: Upland

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

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>Picea glauca</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>70</u> (A/B)																
2. <u>Abies balsamea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Picea mariana</u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>																	
4. _____	_____	<input type="checkbox"/>	_____																	
5. _____	_____	<input type="checkbox"/>	_____																	
<u>27</u> = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>2</u></td> <td>x 1 = <u>2</u></td> </tr> <tr> <td>FACW species <u>2</u></td> <td>x 2 = <u>4</u></td> </tr> <tr> <td>FAC species <u>74</u></td> <td>x 3 = <u>222</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>93</u> (A)</td> <td><u>288</u> (B)</td> </tr> <tr> <td align="center" colspan="2">Prevalence Index = B/A = <u>3.1</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>2</u>	x 1 = <u>2</u>	FACW species <u>2</u>	x 2 = <u>4</u>	FAC species <u>74</u>	x 3 = <u>222</u>	FACU species <u>15</u>	x 4 = <u>60</u>	UPL species _____	x 5 = _____	Column Totals: <u>93</u> (A)	<u>288</u> (B)	Prevalence Index = B/A = <u>3.1</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>2</u>	x 1 = <u>2</u>																			
FACW species <u>2</u>	x 2 = <u>4</u>																			
FAC species <u>74</u>	x 3 = <u>222</u>																			
FACU species <u>15</u>	x 4 = <u>60</u>																			
UPL species _____	x 5 = _____																			
Column Totals: <u>93</u> (A)	<u>288</u> (B)																			
Prevalence Index = B/A = <u>3.1</u>																				
<u>27</u> = Total Cover				Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)																
<u>25</u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>5 m</u>)																				
1. <u>Abies balsamea</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
2. <u>Geococcyx americana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Alnus incana</u> <u>Crispa</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
4. <u>Betula papyrifera</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
5. _____	_____	<input type="checkbox"/>	_____																	
<u>25</u> = Total Cover																				
Herb Stratum (Plot size: <u>1 m</u>)																				
1. <u>Carex canadensis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
2. <u>Dryopteris Comptophtera</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
3. <u>Rubus alleghaniensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>																	
4. <u>Vaccinium vitis-idaea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>																	
5. <u>Cystis trifida</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
6. <u>Carex trisperma</u>	<u>2</u>	<input type="checkbox"/>	<u>UPL</u>																	
7. <u>Desmodium illinoense</u> <u>canadensis</u>	<u>2</u>	<input type="checkbox"/>	<u>FAC</u>																	
8. _____	_____	<input type="checkbox"/>	_____																	
9. _____	_____	<input type="checkbox"/>	_____																	
10. _____	_____	<input type="checkbox"/>	_____																	
<u>36</u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	<input type="checkbox"/>	_____																	
2. _____	_____	<input type="checkbox"/>	_____																	
_____ = Total Cover																				

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: W25-CP1

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

Depth (inches)	cm	Matrix		Redox Features				Texture	Remarks
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
	0-10							Organic Soil	
	10-30	10YR 3/6	100%					Sand lens (possible plow layer)	

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
 Depth (inches): 500

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Freshwater Wetland Data Sheet: W-26

Date: Aug 20/14
 Investigator(s): Scott Burley
 Weather: Sunny

Wetland Form¹::
 Wetland size: _____ ha
 Associated Watercourse: unconsolidated stream

Wetland Type:

- 1. Aquatic bed/unconsolidated bottom (AB) _____
- 2. Bog (BO) _____
- 3. Fen (FE)
- 4. Emergent wetland (EW) _____
- 5. Shrub wetland (SB) _____
- 6. Forested wetland (FW) _____

Wetland Class:

- 1. Open water _____
- 2. Deep marsh _____
- 3. Shallow marsh _____
- 4. Seasonally flooded flats _____
- 5. Meadow _____
- 6. Shrub swamp _____
- 7. Wooded swamp _____
- 8. Bog _____

Fern X

Wetland Subclass:

- 1. Vegetated open water _____
- 2. Non-vegetated OW _____
- 3. Floating leaved OW _____
- 4. Rooted floating leaved OW _____
- 5. Dead woody OW _____
- 6. Vegetated deep marsh _____
- 7. Non-vegetated DM _____
- 8. Dead woody DM _____
- 9. Sub-shrub DM _____
- 10. Floating leaved DM _____
- 11. Rooted floating leaved DM _____
- 12. Robust DM _____
- 13. Narrow-leaved DM _____
- 14. Broad-leaved DM _____
- 15. Dead woody shallow marsh _____
- 16. Robust SM _____
- 17. Narrow leaved SM _____
- 18. Broad leaved SM _____
- 19. Floating leaved SM _____
- 20. Rooted floating leaved SM _____
- 21. Non-vegetated SM _____
- 22. Emergent seasonally flooded flats _____
- 23. Shrubby SFF
- 24. Grazed meadow _____
- 25. Ungrazed M _____
- 26. Sedge M
- 27. Sapling shrub swamp
- 28. Bushy SS
- 29. Compact SS _____
- 30. Low sparse SS _____
- 31. Deciduous wooded swamp _____
- 32. Evergreen WS _____
- 33. Wooded bog _____
- 34. Shrubby B _____
- 35. Open B _____

Water Regime Indicator:

- 1. Permanently flooded _____
- 2. Saturated
- 3. Seasonally flooded _____

Water Depth:

- 1. 0-5 cm
- 2. 5-20 cm in ponds
- 3. 20-50 cm _____
- 4. 50-100 cm _____
- 5. >100 cm _____

Note: 1. Canadian Wetland Classification System (2nd Edition)

Impounded Wetland Type:

- 1. Beaver Pond _____
- 2. Man-made Impoundment _____

- 3. Ducks Unlimited Impoundment _____
- 4. None of the above X

Percent Vegetation Cover:

- 1. > 95% X
- 2. 76-95% in peripheral band _____
- 3. 76-96% in patches _____
- 4. 26-75% in peripheral band _____

- 5. 26-75% in patches _____
- 6. 5-25% in peripheral band _____
- 7. 5-25% in patches _____
- 8. < 5% _____

Wetland Site:

- 1. Lacustrine _____
- 2. Riverine X
- 3. Palustrine _____

- 4. Isolated _____
- 5. Deltaic _____

Vegetation Types (%):

- 1. Deciduous trees - ~~60%~~ Red maple, Birch
- 2. Coniferous trees - ~~10%~~ White spruce
- 3. Dead trees - -
- Low ~~4. Tall shrubs - 20%~~ - ~~Cub tea, Kalonin, blackberry~~
- Tall ~~5. Low shrubs - 20%~~ - ~~Arctic, Alder,~~
- 6. Dead shrubs -
- 7. Herbs - ~~10%~~ - ~~Red Aster, Cinnamon Frost~~
- 8. Mosses - ~~10%~~ Sphagnum
- 9. Narrow-leaved emergents - ~~10%~~ - ~~Calamagrostis, Carex~~
- 10. Broad-leaved emergents - -
- 11. Robust emergents - ~~10%~~ Iris, Typha
- 12. Free-floating plants -
- 13. Floating plants (rooted) -
- 14. Submerged plants -
- 15. Other -

Interspersion: 1. Minimal X 2. Low _____ 3. Medium _____ 4. High _____

Conductivity: N/A

pH: N/A

Alkalinity: N/A

Hydrological Classification:

- 1. Surface water depression _____
- 2. Ground water depression _____

- 3. Surface water slope X
- 4. Ground water slope _____

Inlets/Outlets/water bodies:

Stream flowing through wet west to east.

Wildlife: (Observation/Signs/Reports)

Deer tracks
Rabbit signs
Hairy wood frog

Adjacent Wildlife habitat (%):

- 1. Salt marsh _____
- 2. Forest 90%
- 3. Dykelands _____
- 4. Mudflats _____

- 5. Beach 10%
- 6. River _____
- 7. Other _____

Description:

Surrounding Land Use %:

- 1. Agriculture _____
- 2. Forestry _____
- 3. Recreation X
- 4. Industrial _____
- 5. Urban development _____
- 6. Transportation _____

- 7. Residential _____
- 8. Waste Disposal _____
- 9. Scientific Research _____
- 10. Trapping _____
- 11. Education _____
- 12. Seasonal resident _____

Description: ATV use in area

Disturbance: 1. Low X 2. Moderate _____ 3. High _____

Description:

Roads and/or tracks:

- 1. Private road adjacent _____
- 2. DOT road adjacent _____
- 3. Private road within _____

- 4. DOT road within _____
- 5. Vehicle tracks _____
- 6. Other _____

Description:

Existing Uses of Wetlands:

- 1. Economic use (e.g. farming) _____
- 2. Recreational activities _____
- 3. Aesthetics _____

- 4. Education & public awareness _____
- 5. None evident X

Potential Threats:

Special Features:

- 1. Rare wetland type _____
- 2. Rare animal or plant species _____
- 3. Habitat of rare species X

- 4. Nesting site for colonial water birds _____
- 5. Migration stop-over site _____
- 6. None evident _____

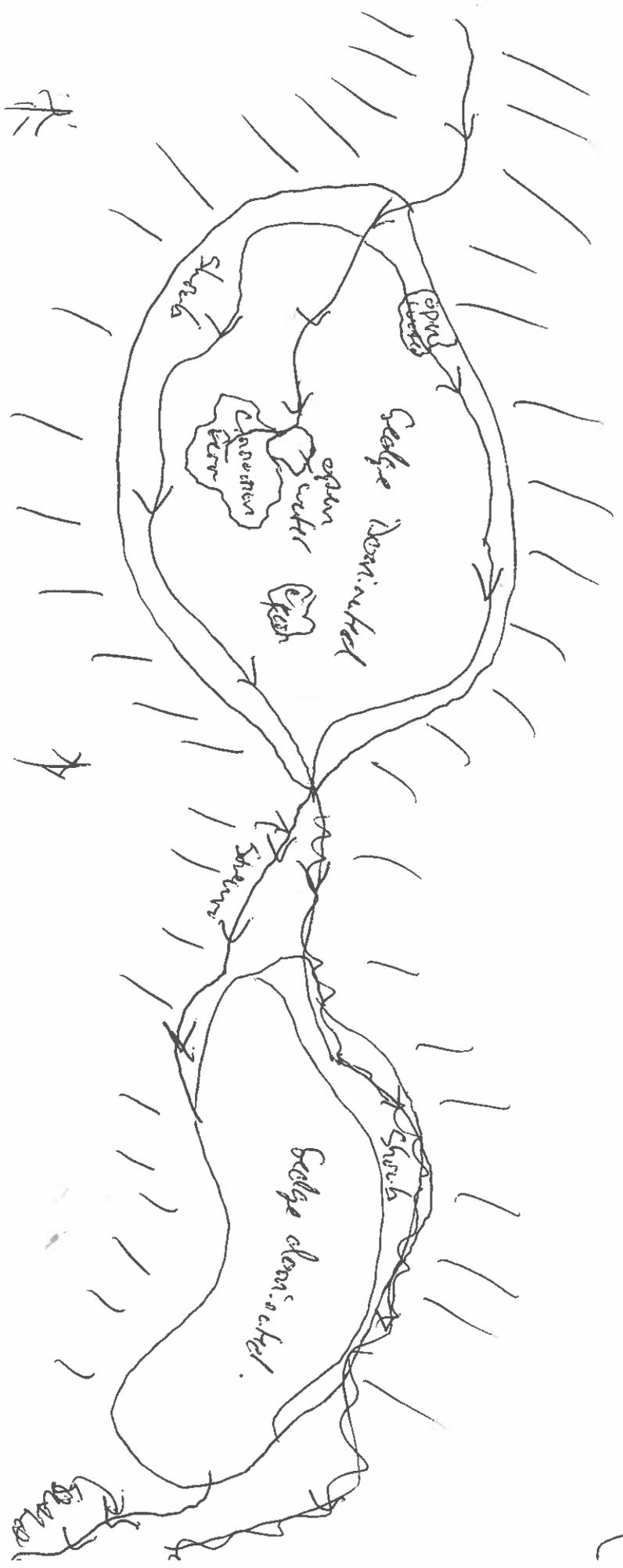
Description:

Notes:

Water ↑

↖

↖ open low: forest Forest



River

SOIL

Sampling Point: GLJ6-cup1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10							organic	peat

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

Hydric Soil Indicators:

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

- Sandy Redox (S5)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 cm Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 33cm
 Saturation Present? Yes No Depth (inches): 3cm
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DELINEATION DATA FORM – NOVA SCOTIA

Project/Site: Black Point Municipality/County: Cape Breton Sampling Date: Aug 20/14
 Applicant/Owner: Unk Sampling Point: 4226-UP1
 Investigator(s): S. Buckley Affiliation: AMEC
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): Hummocky
 Slope (%): 30% Lat: 45 705 Long: 53 2341 Datum: AD83
 Soil Map Unit Name/Type: Rockland Wetland Type: Upland - Open Forest

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

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

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>Abies balsamea</u>	<u>5</u>		<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
4. _____				
5. _____				
<u>25</u> = Total Cover				
Shrub/Strat (Plot size: <u>5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Betula papyrifera</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Abies balsamea</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species _____ x 1 = _____
3. <u>Sorbus americana</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species _____ x 2 = _____
4. _____				FAC species <u>104</u> x 3 = <u>312</u>
5. _____				FACU species <u>10</u> x 4 = <u>40</u>
<u>50</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>114</u> (A) <u>352</u> (B)
				Prevalence Index = B/A = <u>3.1</u>
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Dryopteris corymbosa</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Aralia nudicaulis</u>	<u>5</u>		<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
3. <u>Cornus canadensis</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>Cephaelis trifolia</u>	<u>2</u>		<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Antennaria canadensis</u>	<u>2</u>		<u>FAC</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>39</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

Adapted from U.S. Army Corps of Engineers form for Northeast-North Central Supplement for use in Nova Scotia (2011)

SOIL

Sampling Point: WLD26-CP1

0
8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15							Organic	Soft
15-25	7.5YR3/3	40%					Silt loam	

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Polyvalue Below Surface (S8)	
<input type="checkbox"/> Thin Dark Surface (S9)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

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

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks: