

# Southeast Properties

## Environmental Impact Assessment Registration Wetland Alteration

November 15, 2013

GENIVAR File: 131-22399



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## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION</b> .....	<b>1</b>
1.1	Contact Information.....	1
1.2	Regulatory Framework.....	2
<b>2.0</b>	<b>THE UNDERTAKING</b> .....	<b>3</b>
2.1	Project Overview.....	3
2.2	Purpose for the Project .....	3
2.3	Project Location .....	3
2.4	Physical Components and Dimensions of the Project.....	3
<b>3.0</b>	<b>EXISTING ENVIRONMENT</b> .....	<b>7</b>
3.1	Geophysical Environment.....	7
3.1.1	Physiography and Topography.....	7
3.1.2	Surficial Geology.....	7
3.1.3	Bedrock Geology .....	8
3.1.4	Hydrogeology/Groundwater .....	8
3.2	Terrestrial Environment.....	10
3.2.1	Wetland.....	10
3.2.1.1	Type of Bog.....	10
3.2.1.2	Wetland Functions .....	10
3.2.1.3	Potential Bog Wetland Function at the Project Site.....	11
3.2.2	Rare Plants and Species Richness .....	12
3.2.2.1	Species Richness .....	12
3.2.2.2	Rare Plants .....	12
3.3	Other Undertakings in the Area .....	14
<b>4.0</b>	<b>SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION</b> .....	<b>16</b>
4.1	Potential Environmental Impacts and Mitigation.....	16
4.1.1	Wetland Habitat .....	16
4.1.2	Plant Species of Conservation Concern .....	16
4.2	Work Plan .....	16
4.2.1	Wetland Compensation Plan .....	16
<b>5.0</b>	<b>STAKEHOLDER CONSULTATION</b> .....	<b>19</b>
5.1	Public Consultation .....	19
<b>6.0</b>	<b>CLOSURE</b> .....	<b>20</b>
<b>7.0</b>	<b>SIGNATURES</b> .....	<b>20</b>
<b>8.0</b>	<b>REFERENCES CITED</b> .....	<b>21</b>

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## LIST OF TABLES

Table 1 Summary of Potential Environmental and Land Use Approvals .....	2
Table 2 Summary of Floral Species at Risk or Species of Concern that Potentially Occur at the Site .....	13

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## LIST OF FIGURES

Figure 1 Location of Project Site .....	5
Figure 2 Site Plan .....	6
Figure 3 Site Physiography and Geographical Landscape .....	9
Figure 4 Wetland Habitat at the Project Site .....	15
Figure 5 Wetland Compensation Plan .....	18

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## LIST OF APPENDICIES

Appendix A – Plant List
Appendix B – Photo Log
Appendix C – Wetland Compensation Plan
Appendix D – Public Consultation Material

## 1.0 INTRODUCTION

Southeast Properties (“Southeast”) plans to prepare a self-owned parcel of land for future development at the same time as harvesting peat from a 3 ha bog wetland (herein referred to as the “Project”). The Project will be located on two parcels of land (71 ha) in Moncton, New Brunswick.

This Environmental Registration Document (the “Report”) is intended to fulfill Southeast’s requirements set forth by the New Brunswick Department of Environment and Local Government (DELG) to provide an Environmental Impact Assessment (EIA) registration under the provisions of New Brunswick’s *Clean Environment Act* for the Project and to answer anticipated questions from regulatory agencies such as DELG and the Department of Natural Resources (DNR).

### 1.1 Contact Information

The Proponent, Southeast Properties, is a company incorporated in the province of New Brunswick for the purpose of developing commercial and residential properties.

**Proponent contact:**

Mr. Kevin Carson, President/CFO

Southeast Properties

214 Mailhot Avenue

Moncton, NB E1G 0A3 Canada

Tel: (506) 388-8111

Fax: (506) 852-4434

[Email: kevin.carson@audubon.ca](mailto:kevin.carson@audubon.ca)

Name of agent acting on behalf of the Proponent:

Mr. Virgil Grecian, Project Manager

GENIVAR Inc

55 Driscoll Crescent

Moncton, NB E1E 4C8 Canada

Tel: (506) 857-1675

Fax: (506) 857-1679

[Email: virgil.grecian@genivar.com](mailto:virgil.grecian@genivar.com)

## 1.2 Regulatory Framework

All levels of government have legislative responsibilities to ensure that the development of projects such as this one occur in a sustainable and environmentally responsible manner. The following sections discuss the potential issues and interests of the three levels of government with respect to the proposed Project.

The Project will require an Environmental Impact Assessment (EIA) Registration with DELG as defined by Section 5(1) of the New Brunswick *Environment Impact Assessment Regulation – Clean Environment Act*.

The Registration will be designed to meet the requirements outlined in *A Guide to Environmental Impact Assessment in New Brunswick* “the Guidelines” (DELG, 2012) to facilitate a prompt determination for the Project. A Watercourse and Wetland Alteration (WAWA) Permit Application, under the *Watercourse and Wetland Alteration Regulation* will be filed concurrently with this registration to allow Southeast to request stockpiled wetland material previously altered from the same wetland be removed from the Site.

No further approvals are required to develop the remaining part of this wetland. As such, this registration is restricted to the Project Description described within this document, namely, the alteration of a 3 ha wetland. Any subsequent development of the property will be subject to regulatory review at that time. Further, a WAWA permit to complete compensation requirements on the Project site will be submitted once the compensation plan has been accepted by DELG. These will be determined in tandem with the appropriate departments, such as DELG.

Table 1 Summary of Potential Environmental and Land Use Approvals

Approvals Required	Summary
Federal	
HADD Authorization (DFO)	If the Project results in an alteration of any watercourse(s), such that any in-stream work is required, the Project will need an authorization from DFO regarding a HADD. The work to remove the wetland material will not require any infrastructure construction, or watercourse crossings.  No other federal approvals are thought required.
Provincial	
EIA Approval for Projects requiring registration ( <i>Clean Environment Act</i> )	The Project results in an alteration of a wetland greater than 2 ha, therefore the Project requires authorization from DELG under the <i>Clean Environment Act</i> . This Project is being registered under Schedule A, item v “all enterprises, activities, projects, structures, works or programs affection two hectares or more of bog, marsh, swamp or other wetland”.
Watercourse and Wetland Alteration Permit (Watercourse and Wetland Alteration Regulations)	The Project will result in an alteration of a regulated wetland, therefore the Project will require authorization from DELG under the Designations Regulations Activities Designation Regulations.
Municipal	
City of Moncton Planning	Southeast will inform the City during the course of this regulatory process, since Provincial requirements preside, it is not anticipated that any municipal regulations are required..

## 2.0 THE UNDERTAKING

### 2.1 Project Overview

Southeast is a privately owned company based in Moncton, NB that is engaged in the development of commercial and residential properties. Currently, Southeast is focusing on the development of a self-owned property (PID 70217492 and 70184734) the "Site", in the Vision Lands area of Moncton, NB (Figure 1). The initial step, and reason for this Registration Document, is the development, by removal, of a 3 ha bog wetland in the higher elevation area of the property and compensate for the wetland loss in other lower lying, less developable land within the same property. The removal of this wetland is to facilitate i) future development on the Site, and ii) to use the peat in the wetland for soil amendments. The Registration document contains information and assessment for this specific Project only. Any future development of the Site would be subject to other applicable environmental controls and regulations.

### 2.2 Purpose for the Project

The proposed Project will generate raw material (peat) for a period of 5-10 years, depending on the demand for soil product. The wetland development period will be brief and is not expected to increase any positions for the company accepting the peat. The second and likely more important feature of the proposed Project is to develop the subject properties, and make them ready for future development. The wetland sits in an isolated position on high ground that is ideal for planned future development within the City of Moncton planning statements. It should be noted that the Proponent is not just proposing this Project as a means to garner more raw material to make soil, but rather as an efficient means to develop this wetland in addition to preparing a large parcel of land for future development.

The development that is slated for the Moncton Vision Lands, of which this Project would eventually form a part, will benefit future generations to live and work within the City limits, and to live in easily accessible housing developments, close to schools, hospitals, shopping and commercial developments.

### 2.3 Project Location

The Study Area for the Project is located in the Vision Lands of Moncton, New Brunswick. The Project is sandwiched between the TransCanada Highway (north), McLaughlin Road (east), Wheeler Boulevard (south) and Mapleton Street (west). As indicated on Figure 1, the site itself is located on high ground overlooking the Petitcodiac River and Moncton. Access to the site is from Mapleton Street on an un-surfaced road or from the south off Crowley Farm Road.

The Project Site as depicted on Figure 1 is approximately 71 ha in area. A very small proportion of this land area will be physically disturbed by the Project. The Project Site encompasses several habitats that have been altered by 50+ years of rock quarrying and gravel pits. The area has few stands of mature tree but is characterized by successional growth stages of cut over and regenerating forest. The Project itself only involves wetland habitat of the bog type.

The Project Site is in an upland area above the Petitcodiac River plain. The wetland to be altered is isolated from the rest of the watershed, being confined by an impermeable clay layer. No inlets or outlets from the wetland are present in the Project Site. Although the wetland does not have an inlet or outlet, the surface water leaving the entire area flows southward towards the West Branch Halls Creek.

### 2.4 Physical Components and Dimensions of the Project

The wetland that is proposed to be altered is approximately 3 ha in area (Figure 2). The peat is readily accessible at the surface and no forest clearing is necessary to extract the peat. Necessary roads currently exist surrounding the wetland, including the southern altered portion of the wetland to transport the peat to the soil making facility. Approximately 60,000 m<sup>3</sup> of peat is available for removal from this wetland.

No new road construction is necessary to complete the Project, and when finished and the wetland compensation works are complete, some existing road will be decommissioned to allow treed buffers to grow around the new wetland. The existing road network on the site is present because of the historical land use and based on current site conditions and the preliminary layout of the project. Minor upgrading may be required to some portions of these roads to accommodate the large transport vehicles or other equipment. No travel on provincial roads will be necessary to complete this Project.

No temporary components need be created to complete this Project. Trucks and machinery from the adjacent soil facility will be used at the site to first extract and windrow the material for drying. Once the peat has dried sufficiently, it will be transported to the soil facility.

To support project planning and the regulatory processes, a range of specific studies and associated field work has been, or will be, undertaken. This work includes:

- Desktop review and surveys for rare and sensitive species, including those protected under the federal *Species at Risk Act* and the provincial *Endangered Species Act*
- Rare plant surveys for proposed wetland
- Public consultation with local residents, politicians, and regulators

It is anticipated that construction activities will begin in Spring 2014, after appropriate approvals and permits are in place. The concurrent WAWA permit application will support the removal of existing windrowed materials previously removed from the wetland.

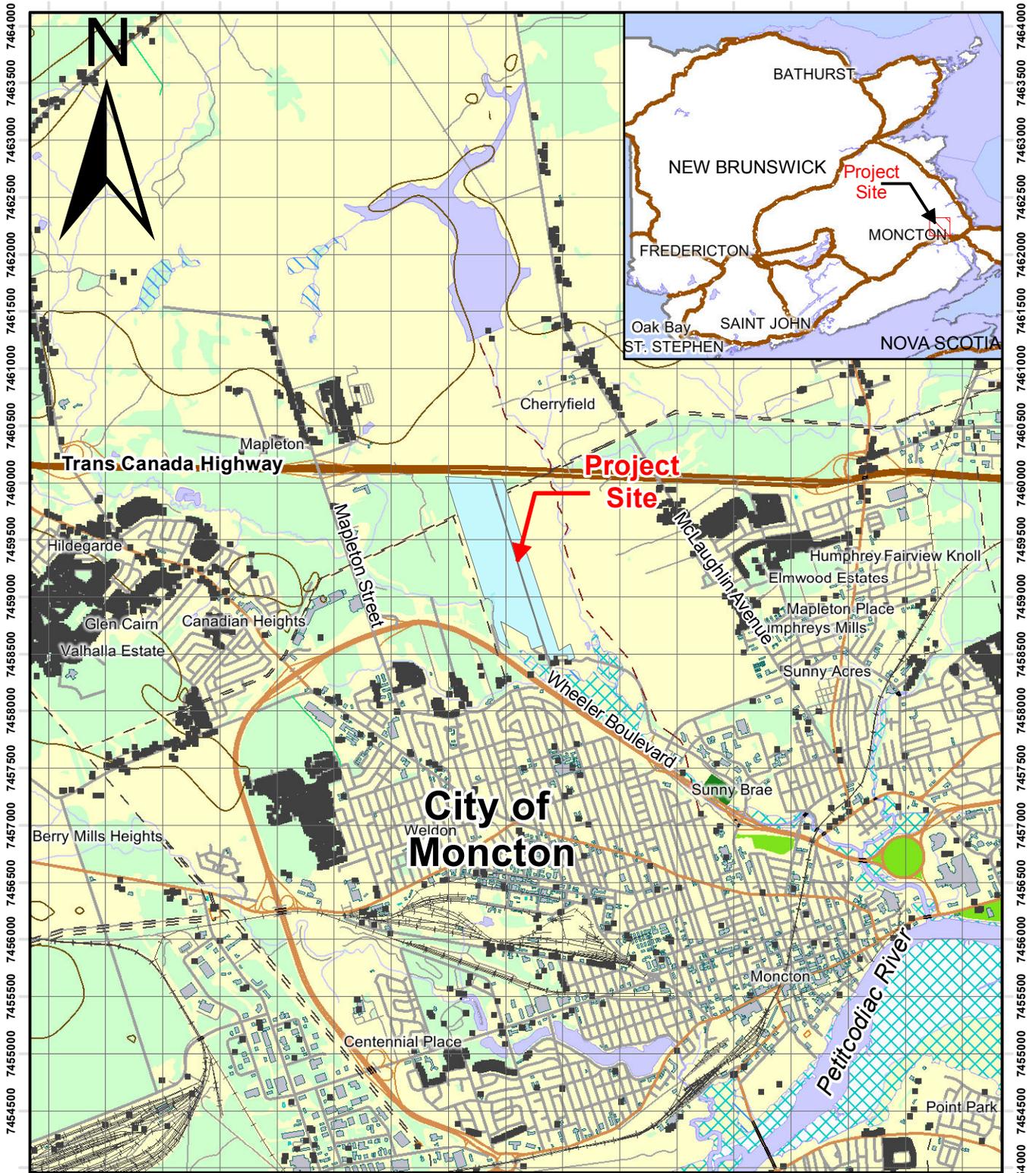
The initial work will include site preparation, including roads, site construction infrastructure, foundations and collector circuits. Where possible, previously disturbed areas such as; existing roads and clear cuts will be selected for siting of project components opposed to clearing forested land. Construction areas or laydown areas will be constructed in areas that will produce the least amount of disturbance to the existing landscape features.

These initial construction activities include, but are not necessarily limited to:

- Implementation of an erosion control plan to mitigate against sediment transfer during wetland alteration activities
- Alter the wetland by removing peat and allowing it to dry before removing it for soil processing
- Wetland Compensation

No land clearing will be necessary to complete the Project. The well-developed work site provides easy access to the wetland. The clearing of existing forest beyond the wetland footprint (i.e. trees) will be minimized to that what is absolutely necessary to accommodate removal of the wetland material.

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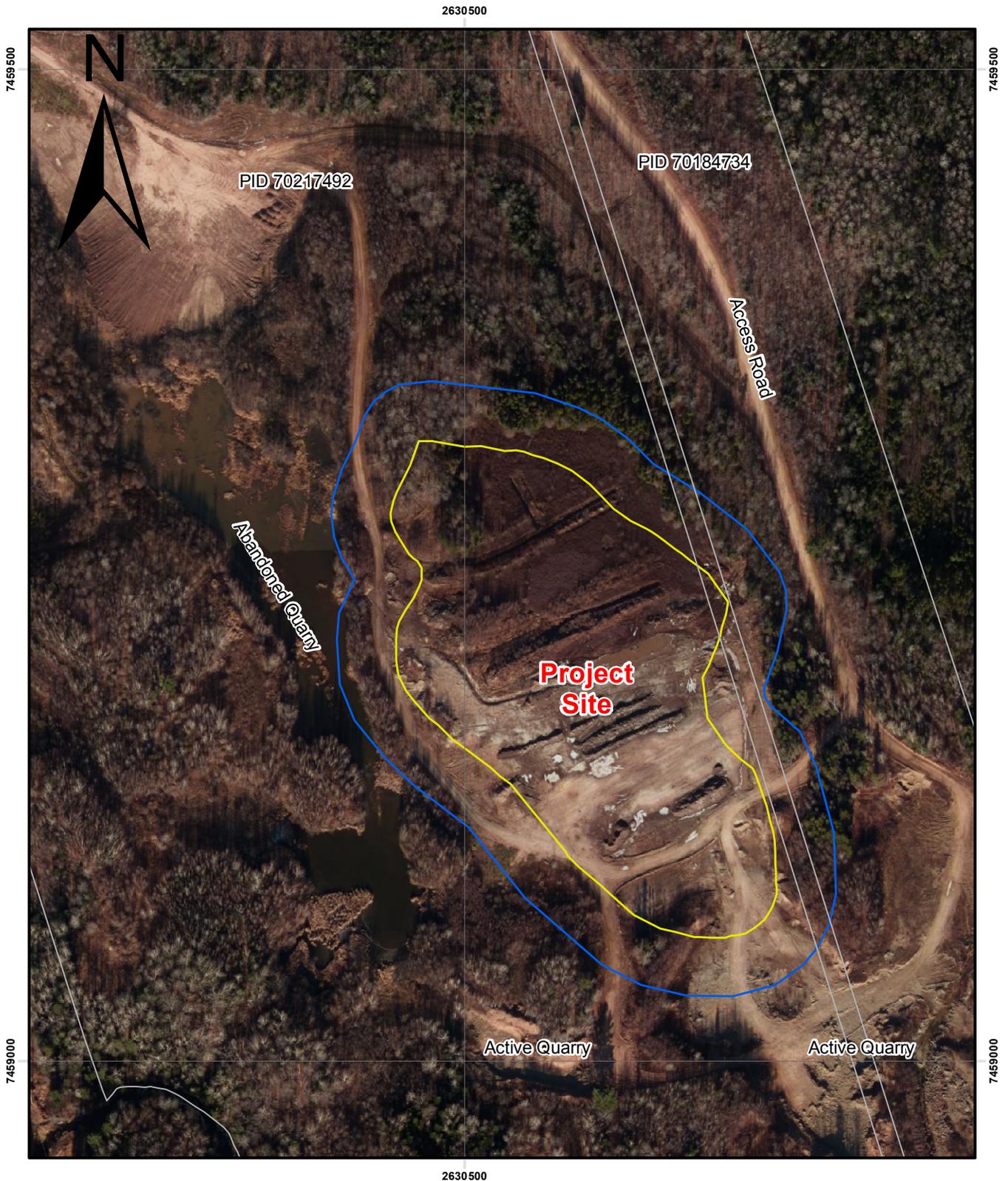
**Legend**

 SUBJECT PROPERTY

**FIGURE 1**  
**PROJECT LOCATION**  
*Southeast Properties*  
*Wetland Alteration*  
 PROJECT NO. 131-22399

NOTES:  
 Property data SNB, Aerial Imagery from <http://services.arcgisonline.com> and Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community





**Legend**

-  SUBJECT PROPERTY
-  REGULATED WETLAND BUFFER
-  REGULATED WETLAND

**FIGURE 2  
PROJECT SITE LAYOUT**

*Southeast Properties  
Wetland Alteration  
PROJECT NO. 131-22399*

NOTES:  
Property data SNB, Aerial Imagery from <http://services.arcgisonline.com> and Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community



## 3.0 EXISTING ENVIRONMENT

The Project area is situated in an upland region within the City of Moncton Municipality. As indicated on Figure 1.1 the site itself is located in the hills overlooking Moncton, sandwiched between the TCH on the north and Wheeler Boulevard on the South, and by McLaughlin Avenue in the east and Mapleton Street in the west. Access to the site is from Mapleton Street near the TCH, or from off Wheeler Boulevard at Crowley Farm Road.

EIA Registration documents usually include a comprehensive list of environmental components, which are described and subsequently assessed in light of the Project. However, this EIA registration is restricted to a proposed project that is limited in environmental and spatial scope. Therefore this registration document includes in this Existing Environment Section, only the following components of the existing environment that are specific to the Project, will be described:

- Surficial Geology
- Bedrock Geology
- Hydrology/Groundwater
- Terrestrial Environment, including wetlands, vegetation, rare plants

### 3.1 Geophysical Environment

The Study Area as depicted on Figure 1.1 is approximately 3 ha in area. This Project proposes to alter one wetland in the landscape, a small fraction of known wetland within the Petitcodiac River watershed. As such, the Project encompasses only one distinct habitat. The land containing the Project ranges in elevation between 20 and 50 m above sea level. At one time heavily wooded, it has been intensively managed by current and previous owners for many years and much of the area is characterized by man-made undulations, pits, quarries and subsequent cutting and regrowth. The earliest air photo of the area (1940s) show a wetland of the same approximate shape as the current mapped wetland occurring in the same location.

The region is characterized by climatic transition zone between the warm, dry Eastern Lowlands Region and the cool, wet Fundy Coast Ecoregion (DNR 2007). This means that severe winter temperatures are moderated by the influence of the Bay of Fundy. As a result, the Moncton area is known as part of the snow belt of the Maritimes. The Project sites as an isolated wetland in the headwaters of the Hall's Creek watershed (sub-watershed of the Petitcodiac River Watershed). More specifically, the wetland is in the West Branch Hall's Creek watershed where there are a small number of watercourses and wetlands (Figure 4). Drainage direction at the Project site reflects the impacts of land development and the underlying geological structure. Surface water drainage is south towards West Branch Hall's Creek, and overall drainage in the area is southeast towards the Petitcodiac River.

#### 3.1.1 Physiography and Topography

#### 3.1.2 Surficial Geology

The specific Project site contains organic peat soils underlain by a thick layer of clay. It appears that this clay layer contained the wetland shape and functioned as an impermeable barrier. Other soils in this ecodistrict are relatively rich and are the result of alluvial deposits. Most of the lower lying areas of the ecodistrict have been intensely farmed due to the rich alluvial sediments. At the Project site, soils are fine-textured derived from red, slightly calcareous sandstone and mudstone (DNR 2007).

### **3.1.3 Bedrock Geology**

The bedrock geology of the area is primarily non-calcareous Pennsylvanian sandstone, conglomerate, and mudstone that range from grey to red (DNR 2007).

### **3.1.4 Hydrogeology/Groundwater**

As indicated above, the Project site is located in the headwaters of the WBHC system. Figure 3 depicts this and other watersheds within and beyond the defined Project site. WBHC flows eastward towards the site and then southeastwards away from the site. Surface water drainage from the site flows southward and enters WBHC at a number of distinct channels shown on Figure 3.



**Legend**

- SUBJECT PROPERTY
- REGULATED WETLAND BUFFER
- REGULATED WETLAND
- CONTOURS (0.5 M)

**FIGURE 3  
SITE PHYSIOGRAPHY**

*Southeast Properties  
Wetland Alteration  
PROJECT NO. 131-22399*

NOTES:  
Property data SNB, Aerial Imagery from <http://services.arcgisonline.com> and Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community



## 3.2 Terrestrial Environment

The vegetation within the Study Area is typical of southeastern New Brunswick (Eastern Lowlands Ecoregion) and especially of the Petitcodiac Ecodistrict (DNR 2007). The soils are relatively rich and support a wide biota of plant and animal life.

### 3.2.1 Wetland

The distribution and abundance of wetlands in the Study Area was determined through a review of the New Brunswick Wetland Atlas database (DELG 2013 Wetland Inventory), air photo interpretation and ground truthing. This exercise was conducted by an ecologist and a wetland biologist familiar with the Project area and experienced in delineating wetlands. One wetland, as shown on the DELG Wetland Inventory was found at the Project Site.

The wetland in question is classified as a bog, using the Canadian Wetland Classification System (National Wetlands Working Group Canada 1987). This system categorizes wetlands into five general types, bogs, fens, marshes, swamps, and shallow water wetlands based on characteristics of vegetation, substrate and hydrology.

Bogs are peatlands in which the water table is situated at or near the surface. The rooting zone is typically isolated from nutrient rich groundwater resulting in the development of an acidic and nutrient impoverished environment that promotes the growth of sphagnum moss. Sphagnum moss is effective at scavenging available cation nutrients which it replaces with hydrogen ions to maintain an ionic balance. This further increases the acidity of the wetland which greatly reduces decomposition rates leading to the accumulation of peat and altering the ultimate plant community that is present in the bog. They are typically restricted to flat low lying areas where groundwater discharge is limited.

The wetland is located in the center of the subject properties and has no known surface water inlets or outlets. Excess surface water likely drains overland to an old quarry to the west of the wetland. The bog is underlain by an impervious clay layer that is likely the reason for the bogs presence throughout history. The location of the bog is slightly atypical as it does not resemble a typical location to find bog habitat. Bogs are generally found in low lying or flat areas where water cannot escape whereas at the Project Site, the bog wetland was found perched among some higher elevation land, totally isolated. This is an unusual occurrence within the subject properties as no other bogs or clay deposits are known in the immediate vicinity.

Previous alteration of this wetland clearly shows the depth of peat material and the clay liner where they have been exposed during peat extraction (See Photos 1-2, Appendix B).

#### 3.2.1.1 Type of Bog

The type of bog at the Site is referred to as a low shrub bog. Low shrub bog is typically found in the centers of the bogs where conditions are wetter and particularly nutrient deficient. These areas also represent an earlier stage in plant community succession on the bog. The dominant species of this bog type are sphagnum moss (*Sphagnum spp.*), sheep laurel (*Kalmia angustifolia*), pale laurel (*Kalmia polifolia*), leatherleaf (*Chamaedaphne calyculata*), and rhodora (*Rhododendron canadense*). To a much lesser extent, treed bog was found around the upland edges of the wetland landward margin. These areas represent a later stage in plant community succession on the bog and are also situated close enough to sources of groundwater to be somewhat more fertile than the center of the bog. In places where treed bog was found the plant community differs from the low shrub bog mainly in the presence of an open tree canopy composed mainly of stunted black spruce (*Picea mariana*) and American larch (*Larix laricina*).

#### 3.2.1.2 Wetland Functions

Wetlands provide a number of functions including water flow moderation, groundwater recharge, shoreline and erosion protection, climate regulation, water quality treatment, nutrient and organic export,

carbon sequestration and storage, and biological productivity and support for biodiversity. In instances where wetlands are adversely affected by a development, the functions associated with the affected wetland must be assessed as part of the wetland functional analysis. The wetland functional analysis is used to determine the functional attributes of the potentially affected wetland so that its value can be assessed. This assessment is then used to first determine whether alteration to a particular wetland should be considered and second, to determine what wetland functions should be recreated as part of a wetland compensation plan.

Southeast would have preferred to avoid any wetland impacts, however due to the previous unpermitted alteration of the wetland, and the desire to gain access to the rest of the peat in the wetland for soil making and preparing the entire property for future development, has committed to replacing the impacted wetland in a carefully laid out wetland compensation plan as described in Section 4.2.1).

### **3.2.1.3 Potential Bog Wetland Function at the Project Site**

The bog wetland is an isolated wetland at mid elevation and in a low watershed position. Some potential functions of this wetland include:

- Groundwater Recharge;
- Stormwater retention;
- Carbon Sequestration and Storage; and
- Biological Productivity and Support for Biodiversity.

The entire wetland is proposed to be removed, and with it, any function that it might have served. The following provides general observations of the functionality of the wetland based on aerial photography and ground truthing.

#### **Groundwater Recharge**

The ability of the wetland to contribute to groundwater recharge is difficult to assess. However, it is possible that the wetland, as it is situated in an isolated basin near the top of the local grade could contribute to local groundwater recharge. The importance of this function in this wetland would depend on its location and permeability of the clay liner that constrains the wetland. This is not likely a high function of the wetland.

#### **Stormwater Retention**

It is becoming apparent that stormwater retention is a natural feature or function of wetlands that is highly valued in an urban setting. The alternative to meeting a 'net-zero' discharge, now mandatory on all City of Moncton development is to create large scale stormwater detention ponds. Natural wetlands provide a buffering capacity in terms of runoff and time of release for rainwater. Whereas this wetland is isolated without an outlet, it is unclear as to the extent that this wetland functioned for stormwater retention, however a bog wetland that is composed of organic matter has the ability to hold enormous amounts of water, to be released slowly by drainage, groundwater recharge, or evapotranspiration.

#### **Carbon Sequestration and Storage**

Wetlands can act as both sinks and sources for greenhouse gases. Peatlands such as bogs and fens can be important carbon sinks by storing large volumes of organic matter in the form of peat. Marshes and swamps that remain saturated throughout the year also tend to accumulate peat and also act as carbon sinks. This 3 ha bog potentially had between 60,000 – 85,000 m<sup>3</sup> of carbon based organic material stored.

#### **Biological Productivity and Support for Biodiversity**

Wetlands provide habitat for a wide variety of plants and animals. Some wetlands are highly productive and support very high numbers of species or particularly high abundances of a few species. Other wetlands provide uncommon habitat types that support rare species that cannot survive in other habitats.

The value of a wetland in regards to biological productivity and biodiversity cannot be accurately assessed without conducting site specific surveys; however, there are some general patterns that can be used to help identify wetlands that may have high functionality in regards to biological productivity and biodiversity. Typically, larger and more fertile wetlands support larger numbers of species and are more productive. Uncommon habitat types tend to support greater numbers of rare species than common habitat types. Hostile environments often support highly specialized species that cannot persist in more benign environments and are therefore rare or geographically restricted in their range.

Based on these assumptions, the wetland could be expected to support some rare or uncommon species due to the uncommon and potentially hostile (low pH) conditions of the wetland.

Southeast will compensate for the loss of this wetland (area and function) through a number of means. The Compensation Plan will outline how these functions and/or others will be incorporated into the construction of new wetland habitat on the Site.

### 3.2.2 Rare Plants and Species Richness

Rare plants and floral species richness in the Project Site was described using a combination of desktop and field surveys. A plant list for the bog appears in Appendix A and Figure 4 provides a general distribution of vegetation communities at the Project Site.

#### 3.2.2.1 Species Richness

The low shrub bog has a low-diverse vegetation community that is typically found in this type of bog where conditions are saturated, low pH, and nutrient deficient. The dominant species found in this bog include sphagnum moss (*Sphagnum spp.*), sheep laurel (*Kalmia angustifolia*), leatherleaf (*Chamaedaphne calyculata*), and rhodora (*Rhododendron canadense*). The bog (aside from regenerating grey birch growing on drying mounds of peat) appeared to be 90% rhodora (see Photo 3, Appendix B). Near the upland edges of the wetland the plant community differed from the low shrub bog mainly in the presence of an open tree canopy (see Photos 8-9, Appendix B) composed mainly of stunted black spruce (*Picea mariana*), American larch (*Larix laricina*), red maple (*Acer rubrum*) and speckled alder (*Alnus incana*). No unexpected or uncommon species were recorded during field surveys at the wetland.

#### 3.2.2.2 Rare Plants

No plant species at risk or plant species of conservation concern were observed within the Project Site. An environmental screening of rare flora which may be located within similar habitat as the Site did not produce any positive matches. Applicable lists for review include:

- The list compiled by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) under the SARA
- The list compiled pursuant to the New Brunswick Endangered Species Act
- The New Brunswick Department of Natural Resources General Status of Wildlife List (DNR General Status)

The rare plant modeling exercise was performed to determine the likelihood of presence of rare or sensitive plants within the wetland. The habitat requirements of these species were compared to the habitat description of the wetland to determine if suitable habitat was present for any of these species. In instances where appropriate habitat was present for a particular species, that species was considered to be potentially present and the suitable habitat in the Study Area was identified as a target for field surveys. Table 3 below is a summary of the floral species at risk or species of concern generated from any species considered above that have been identified within the Project Site, or thought to be potentially found. None of the species listed in this table were observed during the rare plant surveys.

Table 2 Summary of Floral Species at Risk or Species of Concern that Potentially Occur at the Site

Common Name	Scientific	Habitat	SARA Status	DNR Ranking	ACCDC Ranking
Alder-leaved buckthorn	<i>Rhamnus alnifolia</i>	Swamp edges, graminoid, shrub fen		Secure	S4S5
Alpine Rush	<i>Juncus alpinoarticulatus</i> ssp. <i>nodulosus</i>	Bog Plateau, freshwater wetland			S4
Bog Birch	<i>Betula pumila</i>	Sphagnum bogs, swamps or alder thickets		Secure	S3
Downy Willowherb	<i>Epilobium strictum</i>	Bog, marsh, or swamp.			S3
Northern Bog Sedge	<i>Carex gynocrates</i>	Bog, freshwater wetland.		Secure	S2
Southern Twayblade	<i>Listera australis</i>	Bog.	Endangered	May Be At Risk	S2
Sticky False Asphodel	<i>Triantha glutinosa</i>	Small, alkaline peat bog.		Secure	S3
Yellow Bartonian	<i>Bartonia virginica</i>	Peat bogs.		Secure	S1

S1 - **Extremely rare:** May be especially vulnerable to extirpation (typically 5 or fewer occurrences or very few remaining individuals).

S2 - **Rare:** May be vulnerable to extirpation due to rarity or other factors (6 to 20 occurrences or few remaining individuals).

S3 - **Uncommon,** or found only in a restricted range, even if abundant at some locations (21 to 100 occurrences).

S4 - **Usually widespread, fairly common,** and apparently secure with many occurrences, but of longer-term concern (e.g., watch list) (100+ occurrences).

S5 - Widespread, **abundant,** and secure, under present conditions.

S## - Numeric **range rank:** A range between two consecutive ranks for a species/community. Denotes uncertainty about the exact rarity (e.g., S1S2).

SH - Historical: Previously occurred in the province but may have been overlooked during the past 20-70 years. Presence is suspected and will likely be rediscovered; depending on species/community.

SU - Unrankable: Possibly in peril, but status is uncertain - need more information.

SX - Extinct/Extirpated: believed to be extirpated from its former range.

S? - Unranked: not yet ranked.

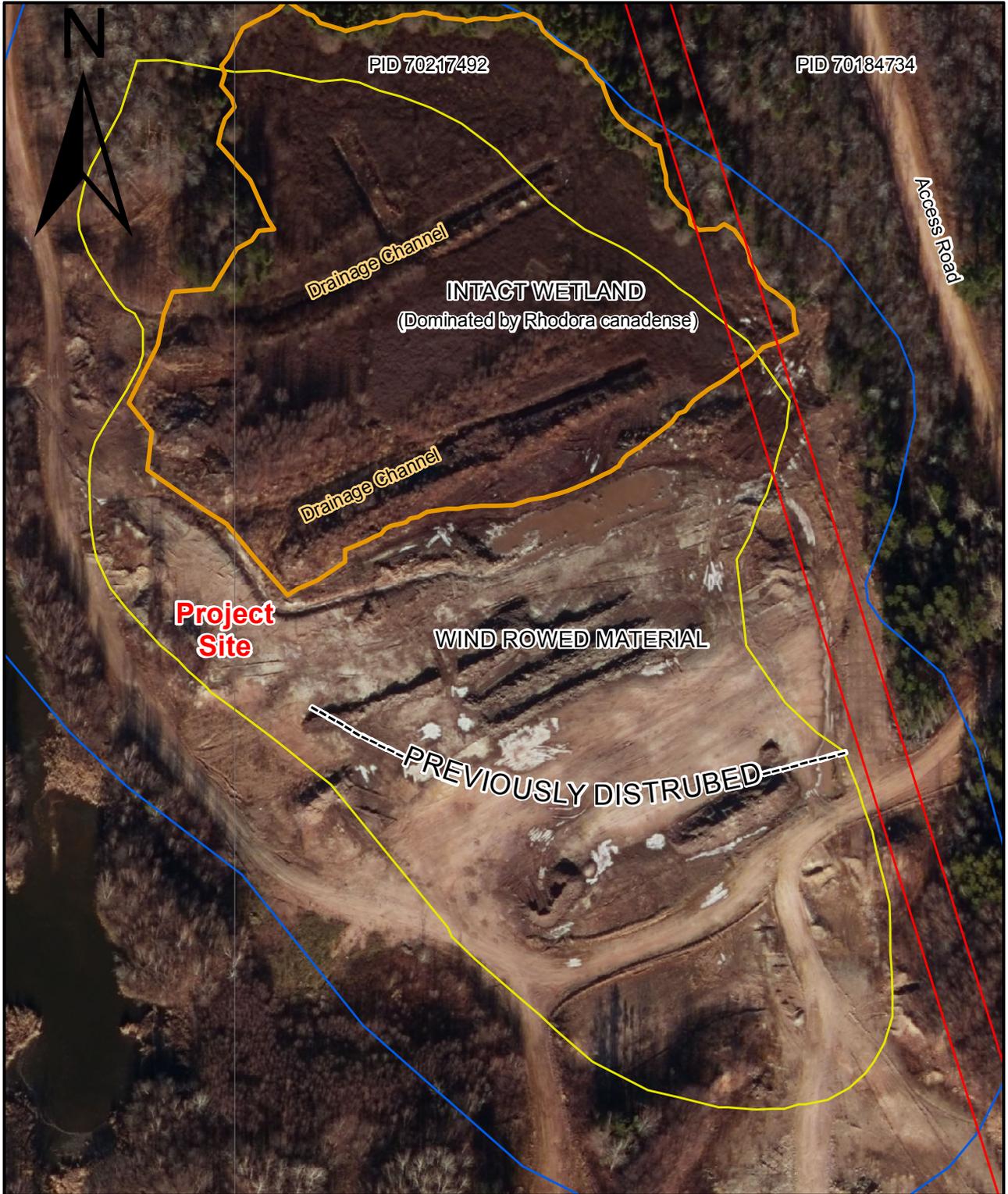
SA - Accidental: Accidental or casual, infrequent and far outside usual range. Includes species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range.

Table 2 Summary of Floral Species at Risk or Species of Concern that Potentially Occur at the Site

Common Name	Scientific	Habitat	SARA Status	DNR Ranking	ACCDC Ranking
<p>SE - Exotic: An exotic established in the province (e.g., Purple Loosestrife or Coltsfoot); may be native in nearby regions.</p> <p>SE# - Exotic numeric: An established exotic that has been assigned a rank.</p> <p>SNR - Unranked: Provincial conservation status not yet assessed.</p> <p>SNA - Not Applicable: A conservation status is not applicable because the species is either: a) exotic, b) not definitively known to occur in the province or c) a hybrid not considered to be conservation significance. A notes field giving the reason or reasons for the SNA rank is included on AC CDC downloadable species lists.</p> <p>SP - Potential: Potentially occurs, but no occurrences have been reported.</p> <p>SR - Reported but without persuasive documentation (e.g., misidentified specimen).</p> <p>SRF - Reported falsely: erroneously reported and the error has persisted in the literature.</p> <p>SZ - Zero: not of practical conservation concern because there are no definable occurrences, although the species is native and appears regularly. An SZ rank is generally used for long distance migrants that pass through the province occasionally.</p> <p><b>New Brunswick General Status Ranks Definitions</b></p> <p>Extinct – Species that are extirpated worldwide</p> <p>Extirpated – No longer in New Brunswick</p> <p>At Risk – Species for which a formal detailed risk assessment has been completed, determined to be at risk of extirpation</p> <p>May Be At Risk – Species population is declining and may be at risk of extinction or extirpation</p> <p>Sensitive – Species not believed to be at risk of immediate extirpation or extinction but may require special attention</p> <p>Secure – Species that are not At Risk, May Be At Risk, Sensitive, Extirpated, Extinct, Accidental or Exotic</p> <p>Status Undetermined – Species for which there is insufficient data, information, or knowledge</p> <p>Exotic – Introduced as a result of human activity.</p> <p>Accidental/Vagrant – Occurring infrequently and unpredictably, outside their usual range.</p>					

### 3.3 Other Undertakings in the Area

The Project is located on the outskirts of Moncton. Development of the Vision Lands is seen as a high priority in the coming years as other developable land is being utilized. No development is likely to encroach on this Project from the south as Wheeler Boulevard forms a firm boundary. Land to the west along Mapleton Street is currently being developed, as is land to the east along McLaughlin Avenue. The development includes commercial, residential, and institutional.



**Legend**

- SUBJECT PROPERTY
- REGULATED WETLAND BUFFER
- REGULATED WETLAND
- WETLAND (CURRENT)

**FIGURE 4  
WETLAND HABITAT**

*Southeast Properties  
Wetland Alteration  
PROJECT NO. 131-22399*

NOTES:  
Property data SNB, Aerial Imagery from <http://services.arcgisonline.com> and Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community



## 4.0 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

The Project site is located on private land in the City of Moncton in Westmorland County, New Brunswick. Specifically in the WBHC watershed that flows into the Petitcodiac River and into Shepody Bay at the head of the Bay of Fundy.

The Project is solely related to the complete removal of a 3 ha wetland for the purposes of i) using the peat as a raw material for soil making and ii) to support the future development of this land as it lays within the City of Moncton's Vision Lands. The following sections describe the summary of environmental impacts of the Project and describe the planned mitigation that will be implemented during the implementation of the Project.

The scope of this assessment is limited to one 3 ha wetland, previously identified and shown on Figure 2.

### 4.1 Potential Environmental Impacts and Mitigation

#### 4.1.1 Wetland Habitat

Wherever possible, Project components are situated outside the 30 m buffer to all watercourse and wetland boundaries. Since this Registration is required for the alteration/removal of an entire wetland, avoidance cannot be achieved. The goals of the New Brunswick Wetland Conservation Policy will be followed in that compensation will be made for the loss of wetland function due to the Project. The area of wetland lost as a result of this Project will be used to calculate compensation requirements, in consultation with DELG. Due to the appropriate compensation for loss of wetland and wetland function, significant adverse environmental impacts on wetlands are not expected as a result of this Project.

#### 4.1.2 Plant Species of Conservation Concern

Project activities will preferentially avoid working in locations where plant species of conservation concern are likely to occur, i.e. activities under this Registration are restricted to the wetland site only in order to carry out the Project. No species at risk or plant species of conservation concern were observed during field surveys at the wetland and/or during desktop reviews of publically available data at the time of this registration. Since appropriate compensation for loss of wetland and wetland function will be taken, and due to no observations of plant species of conservation concern in the wetland, significant adverse environmental impacts on plant species are not expected as a result of this Project.

### 4.2 Work Plan

A functional assessment is usually completed for all wetlands within 30 m that will be disturbed by Project activities; however this Project proposes the removal of an isolated low shrub bog. A separate document has not been included at this stage as a description of the wetland and potential functions has been included in Section 3.2.1 of this registration. Included here, is a wetland compensation plan, outlining a description of compensation activity planned to occur at the site.

#### 4.2.1 Wetland Compensation Plan

The primary function of the wetland proposed to be altered is water retention. The intention of this compensation plan is to replace probable function of this wetland within the same watershed, creating enhanced retention time and filtering capacity of surface water runoff. Appendix C is a visual representation of the potential configuration of compensation components.

The major components of the wetland compensation plan include:

- New wetland creation;

- Enhancement of created wetland by creating a sediment retention pond;
- Enhancement of created wetland by including vegetated upland within compensation area;
- Decommissioning of existing roads; and
- Maintaining existing vegetated riparian areas on the discharge watercourse, and WBHC on Subject Property.

Below is a brief summary on the intended recovery of the lost wetland functions and are identified as such on Figure 5 – Wetland Compensation Plan (and Appendix C).

### 1) New wetland creation

As shown in Appendix C, approximately **3.6 ha** of wetland will be created from the abandoned quarry immediately to the west of the Site. This less desirable location for future development can accommodate an increase in water level, controlled by water leveling structure, and being fed by surface runoff collected from the general area. This wetland will be maintained at an appropriate water level, allowing for seasonal drier periods and for the generation of multi wetland types from seasonally flooded wetland at the shallow end, to deep marsh at the deepest end of the wetland. According to preliminary design data, one section of the newly flooded abandoned quarry should create an island near the middle of the wetland. The current site for this wetland contains some water, seasonally but has not developed into a complete wetland (see Photos 7-9, Appendix B).

### 2) Enhancement of created wetland by creating a sediment retention pond

A moderate sized sediment detention pond (**0.22 ha**) will be created immediately north of the new wetland. A sediment detention pond is a valued enhancement to any subsequent wetland creation due to its ability to decrease water energy and sediment transport. The exact dimensions are not known at this time but will be sized appropriately for the size and condition of the upland area where surface water will originate.

### 3) Enhancement of created wetland by including vegetated upland within compensation area

In combination with decommissioning a nearby road, creating non-development easements around the new wetland, outlet channel and the left bank of the WBHC will add to the overall protection of water quality entering WBHC. Stabilization of upland habitat (**3.3 ha**) by controlling the earth disturbance is especially important along the left bank of WBHC where

### 4) Enhancement of created wetland by including wildlife nesting platforms and/or nest boxes

The abandoned quarry area that will be used as the basis for the wetland creation already receives some use by wildlife such as waterfowl as a fall roosting site, however this function will be enhanced with the creation of a wooded island that will be created due to an increase in water level. As well, nest boxes for cavity nesting ducks (i.e. wood duck and goldeneye) and insectivorous bird species (i.e. swallows) will be placed within the created wetland and buffer.

### 5) Decommissioning of existing roads

Decommissioning the road that currently exists between the wetland to be removed and the wetland to be created will decrease sediment laden surface water runoff from reaching the newly created wetland. The road (**0.33 ha**) will be cut off and the surface roughed to allow natural regeneration of pioneering plants and seedlings. Some trees may be planted in the former roadway to discourage any off-road usage.

### 6) Creating existing vegetated riparian areas on the discharge watercourse, and WBHC on Subject Property.

A non-development buffer will be created to prevent future development activities along the discharge watercourse (**0.31 ha**) and WBHC (**1.1 ha**). This measure will further enhance the ability of intact upland to remain stabilized and prevent erosion from occurring. This is especially important in upland areas in high grade areas along WBHC.

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**Legend**

- PROPERTY LAYER (WESTMORLAND CO.)
- DRAINAGE CHANNELS
- WATERCOURSE (NBHN)
- REGULATED WETLAND
- COMPENSATION PLAN COMPONENTS**
- NEW WETLAND
- SEDIMENT TRAP
- UPLAND BUFFER
- BUFFER ON OUTLET
- BUFFER ON WBHC
- DECOMMISSIONED ROAD



**FIGURE 5 COMPENSATION PLAN**  
*Southeast Properties*  
*Wetland Alteration*  
 PROJECT NO. 131-22399



**GENIVAR**

## 5.0 STAKEHOLDER CONSULTATION

### 5.1 Public Consultation

The proponent is involved with ongoing discussions with City officials and adjacent landowners to the Project Site. This discussions involve the future development of the Vision Lands, and

A Copy of this EIA Registration will be made available on the DELG website. A letter was sent to elected officials and the Office of the Mayor of Moncton to give notification about this Project. The letter is contained in Appendix D and includes the following information:

- A brief description of the proposed project;
- Information on where to view the registration document on the DELG webpage;
- A map of the project location;
- A statement about the regulatory process and status;
- Proponent contact information; and
- Date by which information must be received.

All correspondence received will be recorded and appropriately addressed. Comments pertinent to this EIA will be taken into consideration for inclusion. A report of all contacts, correspondence and responses will be submitted to DELG as part of this EIA regulatory process.

## 6.0 CLOSURE

This report has been prepared by GENIVAR Inc. for the sole benefit of Southeast Properties. This report may not be relied upon by any other person or entity, other than for its intended purposes, without the express written consent of GENIVAR and Southeast Properties.

This report was undertaken exclusively for the purpose outlined herein and was limited of he scope and purpose specifically expressed in this report. This report cannot be used or applied under any circumstances to another location or situation or for any other purpose without further evaluation of the data and related limitations. Any use of this report by a third party, or any reliance on decisions made based upon it, are the responsibility of such third parties. GENIVAR accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

GENIVAR makes no representation or warranty with respect to this report, other than the work was undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. Any information or facts provided by others and referred to or used in the preparation of this report were assumed by GENIVAR to be accurate. Conclusions presented in this report should not be construed as legal advice.

The information provided in this report was compiled from existing documents and data provided by Southeast Properties and by applying currently accepted industry standard mitigation and prevention principles. This report represents the best professional judgment of GENIVAR personnel available at the time of its preparation. GENIVAR reserves the right to modify the contents of this report, in whole or in part, to reflect any new information that becomes available. If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provide herein.

GENIVAR Inc.

**(original signed by)**

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Virgil D. Grecian, M.Sc.  
Environmental Scientist  
(506) 857-1675

## 7.0 SIGNATURES

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Mr. Kevin Carson, President  
Southeast Properties

## 8.0 REFERENCES CITED

New Brunswick Department of Natural Resources (DNR), 2007. Our Landscape Heritage: the Story of Ecological Land Classification in New Brunswick, 2<sup>nd</sup> Edition. Fredericton, NB. 359 pg.

New Brunswick Department of Environment and Local Government (DELG), 2012. A Guide to Environmental Impact Assessment in New Brunswick. Fredericton, NB.

National Wetlands Working Group. 1997. The Canadian Wetland Classification System. Second Edition. Edited by B.G. Warner and C.D.A. Rubec. Wetlands Research Centre, University of Waterloo. Waterloo, ON. 68 p.

## Appendix A Plant List

## Appendix A Plant List

<i>Scientific Name</i>	Common Name	S Rank	GS Rank	G Rank	N Rank	DNR General Status	COSEWIC Status
<i>Abies balsamea</i>	Balsam Fir	S5	4 Secure	G5	N5	Secure	None
<i>Acer rubrum</i>	Red Maple	S5	4 Secure	G5	NNR	Secure	None
<i>Acer spicatum</i>	Mountain Maple	S5	4 Secure	G5	NNR	Secure	None
<i>Agrostis scabra</i>	Rough Bentgrass	S5	4 Secure	G5	NNR	Secure	None
<i>Alnus incana</i>	Speckled Alder	S5	4 Secure	G5	NNR	Secure	None
<i>Anaphalis margaritacea</i>	Pearly Everlasting	S5	4 Secure	G5	N3N5	Secure	None
<i>Carex intumescens</i>	Bladder Sedge	S5	4 Secure	G5	NNR	Secure	None
<i>Chamaedaphne calyculata</i>	Leatherleaf	S5	4 Secure	G5	N5	Secure	None
<i>Chamerion angustifolium</i>	Fireweed	S5	4 Secure	G5	NNR	Secure	None
<i>Clintonia borealis</i>	Clinton Lily	S5	4 Secure	G5	NNR	Secure	None
<i>Comptonia peregrina</i>	Sweet Fern	S5	4 Secure	G5	NNR	Secure	None
<i>Coptis trifolia</i>	Goldthread	S5	4 Secure	G5	N5	Secure	None
<i>Cornus canadensis</i>	Dwarf Dogwood	S5	4 Secure	G5	N5	Secure	None
<i>Diervilla lonicera</i>	Northern Bush-Honeysuckle	S5	4 Secure	G5	NNR	Secure	None
<i>Doellingeria umbellata</i>	Parasol White-Top	S5	4 Secure	G5	NNR	Secure	None
<i>Dryopteris intermedia</i>	Evergreen Woodfern	S5	4 Secure	G5	NNR	Secure	None
<i>Equisetum arvense</i>	Field Horsetail	S5	4 Secure	G5	NNR	Secure	None
<i>Fragaria virginiana</i>	Virginia Strawberry	S5	4 Secure	G5	NNR	Secure	None
<i>Juncus tenuis</i>	Slender Rush	S5	4 Secure	G5	NNR	Secure	None
<i>Kalmia angustifolia</i>	Sheep-Laurel	S5	4 Secure	G5	NNR	Secure	None
<i>Larix laricina</i>	American Larch	S5	4 Secure	G5	N5	Secure	None
<i>Ledum groenlandicum</i>	Common Labrador Tea	S5	4 Secure	G5	N5	Secure	None
<i>Lycopodium clavatum</i>	Running Pine	S5	4 Secure	G5	N5	Secure	None
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley	S5	4 Secure	G5	NNR	Secure	None
<i>Mitchella repens</i>	Partridge-Berry	S5	4 Secure	G5	NNR	Secure	None
<i>Myrica gale</i>	Sweet Bayberry	S5	4 Secure	G5	NNR	Secure	None
<i>Osmunda cinnamomea</i>	Cinnamon Fern	S5	4 Secure	G5	NNR	Secure	None
<i>Picea glauca</i>	White Spruce	S5	4 Secure	G5	N5	Secure	None
<i>Picea rubens</i>	Red Spruce	S5	4 Secure	G5	N5	Secure	None
<i>Pinus banksiana</i>	Jack Pine	S5	4 Secure	G5	N5	Secure	None
<i>Poa palustris</i>	Fowl Bluegrass	S5	4 Secure	G5	N5	Secure	None
<i>Populus tremuloides</i>	Quaking Aspen	S5	4 Secure	G5	NNR	Secure	None
<i>Prunus virginiana</i>	Choke Cherry	S5	4 Secure	G5	NNR	Secure	None
<i>Rhododendron canadense</i>	Rhodora	S5	4 Secure	G5	NNR	Secure	None
<i>Rubus idaeus</i>	Red Raspberry	S5	4 Secure	G5	N5	Secure	None
<i>Sarracenia purpurea</i>	Northern Pitcher-Plant	S5	4 Secure	G5	N5	Secure	None
<i>Scirpus cyperinus</i>	Cottongrass Bulrush	S5	4 Secure	G5	NNR	Secure	None
<i>Solidago juncea</i>	Early Goldenrod	S5	4 Secure	G5	NNR	Secure	None
<i>Solidago rugosa</i>	Rough-Leaf Goldenrod	S5	4 Secure	G5	N5	Secure	None
<i>Spiraea alba</i>	Narrow-Leaved Meadow-Sweet	S5	4 Secure	G5	N5	Secure	None
<i>Symphyotrichum lateriflorum</i>	Farewell-Summer	S5	4 Secure	G5	NNR	Secure	None
<i>Thalictrum pubescens</i>	Tall Meadow-Rue	S5	4 Secure	G5	NNR	Secure	None
<i>Trientalis borealis</i>	Northern Starflower	S5	4 Secure	G5	NNR	Secure	None

<i>Scientific Name</i>	<b>Common Name</b>	<b>S Rank</b>	<b>GS Rank</b>	<b>G Rank</b>	<b>N Rank</b>	<b>DNR General Status</b>	<b>COSEWIC Status</b>
<i>Vaccinium myrtilloides</i>	Velvetleaf Blueberry	S5	4 Secure	G5	N5	Secure	None
<i>Viburnum nudum</i>	Possum-Haw Viburnum	S5	4 Secure	G5	NNR	Secure	None
<i>Arctium minus</i>	Lesser Burdock	SNA	7 Exotic	GNR	NE	Exotic	None
<i>Hieracium caespitosum</i>	Meadow Hawkweed	SNA	7 Exotic	GNR	NE	Exotic	None
<i>Matricaria discoidea</i>	Pineapple-Weed Chamomile	SNA	7 Exotic	G5	NE	Exotic	None
<i>Poa annua</i>	Annual Bluegrass	SNA	7 Exotic	GNR	NE	Exotic	None
<i>Taraxacum officinale</i>	Common Dandelion	SNA	7 Exotic	G5	N5	Exotic	None
<i>Trifolium repens</i>	White Clover	SNA	7 Exotic	GNR	NE	Exotic	None

*S Rank – Species occurrence rank in New Brunswick (S1 – extremely rare, S2 – Rare, S3 – Uncommon, S4 – Fairly Common, S5 – Common)*  
*GS Rank – Global occurrence Rank of species*  
*G Rank – Global rarity rank of species, using CDC/NatureServe methods*  
*N Rank – National rarity rank of species, using CDC/NatureServe methods*  
*NBDNR General Status – General Status of Wildlife Species in New Brunswick*  
*COSEWIC – Species status under Committee on the Status of Wildlife in Canada*

Appendix B  
Photographic Log



Photo 1 – Wetland area at Project Site showing the previously altered portion of wetland on PID 70217492. The beginning of the remaining portion of wetland is seen as the band of organic peat in the upper part of the photo.



Photo 2 – Looking north at the edge of the remaining wetland. The clay liner is shown in the foreground of the photo. Stockpiled material is shown piled, in windrows drying.



Photo 3 – Looking northwest from within the wetland at the dominant *Rhododendron* vegetation. Regenerating tree species such as grey birch observed to the left in this photo are growing only where peat has been piled, and partially dried.



Photo 4 – Soil test pit in wetland were likely 2-3 m deep of saturated peat. The ground cover was dominated by moss with few ericaceous shrub seedlings.



Photo 5 – Looking west from within the wetland at one of the drainage channels dug in the bog at some point in the past. Within 1 metre of the trench, saturation was consistent with non disturbed areas of the bog.



Photo 6 – The regenerating grey birch is present on piles of drying peat and at the upland edge of the wetland as the bog basin gives way to better drained organic soils that support a different, more diverse vegetation community.



Photo 7 – This photo is looking north, up the abandoned quarry that is proposed to be used as part of the Wetland Compensation Plan. The site contains some water at the time of the visit (Oct 9, 2013) however most of the summer it is dry. Raising the water level will provide year long access for wildlife such as mink, beaver and waterfowl.



Photo 8 – The northern end of the abandoned quarry that contains semi wetland but would be enhanced with a controlled water level. This part of the new wetland would likely be seasonally flooded.



Photo 9 – This photo is taken at the high water outflow location of the old quarry. This is the likely location for a water control structure to maintain a basal water level in the new wetland.



Photo 10 – This photo is looking upslope and shows the temporary channel developed between the abandoned quarry and West Branch Hall's Creek. This channel and 30 m on either side will be set aside as conservation zones under the proposed Wetland Compensation Plan.



Photo 11 – An area at the north end of the abandoned quarry that is proposed to be used as a sediment retention structure under the proposed Wetland Compensation Plan. The ultimate design would enhance the wetland by removing sediment before reaching the wetland.



Photo 12 – The photo is looking down on the WBHC along the elevated left bank of the Subject Property. This area will be placed in a conservation agreement as part of the Wetland Compensation Plan.

## Appendix C Wetland Compensation Plan

The major components of the wetland compensation plan include:

- New wetland creation (**3.6 ha**);
- Enhancement of created wetland by creating a sediment retention pond (**0.22 ha**);
- Enhancement of created wetland by including vegetated upland within compensation area (**3.3 ha**);
- Decommissioning of an existing road (**0.33 ha**); and
- Maintaining existing vegetated riparian areas on the discharge watercourse (**0.31 ha**), and WBHC (**1.1 ha**).

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**Legend**

- PROPERTY LAYER (WESTMORLAND CO.)
- DRAINAGE CHANNELS
- WATERCOURSE (NBHN)
- REGULATED WETLAND
- COMPENSATION PLAN COMPONENTS**
- NEW WETLAND
- SEDIMENT TRAP
- UPLAND BUFFER
- BUFFER ON OUTLET
- BUFFER ON WBHC
- DECOMMISSIONED ROAD



**FIGURE 5 COMPENSATION PLAN**  
*Southeast Properties*  
*Wetland Alteration*  
 PROJECT NO. 131-22399



**GENIVAR**

Appendix D  
Public Consultation Material



November 15, 2013

<<Name>>

<<Address>>

Dear: <<name(s)>>

**Re: Notification of Public Input Program  
Southeast Properties Wetland Alteration: Environmental Impact Assessment  
Moncton, NB**

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Southeast Properties proposes to alter a 3 ha wetland on privately self-owned land within the Moncton Vision Lands in Moncton NB. The wetland in question is a low shrub bog wetland, isolated from the rest of the West Branch Hall's Creek watershed. The bog is situated in a higher elevation location which is more desirable to accommodate future development of the subject properties. In addition, the peat material removed from the bog will be used in a local soil and landscaping business. The proposed alteration includes removing the entire wetland and is proposed to begin in 2014, upon successful completion of this Registration.



Due to the size of the wetland (> 2 ha), the Proponent is required to register the project with the NB Department of Environment and Local Government under the NB *Environmental Impact Assessment (EIA) Regulation - Clean Environment Act*. GENIVAR, on behalf of Southeast Properties has prepared an EIA Registration document for the proposed project.

You are receiving this notice to advise you of the opportunity to review the document on behalf of your constituents or organization.

The EIA Registration document is titled "*Southeast Properties Wetland Alteration Environmental Impact Assessment*" and is currently available to any interested member of the public for review. Copies of the document are available for public viewing at the GENIVAR Moncton office and NB Department of Environment and Local Government offices in Dieppe and Fredericton and on the website.

**GENIVAR**

55 Driscoll Crescent  
Moncton, NB E1E 4C8  
(506) 857-1675  
Mon to Fri: 8:00 am - 5:00 pm

**NB Department of Environment**

Moncton Regional Office.  
355 Dieppe Blvd  
Moncton, NB E1A 8L5  
(506) 856-2374  
Mon to Fri: 8:15 am - 5:00 pm

**NB Department of Environment**

Marysville Place  
20 McGloin Street  
Fredericton, New Brunswick E3A 5T8  
(506) 444-5382  
Mon to Fri: 8:15 am - 5:00 pm

You are welcome to submit written comments or questions regarding the EIA to Virgil Grecian via mail at: *55 Driscoll Crescent, Moncton, NB E1E 4C8* or via email at: *virgil.grecian@genivar.com*.

Written comments are due within 25 days of Project registration. All written comments received by (due date) will be incorporated into a report on public involvement and submitted to the NB Department of Environment.

Sincerely,  
GENIVAR



Virgil D. Grecian, M.Sc.  
Environmental Scientist and Project Manager