PROJECT NO 131-13102-11

LANDFILL EXTENSION PROJECT

REGIONAL SERVICE COMMISSION # 7

ENVIRONMENTAL IMPACT ASSESSMENT REGISTRATION

WESTMORLAND-ALBERT SOLID WASTE LANDFILL, MONCTON, NB

WSP
55 Driscoll Crescent
Moncton, NB E1E 4C8

Phone 506 857-1675
Fax 506 857-1679
www.wspgroup.com

EXECUTIVE SUMMARY

This document is intended to fulfill the requirements of a registration under the New Brunswick *Environmental Impact Assessment Regulation* of the *Clean Environment Act*. The statements in this Executive Summary are subject to the limitations included in Section 7.0 of this report, and are to be read in conjunction with the remainder of the report.

The Landfill Extension (Project) consists of an extension of the waste limit for the placement of waste cells at an active landfill facility. The proponent is Regional Service Commission #7 and the project will occur on property completely owned by the Commission that is currently being used as a landfill.

The waste limit extension will allow for waste cells to be built, potentially extending the life of the current bank of cells until 2028. A new cell is added approximately every two years. Generally, it takes two years to develop a new cell at the landfill site before it can receive waste for the first time. Without the extension, all cells in the current bank will be complete by 2017 mandating the commissioning of a new bank.

Clearing is required to establish the perimeter road and ditch, for work areas, removing topsoil, and preparing the location of the new cells. Clearing activities will be conducted outside of bird breeding season (May 1 to August 31) to prevent unauthorized disturbance to migratory birds or their nests. Any merchantable timber cleared from the land will be salvaged, and non-merchantable wood will be stockpiled on site for use in making cover, or for organic amendment to the compost facility.

Access to the project site will use the current means of entering the landfill, i.e. from Berry Mills Road. The Project is unlikely to create significant additional traffic to the facility during construction as most equipment to be used for this Project is brought on site once and remains there until the work is complete.

The perimeter road is a continuation of and connection to the existing landfill perimeter road (Figure 2). The entire new perimeter road will contain a stable subgrade material to prevent erosion and will be finished with a gravel surface. The surfacing is dependent upon the desired serviceability; however it is likely to be unpaved. The access to the southern portions of the landfill will be for service personnel only, and it is unlikely that this portion of the road would be paved.

This report has been prepared by WSP Canada Inc (WSP) for the sole benefit of Regional Service Commission #7. 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 WSP and Regional Service Commission #7.

The information provided in this report was compiled from existing documents and data provided by Regional Service Commission #7, and by applying currently accepted industry standard mitigation and prevention principles. This report represents the best professional judgment of WSP personnel available at the time of its preparation. WSP 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 our conclusions.

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1 INTRODUCTION

This document is intended to fulfill the requirements of a registration under the New Brunswick *Environmental Impact Assessment Regulation* of the *Clean Environment Act,* and was prepared in consideration of the following guidance materials:

- New Brunswick EIA Process and Registration Guide, entitled “A Guide to Environmental Impact Assessment in New Brunswick, April 2012” (DELG 2012); and
- New Brunswick EIA Sector Guidelines entitled “Additional Information Requirements for Waste Disposal Facilities” (DELG 2004).

1.1 PROJECT OVERVIEW

The Landfill Extension (Project) consists of an extension of the current waste disposal limit on property owned by the Regional Service Commission #7 (the Proponent) that overlaps the City of Moncton municipal boundary in southeast New Brunswick (Figure 1). Drainage from two small unmapped watercourses will be moved westward around the outside of the new cells and any surface water drainage from the northern part of the property will be directed westward. New area within the Project will increase the lifespan of the current bank of waste cells by 15 years to 2028 and ultimately it is anticipated that this Project will add sufficient capacity to the Site for 25 years. The facility will continue to operate under current operating procedures.

1.2 RATIONALE FOR THE PROJECT

The purpose of this Project is to seek approval to extend the EIA Waste Boundary Limit to make efficient use of the property that has already been designated for waste storage. If not for this Project, the current bank of cells will be completed within 3 years, at which time the Proponent will need to construct cells in a different part of the property. Extending the current bank of waste cells will maximize usable space within the property, and ultimately, will be less expensive for taxpayers. The current location and operation of the existing facility is exceptionally well placed within the lands under Regional Commission #7.

1.3 PROPONENT CONTACT INFORMATION / PROJECT NAME

The name of this undertaking is the “Regional Service Commission #7 Landfill Extension Project” and will be referred to as the “Project” throughout this document.

The Regional Service Commission #7 Waste Division, branded as RecycleSENB, and formerly known as the Westmorland-Albert Solid Waste Corporation is the proponent for this Project, herein referred to as the “Commission” or “the Proponent”.

This Project will be carried out on land belonging entirely to the Commission at the landfill site located at 2024 Route 128 Berry Mills Road, Moncton, NB (Figure 2).

Table 1 Name of Undertaking and Proponent

Name of Undertaking	Regional Service Commission #7 Landfill Extension Project
Name of Proponent	Regional Service Commission # 7 (Commission)
Mailing Address of Proponent	Mailing Address: P.O. Box 1397 Moncton, NB E1C 8T6 Civic Address: 2024 Route 128 Berry Mills Road Moncton, NB E1C 8T6
Chief Executive Officer	Gerrard Belliveau, Executive Director
Principal Contact Person for the Purposes of Environmental Impact Assessment (Proponent)	Andrew Wort, Director of Solid Waste
Principal Contact Person for the Purposes of Environmental Impact Assessment (Environmental Consultant)	Virgil D. Grecian, M.Sc. Environmental Scientist and Project Manager WSPCanada Inc. 55 Driscoll Crescent Moncton, NB E1E 4C8 Phone: 506-857-1675 Fax: 506-857-1679

1.4 PROPERTY OWNERSHIP

The proposed Project is located at 2024 Route 128 (Berry Mills Road, 352870 N 5107297 W UTM NAD 83 Zone 20) just outside the City of Moncton municipal boundary in southeastern New Brunswick (Figure 1). The property is located on unincorporated land in Westmorland County and the east and south boundaries of the Project are adjacent the City of Moncton. The Project is located in Moncton Parish.

The Regional Service Commission #7 owns a number of properties between Berry Mills Road and Salisbury Road. The landfill facility occupies 4 PIDs (70271705, 70280367, 70403951, and 70243241) on approximately 509 ha of land (Table 2). This Project will only involve land from PID 70243241 (the Property), which contains the landfill cells. The Proponent will maintain ownership of all property used in the Project. The layout of the facility is shown on Figure 2.

The Village of Berry Mills is 2.7 km west of the facility entrance on Berry Mills Road. The interchange of Berry Mills Road and the TransCanada Highway (TCH) is 1.5 km west of the entrance and the intersection of Berry Mills and Wheeler Boulevard (Moncton's circumferential expressway) is 5.2 km to the east. The existing Berry Mills Heights community is located directly opposite the entrance to the Project site. A new shipping terminal is being developed on the east side of the landfill entrance on Berry Bills Road. Closer to Wheeler Boulevard, a commercial development (Moncton Industrial Development) is located on the south side of Berry Mills Road while at the same intersection,

Horsman Drive enters a thriving new residential development. The Project site is bordered to the south and west by undeveloped vacant land.

The latitude and longitude of the properties in question are shown on Figures 1 and 2.

Table 2 Properties owned by the Proponent containing the landfill facility.

PID	Owner	Location	Place Name	PAN	Area (ha)
70271705	Westmorland-Albert Solid Waste	128 Highway	Berry Mills	4614322	3.1
70280367	Westmorland-Albert Solid Waste	128 Highway	Berry Mills	4686329	5.7
70243241	Westmorland-Albert Solid Waste	128 Highway	Berry Mills	5543922	489.6
70403951	Westmorland-Albert Solid Waste	Route 128	Berry Mills	5543906	10.1

1.5 ANTICIPATED REGULATORY PATHWAY FOR PROJECT

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.

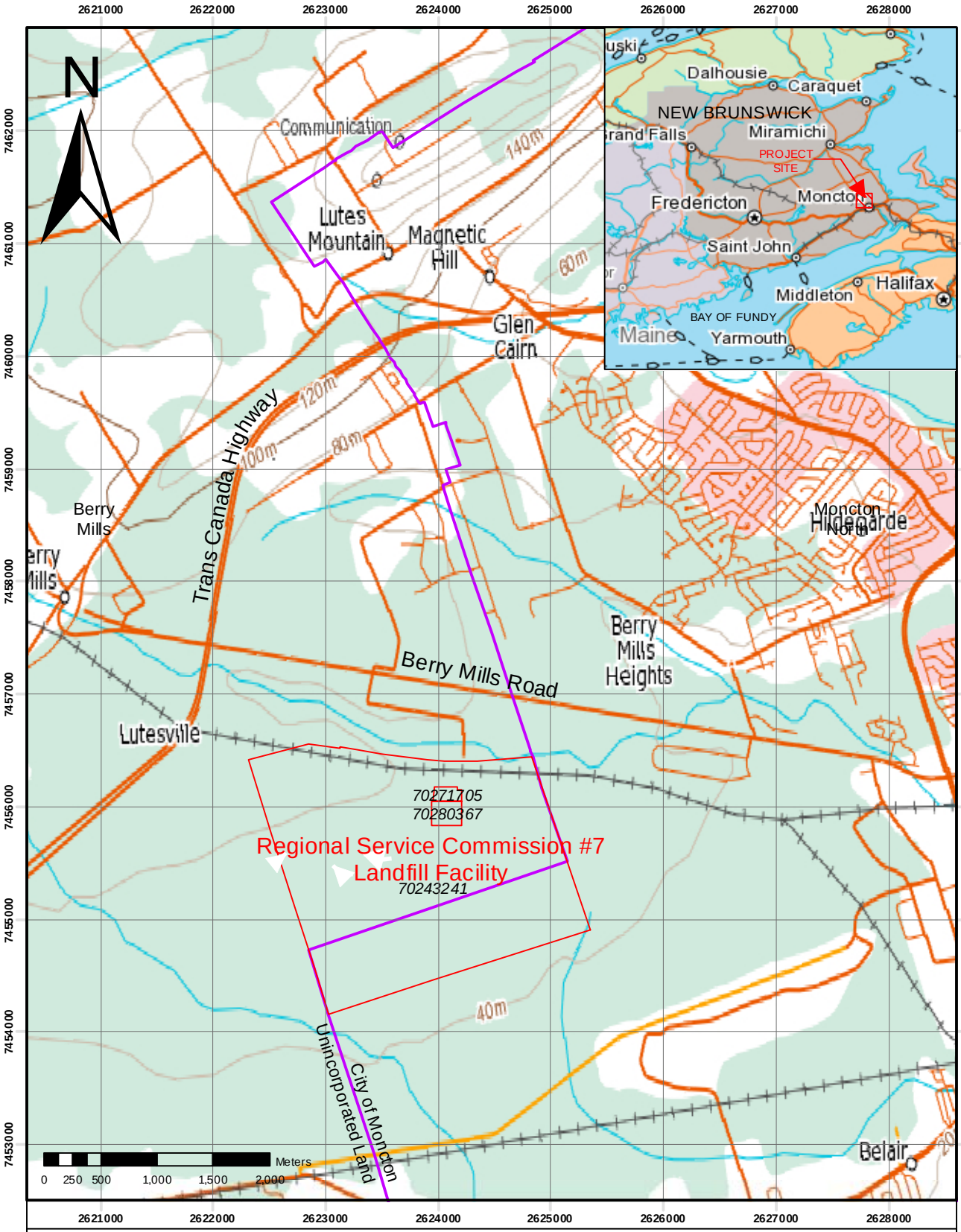
1.5.1 FEDERAL

The Project has no known triggers under the Canadian Environmental Assessment Act (CEAA). It is not anticipated that this Project will require authorizations under any Federal legislation that would require a CEAA EA.

1.5.2 PROVINCIAL

The Project will require an Environmental Impact Assessment (EIA) Registration with DELG as defined by Section 5(1) the *Environmental Impact Assessment Regulation 87-83* of New Brunswick's *Clean Environment Act* and will be registered as an undertaking. Schedule A of the Regulation includes a list of projects that must be registered. This Project is registered under ***m) all waste disposal facilities***, due to the Project's significant addition to an existing approval to operate.

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 summary of potential permits or approvals is located in Table 3 below. Watercourse and Wetland Alteration (WAWA) Permit Application, under the *Watercourse and Wetland Alteration Regulation* may be filed concurrently with this registration to allow the Commission to conduct watercourse and/or wetland alterations as defined in this Registration document.



Date: June 2014
Scale: 1:50,000
Project No.: 131-13102-11
Drawn: VDG
DATUM: NB Stereographic

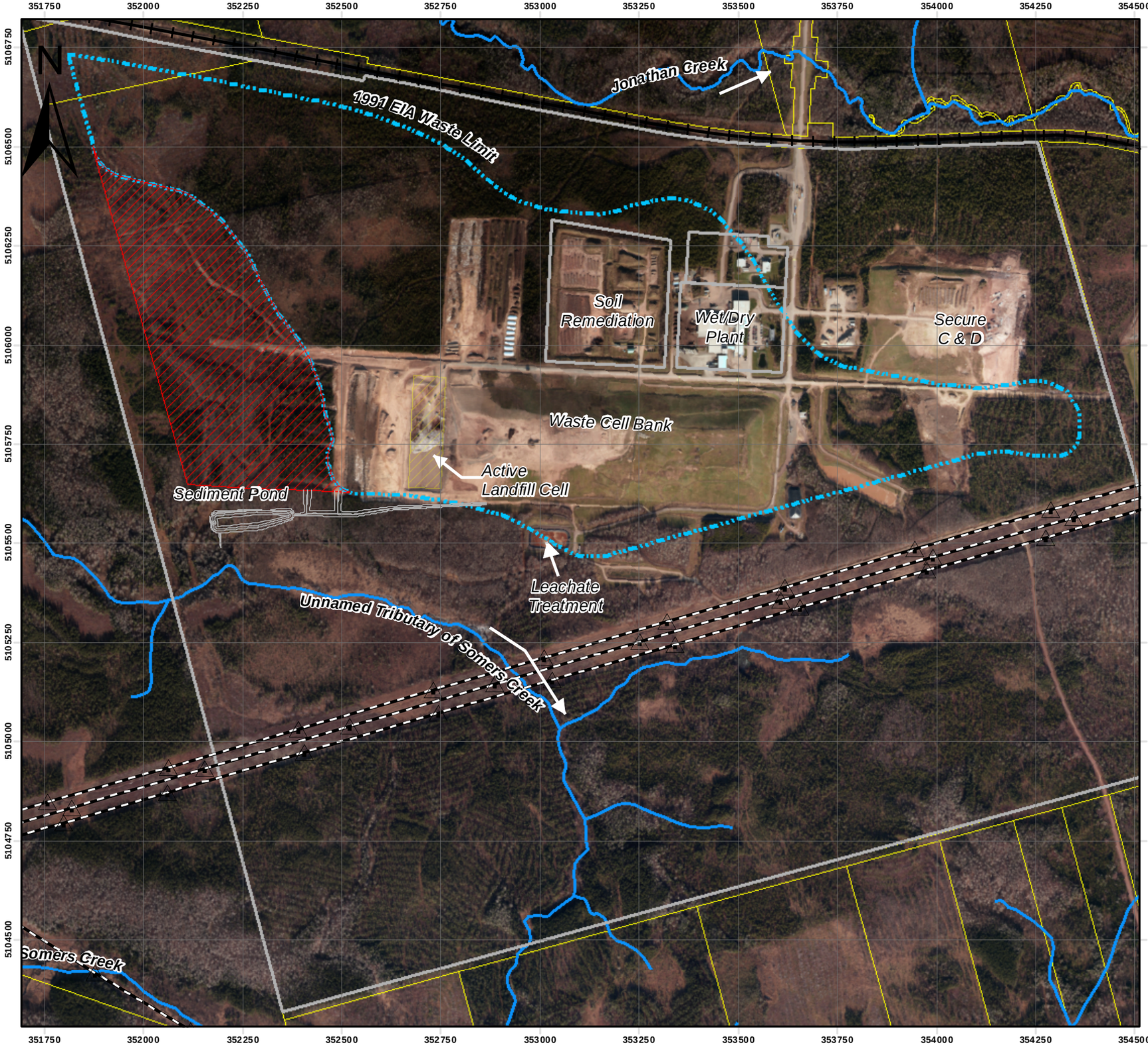
NOTES:

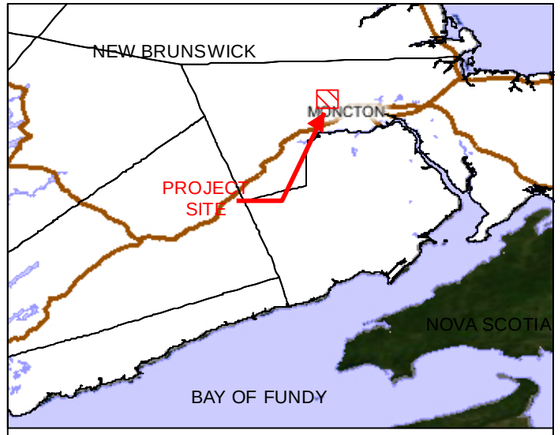
Property data SNB, Aerial Imagery from http://services.arcgisonline.com and Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

FIGURE 1

Project Location
2024 ROUTE 128, Moncton, NB

WSP





LEGEND

- POWERLINE TOWERS
- POWERLINE
- RAILWAY
- SEDIMENTATION POND
- Active Cell
- PROPOSED EXTENSION
- 1991 EIA WASTE LIMIT
- WATERCOURSE (NBHN)
- PROJECT LAND
- PROPERTY BOUNDARIES (WESTMORLAND CO.)

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

0 100 200 400 600 Meters

FIGURE 2 EXISTING FACILITY
PID 70243241
2024 ROUTE 128, BERRY MILLS, NB

WSP Project No. 131-13102-11

WSP

1.5.3 MUNICIPAL

It is not anticipated that the City of Moncton has any municipal regulations that are required to complete this Project.

Table 3 Summary of Potential Environmental and Land Use Approvals

Approvals Required	Summary
Provincial	
EIA Approval for Projects requiring registration (*Clean Environment Act*)	The Project results in an alteration to two unnamed and unmapped watercourses, but the Project requires authorization from DELG under the *Clean Environment Act* due to the extension of an existing landfill facility. This Project is being registered under Schedule A, item m "all waste disposal locations" and because it is a substantial increase from current approved waste limits.
Watercourse and Wetland Alteration Permit (Watercourse and Wetland Alteration Regulations)	The Project will result in an alteration to two unmapped, intermittent watercourses that can likely be handled under a provisional permit or stipulation letter.
Clean Environment Act	Alteration of the Facility's Permit to Operate, issued under the *Clean Environment Act.*
Municipal	
City of Moncton Planning	It is not anticipated that any municipal regulations are required.

2 THE PROJECT

The Regional Service Commission #7 waste division (formerly Westmorland-Albert Solid Waste Corporation) is the solid waste department of NB Regional Service Commission #7 who oversees the waste management facility on Berry Mills Road. The Facility began accepting waste in 1992 and has diversified its operation and practices since the opening. The Division recently embarked on an aggressive waste sorting program. As part of this endeavour they rebranded the site as RecycleSENB to support and promote their recycling and diversion efforts.

The landfill serves over 160,000 residents in Southeast NB in the counties of Westmorland, Albert, King, and Kent. The facility operates Monday to Friday 0830 - 1600 and on Saturdays 0830 – 1400 hrs.

Blue bagged waste includes dry household garbage including milk cartons, coffee cups, newspaper, cardboard, metals, electronics, styrofoam, all types of plastics (including plastic bags), and many other products. These materials are hand-sorted from the rest of the waste in the Blue waste building and sold to recycling markets where they are used to make new products. Green bagged waste includes compostable material such as food waste, diapers, and compostable paper products (i.e. not cardboard). The waste from green bags is used to make compost. Large waste not suitable for household green or blue bags, such as furniture, and all commercial residential waste (large outdoor garbage bins) can be disposed of directly in the landfill. Household appliances, tires, and large electronics have their own designated disposal areas at the landfill.

Construction and demolition waste is material that has been obtained from the construction, renovation or demolition of a building or structure. Properly sorted and separated construction, demolition and renovation wastes may be disposed of at the secure C&D site for a reduced tipping fee. This would include such materials as:

- Asphalt shingles;
- Gyproc & drywall;
- Untreated wood;
- Siding;
- Windows;
- Concrete & brick; and
- Toilets, bathtubs & plumbing fixtures.

2.1 PROJECT OVERVIEW

The Project consists of an extension of the current waste disposal limit on property owned by the Proponent. The new area in question represents an additional 28 ha of land for waste disposal and would be an efficient means of continuing to use the current bank of waste cells for another 15 years before requiring a new waste cell arrangement. Without approval for this Project, a new cell bank will need to be opened in 2017.

Cells are constructed in banks. The first and last cells in a bank lose significant volume storage due to side slope and capping requirement. Currently cells in the middle of a bank provide sufficient air space to accommodate 2 years of waste. The next cell will be commissioned in 2014. The current waste disposal limit would allow the construction of a final cell in 2016, and that could be filled with 1

year of waste instead of 2 years due to the construction design that limits the slope of the end cell. Should this project receive approval, an additional six (6) cells are proposed to be built in 2018, 2020, 2022, 2024, 2026 and 2028. When a new cell bank is being developed, cells must be constructed three years in a row.

2.1.1 GEOGRAPHIC LOCATION

The Project is located at 2024 Route 128 Berry Mills Road (352870 N 5107297 W UTM NAD 83 Zone 20) on the municipal boundary with the City of Moncton in southeastern New Brunswick (Figure 1). All Project related work would occur on land outside the municipal boundary.

2.1.2 ENVIRONMENTAL SETTING OF THE PROJECT

The Project site is located on a gentle south facing slope in the headwater region of a small tributary to the Petitcodiac River. The nearest watercourse is an unnamed tributary which flows 3 km before entering Somers Creek which flows into the Petitcodiac River approximately 5 km downstream from the Project site. Somers Creek Watershed is adjacent to the larger Jonathan Creek Watershed to the north of the Project. All surface water that leaves the landfill flows south into the Somers Creek system. The Project site is largely wooded, but has been clear cut within the last 10-15 years and supports regenerating stands of grey and white birch (Betula populifolia and B. papyrifera). A number of small intermittent watercourses collect on the face of this slope and eventually drain into the unnamed tributary. These small watercourses do not appear to have suitable fish habitat to support fish year round and only flow during peak rainfall events. Figure 3 shows the proximity of the Project to key environmental features in southeast New Brunswick. The Project is not adjacent to any protected watersheds, natural areas or well fields. The Project is greater than 5 km from the nearest Provincial Park and greater than 45 km from the nearest National Park (Figure 3).

The Project is not near any natural protected areas or land that had been identified for conservation nor is the Project within a Protected Watershed or a Protected Water Supply Area (Figure 3). Other than the intermittent streams, no significant wetlands (> 0.5 ha) were identified or mapped within the southern portion of the Project lands. A wetland shape identified on current GeoNB mapping of the Property was not considered as part of the original 1991 EIA.

2.2 PROJECT FEATURES

This Project seeks approval to extend the footprint of waste cells within the property. A waste storage facility has a number of key components, including:

- Waste cell
- Leachate collection
- Gas collection
- Surface water drainage control
- Perimeter access road

The following sections outline the major components of each feature of the Project (see Figure 4).

2.2.1 WASTE CELL

The waste cell is engineered to contain waste for an indefinite period of time. There are components of waste in the landfill that will never disappear; therefore, the design must follow specific guidelines for the containment and management of that waste for an extended period of time.

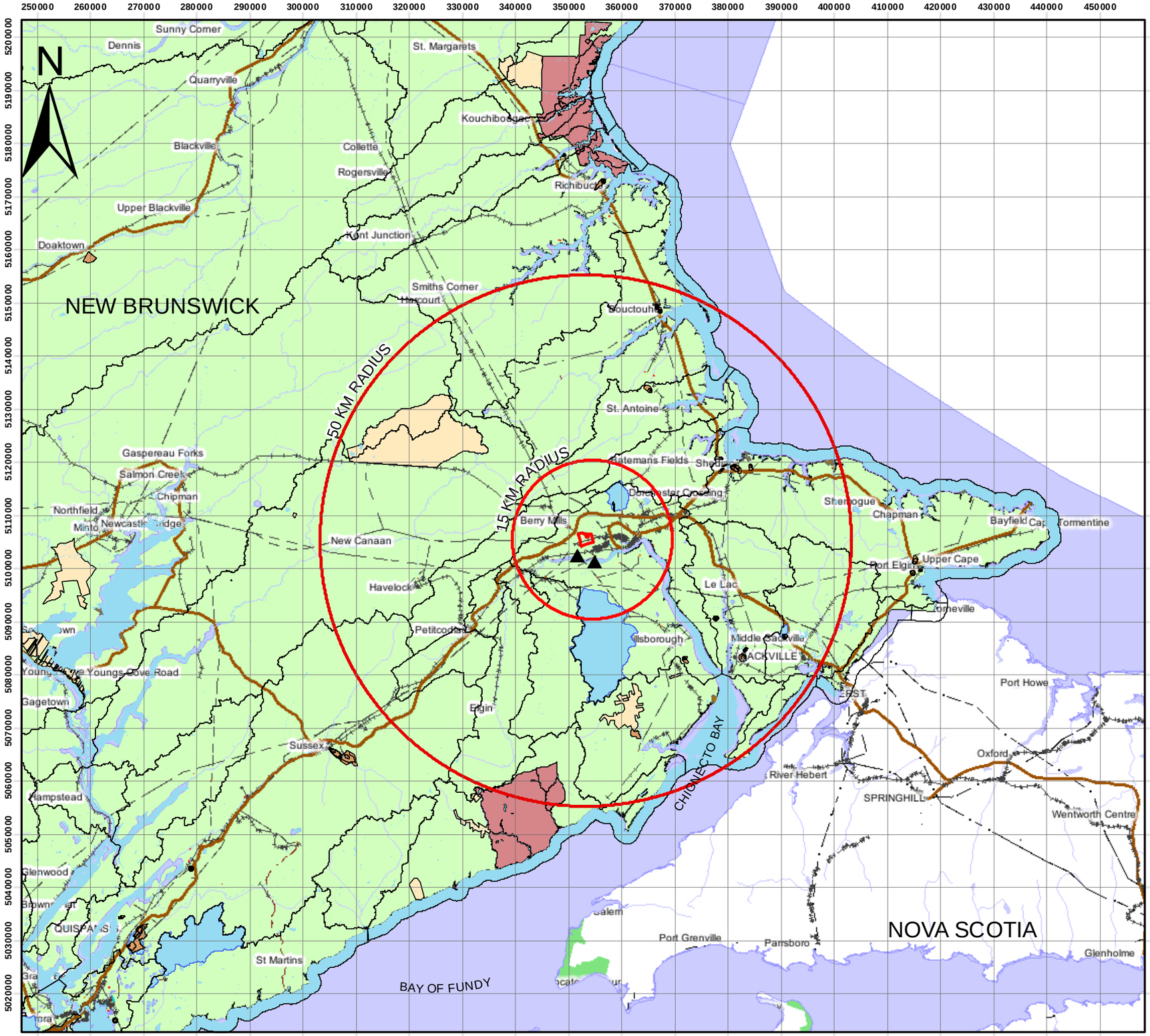


FIGURE 3 GEOGRAPHIC LOCATION AND PROXIMITY OF ENVIRONMENTAL COMPONENTS

WSP Project No. 131-13102-11

2.2.2 LEACHATE COLLECTION

Leachate is liquid that comes in contact with the waste. It can be contaminated with solutes, suspended solids or any other components of the waste. The source of water for leachate production is rainfall. The efficient collection and removal of leachate prevents contamination of either groundwater or surface water. The leachate collection system includes a multilayered liner consisting of natural clay till, re-compacted clay till, geosynthetic material and a combination of solid wall and perforated PVC pipes to collect and convey the leachate to a treatment pond. The leachate is transported to an on-site aerated pond where leachate is treated prior to being sent to the Greater Moncton Sewerage Commission for final treatment prior to being discharged into the Petitcodiac River.

2.2.3 GAS COLLECTION

A recent advancement in waste cell/landfill design at the facility has been the incorporation of gas collection. The waste naturally produces carbon dioxide and methane due to the biological breakdown of organic and inorganic wastes. A system of low pressure pipes inserted into the waste cells captures gas and then it is piped to a collector. In some landfills, the gas collected is in high enough quantities that it can be commercially viable or used within the facility for heating, but in most cases the gas is ignited and flared. The collection and removal of this gas reduces fugitive odours from the facility.

2.2.4 SURFACE WATER DRAINAGE PLAN

Surface water flow, including any flow in the two intermittent watercourses in question will be diverted by a ditch around the proposed waste cell bank (Figure 4). This ditch will discharge water into a sediment retention pond prior to release into an on site beaver pond, finally discharging into the unnamed tributary to Somers Creek. When required, sediment is removed from the sediment pond during summer low flow periods.

2.2.5 PERIMETER ACCESS ROAD

A perimeter access road will be built surrounding the proposed extended bank of cells (Figure 4). This perimeter road would serve as the roadway for waste delivery on the north side of the cells, but also for maintenance personnel and internal activities related to landfill management to the south side of the cells.

2.2.6 ANCILLARY FACILITIES

This Project will occur on Proponent owned and controlled lands. It is not necessary to construct any temporary ancillary facilities in order to complete the construction.

2.3 CONSTRUCTION

Generally, a new cell begins to be developed at the Site approximately two years before it receives waste for the first time. The current cell layout is set and by 2016 all available cells in the current bank will be constructed. This timeline would be lengthened with this approval and an additional six cells could be constructed in a row, and the cell bank could hold waste until 2028. The first of the new cells affected by this approval would go into operation in 2018.

Land preparation to construct new cells would begin after approval of the EIA Process and the Approval to Operate (NBDELG, 2009) has been amended even though an entire new cell would not need to be built until 2018. The construction of new cells would be built as needed, approximately

one every two years. Construction of an entirely new bank of cells in the northern part of the approved lands would not begin until 2029. If approval is not granted, and a new bank of cells is required new cells will have to be built every year for the first three years based on the engineered design and amount of waste placed in the initial cell. In this scenario, it is likely that in 2014 new land will need to be prepared for the new cells that would be constructed in 2017, 2018, and 2019.

The following sections outline the Construction sequence. The construction period for an individual cell can be quite short; 8-15 weeks (see Table 4). Construction of the Project is generally expected to consist of the following activities:

- Site preparation
- Physical construction of Project, including installation of perimeter road, perimeter ditch, excavation to subgrade, construction of berm, installation of liners and the installation of leachate collection systems
- Commissioning

2.3.1 SITE PREPARATION

Construction begins with the simultaneous land clearing and construction of the perimeter road and ditch. The perimeter road and ditch is important to convey surface water flow away from the construction site and convey it to the sediment pond. Once this water channel has been established, the remainder of the site preparation can proceed.

Clearing is required to establish the perimeter road and ditch, and for work areas, removing topsoil and preparing the location of the new cells. Clearing activities will be conducted outside of bird breeding season (May 1 to August 31) to prevent unauthorized disturbance to migratory birds or their nests. The facility appears to have at least one pair of Bald Eagles (Haliaeetus leucocephalus) nesting either on the property or nearby. A pre-clearing survey to look for raptor nests will occur. If a raptor nest is found within the Project footprint, it will be removed outside the breeding season (April to August) or at any time if it is established that the nest is not currently being used. Any merchantable timber cleared from the land will be sold, and non-merchantable wood will be stockpiled on site for use in making cover, or for organic amendment to the compost facility.

Access to the Project site will use the current means of entering the landfill, which is from Berry Mills Road. The Project is unlikely to create additional traffic to the facility during construction as most equipment to be used for this Project is moved on site once and remains until work is complete.

The perimeter road is a continuation of and connection to the existing landfill perimeter road (Figure 2). The entire new perimeter road will contain a stable subgrade material to prevent erosion and will be finished with a gravel surface. The surfacing is dependent upon the desired serviceability, however, it is likely to be unpaved. The access to the southern portions of the landfill will be for service personnel only, and it is unlikely that this portion of the road would be paved.

Dust suppression and water containment will be employed during the ground disturbance to ensure that the potential environmental effects of fugitive dust on the surrounding properties and flora and fauna are reduced.

2.3.2 PHYSICAL CONSTRUCTION OF PROJECT

The construction of new cells may not immediately follow land preparation due to the timing and need of new waste cells, however, the sequence of construction following land clearing and site preparation would include the following:

- Shape the bottom of cell and berm to sub-grade
- Place 600 mm re-compacted till layer
- Install multi-layer Geosynthetic layer
- Install leachate collection pipes and connect to the main
- Install 350 mm sand filter layer and prepare for placement of waste

Once clearing and grubbing are complete and any permanent and temporary ditching and access roads have been installed, the land is ready for cell construction. The first task is to shape the bottom and berms to subgrade (Figure 5). This initial step utilizes natural material that is onsite to provide the base. Re-compacting pre-screened till in situ reduces the need to stockpile till and transfer off-site and back again. Using the material in situ reduces the availability of erodible material making its way into receiving waters. In combination with the ditch and sedimentation pond already on site, a sedimentation fence will be used to surround the lower side of construction area. Once the cell bottom and berm have been brought up to subgrade, a 600 mm re-compacted till layer is formed within the cell. The majority of earthwork is performed using on-site material reducing the need to import or export soil and controlled using silt fences, erosion control structured ditch and scale sedimentation ponds. On top of this re-compacted till is placed a multi-layered geosynthetic liner. The liner is an integral piece of the leachate collection system and creates an impervious membrane to prevent the escape of leachate.

HDPE PVC pipes are used to create a collection system that channels leachate out of the cells to the treatment system. Perforated piping is laid after the geosynthetic liner has been sealed together (Figure 5). The perforated pipes are resistant to chemical break-down and lay on top of the Geosynthetic liner. They are connected to the main leachate sewers that drain to the leachate treatment pond south of the cell bank. Perforated HDPE PVC is used within the cell, but solid wall pipe is used outside the cell to convey leachate to the aerated pre-treatment pond. A 350 mm sand layer is placed throughout the cell to cover the liner and pipes. This sand layer acts as a filter and allows leachate to percolate down to the collection pipes. This layer also protects the liner membrane from rips or tears which could lead to leachate escaping the collection system.

A summary of the construction sequence and potential timeframes associated with each task is shown in Table 4. The construction of a typical cell (except the first or last cell in a bank) takes approximately 8-15 weeks. The first and last cell in each bank are designed separately and have slightly different construction time periods.

Table 4 Summary of Construction Task and Approximate Duration

Construction Task	Description of Task	Equipment, Methods, and Materials	Duration (weeks)
Base of cell	Shape bottom of cell and berms to subgrade	Excavator and bull dozer to shape existing material	2-4
Re-compacted Till Liner	Placement of till liner at the bottom of cell	Pre-screen till to remove particles > 100 mm. Placement of 600 mm of re-compacted till to form a liner with bulldozers, excavator, loader, and rollers.	2-3
Geosynthetic Liner	Placement of multi-layer liner	Overlapping layers of geosynthetic material are rolled out over the re-compacted till. The layers of Geosynthetic material adhere together to form a seal.	2-4
Leachate Collection System	Install leachate collection pipes and connect to system	200 mm perforated HDPE PVC pipe is laid on top of the Geosynthetic layer.	1-2
Sand Filter	Install 350 mm filter layer above collection pipes	350 mm of clean sand (0-2 mm) is placed over the leachate collection pipe(s).	1-2

352000 352250 352500 352750 353000

5106500 5106250 5106000 5105750 5105500

1991 EIA Waste Limit

Waste Limit Potential Expansion

Active Landfill Cell
Approximately 80m x 250m

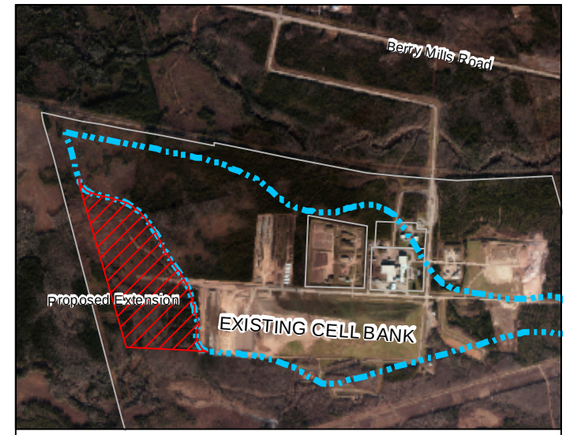
Potential
New
Cells

Proposed
New Ditch

Sedimentation
Pond

Proposed
New Road

Unnamed Tributary of Somers Creek



LEGEND

- 1991 WASTE STORAGE LIMIT
- PROPOSED NEW ROAD
- PROPOSED DITCH
- PROPOSED EXTENSION
- 30 m REGULATED WETLAND BUFFER
- WATERCOURSES (FIELD IDENTIFIED)
- WETLAND (SNB)
- WETLAND (FIELD IDENTIFIED)
- SEDIMENTATION POND
- PROJECT LAND

NEW CELLS

Status

- Active Cell
- Potential New Cells

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

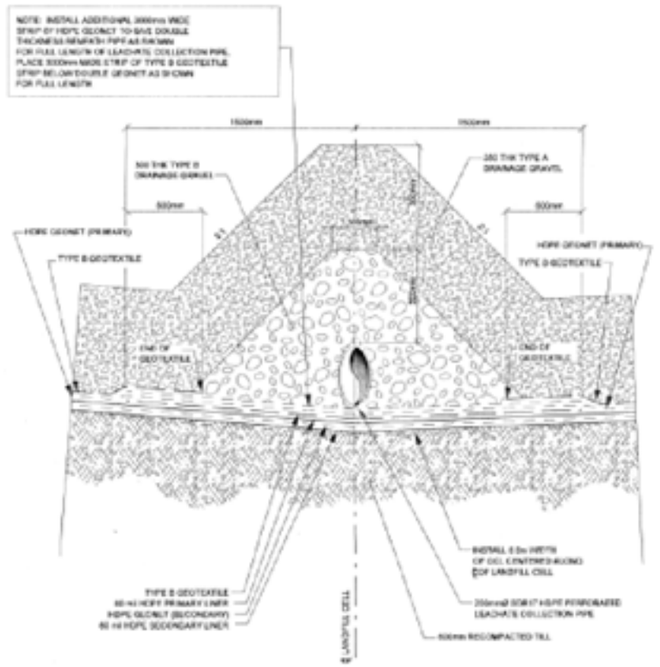
0 50 100 200 300 400 M

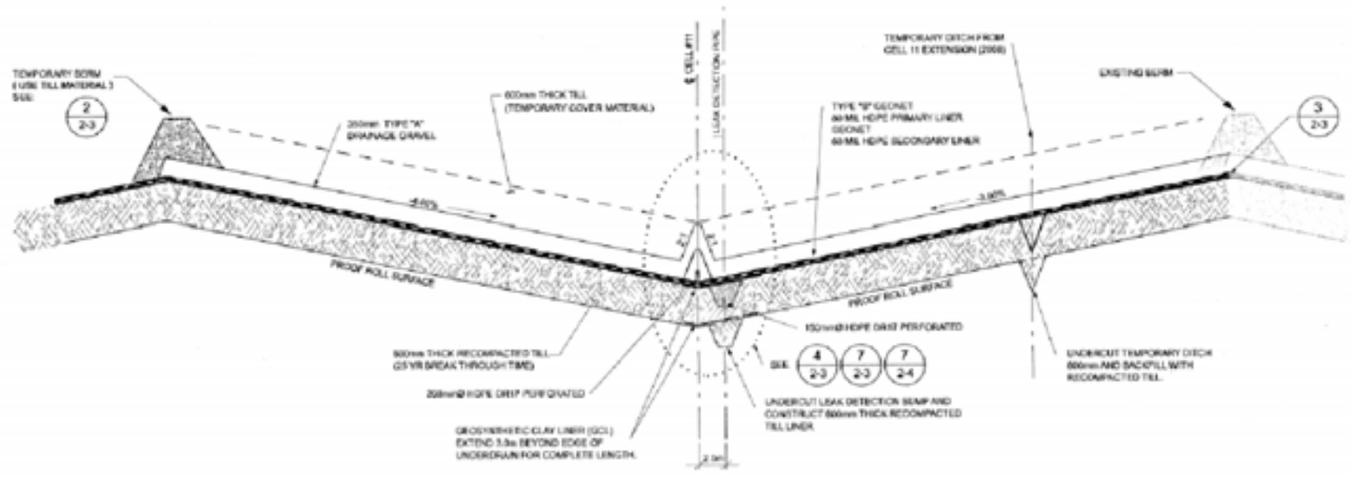
FIGURE 4 PROJECT COMPONENTS AND ENVIRONMENTAL FEATURES

2024 ROUTE 128, BERRY MILLS, NB

WSP Project No. 131-13102-11

WSP





Legend

NOTES:

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FIGURE 5 CELL CROSS SECTION (DETAIL)
2024 ROUTE 128, BERRY MILLS, NB

WSP Project No. 131-13102-11

WSP

2.3.3 COMMISSIONING

The Project will be commissioned after construction is finished. Commissioning activities for the Project are minimal and will include commissioning the waste cell by placing waste in the cells, and the leachate collection system.

2.4 EMISSIONS AND WASTE GENERATION DURING CONSTRUCTION

2.4.1 AIR CONTAMINANT EMISSIONS

The physical construction of the Project will not result in measureable emissions to the atmosphere, with the possible exception of emissions from heavy equipment used for brush clearing and site preparation. These emissions would be unobservable for surrounding land owners, or the City of Moncton. It is unlikely that these emissions would contribute to ambient air conditions near the Project site, or exceed provincial ambient air quality standards.

It is likely that fugitive dust would be generated during construction. If needed, dust suppression with water would be employed during major earthworks, to ensure that the potential environmental impacts of fugitive dust on surrounding landowners and wildlife are mitigated. Transportation of goods used for construction of the Project would be limited to the site construction area.

Some noise will be generated during construction, typical of that associated with heavy equipment, land clearing, and earth moving projects.

2.4.2 WASTEWATER DISCHARGE

It is not anticipated that there will be any activities during construction that would generate wastewater. Watercourse and/or Wetland Alteration mitigation measures (e.g. sediment and erosion control) would be employed during construction and ground disturbance would be minimal outside the required construction zones. Overall site runoff will be controlled with the construction of a perimeter ditch around the new cells to pass overland flow of water to Somers Creek, south of the Project.

2.4.3 SOLID WASTE

During Construction, there may be a requirement to dispose of some general construction wastes. Such wastes may include unsuitable soils, woody debris, some packaging for waste cell components, and other construction wastes.

The Proponent will re-use or recycle waste materials on site, or send them to their own recycle plant on site. Any cardboard or plastics can enter the Proponents own landfill, while unsuitable soils or woody debris can be manufactured into future cover for the landfill. Any construction and demolition debris (C&D) will be disposed of at the C&D site within the Proponents own facility.

Residual wastes that cannot be recycled or reused will end up in the landfill on site. The proponent will ensure that all construction related waste materials are disposed of properly. No brush burning will be permitted at any time during the construction phase and mulching of non-merchantable timber may be employed to use as cover.

2.4.4 ENVIRONMENTAL PROTECTION PLAN

An Environmental Protection Plan (EPP) will be developed for construction of the Project in accordance with the applicable provincial environmental protection legislation and regulations. The EPP will be submitted to the appropriate regulatory agencies for review. The EPP will outline

comprehensive environmental protection measures to be employed during the construction of the Project. The approved EPP will form part of all site construction contracts and contractors will be obligated to observe the conditions set out in the EPP, as well as all applicable environmental permits.

2.5 OPERATION AND MAINTENANCE

A new cell is constructed every two years. In the past all construction activity for a new cell was carried out in a single year. Moving forward it has been determined that it is beneficial to spread construction activity over a 2 year period so that the clay for the re-compacted layer can be screened during ideal weather conditions. This Project is seeking the addition of 27 ha of land for waste disposal. This amount cannot be entirely used for waste disposal. It is not efficient to create empty cells before they are needed due to the cost of the materials, and the likelihood of damage to the impermeable fabric liners, etc. Each cell is approximately 80 m wide and 240 m long.

Materials used to create the cells (e.g. till) are all found onsite except suitable road building rock, clean sand used in the filter layer, and course gravel used above the leachate collection pipes. These building materials are clean when they arrive from reputable quarries within the region. Geosynthetic materials and PVC pipe all come to the site from suppliers of these products.

On site clay, till and topsoil used for cover are stored on site for future use. Grubbings consisting of large woody debris such as stumps, will be stored on site, but outside the waste disposal limit. Over the next few decades, this material will decay and become suitable for use as daily cover for the landfill. Fuel, oil, and lubricants for the heavy equipment for handling the waste are stored in a secure location. A fuel truck refuels the machinery on site.

Waste deposited in the landfill is compacted and covered daily. Leachate generated by rainfall percolating through waste is collected and piped to an onsite leachate pre-treatment centre which includes the aeration of the leachate before it is conveyed to the Greater Moncton Sewerage Commission (GMSC). The outgoing leachate is required to meet acceptable targets for compounds such as suspended solids, BOD, pH, and temperature. Leachate sent to GMSC is monitored to ensure that it meets regulatory requirements. For a complete list of target levels for leachate discharge to environment see Appendix A “*Discharge Limits for City of Moncton Sewers*”.

Once the amount of waste material reaches an appropriate level, gas collection pipes will be inserted into the waste pile to capture fugitive gas generated by the decaying material in the cell. The gas is collected in pipes by a low pressure vacuum system and conveyed to the flaring station for burning. The site is currently working on a generator system that will use the gas to generate electricity for sale to NB Power.

Fugitive dust is controlled using water and is not generally an issue at the landfill. A collection of netting near the active end of the bank of cells, and movable nets designed to catch waste downwind of the open cell limits any windborne waste from escaping the property.

2.6 FUTURE MODIFICATIONS, EXTENSIONS, OR ABANDONMENT

This Project is being registered as a significant extension of a current permit to operate, and will bring all remaining land within the PID, suitable for waste storage, into potential use for waste storage. This Project regards the extension of the current landfill cell bank, and the placement of future waste cells in land that was originally outside of the approved 1991 Waste Limit (Figure 2). This registration, if approved, would authorize the extension of the current bank of waste cells to 2028, reducing the requirement to develop a new bank of cells elsewhere on the property.

2.7 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

The Project location, method, and timing are entirely dependent upon the ongoing operation of the Regional Service Commission #7 Solid Waste Landfill Facility. There is available land within the approved 1991 Waste Disposal Limit to place new cells, however, the continuation of cells in the existing bank has a number of advantages including waste storage in same cell bank until 2028 with only minimal land disturbance. Constructing new cells within the northern portion of the property beginning with cell creation in 2017, 2018 and 2019 will include the following challenges or issues:

- Existing infrastructure such as leachate collection and treatment will need major upgrades
- Opening ground in the north of property has potential effects on Jonathan Creek watershed (i.e. would be preferable to limit disturbance to one smaller watershed)
- Potential for increased sediment and erosion
- Immediate cost of building a new cell for three years in a row, and all of the necessary components.

Approval of this Project will streamline the waste disposal at this highly successful facility for the next 15 years. The investment required to shift disposal operations north of the existing line of cells while possible, is not cost-effective.

2.8 ACCIDENTS, MALFUNCTIONS AND UNPLANNED EVENTS

Accidents, malfunctions and unplanned events will be prevented and mitigated through a systematic approach to worker health and safety, and continued environmental protection measures stated in the Landfill's "Management Practice Guidelines." Contractor health and safety policies and plans will be reviewed and approved by the Proponent and workers on site will receive appropriate training to prevent and mitigate workplace accidents and environmental upsets. A Project specific Environmental Protection Plan (EPP) will be developed for construction and an Emergency Response Plan (ERP) for Operation in accordance with the applicable provincial requirements is already in place for current operations. The EPP and ERP will outline comprehensive environmental protection measures to be employed during the construction and operation phases of the Project. The approved EPP will form part of all site construction activities, and contractors will be obligated to follow the conditions contained therein, as well as those of all applicable environmental permits for the Project.

The key accidents, malfunctions and unplanned events that could potentially occur during the construction and operation of the Project are described below. Mitigation measures to prevent the occurrence of such events, and response procedures to be implemented in the event they do occur, will be developed prior to the commencement of the Project.

2.8.1 LOSS OF LEACHATE CONTAINMENT

The waste cells are specifically designed to contain and direct leachate to on-site treatment facilities during the operation of this Project. Catastrophic failure of the leachate containment system could result in a release of untreated leachate to the environment with potential adverse environmental impacts to fish and fish habitat and groundwater. Consequently, the system is designed with a number of redundant fail safes. The system consists of two separate ponds such that in the event that one fails, the other can handle the leachate while repairs are made.

The design of the leachate system accommodates a load greater than that required for the Project. Also, a leak detection system will be in place to identify a cell where leachate has penetrated the primary impermeable Geosynthetic liner (Figure 5). Inspection and monitoring of the leachate system and the leak detection system will be conducted regularly during operation. Groundwater

wells have been set up at specific locations along the downgradient side of the existing landfill. The groundwater monitoring system will be expanded to incorporate the new project site to verify that leakage of contaminated leachate does not enter aquifers. A Loss of Leachate Containment Plan will be incorporated into the EPP and ERP. The response plan will outline materials to be kept on site and procedures to contain and treat leachate as required should a loss of containment occur.

2.8.2 FUEL AND HAZARDOUS MATERIALS SPILL

Spills of petroleum, oil and lubricants (POL) may occur during any phase of the Project during refueling of machinery or through breaks or leaks in hydraulic lines of equipment. Such spills are usually highly localized and easily cleaned up by on-site crews using standard equipment and spill response materials. In the unlikely event of a large spill, soil, groundwater and surface water contamination may occur. This contamination can adversely affect the quality of groundwater, fish and fish habitat, wetland habitat, and result in the ingestion/uptake of contaminants by wildlife.

A Spill Response Plan will be developed or is already a part of the Operational Guide and will be included in the EPP and ERP. The response plan will outline procedures for containing and cleaning up spills in a safe and efficient manner, and associated provincial reporting requirements.

2.8.3 EROSION AND SEDIMENT CONTROL FAILURE

Failure of erosion and sediment control measures during construction or operation of the Project during extreme precipitation events could result in the release of a large quantity of sediment laden runoff potentially affecting water quality for aquatic habitats. To prevent that from happening, a large sediment pond has recently been constructed south of the existing cell bank (Figure 4) that collects surface water flow. Sediment-laden water entering this pond will release its sediment and the water will naturally attenuate through beaver ponds prior to entering the unnamed tributary of Somers Creek.

Erosion and sediment control measures will be described in the EPP and ERP, including requirements for their inspection and maintenance. Inspection and monitoring or erosion and sediment control measures will be conducted regularly during all phases of the Project, particularly during and after extreme precipitation events or snow melt that results in visible overland flow of water. Erosion and sediment control structures found to be damaged will be repaired immediately and any other remedial action will be taken as necessary.

2.8.4 FIRE

A fire at the Project site may occur during construction or operation of the Project due to equipment accident, human carelessness, or natural causes such as a forest fire in dry conditions or even spontaneous combustion within waste mass. The immediate concern for a fire would be for human health and safety; additional concerns include habitat loss off the Project Site, direct mortality to wildlife, and loss or damage to property. The emissions from a fire would likely consist mainly of smoke (particulate matter) and CO^2, but could also include CO, NO_x, SO^2 and other products of combustion from waste burning in the waste disposal. A large fire could create air contaminant levels greater than the ambient air quality standard over distances of several kilometres, but such cases would be of short duration and are not expected to occur.

Proper material management (i.e. of fuel and wastes) and operational procedures (i.e. storage, handling and transfer) for hazardous materials will reduce the potential for and extent of accidental Project-related fires. A Fire Response Plan is built into the management document procedures of the Landfill. The response plan outlines procedures for fire prevention, response, and reporting. On-site workers will receive appropriate training. In the unlikely event of a large fire, local emergency response and firefighting capability will be called to respond to reduce the severity and extent of damage and to protect the safety of the workers.

2.8.5 VEHICULAR COLLISIONS

Vehicular collisions (involving two vehicles, or a vehicle and worker) may occur during any phase of construction, or during the operation of the Project when there will be increased traffic to the site to dump waste into the cell. Vehicular collisions are serious incidents and can lead to vehicle damage or personal injury. During construction, site workers are exposed to increased traffic of heavy equipment conducting site preparation or to prepare new cells. The transportation route for vehicles to enter the disposal site during operation also increases the number of potential collisions.

2.9 PROJECT RELATED DOCUMENTS

In 1991, an initial EIA was submitted for the landfill entitled “Environmental Impact Assessment for the Westmorland/Albert Integrated Waste Management Facility” dated September 30, 1991. The facility began accepting waste in 1992, and an Approval to Operate (Approval) has been renewed on a regular basis since that time. The most recent Approval is shown in Appendix A.

3 DESCRIPTION OF EXISTING CONDITIONS, POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

The Project is located in southeastern New Brunswick in Westmorland County, in the Petitcodiac River (PR) Watershed that flows into Chignecto Bay, approximately 35 km to the south (Figure 3).

The Project site is located in the heart of the Petitcodiac Ecodistrict within the Eastern Lowlands Ecoregion. The Ecodistrict is characterized as a gently rolling, low-lying area with ridges and valleys that encompass the broad PR basin (DNRE, 2007). The land mass within this Ecodistrict is 70% forested, dominated by spruce (red or white) forests (>50%) with mixed wood forests (intolerant hardwood-softwood forest) being the second most common community type. This mix of forest community reflects the geographic location of the Ecodistrict, i.e. near the coast, and its long history of settlement. Forestry harvesting for pulpwood or firewood are the most common forest products produced in this Ecodistrict. Historic lack of lumber activities was likely related to occupational diversity, such as shipbuilding, rather than a lack of resources. Mineral resources were varied with sandstone and gypsum quarries throughout the area until the 1980s. Recently there has been renewed interest in exploration for minerals, oil and gas, especially shale gas, within the Ecoregion.

The Project will be an extension of an existing sanitary landfill and will be confined to the same property. The most notable environmental features in proximity to the Project include:

- The Petitcodiac River (3500 m south) which up until recently had closed gates on a causeway over the river that limited fish migration up into the Petitcodiac River watershed.
- Somers Creek, a small tributary of Petitcodiac River that flows south of the project site. Somers Creek flows through some low-lying areas typical of the Ecodistrict and has several large riparian wetlands, none of which will be impacted by the Project.
- Two small intermittent tributaries to Somers Creek flow through the Project site. These tributaries are not known to have fish, and represent poor fish habitat (i.e. discontinuous access for fish (blockages) and intermittent flow). Small patches of riparian wetland habitat are associated with these drainages.

The Project is located on unincorporated land that is publically owned by the Commission and is adjacent the municipal boundary of the City of Moncton. The closest residence is approximately 1.8 km to the north on the north side of Berry Mills Road on Zack Road (Figure 1). Access to the Project site will be through the main gates to the facility, off Berry Mills Road. A service road and surface water ditch will be constructed surrounding the new cells by extending the existing infrastructure on site (Figure 4). No First Nations land, Protected Natural Areas, Protected Watersheds or Wellfields, or Wildlife Refuges exists in the immediate vicinity of the Project site.

The following sections describe existing conditions at the Project site, potential environmental effects and planned mitigation for the Project.

3.1 GEOPHYSICAL ENVIRONMENT

The topography and physiography of the Moncton area reflects the bedrock geology. Ridges associated with the Kingston Uplift rise 200 m above sea level (i.e. Indian Mountain/Lutes Mountain). The lowland areas underlain by the carboniferous rock units are characterized by gently rolling valleys with associated ridges. The Project is located in the heart of the Petitcodiac Ecodistrict on a small upland area 3500 m from the bank of the Petitcodiac River. Two unmapped watercourses channel water southward towards Somers Creek which flows into the Petitcodiac River (Figure 4). Drainage direction and inferred groundwater flow at the Project site is south to southeasterly, reflecting the gentle rise of land towards Berry Mills Road.

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 Study Area is restricted to the land being requested to use for waste storage, as depicted on Figure 4, and is approximately 27 ha in area. The Project encompasses regenerating forest, spruce dominated and mixed-wood forest, and small isolated patches of wetland where water has pooled due to the forestry activities of the past. The Project proposes to alter surface flow in the two unmapped watercourses by intercepting the flow with ditches to the west and then south around the proposed new waste cells.

3.1.1 PHYSIOGRAPHY AND TOPOGRAPHY

The land containing the Project is flat to gently rolling and ranges in elevation between 45 and 70 m above sea level. The Property gently slopes to the south towards an unnamed tributary of Somers Creek. At one time heavily wooded, it has been intensively managed by current and previous owners for many years and much of the property is in some stage of regeneration.

3.1.2 SURFICIAL GEOLOGY

The surficial deposits in the Moncton area consist primarily of a lodgment till which was deposited by glacial action. This till is typically 1 to 8 m in thickness, but greater depths occur at the base of the Kinston Uplift (north of the Project) and in the Petitcodiac River Valley. Most of the tills are generally of a reddish hue, and consist of silty sands or sandy silts, with a variable component of clay. This reflects the composition of the underlying bedrock.

Localized glaciofluvial deposits are known to occur in the Moncton area and consist mainly of gravel and sands. Deposits of marine sands and clays also occur locally in the Moncton area. These deposits are the result of marine incursion, due to isostatic readjustment caused by glacial retreat.

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. According to the surficial geology map of New Brunswick, the loamy lodgement till, silt, sand, gravel, and rubble (Mv3) form a discontinuous veneer over rock, less than 0.5 m thick (Rampton, 1984). At the Project site, soils are fine-textured and are derived from red, slightly calcareous sandstone and mudstone (DNR 2007). During surficial investigations for the original EIA, a thin layer of topsoil (0.3 – 0.6 m) was found to overlie the entire property (Acadia Consultants, 1991) while the main component of the overburden was classified as a morrainal, loamy, lodgement till (5-7m deep in the west part of the site) with the following main constituents: silt (42-56%), sand (38-44%), and gravel (3-14%). The grain size distribution of glacial till was tested in the locations where it was

encountered. It was found to be 16-22% clay, 27-28% silt, 8-11% very fine sand, 29-35% sand, and 7-14% gravel. The erodibility factor is approximately 0.27 (Acadia Consultants, 1991).

3.1.3 BEDROCK GEOLOGY

The Kingston Uplift is a dominant feature of the Moncton area landscape where elevations can reach as much as 200 m above sea level. This dominating feature is comprised of metavolcanic and metasedimentary rocks of late-carboniferous age (LCP) according to the Bedrock Geology Map of New Brunswick (DNR, 2008). The Project site is located just south of the uplift and its bedrock geology consists of carboniferous rocks that are typically flat-lying sedimentary rocks consisting of red to brown siltstone, claystones (mudstone), and sandstone of the Salisbury Formation. The predominant rock type encountered during a geotechnical investigation for the 1991 EIA was reddish-brown mudstone with minor interlayers of siltstone and sandstone. The Primary permeability of the Salisbury Formation is low (Acadia Consultants, 1991).

3.1.4 HYDROGEOLOGY / GROUNDWATER

As indicated above, the Project site is located in a small upland area 3500 m from the Petitcodiac River. Figure 3 depicts the Petitcodiac River Watershed, Somers Creek Watershed and the Jonathan Creek Watershed to the north of the Project. Somers Creek flows south and eastward of the Project before turning south and entering the Petitcodiac River. Surface water drainage from the Project site flows south and enters Somers Creek.

As indicated above, the Project site is located to the south of the Kingston Uplift, which acts as a groundwater divide. Groundwater movement to the south of the uplift moves in a south to southeasterly direction towards the Petitcodiac River. The topographic high of the uplift area represents a groundwater recharge area (i.e. downward hydraulic gradient). Information in the 1991 EIA Registration Document (Acadia Consultants, 1991) indicates that groundwater for potable wells is supplied by bedrock aquifers and is classified as either a sodium bicarbonate or calcium bicarbonate water of excellent quality for human consumption.

3.1.5 POTENTIAL ENVIRONMENTAL IMPACTS ON GROUNDWATER AND MITIGATION

As indicated previously, the Project site is located in a small upland area 3500 m from the Petitcodiac River. Somers Creek flows south and eastward of the Project before turning south and entering the Petitcodiac River. Surface water drainage from the Project site flows south and enters Somers Creek.

The Project has a potential to impact the potable groundwater located to the south of the Kingston Uplift (includes the area between Indian Mountain/Front Mountain and the Petticodiac River. Potable groundwater is considered to be of excellent quality in the general area. A potential impact to groundwater is possible when large projects disturb the groundwater level (decrease groundwater) or potentially contaminate groundwater resources during construction or operation of the Project.

The closest downgradient wells are greater than 2 km from the Project site. The subgrade of the proposed waste cells is not within the water table and an engineered leachate collection system is designed to gather leachate into a treatment waste stream. Groundwater wells have been actively monitored at the site since the beginning of waste placement (1992), and no contamination has been recorded thus far. New groundwater wells will be added to cover the area of the proposed waste cells. Routine monitoring of the wells will follow the current monitoring plan as outlined under “Testing and Monitoring” point 89 of the Approval.

3.2 ATMOSPHERIC ENVIRONMENT

The Atmospheric Environment is characterized by Air Quality (ambient air quality and air contaminant emissions) and Sound Quality.

3.2.1 EXISTING CONDITIONS

Air Quality

An extensive air quality monitoring network for various air contaminants has been operated by the government and industry for a number of years. The monitoring network was designed primarily to monitor compliance with ambient air quality standards, but the monitors also serve as an early warning system for industry to initiate actions to reduce contributions to the airshed during periods of reduced atmospheric dispersion or poor air quality. According to the NBDELG report entitled “New Brunswick Air Quality Monitoring Results Report for 2010” (DELG, 2012) and previous annual reports, the existing and historical ambient air quality at Moncton, the closest air quality monitoring location to the Project site, is generally considered good (DELG 2012). The monitoring station is located at the Highfield Street pumping station and was sited to provide readings representative of the city. All recorded levels of carbon monoxide, nitrogen dioxide, ground level ozone, and fine particulate matter remained below air quality objectives (Table 5).

Sound Quality

Existing sound levels (dB) at the landfill have not been previously documented. Currently, there is heavy equipment operating at the site to cover and arrange the waste in the cell and large waste trucks are delivering waste daily. An observer standing at the edge of the waste cell may experience elevated sound levels, however, the sound associated with regular operation of the landfill is not heard from Berry Mills Road (<1 km to north) and would not likely be heard by nearest residences 1.8 km to the north. Residences on Salisbury Road (~3 km south of the landfill) are unlikely to hear any sound from the landfill.

3.2.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

Air Quality

During construction and operation of the Project, emissions of air contaminants (e.g. emissions from the combustion of fuel and fugitive dust) to the environment may occur primarily from the operation of construction equipment such as excavators, loaders, bulldozers, and during the time of forest clearing, mulching machines. Excavation of till to subgrade, and re-compacting the till to form the base layer of the cell may create particulate emissions associated with the earth works.

Any of these emissions generated during construction are expected to be relatively low, short duration, and intermittent. Emissions generated during operation of the Project (i.e. delivering waste to the Project site) will be no greater than current levels of emissions. Overall emissions from construction equipment are not expected to exceed ambient air quality standards for New Brunswick.

Table 5 New Brunswick Ambient Air Quality Objectives (DELG, 2012)

Pollutant	Averaging Period			
	1 hour	8 hour	24 hour	1 year
Carbon monoxide	30 ppm	13 ppm		
Hydrogen sulphide	11 ppb		3.5 ppb	
Nitrogen dioxide	210 ppb		105 ppb	52 ppb
Sulphur dioxide*	339 ppb		113 ppb	23 ppb
Total suspended particulate			120 µg/m^3	70 µg/m^3

* The standards for sulphur dioxide are 50% lower in Saint John, Charlotte, and Kings Counties.

The emission of dust during construction and operation would be primarily restricted to the earthmoving activities during construction, and the ongoing delivery and covering of waste at the Project. Dust will be managed effectively in dry periods using standard dust suppression best management practices (i.e. water trucks) when needed.

Sound Quality

The construction and operation of the new waste cells will involve the use of heavy equipment. Noise (elevated sound levels) generated by construction will be confined to the work site, and inaudible to the nearest residents. Blasting is not required to conduct the excavation and the construction specific traffic will be confined to pre-existing roads. It is not expected that the construction and operation of the Project will negatively affect sound quality.

3.3 AQUATIC ENVIRONMENT

3.3.1 EXISTING CONDITIONS

Most of the Property drains towards Somers Creek to the south, and not Jonathan Creek which flows eastward along the north edge of the Property (Figure 4).

The Project site is considered to be poorly drained and surface water flows southward away from the Project towards an unnamed tributary of Somers Creek. Two small drainage features/watercourses were identified (called western and eastern watercourse) during initial field surveys in October 2013 (Figure 4). During field investigations in August 2013 little flow was noted in these watercourse channels (Figures 6-8) and in most sections the flow had disappeared in thick vegetation or underground (Figure 7-8) or the channel was completely dry (Figure 8). No fish were observed in either of these watercourse channels. On October 15, an environmental site inspector from the regional office of DELG conducted a site visit and confirmed that these two features are not mapped on any database.

Figure 6 - Western unmapped watercourse channel contains some water in pools but little or no flow on August 12, 2013. Much of the upper western unmapped watercourse channel follows an old woods road.

Figure 7 - Watercourse Channel disappears frequently into thick vegetation or underground, August 12, 2013

Figure 8 - Eastern unmapped watercourse channel during low flow conditions on August 12, 2013. The channel follows what appears to be an old woods road.

Water Quality

No water quality samples were taken during field investigations in the summer of 2013. Previously reported water quality data from the Somers Creek system indicated a range of pH, nutrient, and metal concentrations all within acceptable CCME limits for the Protection of Aquatic Life.

Fish and Fish Habitat

No quantitative fish presence surveys have been completed for the two watercourse channels within the proposed expansion area. Based on preliminary observations of the watercourses, it is unlikely that either support fish populations. A fish and fish habitat survey will take place in summer 2014 to confirm presence/absence of fish and assess the watercourses for fish habitat.

3.3.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

The Project plan is to divert all surface water drainage that currently occurs in the Project area around the new site, directing water flow with a perimeter ditch (Figure 4). The ditch would discharge into the sediment pond already on site. The potential environmental effects of the Project on the Aquatic Environment, including Water Quality and Fish and Fish Habitat include a potential change of water quality and loss of fish and fish habitat during construction.

In the summer of 2014, water quality measures will be collected for these watercourses, and a standard fish presence/absence survey, including an assessment of fish habitat will be conducted for these two watercourses. Additionally, a fish habitat assessment will be conducted of the tributary to Somers Creek to characterize potential fish habitat in the vicinity of the Project.

3.4 WETLANDS AND PLANT SPECIES OF CONSERVATION CONCERN

3.4.1 EXISTING CONDITIONS

Wetlands

The Project is located in the Petitcodiac Ecodistrict within the Eastern Lowlands Ecoregion. The ecodistrict is dominated by the wide and flat Petitcodiac River Valley. Upland forests are dominated by red spruce (*Picea rubens*), mixed with white spruce (*P. glauca*), black spruce (*P. mariana*), balsam fir (*Abies balsamea*), red maple (*Acer rubrum*), white birch (*Betula papyrifera*), pine (*Pinus strobus*) and hemlock (*Tsuga canadensis*) (NBDNR, 2007).

16% of the unforested land in the ecodistrict is classed as wetlands. Wetlands are widespread throughout the ecodistrict, however, few wetlands were identified during the initial EIA registration in 1991. Wetlands along the tributary to Somers Creek was identified in 1991 and later mapped in New Brunswick's Wetland layer, but it is to the south and will not be impacted by the Project (Figure 4).

A large wetland shape appears across the northern portion of the land within the landfill property (PID 70243241) that is inside the 1991 Waste Limit (Figure 4). This large wetland was not previously identified by the initial EIA. A portion of this wetland shape extends into the proposed waste limit extension. The mapped shape has not been formally delineated but forest road development, and forestry activity appears to have lowered the level of water in this wetland.

Small amounts of wetland habitat have been recorded during field investigations along the field identified watercourses (Figure 4). The wetlands are generally described as forested wetlands with a dense understory of graminoid species. These small unmapped wetlands do not fall under the provincial wetland policy. They appear to be related to drainage features (i.e. around the field identified watercourses) or related to topographical features (i.e. depressions) left by historical forestry operations.

Plant Species of Conservation Concern

Preliminary descriptions on the disturbed nature of the Project site indicate no significant habitat for plant species of conservation concern is likely to exist within the proposed footprint. In addition, the ACCDC data request did not return any recent records of plant species of conservation concern within 5 km of the site that had habitat requirements found within the Project site. In 1963, Bicknell's crane-bill (*Geranium bicknellii* – S3), listed as uncommon in New Brunswick, was observed in barren soil along the TransCanada Highway approximately 4.2 ± 0.5 km from the Project while in the same year, Canada wild rye (*Elymus canadensis* – S2), was recorded in woods near a brook approximately 2.6 ± 1.0 km from the Project site. Canada wild rye is listed as rare in New Brunswick with only 5-20 locations of this plant in New Brunswick.

A rare plant survey will be conducted in May 2014 in conjunction with watercourse habitat surveys. The project site has a moderate potential for rare plant occurrences due to the presence of field identified wetland habitat.

3.4.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

Wetlands

Wherever possible, Project components will avoid the regulated 30 m buffer of all wetlands and watercourses. Where this is unavoidable, a WAWA permit may be required for all regulated wetlands. The small wetlands and intermittent watercourses on this Project site may be subject to a

stipulation letter (T. Richard, DELG Inspector, pers. comm.). A stipulation letter is usually written for unregulated or small watercourses and/or wetlands, but has the same conditions of approval for modification of a watercourse or wetland as a regular WAWA permit.

Plant Species of Conservation Concern

Wherever possible, Project components or activities will preferentially avoid the locations where plant species of conservation concern are identified. If and where avoidance is not possible, the plants will be lost. However, given the disturbed nature of the Project site, and the prevalence of similar habitat within the ecodistrict, significant adverse environmental effects on plant species of conservation concern are not expected as a result of the Project.

3.5 WILDLIFE AND WILDLIFE HABITAT

The context of wildlife considers birds and animals, and their habitat. Migratory birds are protected by the *Migratory Birds Convention Act* (*MBCA*) and its associated regulations. Some migratory bird species and their habitats are further protected by the *Species at Risk Act* (*SARA*). Under Section 6 of *Migratory Birds Regulations* (*MBR*) no person shall disturb, destroy or take a nest or egg of a migratory bird, except under authority of a permit. No permit is available for land clearing. The Proponent is committed to complying with the *MBCA* and *SARA*.

3.5.1 EXISTING CONDITIONS

The Property is intensely managed as an industrial waste facility. The Property consists of a mix of regenerating deciduous forest, cutovers, and stands of coniferous dominated forest (see Table 8, Figure 9).

Typical assemblages of wildlife are anticipated to occur at the Project site including:

- white-tailed deer (*Odocoileus virginianus*),
- moose (*Alces alces*),
- black bear (*Ursus americanus*),
- fox (*Vulpes vulpes*),
- raccoon (*Procyon lotor*),
- coyote (*Canis latrans*) and
- varying hare (*Lepus americanus*).

South of the Project, American mink (*Mustela vison*), beaver (*Castor canadensis*), and muskrat (*Ondatra zibethicus*) are likely present in and around the unnamed tributary to Somers Creek.

In addition, the landfill is noted as an attractant for wildlife due to the potential food resource, both from the waste coming to the site and the increased attraction of potential prey items. The unusually high concentration of gulls and rodents draw predators such as fox, raven (*Corvus corax*) and bald eagle (*Haliaeetus leucocephalis*) to the landfill.

The diversity of habitat (wetland, forest, open ground) is likely to draw a wide spectrum of migratory bird species capable of exploiting different environments.

Wildlife

According to the ACCDC, no terrestrial mammals of conservation status have been recorded within 5 km of the Project, although Wood Turtle (*Glyptemys insculpta*) is noted in the data report as potentially being present. Some migratory bird species of conservation concern that were identified within 5 km of the Project (ACCDC, 2013) are shown in Table 6.

NatureCounts is a database collection, managed by Bird Studies Canada to facilitate the collection, management, analysis and sharing of natural resource inventory data. As such, NatureCounts may have records of wildlife that have been observed close to the Project site and are therefore, useful for the planning exercises such as EIA.

A review of all available NatureCounts data from Breeding Bird Atlas Square 20LS50 for species of conservation concern include seven bird species listed as Threatened under *SARA* (Table 7) of which two, Least Bittern and Barn Swallow, were not included in the ACCDC data report. The potential for each species (except Least Bittern and Barn Swallow) to be present within the Project site has been assessed in Table 6. Least Bittern require thick cattail marshes for habitat and the Barn Swallow nest in standing deadwood or old buildings. There is none of this habitat available within the Project site for either Least Bittern or Barn Swallow. If Barn Swallows are currently found on the landfill property, any activities during construction or operation of the Project will not impact the amount of habitat available for this species.

Wildlife Habitat

Two Environmentally Sensitive Areas (ESAs) are known within 5 km of the Project site: Allison Station Eagle Nest ESA; and Coverdale Marsh ESA (see Appendix E and Figure 3). The Allison Station eagle nest is a long-term nest that is publically viewable from a side street off Salisbury Road in an area that is one of a few wooded riparian sections of the river. The Coverdale Marsh is located at the confluence of Turtle Creek and the Petitcodiac River. Coverdale Marsh is an important fall staging area for migratory waterfowl.

No other locations of critical or sensitive habitat are known within the Project Site or located within 5 km of the Project Site (Figure 3). This Project will not directly impact either of these ESAs. Suitable habitat for wood turtle is not available in the Project footprint within either the western or eastern unmapped watercourses; however, the tributary to Somers Creek has some potential for suitable habitat for this species. The EPP for the Project will include mitigation intended to prevent the incidental killing of wood turtle. Any observations of wood turtle nesting activity will be reported to the Department of Natural Resources, Species at Risk Program (506 453-3826).

The landfill property (PID 70243241) appears to be dominated by the landfill facility and its constituent parts, however, the property is almost 60% forested. The amount of developed non-forested land is similar than the same amount of land that is forested with coniferous trees (see Table 8 and Figure 9).

Table 6 Migratory Bird Species of Conservation Concern Identified within 5 km of Project (ACCDC, 2013)

Scientific Name	Common Name	s-Rank	SARA Status	Habitat preference	Possibility within Project footprint.
Charadrius vociferus	Killdeer	S3B		Open ground	Yes
Chlidonias niger	Black Tern	S2B	NAR	Large freshwater marshes	No
Chordeiles minor	Common Nighthawk	S3B	Threatened	Open woodland with nearby water body	Yes
Caprimulgus vociferous	Whip-Poor-Will	S2B	Threatened	Open woods, edges of clearings	Yes
Contopus virens	Eastern Wood-Peewee	S4B	Special Concern	Mixed wood	Yes
Tyrannus tyrannus	Eastern Kingbird	S3S4B		Open areas	Possible
Eremophila alpestris	Horned Lark	S2B		Grasslands, open fields	No
Riparia riparia	Bank Swallow	S3B	Threatened	Sandy banks of rivers or dunes	No
Petrochelidon pyrrhonota	Cliff Swallow	S3S4B		Tall structures, or standing deadwood, or	No
Cistothorus palustris	Marsh Wren	S2B		Freshwater marsh	No
Mimus polyglottos	Northern Mockingbird	S3B		City park landscapes	No
Wilsonia canadensis	Canada Warbler	S3S4B	Threatened	Riparian edge of watercourses, dense conifer stands	Possible
Dolichonyx oryzivorus	Bobolink	S3S4B		Open fields or pastures	No

S-Ranks for New Brunswick species

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

Table 7 Migratory Bird SAR Identified Within the Maritimes Breeding Bird Atlas

Scientific Name	Common Name	S-Rank	SARA STATUS	NB SAR	Breeding Evidence** in Square
Haliaeetus leucocephalus	Bald Eagle ¤	S3B	Not at Risk	Regionally Endangered	NY
Ixobrychus exilis	Least Bittern †	S1S2B	Threatened	At Risk	T
Caprimulgus vociferus	Whip-poor-will	S2B	Threatened	At Risk	T
Chordeiles minor	Common Nighthawk †	S3B	Threatened	At Risk	S
Contopus cooperi	Olive-sided Flycatcher †	S3S4B	Threatened	At Risk	H
Hirundo rustica	Barn Swallow	S3B	Threatened	At Risk	NY
Dolichonyx oryzivorus	Bobolink	S3S4B	Threatened	At Risk	AY
Wilsonia canadensis	Canada Warbler †	S3S4B	Threatened	At Risk	T

** Breeding Evidence Codes from NatureCounts (http://www.birdscanada.org/birdmon/)

OBSERVED		POSSIBLE	
X	Species observed in its breeding season (no breeding evidence)	H	Species observed in its breeding season in suitable nesting habitat
		S	Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season.
PROBABLE		**CONFIRMED**	
P	Pair observed in suitable nesting habitat in nesting season	NB	Nest building or carrying nest materials, for all species except wrens and woodpeckers
T	Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season. Use discretion when using this code.	FY	Recently fledged young (nidicolous species) or downy young (didifugous species), including incapable of sustained flight
D	Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation	NU	Used nest or eggs shells found (occupied or laid within the period of the survey)
V	Visiting probably nest site	DD	Distraction display or injury feigning
A	Agitated behaviour or anxiety calls of an adult	FS	Adult carrying fecal sac
B	Brood Patch on adult female or cloacal protuberance on adult male	AE	Adult leaving or entering nest sites in circumstances indicating occupied nest
N	Nest-building or excavation of nest hole by wrens and woodpeckers	CF	Adult carrying food for young
		NE	Nest containing eggs
		NY	Nest with young seen or heard

Table 8 Land cover at the Regional Service Commission #7 property (PID 70243241)

Land Cover Class	Sum of Area (m^2)	Percent of Class (%)	Percent Overall (%)
Forested	2813532		58
Coniferous	1187817	42	24
Coniferous Thinned	699316	25	14
Deciduous	541572	19	11
Deciduous Regenerating	115358	4	2
Mixedwood	23945	< 1	<1
Wetland	245524	9	5
Unforested	2076841		42
Clearcut	387489	19	8
Developed	1169768	56	24
Powerline ROW	235798	11	5
Wetland	283786	14	6
Grand Total	4890373		

The amount of land within the proposed extension of the waste limit is approximately 27 ha (Table 9). The majority of the forested land (12 ha) within the proposed extension is young regenerating deciduous cover (60%) while the remainder is mid-aged coniferous forest. The majority of the unforested portion (15 ha) of the proposed extension is clearcut land (95%) that has not regenerated to forest.

Table 9 Land cover type within the proposed extension of the waste limit.

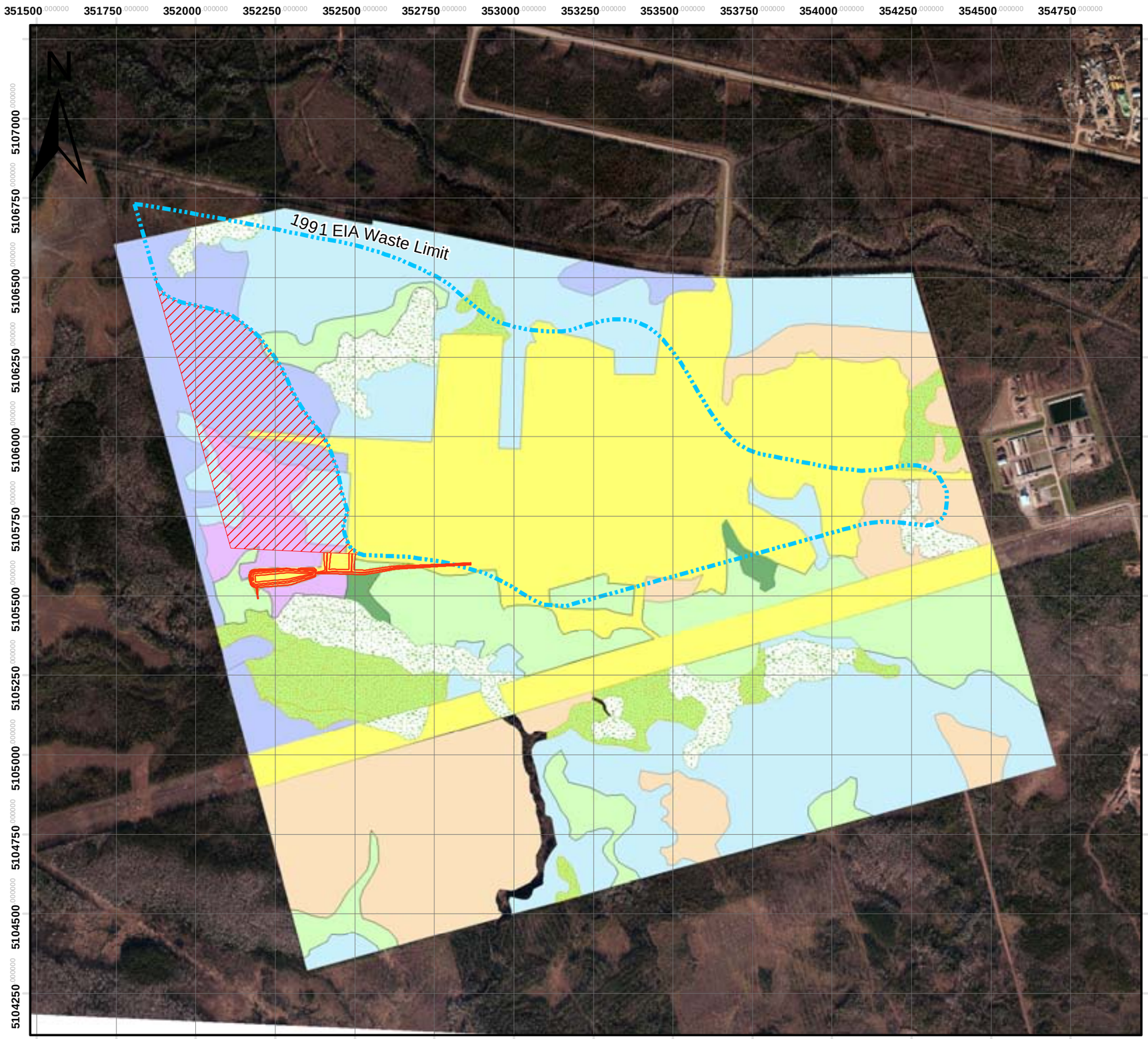
Land Cover Class	Sum of Area (m^2)	Percent of Class (%)	Percent Overall (%)
Forested	119812		44
Coniferous	46744	39	17
Deciduous	1243	1	< 1
Deciduous Regenerating	71825	60	27
Unforested	149515		56
Clearcut	142704	95	53
Developed	6810	5	3
Grand Total	269326		

3.5.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

The Project will be constructed adjacent to an existing waste cell bank on land that is already set aside for landfill development. The site has been heavily disturbed in the past by forestry activities. Migratory birds could potentially be affected by the removal of existing habitat, disturbance of birds in adjacent habitat by project activities, and attraction of ground nesting bird species to recently cleared ground.

The Proponent will comply with *MBCA* and *SARA* by limiting clearing activities to non-nesting periods of the season. Clearing of vegetation and grubbing of land construction of Project components will be kept to a minimum, and remain outside 30 m of any watercourse, where possible. If any ground nesting species are found during construction, an appropriately sized vegetated buffer will be established around the nesting area. Activity will proceed once the birds have fledged or naturally migrated away from the area.

Land clearing for waste cell construction will be conducted outside of the migratory bird breeding season (May 1 to August 31). Due to the potential for several migratory bird species of conservation concern to occur at the Project site, specific bird surveys will be conducted prior to any land clearing in the Project area. All migratory birds will be documented and potential habitat for species of conservation status will be targeted. Given the proposed timing of land clearing activities and other methods identified to limit risk of destruction or disturbance to ground nesting birds, it is not expected that the Project would result in significant adverse environmental effects on any wildlife species.



Legend

- PROPOSED EXTENSION
- 1991 WASTE LIMIT

Forest

Community, Status

- Clearcut, Forested
- Clearcut, Unforested
- Coniferous Thinned, Forested
- Coniferous, Forested
- Deciduous Regenerating, Forested
- Deciduous, Forested
- Developed, Unforested
- Mixedwood, Forested
- Powerline ROW, Unforested
- Wetland, Forested
- Wetland, Unforested

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

Meters

0 100 200 400 600 800

FIGURE 9 VEGETATION AND HABITAT
PID 70243241
2024 ROUTE 128, BERRY MILLS, NB

WSP Project No. 131-13102-11

WSP

3.6 LAND USE

3.6.1 EXISTING CONDITIONS

The proposed Project is located in Westmorland County at 2024 Route 128 (Berry Mills Road, 352870 N 5107297 W UTM NAD 83 Zone 20) on land listed to Regional Service Commission #7. The southern portion of the property straddles the City of Moncton Municipality Boundary (Figure 1). The Project will be completed in unincorporated land of the Local Service District of Moncton. The Project is located in Moncton parish.

The commission owns many of the properties adjacent to the facility which itself occupies. The current facility encompasses three different PIDs (70271705, 70280367, and 70243241) and approximately 490 ha of land,however, the landfill facility is only on PID 70243241. The Proponent will maintain ownership of all land included in the Project. The layout of the facility is shown on Figure 2.

The village of Berry Mills is 2.7 km west from the facility entrance on Berry Mills Road. The interchange of Berry Mills Road and the TCH is 1.5 km west of the entrance and the intersection of Berry Mills and Wheeler Boulevard, Moncton's circumferential expressway is 5.2 km to the east. The existing Berry Mills Heights community is located directly opposite the entrance to the Project site (i.e. north side of Berry Mills Road). A new shipping terminal is slated to be developed on the east side of the landfill entrance on Berry Bills Road. Closer to Wheeler Boulevard, commercial development (Moncton Industrial Development) is located on the south side of Berry Mills Road while at the same intersection, Horsman Drive enters a thriving new residential development. South of the Project site is largely undeveloped forested land until reaching Delong Drive, Salisbury Road, and the Petitcodiac River.

3.6.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

The Project is designed and will be implemented so that minimal adverse environmental effects to residential land use will occur. The Project site cannot be seen from any road, and is approximately 1.8 km from the nearest residence on Zack Road. No noise levels generated by the Project are expected to be louder than noise from the landfill that is currently experienced.

The Project will not have any effect on current land uses surrounding the landfill site as all Project development will be contained within the same property. As well, no recreational, forest resources harvesting, hunting, or fishing land uses will be altered. No mitigation, beyond that already described elsewhere in this EIA registration (i.e. any issues with Atmospheric Environment or Aquatic Environment are addressed separately in Sections 3.2 and 3.3, respectively) is proposed.

3.7 TRADITIONAL USE

3.7.1 EXISTING CONDITIONS

The Project site does not include any First Nation land, though it is likely within traditional territory. It is unclear if the First Nation community will have significant interest in this project. As well, it is unknown if there are any natural resources on the Project site that have been or are collected by First Nations. This property was purchased for the intent of a landfill facility prior to 1991.

3.7.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

A potential environmental effect of the Project on Traditional Use would be the loss or destruction of any resource material. It is unlikely, based on the Archaeological Services (AS) guidelines and existing information for the area that the Project will interact with some/any areas considered to hold

a high potential for undocumented archaeological resources. The original EIA in 1991 did not consider Traditional Use, even though the entire property was considered in the document. Recent changes in EIA methodology include consideration of Traditional Use, and as a basis Aboriginal Affairs Secretariat (AAS) may screen the Project Description and location against information databases that are available. WSP has established contact with Martha Gorman of AAS (506 453-3851) to determine the correct pathway to determine the potential effects (if any) of the Project on Traditional Use. However, since the land has been designated for waste storage, there is unlikely to be any significant effect on Traditional Use to extend the usable land space within the designated property.

3.8 ARCHAEOLOGICAL AND HERITAGE RESOURCES

3.8.1 EXISTING CONDITIONS

The nature at the site's development involves significant excavation and no artifacts have been uncovered during excavating the 13 existing cells. WSP is not aware of any registered archaeological sites within the Project site, however, the Petitcodiac River is within 3500 m and it is known that large waterways, upland areas and watershed divides represent high potential areas for Archaeological and Heritage Resources.

3.8.2 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

A potential environmental effect of the Project on Archaeological and Heritage Resources would be the loss or destruction of any resource material. It is unlikely, based on the AS guidelines and existing information for the area that the Project is likely to interact with some/any areas considered to hold a high potential for undocumented archaeological resources.

The original EIA in 1991 did not consider Archaeological and Heritage Resources, though the entire property was considered in the document. Recent changes in EIA methodology include consideration of these resources, and as a basis an archaeological background review may be required. WSP will contact Brent Suttie of AS (506 453-3014) to determine the correct pathway to determine the potential effects (if any) of the Project on Archaeological and Heritage Resources.

4 SUMMARY OF PROPOSED MITIGATION

Key mitigation for the Project is summarized in Table 10.

Table 10 Key Project Mitigation Summary Table

Potential Environmental Effect	Mitigation
Environmental effects during construction activities.	Environmental Protection Plan (EPP) will be developed.
Potentially sediment-laden surface water runoff during construction.	All runoff will be conveyed by ditch to an existing sediment pond. No surface water runoff from the construction site will enter directly into a watercourse.
Dust and noise generated during mining activities.	Dust suppression (water spraying) will be used when applicable.
Unexpected release of hazardous material.	Emergency Response Plan will be developed for the Project.
Change in surface water quality.	Surface water flow will be re-routed around the new waste cells. Current surface water drainage will be directed towards the existing sediment pond, and discharged to a large beaver pond. Ground disturbance will be limited to the minimum required to accommodate the Project facilities. Storage of liquid petroleum and refuelling of machinery will not occur within 30 m of any aquatic receiving environment. Any storage system for fuel will be constructed to contain the equal volume of fuel storage capacity in the case of a spill.
Change in groundwater quantity or quality.	Groundwater monitoring at the landfill is ongoing. The extent of groundwater wells will be extended to include areas downgradient of the new cells to ensure that the potential environmental effects on groundwater are minimized. No residential groundwater wells are within range of being disturbed by this Project.
Change in wetland habitat or function.	A 30 m buffer will be maintained between Project components and any regulated wetland boundaries, wherever possible. Where this is unavoidable, a WAWA permit will be obtained. Any loss of wetland function due to the Project will be compensated in accordance with New Brunswick's Wetland Conservation Policy.
Loss of plant species of conservation concern.	Project components will be situated, where possible, to avoid locations where plants of special conservation status are identified. If a rare plant is identified within the footprint of a permanent component of the project, the plant and surrounding seed bank will be removed and replanted in similar habitat at the closest location to the original spot.
Loss of wildlife species of conservation concern.	Clearing and grubbing of land will not occur during the migratory bird breeding season. If ground nesting species (wood turtle, Common Nighthawk, etc) are identified during construction, appropriate vegetated buffers will be established around the nesting area until nesting is complete and young have naturally migrated from the area.
Disturbance to migratory birds.	Clearing and grubbing of land will not occur during the migratory bird breeding season.
Loss of archaeological and heritage resources.	If archaeological or heritage resources are identified within the Project footprint, recommendations for mitigation or avoidance will be developed in consultation with AS.

** Migratory Bird Breeding Season (May 1 to August 31)

5 PUBLIC AND STAKEHOLDER INVOLVEMENT

A public involvement process is in place for this Project and comments will be received for 25 days after the date that the Registration is received by DELG.

5.1 PUBLIC CONSULTATION

The Proponent is involved with ongoing discussions with the City of Moncton officials, and with other provincial and/or federal departments that have any involvement with the operation or monitoring of the landfill. A copy of this EIA Registration will be made available on the DELG website, and copies will be placed at the regional DELG office and the Moncton Public Library.

A letter will be sent to elected officials from the region, regulatory bodies, local land owners adjacent to the Project, and the Mayor of Moncton to give notification about this Project (Table 9). Table 9 is a list of contacts to receive a notification letter regarding this Project. An advertisement will also appear in the local paper regarding the Project. Copies of the notices provided to the nearby landowners and a sample of the Newspaper advertisement are included as Appendix C. The letter to landowners 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.

Table 11 - Contact Information for Public Involvement Process

Elected Officials and Stakeholders		
Members of the Legislative Assembly OR Provincial Regulatory Agencies		
Hon. Claude Williams	District Kent South	24-1, Avenue de L'Eglise Saint-Antoine, NB E4V 1M3
John Willis Betts	District Moncton Crescent	1351 Mountain Rd. Moncton, NB E1C 2T9
	Local Service District Moncton Parish (Shane to provide contact info)	
Gordon Locke	Greater Moncton Planning Commission	655 Main Street Moncton NB E1C 1E8
Municipal Officials		
Mayor George LeBlanc		City of Moncton Mayor's Office 655 Main St. Moncton, NB E1C 1E8
Aboriginal Groups		
Joanna Bernard Darrell Paul	President Executive Director	Union of New Brunswick Indians 385 Wilsey Road Fredericton, NB E3B 6B4

Adjacent Land Owners				
Map Ref #	Name	PID	Land Use	Address
1	Rothesay Paper Holdings Ltd	00940536	Forestry	PO Box 5777 Stn Main Saint John, NB E2L 4M3
2	Unknown	70243266	Vacant	
3	Eastco Waste Management Inc	01095819	Vacant	
4	Regional Service Commission #7	70568746	Vacant	Proponent
5	Eastco Waste Management Inc	00940171	Vacant	
6	Greater Moncton Sewerage Commission	01023159	Water and sewerage treatment plant	355 Hillsborough Road Riverview, NB E1B 1S5
7	Archie Colpitts Ltd	01023233	Vacant	PO Box 431 Moncton, NB E1C 8L4
8	Archie Colpitts Ltd	01023241	Vacant	PO Box 431 Moncton, NB E1C 8L4
9	Westmorland-Albert Solid Waste Corporation	01023258	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6
10	Archie Colpitts Ltd	01023266	Vacant	PO Box 431 Moncton, NB E1C 8L4
11	Todd G. Bursey Holdings Ltd	01023274	Vacant	153 MacAleese Lane PO Box 23059 Moncton, NB E1A 3M2
12	Westmorland-Albert Solid Waste Corporation	01023282	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6
13	Westmorland-Albert Solid Waste Corporation	01023472	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6
14	Two Hills Resources Inc	00936591	Residence buildings and land	216 Roderick Row Saint John, NB E2M 4J8
15	Westmorland-Albert Solid Waste Corporation	00937102	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6

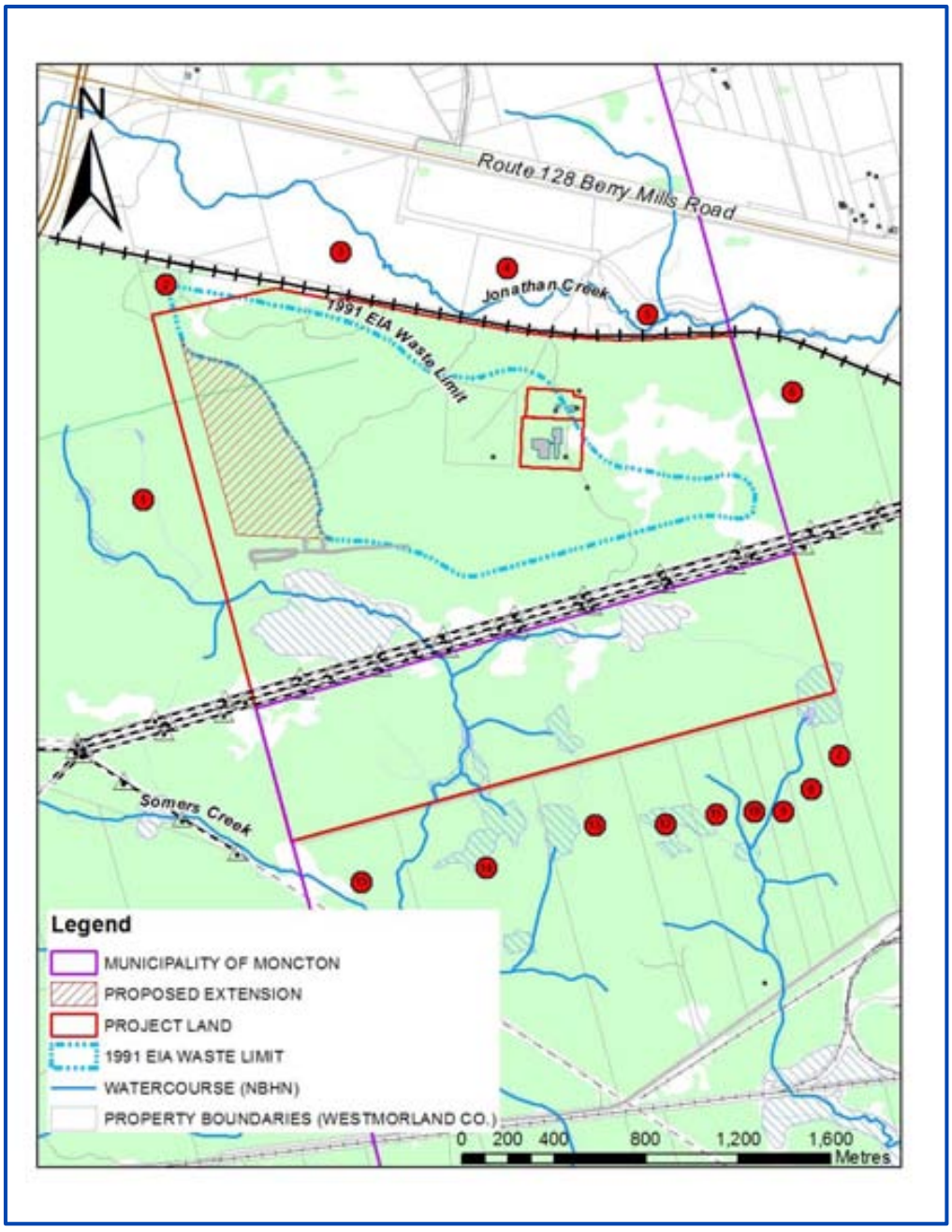


Figure 10 - Adjacent properties to be notified about the Project (in cases where more than one property is listed to the same owner at the same address, only one notice will be sent). Property owners (red dots) correspond with numbers in Table 9.

6 ABORIGINAL ENGAGEMENT

The Proponent will be working with the Province of New Brunswick officials who will determine if a Right to Consult exists, and to determine any necessary steps to identify potential archaeological and heritage resources on site, and to identify any traditional use of the site.

7 CLOSURE

This report has been prepared by WSP for the sole benefit of Regional Service Commission #7. 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 WSP and Regional Service Commission #7.

This report was undertaken exclusively for the purpose outlined herein and was limited to the 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. WSP 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.

WSP 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 WSP 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 Regional Service Commission #7 and by applying currently accepted industry standard mitigation and prevention principles. This report represents the best professional judgment of WSP personnel available at the time of its preparation. WSP 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.

WSP Canada Inc.

(original signed by)

Virgil D. Grecian, M.Sc.

Environmental Scientist

(506) 857-1675

(original signed by)

Peter Baxter, Ph. D., P.Eng.

Project Engineer

(506) 857-1675

8 REFERENCES

Acadia Consultants and Inspectors Limited, 1991. Environmental Impact Assessment for the Westmorland/Albert Integrated Waste Management Facility. Moncton, NB.

ACCDC, 2013. Data Report 5160: Berry Mills Road, NB. Sackville, NB.

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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.

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Appendix A

Previous Reports and Documents

New Nouveau Brunswick
CANADA

Original

June 29, 2009
File: 26915-W1-09

Bill Slater
Westmorland-Albert Solid Waste Corporation
P.O. Box 1397
Moncton, NB
E1C 8T6

Dear Mr. Slater:

Re: Approval to Operate

On behalf of the Honourable Thomas J. Burke, Q.C., Minister of Environment, I am writing to inform you that an Approval to Operate has been issued to your Facility and a copy of the Approval, **I-6775**, is enclosed.

Please note that this Approval includes terms and conditions that must be adhered to. Several of these terms and conditions include dates by which reports must be submitted or other work must be conducted. Care should be taken to ensure that all such terms and conditions are complied with, in the specified time frame.

If you have questions about your Approval or any other environmental concern with your Facility, please feel free to contact me at (506) 453-4334.

Sincerely,

Jeff Porter

Jeff Porter, P.Eng.
Solid Waste Engineer
Stewardship Branch
Environmental Management Division

Encl.

RECEIVED
JUL 0 9 2009

New Nouveau Brunswick
Be... in this place - Ici on peut... Être

APPROVAL TO OPERATE

I-6775

Pursuant to paragraph 8(1) of the *Water Quality Regulation - Clean Environment Act*, and paragraph 5 (3) (a) of the *Air Quality Regulation - Clean Air Act*, this Approval to Operate is hereby issued to:

Westmorland-Albert Solid Waste Corporation - La Corporation des déchets solides Westmorland-Albert

for the operation of the

Westmorland-Albert Solid Waste Facility

Description of Source:	**A regional solid waste disposal facility that consist of engineered containment cells, leachate collection and treatment**
Source Classification:	**Fees for Industrial Approvals Regulation - Clean Water Act** **Class 4** **Air Quality Regulation** **Class 4**
Parcel Identifier:	**01023258, 70271705, 70243241, 70243258, 70280367**
Mailing Address:	**P.O. Box 1397** **Moncton, NB E1C 8T6**
Conditions of Approval:	**See attached Schedule (s)"A" and "B" of this Approval**
Supersedes Approval:	**I-5425**
Valid From:	**June 30, 2009**
Valid To:	**June 29, 2014**

Recommended by: Mal Bald
Environmental Management Division

Issued by: Greg Thonk
for Minister of Environment

JUL 03 2009
Date

12. **"sludge"** means a solid, semi-solid or liquid residue having less then 15% solids generated during the treatment of municipal and/or industrial wastewater, or generated as a result of other processes.

13. **"liquid waste"** means bulk liquids in a volume greater then 20 litres.

14. **"liquid oily waste"** means any waste containing free flowing petroleum products.

15. **"petroleum contaminated soil"** means soil that contains petroleum products at quantities determined, to the satisfaction of the Department, to be above the level indicated in the most recent version of the RBCA Tier I Risk-Based Screening Level (RBSL) Guidelines for Soil: Commercial, Non-potable, Coarse-grained for Gas (Modified TPH). The current level is 450 mg/kg (ppm).

16. **"contaminated soil disposal cell"** means the dedicated cell at the Facility that was constructed to contain contaminated soils from the Rogers Development Site and is detailed on drawing "WASWC Cell for Contaminated Soil" prepared by Acadia Consultants & Inspectors Limited - Project No. (82) 2771-029.1.

17. **"C&D debris"** means

    a) concrete, brick and untreated wood,
    b) siding, ceiling tile, gyproc, insulation,
    c) asbestos that is not friable asbestos,
    d) solid roofing materials such as asphalt shingles,
    e) glass from doors and windows,
    f) metal, wood and durable plastic structural materials from the demolition of a building,
    g) wiring and incandescent light fixtures that do not contain fluorescent tubing/lighting,
    h) toilets, bathtubs, wash basins, and plumbing fixtures,
    i) floor coverings attached to a building during demolition,
    j) broken and aged asphalt, or
    k) any mixture of (a) thru (j)

    that has been obtained during the construction, renovation or demolition of a building or structure. Debris or other materials obtained from commercial, industrial and manufacturing sources is not acceptable. Debris: i) from a building that has or may have manufactured, contained, transferred or distributed contaminated or hazardous (such as a pesticide storage warehouse) products; or ii) that contains PCB's (polychlorinated biphenyls), or iii) that contains lead paint of a known concentration greater then 1000ppm (parts per million) or that has been deemed leachable toxic (exceeds 5 mg/L) or contains lead paint that is flaking/chipping/peeling is not considered C&D debris for the purpose of this Approval.

18. **"C&D Site"** means the portion of the Facility approved by the Department for the disposal of C&D debris.

19. **"disposal cell"** means the area at the C&D Site approved by the Department for the disposal of C&D debris.

20. **"sorting area"** means a location at the C&D Site, if approved in writing by the Director, where loads of C&D debris may be dumped and sorted. Unapproved materials may temporarily be stored here.

21. **"household hazardous waste"** means, for the purposes of this approval, hazardous waste that is generated in New Brunswick households.

22. **"hazardous waste collection and transportation network"** means a company that is approved by or acceptable to the Department to collect and transport hazardous waste.

C. EMERGENCY REPORTING

23. The Approval Holder, operator or any person in charge of the Facility **shall immediately** notify the Department where:

    a) there has been, or is likely to be, a release of a contaminant or contaminants, such as leachate, wastewater, petroleum products, hazardous materials, or gaseous material, from the Facility which is of such magnitude or duration that there is a concern for the health or safety of the public, or there could be an impact to the environment.

Notification Procedure

Verbal notification should immediately be made to the **Region 3 (Moncton) Office by calling (506) 856-2374**. If contact cannot be made for any reason the problem should immediately be reported to the **Canadian Coast Guard at 1-800-565-1633**. At this time the problem that occurred, its resulting impact and what was done to minimize the impact should be clearly expressed.

Within 24 hours of the original notification, a copy of an "Incident Report" shall be faxed to the Region 3 (Moncton) Office at (506) 856-2370. The "Incident Report" shall clearly detail as much information about the incident that is available. As a minimum the faxed report should include: details of the problem, its resulting impact and what was done to minimize the impact.

Within five (5) working days from the original notification, a faxed "Detailed Emergency Report" shall be sent to the Region 3 (Moncton) Office and also to Central Office in Fredericton at (506) 453-2390. The "Detailed Emergency Report" shall describe in detail the problem that occurred, why the problem occurred, what the environmental impact was, what was done to minimize the impact, and what measures have been taken to prevent a re-occurrence of the problem.

D. GENERAL INFORMATION

24. The issuance of this Approval does not relieve the Approval Holder from the responsibility of complying with other applicable federal, provincial or municipal legislation and/or bylaws.

25. A copy of this Approval to Operate should be maintained on-site or in the office of the Approval Holder.

26. The Approval Holder shall immediately notify the Department in writing of any change in the legal name or address of the Facility.

27. Any operating problems or other matters that could cause the Facility to be in non-compliance with this Approval should be reported to the Department immediately.

28. Be advised that the design and operation of any borrow pit by the Approval Holder must comply with the Department's guidelines for Pits and Quarries.

E. TERMS AND CONDITIONS

GENERAL CONDITIONS

29. **Prior to March 29, 2014**, the Approval Holder shall submit a written application to the Department for a renewal of this Approval on a form provided by the Minister. The application shall include documentation supporting any proposed changes to the terms and conditions of this Approval.

30. In the event of Facility closure, the Approval Holder shall, in addition to any requirements under the *Environmental Impact Assessment Regulation 87-83* filed under the *Clean Environment Act*, prepare plans and an engineering proposal for complete site rehabilitation and ongoing monitoring and leachate treatment if appropriate. The plans shall be submitted to the Director for review and approval **at least six (6) months** before the planned closure date. The plans must be prepared or approved by a person who is a member of the Association of Professional Engineers and Geoscientists of the Province of New Brunswick.

31. In the event of closure of the C&D Site at the Facility, the Approval Holder shall ensure that a Closure Plan is prepared and submitted to the Director for review and approval **at least three (3) months** before the planned closure date. The plans must be prepared or approved by a person who is a member of the Association of Professional Engineers and Geoscientists of the Province of New Brunswick and include, but not necessarily be limited to, updated site plans and an engineering proposal for the site rehabilitation, monitoring, leachate treatment if appropriate and closure.

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32. The Approval Holder shall ensure that any item received at the Facility containing ozone-depleting substances, including but not limited to those utilized for refrigeration and/or air conditioning, are decommissioned according to the *Ozone Depleting Substances Regulation 97-132* filed under the *Clean Air Act*.

33. The Approval Holder shall ensure that waste, including C&D debris and friable asbestos, that originates from outside of New Brunswick is not accepted at the Facility unless specifically approved by the Minister following an evaluation under the *Environmental Impact Assessment Regulation*.

OPERATING CONDITIONS

34. The Approval Holder shall ensure that the containment cells are not used for the disposal of:

- petroleum contaminated soil,
- liquid wastes (with the exception of septage from the Facility sewage system),
- sludge (with the exception of sludge from the Facility leachate treatment system),
- liquid oily wastes,
- hazardous wastes,
- biomedical waste or
- any mixture of the above.

35. The Approval Holder shall ensure that any solid waste disposed of at the Facility is done so in the containment cells at the Facility unless otherwise approved in writing by the Director. It is recommended that the waste be regularly and uniformly compacted.

36. The Approval Holder shall ensure that the minimum 25-year breakthrough requirement for the containment cells at the Facility is maintained.

37. The Approval Holder shall ensure that all exposed waste in the containment cells of the Facility is covered with a minimum of 150 mm of clean soil (or an alternate daily cover that has been pre-approved in writing by the Director), as a minimum, at the end of each operating day.

38. The Approval Holder shall provide supervision when any material is being disposed of at the Facility, including the C&D Site. No disposal at the Facility, including the C&D Site, is permitted otherwise.

39. The Approval Holder shall ensure that the incoming waste at the Facility is routinely scrutinized to ensure that unacceptable waste is not received at the Facility.

40. The Approval Holder shall ensure that the household hazardous waste depot at the Facility is operated in accordance with an operating manual approved by the Department.

CONSTRUCTION

41. The Approval Holder shall ensure that the necessary engineering documentation is submitted to the Director, and approved in writing by the Department, prior to the construction, modification or expansion of 1) additional containment cells, 2) landfill gas management systems; 3) sludge handling facilities, 4) leachate treatment systems, 5) facilities for processing recyclables or managing organics, 6) storage of waste including household hazardous waste, 7) special waste disposal cells/locations or any other construction activity at the Facility.

42. The Approval Holder shall ensure that final cover applied to the containment cells at the Facility shall be a minimum of 300 mm granular layer, 600 mm low permeability clayey till @ 1×10^{-7} cm/sec hydraulic conductivity, 150 mm granular protection layer, 150 mm growing medium and vegetative cover and shall be sloped a minimum of 2% to promote precipitation runoff from the disposal cell. All holes, cave-ins and faults shall be filled in or repaired, as required, until the final cover has been properly stabilized. All side slopes shall be designed to ensure proper slope stability and full containment of leachate.

    If approved in writing by the Director, an alternative final cover plan may be used.

43. The Approval Holder shall ensure that a Quality Assurance and Quality Control (QA/QC) report is submitted to the Department upon completion of the installation of final cover on a containment cell or cells at the Facility. The report must be prepared or approved by a person who is a member of the Association of Professional Engineers and Geoscientists of the Province of New Brunswick or is licensed to practise as a professional engineer pursuant to the *Engineering Profession Act* and include as a minimum:

    - commentary that confirms that all construction activities and testing associated with the installation of final cover were supervised by a qualified independent third party and that the final cover meets the Department's requirements as detailed in the previous condition;
    - all test parameters, the number of tests and locations;
    - copies of any inspection and testing reports;
    - a summary of any problems or deficiencies encountered and how they were corrected; and
    - other information as requested by the Department.

    The QA/QC report should be forwarded to the Department no later then 3 months upon completion of the final cover.

44. The Approval Holder shall ensure that all future containment cells at the Facility are designed such that the installed leachate piping can be inspected in the future by video to ensure that the leachate piping is in proper working condition.

45. The Approval Holder shall ensure that, prior to decommissioning any monitoring wells at the Facility, a decommissioning plan and schedule is submitted to the Director and approved in writing by the Department.

LEACHATE AND SURFACE WATER

46. The Approval Holder shall ensure that no leachate (including treated leachate) is released from the Facility to the environment or to the Facility's surface water drainage system including the sedimentation ponds.

47. The Approval Holder shall ensure that all leachate at the Facility is directed to the Facility's leachate collection and treatment system.

48. The Approval Holder shall ensure that surface water at the Facility that has not been in contact with leachate or solid waste is directed to the sedimentation pond(s). Clean surface water that has a total suspended solids (TSS) value of 25mg/l or less may be diverted from the sedimentation pond(s) if approved in writing by the Department. Water from empty disposal cells that has not been in contact with leachate or solid waste should bypass the leachate storage and treatment system and be directed to the surface water drainage system at the Facility. Drainage ditches must be maintained with a proper grade that directs surface water away from the waste disposal area and into the sedimentation pond(s).

49. The Approval Holder shall ensure that there is a continuous, permeable layer of gravel surrounding the waste at the Facility from the top of the upper side slopes through the top of the berm area to the leachate collection system. Particular care must be exercised at the top of berm area so that the final cover will properly intersect the top of berm.

50. The Approval Holder shall ensure that the leachate collection piping at the Facility is properly maintained to ensure they remain free flowing.

51. The Approval Holder shall ensure that every 2 years the leachate collection piping at the Facility is inspected by video or other method pre-approved in writing by the Director, to ensure the leachate collection system is in proper working condition.

WASTE DISPOSAL

52. The Approval Holder shall ensure that the contaminated soil disposal cell is covered with a 30-mil HDPE geomembrane, or alternative approved in writing by the Director, to limit the amount of precipitation coming in contact with the contaminated soil.

53. The Approval Holder shall ensure that the Director approves any expansion of the contaminated soil disposal cell in writing. Engineering drawings will be required to be prepared and submitted to the Director for review.

54. The Approval Holder shall ensure that the contaminated soil disposal cell is maintained to ensure that erosion occurrences do not impact the cell's effectiveness. The surrounding ground surface must be maintained to ensure it is sloped in such a manner that prevents surface water from entering the debris area.

55. The Approval Holder shall ensure that liquid from the contaminated soil disposal cell that has accumulated in the sump is maintained to a maximum of one metre below the top of the adjacent berm.

56. The Approval Holder shall ensure that liquid from the contaminated soil disposal cell that has accumulated in the sump is discharged to the Facility's leachate treatment system.

57. The Approval Holder shall ensure that hot loads arriving at the Facility containing ashes or other materials that could potentially cause a fire in the containment cells are temporarily stored in a separate secure location approved by the Department until the risk of fire has been eliminated. The material shall then be disposed of in the designated area at the Facility.

58. The Approval Holder shall ensure that any friable asbestos accepted at the Facility for disposal has been wetted, placed in securely tied, double bagged 6 mil polyethylene bags or securely tied single 6 mil polyethylene bag that has been placed in a drum or cardboard box with all seams securely taped and each bag, cardboard box and/or drum is clearly labelled "WASTE ASBESTOS UN2590" or "DECHETS D'AMIANTE UN2590" and there are no punctures in the containers (if they are punctured, the contents must be wetted and repackaged prior to land filling) and they are placed at a dedicated location within the containment cells and are immediately covered with a minimum of 300 mm of clean cover material, or 1000 mm of municipal solid waste. Asbestos should be accepted at the Facility by appointment only, and not disposed during windy conditions.

59. The Approval Holder shall ensure that there is a sufficient quantity of wetting agent on-site when asbestos is being handled and disposed at the Facility.

60. The Approval Holder shall ensure that any unloading of friable asbestos at the Facility is done by the driver (or assistant) and that they or any personnel at the Facility who handle the asbestos are wearing the proper respirators and clothing during the unloading and disposal of the asbestos waste. Appropriate facility staff must supervise the unloading and covering of the asbestos waste.

61. The Approval Holder shall ensure that an "Asbestos Disposal Record" is maintained. The Record shall include, but not necessarily be limited to, the disposal date, volume of asbestos waste, origin of the shipment, contractor delivering the asbestos waste and a detailed plan of the disposal location at the Facility.

SITE MANAGEMENT

62. The Approval Holder shall ensure that areas of the containment cells at the Facility that will be inactive for at least three months are covered with a 300 mm intermediate cover layer, graded to promote drainage and minimize erosion and infiltration. Any leachate or any water that has, or could, come in contact with waste in the containment cells must be directed to the leachate collection system.

63. The Approval Holder shall ensure that white goods, scrap metals, electronics, propane tanks/canisters, wood, tires and any other materials being salvaged at the Facility are stored in a secured area separate from the main waste disposal area that has been approved by the Department.

64. The Approval Holder shall ensure that the drainage ditches at the Facility are maintained to ensure they remain free flowing at all times.

65. The Approval Holder shall ensure that debris and litter at the Facility is controlled. Adequate barriers and/or fencing shall be utilized to confine debris and litter to the immediate disposal area. Any debris or litter found along the access roads or otherwise not contained in the containment cells shall be routinely collected and disposed in an appropriate location.

66. The Approval Holder shall ensure that unauthorized access to the Facility is controlled.

67. The Approval Holder shall ensure that a Pest Management Program is in place at the Facility that is in compliance with "Pest Control at NB Landfill Sites and Transfer Stations", attached as Schedule "B".

CONSTRUCTION AND DEMOLITION DEBRIS

68. The Approval Holder shall ensure that only C&D debris is disposed of at the C&D Site. Any material at the C&D Site that is not located in a designated sorting area is considered disposed.

69. The Approval Holder shall ensure that C&D debris disposed of at the C&D Site is done so in the disposal cell.

70. The Approval Holder shall ensure that the area between the property line of the Facility and the C&D Site disposal cell is maintained with a treed or bermed buffer zone.

71. The Approval Holder shall ensure that the C&D debris disposed of at the C&D Site is regularly compacted to minimize voids. Compaction with a dozer or equivalent is recommended.

72. The Approval Holder shall ensure that clean/uncontaminated granular cover material at least 150 mm deep is applied to all exposed C&D debris at the C&D Site at least once per week.

73. The Approval Holder shall ensure that the side slopes of the disposal area of the C&D Site are properly stabilized (using riprap or a vegetative layer as part of the cover system for example) and maintained to limit erosion.

74. The Approval Holder shall ensure that any final cover applied at the C&D Site is sloped in such a manner to ensure positive drainage and prevent standing or pooling of water on the surface.

75. The Approval Holder shall ensure that a minimum of 1.5 metres of overburden is maintained between the C&D debris and the bedrock and seasonal high groundwater.

76. The Approval Holder shall ensure that the C&D Site is designed and operated such that surface water is prevented from entering the C&D debris disposal cell. No C&D debris shall be disposed of in free standing water.

EMISSIONS AND DISCHARGES

77. The Approval Holder shall ensure that any discharge from the Facility, including the sedimentation pond, to a watercourse has a total suspended solids (TSS) value of 25 mg/l or less.

78. The Approval Holder shall ensure that leachate discharged from the Facility to the wastewater collection system operated by the City of Moncton is treated to a level that is acceptable to the City of Moncton.

79. The Approval Holder shall ensure that there is no open burning conducted at the Facility, including the C&D Site, at any time.

80. The Approval Holder shall ensure that both odour and noise emissions released from the Facility are controlled to prevent impacts to off-site receptors. In the event that odour or noise emission impacts do occur, the Department may require the Approval Holder to develop, submit and implement a Control Plan that mitigates the impacts such that they no longer cause a nuisance to off-site receptors. The Control Plan shall be submitted to the Director for review and approval prior to implementation.

81. The Approval Holder shall ensure that fugitive dust emissions generated from truck traffic or other activities at the Facility are controlled by the use of water. Written permission from the Department must first be obtained if calcium chloride or other chemical compounds are to be used for dust control. The use of a petroleum product for dust control is **prohibited.**

HOUSEHOLD HAZARDOUS WASTE

82. The Approval Holder shall ensure that the household hazardous waste depot at the Facility is operated in accordance with the most recent edition of the household hazardous waste Operations Manual that has been approved in writing by the Department.

83. The Approval Holder shall ensure that only household hazardous waste that is generated in New Brunswick is received and stored in the household hazardous waste depot at the Facility. All household hazardous waste received by the Facility is to be stored in the household hazardous waste depot.

84. The Approval Holder shall ensure that all household hazardous waste being stored in the household hazardous waste depot at the Facility is collected by a hazardous waste collection and transportation network. No household hazardous waste is to be stored at the Facility for more than one year.

85. The Approval Holder shall ensure that household hazardous waste at the Facility shall only be received, sorted, stored, and transferred from the Facility.

86. The Approval Holder shall ensure that all household hazardous waste stored in the household hazardous waste depot is:

    a) secured in sealed and chemically resistant containers;
    b) away from high traffic areas and protected from vehicle impacts;
    c) away from electrical panels;
    d) in a containment area that has secondary containment adequate to contain 110 % of the nominal volume of the largest container in the containment area;
    e) in a containment area that is designed to prevent contact between incompatible chemicals; and
    f) in a containment area designed to prevent the release or discharge of chemicals to the environment as a result of a spill or other upset condition.

87. **Within 15 days of the end of each month**, the Approval Holder shall submit a monthly report to the Director of the Approvals Branch that includes a summary of all spills that have occurred in association with the operation of the household hazardous waste program. This summary shall identify the material spilled, the approximate volume spilled, the date of the spill, the containment method employed, and the steps taken to prevent a future recurrence of the spill. If no spill has occurred during any given month then the report shall state this. This does not relieve the Approval Holder of compliance with the Environmental Emergency Reporting section of this Approval.

88. The Approval Holder shall keep records of all household hazardous waste that has been transported from the Facility for disposal. These records shall include the company transporting the waste, the date of transport, the amount of waste transported, and the final destination of the waste. These records shall be kept on site for a minimum of two years and shall be made available upon request.

TESTING AND MONITORING

89. The Approval Holder shall ensure that a qualified technician samples the groundwater monitoring wells at the Facility during seasonal intervals that will provide an accurate representation of groundwater quality at the Facility. The existing network of groundwater monitoring wells at the Facility is as follows:

Till	Shallow Bedrock	Mid Bedrock
MW1A	MW1B	MW1C
MW2A	MW2B	
MW3A	MW3B	MW3C
MW4A	MW4B	MW4C
MW5A	MW5B	MW5C
MW6A	MW6B	MW6C
MW7A		
MW8A	MW8B	MW8C
MW9A	MW9B	MW9C
MW10A	MW10B	MW10C

90. The Approval Holder shall ensure that any new groundwater monitoring wells, underdrains, leak detection systems or other sampling points at the Facility are sampled and analyzed as directed by the Department in writing.

91. The Approval Holder shall ensure that all ground and surface water samples of BTEX/TPH, GENERAL CHEMISTRY, TRACE METALS, COD, BOD_5, Vinyl Chloride and Chloroform required to be obtained for the Facility are analyzed by a laboratory that is, as a minimum, a member in good standing of the Canadian Association of Environmental Analytical Laboratories (CAEAL) Proficiency Testing Program for Environmental Laboratories.

For the purpose of this Approval, "GENERAL CHEMISTRY" shall include the following analyses:

Ammonia	Alkalinity (as $CaCO_3$)	Calcium
Chemical Oxygen Demand	Chloride	Colour
Copper	Hardness (as $CaCO_3$)	Iron
Nitrate-Nitrite (as N)	Magnesium	Manganese
o-Phosphate (as P)	Phenols	Potassium

r-Silica (as SiO_2)	Sodium	Sulphur (Sulphate & Sulphide)
Total Suspended Solids	Total Organic Carbon	Turbidity
Total Kjeldahl Nitrogen (TKN)	Zinc	

with the associated calculated parameters: Bicarbonate, Carbonate, Hydroxide, Cation Sum, Anion Sum, % difference, Theoretical conductance, Saturation pH (5°C) and Langelier Index (5°C).

and "TRACE METALS" shall include the following analyses:

Aluminum	Arsenic	Barium	Boron
Cadmium	Calcium	Chromium	Copper
Iron	Lead	Lithium	Magnesium
Manganese	Mercury (CVAAS)	Nickel	Potassium
Sodium	Zinc		

and "BTEX/TPH" shall be analysed in accordance with the Atlantic RBCA Tier 1 Guidelines for Laboratories and shall include the following parameters:

Benzene	C6-C10 Hydrocarbons
Toluene	>C10-C21 Hydrocarbons
Ethylbenzene	>C21-<C32 Hydrocarbons
Xylene	Modified TPH (Tier 1)

% Rec. iso-butylbenzene-Volatile
% Rec. iso-butylbenzene-Extractable
% Rec. n-dotriacontane-Extractable

92. The Approval Holder shall ensure that prior to obtaining a ground water sample from a monitoring well at the Facility, a minimum of one well volume and a maximum of three well volumes be purged from that monitoring well.

93. The Approval Holder shall ensure that all field testing equipment is calibrated before and after each sampling event conducted at the Facility.

94. The Approval Holder shall ensure that the following field parameters are obtained during each sampling event at the Facility:

Conductivity	Dissolved Oxygen	pH
Temperature	ground water elevations (referenced to geodetic datum)	

95. The Approval Holder shall ensure that groundwater samples to be submitted for analysis of TRACE METALS are field filtered using 0.45 µm in-line waterra filter or equivalent. All other samples should be unfiltered.

96. The Approval Holder shall ensure that the discharge from the sedimentation pond is sampled and analyzed for Total Suspended Solids (TSS) at least **four times** a year or during events which may lead to elevated levels of TSS. One sample shall be taken during April or May and another one during September or October.

97. The Approval Holder shall ensure that leachate discharged from the leachate treatment pond at the Facility to the City of Moncton waste water treatment system is sampled during the Winter, Spring, Summer and Fall season of each year and analyzed for the following parameters:

Alkalinity	Ammonia	Barium	Boron
BOD_5	Cadmium	COD	Chromium
Calcium	Chloride	Copper	Cyanide
Iron	Magnesium	Manganese	Lead
Mercury	Nitrite-Nitrate	Nickel	Phenols
Sodium	Sulphate	TSS/TDS	Total Organic Carbon (TOC)
TKN	Total Phosphate	Zinc	

and BTEX/TPH

98. The Approval Holder shall ensure that the underdrain (UND) for the leachate treatment pond at the Facility is sampled monthly and analyzed for the following parameters:

Alkalinity	Ammonia	Barium	Boron
BOD_5	Cadmium	COD	Chromium
Calcium	Chloride	Copper	Cyanide
Iron	Magnesium	Manganese	Lead
Mercury	Nitrite-Nitrate	Nickel	Phenols
Sodium	Sulphate	TSS/TDS	Total Organic Carbon (TOC)
TKN	Total Phosphate	Zinc	

and BTEX/TPH

99. The Approval Holder shall ensure that the detection manholes for containment cells 7, 8, 9, and 10 are sampled monthly and analyzed for the following parameters:

Alkalinity	Ammonia	Barium	Boron
BOD_5	Cadmium	COD	Chromium
Calcium	Chloride	Copper	Cyanide
Iron	Magnesium	Manganese	Lead
Mercury	Nitrite-Nitrate	Nickel	Phenols
Sodium	Sulphate	TSS/TDS	Total Organic Carbon (TOC)
TKN	Total Phosphate	Zinc	

and BTEX/TPH.

If during any month the manholes contain no liquid for sampling or the amount of landfill gas in the manholes makes it unsafe for sampling, then this shall be stated in the environmental monitoring reports.

100. The Approval Holder shall ensure that the leachate discharged from the containment cells at the Facility (MH#1) is sampled monthly and analyzed for the following parameters:

Alkalinity	Ammonia	Barium	Boron
BOD_5	Cadmium	COD	Chromium
Calcium	Chloride	Copper	Cyanide
Iron	Magnesium	Manganese	Lead
Mercury	Nitrite-Nitrate	Nickel	Phenols
Sodium	Sulphate	TSS/TDS	Total Organic Carbon (TOC)
TKN	Total Phosphate	Zinc	

and BTEX/TPH

101. The Approval Holder shall ensure that the groundwater monitoring well nests MW1 thru MW10 are sampled during the Spring and Fall seasons of each calendar year for GENERAL CHEMISTRY, TRACE METALS and BTEX/TPH.

102. The Approval Holder shall ensure that the groundwater monitoring well nests MW1 thru MW10 are sampled during the Winter and Summer seasons of each calendar year for the following indicator parameters:

Alkalinity	Ammonia	Barium	Boron
Calcium	Chloride	Conductivity	Copper
Iron	Magnesium	Manganese	Nitrite-Nitrate
pH	Sodium	Sulphate	Total Organic Carbon

103. The Approval Holder shall ensure that monitoring well nests MW1, MW2 and MW3 are sampled during the Spring season of each year and analyzed for PAH's.

104. The Approval Holder shall ensure that the surface water sampling locations SW1, SW2 and SW3 are sampled during the Winter, Spring, Summer and Fall seasons of each year and analyzed for GENERAL CHEMISTRY, TRACE METALS, BTEX/TPH, TKN, BOD_5 and TSS/TDS.

105. The Approval Holder shall ensure that the results of all sampling and analysis conducted at the Facility are kept on file in both a hardcopy and electronic version.

REPORTING

106. **By March 31 of each year,** the Approval Holder shall ensure that an Annual Environmental Report for the previous calendar year is submitted to the Director. The report must include as a minimum:

- a copy of the Asbestos Disposal Record;
- recommendations for any future monitoring, groundwater well installation or other work at the Facility;
- confirmation that all field testing equipment has been calibrated before and after each sampling event conducted at the Facility;
- confirmation that each groundwater monitoring well has been appropriately purged prior to obtaining a sample;
- dates of all sampling conducted at the Facility;
- a copy of the analytical results of the sampling and monitoring data obtained from he Facility for the previous calendar year and a review of those analytical results that is completed by a professional engineer or geoscientist licensed with the Association of Professional Engineers and Geoscientists of New Brunswick that includes as a minimum:
    - comparisons with historical results from the Facility;
    - identification of possible analytical anomalies;
    - an evaluation and discussion of the results for the surface water sampling points, groundwater monitoring wells, any cell or leachate pond underdrains/subdrain collection manholes and commentary on whether or not there is evidence of an immediate or potential impact to the environment, ground or surface waters and if so, recommendations for additional investigation, monitoring and remediation to mitigate the impacts;
    - confirmation that the containment cells and leachate pond(s) have been operated such that the minimum breakthrough requirements have been maintained; and
    - trending graphs for each monitoring well at the Facility and the leachate pond leak detection and cell underdrain manholes for the following indicator parameters showing results vs. time:

Alkalinity, Ammonia, Barium, Boron, Calcium, Chloride, Conductivity, Iron, Magnesium, pH, Sodium, Sulphate, and Dissolved Organic Carbon.

Note: Trending graphs should be completed on an annual basis but an alternate schedule may be accepted if approved in writing by the Director.

107. **By June 30 and October 31 of each year**, the Approval Holder shall ensure that an environmental monitoring report is submitted to the Director. It is understood that the June report will include monitoring from January to April, the October report will include monitoring from May to August and monitoring from September to December will be included in the annual report. The reports must be prepared or approved by a person who is a member of the Association of Professional Engineers and Geoscientists of the Province of New Brunswick or is licensed to practise as a professional engineer pursuant to the *Engineering Profession Act* and include, as a minimum, a copy of the analysis, a comparison of the analysis with previous analytical results from the Facility, and commentary indicating whether their is an indication of any immediate, or potential threat or impact to the environment, ground or any surface waters. If an impact has occurred or is suspected the report must include a proposal for further investigation and/or remediation.

108. In the event the Approval Holder violates any Term or Condition of this Approval the Approval Holder is to immediately report this violation to the Department by calling (506) 453-7945. In the event the violation may cause the health or safety of the general public to be at risk and/or harm to the environment could or has resulted, the Approval Holder shall follow the Emergency Reporting procedures contained in this Approval.

109. In the event the Approval Holder receives a complaint from the public regarding unfavourable environmental impacts associated with the Facility, the Approval Holder is to report this complaint to the Department within one business day of receiving the complaint.

Prepared by: _____
Jeffrey Porter, P.Eng.
Solid Waste Engineer, Stewardship Branch

Reviewed by: _____
Mark Boldon, Manager
Bioscience and Resource Management Section, Stewardship Branch

SCHEDULE "B"

SCHEDULE "B"

PEST CONTROL AT NB LANDFILL SITES AND TRANSFER STATIONS

1. **Terms and Conditions for Rodent Control at NB Landfill Sites and Transfer Stations**

1. All personnel directly involved in the mixing, loading and application of the pesticides for the control of rodents at waste disposal facilities must hold a valid Class F or Class L Pesticide Applicator's Certificate, which must be in their immediate possession.

2. Professional companies hired to conduct this work must hold a valid Provincial Operator's License and Pesticide Use Permit.

3. The treatment area must be posted with an approved sign prior to the treatment.

4 The signs are to be conspicuously posted at all ordinary points of access.

5 The applicator shall ensure that the signs are removed after either the completion of treatment or the expiration of their permit.

6 The sign shall be rectangular in shape with a minimum size of 14 cm x 21 cm, rain resistant with type or letters of sufficient size and clarity to be easily read together with a symbol of a cautionary raised hand inside a symbol of a stop sign. The information on the sign must be bilingual and must contain the words "Attention, Pesticide Application", the name of the pesticide, the Pest Control Product registration number, date of application, name of applicator, operator name or logo and telephone number.

7 Industry approved tamper resistant bait stations must be attempted before using other methods of baiting.

8 The Director of Pesticides Control or any member of the Pesticides Management Unit must approve areas that require alternative baiting methods. They can be contacted at (506) 453-7945.

November 8, 2005

SCHEDULE "A"

A. DESCRIPTION AND LOCATION OF SOURCE

The Westmorland-Albert Solid Waste Corporation operates a regional solid waste management and disposal facility located near the Berry Mills Road that is commonly referred to as the Westmorland-Albert Solid Waste Facility. The Facility serves the residents of the Westmorland, Albert, Kings and Kent Counties of New Brunswick. The Commission operates a construction and demolition debris disposal site and household hazardous waste depot at the Facility. A designated area is provided for the temporary storage of metal, tires, wood, white goods and other such salvageable/recyclable materials. A contaminated soil disposal cell developed in conjunction with the City of Moncton is also located at the Facility.

As a result of the operation of the regional solid waste management and disposal facility, there exist *potential* environmental impacts from: 1) the generation of leachate in the landfill containment cells, contaminated soil disposal cell and the construction and demolition debris disposal site; 2) spillage, release or mishandling of leachate, a petroleum product or other material; 3) the operation of the household hazardous waste depot; 4) accidental discharge of leachate from the leachate treatment pond or collection system; 5) site run-off or suspended solids discharge from the sedimentation pond(s); 6) fugitive dust emissions from truck traffic and other on-site activities; and 7) elevated odour and/or noise emissions.

The operation of the regional solid waste management and disposal facility by the Westmorland-Albert Solid Waste Corporation - La Corporation des déchets solides Westmorland-Albert, located in the local service district of Moncton, County of Westmorland, and the Province of New Brunswick and identified by Parcel Identifier (PID) numbers 01023258, 70243241, 70271705, 70243258 & 70280367 is hereby approved **subject to the following:**

B. DEFINITIONS

1. **"Approval Holder"** means Westmorland-Albert Solid Waste Corporation - La Corporation des déchets solides Westmorland-Albert.

2. **"Department"** means the New Brunswick Department of Environment.

3. **"Minister"** means the Minister of the Department and includes any person designated to act on the Minister's behalf.

4. **"Director"** means the Director of the Stewardship Branch of the Department and includes any person designated to act on the Director's behalf.

5. **"Facility"** means the property, leachate collection and treatment systems, buildings, equipment and any other activities involved with the operation of the regional solid waste management and disposal facility by the Westmorland-Albert Solid Waste Corporation - La Corporation des déchets solides Westmorland-Albert, located on Parcel Identifier (PID) numbers 01023258, 70243241, 70271705, 70243258 & 70280367.

6. **"containment cell"** means the area at the Facility approved in writing by the Department for the disposal of solid waste.

7. **"watercourse"** means the full width and length, including the beds, banks, sides and shoreline, or any part of a river, creek, stream, spring, brook, lake, pond, reservoir, canal, ditch or other natural or artificial channel open to the atmosphere, the primary function of which is the conveyance or containment of water whether the flow be continuous or not.

8. **"friable asbestos"** means waste material containing asbestos fibre or asbestos dust in a concentration greater than 1% by weight that is **not** tightly bound within a solid matrix such that it is easily crumbled by the hands.

9. **"petroleum product"** means a mixture of hydrocarbons, or their by-products, of any kind and in any form, including airplane fuel, asphalt, bunker "C" oil, crude oil, diesel fuel, engine oil, fuel oil, gasoline, kerosene, lubricants, mineral spirits, naphtha, petroleum based solvents regardless of specific gravity, transformer oil and waste petroleum products and excluding propane and paint.

10. **"biomedical waste"** means,
    a) any part of the human body, including tissues and bodily fluids, but excluding fluids, extracted teeth, hair, nail clippings and the like, that are not infectious,
    b) any part of the carcass of an animal infected with a communicable disease or suspected by a licensed veterinary practitioner to be infected with a communicable disease,
    c) non-anatomical waste infected with communicable disease,
    d) a mixture of a waste referred to in clause (a), (b) or (c) and any other waste or material; or
    e) a waste derived from a waste referred to in clause (a), (b) or (c), unless the waste that is derived from the waste referred to in clause (a), (b) or (c) is produced in accordance with a certificate of approval that states that, in the opinion of the Director, the waste that is produced in accordance with the certificate of approval does not have characteristics similar to the characteristics of waste referred to in clause (a), (b) or (c

11. **"hazardous waste"** means any waste material intended for disposal or recycling, that is identified as a hazardous waste or hazardous recyclable material by the federal *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*, and/or is included in Class 1 and/or Class 7 of the federal *Transportation of Dangerous Goods Regulations*. This definition excludes any waste(s) for which the Director of the Approvals Branch has issued a written exemption.

Appendix B

Photographic Log

Photo 1 – Regenerating forest in northern end of extension.

Photo 2 – Typical looking regeneration where it is found throughout the extension area.

Photo 3 – Approximate location of northern access road, new cells would be built along the left side of this photo.

Photo 4 Small wetland depression where the east and west unmapped tributaries converge.

Photo 5 Typical forest stand in the central portion of the extension zone. Habitat is typical of regenerating forested land.

Photo 6 Forest on the edge of the property (west and south) that would be outside the location of the access road and ditch.

Photo 7 Old forestry road in the centre of the extension where construction on new cells would begin.

Photo 8 Small depressions in the landscape that are holding water have developed mossy substrates.

Appendix C

Minimum Proponent Sponsored Public Involvement Standards for Registered Projects

June 20, 2014

<<Name>>
<<Address>>

Dear: <<name(s)>>

Re: Notification of Public Input Program
Regional Service Commission #7: Environmental Impact Assessment
Moncton, NB PID 70243241

Regional Service Commission #7 (the Proponent) proposes to extend the current limit of waste placement (the Project) on self-owned land within the Commission's landfill facility on Berry Bills Road, Moncton, NB. The Project is located at 2024 Route 128 (Berry Mills Road, 352870 N 5107297 W UTM NAD 83 Zone 20) just outside the boundary of the City of Moncton in south-eastern New Brunswick. The property is located on unincorporated land in Westmorland County and the east and south boundaries of the Project are adjacent to the City of Moncton.

The current property encompasses 3 PIDs (70271705, 70280367, and 70243241) and approximately 490 ha of land however the Project would only include land from PID 70243241.

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*. WSP, on behalf of the Proponent 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 "*Regional Service Commission #7 Landfill Extension Project Environmental Impact Assessment Registration Westmorland-Albert Solid Waste Landfill, Moncton, NB*" and is currently available to any interested member of the public for review. Copies of the document are available for public viewing at the WSP Moncton office, the NB Department of Environment and Local Government offices in Dieppe and Fredericton, and the Moncton Public Library.

WSP
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

Moncton Public Library
644 Main Street, Suite 101
Moncton, NB EI1C 1E2

(506) 869-6000
Mon to Fri: 10:00 AM – 5:00 PM (9 PM on Tues/Wed)

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@wspgroup.com* or to Mr. Andrew Wort, Director of Solid Waste, P.O. Box 1397 Moncton, NB, E1C 8T6

Written comments are due within 25 days of Project registration (June 20, 2014). All written comments received by (July 30th, 2014) will be incorporated into a report on public consultation and submitted to the NB Department of Environment.

Sincerely,

WSP

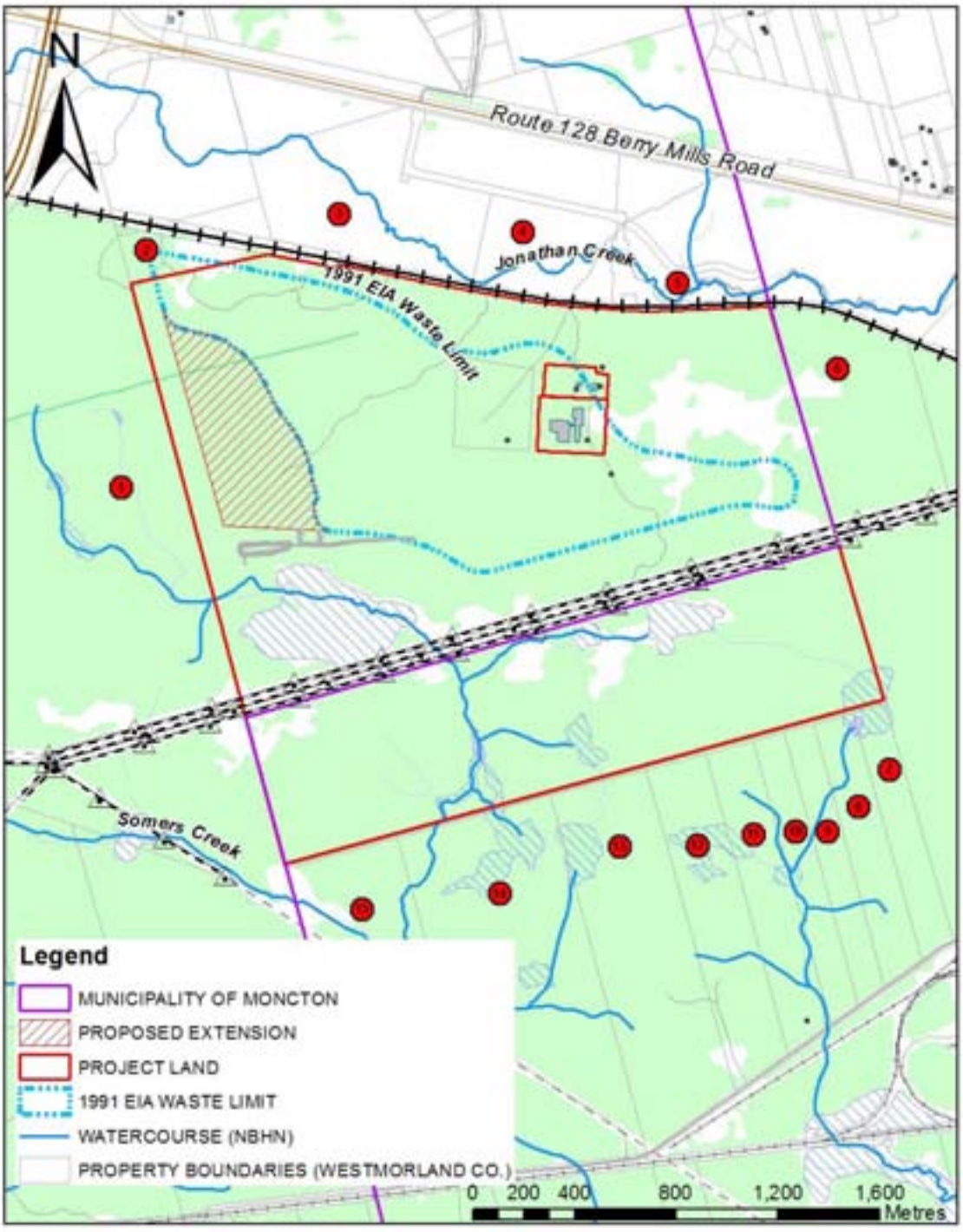
Virgil D. Grecian, M.Sc.
Environmental Scientist and Project Manager

Elected Officials and Stakeholders		
Members of the Legislative Assembly OR Provincial Regulatory Agencies		
Hon. Claude Williams	District Kent South	24-1, Avenue de L'Eglise Saint-Antoine, NB E4V 1M3
John Willis Betts	District Moncton Crescent	1351 Mountain Rd Moncton, NB, E1C 2T9
Gordon Locke	Greater Moncton Planning Commission	655 Main Street, Moncton NB E1C 1E8
Municipal Officials		
Mayor George LeBlanc		City of Moncton Mayor's Office 655 Main St. Moncton, NB, E1C 1E8
Aboriginal Groups		
Joanna Bernard Darrell Paul	President Executive Director	Union of New Brunswick Indians 385 Wilsey Road Fredericton, NB. E3B 6B4

Adjacent Land Owners

Map Ref #	Name	PID	Land Use	Address
1	Rothesay Paper Holdings Ltd	00940536	Forestry	PO Box 5777 Stn Main Saint John, NB E2L 4M3
2	Unknown	70243266	Vacant	
3	Eastco Waste Management Inc	01095819	Vacant	
4	Regional Service Commission #7	70568746	Vacant	Proponent
5	Eastco Waste Management Inc	00940171	Vacant	

6	Greater Moncton Sewerage Commission	01023159	Water and sewerage treatment plant	355 Hillsborough Road Riverview, NB E1B 1S5
7	Archie Colpitts Ltd	01023233	Vacant	PO Box 431 Moncton, NB E1C 8L4
8	Archie Colpitts Ltd	01023241	Vacant	PO Box 431 Moncton, NB E1C 8L4
9	Westmorland-Albert Solid Waste Corporation	01023258	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6
10	Archie Colpitts Ltd	01023266	Vacant	PO Box 431 Moncton, NB E1C 8L4
11	Todd G. Bursey Holdings Ltd	01023274	Vacant	153 MacAleese Lane PO Box 23059 Moncton, NB E1A 3M2
12	Westmorland-Albert Solid Waste Corporation	01023282	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6
13	Westmorland-Albert Solid Waste Corporation	01023472	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6
14	Two Hills Resources Inc	00936591	Residence buildings and land	216 Roderick Row Saint John, NB E2M 4J8
15	Westmorland-Albert Solid Waste Corporation	00937102	Vacant	PO Box 1397 Stn Main Moncton, NB E1C 8T6


N
Route 128 Berry Mills Road
Jonathan Creek
1991 EIA Waste Limit
Somers Creek
Legend
MUNICIPALITY OF MONCTON
PROPOSED EXTENSION
PROJECT LAND
1991 EIA WASTE LIMIT
WATERCOURSE (NBHN)
PROPERTY BOUNDARIES (WESTMORLAND CO.)
0 200 400 800 1,200 1,600
Metres

Appendix D

Migratory Bird Data

Family	Scientific Name	Common Name	Global Rank	National RANK	SARA List	Provincial SAR	S-Rank	Status	ELcode
Podicipedidae	Podilymbus podiceps	Pied-billed Grebe	G5	N5B			S4B	Breeding	ABNCA02010
Ardeidae	Botaurus lentiginosus	American Bittern	G4	N3N,N5B			S4B	Breeding	ABNGA01020
Ardeidae	Butorides virescens	Green Heron	G5	N4B			S1S2B	Breeding	ABNGA08010
Ardeidae	Ixobrychus exilis	Least Bittern	G5	N3B	T		S1S2B	Breeding	ABNGA02010
Anatidae	Aix sponsa	Wood Duck	G5	N5B,N5N			S4B	Breeding	ABNJB09010
Anatidae	Anas acuta	Northern Pintail	G5	N5B,N5N			S3B	Breeding	ABNJB10110
Anatidae	Anas americana	American Wigeon	G5	N5B,N5N			S3B	Breeding	ABNJB10180
Anatidae	Anas clypeata	Northern Shoveler	G5	N4N,N5B			S2B	Breeding	ABNJB10150
Anatidae	Anas crecca	Green-winged Teal	G5	N5B,N5N			S4S5B	Breeding	ABNJB10010
Anatidae	Anas discors	Blue-winged Teal	G5	N5B			S4B	Breeding	ABNJB10130
Anatidae	Anas platyrhynchos	Mallard	G5	N5B,N5N			S5B,S4N		ABNJB10060
Anatidae	Anas rubripes	American Black Duck	G5	N5B,N5N	\		S5B,S4N		ABNJB10040
Anatidae	Anas strepera	Gadwall	G5	N4N,N5B			S2B	Breeding	ABNJB10160
Anatidae	Aythya collaris	Ring-necked Duck	G5	N5N,N5B			S5B	Breeding	ABNJB11040
Anatidae	Branta canadensis	Canada Goose	G5	N5B,N5N			SNAB,S4M	Exotic Breeding	ABNJB05030
Anatidae	Bucephala clangula	Common Goldeneye	G5	N5B,N5N			S4B,S5M,S4N		ABNJB18010
Anatidae	Lophodytes cucullatus	Hooded Merganser	G5	N5B			S4B	Breeding	ABNJB20010
Anatidae	Mergus merganser	Common Merganser	G5	N5B,N5N			S5B,S4N		ABNJB21010
Anatidae	Mergus serrator	Red-breasted Merganser	G5	N5B,N5N			S3B,S4S5N	Breeding	ABNJB21020
Anatidae	Somateria mollissima	Common Eider	G5	N5B,N5N			S4	Breeding	ABNJB12010
Cathartidae	Cathartes aura	Turkey Vulture	G5	N5B			S3B	Breeding	ABNKA02010
Accipitridae	Accipiter gentilis	Northern Goshawk	G5	N5	NAR		S4		ABNKC12060
Accipitridae	Accipiter striatus	Sharp-shinned Hawk	G5	N5B,N5N	NAR		S4B	Breeding	ABNKC12020
Accipitridae	Buteo platypterus	Broad-winged Hawk	G5	N5B			S5B	Breeding	ABNKC19050
Accipitridae	Circus cyaneus	Northern Harrier	G5	N4N,N5B	NAR		S4B	Breeding	ABNKC11010
Accipitridae	Haliaeetus leucocephalus	Bald Eagle	G5	N5B,N5N	NAR	Reg.Endangered	S3B		ABNKC10010
Accipitridae	Pandion haliaetus	Osprey	G5	N5B			S4S5B	Breeding	ABNKC01010
Falconidae	Falco columbarius	Merlin	G5	N4N,N5B	NAR		S5B	Breeding	ABNKD06030
Falconidae	Falco sparverius	American Kestrel	G5	N5B			S4B	Breeding	ABNKD06020
Phasianidae	Bonasa umbellus	Ruffed Grouse	G5	N5			S5		ABNLC11010
Phasianidae	Phasianus colchicus	Ring-necked Pheasant	G5	NNA			SNA	Exotic	ABNLC07010
Rallidae	Fulica americana	American Coot	G5	N5B	NAR		S2B	Breeding	ABNME14020
Rallidae	Porzana carolina	Sora	G5	N5B			S4B	Breeding	ABNME08020
Rallidae	Rallus limicola	Virginia Rail	G5	N5B			S3B	Breeding	ABNME05030
Charadriidae	Charadrius vociferus	Killdeer	G5	N5B			S3B	Breeding	ABNNB03090
Scolopacidae	Actitis macularius	Spotted Sandpiper	G5	N5B			S4B	Breeding	ABNNF04020
Scolopacidae	Gallinago delicata	Wilson's Snipe	G5	N5B			S4B	Breeding	ABNNF18030
Scolopacidae	Scolopax minor	American Woodcock	G5	N5B			S5B	Breeding	ABNNF19020
Laridae	Chlidonias niger	Black Tern	G4	N4B	NAR		S2B	Breeding	ABNNM10020
Columbidae	Columba livia	Rock Pigeon	G5	NNA			SNA	Exotic	ABNPB01010
Columbidae	Zenaida macroura	Mourning Dove	G5	N5			S5B	Breeding	ABNPB04040
Strigidae	Bubo virginianus	Great Horned Owl	G5	N5			S4S5		ABNSB05010
Strigidae	Megascops asio	Eastern Screech-Owl	G5	N5	NAR		SNA	Accidental Non-breeding Absent	ABNSB01030
Caprimulgidae	Caprimulgus vociferus	Whip-Poor-Will	G5	N5B	T		S2B	Breeding	ABNTA07070
Caprimulgidae	Chordeiles minor	Common Nighthawk	G5	N4B	T		S3B	Breeding	ABNTA02020
Trochilidae	Archilochus colubris	Ruby-throated Hummingbird	G5	N5B			S5B	Breeding	ABNUC45010
Alcedinidae	Megaceryle alcyon	Belted Kingfisher	G5	N5B			S5B	Breeding	ABNXD01020
Picidae	Colaptes auratus	Northern Flicker	G5	N5B			S5B	Breeding	ABNYF10020
Picidae	Dryocopus pileatus	Pileated Woodpecker	G5	N5			S5		ABNYF12020
Picidae	Picoides pubescens	Downy Woodpecker	G5	N5			S5		ABNYF07030
Picidae	Picoides villosus	Hairy Woodpecker	G5	N5			S5		ABNYF07040
Picidae	Sphyrapicus varius	Yellow-bellied Sapsucker	G5	N5B			S5B	Breeding	ABNYF05010
Tyrannidae	Contopus cooperi	Olive-sided Flycatcher	G4	N5B	T		S3S4B	Breeding	ABPAE32010
Tyrannidae	Contopus virens	Eastern Wood-Pewee	G5	N5B			S4B	Breeding	ABPAE32060
Tyrannidae	Empidonax alnorum	Alder Flycatcher	G5	N5B			S5B	Breeding	ABPAE33030
Tyrannidae	Empidonax flaviventris	Yellow-bellied Flycatcher	G5	N5B			S4S5B	Breeding	ABPAE33010
Tyrannidae	Empidonax minimus	Least Flycatcher	G5	N5B			S5B	Breeding	ABPAE33070

Tyrannidae	Empidonax traillii	Willow Flycatcher	G5	N5B			S1S2B	Breeding	ABPAE33040
Tyrannidae	Sayornis phoebe	Eastern Phoebe	G5	N5B			S5B	Breeding	ABPAE35020
Tyrannidae	Tyrannus tyrannus	Eastern Kingbird	G5	N5B			S3S4B	Breeding	ABPAE52060
Hirundinidae	Hirundo rustica	Barn Swallow	G5	N5B	T		S3B	Breeding	ABPAU09030
Hirundinidae	Petrochelidon pyrrhonota	Cliff Swallow	G5	N5B			S3S4B	Breeding	ABPAU09010
Hirundinidae	Riparia riparia	Bank Swallow	G5	N5B			S3B	Breeding	ABPAU08010
Hirundinidae	Tachycineta bicolor	Tree Swallow	G5	N5B			S4B	Breeding	ABPAU03010
Corvidae	Corvus brachyrhynchos	American Crow	G5	N5B,N5N			S5		ABPAV10010
Corvidae	Corvus corax	Common Raven	G5	N5			S5		ABPAV10110
Corvidae	Cyanocitta cristata	Blue Jay	G5	N5			S5		ABPAV02020
Corvidae	Perisoreus canadensis	Gray Jay	G5	N5			S4B	Breeding	ABPAV01010
Paridae	Poecile atricapilla	Black-capped Chickadee	G5	N5			S5		ABPAW01010
Sittidae	Sitta canadensis	Red-breasted Nuthatch	G5	N5			S5		ABPAZ01010
Sittidae	Sitta carolinensis	White-breasted Nuthatch	G5	N5			S5		ABPAZ01020
Troglodytidae	Cistothorus palustris	Marsh Wren	G5	N5B			S2B	Breeding	ABPBG10020
Troglodytidae	Troglodytes troglodytes	Winter Wren	G5	N5B			S5B	Breeding	ABPBG09050
Turdidae	Catharus fuscescens	Veery	G5	N5B			S4B	Breeding	ABPBJ18080
Turdidae	Catharus guttatus	Hermit Thrush	G5	N5B			S5B	Breeding	ABPBJ18110
Turdidae	Catharus ustulatus	Swainson's Thrush	G5	N5B			S5B	Breeding	ABPBJ18100
Regulidae	Regulus calendula	Ruby-crowned Kinglet	G5	N5B			S4S5B	Breeding	ABPBJ05020
Regulidae	Regulus satrapa	Golden-crowned Kinglet	G5	N5			S5	Breeding	ABPBJ05010
Turdidae	Sialia sialis	Eastern Bluebird	G5	N4B	NAR		S4B	Breeding	ABPBJ15010
Turdidae	Turdus migratorius	American Robin	G5	N5B,N5N			S5B	Breeding	ABPBJ20170
Mimidae	Dumetella carolinensis	Gray Catbird	G5	N5B			S4B	Breeding	ABPBK01010
Mimidae	Mimus polyglottos	Northern Mockingbird	G5	N4			S3B	Breeding	ABPBK03010
Bombycillidae	Bombycilla cedrorum	Cedar Waxwing	G5	N5			S5B	Breeding	ABPBN01020
Sturnidae	Sturnus vulgaris	European Starling	G5	NNA			SNA	Exotic	ABPBT01010
Vireonidae	Vireo flavifrons	Yellow-throated Vireo	G5	N4B			SNA	Accidental Non-breeding Absent	ABPBW01170
Vireonidae	Vireo gilvus	Warbling Vireo	G5	N5B			S4B	Breeding	ABPBW01210
Vireonidae	Vireo olivaceus	Red-eyed Vireo	G5	N5B			S5B	Breeding	ABPBW01240
Vireonidae	Vireo philadelphicus	Philadelphia Vireo	G5	N5B			S5B	Breeding	ABPBW01230
Vireonidae	Vireo solitarius	Blue-headed Vireo	G5	N5B			S5B	Breeding	ABPBW01160
Icteridae	Agelaius phoeniceus	Red-winged Blackbird	G5	N5B,N5N			S4B	Breeding	ABPBXB0010
Emberizidae	Ammodramus nelsoni	Nelson's Sparrow	G5	N5B	NAR		S4B	Breeding	ABPBXA0070
Parulidae	Dendroica castanea	Bay-breasted Warbler	G5	N5B			S4B	Breeding	ABPBX03220
Parulidae	Dendroica coronata	Yellow-rumped Warbler	G5	N5B			S5B	Breeding	ABPBX03060
Parulidae	Dendroica fusca	Blackburnian Warbler	G5	N5B			S5B	Breeding	ABPBX03120
Parulidae	Dendroica magnolia	Magnolia Warbler	G5	N5B			S5B	Breeding	ABPBX03030
Parulidae	Dendroica pensylvanica	Chestnut-sided Warbler	G5	N5B			S5B	Breeding	ABPBX03020
Parulidae	Dendroica petechia	Yellow Warbler	G5	N5B			S5B	Breeding	ABPBX03010
Parulidae	Dendroica tigrina	Cape May Warbler	G5	N5B			S4B	Breeding	ABPBX03040
Parulidae	Dendroica virens	Black-throated Green Warbler	G5	N5B			S5B	Breeding	ABPBX03100
Icteridae	Dolichonyx oryzivorus	Bobolink	G5	N5B	T		S3S4B	Breeding	ABPBXA9010
Parulidae	Geothlypis trichas	Common Yellowthroat	G5	N5B			S5B	Breeding	ABPBX12010
Icteridae	Icterus galbula	Baltimore Oriole	G5	N5B			S4B	Breeding	ABPBXB9190
Emberizidae	Junco hyemalis	Dark-eyed Junco	G5	N5B,N5N			S5B	Breeding	ABPBXA5020
Emberizidae	Melospiza georgiana	Swamp Sparrow	G5	N5B			S5B	Breeding	ABPBXA3030
Emberizidae	Melospiza melodia	Song Sparrow	G5	N5B,N5N			S5B	Breeding	ABPBXA3010
Parulidae	Mniotilta varia	Black-and-White Warbler	G5	N5B			S5B	Breeding	ABPBX05010
Icteridae	Molothrus ater	Brown-headed Cowbird	G5	N5B			S3B	Breeding	ABPBXB7030
Parulidae	Oporornis philadelphia	Mourning Warbler	G5	N5B			S4B	Breeding	ABPBX11030
Parulidae	Parula americana	Northern Parula	G5	N5B			S5B	Breeding	ABPBX02010
Emberizidae	Passerculus sandwichensis	Savannah Sparrow	G5	N5B			S5B	Breeding	ABPBX99010
Cardinalidae	Pheucticus ludovicianus	Rose-breasted Grosbeak	G5	N5B			S4B	Breeding	ABPBX61030
Thraupidae	Piranga olivacea	Scarlet Tanager	G5	N5B			S3S4B	Breeding	ABPBX45040
Icteridae	Quiscalus quiscula	Common Grackle	G5	N5B			S5B	Breeding	ABPBXB6070
Parulidae	Seiurus aurocapilla	Ovenbird	G5	N5B			S5B	Breeding	ABPBX10010
Parulidae	Seiurus noveboracensis	Northern Waterthrush	G5	N5B			S4S5B	Breeding	ABPBX10020
Parulidae	Setophaga ruticilla	American Redstart	G5	N5B			S5B	Breeding	ABPBX06010

Emberizidae	Spizella passerina	Chipping Sparrow	G5	N5B			S5B	Breeding	ABPBX94020
Parulidae	Vermivora peregrina	Tennessee Warbler	G5	N5B			S4B	Breeding	ABPBX01040
Parulidae	Vermivora ruficapilla	Nashville Warbler	G5	N5B			S5B	Breeding	ABPBX01060
Parulidae	Wilsonia canadensis	Canada Warbler	G5	N5B	T		S3S4B	Breeding	ABPBX16030
Parulidae	Wilsonia pusilla	Wilson's Warbler	G5	N5B			S4B	Breeding	ABPBX16020
Emberizidae	Zonotrichia albicollis	White-throated Sparrow	G5	N5B			S5B	Breeding	ABPBXA4020
Fringillidae	Carduelis pinus	Pine Siskin	G5	N5			S4		ABPBY06030
Fringillidae	Carduelis tristis	American Goldfinch	G5	N5B,N5N			S5		ABPBY06110
Fringillidae	Carpodacus mexicanus	House Finch	G5	N5			SNA	Exotic	ABPBY04040
Fringillidae	Carpodacus purpureus	Purple Finch	G5	N5B,N5N			S4S5B	Breeding	ABPBY04020
Fringillidae	Coccothraustes vespertinus	Evening Grosbeak	G5	N5			S3S4B,S4S5N	Breeding	ABPBY09020
Passeridae	Passer domesticus	House Sparrow	G5	NNA			SNA	Exotic	ABPBZ01010

Appendix E

ACCDC Data Report 5160: Berry Mills Road, NB

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

DATA REPORT 5160: Berry Mills Road, NB

Prepared 13 December, 2013
by J. Churchill, Data Manager

CONTENTS OF REPORT

1.0 PREFACE

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

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

1.1 DATA LIST

Included datasets:

Filename	Contents
BerryMillsRdNB_5160ob.xls	Rare and legally protected *Flora and Fauna* in your study area
BerryMillsRdNB_5160ff.xls	Rare and common *Freshwater Fish* in your study area (DFO database)
BerryMillsRdNB_5160sa.xls	All *Significant Natural Areas* in your study area

1.2 RESTRICTIONS

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

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

1.3 ADDITIONAL INFORMATION

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

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

Plants, Lichens, Ranking Methods
Sean Blaney, Botanist
Tel: (506) 364-2658
sblaney@mta.ca

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

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

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

Billing
Cindy Spicer
Tel: (506) 364-2665
cspicer@mta.ca

All other Inquiries
R.A. Lautenschlager
Tel: (506) 364-2661
rlautenschlager@mta.ca

Questions on the biology of Federal Species at Risk can be directed to ACCDC: (506) 364-2657, with questions on Species at Risk regulations to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

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

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in Nova Scotia, please contact Sherman Boates, NSDNR: (902) 679-6146.

For provincial information about rare taxa and protected areas, or information about game animals, fish habitat etc., in Prince Edward Island, please contact Rosemary Curley, PEI Dept. of Agriculture and Forestry: (902) 368-4807.

2.0 RARE AND ENDANGERED SPECIES

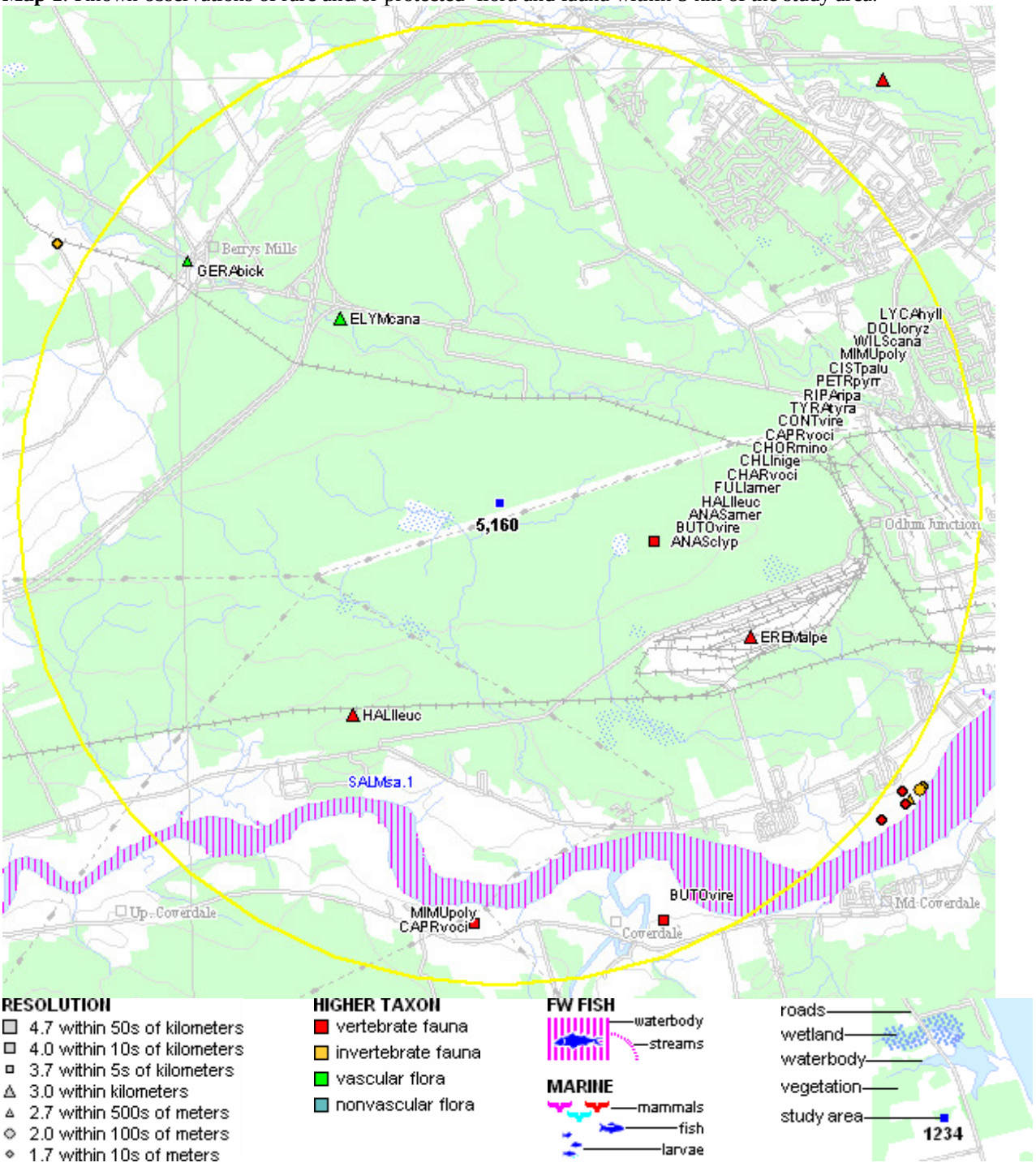
2.1 FLORA

A 5 km buffer around the study area contains 2 records of 2 vascular, 0 records of nonvascular flora (Map 1 and attached: *ob.xls).

2.2 FAUNA

A 5 km buffer around the study area contains 49 records of 19 vertebrate, 1 record of 1 invertebrate fauna (Map 1 and attached data files - see 1.1 Data List). Sensitive data: Records indicate Wood Turtle may be present in the study area but concerns about commercial exploitation preclude inclusion of relevant data in this report. See attached file WOTU.pdf for general species information.

Map 1: Known observations of rare and/or protected flora and fauna within 5 km of the study area.

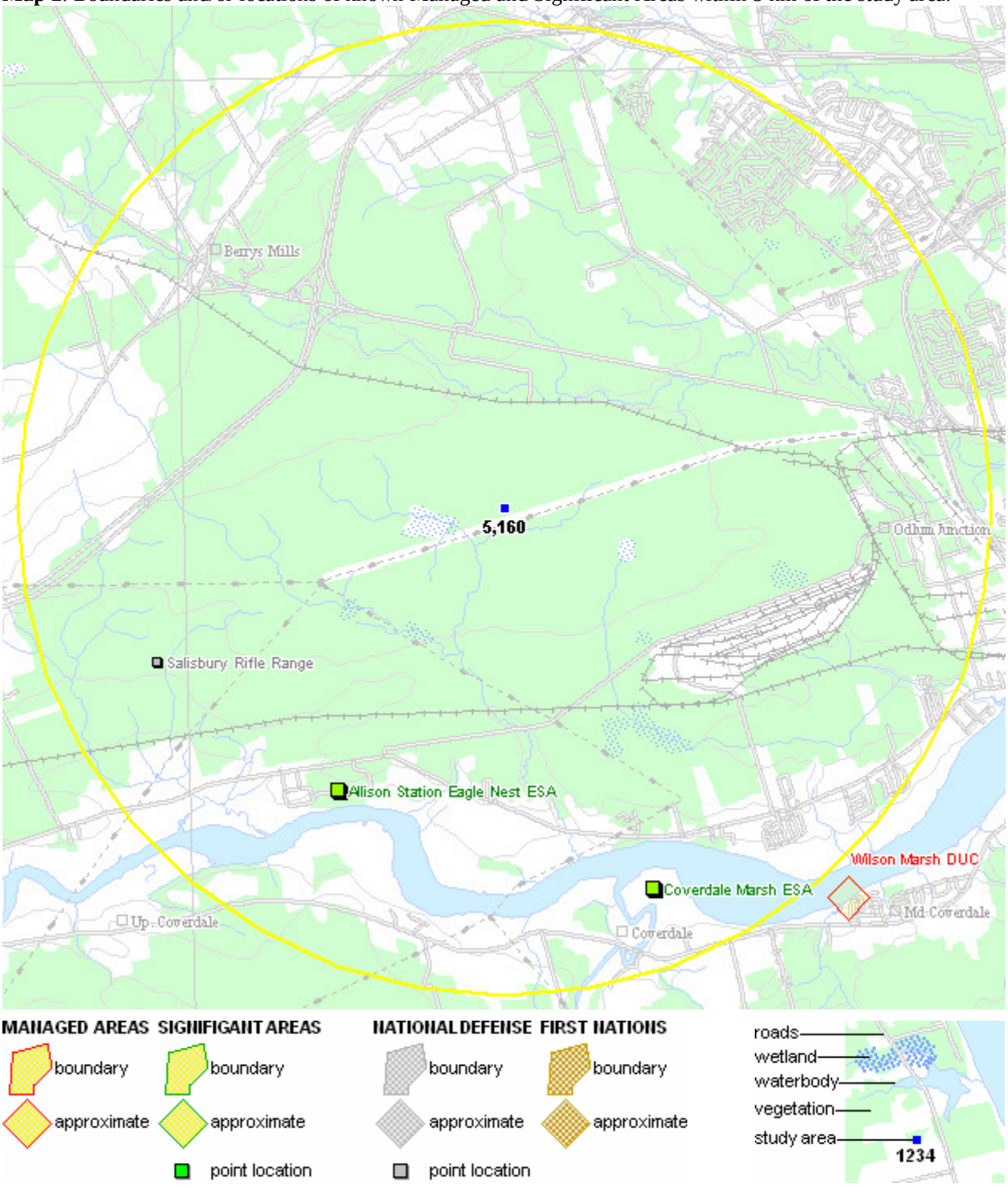


3.0 SPECIAL AREAS

3.1 MANAGED AREAS
The GIS scan identified no managed areas in the vicinity of the study area (Map 2)

3.2 SIGNIFICANT AREAS
The GIS scan identified 2 biologically significant sites in the vicinity of the study area (Map 2 and attached file: *sa*.xls)

Map 2: Boundaries and/or locations of known Managed and Significant Areas within 5 km of the study area.



4.0 RARE SPECIES LISTS

Rare and/or endangered taxa within the buffered area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation. [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I]= invertebrate animal, [C] = community.

4.1 FLORA

	Scientific Name	Common Name	COSEWIC	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
P	***Elymus canadensis***	Canada Wild Rye			S2	May Be At Risk	1	2.6 ± 1.0
P	***Geranium bicknellii***	Bicknell's Crane's-bill			S3	Secure	1	4.2 ± 0.5

4.2 FAUNA

	Scientific Name	Common Name	COSEWIC	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	***Salmo salar pop. 1***	Atlantic Salmon - Inner Bay of Fundy pop.	Endangered		S2	May Be At Risk	1	3.7 ± 0
A	***Caprimulgus vociferus***	Whip-Poor-Will	Threatened		S2B	At Risk	2	1.7 ± 5.0
A	***Chordeiles minor***	Common Nighthawk	Threatened		S3B	At Risk	2	1.7 ± 5.0
A	***Riparia riparia***	Bank Swallow	Threatened		S3B	Sensitive	4	1.7 ± 5.0
A	***Wilsonia canadensis***	Canada Warbler	Threatened		S3S4B	At Risk	2	1.7 ± 5.0
A	***Dolichonyx oryzivorus***	Bobolink	Threatened		S3S4B	Sensitive	2	1.7 ± 5.0
A	***Contopus virens***	Eastern Wood-Pewee	Special Concern		S4B	Secure	4	1.7 ± 5.0
A	***Fulica americana***	American Coot	Not At Risk		S2B	Sensitive	1	1.7 ± 5.0
A	***Chlidonias niger***	Black Tern	Not At Risk		S2B	Sensitive	1	1.7 ± 5.0
A	***Haliaeetus leucocephalus***	Bald Eagle	Not At Risk	Reg.Endangered	S3B	At Risk	4	1.7 ± 5.0
A	***Butorides virescens***	Green Heron			S1S2B	Sensitive	2	1.7 ± 5.0
A	***Anas clypeata***	Northern Shoveler			S2B	Secure	2	1.7 ± 5.0
A	***Eremophila alpestris***	Horned Lark			S2B	May Be At Risk	1	3.0 ± 1.0
A	***Cistothorus palustris***	Marsh Wren			S2B	Sensitive	5	1.7 ± 5.0
A	***Anas americana***	American Wigeon			S3B	Secure	4	1.7 ± 5.0
A	***Charadrius vociferus***	Killdeer			S3B	Sensitive	3	1.7 ± 5.0
A	***Mimus polyglottos***	Northern Mockingbird			S3B	Sensitive	4	1.7 ± 5.0
A	***Tyrannus tyrannus***	Eastern Kingbird			S3S4B	Sensitive	3	1.7 ± 5.0
A	***Petrochelidon pyrrhonota***	Cliff Swallow			S3S4B	Sensitive	2	1.7 ± 5.0

5.0 SOURCE BIBLIOGRAPHY

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

# recs	CITATION
29	Lepage, D. 2009. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 143,498 recs.
17	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
2	Clayden, S.R. 1998. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, 19759 recs.
1	Erskine, A.J. 1999. Maritime Nest Records Scheme (MNRS) 1937-1999. Canadian Wildlife Service, Sackville, 313 recs.
1	Klymko, J.J.D. 2012. Maritimes Butterfly Atlas, 2010 and 2011 records. Atlantic Canada Conservation Data Centre, 6318 recs.
1	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs.
1	Dept of Fisheries & Oceans. 2001. Atlantic Salmon Maritime provinces overview for 2000. DFO.