

Appendix "F"

PROPOSED "ENVIRONMENTAL MANAGEMENT PLAN" FOR WWTF CONSTRUCTION

PROPOSED "SEWAGE MANAGEMENT PLAN" FOR SYSTEM CUT-OVER

ESGENOÛPETITJ FIRST NATION, BURNT CHURCH, NB

Esgenoôpetitj First Nation, Burnt Church, NB

ENVIRONMENTAL MANAGEMENT PLAN

Upgrading of Wastewater Treatment System

Submitted to:

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June 30, 2015
Project No. 14239-6

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SECTION 1 - INTRODUCTION

1.1 Introduction

The Environmental Management Plan (EMP) for the Esgenoôpetitj First Nation Wastewater Treatment Plant upgrade focuses on the activities related to the creation of the site for and the construction of the new wastewater treatment facility (WWTF). This Environmental Management Plan is divided into the following sections:

Section 1	Introduction
Section 2	Site Work
Section 3	Waste Management Plan
Section 4	Dust Management
Section 5	Wetland and Watercourse General Measures
Section 6	Noise Management
Section 7	Clean-up and Re-vegetation
Section 8	Historical Resource Protection
Section 9	Emergency Response Plan
Section 10	Environmental Effects Monitoring Plan
Section 11	Emergency Contacts

1.2 Purpose of the EMP

The EMP is an important component of the overall Project in order to protect the environment. This is a working document that is used by the project personnel in the field during construction as well as by employees of the Town to ensure that commitments made in the Environmental Impact Assessment (EIA) registration document are implemented and monitored. Specifically, the purpose of this EMP is to:

- a) Comply with the conditions and requirements of the "EIA" determination received by the New Brunswick Department of the Environment (NBDELG);
- b) Provide a summary of potential environmental issues and protective/mitigation measures to be implemented during construction;
- c) Outline the Esgenoôpetitj First Nation's commitment to minimize potential project environmental impacts, including those identified during the regulatory review process and the EIA.

1.3 Project Description and Schedules

1.3.1 Project Description

The Band is proposing an upgrade of the existing wastewater treatment facility to replace the existing two-cell lagoon with a new aerated lagoon WWTF with UV disinfection at a new location. The present two-cell lagoon does not have capacity for anticipated future flows, does not have additional area for expansion, does not consistently meet NBDELG/CCME/WSER requirements, does not have effluent disinfection, encroaches on set-back allowances to adjacent residential lands, and does not permit any significant operational control of the process.

It is proposed that a new four (4) cell aerated lagoon WWTF will be constructed at a new site which is undeveloped and allows the 150 m

setbacks from development to be observed, has the capacity to treat all the Esgenoôpetitj First Nation's wastewater, and provide for future growth to 2040.

The wastewater presently going to the existing Burnt Church lagoons will continue to be directed there during the process of constructing the new WWTF. In addition, a construction phasing plan has been developed that will permit the new piping and pumping station required to re-direct these flows to the new WWTF to be constructed and tested prior to being brought into use. The cut-over plan will ensure that no untreated wastewater is released during this process.

This project will provide the Esgenoôpetitj First Nation with a modern treatment facility that will provide a consistently high degree of treatment efficiency and capacity for all of the Band's wastewater, including its projected growth for at least the next 45 years.

1.3.2 Schedule

The upgrade to the Band's wastewater system requires the new facilities to be constructed, tested and commissioned prior to taking the existing treatment facility out of service. In order to accomplish this, several of the system improvements must be done in sequence. The most important is one of the first Contracts, for the reconstruction of Pumping Station #2.

An existing low-head pumping station directs most of the raw wastewater to the existing treatment facility. It does not have the capacity to pump to the new WWTF, and due to its age is not appropriate for upgrading. A New PS #2 is proposed in the same area, which when constructed will receive the flows going to the present PS #2, and will, during construction of the rest of the new system, direct flow to the existing WWTF via a temporary connection.

There are three (5) contracts that directly relate to the upgrading of the wastewater collection and treatment system. They are, in the order they will be tendered:

- i. Contract #1: Force Main and Outfall Piping: This contract includes the majority of the pipe work required. It includes the force main to convey flows from New PS #2 (see below) to the new WWTF. It also includes the outfall pipe from the new WWTF site to Inner Miramichi Bay and 500 m out into the Bay.
- ii. Contract #2: Construction of New Pumping Station #2: As described above, New PS #2 will ultimately pump the majority of Esgenoôpetitj First Nation flows to the new WWTF. To be ready to do that, it will be the first to be constructed and will in the short term pump flows to the existing lagoon. It also has stand-by power to operate even in the event of a power outage and to prevent discharge of untreated wastewater to the environment.

- iii. Contract 3: Earthwork: This contract is for the earthwork required at the new WWTF site for the construction of the new treatment cells, cell liners, much of the site piping, the site access road, the area for the Blower and Control Building, fencing, the Effluent Pumping Station wet well, and related works.
- iv. Contract 4: Blower and Control Building, Aeration System: This Contract includes the Building that will house the aeration system blowers, UV disinfection system, stand-by power unit, SCADA system, water supply, Effluent PS pumps and controls, various piping connections, and completion of site restoration. It will also include the commissioning and start-up of the treatment system, including the pumping of the existing lagoon contents to the new facility to "seed" the system.
- v. Contract 5: Decommissioning: This will see the decommissioning of the existing 2-cell lagoon by removing existing structures, filling the cells to cover remaining sludge, and establish growth on the new surface for potential use as a recreation area.

It is proposed that the construction of the New Pumping Station #2 will commence in 2015 and will be closely followed another contract in each of the following four (4) years, as funding permits. The new facility is expected to be operational in 2018.

1.4 EMP Communication

This Environmental Management Plan was developed for construction of the Project in accordance with all applicable federal and provincial environmental protection legislation and regulations as of the date of its preparation. This document will be included in the tender documents for the WWTF construction contract and will become part of the contract between the Esgenoôpetitj First Nation and the Contractors involved in the five (5) contracts at the Burnt Church site.

The Band, through its Consultant, will communicate its commitment to this EMP at each Contract's pre-construction meeting and the status of activities under the EMP will become a standard agenda item at all project meetings. A copy of the EMP will be provided to the Contractor's foreman, the Band's personnel and the Consultant's resident services staff.

SECTION 2 - SITE WORK

All activities relating to site work and WWTF construction will adhere to all relevant regulatory requirements, including but not limited to, the Environmental Impact Assessment Regulation under the Clean Environment Act, Migratory Birds Convention Act and the Canadian Environmental Protection Act.

2.1 Clearing

Clearing involves the removal of trees, shrubs, brush and other vegetative cover. The measures listed below will be undertaken to prevent potential impacts upon valued environmental components. There is clearing required on this project in the area of the new Wastewater Treatment Facility.

- a) All clearing activities will be conducted outside of the annual breeding season for migratory birds (May 1 to August 31) or until nesting is complete and chicks have naturally migrated from the area;
- b) If clearing must be done within the May 1 to August 31 timeframe, qualified biologists and/or experienced birders will conduct a survey of the area prior to clearing to ensure no active nests are present;
- c) Activities will be minimized by establishing vegetated buffer zones around the nests;
- d) Minimize removal of shrubs within 30 m of all streams and/or wetlands. If work is to be done within 30 m of a wetland and/or watercourse, the work must adhere to good environmental practice;
- e) Where possible, cleared materials shall be chipped and re-used on site;
- f) Cut trees and brush at ground level, leaving the stumps and root systems intact where possible;
- g) Where possible, vegetation must be maintained along the banks of watercourses in sufficient quantity to provide for bank stability and shading;
- h) All trees and slash lying on the ground within 15 m of the edge of the bank of a watercourse must be removed and disposed of such that it cannot enter a watercourse during high flow;
- i) Any debris generated during the Project must be prevented from washing downstream and must be removed from a watercourse;
- j) Organic material, such as topsoil, removed during construction is to be stockpiled and reused when possible, on the outside of the lagoon dikes or in other areas as directed by the Engineer;
- k) Prior to starting the clearing activity, erosion control measures must be installed where necessary and adequately maintained to prevent the discharge of sediment to a wetland and/or watercourse. This includes the installation of silt fences and the construction of "sedimentation" ponds (where required);
- l) Clearing limits shall be flagged prior to the commencement of clearing by the Engineer.

2.2 Erosion Protection

With respect to erosion protection, the mitigation measures listed below shall be followed:

- a) Install sediment fence and erosion control structure as shown on the Contract drawings for all activities potentially resulting in an increased presence of sediment;
- b) All erosion and sediment control devices shall be inspected and maintained on a regular basis or after any significant rainfall until the Project site is permanently stabilized;
- c) Erodible soils shall be covered with hay mulch if the area is not actively worked for more than one (1) week.

2.3 a. Dewatering in Work Areas (General)

Work areas, particularly the foundations and wet well of New PS #2, may require dewatering during construction. The following measures will be implemented, as required, in order to minimize the impact of dewatering:

- a) All pumped water will be directed to sediment control ponds to remove silt from, and reduce turbidity of, water pumped from work areas before discharging to nearby ditches with erosion protection structures;
- b) Where possible, water should be discharged to vegetated work areas in order to further reduce any potential impacts on a wetland and/or watercourse;
- c) All discharged water will be encouraged to follow natural surface drainage patterns.

b. Dewatering of Existing Lagoon Cells #1 and #2

After the new WWTF has been commissioned, the upper liquid portion of the existing lagoons (excluding bottom sludge) will be conveyed to the new WWTF as follows:

- a) Normal wastewater flows to PS #2 will be re-directed through the new force main to the new WWTF; no wastewater will then enter the old facility;
- b) The pipe connecting Cells #1 and #2 will be opened to permit Cell #2 contents to also be pumped to the new WWTF;
- c) The upper portion of the liquid in Cell #1 (northeast cell) will be pumped to the wet well of New PS #2 at a controlled rate to be transferred to the new WWTF;
- d) Transfer of lagoon liquid shall cease when the lower sludge blanket is reached.

2.4 Pumps and Generators

A variety of equipment such as water pumps, hoses and generators are used during construction activities as well as accompanying support and supply facilities. Environmental concerns associated with the operation and use of such equipment include accidental spills of fuel or lubricating oil and chronic leaks, which may contaminate local water bodies and surface soils.

The following measures will be implemented in order to prevent or minimize potential impacts related to issues or equipment use and maintenance.

- a) Fuel shall not be stored near generators or located within 30 m of a watercourse;
- b) Drip pans shall be placed underneath pumps and generators located near watercourses where practical;
- c) Hoses and connections on all equipment shall be inspected daily for leaks and drips;
- d) All leaks shall be reported immediately to the on-site supervisor, and shall be addressed to remediate the problem, as well as remediate the affected areas as discussed in Section 9: Emergency Response Plan;
- e) Refueling and maintenance of equipment must take place in designated areas, on level terrain, a minimum of 30 m from any surface water bodies and potable water supply wells, with a collection system to contain oil, gasoline and hydraulic fluids.

2.5 Grubbing, Stripping & Grading

The grubbing, stripping, and grading activities for construction are the most critical with regard to the control of erosion and sediment transport. Grubbing involves the removal of stumps and roots; stripping consists of the removal of topsoil, and grading involves the WWTF site construction with associated site leveling and drainage control.

- a) All construction activities, including clearing and stockpiling of materials will take place outside of the 30 meter buffer from watercourses as identified on the contract drawings except where specifically required by the work;
- b) Stripping of the organic vegetation mat and/or the upper soil horizons will be minimized and, where possible, they will be left in place;
- c) The grubbed organic vegetation mat and upper soil horizon material will be used, where practicable, to cover exposed areas and promote re-vegetation along the outside of the dikes;
- d) Soil erosion will be controlled during grubbing. Erosion control techniques and devices will be used to stabilize these areas;
- e) Grubbing activities near watercourses, particularly areas with steep slopes, should be avoided if possible;
- f) If grubbing is to occur within 30 m of a watercourse, the work must adhere to good environmental protection practice;
- g) The length of time that grubbed areas are left exposed to the elements will be minimized to prevent unnecessary erosion. Refer to Section 2.2: Erosion Protection for further detail;
- h) Surplus grubbed material may be temporarily stored in adjacent areas of the Project, but shall be stored outside the 30 m buffer of any watercourses and within the silt fence perimeter shown on the drawings. Appropriate surface water and sedimentation control measures will be implemented as needed for stockpile locations.

SECTION 3 - WASTE MANAGEMENT

All waste generated during this project will be managed in accordance with all relevant regulatory requirements.

3.1 Descriptions of Effects of Wastes

Solid waste (*e.g.*, domestic waste, paper, cardboard, wood and other construction debris), if not properly controlled and disposed of, will be unsightly and may cause human safety and health concerns and could result in a conflict with wildlife.

The release of untreated sewage is a concern to human health, drinking water quality, and aquatic ecosystems. No untreated sewage will be discharged during the construction activities.

There will be fuels and hazardous materials used in association with equipment operation and maintenance activities, which occur during construction activities. The major concern regarding the use of hazardous substances is their uncontrolled release into the environment through spillage, and the subsequent

adverse effects on the terrestrial, and aquatic habitat, species, soil, groundwater quality and human health and safety.

3.2 Handling, Storage and Disposal

3.2.1 Solid Waste

The following measures will be implemented in order to mitigate potential impacts related to solid waste disposal:

- a) All domestic solid waste will be collected, properly stored, removed, and disposed of at an appropriate site;
- b) The site and working area will be kept clear of all scraps and garbage;
- c) Materials such as paper, cardboard, wood, scrap steel and metal, and tires will be collected and offered for recycling where practical. All materials not able to be recycled will be disposed of in an approved facility;
- d) Waste accumulated on site prior to disposal shall be placed in a secured location, so as to not pose a threat or concern to human health and safety, or wildlife.

3.2.2 Sewage

The following measures will be implemented in order to mitigate potential impacts related to sewage disposal.

- a) Sanitary waste will be handled using portable restrooms. These will be self contained units, and will not require additional water;
- b) The portable restrooms located at the site will conform to the Canada *Occupational Health and Safety Act* and any city ordinances;
- c) All septic waste will be collected by a licensed waste disposal operator and transported off site for disposal at a proper handling facility;
- d) The switchover of the existing wastewater system to the new system will be done without discharging raw sewage to the environment. A Sewage Management Plan has been developed to describe the details for cut-over from the existing to the new system, including switchover from the existing 2-cell lagoon to the new WWTF. The latter information is part of the Specifications for Contract #4.

3.2.3 Fuel

The highest protocols will be implemented in association with the handling and storage of hazardous materials and hydrocarbons as mentioned in Section 9: Emergency Response Plan. These will include:

- a) Transportation, storage and use of fuels will be conducted in compliance with government laws and regulations, including New Brunswick Regulation 87-97 Petroleum Product Storage and Handling under the *Clean Environment Act* and the *Transportation of Dangerous Goods Act*;

- b) Machinery will be checked on a daily basis for leakage of lubricants or fuel and must be in good working order;
- c) Refueling and maintenance of equipment will take place in designated areas, on level terrain, a minimum of 30 m from any surface water or wetland, with a collection system to contain oil, gasoline and hydraulic fluid. In addition to the condition stated above, equipment maintenance (greasing, refueling, and oiling operations) shall not be performed within ditches;
- d) Ensure crews are aware of contingency plans in advance of the start of construction work;
- e) All spills or leaks will be promptly contained, cleaned up and reported to the NB DELG 24 hour environmental emergencies reporting system;
- f) To ensure preparedness in the case of a hazardous spill, resources (skimmer, absorbent pads and overpack drums - refer to 9.3) required will be obtained and kept on site;
- g) Greasy or oily rags or contaminated materials will be disposed of in an appropriate fire resistant receptacle. The contractor will be responsible to send the contaminated materials to the appropriate waste disposal site;
- h) Waste oils and lubricants will be retained in a tank or closed container and be disposed of in an approved manner as directed by NBDELG.

SECTION 4 - DUST MANAGEMENT

Excavated and work areas may produce dust in the time prior to the re-vegetation of the disturbed areas. The environmental concerns related to dust include human health effects and potential impacts on aquatic ecosystems and vegetation. Dust management will be conducted in accordance to the Air Quality Regulation-*Clean Air Act*. The measures provided below will be taken in order to mitigate potential impacts associated with dust management.

- a) Cover truck loads of materials which could generate dust as necessary;
- b) Dust from construction activities will be controlled where possible by using frequent applications of water or calcium chloride. Waste oil will not be permitted to be used for dust control;
- c) Applications of calcium chloride shall be in accordance with the Guidelines available from Environment Canada.

SECTION 5 - WETLAND AND WATERCOURSE GENERAL MEASURES

5.1 Mitigation Measures

Mitigation measures identified within the EIA have been included within this section, along with additional mitigation means:

- a) Prior to construction within the 30 m buffer of wetlands and/or a watercourse, install sedimentation control along each side of the buffer zone wherever necessary. These devices shall be placed as shown on the drawings unless otherwise specified by the NBDELG and shall be

- maintained until the area has been stabilized and as approved by the Engineer;
- b) Refueling of equipment shall take place outside of the 30 m setback buffer from any wetland and/or watercourse, with the exception of pumps used to dewater the site;
 - c) Work near wetlands and/or watercourses will be performed in a way such that deleterious substances including, but not limited to, sediment, fuel and oil do not enter a watercourse;
 - d) Machinery must be checked for leakage of lubricants of fuel and must be in good working order. Equipment maintenance must take place in designated areas, on level terrain, a minimum of 30 m from any surface water, with a collection system to contain oil, gasoline, and hydraulic fluids;
 - e) Basic petroleum spill clean-up equipment shall be kept onsite during construction;
 - f) Erosion control structures are to be used as shown on the drawings and where required as a result of the construction work;
 - g) Construction debris and excavated material generated during the Project must be prevented from washing downstream, removed from the wetland and/or watercourse and Project area and disposed of in the proper manner;
 - h) Visual monitoring of all wetlands near the work area will take place prior to the end of each week, and during and after significant rain events, and any work necessary to ensure the effects are minimized will be undertaken;
 - i) There shall be no lay-down areas, grubbing and waste disposal piles, equipment/machinery storage, material/rock/fill storage, bullpens, yarding, etc. located outside the area fenced in with silt fencing as shown on the drawings;
 - j) Disturbed areas will be reinstated as soon as is practical, silt fences and other erosion protection devices around excavations and stockpiles will also be used. All hydroseeded areas will also be hay mulched;
 - k) The access road to the lagoon site will be the transportation method for the duration of the construction, minimizing the impacts on the movement of traffic and people as it will be limited to the roadway.

5.2 Culvert Installation

Watercourse crossings are structures at locations where an access route meets and traverses a wetland and/or watercourse, or a drainage route to same. In this project, this refers to culverts. Culverts will be required and installed as shown on the drawings:

- a) The culvert is to be installed so as to avoid ponding at the entrance which may cause property damage, accumulation of floating debris, culvert clogging, saturation of fills, or detrimental upstream deposits of debris and alteration of the fish habitat;
- b) The outlet is designed to resist undermining and washout;
- c) The site selected for the culvert crossing shall have a uniform gradient;
- d) The culvert installation shall be done in accordance with the Contract drawings and specifications, and to any conditions required;

- e) The invert of the culvert structure must be set a minimum of 150 mm below the channel bottom level at both the upstream and downstream ends to ensure that the water depth inside the culvert will be at least equal to that in the watercourse during low flow conditions;
- f) Any excavation required for the culvert installation must be done with a backhoe or an excavator;
- g) Prior to the onset of culvert installation, sediment control works should be installed to prevent sedimentation of the wetland and/or watercourse and be maintained until a vegetative cover is established;
- h) The culvert must be installed on firm ground. A soft foundation should be replaced with clean, granular material to prevent sagging;
- i) The culvert must extend a minimum of 0.3 meters beyond the upstream and downstream toe of the fill placed around the structure;
- j) All exposed erodible material resulting from cut and fill operations within 30 m of a watercourse must be stabilized to prevent siltation;
- k) To prevent erosion, outlets and inlets shall be rip-rapped at both ends;
- l) Backfilling material should be used which is of a texture that shall support the culvert and limit seepage and subsequent washing out;
- m) Fill and construction debris shall be removed from the culvert area to a location above the peak flow level to prevent its entry into the stream;
- n) No machinery may be stationed in the wetted portion of the channel; machinery operating from the shore may reach into the water with an extension;
- o) Sediment barriers, such as silt fences or hay bales, must be placed along the toe of the slope of the fill material used to construct the approaches to the structures;
- p) All exposed erodible material resulting from cut and fill operations within 30 m of the wetland and/or watercourse must be immediately stabilized to prevent siltation;
- q) All erosion and sedimentation control measures will be inspected and maintained prior to the end of each workday;
- r) Weather forecasts will be monitored and mitigation measures will be maintained or modified appropriately if heavy precipitation is anticipated.

SECTION 6 - NOISE MANAGEMENT

A variety of noises associated with heavy construction activity can cause negative effects on wildlife resources in terms of their distribution and abundance. Noises associated with heavy equipment are temporary in nature.

Best management practices shall be implemented, wherever possible, to minimize potential impacts arising from a variety of noise sources. Mitigative measures taken will include the following:

- a) All vehicles and generators will have exhaust systems in good condition without leaks and be inspected regularly; mufflers will be operating properly;
- b) Noisy activities shall be scheduled to be done during normal daylight hours on workdays;
- c) Proper functioning and monitoring of noise abatement equipment.

SECTION 7 - CLEAN-UP AND RE-VEGETATION

The following will be performed in order to mitigate impacts which might result from construction activities:

- a) As soon as possible following the construction activities, identify areas requiring planting or seeding for re-vegetation purposes. These will include:
 - Areas adjacent to a watercourse where erodible soil is exposed and where mechanical stabilization techniques are not deemed to be sufficient to guarantee stability or prevent uncontrolled introduction of sediment to a watercourse.
 - Any other areas deemed by the Engineer and as required by NBDENV to require quick re-vegetation.
- b) Restoration of lands disturbed during construction will commence as soon as possible after construction activity has ceased. Although seasonal weather conditions may delay seeding, it should be commenced as soon as conditions permit. Restoration of this site will also include paving of roadway and site parking areas;;
- c) The areas subject to restoration activities will be visually inspected periodically to ensure adequate results. Additional reclamation activities will be performed as deemed appropriate;
- d) Necessary interim measures will be implemented to prevent erosion prior to re-establishment of vegetation;
- e) Silt fences and erosion control structures will remain in place until vegetation and resurfacing has matured to the point where erosion carried into watercourses is no longer a concern.

SECTION 8 - HISTORICAL RESOURCE PROTECTION

It was noted at the EIA Registration phase that the new WWTF is being constructed entirely on lands that have no identified historical or cultural significance.

SECTION 9 - EMERGENCY RESPONSE PLAN

Contingency plans to deal with accidental spills have been developed and are presented in this Section. They will be modified as required during the execution of the Project. They are as follows:

9.1 Introduction

The transfer of fuel from tanker trucks to storage tanks, vehicle accidents involving heavy equipment, and leaks from fuel storage tanks and associated lines all offer the potential for fuel oil spills. Other hazardous liquid products associated with operations, such as concrete additives, hydraulic fluids, lubricating oil, and solvents will be used in relatively small quantities.

9.2 Action Plan

In the event of fuel or hazardous material spill, refer to the following procedures outlined below:

- a) The individual who discovers a leak or spill shall immediately call for help and then attempt to stop and contain the leak or spill if safe to do so;
- b) Any spill or leak on land or water (regardless of size) should first be reported immediately to the Contractor's foreman and the Engineer, upon implementation of (a) above.

The Contractor's foreman shall halt work in the immediate area if necessary and report the spill to the project manager. In case of an environmental emergency during working hours, 7:30 am to 6:30 pm, all calls should be directed to the Department of Environment (NB) at the Miramichi office (Region 2), 316 Dalton Avenue, Miramichi, at 506-778-6032 and after office hours calls should be directed to the Coast Guard at 1-800-565-1633.

If the spill occurs near or in the water, the Canadian Coast Guard will be notified and specific action will be taken.

The on-site supervisor will have the full authority to take appropriate action without unnecessary delay. The following information shall be provided:

- i. Name of person reporting the spill and phone number;
 - ii. Time of spill or leak;
 - iii. Time of detection of spill or leak;
 - iv. Type of product spilled or leaked;
 - v. Amount of product spilled or leaked;
 - vi. Location of spill or leak;
 - vii. Source of spill or leak;
 - viii. Type of accident - collision, rupture, overflow;
 - ix. Owner of product and phone number;
 - x. If the spill or leak is still occurring;
 - xi. If the spill or leaked product is contained, and if not, where it is flowing;
 - xii. Cleanup efforts already underway;
 - xiii. Wind velocity and direction;
 - xiv. Temperature;
 - xv. Proximity to water bodies, wells, water intakes, and buildings;
 - xvi. Snow cover and depth, terrain, and soil conditions.
- c) The Contractor's foreman shall assume overall responsibility of coordinating a cleanup and maintaining this contingency plan up-to-date. Any spills that occur should be remediated to meet or exceed regulatory requirements. The Contractor's foreman will, in consultation with the regulatory authorities:
- i. Assess site conditions and environmental impact of various cleanup procedures;
 - ii. Assess potential for fuel recovery versus burning;
 - iii. Deploy on-site personnel to mobilize pumps and empty appropriate storage drums to the spill site;

- iv. Deploy on-site personnel to build containment dikes and commence dumping contaminant in drums or if drainage system is involved, leakage will be isolated by digging a sump, deploying a pollution boom around area or a combination of both;
 - v. Apply absorbents or utilize skimmers as necessary to prevent the spill from spreading;
 - vi. Dispose of all contaminated debris, cleaning materials, and absorbents by placing in appropriate containers and label for disposing;
 - vii. Take all necessary precautions to ensure that the incident does not recur.
- d) The continuing monitoring of the site of the accidental release, and damage reporting will be the responsibility of the contractors.

9.3 Resource List

During construction, the following resources will be available at appropriate locations and distance from the Project site to readily mitigate accidental releases of stored fuels and/or hazardous materials.

- a) Skimmer (for spills on water);
- b) Suitable quantities of absorbent pads;
- c) Overpack drums containing sorbent pads, sorbent booms, splash suits, shovels, rakes, tool kit, sledgehammer, buckets and stakes and flagging tape;
- d) Emergency numbers and contingency procedures.

Small spill response kits and equipment will be strategically located in construction areas where materials handling or equipment activity presents and increased risk of spill (*i.e.*, refueling locations and hazardous waste storage areas). These kits shall be checked on a regular basis for content, and items shall be replaced immediately after their use.

SECTION 10 - ENVIRONMENTAL EFFECTS MONITORING PLAN

In the event that an environmental effect should occur on site certain measures will be taken in order to monitor and verify the effectiveness of the mitigation steps implemented on this project.

- a) If the presence of sediment within the water is visible or questionable, a sample will be collected upstream of the construction zone, at the construction site and downstream of the construction site which shall be analyzed for total suspended solids (TSS);
- b) Hoses and connections on all equipment, with special attention to those located near wetlands and/or watercourses shall be inspected daily for leaks and drips;
- c) Visual monitoring of all wetlands will take place prior to the end of each week and any work necessary to ensure the effects are minimized will be undertaken;
- d) All vehicles/generators will have exhaust systems inspected regularly and mufflers will be operating properly to better manage noise on the site;

- e) The areas subject to reclamation activities will be visually inspected periodically to ensure adequate results. Additional reclamation activities will be performed as deemed appropriate;
- f) The continuing monitoring of the site of the accidental release of a leak and damage reporting will be the responsibility of the contractor;
- g) The TSS as well as the 5-day carbonaceous biological oxygen demand (CBOD₅) entering a receiving stream will be carefully monitored at the beginning of construction by the Contractor.

SECTION 11 - EMERGENCY CONTACTS

In the event that an emergency should occur on site the following is a list of key contacts for each part of the project:

- Ambulance/Fire/Police: 911
- Canadian Coast Guard: 1-800-565-1633
- Contractor: To be determined
- Crandall Engineering (Pierre Plourde, P. Eng.): 506-857-2777 (Office)
506-852-6578 (Cell)
- RCMP (Neguac Office) 506-776-3000 or 911
- Enbridge Gas Pipeline: 1-866-763-5427
- NBDELG - Region 2 - Miramichi: 506-778-6032
- NB Power: 1-800-663-6272
- Esgenoôpetitj First Nation (Ashley Dedam) 506-776-1200

The complete project address is as follows (accessible from Route 11; a civic number has not yet been determined):

Esgenoôpetitj First Nation WWTF
Micmac Road
Burnt Church, N.B.
E2E 2G6

Furthermore, a complete and up to date list of contacts (including the superintendent, foreman and inspector) will be given to the successful Contractor at the start of the project as part of the safety requirements.

“SEWAGE MANAGEMENT PLAN”
Upgrade of Esgenoôpetitj First Nation
Collection and Treatment System

Introduction

In order to protect the environment, it is mandatory that wastewater collection and treatment continue on the Esgenoôpetitj First Nation system while the new system is being constructed. The scope of work and number of contracts has been proposed with that objective in mind. The total concept for the “Sewage Management Plan” will be described here. This covers all components required to implement the new, 4-cell aerated lagoon with UV effluent disinfection WWTF at the Burnt Church site.

Reference is made to Drawing 12145-1P-C105B (Appendix “B” of the EIA Document), which shows the location of each of the major components. The following paragraphs describe how the work will be done at each location so that the new components are constructed and commissioned before any existing components are removed from service. An important consideration is to be able to maintain treatment at the Burnt Church 2-cell lagoon while the new WWTF and related components are being constructed.

The various Contracts, and how they have been planned to both maintain present treatment levels during construction and allow for convenient cut-over after construction and commissioning without permitting discharge of any untreated wastewater, are described below and are presented in the order they will be constructed:

- 1) **Contract 2**: **Construction of New Pumping Station #2**: An existing PS #2 near the existing WWTF pumps most of the Band’s wastewater into the lagoons. Since it is undersized for future development, does not have pumping capacity for future flows, has no stand-by power or flow monitoring, it will be replaced with a New PS #2. New PS #2 will pump these flows to the new WWTF. However, during construction of other piping and the WWTF, it will include valving and piping connections to permit flows to continue to be directed to the existing lagoons. The New PS #2 will be fully

constructed and commissioned before being brought into service. The cut-over from Old PS #2 to New PS #2 requires temporary manhole-to-manhole pumping during the new piping connections. Existing PS #3 is further to the northeast on Micmac Road, and pumps wastewater across the Burnt Church River and into the lagoons through a separate force main. The force main from PS #3 will be connected to the new force main into the New PS #2 wet well. Because flows to PS #3 are low, while that connection is being made, the wet well will be pumped into a septic hauler truck to be discharged into the existing lagoons. The contractor will be required to have all materials, personnel and equipment on site during these cut-overs to ensure they are done as quickly as possible. New PS #2 will then direct all Burnt Church wastewater flows to the existing lagoons during the remainder of construction. (Existing Old PS #2 will be decommissioned as part of this Contract.)

- 2) **Contract #1: Force Main and Outfall Piping**: This contract includes the force main from New PS #2 to the entrance to the WWTF site (primarily along Micmac Road) and the WWTF outfall pipe from the entrance of the WWTF site along Micmac Road and to the discharge point in Inner Miramichi Bay. Because these pipes will be installed before the new WWTF is in operation and while wastewater flows continue to be directed to the existing lagoons, they can be fully constructed and tested prior to use.
- 3) **Contract #3: WWTF Earthworks, Piping and Site Work**: This contract will create the lagoon cells required for the wastewater treatment system, create the elevated site required for site roadways and the future Blower and UV Disinfection Building (see Contract #4), including ditching, surface restoration, fencing, Effluent PS wet well, various piping sections between the various components, and related work. Because it is not within a developed area, its construction does not impact the collection and treatment of wastewater during construction.
- 4) **Contract #4: WWTF Building and Aeration System**: This Contract includes several important components related to the wastewater treatment and control systems. It includes the two-section Building for the effluent UV disinfection system, the blowers for the aeration treatment system, the stand-by power unit for all components at the WWTF site, the controls for the aeration and effluent pumping systems, the SCADA system for the entire collection and treatment system, operator facilities, a

washroom, and a vehicle service bay. All of the systems noted above are included in the contract work. It also includes the Effluent PS pumps, asphalt paving of some site surfaces, electrical power supply, the water supply well, and other items as required to complete the work.

With regard to the "Sewage Management Plan", the start-up of the treatment process is included to be done after commissioning of all equipment. At this time, the majority of the liquid contents of the existing lagoons will be transferred to the new WWTF cells. This serves two (2) purposes: to remove the majority of the liquid wastewater from the existing lagoons, and to "seed" the biological treatment process to be established in the new WWTF. The following steps are included in this procedure:

- i. At New PS #2 open the force main valve to direct wastewater flows to the new WWTF and close the valve to the old/existing lagoons. At this point, no new wastewater will enter the old facility.
- ii. Open the connection between Cells #1 and #2 of the existing lagoons.
- iii. Install temporary pumping and power supply in Cell #1 to pump wastewater to New PS #2 wet well at a controlled rate. Since New PS #2 is now pumping the Band's wastewater to the new WWTF, the pumping rate cannot exceed the pumping capacity less the wastewater flow rate. The discharge line from the pump in Cell #1 will require a flow meter to control this process. Also, the intake to this pump will be configured so as not to pick up sludge from the bottom of Cell #1. Anaerobic material from the bottom and high suspended solids would be detrimental to the treatment new process.
- iv. The rate at which lagoon contents are pumped to the new WWTF may also have to be adjusted to not overload the process. This will be checked by monitoring dissolved oxygen (DO) levels in the new WWTF's cells. If the DO levels cannot be maintained above 2.0 mg/L, addition of lagoon contents will be stopped until DO levels have recovered to at least 4.0 mg/L.
- v. It will be necessary to continuously monitor the pumping from the lagoons to ensure there are no problems that could interfere with the new process or with the operation of New PS #2.
- vi. The existing surface aerators in Cell #1 will be operated until the liquid level drops to the point where they cannot operate efficiently or avoid stirring up

bottom solids. They will be operated in order to maintain an aerobic environment for as long as possible to avoid odour issues in the area.

vii. The process of pumping existing lagoon contents will be stopped when it is not possible to avoid picking up sludge from the bottom of the Cell.

- 5) **Contract #5: Decommissioning:** The last Contract will be to decommission the existing lagoon cells and in the process create a site which may be utilized for recreational use. The decommissioning will be done so as to avoid discharges to adjacent waterways of any wastewater-related materials left on the site. This will primarily include the sludge that could not be pumped to the new WWTF. Where it is acceptable environmental practice to leave this sludge material in place if it can be suitably covered, that procedure is proposed here. All structures such as manholes, chambers, piping systems, aerators and power supply panels, etc., will be removed for disposal at acceptable sites, or filled and buried on site. Suitable material will, then be brought in to fill the cells. It is proposed that due to the wet sludge that will be on the bottom that the first material be Borrow "A" from the Band's pit since it will remain stable under the wet conditions. Surplus excavated material from the other Contracts will have been stockpiled at the WWTF site. This material will be re-used as topsoil spread over the site; it will be supplemented with imported material as may be required. A grading plan has been prepared for the finished surface to facilitate drainage and avoid ponding. The topsoil surface will then be hydro-seeded to establish vegetative growth and prevent erosion.

The construction processes and sequences proposed herein will prevent the discharge of untreated wastewater to the environment. In addition, pumping the contents of the existing lagoons to the new WWTF to seed the new biological treatment process avoids the issue of having to deal with the large volume of partially treated wastewater. Decommissioning of the existing lagoon site will remove a WWTF that did not conform to desired set-backs from residential development, and will also create a site suitable for recreational use as a quality of life asset.