Appendix I Environmental Management Plan

Englobe
Soils Materials Environment

Greater Shediac Sewage Commission

CAP-BRULÉ WASTEWATER TREATMENT FACILITY ENVIRIONMENTAL MANAGEMENT PLAN

2003869

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Property and Confidentiality

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1 Introduction

1.1 Introduction

The Environmental Management Plan (EMP) for the ***Cap-Brulé Wastewater Treatment Facility, Greater Shediac Sewerage Commission (GSSC)*** project focuses on the activities related to the construction of upgraded septage treatment buildings, improvements of the existing treatment ponds, site works, improvements to security fencing, and associated work.

The Site is located at 25 Cap-Brulé Rd. Boudreau-Ouest, Shediac, New Brunswick, E4P 6H8.

This Environmental Management Plan is divided into the following sections:

Section 1 Introduction

Section 2 Site Work

Section 3 Waste Management

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1.2 Purpose of the EMP

The EMP is a vital component of the GSSC Project and its purpose is to protect the environment. This is a working document that is designed to be used by the contractor project personnel in the field during construction and by employees of Greater Shediac Sewerage Commission 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 future conditions and requirements of the "EIA" determination received by the New Brunswick Department of Environment and Local Government (NBDELG);

B) Provide a summary of potential environmental issues and protective/ mitigation measures to be implemented during construction;

C) Outline Greater Shediac Sewerage Commission'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 Greater Shediac Sewerage Commission is proposing to upgrade its existing wastewater treatment facility.

Although the overall upgrade concept is based on achieving the effluent quality parameters indicated in Section 2 over a 25-year design period, it is noted that the NBDELG does not yet require the facility to meet all of these treatment standards. In addition, the facility's $CBOD_5$ loading is not projected to exceed the capacity of the lagoon portion of the upgraded facility for close to 25 years. Therefore, it is anticipated that the upgrades would be carried out in phases, generally as follows (refer to Section 4 for further information on the anticipated phasing):

- Lagoon earthworks, site piping, aeration system upgrades, liner upgrades, and construction of a new building. This phase will also include the installation of new screening and grit removal equipment, aeration system blowers, UV disinfection system, stand-by generator, influent screw lift station, and effluent lift station.
- New outfall piping to Northumberland Strait.
- MBBR, alum, and filtration systems.

The proposed upgraded treatment system, has been selected, and the proposed pre-treatment facility will generally consist of the following major components:

- Construction of a new combined screening/grit removal/blower/UV Disinfection/filtration /lift station building (referred to as the "operations building" hereafter), including stand-by generator;
- Re-construction of the existing Polishing Cell (Cell #3) into the new, deeper, HDPE-lined aerated Lagoon #1;
- Upgrading of the existing Cell #2 and Cell #1 to be used as the new aerated lagoon #2 and aerated/polishing Lagoon #3, including HDPE liner repair/replacement;
- Replacement of the existing aeration system with a new fine-bubble floating aeration system, and associated work;
- New pumped outfall to the re-located discharge point, in order to provide improved effluent dispersion in the receiving environment;
- New influent and effluent pumping stations;
- Construction of a Moving Bed Biofilm Reactor (MBBR) for additional CBOD5 treatment and ammonia reduction as well as disc filters;
- Installation of alum injection equipment between the new Lagoon #1 and #2 for alum precipitation in the lagoon before high-level filtration in the operations building.

1.3.2 Schedule

The upgrade to the Cap Brulé's wastewater system requires the new facilities to be constructed, tested and commissioned while maintaining treatment. In order to accomplish this, several of the system improvements must be done in sequence. Construction of the new facility described herein is expected to begin in spring 2021 and will be spread in a three (3) year span. The design life of the WWTF upgrades is 25 years.

There are four (4) contracts that directly relate to the upgrading of the wastewater treatment plant. They are, in the order they will be tendered:

Contract 1 - Construction of Headworks Building (2020-2022): This contract includes the Building that will house the new screening and grit removal equipment, UV disinfection system, stand-by generator, influent screw lift station, effluent lift station, and the new aeration system. It will also include the commissioning and start-up of the new treatment system and the decommissioning of the existing building.

Contract 2 – Construction of New Lagoons (2021-2022): This contract is for the re-construction and upgrades of the treatment cells, the cell liners repairs and much of the site piping. It includes the draining and sludge removal from the existing polishing cell (Cell#3) to be re-constructed into the new Lagoon #1. This will be done by redirecting the flow to the existing cell no.1 and No.2. Once the new Lagoon No.1 is completed the re-construction of existing cell No.1 and No.2 into new aerated lagoon #2 and aerated/polishing Lagoon #3 will debut. To complete this, all facility flows will be directed to the new Lagoon no.1 It will also include all new sanitary sewer and air piping installation and the connection of the new influent lift station to the existing trunk sewer.

Contract 3 – Construction of New Forcemain and Outfall (2021-2022): This contract includes the pipework required for the construction of the new pumped outfall discharging directly to the Northumberland Strait includes. In order to minimize the effects on the Provincially Significant Wetland that surrounds the area of work, the forcemain installation will be done by directional drilling. Once completed, it will be connected to the new effluent pumping station.

Environmental protection will include the installation of a silt fence around the work zone prior to the start of any construction activities, as well as erosion protection structures as appropriate. These will remain in place and be maintained in good condition (daily inspected and documented) until the site is completely restored.

Contract 4 - Construction of Moving Bed Biofilm Reactor (MBBR) (2022-2023): The final step will be to install the ammonia removal system using MBBR technology and the Alum disk filter system to provide phosphorus treatment. These will be installed in their respective new small buildings and be connected to the existing chambers.

The Project is expected to be completed by 2023.

1.4 EMP Communication

This Environmental Management Plan was developed for the 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 become part of the contract between the Greater Shediac Sewerage Commission and any contractors involved.

Greater Shediac Sewerage Commission will communicate its commitment to this EMP to any staff or other contractors involved in the work prior to construction commencing.

2 Site Work

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

2.1 General

Appropriate measures will be made to diminish the risk of introducing invasive species to the area. These measures include:

A) Inspecting machinery and cleaning with a pressure washer if necessary, as well as regular equipment inspection (before, during, and after construction), to ensure that vegetation is not transported from one site to another.

B) All machinery must be cleaned before being brought on-site. All machinery being brought on site will be inspected and these inspections documented.

If encountered, wildlife is not to be handled, touched, or harassed. Wildlife will be provided ample space to vacate the work site on its own accord. Any bird nesting sites will be flagged and the appropriate buffer zone be fenced or marked around the nest(s) and contractors will be appraised of its location and instructed not to disturb the site(s). This will be part of the contractor orientation training.

2.2 Clearing

Clearing involves the removal of trees, shrubs, brush, and other vegetative covers. No clearing is required for this work.

2.3 Erosion Protection

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

A) Install sediment fence and erosion control structures 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 (and documented) or after any significant rainfall until the Project site is permanently stabilized; and

C) Erodible soils shall be covered with hay mulch if the area is not actively worked for more than one (1) week.

2.4 Dewatering in Work Area

Work areas may require dewatering during construction (i.e. deepening of the existing cells). The following measures will be implemented, as required, in order to minimize the impact of dewatering:

A) All pumped water will be directed to a sediment control pond (where would this be on-site, do we have one?) to remove silt from, and reduce the turbidity of, water pumped from work areas before discharging to nearby ditches with erosion protection structures;

B) Total suspended solids (TSS) of the pumped water will be monitored throughout the construction process;

C) Where possible, water should be discharged to vegetated work areas in order to further reduce any potential impacts on a wetland and/or watercourse. The project area is surrounded by large grassed areas;

D) If pumped water must be directed to a watercourse after flowing through the sediment control measures, total suspended solids (TSS) background level in the receiving watercourse will be established through sampling prior to any dewatering activity commencing; and

E) All discharged water will be encouraged to follow natural surface drainage patterns.

2.5 Pumps and Generators

A variety of equipment such as 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 impact 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 or wetland (Are we going to establish bermed and lined enclosures for the main fuel tanks for contractors. What about proper tanks and WHMIS labels? Some contractors bring onsite "less than" tanks). Maybe say any fuel tanks brought on site should be properly labeled with WHMIS/TDG labels according to Regulation 87-87, *Petroleum Product Storage and Handling Regulation (under Clean Environment Act (87-646)).*

B) Drip pans shall be placed underneath pumps and generators located near watercourses and wetlands where practical and these shall be checked frequently, especially after rain events;

C) Hoses and connections on all equipment shall be inspected daily (and documented) for leaks and drips;

D) All leaks shall be reported immediately to the on-site supervisor and shall be addressed immediately to address the problem, as well as remediate the affected areas, as discussed in Section 9: Emergency Response Plan. If necessary, an outside contractor will be called in to remediate the spill if it is sufficiently large;

E) Refueling and maintenance of equipment must take place in designated maintenance areas, on level terrain, a minimum of 30 m from any surface water bodies, wetlands, and

potable water supply wells, with a collection system to contain oil, gasoline, and hydraulic fluids.

2.6 Stripping & Grading

Stripping and grading activities are some of the most critical with regard to the control of erosion and sediment transport. Stripping consists of the removal of topsoil, and grading involves the shaping of new driveways and the overall site as well as drainage control.

A) All construction activities, including clearing and stockpiling of materials will take place outside of the 30-meter buffer from watercourses and wetlands as identified on the 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 stripped organic vegetation mat and upper soil horizon material will be used, where practicable, to cover exposed areas and promote re-vegetation;

D) Stripping activities near watercourses and wetlands, particularly areas with steep slopes, should be avoided if possible and shall be minimized where specifically required for the work;

E) Where work is to occur within 30 m of a watercourse or wetland, the work must adhere to the conditions set forth in the NBDELG's WAWA permit;

F) The length of time that stripped areas are left exposed to the elements will be minimized to prevent unnecessary erosion. Refer to Section 2.3: Erosion Protection for further detail;

G) Stripped material may be temporarily stored in adjacent areas of the Site but shall be stored within the silt fence perimeter shown on the drawings. Appropriate surface water and sedimentation control measures will be implemented as needed for stockpile locations.

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, concrete 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.

It is noted that biodegradable alternatives to petroleum-based hydraulic fluids for heavy machinery are commonly available. The use of these biodegradable hydraulic fluids is encouraged, where possible.

During the decommissioning phase of certain older buildings on the Site, proper precautions will be taken. Some of the buildings that will be removed are older than 40 years.

These precautions include:

- Potential sampling of older building construction materials that could be ACMs (Asbestos-containing materials), lead paint, spilled fuels underneath concrete flooring, etc. will be planned out before decommissioning takes place.
- If petroleum-impacted soils are encountered, they will be removed and these will be sent to a properly licensed facility and confirmatory samples will be collected and sent for laboratory analysis. The DELG will be contacted if these impacts are encountered.

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 from construction activities 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 Town ordinances;

C) All septic waste will be collected and disposed of onsite.

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 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. Contaminated materials are to be sent 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.

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 with the Air Quality Regulation-*Clean Air Act*. The measures provided below will be taken in order to mitigate the potential impacts associated with dust management.

A) Cover truck trailer 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.

5 Wetland and Watercourse General Measures

5.1 Mitigated 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;

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 or wetland;

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 or wetland, with a collection system to contain oil, gasoline, and hydraulic fluids;

E) Basic petroleum spill clean-up equipment shall be kept onsite during construction. Spill kits should be checked periodically and any materials replaced if used;

F) Erosion control structures are to be used as shown on the drawings and where required as a result of the construction work;

G) All erosion and sedimentation control measures will be inspected and maintained prior to the end of each workday;

H) 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 (do you want "Project" or "Site') and disposed of in the proper manner;

I) Visual monitoring of all wetlands and watercourses near the work area will take place prior to the end of each working week, and during and after significant rain events (and documented), and any work necessary to ensure the effects are minimized will be undertaken;

J) 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;

K) 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.

5.2 Culvert Installation (General Information, if Applicable)

Watercourse crossings are structures at locations where an access route meets and traverses a wetland and/or watercourse or a drainage route to the same. This also includes culverts.

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 (supporting structure to be confirmed);

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 (and documented);

R) Weather forecasts will be monitored, and mitigation measures will be maintained or modified appropriately if heavy precipitation is anticipated.

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.

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 to require quick re-vegetation, and as required by NBDELG.

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;

C) Should seed mixes for herbaceous native species for the area be required and not be available, it should be ensured that plants used in re-vegetation efforts are not known to be invasive;

D) The areas subject to restoration activities will be visually inspected periodically to ensure adequate results. Additional restoration activities will be performed as deemed appropriate;

E) Necessary interim measures will be implemented to prevent erosion prior to re-establishment of vegetation;

F) 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.

8 Heritage and Archeological Resources

If evidence of past activity or objects of an archaeological nature are discovered, the following mitigative measures shall be implemented:

A) All personnel will be informed of the historic resource's potential of the area, of their responsibility to report any unusual findings, and to leave such findings undisturbed;
B) In the event of historic or pre-contact artifact discovery or archaeological site, the following list of procedures will apply:

- Cease all work in the vicinity of the find and the Archaeology and Heritage Branch, Department of Tourism, Heritage and Culture must be contacted immediately at (506) 453-2738.
- Under the *Historic Conservation Act*, all archaeological sites and artifacts are considered property of the Crown and must not be disturbed. The Greater Shediac Sewerage Commission or the contractor on-site will take all reasonable precautions to prevent employees or other persons from removing or damaging any such articles or sites as they may be held liable for prosecution for all contraventions. Personnel working in the vicinity will be advised of the find. The site area will be flagged for protection and avoidance.
- If required, a full assessment will be conducted of the site and immediate area.
- Archaeological materials encountered will be reported initially to the on-site supervisor, and immediately thereafter to Resource Archaeologist with the following information:
    i. Nature of activity;
    ii. Nature of the material discovered;
    iii. Precise location of the find.
- Work may only resume once approval has been received from the Archaeology and Heritage Branch.

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 or machinery, 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 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 site foreman, upon implementation of (a) above. The Greater Shediac Sewerage Commission or the Contractor on-site will be responsible for notifying the proper authorities.

The site foreman shall halt work in the immediate area if necessary and report the spill to the project manager. In case of an environmental emergency, all calls should be directed to the 24-hour environmental reporting system (Maritime Provinces: 1-800-565-1633).

If the spill occurs near or in the water, the Canadian Coast Guard will be notified by the foreman 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 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 foreman will, in consultation with the regulatory authorities do the following:

xvii. Assess site conditions and environmental impact of various cleanup procedures;
xviii. Assess potential for fuel recovery versus burning;
xix. Deploy on-site personnel to mobilize pumps and empty appropriate storage drums to the spill site;

xx. Deploy on-site personnel to build containment dykes 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;

xxi. Apply absorbents or utilize skimmers as necessary to prevent the spill from spreading;

xxii. Dispose of all contaminated debris, cleaning materials, and absorbents by placing in appropriate containers and label for disposing;

xxiii. 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 all contractors on-site.

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 posted.

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.

9.4 Birds and Oil

In the event of a spill, the Greater Shediac Sewerage Commission or the Contractor on-site is responsible to respond as required to protect bird species in the impacted areas. Measures could include:

A) Hazing;

B) Disperse oil;

C) Bird Collection;

D) Wildlife monitoring;

E) Beached bird surveys;

F) Drift blocks;

G) Live oiled bird response.

The measures employed in response shall be coordinated with the relevant authority having jurisdiction. Please refer to "*Birds and Oil – CWS Response Plan Guidance",* prepared by

Environment and Climate Change Canada's (ECCC) Canadian Wildlife Service (CWS) for more information.

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 shall be inspected daily for leaks and drips, with special attention to those located near wetlands and/or watercourses;

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 all contractors on-site.

11 Emergency Contacts

Ambulance/Fire/Police	911
Canadian Coast Guard	1-800-565-1633
Crandall, a division of Englobe Corp. (Laura Leger, P. Eng.):	1-506-857-2777 (Office) Ext. 198047
Shediac Regional RCMP	77 Ohio Rd Shediac NB E4P 2J8 1-506-533-5151 or 911
Enbridge Gas Pipeline	1-866-763-5427
NBDELG – Region 3 - Moncton	1-506-856-2374
NB Power	1-800-663-6272
Greater Shediac Sewerage Commission (Joey Frenette B.Sc., P Tech)	1-506-382-7450

The complete project address is as follows (accessible from local streets):

Septage Treatment Facility
25 Cap-Brulé Rd. Boudreau-Ouest
Shediac, N.B.E4P 6H8

Appendix A Sewage Management Plan

Englobe
Soils Materials Environment

Greater Shediac Sewage Commission

CAP-BRULÉ WASTEWATER TREATMENT FACILITY SEWAGE MANAGEMENT PLAN

2003869

December 2020

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Property and Confidentiality

Table of Contents

1 Introduction

In order to protect the environment, it is mandatory that wastewater collection and treatment continue on GSSC's system while the new system is being constructed. The scope of work and the 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, 3-cell aerated lagoon with UV effluent disinfection, MBBR, and disk filtration at GSSC's site.

Reference is made to Drawing 18411 – 1D-C04 (Appendix "B" of the Preliminary Design Report), 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.

2 Contract Description and Sequence

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 the discharge of any untreated wastewater, are described below and are presented in the order they will be constructed:

2.1 Contract 1 – Construction of Headworks Building

This contract consists of the construction of the new Headworks building and the wet wells. will also include the installation of new screening and grit removal equipment, UV disinfection system, stand-by generator, influent screw lift station, effluent lift station, and the replacement of the existing aeration system with a new fine-bubble floating aeration system. It will also house all the major electrical, mechanical, and control systems. The New building will be fully constructed and commissioned before being brought into service. The construction of the New Headworks Building does not impact the treatment of wastewater during construction.

2.2 Contract 2 – Construction of New Lagoon

This contract will create lagoon cells required for the new wastewater treatment system. The existing Polishing Cell (Cell #3) will be re-constructed into the new, deeper, HDPE-lined aerated Lagoon #1. The existing Cell #2 and Cell #1 will be upgraded to be used as the new aerated lagoon #2 and aerated/polishing Lagoon #3, including HDPE liner repair/replacement. This contract intends to get the flow from the Trunk Sewer, to the New Pre-Treatment, to new aerated lagoon No.1 > No.2 > No.3 then to the new UV, and to finally be discharged by gravity to the New Overflow to the existing discharge location. In order the achieve this sequence while maintaining treatment, the following steps have been established:

i. The Control Chamber No.1 to the existing Polishing Cell will be plugged and the flow will be by-passed between existing Cell No.1 and No.2.

ii. The existing Polishing Cell will then be drained, and sludge removal will be completed.

iii. The new sanitary & air piping will then be installed around the perimeter of the new aerated lagoon No.1.

iv. The New Aerated Lagoon No.1 berms and liner will be constructed.

v. The new air piping system will be temporarily connected to the existing blower piping near the existing blower building.

vi. Then the new aerated lagoon No.1 sanitary piping will be connected to the inlet of the existing UV building.

vii. At this stage, all the facility flows will be by-passed to the new Aerated Lagoon No.1.

viii. Once the flow is by-passed to the new Aerated Lagoon No.1, the construction of the New Lagoon No.2 and No.3 will begin.

ix. The sanitary and future forcemain piping will be installed beneath the new berms.

x. Commissioning of the New Headworks Building

xi. Once all the new sanitary sewer is completed, the cut-over from the existing building to the new building will be done by connecting the new Influent sanitary piping to the existing Trunk Sewer.

2.3 Contract 3 – Construction of New Forcemain and Outfall

This phase will involve the construction of the new pumped outfall discharging directly to the Northumberland Strait. The new outfall connection will be achieved by directional drilling. Once completed, it will be connected to the new effluent pumping station.

2.4 Contract 4 – Construction of Moving Bed Biofilm Reactor (MBBR) and Disc Filter

This contract will focus on the construction of the new MBBR treatment unit and the Alum system filtration. A new MBBR Tank with a medium bubble aeration grid to provide oxygen to the wastewater will be constructed will provide ammonia removal. There will be sieves at the tank's outlet piping to ensure that the MBBR media are retained within the tanks. The wastewater will travel through the MBBR train, which consists of two (2) reactors in series: one (1) to provide final cBOD5 treatment, followed by a second reactor to provide nitrification (ammonia removal). The Alum system will provide phosphorus treatment and will be installed after the first treatment cell. The construction of the Alum system will include the installation of the alum pumps and controls, as well as alum mixing chambers and associated piping. Both oh these systems will be installation their respective new small building (separate from the new headworks building and be connected to the be connected to the existing chambers.

3 Conclusion

The construction processes and sequences proposed herein will prevent the discharge of untreated wastewater to the environment. Besides, it will provide a higher degree of wastewater treatment to better protect the environment. The new WWTP will meet or exceed CCME/WSER effluent requirements.