



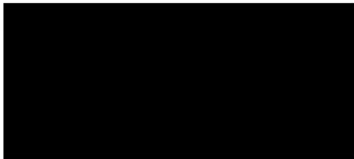
ISLANDER
ENGINEERING

Environmental Management Plan

Prepared For:

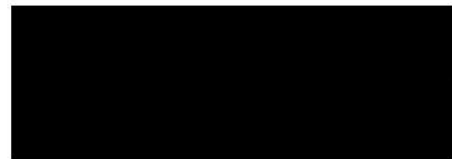
Gulf Excavating Ltd.
4415 Bedwell Harbour Rd
North Pender Island, BC
V0N 2M1

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1. INTRODUCTION

This Environmental Management Plan (EMP) has been prepared for Gulf Excavating Ltd. managers, staff and subcontractors as a guide for implementing environmental protection measures during operations at 4415 Bedwell Harbour Road, North Pender Island (the Site).

The prime objectives of this EMP are the protection of the groundwater aquifers in the vicinity of the Site, the terrestrial environment surrounding the Site, and the downstream aquatic areas that could potentially be impacted by Site operations.

This document outlines sensitive environmental receptors, adjacent land uses, operational methods, environmental mitigation measures, best management practices, and environmental monitoring requirements related to the Site and Site operations.

2. SITE DETAILS

2.1 Site Description

The property is located on the west side of Bedwell Harbour Road and is immediately north of the intersection of Bedwell Harbour Road and Otter Bay Road on North Pender Island, BC. The Site location is depicted within Figure 1. The Site is part of the North Pender Island Local Trust Area. Pertinent legal information for the lot is summarized as follows:

Address	PID	Plan	Lot	Block	Section	Range	Land District
4415 Bedwell Harbour Road	018-948-421	VIP59806	1	-	18	-	Cowichan

The Site is currently zoned R (Rural) under the North Pender Island Land Use Bylaw No. 103 and as depicted on Schedule D. The zoning is intended to permit dwellings, agriculture, cottages on lots 1.2 hectares in area and larger, accessory home business, and, on lots greater than 2 hectares - accessory home industry. The Site and Surrounding land use is depicted within Figure 2. Gulf Excavating Ltd. is currently pursuing a Temporary Use Permit to accommodate the current operations described below.

2.2 Current Operations

The Site is currently home to the Gulf Excavating Ltd. since 2016. Operations for the Site described in sections below and depicted in Figure 3.

2.2.1 Quarry and Aggregate Operations

Gulf Excavating Ltd. quarries loose shale rock from the surface of the Site in several locations. Overburden removed in order to access the shale rock is stockpiled onsite. All quarrying is carried out with an excavator as the shale is brittle and is easily removed. Shale is loaded into trucks at the source on an as-needed basis for clients throughout the Pender Islands.

Aggregate sales also occur on an as-needed basis. One truck and pup brings in sand, drainage rock, and aggregate to the Site four to five times per week during operational hours. The sand and gravel are stored in the north quarry area.

2.2.2 Concrete Batch Plant Operations

Located in the middle of the Site is the concrete batch plant which consists of a concrete-paved pull-in bay area surrounded by concrete blocks. Gravel, sand, cement powder, and water are added to the concrete truck via a gravity-fed hopper. Cement powder is stored on pallets (maximum 15 pallets each holding 90-40 kg bags of cement powder) that are tarped to protect the product from environmental conditions. Two half tanks (settling tanks), along the north side of the concrete pull-in bay, hold water that is rinsed out from trucks after they return to the Site. That same water is then pumped up to be re-used when mixing the next batch of concrete.

Just southeast of the settling tanks is a sea container which is used to store equipment and an aboveground storage tank (AST) with a capacity of about 250 litres, which is used for holding waste oil. There is no power service to the area of the batch plant or sea container.

The owner has excavated two depressions/reservoirs: one to the immediate northeast of the concrete batch plant area and a second one west of the batch plant near the western property boundary. These reservoirs fill with ambient rain water and overland run-off, and are used to supply any additional water that is required for the concrete batch plant operation.

The batch plant is operated intermittently on an as-needed basis. The owner estimates that approximately 400 yards of concrete are produced per month. The number of concrete truck visits to the Site varies on demand. Smaller jobs can incur one to two concrete truck visits to the Site per day; whereas there can be up to 10 to 15 visits per day for a large job. Each concrete truck can haul between 8 to 10 yards of concrete. Operational hours are Monday through Saturday during the day. The owner noted there are periods of days or weeks when no concrete is even produced.

2.2.3 Office and work yard

In total, four concrete trucks, two excavators and a truck and pup are stored on the Site. Regular maintenance of the machinery and vehicles is not done at the Site; however, occasional emergency maintenance or repairs may be conducted which accounts for the presence of a waste oil tank.

3. ENVIRONMENTAL CONTEXT

Gulf Excavating Ltd. is committed to maintaining a high standard of care as an environmentally responsible company. Environmental due diligence shall be maintained through the following measures:

- **Competent workforce** – Gulf Excavating Ltd. will provide training and proper orientation regarding the environmental considerations of the applicable tasks.
- **Environmental responsibility** - Gulf Excavating Ltd. will comply with the requirements outlined within this EMP and applicable regulations.
- **Communication** - Gulf Excavating Ltd. will maintain proper communication procedures and reporting requirements as described within this EMP.
- **Prevention and Remedial Measures** - Gulf Excavating Ltd. will respond to non-conformances, accidents, and spills with the protocols and procedures outlined in this EMP, and verify and report accurately on related remedial procedures.

The following industry documents should be reviewed in conjunction with this EMP:

- "Aggregate Operators Best Management Practices Handbook for British Columbia", BC Ministry of Energy and Mines, April 2002
- "Recommended Guideline for Environmental Management Practices for Canadian Ready Mixed Concrete Industry", Canadian Ready-Mixed Concrete Association, May 2004

3.1 Regulatory and other Requirements

Protection of the soil, groundwater, surface water, and air quality in British Columbia are governed by the Ministry of Environment (ENV) under the authority of the Environmental Management Act (EMA) and its regulations and amendments. Site owners and operators are subject to environmental standards, operating protocols, and reporting requirements defined by, but not limited to, the following:

- **Contaminated Sites Regulation (CSR)** – defines numerical standards for soils, groundwater, surface water and vapours, materials management, and reporting;
- **Fisheries Act** – prohibits the deposition of any deleterious substances that have or could have the potential to affect waters frequented by fish in an adverse manner;
- **Waste Discharge Regulation (WDR)** – defines waste discharge authorization regulations for specific industries, trades, businesses, activities and operations;

- **Spill Reporting Regulation (SRR)** – prescribes the information that is required, as well as the time in which it is required, when reporting spills;
- **Hazardous Waste Regulation (HWR)** - provides standards to determine if material qualifies as Hazardous Waste based on toxicity equivalency (TEQ) and leachability; and
- **Water Sustainability Act (WSA)** – ensures a sustainable supply of fresh, clean water that meets the needs of BC residents.

Site operators or property owners may additionally be subject to environmental regulations through municipal/regional bylaws.

- **North Pender Island Local Trust (LTC)** – outlines bylaws, management plans, land use protection, and amendments specific to the Local Trust Area.

3.2 Sensitive Environmental Receptors

There are several sensitive ecosystem components that could be affected during operations, including wildlife, drinking water, freshwater aquatic life and water quality, soils, and other natural and aesthetic environmental attributes.

Young forest, herbaceous, and wetland ecosystems exist on the Site, and are home to wildlife. Vegetation in these areas may provide cover for small birds and mammals, provide dust mitigation, nesting materials, forage, nesting and denning sites, soil stabilization, and erosion and sediment control.

A creek which flows to Hope Bay is found approximately 175 m to the east of the Site.

The Site is situated atop a producing groundwater aquifer and groundwater is used for drinking water on Site.

3.3 Species at Risk

The BC Conservation Data Centre (CDC) maintains records of rare and endangered species and ecosystems in the province. These records are verified occurrences that have been mapped by the CDC. One BC red listed species¹ and one BC blue listed species² were noted in the area surrounding the site. The red listed species Dense-Spike Primrose (*Epilobium densiflorum*), was located within the site area. CDC data showed the area was first surveyed in July 1981 and the species was found along a roadside ditch. However, surveys in 2003 and

¹ BC Red Listed species Includes any indigenous species or subspecies that have, or are candidates for, Extirpated, Endangered, or Threatened status in British Columbia.

² BC Blue Listed Species Includes any indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia.

2004 failed to relocate the species (CDC 2016). Therefore, there is minimum potential for this species to be present on the site. The Northern Red-Legged Frog (*Rana aurora*) was also noted in the area surrounding the site and the wetland/swamp could serve as potential habitat for the Northern Red-Legged Frog. None of the species noted above were observed during the field assessment.

4. ROLES AND RESPONSIBILITIES

The **Supervisor, Superintendent or Site Foreman** will:

- Ensure adherence to best management practices and site specific strategies as documented within the EMP;
- Be responsible for proper handling and storage of chemicals and hazardous materials brought on or into the Site, including those brought on/in by subcontractors, which may be required to provide appropriate procedures for the items specific to their work/activities;
- Limit the amount of chemical / fuel materials brought onsite to just those needed;
- Ensure that hazardous chemicals and liquids are properly labeled, stored, and disposed of in accordance with the Safety Data Sheets (SDS); and
- Ensure proper training of employees in spill response and the safe use of hazardous chemicals for routine and non-routine tasks.

The **Health, Safety and/or Environmental (HSE) Representative or Designee** will:

- Maintain chemicals inventory list for products stored on-site;
- Complete weekly environmental monitoring checklist;
- Maintain the Safety Data Sheet book for chemicals stored/used on-site;
- Perform regular inventory audits of controlled products arriving to site.

Employees will:

- Handle chemicals and other potentially hazardous substances in an appropriate manner at all times;
- Report problems/issues/concerns regarding chemicals and/or chemical substances to their supervisor;
- Will receive required training as needed for their area or activity.

5. WATER MANAGEMENT

The following sections describe best management practices and site-specific strategies for managing both general surface water and water used in concrete production. It is imperative that water used in concrete production be isolated and not mixed with general storm water runoff from the Site in order to prevent the discharge of potentially harmful wastewaters into the receiving environment. Water used during concrete production, or any water that comes into contact with cement, fresh concrete or additives is to be minimized, collected / contained and treated / tested if discharge is required.

5.1 Water Used in Concrete Production

5.1.1 Water Sources

The following lists typical activities within the batch plant in which water is used in conjunction with concrete production:

- Mix water for batching concrete loads
- Wash water for plant housekeeping and truck cleanouts
- Dust suppression

In most cases, the source for concrete batch water will be recycled wash water which has been captured and stored within the plant settling tanks. In some cases, where additional water is required, on-site storm water collection ponds will be utilized. Generally, it should be the preferred practice of the plant operator to minimize the use of fresh water for concrete production.

Water for plant housekeeping and truck washouts is sourced from on-site storm water runoff collection ponds. Truck wash-outs take place within the concrete paved batching facility, such that all water from the washing is captured within the Site water reclamation system.

Dust suppression also uses the captured storm water.

The following best management practices describe methods for effective wastewater reduction:

- Minimize the need for exterior truck washing by controlling dust losses from the batching area;
- Train employees with regards to water use, ensuring that they understand the importance of controls and the possible impact to the environment and company liability;
- Limit or eliminate freshwater use by recycling processed water and using captured storm water runoff wherever possible;

- Reduce total water usage during drum washout by using multiple small rinses, rather than large volume single rinses;
- Consider the use of hydration stabilization admixtures;
- Consider dry washout procedures;

5.1.2 Water Collection / Containment

Water is collected within the concrete paved batching area through grading and conveyance to the water reclamation tanks described in Section 1.2.2 and Figure 3. In general, the following best management practices shall be considered with regards to water collection:

- All paved surfaces within the batching area should be curbed and graded to allow for effective capture and collection of wastewater;
- Any surface water not related to concrete production should be directed away from wastewater collection areas;
- Equipment and vehicular traffic should be minimized through batching area where wastewater may be present;
- Sufficient capacity must be provided for wastewater holding tanks / basins;
- Wastewater holding tanks / basin shall be impermeable;
- Sufficient secondary containment (i.e., berms) shall be provided to capture any overflow from wastewater holding facilities.
- Any breaches in containment facilities that cause release of wastewater to the environment shall be considered a spill incident and spill response measures, described in Section 6, shall be followed.

5.2 Storm Water Runoff

5.2.1 Catchment Area

The Site is located within a large rainwater catchment area that includes neighbouring industrial properties to the west. Runoff from neighbouring properties passes through the Site before entering the municipal ditching network along Bedwell Harbour Road, the unnamed creek approximately 175m east of Site and ultimately the ocean at Hope Bay.

5.2.2 *Best Management Practices*

General storm water runoff from the Site and surrounding area should not enter the batching plant under any circumstances in order to reduce the overall volume of water considered to be wastewater through contact with cementitious products. Currently, storm water diversion is achieved through Site grading and a system of ditching and storm water retention ponds. Storm water that is conveyed through operational areas of the Site is captured within basins where passive oil skimmers have been placed in order to capture any chance hydrocarbons.

With regards to site drainage, erosion control and the operations of Gulf Excavating, the following best management practices should be considered during operations at the Site:

- Encourage surface water to seep into the soil naturally;
- Preserve natural vegetation where possible;
- If possible, retain woody debris and organic matter on-site as mulch;
- Roughen or terrace slopes to prevent erosion. Limit slope steepness and length to reduce runoff velocity;
- Cover soil stockpiles and bare slopes with mulch, tarps, etc;
- Re-vegetate or landscape disturbed areas of the Site as soon as possible. If areas of the Site must be left disturbed during the rainy seasons, sow a temporary cover crop, apply mulch or lay geotextile to stabilize exposed soils;
- Keep machinery within specific access areas. Limit the extent of machine access areas to the minimum necessary to conduct operations in a feasible and practical manner;
- Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with federal, provincial and municipal requirements;
- If it is not possible to isolate and divert flowing water from a work area (due to water depth and volume) isolate works with a structure (e.g., silt curtain, sand bags, earthen berm, etc.) to keep silty water from leaving the Site;
- Avoid clearing vegetation from work zones during snowmelt or heavy rains; and
- Isolate work / excavation areas from all flowing water;
- Inspect all silt fences and other controls (i.e., catch basin inserts, stop logs) on a daily basis prior to the start of work and correct deficiencies immediately. Pay special attention in areas where construction activities have changed natural contours or drainage patterns to ensure that controls are properly located for effectiveness. Where

deficiencies exist, install additional silt fences or other controls as needed. Should silt fence become damaged or otherwise ineffective (e.g. gaps underneath, broken stakes/sagging material, accumulated sediments), while barrier is still necessary, repair or replace promptly.

5.3 Water Treatment

Water discharging from the Site is generally segregated from batch plant operations; therefore, it is within acceptable levels for pH. Field measurements made by IEL in winter and summer of 2019 confirmed that pH levels within storm water retention facilities were within the range of safety for freshwater systems (pH < 9). Detention time provided within the retention pond system provides stormwater runoff with the opportunity for suspended solids to settle, prior to flowing offsite within the natural drainage course or infiltrating into the ground.

Should wastewater from the batching operations overflow and reach the storm water detention system, treatment in the form of carbon dioxide injection shall be required and testing performed in order to verify water quality prior to release. Discharge permitting from the Islands Trust may be required prior to discharging any treated water into the municipal ditch system along Bedwell Harbour Road. The following ranges are proposed as interim water quality guidelines for the Site and were developed from the British Columbia Approved Water Quality Guidelines:

Parameter	Recommendation
pH	6.5 - 9
NTU (Turbidity)	Exceeds background by 8 NTU

6. CHEMICAL AND PETROLEUM HYDROCARBON MANAGEMENT

6.1 Chemical and Petroleum Hydrocarbon Sources

The following table outlines the chemical sources at the Site:

Item	Location
Delvo Citric Acid	Batch Plant storage shelter

Item	Location
Master Polyheed N – calcium chloride	Batch Plant storage shelter
Master Rheobuild-1000 – Naphthalenesulphonate	Batch Plant storage shelter
Nuto H68 – hydraulic fluid	Seacan
Waste Oil	Seacan
Gasoline / Diesel	Tidy tanks & within equipment

A log of hazardous materials stored or used on-site should be kept and updated as new materials enter the Site. Safety Data Sheets (SDS) for each chemical shall be kept on-site and made available to staff.

6.2 Storage and Handling

As noted in Section 5.1, storage of chemicals and fuel is provided within three separate areas.

- Concrete additives are currently stored within manufacturer containers within a covered, plastic sheet-lined secondary containment structure at the top of the batch plant.
- Mechanical fluids (oils / waste oils) are stored within a transportation seacan with a welded lip at the entrance, which provides secondary containment to small jugs of hydraulic fluid within. Waste oil is stored within an above ground storage tank within a separate plastic sheet-lined cell within the seacan.
- Fuel is stored within fuel tanks and tidy tanks aboard various vehicles and equipment throughout the Site. There is no bulk fuel storage on Site.

The following list provides best management practices to be considered with regards to chemical and fuel storage at the Site:

- Locate storage facilities away from high traffic areas, with reasonable protection from vehicle / equipment damage;

- Provide storage areas with a means (i.e., lock and key) to control access to the materials so that only authorized (e.g., trained) personnel may remove and use the materials;
- Ensure tanks are corrosion-resistant and stable / anchored securely on a flat surface;
- If possible, store drums and pails of related products in same area;
- Ensure all materials are properly labelled and remain in original containers with lid intact for as long as reasonable for Site operations;
- Protect liquids from freezing, where applicable;
- Provide minimum 120% secondary containment for all volumes of liquid stored;
- Provide with a means of segregating combustible and flammable materials from oxidizing agents and other sources of ignition (i.e., away from sparks and/or with physically separated storage areas)
- Provide with a means of preventing water reactive and pyrophoric materials from coming in contact with accumulated water (i.e., roofed enclosures)
- Provide emergency spill kits/supplies within the storage area, including fire extinguishers, non-sparking shovels, sand bags, etc.

6.3 Disposal

The final disposition of chemicals and fuels/oils not used during the course of the Site operations should be considered prior to the ordering of the materials. Source reduction through accurate inventory control (e.g., purchasing only the amount of material needed for the task(s) and using up all that is purchased) will eliminate the need to address final disposition as well as the costs and potential liabilities associated with it. Good housekeeping practices both in storage and use also go a long way toward minimizing waste generated from hazardous materials. It is critical that all workers understand the significant costs and potential liabilities associated with disposal of hazardous wastes and the importance of managing hazardous materials so as to reduce waste generation.

If source reduction is not feasible, opportunities to return unused materials to the manufacturer either directly or through the subcontractor who used the materials will be investigated. Other opportunities for reuse of left over materials, such as aftermarket clearinghouses and trading forums, may also be an option.

7. SPILL RESPONSE AND PREVENTION

Generally, large volumes of chemicals in liquid form will not be encountered at the Site. The most likely form of spill impact will be from overfilling of fuel or some form of tank leakage. Through proper planning, Site management and housekeeping, the frequency and severity of a spill can be minimized. When a spill occurs, the provincial and federal agencies that administer the applicable legislation will hold the discharger responsible for the incident. The discharger is responsible to report the release, contain and clean up the product, and restore the site to the pre-discharge condition. The following table outlines reportable levels for spill quantities according to the EMA:

Material	Reportable Quantity
Class 1, Explosives as defined in section 2.9 of the Federal Regulations	Any quantity that could pose a danger to public safety or 50 kg
Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	10 kg
Class 2.2 Non-Flammable and Non-Toxic Gases as defined in section 2.14 (b) of the Federal Regulations	10 kg
Class 2.3, Toxic Gases as defined in section 2.14 (c) of the Federal Regulations	5 kg
Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	100 L
Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	25 kg
Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	50 kg or 50 L
Class 5.2, Organic Peroxides as defined in section 2.24 (b) of the Federal Regulations	1 kg or 1 L

Material	Reportable Quantity
Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	5 kg or 5 L
Class 6.2, Infectious Substances as defined in section 2.27 (b) of the Federal Regulations	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
Class 7, Radioactive Materials as defined in section 2.37 of the Federal Regulations	Any quantity that could pose a danger to public safety and an emission level greater than the emission level established in section 20 of the "Packaging and Transport of Nuclear Substances Regulations"
Class 8, Corrosives as defined in section 2.40 of the Federal Regulations	5 kg or 5 L
Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	25 kg or 25 L
Waste containing dioxin as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
Leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
Waste containing polycyclic aromatic hydrocarbons as defined in section 1 of the hazardous Waste Regulation	5 kg or 5 L
Waste asbestos as defined in section 1 of the Hazardous Waste Regulation	50 kg
Waste oil as defined in section 1 of the Hazardous Waste Regulation	100 L

Material	Reportable Quantity
Waste containing a pest control product as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
PCB Wastes as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
Waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	50 kg or 50 L
Biomedical waste as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
A hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered under items 1 – 22	25 kg or 25 L
A substance, not covered by items 1 to 23, that can cause pollution	200 kg or 200 L
Natural gas	10 kg, if there is a breakage in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas

7.1 Spill Response

In the event of an accidental spill or equipment malfunction resulting in a spill, the following outlines the steps to be taken to minimize the potential impact:

Spill Response Steps

1. ENSURE SAFETY
2. STOP THE FLOW (when possible)
3. SECURE THE AREA

4. CONTAIN THE SPILL

5. NOTIFY/REPORT

6. CLEAN-UP

(Circumstances may dictate another sequence of events)

1. ENSURE SAFETY

- Ensure Personal, Public and Environmental Safety
- Wear appropriate Personal Protective Equipment (PPE)
- Never rush in, always determine the product spilled before taking action
- Warn people in immediate vicinity to stay clear or evacuate
- Ensure no ignition sources if spill is of a flammable material

2. STOP THE FLOW (when possible)

- Act quickly to reduce the risk of environmental impacts
- Close valves, shut off pumps or plug holes/leaks, set containers upright
- Stop the flow of the spill at its source

3. SECURE THE AREA

- Limit access to spill area
- Prevent unauthorized entry onto site

4. CONTAIN THE SPILL

- Block off and protect drains and culverts
- Prevent spilled material from entering drainage structures (ditches, culverts, drains)
- Use spill sorbent material to contain spill
- If necessary, use a dike, berm or any other method to prevent any discharge off site

- Make every effort to minimize contamination
- Contain as close to the source as possible

5. NOTIFY/REPORT

Notify appropriate Site Supervisor and Owner, or alternate of incident (provide spill details)

- When necessary the first external call should be made to the Provincial Emergency Program (PEP) 1-800-663-3456 (24 hours)
- Provide necessary spill details to other external agencies (to be done by Owner where applicable)

The spill report (see attached template in Appendix A) should include the following information:

- Name and phone number of person reporting the spill
- Name and phone number of person involved with the spill and/or owner of the spilled substance if known
- Location and time of the spill
- Type and quantity of material spilled
- Cause and effect of spill
- Details of action taken or proposed to contain the spill and minimize its effect
- Names of other persons or agencies advised

PEP will provide a file reference number for future use, especially if an End of Spill Report is required. PEP will notify other provincial, federal and municipal agencies. Records should be maintained for all conversations or documents produced for regulatory review.

In the event of an emergency where it is important for quick and clear communication to minimize potential impacts to workers, the public, property and the environment in emergency situations, the phone numbers of key emergency responders are provided below:

Authority	Phone Number
Emergency Services	911
Shift Supervisor	TBD
Facility Manager	TBD
Oil Spill Hotline	1-800-663-3456
Poison Control Centre	1-800-567-8911
Lady Minto Hospital (Salt Spring Island)	1-250-538-4800
Emergency Operation Centre (Pender Islands)	1-250-629-8357
Non- Emergency Fire Hall #1	1-250-629-3321

7.2 Spill Response Equipment

A standard spill kit shall be kept onsite, within the batch plant area at all times. Additional vehicle spill kits should be kept within vehicles onsite.

Standard spill kits (plastic drums with wheels, usually yellow in colour) and vehicle/machinery (portable) kits shall be inventoried and restocked regularly and upon identification of a kit that has been opened in the course of containing or cleaning up a spill (person using materials notifies the Superintendent, who requisitions supplies as needed). Inventories include a full count of contents, in comparison to minimum contents lists developed for each type of kit in use. The following lists minimum contents for each type of spill kit:

Standard Spill Kit	
Quantity	Item
1 Bail	Oil absorbent booms (5" x 10', four booms per bail)

Standard Spill Kit	
1 Bail	Oil absorbent pads (17"x19", 200 pads per bail)
4	Large disposal bags (38"x60")
2 Pairs	Rubber or nitrile gloves
1	Epoxy plug compound (patty or tube)
1 bag	Absorbent bentonite ("kitty litter"; 20 kg/bag)
1	Roll caution tape
1	Oil / Fuel Spill Emergency Action Plan
1	List of spill kit contents (aids in inventory & re-stocking)

Vehicle Spill Kit	
Quantity	Item
50	Oil absorbent pads (17"x19")
1	Large disposal bag (38"x60")
1 Pair	Rubber or nitrile gloves
1	Epoxy plug compound (patty or tube)
1	Roll caution tape
1	Oil / Fuel Spill Emergency Action Plan

7.3 Spill Prevention

The following best management practices will be implemented to prevent accidental spills:

- Equipment is to be inspected daily to ensure that it is leak-free and functioning as intended. All fuel/oil caps will be manually checked to ensure that they are tightened down.

Equipment will be tagged out of service if found to be leaking. Servicing of equipment that is absolutely necessary on-site is to be done within containment areas (i.e., bermed or otherwise isolated) or at an appropriate work yard operated by the contractor or his supplier;

- Equipment or machinery found to be leaking will have containment trays/buckets placed under drips/leaks that cannot be stopped (e.g., cannot be drained into an appropriate container), will have absorbent pads wrapped around leaky connections or placed under areas where a tray or bucket cannot be fitted, etc.). The person identifying the malfunction or accidental leak will notify the foreman or site supervisor, who will arrange repairs or transport off-site, and/or mechanic, if on site.
- All workers/operators will be responsible for cleaning up observed leaks and/or wiping down equipment, even if the leak or spill is non-reportable.
- Grease and oil required for maintenance will be properly applied. Excess will be cleaned up and disposed of in an environmentally appropriate manner, as will all containers, lids, and contaminated cloths and applicators.
- During fuelling of larger compressors, light plants, etc., a portable drip tray lined with absorbent pads will be placed under the fuel tube and cap area. Absorbent pads will be used to wipe off any drips on the fuel spigot or side of equipment.
- Jerry cans will be stored within a sealed tool box tray with lid or other suitable storage locker with ventilation, and placed in a containment tray when outside of the storage container.
- When heavy machinery is not in use (i.e., overnight, weekends, or idle for the day), a portable drip tray will be placed under the main engine compartment.
- Fire extinguishers and other emergency response equipment and supplies will be kept in known and visible locations and access to them will not be blocked by other materials or equipment. A list of emergency contacts will be posted at predetermined, accessible and visible locations, as well as kept with the emergency response equipment. By law, fire extinguishers are routinely inspected and certified, as is other fire-suppressant equipment and materials.
- Waste oil or materials will be removed from site as soon as possible in accordance with Transportation of Dangerous Goods requirements and the BC Special Waste Regulations.
- The Emergency Spill Response Plan will be implemented when required.
- The Emergency Spill Response Plan will be posted on-site, and all personnel made aware of its content and location of response materials, as well as emergency contact names and numbers.
- Oil spill response materials and equipment, such as absorbent pads, booms and leak proof

containers, will be kept on-site in sufficient quantities and in an easily accessible location to contain and clean up the amount of fuel, oil or other petroleum hydrocarbons used/stored on site.

8. MONITORING AND REPORTING

8.1 Environmental Consultant

Upon adoption of the EMP, it is recommended that monitoring be carried out by IEL, in order to document the adherence to the EMP. Specifically, it is recommended that Site inspections during wet season are carried out in order to provide documentation of EMP practices during wet Site conditions. For due diligence purposes, Gulf Excavating Ltd. may also consider annual Site inspections.

8.2 Gulf Excavating Ltd.

A Site inspection checklist is included within Appendix B. It is recommended that Gulf Excavating Ltd. document Site conditions weekly with this checklist in order to track / verify environmental conditions at the Site.

9. PLAN EVALUATION AND UPDATES

This EMP is intended to be a living document, with regular revisions and updates. These changes shall take place at a minimum annually. Potential changes include but are not limited to the following:

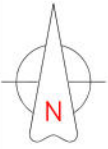
- Relevant legislation or policy;
- Best industry practices;
- Project scope;
- Procedures based on post-incident evaluation; and,
- New hazardous materials that are brought to the Site.

Updates or revisions to the Plan shall be logged and signed off by the Onsite Manager. The new information shall be highlighted and all relevant Site personnel shall be briefed on the changes to the Plan. A detailed procedure of record keeping will be initialized to capture all training sessions, plan changes/updates, and environmental/emergency incidents and will be regularly audited.

10. LIMITATIONS

This report has been prepared by Islander Engineering Ltd. exclusively for Gulf Excavating Ltd. This report has been jointly prepared by IEL and Gulf Excavating Ltd., based upon fieldwork conducted by IEL. In performing this work, IEL has relied in good faith upon the information provided by others and has assumed that the information provided by those individuals is both complete and accurate. This work was performed to current industry standard practice for similar environmental work. The findings presented herein should be considered within the context of the scope of work and project terms of reference; further, the findings are time sensitive and are considered valid only at the time the Report was produced. The conclusions and recommendations contained in this Report are based upon the applicable guidelines, regulations, and legislation existing at the time the Report was produced; any changes in the regulatory regime may alter the conclusions and/or recommendations.

Any use which the client or a third party, other than those specifically listed above, makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such parties. IEL accepts no responsibility for damages, if any, suffered by third parties as a result of business decisions made or actions based on this report.



MAP LOCATION



LOCATION PLAN

REFERENCE: GOOGLE MAPS

SCALE: N.T.S.

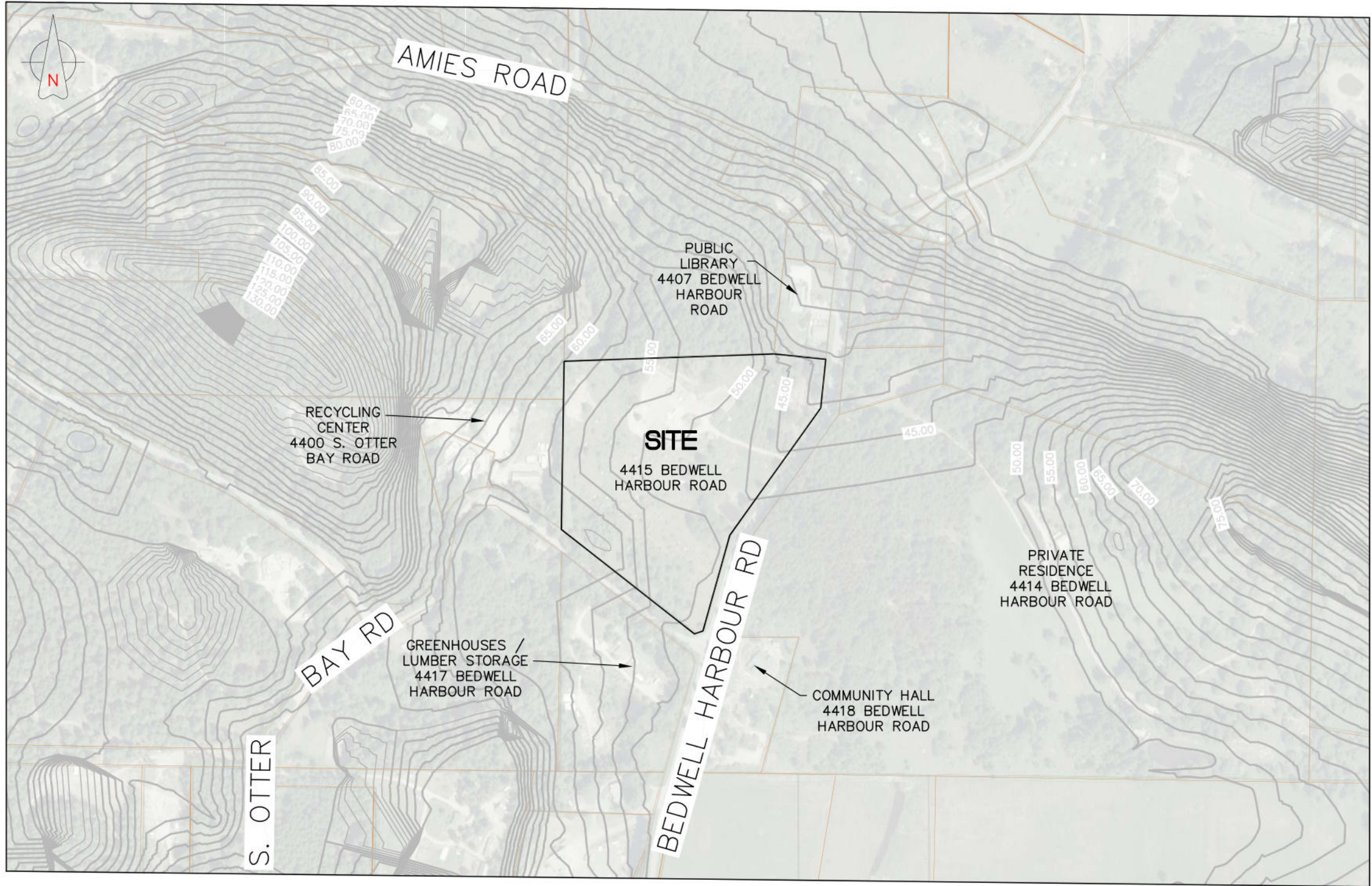
GULF EXCAVATING LTD.



ISLANDER
ENGINEERING
www.islanderengineering.com

LOCATION PLAN
4415 BEDWELL HARBOUR ROAD

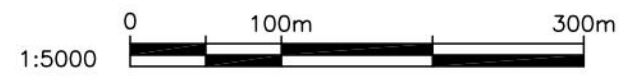
date: DEC 04 2018	scale: N.T.S.
drawn: SB	checked: LL
file: 2181	
drawing no: FIGURE 1	issue: A



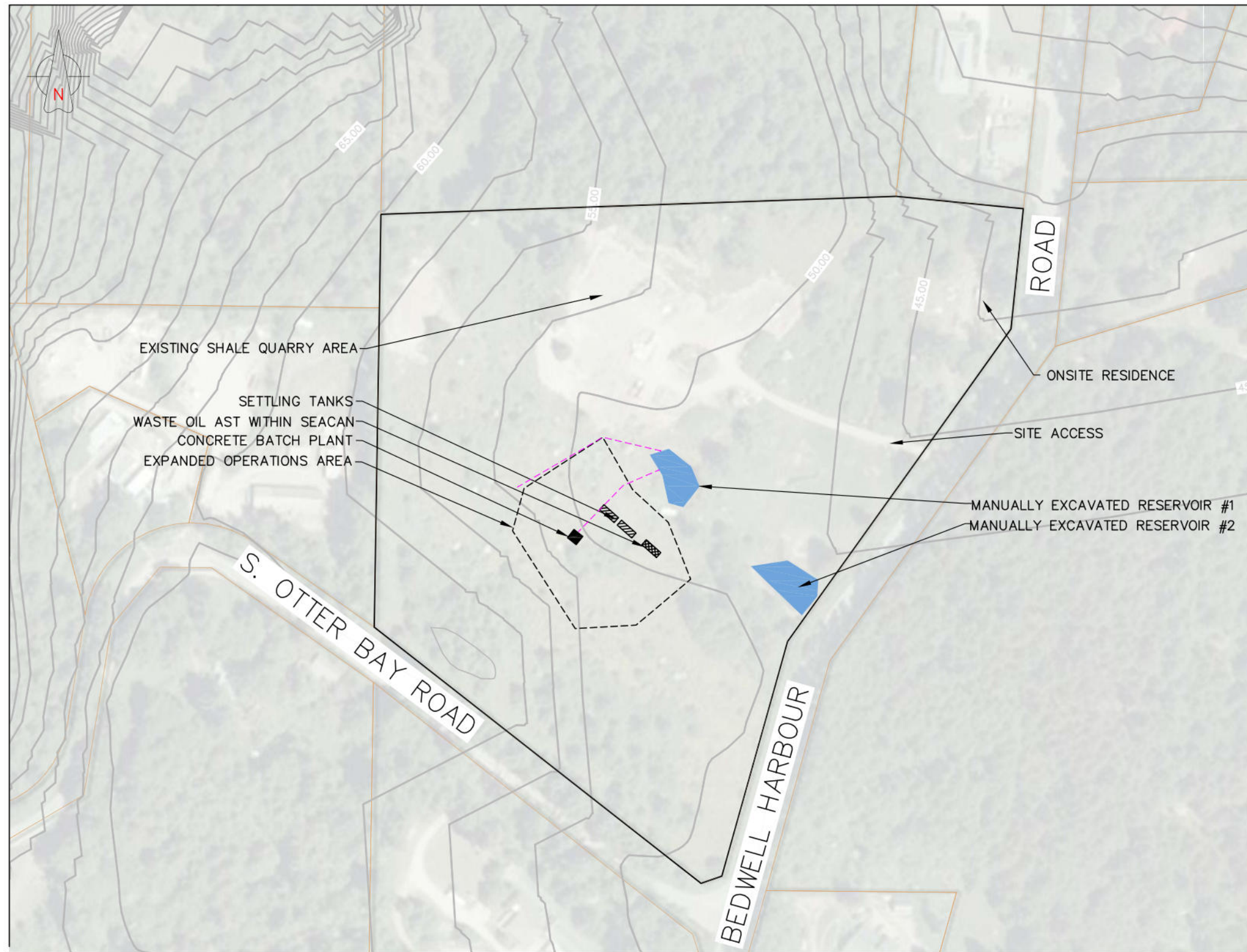
LEGEND

— APPROXIMATE LEGAL LOT LINE

REFERENCE: CVRD WEBMAP



 ISLANDER ENGINEERING www.islanderengineering.com		
CLIENT NAME: GULF EXCAVATING LTD.	PROJECT LOCATION: PENDER ISLAND, BC	
TITLE: SURROUNDING LAND USE PLAN 4415 BEDWELL HARBOUR ROAD		
DWN BY: SB	DWG NAME: 2181	DATE: 2018-12-04
CHK'D: LL	PLOT:	CADFILE: 2181
		FIGURE 2



- LEGEND**
- APPROXIMATE LEGAL LOT LINE
 - ◆ CONCRETE BATCH PLANT
 - MANUALLY EXCAVATED RESERVOIR
 - ▨ SETTLING TANK
 - ▩ SEACAN
 - - - EXISTING DRAINAGE DITCHING

NOTE: LOCATIONS DETAILED WITHIN FIGURE ARE APPROXIMATE

REFERENCE: CRD WEBMAP



 ISLANDER ENGINEERING www.islanderengineering.com		
CLIENT NAME: GULF EXCAVATING LTD.	PROJECT LOCATION: PENDER ISLAND, BC	
TITLE: SITE FIGURE 4415 BEDWELL HARBOUR ROAD		
DWN BY: SB	DWG NAME: 2181	DATE: 2018-12-31
CHK'D: LL	PLOT:	CADFILE: 2181
		FIGURE 3

APPENDIX A – SPILL REPORTING FORM

SPILL REPORT FORM

Pursuant to the *Spill Reporting Regulation* of the Environmental Management Act ALL non-authorized releases or discharges of contaminants to the marine environment, OR 100L or more of flammable liquid discharged on land, must be reported to one or more of the following immediately:

Provincial Emergency Program (PEP)	1-800-663-3456 (24 hour)
Environment Canada	1-604-666-6100 (24 hour)
Canadian Coast Guard	1-800-889-8852 (24 hour)

Note: If you are in doubt regarding spill size, affected environment, material involved and/or whether it is reportable, err on the side of caution and report the spill.

Particulars of the Spill:

1. Name of PEP Officer

Telephone:

2. Name of company causing spill:

Telephone:

3. Location of spill:

4. Date/Time of spill:

5. Substance spilled:

6. Quantity (L/Kg)

7. Cause and effect of spill:

8. Measures taken to stop/contain/minimize spill:

9. Description of spill location and surrounding area:

10. Further action required:

11. Agencies on Site:

12. Others notified of spill:

13. Date:

14. Report completed by:

SPILL RESPONSE PROCEDURE

1. ENSURE SAFETY

2. STOP THE FLOW (when possible)

3. SECURE THE AREA

4. CONTAIN THE SPILL

5. NOTIFY/REPORT

6. CLEAN-UP

7. SPILL REPORT

1. ENSURE SAFETY

- Ensure Personal, Public and Environmental Safety
- Wear appropriate Personal Protective Equipment (PPE)
- Never rush in, always determine the product spilled before taking action
- Warn people in immediate vicinity to stay clear or evacuate
- Ensure no ignition sources if spill is of a flammable material

2. STOP THE FLOW (when possible)

- Act quickly to reduce the risk of environmental impacts
- Close valves, shut off pumps or plug holes/leaks, set containers upright
- Stop the flow of the spill at its source

3. SECURE THE AREA

- Limit access to spill area
- Prevent unauthorized entry onto site

4. CONTAIN THE SPILL

- Block off and protect drains and culverts
- Prevent spilled material from entering drainage structures (ditches, culverts, drains)
- Use spill sorbent material to contain spill
- If necessary, use a dike, berm or any other method to prevent any discharge off site
- Make every effort to minimize contamination

- Contain as close to the source as possible

5. NOTIFY/REPORT

- Notify appropriate Site Supervisor and Owner, or alternate of incident (provide spill details)
- When necessary the first external call should be made to the Environmental Emergency Program (EEP) 1-800-663-3456 (24 hours)
- Provide necessary spill details to other external agencies (to be done by Owner where applicable)

The spill report should include the following information:

- Name and phone number of person reporting the spill
- Name and phone number of person involved with the spill and/or owner of the spilled substance if known
- Location and time of the spill
- Type and quantity of material spilled
- Cause and effect of spill
- Details of action taken or proposed to contain the spill and minimize its effect
- Names of other persons or agencies advised

6. CLEAN-UP

- Technical assistance is available from the Environmental Consultant/Monitor, who will consult with other experts on as-needed basis, on clean-up procedures and residue sampling. Mitigation and clean up measures will be forwarded to the Owner for review.
- All equipment and material used in clean-up (e.g., used sorbents, oil containment materials etc.) must be disposed of in accordance with provincial and/or federal requirements. The Environmental Monitor will assist in compliance with the applicable regulations.
- Accidental spills may produce hazardous wastes (e.g., material with > 3% oil or 2 ppm of PCB) and contaminated soil. All waste disposals must comply with the B.C. Hazardous Waste Regulations and the Waste Management Act. The Environmental Monitor will assist in compliance with such regulations.

Contaminated soil must be treated and dealt with as required on a site-specific basis, and must comply with the requirements of the B.C. Contaminated Sites Regulations.

7. SPILL REPORTING

- The spill report should include the following information:

Gulf Excavating LTD

- Name and phone number of person reporting the spill
- Name and phone number of person involved with the spill
- Location and time of the spill
- Type and quantity of material spilled
- Cause and effect of spill
- Details of action taken or proposed to contain the spill and minimize its effect
- Names of other persons or agencies advised
- Photographs of spill and its location

APPENDIX B – ENVIRONMENTAL MONITORING CHECKLIST

Environmental Monitoring Checklist/Report

Report Number:		Location (i.e. Facilities, Nearest Community):			
Date:	Time:				
Monitor Name:					
Meetings:					
Meeting Participants:					
Contractor(s) On Site:			Name of Representative Present:		
			Ground Conditions: <input type="checkbox"/> Dry <input type="checkbox"/> Wet <input type="checkbox"/> Saturated		
			<input type="checkbox"/> Other:		
Weather Conditions (Cloud Cover, Wind [Beaufort Wind Scale], Precipitation, Temperature):					
Site Activities:					Photos
Equipment Being Used Onsite:					Photos
Environmental Site Conditions (NC=Non-Compliant, NA=Not Applicable):					
Housekeeping	OK	NC	NA	Comments & Mitigation	Photos
Batch Plant Area					
Shale Quarry					
Aggregate Storage					
Other					
Water Quality Readings:	OK	NC	NA	Comments & Mitigation	Photos
Turbidity NTU: _____					
pH: _____					
Sediment tank level: %					
Reservoir #1: %					
Reservoir #2: %					
Other:					

Environmental Monitoring Checklist/Report

Erosion & Sediment Control:	OK	NC	NA	Comments & Mitigation	Photos						
Silt Fencing											
Bank Stabilization											
Soil Stockpiles											
Drainage & Diversions											
Detention Facilities											
Other											
Fuel & Oil Management:	OK	NC	NA	Comments & Mitigation	Photos						
Spill Kits/SPER Plan											
Fuel Storage											
Other											
Equipment:	OK	NC	NA	Comments & Mitigation	Photos						
Condition (e.g. Mud, Seeds)											
Other											
Waste Management:	OK	NC	NA	Comments & Mitigation	Photos						
Sanitary Facilities											
Solid Waste & Recycling											
Special Waste & Hazardous Materials											
Other											
Atmosphere:	OK	NC	NA	Comments & Mitigation	Photos						
Dust											
Air Quality											
Other											
Wildlife/Vegetation Management:	OK	NC	NA	Comments & Mitigation	Photos						
Invasive Plants											
Wildlife Sightings	yes	no	n/a	list below							
Other											
General Observations & Comments (E.G. Wildlife, New Environmentally Sensitive Features Identified):					Photos						
Other Comments:					Photos						
Upcoming Construction Activities:											
Incident Report Required? <input type="checkbox"/> Y <input type="checkbox"/> N											

Environmental Monitoring Checklist/Report

Soil and Water Management						
Water Management						
Water Pumping Area (Origin)	Daily flow volume	Max Flow rate	Discharge Location / Notes			
Materials Shipped Off Site						
Type of Material <small>(ie. soil, asphalt, concrete, water etc.)</small>	Quantity	Units (m ³ , tonnes, yards)	# of Loads	Receiver	Soil Classification <small>(ie. RL-, RL+, IL+, etc)</small>	
Materials Imported to Site						
Type of Material	Quantity	Units (m ³ , tonnes, yards)	# of loads	Analytical Data (Y/N?)	Supplier	Intended Use Onsite
Comments						

Environmental Monitoring Checklist/Report

PHOTOGRAPHS:

Report Number:	Monitor:	Date:
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Photo # 01:	Photo # 02:
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Photo # 03:	Photo # 04:
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