APPENDIX C

Hamlet of Chesterfield Inlet Abandonment and Restoration Plan

ABANDONMENT AND RESTORATION PLAN FOR WATER, SEWAGE AND SOLID WASTE FACILITIES

Chesterfield Inlet, NU

FINAL REPORT

Prepared for:

Department of Community and Government Services
Government of Nunavut
PO Box 002
Rankin Inlet, NU X0C 0G0

Prepared by:

Nunami Stantec
5021 – 49 Street
Yellowknife, NT X1A 2N4
Tel: (867) 920-2216 Fax: (867) 920-2278

Project No.:

1235-10080

May 2010

NUNAMI STANTEC

NUNAMI STANTEC

EXECUTIVE SUMMARY

This Abandonment and Restoration (A&R) plan has been developed for use at the sewage disposal, water distribution, and solid waste facilities in the Hamlet of Chesterfield Inlet, Nunavut. The purpose of the A&R plan is to establish and describe standard procedures for proper management of the future abandonment and restoration to be used when the water distribution, sewage disposal and solid waste facilities at Chesterfield Inlet are closed. Proper abandonment of these municipal facilities will provide compliance with the Hamlet of Chesterfield Inlet's Water License.

This A&R Plan contains the following sections:

1. Introduction
2. Background
3. Sewage Disposal Facility A&R Plan
4. Water Distribution System A&R Plan
5. Solid Waste Facility A&R Plan

An area-wide A&R plan will result in more satisfactory aesthetic and quality improvement results.

TABLE OF CONTENTS

ABBREVIATIONS

A&R ..... Abandonment and Restoration
GN-CGS.....Government of Nunavut Department of Community and Government Services
GN-ENV .....Government of Nunavut Department of Environment
Hamlet.....Hamlet of Chesterfield Inlet
HHW ..... Household Hazardous Waste
km .....kilometres
L ..... Litres
m ..... metres
m^2..... square metres
m^3.....cubic metres
MSW .....Municipal Solid Waste
NWB.....Nunavut Water Board
O&M.....Operations and Maintenance
ODS ..... Ozone Depleting Substance
SAO ..... Senior Administrative Officer
SCP..... Spill Contingency Plan

1 INTRODUCTION

Item 1 Part G of the Hamlet of Chesterfield Inlet's Water License (No. NWB3CHE0308 located in **Appendix A** of the Operations and Maintenance [O&M] manual), dated December 15, 2003, requires the submission of an Abandonment and Restoration Plan (A&R plan) to the Nunavut Water Board (NWB) for approval. This A&R plan must be submitted at least six (6) months prior to abandoning any facilities and the construction of new facilities to replace existing ones. Improvement or upgrade plans in 2010 in Chesterfield Inlet include improvements to their existing sewage disposal facility and upgrades to their water distribution system pumphouse and truck fill station. These scheduled improvements and upgrades do not include abandoning any municipal facilities however.

This A&R plan has been developed for use for when the water distribution, sewage disposal, or solid waste facilities in Chesterfield Inlet (Igluligaarjuk), Nunavut are closed and abandoned. The purpose of the A&R plan is to establish and describe standard procedures for proper closure and abandonment of municipal water, sewage and solid waste facilities in Chesterfield Inlet. This A&R plan includes information to address the following:

- Water intake facilities
- Water treatment and waste disposal sites and facilities
- Petroleum and chemical storage areas
- Sites affected by waste spills
- Leachate prevention
- An implementations schedule
- Maps delineating disturbed areas and site facilities
- Consideration of altered drainage patterns
- Type and source of cover materials
- Future area use
- Hazardous wastes
- A proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment.

As the Hamlet of Chesterfield Inlet (the Hamlet) is presently in the process of license renewal with the NWB, this A&R plan will also satisfy the abandonment and restoration requirements of the future license (expected in mid-2010). This A&R plan follows the applicable conditions of Item 1 of Part G of the Hamlet's Water License. The Hamlet will implement the A&R plan when approved by the NWB. This plan is to be used as a guide for the abandonment and restoration of any water distribution, sewage disposal, or solid waste facilities in the community.

1.1 Site Description

The Hamlet of Chesterfield Inlet is situated on the south shore of Chesterfield Inlet, on the western shore of Hudson Bay in Nunavut (approximately 63° 20' 27" N, 90° 42' 19" W). The community is located approximately 101 km northeast of Rankin Inlet, NU (see Figure 1 in **Appendix B** of the O&M manual).

Chesterfield Inlet is located in a zone of continuous permafrost in the Canadian Shield. There are numerous rock ridges and lakes in the area. Tundra vegetation overlies bedrock, which is mainly Precambrian granite and gneiss. Sandy-gravel beach deposits, scattered boulders, muskeg, and exposed rocks are visible on the surface.

Drinking water is obtained from Puiqsuk Lake (also known as First Lake), stored in a reservoir, treated, and distributed to water trucks via the pumphouse and truck fill station. Upgrades to the pumphouse and truck fill station are planned for the summer of 2010. Sewage is collected and discharged directly into a natural tundra wetland system, which treats the effluent as it flows northwest eventually reaching the marine environment of Hudson Bay. This system has been in operation since at least 1993 and upgrades to the sewage discharge system are planned for the summer of 2010. Domestic solid waste is collected and disposed of at the municipal solid waste disposal facility. Locations of the current water distribution, sewage disposal, and solid waste disposal facilities are shown on Figures 1 and 2 in **Appendix B** of the O&M manual.

2 BACKGROUND

2.1 Sewage Disposal Facility

The sewage disposal facility is discussed in more detail in the O&M manual. In general, the facility is situated approximately 2.2 km west of the community and presently consists of a built-out gravel pad dumping station and a natural tundra wetland. The wetland is comprised of four major ponds and several intermittent ponds, some small streams and open, boggy, wet tundra areas (natural wetlands) between the ponds through which overland flow occurs in a northwest direction about 1,000 m before entering the marine environment of Finger Bay on Hudson Bay. No engineered structures have been built.

In the summer of 2010, GN-CGS is planning to construct engineered improvements to the natural tundra wetland system to help ensure the sewage disposal facility meets the long-term (20 years) needs of the community and the effluent meets regulatory compliance criteria at the final discharge point. These improvements will include construction of two sewage detention cells, two flow diversion berms (south of Finger Bay), upgrading the existing dumping station, and constructing a new dumping station (one per detention cell). A copy of the plans of the proposed upgraded sewage disposal facility is included in **Appendix E** the O&M manual. These improvements, with proper operations and maintenance, are intended to ensure this facility is operational through the year 2029 before abandonment would be considered.

2.2 Water Distribution Facility

The Chesterfield Inlet water distribution system is discussed in more detail in the O&M manual. In general, the system consists of a water intake, pump shelter, overland pipeline, reservoir, and pumphouse with truck fill.

Water is obtained from a water intake at Puiqsuk Lake which is located approximately 2.6 km west of the community. A pump shelter is located near the Puiqsuk Lake shore and houses the water pump, a 100 L diesel fuel tank, and intake and discharge hoses.

Water is piped via a 3.2 km long overland pipeline from Puiqsuk Lake into a reservoir located next to the pumphouse. The reservoir is located approximately 150 m west of the community and was constructed by blasting bedrock to an average depth of 7 m (23 ft). The reservoir is fenced though unlined. Reservoir capacity is estimated at approximately 23,000 cubic metres (m^3). Water trucks obtain water from the reservoir via a submersible intake pump, which pumps water through the pumphouse. The pumphouse accommodates the water intake system, truck fill system, chlorination system, standby generator, and associated heating, electrical, and alarm systems. The pumphouse and truck fill system are expected to be upgraded in the summer of 2010. Components of the water distribution system are illustrated in Figure 2 in **Appendix B** of the O&M manual.

2.3 Solid Waste Disposal Facility

Chesterfield Inlet's solid waste disposal facilities are discussed in more detail in the O&M manual. In general, the facilities consist of a partially fenced disposal area for the municipal solid waste (MSW), located 2.2 km west of the community; a separate bulk metal disposal area, approximately 200 m south of the fenced MSW area; and a drum storage area and a hazardous waste storage area, approximately 150 m and 270 m southeast of the MSW area, respectively. A decommissioned solid waste landfill is present between the fenced MSW area and the bulk metal disposal area, at the head of the sewage treatment wetland. Figure 2 in **Appendix B** of the O&M manual, illustrates components of Chesterfield Inlet's solid waste disposal facilities.

The MSW disposal facility covers an area approximately 24,100 square metres (m^2) and is situated adjacent to and north of the sewage disposal facility. The MSW disposal facility is unlined and runoff from the MSW facility flows into the sewage disposal facility.

Most large metal wastes are disposed of at the bulk metal disposal area. The bulk metal disposal area is not fenced or bermed and is used by the community to dispose of items such as automobiles, heavy equipment, appliances, old fuel tanks, and other bulky metal wastes.

Some hazardous waste management and segregation presently occurs at the MSW disposal facility in Chesterfield Inlet. Presently, waste oil is stored in drums at the hazardous waste storage area while empty, crushed and palleted drums are stored in the drum storage area; the hazardous waste storage area is bermed and lined. Other household hazardous wastes, including, waste batteries, paint, antifreeze and other wastes are also usually stored at the hazardous waste storage area.

3 SEWAGE DISPOSAL FACILITY A&R PLAN

3.1 Facility

Upgrades to the sewage disposal facility at Chesterfield Inlet are expected to be completed in the summer of 2010 and are intended to ensure this facility is operational through the year 2029 before abandonment will be considered. It is possible that the facility could continue to operate for a significant period of time beyond 2029 though performance of the facility will need to be determined. The two main components of the sewage disposal facility will be the two detention cells and the tundra wetland, having a combined area of approximately 10.4 hectares (104,000 m^2).

Sewage vacuum trucks bring the sewage from the Hamlet to the facility. Chesterfield Inlet is a residential community with no major heavy industry. The sewage generated and disposed of is a municipal type waste. Generally, the sewage solids tend to settle in the detention cells and the liquid effluent flows over the tundra wetland.

The sewage is adequately treated at the facility. Due to the uniform characteristics of the domestic wastewater, the steady flow of sewage through the facility, and the two detention cells prior to the tundra wetland, the effluent that flows over the tundra wetland has very little solids.

When the facility ceases to be used as a sewage disposal facility, discharge to the detention cells has to cease. It is expected the natural biological processes active in this tundra environment will over time return this area to its original state.

3.2 Facility Map

The sewage disposal facility is described in more detail in the O&M manual. The site is shown in Figures 1 and 2 in **Appendix B** of the O&M manual.

3.3 Waste Spills

Prior to abandoning the site or removing any engineered structures, the facility will be inspected for sewage waste spills. Raw sewage can contain infectious bacteria, viruses, fungi and parasites that can cause serious human illnesses and even death. It is imperative to safely and properly clean up all sewage spills to reduce the chance of human infection and environmental contamination. Any spilled and/or frozen wastewater will be removed and deposited in one of the detention cells. Petroleum related spills will be collected and deposited at the hazardous waste storage area in appropriate containers.

At the sewage disposal facility, spills may result from any of the following occurrences:

- Leaks or ruptures of fuel tanks
- Valve or line failure in vehicles or heavy equipment
- Vehicular accidents
- Spill during transfer of sewage
- Vandalism.

The Spill Contingency Plan (SCP) is presented in Section 6.2 of the O&M manual and provides a guide to operators and other Hamlet personnel in the event of an accidental release of sewage, or other waste associated with the sewage disposal facility. The SCP is planned to be protective of the local environment and public and personnel health and safety. Every time a spill is identified, the Hamlet Maintainer and/or Hamlet Foreman will be contacted as soon as possible. The 24-hour Emergency Spills Report Line will be contacted in the event any spill of any amount occurs.

3.4 Implementation Schedule

When the sewage disposal facility is to be abandoned, public access of the area will be restricted. In general, there is not expected to be a significant amount of heavy equipment activity at the site. This will aid in minimizing disturbance to the existing vegetation and promote restoration of disturbed areas. During abandonment and restoration, the Hamlet will ensure all workers wear the appropriate personal protective equipment (PPE), including waterproof gloves, safety glasses/goggles, rubber boots and disposable protective coveralls. The entire developed area of the facility will be abandoned and restored. This work will include:

1. Removing any general debris that has accumulated at the facility. The debris is to be segregated and disposed of at the appropriate solid waste facilities.
2. Prior to removing any engineered structures the sewage sludge generated by the settling of wastewater solids during primary treatment, considered ‘lagoon sludge’ (FSC 2001), will need to be addressed as follows:
    a) The amount of sludge accumulation (volume) in the detention cells will be determined.
    b) Sludge in the detention cells will be tested to determine its physical and chemical characteristics and to ensure the disposal method selected is appropriate, safe and environmentally responsible. Disposal options may include:
        i. Land disposal, if the sludge is of a suitable quality;
        ii. If the sludge is not suitable for land disposal, it may be disposed of at the MSW disposal facility if it meets the facility’s requirements; or,
        iii. The sludge may require additional treatment before disposal (FSC 2001).
3. Remove the engineered structures placed within the facility. These structures include:
    a) The two discharge spillways at the dumping stations will be washed and cleaned with a detergent solution and then disinfected using only approved disinfectants, and then disposed of at the solid waste disposal facility, or recycled and incorporated in the future sewage disposal facility design.
    b) The metal and concrete filled bollards and wooden traffic barrier stop logs with rebar, placed at the two dumping stations will be disposed of at the solid waste disposal facility.
    c) The stone riprap will be washed and cleaned with a detergent solution and disinfected using only approved disinfectants, and then disposed of on-site or offsite.

d) Facility signs will be removed, the posts salvaged for use by the Hamlet, and the signs disposed of at the solid waste facility (if not recycled for the future sewage disposal facility).

e) Unless the dumping stations are to be used for another purpose, such as for vehicle parking areas, they will be regraded to match the existing shoulders of the roadway and reseeded so native vegetation can be re-established.

f) The detention cell berms will not be removed until the sludge and effluent are removed. The cells are constructed of sand, gravel and a synthetic liner. The sand and gravel will be tested and if acceptable, can be reused offsite or disposed of on-site to level the site. A possible use, if acceptable, is as a cover material at the solid waste disposal facility. The sand and gravel will not be placed directly in standing water. The synthetic liner will be disposed of at the appropriate location within the solid waste disposal facility.

g) The liquid effluent in the detention cells will be transported downstream or to another detention cell using the sewage vacuum truck(s) or by other acceptable means.

h) As the diversion berms are constructed with the same materials as the detention cells, they will be removed in the same manner, but only after the detention cells have been removed. If not utilized on-site, this material may be very suitable as a cover material at the solid waste disposal facility.

i) All disturbed areas will be regraded to promote natural run-off.

j) All disturbed areas will be reseeded and maintained until native vegetation is re-established.

k) Once the sewage disposal facility has been cleaned up, dispose of disposable PPE (i.e., coveralls, gloves, safety glasses/goggles) in approved area of the MSW disposal facility. Ensure other PPE (i.e. rubber boots) are properly cleaned and disinfected prior to re-use.

3.5 Restoration Costs

The Hamlet will restore their abandoned sewage disposal facility in a manner consistent with the terms and conditions of their license and the provisions of this A&R plan. Restoration will be undertaken both in a progressive manner, as components or areas are abandoned, and upon final abandonment of the site. As part of any future sewage expansions and upgrades that may include the abandonment of a section of the existing facility, the engineering evaluation and facility planning will jointly consider the impact and costs associated with abandonment, and what effects the abandonment will have on the discharge parameter limits.

Progressive reclamation will be an activity of regular operations and will be financed through annual operations and maintenance budgets, supervised and undertaken by Hamlet staff. Final abandonment will be an identified component of the capital replacement project and will be funded within the capital budget for the future sewage disposal facility project. Capital projects are typically

undertaken by third party contract which provide for payment upon completion of established activities.

3.6 Future Area Use

The Hamlet will continue to confine sewage disposal to the designated outlet locations and designated treatment routes so when the sewage disposal facility site is abandoned and restored, the area of concern will be easily delineated and monitored as it is allowed to return to its original state. The site is bounded to the north and west by Finger Bay (Hudson Bay), to the east by the municipal airport, and to the south by the Puiqsuk Lake and associated water supply pipeline.

Only municipal wastewater has been treated at the facility so the only expected heavy metals or other kinds of contamination would be expected to result not from the sewage disposal, but from the solid waste facility leachate. However, future development plans will not include this area.

4 WATER DISTRIBUTION FACILITY A&R PLAN

4.1 Facility

Upgrades to the Chesterfield Inlet water distribution system are expected to be completed in the summer/fall of 2010. In general, the water distribution system consists of a water intake, pump shelter, overland pipeline, reservoir, and pumphouse with truck fill. The upgrades are primarily focused on the pumphouse and truck fill and include a new reservoir intake pump, a second pumphouse building housing a new filtration and chlorination system, and a new truck fill line. No other upgrades and no abandonment are currently planned.

Water is currently obtained from a water intake at Puiqsuk Lake, located approximately 2.6 km west of the community. A pump shelter is located near the lakeshore and houses the water pump, a 100 L diesel fuel tank, and intake and discharge hoses. Water is piped once a year from the lake via a 3.2 km long overland pipeline from the lake into a reservoir located next to a pumphouse. The reservoir and pumphouse are located approximately 150 m west of the community and the reservoir was constructed by blasting bedrock to an average depth of 7 m (23 ft). The reservoir is fenced though unlined. Reservoir capacity is estimated at approximately 23,000 m^3. Water trucks obtain water from the reservoir via a submersible intake pump located in the reservoir, which pumps water through the pumphouse. The pumphouse currently accommodates the water intake system, truck fill system, chlorination system, standby generator, and associated heating, electrical, and alarm systems. Water trucks bring the water from the reservoir and pumphouse to the hamlet.

When the water distribution system ceases to be used, the existing components will have to be removed and the reservoir will have to be addressed. All of the components of the facility are generally located on the land surface, not below ground. It is expected the tundra environment observed in proximity to the water distribution system has not been significantly altered by the water distribution system. When the water distribution system is abandoned the surrounding area is anticipated to eventually return to its pre-development state over time.

A secondary component to the water distribution system is the access road constructed from the hamlet to Puiqsuk Lake. To ensure continued access to the lake, the Hamlet regularly performs basic maintenance activities on the road. If the existing water distribution system is abandoned, it is anticipated the road will remain.

4.2 Facility Map

The general components of the water distribution system are shown in Figure 1 in **Appendix B** of the O&M manual. The pumphouse is located next to the reservoir.

4.3 Waste Spills

Though any spills would normally be cleaned up as they occur, prior to abandoning the water distribution system or removing any engineered or built-up structures, the areas around the system

components will be inspected for spills. The primary areas of concern for spills will be in and around the pumphouse (e.g., truck fill) and where pumps are utilized (pump shelter). The pumphouse has a significant amount of truck traffic and stores and utilizes chlorine powder. It is imperative to safely and properly clean up all vehicle and chlorine spills to reduce the chance of environmental contamination. Any contaminated soil or snow will be removed and properly stored in the hazardous waste storage area.

Referencing the water distribution system, spills may result from any of the following occurrences:

- Leaks or ruptures of fuel tanks
- Valve or line failure in the system, equipment or vehicles
- Heat expansion due to overfilling or improper storage
- Improper storage of contaminants
- Vehicular accidents
- Vandalism.

A SCP has been developed for implementation at the water distribution system in Chesterfield Inlet. The SCP is presented in Section 6.2 of the O&M manual and provides a guide to operators and other Hamlet personnel in the event of an accidental release of a hazardous product or other waste at the water distribution system. The SCP is planned to be protective of the local environment and public and personnel health and safety. Every time a spill is identified, the Hamlet Maintainer and/or Hamlet Foreman will be contacted as soon as possible. The 24-hour Emergency Spills Report Line will be contacted in the event the quantity of contaminant spilled exceeds the reportable amount.

4.4 Implementation Schedule

The abandonment of the water distribution system should be relatively simple when compared to the sewage disposal and solid waste disposal facilities. The water distribution system conveys potable water. At the time of abandonment, the primary area of concern will be the reservoir and addressing if the reservoir should be filled in or if another use can be found for it. This should be assessed at the time of abandonment, examining potential use and need of the community. For public safety reasons, the fence around the reservoir should remain until it is filled in or, a new use has been identified.

Structures associated with the water distribution system will be dismantled; these structures include the pump shelter and components at Puiqsuk Lake, the overland pipeline, and the pumphouse and associated components. Depending on the component and material, structures could either be re-used or disposed of at the MSW disposal area, bulk metal waste disposal area, hazardous waste disposal area, or shipped off-site.

All compacted built-up areas used for the water distribution facility, including the truck pad of the pumphouse and any abandoned access roads, should be tilled to allow re-growth of vegetation. This should only occur once these areas are confirmed to be clean and free of spills or other contaminants. These areas can be seeded or left for natural restoration.

4.5 Altered Drainage Patterns

The surfaces of the abandoned water distribution system area(s) will be graded to match existing conditions and existing drainage patterns. Runoff will be allowed to flow naturally over the abandoned sites and they will be returned to their pre-development state as much as possible.

4.6 Restoration Costs

The Hamlet will restore the abandoned water distribution system in a manner consistent with the terms and conditions of their license and the provisions of this A&R plan. Restoration will be undertaken both in a progressive manner, as components or areas are abandoned, and upon final abandonment of the system.

Progressive reclamation will be an activity of regular operations and will be financed through annual operations and maintenance budgets, supervised and undertaken by Hamlet staff. Final abandonment will be an identified component of the capital replacement project and will be funded within the capital budget for the project. Capital projects are typically undertaken by third party contract which provide for payment upon completion of established activities.

4.7 Future Area Use

Properly abandoning and restoring the areas used in the distribution system will allow these areas to return to their pre-development state, as much as possible. Aside from potential spills resulting from vehicle or chlorine use, there is not expected to be any amount of contamination resulting from the water distribution system and future hamlet development plans may include this area.

When the existing water distribution system is abandoned, it is anticipated the road to Puiqsuk Lake will remain for the residents of the hamlet to continue to use.

5 SOLID WASTE DISPOSAL FACILITY A&R PLAN

5.1 Facility

There are currently no plans to abandon or upgrade the solid waste disposal facilities in Chesterfield Inlet, of which the components are comprised of the following:

- The fenced MSW disposal facility;
- The bulk metal waste disposal area, located 180 m south of the MSW disposal facility;
- A drum storage area, located 150 m southeast of the MSW disposal facility; and,
- The hazardous waste storage area, located 270 m southeast of the MSW disposal facility.

When the facility(ies) ceases to be used as a solid waste disposal facility, disposal to the particular facility must stop. This assumes a new replacement facility will be functional before the current facility(ies) are abandoned. It is expected that the natural biological processes active in this tundra environment will over time return this area to its original state.

During abandonment and restoration, the public and all personnel working within the solid waste disposal facilities will be made aware of potential health and safety hazards associated with working around municipal solid wastes and hazardous wastes. This is imperative so individuals make a conscious effort to perform all necessary safety procedures to protect themselves. The requirements of the Nunavut *Safety Act* will be followed at all times. Additional health and safety precautions for the public and site personnel may be taken during abandonment and restoration.

Even after the facility is restored, public access to the abandoned facility will be restricted to minimize potential hazards to the public. Public access to the hazardous waste storage area will especially be restricted until it is confirmed the site has been decontaminated to meet residential use requirements. Other uses would generally require less restrictive cleanup provided the contamination is not migrating and the site is capped so that no contact occurs.

5.2 Facility Map

The general components of the solid waste disposal facilities are shown in Figures 1 and 2 in **Appendix B** of the O&M manual.

5.3 Waste Spills

A SCP has been developed for implementation at the solid waste disposal facilities in Chesterfield Inlet. This SCP is located in Section 6.2 within the O&M manual and should be referenced. All persons involved with operations at the solid waste disposal facilities should read and be familiar with this SCP. To be effective, it is important that all personnel are familiar with their responsibilities and steps to take in the event of a spill. One of the first criteria of addressing a spill is to identify the spilled material.

At the solid waste disposal facilities, spills may result from any of the following occurrences:

- Leaks or ruptures of fuel storage tanks
- Valve or line failure in systems, vehicles or heavy equipment
- Heat expansion due to overfilling or improper storage
- Improper storage of contaminants
- Vehicular accidents
- Spill during transfer of contaminant
- Vandalism.

5.3.1 Municipal Solid Waste (MSW) Disposal Facility

The MSW disposal facility is mostly fenced. Proper waste segregation will assist in the successful abandonment and restoration of the facility as it helps keep hazardous wastes out of the MSW disposal facility, allows the Hamlet to address each waste individually, and reduces, to some degree, the chance of spills.

The MSW disposal facility at Chesterfield Inlet was likely designed as a natural attenuation landfill. This means that the landfill is not lined and if a spill occurs, contaminants can enter the surrounding environment and will need to be naturally broken down. Natural attenuation landfills rely on permafrost below the landfill to assist in containing spills. However, it is important that when encountered, spills be identified, cleaned, and contaminated soil or snow disposed of at the proper location in the hazardous waste storage area; this will help ensure harmful contaminants are kept out of the MSW disposal facility and not allowed to move downstream.

The SCP presented in the O&M manual provides a guide to operators and other Hamlet personnel in the event a spill occurs or is discovered at the MSW disposal facility. The SCP is planned to be protective of the local environment and public and personnel health and safety. Every time a spill is identified, the Hamlet Maintainer and/or Hamlet Foreman will be contacted as soon as possible. The 24-hour Emergency Spills Report Line will be contacted in the event the quantity of contaminant spilled exceeds the reportable amount.

5.3.2 Bulk Metal Waste Disposal Area

Prior to and during the abandonment of the bulk metal waste disposal area, the facility will be inspected for spills. It is imperative to safely and properly clean up all spills to reduce the chance of environmental contamination. Any spilled and/or frozen liquids will be properly addressed. Depending on the source of contamination, the contaminated soil or snow will be collected and properly stored at the lined hazardous waste storage area, or sent to an off-site facility.

The SCP presented in the O&M manual provides a guide to operators and other Hamlet personnel in the event of an accidental release of contaminant at the bulk metal waste disposal facility. The SCP is planned to be protective of the local environment and public and personnel health and safety.

Every time a spill is identified, the Hamlet Maintainer and/or Hamlet Foreman will be contacted as soon as possible. The 24-hour Emergency Spills Report Line will be contacted in the event the quantity of contaminant spilled exceeds the reportable amount.

5.3.3 Drum Storage Area

The drum storage area is presently a holding area and contains crushed and palleted 205 L (45 gal.) drums waiting to be shipped out of the community. It is presumed this area will continue to function as the empty drum storage area until all of the drums are shipped. These containers previously held dangerous goods and are very susceptible to spills. The drum storage area is not lined and any contaminant spilled could directly enter the environment.

All drums located within the drum storage area will be removed prior to abandoning the drum storage area. The Hamlet may work with other communities, the GN and a transportation company to establish a backhaul program to remove and dispose of these waste materials.

Prior to abandoning the drum storage area, the area will be inspected for spills. It is imperative to safely and properly clean up all spills to reduce the chance of environmental contamination. Any spilled and/or frozen contaminant will be properly addressed. All spills will be properly cleaned up and contaminated soil or snow disposed of at the proper location within the hazardous waste storage area.

The SCP presented in the O&M manual provides a guide to operators and other Hamlet personnel in the event of an accidental release of waste at the drum storage areas. The SCP is planned to be protective of the local environment and public and personnel health and safety. Every time a spill is identified, the Hamlet Maintainer and/or Hamlet Foreman will be contacted as soon as possible. The 24-hour Emergency Spills Report Line will be contacted in the event the quantity of contaminant spilled exceeds the reportable amount.

5.3.4 Hazardous Waste Storage Area

The hazardous waste storage area is used to store household hazardous wastes (HHW) and contaminated soil/snow. Spills from a number of contaminants may occur and on-going inspections and clean up of any spills should occur through the life of the facility. Proper storage of all wastes in the hazardous waste storage area will help minimize any environmental or human health hazards. Section 5.8.1.2 of the O&M manual provides information on proper storage of several expected HHW.

However, prior to abandoning the hazardous waste storage area, the area will be inspected for spills. Even though the hazardous waste storage area is bermed and lined, it is imperative to safely and properly clean up all spills to reduce the chance of environmental contamination. Any identified spill will be properly addressed. Contaminated soil or snow will be collected and properly stored at the new, replacement hazardous waste storage area, or sent to an off-site facility.

The SCP presented in the O&M manual provides a guide to operators and other Hamlet personnel in the event of an accidental release of waste at the drum storage areas. The SCP is planned to be

protective of the local environment and public and personnel health and safety. Every time a spill is identified, the Hamlet Maintainer and/or Hamlet Foreman will be contacted as soon as possible. The 24-hour Emergency Spills Report Line will be contacted in the event the quantity of contaminant spilled exceeds the reportable amount.

5.4 Implementation Schedule

There are presently no plans to abandon any of the solid waste facilities in Chesterfield Inlet. However in the O&M manual, it was recommended to discontinue use of the drum storage area if empty drums cannot be properly cleaned and rinsed; unclean, empty drums should be stored in the hazardous waste storage area. If use of the drum storage area is ceased, the abandonment procedure for the drum storage area should commence; closure of the drum storage area could potentially be expected in two to five years.

The A&R plans for the solid waste facilities intends to provide direction to Hamlet personnel involved in closure of solid waste facilities in Chesterfield Inlet. The following activities may be expected with implementation of A&R plans for solid waste facilities:

- Compaction and contouring of the MSW disposal facility landfill
- Removal of any non-landfillable wastes, bulk metals wastes, hazardous wastes and contaminated soils
- Capping of the MSW disposal facility and potentially other facilities, with the creation of appropriate drainage systems
- Implementation of a post-closure monitoring and inspection program.

5.4.1 Municipal Solid Waste (MSW) Disposal Facility

The current MSW disposal facility site is being used for municipal waste disposal. Waste will accumulate (be landfilled) in the MSW disposal facility until the site reaches its' capacity. Before that point in time, a new MSW disposal facility site will need to be chosen and the current site closed. Adverse effects to the surrounding environment from the MSW disposal facility will be reduced through proper management over the life of the facility, consistent with current regulatory requirements, standards, and guidelines. See Section 5 of the O&M manual for information on appropriate operations and maintenance activities at the solid waste disposal facilities.

Regulatory guidelines require sampling of the effluent from the MSW disposal facility and the sewage disposal facility to aid in identifying contaminants before they become an issue. The wastes deposited at the MSW disposal facility are potential sources of contamination to the surrounding and downstream environment. Potential contaminants originating from the MSW disposal facility may include inorganic compounds (e.g., sulfate, chloride, ammonia), heavy metals, petroleum hydrocarbons, phenols and other dissolved organic matter. These contaminants can end up in the soil, the surface or groundwater, or the air. Contamination of the surrounding environment can add to long-term concerns and consequences and, therefore, sources of contaminants within Hamlet facilities needs to be limited. Contamination from the MSW disposal facility can be due to past or

present uses, on-going practices, or single events. Test results to date seem to indicate only relatively minor levels of contamination from the MSW disposal facility, of which are currently effectively treated within the sewage disposal facility.

When the existing MSW disposal facility is ready for closure, abandonment activities will consist of consolidating, compacting and leveling the remaining landfillable solid waste on-site into low areas. The entire site will then be capped with at least 0.6 m of sand and gravel, compacted and graded so as to promote drainage away from buried waste. The sand and gravel will be obtained from local pits in the area. Since impermeable materials (i.e., clay) are unavailable in Chesterfield Inlet, covering the MSW disposal facility with an impermeable membrane (e.g., a geomembrane) is recommended. This will prevent water percolation through the waste piles and the creation of more leachate and long-term contamination issues. Final capping operations can be made easier by stockpiling the sand and gravel cover materials close to the MSW disposal facility.

Signage will be placed at the abandoned MSW disposal facilities to inform the public of the abandoned area. Disposal of any other wastes will also be restricted by closing and locking the site. The area will be monitored and inspected to ensure the restrictions are enforced. In addition, the Hamlet will perform any requirements of the NWB license guidelines, which may eventually include addressing the salvage or removal of the existing fence once the capped MSW disposal facility has stabilized.

The capped MSW disposal facility site will also be covered with compost or soil, and be seeded with an appropriate mix of native grasses and plants to achieve natural vegetation. This covering of the waste will aid in reducing the attraction for birds and other wildlife.

5.4.2 Bulk Metal Waste Disposal Area

The bulk metal waste disposal area may require less abandonment and restoration activity than the MSW disposal facility (e.g., likely does not need to be covered). However, proper abandonment procedures are still required. The following is a current list of materials that are acceptable for disposal in the bulk metal waste disposal facility:

- Large metal wastes (i.e., clean and decommissioned fuel tanks and drums, towers, poles/posts, culverts, etc)
- Tires
- Appliances
- Properly abandoned vehicles, snowmobiles, and all-terrain vehicles (ATVs).

Upon closure of the bulk metal waste disposal area, all the waste within area will be removed from the hamlet through a back haul program and properly disposed of at appropriate receivers. The Hamlet may work with other communities, the GN and a transportation company to establish a backhaul program to remove and dispose of these materials.

Testing of the soil within the bulk metal waste disposal area should occur following removal of all wastes. As long as the area is free of spills and other contaminants, the top soil should be tilled and the area can be seeded or left for natural restoration.

5.4.3 Drum Storage Area

All empty drums located within the drum storage area will be removed prior to abandoning. The Hamlet may work with other communities, the GN and a transportation company to establish a backhaul program to remove and dispose of these waste materials. The crushed drums presently located at the drum storage area are ready to be shipped out and should be removed from the community as soon as possible.

Similar to the bulk metal waste disposal area, testing of the soil within the drum storage area should occur following removal of all wastes. As long as the drum storage area is free of spills and other contaminants, the top soil should be tilled and the area can be seeded, left for natural restoration, or utilized for another purpose.

5.4.4 Hazardous Waste Storage Area

Hazardous wastes are those that are known to be dangerous due to their chemical, physical or biological properties, are no longer used for their original purpose, and are intended for recycling, treatment, disposal or storage (GNWT 1998, GN-ENV 2002). All hazardous wastes require special handling, storage and disposal methods to prevent human health and environmental exposure.

The waste materials delivered to the solid waste disposal facilities consists almost entirely of municipal waste. Industrial wastes should not be accepted at the Hamlet's solid waste facilities as it is only licensed to accept municipal wastes (including HHW) for disposal or storage. The Hamlet has restricted disposal/storage of HHW and waste fuel to the hazardous waste storage area. The following HHW may be stored at the hazardous waste storage area:

- Pesticides and herbicides
- Paint
- Solvents (e.g., paint cleaners)
- Flammable liquids
- Corrosive cleaners
- Batteries (wet and dry cell)
- Empty contaminant containers (e.g., 205 L fuel drums
- Oil filters
- Antifreeze
- Propane tanks and cylinders
- Aerosol cans (not empty)
- Fire extinguishers
- Used fuel and oil
- Fluorescent light tubes and compact fluorescent light bulbs

Contaminated soil from spill clean-up is the only non-HHW that should be accepted by the Hamlet for storage at the hazardous waste storage area. Contaminated soil should be stored in 205 L steel drums and shipped out of the community every year.

The hazardous waste storage area is intended for storage only, not disposal. It is expected that hazardous wastes will be stored for up to a maximum of five years. This should be sufficient time for the community to build up enough waste to make it economical for a back haul out of the community to a licensed waste receiver. Upon closure of the hazardous waste storage area, all wastes should be removed out of the community for appropriate disposal, or to a new, replacement hazardous waste storage area.

Granular materials placed on top of the geomembrane liner during construction should be removed and disposed of in a manner similar to contaminated soils. If spills or leaks have occurred within the hazardous waste storage area, the geomembrane liner should be sent to an off-site facility for disposal. If it can be confirmed that the liner is not contaminated and is undamaged, it may be salvageable and reused for some purpose at the replacement hazardous waste or solid waste facility. The soil under the liner will be tested for potential contaminants. Based on the test results, the soil could remain on-site, be treated on-site, taken to the replacement hazardous waste storage area, or transported off-site for disposal. Once all materials have been removed from the abandoned hazardous waste storage area and it is established to be free of contaminants, the area should be tilled and could be seeded with native grasses or allowed to naturally restore.

5.5 Leachate Prevention

Normal operation and maintenance of the MSW disposal facility has included burning of burnable waste material. This will restrict some moisture from entering waste media and thus limit leachate production. However it is recommended that the MSW disposal facility be covered with an impermeable membrane (e.g., a geomembrane) as this will prevent water percolation through the waste piles and the creation of more leachate and long-term contamination issues. It is anticipated that after covering of the MSW disposal facility, permafrost will move up into the buried waste and further prevent leachate from occurring. Final capping operations can be made easier by stockpiling the sand and gravel cover materials close to the MSW disposal facility.

In addition, all of the solid waste facilities are all underlain by permafrost and bedrock which will act as a barrier in the transport of leachate. Leachate from the hazardous waste storage area should be minimal as it has a berm around it and a geomembrane liner under it, which would have minimized leachate leaving the site over its lifespan. Since all wastes and contaminated materials will be removed from the bulk metal waste, drum storage and hazardous waste areas, it is expected once fully cleaned and abandoned there will be no leachate from these areas.

5.6 Cover Materials

The entire MSW disposal facility will be covered with at least 0.6 m of sand and gravel, compacted and graded so as to promote drainage away from the buried waste. The sand and gravel will be obtained from local pits in the area. Capping operations can be made easier by stockpiling the cover materials close to the MSW disposal facility. After covering the facility, the disturbed areas will be revegetated with native plant species to aid in stabilizing cover materials, reducing erosion, preventing establishment of invasive species, and restoring the area to its pre-development state.

5.7 Altered Drainage Patterns

A flow diversion berm is scheduled to be constructed in 2010 to direct some of the leachate from the MSW disposal facility towards the sewage disposal facility; this will aid in the treatment of the leachate. The flow diversion berm will be constructed primarily with sand and gravel. The exact location of the berm and its dimensions are shown in Figure 2 of **Appendix B** of the O&M manual. The berm will protect the area downstream of the MSW disposal facility from direct leachate and direct it to the sewage disposal facility for treatment prior discharge to Finger Bay and Hudson Bay. When the MSW disposal facility is abandoned and leachate from the site has ceased, it still may be beneficial to have the runoff from the MSW disposal facility and the bulk metal waste area directed to the sewage disposal facility. Therefore, this berm will remain in place until the sewage disposal facility is abandoned.

In addition, there is a berm and geomembrane liner in the hazardous waste storage area. When this area is abandoned, the liner and berm will be removed and the areas will be properly addressed (see Section 5.4.4 above).

The surface runoff from the abandoned and reclaimed site(s) will be addressed by grading the areas to direct runoff into the sewage disposal facility, and when that is not possible, to match the original conditions and original drainage patterns. Ideally, final drainage patterns of abandoned sites will match original drainage conditions however this will only occur if the sites have been confirmed clean and surface runoff would not contain any contaminant. Generally, the MSW disposal facility and the bulk metal waste disposal area drain in the northwesterly direction. The drum storage area and hazardous waste storage area drain in the northeasterly direction. Even though the sites associated with the abandonment and restoration of the solid waste disposal facilities will be graded, grading will not change their overall drainage patterns and the areas will be returned to their original state, as much as possible.

Site restoration will be designed to promote growth of native vegetation, reduce erosion and return the site to its pre-development state. Site restoration activities will also encourage minimal long-term maintenance of the abandoned sites. Although somewhat altered and compacted by the development of the solid waste facilities, once tilled, clean soils underlying the non-capped facilities are likely still able to support re-vegetation with minimum maintenance, once established.

The first few years after abandoning or re-seeding are the most crucial for maintenance. During this time and until vegetation has become established, the sites should be regularly inspected for erosion and runoff. Erosion issues should be corrected as soon as possible once identified. The eventual re-vegetation and stabilization of the abandoned sites will create a natural looking site that buffers and slows runoff.

5.8 Restoration Costs

The Hamlet will restore the abandoned solid waste disposal facilities in a manner consistent with the terms and conditions of their license and the provisions of this A&R plan. Restoration will be

undertaken both in a progressive manner, as components or areas of certain sections of the facility are abandoned, and upon final abandonment of the facilities.

Progressive reclamation will be an activity of regular operations and will be financed through annual operations and maintenance budgets, supervised and undertaken by Hamlet staff. Final abandonment will be an identified component of the capital replacement project and will be funded within the capital budget for the project. Capital projects are typically undertaken by third party contract which provide for payment upon completion of established activities.

5.9 Future Area Use

The Hamlet will continue to confine their solid waste disposals to the designated locations so when each facility site is abandoned and restored, the area of concern will be easily delineated and monitored. The goal of the abandoning and restoring of the solid waste disposal facilities will be to allow these areas to return to their original state, as much as possible.

Future Hamlet development plans will likely not include these solid waste disposal areas, unless new disposal areas are placed adjacent to or on top of the abandoned areas.

6 REFERENCES

Government of the Northwest Territories (GNWT). 1998. Guideline for the General Management of Hazardous Waste in the NWT. GNWT Department of Resources, Wildlife and Economic Development, Yellowknife, NT.

Government of Nunavut Department of Environment (GN-ENV). Guideline for the General Management of Hazardous Waste. Iqaluit, NU: GN-ENV, 2002.

APPENDIX D

Sampling Procedures for Bacterial Water Samples from the Water Distribution System

INSTRUCTIONS TO COLLECT WATER SAMPLES FOR BACTERIAL ANALYSIS

Water Distribution System
Chesterfield Inlet, NU

These water sampling procedures should be followed for all bacterial water sampling carried out for the drinking water in Chesterfield Inlet, NU. Following the sampling procedures will help ensure the correct sample bottles are obtained, proper sampling procedures are completed, and contamination of the samples is minimized.

1. Bottle Order:

   i. Clean and sterilised sample bottles must obtained from the laboratory before any water sampling can begin. This is especially important for water samples being analysed for bacteria. Clean and sterilised sample bottles help ensure the water samples are not contaminated during collection, handling, storage and transport.

   To obtain clean sample bottles, contact the Environmental Health Officer in Rankin Inlet. If the Environmental Health Officer in Rankin Inlet is unavailable, contact the Environmental Health Officer in Iqaluit to send you bottles. You will be sent the correct sample bottles and an Analysis Request form to submit with the water samples. Contact information for the Environmental Health Officers in Rankin Inlet and Iqaluit are provided:

   Craig van Lankveld
   Environmental Health Officer
   Bag 72
   Rankin Inlet, NU X0E 0G0
   Ph: (867) 645 – 8273
   Fax: (867) 645 – 8274
   Email: cvanlankveld1@gov.nu.ca

   Wanda Joy
   Environmental Health Officer
   Station 1031, Building 155
   Iqaluit, NU X0A 1H0
   Ph: (867) 975 – 4817
   Fax: (867) 975 – 4833
   Email: wjoy@gov.nu.ca

   ii. Once you receive the sample bottles, they should remain unopened, be kept in the sample cooler they arrived in, and stored in an area away from potential contamination sources (e.g. gasoline/diesel, oils, chemicals, etc). DO NOT open the sample bottles you are ready to sample.

2. Preparation:

   i. Check local weather forecasts to determine weather conditions when sampling and if there are going to be flight delay or cancellations. Bacterial water samples need to be shipped to the laboratory as soon as possible. Ideally they should make it to the laboratory within 24 hours of sampling. If there are going to be flight delays or cancellations, collect samples on another day.

ii. Double check that you have the required bottles, nitrile gloves, and forms.

3. Sample Collection:

   i. Once you arrive at your sampling station, wash your hands thoroughly with soap and water.

   ii. Turn on the COLD water tap and let the tap run continuously for 2 – 5 minutes.

   iii. Put your on nitrile gloves and get the sample bottle ready for sampling. Remove any plastic seal if present. DO NOT OPEN THE SAMPLE BOTTLE.

   iv. Once the tap has run, remove the lid from the sample bottle and either hold the lid in your hand or place it in a secure location. DO NOT touch the inside of the lid, bottle or neck of the sample bottle.

   v. Holding the sample bottle near the base of the bottle, place the sample bottle under the running water and carefully fill the sample bottle to just past the mark on the side of the bottle. DO NOT let the bottle touch the tap at all. DO NOT OVERFILL THE BOTTLE.

      You will notice that there is a white powder already present in the sample bottle. This is a preservative (sodium thiosulphate) and is required to properly preserve the bacterial sample. DO NOT dump this white powder out, rinse the sample bottle or overfill the sample bottle! You will lose some or all of the white powder by doing this and will need to start over with a new sample bottle.

   vi. When the sample bottle is full, IMMEDIATELY replace the lid of the sample bottle and screw it back on. DO NOT over tighten! DO NOT RE-OPEN THIS BOTTLE.

   vii. Write the identification information on the label of the sample bottle, including:

      Date and Time of sampling
      Location sampled
      Sampler initials

   viii. Place the sample back in the cooler.

   ix. Repeat steps iii to viii if taking more than one sample, changing nitrile gloves with each sample.

4. Sample Storage and Transport:

   i. Sample Storage – bacterial water samples MUST analysed at the laboratory as soon as possible (within 24 hours) and must be shipped out as soon as they can. Until you are able to ship the sample(s) out, you must ensure they stay cold. Pack the sample cooler with frozen freeze packs or place the samples in a fridge. DO NOT FREEZE THE SAMPLE(S).

   ii. Fill out the Analysis Request form that came with the sample bottles. Before you can send the samples to the laboratory, you must tell them what to analyse the samples for. A completed example and a blank form is included following this procedure.

      It is good practice to put the form in a Ziploc bag to ensure it does not get wet during transport.

   iii. To properly ship the water samples, ensure sample bottles are wrapped so they do not get broken during transport. Pack the sample coolers with freeze packs so the samples stay cold during transport. You can also fill the remaining space in the cooler with packing peanuts or

shredded paper to ensure samples do not move around too much during transport. Make certain the form is in the cooler and tape the cooler shut.

iv. Label the top of the cooler(s) with the laboratory address and your address. Mark the top of the cooler as URGENT. The address of the laboratory in Rankin Inlet is provided:

Rankin Inlet Wellness Centre
Bag 72
Rankin Inlet, NU X0C 0G0

Attention: Craig van Lankveld
Ph: (867) 645 – 8273

v. Ship the cooler(s) to the laboratory using Express service. Ensure the cooler is delivered to the Rankin Inlet Wellness Centre.

Ontario

Ministry of Health and Long-Term Care
Ministère de la Santé et des Soins de longue durée
Public Health Laboratories /
Direction des laboratoires de santé publique

Bacteriological Analysis of Drinking Water for Private Citizen, SINGLE HOUSEHOLD ONLY
Analyse bactériologique de l'eau potable – Particuliers, MÉNAGES UNIFAMILIAUX SEULEMENT

Property owner or resident's name and mailing address/
Nom et adresse postale du propriétaire de la propriété ou du résident

Name/Nom (First/Prénom Last/Nom de famille): John Doe
Street, R.R., Box No./Rue, R.R., casier postal: ENTER ADDRESS
City, Town/Ville: Chesterfield Inlet
Province: NU
Postal Code/Code postal *: X 0 C 0 B 0

Location of Water Source/Emplacement de la source d'eau

Street address/Adresse municipale: Chesterfield Inlet Reservoir
or Lot, Concession/ou lot, concession
Township/Municipality/Canton, municipalité: Chesterfield Inlet
Emergency Locator #/ *:
County/Comté *: ON
Postal Code/Code postal *: X 0 C 0 B 0

☐ Location of Water Source same as Property owner or resident's mailing address/
Emplacement de la source d'eau identique à l'adresse postale du propriétaire ou du résident

☐ No Phone / Pas de téléphone

Date collected/Date du prélèvement: ENTER DATE
Health Unit #/N° du bureau de santé *: N/A
Your Daytime Telephone #/Votre n° tél. le jour: (8 6 7) 8 9 8 - 9 9 5 1

☐ I will pick up report at the laboratory./Je viendrai chercher le rapport au laboratoire.
☒ Please mail to my mailing address above./Veuillez le faire parvenir à mon adresse postale indiquée ci-dessus.

WATER WILL NOT BE TESTED IF THE SHADED AREAS OF THIS FORM ARE NOT COMPLETELY AND ACCURATELY FILLED IN/
NOUS N'ANALYSERONS PAS L'ÉCHANTILLON D'EAU SI LES PARTIES OMBRÉES DE LA FORMULE N'ONT PAS ÉTÉ REMPLIES EN ENTIER ET DE FAÇON EXACTE

Instructions - Please read instructions page carefully before sampling and note information on reverse of this page./Prière de lire la page d'instructions attentivement avant l'échantillonnage et prendre note des renseignements figurant au verso de cette page.

* Please assist the laboratory if possible by also providing this information. List of the 4-digit Health Unit numbers is on the previous page./
Ces renseignements faciliteront le travail du laboratoire. La liste des numéros à quatre chiffres des bureaux de santé se trouve à la page précédente.

For Laboratory Use Only/Réservé à l'usage du laboratoire

Interpretation for this water sample/Interprétation de cet échantillon d'eau
This water sample was only tested for the presence of Total Coliform and *E.coli* bacterial indicators of contamination, by Membrane Filtration. / Cet échantillon d'eau n'a été analysé que pour déceler la présence des coliformes totaux et des bactéries collibacillaires, indicateurs de contamination par filtration sur membrane.

☐ NO SIGNIFICANT EVIDENCE OF BACTERIAL CONTAMINATION
(3 consecutive samples, taken 1 to 3 weeks apart, with this designation are needed to determine the stability of the water supply).
AUCUNE PREUVE DE CONTAMINATION BACTÉRIENNE SIGNIFICATIVE
(cette désignation doit être affectée à 3 échantillons consécutifs, dont le prélèvement aura été espacé de 1 à 3 semaines, pour que la source d'approvisionnement en eau soit jugée stable).

☐ SIGNIFICANT EVIDENCE OF BACTERIAL CONTAMINATION May be unsafe to drink. *(Consult local health unit for information as soon as possible).*
PREUVE DE CONTAMINATION BACTÉRIENNE SIGNIFICATIVE
Peut être non potable. *(Consultez le bureau de santé local le plus tôt possible pour plus de détails).*

Date Reported Stamp/
Date du rapport

☐ UNSAFE TO DRINK Evidence of sewage contamination.
Consult local health unit for appropriate action as soon as possible
EAU NON POTABLE Preuve de contamination par les égouts.
Consultez le bureau de santé local le plus tôt possible pour de plus amples renseignements sur les mesures à prendre.

Total Coliform per 100 mL/Coliformes totaux par 100 mL		*E. coli* per/par 100 mL	
Date of Analysis/ Date de l'analyse	Read by/ Analyse par	Date Read/ Analyse effectuée le	Authorized by (Technologist)/ Autorisé par (Technologiste)

3743-44 (91/07)

These results relate only to the sample tested. / Le résultat obtenu se rapporte seulement à cet échantillon d'eau analysé.

APPENDIX E

Sewage Wetland Improvement Design Drawings

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

Issue for 100% Design

May 15, 2009

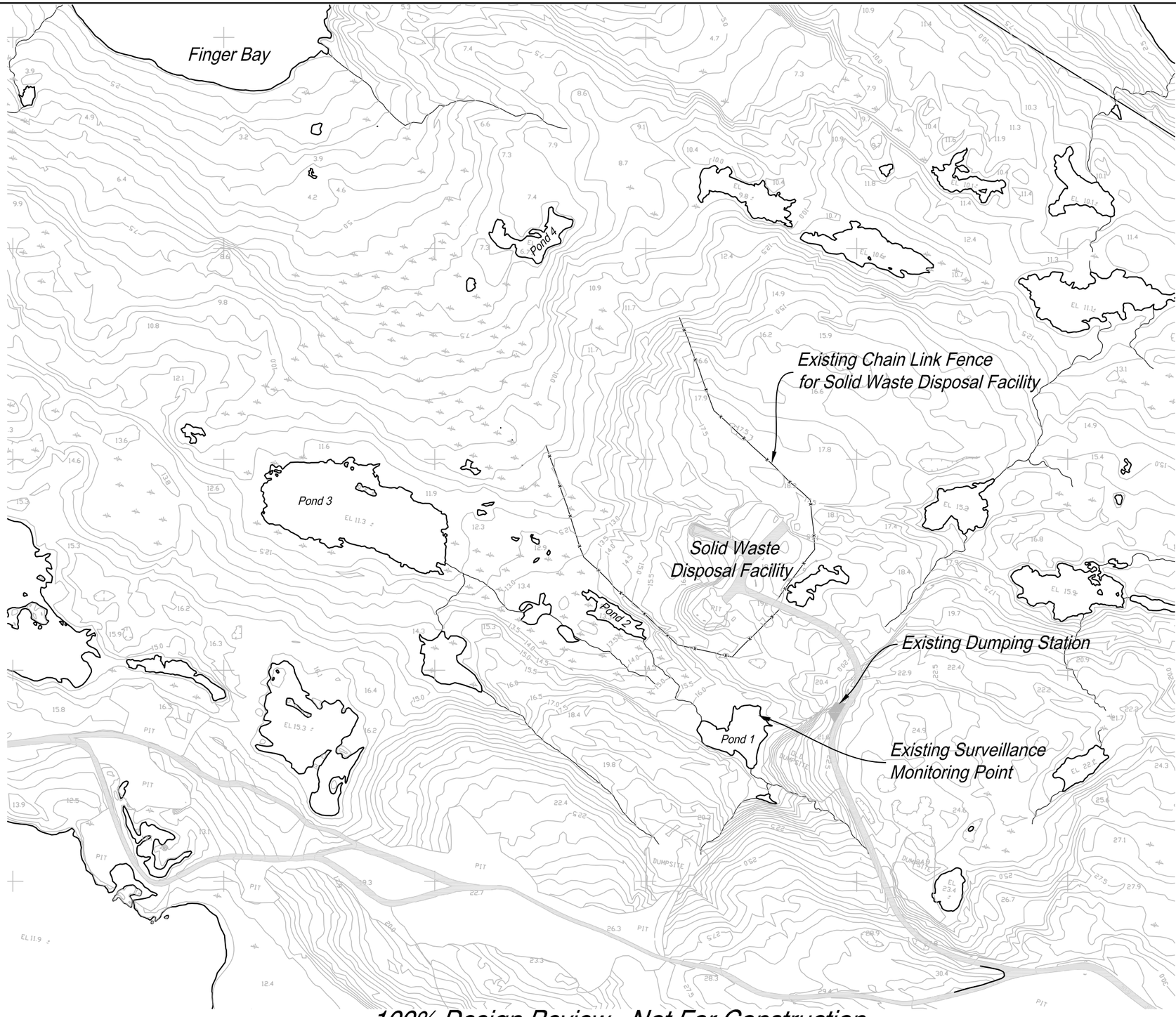
Location Map

Drawing List

NUNAMI
JACQUES WHITFORD LIMITED

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

5/8/2009 V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C000.dwg



100% Design Review - Not For Construction

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI
JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

Site Plan
Existing Conditions

C-1

1042903-C001.dwg

Plot Date: 8 May 2009 By: Cross, Carla

V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C001.dwg

DENOTES WASTEWATER FLOW DIRECTION

N

40 0 40

Finger Bay

Proposed Diversion Berm "D"

Diversion Berm "E"

Pond 4

See Drawing C-5 For Details

Diversion Berm "C"

Pond 3

Existing Solid Waste Disposal Facility

See Drawing C-4 For Details

Pond 2

Holding Cell "1" - Berm "A"

Existing Dumping Station

Pond 1

Holding Cell "2" - Berm "B"

New Dumping Station

See Drawing C-3 For Details

PIT

DUMPSITE

100% Design Review - Not For Construction

Stantec

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI
JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

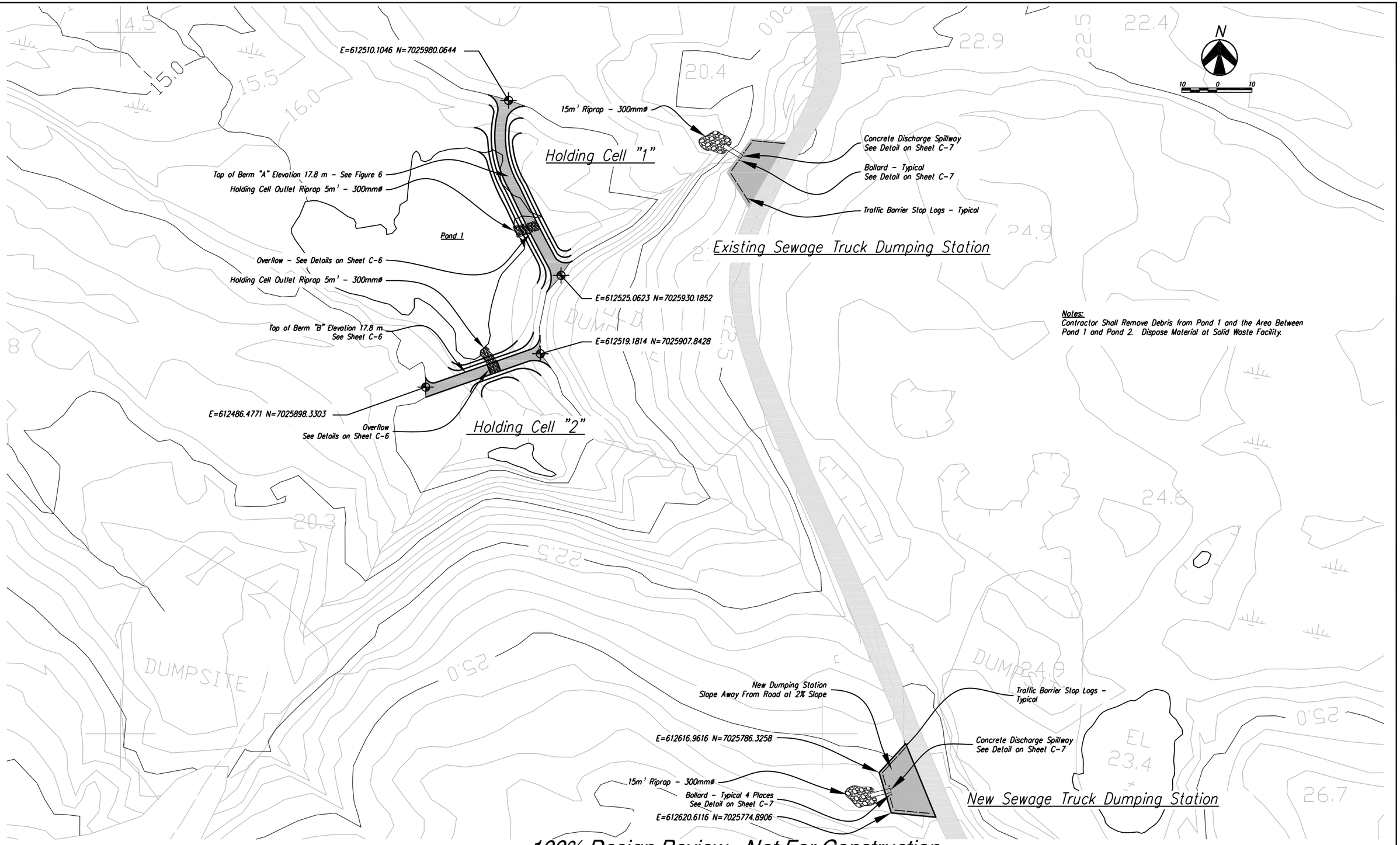
Site Plan
Sewage System Improvements

C-2

1042903-C002-C005.dwg

Plot Date: 8 May 2009 By Cross, Carla

V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C002-C005.dwg



100% Design Review - Not For Construction

Stantec

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

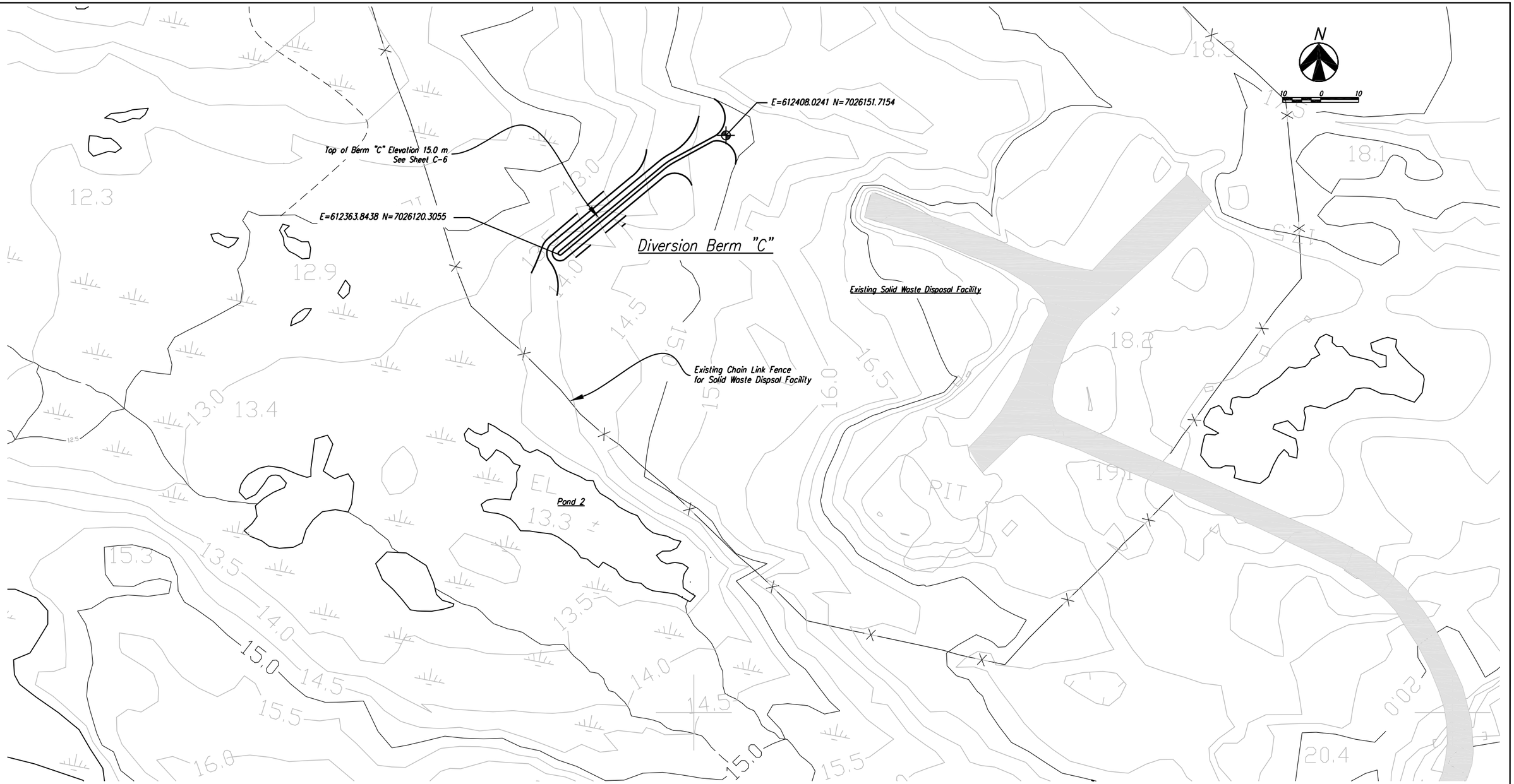
Truck Dumping Station & Holding Cells "1" & "2" Plan

C-3

1042903-C002-C005.dwg

Plot Date: 8 May 2009 By Cross, Carla

V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C002-C005.dwg



Notes:
Contractor Shall Remove Any Large Debris from Pond 2 and the Area Between Pond 1 and Pond 2. Dispose Material at Solid Waste Facility.

100% Design Review - Not For Construction

Stantec

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI
JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

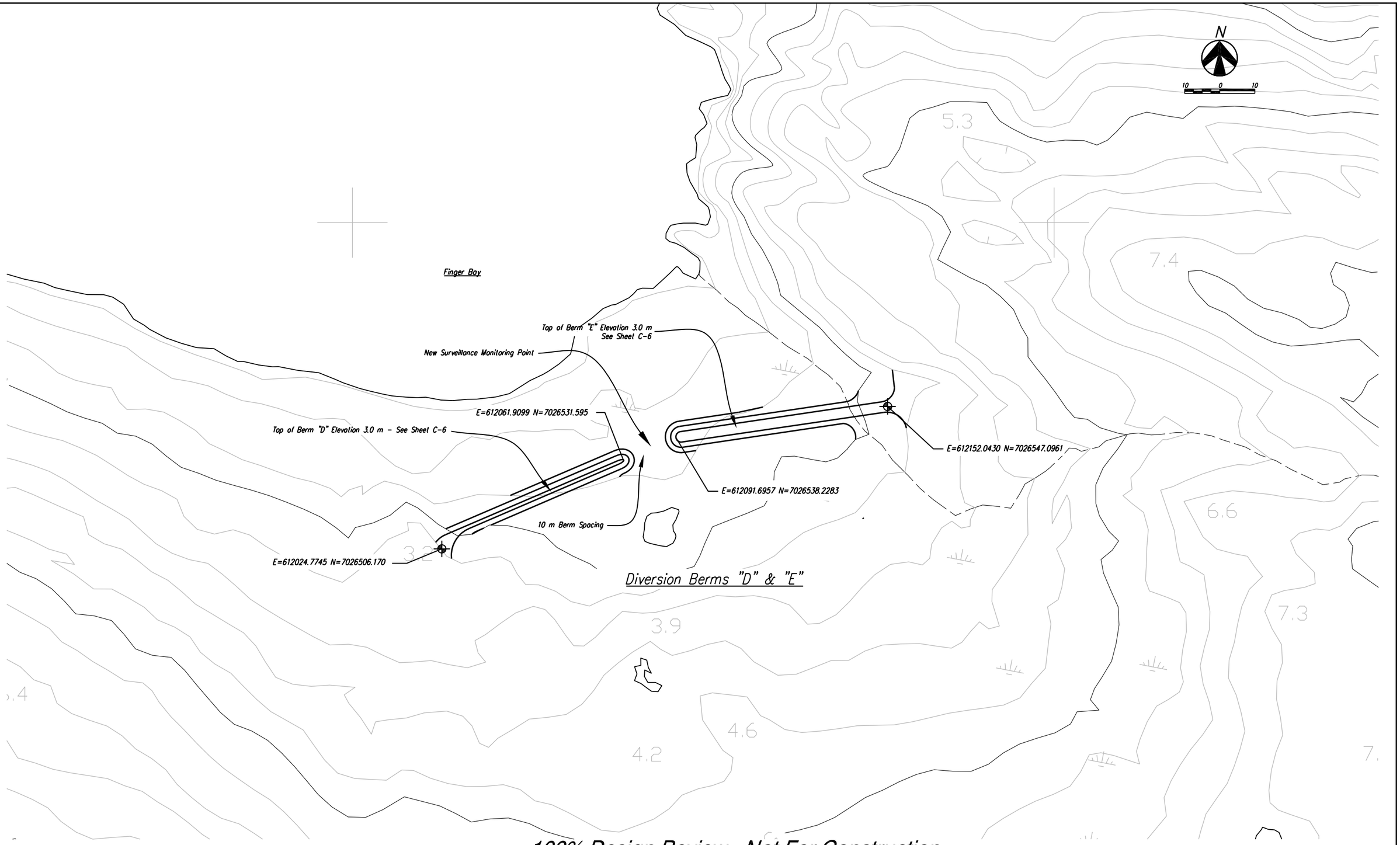
Diversion Berm "C" Plan

C-4

1042903-C002-C005.dwg

Plot Date: 8 May 2009 By Cross, Carla

V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C002-C005.dwg



100% Design Review - Not For Construction

Plot Date: 8 May 2009 By Cross, Carla

Stantec

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI
JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

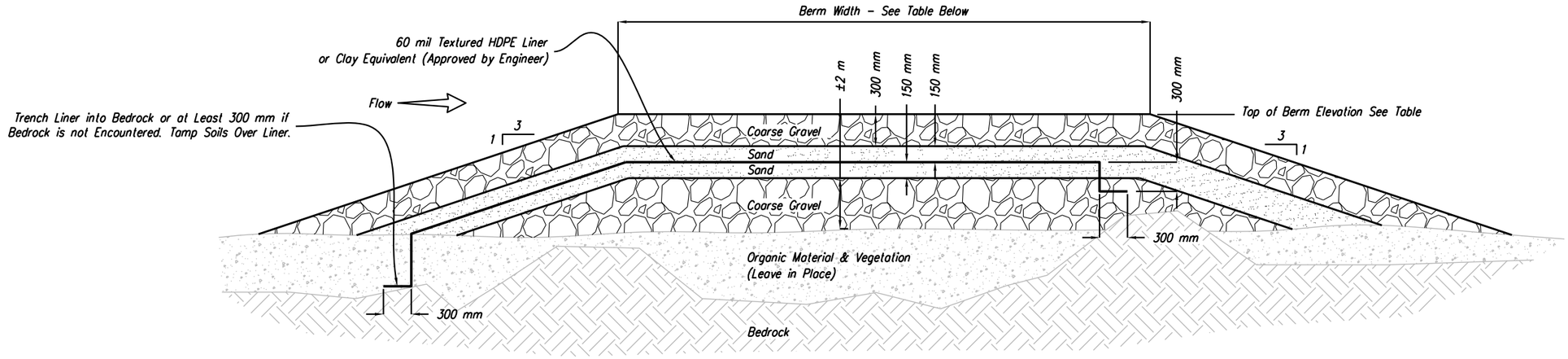
GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

Diversion Berms "D" & "E" Plan

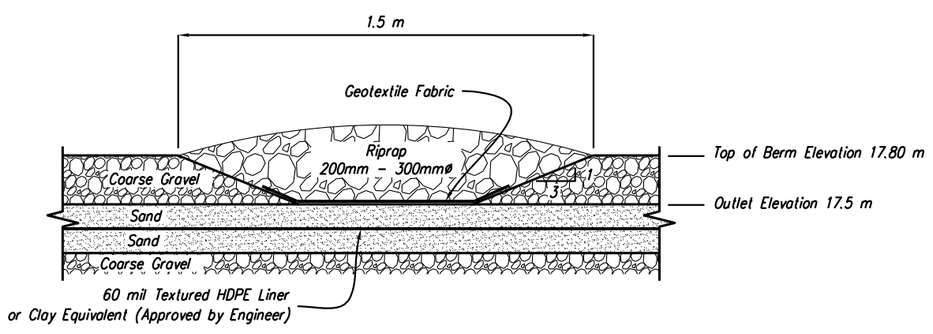
C-5

1042903-C002-C005.dwg

V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C002-C005.dwg



Typical Berm Cross Section



Typical Holding Cell Berm Outlet Detail

	BERM				
	"A"	"B"	"C"	"D"	"E"
TOP OF BERM ELEVATION (msl)	17.8	17.8	15.0	3.0	3.0
TOP OF BERM WIDTH (in Meters)	3	3	1	3	1

100% Design Review - Not For Construction

Stantec

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI
JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

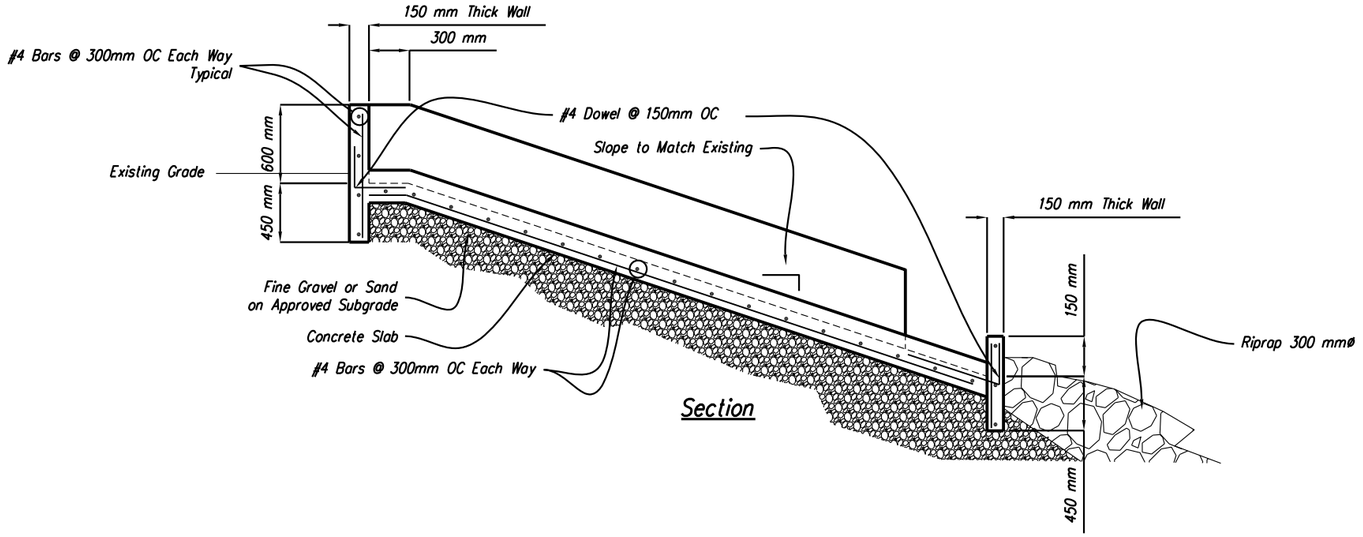
Berm Details

C-6

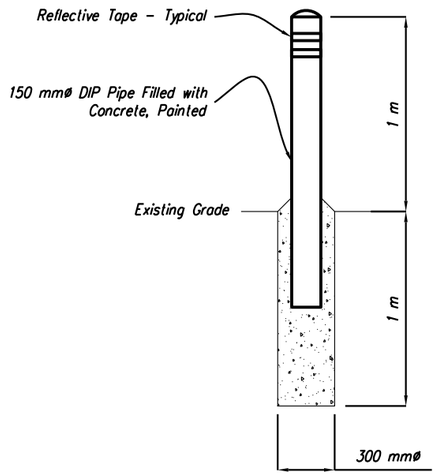
1042903-C006.dwg

Plot Date: 8 May 2009 By Cross, Carla

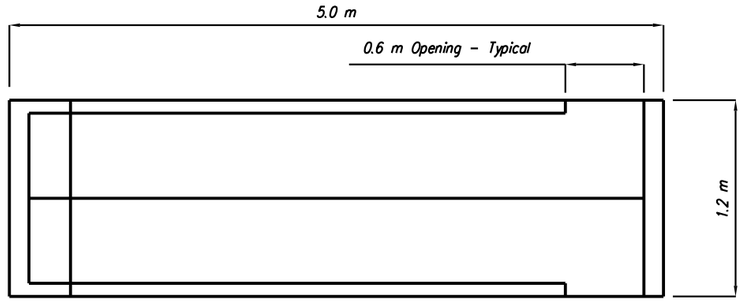
V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C006.dwg



Section

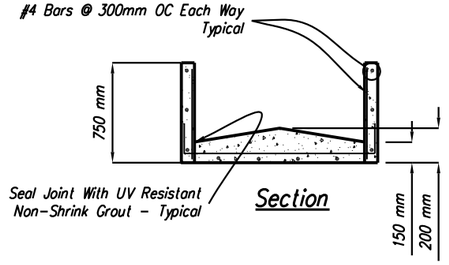


Bollard Detail

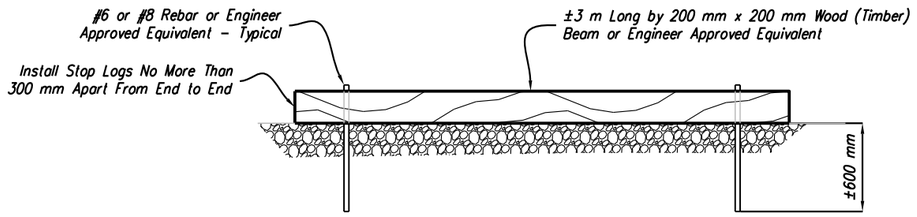


Plan

Concrete Discharge Spillway Detail



Section



Traffic Barrier Stop Log

100% Design Review - Not For Construction

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

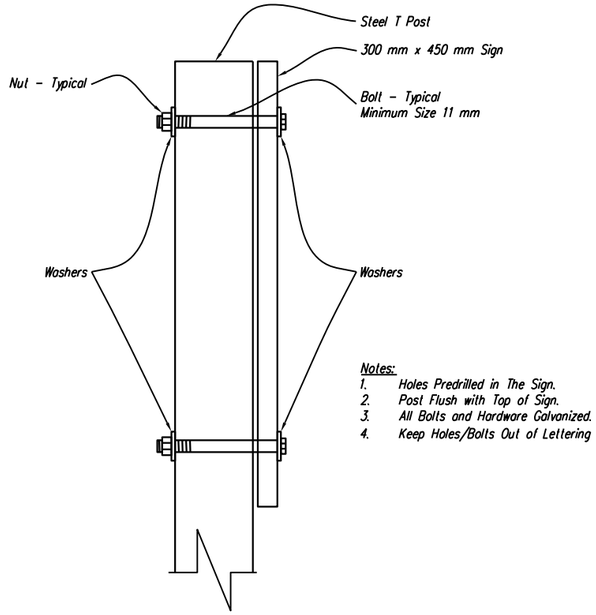
Spillway, Bollard & Traffic Barrier Details

C-7

1042903-C006.dwg

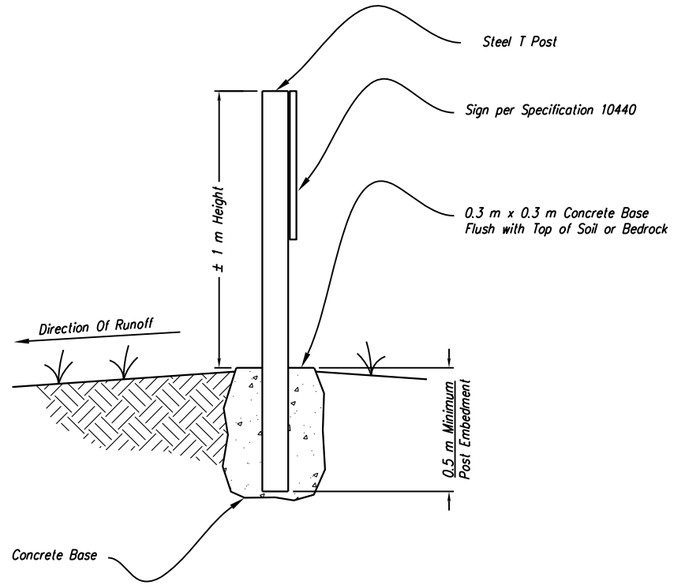
Plot Date: 8 May 2009 By Cross, Carla
V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C006.dwg

Warning Sign
Scale: None



Notes:
1. Holes Predrilled in The Sign.
2. Post Flush with Top of Sign.
3. All Bolts and Hardware Galvanized.
4. Keep Holes/Bolts Out of Lettering

Standard Sign Detail
Scale: None



Sign Installation Detail
Scale: None

100% Design Review - Not For Construction

Stantec NAWE, Inc
4444 Centerville Road, Suite 140
White Bear Lake, MN 55127
651-255-5050
651-255-5060 (fax)

NUNAMI JACQUES WHITFORD LIMITED

Rev	Date	Description
2	5/15/09	Issue for 100% Design
1	3/10/09	Issue for 50% Design
0	1/2/09	Issue for Review

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES
CHESTERFIELD INLET SEWAGE SYSTEM IMPROVEMENTS
IGLULIGAARJUK, NUNAVUT

Sign Details

C-8

1042903-C008.dwg

Plot Date: 8 May 2009 By: Cross, Carla

V:\1918\active\1042903 Chesterfield Inlet\dwg\1042903-C008.dwg

APPENDIX F

Sampling Procedures for General Chemistry Water Samples from the Tundra Wetland

INSTRUCTIONS TO COLLECT WATER SAMPLES FOR GENERAL CHEMISTRY ANALYSIS

Chesterfield Inlet, NU

These water sampling procedures should be followed for all water sampling carried out for the sewage and MSW disposal facilities in Chesterfield Inlet. Following the sampling procedures will help ensure the correct sample bottles are obtained, proper sampling procedures are completed, and contamination of the samples is minimized.

1. Bottle Order:
    i. Clean sample bottles must obtained from the laboratory before any water sampling can begin. Clean sample bottles help ensure samples are not contaminated during collection, handling, storage and transport. To obtain clean sample bottles, the following form must be filled out and faxed or emailed. A blank Bottle Request form is included in following this procedure.
    ii. Some water samples will require preservatives. Preservatives are typically acids and help ensure the chemical characteristics of the sample stays the same once it has been sampled. The required preservatives will be added to your bottle order by the laboratory.
    iii. Once you have completed the bottle request form, submit it to Taiga Environmental Laboratory. You can submit the form by fax at (867) 669 – 2718 or email at taiga@inac.gc.ca.
    iv. Once you receive the sample bottles and preservatives, they should be kept in the sample cooler they arrived in, or stored in an area away from potential contamination sources (e.g. gasoline/diesel, oils, chemicals, etc)

2. Field Preparation:
    i. Check local weather forecasts to determine weather conditions when sampling and if there are going to be flight delay or cancellations. Water samples should be shipped to the laboratory as soon as possible. If there are going to be flight delays or cancellations, you may have to collect samples on another day.
    ii. Pre-label sample bottles – before you go into the field to collect water samples, it is good practice to label all required sample bottles first. This ensures all required bottles are present, no samples are missed, and samples between monitoring stations do not get mixed up. Always wear nitrile gloves when handling sample bottles.
    iii. Ensure you have all required preservatives, nitrile gloves, personal equipment (e.g. rubber boots, bug net) and field book or forms (if any).

3. Sample Collection:
    i. To further ensure samples remain free from contamination, it is best practice to begin sampling at the "cleanest" monitoring station in the tundra wetland: CHE-4, the final discharge point. From this point, you can work your way backwards through the wetland, sampling at CHE-2 last. If additional monitoring stations are added to the Hamlet's water license, these should be sampled in order from cleanest (CHE-4) to "polluted" (e.g., a station close to the detention cells).

ii. Once you arrive at your monitoring station, try not to disturb anything. Ensure the streambed, banks and water upstream of your station are not disturbed. Try to confine all your activities and equipment downstream of the monitoring station.

iii. Put your on nitrile gloves and get all bottles and preservatives ready for sampling at the station.

iv. If possible, stand in the middle of the stream or outlet point, downstream from where you will be sampling.

v. Holding the sample bottle near the base of the bottle, remove the lid from the sample bottle and either hold the lid in your hand or place it in a secure location. DO NOT touch the inside of the lid, bottle or neck of the sample bottle.

vi. Dip the sample bottle into the water upstream from where you are standing, being careful not to touch the stream bottom with the bottle or your hand. Allow the bottle to fill up.

If there is preservative already in the sample bottle (i.e. the bottle for bacterial samples; it will be a white powder), be careful not to fill the bottle too fast or dunk the entire bottle in the stream. This will cause you to lose all the preservative.

vii. If your sample requires you to add a preservative, pour some water out of the sample bottle making room for the preservative. Ensure you add the correct preservative to the correct sample. The following samples should have the following preservatives added:

Sample	Preservative
Bacteria	Sodium thiosulphate ($Na_2S_2O_3$) (already in bottle)
Ammonia Nitrogen	Sulphuric acid (H_2SO_4)
Total Phenols	Sulphuric acid (H_2SO_4)
Total Metals	Nitric acid (HNO_3)

viii. Screw the lid of the sample bottle back on. If you have added preservative, lightly shake the sample to mix it with the preservative. Place the sample in the cooler.

ix. Repeat Steps v to viii for the remaining sample bottles at the monitoring station.

x. Repeat Steps ii to ix for the remaining monitoring stations. Ensure you change your nitrile gloves between each sampling station.

4. Sample Storage and Transport:

i. Sample Storage – water samples MUST analysed at the laboratory as soon as possible; bacterial samples must be analysed within 24 hours. All water samples must be shipped out as soon as possible. Until you are able to ship the sample(s) out, you must ensure they stay cold. Pack the sample cooler with frozen freeze packs or place the samples in a fridge. DO NOT FREEZE THE SAMPLES.

ii. Fill out the Chain of Custody form – before you can send the samples to the laboratory, you must tell them what to analyse the samples for. This is done through a Chain of Custody (COC) form, which must be filled out and sent with the samples. An example COC form and a blank COC form are included following this procedure.

It is good practice to put the COC form in a Ziploc bag to ensure it does not get wet during transport.

iii. To properly ship the water samples, ensure any glass sample bottles are wrapped with paper or bubble wrap so they do not get broken during transport. Pack the sample coolers with freeze packs so the samples stay cold during transport. You can also fill the remaining space in the cooler with packing peanuts or shredded paper to ensure samples do not move around too much during transport. Make certain the COC is in the cooler and tape the cooler shut.

iv. Label the top of the cooler(s) with the laboratory address and your address. If you are sending more than one cooler, ensure you write 1 of _, 2 of _, etc. The address to the laboratory has been provided:

Taiga Environmental Laboratory
4601 – 52 Avenue
Yellowknife, NT X1A 2R3
Ph: (867) 669 – 2788
Fax: (867) 669 – 2718

v. Ship the cooler(s) to the laboratory.

TAIGA ENVIRONMENTAL LABORATORY

Bottle &/or Preservative Order Form

Date Ordered: 200__	Date Required: 200__		
Name: John Doe	Company: Hamlet of Chesterfield Inlet	Project name or Location: Chesterfield Inlet	
Address: ENTER SHIPPING ADDRESS			
Phone: (867) 898 - 9951		Fax: (867) 898 - 9108	
Pick up: ☐ Yes ☒ No	Ship by Air: ☒ Yes ☐ No	Pack as TDG : ☒ Yes ☐ No	Cooler required: ☒ Yes ☐ No
Date Filled: 200__		Filled By:	

NOTE: Bottles and preservatives are provided free of charge for analysis carried out at Taiga. Bottles, preservatives and laboratory supplies for other use, may be subject to additional charges. Unused bottles and preservative cannot be returned to the laboratory for reuse.

Parameter Type	No. of Field Blanks	No. of Travel Blanks	No. of Bottles for Samples	QC Batch # of Bottles Sent	Number of Preservatives	QC Batch # of Pres. Sent
Routine (Green)			3		Not Required	
Nutrients (Black)			3		Not Required	
Bacti (Sterile sealed)	Not Required	Not Required	3		Not Required	
BOD (Purple)	Not Required	Not Required	3		Not Required	
Total Metals (Red)			3		3	
Dissolved Metals (Red) *see note 1*						
Arsenic Speciation Bottle	Not Required	Not Required			Not Required	
Cyanide (Blue)						
Thiocyanate (Orange)						
Hexane Extractable Material (Oil & Grease) (Brown glass, wide or narrow-mouth)						
Phenol (Brown glass, narrow-mouth)			3		3	
Sulphide						
Radionuclide						
Chlorophyll A (1L brown plastic bottle)	Not Required	Not Required			Not Required	
Extractable Hydrocarbons (Brown glass) *see note 2*					Not Required	
BTEX/Purgeable HC *see note 2*					Not Required	
THM (Glass vial 40mL)					Not Required	
Metals or Hydrocarbons in sediment (500mL jar)	Not Required	Not Required			Not Required	
Metals or Hydrocarbons in sediment (250mL jar)	Not Required	Not Required			Not Required	
Metals or Hydrocarbons in sediment (125mL jar)	Not Required	Not Required			Not Required	
Metals or Hydrocarbons in sediment (60mL jar or Whirl Pak Bag)	Not Required	Not Required			Not Required	
Other:						
Other Field Supplies: (e.g. Type I UV' water)						

Notes:

1- Dissolved metals bottles will be preserved at the laboratory if the sample is not filtered in the field. The filtering and addition of preservative is $28.00/sample.

2- For TPH requests, both the extractable hydrocarbons (brown glass bottle) and the BTEX/Purgeable HC (40mL vial) have to be submitted.

Shaded areas are for laboratory use only.

TAIGA ENVIRONMENTAL LABORATORY
LABORATOIRE ENVIRONNEMENTAL TAIGA
4601 – 52 Avenue, P.O. Box 1500, Yellowknife, NT, X1A 2R3
Tel: (867) 669-2788 • Fax: (867) 669-2718
www.taiga.gc.ca

Batch No. : *Lab use only*

Send Results & Invoice to:
(Please notify if results or invoice are to be sent to different locations)

Company/Agency: Hamlet of Chesterfield Inlet
Address: ENTER ADDRESS
City/Town: Chesterfield Inlet Province/Territory: NU
Postal Code: X0C 0B0
Phone: (867) 898-9951 Fax: (867) 898-9108
E-mail: sao_hamlet@qiniq.com
Signature :

Client Project No:
Date collected: ENTER DATE
Time collected: ENTER TIME
Sampler: John Doe
Location: Wetland
Rush Required: ☐Yes ☒No (Surcharge applies, please check with Laboratory for price and availability)
Note: *Analysis may be subcontracted without prior notice.*

Date Received: Received By:
Comments:
(Laboratory use only)

-WATER SAMPLES –

Sample Type (freshwater, sewage, wastewater, potable, groundwater, salt water, etc)	Wastewater	Wastewater	
Client Sample ID (As it should appear on final report)	CHE-2	CHE-4	
Taiga Sample ID (Laboratory use only)			

Bottle Type and Parameter — [√] PLEASE CHECK PARAMETERS REQUESTED BELOW:

Routine	pH, Conductivity, Alkalinity	X pH | Cond | X Alk	X pH | Cond | X Alk	pH | Cond | Alk
	Individual Anions Suite ☐	Cl | X SO_4 | F | NO_3-N | NO_2-N	Cl | SO_4 | F | NO_3-N | NO_2-N	Cl | SO_4 | F | NO_3-N | NO_2-N
	Total Nitrite (NO_2) + Nitrate (NO_3)	NO_2 X NO_3-N	NO_2 X NO_3-N	NO_2 + NO_3-N
	Individual Cations Suite X	Ca | Mg | Na | K	Ca | Mg | Na | K	Ca | Mg | Na | K
	Hardness (Calculated)	Hardness	Hardness	Hardness
	Reactive Silica	SiO_2	SiO_2	SiO_2
	Color	Apparent | True	Apparent | True	Apparent | True
	Laboratory use only	Rec'd: Y N	Rec'd: Y N	Rec'd: Y N
Nutrients	Chemical Oxygen Demand	COD	COD	COD
	Nitrogen: Total, Dissolved	TN | DN	TN | DN	TN | DN
	Turbidity	Turbidity	Turbidity	Turbidity
	Total Suspended Solids, Dissolved Solids	X TSS | TDS	X TSS | TDS	TSS | TDS
	Ammonia	X NH_3	X NH_3	NH_3-N
	Phosphorus: Total, Dissolved, Ortho	TP | DP | OP	TP | DP | OP	TP | DP | OP
	Carbon: Total, Dissolved	TOC | DOC	TOC | DOC	TOC | DOC
	Chlorine: Total, Residual	T. Cl | R. Cl	T. Cl | R. Cl	T. Cl | R. Cl
	Visible Oil and Grease	X Visible	X Visible	Visible
	Laboratory use only	Received : Y N	Received : Y N	Received : Y N
Microbiology	Fecal Coliforms (FC)	X FC	X FC	FC
	Total Coliforms (TC), E. Coli (EC)	TC | EC	TC | EC	TC | EC
	Fecal Streptococcus (FS)	FS	FS	FS
	Laboratory use only	Received: Y N T: °C Sterile container: Y N	Received: Y N T: °C Sterile container: Y N	Received: Y N T: °C Sterile container: Y N
	Biological Oxygen Demand	X BOD	X BOD	BOD
	Laboratory use only	Received: Y N T: °C	Received: Y N T: °C	Received: Y N T: °C
Metals	Please indicate if sample is preserved and/or filtered	X Pres | Filt☐ Pres☐	X Pres | Filt☐ Pres☐	Pres ☐ | Filt☐ Pres☐
	ICP-MS(1): Cd, Cr, Cu, Co, Mn, Ni, Pb, Zn, Fe	Total | Dissolved	Total | Dissolved	Total | Dissolved
	ICP-MS(2): 25 element scan includes As (not included: B, Bi, Hg, Se)	Total | Dissolved	Total | Dissolved	Total | Dissolved
	Individual Metals by ICP-MS (please circle each metal): Ag, Al, (B), Ba, Be, Bi, (Co), Cs, (Cu), Fe, Li, Mn, Mo, (Ni), (Pb), Rb, Sb, Se, Sn, Sr, Ti, Tl, U, V, (Zn)	X Total | Dissolved	X Total | Dissolved	Total | Dissolved
	Laboratory use only	TM rec'd: Y N DM rec'd: Y N	TM rec'd: Y N DM rec'd: Y N	TM rec'd: Y N DM rec'd: Y N
	Hexane Extractable Material (O&G)	HEM	HEM	HEM
	Laboratory use only	Rec'd: Y N Pres: Y N	Rec'd: Y N Pres: Y N	Rec'd: Y N Pres: Y N
	BTEX, Purgeable HC (40ml. x 2 vials)	BTEX | Purg HC	BTEX | Purg HC	BTEX | Purg HC
	Extractable HC (1L amber glass bottle)	Ext HC	Ext HC	Ext HC
	Trihalomethanes (40 mL x 2 vials)	THM	THM	THM
	Laboratory use only	Vial rec'd: Y N Ext rec'd: Y N	Vial rec'd: Y N Ext rec'd: Y N	Vial rec'd: Y N Ext rec'd: Y N
	Other: *see special request form*			

For safety purposes, please disclose any contaminants (e.g. heavy metals, cyanide, etc.) that may be present at high levels and pose a risk to human health:

TAIGA ENVIRONMENTAL LABORATORY

Bottle &/or Preservative Order Form

Date Ordered: 200__	Date Required: 200__	
Name:	Company:	**Project name or Location**
Address:		
Phone:	Fax:	

Pick up:	Ship by Air:	Pack as TDG :	Cooler required:
❒ Yes ❒ No	❒ Yes ❒ No	❒ Yes ❒ No	❒ Yes ❒ No

Date Filled: 200__	Filled By:

NOTE: Bottles and preservatives are provided free of charge for analysis carried out at Taiga. Bottles, preservatives and laboratory supplies for other use, may be subject to additional charges. Unused bottles and preservative cannot be returned to the laboratory for reuse.

Parameter Type	**No. of Field Blanks**	**No. of Travel Blanks**	**No. of Bottles for Samples**	**QC Batch # of Bottles Sent**	**Number of Preservatives**	**QC Batch # of Pres. Sent**
Routine (Green)					Not Required	
Nutrients (Black)					Not Required	
Bacti (Sterile sealed)	Not Required	Not Required			Not Required	
BOD (Purple)	Not Required	Not Required			Not Required	
Total Metals (Red)						
Dissolved Metals (Red) *see note 1*						
Arsenic Speciation Bottle	Not Required	Not Required			Not Required	
Cyanide (Blue)						
Thiocyanate (Orange)						
Hexane Extractable Material (Oil & Grease) (Brown glass, wide or narrow-mouth)						
P Phenol (Brown glass, narrow-mouth)						
S Sulphide						
R Radionuclide						
Chlorophyll A (1L brown plastic bottle)	Not Required	Not Required			Not Required	
Extractable Hydrocarbons (Brown glass) *see note 2*					Not Required	
BTEX/Purgeable HC *see note 2*					Not Required	
THM (Glass vial 40mL)					Not Required	
Metals or Hydrocarbons in sediment (500mL jar)	Not Required	Not Required			Not Required	
Metals or Hydrocarbons in sediment (250mL jar)	Not Required	Not Required			Not Required	
Metals or Hydrocarbons in sediment (125mL jar)	Not Required	Not Required			Not Required	
Metals or Hydrocarbons in sediment (60mL jar or Whirl Pak Bag)	Not Required	Not Required			Not Required	
Other:						

Other Field Supplies: (e.g. Type I UV^{+} water)

Notes:

1- Dissolved metals bottles will be preserved at the laboratory if the sample is not filtered in the field. The filtering and addition of preservative is $20.00/sample.

2- For TPH requests, both the extractable hydrocarbons (brown glass bottle) and the BTEX/Purgeable HC (40mL vial) have to be submitted.

Shaded areas are for laboratory use only.

TAIGA ENVIRONMENTAL LABORATORY
LABORATOIRE ENVIRONNEMENTAL TAIGA
4601 – 52 Avenue, P.O. Box 1500, Yellowknife, NT, X1A 2R3
Tel: (867) 669-2788 • Fax: (867) 669-2718
www.taiga.gc.ca

Batch No. : *Lab use only*

Send Results & Invoice to:
(Please notify if results or invoice are to be sent to different locations)

Company/Agency: _____

Address: _____

_____

City/Town: _____ Province/Territory: _____

Postal Code: _____

Phone: _____ Fax: _____

E-mail: _____

Signature : _____

Client Project No: _____

Date collected: _____

Time collected: _____

Sampler: _____

Location: _____

Rush Required: ❑Yes ❑No (Surcharge applies, please check with Laboratory for price and availability)

Note: *Analysis may be subcontracted without prior notice.*

Date Received: _____ Received By: _____
Comments:_____
(Laboratory use only)

-WATER SAMPLES –

Sample Type (freshwater, sewage, wastewater, potable , groundwater, salt water, *etc*)			
Client Sample ID (As it should appear on final report)			
Taiga Sample ID (Laboratory use only)			

Bottle Type and Parameter

[√] PLEASE CHECK PARAMETERS REQUESTED BELOW:

Routine	pH, Conductivity, Alkalinity	pH | Cond | Alk	pH | Cond | Alk	pH | Cond | Alk
	Individual Anions Suite ☐	Cl | SO_4 | F | NO_2-N | NO_3-N	Cl | SO_4 | F | NO_2-N | NO_3-N	Cl | SO_4 | F | NO_2-N | NO_3-N
	Total Nitrite (NO_2) + Nitrate (NO_3)	NO_2 + NO_3-N	NO_2 + NO_3-N	NO_2 + NO_3-N
	Individual Cations Suite ☐	Ca | Mg | Na | K	Ca | Mg | Na | K	Ca | Mg | Na | K
	Hardness (Calculated)	Hardness	Hardness	Hardness
	Reactive Silica	SiO_2	SiO_2	SiO_2
	Color	Apparent | True	Apparent | True	Apparent | True
	Laboratory use only	Rec'd: Y N	Rec'd: Y N	Rec'd: Y N
Nutrients	Chemical Oxygen Demand	COD	COD	COD
	Nitrogen: Total, Dissolved	TN | DN	TN | DN	TN | DN
	Turbidity	Turbidity	Turbidity	Turbidity
	Total Suspended Solids, Dissolved Solids	TSS | TDS	TSS | TDS	TSS | TDS
	Ammonia	NH_3	NH_3	NH_3-N
	Phosphorus: Total, Dissolved, Ortho	TP | DP | OP	TP | DP | OP	TP | DP | OP
	Carbon: Total, Dissolved	TOC | DOC	TOC | DOC	TOC | DOC
	Chlorine: Total, Residual	T. Cl | R. Cl	T. Cl | R. Cl	T. Cl | R. Cl
	Visible Oil and Grease	Visible	Visible	Visible
	Laboratory use only	Received : Y N	Received : Y N	Received : Y N
Sterile	Fecal Coliforms (FC)	FC	FC	FC
	Total Coliforms (TC), E. Coli (EC)	TC | EC	TC | EC	TC | EC
	Fecal Streptococcus (FS)	FS	FS	FS
	Laboratory use only	Received: Y N T: _____°C Sterile container: Y N	Received: Y N T: _____°C Sterile container: Y N	Received: Y N T: _____°C Sterile container: Y N
	Biological Oxygen Demand	BOD	BOD	BOD
	Laboratory use only	Received: Y N T: _____°C	Received: Y N T: _____°C	Received: Y N T: _____°C
Metals	Please indicate if sample is preserved and/or filtered	Pres ☐ | Filt☐ Pres☐	Pres ☐ | Filt☐ Pres☐	Pres ☐ | Filt☐ Pres☐
	ICP-MS(1): Cd, Cr, Cu, Co, Mn, Ni, Pb, Zn, Fe	Total | Dissolved	Total | Dissolved	Total | Dissolved
	ICP-MS(2): 25 element scan includes As (not included: B, Bi, Hg, Sn)	Total | Dissolved	Total | Dissolved	Total | Dissolved
	Individual Metals by ICP-MS (please circle each metal): Ag, Al, As, B, Ba, Be, Bi, Cd, Co, Cr, Cs, Cu, Fe, Hg, Li, Mn, Mo, Ni, Pb, Rb, Sb, Se, Sn, Sr, Ti, Tl, U, V, Zn	Total | Dissolved	Total | Dissolved	Total | Dissolved
	Laboratory use only	TM rec'd: Y N | DM rec'd: Y N	TM rec'd: Y N | DM rec'd: Y N	TM rec'd: Y N | DM rec'd: Y N
	Hexane Extractable Material (O&G)	HEM	HEM	HEM
	Laboratory use only	Rec'd: Y N Pres: Y N	Rec'd: Y N Pres: Y N	Rec'd: Y N Pres: Y N
	BTEX, Purgeable HC (40mL x 2 vials)	BTEX | Purg HC	BTEX | Purg HC	BTEX | Purg HC
	Extractable HC (1L amber glass bottle)	Ext HC	Ext HC	Ext HC
	Trihalomethanes (40 mL x 2 vials)	THM	THM	THM
	Laboratory use only	Vial rec'd: Y N | Ext rec'd: Y N	Vial rec'd: Y N | Ext rec'd: Y N	Vial rec'd: Y N | Ext rec'd: Y N
	Other: *see special request form*			

For safety purposes, please disclose any contaminants (e.g. heavy metals, cyanide, etc.) that may be present at high levels and pose a risk to human health:

APPENDIX G

O&M Manual Record and Inspection Forms

Hamlet of Chesterfield Inlet
Monthly Pumphouse Inspection Form

Date: _____ **Inspector(s):** _____

Air Temperature (°C): _____ **Ground Cover:** _____
(e.g. snow covered, vegetation)

Wind Direction & Speed: _____ **Precipitation:** _____

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Reservoir (fence, general condition, intake pump casing assemblies, etc)						
Access Road (condition, ditches, snow cover, surface, erosion, etc)						
Truck Pad (condition, snow cover, surface, erosion, etc)						
External Building & Electrical Connection (condition, stability, etc)						
Signs (presence, condition, readability)						
Exterior Truck Fill Line (line condition, obvious signs of repair, complaints, switches, etc)						
Interior Electrical System (obvious signs of repair, etc)						

Hamlet of Chesterfield Inlet
Monthly Pumphouse Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Heating System (system check OK, obvious signs of repair, etc)						
Alarm System (system check OK, obvious signs of repair, etc)						
Pumphouse Water Lines (obvious signs of repair, condition, leaks, rust, valves, flow switches, meter readouts, etc)						
Chlorination System (cleanliness of components, quantity of chlorine chemical, vavles, mixing tanks, agitator, etc)						
Hypochlorinator (condition, function, receptacle, etc)						
Filtration System (filter condition, obvious signs of repair/replacement, water lines, vavles, etc)						
Pumphouse Intake System - General (function, condition, alarms, etc)						
Pumphouse Intake System - Internal (requires removal of components out of pump casing assembly - annual inspection)						
Heat Trace System (function, condition, alarms, receptacles, etc)						

Hamlet of Chesterfield Inlet
Monthly Pumphouse Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Equipment (water trucks, winch, etc)						
Interior Building (condition, cleanliness, etc)						
Health & Safety (public and personnel)						

General Comments:

Hamlet of Chesterfield Inlet
Monthly Sewage Volume Record

Month: _____ **Year:** _____ **Truck Number:** _____

Date	Number of Trips	Volume per Trip (litres [L])	Total Daily Volume (litres [L])	Comments / Concerns
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
Monthly Totals				

Hamlet of Chesterfield Inlet
Monthly Sewage Disposal Facility Inspection Form

Date: _____ **Inspector(s):** _____

Air Temperature (°C): _____ **Ground Cover:** _____
(e.g. snow covered, vegetation)

Wind Direction & Speed: _____ **Precipitation:** _____

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Health & Safety (public and personnel)						
Access Road (condition, ditches, snow cover, surface, erosion, etc)						
Offload Truck Pad (condition, snow cover, surface, erosion, etc)						
Offload Chutes & Bollards (condition, stability, etc)						
Signs (presence, condition, readability)						
Detention Cell 1 (berm stability & condition, riprap area, sewage level, etc)						
Detention Cell 2 (berm stability & condition, riprap area, sewage level, etc)						

Hamlet of Chesterfield Inlet
Monthly Sewage Disposal Facility Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Tundra Wetland (flow diversion berms condition & stability, drainage courses, water presence, etc)						
Wildlife						
Odour / Appearance						
Equipment (sewage trucks)						

General Comments:

Hamlet of Chesterfield Inlet
Monthly Municipal Solid Waste Quantity Form

Month: _____ **Year:** _____

Date	Waste Delivered by Hamlet Personnel		Waste Delivered by Others	Total (m^3)	Activities Completed at the Municipal Solid Waste Facility (e.g. burning, compacting, segregating, covering, etc)	Staff Initials
	Number of Loads	Estimated Quantity (m^3)	Estimated Quantity (m^3)			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Hamlet of Chesterfield Inlet
Monthly Municipal Solid Waste Quantity Form

Date	Waste Delivered by Hamlet Personnel		Waste Delivered by Others	Total (m^3)	Activities Completed at the Municipal Solid Waste Facility (e.g. burning, compacting, segregating, covering, etc)	Staff Initials
	Number of Loads	Estimated Quantity (m^3)	Estimated Quantity (m^3)			
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Monthly Totals						

Hamlet of Chesterfield Inlet
Monthly Solid Waste Disposal Facilities Inspection Form

Date: _____ **Inspector(s):** _____

Air Temperature (°C): _____ **Ground Cover:** _____
(e.g. snow covered, vegetation)

Wind Direction & Speed: _____ **Precipitation:** _____

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
General						
Health & Safety (public and personnel)						
Access Road (condition, ditches, snow cover, surface, erosion, etc)						
Signs (presence, condition, readability)						
Equipment (loader & grader, condition, need of repair, etc)						
Wildlife (presence, action, etc)						
Environmental Hazards (spills, etc)						
MSW Disposal Facility						
Litter (at fences, on site, off site, etc)						

Hamlet of Chesterfield Inlet
Monthly Solid Waste Disposal Facilities Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
MSW Disposal Facility (con't)						
Fence (condition, obvious signs of repair, etc)						
General Waste Segregation (burnables, non-burnables, hazardoues waste, etc)						
Burn Area (only burnables present, burn practices followed, etc)						
Landfill Area (only landfillable materials and cold, burnt wastes)						
Landfill Waste Placement & Compaction						
Landfill Waste Cover (stockpile, exposed waste, depth, etc)						
Landfill Cell/Layer Construction (slopes, cover, etc)						
Odour / Appearance						

Hamlet of Chesterfield Inlet
Monthly Solid Waste Disposal Facilities Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
MSW Disposal Facility (con't)						
Surface Drainage (water flow, erosion, drainage, waste in ditches, etc)						
Leachate Seepage from MSW Disposal Facility (CHE-2 monitoring station)						
Public Hazardous Waste Drop-off Area						
Environmental Hazards (spills, etc)						
Bulk Metal Waste Disposal Area						
General Waste Segregation (burnables, non-burnables, hazardoues waste, etc)						
Approved Materials Present (see O&M manual for list of approved materials)						
General Waste Segregation (proper segregation of wastes)						
Site Planning & Organization						

Hamlet of Chesterfield Inlet
Monthly Solid Waste Disposal Facilities Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Bulk Metal Waste Disposal Facility (con't)						
Surface Drainage (water flow, erosion, drainage, etc)						
Environmental Hazards (spills, etc)						
Hazardous Waste Storage Area						
Fence & Gate (if present)						
Berms & Liner (berm stability & condition, liner showing, etc)						
Approved Materials Present (see O&M manual for list of approved materials)						
General Waste Segregation						
Hazardous Waste Storage Containers (appropriate containers for waste, condition, shelter, etc)						
Site Planning & Organization						

Hamlet of Chesterfield Inlet
Monthly Solid Waste Disposal Facilities Inspection Form

Issues	Are there Concerns?		Description of Concern / Condition / Problem	Action / Maintenance Required	Recurring Problem?	
	Yes	No			Yes	No
Hazardous Waste Storage Area (con't)						
Surface Drainage (water flow, erosion, drainage, waste in ditches, etc)						
Environmental Hazards (spills, etc)						
Drum Storage Area						
Approved Materials Present (see O&M manual for list of approved materials)						
Site Planning & Organization						
Surface Drainage (water flow, erosion, drainage, waste in ditches, etc)						
Environmental Hazards (spills, etc)						

General Comments:

APPENDIX H

Spill Contingency Forms

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION	
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION	
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC

SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN

FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

NUNAVUT SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

ᓄᓇᕗᑦ ᑯᐃᓴᓄᑦ ᐅᓂᒃᑳᖅ (ᐅᖃᓗᐊᓂᐃᑦ, ᓴᓇᓪᓕᖅ, ᐊᑦᑕᕐᓇᖅᑐᑦ, ᐃᓕᓴᕐᓂᐃᑦ ᐅᑉᐹᓪᓕᖅ ᐊᓗᓚᖅᑐᑦ)

24-Hour Report Line 24-ᓄᑦ ᐃᒃᖃᓄᑦ ᐅᓂᒃᑲᐃᐅᔪᓐᓇᖅᑐᖅ ᐅᖃᓕᑦ

Phone/ᐅᖃᓕᐅᑦ **(867) 920-8130**

Fax/ᓱᒃᑐᒃᓴᑦ **(867) 873-6924**

A Report Date and Time ᐅᑉᓗᖅ ᓯᖓᖏᓚᑦᓗᓂ ᖃᓄᐃᓕᐊᖅᑎᑦᓗᒍ ᐅᓂᒃᑲᐅᑎᒋᐊᕐᓂᖅ	**B** Date and Time of Spill(if known) ᐅᑉᓗᖓ ᑯᐃᑎᑦᓗᒍ ᖃᓄᐃᓕᐊᖅᑎᑦᓗᒍᓗᒍ (ᖃᐅᔨᒪᓕᐅᕐᕕᑦ)	**C** ☐ Original Report ᓯᓚᑦᓂᖅᓯᒥ ᐅᓂᒃᑲᐅᓯᐅᔪᖅ ☐ Update No. _____ ᓂᒃᑲᐅᓯᐅᒃᖃᓂᖅᓯᖓ ᓇᓴᐅᑦ	Spill Number ᑯᐃᓚᑦ ᓇᓴᐅᑦ

D Location and Map Coordinates (if known) and Direction (if moving) ᓇᓂ ᑯᐃᓛᓇ ᐊᓇᓐᓚᐅᑦ ᓇᓴᐅᓪᓗᑎᑦ (ᖃᐅᔨᒪᓕᐅᕐᕕᑦ) ᐊᒻᒪᓗ ᓇᒧᓐᖓᐅᓪᓚᕐᓂᐊᓪᓚᖓᑦ (ᐃᖅᑲᖏᕐᕕᑦ)

E Party Responsible for Spill (Full Name and Address) ᑭᒃᑯᑦ ᑯᐃᑎᑦᑎᐊᓪᓚᑦ (ᐃᑎᑦ ᐊᒻᒪᓗ ᑐᕌᑎᖓ)

F Product(s) Spilled and Estimated Quantities(provide metric volumes/weights if possible) ᑭᓱᑦ ᑭᓱᓪᓗᓐᓂᑦ ᑯᐃᓚᑦ ᖃᓄᑎᓗ ᐊᖏᔪᖃᖅᓯᑦ (ᐊᖏᔪᖓ ᐅᑭᖏᑦᔪᖏᓪᓗᓐᓂᑦ ᐊᓯᓐᓇᖏᑦᑐᑦ)

G Cause of Spill ᑭᓱ ᑯᐃᐸᓯᑕᐅᓚᑦ

H Is Spill Terminated? ᑯᐃᔪᖅ ᓄᖅᖃᑕᐅᓚᑦ? ☐ Yes/ᐃ ☐ No/ᐊᒃᑲ	**I** If Spill is Continuing, Give Estimated Rate ᓯᓚ ᑯᐃᐸᑦ ᖃᓄᑎᑎ ᓯᑲᑲᑎᑎᖃᖅᑲᓐᓂᖅ	**J** Is Further Spillage Possible? ᑯᐃᐸᒃᖃᓗᐃᓪᓕᐅᑭᖃᖅᑐᑦ? ☐ Yes/ᐃ ☐ No/ᐊᒃᑲ	**K** Extent of Contaminated Area (in square metres if possible) ᖃᓄᖅ ᐊᖏᑎᑎᓚᓐ ᑯᐃᓴᐃᐅᔪᖅ (ᐅᐸᑐᖅᓯᒪᓗᒍ ᐊᐅᖏᓐᓇᖏᑦᑐᑦ)

L Factors Affecting Spill or Recovery(weather conditions, terrain, snow cover, etc.) ᑭᓱᑦ ᐱᐅᓯᑕᐅᓚᑦ ᑯᐃᐊᒍᑦ ᐅᑦᓓ ᐊᑲᑭᑕᐅᓕᓯᑎᓪᓗᒍ (ᓯᓚ ᖃᓄᐃᓕᓐᓂᓕᖅᓂᑦ, ᓄᓇ ᖃᓄᐃᓕᓐᓂᓕᖅᓂᑦ ᐊᐅᓵᐅᓯᒪᓕᖅᓂᑦ, ᐊᓯᖏᓪᓕᐅᕐᓂᖅᓂᑦ) .	**M** Containment (natural depression, dykes, etc.) ᐅᖃᓗᐊᓂᖃᖅᐸᑦ ᑭᓕᐊᓱᑦ ᐃᓯᖏᓐᓂᓯᓯᒪᔪᖅ (ᓄᓇᒥ ᐃᓯᖏᓐᓇᐃᑦ, ᐊᓯᖏᓐᓇᓕᐅᕐᓂᖅᓂᑦ)

N Action, if any, taken or Proposed to Contain, Recover, Clean Up or Dispose of Product(s) and Contaminated Materials
ᖃᓄᐃᓕᓴᐅᑉ, ᖃᓄᐃᓕᓴᐅᑎᑦᑕᖅᓯᑦ ᐅᑦᑐᓂ ᖃᓄᐃᓕᓴᐅᑎᑦᑕᖅᓯᑦ ᐊᑕᐅᓯᐱᑎᑕᐅᓚᓐᓂᒃ, ᓄᖅᖃᑎᑕᐅᓚᓐᓂᒃ, ᓴᓇᒪᓂᖏᑕᐅᑉ ᐅᑦᑐᓂ ᐃᑎᑕᐅᓂᐊᖅᓯᑦ ᐊᒻᒪᓗ (ᑯᐃᓚᑦᓗᓂᑦ) ᐊᒻᒪᓗ ᑯᐃᓴᐃᐅᔪᖅ.

O Do You Require Assistance? ᐃᑲᔪᖅᑕᐅᔨᓂᐊᖅᖃᖅᑐᑦ? ☐ No ᐊᒃᑲ ☐ Yes, describe: ᐃ, ᓇᓗᓇᐃᔨᔪᓗ	**P** Possible Hazards to Persons, Property or Environment e.g. fire, drinking water, fish or wildlife ᐊᑦᑕᓪᓗᐃᓪᓕᓇᖅᖃᖅᑐᑦ ᐃᓇᓐᓄᑦ, ᐱᖁᑎᑎᕈᑐᕐᓇᑦ ᐅᑦᑐᓂ ᐊᐊᑎᒻᒥ ᓄᑦᓂ - ᐃᑭᓪᓗᓄ, ᐃᒥᓪᒻᒥ ᓂᐅᖅᖃᖅᑕᐅᓄᑦᔪᑦᓗᓄ, ᐃᖅᓗᓯᓇᑦ ᐅᑦᑐᓂ ᓂᓪᔨᑎᓇᑦ

Q Comments and/or Recommendations ᐅᖅᐳᓴᓚᐃᑦ ᐊᒻᒪᓗ ᐅᑦᑐᓄᓪᓚᑦ ᖃᓄᐃᓕᑎᓪᓚᖅᓱᐅᓯᑦ

FOR SPILL LINE USE ONLY
ᐊᑐᖅᑕᐅᔪᓚᖅ ᑯᐃᓯᓇᑦ ᐅᖅᖃᓪᓚᕆᐊᖅᑕᕐᔪᓂᓂᐊᖅ

Lead Agency
ᐃᖅᖃᓇᐃᒃᖅᑐᓂᓪᓚᕆᔨᑦ ᑯᐃᔪᒥᒃ ᑲᒪᒋᔭᖅᖅᑐᑦ

.....

Spill Significance ᑯᐃᓴᑦ ᖃᓄᐃᓕᓐᓂᓐᖓ

.....

Lead Agency Contact and Time
ᐃᖅᖃᓇᐃᒃᖅᑐᓂᓪᓚᕆᔨᑦ ᑯᐃᔪᒥᒃ ᑲᒪᒋᔭᖅᖅᑐᑦ ᖃᐅᔨᓴᖅᑕᐅᓂᖓ ᐊᒻᒪᓗ ᖁᔭᓕᐊᖅᑎᑦᓗᒍ

.....

.....

.....

Is this file now closed?
ᑕᑉᓇ ᐅᓂᒃᑳᓕᐅᔪᖅ ᒪᑐᐅᕐᓂᖅ? .....

Reported By ᐅᓂᒃᖅᑐᖅ	Position, Employer, Location ᖃᓄᐃᑐᒥᒃ ᐃᖅᖃᓇᐃᒃᖅᓂᒃ, ᐃᖅᖃᓇᐃᒃᖅᖁᔭᖓ, ᓇᓗ	Telephone ᐅᖃᓕᐅᑉ
Reported To ᐅᓂᐊᐅᔪᖅ	Position, Employer, Location ᖃᓄᐃᑐᒥᒃ ᐃᖅᖃᓇᐃᒃᖅᓂᒃ, ᐃᖅᖃᓇᐃᒃᖅᖁᑦᓖ, ᓇᓂ	Telephone ᐅᖃᓕᐅᑉ

Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call to the spill line. Forms can also be printed and faxed to the spill line at 867-873-6924. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. **Please do not fill in the Report Number**: the spill line will assign a number after the spill is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).
C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. **You must include the geographic coordinates** (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. **Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.**
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled; most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (eg: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overfill, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m^2)
J. Factors Affecting Spill	Any factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or equipment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: eg. “Page 1 of 2", “Page 2 of 2" etc. **Please number the pages to ensure that recipients can be certain that they received all pertinent documents.** If only the spill report form was filled out, number the form as “Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	**Leave Blank**. This box is for the **Spill Line’s use only**.