CITY OF YELLOWKNIFE

Sewage Disposal Facilities Operations and Maintenance Manual

Version 3

January 2021

DOCUMENT CONTROL

Significant changes have been made to this document, refer to the revision table below.

Version	Date	Document Section	Page	Revision	Author
3	January 2021	All	All	Water Licence Renewal Application	Associated Environmental on behalf of the City of Yellowknife
2	November 2018				
1	March 2017				

Table of Contents

1. INTRODUCTION 1

1.1. Purpose 1

1.2. Site Information 1

1.2.1. Lift Stations 1

1.2.2. Sewer Mains 2

1.2.3. Lagoon 3

1.2.4. Wetlands 3

1.3. Sewage Spills 3

2. SITE PERSONNEL 4

2.1. Duties and Responsibilities 4

2.2. Personnel Training 6

3. MAINTENANCE AND PLANNING 8

3.1. Trucked Sewage 8

3.2. Honey Bags and Animal Wastes 8

3.3. Sewage Mains 9

3.3.1. Sewer Flushing Program 9

3.3.2. Water and Sewer Infrastructure Replacement Program 9

3.3.3. Force Mains 9

3.4. Lift Station Operation and Maintenance – General 9

3.4.1. Piping Maintenance and Replacement 10

3.4.2. Pump and Comminutor Maintenance and Replacement 10

3.4.3. Back-up Systems 10

3.4.4. Building Maintenance 11

3.5. Fiddler's Lagoon 11

3.5.1. Access Road Maintenance 11

3.5.2. Floating Island Removal 11

3.5.3. Control Structure Maintenance 11

3.5.4. Dam and Dyke Maintenance and Inspections 12

3.5.5. Emergency Discharges to Fiddler's Lagoon 12

3.6. Erosion Control and Restoration 12

4. SAMPLING AND MONITORING 13

5. SLUDGE, LEACHATE AND RUNOFF MANAGEMENT 16

5.1. Sludge and Leachate Sources 16

5.1.1. Sewage Lagoon 16

5.1.2. Baling Facility Sludge and Leachate 16

5.1.3. Landfill Cell A and B Leachate 17

5.1.4. Compost Runoff 17

5.1.5. Water Treatment Plant Backwash, Clean-in-Place and Enhanced Flux Maintenance Streams 17

5.1.6. Spring Catch Basin Cleanout 18

5.2. Fiddler's Lagoon Sludge Removal and Frequency 18

5.3. Fiddle's Lagoon Sludge Disposal 18

Table of Contents

5.4. Fiddler's Lagoon Sludge Monitoring 19

6. SITE RECORDS 20

7. SAFETY PROCEDURES 21

7.1. Bear Safety 21

8. SITE ACCESS CONTROL 22

8.1. Lift Station Access 22

8.2. Lagoon Access 22

8.3. Contact Numbers 22

9. EMERGENCY RESPONSE 23

9.1. Emergency Contact Numbers 23

9.2. Spill Contingency Plan 23

9.3. Fire Response Plan 23

REFERENCES 24

Table of Contents

LIST OF TABLES

Table 1-1 Lift Station Components 1
Table 4-1 SNP Station Information 13

LIST OF FIGURES

Figure 3-1 Lagoon-Honey Bag Disposal Area 8

LIST OF APPENDICES

Appendix A: Figures
Appendix B: NWT Industrial Waste Discharge Standards
Appendix C: Water and Sewer Services Consolidated By-Law #4663
Appendix D: Sewage Facility Check Lists
Appendix E: List of Safe Work Practices
Appendix F: Bear Safety

1. INTRODUCTION

1.1. Purpose

The purpose of this manual is to assist City of Yellowknife personnel with the operation and maintenance of the Yellowknife Sewage Disposal Facilities. The manual has been developed based on the Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories (Duong and Kent, 1996).

1.2. Site Information

The Yellowknife Sewage Disposal Facilities consists of Lift Stations, gravity mains, force mains, the holding lagoon, and the wetland treatment system. The holding lagoon and wetland system are known as the Fiddler's Lake Treatment System (FLTS). Figure 1 - Appendix A shows the locations of the Lift Stations and Figure 2 shows the FLTS. The following sections describe the components of the system in greater detail.

1.2.1. Lift Stations

Lift Stations are located at points in the sewage collection system where it is necessary to lift sewage from a lower elevation to a higher elevation in order to maintain flows in the system. There are 14 Lift Stations currently in use. Table 1-1 shows the components of each Lift Station.

At Lift Stations #1, #4, #5 and #7, sewage enters the Lift Station and passes through a comminutor which grinds solids in the sewage before it drops into the wet well. Sewage is then pumped from the wet well back into the sewage system. At Lift Stations #2, #3, #6, #8, #9, #10, #11, #12, #13 and #14 Flygt submersible pumps are used which grind solids in the sewage as it is pumped into the sewage force mains. All lift station wet wells are cleaned annually with those of Lift Stations #1, #4**,** #5 and #7 cleaned twice a year, their wet wells being pumped out with a Vactor truck and then discharged to the lagoon.

Table 1-1 Lift Station Components

Lift Station #	Location	Type	Pumps (total)	Comminutor	Back-Up System	Communication with WTP
1	School Draw Ave. near Franklin Ave.	Building	3	Yes	Diesel Generator	Yes
2	Matonabee St.	Manhole	2	No	Diesel Generator	Yes
3	Albatross Ct.	Manhole	2	No	Connected to LS#2 diesel generator	Yes

Lift Station #	Location	Type	Pumps (total)	Comminutor	Back-Up System	Communication with WTP
4	Rycon Dr.	Building	3	Yes	Diesel Generator	Yes
5	Taylor Rd. (behind City garage)	Building	3	Yes	Diesel Generator	Yes
6	Bagon Dr. and Balsillie Ct.	Building	3	No	Diesel Generator	Yes
7	49th St. at 52nd Ave.	Building	3 (1 diesel)	Yes	Diesel driven Pump, System designed overflow to LS #1	Yes
8	Borden Dr. at Rivett Cres.	Building	2	No	Diesel Generator	Yes
9	Borden Dr. behind Stanton Plaza	Building	2	No	Diesel Generator	Yes
10	Niven Dr.	Manhole	2	No	Connected to PH#6 diesel generator	Yes
11	DeWeerdt Dr.	Manhole	2	No	Vactor Truck	Yes
12	Lemay Dr.	Manhole	2	No	Diesel Generator	Yes
13	Norseman Dr., near Franklin	Manhole	2	No	System designed overflow to LS #5	**Yes**
14	Hall Cres.	Manhole with a Building	2	No	Diesel Generator	Yes

1.2.2. Sewer Mains

Sewage, including industrial wastewater that meets discharge standards (Appendix B), moves through gravity and force mains until reaching either Lift Station #5 or #6. Once it has reached these stations, it enters a force main which then carries it to the sewage lagoon.

1.2.3. Lagoon

Fiddler's Lagoon**,** the first element of FLTS, is the holding cell for sewage wastewater that functions as a facultative lagoon. While in the lagoon, aerobic and anaerobic processes break down the sewage in the first stage of treatment. The lagoon is situated in an area that was once a naturally occurring lake. The construction of berms and dykes in the area created the existing holding cell and altered natural flow pathways such that surface water drainage is directed away from the holding cell. In 2015 the lagoon control structure was changed from a stop-log and valve structure to a metal plate and valve structure (Dillon, 2019a). Decant currently takes place annually from July to October**.**

1.2.4. Wetlands

The wetland system is the second FLTS element, located downstream of Fiddler's Lagoon, and consists of smaller lakes and swamp areas which further treat Fiddler's Lagoon decant water. This system ends at water quality sampling station 00032-F3, which is the "effluent" compliance point, located approximately 6 km upstream of where the flow enters Great Slave Lake.

This and other water quality stations are discussed in detail in Section 4.

1.3. Sewage Spills

A number of systems have been put in place in order to reduce the possibility of an occurrence of spilled sewage. In addition, the City will construct a wastewater storage cell at the City Yard. In the case of a forcemain break up to Lift Station #6 (i.e. Lift Station #5 wastewater) the wastewater would be directed to the storage cell while the repair is completed (Appendix A, Figure 4). Please refer to the City's Spill Contingency Plan for details on sewage spills.

2. SITE PERSONNEL

The Water and Sewer Department is staffed with 18 full time and 3 seasonal positions. Figure 3 in Appendix A shows the organizational chart for the Water and Sewer Department.

The City SAO is ultimately responsible for the operation of the SDF. The overall operation of the SDF is performed by the Superintendent – W/S, with the Pump House/Lift Station (PH/LS), and W/S Supervisors responsible for the daily operation and maintenance work. Various Maintainers, Tradespersons and Operators are responsible for performing the required day-to-day tasks as assigned by the PH/LS or W/S Supervisor.

The following sections outline the responsibilities of the various positions.

2.1. Duties and Responsibilities

Superintendent – Water and Sewer (Superintendent W/S)

The Superintendent W/S is responsible for the following:

- Liaison between Manager – Works Operations and W/S Staff
- Maintaining Liaisons with Clients (private sector generators and government agencies) and Suppliers
- The Superintendent W/S Shall:
    1. Perform operations at the facility in accordance with the SDF Operations and Maintenance Manual (latest approved version), applicable Engineering Drawings, and other documentation related to the SDF including safety protocols and management plans;
    2. Prepare facility operating budgets, participate in staffing selections, and contractor hiring;
    3. Communicate as required with regulatory agencies as well as engineering to support its communications with regulatory agencies;
    4. Deal directly with the public, responding to disposal requests;
    5. Coordinate site visits;
    6. Maintain the environmental monitoring/sampling program;
    7. Ensure on site staff and contractors receive required training; and
    8. Ensure that the site is maintained and operated in a clean and safe manner at all times in compliance with the Northwest Territories Safety Act and Regulations.

Pump House and Lift Station Supervisor (PH/LS Supervisor)

The PH/LS Supervisor reports directly to the Superintendent W/S and is responsible for the following:

- Perform and/or facilitate maintenance and repairs in all City Pump Houses and Lift Stations;
- In conjunction with the Superintendent W/S set up preventative maintenance schedules as per manufacturers recommendations or specific site requirements of and W/S facilities;
- Set up daily and weekly work plans for and W/S facilities incorporating preventative maintenance and repair requirements to prioritize schedules as required;
- Assign daily tasks to three Tradespeople and two W/S Maintainers in relation to facility requirements and in accordance with OH&S, WSCC and regulatory requirements;
- Take responsibility for the daily supply of safe drinking water and safe and efficient disposal of sewage;
- Perform or delegate all sampling requirements of and W/S facilities as per the City's water licence, or other regulatory requirements;
- Perform routine site inspections and daily follow-up with staff to make repair, maintenance or upgrade suggestions and/or requirements to Superintendent W/S;
- Prepare reports as required;
- Perform or delegate other related tasks as per direction of the Superintendent W/S that may be required for the safe and efficient operation of the and W/S division or other City facilities; and
- In conjunction with Superintendent W/S and Supervisor W/S ensure the safe, effective and efficient operation of all components of the W/S division promoting safe and reliable services to residents of Yellowknife.

Water and Sewer Supervisor (W/S Supervisor)

The W/S Supervisor reports directly to the Superintendent W/S and is responsible for the following:

- Perform and/or delegate necessary maintenance and repairs on all City underground water and sewer infrastructure and the lagoon facility;
- In conjunction with Superintendent W/S set up seasonal maintenance and repair schedules for underground infrastructure and communicate with Engineering regarding capital upgrades;
- Complete routine inspections and daily follow-up meetings with employees to determine maintenance and repair requirements and present to Superintendent W/S;
- Prioritize maintenance and repair schedules;

- Perform or delegate water quality and effluent sampling as per the City's water licence or other regulatory requirements;
- Ensure division tasks are carried out as per OH&S, WSCC and regulatory requirements;
- Complete reports as required;
- In conjunction with Superintendent W/S, ensure the safe, effective and efficient operation of all components of the W/S division promoting safe and reliable services to residents of Yellowknife.

Maintainers, Operators, Tradespersons

Maintainers, Operators and Tradespersons report directly to either the PH/LS Supervisor or the W/S Supervisor and are responsible for the following:

- Perform duties as assigned by the PH/LS or W/S Supervisor;
- Conduct work in accordance with the City's Occupational Health and Safety Program and the Northwest Territories Safety Act and Regulations; and
- Ensure work is done in accordance with City Service Standards and regulatory requirements in order to ensure safe and efficient operation of the water and sewer system,

Maintainers are responsible for and assist with:

- All forms of maintenance and/or repairs to and W/S infrastructure; and
- Sampling projects;

Operators are responsible for:

- Monitoring the water and sewer system operations to ensure the safe and efficient supply of potable water and disposal of sewage within the City;
- Reporting and documenting issues;
- Making necessary adjustments to the operating system as required; and
- Water Treatment Plant Operations,

Tradespersons are responsible for:

- Developing or assisting to develop maintenance and preventative maintenance schedules;
- Performing required maintenance and repairs as directed by the PH/LS Supervisor; and
- Perform operational duties and facility inspections as required (some system operations).

2.2. Personnel Training

The City is responsible for the training of staff. Water and Sewer Staff are trained to perform his or her job in a safe and environmentally responsible manner, in accordance with applicable regulations.

Water and Sewer Staff attend regular weekly safety meetings at which any safety issues are brought up for discussion. The items from the safety meetings are discussed between the Manager – Works Operations, the Superintendent W/S, and the City's Safety and Training Officer. Results of the meetings are relayed to Water and Sewer Staff by the LS/PH or W/S Supervisor during toolbox meetings. All personnel are to be familiar with and abide by the City's Occupational Health and Safety Program and the Northwest Territories Safety Act and Regulations.

A review of this Operations and Maintenance Manual, and related documentation, will be a prerequisite for any employee before being declared eligible for work in the water and sewer division. Documentation to be reviewed includes the following:

- City of Yellowknife Safety Manual
- Safe Work Practices
- Service Standards
- Spill Contingency Plan

The Superintendent W/S and all Water and Sewer Staff are required to comply with all laws and regulations affecting the execution of the work at all water and sewer facilities or any aspect of the water and sewer system, including all applicable Federal, Territorial and local laws and regulations pertaining to socio-economic and environmental matters.

3. MAINTENANCE AND PLANNING

The purpose of the SDF is to ensure safe collection and treatment of sewage from Yellowknife. Proper maintenance of the sewage system is crucial to ensuring the efficient operation of all components. The following sections outline the different system parts and associated maintenance activities. All maintenance is done in accordance with the City's Service Standards.

3.1. Trucked Sewage

Some areas of the City have trucked sewage service. Buildings in these areas are required to have sewage holding tanks that conform to City Standards. These standards are outlined in the City's Water and Sewer Services By-Law #4663, which is found in Appendix C.

The collection of sewage is done by private contractors who are responsible for maintaining their vehicles in accordance with their maintenance program. The contractors must provide the service in accordance with their contract documents.

3.2. Honey Bags and Animal Wastes

Honey bags and animal wastes are collected in a bin at the Yellowknife Solid Waste Facility and transported by City Staff to the disposal area at Fiddler's Lagoon. The red box in Figure 3.2.1 highlights the disposal area in relation to the overall Lagoon. The honey bags are placed in a single disposal area (cell) at Dam 3 and covered as required. Any potential leakage/seepage of material is directed into the sewage lagoon.

Figure 3.2.1 Lagoon-Honey Bag Disposal Area

3.3. Sewage Mains

There are two types of sewage mains: gravity mains and force mains. The following sections detail the O&M work done on both types of mains.

3.3.1. Sewer Flushing Program

In order to maintain flow in the sewage system, the City has implemented the Sewer Flushing Program. The program involves the clean-out of sections of sewage mains each year.

The water and sewer division strive to flush 100% of the gravity sewer mains annually. The flushing program allows Maintainers to find problem areas. This information is then used by management to change maintenance requirements and/or determine repair or replacement requirements for defined areas of pipe. Sewer system flushing water is collected by vacuum trucks and discharged to the sewer system at Lift Station 1 or Lift Station 5 under normal conditions. It is discharged directly to Fiddler's Lagoon only under emergency conditions.

3.3.2. Water and Sewer Infrastructure Replacement Program

In 1984 the City implemented a program for replacement of water and sewer pipes throughout Yellowknife to avoid failure of the pipes. Each year a section of the City has water and sewer mains replaced along with services to buildings, manholes, hydrants, and storm water infrastructure.

Priorities are developed and/or changed as per the findings of the annual maintenance programs.

3.3.3. Force Mains

Visual inspections of the sewage forcemain are carried out regularly by Water and Sewer staff. Inspections include ensuring proper operation of force main air vacuum valves and all discharge piping into the sewage Lift Stations. In addition, Lift Station flow meters are monitored along with Lift Station operations via the City's SCADA system at the Yellowknife Fire Hall, which assists in detecting possible system failures. The water treatment plant also monitors the SCADA system 7 a.m.- to 5 p.m., 7 days a week.

3.4. Lift Station Operation and Maintenance – General

All Lift Stations are checked once per day, 5 days a week, during normal operating hours. All Lift Stations are monitored 24 hours a day, seven days a week via the SCADA system at Yellowknife Fire Department, and as noted above at the water treatment plant. Daily records are kept on the status of the lift stations. The templates for daily check sheets used at each Lift Station are found in Appendix D. Should items require maintenance or replacement beyond the ability or scope of present staff, "As and When" mechanical and electrical contractors can be called upon at any time, including emergency situations, to carry out the work.

3.4.1. Piping Maintenance and Replacement

Over time, sewage wears down the pipes through which it travels. In order to ensure the piping at the lift stations maintains its integrity, regular checks of the pipes are done. Maintenance and replacement are undertaken on an as-needed basis.

3.4.2. Pump and Comminutor Maintenance and Replacement

Pumps and Comminutors undergo routine visual inspections to look for deficiencies that may affect the operation of the sewage disposal system. The SCADA system also aids in ensuring adequate flow in stations and pump performance. Any deficiencies are recorded, and repair schedules are developed. All sewage disposal facilities are designed so that individual pumps or comminutors can be isolated and removed from service for maintenance or repair while maintaining full operation of the facility. Over and above repair requirements, preventative maintenance schedules are developed for pumps and comminutors as per manufacturer's recommendations and/or facility requirements. These schedules vary by facility. Spare pumps and comminutors are also kept in stock for each sewage disposal facility to minimize down time and ensure redundancy within the sewage disposal system.

3.4.3. Back-up Systems

The 24-hour SCADA monitoring is performed by emergency dispatch personal who alerts the required response team if an alarm is detected. Most Lift Stations are equipped with a back-up power system which provides a high level of redundancy and reduces the risk of a sewage spill. There are currently two types of back-up systems in use in Yellowknife. The most common back-up system consists of an Uninterruptible Power System (UPS) and a diesel back-up generator. The UPS is used to provide power to monitoring and control components during the time it takes for the generator to kick-in. The second back-up system consists of a UPS and diesel driven pump. In this system the UPS is used to provide continuous power to monitoring and control components. Currently there is only 1 diesel pump being used, which is at Lift Station #7. Diesel pumps and back-up generators are visually inspected routinely in conjunction with the scheduled facility inspections. Each unit is test run once per week to ensure proper operation. During the test run, all necessary component checks are completed, and fluid levels adjusted as required. All back-up systems are set on a routine service schedule and necessary repairs are noted and scheduled for completion as soon as possible. All back-up generators at City facilities are operated and test run as per CSA Standards for back-up generators.

Lift Stations #11 and #13 do not have backup generators. In the event of a power outage, accompanied by a high-level alarm from Lift Station #11, dispatchers are instructed to initiate two call outs – one for maintenance personnel, and one for a Vactor truck – to insure sewage levels are controlled and a spill does not occur. Lift Station #13 has a system designed overflow to Lift Station #5 (Figure 4 – Appendix A). This means in the event of a power outage, once the sewage elevation in the Lift Station is high enough, it is directed to an overflow pipe that runs back into the gravity sanitary sewer system.

3.4.4. Building Maintenance

As the Lift Stations are located throughout the City in numerous neighbourhoods, care of the exterior of the building is as important as the mechanical systems. The City upgrades the cladding, insulation, windows and roofing for each Lift Station building to reduce operating and heating costs when required and budget allows.

3.5. Fiddler's Lagoon

The FLTS is located to the west of Yellowknife, with access from Deh Cho Boulevard and Highway #3. Fiddler's Lagoon itself has a total volume of approximately 2,700,000 m^3, a working volume of about 2,300,000 $m^3$and covers an area of 900,000 m^2. The following sections detail the operation and maintenance aspects of the lagoon.

3.5.1. Access Road Maintenance

There are two access roads to the lagoon. One road from Deh Cho Boulevard is approximately 3.5 km long and provides access to the majority of the force main air vents, which require routine inspection and maintenance, and to the point where sewage enters the lagoon. The second road is from Highway #3, is approximately 1 km long and provides access to the berm and control structure. Both roads are made of gravel and have locked gates to restrict access to site. Basic road maintenance is conducted as follows:

- On a regular basis the road is to be maintained (potholes filled in, surface levelled) so as to afford a reasonably smooth surface for vehicles;
- At least twice per year, the road is to be graded smooth and the surface reshaped;
- During the winter, snow is removed to maintain access to the site for vehicles; and
- Gates are inspected routinely and repaired as necessary.

3.5.2. Floating Island Removal

Each year, floating islands are removed from the lagoon's surface as required and piled along the shoreline. Floating islands can appear any time between spring thaw and the end of the decant process.

After one freeze-thaw cycle, the material is moved to the honey bag area of the lagoon to cover old, decommissioned honey bag pits and promote vegetation growth in these areas.

3.5.3. Control Structure Maintenance

The Lagoon Control Structure consists of metal plate with a single main control valve and two (2) secondary control valves. The main control valve is currently opened annually in July just after Canada Day. Once levels are lowered past the main control valve, the secondary control valves are used to continue the decant process.

Once decant is completed and the filling process begins, and levels rise to the main control valve, visual inspections of the control structure are completed at least once a week.

3.5.4. Dam and Dyke Maintenance and Inspections

The dams and dykes around the lagoon have access roads on the top of the structures. Periodic grading of these roads is done in order to maintain the surface.

Three types of inspections are done for the dams and dykes:

1. W/S staff visually inspect the dams during their visits to site for other maintenance and inspection checks;
2. An Environment and Natural Resources (ENR) Inspector conducts a visual inspection of the dams, dykes and control structure on at least a yearly basis; and
3. A qualified engineer visually inspects the dams once every two years as required by the City's water licence.

In addition to the dams and dykes around the holding lagoon, control structures were added to Trapper's Lake to divert its flow away from the holding lagoon. These dams, dykes and control structures are visually inspected by a qualified engineer once every four years as required by the City's water licence.

Any items brought up in inspection reports are dealt with on a priority basis. Figures 5a, 5b, 6a, and 6b (Appendix A) illustrate the control structure designs.

3.5.5. Emergency Discharges to Fiddler's Lagoon

The City has installed a concrete block and discharge pipe to facilitate safe and orderly truck-hauled wastewater discharge to Fiddler's Lagoon directly during emergency situations (i.e. major sewer main break). This infrastructure will only be used by City-contracted haulers.

3.6. Erosion Control and Restoration

Generally, erosion is not a concern within and around the facilities. The areas around lift stations are graded appropriately to allow surface water to flow to the storm drainage system. During regular maintenance procedures, when erosion channels are identified they are reported and rectified within a reasonable timeframe.

As mentioned, the dams, dykes and control structures of the lagoon system are inspected every two years by a qualified engineer who identifies potential issues and/or evidence of erosion. The accompanying report offers recommendations to address the concerns presented which the City then acts to rectify.

4. SAMPLING AND MONITORING

The City has put in place the Surveillance Network Program (SNP) for monitoring the lagoon and wetland system as per the City's water licence.

There are currently three SNP stations located within and downstream of the FLTS. Table 2 describes each of the stations and the frequency of sampling. The information is taken from the City's water licence. The locations of the SNP stations are shown on Figure 2 in Appendix A.

Table 4-1 SNP Station Information

SNP Station ID	Description	Sampling Frequency
0032-F1	Marker downstream of Lake F1 along the Fiddler's Lake Sewage Disposal System, approximately 1.5 kilometers upstream of Great Slave Lake (62°24'49"N and 114°49'11.9"W) Rationale: To monitor water quality of Lake F1 and effectiveness of the Fiddler's Lake Sewage Disposal System	Monthly Water quality sampling except during decant period. During decant sampled weekly and for four weeks following decant.
0032-F3	Marker upstream of the outflow from Lake F3 of the Fiddler's Lake Sewage Disposal System (62°25'24.8" N and 114°39'10" W). Sampling required. Rationale: Site of compliance. To monitor Water quality of Lake F3 and to determine the effectiveness of the Fiddler's Lake Sewage Disposal System.	Monthly Water quality sampling except during decant period. During decant: sampled weekly and for four weeks following decant. Sampled at spring break up and before freeze-up in fall for bioassay tests.
0032-10	Sewage effluent at the control structure for Lake F6. Rationale: To determine sewage effluent quality prior to discharge to Fiddler's Lake Sewage Disposal System.	Monitoring Site. No Water quality sampling required for Licence.

SNP Stations 0032-F1 and 0032-F3 are tested for the following parameters:

Nutrients

- Total Ammonia
- Nitrate-Nitrogen
- Total Kjeldahal Nitrogen
- Total Organic Carbon
- Total Phosphorus
- Ortho Phosphorus
- Total Dissolved Phosphorus

Field Parameters

- Dissolved oxygen
- pH
- Temperature
- Conductivity

Major Ions

- Calcium
- Sodium
- Potassium
- Total Hardness
- Magnesium
- Alkalinity
- Sulphate
- Chloride
- Fluoride
- Total Dissolved Solids

Other

- Faecal Coliforms
- Total Suspended Solids
- **c**BOD_5
- Faecal Streptococci
- Oil and Grease

Organics

- Benzene
- Ethylbenzene
- Toluene
- Xylenes
- Hexane Extractable Material
- Hydrocarbons, Total Extractable
- Hydrocarbons, Total Purgeable
- F2: C10-C16
- F3: C16-C34
- F4: C34-C50

Trace Metals, Total

- Aluminum
- Antimony
- Barium
- Beryllium
- Cadmium
- Cesium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Lithium
- Manganese
- Molybdenum
- Nickel
- Rubidium
- Selenium
- Silver
- Strontium
- Thallium
- Titanium
- Uranium
- Vanadium
- Zinc

For SNP Station 0032-F3 only:

- Acute toxicity – rainbow trout
- Actue toxicity – *Daphnia magna*

As the City's water licence does not require sampling of station 0032-10, the City has chosen to test this SNP station for the following parameters:

- pH
- Total Suspended Solids
- Oil and Grease
- BOD_5
- Fecal Coliforms
- Total Phosphorus
- Total Ammonia
- Fecal Streptococci

All sampling, sample preservation, and analyses are conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater", or by such other methods approved by an Analyst. All analyses are performed in a laboratory approved by an Analyst. The results of the analysis are provided in a report from the lab which states the results and detection limits, as well as any problems that may have occurred during analysis of the samples.

The data and information required by the SNP is reported in the City's Quarterly and Annual Water Licence Reports, which are submitted to the Board in accordance with the City's water licence. Furthermore, the board and an Inspector are notified immediately when results are received that are outside the expected range.

5. SLUDGE, LEACHATE AND RUNOFF MANAGEMENT

5.1. Sludge and Leachate Sources

Sludge is produced by the sewage lagoon, the Solid Waste Facility (SWF) and the Water Treatment Plant (WTP), with leachate also produced by the SWF. The sludge will generally be a mixture of fecal matter, organic and inorganic material. Some contaminants such as heavy metals, solvents and petroleum products may also enter the sewage treatment system via leachate.

Information regarding the waste streams from the Solid Waste Facility and the Water Treatment Plant are provided in the annual reports submitted to the MVLWB.

These waste streams are ultimately received into the sanitary sewer system and the FLTS. The SWF OandM manuals and the WTP OandM manual provide detailed information with respect to:

- waste stream sampling and characterization;
- the procedure for assessing the suitability of a waste stream and its approval for discharge to the sewer system;
- method of discharge to the sewer system; and
- alternate management for a waste stream deemed unsuitable for discharge to the sewer system.

5.1.1. Sewage Lagoon

During the treatment process at the sewage lagoon, heavier solids in the sewage effluent will sink to the bottom over time as a sludge blanket. Figure 7 (Appendix A) presents sludge the thickness of sludge within the Lagoon in 2018.

5.1.2. Baling Facility Sludge and Leachate

Sludge is produced by the SWF during baling activities in the Baling Facility and is collected in a sump. Generally, sludge is composed of the solids that settle from the leachate that is produced in the baling process. This is removed and disposed of to the lagoon on an as needed basis. A Vactor truck is used to remove and transport the sludge to the lagoon.

Fluids (or leachate) from the baling process are diverted to the facility's sewage tank. This tank is emptied on an as-needed basis, with the leachate truck-hauled to either Lift Station #1 or #5.

The leachate volume generated was reduced in 2020 when baling of wastes was changed to only recyclable materials. Other material is directed to the landfill, where a mechanical compactor is used to provide material volume reduction.

The baling facility, and all City solid waste facilities, are managed in accordance with Environment and Climate Change Canada (ECCC) Solid Waste Management for Northern and Remove Communities: Planning and Technical Guidance Document (2017).

5.1.3. Landfill Cell A and B Leachate

Cell A and Cell B have leachate collection systems. When the leachate reaches a pre-determined level in the sump, it is transported to either Lift Station #1 or #5 via Vactor truck.

The volume of leachate transported to the wastewater system for disposal is reported in the Annual Report. The City is considering the use of evaporation cannons at the landfill, which would increase the evaporation efficiency and water volume reduction as leachate is sprayed onto the landfill cell surface.

5.1.4. Compost Runoff

The composting pad is designed to direct any surface runoff to the retention pond. The collected water is used to add moisture to the active windrows. A portion of the collected water is pumped into a storage tank and used to add moisture to the active windrows.

In the event that the retention pond reaches an elevation 1.5 m below the top of the pond, samples of the runoff will be collected and submitted for testing in accordance with the City's water licence requirements. Once test results have been received and approval for discharge is given by the Environment and Natural Resources Inspector, runoff will be taken to either Lift Station #1 or #5 for disposal in the FLTS.

5.1.5. Water Treatment Plant Backwash, Clean-in-Place and Enhanced Flux Maintenance Streams

The water treatment plant generates three waste streams: backwash, clean-in-place (CIP), and enhanced flux maintenance (EFM).

Non-chemical backwash waste from the membrane microfiltration system containing particulate matter and other raw water contaminants is delivered to the residual handling system for treatment. This system agglomerates and thickens the backwash solids into residual sludge for disposal.

Cleaning of the microfiltration system membranes generates the CIP and EFM waste streams. Each CIP and EFM cleaning sequence are associated with a specific cleaning agent and dosing regimen. These cleaning solutions are collected in a neutralization tank where they are mixed with neutralization agents prior to disposal.

All three waste streams are discharged directly into the sanitary sewer system, at the water treatment plant site, for disposal in the FLTS.

5.1.6. Spring Catch Basin Cleanout

Please refer to the City's Stormwater Management Plan for information on the annual stormwater catch basin cleanout, and disposal of those materials at Fiddler's Lagoon.

5.2. Fiddler's Lagoon Sludge Removal and Frequency

In 2018 the City commissioned a sludge survey of Fiddler's Lagoon (Hydrasurvey, 2018) and subsequently the Fiddler's Lagoon Desludging and Recommendations study (Dillon, 2019b) to develop options for removal and processing of the material. Based on the City findings the City intends to execute the sludge removal/dewatering project as follows:

- remove in-situ solids using a floating barge-operated dredge, which has a depth-adjustable, horizontal rotating cutter head that pumps the water-solids slurry to shore via the floating pipeline;
- dewater the water-solids slurry using gravity-based geotextile "tubes" (Geotubes®);
- use the dewatered solids product for City landfill cover, with disposal of the empty Geotubes® in the landfill;
- design the laydown area for the Geotubes® in 2020 and 2021 assuming solids removal from the inlet end of the lagoon;
- construct the laydown area in 2022;
- first season of solids removal in 2023 using floating barge-mounted dredging equipment and Geotubes® for dewatering;
- second season of solids removal and dewatering in 2024 (same method as 2023);
- dewatering of solids until 2026;
- dewatered solids product taken to the landfill for use as cover in 2027 and laydown area inspected to ensure suitable physical condition before next cycle of solids removal proceeds; and
- surveys of in-situ solids would start in 2025 and continue annually to determine how quickly solids are accumulating in Fiddler's Lagoon.

5.3. Fiddle's Lagoon Sludge Disposal

The NWT currently does not have a standard for the analysis and disposal of sludge from lagoons (sludge removed from a wastewater treatment lagoon can be defined as "biosolids"). The CCME "Review of the Current Canadian Legislative Framework for Wastewater Biosolids" recommends that the NWT use the CCME Guidelines for Compost Quality for composted manures for land application. Accordingly, biosolids removed from Fiddler's will be tested for the parameters in these guidelines and compared to the land application concentration limits.

If the analysis results of the biosolids are within the concentration limits, and with approval of the Mackenzie Valley Land and Water Board, it is anticipated that the biosolids will be used as

landfill cover. However, if the analysis results exceed guidelines, further treatment of the biosolids will be required.

5.4. Fiddler's Lagoon Sludge Monitoring

After desludging of Fiddler's is complete, it is anticipated that future sludge monitoring will be conducted annually using the Sludge Judge method, as the hydrographic survey showed that sludge is concentrated only in certain areas of Fiddler's Lagoon. This method involves using a clear plastic tube with a check valve on the bottom and measured increment marking on the tube, which is used to determine the thickness of the sludge layer. Sludge depth measurements will then be taken in a grid format and used to assess whether desludging is required. The exact location in Fiddler's Lagoon where these sludge measurements will be taken will be determined once the initial desludging is complete.

6. SITE RECORDS

Copies of records pertaining to operation and maintenance of the SDF are kept at the City garage. Information in these records (as outlined in the Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Facilities in the Northwest Territories, Duong and Kent, 1996) includes:

- Volumes of any effluent discharged to the environment through an accidental spill;
- Details of any maintenance undertaken at the Sewage Disposal Facilities;
- Record sheets;
- Visits by regulatory authorities;
- Copy of the City's water licence;
- Copies of all manuals pertaining to the operation and maintenance of the Sewage Facilities including, but not limited to, the SDF Operation and Maintenance Manual, Safe Work Practices, Service Standards, and Spill Contingency Plan; and
- Copies of spill reports and related regulations.

Copies of the documents listed above are also kept at City Hall, along with the following:

- Copies of sampling and analysis reports for each lagoon SNP Station; and
- Copies of annual reports submitted to the Mackenzie Valley Land and Water Board.

Documents are also available electronically in the City's Document Management System (DM).

7. SAFETY PROCEDURES

The following safety procedures are to be obeyed to minimize health risks to personnel working with/near sewage:

- Equipment is to be kept clean;
- Wear appropriate personal protective equipment for each task;
- Hands are to be washed frequently, as a minimum before eating and after work; and
- Personnel should receive appropriate vaccinations and ensure they are kept up-to-date. Please contact the Department of Health for a list of the appropriate vaccinations.

Safety procedures for specific tasks are outlined in the City's Safe Work Practices, Policies and Procedures Manual. Appendix E contains a list of all the Safe Work Practices. Please refer to the Manual for information on specific tasks.

7.1. Bear Safety

As the lagoon facilities are located in a remote area, encounters with bears are possible. It is imperative that all personnel working at the lagoon be properly trained in bear safety. Please refer to Appendix F for documents relating to bear safety.

8. SITE ACCESS CONTROL

8.1. Lift Station Access

Access to lift stations is restricted to City Staff and contractors. As some areas of the lift stations are confined spaces, only trained personnel are authorized to enter. All entrances contain signage warning of the dangers inside the lift stations. Entrances are also locked.

8.2. Lagoon Access

The lagoon can be accessed by road connecting to either Deh Cho Boulevard or Highway 3. Both accesses contain locked gates which prevent the general public from entering. The gates also contain appropriate warning signage.

8.3. Contact Numbers

Contacts of those responsible for overseeing the operation and maintenance of the SDF are as follows:

	Phone
Manager – Works Operations	(867) 766-5515
Superintendent – W/S	(867) 766-5518
Supervisor, W/S	(867) 766-5516
Supervisor, PH/LS	(867) 669-3481

9. EMERGENCY RESPONSE

The City must be able to respond efficiently and effectively to all possible emergencies that may be encountered in the operation of the City's facilities. These include, but are not limited to fuel, chemical and wastewater spills, as well as fires. Due to the nature of the City's facilities, burning or spillage of unknown or hazardous materials may occur. Only personnel who are properly trained to deal with these situations should respond to such emergencies.

Personnel must familiarize themselves with the emergency preparedness plans before an accident or emergency occurs. Copies of these plans are kept in all common work areas. The following sections list contact numbers and outline procedures to follow in the event of an emergency.

9.1. Emergency Contact Numbers

The following is a list of contact numbers in the case of an emergency:

Emergency Assistance: ……..9-1-1

Fire Department: .....(867) 873-2222

RCMP Detachment: .....(867) 669-1111

24 Hour Spill Response Line: .....(867) 920-8130

9.2. Spill Contingency Plan

A Spill Contingency Plan has been created for activities associated with City operations including the water treatment plant, sewage lagoon, solid waste facility and storage and handling of hazardous materials. A copy of the Plan may be found at City Hall, the MVLWB water licence registry page, and the City Garage. City personnel must familiarize themselves with the plan in order to respond quickly and effectively in the event of a spill.

9.3. Fire Response Plan

As a fire at a Lift Station may result in loss of the facility, emergency measures would be put in place to contain sewage and prevent spills. These measures include temporary use of Vactor trucks for disposal of sewage collected at the Lift Station, and the installation of temporary diesel pumps to handle to sewage flow.

REFERENCES

AECOM. 2019. Yellowknife Forcemain Assessment Study–Draft Report. City of Yellowknife. December 18, 2019.

Canadian Council of Ministers of the Environment (CCME). 2012. Review of the Current Canadian Legislative Framework for Wastewater biosolids.

City of Yellowknife. 2017. Safe Work Practice Index.

City of Yellowknife. 2021. Spill Contingency Plan. January 2021.

City of Yellowknife. 2021. Municipal Stormwater Management Plan. January 2021.

City of Yellowknife. 2021. Solid Waste Disposal Facilities Operations and Maintenance Plan. January 2021.

Dillon Engineering Services (Dillon). 2019a. Lagoon Control Structures Replacement – Preliminary Design Report V 1.1, City of Yellowknife. September 30, 2019.

Dillon. 2019b. Fiddler's Lagoon Desludging and Recommendations – Preliminary Design Report V 2, City of Yellowknife. October 29, 2019.

Duong, D. and R. Kent. 1996. Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solids Waste Disposal Facilities in the Northwest Territories. Produced for MACA, October 1996.

ENR. 2008. Safety in Grizzly and Black Bear Country. Wildlife Division, Department of Environment and Natural Resources. http://www.nwtwildlife.com/Publications/safetyinbearcountry/safety.htm. Obtained November 2008.

Environment and Climate Change Canada. 2017. Solid Waste Management for Northern and Remove Communities: Planning and Technical Guidance Document.

Hydrasurvey. 2018. Sludge Survey Report Fiddler's Lagoon, Yellowknife, NT. July 2018

Mackenzie Valley Land and Water Board (MVLWB). 2010. Water Licence MV2009L3-0007. May 2010

APPENDIX A

Figures

CITY OF YELLOWKNIFE

Public Works & Engineering

Figure 1: Liftstations Locations

N

SNP Station 0032-10

Existing Control Structure

#F5

#F6

#F7

#F8

Holding Pond

#F9

#F5.2

#F5.1

#F4

FIDDLER'S DRAINAGE AREA

FRAME DRAINAGE AREA

#F1

#F2

#F3

#F3.1

#F3.2

SNP Station 0032-F1

SNP Station 0032-F3 (compliance point)

#K5

#K6

#K4

#K5.1

#K3.2

#K3

#K3.1

KAM DRAINAGE AREA

PUD DRAINAGE AREA

BETA DRAINAGE AREA

#A2

#A1

#A1.1

ALPH DRAINAGE AREA

MAC DRAINAGE AREA

Fiddlers Lake

Jackfish Lake

Back Bay

Yellowknife Bay (Great Slave Lake)

Niven Lake

Frame Lake

Central Business District

Great Slave Lake

Range Lake North

Range Lake

Pud Lake

Con Mine

Frame Lake South

Kam Lake

Kam Lake Industrial Park

Grace Lake

Meg Lake

Keg Lake

Peg Lake

Narrow Lake

Mac Lake

Octopus

Peter Baker Slough

Legend

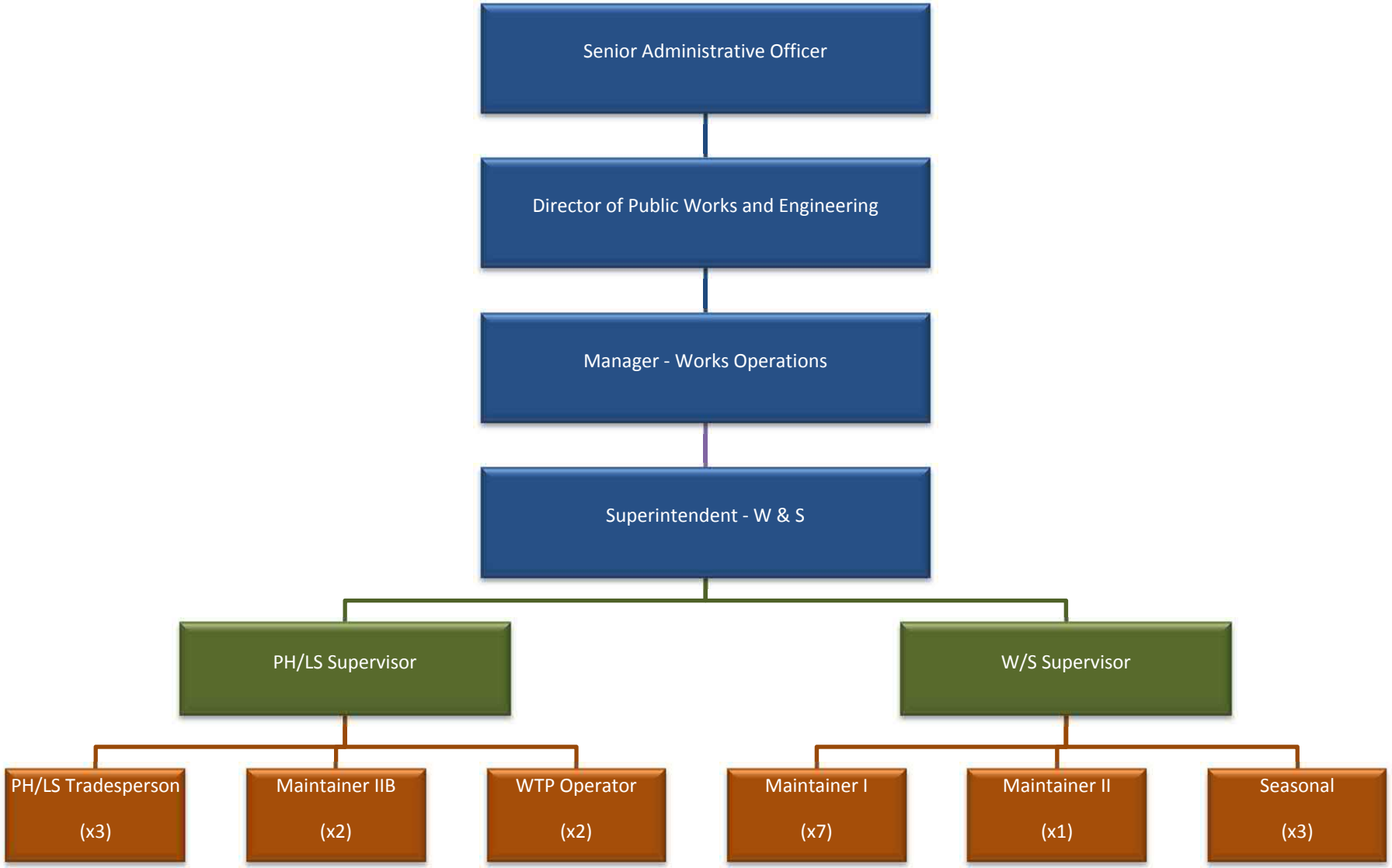
- Municipal Boundary
- Flow Diversion
- Natural Flow
- Drainage Boundary
- Road Centreline
- Fiddler's Lagoon
- Sanitary Force Main

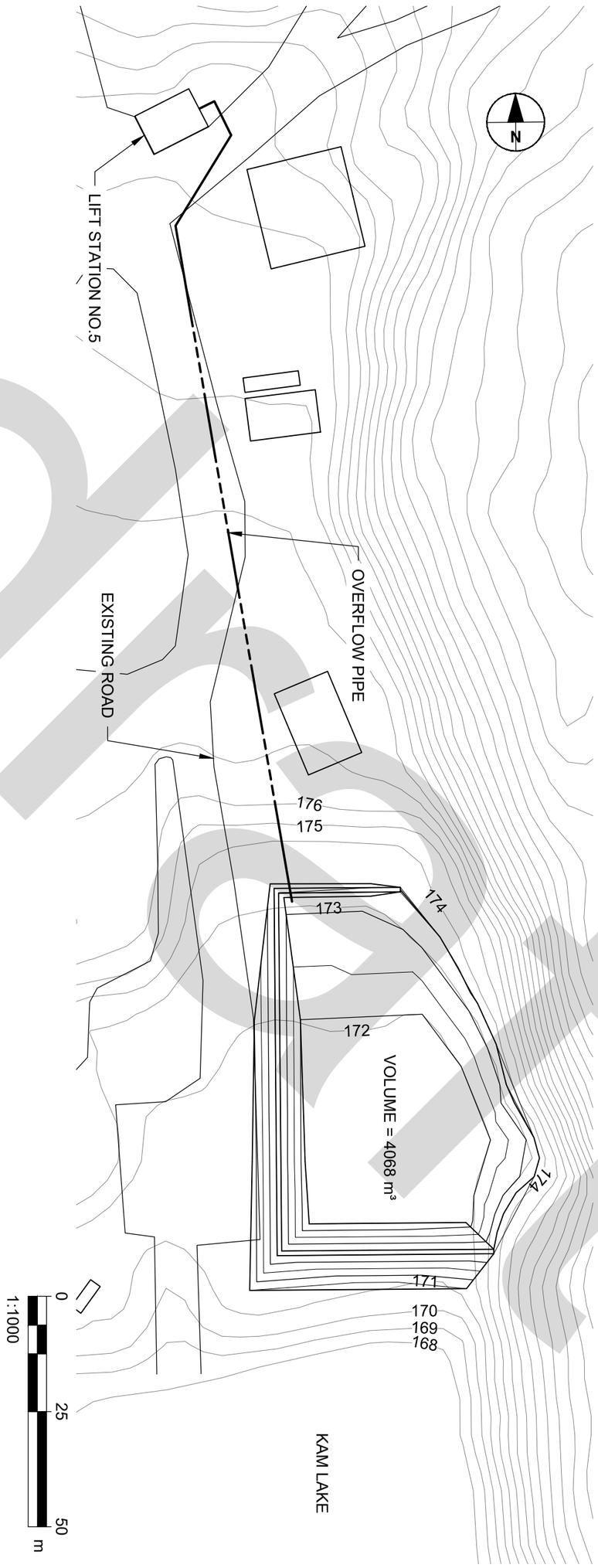
City of Yellowknife

Public Works & Engineering

PROJECT: Sewage Disposal Facilities Operation and Maintenance Manual	SCALE: 1:55,000
	CREATED BY: *G Griffiths*
TITLE: Figure 2: Fiddler's Lake Sewage Treatment System	FILE: *12_SDFO&MM_FiddlersDrainage_11x17.mxd*
	DATE: *May 15, 2012*

Figure 3 – Water and Sewer Department Organizational Chart



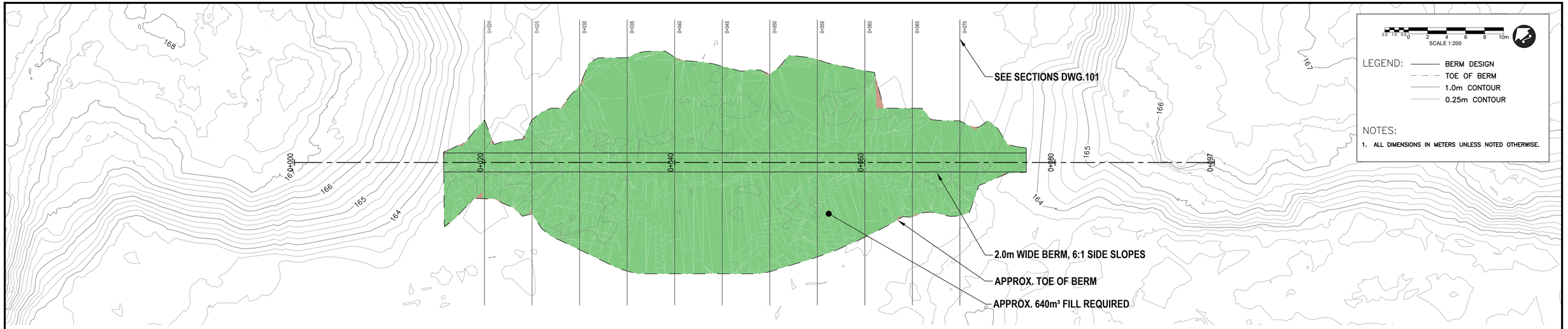


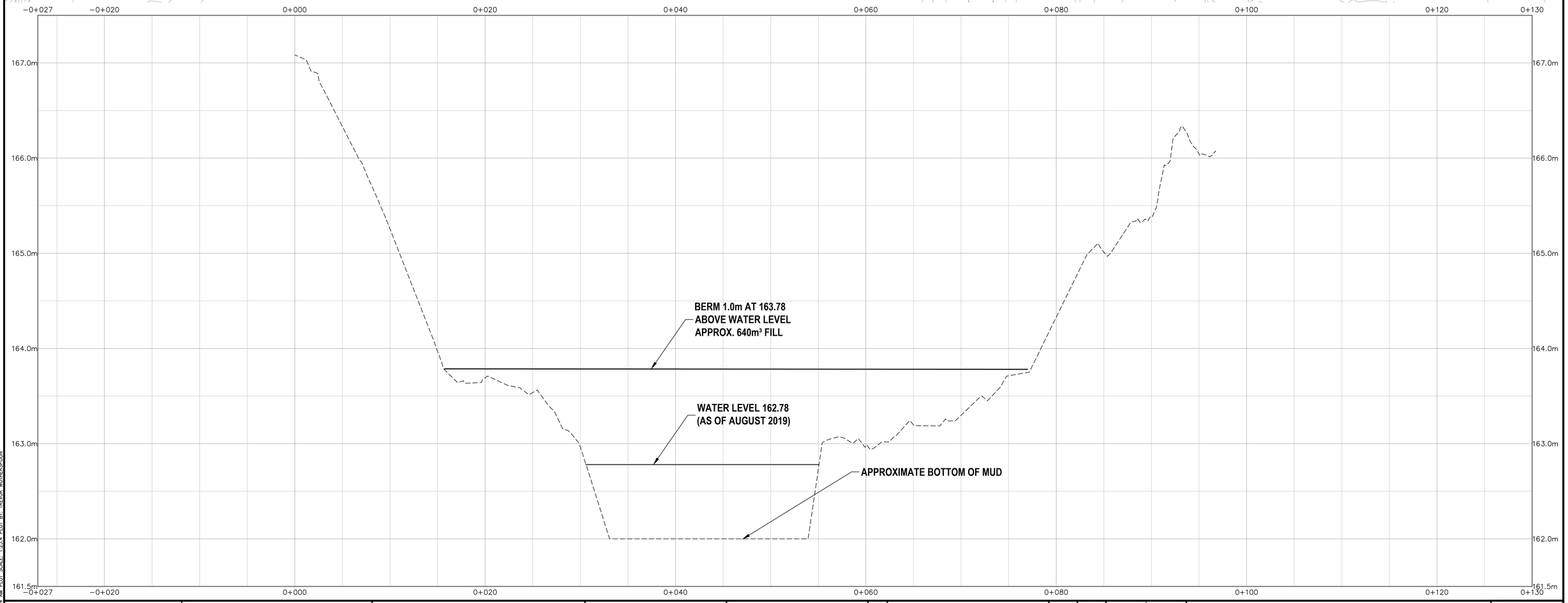
YELLOWKNIFE WATER AND SEWER
LIFT STATION NO. 5 OVERFLOW CONTAINMENT
CITY OF YELLOWKNIFE, NWT
Project No.: 60613421

SITE PLAN
OPTION 1

AECOM

Figure: 4





DILLON CONSULTING LIMITED 4920 47TH STREET, YELLOWKNIFE, NORTHWEST TERRITORIES, X1A 2P1, PHONE (867) 920-4555, FAX (867) 873-3328

FILENAME: C:\CAD\199742 TRAPPERS LAGOON STRUCTURES REPLACEMENT\199742 TRAPPERS LAGOON STRUCTURE.DWG-PLAN&DESIGN
PLOT DATE: 2019-09-26 @ 10:00:54 AM PLOT SCALE: 1:25.4 PLOT BY: TREVOR WOTHERSPOON

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

DRAFT

DRAWING REDUCED NOT TO SCALE

DILLON CONSULTING

No.	ISSUED FOR	DATE	BY
2	ISSUED FOR CLIENT REVIEW	09/30/19	GS
1	ISSUED FOR INTERNAL REVIEW	08/19/19	GS

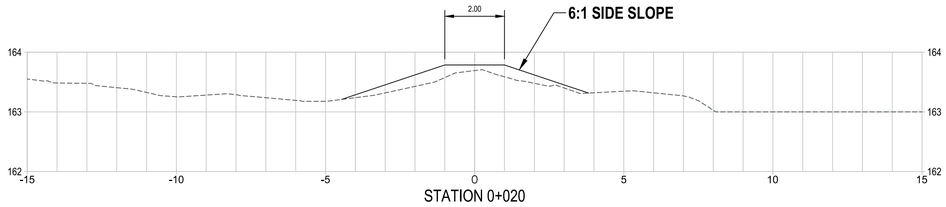
DESIGN: GS | REVIEWED BY: GS
DRAWN: TPW | CHECKED BY: GS
DATE: SEPTEMBER 2019
SCALE: 1:200, 1:20

CITY OF YELLOWKNIFE
TRAPPERS LAKE STRUCTURES REPLACEMENT

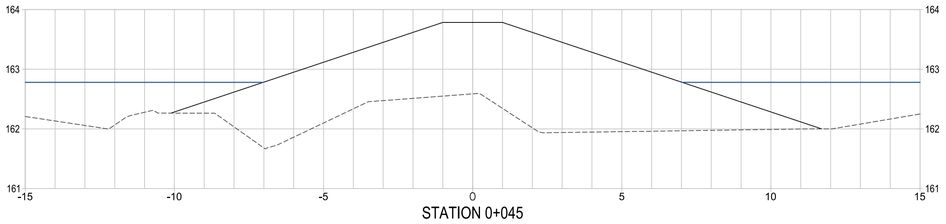
Fig. 5a:BERM DESIGN OPTION 1

PROJECT NO. 19-9742

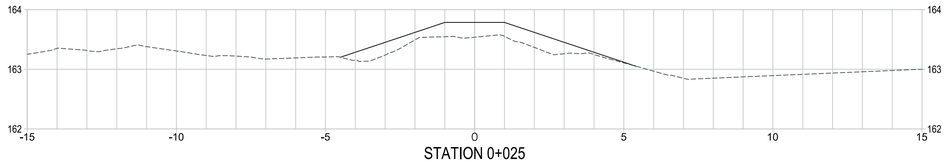
SHEET NO. 100



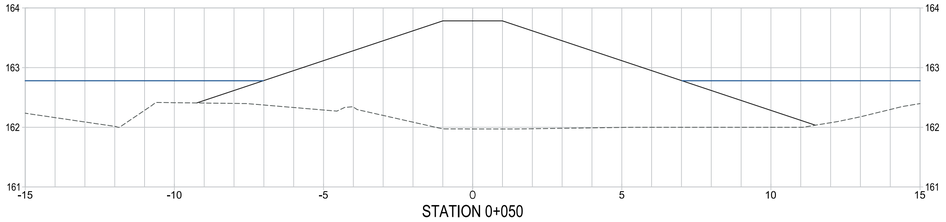
STATION 0+020



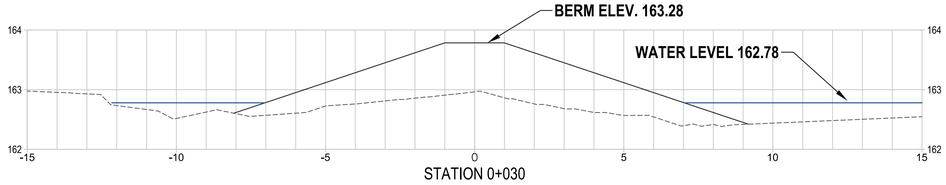
STATION 0+045



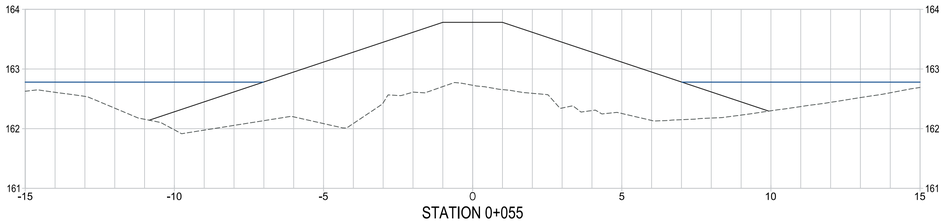
STATION 0+025



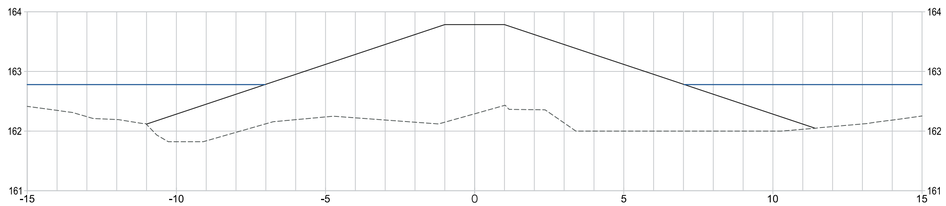
STATION 0+050



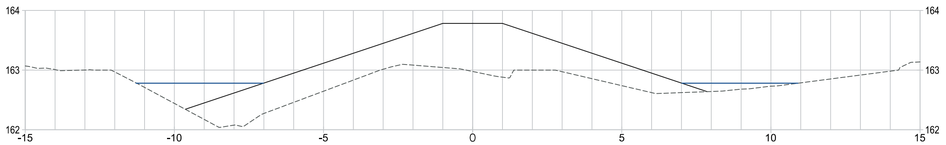
STATION 0+030



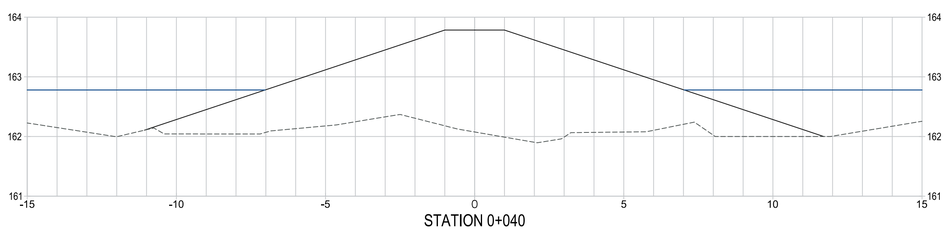
STATION 0+055



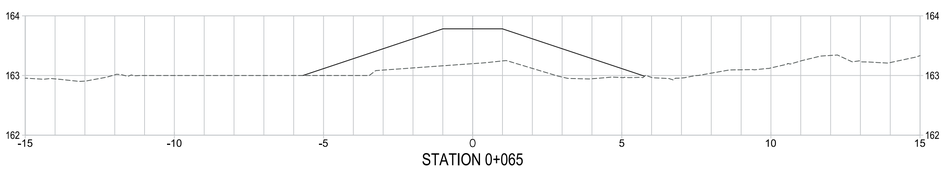
STATION 0+035



STATION 0+060



STATION 0+040



STATION 0+065

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

DRAFT

DRAWING REDUCED NOT TO SCALE

DILLON CONSULTING

No.	ISSUED FOR	DATE	BY
2	ISSUED FOR CLIENT REVIEW	09/30/19	GS
1	ISSUED FOR INTERNAL REVIEW	08/19/19	GS

DESIGN: GS | REVIEWED BY: GS
DRAWN: TPW | CHECKED BY: GS
DATE: SEPTEMBER 2019
SCALE: 1:100 1:50

CITY OF YELLOWKNIFE
TRAPPERS LAKE STRUCTURES REPLACEMENT

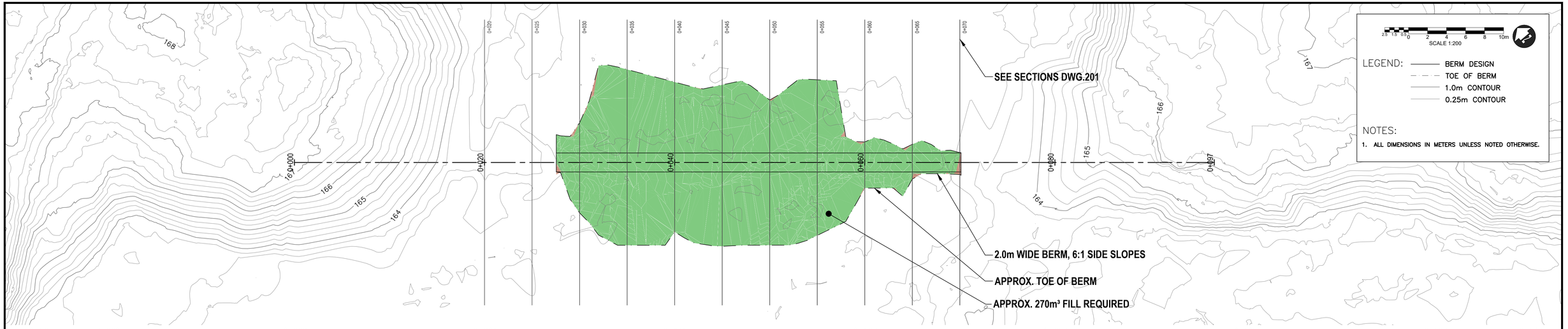
Fig. 5b: SECTIONS OPTION 1

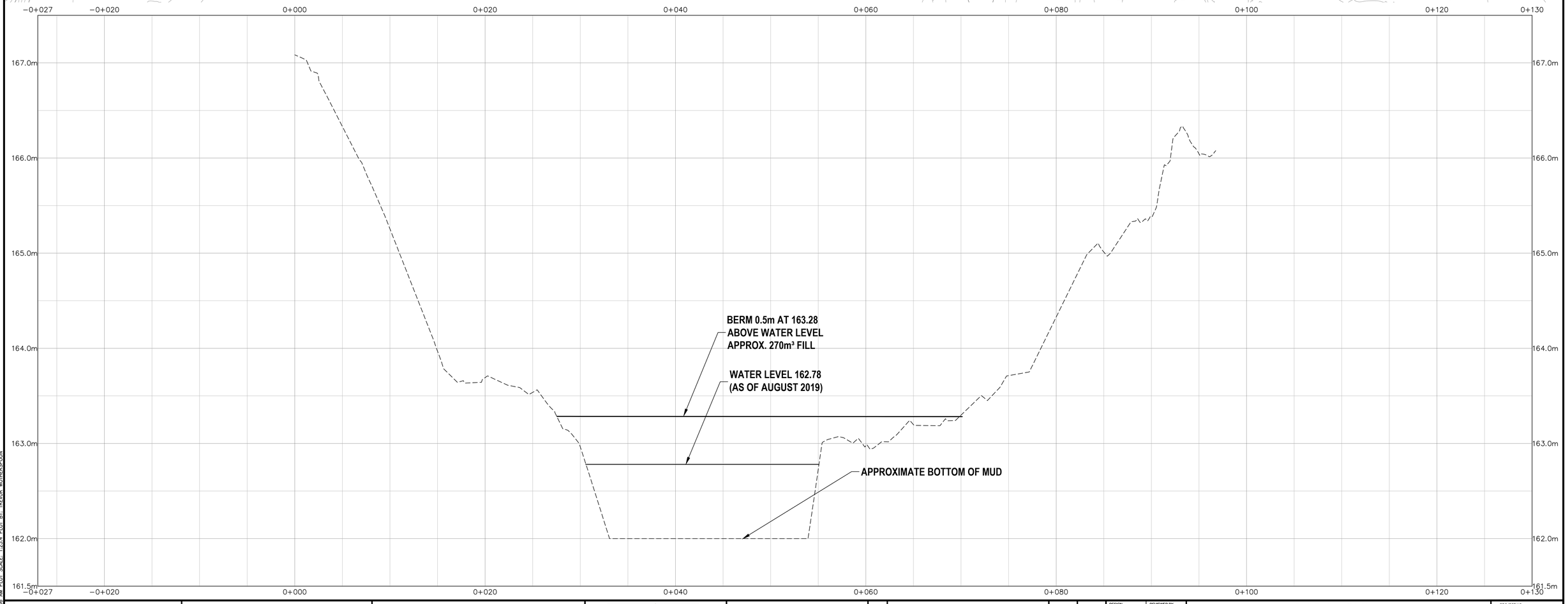
PROJECT NO. 19-9742

SHEET NO. 101

DILLON CONSULTING LIMITED 4920 47TH STREET, YELLOWKNIFE, NORTHWEST TERRITORIES, X1A 2P1, PHONE (867) 920-4555, FAX (867) 873-3328

FILENAME: C:\CAD\19974 2 TRAPPERS LAGOON STRUCTURES REPLACEMENT\19974 2 TRAPPERS LAGOON STRUCTURE.DWG - SECTIONS
PLOT DATE: 2019-09-26 @ 10:00:59 AM PLOT SCALE: 1:25.4 PLOT BY: TREVOR WOTHERSPOON





DILLON CONSULTING LIMITED 4920 47TH STREET, YELLOWKNIFE, NORTHWEST TERRITORIES, X1A 2P1, PHONE (867) 920-4555, FAX (867) 873-3328

FILENAME: C:\CAD\199742 TRAPPERS LAGOON STRUCTURES REPLACEMENT\199742 TRAPPERS LAGOON STRUCTURE.DWG-PLAN VIEW-CONSULTING
PLOT DATE: 2019-09-26 @ 10:01:06 AM PLOT SCALE: 1:25.4 PLOT BY: TREVOR WOTHERSPOON

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

DRAFT

DRAWING REDUCED NOT TO SCALE

DILLON CONSULTING

No.	ISSUED FOR	DATE	BY
2	ISSUED FOR CLIENT REVIEW	09/30/19	GS
1	ISSUED FOR INTERNAL REVIEW	08/19/19	GS

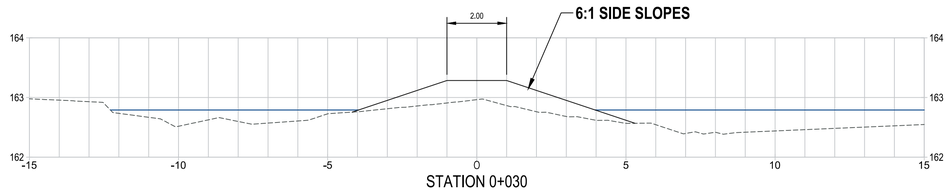
DESIGN: GS | REVIEWED BY: GS
DRAWN: TPW | CHECKED BY: GS
DATE: SEPTEMBER 2019
SCALE: 1:200, 1:20

CITY OF YELLOWKNIFE
TRAPPERS LAKE STRUCTURES REPLACEMENT

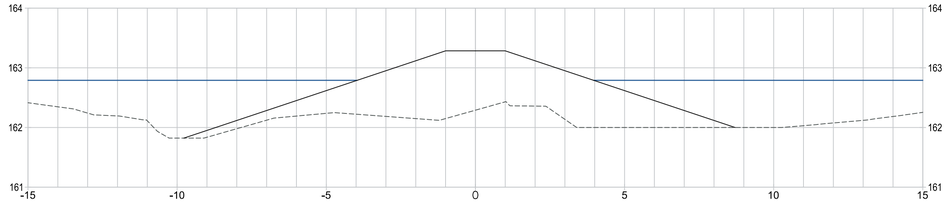
Fig. 6a:BERM DESIGN OPTION 2

PROJECT NO. 19-9742

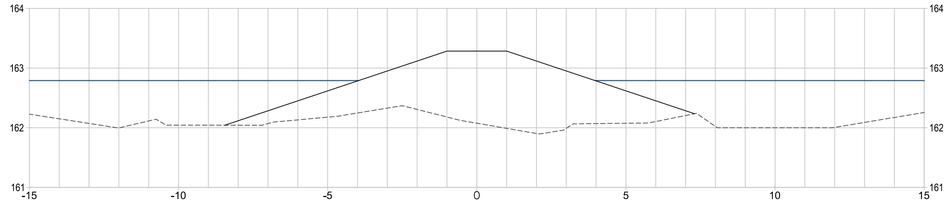
SHEET NO. 200



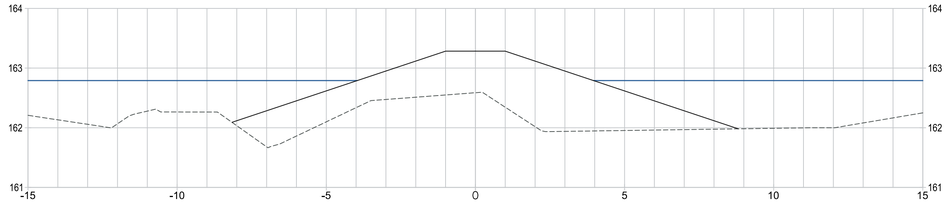
STATION 0+030



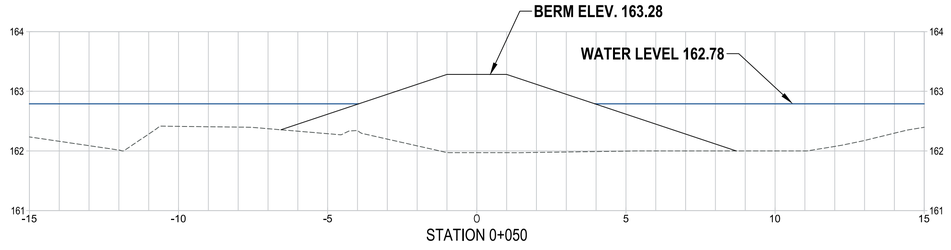
STATION 0+035



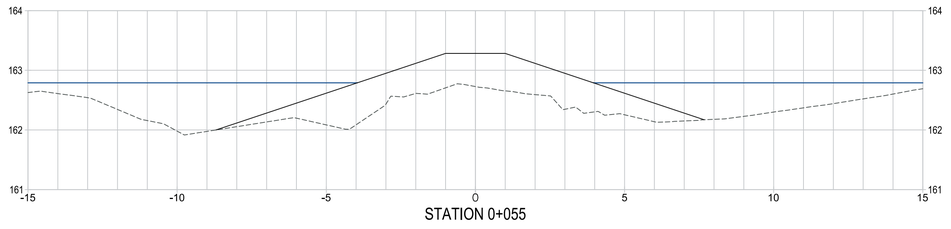
STATION 0+040



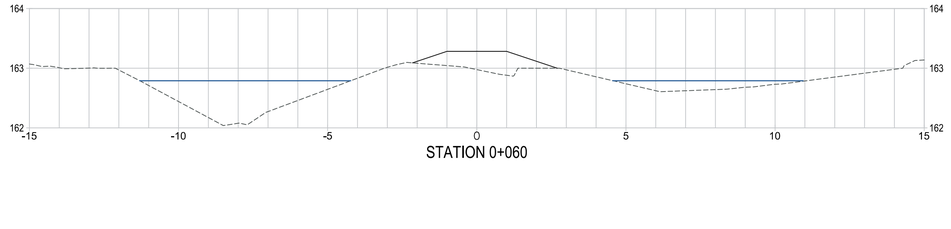
STATION 0+045



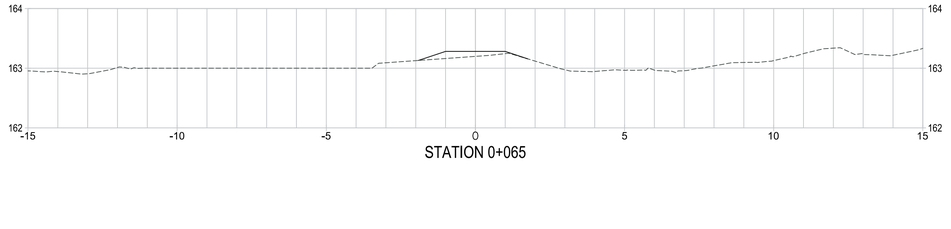
STATION 0+050



STATION 0+055



STATION 0+060



STATION 0+065

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

DRAFT

DRAWING REDUCED NOT TO SCALE

DILLON CONSULTING

No.	ISSUED FOR	DATE	BY
2	ISSUED FOR CLIENT REVIEW	09/30/19	GS
1	ISSUED FOR INTERNAL REVIEW	08/19/19	GS

DESIGN: GS | REVIEWED BY: GS
DRAWN: TPW | CHECKED BY: GS
DATE: SEPTEMBER 2019
SCALE: 1:100, 1:50

CITY OF YELLOWKNIFE
TRAPPERS LAKE STRUCTURES REPLACEMENT

Fig. 6b: SECTIONS
OPTION 2

PROJECT NO. 19-9742

SHEET NO. 201

DILLON CONSULTING LIMITED 4920 47TH STREET, YELLOWKNIFE, NORTHWEST TERRITORIES, X1A 2P1, PHONE (867) 920-4555, FAX (867) 873-3328

FILENAME: C:\CAD\199742 TRAPPERS LAGOON STRUCTURES REPLACEMENT\199742 TRAPPERS LAGOON STRUCTURE.DWG-SECTIONS
PLOT DATE: 2019-09-28 @ 10:01:11 AM PLOT SCALE: 1:25.4 PLOT BY: TREVOR WOTHERSPOON

FIGURE 6: FIDDLERS LAGOON SLUDGE FINDINGS

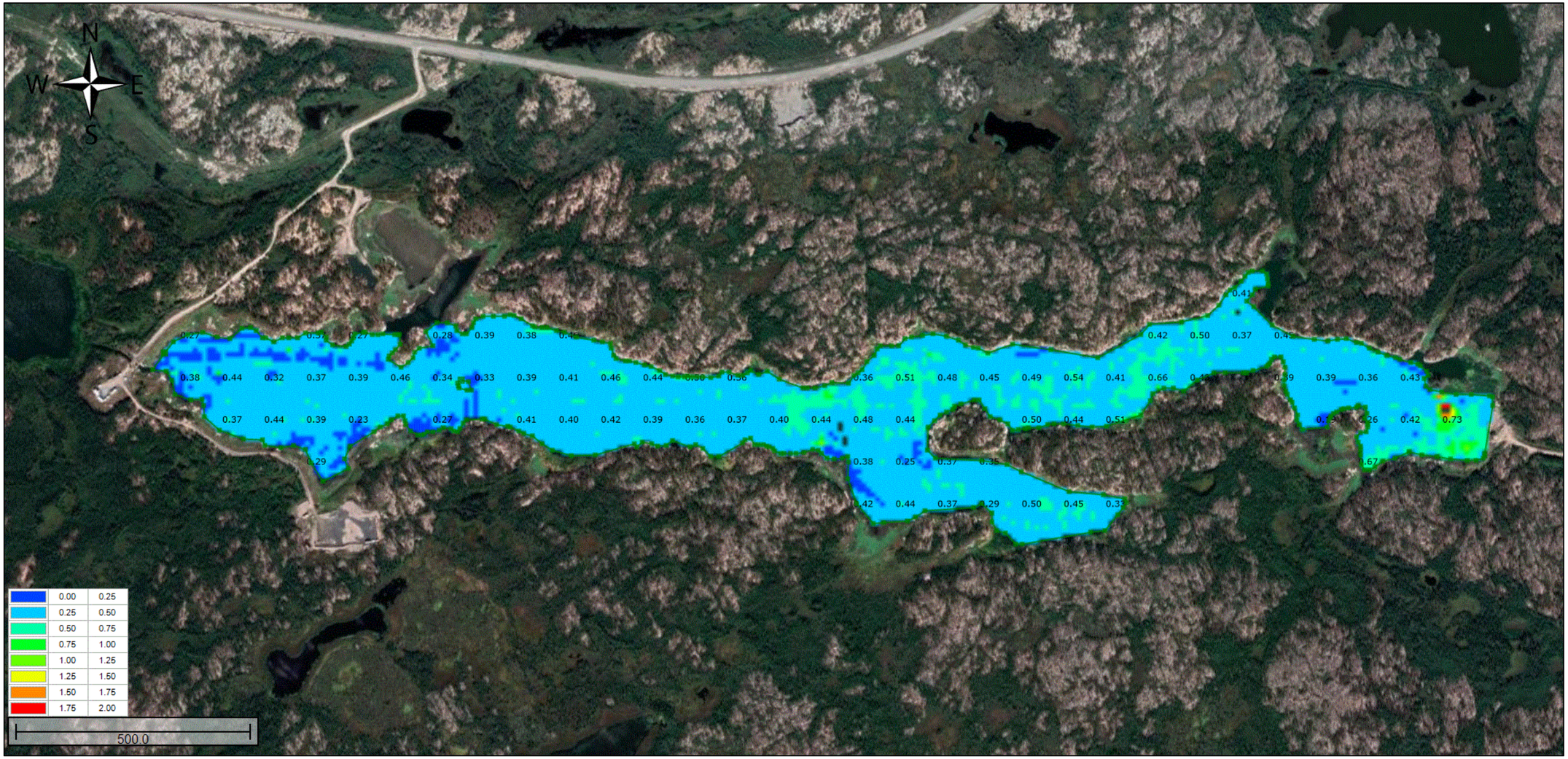


Figure 7 Fiddlers Lagoon sludge thicknesses (m)

	Name	Date
Prepared by:	AA	26-07-2018
Unless otherwise specified all dimensions are in meters		

HYDRASURVEY

Project Title	Fiddlers Lagoon Sludge Survey, Yellowknife, NT
Project Number	18007
Revision	1
Sheet	

APPENDIX B

NWT Industrial Waste Discharge Standards

Guideline for Industrial Waste Discharges in the NWT

1 Introduction

1.1 Definitions

2 Roles and Responsibilities

2.1 Environmental Protection Service
2.2 Industry
2.3 Other Regulatory Agencies

3 Standards

3.1 Effluent
3.1.1 Process Effluent
3.1.2 Non-point Source Discharges
3.2 Process Residuals
3.3 Exemptions

4 Waste Management

4.1 Pollution Prevention
4.2 Disposal/Treatment
Figure 1: Decision Flow chart for Managing an Industrial Waste Discharge
4.2.1 Effluent Discharge
4.2.2 Process Residuals
4.2.3 Containers
4.3 Alternative Methods

5 Conclusion

Schedule (I) Standards for Process Effluent Discharged to Municipal Sewage Systems
Schedule (II) Standards for Non-point Source Discharges
Schedule (III) Standards for Solid Waste/Process Residuals Suitable for Landfill (Leachate Quality criteria test results not to exceed 100 mg/L)
Schedule (IV) Standards for Solid Waste/Process Residuals Suitable for Landfill (based on Leachate Quality criteria test results)

6 Bibliography

Appendix

April 2004

Guideline for Industrial Waste Discharges in the NWT

1 Introduction

The purpose of this guideline is to establish standards that should be followed in the discharge of waste from an industrial operation on Commissioner's Land or lands administered by municipal governments in the Northwest Territories (NWT).

This guideline has been developed by the Environmental Protection Service (EPS) of the Department of Resources, Wildlife and Economic Development (RWED). It is also intended to:

- provide direction for the management and discharge of industrial waste,
- protect the environment,
- protect municipal infrastructure, such as sewage systems and solid waste modified landfills, from immediate and long term environmental problems, and
- protect workers and the public from improper industrial waste discharge.

This guideline addresses the discharge of effluent and process residuals resulting from industrial operations. Effluent refers to a liquid material while process residuals refer to solid, semi-solid or sludge waste. The guideline is intended for the discharge of waste into municipal systems not discharges from municipal systems.

Specific guidelines have been developed for major hazardous and industrial waste. Contact the Environmental Protection Service (EPS) for a listing of these guidelines.

The guideline has been developed in conjunction with the Government of the Northwest Territories' (GNWT) Department of Municipal and Community Affairs, taking into consideration northern conditions. It provides general directions to be used for all industries except those operating under a Northwest Territories Water Board water licence. Section 2.2 of the *Environmental Protection Act* (EPA) gives the Minister of Resources, Wildlife and Economic Development the authority to develop, coordinate and administer guidelines. This guideline complements existing acts and regulations concerning waste which should be consulted for interpretation and application. Section 2.3 of this guideline provides additional information on regulatory roles and responsibilities.

1.1 Definitions

BOD	Biochemical oxygen demand. A measure of the amount of oxygen that bacteria consume in the process of oxidizing organic matter. This is determined by Test Method 507 in Standard Methods.
Composite sample	A volume of effluent made up of three or more individual samples of equal volume, equal weight, or sized proportionally to flows, that have been combined. The samples are taken at intervals during the sampling period.

Contaminant Any noise, heat, vibration or substance and includes such other substances as the Minister may prescribe that, where discharged into the environment,

(a) endangers the health, safety or welfare of persons,

(b) interferes or is likely to interfere with normal enjoyment of life or property,
(c) endangers the health of animal life, or
(d) causes or is likely to cause damage to plant life or property.

Environmental Protection Act

Commissioner's Land Lands in the Northwest Territories that have been transferred by Order-in-Council to the Government of the Northwest Territories. This includes highways, block land transfers and most lands within municipalities.

Dangerous goods Any product, substance or organism included by its nature or by the *Transportation of Dangerous Goods Regulations* (TDGR) in any of the classes listed in the schedule provided in the *Transportation of Dangerous Goods Act* (TDGA).

Transportation of Dangerous Goods Act (Canada)

Effluent Liquid material, treated or untreated, discharged from industrial sources.

Empty container A container that has been emptied to the greatest extent possible, using regular handling procedures, such that its contents shall not exceed 1% of the containers's original capacity or 2 litres whichever is less. This does not include containers which previously contained mercury or class 2.3, 5.1, 6.1 materials of TDGR.

Generator The owner or person in charge, management or control of a waste or a facility that generates waste.

Hazardous waste A contaminant which is a dangerous good that is no longer used for its original purpose and is intended for storage, recycling, treatment or disposal:

A hazardous waste does not include a contaminant that is:
(a) household in origin,
(b) included in class 1, Explosives or class 7, Radioactive materials of TDGR,
(c) exempted as a small quantity,
(d) an empty container, or
(e) intended for disposal in a sewage system or by land filling that meet the applicable standards set out in schedules I, III or IV of the Guideline for Industrial Waste Discharges in the NWT.

Industrial	Any enterprise involved with manufacturing, fabricating, processing including commercial or institutional operations.
Landfilling	The deposit of waste on land as described in the Department of Municipal and Community Affairs Guidelines for the Planning, Design, Operation & Maintenance of Solid Waste Modified Landfill Sites in the Northwest Territories.
Leachate extraction procedure	A test method designed to determine both the organic and inorganic parameters present in solid and multi phased waste. It is designed to simulate the characteristics a material may exhibit if placed in a landfill. Test determined by method 1311 Toxicity Characteristic Leaching Procedure Test, US EPA or Leachate Extraction Procedure 164-GP-1-MP Canadian General Standards Board.
Non-Point source discharge	A non-specific or diffuse source of effluent entering the environment. This includes run off from areas such as compounds, storage sites and storage yards.
Oil & grease	A term given to any material in the sample which can be extracted into an organic solvent after the sample has been acidified. Material can include vegetable oils, animal fats, greases ,waxes, organic dyes and petroleum hydrocarbons. This is determined by one of Test Methods 503A, 503B, 503C or 503D in Standard Methods.
Process residuals	Solid, semi-solid or sludge waste resulting from industrial operations.
Phenolic compounds	Hydroxyl derivatives of benzene and its condensed nuclei which can be determined as phenols. This is determined by one of Test methods 510B or 510C in Standard Methods.
Sewage system	A system for the collection, transmission, treatment or disposal of any liquid waste containing animal, vegetable, mineral, human or chemical matter in solution or in suspension.
Standard methods	A procedure set out in Standard Methods For the Examination of Water and Wastewater published jointly by the American Public Health Association, American Water Works Association and Water Pollution Control Federation, current at the date of testing.
TDGA/TDGR	The *Transportation of Dangerous Goods Act and Regulations* (Canada).
Total suspended solids	The amount of solid residue suspended in a liquid portion of sample. The test is completed by measuring the amount of solids left behind on a filter paper after the sample has been filtered. This is determined by Test Method 209C in Standard Methods.
Toxic leachate	A process residual that does not meet the requirements as set out in section 3.2 of this guideline.

2 Roles and Responsibilities

2.1 Environmental Protection Service

The Environmental Protection Service (EPS) of the Department of Resources, Wildlife and Economic Development is the Government of the Northwest Territories' (GNWT) agency responsible for initiatives which control the discharge of contaminants and their impact on the natural environment. EPS is responsible for ensuring that environmentally acceptable management procedures, emission levels and disposal methods are maintained. By practise the EPS's programs are applied primarily to Commissioner's Land, lands administered by municipal governments or GNWT undertakings. Legislative authority is provided by the *Environmental Protection Act* (EPA) and *Pesticide Act*. Contact EPS for a listing of relevant regulations and guidelines.

2.2 Industry

The responsibility for proper waste management rests with the generator and should be considered part of the cost of doing business.

Industry should develop a comprehensive operating program that ensures the impacts of its operations on the natural environment and workplace are minimized. This involves developing sound waste management practices for effluent, process residuals, spent chemicals, solid waste, sludges and empty containers.

This guideline is a starting point in the proper management of a waste. Industry should determine the nature of the waste and manage it accordingly. If the waste discharge is considered a hazardous waste then the generator should refer to and follow the Guideline for the General Management of Hazardous Waste in the NWT.

2.3 Other Regulatory Agencies

The GNWT Department of Municipal and Community Affairs (MACA) administers Commissioner's Lands. MACA's responsibilities include the issuance and inspection of leases, licences and land use permits. MACA is also involved in the planning, funding, operation and maintenance of municipal landfill and sewage treatment systems. Under MACA's direction, some communities are developing sewage discharge guidelines which this guideline will supplement.

The Northwest Territories Water Board issues water licences under the federal *Northwest Territories Waters Act*. One criterion for an industrial process to require a water licence is if its water use and waste deposit exceeds 100 m^3 / day. A water license may set specific industrial effluent discharge parameters that must be complied with. A water licence supersedes the requirements of this guideline. Please consult the Department of Indian and Northern Affairs for further water licence criteria.

Environment Canada also regulates certain industrial discharges. Subsection 36(3) of the *Fisheries Act* states that,..." in the absence of regulations, effluent entering fish bearing waters must be non-deleterious to fish". The *Metal Mining Liquid Effluent Regulations* and the *Petroleum Refinery Liquid Effluent Regulations* pursuant to the *Fisheries Act* regulate effluent quality for those specific industries.

Under the NWT *Safety Act*, *Occupational Health and Safety Regulations* address the safety of workers and the work place. The Act states that the employer shall maintain their establishment and take all reasonable precautions to ensure the safety and health of every person in the establishment. The Regulations also prescribe standards for protective clothing and equipment to be used by workers. *Work Site Hazardous Materials Information System Regulations* (WHMIS) were adopted to ensure employee training and safe storage and handling of controlled products at the employer's work site. Consultation with a Safety Officer from the Prevention Services Division of the Workers' Compensation Board is the responsibility of every waste generator or employer.

The GNWT Department of Transportation, Motor Carrier Services, is responsible for administering the *Transportation of Dangerous Goods Act* and *Regulations* (NWT). The Department is also responsible for driver, vehicle and load safety under additional transport legislation.

3 Standards

The following sections outline requirements for the discharge of effluent to sewage systems and the disposal of process residuals to a landfill.

3.1 Effluent

Unless meeting the standards set out by the guideline, discharges could become a hazard to persons, property or the environment or interfere with the operation of municipal infrastructure. These should not be discharged. Where a sample is required for the purpose of determining effluent characteristics, the sample must be a composite sample which can be collected manually or by using an automatic sampling device. Standard Methods, or an equivalent level of testing, must be followed to determine effluent characteristics.

3.1.1 Process Effluent

Properly managing process effluent is an important aspect of maintaining water quality. The discharge limits for process effluent in this guideline are based on objectives for municipal sewage systems.

Schedule I contains standards for process effluent discharged to municipal sewage systems. Proponents desiring to discharge process effluent other than to municipal sewage systems should contact the NWT Water Board or appropriate land claim management boards.

3.1.2 Non-point Source Discharges

Non-point source discharges may be covered by a water licence from the NWT Water Board. In those cases where they are not, the standards in Schedule II apply.

These standards apply to non-point source discharges from industrial sources to storm sewers, ditches and other areas for containment, routing and disposal. For the purposes of this guideline, non-point sources are directly related to operational areas of the industry.

3.2 Process Residuals

The generator must ensure process residuals such as solid, semi-solid and sludge waste are suitable for disposal to a modified solid waste landfill. A leachate testing method is used to determine the acceptability of process residual for landfill and is designed to simulate the characteristics a material may exhibit if placed in a landfill. Refer to Appendix A for additional details on acceptable leachate test methods.

A process residual should not be landfilled if its leachate contains;

(i) 100 mg/L or higher of any substance listed in Schedule III or,

(ii) substance listed in Schedule IV in excess of the concentrations listed in that schedule or,

(iii) any of the following substances in a concentration greater than 0.001 mg/L:

hexachloro-dibenzo-p-dioxins	pentachloro-dibenzo-p-dioxins	dichlorobenzodioxins
tetrachloro-dibenzo-p-dioxins	hexachloro-dibenzofurans	
pentachloro-dibenzofurans	tetrachloro-dibenzofurans	

With respect to (iii), proponents with benzene or halogenated derivatives other than those listed should contact EPS to discuss management options.

While these requirements may seem complicated, an understanding of the industrial process will help to determine which parameters are of concern.

A waste not meeting the requirements in paragraphs (i), (ii) and (iii) is referred to as a toxic leachate waste. A toxic leachate waste is not suitable to be landfilled and will have to be treated as a hazardous waste. Thus, the generator will need to follow the Guideline for the General Management of Hazardous Waste in the NWT.

3.3 Exemptions

These guidelines cover only waste for which there is not a guideline or regulation already in place. For the management of specific waste types, refer to the Guideline for the General Management of Hazardous Waste in the NWT, or consult EPS.

A proponent may request variances to the above standards. In these cases, the proponent must provide an assessment illustrating the anticipated effect on the municipal infrastructure and the environment to EPS and the municipality. The assessment must indicate that a level of environmental protection equivalent to the guideline is being provided.

4 Waste Management

4.1 Pollution Prevention

> **Minimizing or avoiding the creation of pollutants and waste can be more effective in protecting the environment than treating them, or cleaning them up after they have been created.**
>
> **Canadian Council of Ministers of the Environment**

Pollution prevention methods are designed to eliminate the creation of waste. Whereas pollution control options treat waste after they have been generated, pollution prevention measures prevent the waste from being created. Pollution prevention includes such actions as substitution and reduction in the use of a raw material, production redesign, process change, in-process recycling and improved operating and maintenance procedures.

4.2 Disposal/Treatment

A flow chart illustrating the decision process for managing an industrial waste under this guideline is provided in Figure 1.

4.2.1 Effluent Discharges

Process effluent and non-point source discharges which meet the standards set in Schedules I or II, respectively, may be discharged to the appropriate system.

Discharges that do not meet the standards will require treatment prior to release. The selection of treatment techniques is beyond the scope of this guideline. Treated effluent that meets the Guideline standards may be discharged. Residuals or sludge from the treatment of effluent will be subjected to the standards outlined in this guideline to determine if they are suitable for landfill.

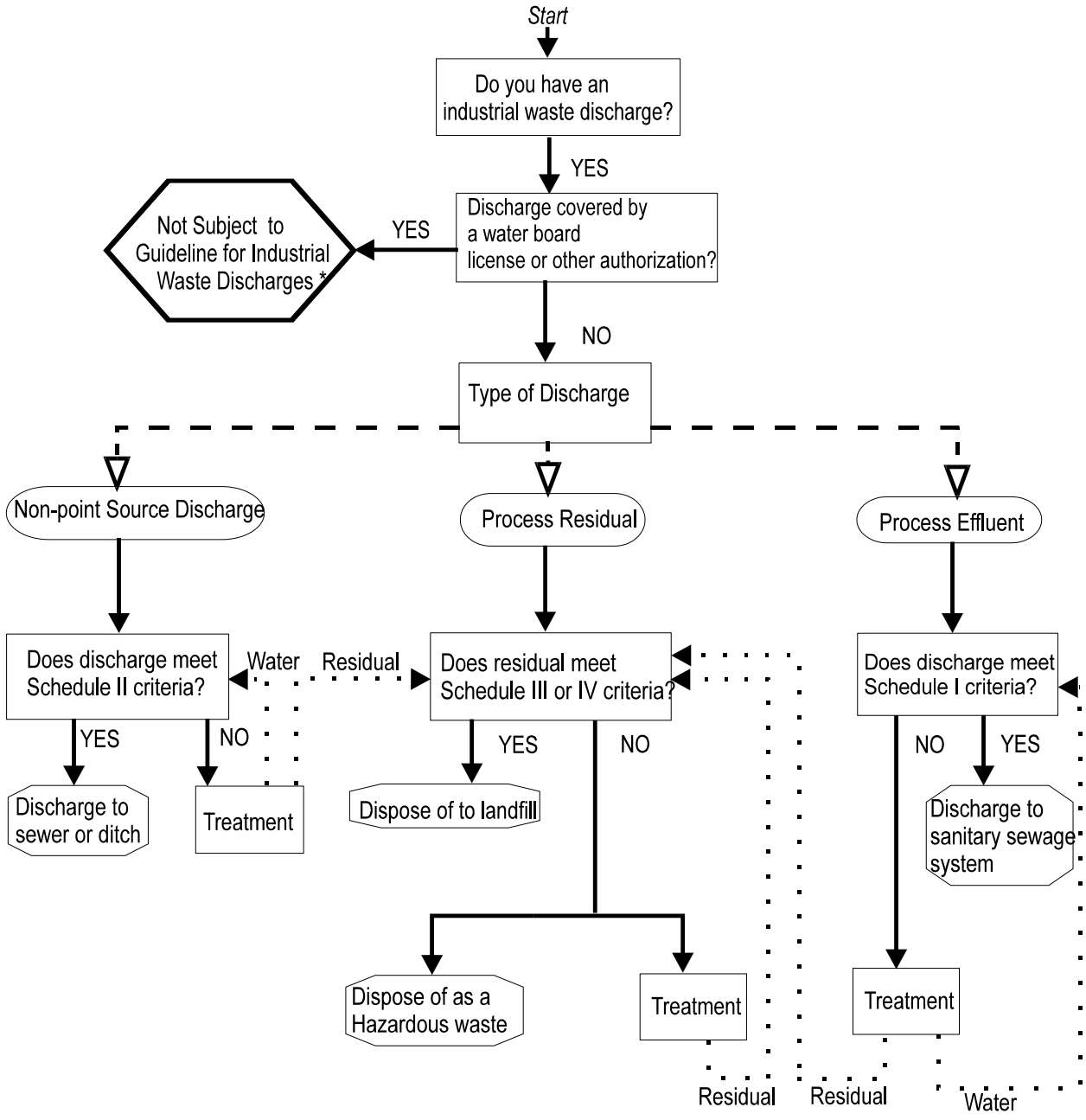
4.2.2 Process Residuals

Process residuals which meet the standards in Schedule III or IV may be disposed at a solid waste modified landfill site.

Process residuals which do not meet the standards will either require treatment or be managed according to the Guideline for the Genreal Management of Hazardous Waste in the NWT. Process residuals that are considered hazardous waste and are moved off site for treatment, storage or disposal must be accompanied by special documentation called a waste manifest. Waste manifests are supplied and administered by EPS.

Process residuals can also be treated to allow them to be landfilled. Treatment of process residuals may result in a significantly different waste. A waste material resulting from the treatment of a process residual will be subject to the standards outlined in this guideline to determine if they are suitable for landfill or sewage disposal.

4.2.3 Containers



* may be subject to other licenses, guidelines or regulations

Figure 1: Decision Flow chart for Managing an Industrial Waste Discharge

Containers containing process residuals or other waste must be properly managed. Containers should be emptied, to the greatest extent possible, using regular handling procedures, or by triple rinsing with an appropriate cleaning agent. They should be rendered unusable by puncturing or crushing prior to disposal. This is especially of

concern for containers which could eventually be used for water or food storage. Rinsings must be managed according to their waste characteristics.

4.3 Alternative Methods

Consideration will be given to proposals for an alternative disposal method that provides a level of environmental protection equivalent to complying with this guideline.

5 Conclusion

This document is intended as a source of basic information about the issues involved in the management of industrial waste discharges. It does not replace the existing legislation which is referenced in the guideline. Please contact the appropriate agency before proceeding.

1. Environmental Protection Service
   Department of Resources, Wildlife and Economic Development
   600, 5102-50 th Avenue
   Yellowknife, NT, X1A 3S8
   Phone: (867) 873-7654; Fax: (867) 873-0221

2. Lands Administration
   Department of Municipal and Community Affairs
   Suite 500, 5201-50th Avenue
   Yellowknife, NT, X1A 2R3
   Phone: (867) 873-8038; Fax: (867) 920-6156

3. Workers' Compensation Board
   Box 8888
   Yellowknife, NT, X1A 2R3
   Phone: (867) 920-3888
   Toll Free: 1-800-661-0792;
   Fax: (867) 873-4596
   Toll Free Fax: 1-866-277-3677

4. Motor Vehicles
   Department of Transportation
   76 Capital Drive, Suite 201
   Hay River, NT, X0E 1G2
   Phone: (867) 874-5000; Fax: (867) 874-6088

Schedule I: Standards for Process Effluent Discharged to Municipal Sewage Systems

Concentrations not to be exceeded

PARAMETER	**EFFLUENT OBJECTIVE** (mg/L)
Aluminum	50
Arsenic	1
Barium	5
Biochemical oxygen demand	500
Cadmium	2
Chlorides	1500
Chromium	5
Copper	5
Cyanide	2
Fluoride	10
Lead	5
Iron	50
Mercury	0.1
Nickel	5
Oil & Grease	150
pH range	6.5-10.5
Phenolic compounds	1
Phosphorus	100
Silver	5
Sulphates	1500
Sulphides	2
Suspended solids	600
Tin	5
Zinc	5

Schedule II: Standards for Non-point Sources Discharges

Concentrations not to be exceeded

PARAMETER	EFFLUENT OBJECTIVE (mg/L)
Aluminum	1
Ammonia	10
Arsenic	1
Barium	1
Cadmium	0.1
Biochemical oxygen demand	15
Chlorine	1
Chromium	0.1
Copper	1
Cyanide	0.1
Fluoride	2
Grease, Fat, Oil	15
Iron	1
Lead	0.05
Mercury	0.0006
Nickel	1
pH range	6-10.5
Phenolic compounds	0.02
Phosphorus	1
Silver	0.1
Suspended solids	15
Tin	1
Zinc	0.5

Schedule III: Standards for Solid Waste/Process Residuals Suitable for Landfill

Leachate test results not to exceed 100mg/l	
Parameter	**Parameter**
Ammonia sulphide	Maleic anhydride
Benzidine	Methylamine
Benzyl chloride	Potassium permanganate
Diethylamine	Quinoline
Ethylamine	Strychnine
Ethylenediamine	Tetrachloroethanes

Schedule IV: Standards for Solid Waste/Process Residuals Suitable for Landfill (based on Leachate quality test results)

Parameter	**Concentration (mg/L)**
Arsenic	2.5
Barium	100
Cadmium	0.5
Carbon Tetrachloride	0.5
Chromium	5
Cyanide(free)	20
DDT	3
Endrin	0.02
Heptachlor + Heptachlor epoxide	0.3
Lead (total lead analysis - not based on leachate test results)	600
Lindane	0.4
Mercury	0.1
Methoxychlor	10
Methyl ethyl ketone	200
Metolachlor	5
PCBs	50*
Selenium	1
Silver	5
Tetrachloroethylene	3.0
Toxaphene	0.5
Trihalomethanes	10
2,4,5-TP (Silvex)	1
Zinc	500

*Based on Concentration by Mass

7.0 Bibliography

American Public Health Association (APHA)- American Water Works Association (AWWA)- Water Pollution Control Federation (WPCF), Standard Methods for the Examination of Water and Wastewater, APHA, Washington, current edition.

Gazette officielle du Québec. Environmental Quality Act - Hazardous Waste Regulation, Québec, Editeur officiel du Québec, (1988).

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

Heinke, G. and Wong, J., Guidelines for the Planning, Design, Operation & Maintenance of Solid Waste Modified Landfill Sites in the NWT, Volume 1& 2. Department of Municipal and Community Affairs, Yellowknife, (1990).

Municipality of Metropolitan Toronto. By-law No. 153-89 to Regulate the Discharge of Sewage and Land Drainage in the Metropolitan Area, Toronto (1991).

Municipal & Community Affairs. Hamlet of Icepik By-law on Discharge of Substances into the Sewer System, (Draft), Yellowknife, (1994).

Norecol, Dames & Moore. Final Report: Review of Broughton Island Tannery Facility and Economic Development Agreement. Edmonton (1993).

NWT Water Board, Northwest Territories Waters Act and Regulations, Canadian Gazette Part II, Vol.127, No.13, (1993).

NWT Water Board, Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories, Yellowknife, (1992).

Water Quality Objectives of the Ministry of Environment and Energy. Toronto, Queen's Printer for Ontario, (1994).

Ontario Ministry of Environment & Energy. Deriving Receiving-Water Based, Point-Source Effluent Requirements for Ontario Waters. Toronto, Queen's Printer for Ontario, (1994).

Science Institute of the Northwest Territories. Draft Environmental Guidelines for Commercial Tanneries in the Northwest Territories, Yellowknife, (1993).

Secretary of Canadian General Standards Board (CGSB). Leachate Extraction Procedure 164-GP-1-MP, Ottawa, Ontario, CGSB, (1987).

United States Environmental Protection Agency, Toxicity Characteristic Leaching Procedure Test method 1311, Washington, DC, (1992).

Appendix A

Toxicity Characteristic Leaching Procedure Test and Equivalents

The Toxicity Characteristic Leaching Procedure Test (TCLP), method 1311, US EPA is the preferred method used for section 3.2 paragraphs (i), (ii) and (iii).

EPS will recognize, as an equivalent test, one of the following:

- Alberta Waste Managers Guide. TCLP extraction test
- Canadian General Standards Board Leachate Extraction Procedure, # 164-GP-1-MP
- Schedule 4 - *British Columbia Waste Management Act - Special Waste Regulation*, Government of British Columbia using Canadian General Standards Board test.
- Schedule 4 - *Regulation 347*
  Government of Ontario using Canadian General Standards Board test.
- Schedule III and IV *Environmental Quality Act- Hazardous Waste Regulation*, Gazette officielle du Quebec using Canadian General Standards Board test.

APPENDIX C

Water and Sewer Services By-Law #4663

THE CITY OF YELLOWKNIFE

NORTHWEST TERRITORIES

CONSOLIDATION OF
WATER AND SEWER SERVICES
BY-LAW NO. 4663

Adopted February 27, 2012

AS AMENDED BY

By-law No. 4765 – January 27, 2014
By-law No. 4818 – July 27, 2015

This Consolidation is prepared for convenience only.
For accurate reference, please consult the City Clerk's Office, City of Yellowknife

Docs #384587

TABLE OF CONTENTS
WATER AND SEWER BY-LAW

PART 1 INTERPRETATION 1
Short Title 1
Intention 1
Definitions 1
PART 2 GENERAL PROVISIONS 4
Authority to Provide Municipal Services 4
Authority and Duties of S.A.O. 4
Financing and Accounting 5
Service Area 5
Description of Services 5
Authority to Cease or Restrict Service 6
Notification 7
Tampering 8
Work Done by City 8
PART 3 - ESTABLISH AND TERMINATE SERVICE 8
To Establish Service 8
Content of Application for Service 9
Deposit 9
Temporary Service 9
Application to Terminate Service 10
PART 4 - RESPONSIBILITIES OF THE CUSTOMER 11
Use of Water 11
Prevention of Contamination 11
Prevention of Discharge of Harmful Matter 11
Inspection 12
Private Facilities 12
Abatement of Noises and Pressure Surges 13
Freeze Protection 13
Service Connection Failure Assistance 13
PART 5 - PIPED WATER AND SEWAGE SERVICE 14
Installation of Service Pipes 14
Installation of Service Pipe Connections 14
Specifications, Design Approval and Inspection of Service Pipe 14
Ownership of Service Pipes 15
Maintenance of Private Service Pipes 15
Repair of Private Service Pipes 16
Investigation of Service Pipe 16
Thawing Service Pipes with Electrical Equipment 16
Removal, Relocation or Replacement of Facilities 17
Size and Number of Service Pipes 17
Service to Adjacent Properties 17
Water Shut Off Valve 18

Correction to Non-Conforming Private Service Pipes 18
Prevention of Water System Contamination 18
Bleeding of Water and Bleeders 20
Water Use for Fire Protection 21
Access to Hydrants, Valves and Accessories 21
Mandatory Connection to Piped System 22
PART 6 - STORM WATER SEWERS 22
Storm Sewer Authorized Releases 22
Unauthorized Releases 24
PART 7 - TRUCKED WATER AND SEWER SERVICE 25
Scheduled Trucked Service 25
Installation of Trucked Service Building Facilities 25
Maintenance, Repair and Thawing of Trucked Service Building Facilities 25
Specifications, Design Approval and Inspection of Trucked Service Building Facilities 25
Correction to Non-Conforming Trucked Service Building Facilities 26
Number of Trucked Service Building Facilities 27
Access to Trucked Service Building Facilities 27
PART - 8 METERS 28
Meter Requirement 28
Supply and Installation of Meters by the Owner 28
Supply of Meters by the City 28
Supply and Installation of Meter Setting by the Owner 28
Supply and Installation of Wiring for Remote Reading Device by Owner 29
Supply, Installation and Sealing of Meter Bypass 29
Number of Meters 29
Meter Protection 30
Meter Readings 30
Special Meter Readings 30
Meter Seal 30
Meter Testing 30
Meter Malfunction 31
Adjustment for Undetected Leaks 31
Access to Property for Meter Reading 31
PART 9 - BILLING AND COLLECTING 32
Rates 32
Service Charges 32
Industrial Use of Water 33
Payments 33
Owner Liability 33
Changes in Use, Occupancy or Property Served 33
Adjustment for Charges for Partial Period 33
PART 10 - ENFORCEMENT 33
Enforcement of Payments 33
Offences 34
Public Health 34

PART 11 - ADMINISTRATION 34
Separability 34
Repeal 34
Effect 35

SCHEDULES

SCHEDULE A – TARIFFS
SCHEDULE B – FORMS
SCHEDULE C – SPECIFICATIONS
SCHEDULE D – RESTRICTED WASTES
SCHEDULE E – OVER STRENGTH MATTER

CITY OF YELLOWKNIFE
BY-LAW NO. 4663

A BY-LAW OF THE CITY OF YELLOWKNIFE to provide for the establishment, operation, maintenance, and alteration of a water supply and sewage system and for the levying and collecting of water and sewage service charges;

PURSUANT TO Sections 58, 59, 70, 72, 90, 91, 137, 140 of the *Cities, Towns and Villages Act*, S.N.W.T. 2003, c-22.

NOW, THEREFORE, THE MUNICIPAL COUNCIL OF THE CORPORATION OF THE CITY OF YELLOWKNIFE, in regular sessions duly assembled, enacts as follows:

PART 1 INTERPRETATION

Short Title

101. This By-law may be cited as the Water and Sewer Services By-law.

Intention

102. In this By-law unless a contrary intention appears, words importing the masculine gender include females, and words in the singular include the plural and words in the plural include the singular.

Definitions

103. In this By-Law, unless the context otherwise requires:

103. (1) "Building Envelope" shall mean the area within the original footprint of the initial construction for the structure;

103. (2) "City" shall mean the City of Yellowknife or in the case of work being completed shall include any contractors retained by the City of Yellowknife;

103. (3) "City's Contribution" shall mean the portion of funds as specified in the Fees & Charges By-law that the City of Yellowknife contributes to the repair and/or replacement of water and sewer service under the Service Connection Failure Assistance Program;

103. (4) "City's Engineer" shall mean the City of Yellowknife's Director of Public Works and Engineering or his authorized designate;

103. (5) "Construction Water" means water provided by the public piped service to any customer, as approved by the S.A.O., for a period during which service pipes are being installed or repaired;

103. (6) "Council" shall mean the elected council of the City of Yellowknife;

103. (7) "Cross connection" shall mean any connection or structural arrangement between a public or a customer's potable water system and any non-potable source or system;

103. (8) "Customer" means any person who has entered into an arrangement with the City to receive municipal services;

103. (9) "Deductible" shall mean the amount of repair costs as specified under the Fees and Charges By-law, or any successor by-law, a customer shall be responsible to pay to originally initiate a claim under the Service Connection Failure Assistance Program (as amended);

103. (10) "Freeze Protection Device" means a device or system to prevent service pipes from freezing as specified in the City of Yellowknife's Design Standards or as approved by the City's Engineer;

103. (11) "Lot lines" or "Property lines" means the separating lines or limits identified by the location of the legal survey pins;

103. (12) "Mains" means a pipe or pipes interconnected to transport water or collect sewage throughout the city or several premises excluding private service pipes forming part of the municipal system, which have two (2) or more services connections attached ;

103. (13) "Municipal System" or "Municipal Service" means the pipe and accessories owned by the City, either within a municipal road or easement, to provide water or collect sewage from private property or premises and includes the trucked system and piped system unless specifically noting one of either trucked or piped system;

103. (14) "Officer" means any person who is appointed in accordance with the *Cities, Towns and Villages Act* as a By-law Officer to enforce the By-laws of the City of Yellowknife and any Peace Officer who is entitled to enforce the By-laws of the City of Yellowknife;

103. (15) "Owner" or "Property Owner" means any person who is the registered owner of a property, or any person who is in lawful possession or occupation of buildings situated thereon;

103. (16) "Person" includes a corporation and the heirs, executors, administrators or other legal representative of a person;

103. (17) "Potable" means water suitable for drinking;

103. (18) "Property" means real property and includes any buildings thereon;

103. (19) "Private Service System" means the pipe and accessories intended to distribute water or collect sewage within private property and connected to the municipal system or main;

103. (20) "Public Piped Service" means water supply or sewage collection provided through the City's mains and service pipes;

103. (21) "Residential Customer" includes customers for a place of residence in private homes and rental accommodations;

103. (22) "S.A.O." shall mean the Senior Administrative Officer, his designate or authorized representative;

103. (23) "Schedule" means a schedule attached to and forming part of this by-law, except as otherwise provided;

103. (24) "Self-Contained Unit" means a unit having separate plumbing, heating, entrance, and the like;

103. (25) "Service Pipe" means the pipe intended to carry water or collect sewage from or to the main onto or across private property and includes a private service pipe and a municipal service pipe, the service pipe starts from the City main and extends to the structure being serviced and is the sole responsibility of the property owner;

103. (26) "To Discontinue Service" means to stop providing trucked water service and/or to turn off piped water service for a building or a property;

103. (27) "To Establish Service" means to become a customer of the City by entering into an arrangement to receive municipal service from the City;

103. (28) "To Terminate Service" means to terminate the arrangement between the customer and the City to receive municipal services from the City and may include to discontinue service, to disconnect or remove a municipal service pipe in whole or in part, and a final water meter reading;

103. (29) "Trucked Service" means water delivery and/or sewage pump out collection service provided using vehicles by or on behalf of the City;

Section 103 (30) as amended by By-law No. 4818 – July 27, 2015

103. (30) "Trucked Service Building Facilities" means a water storage tank and/or sewage holding tank and related accessories installed within a premise to receive trucked service from the City.

103. (31) Wastage" means to lose, decrease, destroy, damage, use or consume extravagantly, inefficiently, or improvidently, for no purpose or inadequate objective or result.

PART 2 GENERAL PROVISIONS

Authority to Provide Municipal Services

201. No person, except those authorized by Council, shall directly or indirectly engage in the provision of municipal services within the City.

Authority and Duties of S.A.O.

202. (1) The S.A.O. is authorized and directed to:

(a) supervise, control and administer the provision of municipal services and the municipal system and do all things necessary to fulfill his responsibilities and duties under this by-law;
(b) control all construction, operations and maintenance related to the provision of municipal services;
(c) perform all acts that may be necessary for the efficient management, operation and protection of the municipal system; and
(d) administer and enforce this by-law.

202. (2) The S.A.O. may, subject to subsection (4), prescribe:

(a) orders, and
(b) specifications for:
  (i) Private Service Pipes
  (ii) Meters
  (iii) Freeze Protection Devices
  (iv) Bleeders
  (v) Sewage Discharge
  (vi) Trucked Service, and
  (vii) other specifications

necessary to carry out the provisions of this by-law.

202. (3) No person or customer shall fail to comply with such orders and specifications.

202. (4) The S.A.O. may, subject to subsection (5), prescribe forms for:

(a) Water and Sewer Piped Application Form – To Connect or Disconnect Services (W/S-1)
(b) Water and Sewer Registration Form (W/S-2)
(c) Water and Sewer Services Billing Discontinuation Form (W/S-3)
(d) Application to Install Water Bleeder (W/S-4)

202. (5) All orders, specifications and forms prescribed by the S.A.O. shall be available for public inspection during regular City business hours.

Financing and Accounting

203. (1) All costs for the provision of municipal services shall be financed through service charges and fees as detailed in the Fees and Charges By-law; as well as loans; grants, subsidies or other funding provided to the City by the Government of the Northwest Territories or others.

203. (2) All monies collected for municipal services shall only be used to provide municipal services to customers including operation, maintenance, extension, repair, capital improvement and administration of the municipal system.

203. (3) All monies collected for the provision of municipal services shall be separately accounted for and disbursed by action of the Council.

Service Area

204. (1) The City may provide municipal services to properties in a designated service area, as established by the S.A.O., within the municipal boundaries of the City.

204 (2) The City may not provide municipal services to un-serviced lots in areas designated as such.

204. (3) Municipal services, including bulk water supply and sewage disposal, may be provided by the City to or for areas outside the city and will only be provided when such services will not impede the provisions of municipal services to customers within the city.

Description of Services

205. (1) The City shall furnish water supply for domestic, fire protection, municipal, and industrial purposes.

205. (2) Notwithstanding subsection (1), when in the opinion of the S.A.O. the water supply for domestic and fire protection purposes is impaired, the S.A.O. may

(a) regulate the use of water supply; or

(b) restrict or terminate the supply of water for municipal or industrial purposes.

205. (3) The City shall make every effort to provide safe, continuous and efficient municipal services. The City shall not be liable for damages, including business losses;

(a) caused by the break of any water pipe, sewer pipe, or the break of any ditch; or

(b) caused by water delivered or sewage collected through the owner's or customer's facilities; or

(c) caused by the interference or cessation of municipal services in connection with the repair, expansion, replacement, or proper operation and maintenance of the municipal system; or

(d) caused by any increase or decrease in pressure in a water pipe; or

(e) caused by the interference or cessation of trucked service due to adverse weather conditions, road conditions, or vehicle mechanical problems; or

(f) caused by the water supply containing sediments, deposits or other foreign matter; or

(g) caused by the improper operation of the freeze protection devices; or

(h) generally for any accident due to the operation of the municipal system, unless such action has been shown to be directly due to the negligence of the City or its employees.

205. (4) Every person, customer or institutions requiring special municipal services, including continuous and uninterrupted municipal services, constant pressure of water, or particularly clear or pure water, shall at no cost or liability to the City, provide such storage, treatment or other means for such special municipal services.

Authority to Cease or Restrict Service

206. (1) The S.A.O. may, without notice, cease or restrict municipal services to any customer or part of the city if, in the opinion of the S.A.O., an emergency makes such action necessary.

206. (2) The S.A.O. may, in a non-emergency situation, including scheduled repairs or alterations to the municipal system, cease or restrict municipal services to any customer or part of the city provided the S.A.O. shall, when it is practical to do so, provide public notice of such intended cessation or restriction of municipal services to all affected customers.

206. (3) When the S.A.O. deems that a water shortage warrants, the S.A.O. may issue orders to impose, change or revoke restrictions upon the use of water, including uses at specified times of days, to a specified class of customer, or parts of the city provided the S.A.O. shall provide public notice of such intended restriction.

206. (4) Failure to obey an order issued under subsection (3) is an offence.

206. (5) Where public notice regarding the imposition, change or revocation of restrictions on

water use as required to be given under this section, notice must be given to the general public according to subsection 207(3) of this by-law.

206. (6) The S.A.O. may discontinue service for any of the following:

(a) failure to establish services;

(b) fraud in establishing service;

(c) non-payment of charges or fees levied pursuant to this by-law;

(d) failure to provide a deposit, if required;

(e) failure to provide free access; or

(f) contravention of any other section of this by-law.

until such time as there is no contravention of this by-law and any outstanding service charges and fees are paid to the City.

206. (7) When service is discontinued, neither the City, its employees nor any municipal officials shall be liable for any costs or damages resulting from the discontinuance of service.

206. (8) Where the S.A.O. authorizes service to be discontinued under subsection (6), the S.A.O. may, when in the opinion of the S.A.O. it is practical to do so, give notice prior to service being discontinued, indicating:

(a) the infraction,
(b) the remedy,
(c) the date that service will be discontinued unless remedy is made.

All costs associated with the discontinuation of service shall be the responsibility of the customer.

Notification

207. (1) Notice from the City to a customer or owner for amount of bill due, contravention of any provision or requirement of this by-law, or for any other reasons, shall be in writing to the last known address of the customer or owner.

207. (2) Notice to the City shall be made in writing to the City, except that notice of complaint may be made by telephone or in person.

207. (3) Public notice must be given to the general public in any one or more of the following ways:

(a) by inserting the notice at least once in a newspaper circulating in the municipality;

(b) by mailing or delivering a copy of the notice to each voter in the municipality;

(c) by causing announcements to be made on a radio or television station received in the municipality on at least three separate days; or

(d) by posting a notice in at least five widely separated and conspicuous places in the municipality.

Tampering

208. (1) No person or customer shall tamper or interfere with any part of the municipal system.

208. (2) No person or customer shall connect to or operate any pipe, valve, meter, hydrant, or any other part of the municipal system, except as authorized by the S.A.O.

208. (3) Any person or customer who damages or causes to be damaged any part of the municipal system shall be liable for the cost of such damage.

Work Done by City

209. (1) The charge for work done by the City will be "at cost" and shall include the direct and indirect amount expended by the City for wages and benefits, housing subsidy, support facilities and equipment, materials, equipment rental, contracts, administration charges, and any other expenditures incurred in doing the work.

209. (2) Where the S.A.O. requires a deposit, based on the estimated cost of work, to be paid by the applicant prior to the commencement of work done "at cost" by the City, any additional cost shall be paid to the City and any surplus shall be refunded to the applicant.

PART 3 - ESTABLISH AND TERMINATE SERVICE

To Establish Service

301. (1) Subject to subsection (2), every person requiring to establish service, shall submit to the S.A.O. either;

(a) Water and Sewer Piped Application Form – To Connect or Disconnect Services (W/S-1), or

(b) Water and Sewer Registration Form (W/S-2)

and pay the applicable fees.

301. (2) Where premises are occupied by a tenant or lessee, the S.A.O. shall require that the application for service be submitted by the owner of the premises.

Content of Application for Service

302. The " Water and Sewer Piped Application Form – To Connect or Disconnect Services (W/S-1)" or " Water and Sewer Registration Form (W/S-2)", shall include, but may not be limited to such particulars as the following:

(a) location of the premises,
(b) date applicant will be ready for service,
(c) type of structure erected or intended to be erected,
(d) whether the premises have previously received service,
(e) name and mailing address to which notices and bills are to be sent,
(f) whether the applicant is the owner or tenant of, or agent for the premises,
(g) category of customer and rate requested,
(h) agreement to abide by and accept all the provisions of this by-law, and
(i) any other information in such detail and form the S.A.O. deems appropriate.

Deposit

303. As a condition of providing municipal services, the S.A.O. may require a deposit from the applicant provided that:

(a) the amount of the deposit shall be determined by the S.A.O. based on the expected service charge for a 90 day period;

(b) subject to subsection (c) the deposit shall be refunded after it has been held for twelve consecutive months during which all bills for service have been paid within the time limit allowed;

(c) the deposit, less the amount of any unpaid balance due to the City, shall be refunded upon termination of service; and

(d) no interest will be paid on the deposit when the deposit is refunded.

Temporary Service

304. (1) Subject to subsection (2), every person requiring to establish temporary service for construction or any other purpose shall:

(a) submit either an "Water and Sewer Piped Application Form – To Connect or Disconnect Services" (W/S-1), or "Water and Sewer Registration Form" (W/S-2) stating the expected duration service is requested;

(b) pay the applicable service fees and any other appropriate fees; and

(c) prior to the initiation of service, pay a deposit determined by the S.A.O. based on the estimated service charge during the period of temporary service. Any additional cost to be paid to the City and any surplus to be refunded to the applicant.

304. (2) The S.A.O. may require that the application for service be submitted by the owner of the premises.

304. (3) The service rate for temporary service shall be based on the category of the customer.

304. (4) The S.A.O. may require an applicant for temporary piped water service to install an approved meter setting and/or meter.

304. (5) The service charge for temporary piped water service shall be determined;

(a) according to meter readings, if approved meter is installed, or

(b) where no meter is installed, based on an estimate by the S.A.O of the quantity of water used.

Application to Terminate Service

305. (1) In order to terminate service, the customer shall submit to the S.A.O. either a "Water and Sewer Piped Application Form – To Connect or Disconnect Services" (W/S-1)-3 or "Water and Sewer Services Billing Discontinuation Form" (W/S – 3), stating the date the applicant desires to terminate service and any other information and in such form as may be prescribed by the S.A.O.

305. (2) All applications to terminate service must allow a minimum of five working days prior to the date the order is to become operative.

305. (3) The City may continue to levy service charges in accordance with this by-law until the City terminates service and/or the premises changes possession.

305. (4) The owner of any structure or building which is; not fit to be occupied, planned to be demolished, or is otherwise abandoned is responsible for application to the City and after approval for disconnection of services.

PART 4 - RESPONSIBILITIES OF THE CUSTOMER

Use of Water

401. (1) No person or customer shall willfully waste water or allow the continuous unattended flow of water without written permission from the S.A.O.

401. (2) No person or customer shall resell or convey water beyond the property served without written permission from the S.A.O.

401. (3) Where any unauthorized wastage, continuous flow, or improper use of water occurs, the S.A.O. may issue an order to the customer to stop such wastage or improper use of water within forty eight (48) hours or lesser time as may be specified in the notice.

401. (4) If the customer fails to comply with the order under subsection (3) the S.A.O. may discontinue service.

401. (5) Failure to comply with an order under subsection (3) is an offence.

Prevention of Contamination

402. No person or customer shall do anything that may allow water, sewage, or any harmful matter to enter the municipal potable water system. The S.A.O. may discontinue service to any customer contravening the provisions of this section and shall be considered an offence under this by-law.

Prevention of Discharge of Harmful Matter

403. (1) No person or customer shall discharge or deposit or cause or permit the discharge into a municipal sewer pipe, private sewer service pipe, or private sewage tank, matter of any type or at any temperature or in any quantity which may be or become a hazard to persons, animals, property or surrounding environment, or which may be or become harmful to any part of the municipal services system, or which may impair or interfere with the proper operation of any waste water works or treatment process, or which may cause the sewage works effluent to contravene any requirement by or under the City's water license.

403. (2) Subject to section 202, the S.A.O. may prescribe specifications to restrict or prohibit the discharge or deposit of any matter into a municipal sewer pipe, private sewer service pipe, or private sewage tank.

403. (3) No person or customer shall directly or indirectly discharge any trade, industrial or manufacturing waste or any unacceptable waste into a municipal sewer pipe, private sewer service pipe, or private sewage tank without such previous treatment works as the S.A.O. may order to be installed and operated by the customer.

403 (4) No person or customer shall discharge solid or viscous substances in quantities or of such size as to be capable of causing obstruction to the flow in a sewer, including but not limited to ashes, bones, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, un-ground garbage, animal guts or tissues, paunch manure, and whole blood.

403. (5) Grease, oil, or sand interceptors of sufficient size and approved design shall be installed on the building sewer pipes from every hotel, restaurant, laundry, garage and such other places as the S.A.O. may order.

403. (6) No person or customer shall discharge or deposit or cause or permit the discharge or deposit of, rainwater or groundwater into a municipal sewer pipe, private sewer service pipe, or private sewage tank, except as authorized by S.A.O.

403. (7) Failure to comply with any provisions of this section shall be considered an offence.

Inspection

404. An authorized agent or employee of the City, who presents, if so requested, proper identification, as determined by the S.A.O;

(a) shall be admitted to properties during the regular City business hours, and

(b) may inspect any part of the property, expose and perform tests on any piping, fixtures or appliances being the property of the owner, the occupant, or the City, to determine compliance with this by-law.

Private Facilities

405. (1) All private facilities, including plumbing, appliances, accessories, service pipes, and water and sewage tanks, shall comply with the most recent National Building Codes and National Plumbing Codes of Canada and other municipal by-laws at the time of construction; provided always that, where any provisions in such a Code conflicts with any provisions of this by-law, this by-law shall prevail.

405. (2) Every owner shall maintain his private facilities in proper order and free from leakage or wastage at his own expense.

405. (3) Subject to sections 206 and 207 of this by-law, the S.A.O. may discontinue service to any property where unsanitary conditions, defective fixtures, leakage or wastage, or misuse may affect the safe and proper operation of the municipal system.

405. (4) Subject to subsection (5) municipal services shall not be provided to premises in which the private facilities do not meet the provisions and specifications of this by-law.

405. (5) Municipal services may be provided during construction.

Abatement of Noises and Pressure Surges

406. No apparatus, fitting or fixture shall be connected, allowed to be connected, or operated in a manner which will cause noises, pressure surges, water hammer or other disturbances which may, in the opinion of the S.A.O., result in annoyance to other persons or customers, damage to their water systems, or damage to the municipal system. The S.A.O. may discontinue service to any customer contravening the provisions of this section.

Freeze Protection

407. (1) The owner or occupant shall at his expense provide for the proper operation, and maintenance of freeze protection devices according to the provisions, schedules, and specifications of this by-law.

407. (2) The owner or occupant shall be liable for any damage which may result from the improper or negligent operation and maintenance of the freeze protection devices.

407. (3) During the normal heating season, the owner or occupant shall ensure that if he is away from his premises that a competent person maintains the freeze protection devices and ensures that the water supply and sewer do not freeze.

407 (4) The City shall not be held responsible for any freeze-ups associated with the use of water conserving appliances, devices and/or fixtures.

407 (5) the City shall not be held responsible for any freeze-ups associated with power outages.

Service Connection Failure Assistance

408. (1) Council shall maintain a program which would assist in defraying the cost of repairing service connection failures which occur between the City's main lines and the building envelope of the serviced building.

408. (2) The owner or occupant must comply with any provisions and/or requirements of the "Service Connection Failure Assistance Program" (SCFAP) in accordance with Service Connection Failure Assistance By-law No. 4664 as amended or replaced in order to qualify for assistance or compensation for repairs to the municipal system as described in the SCFAP.

PART 5 - PIPED WATER AND SEWAGE SERVICE

Installation of Service Pipes

501. (1) Every owner requiring to install a service pipe

(i) on a road, or
(ii) within an easement,

shall submit to the S.A.O. an application in such form as may be prescribed by the S.A.O.

501. (2) Where an application is made under subsection (1), no work shall commence until the application has been approved by the S.A.O.

501. (3) Every service pipe within a property shall be installed at the cost of the owner of the property to be served.

501. (4) Every service pipe from the main to the property line shall be installed by the City or its agent and the owner of the property served shall be levied a fee to recover the City's costs.

501. (5) Every owner requiring a service pipe from the main to the property line shall submit to the S.A.O. an "Application for Permit to Connect or Disconnect" form W/S-4.

501. (6) Where an application is made under subsection (5), no work shall commence until the application has been approved by the S.A.O. and the fee(s) to recover the City's costs has been paid.

Installation of Service Pipe Connections

502. (1) Every service pipe connection to the main shall be authorized, inspected and approved only by the City or its agent.

502. (2) The cost of the service pipe connection to the main shall be levied on the owner of the property served.

Specifications, Design Approval and Inspection of Service Pipe

503. (1) All services shall be installed in accordance with this by-law and current specifications.

503. (2) Design plans for service pipes, 65 millimetres (2.5 inches) or less shall be:

(a) certified by a Journeyman Plumber, or Professional Engineer,

(b) submitted to the S.A.O. and

(c) approved prior to the commencement of construction by S.A.O. or his designate.

503. (3) Design plans for service pipes, greater than 65 millimetres (2.5 inches) shall be:

(a) certified by a Professional Engineer, and

(b) submitted to the S.A.O.,

(c) approved prior to the commencement of construction by S.A.O. or his designate.

503. (4) Two sets of "as built" plans shall be provided to the S.A.O. within forty-five (45) days of completion of service pipes; failure to comply will result in fines as stipulated under this by-law.

503. (5) No service pipe shall be enclosed, covered or backfilled until the work has been inspected and approved by the S.A.O. If such actions occur then the owner shall be responsible for all costs required to expose the service pipes in question.

503. (6) All installation, maintenance, repair and disconnection work on service pipes shall be subject to the inspection and approval of the S.A.O.

503. (7) The City may provide water service using seasonal surface water lines. If seasonal surface water lines are provided, the owner or occupant shall ensure compliance with this by-law and the specifications in Section A-4 of Specifications A.

Ownership of Service Pipes

504. (1) All service piping on private property, above and below ground, from the structure being serviced and the portion of pipe extending from the property line to the corporation valve located on the City’s water main and service saddles on the sanitary sewer main shall remain the sole property of the property owner and they shall be responsible for its maintenance.

504. (2) Every owner shall establish and maintain the survey pins used to identify lot and property lines as and when required by the City.

Maintenance of Private Service Pipes

505. Every owner shall maintain his private service pipes, fittings, meter supports, freeze protection devices and fixtures in proper order and free from leakage or wastage at his own expense.

Repair of Private Service Pipes

506. (1) Should a frozen service pipe, leakage or wastage occur, the S.A.O. may give notice to the owner to effect the necessary repairs or replacement within forty eight (48) hours or such lesser period as may be specified in the notice.

506. (2) If the owner fails to comply with such notice within the time specified, the S.A.O. may either:

(a) have the water service pipe turned off until the repairs or replacement have been completed; or

(b) in the case of unmetered service, have a meter installed; or

(c) have the necessary work completed, and any cost incurred shall be levied on the owner.

506. (3) Failure to comply with any provisions of this section shall be an offence and fines shall be levied.

Investigation of Service Pipe

507. (1) Every owner requesting an investigation into a failure or interruption in service to his premises shall deposit with the City the estimated cost of such investigation as determined by the S.A.O..

507. (2) Where it is determined, by the City, that the City is the cause of the failure or interruption in service, the deposit shall be returned.

507. (3) Where it is determined, by the City, that the City is not the cause of the failure or interruption in service, the expense incurred by the City on an "at cost" basis in accordance with Section 209 shall be levied on the owner and the amount of any deposit shall be applied against that expense.

Thawing Service Pipes with Electrical Equipment

508. (1) No person or customer shall use electrical welding equipment to thaw water service pipe.

508 (2) No person or customer shall use electrical equipment to thaw water service pipes unless:

(a) a continuous circuit is maintained;

(b) the water meter and all electrical ground wires are disconnected from the water service pipe;

(c) the undertaking is authorized by the S.A.O.; and

(d) the work is carried out in accordance with all applicable safety legislation and accepted safe work practices.

508. (3) The City shall not be liable for any damage or injury resulting from the use of electrical equipment to thaw a water service pipe.

Removal, Relocation or Replacement of Facilities

509. (1) Subject to subsection (2), all costs of any approved removal, relocation or any other change in the municipal system, requested by an owner, shall be payable by the owner making the request.

Size and Number of Service Pipes

510. (1) Subject to subsection (3), no property shall be supplied with more than one water service, including a water supply pipe and a recirculation pipe, and one sewer service pipe.

510. (2) Subject to subsection (3), a separate water service pipe and a separate sewer service pipe shall be installed for each property adjacent to a main.

510. (3) The S.A.O. may determine, specify and approve

(a) the number,

(b) the nature,

(c) the size, and

(d) the location

of service pipes to be installed for any property.

Service to Adjacent Properties

511. (1) Service pipes shall be constructed only to properties adjacent to a main, unless the S.A.O. authorizes otherwise.

511. (2) Private service pipes shall not be extended from one lot to another without the prior written approval of the S.A.O.

Water Shut Off Valve

512. (1) A water service pipe shall be provided with an easily accessible, sealable water shut off valve on the premises served, so located within the building plumbing system to allow water service to all of the building to be turned off while allowing any circulation pump on the water service pipe to operate.

512. (2) Where service is to be discontinued pursuant to this by-law, the S.A.O. or other authorized agent of the City may discontinue service either; by turning off and affixing a seal to the water shut off valve, or by removing the water meter, on the premises to which service is to be discontinued.

512. (3) Where a seal has been affixed in accordance with subsection (2), no person, other than the S.A.O. or other authorized agent of the City, shall cause or allow the seal to be broken without the prior written approval of the S.A.O.

512. (4) Failure to comply with the provisions of this section is an offence and fines shall be levied.

Correction to Non-Conforming Private Service Pipes

513. (1) Where in the opinion of the S.A.O., an existing private service pipe is being operated in contravention of this by-law, including the service pipe specifications, the S.A.O. shall issue an order to the owner of the private service pipe:

(a) specifying the manner in which the owner is contravening the by-law,

(b) directing the owner to comply with the by-law,

(c) specifying the actions to be performed by the owner to comply with the by-law, and

(d) notifying the owner of the time and date by which such action is required to be taken.

513. (2) Failure to comply with an order issued under subsection (1) is an offence.

Prevention of Water System Contamination

514. (1) No person or customer shall connect, cause to be connected, or allow to remain connected, any piping, fitting, container or appliance, in a manner which, under any circumstances, may allow water, waste water, or any harmful liquid or substance to enter the municipal water system.

514. (2) If a condition is found to exist which in the opinion of the S.A.O. is contrary to subsection (1), the S.A.O. may either:

(a) discontinue service; or

(b) issue an order to correct the fault within forty eight (48) hours, or a specified lesser period, and if the customer fails to comply with such notice, the S.A.O. shall proceed to discontinue service.

514. (3) Without limiting the generality of subsection (1), the S.A.O. may allow cross connection control devices to be installed on the water piping at the source of potential contamination, at no cost to the City.

514. (4) Where in the opinion of the S.A.O., a severe hazard exists, water service to a customer shall be provided only on the condition that the customer install on his water service pipe a cross connection control device approved by the S.A.O., in accordance with applicable building and plumbing codes, in addition to the cross connection control devices installed on the customer's water piping at the source of potential contamination.

514. (5) Where property is supplied by two or more water service pipes these service pipes are not to be interconnected within the property, without the approval of the S.A.O.

514. (6) Where it has been determined that a cross connection control device is required, that device shall be tested upon installation, and thereafter annually, or more often if required by the S.A.O., by personnel approved by the S.A.O., to demonstrate that the device is in good working condition, at no cost to the City. The customer shall submit a report, in a form approved by the S.A.O., on any or all tests performed on a device within thirty (30) days of a test.

514. (7) A "Cross Connection and Backflow Prevention Tag" form W/S-10 issued by the City shall be displayed on or adjacent to the cross connection control device on which the tester shall record the name and address of the owner of the device; the location, type, manufacturer, serial number and size of the device; and the test date, the tester's initials, the tester's name and/or the employer's name, and the tester's licence number from the license issued by the City. The City may recover all costs of issuing the tag.

514. (8) Should a customer fail to have a cross connection control device tested, the S.A.O. shall issue an order to the customer to have the device tested within forty eight (48) hours, or a specified lesser period, and if the customer fails to comply with such notice the S.A.O. shall discontinue service until the device is tested and approved by the S.A.O.

514. (9) Where a customer fails to comply with such an order issued under subsection (8) the S.A.O. shall discontinue service.

514. (10) Should a test show that a cross connection control device is not in good working condition, the S.A.O. shall issue an order to the customer to make repairs or replace

the device within forty eight (48) hours, or a specified lesser period, and

514. (11) Where a customer fails to comply with such an order issued under subsection (10). The S.A.O. shall discontinue service until the private plumbing has been inspected and approved by the S.A.O..

514. (12) Failure to comply with an order issued under this section is an offence.

Bleeding of Water and Bleeders

515. (1) No person or customer shall cause, permit or allow water to bleed or waste.

515. (2) No bleeder shall be installed except upon completion of the "Install Water Bleeder Application" form W/S-4 and in accordance with this by-law and the specifications.

515 (3) No person shall permit or allow water to bleed from service lines prior to connection to private facilities. When private facilities are being constructed or repaired a circulation pump shall be installed.

515. (4) Where a certified electrician or certified plumber certifies in writing that a water service pipe is in danger of freezing owing to the failure of a freeze protection device or other equipment, during a period when immediate repairs are not practical, the S.A.O. may authorize the "Application to Install Water Bleeder" (W/S-4) allowing water to be bled at the premises, provided always that the service pipe and freeze protection are repaired as soon as is practical.

515. (5) Every bleeder shall be installed on the building side of the water meter, unless instructed to do otherwise by the S.A.O., such that a one inch (25 mm) air gap exists between the water bleed pipe and a properly vented fixture or properly sized and vented P-trap prior to discharge into the sewer pipe.

515 (6) The bleeder shall be removed as soon as practical or by July 31 of the following year, and the owner shall repair or replace the freeze protection devices by November 1 of the following year. The owner or occupant may be permitted the use of a bleeder only during the months of November through July of one year.

515 (7) The customer shall register a bleeder with the S.A.O. and inform the S.A.O. when the bleeder has been removed.

515. (8) Failure to register a bleeder is an offence

515. (9) The S.A.O. shall maintain a register of all authorized bleeders.

515. (10) Where the S.A.O. authorizes water to be bled and registers the bleeder, the customer shall be levied a service charge based on the actual water consumption or lesser amount as determined by the S.A.O.

Water Use for Fire Protection

516. (1) Where water is supplied or made available for the purpose of fighting fires, no person shall use such water, or cause or allow such water to be used for any purpose other than fighting a fire.

516. (2) Where water supplied or made available for the purpose of fighting fires, is used for purposes other than fighting a fire, the customer at the premises to which the water was supplied shall be charged for the cost of the water estimated by the S.A.O. to have been used other than fighting a fire.

516. (3) Where water from a metered service is used to fight a fire, charges for the appropriate billing period may, at the request of the customer, be adjusted so that the customer does not pay for water so used.

516. (4) No person or customer shall allow a continuous flow of water from the municipal piped water system during a fire or fire alarm, except for the purpose of extinguishing a fire.

Access to Hydrants, Valves and Accessories

517 (1) No person shall in any manner obstruct or impede the free access to any main, fire hydrant, valve or other accessories on the municipal system.

517. (2) No person shall use water from a fire hydrant on the municipal system for any purpose other than to fight a fire, without the approval of the S.A.O..

517 (3) All new City hydrants or privately owned hydrants shall be installed in hydrants vaults in accordance with the City of Yellowknife Design and Construction Standards.

517 (4) Hydrants installed on City owned water lines shall become the property of the City and the City shall have full responsibility and control over the maintenance and operation of such hydrants.

517 (5) All existing and/or future hydrants installed on privately owned water lines shall be the property of the owner and shall be maintained by and at the cost of the owner on an annual basis to the satisfaction of the S. A. O.. In the case where the owner has failed to notify the S.A.O. that regular maintenance has been completed the S.A.O will direct City forces to undertake such work at the cost of the owner. The S.A.O. will provide such direction without notification to the owner.

517 (6) All existing and/or future privately owned hydrants shall not be removed or otherwise made unserviceable without the written authorization of the S. A. O..

517 (7) The City shall be notified immediately when any existing and/or future hydrant is determined to be in a condition that would render it unusable for fire fighting purposes.

517 (8) Fire hydrants shall only be operated by City employees or those authorized to do so by the S. A. O..

517 (9) No person shall obstruct free access to any fire hydrant. No vehicle, building, fence, tree, shrub, snow pile or any other thing shall be placed within two (2) meters of any hydrant.

517 (10) Water from a City owned hydrant or un-metered water from a privately owned hydrant shall not be taken for purposes other than fighting fires except as authorized by the S.A.O. City owned hydrants may be used by employees of the City or by contractors for furnishing water for temporary water supply, street cleaning, flushing sewers, street repairs or any other purpose as approved by the S.A.O. If specified by the S.A.O. the Contractors on occasions may be required to obtain a portable water meter and pay the metered rate for the water used as specified in the Fees and Charges Bylaw. Portable water meters shall only remain connected to the fire hydrant during filling. Once filling has been completed, the meter shall be disconnected and properly stored until the next filling. In no case is the meter to be left connected to the hydrant when it is not in use.

Mandatory Connection to Piped System

518. (1) Every owner shall connect his premises to piped water and/or sewer mains installed abutting his premises within two (2) years of the time the S.A.O. certifies that the mains are operational and issues an order to connect to the mains.

518. (2) The S.A.O. shall notify every owner that has not connected to the mains nine (9) months before the end of the two (2) year period.

518. (3) After such a two (2) year period, the S.A.O. may discontinue trucked water service to such premises or levy service charges to such premises based on the full cost of any trucked service.

PART 6 - STORM WATER SEWERS

Storm Sewer Authorized Releases

601. (1) No person shall release or permit the release of any matter into the storm sewer system or any watercourse, except:

a) Storm water and run-off from melt of natural precipitation that complies

with the requirements of this by-law;

b) Clear-water waste;
c) Sub-surface water that complies with the requirements of this by-law;
d) Water resulting from street cleaning, water main maintenance and hydrant flushing;
e) Water resulting from fire extinguishing activities determined by the S.A.O. to be suitable to enter the storm sewer;
f) Water resulting from garden and lawn maintenance;
g) Water resulting from non-commercial car washing;
h) Sub-surface water, storm water or clear-water waste from a remediation site for which a Permit to Discharge has been issued.

601. (2) No person shall release or permit the release of any matter of any type into the storm sewer system or any watercourse which may:

(a) Result in a hazard to any person, animal, property or vegetation;
(b) Cause an adverse effect on the storm sewer system;
(c) Cause an adverse effect on the quality of the water in any storm sewer or water course;
(d) Result in storm water being released in contravention of *Mackenzie Valley Resource Management Act* and guidelines/standards adopted and/or stipulated by the Mackenzie Valley Land and Water Board;
(e) Originate from a commercial car wash;
(f) Have a temperature greater than 60 degrees Celsius;
(g) Have a pH less than 6.0 or greater than 9.0, except for rainwater;
(h) Contain waste water;
(i) Contain super chlorinated water;
(j) Contain a restricted or over strength matter as described in Schedule "D", attached hereto and forming part of this bylaw;
(k) Originate from fire fighting activities that may result in a hazard to any person, animal, property, or vegetation;
(l) Originate from sub-surface water, storm water or clear-water waste from a remediation site for which no Permit to Discharge has been issued.

601. (3) Where a person needs to or is releasing storm water that does not meet the requirements of section 601 (1) or 601 (2), they shall apply to the S.A.O. in the prescribed form and pay the designated fee for a Permit to Discharge. The S.A.O. will review the application and may either issue or refuse the permit. Conditions that may be placed on the permit include the requirement for pre-treatment to a specified level, testing and monitoring.

601. (4) No person shall release any matter of any type into the storm sewer system including drainage ditches between October 15 and April 30 of the following calendar year.

601. (5) Where a person needs to discharge storm water and/or ground water during the restricted period they may apply to the S.A.O. for permission to discharge into the City's sanitary sewer system with the understanding that they shall be subject to a fee

as described in Section 902.

Unauthorized Releases

602. (1) Any person who releases or permits the unauthorized release of any matter set out in Section 601 into the sanitary sewer system, storm sewer system or any water course, immediately after becoming aware of the release, shall notify the City and provide the following information:

(a) Name of the person owning the matter released;
(b) Location of the release;
(c) Name of person reporting the release and telephone number where that person can be reached;
(d) Time of the release;
(e) Type of material released and any known associated hazards;
(f) Volume of the material release;
(g) Corrective action being taken or anticipated to be taken to control the release.

This does not preclude any person from notifying the GNWT Spill Line as required.

602. (2) The person who released or permitted the unauthorized release shall, as soon as the person becomes aware or ought to have become aware of the release, take all reasonable measures to:

(a) Confine, remedy and repair the effects of the released matter;
(b) Remove and dispose of the matter in such a manner as to effect the maximum protection to human life, health and the sanitary sewer system, storm sewer system or water course.

602. (3) The person who released or permitted the release shall within fourteen (14) days following the unauthorized release submit to the City a written report that details the following:

(a) Date and time of the release;
(b) Location of the point of the release;
(c) Duration of the release and the release date;
(d) Composition of the release showing with respect to each substance its concentration and total quantity, a description of the circumstances leading to the release;
(e) Steps or procedures which were taken to minimize, control or stop the release;
(f) A summary of the impairment, damage, or harm which occurred to any person, premises, private drainage system;
(g) Any other information required by the City.

602. (4) Any person observing a release of any matter set out in section 601 or 602 into the sanitary sewer system, storm sewer system or any water course shall notify the City and provide as much information on the release as possible.

602. (5) Any person who releases or permits the unauthorized release of any matter set out in section 601 into the sanitary sewer system, storm sewer system or any water course shall be responsible for all associated clean up costs.

PART 7 - TRUCKED WATER AND SEWER SERVICE

Scheduled Trucked Service

701. (1) The S.A.O. shall establish times for the provision of trucked service to each customer or part of the City.

701. (2) The City shall endeavour to provide scheduled trucked service, weather, roads, and vehicle conditions permitting.

701. (3) Every customer requesting trucked service at a time other than the normal working hours shall be levied a fee to recover the City's costs, in addition to the normal service charge, except when the previous scheduled trucked service was not received through no fault of the customer.

Installation of Trucked Service Building Facilities

702. (1) All trucked service building facilities shall be installed by, and at the cost of, the owner and shall remain the property of the owner.

702. (2) All trucked service building facilities shall be inspected and approved by the S.A.O. prior to receiving service

Maintenance, Repair and Thawing of Trucked Service Building Facilities

703. (1) Every owner shall maintain his trucked service building facilities in proper order and free from leakage or wastage. The owner is responsible for all repairs and routine maintenance if required repairs are not completed the City may suspend service until such time as the repairs are made to the satisfaction of the S.A.O..

703. (2) The City may in the case of an emergency repair any trucked service building facilities and the cost of such repair work shall be levied on the owner.

Specifications, Design Approval and Inspection of Trucked Service Building Facilities

Section 704 (1) (2) as amended by By-law No. 4818 – July 27, 2015

704. (1) Trucked service building facilities shall be installed in accordance with this By-law, the Trucked Water Service Standards and Trucked Sewage Service Standards in the Specifications of this By-law, and Building By-law No. 4469. Installations shall comply with National Building Code of Canada, National Plumbing Code of Canada,

CAN/CSA Standards, manufacturer specifications and all municipal by-laws.

704. (2) Design plans for trucked service building facilities, servicing more than four (4) bathrooms or having a capacity of more than 3,000 imperial gallons (13,638 litres) shall be certified by a Professional Engineer.

704. (3) Two sets of "as built" plans shall be provided when required by the S.A.O. within sixty (60) days of completion of trucked service building facilities.

704. (4) No trucked service building facilities shall be enclosed, covered and backfilled until the work has been inspected and approved by the S.A.O..

704. (5) All installation, maintenance, repair and disconnection of trucked service building facilities shall be subject to the inspection and approval of the S.A.O..

704. (6) All buried tanks shall be anchored to concrete pads or pinned to bedrock to prevent movement or floating to the surface.

Section 704 (7) (8) (9) (10) added by By-law No. 4818 – July 27, 2015

"704. (7) Buried and partially buried water and sewage holding tanks are not permitted to be installed within the footprint of the building. Cylindrical tanks installed horizontally that require soil or granular material to provide structural stability may be located within the footprint of a building.

704. (8) Existing buried holding tanks are permitted to be abandoned and left in place in the same location provided they are filled up with concrete, gravel or earth in a manner that is deemed to be adequate to maintain ground stability and prevent cave in.

704. (9) All trucked service building facilities installation applications submitted to Building Inspections at the time of application for a Mechanical Permit must include:

(a) manufacturer installation specifications, and
(b) a plan showing the location of the tank." .

704. (10) Trucked service building facilities installation servicing more than four (4) bathrooms or having a capacity of more than 3,000 imperial gallons (13,638 litres) shall be certified by a Professional Engineer."

Correction to Non-Conforming Trucked Service Building Facilities

705. Where in the opinion of the S.A.O., existing trucked service building facilities are being operated in contravention of this by-law, including the Trucked Service Water Standards in the specifications, Section A-3 of Specifications A, the S.A.O. shall issue an order to the owner of the trucked service building facilities:

(a) specifying the manner in which the owner is contravening the by-law, and

(b) directing the owner to comply with the by-law, and

(c) specifying the actions to be performed by the owner to comply with the by-law, and

(d) notifying the owner of the time and date by which such action is required to be taken.

Number of Trucked Service Building Facilities

706. (1) No premises shall be supplied with trucked service to more than one water tank and one sewage tank except upon submission of plans for the approval of the S.A.O..

706. (2) The S.A.O. may allow trucked service to a separate water tank or sewage tank for self-contained units on properties.

Access to Trucked Service Building Facilities

Section 707 (1) as amended by By-law No. 4818 – July 27, 2015

707. (1) The customer shall maintain, at his own expense, unimpeded access to the water fill and sewage pump out points, including, but not limited to, the removal of ice, snow, mud, vehicles, pets and yard material.

707. (2) Where the water fill point or sewage pump out point are not accessible, the S.A.O. shall cause a notice to be left at the premises and the offices of the City, indicating the time and reason trucked service could not be provided and the corrective measures required before trucked service will be resumed.

707. (3) Failure to allow or maintain access shall in addition to the discontinuance of service cause the owner to be levied the cost of one direct return trip by the contractor for the City.

Section 707 (4) (5) as amended by By-law No. 4818 – July 27, 2015

707. (4) Residents who produce honey bags as a means of sewage disposal must use appropriate bags or containers and are solely responsible for transporting and disposing of such waste at the designated location at the City’s Solid Waste Facility..

PART - 8 METERS

Meter Requirement

801. Subject to this by-law, an approved water meter with an approved remote reading device, shall be installed on every water service pipe, unless otherwise authorized by the S.A.O.

Supply and Installation of Meters by the Owner

802. (1) The owner shall supply and install meters, remote reading devices and accessories for all water service pipes.

802. (2) The location and the design of meters, remote reading devices and accessories shall be in accordance with the specifications of the City and shall be approved by the S.A.O..

802. (3) Every meter, remote reading device, and accessories installed by an owner in accordance with this section shall become the property of the City, which shall, subject to Section 808, be responsible for its maintenance.

802. (4) Nothing in this section shall be construed as to relieve the owner or customer of the obligation to pay any charges or fees required by this by-law.

Supply of Meters by the City

803. The City shall supply meters and remote reading devices for water service pipes less than 3/4 inch or 20 millimetres in diameter and the owner shall be levied a fee to recover the City's costs at the time the meter is picked up by the owner from the City and prior to the final inspection.

Supply and Installation of Meter Setting by the Owner

804. (1) Every owner, regardless of the size of the water service pipe, shall supply and install a horizontal meter setting and control valves immediately ahead of and after the meter setting, or obtain prior written approval of modifications from the S.A.O.. Failure to comply may result in fines. The owner will be responsible to cover any costs associated with meeting this clause and for any work undertaken as a direction of the S.A.O. needed to meet the requirements as specified.

804. (2) The location and design of the meter setting and control valves shall be in accordance with the specifications of the City and shall be approved by the S.A.O..

804. (3) The meter setting and control valves shall be positioned as close as is practical to the point where the private water service pipe enters the building and positioned for easy access to read, repair, test or replace a meter.

Supply and Installation of Wiring for Remote Reading Device by Owner

805. For new construction, every owner, regardless of the size of the water service pipe, shall supply and install wiring in its own conduit, for a remote reading device, for each meter to be installed, in accordance with the specifications and approved by the S.A.O..

Supply, Installation and Sealing of Meter Bypass

806. (1) The owner shall supply and install a meter bypass with a sealable control valve for all water service pipes

(a) having a diameter greater than 50 millimetres (two inches),

(b) of any size, where the owner requires continuous service during the testing, repairing or replacing of meters.

806. (2) The S.A.O. shall cause a seal to be affixed to any meter bypass control valve.

806. (3) Where a seal has been affixed in accordance with subsection (2), no person or customer shall break the seal without the prior written approval of the S.A.O..

806. (4) Where the customer or occupant of premises where a seal has been affixed in accordance with subsection (2), determines that the seal has been broken, he shall notify the S.A.O. as soon as is practical.

806. (5) Where a seal affixed in accordance with subsection (2) is broken, the customer shall be levied a charge for the quantity of water which the S.A.O. estimates has been used and shall be considered an offence.

Number of Meters

807. (1) The S.A.O. shall determine the number of meters that shall be installed for any premises.

807. (2) Subject to subsection (1), where two or more water service pipes, excluding water recirculation service pipes, supply a premise or where water service pipes are interconnected, a meter shall be installed on each water service pipe.

807. (3) Subject to subsection (1), single-family dwellings and single unit buildings including apartment, commercial, institutional and industrial buildings, shall have a minimum of one (1) meter installed in each building.

807. (4) Subject to subsection (1), residential, commercial or industrial buildings containing (with) multiple side by side units shall have one meter per unit, and all such meters for the building shall be banked at one location where the service pipe enters the

building or approved by the S.A.O..

Meter Protection

808. (1) The customer shall protect the meter, meter setting, control valves, meter wire, remote reading device, and accessories from loss or damage from frost and any other causes within his control.

808. (2) The customer shall pay all costs incurred by the City to replace a lost meter or to repair damage to any meter, meter wire, remote reading devices, or accessory caused by frost or any other causes within the control of the customer.

Meter Readings

809. (1) Meters shall be read at intervals determined by the S.A.O. provided that, if possible, meters shall be read at least every two (2) months.

809. (2) Where a meter is not or can not be read for the current billing period, the S.A.O. shall estimate the water consumption for the purpose of establishing a service charge provided that the water consumption and account are reconciled when a meter reading is obtained.

Special Meter Readings

810. Where a customer requests a special meter reading, a fee to recover the City's costs shall be levied on the customer.

Meter Seal

811. (1) The S.A.O. shall cause a seal to be affixed to any meter.

811. (2) Where a meter seal has been affixed in accordance with subsection (1), no person or customer shall cause, permit or allow such a seal to be broken without the prior written approval of the S.A.O..

811. (3) Every person or customer who determines that a meter seal affixed in accordance with subsection (1) has been broken, including for the purpose of thawing the service line, shall notify the S.A.O. as soon as is practical.

811. (4) Where a meter seal affixed in accordance with subsection (1) has been broken, the customer shall be levied a charge for the quantity of water which the S.A.O. estimates has been used and shall be considered an offence under this by-law.

Meter Testing

812. (1) The S.A.O. may cause any authorized meter to be tested.

812. (2) Where a customer makes written request for a meter test and pays the fee, to recover the City's costs, the S.A.O. may cause the meter to be tested.

812. (3) Where the inaccuracy of a meter tested is five (5) percent or greater,

(a) the amount of any meter reading fee paid shall be refunded to the customer,

(b) the S.A.O. shall estimate the amount of water for which the customer has been overcharged or undercharged for a period not exceeding six months prior to the date of testing,

(c) the municipal services account of the customer shall be adjusted in accordance with paragraph (b) and the rates prescribed in the schedules, provided always that no refund shall be made other than to the customer whose account was overcharged.

Meter Malfunction

813. If a meter fails to register or to properly indicate the flow of water, the customer shall be liable to pay for the quantity of water which the S.A.O. estimates has been used or a flat rate as specified in the Fees and Charges By-law.

Adjustment for Undetected Leaks

814. (1) If a meter shows excessive high consumption in comparison to previous readings, the S.A.O. may notify the customer.

814. (2) Where an undetected leak is discovered, and where in the opinion of the S.A.O. the customer could not reasonably have been expected to be aware of such leak, the S.A.O. may adjust the service charge based on the average previous consumption, provided however, that such leak is repaired within forty eight (48) hours of the discovery. No such adjustment to the customer's account shall extend for a period beyond three (3) months prior to the discovery of the leak, and provided always that no refund shall be made other than to the customer whose account was charged.

814 (3) The provisions for adjustment as specified in Section 814 (2) will not be invoked more than once every twenty four (24) months.

Access to Property for Meter Reading

815. (1) Employees of the City and their authorized agents shall be admitted to premises during regular City business hours in order to inspect, test, repair, or read an authorized meter or remote reading device upon such premises. Such employees or authorized agents shall upon request, show identification as determined by the City.

815. (2) If access to a meter or remote reading device cannot be obtained, the S.A.O. shall cause a notice to be left at the premises indicating the corrective measure required and the time and date by which the corrective measures must be carried out.

815. (3) Where after two successive attempts to access a meter or remote reading device by the employees of the City or their authorized agents,

(a) a meter reading fee, to recover the City's costs, shall be levied for each subsequent unsuccessful attempt to read the meter or remote reading device,

(b) the S.A.O. may discontinue service to the premises,

(c) levied a fine as specified under this by-law.

PART 9 - BILLING AND COLLECTING

Rates

901. All rates shall be set and levied in accordance with the rates specified in Fees and Charges By-law or any successor by-law for various categories of customers, owners and service

Service Charges

902. (1) Subject to subsection (2), services charges shall be levied in accordance with the rates specified in Fees and Charges By-law or any successor by-law for various categories of customers, owners and service.

(a) Where a customer who has received permission from the S.A.O. to discharge the storm water and/or ground water into the sanitary sewer system a rate equal to fifty-five percent (55%) of the current water rate as specified in the Fees and Charges By-law shall be charged.

902. (2) Unless otherwise provided for in this by-law, service charges shall be calculated:

(a) where an approved meter or truck meter is in use, according to the quantity of water indicated by such meter; or

(b) where an approved meter or truck meter is not in use, in accordance with the appropriate type of premises, unit of measurement, and quantity of water use as determined by the S.A.O., or

(c) where a customer or owner who does not receive municipal service and connects to public piped service, or where a customer or owner receives trucked service connects to public piped service, for a pro-rata share of the capital costs to establish public piped service in addition to the cost to

connect to the public piped service in accordance with subsection 502 (2).

(d) where a customer discharges storm water and/or ground water into the sanitary sewer system and the discharge cannot be metered the S.A.O. shall charge a flat rate based on a professional engineer's estimate. The customer shall be responsible for all costs associated with the development of this estimate.

Industrial Use of Water

903. (1) Where, in the opinion of the S.A.O., water is used for industrial purposes, the service charge shall be determined in the Fees and Charges By-law or any successor by-law.

Payments

904. (1) Bills for all charges, fees and interest are payable on the due date appearing on the bill. Due dates shall be set by the City and clearly marked on bill and as determined in the Financial Administration By-law or any successor by-law.

Owner Liability

905. (1) Liability to pay bills shall not be affected by any defect in the form of bill or non-receipt of a bill and as described in the Financial Administration By-law or any successor by-law.

Changes in Use, Occupancy or Property Served

906. (1) The customer shall notify the S.A.O. in writing of any change in the use, occupancy, site served, or any other matter which may affect the service charges and fees payable under Fees and Charges By-law or any successor by-law.

Adjustment for Charges for Partial Period

907. (1) Where, in the opinion of the S.A.O., a customer is entitled to an adjustment in service fees for a partial period then such adjustments will be made in a prorated fashion in accordance with Financial Administration By-law or any successor by-law. This does not apply to any monthly flat fees or administrative fees that are charged to the customer.

PART 10 - ENFORCEMENT

Enforcement of Payments

1001. (1) Enforcement of payments shall be done in accordance with the Financial Administration By-law or any successor by-law.

Offences

1002. (1) Any person or customer who contravenes any provisions or requirements of this by-law is guilty of an offence and is liable, upon summary conviction to a fine not exceeding:

(a) two thousand dollars ($ 2,000.00) for an individual;

(b) ten thousand dollars ($ 10,000.00) for a corporation or;

(c) imprisonment for a period not exceeding six (6) months, in default of payment of a fine.

1002. (2) Pursuant to Section 902 (1) of this by-law, an Officer may issue a Summary Offence Ticket Information in a form accepted by the *Summary Conviction Procedures Act*, to any person who violates any provision of this by-law and such person may, in lieu of prosecution, pay the City the voluntary penalty per Section J of Schedule A, for the offence, prior to the court date specified on the ticket.

1002 (3) Any charges for offences under this section do not preclude any other costs owed to the City due to contravention or for services provided by the City within the provisions of this by-law.

Public Health

1003. (1) If any condition exists which in the opinion of the S.A.O. or contractor requires the Department of Health to be notified, such notification shall be done immediately.

1003. (2) Any condition noted under subsection (1) may require the S.A.O. or contractor to discontinue water or sewer services and shall be considered an offence under this by-law.

PART 11 - ADMINISTRATION

Separability

1101. The provisions of this by-law are separable and invalidity of any part of this by-law shall not affect the rest of the by-law.

Repeal

1102. By-law No. 3529 is hereby repealed.

Effect

1303. This by-law shall come into effect upon receiving Third Reading and otherwise meets the requirements of Section 75 of the *Cities, Towns and Villages Act*.

CITY OF YELLOWKNIFE
BY-LAW NO. 4663
SCHEDULE A - TARIFFS

SECTION A - PUBLIC PIPED SERVICE USERS

All users of the Public Piped Service system shall be charged for both access and consumption.

1. Charges for access to the service shall be determined on the basis of LOAD and DEMAND.

   (a) (i) For the "load" on the service, based on the amount of service to which the user has access, each user will be charged a fee per EQUIVALENT RESIDENTIAL UNIT (ERU) per month as set out in Fees and Charges By-law or any successor by-law. One ERU is deemed to be as follows:

   Residential:
   Single family home/apartment unit (per 2 bathrooms or portion thereof)
   Hostels/Group Homes (per 5 residents)

   Commercial:
   Restaurants/Bars (per 10 seats, or portion thereof)
   Car Wash/Laundry (per 100 square feet, or portion thereof)
   Hotels/Motels/Rooming Houses (per 2 rooms)
   Offices & Businesses (per 1,000 square feet)

   Institutional:
   Hospitals/Corrections Centres (per bed)
   Schools/Classrooms (per 10 students)
   Churches (per location)

   Industrial:
   As determined by the S.A.O.

   (ii) The charge for coverage provided by the Service Connection Failure Assistance Program will be a flat rate as specified in the Fees and Charges By-law per Equivalent Residential Unit, and will apply to service connection repairs undertaken on behalf of subscribing customers.

   (b)

Size of water meter		Capacity	Monthly
Imperial (inches)	Metric (mm)	Demand Ratio	Demand Charge

   The charges for access to the service shall apply regardless of whether any water is consumed.

2. In addition all users shall be charged for the water consumed at the rate set out in Fees and Charges By-law or any successor by-law.

SECTION B - UNMETERED USERS

1. The following monthly rate shall be assessed and charges based thereon shall be made respecting all single family residential water users serviced from and connected to the City's Public Piped Service and not otherwise provided for in this By-law:

   A fee, as set out in Fees and Charges By-law or any successor by-law, per month minimum charge.

2. Any other water users connected to the City's public piped service and are not metered shall be charged an amount which will be determined by the S.A.O. based on an estimated load, line size, and estimated consumption.

SECTION C - WATER DELIVERY AND SEWAGE PUMP OUT

1. Users residing in residentially zoned areas within the city, where no connection can be provided to the City's Public Piped Service shall be charged for both access and consumption as set out in Fees and Charges By-law or any successor by-law.

2. Trucked water and sewage pumpout as set out in Fees and Charges By-law or any successor by-law.

3. All business and caretaker security units on industrially and commercially zoned premises, as defined by the Zoning By-law, shall be charged for both access and consumption as set out in Fees and Charges By-law or any successor by-law.

4. The business rate as set out in section C-3 shall apply to businesses in mixed use zones, as defined under the Zoning By-law.

5. Delivery of potable water and collection of wastewater shall be provided by the City's contractors twice weekly, excepting Sundays, during hours as specified in each respective service contract, subject to the provisions of the Water and Sewer Services By-law.

6. All residences receiving trucked municipal services shall conform to the specifications as appended to the Water and Sewer Services By-law.

7. Residences currently ineligible to receive a water delivery and sewage pick-up authorization plate will be eligible to receive a temporary permit upon the residence being accepted by the SAO as a non-standard residence. The users with non-standard residences shall obtain the temporary permit and shall renew the temporary permit annually.

8. Authorization plates are the property of the City of Yellowknife.

SECTION D - FLAT RATE BILLING

Where the S.A.O. is unable to obtain access for the purpose of meter reading, the consumption shall be based on,

(a) the average actual readings from the previous six months; or

(b) in the event of inadequate readings, the consumption shall be calculated on the average gallonage. If no basis for averaging exists, the consumption shall be calculated on a gallonage as described in the Fees and Charges By-law.

SECTION E - BULK SALES

Bulk sales from the City standpipes as set out in Fees and Charges By-law or any successor by-law.

SECTION F - SURFACE WATER LINES

The consumption for the period that the City turns on the water surface lines shall be calculated on the average consumption as specified on the monthly billings from the January 1 to May 31 period.

SECTION G - SUMMER RATES (NON-BUSINESS)

Metered Consumption

The summer months are designated to be consumption periods beginning June 1 and ending August 31.

SECTION H - WATER METER FEE

The water meter fee per Section 903 as set out in Fees and Charges By-law or any successor by-law.

SECTION I - CONNECT OR DISCONNECT PERMIT FEE

The connect or disconnect permit fee as set out in Fees and Charges By-law or any successor by-law.

SECTION J - VOLUNTARY FINES

DESCRIPTION	SECTION	AMOUNT
Improper connection	208	$ 250.00
Water wastage	401	$ 250.00
Contamination	402	$ 500.00
Discharge of harmful matter	403	$ 500.00
Failure to abide by order	506	$ 250.00
Breaking a shut off seal	512	$ 250.00
Nonconforming service pipe	513	$ 200.00
Failure to test a cross connection control device	514	$ 500.00
Failure to install a cross connection control device (New or Replacement)	514	$ 500.00
Installing a bleeder without authority	515	$ 500.00
Failure to register a bleeder	515	$ 500.00
Failure to remove a bleeder	515	$ 250.00
Improper use of water	516	$ 500.00
Blocking Access to Hydrant	517	$100.00
Unauthorized Storm Sewer Release	601	$250.00
Failure to provide access to water fill or sewage pump out points	707	$ 75.00
Failure to install a meter	804	$ 250.00
Broken meter seal	811	$ 250.00
Failure to provide access after two successive attempts	815	$ 100.00

SECTION K - INFRASTRUCTURE REPLACEMENT LEVY

An Infrastructure Replacement Levy per Equivalent Residential Unit -as defined in Section A 1 (a) of this Schedule- shall be charged each month to assist with the capital cost of replacing City of Yellowknife water and sewerage infrastructure.

SECTION L - CAPITAL COST TO CONNECT TO PUBLIC PIPED SERVICE

Capital cost to connect to public piped services as set out in Fees and Charges By-law or any successor by-law.

SECTION M – CALCULATION OF ACTUAL COSTS

Calculation of Actual Costs to include the following:

(1) Vehicle Replacement Costs

(2) Hourly Fuel Rates

(3) Maintenance Costs

(4) All Labour & Operation Costs (fully burden costs)

(5) Materials

(6) Contracted Costs

SCHEDULE B - FORMS

CITY OF YELLOWKNIFE

WATER AND SEWER SERVICES BY-LAW NO. 4663

City of Yellowknife

BY-LAW NO. 4663
FORM W/S - 1
WATER AND SEWER SERVICES APPLICATION FORM
TO CONNECT or DISCONNECT SERVICES

Phone: 867-920-5600
Fax: 867-920-5649
IVR: 867-920-2489
Email: FinanceDivision
@yellowknife.ca

Connect ☐ **Disconnect** ☐	**Day**	**Month**	**Year**	**Utility Acct #:**	
Service Address				**Lot**	**Block**
Owner's Name					
Mailing Address (if different from above)					

DECLARATION:	The above information, to the best of my knowledge is true. Should the information change, the City shall be notified immediately. It is understood and agreed that permission hereby applied for is subject to compliance with the By-laws of the City of Yellowknife.

Print Name	**Signature**	**Date**

If this application is connect to the City of Yellowknife potable water system, the applicant must also register these services and set up a utility account with Form W/S – 2, Water and Sewer Services Registration Form. The applicant is also required to provide record (as-built) drawings showing the location and elevations of the services.

Only City Personnel shall approve connections or disconnections at the main, no alteration to the service lines, including the meter or freeze protection shall be permitted except as authorized by the Senior Administrative Officer of the City of Yellowknife or a designate pursuant to the Water and Sewer Services By-law No. 4663.

The cost of all excavation and backfill required for a water and sewer connection or disconnection shall be recovered from the property owner.

After authorization, notification to connect/disconnect must given twenty four (24) hours before City Personnel are required.

For City Use Only

Permit Fee Received ☐

Service Record Drawings Provided ☐

Form W/S – 1 Complete ☐ (for service connections only)

Authorization:

_____ _____

Public Works (Please Print) **Date**

_____

Signature

Phone: 867-920-5600
Fax: 867-920-5649
IVR: 867-920-2489
Email: FinanceDivision
@yellowknife.ca

City of Yellowknife

BY-LAW NO. 4663
FORM W/S - 2
WATER AND SEWER SERVICES REGISTRATION FORM

	LOT:	BLOCK:

SERVICE ADDRESS		
OCCUPANT'S NAME		
OWNER'S NAME (if different from above)		
MAILING ADDRESS (if different from above)		
OTHER CONTACT INFO	**HOME:**	**WORK:**
	FAX/CELL:	**EMAIL:**

TYPE OF BUILDING	☐ **Residential** ☐ **Multi-Family** ☐ **Commercial** ☐ **Other**
TYPE OF USE *	☐ **Domestic** ☐ **Commercial** ☐ **Industrial** ☐ **Other**
TYPE OF SERVICE	☐ **Piped** ☐ **Trucked** (please check one and complete details below)

PIPED SERVICES	**WATER**	**SEWER**
	_____ mm (inch) water service	_____ mm (inch)
	_____ mm (inch) return line	

IT IS UNDERSTOOD AND AGREED THAT the permission hereby applied for is subject to due compliance with the provisions of the Water and Sewer By-Law of the City of Yellowknife. The operation, maintenance and freeze protection of water and sewer service lines is the sole responsibility of the property owner. Repair of service lines due to failure, NOT of the responsibility of the property owner, will be covered by the City's Service Connection Failure Assistance Program (SCFAP), By-law No. 4664.

TRUCKED SERVICES	**WATER**	**SEWER**
	_____ (min size = 2250 L or 500 gal)	_____ (min size = 4500 L or 1000 gal)

IT IS UNDERSTOOD AND AGREED that the permission hereby applied for is subject to due complains with the provisions of the Water and Sewer By-law of the City of Yellowknife. The operation, maintenance and repair of trucked water and sewer service facilities is the complete responsibility of the property owner. All facilities no meeting all of the specifications contained in the Water and Sewer By-law, No. 4663, shall be given thirty (30) days notice to meet specifications, with a maximum extension of not exceeding an additional thirty (30) days.

DECLARATION:	The above information, to the best of my knowledge is true. Should the information change, the City shall be notified immediately. It is understood and agreed that permission hereby applied for is subject to compliance with the By-laws of the City of Yellowknife.

Print Name	**Signature**	**Date**

PRE-AUTHORIZED PAYMENT FOR UTILITY BILLS

The City of Yellowknife offers automatic payment of your utility bill. You will continue to receive your utility bill and payment will be debited from your bank account or credit card (Visa or Mastercard) on the due date. To enrol in this service, please complete the following section:

Option 1 – Pre-Authorized Bank Withdrawal

Please provide a cheque sample – photocopy or void (or other account information as listed below)

Bank # - 3 Digits Transit # - 5 Digits Account #

Option 2 - Pre-Authorized Credit Card Payment

_____ _____ / _____

Credit Card Number Expiry Date (mm/yy)

Authorization: I/We (the above customer(s)) authorize the City of Yellowknife to debit my/our account or credit card as indicated above, for the amount outstanding on my/our utility account on the due date shown on each month's utility bill. Each payment shall be as if I/we had personally issued a cheque or signed credit card transaction authorizing the Bank to pay the City as indicated and to debit the amount specified from my/our account or credit card. I/We will notify the City promptly in writing if I/we move the account from one bank or branch to another, or if there is any change in the account or credit card. This authorization may be cancelled at any time upon written notice by me/us to the City. Any delivery of this authorization to the City constitutes delivery by me/us to the Bank. I am/We are all the persons who are required to sign on the above account or credit card. I/We have a signed copy of this authorization form.

Print Name	**Signature**	**Date**

For City Use Only						
Deposit	**Card**	**W/O #**	**Entered**	**Reading Date** dd/mm/yy	**Reading #**	**Meter Reader Initials**

Phone: 867-920-5600
Fax: 867-920-5649
IVR: 867-920-2489
Email: FinanceDivision
@yellowknife.ca

City of Yellowknife

BY-LAW NO. 4663
FORM W/S - 3
WATER AND SEWER SERVICES BILLING DISCONTINUATION FORM

DISCONNECT DATE	**DAY**	**MONTH**	**YEAR**	**UTILITY ACCT #:**
SERVICE ADDRESS				
OCCUPANT'S NAME				
FORWARDING ADDRESS				
OTHER CONTACT INFO	**HOME:**			**WORK:**
	FAX/CELL:			**EMAIL:**

DECLARATION:	The above information, to the best of my knowledge is true. Should the information change, the City shall be notified immediately. It is understood and agreed that permission hereby applied for is subject to compliance with the By-laws of the City of Yellowknife.

Print Name	**Signature**	**Date**

Pre-Authorized Credit Card Payment for Final Bill

_____ _____ / _____
Credit Card Number Expiry Date (mm/yy)

Authorization: I/We (the above customer(s)) authorize the City of Yellowknife to debit my/our account or credit card as indicated above, for the amount outstanding on my/our utility account on the due date shown on my/our final utility bill. This authorization will be cancelled when the final bill has been paid. I am/We are all the persons who are required to sign on the above credit card.

Print Name	**Signature**	**Date**

For City Use Only						
Deposit	**Card**	**W/O #**	**Entered**	**Reading Date** dd/mm/yy	**Reading #**	**Meter Reader Initials**

Phone: 867-920-5600
Fax: 867-920-5649
IVR: 867-920-2489
Email: FinanceDivision
@yellowknife.ca

City of Yellowknife

BY-LAW NO. 4663
FORM W/S - 4
APPLICATION TO INSTALL WATER BLEEDER

	Lot:	**Block:**

Service Address		
Occupant's Name		
Owner's Name (if different from above)		
Mailing Address (if different from above)		
Other Contact Info	**Home:**	**Work:**
	Fax/Cell:	**Email:**

Declaration:	The above information, to the best of my knowledge is true. Should the information change, the City shall be notified immediately. It is understood and agreed that permission hereby applied for is subject to compliance with the By-laws of the City of Yellowknife.

Print Name	**Signature**	**Date**

NOTE: Bleeder use requires a significant volume of treated and heated water to maintain freeze protection. This extra volume of water is then placed directly into the sanitary sewer system, which increases sewage volumes that have to be pumped through the City of Yellowknife's sanitary sewer system. Bleeder use is ONLY a temporary solution to freeze protection. Bleeders are permitted for ONE (1) season only and the property owner must clearly demonstrate the necessity for a bleeder. All bleeder installations are to be inspected and approved by the City of Yellowknife Public Works Department.

Therefore,

1. The City hereby grants permission to have a water bleeder installed on the water service at the above noted address. The bleeder is to be adjusted to allow a maximum flow of (approx. 1.1 L/min) to prevent freezing of the water service. The bleeder must have a 25mm (1 inch) air gap between the discharge line and properly vented fixture or properly sized and vented P-trap.
2. Please be advised that bleeders are to be turned off on or before July 31. If bleeders have no been turned off by this date, the property owners may be charged actual consumption for each month and part thereof from July until the bleeder is removed or an extension is granted.
3. It is the property owner's responsibility to have the water service line and freeze protection device repaired prior to November 1, as per the Water and Sewer Services By-law No. 4663.

Authorization:

_____ _____
Public Works (Please Print) **Date**

_____
Signature

CITY OF YELLOWKNIFE
BY-LAW NO. 4663
SCHEDULE C
SPECIFICATIONS

The following shedule provides a description of the standards and specifications that should be considered as a minimum in terms of what is required for the installation and maintenance of water and sanitary sewer services. All services must be approved by the S.A.O. and must adhere to the City's Design Standards and Specifications, which may be revised from time to time.

A. WATER SERVICES

A-1. PIPED WATER SERVICE STANDARDS

Standards

a) All water service lines shall meet National Building Code and National Plumbing Code and other municipal bylaw requirements except as superseded by specifications contained in this By-law.

b) All services shall be located within 2 meters of the centre lot line unless otherwise authorized by the Senior Administrative Officer of the City or a designate.

Freeze Protection

c) All services shall incorporate freeze protection devices subject to Section 407 of this By-law and Section 2 of Specifications A of this By-law.

d) All services shall be insulated with a waterproof equivalent of 2" inches or 50mm, or more, of urethane lining which shall extend 12 inches or 300 mm past the point of entry into the heated portion of the structure which it services.

Bedding/Backfill

e) All services shall be bedded and backfilled using 3/4" or 20mm crush to the standards of Specifications C of this By-Law.

f) i) No single family dwelling shall be serviced with a water supply line of greater than 3/4" or 20 millimetres.

ii) Every water distribution system shall be designed to provide peak demand flow when the flow pressures at the supply openings conform to Table 6.3A of the Canadian Plumbing Code (6.3.1) but shall not be less than 3/4" or 20 millimetres.

g) All services greater than two inches or fifty millimetres in diameter or for commercial or industrial use must be approved by the S.A.O. in writing. Engineering drawings must be submitted to the S.A.O. and "Water and Sewer Application Form – To Connect or Disconnect Services" (W/S – 1), must be completed at the time of application for a Development Permit.

Single Line Service (Diagram 1)

h) i) No new single line service connections will be installed.

ii) Where single service lines have been installed the water service line from the City main line to the meter shall be of Type "K" soft copper.

Looped Line Service with Pumped Circulation(Diagram 2)

i) i) All new installations, in areas where a single City main supply is used, shall be a loop connection with a circulating pump.

ii) The water service line to the meter and the return loop to the City water main shall be of Type "K" soft copper.

iii) All connection fittings for the circulation pump shall be threaded and of copper, bronze or brass material.

iv) The circulating pump shall be installed in the loop as indicated in Diagram 2.

Looped Line Service with an Orifice/Union (Diagram 2)

j) i) All installations, in areas where a City main supply and return line is used, shall be a loop connection using an orifice/union.

ii) The water service line, from the City water main supply line to the meter and the return loop from the building to the City water main return line, shall be of Type "K" soft copper.

iii) All service lines shall be properly orificed as indicated in Diagram 2 of these Specifications.

iv) Valves, connection fittings, the water meter and the orifice shall be located as indicated in Diagram 2 of these specifications.

v) No person shall install a circulation pump in place of an orifice without the prior written approval of the S.A.O.. Failure to obtain the written approval shall be an offence under this by-law.

Flared Ends for all Service Types

k) All water service lines of diameters less than or equal to two inches or 50 millimetres must have flared fittings on both ends.

Valve and Union for Shut-Off

l) A threaded valve must be installed before the meter inside the building. This is the building shut-off valve. The valve shall be at least 300 millimetres above the floor level.

Fittings

m) Any joints outside the building shall be made with a flared copper to copper fitting.

n) There shall be no soldered or brazed fittings between the main line and the shut-off valve.

o) Downstream from the meter, only threaded copper, bronze or brass non-compression fittings, shall be used.

Grade/Angles

p) i) Only gradual bends shall be incorporated into the service line to provide directional change if necessary. Owners shall not install service lines from buildings to lot lines prior to installation of the property service from main to lot line by the City.

ii) A minimum positive slope of 1 in 50 shall be maintained.

Mobile Homes

q) All water service lines to mobile homes shall:

i) Not be less than 3/4" or 20 millimetres in diameter for the supply line and return line.

ii) Terminate above ground;

iii) Incorporate a tamper-proof connection that is capable of being repeatedly connected, disconnected and sealed;

iv) Incorporate a means of draining, heating or circulating water within that part of the pipe from the City main to the property when not in use;

A-2. FREEZE PROTECTION

All water service lines, including supply and return lines, shall be insulated with a waterproof equivalent of 2 inches or 50 millimetres, or more, urethane lining which shall extend 12 inches or 300 millimetres past the point of entry into the structure which it services.

Bleeders(Diagram 1)

Permission to Use

j) i) The owner or occupant shall be permitted bleeder use only during the months of November through July of one year. The "Application to Install Water Bleeder" (W/S – 4), must be completed and approved.

Position

ii) The bleeder shall be installed on the house side of the meter so that all water is metered, as shown in Diagram 1 of this By-Law.

iii) A 1/4 inch or 6.5 millimetre plastic discharge line shall be made to discharge to the sanitary sewer service and provide a one (1) inch or twenty five (25) millimetre air gap between the discharge line and a properly vented fixture or a properly sized and vented P-trap.

iv) Discharge flow rates shall not exceed 1 litre per minute.

Removal and Repairs

v) The owner or occupant shall remove the bleeder and repair or replace the freeze protection device on his water service line during the period August through October of the following year.

Disconnection

vi) The owner or occupant shall notify the City of the disconnection of a bleeder.

Costs

vii) The owner or occupant shall be charged for all costs of bleeder operation subject to Section 515 of this By-Law.

A-3. TRUCKED WATER SERVICE STANDARDS

Section A-3 as amended by By-law No. 4818 – July 27, 2015

All trucked water service systems shall comply with National Building Code of Canada, National Plumbing Code of Canada, CAN/CSA Standards, manufacturer specifications and all municipal by-laws.

Access

a) Unimpeded access, including the removal of mud, ice, snow, pets, vehicles, and yard material, to the water fill point shall be maintained.

Section A-3b) as amended by By-law No. 4818 – July 27, 2015

b) The water fill must extend out the wall facing the roadway.
The owner or occupant of a property with a fill point that does not extend out the wall facing the roadway must submit written approval for the fill point location from the City contractor to the S.A.O..

c) The water fill point shall be greater than five feet or 1.5 meters in a horizontal distance from the sewage pump-out point straight line access path.

d) The water fill point shall be of a sufficiently small diameter that the sewage pump-out hose could not be inserted.

e) The water fill point shall be clearly labeled at all times.

Size

Section A-3 (f) as amended by By-law No. 4765 January 27, 2014

f) The water holding tank shall be a minimum of 500 Imperial gallons or 2,250 litres in size for new development and a minimum of 200 Imperial gallons or 900 litres for upgraded dwellings, or other size subject to approval by the City Engineer.

Freeze Protection

Section A-3g)
as amended by By-law No. 4818 – July 27, 2015

g) All water holding tanks shall be provided with adequate freeze protection consisting of one of the following:
   a) Installation of tank within a heated portion of a building or within a heated accessory building, for which the main lines are required to be insulated and heat traced or insulated to a higher value to prevent freezing;

b) Installation of tank within an unheated space in a building or accessory building, tanks shall be double walled, insulated to minimum R15 value and heat traced, or insulated to a higher value to prevent freezing.

c) Installation of tank outside the footprint of the building, tanks shall be, double walled, insulated to minimum R15 value and heat traced, or insulated to a higher value to prevent freezing.

h) Structural support of the water holding tank shall be sufficient to support one and one-half times the weight of a full water tank.

Line and Tank Specifications

i) The connection point of the water fill point shall be a minimum of 36" or 914 millimetres and a maximum of 48" or 1,219 millimetres from the ground surface in all seasons.

j) The water service line shall have a backgrade such that the water does not freeflow from the tank or sit in the service line, or the water service line shall have a check valve to prevent freeflow and a heat tape to prevent freezing.

k) An overflow discharge point shall be installed at the same height as the fill point, a minimum of 12 inches or 305 millimetres in horizontal distance from the fill point.

l) A red bulb or globe "full" indicator light shall be connected to a device in the tank and installed near the fill point such that it is visible from the cab of the delivery truck.

m) If the water holding tank is elevated, a valve shall be installed at the line-tank connection point to prevent backflow.

n) Water fill lines shall have a galvanized or copper nipple a minimum six (6) inches (150mm) long securely anchored to the exterior of the wall structure at the fill connection point. Piping which is not approved for use with potable water is prohibited.

o) All overflow and water fill lines shall be insulated with a foil back covered insulation a minimum one and one half inches (1 2") or thirty eight millimetres (38 mm) and six feet (6') or one point eight meters (1.8 M) in from the point of penetration of the exterior building envelope.

Section A-3 p) and q)
as amended by By-law No. 4818 – July 27, 2015

p) Water holding tanks installed within the footprint of the building (crawl space/basement/mechanical room/accessible tank vault) must be provided with reasonable access to the equipment to be serviced which may be determined by an inspector based on the circumstances of the proposed installations with reference to Section 9.18.4.1 of the National Building Code and Section 2.1.3.2. of the National Plumbing Code:
   a) 0.6 metres (2 feet) minimum clearance around the tank;
   b) 0.6 metres (2 feet) minimum headroom clearance to the floor above;
   c) 0.9 metres (3 feet) minimum clearance on the side or sides of the equipment to be serviced; and
   d) Concrete pad or a flat support base of compacted granular material with a minimum of 50mm (2”) of sand directly beneath the tank;

q) Water holding tanks installed away from the building are not permitted to be buried.

A-4. SEASONAL SURFACE WATER LINES

Connection

a) All connections to seasonal service water lines shall comply with the 1990 Canadian Plumbing Code.

b) Upon connection to the surface water line in early June and prior to June 30 of each year, the owner or occupant shall flush his system and report any leaks at the connection valves to the City.

c) Between August 15 and September 1 of each year, the owner or occupant shall clean and repair the water holding tank, check all the plumbing from the tank to the water outlets and ensure that the pressure pump is working.

d) Between August 15 and September 15, while performing the aforementioned maintenance. The owner or occupant shall be allowed temporary direct connection to the seasonal surface water lines to supply domestic service (pressurized water supply).

SPECIFICATIONS B

B SEWER SERVICES

B-1. PIPED SEWAGE SERVICE STANDARDS

Standards

a) All piped sewer services shall meet National Building code and National Plumbing Code requirements except as superseded by this By-law.

b) All services shall be located within 2 meters of the centre lot line in the same trench as and below the water line unless otherwise authorized by the S.A.O..

Specialized or Heavy Use

c) The owner of all sewage service pipes from multi-family dwellings, commercial or industrial establishments must complete the "Water and Sewer Services Registration" form W/S-2, of this By-law for submission with the application for a Development Permit and submit properly engineered drawings containing water and sewer service system details.

Excavation/Fill

d) All services shall be bedded and backfilled according to the standards of Specifications C of this By-law.

Material

e) The sewer service line shall be of ductile iron piping unless otherwise authorized by the S.A.O. as indicated on the approved drawings.

Size

f) Single family dwelling shall have a sewer service line of 4 inches or 102 millimetres in diameter, otherwise the sewer service line diameter shall meet the size specifications of the S.A.O. as determined by the occupancy of the building and the number of fixtures and appurtenances.

Entrance to Building

g) The sewer service line shall extend to the inside of the building foundation wall and the wall shall be sealed with an approved grouting material to prevent the inflow of water or moisture.

Grade

h) The sewer service line shall be equipped with a combination back water valve and clean out immediately upon entry to the building.

i) All sewer service lines shall be laid to a uniform grade sloping to the main line at a minimum grade of 1 in 50. Total cumulative bends shall not exceed 180 degrees with individual bends not exceeding 45 degrees. Directional changes and alternate grade patterns must be approved by the S.A.O..

Non-Domestic Discharges

j) All non-domestic discharges into the sanitary sewer main shall be indicated to the S.A.O. using the "Water and Sewer Application Form – To Connect or Disconnect Services" (W/S – 1), of this By-Law.

k) i) Where a fixture discharges sewage that, in the opinion of the S.A.O., may damage or impair the sanitary sewer system or the functioning of the City or private sewage disposal system, provision shall be made for the treatment of the sewage before it is discharged into the sanitary sewer system.

ii) A sampling manhole suitable for determining the sewage quality, temperature and rate of flow, shall be provided where required by the S.A.O..

l) i) Where a fixture discharges sewage that includes grease is located in a public kitchen, restaurant, or in an institution, an appropriate grease interceptor shall be installed when and where it is required by the S.A.O..

ii) Where a fixture discharges sand, grit or similar materials, an appropriate interceptor shall be installed.

iii) Where the discharge from a fixture may contain a petroleum product, an appropriate interceptor shall be installed.

iv) Every interceptor shall have sufficient capacity to perform the service for which it is provided.

Run-Off and Ground Water

m) Rainwater leaders shall not be connected to the sanitary sewer system.

n) During construction, builders shall not allow ground water to enter the sanitary sewer system.

Section B-2
as amended by By-law No. 4818 – July 27, 2015

B-2. TRUCKED SEWAGE SERVICE STANDARDS

All trucked sewage service systems shall comply with National Building Code of Canada, National Plumbing Code of Canada, CAN/CSA Standards, manufacturer specifications and all municipal by-laws.

Access

a) The owner or occupant shall maintain an access free of mud, ice, snow, pets, vehicles or other obstructions to the sewage pump-out service point.

Section B-2 b)
as amended by By-law No. 4818 – July 27, 2015

b) The sewage pump-out point must extend out the wall facing the roadway. The owner or occupant of a property with a pump-out point that does not extend out the wall facing the roadway must submit written approval for the pump-out point location from the City contractor to the S.A.O.

c) There shall be a minimum of five horizontal feet or 152 centimetres between the connection point for sewage pump-out and the fill point for water such that a crossing of established pathways by connection hose shall not occur.

d) The sewage pump-out connection fitting shall be of a greater diameter than that of the water fill point such that a cross-connection can not be made.

Section B-2 e) as amended by By-law No. 4818 – July 27, 2015
Section B-2 (e) as amended by By-law No. 4765 January 27, 2014

e) The volume of the sewage holding tank shall be twice the volume of the water holding tank or a minimum of 4,550 litres (1,000 imperial gallons), or other size subject to approval by the City Engineer."

Section B-2 f) as amended by By-law No. 4818 – July 27, 2015
Section B-2 (f) as amended by By-law No. 4765 January 27, 2014

f) The volume of the sewage holding tank shall be twice the volume of the water holding tank or a minimum of 4,550 litres (1,000 imperial gallons), or other size subject to approval by the City Engineer.".

Structure

g) Structural support of the sewage holding tank shall be sufficient to support one and one-half times the weight of a full sewage holding tank.

Freeze Protection

Section B-2 h) as amended by By-law No. 4818 – July 27, 2015

h) All sewage holding tanks shall be provided with adequate freeze protection consisting of one of the following:
   a) Installation of tank within a heated portion of a building or within a heated accessory building, for which the main lines are required to be insulated and heat traced or insulated to a higher value prevent feezing;
   b) Installation of a tank within an unheated space,, tanks shall be double walled, insulated to minimum R15 value and heat traced, or insulated to a higher value to prevent freezing;
   c) Installation of atank, outside the footprint of the building, tank must be double walled, insulated to minimum R15 value and heat traced, or insulated to a higher value to prevent freezing."

Line and Tank Specifications

i) The service pump-out point shall be kept a minimum of 18 inches or 457 millimetres and a maximum of 48 inches or 1,219 millimetres from the ground, including snow and ice accumulations.

j) The service pump-out point shall be fitted with an approved tightly fitting cap and kept closed at all times except during pump-out.

k) The sewage holding tank shall have a large water-tight manhole with a removable cover such that the owner or occupant may clean and flush the tank. The S.A.O. is authorized to direct that a sewage holding tank shall be cleaned and flushed.

l) The pump-out line from the service point to the tank shall have at least a 5 degree slope to the building such that no sewage is allowed to stand in the line or drain to the outside of the building

and the line within the holding tank shall not exceed a grade of 30 degrees.

m) The sewage holding tank shall incorporate a vent line of a minimum interior diameter of 3 inches or 75 millimetres such that the tank is vented to the outside of the building or backvented to the highest interior point in the building such that air escape or supply will occur as the tank is being filled or emptied.

n) The pipe from the sewage pump-out service point to the sewage holding tank shall have an interior diameter of a minimum of 4 inches or 100 millimetres or reduce to 3 inches (75 mm) when the developed length of the sewer pumpout is greater than 25' (7.6 M).

Section B-2 o) as amended by By-law No. 4818 – July 27, 2015

Sloped Ground Cover

o) If the sewage holding tank is buried (installations outside of the building footprint) the following requirements related to location and clearances shall be adhered to, unless otherwise determined at the discretion of the building inspector
   a) Anchors to concrete pads or pinned to bedrock to prevent movement or floating to the surface;
   b) Concrete pad; or a flat support base or a base of compacted soil with a minimum of 50mm (2") of sand cover;
   c) 1.5 metres (5 feet) clearance from a lot boundary and any building foundation;
   d) 5.0 metres (16 feet) clearance from a road, or have approved protection from vehicle traffic;
   e) 15 metres (50 feet) from any source of potable water or natural boundary or high water level of any water body.
   f) Ground cover sloped such that surface liquids, including run-off or sewage, drain away from the tank."

Section B-2 p) as amended by By-law No. 4818 – July 27, 2015

p) Sewage holding tanks installed within the footprint of the building (crawl space/basement/mechanical room/accessible tank vault) must be provided with reasonable access to the equipment to be serviced which may be determined by an inspector based on the circumstances of the proposed installations with reference to Section 9.18.4.1 of the National Building Code and Section 2.1.3.2. of the National Plumbing Code:
   a) 0.6 metres (2 ft.) minimum headroom clearance around the tank (i.e. plumbing fittings, access to the tank);
   b) 0.6 metres (2ft.) minimum headroom clearance to the floor above; and
   c) 0.9 metres (3 ft.) minimum clearance on the side or sides of the equipment to be serviced; and
   d) Structural side support for preventing side movement for cylinder type tanks.
   e) Concrete pad or a flat support base of compacted granular material with a minimum of 50 mm (2 feet) of sand cover.

q) When the storage tank elevation is one (1) meter or greater above the road level a valve shall be installed at the point of connection to the sewage pump out line to prevent a continuous siphon condition.

r) All sewage pump out lines shall be rigidly secured or anchored at the point of connection and further to this all lines in excess of three meters (3 m) in developed length shall be anchored every three meters (3 m). Buried lines do not require anchors except at the point of connection.

s) The use of chemical toilets shall be prohibited.

SPECIFICATIONS C

C EXCAVATION, BEDDING AND BACKFILL

C-1. Excavation

a) The owner or occupant shall not excavate or have excavated on his behalf any trench under a City roadway or sidewalk without the authorization of the S.A.O. given by the approval of Schedule B of By-Law No. 1276, being the Orderly Use of Highways By-Law, and accompanied with the payment of the required fee to the City Secretary-Treasurer.

b) Where excavation shall proceed for the purpose of connecting or disconnecting a water or sewer service, the owner or occupant shall have the authorization of the S.A.O. given by the approval of the "Application for Permit to Connect or Disconnect" form W/S-4, of this By-Law and accompanied with the payment of the required fee to the Secretary-Treasurer of the City.

c) Excavation within three feet of a City main shall occur only when a City employee representing the S.A.O. is on site. The owner or occupant shall give to the City proper notification.

d) All blasting or tunneling excavation shall be done in adherence to the Mining Safety Act of the N.W.T., the Northwest Territories Industrial Safety Regulations and By-Law No. 1276, being the Orderly Use of Highways By-Law, and shall require written permission from the S.A.O..

e) All excavation material shall be stockpiled and used for backfill subject to section 2 of Specifications C or disposed of as directed by the S.A.O..

C-2. Bedding and Backfill

a) Peat or high organic soil, silt-clay or highly compressible materials or other materials which would compromise the stability or drainage of an area shall not be used for foundations, bedding, hunching or backfilling.

b) Where service lines are installed underground, the backfill shall be carefully placed and tamped to a height of 300 millimetres over the top of the pipe and shall be free of stones, boulders, lumps, cinders, frozen earth, water saturated fill, and foreign materials. This material shall be thoroughly tamped with a heavy iron hand tamper or other approved device under and on each side of the pipe or pipe boxes, in layers not exceeding 150 millimetres in thickness, to assure that all spaces under and adjacent to the same are completely filled and well tamped. Above this zone, backfilling may be done by machines, however material shall be rolled, not dropped, into trenches and must be compacted in lifts not exceeding 450 millimetres.

c) Only 3/4 " (20 mm) crush shall be placed in the trench, below and above the pipe or pipe boxes, within a space of at least 600 millimetres of width.

d) Compaction shall be for the full depth of the trench, particularly under parking lots and driveways.

e) Backfill and compaction shall be such that natural drainage is not compromised and the adjacent surface area does not deteriorate. This is affected by the mounding of backfill and the placement of excessive fines in the upper layer of the backfill to prevent excessive drainage into the trench. If the stability of adjoining structures, walks, walls or services may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent damage to, or movement of, any part of the adjoining structure, or the creation of a hazard to the public.

f) Rock or boulders shall be removed to provide a clearance of at least 150 millimetres below all pipes or pipe boxes.

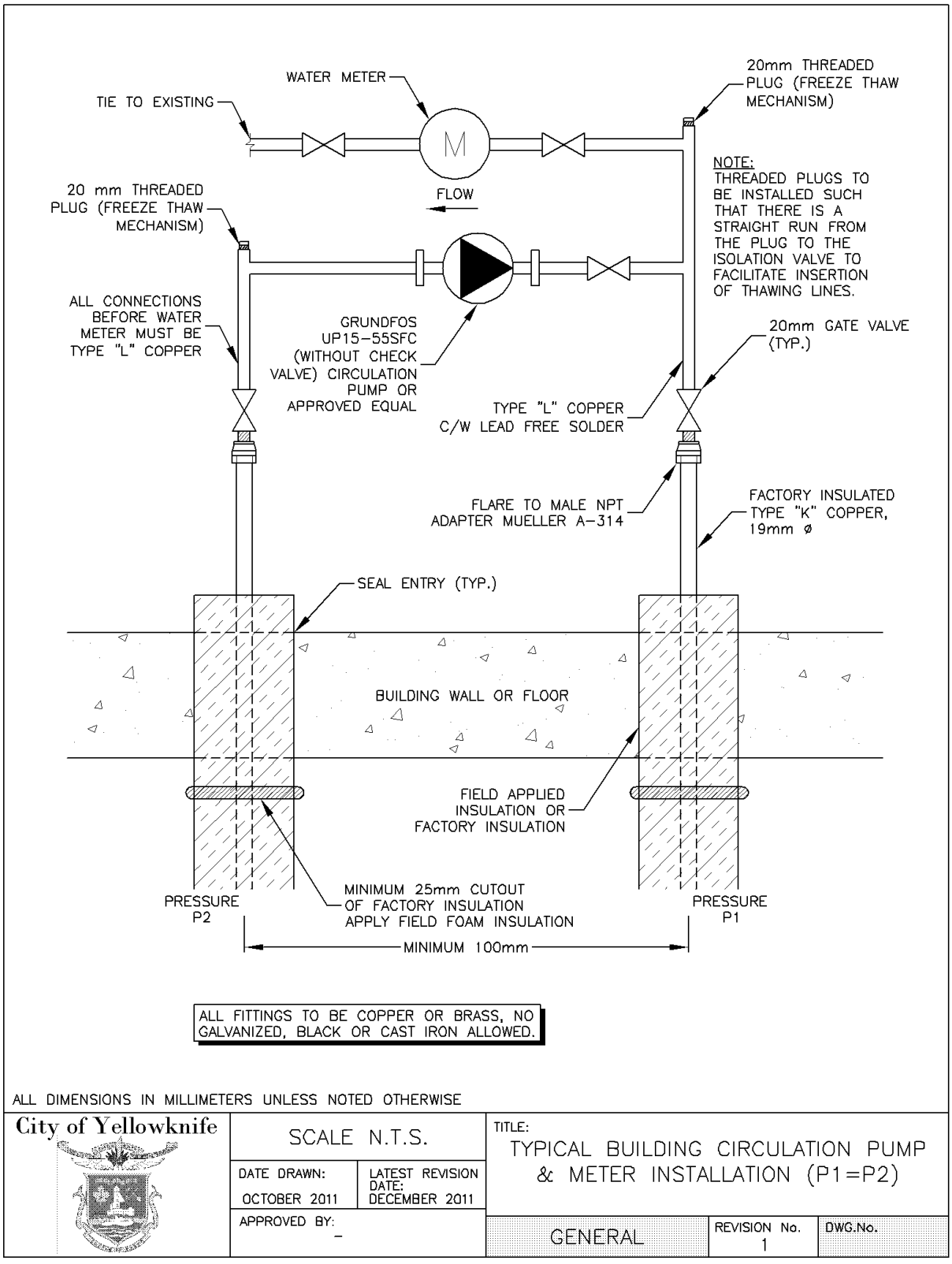
g) All water accumulated in the trench shall be disposed in compliance with all government regulations including but not limited to all environmental protection legislation.

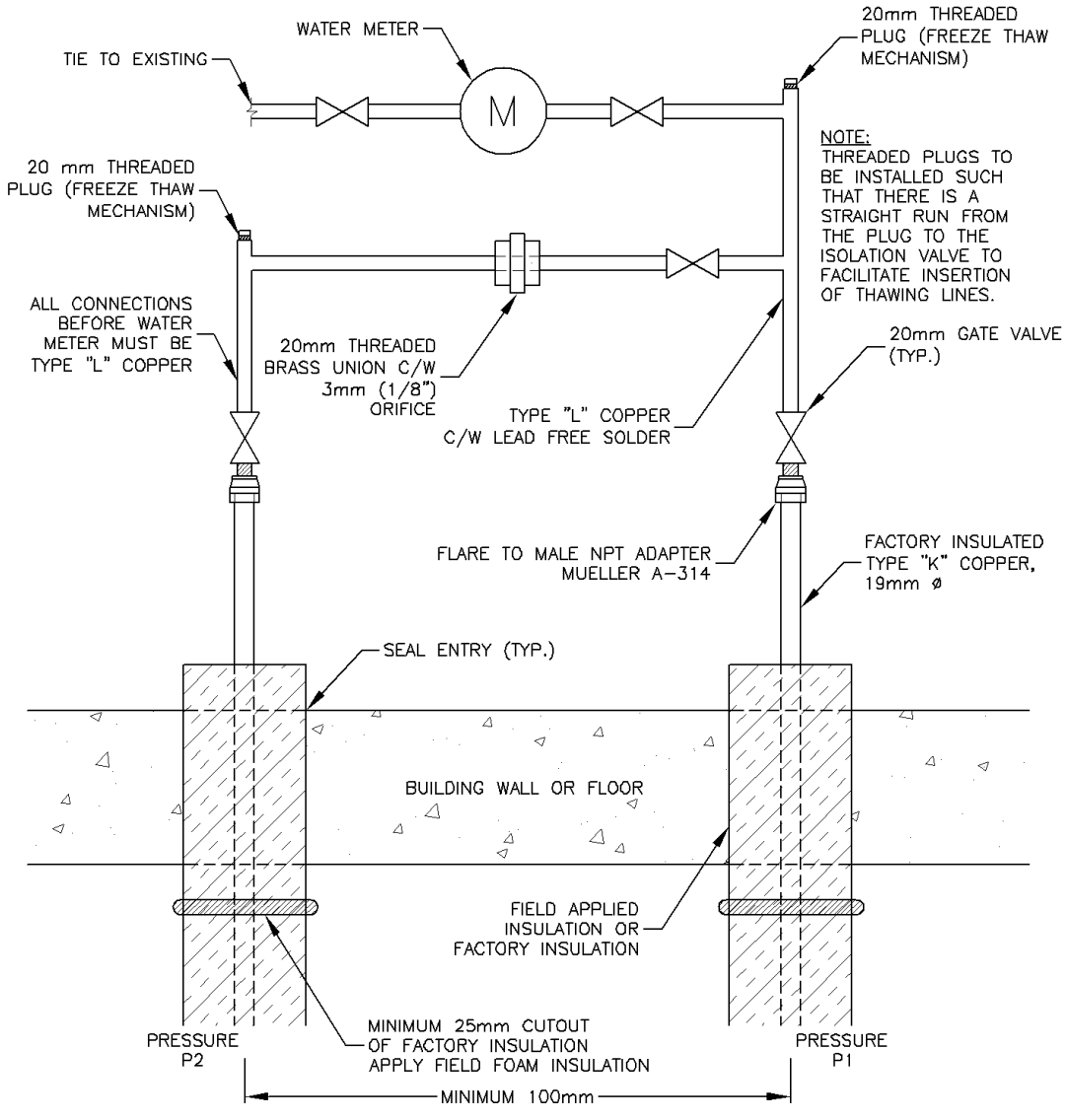
h) All waste excavation material shall be disposed of in a manner such that the surface drainage is not compromised.

i) Where City sidewalks or roadways are dug up, the premise owner or occupant shall use suitable sub-base material compacted to a minimum 95% Proctor Density and reinstate the sidewalk curb or roadway to prevailing City specifications.

Specification Diagrams

BODY		Description
Diagram	1	Typical Building Circulation Pump & Meter Installation.
Diagram	2	Typical Building Orifice & Meter Installation.


WATER METER
TIE TO EXISTING
M
FLOW
20mm THREADED PLUG (FREEZE THAW MECHANISM)
NOTE:
THREADED PLUGS TO BE INSTALLED SUCH THAT THERE IS A STRAIGHT RUN FROM THE PLUG TO THE ISOLATION VALVE TO FACILITATE INSERTION OF THAWING LINES.
20 mm THREADED PLUG (FREEZE THAW MECHANISM)
ALL CONNECTIONS BEFORE WATER METER MUST BE TYPE "L" COPPER
GRUNDFOS UP15-55SFC (WITHOUT CHECK VALVE) CIRCULATION PUMP OR APPROVED EQUAL
20mm GATE VALVE (TYP.)
TYPE "L" COPPER C/W LEAD FREE SOLDER
FLARE TO MALE NPT ADAPTER MUELLER A-314
FACTORY INSULATED TYPE "K" COPPER, 19mm ø
SEAL ENTRY (TYP.)
BUILDING WALL OR FLOOR
FIELD APPLIED INSULATION OR FACTORY INSULATION
PRESSURE P2
MINIMUM 25mm CUTOUT OF FACTORY INSULATION APPLY FIELD FOAM INSULATION
PRESSURE P1
MINIMUM 100mm
ALL FITTINGS TO BE COPPER OR BRASS, NO GALVANIZED, BLACK OR CAST IRON ALLOWED.
ALL DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE
City of Yellowknife
SCALE N.T.S.
DATE DRAWN: OCTOBER 2011
LATEST REVISION DATE: DECEMBER 2011
APPROVED BY: -
TITLE:
TYPICAL BUILDING CIRCULATION PUMP & METER INSTALLATION (P1=P2)
GENERAL
REVISION No. 1
DWG.No.



NOTE:
IF WATER & SEWER WORK IS TO OCCUR IN THE DOWNTOWN CORE OF YELLOWKNIFE, AN ORIFICE INSTALLATION MAY BE REQUIRED INSTEAD OF CIRCULATION PUMP. PLEASE CONSULT THE CITY'S PW&E DEPARTMENT PRIOR TO ANY INSTALLATION IN THE DOWNTOWN CORE.

ALL DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE

City of Yellowknife	SCALE N.T.S.	TITLE: TYPICAL BUILDING ORIFICE & METER INSTALLATION (P1>P2)	
	DATE DRAWN: OCTOBER 2011 / LATEST REVISION DATE: OCTOBER 2011		
	APPROVED BY: –	GENERAL	REVISION No. 0 / DWG.No.

CITY OF YELLOWKNIFE
BY-LAW NO. 4663
SCHEDULE D
RESTRICTED WASTES

The following are designated as Restricted Wastes when present in waste water, storm water or sub-surface water being released to the sanitary sewerage system at a concentration in excess of the levels set out below.

B1 CONTAMINANTS

Biochemical oxygen demand (BOD)	300 mg/L
Chemical oxygen demand (COD)	600 mg/L
Oil and grease	100 mg/L
Total suspended solids (TSS)	300 mg/L
Total nitrogen	50 mg/L

B2 INORGANIC CONSTITUENTS

Aluminum	50.00 mg/L
Antimony	5.00 mg/L
Arsenic	1.00 mg/L
Bismuth	5.00 mg/L
Boron	30.00 mg/L
Cadmium	0.10 mg/L
Chlorine (total)	5.00 mg/L
Chromium	4.00 mg/L
Copper	1.00 mg/L
Cobalt	5.00 mg/L
Cyanide	2.00 mg/L
Fluoride	10.00 mg/L
Lead	1.00 mg/L
Manganese	5.00 mg/L
Mercury	0.10 mg/L
Molybdenum	5.00 mg/L
Nickel	4.00 mg/L
Iron	5.00 mg/L
Phosphorus	10.00 mg/L
Selenium	5.00 mg/L
Silver	5.00 mg/L
Sulfate	1500.00 mg/L
Sulfide	1.00 mg/L
Thallium	0.50 mg/L
Tin	5.00 mg/L
Titanium	5.00 mg/L
Vanadium	5.00 mg/L
Zinc	1.00 mg/L

B3 ORGANIC COMPOUNDS

B.E.T.X (benzene, ethyl, toluene, xylene)	1.00 mg/L
Fuels	0.00 mg/L
Carbon tetrachloride	0.20 mg/L
Chloroform	0.20 mg/L
Hydrocarbons	50.00 mg/L
Pathological waste	0.00 mg/L
PCB waste	0.00 mg/L

Pentachlorophenol	0.20 mg/L
Phenols	1.00 mg/L
Special waste	0.00 mg/L

CITY OF YELLOWKNIFE
BY-LAW NO. 4663
SCHEDULE E"

OVER STRENGTH MATTER

The following are designated as over strength matter and are subject to a surcharge when present in waste water, storm water or sub-surface water being released to the sanitary sewerage system at a concentration in excess of the levels set out below.

Biochemical oxygen demand (BOD)	300 mg/L
Chemical oxygen demand (COD)	600 mg/L*
Oil and grease	100 mg/L
Phosphorous	10 mg/L
Total suspended solids (TSS)	300 mg/L
Total nitrogen (TKN)	50 mg/L

NOTES

(*) or twice the B.O.D. concentration in the waste water, whichever is greater.

APPENDIX D

Sewage Facility Check Lists

City of Yellowknife **Liftstation # 1** **Month: _____, 20_____**

DATE	FUEL LEVEL	House keeping		UPS ON?	Communitor Hour meter	ROOM TEMP S.P.	Generator					MCC PANEL						WET WELL LO TEMP SP	EXTERIOR LITES	COMPRESSOR	WET WELL EXHAUST FAN	FIRE PANEL OK?	SURGE TANK LEVEL OK?	BLDG EXHAUST FAN SP	DRY WELL OK?	INITIALS
		Fire extinguishers/	Entrance lights and doorway				BATTERY LEVEL OK?	BATTERY CHARGER (V / A)	AUTO START	ENGINE HOURS	BLOCK HEATER ON?	SUMP PUMP	PUMP #3 HOURS FLOW	PUMP #2 HOURS FLOW	PUMP #1 HOURS FLOW	SEAL WATER PUMP	COMMUNITOR									
1		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
2		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
3		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
4		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
5		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
6		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
7		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
8		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
9		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
10		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
11		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
12		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
13		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
14		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					

City of Yellowknife **Liftstation # 1** **Month: _____, 20_____**

DATE	FUEL LEVEL	House keeping		UPS ON?	Communitor Hour meter	ROOM TEMP S.P.	Generator					MCC PANEL						WET WELL LO TEMP SP	EXTERIOR LITES	COMPRESSOR	WET WELL EXHAUST FAN	FIRE PANEL OK?	SURGE TANK LEVEL OK?	BLDG EXHAUST FAN SP	DRY WELL OK?	INITIALS
		Fire extinguishers/	Entrance lights and doorway clear?				BATTERY LEVEL OK?	BATTERY CHARGER (V / A)	AUTO START	ENGINE HOURS	BLOCK HEATER ON?	SUMP PUMP	PUMP #3 HOURS FLOW	PUMP #2 HOURS FLOW	PUMP #1 HOURS FLOW	SEAL WATER PUMP	COMMUNITOR									
15		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
16		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
17		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
18		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
19		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
20		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
21		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
22		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
23		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
24		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
25		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
26		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
27		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
28		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					

City of Yellowknife **Liftstation # 1** **Month: _____, 20_____**

DATE	FUEL LEVEL	House keeping: Fire extinguishers/	House keeping: Entrance lights and doorway	UPS ON?	Communitor Hour meter	ROOM TEMP S.P.	Generator: BATTERY LEVEL OK?	Generator: BATTERY CHARGER (V / A)	Generator: AUTO START	Generator: ENGINE HOURS	Generator: BLOCK HEATER ON?	MCC PANEL: SUMP PUMP	MCC PANEL: PUMP #3 HOURS FLOW	MCC PANEL: PUMP #2 HOURS FLOW	MCC PANEL: PUMP #1 HOURS FLOW	MCC PANEL: SEAL WATER PUMP	MCC PANEL: COMMUNITOR	WET WELL LO TEMP SP	EXTERIOR LITES	COMPRESSOR	WET WELL EXHAUST FAN	FIRE PANEL OK?	SURGE TANK LEVEL OK?	BLDG EXHAUST FAN SP	DRY WELL OK?	INITIALS
29		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
30		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					
31		YES NO	YES NO		1 2							H O A				H O A	H O A		H O A		H O A					

COMMENTS:_____

_____

_____

_____

_____

_____

_____

ITEM CHECKED	DATE:				CHECKED BY:			
Prove limits (BUILDING ALARMS VERIFY WITH PH 1)								
Emergency lights verification (UNPLUG AND TIME MONITOR LITES STAY ON FOR 10 MIN.)								
Monthly alarm check (TRIP HIGH LEVEL & TEMPERATURE ALARMS -- VERIFY WITH PH 1)								
Weekly GenSet / Diesel Pump / Oil and coolant level check								

DM DOCS #80049 CHECKSHEET_LIFSTATION_#1

City of Yellowknife **Liftstation # 2** **Month: _____/20_____**

DATE	House keeping		Wet Well Clean & Light working	Pump panel		Fire Alarm Panel	Transfer Switch on Auto?	Pump Hour Meters			Generator				T1 DAMPER CONTROL S.P. 25 ^{0}C	BUILDING HIGH TEMP ALARM S.P. 90 ^{0}C	EXHAUST FAN SET POINT 20 ^{0}C	UPS		Room thermostat Set Point	Exhaust fan in Auto?	Alarm Panel light test OK?	Initial
	Fire extinguishers/ first	Entrance lights and doorway		Pump #1	Pump #2			Both	P#1	P#2	BlockHeate	Hour Meter	Battery Charger Volts/ Amps	ON AUTO?				AC LINE & READY (GREEN LIGHT)	LINE/UPS /OFF				
1	YES NO	YES NO	OK ?	H O A	H O A																		
2	YES NO	YES NO	OK ?	H O A	H O A																		
3	YES NO	YES NO	OK ?	H O A	H O A																		
4	YES NO	YES NO	OK ?	H O A	H O A																		
5	YES NO	YES NO	OK ?	H O A	H O A																		
6	YES NO	YES NO	OK ?	H O A	H O A																		
7	YES NO	YES NO	OK ?	H O A	H O A																		
8	YES NO	YES NO	OK ?	H O A	H O A																		
9	YES NO	YES NO	OK ?	H O A	H O A																		
10	YES NO	YES NO	OK ?	H O A	H O A																		
11	YES NO	YES NO	OK ?	H O A	H O A																		
12	YES NO	YES NO	OK ?	H O A	H O A																		
13	YES NO	YES NO	OK ?	H O A	H O A																		
14	YES NO	YES NO	OK ?	H O A	H O A																		

City of Yellowknife **Liftstation # 2** **Month: _____/20_____**

DATE	House keeping		Wet Well Clean & Light working	Pump panel		Fire Alarm Panel	Transfer Switch on Auto?	Pump Hour Meters			Generator				T1 DAMPER CONTROL S.P. 25 ^{0}C	BUILDING HIGH TEMP ALARM S.P. 90 ^{0}C	EXHAUST FAN SET POINT 20 ^{0}C	UPS		Room thermostat Set Point	Exhaust fan in Auto?	Alarm Panel light test OK?	Initial
	Fire extinguishers/ first	Entrance lights and doorway		Pump #1	Pump #2			Both	P#1	P#2	BlockHeate	Hour Meter	Battery Charger Volts/ Amps	ON AUTO?				AC LINE & READY (GREEN LIGHT)	LINE/UPS /OFF				
15	YES NO	YES NO	OK ?	H O A	H O A																		
16	YES NO	YES NO	OK ?	H O A	H O A																		
17	YES NO	YES NO	OK ?	H O A	H O A																		
18	YES NO	YES NO	OK ?	H O A	H O A																		
19	YES NO	YES NO	OK ?	H O A	H O A																		
20	YES NO	YES NO	OK ?	H O A	H O A																		
21	YES NO	YES NO	OK ?	H O A	H O A																		
22	YES NO	YES NO	OK ?	H O A	H O A																		
23	YES NO	YES NO	OK ?	H O A	H O A																		
24	YES NO	YES NO	OK ?	H O A	H O A																		
25	YES NO	YES NO	OK ?	H O A	H O A																		
26	YES NO	YES NO	OK ?	H O A	H O A																		
27	YES NO	YES NO	OK ?	H O A	H O A																		
28	YES NO	YES NO	OK ?	H O A	H O A																		

City of Yellowknife **Liftstation # 2** **Month: _____/20_____**

DATE	House keeping		Wet Well Clean & Light working	Pump panel		Fire Alarm Panel	Transfer Switch on Auto?	Pump Hour Meters			Generator				T1 DAMPER CONTROL S.P. 25°C	BUILDING HIGH TEMP ALARM S.P. 90 °C	EXHAUST FAN SET POINT 20 °C	UPS		Room thermostat Set Point	Exhaust fan in Auto?	Alarm Panel light test OK?	Initial
	Fire extinguishers/ first	Entrance lights and doorway		Pump #1	Pump #2			Both	P#1	P#2	BlockHeate	Hour Meter	Battery Charger Volts/ Amps	ON AUTO?				AC LINE & READY (GREEN LIGHT)	LINE/UPS /OFF				
29	YES NO	YES NO	OK ?	H O A	H O A																		
30	YES NO	YES NO	OK ?	H O A	H O A																		
31	YES NO	YES NO	OK ?	H O A	H O A																		

COMMENTS:_____

_____

_____

_____

_____

_____

ITEM CHECKED	DATE:				CHECKED BY:			
Prove limits (BUILDING ALARMS VERIFY WITH PH 1)								
Emergency lights verification (UNPLUG AND TIME MONITOR LITES STAY ON FOR 10 MIN.)								
Monthly alarm check (TRIP HIGH LEVEL & TEMPERATURE ALARMS -- VERIFY WITH PH 1)								
Weekly GenSet / Diesel Pump Oil and coolant level check								

Lift Station 3

Month: **Year:**

DATE	House Keeping, Lights	Pump 1 Hours	Pump 2 Hours	Pump Hours Both	Cabinet Condition	Heater On?	Level (Meters)	Initials
1		H O A	H O A					
2		H O A	H O A					
3		H O A	H O A					
4		H O A	H O A					
5		H O A	H O A					
6		H O A	H O A					
7		H O A	H O A					
8		H O A	H O A					
9		H O A	H O A					
10		H O A	H O A					
11		H O A	H O A					
12		H O A	H O A					
13		H O A	H O A					
14		H O A	H O A					
15		H O A	H O A					
16		H O A	H O A					
17		H O A	H O A					
18		H O A	H O A					
19		H O A	H O A					
20		H O A	H O A					
21		H O A	H O A					
22		H O A	H O A					
23		H O A	H O A					
24		H O A	H O A					
25		H O A	H O A					
26		H O A	H O A					
27		H O A	H O A					
28		H O A	H O A					
29		H O A	H O A					
30		H O A	H O A					
31		H O A	H O A					

Lift Station 4 (page 1 of 2) Month _____ Year _____

Date	Entrance, lights, fire extinguisher	Fuel Tank Level			Lift Pump 1 Hours		Lift Pump 2 Hours		Lift Pump 3 Hours		Communitor Hours
			Wet Well Furnace OK?	Dry Side Furnace OK?	Total Hours	Today - Yesterday Hours	Total Hours	Today - Yesterday Hours	Total Hours	Today - Yesterday Hours	
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											

Lift Station 4 (page 2 of 2) Month _____ Year _____

Date	Seal Pump	UPS on?	Building Circ Pump On?	Fire Alarm OK?	Compressor Pressure	Drywell OK?	Outside Lighting	Exhaust Fan	Sump Pump	Wet Well Exhaust Fan On?	Operator Initials
1	H / O / A						H / O / A	H / O / A	H / O / A		
2	H / O / A						H / O / A	H / O / A	H / O / A		
3	H / O / A						H / O / A	H / O / A	H / O / A		
4	H / O / A						H / O / A	H / O / A	H / O / A		
5	H / O / A						H / O / A	H / O / A	H / O / A		
6	H / O / A						H / O / A	H / O / A	H / O / A		
7	H / O / A						H / O / A	H / O / A	H / O / A		
8	H / O / A						H / O / A	H / O / A	H / O / A		
9	H / O / A						H / O / A	H / O / A	H / O / A		
10	H / O / A						H / O / A	H / O / A	H / O / A		
11	H / O / A						H / O / A	H / O / A	H / O / A		
12	H / O / A						H / O / A	H / O / A	H / O / A		
13	H / O / A						H / O / A	H / O / A	H / O / A		
14	H / O / A						H / O / A	H / O / A	H / O / A		
15	H / O / A						H / O / A	H / O / A	H / O / A		
16	H / O / A						H / O / A	H / O / A	H / O / A		
17	H / O / A						H / O / A	H / O / A	H / O / A		
18	H / O / A						H / O / A	H / O / A	H / O / A		
19	H / O / A						H / O / A	H / O / A	H / O / A		
20	H / O / A						H / O / A	H / O / A	H / O / A		
21	H / O / A						H / O / A	H / O / A	H / O / A		
22	H / O / A						H / O / A	H / O / A	H / O / A		
23	H / O / A						H / O / A	H / O / A	H / O / A		
24	H / O / A						H / O / A	H / O / A	H / O / A		
25	H / O / A						H / O / A	H / O / A	H / O / A		
26	H / O / A						H / O / A	H / O / A	H / O / A		
27	H / O / A						H / O / A	H / O / A	H / O / A		
28	H / O / A						H / O / A	H / O / A	H / O / A		
29	H / O / A						H / O / A	H / O / A	H / O / A		
30	H / O / A						H / O / A	H / O / A	H / O / A		
31	H / O / A						H / O / A	H / O / A	H / O / A		

City of Yellowknife Liftstation # 5 Month: _____, 20_____

Date	HOUSE KEEPING			Wet well exhaust fan	Sump pump	Pump #1 Hours	Flow Rate (L/S)	Pump #3 Hours	Flow Rate (L/S)	Pump #2 Hours	Flow Rate (L/S)	Seal water P1	Seal water P2	Communitor #1	Communitor #2	UPS ON?	Communitor Hours		Fuel Tank Level	Low tem alarm SP	High temp alarm SP	Circ pump ON	Furnace OK	Air Compressor OK?	Dry well OK?	Wet Well Ok?	Exhaust Fan SP?	Initials
	FIRE EXTING.	ENTRANCE AND LIGHTS	Fire Panel														#1	#2										
1	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
2	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
3	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
4	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
5	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
6	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
7	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
8	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
9	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
10	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
11	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
12	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
13	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													

City of Yellowknife Liftstation # 5 Month: _____, 20_____

Date	HOUSE KEEPING			Wet well exhaust fan	Sump pump	Pump #1 Hours	Flow Rate (L/S)	Pump #3 Hours	Flow Rate (L/S)	Pump #2 Hours	Flow Rate (L/S)	Seal water P1	Seal water P2	Communitor #1	Communitor #2	UPS ON?	Communitor Hours		Fuel Tank Level	Low tem alarm SP	High temp alarm SP	Circ pump ON	Furnace OK	Air Compressor OK?	Dry well OK?	Wet Well Ok?	Exhaust Fan SP?	Initials
	FIRE EXTING.	ENTRANCE AND LIGHTS	Fire Panel														#1	#2										
14	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
15	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
16	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
17	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
18	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
19	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
20	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
21	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
22	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
23	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
24	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
25	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
26	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													

City of Yellowknife Liftstation # 5 Month: _____, 20_____

Date	HOUSE KEEPING			Wet well exhaust fan	Sump pump	Pump #1 Hours	Flow Rate (L/S)	Pump #3 Hours	Flow Rate (L/S)	Pump #2 Hours	Flow Rate (L/S)	Seal water P1	Seal water P2	Communitor #1	Communitor #2	UPS ON?	Communitor Hours		Fuel Tank Level	Low tem alarm SP	High temp alarm SP	Circ pump ON	Furnace OK	Air Compressor OK?	Dry well OK?	Wet Well Ok?	Exhaust Fan SP?	Initials
	FIRE EXTING.	ENTRANCE AND LIGHTS	Fire Panel														#1	#2										
25	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
28	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
29	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
30	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													
31	OK	OK	OK	H O A	H O A							H O A	H O A	H O A	H O A													

COMMENTS:_____

ITEM CHECKED	DATE:				CHECKED BY:			
Prove limits (BUILDING ALARMS VERIFY WITH PH 1)								
Emergency lights verification (UNPLUG AND TIME MONITOR LITES STAY ON FOR 10 MIN.)								
Monthly alarm check (TRIP HIGH LEVEL & TEMPERATURE ALARMS -- VERIFY WITH PH 1)								
Weekly GenSet / Diesel Pump Oil and coolant level check								

DM-DOCS# 80089 CHECKSHEET_LIFTSTATION_#5

City of Yellowknife

Lift Station #6 Daily Checksheet

Month _____ Year _____

				SEWAGE PUMPS												Generator									
Date	Snow Shovelled?	Fire Extinguisher / First Aid / Eye Wash	Air Handling Unit Discharge Temperature (^{0}C)	Pump 1 Hours (Auto)	Pump 2 Hours (Auto)	Pump 3 Hours (Auto)	Pumps Connected to Generator	Transfer Switch in Auto?	Water Temperature (^{0}C)	Circ Pump On?	Chlorine Concentration (mg/L)	Sewage Totalizer (m^3)	Heating Pump	Boiler Temperature (^{0}F)	Boiler Pressure (psi)	Hours	Block Heater On?	Oil	Coolant	Battery Volts	Battery Amps	Fuel Tank Level	UPS on and Ready?	Air Handling Unit in Auto?	Operator
1	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
2	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
3	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
4	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
5	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
6	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
7	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
8	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
9	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
10	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												

City of Yellowknife

Lift Station #6 Daily Checksheet

Month _____ Year _____

				SEWAGE PUMPS												Generator									
Date	Snow Shovelled?	Fire Extinguisher / First Aid / Eye Wash	Air Handling Unit Discharge Temperature (^{0}C)	Pump 1 Hours (Auto)	Pump 2 Hours (Auto)	Pump 3 Hours (Auto)	Pumps Connected to Generator	Transfer Switch in Auto?	Water Temperature (^{0}C)	Circ Pump On?	Chlorine Concentration (mg/L)	Sewage Totalizer (m^3)	Heating Pump	Boiler Temperature (^{0}F)	Boiler Pressure (psi)	Hours	Block Heater On?	Oil	Coolant	Battery Volts	Battery Amps	Fuel Tank Level	UPS on and Ready?	Air Handling Unit in Auto?	Operator
11	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
12	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
13	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
14	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
15	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
16	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
17	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
18	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
19	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
20	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												

City of Yellowknife

Lift Station #6 Daily Checksheet

Month _____ Year _____

				SEWAGE PUMPS													Generator									
Date	Snow Shovelled?	Fire Extinguisher / First Aid / Eye Wash	Air Handling Unit Discharge Temperature (^{0}C)	Pump 1 Hours (Auto)	Pump 2 Hours (Auto)	Pump 3 Hours (Auto)	Pumps Connected to Generator	Transfer Switch in Auto?	Water Temperature (^{0}C)	Circ Pump On?	Chlorine Concentration (mg/L)	Sewage Totalizer (m^3)	Heating Pump	Boiler Temperature (^{0}F)	Boiler Pressure (psi)	Hours	Block Heater On?	Oil	Coolant	Battery Volts	Battery Amps	Fuel Tank Level	UPS on and Ready?	Air Handling Unit in Auto?	Operator
21	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
22	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
23	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
24	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
25	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
26	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
27	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
28	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
29	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
30	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												
31	Yes / No						P1 / P2 P1 / P3 P2 / P3						P6 or P7												

City of Yellowknife **Liftstation #7** **Month: _____, 20_____**

DATE	Pellet boiler	House keeping		MCC panel						Air Compressor	Diesel Pump			Seal Water Tank		BOILER TEMP/PRESSURE	FUEL TANK LEVEL	SURGE TANK LEVEL MULTI Range in PLC	EXTERNAL LIGHTS	EXHASUST FAN	UPS ON AND READY	Outfall Temp / Press	SUMP PUMP	INITIALS
		Fire extinguishe	Entrance lights and doorway	Seal Pump	Seal Pump	Main Pump #1 Hours	Main Pump #2 Hours	Main Pump #3 Hours	Communitor Hours		ON AUTO'	Block heater	Hours	PSI Upstairs	PSI Down Stairs									
1				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
2				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
3				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
4				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
5				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
6				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
7				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
8				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
9				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
10				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
11				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
12				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	

City of Yellowknife **Liftstation #7** **Month:** _____ , 20____

DATE	Pellet boiler	House keeping		MCC panel						Air Compressor	Diesel Pump			Seal Water Tank		BOILER TEMP/PRESSURE	FUEL TANK LEVEL	SURGE TANK LEVEL MULTI Range in PLC	EXTERNAL LIGHTS	EXHASUST FAN	UPS ON AND READY	Outfall Temp / Press	SUMP PUMP	INITIALS
		Fire extinguishe	Entrance lights and doorway	Seal Pump	Seal Pump	Main Pump #1 Hours	Main Pump #2 Hours	Main Pump #3 Hours	Communitor Hours		ON AUTO'	Block heater	Hours	PSI Upstairs	PSI Down Stairs									
13				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
14				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
15				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
16				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
17				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
18				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
19				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
20				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
21				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
22				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
23				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
24				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	

City of Yellowknife **Liftstation #7** **Month: _____ , 20__**

DATE	Pellet boiler	House keeping		MCC panel						Air Compressor	Diesel Pump			Seal Water Tank		BOILER TEMP/PRESSURE	FUEL TANK LEVEL	SURGE TANK LEVEL MULTI Range in PLC	EXTERNAL LIGHTS	EXHASUST FAN	UPS ON AND READY	Outfall Temp / Press	SUMP PUMP	INITIALS
		Fire extinguishe	Entrance lights and doorway	Seal Pump	Seal Pump	Main Pump #1 Hours	Main Pump #2 Hours	Main Pump #3 Hours	Communitor Hours		ON AUTO'	Block heater	Hours	PSI Upstairs	PSI Down Stairs									
25				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
26				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
27				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
28				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
29				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
30				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	
31				H O A	H O A					H O A						/ /			H O A	ON OFF			H O A	

ITEM CHECKED	DATE:				CHECKED BY:			
Prove limits (BUILDING ALARMS VERIFY WITH PH 1)								
Emergency lights verification (UNPLUG AND TIME MONITOR LITES STAY ON FOR 10 MIN.)								
Monthly alarm check (TRIP HIGH LEVEL & TEMPERATURE ALARMS -- VERIFY WITH PH 1)								
Weekly Genset / Diesel Pump Oil and coolant level check								

City of Yellowknife **Liftstation # 8** **Month: _____, 20_____**

DATE	FUEL LEVEL	Fire Extinguisher	ENTRANCE; LITES; 1ST AID; DOORWAY	CIRC PUMP 'ON'	TC-5 LOW TEMP SP	TC8 HI TEMP SP	Wet well 1 or 2	Pump 1 hours	Pump 2 hours	Pump 1 &2 hours	Transfer Switch			Gen Set			Ventilation AHU 1		Batteries OK	CP1 Light check	Fire Panel	Exhaust Fan Winter 'OFF' Summer 'ON'	Initials
											On AUTO	Test Pilot	Normal 'ON'	block heater 'ON'	On AUTO	Hours	AHU controller SP / TEMP	Freeze Stat Set Point					
1							1 2				H O A				H O A							ON OFF	
2							1 2				H O A				H O A							ON OFF	
3							1 2				H O A				H O A							ON OFF	
4							1 2				H O A				H O A							ON OFF	
5							1 2				H O A				H O A							ON OFF	
6							1 2				H O A				H O A							ON OFF	
7							1 2				H O A				H O A							ON OFF	
8							1 2				H O A				H O A							ON OFF	
9							1 2				H O A				H O A							ON OFF	
10							1 2				H O A				H O A							ON OFF	
11							1 2				H O A				H O A							ON OFF	
12							1 2				H O A				H O A							ON OFF	
13							1 2				H O A				H O A							ON OFF	
14							1 2				H O A				H O A							ON OFF	
15							1 2				H O A				H O A							ON OFF	

City of Yellowknife

Liftstation # 8

Month: _____, 20_____

DATE	FUEL LEVEL	Fire Extinguisher	ENTRANCE; LITES; 1ST AID; DOORWAY	CIRC PUMP 'ON'	TC-5 LOW TEMP SP	TC8 HI TEMP SP	Wet well 1 or 2	Pump 1 hours	Pump 2 hours	Pump 1 &2 hours	Transfer Switch			Gen Set			Ventilation AHU 1		Batteries OK	CP1 Light check	Fire Panel	Exhaust Fan Winter 'OFF' Summer 'ON'	Initials
											On AUTO	Test Pilot	Normal 'ON'	block heater 'ON'	On AUTO	Hours	AHU controller SP / TEMP	Freeze Stat Set Point					
16							1 2				H O A				H O A							ON OFF	
17							1 2				H O A				H O A							ON OFF	
18							1 2				H O A				H O A							ON OFF	
19							1 2				H O A				H O A							ON OFF	
20							1 2				H O A				H O A							ON OFF	
21							1 2				H O A				H O A							ON OFF	
22							1 2				H O A				H O A							ON OFF	
23							1 2				H O A				H O A							ON OFF	
24							1 2				H O A				H O A							ON OFF	
25							1 2				H O A				H O A							ON OFF	
26							1 2				H O A				H O A							ON OFF	
27							1 2				H O A				H O A							ON OFF	
28							1 2				H O A				H O A							ON OFF	
29							1 2				H O A				H O A							ON OFF	
30							1 2				H O A				H O A							ON OFF	

City of Yellowknife **Liftstation # 8** **Month:** _____, 20_____

DATE	FUEL LEVEL	Fire Extinguisher	ENTRANCE; LITES; 1ST AID; DOORWAY	CIRC PUMP 'ON'	TC-5 LOW TEMP SP	TC8 HI TEMP SP	Wet well 1 or 2	Pump 1 hours	Pump 2 hours	Pump 1 &2 hours	Transfer Switch			Gen Set			Ventilation AHU 1		Batteries OK	CP1 Light check	Fire Panel	Exhaust Fan Winter 'OFF' Summer 'ON'	Initials
											On AUTO	Test Pilot	Normal 'ON'	block heater 'ON'	On AUTO	Hours	AHU controller SP / TEMP	Freeze Stat Set Point					
31							1 2				H O A				H O A							ON OFF	

COMMENTS: _____

ITEM CHECKED	DATE:				CHECKED BY:			
Prove limits (BUILDING ALARMS VERIFY WITH PH 1)								
Emergency lights verification (UNPLUG AND TIME MONITOR LITES STAY ON FOR 10 MIN.)								
Monthly alarm check (TRIP HIGH LEVEL & TEMPERATURE ALARMS -- VERIFY WITH PH 1)								
Weekly GenSet / Diesel Pump Oil and coolant level check								

City of Yellowknife **Liftstation # 9** **Month:** _____, 20_____

DATE	Lights working; entrance Clear	Gen Set		Fuel Level OK?	Battery Charger ok	CP1 All OK – Lights check?	Pump Control Panel				Transfer switch 'AUTO'	High Temp Alarm SP	Lo Temp Alarm SP	Genset Damper control TC-2 SP	Exhaust Fan Control TSH1 SP	Circ pump 'ON'	Flow Meter % of Flow	AHU		Fire Panel	Eye wash	Extinguisher & 1st Aid kit	Wet Well				Initials
		Block Heater ON?	Hours				WETWELL 1 or 2	Pump 1 Hours	Pump 2 Hours	Pump 1 & 2 hours								ON?	Output Temp?				Temp OK?	Lights OK	Room Temp Set Point	Low Temp Alarm Set Point	
1							1 2				H O A																
2							1 2				H O A																
3							1 2				H O A																
4							1 2				H O A																
5							1 2				H O A																
6							1 2				H O A																
7							1 2				H O A																
8							1 2				H O A																
9							1 2				H O A																
10							1 2				H O A																
11							1 2				H O A																
12							1 2				H O A																
13							1 2				H O A																
14							1 2				H O A																

City of Yellowknife **Liftstation # 9** **Month:** _____, 20_____

DATE	Lights working; entrance Clear	Gen Set		Fuel Level OK?	Battery Charger ok	CP1 All OK – Lights check?	Pump Control Panel				Transfer switch 'AUTO'	High Temp Alarm SP	Lo Temp Alarm SP	Genset Damper control TC-2 SP	Exhaust Fan Control TSH1 SP	Circ pump 'ON'	Flow Meter % of Flow	AHU		Fire Panel	Eye wash	Extinguisher & 1st Aid kit	Wet Well				Initials
		Block Heater ON?	Hours				WETWELL 1 or 2	Pump 1 Hours	Pump 2 Hours	Pump 1 & 2 hours								ON?	Output Temp?				Temp OK?	Lights OK	Room Temp Set Point	Low Temp Alarm Set Point	
15							1 2				H O A																
16							1 2				H O A																
17							1 2				H O A																
18							1 2				H O A																
19							1 2				H O A																
20							1 2				H O A																
21							1 2				H O A																
22							1 2				H O A																
23							1 2				H O A																
24							1 2				H O A																
25							1 2				H O A																
26							1 2				H O A																
27							1 2				H O A																
28							1 2				H O A																

City of Yellowknife **Liftstation # 9** **Month:** _____, 20_____

DATE	Lights working; entrance Clear	Gen Set		Fuel Level OK?	Battery Charger ok	CP1 All OK – Lights check?	Pump Control Panel				Transfer switch 'AUTO'	High Temp Alarm SP	Lo Temp Alarm SP	Genset Damper control TC-2 SP	Exhaust Fan Control TSH1 SP	Circ pump 'ON'	Flow Meter % of Flow	AHU		Fire Panel	Eye wash	Extinguisher & 1st Aid kit	Wet Well				Initials
		Block Heater ON?	Hours				WETWELL 1 or 2	Pump 1 Hours	Pump 2 Hours	Pump 1 & 2 hours								ON?	Output Temp?				Temp OK?	Lights OK	Room Temp Set Point	Low Temp Alarm Set Point	
29							1 2				H O A																
30							1 2				H O A																
31							1 2				H O A																

COMMENTS: _____

ITEM CHECKED	DATE:				CHECKED BY:			
Prove limits (BUILDING ALARMS VERIFY WITH PH 1)								
Emergency lights verification (UNPLUG AND TIME MONITOR LITES STAY ON FOR 10 MIN.)								
Monthly alarm check (TRIP HIGH LEVEL & TEMPERATURE ALARMS -- VERIFY WITH PH 1)								
Weekly GenSet / Diesel Pump Oil and coolant level check								

Lift Station 10

Month: **Year:**

DATE	House Keeping, Lights	Pump 1 Hours	Pump 2 Hours	Pump Hours Both	Cabinet Condition	Heater On?	Level (Meters)	Initials
1		H O A	H O A					
2		H O A	H O A					
3		H O A	H O A					
4		H O A	H O A					
5		H O A	H O A					
6		H O A	H O A					
7		H O A	H O A					
8		H O A	H O A					
9		H O A	H O A					
10		H O A	H O A					
11		H O A	H O A					
12		H O A	H O A					
13		H O A	H O A					
14		H O A	H O A					
15		H O A	H O A					
16		H O A	H O A					
17		H O A	H O A					
18		H O A	H O A					
19		H O A	H O A					
20		H O A	H O A					
21		H O A	H O A					
22		H O A	H O A					
23		H O A	H O A					
24		H O A	H O A					
25		H O A	H O A					
26		H O A	H O A					
27		H O A	H O A					
28		H O A	H O A					
29		H O A	H O A					
30		H O A	H O A					
31		H O A	H O A					

Lift Station 11

Month: **Year:**

DATE	House Keeping, Lights	Pump 1 Hours	Pump 2 Hours	Pump Hours Both	Cabinet Condition	Heater On?	Level (Meters)	Initials
1		H O A	H O A					
2		H O A	H O A					
3		H O A	H O A					
4		H O A	H O A					
5		H O A	H O A					
6		H O A	H O A					
7		H O A	H O A					
8		H O A	H O A					
9		H O A	H O A					
10		H O A	H O A					
11		H O A	H O A					
12		H O A	H O A					
13		H O A	H O A					
14		H O A	H O A					
15		H O A	H O A					
16		H O A	H O A					
17		H O A	H O A					
18		H O A	H O A					
19		H O A	H O A					
20		H O A	H O A					
21		H O A	H O A					
22		H O A	H O A					
23		H O A	H O A					
24		H O A	H O A					
25		H O A	H O A					
26		H O A	H O A					
27		H O A	H O A					
28		H O A	H O A					
29		H O A	H O A					
30		H O A	H O A					
31		H O A	H O A					

Lift Station 12

Month: **Year:**

DATE	House Keeping, Lights	Pump 1 Hours	Pump 2 Hours	Pump Hours Both	Cabinet Condition	Heater On?	Level (Meters)	Initials
1		H O A	H O A					
2		H O A	H O A					
3		H O A	H O A					
4		H O A	H O A					
5		H O A	H O A					
6		H O A	H O A					
7		H O A	H O A					
8		H O A	H O A					
9		H O A	H O A					
10		H O A	H O A					
11		H O A	H O A					
12		H O A	H O A					
13		H O A	H O A					
14		H O A	H O A					
15		H O A	H O A					
16		H O A	H O A					
17		H O A	H O A					
18		H O A	H O A					
19		H O A	H O A					
20		H O A	H O A					
21		H O A	H O A					
22		H O A	H O A					
23		H O A	H O A					
24		H O A	H O A					
25		H O A	H O A					
26		H O A	H O A					
27		H O A	H O A					
28		H O A	H O A					
29		H O A	H O A					
30		H O A	H O A					
31		H O A	H O A					

Lift Station 13

Month: **Year:**

DATE	House Keeping, Lights	Pump 1 Hours	Pump 2 Hours	Pump Hours Both	Cabinet Condition	Heater On?	Level (Meters)	Initials
1		H O A	H O A					
2		H O A	H O A					
3		H O A	H O A					
4		H O A	H O A					
5		H O A	H O A					
6		H O A	H O A					
7		H O A	H O A					
8		H O A	H O A					
9		H O A	H O A					
10		H O A	H O A					
11		H O A	H O A					
12		H O A	H O A					
13		H O A	H O A					
14		H O A	H O A					
15		H O A	H O A					
16		H O A	H O A					
17		H O A	H O A					
18		H O A	H O A					
19		H O A	H O A					
20		H O A	H O A					
21		H O A	H O A					
22		H O A	H O A					
23		H O A	H O A					
24		H O A	H O A					
25		H O A	H O A					
26		H O A	H O A					
27		H O A	H O A					
28		H O A	H O A					
29		H O A	H O A					
30		H O A	H O A					
31		H O A	H O A					

Lift Station 14

Month: **Year:**

DATE	House Keeping, Lights	Pump 1 Hours	Pump 2 Hours	Pump Hours Both	Cabinet Condition	Heater On?	Level (Meters)	Initials
1		H O A	H O A					
2		H O A	H O A					
3		H O A	H O A					
4		H O A	H O A					
5		H O A	H O A					
6		H O A	H O A					
7		H O A	H O A					
8		H O A	H O A					
9		H O A	H O A					
10		H O A	H O A					
11		H O A	H O A					
12		H O A	H O A					
13		H O A	H O A					
14		H O A	H O A					
15		H O A	H O A					
16		H O A	H O A					
17		H O A	H O A					
18		H O A	H O A					
19		H O A	H O A					
20		H O A	H O A					
21		H O A	H O A					
22		H O A	H O A					
23		H O A	H O A					
24		H O A	H O A					
25		H O A	H O A					
26		H O A	H O A					
27		H O A	H O A					
28		H O A	H O A					
29		H O A	H O A					
30		H O A	H O A					
31		H O A	H O A					

APPENDIX E

List of Safe Work Practices

CITY OF YELLOWKNIFE

SAFE WORK PRACTICE INDEX

Reference Number	Task	Applicable Legislation, Policy or Procedure (See SWP #75 for Definitions)			DM#
5	Air Compressor				135870
10	Battery Charging & Servicing	**Highway Act**			135871
15	Brake Lathe				135872
20	Brush Chipper				135873
25	Cell Phone Use (while driving)	**1000.13**			135874
30	Chain Saw	**WSCC**			135875
35	Chemical handling (WHMIS)	**WSCC**			135876
40	Chlorine handling – Gas	Chlorine & Fluoride Safety Procedure manual			135877
41	Chlorine handling – Shipping, receiving and unloading at PH#1	**Highway Act**	Chlorine & Fluoride Safety Procedure Manual		137694
45	Chlorine handling – Sodium Hypochlorite	Chlorine & Fluoride Safety Procedure manual			135878
50	Compactor – Hand Operated				135879
55	Confined space – General Policy	**1000.12**			135880
75	Definitions				135881
80	Dog Bite & Animal Attack				135882
85	Electrical Worker's Safety	**1020.01**	**WSCC**		135883
90	Emergency Response Plan	**1000.04**	**1000.03**	**WSCC**	135884
95	Entrances, Walkways, Stairways	**WSCC**			135885
100	Equipment – Skid Steer Loader	**Highway Act**	**WSCC**		135886
101	Equipment – Line Painter	**Highway Act**	**WSCC**		493418
102	Equipment – Tar Pot	**Highway Act**	**WSCC**		494209
105	Equipment – Compactors	**Highway Act**	**WSCC**		135887
110	Equipment – Crane Truck	**Highway Act**	**WSCC**		135888

Reference Number	Task	Applicable Legislation, Policy or Procedure (See SWP #75 for Definitions)			DM#
115	Equipment – Diesel and Gas Driven Pumps	**Highway Act**	**WSCC**		135889
120	Equipment – Employees (working around equipment)	**Highway Act**	**WSCC**		135890
125	Equipment – Excavator	**Highway Act**	**WSCC**		135891
130	Equipment – Forklift	**Highway Act**	**WSCC**		135892
135	Equipment – Gen Set Operation	**CSA Standard**	**WSCC**		135893
140	Equipment – Grader (Change blades and ripper teeth)	**Highway Act**	**WSCC**		135894
145	Equipment – Gravel/Snow Haul	**Highway Act**	**WSCC**		135895
150	Equipment – Loader	**Highway Act**	**WSCC**		135896
155	Equipment – Portable Steam Boiler	**Highway Act**	**WSCC**	**Pressure Vessel Act**	135897
156	Equipment – Pressure Washer / Culvert Thaw	**WSCC**			183470
157	Equipment – Sander Truck With Belly Blade	**Highway Act**	**WSCC**		178442
160	Equipment – Street Sweeper	**Highway Act**	**WSCC**		135898
165	Equipment – Tilt Bed Trailers	**Highway Act**	**WSCC**		135899
170	Equipment – Tractors	**Highway Act**	**WSCC**		
175	Equipment – Trucks	**Highway Act**	**WSCC**		135900
180	Equipment – Vactor Truck LS & MH Maintenance.	**Highway Act**	**WSCC**		135901
185	Equipment – Vactor Truck Sewer Flushing	**Highway Act**	**WSCC**		135903
186	Exposing High Voltage Power Lines with Vactor Trucks				297991
190	Equipment Safeguards	**WSCC**			135904
195	Fence Repair				135905

Reference Number	Task	Applicable Legislation, Policy or Procedure (See SWP #75 for Definitions)			DM#
200	Frost Bite, Hypothermia & Heat Stress	**WSCC**			135906
205	Fueling Vehicles	**WSCC**			135907
210	General Operating Procedures	**WSCC**			135908
215	Guard Rail Repair	**WSCC**			135912
220	Hand Tool Safety	**WSCC**			135913
225	Handling Customer Complaints	**1000.11**	**1020.06**		135914
230	Hazardous Space Entry	Chlorine & Fluoride Safety Procedure manual			135915
233	Heating Fuel Spill Response				359180
235	Helicopter Safety				135916
240	Honey Bag & Sewage Handling	**Health Act**	**WSCC**		135917
245	Housekeeping	**WSCC**			135919
250	Hydraulic Press	**WSCC**			135920
255	Job Site Inspections	**WSCC**			135921
258	Land Fill -- Baler	**WSCC**			135922
260	Land Fill – Crawler Tractor Operation	**WSCC**	**Highway Act**		135924
265	Land Fill – Dump Truck Operation	**WSCC**	**Highway Act**		135925
270	Land Fill – General Safety	**WSCC**	**Health Act**	**Environmental Act**	135926
275	Land Fill – Hazardous or Unknown Chemical Handling	**WSCC**	**Environmental Act**		135927
280	Land fill – Loader Operation	**WSCC**	**Highway Act**		135928
285	Land Fill – Skid Steer Operation	**WSCC**	**Highway Act**		135929
288	Land Fill – Wire Fence	**1020.01**			135930
290	Lift Gates (Power Tail Gates)	**WSCC**			135931

Reference Number	Task	Applicable Legislation, Policy or Procedure (See SWP #75 for Definitions)			DM#
295	Lock Out	**1020.01**	**WSCC**		135932
300	New & Inexperienced Employees	**1020.02**	**WSCC**		135933
305	Noise Exposure	**1020.03**	**WSCC**	**Health Act**	135934
310	Occupational Health & Safety	**1010.01 to 1010.04**	**1000.01**	**1000.06 to 1000.09**	135935
315	Office Safety	**1020.08**			135936
320	Overhead Crane	**WSCC**			135937
325	Oxy-Acetylene Torch Use **See #465**	**WSCC**			138913
330	Painting	**WSCC**			135938
335	Pothole Patching	**Traffic Act**	**WSCC**		135939
340	PPE Personal Protective Equipment	**WSCC**			135940
345	Pressure Washers	**WSCC**			135941
350	Reporting Unsafe Acts	**WSCC**			135942
355	Rigging	**WSCC**			135943
360	Safe Driving	**Traffic Act**	**WSCC**		135944
362	Safe Handling of Dust Suppressant or Road Spit	**Traffic Act**	**WSCC**		137631
365	Safe Lifting (Manual)	**WSCC**			135945
370	Safety Procedure to Discuss Non-Typical Tasks	**WSCC**			135946
375	Scaffolds, Man Lifts & Fall Protection	**1000.10**	**WSCC**		135947
380	Shop Rules (Fleet)				135948
381	Shop Rules – After Hours Use				135949
390	Snow Removal				135950
395	Tail Gate Meetings	**1000.05**	**WSCC**		135951
400	Thaw Frozen Sewer Lines				135952

Reference Number	Task	Applicable Legislation, Policy or Procedure (See SWP #75 for Definitions)			DM#
405	Thaw Frozen Water Lines -- Energizer				135953
406	Thaw Frozen Water lines – Water Pick				135954
410	Thaw Frozen Ground				135955
415	Tire Repair				135956
420	Towing Vehicles	**Highway Act**			135957
425	Traffic Control & Flagging	**Highway Act**	**WSCC**		135958
430	Tree Care Operations	**WSCC**			135959
435	Trenches & Excavations	**WSCC**			135960
440	Use and Care of Respiratory Equipment	**1020.02**			135961
445	Use of Fire Extinguishers				135962
450	Use of Hydrants				135963
455	Use of Lawn Mowers				
460	Vehicle Hoists				135964
463	Vehicle Idling	**WSCC**			141194
464	Vehicle Inspections	**WSCC**	**Traffic Act**		192047
465	Welding, Cutting and Grinding (Plus Fire Safety)	**WSCC**			135965
470	Work Refusal	**1020.07**	**1000.09**		135966
475	Working Alone	**1000.14**			135967
480	Working Around Utility Lines	**WSCC**			135968
481	Working with Street Signs	**Traffic Act**	**WSCC**		137807
482	Working Safely with Ladders	**WSCC**			138907

APPENDIX F

Bear Safety

If You Encounter a Bear...

- Remember the 3 S's... Stop, Stand still, Stay calm.
- Ensure others know that a bear is in the vicinity.
- Do not run.
- Leave the bear an open avenue of escape.

...at a DISTANCE

- Alert the bear to your presence – speak in low tones, slowly wave your arms.
- Quietly walk back the way you came or make a wide detour.
- Keep an eye on the bear.
- Stay downwind.
- Consider using warning shots, noisemakers.

...that is NEARBY

- Do not shout or make sudden movements.
- Avoid direct eye contact.
- Back away slowly.
- Climb at least four metres up a tree to escape a grizzly. (Ineffective against black bears).

Deterrents...

- Include... 12 gauge cracker shells, air horns, flares, and chemical repellents such as pepper spray.
- Are not completely effective against every bear in every situation.
- Should not make you less careful to avoid bear conflicts.
- Are potentially dangerous – use with extreme caution.

If a Bear Charges...

- Many charge are bluffs – the bear will often veer to the side at the last minute.
- Use a chemical repellent only at close range.
- If you have a firearm and contact appears unavoidable, shoot to kill.
- Play dead only during a grizzly bear attack (lie on your side, curl into a ball with your legs tight to your chest, hands clasped behind your neck).

If you must shoot a bear in self-defense, report the kill to a Renewable Resource Officer as soon as possible. If an Officer is not immediately available, skin the bear and preserve the hide. The hide must be turned in to an Officer. You may not keep any part of a bear killed in self-defense.

For Further Information...

For further information, contact any Environment and Natural Resources Office:

Area Code (867)

Aklavik	978-2248
Deline	589-3421
Fort Good Hope	598-2271
Fort Liard	770-4311
Fort McPherson	952-2200
Fort Providence	669-3002
Fort Resolution	394-4596
Fort Simpson	695-7433
Fort Smith	872-6400
Hay River	875-5554
Inuvik	678-6670
Lutsel K'e	370-3141
Norman Wells	587-3500
Behchokǫ̀	392-6511
Tsiigehtchic	953-3605
Tulita	588-3441
Tuktoyaktuk	977-2350
Ulukhaktok	396-4505
Yellowknife	873-7181

Northwest Territories Environment and Natural Resources

May 2009

Safety in Grizzly and Black Bear Country

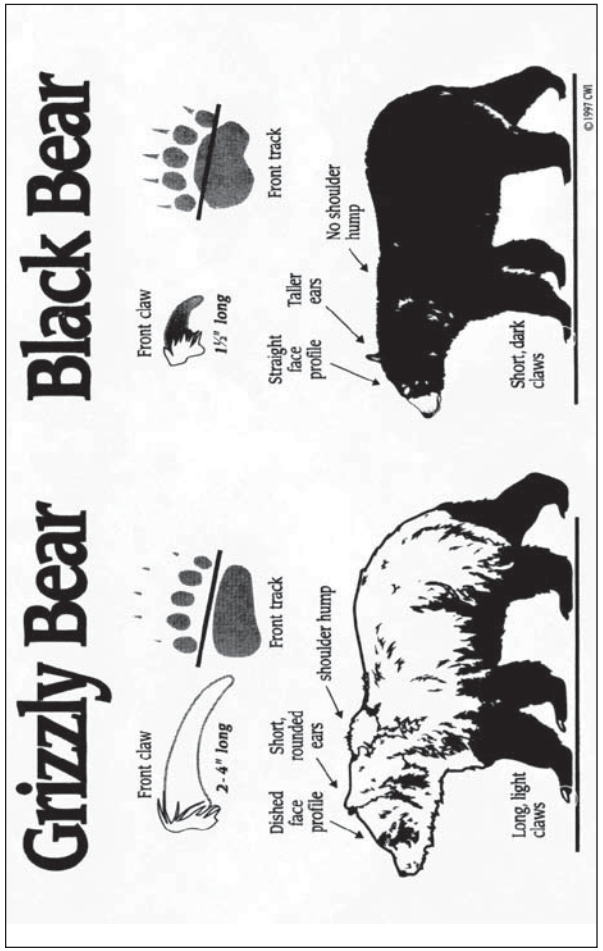
Black Bear

Welcome to Bear Country

Grizzly and black bears can be found throughout the Northwest Territories. They are an important part of the northern ecosystem.

Northerners are committed to maintaining healthy populations of all wildlife, including grizzly and black bears. Treat them with respect. Remember that you are in a bear's territory.

What's the Difference Between...?



While You are Travelling...

- Always be alert.
- Travel in groups.
- Travel only during daylight.
- Avoid carrying strong smelling foods.
- Make noise where visibility is limited.
- Avoid bear feeding areas such as flood plains, berry patches and areas rich in horsetails and other grasses.
- Avoid bear travel areas like shorelines, trails along the water or near berry patches.
- Watch for fresh bear droppings and tracks.
- Carry bear deterrents.

If You are Camping...

- Avoid camping in areas frequented by bears.
- Always sleep inside a shelter (tent, cabin, etc.).
- Don't keep food in tents or areas of camp other than the cook tent.
- Keep a clean camp - wash all dishes and utensils after every meal.
- Avoid cooking greasy foods.
- Burn all garbage every day or take it to a bearproof disposal site. Burying garbage does not eliminate odors.
- If you're going to leave the campsite:
  - bearproof your camp – store food and other attractants (dish detergent, toothpaste, etc.) in an inaccessible place.
  - let someone know where you are going.
  - take a partner and bear deterrents with you.

Grizzly Bears

If You are Fishing...

- Be cautious near streams or lakes - bears frequent these areas.
- Clean fish away from camp and store them underwater.
- Burn fish guts away from camp.
- Store fish-cleaning knifes away from camp.
- Don't wear clothes that smell like fish to bed.

If You are Hunting...

- Avoid hunting late in the day and returning to camp in the dark.
- Stay alert when dressing game or handling meat and only do so away from camp.
- Avoid shooting more than your party can pack out in a single load.
- If you must leave meat in the field, leave it near a visible landmark with a clear approach route and cover it with a tarp to discourage scavengers.
- Don't keep bloodied clothes in your tent.

LEGEND

△ TH 1009 - APRIL 1979 TEST HOLES
186.27 - ELEVATION

□ NOV 1979 PROBE HOLES

⊕ FEB. 1981 PROBE HOLES

A66 - R.C.P.L. SURVEY PIN NO.
4+34.4 - R.C.P.L. STATION
192.05 - ELEVATION

830-152

RCPL PROJECT NO. : 40,505

TO BE READ WITH KLOHN LEONOFF REPORT DATED

REV.	DATE	REVISION DETAILS
1	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

DESIGN	DRAWN	DATE	SCALES

SCALE: 1:500

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: TEST HOLE LOCATION AND SURFACE CONTOUR PLAN
DIKE NO.1

CLIENT: REID CROWTHER & PARTNERS LIMITED

DATE OF ISSUE: AUG., 1981
APPROVED

PROJECT No.: AL 1430

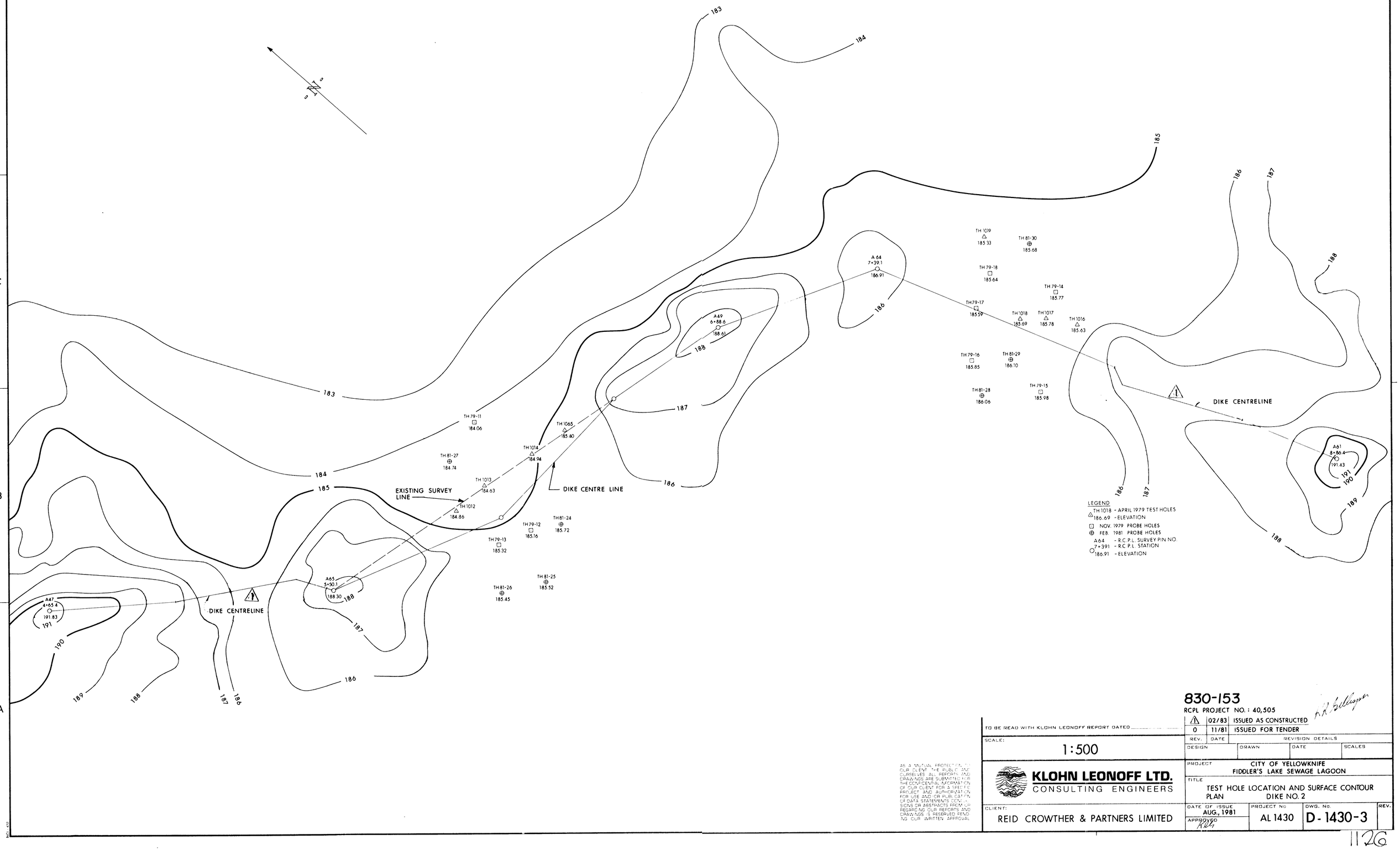
DWG. No.: D-1430-2

REV.

1126

1 2 3 4 5 6

D C B A



LEGEND
- TH 1018 - APRIL 1979 TEST HOLES
- △ 186.69 - ELEVATION
- □ NOV. 1979 PROBE HOLES
- ⊕ FEB. 1981 PROBE HOLES
- A64 - R.C.P.L. SURVEY PIN NO.
- 7+391 - R.C.P.L. STATION
- ○ 186.91 - ELEVATION

830-153

RCPL PROJECT NO. : 40,505

REV.	DATE	REVISION DETAILS
2	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

TO BE READ WITH KLOHN LEONOFF REPORT DATED

SCALE: 1:500

DESIGN	DRAWN	DATE	SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

CLIENT: REID CROWTHER & PARTNERS LIMITED

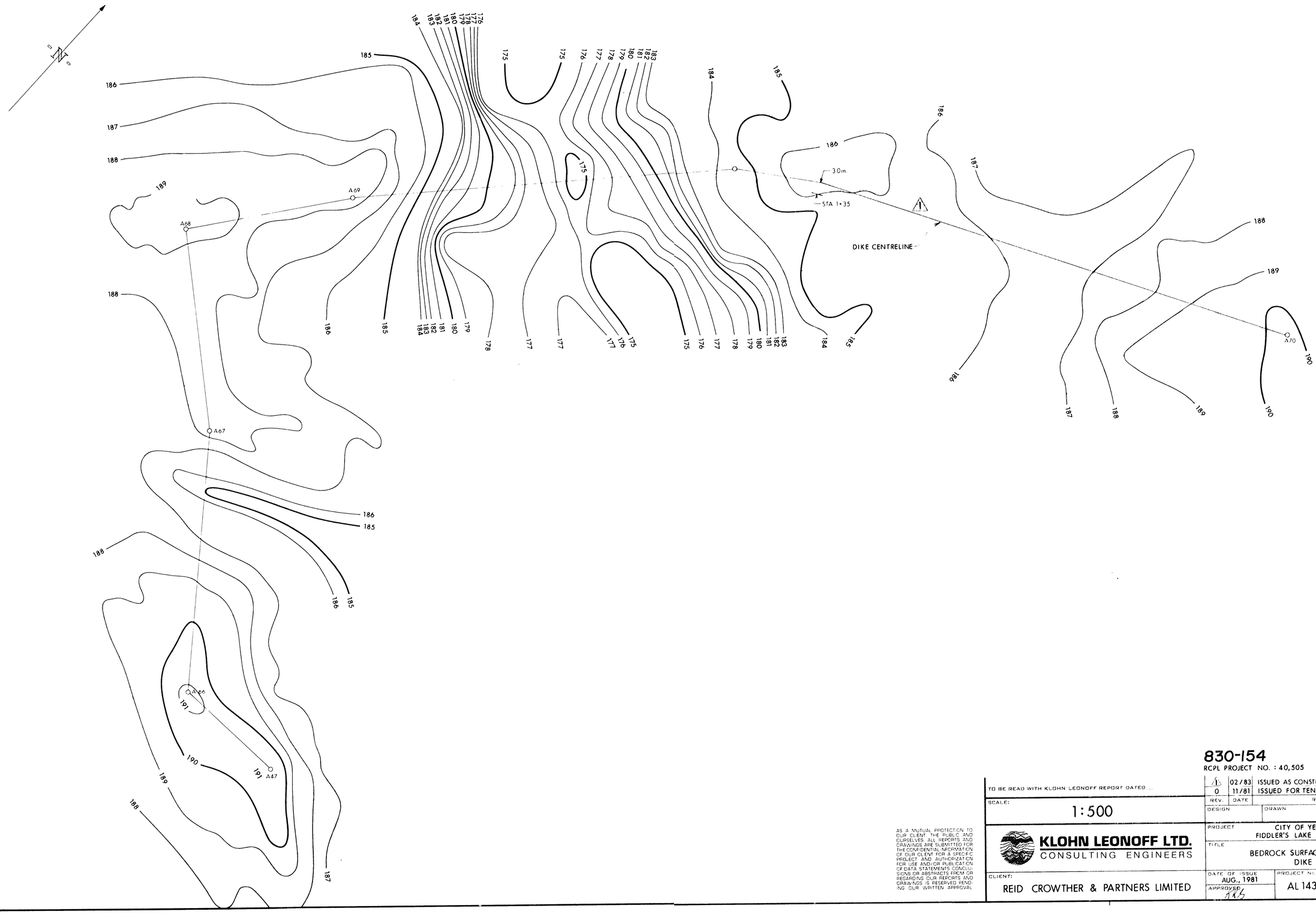
PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: TEST HOLE LOCATION AND SURFACE CONTOUR PLAN DIKE NO. 2

DATE OF ISSUE	PROJECT No	DWG. No.	REV.
AUG., 1981	AL 1430	D-1430-3	

APPROVED

1126



AS A MUTUAL PROTECTION TO OUR CLIENT, THE PUBLIC AND OURSELVES, ALL REPORTS AND DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE AND/OR PUBLICATION OF DATA, STATEMENTS, CONCLUSIONS OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.

830-154

RCPL PROJECT NO. : 40,505

A.R. Gillespie

REV.	DATE	REVISION DETAILS
1	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

TO BE READ WITH KLOHN LEONOFF REPORT DATED ...

SCALE: 1:500

DESIGN	DRAWN	DATE	SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

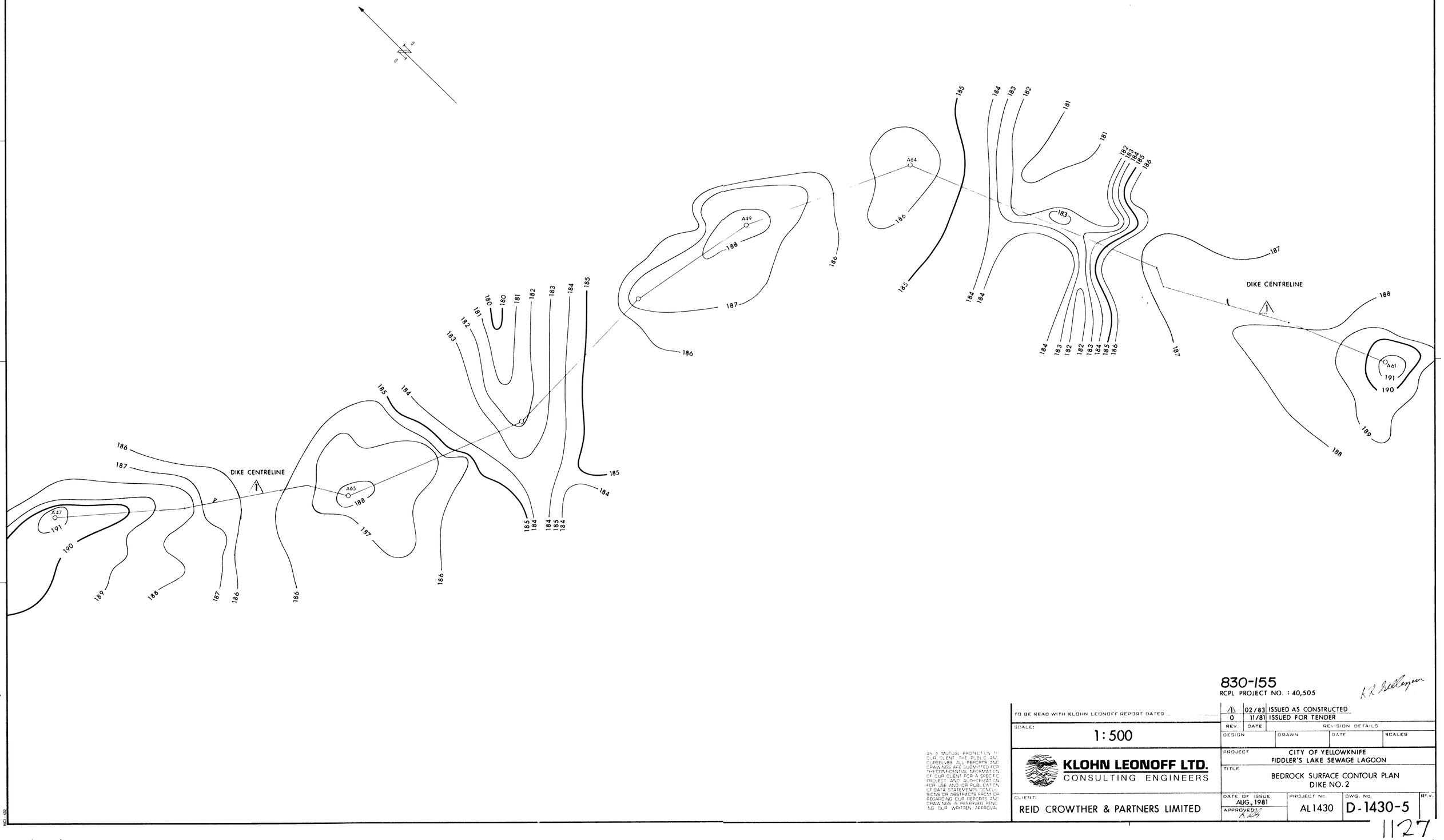
TITLE: BEDROCK SURFACE CONTOUR PLAN
DIKE NO.1

CLIENT: REID CROWTHER & PARTNERS LIMITED

DATE OF ISSUE	PROJECT NO.	DWG. NO.	REV.
AUG., 1981	AL 1430	D-1430-4	

APPROVED

1127



830-155
RCPL PROJECT NO. : 40,505

TO BE READ WITH KLOHN LEONOFF REPORT DATED

REV.	DATE	REVISION DETAILS
2	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

SCALE: 1:500

DESIGN	DRAWN	DATE	SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

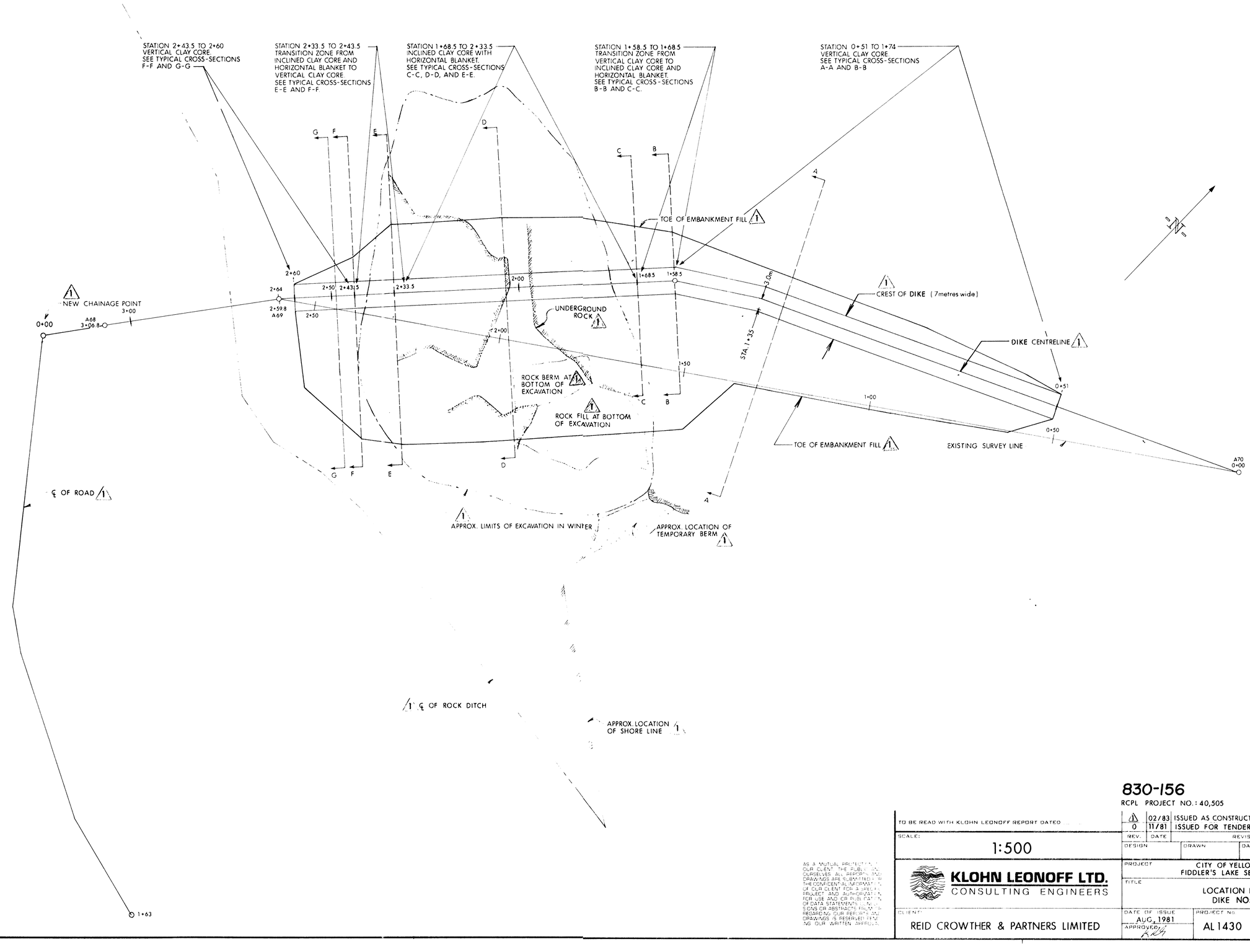
PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: BEDROCK SURFACE CONTOUR PLAN
DIKE NO. 2

CLIENT: REID CROWTHER & PARTNERS LIMITED

DATE OF ISSUE: AUG., 1981
APPROVED: AJS
PROJECT NO: AL1430
DWG. NO: D-1430-5
REV.

1127



AS A MUTUAL PROTECTION TO OUR CLIENT, THE PUBLIC AND OURSELVES, ALL REPORTS, SKETCHES, DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE AND/OR PUBLICATION OF DATA STATEMENTS, OPINIONS OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.

830-156

RCPL PROJECT NO.: 40,505

TO BE READ WITH KLOHN LEONOFF REPORT DATED

REV.	DATE	REVISION DETAILS
0	11/81	ISSUED FOR TENDER
1	02/83	ISSUED AS CONSTRUCTED

SCALE: 1:500

DESIGN	DRAWN	DATE	SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: LOCATION PLAN
DIKE NO:1

CLIENT: REID CROWTHER & PARTNERS LIMITED

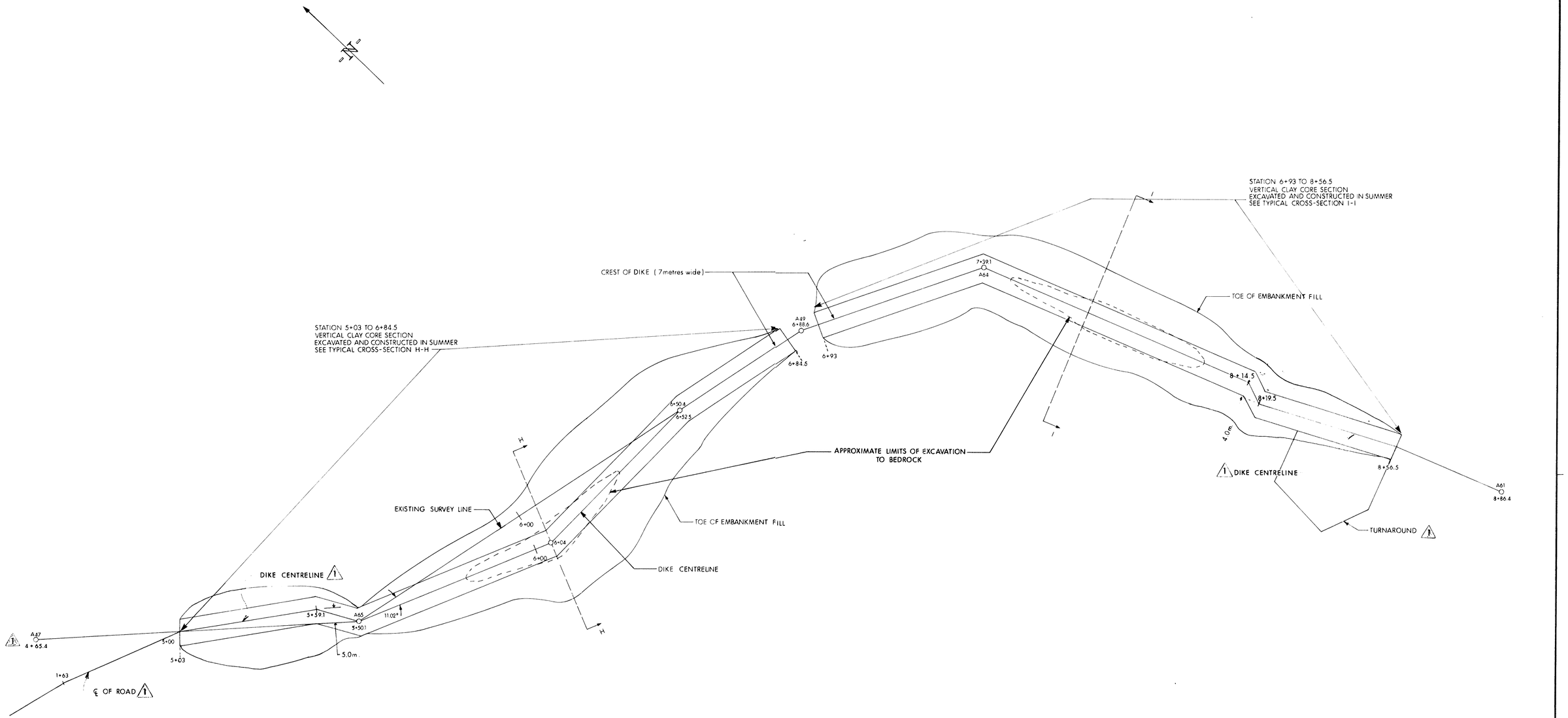
DATE OF ISSUE: AUG, 1981
APPROVED: RLK

PROJECT NO: AL1430

DWG. NO: D-1430-6

REV:

1128



830-157

RCPL PROJECT NO.: 40,505

REV.	DATE	REVISION DETAILS
1	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

TO BE READ WITH KLOHN LEONOFF REPORT DATED

SCALE: 1:500

DESIGN | DRAWN | DATE | SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: LOCATION PLAN
DIKE NO. 2

CLIENT: REID CROWTHER & PARTNERS LIMITED

DATE OF ISSUE: AUG., 1981

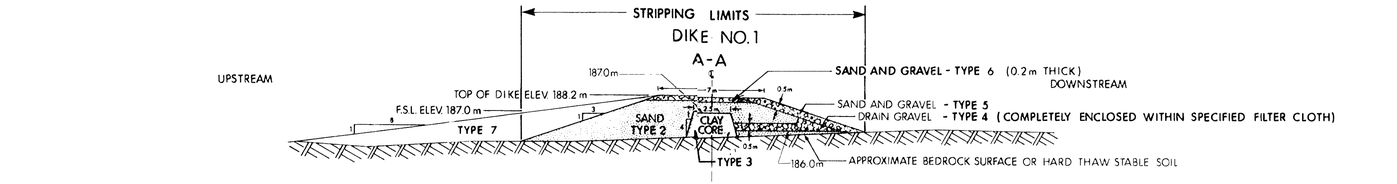
APPROVED

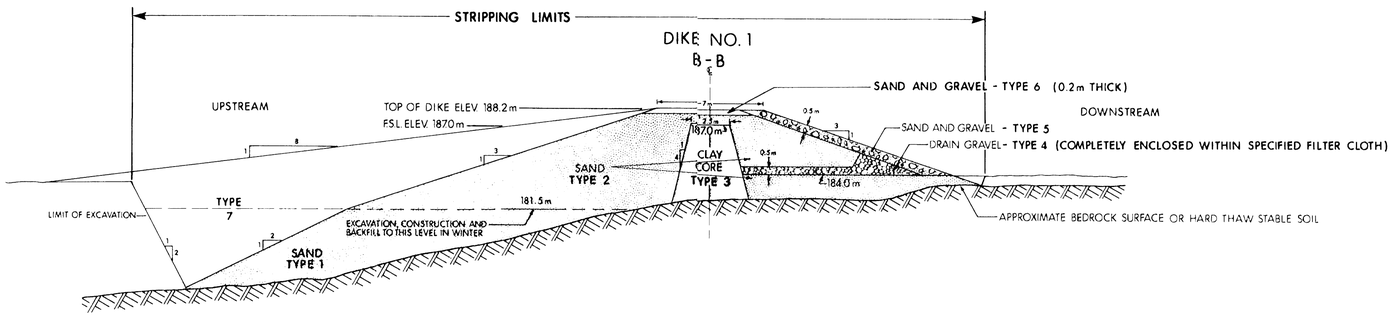
PROJECT No.: AL 1430

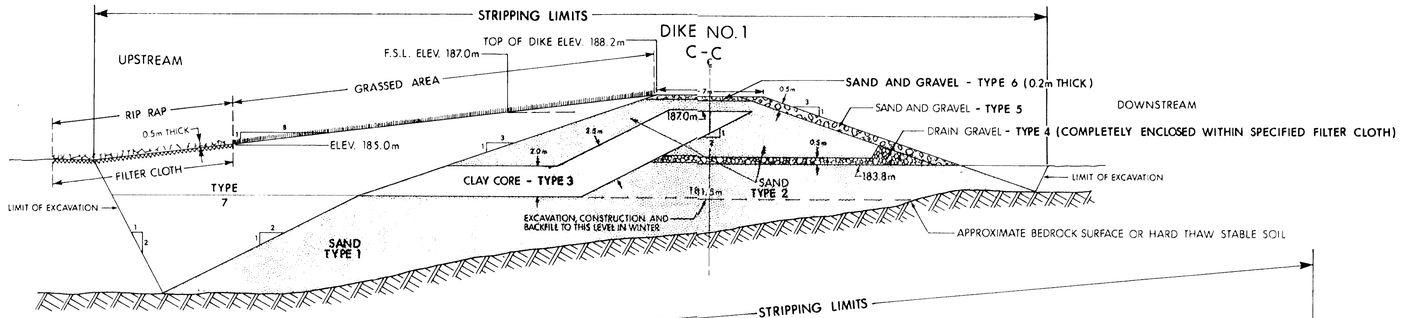
DWG. No.: D-1430-7

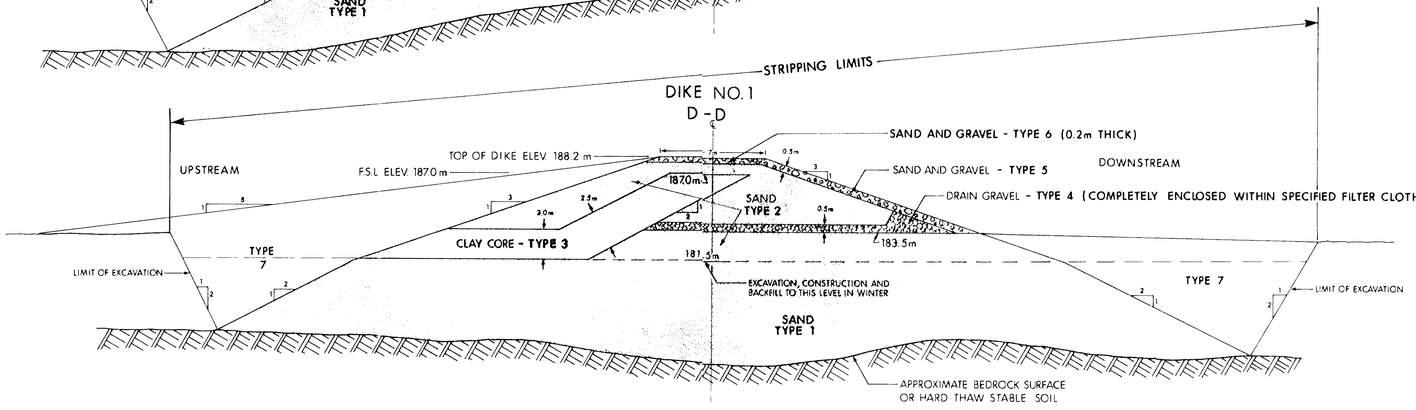
REV.

1129









NOTE

CROSS-SECTION C-C SHOWS THE TYPICAL SLOPE PROTECTION TO BE INSTALLED ON THE UPSTREAM FACE OF DIKES No. 1 AND 2 AS DIRECTED BY THE ENGINEER.

- FILTER CLOTH AND RIP RAP BLANKET TO BE INSTALLED UP TO ELEVATION 185.0m.
- RIP RAP BLANKET TO BE 0.5m THICK.
- SLOPE TO BE GRASSED BETWEEN ELEVATION 185.0m AND TOP OF DIKE.

NOTE:

BASE ELEVATION OF DRAIN GRAVEL (TYPE 4) SHOWN ON CROSS-SECTIONS IS APPROXIMATE. THE ELEVATIONS WILL BE ADJUSTED AT THE TIME OF CONSTRUCTION.

830-158

RCPL PROJECT NO.: 40,505

TO BE READ WITH KLOHN LEONOFF REPORT DATED

REV.	DATE	REVISION DETAILS
1	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

SCALE: 1:200

DESIGN | DRAWN | DATE | SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: TYPICAL DIKE CROSS-SECTIONS

CLIENT: REID CROWTHER & PARTNERS LIMITED

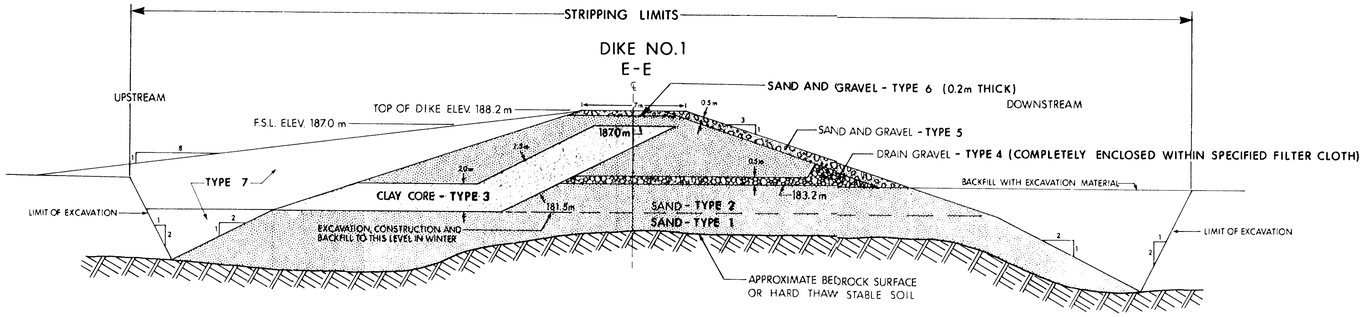
DATE OF ISSUE: AUG., 1981
APPROVED

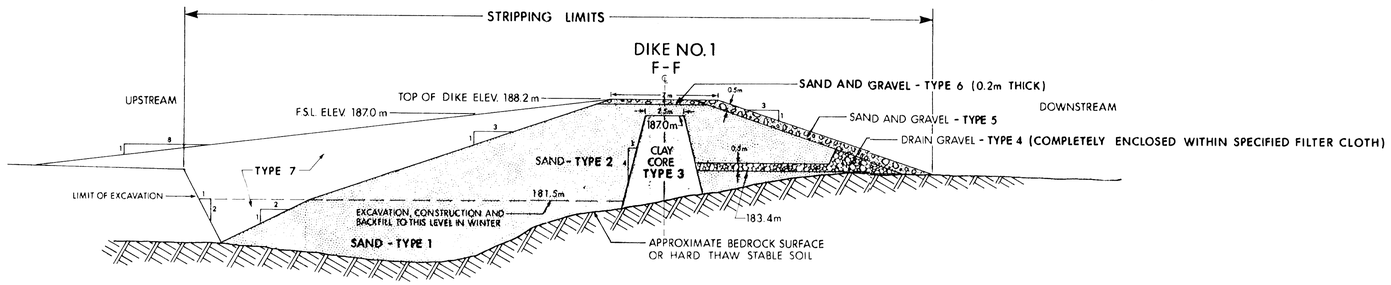
PROJECT No.: AL1430

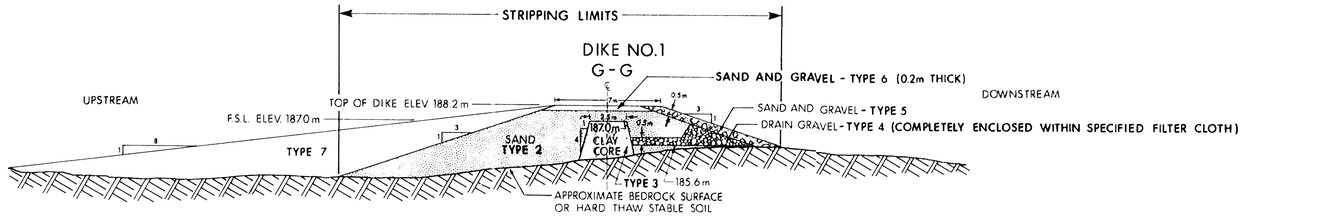
DWG. No.: D-1430-8

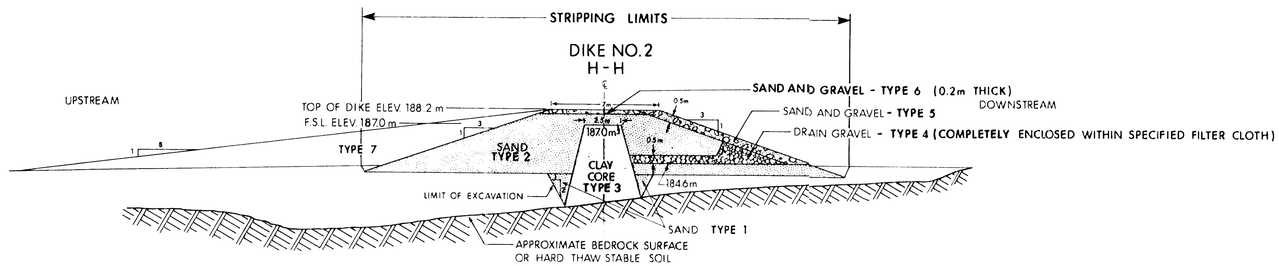
REV.

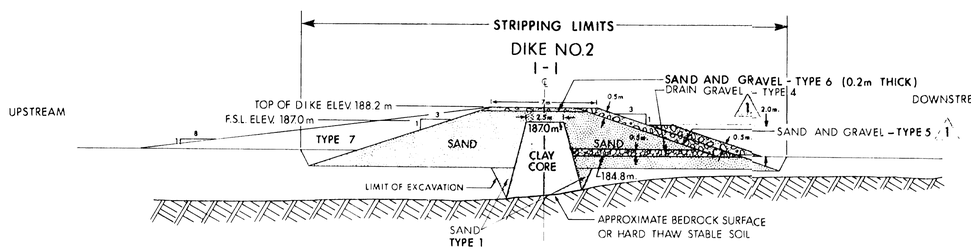
1130











NOTE

BASE ELEVATION OF DRAIN GRAVEL (TYPE 4) SHOWN ON CROSS-SECTIONS IS APPROXIMATE. THE ELEVATIONS WILL BE ADJUSTED AT THE TIME OF CONSTRUCTION.

830-159

RCPL PROJECT NO. : 40,505

TO BE READ WITH KLOHN LEONOFF REPORT DATED

REV.	DATE	REVISION DETAILS
1	02/83	ISSUED AS CONSTRUCTED
0	11/81	ISSUED FOR TENDER

SCALE: 1:200

DESIGN	DRAWN	DATE	SCALES

KLOHN LEONOFF LTD.
CONSULTING ENGINEERS

PROJECT: CITY OF YELLOWKNIFE
FIDDLER'S LAKE SEWAGE LAGOON

TITLE: TYPICAL DIKE CROSS-SECTIONS

CLIENT: REID CROWTHER & PARTNERS LIMITED

DATE OF ISSUE	PROJECT No.	DWG. No.	REV.
AUG., 1981	AL 1430	D-1430-9	

APPROVED

1130