



# South St. Andrews Wastewater System Public Utilities Board April 26, 2021

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# WINNIPEG AGREEMENT REQUIREMENTS

## Sewer meter

- Municipality shall install one or more electromagnetic sewer meters.
  - A magmeter is installed at River Road lift station to measure wastewater pumped to the City

## Wastewater generation records

- Municipality shall maintain written and electronic records of wastewater volume based on sewer meter readings by the Municipality.
- Municipality shall submit to the Director a quarterly report on wastewater volume readings.
- City will use wastewater volume readings to generate an invoice for wastewater treatment, based on agreed sewer rates.

# WINNIPEG AGREEMENT REQUIREMENTS, continued

## Municipality's obligation to sample / test - wastewater

- Municipality shall sample and test wastewater flow at or near the wastewater tie-in point in compliance with the following conditions:
  - (a) every 3 months (quarterly) for all parameters set out in Schedules "A" & "B" to the sewer by-law;
  - (b) biweekly (2 times/month) for 5-day Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Total Phosphorous (TP) and Total Nitrogen (TN);
  - (c) analyses to be conducted in accordance with the sewer bylaw by an accredited laboratory;
  - (d) sampling, sample storage and handling, and analytical protocols to be conducted as approved by the Director; and
  - (e) test results to be provided to the City within 7 days of conclusion of each testing period.

# RM OF ST. ANDREWS REQUIREMENTS

## Domestic water meter

- Section 75 of RM of St. Andrews Sewer By-law 4291 sets out requirements for properties to have a water meter installed on their well water in order to determine the volume of wastewater discharged to the wastewater system.
- A wastewater meter was not chosen because:
  - Wastewater meters are 3-4 times the cost of water meters, and water meters require regular and frequent maintenance.
  - A wastewater meter would need to be installed in a meter pit in the ground for properties that have the discharge pump located in the septic tank, adding another cost to the installation.
  - If wastewater meters were installed inside the house, they would also measure the settleable solids retained in the septic tank and not conveyed to the City of Winnipeg via the low pressure sewer system.

# LIFT STATION OPERATION & MAINTENANCE

## Pump control

- Each lift station has 3 pumps configured in lead/standby configuration that cycle on & off based on wet well levels.
- 2 of the 3 pumps are variable speed controlled to provide better energy efficiency and a more effective pumping strategy.
- Daily inspection of pumps and controls is required to ensure pumps are operating as intended.

## Odour control

- Each lift station has a biological odour control system that draws air from the wet well and blows it through a 3-stage biofilter before air is discharged into the atmosphere.
- Daily inspection and recording of airflows, pressures and temperatures is required
- Nutrients and water softener salt is required, and its usage must be monitored.
- Daily, weekly, monthly, quarterly, semi-annual and annual maintenance checks are required.

# LIFT STATION OPERATION & MAINTENANCE, continued

## Corrosion control

- Liquid phase - uses high purity oxygen
  - Two air compressors (lead/standby) at each lift station provide air to air separator system (lead/standby) that strips nitrogen from the air, leaving a <90% oxygen concentration that is injected into wastewater discharge pipe whenever 1 or more pumps are running.
  - The high purity oxygen keeps the dissolved sulfide in the water via biological oxidation, which converts sulfide to a sulphate, preventing it from turning into hydrogen sulphide (a gas that then escapes into the air). Hydrogen sulfide gas is poisonous, odorous and corrosive to cement and metal pipes and equipment.
  - Equipment requires daily inspection and record-keeping to ensure it is operating as intended to protect the lift station equipment and the infrastructure downstream.

# LIFT STATION OPERATION & MAINTENANCE, continued

## Corrosion control, continued

- Gas phase - uses a chemical called bioxide
  - A chemical (bioxide) backup is at River Road lift station only (as this is the only station that pumps to the City) for use if high purity oxygen isn't enough to keep dissolved sulphides suspended in water.
  - If chemical use is required, it needs daily inspection and record keeping to ensure it is operating as intended.
- Testing & monitoring
  - Hydrogen sulfide gas and dissolved oxygen monitoring/testing are performed regularly in the downstream pipe prior to where wastewater enters the West St. Paul interceptor.
  - This information is used to optimize the corrosion control system.

# LIFT STATION OPERATION & MAINTENANCE, continued

## Standby generators

- Each lift station has a diesel standby generator that will start-up on power failure so that the station continues to operate as intended.
- The generators need to be tested regularly and checked to ensure they are operating as intended.

## Alarms and SCADA system

- Each lift station has SCADA (Supervisory Control & Data Acquisition) system that provides remote monitoring of pumps and alarms.
- Remote dial-out system also sends out an alarm message via text and phone call so operators can respond to any emergency alarms when they occur.

# OPERATOR CERTIFICATION

## Certification requirement

- Manitoba Conservation & Climate requires that all wastewater collection operators be certified. To be certified, operators need to pass an exam, have the necessary education for the classification of the facility, and have 1 year experience in each level.
- Our lift stations are class 2 facilities, meaning we need class 2 certified collection operators.
- As this is a new collection system, the Municipality does not have certified operators and is therefore contracting out this work until our 2 interested employees are certified. They will require 2 years of experience and will need to pass 2 exams (class 1 and class 2).
- Our goal is to have these operators certified after 2 years of operation.

# SELKIRK SERVICE AGREEMENT

## Selkirk's responsibilities

- Ensure qualified sewer personnel perform daily routine maintenance requirements, including checking and monitoring sewer equipment 7 days per week, to ensure all provincial regulations and service sharing agreements with the City of Winnipeg and the RM of West St. Paul are met.
- 2 hours per day, 7 days per week shall be allotted for Selkirk utility personnel to complete daily routine maintenance requirements.
- Selkirk will respond to emergency callout alarms to assess, stabilize and correct the alarm condition.