

**Design Criteria for  
Sanitary Sewers, Storm Sewers and Forcemains  
for Alterations Authorized under an  
Environmental Compliance Approval**

Ministry of Environment, Conservation and Parks  
v.2.0, May 5, 2023

## Version History

Version	Date	Comments
1.0	April 22, 2022	Initial Publication
2.0	May 5, 2023	<p>Updates and additions to provide clarification of requirements.</p> <ul style="list-style-type: none"><li>• Minor administrative updates</li><li>• Updates to Appendix I and addition of Appendix II to provide additional guidance regarding source protection.</li><li>• Removed 2.1.1(2), peaking factor, as it is now covered by 2.1.6</li><li>• Update to 2.1.2(1) and 2.1.4(1) to gross ha/dy.</li><li>• Update to 2.1.4(2) to increase the upper range from 0.5 to 0.64 gross ha.</li><li>• Addition of 2.1.6 (Peaking Factors)</li><li>• Removed 8.2.3(1)</li><li>• Addition of 8.2.5 (visual inspection of maintenance holes)</li><li>• Addition of 8.3.4 (replacements of existing sanitary sewers with active service connections that cannot be plugged to complete leakage testing)</li></ul>

## Table of Contents

Preface .....	1
Definitions .....	2
<b>1.0. INTRODUCTION .....</b>	<b>6</b>
1.1. General Requirements .....	6
1.2. Design Considerations .....	7
1.3. Protection of drinking water sources .....	8
1.4. Protection of Water Supplies .....	8
<b>2.0. DESIGN OF SANITARY SEWERS .....</b>	<b>9</b>
2.1. Design Flows .....	9
2.2. Friction Factors .....	10
2.3. Pipe Diameters .....	10
2.4. Flow Velocity .....	10
2.5. Anchors/Restraints .....	11
2.6. Pipe Material .....	11
2.7. Pipe Strength .....	11
2.8. Pipe Cover and Frost Protection .....	11
2.9. Sanitary Sewers and Maintenance Holes Installed Below Seasonally High Groundwater Table .....	12
2.10. Sanitary Maintenance Holes .....	12
2.11. Inverted Siphons .....	13
2.12. Service Connections (Service Laterals) .....	14
<b>3.0. DESIGN OF FORCEMAINS .....</b>	<b>15</b>
3.1. Pipe Diameters .....	15
3.2. Friction Factors .....	15
3.3. Flow Velocity .....	15
3.4. Anchors/Restraints .....	15
3.5. Pipe Material .....	15
3.6. Pipe Strength .....	16
3.7. Pipe Cover and Frost Protection .....	16
3.8. Termination .....	16
3.9. Identification .....	17
3.10. Maintenance .....	17
3.11. Transient Pressures .....	17

3.12. Air and Vacuum Relief Valves.....	17
3.13. Drain Valves .....	17
3.14. Service Connections .....	18
<b>4.0. COMBINED SEWERS .....</b>	<b>19</b>
4.1. Rehabilitation of Existing Combined Sewers .....	19
4.2. CSO Detention Facilities .....	19
<b>5.0. STORM SEWERS .....</b>	<b>20</b>
5.1. Design of Storm Sewers .....	20
5.2. Runoff Calculations .....	20
5.3. Friction Factors .....	21
5.4. Pipe Diameter .....	21
5.5. Flow Velocity.....	21
5.6. Anchors/Restraints.....	22
5.7. Pipe Material.....	22
5.8. Pipe Strength .....	22
5.9. Pipe Cover and Frost Protection .....	22
5.10. Storm Maintenance Holes .....	23
5.11. Catch Basins.....	23
5.12. Inverted Siphons.....	24
5.13. Service Connections (Service Laterals) .....	24
<b>6.0. Third Pipe Collection System.....</b>	<b>25</b>
<b>7.0. Documentation.....</b>	<b>26</b>
<b>8.0. Inspection and Testing for Sanitary Sewers, Storm Sewers and Force mains.....</b>	<b>27</b>
8.1. General Requirements .....	27
8.2. Inspections .....	27
8.3. Leakage Testing .....	28
8.4. Deflection Testing .....	30
8.5. Hydrostatic Testing .....	30

## List of Tables

Table 1 - Common Sewage Flowrates for Commercial and Institutional Uses .....	10
Table 2 - Hazen-Williams C-Factors .....	15
Table 3 - Runoff Coefficients .....	21
Table 4 - Manning's Roughness Coefficient (n) for New Pipes .....	21
Table 5 - Maintenance Hole Spacing .....	23
Table 6 - Catch Basin Spacing .....	23

## Appendices

- Appendix I: Identification of Risks to Sources of Drinking Water
- Appendix II: Source Protection Standard Operating Policies

## Preface

The Design Criteria establish the minimum design requirements for Alteration to an existing Municipal Sewage Collection System and Municipal Stormwater Management System by adding, modifying, replacing, or extending Sanitary Sewers, forcemains, or Storm Sewers to satisfy one of the conditions imposed by the Director in Municipal Sewage Collection System ECA and Stormwater ECA authorizing future Alterations. Compliance with this Criteria and other conditions of the ECA negates the need for the Owner of the Municipal Sewage Collection System and Municipal Stormwater Management System to apply for an amendment to the ECA for the Alteration of Sanitary Sewers, forcemains or Storm Sewers within the collection system.

The existence of these Criteria does not preclude Alteration of Sanitary Sewers, forcemains or Storm Sewers that are not designed in accordance with these Design Criteria. However, any Alterations to collection systems that are either not designed in accordance with this Design Criteria or does not satisfy the conditions of the ECA are subject to the requirement to obtain an amendment to the ECA prior to proceeding with the undertaking.

Other approving authorities, such as municipalities in which the works are constructed or regional governments, may have servicing standards or criteria that are more stringent than the requirements outlined in the Design Criteria and they shall be considered acceptable for the purposes of complying with the requirements of the Design Criteria.

The Design Criteria document reflect program decisions that would be routinely made by the approving Director that issues ECAs under the authority of the *Ontario Water Resources Act, R.S.O. 1990, c. O.40* and the *Environmental Protection Act, R.S.O. 1990, c. E.19*. The Design Criteria may be updated from time to time by the Director or in order to conform to any future changes to the provincial policy, regulation or legislation that apply to Sanitary Sewers, forcemains or Storm Sewers.

## Definitions

For the purpose of this Design Criteria, the following definitions apply:

**“Adverse Effect(s)”** has the same meaning as defined in section 1 of the EPA.

**“Alteration(s)”** includes the following, in respect of the Authorized System, but does not include repairs to the system:

- a) An extension of the system,
- b) A replacement of part of the system, or
- c) A modification of, addition to or enlargement of the system.

**“Appurtenance(s)”** has the same meaning as defined in O. Reg. 525/98 (Approval Exemptions) made under the OWRA.

**“Authorized System”** means the Sewage Works authorized under an Environmental Compliance Approval for a Municipal Sewage Collection System or an Environmental Compliance Approval for a Municipal Stormwater Management System.

**“Collection System Overflow(s)”** means a discharge (SSO or CSO) to the environment at designed location(s) from the Authorized System.

**“Combined Sewer(s)”** means pipes that collect and transmit both sanitary Sewage and other Sewage from residential, commercial, institutional and industrial buildings and facilities and Stormwater runoff through a single-pipe system, but does not include Nominally Separate Sewers.

**“Combined Sewer Overflow(s)” or “(CSO)”** means a combined sewer overflow which is a discharge to the environment at designated location(s) from a Combined Sewer or Partially Separated Sewer that usually occurs as a result of precipitation when the capacity of the Sewer is exceeded. An intervening time of twelve hours or greater separating a CSO from the last prior CSO at the same location is considered to separate one overflow Event from another.

**“CWA”** means the *Clean Water Act*, R.S.O. 2006, c.22.

**“Design Criteria”** means the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Force mains for Alterations Authorized under Environmental Compliance Approval”, (as amended from time to time).

**“Director”** means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA.

**“ECA”** means an Environmental Compliance Approval.

**"Emergency Situation"** means a structural, mechanical, electrical failure, or operational health and safety incident, that causes a temporary reduction in the capacity, function or performance of any part of the Authorized System or an unforeseen flow condition that may result in:

- a) Danger to the health or safety of any person;
- b) Injury or damage to any property, or serious risk of injury or damage to any property;
- c) Adverse Effect to the Natural Environment; or;
- d) Spill.

**"EPA"** means the Environmental Protection Act, R.S.O. 1990, c.E.19;

**"Event(s)"** means an action or occurrence, at any given location within the Authorized System that causes a Collection System Overflow. An Event ends when there is no recurrence of a CSO or SSO in the Collection System at the same location in the 12-hour period following the last Collection System Overflow.

**"Facility"** means the entire operation located on the property where the Sewage Works is located;

**"Licensed Engineering Practitioner"** means a person who holds a licence, limited licence, or temporary licence under the *Ontario Professional Engineers Act R.S.O. 1990, c. P.28*.

**"LID"** means "low impact development" a Stormwater management strategy that seeks to mitigate the impacts of increased runoff and Stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of site design strategies that minimize runoff and distributed, small scale structural practices that mimic natural or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration, and detention of Stormwater.

**"MTD"** means manufactured treatment device;

**"Minister"** means the Minister of the Ministry or such other member of the Executive Council as may be assigned the administration of the EPA and OWRA under the *Executive Council Act*, R.S.O. 1990, c. E.25;

**"Ministry"** means the Ministry of the Minister and includes all employees or other persons acting on its behalf;

**"Municipal Sewage Collection System"** means all Sewage Works located in the geographical area of a municipality that collect and transmit sanitary Sewage and are owned, or may be owned pursuant to an agreement with a municipality entered into under the *Planning Act*, R.S.O. 1990, c. P.13 or *Development Charges Act, 1997*, S.O. 1997, c. 27, by:

- a) A municipality, a municipal service board established under the *Municipal Act, 2001*, S.O. 2001, c. 25 or a city board established under the *City of Toronto Act, 2006*; or;
- b) A corporation established under sections 9, 10 and 11 of the *Municipal Act, 2001*, S.O. 2001, c. 25 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act, 2006* in accordance with sections 148 and 154 of that Act;



**“Municipal Stormwater Management System”** all Sewage Works, located in the geographical area of a municipality, that collect, transmit, or treat Stormwater and are owned, or may be owned pursuant to an agreement entered into under the *Planning Act, R.S.O. 1990, c. P.13* or *Development Charges Act, 1997, S.O. 1997, c. 27*, by:

- a) A municipality, a municipal service board established under the *Municipal Act, 2001, S.O. 2001, c. 25* or a city board established under the *City of Toronto Act, 2006*; or
- b) A corporation established under sections 9, 10 and 11 of the *Municipal Act, 2001, S.O. 2001, c. 25* in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act, 2006* in accordance with sections 148 and 154 of that Act.

**“Natural Environment”** has the same meaning as defined in section 1 of the EPA;

**“Nominally Separate Sewer(s)”** mean Separate Sewers that also have connections from roof leaders and foundation drains, and are not considered to be Combined Sewers;

**“Operating Authority”** means, in respect of the Sewage Works, the person, entity or assignee that is given responsibility by the Owner for the operation, management, maintenance or Alteration of the Sewage Works or a portion of the Authorized System;

**“Owner”** means the owner of the Authorized System.

**“OWRA”** means the *Ontario Water Resources Act, R.S.O. 1990, c. O.40*;

**“Partially Separated Sewer(s)”** means Combined Sewers that have been retrofitted to transmit sanitary Sewage but in which roof leaders or foundation drains still contribute Stormwater inflow to the Partially Separated Sewer;

**“Procedure F-5-5”** means the Ministry document titled “F-5-5 Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer System” (as amended from time to time);

**“Sanitary Sewer(s)”** means pipes that collect and transmit wastewater from residential, commercial, institutional and industrial buildings;

**“Separate Sewer(s)”** means pipes that collect and transmit sanitary Sewage and other Sewage from residential, commercial, institutional, and industrial buildings;

**“Sewage”** has the same meaning as defined in section 1 of the OWRA;

**“Sewage Works”** has the same meaning as defined in section 1 of the OWRA;

**“Sewer”** has the same meaning as in O. Reg. 525/98 under the OWRA;

**“Significant Drinking Water Threat”** has the same meaning as defined in section 2 of the CWA;

**“Source Protection Plan”** means a drinking water source protection plan prepared under the CWA;

**“Spill(s)”** has the same meaning as defined in subsection 91(1) of the EPA;

**“Standard Operating Policy for Sewage Works”** means the standard operating policy developed by the Ministry to assist in the implementation of Source Protection Plan policies related to Sewage Works and providing minimum design and operational standards and considerations to mitigate risks to sources of drinking water, as amended from time to time;

**“Storm Sewer”** means Sewers that collect and transmit, but not exfiltrate or lose by design, Stormwater resulting from precipitation and snowmelt;

**“Stormwater”** means rainwater runoff, water runoff from roofs, snowmelt and surface runoff;

**“Stormwater Management Facility(ies)”** means a Facility for the treatment, retention, infiltration or control of Stormwater;

**“Stormwater Management Planning and Design Manual”** means the Ministry document titled “Stormwater Management Planning and Design Manual”, 2003 (as amended from time to time);

**“Stormwater Treatment Train”** means a series of Stormwater Management Facilities designed to meet stormwater management objectives (e.g., Appendix A of ECA) for a given area, and can consist of a combination of MTDs, LIDs and end-of-pipe controls;

**“Third Pipe Collection System”** means Sewage Works designed to collect and transmit foundation drainage and/or groundwater to a receiving surface water or dry well;

**“Uncommitted Reserve Hydraulic Capacity”** means uncommitted reserve capacity as described in MECP’s Procedure “D-5-1 Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants” (as amended from time to time);

## **1.0. INTRODUCTION**

The Design Criteria establish the minimum design requirements for Alteration to a Municipal Sewage Collection System and Municipal Stormwater Management System to satisfy one of the conditions imposed by the Director in Environmental Compliance Approval (ECA) for a Municipal Sewage Collection System and ECA for a Municipal Stormwater Management System, authorizing future Alterations. The designers and proponents of such works are responsible to ensure that all the applicable federal and provincial requirements are incorporated in the design and construction of Sanitary Sewers, Storm Sewers, and force mains. Where regulations and standards are referenced in this document, most recent version shall be used.

### **1.1. General Requirements**

1.1.1. Alteration to an existing Municipal Sewage Collection System by adding, modifying, replacing, or extending existing sanitary or force mains, and/or Appurtenances, is not permitted when such works;

1. Results in exceedance of hydraulic capacity of the downstream Municipal Sewage Collection System including Sewage pumping stations and Uncommitted Reserve Hydraulic Capacity of the receiving Sewage treatment plants;
2. Causes an Adverse Effect;
3. Any increase in Collection System Overflows and or deterioration of quality of the overflow discharge, that is not offset by measures; or
4. Adversely impacts the approved effluent quality of Sewage treatment Facilities, or its bypasses or overflows.

1.1.2. The existing Municipal Sewage Collection System may be altered by adding, modifying, replacing, or extending existing Sanitary Sewers or force mains, Appurtenances, and other components of these systems that are pre-authorized in the ECA, subject to the following conditions;

1. The design for addition, modification, replacement, or extension of Sanitary Sewers, force mains and/or Appurtenances;
  - a. Has been prepared by a Licensed Engineering Practitioner;
  - b. Has been designed to transmit but not to treat wastewater; and
  - c. Satisfies or exceeds the minimum requirements specified in the Design Criteria.
2. Uncommitted Reserve Hydraulic Capacity calculations for the downstream Municipal Sewage Collection System and treatment Facilities including allowances for infiltration and inflow has been prepared and submitted by the proponent to the Owner with the supporting documentation as required by the Owner.
3. The Owner has a plan and process to forecast and track Uncommitted Reserve Hydraulic Capacity and verify the proposed Alteration of the system can be accommodated.
4. All required documentation detailed in this Design Criteria and/or in the ECA has been completed.

- 1.1.3. Alteration to an existing Municipal Stormwater Management System by adding, modifying, replacing, or extending existing Storm Sewers, and/or Appurtenances, is not permitted when such works;
  1. Results in exceedance of hydraulic capacity of the downstream;
    - a. Conveyance system;
    - b. The receiving treatment / Stormwater Management Facilities;
  2. Causes an Adverse Effect; or
  3. Adversely impacts the approved effluent quality of Stormwater works.
- 1.1.4. The existing Municipal Stormwater Management System may be altered by adding, modifying, replacing, or extending existing Storm Sewers, Appurtenances, and other components of these systems that are pre-authorized in the ECA, subject to the following conditions;
  1. The design for addition, modification, replacement, or extension of Storm Sewers, and/or Appurtenances;
    - a. Has been prepared by a Licensed Engineering Practitioner;
    - b. Satisfies or exceeds the minimum requirements specified in the Design Criteria; and
    - c. Has been planned, designed and built to be consistent with the MECP's Stormwater Management Planning and Design Manual (March 2003).
  2. All required documentation detailed in this Design Criteria and/or in the ECA has been completed.
  3. Municipal Stormwater Management System should be designed using an integrated Stormwater Treatment Train approach used to minimize Stormwater management flows and reliance on end of pipe controls through measures including source controls, lot level controls, and conveyance techniques.

## 1.2. Design Considerations

- 1.2.1. All Sanitary Sewers, Storm Sewers, force mains, maintenance holes, and chambers, shall be designed considering all relevant soil and hydrogeological conditions including groundwater elevations.
- 1.2.2. The design of all maintenance holes, chambers, and structures shall conform to all applicable requirements including, but not limited to: *Occupational Health and Safety Act, R.S.O. 1990, c. O.1*, Ministry of Labour Confined Space Guidelines and *Fire Protection and Prevention Act, 1997, S.O. 1997, c. 4*.
- 1.2.3. All new maintenance holes and chambers shall be designed with explicit and documented consideration for future inspection, operation, and maintenance requirements.
- 1.2.4. All precast structures installed in frost-susceptible soils shall include necessary hardware to prohibit heave due to frost action unless alternative methods are employed to mitigate frost heaving.
- 1.2.5. Sewers, maintenance holes, and/or Appurtenances shall be avoided where possible in

areas subject to flooding or in areas of high groundwater (regular and seasonal).

- 1.2.6. If Sewers, maintenance holes and/or Appurtenances are located in areas subject to flooding/high groundwater, Inflow and Infiltration reduction, and flotation prevention measures shall be included in the design.
- 1.2.7. The design shall include in the project specifications requirements for;
  1. Mandatory inspection and testing as per Section 8 of this document; and
  2. Adequate control of siltation and erosion during construction.

### **1.3. Protection of drinking water sources**

- 1.3.1. An assessment of the proposed works shall be completed to determine if the works pose a Significant Drinking Water Threat and if they are, the design shall incorporate features that mitigate the threat to sources of drinking water, such as those included in:
  1. Ministry's Standard Operating Policy for Sewage Works as amended from time to time; and
  2. Source Protection Plan policies pertaining to the works.

Refer to Appendix I for Understanding Risks to Sources of Drinking Water.

### **1.4. Protection of Water Supplies**

- 1.4.1. Sanitary Sewers, Storm Sewers, force mains, and all associated Appurtenances and structures shall be designed with provisions to provide the required protection for drinking water supply systems in accordance with;
  1. The MECP's F-6-1 Procedures to Govern Separation of Sewers and Water mains; and
  2. Section 15 of the MECP's Watermain Design Criteria for Future Alterations Authorized Under a Drinking Water Works Permit.

## **2.0. DESIGN OF SANITARY SEWERS**

### **2.1. Design Flows**

#### **2.1.1. Residential Flows**

1. The average daily residential flows of 225 to 450 L/cap/day shall be used in the design for sizing the pipe.

#### **2.1.2. Commercial Flows**

1. The minimum allowance for commercial flows shall be 28 m<sup>3</sup>/gross ha/day. Actual flow monitoring data (covering at least 2 years) at the subject site or a similar site observed locally can be used.
2. The Sewage flows listed on Table 1 may be used in the design for individual commercial facilities, provided that the minimum flow capacity listed in 2.1.2.1 are maintained for the development.

#### **2.1.3. Institutional Flows**

1. Historical water use data at the subject site or a similar site (covering at least 2 years) of the facility or other similar facilities can be used to calculate average institutional flows. Where historical water use data is not available, the unit values for institutional flows listed in Table 1 can be used. The designer shall use professional judgement to select appropriate flow rate within the range.

#### **2.1.4. Industrial Flows**

1. Where available, actual sanitary flow monitoring data at the subject site or a similar site (covering at least 2 years) shall be used for accurate prediction of industry specific wastewater flows. Where actual flow data is not available, an average flow from 0.2 to 0.64 L/s/ gross ha can be used.

#### **2.1.5. Extraneous Flow (I&I)**

1. A long-term (end-of-pipe life) peak inflow and infiltration (I&I) rate allowance of up to 0.28 L/s/ha shall be used in pipe sizing to maintain capacity throughout the designed life of the sewers.

#### **2.1.6. Peaking Factors**

1. Peaking factor for residential flows can be calculated using either the Harmon Formula or Babbitt Formula. At minimum, a peaking factor of 2.0 shall be used in the design.
2. The peaking factors for sewage flows from individual commercial and institutional establishments can be determined using peak water usage rates for these facilities. At minimum, a peaking factor of 1.5 shall be used in the design.
3. The Peaking factor for sewage flows from industrial areas vary greatly depending upon variety of factor including types of industries present, and the individual processes within the industries. Actual sanitary flow monitoring data at the subject site or a similar site (covering at least 2 years) shall be used to determine industry specific peaking factors. Where such data is not available, at minimum a peaking factor of 2 can be used in the design.

**Table 1 - Common Sewage Flowrates for Commercial and Institutional Uses**

Description	Unit Sewage Flow (L/d)	Flow Unit Per
Shopping Centre (floor area in m <sup>2</sup> )	2.5 – 5.0	Total floor area in m <sup>2</sup>
Hospitals	900 – 1,800	Bed
Schools	70 - 140	Student
Travel Trailer Parks	340	Space (without water hook-ups)
	800	Space (with individual. water hook-ups)
Campgrounds	225 - 570	Campsite
Mobile Home Park	1,000	Parking space
Motels	150 - 200	Bed space
Hotels	225	Bed space

## 2.2. Friction Factors

- 2.2.1. Sanitary Sewers shall be designed using either the Chézy- Kutter, Darcy Weisbach, or Chézy-Manning's formula. Appropriate roughness coefficient shall be used according to the type of pipe used. The friction loss coefficient must be appropriate to the installed pipe, but not less than the equivalent of a Manning's equation "n" of 0.013 for all new smooth-wall Sewer pipes.

## 2.3. Pipe Diameters

- 2.3.1. The minimum size of the gravity Sewer in a Municipal Sewage Collection System shall be 200 mm in diameter (nominal pipe size). Sewer pipe 150 mm in diameter can be used if it is demonstrated in the design that there is no risk of clogging and the design is accepted by the Owner.

## 2.4. Flow Velocity

- 2.4.1. Gravity Sewers shall be designed with uniform slopes between the maintenance holes.
- 2.4.2. All gravity Sanitary Sewers shall be designed and constructed with slopes to provide at least 0.6 m/s of flow velocity, when flowing full to maintain solids in suspension.
- 2.4.3. In certain circumstances, such as rehabilitation/replacement of an existing Sewer where deepening of individual Sewer section will not be possible, design flow velocities of less than 0.6 m/s may be considered provided that appropriate measures are taken to facilitate frequent flushing and maintenance needs and the Owner accepts the increased maintenance requirements.
- 2.4.4. The maximum velocity in all Sanitary Sewers shall be less than or equal to 3.0 m/s at peak flows to minimize erosion.

## **2.5. Anchors/Restraints**

- 2.5.1. Sanitary Sewers on 20 percent slope or greater shall be anchored securely with concrete anchors or equal.
- 2.5.2. Anchors and anchorage spacing shall be designed by a Licensed Engineering Practitioner based on Sewer material, anchor type and site conditions. Recommended maximum anchorage spacing is 11 m on grades between 20 percent and up to 35 percent, 7.3 m on grades between 35 percent and up to 50 percent, and 4.9 m on grades that exceed 50 percent.
- 2.5.3. Where velocity in the Sanitary Sewers approaching or exceeding 3 m/s due to steep grades and providing a drop maintenance hole is not possible, receiving sewers shall be designed for protection against maximum scouring velocity and erosion control measures, that are acceptable to the Owner shall be taken.

## **2.6. Pipe Material**

- 2.6.1. All material used in the addition, modification, replacement, or extension of Sanitary Sewers including pipes, fittings, valves, devices, and materials used for the rehabilitation shall meet all applicable quality conditions adopted by the Ontario Provincial Standards for Roads and Public Works and/or local municipal standards. Where applicable standards conflict, the more stringent standard shall apply.
- 2.6.2. Prior to specifying pipe material, soils shall be assessed for contamination and for the presence of compounds that may negatively impact the suitability of the proposed materials. Nitrile gaskets or equivalent shall be specified for soils contaminated with hydrocarbons unless soil remediation prior to construction provides satisfactory results.
- 2.6.3. If the material is used based on specific site conditions, the reasons for material selection shall be stated and location shall be identified in the record / as-built drawings.

## **2.7. Pipe Strength**

- 2.7.1. The Sanitary Sewer pipe material selected for a particular application shall be able to withstand all the combinations of loading conditions to which the pipe is likely to be exposed, along with an appropriate safety factor.

## **2.8. Pipe Cover and Frost Protection**

- 2.8.1. Sanitary Sewers shall be installed at sufficient depth (greater than local frost penetration) to prevent freezing. If this is not achievable, the Sewer shall be insulated to provide the required protection. Insulation must be designed or verified by a Licensed Engineering Practitioner or where available as per the local municipal standards acceptable to the Owner.
- 2.8.2. For Sanitary Sewers subject to traffic load, a loading factor in accordance with the regulations, codes, and by-laws of authorities having jurisdiction shall be considered for selecting depth of pipe cover. This includes but not limited to: Highway Bridge Design Code (for vehicular traffic), Railway Safety Act, and Transport Canada Act. Appropriate structural support shall be provided to the pipes as required.
- 2.8.3. Maximum pipe cover should be as per the manufacturer recommendations.



## **2.9. Sanitary Sewers and Maintenance Holes Installed Below Seasonally High Groundwater Table**

- 2.9.1. Sanitary Sewer systems which are installed lower than 0.6m below the Seasonally High Groundwater Table (SHGWT) shall be designed to minimize infiltration.
- 2.9.2. Where the SHGWT level is determined and supporting record is available, the Sewer pipes, pipe joints, and connections shall be designed to withstand a pressure of at least 1.25 times the pressure exerted by the groundwater above the sewer without leakage.
- 2.9.3. Where the SHGWT is unknown and/or the supporting record is not available, the Sewer pipes, pipe joints, and connections shall be designed to withstand a pressure based on the equivalent of at least 1.25 times the pressure exerted by the groundwater being at the ground surface elevation above the Sewer without leakage.
- 2.9.4. The sanitary maintenance holes shall be externally wrapped with Waterproof membrane placed externally around all precast joints, including joints below the maintenance hole frame and cover, with a minimum 300mm wide strip.
- 2.9.5. Buoyancy of Sewers and maintenance holes shall be considered in the design, and where required, adequate provision shall be made to prevent flotation.

## **2.10. Sanitary Maintenance Holes**

- 2.10.1. Maintenance holes shall be provided at the end of each Sewer line; at all changes in grade, size, or alignment; at all pipe intersections and/or at a distance not greater than 120 m for Sewers up to 400 mm in diameter, and 150 m for Sewers between 450 mm to 750 mm in diameter.
- 2.10.2. In circumstances where maintenance holes cannot be provided, an upstream maintenance hole is required at 30 m (max) from where a maintenance hole could not be placed to facilitate maintenance.
- 2.10.3. An additional straight-through maintenance hole with similar upstream and downstream sloped Sewers shall be provided between new subdivisions and the Municipal Sewage Collection System, or at other appropriate location(s) for the purposes of flow monitoring from new subdivisions. The maintenance hole must either include or allow for the insertion of flow monitoring equipment.
- 2.10.4. The minimum drop across maintenance holes shall be minimum 25 mm for straight runs and 50 mm for 90-degree bends. Alternately, Sewer grade may be maintained across maintenance holes provided minimum required flow velocity is maintained (as outlined in this document).
- 2.10.5. Where a smaller diameter Sewer line joins a larger one, the invert of the larger Sewer shall be lowered where practical, to maintain the same energy gradient, or the pipe obverts are matched.

2.10.6. A drop structure shall be provided for Sewers entering a maintenance hole at an elevation of 610 mm or more above the maintenance hole outlet pipe invert;

1. An external drop structure is recommended for all new maintenance holes. An internal drop structure can be used if;
  - a. Accepted by the Owner;
  - b. There is adequate space to allow for internal drop structure and unobstructed maintenance access; and
  - c. The structure is provided with restraint straps or equivalent.
2. Where drop structure is not feasible, alternative methods of energy dissipation from falling flow and minimizing air entrainment and odors problems shall be specified.

2.10.7. Maintenance holes shall be located away from any route or ponding area. Grading around maintenance holes shall be benched to direct water away from the maintenance hole.

2.10.8. In cases where the sanitary maintenance hole cannot be located away from an overland flow route for a 25-year storm event or cannot be benched, an analysis must be completed to verify;

1. If the overland flow will submerge the maintenance hole. Watertight design, including water-tight covers, shall be specified for submerged sanitary maintenance holes, and
2. Where more than one consecutive sanitary maintenance hole requires sealing due to exposure to overland flow, appropriate ventilation shall be provided.

2.10.9. Frost straps (internal or external) shall be provided to hold maintenance hole sections together (at least two (2) between each section). External straps to extend vertically from top to bottom and for deep maintenance holes extended at least 1 m below frost depth.

2.10.10. Joints between maintenance hole sections, and inlet and outlet pipes shall be sealed with gasketed flexible watertight connections. Where works are cast-in-place, sealing is required only at the point of connection between individual components of the maintenance hole structures.

2.10.11. Maintenance holes shall be designed based on the pipe size, alignment, and inspection and maintenance needs. The minimum diameter of maintenance holes shall be 1200 mm (48 in). A minimum access diameter of 610 mm (24 in) shall be provided.

2.10.12. Safety platforms or alternate safety measures shall be employed for deep maintenance holes as per *Occupational Health and Safety Act, R.S.O. 1990, c. O.1* requirements and inspection, operation, and maintenance needs. Multiple platforms may be required based on the depth of the maintenance holes.

## **2.11. Inverted Siphons**

2.11.1. Inverted siphons shall be designed with consideration of potential siltation, grease and debris accumulation, air locking, maintenance, and odor issues.

2.11.2. The minimum pipe size for inverted siphons shall be nominally 200 mm in diameter.

- 2.11.3. Pipes shall be sized such that a Self-Cleansing velocity between 1.1 m/s to 1.3 m/s is achieved at least once per day. Where the required velocities cannot be achieved alternate means of flushing shall be incorporated in the design.
- 2.11.4. Gravity drains or any other means of draining or dewatering the inverted siphon shall be incorporated to facilitate inspection and maintenance.
- 2.11.5. Air jumpers shall be sized to carry the required air flow between the inlet and outlet chambers. Maintenance measures for air jumpers shall be incorporated as required.
- 2.11.6. Inverted siphons shall be designed with at least two (2) parallel barrels to accommodate flow variations. If a double barrel siphon is not feasible, a single barrel inverted siphon is acceptable provided that additional arrangements are incorporated in the design to facilitate inspection, operation, and maintenance.
- 2.11.7. Inverted siphons shall be equipped with inlet and outlet chambers sized to facilitate inspection, operation, and maintenance.
- 2.11.8. Control valves/sluice gates shall be installed in inlet and outlet chambers especially on multi-barrel siphons to isolate or divert flows to each pipe.
- 2.11.9. Inverted siphons shall not be designed with sharp vertical or horizontal bends. The slope for the upward vertical leg shall be limited to 2:1 (H:V).
- 2.11.10. Ventilation is required at the Inlet and Outlet chambers.

## **2.12. Service Connections (Service Laterals)**

- 2.12.1. All service connections shall be constructed to be watertight.
- 2.12.2. The minimum diameter for a service connection to main Sewer for gravity flow shall be 100 mm in diameter. Sanitary Sewer pipes shall be colour coded green to avoid cross connections. Color coding method includes pipe color, wrapping, demarcation tape, or stenciling.
- 2.12.3. Sanitary laterals and sanitary service connections shall be specified with a minimum 1% slope (2% slope is recommended).
- 2.12.4. Where required, the riser pipe on the sanitary service pipe should be installed at a maximum 1:1 slope where feasible, before transitioning to a nominally horizontal installation. The transition from the nominally horizontal section to the steep section should be completed with a long radius bend.
- 2.12.5. Cleanouts if installed, should be located at or near the property line to facilitate inspection, or as required by the local municipal standard.
- 2.12.6. Maintenance hole should be provided for commercial service connections, or residential service connection servicing more than five (5) buildings.
- 2.12.7. Tracer wire is recommended for service connections where feasible as determined by the design engineer.

### **3.0. DESIGN OF FORCEMAINS**

#### **3.1. Pipe Diameters**

- 3.1.1. The minimum size for a Sewage forcemain shall be 100 mm in diameter.
- 3.1.2. A smaller diameter forcemain may be acceptable if it is used to maintain the minimum velocity in the forcemain (as outlined in this document). A grinder pump or equivalent shall be provided for such applications and Design Brief including detailed hydraulic calculations shall be prepared by a Licensed Engineering Practitioner.

#### **3.2. Friction Factors**

- 3.2.1. Force mains shall be designed using Hazen-Williams formula or Darcy -Weisbach equation. Hazen- Williams formula is recommended for design of force mains. Where data are not available, the force mains shall be designed using the equivalent to Hazen-Williams C-factors listed in Table 2 for pipes made of traditional materials or their equivalent.

**Table 2 - Hazen-Williams C-Factors**

<b>Material</b>	<b>C-Factor</b>
Unlined Steel pipe, Concrete pipe	100
PVC, HDPE, lined ductile iron	120

#### **3.3. Flow Velocity**

- 3.3.1. Force mains shall be designed for a cleansing velocity of at least 0.6 m/s.
- 3.3.2. The maximum velocity in the force mains shall not exceed 3.0 m/s.

#### **3.4. Anchors/Restraints**

- 3.4.1. Restrained joints shall be installed at all tees, bends, end of force mains, and connections for all force mains. A Licensed Engineering Practitioner shall complete the calculation to determine the number of joints to be restrained beyond the bend, fitting, tee, etc.
- 3.4.2. In the case of non-restraining mechanical and/or slip-on joints, restraint shall be provided by adequately sized thrust blocks positioned at all plugs, caps, tees, line valves, reducers, wyes, and bends deflecting 22.5 degrees or more.
- 3.4.3. In designing thrust blocks or other restraint systems, transient pressures shall be added to the normal operating pressures when calculating the thrust forces.

#### **3.5. Pipe Material**

- 3.5.1. Forcmain material used in the addition, modification, replacement, extension, or rehabilitation including pipes, fittings, valves, devices, and other materials used shall meet the more stringent of quality standards adopted by Ontario Provincial Standards for Roads and Public Works or local Municipal standards.
- 3.5.2. Prior to specifying pipe material, soils shall be assessed for contamination and for the presence of compounds that may negatively impact the suitability of the proposed materials. Nitrile gaskets or equivalent shall be specified for soils contaminated with hydrocarbons.

- 3.5.3. If the material is used based on specific site conditions, the reasons for material selection shall be stated and location shall be identified in the record drawings.

### **3.6. Pipe Strength**

- 3.6.1. The forcemain pipe material selected for a particular application shall be able to withstand, with a margin of safety, all the combinations of loading conditions to which the forcemain is likely to be exposed.

### **3.7. Pipe Cover and Frost Protection**

- 3.7.1. Force mains shall be installed at sufficient depth (greater than frost penetration) to prevent freezing. If this is not achievable, force mains shall be insulated/or heat traced. Insulation/heat tracing shall be designed/verified by a Licensed Engineering Practitioner.
- 3.7.2. For force mains subject to traffic loading, a loading factor in accordance with the regulations, codes and by-laws of authorities having jurisdiction shall be considered for selecting depth of pipe cover. This includes but not limited to: Highway Bridge Design Code (for vehicular traffic), Railway Safety Act, and Transport Canada Act. Appropriate structural support shall be provided to the pipes as required. If a protective sleeve is used, appropriate sleeve material shall be selected based on the site conditions.
- 3.7.3. Maximum pipe cover should be as per the manufacturer recommendations.

### **3.8. Termination**

- 3.8.1. All force mains shall be discharged to maintenance holes.
- 3.8.2. For flows greater than 30 L/s, transition maintenance holes shall be provided at forcemain discharge points to provide smooth flow transition into the receiving gravity Sewers.
- 3.8.3. The transition maintenance hole shall be designed based on the pipe size, alignment and inspection and maintenance needs. The minimum diameter of maintenance holes shall be 1200 mm (48 in). A minimum access diameter of 610 mm (24 in) shall be provided.
- 3.8.4. The force mains shall enter the transition maintenance hole at a point not more than 0.3 m above the flow line. No other gravity Sewers shall enter the transition maintenance hole.
- 3.8.5. Protective coatings or corrosion resistant material shall be used in the maintenance holes to prevent deterioration due to presence of hydrogen sulfide or other corrosive chemicals.
- 3.8.6. The Sewer connecting the transition maintenance hole to downstream maintenance hole shall be sized to flow at half depth to ensure a smooth flow.
- 3.8.7. Safety platforms or alternative safety measures shall be incorporated in the designed for deep maintenance holes per *Occupational Health and Safety Act, R.S.O. 1990, c. O.1* and any other municipal requirements.

### **3.9. Identification**

- 3.9.1. A Tracer Wire shall be installed for all non-metallic force mains regardless of the size, identifier codes, or markings can be added to identify the use of pipe in conformance with local municipal standards. Where metallic pipe is used tracer wire shall be provided at the material transition point to ensure electrically conductive connection point for future detection.

### **3.10. Maintenance**

- 3.10.1. All new force mains longer than 150 m shall be provided with swab launching ports and/or flushing ports. Swab catching ports may be required.
- 3.10.2. Isolation valves shall be provided as required to facilitate maintenance. Non-return valves may be required when force mains are connecting into a common force main.
- 3.10.3. Cleanouts/drain chambers shall be provided at low points of a force main.

### **3.11. Transient Pressures**

- 3.11.1. A hydraulic transient analysis shall be undertaken as part of the design process considering the worst-case failure scenario involving the most critical pump and force main-in-service combination. The analysis shall be completed using hydraulic models based on the final sizes and layout of pumps and force mains including locations of air/vacuum release valves. Based on the hydraulic transient analysis, provide devices, if necessary, to protect the force main such as, but not limited to, surge valves, surge tanks, etc.
- 3.11.2. The force mains shall be designed so that pipes and joints are able to withstand the maximum operating pressure plus the surge pressure that would be created by stopping a water column moving at the higher of 0.6 m/s or the theoretical velocity in the force main.
- 3.11.3. The force mains shall be designed such that pipes, joints, fittings, and valves are able to withstand full vacuum pressure.

### **3.12. Air and Vacuum Relief Valves**

- 3.12.1. A combination of Sewage air and vacuum relief valves shall be placed at all high points in the force main to relieve air locking and to relieve negative pressures on force mains.
- 3.12.2. At minimum, the Air/Vacuum relief valves shall conform to AWWA standard C512-15 Air Release, Air/Vacuum and Combination Air Valves for Water and Wastewater Service, as amended from time to time.

### **3.13. Drain Valves**

- 3.13.1. Drain valves shall be placed at all low points in the force main to facilitate draining/cleaning.
- 3.13.2. Drain valves on the force main are to be flanged connections in valve chambers. Where possible, the valve chamber may be drained to the closest gravity Sanitary Sewer or maintenance hole or drained back into the wet well.

### **3.14. Service Connections**

- 3.14.1. Minimum diameter of a force main for a service connection without grinder pumps shall be 100 mm in diameter.
- 3.14.2. A smaller diameter force main may be used for low flow applications provided that the grinder pump or equivalent is specified and the design brief including detailed hydraulic calculations are prepared by a Licensed Engineering Practitioner.

## **4.0. COMBINED SEWERS**

### **4.1. Rehabilitation of Existing Combined Sewers**

- 4.1.1. The design and rehabilitation of the Combined Sewer systems shall meet the requirements of the Ministry's Procedure F-5-5, Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems.
- 4.1.2. Sewers shall be planned, designed, installed, and operated to minimize or eliminate Combined Sewer Overflows.
- 4.1.3. New Combined Sewer systems are not permitted.
- 4.1.4. Addition or extension of an existing Combined Sewer is not permitted.
- 4.1.5. Rehabilitation, repair, and replacement of an existing Combined Sewer is permitted as per the conditions listed in the ECA.
- 4.1.6. Rehabilitation of existing Combined Sewer overflow structures is permitted including instrumentation and controls that are installed for the purpose of monitoring and reporting only.
- 4.1.7. Rehabilitation of existing CSO control structures is permitted including modifications that are intended only to improve the performance or optimize utilization of the existing control structures.
- 4.1.8. A Storm Sewer connection to a Combined Sewer is not permitted except for Combined Sewer separation project where the municipality plans a temporary storm connection to a combined system. This approach requires a detailed plan to disconnect and separate the Storm Sewer to a separated storm outlet according to an established schedule. Specifically, if it is demonstrated that such works will not result in an increase in CSO volume, frequency, duration, or by-pass of treatment during the schedule period.

### **4.2. CSO Detention Facilities**

- 4.2.1. Construction of new CSO detention facility for an existing CSO control structure for the purpose of reducing volume, frequency, or duration of a CSO discharge and to improve quality of combined CSO discharges is permitted provided that;
  - 1. Is not designed to replace an existing outfall to a watercourse;
  - 2. Does not have a direct environmental discharge such as to watercourse, groundwater, or the ground from the detention structure;
  - 3. Is controlled by an existing CSO control structure; and
  - 4. It is demonstrated in a design brief by a Licensed Engineering Practitioner that such works has structural integrity to function as intended/designed.



## **5.0. STORM SEWERS**

### **5.1. Design of Storm Sewers**

- 5.1.1. Only Stormwater, drainage from foundations and roads, or LIDs shall be accepted or collected by Storm Sewers.
- 5.1.2. Sanitary Sewage or combined Sewage shall not be accepted or collected by Storm Sewers or transmitted or directed to a Stormwater works.
- 5.1.3. Storm sewers shall be designed, using the most recent rainfall intensity, duration, and frequency (IDF) curves available from the respective municipality for which the sewers are to be constructed. If the municipality does not have access to current IDF curves, adjacent jurisdictions shall be consulted for IDF curves, and the most stringent values shall be used in design.
- 5.1.4. In the design of conveyance drainage system, local climate data is to be used to establish design storm frequency criteria, at a 2-year return design storm or greater storm event can be used for minor system design.
- 5.1.5. Inlet times shall be calculated based upon the overland flow route modeled under fully developed system conditions as per the Official Plan.
- 5.1.6. Storm Sewer which are installed below seasonally high groundwater table shall be designed to minimize infiltration.
- 5.1.7. Storm Sewers design shall be verified (major system and minor system capacity analysis) accounting for the captured flows that enter the Storm Sewers (minor system) through inlets and the flow remaining at the surface (major system) at minimum under the following conditions;
  - 1. No inlet capacity restriction; and
  - 2. 50% inlet capacity restriction at depressions and roadway sags.

Maximum depths of flows at the surface and maximum hydraulic grade lines in the Storm Sewers shall be verified for up to the 100-year design storm.

### **5.2. Runoff Calculations**

- 5.2.1. The peak rate of runoff from an area may be calculated using the following formula:

$$Q = 2.78 C \cdot I \cdot A$$

Where Q is the Peak flow in liters per second, A is the area in hectares, C is run-off coefficient (dimensionless), and I is average rainfall in mm per hour for a duration equal to the time of concentration for a particular storm frequency.

- 5.2.2. Hydrologic and hydraulic simulation models can be used for systems to verify the capacity of the systems serving small or large areas or involving treatment and/or storage systems.
- 5.2.3. A Licensed Engineering Practitioner shall select the appropriate "C" values based on site conditions. The range of runoff coefficients shown in Table 3 may be used for design purposes.

**Table 3 - Runoff Coefficients**

Source	Runoff Coefficient (C)
Asphalt, concrete, roof areas	0.90-1.00
Grassed areas, parkland	0.15-0.35
Brick Roads	0.7-0.85
Sandy Soil	0.05-0.25
Playgrounds	0.2-0.35
Gravel	0.6-0.7
forest and dense wooded areas	0.10-0.25
Permeable pavements	0.15 to 0.25

- 5.2.4. For calculating runoff for less frequent, high intensity storms (e.g., 50 or 100-year storm) for particular type of area in Table 3, upper values of the range shall be used. The lower value of the range may be used for shorter (e.g., 2- or 5-year storm) recurrence interval storms under conditions of moderate to flat slopes. For urban areas the runoff coefficient may be increased to suit urban conditions.

### 5.3. Friction Factors

- 5.3.1. Storm Sewers shall be designed to transmit the required capacity when pipe is flowing full. Storm Sewer capacities can be calculated using the Manning's equation or Darcy-Weisbach equation. If Manning's equation is used for the roughness coefficient (n) as specified by the manufacturer or as listed in Table 4 or equivalent may be used for all new pipes.

**Table 4 - Manning's Roughness Coefficient (n) for New Pipes**

Pipe Material	Roughness Coefficient (n)
Smooth-walled pipe materials (HDPE, PVC, Concrete)	0.013
Corrugated metal pipe	
Plain Pipe	0.024
Paved Invert	0.020

### 5.4. Pipe Diameter

- 5.4.1. The minimum size of the Storm Sewer shall be 250 mm in diameter. For Storm Sewer laterals, the minimum service connections shall be 150 mm diameter color coded white. Color coding method includes pipe color, wrapping, demarcation tape, or stenciling.

### 5.5. Flow Velocity

- 5.5.1. The minimum flow velocity in the Storm Sewer shall be 0.75 m/s. Velocities in Storm Sewers shall not exceed 6 m/s.
- 5.5.2. Additional protection against erosion, scouring, and pipe displacement must be provided by a Licensed Engineering Practitioner where flow velocities exceed 4.5 m/s.
- 5.5.3. In certain circumstances, such as rehabilitation/replacement of an existing Sewer where deepening of individual Sewer section will not be possible, design flow velocities of less than 0.75 m/s may be considered provided that appropriate measures are taken to facilitate

frequent flushing and maintenance needs and the Municipality accepts the increased maintenance requirements.

## **5.6. Anchors/Restraints**

- 5.6.1. Storm Sewers on 20 percent slope or greater shall be anchored securely with concrete anchors or equal.
- 5.6.2. Anchors and anchorage spacing shall be designed by a Licensed Engineering Practitioner based on Sewer material, anchor type, and site conditions.
- 5.6.3. Where velocity in the Storm Sewers approaching or exceeding 3 m/s due to steep grades and providing a drop maintenance hole is not possible, Sewers shall be designed for protection against maximum scouring velocity and erosion control measures, acceptable to the Owner shall be taken.

## **5.7. Pipe Material**

- 5.7.1. All material used in the addition, modification, replacement, or extension of Storm Sewers including pipes, fittings, valves, and devices and materials used for the rehabilitation shall meet all applicable quality adopted by the Ontario Provincial Standards for Roads and Public Works and/or local municipal standards. Where applicable standards conflict, the more stringent standard shall apply.
- 5.7.2. Prior to specifying pipe material, soils shall be assessed for contamination and for the presence of compounds that may negatively impact the suitability of the proposed materials. Nitrile gaskets or equivalent shall be specified for soils contaminated with hydrocarbons.
- 5.7.3. If the material is used based on specific site conditions, the reasons for material selection shall be stated and location shall be identified in the record/ as-built drawings.

## **5.8. Pipe Strength**

- 5.8.1. The Storm Sewer pipe material selected for a particular application shall be able to withstand all of the combinations of loading conditions to which the pipe is likely to be exposed along with an appropriate safety factor.

## **5.9. Pipe Cover and Frost Protection**

- 5.9.1. Storm Sewers shall be installed at sufficient depth (greater than frost penetration) to prevent freezing, if this is not achievable, Sewers shall be insulated. Insulation must be designed/verified by a Licensed Engineering Practitioner.
- 5.9.2. For Storm Sewers that are subject to traffic loading, a loading factor in accordance with the regulations, codes and by-laws of authorities having jurisdiction shall be considered for selecting depth of pipe cover. This includes but not limited to: Highway Bridge Design Code (for vehicular traffic), Railway Safety Act, and Transport Canada Act. Appropriate structural support must be provided to the pipes as required.
- 5.9.3. Maximum pipe cover should be per the manufacturer recommendations.

## 5.10. Storm Maintenance Holes

- 5.10.1. Maintenance holes shall be provided at each change in alignment, pipe size, grade, material, and at all pipe junctions. For blind connections, an upstream maintenance hole at a distance of 30 m (max) is required to facilitate maintenance. Pre-manufactured bends may be acceptable if maintenance access is provided and is acceptable to the Owner.
- 5.10.2. Maintenance hole spacing depends on pipe size; spacing shall be in conformance to local municipal design guidelines. Where municipal design guidelines do not exist, the maximum spacing as listed in Table 5 should be used.

**Table 5 - Maintenance Hole Spacing**

Sewer Diameter (mm)	Maximum Spacing (m)
250 to 975	110
1050 to 1350	130
1500 to 1650	160
1800 and above	305

## 5.11. Catch Basins

- 5.11.1. Catch basins shall be provided at adequate intervals to ensure that the drainage is intercepted up to the capacity of the Storm Sewer.
- 5.11.2. Street catch basin spacing will vary with the street width, grade and cross fall, the location of pedestrian crossing points, intersections, low points, location of sanitary maintenance holes and driveway depressions. Maximum Catch basin spacing shall be per Table 6.

**Table 6 - Catch Basin Spacing**

Road Gradient (%)	Maximum Spacing (m)
0 to 3	110
3.1 to 4.5	90
Over 4.5	75

- 5.11.3. The minimum diameter of the catch basin lead is 100 mm and the minimum of 1% slope shall be provided for a catch basin lead.

### **5.12. Inverted Siphons**

- 5.12.1. Inverted siphons shall be designed with consideration of potential siltation and air locking.
- 5.12.2. Inverted siphons shall be designed with water-tight joints, and to withstand hydrostatic pressure.
- 5.12.3. Gravity drains or any other means of draining or dewatering the inverted siphon shall be incorporated to facilitate inspection and maintenance.
- 5.12.4. The minimum pipe size for inverted siphons shall be nominally 250 mm in diameter.
- 5.12.5. Appropriate cover shall be provided above the inverted siphon based the type of crossing structure.
- 5.12.6. Pipes shall be sized such that a self-cleansing velocity between 1.1 m/s to 1.3 m/s is achieved in 25 mm storm event (First Flush). Where the required velocities cannot be achieved alternate means of flushing shall be incorporated in the design.
- 5.12.7. Inverted siphon shall be designed with at least two parallel barrels of same size, each capable of transmitting the design flowrate. Single barrel inverted siphons are acceptable provided that additional arrangements are incorporated in the design to facilitate inspection, and maintenance.
- 5.12.8. Inverted siphons shall be equipped with inlet and outlet chambers sized to facilitate inspection and maintenance.
- 5.12.9. Control valves/sluice gates shall be installed in inlet and outlet chambers especially on multi-barrel siphons to isolate or divert flows to each pipe.
- 5.12.10. Inverted siphons shall not be design with sharp vertical or horizontal bends, the slope for the upward vertical leg shall be limited to 2:1 (H: V).

### **5.13. Service Connections (Service Laterals)**

- 5.13.1. The minimum diameter for a service connection shall be 150 mm in diameter.
- 5.13.2. Storm Sewer pipes shall be colour coded white to avoid cross connections. Color coding method includes pipe color, wrapping, demarcation tape, or stenciling.
- 5.13.3. Tracer wire is recommended for service connections where feasible as determined by the design engineer.

## **6.0. Third Pipe Collection System**

- 6.1.1. Third Pipe Collection System shall be designed to collect water only from the foundation drains.
- 6.1.2. Foundation drain discharge collection system shall not receive water from any sites that are contaminated or suspected to be contaminated unless;
  - 1. Environmental site assessment is completed to confirm that site is free from contamination;
  - 2. Remediation work is undertaken prior to acceptance by the system; or
  - 3. Pretreatment is in place to achieve acceptable results.
- 6.1.3. Foundation drain collection pipes shall be installed at sufficient depth (greater than frost penetration) to prevent freezing. If this is not achievable due to site specific condition, the pipes shall be insulated to provide the required protection.
- 6.1.4. The minimum size of the pipe in the foundation drain collection system shall be 150 mm in diameter (nominal pipe size).
- 6.1.5. The minimum slope for the gravity pipes within the foundation drain collection system shall be 1% where feasible.
- 6.1.6. Maintenance holes shall be provided for foundation drain collection system as required, maintenance hole spacing shall not be more than 150 m.
- 6.1.7. All material used in the foundation drain Sewers including pipes, fittings, valves, devices, shall meet all applicable quality standards adopted by the Ontario Provincial Standards for Roads and Public Works and/or local municipal standards. Where applicable standards conflict, the more stringent standard shall apply.

## **7.0. Documentation**

7.1.1. The required documentation specified here in this document and in the ECA shall be completed.

7.1.2. A Design Brief shall be prepared by a Licensed Engineering Practitioner to demonstrate the proposed design is in conformance with all the applicable requirements of the Design Criteria and complies with all applicable Ministry policies, guidelines, and regulations. At minimum, the Design Brief shall include; hydraulic calculations; approval requirements, and completed pipe data form PIBS 6238e; additionally, the design brief shall include but not limited to the following for:

1. Sanitary Sewers/forcemain/conveyance ditches/swales;
  - a. Hydraulic design sheets (applicable only to Sewers);
  - b. A design report or equivalent detailing the engineer's design decisions and rationale, especially where high groundwater and/or other inflow and infiltration risk factors exist.
  - c. "Forcemain or siphon: contingency plans for possible overflows (applicable to forcemain or siphon only)".
2. Municipal Stormwater Management System;
  - a. Stormwater management report (including lot level and conveyance controls);
  - b. A description of the water quality and quantity criteria;
  - c. Hydraulic performance of the system verifying Storm Sewer capture rates and major and minor system capacities;
  - d. "Oil / grit separators: design brief, calculations and manufacturers specifications (applicable to oil / grit separators only)".
3. Sewage pumping stations;
  - a. Buoyancy calculations; forcemain hydraulic calculations; assessment of transient pressures; wet well and emergency storage tank sizing; design flows and firm capacity; headworks;
  - b. Electrical systems including standby power; controls and instrumentation description including alarms;
  - c. HVAC systems; and hazard ratings throughout station - risk assessment; and
  - d. Contingency plans for Emergency Situations.

7.1.3. The forms referenced in the Environmental Compliance Approvals (ECAs) for Sewage and Stormwater are available in the Central Forms Repository at [www.forms.ssb.gov.on.ca](http://www.forms.ssb.gov.on.ca).

## **8.0. Inspection and Testing for Sanitary Sewers, Storm Sewers and Force mains**

### **8.1. General Requirements**

- 8.1.1. All new and replaced Sanitary Sewers, force mains, maintenance holes, connections and chambers shall be inspected and tested to ensure integrity of the installed material for water tightness prior to placing into service.
- 8.1.2. All inspections and testing shall be performed as specified here in this document.
- 8.1.3. Inspection and testing plans including; procedure, equipment, schedule, safety requirements, and emergency response plan shall be submitted to the Owner/Operating Authority at least two (2) weeks or as required by the Owner/Operating Authority prior to the inspection or testing. Plans must be accepted by the Owner prior to proceeding with the inspection or testing.
- 8.1.4. The Owner and the Operating Authority shall be notified and a confirmation of receipt shall be acquired at least five (5) business days or otherwise required by the Owner/Operating Authority prior to inspection or testing.
- 8.1.5. All inspection reports and test results shall be provided to the Owner in a format (e.g., printed copies, PDF copies and digital files) specified by the Owner or the Operating Authority.
- 8.1.6. A single testing plan can be used for similar tests on the same project; however, each test shall be recorded separately.
- 8.1.7. Seasonal variation (e.g., spring freshet) on groundwater conditions shall be considered on selecting appropriate testing method.
- 8.1.8. In special circumstances, specific inspection and testing requirements may apply, refer to MECP's Watermain Design Criteria for Future Alterations Authorized Under a Drinking Water Works Permit for additional inspection and testing requirements for Sanitary Sewers, force mains, and associated Appurtenances when;
  - 1. Installed within areas the works would pose a Significant Drinking Water Threat; and
  - 2. If the required separation distance from water mains and associated Appurtenances cannot be achieved.

### **8.2. Inspections**

- 8.2.1. All new Sanitary Sewers including connections, Storm Sewers, and associated Appurtenances shall be inspected to confirm alignment and to ensure that the Sewer pipe is free from obstructions, debris, and defects.
- 8.2.2. All maintenance holes/access structures shall be inspected for any defects, leaks, debris, and to ensure proper benching.



- 8.2.3. Acceptable inspection methods for Sanitary Sewers, Storm Sewers, and maintenance holes include;
1. Closed-Circuit Television (CCTV) Inspection as per OPSS.MUNI 409;
  2. Zoom Camera Inspections as per OPSS.MUNI 432;
  3. Sonar Inspections as per OPSS.MUNI 435; and
  4. Laser Inspections as per OPSS.MUNI 434.
- 8.2.4. All new, replaced, and rehabilitated Sanitary Sewers, Storm Sewers, and maintenance holes shall be video inspected to evaluate the physical condition and to identify any obstructions or defects. Any issues identified in the inspections shall be corrected and the respective pipe segments and maintenance holes shall be re-inspected.
- 8.2.5. In addition to methods outlined in section 8.2.3, maintenance holes can be inspected through visual observation. The visual observation inspections shall be completed using digital cameras and recorders and cover both surface and internal inspections. The procedure shall comply with all applicable health and safety requirements, including, but not limited to *Occupational Health and Safety Act, R.S.O. 1990, c. O.1*
- 8.2.6. Sonar inspections can be used for Sanitary Sewers, and Storm Sewers under submerged and partially submerged conditions.
- 8.2.7. Laser inspections are recommended for more accurate measurement of defects and deflection in the Sanitary Sewers and Storm Sewers.

### **8.3. Leakage Testing**

- 8.3.1. Leakage Test shall be performed on all new Sanitary Sewers and maintenance holes to ensure integrity of the conveyance system.
- 8.3.2. Prior to performing a leakage test, both active and inactive service connections and stubs shall be identified using dye testing or other equivalent methods.
- 8.3.3. All new and inactive service laterals shall be plugged using plugs designed to withstand test pressures, plugs shall be suitably braced for additional safety. All inactive service connections shall be sealed.
- 8.3.4. For replacements of existing sanitary sewers with active service connections that cannot be plugged to complete leakage testing:
1. The service lateral connection to the sanitary sewer shall be completed with a manufactured gasketed tee connection or a cored connection with a manufactured insert. The work shall be inspected to ensure a water-tight connection is established between the service lateral and the sanitary sewer.
  2. A waterproof membrane may be wrapped around the connection point of the service lateral to the main sanitary sewer, encasing the fitting and extending around the service lateral for added protection.
  3. The sanitary maintenance holes shall be externally wrapped with Waterproof membrane placed externally around all precast joints, including joints below the maintenance hole frame and cover, with a minimum 300mm wide strip.

- 8.3.5. Pipe sections and associated components that are subject to pressure testing shall be fully restrained against movements in the event of failure. Component that are not intended to be pressurized shall be isolated.
- 8.3.6. Prior to leakage testing potential risks and hazards shall be identified and appropriate safety measure shall be taken. The procedure shall conform to all applicable health and safety requirements, including, but not limited to: *Occupational Health and Safety Act, R.S.O. 1990, c. O.1*, and *Fire Protection and Prevention Act, 1997, S.O. 1997, C.4*.
- 8.3.7. The following are acceptable leakage tests for Sanitary Sewers and maintenance holes:
1. Low Pressure Air Testing;
  2. Water (Hydrostatic) Testing;
  3. Vacuum Testing.
- 8.3.8. Groundwater elevations shall be considered for selection of the appropriate testing method.
- 8.3.9. Low pressure air test is not recommended when groundwater elevation is 600 mm or greater above the crown of the pipe being tested at the time of testing. Where groundwater elevation is less than or equal to 600 mm test pressure shall be adjusted to compensate for ground water pressure.
- 8.3.10. Low pressure air testing equipment shall include a pressure relief valve set to 9 psi (max) to avoid over pressurizing.
- 8.3.11. Low pressure air testing procedure shall conform to:
1. OPSS.MUNI 410;
  2. ASTM F1417; or
  3. ASTM C924M.
- 8.3.12. Water test procedure shall conform to:
1. OPSS.MUNI 410; or
  2. ASTM C 969.
- 8.3.13. Vacuum testing procedure shall conform to:
1. ASTM C1244/C1244M
- 8.3.14. Clean water shall be used for hydrostatic testing. Water used in the hydrostatic testing shall be disposed as per all the applicable requirements.
- 8.3.15. If a segment of the system fails during leak testing, source of leakage shall be identified, and all defective material shall be repaired or replaced to the satisfaction of the Owner. The repaired or replaced sections shall be retested until results acceptable to the Owner are obtained. During retesting, maintenance holes shall be tested separately to pipe Sewers.

#### **8.4. Deflection Testing**

- 8.4.1. A deflection test shall be completed for all new flexible Sanitary Sewers and Storm Sewers at least 30 calendar days after backfilling but prior to paving.
- 8.4.2. Pipe segments failing the deflection test shall be removed and replaced.
- 8.4.3. Mandrel testing and laser profiling are acceptable tests for pipe deflection testing.
- 8.4.4. Mandrel test shall be performed in accordance with OPSS.MUNI 438.
- 8.4.5. Laser profiling shall conform to OPSS. MUNI 434.
- 8.4.6. Equipment used to perform Mandrel tests shall be specifically designed for the pipe material being tested.

#### **8.5. Hydrostatic Testing**

- 8.5.1. Hydrostatic testing shall be performed to all new and rehabilitated/repared forcemains in accordance with OPSS.MUNI 412 (Ontario Provincial Standards Specification, published by Ontario Ministry of Transportation) at a minimum pressure of 1.5 times the maximum operating pressure.
- 8.5.2. Water used in the hydrostatic testing shall be disposed to Sanitary Sewers as per all the applicable requirements for disposal.
- 8.5.3. The maximum pressure shall be measured and recorded at the lowest point along the length of the pipe subject to testing.

# APPENDIX I

## Identification of Risks to Sources of Drinking Water

# Identification of Risks to Sources of Drinking Water

Components of sewage systems may present a risk to municipal drinking water sources, and therefore be subject to source protection plans made under the *Clean Water Act, 2006* (CWA). This document is intended to assist owners and operators of sewage systems to identify which components of their systems can present a risk as well as comply with relevant conditions in their Environmental Compliance Approval to protect sources of drinking water.

## Introduction

The purpose of the *Clean Water Act* is to protect Ontario's sources of drinking water as part of an overall commitment to safeguard human health and the environment. Under the CWA, communities across the province are protecting their existing and future drinking water supplies through prevention – by developing collaborative, watershed-based source protection plans that are locally driven and based on science. The plans apply within 38 source protection areas across Ontario, covering the areas where 95% of the population live.

These plans identify the **vulnerable areas** around municipal drinking water sources (i.e. wells or surface water intakes) where certain activities such as operating sewage works, fuel storage or manure spreading pose a risk of contaminating the source.

You can learn more about source protection in Ontario and the locally developed source protection plans at: [www.ontario.ca/page/source-protection](http://www.ontario.ca/page/source-protection).

## Drinking Water Threats

[Ontario Regulation 287/07](#) under the CWA lists 22 **drinking water threats**; activities that can contaminate or deplete a drinking water source. One of these activities is “**the establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.**” Depending on the circumstances, sewage works may be a **significant drinking water threat**. Every significant threat is addressed by policies in the local source protection plan.

The new Consolidated Linear Infrastructure Environmental Compliance Approvals (ECAs) for both municipal sanitary sewage collection systems as well as municipal stormwater management systems contain special requirements that apply to elements of the works that are significant drinking water threats. Whether you are designing a new sewage collection or stormwater collection system, expanding an existing system, or conducting normal operations and maintenance, it is important to be able to identify where components of your system (e.g. sanitary sewers, pumping stations, holding tanks, stormwater outfalls, etc.) may be significant drinking water threats, in order to comply with the ECA.

Below are some resources that can help you do this.

## Source Protection Tools

**STEP 1: Use the Source Protection Information Atlas (SPIA) to find out if the Works are located in a source protection area or vulnerable area.**

- SPIA is an online mapping tool that will provide source protection details for any point or property in Ontario including the specific **source protection area**, **vulnerable area** and **vulnerability score**.
- Vulnerable areas include:
  - Wellhead Protection Areas (WHPA) around groundwater wells
  - Intake Protection Zones (IPZ) around surface water intakes
  - Issues Contributing Areas (ICA)
  - Event Based Areas (EBA)
  - Significant Groundwater Recharge Areas (SGRA) and Highly Vulnerable Aquifers (HVA)
  - Learn more about these vulnerable areas in the **Help and Resources** tab in SPIA – A Document of Definitions.
- Vulnerability score:
  - An assigned number (2 to 10) which indicates how vulnerable (i.e. sensitive) the drinking water source is to contamination.
  - The vulnerability of a drinking water source is affected by the natural characteristics of the system, such as the type of soil and rock in the area, how quickly water can travel through it, the type of source (e.g. lake or river), water flow and wind conditions, rainfall, the slope of the land, land cover, soil type and the source vulnerability (e.g. depth of intake or well, distance from shoreline).
  - Generally, the higher the vulnerability score, the more sensitive the drinking water source.
- You can use SPIA to determine the vulnerable areas and vulnerability score for a single point (e.g. a pumping station) or an **entire** property (e.g. a wastewater treatment plant). There may be more than one vulnerable area or vulnerability score within a single property.
- SPIA will provide a link to the local source protection plan for any result within a source protection area.
- If you have questions or require assistance using SPIA, use the **Help and Resources** tab at the bottom of the SPIA page.

Select the link to explore SPIA:  
[Source Protection Information Atlas](#)

Learn more about source protection **vulnerable areas** in the **Help and Resources** tab in SPIA

## STEP 2: Use the Threats Tool to find out if the Works pose a risk to sources of drinking water.

- The 22 prescribed drinking water threats are categorized into threat subcategories in the Tables of Drinking Water Threats, which are amended from time to time. These tables set out the circumstances including **vulnerability scores**, where activities pose a risk to drinking water.
- The Threats Tool is an interactive online tool that allows users to quickly search the Tables of Drinking Water Threats.
- The Threats Tool was created to allow users to easily identify significant, moderate or low threats to municipal drinking water sources.
- This Tool allows users to search the Tables of Drinking Water Threats by:
  - Vulnerable zone (WHPA, IPZ) and vulnerability score
  - Threat category (i.e. sewage) and subcategory (e.g. sanitary sewers)
  - Parameters of concern (chemical and pathogens).
- Search the Threats Tool for the current or proposed sewage works using the *Search* function. For Works eligible for pre-authorization, the currently applicable subcategories under the sewage threat are below:
  - Wastewater Collection Facilities and Associated Parts: Sanitary Sewers (includes sanitary forcemain, rising main, gravity sanitary sewer, or partially separated sanitary sewer that forms part of a wastewater collection facility, not including its appurtenances);
  - Sewage Pumping Station or Lift Station Wet Well, a Holding Tank or a Tunnel that store sewage;
  - Combined Sewer Overflow (CSO) outfall, a Sanitary Sewer Overflow (SSO) from a manhole or a sewage pumping station overflow (PSO) from a wet well;
  - Stormwater drainage system or stormwater management facilities including Low Impact Developments (LID) and outfalls.
- Search for **significant, moderate and low threats** in both the chemical and pathogen table.
- The results will show which **vulnerable area** and **vulnerability score** the chemical and / or pathogen is a significant drinking water threat. For example:
  - Sanitary sewers and associated parts are a significant drinking water threat when located in wellhead protection areas (WHPAs) scoring 10, as well as in certain kinds of Issue Contributing Areas (nitrogen, phosphorus, *E. coli*) and Event Based Areas (sanitary trunk sewer breaks).
  - Stormwater Management Facilities and Drainage Systems outfalls may be a significant

Access the Threats Tool here:

<http://swpip.ca/>

Alternatively, you can use the Help and Resources link in the [Source Protection Information Atlas](#)

threat when located in surface water intake protection zones (IPZs / WHPA-Es) scoring 8 or greater, or when located in WHPAs scoring 10 depending on the Storm Water Management Facility associated land uses and proportion of impervious areas, as well as certain Issue Contributing Areas.

- Alternatively, you can search by vulnerable area to see which activities would be significant drinking water threats.
- Please note that the above guidance reflects the 2021 Technical Rules which are amended from time to time.

Consider the **vulnerable areas** and **vulnerability scores** at your site and any overflow or discharge locations against the circumstances specified for drinking water threats to assess if the Works are a significant, moderate or low drinking water threat at that location.

Issues Contributing Areas (ICA) are vulnerable areas associated with groundwater or surface water systems, WHPA-ICA or IPZ-ICA, respectively, where activities and conditions may contribute to a parameter of concern identified in the raw water. Certain types of sewage works can contribute to the parameter of concern (chemical or pathogen) and can be either a low, moderate, or significant threat within the protection zone where the ECA activities are located. If the parameter causing the issue is associated with the sewage works proposed at the site – namely chloride, sodium, nitrogen, phosphorus and *E. coli* for Stormwater Management Facilities and Drainage Systems, and nitrogen, phosphorus and *E. coli* for sanitary sewers, sewage pumping stations and CSOs – then the activity typically poses a significant threat **regardless** of the vulnerability score. Check the Assessment Report and Source Protection Plan to confirm any local refinements to the list of activities that may contribute to an issue.

If you have any questions, or need assistance during the threat assessment, please contact the source protection authority listed in the plan for assistance. Additionally, **Conservation Ontario** has resources available at <https://conservationontario.ca/conservation-authorities/source-water-protection>.

The location within a vulnerable area (e.g. WHPA-A score 10) and type of work (e.g. sanitary sewers and associated parts) and the risk associated with the Works (i.e. significant, moderate or low drinking water threat) can be used for the source protection reporting requirements within your ECA as included in **Section 7** (7.2) of the Sanitary Sewers ECA or **Section 8** (8.2) of the Stormwater ECA.



### STEP 3: Check the Source Protection Plan

- If you have determined that one or more of your sewage system components are a significant drinking water threat within your municipality after using SPIA and the Threats Tool there may be source protection policies which apply.
- Use the **source protection area** identified on SPIA to look up the corresponding **Source Protection Plan** to see what policies may apply.
- Source protection plans contain policies for the activities that pose a significant risk to drinking water. The Plan may also contain policies for activities that pose a moderate or low risk.
- Determine if there are any source protection plan policies which relate to your proposed Works (there may be more than one).
- If you have questions regarding the source protection plan policies, please contact the Source Protection Authority listed in the plan for assistance.

Access Conservation Ontario's  
[Source Protection Plans and Resources](#)

### STEP 4: Incorporate features into the Works to mitigate risks to sources of drinking water

- If any of the works are a significant drinking water threat and source protection plan policies apply, features should be incorporated in the design, operation, and maintenance that mitigate the risk to drinking water sources as indicated in your ECA, such as:
  - Adopting design, construction, operation and maintenance considerations included in the ministry's Standard Operating Policy for Sewage Works (section 1.2.8) and implementing any actions summarized in the Standard Operating Policy for Source Protection Prescribed Instruments published on the Environmental Registry (posting [#012-2968](#)), as amended from time to time. The Sewage SOP was developed in 2014, reflecting the Technical Rules and drinking water threat circumstances in effect at that time and is available using the archive search tool.
  - Features and considerations included in the MECP Design Criteria document section 1.3 – Protection of Water Supplies
  - Any source protection plan policy requirements pertaining to the Works
- MECP includes **guidelines and conditions** for significant drinking water threats as part of its provincial obligations under source protection plan policies:
  - For **new, altered or modified works**: refer to the design criteria guidelines for significant drinking water threats. This may include requirements for operations, maintenance, record keeping, and reporting.
- Fulfil reporting and other requirements included in your ECA including those in **Section 7** (Sanitary Sewers ECA) or **Section 8** (Stormwater ECA) for the protection of drinking water sources.

## APPENDIX II

### Source Protection Standard Operating Policies

## Ministry of the Environment and Climate Change's Source Protection Standard Operating Policies

The EBR Registry Number 012-2968 provides information on the Standard Operating Policies (“**SOPs**”) developed by the Ministry of the Environment and Climate Change (“**ministry**”) to support the ministry’s implementation of source protection prescribed instrument policies. The content of the SOPs for ensuring approvals for waste, sewage works, hauled sewage, water taking and land application of pesticides **conform with policies in source protection plans** are summarized below, **noting that where a prohibition policy applies, the ministry will refuse the application as is legally required**. The ministry will apply the SOPs on a province-wide basis, to ensure a consistent approach to implementing source water protection policies.

This document has two sections: the first section provides a summary of the ministry actions to be taken to conform with source protection prescribed instrument policies for significant threat activities (otherwise known in the **Clean Water Act, 2006** (“**CWA**”) as significant threat policies), and the second section provides a summary of the ministry’s actions to be taken to have regard to policies that govern moderate and low threat activities (otherwise known as moderate and low threat policies).

The threat activities listed below are defined in the ministry’s Table of Drinking Water Threats (“**Table**”). This Table was prepared and released as part of the Director’s Technical Rules issued under section 107 of the CWA.

The Risk Management Measures Catalogue (“**RMMC**”) provides means to determine which management measure(s) and management targets is/are suitable to effectively manage a specific threat to the quality or quantity of source water, allowing the user to take local conditions into consideration.

### Section 1: Summary of Ministry Actions to be taken to Conform with Source Protection Prescribed Instrument Policies for Future Significant Threat Activities

#### Waste Disposal Site Prescribed Threat Activities

##### *Threat activities:*

- Landfarming Petroleum Refining Waste, threat #1a
- Landfilling (Hazardous Waste and Liquid Industrial Waste), threat #1b
- Landfilling waste from municipal sources, threat #1c
- Landfilling Industrial and Commercial waste, threat #1d
- Liquid Industrial Waste Injection into a Deep Well Disposal Site, threat #1e
- Storage of Hazardous/Liquid Industrial Waste at Waste Disposal Sites, threat #1g

- Storage of wastes described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous waste or clause (d) of the definition of liquid industrial waste (under Regulation 347), threat #1h

*Prescribed Instrument:*

An Environmental Compliance Approval (“**ECA**”) under Part II.1 of the *Environmental Protection Act* (“**EPA**”) for activities under s.27 of the EPA.

*Standard Operating Policy:*

The ministry screens ECA applications for waste disposal sites to identify if the site is located in a vulnerable drinking water area and if the activity meets the circumstances to be considered a significant threat to drinking water.

A stringent site-specific technical review is conducted to ensure that waste disposal facilities are designed and operated in a manner that meet regulatory, guidelines and best management practices. The ministry’s assessment of the proposal is clearly documented which includes how the activity meets the ministry’s requirements and how the Statement of Environmental Values were considered. The technical review in conjunction with imposing conditions in an ECA related to design, environmental monitoring, reporting and trigger mechanisms and contingency plans, provide comprehensive controls that ensure regulated waste management activities do not become significant drinking water threats. Where proposals do not meet these requirements, the ECA application will be refused.

When a source protection policy requires risk management of a waste prescribed significant threat activity, the ministry will apply current program and regulatory standards when making a decision on the ECA.

*Details and Rationale:*

For significant drinking water threat activities, the *Environmental Assessment Act* (“**EAA**”) process (where it applies), the requirements for an ECA under the EPA and requirements under existing regulations and guidelines are comprehensive and adequately address the objectives of the source protection policies.

The EAA sets out a planning and decision-making process to evaluate the potential environmental effects of a proposed project before any decisions are made to proceed with the project. Since March 2007, certain private and public sector waste management projects are subject to the EAA through the Waste Management Projects Regulation (O. Reg. 101/07). The level of assessment required depends on the project’s expected environmental effects. Projects subject to an environmental assessment (EA) cannot obtain an ECA to engage in the waste management activities until the requirements of the EAA have been met. As part of the EA process, proponents are required to:

- anticipate environmental, social, economic and cultural consequences of a proposed project or activity (i.e. siting considerations, effects on surface and/ groundwater quality, quantities and flow, commitments to monitoring of discharges and emissions);
- assess plans to manage any potential environmental effects resulting from the proposed project or activity (i.e. development of mitigation measures); and,
- allow for the involvement of the public and government agencies in the review of the proposed project or activity.

The EPA, specifically section 27 (under Part V), requires proponents to obtain an ECA from the ministry prior to using, operating, establishing, altering, enlarging or extending a waste disposal site. The ECA includes stringent conditions that:

- identify the maximum volume and design requirements for the waste disposal site;
- approve a closure plan for the site or require a detailed closure be submitted based on the conceptual closure plan included in the site's Design and Operations Plan;
- approve plans such as Environmental Monitoring Plans, trigger mechanism plans, and contingency plans to ensure the long-term protection of the environment;
- require record keeping, inspections (daily, monthly and annual) and the submission of an annual report;
- state the ministry's requirements for buffer lands, and includes appropriate setbacks from wellheads or intake zones, as appropriate;
- require financial assurance (for privately owned sites) to ensure that if a proponent is unable or unwilling to meet their responsibilities for the site or whether the site is abandoned, the site is properly closed and maintained to ensure it does not pose a risk to the environment, including drinking water sources.

Existing program and regulatory requirements for the approval of waste disposal sites are consistent with the significant threat prescribed instrument policies. Therefore existing program requirements conform with source protection risk management policies.

The Risk Management Measures Catalogue (“**RMMC**”) provides a means for a user to determine which management measure(s) and management targets is/are suitable to effectively manage a specific threat to the quality or quantity of source water, allowing the user to take local conditions into consideration. The RMMs were reviewed to determine if they are consistent with waste disposal site designs typically approved by the ministry. Site specific design criteria are submitted to the ministry with an application for a prescribed instrument (i.e. an ECA), as prepared by a Qualified Person (e.g. Professional Engineer).

### Ministry Policy and Guideline Framework for each Waste Sub-threat Activity:

Waste Sub-threat Activity	Ministry's Policies and Guidelines
Landfarming Petroleum Refining Waste, threat #1a	<ul style="list-style-type: none"> <li>• Section 27 of the EPA requires that an ECA be obtained from the ministry prior to using, operating, establishing, altering, enlarging or extending a waste disposal site.</li> <li>• To obtain an ECA for a new Landfarming Petroleum Refining Waste site, detailed technical assessments of the site must be carried out to identify any potential effects on the environment including groundwater, surface water, air and soil to show how these potential effects can be satisfactorily addressed (review completed by the ministry's regional technical support section and/or Environmental Approvals Branch review engineer(s)).</li> <li>• Regulation 347 (General Waste Management) made under the EPA, was amended in 2005 to establish a land disposal restrictions ("<b>LDR</b>") program in Ontario. Under these rules, hazardous wastes that are to be land disposed must be treated to meet prescribed treatment requirements prior to land disposal.</li> <li>• The ministry's LDR program prohibits the direct disposal of hazardous waste to land without meeting the treatment standards within Regulation 347.</li> <li>• The ministry receives very few ECA applications related to landfarms.</li> <li>• Hydrogeology and surface water studies would be a component of the application. During the technical review, site specific conditions may be included in the ECA to ensure that each specific site has adequate measures to protect drinking water sources including monitoring plans, inspection procedures, reporting requirements and contingency measures.</li> </ul>
Landfilling Hazardous Waste and Liquid Industrial Waste, threat	<ul style="list-style-type: none"> <li>• The EAA provides for the analysis of impact assessment, conservation and wise management of Ontario's environment by establishing a responsible</li> </ul>

#1b	<p>and accountable process for decision-making before a project is undertaken. Key components of an environmental assessment (“<b>EA</b>”) include the mitigation and management of potential environmental impacts. The EA process for a proposal such as a Hazardous and Liquid Industrial Waste Disposal Site includes consideration and evaluation of alternatives.</p> <ul style="list-style-type: none"> <li>• Waste Management Projects are subject to O. Reg.101/07 made under the EAA. This regulation describes the waste management projects that are designated by the regulation and subject to the EAA and EA requirements. Under the regulation, waste management projects may be required to undertake an Individual EA or an Environmental Screening Processes (“<b>ESP</b>”) to ensure that the intent of the EAA is met.</li> <li>• New landfills or expanding landfills that are proposed to have waste disposal volumes of less than 40,000 m<sup>3</sup> are not designated under the EAA. These landfills are required to meet the requirements of the EPA Regulation 347 (General Waste Management).</li> <li>• For landfills subject to the EAA requirements, numerous technical studies and impact assessments are required to be completed. This includes a hydrogeological assessment, surface water assessments and geotechnical assessments. Section 6 of the Landfill Standards and A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites (PIBS 3651E), outline the type of technical studies required.</li> <li>• <b>Hazardous and Liquid Industrial Waste Disposal (Landfill) Sites</b> are subject to Part V of the EPA and applicable regulation made under the Act (i.e. Regulation 347 and O. Reg. 232/98). Section 27 of the EPA requires that an ECA be obtained from the ministry prior to using, operating, establishing, altering, enlarging or extending a waste disposal site. The EPA is the overarching legislation that provides the basic legislative framework for waste management in Ontario. These landfills may also have requirements under the <i>Ontario Water Resources Act</i> (“<b>OWRA</b>”).</li> </ul>
-----	---

	<p>An application to obtain an ECA for a new or expanding landfill site must include reports that address the detailed technical assessments of the site carried out to identify any potential effects on the environment including groundwater, surface water, air and soil to show how these potential effects can be satisfactorily addressed.</p> <p><b>Applicability of Regulation 232/98, under the EPA</b></p> <ul style="list-style-type: none"> <li>• O. Reg. 232/98, Landfilling Sites contains comprehensive landfill standards that include requirements for site design, operation, closure, post-closure care and financial assurance.</li> </ul> <p><b>Applicability of Regulation 347, under the EPA</b></p> <ul style="list-style-type: none"> <li>• Regulation 347 is the general waste management regulation that provides an overview of waste management in the Province.</li> </ul> <p><b>Guidelines</b></p> <ul style="list-style-type: none"> <li>• Guideline B-7: Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities establishes the basis for determining the "reasonable use" of groundwater on property adjacent to sources of contaminants and for determining the levels of contaminant discharges considered acceptable by the ministry.</li> </ul> <p>The Guideline applies to matters which fall under the authority of the EPA and OWRA.</p>
Landfilling waste from municipal sources, threat #1c and Landfilling Industrial and Commercial waste, threat #1d	<ul style="list-style-type: none"> <li>• Source protection policies were reviewed and it was determined that the ministry's current regulatory framework for municipal/industrial/commercial landfills meets the policy requirements. The current framework for waste threats #1c and #1d is the same as waste threat #1b described above.</li> </ul>
Liquid Industrial Waste Injection into a Deep Well Disposal Site, threat #1e	<ul style="list-style-type: none"> <li>• A waste disposal site ECA for activities under section 27 of Part V of the EPA is required for deep well injection of waste, except for oil field brine disposal which is regulated by the Ministry of Natural Resources</li> </ul>



	<p>and Forestry (MNRF) through the <i>Oil, Gas and Salt Resources Act</i>.</p> <ul style="list-style-type: none"> <li>• The ministry regulates deep well injection of waste through the Deep Well Disposal Regulation (Regulation 341) and Regulation 347 under the EPA.</li> <li>• Under Regulation 341 of the EPA, operators of a waste well disposal must provide the ministry's local district office Director with monthly reports showing the source, volume and chemical composition of the wastes received at the site, and the volume of wastes discharged into the well.</li> <li>• Regulation 347 was amended in 2005 to establish a Land Disposal Restriction (LDR) program in Ontario. Under these rules, hazardous wastes that are to be land disposed must be treated to meet prescribed treatment requirements prior to land disposal.</li> <li>• The ministry's LDR program prohibits the direct disposal of hazardous waste into deep wells without meeting the treatment standards within Regulation 347. This will not affect the disposal of non-hazardous fluids such as brine.</li> </ul> <p><b><i>Oil, Gas and Salt Resources Act</i></b></p> <ul style="list-style-type: none"> <li>• MNRF regulates disposal of brine through the <i>Oil, Gas and Salt Resources Act</i> (the disposal of brine is exempt from the EPA, and only regulated by MNRF if re-injected in wells).</li> <li>• Currently, there are no ministry approved deep well disposal sites operating in Ontario. The last two (2) ministry-approved deep well disposal sites were plugged in 2013.</li> </ul>
Storage of Hazardous/Liquid Industrial Waste at Waste Disposal Sites, threat #1g	<ul style="list-style-type: none"> <li>• Waste management projects are subject to O. Reg. 101/07 made under the EAA. This regulation describes the waste management projects that are designated by the regulation and subject to the EAA and EA requirements. Under the regulation, waste management projects for the storage of waste at transfer/processing sites may be required to undertake</li> </ul>

	<p>the Environmental Screening Process to ensure that the purpose of the EAA is met.</p> <ul style="list-style-type: none"> <li>• The EPA is the overarching legislation that provides the basic legislative framework for waste management in Ontario. Hazardous Waste and/or Liquid Industrial Waste Transfer and Processing Sites, Municipal Hazardous and Special Waste Depots (MHSW Depots) and hazardous waste thermal treatment facilities (all sites where storage of hazardous and liquid industrial occurs) are subject to Part V of the EPA and the regulations made under the EPA.</li> <li>• Section 27 of the EPA requires that an ECA be obtained from the ministry prior to using, operating, establishing, altering, enlarging or extending a waste disposal site.</li> <li>• Storage of hazardous waste and liquid industrial waste by a generator for more than 24 months requires an ECA (per section 17.2 of Regulation 347).</li> <li>• To obtain approval for a new Hazardous Waste Transfer and Processing site, MHSW Depot and /or Hazardous Waste thermal treatment facility, a technical assessment of the site must be carried out to identify any potential effects on the environment including groundwater, surface water, air and soil to show how these potential effects can be satisfactorily addressed.</li> </ul> <p><b>Regulations and Guidelines</b></p> <p>Regulations and guidelines for storage of hazardous waste and/or liquid industrial waste at transfer/processing sites include:</p> <ul style="list-style-type: none"> <li>• <a href="#">Regulation 347</a> limits the mixing, blending, bulking, etc. of hazardous waste.</li> <li>• Household Hazardous Waste Collection and Facility Guidelines, 1993.</li> <li>• Ministry's Guidelines of "Environmental Protection Measures at Chemical and Waste Storage Facilities", 2007.</li> </ul>
--	--

	<p><b>Technical Review Approval Process</b></p> <ul style="list-style-type: none"> <li>• The ministry's review engineers/evaluators with knowledge of hazardous waste and liquid industrial waste storage activities are assigned to review ECA applications for these proposed activities. Applicants of proposed hazardous waste and liquid industrial waste storage sites are required to submit supporting documentation, including storm water management plans, secondary storage containment plans, emergency spill procedures and contingency measures.</li> <li>• Review engineers will impose site specific terms and conditions in the ECA to ensure that each specific site has adequate measures to protect drinking water sources.</li> </ul>
Storage of wastes described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous waste or clause (d) of the definition of liquid industrial waste (under Regulation 347)*, threat #1h	The source protection policies were reviewed and it was determined that the ministry's current regulatory framework for storage of wastes described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous waste or clause (d) of the definition of liquid industrial waste (under Regulation 347)* meets the policy requirements. The current framework for waste storage threats #1h is same as it is for hazardous waste storage threat #1g.

\* For reader clarity, the sub-threat 1h, "Storage of wastes described in clauses (p), (q), (r), (s), (t) or (u) of the definition of hazardous waste or clause (d) of the definition of liquid industrial waste" is storage of non-hazardous waste at transfer/processing sites.

Clauses (p), (q), (r), (s), (t) or (u) of the definition of "hazardous waste" or clause (d) of the definition of "liquid industrial waste" ("Small Quantity Wastes") are time-accumulating and amount thresholds that determine how a waste is classified in Regulation 347. Generally, these clauses state that small amounts and/or accumulation of inherently hazardous waste can be managed as non-hazardous waste for the purposes of waste management. For the purposes of Source Protection, these materials can be a threat to drinking water.

## **Sewage Prescribed Threat Activities**

### *Threat activities:*

- Combined Sewer discharge from stormwater outlet to surface water, threat #2a
- Discharge of stormwater from a stormwater facility, threat #2b
- Industrial sewage effluent discharge, threat #2c
- Sanitary sewers and related pipes, threat #2d
- Septic system, threat #2e
- Sewage Holding tank, threat #2f
- Sewage Treatment Plant bypass, threat #2g
- Sewage Treatment Plant effluent discharge (includes lagoons), threat #2h
- Storage of Sewage, threat #2i
- Sewage – Mine tailings, storage, treatment and discharge, threat #1j

### *Prescribed Instrument:*

ECA under Part II.1 of the EPA for activities under s.53 of the OWRA

### *Standard Operating Policy:*

For sewage works governed by ECAs where the sewage works are located in areas where they are significant drinking water threats, the ministry will conform with source protection policies by applying design and operational measures (identified in the table below) to an ECA to manage the threat. The ministry has also introduced a new requirement for ECA applicants to submit a Source Protection Supplementary Report to outline how the activity for the sewage works is being managed and mitigated so that the activity will not become a significant drinking water threat. These requirements follow a precautionary and pollution prevention approach and will be applied on a consistent province-wide basis to protect drinking water sources. Some of the requirements identified below are currently implemented by the ministry on a site-specific basis. However, the ministry will now apply these requirements whenever the proposal would be considered a significant drinking water threat activity. The “General” section of the table is applicable to all sub-threat activities identified in the Table.

Sewage works that are significant threats to drinking water are not eligible for processing under the Transfer of Review Program. Only applications for approval of sewage works that have low technical complexity and low potential for significant environmental or public health impact and that are proposed to be located within certain designated municipalities are eligible to be processed under this program. An ECA application for sewage works that is excluded from the Transfer of Review Program must be submitted directly to the Environmental Approvals Access and Service Integration Branch of the ministry for review and processing. For additional information on the Transfer of Review Program, please refer the ministry’s [“Guide to Applying for an Environmental Compliance Approval, 2012”](#).

Ministry staff are currently screening ECA proposals for sewage works to identify if the site is located in a vulnerable drinking water area and if the activity meets the circumstances as a significant threat to drinking water. Guidance documents will be developed and/or updated to outline the ministry's ECA requirements for source protection.

Sewage Sub-Threat Activity	Requirements for ECA Applications
<p><b>General (applicable to all sewage works included within this table)</b></p>	<p>In order to prevent potential risks from becoming a significant drinking water threat, the ministry is implementing the following requirements for the establishment of sewage works where the works have been identified as a significant drinking water threat.</p> <p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Design must include a Source Protection Supplementary Report that demonstrates that the proposed design recognized the significant drinking water threat and has implemented mitigation measures to protect drinking water sources. The report should identify drinking water sources, how the sewage works has met the requirements of the CWA and the ministry's design and operational requirements and how the works considered the <u>Risk Management Measures Catalogue</u> (e.g., monitoring, reporting requirements), as amended, to address the risks</li> <li>• Designs must be accompanied with a monitoring and reporting plan.</li> <li>• Designs must be accompanied with a Spill Prevention and Contingency Plan, covering information requirements as per O.Reg. 224/07 to prevent, eliminate or ameliorate any adverse drinking water effects that result or may result from spills of pollutants. This includes steps taken in the event drinking water sources are contaminated for example, notifying members of the public who may be directly affected by a spill.</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• The Spill Prevention and Contingency Plans must be kept up-to-date.</li> <li>• Regular and annual reports to include maintenance, inspections, and monitoring details.</li> </ul>

	<ul style="list-style-type: none"> <li>• All reports are required to be kept onsite (where the reports can be kept on-site) and at the operating authority's office.</li> <li>• All reports are required to be made readily available upon request by ministry staff, Source Protection Authority or any other parties identified in Source Protection Plans.</li> </ul>
<b>Stormwater management works</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Design must be based on providing Enhanced Level water <b>quality</b> control as per the ministry's Stormwater Management and Planning Manual, 2003.</li> <li>• Design must include an additional 20% water <b>quantity</b> control in addition to the requirements of the ministry's Stormwater Management and Planning Manual.</li> <li>• Design must be accompanied with erosion and sediment control measures to cover all phases of construction.</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• The erosion and sediment control measures plan must be kept up-to-date with records of inspections and maintenance made available for inspection by the ministry.</li> <li>• The monitoring and reporting plan must be kept up-to-date and on-site or at the operating authority's office.</li> </ul>
<b>Combined sewers</b>	<p>New combined sewers are currently prohibited per the ministry's Design Guidelines for Sewage Works, 2008 and Procedure F-5-5. Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems are outlined in Procedure F-5-5. Combined sewer outflows are to be reported to the Spills Action Centre as per the obligations under Part X of the EPA.</p> <p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Same as "General" section.</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• Operational procedures established to include closed-circuit television (CCTV) inspections every 5 years with records made available for inspection by the ministry.</li> </ul>

<b>Sanitary sewers and related pipes</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• New and replacement sewers are to be constructed of materials and with joints that are equivalent to watermain standards of construction and are to be pressure tested in accordance with Division 441 (formerly 701) of the Ontario Provincial Standards Specification (OPSS).</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• Operational procedures established to include CCTV inspections every 5 years with records made available for inspection by the ministry.</li> </ul>
<b>Sewage treatment plant discharge via bypass</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Appropriate sizing to reduce bypasses-in adherence to the ministry's Sewage Works Design Guideline (2008) and provisions of Procedure F-5-5 and F-5-1.</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• Response plan for unplanned bypasses.</li> </ul>
<b>Sewage treatment plant – storage/holding tanks</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Same as “General” section.</li> </ul>
<b>Sewage treatment plant effluent (including lagoons)</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Appropriate sizing to reduce bypasses-in adherence to the ministry's Sewage Works Design Guideline, 2008 and provisions of Procedure F-5-5 and F-5-1.</li> <li>• Design must include an inspection/maintenance frequency and strategy to prevent unplanned bypasses.</li> <li>• Response plan for pre-mature effluent discharge (i.e. in the event of seasonal lagoons).</li> </ul>
<b>Industrial effluent discharge</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Designs must include an industrial sewage discharge flood protection and risk assessment report, considering the 1:200</li> </ul>

	<p>year storm event, or an additional 0.5 metres freeboard elevation on any lagoon or wastewater containment area.</p> <ul style="list-style-type: none"> <li>• Decommissioning plan for every component of the sewage system.</li> <li>• Design must include a contingency plan for responding to effluent quality not complying with effluent criteria.</li> </ul>
<b>Industrial effluent discharge – mine tailings</b>	<p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Designs must include an industrial sewage discharge flood protection and risk assessment report, considering the 1:200 year storm event, or an additional 0.5 metres freeboard elevation on any lagoon or wastewater containment area.</li> <li>• Design must include a contingency plan for responding to effluent quality not complying with effluent criteria.</li> <li>• Response plan for pre-mature effluent discharge (i.e. in the event of seasonal discharge from tailing ponds).</li> </ul>
<b>Onsite sewage systems</b>	<p>In order to prevent potential groundwater and shallow groundwater contamination and risks from becoming a significant drinking water threat, the establishment of all new onsite sewage systems must adhere to the following criteria.</p> <p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Design must comply with site specific effluent requirements (objectives, limits, triggers, monitoring, reporting, contingencies, etc.) as established at early stage during pre-application consultation with ministry District/Regional Offices.</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• Maintenance inspections by a qualified person.</li> <li>• Operational plan, which at a minimum shall include, but not limited to: <ul style="list-style-type: none"> <li>○ Pump out and inspection of sewage underground tanks (including septic, balancing tanks, etc.) of each sewage system identified as moderate and high risk in the Sewage System Assessment Report.</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ Hydraulic test to assess for any leakage at the time of the pump out.</li> <li>○ Removal of any trees, where they or their roots, are growing in the leaching beds.</li> <li>○ Preparing public information brochure for distribution (in cases of larger sites with more than one resident on site) regarding taking care of septic systems.</li> <li>○ Prohibit the construction of any structures such as decks, patios, or sheds over the disposal fields, as well as there should be no parking or driving vehicles over the surface of disposal fields and over any other components of the onsite sewage system.</li> </ul>
<b>Holding tanks</b>	<p>The ministry will not issue approvals for new underground holding tanks as current design and operational measures are not sufficient to ensure the activity will never become a significant drinking water threat. The proponent may only consider installation of above-ground tanks in compliance with the current requirements for holding tanks (Ministry Guideline F-9 and Ontario Building Code -OBC), subject to a site-specific review.</p> <p><b>Design Requirements</b></p> <ul style="list-style-type: none"> <li>• Same as “General” section.</li> </ul> <p><b>Operational Requirements</b></p> <ul style="list-style-type: none"> <li>• Inspections of holding tanks every five (5) years for assessment of holding tanks structural integrity including a hydraulic septic test to assess for any possible leakage, and complete with a written assessment and recommendations.</li> </ul>

## **Hauled Sewage Prescribed Threat Activities**

### *Threat activity:*

- Application of hauled sewage to land (waste subthreat #1i)

### *Prescribed Instrument:*

An ECA under Part II.1 of the EPA for activities under s.27 of the EPA.

### *Standard Operating Policy:*

The application of hauled sewage to land in locations where it would be a significant drinking water threat cannot be adequately managed with an ECA, such that the activity would never become a significant drinking water threat. To conform with significant threat prescribed instrument policies, the ministry will not approve the land application of untreated hauled sewage in areas where it has been identified as a significant drinking water threat.

### *Details and Rationale:*

Ministry experts determined that ECA terms and conditions could not adequately manage the land application of hauled sewage activity to ensure the activity never becomes a significant drinking water threat. This approach will address all of the parameters of concern associated with untreated hauled sewage as identified under the CWA (pathogens, nitrates and phosphorus).

## **Pesticides Prescribed Threat Activities**

### *Threat activity:*

- Application of Pesticides to Land, threat #10

### *Prescribed Instrument:*

Pesticide permits for land exterminations issued under section 7 of the Pesticides Act are identified as Prescribed Instruments under the CWA.

### *Standard Operating Policy:*

For activities that are identified as significant drinking water threats, the ministry will:

- ensure the permit includes appropriate terms and conditions that address emergency response measures and spill contingency plans for any pesticide

mixing, loading, and handling related to the proposed pesticide treatment which are protective of drinking water sources.

- ensure the permit includes applicable terms and conditions related to site specific setbacks to watercourses, timing restrictions (including consideration of weather events) and spills/runoff management or other measures necessary to manage the significant threat activity in order to protect sources of drinking water.

The additional terms and conditions will be included on all permits where the land application of pesticides is considered a 'significant' drinking water threat.

#### *Details and Rationale:*

The ministry will manage significant drinking water threat activities by including appropriate terms and conditions in all permits where the land application of pesticides is a significant drinking water threat.

These conditions will address emergency response measures and spill contingency plans as well as consideration for other measures necessary to manage the significant threat activity. Including these additional terms and conditions will help ensure broader environmental protection from the handling and use of pesticides and ensure a consistent approach to protecting source water across the province.

### **Permit to Take Water**

#### *Threat activity:*

- An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body, threat #19

#### *Prescribed Instrument:*

Section 34 of the Ontario Water Resources Act, with respect to the permits to take water" is defined as a prescribed instrument by s.1.0.1, O. Reg. 287/07 (General) under the CWA.

#### *Standard Operating Policy:*

No instrument changes are required at this time to address source protection prescribed instrument policy requirements. However, the ministry is engaged in a broader review of how information generated through the source water protection planning process can enhance a proponent's development of, and subsequent ministry review and evaluation of, water taking proposals that are subject to regulation by a permit. Pending the outcome of this review, best available science would be considered by proponents and

qualified person experts when preparing applications as well as by the ministry in the permit decision-making process, particularly those for higher risk groundwater takings.

#### *Details and Rationale:*

A Permit to Take Water (PTTW) Director, when considering an application for a PTTW, is required under section 4, O. Reg. 387/04 (Water Taking), under the OWRA, to consider issues, including those relating to water availability, such as may concern municipal residential drinking water systems and any planned municipal use of water that has been approved. A PTTW Director is provided statutory discretion to impose terms and conditions deemed proper to safeguard Ontario waters. The current administration of the PTTW program implements requirements prescribed by prevailing statute, regulation and program policy, and in doing so ensures future proposed and existing water takings which are subject to PTTW are not significant drinking water threats.

As specific examples of this, a signing Director considering an application for a PTTW is required by regulation to consider matters that include but are not limited to those relevant to source protection policies such as:

- the need to sustain ecological and hydrological integrity of key hydrologic features, functions and aquatic systems,
- the need for implementation of water conservation and efficient use measures, and
- the need to protect existing and approved future municipal water supply (i.e., ensure municipal water supply requirements are not interfered with by other permitted water takings).

Therefore, no changes to the terms and conditions already included in PTTWs instrument are recommended to further control water taking in geographic areas identified as significant drinking water quantity threats recognizing that the broader review of how source protection water quantity information can be factored into the PTTW application and decision-making processes is underway.

## **Section 2: Summary of Ministry Actions to be Taken to Have Regard To Source Protection Prescribed Instrument Policies for Moderate and Low Threat Activities**

It has been determined that the ministry's review and approval processes for instruments that manage moderate and low drinking water threats for waste, sewage, water taking and application of pesticides drinking water threat activities, are adequate to meet the requirements of source protection prescribed instrument policies. For activities that are identified as moderate or low drinking water threats, no additional measures beyond the existing approval requirements are required.

However, for moderate and low drinking water threats for the application of hauled sewage to land threat activities, the ministry's SOP does identify review and approval process changes.

### **Hauled Sewage Moderate and Low Threat Activities SOP**

If the ministry issues an ECA authorizing the land application of hauled sewage in locations where the activity would be a moderate or low threat, it will include terms and conditions that require the site to be designed, constructed and operated in a manner that meets acceptable standards that are protective of the environment and drinking water sources. The ministry is strengthening application and review requirements in these locations.

Updated requirements for surface application will include:

- a supplemental application checklist
- the ECA will:
  - be issued for less than 2 years duration
  - include terms and conditions that address spill prevention procedures
  - restrict land application activities to sites meeting specified standards relating to: maximum permitted slope, soil permeability requirements, minimum setbacks, storage requirements, prohibition on winter spreading and record keeping requirements.

Updated requirements for dewatering trenches will include:

- a supplemental application checklist
- the requirements of the ministry's "Draft Guide to Disposal of Septage in Dewatering Trenches, Ministry of the Environment, September 2008"
- the ECA will:
  - include terms and conditions that require the facility to be designed, constructed and operated in compliance with specific standards including maximum permitted slope, soil permeability requirements, minimum setbacks to surface water and to wells, storage and maximum application rate requirements,
  - include terms and conditions that require the facility to be closed as per the site specific closure plan.

## ENVIRONMENTAL COMPLIANCE APPROVAL For a Municipal Stormwater Management System

**ECA Number: 062-S701**

**Issue Number: 1**

Pursuant to the *Environmental Protection Act*, R.S.O. 1990, c. E. 19 (EPA), and the regulations made thereunder and subject to the limitations thereof, this environmental compliance approval is issued under section 20.3 of Part II.1 of the EPA to:

**Brant, The Corporation of the County of**

**26 Park Ave P.O. Box 160  
Burford, ON N0E 1A0**

For the following Sewage Works:

### **County of Brant Municipal Stormwater Management System**

This Environmental Compliance Approval (ECA) includes the following:

<b>Schedule</b>	<b>Description</b>
Schedule A	System Information
Schedule B	Municipal Stormwater Management System Description
Schedule C	List of Notices of Amendment to this ECA: Additional Approved Works
Schedule D	General
Schedule E	Operating Conditions
Schedule F	Residue Management
Appendix A	Stormwater Management Criteria

Except where specified otherwise, all prior ECAs, or portions thereof, issued by the Director for Sewage Works described in section 1 of Schedule B are revoked and replaced by this Approval.

DATED at TORONTO this 14th day of October, 2022

Signature



Aziz Ahmed, P.Eng.  
Director, Part II.1, *Environmental Protection Act*

## Schedule A: System Information

System Owner	<b>Brant, The Corporation of the County of</b>
ECA Number	<b>062-S701</b>
System Name	<b>County of Brant Municipal Stormwater Management System</b>
ECA Issue Date	<b>October 14th, 2022</b>

### 1.0 ECA Information and Mandatory Review Date

ECA Issue Date	October 14th, 2022
Application for ECA Review Due Date	May 15, 2026

- 1.1 Pursuant to section 20.12 of the EPA, the Owner shall submit an application for review of the Approval no later than the Application for ECA Review Date indicated above.

### 2.0 Related Documents

#### 2.1 Other Documents

Document Title	Version
Design Criteria for Sanitary Sewers, Storm Sewers, and Force mains for Alterations Authorized under Environmental Compliance Approval	v.1.1 (Jul 28, 2022)

### 3.0 Stormwater Master Plan and Asset Management Plan

Document Title	Version
County of Brant Asset Management Plan August 2013	v.1 (August 2013)

### 4.0 Operating Authority

System	Operating Authority
County of Brant Municipal Stormwater Management System	The Corporation of the County of Brant

## **Schedule B: Municipal Stormwater Management System Description**

System Owner	<b>Brant, The Corporation of the County of</b>
ECA Number	<b>062-S701</b>
System Name	<b>County of Brant Municipal Stormwater Management System</b>
ECA Issue Date	<b>October 14th, 2022</b>

### **1.0 System Description**

- 1.1 The following is a summary description of the Sewage Works comprising the Municipal Stormwater Management System:

#### **Overview**

The Municipal Stormwater Management (SWM) System serving the County of Brant's drainage area, is a separate system for stormwater (i.e. designed not to convey sanitary sewage, combined sewage) within the Grand River watershed. The Municipal SWM System consists of storm sewers, culverts, ditches, Stormwater Management Facilities and outlets.

This ECA covers the entire Municipal SWM System owned and operated by the County of Brant. This ECA does not cover municipally or privately owned sewage works on industrial or commercial land.

#### **Sewage Collection System**

- 1.2 The Authorized System comprises:

- 1.2.1 The Sewage Works described and depicted in each document or file identified in column 1 of Table B1.

<b>Table B1: Infrastructure Map</b>	
Column 1 Document or File Name	Column 2 Date
Storm Map Series	2021

- 1.2.2 Storm Sewers, Stormwater Management Facilities, stormwater pumping stations and Sewage Works associated with a Third Pipe Collection System that have been added, modified, replaced, or extended through authorization provided in a Schedule C Notice respecting this Approval, where Completion occurs on or after the



date identified in column 2 of Table B1 for each document or file identified in column 1.

- 1.2.3 Storm Sewers, Stormwater Management Facilities and Sewage Works associated with a Third Pipe Collection System that have been added, modified, replaced, or extended through authorization provided by Schedule D of this Approval, where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.

- 1.2.4 Any Sewage Works described in conditions 1.3 through 1.8 below.

### Stormwater Collection System

- 1.3 Categorization of the Authorized System at the date of issue of this Approval is as follows:

Table B2. Stormwater Collection System by Diameter			
System Type	Pipe Diameter (mm)	Length (km)	System Totals (km)
Storm Sewers	Up to 250	43.6	--
Storm Sewers	> 250 - 500	83.7	--
Storm Sewers	> 500 - 1050	44.9	--
Storm Sewers	> 1050	5.7	--
Total Storm Sewers	--	--	177.9
Ditches / Swales	--	--	N/A
Total System Length (km)	--	--	177.9

Table B3. Summary of Stormwater Management Facilities by Type and Pumping Stations							
Facility Type	Basic Treatment for Suspended Solids*	Normal Treatment for Suspended Solids *	Enhanced Treatment for Suspended Solids *	Other Treatment Level for Suspended Solids**	Total Quality Control	Total Quantity Control	Total Number of Facilities
LID Facilities - Retention (infiltration, evapotranspiration, harvest)	0	0	0	5	5	5	5
LID Facilities - Filtration	0	0	0	0	0	0	0
Stormwater Management Ponds – Wet (includes wetlands, hybrids)	0	3	2	5	10	10	10
Stormwater Management Ponds - Dry	0			11	11	11	11

Super Pipe / Storage Facility	0	0	0	0	0	0	0
Filtration MTD - Filter Unit	0	0	0	0	0		0
Sedimentation MTD - OGS	0	0	1	7	9		8
Pumping Stations							
Other	0	0	0	0	0	0	0
Total Number of Facilities	0	3	3	28	34	26	34

\* Basic, normal, and enhanced treatment correspond to 60%, 70% and 80% suspended solids removal on an annual average long-term basis, respectively.

\*\* Treatment levels below 60% suspended solids removal on an annual average long-term basis.

**Table B4. Third Pipe Collection System**

Description	Pipe Diameter (mm)	Length (km)	Quantity	System Totals
Third Pipe Sewer	Up to 250	N/A	N/A	N/A
Third Pipe Sewer	> 250 - 500		N/A	
Third Pipe Sewer	> 500		N/A	
Total				
Other Infrastructure Components (e.g., storage tank)	N/A			

**Table B5. Sewage Works on Private Land that are part of the Municipal Stormwater Treatment Train\***

Description	Location	ECA # (if applicable)
N/A		

\* Identifies privately owned Sewage Works that are not part of the Authorized System, but are part of a Stormwater Treatment Train

### Stormwater Management Facilities

1.4 The following are Stormwater Management Facilities in the Authorized System:

#### Fintas SWM Pond (Coates Drive)

Location	43° 5' 50.217" N 80° 26' 22.942" W
Watershed/Subwatershed	Grand River/Whitemans Creek
Receiver of discharge	Lewis Drain
Outlet location	43° 5' 50.367" N 80° 26' 24.095" W
Catchment Area	N/A
Level of Treatment for suspended solids	N/A
Treatment for other	None

Contaminants, as required	
Level of Volume control	N/A
Design Storm	N/A
Reference ECA(s)	No
Reference Sewage Works as part of treatment train	N/A
Brief Description	Siltation Pond
Receive Emergency Sanitary Overflows	No
Notes	Recharge Pond

**Fintas SWM Pond (Brian Drive)**

Location	43° 5' 44.336" N 80° 26' 20.233" W
Watershed/Subwatershed	Grand River/Whitemans Creek
Receiver of discharge	Lewis Drain
Outlet location	43° 5' 42.772" N 80° 26' 23.535" W
Catchment Area	N/A
Level of Treatment for suspended solids	N/A
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	100 year storm
Reference ECA(s)	No
Reference Sewage Works as part of treatment train	N/A
Brief Description	Siltation Pond
Receive Emergency Sanitary Overflows	No
Notes	Recharge Pond

**Seitz SWM Pond**

Location	43° 5' 40.884" N 80° 25' 49.568" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	N/A
Catchment Area	N/A
Level of Treatment for suspended solids	N/A
Treatment for other Contaminants, as required	None
Level of Volume control	3,700m3
Design Storm	Unknown
Reference ECA(s)	3-1343-78-796

Reference Sewage Works as part of treatment train	N/A
Brief Description	Groundwater recharge and infiltration pond
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Broadview SWM Pond**

Location	43° 6' 22.632" N 80° 25' 23.687" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	N/A
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	Unknown
Reference Sewage Works as part of treatment train	N/A
Brief Description	SWM pond
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Gladstone SWM Pond**

Location	43° 12' 10.403" N 80° 24' 0.301" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	N/A
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	No
Reference Sewage Works as part of treatment train	N/A
Brief Description	SWM Pond
Receive Emergency Sanitary Overflows	No

Notes	N/A
-------	-----

**Parisian Heights SWM Pond**

Location	43° 11' 6.675" N 80° 23' 10.591" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	N/A
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	1:5 Year Storm 1:100 Year Storm
Reference ECA(s)	3-0822-96-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	SWM Pond
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Telferwood Estates SWM Pond**

Location	43° 12' 31.656" N 80° 22' 59.847" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Gilbert Creek
Outlet location	43° 12' 34.007" N 80° 22' 55.401" W
Catchment Area	Unknown
Level of Treatment for suspended solids	Enhanced (Level1)
Treatment for other Contaminants, as required	None
Level of Volume control	5111m3
Design Storm	1:5 Year Storm 1:100 Year Storm
Reference ECA(s)	3-1257-99-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	Permanent pond volume of approximately 866m3.
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Charlton Park SWM Pond**

Location	43° 12' 25.964" N
----------	-------------------

	80° 23' 25.882" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	N/A
Catchment Area	Unknown
Level of Treatment for suspended solids	None
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	1:5 Year Storm 1:100 Year Storm
Reference ECA(s)	3-1453-76-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Fairview Heights SWM Pond

Location	43° 12' 30.422" N 80° 24' 30.611" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Charlie Creek
Outlet location	Unknown
Catchment Area	Unknown
Level of Treatment for suspended solids	None
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	1:5 Year Storm 1:100 Year Storm
Reference ECA(s)	No
Reference Sewage Works as part of treatment train	N/A
Brief Description	Storm drainage and retention pond.
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Paris Links Road SWM Pond

Location	43° 12' 22.953" N 80° 22' 51.899" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Gilbert Creek
Outlet location	43° 12' 32.430" N 80° 22' 45.248" W

Catchment Area	40.29 ha
Level of Treatment for suspended solids	Enhanced Level 1
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	1:5 Year Storm 1:100 Year Storm
Reference ECA(s)	1209-78QHHG
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	Yes – Discharge from the Paris Links Road Sewage Pumping Station.
Notes	N/A

### Highlands of the Nith SWM Pond

Location	43° 11' 9.264" N 80° 23' 43.678" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Nith River
Outlet location	43° 11' 9.122" N 80° 23' 51.765" W
Catchment Area	10.22 ha
Level of Treatment for suspended solids	Normal Level 2
Treatment for other Contaminants, as required	None
Level of Volume control	4,420 cu.m
Design Storm	2 Year Storm to 100 Year Storm
Reference ECA(s)	3652-5ZXR6V
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Rest Acres Ridge SWM Pond

Location	43° 10' 55.163" N 80° 23' 5.319" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Nith River
Outlet location	43° 10' 57.529" N 80° 23' 8.130" W
Catchment Area	19.11 ha
Level of Treatment for suspended solids	Unknown
Treatment for other	None

Contaminants, as required	
Level of Volume control	3,452 cu.m
Design Storm	2 Year Storm to 100 Year Storm
Reference ECA(s)	2961-5S7HMH
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Grandville Phase 1 SWM Pond # 1**

Location	43° 10' 48.524" N 80° 23' 19.040" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Nith River
Outlet location	43° 10' 51.515" N 80° 23' 12.122" W
Catchment Area	19.11 ha
Level of Treatment for suspended solids	Level 1
Treatment for other Contaminants, as required	None
Level of Volume control	26,713 cu.m
Design Storm	1:5 Year Storm to 1:100 Year Storm
Reference ECA(s)	4138-5SCJC3
Reference Sewage Works as part of treatment train	N/A
Brief Description	Dry SWM Facility
Receive Emergency Sanitary Overflows	Yes, discharge from the Grandville Sewage Pumping Station.
Notes	N/A

**Curtis Ave North SWM Pond**

Location	43° 11' 36.031" N 80° 22' 27.414" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	None
Catchment Area	19.77 ha
Level of Treatment for suspended solids	None
Treatment for other Contaminants, as required	None
Level of Volume control	5,164 cu.m
Design Storm	1:100 Year Storm



Reference ECA(s)	1546-7ZLKD2
Reference Sewage Works as part of treatment train	N/A
Brief Description	Dry SWM facility.
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Brant 403 Business Park SWM Pond**

Location	43° 9' 14.173" N 80° 22' 34.088" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Grand River
Outlet location	43° 9' 15.598" N 80° 22' 27.630" W
Catchment Area	69.5 ha
Level of Treatment for suspended solids	Enhanced
Treatment for other Contaminants, as required	None
Level of Volume control	68,906 cu.m
Design Storm	1:100 Year Storm
Reference ECA(s)	9772-8Y4KKJ
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	Yes, overland from the Brant 403 Sewage Pumping Station.
Notes	N/A

**Hampton Trails SWM Pond**

Location	43° 11' 54.523" N 80° 22' 44.130" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Grand River
Outlet location	43° 11' 54.677" N 80° 22' 44.943" W
Catchment Area	3.48 ha
Level of Treatment for suspended solids	None
Treatment for other Contaminants, as required	None
Level of Volume control	1,525 cu.m
Design Storm	1:100 Year Storm
Reference ECA(s)	4304-9R6TU6
Reference Sewage Works as part of treatment train	N/A
Brief Description	

Receive Emergency Sanitary Overflows	No
Notes	N/A

**Malcom Mill Estates SWM Pond**

Location	43° 1' 27.052" N 80° 20' 0.486" W
Watershed/Subwatershed	Grand River
Receiver of discharge	
Outlet location	Infiltration
Catchment Area	21.3 ha
Level of Treatment for suspended solids	Normal Level 2
Treatment for other Contaminants, as required	None
Level of Volume control	1140 cu.m
Design Storm	1:100 Year Storm
Reference ECA(s)	1147-4HWPGA
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Royal Troon SWM Pond**

Location	43° 1' 17.200" N 80° 22' 32.941" W
Watershed/Subwatershed	Grand River
Receiver of discharge	McKenzie Creek to Vivians Pond
Outlet location	43° 1' 17.140" N 80° 22' 31.800" W
Catchment Area	3.2 ha
Level of Treatment for suspended solids	Normal Level 1
Treatment for other Contaminants, as required	None
Level of Volume control	1140 cu.m
Design Storm	1:100 Year Storm
Reference ECA(s)	4698-6AANNA
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Black Walnut East SWM Pond**

Location	43° 13' 56.761" N 80° 15' 41.034" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Fairchilds Creek
Outlet location	
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	3-0555-89-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Black Walnut West SWM Pond**

Location	43° 13' 55.231" N 80° 15' 48.643" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Fairchilds Creek
Outlet location	
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	3-0555-89-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Sugar Maple North SWM Pond**

Location	43° 14' 12.281" N 80° 15' 49.983" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Fairchilds Creek

Outlet location	
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	3-0555-89-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Sugar Maple South SWM Pond

Location	43° 14' 9.399" N 80° 15' 46.276" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Fairchilds Creek
Outlet location	
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	3-0555-89-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Westview Heights SWM Pond

Location	43° 15' 1.339" N 80° 14' 58.426" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	No
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None

Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	3-0539-90-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Northview Heights SWM Pond**

Location	43° 14' 58.636" N 80° 15' 36.428" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Infiltration
Outlet location	No
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other Contaminants, as required	None
Level of Volume control	13,480
Design Storm	Unknown
Reference ECA(s)	3-1025-95-006
Reference Sewage Works as part of treatment train	N/A
Brief Description	
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Scott Ave. OGS**

Location	43° 12' 48.564" N 80° 23' 19.222" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Gilbert Creek
Outlet location	43° 12' 48.588" N 80° 23' 19.117" W
Catchment Area	0.267 ha
Level of Treatment for suspended solids	Level 1, 80% suspended solids removal
Treatment for other contaminants, as required	None
Level of Volume control	26 m3
Design Storm	103.2 to 235.6 L/sec respectively for a 2 through 100 year storm.
Reference ECA(s)	2064-4R6RNM
Reference Works as part of	

treatment train	
Brief Description of each component of treatment train: OGS	StormceptorR model STC-750 Receives runoff generated from Scott Ave.
Brief Description of each component of treatment train:	Run off in excess of the 10 year storm event will bypass the infiltration basin and MH #5 and drain overland to the east, to Gilbert Creek.
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Grand River St. South OGS**

Location	43° 11' 22.558" N 80° 22' 33.850"
Watershed/Subwatershed	Grand River
Receiver of discharge	Grand River
Outlet location	43° 11' 22.442" N 80° 22' 32.662" W
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other contaminants, as required	None
Level of Volume control	Unknown
Design Storm	Unknown
Reference ECA(s)	0589-5BYS2B
Reference Works as part of treatment train	
Brief Description of each component of treatment train: OGS	Stormceptor model 2000 Receives runoff generated from Grand River St. South.
Brief Description of each component of treatment train:	Unknown
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Heather Meadows OGS**

Location	43° 10' 58.789" N 80° 23' 12.886" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Nith River
Outlet location	43° 10' 58.879" N 80° 23' 12.708" W
Catchment Area	Unknown
Level of Treatment for suspended solids	Unknown
Treatment for other	None

contaminants, as required	
Level of Volume control	
Design Storm	30 L/s
Reference ECA(s)	7451-5W5NSM
Reference Works as part of treatment train	
Brief Description of each component of treatment train: OGS	Stormceptor model STC 2000
Brief Description of each component of treatment train:	Stormceptor model STC 2000 A manhole stormwater interceptor rated at 30 L/s with a sediment capacity of 6,150 litres, an oil capacity of 2,945 litres and_ a total holding capacity of 10,925 litres discharging to manhole STI
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Sunnyside Phase 1 OGS

Location	43° 14' 48.770 80° 15' 13.291" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Fairchilds Creek
Outlet location	43° 14' 48.632" N 80° 15' 13.966" W
Catchment Area	Unknown
Level of Treatment for suspended solids	Enhanced
Treatment for other contaminants, as required	Unknown
Level of Volume control	Total storage volume of 15,195 L
Design Storm	30 L/s
Reference ECA(s)	7451-5W5NSM
Reference Works as part of treatment train	Unknown
Brief Description of each component of treatment train: OGS	Stomceptor 3000
Brief Description of each component of treatment train:	Unknown
Receive Emergency Sanitary Overflows	No
Notes	N/A

### Curtis Ave North -South OGS

Location	43° 11' 37.353" N 80° 22' 23.724" W
Watershed/Subwatershed	Grand River

Receiver of discharge	Curtis Ave North SWM Infiltration Basin
Outlet location	43° 11' 37.241" N 80° 22' 23.946" W
Catchment Area	19.77 ha
Level of Treatment for suspended solids	50%TSS
Treatment for other contaminants, as required	Unknown
Level of Volume control	Unknown
Design Storm	1:100 year storm
Reference ECA(s)	1546-7ZLKD2 6697-8JHMD5
Reference Works as part of treatment train	Unknown
Brief Description of each component of treatment train: OGS	Stormsepor STC-2000
Brief Description of each component of treatment train:	Unknown
Receive Emergency Sanitary Overflows	No
Notes	N/A

**Curtis Ave North - North OGS**

Location	43° 11' 37.433" N 80° 22' 23.808" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Curtis Ave North SWM Infiltration Basin
Outlet location	43° 11' 37.276" N 80° 22' 23.980" W
Catchment Area	19.77 ha
Level of Treatment for suspended solids	50%TSS
Treatment for other contaminants, as required	Unknown
Level of Volume control	Unknown
Design Storm	1:100-year storm
Reference ECA(s)	1546-7ZLKD2 6697-8JHMD5
Reference Works as part of treatment train	Unknown
Brief Description of each component of treatment train: OGS	Stormsepor STC-2000
Brief Description of each component of treatment train:	Unknown
Receive Emergency Sanitary Overflows	No
Notes	N/A



**Powerline Road West OGS**

Location	43° 10' 7.665" N 80° 23' 3.763" W
Watershed/Subwatershed	Grand River
Receiver of discharge	Existing wetland south of Powerline Road West.
Outlet location	43° 10' 7.484" N 80° 23' 3.712" W
Catchment Area	2.95 ha
Level of Treatment for suspended solids	Enhanced
Treatment for other contaminants, as required	No
Level of Volume control	19,850
Design Storm	1:100-year storm
Reference ECA(s)	0409-BD4PW2
Reference Works as part of treatment train	No
Brief Description of each component of treatment train: OGS	STC-4000
Brief Description of each component of treatment train:	Located within a stormwater manhole (STC3) on Powerline Road West, discharging via a 600 millimetre diameter outlet pipe, a headwall (HW1) and a rip rap spreader to an existing wetland located south of Powerline Road West.
Receive Emergency Sanitary Overflows	No
Notes	A sediment storage capacity of 16,490 litres, an oil storage capacity of 3,360 litres and a maximum treatment flow rate of 100 litres per second.

**Powerline Road Mile Hill Road OGS**

Location	43° 10' 14.234" N 80° 22' 25.483" W
Watershed/Subwatershed	Grand River
Receiver of discharge	A storm sewer on Powerline Road that discharges to the Gurney Drainage Outlet.
Outlet location	43° 10' 14.297" N 80° 22' 24.973" W
Catchment Area	2.75 ha
Level of Treatment for suspended solids	Enhanced (80% TSS)
Treatment for other contaminants, as required	No
Level of Volume control	31,285
Design Storm	1:100 year storm

Reference ECA(s)	3849-AUUJYX
Reference Works as part of treatment train	No
Brief Description of each component of treatment train: OGS	STC-6000
Brief Description of each component of treatment train:	Located within a stormwater manhole Powerline Road West at Mile Hile Road, discharging via a 750 millimetre diameter storm sewer on Powerline Road.
Receive Emergency Sanitary Overflows	No
Notes	A sediment capacity of 4,693 litres, an oil capacity of 3,390 litres and a maximum treatment flow rate of 70 litres per second.

### Stormwater Pumping Stations

1.5 The following are identified Stormwater pumping stations in the Authorized System:

#### [Stormwater Pumping Station Name]

Asset ID and Name	N/A
Site Location	
Watershed/Subwatershed	
Latitude and Longitude	
Coordinates (optional)	
Description	
Pumping Station Capacity	
Equipment	
Emergency Storage	
Equipment: Associated controls and Appurtenances	
Overflow	
Standby Power	
Notes	

### Third Pipe Collection System

1.6 The following are identified third pipe systems in the Authorized System.

#### [\*Asset ID\* (e.g., Third Pipe 10)]

Asset ID and Name	N/A
Location	
Watershed/Subwatershed	
Receiver of discharge	
Outlet location	
Catchment Area	
Treatment, if applicable	
Reference ECA(s), if applicable	
Brief Description	
Notes	

**Other Works:**

1.7 The following works are part of Authorized System:

Table B6: Other Works			
Column 1 Asset ID / Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Component	Column 4 Description
N/A			

**Developer-Operated Facilities:**

1.8 The following facilities are part of the Authorized System, have been constructed, and are being operated by the developer under the authority of an agreement entered into with the Owner of the system.

Table B7: Developer-Operated Facilities			
Asset ID	Type of Facility	Location	Developer Name
N/A			

1.9 The Owner shall notify the Director, using the Director Notification Form, within thirty (30) days where the operation of any Facility identified in Table B7 has been:

1.9.1 Incorporated into the overall Stormwater Management System and assumed by an Operating Authority identified in Schedule B of this Approval.

1.9.2 Has been transferred from the developer identified in Table B7 to another party.

**Transitional – Facilities with Individual ECAs**

- 1.10 The following Facilities are connected to the Authorized System, but ownership has not been assumed by the Owner. These Sewage Works are not part of the Authorized System and will continue to have separate ECAs until the Facilities are assumed by the Owner.

<b>Table B8: Facilities with Individual ECAs</b>				
Asset ID	Type of Facility	Location	ECA Number	Developer Name
NA	SWM Facility(Wet Pond)	Paris	3985-C7XH7Y	Grandville Inc.
NA	SWM Facility (Rear/Front Yard Infiltration Galleries)	Airport	4679-BYJT4P	2500113 Ontario Inc.
NA	SWM Facility (Wet Pond)	Paris	0720-ASWNEV	Mile Hill Developments Inc.
NA	SWM Facility (Wet Pond)	Paris	0720-ASWNEV	Mile Hill Developments Inc.
NA	SWM Facility (Wet Pond)	Paris	0011-BR3T8X	Kingwood Paris Meadows Ltd.
NA	SWM Facility (2 Wetland)	Paris	4301-BWXHML	Paris Grand Estates Inc
NA	SWM Facility (Wet Pond)	Paris	7941-ATJMBE	Brookfield Residential (Ontario) Limited
NA	SWM Facility (Wet Pond)	Paris	3639-B64PTA	Brookfield Residential (Ontario) Limited
NA	SWM Facility (Wet Pond)	1067 Rest Acres Road	2054-BW5SKA	Losani Homes (Paris) Ltd
NA	OGS	24 Powerline Road	0409-BD4PW2	LIV Developments Ltd.

- 1.11 The Owner shall notify the Director, using the Director Notification Form, within thirty (30) days where the ownership of any Facility identified in Table B8 has been assumed by the Owner.
- 1.12 The Director Notification required in condition 1.11 shall include:
- 1.12.1 A request from the developer to revoke the ECA identified in Table B8; or
- 1.12.2 A copy of an agreement or other documentation that demonstrates that the municipality has assumed ownership of the Facility and that the ECA identified in Table B8 should be revoked.

**Schedule C: List of Notices of Amendment to this ECA:  
Additional Approved Sewage Works**

System Owner	<b>Brant, The Corporation of the County of</b>
ECA Number	<b>062-S701</b>
System Name	<b>County of Brant Municipal Stormwater Management System</b>
ECA Issue Date	<b>October 14th, 2022</b>

**1.0 General**

- 1.1 Table C1 provides a list of all notices of amendment to this Approval that have been issued pursuant to clause 20.3(1) of the EPA that impose terms and conditions in respect of the Authorized System after consideration of an application by the Director (Schedule C Notices).

<b>Table C1: Schedule C Notices</b>				
Column 1 Issue #	Column 2 Issue Date	Column 3 Description	Column 4 Status	Column 5 DN#
N/A	N/A	N/A	N/A	N/A

## Schedule D: General

System Owner	Brant, The Corporation of the County of
ECA Number	062-S701
System Name	County of Brant Municipal Stormwater Management System
ECA Issue Date	October 14th, 2022

### 1.0 Definitions

1.1 For the purpose of this Approval, the following definitions apply:

**“Adverse Effect(s)”** has the same meaning as defined in section 1 of the EPA.

**“Alteration(s)”** includes the following, in respect of the Authorized System, but does not include repairs to the system:

- a) An extension of the system,
- b) A replacement or retirement of part of the system, or
- c) A modification of, addition to, or enlargement of the system.

**“Appendix A”** means Appendix A of this Approval.

**“Approval”** means this Environmental Compliance Approval including any Schedules attached to it.

**“Appurtenance(s)”** has the same meaning as defined in O. Reg. 525/98 (Approval Exemptions) made under the OWRA.

**“Authorized System”** means the Sewage Works comprising the Municipal Stormwater Management System authorized under this Approval”.

**“Class Environmental Assessment Project”** means an Undertaking that does not require any further approval under the EAA if the proponent complies with the process set out in the Municipal Engineers Association Class Environmental Assessment document, (Municipal Class Environmental Assessment approved by the Lieutenant Governor in Council on October 4, 2000 under Order in Council 1923/2000), as amended from time to time.

**“Combined Sewer(s)”** means pipes that collect and transmit both sanitary Sewage and other Sewage from residential, commercial, institutional, and

industrial buildings and facilities and Stormwater through a single-pipe system, but does not include Nominally Separate Sewers.

**“Completion”** means substantial performance as described in s.2 (1) of the *Construction Act*, R.S.O. 1990, c. C.30.

**“Compound of Concern”** means a Contaminant that is discharged from the Facility in an amount that is not negligible.

**“Contaminant”** has the same meaning as defined in section 1 of the EPA.

**“CSO”** means a combined sewer overflow which is a discharge to the environment at designated location(s) from a Combined Sewer or Partially Separated Sewer that usually occurs as a result of precipitation when the capacity of the Sewer is exceeded. An intervening time of twelve hours or greater separating a CSO from the last prior CSO at the same location is considered to separate one overflow Event from another.

**“CWA”** means the *Clean Water Act*, R.S.O. 2006, c.22.

**“Design Criteria”** means the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Force mains for Alterations Authorized under Environmental Compliance Approval”, (as amended from time to time).

**“Design Guidelines for Sewage Works”** means the Ministry document titled “Design Guidelines for Sewage Works”, 2008 (as amended from time to time).

**“Director”** means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of EPA (Environmental Compliance Approvals).

**“Director Notification Form”** means the most recent version of the Ministry form titled Director Notification – Alterations to a Municipal Stormwater Management System, as obtained directly from the Ministry or from the Ministry’s website.

**“District Manager”** means the district manager or a designated representative of the Local Ministry Office.

**“EAA”** means the *Environmental Assessment Act*, R.S.O. 1990, c. E.18.

**“EPA”** means the *Environmental Protection Act*, R.S.O. 1990, c.E.19.

**“ESC”** means erosion and sediment control.

**“Facility”** means the entire operation located on the property where the Sewage Works or equipment is located.

**“Form SW1”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Storm Sewers/Ditches/Culverts as obtained directly from the Ministry or from the Ministry’s website.

**“Form SW2”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Stormwater Management Facilities as obtained directly from the Ministry or from the Ministry’s website.

**“Form SW3”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Third Pipe Collection Systems as obtained directly from the Ministry or from the Ministry’s website.

**“Licensed Engineering Practitioner”** means a person who holds a licence, limited licence, or temporary licence under the *Ontario Professional Engineers Act* R.S.O. 1990, c. P.28.

**“LID”** means “low impact development” a Stormwater management strategy that seeks to mitigate the impacts of increased runoff and Stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of site design strategies that minimize runoff and distributed, small scale structural practices that mimic natural or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration, and detention of Stormwater.

**“Local Ministry Office”** means the local office of the Ministry responsible for the geographic area where the Authorized System is located.

**“Minister”** means the Minister of the Ministry or such other member of the Executive Council as may be assigned the administration of the EPA and OWRA under the *Executive Council Act*, R.S.O. 1990, c. E.25.

**“Ministry”** means the Ministry of the Minister and includes all employees or other persons acting on its behalf.

**“Monitoring Plan”** means the monitoring plan prepared and maintained by the Owner under condition 4.1 in Schedule E of this Approval.

**“MTD”** means manufactured treatment device.

**“Municipal Drain”** has the same meaning as drainage works as defined in section 1 of the *Drainage Act* R.S.O. 1990, c. D.17.



**“Municipal Drainage Engineer’s Report”** means a report signed by a drainage engineer employed or contracted by a municipality and approved in writing by municipal council or equivalent.

**“Municipal Sewage Collection System”** means all Sewage Works, located in the geographical area of a municipality, that collect and transmit sanitary Sewage and are owned, or may be owned pursuant to an agreement with a municipality entered into under the *Planning Act* or *Development Charges Act*, 1997, by:

- a) A municipality, a municipal service board established under the *Municipal Act*, 2001 or a city board established under the *City of Toronto Act*, 2006; or
- b) A corporation established under sections 9, 10, and 11 of the *Municipal Act*, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act*, 2006 in accordance with sections 148 and 154 of that Act.

**“Municipal Stormwater Management System”** means all Sewage Works, located in the geographical area of a municipality, that collect, transmit, or treat Stormwater and are owned, or may be owned pursuant to an agreement entered into under the *Planning Act* or *Development Charges Act*, 1997, by:

- a) A municipality, a municipal service board established under the *Municipal Act*, 2001 or a city board established under the *City of Toronto Act*, 2006; or
- b) A corporation established under sections 9, 10, and 11 of the *Municipal Act*, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act*, 2006 in accordance with sections 148 and 154 of that Act.

**“Natural Environment”** has the same meaning as defined in section 1 of the EPA.

**“Nominally Separate Sewer(s)”** mean Separate Sewers that also have connections from roof leaders and foundation drains, and are not considered to be Combined Sewers.

**“OGS”** means Oil and Grit Separator(s);

**“Operating Authority”** means, in respect of the Authorized System, the person, entity, or assignee that is given responsibility by the Owner for the operation, management, maintenance, or Alteration of the Authorized System, or a portion of the Authorized System.

**"Owner"** for the purposes of this Approval means The Corporation of the County of Brant, and includes its successors and assigns.

**"OWRA"** means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40.

**"O&M Manual"** means the operation and maintenance manual prepared and maintained by the Owner under condition 3.2 in Schedule E of this Approval.

**"Partially Separated Sewer(s)"** means Combined Sewers that have been retrofitted to transmit sanitary Sewage but in which roof leaders or foundation drains still contribute Stormwater inflow to the Partially Separated Sewer.

**"Pre-development"** means the more stringent of a site's:

- a) Existing condition prior to proposed development or construction activities; or
- b) Condition as defined by the local municipality.

**"Prescribed Person"** means a person prescribed in O. Reg. 208/19 (Environmental Compliance Approval in Respect of Sewage Works) for the purpose of ss. 20.6 (1) of the EPA, and where the alteration, extension, enlargement, or replacement is carried out under an agreement with the Owner.

**"Privately Owned Stormwater Works"** means Stormwater Sewage Works on private land that are privately owned and, while not part of the Authorized System, are considered part of a Stormwater Treatment Train.

**"Qualified Person (QP)"** means persons who have obtained the relevant education and training and have demonstrated experience and expertise in the areas relating to the work required to be carried out by this Approval.

**"Schedule C Notice(s)"** means a notice(s) of amendment to this Approval issued pursuant to clause 20.3(1) of the EPA that imposes terms and conditions in respect of the Authorized System after consideration of an application by the Director.

**"Separate Sewer(s)"** means pipes that collect and transmit sanitary Sewage and other Sewage from residential, commercial, institutional, and industrial buildings.

**"Sewage"** has the same meaning as defined in section 1 of the OWRA.

**"Sewage Works"** has the same meaning as defined in section 1 of the OWRA.

**“Sewer”** has the same meaning as defined in section 1 of O. Reg. 525/98 under the OWRA.

**“Significant Drinking Water Threat”** has the same meaning as defined in section 2 of the CWA.

**“Significant Snowmelt Event(s)”** means the melting of snow at a rate which adversely affects the performance and function of the Authorized System and/or the Sewage Treatment Plant(s) identified in Schedule A of this Approval.

**“Significant Storm Event(s)”** means a minimum of 25 mm of rain in any 24 hours period.

**“Source Protection Authority”** has the same meaning as defined in section 2 of the CWA.

**“Source Protection Plan”** means a drinking water source protection plan prepared under the CWA.

**“SSO”** means a sanitary sewer overflow which is a discharge of Sewage from a Separate Sewer or Nominally Separate Sewer to the environment from designated location(s) in the Authorized System.

**“Standard Operating Policy for Sewage Works”** means the standard operating policy developed by the Ministry to assist in the implementation of Source Protection Plan policies related to Sewage Works and providing minimum design and operational standards and considerations to mitigate risks to sources of drinking water, as amended from time to time.

**“Storm Sewer”** means Sewers that collect and transmit, but not exfiltrate or lose by design, Stormwater resulting from precipitation and snowmelt.

**“Stormwater”** means rainwater runoff, water runoff from roofs, snowmelt, and surface runoff.

**“Stormwater Management Facility(ies)”** means a Facility for the treatment, retention, infiltration, or control of Stormwater.

**“Stormwater Management Planning and Design Manual”** means the Ministry document titled “Stormwater Management Planning and Design Manual”, 2003 (as amended from time to time).

**“Stormwater Treatment Train”** means a series of Stormwater Management Facilities designed to meet Stormwater management objectives (e.g., Appendix A) for a given area, and can consist of a combination of MTDs, LIDs and end-of-pipe controls.

**“TRCA”** means the Toronto Region Conservation Authority.

**“Third Pipe Collection System”** means Sewage Works designed to collect and transmit foundation drainage and/or groundwater to a receiving surface water or dry well;

**“Undertaking”** has the same meaning as in the EAA.

**“Vulnerable Area(s)”** has the same meaning as in the CWA.

## **2.0 General Conditions**

- 2.1 The works comprising the Authorized System shall be constructed, installed, used, operated, maintained, replaced, or retired in accordance with the conditions of this Approval, which includes the following Schedules:

Schedule A – System Information

Schedule B – Municipal Stormwater Management System Description

Schedule C – List of Notices of Amendment to this ECA

Schedule D – General

Schedule E – Operating Conditions

Schedule F – Residue Management

Appendix A – Stormwater Management Criteria

- 2.2 The issuance of this Approval does not negate the requirements of other regulatory bodies, which includes but is not limited to, the Ministry of Northern Development, Mines, Natural Resources and Forestry and the local Conservation Authority.
- 2.3 Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence. Where there is a conflict between the information in a Schedule C Notice and another section of this Approval, the document bearing the most recent date shall prevail.
- 2.4 The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Authorized System is provided with a print or electronic copy of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- 2.5 The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

**3.0 Alterations to the Municipal Stormwater Management System**

- 3.1 For greater certainty, the Alterations authorized under this Approval are limited to Sewage Works comprising the Authorized System which does not include municipally or Privately Owned Stormwater Works:
  - 3.1.1 On industrial, commercial, or institutional land;
  - 3.1.2 Serving a single parcel of land, unless the stormwater management facility is located on a municipally owned park or community center;
  - 3.1.3 That are operated as waste disposal sites defined under the EPA or snow dump / melt facilities; or,
  - 3.1.4 That propose to collect, store, treat, or discharge stormwater containing substances or pollutants (other than Total Suspended Solids, or oil and grease) detrimental to the environment or human health.
- 3.2 Any Schedule C Notice shall provide authority to alter the Authorized System in accordance with the conditions of this Approval.
- 3.3 All Schedule C Notices issued by the Director for the Municipal Stormwater Management System shall form part of this Approval.
- 3.4 The Owner and a Prescribed Person shall ensure that the documentation required through conditions in this Approval and the documentation required in the Design Criteria are prepared for any Alteration of the Authorized System.
- 3.5 The Owner shall notify the Director within thirty (30) calendar days of placing into service or Completion of any Alteration of the Authorized System which had been authorized:
  - 3.5.1 Under Schedule D to this Approval where the Alteration results in a change to Sewage Works specifically described in Schedule B of this Approval;
  - 3.5.2 Through a Schedule C Notice respecting Sewage Works other than Storm Sewers; or
  - 3.5.3 Through another approval that was issued under the EPA prior to the issue date of this Approval.
- 3.6 The notification requirements set out in condition 3.5 do not apply to any Alteration in respect of the Authorized System which:
  - 3.6.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98;

- 3.6.2 Constitutes maintenance or repair of the Authorized System; or
- 3.6.3 Is a Storm Sewer, ditch, or culvert authorized by condition 4.1 of Schedule D of this Approval.
- 3.7 The Owner shall notify the Director within ninety (90) calendar days of:
  - 3.7.1 The discovery of existing Sewage Works not described or depicted in Schedule B, or
  - 3.7.2 Additional or revised information becoming available for any Sewage Works described in Schedule B of this Approval.
- 3.8 The notifications required in condition 3.5 and 3.7 shall be submitted to the Director using the Director Notification Form.
- 3.9 The Owner shall ensure that any chemicals, coagulants, or polymers used in the stormwater management system have obtained written approval from the Director prior to use, unless required for spill control or spill clean-up.
- 3.10 The Owner shall ensure that an ESC plan is prepared, and temporary ESC measures are installed in advance of and maintained during any construction activity on the Authorized System, subject to the following conditions:
  - 3.10.1 Inspections of ESC measures are to be conducted at a frequency specified per the ESC plan, for dry weather periods (active and inactive construction phases), after Significant Storm Events and Significant Snowmelt Events, and after any extreme weather events.
  - 3.10.2 Any deficiencies shall be addressed, and any required maintenance actions(s) shall be undertaken as soon as practicable once they have been identified.
  - 3.10.3 Inspections and maintenance of the temporary ESC measures shall continue until they are no longer required.
- 3.11 The Owner shall ensure that records of inspections required by this Approval during any construction activity, including those required under condition 3.10:
  - 3.11.1 Include the name of the inspector, date of inspection, visual observations, and the remedial measures, if any, undertaken to maintain the temporary ESC measures.

- 3.11.2 Be retained with records relating to the Alteration that the construction relates to, such as the form required in conditions 4.4.1, 5.5.1, and 6.2.1 of Schedule D, or the Schedule C Notice.
- 3.11.3 Be retrievable and made available to the Ministry upon request.
- 3.12 The document(s) or file(s) referenced in Table B1 of Schedule B of this Approval shall:
  - 3.12.1 Be retained by the Owner;
  - 3.12.2 Include at a minimum:
    - a) Identification of Storm Sewers, which shall include the following information:
      - i Location relative to street names or easements; and
      - ii Sewer diameters.
    - b) Identification of existing municipally owned Stormwater Sewage Works, including but not limited to ditches, swales, culverts, outlets, Stormwater Management Facilities, sedimentation MTD (for example oil grit separators), filtration MTD, LID, end of pipe controls, Third Pipe Collection Systems, and pumping stations, including any applicable Asset IDs.
    - c) Identification of the main tributaries and receiving water bodies to that the Sewage Works discharge to.
    - d) Delineation of municipal, watershed, and subwatershed boundaries, as available.
    - e) Identification of the storm sewersheds for each outlet.
    - f) Identification of any source protection Vulnerable Areas.
    - g) Identification of any Sewage Works that receive SSOs or CSOs.
  - 3.12.3 Be updated to include:
    - a) Alterations authorized under Schedule D of this Approval or through a Schedule C Notice within twelve (12) months of the Alteration being placed into service.
    - b) Updates to information contained in the document(s) or files(s) not associated with an Alteration within twelve (12) months of becoming aware of the updated information.

- 3.13 An Alteration is not authorized under Schedule D of this ECA for projects that impact Indigenous treaty rights or asserted rights where:
- 3.13.1 The project is on Crown land or would alter access to Crown land;
  - 3.13.2 The project is in an open or forested area where hunting, trapping or plant gathering occur;
  - 3.13.3 The project involves the clearing of forested land unless the clearing has been authorized by relevant municipal, provincial, or federal authorities, where applicable;
  - 3.13.4 The project alters access to a water body;
  - 3.13.5 The proponent is aware of any concerns from Indigenous communities about the proposed project and these concerns have not been resolved; or,
  - 3.13.6 Conditions respecting Indigenous consultation in relation to the project were placed in another permit or approval and have not been met.
- 3.14 No less than 60 days prior to construction associated with an Alteration the Director may notify the Owner in writing that a project is not authorized through Schedule D of this ECA where:
- 3.14.1 Concerns regarding treaty rights or asserted rights have been raised by one or more Indigenous communities that may be impacted by the Alteration; or
  - 3.14.2 The Director believes that it is in the public interest due to site specific, system specific, or project specific considerations.
- 3.15 Where an Alteration is not authorized under condition 3.13 or 3.14 above:
- 3.15.1 An application respecting the Alteration shall be submitted to the Ministry; and,
  - 3.15.2 The Alteration shall not proceed unless:
    - a) Approval for the Alteration is granted by the Ministry (i.e., a Schedule C Notice); or,
    - b) The Director provides written notice that the Alteration may proceed in accordance with conditions in Schedule D of this ECA.



**4.0 Authorizations of Future Alterations to Storm Sewers, Ditches, or Culverts - Additions, Modifications, Replacements and Extensions**

4.1 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or extending a Storm Sewer, ditch, or culvert within the Authorized System subject to the following conditions and conditions 4.2 and 4.3 below:

4.1.1 The design of the addition, modification, replacement, or extension:

- a) Has been prepared by a Licensed Engineering Practitioner;
- b) Has been designed only to collect and transmit Stormwater;
- c) Has not been designed to collect or treat any sanitary Sewage;
- d) Has not been designed to collect, store, treat, control, or manage groundwater, unless for the purpose of foundation drains, road subdrains, or LIDs;
- e) Satisfies the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;
- f) Satisfies the standards set out in Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD), as applicable to ditches and culverts;
- g) Is consistent with or otherwise addresses the design objectives contained within the Design Guidelines for Sewage Works;
- h) Is planned, designed, and built to be consistent with the Stormwater Management Planning and Design Guidance Manual. If there is a conflict with Appendix A of this Approval, then Appendix A shall prevail; and
- i) Includes design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies.

4.1.2 The addition, modification, replacement, or extension shall be designed so that it will:

- a) Not adversely affect the ability to maintain a gravity flow in the Authorized System without overflowing or increase surcharging any maintenance holes as per design; and
  - b) Provide smooth flow transition to existing gravity Storm Sewers;
- 4.1.3 The Alteration shall not result in:
  - a) Adverse Effects; or
  - b) A deterioration of the approved effluent quality or quantity of downstream Stormwater Management Facilities which results in not being able to achieve the overall Stormwater performance criteria per Appendix A.
- 4.1.4 The Storm Sewer, ditch or culvert addition, modification, replacement, or extension is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent property owner respecting the Alteration and resulting Sewage Works.
- 4.1.5 The Owner consents in writing to the addition, modification, replacement, or extension.
- 4.1.6 A Licensed Engineering Practitioner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 a) to h), 4.3.9, and 4.3.10.
- 4.1.7 The Owner has verified in writing that the addition, modification, replacement, or extension has complied with inspection and testing requirements in the Design Criteria.
- 4.1.8 The Owner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 i), 4.1.2 to 4.1.6, 4.3.7, and 7.2.
- 4.2 The addition of Storm Sewers or ditches can be constructed but not operated until the Stormwater Management Facilities required to service the new Storm Sewers or ditches are in operation.
- 4.3 The Owner or a Prescribed Person is not authorized to undertake an Alteration described above in condition 4.1 where the Alteration relates to the addition, modification, replacement, or extension of a Storm Sewer that:
  - 4.3.1 Passes under or through a body of surface water, unless trenchless construction methods are used or the local Conservation Authority has authorized an alternative construction method.

- 4.3.2 Has a nominal diameter greater than 2,400 mm, or equivalent sizing.
- 4.3.3 Is a Combined Sewer.
- 4.3.4 Is a concrete channel.
- 4.3.5 Is designed to, at any time, transmit, store, or control sanitary Sewage.
- 4.3.6 Converts rural road cross section ditches to curb, gutter, and Storm Sewers if the Stormwater volume and/or peak flow is increased and no water quality treatment is planned or demonstrated to be achieved, in accordance with this Approval and Appendix A, to offset the increase in Stormwater.
- 4.3.7 Results in new discharges or increased discharges to a Municipal Drain without written approval by the Owner and a signed Municipal Drainage Engineer's Report in accordance with the *Drainage Act* R.S.O. 1990, c. D.17.
- 4.3.8 Establishes a new outlet with direct discharge into the Natural Environment without monitoring in accordance with this Approval and without achieving the requirements set in Appendix A.
- 4.3.9 Increases Stormwater flow of an existing Storm Sewer or ditch without achieving water quality criteria set in Appendix A in accordance with this Approval unless the existing downstream Municipal Stormwater Management System has sufficient residual transmission and treatment capacity to accommodate the additional Stormwater.
- 4.3.10 Increases local hydraulic capacity of an existing Storm Sewer or ditch to accommodate new Stormwater flows unless the existing downstream Municipal Stormwater Management System has sufficient residual hydraulic capacity to accommodate the additional Stormwater.
- 4.3.11 Connects to another Municipal Stormwater Management System, unless:
  - a) Prior to construction, the Owner of the Authorized System obtains written consent from the Owner or Owner's delegate of the Municipal Stormwater System being connected to; and
  - b) The Owner of the Authorized System retains a copy of the written consent from the Owner or Owner's delegate of the Municipal Stormwater Management System being connected

to as part of the record that is recorded and retained under condition 4.4.

4.3.12 Is part of an Undertaking in respect of which:

- a) A request under s.16(6) of the EAA has been made, namely a request that the Minister make an order under s.16;
- b) The Minister has made an order under s.16; or
- c) The Director under that EAA has given notice under s.16.1 (2) that the Minister is considering making an order under s.16.

4.4 The consents and verifications required in conditions 4.1 and 4.3, if applicable, shall be:

4.4.1 Recorded on SW1, prior to the Storm Sewer, ditch, or culvert addition, modification, replacement, or extension being placed into service; and

4.4.2 Retained for a period of at least ten (10) years by the Owner.

4.5 For greater certainty, the verification requirements set out in condition 4.4 do not apply to any Alteration in respect of the Authorized System which:

4.5.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or

4.5.2 Constitutes maintenance or repair of the Authorized System.

## **5.0 Authorizations of Future Alterations to Stormwater Management Facilities - Additions, Modifications, Replacement, and Extensions**

5.1 Subject to conditions 5.2 and 5.3, the Owner or a Prescribed Person may alter the Stormwater Management Facilities in the Authorized System by adding, modifying, replacing, or extending the following components:

5.1.1 Rooftop storage

5.1.2 Parking lot storage

5.1.3 Superpipe storage

5.1.4 Reduced lot grading

5.1.5 Roof leader to ponding area

- 5.1.6 Roof leader to soakaway pit
- 5.1.7 Infiltration trench
- 5.1.8 Engineered grassed swales / bioswale
- 5.1.9 Pervious pipes
- 5.1.10 Pervious catchbasins
- 5.1.11 Vegetated filter strips
- 5.1.12 Natural buffer strips
- 5.1.13 Green roofs/Rooftop gardens
- 5.1.14 Wet pond
- 5.1.15 Engineered wetland
- 5.1.16 Dry pond
- 5.1.17 Hybrid Facility
- 5.1.18 Infiltration basin
- 5.1.19 Filtration MTD
- 5.1.20 Sedimentation MTD - OGS
- 5.1.21 LID that relies on one or more of the following mechanisms to achieve treatment and control:
  - a) Evapotranspiration;
  - b) Infiltration into the ground; or
  - c) Filtration.
- 5.1.22 Any other Stormwater Management Facilities where the Director has provided authorization in writing to proceed with the Alteration.
- 5.2 Any Alteration to the Authorized System authorized under condition 5.1 is subject to the following conditions:
  - 5.2.1 The design of the Alteration shall:
    - a) Be prepared by a Licensed Engineering Practitioner;

- b) Be designed only to collect, receive, treat, or control only Stormwater and has not been designed to collect, receive, treat, or control sanitary Sewage;
- c) Is planned, designed, and built to be consistent with the Stormwater Management Planning and Design Guidance Manual. If there is a conflict with Appendix A of this Approval, then Appendix A shall prevail;
- d) Satisfy the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;
- e) Be part of a Stormwater Treatment Train approach that satisfies the requirements outlined in Appendix A, or transmits Stormwater to a Stormwater Management Facility that satisfies the requirements outlined in Appendix A;
- f) Includes an outlet or an emergency overflow for the Sewage Works, with the verification of the location, route, and capacity of the receiving major system to accommodate overflows; and
- g) Include design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works and any applicable local Source Protection Plan policies.

5.2.2 The Alteration shall not result in:

- a) Adverse Effects; or
- b) A deterioration on the approved effluent quality or quantity of downstream Stormwater Management Facilities which results in not being able to achieve the overall Stormwater performance criteria per Appendix A.

5.2.3 The Alteration may incorporate co-benefits, but in doing so shall not diminish functionality or efficiency of any Stormwater Management Facility(ies) that may be impacted by the Alteration.

5.2.4 Any new sedimentation MTD that is part of the Alteration shall meet the following requirements:

- a) Tested in accordance with the TRCA protocol Procedure for Laboratory Testing of OGSs and testing data verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol. The suspended solids removal claimed for the sedimentation MTD in achieving the water

quality criteria in Appendix A, and the sizing methodology used to determine the appropriate sedimentation MTD dimensions for the particular site, shall be based on the verified removal efficiency for all particle size fractions comprising the particle size distribution specified within the testing protocol or a particle size distribution approved by the Director.

- b) Using the verified sediment removal efficiencies for the respective surface loading rates specified in the testing protocol, the sedimentation MTD sizing methodology shall use linear interpolation to calculate sediment removal efficiencies for surface loading rates that lie between the specified surface loading rates. For surface loading rates less than the lowest specified and tested surface loading rate, the sediment removal efficiency shall be assumed to be identical to the verified removal efficiency for the lowest specified and tested surface loading rate. Where available, 15 min rainfall stations shall be used for sizing the sedimentation MTD.
- c) When two or more sedimentation MTD are installed in series, no additional sediment removal credit shall be applied beyond the sediment removal credit of the largest device in the series.
- d) The sediment removal rate at the specified surface loading rates determined for the tested full scale, commercially available MTD may be applied to similar MTDs of smaller or larger size by proper scaling. Scaling the performance results of the tested MTD to other model sizes without completing additional testing is acceptable provided that:
  - i The claimed sediment removal efficiencies for the similar MTD are the same or lower than the tested MTD at identical surface loading rates; and
  - ii The similar MTD is scaled geometrically proportional to the tested unit in all inside dimensions of length and width and a minimum of 85% proportional in depth.
- e) The units must be installed in an off-line configuration if the unit had an effluent concentration greater than 25 mg/L at any of the surface loading rates conducted during the sediment scour and resuspension test as part of the ISO 14034 verification.

- f) The sedimentation MTD should be sized for the highest suspended solids percent removal physically and economically practicable, and used as a pre-treatment device in a treatment train designed to achieve the water quality criteria in Appendix A.
- 5.2.5 Any new filtration MTD that is part of the Alteration shall meet the following requirements:
- a) Field tested and verified in accordance with a minimum of one of the following protocols:
    - i Washington State Technology Assessment Protocol - Ecology (TAPE) General Use Level Designation (GULD); and
      - 1. Has ISO 14034 ETV verification to satisfy ETV Canada requirements;
      - 2. The field monitoring data set used to obtain GULD certification should include a minimum of three (3) events that exceed 75th percentile rainfall event with at least one hour with an intensity of 6 mm/h or greater.
    - ii Another testing and verification method, where the Director has communicated acceptability in writing.
  - b) Where available, 15 min rainfall stations shall be used for sizing the filtration MTD using the rainfall intensity corresponding to 90% of annual runoff volume;
  - c) The SS removal rate determined for the tested full scale, commercially available filtration MTD, or single full-scale commercially available cartridge or filtration module, may be applied to other model sizes of that filtration MTD provided that appropriate scaling principles are applied. Scaling the tested filtration MTD or single full-scale commercially available cartridge or filtration module, to determine other model sizes and performance without completing additional testing is acceptable provided that:
    - i Depth of media, composition of media, and gradation of media remain constant.



- ii The ratio of the maximum treatment flow rate to effective filtration treatment area (filter surface area) is the same or less than the tested filtration MTD;
  - iii The ratio of effective sedimentation treatment area to effective filtration treatment area is the same or greater than the tested filtration MTD; and
  - iv The ratio of wet volume to effective filtration treatment area is the same or greater than the tested filtration MTD.
- 5.2.6 When it is necessary to use Privately Owned Stormwater Works in the Stormwater Treatment Train to achieve Appendix A criteria as part of or as a result of an Alteration, the following conditions apply:
  - a) The Owner shall, through legal instruments or binding agreements, obtain the right to access, operate, and maintain the Privately Owned Sewage Works;
  - b) The Owner shall ensure that the right to access, operate and maintain the Privately Owned Sewage Works described in condition 5.2.6 a) above is maintained at all times that the works are in service and used to achieve Appendix A criteria.
  - c) The Owner shall ensure on-going operation and maintenance of the Privately Owned Stormwater Works; and,
  - d) The Owner shall ensure that the Privately Owned Stormwater Works have obtained separate approval(s) under the EPA, as required.
- 5.2.7 The Alteration is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.
- 5.2.8 The Owner consents in writing to the Alteration authorized under condition 5.1.
- 5.2.9 A Licensed Engineering Practitioner has verified in writing that the Alteration authorized under condition 5.1 meets the design requirements of conditions 5.2.1 a) to f), 5.2.4 and 5.2.5.
- 5.2.10 The Owner has verified in writing that the Alteration authorized under condition 5.1 meets the requirements of conditions 5.2.1 g), 5.2.2, 5.2.6 to 5.2.9, 5.3, 5.4, and 7.2.

- 5.3 The authorization in condition 5.1 does not apply:
- 5.3.1 To the establishment of a regional end-of-pipe flood control Facility;
  - 5.3.2 Where the Alteration will result in new or increased discharges to a Municipal Drain without written approval by the Owner and a signed Municipal Drainage Engineer's Report in accordance with the *Drainage Act* R.S.O. 1990, c. D.17;
  - 5.3.3 To the establishment of a new outlet with direct discharge into the Natural Environment without treatment and monitoring in accordance with this Approval;
  - 5.3.4 Where the Alteration will service a drainage area greater than 65 ha;
  - 5.3.5 Where the Alteration will result in conversion of an existing Stormwater Management Facility into another type of Stormwater Management Facility;
- 5.4 Any Alteration to LID or end-of-pipe Stormwater Management Facilities shall be inspected before operation of the Alteration to confirm construction as per specifications (including depth, as applicable).
- 5.5 The consents and verifications required in conditions 5.2.8 to 5.2.10 if applicable, shall be:
- 5.5.1 Recorded on Form SW2, prior to undertaking the Alteration; and
  - 5.5.2 Retained for a period of at least ten (10) years by the Owner.
- 5.6 For greater certainty, the verification requirements set out in condition 5.5 do not apply to any Alteration in respect of the Authorized System which:
- 5.6.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or
  - 5.6.2 Constitutes maintenance or repair of the Authorized System.

## **6.0 Authorizations of Future Alterations for Third Pipe Collection System Additions, Modifications, Replacements and Extensions**

- 6.1 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or extending, and operating works

comprising a municipal Third Pipe Collection System to collect foundation drainage and groundwater where:

- 6.1.1 The design of the Alteration:
- a) Has been prepared by a Licensed Engineering Practitioner;
  - b) Is limited to collection, transmission, reuse and/or treatment of only foundation drainage and groundwater, and is not designed to collect or treat sanitary Sewage;
  - c) Satisfies the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria; and
  - d) Is scoped so that the resulting Sewage Works are intended to:
    - i Primarily function for the non-potable reuse, as deemed acceptable by the Owner and the local health unit, of foundation drainage and/or groundwater, and no discharge to a Storm Sewer or Separate Sewer if there is excess volume that cannot be reused; and/or
    - ii Provide wetland recharge, in which case, collection of rooftop runoff will also be acceptable.
- 6.1.2 The Alteration is not located on a contaminated site, or where natural occurring conditions result in contaminated discharge, or where the site receives contaminated groundwater or foundation drainage from another site, unless the discharge being received has been remediated or treated prior to acceptance by the Third Pipe Collection System.
- 6.1.3 The Owner has undertaken a site assessment for water quantity, water quality, and hydrogeological site conditions regarding the Alteration.
- 6.1.4 The Alteration will not result in Adverse Effects.
- 6.1.5 The Alteration is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent property owner respecting the Alteration and resulting Sewage Works.
- 6.1.6 The Owner consents in writing to the Alteration.

- 6.1.7 A Licensed Engineering Practitioner has verified in writing that the Alteration meets the requirements of condition 6.1.1.
- 6.1.8 The Owner has verified in writing that the Alteration meets the requirements of conditions 6.1.2 to 6.1.7.
- 6.2 The consents, verifications and documentation required in conditions 6.1.7 and 6.1.8 shall be:
  - 6.2.1 Recorded on Form SW3 prior to undertaking the Alteration; and
  - 6.2.2 Retained for a period of at least ten (10) years by the Owner.
- 6.3 For greater certainty, the verification requirements set out in condition 6.2 do not apply to any Alteration in respect of the Authorized System which:
  - 6.3.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or
  - 6.3.2 Constitutes maintenance or repair of the Authorized System, including changes to software for an existing SCADA system resulting from Alterations authorized in condition 6.1.
- 6.4 The Owner shall update, within twelve (12) months of the Alteration of the Sewage Works being placed into service, any drawings maintained for the Municipal Stormwater Management System to reflect the Alterations of the Sewage Works, where applicable.

## **7.0 Outlets**

- 7.1 Any outlet established or altered as part of an Alteration authorized through conditions 4, 5, or 6 of Schedule D in this Approval shall have regard to the 2012 TRCA Stormwater Management Criteria document, Appendix E, for outlets.
- 7.2 Any outlet established as part of an Alteration authorized through conditions 4, 5, or 6 of Schedule D in this Approval shall not:
  - 7.2.1 Increase discharge or create a new point source discharge to privately owned land unless there is express written consent of the owner(s) of such private land(s).
  - 7.2.2 Result in Adverse Effects.

## **8.0 Previously Approved Sewage Works**

8.1 If approval for an Alteration to the Authorized System was issued under the EPA and is revoked by this Approval, the Owner may make the Alteration in accordance with:

8.1.1 The terms of this Approval; or

8.1.2 The terms and conditions of the revoked approval as of the date this approval was issued, provided that the Alteration is commenced within five (5) years of the date that the revoked approval was issued.

## **9.0 Transition**

9.1 An Alteration of the Authorized System is exempt from the requirements in clause (e) of condition 4.1.1, clause (d) of condition 5.2.1, and clause (c) of condition 6.1.1 where:

9.1.1 Effort to undertake the Alteration, such as tendering or commencement of construction of the Sewage Works associated with the Alteration, begins on or before May 19, 2023.

9.1.2 The design of the Alteration conforms to the Stormwater Management Planning and Design Manual, and where applicable, Design Guidelines for Sewage Works;

9.1.3 The design of the Alteration was completed on or before the issue date of this Approval or a Class Environmental Assessment was completed for the Alteration and changes to the design result in significant cost increase or significant project delays; and

9.1.4 The Alteration would be otherwise authorized under this Approval.

## **Schedule E: Operating Conditions**

System Owner	<b>Brant, The Corporation of the County of</b>
ECA Number	<b>062-S701</b>
System Name	<b>County of Brant Municipal Stormwater Management System</b>
ECA Issue Date	<b>October 14th, 2022</b>

### **1.0 General Operations**

- 1.1 The Owner shall ensure that, at all times, the Sewage Works comprising the Authorized System and the related equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.
- 1.2 Prescribed Persons and Operating Authorities shall ensure that, at all times, the Sewage Works under their care and control and the related equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.
- 1.3 In conditions 1.1 and 1.2 “properly operated and maintained” includes effective performance, adequate funding, adequate operator staffing and training, including training in applicable procedures and other requirements of this Approval and the EPA, OWRA, CWA, and regulations, adequate laboratory services, process controls and alarms and the use of process chemicals and other substances used in the Authorized System.
- 1.4 The Owner ensure that Sewage Works are operated with the objective that the effluent from the Sewage Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam, or discoloration on the receiving waters, and shall evaluate the need for maintenance if the objective is not being met.
- 1.5 The Owner shall ensure that any Storm Sewers or ditches authorized under Schedule D of this approval are not placed into operation until the associated Stormwater Management Facilities to provide treatment are constructed and operated.

### **2.0 Duties of Owners and Operating Authorities**

- 2.1 The Owner, Prescribed Persons, and any Operating Authority shall ensure the following:

- 2.1.1 At all times that the Sewage Works within the Authorized System are in service, the Sewage Works are:
  - a) Operated in accordance with the requirements under the EPA and OWRA, and
  - b) Maintained in a state of good repair.
- 2.1.2 The Authorized System is operated by persons that are familiar with the requirements of this Approval.
- 2.1.3 All sampling, testing, monitoring, and reporting requirements under the EPA and this Approval that relate to the Authorized System are complied with.
- 2.1.4 All necessary steps are taken to ensure that operations of the Sewage Works and any associated physical structures do not constitute a safety or health hazard to the general public.
- 2.1.5 Where a Stormwater Management Facility ceases to function as a Stormwater Management Facility, whether by intent, accident, or otherwise (e.g., a CSO or an SSO), a workplan shall be developed that includes local community notification, plans for rehabilitating the Stormwater Management Facility to proper function in a reasonable time, identification of actions that will be taken to prevent reoccurrences, and timelines for implementing the workplan.
- 2.1.6 That operations and maintenance activities are undertaken at the frequency and in conformance with the procedures set out in the O&M Manual.
  - a) A Prescribed Person or Operating Authority shall only undertake operations and maintenance activities where they have been delegated the authority to undertake such activities by the Owner or the Owner has expressly approved the activity(ies).
- 2.2 For clarity, the requirements outlined in the above conditions 2.1 for Prescribed Persons and any Operating Authority only apply to Sewage Works within the Authorized System where they are responsible for the operation.
- 2.3 The Owner, Prescribed Persons, and Operating Authority shall take all reasonable steps to minimize and ameliorate any Adverse Effect on the Natural Environment or impairment of the quality of water of any waters resulting from the operation of the Authorized System, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

### 3.0 Operations and Maintenance

#### 3.1 Inspection

- 3.1.1 The Owner shall ensure that all Sewage Works within the Authorized System are inspected at the frequency and in accordance with procedures set out in their O&M Manual.
- 3.1.2 The owner shall ensure that:
  - a) Any Stormwater Management Facilities, pumping stations, and any outlets that discharge to a receiver, are inspected at least once before December 31, 2026, if these have not been inspected since January 1, 2018 and thereafter as required by the O&M Manual; and
  - b) Any Stormwater Management Facilities, pumping stations, and any outlets that discharge to a receiver, established, or replaced within the Authorized System after the date of issuance of this Approval, are inspected within one year of being placed into service and thereafter as required by the O&M Manual.
- 3.1.3 The Owner shall clean and maintain Sewage Works within the Authorized System to ensure the Sewage Works perform as designed.
- 3.1.4 The Owner shall inspect the Stormwater Management Facilities in the Authorized System after significant flooding events as defined in, and in accordance with procedures documented in, the O&M Manual.
- 3.1.5 The Owner shall maintain records of the results of the inspections required in condition 3.1.1, 3.1.2 and 3.1.4 and any cleaning and maintenance operations undertaken, and shall make available the records for inspection by the Ministry upon request. The records shall include the following:
  - a) Asset ID and name of the Sewage Works;
  - b) Date and results of each inspection, maintenance, or cleaning;
  - c) Name of person who conducted the inspection, maintenance, or the name of the inspecting official, where applicable, and



- d) As applicable to the type of works, observations resulting from the inspection including, at a minimum:
  - i Hydraulic operation of the works (e.g., length of occurrence since the last rainfall event, evidence or occurrence of overflows).
  - ii Condition of vegetation in and around the works.
  - iii Occurrence of obstructions at the inlet and outlet of the works.
  - iv Evidence of spills and/or oil/grease contamination.
  - v Presence of trash build-up, and
  - vi Measurements of other parameters as required in the Monitoring Plan.

### 3.2 Operations & Maintenance (O&M) Manual

3.2.1 The Owner shall prepare and implement an operations and maintenance manual for Sewage Works within the Authorized System on or before May 19, 2024, that includes or references, but is not necessarily limited to, the following information:

- a) Procedures for the routine operation of the Sewage Works;
- b) Inspection programs, including the frequency of inspection, and the methods or tests employed to detect when maintenance is necessary, including:
  - i Presence of algae and/or invasive species impairing the Works (e.g., phragmites, goldfish);
  - ii Measurements of sediment depth, manual water levels (staff gauge) and/or visual observations, as appropriate to the Stormwater Management Facilities.
- c) Maintenance and repair programs, including:
  - i The frequency of maintenance and repair for the Sewage Works;
  - ii Stormwater pond sediment cleanout, dewatering, and management;

- iii                      Excavation, modification, replacement of LID soil/media/aggregate/geotextile, such as bioretention cells, green roof, permeable pavement; and
    - iv                      The frequency of maintenance for any other Stormwater Management Facilities identified in Schedule B that collect sediment.
  - d)    Operational and maintenance requirements to protect sources of drinking water, such as those included in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies;
  - e)    Procedures for routine physical inspection and calibration of monitoring equipment or components in accordance with the Monitoring Plan;
  - f)    Emergency Response, Spill Reporting and Contingency Plans and Procedures for dealing with Equipment breakdowns, potential spills, and any other abnormal situations, including notification to the Spills Action Centre, the Medical Officer of Health, and the District Manager, as applicable;
  - g)    Procedures for receiving, responding, and recording public complaints, including recording any follow-up actions taken; and
  - h)    As-built drawings or record drawings of the Sewage Works for stormwater works constructed after 2010 and where available, for stormwater works constructed before 2010.
- 3.2.2    The Owner shall review and update the O&M Manual and ensure that access to a copy is readily available for each Stormwater Management Facility for the operational life of the works.
- 3.2.3    The Owner shall provide a copy of the O&M Manual to Ministry staff, upon request.
- 3.2.4    The Owner shall revise the O&M Manual to include procedures necessary for the operation and maintenance of any Sewage Works within the Authorized System that are established, altered, extended, replaced, or enlarged after the date of issuance of this approval prior to placing into service those Sewage Works.
- 3.2.5    For greater certainty, the O&M Manual may be a single document or a collection of documents that, when considered together, apply to all parts of the Authorized System.

- 3.3 On or before May 19, 2025, the Owner shall establish signage to notify the public at any Stormwater Management Facility identified in Schedule B that is a wet pond, dry pond, hybrid Facility, or engineered wetland. The signage shall include the following minimum information:
- 3.3.1 Identification that the site contains a Stormwater Management Facility;
  - 3.3.2 Identification of potential hazards and limitations of water use, as applicable;
  - 3.3.3 Identification of the purpose of the Facility;
  - 3.3.4 ECA approval number and/or asset ID; and
  - 3.3.5 Owner's contact information.
- 3.4 Prior to any maintenance of Sewage Works comprising the Authorized System, the Owner shall ensure that all applicable permits or authorizations have been obtained from Federal or Provincial agencies having legislative mandates relating to species at risk or water resources.

#### **4.0 Monitoring Plan**

- 4.1 On or before May 19, 2024 or within twenty-four (24) months of the date of the publication of the Ministry's monitoring guidance, whichever is later, the Owner shall develop and implement a monitoring plan for the Authorized System. The monitoring plan shall be:
- 4.1.1 Signed and approved by management with the authority delegated by the Owner to do so;
  - 4.1.2 Peer-reviewed by a third-party Qualified Person (QP), external to the development of the Monitoring Plan, to verify the adequacy of the Monitoring Plan in complying with conditions 4.4 and 4.5 of Schedule E. The results of the peer review shall include:
    - a) Written confirmation from the QP that they have the experience and qualifications to carry out the work; and
    - b) Written confirmation from the QP of the adequacy of the Monitoring Plan.
- 4.2 The Owner, or a QP designated by the Owner, may jointly develop the Monitoring Plan in partnership with Owner(s) of other Municipal Stormwater Management Systems as long as the Municipal Stormwater Management Systems are within the same watershed.

- 4.3 The Owner shall ensure the Monitoring Plan is implemented and any resulting monitoring data is recorded in an electronic database.
- 4.4 The Monitoring Plan shall include:
- 4.4.1 Procedures to verify that the operational performance of the Authorized System is as designed/planned;
  - 4.4.2 Procedures to assess the environmental impact of the Municipal Stormwater Management System; and
  - 4.4.3 Procedures for any corrective action that may be required to address any performance deficiencies or environmental impacts identified from above conditions 4.4.1 or 4.4.2.
- 4.5 The Monitoring Plan shall also include, but not be limited to:
- 4.5.1 Identification of the Sewage Works to be monitored, including outlets and any works that provide quality and/or quantity control;
  - 4.5.2 Identification of the key receivers to be monitored within the Owner's municipal boundaries and the monitoring locations;
  - 4.5.3 Consideration of relevant municipal land use and environmental planning documents (e.g., Stormwater Management Master Plan, Class Environmental Assessment Project, asset management plan, subwatershed studies, and planned development);
  - 4.5.4 Characterization of water quality and quantity conditions and identification of water users to be protected, based on conditions 4.5.2 and 4.5.3;
  - 4.5.5 Identification of water quality and quantity goals, as it relates to Stormwater management, using the information collected in condition 4.5.4;
  - 4.5.6 Identification of locations of rainfall gauges to be used;
  - 4.5.7 Identification of inspections, measurements, sampling, analysis and/or other monitoring activities that were used as the basis for or will inform future updates to the procedures identified in condition 4.4.
  - 4.5.8 Details respecting a monitoring program for the works and the receivers, that includes, at a minimum:

- a) Hydrological, chemical, physical, and biological parameters, as appropriate, in alignment with the goals;
- b) Ensures water level of the Stormwater Measurement Facilities, excluding MTDs, are measured at regular intervals with a water level gauge;
- c) Monitoring methodology, including the frequency and protocols for sampling, analysis, and recording, with consideration of dry and wet weather events and timing of sampling during wet weather events.
- d) Ensures that the time of all samples or measurements are recorded.

4.5.9 An implementation plan for the monitoring program that identifies timelines and, if the monitoring occurs on a rotational basis, provides a description of the rotational schedule and associated works.

4.5.10 Includes a summary of all monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations, and

4.5.11 Consideration of adaptive management practices (e.g., evidence-based decision making).

4.6 The Owner shall ensure that the Monitoring Plan is updated where necessary within twelve (12) months of any Alteration to the Authorized System, or more frequently as required by the Monitoring Plan.

4.7 The Owner shall, on request and without charge, provide a copy of the Monitoring Plan and any resulting monitoring data to members of the public.

## **5.0 Reporting**

5.1 The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

5.2 The Owner shall prepare an annual performance report for the Authorized System that:

5.2.1 Is submitted to the Director on or before April 30<sup>th</sup> of each year and covers the period from January 1<sup>st</sup> to December 31<sup>st</sup> of the preceding calendar year.

- a) For clarity, the first report shall cover the period of January 1, 2023 to December 31st, 2023 and be submitted to the Director on or before April 30<sup>th</sup>, 2024.
- 5.2.2 Includes a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the Authorized System and any Adverse Effects on the Natural Environment;
- 5.2.3 Includes a summary and interpretation of environmental trends based on all monitoring information and data for the previous five (5) years;
- 5.2.4 Includes a summary of any operating problems encountered and corrective actions taken;
- 5.2.5 Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System;
- 5.2.6 Includes a summary of the calibration and maintenance carried out on all monitoring equipment;
- 5.2.7 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints;
- 5.2.8 Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat;
- 5.2.9 Includes a summary of all spills or abnormal discharge events;
- 5.2.10 Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System; and
- 5.2.11 Includes a summary of the status of actions for the previous reporting year.
- 5.3 The report described in condition 5.2 shall be:
  - 5.3.1 Made available, on request and without charge, to members of the public who are served by the Authorized System; and

- 5.3.2 Made available, by June 1<sup>st</sup> of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet.

## **6.0 Record Keeping**

- 6.1 The Owner shall retain for a minimum of ten (10) years from the date of their creation:
- 6.1.1 All records, reports and information required by this Approval and related to or resulting Alterations to the Authorized System, and
- 6.1.2 All records, report and information related to the operation, maintenance and monitoring activities required by this Approval.
- 6.2 The Owner shall update, within twelve (12) months of any Alteration to the Authorized System being placed into service, any drawings maintained for the Municipal Stormwater Management System to reflect the Alteration of the Sewage Works, where applicable.

## **7.0 Review of this Approval**

- 7.1 No later than the date specified in Condition 1 of Schedule A of this Approval, the Owner shall submit to the Director an application to have the Approval reviewed. The application shall, at minimum:
- 7.1.1 Include an updated description of the Sewage Works within the Authorized System, including any Alterations to the Sewage Works that were made since the Approval was last issued; and
- 7.1.2 Be submitted in the manner specified by Director and include any other information requested by the Director.

## **8.0 Source Water Protection**

- 8.1 The Owner shall ensure that any Alteration in the Authorized System is designed, constructed, and operated in such a way as to be protective of sources of drinking water in Vulnerable Areas as identified in the Source Protection Plan, if available.
- 8.2 The Owner shall prepare a "Significant Drinking Water Threat Assessment Report for Proposed Alterations" for the Authorized System on or before October 19, 2023 that includes, but is not necessarily limited to:
- 8.2.1 An outline of the circumstances under which proposed Alterations could pose a Significant Drinking Water Threat based on the Director's Technical Rules established under the CWA.

- 8.2.2 An outline of how the Owner assesses the proposed Alterations to identify drinking water threats under the CWA.
- 8.2.3 For any proposed Alteration a list of components, equipment, or Sewage Works that are being altered and have been identified as a Significant Drinking Water Threat.
- 8.2.4 A summary of design considerations and other measures that have been put into place to mitigate risks resulting from construction or operation of the components, equipment, or Sewage Works identified in condition 8.2.3, such as those included in the Standard Operating Policy for Sewage Works.
- 8.3 The Owner shall make any necessary updates to the report required in condition 8.2 at least once every twelve (12) months.
- 8.4 Any components, equipment, or Sewage Works added to the report required in condition 8.2 shall be include in the report for the operational life of the Sewage Works.
- 8.5 Upon request, the Owner shall make a copy of the report required in condition 8.2 available to the Ministry or Source Protection Authority staff.

## 9.0 Storm Sewer Catchment Asset Inventory

- 9.1 The Owner shall prepare and submit to the Director an inventory of the storm sewersheds and classify in accordance with Tables E1 and E2, on or before May 19, 2025. Minimum classification of the level of Stormwater management is as follows:
- 9.1.1 Level A – Stormwater receives treatment for water quality and quantity prior to discharge to the environment;
- 9.1.2 Level B – Stormwater receives treatment for water quality but no water quantity prior to discharge to the environment; and
- 9.1.3 Level C – Stormwater receives no treatment for water quality prior to discharge to the environment.

**Table E1. Storm Sewershed and Associated Treatment**

Outlet Asset ID	Sewershed Catchment Area (ha)	Tributary or Receiver	Subwatershed/ Watershed	Stormwater Management Level (A, B or C)	Treatment provided by other municipality (if applicable)



<b>Table E2. Summary of Storm Sewersheds</b>		
Stormwater Management Level	Total Number of Outlets to Environment	Total Sewershed Catchment Area (ha)
Level A		
Level B		
Level C		

- 9.2                Within 12 (twelve) months of the date that the inventory required in condition 9.1 is submitted to the Director, the document(s) or file(s) referenced in Table B1 of Schedule B of this Approval shall be updated to identify the storm sewersheds for each outlet and their level of Stormwater management.

## **Schedule F: Residue Management**

System Owner	<b>Brant, The Corporation of the County of</b>
ECA Number	<b>062-S701</b>
System Name	<b>County of Brant Municipal Stormwater Management System</b>
ECA Issue Date	<b>October 14th, 2022</b>

### **1.0 Residue Management System**

1.1 Not Applicable.

Appendix A – Stormwater Management Criteria

1.0 Applicability of Criteria

- 1.1 The criteria listed under Table A1 of this Appendix applies to all drainage areas greater than 0.1 ha, with the construction erosion and sediment control criteria applying also to sites <0.1 ha;
- 1.2 Despite condition 1.1 of Appendix A, if some or all of the criteria listed under Table A1 of this Appendix have been assessed for and addressed in other adjacent developed lands to the project site through a subwatershed plan or equivalent study, then those criteria may not be applicable to the project site.

Table A1. Performance Criteria

Water Balance <sup>[1]</sup>	<p><b>FOR DEVELOPMENT SCENARIOS <sup>[2]</sup></b></p> <p><b>Assessment Studies:</b></p> <div>i) Control <sup>[3]</sup> as per the criteria identified in the water balance assessment completed in one or more of the following studies <sup>[15]</sup>, if undertaken: a watershed/subwatershed plan; Source Protection Plan (Assessment Report component); Master Stormwater Management Plan, Master Environmental Servicing Plan; Class EA, or similar approach that transparently considers social, environmental and financial impacts; or local site study including natural heritage, Ecologically significant Groundwater Recharge Areas (EGRA), inflow and infiltration strategies. The assessment should include sufficient detail to be used at a local site level and consistent with the various level of studies; OR</div> <p><b>IF Assessment Studies in i) NOT completed:</b></p> <div>ii) Control <sup>[3]</sup> the recharge <sup>[4]</sup> to meet Pre-development <sup>[5]</sup> conditions on property; <b>OR</b></div> <div>iii) Control <sup>[3]</sup> the runoff from the 90<sup>th</sup> percentile storm event.</div> <p><b>Lake Simcoe Watershed Municipalities:</b></p> <div>iv) Control <sup>[3]</sup> as per the evaluation of anticipated changes in water balance between Pre-development and post-development assessed through a Stormwater management plan in support of an application for Major Development <sup>[6]</sup>. The assessment should include sufficient detail to be used at a local site level. If it is demonstrated, using the approved water balance estimation methods <sup>[7]</sup>, that the site’s post to Pre-development water balance cannot be met, and Maximum Extent Possible <sup>[8]</sup> has been attained, the proponent may use Lake Simcoe and Region Conservation Authority’s (LSRCA) Recharge Compensation Program <sup>[9]</sup>.</div> <p><b>FOR RETROFIT SCENARIOS <sup>[10]</sup></b></p> <p><b>Assessment Studies:</b></p> <div>i) Control as per criteria identified in the water balance assessment completed in one or more of the following studies: a watershed/subwatershed plan, Source Protection Plan (Assessment Report component), Master Stormwater Management Plan, Master Environmental Servicing Plan,</div>
------------------------------	--

	<p>Class EA, or local site study including natural heritage, EGRA, inflow and infiltration strategies, if undertaken. The assessment should include sufficient detail to be used at a local site level and consistent with the various level of studies; <b>OR</b></p> <p>ii) If constraints <sup>[11]</sup> identified in i), then control <sup>[3]</sup> as per Maximum Extent Possible <sup>[8]</sup> based on environmental site feasibility studies or address local needs<sup>[14]</sup>.</p> <p><b>IF Assessment Studies in i) NOT completed:</b></p> <p>iii) Control <sup>[3]</sup> the recharge <sup>[4]</sup> to meet Pre-development <sup>[5]</sup> conditions on property; <b>OR</b></p> <p>iv) Control <sup>[3]</sup> the runoff from the 90<sup>th</sup> percentile storm event.</p>
<b>Water Quality</b> <sup>[1]</sup>	<p><b>FOR DEVELOPMENT SCENARIOS</b> <sup>[2]</sup></p> <p>All of the following criteria must be met for development scenarios:</p> <p><b>General:</b></p> <p>i) Characterize the water quality to be protected and Stormwater Contaminants (e.g., suspended solids, nutrients, bacteria, water temperature) for potential impact on the Natural Environment, and control as necessary, <b>OR</b></p> <p>ii) As per the watershed/subwatershed plan, similar area-wide Stormwater study, or Stormwater management plan to minimize, or where possible, prevent increases in Contaminant loads and impacts to receiving waters.</p> <p><b>Suspended Solids:</b></p> <p>i) Control <sup>[3]</sup> 90<sup>th</sup> percentile storm event and if conventional methods are necessary, then enhanced, normal, or basic levels of protection (80%, 70%, or 60% respectively) for suspended solids removal (based on the receiver).</p> <p><b>Phosphorus:</b></p> <p>i) Minimize existing phosphorus loadings to Lake Erie and its tributaries, as compared to 2018 or conditions prior to the proposed development, <b>OR</b></p> <p>ii) Minimize phosphorus loadings to Lake Simcoe and its tributaries. Proponents with development sites located in the Lake Simcoe watershed shall evaluate anticipated changes in phosphorus loadings between Pre-development and post-development through a Stormwater management plan in support of an application for Major Development <sup>[6]</sup>. The assessment should include sufficient detail to be used at a local site level. If, using the approved phosphorus budget tool <sup>[12]</sup>, it is demonstrated that the site's post to Pre-development phosphorus budget cannot be met, and Maximum Extent Possible <sup>[8]</sup> has been attained, the proponent may use LSRCA's Phosphorus Offsetting Policy <sup>[9]</sup>.</p> <p><b>FOR RETROFIT SCENARIOS</b> <sup>[10]</sup></p> <p>i) Improve the level of water quality control currently provided on site; <b>AND</b></p> <p>ii) As per the 'Development' criteria for Suspended Solids, <b>OR</b></p> <p>iii) <b>If 'Development' criteria for Suspended Solids cannot be met</b>, Works are designed as a multi-year retrofit project, in accordance with a rehabilitation study or similar area-wide Stormwater study, such that the completed treatment train will achieve the 'Development' criteria for Suspended Solids or local needs<sup>[14]</sup>, within ten (10) years; <b>OR</b></p>

<b>Erosion Control (Watershed) <sup>[1]</sup></b>	<p>iv) If constraints <sup>[11]</sup> identified in ii) and iii), then control <sup>[3]</sup> as per Maximum Extent Possible <sup>[8]</sup> based on environmental site feasibility studies.</p> <p><b>FOR DEVELOPMENT SCENARIOS <sup>[8]</sup></b></p> <p>i) As per erosion assessment completed in watershed/subwatershed plan, Master Stormwater Management Plan, Master Environmental Servicing Plan, Drainage Plan, Class EA, local site study, geomorphologic study, or erosion analysis; <b>OR</b></p> <p>ii) As per the Detailed Design Approach or Simplified Design Approach methods described in the Stormwater Management Planning and Design Manual:</p> <p>a. The Detailed Design Approach may be selected by the proponent for any development regardless of size and location within the watershed provided technical specialists are available for the completion of the technical assessments; or considered more appropriate than the simplified approach given the size and location of the development within the watershed and the sensitivity of the receiving waters in terms of morphology and habitat function.</p> <p>b. The Simplified Design Approach may be adopted for watersheds whose development area is generally less than twenty hectares AND either one of the following two conditions apply:</p> <p>1) The catchment area of the receiving channel at the point-of-entry of Stormwater drainage from the development is equal to or greater than twenty-five square kilometres; or</p> <p>2) Meets the following conditions:</p> <ul style="list-style-type: none"> <li>• The channel bankfull depth is less than three quarters of a metre;</li> <li>• The channel is a headwater stream;</li> <li>• The receiving channel is not designated as an Environmentally Sensitive Area (ESA) or Area of Natural or Scientific Interest (ANSI) and does not provide habitat for a sensitive aquatic species;</li> <li>• The channel is stable to transitional; and</li> <li>• The channel is slightly entrenched; <b>OR</b></li> </ul> <p>iii) In the absence of a guiding study, detain at minimum, the runoff volume generated from a 25 mm storm event over 24 to 48 hours.</p> <p><b>FOR RETROFIT SCENARIOS <sup>[10]</sup></b></p> <p>i) If approaches i-iii) under 'Development Scenarios' are not feasible as per identified constraints <sup>[11]</sup>, then improve the level of erosion control <sup>[3]</sup> currently provided on site to Maximum Extent Possible <sup>[8]</sup> based on environmental site feasibility studies or address local needs<sup>[14]</sup>.</p>
<b>Water Quantity (Minor and Major System) <sup>[1]</sup></b>	<p>i) As per municipal standards, Master Stormwater Management Plan, Class EA, Individual EA and/or ECA, as appropriate for the type of project <sup>[13]</sup></p>
<b>Flood Control (Watershed Hydrology) <sup>[1]</sup></b>	<p><b>FOR DEVELOPMENT SCENARIOS <sup>[2]</sup></b></p> <p>i) Manage peak flow control as per watershed/subwatershed plans, municipal criteria being a minimum 100 year return storm (except for site-specific considerations and proximity to receiving water bodies), municipal guidelines and standards, Individual/Class EA, ECA, Master Plan, as appropriate for the type of project <sup>[13]</sup>.</p>

	<p><b>FOR RETROFIT SCENARIOS</b> <sup>[10]</sup></p> <p>i) If approaches i) under ‘Development Scenarios’ are not feasible as per identified constraints <sup>[11]</sup>, then improve the level of flood control <sup>[3]</sup> currently provided on site to Maximum Extent Possible <sup>[8]</sup> based on environmental site feasibility studies.</p>
<p><b>Construction Erosion and Sediment Control</b></p>	<p>i) Manage construction erosion and sediment control through development and implementation of an erosion and sediment control (ESC) plan. The ESC plan shall:</p> <p>a. Have regard to Canadian Standards Association (CSA) W202 Erosion and Sediment Control Inspection and Monitoring Standard (as amended); OR</p> <p>b. Have regard to Erosion and Sediment Control Guideline for Urban Construction 2019 by TRCA (as amended).</p> <p>ii) Be prepared by a QP for sites with drainage areas greater than 5 ha or if specified by the Owner for a drainage lower than 5 ha.</p> <p>iii) Installation and maintenance of the ESC measures specified in the ESC plan shall have regard to CSA W208:20 Erosion and Sediment Control Installation and Maintenance (as amended).</p> <p>iv) For sites with drainage areas greater than 5 ha, a QP shall inspect the construction ESC measures, as specified in the ESC plan.</p>
<p><b>Footnote</b></p>	<p>1. Where the opportunity exists on your project site or the same subwatershed, reallocation of development elements may be optimal for management as described in footnote <sup>[3]</sup>.</p> <p>2. Development includes new development, redevelopment, infill development, or conversion of a rural cross-section into an urban cross-section.</p> <p>3. Stormwater volumes generated from the geographically specific 90th percentile rainfall event on an annual average basis from all surfaces on the entire site are targeted for control. Control is in the following hierarchical order, with each step exhausted before proceeding to the next: 1) retention (infiltration, reuse, or evapotranspiration), 2) LID filtration, and 3) conventional Stormwater management. Step 3, conventional Stormwater management, should proceed only once Maximum Extent Possible <sup>[8]</sup> has been attained for Steps 1 and 2 for retention and filtration.</p> <p>4. Recharge is the infiltration and movement of surface water into the soil, past the vegetation root zone, to the zone of saturation, or water table.</p> <p>5. Pre-development is defined as the more stringent of the two following scenarios: 1) a site’s existing condition, or 2) as defined by the local municipality.</p> <p>6. Major Development has the same meaning as in the Lake Simcoe Protection Plan, 2009.</p> <p>7. Currently, the approved tool by LSRCA for calculating the water balance is the Thornthwaite-Mather Method. Other tools agreed upon by relevant approval agencies (e.g., LSRCA, municipality, or Ministry) may also be acceptable, subject to written acceptance by the Director.</p> <p>8. Maximum Extent Possible means maximum achievable Stormwater volume control through retention and LID filtration engineered/landscaped/technical Stormwater practices, given the site constraints <sup>[11]</sup>.</p> <p>9. Information pertaining to LSRCA’s Recharge Compensation Program and Phosphorus Offsetting Policy is available on LSRCA’s website (lsrca.on.ca), or in “Water Balance Recharge Policy for the Lake Simcoe Protection Plan”, dated July 2021, and prepared by Lake Simcoe Region Conservation Authority and “Phosphorus Offsetting Policy”, dated July 2021, and prepared by Lake Simcoe Region Conservation Authority.</p>

	<div>10. Retrofit means: 1) a modification to the management of the existing infrastructure, 2) changes to major and minor systems, or 3) adding Stormwater infrastructure, in an existing area on municipal right-of-way, municipal block, or easement. It does not include conversion of a rural cross-section into an urban cross-section.</div> <div>11. Site constraints must be documented. A list of site constraints can be found in Table A2.</div> <div>12. Tools for calculating phosphorus budgets may include the Ministry’s Phosphorus Tool, the Low Impact Development Treatment Train Tool developed in partnership by TRCA, LSRCA, and Credit Valley Conservation (CVC), or other tools agreed upon by the LSRCA and other relevant approval agencies including the municipality.</div> <div>13. Possible to look at combined grey infrastructure and LID system capacity jointly.</div> <div>14. Local needs include requirements for water quality, erosion, and/or water balance retrofits identified by the owner through ongoing operation and maintenance of the stormwater system, including inspection of local receiving systems and the characterization of issues requiring remediation through retrofit controls.</div> <div>15. All studies shall conform with Ministry policies. If any conclusions in the studies negate policy, then the project will require a direct submission to the Ministry for review through an application pertaining to a Schedule C Notice.</div>
--	---

Table A2. Stormwater Management Practices Site Constraints

Site Constraints	
a)	Shallow bedrock <sup>[1]</sup> , areas of blasted bedrock <sup>[2]</sup> , and Karst;
b)	High groundwater <sup>[1]</sup> or areas where increased infiltration will result in elevated groundwater levels which can be shown through an appropriate area specific study to impact critical utilities or property (e.g., susceptible to flooding);
c)	Swelling clays <sup>[3]</sup> or unstable sub-soils;
d)	Contaminated soils (e.g., brownfields);
e)	High Risk Site Activities including spill prone areas;
f)	Prohibitions and or restrictions per the approved Source Protection Plans and where impacts to private drinking water wells and /or Vulnerable Domestic Well Supply Areas cannot be appropriately mitigated;
g)	Flood risk prone areas or structures and/ or areas of high inflow and infiltration (I/I) where wastewater systems (storm and sanitary) have been shown through technical studies to be sensitive to groundwater conditions that contribute to extraneous flow rates that cause property flooding / Sewer back-ups;
h)	For existing municipal rights-of-way infrastructure (e.g., roads, sidewalks, utility corridor, Sewers, LID, and trails) where reconstruction is proposed and where surface and subsurface areas are not available based on a site-specific assessment completed by a QP;
i)	For developments within partially separated wastewater systems where reconstruction is proposed and where, based on a site-specific assessment completed by a QP, can be shown to: <div><div>i</div><div>ii</div></div> Increase private property flood risk liabilities that cannot be mitigated through design; Impact pumping and treatment cost that cannot be mitigated through design; or

iii	Increase risks of structural collapse of Sewer and ground systems due to infiltration and the loss of pipe and/or pavement support that cannot be mitigated through design.
j)	Surface water dominated or dependent features including but not limited to marshes and/or riparian forest wetlands which derive all or a majority of their water from surface water, including streams, runoff, and overbank flooding. Surface water dominated or dependent features which are identified through approved site specific hydrologic or hydrogeologic studies, and/or Environmental Impact Statements (EIS) may be considered for a reduced volume control target. Pre-consultation with the MECP and local agencies is encouraged;
k)	Existing urban areas where risk to water distribution systems has been identified through assessments to meet applicable drinking water requirements, including Procedures F-6 and F-6-1, and substantiated by a QP through an appropriate area specific study and where the risk cannot be reasonably mitigated per the relevant design guidelines;
l)	Existing urban areas where risk to life, human health, property, or infrastructure has been is identified and substantiated by a QP through an appropriate area specific study and where the risk cannot be reasonably mitigated per the relevant design guidelines;
m)	Water reuse feasibility study has been completed to determine non-potable reuse of Stormwater for onsite or shared use;
n)	Economic considerations set by infrastructure feasibility and prioritization studies undertaken at either the local/site or municipal/system level <sup>[4]</sup> .
<b>Footnote:</b> <div>1. May limit infiltration capabilities if bedrock and groundwater is within 1m of the proposed Facility invert per Table 3.4.1 of the LID Stormwater Planning and Design Guide (2010, V1.0 or most recent by TRCA/CVC). Detailed assessment or studies are required to demonstrate infiltration effects and results may permit relaxation of the minimum 1m offset.</div> <div>2. Where blasting is more localized, this constraint may not be an issue elsewhere on the property. While infiltration-based practices may be limited in blasted rock areas, other forms of LID, such as filtration, evapotranspiration, etc., are still viable options that should be pursued.</div> <div>3. Swelling clays are clay soils that is prone to large volume changes (swelling and shrinking) that are directly related to changes in water content.</div> <div>4. Infrastructure feasibility and prioritization studies should comprehensively assess Stormwater site opportunities and constraints to improve cost effectiveness, environmental performance, and overall benefit to the receivers and the community. The studies include assessing and prioritizing municipal infrastructure for upgrades in a prudent and economically feasible manner.</div>	



## ENVIRONMENTAL COMPLIANCE APPROVAL For a Municipal Sewage Collection System

**ECA Number: 062-W601**

**Issue Number: 2**

Pursuant to the *Environmental Protection Act*, R.S.O. 1990, c. E. 19 (EPA), and the regulations made thereunder and subject to the limitations thereof, this environmental compliance approval is issued under section 20.3 of Part II.1 of the EPA to:

### **The Corporation of the County of Brant**

**26 Park Ave P.O. Box 160  
Burford, ON N0E 1A0**

For the following Sewage Works:

### **County of Brant Sewage Collection System**

This Environmental Compliance Approval (ECA) includes the following:

<b>Schedule</b>	<b>Description</b>
Schedule A	System Information
Schedule B	Municipal Sewage Collection System Description
Schedule C	List of Notices of Amendment to this ECA: Additional Approved Works
Schedule D	General
Schedule E	Operating Conditions
Schedule F	Residue Management

All prior ECAs, or portions thereof, issued by the Director for Sewage Works described in section 1 of Schedule B are revoked and replaced by this Approval.

DATED at TORONTO this 19<sup>th</sup> day of September, 2023

Signature



Aziz Ahmed, P.Eng.  
Director, Part II.1, *Environmental Protection Act*

## Schedule A: System Information

System Owner	The Corporation of the County of Brant
ECA Number	062-W601
System Name	County of Brant Sewage Collection System
ECA Issue Date	September 19, 2023

### 1.0 ECA Information and Mandatory Review Date

ECA Issue Date	September 19, 2023
Application for ECA Review Due Date	May 15, 2026

- 1.1 Pursuant to section 20.12 of the EPA, the Owner shall submit an application for review of the Approval no later than the Application for ECA Review Date indicated above.

### 2.0 Related Documents

- 2.1 STPs, Satellite Treatment Facilities, and Pumping Stations connected to the Authorized System that are not part of the Authorized System:

System/Facility Name	Wastewater System Number	Location	ECA Number	Issue Date
Airport Wastewater Treatment System		38 Greens Road County of Brant, ON	8181-8TXHRN	July 23, 2012
Cainsville Lagoons	120004716	30 Shaver Street, Cainsville, ON	0176-7LSQYG	September 8, 2009
Paris Wastewater Pollution Control Plant	110001097	120 Race Street, Paris, ON	3839-BU7JYQ	November 28, 2020
St. George Wastewater Treatment Plant	110003415	43 Victor Blvd, St. George, ON	2214-BNBM6Z	April 26, 2020

### 2.2 Other Documents

Document Title	Version
Design Criteria for Sanitary Sewers, Storm Sewers, and Forcemains for future Alterations Authorized under ECA	v.1.1 (Jul. 28, 2022)

**3.0 Asset Management Plan**

Document Title	Version
Anticipated Quarter 1, 2023	

**4.0 Pollution Prevention and Control Plan (if applicable)**

Document Title	Version
N/A	

**5.0 Operating Authority**

Name of Subsystem	Operating Authority
Airport, Cainsville, Paris, and St. George Sanitary Collection and Treatment Systems	Ontario Clean Water Agency

## **Schedule B: Municipal Sewage Collection System Description**

System Owner	<b>The Corporation of the County of Brant</b>
ECA Number	<b>062-W601</b>
System Name	<b>County of Brant Sewage Collection System</b>
ECA Issue Date	<b>September 19, 2023</b>

### **1.0 System Description**

- 1.1 The following is a summary description of the Sewage Works comprising the Municipal Sewage Collection System:

#### **Overview**

The County of Brant Sewage Collection System consists of four (4) individual systems.

The Airport Municipal Sewage Collection System services the majority of the Brantford Airport property and the adjacent industrial subdivision. The Municipal Sewage Collection System consists of 1.7 kms of gravity sewers that discharge into the Airport Sewage Treatment System.

The Cainsville Municipal Sewage Collection System services majority of the the geographical area of Cainsville. The Cainsville Municipal Sewage Collection System consists of 5.2 kms of gravity sewers that discharge into the Cainsville Lagoons.

The St. George Municipal Sewage Collection System services the majority of the village of St. George. The St. George Municipal Sewage Collection System consists of 16 kms of gravity sewers that discharge into the St. George Wastewater Treatment Plant.

The Paris Municipal Sewage Collection System services the majority of the town of Paris. The Paris Municipal Sewage Collection System consists of 72km of gravity sewers, forcemains, eight (8) sewage pumping stations, two (2) siphons, three (3) chemically assisted odour control injection systems that discharge into the Paris Wastewater Pollution Control Plant.

#### **Sewage Collection System**

- 1.2 The Authorized System comprises:
- 1.2.1 The Sewage Works described and depicted in each document or file identified in column 1 of Table B1.

Table B1: Infrastructure Map	
Column 1 Document or File Name	Column 2 Date
Brant County Sanitary Management Infrastructure,2022	October 2022

- 1.2.2 Sewers, forcemains, pumping stations and other Sewage Works that have been added, modified, replaced, or extended through authorization provided in a Schedule C Notice respecting this Approval, where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.
- 1.2.3 Sewers, forcemains, pumping stations and other Sewage Works that have been added, modified, replaced, or extended through authorization provided in Schedule D of this Approval, where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.
- 1.2.4 Any Sewage Works described in conditions 1.3, through 1.7 below.

### Sewage Pumping Stations

- 1.3 The following are Sewage pumping stations in the Authorized System:

#### Brant Business Park 403 Sewage Pumping Station

Asset ID and Name	Brant Business Park 403 Sewage Pumping Station
Site Location	99 Bethel Road, Paris, ON
Latitude and Longitude	43° 9' 4.984" N 80° 22' 37.754" W
Coordinates (optional)	
Description	The Brant 403 Business Park SPS is equipped with a wet well, two pumps rated 43 L/sec each with a provision for one future pump rated 105 L/s. It has a 300 kW diesel standby generator. The SPS discharges to a 250mm diameter forcemain between Bethel Road and Powerline Road
Pumping Station Capacity	43L/sec
Equipment	[2] pumps (1 duty, 1standby), with 43 L/sec and 30m total head, a single 3.89 m by 2.95 m by 9.3 m wet well. Brant 403 Business Park SPS connects to a 250mm diameter forcemain between Bethel Road and Powerline Road.
Emergency Storage	
Equipment: Associated controls and Appurtenances	Level control system for high/low liquid level pump control and alarms Discharge flow meter. SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, Ultrasonic, pressure

	transducers), Back Up Generator, SPS Alarms. SCADA also trends flows and wet well levels.  Forcemain appurtenances include air release valves, drain valves and isolation valves.
Sewage Pumping Station – Collection System Overflow	The Brant Business Park 403 SPS has an alarmed bypass overflow to automatically close two (2) actuated gate valves on the discharge from the stormwater management pond, during a sewage pumping station bypass event, the bypass will discharge overland to the stormwater management pond located to the north of the sanitary sewage pumping station.
Receiving Stations (if applicable)	
Odour Control Units	
Standby Power	300 kW diesel generator, and a 1,890L fuel tank.
Notes	

### Grandville Subdivision Sewage Pumping Station

Asset ID and Name	Grandville Subdivision Sewage Pumping Station
Site Location	44 Cobblestone Drive, Paris, ON
Latitude and Longitude	43° 10' 46.013" N 80° 23' 22.546" W
Coordinates (optional)	
Description	The Grandville SPS is equipped a wet well, two pumps rated 54 L/sec each with a provision for one future pump to increase the SPS to a designed peak flow of 74.09 L/s rated 105 L/s. It has a 100-kW pad mounted diesel standby generator. The SPS discharges to a 250mm diameter forcemain that runs from the pumping station along Cobblestone Drive to Rest Acres. There is a Calcium Nitrate injection system installed to limit the formation of hydrogen sulfide in the downstream forcemain and collection system.
Pumping Station Capacity	54L/sec
Equipment	[2] pumps (1 duty, 1 standby), with 54 L/sec and 31.5 m total head, a single 3 m by 3 m by 7.8 m wet well. The station is connected to a 250mm diameter sanitary sewage forcemain that runs from the pumping station along Cobblestone Drive to Rest Acres Road. At Rest Acres Road the flow can be directed to a 250mm diameter forcemain which discharges to a sanitary manhole at Hanlon Place or the flow can be directed to a 250mm diameter forcemain which discharges to a sanitary manhole at the southern discharge point on Rest Acres Road.
Emergency Storage	
Equipment: Associated controls and appurtenances	There is one (1) Calcium Nitrate injection system installed to limit the formation of hydrogen sulfide in the downstream

	<p>forcemain and consisting of two (2) outdoor double walled XLPE tanks providing a storage volume of 2000L each, one (1) SCADA controlled chemical feed pump with a max flow rate of 42L/hr complete with associated process piping, valves. Level control system for high/low pump control and alarms Discharge flow meter.</p> <p>SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, Ultrasonic, pressure transducers), Back Up Generator, SPS Alarms. SCADA also trends flow leaving the station along with wet well levels from both instruments. The forcemain consists of several appurtenances such as Air/vacuum release valves, isolation valves, and drain valves.</p>
Sewage Pumping Station – Collection System Overflow	300 mm diameter emergency overflow from the inlet manhole to the sediment forebay of an existing stormwater management facility adjacent to the station property.
Receiving Stations (if applicable)	
Odor Control Units	<p>One (1) activated carbon media drum.</p> <p>One (1) Calcium Nitrate injection system installed to limit the formation of hydrogen sulfide in the downstream forcemain consisting of two (2) outdoor double walled XLPE tanks providing a storage volume of 2000L each, one (1) SCADA controlled chemical feed pump with a max flow rate of 42L/hr complete with associated process piping, valves.</p>
Standby Power	100 kW generator with a 1,137 L diesel tank
Notes	

### Grand River St N. Sewage Pumping Station

Asset ID and Name	Grand River St N. Sewage Pumping Station
Site Location	269 Grand River Street North, Paris, ON
Latitude and Longitude	43° 12' 30.884" N 80° 23' 15.294" W
Coordinates (optional)	
Description	The Grand River Street North SPS is equipped with three (3) pumps, a 60 kilowatt standby natural gas generator set, and discharges to a 350 millimetre diameter forcemain along Grand River Street North (Highway 24A)
Pumping Station Capacity	133L/sec
Equipment	[3] pumps (2 duty, 1 standby). Pumps 1 and 3 are 73.1 L/sec and 6.95 m total head. Pump 2 is 67 L/sec and 6 m total head, 1 wet well 3.4mx3.8mx5.3m. The station is connected one (1) 350 mm diameter forcemain along Grand River Street North (Highway 24A), extending from the sewage pumping station to the existing 450 mm diameter sewer at Silver Street.
Emergency Storage	
Equipment: Associated controls and appurtenances	Level control system for high/low liquid level pump control and alarms.

	Discharge flow meter. SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, Ultrasonic, pressure transducers), Back Up Generator, SPS Alarms. SCADA also trends flows and wet well levels.
Sewage Pumping Station – Collection System Overflow	No engineered overflow.
Receiving Stations (if applicable)	
Odor Control Units	One activated carbon media drum
Standby Power	60 kW natural gas generator
Notes	

### Willow St. Sewage Pumping Station

Asset ID and Name	Willow St. Sewage Pumping Station
Site Location	2 Willow St., Paris ON
Latitude and Longitude	43° 11' 25.896" N 80° 22' 28.288" W
Coordinates (optional)	
Description	The Willow Street SPS is equipped with four (4) pumps, a two celled wet well, a 350 kilowatt standby diesel generator, and discharges to one of two 400 millimetre diameter forcemain along Willow Street and Dundas Street West (bridge).
Pumping Station Capacity	295L/sec
Equipment	4 pumps (3 duty, 1 standby), each rated at 98.33 L/s and 32.4 m TDH, a two celled wet well with a total volume of 118m <sup>3</sup> . The station is connected to [2] 400mm diameter (one duty and one standby) with bypass connections that run from the station along Willow Street and Dundas Street West (High Level Bridge) to an existing sanitary sewer on Ball Street under the high-level bridge.
Emergency Storage	
Equipment: Associated controls and appurtenances	Level control system for high/low liquid level pump control and alarms. Discharge and overflow flow meters. SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, Ultrasonic, pressure transducers), Back Up Generator, SPS Alarms. SCADA also trends flows, pump speed and wet well levels.  The forcemain appurtenances consist of several Air/vacuum release valves, isolation valves, and drain valves.
Sewage Pumping Station – Collection System Overflow	600 mm sanitary pipe that discharges into the Grand River approximately 200m behind the station.
Receiving Stations (if applicable)	



Odor Control Units	One (1) activated carbon adsorption unit
Standby Power	350 kW diesel generator, and from two (2) 1,135 L capacity double wall fuel tanks.
Notes	

### Fairview Heights Sewage Pumping Station

Asset ID and Name	Fairview Heights Sewage Pumping Station
Site Location	22 MacPherson Drive, Paris, ON
Latitude and Longitude	43° 12' 32.773" N 80° 24' 27.045" W
Coordinates (optional)	
Description	The Fairview Heights SPS is equipped a wet well, two pumps rated 25.3L/sec each. It has a 30 kW natural gas standby generator. The SPS discharges to a 150mm diameter forcemain and outlets on Oak Avenue.
Pumping Station Capacity	25.3L/sec
Equipment	2 pumps (1 duty, 1 standby), rated at 25.3L/s each and 14.22m TDH, [1] wet well 2.4m round by 6.75m deep. The station is connected to 150mm diameter forcemain that runs from the Fairview Heights SPS along MacPherson Drive, Whitlaw Way and Armstrong Street. The outlet is at a manhole at the intersection of Armstrong Street and Oak Ave.
Emergency Storage	
Equipment: Associated controls and appurtenances	Level control system for high/low pump control and alarms Discharge flow meter. SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, Ultrasonic, pressure transducers), Back Up Generator, SPS Alarms. SCADA also trends flows and wet well levels.
Sewage Pumping Station – Collection System Overflow	No engineered overflow.
Receiving Stations (if applicable)	
Odor Control Units	None
Standby Power	30 kW natural gas generator.
Notes	

### Paris Links Sewage Pumping Station

Asset ID and Name	Paris Links Sewage Pumping Station
Site Location	59 Paris Links Road, Paris, ON
Latitude and Longitude	43° 12' 25.529" N 80° 22' 53.501" W
Coordinates (optional)	
Description	The Paris Links SPS is equipped a wet well, two pumps rated

	28L/sec each. It has a 45 kW natural gas standby generator. The SPS discharges to a 250mm diameter forcemain and outlets on Grand River Street North.
Pumping Station Capacity	28L/sec
Equipment	[2] pumps (1 duty, 1 standby), rated at 28L/sec each and 21.3m THD, wet well with a total volume of 51m <sup>3</sup> . The station is connected to via a 250mm forcemain into a manhole at the intersection of Grand River St North and Paris Links Road.
Emergency Storage	
Equipment: Associated controls and appurtenances	Level control system for high/low pump control and alarms SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, pressure transducers), Back Up Generator, SPS Alarms. SCADA also trends virtually computed flows and wet well levels.
Sewage Pumping Station – Collection System Overflow	Overflow discharges via a 250mm sanitary pipe to a SWM pond onsite and eventually the Grand River.
Receiving Stations (if applicable)	
Odor Control Units	
Standby Power	45 kW natural gas generator.
Notes	This facility is anticipated to be decommissioned in 2023 and replaced by Paris Grand SPS (ECA 4155-BRMT26) not assumed by County yet

**PINEHURST (BROOKFIELD) SEWAGE PUMPING STATION**

Asset ID and Name	PINEHURST (BROOKFIELD) SEWAGE PUMPING STATION
Site Location	2 Hartley Street, Paris, ON
Latitude and Longitude	43° 12' 59.744" N 80° 23' 30.075" W
Coordinates (optional)	
Description	The Interim Pinehurst SPS is equipped with a wet well, two pumps rated at 30.7L/sec each. It has a 30 kW natural gas standby generator. The SPS discharges to a 150mm diameter forcemain to an existing 300mm diameter sanitary sewer located at the intersection of Pinehurst Road and Woodslee Avenue
Pumping Station Capacity	30.7L/sec
Equipment	2 pumps (1 duty, 1 standby), with 30.7L/s and 6.77m TDH. The station is connected via a 150mm diameter forcemain to an existing 300mm diameter sanitary sewer located at the intersection of Pinehurst Road and Woodslee Avenue.
Emergency Storage	
Equipment: Associated controls and appurtenances	Level control system for high/low liquid level pump control and alarms SCADA system for remote monitoring and control of devices and instruments which includes; wet well pumps, level

	measuring devices (eg. floats, Ultrasonic Level Sensors), Back Up Generator, SPS Alarms. SCADA also trends wet well levels and pump speed.
Sewage Pumping Station – Collection System Overflow	No engineered overflow.
Receiving Stations (if applicable)	
Odor Control Units	None
Standby Power	30 kW natural gas generator.
Notes	While OCWA operates the facility, the developer still owns the pumping station.

**PARIS MEADOWS SEWAGE PUMPING STATION**

Asset ID and Name	PARIS MEADOWS SEWAGE PUMPING STATION
Site Location	201 Markel Drive, Paris, ON
Latitude and Longitude	43° 9' 58.223" N 80° 22' 14.319" W
Coordinates (optional)	
Description	
Pumping Station Capacity	56L/sec
Equipment	2 pumps (1 duty, 1standby), with 56L/s and 32m TDH. The station is connected via a 200mm diameter forcemain to an existing 525mm diameter sanitary sewer located on Mile Hill Road.
Emergency Storage	An offline underground concrete storage tank, having dimension of 8.54 m x 3.65 m x 4.1 m, with a storage volume of 114 m <sup>3</sup> , designed to store the surcharge volume from the wet well, connected with the wet well through a reversed slope 250 mm diameter pipe, installed at an invert elevation of 244.5 m in the wet well and 244.90 m in the storage tank; the tank is designed to provide approximately 2.2 hours of emergency storage volume (average daily flow under ultimate conditions)
Equipment: Associated controls and appurtenances	Electrical and electronic control systems, primary and secondary ultrasonic and pressure transducer system, level transmitter with back-up analogue float switches (low-level, high-level and emergency high), discharge piping, ventilation system, valves, by-pass chamber and piping, standby generator set, and all other appurtenances necessary to have a complete and operable pumping station, in the context of process performance and general principles of wastewater and a SCADA system.
Sewage Pumping Station – Collection System Overflow	No engineered overflow.
Receiving Stations (if applicable)	
Odor Control Units	The odour control system is designed/supplied by Evoqua Bioxide system. The dosing (metering) pump/panel is housed

	inside the control building (mudroom/dosing control) and bioxide storage tanks (2) located outside the building with heated feedline into the dose control room. The chemical consists of a non-caustic bioxide solution for H <sub>2</sub> S control. The odour control unit is equipped with a dosing (metering) pump on a valved panel with two separate PVC dosing lines, one to the valve chamber (normally open) and one to the wet well (normally closed).
Standby Power	150 kW natural gas generator.
Notes	OCWA operates the facility.

### Real-Time Control

1.4 The following are identified Real-Time Control Systems in the Authorized System:

	Description
Process Equipment/System Elements	The Sanitary Pumping Stations (SPS) located in Paris have a SCADA system for remote monitoring, trending and control of devices and instruments which includes; wet well pumps, level measuring devices (eg. floats, pressure transducers), Back Up Generator, SPS Alarms, Odour Control pumps (if applicable).
Flow Measurement Locations	Flow measurement devices at the following Sanitary Pumping Stations (SPS); <ul style="list-style-type: none"> <li>• Brant 403 Business Park SPS</li> <li>• Fairview Heights SPS</li> <li>• Grand River Street North SPS</li> <li>• Grandville SPS</li> <li>• Paris Meadows SPS</li> <li>• Willow Street SPS</li> </ul>
Level Measurement Locations	Level Measuring Device in SPS Wet Wells
Other Instrumentation and Controls	Brant 403 Business Park SPS controls (open/closes) infiltration trenches valves at the Brant 403 Business Park SWM facility in the event of an overflow of the SPS wet well.

### Combined Sewage Structures

1.5 The following are regulators and combined Sewage storage structures in the Authorized System:

**Table B2: Identified Combined Sewer Overflow Regulators**

Column 1 Asset ID/Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Regulator Capacity (m <sup>3</sup> /s)	Column 4 Overflow Location (Latitude & Longitude)
N/A			

Table B3: Identified Combined Sewage Storage Tanks and Storage Structures			
Column 1 Asset ID/Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Regulator Capacity (m <sup>3</sup> /s)	Column 4 Overflow Location (Latitude & Longitude)
N/A			

### Collection System Overflow Points

1.6 The following are Collection System Overflow points in the Authorized System:

Table B4: Identified Combined Sewer Overflow Points including Pumping Stations			
Column 1 Asset ID / Name	Column 2 Regulator or Combined Sewer Storage Asset ID	Column 3 Overflow Location (Latitude & Longitude)	Column 4 Point of Entry to Receiver (Latitude and Longitude)
N/A			

Table B5: Identified Sanitary Sewer Overflow Points including Pumping Stations			
Column 1 Asset ID	Column 2 Asset Name	Column 3 Overflow Location (Latitude & Longitude)	Column 4 Point of Entry to Receiver (Latitude and Longitude)
	Paris Links Sewage Pumping Station	43° 12' 25.312" N 80° 22' 53.443" W	43° 12' 25.133" N 80° 22' 52.759" W
	Willow St. Sewage Pumping Station	43° 11' 26.056" N 80° 22' 28.617" W	43° 11' 25.691" N 80° 22' 29.183" W
	Grandville Subdivision Sewage Pumping Station	43° 10' 45.983" N 80° 23' 22.526" W	43° 19' 46.347" N 80° 23' 22.262" W
	Brant Business Park 403 SPS	43° 9' 5.010" N 80° 22' 37.788" W	43° 9' 15.778" N 80° 22' 36.199" W

### Other Works:

1.7 The following works are part of Authorized System:

Table B6: Other Works			
Column 1 Asset ID / Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Component	Column 4 Description
Willow Steet Siphon	William St., Paris, ON	Siphon	Willow Street Siphon carries flows under the Grand River. The 128m long siphon consist of 3 pipes, one 250mm dia, and two 400mm dia. constructed in 1963.
Mile Hill Odour Control Unit	239 Mile Hill Road Manhole 20, Paris, ON	Odour Control Unit	The Mile Hill Odour Control Units provide odour mitigation for the SW Paris trunk sewer which runs along Rest Acres Road, Powerline Road, Mile Hill Road, Hillside Avenue, Race Street Paris. Odour Control Unit is a Purafil Vessel Scubbers containing two (2) type of media. X
120 Race Street Odour Control Unit	Race Street and Hillside Street, Paris, ON	Odour Control Unit	The 120 Race Street Odour Control Units provide odour mitigation for the SW Paris trunk sewer which runs along Rest Acres Road, Powerline Road, Mile Hill Road, Hillside Avenue, Race Street Paris. Odour Control Unit is a Purafil Vessel Scubbers containing two (2) type of media. X
Nith River Siphon	Mechanic Street, Nith River, Lions Park Paris, ON	Siphon	Nith River Siphon carries flows under the Nith River. The 57m long siphon consist of 2 – 200mm dia. pipes, one was constructed in 1972 and the other in 2017.

**Schedule C: List of Notices of Amendment to this ECA:  
Additional Approved Sewage Works**

System Owner	<b>The Corporation of the County of Brant</b>
ECA Number	<b>062-W601</b>
System Name	<b>County of Brant Sewage Collection System</b>
ECA Issue Date	<b>September 19, 2023</b>

**1.0 General**

- 1.1 Table C1 provides a list of all notices of amendment to this Approval that have been issued pursuant to clause 20.3(1) of the EPA that impose terms and conditions in respect of the Authorized System after consideration of an application by the Director (Schedule C Notices).

<b>Table C1: Schedule C Notices</b>				
Column 1 Issue #	Column 2 Issue Date	Column 3 Description	Column 4 Status	Column 5 DN#
N/A	N/A	N/A	N/A	N/A

## Schedule D: General

System Owner	The Corporation of the County of Brant
ECA Number	062-W601
System Name	County of Brant Sewage Collection System
ECA Issue Date	September 19, 2023

### 1.0 Definitions

1.1 For the purpose of this Approval, the following definitions apply:

**“Adverse Effect(s)”** has the same meaning as defined in section 1 of the EPA.

**“Alteration(s)”** includes the following, in respect of the Authorized System, but does not include repairs to the system:

- a) An extension of the system,
- b) A replacement or retirement of part of the system, or
- c) A modification of, addition to, or enlargement of the system.

**“Approval”** means this Environmental Compliance Approval including any Schedules attached to it.

**“Appurtenance(s)”** has the same meaning as defined in O. Reg. 525/98 (Approval Exemptions) made under the OWRA.

**“Authorized System”** means the Sewage Works comprising the Municipal Sewage Collection System authorized under this Approval”.

**“Average Year”** means the long term average of flow based on:

- a) Simulation of at least twenty years of rainfall data;
- b) A year in which the rainfall pattern (e.g., intensity, volume, and frequency) is consistent with the long-term mean of the area;
- c) A year in which the runoff pattern resulting from the rainfall (e.g., rate, volume, and frequency) is consistent with the long-term mean of the area; or
- d) Any combination of a), b) and c).



**“Collection System Overflow(s)”** means a discharge (SSO or CSO) to the environment at designed location(s) from the Authorized System.

**“Combined Sewer(s)”** means pipes that collect and transmit both sanitary Sewage and other Sewage from residential, commercial, institutional and industrial buildings, and facilities and Stormwater through a single-pipe system, but does not include Nominally Separate Sewers.

**“Completion”** means substantial performance as described in s.2 (1) of the *Construction Act*, R.S.O. 1990, c. C.30.

**“Compound of Concern”** means a Contaminant that is discharged from the Facility in an amount that is not negligible.

**“Contaminant”** has the same meaning as defined in section 1 of the EPA.

**“CSO”** means a combined sewer overflow which is a discharge to the environment at designated location(s) from a Combined Sewer or Partially Separated Sewer as per Table B4 that usually occurs as a result of precipitation when the capacity of the Sewer is exceeded. An intervening time of twelve hours or greater separating a CSO from the last prior CSO at the same location is considered to separate one overflow Event from another.

**“CWA”** means the *Clean Water Act*, R.S.O. 2006, c.22.

**“Design Criteria”** means the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Force mains for Alterations Authorized under Environmental Compliance Approval”, (as amended from time to time).

**“Design Guidelines for Sewage Works”** means the Ministry document titled “Design Guidelines for Sewage Works”, 2008 (as amended from time to time).

**“Director”** means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of EPA (Environmental Compliance Approvals).

**“Director Notification Form”** means the most recent version of the Ministry form titled Director Notification – Alterations to a Municipal Sewage Collection System, as obtained directly from the Ministry or from the Ministry’s website.

**“District Manager”** means the district manager or a designated representative of the Local Ministry Office.

**“Dry Weather Flow(s)”** means Sewage flow resulting from both sanitary Sewage, and infiltration and inflows from foundation drains or other drains occurring during periods with an absence of rainfall or snowmelt.

**"EAA"** means the *Environmental Assessment Act*, R.S.O. 1990, c. E.18.

**"EPA"** means the *Environmental Protection Act*, R.S.O. 1990, c.E.19.

**"Emergency Situation"** means a structural, mechanical, electrical failure, or operational health and safety incident, that causes a temporary reduction in the capacity, function, or performance of any part of the Authorized System or an unforeseen flow condition that may result in:

- a) Danger to the health or safety of any person;
- b) Injury or damage to any property, or serious risk of injury or damage to any property;
- c) Adverse Effect to the Natural Environment; or
- d) Spill.

**“Equipment”** means equipment or processes described in this Approval and any other equipment or process that supports the operation or maintenance of the Authorized System.

**“ESC”** means erosion and sediment control.

**"Event(s)"** means an action or occurrence, at any given location within the Authorized System that causes a Collection System Overflow. An Event ends when there is no recurrence of a CSO or SSO in the Collection System at the same location in the 12-hour period following the last Collection System Overflow.

**“Facility”** means the entire operation located on the property where the Sewage Works or Equipment is located.

**“Form A1”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Equipment Discharging a Contaminant of Concern to the Atmosphere from a Municipal Sewage Collection System, as obtained directly from the Ministry or from the Ministry’s website.

**“Form CS1”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Combined Sewers/Partially Separated Sewers/Combined Sewage Storage Tanks and Storage Structures as obtained directly from the Ministry or from the Ministry’s website.

**“Form SS1”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Separate Sewers/Nominally Separate Sewers/Force mains, as obtained directly from the Ministry or from the Ministry’s website.

**“Form SS2”** means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Components of the Municipal Sewage Collection System, as obtained directly from the Ministry or from the Ministry’s website.

**“Hauled Sewage”** has the same meaning as defined in section 1 of Regulation 347 (General – Waste Management) made under the EPA.

**“Licensed Engineering Practitioner”** means a person who holds a licence, limited licence, or temporary licence under the *Ontario Professional Engineers Act* R.S.O. 1990, c. P.28.

**“Local Ministry Office”** means the local office of the Ministry responsible for the geographic area where the Authorized System is located.

**“Minister”** means the Minister of the Ministry, or such other member of the Executive Council as may be assigned the administration of the EPA and OWRA under the *Executive Council Act*, R.S.O. 1990, c. E.25.

**“Ministry”** means the Ministry of the Minister and includes all employees or other persons acting on its behalf.

**“Municipal Sewage Collection System”** means all Sewage Works, located in the geographical area of a municipality that collect and transmit Sewage and are owned, or may be owned pursuant to an agreement with a municipality entered into under the *Planning Act* or *Development Charges Act*, 1997, by:

- a) A municipality, a municipal service board established under the *Municipal Act*, 2001 or a city board established under the *City of Toronto Act*, 2006; or
- b) A corporation established under sections 9, 10, and 11 of the *Municipal Act*, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act*, 2006 in accordance with sections 148 and 154 of that Act.

**“Natural Environment”** has the same meaning as defined in section 1 of the EPA.

**“Nominally Separate Sewer(s)”** mean Separate Sewers that also have connections from roof leaders and foundation drains, and are not considered to be Combined Sewers.

**“Operating Authority”** means, in respect of the Authorized System, the person, entity, or assignee that is given responsibility by the Owner for the operation, management, maintenance or Alteration of the Authorized System or a portion of the Authorized System.

**“Owner”** for the purposes of this Approval means The Corporation of the County of Brant, and includes its successors and assigns.

**“OWRA”** means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40.

**“O&M Manual”** means the operation and maintenance manual prepared and maintained by the Owner under condition 3.2 in Schedule E of this Approval.

**“Partially Separated Sewer(s)”** means Combined Sewers that have been retrofitted to transmit sanitary Sewage but in which roof leaders or foundation drains still contribute Stormwater inflow to the Partially Separated Sewer.

**“Peak Hourly Flow”** means the the largest volume of flow to be received during a one-hour period expressed as a volume per unit time. This is also referred to as maximum hourly flow or maximum hour flow.

**“Point of Entry”** has same meaning as in the Wastewater Systems Effluent Regulations (SOR/2012-139) under the *Fisheries Act*, R.S.C 1985, c. F-14.

**“Pollution Prevention and Control Plan” or “PPCP”** means a plan developed for Combined Sewers in the Authorized System to meet the goals of Procedure F-5-5.

**“Prescribed Person”** means a person prescribed in O. Reg. 208/19 (Environmental Compliance Approval in Respect of Sewage Works) for the purpose of ss. 20.6 (1) of the EPA, and where the alteration, extension, enlargement, or replacement is carried out under an agreement with the Owner.

**“Procedure F-5-1”** means the Ministry document titled “F-5-1 Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works” (as amended from time to time).

**“Procedure F-5-5”** means the Ministry document titled “F-5-5 Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer System” (as amended from time to time).

**“Publication NPC-207”** means the Ministry draft technical publication “Impulse Vibration in Residential Buildings”, November 1983,

supplementing the Model Municipal Noise Control By-Law, Final Report, August 1978, (as amended from time to time).

**“Publication NPC-300”** means the Ministry publication NPC-300, “Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning” August 2013, (as amended from time to time).

**“Pumping Station Capacity”** means the design Peak Hourly Flow of Sewage which the Sewage pumping station is designed to handle.

**“Real-time Control System”** means the dynamic operation of the collection system, including Real-Time Physical Control Structures, by responding to continuous field monitoring to maintain and achieve performance and operational objectives, during dry and wet weather conditions.

**“Real-time Physical Control Structure”** means a structure (e.g., pumps, gates, and weirs) that reacts in real-time based on direction from the Real-Time Control System.

**“Regulator Capacity”** means the flowrate ( $\text{m}^3/\text{s}$ ) at which Collection System Overflow begins.

**“SAC”** means the Ministry’s Spills Action Centre.

**“SCADA”** means a supervisory control and data acquisition system used for process monitoring, control, automation, recording, and/or reporting within the Sewage system.

**“Schedule C Notice(s)”** means a notice(s) of amendment to this Approval issued pursuant to clause 20.3(1) of the EPA that imposes terms and conditions in respect of the Authorized System after consideration of an application by the Director.

**“Separate Sewer(s)”** means pipes that collect and transmit sanitary Sewage and other Sewage from residential, commercial, institutional, and industrial buildings.

**“Sewage”** has the same meaning as defined in section 1 of the OWRA.

**“Sewage Works”** has the same meaning as defined in section 1 of the OWRA.

**“Sewer”** has the same meaning as defined in section 1 of O. Reg. 525/98 under the OWRA.

**“Significant Drinking Water Threat”** has the same meaning as defined in section 2 of the CWA.

**“Significant Snowmelt Event(s)”** means the melting of snow at a rate which adversely affects the performance and function of the Authorized System and/or the STP(s) identified in Schedule A of this Approval.

**“Significant Storm Event(s)”** means a minimum of 25 mm of rain in any 24 hours period.

**“Source Protection Authority”** has the same meaning as defined in section 2 of the CWA.

**“Source Protection Plan”** means a drinking water source protection plan prepared under the CWA.

**“Spill(s)”** has the same meaning as defined in subsection 91(1) of the EPA.

**“SSO”** means a sanitary sewer overflow which is a discharge of Sewage from a Separate Sewer or Nominally Separate Sewer to the environment from designated location(s) in the Authorized System as per Table B5.

**“Standard Operating Policy for Sewage Works”** means the standard operating policy developed by the Ministry to assist in the implementation of Source Protection Plan policies related to Sewage Works and providing minimum design and operational standards and considerations to mitigate risks to sources of drinking water, as amended from time to time.

**“Storm Sewer”** means Sewers that collect and transmit, but not exfiltrate or lose by design, Stormwater resulting from precipitation and snowmelt.

**“Stormwater”** means rainwater runoff, water runoff from roofs, snowmelt, and surface runoff.

**“Stormwater Management Facility(ies)”** means a Facility for the treatment, retention, infiltration, or control of Stormwater.

**“STP”** means sewage treatment plant.

**“STP Bypass(es)”** means diversion of Sewage around one or more treatment processes, excluding preliminary treatment system, within the STP with the diverted Sewage flows being returned to the STP treatment train upstream of the final effluent sampling point(s) and discharged via the approved effluent disposal facilities.

**“STP Overflow(s)”** means a discharge to the environment from the STP at designed location(s) other than the approved effluent disposal facilities or via the effluent disposal facilities downstream of the final effluent sampling point.

**“Uncommitted Reserve Hydraulic Capacity”** means uncommitted reserve capacity as described in the Ministry document titled “D-5-1 Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants” (as amended from time to time).

**“Undertaking”** has the same meaning as in the EAA.

**“Vulnerable Area(s)”** has the same meaning as in the CWA.

**“Wet Weather Flow(s)”** means the flow resulting from the combination of sanitary Sewage and extraneous flows resulting from the inflow and infiltration of groundwater, rainfall or snowmelt, and snow or ice melt that enters the Authorized System.

## **2.0 General Conditions**

- 2.1 The works comprising the Authorized System shall be constructed, installed, used, operated, maintained, replaced, or retired in accordance with the conditions of this Approval, which includes the following Schedules:

Schedule A – System Information

Schedule B – Municipal Sewage Collection System Description

Schedule C – List of Notices of Amendment to this ECA

Schedule D – General

Schedule E – Operating Conditions

Schedule F – Residue Management

- 2.2 The issuance of this Approval does not negate the requirements of other regulatory bodies, which includes but is not limited to, the Ministry of Northern Development, Mines, Natural Resources and Forestry and the local Conservation Authority.
- 2.3 Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence. Where there is a conflict between the information in a Schedule C Notice and another section of this Approval, the document bearing the most recent date shall prevail.
- 2.4 The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Authorized System is provided with a print or electronic copy of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- 2.5 The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such

condition to other circumstances and the remainder of this Approval shall not be affected thereby.

### **3.0 Alterations to the Municipal Sewage Collection System**

- 3.1 Any Schedule C Notice shall provide authority to alter the Authorized System in accordance with the conditions of this Approval.
- 3.2 All Schedule C Notices issued by the Director for the Municipal Sewage Collection System shall form part of this Approval.
- 3.3 The Owner and a Prescribed Person shall ensure that the documentation required through conditions in this Approval and the documentation required in the Design Criteria are prepared for any Alteration of the Authorized System.
- 3.4 The Owner shall notify the Director within thirty (30) calendar days of the placing into service or Completion of any Alteration of the Authorized System which had been authorized:
  - 3.4.1 Under Schedule D to this Approval where the Alteration results in a change to Sewage Works or Equipment specifically described in Schedule B of this Approval;
  - 3.4.2 Through a Schedule C Notice respecting Sewage Works other than Sewers or forcemains; or
  - 3.4.3 Through another approval that was issued under the EPA prior to the issue date of this Approval.
- 3.5 The notification requirements set out in condition 3.4 do not apply to any Alteration in respect of the Authorized System which:
  - 3.5.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98;
  - 3.5.2 Constitutes maintenance or repair of the Authorized System; or
  - 3.5.3 Is a Sewer or forcemain authorized by condition 4.1 of Schedule D of this Approval.
- 3.6 The Owner shall notify the Director within ninety (90) calendar days of:
  - 3.6.1 The discovery of existing Sewage Works not described or depicted in Schedule B, or
  - 3.6.2 Additional or revised information becoming available for any Sewage Works or Equipment described in Schedule B of this Approval.



- 3.7 The notifications required in condition 3.4 and 3.6 shall be submitted to the Director using the Director Notification Form.
- 3.8 The Owner shall ensure that an ESC plan is prepared, and temporary ESC measures are installed in advance of and maintained during any construction activity on the Authorized System, subject to the following conditions:
- 3.8.1 Inspections of ESC measures are to be conducted at a frequency specified per the ESC plan, for dry weather periods (active and inactive construction phases), after Significant Storm Events and Significant Snowmelt Events, and after any extreme weather events.
- 3.8.2 Any deficiencies shall be addressed, and any required maintenance actions(s) shall be undertaken as soon as practicable once they have been identified.
- 3.8.3 Inspections and maintenance of the temporary ESC measures shall continue until they are no longer required.
- 3.8.4 The ESC plan, ESC measures and its installation, inspections and maintenance shall have regard to at least one of the following:
- a) CSA W202 Erosion and Sediment Control Inspection and Monitoring Standard, as amended from time to time;
  - b) Erosion and Sediment Control Guideline for Urban Construction (2019), as amended from time to time, prepared by the Toronto Region Conservation Authority; or
  - c) CSA W208 Erosion and Sediment Control Installation and Maintenance, as amended from time to time.
- 3.9 The Owner shall ensure that records of inspections required by this Approval during any construction activity, including those required under condition 3.8:
- 3.9.1 Include the name of the inspector, date of inspection, visual observations, and the remedial measures, if any, undertaken to maintain the temporary ESC measures.
- 3.9.2 Be retained with records relating to the Alteration that the construction relates to, such as the form required in conditions 4.3.1, 5.4.1, 6.9.1, or 7.6.1 of Schedule D, or the Schedule C Notice.

3.9.3 Be retrievable and made available to the Ministry upon request.

3.10 The document(s) or file(s) referenced in Table B1 of Schedule B of this Approval shall:

3.10.1 Be retained by the Owner;

3.10.2 Include at a minimum:

- a) Identification of the type of Sewers in the Municipal Sewage Collection System (e.g., Separate Sewer; Combined Sewer; Partially Separated Sewer; Nominally Separate Sewer) including:
  - i Location of Sewers relative to street names or easements;
  - ii Sewer and/or forcemain diameters;
  - iii Identification of pumping stations and storage structures, including asset IDs;
  - iv Identification of SSO and/or CSO locations, including asset IDs;
  - v Identification of small-bore systems, if any; and
  - vi Identification of any source protection Vulnerable Areas.

3.10.3 Be updated to include:

- a) Alterations authorized under Schedule D of this Approval or through a Schedule C Notice within twelve (12) months of the Alteration being placed into service.
- b) Updates to information contained in the document(s) or files(s) not associated with an Alteration within twelve (12) months of becoming aware of the updated information.

3.11 An Alteration is not authorized under Schedule D of this ECA for projects that impact Indigenous treaty rights or asserted rights where:

3.11.1 The project is on Crown land or would alter access to Crown land;

3.11.2 The project is in an open or forested area where hunting, trapping or plant gathering occur;

- 3.11.3 The project involves the clearing of forested land unless the clearing has been authorized by relevant municipal, provincial, or federal authorities, where applicable;
- 3.11.4 The project alters access to a water body;
- 3.11.5 The proponent is aware of any concerns from Indigenous communities about the proposed project and these concerns have not been resolved; or
- 3.11.6 Conditions respecting Indigenous consultation in relation to the project were placed in another permit or approval and have not been met.
- 3.12 No less than 60 days prior to construction associated with an Alteration the Director may notify the Owner in writing that a project is not authorized through Schedule D of this ECA where:
  - 3.12.1 Concerns regarding treaty rights or asserted rights have been raised by one or more Indigenous communities that may be impacted by the Alteration; or
  - 3.12.2 The Director believes that it is in the public interest due to site specific, system specific, or project specific considerations.
- 3.13 Where an Alteration is not authorized under condition 3.11 or 3.12 above:
  - 3.13.1 An application respecting the Alteration shall be submitted to the Ministry; and,
  - 3.13.2 The Alteration shall not proceed unless:
    - a) Approval for the Alteration is granted by the Ministry (i.e., a Schedule C Notice); or,
    - b) The Director provides written notice that the Alteration may proceed in accordance with conditions in Schedule D of this ECA.

#### **4.0 Authorizations of Future Alterations for Separate Sewers, Nominally Separate Sewers and Forcemains - Additions, Modifications, Replacements and Extensions**

- 4.1 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or extending a Separate Sewer, Nominally Separate Sewer or forcemain within the Authorized System subject to the following conditions and condition 4.2 below:

- 4.1.1 The design of the addition, modification, replacement, or extension:
- a) Has been prepared by a Licensed Engineering Practitioner;
  - b) Has been designed only to collect and transmit Sewage and has not been designed to treat Sewage;
  - c) Satisfies the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;
  - d) Is consistent with or otherwise addresses the design objectives contained within the Design Guidelines for Sewage Works; and
  - e) Includes design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies.
- 4.1.2 The addition, modification, replacement, or extension shall be designed so that it will:
- a) Not cause overflows or backups nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g., service connections to basements) connected to the Authorized System or any Municipal Sewage Collection System connected to it;
  - b) Provide smooth flow transition to existing gravity Sewers; and
  - c) Not increase the generation of sulfides and other odorous compounds in the Municipal Sewage Collection System.
- 4.1.3 The maximum discharge/generation of Sewage by users who will be served by the addition, modification, replacement, or extension will not result in:
- a) An exceedance of the Authorized System hydraulic capacity, STP Uncommitted Reserve Hydraulic Capacity, or the downstream Pumping Station Capacity as specified in this Approval;
  - b) Adverse Effects;
  - c) Any increase in Collection System Overflows that is not offset by measures; or

- d) Any increase in the frequency or volume of STP Bypasses or STP Overflows that is not offset by measures.
- 4.1.4 The addition, modification, replacement, or extension is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.
- 4.1.5 The Owner consents in writing to the addition, modification, replacement, or extension.
- 4.1.6 A Licensed Engineering Practitioner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 a) to d).
- 4.1.7 The Owner has verified in writing that the addition, modification, replacement, or extension has complied with inspection and testing requirements in the Design Criteria.
- 4.1.8 The Owner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 e) and 4.1.2 to 4.1.6.
- 4.2 The Owner or a Prescribed Person is not authorized to undertake an Alteration described above in condition 4.1 where the Alteration relates to the addition, modification, replacement or extension of a Separate Sewer, Nominally Separate Sewer, or forcemain that:
  - 4.2.1 Passes under or through a body of surface water unless trenchless construction methods are used, or the local Conservation Authority has authorized an alternative construction method.
  - 4.2.2 Has a nominal diameter greater than 1050 mm for a Separate Sewer or Nominally Separate Sewer.
  - 4.2.3 Has a nominal diameter greater than 350 mm for a forcemain.
  - 4.2.4 Is a Combined Sewer or Partially Separated Sewer.
  - 4.2.5 Connects to another Municipal Sewage Collection System, unless:
    - a) Prior to construction, the Owner of the Authorized System obtains written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to; and
    - b) The Owner of the Authorized System retains a copy of the written consent from the Owner or Owner's delegate of the

Municipal Sewage Collection System being connected to as part of the record that is recorded and retained under condition 4.3.

- 4.2.6 Creates a new discharge point to the Natural Environment.
- 4.2.7 Is part of an Undertaking in respect of which:
  - a) A request under s.16(6) of the EAA has been made, namely a request that the Minister make an order under s.16;
  - b) The Minister has made an order under s.16; or
  - c) The Director under that EAA has given notice under s.16.1 (2) that the Minister is considering making an order under s.16.
- 4.3 The consents and verifications required in conditions 4.1 and 4.2, if applicable, shall be:
  - 4.3.1 Recorded on Form SS1 prior to the Separate Sewer, Nominally Separate Sewer or forcemain addition, modification, replacement, or extension being placed into service; and
  - 4.3.2 Retained for a period of at least ten (10) years by the Owner.
- 4.4 For greater certainty, the verification requirements set out in condition 4.3 do not apply to any Alteration in respect of the Authorized System which:
  - 4.4.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or
  - 4.4.2 Constitutes maintenance or repair of the Authorized System.

## **5.0 Authorizations of Future Alterations for Combined Sewers, Partially Separated Sewers and Combined Sewage Storage Tanks and Storage Structures**

- 5.1 Subject to conditions 5.2 and 5.3, the Owner or a Prescribed Person may alter the Combined Sewers, Partially Separated Sewers and combined Sewage storage tanks and storage structures in the Authorized System by:
  - 5.1.1 Modifying or replacing Combined Sewers, Partially Separated Sewers, overflow Regulators and/or outfalls if the purpose of the project is to restore the Sewage Works to good condition.
  - 5.1.2 Replacing Combined Sewers with Separate Sewers for Stormwater and sanitary Sewage.

- 5.1.3 Modify or replace Combined Sewers, Partially Separated Sewers, overflow regulators, outfalls, or combined Sewage storage tanks, provided that:
- a) The Alteration is designed in such a manner that will contribute to the ultimate attainment of the capture and treatment for an Average Year all the Dry Weather Flow plus a minimum of 90% of the volume resulting from Wet Weather Flow that is above Dry Weather Flow;
  - b) The volume control criterion described in 5.1.3 a) is applied:
    - i For a consecutive seven (7) month period commencing within fifteen (15) calendar days of April 1; and
    - ii To the flows collected by the Authorized System immediately above each Collection System Overflow location unless it can be shown through modelling that the criterion is being achieved on a system-wide basis.
  - c) The Alteration is designed in a manner that will not increase CSO volumes above existing levels at each outfall except where the increase is due to the elimination of upstream CSO outfalls as part of the Alteration; and
  - d) During the remainder of the year following the seven (7) month period described in condition 5.1.3 b) above, at least the same storage and treatment capacity are maintained for treating Wet Weather Flow.
- 5.1.4 Add oversized pipes provided they are designed to alleviate local / neighbourhood basement flooding and the Alteration satisfies condition 5.1.3 a), b), c), and d).
- 5.2 Any Alteration to the Authorized System authorized under condition 5.1 is subject to the following conditions:
- 5.2.1 The design of the Alteration shall:
- a) Be prepared by a Licensed Engineering Practitioner;
  - b) Be designed only to collect and transmit Sewage and shall not be designed to treat Sewage;
  - c) Satisfy the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;

- d) Be consistent with or otherwise address the design objectives contained within the Design Guidelines for Sewage Works; and
- e) Include design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works and any applicable local Source Protection Plan policies.

5.2.2 The design of the Alteration shall be:

- a) Undertaken in accordance with a Pollution Prevention and Control Plan; or
- b) If no Pollution Prevention and Control Plan is available, undertaken in accordance with an interim detailed plan for the local sewershed that:
  - i Describes the location, frequency, and volume of the CSOs, as well as the concentrations and mass pollutant loadings resulting from CSOs from the study area.
  - ii Includes the following minimum information:
    - 1. Location and physical description of CSO outfalls in the Authorized System, Collection System Overflows at pumping stations in Emergency Situations, STP Bypass and STP overflows locations;
    - 2. Location and identification of receiving water bodies, including sensitive receivers, for all Combined Sewer outfalls;
    - 3. Authorized System flow and STP treatment component capacities, present and future expected peak flow rates during dry weather and wet weather;
    - 4. Capacity of all regulators; and
    - 5. Location of cross connections between Sewage and Stormwater infrastructure.
  - iii Is intended to reduce the overall CSO volume, frequency, duration, or by-pass of treatment in the Authorized and/or municipal STP; and



- iv If there is a temporary Storm Sewer connection to a combined system as part of a Combined Sewer separation project, the construction plan includes a timeline to disconnect the Storm Sewer to a separated storm outlet.

5.2.3 The Alteration shall not result in:

- a) An exceedance of hydraulic capacity of the Authorized System, STP Uncommitted Reserve Hydraulic Capacity, or the Pumping Station Capacity as specified in this Approval;
- b) Adverse Effects;
- c) Any increase in Collection System Overflows that is not offset by measures elsewhere in the Authorized System; or
- d) Any increase in the frequency and/or volume of STP Bypasses or STP Overflows that is not offset by measures.

5.2.4 Where replacement of pipes to achieve Combined Sewer separation has been authorized under conditions 5.1.2 or 5.1.3, the following conditions apply:

- a) Stormwater quantity, quality and water balance control shall be provided such that Combined Sewer separation shall not result in an overall increase in pollutants discharged to the Natural Environment;
- b) Any new Storm Sewers that result from the Combined Sewer separation can be constructed but not operated until the proposed Stormwater Management Facilities designed to satisfy condition 5.2.4 a) are in operation; and
- c) Where any temporary structures have been installed to facilitate Combined Sewer separation, the Owner shall ensure that immediately upon Completion of the Combined Sewer separation, the temporary structure connection shall be disconnected and decommissioned.

5.2.5 The Alteration shall:

- a) Not cause overflows or backups nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g., service connections to basements) connected to the Authorized System or any Municipal Sewage Collection System connected to it;

- b) Provide smooth flow transition to existing gravity sewers; and
  - c) Not increase the generation of sulfides and other odorous compounds in the Authorized System.
- 5.2.6 The Alteration is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.
- 5.2.7 The Owner consents in writing to the Alteration authorized under condition 5.1.
- 5.2.8 A Licensed Engineering Practitioner has verified in writing that the Alteration authorized under condition 5.1 meets the design requirements of conditions 5.2.1 a) to e) and to 5.2.2.
- 5.2.9 The Owner has verified in writing that the Alteration authorized under condition 5.1 has complied with inspection and testing requirements in the Design Criteria.
- 5.2.10 The Owner has verified in writing that the Alteration authorized under condition 5.1 meets the requirements of conditions 5.2.1 f) and 5.2.3 to 5.2.8.
- 5.3 The authorization in condition 5.1 does not apply:
  - 5.3.1 To the modification or replacement of a Combined Sewer or Partially Separated Sewer that has a nominal diameter greater than 750 mm.
  - 5.3.2 To the modification or replacement of a Combined Sewer or Partially Separated Sewer that connects to another Municipal Sewage Collection System, unless:
    - a) Prior to construction, the Owner of the Authorized System seeking the connection obtains written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to; and
    - b) The Owner of the Authorized System retains a copy of the written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to as part of the record that is recorded and retained under condition 5.4.
  - 5.3.3 Where the Alteration would create a new discharge point to the Natural Environment.

- 5.3.4 Where the Alteration would result in the addition of a new combined Sewage storage tank in the Authorized System.
- 5.4 The consents and verifications required in conditions 5.2.7 to 5.2.10, and 5.3.2 if applicable, shall be:
  - 5.4.1 Recorded on Form CS1, prior to the Combined Sewer or Partially Separated Sewer modification or replacement being placed into service; and
  - 5.4.2 Retained for a period of at least ten (10) years by the Owner.
- 5.5 For greater certainty, the verification requirements set out in condition 5.4 do not apply to any Alteration in respect of the Authorized System which:
  - 5.5.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or,
  - 5.5.2 Constitutes maintenance or repair of the Authorized System.

## **6.0 Authorizations of Future Alterations to Components of the Municipal Sewage Collection System**

- 6.1 The Owner or a Prescribed Person may make the following Alterations to the Authorized System subject to conditions 6.4 through 6.7:
  - 6.1.1 Adding, modifying, or replacing storage the following components of Sewage pumping stations, Separate Sewers, or Nominally Separate Sewers:
    - a) In-line and/or off-line storage to manage peak flow / inflow and infiltration that does not require pumping;
    - b) Off-line storage to manage peak flow / inflow and infiltration that only requires electricity to empty the structure;
    - c) Any associated Equipment for cleaning; and
    - d) All Appurtenances associated with in-line or off-line storage facilities, including odour, and corrosion control.
  - 6.1.2 Modifying existing Sewage pumping stations and odour control units / Facilities, including adding, replacing, or modifying the following components:
    - a) Pumps, including replacement parts, in an existing pumping system;
    - b) Grinders and screens;

- c) Aeration and/or mixing Equipment;
- d) Chemicals and associated Equipment and tanks (including secondary containment);
- e) Odour and corrosion control structures;
- f) Instrumentation and controls;
- g) Discharge and process piping;
- h) Valves;
- i) Wet-wells; and
- j) Fat, oil, and grease separators (FOGs).

6.1.3 Adding new Sewage pumping stations, where they:

- a) Are designed to transmit a Peak Hourly Flow of no greater than 30 L/s;
- b) Include emergency stand-by power, Spill containment, and emergency alarms (SCADA, if applicable);
- c) Include emergency storage designed to provide at minimum two (2) hours of response time at peak design flow;
- d) Include odour and corrosion control, as applicable;
- e) Would serve a new residential development (or new phased residential development), which may include existing residential development that has no Combined or Partially Separated Sewers;
- f) Are designed to only collect sanitary Sewage and not Stormwater; and
- g) Do not include an emergency sanitary overflow or piping to a municipal Stormwater management system or a natural receiver to prevent the discharge to the Natural Environment.

6.1.4 Adding, modifying, or replacing Equipment associated with Real-time Control Systems, where:

- a) The Equipment is designed and implemented as part of the Owner's CSO reduction strategy or to optimize use of Sewage Works comprising the Authorized System;

- b) The Real-Time Control System is designed and integrated with fail-safe procedures such that they are automatically activated when the requirements of the current mode of operation cannot be met;
  - c) Risk management procedures are in place or will be in place prior to use of the Real-time Control System; and
  - d) Station alarms to control center are in place or will be in place prior to use of the Real-time Control System.
- 6.1.5 Adding, modifying, replacing, or removing chemical storage tanks (including fuel storage tanks) with Spill containment and associated Equipment.
- 6.1.6 Adding, modifying, replacing, or removing Motor Control Centre (MCC) and/or associated electrical.
- 6.2 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or removing the following components subject to conditions 6.4 through 6.7:
  - 6.2.1 Valves and their associated controls installed for maintenance purposes;
  - 6.2.2 Instrumentation for monitoring and controls, including SCADA systems, and hardware associated with these monitoring devices;
  - 6.2.3 Spill containment works for chemicals used within the Authorized System;
  - 6.2.4 Chemical metering pumps and chemical handling pumps;
  - 6.2.5 Measuring and monitoring devices that are not required by regulation, by a condition in this Approval, or by a condition otherwise imposed by the Ministry;
  - 6.2.6 Process piping within a Sewage pumping station, storage tank, or other structures; and
  - 6.2.7 Valve chambers or maintenance holes.
- 6.3 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, or replacing the following components subject to conditions 6.4 through 6.7:

- 6.3.1 Measuring and monitoring devices that are required by regulation, by a condition in this Approval, or by a condition otherwise imposed by the Ministry.
- 6.4 The design of the Alteration shall:
  - 6.4.1 Be prepared by a Licensed Engineering Practitioner, where the Alteration falls within the practice of professional engineering as defined in the *Professional Engineers Act*, R.S.O. 1990;
  - 6.4.2 Be consistent with or otherwise address the design objectives contained within the Design Guidelines for Sewage Works; and
  - 6.4.3 Include design considerations to protect sources of drinking water, such as those included in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies.
- 6.5 The Alteration shall:
  - 6.5.1 Not cause overflows or backups nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g., service connections to basements) connected to the Authorized System or any Municipal Sewage Collection System connected to it;
  - 6.5.2 Provide smooth flow transition to existing gravity Sewers;
  - 6.5.3 Not increase the generation of sulfides and other odourous compounds in the Authorized System; and
  - 6.5.4 Be wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.
- 6.6 Any Alteration of the Authorized System made under conditions 6.1, 6.2, or 6.3 shall not result in:
  - 6.6.1 Exceedance of hydraulic capacity (including Uncommitted Reserve Hydraulic Capacity, as applicable) of the downstream:
    - a) Municipal Sewage Collection System; or
    - b) Receiving STPs.
  - 6.6.2 Exceedance of any downstream Pumping Station Capacity as specified in Schedule B of this Approval.

- 6.6.3 An increase in the capacity of an existing Pumping Station Capacity of greater than 30%.
- 6.6.4 Any increase in Collection System Overflows that is not offset by measures taken elsewhere in the Authorized System.
- 6.6.5 Any increase in the frequency and/or volume of STP Bypasses or STP Overflows that is not offset by measures.
- 6.6.6 Deterioration of the normal operation of municipal STPs and/or the Authorized System.
- 6.6.7 A negative impact on the ability to undertake monitoring necessary for the operation of the Authorized System.
- 6.6.8 Adverse Effects.
- 6.7 The Alteration is subject to the following conditions:
  - 6.7.1 The Owner consents in writing to the Alteration.
  - 6.7.2 The person responsible for the design has verified in writing that the Alterations meets the requirements of conditions 6.4.1 and 6.4.2, as applicable.
  - 6.7.3 The Owner has verified in writing that the Alteration meets the requirements of conditions 6.4.3, 6.7.1, and 6.7.2.
- 6.8 The Owner shall verify in writing that any Alteration of the Authorized System in accordance with conditions 6.1 or 6.2 has met the requirements of the conditions listed in conditions 6.5 and 6.6.
- 6.9 The consents, verifications and documentation required in conditions 6.7 and 6.8 shall be:
  - 6.9.1 Recorded on Form SS2 prior to undertaking the Alteration; and
  - 6.9.2 Retained for a period of at least ten (10) years by the Owner.
- 6.10 For greater certainty, the verification requirements set out in condition 6.9 do not apply to any Alteration in respect of the Authorized System which:
  - 6.10.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or
  - 6.10.2 Constitutes maintenance or repair of the Authorized System, including changes to software for an existing SCADA system resulting from Alterations authorized in condition 6.2.

- 6.11 The Owner shall update, within twelve (12) months of the Alteration of the Sewage Works being placed into service, any drawings maintained for the Municipal Sewage Collection System to reflect the Alterations of the Sewage Works, where applicable.

## **7.0 Authorizations of Future Alterations to Equipment with Emissions to the Air**

- 7.1 The Owner and a Prescribed Person may alter the Authorized System by adding, modifying, or replacing the following Equipment in the Municipal Sewage Collection System:
- 7.1.1 Venting for odour control using solid scavenging or carbon adsorption units;
  - 7.1.2 Venting for odour control by replacing existing biofiltration or wet air scrubbing systems, including any components, with Equipment of the same or better performance characteristics; and
  - 7.1.3 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline, or biofuel, and that are used for emergency duty only with periodic testing.
- 7.2 Any Alteration of the Municipal Sewage Collection System made under condition 7.1 that may discharge or alter the rate or manner of a discharge of a Compound of Concern to the atmosphere is subject to the following conditions:
- 7.2.1 The Owner shall, at all times, take all reasonable measures to minimize odorous emissions and odour impacts from all potential sources at the Facility.
  - 7.2.2 The Owner shall ensure that the noise emissions from the Facility comply with the limits set out in Publication NPC-300.
  - 7.2.3 The Owner shall ensure that the vibration emissions from the Facility comply with the limits set out in Publication NPC-207.
- 7.3 The Owner shall not add, modify, or replace Equipment in the Municipal Sewage Collection System as set out in condition 7.1 unless the Equipment performs an activity that is directly related to municipal Sewage collection and transmission.
- 7.4 The emergency generators identified in condition 7.1.3 shall not be used for non-emergency purposes (excluding generator testing) including the generation of electricity for sale or for peak shaving purposes.



- 7.5 The Owner shall verify in writing that any addition, modification, or replacement of Equipment in accordance with condition 7.1 has met the requirements of the conditions listed in conditions 7.2, 7.3, and 7.4.
- 7.6 The verifications and documentation required in condition 7.5 shall be:
- 7.6.1 Recorded on Form A1 prior to the additional, modified or replacement Equipment being placed into service; and
- 7.6.2 Retained for a period of at least ten (10) years by the Owner.
- 7.7 For greater certainty, the verification and documentation requirements set out in condition 7.5 and 7.6 do not apply to any addition, modification, or replacement in respect of the Authorized System which:
- 7.7.1 Is exempt from the requirements of the EPA, or for Equipment that is exempt from s.9 of the EPA under O. Reg. 524/98; or
- 7.7.2 Constitutes maintenance or repair of the Authorized System.

## **8.0 Previously Approved Sewage Works**

- 8.1 If approval for an Alteration to the Authorized System was issued under the EPA and is revoked by this Approval, the Owner may make the Alteration in accordance with:
- 8.1.1 The terms of this Approval; or
- 8.1.2 The terms and conditions of the revoked approval as of the date this approval was issued, provided that the Alteration is commenced within five (5) years of the date that the revoked approval was issued.

## **9.0 Transition**

- 9.1 An Alteration of the Authorized System is exempt from the requirements in clause (c) of condition 4.1.1 and clause (c) of condition 5.2.1 where:
- 9.1.1 Effort to undertake the Alteration, such as tendering or commencement of construction of the Sewage Works associated with the Alteration, begins on or before May 19, 2023.
- 9.1.2 The design of the Alteration conforms to the Design Guidelines for Sewage Works;
- 9.1.3 The design of the Alteration was completed on or before the issue date of this Approval or a Class Environmental Assessment was

completed for the Alteration and changes to the design result in significant cost increase or significant project delays; and

- 9.1.4 The Alteration would be otherwise authorized under this Approval.

## **Schedule E: Operating Conditions**

System Owner	<b>The Corporation of the County of Brant</b>
ECA Number	<b>062-W601</b>
System Name	<b>County of Brant Sewage Collection System</b>
ECA Issue Date	<b>September 19, 2023</b>

### **1.0 General Operations**

- 1.1 The Owner shall ensure that, at all times, the Sewage Works comprising the Authorized System and the related Equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.
- 1.2 Prescribed Persons and Operating Authorities shall ensure that, at all times, the Sewage Works under their care and control and the related Equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.
- 1.3 In conditions 1.1 and 1.2 “properly operated and maintained” includes effective performance, adequate funding, adequate operator staffing and training, including training in applicable procedures and other requirements of this Approval and the EPA, OWRA, CWA, and regulations, adequate laboratory services, process controls and alarms and the use of process chemicals and other substances used in the Authorized System.

### **2.0 Duties of Owners and Operating Authorities**

- 2.1 The Owner, Prescribed Persons and any Operating Authority shall ensure the following:
  - 2.1.1 At all times that the Sewage Works within the Authorized System are in service the Sewage Works are:
    - a) Operated in accordance with the requirements under the EPA and OWRA, and
    - b) Maintained in a state of good repair.
  - 2.1.2 The Authorized System is operated by persons having the training or expertise for their operating functions that is required by O. Reg. 129/04 (Licensing of Sewage Works Operators) under the OWRA and this Approval.

- 2.1.3 All sampling, testing, monitoring, and reporting requirements under the EPA and this Approval that relate to the Authorized System are complied with.
- 2.1.4 Any person who is operating the Sewage Works within the Authorized System is supervised by an operator-in-charge as described in O. Reg. 129/04 under the OWRA.
- 2.2 For clarity, the requirements outlined in the above conditions 2.1.1 through 2.1.4 for Prescribed Persons and any Operating Authority only apply to Sewage Works within the Authorized System where they are responsible for the operation.
- 2.3 The Owner, Prescribed Persons and Operating Authority shall take all reasonable steps to minimize and ameliorate any Adverse Effect on the Natural Environment or impairment of the quality of water of any waters resulting from the operation of the Authorized System, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

### **3.0 Operations and Maintenance**

#### **3.1 Inspection**

- 3.1.1 The Owner shall ensure that all Sewage Works within the Authorized System are inspected at the frequency and in accordance with procedures set out in their O&M Manual.
- 3.1.2 The Owner shall ensure that:
  - a) Any pumping stations, combined Sewage storage tanks, and any Collection System Overflow within the Authorized System as of the date of issuance of this Approval are inspected at least once per calendar year starting the year after the O&M Manual is required to be prepared and implemented as per condition 3.2.1 in Schedule E of this Approval, and more frequently if required by the O&M Manual; and
  - b) Any pumping stations, combined Sewage storage tanks, and any Collection System Overflow established or replaced within the Authorized System after the date of issuance of this Approval are inspected within one year of being placed into service and thereafter once per calendar year and more frequency if required by the O&M Manual.
- 3.1.3 The inspection of the combined Sewage storage tanks required in condition 3.1.2 shall include physical inspection at the Point of

Entry, including looking for signs of unplanned discharges from Wet Weather Flow and Dry Weather Flow.

3.1.4 The Owner shall clean and maintain Sewage Works within the Authorized System to ensure the Sewage Works perform as designed.

3.1.5 The Owner shall maintain records of the results of the inspections required in condition 3.1.1, 3.1.2, and 3.1.3, monitoring (if applicable) and any cleaning and maintenance operations undertaken, and shall make available the records for inspection by the Ministry upon request. The records shall include the following:

- a) Asset ID and name of the Sewage Works;
- b) Date and results of each inspection, maintenance, or cleaning; and
- c) Name of person who conducted the inspection, maintenance, or the name of the inspecting official, where applicable.

### 3.2 Operations & Maintenance (O&M) Manual

3.2.1 The Owner shall prepare and implement an operations and maintenance manual for Sewage Works within the Authorized System on or before December 31, 2023, that includes or references, but is not necessarily limited to, the following information:

- a) Procedures for the routine operation of the Sewage Works;
- b) Inspection programs, including the frequency of inspection, and the methods or tests employed to detect when maintenance is necessary;
- c) Maintenance and repair programs, including:
  - i The frequency of maintenance and repair for the Sewage Works.
  - ii Clean out requirements for any storage or overflow tanks, if applicable.
- d) Operational and maintenance requirements to protect sources of drinking water, such as those included in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies;

- e) Procedures for routine physical inspection and checks of controlling systems (e.g., SCADA) to ensure the mechanical integrity of Equipment and its accuracy on the controlling system.
- f) Procedures for preventing odours and odour impacts;
- g) Procedures for calibration of monitoring Equipment (e.g., flow, level, pressure);
- h) Emergency Response, Spill Reporting and Contingency Plans and Procedures for dealing with Equipment breakdowns, potential Spills and any other abnormal situations, including notification to the SAC, the Medical Officer of Health, and the District Manager, as applicable;
- i) Procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken; and
- j) As-built drawings or record drawings of the Sewage Works.

3.2.2 The Owner shall review and update the O&M Manual and ensure that operating staff have access, as per O. Reg 129/04 (Licensing of Sewage Works Operators) under the OWRA. Upon request, the Owner shall make the O&M Manual available to Ministry staff.

3.2.3 The Owner shall revise the O&M Manual to include procedures necessary for the operation and maintenance of any Sewage Works within the Authorized System that are established, altered, extended, replaced, or enlarged after the date of issuance of this approval prior to placing into service those Sewage Works.

3.2.4 For greater certainty, the O&M Manual may be a single document or a collection of documents that, when considered together, apply to all parts of the Authorized System.

### 3.3 Collection System Overflows

3.3.1 Any CSO at a point listed in Table B4 of Schedule B is considered a Class 1 approved discharge type Spill under O.Reg.675/98:

- a) Where the CSO is as a result of wet weather events when the designed capacity of the Authorized System is exceeded;
- b) Where the CSO is a direct and unavoidable result of a planned repair and/or maintenance procedure, the Owner has notified the Local Ministry Office fifteen at least (15) calendar days

prior to the CSO and the Local Ministry Office has provided written consent of the CSO; or

- c) Where the CSO is planned for research or training purposes, the Owner has notified the Local Ministry Office fifteen at least (15) calendar days prior to the CSO and the Local Ministry Office has provided written consent of the CSO.

3.3.2 Any SSO at a point listed in Table B5 of Schedule B is considered a Class 1 approved discharge type Spill under O.Reg. 675/98:

- a) Where the SSO is a direct and unavoidable result of a planned repair or maintenance procedure and the Owner has notified the Local Ministry Office at least fifteen (15) calendar days prior to the SSO and the Director for the purposes of s.4 of O. Reg. 675/98 under the EPA has provided written consent of the SSO; or
- b) Where the SSO is planned for research or training purposes, the Owner has notified the Local Ministry Office at least fifteen (15) calendar days prior to the SSO and the Director for the purposes of s.4 of O. Reg. 675/98 under the EPA has provided written consent of the SSO.

3.3.3 On or before May 19, 2025, the Owner shall establish signage to notify the public, at the nearest publicly accessible point(s) downstream of any CSO outfall location identified in Schedule B, Table B4, and any SSO when the overflow is piped to a specified outlet point. If the nearest publicly accessible point is more than 100m away, then signage shall be established at the CSO or SSO outfall location. The signage shall include the following minimum information:

- a) Type of Collection System Overflow;
- b) Identification of potential hazards and limitations of water use, as applicable;
- c) ECA number and/or asset ID; and
- d) The Owner's contact information.

### 3.4 Monitoring

3.4.1 For a Collection System Overflow that occurs at a designated location, the following conditions apply:

- a) For CSO storage tanks/facilities listed in Table B3, the Owner shall:
  - i intentionally deleted to preserve numbering.
  - ii On or before November 19, 2022 or within six (6) months of the date of the publication of the Ministry's monitoring guidance, whichever is later, collect a composite sample of the combined Sewage from the CSO tank whenever the tank(s) is(are) in operation. If there is more than one tank, the tank nearest to the discharge point shall be sampled. The composite sample shall consist, at a minimum, of one sample at the beginning of the Event, and one sample at approximately every 8-hours until the end of the Event. The composite sample shall be analyzed, at a minimum, for Biochemical Oxygen Demand (BOD) (or Chemical Oxygen Demand (COD) if agreed upon by the District Manager), total suspended solids, total phosphorus and total Kjeldahl nitrogen. If the CSO continues for more than one day, multiple composite samples are allowed.
  - iii If 3.4.1 a) ii) cannot be achieved, then surrogate sampling may be used to determine the contamination concentrations of the discharge CSO tank overflow, at a minimum, for BOD (or COD), total suspended solids, total phosphorus and total Kjeldahl nitrogen. The methodology in determining, applying, and analyzing surrogate sampling shall be proposed by the Owner and subject to the written approval of the District Manager.
- b) For CSO regulator structures listed in Table B2, and for any CSO or SSO locations listed under Table B4 or Table B5, the Owner shall:
  - i intentionally deleted to preserve numbering.
  - ii On or before November 19, 2022 or within six (6) months of the date of publication of the Ministry's monitoring guidance, whichever is later, take at least one (1) grab sample, for BOD (or COD, if agreed upon by the District Manager), total suspended solids, total phosphorus, total Kjeldahl nitrogen, and E. Coli, or
  - iii On or before November 19, 2022 or within six (6) months of the date of publication of the Ministry's monitoring guidance, whichever is later, use surrogate sampling to



determine the Contaminant concentrations of the discharged Collection System Overflow, at a minimum, for BOD (or COD), total suspended solids, total phosphorus, total Kjeldahl nitrogen, and E. Coli. The methodology in determining, applying, and analyzing surrogate sampling shall be proposed by the Owner and subject to the written approval of the District Manager.

- c) The Owner shall use the Event discharged volume and the concentrations as determined in condition 3.4.1 to calculate the loading to the Natural Environment for each parameter.

3.4.2 For any Spill of Sewage that does not meet 3.4.1 a) or b):

- a) Where practicable, take a least one (1) grab sample, for BOD (or COD, if agreed upon by the District Manager), total suspended solids, total phosphorus, total Kjeldahl nitrogen, and E. Coli
- b) The Owner shall use the discharged volume, where possible, and the concentrations as determined in condition 3.4.2 a) to calculate the loading to the Natural Environment for each parameter.

3.4.3 If COD sampling was completed, the equivalent BOD values are required to be included with the data reported to the Ministry.

3.4.4 The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:

- a) Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only)", as amended from time to time.
- b) The Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), as amended from time to time.
- c) The publication "Standard Methods for the Examination of Water and Wastewater", as amended from time to time.

## 4.0 Reporting

- 4.1 The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
- 4.2 Collection System Overflows
- 4.2.1 If the Collection System Overflow meets the criteria listed in condition 3.3.1 or 3.3.2:
- a) The Owner shall report the Event as a Class 1 approved discharge type Spill as soon as practicable to the Ministry either by a verbal to SAC or in an electronic format if the Ministry makes a system available;
  - b) The Owner shall report the Event to the local Medical Officer of Health in a manner agreed upon with the local Medical Officer of Health;
  - c) The manner of notification to the Ministry shall be in two (2) stages and include, at a minimum, the following information:
    - i The Asset ID, infrastructure description as detailed in Table B5 in Schedule B, the outfall location, and the Point of Entry (as applicable), and the reason(s) for the Event.
    - ii First stage of reporting:
      - a. The date and time (start) of the Event.
    - iii Second stage of reporting (as soon as practicable and may be reported at same time as first stage):
      - a. The date, duration, and time (start and end) of the Event;
      - b. The estimated or measured volume of the Event, accurate to at least +/- 20% of the volume;
        - i. If the volume of the Event is not readily available at the time of the second stage of reporting, the estimated volume can be provided to the Ministry within seven (7) calendar days of the second stage of reporting;
      - c. If any, summary of complaints, observed adverse impacts, any additional sampling obtained, disinfection, and any corrective measures taken;

- d) Upon request of the local office, the Owner shall within fifteen (15) calendar days of the occurrence of any Collection System Overflow, the Owner shall submit a full written report of the occurrence to the District Manager describing the cause and discovery of the Collection System Overflow, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, or an alternate report as agreed to in writing by the District Manager.

#### 4.3 Spills

4.3.1 If the Collection System Overflow does not meet the criteria listed in condition 3.3.1 or 3.3.2, or is otherwise considered a Spill of Sewage:

- a) The Owner shall report the Spill to SAC pursuant to O.Reg.675/98 and Part X of the EPA;
- b) The Owner shall report the Event to the local Medical Officer of Health in a manner agreed upon with the local Medical Officer of Health;
- c) In addition to the obligations under Part X of the Environmental Protection Act, the Owner shall, within fifteen (15) calendar days of the occurrence of any reportable Spill, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, actual/estimated volume of the Spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

4.4 If the Owner is unable to determine the volume of a Collection System Overflow for the purpose of reporting, the Owner shall develop procedures that enable estimated or measured volumes to be included in the required reporting for any Collection System Overflow occurring on or after May 19, 2023.

4.5 The Owner shall follow the direction of the Ministry and the local Medical Officer of Health regarding any Collection System Overflows.

4.6 The Owner shall prepare an annual performance report for the Authorized System that:

- 4.6.1 Is submitted to the Director on or before March 31<sup>st</sup> of each year and covers the period from January 1<sup>st</sup> to December 31<sup>st</sup> of the preceding calendar year.

- a) For clarity, the first report shall cover the period of January 1st, 2023 to December 31st, 2023 and be submitted to the Director on or before March 31st, 2024.
  - b) For the transitional period of January 1, 2022 to December 31, 2022, annual reporting requirements from previous ECAs pertaining to Spills only, where these occurred in the reporting period, and that have been revoked through issuance of this ECA shall apply.
    - i For the transitional period, condition 4.7.2 does not apply.
- 4.6.2 Is also submitted to the District Manager where a Collection System Overflow or Spill of Sewage has occurred in the reporting period.
- 4.6.3 If applicable, includes a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.
- 4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.
- 4.6.5 Includes a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.
- 4.6.6 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.
- 4.6.7 Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.
- 4.6.8 Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including:
- a) Dates;
  - b) Volumes and durations;
  - c) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli;

- d) Disinfection, if any; and
  - e) Any adverse impact(s) and any corrective actions, if applicable.
- 4.6.9 Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:
  - a) A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted.
  - b) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.
  - c) An assessment of the effectiveness of each action taken.
  - d) An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives.
  - e) Public reporting approach including proactive efforts.
- 4.7 The report described in condition 4.6 shall be:
  - 4.7.1 Made available, on request and without charge, to members of the public who are served by the Authorized System; and
  - 4.7.2 Made available, by June 1<sup>st</sup> of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet.

## **5.0 Record Keeping**

- 5.1 The Owner shall retain for a minimum of ten (10) years from the date of their creation:
  - 5.1.1 All records, reports and information required by this Approval and related to or resulting Alterations to the Authorized System, and
  - 5.1.2 All records, report and information related to the operation, maintenance and monitoring activities required by this Approval.

- 5.2 The Owner shall update, within twelve (12) months of any Alteration to the Authorized System being placed into service, any drawings maintained for the Municipal Sewage Collection System to reflect the Alteration of the Sewage Works, where applicable.

## **6.0 Review of this Approval**

- 6.1 No later than the date specified in Condition 1 of Schedule A of this Approval, the Owner shall submit to the Director an application to have the Approval reviewed. The application shall, at minimum:
- 6.1.1 Include an updated description of the Sewage Works within the Authorized System, including any Alterations to the Sewage Works that were made since the Approval was last issued; and
  - 6.1.2 Be submitted in the manner specified by Director and include any other information requested by the Director.

## **7.0 Source Water Protection**

- 7.1 The Owner shall ensure that any Alteration in the Authorized System is designed, constructed, and operated in such a way as to be protective of sources of drinking water in Vulnerable Areas as identified in the Source Protection Plan, if available.
- 7.2 The Owner shall prepare a "Significant Drinking Water Threat Assessment Report for Proposed Alterations" for the Authorized System on or before October 19, 2023 that includes, but is not necessarily limited to:
- 7.2.1 An outline of the circumstances under which the proposed Alterations could pose a Significant Drinking Water Threat based on the Director's Technical Rules established under the CWA.
  - 7.2.2 An outline of how the Owner assesses the proposed Alterations to identify drinking water threats under the CWA.
  - 7.2.3 For any proposed Alteration a list of components, Equipment, or Sewage Works that are being altered and have been identified as a Significant Drinking Water Threat.
  - 7.2.4 A summary of design considerations and other measures that have been put into place to mitigate risks resulting from construction or operation of the components, Equipment or Sewage Works identified in condition 7.2.3, such as those included in the Standard Operating Policy for Sewage Works.
- 7.3 The Owner shall make any necessary updates to the report required in condition 7.2 at least once every twelve (12) months.

- 7.4 Any components, Equipment or Sewage Works added to the report required in condition 7.2 shall be include in the report for the operational life of the Sewage Works.
- 7.5 Upon request, the Owner shall make a copy of the report required in condition 7.2 available to the Ministry or Source Protection Authority staff.

## **8.0 Additional Studies**

### **Assessment of Wet Weather Flows Compared to Dry Weather Flows**

8.1 This condition and the following requirements apply where:

- a) The Authorized System has no Combined Sewers or Partially Separated Sewers; and
- b) There has been one or more of: an STP Overflow, STP Bypass, or Collection System Overflow within the ten (10) year period starting January 1, 2012 and ending December 31, 2021.

The following requirements do not apply if:

- a) The Collection System Overflow is a result of emergency overflows at pumping stations during power outage or Equipment failure; and
- b) There has been no STP Overflow or STP Bypass.

8.1.1 The Owner shall conduct an assessment of Wet Weather Flows compared to the Dry Weather Flows in the Authorized System and/or to the STP(s) described in Schedule A, as per the following conditions:

- a) The assessment shall evaluate available data from the ten (10) year period starting January 1, 2012 and ending December 31, 2021.
- b) The assessment shall be completed and submitted to the Director by November 19, 2023.
- c) In the event that Wet Weather Flows in the ten (10) year period described above have created STP Bypasses or STP Overflows at the STP(s) specified in Schedule A or Collection System Overflows in an Average Year, then the study shall include:
  - i Actions and timelines to meeting the Procedure F-5-1 objectives;

- ii Review of causes of STP Overflow, STP Bypass and/or Collection System Overflow Events, including inflow and infiltration, sewer use, and characteristics of rainfall events, as applicable;
- iii Inspection of the Sewers and bypass structures; and
- iv Identification of any near and/or long-term corrective actions with anticipated timelines.

**Assessment of Conformance to Procedure F-5-1 and F-5-5**

8.2 This condition and the following requirements apply where:

- a) The Authorized System includes Combined Sewers or Partially Separated Sewers, and
  - b) The Authorized System experienced a Collection System Overflow, an STP Bypass, or STP Overflow within the ten (10) year period starting January 1, 2012 and ending December 31, 2021.
- 8.2.1 The Owner shall conduct an assessment to demonstrate conformance of the Authorized System to Procedure F-5-1 or Procedure F-5-5, as applicable, in accordance with the following conditions:
- a) The assessment shall:
    - i Be prepared by a Licensed Engineering Practitioner and be submitted to the Director by November 19, 2023;
    - ii Be performed for each of the years 2012 through to 2021;
    - iii Include the number of Collection System Overflows as a result of storms that are not Significant Storm Events for each year;
    - iv Include the estimated length of Combined Sewers and Separate Sewers within the collection system;
    - v Include the date of the most recent PPCP;
    - vi Include the status of each action items specified in the PPCP, as applicable;
    - vii Include a summary of additional action items not specified in a PPCP which have been taken to prevent



Collection System Overflows in the ten (10) year period starting January 1, 2012 and ending December 31, 2021; and

- viii Identify timelines for achieving conformance to Procedure F-5-1 or Procedure F-5-5 objectives, as applicable.

8.2.2 The Owner shall submit a new or updated PPCP to the Director, no later than May 19, 2027, if:

- a) No PPCP exists for the Authorized System, or
- b) The PPCP for the Authorized System is older than ten (10) years as of December 7th, 2022.

8.2.3 The PPCP shall include, at minimum:

- a) Characterization of the Combined Sewer System (CSS) – Monitoring, modeling and other appropriate means shall be used to characterize the CSS and the response of the CSS to precipitation events. The characterization shall be based on the ten (10) year period starting January 1, 2012 and ending December 31, 2021 and include the determination of the location, frequency and volume of the CSOs, concentrations and mass pollutants resulting from CSOs, and identification and severity of suspected CSS deficiencies. Records shall be kept for CCS including the following:
  - i Location and physical description of CSO and SSO outfalls in the collection systems, emergency overflows at pumping stations, and bypass locations at STPs;
  - ii Location and identification of receiving water bodies, including sensitive receivers, for all Combined Sewer outfalls;
  - iii Combined Sewer system flow and STP treatment capacities, present and future (20-year timeframe) expected peak flow rates during dry weather and wet weather;
  - iv Capacity of all regulators;
  - v Location of cross connections between sanitary Sewage and Stormwater infrastructure; and

- vi Location and identification of infrastructure in the CSS where monitoring Equipment is installed.
- b) Operational procedures shall be developed including the following:
  - i Combined Sewer maintenance program; and
  - ii Regulator inspection and maintenance programs.
- c) An examination of non-structural and structural CSO control alternatives that may include:
  - i Source control;
  - ii Inflow/Infiltration reduction;
  - iii Operation and maintenance improvements;
  - iv Control structure improvements;
  - v Collection system improvements;
  - vi Storage technologies;
  - vii Treatment technologies; and
  - viii Sewer separation.
- d) An implementation plan with a schedule of all practical measures to eliminate dry weather overflows and minimize wet weather overflows, as well as an overflow percent reduction target.
  - i The implementation plan shall show how the minimum CSO prevention and control requirements and other criteria in Procedure F-5-5 are being achieved.

- 8.2.4 The Owner shall ensure that an updated PPCP for the Authorized System is prepared within ten (10) years of the date of that the previous PPCP was finalized.

### **Sewer Model**

- 8.3 The Owner shall prepare a new/updated Sewer model, within three (3) years of December 7th, 2022, if any of the following pertain to the Authorized System:

- 8.3.1 It includes Combined Sewers;

- 8.3.2 It services a population greater than 10,000; or
- 8.3.3 The Sewer model for the Authorized System was last updated prior to 2012 and 8.3.1 or 8.3.2 apply.

## **Schedule F: Residue Management**

System Owner	<b>The Corporation of the County of Brant</b>
ECA Number	<b>062-W601</b>
System Name	<b>County of Brant Sewage Collection System</b>
ECA Issue Date	<b>September 19, 2023</b>

### **1.0 Residue Management System**

1.1 Not Applicable:

<b>Project Number:</b>	
<b>Contractor &amp; Site Person:</b>	
<b>Contract Administrator:</b>	
<b>Report Author:</b>	
<b>Date:</b>	

This report confirms that any person authorized to carry out work on or to any aspect of the Municipal Sewage Collection System has been informed of the Environmental Compliance Act, all applicable regulations, and of the Environmental Protection Act, and has taken all measures to ensure that they have been complied with.

The following documentation is a reference to the Ministry of Environment, Conservation and Parks v.1.1 July 28,2022, Design Criteria for Sanitary Sewers, Storm Sewers and Force mains for Alterations Authorized under Environmental Compliance Approval. This form must be provided to the County of Brant via email and/or included with this report **(Check all Applicable Boxes)**:

## **A. INSPECTION AND TESTING REQUIREMENTS**

### **Section 8.1.3 Inspection and testing plans, MECP Design Criteria**

- ☐ The following has been submitted two (2) weeks prior to work commencement and reviewed/approved by the County of Brant:

Installation, Inspection and Testing Plan	Y/N
Work Procedure	
List of Equipment	
Contractor Schedule	
Safety Requirements and Procedures	
Emergency response plan	

### **Section 8.2 Inspections, MECP Design Criteria**

- ☐ All new, replaced, and rehabilitated Storm Main and Maintenance Holes are free from obstructions and defects. Satisfactory Inspection report provided in accordance with section 8.2 of MECP Design Criteria:

Inspection Method Used	Y/N
Visual Inspections as per OPSS.MUNI 433	
Closed-Circuit Television (CCTV) Inspection as per OPSS.MUNI 409	
Zoom Camera Inspections as per OPSS.MUNI 432	
Sonar Inspections as per OPSS.MUNI 435	
Laser Inspections as per OPSS.MUNI 434	

Report Received by: yyyy/mm/dd	Reviewed by:
--------------------------------	--------------

## Section 8.4 Deflection Testing, MECP Design Criteria

- ☐ Mandrel test **not** required to be performed for non-flexible pipes: Pipe details provided below.

Pipe Type:	Storm Sections:
------------	-----------------

- ☐ Mandrel test is required: performed in flexible pipe sections in accordance with OPSS.MUNI.438 at least 30 calendar days after backfilling but prior to paving. Satisfactory report provided.

Report Received by: yyyy/mm/dd	Reviewed by:
--------------------------------	--------------

## Material Parts List

- ☐ Parts list and documentation submitted and approved by County of Brant. Copies attached.

## Connection Point Drawing/Map

- ☐ Schematic or drawing showing approximate location of connection points attached.

Once all required testing has been successfully completed and passed, this report completed up to the "In-Service" section should be submitted to the County. Placing the storm sewer "in-service" will be authorized and scheduled after acceptance of this draft report. Once the storm sewer is "in-service" a final report will be updated and re-submitted with those details for final approval.

## B. MATERIALS AND MAINTENANCE DURING CONSTRUCTION

- ☐ All maintenance hole and catch basin lids/covers on new and existing structures, are protected from silt or debris infiltration. Type of protection used: \_\_\_\_\_
- ☐ All storm main PVC pipes and service laterals are installed with green color pipes.
- ☐ For pipe at 20% slope or greater: are anchored securely with concrete anchors or approved equivalent: Type of anchor used: \_\_\_\_\_

## C. STORM STRUCTURES SCHEDULE

- ☐ Storm Structures Schedule sheet is completed and attached to this report.

### **D. PHOTOS OF MAINTENANCE HOLE STRUCTURES**

- ☐ Photo of outside stacked maintenance hole structure taken including all pipe connections.
- ☐ Photo of inside stacked maintenance hole structure taken including all pipe connections.
- ☐ Photo of all pipe to maintenance hole connection taken.
- ☐ All photos taken includes description of maintenance hole identification and coordinates.

### **E. IN SERVICE CONNECTION(S)**

- ☐ 48hours notice provided to County to request placement of storm sewers “in-service”.
- ☐ County of Brant Inspector on site the witness storm sewer being placed “in-service”.

<b>Date Performed:</b> yyyy/mm/dd	<b>Witnessed by:</b>
-----------------------------------	----------------------

- ☐ Prior to “in-service” connection, preliminary report submitted by the third party: Sections A through D were complete and accurate.
- ☐ Connection point(s) was cored and *Kor-n-Seal pipe-to-maintenance hole connector* or equivalent was used to complete watertight connection to structures for pipe size 450mm diameter or smaller. Brick and parge connection for pipe size larger than 450mm diameter.
- ☐ After “in-service” connection, final report submitted by third party: Sections A through E were complete and accurate.
- ☐ Photo(s) of final connection attached to this report.

**Additional Comments:**

---

***This Section is to be Completed by the County of Brant***

<b>County of Brant Inspector (or designate) Signature</b>	<b>Date</b>

- ☐ A receipt of this final report has been attached to an email to the Director of Environmental Services and Environmental Services Technologist informing of the storm sewer system being placed in service.

<b>In service date:</b> yyyy/mm/dd	<b>Submitted by:</b>
------------------------------------	----------------------

*Appendix 1: Third Party Municipal Storm Collection and Connection Final Report*

*Appendix 2: Satisfactory Video Inspection Report*

*Appendix 3: Satisfactory Mandrel Test Report*

*Appendix 4: Storm Structure Schedule Sheet*

*Appendix 5: New Storm Infrastructure Construction Photos and Photo description*



<b>Project Number:</b>	
<b>Contractor &amp; Site Person:</b>	
<b>Contract Administrator:</b>	
<b>Report Author:</b>	
<b>Date:</b>	

This report confirms that any person authorized to carry out work on or to any aspect of the Municipal Sewage Collection System has been informed of the Environmental Compliance Act, all applicable regulations, and of the Environmental Protection Act, and has taken all measures to ensure that they have been complied with.

The following documentation is a reference to the Ministry of Environment, Conservation and Parks v.1.1 July 28,2022, Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval. This form must be provided to the County of Brant via email and/or included with this report **(Check all Applicable Boxes)**:

## A. INSPECTION AND TESTING REQUIREMENTS

### Section 8.1.3 Inspection and testing plans, MECP Design Criteria

- ☐ The following has been submitted two (2) weeks prior to work commencement and reviewed/approved by the County of Brant:

Inspection and Testing Plan	Y/N
Work Procedure	
List of Equipment	
Contractor Schedule	
Safety Requirements and Procedures	
Emergency response plan	

### Section 8.2 Inspections, MECP Design Criteria

- ☐ All new, replaced, and rehabilitated Sanitary Sewer and Maintenance Holes are free from obstructions and defects. Satisfactory Inspection report must be provided:

Method Used	Y/N
Visual Inspections as per OPSS.MUNI 433	

Method Used	Y/N
Closed-Circuit Television (CCTV) Inspection as per OPSS.MUNI 409	
Zoom Camera Inspections as per OPSS.MUNI 432	
Sonar Inspections as per OPSS.MUNI 435	
Laser Inspections as per OPSS.MUNI 434	

Report Received by: yyyy/mm/dd	Reviewed by:
--------------------------------	--------------

## Section 8.3 Leakage Testing, MECP Design Criteria

- ☐ Replacement of existing systems: This confirms that, all maintenance hole and service lateral external joints are wrapped with waterproofing membrane with a minimum of 300mm wide strip. Photos of all wrapped joints have been taken and attached to this report. Leakage test is **not** required on maintenance hole and sanitary main section where waterproof membrane is used.
- ☐ Where leakage test is required, test was performed to all new Sanitary Sewer and maintenance hole. Satisfactory leakage test report provided and attached.

Method Used	Y/N
Low Pressure Air Testing as per OPSS.MUNI 410, ASTM F1417 or ASTM C924M	
Water (Hydrostatic) Testing as per OPSS.MUNI410 or ASTM C969	
Vacuum Testing ASTM C1244/C1244M	

Report Received by: yyyy/mm/dd	Reviewed by:
--------------------------------	--------------

## Section 8.4 Deflection Testing, MECP Design Criteria

- ☐ Mandrel test **not** required to be performed for non-flexible pipes: Pipe details provided below.

Pipe Type:	Sanitary Sections:
------------	--------------------

- ☐ Mandrel test is required: performed in flexible pipe sections in accordance with OPSS.MUNI.438 at least 30 calendar days after backfilling but prior to paving. Satisfactory report provided.

Report Received by: yyyy/mm/dd	Reviewed by:
--------------------------------	--------------

## Material Parts List

- ☐ Parts list documentation submitted and approved by County of Brant. Copies attached.

## Connection Point Drawing/Map

- ☐ Schematic or drawing showing approximate location of connection points.

Once all required testing has been successfully completed and passed, this report completed up to the "In-Service" section should be submitted to the County. Placing the sanitary sewer "in-service" will be authorized and scheduled after acceptance of this draft report. Once the sanitary sewer is "in-service" a final report will be updated and re-submitted with those details for final approval.

**B. MATERIALS AND MAINTENANCE DURING CONSTRUCTION**

- ☐ All sanitary maintenance hole joints, sections, and inlet and outlet pipes are sealed with gasketed flexible watertight connections.
- ☐ All maintenance hole lids/covers on new and existing structures, are protected from silt or debris infiltration. Type of protection used: \_\_\_\_\_
- ☐ All PVC sanitary main pipes and service laterals are installed with green color pipes.
- ☐ For non-metallic forcemain: Tracer wire has been checked and confirmed conductivity.
- ☐ For pipe at 20% slope or greater: are anchored securely with concrete anchors or approved equivalent: Type of anchor used: \_\_\_\_\_

**C. SANITARY STRUCTURES SCHEDULE**

- ☐ Sanitary Structures Schedule sheet is completed and attached to this report.

**D. PHOTOS OF MAINTENANCE HOLE STRUCTURES**

- ☐ Photo of outside stacked maintenance hole structure taken including all pipe connections.
- ☐ Photo of inside stacked maintenance hole structure taken including all pipe connections.
- ☐ Photo of all pipe to maintenance hole connection taken.
- ☐ All photos taken includes description of maintenance hole identification and coordinates.

**E. IN SERVICE CONNECTION(S)**

- ☐ 48hours notice provided to County to request placement of sanitary sewers "in-service".
- ☐ County of Brant Inspector on site the witness sanitary sewer being placed "in-service".

**Date Performed:** yyyy/mm/dd

**Witnessed by:**

- ☐ Sanitary sewer system is water tight and waterproof membrane was used.
- ☐ Prior to "in-service" connection, preliminary report submitted by the third party: Sections A through D were complete and accurate.

- ☐ "In-service" connection is watertight. Connection point(s) was cored and *Kor-n-Seal pipe-to-maintenance hole connector* or equivalent was used and wrapped with waterproof membrane to complete watertight connection to structures for pipe size 450mm diameter or smaller. Brick and parge connection for pipe size larger than 450mm diameter and wrapped with waterproof membrane.
- ☐ After "in-service" connection, final report submitted by third party: Sections A through E were complete and accurate.
- ☐ Photo(s) of final connection attached to this report.

**Additional Comments:**

---

***This Section is to be Completed by the County of Brant***

County of Brant Inspector (or designate) Signature	Date

- ☐ A receipt of this final report has been attached to an email to the Director of Environmental Services and Environmental Services Technologist informing of the sanitary sewer system being placed in service.

<b>In service date:</b> yyyy/mm/dd	<b>Submitted by:</b>
------------------------------------	----------------------

*Appendix 1: Third Party Municipal Sewage Collection and Connection Final Report*

*Appendix 2: Satisfactory Video Inspection Report*

*Appendix 3: Satisfactory Mandrel Test Report*

*Appendix 4: Satisfactory Leakage Test Report*

*Appendix 5: Sanitary Structure Schedule Sheet*

*Appendix 6: Sanitary Service Connection Records and Photos and Photo Description*

*Appendix 7: New Sanitary Infrastructure Construction Photos and Photo description*

<b>Project Number:</b>	
<b>Contractor &amp; Site Person:</b>	
<b>Consultant &amp; Site Person:</b>	
<b>Report Author:</b>	
<b>Date:</b>	

This report confirms that any person authorized to carry out work on or to any aspect of the Municipal Sewage Collection System has been informed of the Environmental Compliance Act, all applicable regulations, and of the Environmental Protection Act, and has taken all measures to ensure that they have been complied with.

The following documentation is a reference to the Ministry of Environment, Conservation and Parks v.1.1 July 28,2022, Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval. This form must be provided to the County of Brant via email and/or included with this report **(Check all Applicable Boxes)**:

## A. INSPECTION AND TESTING REQUIREMENTS

### Section 8.1.3 Inspection and Testing plans, MECP Design Criteria

- ☐ The following has been submitted two (2) weeks prior to work commencement and reviewed/approved by the County of Brant:

Inspection and Testing Plan	Y/N
Work Procedure	
List of Equipment	
Contractor Schedule	
Safety Requirements and Procedures	
Emergency response plan	

### Section 8.5 Hydrostatic Testing, MECP Design Criteria

- ☐ Hydrostatic test performed to all new and rehabilitated/repared forcemain in accordance with OPSS.MUNI.412. Detailed information of the completed hydrostatic test is documented under Section E of this report.

### Material Parts List

- ☐ Approved parts list documentation signed.

**Connection Point Drawing/Map**

- ☐ Schematic or drawing showing approximate location of connection points.

Once all required testing has been successfully completed and passed, this report completed up to the "In-Service" section should be submitted to the County. Placing the sanitary forcemain sewer "in-service" will be authorized and scheduled after acceptance of this draft report. Once the forcemain sewer is "in-service" a final report will be updated and re-submitted with those details for final approval.

**B. MATERIALS AND MAINTENANCE DURING CONSTRUCTION**

- ☐ All sanitary forcemain joints, sections, and inlet and outlet pipes are sealed with gasketed flexible watertight connections.
- ☐ All sanitary forcemain mechanical joints are protected with corrosion protection system as specified by the contract document.

Type of corrosion protection used: \_\_\_\_\_

- ☐ All PVC sanitary main pipes and service laterals are installed with green color pipes.
- ☐ For non-metallic forcemain: Tracer wire has been checked and confirmed conductivity.

**C. SANITARY STRUCTURES SCHEDULE**

- ☐ Sanitary Structures Schedule sheet is completed and attached to this report.

**D. PHOTOS OF ALL MAINTENANCE CHAMBER, OUTLET MAINTENANCE HOLE STRUCTURE, AND ANY OTHER OPPORTUNENCES**

- ☐ Photo of outside stacked maintenance hole chamber taken including all pipe connections.
- ☐ Photo of inside stacked maintenance hole chamber taken including all pipe connections.
- ☐ Photo of all pipe to maintenance hole connection taken.
- ☐ Photos of all forcemain valves and other appurtenance taken.
- ☐ All photos taken includes description of structures identification and coordinates.

**E. TEMPORARY CONNECTION (SOURCE WATER FOR FORCEMAIN COMMISIONING)**

- ☐ Temporary connection(s) is approved by the Environmental Services Manager or the Environmental Services Superintendent.
- ☐ Temporary connection(s) installed is only used on new sanitary forcemain.
- ☐ Temporary connection(s) installed as per County of Brant Drawing 18-600 "Source Assembly for New or Temporary Watermains".

☐ Temporary connection(s) were witnessed by a County of Brant certified Water Operator.

**Name of Operator Witnessing Connection:** [Click here to enter text.](#)

Date:

Time:

## Temporary watermain connections to the system's distribution:

Location(s)	
Source Main Size (mm)	
No. of Fill Lines	
Fill Line Size (mm)	

## If forcemain was loaded via a water tanker:

Water Hauler Company Name	
Water Source	

☐ Backflow device(s) were installed by certified installer. A copy of certification and approved backflow test report is provided to the County of Brant Environmental Services department.

Certified Backflow Tester Name

- ☐ Reduced Pressure Backflow device(s) were installed.
- ☐ Water meter provided by the contractor and start and end reads photographed and provided to County of Brant Water Clerk for billing to the project.

Contact information for billing

☐ Water meter provided by the County of Brant and deposit made.

## Water meter reads:

	Read	Date
Start		
Finish		

## F. HYDROSTATIC PRESSURE TESTING as per Section 8.5 of the MECP Design Criteria

- ☐ The pressure test was performed as per OPSS 441.07.24.
- ☐ As a minimum, the hydrostatic test pressure of 1035 kPa (150 psi) was applied to all points of the forcemain within the test section for a period of two hours.



**Allowable Leakage (Litres)** = 0.082 litres per millimeter of pipe diameter per kilometer of forcemain per two hour test

$$0.082 \times \text{Click here to enter text.} \times \text{Click here to enter text.} = \text{Click here to enter text.}$$

*Pipe Diameter (mm)                      Watermain Length (km)                      Allowable Leakage (L)*

Please copy and paste the above formula and fill in for each size of watermain on this project.

In the table below, indicate the total allowable leakage.

## Record of Pressure Test:

<b>Pressure Test Start</b>	Date:	Time:
<b>Pressure Test Finish</b>	Date:	Time:
Total Allowable Leakage (L):		
Actual Leakage (L):		

- ☐ Section 8.5.2 Hydrostatic Testing, MECP Design Criteria: Water used in the hydrostatic testing was disposed to the Sanitary Sewer system

## G. SWABBING (FOR FORCEMAIN 150 METERS OR LONGER)

- ☐ The assembled forcemain, service line and appurtenances were filled with potable water to ensure that all surfaces in contact with the water were soaked for a minimum of 24 hours prior to swabbing or flushing.

<b>Fill Start</b>	Date:	Time:
<b>Soak Finish</b>	Date:	Time:

- ☐ Swab was polyurethane with a density of approx. 24.7 kg/m<sup>3</sup>.
- ☐ Swab was a minimum 50 mm greater in diameter than the forcemain and had a minimum length 1.5 times its diameter.
- ☐ Swab was not pre-loaded.
- ☐ Forcemain was full of water while swabbing.
- ☐ Swab was propelled within recommended target time between 0.5 to 1.0 m/sec or as per the satisfaction of the County.

## Swabbing took place as follows:

Launch Location	Run Length (m)	Min Time (@ 0.5 m/s)	Max Time (@ 1 m/s)	Actual Time	Retrieval Location
Source					

Launch Location	Run Length (m)	Min Time (@ 0.5 m/s)	Max Time (@ 1 m/s)	Actual Time	Retrieval Location
Source					

#### H. IN SERVICE CONNECTION(S)

- ☐ 48hours notice provided to County to request placement of sanitary forcemain sewers “in-service”.
- ☐ County of Brant Inspector on site the witness sanitary forcemain sewer being placed “in-service”.

<b>Date Performed:</b> yyyy/mm/dd	<b>Witnessed by:</b>
-----------------------------------	----------------------

- ☐ Sanitary forcemain sewer system is watertight. Waterproof membrane was used at the connection point of the downstream maintenance hole and any other location specified.
- ☐ Prior to “in-service” connection, preliminary report submitted by the third party: Sections A through G were complete and accurate.
- ☐ “In-service” connection is watertight. Connection point(s) was cored and *Kor-n-Seal pipe-to-maintenance hole connector* or equivalent was used and wrapped with waterproof membrane to complete watertight connection to structures for pipe size 450mm diameter or smaller. Brick and parge connection for pipe size larger than 450mm diameter and wrapped with waterproof membrane.
- ☐ After “in-service” connection, final report submitted by third party: Sections A through H were complete and accurate.
- ☐ Photo(s) of final connection attached to this report.

**Additional Comments:**

---

***This Section is to be Completed by the County of Brant***

County of Brant Inspector (or designate) Signature	Date

- ☐ A receipt of this final report has been attached to an email to the Director of Environmental Services and Environmental Services Technologist informing of the sanitary forcemain sewer system being placed in service.

<b>In service date:</b> yyyy/mm/dd	<b>Submitted by:</b>
------------------------------------	----------------------

*Appendix 1: Third Party Municipal Sewage Collection and Connection Final Report*

*Appendix 2: Sanitary Maintenance Hole Schedule Sheet*

*Appendix 3: Sanitary Service Connection Records and Photos and Photo Description*

*Appendix 4: New Sanitary Infrastructure Construction Photos and Photo description*