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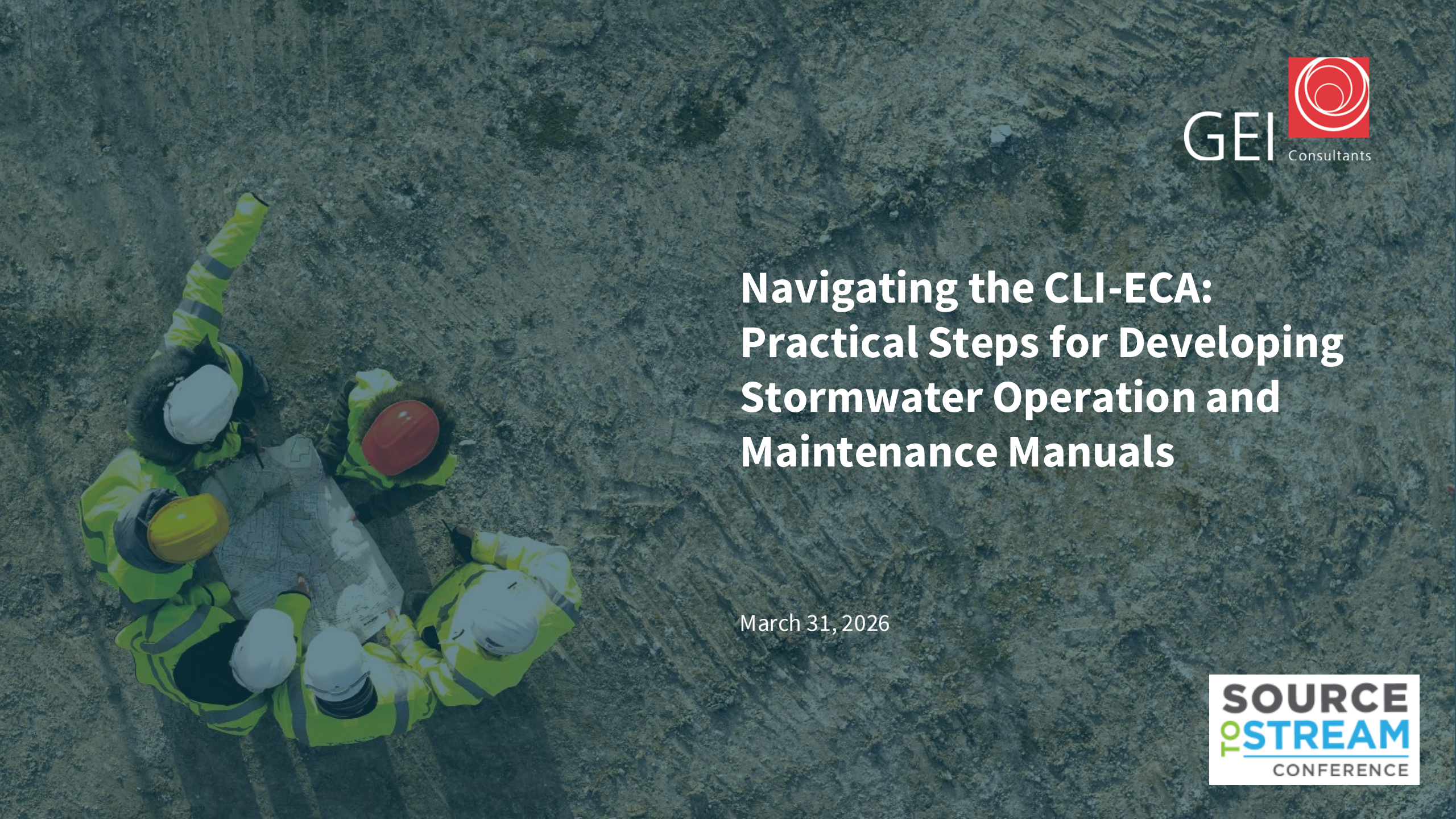
Lake Simcoe Region conservation authority

Credit Valley Conservation inspired by nature



GEI Consultants

Navigating the CLI-ECA: Practical Steps for Developing Stormwater Operation and Maintenance Manuals

March 31, 2026

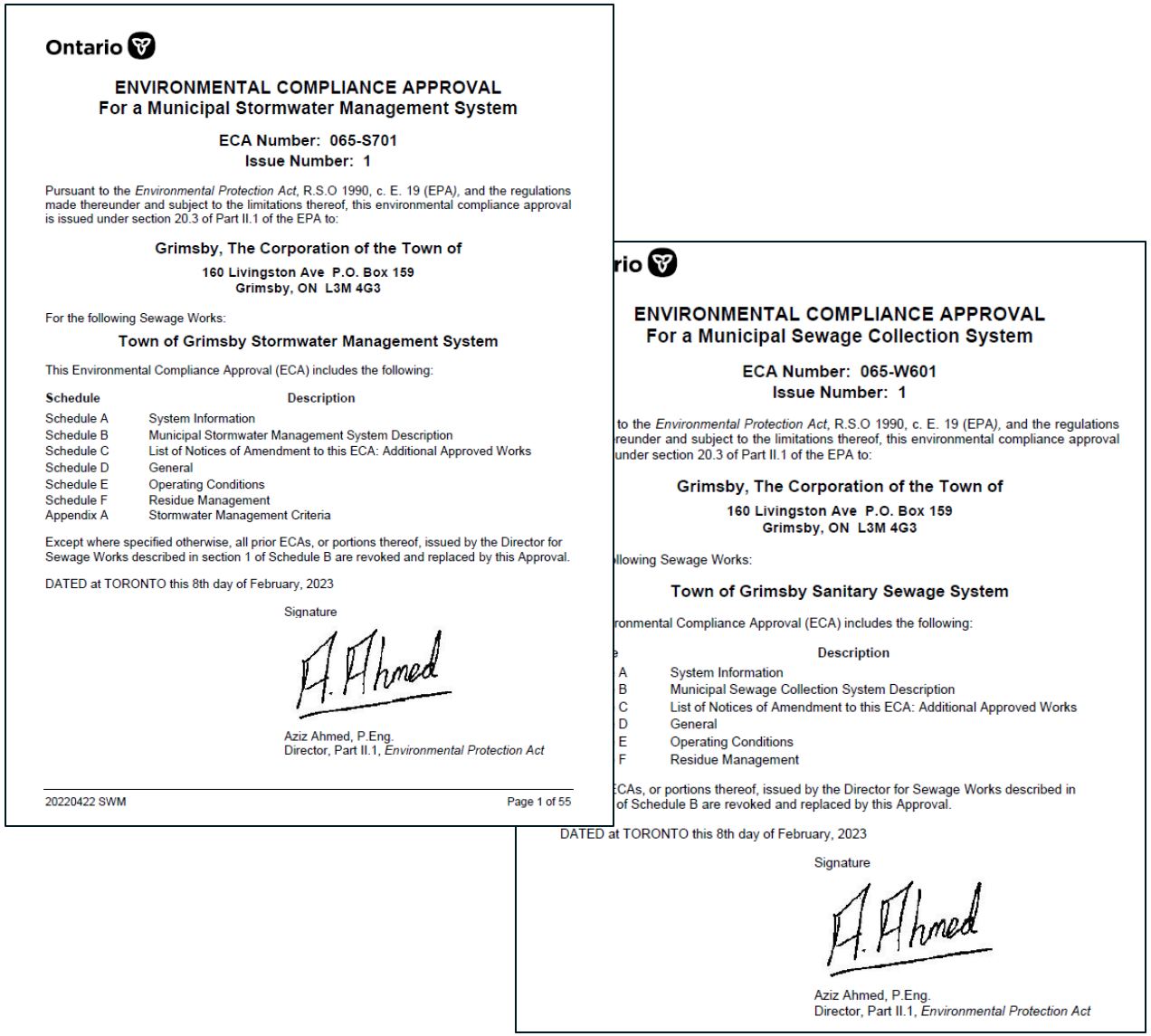
SOURCE TO STREAM CONFERENCE

AGENDA

1 Background
2 CLI ECA Conditions
3 O&M Procedures
4 O&M Forms
5 Visual Aids
6 Documentation & Reporting

Background

- A municipal Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) is a single environmental permission (issued by MECP) for all components of a municipal stormwater management system or a municipal sewage collection system
- It replaces the numerous ECAs that were previously issued for sections or components of a municipal system
- Issued under the Environmental Protection Act to fulfill Section 53 of the Ontario Water Resources Act
- Includes various conditions that authorize municipalities to make changes to the system when requirements are met



Ontario

ENVIRONMENTAL COMPLIANCE APPROVAL
For a Municipal Stormwater Management System

ECA Number: 065-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:

Grimsby, The Corporation of the Town of
160 Livingston Ave P.O. Box 159
Grimsby, ON L3M 4G3

For the following Sewage Works:

Town of Grimsby Stormwater Management System

This Environmental Compliance Approval (ECA) includes the following:

Schedule	Description
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 8th day of February, 2023

Signature

A. Ahmed

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

20220422 SWM Page 1 of 55

rio

ENVIRONMENTAL COMPLIANCE APPROVAL
For a Municipal Sewage Collection System

ECA Number: 065-W601
Issue Number: 1

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

Grimsby, The Corporation of the Town of
160 Livingston Ave P.O. Box 159
Grimsby, ON L3M 4G3

llowing Sewage Works:

Town of Grimsby Sanitary Sewage System

ronmental Compliance Approval (ECA) includes the following:

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

CAs, or portions thereof, issued by the Director for Sewage Works described in of Schedule B are revoked and replaced by this Approval.

DATED at TORONTO this 8th day of February, 2023

Signature

A. Ahmed

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

Background

- One of the CLI-ECA requirements is implementation of an Operations & Maintenance manual for the authorized Sewage Works
- Manual must include or reference items such as:
  - Operation procedures
  - Inspection programs
  - Maintenance & repair programs
  - O&M requirements to protect drinking water sources
  - Emergency response, spill reporting, contingency plans
  - Sampling, testing, monitoring procedures
  - Procedures for public complaints
  - As-built drawings

O&M Requirements

- Ensure system is properly operated and maintained in a state of good repair which includes:
  - Clean & maintain system so it performs as designed
  - Adequate funding
  - Adequate operator staffing & training
  - Adequate laboratory services, process controls, alarms, etc.
- All Works within Authorized System must be inspected at the frequency and in accordance with procedures in O&M manual

O&M Manual Sections

- Manual may be a single document or a collection of documents
- Often a collection of standard operating procedures (SOPs), forms, maps, schematics & reference information
- Manual Section suggestions:
    1. System Overview
    2. Inspection, Maintenance, and Repair
    3. System Operation
    4. Communication – Public Relations
    5. Emergency Response
    6. Sampling, Testing, Monitoring
    7. Appendices
    8. Technical Supporting Documents
        - Reference Guides
        - Figures, Forms, Databases, etc.

Authorized System Summary

- Storm Sewers
- Maintenance Holes
- Laterals
- Catch Basins
- Outlets
- Oil & Grit Separators
- Stormwater Pump Stations
- Stormwater Dry Ponds
- Stormwater Wet Ponds
- Low Impact Development technology
- Culverts/Ditches

Develop Procedures

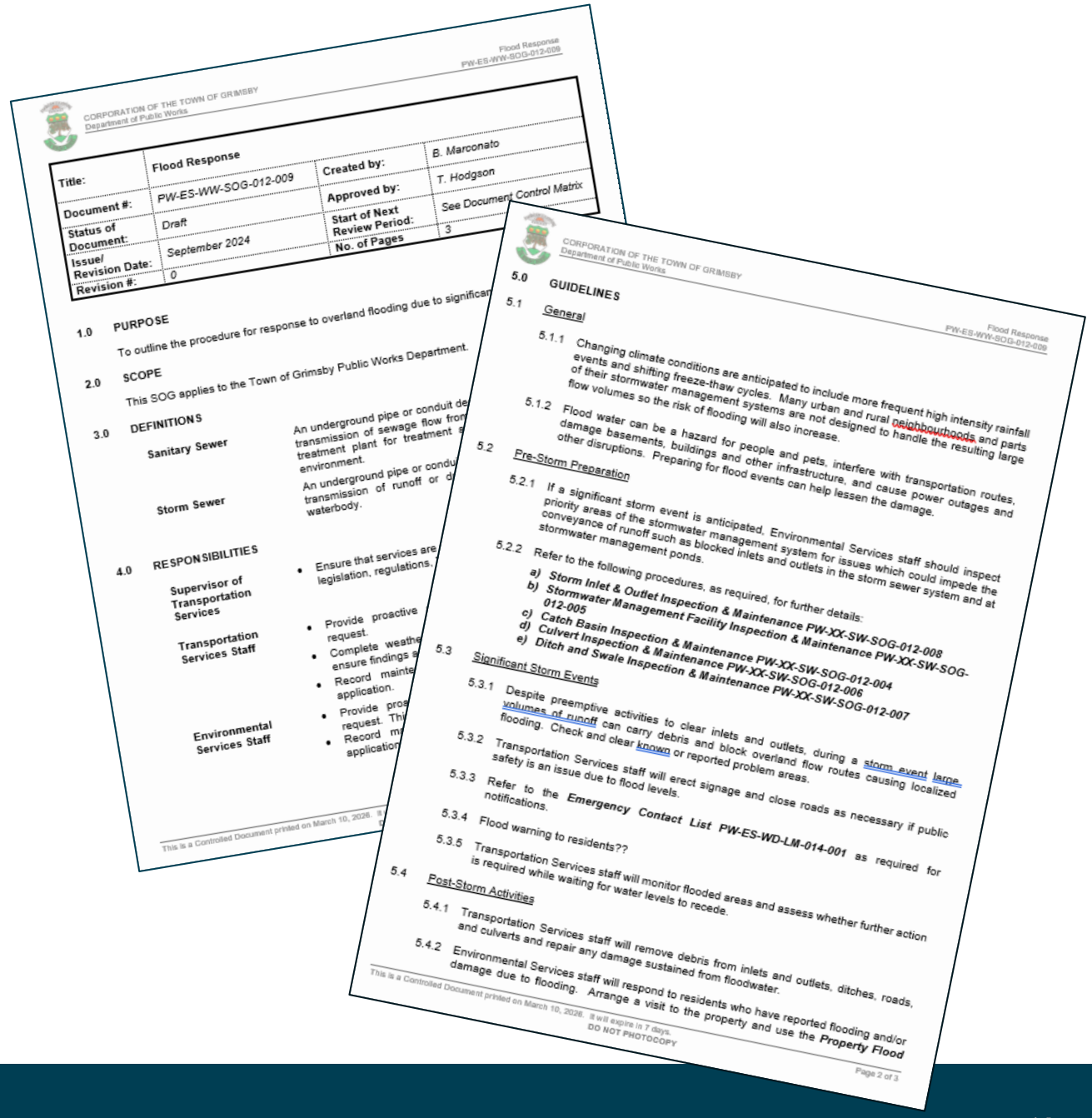
Meet with Operators, Engineering staff to determine practices for each asset:

- Inspection & Maintenance Activities
- Frequency
- Applicable Guidelines
- Visual aids/schematics
- Tracking method for activities completed

Procedure Structure

Typical Standard Operating Procedure:

- Title, Revision Date, Document ID, Created By
- Purpose
- Scope
- Responsibilities
- Definitions
- Guidelines
- Associated Documents
- References
- Revision History



CORPORATION OF THE TOWN OF GRIMSBY
Department of Public Works

Flood Response
PW-ES-WW-SOG-012-009

Title:	Flood Response	Created by:	B. Marconato
Document #:	PW-ES-WW-SOG-012-009	Approved by:	T. Hodgson
Status of Document:	Draft	Start of Next Review Period:	See Document Control Matrix
Issue/ Revision Date:	September 2024	No. of Pages	3
Revision #:	0		

1.0 PURPOSE

To outline the procedure for response to overland flooding due to significan

2.0 SCOPE

This SOG applies to the Town of Grimsby Public Works Department.

3.0 DEFINITIONS

Sanitary Sewer — An underground pipe or conduit de transmission of sewage flow from treatment plant for treatment environment.

Storm Sewer — An underground pipe or condu transmission of runoff or d waterbody.

4.0 RESPONSIBILITIES

Supervisor of Transportation Services
- Ensure that services are legislation, regulations,

Transportation Services Staff
- Provide proactive request.
- Complete weathe ensure findings
- Record mainte application.
- Provide pros request. Thi
- Record m application

Environmental Services Staff

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CORPORATION OF THE TOWN OF GRIMSBY
Department of Public Works

Flood Response
PW-ES-WW-SOG-012-009

5.0 GUIDELINES

5.1 General

5.1.1 Changing climate conditions are anticipated to include more frequent high intensity rainfall events and shifting freeze-thaw cycles. Many urban and rural neighbourhoods and parts of their stormwater management systems are not designed to handle the resulting large flow volumes so the risk of flooding will also increase.

5.1.2 Flood water can be a hazard for people and pets, interfere with transportation routes, damage basements, buildings and other infrastructure, and cause power outages and other disruptions. Preparing for flood events can help lessen the damage.

5.2 Pre-Storm Preparation

5.2.1 If a significant storm event is anticipated, Environmental Services staff should inspect priority areas of the stormwater management system for issues which could impede the conveyance of runoff such as blocked inlets and outlets in the storm sewer system and at stormwater management ponds.

5.2.2 Refer to the following procedures, as required, for further details:

a) ***Storm Inlet & Outlet Inspection & Maintenance PW-XX-SW-SOG-012-008***
b) ***Stormwater Management Facility Inspection & Maintenance PW-XX-SW-SOG-012-005***
c) ***Catch Basin Inspection & Maintenance PW-XX-SW-SOG-012-004***
d) ***Culvert Inspection & Maintenance PW-XX-SW-SOG-012-006***
e) ***Ditch and Swale Inspection & Maintenance PW-XX-SW-SOG-012-007***

5.3 Significant Storm Events

5.3.1 Despite preemptive activities to clear inlets and outlets, during a storm event large volumes of runoff can carry debris and block overland flow routes causing localized flooding. Check and clear known or reported problem areas.

5.3.2 Transportation Services staff will erect signage and close roads as necessary if public safety is an issue due to flood levels.

5.3.3 Refer to the ***Emergency Contact List PW-ES-WD-LM-014-001*** as required for notifications.

5.3.4 Flood warning to residents??

5.3.5 Transportation Services staff will monitor flooded areas and assess whether further action is required while waiting for water levels to recede.

5.4 Post-Storm Activities

5.4.1 Transportation Services staff will remove debris from inlets and outlets, ditches, roads, and culverts and repair any damage sustained from floodwater.

5.4.2 Environmental Services staff will respond to residents who have reported flooding and/or damage due to flooding. Arrange a visit to the property and use the ***Property Flood***

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DO NOT PHOTOCOPY

Page 2 of 3

Collection System

- Storm Sewer
  - Flushing & CCTV inspection by contractor, cycle, or as otherwise specified
- Maintenance Hole
  - Part of CCTV inspection or with other activities
- Laterals
  - Determine responsibility e.g., Private property owner
- Catch Basins
  - Inspection/cleaning cycle
- Storm Inlets & Outlets
  - Priority locations before/after significant rain events
- Culverts/Ditches – not usually part of Authorized System

Stormwater Management Facilities

- Stormwater Management Ponds and LIDs
  - Spring & Fall inspections
  - After significant storm events
  - Street sweeping frequency
- Oil and Grit Separators
  - Annual inspection or as specified (some locations may be fine with lower frequency)
  - Tracking spreadsheet or database

Performance Indicators

- Establish Operational Performance Indicators for each asset:
  - % of system flushed & CCTV
  - # of MHs inspected
  - % of CBs cleaned
  - #/frequency of pond, OGS inspections
  - % of asset in Poor condition
  - Property flooding, overflows
  - Complaints
- Tracking method/data storage to measure performance or issues over time

Inspection Forms

- Reference in SOPs
- Can serve as template or backup if move to digital collection methods
- Standardizes historical paper forms
- Example Forms:
  - Maintenance Hole Inspection Form
  - Catch Basin Inspection Form
  - Storm Outlet Inspection Form
  - Stormwater Wet Pond Inspection Form
  - Stormwater Dry Pond Inspection Form
  - Stormwater Facility Maintenance Log

Title:	***Stormwater Wet Pond Inspection Form***		
Document #:	*PW-XX-SW-FRM-012-002*	**Revision Number:**	*0*

Asset ID:	Location:
Access Issues:	
Date:	Time:
Weather:	
Inspector(s):	Signature(s):

INLET	N/A	No Issues	Continue to Monitor	Routine Maintenance Required	Immediate Repair Required	Please describe any immediate action taken:
Pipe condition						
Headwall condition						
Blockage/Debris/Sediment						
Other						
WATER OBSERVATION						
Oil sheen/Debris/Trash						
Algae						
Invasive species						
Sediment						Depth (m):
Odour						
High/low water elevation						Elevation (m):
Other						
POND BERMS						
Side-slope erosion						
Grass/Vegetation						
Animal Burrows						
Other						
OUTLET						
Pipe condition						
Headwall condition						
Displaced Rip-Rap						
Blockage/Debris/Sediment						
Other						
MISCELLANEOUS						
Signage						
Fence						
Access Road/Trail						

Comments:

Note: Upon completion, send a copy of this report to the Engineering Division.

Supervisor Name:	**Signature:**

Custom Forms

Example Form:

- Property Flood Response Form
- Spill Response Form
- Proactive public relations
- Records relevant data for future analysis
- Records data for MECP annual performance report

Title:	*Property Flood Response Form*		
Document #:	*PW-ES-WW-FRM-014-001*	**Revision Number:**	*0*

Address:		
Resident Name:		
Telephone:	Email:	
Date of Visit:	Date of Flood:	
Inspector:	Inspector:	
Date of Rainfall:	Depth (mm):	Peak Intensity (mm/hr):

FLOOD DETAILS

☐ Sanitary ☐ Storm ☐ Overland ☐ Combination	Entry Point/Source of Floodwater:
Description of Floodwater: ☐ Clear ☐ Dirty ☐ Sewage Odour	Extent/Depth of Floodwater (m):
Has this property flooded before? ☐ Yes ☐ No	Date(s) of Previous Flood(s), if known:
Years Resident has Lived at this Address:	

PROPERTY DETAILS

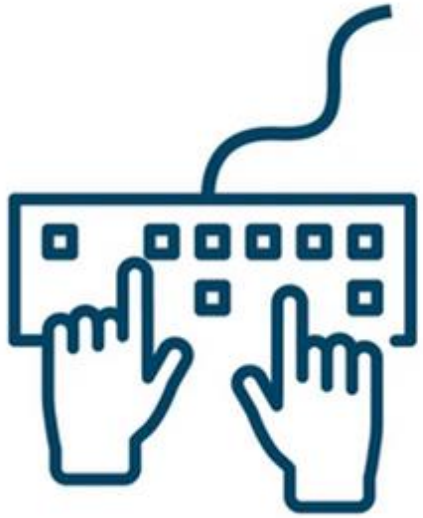
Service Lateral: ☐ Evidence of blockage ☐ Condition unknown	Lot Grading: ☐ Slopes away from home ☐ Flat	Reverse Driveway: ☐ No ☐ Yes
Downspouts: ☐ Connected to sewer #:____ ☐ Discharge to surface #:____ ☐ Discharge <1.5m from home #:__ ☐ Discharge >1.5m from home #:__	Sump Pump: ☐ No ☐ Yes Discharges to: ☐ Lawn/Garden ☐ Storm sewer ☐ Sanitary sewer ☐ Unknown	Backwater Valve: ☐ No ☐ Yes ☐ Maintained regularly ☐ Not Maintained

Additional Comments:

Upon completion, send a copy of this report to the Engineering Division.

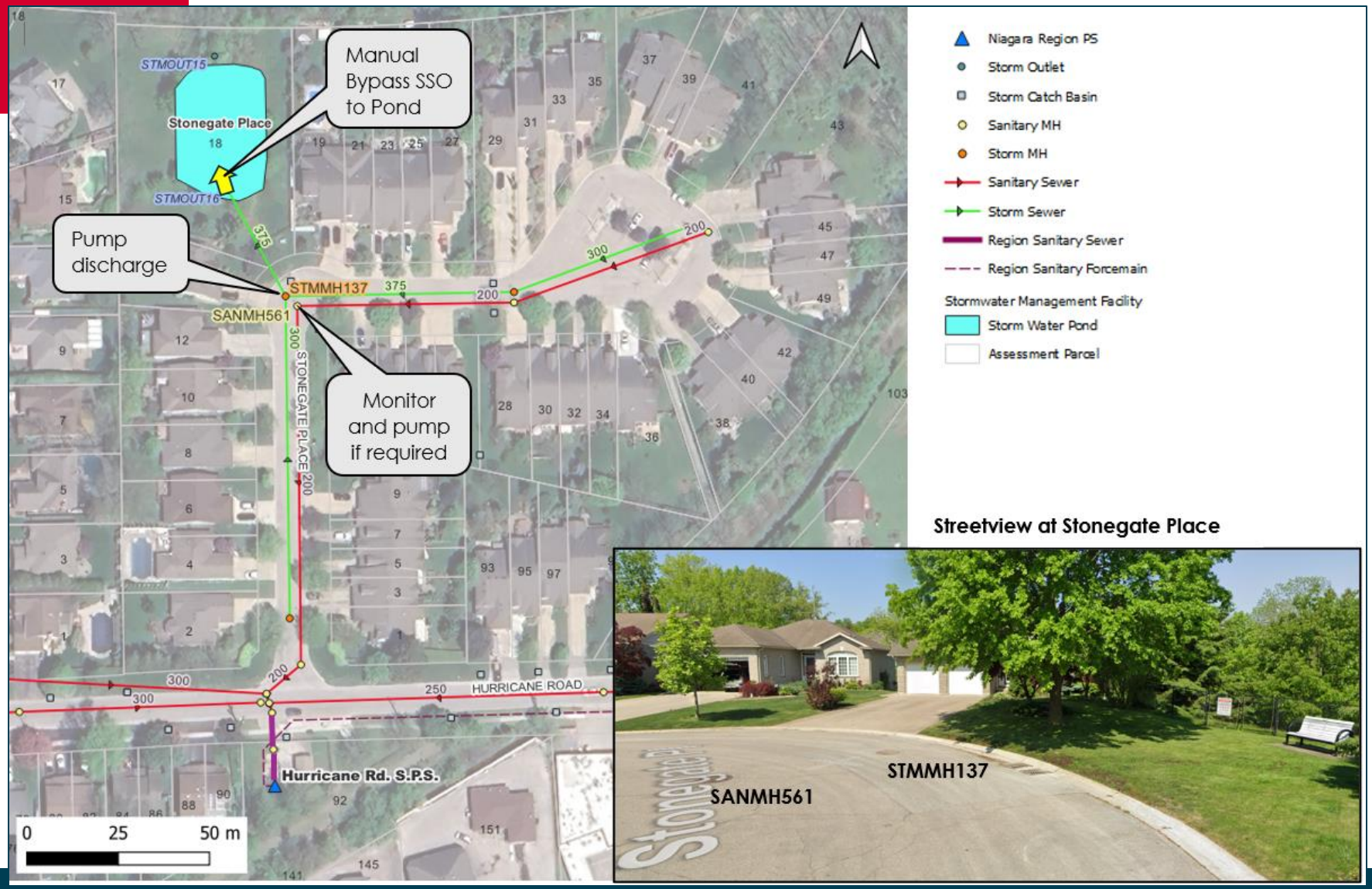
Documentation

- Enables tracking of all inspection/maintenance activities for historical reference, reporting, MECP requests
- Forms
- Databases
- Municipal web/form applications



Visuals

- Location maps
- Facility schematics
- Visual aids to illustrate emergency procedures



System Operation

- Drinking Water Source Protection
- Source Protection Plans under Conservation Authorities or stand-alone areas
- Intake Protection Zones
- Vulnerability score measures how easily contaminants may reach water intake
- Regulatory requirements based on score

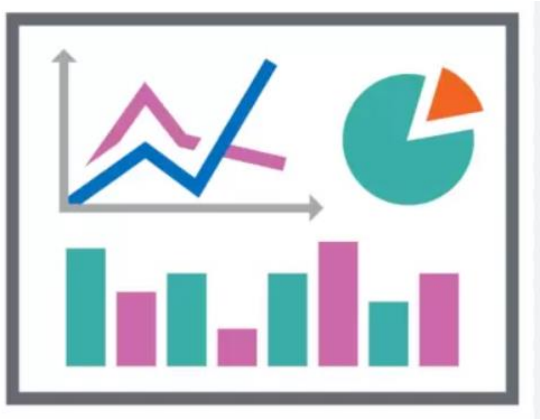
- Knowledge of storm sewer catchments/facilities/level of treatment for emergency situations (spills)

Conservation ONTARIO
Natural Champions

Annual Performance Reporting

O&M procedures lead to content for MECP Annual Performance Report:

- Inspection, maintenance, repairs
- Operating issues/corrective actions
- Complaints/resolutions
- Spills
- Monitoring & interpretation of data
- Calibration & maintenance of monitoring equipment



Quality Management System

- Written policies, procedures, guidelines for organization to manage processes
- Provides opportunity to identify, measure, control and improve operational tasks & performance over time
- Implemented to improve quality of service
- Numbered control system ensures documents are organized, identifiable, safely stored

O&M Manual Benefits

- Captures organizational knowledge from Operators & engineering staff
- Will mature over time as staff contribute & revise
- Supports new staff training
- Ease of Annual Performance Reporting
- Operational Performance Indicators support funding requests, identify system issues/improvements
- Supports Asset Management Plan
- Regular inspection/maintenance help assets perform to their design standards

Monitoring Plan

- Monitoring Plan development for stormwater management system awaiting MECP guidance document
- Procedures to assess environmental impact of system & corrective actions to improve identified conditions
- Storm sewer catchment maps for all outlets
- Level of treatment at outlets
- Review of existing Conservation Authority surface water quality monitoring

Questions

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