

# **Best Practices for Project Managers & Operational Teams**

## **Sewer Spills, Sewer Bypass & F-1007**

**Wastewater Linear Collections Group**

# Agenda



Spills & Best Practices



SFMP Process - City Spec F-1007

# Spills & Best Practices

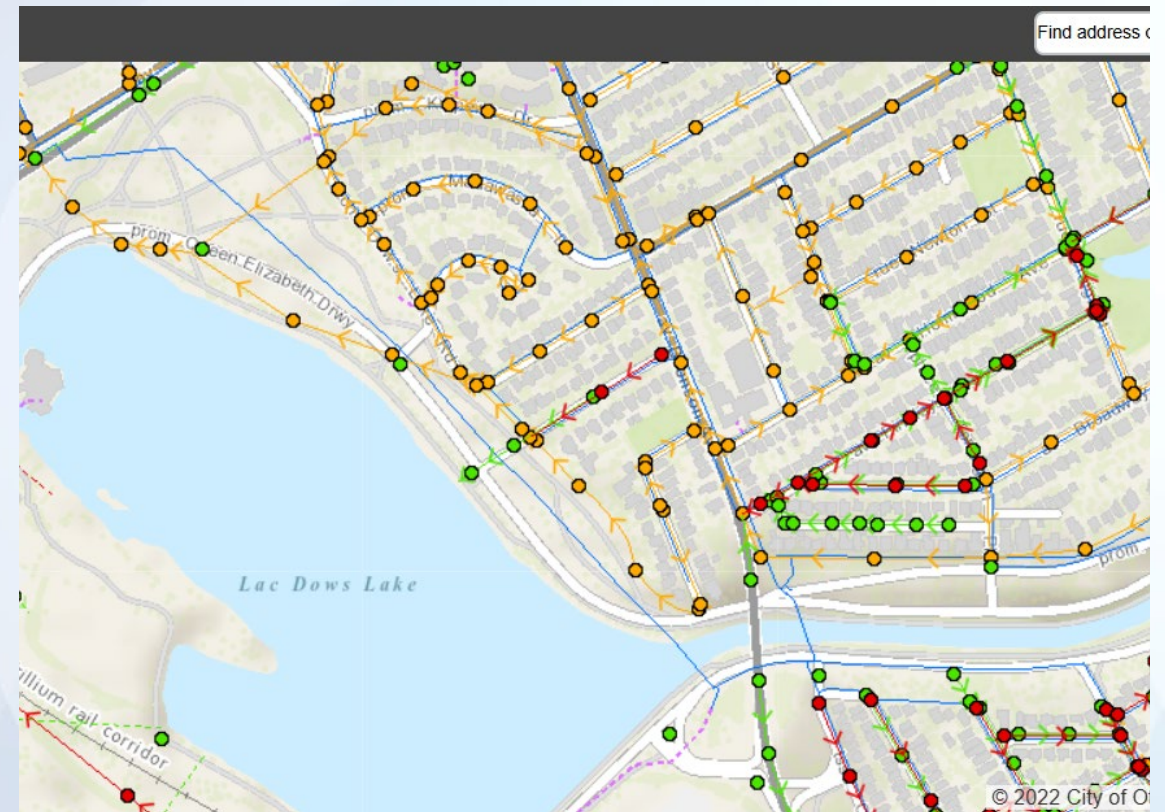
# City of Ottawa Sewer System

## Wastewater Network

- 2,846 km of sanitary sewers
- 108 km of combined sewers
- More than 92,000 manholes

## Storm Network

- More than 2,700 km of storm sewers
- 111,000 catch basins



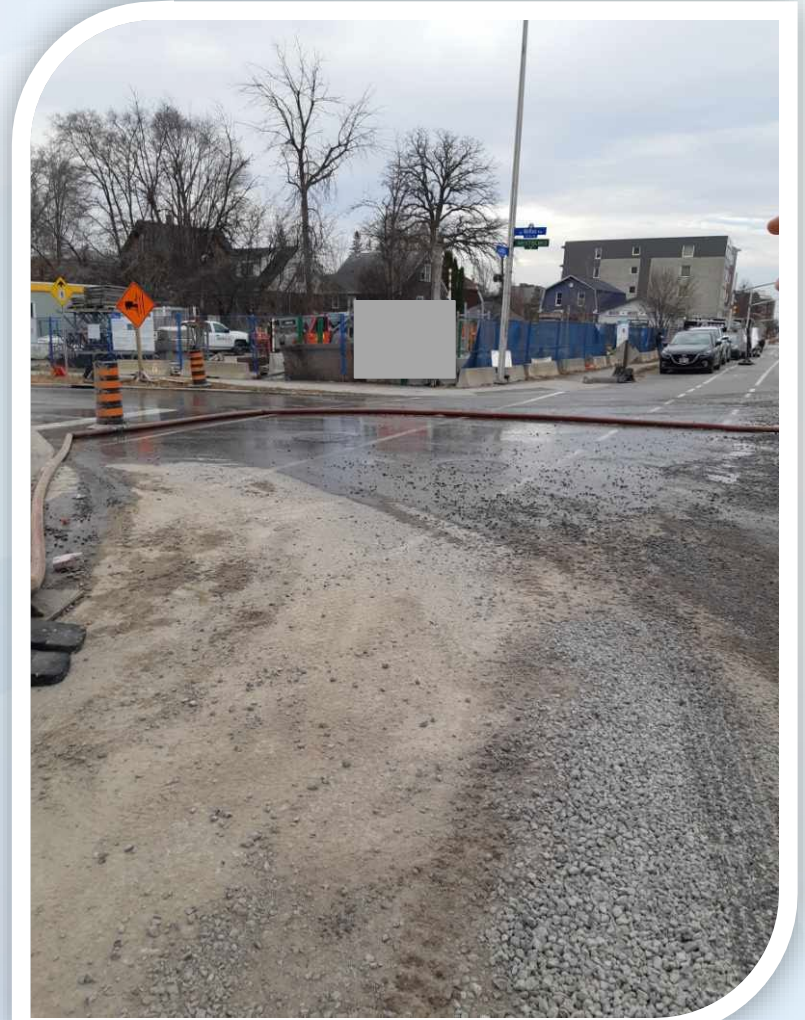
# We want to work with you!



# Spills

Per Environmental Protection Act a spill is used with reference to a pollutant, means a discharge,

- (a) into the natural environment,
- (b) from or out of a structure, vehicle or other container
- (c) that is abnormal in quality or quantity



# Spills & Sewers

Sewer related spills can be grouped under two (2) categories:

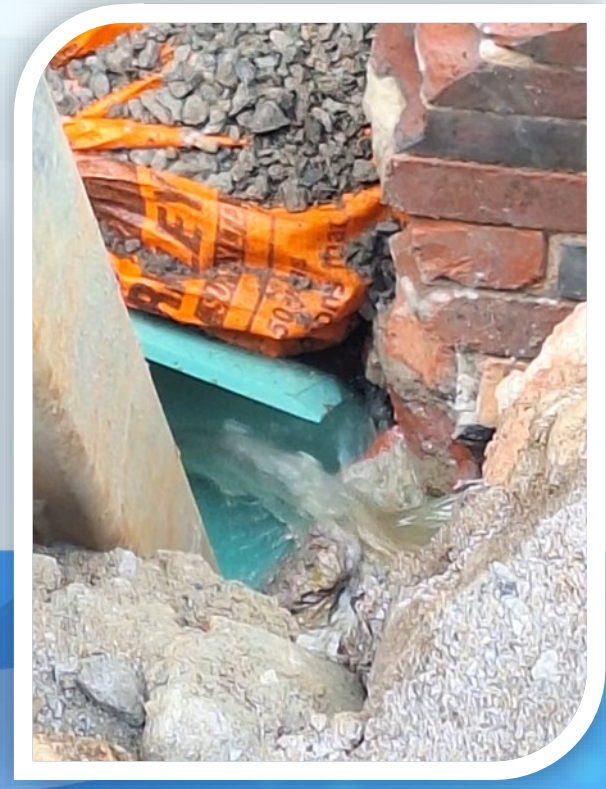
1. Sewage/Sewage by-products from a SANI/COMB sewer discharge into natural environment
2. Pollutants external to STRM System entering and impacting natural environment including watercourses



# Annual Spill Reporting Overview

Annually, via our Control Room at ROPEC we have reported close to 200 spills to Spills Action Centre (SAC):

- ❑ Spills from Sanitary/Combined Sewers
  - Sewage Spills from Bypass System
  - Sewage Spills as a result of exfiltration from gravity pipes
  - Odour Spills from Sanitary and Combined Sewers
- ❑ Spills impacting Storm Sewers
  - Vehicle Accidents liquid spills
  - Chemical spills
  - Construction debris spills





# Examples of Spills: SANI Connections

- Gravity pipe connection to an existing manhole
- Post construction CCTV identified Sewage exfiltration into surrounding environment



- Parge connection point to repair and stop exfiltration

# Examples of Spills during bypass operations:



- Sewage Spill from a leaking hose on a By-Pass Pump
- Leaky hose was fixed
- Hose was properly secured and protected against incoming traffic

# Examples of Spills (Managing local flow)



- Approved bypass plan involved setting up bypass from the nearest sanitary manhole
- During inspection, Licensed operator observed that the sewer pipe was cut and used a traffic cone for 'containment' and pump from



- Proper containment of the sewage in sewer pipe
- Proper containment for pump

# Spills Best Practices

- **Spill Response Plan(deliverable):** The plan describes planning, prevention and control measures to minimize impacts resulting from spills of sewage, chemicals and fuels at construction sites
- The plan covers the roles and responsibilities of the contractor including site inspection and supervision

**BASIC SPILL RESPONSE PLAN<sup>1</sup>**

Business Name: \_\_\_\_\_

Site Address: \_\_\_\_\_

Facility/Activity Description: \_\_\_\_\_

It is important that all employees be trained to carry out the spill response actions set forth below, and that each employee be familiar with the site drawing that shows where hazardous materials/substances, spill kits(s), and all potentially susceptible and vulnerable storm drains/catch basins are located (the site drawing may be deposited on the reverse side of this spill response plan).

**Response Actions in Case of a Spill:**

- 1) If possible, shut OFF the source of the spill immediately.
- 2) Notify spill cleanup person & other emergency contact(s) - owner, manager, etc.
- 3) Use absorbent materials, such as absorbents/pads, floor sweeping compound or kitty litter to contain spills that are relatively small in volume (e.g.) where the spilled chemical and its hazardous properties have been properly identified and assessed.
- 4) Use appropriate personal protective equipment depending on the spill material.
- 5) Cover/Block any storm/catch basins in the spill area to prevent material from draining into the stormwater system, sanitary sewer system or POTW system.
- 6) If possible, clean up the spill using absorbent materials. Collect these absorbent materials and treat as hazardous waste.
- 7) If the spill is large or otherwise uncontrolled, or poses potential immediate hazards to human health and safety, call Emergency Response Agencies immediately.

**Emergency Contacts:**

Spill Contact Person: \_\_\_\_\_ Phone #/s: \_\_\_\_\_

Owner: \_\_\_\_\_ Phone #/s: \_\_\_\_\_

Owner's Address: \_\_\_\_\_

Manager: \_\_\_\_\_ Phone #/s: \_\_\_\_\_

Other: \_\_\_\_\_ Phone #/s: \_\_\_\_\_

**List all Personal Protection Equipment (PPE's) for Handling Spill:**

\_\_\_\_\_

**List all Hazardous Liquids that May Spill:**

\_\_\_\_\_

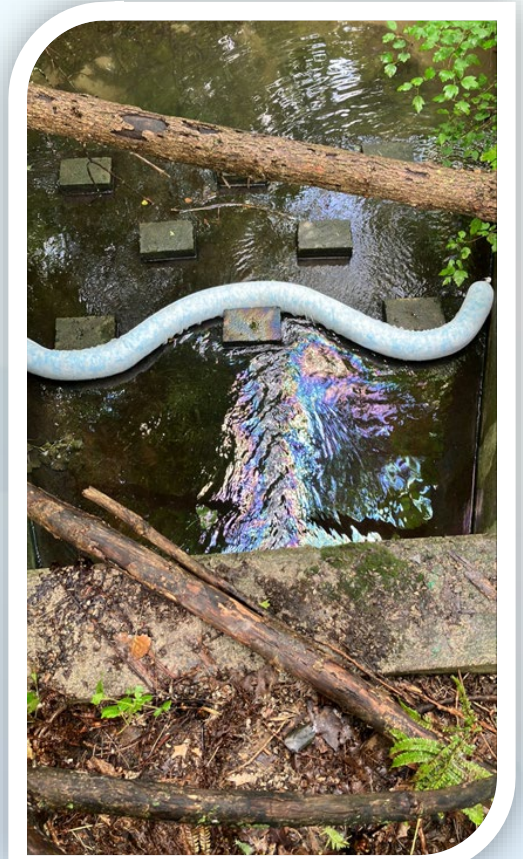
**Emergency Response Agencies:**

Fire/Police:	911
Washington Emergency Management:	1-800-756-5600
Department of Ecology (State Regional Office):	360-564-0000
Bedfordshire County Surface Water Management (Spill Hotline):	437-200-5491

<sup>1</sup>The Basic Spill Response Plan may be downloaded for all business sizes. Additional information and resources are available online at [www.ecy.wa.gov](http://www.ecy.wa.gov) & further information is available at [www.ecy.wa.gov](http://www.ecy.wa.gov) or by calling 1-800-756-5600 for a spill response kit.

# Cont'd: Spills Best Practices

- Ensure proper containment to prevent sewage or fuel leakage
- Use barriers, absorbents, or containment kits where necessary to protect sewers, CBs and water courses



# Cont'd: Spills Best Practices

- Provide on-site training regularly on spill procedure(s)
- Site inspections to identify potential spills, particular attention to hazardous materials such as chemicals, fuels, etc.



# Cont'd: Spills Best Practices

- Report spills immediately to Ministry of the Environment, Conservation and Parks Spills Action Centre (SAC): 1-800-268-6060
- Keep them up to date regarding actions taken so they can close the case.
- Keep detailed records of the spill, response actions, and resolution steps for compliance



# SFMP Process - City Spec F-1007

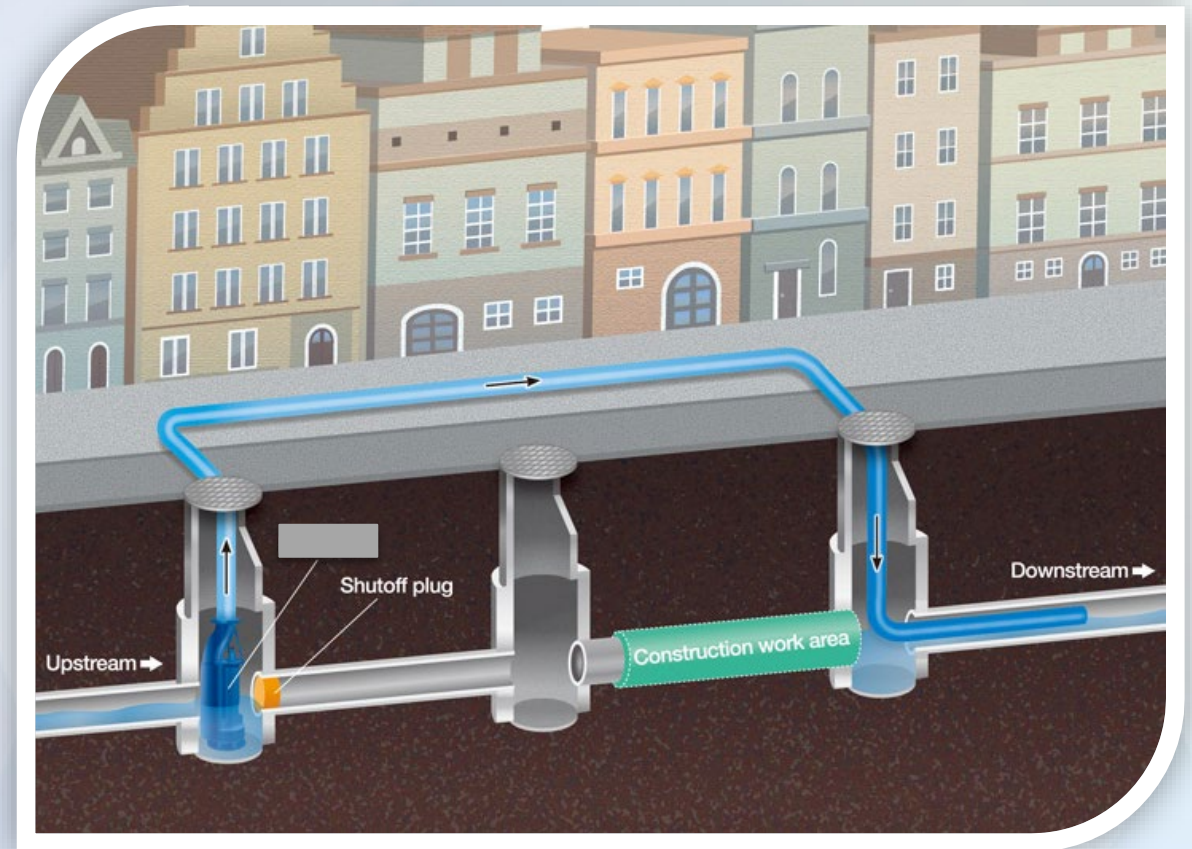


# Sewer BYPASS: City Specification F-1007

The **Sewer Flow Management Plan (SFMP)** outlines requirements for managing sewer flow and implementing bypass pumping during construction or rehabilitation of active sewer systems.

## Purpose:

- Ensure uninterrupted sewer service
- Prevent contamination or flooding
- Maintain compliance with all applicable regulations



# SFMP: F1007

Sewer Flow Management Plan City of Ottawa								
Form last updated May 2021								
City's Project Manager								
Project Number								
Contract Administrator								
Project Name								
Contractor's name								
City Site Inspector								
Contractor's Project Manager								
Date								
Document version #								
Review Deadline								
Reason for Sewer Flow Management Activity / Activities								
How many SFMA required?	(For the whole of the project)							
SFMA #	1	2	3	4	5	6	7	8
Starting day								
Starting time								
Duration per day								
Duration in days								
Method (gravity or pumping)								
This section is reserved for Ottawa WWC-LS authorities	<p>By submitting this SFMP the contractor recognizes he is responsible for the validity of the provided data as submitted and consequently he declares that those same data reflect reality. He declares he used those data, as presented, to establish the pumping requirements for each SFMA as declared. Should any problem arise, the contractor takes full responsibility for all misinterpretation, miscalculation, and consequently inappropriate pumping set-up that would have initiated the problem in question</p> <p>Additional documents to be attached:                      -Sewer Flow Management Activity level control strategy and procedure                      -Sanitary Spill Response Plan                      -Emergency Contact                      -Add a sketch of installations at the end of the document. The sketch must refer to SFMA# and also show discharge and entry points                      -Provide pump details and curves for each pump of different Make, model and capacity</p>							
Reception:								
Evaluation:								
Evaluated by:								
Approval Status:								
Approval Date:								
Fill in next sections as per number of SFMA required and attach all required documents to this plan								

SFMA #	Upstream Manhole	to	Downstream manhole					
1								
Flow will be altered from								
Describe installations and resulting flow alterations								
Is pipe isolation required?(Y/N) <i>If yes, fill in the next section</i>								
Describe the pipe isolation process (location, type of plug, number, duration, flow, etc)								
Any existing flow monitoring instrumentation within the works?								
<b>Troubleshooting</b> Describe the back up plans in case of pump failure, power loss, plugging of suction line, higher flows than expected, etc								
<b>Dismantling</b> Describe the dismantling process, plug removal, decontamination etc								
IN CASE OF PUMPING		Flow (Indicate LPS or GPM)	Storm or San?	Water Temp (Celsius)		Level in upstream manhole (M)		
		Expected	Peak	Expected	Max	Min	Set Point	Max
Number of Pumps								
Pump	#1	#2	#3	#4	#5	#6	#7	#8
Active or spare?								
Type (Suction Lift or Submersible?)								
Is it stainer? (Yes or No?)								
Float Switch?								
Make								
Model								
Capacity (L/s)								
Diesel or Electrical?								
Back-up Generator/Diesel Fueling program								
Noise Levels (DBA)								
Discharging into a Pressure line?								
Back-up Suction Lines?								
Suction diameter								
Discharge diameter								
Suction height								
Suction length								
Discharge height								
Discharge length								
Total dynamic head								
Calculated flow at TDH								

IN CASE OF GRAVITY FLOW								
Flow many conduits								
Conduit	#1	#2	#3	#4	#5	#6	#7	#8
Nature (Flexible or hard pipe?)								
Material								
Diameter								
Length								
Add a sketch of installations at the end of the document. The sketch must refer to SFMA# and also show discharge and entry points								
Copy underneath as many activity blocs as quantity of SFMA require								
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Copy underneath as many activity blocs as quantity of SFMA require								

# Main Components of F-1007

01

**SFMP  
Preparation  
and  
Approval**

02

**Flow  
Management  
Requirements**

03

**Design and  
Operational  
Consideration**

04

**Spill and  
Incident  
Management**

05

**Notifications  
and  
Inspections**

# 01- SFMP Preparation and Approval

- Submit a detailed SFMP for approval 3 weeks before work begins.
- The plan must address sewer flow management, bypass setup, and safety protocols.
- Approval is required from the Wastewater Linear Collection Engineering Team

# 02- Flow Management Requirements

- Sewer flow must remain uninterrupted during construction and non-construction period.
- Accepted methods include bypass pumping, in-pipe diversions, and gravity flow to ensure service continuity and permit compliance
  - Special requirements will be review case-by-case scenario
- Alternate Bypass Destination(s):
  - If bypass pumps flow into a parallel sewer (not directly downstream) additional review time will be required to analyze the impact on the receiving sewer network.
- Non-Traditional Bypass Methods: For unconventional methods (e.g., holding tank bypass), expect extended review timelines to ensure thorough evaluation.



# 03- Design and Operational Considerations

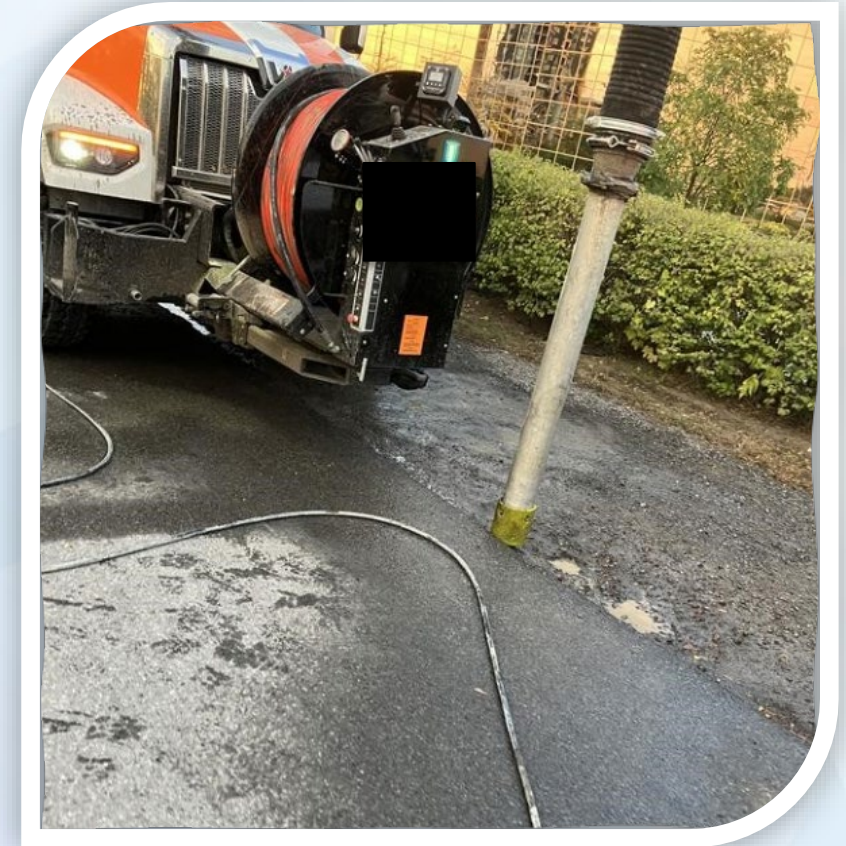
SFMP include:

- Bypass system descriptions
- Pump capacity
  - Include product specs, pump curves
  - Verify pump sizing—ensure it aligns with anticipated peak flows (avoid over or under-sizing)
  - Confirm suitability for hazard environments- Div.I vs. Div II (e.g., submersible pumps vs. suction lifts).
- Flow monitoring and noise mitigation
- Emergency procedures and public safety measures
- Equipment/Setup Protection:
  - Clarify measures to protect hoses, pumps from freezing or traffic impacts.



# 04- Spill and Incident Management

- Include a detailed plan on emergency response matrix, steps including spill response plan (minor & major)
- By including an emergency response matrix:
  - Contractors can then report, repair, and manage spills or basement backups promptly.



# 05- Notifications and Inspections

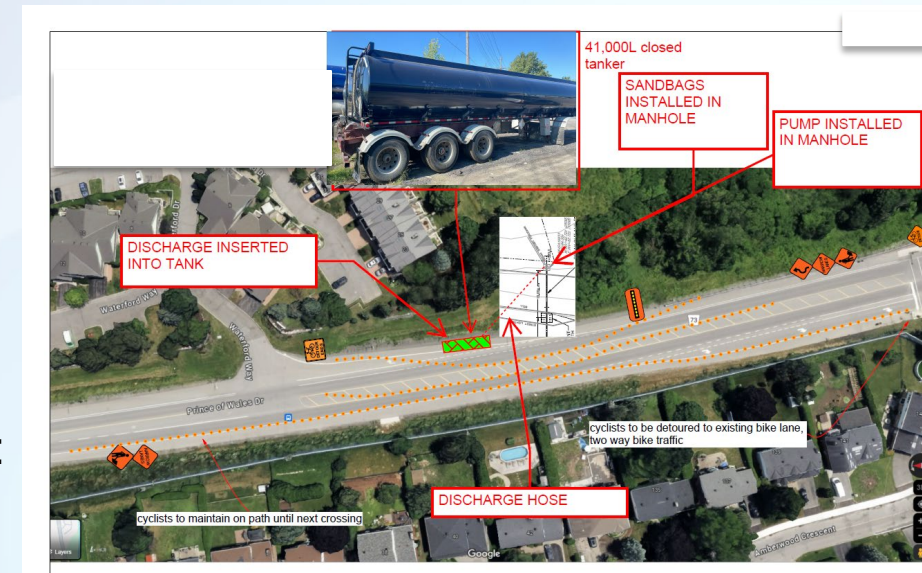
- Pre-Inspection by a licensed operator is mandatory requirement before any pumping begins
- Post-Inspection will be performed upon completion
- Notify the Contract Administrator before starting and after completing operations.





# Are You Looking for a Faster Turnaround Time?

- **F-1007 Table:** Complete all required fields accurately.
- **Bypass Sketch:** Include a clear, detailed sketch.
- **Pump Ratings:** Ensure pumps meet environmental classifications:
  - **Class I, Div I:** SAN & COMB
  - **Class I, Div II:** STRM
- **Structure and Project IDs:** Use **GIS structure IDs** when available; otherwise, provide project IDs with associated drawings
- **Schedule Details:** Include estimated start/end dates, times, and daily durations.
- **Submission Quality:** Complete and accurate submissions = expedited approval



# Thinking of BYPASS during WET WEATHER?

- Ensure SFMP include Wet Weather Contingencies
- Ensure pump is adequately sized to handle 1:5year STRM event
- Avoid (*if possible*) or minimize (*where feasible*) working during wet weather
- Pause & re-initiate after the wet weather conditions have passed/subsidized
- Account for a communication plan which includes reaching out to sewer operations (via 24/7 Control Room) in an event of an emergency



**WHEN IN DOUBT:** If you encounter situation where emergency, reach out to 24/7 Control Room



**24/7 Sewer Ops. Emergency Line = Control Room = 613 292 5805**

**What's Next?**

# WWLC and IS Committee Focus Areas and Ongoing Efforts

- ❑ **Spill Management:** The committee is currently addressing concerns raised by contractors regarding spill reporting (what is considered a spill and when it should be reported). We recommend that contractors contact us for guidance when spills occur, while the committee works on determining the next steps.
- 
- ❑ **Managing Local Flows:** We are in the process of developing specifications and best practices for managing local flows during operations. This includes defining industry standards for implementation.
- ❑ **Sewer Flow Management Plan:** The committee is exploring how best to ensure sewer flow management is considered during design and requirements are included in the tender, particularly for complex bypasses.

# WWLC and IS Committee Focus Areas and Ongoing Efforts(Cont.)

- ❑ **Wet Weather:** We are looking at conditions that would trigger wet weather so that by-pass pumping can be managed more efficiently.
  
- ❑ **Inspections by Licensed Operators:** We are exploring ways to optimize monitoring of inspections. We recognize there is room for improvement with scheduling in order to save time on both the City and contractor sides.
  
- ❑ **Feedback and Communication:**  
We are actively collecting feedback and encourage stakeholders to share their thoughts and ideas. Please direct any comments to the provided emails below for further discussion.
  - [Hassan.Chehade@ottawa.ca](mailto:Hassan.Chehade@ottawa.ca)
  - [Josee.Vallee@ottawa.ca](mailto:Josee.Vallee@ottawa.ca)

# Questions

