

# City of Grosse Pointe Park

## Sanitary Sewer System Inflow and Infiltration Investigation Smoke Testing

August 2017

One Team.

Infinite Solutions.



**Stantec**

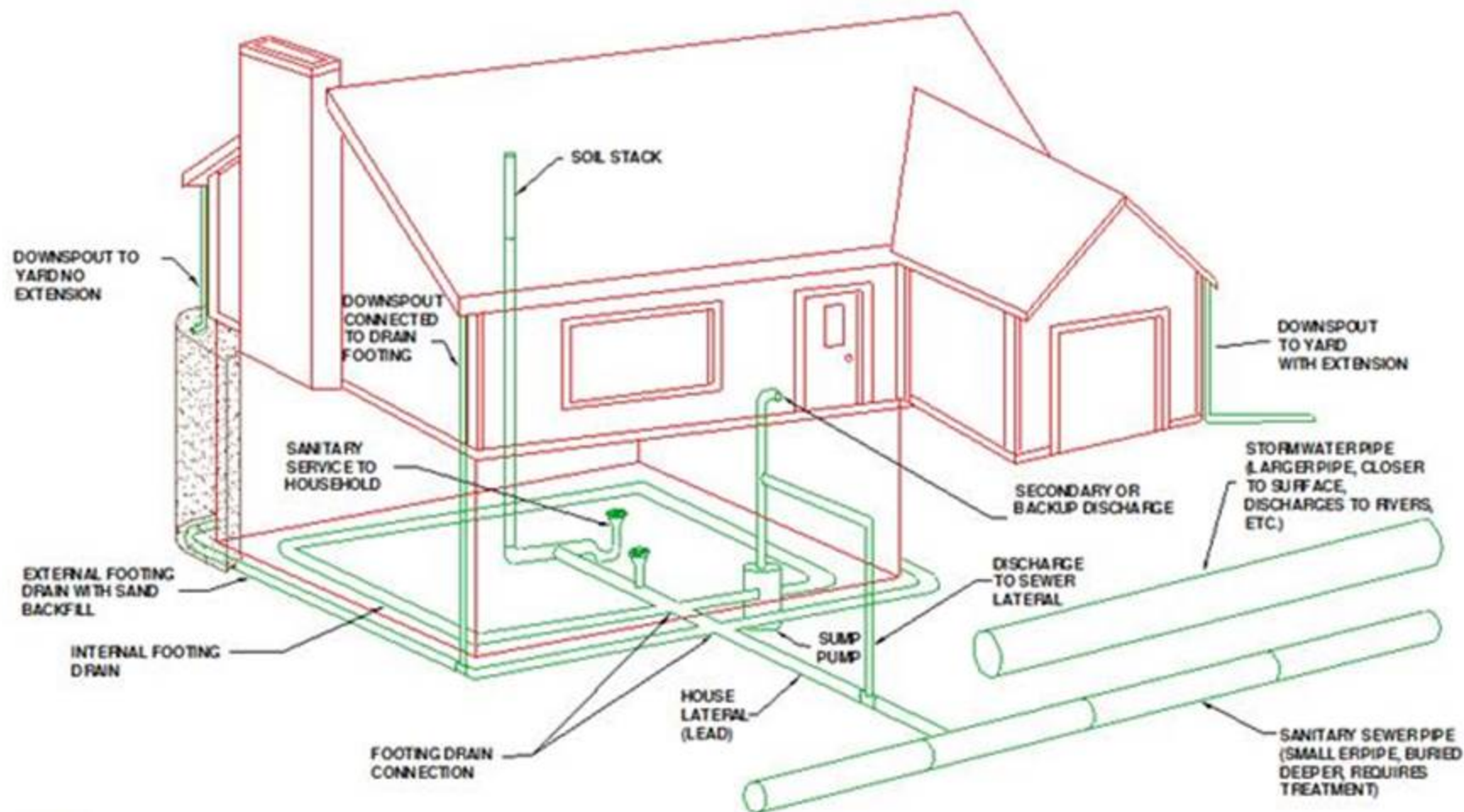
# Definitions

- **Sanitary Sewer System** – Sanitary sewer pipes and pump stations that collect wastewater and transport it to a wastewater treatment plant.
- **Dry Weather Flows** – Typical sanitary sewer flows between rainfall events.
- **Wet Weather Flows** – Typical sanitary sewer flows mixed with rain water that enters the sewer.

# Definitions

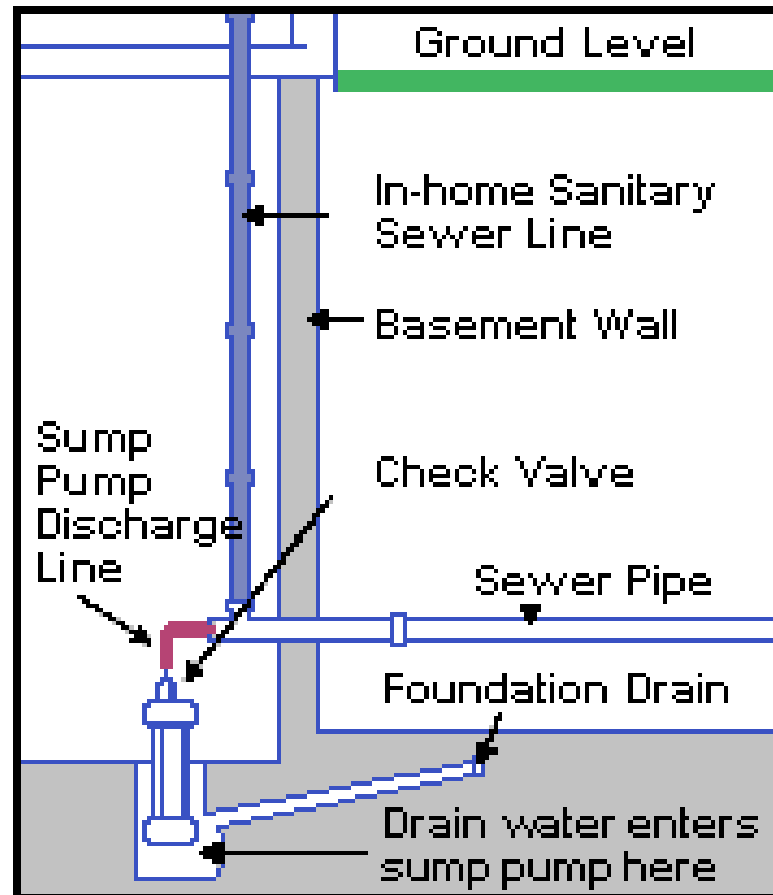
- **Infiltration** – When rain water or groundwater enters a sanitary system by passing through the ground and infiltrating the sewer through system cracks. This flow can typically occur for 3 to 5 days after a rainfall event.
- **Inflow** – When rain water or surface water enters a sanitary system through direct connections such as downspouts, sump pumps, storm sewer connections, or broken manholes. This flow typically has an immediate impact and is over within 24 hours of a rainfall event.
- **Infiltration and Inflow are normally referred to as I&I**

# How Do I&I Flows Enter The Sanitary System?



- To eliminate I&I, downspouts and footing drains should be connected to the sanitary sewer.

# How Do I&I Flows Enter The Sanitary System?



- To eliminate I&I, Sump Pumps should not be connected to the sanitary sewer.

# Typical Household Flows

- Average household wastewater flow:

- 145 to 175 gallons per day

- Typical rooftop runoff volume:

- 1500 square foot roof with downspout connections

- 1 inch rain event

- Approximately 1,000 gallons

- Typical sump pump flow:

- Approximately 2,400 gallons per hour

# Purpose of Project

Identify sources of rainwater inflow and infiltration to the sanitary sewer system and identify methods to remove excess wet weather flows from the sewer system.

## Removal Priorities

- **Priority 1 – Inflow** – Identification of inflow sources and removal solutions provide the biggest cost effective impact on a sanitary sewer system.
- **Priority 2 – Infiltration** – Identification of infiltration sources and removal solutions have a lower cost effective impact.

# How Are These Flows Identified?

- **Sewer televising** – Typically identifies cracked sewer system pipes and infiltration sources, but does not identify inflow sources.
- **Smoke testing** – Cost beneficial to identifying inflow sources and some infiltration sources when completed during dry weather months.
- **Dye testing** – Cost beneficial to identifying inflow sources from storm sewers and sump pumps.



# What Is Smoke Testing?

- Segregation of sanitary sewer section.
- Pressurization of sewer section with large power fan.
- Addition of non-toxic smoke while system under pressure.
- Visual inspection for smoke in yards, around homes, and area manholes to locate I/I sources.

# Smoke Testing

## What Will We Do?

- Door hanger notifications will be distributed to areas impacted by smoke testing.
- Assist homeowners who are unsure if they have properly prepared their home for testing.
- Provide immediate response to anyone who identifies smoke inside their home. (Use door hanger contact information).

# Smoke Testing

## What You Should Do?

Once you receive a red door hangar confirming smoke testing the week of:

- Make sure to run water in all drains (for 1 minute) in tubs, showers, sinks, and floor drains.
- Fill sump pump with enough water to cover pump inlet.
- If a floor drain is known to not have a water trap, notify the City and cover it with a wet rag.
- Educate your neighbors who did not go through this presentation.
- Contact smoke testing crew immediately if smoke is detected inside of home.

# What You Should Do If Smoke Enters Your home ?

- The smoke used is **NON-TOXIC, NON-STAINING, HAS MINIMUM ODOR, WHITE TO GRAY IN COLOR AND CREATES NO FIRE HAZARD.**
- Open windows/doors to provide ventilation
- Contact the City of Grosse Pointe Park Department of Public Works, Tom Vandeputte at 313-822-5100.

# What if I still Have Questions?

Please contact:

Tom Vandeputte, Department of Public Works

at

313-822-5100 or

[vandeputtet@grossepointepark.org](mailto:vandeputtet@grossepointepark.org)