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LIVINGSTON COUNTY

WSA

WATER & SEWER AUTHORITY

**Inflow and Infiltration Reduction Program
2024 Public Information Meeting
March 26, 2024 @ 6:00 pm**

Webinar Format

All participants will be muted during the presentation.

Attendance:

- Please use the “chat” feature to provide your name and address.

Questions:

- Questions will be addressed at the end; however, you may enter your questions into the chat box at any time.
- If you wish to speak, you may raise your hand to be unmuted using the “Raise hand” button under the “Reactions” feature.

Allow participant reactions 

 Raise hand

 Slow down

 Speed up

 Yes

 No

 Be right back

 Multitasking



Chat



Reactions



Record

Agenda

- Service Area Review
- Regulatory Facts & Impacts
- What is Inflow and Infiltration?
- Homeowner's Responsibilities
 - Sump Pump Disconnect Info
- How are we making progress?
 - LCWSA Projects

LIVINGSTON COUNTY

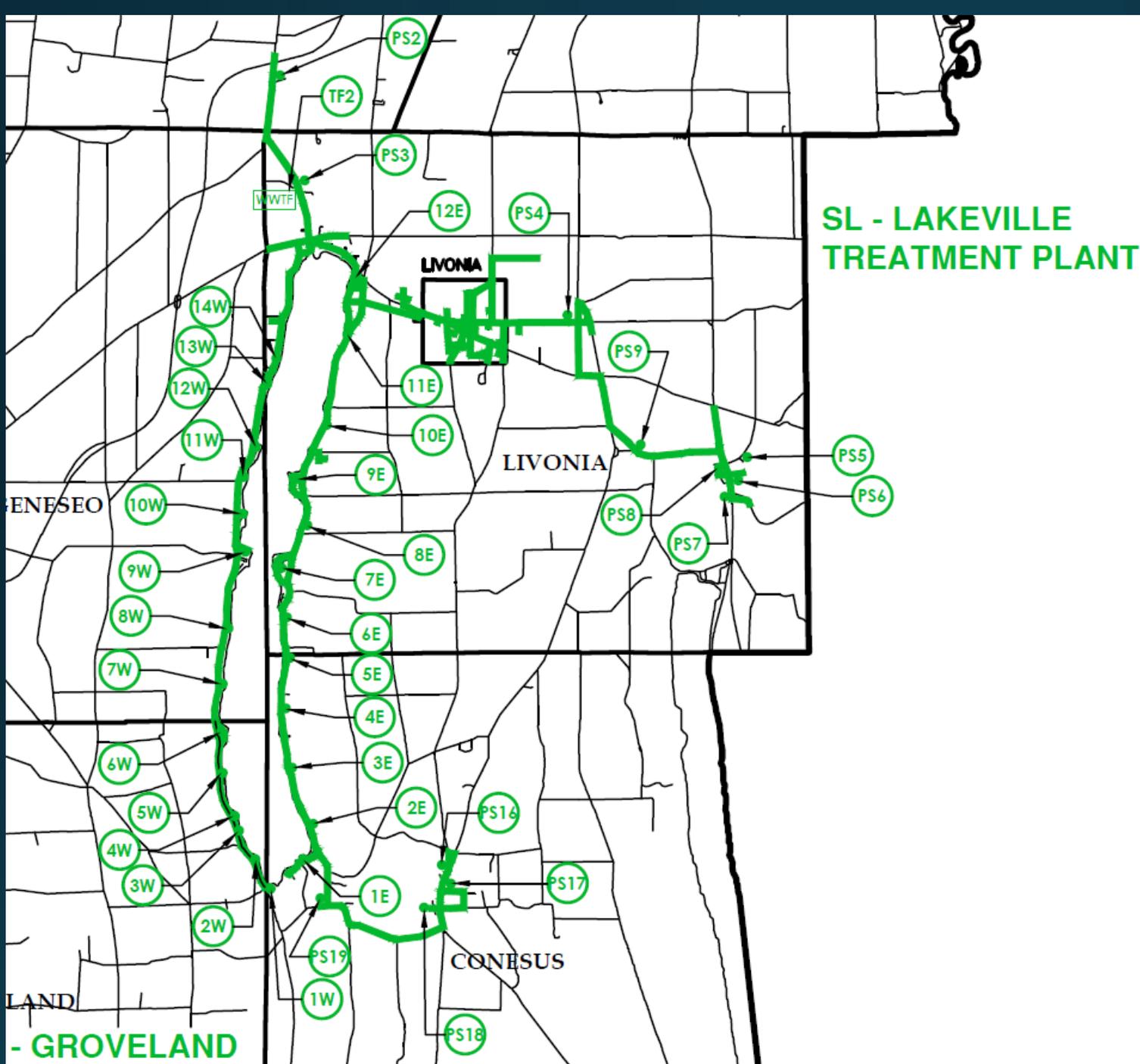
WSA

WATER & SEWER AUTHORITY



The LCWSA mission is to provide high quality, environmentally sound, efficient, reliable, and affordable water and sewer services to the people who live, work and visit Livingston County.

Lakeville Wastewater Treatment Plant Sewer Service Area



- Town of Livonia
 - Village of Livonia
 - Livonia Center
 - Lakeville
 - Hemlock
- Conesus
- Geneseo: West Lake Rd
- Groveland: West Lake Rd
- South Avon

Regulatory Facts:

- Lakeville Wastewater Treatment Plant is regulated by NYSDEC
- 2017: Permit allowed for 0.98 Million Gallons Per Day of treated wastewater discharge into the Conesus Creek.
- Since April 30, 2017, this limit was exceeded 9 times.
- 2018: Permit was approved for an increase to 1.27 MGD
- 2019: NYSDEC Consent Order
 - Fines of \$25,000
 - I&I Investigation
 - Implement Solutions
 - Create a Sewer Use Ordinance

Sewer Use Rules & Regulations

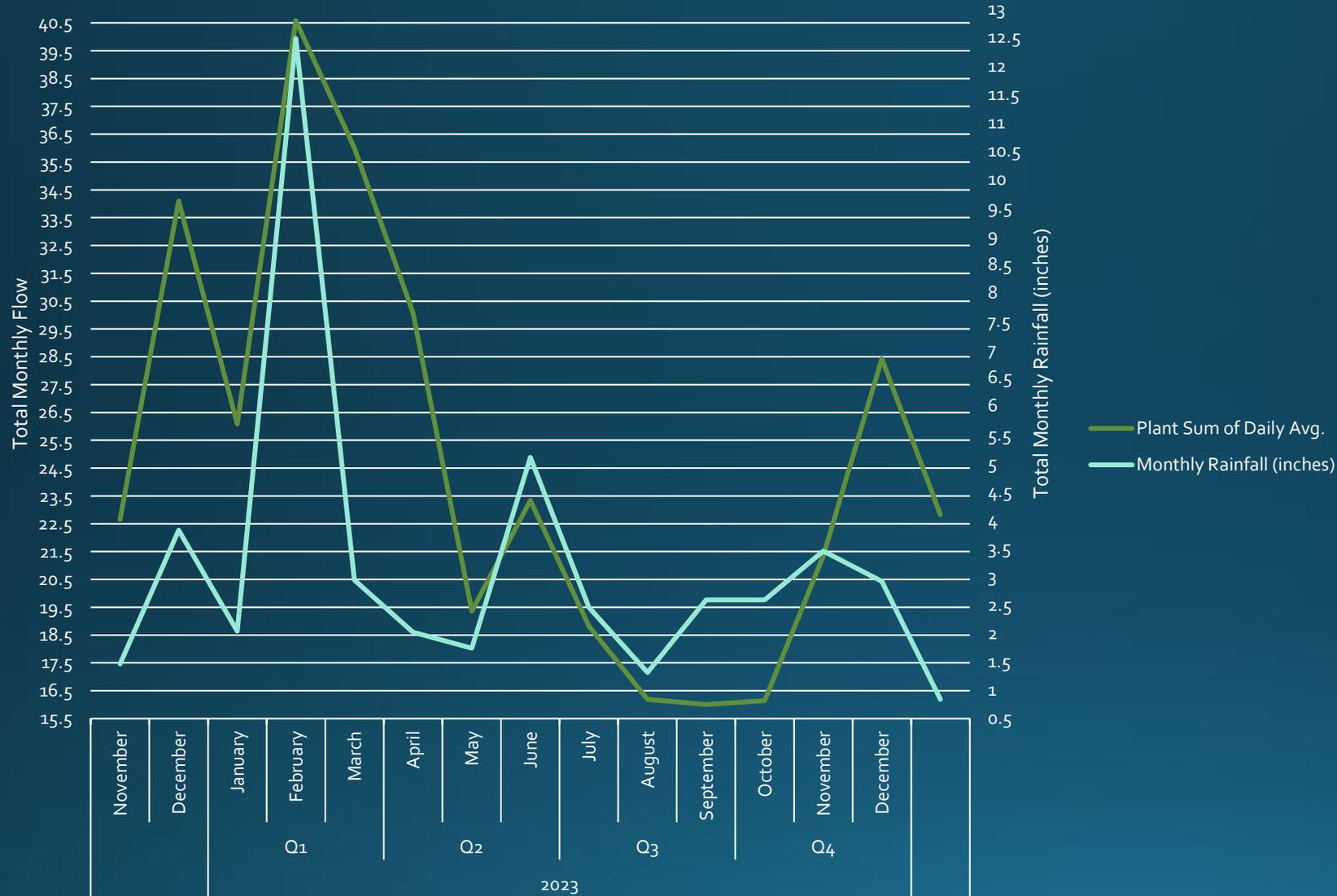
- New Local Laws Adopted in 2020 - 2022 by the following Towns:
 - Livonia
 - Geneseo
 - Conesus
 - Groveland
 - Avon

Livingston County Water and Sewer Authority Sewer Use Rules and Regulations

Section 601 B - Inflow/Infiltration Prohibited

No Person or entity shall discharge or cause to be discharged any Storm, Cooling Water, or un-polluted Industrial waters to any Sanitary Sewer. Swimming pool drains shall not be connected to any Sanitary Sewer.

Rainfall vs Plant Flow



Average Wastewater Flows vs Rainfall

Sewer Overflows vs Rainfall

Date of Sewer Overflow	Total Rainfall (inches)	Max. Rainfall Intensity (inches / hour)
May 15 – 16, 2014	2.65	(no data available)
July 27 – 28, 2014	5.94	3.45
June 14, 2015	2.84	4.92
June 19 -20, 2019	2.37	3.54
October 29–30, 2021	3.57	1.16



What is Inflow and Infiltration (I&I)

“Clean” Rainwater and/or Groundwater that enters the Sanitary Sewer System. There are many sources of I&I into a sewer collection system.

Homeowner's:

Downspouts / Roof Drains

Sump Pumps

Yard Drains

Open Cleanouts – missing or broken caps

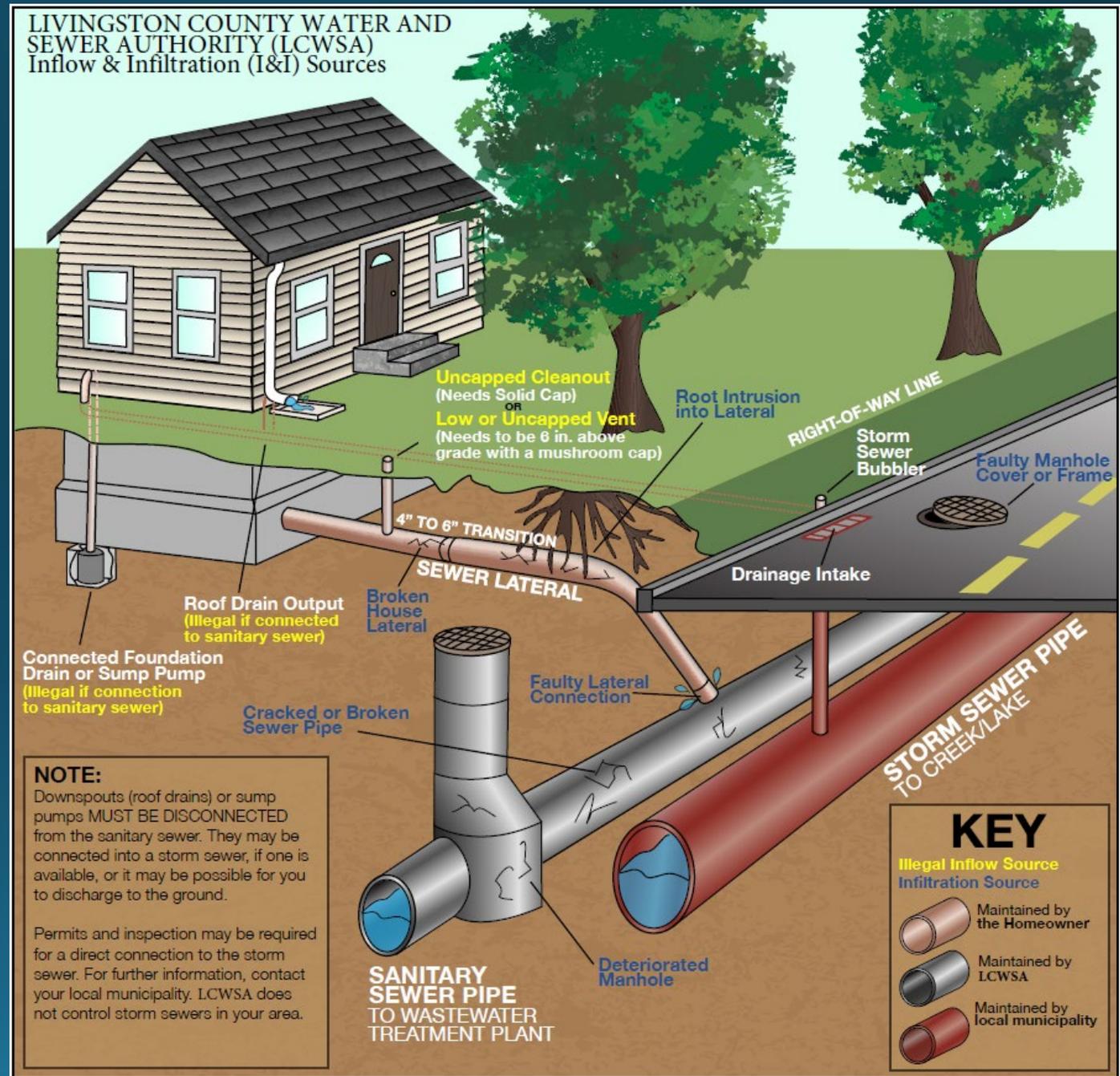
Breaks in a house lateral

LCWSA:

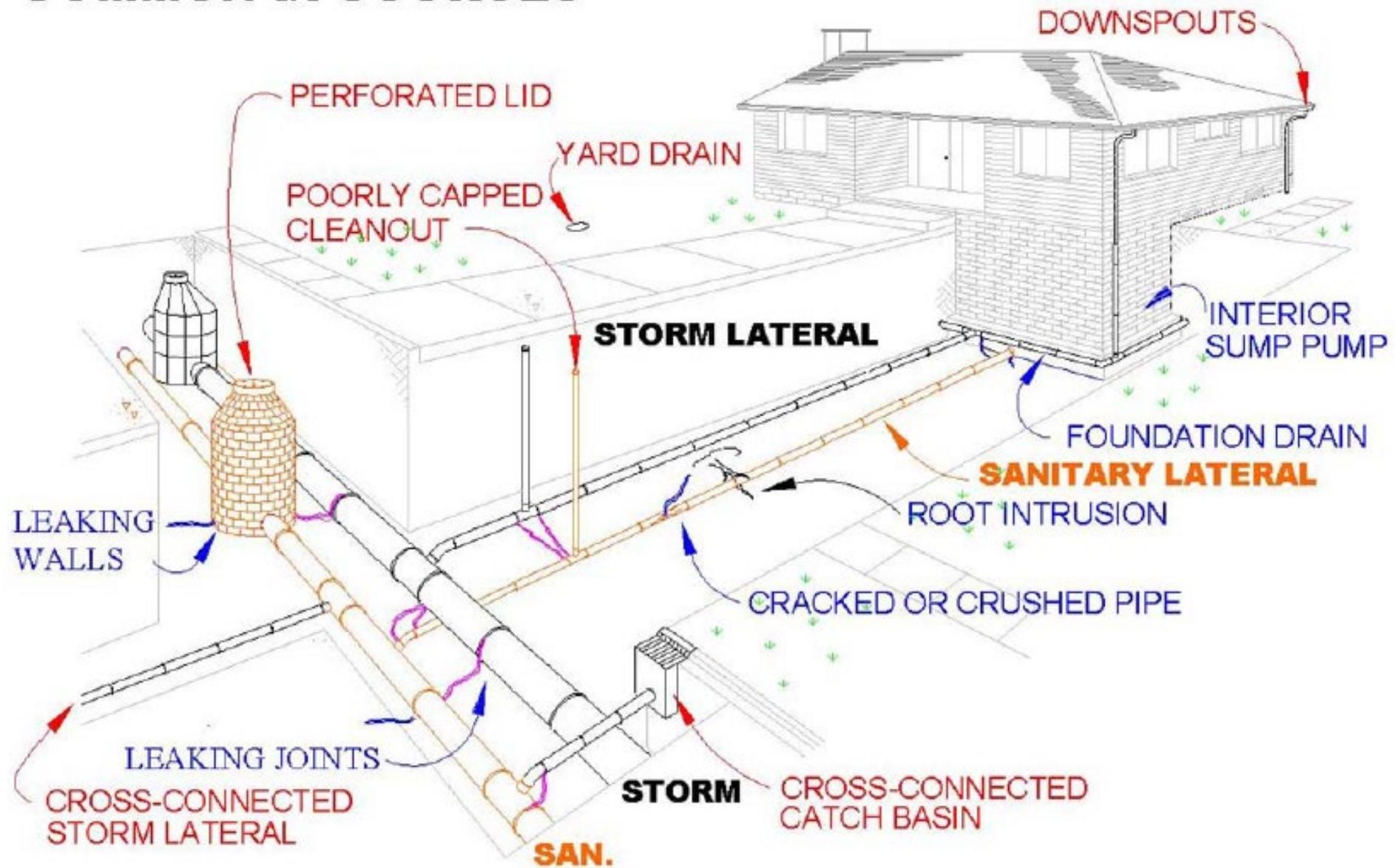
Cracks in pipes and manholes

Manhole Covers

Disjointed Pipe Connections



COMMON I/I SOURCES



Typical Inflow Values

Inflow Source	Average Inflow (Gallons / Minute)	Total Inflow Volume (Gallons) (Based on a 1.72-inch rain event)
Ponding Near a Manhole	3.0	~1,000
Pick or Vent Hole in Manhole	1.2 – 7.5	~432 – 2,700
Manhole Rim Seal	1.0 – 5.0	
Cracked Manhole Frame	0.5 – 1.5	
Broken Manhole Frame	1.0 – 2.0	
Cross Connections from Storm Sewers	5 - 25	
Sump Pump Connections	3 – 6	~1,200
Foundation or Floor Drains	3 - 6	
Downspout / Roof Drains	3	~1,000
Driveway Drains	3	~1,000
Missing Cleanout Cap	0.1	
Deficient residential lateral	15 – 30 (depending on severity)	

sewer lateral connecting to a mainline in a street, together with some of the typical conditions and illegal drain connections that contribute to high I/I from laterals.

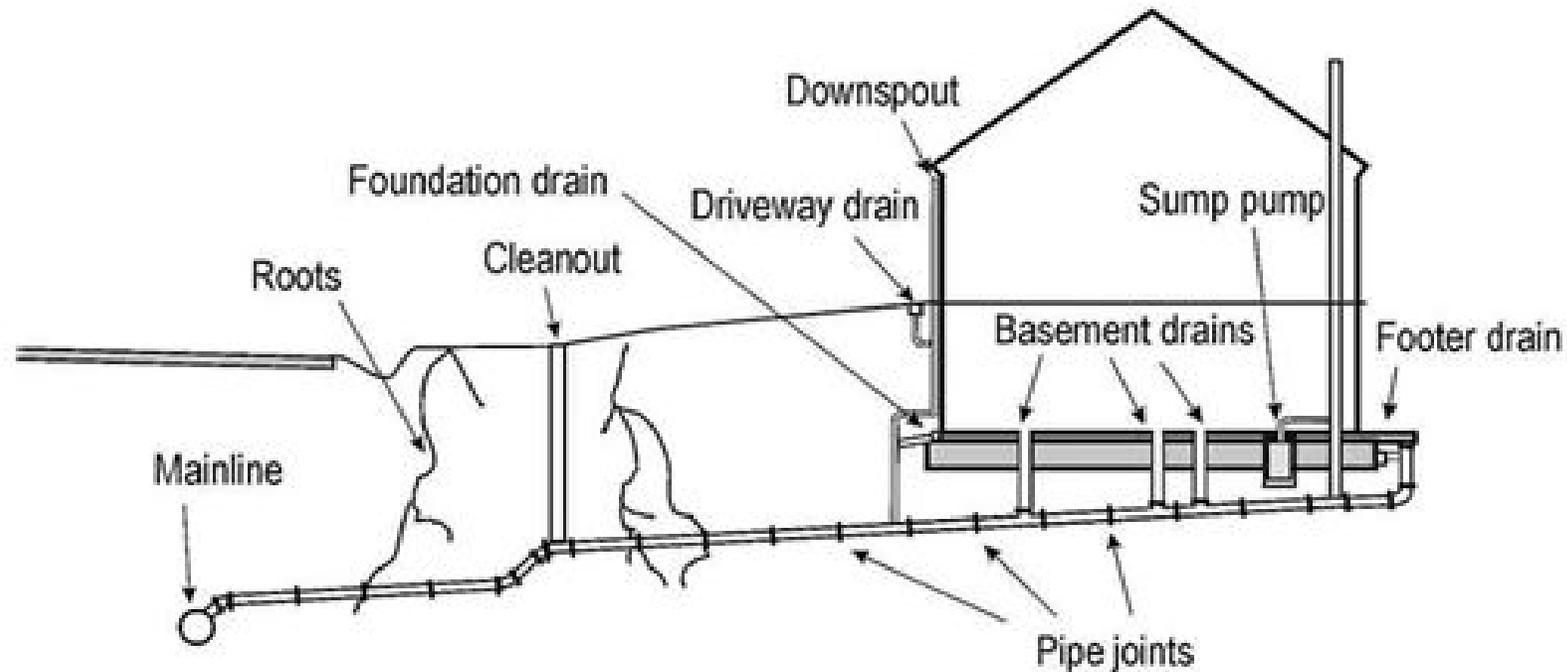
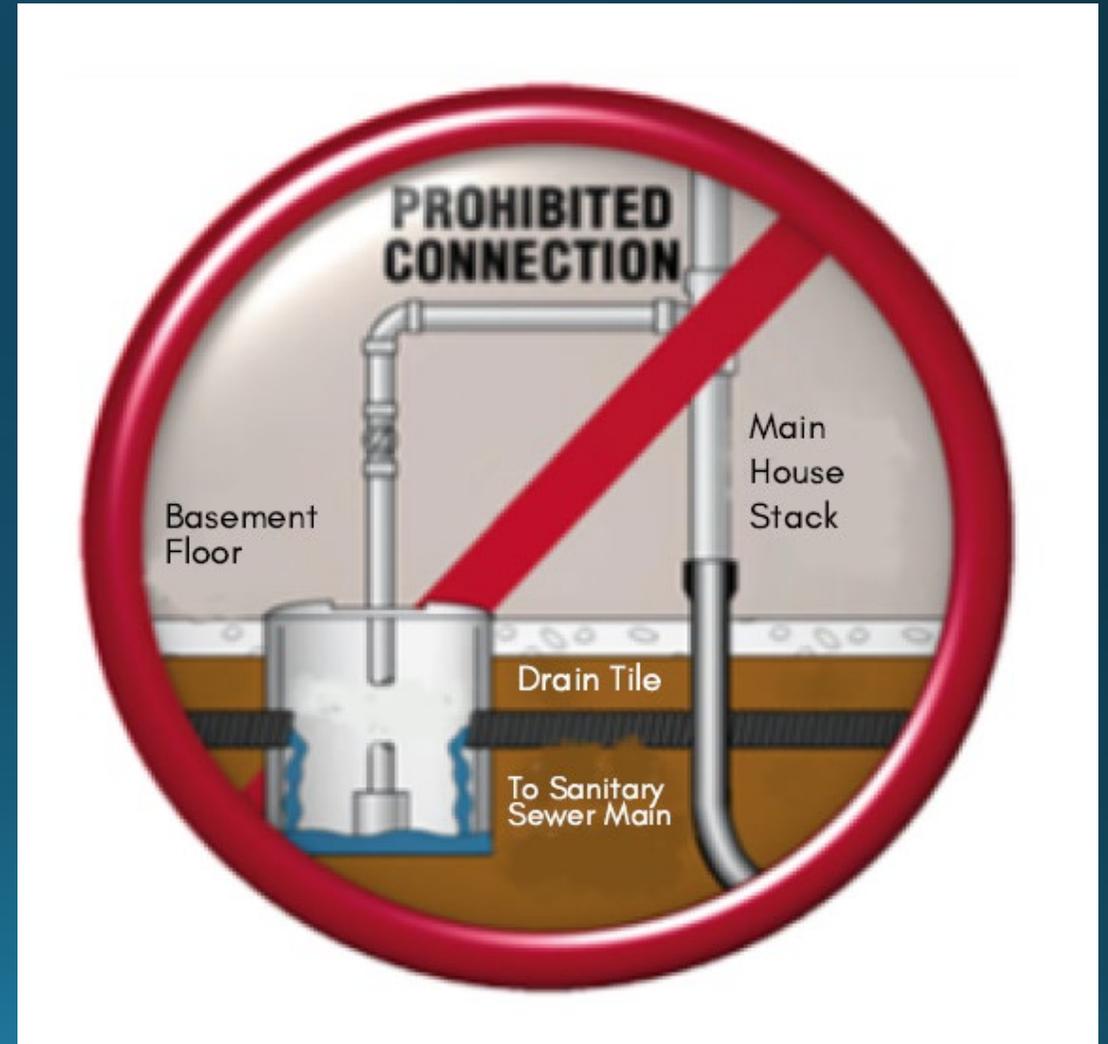


Figure 5-1. Typical Layout of Sewer Laterals (Simicevic and Sterling, 2005)

More Sump Pump Facts:

- The Impact of a Sump Pump connection can be Significant
- An average Sump Pump is about $\frac{1}{3}$ – $\frac{1}{2}$ Horsepower which can pump between 2,500 – 3,200 Gallons per Hour
- 50 Sump Pump connections can lead to 252,000 Gallons of Extra Flow during a substantial rainfall or snow melt event.



Homeowner's Responsibilities:

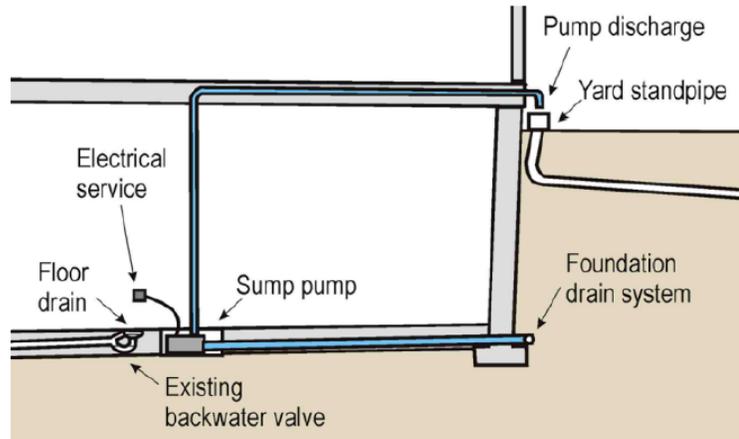


Figure 5-7. Foundation Drain Disconnection Setup in Duluth, MN

Disconnect sump pumps from the sanitary sewer and instead connect them to a storm sewer, drainage ditch, dry well, or rain garden.

Keep rainfall from roof drains directed away from the home and toward a drainage ditch, swale, or other water body.

Keep Cleanout covers on and in working condition

RAIN GARDEN

N.T.S.

SUGGESTED RAIN GARDEN PLANT LIST:

- | | |
|----------------------|-------------------------|
| 1. SHRUBS | 2. HERBACEOUS PLANTS |
| A. WITH HAZEL | A. CINNAMON FERN |
| B. WINTERBERRY | B. CUTLEAF CONEFLOWER |
| C. ARROWWOOD | C. WOOLGRASS |
| D. BROOK-SIDE ALDER | D. NEW ENGLAND ASTER |
| E. RED-OSIER DOGWOOD | E. FOX SEDGE |
| F. SWEET PEPPERBUSH | F. SPOTTED JOE-PYE WEED |
| | G. SWITCH GRASS |
| | H. GREAT BLUE LOBELIA |
| | I. WILD BERGAMOT |
| | J. RED MILKWEED |

SIZING CHART			
TREATED AREA (SQFT)	RAIN GARDEN AREA (SQFT)	SUGGESTED DIMENSIONS	
		LENGTH (FT)	WIDTH (FT)
100	10.0	5	2
200	18.0	4	3
300	27.0	7	3.5
400	35.0	9	4
500	44.0	11	4

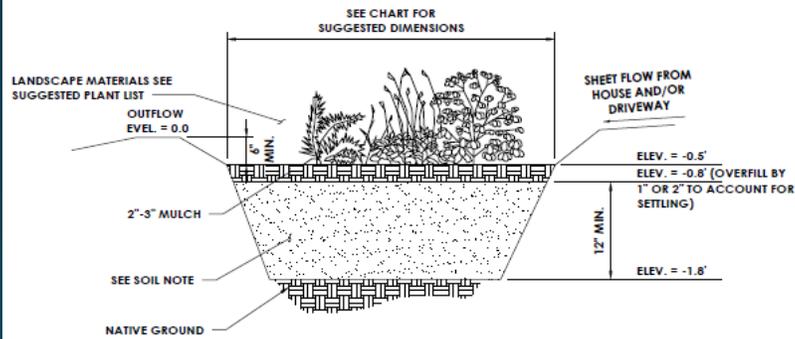


SOIL NOTE:

THE COMPOSITION OF THE PLANTING SOIL SHOULD CONSIST OF 50%-70% SAND, 30%-50% TOPSOIL WITH AN AVERAGE OF 5% ORGANIC MATERIAL, SUCH AS COMPOST OR PEAT, FREE OF STONES, ROOTS AND WOODY DEBRIS AND ANIMAL WASTE.

NOTE:

MINIMUM SETBACK OF 10' FROM A BUILDING OR PROPERTY LINE.

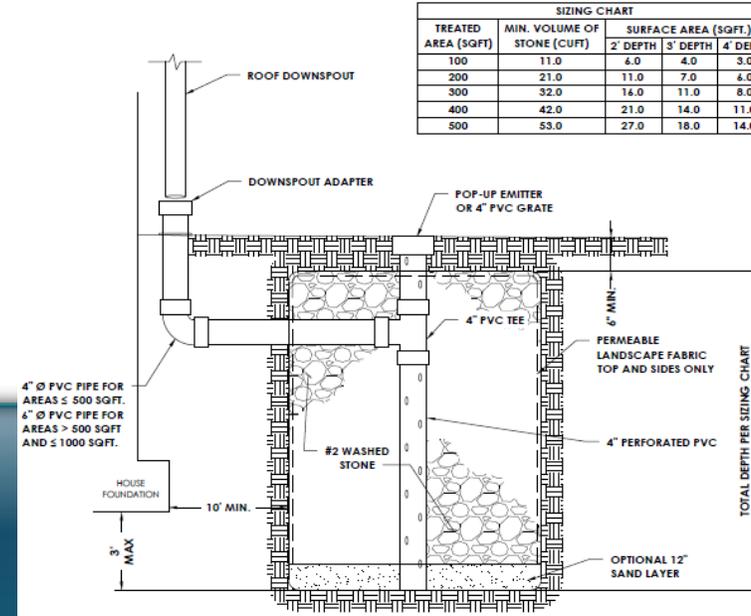


CROSS SECTION

DRYWELL

N.T.S.

TREATED AREA (SQFT)	MIN. VOLUME OF STONE (CUFT)	SURFACE AREA (SQFT.)		
		2' DEPTH	3' DEPTH	4' DEPTH
100	11.0	4.0	4.0	3.0
200	21.0	11.0	7.0	4.0
300	32.0	14.0	11.0	8.0
400	42.0	21.0	14.0	11.0
500	53.0	27.0	18.0	14.0



NOTE:

MINIMUM SETBACK FROM PROPERTY LINE IS 10'

CROSS SECTION

Sump Pump / Storm Drain Drainage Options

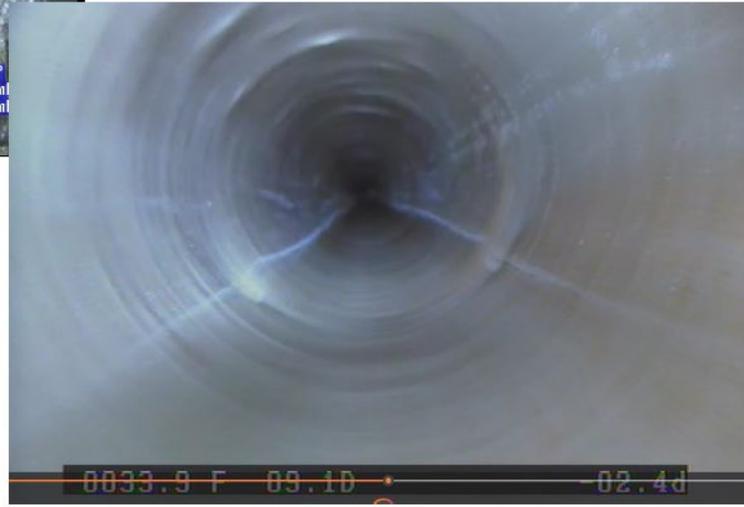
Example of Sump Pump and Roof Drain Feeding a Flower Bed



Before:



After:



Current LCWSA Projects

- Smoke Testing
- Sewer Main Lining
- Manhole Repairs
- Manhole Lining
- Lateral Inspections and Repairs
- Sump Pump Disconnect Inspections



Figure 4-8. CIPP Installation Options: Liner Inversion (left) and Liner Pull-in (right)
(Courtesy Insituform Technologies, Inc.)

Manhole SS-3 - Near 33 Summer Street, Village of Livonia



Signs of Infiltration at MH barrel and bench,
along with deterioration of structure



MH Lining Completed January 2024

Current LCWSA Projects

- Smoke Testing
- Sewer Main Lining
- Manhole Repairs
- Manhole Lining
- Lateral Inspections and Repairs
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Next Steps for you

#1

- An Improper Connection is Identified

#2

- Initial Inspection Confirms a Violation

#3

- Solution is Identified and Acceptable

#4

- Final Inspection no later than 6 months

I&I Timeline



Sewer Cross-Connections Compliance Survey



Conclusions & Questions

LCWSA is committed to developing a plan to efficiently implement sewer collection improvements to protect the environmental resources in the region and provide the benefit of sewer collection to its residents.

We are all aware of the health and safety concerns associated with sanitary sewer overflows and must work together when developing solutions.