

# BUILDING A WORLD OF DIFFERENCE

## W.229 ST. AND CLIFFORD DR. PROJECT W.227 ST PROJECT

FAIRVIEW PARK, OH

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# AGENDA

Summary of Field Work

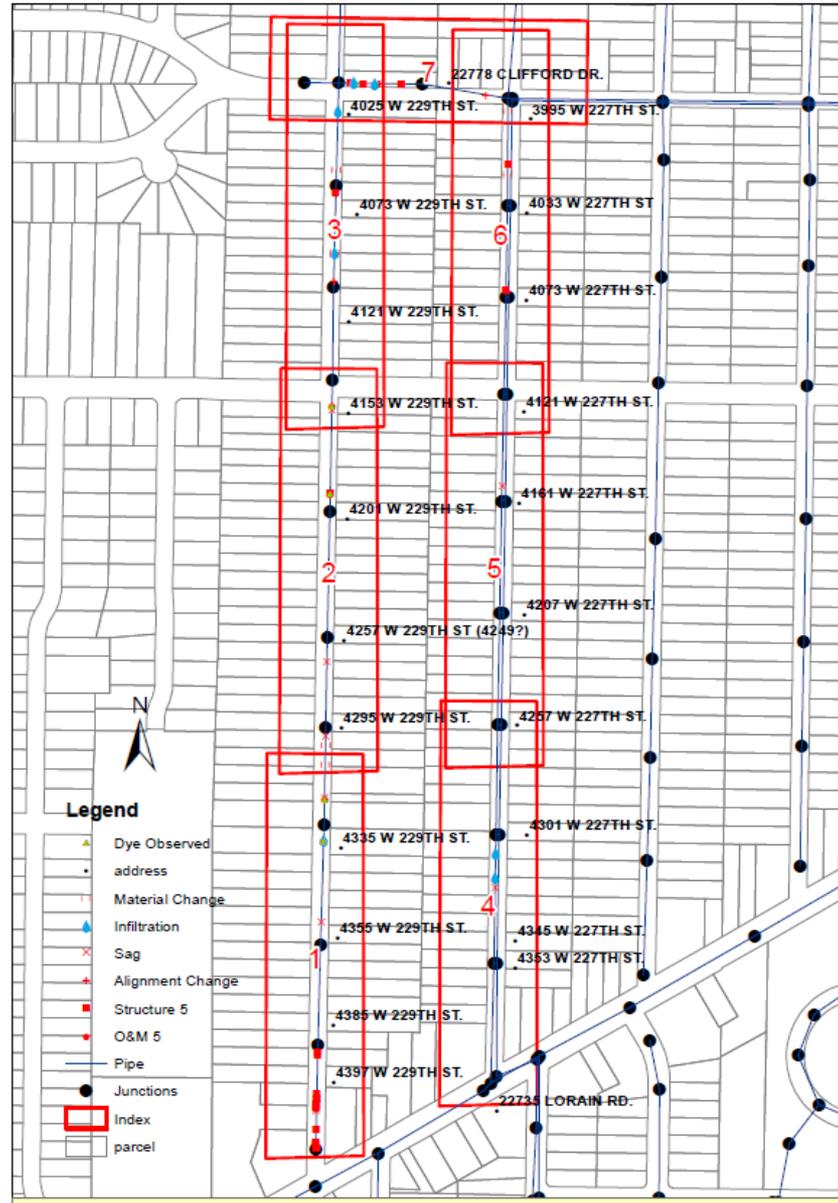
W229th Street Results / Recommendations

W227th Street Results / Recommendations

# FIELD WORK



# STUDY AREA

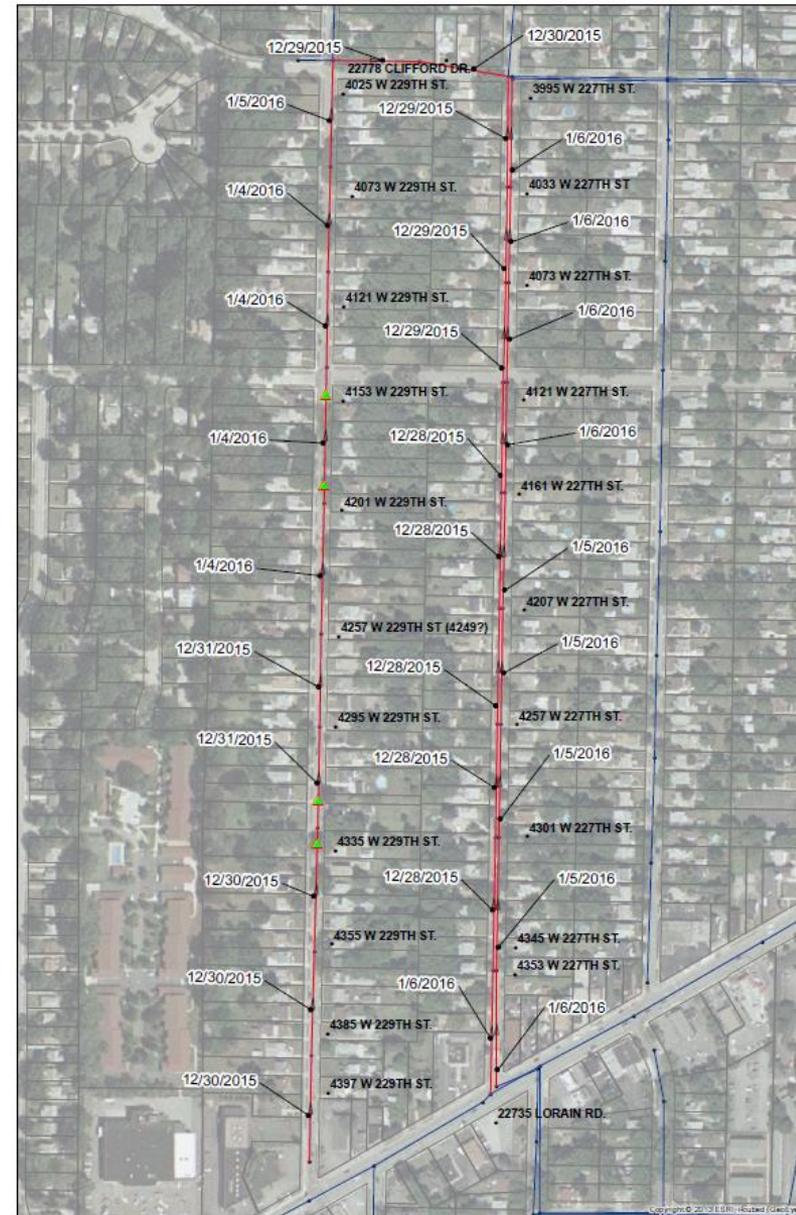


# FIELD WORK

- 2015 December
  - 28<sup>th</sup>, 29<sup>th</sup>, 30<sup>th</sup>, 31<sup>st</sup>
  - Significant rainfall on 12.27.15
- 2016 January
  - 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>
  - No significant rainfall

Rainfall at Cleveland Airport

Date	Daily Rainfall (in)
12/20/15	0
12/21/15	0.12
12/22/15	0.36
12/23/15	0.23
12/24/15	0
12/25/15	0.01
12/26/15	0.41
12/27/15	1.09
<b>12/28/15</b>	<b>0.31</b>
12/29/15	0.1
12/30/15	T
12/31/15	T
1/1/16	T
1/2/16	0
1/3/16	0.02
1/4/16	T
1/5/16	T
1/6/16	0

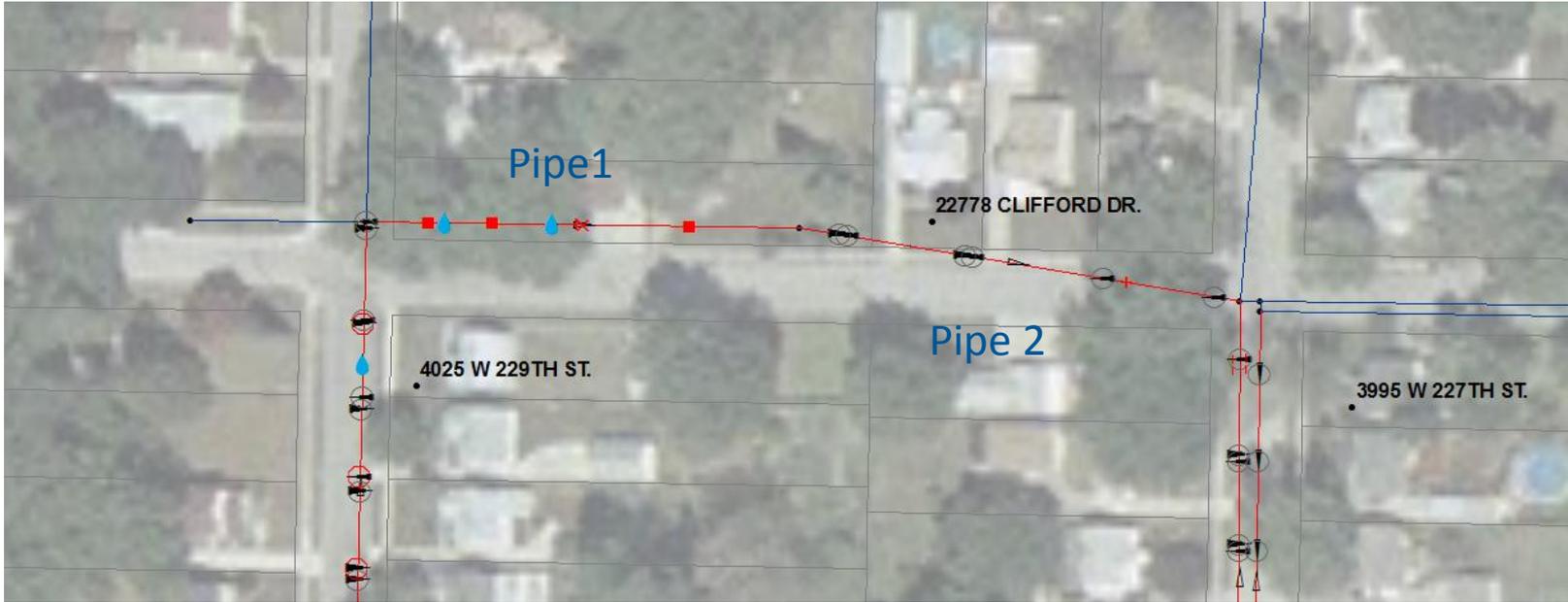


# WORK PERFORMED

- **CCTV Inspection of Sanitary Sewer**
- **Manholes Inspections (Sanitary and Storm)**
- **Flooding of Storm Sewer with Dye**
  
- **Looking for:**
  - **Dye Entering the Sanitary Sewer**
  - **Results of CCTV Inspection of Sanitary Sewer (Structural, O&M and I/I)**

# W.229 ST. AND CLIFFORD DR. RESULTS

# CLIFFORD DR. LAYOUT



# STRUCTURAL DEFECTS



Distance: 68.6 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 175.5 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 28.3 ft. Grade: 4  
Condition: Fracture Multiple  
Remarks: N/A



Distance: 118.3 ft. Grade: 3  
Condition: Water Level, Sag in pipe  
Remarks: N/A

# STRUCTURAL DEFECTS



Distance:	233.8 ft.	Grade:	3
Condition:	Water Level		
Remarks:	N/A		

Sagging Pipe

# I/I DEFECTS

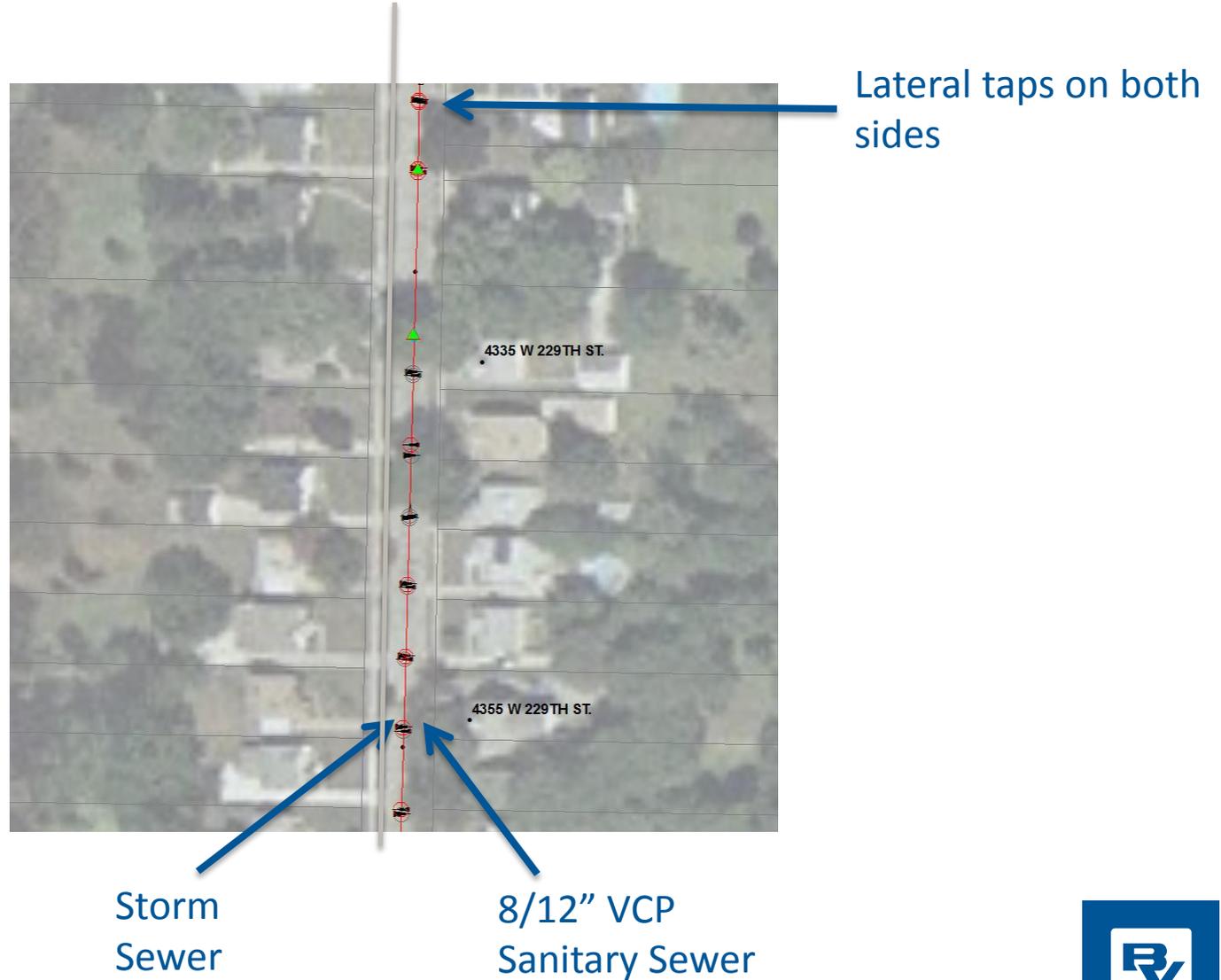


Distance: 42.2 ft. Grade: 4  
Condition: Infiltration Runner  
Remarks: N/A



Distance: 100.3 ft. Grade: 3  
Condition: Infiltration Dripper  
Remarks: N/A

# W.229 ST. LAYOUT





Lateral tap on the right side



Lateral tap on the left side



# SUMMARY OF DEFECTS

- **Structural**
  - 15 Level 5 Defects
  - Two pipe segments with many defects
- **O&M**
  - Pipe is clean
- **I/I**
  - 4 positive dye testing, 1 major infiltration
  - No major I/I from pipe joints
  - Dye observed from W.229 St. north of Clifford Dr.

# STRUCTURAL DEFECTS



Distance: 4.5 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 10.7 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 12.8 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 117.7 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 21.1 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 55.6 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 144.1 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 156.6 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 125.7 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 127.6 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 140.0 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A

**11 Broken Pipe Void Visible on Pipe 4397-4385 229<sup>th</sup> Street**

# STRUCTURAL DEFECTS



Distance: 51.4 ft.      Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A

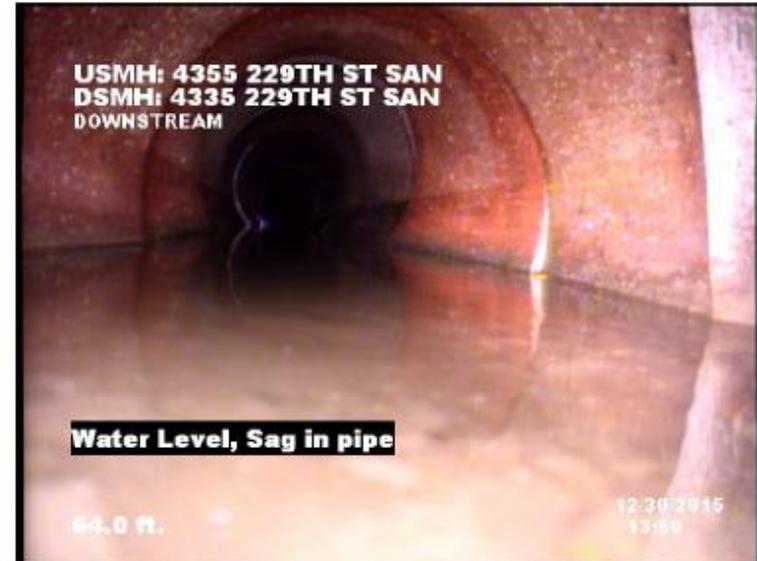


Distance: 312.8 ft.      Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A

# STRUCTURAL DEFECTS



Distance: 75.3 ft. Grade: 2  
Condition: Water Level, Sag in pipe  
Remarks: N/A



Distance: 64.0 ft. Grade: 2  
Condition: Water Level, Sag in pipe  
Remarks: N/A

# I/I DEFECTS - 4 POSITIVE DYE TEST

4 Positive Locations all found along 229<sup>th</sup> St



# POSITIVE DYE TEST



Distance: 73.4 ft.      Grade: 5  
Condition: Dye Test Visible  
Remarks: DYE VISIIBLE



Distance: 75.3 ft.      Grade: 2  
Condition: Water Level, Sag in pipe  
Remarks: N/A

4335-4295 229<sup>th</sup> St

- @73.4ft

# POSITIVE DYE TEST

Under the Manhole



Distance: 295.1 ft.      Grade: 5  
Condition: Infiltration Gusher  
Remarks: N/A

4355-4335 229<sup>th</sup> St

- @295.1ft

# Sagging Pipe



Distance: 48.0 ft. Grade: 5  
Condition: Dye Test Visible  
Remarks: DYE VISIBLE



Distance: 296.6 ft. Grade: 5  
Condition: Dye Test Visible  
Remarks: DYE VISIBLE

4201-4153 229<sup>th</sup> St

- @48ft
- @296.6ft



# I/I DEFECT



Distance: 99.5 ft. Grade: 4  
Condition: Infiltration Runner  
Remarks: N/A



Distance: 211.7 ft. Grade: 3  
Condition: Infiltration Dripper  
Remarks: N/A

# I/I DEFECT



Distance: 311.9 ft. Grade: 4  
Condition: Infiltration Runner  
Remarks: N/A



Distance: 312.8 ft. Grade: 2  
Condition: Infiltration Weeper  
Remarks: N/A

# RECOMMENDATIONS

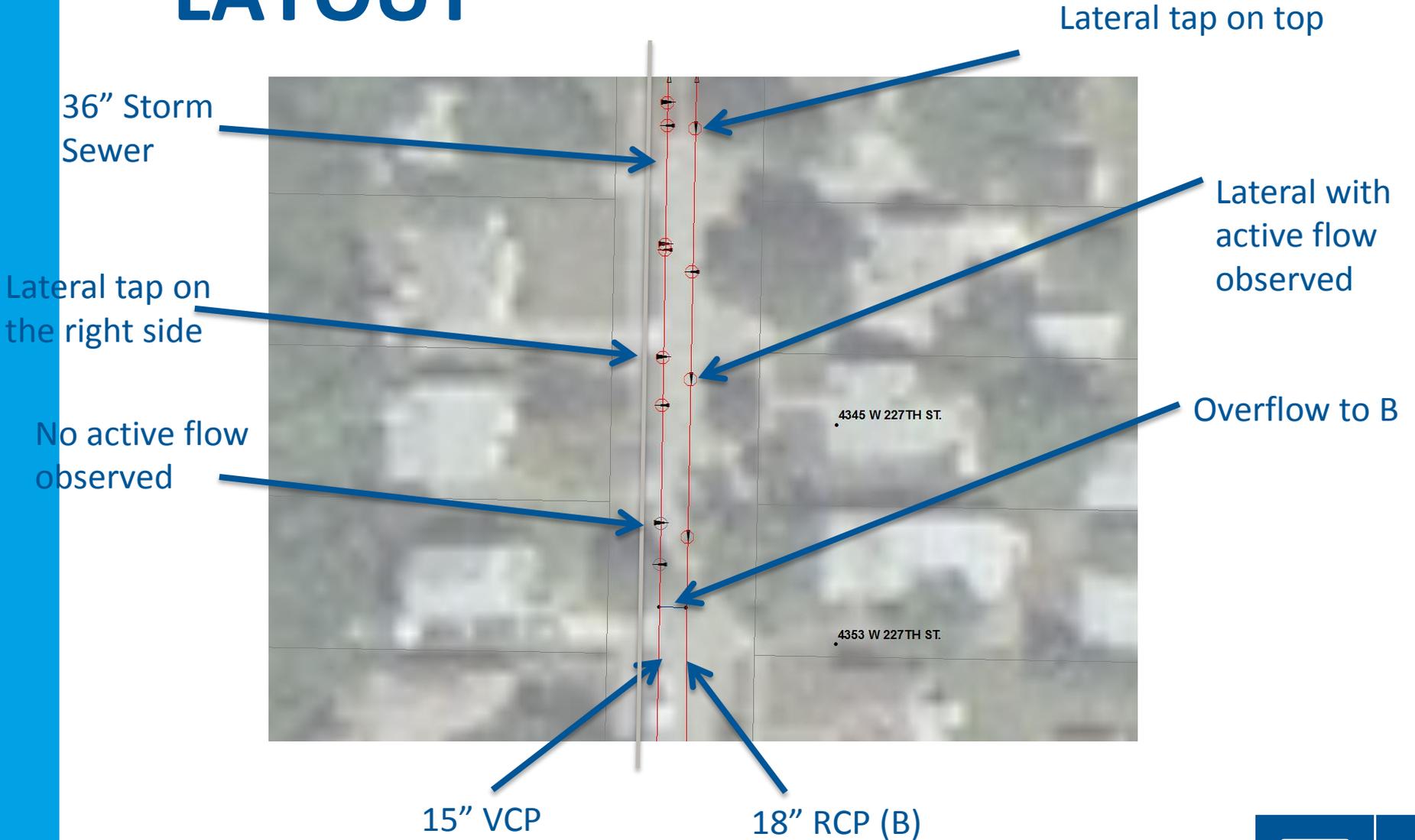
## (W.229 ST. AND CLIFFORD DR.)

- Line full length of sewer from Lorain Rd. to Clifford
- Replace perforated manhole lids with manhole lids
- CCTV Storm Sewer to determine if any repairs are required
- Post flow monitoring
- Recalibrate Model
- If significant I/I is not removed pursue private property investigation

**\*\* Based on information obtained may recommend installing a flow meter at the intersection of Lorain Rd. and W.227 St.**

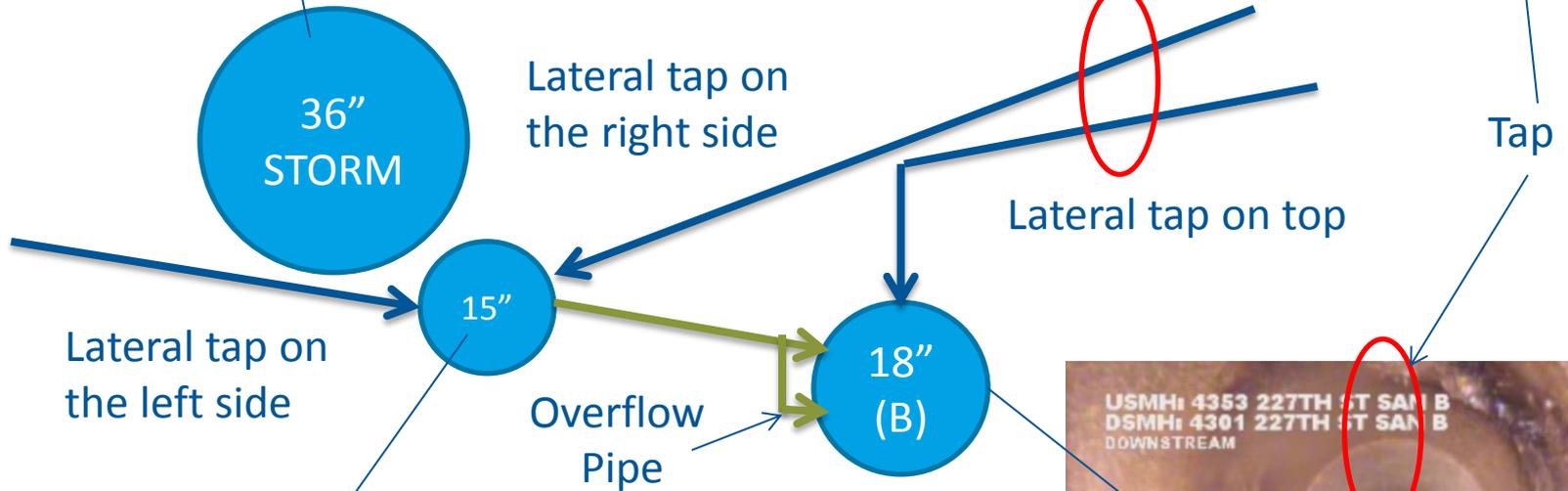
# W.227 STREET RESULTS

# LAYOUT





Which one is active?



Tap



# SUMMARY

- **Two parallel sanitary sewers**
  - 15" VCP under 36" Storm
  - 18" RCP
  - Concrete manholes except 4353 227<sup>th</sup> is brick
- **Laterals**
  - 15" has laterals to both sides (unknown if any are disconnected)
  - 18" should have only east side laterals tapped on the top of the pipe
- **Overflow structures at Manholes**
  - The connection and inverts are different from record drawings

# SUMMARY OF DEFECTS

- **Structural**
  - No serious defects found
  - Two broken / voids found
- **O & M**
  - Pipes are clean
- **I/I**
  - No positive dye testing results
  - No major I/I from pipe joints
  - Minor infiltration

# STRUCTURAL DEFECTS



Distance: 21.1 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A



Distance: 118.4 ft. Grade: 5  
Condition: Broken Pipe Void Visible  
Remarks: N/A

# INFILTRATION DEFECTS



Distance: 244.4 ft. Grade: 3  
Condition: Infiltration Dripper  
Remarks: N/A



Distance: 312.4 ft. Grade: 3  
Condition: Infiltration Dripper  
Remarks: N/A



Distance: 177.4 ft. Grade: 2  
Condition: Infiltration Weeper  
Remarks: N/A

# RECOMMENDATIONS

- Meet with Residents to Discuss Flooding Concerns
- Perform Private Property Investigation
- CCTV Storm Sewer
- Recalibrate Model
- Determine Next Steps

**\*\* Based on information obtained may recommend installing a flow meter at the intersection of Lorain Rd. and W.227 St.**

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# Together



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