

## Appendix E

### Mystic Area Dye Water Testing Results

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# DYED-WATER FLOODING

PROJECT LOCATION:

STONINGTON, CONNECTICUT 06355

PREPARED FOR SUBMISSION TO:  
CDM SMITH

OCTOBER 2022  
MCA PROJECT NO.: 2021-335



Martinez Couch & Associates, LLC  
1084 Cromwell Avenue  
Rocky Hill, CT 06067  
Tel: 860-436-4364  
MartinezCouch.com



CONSULTING ENGINEERS  
& SURVEYORS

1084 Cromwell Avenue, Suite A-2  
Rocky Hill, CT 06067  
Tel: 860-436-4364  
Fax: 860-436-4626  
[www.martinezcouch.com](http://www.martinezcouch.com)

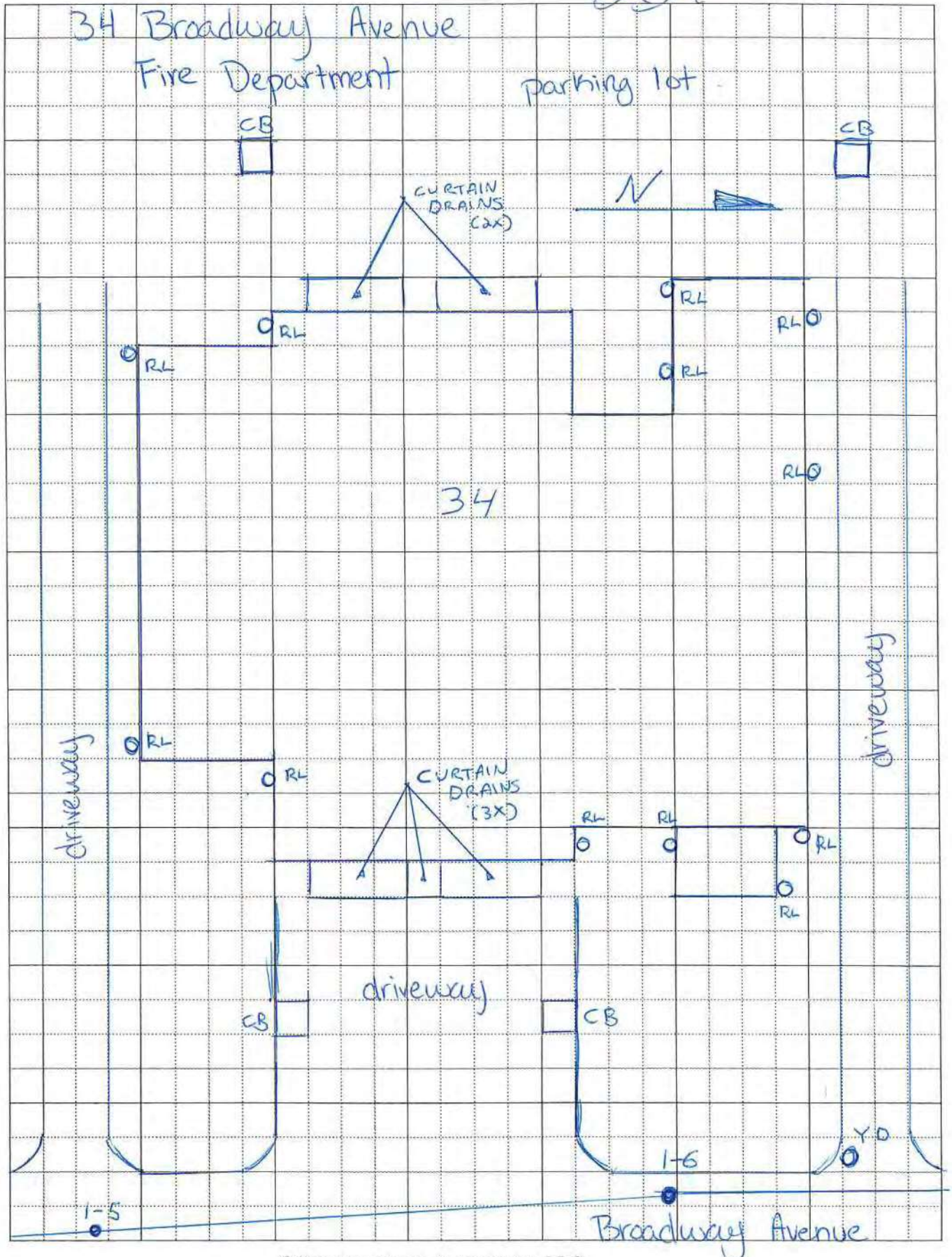


## **SUMMARY**

Martinez Couch & Associates (MCA) and National Water Main Cleaning Co. (NWMCC) performed Dyed-Water Flooding in Stonington on 10/25/2022.

We performed testing to attempt to confirm potential defects at 9 locations throughout Stonington, CT which were identified during building inspections performed over the past year. Our testing confirmed that all potential defects were connected to the storm drainage system, as intended, and therefore require no further remediation. The testing also confirmed that the truck bay drains at the Fire Department on North Stonington Road are connected to an oil water separator, as designed, and then flow into the sanitary sewer.







34 Broadway Avenue

Notes:

\* All roof leaders (12) go into ground and drain to the storm drainage system. They all connect to the CB's throughout the parking lot

\* The 5 curtain drains at the fronts of the garage bay doors drain into the storm drainage system. They all connect and drain to the CB's in the parking lot.

\* The 1 yard drain connects to the CB in the front driveway in front of the truck bay doors



















BE HOXIE ENGINE COMPANY



















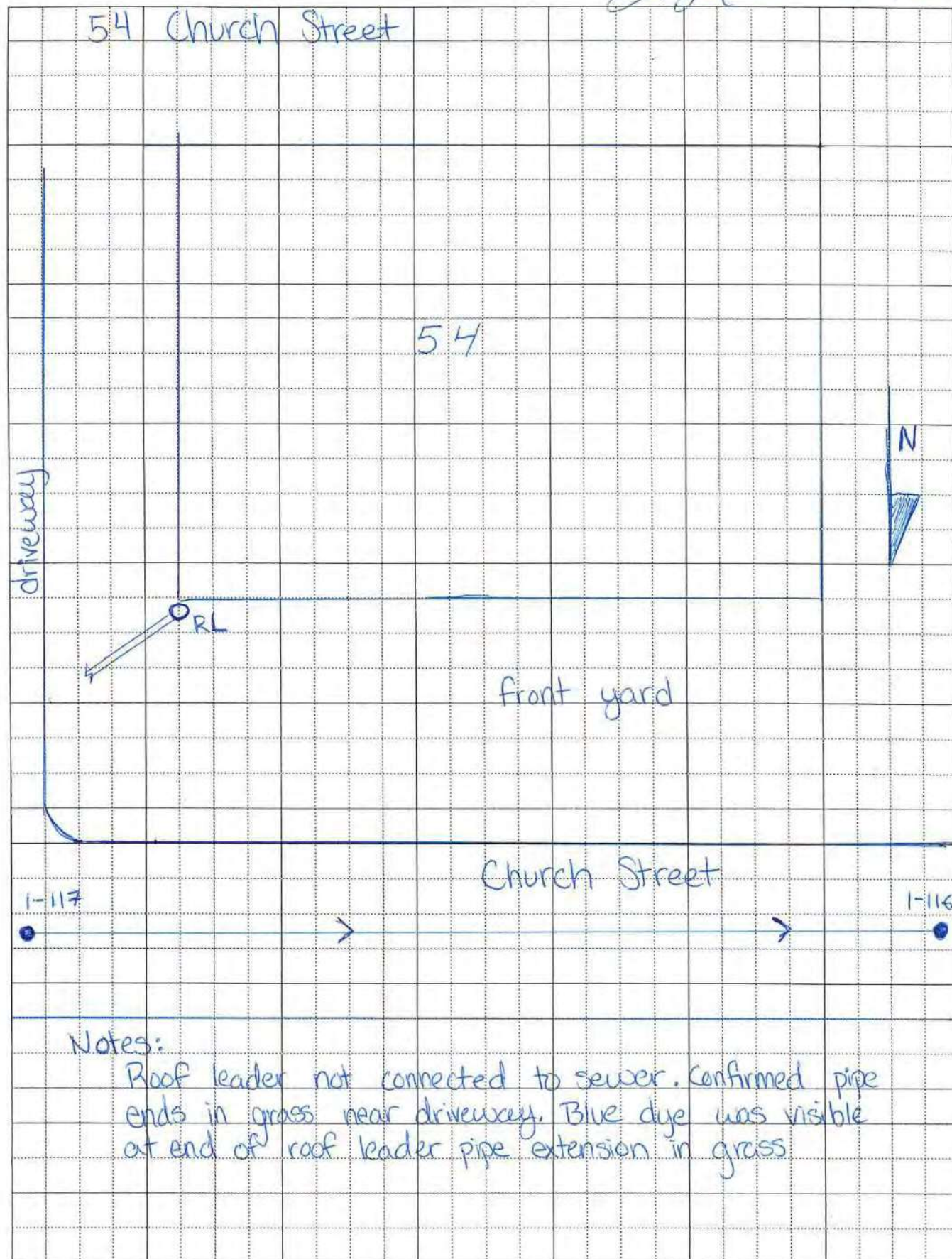












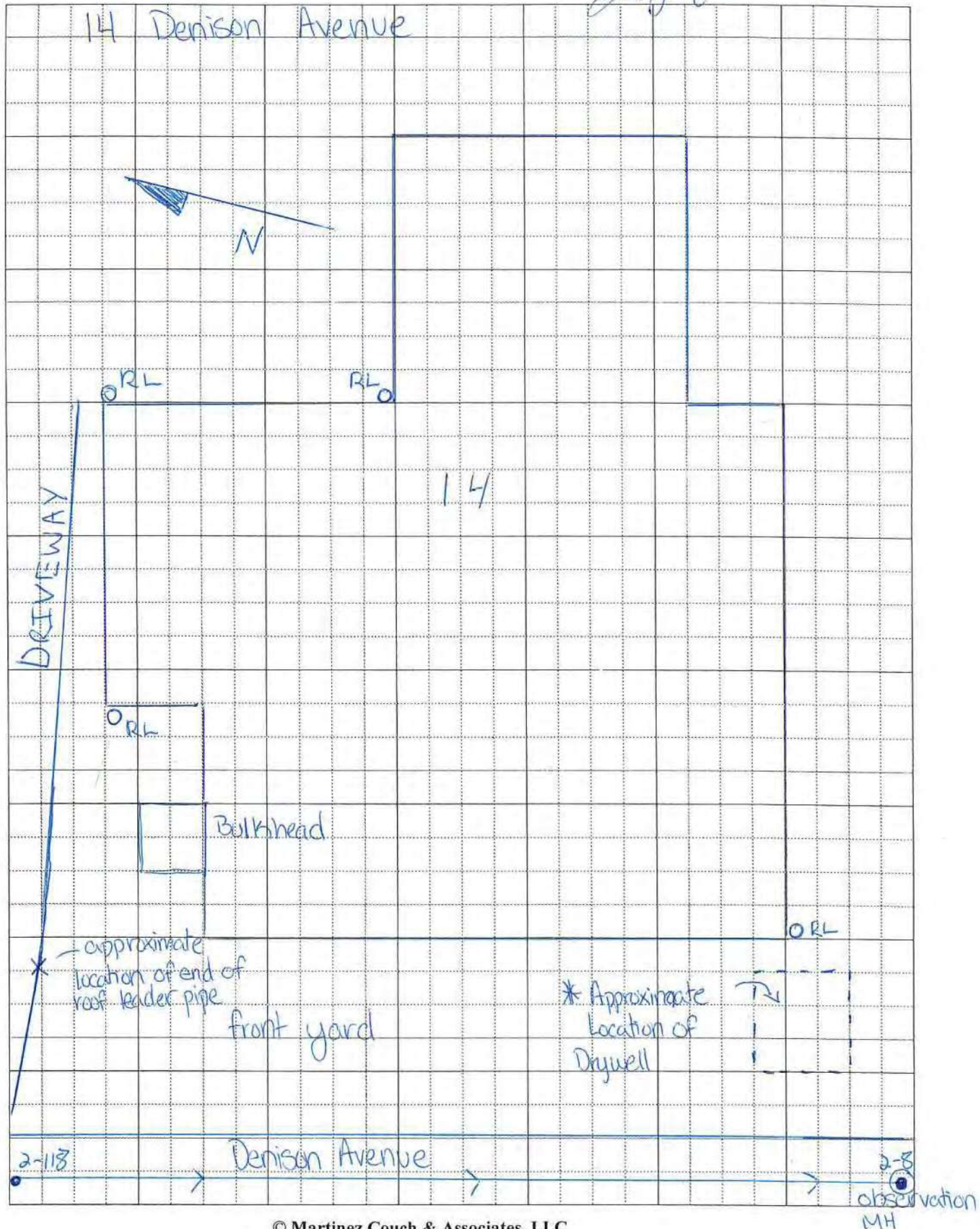
















MARTINEZ COUCH & ASSOCIATES, LLC

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Fax: (860) 436-4626

Job #: 2021-335  
Job Name: Stonington SSES  
Sheet #: 2 of 2 Scale: not to scale  
Calculated by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: Larry Morris Date: 10/25/22

14 Denison Avenue

Notes:

- \* Observed MH 2-8 and did not see any dye enter the sanitary system
- \* no yard drain on property
- \* Roof leader to South of house drains into drywell in front of home. Homeowner confirmed
- \* 3 roof leaders to East of house<sup>connect and</sup> drain into pipe that exits on driveway
- \* 4 Roof leaders into ground total





















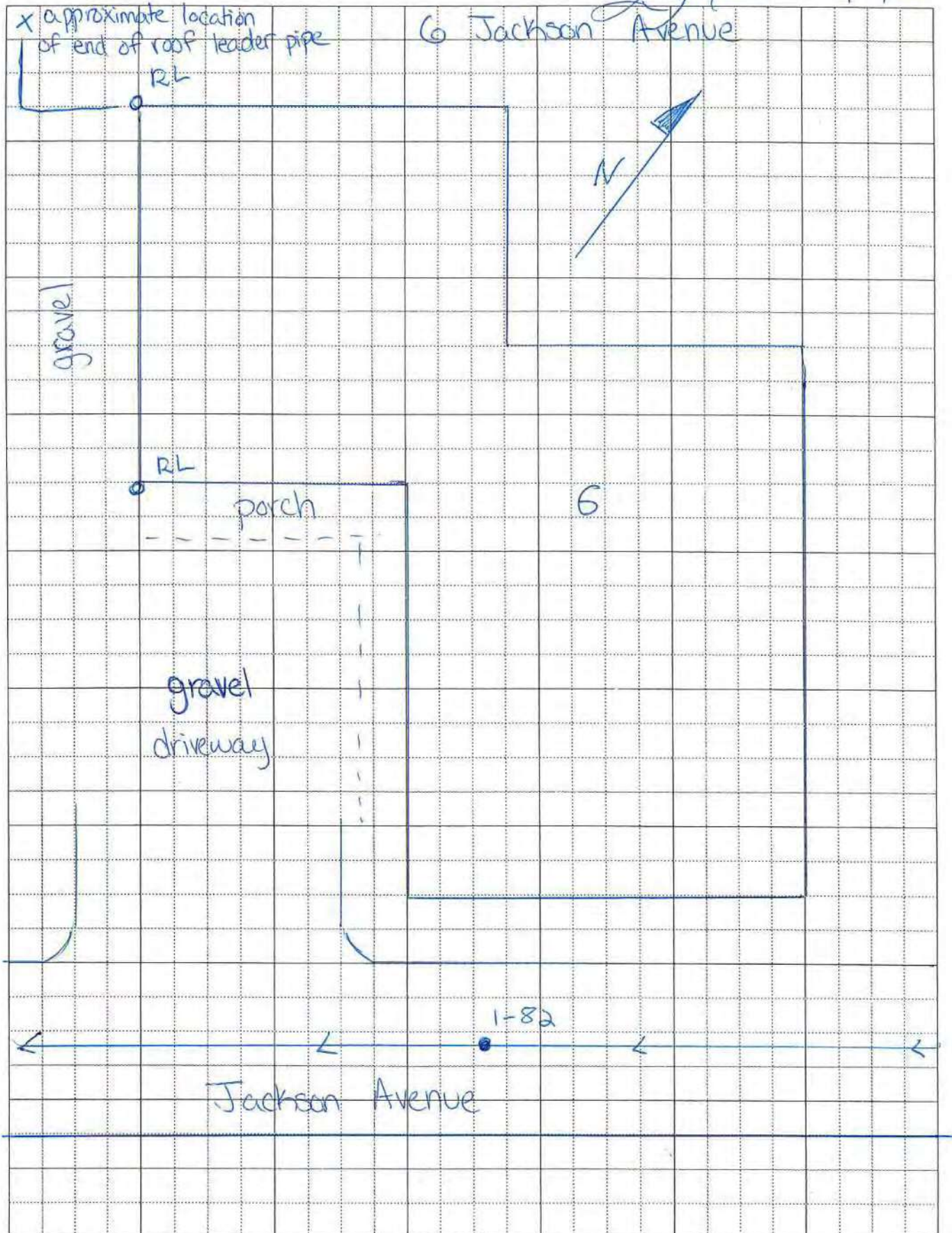


# MCA

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Rocky Hill, CT 06067  
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Fax: (860) 436-4626

Job #: 2021-335  
Job Name: Stonington SSES  
Sheet #: 1 of 2 Scale: not to scale  
Calculated by: Date:  
Checked by: Lizzy Morris Date: 10/25/22





6 Jackson Avenue

Notes:

\* Roof leaders connect and dye was observed  
at end of roof leader extension pipe in ground,  
exits at end of gravel driveway in yard.  
See photos

\* Stonington WPCA was present for testing



















21 N. Stonington Road

Notes:

- \* 8 total roof leaders, 6 into ground
- \* Truck bay drains connect to OWS in front of fire station as intended. OWS connects to sanitary sewer as it should.
- \* All (6) roof leaders go into ground and connect to storm drainage system. They drain into CB in front of fire station
- \* Stonington WPCA was present for testing
- \* Dan from WPCA confirmed that fire station was redone/upgraded ~20 years ago and truck bay drains were connected to sanitary





The most important thing you can do is Plan your escape.

OLD MYSTIC FIRE DEPT.  
RELIANCE COMPANY EST 1837  
STATION 1

21

LOW RAMP CONCRETE  
1-800-900-9577 182 ACD

6791 A

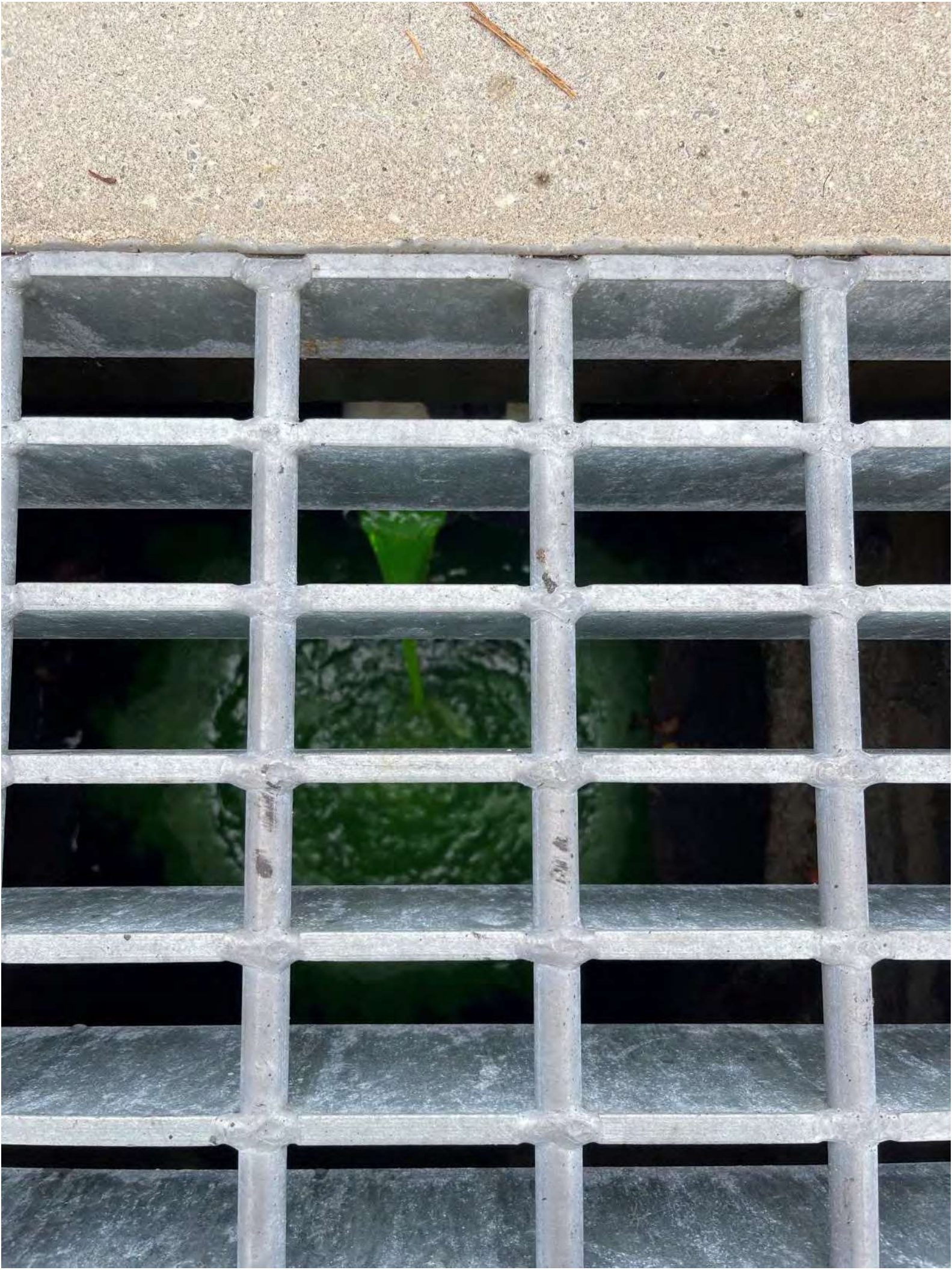














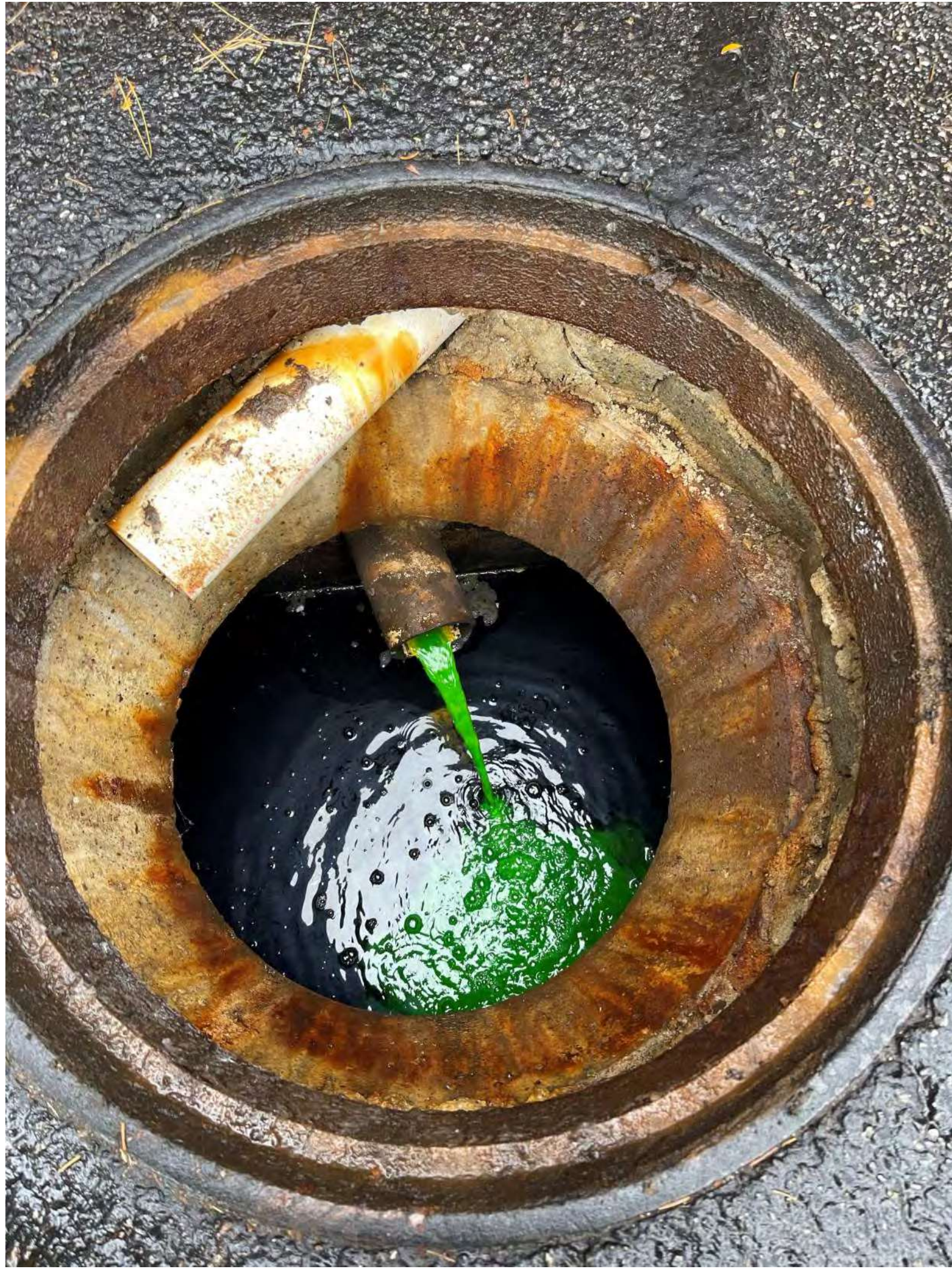






**Oil Water Separator**









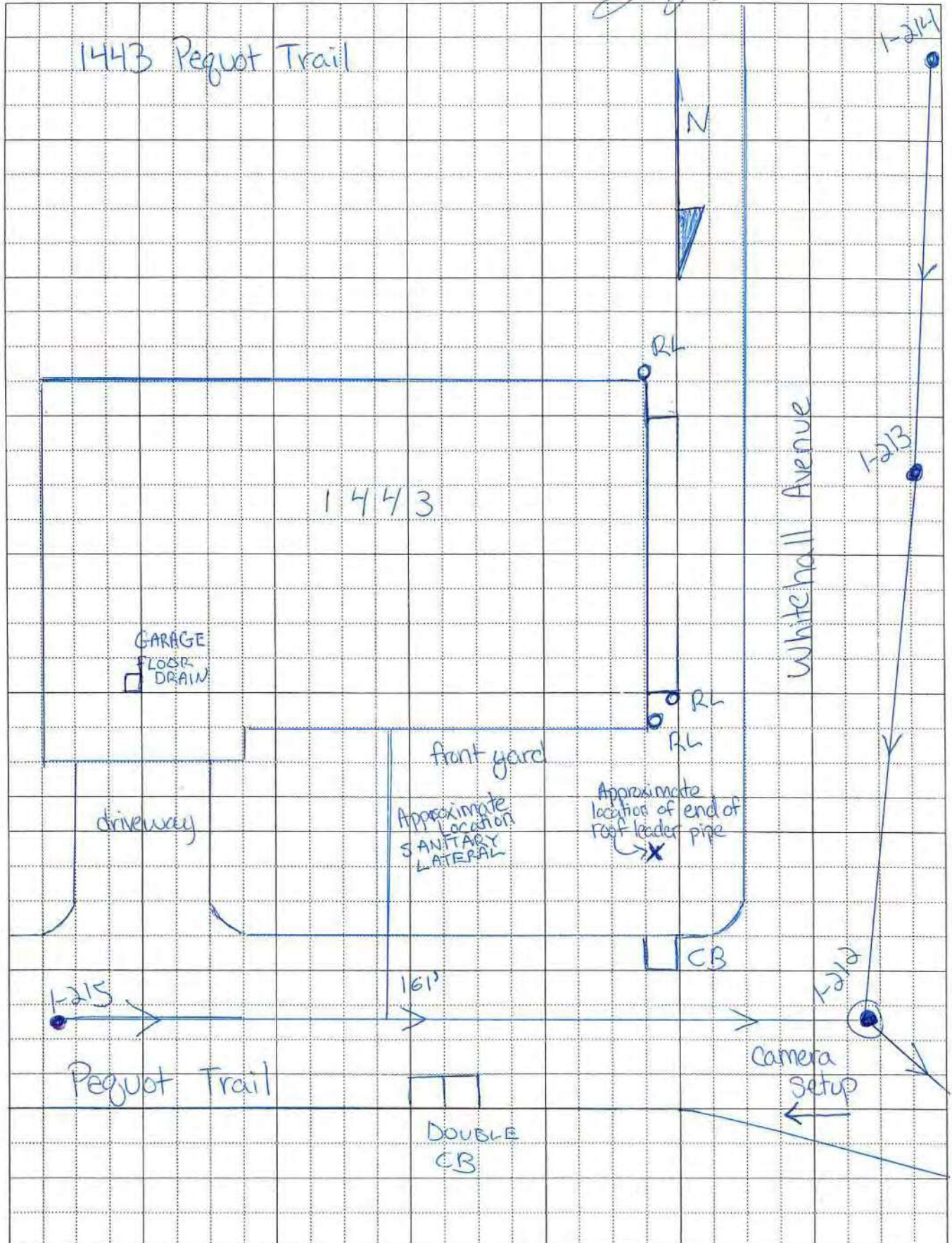














1443 Peguot Trail

Notes:

\* 3 Roof leaders on West side of house connect and exit in grass of front yard through roof leader piping. See photos

\* Filled garage floor drain with green dye and several gallons of water. Did not observe any dye in setup MH 1-212 or throughout the line heading towards MH 1-215. No dye visible in any CB's or in sanitary lateral or driveway. CB's filled with water and debris at time of testing. Floor drain continued to drain throughout testing, no back ups.

\* Stonington WPCA was present for testing

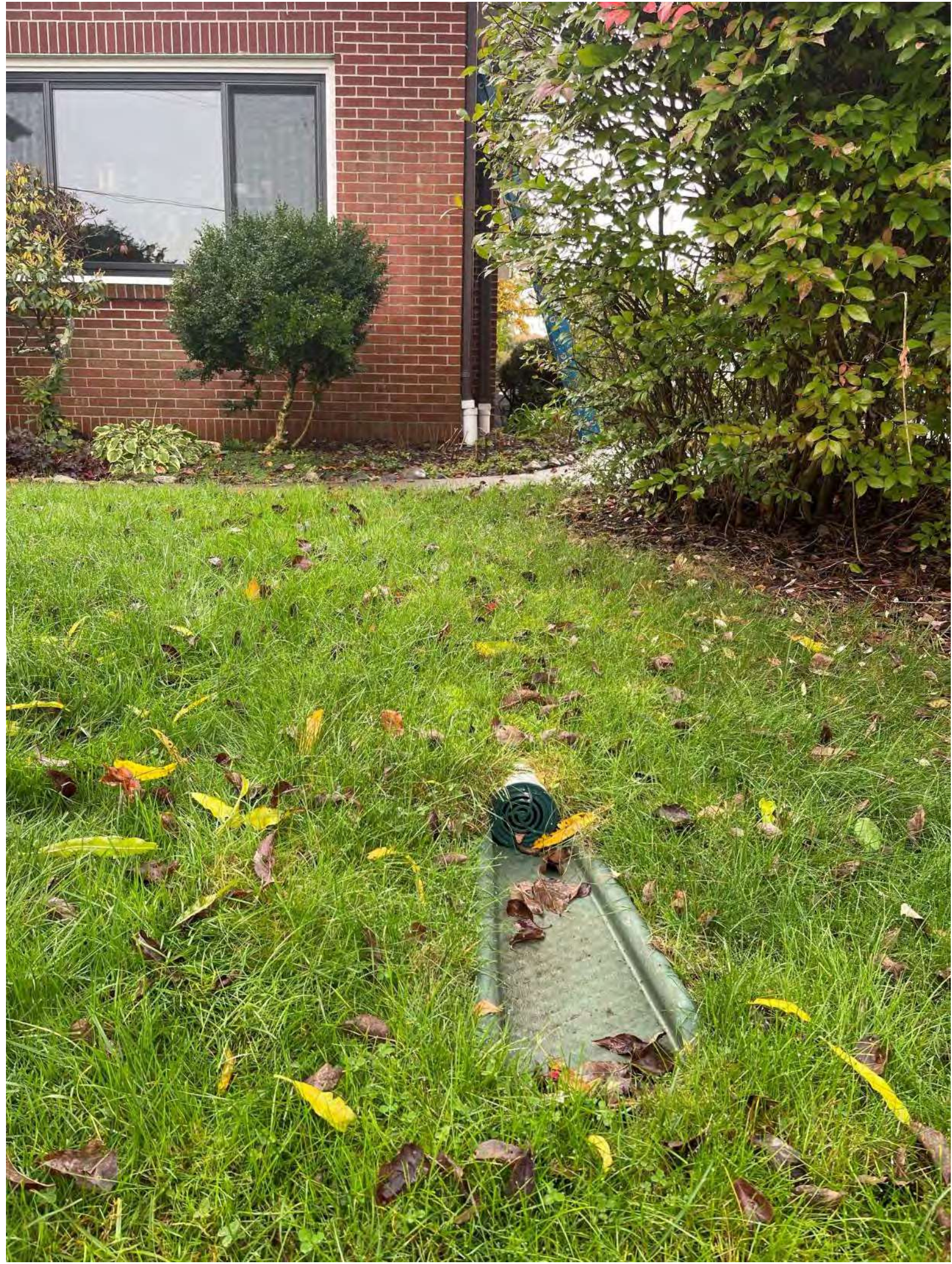




















**DANGER**  
PERMIT REQUIRED  
CONFINED SPACES  
DO NOT ENTER

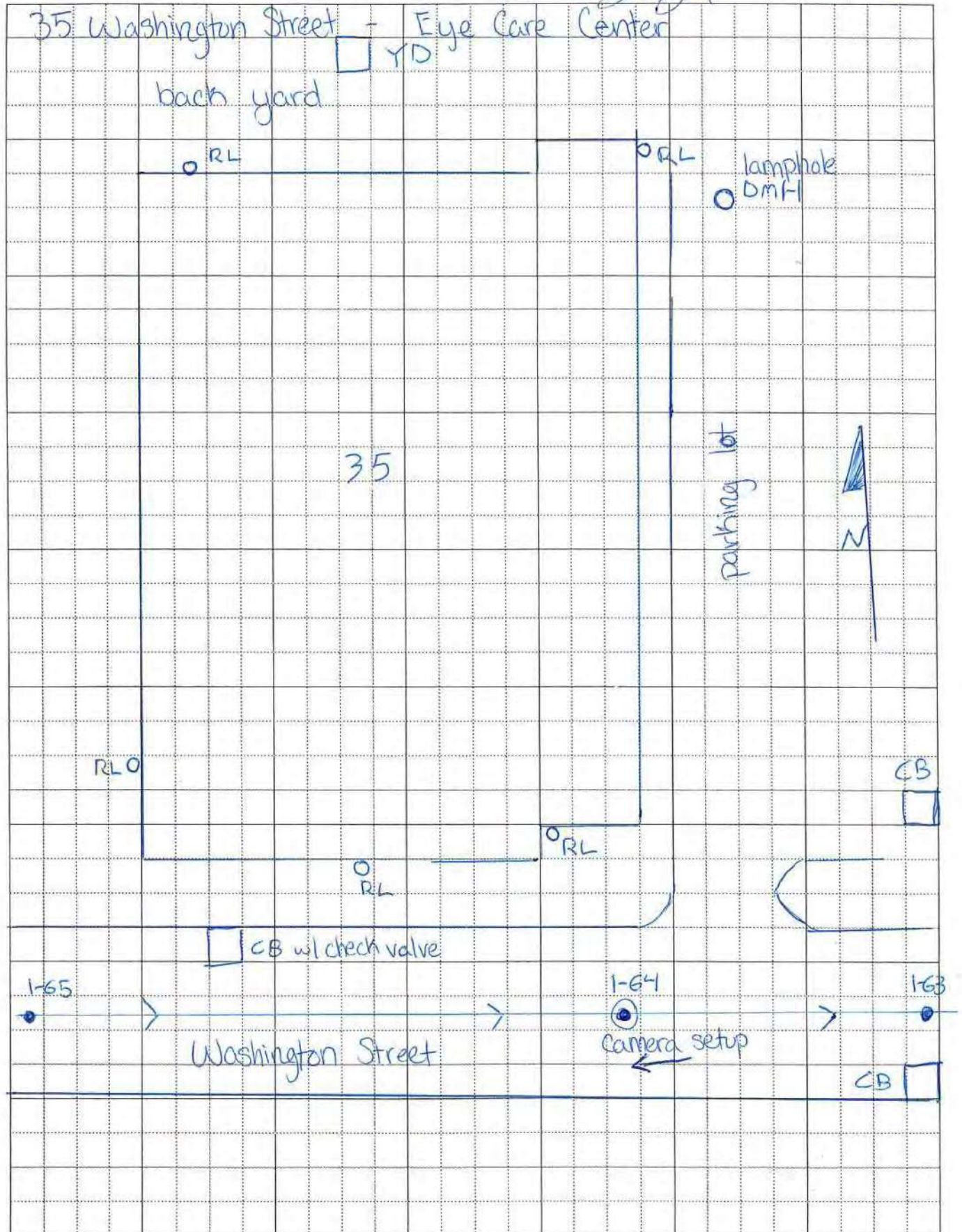
Whitehall St

NO PARKING  
ANY TIME











35 Washington Street

Notes:

- \* All roof leaders(5) go into ground and connect to storm drainage system. Building owner confirmed that all roof leaders connect to drainage lamp hole manhole in parking lot, which leads to CB in Southeastern corner of parking lot. CB drains to CB in street.
- \* Yard drain in back yard of property connects to CB with check valve in street. The town required the building owner to route all roof leaders to storm drains.
- \* Stonington WPCA was present for testing
- \* Dan from WPCA informed that CB's in street are full due to the tidal flows. The water backs up from the waterways during tidal events. All were full during time of testing



























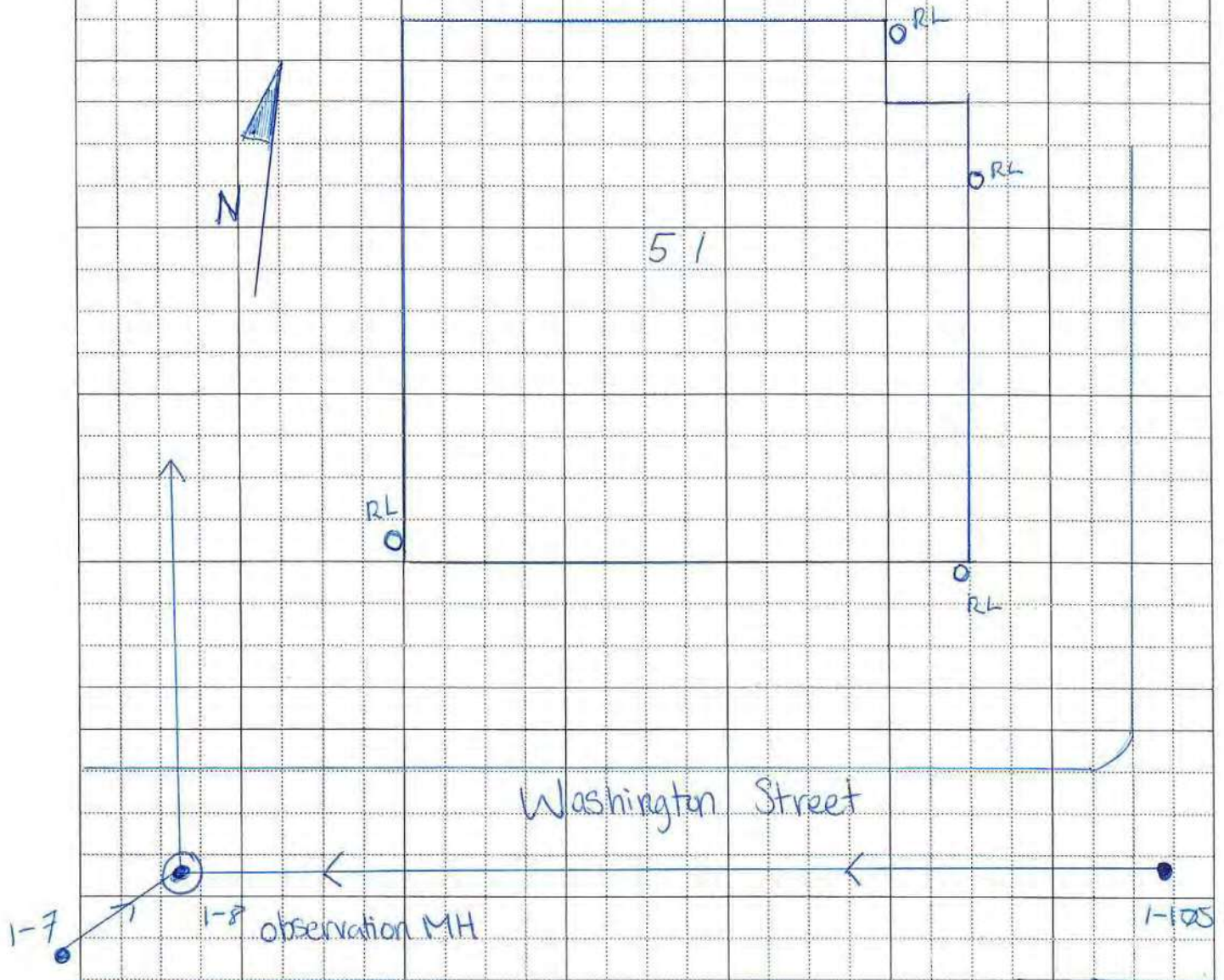








51 Washington Street



Notes:

No dye visible in observation manhole. flex pipes at ends of roof leaders disperse into ground in front and back yard. we stuck the hose down the pipes about 1 ft - 1.5 ft before hitting dirt.









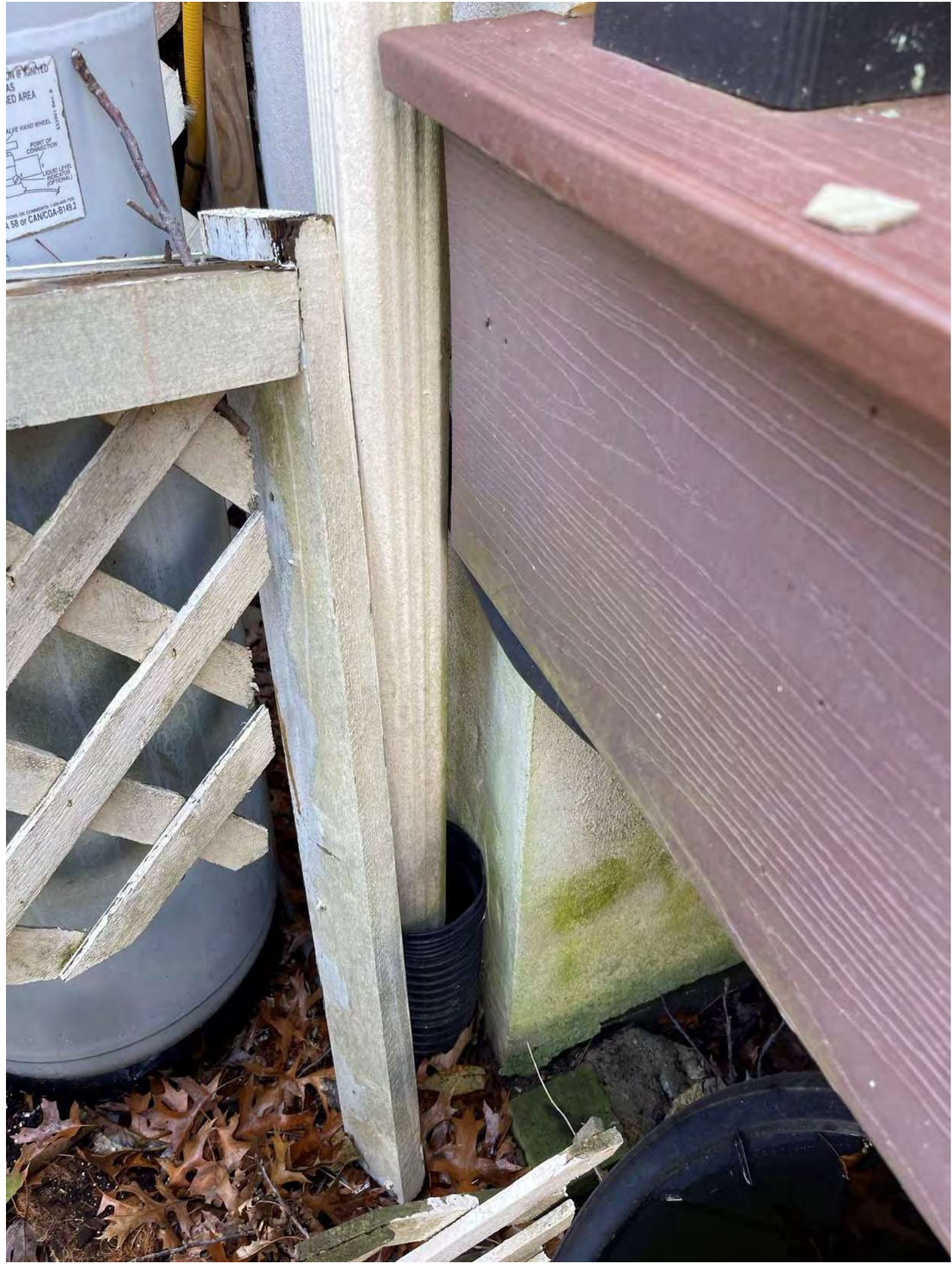




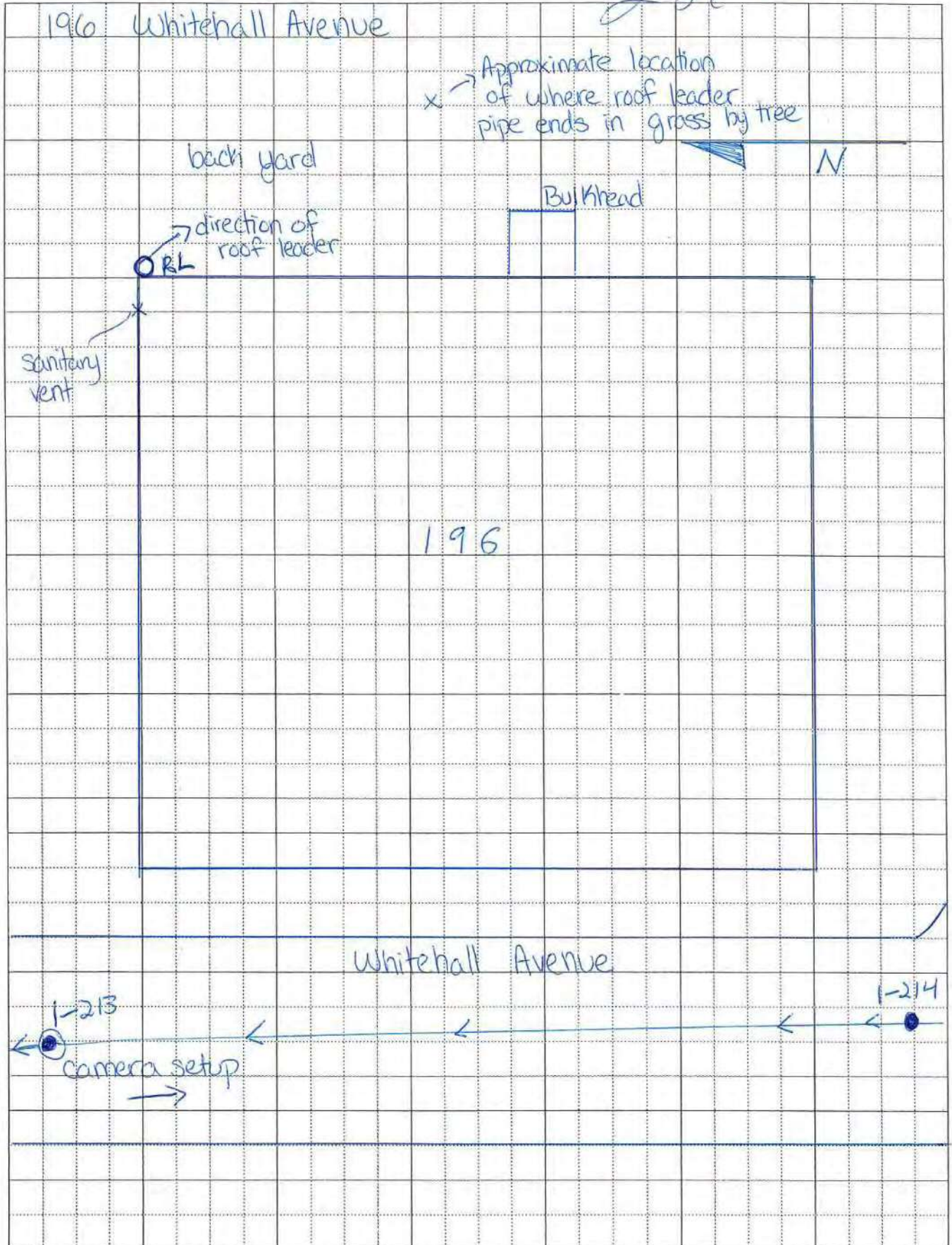
















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Job #: 2021-335  
Job Name: Stonington SSIS  
Sheet #: 2 of 2 Scale: not to scale  
Calculated by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: Lizzy Hanis Date: 10/25/22

196 Whitehall Avenue

Notes:

\* No yard drain on property

\* Roof leader goes into ground to perforated pipe and disperses in the yard by a tree. Homeowner confirmed

\* Stonington WPCA was present for testing and looked at sanitary in basement with homeowners

















## NWMCC INSPECTION REPORT

### PACP Rating Description

**1:    Excellent Condition**

**Minor Defects - Failure unlikely in the foreseeable future**

**2:    Good Condition**

**Defects that have not begun to deteriorate - Pipe unlikely to fail for at least 20 years.**

**3:    Fair Condition**

**Moderate defects that will continue to deteriorate - Pipe may fail in 10-20 years.**

**4:    Poor Condition**

**Severe Defects that will become Grade 5 defects within the foreseeable future - Pipe will probably fail in 5-10 years.**

**5:    Immediate Attention**

**Defects require immediate attention - Pipe has failed or will likely fail within the next 5 years or sooner.**





The Environmental  
Protection Specialists

National Water Main Cleaning  
Co.  
25 Marshall Street  
Canton, MA 02021  
Office: 800-422-0815  
Fax: 781-828-2473

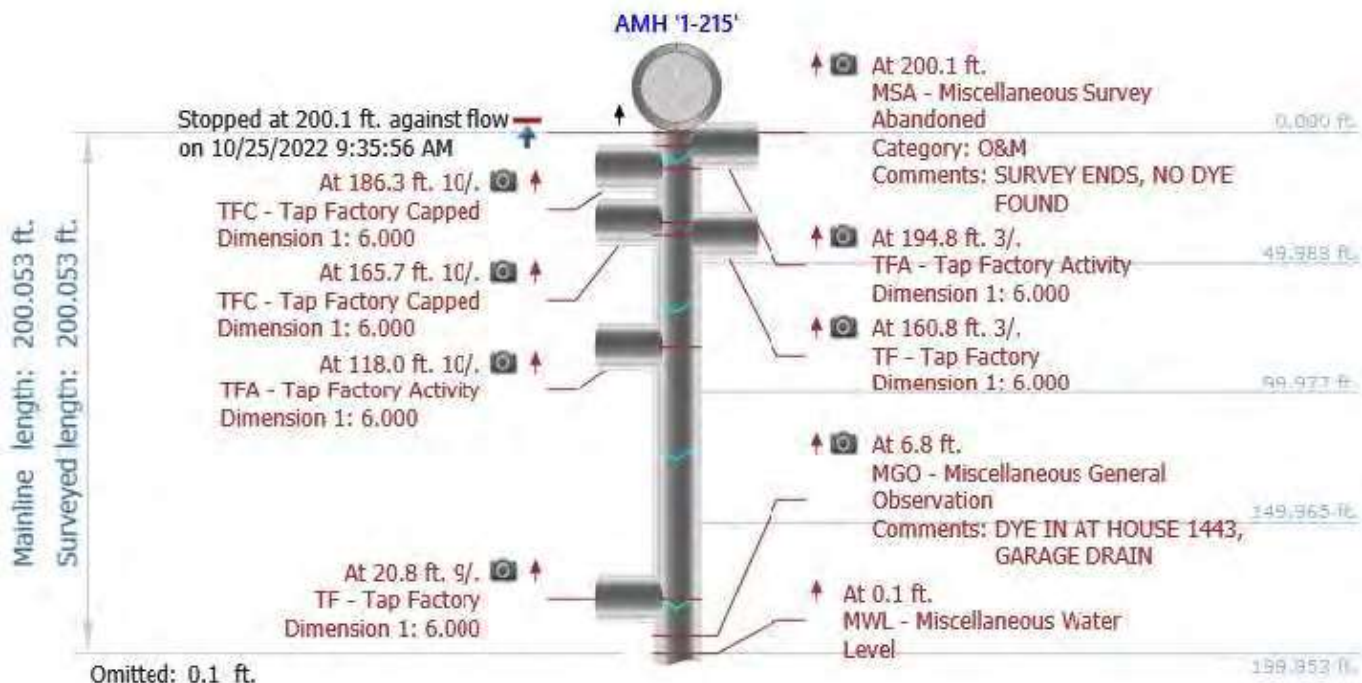
**Property Address:** 1443 Pequot Trail

## NWMCC INSPECTION REPORT

Start date/time: <b>20221025 09:17</b>	Weather: <b>Dry - No precipitation during survey</b>	Surveyed by: <b>T.CRONK</b>	Certificate number: <b>U-0120-70308103</b>	Pipe segment ref.: <b>1-215-1-212</b>
Owner:	Customer:	Pre-cleaning: <b>No Pre-Cleaning</b>	Date cleaned:	Project name: <b>MAR016-4</b>
City: <b>STONINGTON CT</b>	Street: <b>PEQUOT RD</b>	Location code:	Pipe use: <b>Sanitary Sewage Pipe</b>	Drainage area: Flow control:
Upstream MH No: <b>1-215</b>	Downstream MH No: <b>1-212</b>	Direction: <b>U</b>	Total length: <b>200.053 ft.</b>	Length surveyed: <b>200.053 ft.</b>
Purpose:	Pipe joint length:	Height: <b>8 in.</b>	Material: <b>Polyvinyl Chloride</b>	Additional info: <b>UPSTREAM SURVEY FOR DYE TEST</b>

### Pipe Ratings

Grade	Structural:					O&M:					Overall:			
	Defects	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Defects	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index	LoF	Risk
1	0	0	0	0000	0.0	0	0	0	0000	0.0	0	0.0	1.0	
2	0	0				0	0							
3	0	0				0	0							
4	0	0				0	0							
5	0	0				0	0							





Mainline length: 200.053 ft.  
Surveyed length: 200.053 ft.

Omitted: 200.05 ft.

Started at 0.0 ft. against flow  
on 10/25/2022 9:17:23 AM



AMH '1-212'



At 0.0 ft.  
AMH - Manhole  
Comments: 1-212

200.053 ft.  
200.053 ft.



# NWMCC INSPECTION REPORT

## Inspection Photos

City:	Street:	Start date/time:	Pipe segment ref.:
STONINGTON CT	PEQUOT RD	20221025 09:55	1-215-1-212



Photo: 1-215-1-212-20221025-091723-092446.JPG  
At: 6.805 ft. MGO - Miscellaneous General Observation  
Joint: No DYE IN AT HOUSE 1443, GARAGE DRAIN

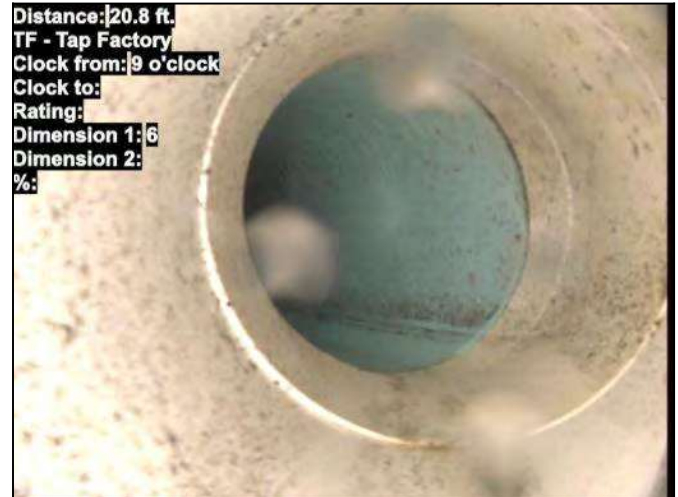


Photo: 1-215-1-212-20221025-091723-092702.JPG  
At: 20.816 ft. 9/. TF - Tap Factory  
Joint: No



Photo: 1-215-1-212-20221025-091723-093051.JPG  
At: 117.99 ft. TFA - Tap Factory Activity  
10/.  
Joint: No

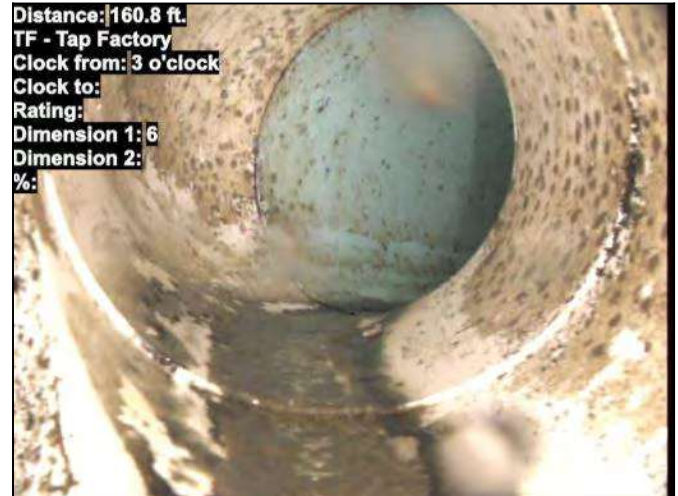


Photo: 1-215-1-212-20221025-091723-093259.JPG  
At: 160.823 ft. TF - Tap Factory  
3/.  
Joint: No





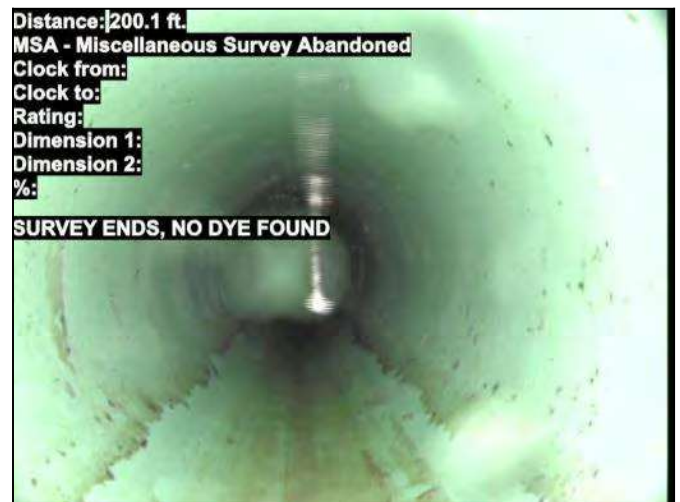
Distance: 165.7 ft.  
TFC - Tap Factory Capped  
Clock from: 10 o'clock  
Clock to:  
Rating:  
Dimension 1: 6  
Dimension 2:  
%:  
Photo: 1-215-1-212-20221025-091723-093331.JPG  
At: 165.727 ft. TFC - Tap Factory Capped  
10/.  
Joint: No



Distance: 186.3 ft.  
TFC - Tap Factory Capped  
Clock from: 10 o'clock  
Clock to:  
Rating:  
Dimension 1: 6  
Dimension 2:  
%:  
Photo: 1-215-1-212-20221025-091723-093424.JPG  
At: 186.343 ft. TFC - Tap Factory Capped  
10/.  
Joint: No



Distance: 194.8 ft.  
TFA - Tap Factory Activity  
Clock from: 3 o'clock  
Clock to:  
Rating:  
Dimension 1: 6  
Dimension 2:  
%:  
Photo: 1-215-1-212-20221025-091723-093453.JPG  
At: 194.849 ft. TFA - Tap Factory Activity  
3/.  
Joint: No



Distance: 200.1 ft.  
MSA - Miscellaneous Survey Abandoned  
Clock from:  
Clock to:  
Rating:  
Dimension 1:  
Dimension 2:  
%:  
SURVEY ENDS, NO DYE FOUND  
Photo: 1-215-1-212-20221025-091723-093532.JPG  
At: 200.053 ft. MSA - Miscellaneous Survey Abandoned  
Joint: No SURVEY ENDS, NO DYE FOUND

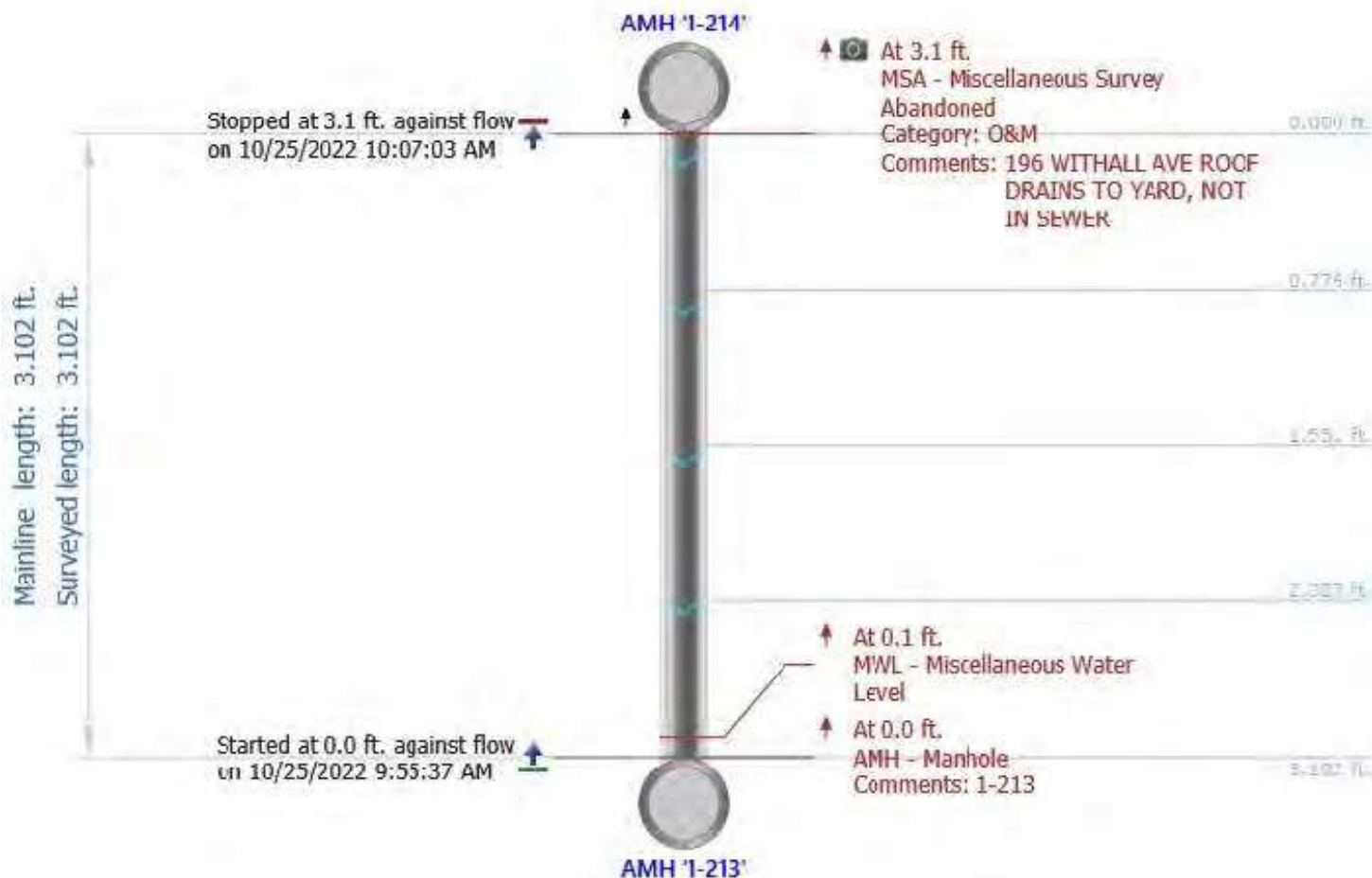


## NWMCC INSPECTION REPORT

Start date/time:	Weather:	Surveyed by:	Certificate number:	Pipe segment ref.:	
<b>20221025 09:55</b>	<b>Dry Weather/Wet Ground</b>	<b>T.CRONK</b>	<b>U-0120-70308103</b>	<b>1-214-1-213</b>	
Owner:	Customer:	Pre-cleaning:	Date cleaned:	Project name:	
		<b>No Pre-Cleaning</b>		<b>MAR016-4</b>	
City:	Street:	Location code:	Pipe use:	Drainage area:	Flow control:
<b>STONINGTON CT</b>	<b>WHITHALL AVE</b>		<b>Sanitary Sewage Pipe</b>		
Upstream MH No:	Downstream MH No:	Direction:	Total length:	Length surveyed:	
<b>1-214</b>	<b>1-213</b>	<b>U</b>	<b>3.102 ft.</b>	<b>3.102 ft.</b>	
Purpose:	Pipe joint length:	Height:	Material:	Additional info:	
		<b>8 in.</b>	<b>Polyvinyl Chloride</b>	<b>UPSTREAM SURVEY FOR DYE TEST</b>	

### Pipe Ratings

Grade	Defects	Structural:				Defects	Segment Grade	O&M:				Overall:			
		Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index			Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index	LoF	Risk	
1	0	0	0	0000	0.0	0	0	0	0000	0.0	0	0.0	1.0		
2	0	0				0	0								
3	0	0				0	0								
4	0	0				0	0								
5	0	0				0	0								





NWMCC INSPECTION REPORT

Inspection Photos

City:	Street:	Start date/time:	Pipe segment ref.:
STONINGTON CT	WHITHALL AVE	20221025 10:23	1-214-1-213

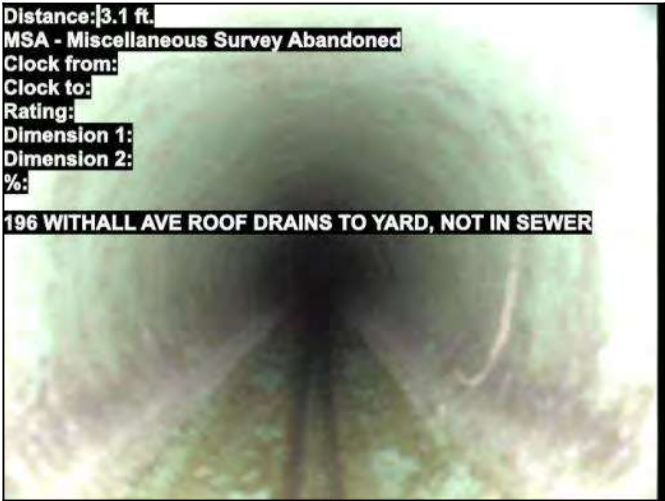


Photo: 1-214-1-213-20221025-095537-100600.JPG  
At: 3.102 ft. MSA - Miscellaneous Survey Abandoned  
Joint: No 196 WITHALL AVE ROOF DRAINS TO YARD,  
NOT IN SEWER

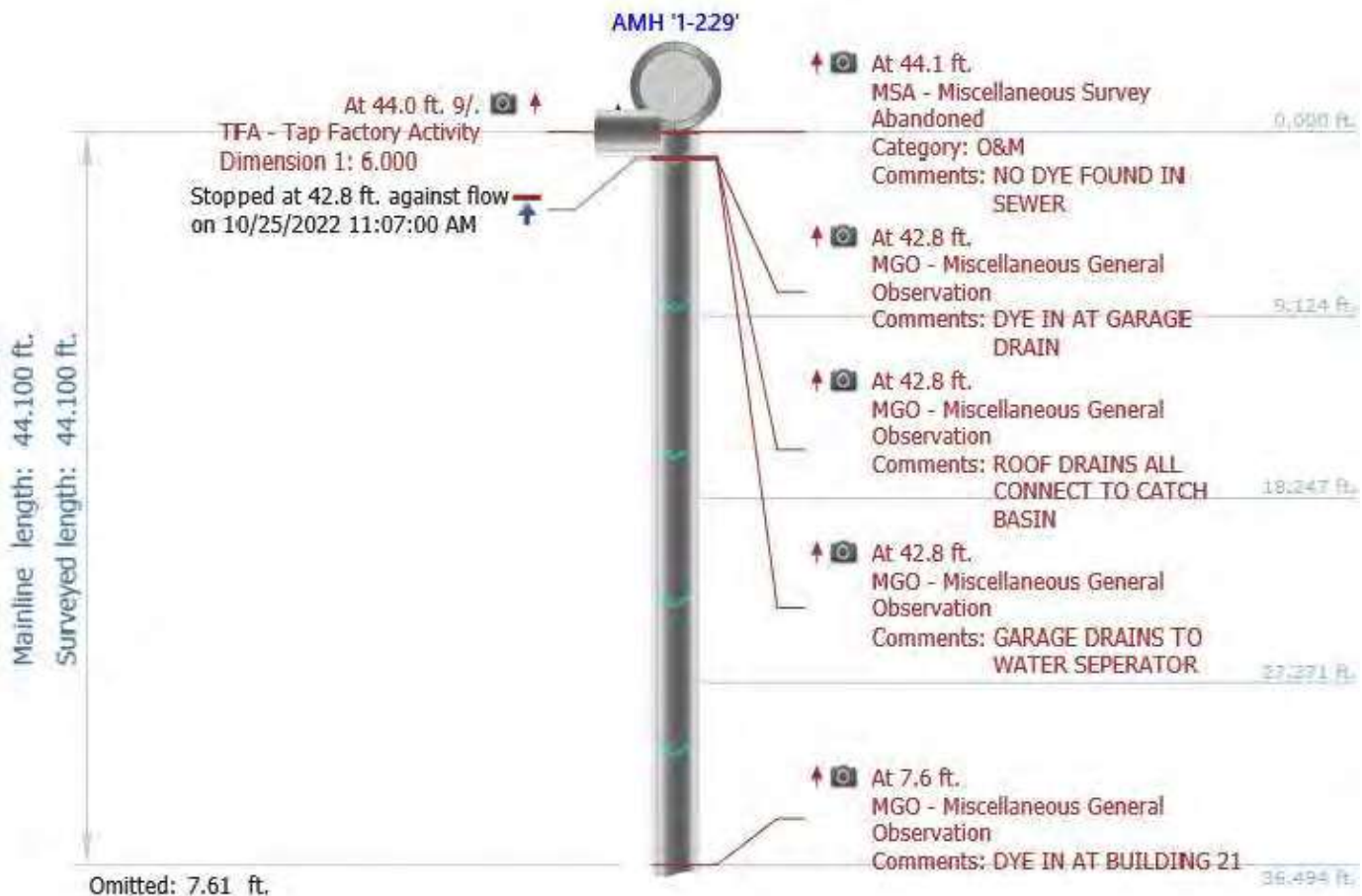


# NWMCC INSPECTION REPORT

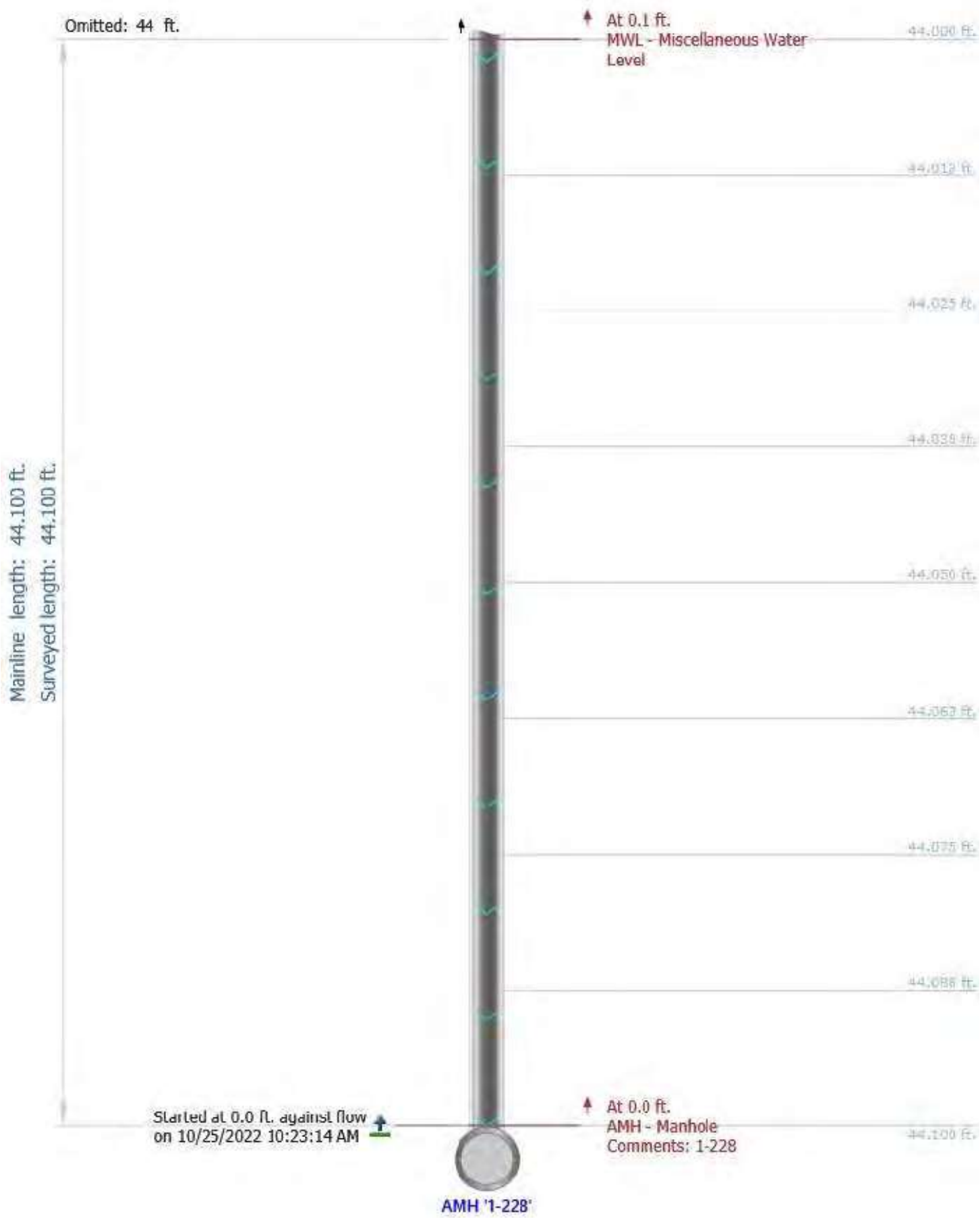
Start date/time: <b>20221025 10:23</b>	Weather: <b>Dry Weather/Wet Ground</b>	Surveyed by: <b>T.CRONK</b>	Certificate number: <b>U-0120-70308103</b>	Pipe segment ref.: <b>1-229-1-228</b>
Owner:	Customer:	Pre-cleaning: <b>No Pre-Cleaning</b>	Date cleaned:	Project name: <b>MAR016-4</b>
City: <b>STONINGTON CT</b>	Street: <b>N STONEINGTON RD</b>	Location code:	Pipe use: <b>Sanitary Sewage Pipe</b>	Drainage area: Flow control:
Upstream MH No: <b>1-229</b>	Downstream MH No: <b>1-228</b>	Direction: <b>U</b>	Total length: <b>44.100 ft.</b>	Length surveyed: <b>44.100 ft.</b>
Purpose:	Pipe joint length:	Height: <b>8 in.</b>	Material: <b>Polyvinyl Chloride</b>	Additional info: <b>DYE TEST SURVEY</b>

## Pipe Ratings

Grade	Structural:					O&M:					Overall:			
	Defects	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Defects	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index	LoF	Risk
1	0	0	0	0000	0.0	0	0	0	0000	0.0	0	0.0	1.0	
2	0	0				0	0							
3	0	0				0	0							
4	0	0				0	0							
5	0	0				0	0							









# NWMCC INSPECTION REPORT

## Inspection Photos

City:

STONINGTON CT

Street:

N STONEINGTON RD

Start date/time:

20221025 12:13

Pipe segment ref.:

1-229-1-228

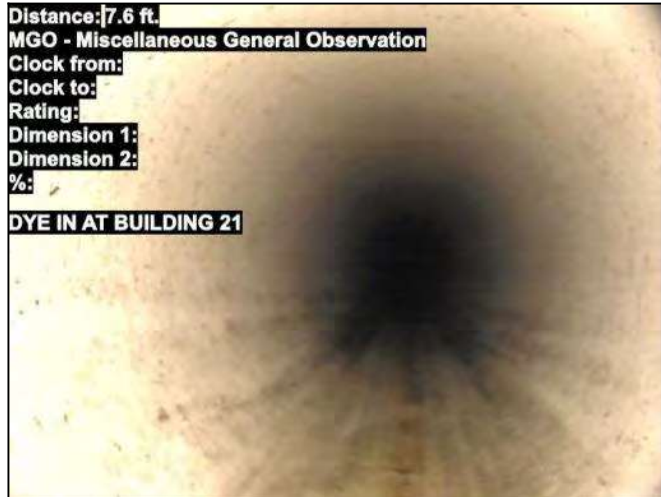


Photo: 1-229-1-228-20221025-102314-103519.JPG

At: 7.606 ft. MGO - Miscellaneous General Observation

Joint: No DYE IN AT BUILDING 21

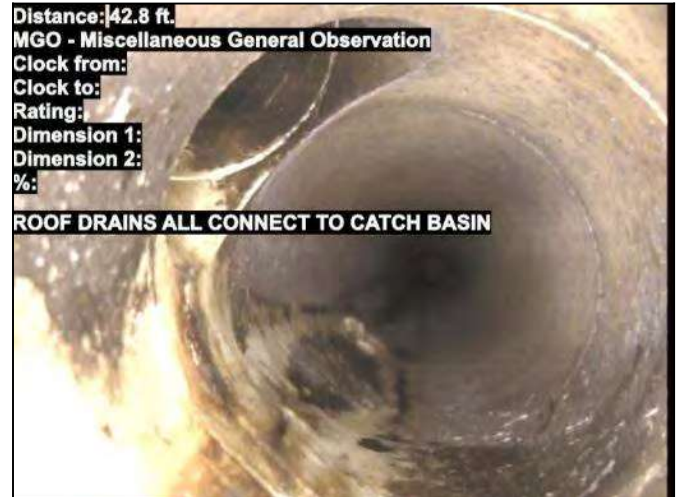


Photo: 1-229-1-228-20221025-102314-105845.JPG

At: 42.833 ft. MGO - Miscellaneous General Observation

Joint: No ROOF DRAINS ALL CONNECT TO CATCH BASIN



Photo: 1-229-1-228-20221025-102314-105812.JPG

At: 42.833 ft. MGO - Miscellaneous General Observation

Joint: No DYE IN AT GARAGE DRAIN



Photo: 1-229-1-228-20221025-102314-110313.JPG

At: 42.833 ft. MGO - Miscellaneous General Observation

Joint: No GARAGE DRAINS TO WATER SEPERATOR





Photo: 1-229-1-228-20221025-102314-103635.JPG  
At: 44.034 ft. 9/. TFA - Tap Factory Activity  
Joint: No



Photo: 1-229-1-228-20221025-102314-110628.JPG  
At: 44.1 ft. MSA - Miscellaneous Survey Abandoned  
Joint: No NO DYE FOUND IN SEWER

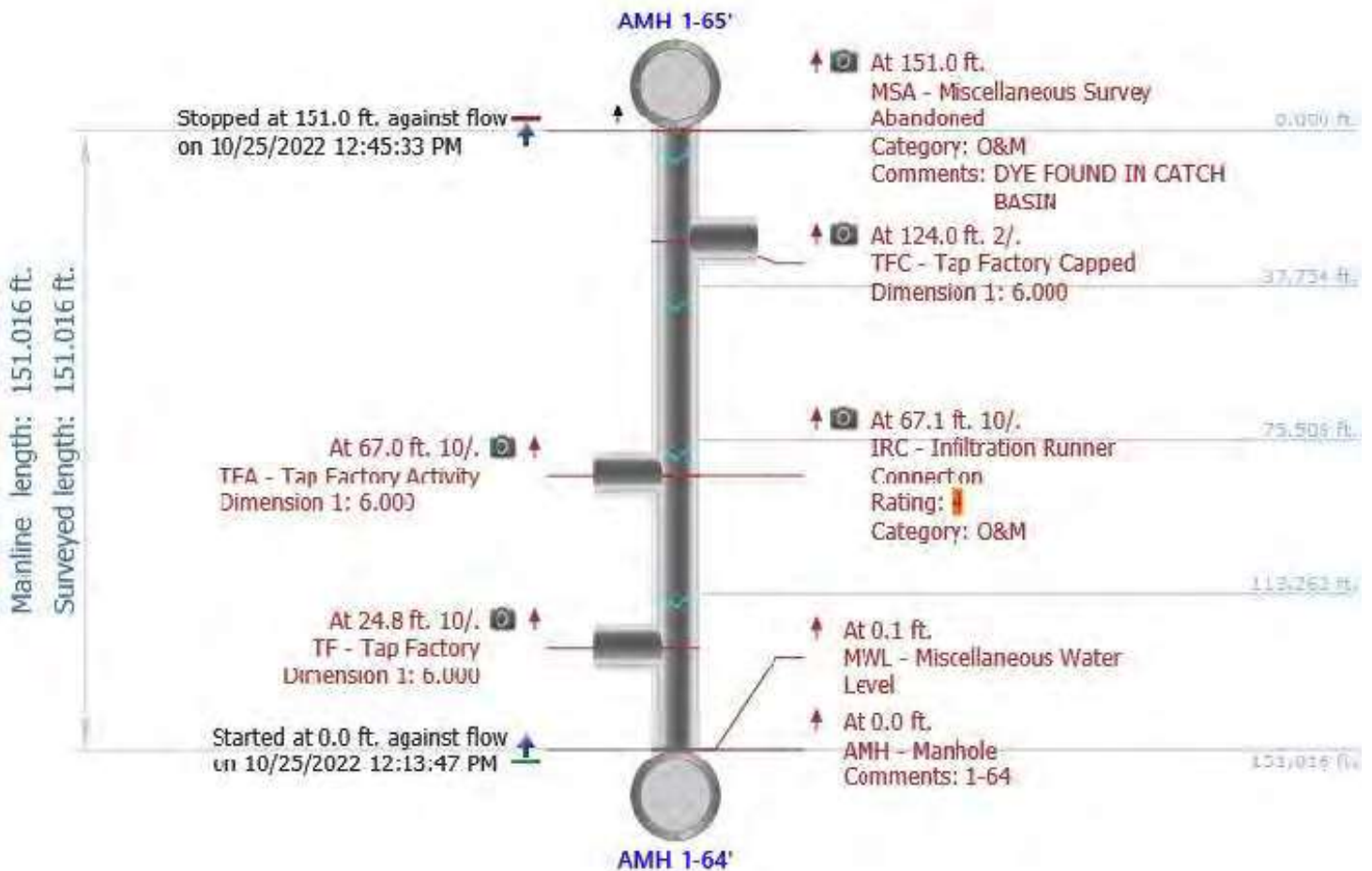


# NWMCC INSPECTION REPORT

Start date/time: <b>20221025 12:13</b>	Weather: <b>Dry Weather/Wet Ground</b>	Surveyed by: <b>T.CRONK</b>	Certificate number: <b>U-0120-70308103</b>	Pipe segment ref.: <b>1-65-1-64</b>	
Owner:	Customer:	Pre-cleaning: <b>No Pre-Cleaning</b>	Date cleaned:	Project name: <b>MAR016-4</b>	
City: <b>STONINGTON CT</b>	Street: <b>WASHINGTON ST</b>	Location code:	Pipe use: <b>Sanitary Sewage Pipe</b>	Drainage area:	Flow control:
Upstream MH No: <b>1-65</b>	Downstream MH No: <b>1-64</b>	Direction: <b>U</b>	Total length: <b>151.016 ft.</b>	Length surveyed: <b>151.016 ft.</b>	
Purpose:	Pipe joint length:	Height: <b>12 in.</b>	Material: <b>Vitrified Clay Pipe</b>	Additional info: <b>DYE TEST AT BUILDING 35</b>	

## Pipe Ratings

Grade	Structural:					O&M:					Overall:			
	Defects	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Defects	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index	LoF	Risk
1	0	0	0	0000	0.0	0	0	4	4100	4.0	4	4.0	4.1	
2	0	0				0	0							
3	0	0				0	0							
4	0	0				0	4							
5	0	0				0	0							

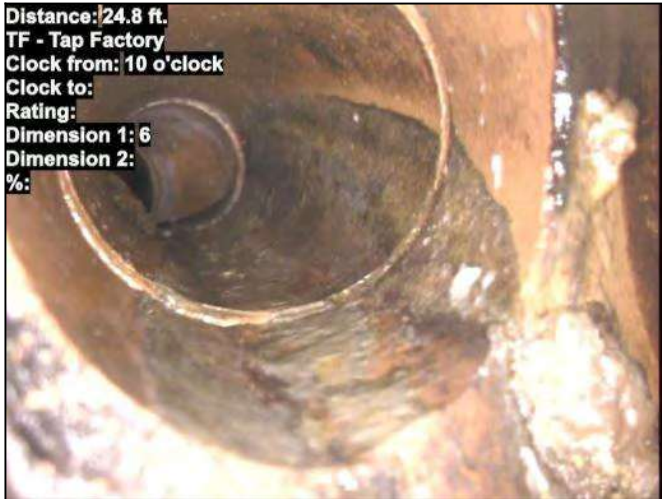




# NWMCC INSPECTION REPORT

## Inspection Photos

City:	Street:	Start date/time:	Pipe segment ref.:
STONINGTON CT	WASHINGTON ST	20221025 12:13	1-65-1-64

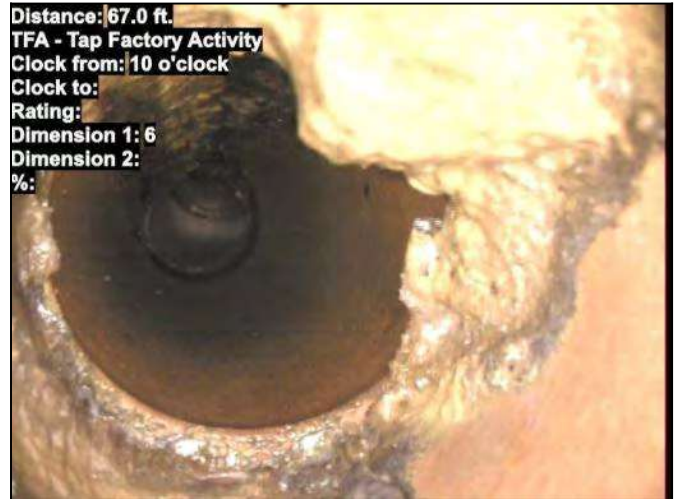


Distance: 24.8 ft.  
TF - Tap Factory  
Clock from: 10 o'clock  
Clock to:  
Rating:  
Dimension 1: 6  
Dimension 2:  
%:

Photo: 1-65-1-64-20221025-121347-121659.JPG

At: 24.819 ft. TF - Tap Factory  
10/.

Joint: No

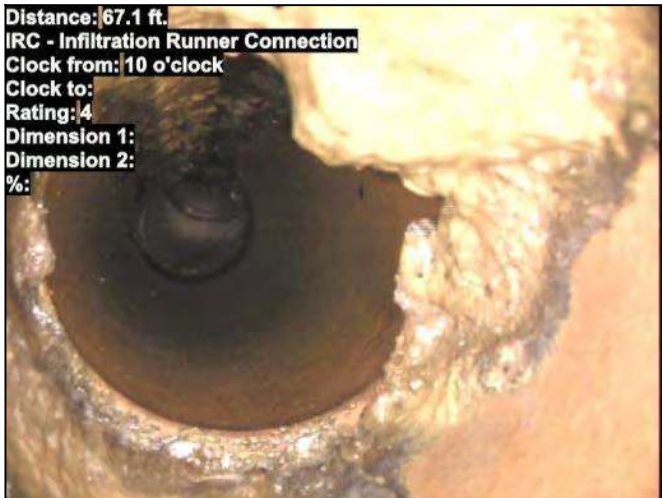


Distance: 67.0 ft.  
TFA - Tap Factory Activity  
Clock from: 10 o'clock  
Clock to:  
Rating:  
Dimension 1: 6  
Dimension 2:  
%:

Photo: 1-65-1-64-20221025-121347-121812.JPG

At: 66.951 ft. TFA - Tap Factory Activity  
10/.

Joint: No



Distance: 67.1 ft.  
IRC - Infiltration Runner Connection  
Clock from: 10 o'clock  
Clock to:  
Rating: 4  
Dimension 1:  
Dimension 2:  
%:

Photo: 1-65-1-64-20221025-121347-121820.JPG

At: 67.051 ft. IRC - Infiltration Runner Connection  
10/.

Joint: No



Distance: 124.0 ft.  
TFC - Tap Factory Capped  
Clock from: 2 o'clock  
Clock to:  
Rating:  
Dimension 1: 6  
Dimension 2:  
%:

Photo: 1-65-1-64-20221025-121347-122051.JPG

At: 123.995 ft. TFC - Tap Factory Capped  
2/.

Joint: No



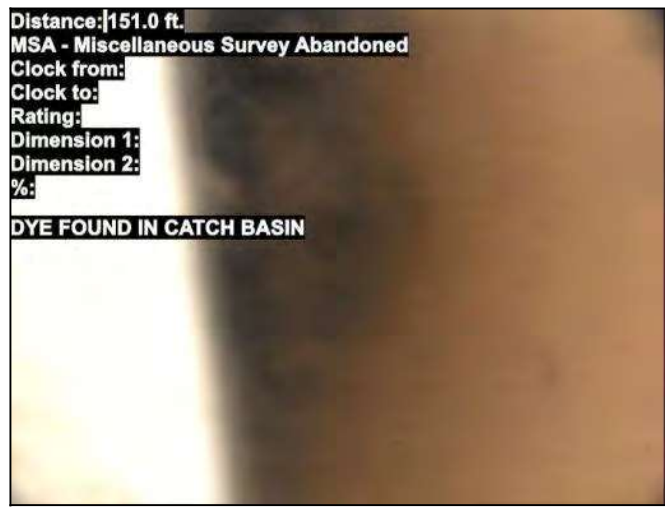


Photo: 1-65-1-64-20221025-121347-124342.JPG

At: 151.016 ft. MSA - Miscellaneous Survey Abandoned

Joint: No DYE FOUND IN CATCH BASIN



