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Technical Memorandum

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Technical Memorandum 1

Subject: Smoke Testing

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List of Abbreviations

BC	Brown and Caldwell
CCTV	closed-circuit television
CIP	capital improvement program
City	Oregon City
GIS	geographic information system
GPS	Global Positioning System
ID	identification
I/I	inflow and infiltration
LF	linear foot/feet
QA/QC	quality assurance/quality control
SFE	SFE Global
SSMP	Sanitary Sewer Master Plan
TM	technical memorandum



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Executive Summary

This technical memorandum (TM) describes the investigation and characterization of inflow and infiltration (I/I) sources through smoke testing of sanitary sewer pipes for the City of Oregon City. The methods and findings are described in more detail throughout this TM and include:

- Selection of basins to be smoke tested based on previously completed planning work
- Smoke testing data organization and quality assurance/quality control (QA/QC)
- Smoke testing incident characterization and mapping
- Recommendations and next steps for the I/I Abatement Program

Smoke testing was conducted in 11 sewer basins during October, November, and December of 2016. The locations selected for smoke testing are within the areas identified in the *Oregon City Sanitary Sewer Master Plan* (SSMP) as having the highest rates of I/I and were further studied with additional flow metering in 2016. The pipe and contributing areas in the 11 basins inspected are identified in Figure ES-1, below.

Table ES-1 and Figure ES-1 present the results of smoke testing by incident type and basin. Detailed basin maps can be found in Attachment A. Basins 7, 2, 8A, 8B, and 3 contained the highest concentration of incidents (80 percent). A total of 18 potential public cross-connections between the stormwater and sanitary sewer systems were identified during smoke testing. These potential cross-connections may be sources of heavy stormwater inflow directly into the sanitary sewer system. Basins 2, 7, 8A, and 4 contained the highest concentration of public cross-connections (78 percent).

Table ES-1. Summary of Smoke Testing Incidents by Type and Basin

Basin	Incidents	Percentage of total incidents (%)	Incident type				
			Public cross-connections	Private downspouts	Private commercial connections	Ground/laterals	Miscellaneous
1	5	4.6	1	-	-	3	1
2	22	20.6	5	6	2	8	1
3	12	11.2	1	2	-	5	4
4	6	5.6	2	-	-	4	-
5	1	0.9	-	-	-	-	1
6	6	5.6	1	1	2	1	1
7	23	21.5	4	8	-	11	-
8A	16	15.0	3	7	-	6	-
8B	13	12.1	1	5	-	6	1
9	1	0.9	-	-	-	-	1
10	2	1.9	-	1	-	1	-
Total	107	100	18	30	4	45	10

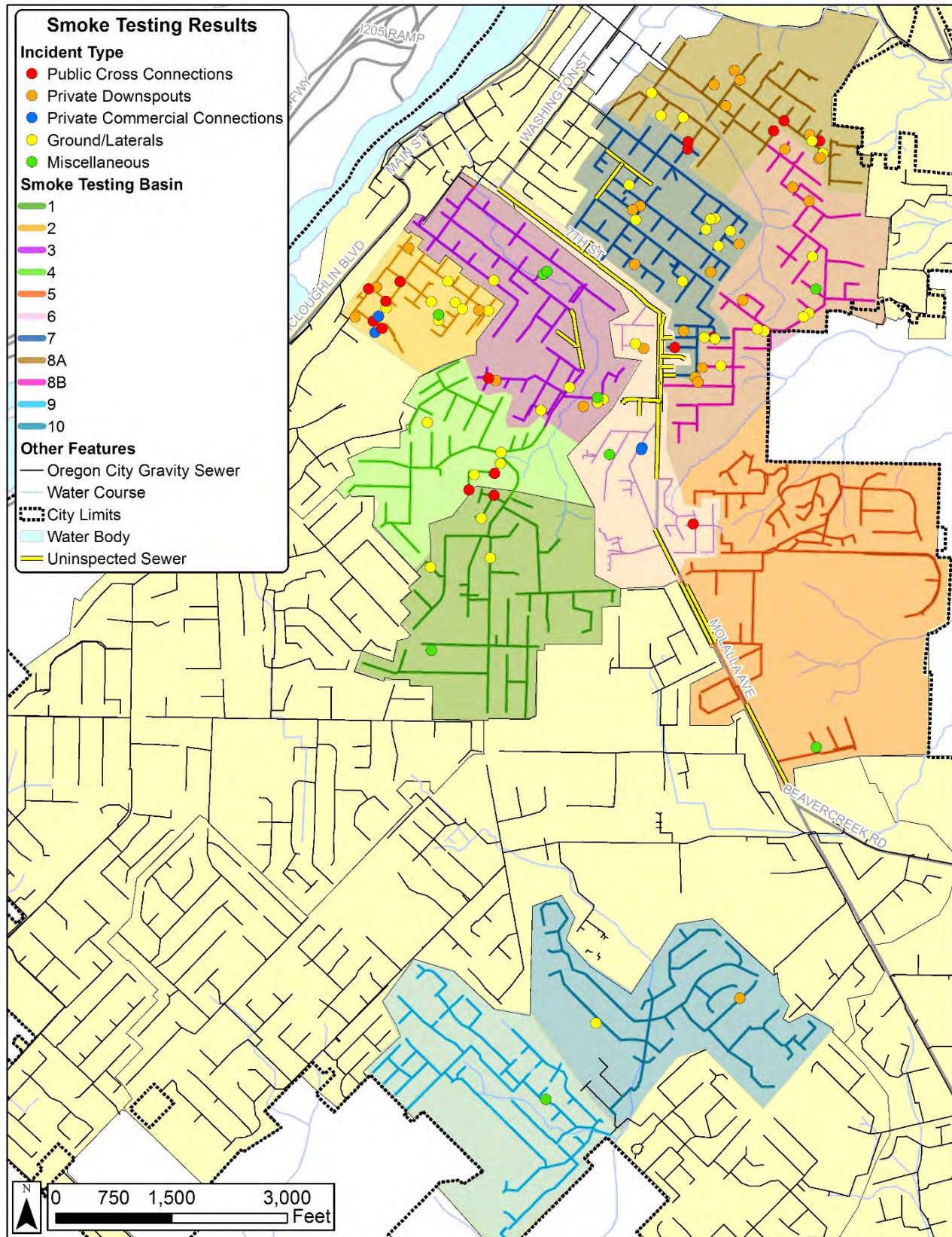


Figure ES-1. Smoke testing results

Section 1: Project Background

This section describes the goals and previously completed work of the Inflow and Infiltration (I/I) Abatement Program.

1.1 Program Goals

The goal of the I/I Abatement Program is to identify and prioritize areas in Oregon City to allow development of a prioritized plan to effectively reduce I/I into the City's sanitary sewer system. The goal of the project phase outlined by this technical memorandum (TM) is to identify potential I/I sources through smoke testing, which will be used to inform future I/I investigation and abatement efforts.

1.2 Previously Completed Work

As part of Oregon City's *Sanitary Sewer Master Plan* (SSMP), an analysis of a larger area was conducted to establish an initial prioritization. Figure 1 shows sewer basins that were modeled as part of the SSMP. Based on modeling results, Basins 5, 8, and 10 (identified with the rust-colored polygon in Figure 1) were identified as contributing the highest I/I rates per linear foot (LF) of sewer. Approximately 50 percent of the peak I/I flow during a 24-hour, 10-year event was attributed to these three model basins.

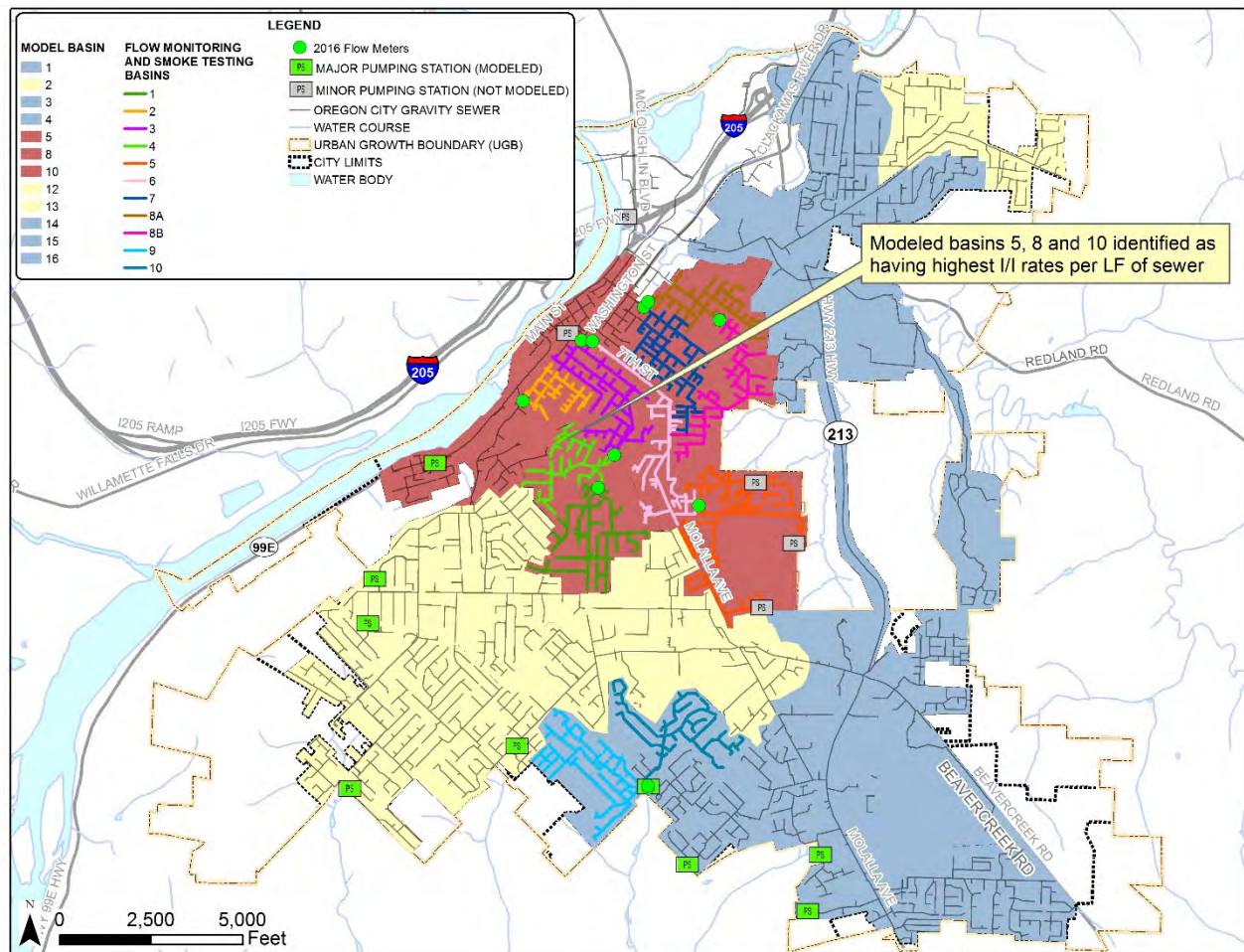


Figure 1. Previously modeled sewer basins identifying areas of initial highest priority with locations of subsequent flow monitoring and smoke testing basins

To further characterize I/I and prioritize abatement efforts, higher-resolution flow monitoring basins were selected based on the modeling results. BC selected nine flow monitoring locations within the previously modeled sewer basins identified as having the highest I/I rates. Two additional flow monitoring locations were then added near the Settler's Point Pump Station at the request of the City. Flow monitoring data were collected from the first week of January through the end of April 2016. Figure 1 shows the 11 flow monitoring basins in relation to the larger previously modeled sewer basins.

Results from analysis of the flow monitoring data indicated that the metered sewer basins with the highest rates of I/I are Basins 3, 4, and 7. These three basins make up 26 percent of the total monitored pipe length yet contribute 57 percent to 62 percent of the total I/I observed at the 11 flow monitoring locations.

Section 2: Smoke Testing

This section describes the basins that were smoke tested, the completed smoke testing work, sewers that were not smoke tested, data organization, and data quality assurance/quality control (QA/QC).

2.1 Basin Selection

Because of efficiency in locating sources of I/I, Brown and Caldwell (BC) recommended that smoke testing be conducted in all sewer basins across the city, including basins where flow monitoring data were not collected (BC 2016). After discussion with the City, it was decided that smoke testing efforts be limited to the same 11 basins where previous modeling and flow monitoring occurred.

2.2 Completed Work

BC hired SFE Global (SFE) to smoke test the sanitary sewer system in the selected 11 sewer basins and provided SFE with City maps of the sewer lines to be inspected along with manhole numbers and street names. Smoke testing entails blowing liquid smoke into an isolated pipe segment and then documenting where smoke escapes the system (other than properly vented plumbing fixtures) as potential I/I sources. Potential sources include cracks in the sewers, cross-connections between storm sewers and sanitary sewers, roof drain connections, broken/missing cleanout caps, or defective/damaged manholes.

BC worked with the City and SFE to coordinate public involvement and complete the smoke testing work to minimize impact to the public. SFE produced a smoke testing report summarizing its methods and results (Attachment B). The report provides information on each smoke testing incident or observed location of a potential I/I source. An Excel database produced by SFE provided the same information as the report, including Global Positioning System (GPS) coordinates of each smoke testing incident, in a tabular format. Further discussion regarding the data and results is included in Section 3 below.

2.3 Uninspected Sewers

A portion of the sewers in smoke testing basins 3, 5, 6, and 7 were not smoke tested. Information from SFE identifying the uninspected sewers can be found as Attachment C. All of the uninspected sewers are highlighted with a yellow line on Figures A-1 through A-12 in Attachment A.

2.4 Data Organization and QA/QC

BC reviewed the SFE report and smoke testing results and then organized a master database of all the recorded incidents, which can be found in Attachment A. SFE included a total of 108 incidents for the entire study. An identification (ID) number of 1 through 108 was attributed to each observed incident.

Based on information in the report, including photographs and documented field comments, BC modified the SFE leak source codes for 23 observed incidents that either were coded incorrectly (4 incidents) or had been

coded as “miscellaneous” (19 incidents). The majority of the 19 “miscellaneous” incidents were related to smoke coming out of the ground at a location such as a front yard, a garden, or a ditch on the side of the road. Because these incidents were all locations of smoke coming out of the ground, and their descriptions matched other incidents that were coded as “smoking ground,” BC changed the leak source of these incidents from “miscellaneous” to “smoking ground.”

The GPS coordinates provided by SFE for incidents 40 and 57 were incomplete. BC used the address location provided for these incidents in the SFE report and cross-referenced geographic information system (GIS) data to determine the approximate latitude and longitude coordinate for the incidents.

All data fields that were modified by BC are highlighted yellow in Table A-1 in Attachment A.

Section 3: Incident Characterization and Mapping

This section describes the characterization and mapping of smoke testing incidents.

3.1 Characterization

BC thoroughly reviewed the raw data produced by SFE to ensure QA/QC, and then further simplified the 14 documented leak source types into five incident types:

- **Public cross-connections** include stormwater catch basins (3 incidents), drains or inlets (14 incidents), and manholes (1 incident). Cross-connections have the potential to be sources of heavy inflow to the sanitary sewer system.
- **Private downspouts** drain roofs from buildings (30 incidents).
- **Private commercial connections** are various types of drains and were found to include wash pits (2 incidents), area drains (1 incident), and oil/water separators (1 incident) that is located on a private commercial property is connected to the sanitary sewer system.
- **Ground/laterals** include those cases where smoke was observed coming out of the ground through cracks in concrete pavement (10 incidents), above a suspected lateral (6 incidents), or at other ground locations (29 incidents).
- **Miscellaneous** are incidents that did not fall into any of the previously described categories and include smoking cleanouts (5 incidents), foundation drains (1 incident), a sanitary manhole (1 incident) indicating infiltration, or where smoke was observed inside of a house (3 incidents) due to dry traps or defective vent piping.

Table 1 provides a summary of smoke testing incidents by leak source and incident type.

Leak source	Revised quantity	Percentage of total incidents (%)	Incident type	Quantity	Percentage of total incidents (%)
Catch basins	3	2.8	Public cross-connections	18	16.8
Storm drains (inlets)	14	13.0			
Storm manholes	1	0.9			
Downspouts	30	28.0	Private downspouts	30	28.0
Driveway drains	2	1.9	Private commercial connections	4	3.7
Private sump	2	1.9			
Service lateral	6	5.6	Ground/laterals	45	42.1

Table 1. Summary of Smoke Testing Incidents by Source and Type

Leak source	Revised quantity	Percentage of total incidents (%)	Incident type	Quantity	Percentage of total incidents (%)
Cracked concrete	10	9.3	Miscellaneous	10	9.3
Smoking ground	29	27.1			
Cleanout	5	4.7			
Smoke inside house	3	2.8			
Foundation drains	1	0.9			
Sanitary main	1	0.9			

Smoke testing incidents were also characterized according to basin location. Basins 7, 2, 8A, 8B, and 3 contained the highest concentration of total incidents (80 percent). Basins 2, 7, 8A, and 4 contained the highest concentration of public cross-connections (78 percent). Table 2 provides a summary of smoke testing incidents by incident type and basin.

Table 2. Summary of Smoke Testing Incidents by Type and Basin

Basin	Incidents	Percentage of total incidents (%)	Incident type				
			Public cross-connections	Private downspouts	Private commercial connections	Ground/laterals	Miscellaneous
1	5	4.6	1	-	-	3	1
2	22	20.6	5	6	2	8	1
3	12	11.2	1	2	-	5	4
4	6	5.6	2	-	-	4	-
5	1	0.9	-	-	-	-	1
6	6	5.6	1	1	2	1	1
7	23	21.5	4	8	-	11	-
8A	16	15.0	3	7	-	6	-
8B	13	12.1	1	5	-	6	1
9	1	0.9	-	-	-	-	1
10	2	1.9	-	1	-	1	-
Total	107^a	100	18	30	4	45	10

a. SFE included a total 108 incidents; however, 1 incident (ID = 83) was identified as having no observed smoke. See Table A-1 in Attachment A or SFE report in Attachment B for more information.

3.2 Mapping

The Excel database of smoke testing incidents was imported into GIS and a shapefile created to develop maps of the spatial distribution of incidents. Figure A-1 in Attachment A provides an overview map of the results of the entire smoke testing project. Figures A-2 through A-12 in Attachment A provide more detailed maps of the results of each inspected sewer basin showing the location of each incident, the type of incident, and the severity, as reported by SFE.

Section 4: Recommendations and Next Steps

This section provides recommendations and next steps for the I/I Abatement Program.

4.1 Dye Testing

Dye testing is implemented to verify a cross-connection or identify a flow path. Dye testing for cross-connection verification involves placing dye in a storm drain or catch basin and then flushing it with water. The nearby sanitary sewer is then inspected for the appearance of dyed water. If the storm system is cross-connected to the sanitary system, the dyed water will appear in the sanitary sewer.

A total of 18 likely public cross-connections were identified during smoke testing. The City should dye test each potential cross-connection to confirm the connection prior to correcting.

Table 3 provides a list of all identified public cross-connections during smoke testing.

Incident ID	Basin	Address location	Upstream manhole	Downstream manhole	Latitude	Longitude	Incident field comments
3	1	152 Harding Blvd.	13755	10864	45.34550	-122.60487	Heavy smoke from stormwater catch basin
20	2	122 S Center St.	14099	11599	45.35157	-122.61119	Storm manhole near manhole 11599 smoking
23	2	1st St. and S Center St.	12089	12091	45.35230	-122.61057	All storm drains at 1st between High and Center (4 storm drains)
24	2	1st St. and S High St.	12125	12091	45.35272	-122.61146	All storm drains at 1st between High and Center (4 storm drains)
25	2	2nd St. and S Center St.	12125	12126	45.35301	-122.60989	All storm drains at 2nd and Center (4 storm drains)
27	2	122 S Center St.	14098	11599	45.35133	-122.61075	Three catch basins in City shop parking lot
32	3	Bellevue Ave. and Brighton Ave.	11838	11554	45.34966	-122.60529	Storm drain near manhole 11554
43	4	Barclay Ave. and Harding Blvd.	13046	13047	45.34567	-122.60614	3 storm drains
45	4	178 Harding Blvd.	13047	13045	45.34628	-122.60486	2 storm drains near manhole 13045
50	6	515 Mt. Hood St.	10809	-	45.34466	-122.59478	Heavy smoke from storm drain; could not locate upstream manhole
53	7	13th St. and Jackson St. (South Corner)	13072	10140	45.35798	-122.59555	-
65	7	805 Taylor St.	13922	13091	45.35328	-122.59564	Catch basin and downspout cross-connected
70	7	-	13288	13109	45.35131	-122.59402	Storm drain NE of manhole 13109
73	7	418 Willamette St.	12977	12978	45.35092	-122.59595	Smoke from catch basins
84	8A	1508 Polk St.	13076	10129	45.35871	-122.59124	Smoke from catch basin
85	8A	1501 16th St. (16th and Polk)	10162	10161	45.35908	-122.59073	Storm drain at E corner of intersection
86	8A	1701 16th St. (16th and Pierce)	10066	12390	45.35839	-122.58891	Storm drain at E corner of intersection
93	8B	420 Dewey St.	13114	11505	45.35824	-122.59555	Catch basin at SE corner of Dewey and Irving Sts.

4.2 Downspout and Lateral Policy Development

A large number of smoke testing incidents were related to private downspouts or smoke coming out of the ground at a location of a suspected lateral.

The most effective I/I abatement programs include rehabilitation of service laterals. BC understands that the City is currently in the process of developing policy related to private laterals. Factors to be considered in developing new code language for service lateral rehabilitation include the following:

- Will the homeowner or the City perform the required upgrades?
- How long will the homeowner have to perform the improvements if he/she is required to perform them?
- Who will pay for the upgrades, or what will be the cost-sharing mechanism?

In addition, the City should consider developing new code that requires the disconnection of downspouts and foundation drains where alternatives to the sanitary sewer are available.

4.3 CCTV Inspection

Closed-circuit television (CCTV) inspection is a fundamental component to any sanitary sewer asset management and maintenance program. It is recommended that the City implement a citywide CCTV inspection program. In the context of the I/I Abatement Program, CCTV inspection would be analyzed to establish condition assessment of the city's sewers and to identify sources of I/I through specific sewer defects. From condition assessment, necessary programmatic solutions to reducing I/I input in the system would be developed.

BC recommends that additional CCTV inspection be coordinated with any efforts already in place so that comprehensive inspection is established across the city. Figure 2 below shows a map identifying the sewer basins by priority (Tier 1 = highest priority) for CCTV inspection based on the results of flow monitoring and smoke testing efforts. BC understands that the City has completed CCTV inspections during the past 10 years at various locations throughout the city. BC recommends that CCTV inspection be completed for pipes that have not been inspected in order of their priority identified in Figure 2.

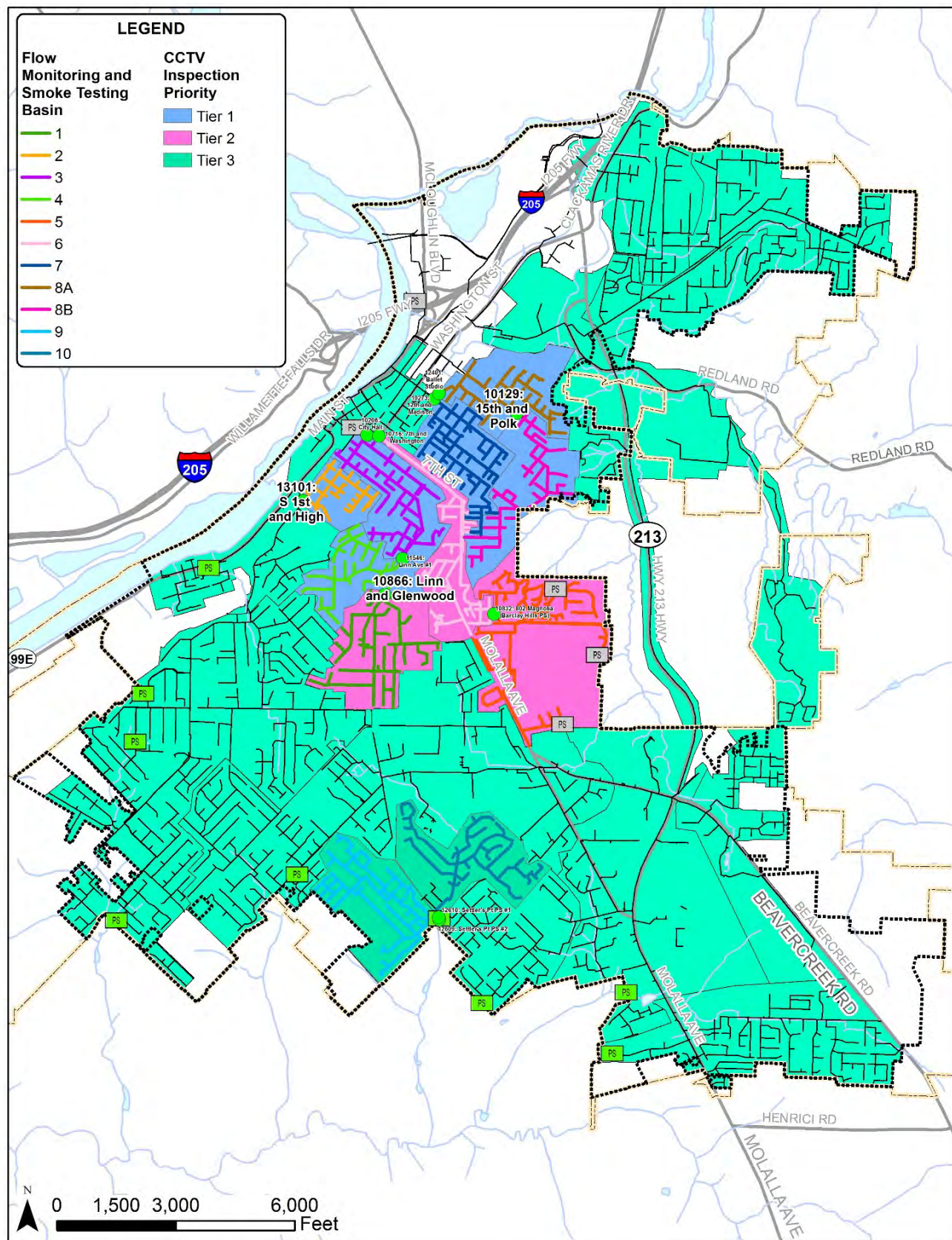


Figure 2. Recommendations for CCTV inspections

4.4 Coordination with Stormwater Master Plan

BC is currently contracted to develop a Stormwater Master Plan for the City. This work will include performing hydraulic modeling and condition assessment of stormwater assets to develop and prioritize capital improvement program (CIP) projects. I/I abatement efforts should be coordinated closely with stormwater planning efforts to inform decision making and maximize cost-effectiveness as CIP projects for the sanitary and storm systems are implemented.

References

Brown and Caldwell (BC). 2016. *Flow Monitoring and I/I Characterization Memorandum*, Prepared for Oregon City.

SFE Global (SFE). 2016. *City of Oregon City, Oregon Sanitary Sewer Smoke Testing 2016*, Prepared for Oregon City via Brown and Caldwell.

Attachment A: Smoke Testing Results



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Attachment A

Smoke Testing Results

Table A-1 provides a comprehensive list of observed smoke testing incidents. Cells that have been modified by BC from the raw data produced by SFE are highlighted yellow.

Figure A-1 provides an overview map of the results of the entire smoke testing project. Figures A-2 through A-12 provide more detailed maps of the results of each inspected sewer basin. Sewers that were not inspected during smoke testing in basins, 3, 5, 6, and 7 are identified with a yellow line.

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Table A-1. Smoke Testing Results												
Incident ID	Basin	Incident name	Run ID	Address location	Upstream manhole	Downstream manhole	Incident type	Leak source	Field comments	Incident severity	Latitude	Longitude
1	1	01	2	166 AV Davis Road	10893	10892	Miscellaneous	Smoke inside house	Smoke coming from crawlspace vent	Medium	45.33993	-122.60783
2	1	02	10	115 Park Drive	13756	10864	Ground/laterals	Smoking ground	Leak type is unknown, smoke coming from edge of pool, apparently connected to sanitary sewer	Medium	45.34467	-122.60548
3	1	03	10	152 Harding Boulevard	13755	10864	Public cross connections	Storm drain	Heavy smoke from stormwater catch basin	High	45.34550	-122.60487
4	1	04	14	135 Valleyview Drive	13352	10877	Ground/laterals	Smoking ground	Smoke coming from a rodent hole in the front yard	Low	45.34289	-122.60798
5	1	05	17	845 Linn Avenue	10867	11848	Ground/laterals	Smoking ground	Smoke coming from a water meter hatch	High	45.34327	-122.60497
6	2	01	1	302 Madison Street	12111	12118	Ground/laterals	Cracked concrete	Cracks in sidewalk, unknown source	Low	45.35205	-122.60540
7	2	02	1	820 3rd Street	12111	12118	Private downspouts	Downspout	Downspouts at N corner of house	High	45.35206	-122.60587
8	2	03	2	718 Spring Street	12103	12106	Ground/laterals	Cracked concrete	Leak at end of driveway/sidewalk, unknown source	Low	45.35167	-122.60790
9	2	04	2	121 Jefferson Street	13305	12107	Ground/laterals	Smoking ground	Hole in tree at E corner of property, unknown source	Low	45.35186	-122.60790
10	2	05	2	121 Jefferson Street	13306	12109	Miscellaneous	Foundation drain	Black drainage pipe along back side of property	Low	45.35186	-122.60790
11	2	06	2	213 Jefferson Street	13306	12109	Ground/laterals	Smoking ground	Leak from stone wall at SW side of property	Low	45.35232	-122.60707
12	2	07	2	210 Jefferson Street	12108	12110	Ground/laterals	Cracked concrete	Smoke from edge of sidewalk at N corner, unknown source	Low	45.35209	-122.60671
13	2	08	3	616 3rd Street	12119	12120	Ground/laterals	Smoking ground	Smoke coming from garden at N corner of property, unknown source	Low	45.35306	-122.60748
14	2	09	4	614 2nd Street	N/A	12123	Ground/laterals	Smoking ground	Smoke coming from rock wall, unknown source	Low	45.35232	-122.60828
15	2	10	5	100 S High Street	10719	12091	Private downspouts	Downspout	Leak at N corner of 100 High Street	Medium	45.35279	-122.61107
16	2	11	5	401 3rd Street	10676	10675	Private downspouts	Downspout	Downspout at S corner of property	High	45.35421	-122.60950
17	2	12	5	104 S High Street	10719	12091	Private downspouts	Downspout	Downspout at W corner of house	Medium	45.35279	-122.61107
18	2	13	6	204 S High Street	12094	13101	Private downspouts	Downspout	Downspout at W corner of house	Medium	45.35170	-122.61211
19	2	14	6	122 S Center Street	14099	11609	Private commercial connections	Driveway drain	Wash pit appears to be connected to sanitary sewer	High	45.35117	-122.61108
20	2	15	6	122 S Center Street	14099	11599	Public cross connections	Storm MH	Storm MH near MH 11599 smoking, need to verify that this is storm line/possible MH lid mislabel	Low	45.35157	-122.61119
21	2	16	7	122 S Center Street	14096	11608	Private commercial connections	Private sump	Storm drain in parking lot appears to be connected to sanitary sewer	High	45.35175	-122.61093
22	2	17	7	112 S Center Street	11608	12089	Ground/laterals	Cracked concrete	Smoke coming from edge of sidewalk, unknown source	Low	45.35206	-122.61055
23	2	18	7	1st Street and S Center Street	12089	12091	Public cross connections	Storm drain	All storm drains at 1st between High and Center have smoke coming out, 4 storm drains	High	45.35230	-122.61057
24	2	19	7	1st Street and High Street	12125	12091	Public cross connections	Storm drain	All storm drains at 1st between High and Center have smoke coming out, 4 storm drains	High	45.35272	-122.61146
25	2	20	7	2nd Street and S Center Street	12125	12126	Public cross connections	Storm drain	All storm drains at 2nd and Center have smoke coming out, 4 storm drains	High	45.35301	-122.60989
26	2	21	8	122 S Center Street	14098	11599	Private downspouts	Downspout	Leaks from gutters and downspouts at city shop	Medium	45.35133	-122.61075
27	2	22	8	122 S Center Street	14098	11599	Public cross connections	Catch basin	3 catch basins in city shop parking	High	45.35133	-122.61075
28	3	01	67	510 Monroe Street	10705	10703	Miscellaneous	Cleanout	Broken CO at corner of house	Low	45.35340	-122.60268
29	3	02	67	516 Monroe Street	10705	10703	Miscellaneous	Cleanout	Leaking cleanout	Low	45.35350	-122.60249
30	3	03	69	804 4th Street	12101	10687	Ground/laterals	Smoking ground	Leak from below sign post and curb	Medium	45.35314	-122.60516
31	3	04	76	1012 Brighton Avenue	11554	11576	Private downspouts	Downspout	Leak downspout at front corner of house	Medium	45.34958	-122.60493
32	3	05	76	Bellevue Avenue and Brighton Avenue	11838	11554	Public cross connections	Storm drain	Storm drain near MH 11554	High	45.34966	-122.60529
33	3	06	78	204 Linn Avenue	11569	11832	Ground/laterals	Smoking ground	Leak 1 was actually found during run 26, but is located within run 24; leak suspected to be from "T" in the main getting replaced	Low	45.34941	-122.60120
34	3	07	78	235 Pearl Street	11475	11476	Ground/laterals	Smoking ground	Several leaks from underneath sidewalk near MH 11476, unknown source	Low	45.34901	-122.59948
35	3	08	78	216 Pearl Street	11476	11545	Miscellaneous	Cleanout	Cleanout under front porch smoking	Low	45.34889	-122.59978
36	3	09	78	216 Pearl Street	11476	11545	Ground/laterals	Smoking ground	Smoke from hole in front yard, unknown source	Low	45.34889	-122.59977
37	3	10	78	204 Pearl Street	11476	11545	Private downspouts	Downspout	Downspouts on W side of house	High	45.34874	-122.60048



Table A-1. Smoke Testing Results												
Incident ID	Basin	Incident name	Run ID	Address location	Upstream manhole	Downstream manhole	Incident type	Leak source	Field comments	Incident severity	Latitude	Longitude
38	3	11	78	221 Pearl Street	11476	11545	Miscellaneous	Smoke inside house	Attic vents smoking	Low	45.34907	-122.59977
39	3	12	79	157 Hazel	11566	11571	Ground/laterals	Cracked concrete	Smoke from hole in flower bed + crack in walkway, unknown source	Low	45.34856	-122.60261
40	4	01	5	639 Apperson Street	11557	11558	Ground/laterals	Smoking ground	Smoke coming from hole in yard	Low	45.34787	-122.60867
41	4	02	10	On Charman Street 250 feet W of Linn Avenue	11593	11594	Ground/laterals	Smoking ground	Medium-heavy smoke from unknown source down in ravine, no access	Medium	45.34702	-122.60457
42	4	03	11	50 feet SW of Electric Street	11583	11596	Ground/laterals	Smoking ground	In the valley of a drainage ravine that runs down to Electric Street	High	45.34663	-122.60458
43	4	04	12	Barclay Avenue and Harding Boulevard	13046	13047	Public cross connections	Storm drain	3 storm drains	High	45.34567	-122.60614
44	4	05	12	205 Harding Boulevard	13047	13045	Ground/laterals	Smoking ground	Holes in ground in front yard	Low	45.34621	-122.60590
45	4	06	12	178 Harding Boulevard	13047	13045	Public cross connections	Storm drain	2 storm drains near MH 13045	High	45.34628	-122.60486
46	5	01	2	1318 Otter Lane	12075	11294	Miscellaneous	Cleanout	11291 480 Hilltop Avenue 45.33647 122.58922, leak: unable to access leak-behind fence, no one home; possibly a cleanout	Medium	45.33684	-122.58829
47	6	01	4	420 Latourette Street	18002	18001	Miscellaneous	Cleanout	Old broken capped pipe	Low	45.34705	-122.59910
48	6	02	7	411 Pleasant Avenue	11488	11489	Private commercial connections	Private sump	Smoke from grease trap	Low	45.34733	-122.59746
49	6	03	7	411 Pleasant Avenue	11488	11489	Private commercial connections	Driveway drain	Smoke from wash drain	High	45.34726	-122.59750
50	6	04	10	515 Mt Hood Street	10809	N/A	Public cross connections	Storm drain	Heavy smoke from this storm drain, could not locate upstream MH	High	45.34466	-122.59478
51	6	06	12	326 Willamette Street	11496	N/A	Private downspouts	Downspout	Smoke from downspouts at this house	High	45.35086	-122.59750
52	6	05	12	337 Willamette Street	11496	N/A	Ground/laterals	Smoking ground	Holes in front yard, unknown source	Low	45.35102	-122.59793
53	7	01	1	13 th Street and Jackson Street (S corner)	13072	10140	Public cross connections	Storm drain		High	45.35798	-122.59555
54	7	02	9	1018 Polk Street	10110	10112	Ground/laterals	Service lateral	Hole in sidewalk, possibly a lateral	Low	45.35514	-122.59453
55	7	03	9	1112 Polk Street	10110	10112	Ground/laterals	Smoking ground	Smoke from under bush at SW corner	Low	45.35554	-122.59409
56	7	04	9		10110	10113	Ground/laterals	Service lateral	Leak from sidewalk at fencepost + driveway, possibly a lateral	Low	45.35552	-122.59431
57	7	05	10	1613 11th Street	12409	13666	Private downspouts	Downspout	Smoke from downspout and from ground near mailbox	Medium	45.35461	-122.59281
58	7	06	10	1108 Taylor Street	10116	10114	Ground/laterals	Smoking ground	Landscaping at front of house on both sides of sidewalk	Low	45.35511	-122.59330
59	7	07	10	1014 Taylor Street	13918	10116	Ground/laterals	Cracked concrete	Crack in sidewalk	Low	45.35457	-122.59388
60	7	08	12	1001 JQ Adams Street	10094	13913	Ground/laterals	Service lateral	Smoke from open pipe, unsure if it is a lateral or some sort of cleanout	Low	45.35665	-122.59846
61	7	09	15	909 Pierce Street	13635	10319	Private downspouts	Downspout	Downspout at NE corner of house	Medium	45.35363	-122.59424
62	7	10	16	914 Jackson Street	14803	13085	Private downspouts	Downspout	Downspout at SW side of house	Medium	45.35591	-122.59788
63	7	11	16	915 Jackson Street	13085	13066	Private downspouts	Downspout		Medium	45.35577	-122.59826
64	7	12	17	908 Jackson Street	13713	13085	Ground/laterals	Service lateral	Smoke from ground in line with service lateral	Low	45.35542	-122.59808
65	7	13	19	805 Taylor Street	13922	13091	Public cross connections	Catch basin	Several issues going on in this section, downspout and catch basin cross connected	Medium	45.35328	-122.59564
66	7	14	19	805 Taylor Street	13922	13091	Ground/laterals	Cracked concrete	Smoke from cracks between road and wall	Low	45.35328	-122.59564
67	7	15	19	805 Taylor Street	13922	13091	Ground/laterals	Smoking ground	Smoke from bushes and edge of wall	Low	45.35328	-122.59564
68	7	16	25	724 Van Buren Street	13096	13092	Private downspouts	Downspout	Downspouts appear to be cross connected	Medium	45.35383	-122.59808
69	7	17	27	432 Division Street	13174	13103	Private downspouts	Downspout	Downspouts appear to be cross connected	Medium	45.35151	-122.59552
70	7	18	28		13288	13109	Public cross connections	Storm drain	Storm drain NE of MH 13109	High	45.35131	-122.59402
71	7	19	28	519 Willamette Street	13288	13109	Ground/laterals	Smoking ground	Smoke from yard, unknown source	Low	45.35126	-122.59393
72	7	20	28	115 Warren Street	13104	13109	Ground/laterals	Smoking ground	Smoke from underneath new deck, possibly a covered MH	Low	45.35130	-122.59447
73	7	21	29	418 Willamette Street	12977	12978	Public cross connections	Storm drain	Smoke from catch basins, cross connection observed	High	45.35092	-122.59595
74	7	22	30	158 Warren Street	13102	13133	Private downspouts	Downspout	Smoke from drain, porch, and downspout	Medium	45.34988	-122.59489



Table A-1. Smoke Testing Results												
Incident ID	Basin	Incident name	Run ID	Address location	Upstream manhole	Downstream manhole	Incident type	Leak source	Field comments	Incident severity	Latitude	Longitude
75	7	23	30	505 Roosevelt Street	13102	13133	Private downspouts	Downspout	Downspout at SW corner	Medium	45.34972	-122.59473
76	8A	01	2	1318 Madison Street	10158	12403	Ground/laterals	Service lateral	Multiple leaks along lateral	Low	45.35994	-122.59744
77	8A	02	4	NE side of 1005 13th Street	10148	10147	Ground/laterals	Cracked concrete	Unknown type, coming from sidewalk	Low	45.35915	-122.59695
78	8A	03	5	1510 JQ Adams Street	10794	10123	Private downspouts	Downspout	Downspout on SW side of 1511 JQ Adams	High	45.36029	-122.59431
79	8A	04	6	1320 JQ Adams Street	10139	10138	Ground/laterals	Smoking ground	Unknown type and source, smoke coming from holes in ground under bushes	Low	45.35910	-122.59582
80	8A	05	9	1205 15th Street	10125	10124	Private downspouts	Downspout	Downspout located at front of house (front door)	Medium	45.35955	-122.59370
81	8A	06	10	1616 Jackson Street	11358	11357	Private downspouts	Downspout	Smoke from downspout at NE side	Medium	45.36082	-122.59331
82	8A	07	10	1608 Jackson Street	11358	11357	Private downspouts	Downspout	Downspouts on front of house and on SW side of house both smoking	High	45.36049	-122.59300
83	8A	08	11	1616 Van Buren Street	11360	11359	None	None	No smoke from 13732- 12913 possible sump pump system	None	45.36029	-122.59184
84	8A	09	14	1508 Polk Street	13076	10129	Public cross connections	Storm drain	Smoke from stormwater catch basin	High	45.35871	-122.59124
85	8A	10	18	1501 16th Street (16th and Polk)	10162	10161	Public cross connections	Storm drain	Storm drain at E corner of intersection	High	45.35908	-122.59073
86	8A	11	19	1701 16th Street (16th and Pierce)	10066	12390	Public cross connections	Storm drain	Storm drain at E corner of 16th and Pierce	High	45.35839	-122.58891
87	8A	12	19	1611 Pierce Street	12390	18024	Private downspouts	Downspout	Downspout at S corner of 1611 Pierce	Medium	45.35860	-122.58942
88	8A	13	19	1701 16th Street (16th and Pierce)	10066	12390	Ground/laterals	Cracked concrete	Sidewalk crack at E corner of 16th and Pierce, unknown source	Low	45.35839	-122.58929
89	8A	14	19	1701 16th Street (16th and Pierce)	10066	12390	Ground/laterals	Cracked concrete	Sidewalk crack at E corner of 16th and Pierce, unknown source	Low	45.35839	-122.58929
90	8A	15	19	1716 16th Street	10066	12390	Ground/laterals	Service lateral	Suspected service lateral smoking	Low	45.35795	-122.58873
91	8A	16	19	1716 16th Street	10066	12390	Private downspouts	Downspout	Smoke from downspout	High	45.35775	-122.58892
92	8A	17	19	1714 16th Street	10066	12390	Private downspouts	Downspout	Smoke from downspout	Medium	45.35781	-122.58884
93	8B	01	1	420 Dewey Street	13114	11505	Public cross connections	Catch basin	Catch basin at SE corner of Dewey Street and Irving Street	High	45.35824	-122.59555
94	8B	02	4	151 Warren Street	13599	13108	Private downspouts	Downspout	Downspout at NE corner of house	Medium	45.35022	-122.59454
95	8B	03	5	532 Willamette Street	11510	11519	Ground/laterals	Smoking ground	Hole on edge of sidewalk at NE corner of property, unknown source	Low	45.35031	-122.59360
96	8B	04	6	636 Division Street	11515	11516	Ground/laterals	Smoking ground	Smoke from ground, unknown source; likely service lateral	Low	45.35159	-122.59145
97	8B	05	6	628 Division Street	11515	11516	Ground/laterals	Smoking ground	Smoke from ground, unknown source; likely service lateral	Low	45.35165	-122.59180
98	8B	06	7	1805 9th Street	11493	11492	Private downspouts	Downspout	Downspout at E corner	High	45.35266	-122.59258
99	8B	07	8	749 Division Street	11514	11427	Ground/laterals	Smoking ground	Water meter access panel	Low	45.35226	-122.58923
100	8B	08	8	741 Division Street	11514	11427	Ground/laterals	Smoking ground	Water meter access panel	Low	45.35213	-122.58949
101	8B	09	9	1203 Division Street	10062	12908	Miscellaneous	Smoke inside house	Smoke coming from crawl space	Low	45.35312	-122.58891
102	8B	10	12	1208 Grant Street	10061	12393	Ground/laterals	Smoking ground	Smoke from ground, unknown source	Low	45.35427	-122.58912
103	8B	11	14	1901 14th Street	10057	10172	Private downspouts	Downspout	Smoke from downspouts	High	45.35624	-122.58936
104	8B	12	16	1713 14th Street	10174	10122	Private downspouts	Downspout	Smoke from downspouts	High	45.35672	-122.59021
105	8B	13	17	1601 15th Street	10179	10129	Private downspouts	Downspout	Smoke from downspouts	High	45.35806	-122.59065
106	9	01	14	19419 Provisioner Lane	10327	11742	Miscellaneous	Main sewer	MH 10325 has visible infiltration, leak source from ground water	Low	45.32408	-122.60146
107	10	01	3	19315 Whitney	11917	11921	Ground/laterals	Smoking ground	2 pipes in cement slab parking area NW of house	Low	45.32684	-122.59904
108	10	02	14	13347 Eastborne Drive	11947	11943	Private downspouts	Downspout	Old downspout connection in front yard near driveway and walkway	Medium	45.32785	-122.59181

MH = manhole.



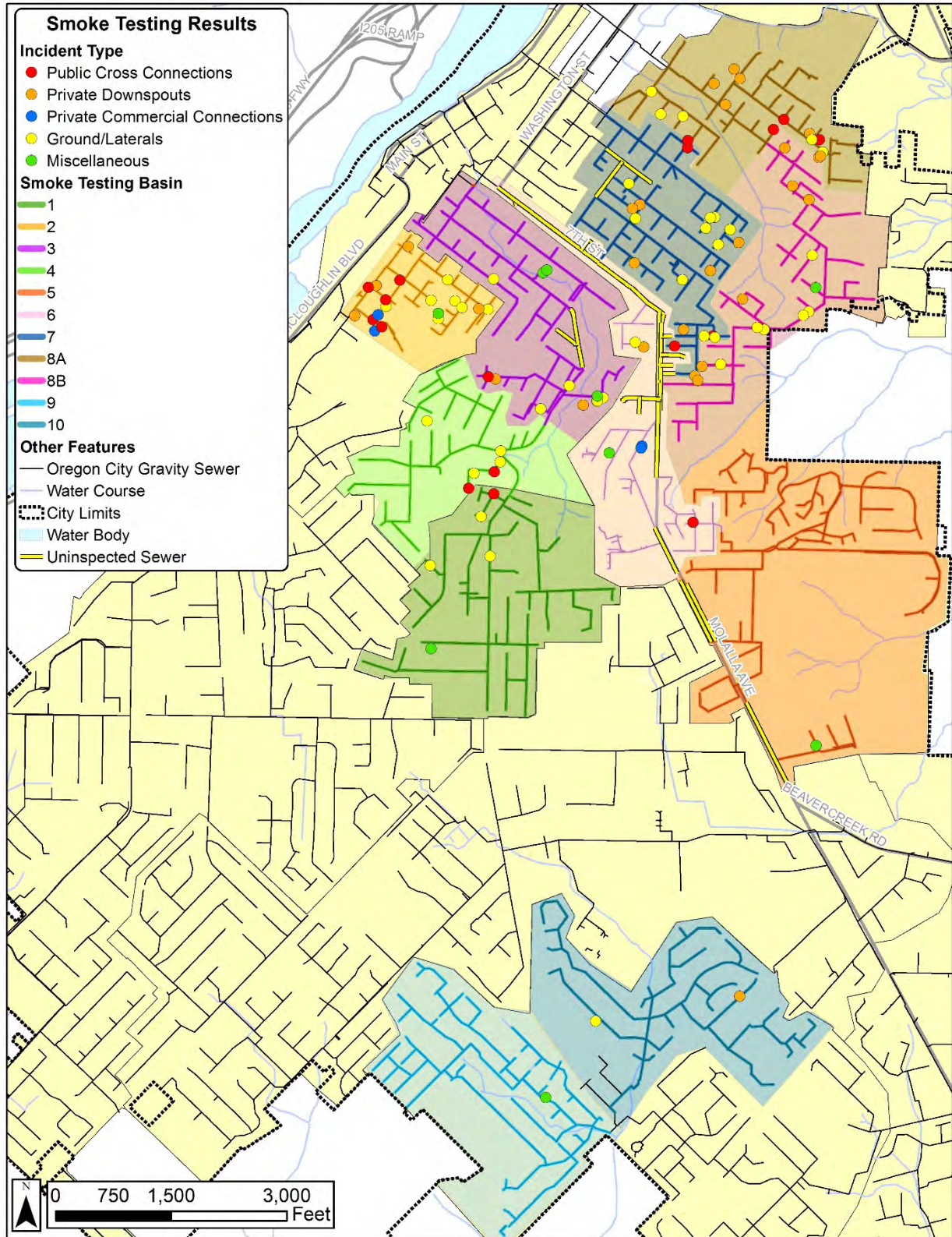


Figure A-1. Smoke testing results

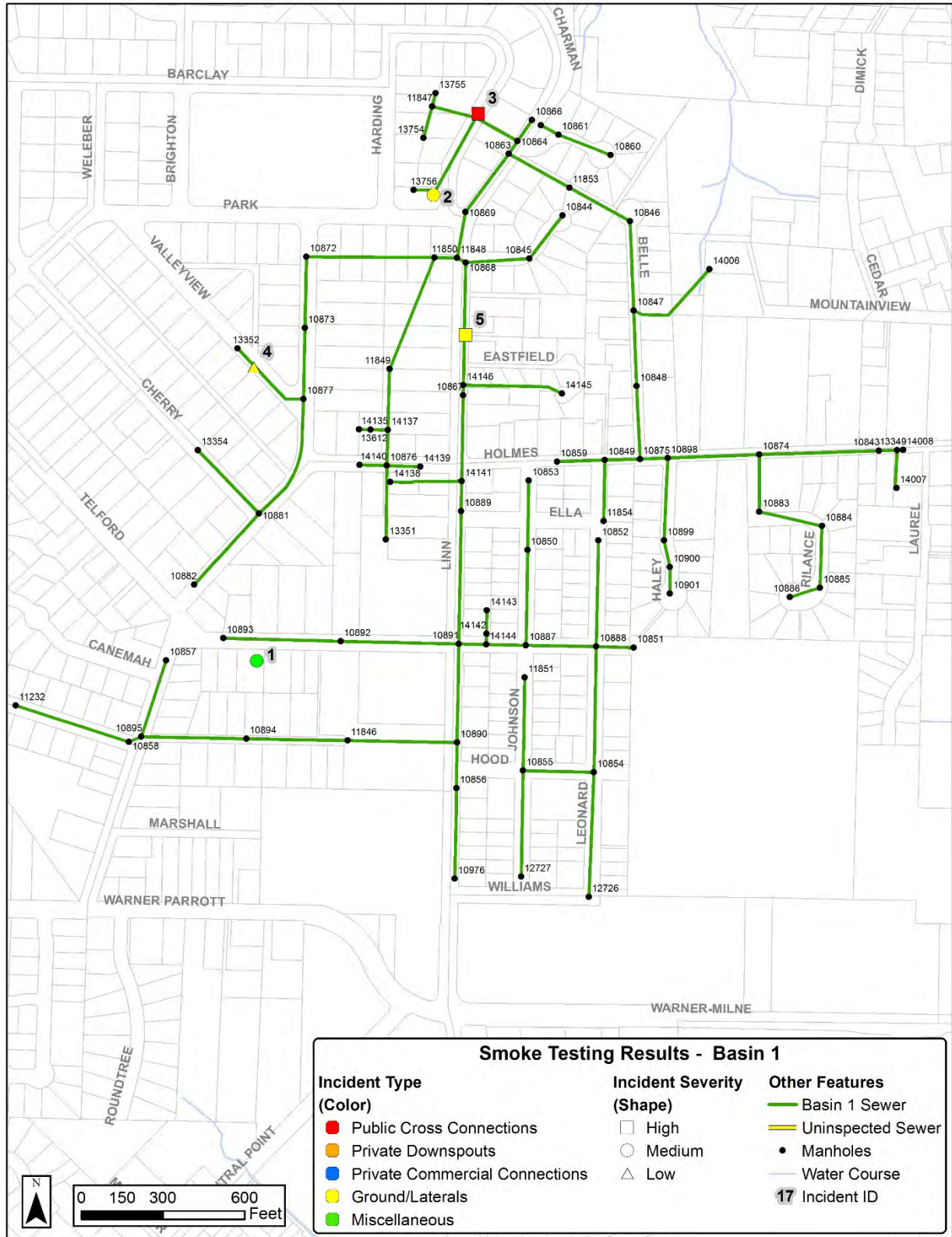


Figure A-2. Basin 1 smoke testing results

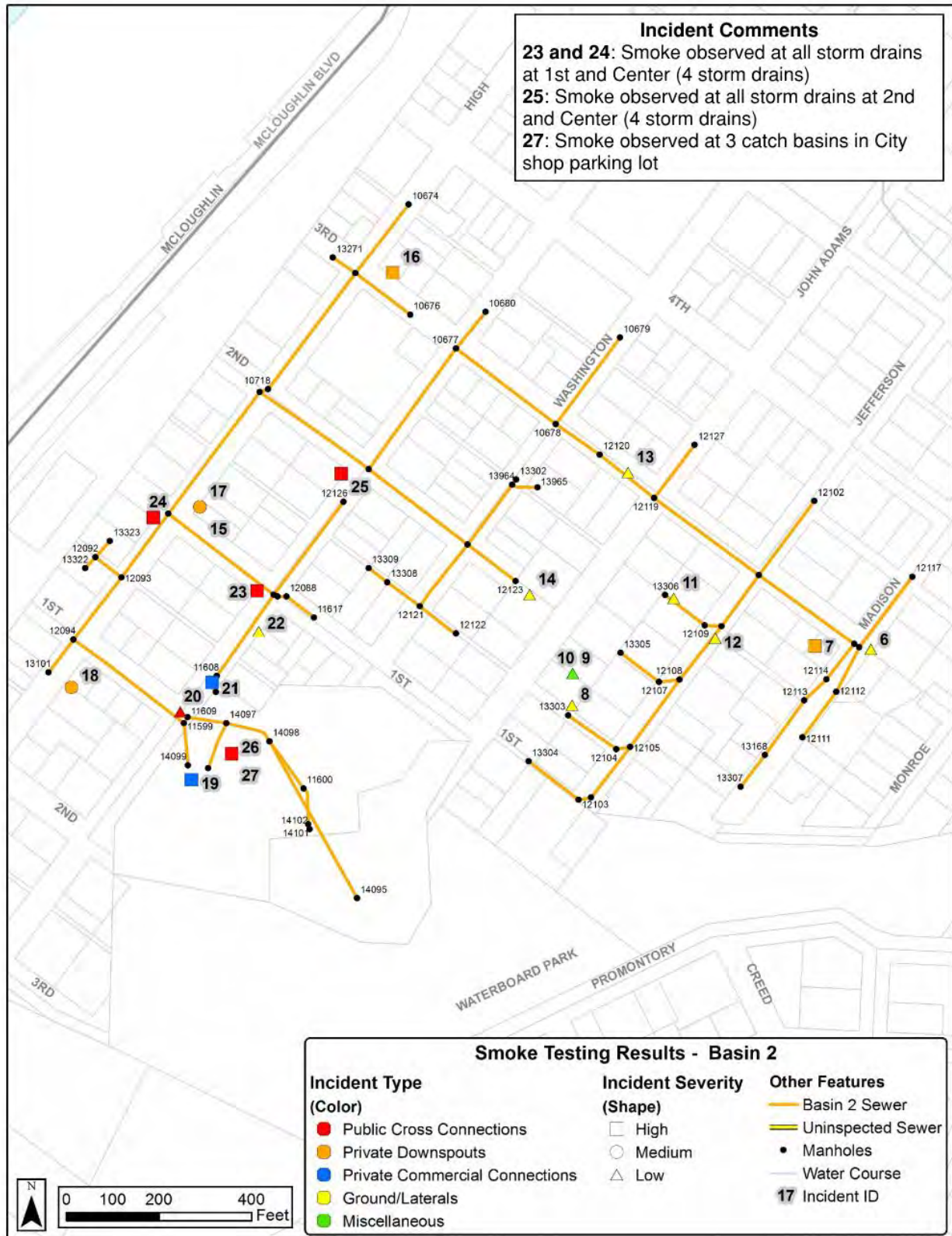


Figure A-3. Basin 2 smoke testing results

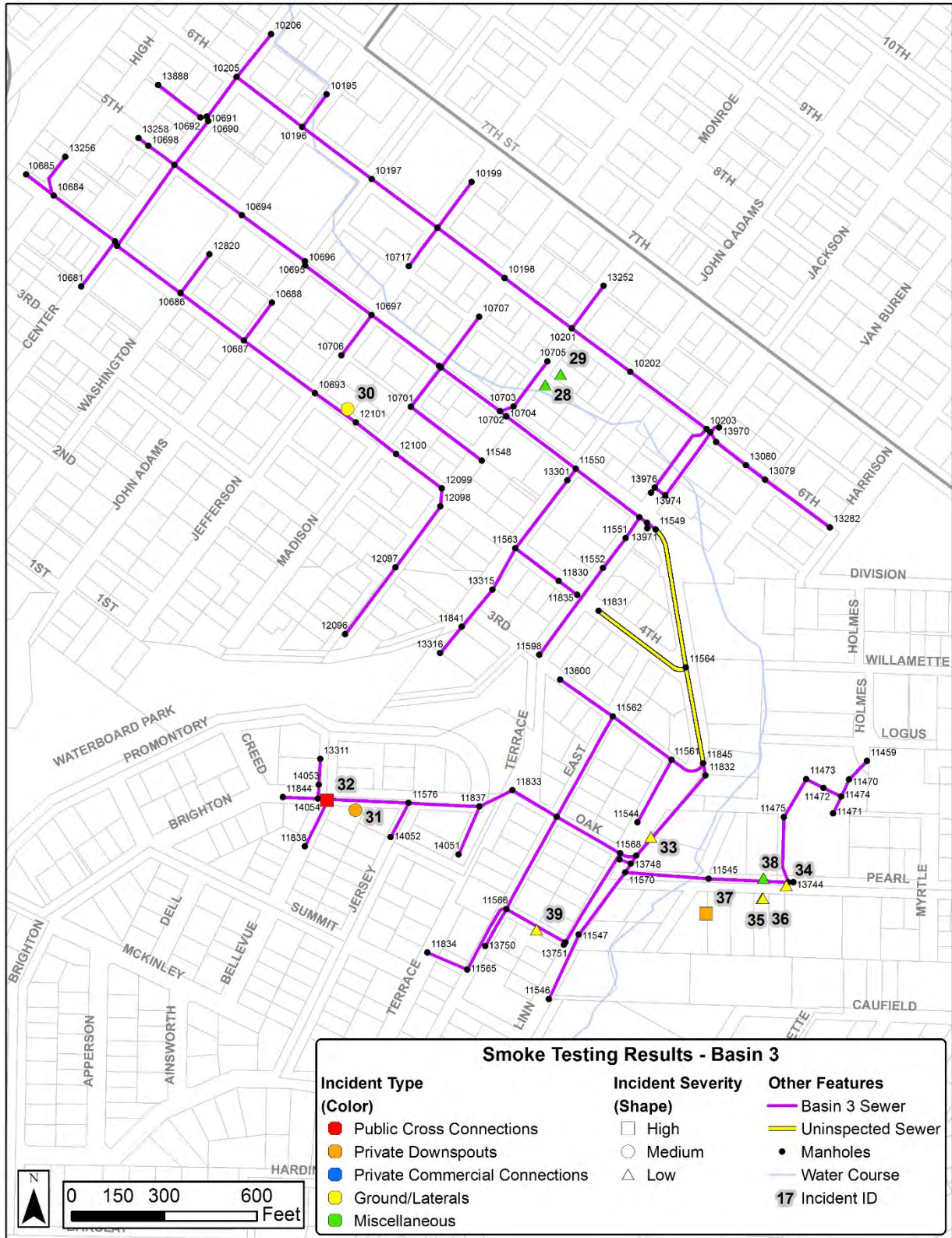


Figure A-4. Basin 3 smoke testing results

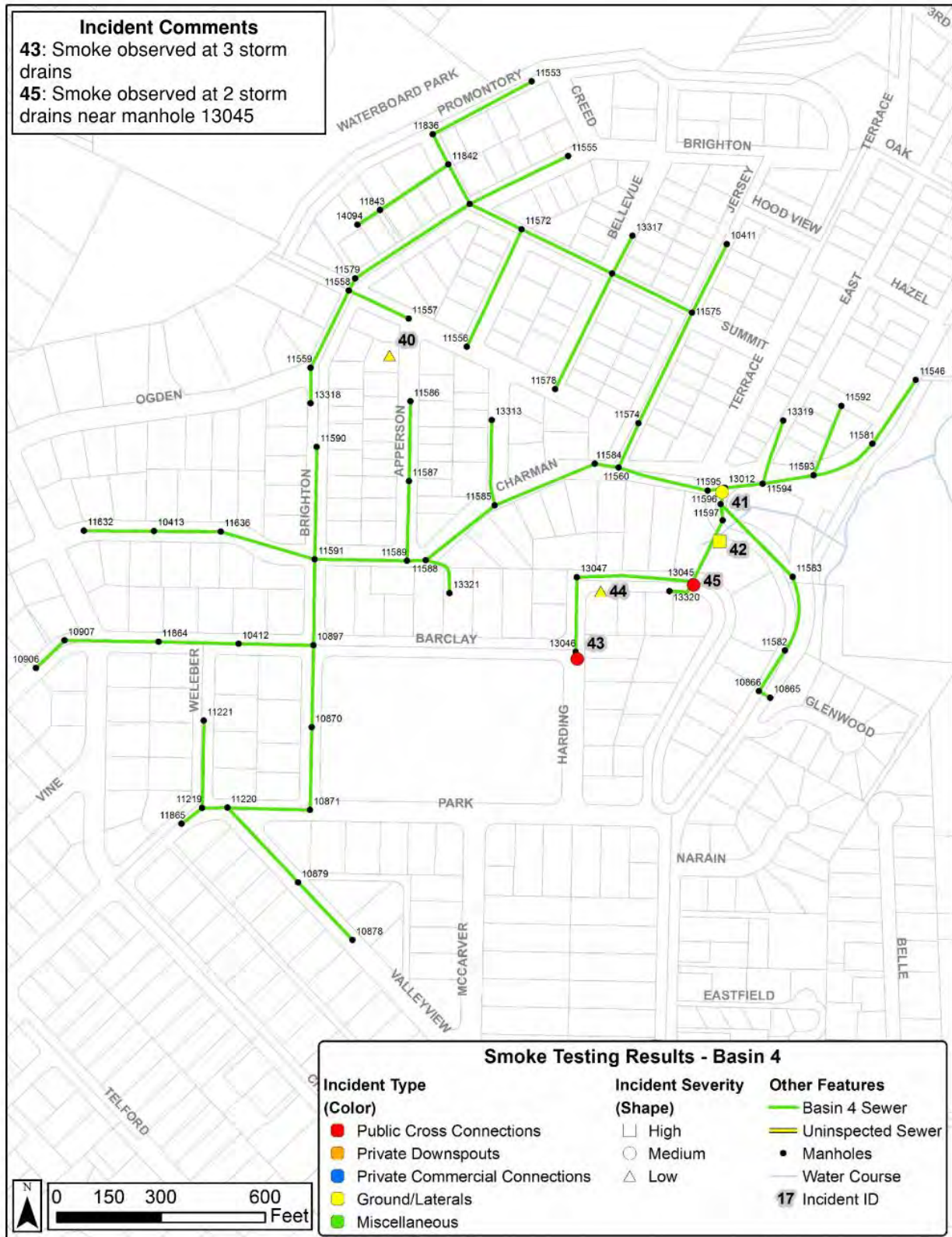


Figure A-5. Basin 4 smoke testing results

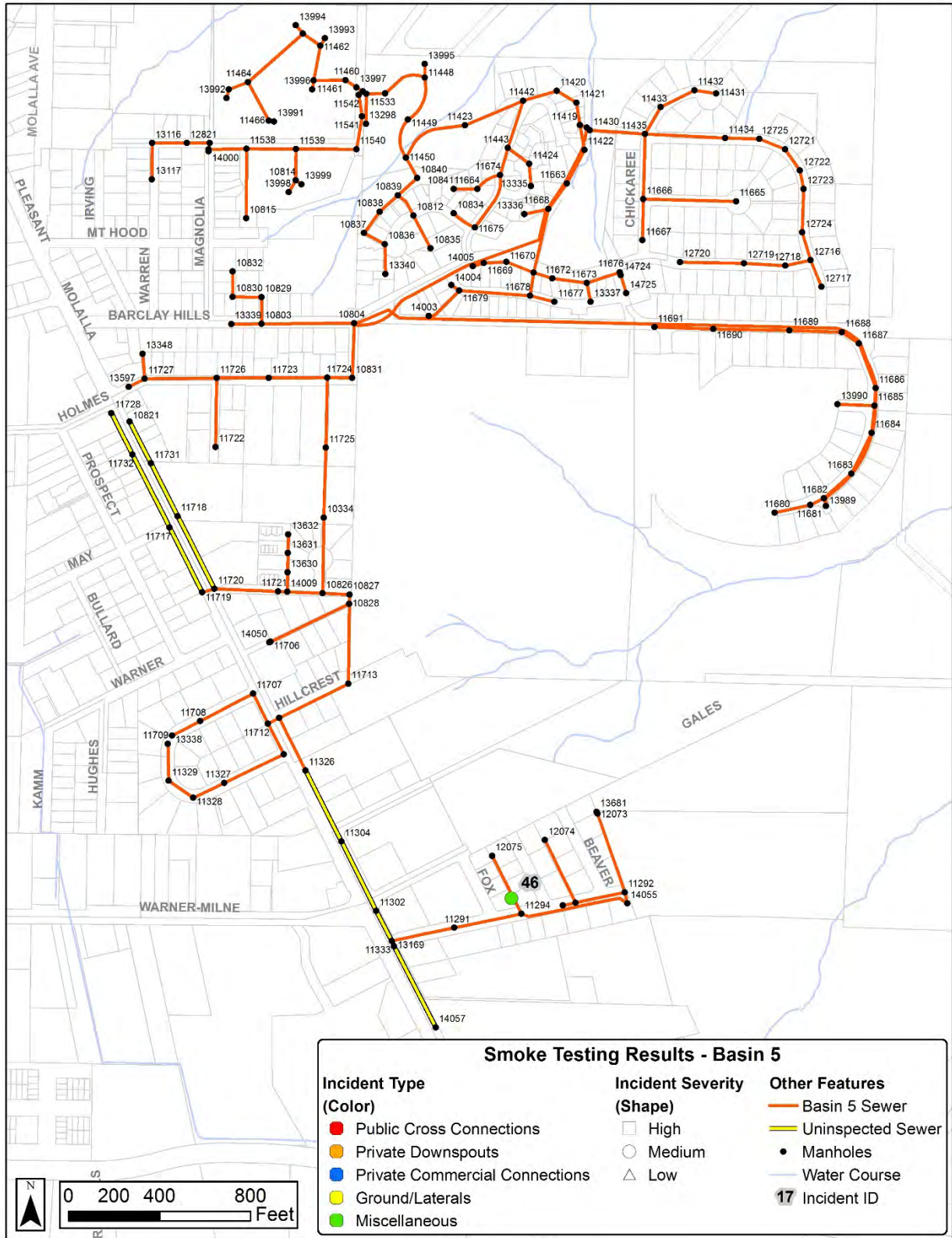


Figure A-6. Basin 5 smoke testing results

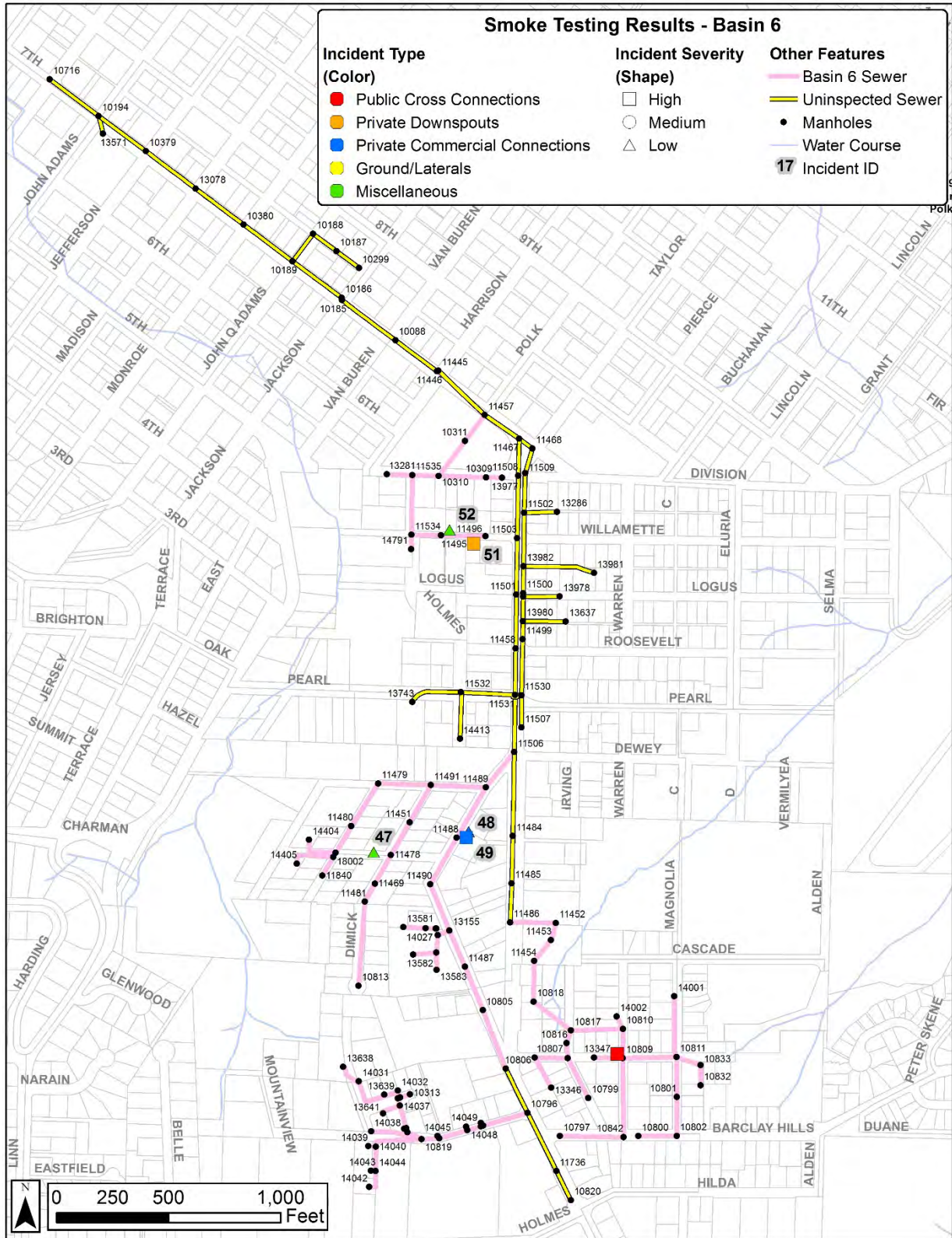


Figure A-7. Basin 6 smoke testing results

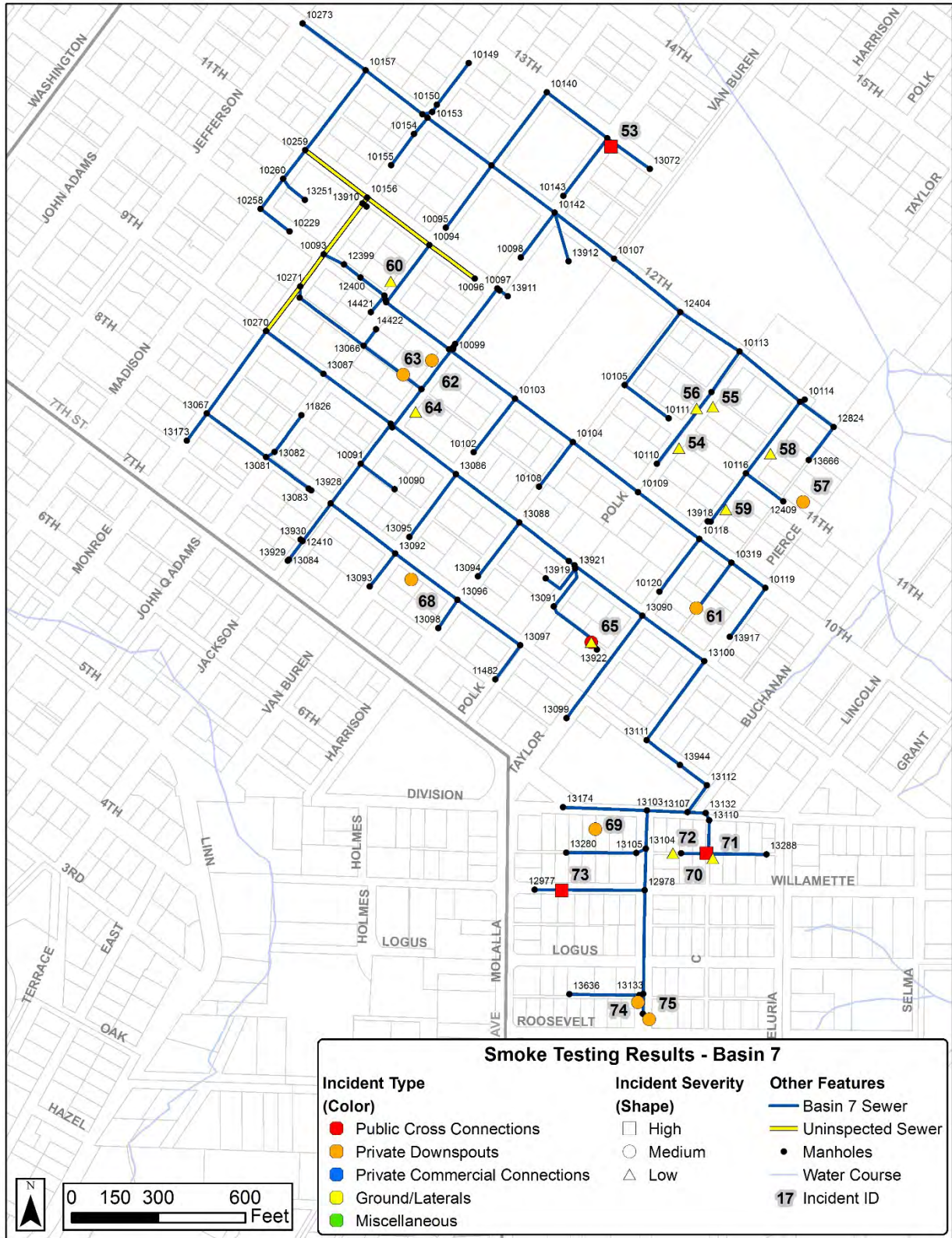


Figure A-8. Basin 7 smoke testing results

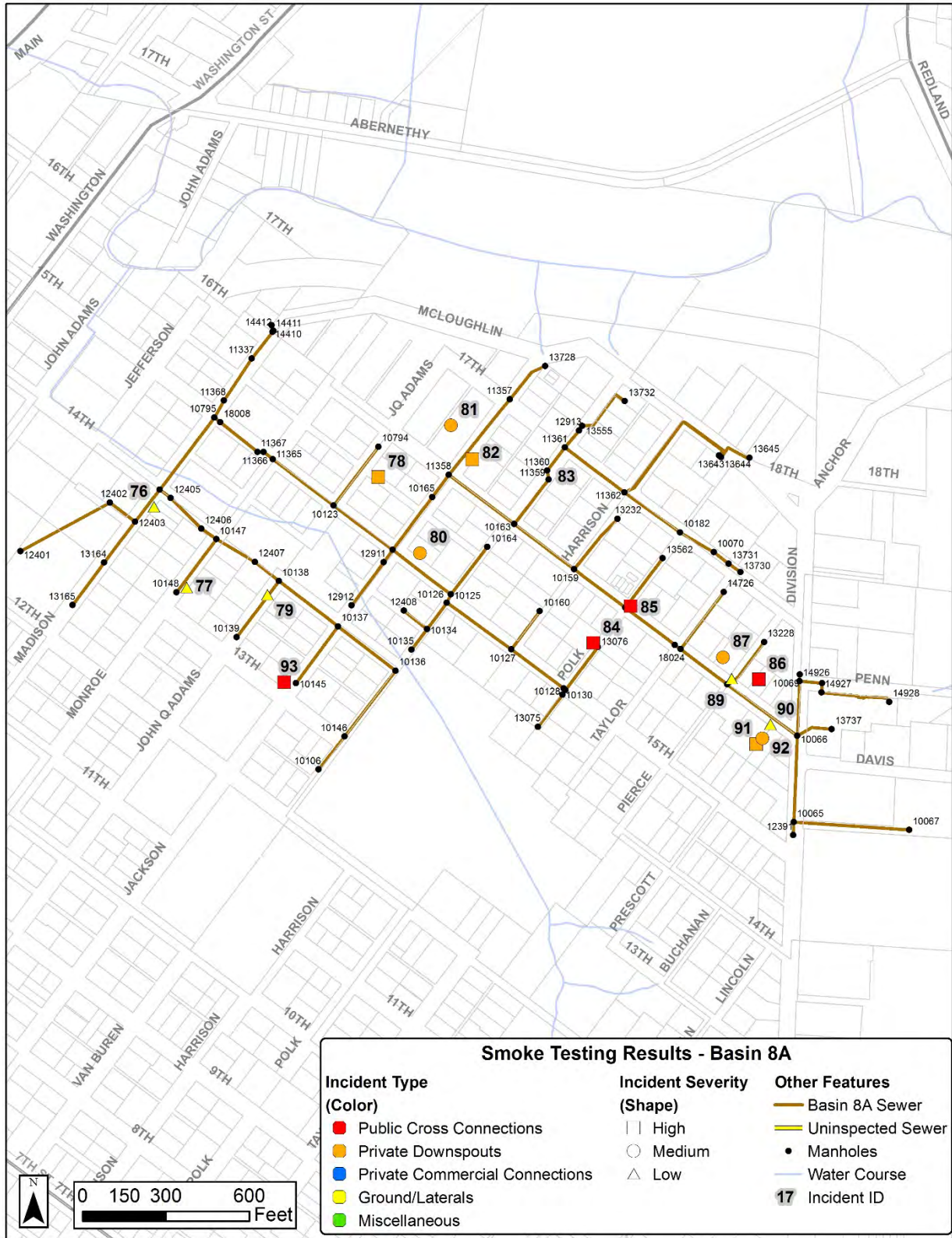


Figure A-9. Basin 8A smoke testing results

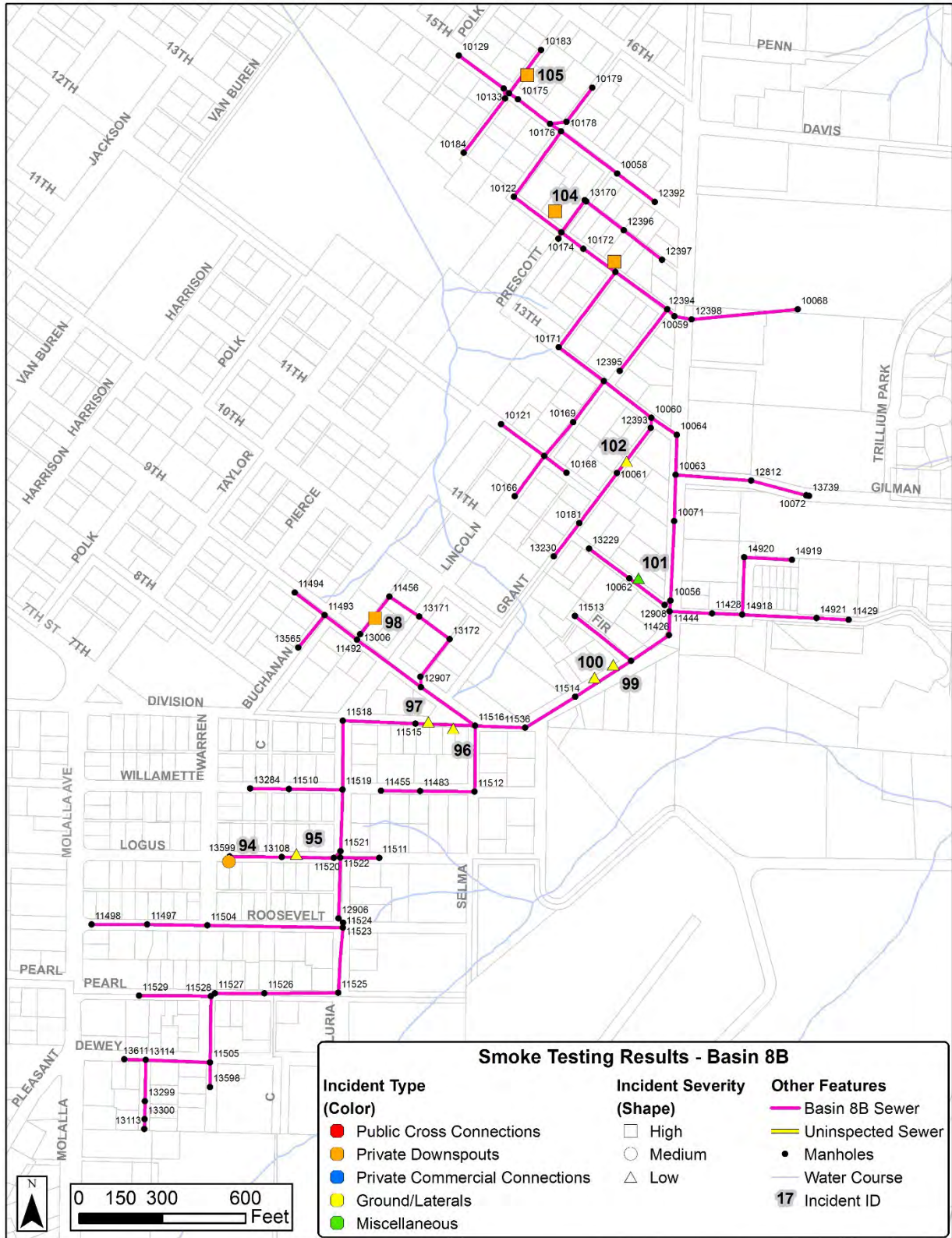


Figure A-10. Basin 8B smoke testing results

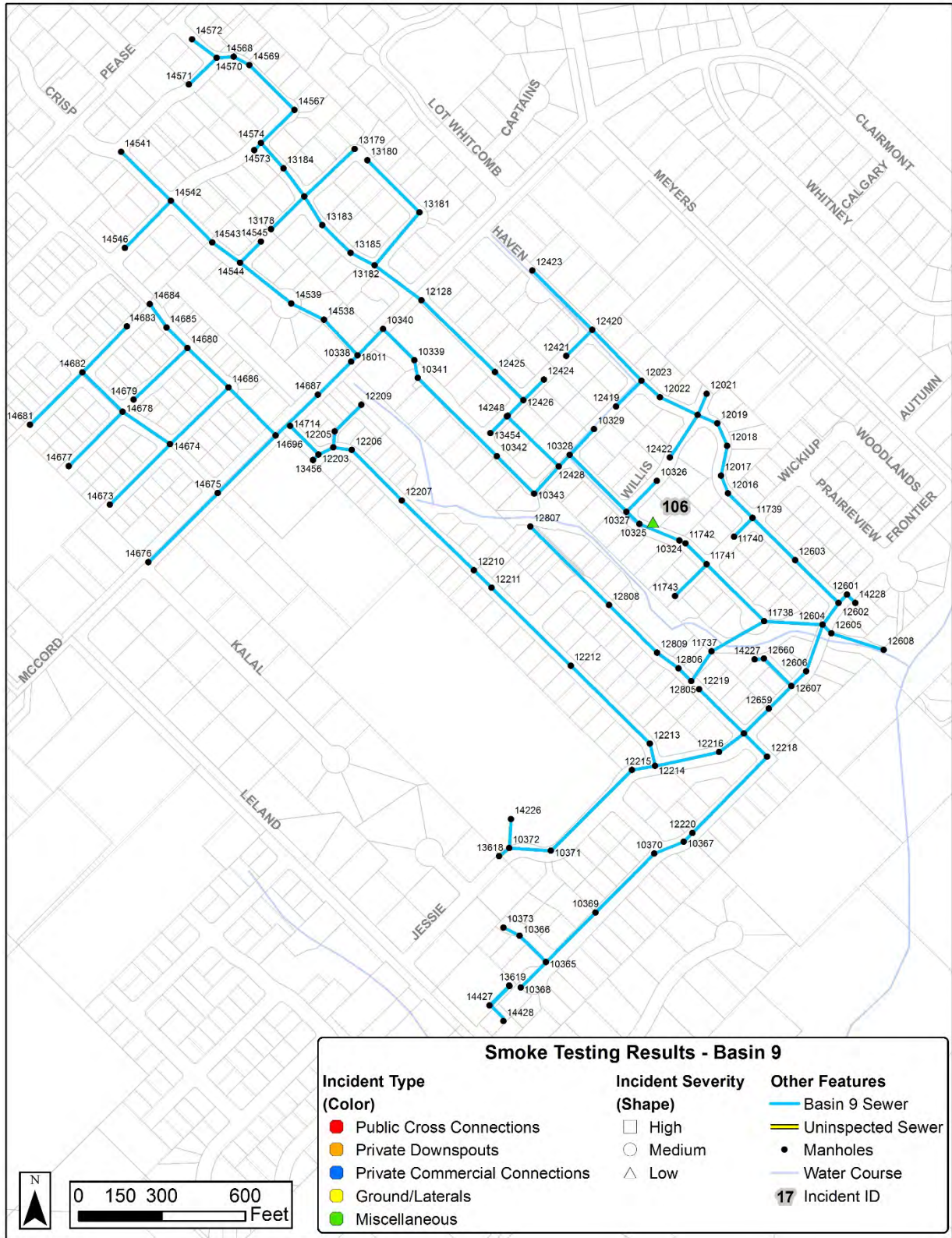


Figure A-11. Basin 9 smoke testing results

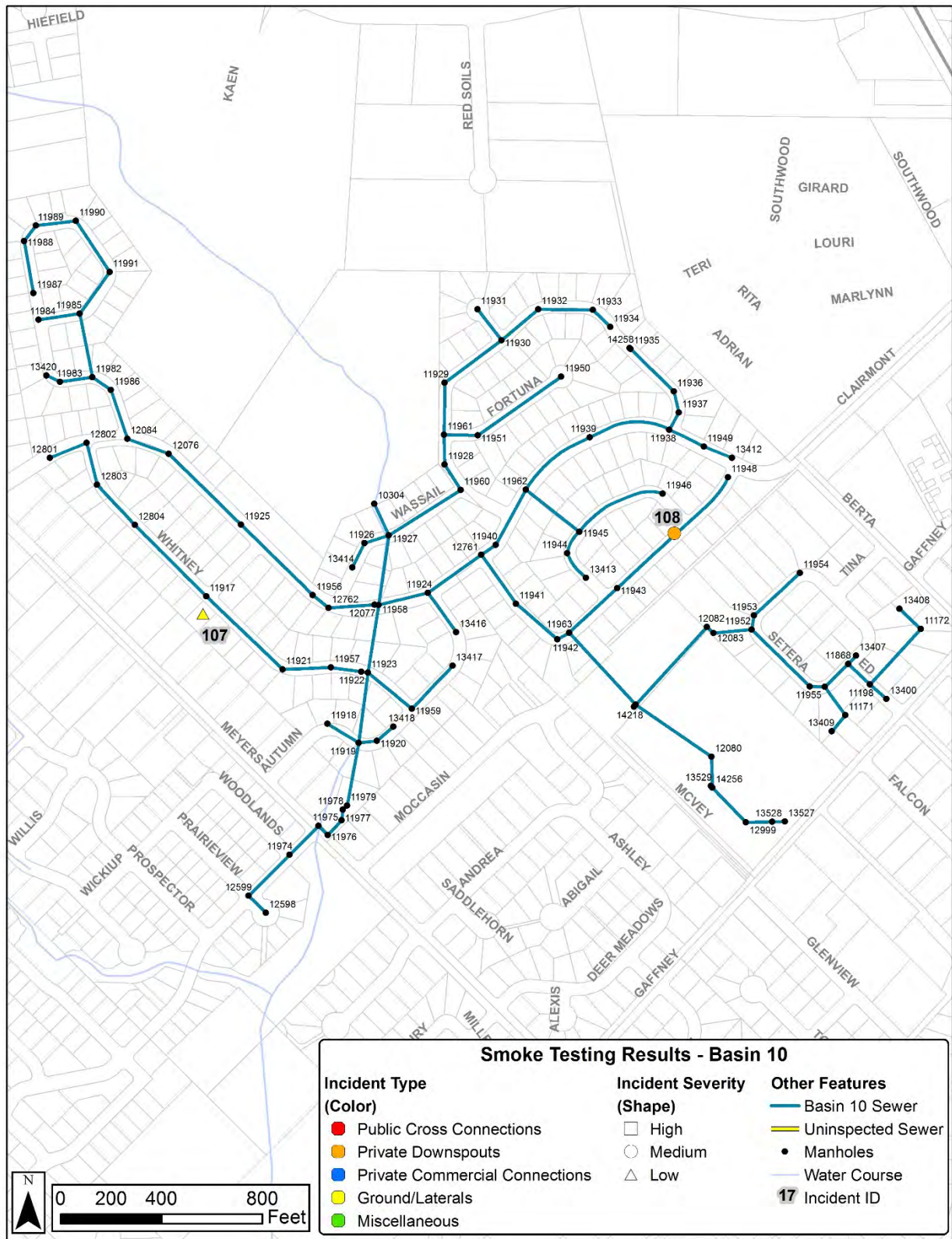


Figure A-12. Basin 10 smoke testing results

Attachment B: SFE Smoke Testing Report



Final Report for
City of Oregon City, OR

Attn: Mr. Ryan Retzlaff
Brown and Caldwell
6500 SW Macadam Street
Portland, Oregon
97239

City of Oregon City, Oregon
Sanitary Sewer Smoke Testing 2016



Prepared and submitted by:

SFE Global #U16-143
1313 East Maple Street
Bellingham, WA 98225



December 19, 2016

Attn: Mr. Ryan Retzlaff
Brown and Caldwell
6500 SW Macadam
Castro Valley, CA
94546

**FINAL REPORT: SFE JOB #U16-143 – OREGON CITY, OR - SANITARY SEWER SMOKE
TEST**

Dear Sir,

Please find enclosed SFE's Final Report for the above mentioned project. Once you have had a chance to review the report please contact me directly with any comments or questions you may have.

Although we encourage our clients not to print reports that can be utilized digitally, please feel free to let us know if you require hard copies. Thank you for having SFE conduct this work on your behalf. We appreciate the business.

Sincerely,
SFE Global
File #U16-143



Paul Loving
Operations Manager
(604) 992-6792
Paul.Loving@sfeglobal.com
www.sfeglobal.com

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Section 2

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Appendices

- Appendix 1 – Smoke Test Run Reports
- Appendix 2 – Smoke Test Incident Reports

1. Introduction

SFE was retained by Brown and Caldwell, under the direction of Mr. Ryan Retzlaff, to provide consulting, technical services and equipment related to Sanitary Sewer Smoke Testing of the City of Oregon City, Oregon.

All smoke testing was conducted in October and November, 2016. This final report provides details of the tests conducted by SFE and all incidents whereby smoke was observed, or not observed in each area are outlined in Appendix 2. Mr. Adrian Marshall from SFE acted as Project Manager for this project.

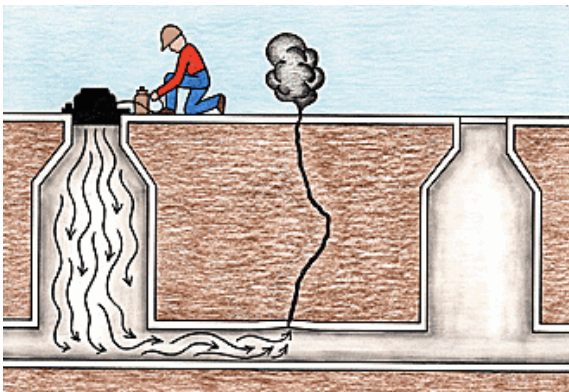
2. Smoke Testing

2.1 Smoke Testing Procedures

Smoke testing is one of the most efficient and cost effective methods of locating sources of inflow and infiltration (I&I) problems within sanitary sewers.

The non-toxic “smoke” will help find locations where storm and other sources of rain water enter the sanitary sewers. It is conducted by placing a blower over a centrally located manhole and forcing non-toxic smoke into the sanitary sewer line. As the air inside the sewer is pressurized, the smoke will fill the main line plus any and all connections. The smoke will then follow the path of any leaks to the ground’s surface, quickly revealing the source of inflow and infiltration (I&I).

The smoke will be noticeable wherever there is a leak in a sanitary sewer pipe, such as a crack in a sewer pipe, a cross-connection between a storm sewer and a sanitary sewer, where a roof drain is connected to the sanitary sewer, from a broken cleanout cap, or from a defective or damaged manhole.



3. QA/QC and Safety Statement

SFE confirms that all pipeline runs were smoke tested according to industry standards and SFE's QA/QC methodology and protocol, and standard industry practice. All equipment has been removed from the site locations.

SFE has a comprehensive Company Safety Manual and can be reviewed upon request.

Where required, confined space entry procedures and general site/traffic safety was adhered to during site installation and site maintenance. SFE utilizes the "DBI SALA" rescue system, a 2800 CFM air induction device and MSA air quality monitors. All of our staff members are thoroughly trained and certified in confined space entry procedures. Certificates are available upon request.

Where required, a thorough traffic control plan was established and used by SFE Global crews. All SFE crews and vehicles are outfitted with high visibility traffic safety equipment.

A pre-job safety inspection and meeting was conducted by SFE personnel and the following potential hazards were identified:

- Need for Personal Protective Equipment
- Traffic Control Requirements
- Heavy Lifting

This project was conducted in accordance with the WCB and OSHA safety standards as documented in SFE's Safety Procedures Manual. Local emergency response procedures were reviewed. A "tail-gate" meeting was conducted by SFE to review work to be completed and the hazards present prior to this work.

Quality Assurance and Quality Control Procedures:

- All Field Crews are supplied with SFE smoke test field sheets for documentation of pertinent information.
- All Field Crews are supplied with legible City maps detailing the sewer lines, manhole numbers and street names.
- Pre-planning shall include an outline of runs laid out on the map with smoke induction and run end manholes noted.

- All incidents are detailed on the field sheets by the SFE crew foreman and shall include addresses, photos, GPS coordinates (decimal degrees), incident description, etc.
- All data entry into the SFE Smoke Testing software shall be conducted by SFE Data Processing.
- The smoke test final report shall include report body, smoke test run details, incident details and locations, maps detailing runs and if requested, raw databases for GIS.
- As a minimum 10% of the incidents shall be checked for a correlation between the incident location (i.e. address, street location) and the GPS coordinates. The SFE project manager (PM) shall ensure checks and balances are conducted for 10% of all readings. If mistakes are discovered, all incidents shall be checked by the PM.
- As a minimum, a PDF version of the final report shall be supplied to the client and printed only upon their request.

4. Conclusion

The sanitary sewer smoke test, conducted by SFE, has determined that there are several locations whereby storm and/or rain water is cross connected and entering the sanitary system. All incidents are detailed in Appendix 2 of this report.

Of particular interest are basins 2, 6 and 8A. These basins have shown several incidents of cross connections in the form of storm-water catch-basins and rainwater downspouts. There are incidents in the other basins but not to the extent showing in these three.

The following is a legend for terms utilized on the Incident Reports:

LEAK TYPE	
Codes	Definition
RWL	Rain Water Leader – Down spout
MHC	Manhole Cover
CB	Catch Basin
SC	Service Connection
DT	Drain Tile
SPD	Swimming Pool Drain
CCD	Cleanout cap Defective

CCM	Cleanout cap Missing
CCB	Cleanout cap Broken
SI	Smoke Inside Building
NS	No Smoke from Main Vent
O	Other - Specify
LEAK SURFACE COVER	
Codes	Definition
A	Asphalt Street
B	Building Movable
D	Sidewalk
E	Tress & Shrubs
G	Gravel Area
L	Asphalt Lane
N	Non Movable Structure
R	Rail Road
T	Landscaped Area
BLVL	Landscaped Boulevard
BLVU	Unlandscaped Boulevard
LEAK SOURCE	
Codes	Definition
S	Service Connection
M	Main Sewer
ST	Storm Sewer
SD	Storm Water Ditch

Potential I&I	
Codes	Definition
0-1	Minimal
2-3	Low
4-5	Moderate
6-7	High
8-9	Very High

Should you have questions or comments please contact Paul Loving at SFE Global (604) 992-6792.

Report End
December 2016

SFE Global
Project U16-143

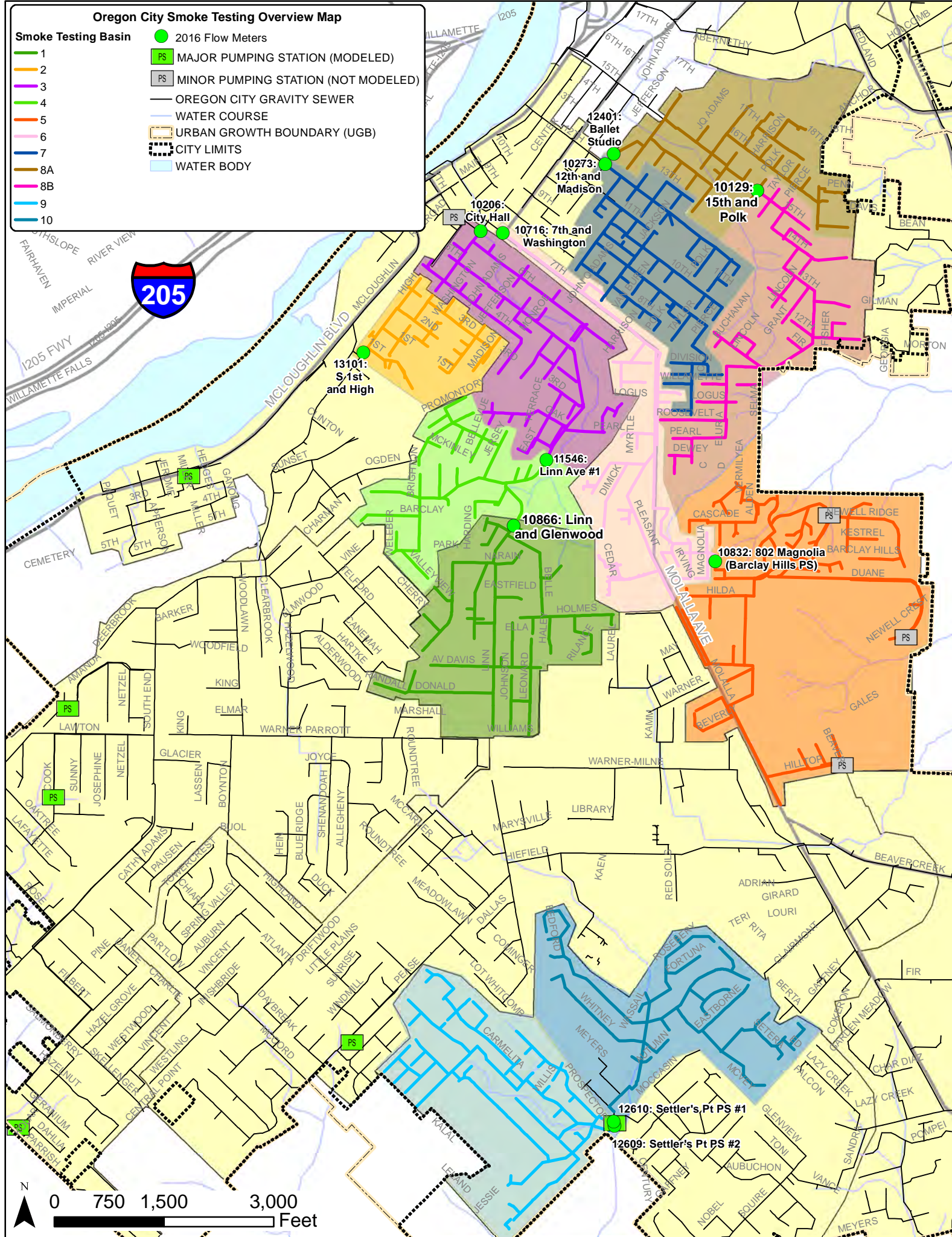
Appendix 1

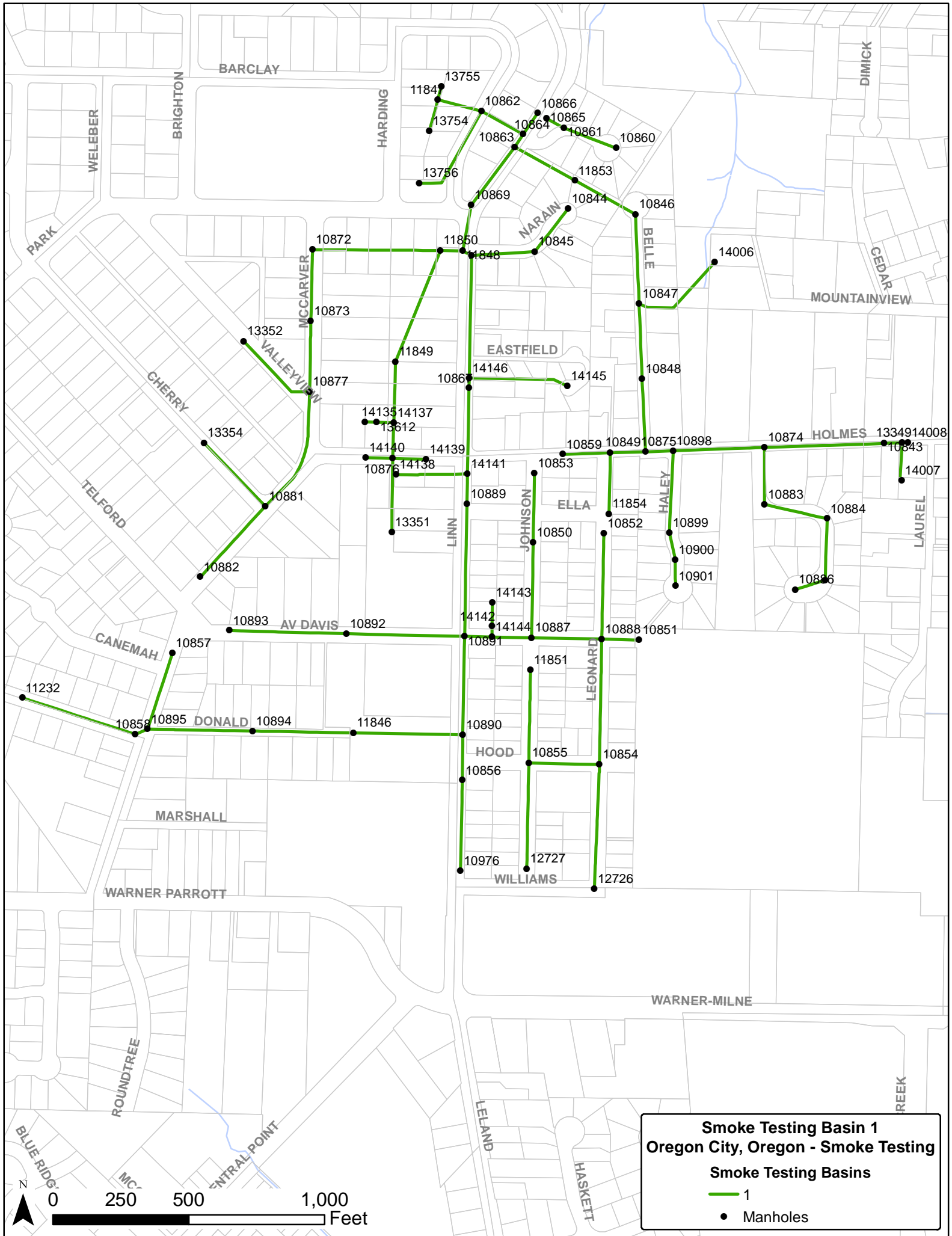
Smoke Test Run Reports

Oregon City Smoke Testing Overview Map

Smoke Testing Basin

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8A
- 8B
- 9
- 10
- 2016 Flow Meters
- PS MAJOR PUMPING STATION (MODELED)
- PS MINOR PUMPING STATION (NOT MODELED)
- OREGON CITY GRAVITY SEWER
- WATER COURSE
- URBAN GROWTH BOUNDARY (UGB)
- CITY LIMITS
- WATER BODY





Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 01

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11232"/>	45.33943	122.61127
Run End Manhole: <input type="text" value="11846"/>	45.33915	122.60645

Comments: Additional: 10857 Lat: 45.33992
Long: 122.60917

Run: 02

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10893"/>	45.34015	122.60835
Run End Manhole: <input type="text" value="10891"/>	45.34014	122.60493

Comments:

Run: 03

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11846"/>	45.33915	122.60645
Run End Manhole: <input type="text" value="10891"/>	45.34014	122.60493

Comments: Additional: 10976 Lat: 45.33780
Long: 122.60491

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 04

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12727"/>	45.33783	122.60397
Run End Manhole: <input type="text" value="10854"/>	45.33889	122.60299

Comments: Additional: 11851 Lat: 45.33985
Long: 122.60401

Run: 05

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12726"/>	45.33762	122.60297
Run End Manhole: <input type="text" value="10808"/>	45.34016	122.60301

Comments: Additional: 10852 Lat: 45.34124
Long: 122.60302

Run: 06

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10853"/>	45.34179	122.60404
Run End Manhole: <input type="text" value="10887"/>	45.34011	122.60400

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 07

Date: October 27, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10888"/>	45.34015	122.60300
Run End Manhole:	<input type="text" value="10891"/>	45.34014	122.60493

Comments: Additional: 14143 Lat: unable to locate
Long: unable to locate

Run: 08

Date: October 27, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10886"/>	45.34068	122.60024
Run End Manhole:	<input type="text" value="10874"/>	45.34211	122.60074

Comments:

Run: 09

Date: October 27, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10901"/>	45.34068	122.60195
Run End Manhole:	<input type="text" value="10898"/>	45.34207	122.60204

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 10

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13755"/>		
Run End Manhole: <input type="text" value="10864"/>	45.34526	122.60431

Comments: Additional: 13754 Lat: unable to locate
Long: unable to locate

Run: 11

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10860"/>	45.34519	122.60293
Run End Manhole: <input type="text" value="10864"/>	45.34526	122.60431

Comments:

Run: 12

Date: October 27, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10844"/>	45.34451	122.60359
Run End Manhole: <input type="text" value="11848"/>	45.34400	122.60498

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 13

Date: October 28, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10882"/>	45.34071	122.60876
Run End Manhole: <input type="text" value="10877"/>	45.34256	122.60732

Comments: Additional: 13354 Lat: 45.34206
Long: 122.60875

Run: 14

Date: October 28, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13352"/>	45.34311	122.60827
Run End Manhole: <input type="text" value="10872"/>	45.34402	122.60728

Comments:

Run: 15

Date: October 28, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10872"/>	45.34402	122.60728
Run End Manhole: <input type="text" value="10864"/>	45.34526	122.60431

Comments: Additional: 11849 Lat: unable to locate
Long: unable to locate

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 16

Date: October 28, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13351"/>		
Run End Manhole: <input type="text" value="11849"/>		

Comments: Additional: 14135 Lat: unable to locate
Long: unable to locate

Run: 17

Date: October 28, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10867"/>	45.34265	122.60497
Run End Manhole: <input type="text" value="11848"/>	45.34400	122.60498

Comments: Additional: 14145 Lat: unable to locate
Long: unable to locate

Run: 18

Date: October 28, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10891"/>	45.34014	122.60493
Run End Manhole: <input type="text" value="10867"/>	45.34265	122.60497

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1



Run: 19

Date: October 28, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10848"/>	45.34277	122.60251
Run End Manhole:	<input type="text" value="10863"/>	45.34526	122.60431

Comments: Additional: 14006 Lat: unable to locate
Long: unable to locate

Run: 20

Date: October 28, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10859"/>	45.34201	122.60361
Run End Manhole:	<input type="text" value="10848"/>	45.34277	122.60251

Comments: Additional: 10898 Lat: 45.34207
Long: 122.60204

Run: 21

Date: October 28, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11854"/>	45.34142	122.60294
Run End Manhole:	<input type="text" value="10849"/>	45.34206	122.60293

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 1

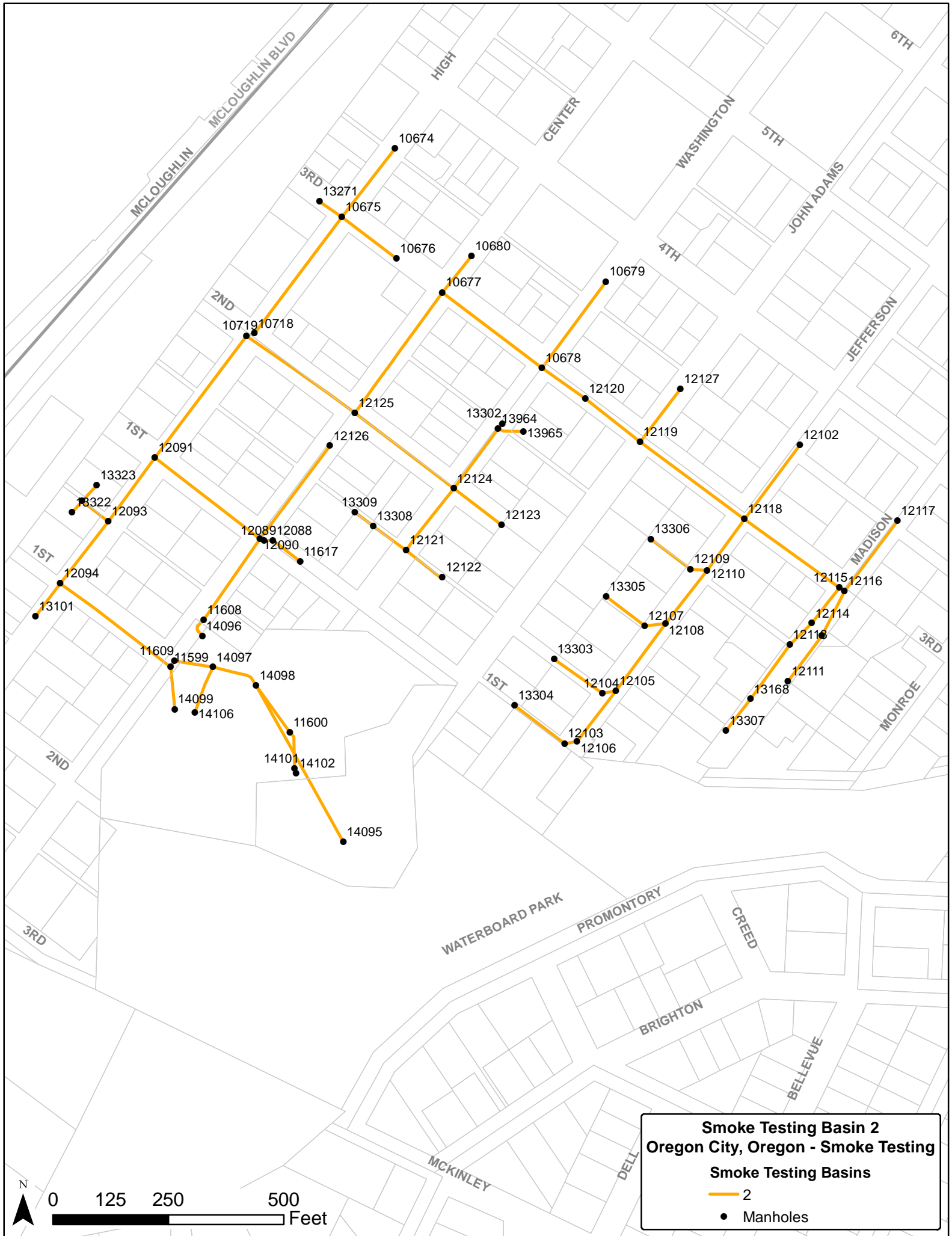


Run: 22

Date: October 28, 2016

		<i>Latitude</i>	<i>Longitude</i>
<i>Run Start Manhole:</i>	<input type="text" value="14008"/>	45.34223	122.59879
<i>Run End Manhole:</i>	<input type="text" value="10898"/>	45.34207	122.60204

Comments: Additional: 14007 Lat: unable to locate
Long: unable to locate



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 2



Run: 01

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12111"/>	45.35152	122.60601
Run End Manhole: <input type="text" value="12118"/>	45.35250	122.60639

Comments: Additional: 12117 Lat: 45.35250
Long: 122.60508

Run: 02

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13304"/>		
Run End Manhole: <input type="text" value="12118"/>	45.35250	122.60639

Comments: Additional: 13303 Lat: 45.35167
Long: 122.60790

Run: 03

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12102"/>	45.35292	122.60591
Run End Manhole: <input type="text" value="10677"/>	45.35376	122.60892

Comments: Additional: 10679 Lat: 45.35387
Long: 122.60759

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 2



Run: 04

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13309"/>	45.35245	122.60961
Run End Manhole: <input type="text" value="10680"/>	45.35395	122.60870

Comments: Additional: 13964 Lat: 45.35300
Long: 122.60843

Run: 05

Date: November 03, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10674"/>	45.35462	122.60933
Run End Manhole: <input type="text" value="12091"/>	45.35277	122.61137

Comments: Additional: 13271 Lat: 45.35427
Long: 122.13271

Run: 06

Date: November 03, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12091"/>	45.35277	122.61137
Run End Manhole: <input type="text" value="13101"/>	45.35165	122.61247

Comments: Additional: 14099 Lat: 45.35117
Long: 122.61108

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 2



Run: 07

Date: November 03, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11617"/>	45.35216	122.61009
Run End Manhole:	<input type="text" value="12091"/>	45.35277	122.61137

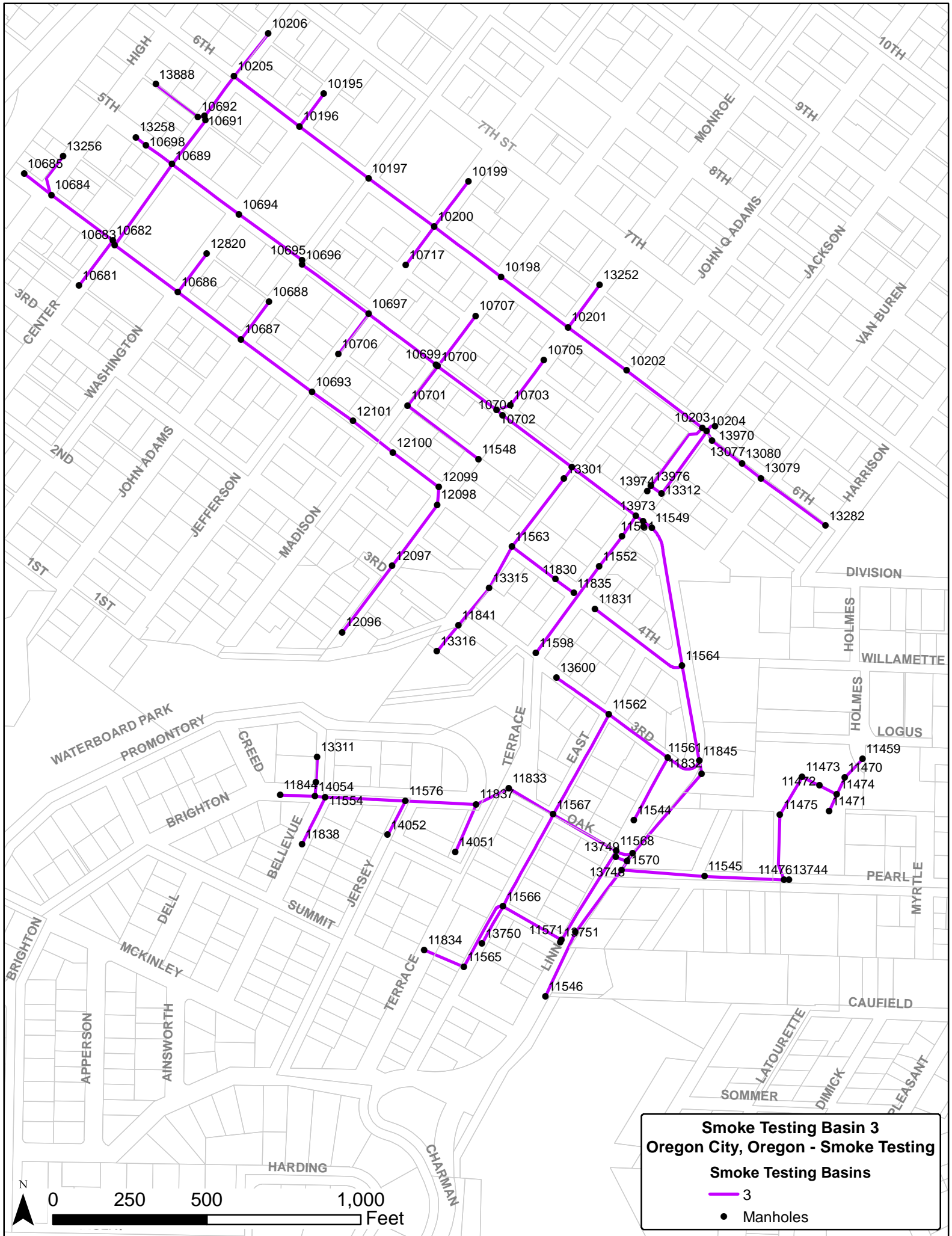
Comments: Additional: 12126 Lat: 45.35285
Long: 122.60989

Run: 08

Date: November 03, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14095"/>		
Run End Manhole:	<input type="text" value="11599"/>	45.35157	122.61214

Comments: Additional: 14102 Lat: unable to locate
Long: unable to locate



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 01

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10685"/>	45.35513	122.60932
Run End Manhole:	<input type="text" value="10683"/>	45.35457	122.60815

Comments: Additional: 13256 Lat: 45.35517
Long: 122.60892

Run: 02

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13258"/>	45.35555	122.60793
Run End Manhole:	<input type="text" value="10681"/>	45.35417	122.60855

Comments: Additional: 10682 Lat: 45.35456
Long: 122.60809

Run: 03

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10206"/>	45.35646	122.60624
Run End Manhole:	<input type="text" value="10689"/>	45.35527	122.60743

Comments: Additional: 13888 Lat: 45.35587
Long: 122.60748

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 04

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10205"/>	45.35608	122.60674
Run End Manhole:	<input type="text" value="10200"/>	45.35477	122.60409

Comments: Additional: 10195 Lat: 45.35595
Long: 122.60555

Run: 05

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10199"/>	45.35519	122.60368
Run End Manhole:	<input type="text" value="10201"/>	45.3539	122.60239

Comments: Additional: 10198 Lat: 45.35440
Long: 122.60446

Run: 06

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10203"/>	45.35302	122.60061
Run End Manhole:	<input type="text" value="13252"/>	45.35429	122.60198

Comments: Additional: 10201 Lat: 45.35440
Long: 122.60239

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 07

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13282"/>	45.35217	122.39897
Run End Manhole: <input type="text" value="13970"/>	45.35302	122.60051

Comments: Additional: 13079 Lat: 45.35269
Long: 122.60003
Additional: 13974 Lat: 45.35252

Run: 08

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13282"/>	45.35217	122.39897
Run End Manhole: <input type="text" value="13970"/>	45.35302	122.60051

Comments: Additional: 13079 Lat: 45.35269
Long: 122.60003
Additional: 13974 Lat: 45.35252

Run: 09

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10697"/>	45.35404	122.60487
Run End Manhole: <input type="text" value="10689"/>	45.35527	122.60743

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 10

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10704"/>	45.3531	122.6033
Run End Manhole:	<input type="text" value="10706"/>	45.35365	122.60531

Comments:

Run: 11

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11548"/>	45.35272	122.60349
Run End Manhole:	<input type="text" value="10707"/>	45.35398	122.60355

Comments: Additional: 10700 Lat: 45.35356
Long: 122.60403

Run: 12

Date: October 04, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13973"/>		
Run End Manhole:	<input type="text" value="10703"/>	45.35321	122.60306

Comments: Additional: 10705 Lat: 45.35357
Long: 122.60274

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 13

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10687"/>	45.35374	122.60652
Run End Manhole: <input type="text" value="10682"/>	45.35456	122.60809

Comments: Additional: 12820 Lat: 45.35452
Long: 122.60696

Run: 14

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12100"/>	45.35275	122.60453
Run End Manhole: <input type="text" value="10687"/>	45.35374	122.60652

Comments: Additional: 10688 Lat: 45.35405
Long: 122.60616

Run: 15

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12096"/>	45.35118	122.60516
Run End Manhole: <input type="text" value="12100"/>	45.35275	122.60453

Comments: Additional: 12099 Lat: 45.35249
Long: 122.60398

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 16

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13316"/>		
Run End Manhole: <input type="text" value="13301"/>	45.35262	122.6023
Comments: Additional: 11563 Lat: 45.35196 Long: 122.60300		

Run: 17

Date: October 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11598"/>		
Run End Manhole: <input type="text" value="11551"/>	45.35208	122.60162
Comments: Additional: 11563 Lat: 45.35196 Long: 122.60300		

Run: 19

Date: October 05, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13600"/>		
Run End Manhole: <input type="text" value="11832"/>	45.3501	122.60102
Comments: Additional: 11544 Lat: unable to locate Long: unable to locate		

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 20

Date: October 06, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13750"/>		
Run End Manhole: <input type="text" value="11562"/>	45.35048	122.60174

Comments:

Run: 21

Date: October 05, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11576"/>	45.34966	122.60425
Run End Manhole: <input type="text" value="11567"/>	45.34958	122.60235

Comments: Additional: 14051 Lat: 45.34907
Long: 122.60352

Run: 22

Date: October 05, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11844"/>	45.34968	122.60586
Run End Manhole: <input type="text" value="11576"/>	45.34966	122.60425

Comments: Additional: 11838 Lat: 45.34923
Long: 122.60558

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 23

Date: October 05, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11459"/>		
Run End Manhole: <input type="text" value="11476"/>	45.34909	122.60049

Comments: Additional: 11471 Lat: unable to locate
Long: unable to locate

Run: 24

Date: October 06, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11476"/>	45.34909	122.60049
Run End Manhole: <input type="text" value="11832"/>	45.3501	122.60102

Comments:

Run: 25

Date: October 06, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11834"/>	45.34826	122.60422
Run End Manhole: <input type="text" value="11571"/>	45.34848	122.60227

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 3



Run: 26

Date: October 06, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11571"/>	45.34848	122.60227
Run End Manhole:	<input type="text" value="11568"/>	45.34929	122.6016

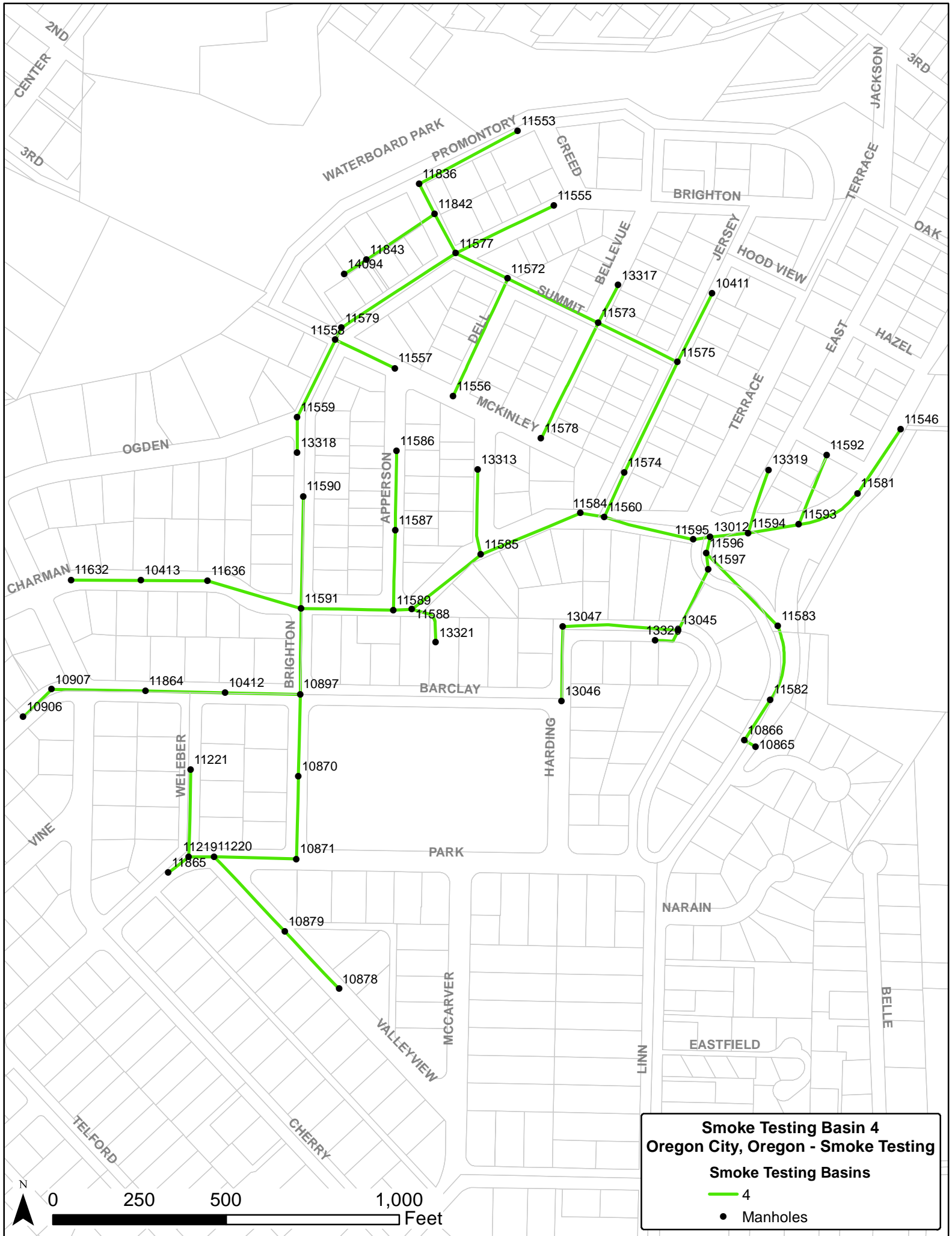
Comments: Additional: 11567 Lat: 45.34958
Long: 122.60235

Run: 27

Date: October 06, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11546"/>	45.34801	122.60255
Run End Manhole:	<input type="text" value="13748"/>	45.34908	122.60152

Comments:



Runs

Project: Oregon City

Basin: Basin 4



Run: 01

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11553"/>	45.35015	122.60677
Run End Manhole: <input type="text" value="14094"/>		

Comments: Additional: 11842 Lat: 45.34963
Long: 122.60772

Run: 03

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11577"/>	45.34929	122.60749
Run End Manhole: <input type="text" value="11573"/>	45.34871	122.60592

Comments: Additional: 11556 Lat: 45.34815
Long: 122.60746

Run: 04

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11577"/>	45.34929	122.60749
Run End Manhole: <input type="text" value="11573"/>	45.34871	122.60592

Comments: Additional: 11556 Lat: 45.34815
Long: 122.60746

Runs

Project: Oregon City

Basin: Basin 4



Run: 05

Date: October 07, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11573"/>	45.34871	122.60592
Run End Manhole:	<input type="text" value="11574"/>	45.34760	122.60558

Comments: Additional: 10411 Lat: 45.34898
Long: 122.60468

Run: 06

Date: October 07, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11557"/>	45.34829	122.60819
Run End Manhole:	<input type="text" value="11559"/>	45.34791	122.60922

Comments: Additional: 13318 Lat: unable to locate
Long: unable to locate

Run: 07

Date: October 07, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11632"/>	45.34657	122.61172
Run End Manhole:	<input type="text" value="11591"/>	45.34641	122.60916

Comments:

Runs

Project: Oregon City

Basin: Basin 4



Run: 08

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11590"/>	45.34726	122.60915
Run End Manhole: <input type="text" value="10897"/>	45.34578	122.60912

Comments:

Run: 09

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11586"/>	45.34760	122.60812
Run End Manhole: <input type="text" value="11591"/>	45.34641	122.60916

Comments:

Run: 10

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13313"/>		
Run End Manhole: <input type="text" value="11589"/>	45.34646	122.60809

Comments: Additional: 13321 Lat: unable to locate
Long: unable to locate

Runs

Project: Oregon City

Basin: Basin 4



Run: 11

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11593"/>	45.34717	122.60420
Run End Manhole: <input type="text" value="11560"/>	45.34721	122.60577

Comments: Additional: 13319 Lat: 45.34758
Long: 122.60457

Run: 12

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10865"/>	45.34543	122.60399
Run End Manhole: <input type="text" value="11596"/>	45.34692	122.60461

Comments:

Run: 13

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13046"/>	45.34567	122.60614
Run End Manhole: <input type="text" value="11596"/>	45.34692	122.60461

Comments: Additional: 13320 Lat: unable to locate
Long: unable to locate

Runs

Project: Oregon City

Basin: Basin 4



Run: 14

Date: October 10, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10906"/>	45.34544	122.61221
Run End Manhole: <input type="text" value="10897"/>	45.34578	122.60912

Comments:

Run: 15

Date: October 10, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10871"/>	45.34447	122.60915
Run End Manhole: <input type="text" value="10897"/>	45.34578	122.60912

Comments:

Run: 16

Date: October 10, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11221"/>	45.34507	122.61031
Run End Manhole: <input type="text" value="10871"/>	45.34447	122.60915

Comments: Additional: 11865 Lat: unable to locate
Long: unable to locate

Runs

Project: Oregon City

Basin: Basin 4



Run: 17

Date: October 10, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11220"/>	45.34443	122.61000
Run End Manhole: <input type="text" value="10878"/>	45.34338	122.60859

Comments:

Run: 18

Date: October 10, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11574"/>	45.34760	122.60558
Run End Manhole: <input type="text" value="11585"/>	45.34691	122.60715

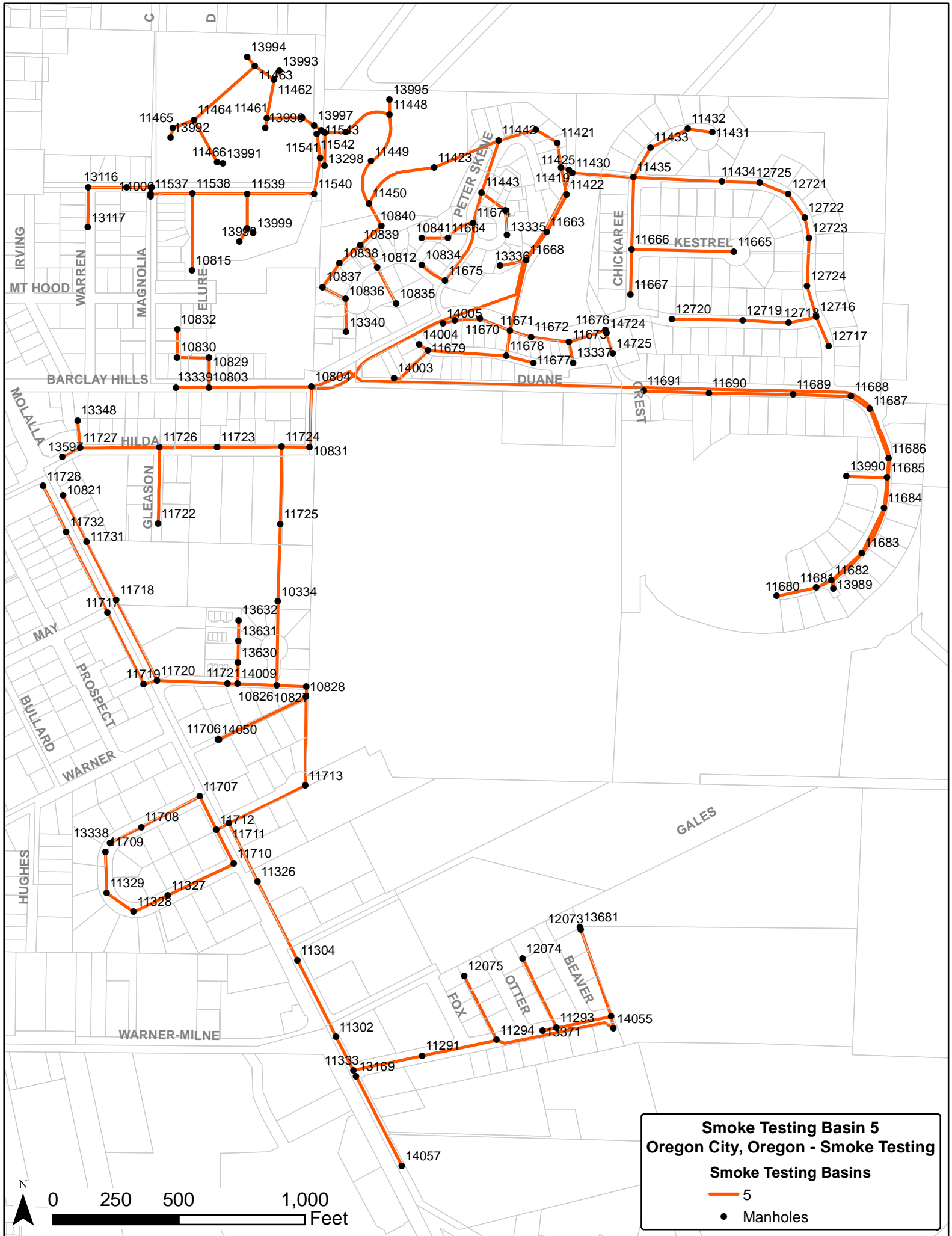
Comments: Additional: 11560 Lat: 45.34721
Long: 122.60577

Run: 02

Date: October 07, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11555"/>	45.34929	-122.60641
Run End Manhole: <input type="text" value="11558"/>	45.34848	122.60880

Comments:



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 5



Run: 01

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11294"/>	45.33681	122.58743
Run End Manhole: <input type="text" value="14055"/>	45.33687	122.58646

Comments: Additional: 12074 Lat: unable to locate
Long: unable to locate

Run: 02

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14055"/>	45.33687	122.58646
Run End Manhole: <input type="text" value="13169"/>	45.33631	122.59029

Comments: Additional: 12075 Lat: unable to locate
Long: unable to locate

Run: 03

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11709"/>	45.33864	122.59423
Run End Manhole: <input type="text" value="11711"/>	45.33895	122.59238

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 5



Run: 04

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11709"/>	45.33864	122.59423
Run End Manhole: <input type="text" value="11712"/>	45.33887	122.59252

Comments:

Run: 05

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11326"/>	45.33832	122.59187
Run End Manhole: <input type="text" value="10828"/>		

Comments: Additional: 14050 Lat: 45.33986
Long: 122.59254

Run: 06

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10828"/>		
Run End Manhole: <input type="text" value="11725"/>	45.34221	122.59164

Comments: Additional: 11719 Lat: 45.34042
Long: 112.59373

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 5



Run: 07

Date: November 17, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13597"/>	45.34293	122.59509
Run End Manhole:	<input type="text" value="10804"/>	45.34372	122.59124

Comments: Additional: 11725 Lat: 45.34221
Long: 122.59164

Run: 08

Date: November 17, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13990"/>	45.34283	122.58285
Run End Manhole:	<input type="text" value="13989"/>	45.34167	122.58312

Comments: Additional: 11680 Lat: unable to locate
Long: unable to locate

Run: 09

Date: November 17, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11691"/>	45.34380	122.58608
Run End Manhole:	<input type="text" value="11685"/>	45.34288	122.58239

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 5



Run: 10

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12720"/>	45.34461	122.58570
Run End Manhole: <input type="text" value="11434"/>	45.34608	122.58498

Comments: Additional: 12717 Lat: 45.34430
Long: 122.58327

Run: 11

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11434"/>	45.34608	122.58498
Run End Manhole: <input type="text" value="11430"/>	45.34628	122.58742

Comments: Additional: 11431 Lat: 45.34664
Long: 122.58514

Run: 12

Date: November 17, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11667"/>	45.34481	122.58633
Run End Manhole: <input type="text" value="11435"/>	45.34610	122.58633

Comments: Additional: 12074 Lat: 45.34533
Long: 122.58475

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 5



Run: 13

Date: November 17, 2016

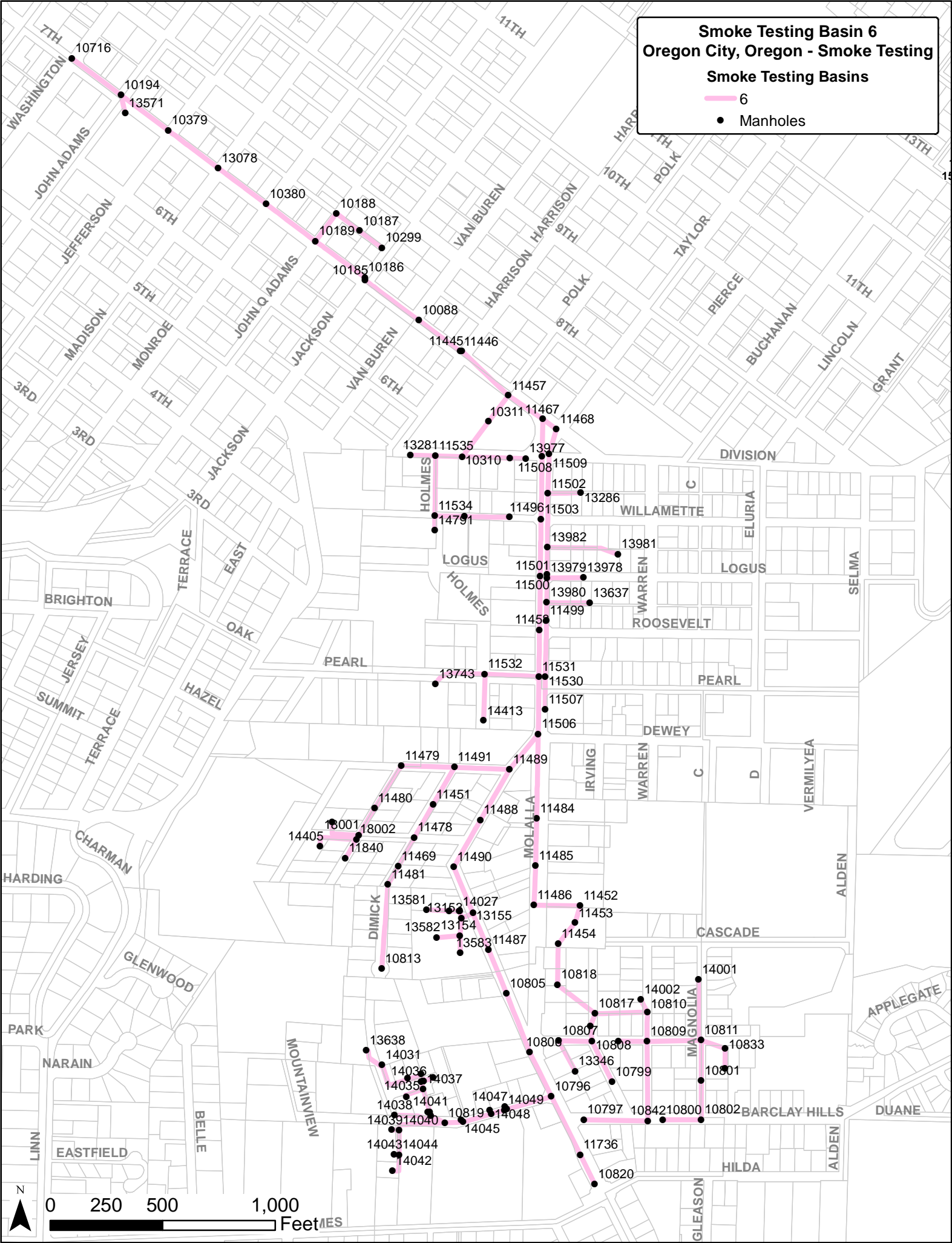
	<i>Latitude</i>	<i>Longitude</i>
<i>Run Start Manhole:</i> <input type="text" value="14003"/>		
<i>Run End Manhole:</i> <input type="text" value="11668"/>	45.34517	122.58807

Comments: Additional: 14725 Lat: unable to locate
Long: unable to locate

Smoke Testing Basin 6
Oregon City, Oregon - Smoke Testing

Smoke Testing Basins

- 6
- Manholes



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 6



Run: 01

Date: November 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14037"/>	45.34415	122.59840
Run End Manhole:	<input type="text" value="10819"/>	45.34358	122.59818

Comments: UTL all manholes except the three identified above, suspect that some of the manholes on the map may be storm instead of sewer.

Run: 02

Date: November 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10819"/>	45.34358	122.59818
Run End Manhole:	<input type="text" value="10796"/>	45.34386	122.59637

Comments:

Run: 03

Date: November 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10819"/>	45.34358	122.59818
Run End Manhole:	<input type="text" value="14042"/>		

Comments: UTL any of the manholes on this run (except for SM loc.). Suspect that the manholes on the map may be storm system instead of sewer.

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 6



Run: 04

Date: November 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11840"/>	45.34673	122.60004
Run End Manhole: <input type="text" value="11479"/>	45.34787	122.59912

Comments: Additional: 14405 Lat: unable to locate
Long: unable to locate

Run: 05

Date: November 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10813"/>	45.34541	122.59927
Run End Manhole: <input type="text" value="11491"/>	45.34792	122.59819

Comments:

Run: 06

Date: November 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11479"/>	45.34787	122.59912
Run End Manhole: <input type="text" value="11506"/>	45.34832	122.59675

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 6



Run: 07

Date: November 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13155"/>	45.34611	122.59775
Run End Manhole:	<input type="text" value="11489"/>	45.34789	122.59718

Comments:

Run: 08

Date: November 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10806"/>	45.34443	122.59673
Run End Manhole:	<input type="text" value="13155"/>	45.34611	122.59775

Comments:

Run: 09

Date: November 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10800"/>	45.34370	122.59438
Run End Manhole:	<input type="text" value="10809"/>	45.34462	122.59468

Comments: Additional: 14001 Lat: unable to locate
Long: unable to locate

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 6



Run: 10

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10797"/>	45.34365	122.59575
Run End Manhole: <input type="text" value="10810"/>	45.34496	122.59470

Comments: Additional: 14002 Lat: unable to locate
Long: unable to locate

Run: 11

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10799"/>	45.34412	122.59531
Run End Manhole: <input type="text" value="11486"/>	45.34623	122.59679

Comments: Additional: 13346 Lat: unable to locate
Long: unable to locate

Run: 12

Date: November 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11496"/>	45.35096	122.59735
Run End Manhole: <input type="text" value="11535"/>	45.35171	122.59863

Comments: Additional: 14791 Lat: unable to locate
Long: unable to locate

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 6



Run: 13

Date: November 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
<i>Run Start Manhole:</i>	<input type="text" value="13281"/>	45.35171	122.59905
<i>Run End Manhole:</i>	<input type="text" value="11457"/>	45.35244	122.59744

Comments: Additional: 11508 Lat: 45.35168
Long: 122.59702



Runs

Project: Oregon City

Basin: Basin 7



Run: 01

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10142"/>	45.35734	122.59628
Run End Manhole:	<input type="text" value="10140"/>	45.35847	122.59644

Comments: Additional: 13072 Lat: 45.35780
Long: 122.59505

Run: 02

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10151"/>	45.35826	122.59803
Run End Manhole:	<input type="text" value="10273"/>	45.35903	122.59974

Comments:

Run: 03

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10155"/>	45.35778	122.59852
Run End Manhole:	<input type="text" value="10151"/>	45.35826	122.59803

Comments: Additional: 10149 Lat: 45.35871
Long: 122.59749

Runs

Project: Oregon City

Basin: Basin 7



Run: 04

Date: October 12, 2016

Run Start Manhole:

Latitude

Longitude

Run End Manhole:

45.35826

122.59803

Comments: Additional: 10098 Lat: 45.35686
Long: 122.59665

Run: 05

Date: October 12, 2016

Run Start Manhole:

Latitude

Longitude

45.35847

122.59644

Run End Manhole:

45.35787

122.59715

Comments: Additional: 10095 Lat: 45.35718
Long: 122.59779

Run: 06

Date: October 12, 2016

Run Start Manhole:

Latitude

Longitude

45.35649

122.56458

Run End Manhole:

45.35734

122.59628

Comments:

Runs

Project: Oregon City

Basin: Basin 7



Run: 07

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10111"/>	45.35542	122.59472
Run End Manhole:	<input type="text" value="12404"/>	45.35649	122.56458

Comments:

Run: 08

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10114"/>	45.35561	122.59295
Run End Manhole:	<input type="text" value="12404"/>	45.35649	122.56458

Comments:

Run: 09

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10110"/>	45.35498	122.59487
Run End Manhole:	<input type="text" value="10113"/>	45.35606	122.59374

Comments:

Runs

Project: Oregon City

Basin: Basin 7



Run: 10

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13918"/>	45.35446	122.59410
Run End Manhole:	<input type="text" value="10114"/>	45.35561	122.59295

Comments: Additional: 12409 Lat: unable to locate
Long: unable to locate

Run: 11

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10229"/>	45.35708	122.59985
Run End Manhole:	<input type="text" value="10157"/>	45.35862	112.59885

Comments: Additional: 13251 Lat: 45.35731
Long: 122.59960

Run: 14

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14803"/>	45.35602	122.59766
Run End Manhole:	<input type="text" value="10093"/>	45.35690	122.59937

Comments: Additional: 14421 Lat: unable to locate
Long: unable to locate

Runs

Project: Oregon City

Basin: Basin 7



Run: 15

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10104"/>	45.35516	122.59599
Run End Manhole:	<input type="text" value="14803"/>	45.35602	122.59766

Comments: Additional: 10102 Lat: 45.35506
Long: 122.59742

Run: 16

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10120"/>	45.35377	122.59472
Run End Manhole:	<input type="text" value="10104"/>	45.35516	122.59599

Comments: Additional: 10108 Lat: 45.35477
Long: 122.59641

Run: 17

Date: October 12, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13917"/>		
Run End Manhole:	<input type="text" value="10118"/>	45.35428	122.59424

Comments: Additional: 13635 Lat: 45.35363
Long: 122.59424

Runs

Project: Oregon City

Basin: Basin 7



Run: 18

Date: October 24, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14803"/>	45.35602	122.59766
Run End Manhole: <input type="text" value="12171"/>	45.35604	122.59882

Comments:

Run: 19

Date: October 24, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13086"/>	45.35486	122.59753
Run End Manhole: <input type="text" value="10270"/>	45.35615	122.60014

Comments: Additional: 13085 Lat: 45.35571
Long: 122.59808

Run: 20

Date: October 11, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13921"/>	45.35403	122.59591
Run End Manhole: <input type="text" value="13086"/>	45.35486	122.59753

Comments: Additional: 13095 Lat: 45.35426
Long: 122.59814

Runs

Project: Oregon City

Basin: Basin 7



Run: 21

Date: October 11, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13922"/>		
Run End Manhole: <input type="text" value="13921"/>	45.35403	122.59591

Comments: Additional: 13919 Lat: 45.35387
Long: 122.59628

Run: 22

Date: October 11, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13100"/>	45.35314	122.54410
Run End Manhole: <input type="text" value="13921"/>	45.35403	122.59591

Comments: Additional: 13099 Lat: 45.35257
Long: 122.59592

Run: 23

Date: October 11, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13107"/>	45.35169	122.59426
Run End Manhole: <input type="text" value="13110"/>	45.35315	122.59410

Comments: Additional: 13112 Lat: 45.35197
Long: 122.59404

Runs

Project: Oregon City

Basin: Basin 7



Run: 24

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13173"/>	45.35513	122.60121
Run End Manhole:	<input type="text" value="10270"/>	45.35615	122.60014

Comments:

Run: 25

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13928"/>	45.35472	122.59959
Run End Manhole:	<input type="text" value="13067"/>	45.35513	122.60094

Comments: Additional: 11826 Lat: 45.35537
Long: 122.59962

Run: 26

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13084"/>	45.35396	122.59976
Run End Manhole:	<input type="text" value="10089"/>	45.35531	122.59841

Comments: Additional: 10090 Lat: 45.35470
Long: 122.59840

Runs

Project: Oregon City

Basin: Basin 7



Run: 27

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13096"/>	45.35364	122.59747
Run End Manhole:	<input type="text" value="10092"/>	45.35452	122.59924

Comments: Additional: 13093 Lat: 45.35376
Long: 122.59863

Run: 28

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11482"/>	45.35282	122.59708
Run End Manhole:	<input type="text" value="13096"/>	45.35364	122.59747

Comments: Additional: 13098 Lat: 45.35340
Long: 122.29775

Run: 29

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13109"/>	45.35131	122.59402
Run End Manhole:	<input type="text" value="13174"/>	45.35169	122.59601

Comments: Additional: 13132 Lat: 45.35163
Long: 122.59399

Runs

Project: Oregon City

Basin: Basin 7



Run: 30

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13288"/>	45.35130	122.59328
Run End Manhole:	<input type="text" value="13109"/>	45.35131	122.59402

Comments: Additional: 13104 Lat: unable to locate
Long: unable to locate

Run: 31

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="12977"/>	45.35091	122.59637
Run End Manhole:	<input type="text" value="13103"/>		

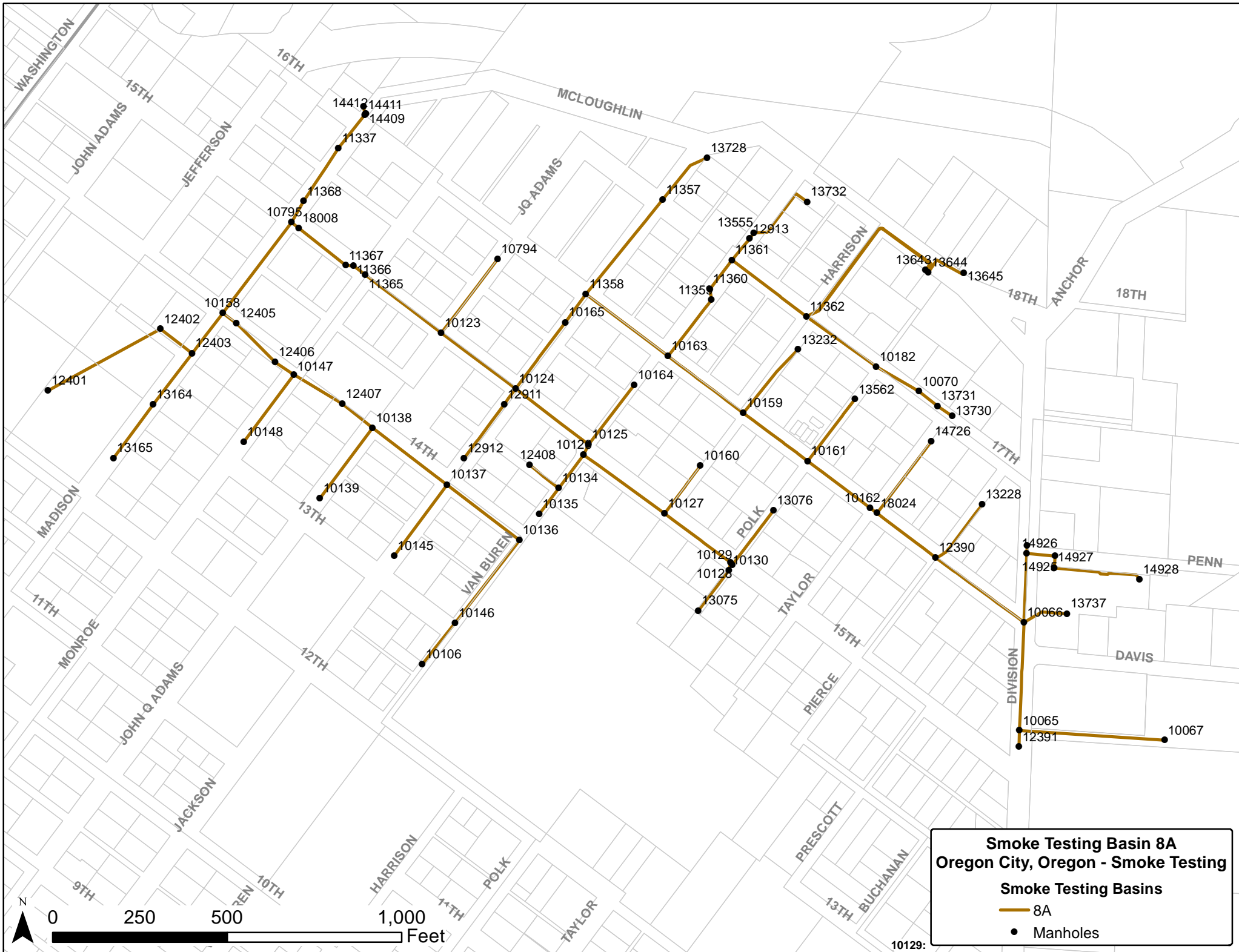
Comments: Additional: 13280 Lat: unable to locate
Long: unable to locate

Run: 32

Date: October 11, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13102"/>	45.34978	122.59484
Run End Manhole:	<input type="text" value="12978"/>	45.35092	122.59492

Comments: Additional: 13636 Lat: 45.34996
Long: 122.59585



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 01

Date: October 26, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11412"/>	45.36167	122.59585
Run End Manhole: <input type="text" value="10795"/>	45.36085	122.59669

Comments:

Run: 02

Date: October 26, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="10795"/>	45.36085	122.59669
Run End Manhole: <input type="text" value="13165"/>	45.35898	122.59856

Comments:

Run: 03

Date: October 26, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12401"/>		
Run End Manhole: <input type="text" value="12403"/>	45.35981	122.59773

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 04

Date: October 26, 2016

Run Start Manhole: **Latitude** **Longitude**

Run End Manhole: 45.36009 122.59740

Comments: Additional: 10148 Lat: 45.35911
Long: 122.59710

Run: 05

Date: October 25, 2016

Run Start Manhole: **Latitude** **Longitude**
45.36048 122.59431

Run End Manhole: 45.36085 122.59669

Comments:

Run: 06

Date: October 26, 2016

Run Start Manhole: **Latitude** **Longitude**
45.35837 122.59403

Run End Manhole:

Comments: Additional: 10139 Lat: 45.35872
Long: 122.59625

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 07

Date: October 26, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10106"/>	45.35738	122.59505
Run End Manhole:	<input type="text" value="10136"/>	45.35837	122.59403

Comments:

Run: 08

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10120"/>	45.35915	122.59327
Run End Manhole:	<input type="text" value="10123"/>	45.35999	122.59493

Comments:

Run: 09

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11358"/>	45.36032	122.59331
Run End Manhole:	<input type="text" value="12912"/>	45.35903	122.59465

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 10

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13728"/>	45.36143	122.59200
Run End Manhole:	<input type="text" value="11358"/>	45.36032	122.59331

Comments:

Run: 11

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13732"/>		
Run End Manhole:	<input type="text" value="10163"/>	45.35988	122.59240

Comments:

Run: 12

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10135"/>	45.35843	122.59396
Run End Manhole:	<input type="text" value="10125"/>	45.35925	122.59341

Comments: Additional: 12408 Lat: 45.35891
Long: 122.59394

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 13

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10129"/>	45.35820	122.59168
Run End Manhole:	<input type="text" value="10120"/>	45.35915	122.59327

Comments:

Run: 14

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13076"/>	45.35871	122.59124
Run End Manhole:	<input type="text" value="10129"/>	45.35820	122.59168

Comments: Additional: 13075 Lat: 45.35789
Long: 122.59200

Run: 15

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13645"/>	45.36061	122.58915
Run End Manhole:	<input type="text" value="11362"/>	45.36025	122.59088

Comments: Additional: 13643 Lat: 45.36062
Long: 122.58951
(line is a pump system did not smoke)

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 16

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13730"/>	45.35949	122.58921
Run End Manhole:	<input type="text" value="11361"/>	45.36061	122.59167

Comments:

Run: 17

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10161"/>	45.35907	122.59081
Run End Manhole:	<input type="text" value="11358"/>	45.36032	122.59331

Comments: Additional: 13232 Lat: 45.35995
Long: 122.59092

Run: 18

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13562"/>	45.35995	122.59032
Run End Manhole:	<input type="text" value="18024"/>	45.35870	122.59012

Comments: Additional: 14726 Lat: 45.35876
Long: 122.58891

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8A



Run: 19

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10066"/>	45.35784	122.58836
Run End Manhole:	<input type="text" value="18024"/>	45.35870	122.59012

Comments: Additional: 14726 Lat: 45.35876
Long: 122.58891

Run: 20

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10067"/>	45.35700	122.58697
Run End Manhole:	<input type="text" value="10066"/>	45.35784	122.58836

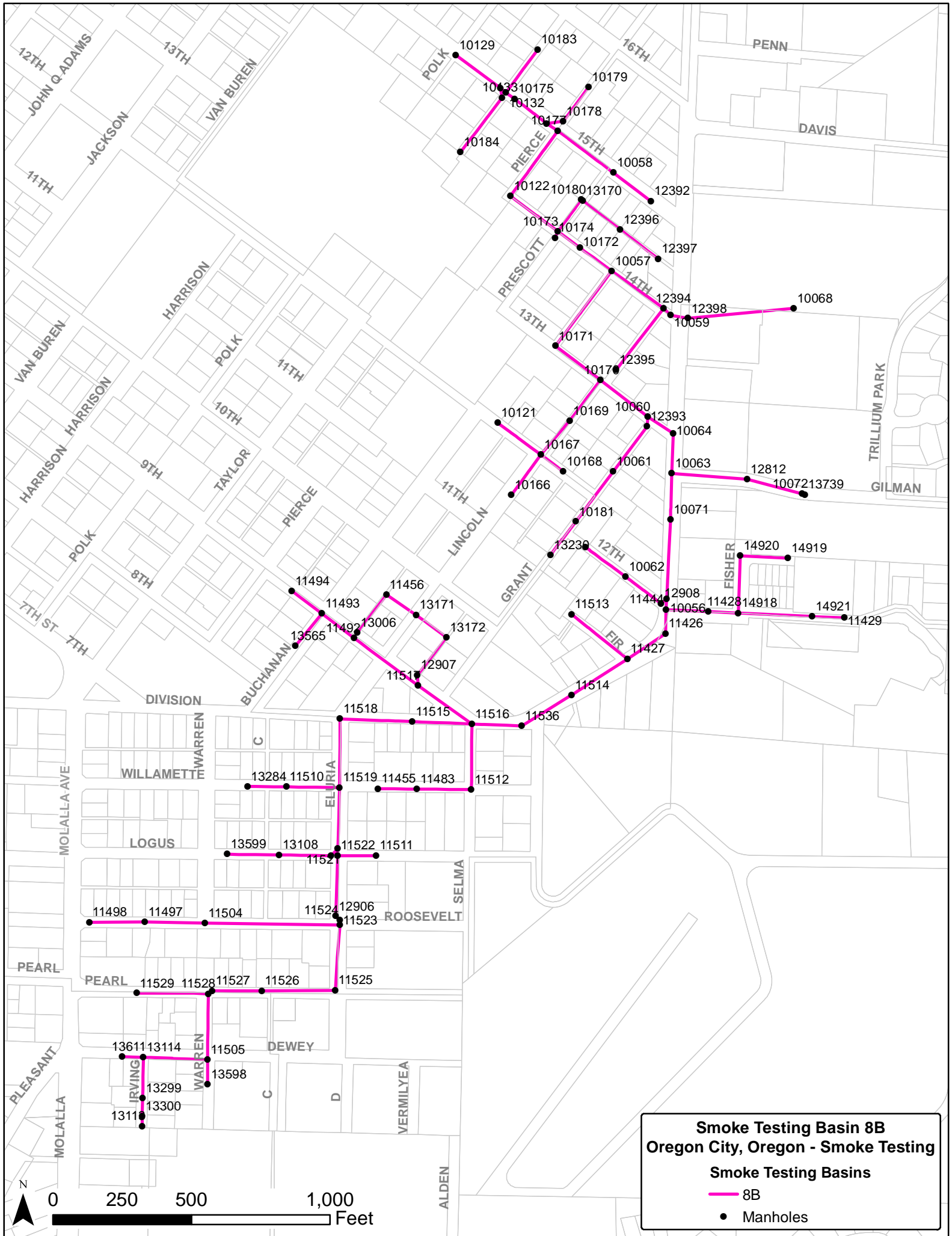
Comments:

Run: 21

Date: October 25, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14928"/>		
Run End Manhole:	<input type="text" value="14926"/>		

Comments: Did not smoke this line because one manhole was plugged.



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B



Run: 01

Date: December 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13113"/>	45.34760	122.59564
Run End Manhole:	<input type="text" value="11505"/>	45.34822	122.59471

Comments: Additional: 13611 Lat: unable to locate
Long: unable to locate

Run: 02

Date: December 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11505"/>	45.34822	122.59471
Run End Manhole:	<input type="text" value="11525"/>	45.34893	122.59300

Comments: Additional: 11529 Lat: 45.34890
Long: 122.59576

Run: 03

Date: December 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11498"/>	45.34960	122.59643
Run End Manhole:	<input type="text" value="11523"/>	45.34960	122.59293

Comments: Additional: 11525 Lat: 45.34893
Long: 122.59300

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B



Run: 04

Date: December 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13599"/>	45.35034	122.59457
Run End Manhole:	<input type="text" value="11511"/>	45.35032	122.59243

Comments: Additional: 11523 Lat: 45.34960
Long: 122.59293

Run: 05

Date: December 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13284"/>		
Run End Manhole:	<input type="text" value="11518"/>	45.35164	122.59302

Comments: Additional: 11521 Lat: 45.35031
Long: 122.59301

Run: 06

Date: December 01, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11455"/>	45.35097	122.59246
Run End Manhole:	<input type="text" value="11536"/>	45.35163	122.59043

Comments: Additional: 11518 Lat: 45.35164
Long: 122.59302

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B



Run: 07

Date: December 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11494"/>	45.35291	122.59371
Run End Manhole: <input type="text" value="11516"/>	45.35163	122.59115

Comments: Additional: 13565 Lat: 45.35240
Long: 122.59356

Run: 08

Date: December 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11536"/>	45.35163	122.59043
Run End Manhole: <input type="text" value="12908"/>	45.35292	122.58844

Comments:

Run: 09

Date: December 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="N/A"/>	45.35339	122.58963
Run End Manhole: <input type="text" value="10071"/>	45.35370	122.58847

Comments: Additional: 12908 Lat: 45.35292
Long: 122.58844

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B



Run: 10

Date: December 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11429"/>		
Run End Manhole: <input type="text" value="12908"/>	45.35292	122.58844

Comments: Additional: 14919 Lat: 45.35332
Long: 122.58678

Run: 11

Date: December 01, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13739"/>	45.35402	122.58664
Run End Manhole: <input type="text" value="10064"/>	45.35456	122.58844

Comments: Additional: 10071 Lat: 45.35370
Long: 122.58847

Run: 12

Date: December 02, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13230"/>	45.35336	122.59009
Run End Manhole: <input type="text" value="10060"/>	45.35472	122.58882

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B



Run: 13

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10166"/>	45.35384	122.59076
Run End Manhole:	<input type="text" value="10064"/>	45.35456	122.58844

Comments: Additional: 10168 Lat: 45.35413
Long: 122.58997

Run: 14

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10170"/>	45.35509	122.58945
Run End Manhole:	<input type="text" value="10057"/>	45.35613	122.58937

Comments: Additional: 12395 Lat: unable to locate
Long: unable to locate

Run: 15

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10057"/>	45.35613	122.58937
Run End Manhole:	<input type="text" value="10174"/>	45.35658	122.59017

Comments: Additional: 12397 Lat: 45.35629
Long: 122.58866

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B



Run: 16

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10174"/>	45.35658	122.59017
Run End Manhole:	<input type="text" value="10177"/>	45.35756	122.59035

Comments:

Run: 17

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10179"/>	45.35794	122.58975
Run End Manhole:	<input type="text" value="10129"/>	45.35820	122.59164

Comments: Additional: 10183 Lat: 45.35828
Long: 122.59048

Run: 18

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="12392"/>	45.35682	122.58884
Run End Manhole:	<input type="text" value="10177"/>	45.35756	122.59035

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 8B

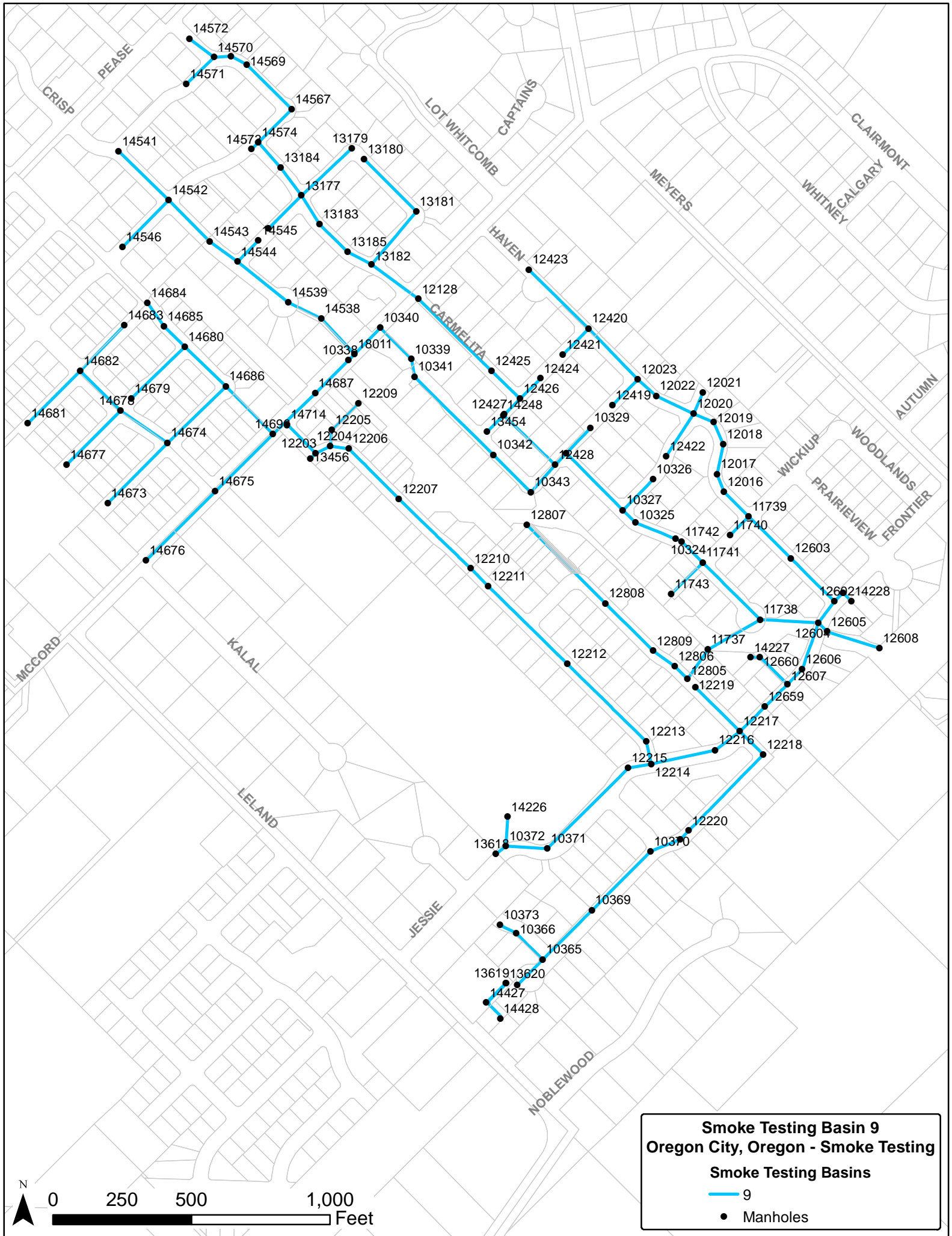


Run: 19

Date: December 02, 2016

		<i>Latitude</i>	<i>Longitude</i>
<i>Run Start Manhole:</i>	<input type="text" value="10068"/>	45.35594	122.58675
<i>Run End Manhole:</i>	<input type="text" value="12394"/>	45.35575	122.58855

Comments: Several manholes near the hospital were smoking (not on map) but 10068 will not smoke, possit on pump because it is located so far below grade.



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 01

Date: November 29, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14681"/>	45.32491	122.61024
Run End Manhole: <input type="text" value="14678"/>	45.32505	122.60892

Comments: Additional: 14683 Lat: 45.32590
Long: 122.60892

Run: 02

Date: November 29, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14678"/>	45.32505	122.60892
Run End Manhole: <input type="text" value="14686"/>	45.32531	122.60756

Comments:

Run: 03

Date: November 29, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14684"/>	45.32610	122.60860
Run End Manhole: <input type="text" value="14696"/>	45.32488	122.60683

Comments: Additional: 14679 Lat: 45.32514
Long: 122.60876

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 04

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14714"/>	45.32495	122.60662
Run End Manhole:	<input type="text" value="12211"/>	45.32342	122.60371

Comments: Additional: 12209 Lat: 45.32515
Long: 122.60562

Run: 05

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14676"/>	45.32358	122.60853
Run End Manhole:	<input type="text" value="10340"/>	45.32593	122.60529

Comments:

Run: 06

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14541"/>	45.32761	122.60905
Run End Manhole:	<input type="text" value="18011"/>	45.32566	122.60567

Comments: Additional: 14546 Lat: 45.32669
Long: 122.60895

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 07

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14572"/>	45.32873	122.60809
Run End Manhole:	<input type="text" value="13177"/>	45.32788	122.60648

Comments: Additional: 14571 Lat: 45.32827
Long: 122.60812

Run: 08

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="14545"/>	45.32687	122.60695
Run End Manhole:	<input type="text" value="12128"/>	45.32624	122.60477

Comments: Additional: 13179 Lat: 45.32768
Long: 122.60578

Run: 09

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="12423"/>	45.32650	122.60314
Run End Manhole:	<input type="text" value="12020"/>	45.32516	122.60089

Comments: Additional: 12419 Lat: 45.32521
Long: 122.60204

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 10

Date: November 29, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12422"/>	45.32472	122.60126
Run End Manhole: <input type="text" value="12603"/>	45.32375	122.59945

Comments: Additional: 12021 Lat: 45.32536
Long: 122.60076

Run: 11

Date: November 29, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14228"/>	45.32334	122.59863
Run End Manhole: <input type="text" value="12659"/>	45.32229	122.59979

Comments: Additional: 11738 Lat: 45.32316
Long: 122.59991

Run: 12

Date: November 26, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12128"/>	45.32624	122.60477
Run End Manhole: <input type="text" value="12428"/>	45.32463	122.60281

Comments: Additional: 12426 Lat: 45.32546
Long: 122.60306

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 13

Date: November 29, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10340"/>	45.32593	122.60529
Run End Manhole:	<input type="text" value="10329"/>	45.32500	122.60234

Comments:

Run: 14

Date: November 30, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="12428"/>	45.32463	122.60281
Run End Manhole:	<input type="text" value="11738"/>	45.32316	122.59991

Comments: Additional: 10326 Lat: 45.32446
Long: 122.60146

Run: 15

Date: November 30, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="12807"/>	45.32398	122.60320
Run End Manhole:	<input type="text" value="11738"/>	45.32316	122.59991

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 16

Date: November 30, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="12211"/>	45.32342	122.60371
Run End Manhole:	<input type="text" value="12214"/>	45.32167	122.60134

Comments:

Run: 17

Date: November 30, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="10370"/>	45.32084	122.60130
Run End Manhole:	<input type="text" value="12214"/>	45.32167	122.60134

Comments: Additional: 12219 Lat: 45.32244
Long: 122.60075

Run: 18

Date: November 30, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13620"/>	45.31946	122.60308
Run End Manhole:	<input type="text" value="10370"/>	45.32084	122.60130

Comments: Additional: 10373 Lat: 45.32004
Long: 122.60337

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 9



Run: 19

Date: October 25, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="14428"/>		
Run End Manhole: <input type="text" value="13619"/>	45.31948	122.60323

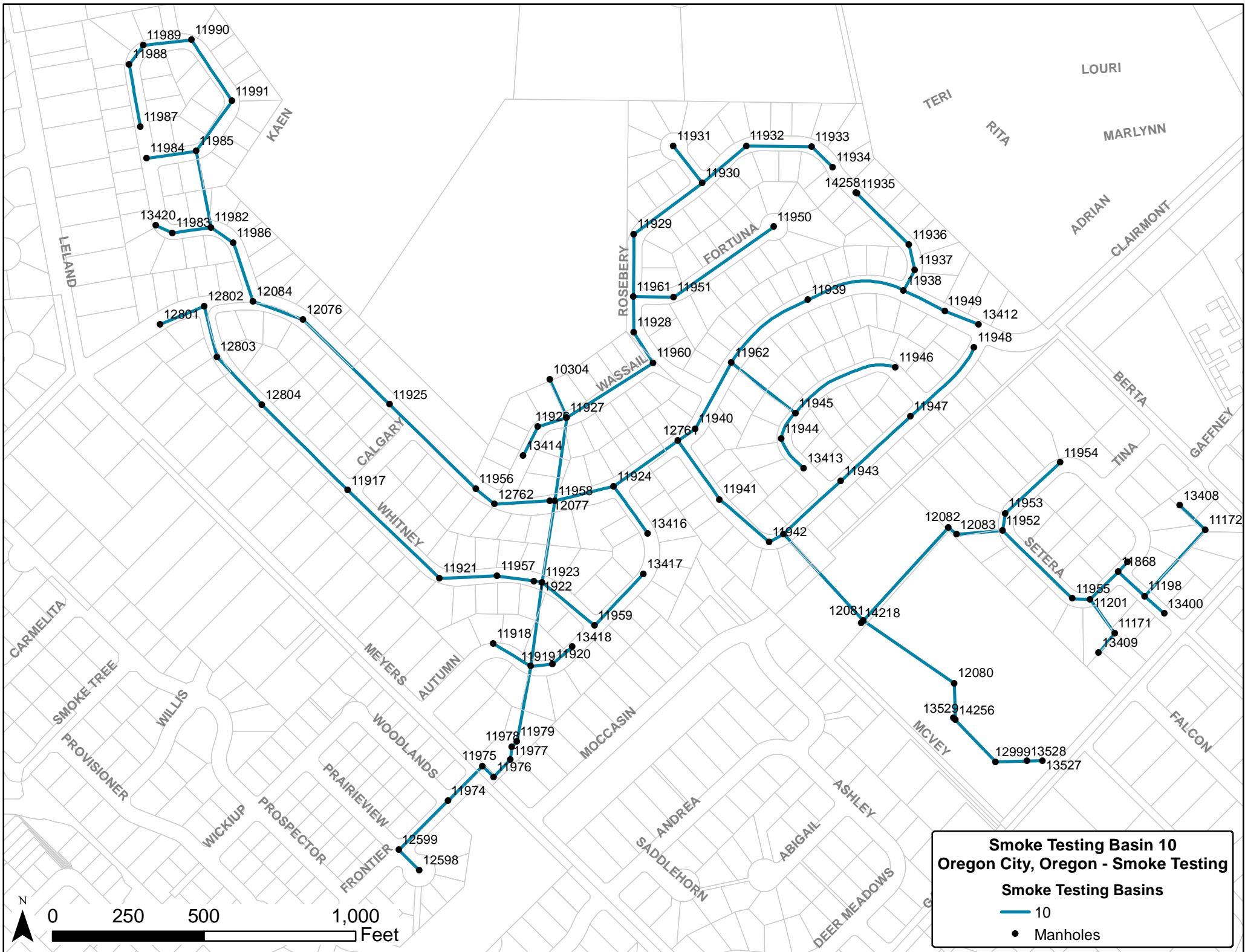
Comments: UTL any manholes on this line, did not smoke test.

Run: 20

Date: November 30, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12214"/>	45.32167	122.60134
Run End Manhole: <input type="text" value="13618"/>	45.32070	122.60352

Comments: Additional: 14226 Lat: 45.32113
Long: 122.60336



Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 10



Run: 01

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11987"/>	45.33029	122.60178
Run End Manhole: <input type="text" value="11984"/>	45.33001	122.60172

Comments:

Run: 02

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11985"/>	45.33006	122.60107
Run End Manhole: <input type="text" value="11917"/>	45.32777	122.59855

Comments: Additional: 13420 Lat: 45.32933
Long: 122.60130

Run: 03

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="12801"/>	45.32853	122.60146
Run End Manhole: <input type="text" value="11921"/>	45.32628	122.59772

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 10



Run: 04

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11921"/>	45.32628	122.59772
Run End Manhole: <input type="text" value="11923"/>	45.32625	122.59660

Comments: Additional: 13417 Lat: 45.32633
Long: 122.59518

Run: 05

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11923"/>	45.32625	122.59660
Run End Manhole: <input type="text" value="11976"/>	45.32445	122.59705

Comments: Additional: 11918 Lat: 45.32568
Long: 122.59710

Run: 06

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11976"/>	45.32445	122.59705
Run End Manhole: <input type="text" value="12598"/>	45.32362	122.59793

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 10



Run: 07

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11925"/>		
Run End Manhole: <input type="text" value="11958"/>	45.32696	122.59634

Comments: Additional: 12761 Lat: 45.32757
Long: 122.59483

Run: 08

Date: November 04, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11928"/>	45.32853	122.59537
Run End Manhole: <input type="text" value="11927"/>	45.32774	122.59624

Comments: Additional: 13414 Lat: 45.32738
Long: 122.59679

Run: 09

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11934"/>	45.33009	122.59290
Run End Manhole: <input type="text" value="11928"/>	45.32853	122.59537

Comments: Additional: 11931 Lat: 45.33028
Long: 122.59492

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 10



Run: 10

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11950"/>	45.32954	122.59367
Run End Manhole: <input type="text" value="11961"/>	45.32888	122.59542

Comments:

Run: 11

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11946"/>	45.32826	122.59208
Run End Manhole: <input type="text" value="12761"/>	45.32757	122.59483

Comments: Additional: 13413 Lat: 45.32734
Long: 122.59316

Run: 12

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11935"/>	45.32981	122.59260
Run End Manhole: <input type="text" value="11939"/>	45.32887	122.59315

Comments: Additional: 13412 Lat: 45.32872
Long: 122.59099

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 10



Run: 13

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11943"/>	45.32723	122.59261
Run End Manhole: <input type="text" value="12761"/>	45.32757	122.59483

Comments: Additional: 12082 Lat: 45.32680
Long: 122.59132

Run: 14

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="11948"/>	45.32850	122.59102
Run End Manhole: <input type="text" value="11943"/>	45.32723	122.59261

Comments:

Run: 15

Date: November 16, 2016

	<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole: <input type="text" value="13527"/>	45.32472	122.58998
Run End Manhole: <input type="text" value="12081"/>	45.32596	122.59232

Comments:

Runs

Project: U16-143 Oregon City-Smoke Test

Basin: Basin 10



Run: 16

Date: November 16, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="11954"/>	45.32747	122.58988
Run End Manhole:	<input type="text" value="12082"/>	45.32680	122.59132

Comments: Additional: 11201 Lat: 45.32623
Long: 122.58943

Run: 17

Date: November 16, 2016

		<i>Latitude</i>	<i>Longitude</i>
Run Start Manhole:	<input type="text" value="13400"/>	45.32612	122.58852
Run End Manhole:	<input type="text" value="11201"/>	45.32623	122.58943

Comments: Additional: 13408 Lat: unable to locate
Long: unable to locate

Appendix 2

Smoke Test Incident Reports

Smoke Test Incidents Report Basin 1

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 1

Run: 02

Incident: 01

Incident Location: 166 Av Davis

Lat: 45.33993 **Long:** 122.60783

Upstream Manhole: 10893 **Lat:** 45.34015 **Long:** 122.60835

Downstream Manhole: 10892 **Lat:** 45.34018 **Long:** 122.60664

Result: Positive **Leak Source:** Smoke inside

Leak Type: O

Leak Size: NA

Leak Surface Cover: PB

Observations:

Comments: Smoke coming from crawlspace vent



Basin 1 Run 2 Leak 1 B

Basin: Basin 1

Run: 02

Incident: 01

Incident Location: 166 Av Davis

Lat: 45.33993 **Long:** 122.60783

Upstream Manhole: 10893 **Lat:** 45.34015 **Long:** 122.60835

Downstream Manhole: 10892 **Lat:** 45.34018 **Long:** 122.60664

Result: Positive **Leak Source:** Smoke inside

Leak Type: O

Leak Size: NA

Leak Surface Cover: PB

Observations:

Comments: Smoke coming from crawlspace vent



Basin 1 Run 2 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 1

Run: 10

Incident: 02

Incident Location: 115 Park

Lat: 45.34467 **Long:** 122.60548

Upstream Manhole: 13756

Lat: **Long:**

Downstream Manhole: 10864

Lat: 45.34526 **Long:** 122.60431

Result: Positive

Leak Source: N/A

Leak Type: SPD

Leak Size: C

Leak Surface Cover: Pool

Observations:

Comments: Leak type is unknown, smoke coming from edge of pool. Apparently connected to Sanitary



Basin 1 Run 10 Leak 1 B

Basin: Basin 1

Run: 10

Incident: 02

Incident Location: 115 Park

Lat: 45.34467 **Long:** 122.60548

Upstream Manhole: 13756

Lat: **Long:**

Downstream Manhole: 10864

Lat: 45.34526 **Long:** 122.60431

Result: Positive

Leak Source: N/A

Leak Type: SPD

Leak Size: C

Leak Surface Cover: Pool

Observations:

Comments: Leak type is unknown, smoke coming from edge of pool. Apparently connected to Sanitary



Basin 1 Run 10 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 1

Run: 10

Incident: 03

Incident Location: 152 Harding

Lat: 45.34550 **Long:** 122.60487

Upstream Manhole: 13755

Lat: **Long:**

Downstream Manhole: 10864

Lat: 45.34526 **Long:** 122.60431

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations: Heavy smoke from Stormwater catch basin

Comments:



Basin 1 Run 10 Leak 2 B

Basin: Basin 1

Run: 10

Incident: 03

Incident Location: 152 Harding

Lat: 45.34550 **Long:** 122.60487

Upstream Manhole: 13755

Lat: **Long:**

Downstream Manhole: 10864

Lat: 45.34526 **Long:** 122.60431

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations: Heavy smoke from Stormwater catch basin

Comments:



Basin 1 Run 10 Leak 2 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 1

Run: 14

Incident: 04

Incident Location: 135 Valley View

Lat: 45.34289 **Long:** 122.60798

Upstream Manhole: 13352 **Lat:** 45.34311 **Long:** 122.60827

Downstream Manhole: 10877 **Lat:** 45.34256 **Long:** 122.60732

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from a rodent hole in the front yard.



Basin 1 Run 14 Leak 1 B

Basin: Basin 1

Run: 14

Incident: 04

Incident Location: 135 Valley View

Lat: 45.34289 **Long:** 122.60798

Upstream Manhole: 13352 **Lat:** 45.34311 **Long:** 122.60827

Downstream Manhole: 10877 **Lat:** 45.34256 **Long:** 122.60732

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from a rodent hole in the front yard.



Basin 1 Run 14 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 1

Run: 17

Incident: 05

Incident Location: 845 Linn

Lat: 45.34327 **Long:** 122.60497

Upstream Manhole: 10867

Lat: 45.34265 **Long:** 122.60497

Downstream Manhole: 11848

Lat: 45.34400 **Long:** 122.60498

Result: Positive

Leak Source: Main Sewer

Leak Type: O

Leak Size: E

Leak Surface Cover: D

Observations:

Comments: Smoke coming from a water meter hatch.



Basin 1 Run 17 Leak 1 B

Basin: Basin 1

Run: 17

Incident: 05

Incident Location: 845 Linn

Lat: 45.34327 **Long:** 122.60497

Upstream Manhole: 10867

Lat: 45.34265 **Long:** 122.60497

Downstream Manhole: 11848

Lat: 45.34400 **Long:** 122.60498

Result: Positive

Leak Source: Main Sewer

Leak Type: O

Leak Size: E

Leak Surface Cover: D

Observations:

Comments: Smoke coming from a water meter hatch.



Basin 1 Run 17 Leak 1 A

Smoke Test Incidents Report Basin 2

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 01

Incident: 01

Incident Location: 302 Madison

Lat: 45.35205 **Long:** 122.60540

Upstream Manhole: 12111 **Lat:** 45.35152 **Long:** 122.60601

Downstream Manhole: 12118 **Lat:** 45.35250 **Long:** 122.60639

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Cracks in sidewalk, unknown source



Basin 2 Run 1 Leak 1 B

Basin: Basin 2

Run: 01

Incident: 01

Incident Location: 302 Madison

Lat: 45.35205 **Long:** 122.60540

Upstream Manhole: 12111 **Lat:** 45.35152 **Long:** 122.60601

Downstream Manhole: 12118 **Lat:** 45.35250 **Long:** 122.60639

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Cracks in sidewalk, unknown source



Basin 2 Run 1 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 01

Incident: 02

Incident Location: 820 3rd St

Lat: 45.35206 **Long:** 122.60587

Upstream Manhole: 12111

Lat: 45.35152 **Long:** 122.60601

Downstream Manhole: 12118

Lat: 45.35250 **Long:** 122.60639

Result: Positive

Leak Source: Downspout

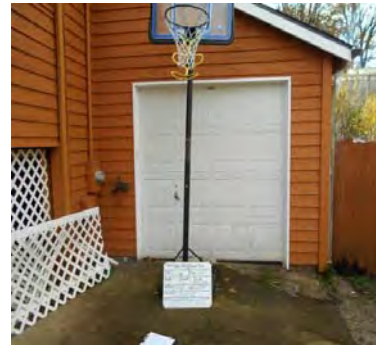
Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspouts at N corner of house.



Basin 2 Run 1 Leak 2 A

Basin: Basin 2

Run: 01

Incident: 02

Incident Location: 820 3rd St

Lat: 45.35206 **Long:** 122.60587

Upstream Manhole: 12111

Lat: 45.35152 **Long:** 122.60601

Downstream Manhole: 12118

Lat: 45.35250 **Long:** 122.60639

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspouts at N corner of house.



Basin 2 Run 1 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 02

Incident: 03

Incident Location: 718 Spring

Lat: 45.35167 **Long:** 122.60790

Upstream Manhole: 12103

Lat: 45.35109 **Long:** 122.60792

Downstream Manhole: 12106

Lat: 45.35114 **Long:** 122.60774

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: CD

Observations:

Comments: Leak at end of driveway/sidewalk. Unknown Source



Basin 2 Run 2 Leak 1 A

Basin: Basin 2

Run: 02

Incident: 03

Incident Location: 718 Spring

Lat: 45.35167 **Long:** 122.60790

Upstream Manhole: 12103

Lat: 45.35109 **Long:** 122.60792

Downstream Manhole: 12106

Lat: 45.35114 **Long:** 122.60774

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: CD

Observations:

Comments: Leak at end of driveway/sidewalk. Unknown Source



Basin 2 Run 2 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 02

Incident: 04

Incident Location: 121 Jefferson

Lat: 45.35186 **Long:** 122.60790

Upstream Manhole: 13305

Lat: **Long:**

Downstream Manhole: 12107

Lat: 45.35181 **Long:** 122.60721

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: E

Observations:

Comments: Hole in tree at E corner of property. Unknown Source



Basin 2 Run 2 Leak 2 A

Basin: Basin 2

Run: 02

Incident: 04

Incident Location: 121 Jefferson

Lat: 45.35186 **Long:** 122.60790

Upstream Manhole: 13305

Lat: **Long:**

Downstream Manhole: 12107

Lat: 45.35181 **Long:** 122.60721

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: E

Observations:

Comments: Hole in tree at E corner of property. Unknown Source



Basin 2 Run 2 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 02

Incident: 05

Incident Location: 121 Jefferson

Lat: 45.35186 **Long:** 122.60790

Upstream Manhole: 13306

Lat: **Long:**

Downstream Manhole: 12109

Lat: 45.35218 **Long:** 122.60683

Result: Positive

Leak Source: Foundation Drain

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Black drainage pipe along back side of property.



Basin 2 Run 2 Leak 3 A

Basin: Basin 2

Run: 02

Incident: 05

Incident Location: 121 Jefferson

Lat: 45.35186 **Long:** 122.60790

Upstream Manhole: 13306

Lat: **Long:**

Downstream Manhole: 12109

Lat: 45.35218 **Long:** 122.60683

Result: Positive

Leak Source: Foundation Drain

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Black drainage pipe along back side of property.



Basin 2 Run 2 Leak 3 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 02

Incident: 06

Incident Location: 213 Jefferson

Lat: 45.35232 **Long:** 122.60707

Upstream Manhole: 13306

Lat: **Long:**

Downstream Manhole: 12109

Lat: 45.35218 **Long:** 122.60683

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Leak from stone wall at SW side of property.



Basin 2 Run 2 Leak 4 A

Basin: Basin 2

Run: 02

Incident: 06

Incident Location: 213 Jefferson

Lat: 45.35232 **Long:** 122.60707

Upstream Manhole: 13306

Lat: **Long:**

Downstream Manhole: 12109

Lat: 45.35218 **Long:** 122.60683

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Leak from stone wall at SW side of property.



Basin 2 Run 2 Leak 4 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 02

Incident: 07

Incident Location: 210 Jefferson

Lat: 45.35209 **Long:** 122.60671

Upstream Manhole: 12108 **Lat:** 45.35186 **Long:** 122.60703

Downstream Manhole: 12110 **Lat:** 45.35218 **Long:** 122.60668

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from edge of sidewalk at N corner. Unknown Source



Basin 2 Run 2 Leak 5 B

Basin: Basin 2

Run: 02

Incident: 07

Incident Location: 210 Jefferson

Lat: 45.35209 **Long:** 122.60671

Upstream Manhole: 12108 **Lat:** 45.35186 **Long:** 122.60703

Downstream Manhole: 12110 **Lat:** 45.35218 **Long:** 122.60668

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from edge of sidewalk at N corner. Unknown Source



Basin 2 Run 2 Leak 5 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 03

Incident: 08

Incident Location: 616 3rd St.

Lat: 45.35306 **Long:** 122.60748

Upstream Manhole: 12119 **Lat:** 45.35300 **Long:** 122.60728

Downstream Manhole: 12120 **Lat:** 45.35312 **Long:** 122.60772

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from garden at N corner of property. Unknown Source



Basin 2 Run 3 Leak 1 A

Basin: Basin 2

Run: 03

Incident: 08

Incident Location: 616 3rd St.

Lat: 45.35306 **Long:** 122.60748

Upstream Manhole: 12119 **Lat:** 45.35300 **Long:** 122.60728

Downstream Manhole: 12120 **Lat:** 45.35312 **Long:** 122.60772

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from garden at N corner of property. Unknown Source



Basin 2 Run 3 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 04

Incident: 09

Incident Location: 614 2nd St

Lat: 45.35232 **Long:** 122.60828

Upstream Manhole: N/A

Lat: **Long:**

Downstream Manhole: 12123

Lat: **Long:**

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: E

Observations:

Comments: Smoke coming from rock wall. Unknown Source



Basin 2 Run 4 Leak 1 A

Basin: Basin 2

Run: 04

Incident: 09

Incident Location: 614 2nd St

Lat: 45.35232 **Long:** 122.60828

Upstream Manhole: N/A

Lat: **Long:**

Downstream Manhole: 12123

Lat: **Long:**

Result: Positive

Leak Source: N/A

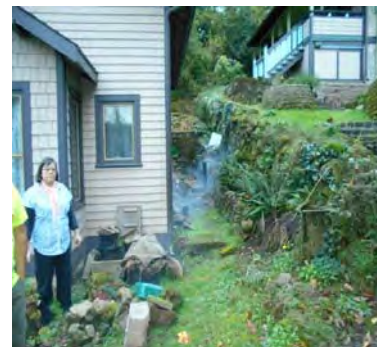
Leak Type: O

Leak Size: A

Leak Surface Cover: E

Observations:

Comments: Smoke coming from rock wall. Unknown Source



Basin 2 Run 4 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2 **Run:** 05

Incident: 10

Incident Location: 100 High St

Lat: 45.35279 **Long:** 122.61107

Upstream Manhole: 10719 **Lat:** 45.35350 **Long:** 122.61060

Downstream Manhole: 12091 **Lat:** 45.35277 **Long:** 122.61137

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Leak at N corner of 100 High St.



Basin 2 Run 5 Leak 1 A

Basin: Basin 2 **Run:** 05

Incident: 10

Incident Location: 100 High St

Lat: 45.35279 **Long:** 122.61107

Upstream Manhole: 10719 **Lat:** 45.35350 **Long:** 122.61060

Downstream Manhole: 12091 **Lat:** 45.35277 **Long:** 122.61137

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Leak at N corner of 100 High St.



Basin 2 Run 5 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 05

Incident: 11

Incident Location: 401 3rd St

Lat: 45.35421 **Long:** 122.60950

Upstream Manhole: 10676 **Lat:** 45.35398 **Long:** 122.60933

Downstream Manhole: 10675 **Lat:** 45.35422 **Long:** 122.60983

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspout at S corner of property.



Basin 2 Run 5 Leak 2 A

Basin: Basin 2

Run: 05

Incident: 11

Incident Location: 401 3rd St

Lat: 45.35421 **Long:** 122.60950

Upstream Manhole: 10676 **Lat:** 45.35398 **Long:** 122.60933

Downstream Manhole: 10675 **Lat:** 45.35422 **Long:** 122.60983

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspout at S corner of property.



Basin 2 Run 5 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 05

Incident: 12

Incident Location: 104 High St.

Lat: 45.35279 **Long:** 122.61107

Upstream Manhole: 10719

Lat: 45.35350 **Long:** 122.61060

Downstream Manhole: 12091

Lat: 45.35277 **Long:** 122.61137

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at W corner of house.



Basin 2 Run 5 Leak 3 B

Basin: Basin 2

Run: 05

Incident: 12

Incident Location: 104 High St.

Lat: 45.35279 **Long:** 122.61107

Upstream Manhole: 10719

Lat: 45.35350 **Long:** 122.61060

Downstream Manhole: 12091

Lat: 45.35277 **Long:** 122.61137

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at W corner of house.



Basin 2 Run 5 Leak 3 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 06

Incident: 13

Incident Location: 204 S High St

Lat: 45.35170 **Long:** 122.61211

Upstream Manhole: 12094

Lat: 45.35203 **Long:** 122.61214

Downstream Manhole: 13101

Lat: 45.35165 **Long:** 122.61247

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at W corner of house.



Basin 2 Run 6 Leak 2 A

Basin: Basin 2

Run: 06

Incident: 13

Incident Location: 204 S High St

Lat: 45.35170 **Long:** 122.61211

Upstream Manhole: 12094

Lat: 45.35203 **Long:** 122.61214

Downstream Manhole: 13101

Lat: 45.35165 **Long:** 122.61247

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at W corner of house.



Basin 2 Run 6 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2 **Run:** 06

Incident: 14

Incident Location: 122 S Center

Lat: 45.35117 **Long:** 122.61108

Upstream Manhole: 14099 **Lat:** 45.35117 **Long:** 122.61108

Downstream Manhole: 11609 **Lat:** 45.35157 **Long:** 122.61119

Result: Positive **Leak Source:** Driveway Drain

Leak Type: CB

Leak Size: D

Leak Surface Cover: CD

Observations:

Comments: Wash pit appears to be connected to Sani



Basin 2 Run 6 Leak 3 A

Basin: Basin 2 **Run:** 06

Incident: 14

Incident Location: 122 S Center

Lat: 45.35117 **Long:** 122.61108

Upstream Manhole: 14099 **Lat:** 45.35117 **Long:** 122.61108

Downstream Manhole: 11609 **Lat:** 45.35157 **Long:** 122.61119

Result: Positive **Leak Source:** Driveway Drain

Leak Type: CB

Leak Size: D

Leak Surface Cover: CD

Observations:

Comments: Wash pit appears to be connected to Sani



Basin 2 Run 6 Leak 3 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 06

Incident: 15

Incident Location: 122 S Center

Lat: 45.35157 **Long:** 122.61119

Upstream Manhole: 14099

Lat: 45.35117 **Long:** 122.61108

Downstream Manhole: 11599

Lat: 45.35157 **Long:** 122.61214

Result: Positive

Leak Source: Storm Manhole

Leak Type: MHC ST

Leak Size: A

Leak Surface Cover: A

Observations:

Comments: Storm MH near MH #11599 smoking. Need to verify that this is Storm line. Possible manhole lid mis-label.



Basin 2 Run 6 Leak 4 A

Basin: Basin 2

Run: 06

Incident: 15

Incident Location: 122 S Center

Lat: 45.35157 **Long:** 122.61119

Upstream Manhole: 14099

Lat: 45.35117 **Long:** 122.61108

Downstream Manhole: 11599

Lat: 45.35157 **Long:** 122.61214

Result: Positive

Leak Source: Storm Manhole

Leak Type: MHC ST

Leak Size: A

Leak Surface Cover: A

Observations:

Comments: Storm MH near MH #11599 smoking. Need to verify that this is Storm line. Possible manhole lid mis-label.



Basin 2 Run 6 Leak 4 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 07

Incident: 16

Incident Location: 122 S Center

Lat: 45.35175 **Long:** 122.61093

Upstream Manhole: 14096

Lat: 45.35170 **Long:** 122.61090

Downstream Manhole: 11608

Lat: 45.35178 **Long:** 122.61089

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Storm drian in parking lot appears to be connected to Sani



Basin 2 Run 7 Leak 1 A

Basin: Basin 2

Run: 07

Incident: 16

Incident Location: 122 S Center

Lat: 45.35175 **Long:** 122.61093

Upstream Manhole: 14096

Lat: 45.35170 **Long:** 122.61090

Downstream Manhole: 11608

Lat: 45.35178 **Long:** 122.61089

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Storm drian in parking lot appears to be connected to Sani



Basin 2 Run 7 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 07

Incident: 17

Incident Location: 112 S Center

Lat: 45.35206 **Long:** 122.61055

Upstream Manhole: 11608

Lat: 45.35178 **Long:** 122.61089

Downstream Manhole: 12089

Lat: 45.35228 **Long:** 122.61036

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from edge of sidewalk, Unknown Source.



Basin 2 Run 7 Leak 2 A

Basin: Basin 2

Run: 07

Incident: 17

Incident Location: 112 S Center

Lat: 45.35206 **Long:** 122.61055

Upstream Manhole: 11608

Lat: 45.35178 **Long:** 122.61089

Downstream Manhole: 12089

Lat: 45.35228 **Long:** 122.61036

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from edge of sidewalk, Unknown Source.



Basin 2 Run 7 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 07

Incident: 18

Incident Location: 1st + Center

Lat: 45.35230 **Long:** 122.61057

Upstream Manhole: 12089

Lat: 45.35228 **Long:** 122.61036

Downstream Manhole: 12091

Lat: 45.35277 **Long:** 122.61137

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: All storm drains at 1st + Center have smoke coming out, 4 storm drains



Basin 2 Run 7 Leak 3 B

Basin: Basin 2

Run: 07

Incident: 18

Incident Location: 1st + Center

Lat: 45.35230 **Long:** 122.61057

Upstream Manhole: 12089

Lat: 45.35228 **Long:** 122.61036

Downstream Manhole: 12091

Lat: 45.35277 **Long:** 122.61137

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: All storm drains at 1st + Center have smoke coming out, 4 storm drains



Basin 2 Run 7 Leak 3 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 07

Incident: 19

Incident Location: 1st + High

Lat: 45.35272 **Long:** 122.61146

Upstream Manhole: 12125

Lat: 45.35305 **Long:** 122.60966

Downstream Manhole: 12091

Lat: 45.35277 **Long:** 122.61137

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: All storm drains at 1st + Center have smoke coming out, 4 storm drains



Basin 2 Run 7 Leak 4 A

Basin: Basin 2

Run: 07

Incident: 19

Incident Location: 1st + High

Lat: 45.35272 **Long:** 122.61146

Upstream Manhole: 12125

Lat: 45.35305 **Long:** 122.60966

Downstream Manhole: 12091

Lat: 45.35277 **Long:** 122.61137

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: All storm drains at 1st + Center have smoke coming out, 4 storm drains



Basin 2 Run 7 Leak 4 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 07

Incident: 20

Incident Location: 2nd + Center

Lat: 45.35301 **Long:** 122.60989

Upstream Manhole: 12125

Lat: 45.35305 **Long:** 122.60966

Downstream Manhole: 12126

Lat: 45.35285 **Long:** 122.60989

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: All storm drains at 2nd + Center have smoke coming out, 4 storm drains



Basin 2 Run 7 Leak 5 A

Basin: Basin 2

Run: 07

Incident: 20

Incident Location: 2nd + Center

Lat: 45.35301 **Long:** 122.60989

Upstream Manhole: 12125

Lat: 45.35305 **Long:** 122.60966

Downstream Manhole: 12126

Lat: 45.35285 **Long:** 122.60989

Result: Positive

Leak Source: Storm Drain

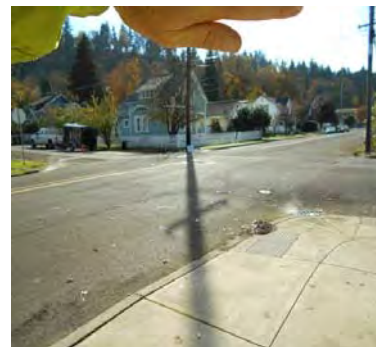
Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: All storm drains at 2nd + Center have smoke coming out, 4 storm drains



Basin 2 Run 7 Leak 5 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 08

Incident: 21

Incident Location: 122 S Center

Lat: 45.35133 **Long:** 122.61075

Upstream Manhole: 14098

Lat: **Long:**

Downstream Manhole: 11599

Lat: 45.35157 **Long:** 122.61214

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Leaks from gutters and downspouts at city shop



Basin 2 Run 8 Leak 1 A

Basin: Basin 2

Run: 08

Incident: 21

Incident Location: 122 S Center

Lat: 45.35133 **Long:** 122.61075

Upstream Manhole: 14098

Lat: **Long:**

Downstream Manhole: 11599

Lat: 45.35157 **Long:** 122.61214

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Leaks from gutters and downspouts at city shop



Basin 2 Run 8 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 2

Run: 08

Incident: 22

Incident Location: 122 S Center

Lat: 45.35133 **Long:** 122.61075

Upstream Manhole: 14098

Lat: **Long:**

Downstream Manhole: 11599

Lat: 45.35157 **Long:** 122.61214

Result: Positive

Leak Source: Catch Basin

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: 3 catch basins in city shop parking



Basin 2 Run 8 Leak 2 B

Basin: Basin 2

Run: 08

Incident: 22

Incident Location: 122 S Center

Lat: 45.35133 **Long:** 122.61075

Upstream Manhole: 14098

Lat: **Long:**

Downstream Manhole: 11599

Lat: 45.35157 **Long:** 122.61214

Result: Positive

Leak Source: Catch Basin

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: 3 catch basins in city shop parking



Basin 2 Run 8 Leak 2 A

Smoke Test Incidents Report Basin 3

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 12

Incident: 01

Incident Location: 510 Monroe

Lat: 45.35340 **Long:** 122.60268

Upstream Manhole: 10705

Lat: 45.35357 **Long:** 122.60274

Downstream Manhole: 10703

Lat: 45.35321 **Long:** 122.60306

Result: Positive

Leak Source: Cleanout

Leak Type: CCB

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Broken CB at corner of house



Basin 3 Run 12 Leak 1 B

Basin: Basin 3

Run: 12

Incident: 01

Incident Location: 510 Monroe

Lat: 45.35340 **Long:** 122.60268

Upstream Manhole: 10705

Lat: 45.35357 **Long:** 122.60274

Downstream Manhole: 10703

Lat: 45.35321 **Long:** 122.60306

Result: Positive

Leak Source: Cleanout

Leak Type: CCB

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Broken CB at corner of house



Basin 3 Run 12 Leak 1 A (edited)

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 12

Incident: 02

Incident Location: 516 Monroe

Lat: 45.35350 **Long:** 122.60249

Upstream Manhole: 10705

Lat: 45.35357 **Long:** 122.60274

Downstream Manhole: 10703

Lat: 45.35321 **Long:** 122.60306

Result: Positive

Leak Source: Cleanout

Leak Type: CCB

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Leaking cleanout



Basin 3 Run 12 Leak 2 A

Basin: Basin 3

Run: 12

Incident: 02

Incident Location: 516 Monroe

Lat: 45.35350 **Long:** 122.60249

Upstream Manhole: 10705

Lat: 45.35357 **Long:** 122.60274

Downstream Manhole: 10703

Lat: 45.35321 **Long:** 122.60306

Result: Positive

Leak Source: Cleanout

Leak Type: CCB

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Leaking cleanout



Basin 3 Run 12 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 14

Incident: 03

Incident Location: 804 4th St.

Lat: 45.35314 **Long:** 122.60516

Upstream Manhole: 12101

Lat: 45.35298 **Long:** 122.60509

Downstream Manhole: 10687

Lat: 45.35374 **Long:** 122.60652

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: Moderate

Leak Surface Cover: T

Observations:

Comments: Leak from below sign post and curb



Basin 3 Run 14 Leak 1 A

Basin: Basin 3

Run: 14

Incident: 03

Incident Location: 804 4th St.

Lat: 45.35314 **Long:** 122.60516

Upstream Manhole: 12101

Lat: 45.35298 **Long:** 122.60509

Downstream Manhole: 10687

Lat: 45.35374 **Long:** 122.60652

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: Moderate

Leak Surface Cover: T

Observations:

Comments: Leak from below sign post and curb



Basin 3 Run 14 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 22

Incident: 04

Incident Location: 1012 Brighton Ave

Lat: 45.34958 **Long:** 122.60493

Upstream Manhole: 11554

Lat: 45.34972 **Long:** 122.60531

Downstream Manhole: 11576

Lat: 45.34966 **Long:** 122.60425

Result: Positive

Leak Source: Downspout

Leak Type: Downspout

Leak Size: Moderate

Leak Surface Cover: Flower Bed

Observations:

Comments: Leak-downspout at front corner of house.



Basin 3 Run 22 Leak 1 A

Basin: Basin 3

Run: 22

Incident: 04

Incident Location: 1012 Brighton Ave

Lat: 45.34958 **Long:** 122.60493

Upstream Manhole: 11554

Lat: 45.34972 **Long:** 122.60531

Downstream Manhole: 11576

Lat: 45.34966 **Long:** 122.60425

Result: Positive

Leak Source: Downspout

Leak Type: Downspout

Leak Size: Moderate

Leak Surface Cover: Flower Bed

Observations:

Comments: Leak-downspout at front corner of house.



Basin 3 Run 22 Leak R1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 22

Incident: 05

Incident Location: Bellevue Ave + Brighton Ave

Lat: 45.34966 **Long:** 122.60529

Upstream Manhole: 11838

Lat: 45.34923 **Long:** 122.60558

Downstream Manhole: 11554

Lat: 45.34972 **Long:** 122.60531

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Storm drain near MH 11554



Basin 3 Run 22 Leak 2 A

Basin: Basin 3

Run: 22

Incident: 05

Incident Location: Bellevue Ave + Brighton Ave

Lat: 45.34966 **Long:** 122.60529

Upstream Manhole: 11838

Lat: 45.34923 **Long:** 122.60558

Downstream Manhole: 11554

Lat: 45.34972 **Long:** 122.60531

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Storm drain near MH 11554



Basin 3 Run 22 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3 **Run:** 24

Incident: 06

Incident Location: 204 Linn St.

Lat: 45.34941 **Long:** 122.60120

Upstream Manhole: 11569 **Lat:** 45.34929 **Long:** 122.60160

Downstream Manhole: 11832 **Lat:** 45.3501 **Long:** 122.60102

Result: Positive **Leak Source:** Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: L

Observations:

Comments: Leak #1 was actually found during run #26, but is located within run #24. Leak suspected to be from "T" in the main getting replaced.



Basin 3 Run 24 Leak 1 B

Basin: Basin 3 **Run:** 24

Incident: 06

Incident Location: 204 Linn St.

Lat: 45.34941 **Long:** 122.60120

Upstream Manhole: 11569 **Lat:** 45.34929 **Long:** 122.60160

Downstream Manhole: 11832 **Lat:** 45.3501 **Long:** 122.60102

Result: Positive **Leak Source:** Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: L

Observations:

Comments: Leak #1 was actually found during run #26, but is located within run #24. Leak suspected to be from "T" in the main getting replaced.



Basin 3 Run 24 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 24

Incident: 07

Incident Location: 235 Pearl

Lat: 45.34901 **Long:** 122.59948

Upstream Manhole: 11475 **Lat:** 45.34966 **Long:** 122.59958

Downstream Manhole: 11476 **Lat:** 45.34909 **Long:** 122.60049

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Several leaks from underneath sidewalk near MH 11476. Unknown Source



Basin 3 Run 24 Leak 2B

Basin: Basin 3

Run: 24

Incident: 07

Incident Location: 235 Pearl

Lat: 45.34901 **Long:** 122.59948

Upstream Manhole: 11475 **Lat:** 45.34966 **Long:** 122.59958

Downstream Manhole: 11476 **Lat:** 45.34909 **Long:** 122.60049

Result: Positive

Leak Source: Smoking Ground

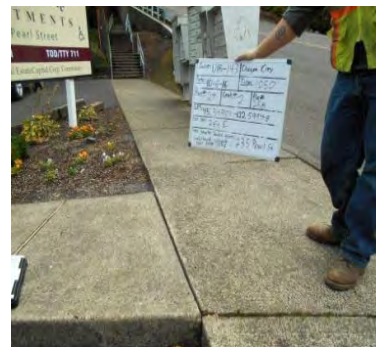
Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Several leaks from underneath sidewalk near MH 11476. Unknown Source



Basin 3 Run 24 Leak 2 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 24

Incident: 08

Incident Location: 216 Pearl

Lat: 45.34889 **Long:** 122.59978

Upstream Manhole: 11476

Lat: 45.34909 **Long:** 122.60049

Downstream Manhole: 11545

Lat: 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Cleanout

Leak Type: CCD

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Cleanout under front porch smoking



Basin 3 Run 24 Leak 3 A

Basin: Basin 3

Run: 24

Incident: 08

Incident Location: 216 Pearl

Lat: 45.34889 **Long:** 122.59978

Upstream Manhole: 11476

Lat: 45.34909 **Long:** 122.60049

Downstream Manhole: 11545

Lat: 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Cleanout

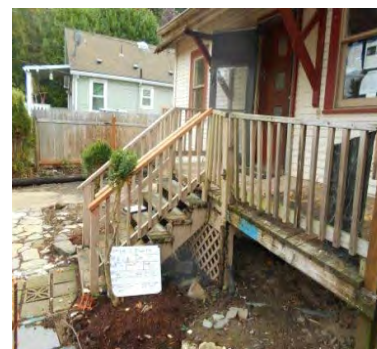
Leak Type: CCD

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Cleanout under front porch smoking



Basin 3 Run 24 Leak 3 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 24

Incident: 09

Incident Location: 216 Pearl

Lat: 45.34889 **Long:** 122.59977

Upstream Manhole: 11476

Lat: 45.34909 **Long:** 122.60049

Downstream Manhole: 11545

Lat: 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Smoke from hole in front yard. Unknown Source



Basin 3 Run 24 Leak 4 A

Basin: Basin 3

Run: 24

Incident: 09

Incident Location: 216 Pearl

Lat: 45.34889 **Long:** 122.59977

Upstream Manhole: 11476

Lat: 45.34909 **Long:** 122.60049

Downstream Manhole: 11545

Lat: 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Smoke from hole in front yard. Unknown Source



Basin 3 Run 24 Leak 4 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 24

Incident: 10

Incident Location: 204 Pearl

Lat: 45.34874 **Long:** 122.60048

Upstream Manhole: 11476

Lat: 45.34909 **Long:** 122.60049

Downstream Manhole: 11545

Lat: 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspouts on west side of house.



Basin 3 Run 24 Leak 5 A

Basin: Basin 3

Run: 24

Incident: 10

Incident Location: 204 Pearl

Lat: 45.34874 **Long:** 122.60048

Upstream Manhole: 11476

Lat: 45.34909 **Long:** 122.60049

Downstream Manhole: 11545

Lat: 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspouts on west side of house.



Basin 3 Run 24 Leak 5 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 3

Run: 24

Incident: 11

Incident Location: 221 Pearl

Lat: 45.34907 **Long:** 122.59977

Upstream Manhole: 11476 **Lat:** 45.34909 **Long:** 122.60049

Downstream Manhole: 11545 **Lat:** 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Smoke inside

Leak Type: SI

Leak Size: A

Leak Surface Cover: PB

Observations:

Comments: Attic vents smoking.



Basin 3 Run 24 Leak 6 A

Basin: Basin 3

Run: 24

Incident: 11

Incident Location: 221 Pearl

Lat: 45.34907 **Long:** 122.59977

Upstream Manhole: 11476 **Lat:** 45.34909 **Long:** 122.60049

Downstream Manhole: 11545 **Lat:** 45.34901 **Long:** 122.59946

Result: Positive

Leak Source: Smoke inside

Leak Type: SI

Leak Size: A

Leak Surface Cover: PB

Observations:

Comments: Attic vents smoking.



Basin 3 Run 24 Leak 6 B

U16-143 Oregon City-Smoke Test Smoke Test Incidents



Basin: Basin 3

Run: 25

Incident: 12

Incident Location: 157 Hazel

Lat: 45.34856 **Long:** 122.60261

Upstream Manhole: 11566

Lat: 45.34871 **Long:** 122.60275

Downstream Manhole: 11571

Lat: 45.34848 **Long:** 122.60227

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from hole in flower bed + crack in walkway. Unknown Source



Basin 3 Run 25 Leak 1 B

Basin: Basin 3

Run: 25

Incident: 12

Incident Location: 157 Hazel

Lat: 45.34856 **Long:** 122.60261

Upstream Manhole: 11566

Lat: 45.34871 **Long:** 122.60275

Downstream Manhole: 11571

Lat: 45.34848 **Long:** 122.60227

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from hole in flower bed + crack in walkway. Unknown Source



Basin 3 Run 25 Leak 1 A

Smoke Test Incidents Report Basin 4

Oregon City Smoke Test Incidents



Basin: Basin 4

Run: 06

Incident: 01

Incident Location: 639 Apperson

Lat: 45.34.. **Long:** 122.608..

Upstream Manhole: 11557 **Lat:** 45.34829 **Long:** 122.60819

Downstream Manhole: 11558 **Lat:** 45.34848 **Long:** 122.60880

Result: Positive **Leak Source:** N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from hole in yard.



Basin 4 Run 6 Leak 1 B

Basin: Basin 4

Run: 06

Incident: 01

Incident Location: 639 Apperson

Lat: 45.34.. **Long:** 122.608..

Upstream Manhole: 11557 **Lat:** 45.34829 **Long:** 122.60819

Downstream Manhole: 11558 **Lat:** 45.34848 **Long:** 122.60880

Result: Positive **Leak Source:** N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke coming from hole in yard.



Basin 4 Run 6 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 4

Run: 11

Incident: 02

Incident Location: On Charman 250 ft W of Linn

Lat: 45.34702 **Long:** 122.60457

Upstream Manhole: 11593

Lat: 45.34717 **Long:** 122.60420

Downstream Manhole: 11594

Lat: 45.34704 **Long:** 122.60462

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: C

Leak Surface Cover: E

Observations:

Comments: Medium to heavy smoke from unkown source down in ravine- no access.



Basin 4 Run 11 Leak 1 B

Basin: Basin 4

Run: 11

Incident: 02

Incident Location: On Charman 250 ft W of Linn

Lat: 45.34702 **Long:** 122.60457

Upstream Manhole: 11593

Lat: 45.34717 **Long:** 122.60420

Downstream Manhole: 11594

Lat: 45.34704 **Long:** 122.60462

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: C

Leak Surface Cover: E

Observations:

Comments: Medium to heavy smoke from unkown source down in ravine- no access.



Basin 4 Run 11 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 4

Run: 12

Incident: 03

Incident Location: 50 ft SW of Electric St

Lat: 45.34663 **Long:** 122.60458

Upstream Manhole: 11583 **Lat:** 45.34632 **Long:** 122.60339

Downstream Manhole: 11596 **Lat:** 45.34692 **Long:** 122.60461

Result: Positive **Leak Source:** N/A

Leak Type: O

Leak Size: D

Leak Surface Cover: E

Observations: Heavy smoke, blackberry bushes

Comments: In the valley of a drainage ravine that runs down to Electric St.



Basin 4 Run 12 Leak 1 B

Basin: Basin 4

Run: 12

Incident: 03

Incident Location: 50 ft SW of Electric St

Lat: 45.34663 **Long:** 122.60458

Upstream Manhole: 11583 **Lat:** 45.34632 **Long:** 122.60339

Downstream Manhole: 11596 **Lat:** 45.34692 **Long:** 122.60461

Result: Positive **Leak Source:** N/A

Leak Type: O

Leak Size: D

Leak Surface Cover: E

Observations: Heavy smoke, blackberry bushes

Comments: In the valley of a drainage ravine that runs down to Electric St.



Basin 4 Run 12 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 4

Run: 13

Incident: 04

Incident Location: Barday + Harding

Lat: 45.34567 **Long:** 122.60614

Upstream Manhole: 13046

Lat: 45.34567 **Long:** 122.60614

Downstream Manhole: 13047

Lat: 45.34628 **Long:** 122.60612

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: E

Leak Surface Cover: A

Observations: Heavy smoke

Comments: 3 storm drains



Basin 4 Run 13 Leak 1 B

Basin: Basin 4

Run: 13

Incident: 04

Incident Location: Barday + Harding

Lat: 45.34567 **Long:** 122.60614

Upstream Manhole: 13046

Lat: 45.34567 **Long:** 122.60614

Downstream Manhole: 13047

Lat: 45.34628 **Long:** 122.60612

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: E

Leak Surface Cover: A

Observations: Heavy smoke

Comments: 3 storm drains



Basin 4 Run 13 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 4

Run: 13

Incident: 05

Incident Location: 205 Harding

Lat: 45.34621 **Long:** 122.60590

Upstream Manhole: 13047 **Lat:** 45.34628 **Long:** 122.60612

Downstream Manhole: 13045 **Lat:** 45.34628 **Long:** 122.60486

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations: Light smoke

Comments: Holes in ground in front yard.



Basin 4 Run 13 Leak 2 B

Basin: Basin 4

Run: 13

Incident: 05

Incident Location: 205 Harding

Lat: 45.34621 **Long:** 122.60590

Upstream Manhole: 13047 **Lat:** 45.34628 **Long:** 122.60612

Downstream Manhole: 13045 **Lat:** 45.34628 **Long:** 122.60486

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations: Light smoke

Comments: Holes in ground in front yard.



Basin 4 Run 13 Leak 2 A

Oregon City Smoke Test Incidents



Basin: Basin 4

Run: 13

Incident: 06

Incident Location: 178 Harding

Lat: 45.34628 **Long:** 122.60486

Upstream Manhole: 13047 **Lat:** 45.34628 **Long:** 122.60612

Downstream Manhole: 13045 **Lat:** 45.34628 **Long:** 122.60486

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations: Heavy smoke

Comments: 2 storm drains near MH 13045



Basin 4 Run 13 Leak 3 B

Basin: Basin 4

Run: 13

Incident: 06

Incident Location: 178 Harding

Lat: 45.34628 **Long:** 122.60486

Upstream Manhole: 13047 **Lat:** 45.34628 **Long:** 122.60612

Downstream Manhole: 13045 **Lat:** 45.34628 **Long:** 122.60486

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations: Heavy smoke

Comments: 2 storm drains near MH 13045



Basin 4 Run 13 Leak 3 A

Smoke Test Incidents Report Basin 5

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 5

Run: 02

Incident: 01

Incident Location: 1318 Otter Ln

Lat: 45.33684 **Long:** 122.58829

Upstream Manhole: 12075

Lat: **Long:**

Downstream Manhole: 11294

Lat: 45.33681 **Long:** 122.58743

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: Unknown

Leak Surface Cover: Unknown

Observations:

Comments: 11291 480 Hilltop Ave 45.33647 122.58922. Leak: unable to access leak-behind fence, no one home. Possibly a cleanout.



Basin 5 Run 2 Leak 1 B

Basin: Basin 5

Run: 02

Incident: 01

Incident Location: 1318 Otter Ln

Lat: 45.33684 **Long:** 122.58829

Upstream Manhole: 12075

Lat: **Long:**

Downstream Manhole: 11294

Lat: 45.33681 **Long:** 122.58743

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: Unknown

Leak Surface Cover: Unknown

Observations:

Comments: 11291 480 Hilltop Ave 45.33647 122.58922. Leak: unable to access leak-behind fence, no one home. Possibly a cleanout.



Basin 5 Run 2 Leak 1 A

Smoke Test Incidents Report Basin 6

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 6

Run: 04

Incident: 01

Incident Location: 420 Latourette St

Lat: 45.34705 **Long:** 122.5991

Upstream Manhole: 18002

Lat: **Long:**

Downstream Manhole: 18001

Lat: **Long:**

Result: Positive

Leak Source: Cleanout

Leak Type: CCB

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Old broken capped pipe.



Basin 6 Run 4 Leak 1 B

Basin: Basin 6

Run: 04

Incident: 01

Incident Location: 420 Latourette St

Lat: 45.34705 **Long:** 122.5991

Upstream Manhole: 18002

Lat: **Long:**

Downstream Manhole: 18001

Lat: **Long:**

Result: Positive

Leak Source: Cleanout

Leak Type: CCB

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Old broken capped pipe.



Basin 6 Run 4 Leak 1 A

U16-143 Oregon City-Smoke Test Smoke Test Incidents



Basin: Basin 6

Run: 07

Incident: 02

Incident Location: 411 Pleasant Ave

Lat: 45.34733 **Long:** 122.59746

Upstream Manhole: 11488 **Lat:** 45.34725 **Long:** 122.59746

Downstream Manhole: 11489 **Lat:** 45.34789 **Long:** 122.59718

Result: Positive

Leak Source: Catch Basin

Leak Type: O

Leak Size: A

Leak Surface Cover: A

Observations:

Comments: Smoke from Grease trap



Basin 6 Run 7 Leak 1 B

Basin: Basin 6

Run: 07

Incident: 02

Incident Location: 411 Pleasant Ave

Lat: 45.34733 **Long:** 122.59746

Upstream Manhole: 11488 **Lat:** 45.34725 **Long:** 122.59746

Downstream Manhole: 11489 **Lat:** 45.34789 **Long:** 122.59718

Result: Positive

Leak Source: Catch Basin

Leak Type: O

Leak Size: A

Leak Surface Cover: A

Observations:

Comments: Smoke from Grease trap



Basin 6 Run 7 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 6

Run: 07

Incident: 03

Incident Location: 411 Pleasant

Lat: 45.34726 **Long:** 122.59750

Upstream Manhole: 11488

Lat: 45.34725 **Long:** 122.59746

Downstream Manhole: 11489

Lat: 45.34789 **Long:** 122.59718

Result: Positive

Leak Source: Driveway Drain

Leak Type: CB

Leak Size: D

Leak Surface Cover: CD

Observations:

Comments: Smoke from Wash drain



Basin 6 Run 7 Leak 2 B

Basin: Basin 6

Run: 07

Incident: 03

Incident Location: 411 Pleasant

Lat: 45.34726 **Long:** 122.59750

Upstream Manhole: 11488

Lat: 45.34725 **Long:** 122.59746

Downstream Manhole: 11489

Lat: 45.34789 **Long:** 122.59718

Result: Positive

Leak Source: Driveway Drain

Leak Type: CB

Leak Size: D

Leak Surface Cover: CD

Observations:

Comments: Smoke from Wash drain



Basin 6 Run 7 Leak 2 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 6

Run: 10

Incident: 04

Incident Location: 515 Mt-Hood St

Lat: 45.34466 **Long:** 122.59478

Upstream Manhole: 10809 **Lat:** 45.34462 **Long:** 122.59468

Downstream Manhole: N/A **Lat:** 45.35094 **Long:** 122.59808

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Heavy smoke from this Storm Drain. Could not locate upstream manhole.



Basin 6 Run 10 Leak 1 B

Basin: Basin 6

Run: 10

Incident: 04

Incident Location: 515 Mt-Hood St

Lat: 45.34466 **Long:** 122.59478

Upstream Manhole: 10809 **Lat:** 45.34462 **Long:** 122.59468

Downstream Manhole: N/A **Lat:** 45.35094 **Long:** 122.59808

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Heavy smoke from this Storm Drain. Could not locate upstream manhole.



Basin 6 Run 10 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 6

Run: 12

Incident: 05

Incident Location: 337 Willamtttes St

Lat: 45.35102 **Long:** 122.59793

Upstream Manhole: 11496 **Lat:** 45.35096 **Long:** 122.59735

Downstream Manhole: N/A **Lat:** 45.35094 **Long:** 122.59808

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Holes in front yard. Unknown Source



Basin 6 Run 12 Leak 1 B

Basin: Basin 6

Run: 12

Incident: 05

Incident Location: 337 Willamtttes St

Lat: 45.35102 **Long:** 122.59793

Upstream Manhole: 11496 **Lat:** 45.35096 **Long:** 122.59735

Downstream Manhole: N/A **Lat:** 45.35094 **Long:** 122.59808

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Holes in front yard. Unknown Source



Basin 6 Run 12 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 6

Run: 12

Incident: 06

Incident Location: 326 Willamette St

Lat: 45.35086 **Long:** 122.59750

Upstream Manhole: 11496

Lat: 45.35096 **Long:** 122.59735

Downstream Manhole: N/A

Lat: 45.35094 **Long:** 122.59808

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from downspouts at this house



Basin 6 Run 12 Leak 2 B

Basin: Basin 6

Run: 12

Incident: 06

Incident Location: 326 Willamette St

Lat: 45.35086 **Long:** 122.59750

Upstream Manhole: 11496

Lat: 45.35096 **Long:** 122.59735

Downstream Manhole: N/A

Lat: 45.35094 **Long:** 122.59808

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from downspouts at this house



Basin 6 Run 12 Leak 2 A

Smoke Test Incidents Report Basin 7

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 01

Incident: 01

Incident Location: 13th + Jackson (South Corner)

Lat: 45.35798 **Long:** 122.59555

Upstream Manhole: 13072 **Lat:** 45.35780 **Long:** 122.59505

Downstream Manhole: 10140 **Lat:** 45.35847 **Long:** 122.59644

Result: Positive **Leak Source:** Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments:



Basin 7 Run 1 Leak 1 B

Basin: Basin 7

Run: 01

Incident: 01

Incident Location: 13th + Jackson (South Corner)

Lat: 45.35798 **Long:** 122.59555

Upstream Manhole: 13072 **Lat:** 45.35780 **Long:** 122.59505

Downstream Manhole: 10140 **Lat:** 45.35847 **Long:** 122.59644

Result: Positive **Leak Source:** Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments:



Basin 7 Run 1 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 09

Incident: 02

Incident Location: 1018 Polk

Lat: 45.35514 **Long:** 122.59453

Upstream Manhole: 10110 **Lat:** 45.35498 **Long:** 122.59487

Downstream Manhole: 10112 **Lat:** 45.35569 **Long:** 122.59413

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Hole in sidewalk, possibly a lateral.



Basin 7 Run 9 Leak 1 A

Basin: Basin 7

Run: 09

Incident: 02

Incident Location: 1018 Polk

Lat: 45.35514 **Long:** 122.59453

Upstream Manhole: 10110 **Lat:** 45.35498 **Long:** 122.59487

Downstream Manhole: 10112 **Lat:** 45.35569 **Long:** 122.59413

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Hole in sidewalk, possibly a lateral.



Basin 7 Run 9 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 09

Incident: 03

Incident Location: 1112 Polk

Lat: 45.35554 **Long:** 122.59409

Upstream Manhole: 10110 **Lat:** 45.35498 **Long:** 122.59487

Downstream Manhole: 10112 **Lat:** 45.35569 **Long:** 122.59413

Result: Positive **Leak Source:** N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: E

Observations:

Comments: Smoke from under bush at SW corner.



Basin 7 Run 9 Leak 2 A

Basin: Basin 7

Run: 09

Incident: 03

Incident Location: 1112 Polk

Lat: 45.35554 **Long:** 122.59409

Upstream Manhole: 10110 **Lat:** 45.35498 **Long:** 122.59487

Downstream Manhole: 10112 **Lat:** 45.35569 **Long:** 122.59413

Result: Positive **Leak Source:** N/A

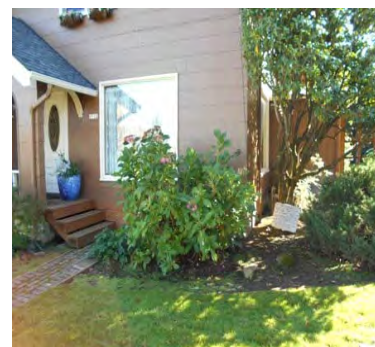
Leak Type: O

Leak Size: A

Leak Surface Cover: E

Observations:

Comments: Smoke from under bush at SW corner.



Basin 7 Run 9 Leak 2 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 09

Incident: 04

Incident Location:

Lat:

Long:

Upstream Manhole: 10110

Lat: 45.35498 **Long:** 122.59487

Downstream Manhole: 10113

Lat: 45.35606 **Long:** 122.59374

Result: Positive

Leak Source: Service Lateral

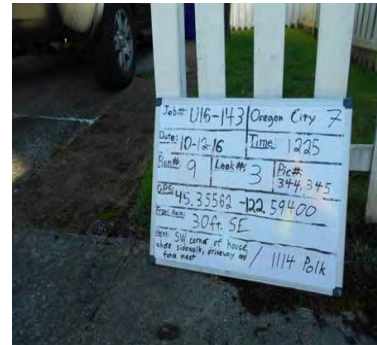
Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Leak from sidewalk at fencepost + driveway, possibly a lateral.



Basin 7 Run 9 Leak 3 A

Basin: Basin 7

Run: 09

Incident: 04

Incident Location:

Lat:

Long:

Upstream Manhole: 10110

Lat: 45.35498 **Long:** 122.59487

Downstream Manhole: 10113

Lat: 45.35606 **Long:** 122.59374

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Leak from sidewalk at fencepost + driveway, possibly a lateral.



Basin 7 Run 9 Leak 3 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 10

Incident: 05

Incident Location: 1613 11th St

Lat: 45.34581 **Long:** 122.59300

Upstream Manhole: 12409

Lat: **Long:**

Downstream Manhole: 13666

Lat: 45.35505 **Long:** 122.59280

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspout and from ground near mailbox.



Basin 7 Run 10 Leak 1 A

Basin: Basin 7

Run: 10

Incident: 05

Incident Location: 1613 11th St

Lat: 45.34581 **Long:** 122.59300

Upstream Manhole: 12409

Lat: **Long:**

Downstream Manhole: 13666

Lat: 45.35505 **Long:** 122.59280

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspout and from ground near mailbox.



Basin 7 Run 10 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 10

Incident: 06

Incident Location: 1108 Taylor

Lat: 45.35511 **Long:** 122.59330

Upstream Manhole: 10116 **Lat:** 45.35490 **Long:** 122.59367

Downstream Manhole: 10114 **Lat:** 45.35561 **Long:** 122.59295

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: D, T

Observations:

Comments: Landscaping at front of house on both sides of sidewalk.



Basin 7 Run 10 Leak 2 B

Basin: Basin 7

Run: 10

Incident: 06

Incident Location: 1108 Taylor

Lat: 45.35511 **Long:** 122.59330

Upstream Manhole: 10116 **Lat:** 45.35490 **Long:** 122.59367

Downstream Manhole: 10114 **Lat:** 45.35561 **Long:** 122.59295

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: D, T

Observations:

Comments: Landscaping at front of house on both sides of sidewalk.



Basin 7 Run 10 Leak 2 A

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 10

Incident: 07

Incident Location: 1014 Taylor

Lat: 45.35457 **Long:** 122.59388

Upstream Manhole: 13918

Lat: 45.35446 **Long:** 122.59410

Downstream Manhole: 10116

Lat: 45.35490 **Long:** 122.59367

Result: Positive

Leak Source: Cracked Concrete

Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments:



Basin 7 Run 10 Leak 3 A

Basin: Basin 7

Run: 10

Incident: 07

Incident Location: 1014 Taylor

Lat: 45.35457 **Long:** 122.59388

Upstream Manhole: 13918

Lat: 45.35446 **Long:** 122.59410

Downstream Manhole: 10116

Lat: 45.35490 **Long:** 122.59367

Result: Positive

Leak Source: Cracked Concrete

Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments:



Basin 7 Run 10 Leak 3 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 14

Incident: 08

Incident Location: 1001 JQ Adams

Lat: 45.35665 **Long:** 122.59846

Upstream Manhole: 10094

Lat: 45.35700 **Long:** 122.59797

Downstream Manhole: 13913

Lat: 45.35646 **Long:** 122.59848

Result: Positive

Leak Source: Service Lateral

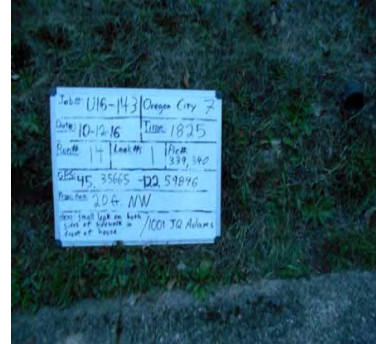
Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from open pipe, unsure if it is a lateral or some sort of cleanout.



Basin 7 Run 14 Leak 1 A

Basin: Basin 7

Run: 14

Incident: 08

Incident Location: 1001 JQ Adams

Lat: 45.35665 **Long:** 122.59846

Upstream Manhole: 10094

Lat: 45.35700 **Long:** 122.59797

Downstream Manhole: 13913

Lat: 45.35646 **Long:** 122.59848

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from open pipe, unsure if it is a lateral or some sort of cleanout.



Basin 7 Run 14 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 17

Incident: 09

Incident Location: 909 Pierce

Lat: 45.35363 **Long:** 122.59424

Upstream Manhole: 13635

Lat: 45.35363 **Long:** 122.59424

Downstream Manhole: 10319

Lat: 45.35409 **Long:** 122.59380

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at NE corner of house.



Basin 7 Run 17 Leak 1 A

Basin: Basin 7

Run: 17

Incident: 09

Incident Location: 909 Pierce

Lat: 45.35363 **Long:** 122.59424

Upstream Manhole: 13635

Lat: 45.35363 **Long:** 122.59424

Downstream Manhole: 10319

Lat: 45.35409 **Long:** 122.59380

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at NE corner of house.



Basin 7 Run 17 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 17

Incident: 09

Incident Location: 909 Pierce

Lat: 45.35363 **Long:** 122.59424

Upstream Manhole: 13635 **Lat:** 45.35363 **Long:** 122.59424

Downstream Manhole: 10319 **Lat:** 45.35409 **Long:** 122.59380

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at NE corner of house.



Basin 7 Run 17 Leak 1 C

Basin: Basin 7

Run: 17

Incident: 09

Incident Location: 909 Pierce

Lat: 45.35363 **Long:** 122.59424

Upstream Manhole: 13635 **Lat:** 45.35363 **Long:** 122.59424

Downstream Manhole: 10319 **Lat:** 45.35409 **Long:** 122.59380

Result: Positive **Leak Source:** Downspout

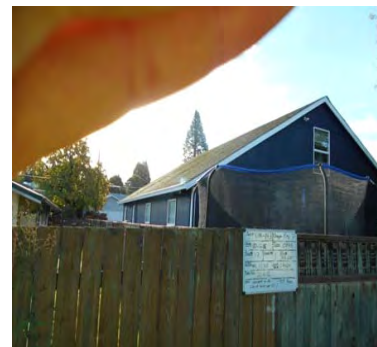
Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at NE corner of house.



Basin 7 Run 17 Leak 1 D

Oregon City Smoke Test Incidents



Basin: Basin 7 **Run:** 18

Incident: 10

Incident Location: 914 Jackson

Lat: 45.35591 **Long:** 122.59788

Upstream Manhole: 14803 **Lat:** 45.35602 **Long:** 122.59766

Downstream Manhole: 13085 **Lat:** 45.35571 **Long:** 122.59808

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at SW side of house.



Basin 7 Run 18 Leak 1 A

Basin: Basin 7 **Run:** 18

Incident: 10

Incident Location: 914 Jackson

Lat: 45.35591 **Long:** 122.59788

Upstream Manhole: 14803 **Lat:** 45.35602 **Long:** 122.59766

Downstream Manhole: 13085 **Lat:** 45.35571 **Long:** 122.59808

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at SW side of house.



Basin 7 Run 18 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 18

Incident: 11

Incident Location: 915 Jackson

Lat: 45.35577 **Long:** 122.59826

Upstream Manhole: 13085

Lat: 45.35571 **Long:** 122.59808

Downstream Manhole: 13066

Lat: **Long:**

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments:



Basin 7 Run 18 Leak 2 A

Basin: Basin 7

Run: 18

Incident: 11

Incident Location: 915 Jackson

Lat: 45.35577 **Long:** 122.59826

Upstream Manhole: 13085

Lat: 45.35571 **Long:** 122.59808

Downstream Manhole: 13066

Lat: **Long:**

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments:



Basin 7 Run 18 Leak 2 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 19

Incident: 12

Incident Location: 908 Jackson

Lat: 45.35542 **Long:** 122.59808

Upstream Manhole: 13713 **Lat:** 45.35531 **Long:** 122.59841

Downstream Manhole: 13085 **Lat:** 45.35571 **Long:** 122.59808

Result: Positive **Leak Source:** Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke from ground in line with service lateral.



Basin 7 Run 19 Leak 1 B

Basin: Basin 7

Run: 19

Incident: 12

Incident Location: 908 Jackson

Lat: 45.35542 **Long:** 122.59808

Upstream Manhole: 13713 **Lat:** 45.35531 **Long:** 122.59841

Downstream Manhole: 13085 **Lat:** 45.35571 **Long:** 122.59808

Result: Positive **Leak Source:** Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke from ground in line with service lateral.



Basin 7 Run 19 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 21

Incident: 13

Incident Location: 805 Taylor

Lat: 45.35328 **Long:** 122.59564

Upstream Manhole: 13922

Lat: **Long:**

Downstream Manhole: 13091

Lat: 45.35362 **Long:** 122.59615

Result: Positive

Leak Source: Main Sewer

Leak Type: RWL, CB

Leak Size: C

Leak Surface Cover: PB, CD

Observations:

Comments: Several issues going on in this section. Downspout and catch basin cross connected.



Basin 7 Run 21 Leak 1 A

Basin: Basin 7

Run: 21

Incident: 13

Incident Location: 805 Taylor

Lat: 45.35328 **Long:** 122.59564

Upstream Manhole: 13922

Lat: **Long:**

Downstream Manhole: 13091

Lat: 45.35362 **Long:** 122.59615

Result: Positive

Leak Source: Main Sewer

Leak Type: RWL, CB

Leak Size: C

Leak Surface Cover: PB, CD

Observations:

Comments: Several issues going on in this section. Downspout and catch basin cross connected.



Basin 7 Run 21 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 21

Incident: 14

Incident Location: 805 Taylor

Lat: 45.35328 **Long:** 122.59564

Upstream Manhole: 13922

Lat: **Long:**

Downstream Manhole: 13091

Lat: 45.35362 **Long:** 122.59615

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: CD

Observations:

Comments: Smoke from cracks between road and wall.



Basin 7 Run 21 Leak 2 A

Basin: Basin 7

Run: 21

Incident: 14

Incident Location: 805 Taylor

Lat: 45.35328 **Long:** 122.59564

Upstream Manhole: 13922

Lat: **Long:**

Downstream Manhole: 13091

Lat: 45.35362 **Long:** 122.59615

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: CD

Observations:

Comments: Smoke from cracks between road and wall.



Basin 7 Run 21 Leak 2 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 21

Incident: 15

Incident Location: 805 Taylor

Lat: 45.35328 **Long:** 122.59564

Upstream Manhole: 13922

Lat: **Long:**

Downstream Manhole: 13091

Lat: 45.35362 **Long:** 122.59615

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: A, E

Observations:

Comments: Smoke from bushes and edge of wall.



Basin 7 Run 21 Leak 3 A

Basin: Basin 7

Run: 21

Incident: 15

Incident Location: 805 Taylor

Lat: 45.35328 **Long:** 122.59564

Upstream Manhole: 13922

Lat: **Long:**

Downstream Manhole: 13091

Lat: 45.35362 **Long:** 122.59615

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: A, E

Observations:

Comments: Smoke from bushes and edge of wall.



Basin 7 Run 21 Leak 3 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 27

Incident: 16

Incident Location: 724 Van Buren

Lat: 45.35383 **Long:** 122.59808

Upstream Manhole: 13096 **Lat:** 45.35364 **Long:** 122.59747

Downstream Manhole: 13092 **Lat:** 45.35408 **Long:** 122.59830

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspouts appear to be cross connected



Basin 7 Run 27 Leak 1 A

Basin: Basin 7

Run: 27

Incident: 16

Incident Location: 724 Van Buren

Lat: 45.35383 **Long:** 122.59808

Upstream Manhole: 13096 **Lat:** 45.35364 **Long:** 122.59747

Downstream Manhole: 13092 **Lat:** 45.35408 **Long:** 122.59830

Result: Positive **Leak Source:** Downspout

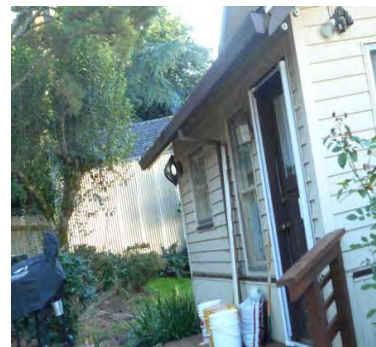
Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspouts appear to be cross connected



Basin 7 Run 27 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 29

Incident: 17

Incident Location: 432 Division

Lat: 45.35151 **Long:** 122.59552

Upstream Manhole: 13174

Lat: 45.35169 **Long:** 122.59601

Downstream Manhole: 13103

Lat: **Long:**

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspouts appear to be cross connected



Basin 7 Run 29 Leak 1 B

Basin: Basin 7

Run: 29

Incident: 17

Incident Location: 432 Division

Lat: 45.35151 **Long:** 122.59552

Upstream Manhole: 13174

Lat: 45.35169 **Long:** 122.59601

Downstream Manhole: 13103

Lat: **Long:**

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspouts appear to be cross connected



Basin 7 Run 29 Leak 1 A

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 30

Incident: 18

Incident Location:

Lat:

Long:

Upstream Manhole: 13288

Lat: 45.35130 **Long:** 122.59328

Downstream Manhole: 13109

Lat: 45.35131 **Long:** 122.59402

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Storm drain NE of MH 13109.



Basin 7 Run 30 Leak 1 A

Basin: Basin 7

Run: 30

Incident: 18

Incident Location:

Lat:

Long:

Upstream Manhole: 13288

Lat: 45.35130 **Long:** 122.59328

Downstream Manhole: 13109

Lat: 45.35131 **Long:** 122.59402

Result: Positive

Leak Source: Storm Drain

Leak Type: CB

Leak Size: E

Leak Surface Cover: A

Observations:

Comments: Storm drain NE of MH 13109.



Basin 7 Run 30 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7 **Run:** 30

Incident: 19

Incident Location: 519 Willamette

Lat: 45.35126 **Long:** 122.59393

Upstream Manhole: 13288 **Lat:** 45.35130 **Long:** 122.59328

Downstream Manhole: 13109 **Lat:** 45.35131 **Long:** 122.59402

Result: Positive **Leak Source:** Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke from yard. Unknown source



Basin 7 Run 30 Leak 2 A

Basin: Basin 7 **Run:** 30

Incident: 19

Incident Location: 519 Willamette

Lat: 45.35126 **Long:** 122.59393

Upstream Manhole: 13288 **Lat:** 45.35130 **Long:** 122.59328

Downstream Manhole: 13109 **Lat:** 45.35131 **Long:** 122.59402

Result: Positive **Leak Source:** Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Smoke from yard. Unknown source



Basin 7 Run 30 Leak 2 B

Oregon City Smoke Test Incidents



Basin: Basin 7 **Run:** 30

Incident: 20

Incident Location: 115 Warren

Lat: 45.35130 **Long:** 122.59447

Upstream Manhole: 13104 **Lat:** **Long:**
Downstream Manhole: 13109 **Lat:** 45.35131 **Long:** 122.59402

Result: Positive **Leak Source:** Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from underneath new deck. Possibly a covered manhole?



Basin 7 Run 30 Leak 3 A

Basin: Basin 7 **Run:** 30

Incident: 20

Incident Location: 115 Warren

Lat: 45.35130 **Long:** 122.59447

Upstream Manhole: 13104 **Lat:** **Long:**
Downstream Manhole: 13109 **Lat:** 45.35131 **Long:** 122.59402

Result: Positive **Leak Source:** Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Smoke from underneath new deck. Possibly a covered manhole?



Basin 7 Run 30 Leak 3 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 31

Incident: 21

Incident Location: 418 Willamette

Lat: 45.35092 **Long:** 122.59595

Upstream Manhole: 12977

Lat: 45.35091 **Long:** 122.59637

Downstream Manhole: 12978

Lat: 45.35092 **Long:** 122.59492

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Smoke from catch basins. Cross connection observed



Basin 7 Run 31 Leak 1 A

Basin: Basin 7

Run: 31

Incident: 21

Incident Location: 418 Willamette

Lat: 45.35092 **Long:** 122.59595

Upstream Manhole: 12977

Lat: 45.35091 **Long:** 122.59637

Downstream Manhole: 12978

Lat: 45.35092 **Long:** 122.59492

Result: Positive

Leak Source: Storm Drain

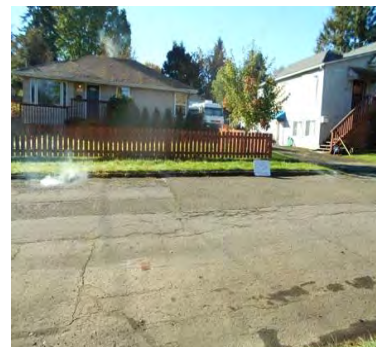
Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Smoke from catch basins. Cross connection observed



Basin 7 Run 31 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 32

Incident: 22

Incident Location: 158 Warren

Lat: 45.34988 **Long:** 122.59489

Upstream Manhole: 13102

Lat: 45.34978 **Long:** 122.59484

Downstream Manhole: 13133

Lat: 45.34995 **Long:** 122.59483

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from drain, porch and downspout.



Basin 7 Run 32 Leak 1 A

Basin: Basin 7

Run: 32

Incident: 22

Incident Location: 158 Warren

Lat: 45.34988 **Long:** 122.59489

Upstream Manhole: 13102

Lat: 45.34978 **Long:** 122.59484

Downstream Manhole: 13133

Lat: 45.34995 **Long:** 122.59483

Result: Positive

Leak Source: Downspout

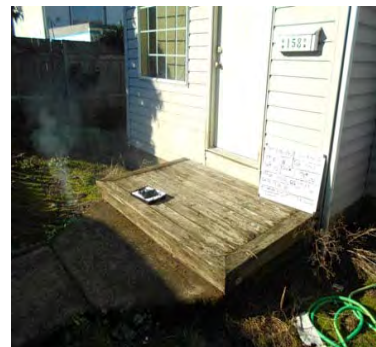
Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from drain, porch and downspout.



Basin 7 Run 32 Leak 1 B

Oregon City Smoke Test Incidents



Basin: Basin 7

Run: 32

Incident: 23

Incident Location: 505 Roosevelt

Lat: 45.34972 **Long:** 122.59473

Upstream Manhole: 13102 **Lat:** 45.34978 **Long:** 122.59484

Downstream Manhole: 13133 **Lat:** 45.34995 **Long:** 122.59483

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at SW corner.



Basin 7 Run 32 Leak 2 B

Basin: Basin 7

Run: 32

Incident: 23

Incident Location: 505 Roosevelt

Lat: 45.34972 **Long:** 122.59473

Upstream Manhole: 13102 **Lat:** 45.34978 **Long:** 122.59484

Downstream Manhole: 13133 **Lat:** 45.34995 **Long:** 122.59483

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at SW corner.



Basin 7 Run 32 Leak 2 A

Smoke Test Incidents Report Basin 8A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 02

Incident: 01

Incident Location: 1318 Madison

Lat: 45.35994 **Long:** 122.59744

Upstream Manhole: 10158

Lat: 45.36009 **Long:** 122.59740

Downstream Manhole: 12403

Lat: 45.35981 **Long:** 122.59773

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: B

Leak Surface Cover: E

Observations:

Comments: Multiple leaks along lateral.



Basin 8a Run 2 Leak 1 B

Basin: Basin 8A

Run: 02

Incident: 01

Incident Location: 1318 Madison

Lat: 45.35994 **Long:** 122.59744

Upstream Manhole: 10158

Lat: 45.36009 **Long:** 122.59740

Downstream Manhole: 12403

Lat: 45.35981 **Long:** 122.59773

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: B

Leak Surface Cover: E

Observations:

Comments: Multiple leaks along lateral.



Basin 8a Run 2 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 04

Incident: 02

Incident Location: NE side of 1005 13th St

Lat: 45.35915 **Long:** 122.59695

Upstream Manhole: 10148

Lat: 45.35911 **Long:** 122.59710

Downstream Manhole: 10147

Lat: 45.35963 **Long:** 122.29658

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Unknown type, coming from sidewalk.



Basin 8a Run 4 Leak 1 B

Basin: Basin 8A

Run: 04

Incident: 02

Incident Location: NE side of 1005 13th St

Lat: 45.35915 **Long:** 122.59695

Upstream Manhole: 10148

Lat: 45.35911 **Long:** 122.59710

Downstream Manhole: 10147

Lat: 45.35963 **Long:** 122.29658

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Unknown type, coming from sidewalk.



Basin 8a Run 4 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 05

Incident: 03

Incident Location: 1510 JQ Adams

Lat: 45.36029 **Long:** 122.59431

Upstream Manhole: 10794

Lat: 45.36048 **Long:** 122.59431

Downstream Manhole: 10123

Lat: 45.35999 **Long:** 122.59493

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspout on SW side of 1511 JQ Adams



Basin 8a Run 5 Leak 1 B

Basin: Basin 8A

Run: 05

Incident: 03

Incident Location: 1510 JQ Adams

Lat: 45.36029 **Long:** 122.59431

Upstream Manhole: 10794

Lat: 45.36048 **Long:** 122.59431

Downstream Manhole: 10123

Lat: 45.35999 **Long:** 122.59493

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspout on SW side of 1511 JQ Adams



Basin 8a Run 5 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 06

Incident: 04

Incident Location: 1320 JQ Adams

Lat: 45.35910 **Long:** 122.59582

Upstream Manhole: 10139

Lat: 45.35872 **Long:** 122.59625

Downstream Manhole: 10138

Lat: 45.35918 **Long:** 122.59556

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Unknown type and source, smoke coming from holes inground under bushes



Basin 8a Run 6 Leak 1 B

Basin: Basin 8A

Run: 06

Incident: 04

Incident Location: 1320 JQ Adams

Lat: 45.35910 **Long:** 122.59582

Upstream Manhole: 10139

Lat: 45.35872 **Long:** 122.59625

Downstream Manhole: 10138

Lat: 45.35918 **Long:** 122.59556

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: T

Observations:

Comments: Unknown type and source, smoke coming from holes inground under bushes



Basin 8a Run 6 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 09

Incident: 05

Incident Location: 1205 15th

Lat: 45.35955 **Long:** 122.59370

Upstream Manhole: 10125

Lat: 45.35925 **Long:** 122.59341

Downstream Manhole: 10124

Lat: 45.35958 **Long:** 122.59409

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout located at front of house (front door)



Basin 8a Run 9 Leak 1 A

Basin: Basin 8A

Run: 09

Incident: 05

Incident Location: 1205 15th

Lat: 45.35955 **Long:** 122.59370

Upstream Manhole: 10125

Lat: 45.35925 **Long:** 122.59341

Downstream Manhole: 10124

Lat: 45.35958 **Long:** 122.59409

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout located at front of house (front door)



Basin 8a Run 9 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A **Run:** 10

Incident: 06

Incident Location: 1616 Jackson

Lat: 45.36082 **Long:** 122.59331

Upstream Manhole: 11358 **Lat:** 45.36032 **Long:** 122.59331

Downstream Manhole: 11357 **Lat:** 45.36104 **Long:** 122.59247

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspout at NE side.



Basin 8a Run 10 Leak 1 B

Basin: Basin 8A **Run:** 10

Incident: 06

Incident Location: 1616 Jackson

Lat: 45.36082 **Long:** 122.59331

Upstream Manhole: 11358 **Lat:** 45.36032 **Long:** 122.59331

Downstream Manhole: 11357 **Lat:** 45.36104 **Long:** 122.59247

Result: Positive **Leak Source:** Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspout at NE side.



Basin 8a Run 10 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 10

Incident: 07

Incident Location: 1608 Jackson

Lat: 45.36049 **Long:** 122.59300

Upstream Manhole: 11358 **Lat:** 45.36032 **Long:** 122.59331

Downstream Manhole: 11357 **Lat:** 45.36104 **Long:** 122.59247

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspouts on front of house and on SW side of house both smoking.



Basin 8a Run 10 Leak 2 B

Basin: Basin 8A

Run: 10

Incident: 07

Incident Location: 1608 Jackson

Lat: 45.36049 **Long:** 122.59300

Upstream Manhole: 11358 **Lat:** 45.36032 **Long:** 122.59331

Downstream Manhole: 11357 **Lat:** 45.36104 **Long:** 122.59247

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspouts on front of house and on SW side of house both smoking.



Basin 8a Run 10 Leak 2 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 11

Incident: 08

Incident Location: 1616 Van Buren

Lat: 45.36029 **Long:** 122.59184

Upstream Manhole: 11360 **Lat:** 45.36040 **Long:** 122.39197

Downstream Manhole: 11359 **Lat:** 45.36030 **Long:** 122.59192

Result: Negative **Leak Source:** N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: PB

Observations:

Comments: No smoke from 13732 to 12913 possible sump pump system.



Basin 8a Run 11 Leak 1 A

Basin: Basin 8A

Run: 11

Incident: 08

Incident Location: 1616 Van Buren

Lat: 45.36029 **Long:** 122.59184

Upstream Manhole: 11360 **Lat:** 45.36040 **Long:** 122.39197

Downstream Manhole: 11359 **Lat:** 45.36030 **Long:** 122.59192

Result: Negative **Leak Source:** N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: PB

Observations:

Comments: No smoke from 13732 to 12913 possible sump pump system.



Basin 8a Run 11 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 14

Incident: 09

Incident Location: 1508 Polk

Lat: 45.35871 **Long:** 122.59124

Upstream Manhole: 13076

Lat: 45.35871 **Long:** 122.59124

Downstream Manhole: 10129

Lat: 45.35820 **Long:** 122.59168

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Smoke from stormwater catch basin



Basin 8a Run 14 Leak 1 B

Basin: Basin 8A

Run: 14

Incident: 09

Incident Location: 1508 Polk

Lat: 45.35871 **Long:** 122.59124

Upstream Manhole: 13076

Lat: 45.35871 **Long:** 122.59124

Downstream Manhole: 10129

Lat: 45.35820 **Long:** 122.59168

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Smoke from stormwater catch basin



Basin 8a Run 14 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 18

Incident: 10

Incident Location: 1501 16th (16th + Polk)

Lat: 45.35908 **Long:** 122.59073

Upstream Manhole: 10162

Lat: **Long:**

Downstream Manhole: 10161

Lat: 45.35907 **Long:** 122.59081

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Storm drain at E corner of intersection.



Basin 8a Run 18 Leak 1 A

Basin: Basin 8A

Run: 18

Incident: 10

Incident Location: 1501 16th (16th + Polk)

Lat: 45.35908 **Long:** 122.59073

Upstream Manhole: 10162

Lat: **Long:**

Downstream Manhole: 10161

Lat: 45.35907 **Long:** 122.59081

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Storm drain at E corner of intersection.



Basin 8a Run 18 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 11

Incident Location: 1701 16th (16th + Pierce)

Lat: 45.35839 **Long:** 122.58891

Upstream Manhole: 10066 **Lat:** 45.35784 **Long:** 122.58836

Downstream Manhole: 12390 **Lat:** 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Storm drain at E corner of 16th + Pierce.



Basin 8a Run 19 Leak 1 B

Basin: Basin 8A

Run: 19

Incident: 11

Incident Location: 1701 16th (16th + Pierce)

Lat: 45.35839 **Long:** 122.58891

Upstream Manhole: 10066 **Lat:** 45.35784 **Long:** 122.58836

Downstream Manhole: 12390 **Lat:** 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Storm Drain

Leak Type: MHC ST

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Storm drain at E corner of 16th + Pierce.



Basin 8a Run 19 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 12

Incident Location: 1611 Pierce

Lat: 45.35860 **Long:** 122.58942

Upstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Downstream Manhole: 18024

Lat: 45.35870 **Long:** 122.59012

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at S corner of 1611 Pierce.



Basin 8a Run 19 Leak 2 B

Basin: Basin 8A

Run: 19

Incident: 12

Incident Location: 1611 Pierce

Lat: 45.35860 **Long:** 122.58942

Upstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Downstream Manhole: 18024

Lat: 45.35870 **Long:** 122.59012

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at S corner of 1611 Pierce.



Basin 8a Run 19 Leak 2 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 13

Incident Location: 1701 16th (16th + Pierce)

Lat: 45.35839 **Long:** 122.58929

Upstream Manhole: 10066 **Lat:** 45.35784 **Long:** 122.58836

Downstream Manhole: 12390 **Lat:** 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Sidewalk crack at E corner of 16th + Pierce. Unknown Source



Basin 8a Run 19 Leak 3 B

Basin: Basin 8A

Run: 19

Incident: 13

Incident Location: 1701 16th (16th + Pierce)

Lat: 45.35839 **Long:** 122.58929

Upstream Manhole: 10066 **Lat:** 45.35784 **Long:** 122.58836

Downstream Manhole: 12390 **Lat:** 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Sidewalk crack at E corner of 16th + Pierce. Unknown Source



Basin 8a Run 19 Leak 3 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 14

Incident Location: 1701 16th (16th +Pierce)

Lat: 45.35839 **Long:** 122.58929

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Sidewalk crack at E corner of 16th + Pierce. Unknown Source



Basin 8a Run 19 Leak 4 B

Basin: Basin 8A

Run: 19

Incident: 14

Incident Location: 1701 16th (16th +Pierce)

Lat: 45.35839 **Long:** 122.58929

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Cracked Concrete

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Sidewalk crack at E corner of 16th + Pierce. Unknown Source



Basin 8a Run 19 Leak 4 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 15

Incident Location: 1716 16th

Lat: 45.35795 **Long:** 122.58873

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: D, E

Observations:

Comments: Suspected service lateral smoking.



Basin 8a Run 19 Leak 5 B

Basin: Basin 8A

Run: 19

Incident: 15

Incident Location: 1716 16th

Lat: 45.35795 **Long:** 122.58873

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Service Lateral

Leak Type: SC

Leak Size: A

Leak Surface Cover: D, E

Observations:

Comments: Suspected service lateral smoking.



Basin 8a Run 19 Leak 5 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 16

Incident Location: 1716 16th St

Lat: 45.35775 **Long:** 122.58892

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspout



Basin 8a Run 19 Leak 6 A

Basin: Basin 8A

Run: 19

Incident: 16

Incident Location: 1716 16th St

Lat: 45.35775 **Long:** 122.58892

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspout



Basin 8a Run 19 Leak 6 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8A

Run: 19

Incident: 17

Incident Location: 1714 16th St

Lat: 45.35781 **Long:** 122.58884

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from downspout



Basin 8a Run 19 Leak 7 A

Basin: Basin 8A

Run: 19

Incident: 17

Incident Location: 1714 16th St

Lat: 45.35781 **Long:** 122.58884

Upstream Manhole: 10066

Lat: 45.35784 **Long:** 122.58836

Downstream Manhole: 12390

Lat: 45.35834 **Long:** 122.58936

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Smoke from downspout



Basin 8a Run 19 Leak 7 B

Smoke Test Incidents Report Basin 8B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 01

Incident: 01

Incident Location: 420 Dewey St

Lat: 45.35824 **Long:** 122.59555

Upstream Manhole: 13114

Lat: 45.34824 **Long:** 122.59565

Downstream Manhole: 11505

Lat: 45.34822 **Long:** 122.59471

Result: Positive

Leak Source: Catch Basin

Leak Type: CB

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Catch basin at SE corner of Dewey St. + Irving St.



Basin 8B Run 1 Leak 1 B

Basin: Basin 8B

Run: 01

Incident: 01

Incident Location: 420 Dewey St

Lat: 45.35824 **Long:** 122.59555

Upstream Manhole: 13114

Lat: 45.34824 **Long:** 122.59565

Downstream Manhole: 11505

Lat: 45.34822 **Long:** 122.59471

Result: Positive

Leak Source: Catch Basin

Leak Type: CB

Leak Size: D

Leak Surface Cover: A

Observations:

Comments: Catch basin at SE corner of Dewey St. + Irving St.



Basin 8B Run 1 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 04

Incident: 02

Incident Location: 151 Warren St

Lat: 45.35022 **Long:** 122.59454

Upstream Manhole: 13599

Lat: 45.35034 **Long:** 122.59457

Downstream Manhole: 13108

Lat: 45.35031 **Long:** 122.59380

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at NE corner of house.



Basin 8B Run 4 Leak 1 A

Basin: Basin 8B

Run: 04

Incident: 02

Incident Location: 151 Warren St

Lat: 45.35022 **Long:** 122.59454

Upstream Manhole: 13599

Lat: 45.35034 **Long:** 122.59457

Downstream Manhole: 13108

Lat: 45.35031 **Long:** 122.59380

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: PB

Observations:

Comments: Downspout at NE corner of house.



Basin 8B Run 4 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 05

Incident: 03

Incident Location: 532 Willamette St

Lat: 45.35031 **Long:** 122.59360

Upstream Manhole: 11510

Lat: 45.35097 **Long:** 122.59390

Downstream Manhole: 11519

Lat: 45.35096 **Long:** 122.59300

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Hole on edge of sidewalk at NE corner of property. Unknown Source



Basin 8B Run 5 Leak 1 A

Basin: Basin 8B

Run: 05

Incident: 03

Incident Location: 532 Willamette St

Lat: 45.35031 **Long:** 122.59360

Upstream Manhole: 11510

Lat: 45.35097 **Long:** 122.59390

Downstream Manhole: 11519

Lat: 45.35096 **Long:** 122.59300

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Hole on edge of sidewalk at NE corner of property. Unknown Source



Basin 8B Run 5 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 06

Incident: 04

Incident Location: 636 Division St

Lat: 45.35159 **Long:** 122.59145

Upstream Manhole: 11515

Lat: 45.35165 **Long:** 122.59196

Downstream Manhole: 11516

Lat: 45.35163 **Long:** 122.59115

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Smoke from ground, Unknown Source. Likely service lateral



Basin 8B Run 6 Leak 1 A

Basin: Basin 8B

Run: 06

Incident: 04

Incident Location: 636 Division St

Lat: 45.35159 **Long:** 122.59145

Upstream Manhole: 11515

Lat: 45.35165 **Long:** 122.59196

Downstream Manhole: 11516

Lat: 45.35163 **Long:** 122.59115

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Smoke from ground, Unknown Source. Likely service lateral



Basin 8B Run 6 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 06

Incident: 05

Incident Location: 628 Division

Lat: 45.35165 **Long:** 122.59180

Upstream Manhole: 11515

Lat: 45.35165 **Long:** 122.59196

Downstream Manhole: 11516

Lat: 45.35163 **Long:** 122.59115

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Smoke from ground, Unknown Source. Likely service lateral



Basin 8B Run 6 Leak 2 A

Basin: Basin 8B

Run: 06

Incident: 05

Incident Location: 628 Division

Lat: 45.35165 **Long:** 122.59180

Upstream Manhole: 11515

Lat: 45.35165 **Long:** 122.59196

Downstream Manhole: 11516

Lat: 45.35163 **Long:** 122.59115

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: B

Leak Surface Cover: D

Observations:

Comments: Smoke from ground, Unknown Source. Likely service lateral



Basin 8B Run 6 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 07

Incident: 06

Incident Location: 1805 9th St

Lat: 45.35266 **Long:** 122.59258

Upstream Manhole: 11493

Lat: 45.35266 **Long:** 122.59328

Downstream Manhole: 11492

Lat: 45.35249 **Long:** 122.59280

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspout at E corner.



Basin 8B Run 7 Leak 1 B

Basin: Basin 8B

Run: 07

Incident: 06

Incident Location: 1805 9th St

Lat: 45.35266 **Long:** 122.59258

Upstream Manhole: 11493

Lat: 45.35266 **Long:** 122.59328

Downstream Manhole: 11492

Lat: 45.35249 **Long:** 122.59280

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Downspout at E corner.



Basin 8B Run 7 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 08

Incident: 07

Incident Location: 749 Division St

Lat: 45.35226 **Long:** 122.58923

Upstream Manhole: 11514 **Lat:** 45.35192 **Long:** 122.58972

Downstream Manhole: 11427 **Lat:** 45.35232 **Long:** 122.58897

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Water meter access panel.



Basin 8B Run 8 Leak 1 B

Basin: Basin 8B

Run: 08

Incident: 07

Incident Location: 749 Division St

Lat: 45.35226 **Long:** 122.58923

Upstream Manhole: 11514 **Lat:** 45.35192 **Long:** 122.58972

Downstream Manhole: 11427 **Lat:** 45.35232 **Long:** 122.58897

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Water meter access panel.



Basin 8B Run 8 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 08

Incident: 08

Incident Location: 741 Division St

Lat: 45.35213 **Long:** 122.58949

Upstream Manhole: 11514 **Lat:** 45.35192 **Long:** 122.58972

Downstream Manhole: 11427 **Lat:** 45.35232 **Long:** 122.58897

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Water meter access panel.



Basin 8B Run 8 Leak 2 A

Basin: Basin 8B

Run: 08

Incident: 08

Incident Location: 741 Division St

Lat: 45.35213 **Long:** 122.58949

Upstream Manhole: 11514 **Lat:** 45.35192 **Long:** 122.58972

Downstream Manhole: 11427 **Lat:** 45.35232 **Long:** 122.58897

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: A

Leak Surface Cover: D

Observations:

Comments: Water meter access panel.



Basin 8B Run 8 Leak 2 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 09

Incident: 09

Incident Location: 1203 Division St

Lat: 45.35312 **Long:** 122.58891

Upstream Manhole: 10062 **Lat:** 45.35312 **Long:** 122.58963

Downstream Manhole: 12908 **Lat:** 45.35292 **Long:** 122.58844

Result: Positive

Leak Source: Smoke inside

Leak Type: O

Leak Size: A

Leak Surface Cover: PB

Observations:

Comments: Smoke coming from crawl space.



Basin 8B Run 9 Leak 1 A

Basin: Basin 8B

Run: 09

Incident: 09

Incident Location: 1203 Division St

Lat: 45.35312 **Long:** 122.58891

Upstream Manhole: 10062 **Lat:** 45.35312 **Long:** 122.58963

Downstream Manhole: 12908 **Lat:** 45.35292 **Long:** 122.58844

Result: Positive

Leak Source: Smoke inside

Leak Type: O

Leak Size: A

Leak Surface Cover: PB

Observations:

Comments: Smoke coming from crawl space.



Basin 8B Run 9 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 12

Incident: 10

Incident Location: 1208 Grant St

Lat: 45.35427 **Long:** 122.58912

Upstream Manhole: 10061

Lat: 45.35418 **Long:** 122.58926

Downstream Manhole: 12393

Lat: 45.35463 **Long:** 122.58876

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Smoke from ground, Unknown Source.



Basin 8B Run 12 Leak 1 A

Basin: Basin 8B

Run: 12

Incident: 10

Incident Location: 1208 Grant St

Lat: 45.35427 **Long:** 122.58912

Upstream Manhole: 10061

Lat: 45.35418 **Long:** 122.58926

Downstream Manhole: 12393

Lat: 45.35463 **Long:** 122.58876

Result: Positive

Leak Source: Smoking Ground

Leak Type: O

Leak Size: A

Leak Surface Cover: G

Observations:

Comments: Smoke from ground, Unknown Source.



Basin 8B Run 12 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 14

Incident: 11

Incident Location: 1901 14th St

Lat: 45.35624 **Long:** 122.58936

Upstream Manhole: 10057

Lat: 45.35613 **Long:** 122.58937

Downstream Manhole: 10172

Lat: 45.35635 **Long:** 122.58984

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspouts



Basin 8B Run 14 Leak 1 A

Basin: Basin 8B

Run: 14

Incident: 11

Incident Location: 1901 14th St

Lat: 45.35624 **Long:** 122.58936

Upstream Manhole: 10057

Lat: 45.35613 **Long:** 122.58937

Downstream Manhole: 10172

Lat: 45.35635 **Long:** 122.58984

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspouts



Basin 8B Run 14 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 16

Incident: 12

Incident Location: 1713 14th St

Lat: 45.35672 **Long:** 122.59021

Upstream Manhole: 10174

Lat: 45.35658 **Long:** 122.59017

Downstream Manhole: 10122

Lat: 45.35686 **Long:** 122.59081

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspouts



Basin 8B Run 16 Leak 1 A

Basin: Basin 8B

Run: 16

Incident: 12

Incident Location: 1713 14th St

Lat: 45.35672 **Long:** 122.59021

Upstream Manhole: 10174

Lat: 45.35658 **Long:** 122.59017

Downstream Manhole: 10122

Lat: 45.35686 **Long:** 122.59081

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspouts



Basin 8B Run 16 Leak 1 B

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 8B

Run: 17

Incident: 13

Incident Location: 1601 15th St

Lat: 45.35806 **Long:** 122.59065

Upstream Manhole: 10179

Lat: 45.35794 **Long:** 122.58975

Downstream Manhole: 10129

Lat: 45.35820 **Long:** 122.59164

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspouts



Basin 8B Run 17 Leak 1 B

Basin: Basin 8B

Run: 17

Incident: 13

Incident Location: 1601 15th St

Lat: 45.35806 **Long:** 122.59065

Upstream Manhole: 10179

Lat: 45.35794 **Long:** 122.58975

Downstream Manhole: 10129

Lat: 45.35820 **Long:** 122.59164

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: D

Leak Surface Cover: PB

Observations:

Comments: Smoke from Downspouts



Basin 8B Run 17 Leak 1 A

Smoke Test Incidents Report Basin 9

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 9

Run: 14

Incident: 01

Incident Location: 19419 Provisioner Ln

Lat: 45.32408 **Long:** 122.60146

Upstream Manhole: 10327 **Lat:** 45.32415 **Long:** 122.60188

Downstream Manhole: 11742 **Lat:** 45.32391 **Long:** 122.60109

Result: Positive

Leak Source: Main Sewer

Leak Type: O

Leak Size: B

Leak Surface Cover: A

Observations:

Comments: MH 10325 has visible infiltration, leak source from ground water.



Basin 9 Run 14 Leak 1 B

Basin: Basin 9

Run: 14

Incident: 01

Incident Location: 19419 Provisioner Ln

Lat: 45.32408 **Long:** 122.60146

Upstream Manhole: 10327 **Lat:** 45.32415 **Long:** 122.60188

Downstream Manhole: 11742 **Lat:** 45.32391 **Long:** 122.60109

Result: Positive

Leak Source: Main Sewer

Leak Type: O

Leak Size: B

Leak Surface Cover: A

Observations:

Comments: MH 10325 has visible infiltration, leak source from ground water.



Basin 9 Run 14 Leak 1 A

Smoke Test Incidents Report Basin 10

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 10

Run: 03

Incident: 01

Incident Location: 19315 Whitney

Lat: 45.32684 **Long:** 122.59904

Upstream Manhole: 11917

Lat: 45.32777 **Long:** 122.59855

Downstream Manhole: 11921

Lat: 45.32628 **Long:** 122.59772

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: B

Leak Surface Cover: CD

Observations:

Comments: Two pipes in cement slab parking area NW of house.



Basin 10 Run 3 Leak 1 B

Basin: Basin 10

Run: 03

Incident: 01

Incident Location: 19315 Whitney

Lat: 45.32684 **Long:** 122.59904

Upstream Manhole: 11917

Lat: 45.32777 **Long:** 122.59855

Downstream Manhole: 11921

Lat: 45.32628 **Long:** 122.59772

Result: Positive

Leak Source: N/A

Leak Type: O

Leak Size: B

Leak Surface Cover: CD

Observations:

Comments: Two pipes in cement slab parking area NW of house.



Basin 10 Run 3 Leak 1 A

U16-143 Oregon City-Smoke Test

Smoke Test Incidents



Basin: Basin 10

Run: 14

Incident: 02

Incident Location: 13347 Eastborne Dr.

Lat: 45.32785 **Long:** 122.59181

Upstream Manhole: 11947

Lat: 45.32785 **Long:** 122.59181

Downstream Manhole: 11943

Lat: 45.32723 **Long:** 122.59261

Result: Positive

Leak Source: Downspout

Leak Type: RWL

Leak Size: C

Leak Surface Cover: T

Observations:

Comments: Old downspout connection in front yard near driveway + walkway.



Basin 10 Run 14 Leak 1 B

Basin: Basin 10

Run: 14

Incident: 02

Incident Location: 13347 Eastborne Dr.

Lat: 45.32785 **Long:** 122.59181

Upstream Manhole: 11947

Lat: 45.32785 **Long:** 122.59181

Downstream Manhole: 11943

Lat: 45.32723 **Long:** 122.59261

Result: Positive

Leak Source: Downspout

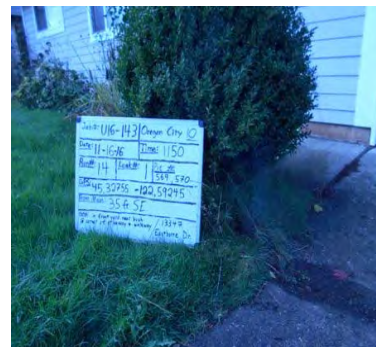
Leak Type: RWL

Leak Size: C

Leak Surface Cover: T

Observations:

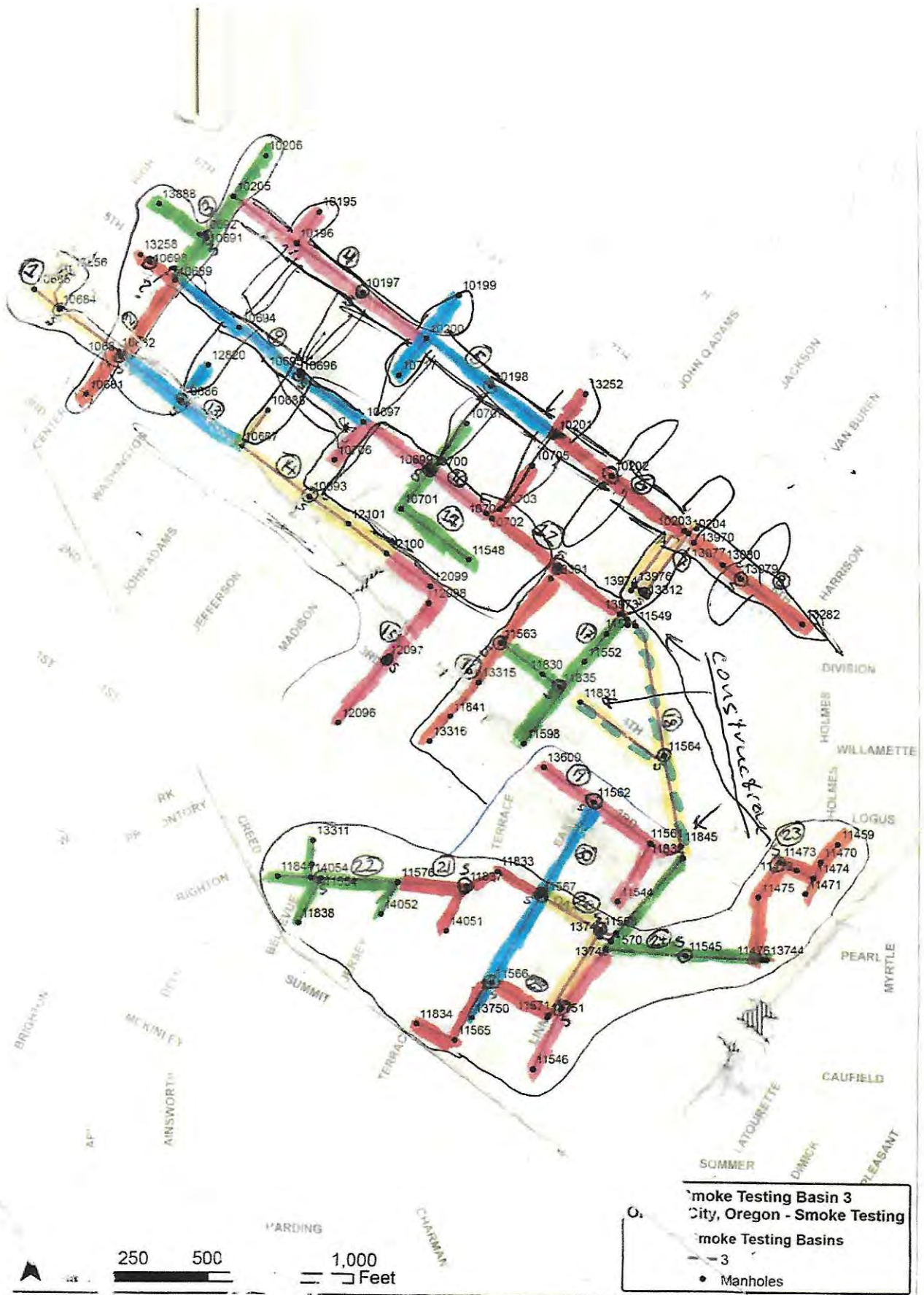
Comments: Old downspout connection in front yard near driveway + walkway.



Basin 10 Run 14 Leak 1 A

Attachment C: SFE Uninspected Sewer Data

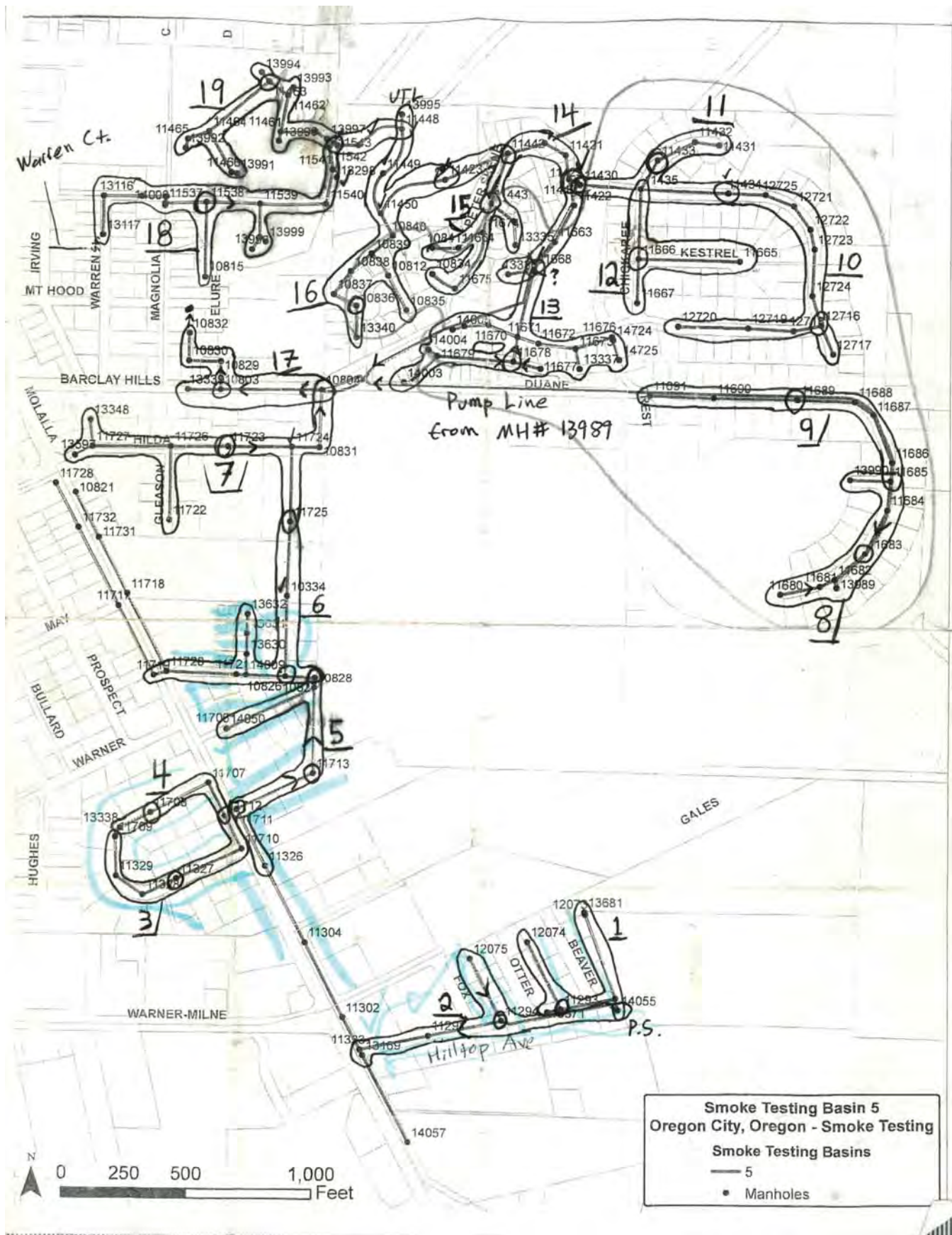






Smoke Testing Field Sheet

Run Info		Basin # <u>3</u>	
Time _____	Run Number <u>18</u>		
Date _____	Technician _____		
Project # <u>016-143</u>	GPS model _____		
Client <u>Oregon City</u>	Weather _____		
Smoker Location			
Lat _____	Manhole number _____		
Long _____			
Manhole # & GPS			
Start Manhole # <u>11549</u>	Lat _____	Finish Manhole # <u>11845</u>	Lat _____
Long _____	Long _____	Additional # <u>11831</u>	Long _____
Address		Address	
Start _____	Finish _____	Additional 1 _____	
Leak Report			
Leak # _____	Address _____		GPS Coordinates
			Lat _____
Basin # _____			Long _____
Run # _____			
Upstream MH _____	➡	GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____	➡	GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____			
Leak Source _____	Picture # _____		
Surface Cover _____	Picture Time _____		
Comments			





Smoke Testing Field Sheet

Run Info		Basin # <u>5</u>	
Time _____	Run Number <u>20</u>		
Date _____	Technician _____		
Project # <u>V16-143</u>	GPS model _____		
Client <u>Oregon City</u>	Weather _____		
Smoker Location			
Lat _____	Manhole number _____		
Long _____			
Manhole # & GPS			
Start Manhole # <u>10821</u>	Lat _____	Finish Manhole # <u>11720</u>	Lat _____
	Long _____		Long _____
Address		Address	
Start _____	Finish _____	Additional # _____	Additional 1 _____
Leak Report			
Leak # _____	Address _____		GPS Coordinates
			Lat _____
Basin # _____			Long _____
Run # _____			
Upstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____			
Leak Source _____	Picture # _____		
Surface Cover _____	Picture Time _____		
Comments			



Smoke Testing Field Sheet

Run Info		Basin # <u>5</u>	
Time _____	Date _____	Run Number <u>21</u>	Technician _____
Project # <u>016-143</u>		GPS model _____	
Client <u>Oregon City</u>		Weather _____	
Smoker Location Lat _____		Manhole number _____	
Long _____			
Manhole # & GPS			
Start Manhole # <u>11728</u>	Lat _____	Finish Manhole # <u>11719</u>	Lat _____
Long _____	Long _____	Additional # _____	Lat _____
Long _____	Long _____	Long _____	Long _____
Address		Address	
Start _____	Finish _____	Additional 1 _____	Additional 1 _____
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____		Picture # _____	
Leak Source _____		Picture Time _____	
Surface Cover _____			
Comments			



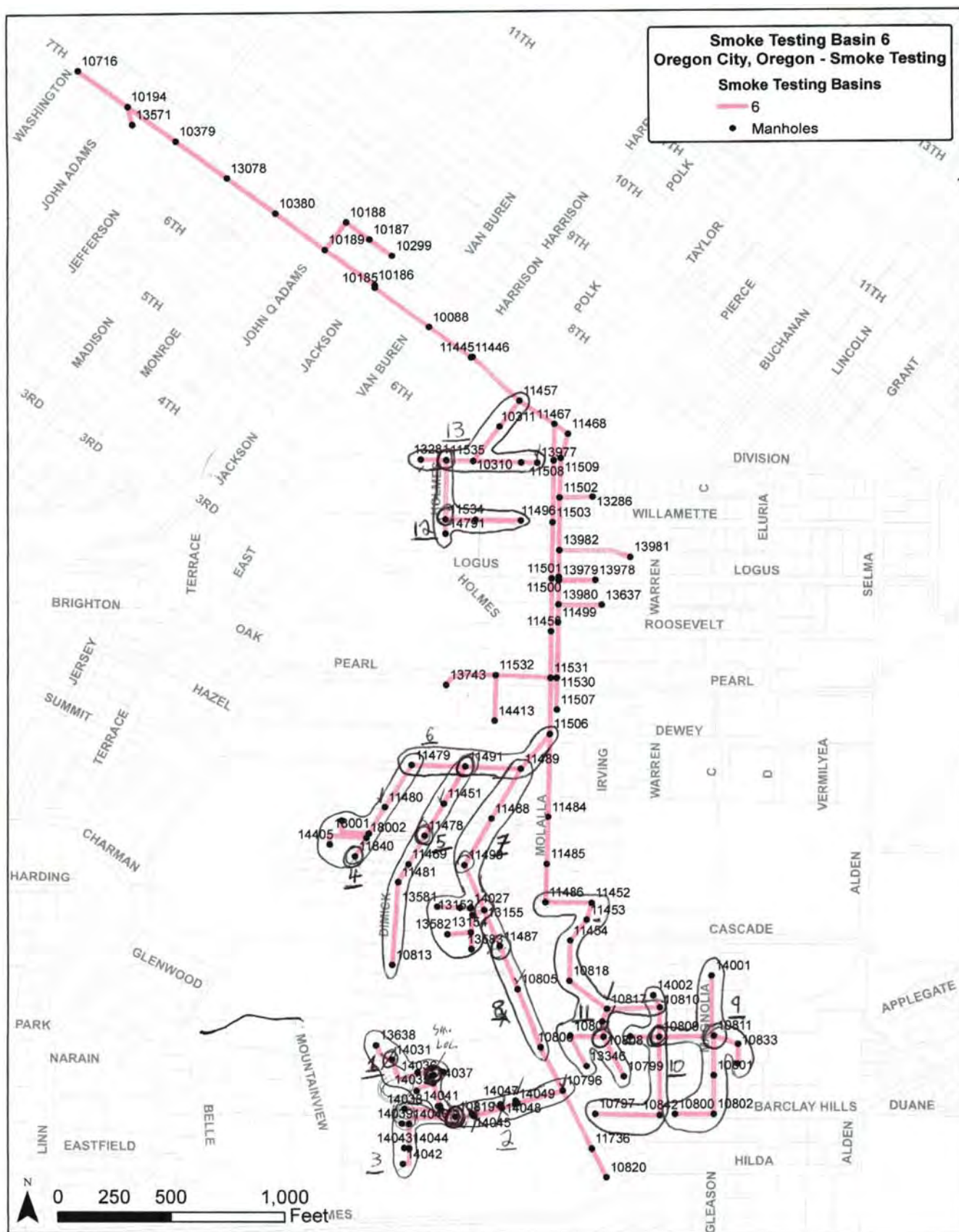
Smoke Testing Field Sheet

Run Info		Basin # <u>5</u>	
Time _____	Run Number <u>22</u>		
Date _____	Technician _____		
Project # <u>U16-143</u>	GPS model _____		
Client <u>Oregon City</u>	Weather _____		
Smoker Location			
Lat _____	Manhole number _____		
Long _____			
Manhole # & GPS			
Start Manhole # <u>11326</u>	Lat _____	Finish Manhole # <u>11333</u>	Lat _____
Long _____	Long _____	Additional # _____	Lat _____
Long _____	Long _____	Long _____	Long _____
Address		Address	
Start _____	Finish _____	Additional 1 _____	Additional 1 _____
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____			
Leak Source _____	Picture # _____		
Surface Cover _____	Picture Time _____		
Comments			



Smoke Testing Field Sheet

Run Info		Basin # <u>5</u>	
Time	_____	Run Number	<u>23</u>
Date	_____	Technician	_____
Project #	<u>Y16-143</u>	GPS model	_____
Client	<u>Oregon City</u>	Weather	_____
Smoker Location		Manhole number _____	
Lat	_____		
Long	_____		
Manhole # & GPS		Additional #	
Start Manhole #	Lat	Finish Manhole #	Lat
<u>11333</u>	_____	<u>14057</u>	_____
Long	_____	Long	_____
Address		Address	
Start	_____	Finish	_____
		Address	
		Additional 1 _____	
Leak Report			
Leak #	_____	Address	_____ → GPS Coordinates
			Lat _____
Basin #	_____		Long _____
Run #	_____		
Upstream MH	_____ →	GPS Coordinates	
		Lat	_____
		Long	_____
Downstream MH	_____ →	GPS Coordinates	
		Lat	_____
		Long	_____
Leak Type	_____	Picture #	_____
Leak Source	_____	Picture Time	_____
Surface Cover	_____		
Comments			





Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____	_____	Run Number <u>14</u>	_____
Date _____	_____	Technician _____	_____
Project # _____	<u>V16-143</u>	GPS model _____	_____
Client _____	<u>Oregon City</u>	Weather _____	_____
Smoker Location			
Lat _____	_____	Manhole number _____	_____
Long _____	_____		
Manhole # & GPS			
Start Manhole # <u>10716</u>	Lat _____	Finish Manhole # <u>10380</u>	Lat _____
Long _____	_____	Long _____	_____
Additional # _____	Long _____		
Address		Address	
Start _____	_____	Finish _____	_____
Additional 1 _____			
Leak Report			
Leak # _____	_____	Address _____	<div style="text-align: center;">➔</div> GPS Coordinates Lat _____ Long _____
Basin # _____	_____		
Run # _____	_____		
Upstream MH _____	_____	<div style="text-align: center;">➔</div> GPS Coordinates Lat _____ Long _____	_____
Downstream MH _____	_____	<div style="text-align: center;">➔</div> GPS Coordinates Lat _____ Long _____	_____
Leak Type _____	_____		
Leak Source _____	_____	Picture # _____	_____
Surface Cover _____	_____	Picture Time _____	_____
Comments			



Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____	Run Number <u>15</u>		
Date _____	Technician _____		
Project # <u>016-143</u>	GPS model _____		
Client <u>Oregon City</u>	Weather _____		
Smoker Location			
Lat _____	Manhole number _____		
Long _____			
Manhole # & GPS			
Start Manhole # <u>10380</u>	Lat _____	Finish Manhole # <u>11446</u>	Lat _____
Long _____	Long _____	Additional # _____	Long _____
Address		Address	
Start _____	Finish _____	Additional 1 _____	
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____		Picture # _____	
Leak Source _____		Picture Time _____	
Surface Cover _____			
Comments			



Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____	Date _____	Run Number <u>16</u>	
Project # <u>U16-143</u>		Technician _____	
Client <u>Oregon City</u>		GPS model _____	
		Weather _____	
Smoker Location		Manhole number _____	
Lat _____	Long _____		
Manhole # & GPS			
Start Manhole # <u>11446</u>	Lat _____	Finish Manhole # <u>11496</u>	Lat _____
	Long _____		Long _____
		Additional # <u>13286</u>	Lat _____
			Long _____
Address		Address	
Start _____	Finish _____	Additional 1 _____	
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____		Picture # _____	
Leak Source _____		Picture Time _____	
Surface Cover _____			
Comments			



Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____		Run Number <u>17</u>	
Date _____		Technician _____	
Project # _____	<u>U16-143</u>	GPS model _____	
Client _____	<u>Oregon City</u>	Weather _____	
Smoker Location			
Lat _____		Manhole number _____	
Long _____			
Manhole # & GPS			
Start Manhole # _____	Lat _____	Finish Manhole # _____	Lat _____
<u>11496</u>	Long _____	<u>11531</u>	Long _____
		Additional # <u>13743</u>	Lat _____
		Long _____	
Address		Address	
Start _____		Finish _____	
		Additional 1 _____	
Leak Report			
Leak # _____	Address _____		GPS Coordinates
			Lat _____
Basin # _____			Long _____
Run # _____			
Upstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____		Picture # _____	
Leak Source _____		Picture Time _____	
Surface Cover _____			
Comments <u>add. 14413</u>			



Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____	Run Number <u>18</u>		
Date _____	Technician _____		
Project # <u>U16-143</u>	GPS model _____		
Client <u>Oregon City</u>	Weather _____		
Smoker Location		Manhole number _____	
Lat _____	Long _____		
Manhole # & GPS			
Start Manhole # <u>11531</u>	Lat _____	Finish Manhole # <u>11486</u>	Lat _____
	Long _____		Long _____
Address		Address	
Start _____	Finish _____	Additional # _____	Lat _____
		Additional 1 _____	Long _____
Leak Report			
Leak # _____	Address _____		GPS Coordinates
			Lat _____
Basin # _____			Long _____
Run # _____			
Upstream MH _____	➔	GPS Coordinates	
	Lat _____		
	Long _____		
Downstream MH _____	➔	GPS Coordinates	
	Lat _____		
	Long _____		
Leak Type _____			
Leak Source _____	Picture # _____		
Surface Cover _____	Picture Time _____		
Comments			



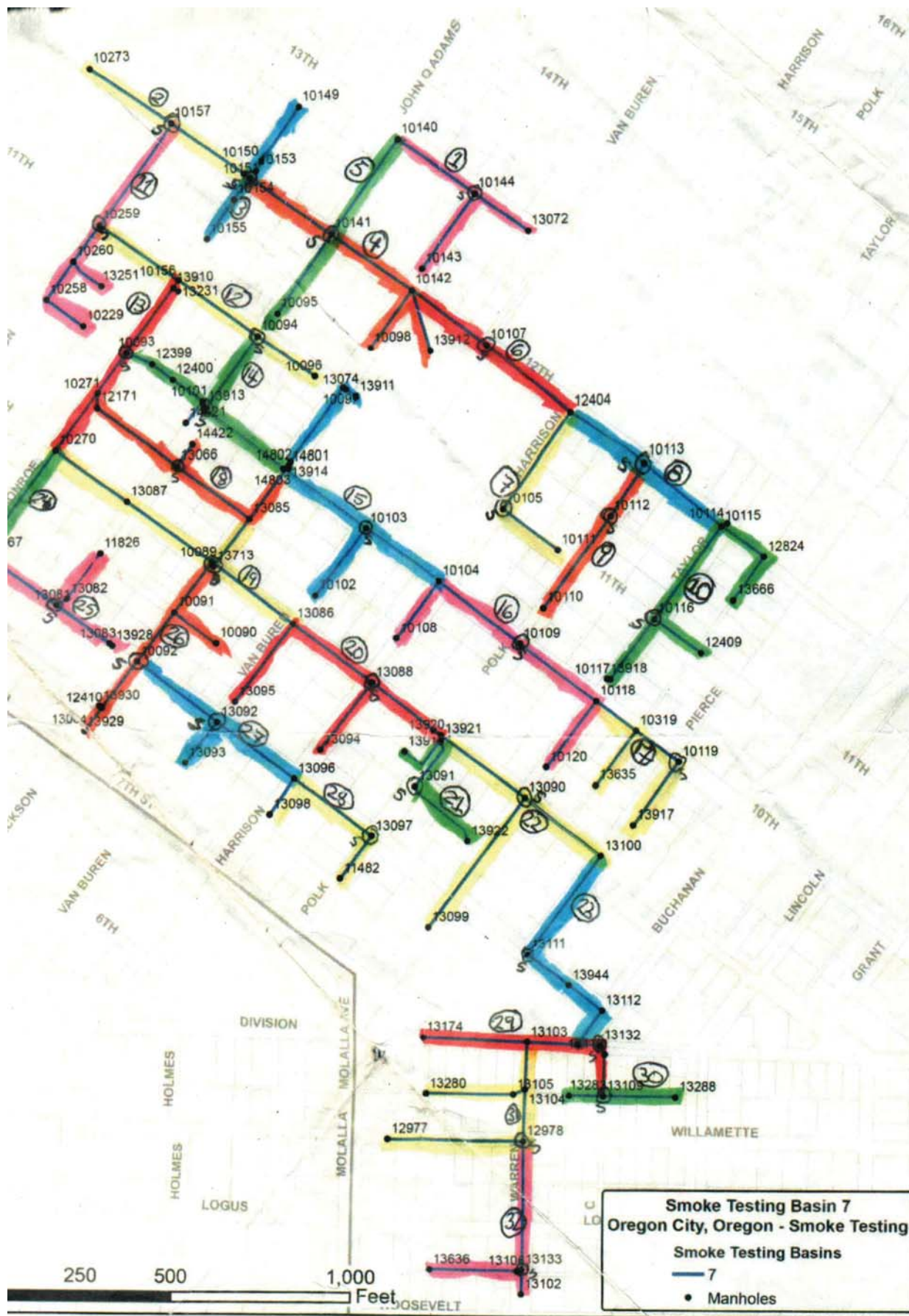
Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____		Run Number <u>19</u>	
Date _____		Technician _____	
Project # <u>U16-143</u>		GPS model _____	
Client <u>Oregon City</u>		Weather _____	
Smoker Location		Manhole number _____	
Lat _____			
Long _____			
Manhole # & GPS			
Start Manhole # <u>11502</u>	Lat _____	Finish Manhole # <u>11530</u>	Lat _____
	Long _____		Long _____
		Additional # <u>13981</u>	Lat _____
			Long _____
Address		Address	
Start _____		Finish _____	
		Additional 1 _____	
Leak Report			
Leak # _____	Address _____	➔	GPS Coordinates
			Lat _____
Basin # _____			Long _____
Run # _____			
Upstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____			
Leak Source _____		Picture # _____	
		Picture Time _____	
Surface Cover _____			
Comments <u>add. 13978</u>			
<u>13637</u>			
<u>11507</u>			



Smoke Testing Field Sheet

Run Info		Basin # <u>6</u>	
Time _____	_____	Run Number <u>20</u>	_____
Date _____	_____	Technician _____	_____
Project # _____	<u>U16-143</u>	GPS model _____	_____
Client _____	<u>Oregon City</u>	Weather _____	_____
Smoker Location			
Lat _____	Manhole number _____		_____
Long _____			
Manhole # & GPS			
Start Manhole # _____	Lat _____	Finish Manhole # _____	Lat _____
<u>10806</u>	Long _____	<u>10820</u>	Long _____
Address		Address	
Start _____	Finish _____	Additional # _____	Lat _____
		Additional 1 _____	Long _____
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____	➔	GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____	Picture # _____		
Leak Source _____	Picture Time _____		
Surface Cover _____			
Comments			





Smoke Testing Field Sheet

Run Info		Basin # <u>7</u>	
Time _____		Run Number <u>11 12</u>	
Date _____		Technician _____	
Project # _____	<u>U16-143</u>	GPS model _____	
Client _____	<u>Oregon City</u>	Weather _____	
Smoker Location			
Lat _____		Manhole number _____	
Long _____			
Manhole # & GPS			
Start Manhole # _____	Lat _____	Finish Manhole # _____	Lat _____
<u>13074</u>	Long _____	<u>10259</u>	Long _____
Address		Address	
Start _____		Finish _____	
		Address	
		Additional 1 _____	
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____		Picture # _____	
Leak Source _____		Picture Time _____	
Surface Cover _____			
Comments			



Smoke Testing Field Sheet

Run Info		Basin # <u>7</u>	
Time _____	Date _____	Run Number <u>12 13</u>	
Project # <u>016-143</u>		Technician _____	
Client <u>Oregon City</u>		GPS model _____	
		Weather _____	
Smoker Location			
Lat _____	Long _____	Manhole number _____	
Manhole # & GPS			
Start Manhole # <u>10270</u>	Lat _____	Finish Manhole # <u>13910</u>	Lat _____
	Long _____		Long _____
Additional # <u>13231</u>			
Address		Address	
Start _____		Finish _____	
		Additional 1 _____	
Leak Report			
Leak # _____	Address _____		GPS Coordinates
Basin # _____			Lat _____
Run # _____			Long _____
Upstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Downstream MH _____		GPS Coordinates	
		Lat _____	
		Long _____	
Leak Type _____		Picture # _____	
Leak Source _____		Picture Time _____	
Surface Cover _____			
Comments			